

## Safety and Systems (Track & Civil) Form

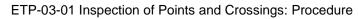
ETP-03-01 Inspection of Points and Crossings: Procedure

Form number: ETP0301F-03

## **TURNOUT DETAILED INSPECTION – Swing Nose**

Location:	Turnout Number:	Equipment No.:	Kilometrage:
Inspector Name:	Date:	Work Order:	Track:

OVERVIEW INSPECTION These tasks apply generically to all points and crossings assemblies					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE
Component Damage			Any component loose, missing or broken.	A6	Increase monitoring, prioritise repair
Track geometry, Pumping			5 – 20 mm	A6	Increase monitoring, prioritise repair
in Critical Areas			20 mm or more	A6	Increase monitoring, prioritise repair
			Visible deterioration	A6	Increase monitoring, prioritise repair
Track Geometry, Overall Condition			Single Measured defect	-	ETS-05-00 5.4 table 5-15
			Multiple measured defects	-	ETS-05-00 5.4 table 5-15
			1	A6	Increase monitoring, prioritise repair
Bearers and Fasteners, Ineffective in Critical Areas			2 consecutive	А3	40 km/h TSR until repaired
			> 2 consecutive	A1	10 km/h TSR until repaired
			< 20% loose clips, screws or spikes, timbers degraded	A6	Increase monitoring, prioritise repair
Bearers and Fasteners, Overall Condition			Pads and insulators skewed some fasteners missing 1 in 4 timbers deteriorating	A6	Increase monitoring, prioritise repair
			> 50% loose clips, screws or spikes, 1 in 3 timbers degraded missing fasteners	A6	Increase monitoring, prioritise repair
Ballast, condition and			Fines on surface. Ballast shoulder reduced.	A6	Increase monitoring, prioritise repair
profile			Trapped moisture, mud and track pumping. Ballast low, ends of multiple bearers visible.	A6	Increase monitoring, prioritise repair
			Ballast < 25 mm from moving parts. Ballast loose on sleepers.	A6	Increase monitoring, prioritise repair
Ballast, Excess			Ballast touching moving parts or ballast obstructing inspection of fasteners. Ballast fallen into trough.	A6	Increase monitoring, prioritise repair





OVERVIEW INSPECTION These tasks apply generically to all points and crossings assemblies					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE
			Any of below		
			Misalignment at heel		
			Signs of rail movement		
Rail, Creep			Blade up out of square.	A6	Increase monitoring, prioritise repair
			Greater than 15 mm clearance of moving drive locking and detection equipment from fixed parts.		
			Anti creep device not correctly positioned for current rail temp		
			Irregular contact band.	A6	Increase monitoring, prioritise repair
Rail, Condition			Minor RCF, wheel burns or top / side wear. Evidence of bent rail.	A6	Increase monitoring, prioritise repair
Kall, Collulion			Severe RCF likely to interfere with Ultrasonic testing. Advanced wear. Corrugations. Other rail defects requiring a response.	A6	Increase monitoring, prioritise repair
Rail, Remaining Head Height			35mm to 26 mm	A7	Routine scheduled inspection
			24 to 26 mm and without defect per Section 1 Rail	A6	Increase monitoring, prioritise repair
			Head height defect	-	Section 1 Rail



