

Civil Technical Maintenance Plan

ETE-00-03

Applicability

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SMS

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1. Introduction

1.1. Overview

This document sets out the routine inspection policy for rail track and civil infrastructure in terms of mandatory inspection tasks and inspection intervals. The Technical Maintenance Plan (TMP) specifies:

- Which items are to be inspected
- What inspection tasks are to be carried out
- When inspection is required.

The inspection tasks and inspection intervals defined in this document are mandatory for all Australian Rail Track Corporation managed track. Requirements for Structures are detailed in ARTC Track & Civil Code of Practice (T&C CoP) Section 9: Structures, ETG-09-01 and ETE-09-01.

This TMP details the minimum level of scheduled inspection. Additional inspection scope or increased frequencies may be authorised by local maintenance management in response to infrastructure condition or accelerated deterioration rates.

Any proposed reduction in routine inspection scope or increased inspection interval (lengthening time between inspections) must be authorised by way of an Engineering Waiver in accordance with ARTC Procedure *EGP-02-01 Engineering Waiver Management*.

1.2. Definitions

The Table 1.1 definitions are used within this standard.

Table 1.1 Terms used

Term or acronym	Description
CoP	The ARTC Track and Civil Code of Practice
Mainline	Includes all main operating lines, crossing loops, passing refuges, and sidings > 25km/h.
MGT	Million Gross Tonnes. The measure of the gross weight of train traffic carried by a section of track in one year.
Passenger Lines	Lines that carry scheduled passenger trains with services capable of 1000 passengers per day, excluding special heritage train services.
P&C	Points and Crossing assemblies including turnouts, catchpoints, diamonds, slips, etc.
TMP	The ARTC Track and Civil Technical Maintenance Plan
Track Inspector	A person with required competencies to undertake routine Patrol, General, and Detailed inspections (see 1.4). The term does not relate to any specific organisational position.
URFD	Ultrasonic Rail Flaw Detection, a form of non-destructive testing of rail.
Yard	A collection of sidings at a common location.

1.3. TMP, ARTC T&C CoP and Standards

The TMP references ARTC Engineering Standards and the ARTC T&C CoP. In their current form some of these documents contain task inspection intervals. Where the interval detailed in the TMP differ from those mentioned in ARTC standards and the ARTC T&C CoP, the TMP interval applies.

1.4. Competency

Persons carrying out track patrol, front of train, general, or detailed inspections shall hold the required competencies listed in the ARTC Track and Civil Competency Matrix and in particular:

- TLIB 3100A - Visually inspect track infrastructure
- TLIB 3099A - Examine track infrastructure

Other specialist competencies may be required, e.g. URFD, to perform specialised inspections.

The above competencies are part of the National Competencies for the Transport and Logistics Industry and are published by the Australian National Training Authority.

1.5. Compliance

An inspection is early if it is completed outside the latitude before the due time.

An inspection is late if it is completed outside the latitude after the due date.

Inspections are to be set and progressed from original due date, not date completed. If an inspection is not completed within the maximum interval time frame it is deemed not complying with this TMP.

2. Inspection

2.1. General

Inspection is the process by which information on the condition of the infrastructure is collected and recorded. Both Scheduled and Unscheduled Inspections may take the form of a Patrol, General or Detailed Inspection. Inspections must be carried out in a manner and at a speed consistent with the scope of the inspection and may be carried out in conjunction with each other or with inspections for other purposes.

2.2. Type of Inspections

2.2.1. Scheduled Inspections

These inspections are regular inspections occurring at predetermined intervals as detailed in section 4.

2.2.2. Unscheduled Inspections

These are inspections carried out in response to “defined or abnormal events”, and include those required at identified problem locations and where defects appear more likely to occur as indicated from other inspections.

Their primary purpose is to ensure that the defined event (initiating condition) has not resulted in any abnormal hazards or unexpected change in the condition of the infrastructure. Typical initiating conditions include:

- Climatic/environmental conditions such as storms, lightning, high winds, heavy rain/floods, fires, extremes of hot and cold air temperatures, earthquakes, etc.
- Bridge strikes, usually by road vehicles
- Dragging loads and/or damaged rolling stock.

ARTC is responsible for arranging suitably qualified staff to conduct the particular type of inspection required. When circumstances and/or appropriate resources permit, these inspections may be incorporated into other scheduled inspections. These inspections can often include the involvement of specialist technical/engineering personnel.

2.3. Form of Inspections

2.3.1. Patrol inspections

Patrols are carried out by track inspectors who are familiar with the track characteristics and traffic patterns of the section. Scheduled track patrols are typically performed using hi-rail vehicles. Inspectors are to keep a lookout for obvious abnormal conditions and patrols should be frequent enough to enable the need for more detailed inspections to be determined. Patrols should include use of a listing of current defects which should receive particular attention.

2.3.2. General inspections

General inspections are typically visual but may include some elementary site testing and measurement. They should include the elements of a patrol inspection in addition to inspection of all readily visible elements of the infrastructure, and elements known to contain critical defects. They should be at a level of detail sufficient to:

- observe and record unsatisfactory conditions or changes in condition of the infrastructure since the previous inspection
- enable the need for more detailed or frequent inspections to be determined

- identify locations requiring more regular inspection due to expected high deterioration rates
- determine required repairs or remedial actions in cases where a detailed inspection is not required.

General inspection intervals are specified in this standard.

