

LC SERIES AUGER DRIVE

Models: LC-150 | LC-200 | LC-300 | LC-350

Safety and operating instructions
Hydraulic Auger Drives



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Model	Valid from S/n
LC-150	13400
LC-200	13400
LC-300	13400
LC-350	13400

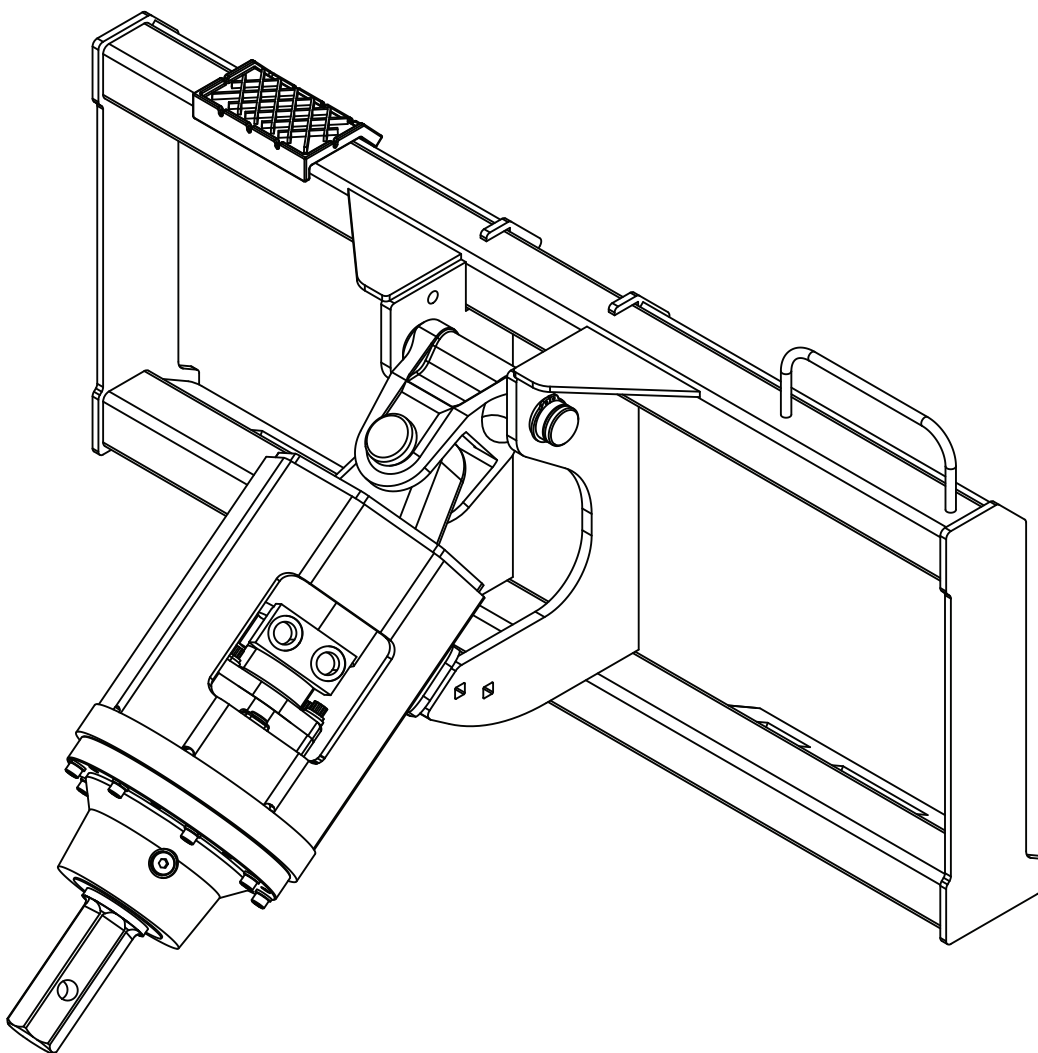


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INTRODUCTION / FOREWORD

Belltec Industries Inc. appreciates your choice of 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, during machine use;

Read, understand and follow the instructions found within and within any other manuals supplied with this tool/attachment.
Use safe working practices and apply common sense.
Comply with **ALL** the relevant National Laws and Local Regulations.

