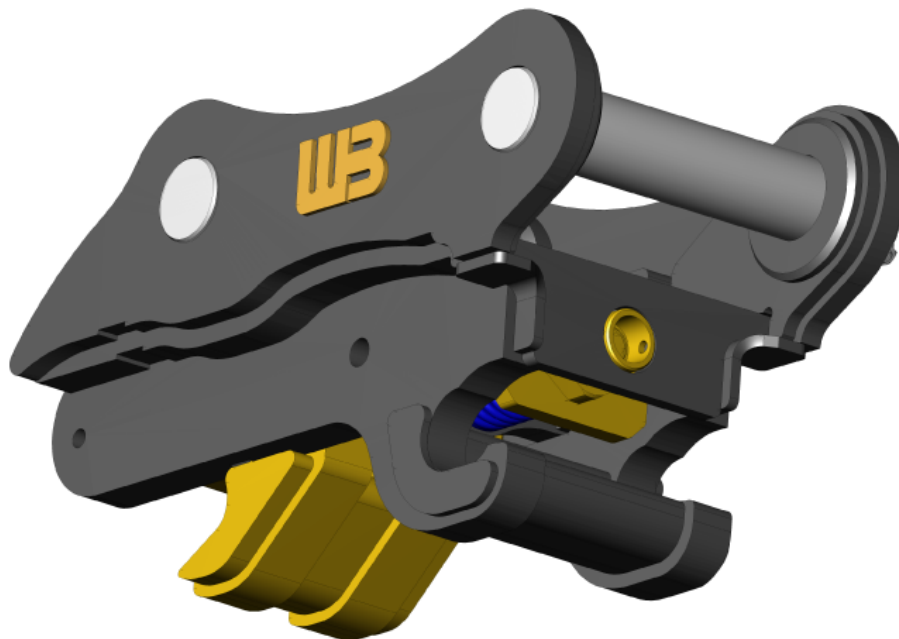


# Werk-Brau D-Lock Coupler Installation & Operation Manual

SERIAL NUMBER: \_\_\_\_\_



The D-Lock Coupler  
Fully Automatic with Dual Pin Locking System  
International Patents Pending

IMPORTANT:

The booklet should be kept with the machine at all times during and after quick coupler installation. Machine operators must read and fully understand the operations manual before use.

D-Lock Couplers are compliant with Standard AS4772-2008, European Standard EN474  
D-Lock Couplers are compliant to latest draft of proposed ISO International Standard.

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If at any time in the future, you require additional information on the D-Lock quick coupler or any aspects of its use, please do not hesitate to contact:

## PRE DELIVERY CHECK

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Installation completed by:

Company:	
Name:	
Date:	
Excavator make and model:	
Coupler Serial #	
End user name:	
End user phone number:	
End user address:	
End user email address:	

Lock circuit pressure checked at:	PSI
Unlock circuit pressure checked at:	PSI
Hose routings checked and abrasion free throughout full crowd movement:	
All supplied attachments locked and unlocked from coupler:	
All hydraulic connections, clean, tight and leak free:	
Please specify type and brand of control valve fitted	

NOTES:

# RISK ASSESSMENT

This risk assessment form is supplied as a guide only. It is the responsibility of the owner / operator to ensure that this equipment is operated in a safe manner and complies with all relevant compliance regulations.

Location of risk assessment:	Date:
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Typical hazards associated with this equipment	Personnel affected			
	Indicate in table below			
Type	Operator	Site personnel	Service personnel	General public
<b>Changing Attachments</b>				
Is there a copy of the operations manual in the machine cabin?				
Has the operator been correctly trained for use with this particular coupler and verified?				
Is the operator aware they should not operate this machine unless they are satisfied that the coupler is in a safe condition?				
Are all personnel aware that they must not remain near attachments during attachment changes?				
<b>Falling objects</b>				
Are all personnel aware that they must not position themselves under attachments or suspended loads?				
<b>Lifting equipment</b>				
Is the SWL rating of the equipment clearly displayed?				
Does all lifting equipment carry a current SWL certification?				
<b>Warning devices and Decals</b>				
Are all safety and operations decals clearly displayed?				
Does the operator check that the equipment warning devices are operational daily?				
<b>Equipment malfunction</b>				
Is there a checklist of daily, weekly, monthly inspections?				
Is there a record of all service / repair work?				

Other hazards identified:	
Plant & machinery movement Warning devices on plant and equipment Noise Environment	

Assessed by:	Reported to:
Name	Name
Date	Date

# RISK ASSESSMENT

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## Daily pre start check list

Operators Name:	Date:						
Coupler serial number:	S	M	T	W	T	F	S
Check all attachment pin retainer bolts and nuts for tightness.							
Check attachments for pin wear							
Check all hydraulic hoses and fittings for any leaks or wear							
Clean away any material build up around cylinder guide ways, spring apertures and the pin engagement surfaces.							

## Weekly pre start check list

Thoroughly clean coupler	Week ending:
Check Coupler for evidence of fatigue, weld failure or stress. Do not operate with a cracked weldment.	
Repeat daily checks above.	


