

# Maintain Signalling Equipment Enclosures

Issue date: 15/11/10  
Review date: 21/10/13

<b>SWMS number:</b> SMS-06-SW-0752	<b>SWMS Name:</b> <b>Maintain Signalling Equipment Enclosures (non structural)</b>			<b>SWMS Team:</b> Garry Leamey Michael Douglas Michael Robinson David Read David Colusso Tony Heuston
<b>Custodian (Position):</b> Manager Signals Maintenance Jim Zeaiter	<b>Assumptions:</b> For Maintenance and corrective activities i.e. replacement of lamps, faulty relays and relay change program. Mandatory PPE must be worn. Includes electrical signals equipment and power supplies at small buildings, locations and signalling complexes			<b>Content reviewed by Technical expert (SME) and RailCorp safety professional</b> (position including Div/Group) Snr Signal Engineer West Safety Facilitator, Safety Support Services Division
<b>Approver (Position):</b> General Manager Infrastructure	<b>Plant/Equipment/Tools:</b> <ul style="list-style-type: none"> <li>• Multimeter</li> <li>• Insulation Tester</li> <li>• Insulated Hand Tools</li> <li>• Arrester Tester</li> <li>• Earth Resistance Tester</li> <li>• Phase Angle meter</li> <li>• Hydrometer</li> </ul>	<b>Records/Reporting:</b> <ul style="list-style-type: none"> <li>• Teams 3</li> <li>• SPG 711.9 (work package) as required</li> </ul>	<b>Permits/licences required:</b> Railcorp Licensed Signal Electrician and Signal Mechanical personnel as listed in TMG A1415	
<b>Applicable Standards, Codes of Practice and guidance:</b> <ul style="list-style-type: none"> <li>• Code of Practice for Manual Handling 2005</li> <li>• Code of Practice for Risk Assessment 2001</li> <li>• Code of Practice for Storage &amp; Handling of Dangerous Goods 2005</li> <li>• Induction for Construction Work: National Code of Practice</li> <li>• Manual J</li> </ul>	<b>Inspection requirements:</b> <ul style="list-style-type: none"> <li>• Testers and meters have current calibration tag</li> <li>• Visual inspection of hand tools before use</li> </ul>	<b>Service schedule:</b> See attached Service Schedule listing	<b>Training/Qualifications required:</b> Signal Electrician, and Signal Mechanical  RISI WorkCover General Induction	<b>PPE required:</b> <ul style="list-style-type: none"> <li>• Dust mask where required</li> <li>• Asbestos PPE where required</li> <li>• Safety Goggles when using battery acid</li> <li>• Safety gloves when changing lamps</li> </ul>

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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)
1	Advise Signal Box	Miscommunication	B+	Use correct communication protocols	C-	Worksite Protection Officer, Pre work briefer	Network Rules
2	Worksite Assessment	Struck by Train	B+	Suitable Worksite Protection	C+	Worksite Protection Officer	Network Rules
		Slip, Trip, Fall	C+	Inspection of Site	C-	Pre work briefer, Workgroup members	
		Needle stick injury	C+	SWI for handling sharps	C-	Pre work briefer, Workgroup members	SMS-06-SW-0405
		Environmental Factors	C+	Implement EMS Environmental procedures	C-	Pre work briefer, Workgroup members	Refer to applicable EMS guidelines
3	Access Worksite	As for Step 2		As for Step 2		Pre work briefer, Workgroup members	
		Bites, Stings by Wasps / Spiders / Vermin	C-	Check for signs when opening & arrange removal when found. First Aid	D	Pre work briefer, Workgroup members	
		Manual Handling	C+	Correct Manual handling Techniques, Team lift	C-	Pre work briefer, Workgroup members	
4	Maintain, Test & Certify Equipment	Skin / Eye irritation from Substances, Lubricants or vapours	C+	Controls as per MSDS	D	Pre work briefer, Workgroup members	MSDS Information
		Manual Handling	C+	Correct Manual handling Techniques, Team lift	C-	Pre work briefer, Workgroup members	
		Sudden release of energy when tools slip	C-	Instruction to new starters on correct techniques	D	Pre work briefer, Workgroup members	
		Contact with Electricity (low voltage)	B-	Awareness of sources of Electricity	C+	Pre work briefer, Workgroup members	
		Bites, Stings by Wasps / Spiders / Vermin	C-	Check for signs when opening & arrange removal when found. First Aid	D	Pre work briefer, Workgroup members	
5	Clean up worksite	Poor Housekeeping	D	Inspect and clean site	D	Pre work briefer, Workgroup members	
		Manual Handling	C+	Correct Manual handling Techniques, Team lift	C-	Pre work briefer, Workgroup members	
		Waste Disposal	C-	Use correct SMS Disposal Procedure	D	Pre work briefer, Workgroup members	

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6	Egress Worksite	As for step 3		As for step 3		Pre work briefer, Workgroup members	
7	Advise Signal Box at Completion of activities	Miscommunication	B+	Use correct communication protocols	C-	Worksite Protection Officer, Pre work briefer	Network Rules

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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**