Form number: ETP0301F-03

POINTS INSPECTION					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
	LEFT		85 mm to < 95 mm	A6	Increase monitoring, prioritise repair
Switch Opening, actual	LEFI		80 mm to < 85 mm	A2	20 km/h TSR until repaired
	RIGHT		< 80 mm	A1	10 km/h TSR until repaired
			≥ 1456 mm	-	Assess as per ETS-05-00 Table 5-15
			1445 mm to < 1456 mm	A6	Increase monitoring. Prioritise repair
Track gauge (at the switch			1430 mm to < 1445 mm	A7	Routine scheduled inspection
tip)			1427 mm to < 1430 mm	A4	60/65 km/h TSR until repaired
			1425 mm to < 1427 mm	A2	20 km/h TSR until repaired
			< 1425 mm	A1	10 km/h TSR until repaired
Back of switch blade to	LEET		1360 mm to < 1365 mm	A6	Increase monitoring. Prioritise repair
opposite switch gauge			1365 mm to < 1370 mm	A2	20 km/h TSR until repaired
face at tip	RIGHT		≥ 1370 mm	A1	10 km/h TSR until repaired
Deals of suitable blade to	LEFT		1370 mm to < 1380 mm	A6	Increase monitoring. Prioritise repair
Back of switch blade to opposite switch blade at	LEFI		1380 mm to < 1390 mm	A3	40 km/h TSR until repaired
supplementary drive or stretcher, measurement	RIGHT		1390 mm to < 1400 mm	A2	20 km/h TSR until repaired
stretcher, measurement RIGH			> 1400 mm	A1	10 km/h TSR until repaired
Throat Opening (Back of	LEFT		≥ 40 mm	A7	Routine scheduled inspection
switch blade to stock rail at	LEFT		35 mm to < 40 mm	А3	40 km/h TSR until repaired
the junction of heads)	RIGHT		< 35 mm	A1	10 km/h TSR until repaired
Switch blade and stock rail condition, metal flow	LEFT				
	RIGHT		1 mm or more flow	A6	Increase monitoring. Prioritise repair



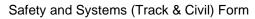
	Form number: ETP0301F-03

POINTS INSPECTION					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
Switch blade and stock rail condition, surface	LEFT		Visible damage, breakout of cracks, moderate to severe RCF and head checking	A6	Increase monitoring. Prioritise repair
condition	RIGHT		•		
Switch Alignment	LEFT		Bends evident, possible previous repair. Gap to switch stops and/or gap switch blade to stock rail through (excepting toe) 5 -10 mm.	А3	40 km/h TSR until repaired
J	RIGHT		Bent, gaps greater 10 mm	A1	10 km/h TSR until repaired
Cuitab blada alacad way	LEFT		1 mm to 3 mm	A6	Increase monitoring. Prioritise repair
Switch blade closed gap	RIGHT		>3 mm	A1	10 km/h TSR until repaired
	LEFT		3 mm to < 4 mm	A6	Increase monitoring. Prioritise repair
Switch width at the tip, conventional only	LEFI		> 4 mm to < 5 mm	A3	40 km/h TSR until repaired
	RIGHT		5 mm or more	A1	10 km/h TSR until repaired
Switch height at the tip,	LEET		> 10 mm to < 12 mm	A6	Increase monitoring. Prioritise repair
measured using ARTC switch tip gauge,	LEFT		> 8 mm to < 10 mm	А3	40 km/h TSR until repaired
conventional only	RIGHT		8 mm or less	A1	10 km/h TSR until repaired
Switch height at the tip,	LEFT		> 12 mm to < 13 mm	A6	Increase monitoring. Prioritise repair
measured with ruler, conventional only	RIGHT	-	12 mm or less	A1	10 km/h TSR until repaired
	KIGITI		2 mm to > 1 mm	A6	Increase monitoring. Prioritise repair
	LEFT		1 mm to > 0 mm	A3	40 km/h TSR until repaired
Switch Tip Wheel		1	1 mm 6 / 6 mm	/ 10	10 Milli Fort dria repaired
Clearance, undercut only	RIGHT		0 mm or less	A1	10 km/h TSR until repaired





POINTS INSPECTION					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
	LEFT		100 mm to < 200 mm	A6	Increase monitoring. Prioritise repair
Switch blade damage	RIGHT		> 200 mm	A1	10 km/h TSR until repaired
			≤ 22	A7	Routine scheduled inspection
Stock rail or switch blade gauge wear face angle	LEFT		>22 to < 26	A6	Increase monitoring. Prioritise repair
gaage wear lace angle	RIGHT		26 or greater	A1	10 km/h TSR until repaired
					80/90 km/h TSR until repaired
Fixed and pivot heel blocks	LEFT		Cracked	A4/A3	Heavy Haul 40 km/h TSR until repaired
	RIGHT		Broken but still effective	А3	40 km/h TSR until repaired
			Missing/Broken and ineffective	A1	10 km/h TSR until repaired
	LEFT				60/65 km/h TSR until repaired
Fixed and pivot heel			Missing/ineffective $\leq 2$	A4/A3	Heavy Haul 40 km/h TSR until repaired
blocks, bolts			Missing/ineffective 3	А3	40 km/h TSR until repaired
	RIGHT		Missing/ineffective >3	A1	10 km/h TSR until repaired
Anti creep device including	LEFT		Loose cracked but effective.	A6	Increase monitoring. Prioritise repair
bolts	RIGHT		Missing/Broken and ineffective	A6	Increase monitoring. Prioritise repair
			1 only - Cracked/loose	A6	Increase monitoring. Prioritise repair
Rail brace/chair, slide plates and rollers.	LEFT				60/65 km/h TSR until repaired
			1 only - Broken/Ineffective	A4/A3	Heavy Haul 40 km/h TSR until repaired
	RIGHT		2 consecutive - cracked / loose / broken / ineffective	А3	40 km/h TSR until repaired
			> 2 consecutive - cracked / loose / broken / ineffective	A1	10 km/h TSR until repaired