2.3.3. Detailed Inspections

Detailed inspections address specific aspects of the infrastructure condition or behaviour and may involve visual inspection, measurements, testing and some diagnostic assessment. In addition to the elements included in general inspections they should be at a level of detail sufficient to record the condition of the infrastructure for purposes such as:

- determining necessary repairs or remedial actions
- establishing the capacity rating against set condition standards or assessment guidelines.

Detailed inspection intervals are specified in this standard.

3. Disused and Seasonal Lines

The TMP detailed in Section 4 applies to operational lines. On lines that have had rail transport services withdrawn temporarily or indefinitely the rail infrastructure does not have to be maintained except where there is a legal duty of care to landowners or the public. Where a line is withdrawn from use temporarily (e.g. seasonal line), suitable arrangements need to be in place to prevent access to that line if inspections are deferred, and arrangements put in place to inspect/repair the line prior to it being returned to use.

Statutory requirements may exist with respect to fire hazard reduction, noxious weeds and vermin, and waterway management. Public safety risks may need to be mitigated e.g. at level crossings, urban fencing etc. as well as risks to landowners from embankment collapse or erosion.

ARTC standard *ETE-00-04 Infrastructure Inspections for Non-Operational Lines* provides more detailed guidance on the inspection and management of non-operational railways.

4. Technical Maintenance Plan

4.1. General

The Technical Maintenance Plan presented in Table 4.2 is divided into sections reflecting the Code of Practice sections from which the routine scheduled inspection requirements are derived.

The TMP has the following elements:

- Type of inspection
- Infrastructure Element
- Brief description of the inspection to be performed
- Applicable ARTC Standard or Manual to be used and Ellipse Standard Job reference
- Inspection intervals and latitudes
- Who conducts the inspection.

4.2. Type of Inspection

This column identifies the type of inspection: Patrol; General; or Detailed, and the focus of the inspection.

4.3. Infrastructure Element

This column identifies the component, system, or aspect of the track assets to which the inspection applies.

4.4. Description

This column provides a more detailed scope of each inspection.

4.5. Reference

This column references the applicable ARTC Standard as well as the Ellipse Standard Job reference applicable to the inspection tasks.

4.6. Inspection Interval

This column defines the planned inspection interval at which relevant inspection must be carried out for each asset element.

Where more than one interval may be seen to apply for the same type of inspection and infrastructure element on the same corridor segment/track usage/track configuration, the shortest inspection interval is to apply.

Where appropriate, latitude is provided to accommodate scheduling or unforeseen events. Latitudes are generally expressed as a % of the specified inspection interval. ARTC provides a guideline for calculating latitudes as shown in Table: 4.1 Latitudes. Unless specified the guideline latitudes apply for each specified inspection interval. For each item of infrastructure element the latitude is to be determined at the time of determining the inspection interval.

Table: 4.1 Latitudes

Inspection Interval	Latitude
≤ 42 days	± 20%
≥ 43 days	± 10%

4.7. Conducted by

This column specifies who or what performs the inspection. Nominated persons e.g. Track Inspector refers to persons holding the required competencies to perform the inspection and not to any organisational position. See section 1.4.

Type of Inspection	Infrastructure Element	Element Description	Reference			Ellipse Std Job		Applicability		Inspection Interval	Latitude (±)	Conducted by
			Standard/Manual	Section/Clause	Service Schedule	Number	Description	State	Corridor Segment/Track Usage/Track Configuration			
Section 0 - Track System												
Equipment with EGI 'TR0001 Track – Running Line' or 'TR0003 Track – Crossover'.												
Scheduled Track Patrol Inspection (By Road/Rail vehicle or by walking. When patrol is by Engine Patrol, ETE-00-02 clause 3.4 applies.)	All elements	Track Patrol – Includes: Purpose, general requirements, requirements when performing different types of patrol and scope.	ETE-00-02	Sect 3		TP0001	Scheduled Track Patrol	SA, WA, VIC	All Running Lines	7 Days	20%	Track Inspector
	Rails and Joints	Includes: Rail; Welds (welded joints); Mechanical and Insulated Joints (non welded joints); Rail Wear; Surface damage; Lubrication.	CoP Sect 1: Rail	1.4.1 a), 1.4.2 a), 1.4.3 a), 1.4.4 a) & 1.4.6 a)				NSW, QLD	Concrete Sleepered Running Lines that carry Passenger Services or Freight > 10 MGT/year plus adjacent Loops & Refuges	7 Days	20%	
	Sleepers & Fastenings	Includes: Sleepers, Turnout Bearers, and Bridge Transoms; Timber, Steel, Composite and Concrete; Resilient and Non-Resilient Fastenings.	CoP Sect 2: Sleepers & Fastenings	2.3.2 a)					Timber or Steel Sleepered Running Lines that carry Passenger Services or Freight > 10 MGT/year plus adjacent Loops & Refuges	2 Patrols / 7 days	Max 3 days between Patrols	
	Points and Crossing arrangements	Includes: Turnouts; Catchpoints; Diamonds; Slips; Expansion Switches; etc.	CoP Sect 3: Points & Crossings	3.3.1					Running Lines that carry Freight Only with 1 MGT/yr to 10 MGT/yr, also Lower Hunter lines on Kooragang Is and Port Waratah where >10MGT, but train speed is <=25 km/h as well as adjacent Loops & Refuges	7 Days	20%	
	Ballast	Includes: Ballast type, condition, and profile.	CoP Sect 4: Ballast	4.3.1 a)					Running Lines that carry Freight Only with < 1 MGT/yr also Lower Hunter lines on Kooragang, Morandoo and Bullock Islands where <10MGT, but train speed is <=25 km/h as well as adjacent Loops & Refuges	14 Days	20%	
	Track Geometry	Includes: Top, Twist, Superelevation, Line and Gauge.	CoP Sect 5: Track Geometry	5.3.1 a)								
	Track Lateral Stability	Includes: Track buckling and other conditions that may affect track lateral stability	CoP Sect 6: Track Lateral Stability	6.3.2 a)								
	Transit Space Clearances	Includes: Clearances to structures, track centres, diverging tracks and obstructions.	CoP Sect 7: Clearances	7.3.1 a)								
	Earthworks	Includes: Cuttings, Embankments and geotechnical or earthworks instability special locations.	CoP Sect 8: Earthworks	8.3.2 a)								
	Structures	Includes: Underbridges; Overbridges; Tunnels; Timber, Steel, Concrete, and Masonry.	CoP Sect 9: Structures ETE-09-01	9.7.2 Sect. 2.4								
	Drainage	Includes: Waterways, Culverts, Cess, top and Toe Drains	CoP Sect 10: Flooding	10.3.2 a)								
	Signage	Includes: Permanent Speed Boards; Temporary Speed Boards; Safety signs.	CoP Sect 11: Railway Operating Signs	11.2.1 a)								
	Line of Sight	SA, VIC & WA only Includes: Track Operating Signage, Fixed Signals and Point Indicators.	CoP Sect 15: Line of Sight	15.4.1 a)								
	Level crossings	Includes: Public, Private, and Service crossings; Passive or Active.	CoP Sect 16: Level Crossings	16.4.1 a)								
Right of Way	Includes: Fencing; Noxious Weeds and Animals; Vegetation; Fire Hazard; Access roads; Fire Breaks.	CoP Sect 17: Right of Way	17.3.1									

