

# TNH Thumb

## Installation Manual



### SPECIAL NOTE

Your new Wedgelock TNH Thumb may have been manufactured to supplied specifications for a target carrier machine. Installation on any machine other than the target carrier may not be possible and will void warranty.



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# IMPORTANT NOTICES



Wedgelock TNH thumbs are manufactured for a specific carrier machine. Measurements and tolerances are designed to fit that machine and will not necessarily fit any other brand, model or weight class.



The thumb has been manufactured using critical measurements supplied by the purchaser or end user. While there is a small margin for error, larger errors or omissions can cause the thumb's operation to be less than optimal. **STEP 9** is a final check/review that will determine the accuracy of the supplied measurements. It is vital that this step be carried out correctly, and if over-rotation occurs, the subsequent instructions are followed.



The installation of a major attachment like a thumb is best carried out in a secure workshop environment with safe lifting devices and specialist tools. Occasionally, however, this is not possible, and these instructions contain suggestions and tips on how to carry out an installation in the field. Unless otherwise noted, these procedural instructions are suggestions only, and Wedgelock will not be held responsible for any adverse consequences of a field installation that does not return optimal results.



It is expected that installation of Wedgelock thumbs be carried out by professionals whose experience will ensure the operation is carried out to a successful result. If, during the installation process, the installer has any doubts or questions, please contact Wedgelock **BEFORE** engaging in a potentially damaging or dangerous process



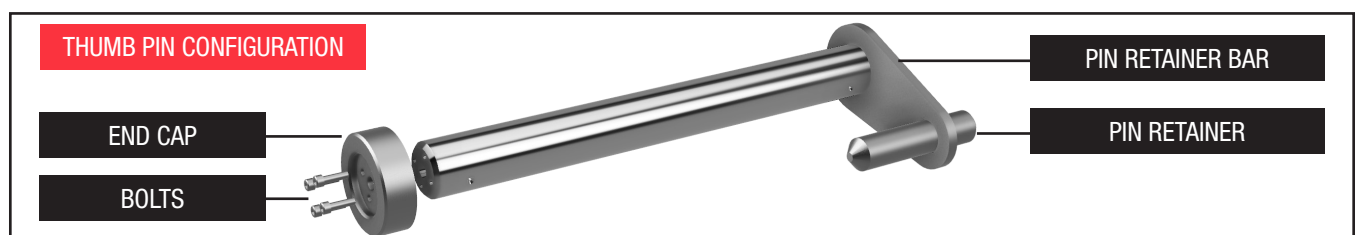
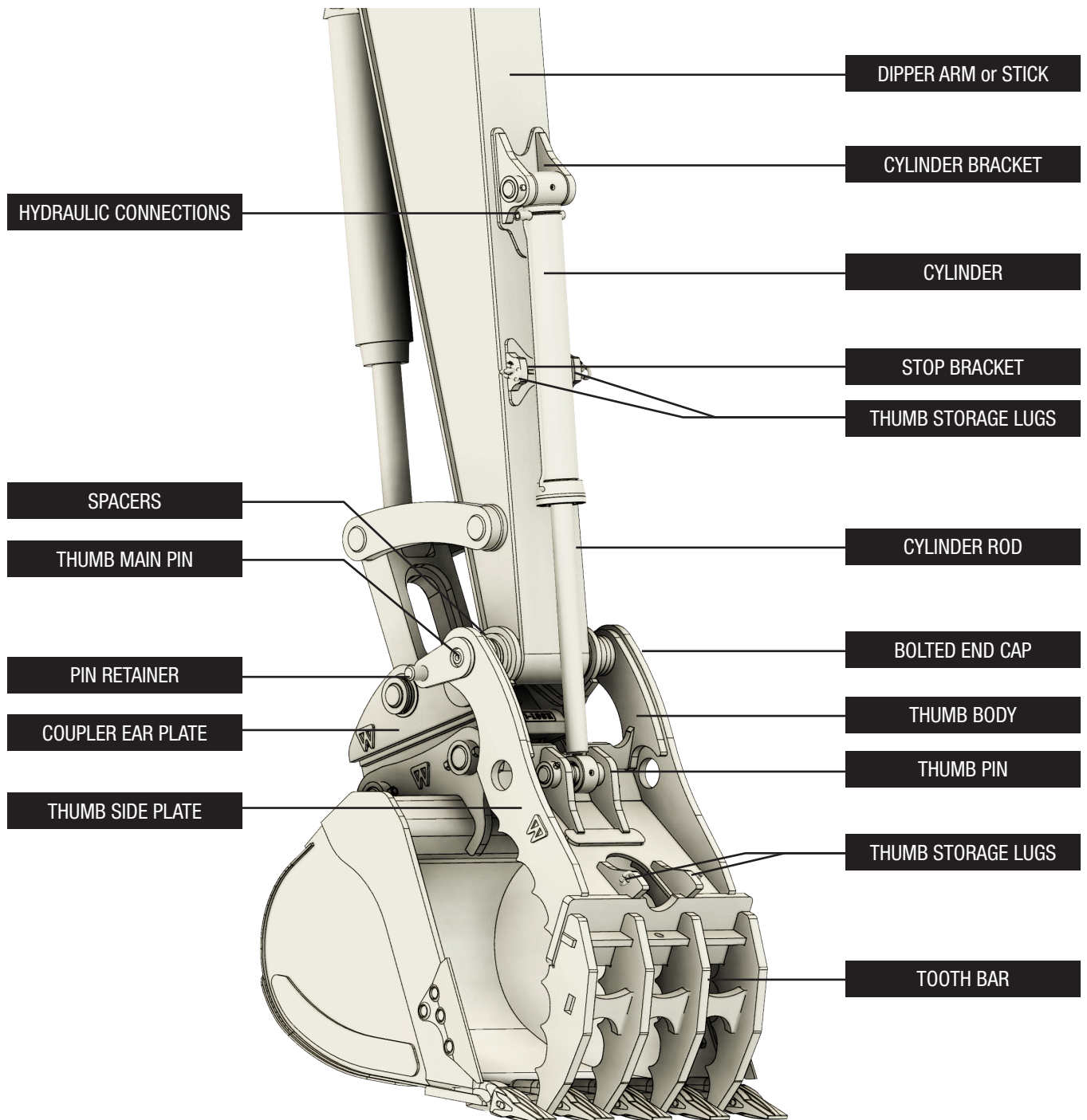
**ALWAYS** disconnect the battery circuit before undertaking any welding.



Be very careful where you place the earth strap when welding. **DO NOT** pass current through the cylinder. Earth to the dipper arm or bracket, **NOT** the thumb or cylinder.