Operators Name & Signature:	Managers Name & Signature:

# IMPORTANT SAFETY INFORMATION

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The D-Lock range of Quick Hitch Couplers comply to AS4772-2008 standard for Earthmoving machinery – Quick hitches (Couplers) for excavators and backhoe loaders AS4772-2008 Clause 2.1.4

Remember that on any job, YOU are the key to safety. Good safe practices not only protect the people around you; they are also your own best protection. Study this section and any relevant manufacturer's operation manuals covering your equipment. Read all warning and caution instructions.

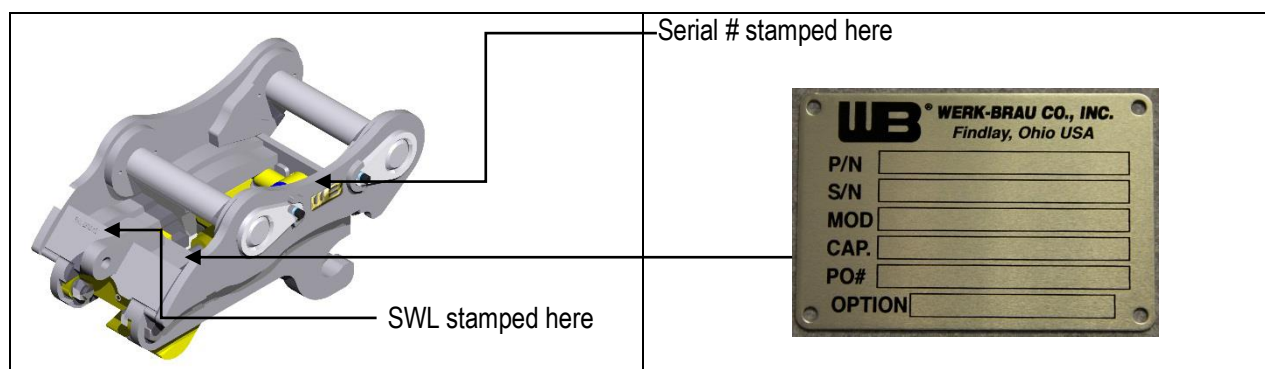
1. This manual must be **READ** and **UNDERSTOOD** before any installation and operation work begins. A copy must be kept in the operator's cabin for ongoing use.
2. Operators should note that the use of a quick coupler may affect the machine's breakout force and balance and may result in attachments being able to come into contact with the boom set and or operator's cabin.
3. Operators should note that the weight of the coupler is stamped on the ID Plate and this must be taken into account which calculating the machine's lifting capacity.
4. Werk-Brau Engineered Attachments Couplers are designed for use with Werk-Brau Approved attachments only. Approval must be obtained for use with non Werk-Brau attachments.
5. All D-lock couplers must be connected and installed in full compliance with this manual. Any variations may cause the coupler to operate in an unsafe manner and/or void the warranty.
6. Due to the self-tightening and automatic wear compensation features of this coupler it is recommended that the locking cylinder be disengaged at the end of each day.
7. The D-Lock Quick Coupler is designed to take up wear, however if mounting pin wear exceeds 5% of the original diameter, immediately replace implement pins.
8. All excavator operators should familiarise themselves with all coupler/attachment combinations before attempting to operate the coupler. This should include, but be not limited to, practicing engaging and disengaging each attachment. Furthermore when new attachments are added to the machine's fleet, the operators should proceed with the same "familiarisation" process before it is used on the job site.
9. Never use the Coupler as a prying tool.
10. Never use the Coupler as a clamping device.
11.  **In the event of a loss of engagement failure, the Jaw Locking Pawls and compression units MUST BE REMOVED AND REPLACED**

## PRODUCT IDENTIFICATION AND DECALS

The locking system is based on the well proven sliding jaw design and incorporates a number of patented features to ensure safe and secure operation. The most obvious of these are the instant automatic locking once the locking cylinder is activated and the deliberate 4 digit pin required for unlocking activation which eliminates unintentional or accidental loss of engagement.

Operator maintenance is restricted to weekly cleaning of the coupler to ensure no excessive build-up of material on the interior or pin engagement surfaces.

All D-Lock Couplers are supplied with an ID plate attached as shown below. In addition, a serial # is stamped into the top edge of the Left Hand mounting plate.



It is recommended that a copy of these details be kept in the office for future reference.

Host Machine	Manufacture Date
Serial Number	Capacity
Attachment Type	SWL
Weight (kg)	WP