POINTS INSPECTION					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
			1 only - Cracked/loose	A6	Increase monitoring. Prioritise repair
	LEFT				60/65 km/h TSR until repaired
Switch Stops			1 only - Broken/Ineffective		Heavy Haul 40 km/h TSR until repaired
·	DIGUT		2 consecutive - cracked / loose / broken / ineffective	А3	40 km/h TSR until repaired
	RIGHT		> 2 consecutive - cracked / loose / broken / ineffective	A1	10 km/h TSR until repaired
Caraodar bar			Loose fastenings or worn insulators	A6	Increase monitoring. Prioritise repair
Spreader bar			Missing/broken	A1	10 km/h TSR until repaired
Switch Blade Support	LEFT		Gaps up to >2mm through blade or >1mm at drive points	A6	Increase monitoring. Prioritise repair
	RIGHT		'		



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					Form number: ETP0301F-03
SWINGNOSE CROSSING	(SNX) INPSECT	ON (ONLY WHERE APPLICA	ABLE)		
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
Creating page along damp	LEFT		1 mm to 3 mm	A6	Increase monitoring. Prioritise repair
Crossing nose closed gap	RIGHT		> 3 mm	A1	10 km/h TSR until repaired
	LEET		1360 mm to < 1365 mm	A6	Increase monitoring. Prioritise repair
Wing rail flare	LEFT		1365 mm to < 1370 mm	А3	40 km/h TSR until repaired
	RIGHT		≥ 1370mm	A1	10 km/h TSR until repaired
			≥ 1456 mm	-	Assess as per ETS-05-00 Table 5-15
	LEFT		1445 mm to < 1456 mm	A6	Increase monitoring. Prioritise repair
Track gauge (at the			1430 mm to < 1445 mm	A7	Routine scheduled inspection
crossing nose)			1427 mm to < 1430 mm	A4	60/65 km/h TSR until repaired
	RIGHT		1425 mm to < 1427 mm	A2	20 km/h TSR until repaired
			< 1425 mm	A1	10 km/h TSR until repaired
Crossing nose and wing condition, metal flow			1 mm or more flow	A6	Increase monitoring. Prioritise repair
Crossing nose and wing condition, surface condition			Pieces 3 mm or more across have fallen from surface	A6	Increase monitoring. Prioritise repair
Nose Alignment			Bends evident, possible previous repair. Gap to switch stops and/or gap switch blade to stock rail through (excepting toe) 5 -10 mm.	А3	40 km/h TSR until repaired
			Bent, gaps greater 10 mm	A1	10 km/h TSR until repaired
	LECT		Nose projects beyond running surface less than 1mm, no evidence of flange contact.	A6	Increase monitoring. Prioritise repair
Swing nose protrusion	LEFT		Nose projects beyond running surface less than 1mm with evidence of flange contact.	А3	40 km/h TSR until repaired
	RIGHT		Nose projects beyond running surface by more than 1mm.	A1	10 km/h TSR until repaired
Swing nose point rail			100 mm to < 200 mm	A6	Increase monitoring. Prioritise repair