## SECTION 1: Components and Terminology



## SECTION 2: Safety Precautions



### 2.0 SAFETY PRECAUTIONS

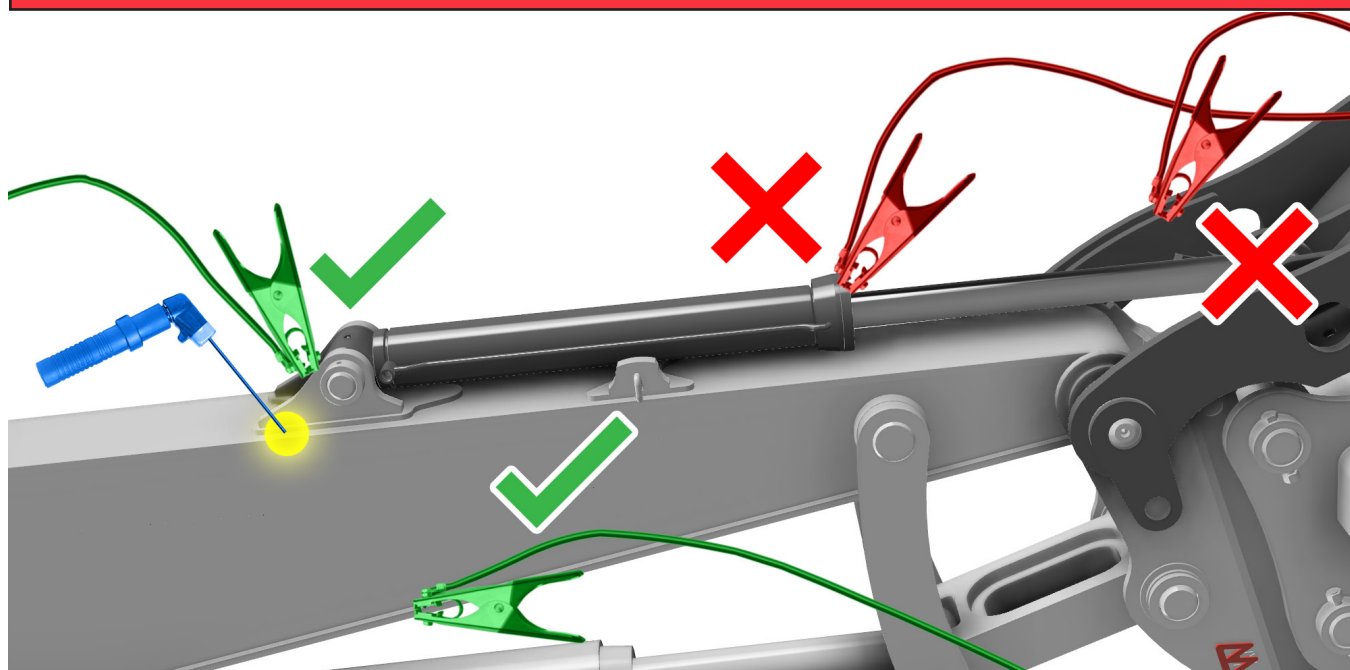
- Always use PPE (Personal Protective Equipment) when servicing, operating or maintaining plant, machinery and its components.
- Refer to the carrier machine “Service Manual” for correct procedures when carrying out work on the machine. The machine service manual takes precedence over any discrepancies between that and this installation manual.
- Allow for hydraulic oil to cool adequately before opening or accessing any hydraulic lines. Hydraulic lines, fittings and components can be hot which can be harmful causing severe burns.
- Relieve the hydraulic tank pressure before accessing hydraulic lines. Refer to the carrier machine service manual for proper procedures.
- Unless otherwise noted in these instructions, ensure that the dipper arm of the carrier machine is resting on the ground at all times – do not leave attachments suspended in the air during service / installation.
- Visually inspect for oil leaks tighten and adjust accordingly. Avoid contact with hydraulic fluids and high pressure oils – use cardboard or similar as a backing when checking for leaks.
- Oil spills are sometimes unavoidable. Contain all fluid spills with appropriate absorbent materials and dispose accordingly. Immediately clean affected areas to minimize safety risks.
- When operating plant and machinery keep people and property well out of harms way. Evaluate the working environment and identify hazards. Ensure that all people involved in the installation understand the hazards associated with this procedure.

### 2.1 WELDING PRECAUTIONS

- Before commencing any welding procedures on the carrier machine ensure that the engine is turned off and the battery supply is disconnected (refer to the carrier machine service manual)
- Ensure all surrounding areas are protected with a flame resistant covering. Clear surrounding areas of combustible materials. Ensure you have a fire extinguisher at hand.
- Cover highly susceptible surfaces like cylinder rods, glass windows, electrical components and plastics to prevent spatter or heat damage.
- Ensure parts and surfaces to be welded are clean and prepared properly for welding. Remove all paint from the surfaces to be welded.
- Connect the ground cable (earth lead) from the welder to the component to be welded to the carrier machine (SEE NEXT PAGE).

## SECTION 2: Safety Precautions

**DO NOT PASS CURRENT THROUGH THE CYLINDER. CONNECT EARTH LEAD TO BRACKET OR ARM, NOT THE CYLINDER OR THUMB BODY**



### 2.2 SAFETY DURING THUMB INSTALLATION

- Use appropriate PPE (Personal Protective Equipment) when carrying out any welding procedures.
- Always use the correct PPE when removing attachments from carrier machines.
- Stand well clear of machinery that is in motion at all times.
- NEVER place hands or fingers near pin holes or recesses.
- Always use correct tools when carrying out removal and installation of attachments on the carrier machine.
- Use correct lifting techniques and lifting equipment when maneuvering heavy objects
- Attachments may roll or tip during removal when placed on the ground – place with extreme caution
- Always use assistance when installing and removing attachments pinned to the carrier machine
- If installing in the field, ensure the surface is flat, clean and large enough for the operation to take place

### NOTE

The steps in this manual that deal with the maneuvering of the thumb without a crane or hoist are suggestions only. Experienced installers may have developed their own system.