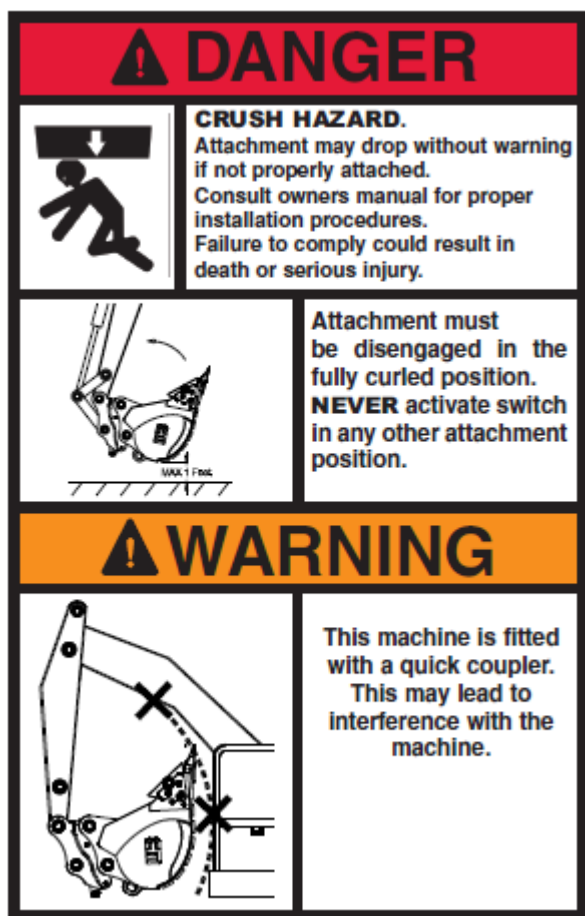
Always quote these details when contacting Werk-Brau Engineered Attachments for Service or Parts.

In addition your Werk-Brau Engineered Attachments may be fitted with a number of SAFETY and MAINTENANCE DECALS. These decals must be kept clean, in good condition and be visible from a distance of 3 meters. Replacements for damaged decals may be obtained from your dealers parts department.

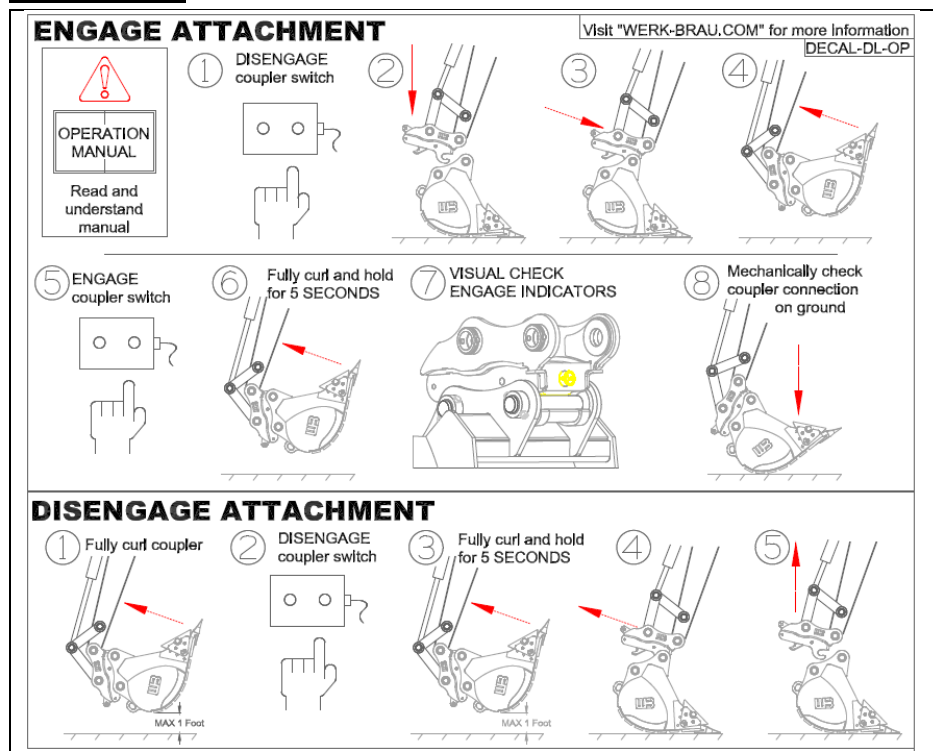
The D-Lock Coupler also requires that the following **OPERATOR DECALS** be fitted by the Installer in the machine's cabin. These must be clearly visible from the operating position and maintained in a clean and legible condition. These decals will be supplied in the same pouch as this manual – please check that all are included. Replacements for damaged or missing decals may be obtained from the Werk-Brau parts department.

