

Running Repairs

Issue date: 11/05/10

Review date: 18/12/12

SWMS number: SMS-06-SW-0778	SWMS Name: Running Repairs			SWMS Team: Greg Hess, Richard Wardropper, Anton Loggen, Kevin Wallace, Michael Chapman, Michael Bridger-Darling, Milan Nikolov, Craig Prideaux, David Aquilina, Hemant Jayswal
Custodian (Position): Manager Services and Support RSD	Assumptions: All work is to be performed at an RSD Electrical Maintenance Centre (only) in a safe work environment with adequate lighting, safe access and adequate ventilation. This SWMS does not cover lift shop work			Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)
Approving Authority (Position): GM Safety Support and Services	Plant/Equipment/Tools: <ul style="list-style-type: none"> Red Flag Appropriate trade tools Mobile steps Forklift Portable Residual Current Device (RCD) or Earth Leakage Device (ELD) Wheel Chocks Lock and lockout device 	Records/Reporting: <ul style="list-style-type: none"> On board Train Log Books on Intercity Trains Technical Maintenance Plan (TMP) Reports (as required) METRE 	Permits/licences required: <ul style="list-style-type: none"> Certificate of competency forklift driver Certificate of competency crane operation Certificate of competency Dogger 	Initial assessment by: Peter Gaul (RSD Contract Safety Team Leader) Julian Bedford (Safety & Environment AMG) Bill Martin (SSA)
Applicable Standards, Codes of Practice and guidance: <ul style="list-style-type: none"> OHS Act 2000 OHS Regulations 2001, Chapter 4&5 Rail Safety Act 2008 ASCC – National Standard for Manual Tasks 2007 National Code of Practice for the Prevention of musculoskeletal disorders caused from performing manual tasks AS 3760 In-service inspection and testing of electrical equipment Competent person for 	Inspection requirements <ul style="list-style-type: none"> Power leads tested 6 monthly Residual Current Device 	Service schedule:	Training/Qualifications required: <ul style="list-style-type: none"> Site specific induction Manual Handling training 	Reviewed by: Suresh Singh (Safety Manager) Darren Stuart (Safety Project Officer) Stephen Graham (Service Manager HMC) Glenn Speechly (Electrician FMC) Michael Richmond (Fitter FMC) Terry O'Toole (Safety Facilitator FMC)
				PPE required: <ul style="list-style-type: none"> High visibility orange vest or clothing Lace up Safety Footwear Safety eyewear for power tool use

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<ul style="list-style-type: none">• testing electrical equipment• AS 61010.1 Safety of electrical equipment for measurement control and laboratory use	<ul style="list-style-type: none">• (RCD) or Earth Leakage Device (ELD) test before use• Visual inspection of leads for damage before use• Visual inspection of power and pneumatic tools for damage and serviceability• Pre-start inspection of forklifts & crane	MIMS or METRE Ref:	<ul style="list-style-type: none">• Rail Industry Safety Induction RISI• Electrical Safety Awareness• Trade qualifications, where noted• Competent forklift driver• Safe working certificate of competency e.g. Network RollingStock Maintainer (NRM)• Site Road Isolation training as required• Site Power Testing training as required	<ul style="list-style-type: none">• Bump hat when working under train• Gloves as appropriate• Hearing protection for power tool use• Appropriate respirator/filter• Face Shield (as appropriate)• Long sleeve shirt or overalls• Insect repellent• Guards emergency Cock-lock s/c 1966001• Locking Jaw s/c 1966019• Guards emergency Cock-lock-out Device s/c 165995
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	<u>General Hazards</u> These Hazards and Controls apply throughout this SWMS	Struck by or contact with moving trains or unexpected train movement	B -	<ul style="list-style-type: none"> • Rail Industry Safety Induction RISI • Shunters • Red flag • Traffic management plan • Pre –work brief • Supervision • Site Induction • High Visibility Vest • Trained Drivers • Sounding Horns • Medical Standards and Health Assessments • Site Speed Restrictions 	D	Supervisor and authorised employee	
		Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage	C +	<ul style="list-style-type: none"> • Designated Walkways • Use of referenced Entering / Climbing out of Trains SWI's • Lace up Safety Footwear 	C -	Supervisor and authorised employee	SMS-06-SW-0487 Entering Trains from Ballast SMS-06-SW-0488 Climbing out of Trains onto Ballast
		Needle Stick Injuries	C +	<ul style="list-style-type: none"> • Protective gloves • Handling Sharps SWI 	C -	Supervisor and authorised employee	SMS-06-SW-0405 – Handling Sharps
		Contact with sharp edges	C +	<ul style="list-style-type: none"> • Protective gloves • Lace up Safety Footwear • Appropriate clothing • Refer to PPE guide 	C -	Supervisor and authorised employee	SMS-06-GD-0323 Personal Protective Equipment

