



Rail-Reach 900-6/500-8



Operator's Manual

Part no. RBRRM001
Revision 1 (December 2010)
Original Instructions (English)

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Introduction

This Operator's Manual has been compiled for the purposes of safe operation, maintenance and servicing of Rail-Ability components and systems.

For other operating details (e.g. Rail-Boss vehicle, road rail operations, rail gear, etc.) please refer to the publications listed in the Manuals section.

IMPORTANT

READ, UNDERSTAND AND OBEY THESE SAFETY RULES AND OPERATING INSTRUCTIONS BEFORE OPERATING THIS MACHINE.

ONLY TRAINED AND AUTHORISED PERSONNEL SHALL BE PERMITTED TO OPERATE THIS MACHINE.

THIS MANUAL SHOULD BE CONSIDERED A PERMANENT PART OF THIS MACHINE AND SHOULD REMAIN WITH THE MACHINE AT ALL TIMES.

SHOULD YOU HAVE ANY QUESTIONS, CONTACT RAIL-ABILITY LTD.

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Description & Intended Use

The Rail-Ability Rail-Reach machine consists of a road-going Chavtrac 410-2 4x4 ridged truck chassis, modified for use on rail by Rail-Ability Ltd, and then known as the Rail-Boss. The chassis is fitted with rail gear front and rear to enable rail work. Mounted to the rear of the chassis is an elevating work platform. The work platform can be operated from locations at the work platform, the king-post (high seat) and remotely at the rear of the chassis (optional). This configuration is often referred to as a Mobile Elevating Work Platform (MEWP).

The Rail-Reach is intended for use on both road wheels and rail to enable operators and personnel to undertake necessary maintenance work on overhead lines and structures forming part of the rail infrastructure.

The Rail-Reach complies with the provisions of the following EC Council Directives –

Machinery	2006/42/EC
Electromagnetic Compatibility (EMC)	2004/108/EC
Noise Emissions for Equipment used outdoors	2000/14/EC

Guidance has also been taken from European standard **EN 280:2001+A2:2009** and **PR EN 280:2009 *Mobile Elevating Work Platforms***.

For further compliance information, please refer to the EC Declaration of Conformity supplied with this machine.

Limitations

The use of this machine is limited to its intended use, as described above. If additional or special applications or uses are required which are not covered by this Operator's Manual, please contact Rail-Ability Ltd for further instructions and advice.

Operational and environmental limitations of the equipment are described in the Specifications section of this manual.

Manuals

Title	Part No.
Rail-Ability Rail-Reach Operator's Manual Edition – see coversee cover
Rail-Ability Rail-Reach Service Manual 1 st Edition RBRRMRMPS001
Rail-Ability Rail-Reach Parts Manual 1st Edition RBRRMP001
EMI Safety Manual 27581
Manual of Responsibilities ANSI A92.6-1990 44163
Rail-Ability Operator Manual Road Rail RAIL-BOSS Hybrid Host machine RB001
Rail-Ability Service Manual Road Rail RAIL-BOSS Hybrid Host machine RBRMPS001
RAIL-BOSS Operator and Service Manual 9801/7160
RAIL-BOSS Parts Book M830178

General Safety Rules



Danger

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

Do Not Operate Unless:

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

1. Avoid hazardous situations.

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

2. Always perform a Pre-operation Inspection.

3. Always perform function tests prior to use.

4. Inspect the workplace.

5. Only use the machine as it was intended.

- ✓ You read, understand and obey the manufacturer's instructions and safety rules, safety and operator's manuals and machine decals.
- ✓ You read, understand and obey the employer's safety rules and worksite regulations.
- ✓ You read, understand and obey all applicable governmental regulations.
- ✓ You are properly trained to safely operate the machine.

GENERAL SAFETY RULES

Electrocution Hazards

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

Maintain safe distances from electrical power lines and apparatus in accordance with the applicable governmental regulations and Figures 1 & 2 below. When in operation the machine must not be within 15 metres of a power line supported by metal towers or within 9 metres of a line supported by wooden poles.

OLE lines on rail are 25KV and require a minimum safe approach distance of 2.75 metres.

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

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

Do not operate the machine during lightning or storms.

Refer to Engineering Acceptance Certificate for live OLE limitations.

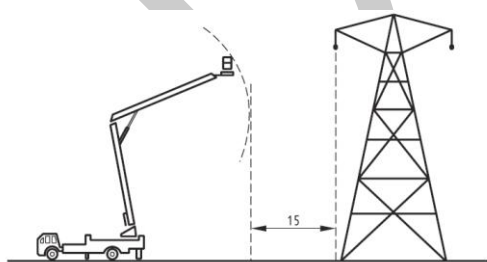


Figure 1 — Minimum safe distance from power lines mounted on steel towers in excess of 33 kV

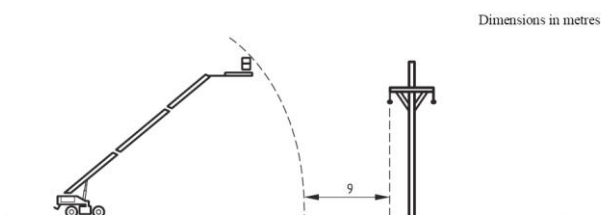


Figure 2 — Minimum safe distance from power lines mounted on poles up to 33 kV

Do not use the machine as a ground for welding unless the machine is equipped with the weld line to platform option and it is properly connected.

Tip-over Hazards

Occupants, equipment and materials must not exceed the maximum capacity of the work platform:

1st stage of telescopic boom extended only:

Maximum no. of occupants	Maximum platform capacity
4	900 kg

Possible load configurations in the work platform are as follows:

No. of occupants	Maximum weight of tools/materials
1	820 kg
2	740 kg
3	660 kg
4	580 kg

1st & 2nd stage of telescopic boom extended:

Maximum no. of occupants	Maximum platform capacity
4	500 kg

Possible load configurations in the work platform are as follows:

No. of occupants	Maximum weight of tools/materials
1	420 kg
2	340 kg
3	260 kg
4	180 kg

Do not depend on the tilt alarm as a level indicator. The tilt alarm sounds only when the machine is on a slope (Cant/Gradient).

If the tilt alarm (a low frequency buzzer) sounds :-

Use the corrective tilt function to adjust the angle of the king-post. Drive and boom functions will be locked out until the king-post is levelled. If the tilt alarm sounds when the platform is in the raised position, use caution when levelling the king-post.

Do not alter or disable the safety switches (e.g. limit & proximity switches).

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

DRAFT

GENERAL SAFETY RULES

Do not raise the boom when wind speeds may exceed 42 mph / 18.9 m/s. This corresponds to Force 8 on the Beaufort Wind Scale (fresh gale).

If wind speeds exceed 42 mph / 18.9 m/s when the boom is raised, lower the boom and cease operation immediately.

Do not operate the machine in strong or gusty winds.

Do not increase the surface area of the work platform or the load. Increasing the area exposed to the wind will decrease machine stability.

Always ensure the boom is stowed in the transport position and use extreme care and slow speeds while driving the machine in stowed position across uneven terrain, debris, unstable or slippery surfaces and near holes and drop-offs.

Do not drive the machine on temporary track, uneven or unstable track or other hazardous conditions with the platform raised.

Do not drive the machine on a slope that exceeds the slope and side slope rating of the machine. Slope rating applies to machines in the stowed position.

Maximum Slope rating, stowed position

Rail-Reach	3.0°
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Max. side Slope rating, stowed position

Rail-Reach	3.0°
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Note: Slope rating is subject to ground conditions and adequate traction.

Max. rail Cant rating, raised position

Rail-Reach	150mm (5.6°)
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Max. rail Gradient rating, raised position

Rail-Reach	1 in 25 (2.5°)
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Note: Cant and Gradient ratings are subject to being mounted on rail only.

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

Maximum allowable manual force

1000 N

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

Do not place or attach fixed or overhanging loads to any part of this machine. Do not place loads outside the work platform perimeter.

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

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

Do not modify or alter this machine without prior written permission from Rail-Ability Ltd.

Fitting attachments for holding tools or other materials onto the work platform, toe-boards or guard rail system can increase the weight in the platform and the surface area of the platform or the load.

Do not replace items critical to machine stability with items of different weight or specification. If in doubt, contact Rail-Ability Ltd.

Do not use the machine whilst mounted on another moving surface of a vehicle.

Ensure that all tyres are in good condition, wheel nuts (including rail wheels) are properly tightened and tyres are inflated to rated pressure (See the RBRMPS001 Manual and the Specifications section in this manual).

Do not use the elevating work platform structure or any part of the boom as a crane.

Do not push the machine or other objects with the work platform.

Do not contact adjacent structures or other vehicles with the work platform.

Do not tie the work platform to adjacent structures.

GENERAL SAFETY RULES

Fall Hazards

The work platform guard rails provide fall protection. Occupants of the work platform may be required to wear personal fall protection equipment (PFPE) due to job site or employer rules or governmental regulations. PFPE equipment and its use shall be in accordance with the PFPE manufacturer's instructions and applicable rules and regulations. Attach lanyards to the anchor points provided in the work platform.

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

Do not climb down from the work platform when it is raised.

Keep the work platform floor clear of debris.

Close and latch the work platform entry gate before operation.

Do not attempt to enter or exit the work platform when it is raised out of the stowed position.

Do not increase the working height or reach of the work platform (e.g. by use of step-ladders, etc.).

Always sit in the seat and fasten the seat-belt when operating the king-post controls.

Take care when on the vehicle deck (either when accessing the work platform or performing inspection or maintenance), particularly in wet or icy conditions.

Keep the vehicle deck clean and tidy. Remove or secure any loose equipment or tools that could fall off during transit or present a trip hazard.

Clean up any oil or other fluid spillages on the vehicle deck which could create a slippery surface.

Always use the steps and handholds provided when accessing and exiting the vehicle deck, work platform or king-post. Never climb onto the deck by other means or jump from the deck onto the ground.

Collision Hazards

Be aware of limited sight distance and blind spots when driving or operating the boom. Use a 'banksman' or machine controller when required.

Take care whilst travelling on rail, especially when the work platform is elevated.

Be aware of boom position and tail-swing when slewing.

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

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

Observe and use colour-coded direction arrows on the machine for drive functions.

Do not engage in stunt driving or horseplay whilst operating the machine.

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

Limit travel speed according to conditions, slope, location of personnel, and any other factors, which may cause collision.

Do not operate the machine in the path of any crane or other moving machinery unless the controls of that machinery have been locked out and/or precautions have been taken to prevent any potential collision. Use a 'banksman' or machine controller to alert the operator/driver when required.

Beware of slippery and limited traction conditions on rail. Braking distance can increase significantly in wet or icy conditions.

Always obey national traffic regulations whilst driving the vehicle on roads. Be aware of the vehicle's overall length, width and height.

GENERAL SAFETY RULES

Crushing Hazards

Keep hands and limbs away from moving parts of the machinery.

Use common sense and planning when operating the machine with a 'banksman' or controller from the ground. Maintain safe distances between the operator, the machine and fixed objects.

Component Damage Hazards

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

Do not use the machine as a ground for welding unless the machine is equipped with the Weld Line to Platform option and is properly connected.

Do not operate the machine with the covers or guards open/removed.

Explosion and Fire Hazards

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

Do not refuel the tank(s) when the engine is running.

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

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

Do not spray ether into engines equipped with glow plugs.

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

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

Damaged Machine Hazards

Do not use a damaged or malfunctioning machine.

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

Be sure all maintenance has been performed as specified in this manual, the Service Manual and other manuals.

Be sure all decals are in place and legible. See the Decals section of this manual.

Be sure the Operator's, Safety, and Responsibilities manuals are complete, legible and located on the machine.

If in doubt, contact Rail-Ability Ltd.

Bodily Injury Hazards

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

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

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

Always operate the machine in a well-ventilated area to avoid carbon monoxide poisoning.

All compartments must remain closed and secured during operation.

Burn Hazards

Batteries contain acid. Always wear protective clothing and eye wear when working with batteries. Avoid spilling or contacting battery acid. Neutralise battery acid spills with baking soda and water.

Do not expose batteries to water or rain.

GENERAL SAFETY RULES

Electrocution Hazards

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

Avoid contact with electrical terminals.

Inspect the Earth Bonding Straps daily.

Replace damaged straps before operating.

Earth bonding straps are fitted on the machine in the following positions:

- ✓ Between front & rear rail axles and chassis.
- ✓ Between the chassis and the sub-frame and from the sub-frame to the king-post.
- ✓ Between the king-post and boom, and between the boom and the work platform.

Earth bonding straps must be in place at all times and securely fastened.

Replace immediately if there are any signs of burning or damage.

Check impedance levels after refitting any straps.

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

Ensure a 'C Form' has been obtained before on tracking the machine in OLE areas.

Lifting Hazard

Use the appropriate number of people and proper lifting techniques when lifting batteries, drawbars, tools and other removable items.

Decal Legend

The decals on this machine use symbols, colour coding and signal words to identify the following:



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



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



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



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



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



Green – used to indicate operation or maintenance information.

Rail Safety Rules



On / Off-Tracking the Machine - general points

On/Off-Track the vehicle only at an approved access point.

Note – an approved access point is one of the following:

- Level crossing
- Yard where surface is level with the top of the rail
- Proprietary approved track access system with rail shields.
- Consolidated ballast to at least the underside of the railhead with rail shields.

The following hazards should also be addressed:

- Cant – not to exceed 150mm
- Ballast shoulder – high / low
- Deep cess / soft cess
- Drainage routes, troughing routes and other services/cables
- OHLE power cables.

Rail-Ability manual **SBOTP001** describes the correct procedures to be adopted for On-Tracking.

Travelling on the Rail

Machine travel position as follows:

- ✓ Rail Gear deployed fully.
- ✓ The work platform stowed in the fully lowered (transport) position.
- ✓ Platform gate closed and latched.
- ✓ King-post is levelled parallel with the chassis.
- ✓ MEWP system key-switch de-activated.

To ensure the machine is complying with the W6 gauge requirement, before travelling on rail, it is essential that the machine is configured as above to ensure overhead and line-side structures are not struck.

Failure to comply with these requirements may result in severe damage to the machine and/or the rail infrastructure.

RAIL SAFETY RULES

Emergency Off-Tracking

⚠ WARNING

EMERGENCY ON-TRACKING IS NOT COVERED IN THIS MANUAL AS THERE IS NO OCCASION WHEN THIS PROCEDURE WOULD BE CONDONED.

Emergency Off-Tracking however may be necessary at some point. It must be stressed that this is an **Emergency Procedure Only** and should **NOT** be used for normal operation. If you are asked to Off-Track using this method (at an unprepared location) without suitable justification you should report to your On-call Manager and ask his advice before attempting this manoeuvre. If there is real cause to use this method there are still certain procedures that must be followed:

- The Off-Tracking area must be inspected for its suitability as normal.
- An area where there are no obstructions should be selected. For example, there should be no conductor rail present, no high ballast shoulders and no obvious hazards.
- Emergency Off-Tracking must not be carried out on a cant.

In the event of a real emergency the procedure for Emergency Off-Tracking is as follows:

- Ensure the machine is configured for travel (boom fully stowed).
- Approach the Off-Tracking area at a safe speed.
- Sound the horn to alert personnel at the Off-Tracking area as you approach.
- Raise the front and rear rail gear fully.
- Deselect rail mode and steering lock.

- Slowly drive clear of the rail
- Move the machine at least 3 metres from the closest rail

When carrying out this operation always follow any hand signals given by a 'banksman' or machine controller and carry out all movements smoothly and at a safe speed.

Ensure you are clear of all obstructions.

Ensure the machine is configured to travel to avoid causing instability or a possible tip over situation occurring.

⚠ WARNING

THIS MANOEUVRE IS DANGEROUS AND MUST ONLY BE CARRIED OUT IN A REAL EMERGENCY.

When Off-Tracking, care must be taken when the machine manoeuvres off the railhead. Make certain that the rail bogies are raised up to the maximum height for travel.

'Grounding out' the machine, whilst the machine is travelling off rail may result in severe damage to the machine and/or infrastructure.

Legend

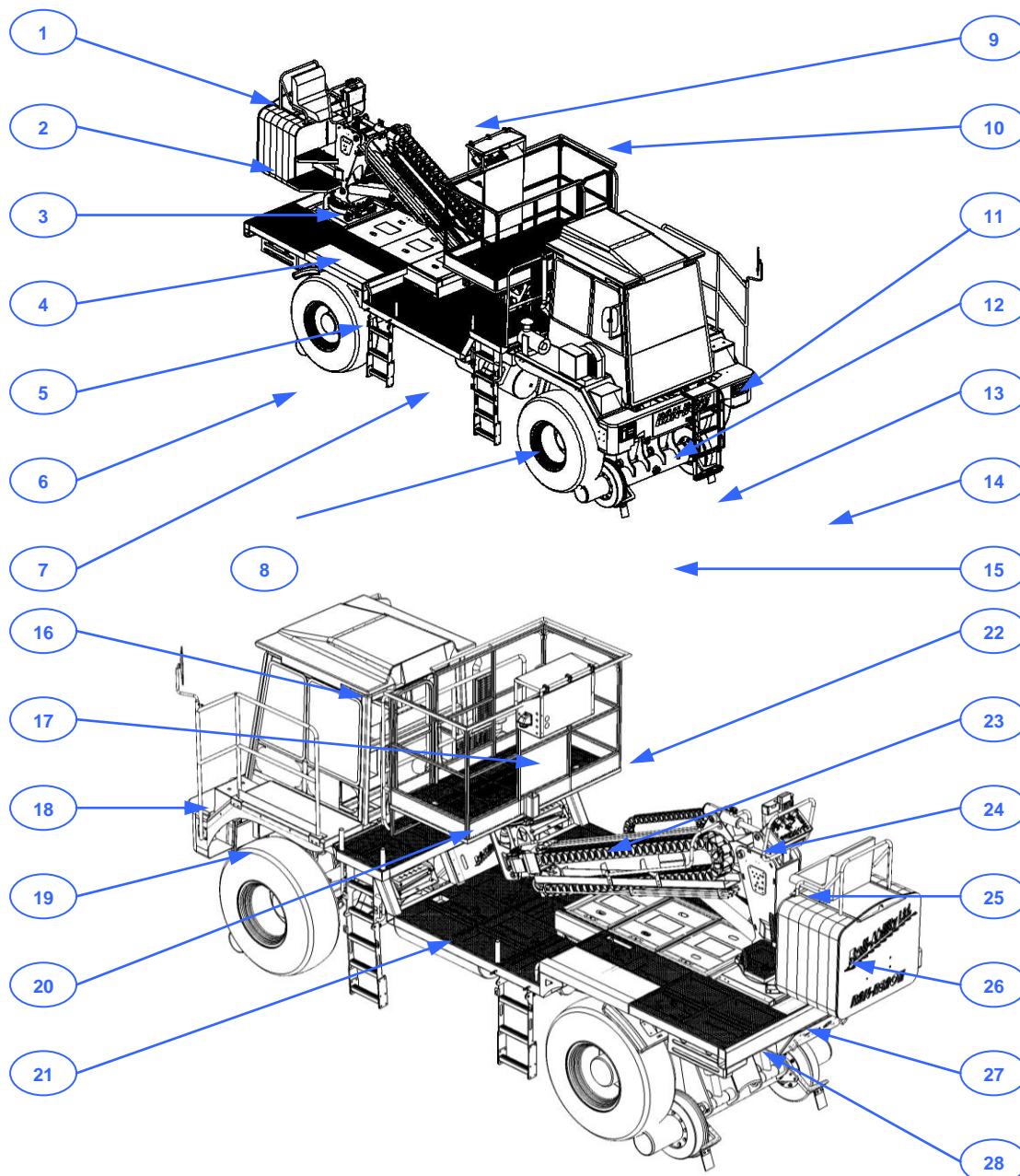


Figure 3 – Description of machine components

- | | | |
|--|---|---|
| 1. King-post | 11. Vehicle engine | 20. Work platform |
| 2. Slew unit | 12. Hydraulic tank | 21. Fuel tank |
| 3. Chassis access hatch | 13. Vehicle batteries | 22. Work platform access gate |
| 4. Chassis deck | 14. Tow bar | 23. Boom |
| 5. Access ladder | 15. Front rail gear | 24. King-post controls |
| 6. Rear road wheel (foam filled tyres) | 16. Vehicle cab | 25. Operator seat |
| 7. Fuel tank | 17. Auxiliary outlets at work platform | 26. Ballast weight |
| 8. Front Steering wheels | 18. Access steps to vehicle cab | 27. Connection for remote controls (optional) |
| 9. Work platform controls | 19. Front road wheel (air or foam filled tyres) | 28. Rear rail gear |

Controls

There are four main control positions on this machine, namely -

- In-Cab Controls
- King-post Controls
- Work Platform Controls
- Remote Controls (optional)

These controls are located on the machine as shown in Figure 4.