# PRODUCT IDENTIFICATION AND DECALS

## Contact warning decal:



## Operation decal:



## **IMPORTANT INSTALLATION NOTES**

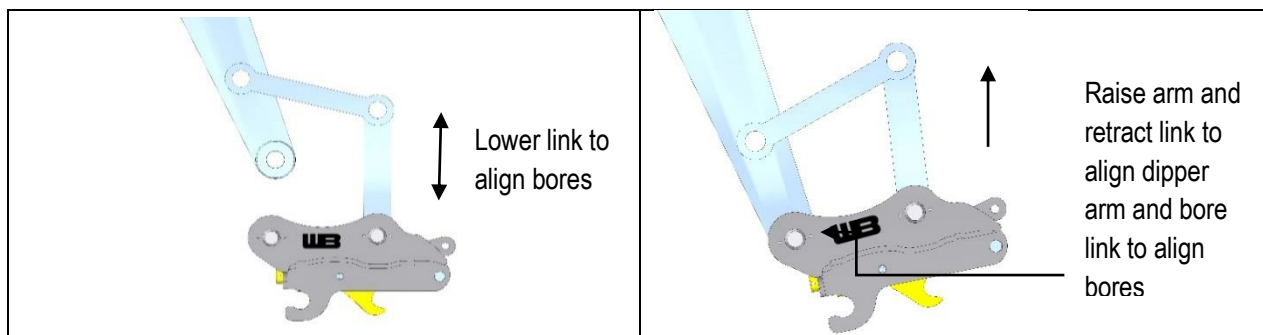
- Due to the large number of Excavator Makes and Models available, it is not possible to provide a rigid set of installation instructions that will cover every situation. Modern Excavator control systems are complex and sophisticated. Auxiliary connections must be carried out with care to ensure the manufacturer's warranty is not voided. It is therefore extremely important that only appropriately qualified and experienced persons carry out the installation. It is **STRONGLY RECCOMENDED** that the excavator dealer be consulted to ensure the auxiliary connections are correctly made.
- Installation personnel must be competent and experienced in this type of work.
- Best hydraulic practice will be used to ensure that all components remain clean and free of contamination and that all hoses are suitably routed and armoured to prevent, crushing, pinching or chaffing damage.
- The requirements detailed in this publication must be fully understood and complied with.
- No changes to the host machine's control systems should be made without express agreement by the manufacturer and or distributor.
- All current Health and Safety Regulations pertaining to this installation and subsequent operation must be complied with.
- Contact Werk-Brau for additional assistance, if required.
- Failure to comply with these guidelines may cause equipment damage and/or void any applicable warranty.

## **FITTING THE COUPLER**

1. Remove any existing attachments from the machine. Some models of Werk-Brau couplers are supplied with purpose designed hardened mounting pins. If these are not supplied, the coupler is mounted using the OEM pins which were supplied with your machine.



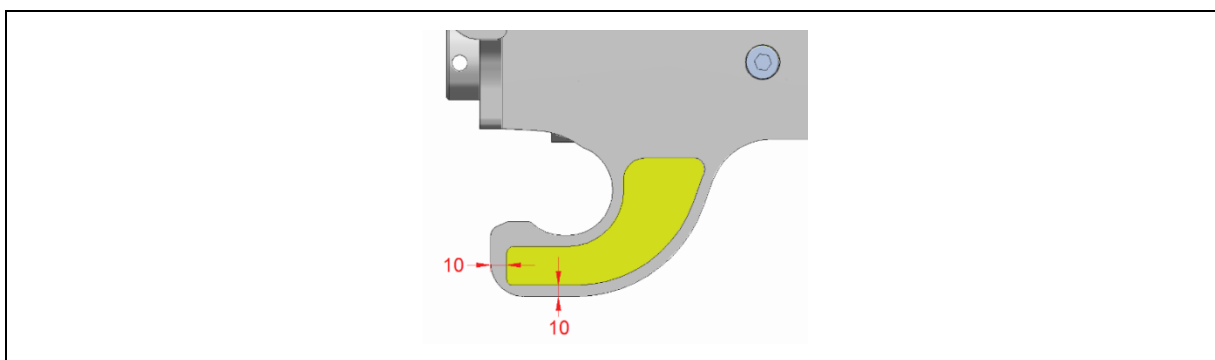
2. **NOTE** Hardened pins **MUST** be used for this application do not use non hardened attachment pins.
3. **CLEAN** all bores and pin surfaces, pre-lubricate pins with grease and set aside on a clean surface.
4. Carefully align the link arm between the two bosses, which are furthest from the cab of the machine. Ensure the O-rings are correctly positioned and fit one pin.



5. You can now lift the coupler off the ground and use the crowd and arm controls to accurately line up the main dipper arm bore. Position the O rings and fit the second pin.
6. Ensure the pin retaining bolts are fitted and tightened. Use nyloc lock nuts or supplied bolts for Werk-Brau supplied pins.
7. Grease up both pivot points as required.
8. Using the excavator hydraulics, carefully crowd the quick coupler to the extremes of the crowd travel and check that there is adequate clearance between the coupler and the dipper arm surfaces and linkages.

#### **Note**

Your coupler may be supplied with optional front clipper plate profiles. These are not essential but they can be welded to either side plate to take up the gap between the coupler and attachment. Locate by offsetting approximately 10mm from the front pin.



### **CONNECTING THE COUPLER LOCK CIRCUIT**

#### **ELECTRICAL & HYDRAULIC INSTALL**

Refer to one of the following installation documents depending on the hose kit you received.

1. BR6-BR7\*\*\*\* for machine specific hose kit.
2. Any other hose kit must be approved in writing by Werk-Brau.



#### **FINAL CHECK**


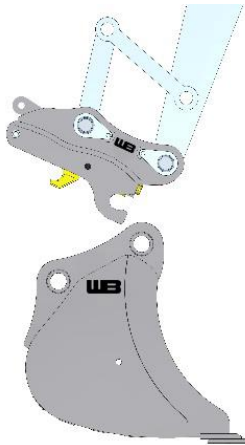
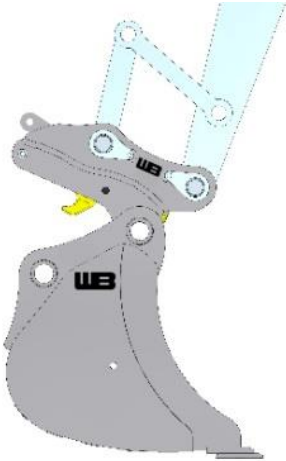
1	Verify all fittings and fasteners are tight and secure.	
2	Check the entire system for leaks.	
3	Move the Coupler through its entire motion slowly checking for: Hose chaffing Proper hose lengths Any type of mechanical interference.	
4	Test the D-Lock switch, ensure alarm sounds and light flashes when in unlock mode.	
5	Attach and detach all attachments to be supplied with the machine and ensure coupler locks securely.	
6	Ensure that all product and cab decals are correctly fitted and visible.	
7	Complete Warranty registration and Pre-delivery forms and return to Werk-Brau Engineered Attachments to activate warranty.	
8	Ensure the this manual (or a copy) is kept in the operator's cab Additional copies of this manual are available in hard copy or electronic form from Werk-Brau Engineered Attachments.	