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	<u>General Hazards Cont</u>	Sprains and strains	B -	<ul style="list-style-type: none"> • Use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching • Use manual handling aids such as trolleys • Ensure a minimum of 2 persons/team lifts are used for heavy lifts 	C -	Supervisor and authorised employee	SMS-06-GD-0001 Guide to Manual Handling
		Noise	C +	<ul style="list-style-type: none"> • Hearing protection • Pre-work brief • Supervision • Work in accordance with relevant tool SWIs 	D	Supervisor and authorised employee	SMS-06-GD-0273 Noise Management
		Dust	B -	<ul style="list-style-type: none"> • Appropriate eyewear and PPE • Appropriate Respirator/filter • Supervision • Pre-work brief 	D	Supervisor and authorised employee	SMS-06-GD-0273 Noise Management
		Fall from doorway / mobile stairs	B -	<ul style="list-style-type: none"> • Use referenced SWI's • Non-slip shoes • Use the platform or suitable mobile stairs to access carriage • Level surface to place platform • Use of fall arrest equipment 	C -	Supervisor and authorised employee	

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	Tools & Equipment Hazards These Hazards and Controls apply to the use of tools and equipment	Electric shock from power leads	B -	<ul style="list-style-type: none"> • Training in Electrical Safety Awareness • Appropriate gloves and PPE • Pre-work brief • Supervision • Warning Signs • Residual Current Device (RCD) or Earth Leakage Device (ELD) • Annual Certification 	C-	Supervisor and authorised employee	SMS-06-SW-0274 Electrical Equipment – Selection, Inspection and Testing
		Noise		<ul style="list-style-type: none"> • See above "General Hazards" 		Supervisor and authorised employee	SMS-06-GD-0273 Noise Management
		Dust		<ul style="list-style-type: none"> • See above "General Hazards" 		Supervisor and authorised employee	
	1. Electric Tools	"Kick Back" – Sudden movement of tool	C +	<ul style="list-style-type: none"> • Competent Operator working in accordance with relevant SWI • Pre-use inspection • Workable guard 	C -	Supervisor and authorised employee	SMS-06-SW-0474 Angle Grinders SMS-06-SW-0475 Bench Grinders SMS-06-SW-0479 Power Drills SMS-06-SW-0483 Power Saws SMS-06-SW-0478 Pedestal Drills

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	2. Pneumatic Tools	Projectiles	B -	<ul style="list-style-type: none"> • Safety Eyewear (including face shield, as appropriate) • Pre-use checks, as per relevant SWI (see "Kick Back" Sudden movement of tool above) • Pre-work brief • Competent Operator working in accordance with relevant SWI (see "Kick Back" Sudden movement of tool above) • Supervision 	C -	Supervisor and authorised employee	
		Cuts and abrasions from contact with moving tool	C -	<ul style="list-style-type: none"> • Competent Operator working in accordance with relevant SWI (see "Kick Back" Sudden movement of tool above) • Pre-work brief • Supervision 	D	Supervisor and authorised employee	SMS-06-SW-0809 Pneumatic Tools
		Sparks and Hot metal generated by tool use	C -	<ul style="list-style-type: none"> • Competent Operator working in accordance with relevant SWI (see "Kick Back" Sudden movement of tool above) • Long sleeved shirts or overalls • Additional controls as dictated by outcome of Hot Work risk assessment. • Leather Gloves • Appropriate eye protection • Supervision 	D	Supervisor and authorised employee	SMS-06-PR-0329 Hot Work
		Pneumatic discharge	C -	<ul style="list-style-type: none"> • Pre-use checks, as per referenced SWI • Competent Operator working in accordance with referenced SWI 	D	Supervisor and authorised employee	SMS-06-SW-0809 Pneumatic Tools