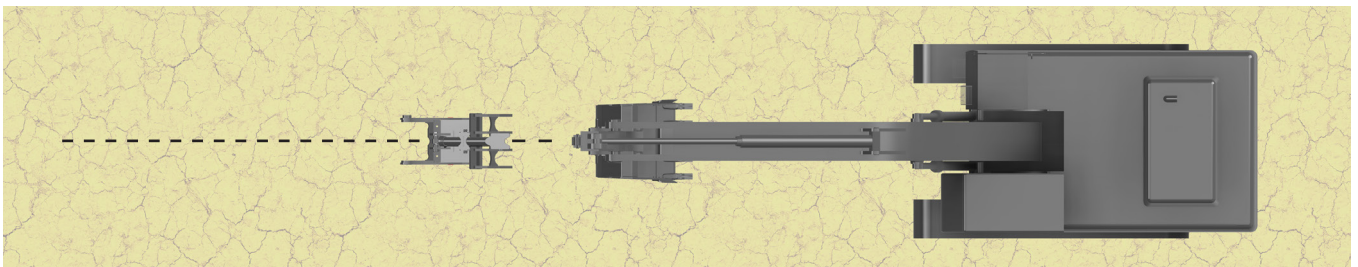
## SECTION 3: Thumb Installation

### BEFORE YOU BEGIN – Weld On Grease Port

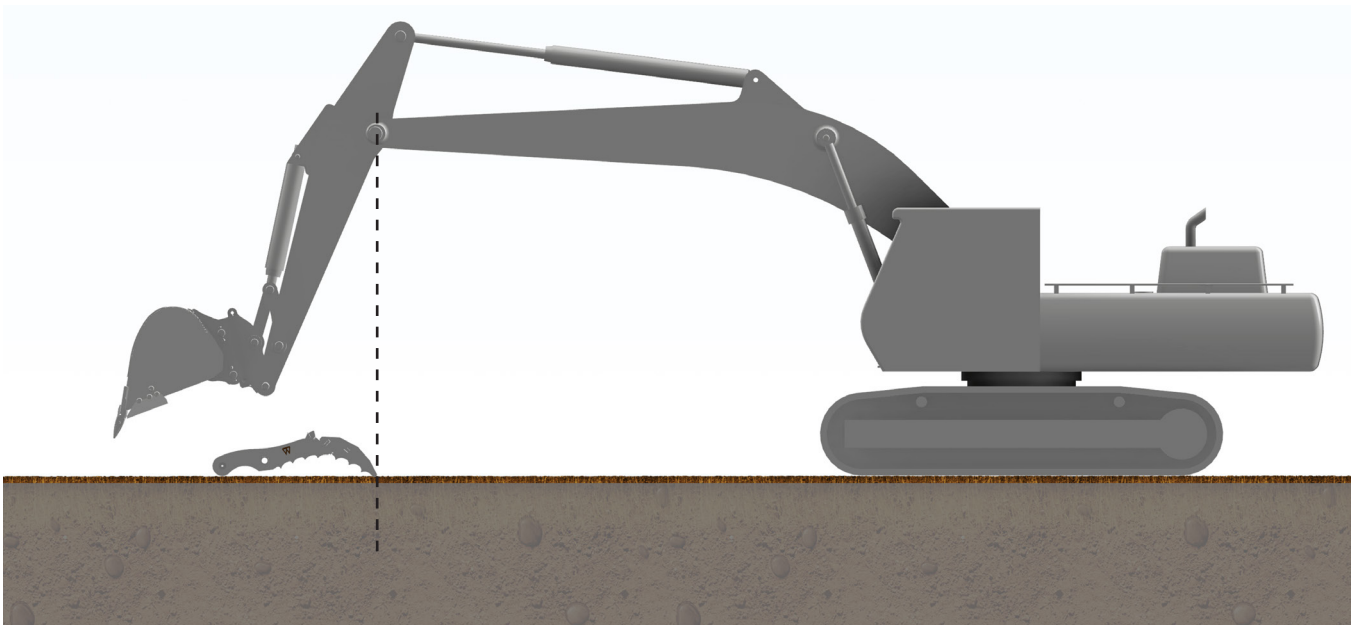
If the excavator has a main pin that is greased through the pin, a grease port must be installed. See Section 5, Page 18

#### STEP 1: POSITION CARRIER MACHINE

- Ensure that the Thumb is in line with the centre of the dipper arm.



- Position the thumb with teeth nearest the cab and lined up roughly with the boom pin.



- Ensure that the machine and the thumb are on level ground. This is critical for alignment of the thumb pin.

#### STEP 2: REMOVE BUCKET

- Remove the bucket from the carrier machine.

## SECTION 3: Thumb Installation

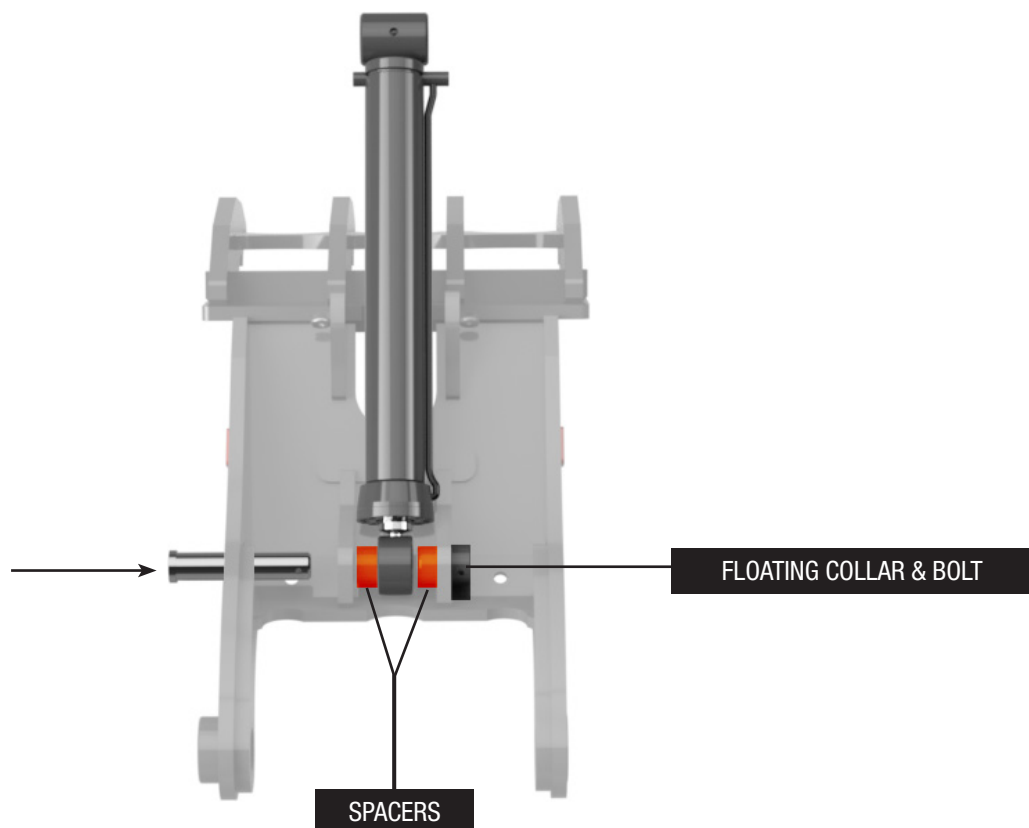
### STEP 3: EXTEND CYLINDER ROD

- Extend the cylinder rod 10mm (3/8") from the fully retracted position. THIS MUST BE DONE, otherwise the cylinder may be damaged because of over-rotation interferences.
- For most weight classes 10mm is enough, but the larger sizes require a greater distance. Refer to the table on Page 17 for the correct distance.



### STEP 4: PIN CYLINDER TO THUMB BODY

- Pin the cylinder to the thumb body while the thumb is lying flat on the ground.
- Use spacers (supplied) to ensure cylinder is centred on the thumb body.