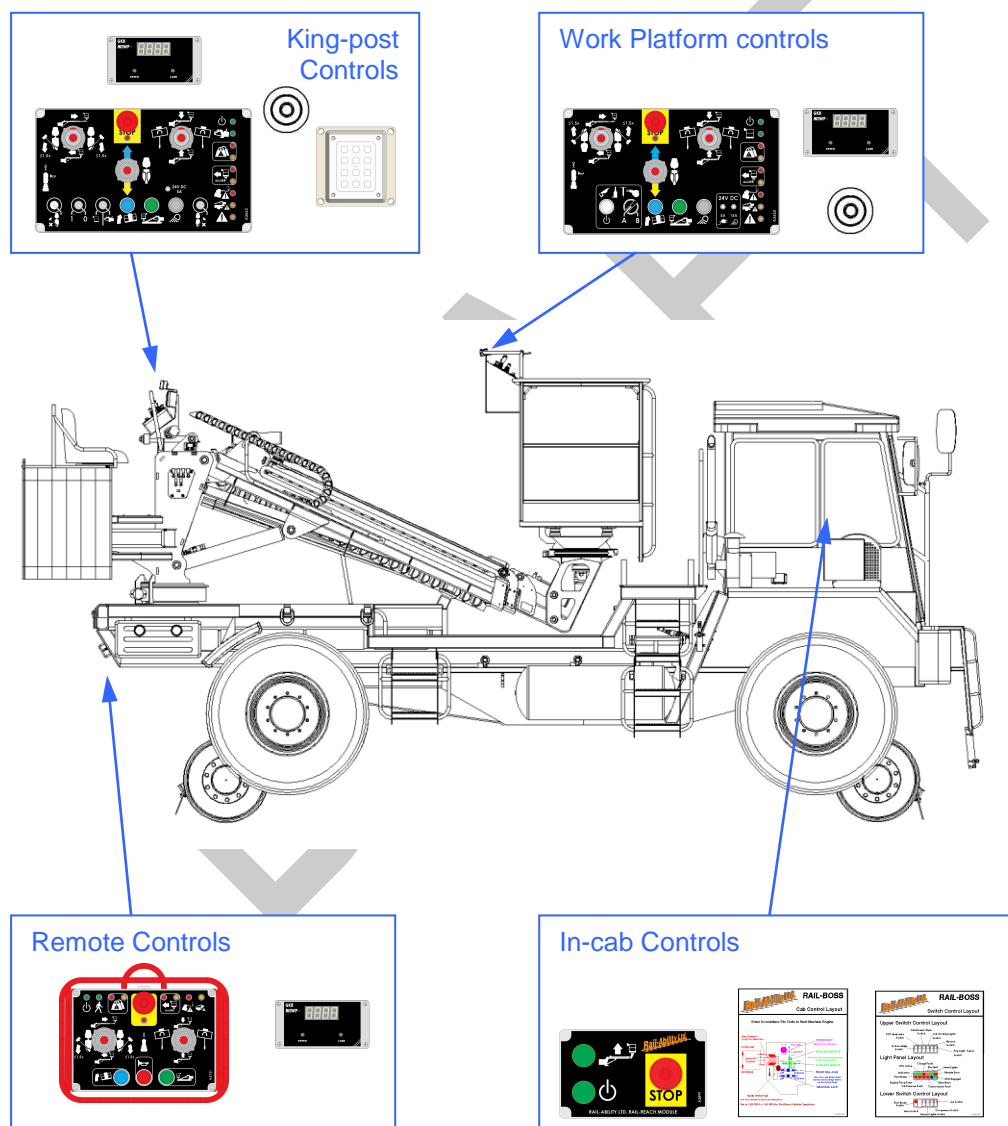


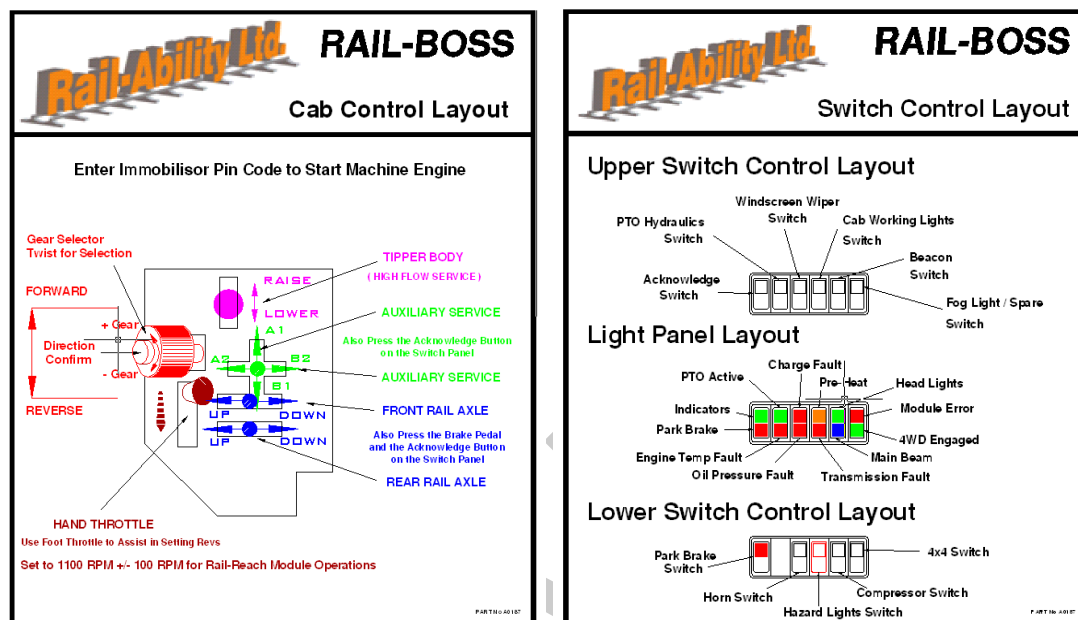
Figure 4 - Location of machine controls

The controls on each panel are identified on the following pages along with a description of their function.

CONTROLS

In-Cab Controls

Figure 5a - In-Cab Control Panels



Acknowledge switch

Pressing this switch activates the Rail Gear and low flow auxiliary hydraulic systems

PTO switch

Not used – MEWP mode automatically controls the Power Take Off (PTO).

Rail gear raise/lower lever

Moving the lever away lowers the rail gear. Moving the lever towards you raises the rail gear.

PTO indicator light (Green)

Illuminates when PTO is engaged.

Compressor switch

Activates the hydraulic powered compressor (note that the compressor does not run if the Acknowledge button is pressed to run other services)

Park Brake Switch

Pressing this switch activates the park brake (Note that if the park brake is not applied when the engine is switched off or when operating the machine from other control stations, the system will apply the park brake automatically. It will then be necessary to re-apply and release the park brake using this switch to reactivate the system.)

CONTROLS

In-Cab Controls (cont.)

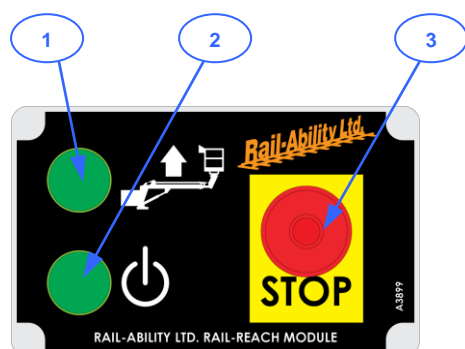


Figure 5b - In-Cab MEWP Control Panel

- | | | |
|--|--|--------------------------|
| 1. Boom not stowed indicator light (green) | 2. MEWP active indicator light (green) | 3. Emergency stop button |
|--|--|--------------------------|

1. Boom not stowed indicator light (green)

Illuminates when the boom is elevated or not fully stowed in the transport position. Flashes when the boom is correctly stowed and the remote controls are connected.

2. MEWP active indicator light (green)

Illuminates when power key-switch on king-post control panel is turned to '1' position.

3. Emergency stop button

Pressing the emergency stop switch cuts hydraulic & electrical power to work platform, preventing any further movement.

CONTROLS

In-Cab Controls (cont.)

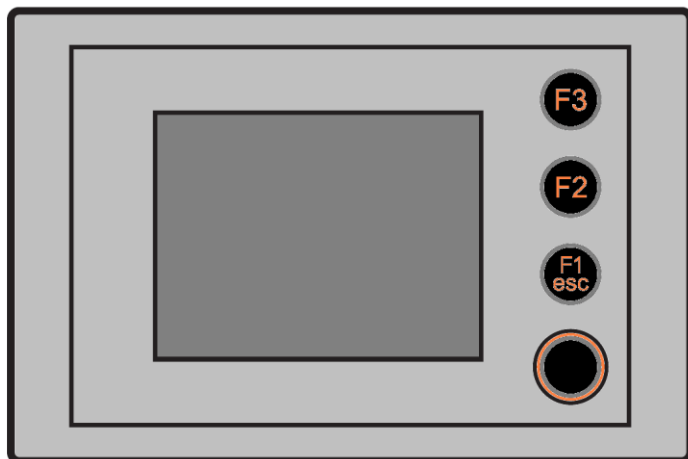


Figure 5c Display Unit

Immobiliser pin code interface

On screen operator input and status for the engine start immobiliser system.
(Pin number is owner specified – Contact owner for details)

Emergency stop status indicator

On screen notification of the emergency stop switch circuit.
(OK / Activated / Error)

Rear rail gear status indicator

On screen notification when rear rail gear is fully lowered.
(Up / Not Up or Down / Down / Error / Conflict)

Front rail gear status indicator

On screen notification when front rail gear is fully lowered.
(Up / Not Up or Down / Down / Error / Conflict)

Front Body lock status indicator

On screen notification when front body lock pin is engaged.
(Locked / Unlocked / Error)

Rear Body lock status indicator

On screen notification when rear body lock pin is engaged.
(Locked / Unlocked / Error)

Steering status indicator

On screen notification when steering wheels are straight.
(Straight / Not Straight / Error).

CONTROLS

Steering lock status indicator

On screen notification when the steering wheels are locked (Locked).

Engine Revs status indicator

On screen notification when front rail gear is fully lowered (****RPM)

Road and Rail Speed status indicator

On screen notification when front rail gear is fully lowered (deployed). (**MPH)

Module status indicator

On screen notification when front rail gear is fully lowered (deployed). (No Module / Rail-Reach Module / Powered Module / Unpowered Module)

For other cab controls please refer to the Rail-Boss manual.

CONTROLS

King-post Controls

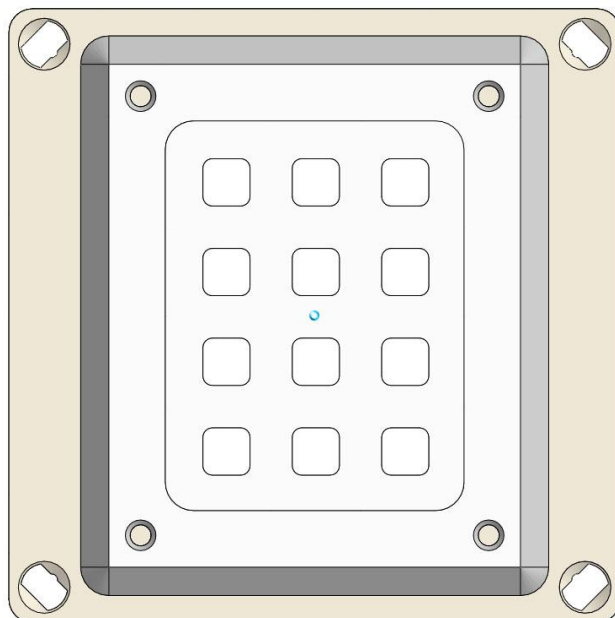


Figure 6 - King-post Operator Pin Number Panel

Before the MEWP module will function the Operator must enter his/her personal sentinel card number with the key pad. The figures entered will show on the load/speed display (shown in figure 8) as the digits are keyed in. The operator can press cancel at any time to start again or the hash key to enter the pin number. The data logger then records this for the duration that the MEWP systems are powered up.

If the system is powered down the operator will have to re-enter this pin number hence the system should be powered down and back up in the event of a change in operator.

CONTROLS

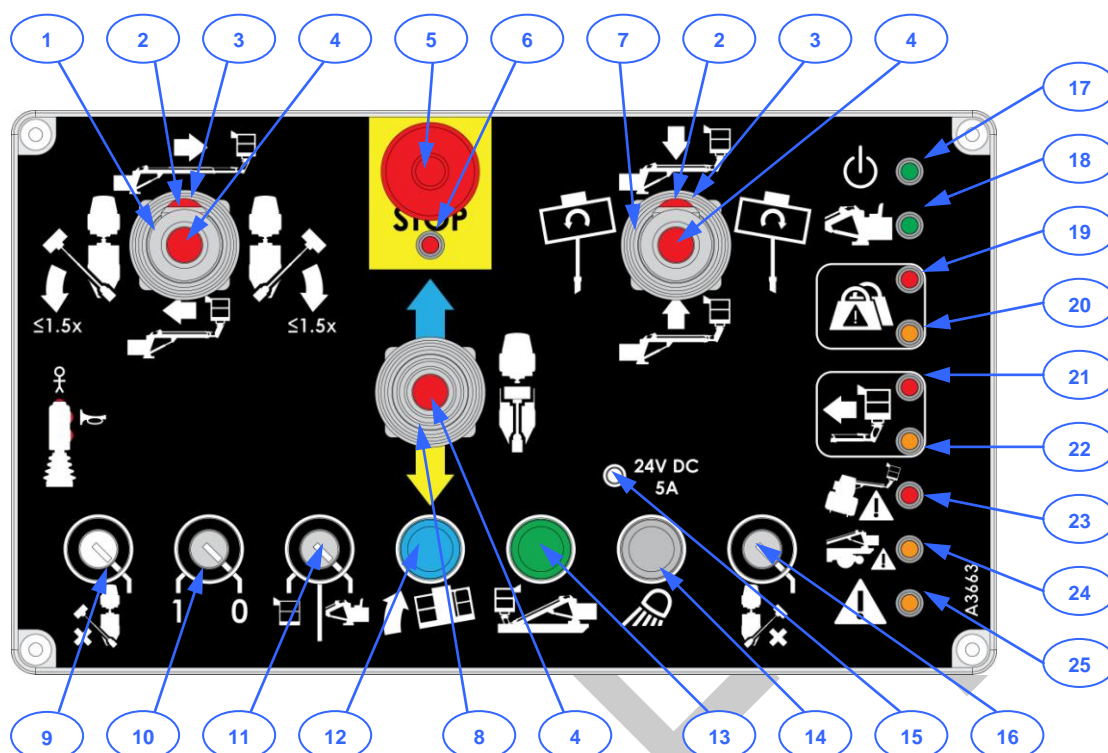


Figure 7 - King-post Control Panel

- | | | |
|--|---|--|
| 1. Joystick 1 - slew & boom extend/retract | 10. Power on/off key-switch | 18. King-post controls selected indicator light (green) |
| 2. Horn button (upper button)) | 11. Control position selector key-switch | 19. Overload warning indicator light (red) |
| 3. Boom speed button (lower button) | 12. Corrective tilt button & indicator light (blue) | 20. Overload warning indicator light (amber) |
| 4. Enable button | 13. Stow button and boom stowed indicator light (green) | 21. Moment sensing indicator light (red) |
| 5. Emergency stop button | 14. Work lights button | 22. Moment sensing indicator light (amber) |
| 6. Emergency stop indicator light (red) | 15. Fuse – 5 Amps (12 Volt work lights) | 23. Over-tilt indicator light (red) |
| 7. Joystick 2 - boom raise/lower & platform rotate | 16. Right hand slew restriction key-switch | 24. Rail gear not fully deployed indicator light (amber) |
| 8. Joystick 3 - drive forwards/reverse | 17. MEWP active indicator light (green) | 25. System error indicator light (amber) |
| 9. Left hand slew restriction key-switch | | |

CONTROLS

King-post Controls (cont.)

1. Joystick 1 - slew & boom extend/retract

Moving joystick forwards extends the boom, moving joystick backwards retracts the boom. Moving joystick to the right slews the boom clockwise, moving joystick to the left slews the boom anti-clockwise. The symbol $\leq 1.5x$ indicates that $1\frac{1}{2}$ full rotations (540 degrees) can be achieved from the maximum clockwise slew limit to the maximum anti-clockwise slew limit.