Equipment with EGI 'TR0002 Track - Siding' or 'TR0004 Track - Yard'.													
Scheduled Track Patrol Inspection	Yards and Sidings Includes all elements as for Running Lines	Includes sidings ≤25km/h maximum speed, Scope includes all aspects as for Running Lines.	Relevant CoP Sections ETE-00-02	Relevant clauses		TP0005	Track Patrol – Yards and Sidings'	All ARTC	Partial or fully timber sleepere siding (Walking)	728 Days	10%	Track Inspector	
									Fully concrete or steel sleepere sidings (not necessarily walking)	1820 Days	10%		
Equipment with EGI 'TR0001 Track – Running Line'													
Scheduled Front of Train Inspection	Rail Lubrication	Includes: Wheel/Rail noise; Carry of lubricant along the rail; Over or under lubrication; Ballast contamination.	CoP Sect 1: Rail ETE-00-02	Sect 4.2		FOT001	Front of Train Insp.	SA, WA, VIC	Lines with Track Speed > 50km/h	182 Days	10%	Track Inspector	
	Joints: Mechanical and Gled Insulated	Includes: Noise from impact or loose components; Horizontal and vertical geometry.	CoP Sect 1: Rail ETE-00-02	5.3.1 b) Sect 4.2	NSW, QLD					91 Days	10%		
	Track Geometry	Includes: Short and long wavelength Top and Line, and Twist.	CoP Sect 5: Track Geometry ETE-00-02	5.3.1 b) Sect 4.2									
	Signage	Includes: Sighting distance and clarity of temporary and permanent speed signs and other safety signs.	CoP Sect 11: Railway Operating Signs CoP Sect 15: Line of Sight ETE-00-02	Sect 4.2									
	Right of Way	Includes: Fencing, access roads, vegetation, noxious weeds.	CoP Sect 17: Right of Way ETE-00-02	Sect 4.2									
	Level Crossings	Includes: Sighting distance, track geometry.	CoP Sect 16: Level Crossings ETE-00-02	Sect 4.2									
Section 1 - Rail													
Equipment with EGI 'TR0001 Track – Running Line' or 'TR0003 Track – Crossover'.													
Scheduled Rail Detailed Ultrasonic Inspection	Rail – internal head & web	Continuous ultrasonic inspection or Manual hand-held inspection where continuous inspection is ineffective.	CoP Sect 1: Rail ETE-01-02 ETE-01-03	1.4.1 c), d) & e)		RAIL001	Det. Insp. of Rail – Ultrasonic Car	All ARTC	Where not otherwise specified below, the frequency will be in accordance with the CoP requiring a test at least every 15 MGT.			Ultrasonic Rail Flaw Detection Vehicle or Manual hand held URFD by qualified person	
									NSW Hunter Valley Heavy Haul	Up Coal - Scholey St (164.806) to Hexham (173.286) & Hexham to Maitland (192.832), Up Main - Maitland (192.832) to Newdell Jct (262.277), Up Relief Roads - Farley to Greta, Branxton to Whittingham & Camberwell to Mt Owen.	31 Days		20%
										Down Main - Greta (210.150) to Whittingham Jct (234.441), Up Main - Newdell Jct (262.277) to Muswellbrook (289.010), Up Branch - Whittingham to Mt Thorley & Mt Thorley Balloon Loop.	61 Days		10%
										Down Coal - Kooragang Is Jct (170.000) to Maitland (192.832), Down Main - Maitland (192.832) to Greta (210.150), Hexham Down Refuge Loops No1 to No5, Pelton line (Maitland to ARTC limit) & Telarah to Farley Triangle Loop, Muswellbrook (289.010) to Werris Creek (410.711),	84 Days		10%