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		Struck by pneumatic hose	C +	<ul style="list-style-type: none"> Pre-use checks, as per referenced SWI Appropriate clothing/gloves Eye protection Competent Operator working in accordance with referenced SWI Isolation and release of air pressure before removing hoses 	D	Supervisor and authorised employee	SMS-06-SW-0839 Compressed Air - Safe Use
		Noise		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-GD-0273 Noise Management
		Dust		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	
		Cuts and abrasions from contact with moving tool		<ul style="list-style-type: none"> See above "Tools & Equipment" Hazards 		Supervisor and authorised employee	SMS-06-SW-0809 Pneumatic Tools
	3. Forklift	Struck by forklift	B -	<ul style="list-style-type: none"> Trained Operator working in accordance with referenced SWI High Visibility Vest Designated Walkways Daily Inspection Traffic management plan Reversing Beeper and flashing light Competent/licensed fork lift driver 	D	Supervisor and authorised employee	SMS-06-SW-0400 Forklift Trucks SMS-16-FM-0401 Forklift Daily Inspection
		Struck by falling load	C -	<ul style="list-style-type: none"> Trained Operator working in accordance with referenced SWI Daily inspection Designated walking area Pre work brief 	D	Supervisor and authorised employee	SMS-06-SW-0400 Forklift Trucks SMS-16-FM-0401 Forklift Daily Inspection

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1.	Secure a Red Flag on the Driver's window blind of the lead car	Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-12-OI-0886 Red Flagging Trains in stabling yards, depots and Maintenance Centres
2.	Lower Pantograph	Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-0838 Pantograph Raising and Lowering
		Fall from doorway / mobile stairs		<ul style="list-style-type: none"> See above "General Hazards" 			
3.	Isolate the Road	Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-0836 Isolating 1500V DC OH using an Annett Key
		Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage		<ul style="list-style-type: none"> See above "General Hazards" 			
		Arcing from Road Isolation Switch during its movement	C -	<ul style="list-style-type: none"> Design of Electrical Infrastructure Training in Electrical Safety Awareness AR or BR training working in accordance with isolation SWIs Working in accordance with SWI 	D	Supervisor and	

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		Electric shock during operation of the Road Isolation Switch	C +	<ul style="list-style-type: none"> • Design of Electrical Infrastructure • Training in Electrical Safety Awareness • Standing on Earthing Plate • AR or BR training • Working in accordance with SWIs • Pre-work brief 	C -	authorised employee	SMS-06-SW-0836 Isolating 1500V DC OH using an Annett Key

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4.	Repair/Replace Body components in accordance with referenced SWI tools, materials and equipment.	Contact with sharp edges		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-1284 – Train Body System (01): Safe Working
		Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> See above "Tools & Equipment Hazards" 			
		Needle Stick Injuries		<ul style="list-style-type: none"> See above "General Hazards" 			
		Various hazards associated with the use of paints and associated chemicals, such as: <ul style="list-style-type: none"> Poisoning Chemical burns to the eyes & skin Chronic illnesses 	C+	<ul style="list-style-type: none"> Additional PPE as required by site risk assessments and MSDS Requirements Appropriate respirator and filter Long sleeved shirt Chemical resistant gloves Chemical resistant boots Disposable overalls and disposable booties when removing lead based paints (refer to appropriate SWI) Pre-work brief Train and mechanical ventilation aids Prohibition on "spraying" paints and chemicals 	D	Supervisor and authorised employee	SMS-06-SW-1158 Working with Paints and Associated Chemicals

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		Biological Hazards of interacting with bodily fluids (particularly in relation to the toilets)	C +	<ul style="list-style-type: none"> • Wear Protective Gloves/PPE • Wear Safety Goggles • Lighting • Personal hygiene • Additional portable lighting, as required • Drivers' Incident reporting • Inspections before work commences • Contract Forensic Cleaning, as required • Work in accordance with SWI • Pre-work brief 	C -		SMS-06-SW-1257 Train Water System (15) Safe Working SMS-06-GD-0323 Personal Protective Equipment
		Electric shock from power sources within carriage	B -	<ul style="list-style-type: none"> • Training in Electrical Safety Awareness • Pre-work brief • Supervision • Warning Signs • Competent Operator working in accordance with Isolation SWIs • Electrical Isolation and testing practices/procedures • Residual Current Device (RCD) • Isolate and tag out circuit breakers 	C -		SMS-06-SW-0269 Electric Shock Protocol

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5.	Repair/Replace Inter-car connectors	Restricted Working Space	B -	<ul style="list-style-type: none"> • Use referenced SWI's • Bump Hat 	C +	Supervisor and authorised employee	SMS-06-SW-1249 Intercar Connectors System (03) Safe Working
		Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> • See above "General Hazards" 		Supervisor and authorised employee	
		Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> • See above "Tools & Equipment Hazards" 			