2. Horn button

Pressing the horn button sounds the vehicle automotive horn.

3. Boom speed button

Pressing and holding the boom speed button whilst actuating the joystick enables higher speed movement of the boom.

4. Enable button

Pressing and holding this button 'enables' the joystick function. The enable system 'times out' after a period of 5 seconds if the joystick is not moved, after which the button must be released and depressed again.

5. Emergency stop button

Pressing the emergency stop switch cuts hydraulic & electrical power to work platform, preventing any further movement.

6. Emergency stop indicator light

Illuminates when any emergency stop button has been pressed.

7. Joystick 2 - boom raise/lower & platform rotate

Moving joystick forwards lowers the boom, moving joystick backwards raises the boom. Moving joystick to the right rotates the work platform clockwise, moving joystick to the left rotates the work platform anti-clockwise.

8. Joystick 3 - drive forwards/reverse

Moving the joystick forwards enables rail travel in the direction indicated on the chassis by the blue arrow. Moving the joystick backwards enables rail travel in the direction indicated on the chassis by the yellow arrow.

9. Left hand slew restriction key-switch

Selecting the restricted position prevents the boom from being slewed over the left hand side of the machine.

10. Power key-switch

Activates power to the king-post and work platform controls.

11. Control position selector key-switch

Turning key to work platform position activates work platform controls. Turning key to kingpost position activates kingpost controls. Turning key to centre position de-activates both control panels and activates remote controls (if connected).

12. Corrective tilt button & indicator light

Pressing this button, together with the dead man button, levels the king-post (and consequently the boom and work platform). The indicator light illuminates when the tilt angle (side to side) exceeds 2.5 degrees, indicating that the king-post needs to be levelled. The indicator light flashes when an error condition in the tilt system is detected.

13. Stow button and boom stowed indicator light

Pressing this button enables the 'pre-lift feature' which calibrates the work platform levelling. The indicator light flashes when the boom is correctly stowed in the transport position.

CONTROLS

King-post Controls (cont.)

14. Work lights button

Switches the work lights on and off.

15. Fuse – 15 Amps (12 Volt work lights)

Protects the 12 Volt work lights circuit from electrical overload

16. Right hand slew restriction key-switch

Selecting the restricted position prevents the boom from being slewed over the right hand side of the machine.

17. MEWP active indicator light

Illuminates when power key-switch is turned to '1' position. Flashes when key-switch is turned to '0' position and boom is not correctly stowed.

18. King-post controls selected indicator light

Illuminates when kingpost controls are selected by key-switch.

19. Overload warning indicator light (red)

Flashes when the load in the work platform reaches 100% of its rated capacity. Boom functions are also cut, and a high frequency buzzer sounds.

20. Overload warning indicator light (amber)

Illuminates when the load in the work platform reaches 80% of its rated capacity.

21. Moment sensing indicator light (red)

Flashes when the combination of the boom outreach and work platform load reaches its limit. Boom extend function is cut and a high frequency buzzer sounds.

22. Moment sensing indicator light (amber)

Illuminates when the combination of the boom outreach and work platform load is nearing its limit.

23. Over-tilt indicator light

Illuminates when the tilt angle (side to side) of the kingpost exceeds 2.5 degrees. A low frequency buzzer also sounds, indicating an over-tilt situation.

24. Rail gear not fully deployed indicator light (amber)

Illuminates when either the front or rear rail gear is not fully lowered.

25. System error indicator light (amber)

Flashes when there is an error in the electronic control system. The flash sequence indicates a specific error code (see Operating Instructions section and Service Manual).

26. Over-ride button

This is located to the right hand side of the king-post control box, and is protected with an anti-tamper cover to prevent inappropriate use. Pressing this button, together with the enable button and appropriate joystick, bypasses safety interlock systems in the event of emergency, loss of power or control system failure. Refer to the Operating Instructions section for use of this control.

CONTROLS

Speed / Load Display Panel

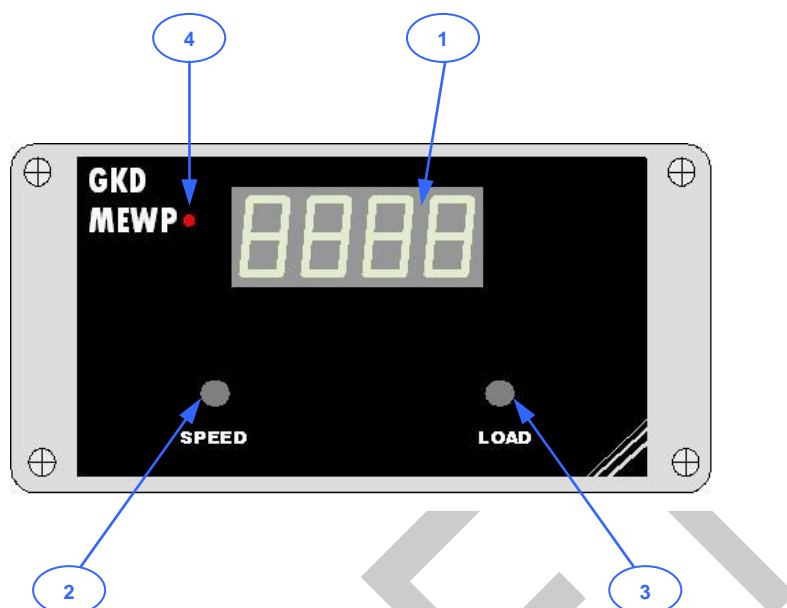


Figure 8 – Speed / Load Display Panel

1. Display
2. Speed button
3. Load button
4. Data Logger

and inspection to determine whether the events recorded have caused damage to the machine.

1. Display

Displays drive speed in miles per hour or load in the work platform in kilogrammes.

2. Speed button

Pressing this button displays the drive speed.

3. Load button

Pressing this button displays the load in the work platform.

4. Data Logger LED

This light illuminates to show that the data logger is active and flashes if the data logger has recorded adverse events.

The data logger light will continue to flash until these events have been down loaded onto a PC. The machine should then undergo a LOLER Thorough Examination

NOTE

Speed / Load Display Panels are located at the following positions –

- King-post Controls
- Work Platform Controls
- Connection of Remote Controls at rear of chassis (load display only).

CONTROLS

Work Platform Controls

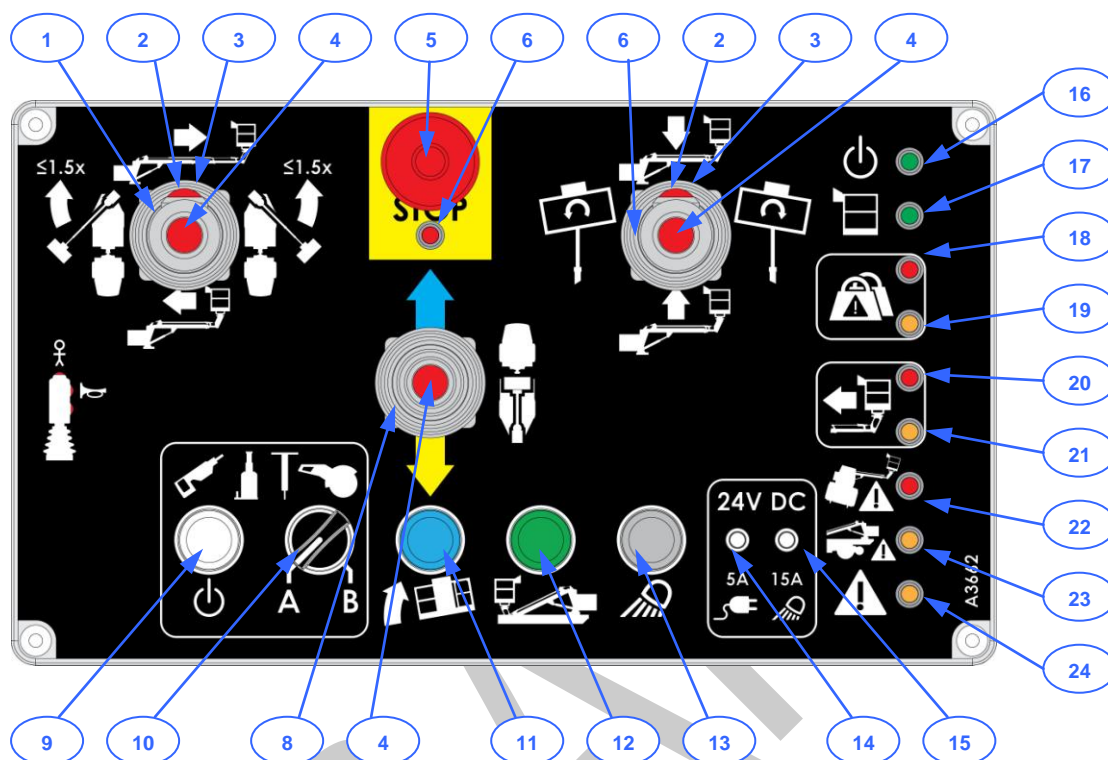


Figure 9 - Work Platform Control Panel

- | | | |
|--|---|--|
| 1. Joystick 1 - slew & boom extend/retract | 10. Auxiliary hydraulic port selector switch | indicator light (green) |
| 2. Horn button (upper button) | 11. Corrective tilt button & indicator light (blue) | 18. Overload warning indicator light (red) |
| 3. Boom speed button (lower button) | 12. Stow button and boom stowed indicator light (green) | 19. Overload warning indicator light (amber) |
| 4. Enable button | 13. Work lights button | 20. Moment sensing indicator light (red) |
| 5. Emergency stop button | 14. Fuse - 5 Amps (12 Volt DC tools) | 21. Moment sensing indicator light (amber) |
| 6. Emergency stop indicator light (red) | 15. Fuse – 15 Amps (12 Volt work lights) | 22. Over-tilt indicator light (red) |
| 7. Joystick 2 - boom raise/lower & platform rotate | 16. MEWP active indicator light (green) | 23. Rail gear not fully deployed indicator light (amber) |
| 8. Joystick 3 - drive forwards/reverse | 17. Work platform controls selected | 24. System error indicator light (amber) |
| 9. Auxiliary hydraulic port start/stop button | | |

CONTROLS

Work Platform Controls (cont.)

1. Joystick 1 - slew & boom extend/retract

Moving joystick forwards extends the boom, moving joystick backwards retracts the boom. Moving joystick to the right slews the boom anti-clockwise, moving joystick to the left slews the boom clockwise. **Note that the slewing directions operate in an opposite manner to those at the king-post controls.** The symbol $\leq 1.5x$ indicates that $1\frac{1}{2}$ full rotations (540 degrees) can be achieved from the maximum clockwise slew limit to the maximum anti-clockwise slew limit.

2. Horn button

Pressing the horn button sounds the vehicle automotive horn.

3. Boom speed button

Pressing and holding the boom speed button whilst actuating the joystick enables higher speed movement of the boom.

4. Enable button

Pressing and holding this button 'enables' the joystick function. The enable system 'times out' after a period of 5 seconds if the joystick is not moved, after which the button must be released and depressed again.

5. Emergency stop button

Pressing the emergency stop switch cuts hydraulic & electrical power to work platform, preventing any further movement.

6. Emergency stop indicator light

Illuminates when any emergency stop button has been pressed.

7. Joystick 2 - boom raise/lower & platform rotate

Moving joystick forwards lowers the boom, moving joystick backwards raises the

boom. Moving joystick to the right rotates the work platform clockwise, moving

joystick to the left rotates the work platform anti-clockwise.

8. Joystick 3 - drive forwards/reverse

Moving the joystick forwards enables rail travel in the direction indicated on the chassis by the blue arrow. Moving the joystick backwards enables rail travel in the direction indicated on the chassis by the yellow arrow.

9. Auxiliary hydraulic port start/stop button

Enables hydraulic oil supply to the selected auxiliary port. The indicator light within the button illuminates when hydraulic supply is connected.

10. Auxiliary hydraulic port selector switch

Selects between auxiliary port A and B.

11. Corrective tilt button & indicator light

Pressing this button, together with the dead man button, levels the king-post (and consequently the boom and work platform). The indicator light illuminates when the tilt angle (side to side) exceeds 2.5 degrees, indicating that the king-post needs to be levelled. The indicator light flashes when an error condition in the tilt system is detected.

12. Stow button & boom stowed indicator light

Pressing this button enables the 'pre-lift feature' which calibrates the work platform levelling. The indicator light flashes when the boom is correctly stowed in the transport position.

13. Work lights button

Switches the work lights on and off.

CONTROLS

Work Platform Controls (cont.)

14. Fuse - 5 Amps (12 Volt DC tools)

Protects the 12 Volt tool circuit from electrical overload.

15. Fuse – 15 Amps (12 Volt work lights)

Protects the 12 Volt work lights circuit from electrical overload.

16. MEWP active indicator light

Illuminates when power key-switch on kingpost control panel is turned to '1' position. Flashes when key-switch on kingpost control panel is turned to '0' position and boom is not correctly stowed.

17. Work platform controls selected indicator light

Illuminates when platform controls are selected by key-switch on kingpost control panel.

18. Overload warning indicator light (red)

Flashes when the load in the work platform reaches 100% of its rated capacity. Boom functions are also cut, and a high frequency buzzer sounds.

19. Overload warning indicator light (amber)

Illuminates when the load in the work platform reaches 80% of its rated capacity.

20. Moment sensing indicator light (red)

Flashes when the combination of the boom outreach and work platform load reaches its limit. Boom extend function is cut and a high frequency buzzer sounds.

21. Moment sensing indicator light (amber)

Illuminates when the combination of the boom outreach and work platform load is nearing its limit.

22. Over-tilt indicator light

Illuminates when the tilt angle (side to side) of the kingpost exceeds 2.5 degrees. A low frequency buzzer also sounds, indicating an over-tilt situation.

23. Rail gear not fully deployed indicator light (amber)

Illuminates when either the front or rear rail gear is not fully lowered.

24. System error indicator light (amber)

Flashes when there is an error in the electronic control system. The flash sequence indicates a specific error code (see Operating Instructions section and Service Manual).

25. Over-ride button

This is located to the right hand of the work platform controls, and is protected with an anti-tamper cover to prevent inappropriate use. Pressing this button, together with the enable button and appropriate joystick, bypasses safety interlock systems in the event of emergency, loss of power or control system failure. Refer to the Operating Instructions section for use of this control.

CONTROLS

Remote Controls (OPTIONAL)

The remote controls are supplied as an option and can be used to control movements of the boom from ground level. No drive function is available from the remote controls. The remote control panel is fitted with a carrying frame and neck-strap for ease of use. Connection to

the machine is via an umbilical cable, which plugs into a socket on a panel at the rear of the machine.

Figures 9 and 10 illustrate the location of the remote controls storage and connection.

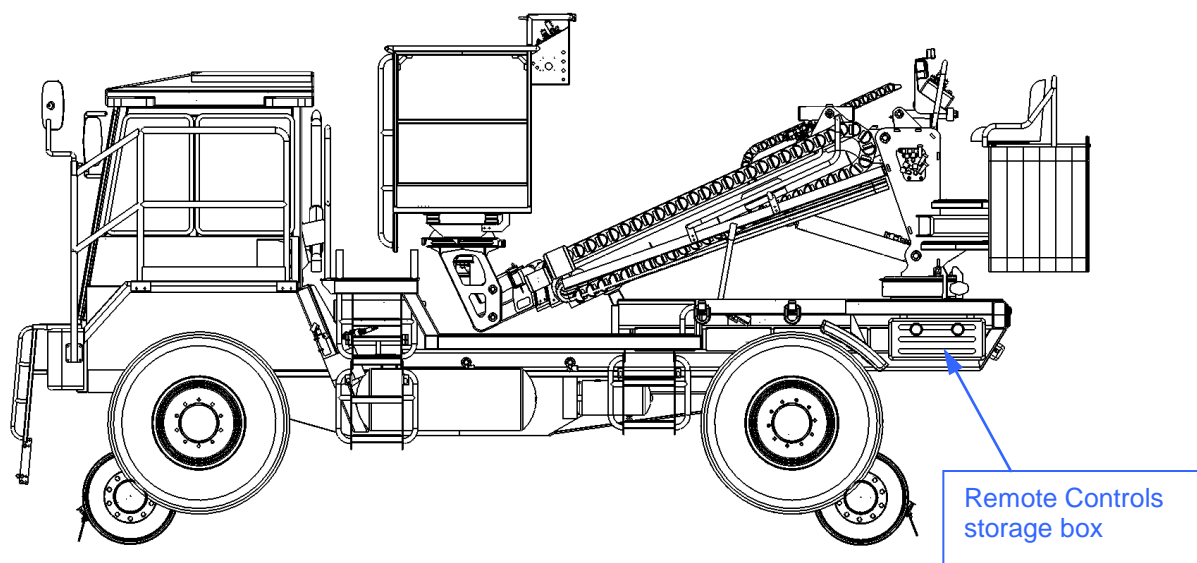


Figure 10a – Remote Controls storage

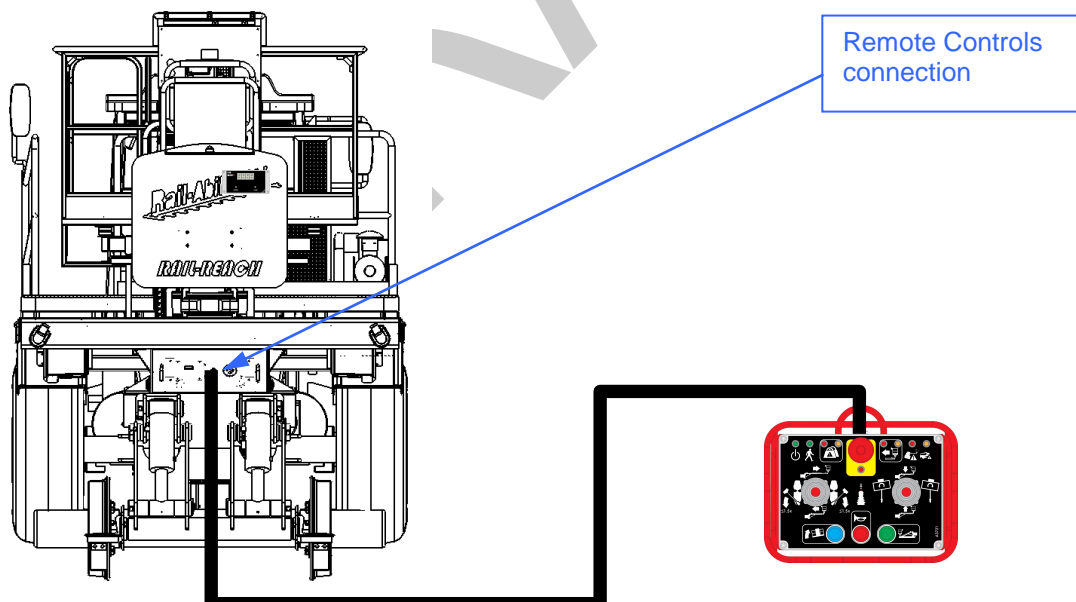


Figure 10b – Remote Controls connection (rear of chassis)

NOTICE

ALWAYS ENSURE THE REMOTE CONTROLS ARE RETURNED TO THEIR STORAGE LOCATION AFTER USE, AND SECURED AGAINST UNAUTHORISED OPERATION.