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.

Belltec Industries Inc. attachments/products have been designed **ONLY** for use with specific Belltec Industries Inc. 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 Belltec Industries Inc.

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

NOTE: Your Attachment/Product, comes pre-filled with the correct amount of oil. **See page 20**

INTENDED USE

The Belltec Industries Inc. attachments have been developed to be used in conjunction with **ONLY** genuine Belltec Industries Inc. Mounting Brackets and accessory equipment. **ALL** Belltec products have been designed for a specific application. Any use or specification deviating from the intended use is deemed impermissible misuse. Impermissible use is **NOT** permitted, considered **UNSAFE** and **WILL** invalidate your product warranty.

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 **See page 7**. 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. **See page 32**.

 BELLTEC®		2057 Commerce St Belton, TX 76513 United States of America	
Part No.		Model No.	
Serial No.		Date of Mfg.	
Max Press. (psi/bar)		Max. Flow (gpm/lpm)	
Max Cap. (lb/kg)		Weight (lb/kg)	

SAFETY NOTES AND PRECAUTIONS

PROTECT YOURSELF

This manual uses internationally recognized safety symbols to communicate potential hazards, mandatory personal protective equipment (PPE), and critical operating or maintenance instructions. These symbols may appear throughout the manual and on the equipment.

The meanings of the symbols are explained in this section and apply wherever they appear. All operators, maintenance personnel, and other affected individuals must understand and comply with the instructions associated with each symbol to ensure safe operation and to meet applicable CE/UKCA safety requirements and OSHA workplace safety obligations.



Eye Protection Required.

Approved eye protection must be worn.



Safety Footwear Required.

Approved protective footwear must be worn.



Head Protection Required.

Approved head protection must be worn.



Protective Gloves Required.

Approved protective gloves must be worn.



Hearing Protection Required.

Approved hearing protection must be worn.



High-Visibility Clothing Required.

Approved high-visibility clothing must be worn.



Protective Clothing Required.

Approved protective clothing must be worn.

ANGER, WARNING AND CAUTION SYMBOLS

The following symbols may be mentioned throughout this manual. It is important to familiarise yourself with both the symbols and accompanying text/caption. **IF IN DOUBT** please contact your nearest Belltec representative for further advice.



DANGER

DANGER. An **INANIMATELY 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**

SPECIFIC HAZARD GRAPHICAL SYMBOLS

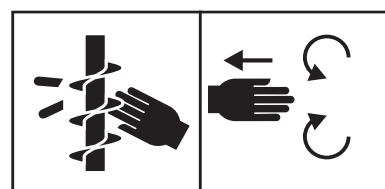
The following symbols may be mentioned throughout this manual. It is important to familiarize yourself with both the symbols and accompanying text/caption. **IF IN DOUBT** please contact your nearest Belltec representative for further advice. The symbols have been created to assist in the communication of safety information across language barriers. All of the product safety symbols have been designed to highlight a hazard and how to mitigate these hazards. If in doubt please refer back to this page or contact your nearest Belltec representative for further advice.



Manual handling of heavy or awkward loads poses a significant risk of injury. To minimize these risks, **ALWAYS** assess the load before lifting. **ALWAYS** utilize appropriate lifting/handling equipment.

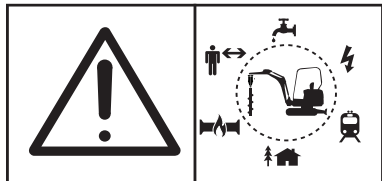


Hydraulic oil under pressure can penetrate the skin and/or eyes. If hydraulic fluid penetrates the skin, seek immediate medical attention. **NEVER** use bare hands to check for hydraulic leaks. **ALWAYS** use appropriate personal protective equipment.



When the attachment comprises of rotating parts there is a **RISK** of entanglement. Stay clear of **ALL** rotating components. Maintain a clear working radius **See page 6**. **ALWAYS** switch off the parent machine and lock out hydraulic controls before **ANY** works are undertaken.