								Werris Creek (410.711) to Narrabri Coal (548.485).		
								Up Main - Woodville Jct TfNSW I/F (163.920) to Maitland (192.773; 414pts via Plat 3), Down Main - Woodville Jct TfNSW I/F (163.920) to Maitland (192.773; 410pts via Plat 4), Maitland (192.301) to Telarah (194.920) North Coast line, Down Relief - Woodville Jct TfNSW I/F (163.920) to Islington Jct (164.457), Down - Hamilton Jct TfNSW I/F (164.045) to Islington Jct (164.409), Up - Hamilton Jct TfNSW I/F (164.045) to Islington Jct (164.408), Down Main - Whittingham Jct (234.441) to Muswellbrook (288.936), Down Coal - Scholey St (164.804) to Kooragang Is Jct (170.000), Port Waratah & Bullock Is Coal & Grain Arrival and Departurue Roads, Hanbury Jct Nth & Sth Forks to 170.104, Kooragang Is Up & Down Branchs then A & B Holding Roads 170.104 to 173.700 then No1 to No4 Arrival Roads to Dump Stations at 177.131, Kooragang Is to Walsh Point Single Line, Whittingham to Mt Thorley Down Branch & Newdell Jct to Newdell (ARTC limit).	119 Days	10%
								Muswellbrook (288.936) to Ulan (435.525), Werris Creek (410.711) to CRN I/F (411.201) Armidale line.	182 Days	10%
						NSW Hunter Valley Central & North West		Narrabri Coal (548.485) to Moree (665.800), Narrabri Jct (564.718) to Narrabri West Jct (564.799) Walgett line, Narrabri North Triangle (565.274 to 565.351), Binnaway (458.235) to The Gap (599.974), Gulgong CRN I/F (340.270) to Binnaway CRN I/F (459.204), Ulan (435.525) to Gulgong (460.114), Dubbo (461.577) to Merrygoen (562.320), Troy Jct (466.020) to CRN I/F (466.224) Coonamble line, Dubbo CRN I/F (460.890) to Narromine CRN I/F (497.790) Main West, Goobang Jct (447.521) to Narromine (556.912).	364 Days	10%
								Moree (665.800) to Camurra West CRN I/F (679.040), Camurra (677.027) to North Star Stop Block (760.570).	1456 Days	10%
						NSW Interstate Network		Telarah (194.920) to Wauchope (503.500) North Coast line, Macarthur (57.965) to Albury NSW/VIC Border (648.433) Main South, Joppa jct (230.496) to CRN I/F (230.610) Canberra line, Junee (485.921) to CRN I/F (486.021) Griffith line, The Rock (550.960) to CRN I/F (551.075) Boree Creek line,	119 Days	10%

							Port Botany (9.941) to Marrickville (16.472) Botany line, Marrickville (6.371) to Flemington (18.909) Metropolitan Goods, Chullora Jct North Fork (17.246 to 17.596), Chullora Jct (17.083) to Macarthur (58.092) SFN.		
							Wauchope (503.500) to Acacia Ridge (971.136) North Coast line, Unanderra (91.080) to Moss Vale (150.600), Moss Vale North Fork (150.116 to 150.500).	182 Days	10%
							Goobang Jct CRN I/F (446.950) to Broken Hill (1126.640), Stockinbingal (454.729) to Goobang Jct (628.340), Cootamundra (428.224) to Stockinbingal CRN I/F (454.906) Lake Cargelligo line, Cootamundra South Fork (428.332 to 428.808) KMs via S70,	365 Days	10%
						VIC Interstate Network	Seymour (99.809) to Wodonga (302.620) West Track.	121 Days	10%
						VIC Interstate Network	Moonee Ponds (2.056) to Tottenham Jct (10.181) Main, Sims St Jct (4.090) to Tottenham Jct (10.181) Local, Tottenham Jct (10.181) to Craigeburn (30.285) Single VIC NE line, Tullamarine Passing Lane.	182 Days	10%
						VIC Interstate Network	Craigeburn (30.285) to Seymour (99.809) Single VIC NE, Passing Lanes – Donnybrook, Kilmore East & Tallarook, Seymour (99.809) to Albury VIC/NSW Border (302.835) East Track, Benalla (194.970) to Oaklands I/F B'dry (320.880) Oaklands line, Tottenham Jct (17.242) to Wolseley VIC/SA Border (463.610) VIC South line, Tottenham Triangle West Leg (10.080 to 10.633) KMs via VIC NE Maroona (232.094) to I/F B'dry (405.312) Portland line.	364 Days	10%
						SA & WA Interstate Network	Mile End (0.000) to Crystal Brook (197.240), Spencer Jct (95.294) to Tarcoola (505.610).	182 Days	10%
						SA & WA Interstate Network	Mile End (3.400) to SA/VIC Border Wolseley (313.290), Coonamia (0.000) to Spencer Jct (95.294), Tarcoola (505.610) to SA/WA Border (1050.965), WA/SA Border (1050.965) to Kalgoorlie (1780.600), Tarcoola (503.327) to API B'dry (510.850), Coonamia (0.000) to Broken Hill (392.200), Spencer Jct (95.294) to I/F B'dry (163.500) Whyalla line.	364 Days	10%
						SA & WA Interstate Network	Dry Creek (0.000) to Outer Harbour (14.928).	728 Days	10%
						Crossing loops/Refuges: (where operating speed is 25kph or less, loops are not tested)			
						All NSW	Crossing Loops NSW.	Twice the time period	