CONTROLS

Remote Controls (OPTIONAL)

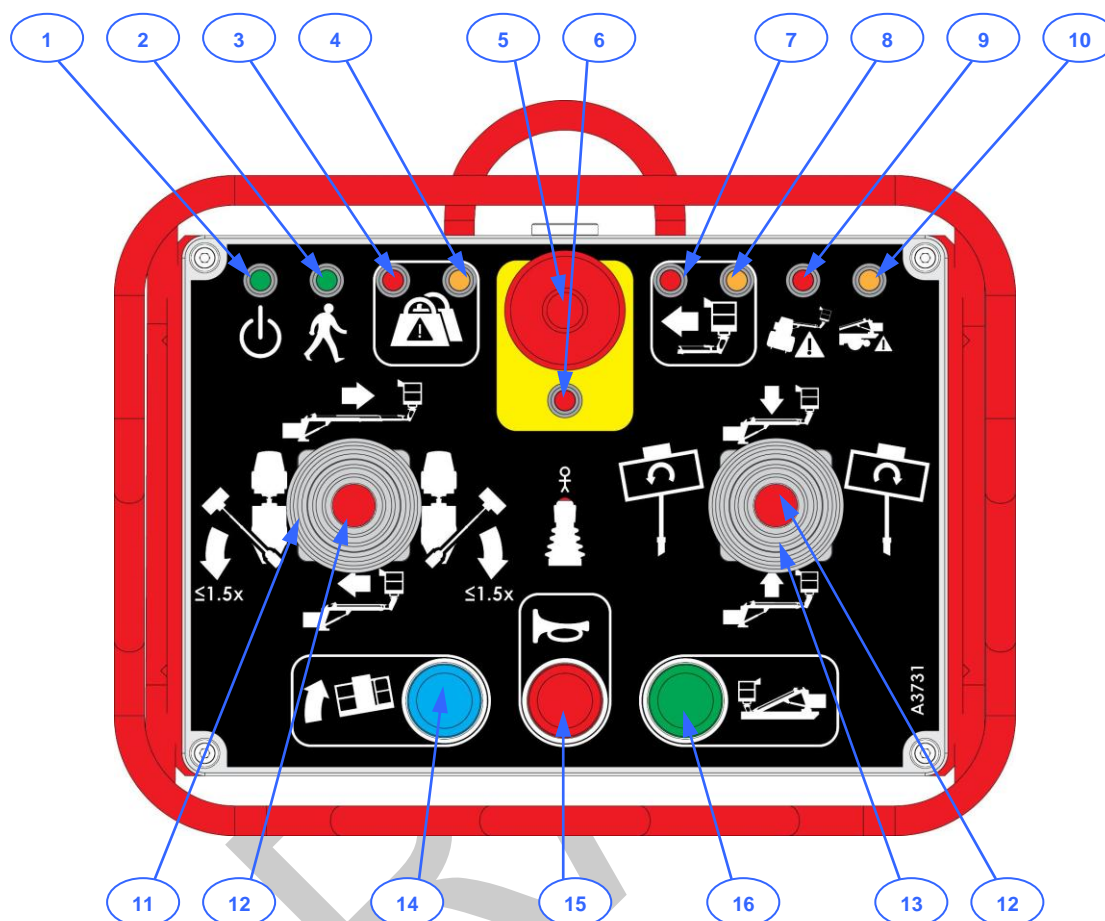


Figure 11 - Remote Control Panel

- | | | |
|---|--|---|
| 1. MEWP active indicator light (green) | 7. Moment sensing indicator light (red) | 12. Enable button |
| 2. Remote controls selected indicator light (green) | 8. Moment sensing indicator light (amber) | 13. Joystick 2 - boom raise/lower & platform rotate |
| 3. Overload warning indicator light (red) | 9. Over-tilt indicator light (red) | 14. Corrective tilt button & indicator light (blue) |
| 4. Overload warning indicator light (amber) | 10. Rail gear not fully deployed indicator light (amber) | 15. Horn button |
| 5. Emergency stop button | 11. Joystick 1 - slew & boom extend/retract | 16. Stow button & boom stowed indicator light (green) |
| 6. Emergency stop indicator light (red) | | |

CONTROLS

Remote Controls (OPTIONAL)

1. MEWP active indicator light

Illuminates when power key-switch on kingpost control panel is turned to '1' position. Flashes when key-switch on kingpost control panel is turned to '0' position and boom is not correctly stowed.

2. Remote controls selected indicator light

Illuminates when controls selector key-switch on kingpost control panel is turned to the centre position.

3. Overload warning indicator light (red)

Flashes when the load in the work platform reaches 100% of its rated capacity. Boom functions are also cut, and a high frequency buzzer sounds.

4. Overload warning indicator light (amber)

Illuminates when the load in the work platform reaches 80% of its rated capacity.

5. Emergency stop button

Pressing the emergency stop switch cuts hydraulic & electrical power to work platform, preventing any further movement.

6. Emergency stop indicator light (red)

Illuminates when any emergency stop button has been pressed.

7. Moment sensing indicator light (red)

Flashes when the combination of the boom outreach and work platform load reaches its limit. Boom extend function is cut and a high frequency buzzer sounds.

8. Moment sensing indicator light (amber)

Illuminates when the combination of the boom outreach and work platform load is nearing its limit.

9. Over-tilt indicator light

Illuminates when the tilt angle (side to side) of the kingpost exceeds 2.5 degrees. A low frequency buzzer also sounds, indicating an over-tilt situation.

10. Rail gear not fully deployed indicator light (amber)

Illuminates when either the front or rear rail gear is not fully lowered.

11. Joystick 1 - slew & boom extend/retract

Moving joystick forwards extends the boom, moving joystick backwards retracts the boom. Moving joystick to the right slews the boom clockwise, moving joystick to the left slews the boom anti-clockwise. The symbol $\leq 1.5x$ indicates that 1½ full rotations (540 degrees) can be achieved from the maximum clockwise slew limit to the maximum anti-clockwise slew limit.

12. Enable button

Pressing and holding this button 'enables' the joystick function. The enable system 'times out' after a period of 5 seconds if the joystick is not moved, after which the button must be released and depressed again.

13. Joystick 2 - boom raise/lower & platform rotate

Moving joystick forwards lowers the boom, moving joystick backwards raises the boom. Moving joystick to the right rotates the work platform clockwise, moving joystick to the left rotates the work platform anti-clockwise.

CONTROLS

Remote Controls (OPTIONAL)

14. Corrective tilt button & indicator light

Pressing this button, together with the dead man button, levels the king-post (and consequently the boom and work platform). The indicator light illuminates when the tilt angle (side to side) exceeds 2.5 degrees, indicating that the king-post needs to be levelled. The indicator light flashes when an error condition in the tilt system is detected.

15. Horn button

Pressing the horn button sounds the vehicle automotive horn. This is only operational when the machine is in MEWP mode, or the boom is elevated.

16. Stow button & boom stowed indicator light

Pressing this button enables the 'pre-lift feature' which calibrates the work platform levelling. The indicator light flashes when the boom is correctly stowed in the transport position.

Pre-operation Inspection



Do Not Operate Unless:

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

1. Avoid hazardous situations.
2. Always perform a pre-operation inspection.

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

3. Always perform function tests prior to use.
4. Inspect the workplace.
5. Only use the machine as it was intended.

Fundamentals

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

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

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

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

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

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

If in doubt, contact Rail-Ability Ltd.

Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications, governmental regulations and the requirements listed in the Service Manual.

PRE-OPERATION INSPECTION

Pre-Operation Inspection

- ☐ Ensure that the Operator's and Service manuals are complete, legible & in the storage container located in the RAIL-BOSS cab.
- ☐ Ensure that all decals are legible & in place. See Decals section.
- ☐ Ensure gear shift lever is in neutral.
- ☐ Check engine & related components (e.g. radiator, alternator, belts, etc.). See RAIL-BOSS Manual.
- ☐ Check for engine oil leaks & proper oil level. Add oil if needed. See RAIL-BOSS Manual.
- ☐ Check for hydraulic oil leaks & proper oil levels. Add oil if needed. See Maintenance section.
- ☐ Check tightness of wheel nuts.
- ☐ Check condition of tyres & wheels.
- ☐ Check for proper tire pressure. Add air if needed. See Maintenance & Specifications sections.
- ☐ Check condition of axles, transmission & steering
- ☐ Check operation of service & parking brake. See RAIL-BOSS Manual.
- ☐ Check operation of the road & rail lights and warning beacons.
- ☐ Check for battery fluid leaks. See RAIL-BOSS Manual.
- ☐ Check cab windscreen & wipers.
- ☐ Check all electrical plugs are connected & hydraulic connections are coupled.
- ☐ Check all body-locks are engaged and locked.
- ☐ Electrical components, wiring, electrical cables & earth straps.
- ☐ Hydraulic power unit, tank, hoses, pipes, fittings, cylinders & manifolds
- ☐ Batteries & connections
- ☐ Fuel & hydraulic tanks
- ☐ Turntable drive motor
- ☐ Boom wear pads
- ☐ Proximity switches, alarms & horns
- ☐ Nuts, bolts, pins & other fasteners
- ☐ Lubrication points
- ☐ Platform entry gate
- ☐ Platform levelling system
- ☐ All control panels & displays
- ☐ King-post operator's seat
- ☐ Tow bar
- ☐ Fire extinguisher
- ☐ Rail wheel hubs, treads, flanges & rail sweepers.
- ☐ Ladders, steps & hand rails
- ☐ Guards & covers.

Check the entire machine for:

- ☐ Cracks in welds or structural components
- ☐ Dents or damage to machine
- ☐ Excessive wear, rust, corrosion or oxidation

Ensure that all structural and other critical components are present and all associated fasteners and pins are in place and properly tightened.

- ☐ After you complete your inspection, be sure that all compartment covers are in place and latched.

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

Maintenance



Observe and Obey:

- ✓ Only routine maintenance items specified in this manual shall be performed by the operator.
- ✓ Scheduled maintenance inspections shall be completed by qualified service technicians, according to the manufacturer's specifications, governmental regulations and the requirements specified in the Service Manual.
- ✓ Use only manufacturer's original replacement parts. Contact Rail-Ability Ltd if in doubt.

Check the Engine Oil Level

Maintaining the proper engine oil level is essential to good engine performance and service life.

Operating the machine with an improper oil level can damage engine components.

NOTICE

Check the oil level with the engine off.

Refer to the RAIL-BOSS Manual for checking the engine oil level.

Check the Hydraulic Oil Level

Maintaining the hydraulic oil at the proper level is essential to machine operation. Improper hydraulic oil levels can damage hydraulic components.

Daily checks allow the inspector to identify changes in oil level that might indicate the presence of hydraulic system problems.

NOTICE

Perform this procedure with the boom in the stowed position.

1. Visually inspect the oil level in the hydraulic tank. The sight gauge is located on the side of the hydraulic oil tank (right hand side of vehicle cab).

MAINTENANCE

- Result: With the boom in its stowed position, the hydraulic oil level should be half way up the sight gauge.
- 2. Add oil if necessary. Do not overfill.

Hydraulic oil specifications for the system

Hydraulic oil type	ISO 46 Grade
--------------------	--------------

Check the Batteries

Proper battery condition is essential to good engine performance and operational safety. Damaged cables and connections can result in engine component damage and hazardous conditions.

⚠ WARNING

Electrocution hazard.

Contact with hot or live circuits may result in death or serious injury. Remove all rings, watches and other jewellery.

⚠ WARNING

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

1. Put on protective clothing and eye wear.
2. Be sure that the battery cable connections are tight and free of corrosion.
3. Be sure that the battery retaining fasteners are in place and secure.

Check the Tyre Pressures

The front tyres on the Rail-Reach machine may be either air filled or foam filled. The rear tyres are foam filled only. Foam filled tyres require no maintenance other than visual inspection of the tyres.

To achieve optimum machine handling and minimize tire wear, it is essential to maintain proper pressure in air-filled tires.

⚠ WARNING

Bodily injury hazard.

An over-inflated tire can explode and could cause death or serious injury. Do not use temporary flat tire repair products.

1. Check each front tire (if applicable) with an air pressure gauge. Add air as needed.

For recommended tyre pressures refer to Specifications section of this manual.

Inspect the Rail Wheels and Profiles

Maintaining the rail wheels in good condition is essential to safe operation and good performance. Excessive flange and/or tread wear could result in machine derailment and tip-over. Component damage may also result if problems are not discovered and repaired in a timely fashion

⚠ WARNING

Bodily injury hazard.

Excessively worn rail wheels can develop sharp burrs due to material migration.

⚠ WARNING

Tip-over hazard.

Do not attempt to re-machine and/or re-apply heat treatment to the rail wheels.

MAINTENANCE

1. Check rail wheels friction drive hubs for missing or loose bolts.
2. Check condition of rail wheel treads and flanges for pitting scoring, bruising, flat spots or other damage.
3. Check that no cracks, flats or scoring are visible.

Refer to Service Manual for further checks and limits.

Check for Fuel Leaks

Failure to detect and correct fuel leaks will result in an unsafe condition. An explosion or fire resulting from a fuel leak may cause death or serious injury.

⚠ WARNING

Explosion and fire hazard. Engine fuels are combustible. Inspect the machine in an open, well-ventilated area away from heaters, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach (one is also fitted inside the vehicle cab).

1. Perform a visual inspection in the areas surrounding the fuel tanks, hoses and fittings, fuel pump, fuel filter, fuel injection pumps and fuel injectors.

⚠ WARNING

Explosion and fire hazard. If a fuel leak is discovered, keep any additional personnel from entering the area and do not operate the machine. Repair the leak immediately.

Scheduled Maintenance

Maintenance performed weekly, monthly, quarterly, six monthly, annually and 2 yearly must be completed by a person trained and qualified to perform maintenance on this machine according to the procedures found in the Service Manual.

Machines that have been out of service for more than three months must receive at least the Quarterly Inspection before they are put back into service (see Service Manual).

Function Tests



Do Not Operate Unless:

- ✓ You learn and practice the principles of safe machine operation contained in this operator's manual.
- 1. Avoid hazardous situations.
- 2. Always perform a pre-operation inspection.
- 3. Always perform function tests prior to use.

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

- 4. Inspect the workplace.
- 5. Only use the machine as it was intended.

Fundamentals

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

A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications.

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

If in doubt, contact Rail-Ability Ltd.

FUNCTION TESTS

From ground level :

1. Ensure that the battery isolator switch (located inside of vehicle cab) is switched on. See RAIL-BOSS manual for further information.
2. Ensure that all red Emergency Stop buttons are pulled out to the 'ON' position. These are located at the work platform, king-post, in-cab and remote controls (if connected).
3. Confirm the front and rear rail gear are in the fully stowed (raised) position.

Pre-Test Rail Wheels Bearings

NOTICE

THE RAIL WHEELS MUST BE ABLE TO BE TURNED BY HAND

4. Firmly hold each of the rail wheels in turn. Apply rotational force by pushing or pulling on the wheel.
 - Result: All of the wheels should turn smoothly with resistance.

From the vehicle cab :

5. Ensure the gear shift lever is in the neutral position.
6. Turn and hold the ignition key in the cab to position 'two'.
7. Wait for the display to show the immobiliser pin code entry interface
8. Enter the correct immobiliser pin number
9. Turn and hold the ignition key in the cab to position 'three'. The start inhibit function is active for 10 seconds to preheat the engine, after which the engine will start.

Test Emergency Stop

10. Press the emergency stop button in the cab.

- Result: The display will show; emergency stop active. The engine will still run.

11. Reset the emergency stop by pulling out the button.

Test the Horn

12. Push the horn button on the consol.
 - Result: The vehicle horn should sound.

Test Road Drive Braking

NOTICE

THE BRAKES MUST BE ABLE TO HOLD THE MACHINE ON ANY SLOPE IT IS ABLE TO CLIMB.

13. Release the park brake using the switch on the consol
14. Select first gear and drive forwards slowly.
15. Brake firmly using the brake pedal.
 - Result: The machine should stop promptly and firmly.
16. Select neutral on the transmission.

Test the Rail Gear Deployment

17. When instructed it is safe to do so, inspect the On-Tracking access point and ensure that it is suitably prepared.
18. When instructed it is safe to do so by the machine controller, drive the machine to the On-Tracking point and align the machine over the track.
19. Do not select the rail gear acknowledge switch.
20. Move the rear rail gear raise/lower lever away (right).
 - Result: The rail gear should not lower.

FUNCTION TESTS

21. Press and hold the rail gear acknowledge switch to activate the rail gear.
22. Move the rear rail gear raise/lower lever away (right).
 - Result: The rear rail gear will lower onto the rails and lift the machine off the ground.
 - Result: The display will indicate when the rear rail gear is fully deployed.
23. Repeat for the front rail gear using the other lever.
24. Move the front rail gear raise/lower lever away.
 - Result: The front rail gear will lower onto the rails and lift the machine off the ground.
 - Result: The display will indicate when the front rail gear is fully deployed.

Note: *The front rail gear should not deploy until the rear rail gear is fully deployed. The rear rail gear should not retract until the front rail gear is fully retracted.*

Test Rail Drive and Rail Braking



PRIOR TO DRIVING ON RAIL, ENSURE THAT THE FRONT STEERING WHEELS ARE STRAIGHT AND THAT THE INNER SIDE WALLS ARE NOT CONTACTING THE FRONT RAIL WHEELS.

25. Select first gear and drive forwards slowly.
 - Result: The machine should move forwards.
26. Press the brake firmly.
 - Result: The machine should stop promptly and firmly.

27. Select neutral on the transmission.

NOTICE

THE FOOT BRAKES MUST BE ABLE TO HOLD THE MACHINE ON ANY SLOPE IT IS ABLE TO CLIMB.

