

ADC

15,20,25,30,35,45,55,55+,70,70+,80+

Safety and operating instructions

Auger drills compact

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1 Introduction

Epiroc appreciates your choice of our product for your application. Our number one priority is user safety which is best achieved by our joint efforts. We feel that you can make a major contribution to safety if you, as the machine user;

- Comply with all the relevant National Laws and Local Regulations.
- Read, understand and follow the instructions found within and within any other manuals supplied with this attachment/ product.
- Use good, safe working practises with common sense.

ONLY use trained operators to operate these attachments/products and who are directed by informed and knowledgeable supervision. Operators/Users **MUST** be compliant and accredited to operate this attachment/ product and/or Parent machine in accordance with any plant operations/schemes/requirements/regulations. These schemes/requirements/regulations **MUST** be followed at all times.

We reserve the right to make improvements to attachments/products without incurring any need to change these operating instructions. Any modification to this attachment/product which has not been approved by the manufacturer in writing immediately invalidates the manufacturers warranty.

Epiroc attachment/products have been designed **ONLY** for use with specific Epiroc Mounting Brackets, Augers, Extensions and Wear Parts. Provided these are used and maintained correctly, they will provide a safe and reliable operation.

NOTE: This operating manual should be used in conjunction with the parent machines operating instruction. Copies of this operating manual can be supplied upon request by directly contacting Epiroc.

Operators manuals should be regarded as part of the attachment/product. They should always be kept safe, with the attachment/ product, for easy and quick reference.

NOTE: Your Auger Drive unit is supplied, pre-filled with the correct amount of gear oil.

2 Intended use

The Epiroc auger drive attachments have been designed to be used in conjunction with Epiroc mounting brackets, auger bits and extension shafts. ALL Epiroc auger drive units are designed to drill bore holes, whilst being attached to a suitable "Prime Mover". Any use or application deviating from the intended use is deemed to impermissible misuse. Impermissible use is **NOT** permitted, considered **UNSAFE** and **WILL** invalidate your product warranty.




2.1 Operator Orientation

The directions left, right, front and rear, which may be mentioned throughout this manual, are seen from the driver's seat and facing the direction of travel.

3 Enquiries

Please state the model type and serial number when making enquiries, orders and all written correspondence. The serial number is recorded on a plate located on the top of the unit as shown. It is recommended that this space is used to record the details of your attachment. Contact details can be found on the reverse of this document.



Epiroc   

Model		S/N	Mfg. date	
Oil flow range		Oil pressure range		Back pressure
From	l/min	From	bar	Maximum bar
To	l/min	To	bar	Gross weight kg
Man. Palacin Attachments 2800 N Zeeb Road, Dexter, MI 48130, U.S.				
Imp. Construction Tools GmbH Heerenstraße 149, D-45143 Essen				
2121 1002 55				

4 Safety notes and precautions

4.1 Protect yourself







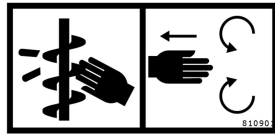
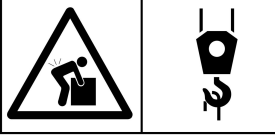
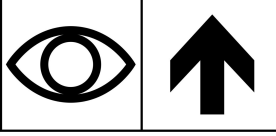
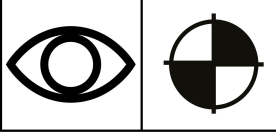
Make sure that you wear protective clothing and safety items.

For all procedures detailed within this manual you will need:


- Safety goggles.
- Protective footwear.
- Hand protection.
- Hard hat.
- Ear protection.
- High visibility clothing.
- Foul weather clothing.

4.1.1 Danger Warning and Caution symbols

The following symbols, which may be mentioned throughout this manual, have important meaning when used with the following captions.

 DANGER	DANGER: An IMMINENTLY HAZARDOUS situation that WILL result in VERY SERIOUS INJURY OR DEATH .		
 WARNING	WARNING: A POTENTIALLY HAZARDOUS situation that COULD result in VERY SERIOUS INJURY OR DEATH .		
 CAUTION	CAUTION: A POTENTIALLY HAZARDOUS situation that MAY result in MINOR injury.		
			
To reduce the risk of serious injury and/or death to yourself or others, read and understand the safety and operating instructions before installing, operating, repairing, maintaining. Ensure that copies of these instructions are available at ALL times.	An involuntary start of the auger drive attachment can lead to severe injuries and/or death. ALWAYS switch off parent machine and lock out hydraulic controls before ANY works are undertaken.	Hydraulic oil, under pressure, can penetrate the skin and/or eyes. If any fluid is injected into the skin it MUST be surgically removed. NEVER use bare hands to check for hydraulic fluid leaks. ALWAYS use appropriate safety wear.	With ALL operations, ensure a MINIMUM of a 6 meter (20 ft) working radius is maintained. Before starting ENSURE that NO persons are within this working radius. A site survey MUST also be undertaken, specifically checking for underground risks. IMMEDIATELY switch off the attachment if ANY person(s) enters the working radius zone.
			
The attachment comprises of rotating parts and poses an entanglement risk. Stay clear of ALL rotating components. Maintain a clear working radius. ALWAYS switch off parent machine and lock out hydraulic controls before ANY works are undertaken.	The auger drive unit, tools and associated equipment are heavy. ALWAYS use suitable lifting equipment to manipulate these components. Failure to do so may results in injury and/or death.	Orientation is of component parts is vital. Where applicable the above symbol is used and direction of orientation is shown by the arrow direction.	Alignment of mating components is vital. Where applicable, the above symbol is used.


4.1.2 Hazard classification (ONLY applicable to ANSI safety labels)

⚠ DANGER	DANGER: IMMEDIATE HAZARD: Failure to understand or obey this information is likely to result in PERSONAL INJURY OR DEATH .
⚠ WARNING	
⚠ CAUTION	WARNING: Failure to follow these instructions may result in PERSONAL INJURY OR DEATH .
NOTICE	CAUTION: Failure to follow these instructions may result in minor PERSONAL INJURY OR DAMAGE to the machine or the vehicle.
	NOTICE: This is important information for the proper use of this equipment. Failure to comply may lead to PREMATURE EQUIPMENT FAILURE .
 WARNING	DO NOT wear items of loose clothing, jewellery or other items and tie up long hair which could entangle within the controls or other parts of the machine.

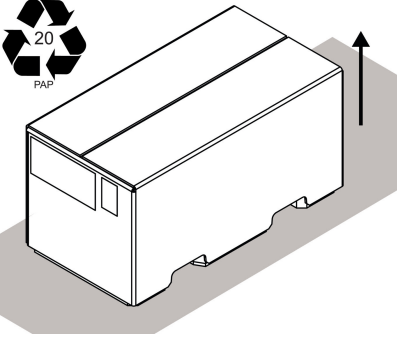
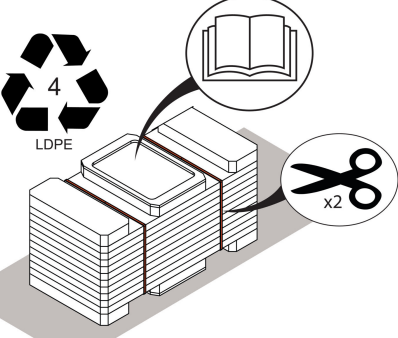
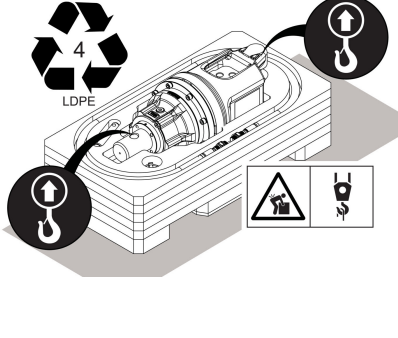
4.1.3 Mandatory safety symbols

Take time to familiarise yourself with the following symbols, pay special attention and care when observed within this manual. It is advisable to protect yourself, with the following equipment, whenever working with this attachment.



 WARNING	DO NOT wear items of loose clothing, jewellery or other items and tie up long hair which could entangle within the controls or other parts of the machine.
--	---

5 Unpacking

		
<p>Remove outer packaging (PAP20), dispose of in accordance with local regulations.</p>	<p>Remove 2 x straps. Remove operations manual, store safely for further use. Remove upper packaging segment (LDPE4), dispose of in accordance with local regulations.</p>	<p>Using suitable lifting equipment and using lifting points shown, remove auger drive unit from lower packaging. Remove all ancillary equipment. Dispose of lower packaging (LDPE4), in accordance with local regulations.</p>

5.1 Safety precautions - General

- **NEVER** operate or assemble the equipment without fully understanding the operating instructions of both the attachment and parent machine.
- **NEVER** operate the equipment unless you are in good physical condition and mental health. • **NEVER** operate the equipment under the influence of any substance that could impair your judgement or well-being, this includes drugs or alcohol.
- **NEVER** operate the equipment with damaged or missing parts. Use only genuine replacement parts.
- **NEVER** allow minors to operate the equipment.
- **ALWAYS** survey the work area before commencing operations. Check and remove any potential hazards.
- **ALWAYS** ensure that the attachment and/or parent machine is secure and stable, with its engine switched off and hydraulic system locked out, before carrying out any maintenance work.



STAY ALERT. Should something break, come loose or fail to operate on this equipment. **STOP WORK**, lower equipment to the ground, shut off the engine and lock out the hydraulic supply. Inspect and complete repairs before resuming operation.

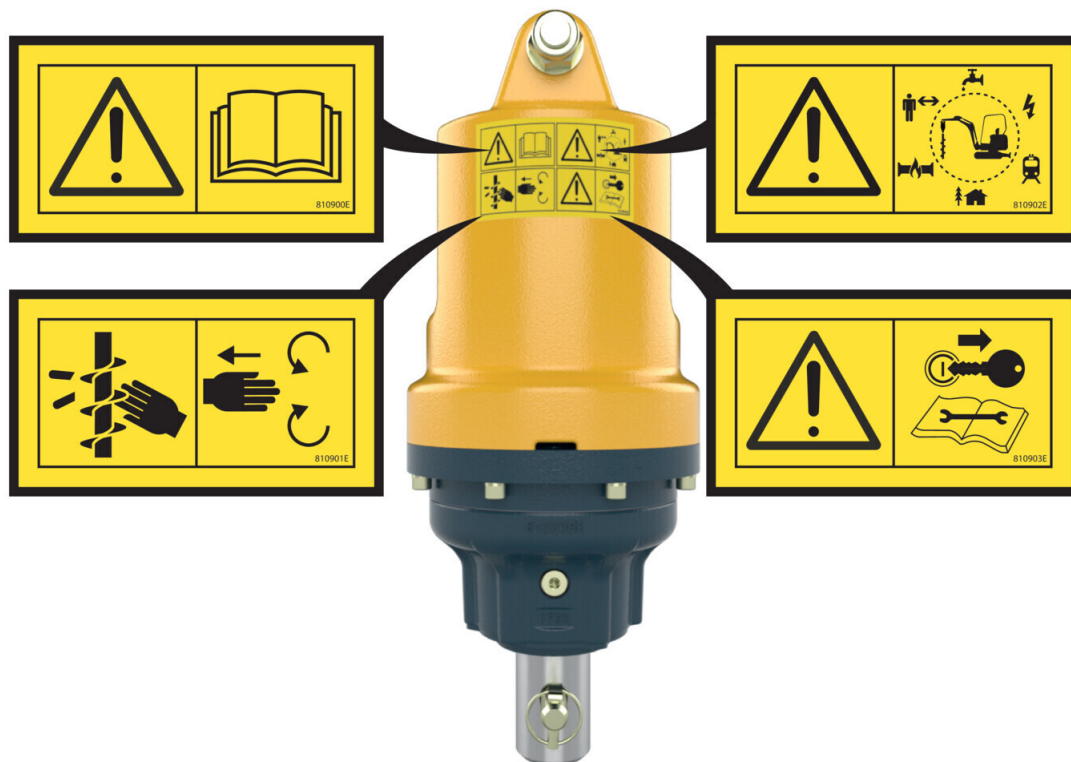
6 Safety Decals

ALL safety decals listed **MUST** be fitted to the attachment and **MUST** be legible.

Use mild soap and water to clean safety decals - **DO NOT** use solvent based cleaners because they may damage safety decal material.







Safety decals are fitted to the attachment to warn of possible hazards and **MUST** be replaced immediately if they become unreadable or lost.

If the attachment is repaired and parts have been replaced on which safety decals were affixed, ensure new safety decals are fitted before the attachment/product is put into service.

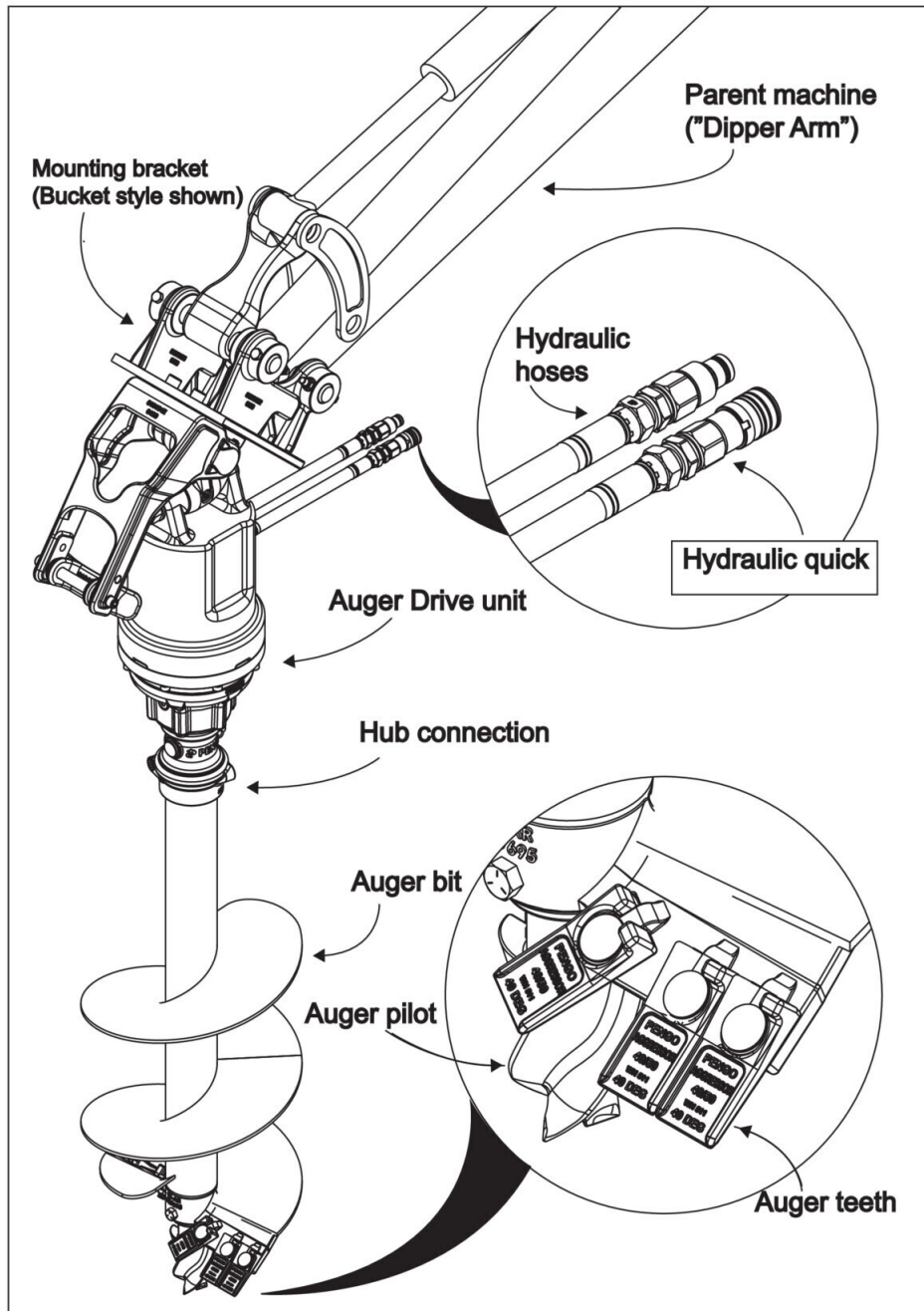


Item	Description	Quantity	Part number
1	Label Caution read manual	1	810900 E
2	Label Caution entanglement	1	810901 E
3	Label Caution stop before service	1	810902 E
4	Label Caution work radius	1	810903 E

6.1 Equipment / Attachment precautions

 <p>CAUTION</p>	<p>PARENT MACHINE LIFT CAPACITY Alert yourself to the weight of the Drive Unit. DO NOT exceed the recommended lift capacity of the PARENT MACHINE. Refer to your PARENT Machine's owners manual for suggested lift capacity and lift considerations.</p>
 <p>WARNING</p>	<p>PARENT MACHINE / ATTACHMENT INSTALLATION Ensure all connection pins, fasteners and latches are properly secured. Ensure that the mounting frame / attachment mounting plate is rigidly secured to the PARENT MACHINE. Improper installation can result in product damage, personal injury and death. See "Mounting options" on page xx.</p>
 <p>DANGER</p>	<p>Ensure ALL hydraulic hose assemblies are of adequate length and have enough slack for full Drive attachment movement. Failure to provide adequate length hydraulic hoses can result in hose rupturing. A hydraulic hose rupture can result in product damage, personal injury and death.</p>
 <p>WARNING</p>	<p>OPERATING THE PARENT MACHINE Avoid steep hillside operation, which could cause the PARENT MACHINE to overturn. Consult your PARENT MACHINE operator's and safety manuals for maximum incline allowable.</p>
 <p>DANGER</p>	<p>TRANSPORTING THE DRIVE ATTACHMENT</p> <ul style="list-style-type: none"> • Travel only with the drive attachment in a safe transport position to prevent uncontrolled swinging. • Tether the drive attachment with a chain, if necessary, to prevent uncontrolled swinging of the auger when moving from hole to hole. • Remove the earth auger or helical anchor from the Drive attachment before transporting to and from the job site. • Use extreme care during transport to prevent contact between the drive attachment and bystanders or solid objects. Contact with the drive attachment could cause serious damage, injury or death. • Never operate the drive attachment while transporting. • Drive slowly over rough ground and on slopes. Position the drive attachment as low to the ground as possible maintaining a low centre of gravity. See chapter "Working procedure - Transportation".
 <p>CAUTION</p>	<p>DRIVE ATTACHMENT SIDE LOADING Side loading is NOT recommended. Excessive side loading can cause output shaft deflection and or failure. Avoid excessive side loading to prevent possible instantaneous output shaft failure. Such a failure could result in injury from disconnected parts and or being hit by the drive attachment causing serious injury or death. See chapter "Working procedure".</p>

7 Identification - Main components



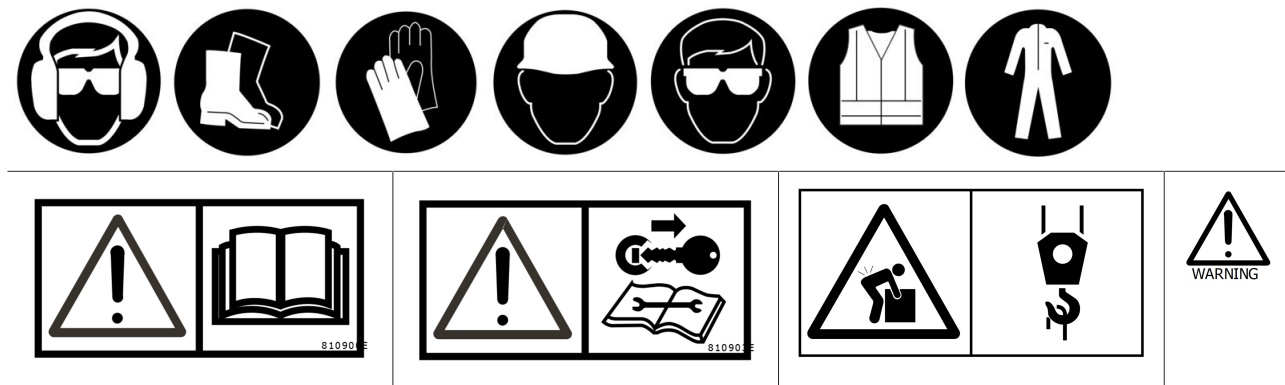
8 Specifications

Model name:	ADC15	ADCE20	ADC25	ADC30
Service weight, Kg (Lbs):	58 (128)	59 (130)	59 (130)	71 (156)
Suitable carrier weight class, tonnes (Lbs):	1.0-1.5 (2200-3300)	1.5-2.5 (3300-5500)	2.0-3.0 (4400-6600)	2.5-4.0 (5500-8800)
Input operating pressure range, bar (psi):	120-210 (1740-3046)	140-240 (2031-3481)	140-240 (2031-3481)	140-260 (2031-3770)
Input oil flow range, lpm (gpm):	15-45 (3.96-11.89)	25-55 (6.60-14.53)	35-65 (9.25-17.17)	35-75 (10.57-19.81)
Maximum output torque, Nm (FtLbs):	1493 (1101)	2134 (1574)	2646 (1952)	3003 (2215)
Maximum speed, RPM:	101	98	94	103
Motor port connection:	G1/2"	G1/2"	G1/2"	G1/2"
Maximum back pressure, bar (psi):	38 (551)	38 (551)	40 (580)	40 (580)
Gearbox oil type:	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL
Gearbox oil capacity, ml (fl oz):	725 (25.5)	725 (25.5)	725 (25.5)	830 (29.2)
Model name:	ADC35	ADC45	ADC55	ADC70
Service weight, Kg (Lbs):	71 (156)	72 (158)	115 (253)	116 (255)
Suitable carrier weight class, tonnes (Lbs):	2.5-4.5 (5500-9900)	3.0-5.0 (6600-11000)	4.0-6.0 (8800-13200)	4.5-7.0 (9900-15400)
Input operating pressure range, bar (psi):	140-260 (2031-3770)	140-260 (2031-3770)	140-260 (2031-3770)	140-260 (2031-3770)
Input oil flow range, lpm (gpm):	40-85 (10.57-22.45)	40-95 (10.57-25.10)	60-115 (15.85-30.38)	60-115 (15.85-30.38)
Maximum output torque, Nm (FtLbs):	3780 (2788)	4739 (3495)	5211 (3843)	6670 (4920)
Maximum speed, RPM:	93	83	91	84
Motor port connection:	G1/2"	G1/2"	G1/2"	G1/2"
Maximum back pressure, bar (psi):	45 (653)	40 (580)	40 (580)	40 (580)
Gearbox oil type:	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL	ISO VG 320 E.P MINERAL
Gearbox oil capacity, ml (fl oz):	830 (29.2)	830 (29.2)	1700 (59.80)	1700 (59.80)