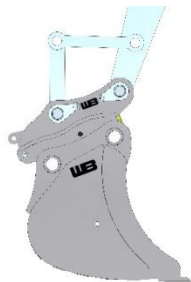

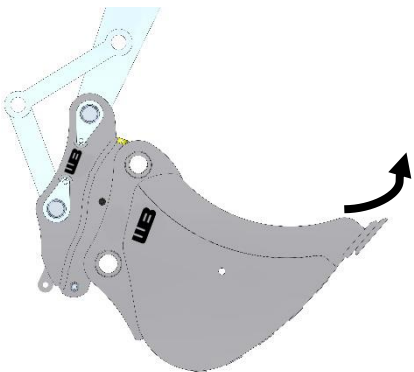

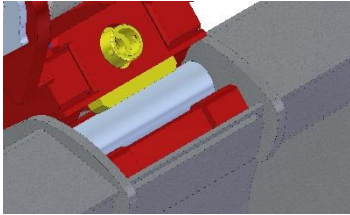
## LOCKING / UNLOCKING PROCEDURE


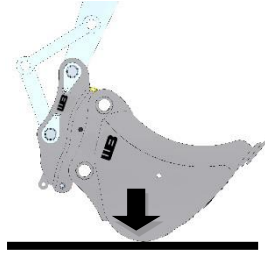
The D-Lock range of Quick hitch couplers comply to AS4772-2008 Australian standard for Earthmoving machinery – Quick hitches (Couplers) and requires a particular procedure for successful locking and unlocking which may vary from other couplers. **It is important that all operators fully understand the correct procedure as described and illustrated below.**



**TO ATTACH:**


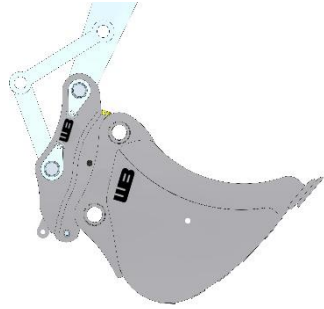
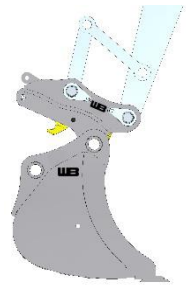
<p><b>STEP 1</b></p> <p>Place coupler in the fully curled/crowded position. Press and hold the green “Activate” button for 3 seconds. Release the “Activate” button and press and hold the red “Disengage Mode” button for 2 seconds—the buzzer will sound. Hold the bucket crowd lever for approx. 3-5 seconds to allow the hook to fully retract. Visually inspect to check the hook is fully retracted.</p>	
<p><b>STEP 2</b></p> <p>After ensuring that the jaw is fully retracted, place the coupler above the attachment.</p>	
<p><b>STEP 3</b></p> <p>Curl the coupler to engage the front pin.</p>	

<p><b>STEP 4</b></p> <p>Continue to curl the coupler until the attachment is lifted off the ground</p>	
<p><b>STEP 5</b></p> <p>Fully curl/crowd the bucket. Press the “Engage Mode” button. Hold the bucket crowd lever for approx. 3-5 seconds to allow the jaw to fully engage and clamp the bucket pin.</p> <p> <b>DANGER</b> – If the bucket/attachment pins have not been correctly engaged the jaw <b>MUST NOT</b> be retracted. This could cause the bucket to be unintentionally released from the coupler and could result in machine damage or personal injury. Please refer to step 8 for remedial action.</p>	
<p><b>STEP 6</b></p> <p>Visually inspect and check that the rear jaw is engaged.</p> <p>If the front lock indicator is not visible:</p> <ol style="list-style-type: none"> <li>Fully extend the crowd cylinder</li> <li>Press and hold green button for three seconds.</li> <li>Press and hold red “disengage mode” button for 2 seconds.</li> <li>Hold crowd on relief for 3-5 seconds</li> <li>Press yellow “Engage Mode” button and hold bucket crowd lever for 3-5 seconds to allow jaw to fully engage.</li> <li>Visually inspect again.</li> </ol>	 

<p><b>STEP 7</b></p> <p>If it is not possible to view this from the cab then the operator must get out of the cab and stand in a safe place to visually inspect before operating the machine.</p>	
<p><b>STEP 8</b></p> <p>To ensure that the bucket pins are securely held by the coupler, apply pressure to the bucket by rotating it against the ground and away from the machine before operation. If the bucket is not correctly attached, repeat the sequence from step 1.</p>	