SPECIFIC HAZARD GRAPHICAL SYMBOLS - CONTINUED



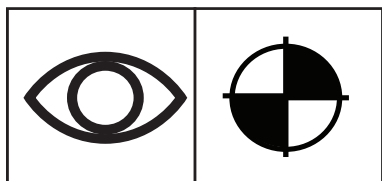
With ALL operations ensure a **MINIMUM** of a 20Ft (6 Metre) working radius is maintained. Before starting **ENSURE** that **NO** persons are within this working radius. A site survey **MUST** be undertaken specifically checking for underground risks. **IMMEDIATELY** switch off the attachment if any person(S) enters the working radius zone.



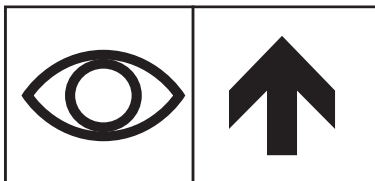
An involuntary start of the attachment can lead to serious injury or death. **ALWAYS** switch off parent machine and lock out hydraulic controls before **ANY** works are undertaken.



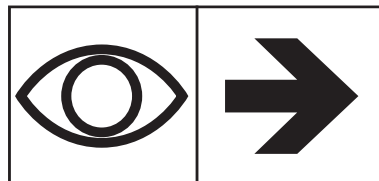
Operating at unsafe speeds increases the likely hood of accidents, equipment damage, injury or death. **ALWAYS** maintain a safe speed appropriate to the task.



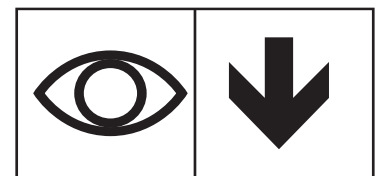
This symbol indicates that alignment or positioning should be verified by visual inspection. The operator should confirm by eye that the component is correctly centered or aligned with the specified reference.



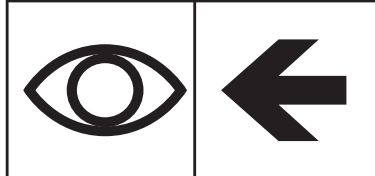
This symbol indicates that the specified direction is to be interpreted from the operator's cab point of view. Visual confirmation should be made by the operator while viewing the component or direction indicated.