Model name:	ADC55 +	ADC70 +	ADC80 +	
Service weight, Kg (Lbs):	122 (268)	123 (271)	124 (273)	
Suitable carrier weight class, tonnes (Lbs):	5.0-7.0 (11000-15400)	6.0-9.0 (13200-19800)	7.0-10.0 (15400-22000)	
Input operating pressure range, bar (psi):	140-260 (2031-3770)	140-260 (2031-3770)	140-260 (2031-3770)	
Input oil flow range, lpm (gpm):	70-140 (18.49-36.98)	70-160 (18.49-42.26)	75-170 (18.49-44.9)	
Maximum output torque, Nm (FtLbs):	5278 (3893)	6683 (4929)	8392 (6189)	
Maximum speed, RPM:	110	99	84	
Motor port connection:	G3/4"	G3/4"	G3/4"	
Maximum back pressure, bar (psi):	22 (319)	28 (506)	39 (566)	
Gearbox oil type:	ISO VG 320 E.P MIN-ERAL	ISO VG 320 E.P MIN-ERAL	ISO VG 320 E.P MIN-ERAL	
Gearbox oil capacity, ml (fl oz):	1700 (59.80)	1700 (59.80)	1700 (59.80)	

9 Mounting options

9.1 Fitting precautions



ALWAYS work in pairs (2 Skilled operatives) whenever mounting components are being assembled or disassembled.

ALWAYS check the weight of the product/attachment and ensure that suitable lifting equipment is used where necessary.

ALWAYS check parent machine;

- Is switched off.
- Is parked correctly on flat ground.
- Has its handbrake ON.
- Is in good general/working health.

Ensure hitch and mounting points are clean and free from defects before fitting. If a quick hitch is fitted, ensure that the operators instruction for the quick hitch use/maintenance are adhered to.

9.2 Fitting - Single Pin Mount



The Single Pin Mount **CANNOT** be fitted to a quick hitch. Please contact the authorized Customer Center / dealer in your area for further advice.
Upon fitting completion ensure all lubrication points are fully greased.

Set the auger drive flat on the ground, with output shaft facing towards the parent machine. Ensure hose port location are facing upwards. **Fig.5.**

Insert item 1. into item 2. **Fig.6.** Insert item 3. Fit item 4. and 5. Tighten item 5. to 60-80Nm (44-59ft-lb). Lubricate using greasing point.

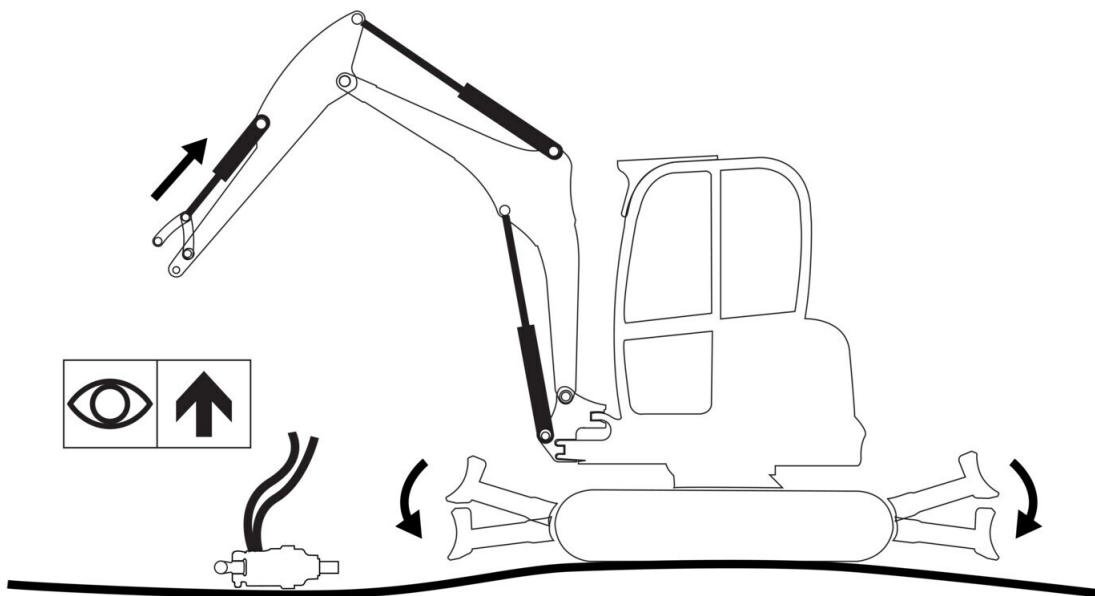


Fig. 5

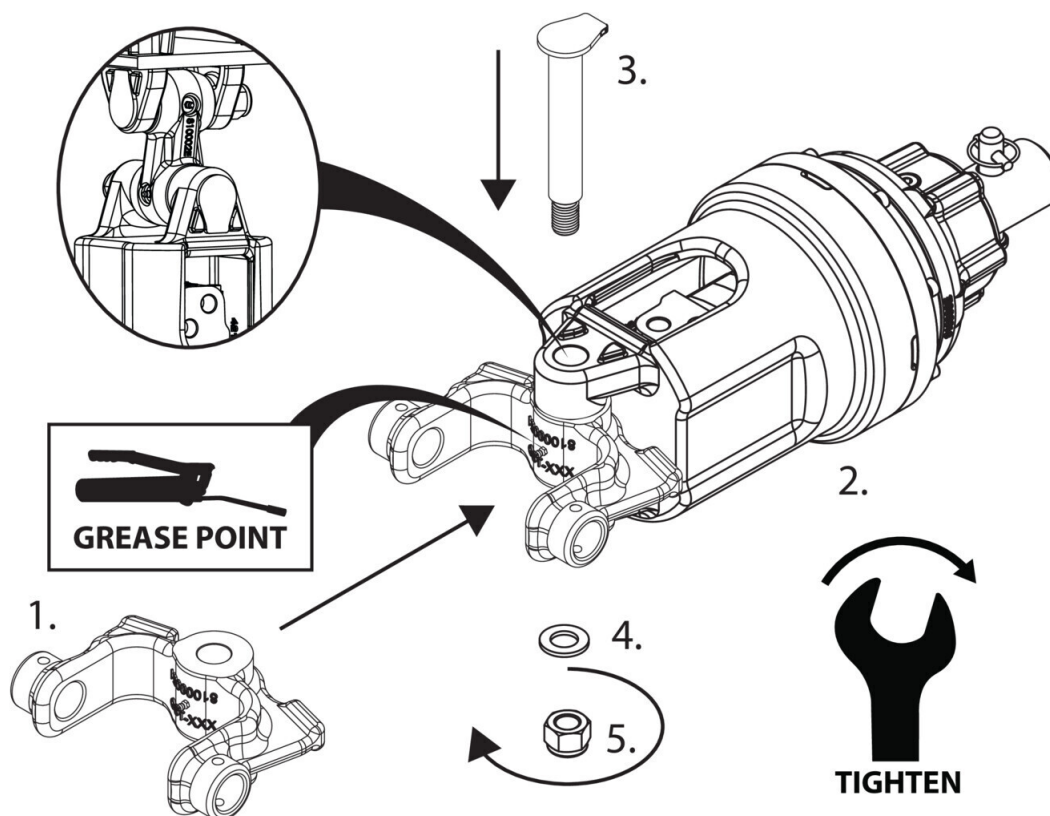


Fig. 6

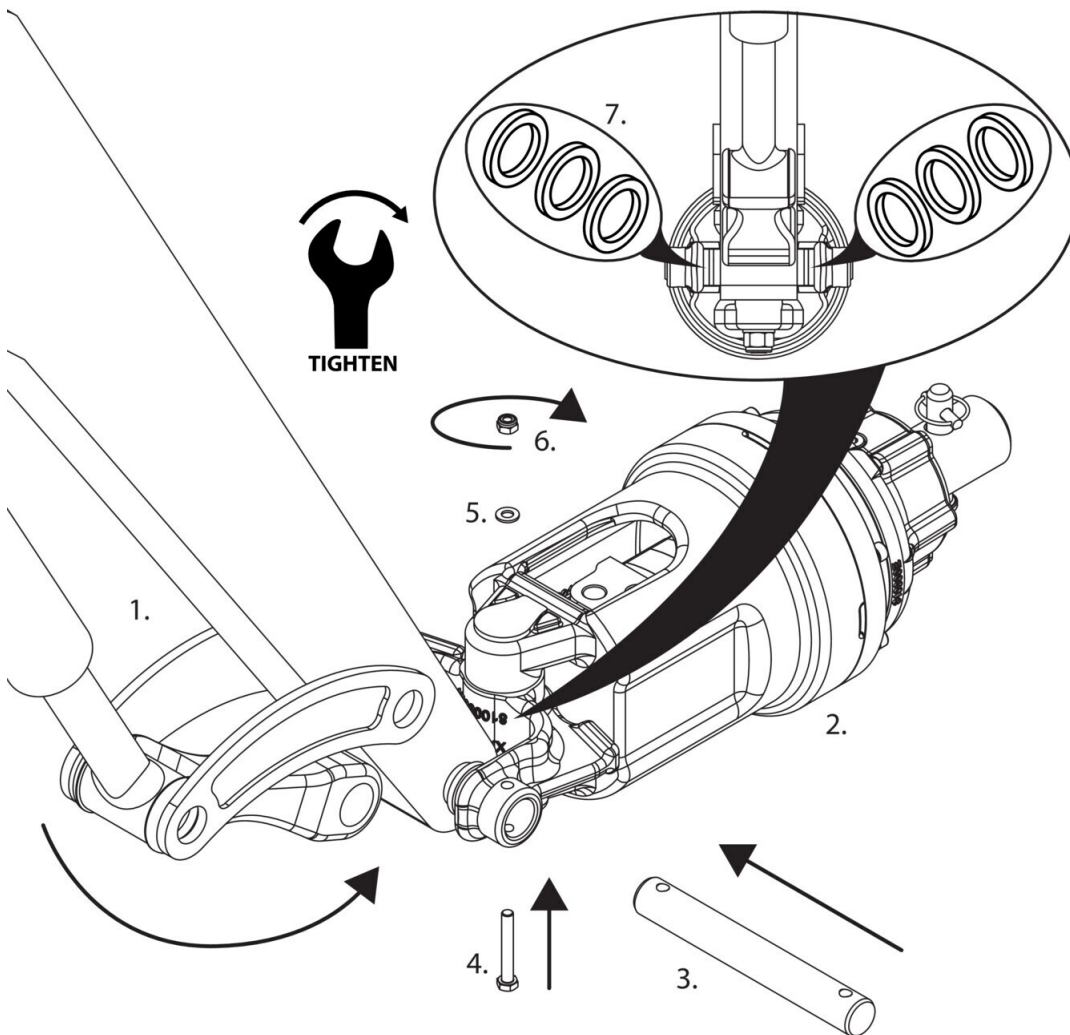


Fig. 7

The single pin mount is supplied with gap filling spacer washers, item(s) 7 **Fig.7**.


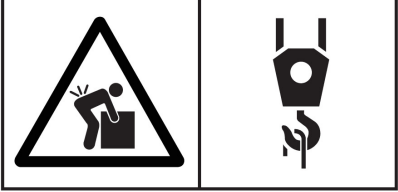
Spacer washers should be used to minimise gaps between item 1. **Fig.6** and item 1 **Fig.7**.

An equal number of spacers should be used each side of item 7. **Fig.7** .

Insert item 3. into assembly 2. and through item 1.

Affix with Item 4., 5. and 6. (2 places) Tighten to 20-25 Nm (14-18 ft-lb), 2 places. **Fig.7**.

9.3 Fitting - group 16 & 17 drilled mounts

 WARNING		<p>When fitting either the standard or bucket mount an additional, manufacturer specific topp mount will also be required. The following instruction has been provided to ensure correct coupling. NOTE: Upon fitting completion ensure all lubrication points are fully greased. Fig.10.</p>
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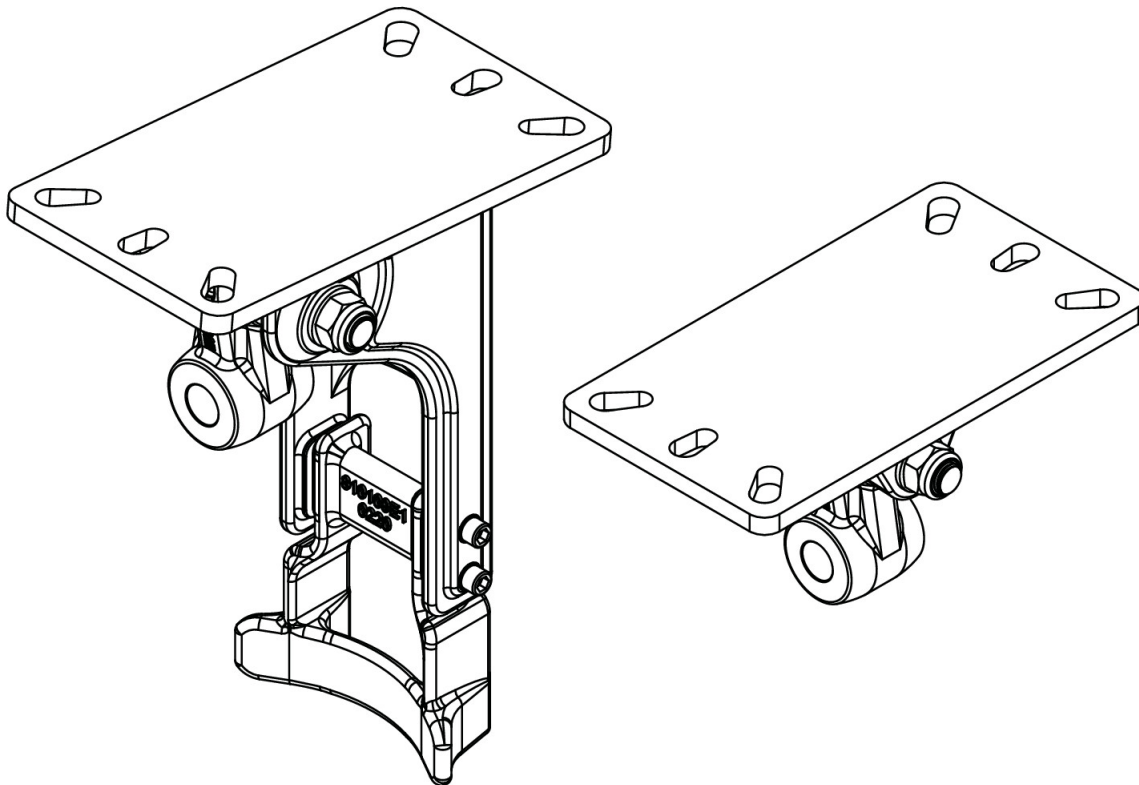


Fig. 8

Bucket and standard drilled mounting brackets shown above **NOTE:**Each Bracket is drilled to suit either Group 16 or 17 mounting patterns. **Fig.8.**

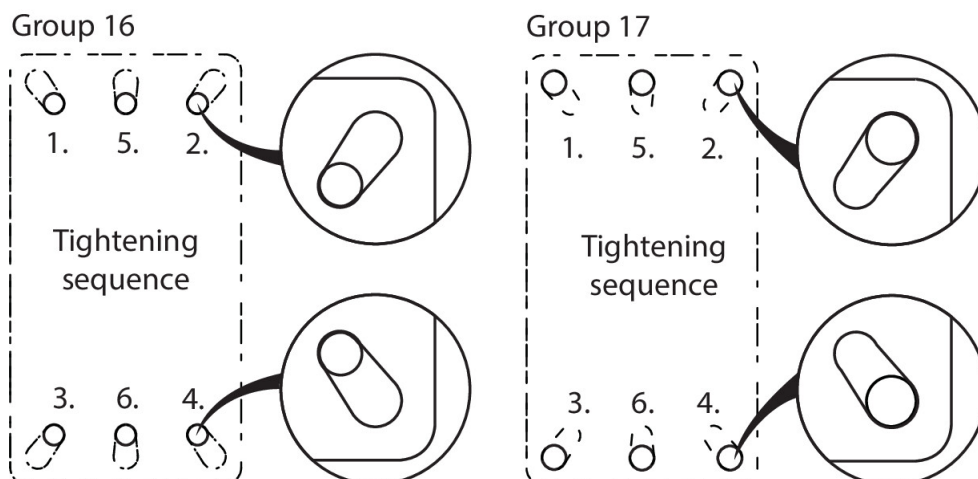


Fig. 9

Tightening sequence and installation torque Group 16 pattern utilises M16 Fixings - Tighten in sequence to 120-140Nm (88-103ft-lbs). Group 17 pattern utilises M20 Fixings - Tighten in sequence to 160-180Nm (118-132ft-lbs). **Fig.9.**

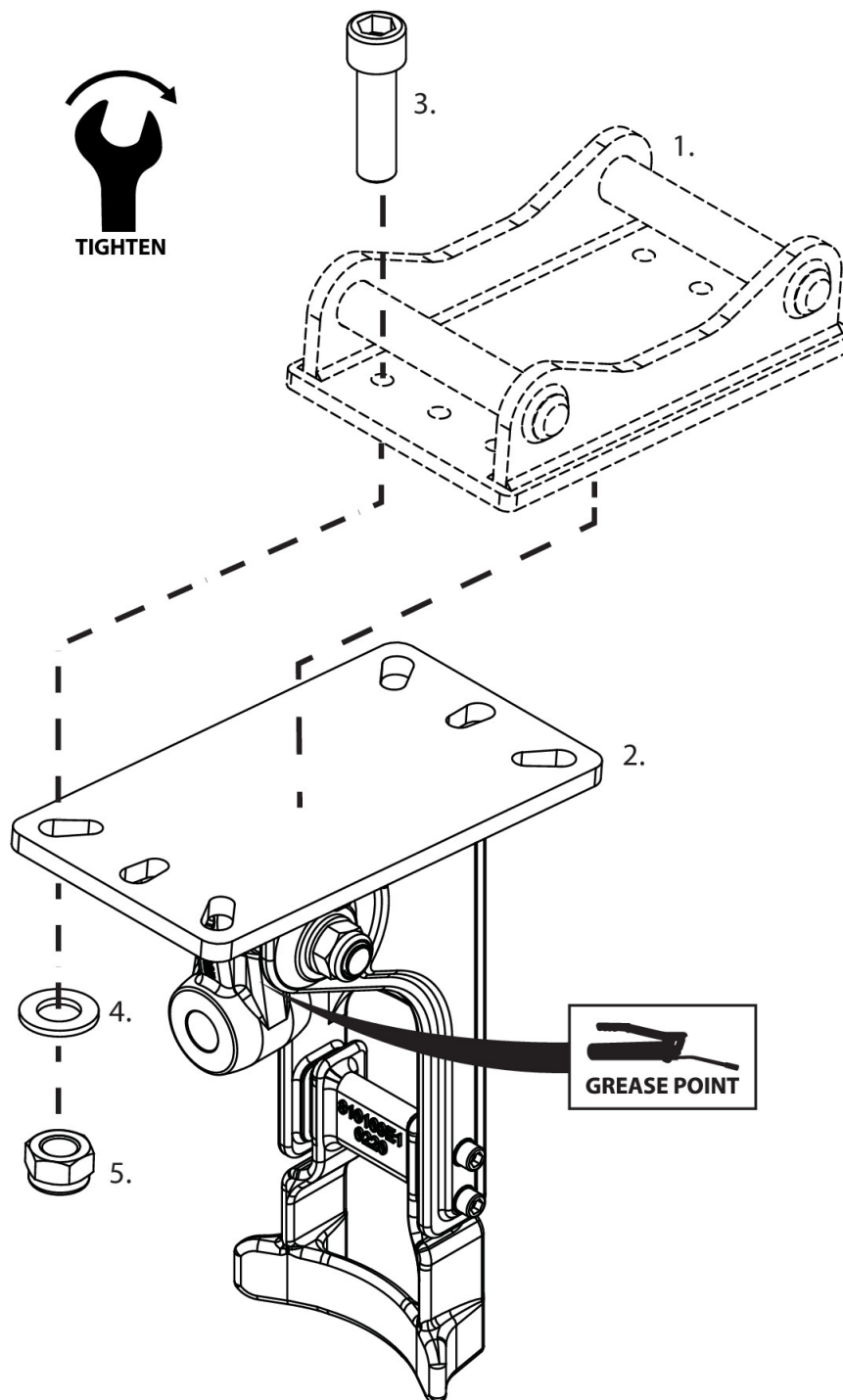


Fig. 10

1. Fit and align item 1 to item 2. **Fig.10.**

2 Secure with items 3,4 and 5 see "Tightening sequence and installation torque."

9.4 Fitting - Double Pin Mount

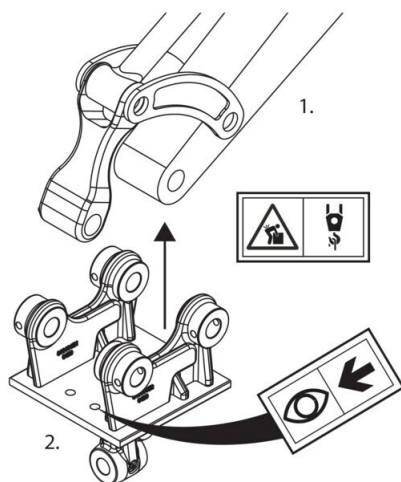


Fig. 11

Using suitable lifting equipment raise item 2., in the direction shown, over item 1. **Fig.11** Align holes and temporarily secure.

