

# Acoustic Bearing Monitor (ABM) Maintenance

Issue date: 12/06/09

Review date: 11/06/12

<b>SWMS number:</b> SMS-06-SW-1337	<b>SWMS Name:</b> Acoustic Bearing Monitor (ABM) Maintenance			<b>SWMS Team:</b> <ul style="list-style-type: none"> <li>Renato Dovecer – Safety Coordinator</li> <li>Louise Tosetto – Safety Coordinator</li> <li>Gerry Kan - Manager, Wayside Operations</li> <li>Saiprasad Kulkarni – Technical Specialist 2</li> <li>Phil Clelland – Technical Officer</li> <li>Richard Harding – Design Engineer, Wayside</li> </ul>
<b>Custodian (Position):</b> Safety Coordinator	<b>Assumptions:</b> <ul style="list-style-type: none"> <li>Applies to Communications &amp; Control Systems division (C&amp;CS) staff conducting work on Acoustic Bearing Monitor (ABM).</li> </ul>			<b>Content reviewed by Technical expert (SME) and RailCorp safety professional</b> (position including Div/Group) <ul style="list-style-type: none"> <li>Technical Officer, Wayside Operations– C&amp;CS, Asset Management</li> <li>Safety Coordinator – C&amp;CS, Asset Management</li> </ul>
<b>Approving Authority (Position):</b> Manager, Wayside Operations	<b>Plant/Equipment/Tools:</b> <ul style="list-style-type: none"> <li>Hand Tools</li> </ul>	<b>Records/Reporting:</b> ABM maintenance Risk Assessment	<b>Permits/licences required:</b> N/A	<b>PPE required:</b> <ul style="list-style-type: none"> <li>Safety Boots</li> <li>High Visibility Vest</li> <li>Safety Glasses</li> <li>Protective Gloves (Cut resistant or Leather)</li> <li>Hard Hat</li> </ul>
<b>Applicable Standards, Codes of Practice and guidance:</b> <ul style="list-style-type: none"> <li>OHS Act 2000</li> <li>OHS Regulation 2001</li> <li>National Code of Practice for Manual Handling [NOHSC: 2005 (1990)]</li> <li>Manual Handling Resource WorkCover NSW 2004</li> <li>NSW Rail Safety Act 2008</li> <li>Network Rules and Network Procedures</li> <li>AS 4939 - 2001: Non-reusable personal use containers for the collection and disposal of hypodermic needles and syringes.</li> </ul>	<b>Inspection requirements</b> N/A	<b>Service schedule:</b> N/A  <b>MIMS or METRE Ref:</b> N/A	<b>Training/Qualifications required:</b> <ul style="list-style-type: none"> <li>Rail Industry Safety Induction (RISI)</li> <li>Protection Officer Level 1, 2, 3 or 4 - depending on site location.</li> <li>Occupational Health &amp; Safety General Induction for Construction Work in NSW</li> </ul>	

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1	Apply appropriate worksite protection & access worksite	Struck by train	A	Check Hazardous Rail Corridor Locations register. Adhere to worksite protection. PPE: High Visibility Vest	C+	Protection Officer Line Manager	SMS-06-GD-0223 Hazardous Rail Corridor Locations SMS-06-GD-0323 Personal Protection Equipment
		Distraction – Mobile Phones	A	No mobile phone usage whilst in the danger zone or whilst providing protection.	C-	Protection Officer Line Manager	
		Slips, trips and falls	B-	Maintain awareness of terrain. Plan a clear path of travel; remove any slip, trip hazards. PPE: Safety Boots	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Bites and stings (eg. snakes, spiders, insects)	B-	Inspection of site prior to commencement of work. Fumigate as required. Use insecticide in accordance with hazardous substances risk assessment and MSDS as required. PPE: Safety Boots, Protective Gloves (cut resistant or leather).	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Contact with sharp objects (eg. syringes)	B-	Inspection of site prior to commencement of work. Sharps container and tongs to be on-site in case sharps/needles are found and can be disposed of safely. PPE: Safety Boots, Protective Gloves (cut resistant or leather).	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment SMS-06-SW-0405 Handling Sharps
2	Isolate shutter and conduct maintenance on the shutter components.	Slips, trips and falls	B-	Maintain awareness of terrain. Plan a clear path of travel; remove any slip, trip hazards. PPE: Safety Boots	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment

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3	Repair/Replace shutter position sensor and shutter	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Crush injuries	B-	PPE: Protective Gloves (Cut resistant or Leather)	C-	Line Manager	
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>When not working in pit, close cover to prevent falls.</p> <p>Take care when entering and exiting pit.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
4	Conduct maintenance on equipment located in the cabinet assembly	Struck by train	A	<p>Adhere to worksite protection.</p> <p>PPE: High Visibility Vest</p>	C+	Protection Officer Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>When not working in pit, close cover to prevent falls.</p> <p>Take care when entering and exiting pit.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment

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5	Remove interlocking pin from the pivot at base of the cabinet assembly	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas.</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Cuts & abrasions	C+	<p>Maintain awareness of sharp edges.</p> <p>PPE: Protective Gloves (Cut resistant or Leather)</p>	D	Line Manager	
6	Tilt cabinet assembly forward into the maintenance position	Muscular strain	B-	<p>Minimum of two people required to push cabinet assembly.</p> <p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling

