

Train Lifting Jacks - Safe Operation

Document no. SMS-06-SW-1247	Work description This SWI describes the safe use of Train Lifting Jacks used within maintenance centres to carry out bogie changes		
	Scope This SWI applies to the use of a Train Lifting Jacks at Diesel Maintenance Centres in RSD This SWI relates to the safety aspects of the task only		
Review date 02/02/11	References <ul style="list-style-type: none"> • NSW OHS Act 2000 • NSW OHS Regulation 2001 • NSW Rail Safety Act 2008 • ASCC National Standard for Manual Tasks 2007 • SMS-06-GD-0225 Plant • SMS-06-GD-0403 Plant Risk Assessment • SMS-06-GD-0001 Guide to Manual Handling • SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out • SMS-06-GD-0323 Personal Protective Equipment • SMS-16-SR-0057 Inspection and testing • SMS-05-SR-0027 Records management • SMS-06-SW-1151 Overhead Gantry Crane - Safe Operation • SMS-06-SW-1248 Bogie System (02) Safe Working • SMS-16-FM-1311 Train Lifting Jacks Pre-Operational Checklist 		
Responsible supervisor Line Manager	PPE and precautions <ul style="list-style-type: none"> • High Visibility Clothing or Vest • Safety Footwear • Protective Gloves • Bump hat 	Competencies or qualifications <ul style="list-style-type: none"> • RISI • Competent in the use of this SWI • Manual Handling Training • Competent in the fitting of lifting equipment to engineered lifting points 	Licences or permits required <ul style="list-style-type: none"> • Certificate of Competency to operate a crane
Tools and equipment required			
Red Flag Torch			
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 .			
	Warning The following warnings apply throughout this SWI: <ul style="list-style-type: none"> • This task requires considerable manual handling. Where possible use manual handling aids such as trolleys and the overhead crane, and seek assistance, where noted. Whenever manually handling use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching in accordance with manual handling training • Never place any part of your body in a position that could result in injury should a jack move unexpectedly • All work on bogies is to be carried out in accordance with SMS-06-SW-1248 Bogie System (02) Safe Working • If during an inspection or at any time during the lift any person notices wear, damage or other signs of abnormal operation, the lift is to cease. Have an "Out of Service" tag fitted in accordance with SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out and not proceed again until the issue is investigated and rectified by an appropriately qualified person 		
	Note Throughout the entire operation, Always ensure you have a safe place to go in the event of a system failure or emergency.		

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Site/Job Planning	<p>Follow all worksite procedures, e.g. Inductions and pre-work briefings</p> <p>Ensure immediate environment is safe for work with regard to:- adequate lighting, loose materials, chemical spills, housekeeping and any slip, trip or fall hazards</p> <p>Ensure all personnel not involved in this task are kept clear of the area.</p> <p>Ensure the Power Car has been switched off , as the noise created will interfere with communication during the lift procedure, creating a potentially serious safety hazard</p>
Prepare Jacks and Car/s	<p>Carry out an inspection of all jacking equipment in accordance with SMS-16-FM-1311 Train Lifting Jacks Pre-Operational Checklist form</p> <p>Carry out a "No Load" extension and retraction operational test of the jacks limit. Should any abnormal operation become evident, have an "Out of Service" tag fitted in accordance with SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out and do not proceed with any jacking activity, until the issue is investigated and rectified by an appropriately qualified person</p> <p>Check the operation of all "Emergency Stop" buttons</p> <p>Check all jacking equipment is clear of the car before any positioning takes place</p>
Position the car/s for jacking	<p>Position the Car/s to be lifted as required</p> <p>Lower boom gates and place STOP boards as required</p> <p>Ensure the car to be lifted is fully disconnected and isolated as required by Technical and Engineering Instructions etc.</p> <p>Prevent car movement by placing approved wheel chocks only, as required</p>
Position the Jacks (XPT)	<p>Prepare control panel</p> <p>Position each jack adjacent to the designated car lift point</p> <p>The lift coordinator is to visually confirm all jacks are correctly aligned/engaged</p> <p>Observers to be positioned at each jack location</p> <p>Secure the foot to the Overhead Gantry Crane lifting gear, in accordance with SMS-06-SW-1151 Overhead Gantry Crane – Safe Operation</p>
	<p>Warning</p> <ul style="list-style-type: none"> • <i>Ensure observers have a safe place to go in the event of a system failure or emergency</i> • <i>Failure to position observers, and to confirm correct alignment of all jacks could lead to an incident resulting in serious injury or death</i> • <i>Once jacks are positioned ensure all personnel are clear before any lifting commences</i>
Position the Jacks (XESC)	<p>Prepare control panel</p> <p>Engage and pre-load the lifting claws as required</p> <p>Remove and replace the bogie</p>
	<p>Warning</p> <ul style="list-style-type: none"> • <i>Failure to correctly test, select, set up and operate jacking equipment could lead to an unexpected collapse of the car resulting in serious injury or death</i>
Attach Trailer Car Feet (XPT)	<p>Lift the attachment and place on to the jacks housing, using the Overhead Gantry Crane, in accordance with SMS-06-SW-1151 Overhead Gantry Crane – Safe Operation</p> <p>Install the locking pins and verify that it is securely held in place (Refer fig.1)</p>
	<p>Warning</p> <ul style="list-style-type: none"> • <i>This task requires considerable manual handling. Where possible use manual handling aids such as trolleys and the overhead crane, and seek assistance, where noted. Whenever manually handling use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching</i>
Attach the Power Car Feet (XPT)	<p>To fit Power Car Jacking foot (Fig. 2) use the overhead gantry crane to lift it from the storage rack and place it into the jacking point and secure with retaining bolt(Fig. 3)</p>