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COMP	SBL	EC	LEV	ROT	EYE	NEEDLE	LARGE	MINI
SC 12 10 01 00 SS-01	SC 12 20 01 00 SS-01	SC 12 24 00 00 SS-01	SC 01 11 01 01	SC 01 11 02 01	SC 01 21 01 01	SC 01 21 02 01	SC 01 22 01 01	SC 01 22 02 01
			SC 01 11 01 02	SC 01 11 02 02	SC 01 21 01 02	SC 01 21 02 02		

MIMIC	LX MON	AC	PB/WBS	P/B STAND	MG	UPS	IASS	INVERTER
SC 01 23 01 01	SC 01 51 01 01	SC 09 11 01 00 SS-01	SC 01 12 01 01	SC 01 12 02 01	SC 09 11 02 00 SS-01	SC 09 11 03 00 SS-01	SC 09 11 04 00 SS-01	SC 09 11 07 00 SS-01
		SC 09 11 01 00 SS-02			SC 09 11 02 00 SS-02	SC 09 11 03 00 SS-02	SC 09 11 04 00 SS-02	SC 09 11 07 00 SS-02
		SC 09 11 01 00 SS-03			SC 09 11 02 00 SS-03		SC 09 11 04 00 SS-03	
					SC 09 11 02 00 SS-04			

DC NO BREAK	DC RECT	BATTERY	REG DC	VDU Workstation	AIR COMP	L & SP
SC 09 12 01 00 SS-01	SC 09 12 02 00 SS-01	SC 09 12 03 00 SS-01	SC 09 12 04 00 SS-01	SC 01 15 01 00 SS-01	SC 09 21 01 00 SS-01	SC 09 31 01 00 SS-01
SC 09 12 01 00 SS-02	SC 09 12 02 00 SS-02			SC 01 15 01 00 SS-02	SC 09 21 01 00 SS-02	SC 09 31 01 00 SS-02
SC 09 12 01 00 SS-03	SC 09 12 02 00 SS-03			SC 01 15 01 00 SS-03	SC 09 21 01 00 SS-03	SC 09 31 01 00 SS-03
SC 09 12 01 00 SS-04				SC 01 15 01 00 SS-04		SC 09 31 01 00 SS-03E

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AC SHELF UNPROVED	AC SHELF PROVED	AC SHELF TIME LIMIT	DC SHELF UNPROVED	DC SHELF PROVED	DC SHELF TIME LIMIT	MINI PLUG IN	LARGE PLUG IN
SC 05 11 01 00 SS-01	SC 059 11 02 00 SS-01	SC 05 11 04 00 SS-01	SC 05 12 01 00 SS-01	SC 05 12 02 00 SS-01	SC 05 12 04 00 SS-01	SC 05 13 00 00 SS-01	SC 05 14 00 00 SS-01
SC 05 11 01 00 SS-02	SC 05 11 02 00 SS-02	SC 05 11 04 00 SS-02	SC 05 12 01 00 SS-02	SC 05 12 02 00 SS-02	SC 05 12 04 00 SS-02		SC 05 14 00 00 SS-02
		SC 05 11 04 00 SS-03			SC 05 12 04 00 SS-03		

## Legend

### Definitions of locations

COMP - Signalling complexes

SBL - Small Buildings and Locations

EC - Enclosures and Equipment Cubicles

### Definitions of Power Supplies

AC - Power Supply AC

MG - Power supply motor generator sets

UPS - Electric Power supply - UPS

IASS - UPS power supply (IASS areas)

Inverter - Electric power supply - inverter

No break – Power Supply DC No Break

RC Rect - Power Supply DC Rectified

Battery - Electric Power Supply - Battery

Reg DC - Electric Power Supply - Regulated DC

AIR COMP – Air Compressor Pneumatic System

L & SP – Lightning and Surge Protection

## Definitions for Complexes

Lev - Level key switch  
Rot - Rotary Key switch  
P/B WBS - Westinghouse pushbutton  
P/B Stand - Standard pushbutton  
Eye - eyeball indictor  
Needle - Needle type indicator  
Large - Indication panel large incandescent  
Mini - Indication panel miniature incandescent  
Mimic - Indication panel mimic  
LX Mon – Level Crossing Monitor  
VDU Workstation – Signaller's VDU Workstation

## Definitions for Relays

AC SHELF UNPROVED – AC Shelf mounted Line relays unproved  
AC SHELF PROVED – AC Shelf mounted Line relays proved  
AC SHELF TIME LIMIT – AC Shelf mounted Time Limit relays  
DC SHELF UNPROVED – DC Shelf mounted Line relays unproved  
DC SHELF PROVED – DC Shelf mounted Line relays proved  
DC SHELF TIME LIMIT – DC Shelf mounted Time Limit relays  
MINI PLUG IN – Miniature Plug In Relays (Line & Time Limit)  
LARGE PLUG IN – Large Plug In relays (Line & Time Limit)

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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	
		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	
Consequence		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	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.
			F1	F2	F3	F4	F5	F6	
Incredible	Improbable	Remote	Occasional	Probable	Frequent	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.			
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	A	To score the risk, follow the steps:
2-10 Fatalities	C5	Catastrophic	C+	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).
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	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 Major Injury	C3	Major	D	C-	C+	B-	B+	A	3. Score the risk using the combination of likelihood and consequence ranking.
1 or more Minor Injuries	C2	Minor	D	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.
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	B-	