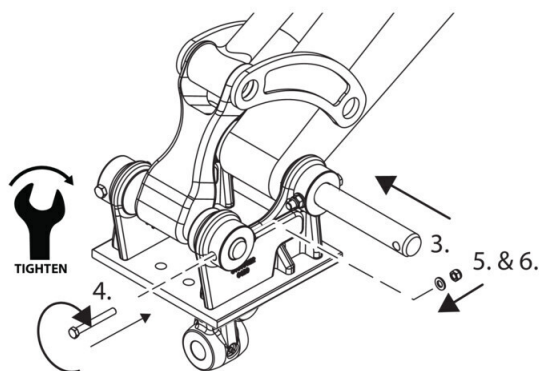


Fig. 12

Insert item(s) 3. and affix with items 4., 5. & 6. (4 places). Tighten to 20-25 Nm (14-18 ft-lb), 4 places. Grease as per parent machinery manufacturers instruction. **Fig.12.**

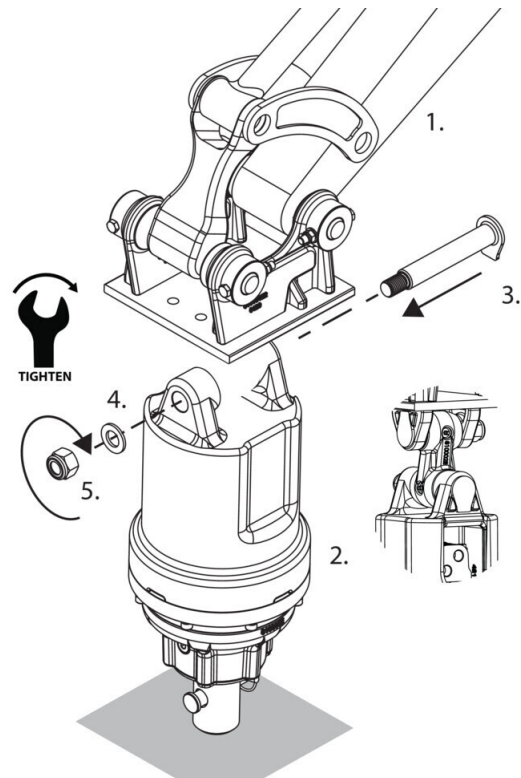


Fig. 13

Secure item 2. to the ground. Align assembly 1. insert item 3. Affix using items 4. & 5. Tighten to 120-140 Nm (88-103 ft-lbs). **Fig.13.**

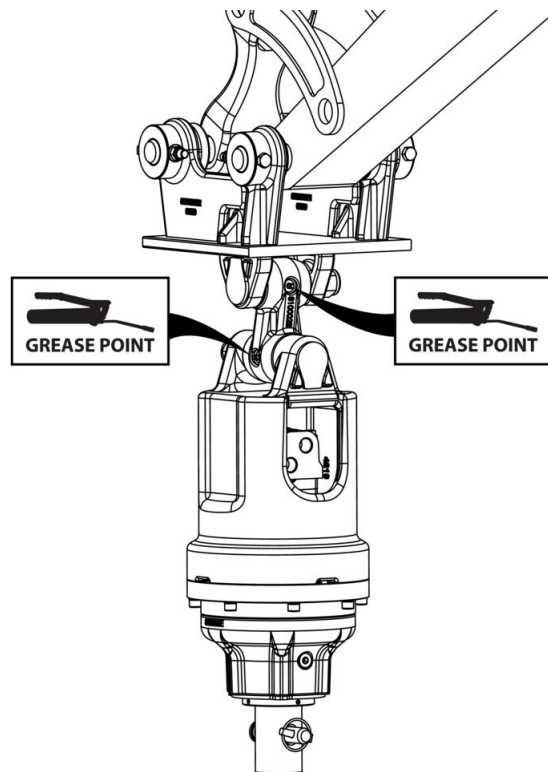


Fig.14

Grease, 2 places, as shown. **Fig.14 .**

9.5 Fitting - Double Pin Bucket Mount - No quick coupler fitted

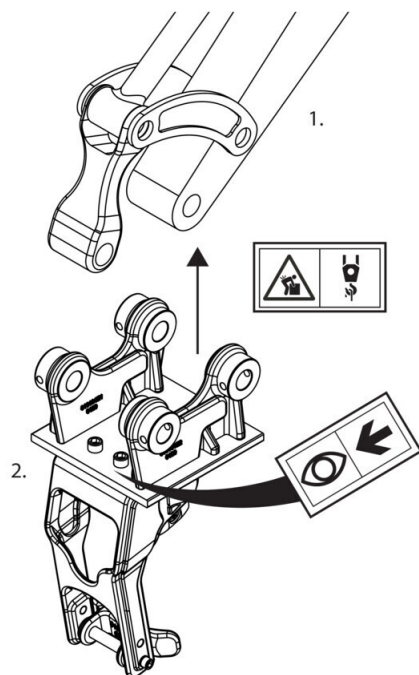


Fig. 15

Using suitable lifting equipment raise item 2., in the direction shown, over item 1. **Fig.15** Align holes and temporarily secure.

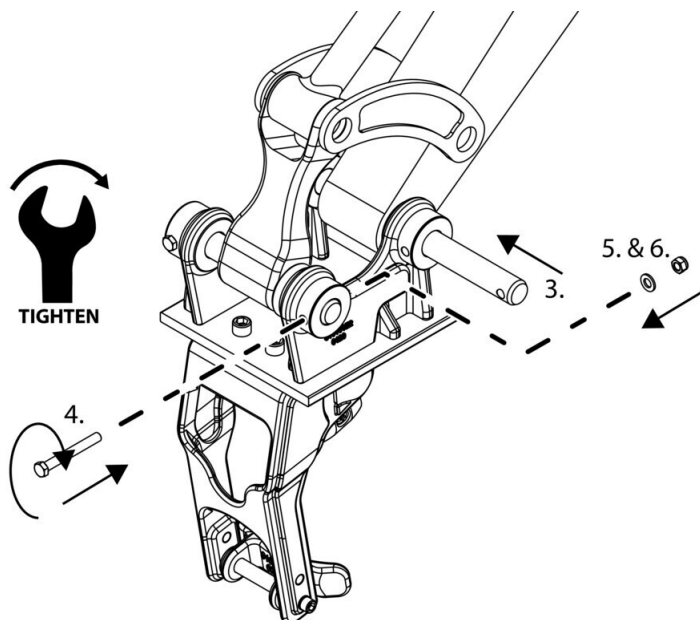


Fig. 16

Insert item(s) 3. and affix with items 4., 5. & 6. (4 places) Tighten to 20-25 Nm (14-18 ft-lb), 4 places. **Fig.16** Grease as per parent machinery manufacturers instruction.

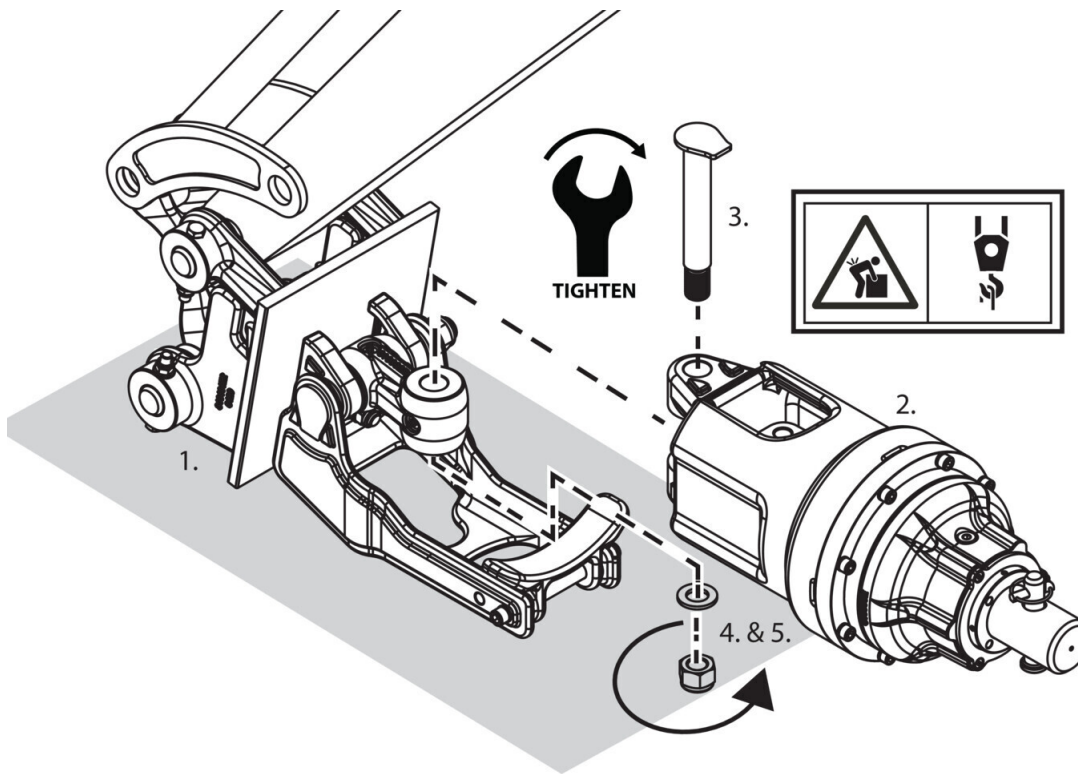


Fig. 17

Secure item 1. to the ground. Align assembly 2. insert item 3. Affix using items 4. & 5. Tighten to 120-140Nm (88-103ft-lbs). **Fig.17.**

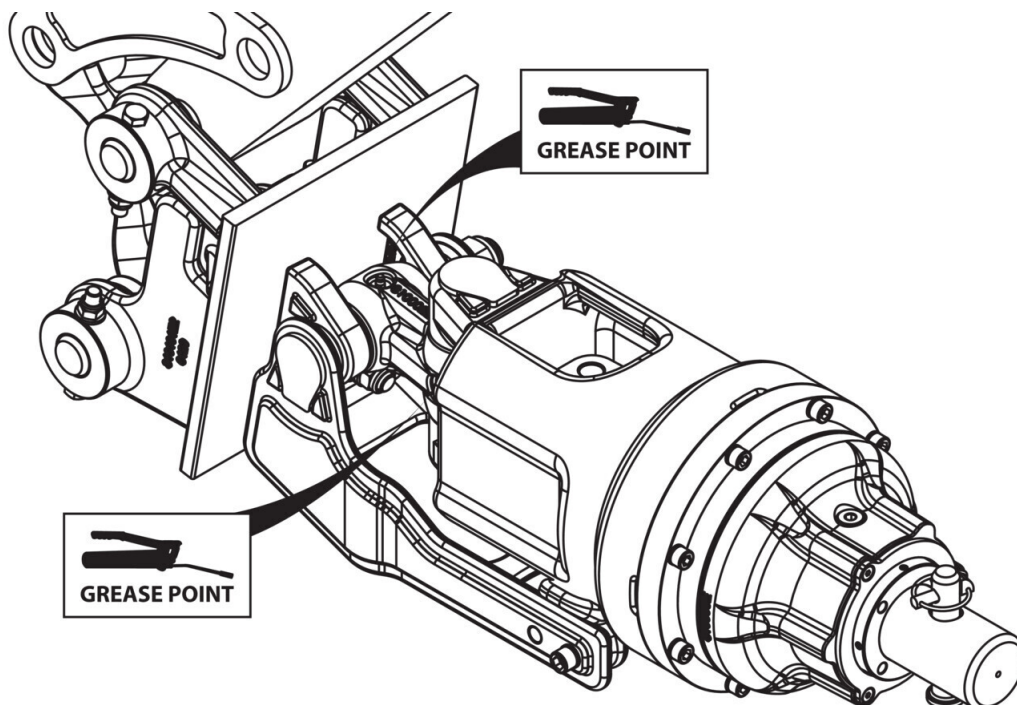


Fig. 18

Grease, 2 places, as shown. **Fig.18.**

9.6 Fitting - Double Pin and Double Pin Bucket Mount - Quick Coupler



When the parent machine is fitted with a quick coupler ensure the manufacturers operators instruction are adhered to.

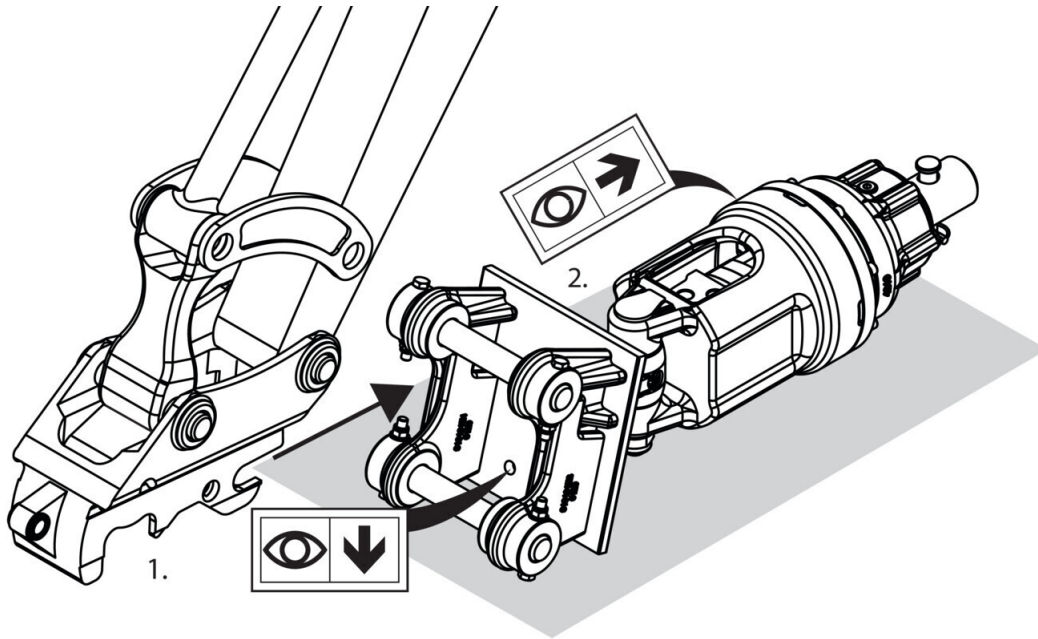


Fig. 19

Double Pin Mount. Shown the correct orientation of the auger drive unit assembly, item 2. and mounting bracket, item 1. The shaft of the auger drive should face the parent machine and operator. **Fig.19.**

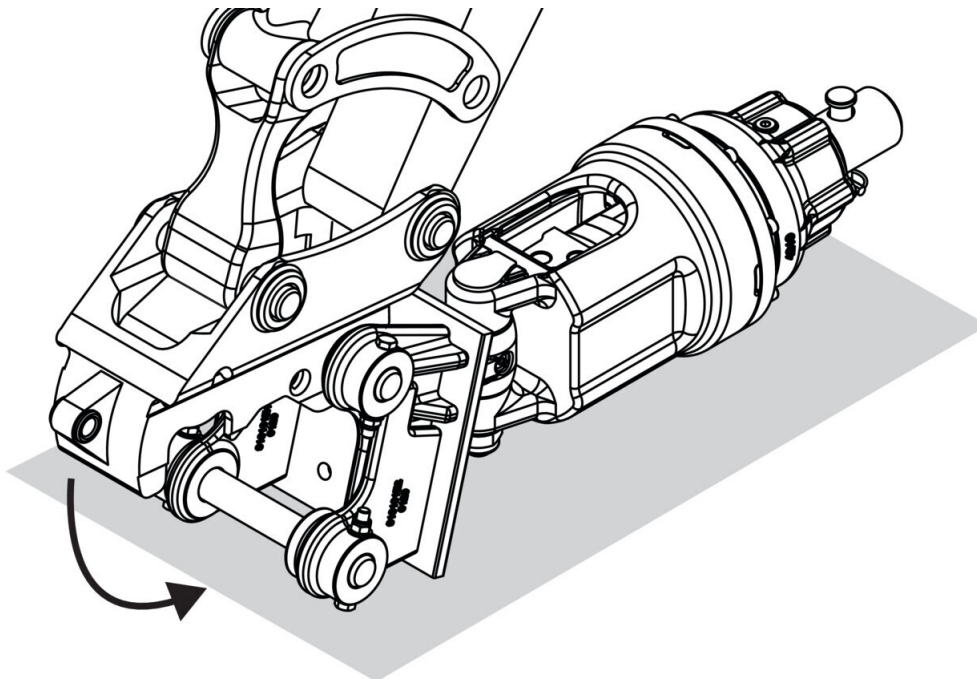


Fig. 20

Rotate quick coupler and latch secondary pin. Follow quick coupler instruction to lock assembly. **Fig. 20**

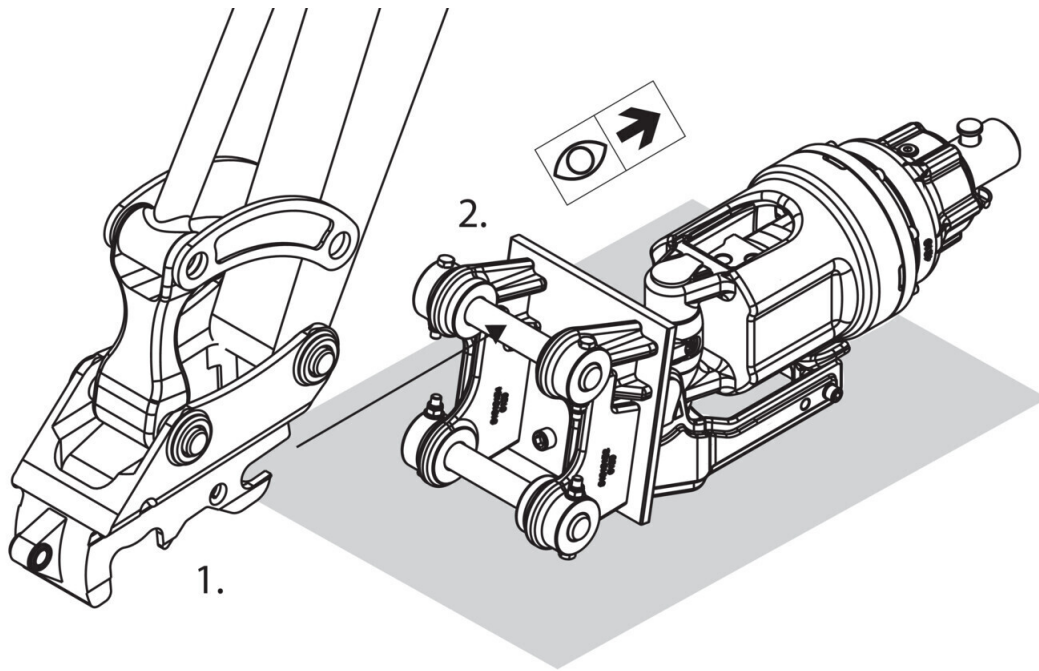


Fig. 21

Double Pin Bucket Mount. Shown the correct orientation of the auger drive unit assembly, item 2. and mounting bracket, item 1. The shaft of the auger drive should face the parent machine and operator. **Fig. 21**