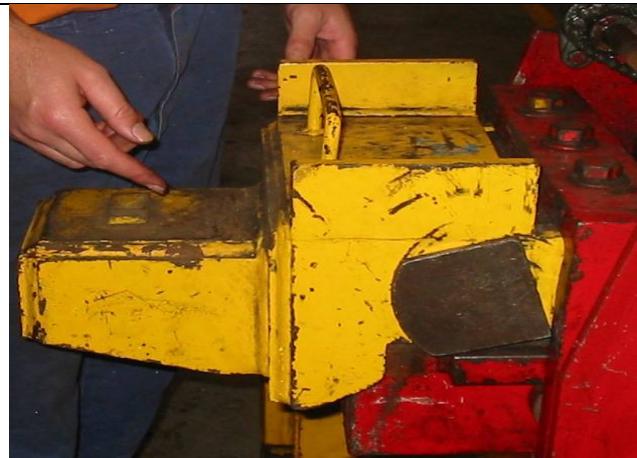


Fig. 1 Positioning a Foot on a Jack

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Fig. 2 Power Car Foot



Fig. 3 Power car jacking point

**Warning**

- This task requires considerable manual handling. When fitting the jack feet use the overhead crane and seek assistance. Use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching. Always work in accordance with manual handling training*
- Failure to select and secure the jacking feet correctly could lead to an unexpected collapse of the car resulting serious injury or death*
- To prevent serious injury or death, always operate the Overhead Crane in accordance with [SMS-06-SW-1151 Overhead Gantry Crane – Safe Operation](#)*

Carry out the Lift (XPT)

Prepare control panel
 Raise the car to the required height
 Remove and replace the bogie
 When all persons are clear, lower the car using the observers to ensure correct alignment between the bogie is achieved
 The lift coordinator is to verify that lowering is fully complete before reconnecting the bogie

**Note**

Throughout the entire operation, Always ensure you have a safe place to go in the event of a system failure or emergency.
Maintain communication with the observers at each jack to ensure a safe and even lift
If at any time during the lift, either the person performing the lift or the person co-ordinating the lift notice wear, damage or other signs of abnormal operation, immediately call out "Stop"
The lift is to cease immediately and the lift coordinator is to investigate and carry out the necessary corrective actions or isolations as required

Fig. 4 Positioned Jack Foot

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Carry out the Lift (XESC)	<p>Prepare control panel Raise the car and maintain communication with observers at each jack to ensure an even lift</p>	
	<p>Note <i>In some areas such as No.2 Road noise can cause communication problems. Ensure clear communication has been established before any lift takes place. Seek assistance from your Line Manager if required</i> <i>Throughout the entire operation, Always ensure you have a safe place to go in the event of a system failure or emergency.</i> <i>If at any time during the lift, either the person performing the lift or the person co-ordinating the lift notice wear, damage or other signs of abnormal operation, immediately call out "Stop"</i> <i>The lift is to cease immediately and the lift coordinator is to investigate and carry out the necessary corrective actions or isolations as required</i></p>	
Carry out the lift (BMD)	<p>Prepare control panel Raise the jacks to required height , confirm chocks are engaged, then continue lift</p> <p>For bogie removal</p> <p>Place the "Body Stands" into position , fit pin into lock Adjust control panel and drop one bogie at a time. Disconnect bogie and lower jack carefully ensuring all bogie components are disconnected. Ensure jack is fully lowered before removing old and replacing new bogie on jack. Raise new bogie into position using observers to ensure correct location and fitment. USE SAME PROCEDURE FOR SECOND BOGIE Adjust control panel and raise dual jacks slightly to allow removal of body support stands. Remove the "Body Stands" Lower the car using observers to ensure correct even lowing. The lift coordinator is to verify the car is completely lowered before moving car from jacks</p>	

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	<p>Note:</p> <p>Throughout the entire operation, Always ensure you have a safe place to go in the event of a system failure or emergency.</p> <p>Maintain communication with the observers at each jack to ensure a safe and even lift</p> <p>If at any time during the lift, either the person performing the lift or the person co-ordinating the lift notice wear, damage or other signs of abnormal operation, immediately call out "Stop"</p> <p>The lift is to cease immediately and the lift coordinator is to investigate and carry out the necessary corrective actions or isolations as required</p>
	<p>Fig. 6 BMD In-Floor Jacks</p> 
	<p>Warning</p> <ul style="list-style-type: none"> Failure to ensure all persons are clear before operating jacking equipment could result in serious injury or death This task requires considerable manual handling. Where possible use manual handling aids such as trolleys and the overhead crane, and seek assistance, where noted. Whenever manually handling use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching
Jack Removal (XPT)	<p>Prepare control panel Move all jacks clear of the car Using the Overhead Crane remove all Jack Feet</p>
	<p>Warning</p> <p>This task requires considerable manual handling. Where possible use manual handling aids such as trolleys and the overhead crane, and seek assistance, where noted. Whenever manually handling use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching</p>
Equipment Stowage & Clean Up	<p>Ensure all jacks and associated leads are stowed in their correct positions Check all jacking gear after use to ensure it is not worn or damaged before stowing Ensure the work area is left in a clean and tidy state Notify your line manager upon completion</p>
	<p>Warning</p> <ul style="list-style-type: none"> Never stow equipment that appears to be faulty, damaged or outside its inspection date. Immediately tag it as 'Out of Service' in accordance with <u>SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out</u> and inform your Line Manager as soon as practicable
<p>Additional controls</p> <ul style="list-style-type: none"> Additional controls may be required, depending on site specific conditions. Always refer to relevant SWIs and seek advice from the relevant Line Manager, if required If 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 	