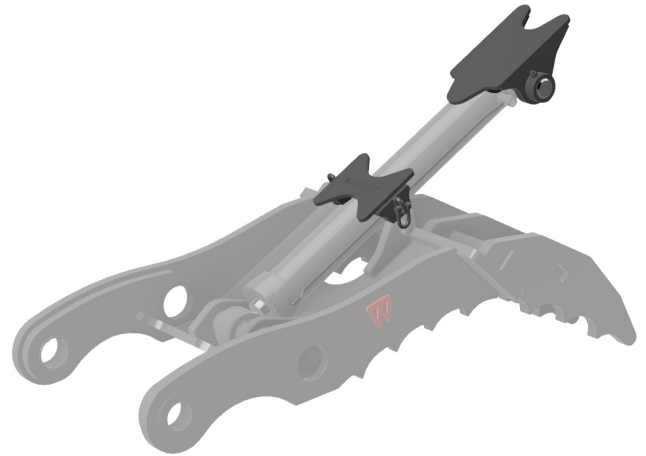


## SECTION 3: Thumb Installation

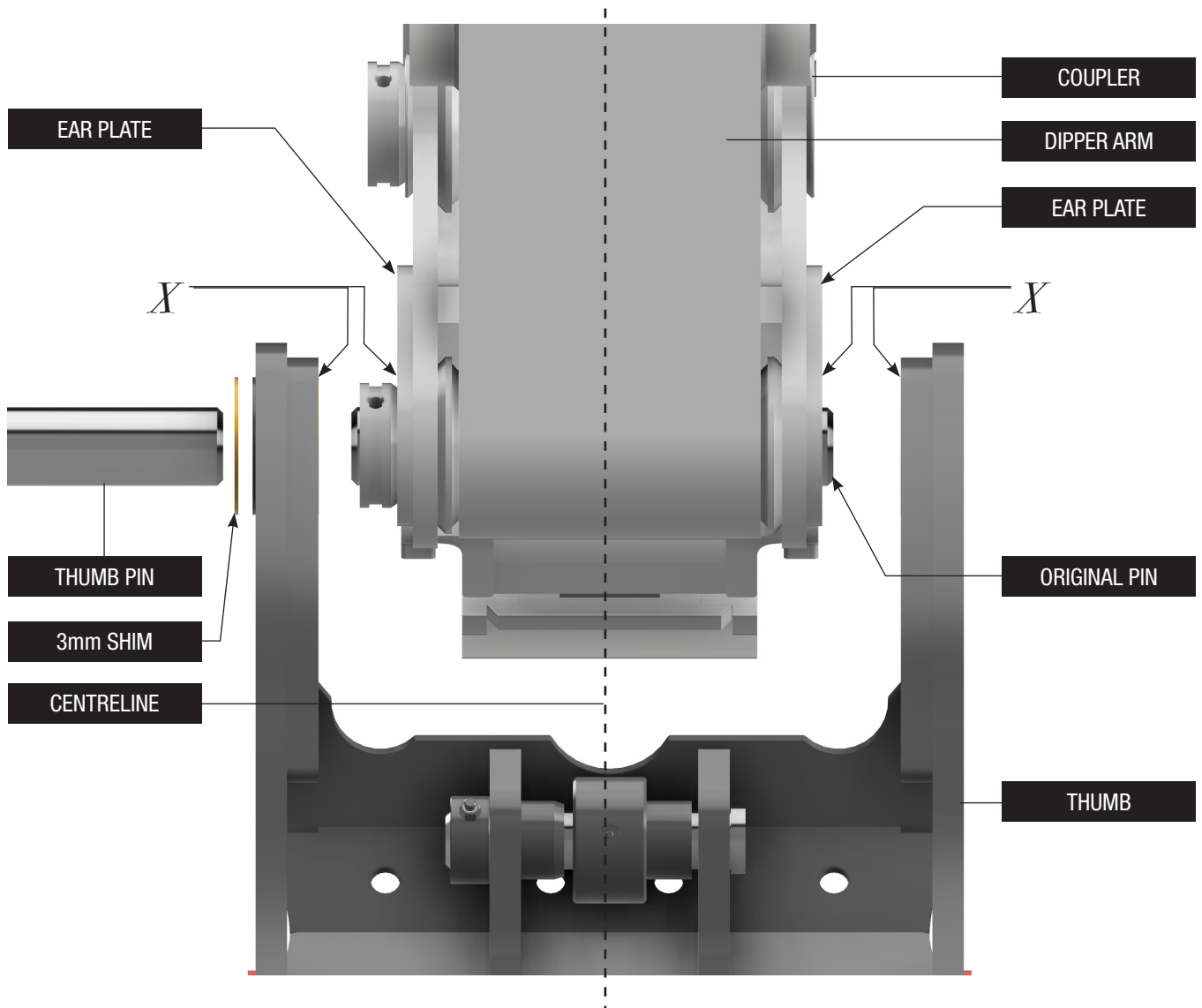


### STEP 5: ATTACH BRACKETS TO CYLINDER

- Pin the cylinder bracket to the base end of the cylinder.
- Hang the stop bracket on the thumb storage lugs using shackles provided.

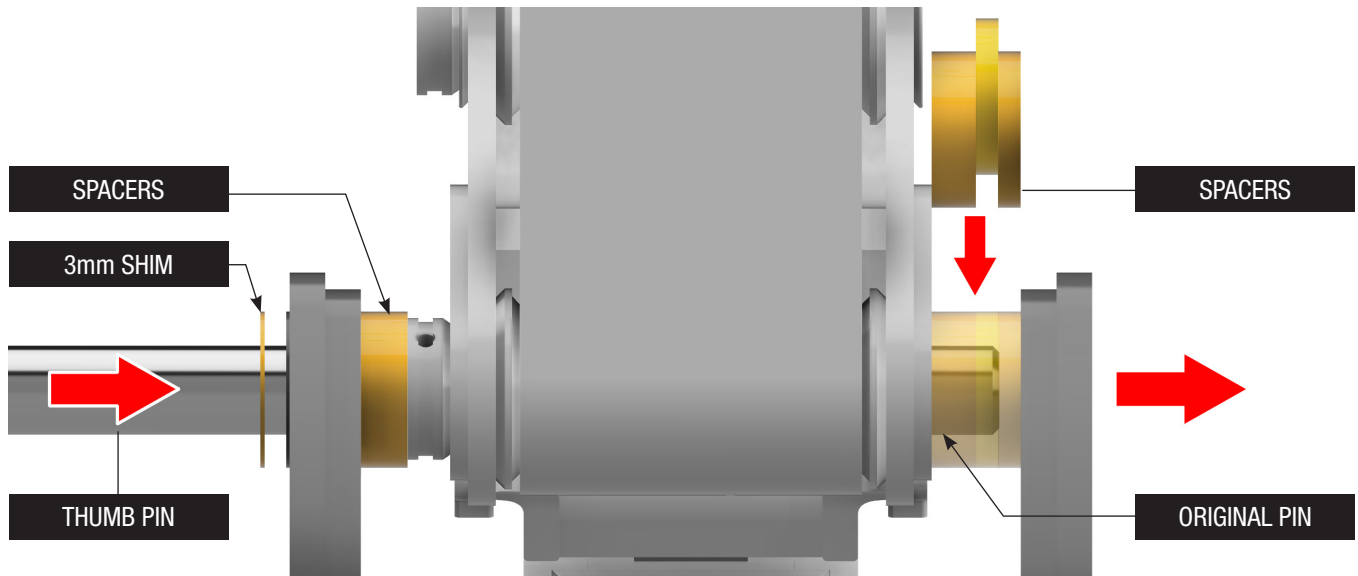


### STEP 6: INSTALL THUMB MAIN PIN

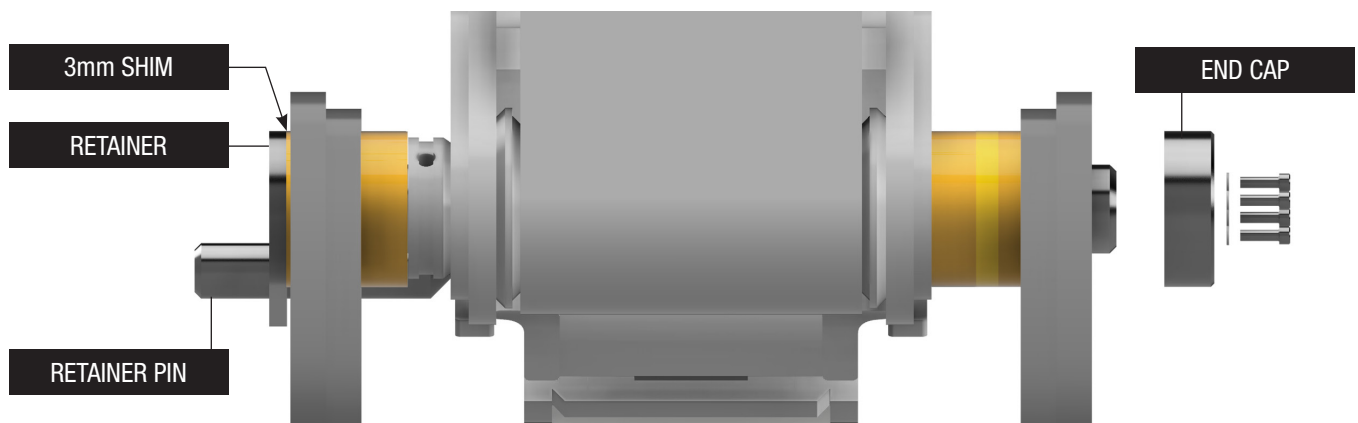


## SECTION 3: Thumb Installation

- Position the front pin of the coupler between the side plates of the thumb. Line the original pin up with the thumb pin holes.
- Measure equal distances from the coupler ear plates and the thumb. Centre the thumb.