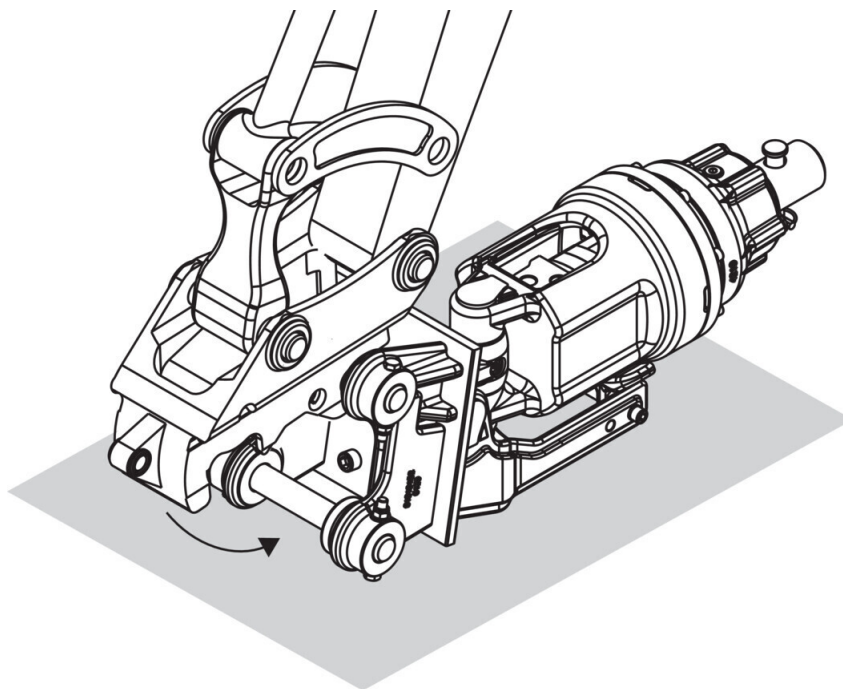


Fig. 22

Rotate quick coupler and latch secondary pin. Follow quick coupler instruction to lock assembly. **Fig. 22**

9.7 Fitting - Loader Frame

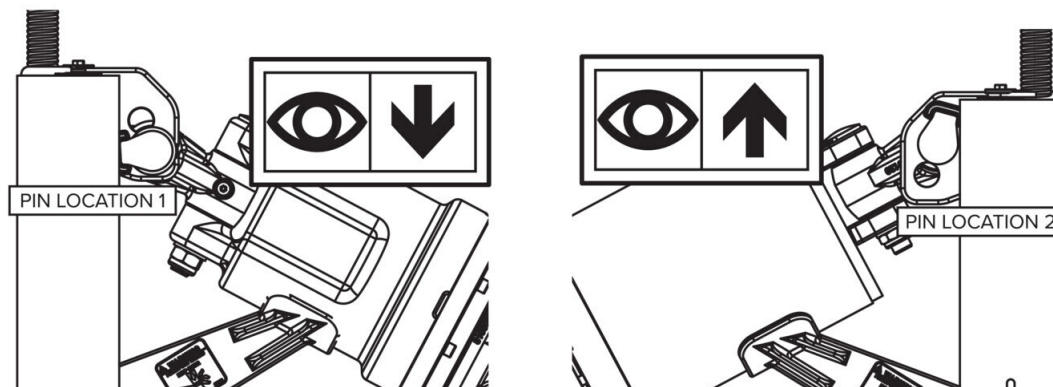


Fig. 23 and Fig. 24

When fitting, models ADC 20, ADC 25, ADC 30, ADC 35 and ADC 45, using lower pin location 1. **Fig.23**

When fitting, models ADC 55, ADC 55 PLUS, ADC 70, ADC 70 PLUS, and ADC 80 PLUS, using upper pin location 2.

Fig.24

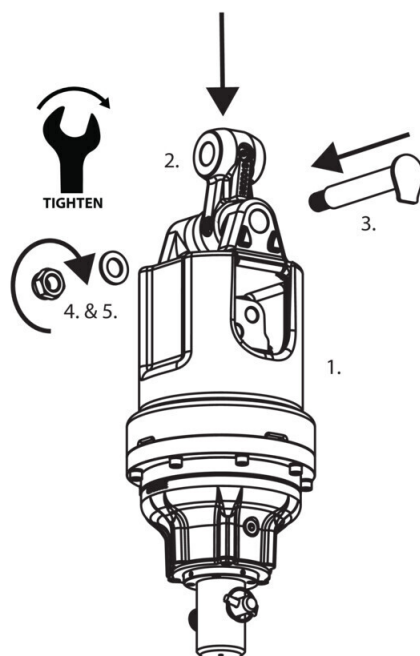


Fig. 25

Secure item 1. Install item 2. Secure with item 3. 4. and 5. Tighten to 120-140 Nm (88-103 ft-lbs). **Fig.25**

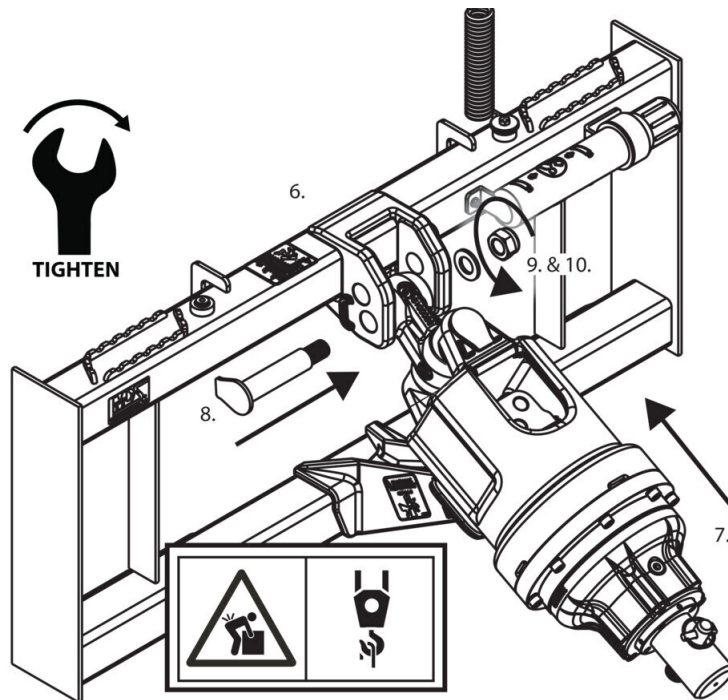


Fig.26.

Using suitable lifting equipment install item 7 into frame assembly 6., using appropriate location point. Secure with item 8., 9. and 10. Tighten to 120-140Nm (88-103ft-lbs). **Fig.26**

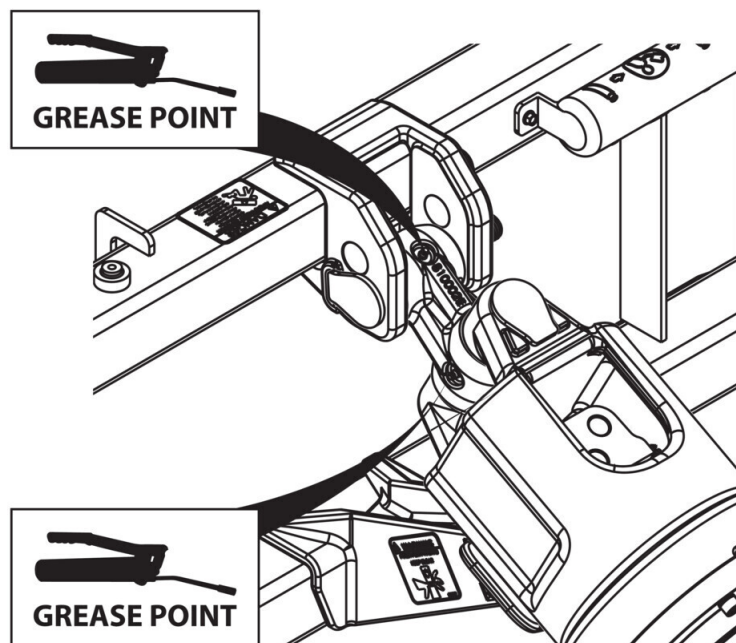










Fig. 27

Grease, 2 places, as shown. **Fig.27**

10 Hydraulic Connection

10.1 Safety precautions - hydraulic fluid

 <p>WARNING</p>						
	<p>Hydraulic fluid, under pressure, can penetrate the skin and/or eyes causing serious personal injury, blindness or death. Fluid leaks, under pressure, may not be visible. Use a piece of card or wood to find leaks. DO NOT use your bare hands and ensure all appropriate safety PPE is worn. If any fluid is injected into the skin, it MUST be surgically removed. Seek immediate medical attention.</p>					

10.2 Parent machine requirements

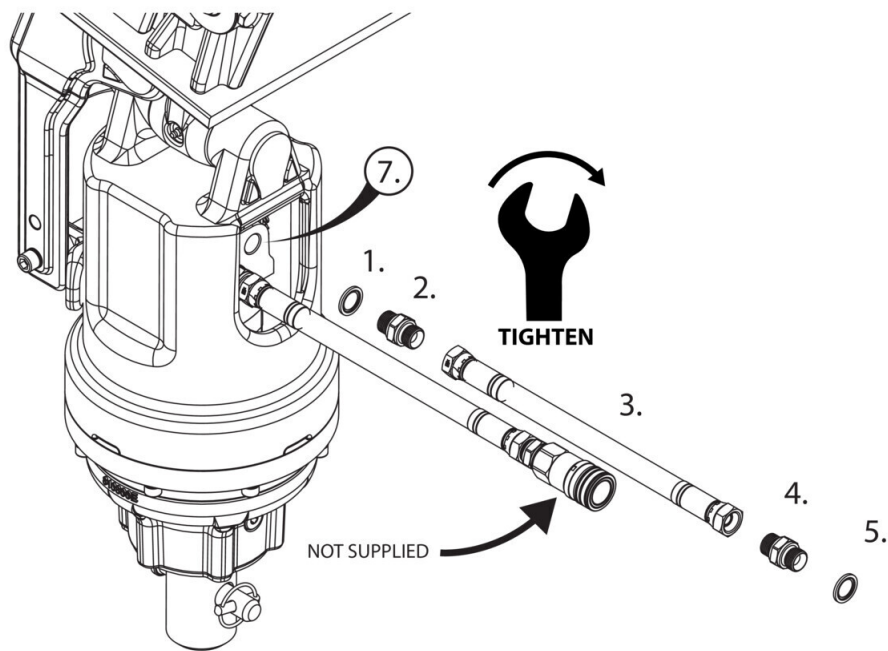
All ADC units can drill in both clockwise and anticlockwise rotation. A single Double Acting Hydraulic circuit is required. Fitting the ADC unit to a single acting Hammer Hydraulic circuit will result in single directional rotation. It is critical that the supply of oil is within the stated flow and pressure limits as stated on the data plate fitted to each ADC unit or found in Chapter "Specifications".

10.3 Hydraulic hose connection

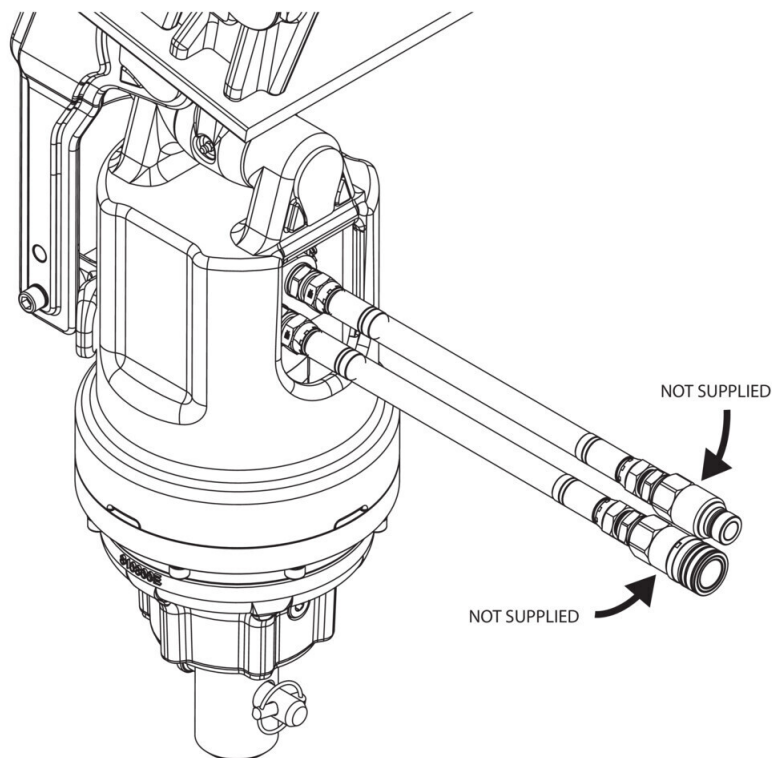
When fitting hydraulic hose assemblies, ensure all hydraulic seals and fittings are clean and tightened torque for the fitted thread size.

- 1/2" BSP - tighten to 56 Nm / 41 ftLbs
- 3/4" BSP - tighten to 73 Nm / 54 ftLbs
- 1" BSP - tighten to 110 Nm / 81 ftLbs

Additional Hydraulic Quick Couplers may be required to enable final parent machine connection. The Hydraulic Quick Couplers are NOT supplied and MUST be purchased separately.

*Fig. 28*

Install sealing washer 1. onto adaptor 2. install adaptor 3. into hydraulic motor (7) and tighten to required torque. Install item 3. onto item 2. and tighten to required torque. Install item 4. and 5. onto item 3. and tighten to required torque. (2 places). **Fig. 28**

*Fig. 29*

Quick release couplers are not supplied and **MUST** be purchased separately. Follow manufacturers installation instruction. **Fig. 29**

Quick Release Couplers maybe needed for connection to the parent machine. These can be sourced locally and should be compatible with Quick Release Couplers already fitted to the parent machine. The parent machine's axillary hydraulic connection can normally be found near the end of the loader arms/excavator dipper arm.

Ensure, when connecting to the parent machine's hydraulic supplied, that the preferred Auger Drive rotation is clockwise. **Fig. 30 & Fig. 31.**

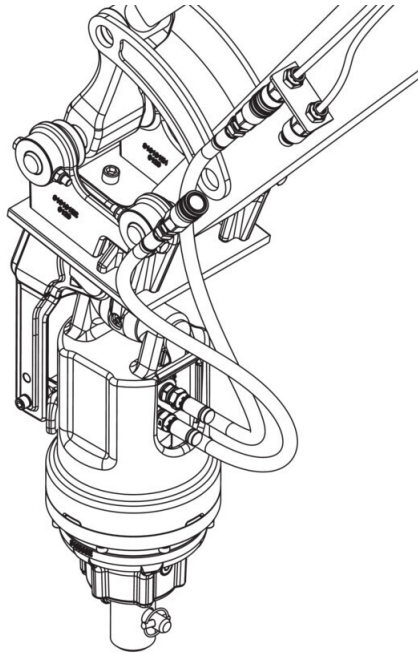


Fig. 30

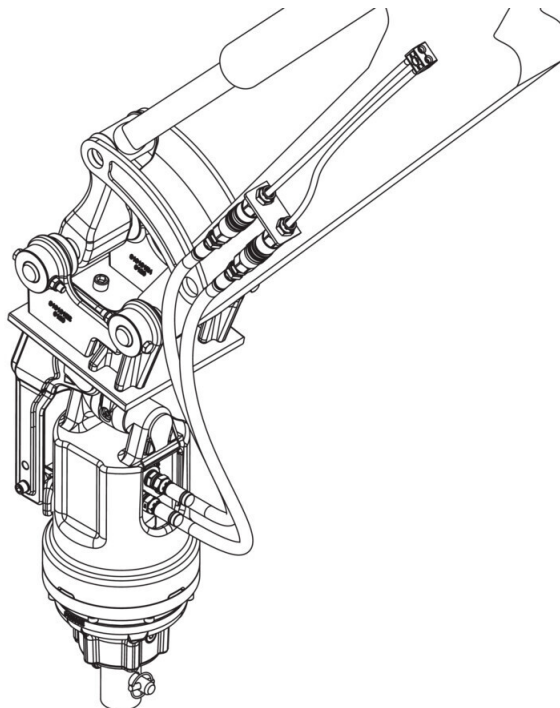


Fig. 31

When connecting Hydraulic Quick Couplers refer to the manufacturers instruction.

10.4 Hydraulic hose specification

Auger Drive Model	Hose Size	Specification	Minimum working pressure
ADC 15, ADC 20, ADC 25, ADC 30, ADC 35, ADC 45, ADC 55, ADC 70	G1/2" BSP	EN 853 2ST/SN	275 bar / 3990 PSI
ADC 55+, ADC 70+, ADC 80+	G3/4" BSP	EN 857 2SC+	280 bar / 4000 PSI



Periodically check the conditions of the hydraulic hoses. The hydraulic hoses **MUST** immediately be replaced if any defects are found.

When sourcing hydraulic hoses separately the above specification **MUST** be used.

Failure to replace damaged hydraulic hoses or those not confirming to the above specifications may result in injury and/or death.

11 First operation



As with all operations, ensure a minimum of a 6 metre clear working radius.

NOTE: Your auger drive unit is supplied, pre-filled with the correct amount of gear oil.

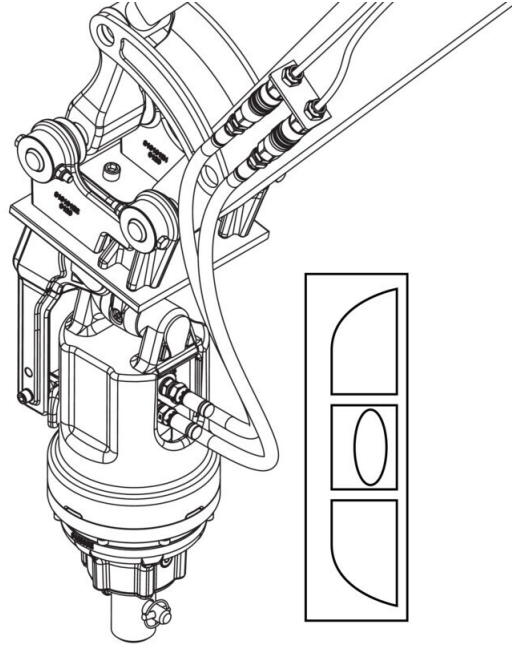


Fig.32

To optimise the life of your ADC auger drive a minimum running in procedure **MUST** be followed. To carry out the running in procedure first connect it to your parent machine, connect the hydraulic supply and hang in a vertical position. **DO NOT** connect an auger bit at this time. **Fig. 32**

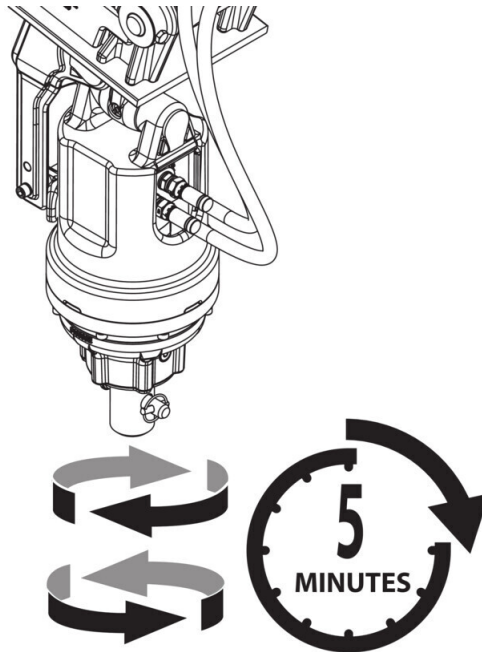
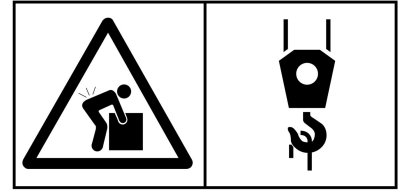
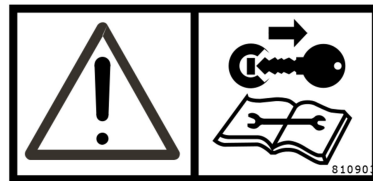
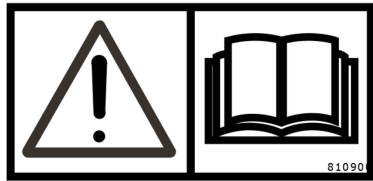


Fig. 33

1. Activate hydraulic supply and run the unit, in a clockwise rotation, at 30% of its rated speed for 5 minutes. 2. Repeat operation in the anti-clockwise rotation. **Fig. 33**

12 Tool Fitting - Auger bit and extension

12.1 Tool Fitting - Precautions



ALWAYS work in pairs (2 skilled operatives) whenever mounting components are being assembled or disassembled.

