











Safe Work Instruction	Issue date: 24/11/09
Lift Shop Mule – Safe Operation	Review date: 23/11/10

Document no.	Work description		
SMS-06-SW-1157	<p>This SWI describes the safe practices for the operation of the Lift Shop Mule at Maintenance Centres in RSD</p> <p>Scope</p> <p>This SWI applies to the safe operation of the Lift Shop Mule which moves trains that have been isolated or which are parts of trains that have no power connections.</p> <p>Work carried out after its use is outside the scope of this document. Refer to relevant SWI. Additionally maintenance of the equipment is outside the scope of this document.</p>		
Review date	References		
23/11/10	<ul style="list-style-type: none"> • NSW OHS Act 2000 • NSW OHS Regulations 2001 • Rail Safety Act 2008 • SMS-06-SW-0838 Pantograph Raising and Lowering • SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out • SMS-06-GD-0225 Plant • SMS-06-GD-0403 Plant Risk Assessment • SMS-06-GD-0001 Guide to Manual Handling • SMS-06-GD-0323 Personal Protective Equipment • SMS-16-SR-0057 Inspection and testing • SMS-05-SR-0027 Records management 		
Responsible supervisor	PPE and precautions	Competencies or qualifications	Licences or permits required
Line Manager	<ul style="list-style-type: none"> • High visibility vest or clothing • Safety Footwear • Protective Gloves • Safety Eyewear 	<ul style="list-style-type: none"> • Rail Industry Safety Induction (RISI) • Site specific induction • Competent in the use of this SWI 	
Tools and equipment required			
Stop Boards			
<p>IF CONTROL MEASURES ARE NOT SUITABLE AND MAJOR CHANGES ARE NEEDED, CONDUCT A RISK ASSESSMENT AND DEVELOP NEW CONTROLS ACCORDING TO SMS-06-PR-0104 WORKPLACE RISK MANAGEMENT.</p>			
	<p>Warning</p> <p>The following warnings apply throughout this SWI:</p> <ul style="list-style-type: none"> • Never use the mule before checking that there is no one in the wheel machining pit. Failure to do so could result in serious injury or death • This task requires two persons, to ensure equipment is not damaged and all people are clear of danger. If during the task communication cannot be maintained between the operators, to prevent injury, immediately stop the task until communication is fully re-established • Failure to move the set fully past the air gap could result in the set energising, should the pantograph(s) be raised at a later time. To prevent injury or death always work in accordance with SMS-06-SW-0838 Pantograph: Raising and Lowering 		
Site / Job Planning	<p>Follow all worksite procedures, e.g. induction, Pre-Work Brief</p> <p>Ensure immediate environment is safe for work e.g. adequate lighting, loose materials, chemical spills, housekeeping</p> <p>Ensure the Lift Shop Stop boards are in position</p>		
Securing the set	<p>Lower all pantographs, in accordance with SMS-06-SW-0838 Pantograph: Raising and Lowering isolating the pantograph cocks with approved locking devices. Finally visually check that all the pantograph(s) have lowered fully</p>		
Check	<p>Visually inspect that the pantograph(s) has been lowered from the overhead power supply</p>		
	<p>Warning</p> <p>Ensure all pantographs are lowered in accordance with SMS-06-SW-0838 Pantograph Raising and Lowering. Visually check that the pantographs are lowered. Do not simply rely on the pantograph air pressure gauge, this will not guarantee that the pantographs are lowered. Failure to confirm that pantographs are lowered correctly may lead to serious INJURY or DEATH.</p>		