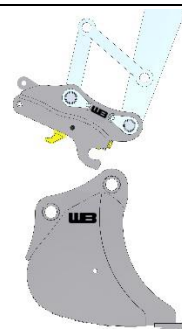


#### **TO RELEASE:**

<p><b>STEP 1</b></p> <p>Fully extend bucket crowd cylinder. Press and hold the green “Activate” button for 3 seconds. Release the “Activate” button and press and hold the red “Disengage Mode” button for 2 seconds—the buzzer will sound. Hold the bucket crowd lever for approx. 3-5 seconds to allow the hook to fully retract.</p> <p> <b>WARNING</b> – Do not release or change the bucket near any person or in any areas that may result in an accident or injury occurring. The switch should be in the <b>engage</b> or <b>off</b> position at all times, except during bucket changing.</p>	
<p><b>STEP 2</b></p> <p>Once the jaw is fully retracted, lower the attachment to ground and slowly curl the coupler back to release the rear bucket pin.</p>	

### Step 3

Lift the dipper arm until the coupler has disengaged the front bucket pin. The attachment is now safely disengaged.



### HANDY TIPS

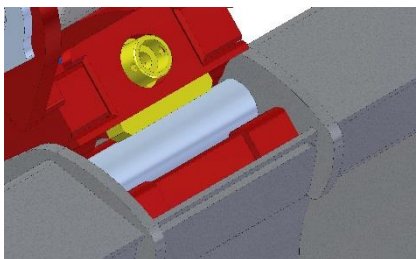
1. Your Coupler should be unlocked on a daily basis to ensure satisfactory operation. This is particularly important when using hammers or digging in hard ground as the constant vibration can cause the wedged surfaces to become very tight.
2. If your machine is to remain inactive for an extended period we suggest that the attachment be released to eliminate the possibility of seizing.
3. Keep your coupler clean. Buildup of material in the pin contact areas will affect the locking effectiveness and may cause unlocking problems.
4. The operator may experience slow or unexpected movement of functions when operating with cold hydraulic oil. Likewise, damage to the hydraulic components may result due to cold oil. Make sure to warm up hydraulic system before operation.



### OPERATIONAL SAFETY NOTES



Site Personnel must stay clear when engaging and disengaging a bucket or an attachment.



If Yellow D-Lock indicator is not visible, the coupler is incorrectly attached. **DO NOT OPERATE.** Lower to the ground and carefully check for obstructions

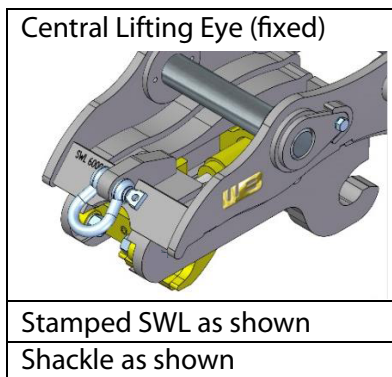


If alarm continues to sound after engaging to LOCK there is an electrical fault. **DO NOT OPERATE THE MACHINE** until this is rectified.

Due to the self-tightening and automatic wear compensation features of this coupler it is recommended that the locking cylinder be disengaged at the end of each day.



#### USING THE LIFTING POINT.



This lifting point is designed for use only with certified BOW Shackles and no other fixing devices are to be used.



#### LIFTING SAFETY NOTES

1. The safe working load (SWL) in Kilograms is stamped adjacent to the lifting point and must not be exceeded. Note this rating must be checked against the machiens lift chart ratings and the lower figure used is all situations.
2. The safe working load (SWL) is alos noted on teh ID Plate and in this manual.  
**THIS MUST NOT BE EXCEEDED** under any circumstances.
3. ALWAYS remove the attachment from the coupler before lifting.
4. Fully extend the crowd cylinder when lifting.
5. Do not attach lifting chains or slings to any other part of the coupler.