ALWAYS check the weight of the product/attachment and ensure that suitable lifting equipment is used where necessary.

ALWAYS check parent machine;

- Is switched off.
- Is parked correctly on flat ground.
- Has its handbrake **ON**.
- Is in good general/working health.

Ensure mounting points are clean and free from defects before fitting.

12.2 Tool Fitting - Auger bit



ALWAYS work in pairs (2 skilled operatives) whenever mounting components are being assembled or disassembled.

ALWAYS check the weight of the product/attachment and ensure that suitable lifting equipment is used where necessary.

ALWAYS check parent machine;

- Is switched off.
- Is parked correctly on flat ground.
- Has its handbrake **ON**.
- Is in good general/working health.

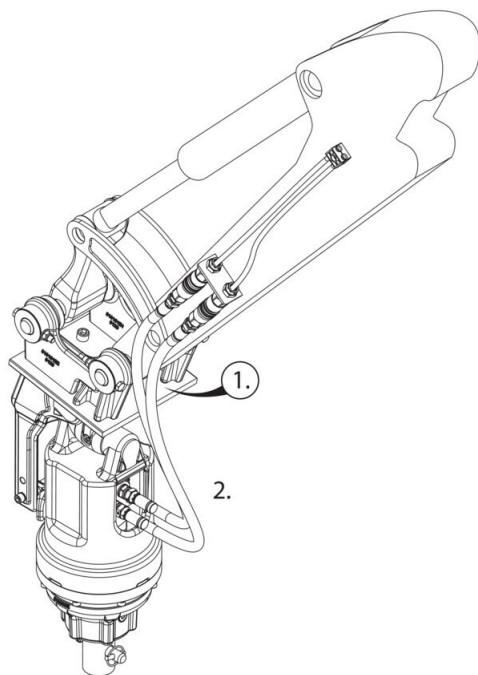


Fig. 34

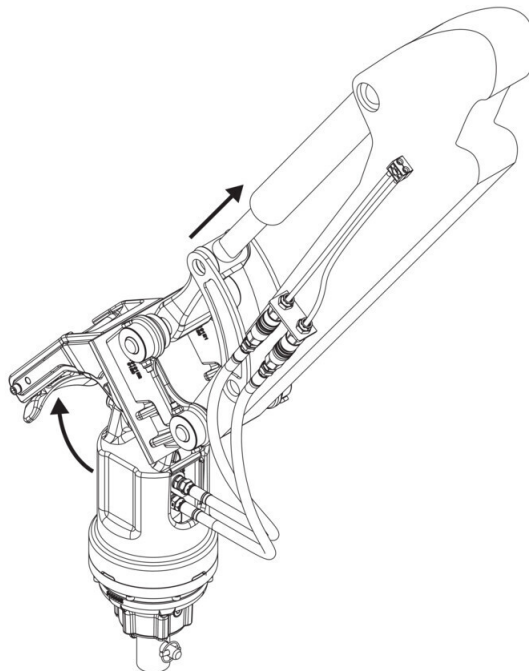


Fig. 35

If the bucket mount system 1., is fitted and before connecting any tool ensure that the bucket mount is retracted and the auger drive unit 2. is free to move. **Fig. 34 & Fig. 35.**

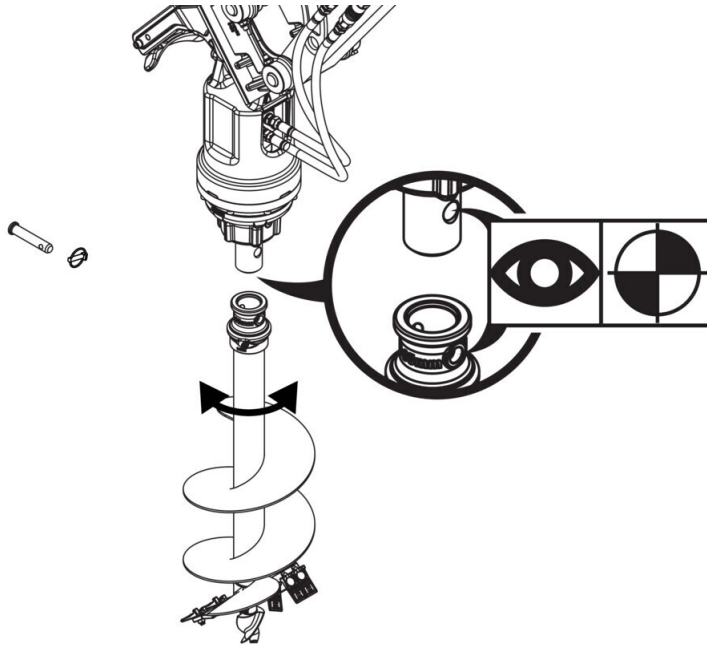


Fig. 36

Ensure auger drive shaft and auger tool receptacle are compatible.

Rotate auger tool and ensure mounting hole points are aligned. **Fig. 36**

Secure and stabilise the auger tool.

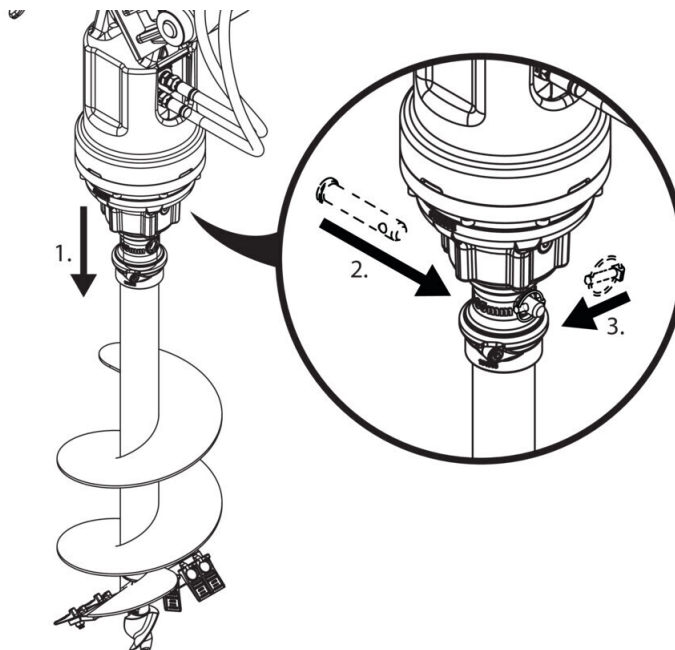


Fig. 37

1. Lower parent machine boom and auger drive unit 1., engaging male output shaft into female auger tool receptacle. **Fig.37.**

2. Insert auger bit locking pin. 2. **Fig. 37.**

3. Capture locking pin with locking clip. 3. **Fig. 37.**

ONLY genuine locking pins and clips to be used.

12.3 Tool Fitting Extension shaft



ALWAYS work in pairs (2 skilled operatives) whenever mounting components are being assembled or disassembled.

ALWAYS check the weight of the product/attachment and ensure that suitable lifting equipment is used where necessary.

ALWAYS check the weight of the product/attachment and ensure that the parent machine is suitable, consult the parent machine load data charts for further advice.

ALWAYS check parent machine;

- Is switched off .
- Is parked correctly on flat ground.
- Has its handbrake **ON**.
- Is in good general/working health.

When the required hole depth exceeds the capabilities of the auger to be used then additional extensions should be used. **NEVER** exceed the lifting capacity of the parent machine.

If the bucket mount system is used please read “**Tool fitting - Auger Bit**” prior to fitting extension shafts.

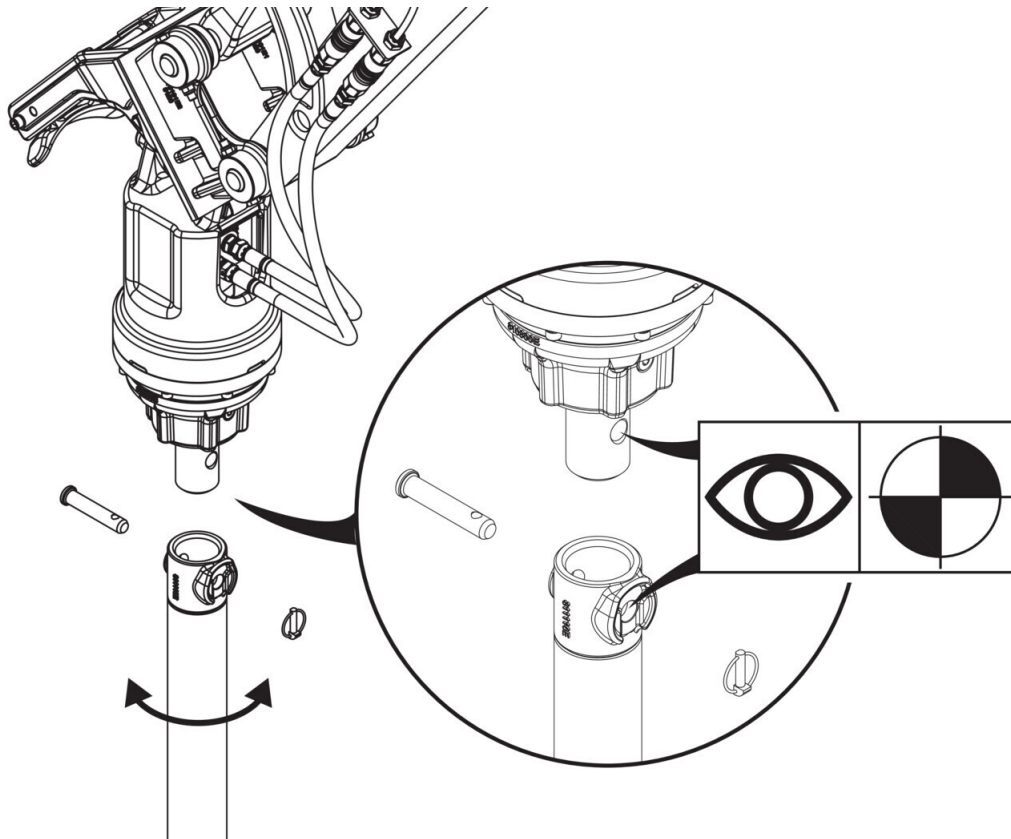


Fig. 38

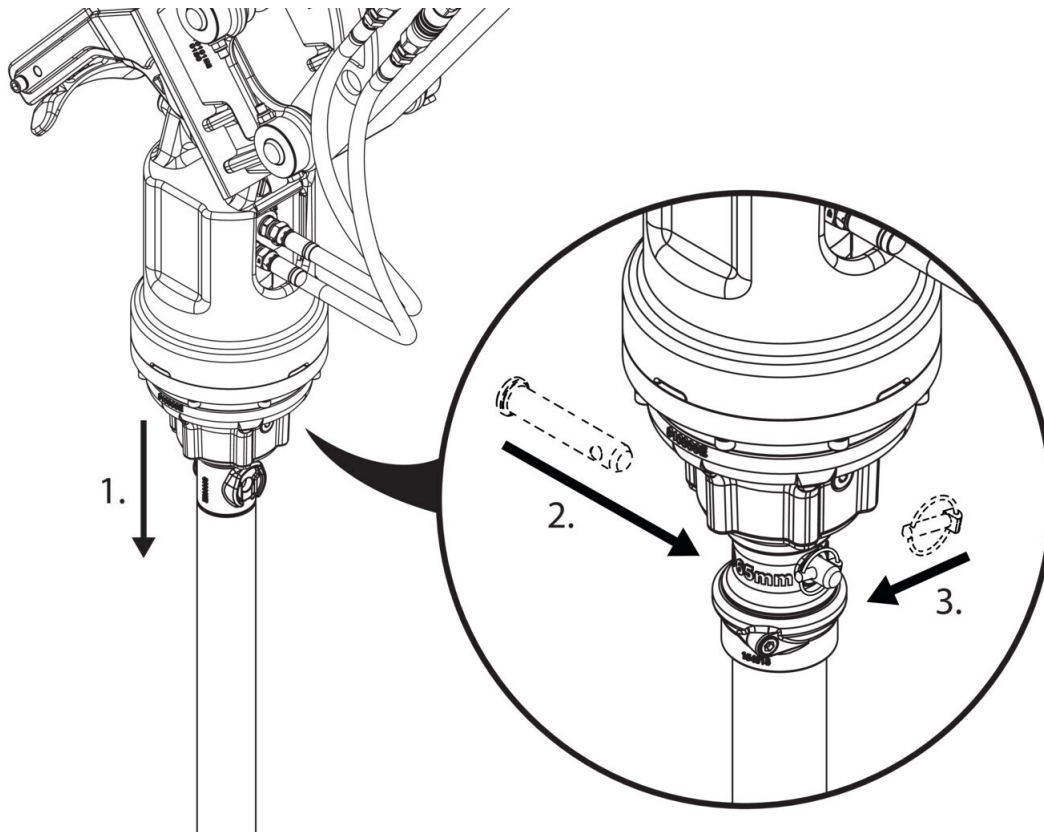


Fig. 39

Ensure auger drive shaft and auger tool receptacle are compatible.

Rotate auger extension and ensure mounting holes are aligned. Secure and stabilise the auger extension.

1. Lower the parent machine boom and auger drive unit 1., engaging male output shaft into female auger extension receptacle. **Fig.39.**

2. Insert locking pin. 2. **Fig. 39.**

3. Capture locking pin with locking clip. 3. **Fig. 39.**

4. See Chapter “**Tool fitting - Auger Bit**” for details on how to fit the auger bit. **ONLY** genuine locking pins and clips to be used.

13 Working Procedure

13.1 Preparation



CONSIDER the topography (e.g. risk of subsidence slope angle, position to embankments, in situ infrastructure and any previous excavation).

Co-orden off work area from bystanders, livestock etc. Rotating parts can cause severe injury or death.

ALWAYS perform a site survey and risk assessment **BEFORE** commencing any works.



AVOID underground hazards.

AVOID overhead hazards.

AVOID existing infrastructure.

ENSURE working radius is free from bystanders.

CHECK with all authorities and follow any regulations in place.

IF IN DOUBT seek professional advice.