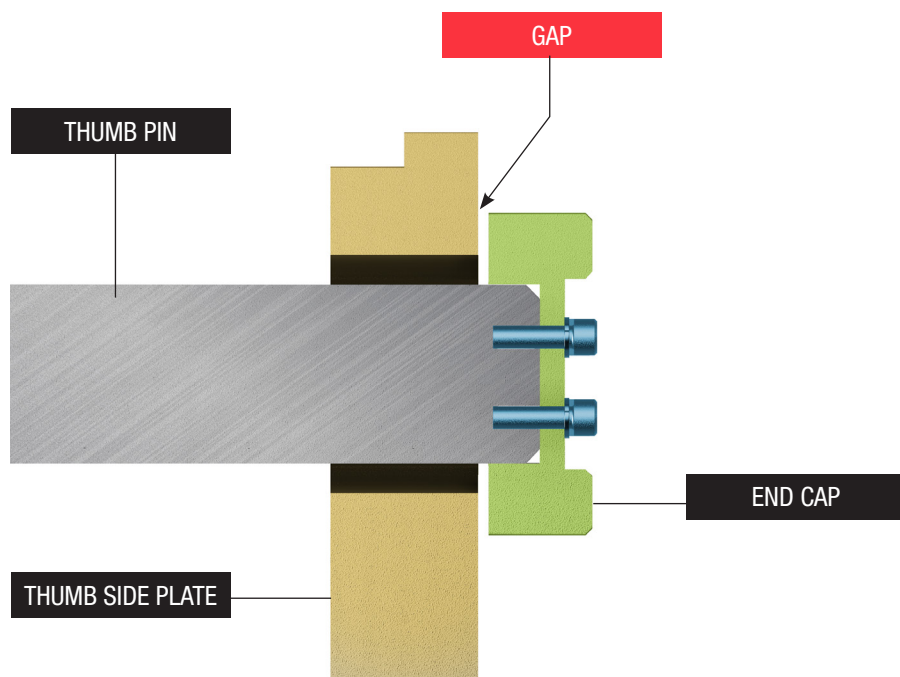


- Select spacers from the ones supplied to fill the gaps.
- Make sure you use a 3mm shim under the retainer.
- Use the thumb pin to push the original pin through.



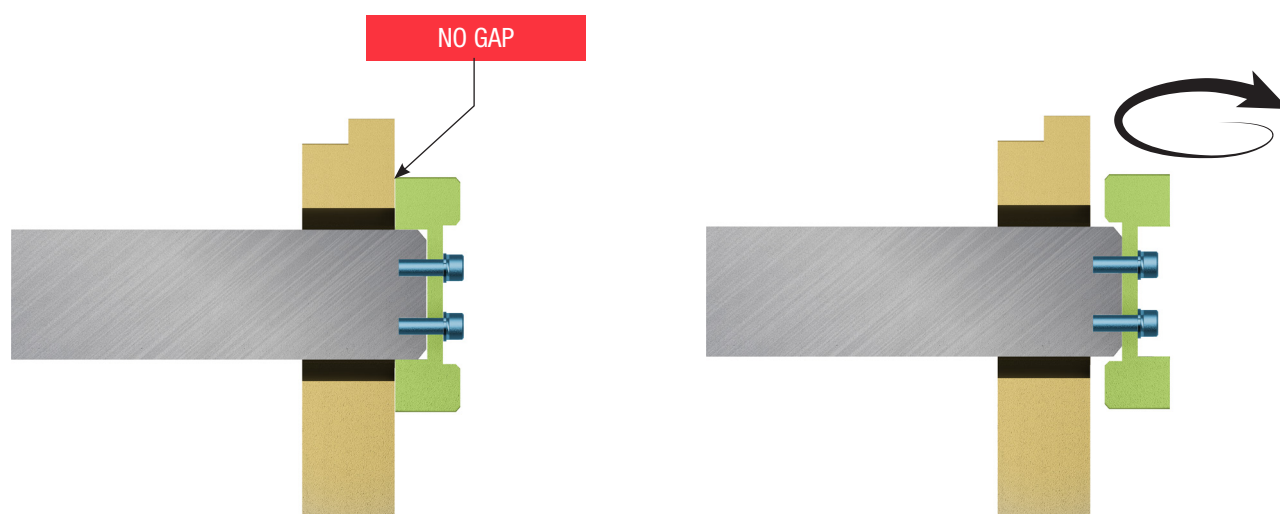
- Bolt on the thumb pin end cap.

## SECTION 3: Thumb Installation



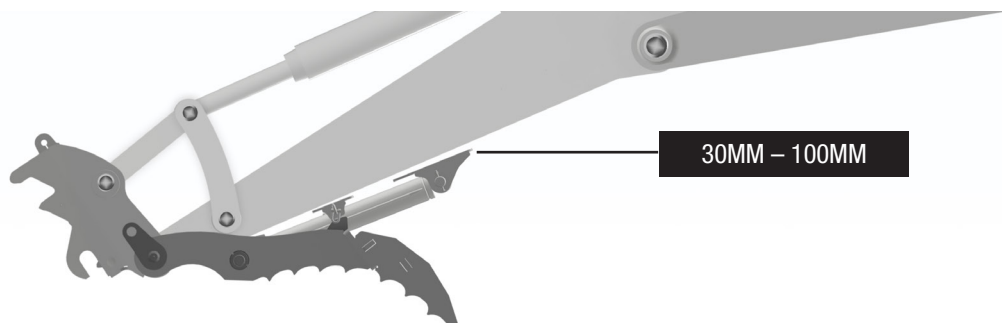
ENSURE THERE IS  
A GAP BETWEEN  
THE END CAP AND  
THE THUMB SIDE  
PLATE

- If there is no gap when the end cap is bolted on tight, turn the end cap around.



## SECTION 3: Thumb Installation

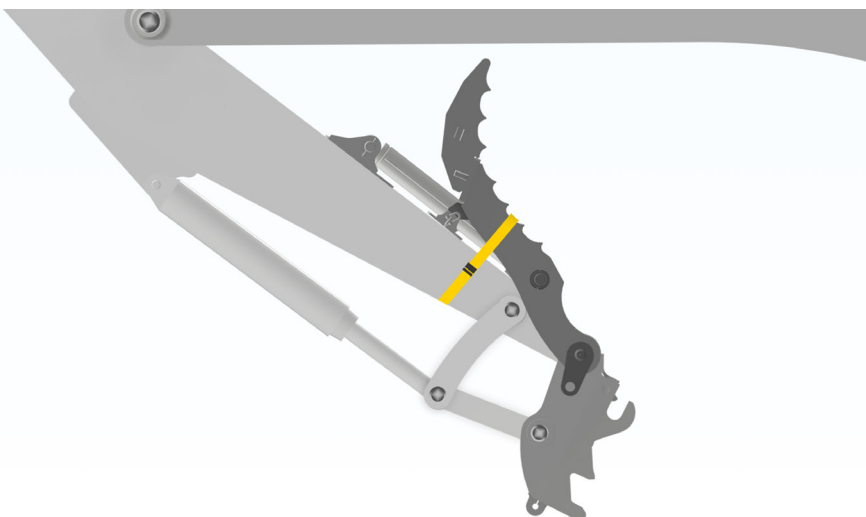
### STEP 7: TURN THUMB OVER



- Extend arm forward, dragging tooth bar across the ground, until the thumb bracket almost touches the dipper arm. A 30mm to 100mm separation is ideal. DO NOT contact arm with thumb bracket or damage may occur.