											specified for adjacent mainline		
								SA, WA, VIC	Crossing Loops Vic, SA and WA.	1820 Days	10%		
Equipment with EGI 'TR0001 Track – Running Line' or 'TR0003 Track – Crossover'.													
Scheduled Detailed Rail Wear Inspection	Rail Head	Measurement of rail head profile: Height & width wear dimensions.	CoP Sect 1: Rail	1.4.3 b)		RAIL02	Det. Insp. of Rail Wear	All ARTC	All Main Lines	364 Days	10%	Track Geometry Recording Vehicle or Track Inspector	
								NSW, QLD, SA, VIC	Crossing Loops	Twice the time period specified for adjacent mainline			
								WA		364 Days	10%		
Scheduled General Visual Inspection for rail or weld discontinuities and surface conditions	Continuously Welded Rail and welds	Includes condition of all rail surfaces and welds.	CoP Sect 1: Rail	1.4.1 b)		RAIL03	Gen. Rail and Welded Joint Insp.	All ARTC	All Main Lines with continuously welded rail (CWR)	364 Days	10%	Track Inspector	
									Crossing Loops	Twice the time period specified for adjacent mainline			
Equipment with EGI 'TR0001 Track – Running Line', 'TR0002 Track – Siding' or 'TR0003 Track – Crossover'.													
Scheduled General Non Welded Joint Inspection	Rail ends and joint components	Includes rail ends, fishplates, bolts, excessive joint gaps, frozen joints and pumping joint conditions.	CoP Sect 1: Rail	1.4.2 b)		RAIL04	Gen. Non-Welded Joint Insp.	All ARTC	All tracks with loose jointed or long welded rail (LWR)	364 Days	10%	Track Inspector	
Scheduled General Inspection of Insulated Joints	Insulated Joints	Includes rail ends, fishplates, bolts, insulating material, metal flow over end posts, sleepers, ballast and pumping conditions.	CoP Sect 1: Rail	1.4.7		IJ0001	Gen. Insp. of Insulated Joints	All ARTC	All tracks with associated equipment items 'Insulated Joint'.	364 Days	10%	Track Inspector	
Equipment with EGI 'TR0001 Track – Running Line' with specified conditions only.													
General Inspection of Corrosion in Wet Locations - Tunnels	Rail foot & web as well as fastenings	Includes: Rail & fastening corrosion in Tunnels and other wet locations.	CoP Sect 1: Rail	1.4.3 c)		RAIL05	Gen. Insp. of Corrosion in Wet Locations	All ARTC	Only on Running Lines through tunnels and at other locations where rails are continuously wet.	364 Days	10%	Track Inspector	
General Inspection of Rail Lubrication	Rail contact surfaces	Includes carry of lubrication, excessive surface contamination or side wear and lubricators functioning.	CoP Sect 1: Rail	1.4.4 b)		RAIL06	Gen. Insp. of Rail Lubrication	All ARTC	All Running Lines where rail lubricators have been installed.	182 Days	10%	Track Inspector	
General Inspection of Guard Rail Condition	Guard rails	All guard rails.	CoP Sect 1: Rail	1.4.6 b)		RAIL08	Gen. Insp. of Guard Rail Condition	All ARTC	Only on Running Lines where Guard Rails are still installed on Bridges.	364 Days	10%	Track Inspector	
Equipment with EGI 'RLUB01 Rail Lubricator - Simple' or 'RLUB02 Rail Lubricator - Complex'.													
General Inspection of Rail Lubrication Devices	Rail Lubricators	Includes blade height & condition, plunger settings & operation, damage to other components and leakage	CoP Sect 1: Rail	1.4.4 b)		RLUB01	Gen. Insp. of Rail Lubrication Devices	NSW		182 Days	10%	Track Inspector	
								SA, WA, VIC		364 Days	10%		
Section 2 - Sleepers and Fastenings													
Equipment with EGI 'TR0001 Track – Running Line', 'TR0002 Track – Siding' or 'TR0003 Track – Crossover'.													
General Inspection of Sleeper & Fastening Condition	Sleepers & Fastenings	Includes: Sleeper, Turnout Bearer, and Bridge Transom integrity and effectiveness; Timber, Steel, and Concrete materials; Resilient and Non-Resilient Fastenings.	CoP Sect 2: Sleepers & Fastenings ETG-02-01 (SA, WA, VIC)	2.3.2 b) & c) 2.7.4		TIE001	Gen. Insp. of Sleepers and Fastenings	All ARTC	Partial or fully timber sleepers running line (walking inspection)	364 Days	10%	Track Inspector	
									Fully concrete or steel sleepers running line (not necessarily walking inspection)	728 Days	10%		
									Partial or fully timber sleepers siding (walking inspection)	728 Days	10%		
									Fully concrete or steel sleepers sidings (not necessarily walking inspection)	1820 Days	10%		

