

SteamRanger Heritage Railway

INFRASTRUCTURE ROLLINGSTOCK: Operate TMS-13 Bedford Road/Rail Procedure

Procedure: SHRI-004-WPQA-07



Track & Infrastructure Standards

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AMENDMENTS REGISTER

Issue Date	Summary of Change	Change Authorised By
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1.0 PURPOSE and SCOPE

This procedure provides the process to be followed by competent workers in all aspects of operating TMS-13 Bedford Three way tipper Road/Rail on SteamRanger's railway network.

2.0 PRE-OPERATIONAL SAFETY INSPECTION

2.1 SAFETY CHECKS

Prior to using any Hy-Rail the following points should be checked for safe operation: **GENERAL**

- Check Service Compliance sticker on vehicle and is within date
- Ensure tyres are correctly inflated
- Inspect for tyre tread & wall damage/uneven wear pattern
- Inspect road & rail wheel studs and nuts for security
- Inspect rail wheel profile for excessive wear or damage
- Inspect rail kit safety locks, etc for operation/damage
- Emergency axle jack, check for presence
- Test all lights for correct operation
- Ensure load is secured correctly & evenly
- Ensure fluid levels are at a proper level
- Ensure a First Aid Box is on-board and in warmer months a Snake Bite Klt
- Ensure all required Safeworking forms and equipment items are available.
- Fire Extinguisher charged correctly

GUIDE WHEEL EQUIPMENT

The rail equipment comprises of a hydraulic controlled axle bar at each end of the truck. These are mounted to the chasse of the truck with 2 rams per axle, with 2 rail wheels broad gauge apart, mounted on tori axles. Each axle bar is pushed down past centre, being locked down by the over centre plus the weight of the truck.

Be sure the guide wheel equipment is in operating condition by checking the following:

- a. Overall for damaged or worn parts.
- b. Proper alignment and guide wheel loads.

The following conditions are Hazards which may indicate that minor adjustments to the guide wheel equipment alignment are necessary.

- 1. Excessive flange or tread wear on any of the rail guide wheels.
- 2. Vehicle pulls noticeably to the left or right during track operation.
- 3. Vibration felt throughout the vehicle at various speeds during track operation.

DOCUMENTATION:

Competent worker is to complete SHRI-004-WFQA-04 Road-Rail Daily Checklist form during above safety inspection process.



3.0 ON TRACK AND OPERATE HYRAIL VEHICLE

Determine appropriate on track location and contact Train Control PRIOR to on tracking. Obtain relevant safeworking authority.

The hydraulic system working the 3way tipper also works the rail wheels through electrically controlled hydraulic valves. The power to work the hydraulic pump comes through a power take off on the gearbox. A level gauge sight glass on the oil tank must be at least ³/₄ plus full when the wheels are fully up and the tip body is down.

The truck is fitted with an independent wiring circuit with an overload fuse at batteries and 50 amp wiring to an isolation switch under the dash just below fuses. This supplies power to wheels as well as spray equipment. The fuses on the dash are for wheels and the spray take offs.

3.1 LOWERING RAIL GUIDE WHEELS

- 1. Ensure that road vehicles are not approaching the level crossing while placing the vehicle on track and operate flashing/rotating lights.
- 2. At a road crossing, drive the vehicle about 7.6 m past the track. Back the vehicle on to the track so that the vehicle rear wheels are on the rails and so that the rail is on the outer edge of the tyre. Then place the front wheels of the truck onto the rails. It may be necessary to move the vehicle back and forth several times to get the wheels centred on the rail properly.
- 3. Place the manual transmission in "NEUTRAL". Apply the hand brake.
- 4. Disengage clutch, engage power take off to engage pump and disengage the gearbox, release clutch and the hydraulics are now in action.
- 5. When the switch for the independent wiring system is in the on position a green light comes on. Press the button that indicates down and note that a yellow light comes on. This indicates that the rail wheels are going down. Keep holding down button until light goes out. This indicates that the rail wheels are fully down. During this process the engine rpm will have to be revved up to get the wheels to go down fully, especially if the truck has a load on it.
- 6. When fully down, disengage clutch, take power take off out of gear and put truck into reverse gear. Release clutch slowly and drive back a little way. At this attempt if a wheel flange is on top of the rail, it usually drops in.
- 7. Now go forward a little way to ensure that the truck is correctly on rail then get out and be careful as truck is higher up than on the road levels. Check all around the truck noting if all things are in position for rail travel.
- 8. Go to driver's side of truck and remove the tie bar and 2 locking pins each end of it on chains. Remove this from its mountings noting how it is mounted



> there to be able to put it back when needed. Put the yoke end of the tie bar around the steering drop arm. The tongue end goes in the jaws on the chassis pushing it in far enough to put the pin back in and the spring clip through hole in end of pin and push down spring clip in its place. Then by levering the bar up or down, line up the tongue on the other end of the bar to line up to the hole in jaw mounted on truck chasse so as the pin provided can go through and put spring clip in hole provided in end of pin clearing the jaw. This a safety device to ensure that the front wheels go straight ahead if the truck becomes derailed and not swing the wheels around to veer to one side with the potential to tip truck off the track.