- Wrap a 2 Tonne strop or tie-down around the arm and the thumb.
- Tighten the strop to pull the thumb bracket into contact with the arm.



- Lift the arm and thumb and curl the arm to full curl, making sure there's no contact with the boom, and lower to a safe working height. Do not rest the thumb on the ground. Remove the strop.

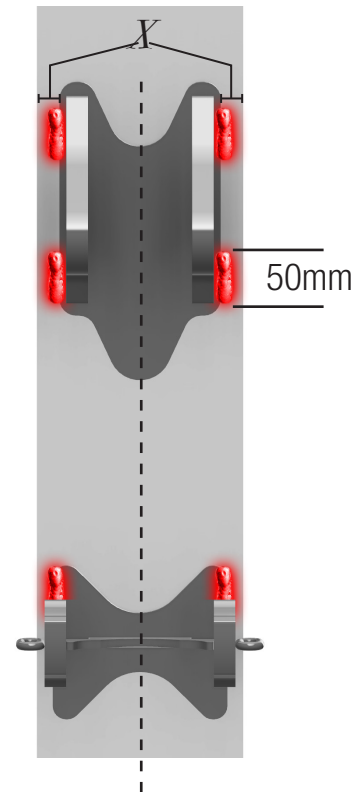
## SECTION 3: Thumb Installation

### STEP 8: TACK WELD BRACKETS TO ARM

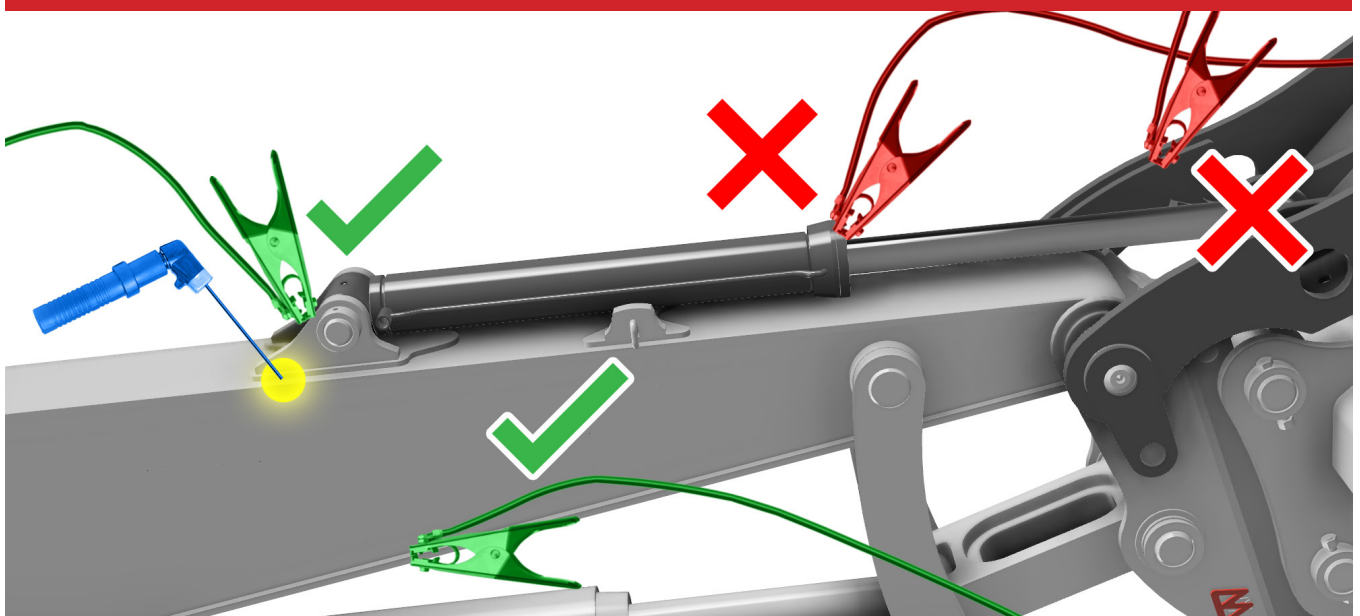
- Position the cylinder bracket in the centre of the dipper arm or inline with the cylinder.

BEFORE WELDING, DISCONNECT THE GROUND TERMINAL FROM THE MACHINE'S BATTERY. FOLLOW ANY OTHER INSTRUCTIONS IN THE MACHINE SERVICE MANUAL RELATED TO WELDING.

- Stitch weld ends of cylinder bracket to the dipper arm (50mm in four places). Tack weld the stop bracket in place.



EARTH STRAP POSITION IS CRITICAL! ENSURE THAT NO CURRENT CAN PASS THROUGH THE CYLINDER. EARTH DIRECTLY TO THE DIPPER ARM **OR** BRACKETS – **NOT** TO THUMB BODY