Section 3 – Points and Crossings												
Equipment with EGI 'TO0001 Turnout – Running Line', 'TO0002 Turnout – Siding', 'TO0003 Catch Point – Running Line', 'TO0004 Catch Point – Siding', 'TO0005 Diamond – Running Line' or 'TO0006 Diamond – Siding'.												
Detailed Inspection of Points and Crossings	Includes all Turnouts, Catchpoints, Diamonds, Slips etc. on all Running lines & Sidings.	A detailed inspection includes measurement and visual condition assessments for: Condition of Switch and Stock rail, Crossing and Check rail assemblies, closure rails, fastenings, bolts, chocks, heel blocks. Wear on switch and stock rails, crossing noses, and wing rails. Bearer condition and effectiveness. Ballast condition and effectiveness. Track Geometry including: top, line, twist, and gauge; as well as switch tips, clearances, flangeways, and check rail effectiveness.	CoP Sect 3: Points & Crossings ETE-03-01	3.3.3 & 3.3.4		TURN01	Det. Insp. of Points & Crossings	All ARTC	P&C ≥ 5MGT	364 Days	10%	Track Inspector
									P&C < 5MGT.	728 Days	10%	
General Inspection of Points and Crossings	Includes all Turnouts, Catchpoints, Diamonds, Slips etc. on all Running lines & Sidings.	A general inspection includes all the visual condition assessments of the detailed P&C inspection however measurements are only taken where the Inspectors deems they are required.	CoP Sect 3: Points & Crossings ETE-03-01	3.3.2		TURN02	Gen. Insp. of Points & Crossings	All ARTC	P&C ≥ 5MGT and also: 1) on timber or concrete bearers with >30MGT, or 2) on curves <800m radius, or 3) with heeled switches (pivot heels) on timber bearers, or 4) on timber bearers with non-resilient (dogspike) fasteners.	91 Days	10%	Track Inspector
									P&C ≥ 5MGT not included in 1), 2), 3), or 4), above	182 Days	10%	
									P&C < 5MGT.	364 Days	10%	
Equipment with EGI 'TO0001 Turnout – Running Line', 'TO0003 Catch Point – Running Line' or 'TO0005 Diamond – Running Line'.												
Scheduled Rail Detailed Ultrasonic Inspection	Points and Crossings Steel Components - Internal Head & Web	Continuous ultrasonic inspection or Manual hand-held inspection where continuous inspection is ineffective. (For untestable areas refer to ETE-01-03, Sect 3.3)	CoP Sect 1: Rail ETE-01-02 ETE-01-03	1.4.1 c), d) & e)		TURN03 TURN04	Det. P&C Rails Insp. - Ultrasonic Car Det. P&C Rail Insp. - Man. U'sonic Test	As for Section 1 Rail; Standard Job; RAIL01 'Det. Insp. of Rail - Ultrasonic Car' (Ref: ETE-01-03 'Non-Destructive Testing Of Rail (for Internal & Surface Defects)', Section 3.1.1) To apply for locations where connecting tracks are ultrasonically tested but; 1. It is not practical to schedule with the Points and Crossings. 2. Areas which can be tested are missed by the rail mounted continuous ultrasonic testing equipment (as it may need to lift probes to avoid damage) for example housed points				Ultrasonic Rail Flaw Detection Vehicle or Manual hand held URFD by qualified person
		Bolt Hole Crack Limits	ETI-01-02 (All ARTC)									
		Management of Rail Defects	ETG-01-02 (SA WA VIC)									
		Rail Defect Standard	ETM-01-04 (NSW QLD)									
Section 4 - Ballast												
Equipment with EGI 'TR0001 Track – Running Line'.												
General Inspection of Ballast	Ballast	Includes: Assessment of ballast profile, excessive fouling resulting in mud holes or wet spots. Indications of poor sleeper support by ballast resulting in excessive track vibration or pumping. Other ballast defects affecting track support and stability.	CoP Sect 4: Ballast ETH-10-01: Mud Hole Management Guideline	4.3.1 b) 4.2 & 5.2.2		BALL01	Gen. Insp. of Ballast	All ARTC	The General Inspection of Ballast should be scheduled to occur as close as possible to, even in conjunction with, the General Inspection of Track Stability. Locations of fouled ballast identified as Mud Holes are to be entered into Ellipse as known conditions and thence managed in accordance with ETH-10-01 using Ad Hoc work orders.	364 Days	10%	Track Inspector

Section 5 – Track geometry

Equipment with EGI 'TR0001 Track – Running Line' or 'TR0003 Track – Crossover'.

Detailed Track Geometry Inspection	Track Geometry	Includes: Top, Twist, Line, Variation from design superelevation and Gauge.	CoP Sect 5: Track Geometry	5.3.1 d) & Table 5.4		GEOM01	Det. Geometry Insp. - Recording Car	All ARTC	Main lines:		Track geometry recording vehicle or equivalent.	
									Hunter Valley Heavy Haul Up & Down Coals - Scholey St (164.804) to Maitland (192.832), Up & Down Mains - Woodville Jct TfNSW I/F (163.920) to Muswellbrook (289.010), Down Relief - Woodville Jct TfNSW I/F (163.920) to Islington Jct (164.457), Up & Down - Hamilton Jct TfNSW I/F (164.045) to Islington Jct (164.409), Up Relief Roads - Farley to Greta, Branxton to Whittingham & Camberwell to Mt Owen, Hexham Up Relief, Drayton Down Relief, Maitland (192.301) to Telarah (194.920) North Coast line, Muswellbrook (288.936) to Ulan (435.525), Muswellbrook (289.010) to Werris Creek (410.711), Werris Creek (410.711) to Turrawan (547.600), Werris Creek (410.711) to CRN I/F (411.201) Armidale line.	119 Days	10%	
									Turrawan (547.600) to Moree (665.800), Dubbo CRN I/F (460.890) to Dubbo 107 Pts (462.460).	119 Days	10%	
									Ulan (435.525) to Gulgong (460.114), Gulgong (340.174) to Merrygoen (418.500), Dubbo (461.577) to Merrygoen (562.320), Dubbo 107 Pts (462.460) to Narromine CRN I/F (497.790) Main West, Goobang Jct (447.521) to Narromine (556.912).	182 Days	10%	
									Moree (665.800) to Camurra West CRN I/F (679.040), Camurra (677.027) to North Star Stop Block (760.570), Narrabri Jct (564.718) to Narrabri West Jct (564.799) Walgett line, Narrabri North Triangle (565.274 to 565.351), Troy Jct (466.020) to CRN I/F (466.224) Coonamble line, Merrygoen (418.500) to Binnaway (459.220), Binnaway (458.235) to The Gap (599.974).	364 Days	10%	