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6	Tilt cabinet assembly forward into the maintenance position. (cont.)	Crush injuries	B-	<p>Co-ordinate movement of cabinet assembly.</p> <p>Do not curl fingers behind the top of housing, to avoid crushing on pit wall.</p> <p>PPE: Protective Gloves (Cut resistant or Leather)</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
7	Repair/Replace components of the following equipment: <ul style="list-style-type: none"><li>• Shutter Motor</li><li>• Microphone Array</li><li>• Microphone Signal Conditioners</li><li>• Terminal Enclosure</li></ul>	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Cuts & abrasions	C+	<p>Maintain awareness of sharp edges.</p> <p>PPE: Protective Gloves (Cut resistant or Leather)</p>	D	Line Manager	
		Crush injuries	B-	<p>Make sure that the cabinet assembly remains fixed in the maintenance position by using an object as a wedge or by tying off.</p> <p>Exclude access to the front of the assembly cabinet to minimise the chance of the assembly cabinet returning to the operational position.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Electrical Shock	B-	<p>Isolate electrical supply from the hut.</p> <p>PPE: Insulating Gloves</p>	C-	Line Manager	SMS-06-GD-0268 Working Around Electrical Equipment

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8	On completion, restore the cabinet assembly back to its operational position.	Muscular strain	B-	<p>Minimum of two people required to push cabinet assembly.</p> <p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Crush injuries	B-	<p>Co-ordinate movement of housing / cabinet assembly.</p> <p>Do not curl fingers behind the top of housing, to avoid crushing on pit wall.</p> <p>PPE: Protective Gloves (Cut resistant or Leather)</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>When not working in pit, close cover to prevent falls.</p> <p>Take care when entering and exiting pit.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment

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9	Insert interlocking pin back in the pivot at base of the cabinet assembly	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Cuts & abrasions	C+	<p>Maintain awareness of sharp edges.</p> <p>PPE: Protective Gloves (Cut resistant or Leather)</p>	D	Line Manager	
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>When not working in pit, close cover to prevent falls.</p> <p>Take care when entering and exiting pit.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
10	Conduct maintenance on track equipment:	Struck by train	A	<p>Adhere to worksite protection.</p> <p>PPE: High Visibility Vest</p>	C+	Protection Officer Line Manager	SMS-06-GD-0223 Hazardous Rail Corridor Locations SMS-06-GD-0323 Personal Protection Equipment

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11	Repair/Replace/Calibrate Speed Sensor components	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Hand injury	C+	<p>Use correct tools for the task.</p> <p>PPE: Protective Gloves (cut resistant or leather).</p>	D	Line Manager	
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Electrical Shock	B-	<p>Isolate electrical supply from the hut.</p> <p>PPE: Insulating Gloves</p>	C-	Line Manager	SMS-06-GD-0268 Working Around Electrical Equipment

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12	Repair/Replace/Align Tag Reader components	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Hand injury	C+	<p>Use correct tools for the task.</p> <p>PPE: Protective Gloves (cut resistant or leather).</p>	D	Line Manager	
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Electrical Shock	B-	<p>Isolate electrical supply from the hut.</p> <p>PPE: Insulating Gloves</p>	C-	Line Manager	SMS-06-GD-0268 Working Around Electrical Equipment

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13	Repair/Replace/Align Wheel Detector components	Muscular strain	B-	<p>Perform all movements smoothly, in a controlled, balanced, comfortable position.</p> <p>Avoid sideways bending or twisting of the back.</p> <p>Avoid overreaching by working within easy arms reach.</p> <p>Position regularly used items within optimum reach areas</p> <p>Where postures / positions are sustained for long periods, alter your posture or take a break.</p>	C-	Line Manager	SMS-06-GD-0001 Guide to Manual Handling
		Hand injury	C+	<p>Use correct tools for the task.</p> <p>PPE: Protective Gloves (cut resistant or leather).</p>	D	Line Manager	
		Slips, trips and falls	B-	<p>Maintain awareness of terrain.</p> <p>Plan a clear path of travel; remove any slip, trip hazards.</p> <p>PPE: Safety Boots</p>	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment
		Electrical Shock	B-	<p>Isolate electrical supply from the hut.</p> <p>PPE: Insulating Gloves</p>	C-	Line Manager	SMS-06-GD-0268 Working Around Electrical Equipment
14	Restore electrical supply and return all equipment back to operational.						
15	Vacate worksite and remove worksite protection.	Struck by train	A	<p>Adhere to worksite protection.</p> <p>PPE: High Visibility Vest</p>	C+	Protection Officer Line Manager	SMS-06-GD-0223 Hazardous Rail Corridor Locations SMS-06-GD-0323 Personal Protection Equipment

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15	Vacate worksite and remove worksite protection. (cont.)	Slips, trips and falls	B-	Maintain awareness of terrain. Plan a clear path of travel; remove any slip, trip hazards. PPE: Safety Boots	C-	Line Manager	SMS-06-GD-0323 Personal Protection Equipment

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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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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-	