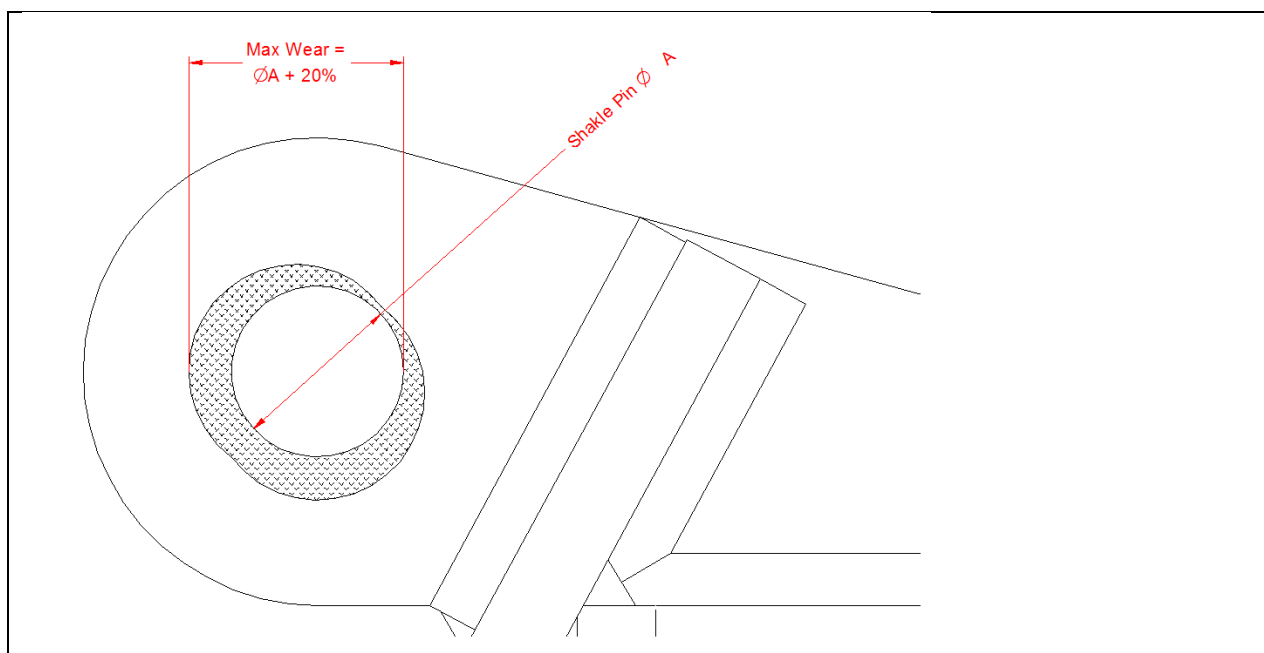
#### LIFTING SAFETY WARNING

Daily inspections of the lifting eye is required, check for any wear and defects.

The lifting eye **MUST** be formally checked every six months for wear or damage. If the lifting eye wear is outside the tolerances shown in the chart below, do not use.



## **LIFTING EYE WEAR LIMIT**



## **Daily Prestart Check**

1. Disengage attachment from coupler.
2. Check all attachment pin retainer bolts and nuts for tightness.
3. Check attachments for pin wear - The D-Lock Quick Coupler is designed to take up wear, however if mounting pin wear exceeds 5% of the original diameter, immediately replace implement pins.
4. Check all hydraulic hoses and fittings for any leaks or wear.
5. Clean away any material build up around cylinder guide ways, spring apertures and the pin engagement surfaces.



## **Weekly**

1. Thoroughly clean coupler – (Water blast recommended).
2. Check Coupler for evidence of fatigue, weld failure, cracks or stress. Do not operate with a cracked weldment.
3. Repeat daily checks above.



## **INSPECTION SAFETY NOTES**

Report Necessary Repairs. If your daily check uncovers any item that needs attention, repair, replacement or adjustment; REPORT IT NOW! The most minor defects could result in more serious trouble. If the machine is operated, only perform the work you are authorized to do. Do not attempt repairs you do not understand.

Check for broken, defective or missing parts and replace them. Keep equipment clean and free of dirt and oil so you can spot loose or defective parts.

Any damage to the Coupler should be reported immediately to either your site manager or directly to Werk-Brau Engineered Attachments Ltd.



## **Annually or 2000 hrs (whichever occurs first)**

1. Check all pin contact surfaces for wear. Build up and machine as required.
2. Remove Jaw and Check Condition of Safety Pawls. Any sign of deformation or wear indicates the need for **REPLACEMENT**.
3. Replace the Pawl springs/rubbers annually.



## **IMPORTANT CAUTION – WELDING**

Do not weld directly to the Quick Coupler without Werk-Brau Engineered approval.

Do not weld any attachment while it is connected to the coupler. This may result in internal arc damage to the actuator and cylinder and void any applicable warranty.

Always disconnect machine battery before any welding work is started.



## **CAUTION**

Never allow a hydraulic line or component to become contaminated. This could cause severe system damage. Contact an authorized machine distributor to obtain proper caps and plugs to be used on this machine.



## **MAINTENANCE SAFETY NOTES**

Improper operation and maintenance of this equipment could result in serious injury or death. Read the operator's manual and this book thoroughly before operating and/or maintaining this equipment.

Maintenance should only be performed by experienced and qualified personnel

Always wear protective clothing when performing maintenance.

Avoid oil spills. Use containers, rags, and/or absorbent towels to contain any oil leakage. Dispose of all waste oils, fluids, lubricants and other hazardous waste prperty.

Do not perate the machine with a defective quick coupler. Inspect the Quick Coupler and all components before starting operation. Perform any necessary repairs before operating the Quick Coupler.

Make sure the Quick Coupler and any attahcments connected are resting on the ground and properly supported before performing any work on the Quick Coupler.