							Interstate Network	<p>Telarah (194.920) to Acacia Ridge (971.136) North Coast line, Port Botany (9.941) to Marrickville (16.472) Botany line, Marrickville (6.371) to Flemington (18.909) Metropolitan Goods, Chullora Jct North Fork (17.246 to 17.596), Chullora Jct (17.083) to Macarthur (58.092) SFN, Macarthur (57.965) to Albury NSW/VIC Border (648.433) Main South, Joppa jct (230.496) to CRN I/F (230.610) Canberra line, Unanderra (91.080) to Moss Vale (150.600), Moss Vale North Fork (150.116 to 150.500), Seymour (99.809) to Albury VIC/NSW Border (302.835) East Track, Seymour (99.809) to Wodonga (302.620) West Track, Craigeburn (30.285) to Seymour (99.809) Single VIC NE, Passing Lanes – Donnybrook, Kilmore East, Tallarook, & Tullamarine, Tottenham Jct (10.181) to Craigeburn (30.285) Single VIC NE line, Tottenham Triangle West Leg (10.080 to 10.633) KMs via VIC NE, Moonee Ponds (2.056) to Tottenham Jct (10.181) Main, Sims St Jct (4.090) to Tottenham Jct (10.181) Local, Tottenham Jct (17.242) to Wolseley VIC/SA Border (463.610) VIC South line, Mile End (3.400) to SA/VIC Border Wolseley (313.290), Mile End (0.000) to Crystal Brook (197.240), Coonamia (0.000) to Spencer Jct (95.294), Spencer Jct (95.294) to Tarcoola (505.610), Tarcoola (505.610) to SA/WA Border (1050.965), WA/SA Border (1050.965) to Kalgoorlie (1780.600), Tarcoola (503.327) to API B'dry (510.850), Coonamia (0.000) to Broken Hill (392.200), Spencer Jct (95.294) to I/F B'dry (163.500) Whyalla line.</p>	119 Days	10%	
							<p>Goobang Jct CRN I/F (446.950) to Broken Hill (1126.640), Stockinbingal (454.729) to Goobang Jct (628.340), Cootamundra (428.224) to Stockinbingal CRN I/F (454.906) Lake Cargelligo line, Cootamundra South Fork (428.332 to 428.808) KMs via S70, Junee (485.921) to CRN I/F (486.021) Griffith line.</p>	182 Days	10%		
							<p>The Rock (550.960) to CRN I/F (551.075) Boree Creek line, Bogan Gate (483.280) to CRN I/F (486.050) Tottenham line, Dry Creek (0.000) to Outer Harbour (14.928), Benalla (194.970) to Oaklands I/F B'dry (320.880) Oaklands line, Maroona (232.094) to I/F B'dry</p>	364 Days	10%		

									(405.312) Portland line.			
Crossing loops: (where operating speed is 25kph or less, loops are not tested)												
NSW & VIC	NSW (except Goobang Jct to Broken Hill & Cootamundra to Goobang Jct), VIC (only where adjacent to XPT main lines)		Twice the time period specified for adjacent mainline									
WA			364 Days	10%								
SA, NSW & VIC	NSW (Goobang Jct to Broken Hill & Cootamundra to Goobang Jct), VIC (where XPT doesn't operate)		728 Days	10%								

Section 6 – Track stability

Equipment with EGI 'TR0001 Track – Running Line'.

Track Stability General Inspection	Track Stability	Includes: Sleepers & fastenings, ballast and rail adjustment for tracks with both welded and non-welded rail.	CoP Sect 6: Track Lateral Stability ETM-06-08 ETM-06-09	6.3.2 b) & 6.3.3		TSMP01	Gen. Insp. of Track Stability	All ARTC	The General Inspection of Track Stability should be scheduled to occur as temperatures start to increase after the cold season, normally the end on August, and as close as possible to, even in conjunction with, the General Inspection of Ballast.	364 Days	10%	Track Inspector
Pre & Post High Temperature Season Reviews of the TSMP	Desk Top Review	Review TSMP to ensure preparedness for high temperatures prior to the HTS and then to ensure lessons learnt are captured post HTS.	ETM-06-08	3.4		TSMP03	TSMP- Pre High Temp Season Review		Should be scheduled prior to the end of September to enable identified stability issues enough time to be attended to before the start of high temperature season.	364 Days	10%	Area Manager and all relevant Track Inspectors
						TSMP02	TSMP- Post High Temp Season Review		Should be scheduled to be concluded prior to the end of April.			

Section 7 - Clearances

Equipment with EGI 'TR0001 Track – Running Line' or 'TR0002 Track – Siding'.

