AUSTRALIAN RAIL TRACK CORPORATION LTD

Discipline: Engineering **Category: Procedure**

Maintenance Policy – Rail Guidance Systems

PP-139.2

Applicability

ARTC Network Wide	✓	**CRIA (NSW CRN)**	

Document Status

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1.0	17 August 2007		First issue
1.1	20 September 2010	6.1	Updated to include reference to new form PP139.2F-04

Document Distribution List

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Contents

1 Purpose

To define the supply, maintenance and use of rail guidance systems (hi-rail) fitted to ARTC's motor vehicles and items of Plant & Equipment. It is ARTC's policy to procure, utilise and maintain a fleet of hi-rail vehicles in the most cost effective manner, ensuring the safety of our employees through a standardised range and a fully managed maintenance regime.

2 Scope

This policy covers registered commercial vehicles and plant items fitted with rail guidance systems owned and operated by ARTC to be used for infrastructure maintenance purposes.

3 Authority and Responsibility

The Plant & Equipment Manager is responsible for all aspects including the interpretation, updating and amendment of this policy.

4 Definitions

Rail Guidance System is a dedicated installation specifically designed to provide safe operation of a road vehicle or plant item on track. The rail guidance system can be engaged at any time to allow operation on rail depending upon requirements. Road vehicles fitted with a rail guidance system are often called "Hi-rail" vehicles.

High Speed Hi-rail is a next generation development of rail guidance equipment where an item of plant or vehicle is able to travel on rail with the rail guidance system providing the traction and braking. This is normally achieved through a hydrostatic drive arrangement.

Site Manager refers to the drivers direct line manager or the divisional manager responsible for the site or location.

Payload is equal to the Gross Vehicle Mass minus the Tare Weight of the vehicle. Consideration must be made when calculating the available payload that the weights of any passengers carried reduces the payload capacity for other equipment.

Tare Weight of a vehicle is defined as the vehicle weight measured when the vehicle is in a clean unladen state with all permanent fixtures in place including standard fitments such as a spare tyre.

Gross Vehicle Mass (GVM) is the maximum loaded mass of the vehicle as specified by the vehicle's manufacturer.

5 Standards

The following standards and codes of practice apply to this policy:

Australian Code of Practice Roll 41-1 (ver0.2), Guideline for the Safe Operation of Road/Rail vehicles.

WOS 01 Minimum Operating Standards for Rolling Stock

Vol 3.1 Code of Practice for the Defined Interstate Rail Network - Rules

PP-124.1 Track Maintenance Vehicle Registration and Operation

6 Maintenance of Rail Guidance Systems

6.1 Operator Daily Maintenance

In addition to the normal pre-start checks specified in the vehicle manufacturer's handbook, a specific record of road rail equipment checks must be performed by the operator on a daily basis prior to and following use on track. The requirements for daily inspections *PP139.2F-01 Pre-start Inspection Report* are derived from road rail equipment manufacturer's handbook and the the Australian Code of Practice – Guideline for the Safe Operation of

Road/Rail Vehicles. A number of inspection items deemed to be necessary for ongoing operational safety and reliability have also been included as weekly checklist items.

These additional checklist items ensure vehicle integrity is maintained without adding additional daily requirements. It is recommended that the weekly checks be performed on a set day per week e.g. every Monday. Operator performed daily checks are seen as the forefront in preventative maintenance and provide an opportunity to identify and rectify minor faults and prevent future breakdowns.

An inspection reference guide *PP139.2F-04* has been developed in order to assist the operator in conducting these daily and weekly checks.

6.2 Rail Guidance System Log Book

As a rail guidance system is deemed to be a specialised attachment, the results of the operator daily inspections are to be recorded in the Hi-rail log book provided. Action must be taken to rectify any defects found prior to use of the road-rail vehicle on track. Attachment logbooks must be retained in the vehicle at all times. Hi-rail log books will be randomly inspected from time to time to ensure operator compliance.

6.3 Preventative Maintenance Schedule

In accordance with manufacturer's specifications, a preventative maintenance schedule has been developed to ensure the operational reliability and safety on track of all rail guidance systems in use by ARTC. A routine inspection regime will be implemented to ensure compliance is achieved and safety critical components are frequently inspected. The routine inspection is to be completed by a nominated service provider and certified by the service provider as safe for operation on track through the use of a documented inspection schedule and official sign off. This level of certification for use on track will also include twist compliance testing. Details of requirements for twist test compliance and certification are noted in Section 6.4.

A standard inspection document for preventative maintenance inspections is *PP139.2F-02 Rail Guidance System Maintenance Inspection*. It is to be used as a single source document by all service providers and for all vehicles fitted with rail guidance systems within ARTC. The record of maintenance will be used as follows, when the service (or other inspection) is completed and signed off by the service provider, the original copy is to be forwarded to the ARTC Plant Coordinator. A duplicate copy is to be retained by the service provider and may also be requested by LeasePlan.

The maintainer is also to note on the pressure flap of the daily inspection book that the inspection was completed and the date and odometer reading of the vehicle at the time. Any current defects noted in the daily inspection book must also be repaired at the time of service.

LeasePlan will provide total vehicle management service for all tool of trade and pool vehicles covered by this policy. Every vehicle will be managed under a fully maintained arrangement. The supply, installation and maintenance of rail guidance systems fitted to these vehicles is also included under this arrangement.

An electronic service schedule will be issued regularly by LeasePlan or ARTC's Fleet Manager to all Team Managers detailing the hi-rail services due during the month and in the coming month. The Team Managers are then responsible to ensure that the service provider is contacted and the service is completed at a mutually agreeable time.

