TURNOUT DETAILED INSPECTION – HOUSED POINTS

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 in Critical Areas			5 – 20 mm	A6	Increase monitoring, prioritise repair
			20 mm or more	A6	Increase monitoring, prioritise repair
Track Geometry, Overall Condition			Visible deterioration	A6	Increase monitoring, prioritise repair
			Single Measured defect	-	ETS-05-00 5.4 table 5-15
			Multiple measured defects	-	ETS-05-00 5.4 table 5-15
Bearers and Fasteners, Ineffective in Critical Areas			1	A6	Increase monitoring, prioritise repair
			2 consecutive	A3	40 km/h TSR until repaired
			> 2 consecutive	A1	10 km/h TSR until repaired
Bearers and Fasteners, Overall Condition			< 20% loose clips, screws or spikes, timbers degraded	A6	Increase monitoring, prioritise repair
			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 profile			Fines on surface. Ballast shoulder reduced.	A6	Increase monitoring, prioritise repair
			Trapped moisture, mud and track pumping. Ballast low, ends of multiple bearers visible.	A6	Increase monitoring, prioritise repair
Ballast, Excess			Ballast < 25 mm from moving parts. Ballast loose on sleepers.	A6	Increase monitoring, prioritise repair
			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**
Rail, Creep			Any of below Misalignment at heel Signs of rail movement Blade up out of square. 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	A6	Increase monitoring, prioritise repair
Rail, Condition			Irregular contact band. Minor RCF, wheel burns or top / side wear. Evidence of bent rail. Severe RCF likely to interfere with Ultrasonic testing. Advanced wear. Corrugations. Other rail defects requiring a response.	A6 A6 A6	Increase monitoring, prioritise repair Increase monitoring, prioritise repair Increase monitoring, prioritise repair
Rail, Remaining Head Height			35mm to 26 mm 24 to 26 mm and without defect per Section 1 Rail Head height defect	A7 A6 -	Routine scheduled inspection Increase monitoring, prioritise repair Section 1 Rail

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

POINTS INSPECTION					
ELEMENT	**MEASURE**	**COMMENT**	**CONDITION**		**RESPONSE ACTION**
Switch blade and stock rail condition, surface condition	LEFT		Visible damage, breakout of cracks, moderate to severe RCF and head checking	A6	Increase monitoring. Prioritise repair
	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.	A3	40 km/h TSR until repaired
	RIGHT		Bent, gaps greater 10 mm	A1	10 km/h TSR until repaired
Switch blade closed gap	LEFT		1 mm to 3 mm	A6	Increase monitoring. Prioritise repair
	RIGHT		>3 mm	A1	10 km/h TSR until repaired
Switch width at the tip, conventional only	LEFT		3 mm to < 4 mm	A6	Increase monitoring. Prioritise repair
			> 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, measured using ARTC switch tip gauge, conventional only	LEFT		> 10 mm to < 12 mm	A6	Increase monitoring. Prioritise repair
			> 8 mm to < 10 mm	A3	40 km/h TSR until repaired
	RIGHT		8 mm or less	A1	10 km/h TSR until repaired
Switch height at the tip, measured with ruler, conventional only	LEFT		> 12 mm to < 13 mm	A6	Increase monitoring. Prioritise repair
	RIGHT		12 mm or less	A1	10 km/h TSR until repaired
Switch Tip Wheel Clearance, undercut only	LEFT		2 mm to > 1 mm	A6	Increase monitoring. Prioritise repair
			1 mm to > 0 mm	A3	40 km/h TSR until repaired
	RIGHT		0 mm or less	A1	10 km/h TSR until repaired
Switch blade damage	LEFT		100 mm to < 200 mm	A6	Increase monitoring. Prioritise repair
	RIGHT		> 200 mm	A1	10 km/h TSR until repaired

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

HOUSED POINTS INPSECTION (ONLY WHERE APPLICABLE)					
ELEMENT	**MEASURE**	**COMMENT**	**CONDTION**		**RESPONSE**
Checkrail flangeway and housing flangeway clearance			> 50 mm	A4	60/65 km/h TSR until repaired
			48 mm to 50 mm	A6	Increase monitoring. Prioritise repair
			42 mm to 47 mm	A7	Routine scheduled inspection
			40 mm to 41 mm	A6	Increase monitoring. Prioritise repair
			< 40 mm	A4	60/65 km/h TSR until repaired
Top of housing above checkrail			32 mm to 35 mm	A6	Increase monitoring. Prioritise repair
			36 mm to 37 mm	A3	40 km/h TSR until repaired
			> 37 mm	A1	10 km/h TSR until repaired
Vertical clearance between Switch tip and Housing			< 3 mm	A6	Increase monitoring, raise known condition and plan rectification.
Switch toe to stock rail open throw dimension			85 mm to < 95 mm	A6	Increase monitoring. Prioritise repair
			80 mm to < 85 mm	A2	10 km/h TSR until repaired
			< 80 mm	A1	10 km/h TSR until repaired
Width of housing			< 140 mm	A6	Increase monitoring. Prioritise repair
Flare at end of housing and check rail			1360 mm to < 1365 mm	A6	Increase monitoring. Prioritise repair
			1365 mm to < 1370 mm	A3	40 km/h TSR until repaired
			≥ 1370 mm	A1	10 km/h TSR until repaired