28. With engine still running, leave the vehicle cab and close the door.

At the King-post Controls :

29. Climb onto the vehicle deck and sit in the seat at the kingpost controls. Fasten the seat-belt provided.
30. Turn the power key-switch from position '0' to position '1'
 - Result: The MEWP active green light at the top right corner of the panel should illuminate.
31. Select king-post controls by turning the control position key-switch to the 'king-post' position.
 - Result: The second green light at the top right corner of the panel should illuminate. (this light will flash if the operator is not seated correctly and will isolate the control station)

Test Emergency Stop

32. Press the emergency stop button.
 - Result: The light below the emergency stop button should illuminate and no functions should operate.
33. Reset the emergency stop by pulling out the button.

Test the Horn

34. Press the upper button on the front of the joystick 1 (left hand joystick).
 - Result: The automotive horn should sound.
35. Repeat for joystick 2 (right hand joystick).

FUNCTION TESTS

Test the Pre-Lift Feature

36. Press and hold one of the joystick enable buttons and simultaneously press and release the green stow button at the bottom of the control panel.
- Result: The boom will fully retract and the work platform will tilt forwards and backwards as part of the pre-use calibration sequence. Calibration has finished after the fourth tone. If the work platform is not level repeat the previous step.

Test the Machine Functions



PRIOR TO TESTING THE MACHINE FUNCTIONS ENSURE THAT THE AREA SURROUNDING THE MACHINE IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

37. Without pressing the enable button on top of joystick 2 (right hand joystick), attempt to activate the boom and work platform functions by moving the joystick backwards (towards you), forwards (away from you) and side to side.
- Result: None of the boom or platform functions should operate.
38. Press and hold the enable button at the top of joystick 2 and activate the boom raise function by moving the joystick backwards.
- Result: The boom should elevate.
39. Return joystick 2 to its neutral position.
40. Press and hold the enable button at the top of joystick 2 and activate the boom lower function by moving the joystick forwards. Release the joystick once the boom is approximately horizontal.

- Result: The boom movement should stop.
41. Press and hold the enable button at the top of joystick 2 and move the joystick to the left.
- Result: The work platform should rotate in an anti-clockwise direction.
42. Press and hold the enable button at the top of joystick 2 and move the joystick to the right.
- Result: The work platform should rotate in a clockwise direction.
43. Return the work platform to its central position.
44. Using joystick 2, raise the boom so that it is at an angle of approximately 30 degrees.
45. Press and hold the enable button at the top of joystick 1 (left hand joystick) and move the joystick to the left.
- Result: The boom should slew to the left (in an anti-clockwise direction).
46. Press and hold the enable button at the top of joystick 1 and move the joystick to the right.
- Result: The boom should slew to the right (in a clockwise direction).
47. Slew the boom to the central forward position.
48. Press and hold the enable button at the top of joystick 1 and move the joystick forwards (away from you).
- Result: The boom should extend.
49. Press and hold the enable button at the top of joystick 1 and move the joystick backwards (towards you).
- Result: The boom should retract.

FUNCTION TESTS

Test the Slew Restriction

50. Select the 'left hand slew restriction' by switching the key-switch to the left hand position.
51. Press and hold the enable button on top of joystick 1 and move the joystick to the left.
 - Result: The boom should not slew over the left hand side of the machine.
52. Press and hold the enable button on top of joystick 1 and move the joystick to the right.
 - Result: The boom should slew clockwise but should come to a stop after approximately 180 degrees (1/2 turn).
53. Move the joystick to the left to bring the boom back to the central, forward position.
54. De-select the 'left hand slew restriction' by switching the key-switch to the central position.
55. Repeat the above steps for the 'right hand slew restriction'.

Test Boom Stowed Interlock

56. Use joysticks 1 and 2 to lower the boom to its fully lowered & retracted, transport position.
 - Result: The boom stowed light should illuminate.

Test Rail Travel



PRIOR TO DRIVING ON RAIL, ENSURE THAT THE FRONT STEERING WHEELS ARE STRAIGHT AND THAT THE INNER SIDE WALLS ARE NOT CONTACTING THE FRONT RAIL WHEELS.



PRIOR TO TESTING THE TRAVEL FUNCTION ENSURE THAT THE AREA OF RAIL IN FRONT AND BEHIND YOU IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

57. Press and hold the enable button at the top of joystick 3 (central joystick) and gently move the joystick forwards (away from you).
 - Result: The machine should travel in the direction of the blue arrow.
58. Release the joystick gently.
 - Result: The machine should come to a stop.
59. Press and hold the enable button at the top of joystick 3 and gently move the joystick backwards (towards you).
 - Result: The machine should travel in the direction of the yellow arrow.
60. Release the joystick gently.
 - Result: The machine should come to a stop.

Test the Work Lights

61. Push the work lights button.
 - Result: The work lights should switch on.
62. Push the work lights button again.
 - Result: The work lights should switch off.

FUNCTION TESTS

Test the Corrective Tilt Function

63. If possible drive to a section of track that exceeds approx. 65mm cant (side tilt angle of 2.5 degrees).
 - Result: Rail travel and other functions (except telescope in) should cut out. The indicator light in the corrective tilt button and the over-tilt indicator light on the panel should illuminate. A low frequency buzzer should also sound.
64. Press and hold the enable button (on either the left or right hand joystick) and press and hold the corrective tilt button.
 - Result: The king-post will level itself to within its side to side limits. All functions should again be operable. The indicator lights will no longer be illuminated and the buzzer should not sound.

Select Work Platform controls

65. Turn the control position key-switch to the 'work platform' position.
66. Exit the seat at the king-post controls and climb down to the vehicle deck. Enter the work platform and securely fasten the gate behind you.

At the Work Platform Controls :

67. Check the MEWP active and work platform controls selected indicator lights at the top right hand side of the panel.
 - Result: Both green lights should be illuminated indicating that the work platform controls are enabled.

Test Emergency Stop

68. Press the emergency stop button.
 - Result: The light below the emergency stop button should illuminate and no functions should operate.

69. Reset the emergency stop by pulling out the button.

Test the Horn

70. Press the upper button on the front of the joystick 1 (left hand joystick).
 - Result: The automotive horn should sound.
71. Repeat for joystick 2 (right hand joystick).

Test the Pre-Lift Feature

72. Press and hold one of the joystick enable buttons and simultaneously press and release the green stow button at the bottom of the control panel.
 - Result: The boom will fully retract and the work platform will tilt forwards and backwards as part of the pre-use calibration sequence. Calibration has finished after the fourth tone. If the work platform is not level repeat the previous step.

Test the Machine Functions



PRIOR TO TESTING THE MACHINE FUNCTIONS ENSURE THAT THE AREA SURROUNDING THE MACHINE IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

73. Without pressing the enable button on top of joystick 2 (right hand Joystick), attempt to activate the boom and work platform functions by moving the joystick backwards (towards you), forwards (away from you) and side to side.
 - Result: None of the boom or platform functions should operate.
74. Press and hold the enable button at the top of joystick 2 and activate the boom raise function by moving the joystick backwards.

FUNCTION TESTS

- Result: The boom should elevate.
- 75. Return joystick 2 to its neutral position.
- 76. Press and hold the enable button at the top of joystick 2 and activate the boom lower function by moving the joystick forwards. Release the joystick once the boom is approximately horizontal.
- Result: The boom movement should stop.
- 77. Press and hold the enable button at the top of joystick 2 and move the joystick to the left.
- Result: The work platform should rotate in an anti-clockwise direction.
- 78. Press and hold the enable button at the top of joystick 2 and move the joystick to the right.
- Result: The work platform should rotate in a clockwise direction.
- 79. Return the work platform to its central position.
- 80. Using joystick 2, raise the boom so that it is at an angle of approximately 30 degrees.
- 81. Press and hold the enable button at the top of joystick 1 (left hand joystick) and move the joystick to the left.
- Result: The boom should slew to the left (in a clockwise direction).
- 82. Press and hold the enable button at the top of joystick 1 and move the joystick to the right.
- Result: The boom should slew to the right (in an anti-clockwise direction).
- 83. Slew the boom to the central forward position.
- 84. Press and hold the enable button at the top of joystick 1 and move the joystick forwards (away from you).

- Result: The boom should extend.
- 85. Press and hold the enable button at the top of joystick 1 and move the joystick backwards (towards you).
- Result: The boom should retract.

Test Boom Stowed Interlock

- 86. Use joysticks 1 and 2 to lower the boom to its fully lowered & retracted, transport position.
- Result: The boom stowed light should illuminate.

Test Rail Travel



PRIOR TO DRIVING ON RAIL, ENSURE THAT THE FRONT STEERING WHEELS ARE STRAIGHT AND THAT THE INNER SIDE WALLS ARE NOT CONTACTING THE FRONT RAIL WHEELS.



PRIOR TO TESTING THE TRAVEL FUNCTION ENSURE THAT THE AREA OF RAIL IN FRONT AND BEHIND YOU IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

- 87. Press and hold the enable button at the top of joystick 3 (central joystick) and gently move the joystick forwards (away from you).
- Result: The machine should travel in the direction of the blue arrow.
- 88. Release the joystick gently.
- Result: The machine should come to a stop.
- 89. Press and hold the enable button at the top of joystick 3 and gently move the joystick backwards (towards you).

FUNCTION TESTS

- Result: The machine should travel in the direction of the yellow arrow.

90. Release the joystick gently.

- Result: The machine should come to a stop.

Test the Corrective Tilt Function

91. If possible drive to a section of track that exceeds approx. 65mm cant (side tilt angle of 2.5 degrees).

- Result: Rail travel and other functions (except telescope in) should cut out. The indicator light in the corrective tilt button and the over-tilt indicator light on the panel should illuminate. A low frequency buzzer should also sound.

92. Press and hold the enable button (on either the left or right hand joystick) and press and hold the corrective tilt button.

- Result: The king-post will level itself to within its side to side limits. All functions should again be operable. The indicator lights will no longer be illuminated and the buzzer should not sound.

Test the Work Lights

93. Push the work lights button.

- Result: The work lights should switch on.

94. Push the work lights button again.

- Result: The work lights should switch off.

95. Exit the work platform and climb back down to ground level.



IF ANY MALFUNCTIONS ARE FOUND, TAG AND REMOVE THE MACHINE FROM SERVICE.

REPAIR ANY MALFUNCTIONS BEFORE OPERATING THE MACHINE.

At the Remote Controls (if supplied) :

96. Climb onto the vehicle deck to access the king-post controls.

97. Select remote controls by turning the control position key-switch to the centre position.

98. Exit the chassis deck and climb back down to ground level.

99. Remove the remote controls from their designated storage area.

100. Connect the remote control cable to the socket provided at the rear of the chassis.

101. Check the power indicator and remote controls selected indicator lights at the top left hand side of the panel.

- Result: Both green lights should be illuminated indicating that the remote controls are enabled.

Test Emergency Stop

102. Press the emergency stop button.

- Result: The light under the emergency stop button should illuminate and no functions should operate.

103. Reset the emergency stop by pulling out the button.

FUNCTION TESTS

Test the Horn

104. Press the horn button.
105. Result: The automotive horn should sound.

Test the Pre-Lift Feature

106. Press and hold one of the joystick enable buttons and simultaneously press and release the green stow button at the bottom of the control panel.
 - Result: The boom will fully retract and the work platform will tilt forwards and backwards as part of the pre-use calibration sequence. Calibration has finished after the fourth tone. If the work platform is not level repeat the previous step.

Test the Machine Functions



PRIOR TO TESTING THE MACHINE FUNCTIONS ENSURE THAT THE AREA SURROUNDING THE MACHINE IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

107. Without pressing the enable button on top of joystick 2 (right hand joystick), attempt to activate the boom and work platform functions by moving the joystick backwards (towards you), forwards (away from you) and side to side.
 - Result: None of the boom or platform functions should operate.
108. Press and hold the enable button at the top of joystick 2 and activate the boom raise function by moving the joystick backwards.
 - Result: The boom should elevate.

109. Return joystick 2 to its neutral position.
110. Press and hold the enable button at the top of joystick 2 and activate the boom lower function by moving the joystick forwards. Release the joystick once the boom is approximately horizontal.
 - Result: The boom movement should stop.
111. Press and hold the enable button at the top of joystick 2 and move the joystick to the left.
 - Result: The work platform should rotate in an anti-clockwise direction.
112. Press and hold the enable button at the top of joystick 2 and move the joystick to the right.
 - Result: The work platform should rotate in a clockwise direction.
113. Return the work platform to its central position.
114. Using joystick 2, raise the boom so that it is at an angle of approximately 30 degrees.
115. Press and hold the enable button at the top of joystick 1 (left hand joystick) and move the joystick to the left.
 - Result: The boom should slew to the left (in an anti-clockwise direction).
116. Press and hold the enable button at the top of joystick 1 and move the joystick to the right.
 - Result: The boom should slew to the right (in a clockwise direction).
117. Slew the boom to the central forward position.
118. Press and hold the enable button at the top of joystick 1 and move the joystick forwards (away from you).
 - Result: The boom should extend.

FUNCTION TESTS

119. Press and hold the enable button at the top of joystick 1 and move the joystick backwards (towards you).

- Result: The boom should retract.

Test Boom Stowed Interlock

120. Use joysticks 1 and 2 to lower the boom to its fully lowered & retracted, transport position.

- Result: The boom stowed light should illuminate.

Test the Corrective Tilt Function

121. The machine must be at a section of track that exceeds approx. 65mm cant (side tilt angle of 2.5 degrees).

- Result: Rail travel and other functions (except telescope in) should cut out. The indicator light in the corrective tilt button and the over-tilt indicator light on the panel should illuminate. A low frequency buzzer should also sound.

122. Press and hold the enable button (on either the left or right hand joystick) and press and hold the corrective tilt button.

- Result: The king-post will level itself to within its side to side limits. All functions should again be operable. The indicator lights will no longer be illuminated and the buzzer should not sound.

Test Drive Interlock

123. With the remote controls still connected at the rear of chassis, place the remote control box on the chassis deck, ensuring that the cable is clear of the tyres and rail wheels.

124. Enter the vehicle cab.

125. Attempt to drive in forwards and reverse directions by selecting first gear.

- Result: Rail travel should not be available when remote controls are connected.

- Result: The boom not stowed indicator light on the top left of the cab control panel should be flashing.

126. Exit the cab, disconnect the remote controls and stow them in the designated storage area.



IF ANY MALFUNCTIONS ARE FOUND, TAG AND REMOVE THE MACHINE FROM SERVICE.

REPAIR ANY MALFUNCTIONS BEFORE OPERATING THE MACHINE.

Workplace Inspection



Do Not Operate Unless:

- ✓ You learn and practice the principles of safe machine operation contained in this operator's manual.
- 1. Avoid hazardous situations.
- 2. Always perform a pre-operation inspection.
- 3. Always perform function tests prior to use.
- 4. Inspect the workplace.

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

- 5. Only use the machine as it was intended.

Fundamentals

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

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

Workplace Inspection

Be aware of and avoid the following hazardous situations:

- Overhead obstructions and high voltage conductors
- Hazardous locations
- Inadequate surface support to withstand all load forces imposed by the machine
- Wind and weather conditions
- The presence of unauthorised personnel
- Other possible unsafe conditions
- Cant – not to exceed 150mm
- Ballast shoulder – high / low
- Deep cess / soft cess
- Drainage routes, troughing routes and other services/cables
- OHLE power cables.

Rail Operational Safety Precautions



- All work on or near the railway infrastructure must be carried out strictly in accordance with railway regulations.
 - Always observe Network Rail codes of practice
 - Work must be carried out in strict accordance to rulebook GE/RT 8000 and all safety precautions must be followed at all times.
 - Attention must be paid to railway group standards and all safety precautions must be followed at all times.
 - When working on electrically operated routes, be sure to observe official regulations. Always observe minimum clearance from overhead wires.
 - Not to be used in 3rd & 4th rail areas.
 - Never use on track without a possession.
 - Never use on track under live OLE, ensure a relevant C form is obtained.
 - Never use on track when trains are running.
 - All staff must be fully trained and certified as competent to use this piece of equipment on railway infrastructure by the owner/operator.
 - Never On/Off-Track in areas with close proximity hazards such as in station platforms under/on bridges, in tunnels or in areas with low overhead structures or line side structures.
 - Never On/Off-Track in areas with any cable connections to the rail.
 - Never On/Off-Track in areas with ATP loop cables either in the rail web or in the "four foot".
 - Never On/Off-Track in areas with any cables cleated to the top surfaces of sleepers.
 - Never On/Off -rack in areas with any signalling equipment fitted in the "four foot".
 - Always utilise an approved On/Off-Tracking method.
- See the Network Rail V.A.B Engineering Acceptance Certificate and EC Type Examination Certificate for additional, specific machine limitations of use.**

WARNING

FAILURE TO COMPLY WITH THESE REQUIREMENTS MAY RESULT IN SEVERE DAMAGE TO THE MACHINE AND/OR THE RAIL INFRASTRUCTURE.

Operating Instructions



Do Not Operate Unless:

- ✓ You learn and practice the principles of safe machine operation contained in this operator's manual.
- 1. Avoid hazardous situations
- 2. Always perform a pre-operation inspection.
- 3. Always perform function tests prior to use.
- 4. Inspect the workplace.
- 5. Only use the machine as it was intended.

Fundamentals

The Operating Instructions section provides instructions for each aspect of machine operation.

It is the operator's responsibility to follow all the safety rules and instructions in the Operator's, Safety and Responsibilities manuals.

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

Only trained and authorised personnel should be permitted to operate the machine.

If more than one operator is expected to use a machine at different times in the same work shift, they must all be qualified operators and are all expected to follow all safety rules and instructions in the operator's, safety and responsibilities manuals. That means every new operator should perform a Pre-operation Inspection, Function Tests, and a Workplace Inspection before using the machine.

OPERATING INSTRUCTIONS

Emergency Stop

The emergency stop function provides a facility to isolate machine functions in the event of an emergency situation.

- To stop all functions push any of the red emergency stop buttons to the 'OFF' position.
- To reset all functions, pull out any red emergency stop buttons that may have been depressed.

The emergency stop buttons are located in the vehicle cab, at the king-post controls, the work platform controls and (if supplied) the remote controls.

An indicator light on each panel will illuminate when any of the emergency stop buttons have been depressed. The engine will continue to run when an emergency stop button has been pressed.

Repair any function that operates when any of the emergency stop buttons are depressed.

Ensure that all personnel, either operating or working alongside this machine, are aware of the locations and function of the emergency stop buttons.

Deploying the Rail Gear

The rail gear can only be deployed using the controls located in the vehicle cab. These controls are located on the two panels to the right of the driver's seat.

