

PROCEDURES AND MINING METHODS VARY THOUGHOUT THE MINING INDUSTRY.

THE FOLLOWING LESSON PLAN SERVES AS A GUIDE ONLY

AND M PROPS (PTY) LTD CANNOT BE HELD RESPONSIBLE

FOR THE INCORRECT INTERPRETATION THEREOF.

## LESSON PLAN

<b>COURSE TITLE</b> : TEMPORARY SUPPORT MECHANICAL PROP	<b>LESSON TITLE</b> : MEDIUM DUTY GREASE BOX CAMLOK
<b>REFERENCE</b> :	<b>LAST REVISION DATE</b> : 08-09-2014

INSTRUCTIONAL SEQUENCE	SKILLS / KNOWLEDGE / KEY POINTS	FACILITATION METHODOLOGY TECHNIQUES AND AIDES	COURSE REFERENCE
<b>OBJECTIVE</b>	The trainee must show his ability to <b>install and remove</b> a Camlok Prop safely and according to mine standard.	Trainer to discuss.	M Props (Pty) Ltd Lesson Plan Standard.
<b>INTRODUCTION</b>	To ensure that people are working in a <b>safe and supported area</b> at all times.	Trainer to discuss.	M Props (Pty) Ltd Lesson Plan Standard.
<b>PURPOSE OF A CAMLOK PROP</b>	To be used as <b>temporary support</b> in the mining operation where permanent support has yet to be installed and where potentially unsafe situations may be recognized. Camlok Props can be used as additional support.	Trainer to explain and discuss.	M Props (Pty) Ltd Lesson Plan Standard.
<b>DESCRIPTION</b>	The <b>Camlok Prop</b> consists of the following components: <ul style="list-style-type: none"> <li>• <b>head</b></li> <li>• <b>outer tube</b></li> <li>• <b>inner tube</b></li> <li>• <b>adjusting pin and chain</b></li> <li>• <b>Grease Box (cam assembly enclosed)</b></li> <li>• <b>footplate</b></li> <li>• <b>corrosion indicator</b></li> <li>• <b>Camlok setting/release spanner</b></li> </ul>	Trainer to demonstrate a Camlok Prop and explain all components.	M Props (Pty) Ltd Lesson Plan Standard.

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<b>PRECAUTIONS BEFORE USE</b>	<ul style="list-style-type: none"> <li>• Check rotation of <b>cams</b> by observing <b>cam shaft rotation</b> on <b>side</b> of <b>Grease Box</b> .</li> <li>• Check <b>Camlok Spanner</b> for operating condition, straightness and locking cable.. Ensure that <b>remote release hook</b> is open.</li> <li>• Check <b>tubes</b> for damage.</li> <li>• Check that <b>setting pin and chain are intact.</b></li> <li>• Check <b>head and foot</b> for damage.</li> <li>• Observe extent of deterioration of <b>corrosion indicator</b> and discard Camlok Prop if corrosion indicator has disintegrated.</li> </ul>	Trainer to demonstrate ability to assess the Camlok Prop and recognize damage to the Camlok Prop	M Props (Pty) Ltd Lesson Plan Standard.

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<b>TOOLS / ACCESSORIES FOR INSTALLATION OF CAMLOK PROP</b>	<p>Ensure necessary tools are available:</p> <ul style="list-style-type: none"> <li>• Appropriate length <b>pinch bar</b>, with gasket.</li> <li>• <b>Water hose</b>.</li> <li>• 2kg <b>hammer</b> (to flatten footwall).</li> <li>• <b>Spade</b>.</li> <li>• <b>PPE</b> (gloves, hard hat, gum boots, earplugs and goggles).</li> <li>• Ensure sufficient assortment of <b>Camlok Props</b> in store to suit varying conditions.</li> </ul>	Trainer to demonstrate tools and discuss.	M Props (Pty) Ltd Lesson Plan Standard.
<b>PREPARATION OF INSTALLATION SITE FOR CAMLOK PROPS</b>	<ul style="list-style-type: none"> <li>• Water down to allay dust and expose fractures in hangingwall.</li> <li>• <b>NB</b>: Examine hangingwall for faults, dykes, joints or slips, slabbing, loose rocks and any other features that result in a friable and dangerous hangingwall.</li> <li>• Sound the hanging with a pinch bar.</li> <li>• Mark position for installation of Camlok Prop. (Blasting certificate holder only).</li> <li>• Clean footwall to solid at installation position of Camlok Prop.</li> </ul>	Trainer to stress the importance of the NB and to demonstrate and discuss this operation. Trainees to practice under supervision	M Props (Pty) Ltd Lesson Plan Standard.