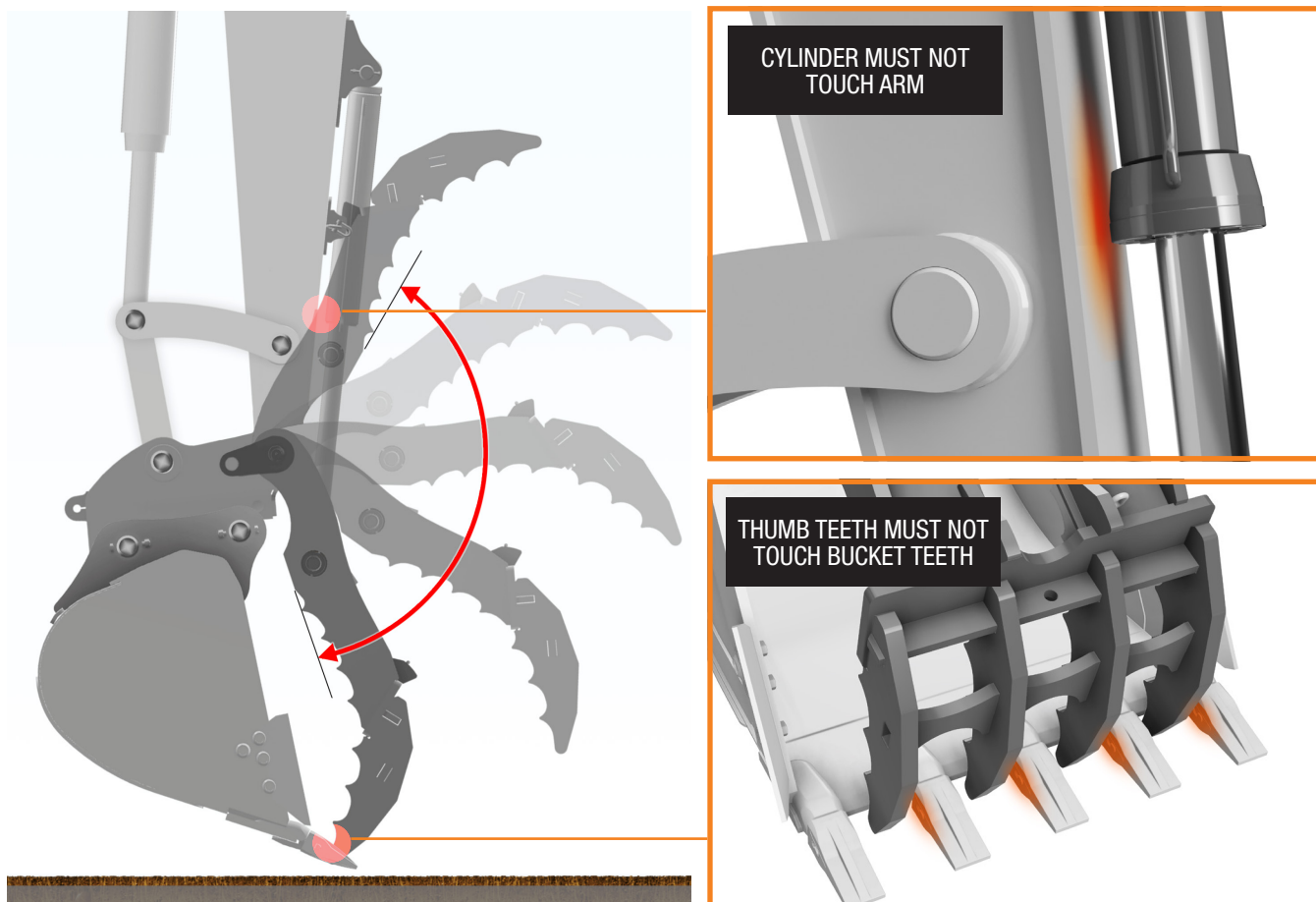
## SECTION 3: Thumb Installation

### STEP 9: INSTALL AND TEST HYDRAULICS

- Connect hydraulic hoses to test rotation.
- No hydraulic equipment is supplied with the thumb. Ensure hydraulic pressure supplied to the thumb meets the requirements in the Table of Settings on Page 17.

### STEP 10: TEST THUMB ROTATION

- Reattach bucket.



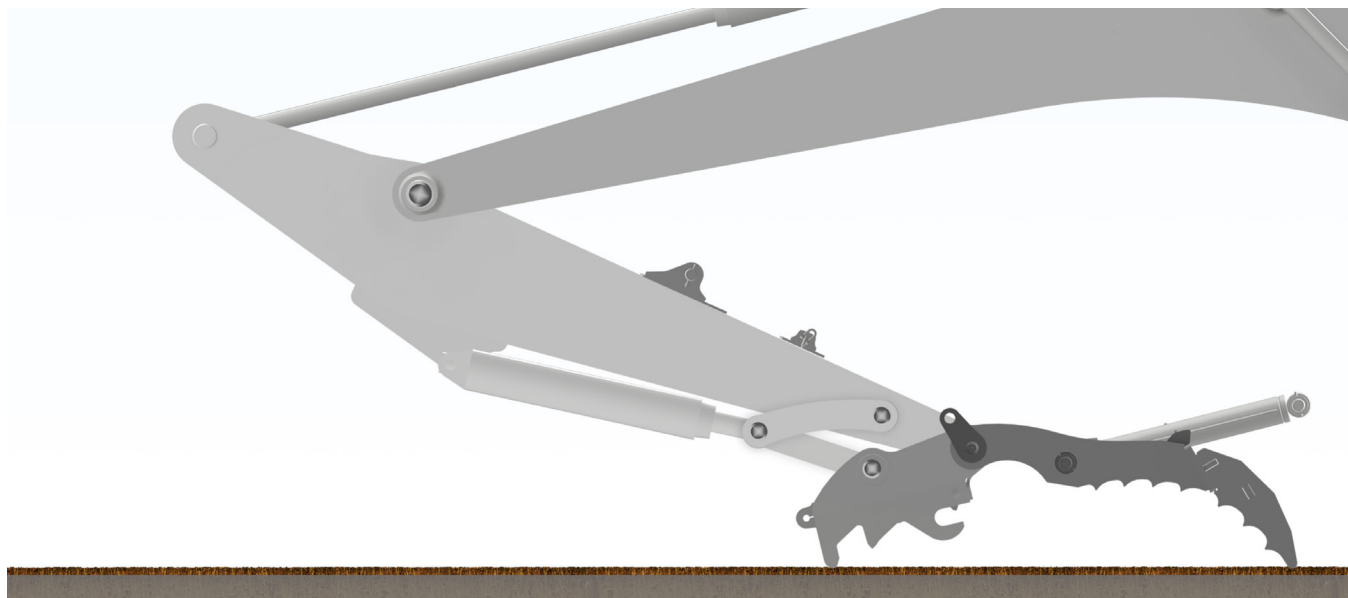
- Rotate the thumb through its complete rotation and check for interference.
- If the thumb over-rotates, remove the cylinder bracket from the dipper arm and increase the extended rod distance to 20mm (3/4"). Tack weld the cylinder bracket to the dipper arm and repeat STEP 10.
- If the thumb teeth are hitting the bucket teeth, one of the following has occurred;
  1. The thumb has not been centred properly on the coupler (Repeat STEP 6 for remedy)
  2. The bucket differs from the one used as specification for the thumb manufacture (Use correct bucket for remedy)
  3. The measurements supplied for thumb manufacture were incorrect. (Contact Wedgelock.)



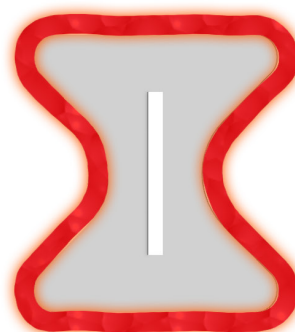
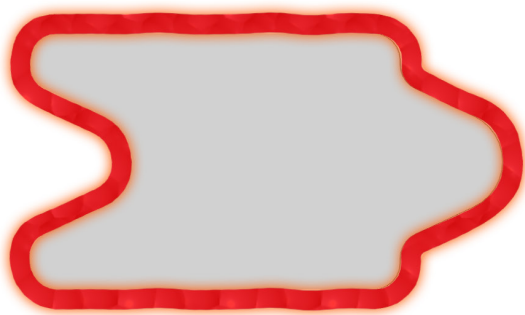
## SECTION 3: Thumb Installation

### STEP 11: COMPLETE THE WELDING PROCESS

- Remove the bucket.
- AGAIN, BEFORE WELDING DISCONNECT THE GROUND TERMINAL FROM THE MACHINE'S BATTERY.



- Remove cylinder from cylinder bracket.
- Position arm, coupler and thumb as shown above.