- **To deploy the rear rail gear**, push and hold the front/rear rail gear acknowledge switch. Move the rear rail gear raise/lower lever away to lower the rear rail gear. Once the rear rail gear is fully deployed, the indicator screen will confirm.
- **To deploy the front rail gear**, push and hold the front/rear rail gear acknowledge switch. Move the front rail gear raise/lower lever away to lower the front rail gear. Once the rail gear is fully

deployed, the indicator screen will confirm.

The steering lock is activated and deactivated automatically when the front rail axle is deployed and retracted respectively. If the steering is miss aligned the front rail axle must be raised slightly to disengage the tire contact from the rail wheel drive hubs and to unlock the steering. The current steering wheel position and steering lock status is displayed on the status screen in the cab.

- **To retract the rail gear**, select the front/rear rail gear acknowledge switch as required. Move the appropriate rail gear raise/lower lever towards (left) to raise the front rail gear then the rear rail gear.

Once the boom has been fully stowed and both front and rear rail gear have been fully raised, the machine will shut down the rail lights and rail mode systems and activate the road lighting systems automatically.

- The vehicle is now in road mode and can be driven using the normal cab controls. Follow the Off-Tracking procedure described in the Rail Safety Rules section of this manual and the relevant Rail-ability manual.

To Drive on Rail (from vehicle cab)

WARNING

PRIOR TO DRIVING ON RAIL, ENSURE THAT THE FRONT STEERING WHEELS ARE STRAIGHT AND THAT THE INNER SIDE WALLS ARE NOT CONTACTING THE FRONT RAIL WHEELS.

WARNING

PRIOR TO DRIVING ON RAIL, ENSURE THAT THE AREA OF RAIL IN FRONT AND BEHIND YOU IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

OPERATING INSTRUCTIONS

When on rail, with the front and rear rail gear fully deployed, the machine can be driven forwards and backwards using the normal cab drive controls. If the boom is fully stowed, 1st, 2nd & 3rd gears are available. Once the boom is elevated, no drive function is available from the cab, and the machine must be driven using the king-post or work platform controls.

- To move the entire machine forwards from the cab, select 1st gear on the transmission. Gently, press the accelerator to reach the desired speed. Higher speeds can be obtained by further selecting 2nd and 3rd gears.
- To move the entire machine backwards from the cab, select reverse gear on the transmission. Gently press the accelerator to reach the desired speed.
- The direction confirm button must be pressed whilst selecting the direction of travel to enable drive.

To Drive on Rail with Platform Elevated (from king-post & work platform controls only)

WARNING

PRIOR TO DRIVING ON RAIL, ENSURE THAT THE AREA OF RAIL IN FRONT AND BEHIND YOU IS CLEAR OF ANY OBSTRUCTIONS OR PERSONNEL. SOUND THE HORN AND USE A MACHINE CONTROLLER OR 'BANKSMAN' IF NECESSARY.

WARNING

PRIOR TO DRIVING ON RAIL, ENSURE THAT THE FRONT STEERING WHEELS ARE STRAIGHT AND THAT THE INNER SIDE WALLS ARE NOT CONTACTING THE FRONT RAIL WHEELS.

Drive controls are provided at the king-pots and work platform control panels. The joystick controlling forwards and

reverse rail travel is proportional and includes a ramp up and down feature, to ensure smooth starting and stopping.

Travel with the work platform elevated is only permitted when in rail mode, with rail wheels fully deployed.

- **To move the entire machine forwards**, press and hold the enable button and slowly move the drive joystick in the direction indicated by the blue arrow.
- **To move the entire machine backwards**, press and hold the enable button and slowly move the joystick in the direction indicated by the yellow arrow.
- **To increase speed** in either direction, move the joystick further away from its centre position.
- **To decrease speed** in either direction, move the joystick towards the centre position.

Control Position Selection

Select the appropriate controls from the king-post control position.

- **To select the work platform controls**, turn the control position key-switch to the work platform position.
- **To select the king-post controls**, turn the control position key-switch to the king-post position.
- To de-activate work platform and king-post controls turn the control position key-switch to the centre position. This position also activates the remote controls (if supplied).

OPERATING INSTRUCTIONS

Operating the Boom

Boom control joysticks are provided at the king-post, work platform and (if supplied) remote controls. The joysticks controlling the boom movements (raise, lower, extend, retract & slew) are proportional. This means that the further a joystick is moved from its neutral (centre-off) position the faster that motion is. The joysticks also incorporate a ramp-up and ramp-down feature which enables the smooth starting and stopping of movements. The platform rotate function is not proportional is therefore the platform rotates at only one speed.

An 'enable' button is fitted to each joystick, which is of a 'hold to run type'. This means that the button must be pressed and held prior to that particular joystick being actuated, and any movement taking place. If an enable button is pressed but the joystick is not moved within 5 seconds, the system will reset and the button must be released and pressed once again.

Pressing and holding the enable button on the joystick corresponding to the desired movement results in a **slow** operating speed. Pressing and holding both the enable button and the boom speed button (lower button) at the front of the joystick whilst operating that joystick results in **normal** operating speed. Slow speeds are useful when manoeuvring the work platform alongside fixed work locations. Note that only slow speed is available when using the remote controls.

Prior to operation of the boom from its stowed position, a calibration sequence must be undertaken to ensure the initial level of the work platform. This is referred to as 'un-stowing the boom' and the steps are described below.

To un-stow the boom –

- Press and hold one of the joystick enable buttons and simultaneously press and release the green stow button at the bottom of the control panel.

The boom will fully retract and the work platform will tilt forwards and backwards as part of the pre-use calibration sequence. Calibration has finished after the fourth tone. The work platform can now be lifted from the stowage cup.

If the platform is raised above the stowage cup and the platform is not level, the raise function will be disabled. The boom must then be returned to the cup and calibrated as above.

- **To raise the boom**, press and hold the enable button, then move the right hand joystick on the king-post, work platform or remote control panels backwards (towards you).
- **To lower the boom**, press and hold the enable button, then move the right hand joystick on the king-post, work platform or remote control panels forwards (away from you).
- **To rotate the work platform in a clockwise direction**, press and hold the enable button, then move the right hand joystick on the king-post, work platform or remote control panels to the right.
- **To rotate the work platform in an anti-clockwise direction**, press and hold the enable button, then move the right hand joystick on the king-post, work platform or remote control panels to the left.
- **To extend the boom**, press and hold the enable button, then move the left hand joystick on the king-post, work platform or remote control panels forwards (away from you).
- **To retract the boom**, press and hold the enable button, then move the right hand joystick on the king-post, work platform or remote control panels backwards (towards you).

OPERATING INSTRUCTIONS

NOTICE

THE SLEWING CONTROLS ARE REVERSED ON THE WORK PLATFORM, WHEN COMPARED TO THE KING-POST AND REMOTE CONTROL PANELS. THIS IS BECAUSE WHEN THE OPERATOR IS FACING THE WORK PLATFORM CONTROL PANEL HE IS FACING IN THE OPPOSITE DIRECTION.

At the king-post or remote controls –

- **To slew the boom in a clockwise direction**, press and hold the enable button, then move the left hand joystick to the right.
- **To slew the boom in an anti-clockwise direction**, press and hold the enable button, then move the left hand joystick to the left.

At the work platform controls -

- **To slew the boom in a clockwise direction**, press and hold the enable button, then move the left hand joystick to the left.
- **To slew the boom in an anti-clockwise direction**, press and hold the enable button, then move the left hand joystick to the right.

The slewing mechanism has a maximum rotation of 270 degrees ($\frac{3}{4}$ turn) clockwise and 270 degrees ($\frac{3}{4}$ turn) anti-clockwise from the central stowed position. From one extreme to the other this permits $1\frac{1}{2}$ full rotations, as indicated on the panels.

To stow the boom -

- Use the appropriate joysticks to approach the sub-frame recess with the telescoping boom fully retracted and the work platform perpendicular to the boom.
- Lower the work platform into the recess until the indicator light in the stow button illuminates. Lowering function will then be disabled.

- Press and hold the enable button on the right hand joystick and simultaneously press and hold the stow button until the platform is aligned with the chassis. The lower function will re-enable and reduce in speed.

Restricting the Slew

It may be necessary to use the slew restriction if the machine is working alongside a rail line which is still in service. This feature prevents the boom from accidentally being slewed over the adjacent track and therefore presenting a significant collision hazard. The slew restriction must be used in these circumstances.

- **To restrict the slew over the left** hand side of the machine, turn the key-switch at the lower left hand side of the king-post control panel anti-clockwise.
- **To restrict the slew over the right** hand side of the machine, turn the key-switch at the lower right hand side of the king-post control panel anti-clockwise.

WARNING

ENSURE THAT THIS FUNCTION IS TESTED FOR CORRECT OPERATION PRIOR TO RELYING ON IT.

OPERATING INSTRUCTIONS

To Level the Work Platform

The level of the work platform can only be adjusted when in 'rail mode', with rail wheels fully deployed.

- **To level the work platform**, press and hold an enable button (on either the left or right hand joystick) and press and hold the corrective tilt button.

This function is only available when on rail and is mandatory following excess cant angle resulting in an over-tilt condition. The boom 'telescope in' function is available in an over-tilt condition, if required.

In 'road mode', i.e. when the work platform is elevated when on tyres, the platform will remain within 4 degrees of the horizontal in all directions, as long as the chassis inclination does not exceed 3 degrees.

Using the Work Lights

The work lights on the boom can be switched on and off by using either of the pushbuttons on the king-post and work platform control panels. The lights can be switched on at one panel and switched off at another for ease of use.

- **To switch the work lights ON**, push the button on either the king-post or work platform panels.
- **To switch the work lights OFF**, push the button on either the king-post or work platform panels.

The work lights will switch off automatically if the battery voltage drops to 11½ Volts. This is to ensure that the control system remains functional and allows boom functions to operate. If the work lights switch off automatically, recharge the batteries.

LED working lights have been fitted to the MEWP module and to the Rail-Boss Cab to keep the current requirements low at 12 volts. Under no circumstances can these be replaced, exchanged or have additional lights added with standard filament type bulbs.

Using the Auxiliary Hydraulic Ports

Two ports are provided at the right hand side of the work platform controls, for the connection of hydraulically powered tools. These ports are labelled A and B and can be selected individually from the switch on the control panel.

An ON/OFF button is provided to start and stop the hydraulic supply once a tool is connected to the selected port. An indicator lamp within the button illuminates when the hydraulic supply is connected to the tool. If the A/B selector switch is actuated when a tool is being powered, then power to that tool is automatically stopped.

Using the 12 Volt DC Supply

A socket is provided at the right hand side of the work platform controls for the connection of 12 volt DC equipment with a maximum of 5amp current requirement. Unscrew the protective blue plastic cap and connect equipment as required. Be sure to replace the protective cap when not in use.

Using the 110 Volt AC Supply

A socket is provided at the right hand side of the work platform controls for the connection of 110 volt AC equipment. Lift the protective yellow plastic cap and connect equipment as required. Be sure to replace the protective cap when not in use.

OPERATING INSTRUCTIONS

Load Sensing System

This machine is fitted with a system that measures the load within the work platform. When the load in the work platform is nearing its limit, the amber light on the selected control panel will illuminate. If the rated capacity of the work platform is exceeded then the red overload warning light flashes on the selected control panel and a high frequency buzzer sounds. All functions are locked out, preventing any further boom movement - the overload must be removed to enable functions again and the overload value is data logged and time and date stamped.

Once the overload is removed from the work platform the warning light ceases to flash, the buzzer ceases to sound and boom functions are again available.

There may be an instance whereby an overload cannot be removed, for example if the load sense system has been triggered due to contact with an external fixed structure. In such an instance it may be necessary to release the machine by other means. An over-ride system is provided for such a situation; however this must only be used when the work platform overload cannot easily be removed. Break the orange tag on the cover plate and press and hold the green button underneath to re-enable the controls. This function is available for five seconds in a 30 second period. This 5 second period is identified by 5 short tones from the vehicle horn. After 30 seconds a long tone sounds from the vehicle horn to identify that the button can be repressed and held again. The button can be pressed and held to reactivate the controls unlimited amount of times in order to get the machine into a safe state or to remove the exceedance. Having used this system the blue strobe will continue to flash until the machine has been inspected by the manufacturer.

Note that it is possible to overstress and overturn the machine whilst the safety systems are overridden. The operator should prioritise the use of the Tele in function were ever possible to assist in correcting the situation.

Moment Sensing System

This system monitors the combination of the load in the work platform coupled with the outreach of the boom. The amber warning light illuminates when the work platform load/outreach combination is approaching its limit. The red warning light illuminates when the limit has been reached. Once the limit is reached all functions except boom retract (telescope in) are locked out. This enables the operator to retract the boom to bring the load/outreach combination back to within its limit.

There may be an instance whereby an overload cannot be removed, for example if the moment sense system has been triggered due to contact with an external fixed structure. In such an instance it may be necessary to release the machine by other means. An over-ride system is provided for such a situation; however this must only be used when the work platform overload cannot easily be removed. Break the orange tag on the cover plate and press and hold the green button underneath to re-enable the controls. This function is available for five seconds in a 35 second period. This 5 second period is identified by 5 short tones from the vehicle horn. After 30 seconds a long tone sounds from the vehicle horn to identify that the button can be repressed and held again. The button can be pressed and held to reactivate the controls unlimited amount of times in order to get the machine into a safe state or to remove the exceedance. Having used this system the blue strobe will continue to flash until the machine has been inspected by the manufacturer.

Note that it is possible to overstress and overturn the machine whilst the safety systems are overridden. The operator should prioritise the use of the Tele in function were ever possible to assist in correcting the situation.

OPERATING INSTRUCTIONS

Using the Over-ride System

Three over-ride systems are fitted to this machine to enable the boom to be slewed, retracted and lowered to its stowed position in the event of an emergency, loss of power or control system failure. The three systems are listed below and the method for using each is described in the following sections.

- Over-ride button at king-post and work platform controls
- Over-ride at chassis
- Auxiliary hand pump

Ensure that all personnel, either operating or working alongside this machine, are aware of the location and operation of each of these systems.

NOTICE

THESE OVER-RIDE FEATURES MUST ONLY BE EMPLOYED IN THE EVENT OF AN EMERGENCY, LOSS OF POWER OR CONTROL SYSTEM FAILURE. THEY ARE NOT CONSIDERED SUITABLE FOR NORMAL USE.

Over-ride at King-post and Work Platform Controls

An over-ride button is provided at the both the king-post and work platform controls (see Figures 12 & 13) which, when activated, allows the operator to bypass the following safety interlock systems -

- Over-tilt (cant) in both directions
- Chassis body-lock status
- MEWP 'on' key-switch
- Maintenance hatch interlock
- Load sensing system
- Moment sensing system
- Slew restriction

During an over-ride situation all audible or visual warnings associated with any of the above interlocks will continue to actuate. An additional buzzer will sound whenever the over-ride button is pressed to indicate

that the over-ride feature is being activated. Once the over-ride system is activated a blue strobe light will flash. The strobe light will continue to flash until the system has been reset.

To slew/lower the boom in the event of an emergency or control system failure –

- Break the seal on the king-post or work platform over-ride button, and rotate the cover.
- Press and hold the over-ride button and simultaneously press and hold the enable button and actuate the required boom control joystick.

Note that whilst depressing the over-ride button, power is only available for a maximum of 5 seconds in a 35 second period. During the 30 second deactivated period, the operator must have released the enable button on the joysticks. The enable button and joystick must again be actuated during the 5 second period.

Once the boom has been lowered to its stowed position, after the over-ride button has been activated, the blue beacon warning will strobe indicating that the machine must be inspected. The system must then be reset by Rail-Ability Ltd.

OPERATING INSTRUCTIONS

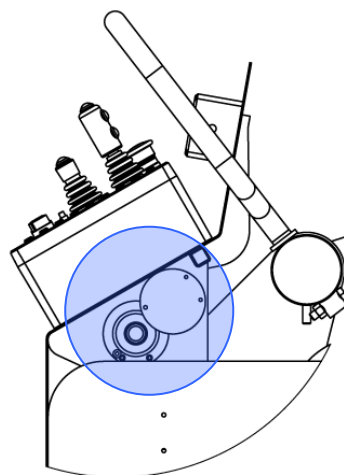


Figure 12 – King-post over-ride button location

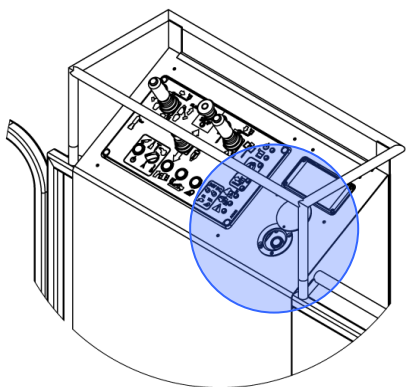


Figure 13 – Work platform over-ride button location

Over-ride at Chassis

If the electrical control system has failed then it may be necessary to actuate the hydraulic valves directly at the valve block, located on the chassis. An over-ride button is provided for this event and is located in a box under the central maintenance hatch on the chassis (see Figure 14). A screwdriver will be required to access this box.

When activated, the over-ride allows the operator to bypass the safety interlock systems listed in the previous section.

To slew/lower the boom in the event of an emergency or control system failure –

- Remove the central maintenance hatch cover on the chassis.
- Break the seal on the box containing the over-ride button.
- Turn the knob on the relevant valve (SL9 to SL19) in the direction of the arrow (see Figure 15). A decal indicating the function of each valve is located on the underside of the maintenance hatch cover.
- Press and hold the over-ride button and simultaneously actuate the required control lever on the valve block.

Whilst this over-ride system has been activated the other control stations (king-post, work platform, etc.) will be isolated and will indicate an error state.

This function is data logged and is only available for five seconds in a 35 second period. This 5 second period is identified by 5 short tones from the vehicle horn. After 30 seconds a long tone sounds from the vehicle horn to identify that the button can be repressed (but does not have to be held) again. The button can be pressed to reactivate the controls unlimited amount of times in order to recover the machine. Having used this system the blue strobe will continue to flash until the machine has been inspected by the manufacturer.

Note that it is possible to overstress and overturn the machine whilst the safety systems are overridden. The operator should prioritise the use of the Tele in function were ever possible to assist in correcting the situation.

Once the boom has been lowered to its stowed position, after the over-ride button has been activated, the machine must be inspected and reset prior to being put back into service. Contact Rail-Ability Ltd for assistance.