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6.	Repair/Replace Door system components using referenced SWI's, Tools, Materials and equipment.	Fall from doorway, mobile stairs		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms
		Contact with sharp objects		<ul style="list-style-type: none"> See above "General Hazards" 			
		Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> See above "Tools & Equipment Hazards" 			
		Electric shock from power sources within carriage	B -	<ul style="list-style-type: none"> Training in Electrical Safety Awareness Pre-work brief Supervision Warning Signs Competent Operator working in accordance with Isolation SWIs Electrical Isolation and testing practices/procedures Residual Current Device (RCD) Isolate and tag out circuit breakers 	C -		SMS-06-SW-1165 Train Door Systems (04) Safe Working
7.	Repair/Replace Braking system components using referenced SWI's, tools materials and equipment.	Dust		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	
		Sprains and strains		<ul style="list-style-type: none"> See above "General Hazards" 			
		Pinched by moving brakes	C -	<ul style="list-style-type: none"> Secure a Red Flag on the Driver's window blind of the lead car Bogie (BC) or Park Brake (BC) Cock cut out Guard's Emergency Cock Locked Out 	D		SMS-06-SW-1164 Train Brake System (05) Safe Working

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		Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards" 			
		Contact with sharp objects		<ul style="list-style-type: none"> See above "General Hazards" 			
		Contact with hot parts	C -	<ul style="list-style-type: none"> Allow cooling time Wear Protective Gloves when interacting with any hot parts Pre-work brief Work in accordance with relevant SWI 	D		SMS-06-GD-0323 Personal Protective Equipment
8.	Repair/Replace Pneumatics (Air delivery & Supply) using referenced SWIs, Plant, Equipment, Tools & Materials	Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> See above "Tools & Equipment Hazards" 		Supervisor and authorised employee	SMS-06-SW-1260 Pneumatics (other than Braking) System (06) - Safe Working
		Sprains and strains		<ul style="list-style-type: none"> See above "General Hazards" 			
		Dust		<ul style="list-style-type: none"> See above "General Hazards" 			
		Contaminated mist (spray)	C +	<ul style="list-style-type: none"> Safety Eyewear Appropriate respirator/filter 	D		SMS-06-SW-0809 Pneumatic Tools
		Pneumatic discharge	C -	<ul style="list-style-type: none"> Competent Operator Hearing Protection 	D		SMS-06-SW-0839 Compressed Air - Safe Use

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		Electric shock	B -	<ul style="list-style-type: none"> • Training in Electrical Safety Awareness • Train isolation • Warning Signs • Competent Operator working in accordance with Isolation SWIs • Lowered pantograph • Isolated road • Appropriate gloves and PPE • Pre-work brief • Supervision • Residual Current Device (RCD) • Warning Signs • Competent Operator working in accordance with Isolation SWIs • Electrical isolation and testing practices/procedures • Isolate and tag out circuit breakers as necessary 	D	Supervisor and authorised employee	
		Struck by pneumatic hose		<ul style="list-style-type: none"> • 'See above tools equipment hazards-Pneumatic Tool/s 			SMS-06-SW-0809 Pneumatic Tools SMS-06-SW-0839 Compressed Air - Safe Use
9.	Repair/Replace Auxiliary Equipment components using referenced SWIs, Plant, Equipment, Tools & Materials	Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> • See above "Tools & Equipment Hazards" 		Supervisor and authorised employee	
		Contact with sharp objects		<ul style="list-style-type: none"> • See above "General Hazards" 			
		Electric Shock		<ul style="list-style-type: none"> • See tools equipment hazards-Electric Tools 			SMS-06-SW-1250 Auxiliary Equipment Systems (07) Safe Working

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10.	Repair/Replace Traction system components using referenced SWIs, Plant, Equipment, Tools & Materials	Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> See above "Tools & Equipment Hazards" 		Supervisor and authorised employee	
		Electric Shock		<ul style="list-style-type: none"> See tools equipment hazards- Electric Tools 			SMS-06-SW-1273 Train Traction System (09); Safe Working
		Contact with hot parts	C -	<ul style="list-style-type: none"> Allow cooling time 	D		SMS-06-GD-0323 Personal Protective Equipment
		Restricted Working Space	B -	<ul style="list-style-type: none"> Competent Operator working in accordance with Isolation SWIs Bump Hat Head lamp or Torch 	C +		
		Sprains and strains		<ul style="list-style-type: none"> See above "General Hazards" 			