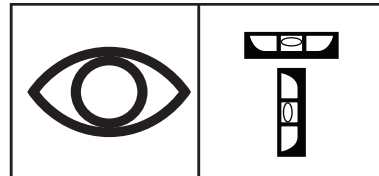
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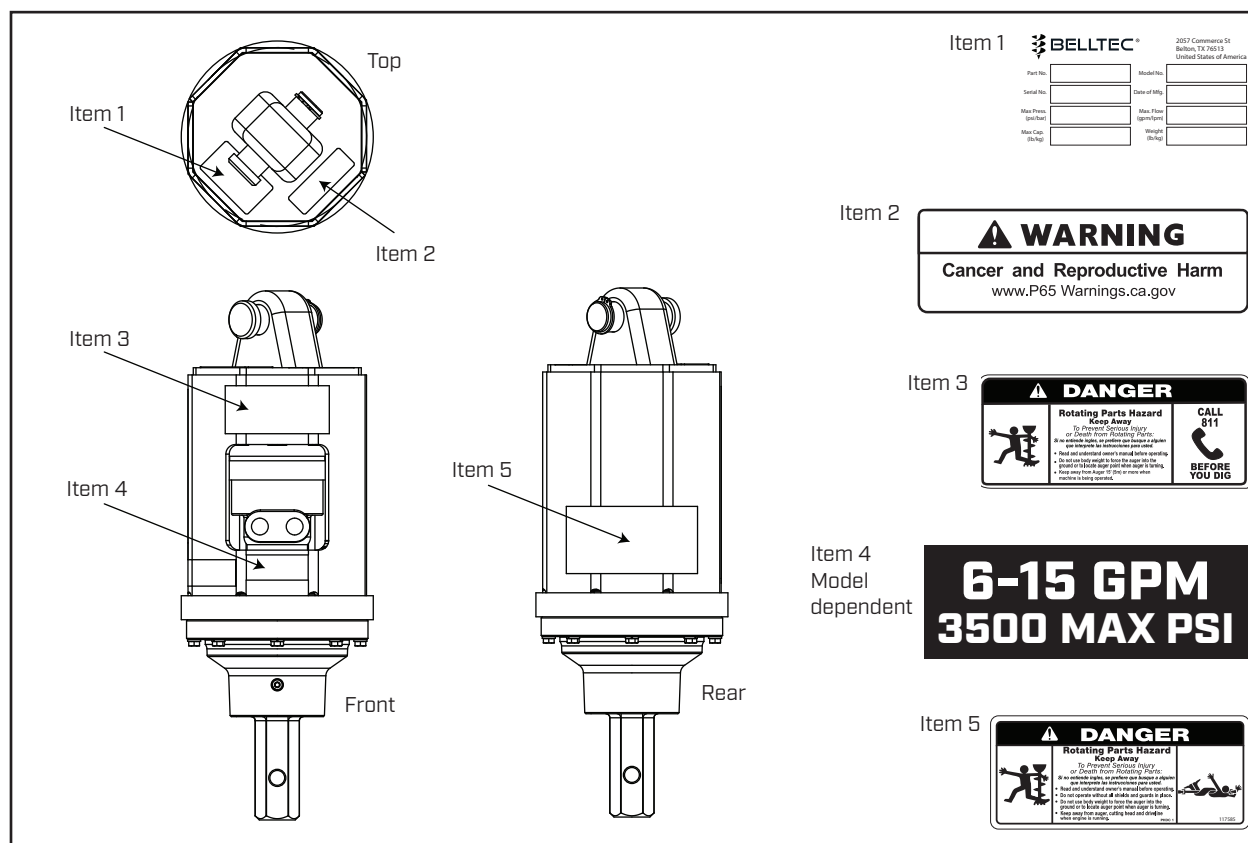


This symbol indicates that the specified horizontal and vertical directions or alignments are to be interpreted from the operator's cab point of view. The operator shall visually confirm both horizontal and vertical alignment while viewing the indicated component or direction.

SAFETY DECALS

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

If the attachment is repaired and a part replaced, on which safety decals we affixed, **ENSURE** new safety decals are fitted **BEFORE** the attachment/product is put into service.



ITEM	DESCRIPTION	QUANTITY	PART NUMBER	NOTES
1	SERIAL TAG	1	112340	ALL LOCATIONS
2	PROPOSITION 65	1	111784	USA ONLY
3	DANGER CALL BEFORE YOU DIG	1	116561	USA ONLY
4	FLOW RANGE PRESSURE LIMIT	1	MODEL DEPENDENT CONTACT BELLTEC	ALL LOCATIONS
5	DANGER ENTANGLEMENT	1	111758	ALL LOCATIONS

SAFETY NOTES AND PRECAUTIONS

EQUIPMENT / ATTACHMENT PRECAUTIONS



CAUTION

PARENT MACHINE LIFT CAPACITY

Alert yourself to the weight of the **ENTIRE** Auger Drive Attachment. **DO NOT** exceed the recommended lift capacity of the **PARENT MACHINE**. Refer to your **PARENT MACHINE'S** operational/owners manual for suggested lift capacities and considerations.



WARNING

PARENT MACHINE / ATTACHMENT INSTALLATION

Ensure **ALL** connection pins, hardware and latches are properly secured. Ensure that the mounting frame/attachment plate is rigidly secured to the **PARENT MACHINE**. Improper installation can result in product damage, personal injury or death. **See page 11** for further details.



DANGER

HYDRAULIC CONNECTION

Ensure **ALL** hydraulic hose assemblies are of adequate length and have enough slack for full attachment movement/articulation. Failure to provide adequate length hoses can result in hose ruptures. A hydraulic hose rupture can result in product damage, personal injury or death. **See page 13** for further details.



WARNING

OPERATING PARENT MACHINE

Consult your **PARENT MACHINE'S** operating and safety instruction. Pay particular attention to stability and operational inclination allowances.