Scheduled General Clearances Inspections	Transit Space between the track and adjacent structures or tracks and the clearance/fouling point of diverging tracks.	Includes: Measurement of clearance to structures within structure gauge, platforms and other approved permanent infringements to the Maintenance Intervention standard, track centres and clearance points.	CoP Sect 7: Clearances ETM-07-01: (NSW, QLD) Lateral Clearance Vertical Clearance Platforms Track Centres Clearance Points ETG-07-01: (SA, WA, VIC)	7.3.1 b) & c) Sect 3 Sect 5 Sect 4 Sect 6 6.2		CLEAR1	Gen. Insp. of Track Centre Clearances Gen. Insp. of Structure Clearances Gen. Insp. of Clearance Points	All ARTC	All Running Lines carrying > 10 MGT or Running Lines carrying < 10 MGT with Passenger services.	364 Days	10%	Track Inspector
						CLEAR2						
						CLEAR4						
						CLEAR3	Gen. Insp. of Approved Perm. Inf'ments			182 Days	10%	
						CLEAR1	Gen. Insp. of Track Centre Clearances Gen. Insp. of Structure Clearances Gen. Insp. of Clearance Points		Running Lines carrying < 10 MGT with no Passenger services or Sidings > 25 km/h.	728 Days	10%	
					CLEAR2							
					CLEAR4							
						CLEAR3	Gen. Insp. of Approved Perm. Inf'ments			364 Days	10%	

						CLEAR2 CLEAR4	Gen. Insp. of Structure Clearances Gen. Insp. of Clearance Points		Sidings ≤ 25 km/h.	1456 Days	10%	
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Section 8 - Earthworks

Equipment with EGI 'RW0001 Right of Way'.

General Inspection of Earthworks - Embankments and Cuttings	Earthworks - Embankments and Cuttings	Includes: Indications of recent movement including slippage, slumping, settlement or heaving. Fissures and cracks in formation or earth batters. Rock, earth, or other debris falling on or near the track. Track subsidence due to ground movements. Earthwork scour and/or erosion including undercutting of the toe of embankments and cuttings. Water seepage from embankments and cuttings. Damage to embankments or cuttings or evidence of conditions that may cause future slip, scour, slump, settlement or otherwise likely to impact on the stability of earthworks.	CoP Sect 8: Earthworks	8.3.2 b)		ROW001	Gen. Insp. of Earthworks - Embank./Cut.	All ARTC	All	364 Days	10%	Track Inspector
General Inspection of Earthworks - Geotechnical Sites	Geotechnical Special Locations	Includes: Geotechnical special location sites nominated as being vulnerable to earthworks instability.				ROW002	Gen. Insp. of Earthworks - Geotech Sites			364 Days	10%	
General Inspection of Geotechnical Site EWS Function	Geotechnical Special Locations Early Warning System	Includes: Geotechnical early warning system monitoring devices (slip detectors etc.) where installed.				ROW003	Gen. Insp. of Geotech. Site EWS Function			28 Days	20%	

Section 10 - Flooding

Equipment with EGI 'RW0001 Right of Way', 'DGSCU1 Small Culvert/Pipe (Under Track)', 'DGSCU2 Small Culvert/Pipe (Off Track)' or 'DGSYS1 Drainage System'.

Drainage General Inspection	Drainage	Includes: Waterways, Surface drains such as Cess, Top and Toe drains, Under track pipes 350mm or less, Off track pipes 500mm or less & sub surface drainage systems.	CoP Sect 10: Flooding RTS 3432 (NSW,QLD)	10.3.2 b)		SMCUL1	Gen. Insp. of Small Culverts	All ARTC	All	364 Days	10%	Track Inspector
						SUBDR1	Gen. Insp. of Sub-Surface Drainage					
						ROW004	Gen. Insp. of Waterways and Drains					

Section 11 – Railway operating signs

Equipment with EGI 'TR0001 Track – Running Line'.

General Inspection of Trackside Railway Operating Signs	Railway operating signs	Includes: Permanent and temporary signs, warning signs including whistle and advance warning signs, change of operations systems or operational parameters.	CoP Sect 11: Railway Operating Signs	11.2.1 b)		SIGN01	Gen. Insp. of Trackside Signs	All ARTC	All	1092 Days	10%	Track Inspector
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Section 16 – Level crossings

Equipment with EGI 'LCING1 Level Crossing'.

General Inspection of Level Crossing	Level Crossings	Includes: Public, Private and Service Level Crossings; Passive and Active protection; Signage; Sighting; Vegetation; and Track structure components such as the condition of sleepers, pumping, rail, flangeways, geometry. Road and walkway surface fencing and guide fencing etc.	CoP Sect 16: Level Crossings RAP 5141 (NSW, QLD)	16.4.1 b)		LCNG01	Gen. Insp. of Level Crossing	All ARTC	All highway, main road, and major arterial road level crossings on: All Running Lines carrying > 10 MGT or Running Lines carrying < 10 MGT with Passenger services	364 Days	10%	Track Inspector
									All other level crossings	728 Days	10%	

Section 17 – Right of Way												
Equipment with EGI 'RW0001 Right of Way'.												
General Inspection of RoW - Fences, Vegetation, Access Roads	Right of Way - Fences, Vegetation, Access Roads	Includes: Damaged or defective fencing, unsafe condition of access facilities. Treated or controlled areas including ballast, cesses and firebreaks not substantially free from vegetation growth. High risk fire locations. Evidence of unauthorised encroachment onto the ROW.	CoP Sect 17: Right of Way	17.3.2		ROW005	Gen. Insp. of Right of Way	All ARTC	All	364 Days	10%	Track Inspector
General Inspection of Redundant Infrastructure	Redundant assets	Includes: Infrastructure no longer utilised to carry traffic which is still located within the rail corridor and miscellaneous structures like water towers, loading cranes and loading banks etc. that pose a third-party safety risk.				ROW006	Gen. Insp. of Redundant Infrastructure			728 Days	10%	