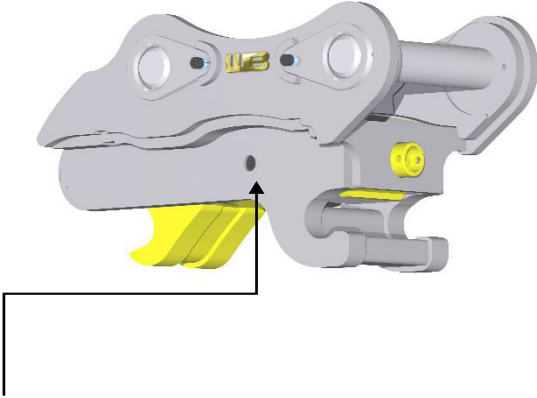
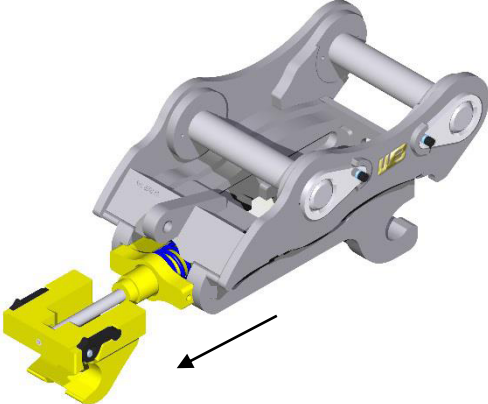
Unauthorized modifcation to the Quick Coupler or any of the Quick Coupler components may impair function, affect performance and effect the life of the quick coupler and the excavator. Unauthorized modifcation may impair personnel safety. Unauthorized modification will void your warranty.

Under Normal conditions, all machine hydraulic circuits are under extreme pressure. When inspecting for leads, use a small piece of cardboard, wood or metal to locate leaks. Small (pinhole) leaks can be dangerous if contact with skin or eyes is made. Wear approved safety glasses and/or face shield, gloves, hard hat, safety shoes, and work clothes during all inspection and maintenance procedures.

All coupler.attachment combinations should be checked for possible interference before using. Ensure that the coupler engages and disengages properly and easily.

TO REMOVE CYLINDER

Vent pressure in hydraulic lines. Disconnect at the cylinder and plug all open ports & fittings.

	
Remove spring locator cap screws from both sides.	Slide the jaw, spring locator & cylinder out the end as one. The jaw retaining pin can now be driven out to release the cylinder



REV	DATE	CHANGE DESCRIPTION	BY	CHECKED	RELEASED TO PRODUCTION
1	5-7-15		MB		

### D-LOCK PARTS LIST

#	DESCRIPTION	AMT
1	WELDED ASSEMBLY	1
2	BUCKET PINS	2
3	CYLINDER	1
3A	CYLINDER SEAL KIT	1
4	SPRING	1
5	CYLINDER PIN	1
6	SPRING LOCATOR	1
7	CHECK VALVE	1
7A	CHECK VALVE SEAL KIT	1
7B	YELLOW END CAP	1
8	SPRING LOCATOR BOLT	2
9	JAW	1
10	PAWL	2
11	PAWL SPRING	2
12	JAW GRUB SCREW	1
13	BOLT	2
14	NYLOC NUT	2
15	INSTRUCTION MANUAL	1
16	DANGER STICKERS	2
17	HOSE KIT	1

THIS IS A GENERIC PARTS LIST. PLEASE REFERENCE SERIAL # AND MACHINE WHEN REORDERING PARTS

WELD SPEC: WELDS TO CONFORM TO P7, P706-1B, APC WELDING QUALITY STANDARD

MACHINE: D-LOCK COUPLER

DATE: 5-7-15

WEIGHT: - lbs.

FILE NAME: D-LOCK GENERIC PARTS LIST.DWG

REVISION: A

THIS PRINT AND THE INFORMATION CONTAINED HEREON IS A CONFIDENTIAL DISCLOSURE. THE SUBJECT MATTER OF WHICH IS THE PROPERTY OF: WERK-BRAU CO., INC. DRAWN: MB

### **Werk-Brau Obligations**

At its option, Werk-Brau will repair or replace the said part. Any repair work may be carried out at Werk-Brau's own premises, at the workshop of an authorized Service Agent/Dealer, on the site at which the part or attachment is being used, or at any other location that Werk-Brau considers appropriate under the circumstances.

Under the terms of this warranty, Werk-Brau's obligations are limited to the repair or full or partial replacement of the defective item(s) and do not include any costs, direct or indirect, associated with the removal or reinstallation of the attachment or part on the carry machine. This is the responsibility of the Customer.

Werk-Brau warrants that any repair work carried out by it directly shall be conducted in a timely and professional manner. Where a third party is engaged to carry out repair work in connection with a Werk-Brau warranty claim, Werk-Brau's obligation and liability shall be limited to a refund of the authorized reimbursable costs charged in connection with the provision of such work.

### **Customer Obligations**

The Customer is responsible for the correct and proper installation of the part or attachment as detailed in the Operation and Maintenance documentation supplied by Werk-Brau, including hydraulic and electrical connections.

The Customer is responsible for the completion of the formal Pre-delivery check and the Warranty Registration forms (which form part of the above documentation) and their return to Werk-Brau within seven days of initial commissioning.

The Customer is responsible for ensuring that the part or attachment, including any hydraulic components and fittings, is operated and maintained using best industry practice and in accordance with the Operation and Maintenance documentation supplied by Werk-Brau. (a copy of which is available on request.)

The Customer is also responsible for notifying Werk-Brau as soon as it identifies a defect or problem that may potentially be subject to a claim under this policy and for following Werk-Brau's published Warranty Claim Procedure.

### **Warranty Claim Procedures**

Visit [Werk-Brau.com](http://Werk-Brau.com)