> 200 mm

damage

10 km/h TSR until repaired



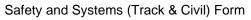
SWINGNOSE CROSSING (SNX) INPSECTION (ONLY WHERE APPLICABLE)					
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
Swing nose point rail or			22 to < 26	A6	Increase monitoring. Prioritise repair
wing rail gauge wear face angle			26 or greater	A1	10 km/h TSR until repaired
					80/90 km/h TSR until repaired
Heel blocks			Cracked	A5/A3	Heavy Haul 40 km/h TSR until repaired
			Broken but still effective	А3	40 km/h TSR until repaired
			Missing/Broken and ineffective	A1	10 km/h TSR until repaired
					60/65 km/h TSR until repaired
Heel blocks, bolts			Missing/ineffective $\leq 2$	A4/A3	Heavy Haul 40 km/h TSR until repaired
·			Missing/ineffective 3	А3	40 km/h TSR until repaired
			Missing/ineffective > 3	A1	10 km/h TSR until repaired
Anti creep device including			Loose cracked but effective.	A6	Increase monitoring. Prioritise repair
bolts			Missing/Broken and ineffective	A6	Increase monitoring. Prioritise repair
					60/65 km/h TSR until repaired
Crossing spacer blocks			Cracked	A4A3	Heavy Haul 40 km/h TSR until repaired
			Broken but still effective	А3	40 km/h TSR until repaired
			Missing/Broken and ineffective	A1	10 km/h TSR until repaired
			Cingle or multiple helte leage yet offeeting	A6	Increase monitoring. Prioritise repair
			Single or multiple bolts loose yet effective	Ab	60/65 km/h TSR until repaired
Crossing spacer blocks,			Missing/ineffective ≤2	A4A3	Heavy Haul 40 km/h TSR until repaired
bolts			Missing/ineffective 3	А3	40 km/h TSR until repaired
			Missing/ineffective >3	A1	10 km/h TSR until repaired



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SWINGHOSE CROSSING	SNX) INPSECTION (ONLY WHERE APPL	ICABLE
SWINGNOSE CROSSING	NA) INPSECTION (ONLY WHERE APPL	ICABLE)

ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION
Splice joint, protrusion of point of splice			Point of splice rail projects beyond running surface less than 1mm, no evidence of flange contact.	A6	Increase monitoring. Prioritise repair
			Point of splice rail projects beyond running surface less than 1mm with evidence of flange contact.	А3	40 km/h TSR until repaired
			Point of splice projects beyond running surface by more than 1mm.	A1	10 km/h TSR until repaired
Splice joint, surface condition			Pieces 3 mm or more across have fallen from surface	A6	Increase monitoring. Prioritise repair
Rail brace/chair, slide plates and rollers.			1 only - Cracked/loose	A6	Increase monitoring. Prioritise repair
				A4/A3	60/65 km/h TSR until repaired
			1 only - Broken/Ineffective		Heavy Haul 40 km/h TSR until repaired
			2 consecutive - cracked / loose / broken / ineffective	А3	40 km/h TSR until repaired
			> 2 consecutive - cracked / loose / broken / ineffective	A1	10 km/h TSR until repaired
Swing nose stops	LEFT		1 only - Cracked/loose	A6	Increase monitoring. Prioritise repair
					60/65 km/h TSR until repaired
			1 only - Broken/Ineffective	A4/A3	Heavy Haul 40 km/h TSR until repaired
	RIGHT		2 consecutive - cracked / loose / broken / ineffective	А3	40 km/h TSR until repaired
			> 2 consecutive - cracked / loose / broken / ineffective	A1	10 km/h TSR until repaired
Point Rail Support			No gap or gaps less than 1mm	A7	Routine scheduled inspection.
			Gaps up to 2mm through blade but less than 1mm at drive points	A6	Increase monitoring. Prioritise repair
			Gap of up 4mm or 2mm at drive points	A6	Increase monitoring. Prioritise repair
			Gaps greater than 4mm or greater than 2mm at point	A6	Increase monitoring. Prioritise repair





SWINGNOSE CROSSING (SNX) INPSECTION (ONLY WHERE APPLICABLE)								
ELEMENT	MEASURE	COMMENT	CONDITION		RESPONSE ACTION			
Point Rail Slide Plate Wear			New no wear up to 2mm	A7	Routine scheduled inspection.			
			Wear more than 2mm deep	A6	Increase monitoring. Prioritise repair			