After vehicle has been placed on track, inspect the following points:

- Inspect rail suspension unit flexitors for damage or misalignment
- Inspect anti-drail frame for misalignment or damage
- Inspect over centre locking, check it is maintained
- Inspect the rail guidance frame equipment for damage
- Inspect all rail sweeps for correct position or damage
- Check rail guidance equipment hydraulics for correct function & damage
- Check electrical controls for correct function or damage
- Test warning devices, horns and sirens for correct operation
- Check for correct wheel/axle alignment for rail operation
- Ensure foot and park brake functions correctly
- On road and track operation, check for correct function, unusual noises, crabbing and alignment problems
- Any checklist faults reported and repaired

DOCUMENTATION:

Competent worker is to complete SHRI-004-WFQA-04 Road-Rail Daily Checklist form during above safety inspection process.



3.2 ON TRACK OPERATION

- * when **INSPECTING** the road, a speed of **NO GREATER than 30 kph** is observed.
- * ROAD/RAIL vehicles are NOT to tow any trolleys without prior permission.
- * when travelling for non inspection purposes, a speed of NO GREATER than
 30km/h speed should be adhered to subject to safe sight distance being observed.
- * when traversing a section with limited forward visibility, the MAXIMUM vehicle speed should be that which will allow the vehicle to safely stop in half the distance that is visible ahead.
- * when travelling downgrade, use the natural transmission and engine braking of the vehicle to slow it down. Sudden brake application will cause wheel lockup and slide along rail head.
- * do not quickly accelerate the vehicle as this will undoubtably cause wheel slip.
- * when travelling on rails covered with ICE observe a SPEED LIMIT of 20Kph. Accelerate slowly and use the engine/transmission braking as wheel slip is most pronounced in these conditions.
- * Loads on the Road/Rail vehicle must be evenly spread on the tray-top and must never be overloaded. This can be detected by the bar on the bottom of the tray top touching the top of the tyres.
- * Air pressure in the rear tyres must have 90 psi in them evenly as low pressure damages tyres and causes derailment, front tyres on road need to be at 60 psi evenly to steer on the road.
- * DO NOT PROCEED OVER A LEVEL CROSSING UNTIL ANY ROAD TRAFFIC PRESENT HAVE SIGHTED THE TRACK VEHICLE AND STOPPED. IF IN DOUBT GIVE WAY.
- * CAUTION-- If yellow light comes on this means rail wheels coming up stop and correct, and if on the road this mean wheels are coming down stop and correct. This should be checked out as this may mean that its lock down on the rail not as good as it should be .Report it.
- * When side tipping on curves, loads need to be light as load shift can cause one wheel to lighten and cause derailments
- * Take extra care when reversing when empty because there may not be enough weight on the rear wheels to hold them on the track.

3.3 TROLLEYS AND TRAILERS - NO TOWING

Un-braked trolleys and trailers are **NOT PERMITTED TO BE TOWED** by Road/Rail vehicles on the SteamRanger network. Only approved trailers with brake systems controlled from the Road/Rail vehicle can be coupled and towed.



4.0 OFF TRACK HYRAIL VEHICLE

- 1. If off tracking at a level crossing, ensure that road vehicles are not approaching while placing the vehicle off track.
- 2. Place the manual transmission in "NEUTRAL". Apply the hand brake.
 - 3. Follow the on-track procedure by reversing steps required to enable offtracking.
- 4. If a fault occurs and the rail axles are not able to be raised, the axle can be jacked up and a chain is provided on the truck with a bolt in the end to hold it up to clear for road use.
- 5. The chain is not designed to be used to hold up axles on regular use because if forgotten, twisting damage will occur and repairs need to be carried out.
- 6. ENSURE THAT ROAD/RAIL GEAR IS LOCKED AWAY CORRECTLY FOR ROAD TRAVEL.
- 7. Engage manual transmission and release hand brake.
- 8. Drive vehicle off track and remain more that 3 metres from the nearest rail at all times.
- 9. Advise Train Control.

5.0 POST OPERATIONAL PROCEDURES

Store Road/Rail in appropriate assigned storage location. Ensure vehicle security.

Remove all items and place in relevant storage locations such as surplus materials, tools, First Aid Kits.

Identify any faults or matters requiring attention and repot same to the relevant Functional Manager.

6.0 COMPLETE DOCUMENTATION

Ensure SHRI-004-WFQA-04 Road-Rail Daily Checklist form is fully closed out.

Complete SHRI-004-WPQA-08 Infrastructure Rollingstock Fault Report Job Sheet, if repairs are necessary.

Ensure SHR WH&S processes are complete.