13.2 Working Procedure - use

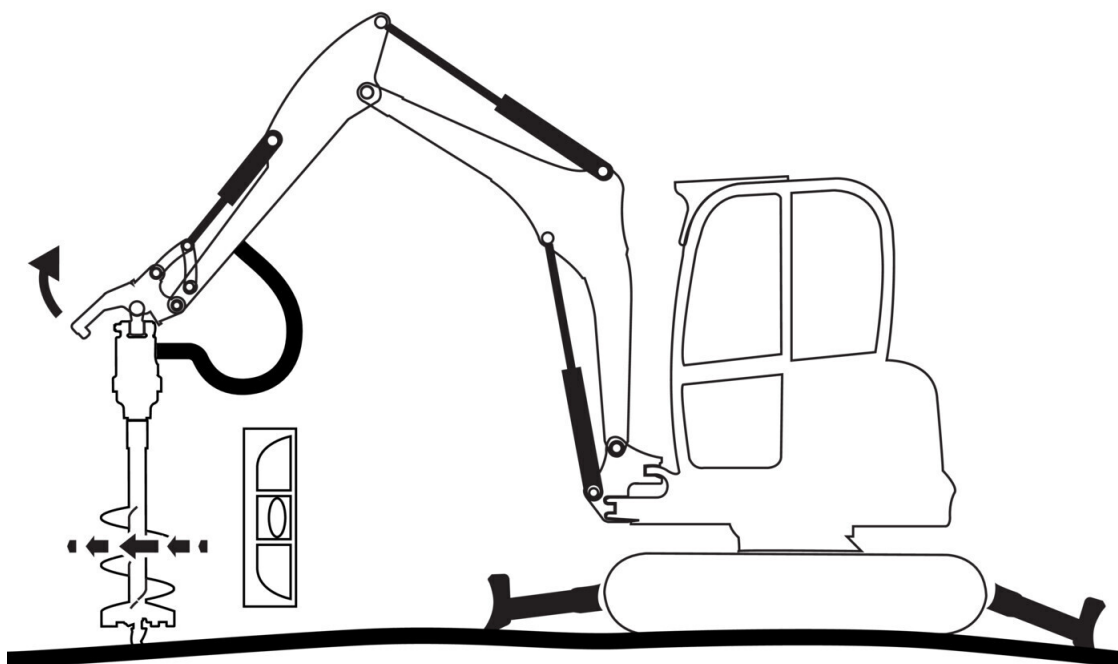


Fig. 40

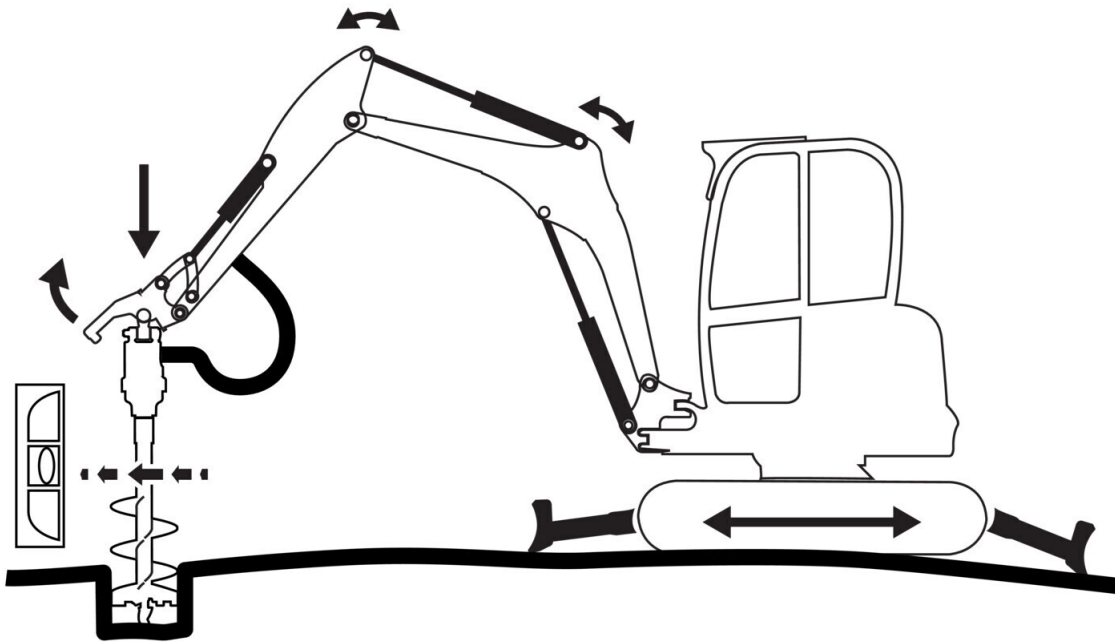


Fig. 41

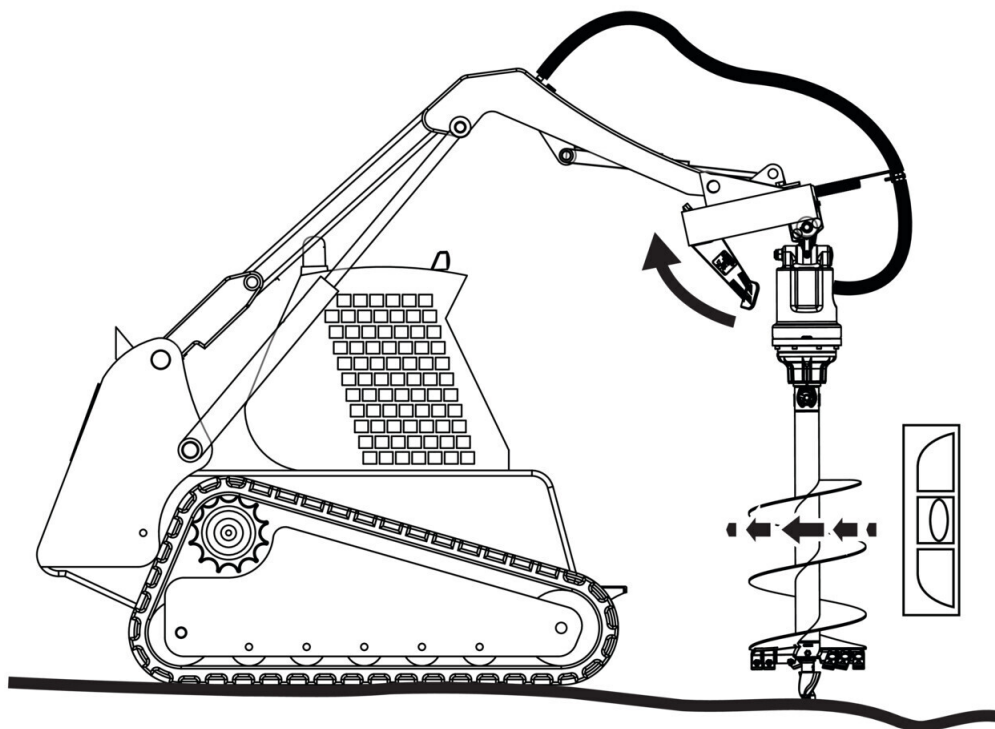


Fig. 42

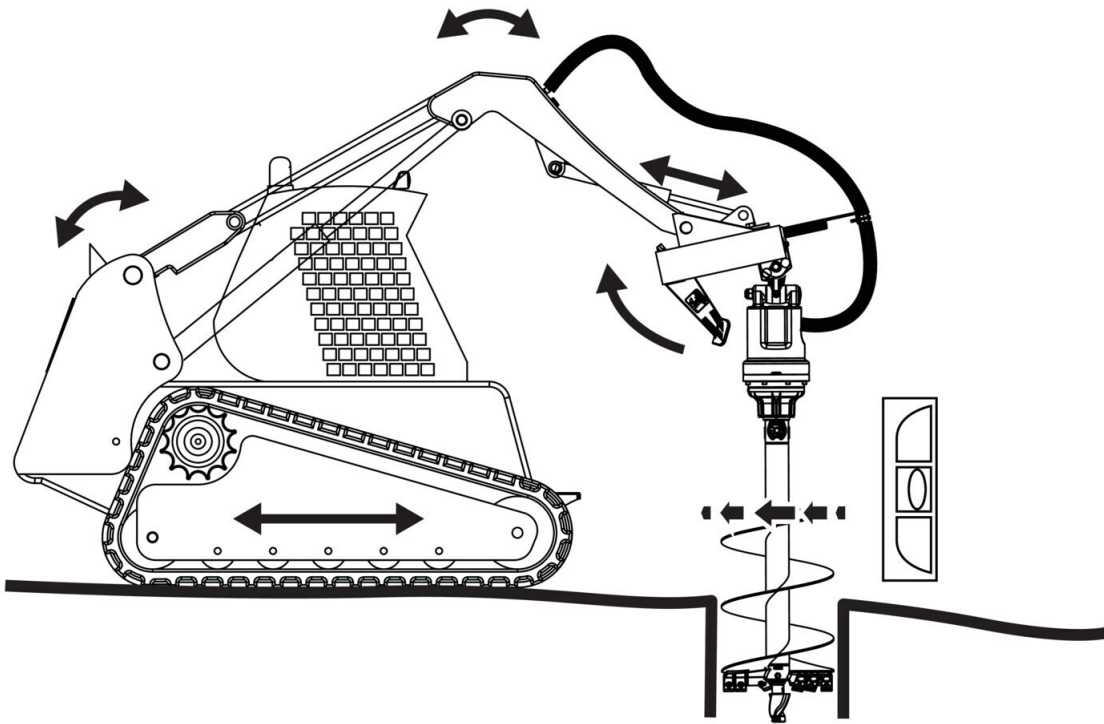


Fig. 43

Position auger bit. If used, retract bucket mount. Start auger bit rotation, clockwise direction. **Fig.40 & Fig.42.**

Apply, consistent, downward pressure, ensuring continuous rotation. Adjust position of parent machine components to ensure correct drill position. **Fig. 41 & Fig. 43.** If used ensure bucket mount is in a retracted position throughout the entire drilling operation. **Fig. 35.**

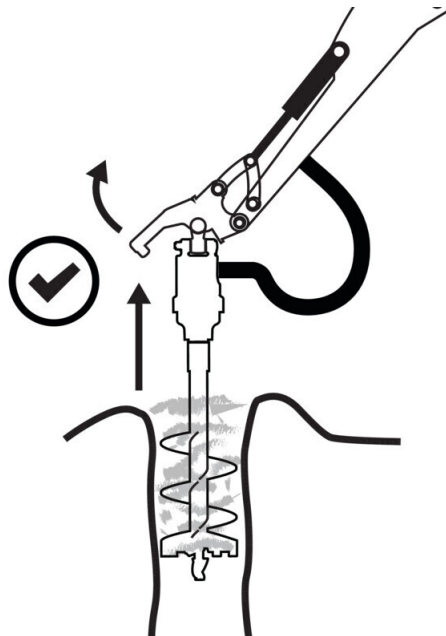


Fig. 44

Regularly raise the auger bit from the ground and spin off loose spoil. **ALWAYS** adhere to the lifting capacity of the parent machine. **Fig. 44.**

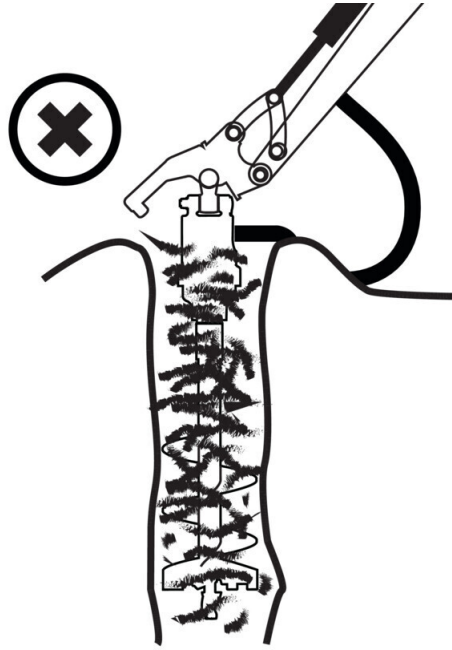


Fig. 45

NEVER drill beyond the length of the Auger Bit. **NEVER** fully submerge the Auger Drive unit into the loose spoil. **Fig. 45.**

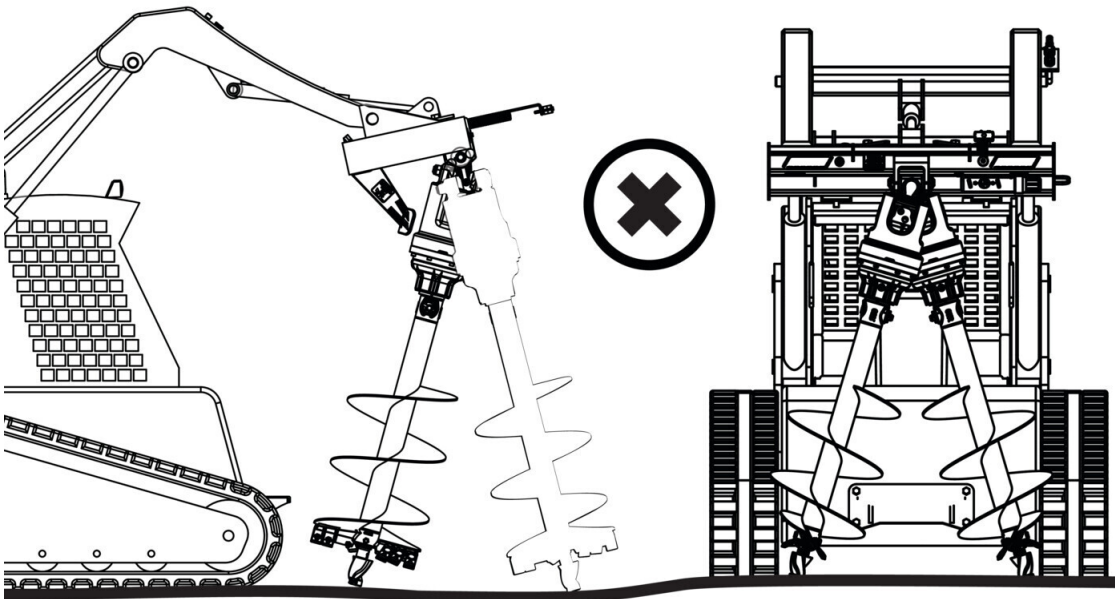


Fig. 46

Maximise productivity and avoid damaging the auger drive assembly by maintaining a vertical trajectory whilst drilling. **Fig. 46 & Fig. 47.**

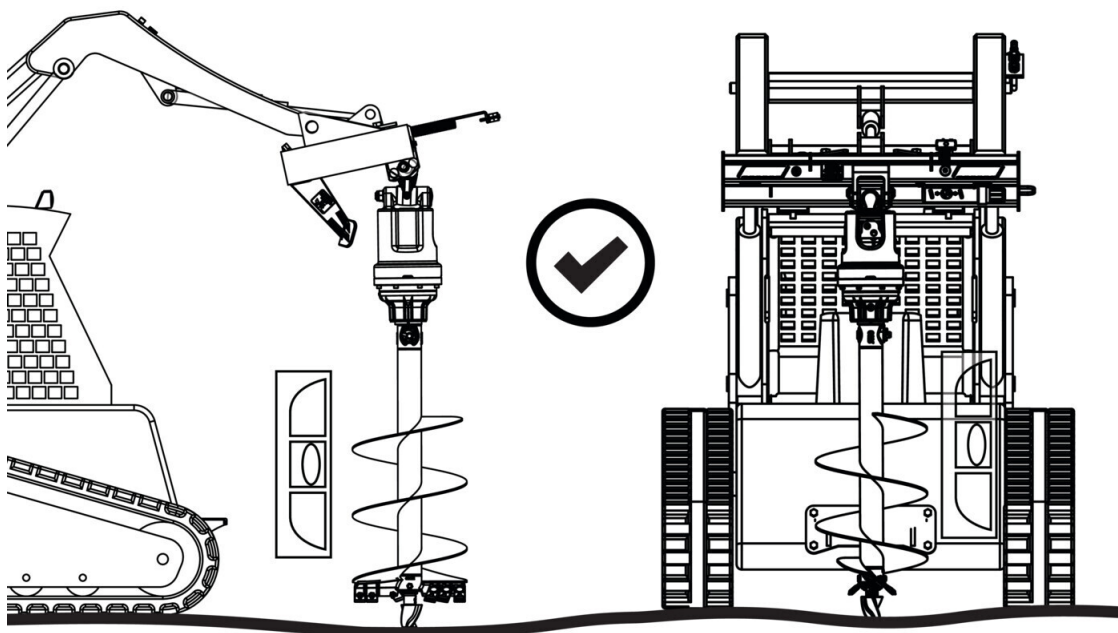


Fig. 47

13.3 Working Procedure - transportation

Transportation - public highways



WARNING

ALWAYS remove the auger drive assembly, from the parent machine, before transporting on public highways.

ALWAYS use suitable strapping and tie down points to secure the auger drive unit and its associated components.

Transportation - within the job site



WARNING

ALWAYS manoeuvre the parent machine and auger drive assembly **SLOWLY**, avoiding auger swing. It is recommended that the bucket mount assembly used where possible, keeping the auger drive assembly as low as possible to the ground. Fig.46 & Fig.47.

NEVER activate the auger drive assembly whilst transporting.

IF IN DOUBT Remove auger drive assembly and transport separately.

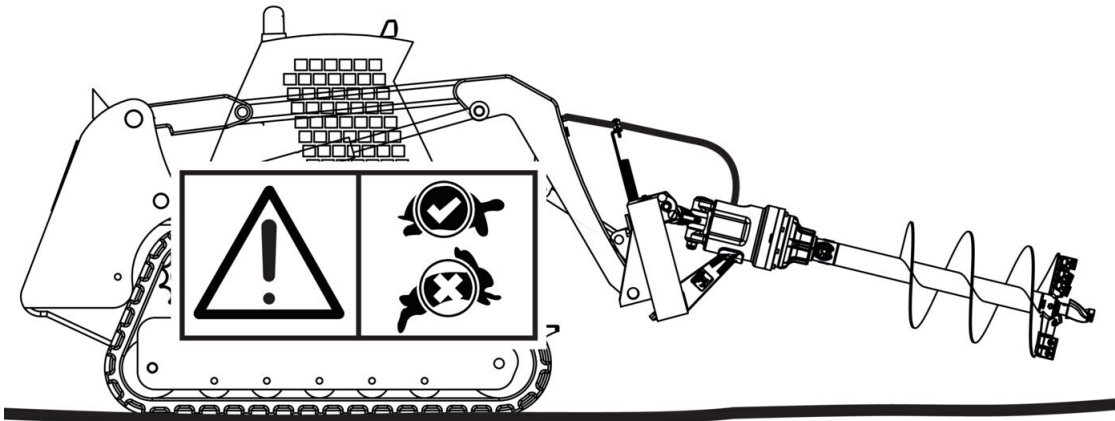


Fig. 48

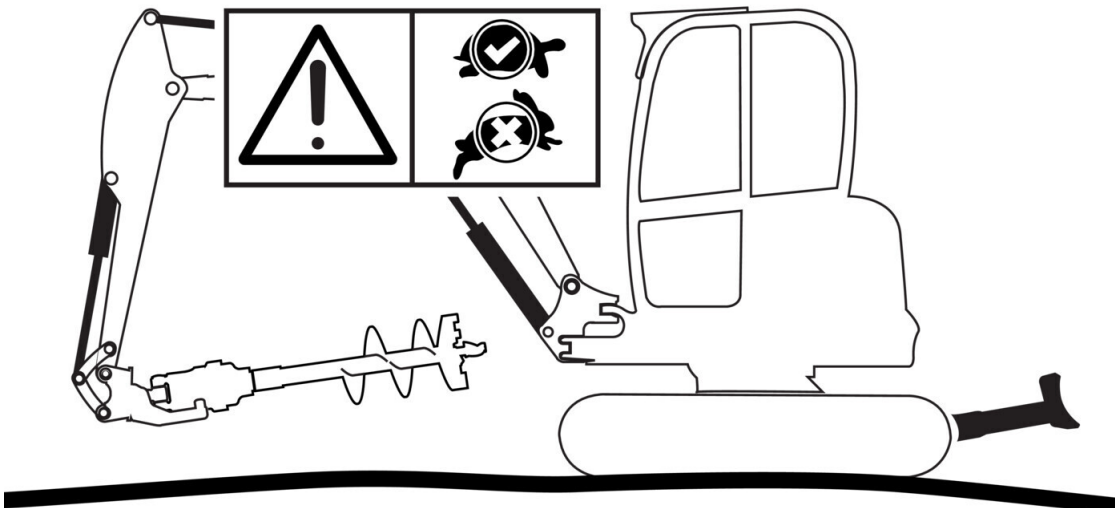


Fig. 49

13.4 Working procedure - parking

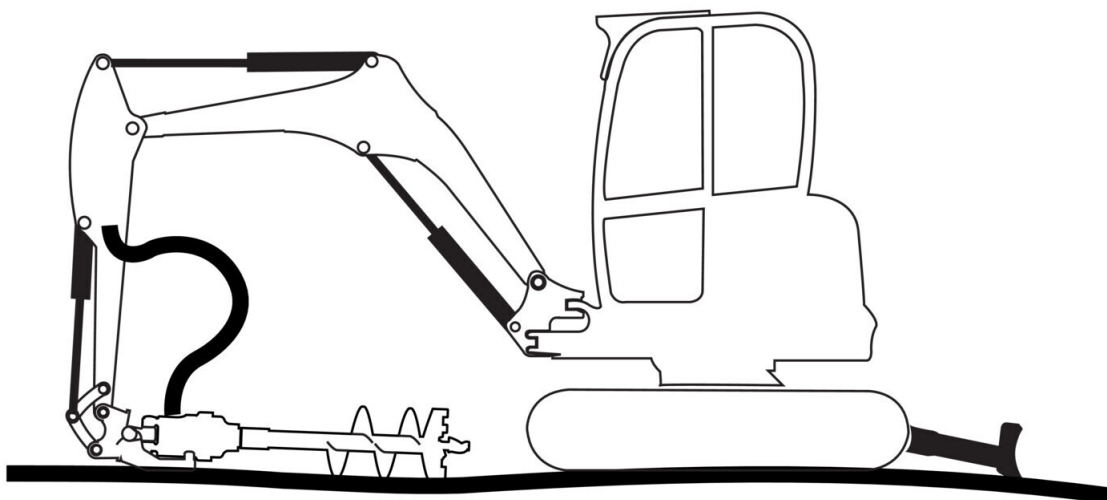


Fig. 50

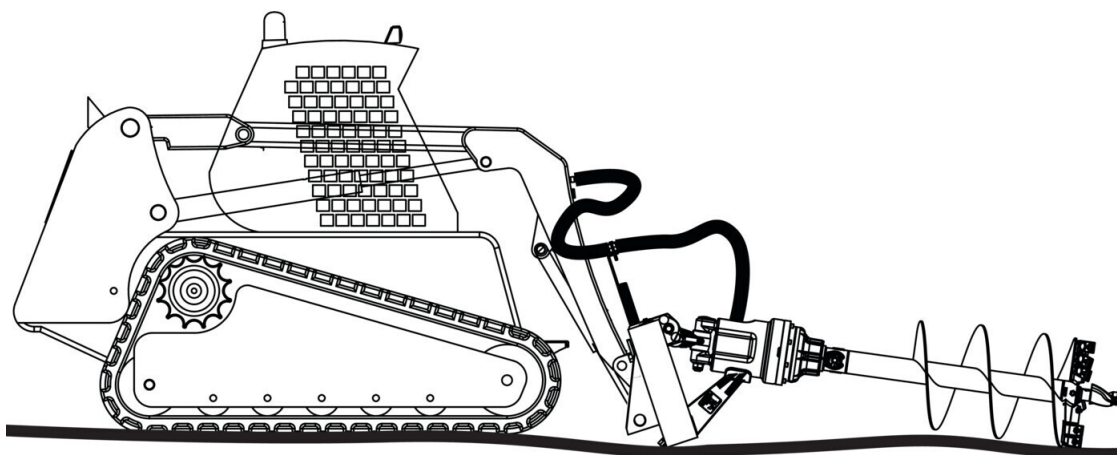


Fig. 51

When parking **NEVER** leave the auger drive assembly suspended. **ALWAYS** park with the auger drive assembly lowered to the ground. **Fig. 50 & Fig. 51.**

NEVER operate the auger drive assembly whilst in the parked position.

14 Maintenance



It is essential that regular maintenance checks are carried out to maintain the auger drive units efficiency. Equipment that is insufficiently maintained can be dangerous for both the operator and bystanders. **ALL** maintenance checks to be performed with the parent machine off and hydraulic system locked out.

14.1 Periodic checks

Daily checks

- Check **ALL** grease points and lubricate as necessary.
- Check condition of hydraulic components. See “**Fig.29.**” for hydraulic hose specifications.
- Check condition of the auger tool / extension tool and its components.

Weekly checks

In addition to the daily checks the following weekly checks **MUST** also be made.

- Check structural integrity of auger drive unit, mounts and auger bit / extension tools. Replace / Repair as necessary.
- Check condition of auger tool / extension tool locating pins and locking clips.

Monthly checks

In addition to the weekly checks the following monthly checks **MUST** also be made.

- Check oil level of auger drive unit. See Chapter “**Oil service**”.