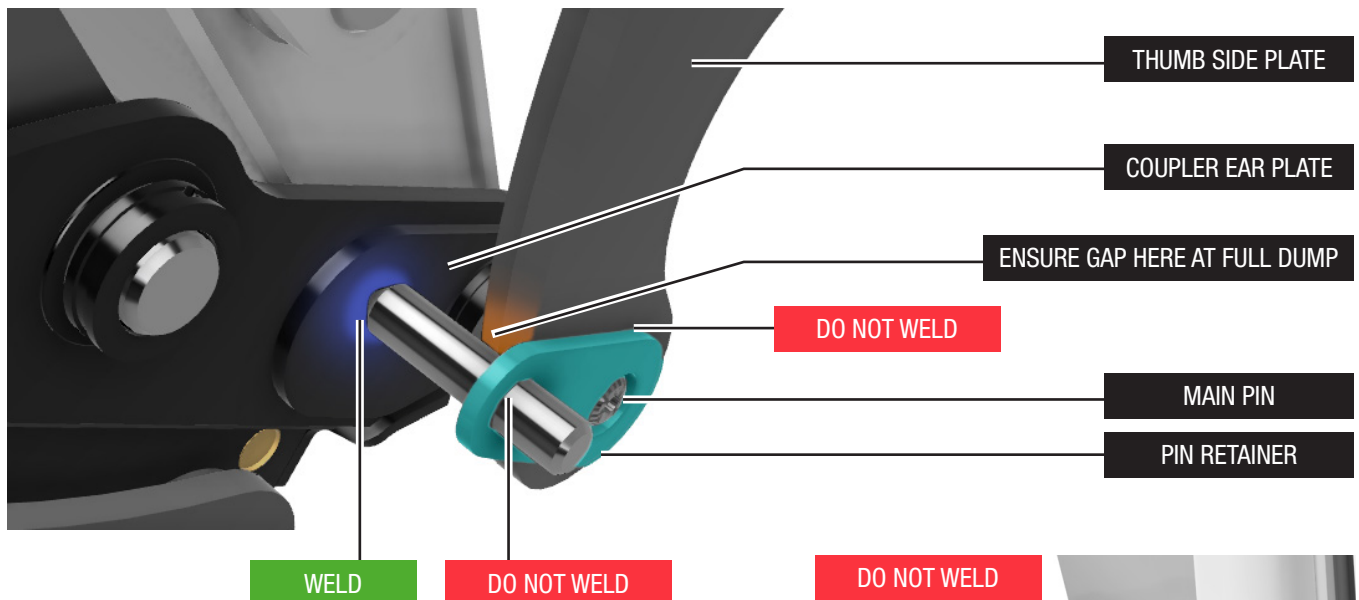
- Weld the brackets around perimeter.

## SECTION 3: Thumb Installation

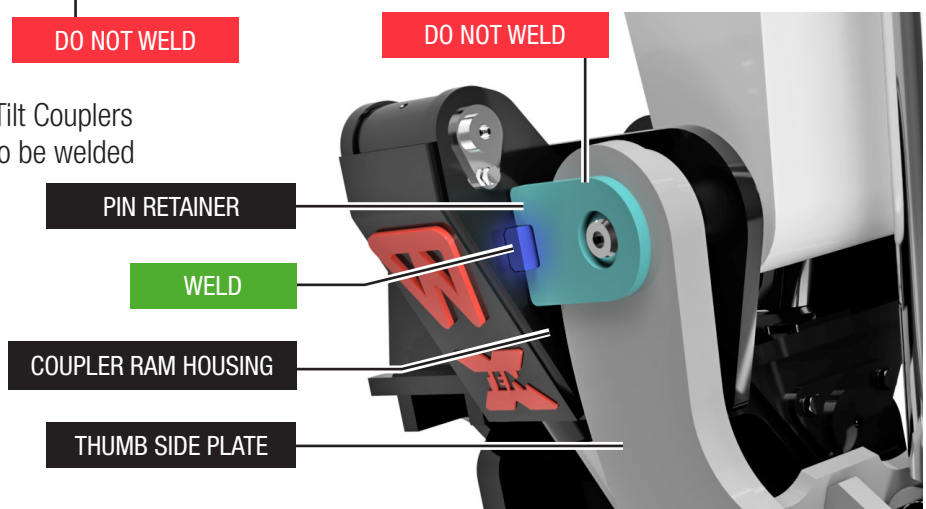
### STEP 12: INSTALL RETAINER PIN

- Position the coupler to full dump and the thumb to the stored position (as shown right).
- Using the hole in the main pin, line up the retainer bar with the lower portion of the coupler ear plate. Make sure the retainer bar will not contact the thumb side plate and then tack the pin to the coupler.
- NOTE: Large chamfer end of pin to coupler.

**DO NOT WELD THE RETAINER BAR TO THE THUMB OR TO THE MAIN PIN RETAINER**



- NOTE: Wedgelock CTX Twin-Ram Tilt Couplers require a proprietary retainer bar to be welded to the ram housing.



### STEP 13: FINISHING

- Tighten all fasteners and grease.

## SECTION 4: Tables



### 4.1 TABLE OF SETTINGS

Product Code	Operating Pressure	Flow Rates	Extend Cylinder Rod
	Bar (PSI)	l/m in (gal/m in)	mm
TNH-015-022	200 (2900)	2.9 (0.8)	10
TNH-028-037		6.3 (1.7)	10
TNH-045-055		11.7 (3.1)	10
TNH-070-099		28.0 (7.4)	10
TNH-130-170		57.0 (15.0)	10
TNH-210-270		76.0 (20.0)	10
TNH-320-450		132.0 (35.0)	40

### 4.2 MAINTENANCE SCHEDULE

Maintenance Required	Daily	Weekly	Monthly
Check all pin retainers, bolts & nuts for tightness on the bucket and thumb. Include pin end cap bolts.	✓		
Lubricate all greasing points.	✓		
Check hydraulic hoses and fittings for any leaks or wear – replace immediately if required.	✓		
Check the hydraulic cylinder mounting bolts for tightness – remedy if required.		✓	
Thoroughly clean the thumb and ensure there is no material build up around cylinder mounting point and pin.		✓	
Check the thumb for evidence of fatigue, weld failure or stress – if evident contact your Wedgelock dealer immediately for assistance.		✓	
Check thumb alignment with bucket teeth. Should alignment have changed, new shims may be required.			✓

## SECTION 5: Weld On Grease Port

### 5.1 INSTALLING GREASE PORT

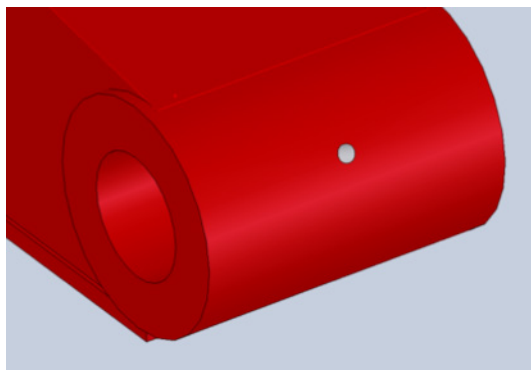
#### TO BE FITTED TO EXCAVATORS WHERE THUMB MAIN PIN REPLACES A PIN THAT IS GREASED THROUGH THE PIN

DISCONNECT THE BATTERY BEFORE WELDING

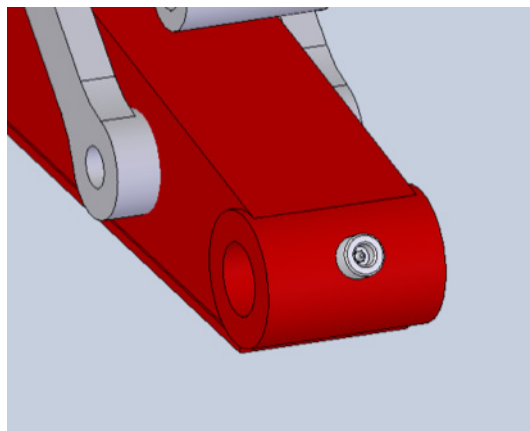
- Find a suitable location for the grease port;
  - Protected
  - Accessible
  - Does not interfere with any attachments during full rotation.

(Note: location shown in pictures is an example only)

**STEP 1.** Drill Ø10-11mm hole in to centre of dipper stick end boss in suitable location.



**STEP 2.** Place grease port #699-040-1 over hole. Weld all around, ensuring there are no holes.



**STEP 3.** Fit grease nipple #112-002-1.

**STEP 4.** Paint welded area.

## SECTION 6: Mis-use of attachment

### 6.1 PRESSURE ON BACK OF THUMB

- Do not put excessive pressure on the back of the thumb (back-blading).



- The thumb is designed to receive stress in one direction only and excessive stress on the back of the thumb will cause damage and possible failure that is not covered under the manufacturer's warranty.