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	Repair/Replace Climate Control Systems using referenced SWI's, Tools, Materials and Equipment Climate Control System unit replacements to be carried out in the lift shop refer to: 11.	Contact with sharp objects		• See above "General Hazards"		Supervisor and authorised employee	SMS-06-SW-1244 Train Climate Control (HVAC) System (08) Safe Working
		Sprains and strains		• See above "General Hazards"			SMS-06-SW-0779 Lift Shop Repairs
		Burns from refrigerants	D	• Wear Protective Gloves • Wear Safety Goggles • Competent Operator working in accordance with referenced SWI	D		
		Insect Bites	C -	• Wear gloves • Regular pest control • Apply Insect Repellent	D		
		Fall from Heights	B -	• Use High Roads to perform task • When an A/C unit is removed, place a protective cover over the opening to prevent falls	D		SMS-06-SW-1160 Working on High Roads
		Electric Shock		• See tools equipment hazards- Electric Tools			
12.	Repair/Replace Auxiliary Power Supply components using referenced SWIs, Plant, Equipment, Tools & Materials	Various hazards associated with use of tools and equipment		• See above "Tools & Equipment Hazards"		Supervisor and authorised employee	
		Sprains and strains		• See above "General Hazards"			
		Acid Burns	C +	• Competent operator working in accordance with referenced SWIs • Safety goggles • Chemical resistant gloves • Safety Footwear • Appropriate respirator and filter • Work in accordance with relevant MSDS	C -		SMS-06-SW-1285 Train Auxiliary Power Supply (10) - Safe Working

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		Electric Shock		<ul style="list-style-type: none">• See tools equipment hazards-Electric Tools			
13.	Repair/Replace Main Power Supply system components using referenced SWIs, Tools, Materials and Equipment.	Contact with sharp objects		<ul style="list-style-type: none">• See above "General Hazards"		Supervisor and authorised employee	
		Electric Shock		<ul style="list-style-type: none">• See tools equipment hazards-Electric Tools			SMS-06-SW-1286 Train Main Power Supply System (11) Safe Working

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14.	Repair/Replace Lighting system Components, using referenced SWIs, Plant, Equipment, Tools & Materials	Electric Shock		<ul style="list-style-type: none"> See tools equipment hazards- Electric Tools 		Supervisor and authorised employee	SMS-06-SW-1251 Train Lighting Systems (12) - Safe Working
		Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage		<ul style="list-style-type: none"> See above "General Hazards" 			SMS-06-SW-0487 Entering Trains from Ballast
		Fall from mobile stairs		<ul style="list-style-type: none"> See above "General Hazards" 			SMS-06-SW-0488 Climbing out of Trains onto Ballast
		Mercury vapours / Phosphorous dust	C -	<ul style="list-style-type: none"> Ventilation. Appropriate respirator and filter Rubber gloves Safety goggles 	D		SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms
		Cuts and/or falling debris	C +	<ul style="list-style-type: none"> Protective Gloves Safety Eyewear 	D		
15.	Repair/Replace Indicators, Control & Monitoring System components, using referenced SWIs, Plant, Equipment, Tools & Materials	Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> See above "Tools & Equipment Hazards" 		Supervisor and authorised employee	
		Contact with sharp objects		<ul style="list-style-type: none"> See above "General Hazards" 			
		Sprains and strains		<ul style="list-style-type: none"> See above "General Hazards" 			
		Electric Shock		<ul style="list-style-type: none"> See tools equipment hazards- Electric Tools 			SMS-06-SW-1269 Train Indicator, Control & Monitoring systems (13): Safe Working

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		Fall from doorway, mobile stairs	B -	<ul style="list-style-type: none"> • See above "General Hazards" 	C -		SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms
16.	Repair/Replace Communications system components	Contact with sharp objects		<ul style="list-style-type: none"> • See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-1281 Train Communication System (14): Safe Working
		Sprains and strains		<ul style="list-style-type: none"> • See above "General Hazards" 			
		Radiation	C +	<ul style="list-style-type: none"> • Work in accordance with Train Radio Radiation SWI 	D		SMS-06-SW-0891 Train Radio Isolation
		Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage		<ul style="list-style-type: none"> • See above "General Hazards" 			SMS-06-SW-0487 Entering Trains from Ballast
		Various hazards associated with use of tools and equipment		<ul style="list-style-type: none"> • See above "Tools & Equipment Hazards" 			SMS-06-SW-0488 Climbing out of Trains onto Ballast
		Electric Shock		<ul style="list-style-type: none"> • See tools equipment hazards-Electric Tools 			