14.2 Oil service

The Epiroc auger drive unit incorporates a sealed gear box, pre-filled with gear oil. This gear oil requires regular changing. Changing of this oil, at regular intervals, will prolong the life of this unit. See table below

Models	Oil Type	Quantity	First Service	Subsequent
ADC 15, ADC 20, ADC 25	ISO EP 320 AGMA 6 EP	725 ml / 25.5 floz	6 months / 250 hours*	Every 12 Months / 500 hours*
ADC 30, ADC 35, ADC 45		830 ml / 29.2 floz		
ADC 55, AC 70		1700 ml / 59.8 floz		
ADC 55+, ADC 70+, ADC 80+				

*whichever period occurs first

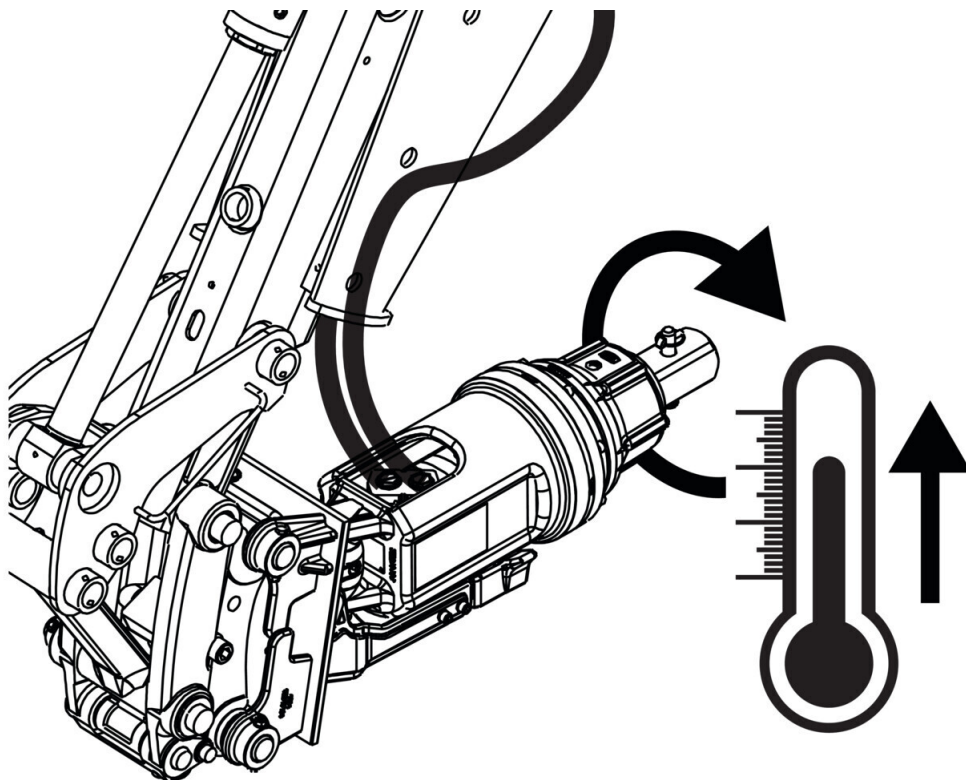


Fig. 52

Pre-heat auger drive unit by running, without an auger bit fitted, for 5 minutes. Ensure auger drive unit is secured in a horizontal position. **Fig. 52.**

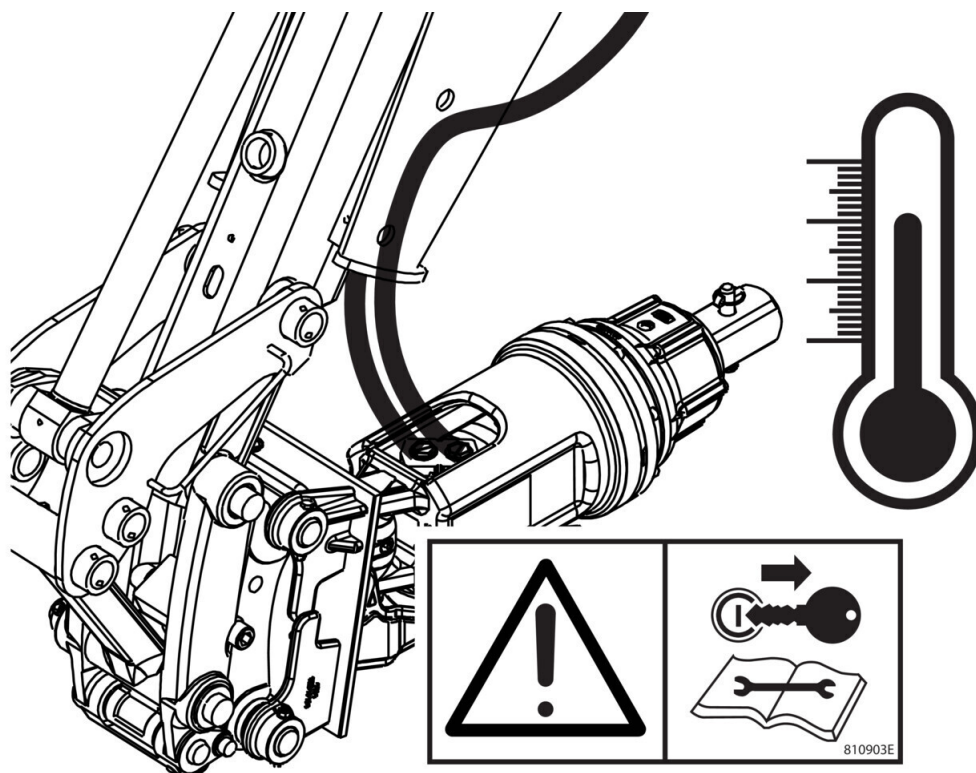


Fig. 53

Once the auger drive unit is warm, Switch off parent machine and lock out hydraulics. **Fig. 53.**

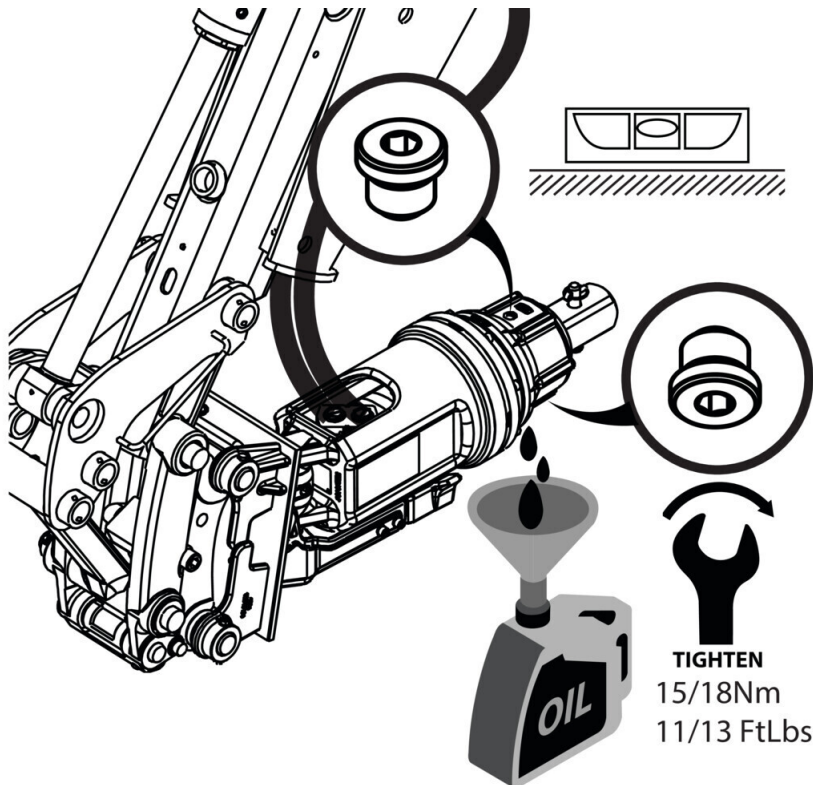


Fig. 54

Place suitable container beneath lower drain plug. Remove lower drain plug. Remove upper fill plug. Allow to drain for 15 minutes or until no visible oil is draining from the unit. **Fig. 54.** Dispose of used oil in accordance with local requirements. See chapter **"Disposal"**.



Fig. 55

Measure out replacement oil se **Fig. 55** and /or **"Specifications"** for grade and quantity. .

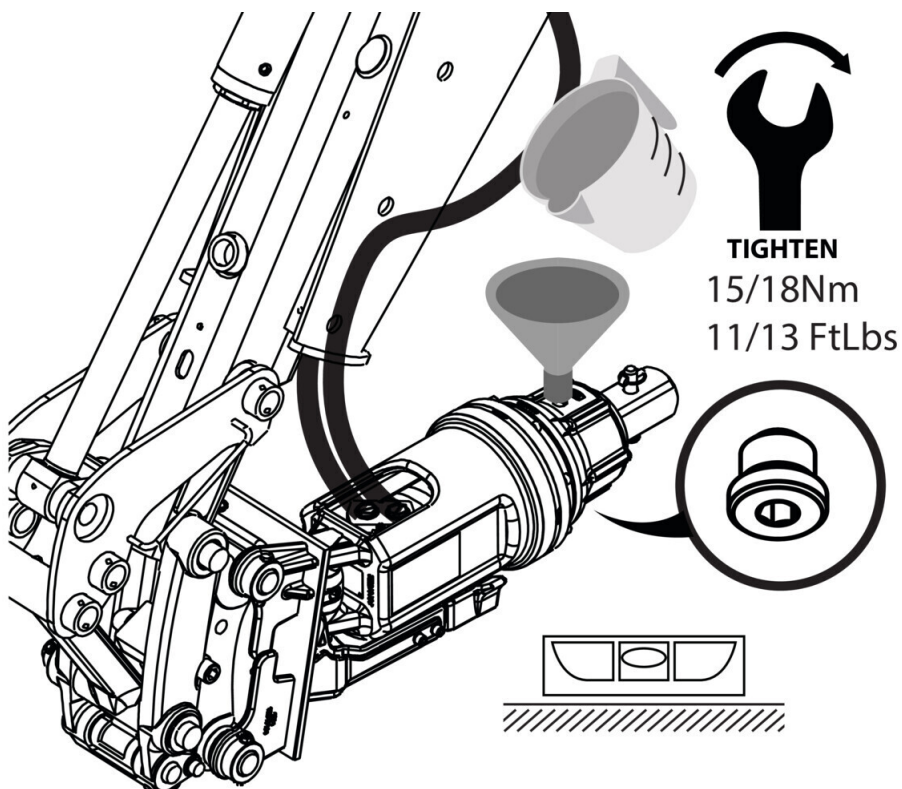


Fig. 56

Re-fit lower drain plug and tighten to the required torque. Re-fill auger drive unit with metered amount, maintaining a horizontal position. **Fig. 56.**

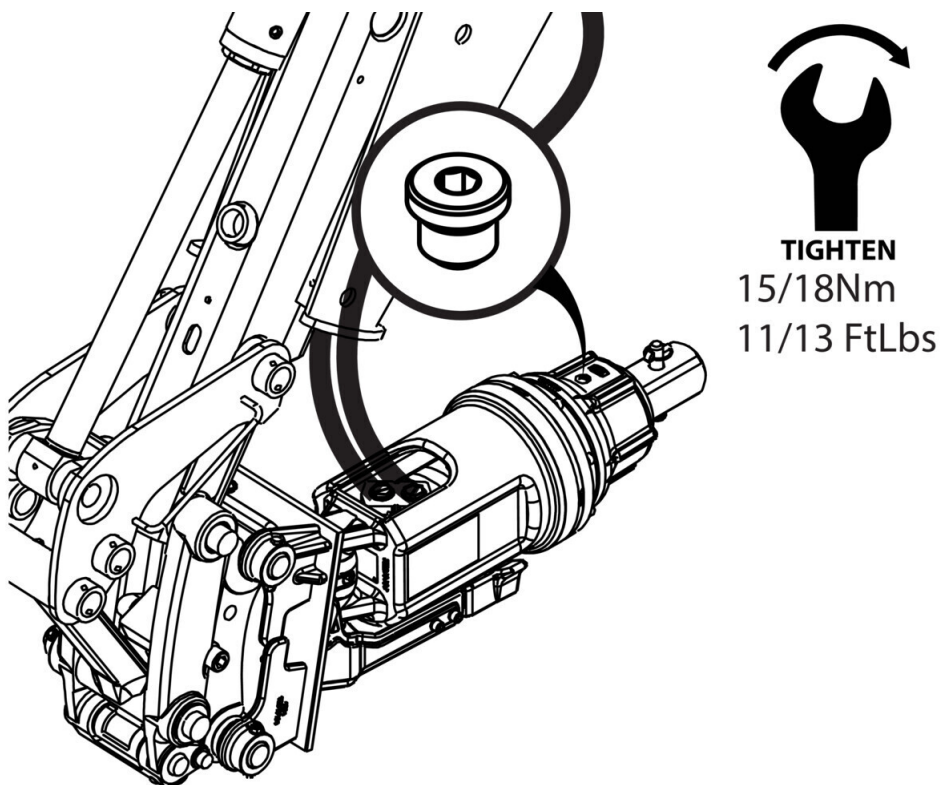


Fig. 57

Re-fit upper fill plug and tighten to the required torque. See “**First operation**” . Observe for oil leaks and rectify as necessary. **Fig. 57.**

15 Auger Bits - wear parts



15.1 Wear part condition

The cutting teeth and pilots should be checked regularly for wear. Failure to replace these wearing parts, when required, will result in poor drilling performance and/or damage to the auger bit.

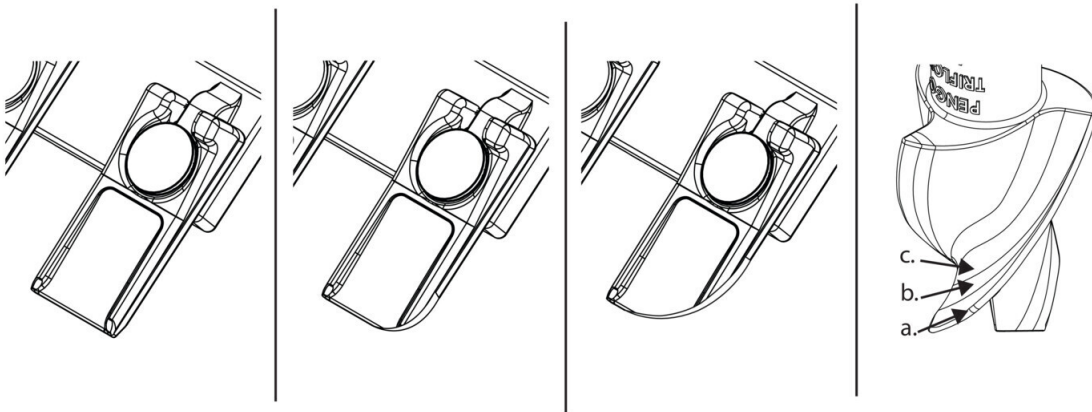


Fig. 58

New - Optimum performance.	Partially worn - Performance reduced.	Excessive wear - Replace immediately.	a - New. b - Partially Worn. c - Excessive wear, replace immediately.
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Fig. 58

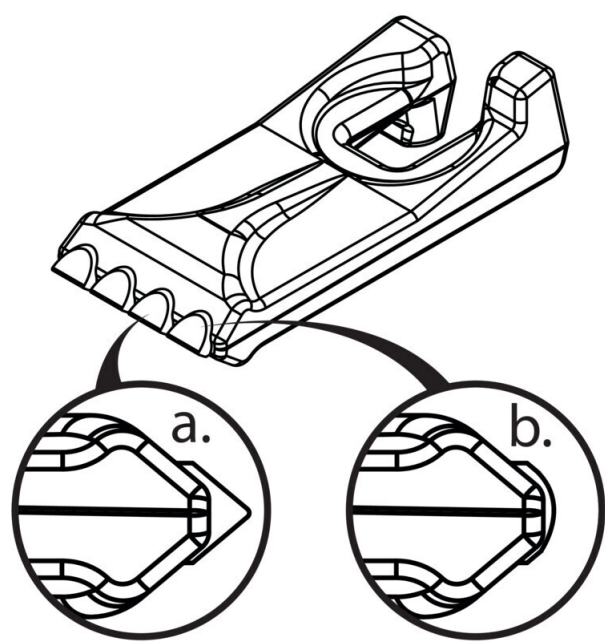


Fig 59

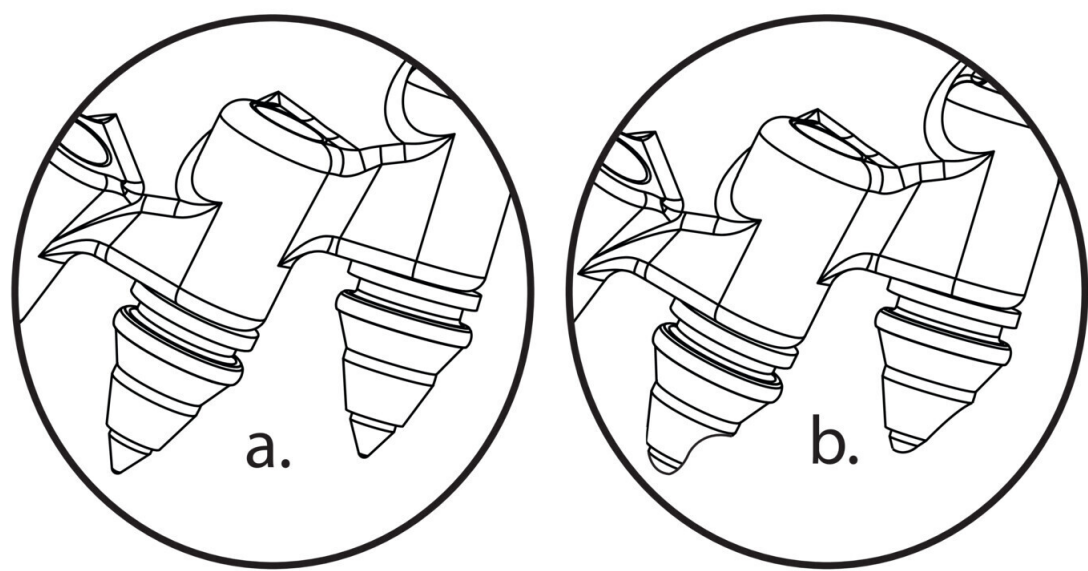


Fig. 60

a - new - Optimum performance.	b - excessive wear - Replace immediately
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Fig. 59 & Fig. 60

15.2 Auger bit tooth replacement - bolt on

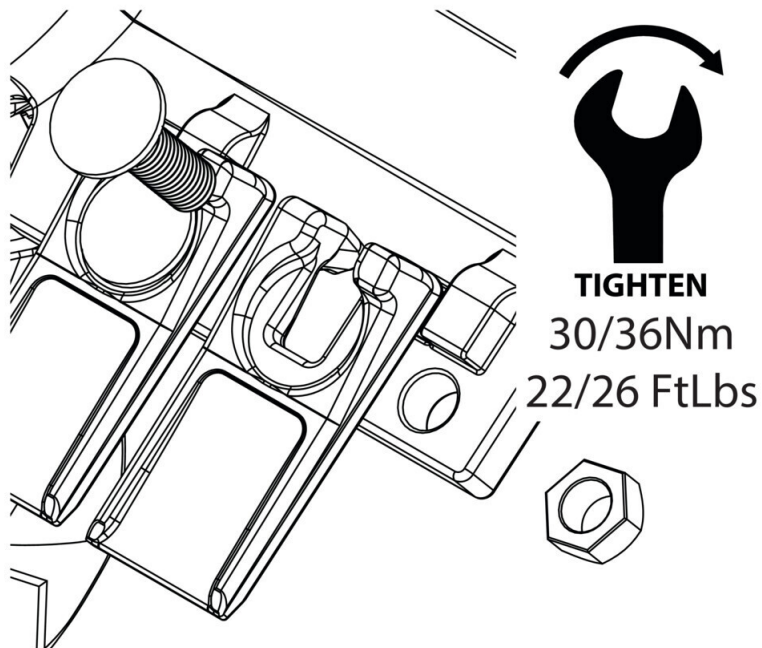


Fig. 61

Teeth affixed with a bolt can be removed by first undoing the retaining nut. Fitting is the reversal of removal.**Fig. 61**

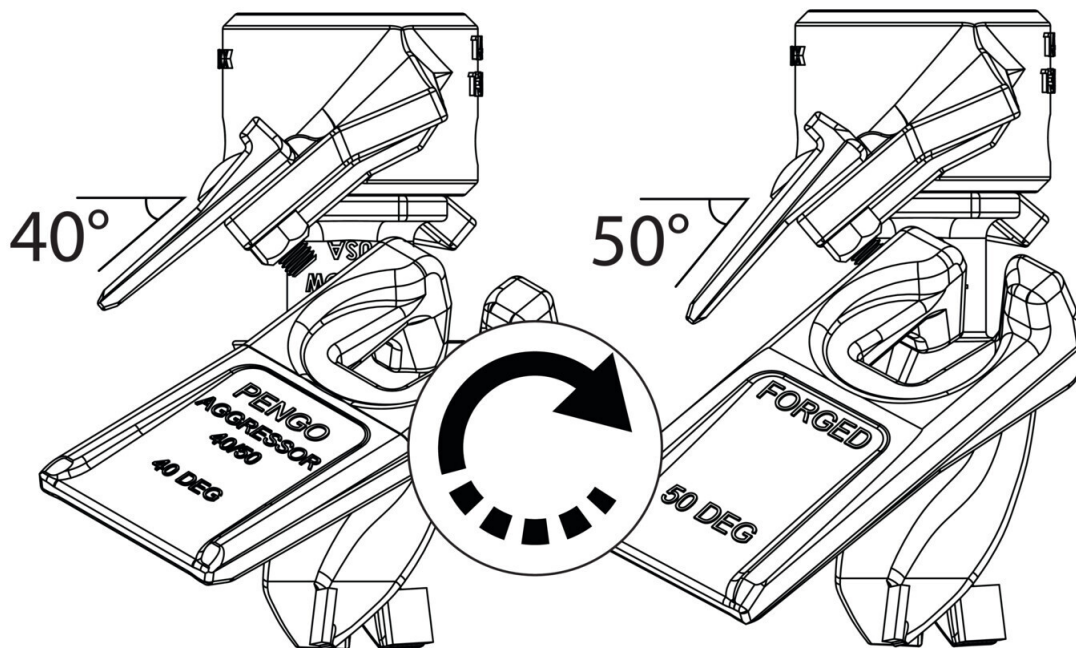


Fig. 62

Auger bits fitted with the Aggressor® tooth option can have their cutting characteristics altered simply by turning the tooth to match the above picture. The 50 degree cut is more aggressive and should only be used in softer ground conditions.**Fig. 62**