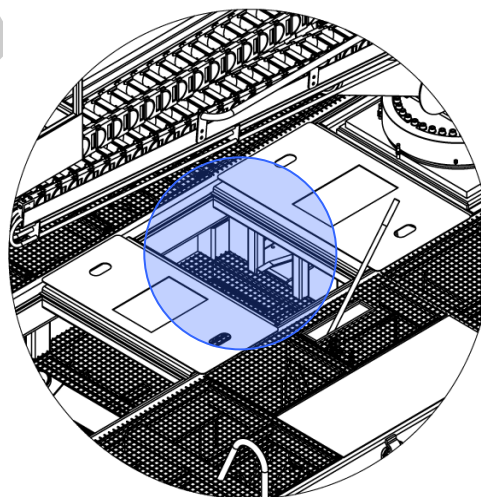


Figure 14 – Chassis over-ride button location

OPERATING INSTRUCTIONS

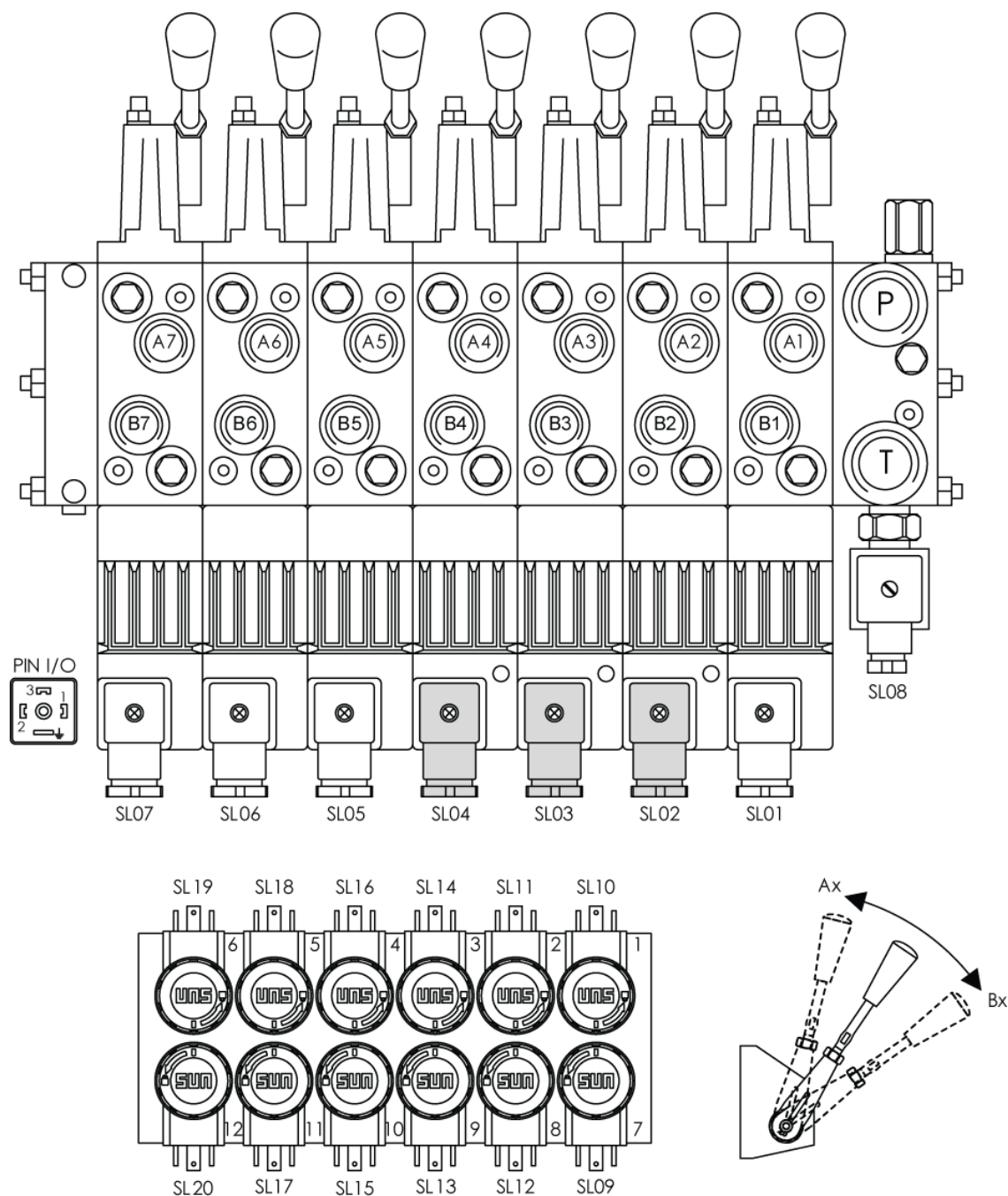


Figure 15 – Main valve block (located under central maintenance hatch cover).

OPERATING INSTRUCTIONS

(SL08) on the dump valve)

Auxiliary Hand Pump

If the electrical and hydraulic control systems have failed, or the engine has failed (e.g. run out of fuel) then the boom may only be returned to its stowed position using the auxiliary hand pump. This is located alongside the central maintenance hatch cover on the chassis (see Figure 16). During normal use, the handle is stored in the chassis compartment on the offside of the vehicle (opposite to the remote controls storage compartment).

Note that this is a different hand pump to the one mounted on the nearside of the chassis, which is used solely for raising the rail gear in an emergency.

To lower the boom in the event of an emergency, control system failure or loss of power –

- Retrieve the hand pump handle from the chassis compartment & insert it into the hand pump, as shown in Figure 16.
- Open the central maintenance hatch cover on the chassis.
- Turn the knob on the relevant valve (SL9 to SL19) in the direction of the arrow (see Figure 15). A decal indicating the function of each valve is located on the underside of the maintenance hatch cover.
- Simultaneously -
 - press and hold the blue button (SL08) on the dump valve
 - actuate the required control lever on the valve block (see decal for corresponding function and direction of movement).
 - operate the hand-pump by moving the handle back & forth.

(If battery power is still available it may be possible to press the green override button under the maintenance hatch to save having to press and hold the blue button

NOTICE

THIS PROCEDURE MAY REQUIRE MORE THAN ONE PERSON.

Once the boom has been lowered to its stowed position the machine must be inspected and reset prior to being put back into service. Contact Rail-Ability Ltd for assistance.

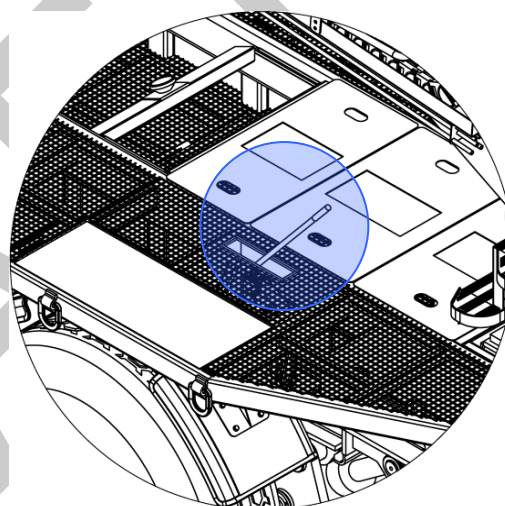


Figure 16 – Auxiliary hand pump location

OPERATING INSTRUCTIONS

Error Codes

A system error indicator light is provided on the king-post and work platform controls panels to warn the operator in the unlikely event of a failure within the control system. If an error condition exists, this indicator light will flash **three times**. Following this sequence of flashes, the indicator light will flash again to indicate the nature of the fault, as described below.

Additional flashes	One (1)
Possible fault	Maintenance hatch error
Check	Ensure central maintenance hatch cover is correctly fitted & secure. Ensure proximity switch or wiring are not damaged.

Additional flashes	Two (2)
Possible fault	Steering not centred error
Check	Ensure front road wheels are centred and locked, Ensure wiring is not damaged.

Additional flashes	Three (3)
Possible fault	Body Lock Pin error
Check	Ensure all Body lock pins are installed and padlocked Ensure wiring to chassis hooks is not damaged.

Additional flashes	Four (4)
Possible fault	Emergency stop error
Check	Ensure all emergency stops are pulled out. Ensure wiring to control boxes is not damaged.

Additional flashes	Five (5)
Possible fault	Counterweight error
Check	Ensure all Counterweights are fitted and secured. Ensure wiring to sensors is not damaged.

Additional flashes	Five (6)
Possible fault	Alternator error
Check	Ensure Alternators are working correctly Ensure wiring to Alternators is not damaged.

For other system error codes, please refer to the Service Manual.

After Each Use

Perform the following steps at the end of every work shift.

1. Ensure the platform is fully stowed.
2. Off-Track the machine.
3. Park the machine on a firm level surface, clear of obstruction and traffic at least 3 metres away from the nearest railway lines.
4. Turn off the ignition, remove the keys and lock both cab doors to secure from unauthorised use.
5. Chock the wheels.

Transport and Lifting Instructions



Observe and Obey:

- ✓ Never lift the machine with a crane.
- ✓ The transport vehicle must be parked on a level surface.
- ✓ The transport vehicle must be secured to prevent rolling while the machine is being loaded.
- ✓ Be sure the transport vehicle capacity, loading surfaces and chains or straps are sufficient to withstand the machine weight. See the serial plate on the machine for the machine weight or the Specification section in this manual.
- ✓ Do not drive the machine on a slope that exceeds the slope rating. See Driving on a Slope in the Operating Instructions section.
- ✓ If the slope of the transport vehicle bed exceeds the maximum slope rating, the machine must not be loaded and a suitable transport vehicle must be obtained.

Loading Operation

After the machine is loaded:

1. Ensure that the rail gear remains raised after loading. Only the road wheels must be contacting the deck of the transport vehicle.
2. Ensure that the machine parking brake is applied.
3. Never leave the machine in gear; this can damage the transmission and gearbox.
4. Ensure that the Pantograph is secure if fitted

Towing the machine is not recommended. If the machine must be towed due to failure on track, do not exceed 6mph.

Securing to transport vehicle for transit

- ✓ Turn the RAIL-BOSS ignition key switch to the off position, remove the key and lock the cab doors before transporting.
- ✓ Inspect the entire machine for loose or unsecured items.
- ✓ Use chains of ample load capacity.
- ✓ Use a minimum of 2 chains.
- ✓ Adjust the rigging to prevent damage to the chains and machine.
- ✓ Never chain over the work platform, boom, king-post or rail gear.
- ✓ Only chain to the dedicated chaining-down eyes. See RAIL-BOSS manual for information.

Module Demounting and Lifting Instructions



Observe and Obey:

- ✓ Never lift the entire Rail-Boss with a crane.
- ✓ The Rail-Boss must be parked on a level surface.
- ✓ The Rail-Boss must be secured to prevent rolling while the module is being demounted.
- ✓ Be sure the Crane vehicle capacity, and lifting chains or straps are sufficient to withstand the module weight. See the serial plate on the machine for the module weight or the Specification section in this manual.
- ✓ Do not demount the counterweights or the module when on a slope.
- ✓ Never demount the module with the counterweights still fitted
- ✓ Always Remove the counterweights before disengaging the body lock pins

Demounting Operation

After the machine has been stabled on flat level ground:

Disconnect the seat and seat electric connector at the kingpost control station – Remove the seat and seat mount assembly.

Support the counterweight back plate with the lifting machine through the centre lifting eye using a lifting strap.

Ensure that the strap is tight and taking the strain of the back plate weight

Loosen and remove the counterweight back plate retaining bolts

Lower the back plates down to the ground

Reattach the lifting device to the pair of counter weight back lifting eyes on the rear counterweight block. Lift and slide the counterweight off the support with the lifting machine and lower to the block ground.

Reattach the lifting device to the pair of counter weight back lifting eyes on the forward counterweight block. Lift and slide the counterweight off the support with the lifting machine and lower to the block ground.

Disengage the hydraulic and electrical connections to the host machine

Install the 4 module storage legs if provided into the 4 sockets at the front and rear of the subframe

Remove the front pair of body lock pins leaving the rear body lock pin engaged between the rear wheels

Attach the lifting machine to the rear pair of chaining down eyes on the rear of the module subframe

DO NOT LIFT THE MODULE

Slide the module rearward approximately 150mm.

Disconnect the machine from the chaining down points and reattach it to the four module lifting points

Ensure that the lifting chains / straps do not contact the boom whilst lifting

Lift the module until it is higher than the top of the rear wheels of the Rail-Boss. Take care not to swing the module into the Rail-Boss cab.

Lift the module clear of the Rail-Boss

On / Off Tracking



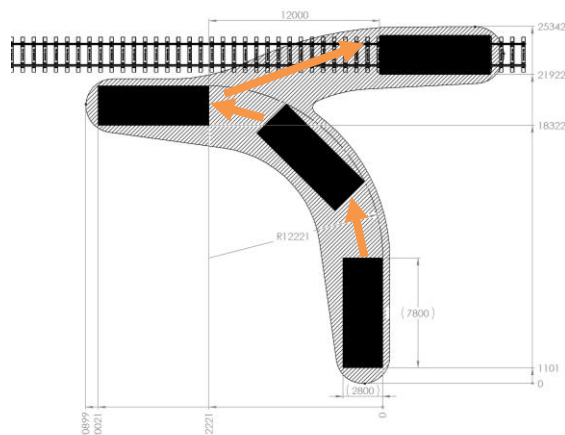
Observe and Obey:

On / Off Tracking

- ✓ 8000 and all safety precautions must be followed at all times.
- ✓ When working on electrically operated routes, be sure to observe official regulations. Always observe minimum clearance from overhead wires.
- ✓ Never install TAS or on track the machine without a possession.
- ✓ All staff must be fully trained and certified as competent to use this piece of equipment on railway infrastructure by the owner/operator.
- ✓ Refer to the Rail-Ability manual **RB001** for further information on the rail gear and associated systems.
- ✓ Refer to the RAIL-BOSS manuals and adhere to all instructions before commencing on / off tracking.
- ✓ Cant – not to exceed 100mm.
- ✓ Adequately prepared Access Point installed.
- ✓ Ballast shoulder – high / low identified.
- ✓ Deep cess / soft cess identified and avoided
- ✓ Drainage routes, troughing routes and other services/cables identified.
- ✓ OHLE power cables acknowledged.
- ✓ Switches and Crossings avoided.
- ✓ Overhead and close proximity structures and infrastructure observed.
- ✓ All work on or near the railway infrastructure must be carried out strictly in accordance with railway regulations.
- ✓ Work must be carried out in strict accordance to rulebook GE/RT

ON / OFF TRACKING

Suggested On / Off Tracking area requirements



1. Drive forwards and align the machine parallel to the track.
2. Reverse the machine at 30° to the track from the parallel position to traverse the track
3. Track Access Ramps are provided on the machine and should be deployed at the positions that the road wheels will contact the rails
4. Straddle the track and align the rear rail axle with the track
5. Deploy the rear rail axle to only just lift the rear road wheels slightly clear of the sleeper ends
6. Manoeuvre the machine to align the front rail axle with the track
7. Deploy the rear rail axle fully then Deploy the front rail axle to only just lift the front road wheels slightly clear of the sleeper ends
8. Straighten the front road wheel steering
9. Fully deploy the front rail axle

Note: The rail lights will automatically illuminate and the drive direction travel selector will automatically compensate the shift pattern to remain logical and the speedometer will recalibrate for rail mode.

On Rail Emergency Recovery



Observe and Obey:

Towing

- ✓ Refer to the RAIL-BOSS manuals and adhere to all instructions before commencing towing.
- ✓ Ensure that the towing vehicle is connected with the tow bar before the handbrake is released to enable towing to commence.
- ✓ A Network Rail pattern tow bar is located at the front of the vehicle.
- ✓ Tow eyes and pins are fitted to the front and rear of the machine.
- ✓ Do not exceed 10 km/h (6mph)
- ✓ Only use the rigid tow bar provided.
- ✓ Use the appropriate number of people and proper lifting techniques when lifting the tow bar.
- ✓ The tow bar must remain with the vehicle at all times and must never be removed unless when actually towing.

Manual Hydraulic Pump

In case of failure of the main hydraulic pump or engine failure, it is possible to raise the rail gear using the manual pump in order to Off-Track the vehicle.

The manual hydraulic pump is located at the nearside of the rear chassis.

Refer to the Rail-Ability manual **RB001** for further information on raising the rail gear using the manual pump.

Decals

Decal Inspection

Use the illustrations on the following pages to verify that all decals are legible and in place.

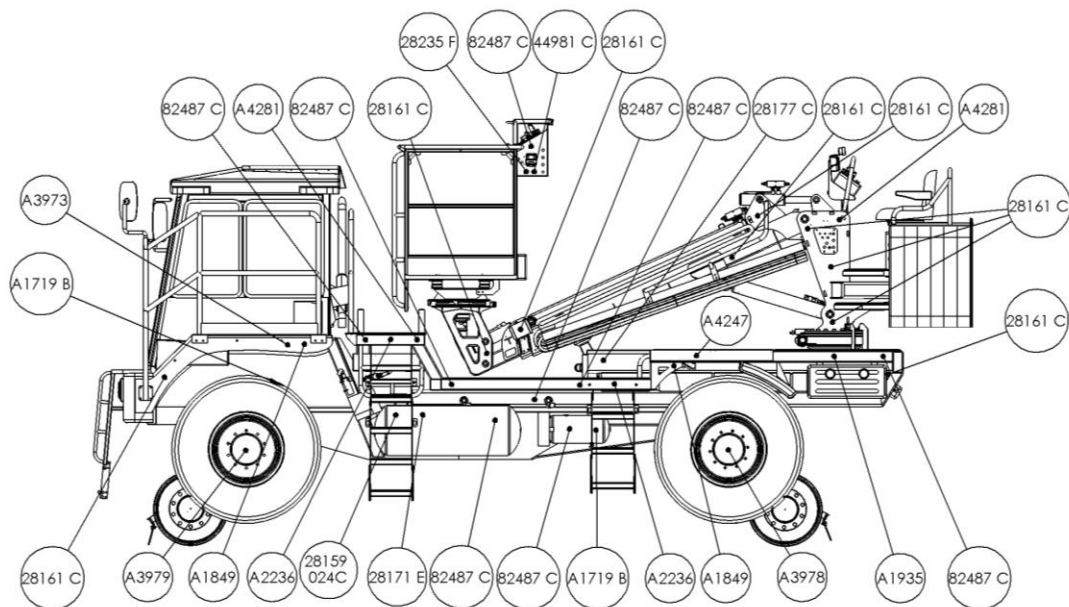


Figure 17 – Decals fitted to nearside of machine.