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	<p>Warning</p> <ul style="list-style-type: none"> Additional isolation or train preparation may be required, depending on the task. To prevent injury see relevant SWI(s) for additional information
Pre-use check	<ul style="list-style-type: none"> Check that the wire rope is free of deterioration and obstruction Ensure fixed guards are in place to prevent hands or other parts of the body from approaching moving parts Ensure the area around the machine is adequately lit and kept free of materials, which might cause slips or trips Ensure the equipment does not have any “Out of Service” tags. That the equipment is within its 6 month test and tag date Check that the track is clear of obstructions Ensure the immediate area is clear of other personnel before using equipment Familiarise yourself with and check all machine operations and controls
	<p>Warning</p> <ul style="list-style-type: none"> Failure to carry out the above checks could result in serious damage to the equipment and/or serious injury or death In addition to the above step, the emergency stop button must also be tested. See following step
	<p>Note</p> <ul style="list-style-type: none"> In addition to the pre-start checks, scheduled inspections and maintenance is required on the lift shop mule. This work is to be carried out by qualified and authorised technicians in accordance with the manufacturer's instructions. In addition all maintenance tasks must be carried out under the protection of isolation
Start up procedure	<p>Ensure no one is in wheel machining pit Turn on main isolation switch Check stack indicator lights Ensure that the wheel profiler is in ‘system clear’ mode Switch Eastern Progression System 1 radio controller to ‘On’ Press the ‘start’ button on the radio controller Test the ‘Emergency Stop’ by pressing it and ensure all operation of the mule has stopped To continue operation, press “reset” and “start” buttons</p>
	<p>Note</p> <p>If the Mule does not start up check if the red ‘Emergency Stop’ button is engaged, release it and press reset</p>
	<p>Warning</p> <ul style="list-style-type: none"> To prevent injury should the emergency stop button fail to stop the equipment, tag and/or lock it out, in accordance with <u>SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out</u>, and notify your Line Manager as soon as practicable. Never use the mule if it is not correctly functioning
Positioning mule	<p>Ensure there are no obstructions on or around the track Use partner to check the track clearance Use partner to guide the air hoses, as required Slowly move the mule into position taking care to ensure the mule does not pass the override micro switches at both ends Engage the mule in required wheel location Release the train brakes, including park brake in accordance with the relevant local instruction for releasing brakes on the set type being worked on</p>
	<p>Warning</p> <ul style="list-style-type: none"> The above step requires two persons, to ensure equipment is not damaged and all people are clear of danger. If during the task communication cannot be maintained with partner, to prevent injury, immediately stop the task until communication is fully re-established
Move set in	<p>Use mule to move set in <u>To move in:</u> Ensure that the lowered Sydney-end car pantograph clears the overhead air gap</p>

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	Note <ul style="list-style-type: none">An audible alarm will sound prior to the mule moving, however use the horn, as required, to signal movementWhen moving the set back out ensure both pantographs are under overhead power before raising them. To prevent injury or death always work in accordance with <u>SMS-06-SW-0838 Pantograph: Raising and Lowering</u>	
	Warning <ul style="list-style-type: none">If you hear, see or otherwise perceive a problem during any movement, immediately stop the mule and do not resume until the issue can be identified and rectified. If in doubt, seek assistance from your Line ManagerTo prevent injury the mule must not be used without the audible warning functioning correctly. If the audible warning does not sound before movement, cease all movement, tag and/or lock out equipment, in accordance with <u>SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out</u>, and notify your Line Manager as soon as practicable.	
Move Set out	Use the mule to move set out <u>To move out:</u> Ensure the lowered Sydney-end car pantograph is positioned back under the overhead power Disengage the mule Raise the lowered Sydney-end car pantograph and have the set removed from the Lift Shop Return the mule to it's correct stowage position Ensure the mule is isolated fully to prevent unexpected operation Remove Stop Boards if required	
Inspection and Maintenance	Never undertake any maintenance, unless trained and authorised to do so and the equipment has been isolated, by turning off the main isolation switch Conduct maintenance as per the Manufacturer's specifications and recommendations Get an authorised maintenance person to do any repairs or checks / alterations required Maintain inspection and test records in accordance with <u>SMS-16-SR-0057 Inspection and Testing</u> and <u>SMS-05-SR-0027 Records Management</u>	
Equipment Stowage & Clean Up	Ensure all mule attachments/equipment is stowed in it's correct position Check all mule equipment after use to ensure it is not worn or damaged before stowing, if any damage is found tag and/or lock out equipment, in accordance with <u>SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out</u> , and notify your Line Manager as soon as practicable. Ensure the work area is left in a clean and tidy state	
Additional controls <ul style="list-style-type: none">Other controls may be necessary, depending upon the work being carried out. Refer to relevant SWIsIf you identify additional hazards and / or controls relevant to this SWI, notify your Safety Facilitator or Line Manager as soon as practicable, so they can be noted and used to continuously improve this document		