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<b>INSTALLATION OF CAMLOK PROP (STOPPING)</b>	<ul style="list-style-type: none"> <li>• Place <b>Camlok Prop</b> below <b>mark indicated</b> on hangingwall.</li> <li>• Ensure <b>cams</b> are in <b>down</b> position as indicated on <b>side</b> of the <b>Grease Box</b></li> <li>• Rotate <b>head</b> to best support hangingwall fractures.</li> <li>• Position Camlok Prop <b>90° to hangingwall</b>.</li> <li>• Ensure <b>adjusting pin</b> (chain side) is pointing in direction of remote release.</li> </ul> <p><b>NB: Release of Camlok Prop may be hampered should above procedure not be adhered to.</b></p> <p><b>NB: Ensure down dip side clear of workers when installing Camlok Props.</b></p> <ul style="list-style-type: none"> <li>• Extend <b>outer tube</b> until <b>head</b> contacts hangingwall.</li> <li>• Insert <b>adjusting pin</b> into appropriate hole.</li> <li>• Ensure that <b>adjusting pin</b> has penetrated through both holes in <b>outer tube</b>.</li> </ul> <p><b>NB: Use of an aid is recommended when installing Camlok Props.</b></p> <p><b>NB: Never strike Camlok Prop to inspect or remove. Use hand or foot pressure only.</b></p>	Trainer to demonstrate and trainees to practice under supervision.	M Props (Pty) Ltd Lesson Plan Standard.

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<b>INSTALLATION OF CAMLOK PROP (STOPING)</b>	<ul style="list-style-type: none"> <li>• <b>Camlok Props should be installed according to mine standards (refer to support layouts and any special instructions)</b></li> <li>• <b>Consult Rock Engineering Department for support layouts and or responsible Mine Official.</b></li> </ul> <p><b>NB: Additional Camlok Props to be installed if area contains geological features</b></p>	Trainer to demonstrate and trainees to practice under supervision.	M Props (Pty) Ltd Lesson Plan Standard.
<b>INSTALLATION OF CAMLOK PROP</b>	<p><b>NB: Ensure that adjusting pin (chain side) is pointing in direction of remote release.</b></p> <ul style="list-style-type: none"> <li>• Attach <b>Camlok Spanner to 5</b> sided camshaft on <b>Grease Box</b></li> <li>• Rotate <b>camshaft</b> using <b>Camlok Spanner</b> until <b>Camlok Prop</b> is pre-stressed. Operators foot may be used to pre-stress prop to maximum. <b>(Do not jump on Camlok Spanner handle).</b></li> </ul>	Trainer to demonstrate and trainees to practice under supervision.	M Props (Pty) Ltd Lesson Plan Standard.

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<b>REMOVAL OF CAMLOK PROP (STOPING)</b>	<ul style="list-style-type: none"> <li>• Inspect working area and ensure permanent support is installed to mine standard prior to removing Camlok Props.</li> <li>• Remove all persons and materials from working area.</li> <li>• Commence removal of Camlok Props in accordance with mine standard. Engage Camlok Spanner on Grease Box shaft ensuring spanner handle points away from position of remote release at 45° to the prop.</li> </ul> <p><b>NB: If Camlok Spanner does not point away from operator, remote release (from a safe position) will not be possible.</b></p> <ul style="list-style-type: none"> <li>• Attach <b>Camlok Spanner hook</b> to <b>chain link</b> closest to <b>adjusting pin</b>. Ensure secure attachment of <b>hook</b>.</li> <li>• Operator to move to a <b>safe supported area</b> as per Mine standard with Camlok Spanner release handle ensuring cable forms a <b>straight line between operator and Camlok prop</b> to be released.</li> <li>• Grip <b>Remote Release spanner handle attached to setting/release spanner</b> and take up slack. <b>Do not wrap sling around hand or arm. This allows operator to discard if abnormal occurrence takes place.</b></li> <li>• Ensure firm footing.</li> <li>• <b>Pull Remote release sling handle firmly in the direction of release, this action will engage spanner and release the Camlok Prop.</b></li> <li>• <b>Camlok Spanner</b> will rotate towards operator.</li> <li>• The <b>Camlok Spanner hook</b> will now be <b>under tension</b> and as the preload on the prop is removed the <b>adjusting pin will be extracted.</b></li> </ul>	<p>Trainer to explain and discuss equipment, PPE, tools &amp; accessories.</p> <p>Trainer to demonstrate and trainees to practice under supervision.</p>	M Props (Pty) Ltd Lesson Plan Standard.

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<b>REMOVAL OF CAMLOK PROP (STOPING)</b>	<ul style="list-style-type: none"><li>• with the <b>adjusting pin</b> extracted the outer <b>tube</b> will drop down.</li><li>• Continue pulling Camlok Prop to place of safety.</li><li>• Remove all <b>Camloks</b> using above procedure.</li><li>• Store in safe place.</li></ul> <p><b>NB: Always observe Camlok Prop whilst removing, for signs of danger.</b></p> <p><b>NB: If the Camlok Prop does not remote release, examine the area for potential hangingwall failure and do not attempt to remove prop or re-enter the area prior to re-accessing and making the area safe. Camlok Props may only be remote released from a safe distance.</b></p>		



**ACKNOWLEDGEMENT OF RECEIPT**

FOR THE MEDIUM DUTY GREASE BOX CAMLOK **PROP**  
REV 2014

**LESSON PLAN**

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(MINE)

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(RECEIVED BY)

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(DATE)

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(SIGNATURE)

ISSUED ON BEHALF OF M PROPS (PTY) LTD

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(NAME)

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(DATE)

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(SIGNATURE)