Items of plant fitted with high speed hi-rail or rail guidance systems shall be registered in the ellipse maintenance management system for scheduling of routine services.

Typically vehicles shall have the rail guidance systems inspected and tested every 6 months or 10,000 on track kilometres whichever occurs first.

Vehicles achieving high rates of on-track usage may be inspected on a 3 monthly or 5,000 rail kilometre frequency to ensure the integrity of the vehicle is maintained at all times.

6.4 Static Vehicle Twist Test

The requirements for performing and achieving compliance with the twist test are detailed in the ARTC rolling stock standard WOS 01.283 Vehicle Compatibility Tests – Static Vehicle Twist Test.

Generally, a twist test will be required in the following circumstances:

- For a new vehicle not previously approved for use on the network
- Following a change in vehicle suspension spring rates (including flexatore change-out)
- Following any change in vehicle torsional stiffness
- Following a change in fitted vehicle equipment and/or mass distribution
- Following a derailment or other impact incident
- At the completion of a routine service inspection

A detailed standardised procedure will be used to administer and record a static vehicle twist tests. This procedure is documented in *PP139.2F-03 Road / Rail Vehicle Twist Compliance Inspection*.

6.5 Repairs Following Derailment or Incident

In the event of a derailment or other vehicular incident resulting in impact damage to the front or rear rail guidance system, a full inspection and recertification process must be undertaken. This will include inspection and repair/replacement of any damaged components, completion of a rail guidance system inspection and completion of a static vehicle twist test.

Operators should be aware that the rail guidance systems fitted to commercial vehicles can be very susceptible to impact damage. Even minor impacts can alter the rail wheel alignment resulting in poor or unsafe operation on track.

All repairs and recertification work must be completed and signed off prior to resuming use of the vehicle on track. Where required, and safe to do so, the affected vehicle may be operated on road prior to recertification of the rail guidance system.

7 Fitment of Rail Guidance Systems

7.1 New Vehicles & Hi-Rail Installations

The replacement of ARTC owned vehicles will be reviewed on an annual basis by the Fleet Manager and the Plant & Equipment Manager. ARTC's priority is the efficient and cost effective replacement of the current owned fleet. Vehicles with the highest kilometres and or age will be replaced first. Vehicles will be acquired under a Fully Maintained Operating Lease arrangement according to the requirements set forth in the "Motor Vehicle - Tool of Trade & Pool Vehicle Policy".

All new vehicles to be fitted with rail guidance systems will have all safety equipment installed as required by Engineering Standard WOS 01.700 Track Maintenance Vehicle Specific Interface Requirements, which as a minimum will include:

- Headlights
- Stop/tail light
- Amber rotating beacon
- Low horn
- EPIRB

New rail guidance systems purchased shall include sandwich type rail wheels where available to reduce noise and improve the vehicle ride when on track. New rail guidance systems installed shall be marked with a unique identifying serial number to improve traceability of components.

Frontal vehicle protection, pedestrian and occupant safety must be considered when reviewing proposed new rail guidance system installations. Reference can be made to AS4876 – Motor Vehicle Frontal Protection Systems.

Throughout the installation of a rail guidance system on a new vehicle, all attempts must be made to ensure airbag compatibility is maintained (where fitted) and normal deployment will occur in the event of a crash sequence.

7.2 Transfer of Rail Guidance Systems

During the acquisition of new vehicles it may be necessary to transfer the rail guidance system from an existing vehicle to a new vehicle in order to gain the full effective life from the hi-rail system.

Prior to the installation of used components on a new vehicle, the following inspections shall be undertaken:

- Evaluation of stub axles for internal cracks through ultrasonic testing by a NATA certified laboratory
- Evaluation of stub axles for external cracks through magnetic particle testing by a NATA certified laboratory
- Inspection of rail wheels for compliance with WOS 01.212 Wheels – Minimum Operational Requirements
- Abrasive blasting and inspection of welds prior to repainting on all pivot frame and chassis mounting assemblies

Rubber bonded flex-ride suspension units shall be replaced and are not to be reused.

7.3 Certification of New Installations

The installation of a rail guidance system onto a new vehicle must comply with the requirements for use on the rail network and be approved prior to use on track. These requirements are set out in PP-124.1 Track Maintenance Vehicle Registration and Operation.

Any vehicle modifications required as part of the rail guidance system installation in NSW shall be subject to review and approval by an authorised signatory under the Roads & Traffic Authority (RTA), Vehicle Compliance Certification Scheme. Further details of this requirement can be found in Vehicle Standard Information Bulletin 15 on the RTA website.

7.4 Disposal of Owned and Leased Vehicles

No vehicles will be disposed of through LeasePlan or ARTC's approved disposal agent with a rail guidance system intact. All vehicles disposed in this manner must have all rail guidance system equipment removed and the vehicle be returned to as close as practical to the original state prior to disposal in order to prevent unauthorised rail system access.

8 Driver Responsibilities

8.1 Repairs, Maintenance and Servicing

LeasePlan assumes the responsibility for the approval, management and payment of all costs relating to the total maintenance of tool of trade vehicles including those fitted with rail guidance systems.

The driver has the prime responsibility to check the basic serviceable features of vehicle including completing the daily pre-start check eg fluid levels, tyre pressures and tyre condition on a regular basis.

8.2 Bookings for Service and Repair

When booking a vehicle in for hi-rail service, maintenance or a repair it is essential that the booking is made in the name of LeasePlan. Alternate or additional service providers may be added as required from time to time.

8.3 Approved Drivers

Only drivers who have a current license to operate the vehicle, have been trained and deemed competent in the use of road-rail vehicles on track and are approved by the Site Manager may drive an ARTC hi-rail vehicle on track.