Running Repairs

Issue date: 11/05/10
Review date: 18/12/12

Number	Step	Hazard or human error (Safety/Environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
17.	Clean-up and return replaced parts and equipment to store and dispose of rubbish to appropriate waste bins	Sprains and strains		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	
		Hygiene and dust	C +	<ul style="list-style-type: none"> Appropriate respirator and filter Protective gloves Safety Eyewear 	C -		
	Cut Road Back in	Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	
		Arcing from Road Isolation Switch during its movement	C -	<ul style="list-style-type: none"> Design of Electrical Infrastructure Training in Electrical Safety Awareness AR or BR training working in accordance with referenced SWI 	D		SMS-06-SW-0836 Isolating 1500V DC OH using an Annett Key
		Electric shock during operation of the Road Isolation Switch	C +	<ul style="list-style-type: none"> Design of Electrical Infrastructure Standing on Earthing Plate Training in Electrical Safety Awareness AR or BR training working in accordance with referenced SWI 	C -		SMS-06-SW-0836 Isolating 1500V DC OH using an Annett Key
	Raise Pantographs	Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards" 		Supervisor and authorised employee	SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms
		Fall from doorway / mobile stairs		<ul style="list-style-type: none"> See above "General Hazards" 			SMS-06-SW-0838 Pantograph Raising and Lowering
	Remove Red Flag	Struck by or contact with moving trains or unexpected train movement		<ul style="list-style-type: none"> See above "General Hazards " 		Supervisor and authorised employee	SMS-12-OI-0886 Red Flagging Trains in stabling yards, depots and Maintenance Centres

Running Repairs

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Number	Step	Hazard or human error (Safety/Environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
		Slip, trip, fall on rail, ballast or other uneven walking surfaces and on entry/exit to carriage		<ul style="list-style-type: none"> • See above "General Hazards" 			SMS-06-SW-0487 Entering Trains from Ballast SMS-06-SW-0488 Climbing out of Trains onto Ballast

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NOTE: Each work group or team member must sign off on the SWMS to acknowledge they have been briefed about or instructed in the SWMS

RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)		Likelihood/Frequency							Definition for Use - Regional & Local level (Workplace)	
		Event Frequency	Less than once every 1000 years	Once every 100 to 1,000 years	Once every 10 to 100 years	Once every 1 to 10 years	More than once per year up to and including 10 times per year	More than 10 times per year		
Consequence	Historical (Likelihood)	Unheard of in the rail industry	Has occurred once or twice in the rail industry	Has occurred many times in the rail industry, but not in NSW	Has occurred once or twice in NSW	Has occurred frequently in NSW	Has occurred frequently at specific locations	As an example, the Level 2 scale would be used when examining the risk of slips, trips and falls on specific RailCorp platforms within a region or at a particular station, or the risk of fire within a depot.		
	Workplace Predictive (Likelihood)	Not expected to occur	May occur only in exceptional circumstances	Could occur at some time but not likely	You would expect it to occur at least once in the next 10 years performing similar activities	You would expect it to occur at least once this year performing similar activities	You would expect it to occur at least once this month performing similar activities	There are 3 options for descriptors which can be used to determine the frequency category. One set of descriptors is provided for frequency, one for historical likelihood, and one for predictive likelihood in the workplace. Choose the most appropriate.		
		F1	F2	F3	F4	F5	F6	To score the risk, follow the steps:		
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	1. Identify the magnitude of the credible consequence if the risk were to occur. If applicable, risks should be considered in terms of the safety (this matrix), commercial and environmental impact (using other matrices).		
2-10 Fatalities	C5	Catastrophic	C+	B-	B+	A	A	2. Identify the likelihood of this level of consequence occurring. (This is done after considering the effectiveness of the current controls in place)		
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	C+	B-	B+	A	3. Score the risk using the combination of likelihood and consequence ranking.		
1 Major Injury	C3	Major	D	C-	C+	B-	B+	Note: Where there are a range of credible consequences which may lead to a different level of risks and/or where the controls may be different. It may be useful to score the risk more than once.		
1 or more Minor Injuries	C2	Minor	D	D	C-	C+	B-			
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	B-		