DANGER

TRANSPORTING THE ATTACHMENT

Travel **ONLY** with the attachment in a safe transportation position to prevent uncontrolled movement. **See page 19** for further details.

During transportation **ENSURE** the attachment is correctly tethered.

During site transportation **ENSURE** the attachment is correctly tethered to prevent uncontrolled movement.

Remove the Auger Bit/Core Drill/Screw Anchor from the Auger Drive attachment before transporting between job sites.

Use **EXTREME CAUTION/CARE** during transportation to prevent contact with bystanders or solid objects. Failure to do so could result in attachment damages, injury or death.

NEVER operate the attachment while transporting.

Move **SLOWLY** over rough terrain/high inclinations. Position the Attachments as low as possible to the ground this maintains a low centre of gravity and improves stability.

See page 19 for further details.

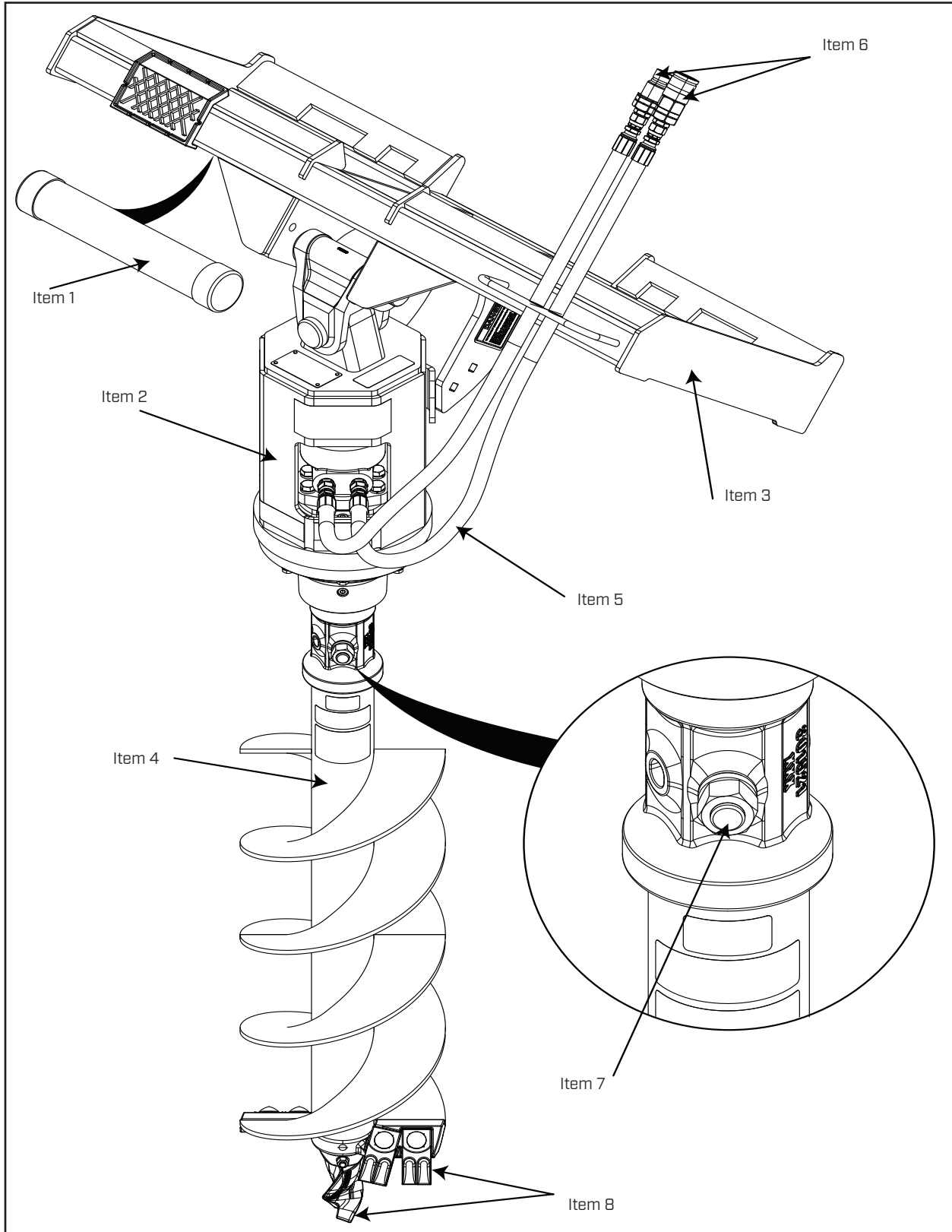


CAUTION

ATTACHMENT SIDE LOADING

When attachments are to be used in a vertical position only, side loading is **NOT** recommended. Excessive side loading can cause premature failure of the attachment. Such failures could result in product damage, injury or death. **See page 17** for further details.