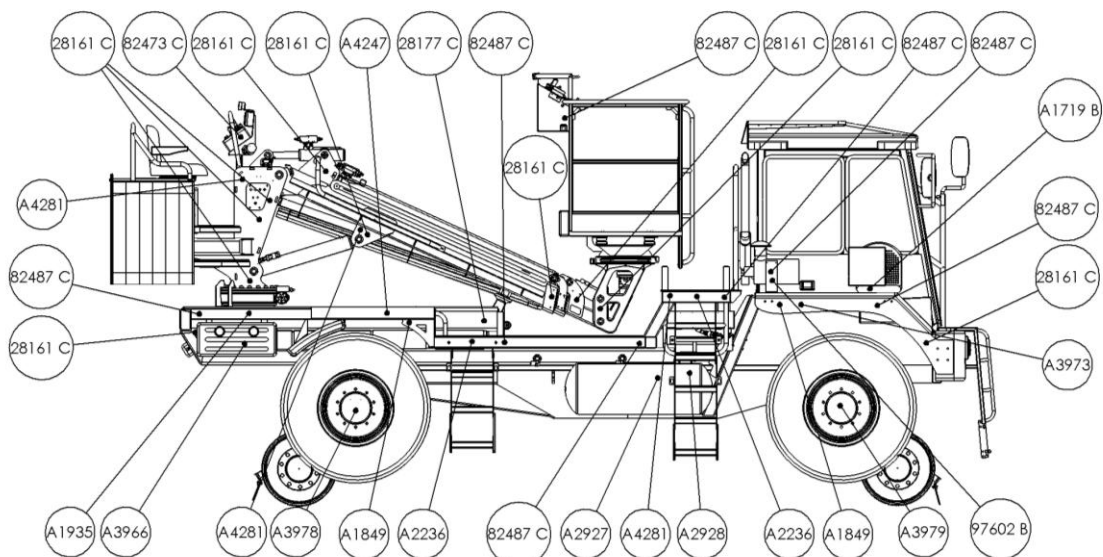


Figure 18 – Decals fitted to offside of machine.

DECALS

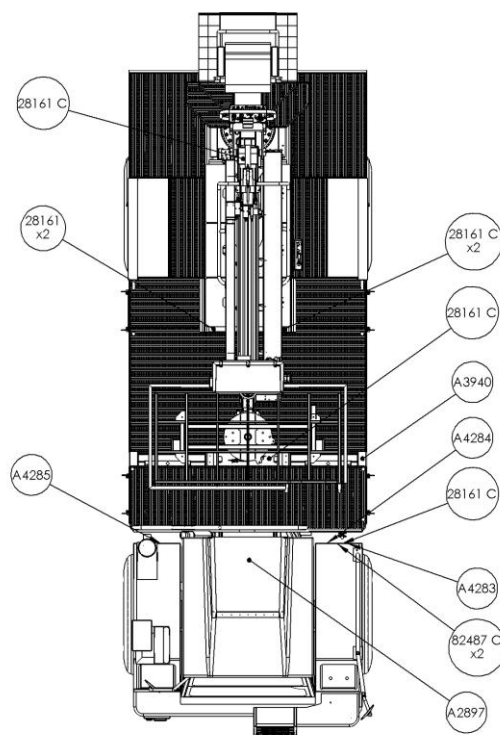


Figure 19 – Decals fitted to top of machine.

DECALS IN CAB

- 28164 116 C
- 28171 E
- 28175 H (x2)
- 28236 D (x2)
- A4288
- A4187
- A3899

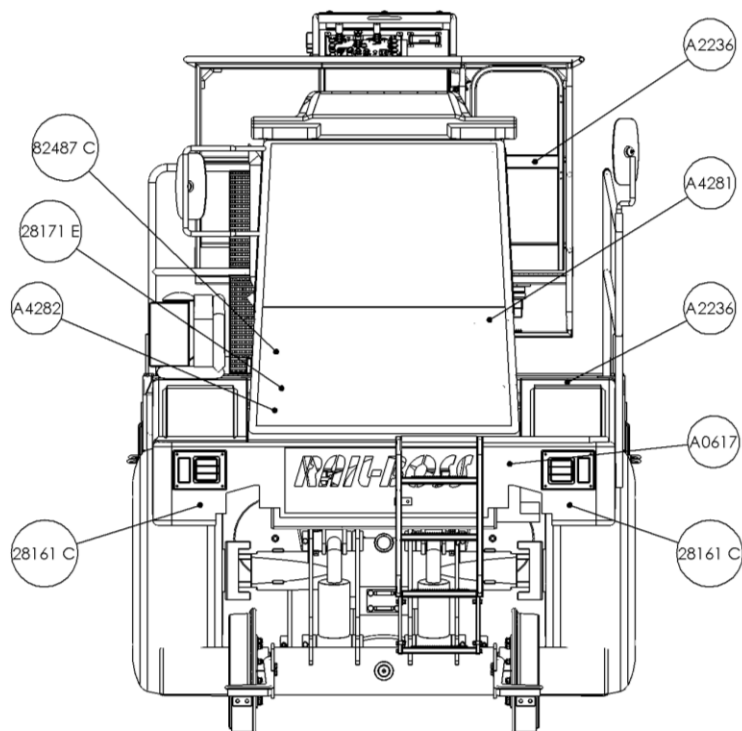


Figure 20 – Decals fitted to front of machine.

DECALS

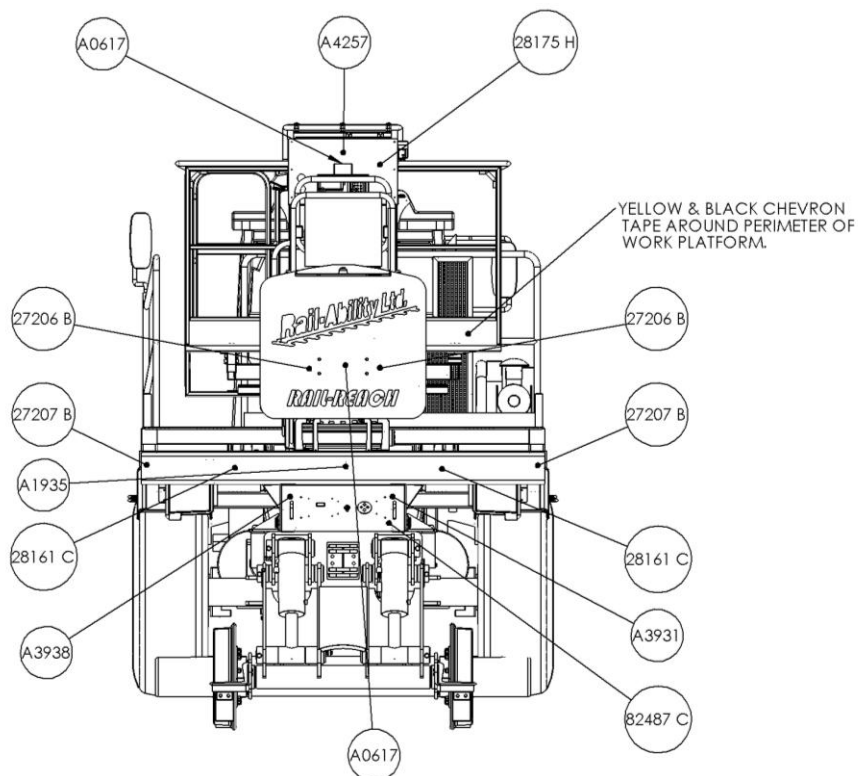


Figure 21 – Decals fitted to rear of machine.

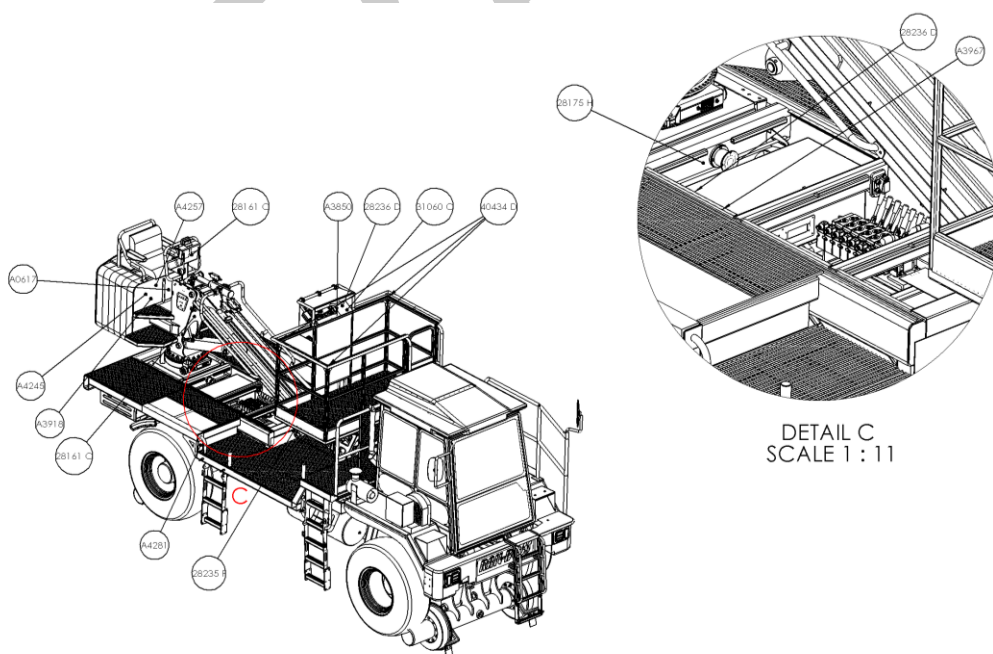


Figure 22 – Decals, front offside isometric view.

DECALS

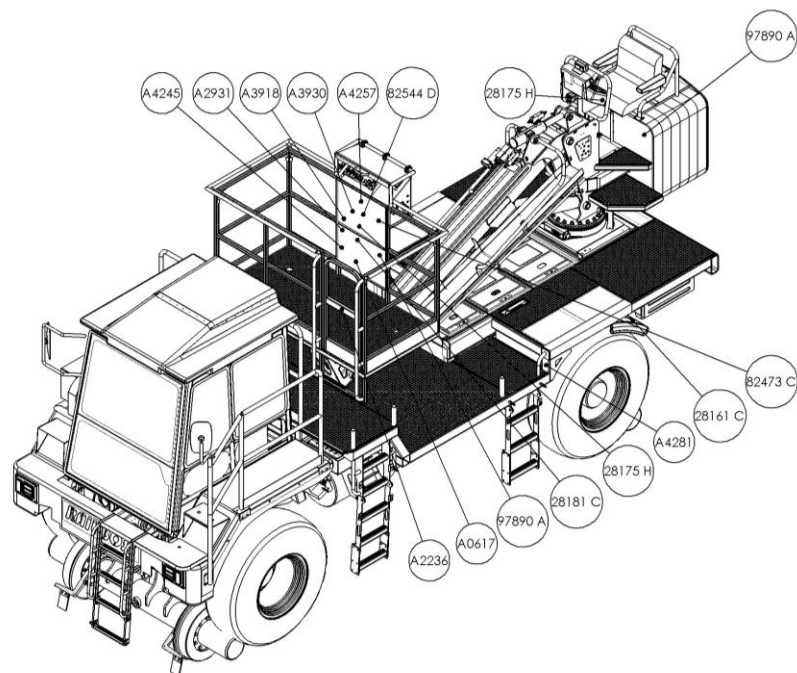


Figure 23 – Decals, front nearside isometric view.

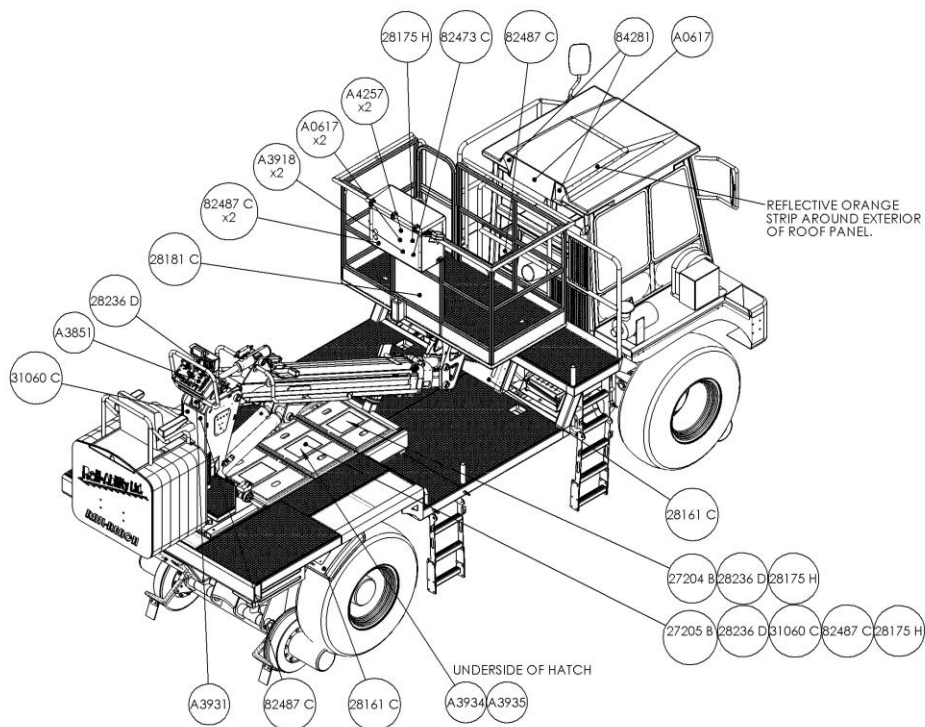


Figure 24 – Decals, rear isometric view.

DECALS

Part no.	Description	Quantity
27204	B Directional arrow – blue	1
27205	B Directional arrow – yellow	1
27206	B Triangle - blue	2
27207	B Triangle – yellow	4
28159	024C Diesel	2
28161	C Crushing hazard	19
28164	116C Hazardous materials	2
28171	024C No smoking	2
28175	H Compartment access	6
28177	C Crush hazard	2
28181	122B Fall hazard	3
28235	F 115V AV power to platform	2
28236	D Failure to read manual	5
31060	C Tip-over hazard interlock	2
40434	D Harness attachment point	3
44981	C Air line 110 PSI	2
82473	C Compartment access	3
82487	B Refer to operating instructions	3
82487	C Read manual	24
82544	D Electrocution hazard	1
97602	A Explosion hazard	1
97875	A Properly connect & use weld-line to platform	1
97890	A Operating instructions	1
A0617	- Danger overhead live wires	6
A1849	- Wheel load	4
A1935	- Do not stand within 6 metres of working machine	3
A2236	- No access under live O.L.E.	3
A2380	- Data	2
A2896	- Tow bar removal	1
A3662	- Work platform control panel	1
A3663	- King-post control panel	1
A3731	- Remote control panel	1
A3899	- In-cab indicator light panel	1
A3917	- Work platform load (500kg)	4
A3918	- Max. wind & manual force	5
A3925	- Serial	2
A3930	- Decibel level – work platform	1
A3931	- Decibel level – king-post	2
A3934	- PVG32 valve block details	1
A3935	- Dump block details	1
A3938	- Control panel instruction	3
A3940	- Hydraulic system protection	1
A3959	- Over-ride	2
A3962	- Lifting point	2
A3966	- Recovery instructions	2
A3967	- Maintenance hatch over-ride	1
A3973	- Engineering acceptance certificate expiry date	2
A3978	- Foam filled tyre	2
A3979	- Air filled tyre	2
817/01452	-	1

For other decals fitted which are marked '817/.....' please refer to the RAIL-BOSS Manual.

Specifications

Dimensions

Maximum platform height (on rail)	9.0 m
Horizontal reach	9.5 m
Maximum rated capacity	900 kg to 7.5m 500kg to 9.5m
Overall height, stowed (road)	3.603 m
Overall width, stowed	2.620 m
Overall length, stowed	7.820 m
Road Wheelbase	4.280 m
Rail Wheelbase	5.272 m
Front overhang (road)	1.337 m
Rear overhang (road)	2.143 m
Approach angle (road)	23°
Departure angle (road)	21°
Turning radius (road)	12.8 m
Steering angle (lock to lock)	33°
Minimum Track Curve Radius	60 m
Ground clearance (rail)	193 mm
Ground clearance (road)	323 mm
Vehicle deck height (road)	1.485 m
Vehicle deck height (rail)	1.720 m

Environmental data & limits

Maximum allowable wind speed	18.9 metres/sec (42 mph = BWS 8)
Maximum allowable manual force	1000 N
Sound power level (Perkins engine)	L _{WA} 107dB
Sound pressure level at operating work-stations (A-weighted)	
King-post controls (stowed)	77 dB
Platform controls (stowed)	95 dB
Remote controls (average)	74 dB
Vibration	< 2.5 m/s ²
Operating temperature	-5 °C to + 30 °C
Maximum Gradient (rail)	1 in 25
Maximum rail Cant (travelling)	200 mm
Maximum rail Cant (working)	150 mm

Maximum slope rating, stowed position, on tyres	3.0°
Maximum side slope rating, stowed position, on tyres	3.0°

Power supply

Power Source	12 volt D.C.
Batteries	1 x 115 Ah
Controls	Proportional
110 Volt AC outlet at work platform	Standard
12 Volt DC outlet at work platform	Standard
Maximum hydraulic pressure (functions)	220 bar
Hydraulic supply at work platform	Standard
Hydraulic tank	175 litres
Fuel tank	175 litres
Air supply at work platform	Standard
Tyre size	440/80R24
Tyre pressure (front)	2.8 to 3.2 bar
Tyre pressure (rear)	Foam filled

Platform dimensions

Length x width	2.0 x 1.0 m
Maximum number of persons	4

Drive speeds

Platform stowed -	
Cab controls	32 km/h (20 mph)
King-post & platform controls	9.6 km/h (6 mph)
Platform elevated -	
King-post & platform controls	9.6 km/h (6 mph)

Weights

Overall weight comprising -	18,000 kg
Front axle (road wheels)	5,500 kg
Rear axle (road wheels)	14,600 kg
Maximum load	12,000 kg

Test Report

This product has been tested in accordance with the following European Standard –

BS EN 280:2001 / 2009 Mobile Elevating Work Platforms – Design calculations – Stability criteria – Construction – Safety – Examinations and tests

Type	Rail-Ability Ltd Rail-Reach
Serial number	
Rated capacity	900kg / 500 kg

Prior to despatch from Rail-Ability Ltd, the above machine has undergone the following load test(s) in which to demonstrate structural integrity and fitness for purpose -

Load	kg
Equivalent to	% of rated capacity

During the test, the load indicated above was placed in the work platform and all the boom functions were operated separately to place the work platform in all available operating positions. Following the test, the structure was visually inspected to ensure that no deformation or failure had occurred. This test substantiates the structural design calculations undertaken on this product.

Signed	
Name	
Position	
Date	

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