FIXED V CROSSING INPSECTION					
ELEMENT	**MEASURE**	**COMMENT**	**CONDITION**	**RESPONSE**	
Track gauge (at the crossing nose)	LEFT V1		≥ 1443 mm	A1	10 km/h TSR until repaired
			> 1440 mm to < 1443 mm	A4	60/65 km/h TSR until repaired
			> 1438 mm to 1440 mm	A6	Increase monitoring. Prioritise repair
			> 1430 mm to 1438 mm	A7	Routine scheduled inspection
	RIGHT V1		> 1427 mm to 1430 mm	A6	Increase monitoring. Prioritise repair
			> 1425 mm to 1427 mm	A4	60/65 km/h TSR until repaired
			1425 mm and less	A1	10 km/h TSR until repaired
Check Rail Effectiveness	LEFT V1		≥ 1400 mm	A1	10 km/h TSR until repaired
			1398 mm to < 1400 mm	A3	40 km/h TSR until repaired
			1396 mm to < 1398 mm	A4	60/65 km/h TSR until repaired
			1389 mm to < 1396 mm	A7	Routine scheduled inspection
	RIGHT V1		1386 mm to < 1389 mm	A6	Increase monitoring. Prioritise repair
			1384 mm to < 1386 mm	A4	60/65 km/h TSR until repaired
			1382 mm to < 1384 mm	A3	40 km/h TSR until repaired
			< 1382 mm	A1	10 km/h TSR until repaired
Crossing nose break width	V1		15 mm to 20 mm width	A6	Increase monitoring. Prioritise repair
			20 mm to 25 mm width	A3	40 km/h TSR until repaired
			> 25 mm wide	A1	10 km/h TSR until repaired
Crossing nose condition, metal flow	V1		1 mm or more flow	A6	Increase monitoring. Prioritise repair
Crossing nose condition, batter/ hollow	V1		2 mm or more hollow / severe	A6	Increase monitoring. Prioritise repair
Crossing nose condition, surface condition	V1		Pieces 3mm or more across have fallen from surface	A6	Increase monitoring. Prioritise repair

FIXED V CROSSING INPSECTION					
ELEMENT	**MEASURE**	**COMMENT**	**CONDITION**	**RESPONSE**	
Crossing Cracks	V1		No cracks	A7	Routine scheduled inspection
			Noncritical	A6	Increase monitoring. Prioritise repair
			Critical	A6	Increase monitoring. Prioritise repair
			Fully (not affecting the running surface)	A4	60/65 km/h TSR until repaired
			Fully (affecting the running surface)	A1	10 km/h TSR until repaired
Crossing flangeway	LEFT V1		Visible evidence of flange tips running in dirt.	A6	Increase monitoring. Prioritise repair
	RIGHT V1		Flangeway obstructed (with ballast etc) or evidence of flange tip running on steel work	A1	10 km/h TSR until repaired
Crossing spacer blocks	V1		Cracked	A4/A3	60/65 km/h TSR until repaired Heavy Haul 40 km/h TSR until repaired
			Broken but still effective	A3	40 km/h TSR until repaired
			Missing/Broken and ineffective	A1	10 km/h TSR until repaired
Crossing spacer blocks, bolts	V1		Single or multiple bolts loose yet effective	A6	Increase monitoring. Prioritise repair
			Missing/ineffective ≤2	A4/A3	60/65 km/h TSR until repaired Heavy Haul 40 km/h TSR until repaired
			Missing/ineffective 3	A3	40 km/h TSR until repaired
			Missing/ineffective >3	A1	10 km/h TSR until repaired
Wing rail vertical wear	LEFT V1		5 mm to 10 mm	A6	Increase monitoring. Prioritise repair
	RIGHT V1		>10 mm	A3	40 km/h TSR until repaired
Wing Rail Condition, metal flow	LEFT V1		1 mm or more flow	A6	Increase monitoring. Prioritise repair
	RIGHT V1				
Wing Rail Condition, surface condition	LEFT V1		Pieces 3mm or more across have fallen from surface	A6	Increase monitoring. Prioritise repair
	RIGHT V1				

FIXED V CROSSING INPSECTION					
ELEMENT	**MEASURE**	**COMMENT**	**CONDITION**	**RESPONSE**	
Wing Rail flare	LEFT V1		1360 mm to < 1365 mm	A6	Increase monitoring. Prioritise repair
			1365 mm to < 1370 mm	A3	40 km/h TSR until repaired
	RIGHT V1		≥ 1370 mm	A1	10 km/h TSR until repaired
Check rail flangeway	LEFT V1		>49 mm	A4	60/65 km/h TSR until repaired
			48 mm to 49 mm	A6	Increase monitoring. Prioritise repair
			40 mm to < 48 mm	A7	Routine scheduled inspection
	RIGHT V1		38 mm to < 40 mm	A6	Increase monitoring. Prioritise repair
			< 38 mm	A4	60/65 km/h TSR until repaired
Check rail flare	LEFT V1		1360 mm to < 1365 mm	A6	Increase monitoring. Prioritise repair
			1365 mm to < 1370 mm	A3	40 km/h TSR until repaired
	RIGHT V1		≥ 1370 mm	A1	10 km/h TSR until repaired
Check rail spacer blocks	V1		Cracked	A4/A3	60/65 km/h TSR until repaired Heavy Haul 40 km/h TSR until repaired
			Broken but still effective	A3	40 km/h TSR until repaired
			Missing/Broken and ineffective	A1	10 km/h TSR until repaired
Check rail spacer blocks, bolts	V1		Missing/ineffective ≤2	A4/A3	60/65 km/h TSR until repaired Heavy Haul 40 km/h TSR until repaired
			Missing/ineffective 3	A3	40 km/h TSR until repaired
			Missing/ineffective >3 or missing end bolt in check rail.	A1	10 km/h TSR until repaired