IDENTIFICATION OF MAIN COMPONENTS

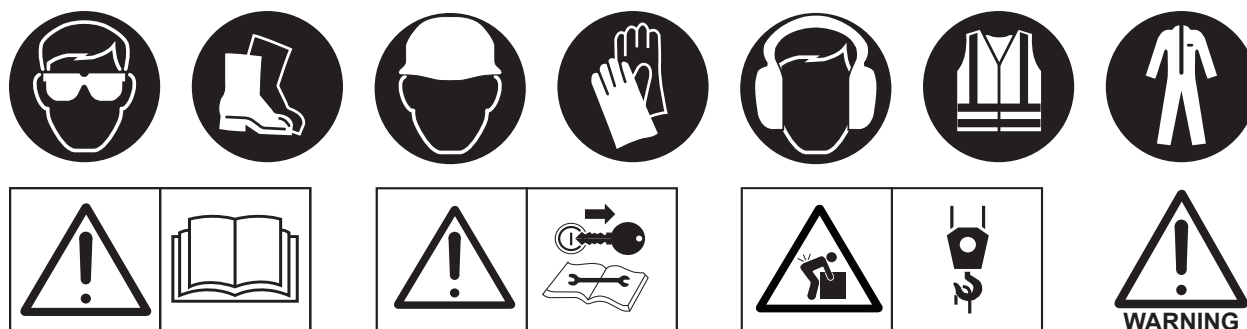


IDENTIFICATION OF MAIN COMPONENTS

ITEM	DESCRIPTION	QUANTITY	NOTES 1	NOTES 2
1	Operational manual	1	Read and fully understand BEFORE use	IF IN DOUBT contact Belltec
2	Auger drive	1	Check suitability	See page 27 for specifications
3	Mounting frame	1	Check suitability	ALWAYS follow parent machine instruction for mounting/dismounting
4	Auger bit	1 +	Check suitability	ONLY use Belltec manufactured equipment.
5	Hydraulic hoses	2	Check daily for condition	See page 12 for specifications and fitting detail
6	Hydraulic quick release couplers	2 (Male/Female)	Check daily for condition	See page 12 for specifications and fitting detail
7	Auger bit retaining hardware	1	Check daily for condition	See page 15 for specifications and fitting detail
8	Wear parts	See auger bit type /diameter	Check daily for condition	Worn wear parts will reduce performance, See page 22 for further detail

MOUNTING OPTIONS

FITTING PRECAUTIONS



ALWAYS work in pairs [Two skilled operatives] whenever mounting/dismounting attachments/components or during assembly/disassembly.

ALWAYS check the weight of the attachments/components and ensure suitable lifting equipment is used where necessary.

ALWAYS Check that the parent machine is;

