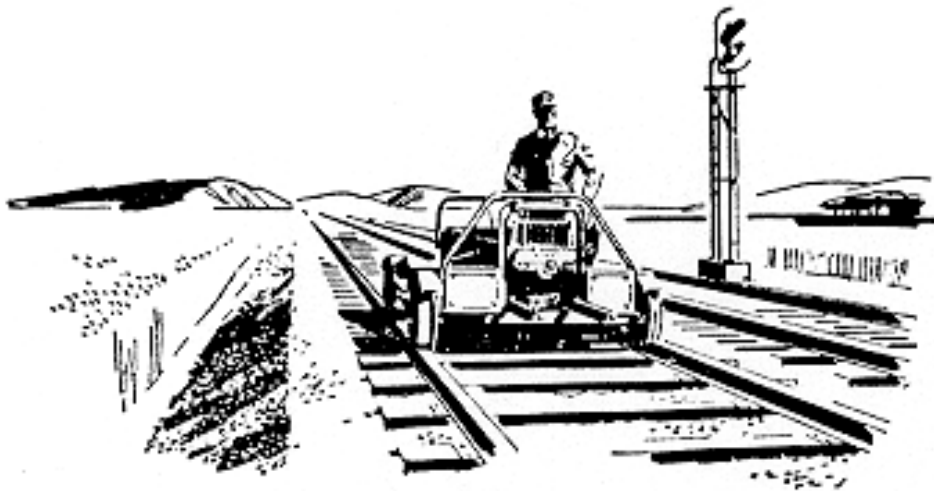




**SteamRanger
Heritage Railway**

INFRASTRUCTURE ROLLINGSTOCK: Operate TMS-09 Toyota Hyrail Procedure

Procedure: SHRI-004-WPQA-06



Track & Infrastructure Standards

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Authorised by: Troy Barker, S&T Coordinator

Issued By:

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AMENDMENTS REGISTER

Issue Date	Summary of Change	Change Authorised By
18-2-2016	New issue. Content relocated from old competency document. Approved by BOM 1/2/2016	TC Barker SHR BoM

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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-09 Toyota Landcruiser Hyrail 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 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 hand pump, 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 Kit
- Ensure all required Safeworking forms and equipment items are available.
- Fire Extinguisher charged correctly

GUIDE WHEEL EQUIPMENT

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.

3.1 LOWERING RAIL GUIDE WHEELS

1. Ensure that road vehicles are not approaching the level crossing while placing the vehicle on track.
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 centred on 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. Lower and lock the rear guide wheels first. The rear guide wheels should be lowered first so the vehicle front tyres can be maneuvered to align the front rail guide wheels with the rails.
5. With the rear guide wheels centred over the rails, move and hold switch towards the "rail" position. As the guide wheels lower, ensure that the flanges of the guide wheels are on the gauge side (inside) of the rails.
6. Continue to hold switch in the "rail" position to fully lower and lock the guide wheels in the "rail" position. As the guide wheels lower, the hydraulic ram moves 'over-centre' and stops when it comes to rest on the cross channel frame.
7. After the rear guide wheels are locked in the "rail" position, move the vehicle so that the front wheels are centred on the rail. Follow the same procedure to lock the front guide wheels in the "rail" position.

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
- * HYRAIL vehicles are NOT to tow any trolleys without prior permission.
- * when travelling for non inspection purposes,
a speed of NO GREATER than the Victor Harbor Line Maximum 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 undoubtedly cause wheel slip.
- * when travelling on rails covered with **ICE** observe a **SPEED LIMIT of 20Kph and place vehicle into 4WD mode**. Accelerate slowly and use the engine/transmission braking as wheel slip is most pronounced in these conditions.
- * Loads on the Hy-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.
- * The road tyres must be maintained at a pressure of 420kpa to prevent derailment.
- * **DO NOT PROCEED OVER A LEVEL CROSSING UNTIL ANY ROAD TRAFFIC PRESENT HAVE SIGHTED THE TRACK VEHICLE AND STOPPED. IF IN DOUBT GIVE WAY.**

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. Raise and lock the front guide wheels first. Move and hold switch towards the "Raise" position.
4. Continue to hold switch in the "raise" position to fully raise and lock the guide wheels.
5. Follow the same procedure to lock the rear guide wheels in the "raise" position.
6. **ENSURE THAT HYRAIL 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 Hyrail 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.

7.0 POTENTIAL HAZARDS, PROBLEMS OR DEFECTS

Condition	Possible Cause
Hydraulic cylinder movement slow or uneven	Oil viscosity too high Low oil level Slow engine speed (if pump is driven from vehicle gearbox) Oil flow restricted to pump
Noisy pump, oil foaming, erratic cylinder movement	Air leak on inlet side of pump Worn pump Incorrect oil viscosity Oil restricted to pump Low oil level
Overheating	Incorrect oil viscosity Worn pump Restriction in hydraulic line Incorrect pressure relief valve setting
Rail guide wheels flanging to one side	Rail guide wheels out of alignment Vehicle brakes partially applied Damaged pivot arm or rail wheel axle
Vehicle leaning to one side	Load not balanced, overloaded to one side Suspension body damaged Vehicle suspension damaged.
Insufficient rail gear ground clearance when in the road position	Overloaded vehicle
Vehicle derails	Rail gear out of alignment Vehicle speed is excessive Track gauge incorrect Vehicle out of alignment Rail wheels worn or damaged Tire air pressure incorrect
Rail gear doesn't lower or raise	Vehicle overloaded Hydraulic cylinder rod bent Insufficient lubrication on pivot pin Incorrect pressure relief valve setting Low oil level