15.3 Auger bit tool replacement - conical

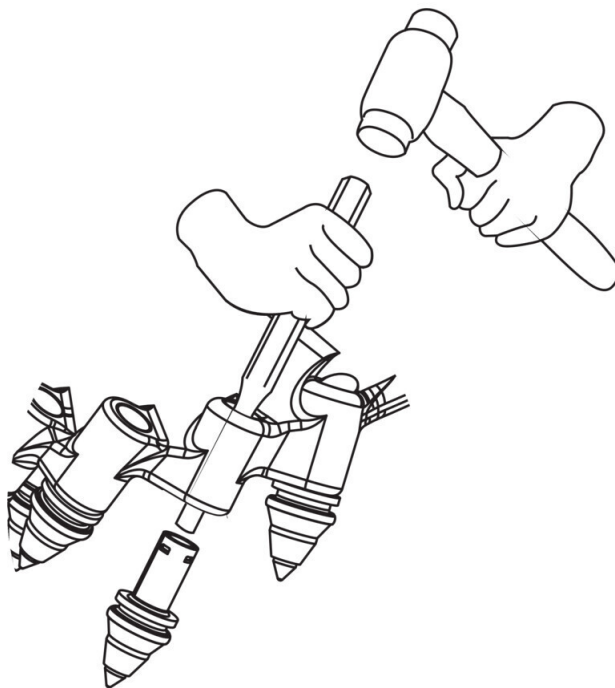


Fig. 63

Remove Conical teeth by driving out from the rear, using a suitable sized parallel punch and soft faced hammer. **Fig. 63**

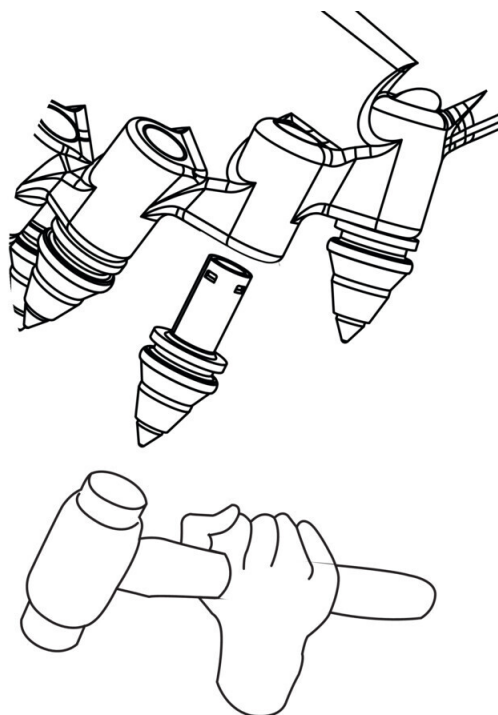


Fig. 64

Install Conical lock teeth by first inserting by hand and then driving in with a soft faced hammer. **Fig. 64**

15.4 Auger bit tool replacement - FAS-N-LOK®

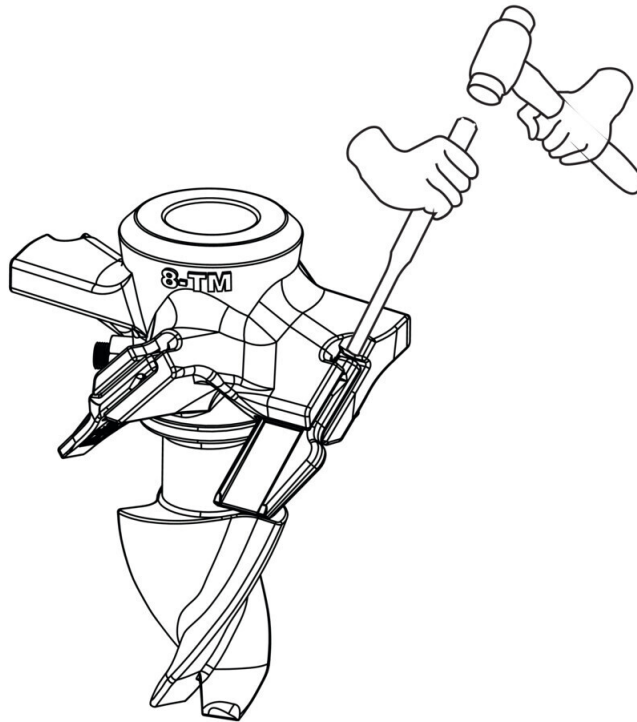


Fig. 65

Remove Fas-N-Lok® teeth by driving out from the rear, using a suitable sized parallel punch and soft faced hammer. **Fig. 65**

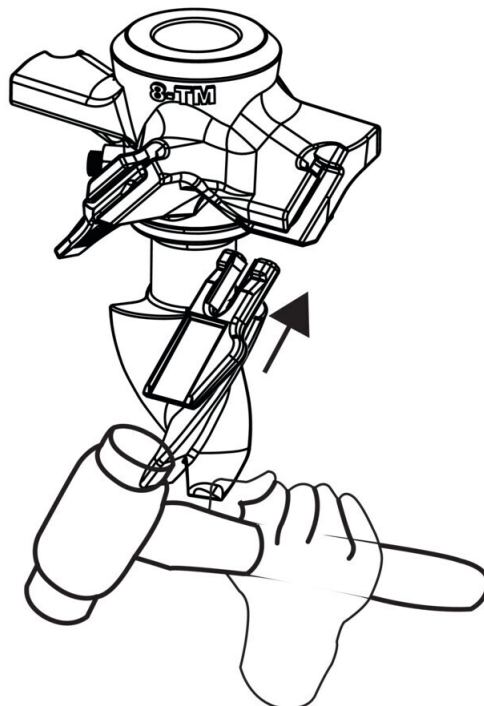


Fig. 66

Install Fas-N-Lok® teeth by first inserting by hand, noting correct orientation, then driving in with a soft faced hammer. **Fig. 66**

15.5 Auger bit pilot replacement

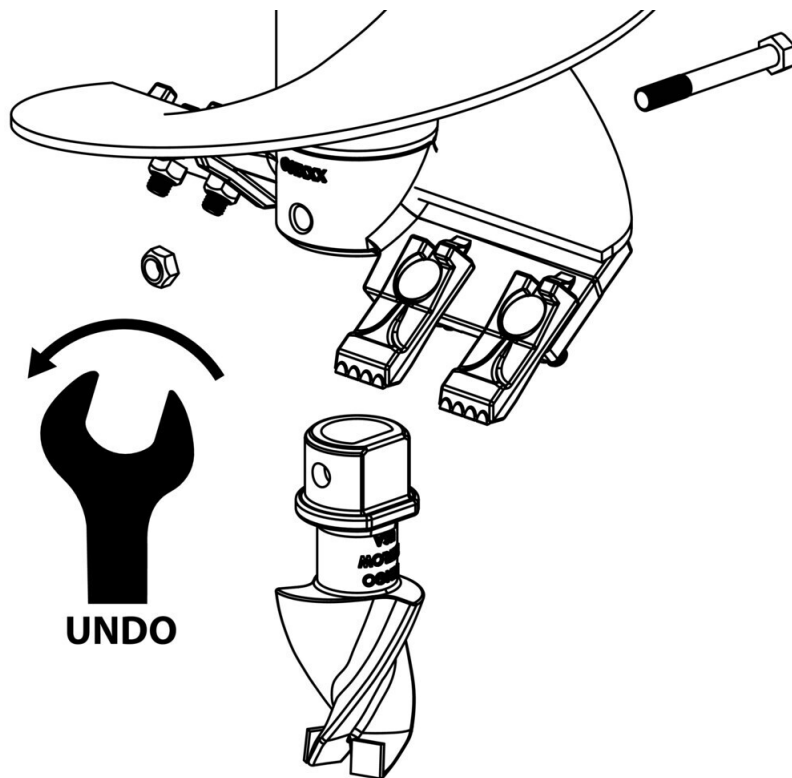


Fig. 67

Remove fixings holding pilot in place. **ALWAYS** renew fixings when replacing pilot. **Fig. 67**

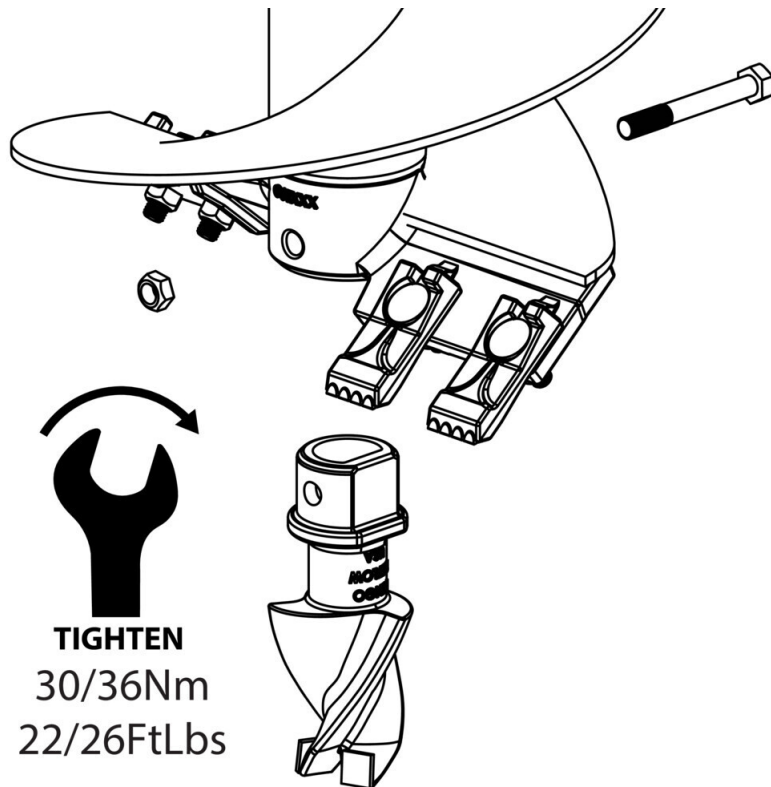


Fig. 68

Align Pilot and fixing holes. Tighten fixings as shown. **Fig. 68**

16 Storage

If the unit is to be stored you **MUST** first remove the auger bit and extension, see chapter “**Tool fitting - Auger Bit and Extension**”. Removal is the reversal of fitting.

It is also recommended to remove either the single pin, double pin or double pin bucket mount, see chapter “**mounting options**”. Removal is the reversal of fitting.

When using a loader mount the auger drive unit can be stored in situ. **Fig.70**.

Ensure the assembly is stable and **CANNOT** fall.

Remove hydraulic hoses and associated components. Install hydraulic bungs, item 2 **Fig.69**.

It is recommended to store the auger drive unit in a secure vertical position. **ALWAYS** clean the attachment before storing.

If stored for a prolonged period it is recommended that the unit is serviced before putting back into use, see chapter “**Oil service**”.

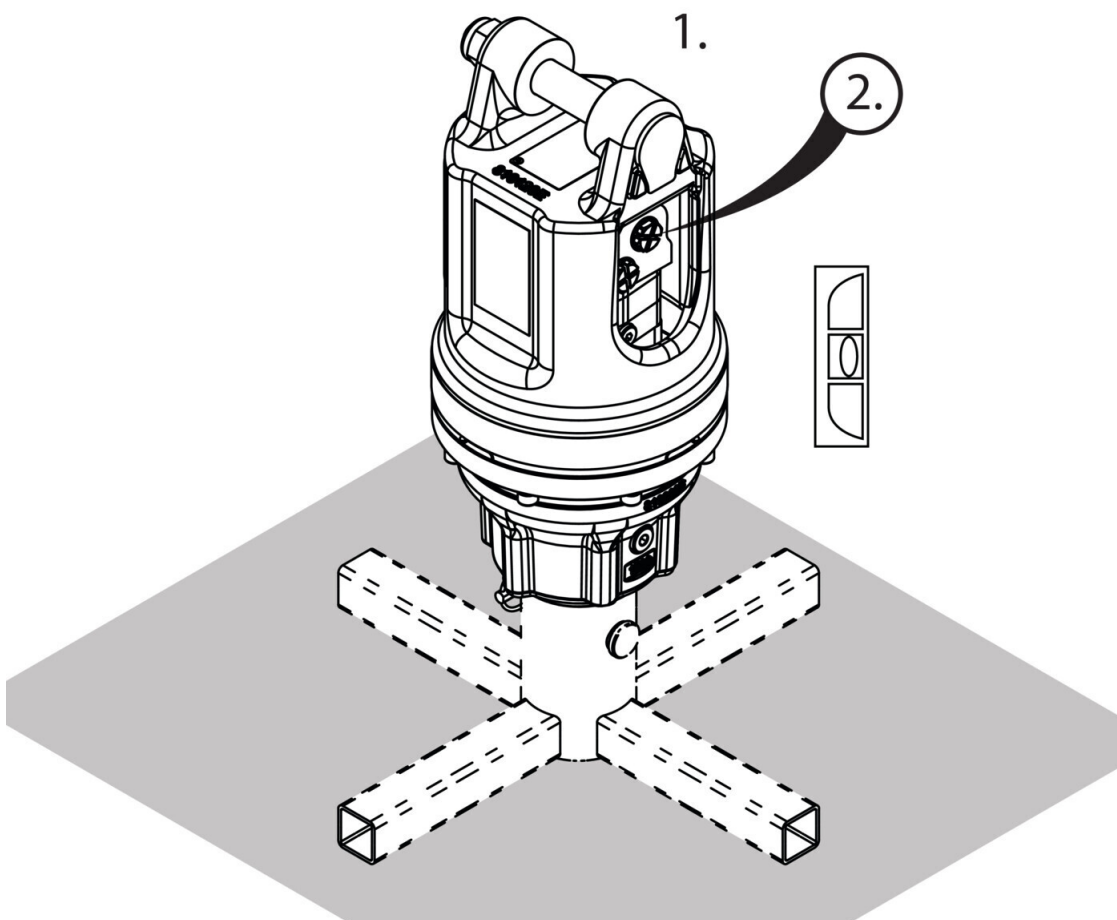


Fig. 69

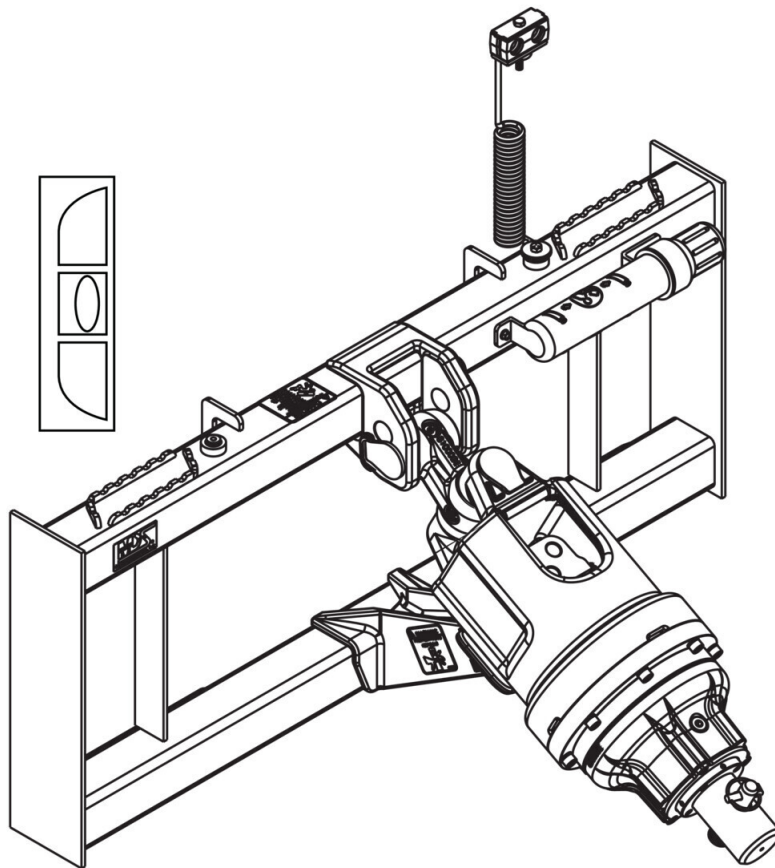


Fig. 70

17 Disposal

Hydraulic and Gear Oil.

Hydraulic and gear oil can contaminate the air, ground and water if not properly recycled. Recycle hydraulic oil in accordance with local regulations at your nearest recycling facility.

Hydraulic hoses.

Hang hydraulic hoses to drain, collect the residual oil for recycling. Contact your local recycling authority for details of an approved hydraulic hose recycling site.

Tool body.

Disassemble the attachment and dispose of **ALL** non-metallic parts. Recycle the metal components. Contact your local recycling authority for recycling instructions.

18 Troubleshooting

Fault	Possible cause	Action
No rotation - auger drive unit.	No oil flow.	Check that the hydraulic hoses / couplers are correctly fitted. Check the parent machine hydraulic system is functioning correctly.
	Insufficient hydraulic oil pressure.	Check parent machine. Refer to the required specifications for the auger drive unit fitted. See chapter " Specifications ".
	Auger drive unit seized.	Contact authorized customer center / dealer in your area for further assistance.
	Auger bit seized.	Remove auger bit from substrate before continuing.
	Insufficient hydraulic oil flow.	Check parent machine. Refer to the required specifications for the auger drive unit fitted. See chapter " Specifications ".
Slow digging speed / rotation.	Insufficient hydraulic oil flow.	Check parent machine. Refer to the required specifications for the auger drive unit fitted. See chapter " Specifications ".
	Incompatible auger drive unit.	Fit compatible auger drive unit. See chapter " Specifications ".
	Auger bit too large.	Fit suitable auger bit.
	Auger teeth / pilot excessively worn.	Replace wear parts. See chapter " Auger bit - wear parts ".
	Worn hydraulic motor.	Replace hydraulic motor. Contact authorized customer center / dealer in your area for further assistance. ONLY use genuine replacement spare parts.
	Excessive parent machine down pressure.	Reduce parent machine down pressure. See chapter " Working procedure ".
	Insufficient parent machine down pressure.	Increase parent machine down pressure. See chapter " Working procedure ".
Auger bit stalls during use.	Insufficient hydraulic oil pressure.	Increase hydraulic oil pressure. See chapter " Specifications ".
	Insufficient hydraulic oil flow.	Increase hydraulic oil flow. See chapter " Specifications ".
	Blocked hydraulic filter, parent machine.	Refer to parent machine's maintenance manual / schedule.
	Excessive parent machine down pressure.	Reduce parent machine down pressure. See chapter " Working procedure ".
	Incompatible auger drive unit / auger bit / parent machine combination.	Fit compatible equipment. See chapter " Specifications ".

	Parent machine hydraulic pressure relief valve set too low / faulty.	Reset / replace parent machine pressure relief valve,. See chapter“ Specifications ” .
Excessive rotational speed	Excessive input hydraulic oil flow.	Check and adjust oil flow. See chapter“ Specifications ”.
	Incompatible auger drive unit.	Fit compatible equipment. See chapter“ Specifications ”.
Mounting frame does not fit parent machine.	Incorrect / Non-genuine mounting frame used.	Fit compatible mounting frame.
Excessive movement in locating pins.	Damaged / worn components.	Repair / replace worn components. ONLY use genuine components.
Auger drive unit does not fit mounting frame.	Incorrect / Non-genuine mounting frame used	Fit compatible mounting frame.

19 Machinery Directive (European Community ONLY)

The Machinery Directive 2006/42/EC provides the harmonisation of the essential health and safety requirements for machinery, through a combination of mandatory health and safety requirements and voluntary harmonised standards. Such directives apply only to products that are intended to be placed on or put into service in the market for the first time. The manufacturer or the authorised representative must draw up a 'Declaration of Conformity'.

19.1 EC Declaration of Conformity (EC Directive 2006/42/EC)

Where units are supplied in conjunction with Epiroc manufactured mounting frames to form an Unit Assembly, Epiroc have control over the suitability of the parts supplied. To show this and meet with the lawful requirements of the Machinery Directive a Declaration of Conformity is issued and a CE mark is applied to the assembly.

We, Construction Tools GmbH, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive), and the harmonised standards mentioned below.

Auger drills compact

ADC 15	ADC 55
ADC 20	ADC 55+
ADC 25	ADC 70
ADC 30	ADC 70+
ADC 35	ADC 80+
ADC 45	

Following harmonised standards were applied:

- EN ISO 12100
- EN ISO 4413
- EN 474-1
- EN ISO 12100
- EN ISO 13857

Technical Documentation authorised representative:

Stephan Schröer
Construction Tools GmbH
45143 Essen
Germany

Authorised Representative:

see respective separate original EC declaration of conformity
Construction Tools GmbH
45143 Essen
Germany

Manufacturer:

Paladin Attachments
2800 N Zeeb Road, Dexter, MI 48130.
U.S.

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