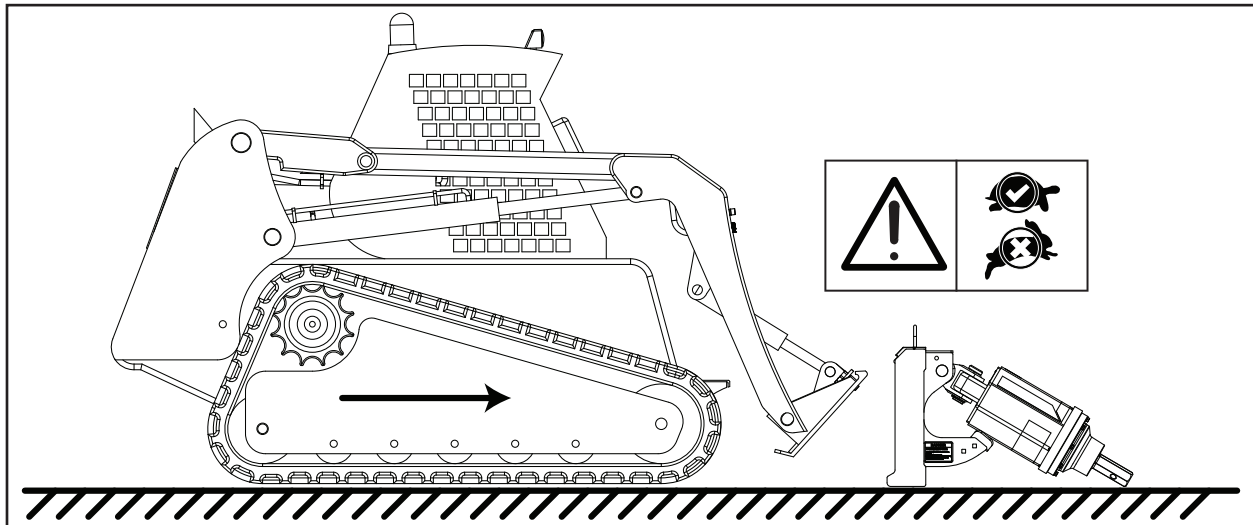
- Switched off.
- Parked correctly on flat, stable ground.
- Has its parking break applied (where applicable).
- Is in good general working condition/working health.

Ensure **ALL** mounting points of both parent machine and attachments are clean and free from defects, before fitting.

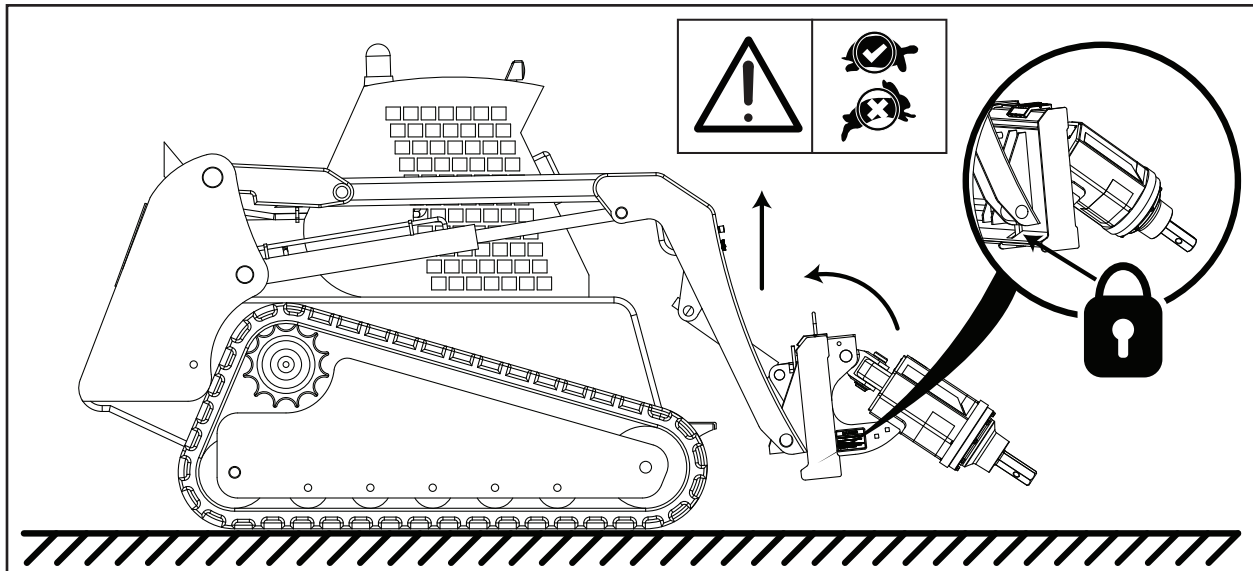
If attachment is to be fitted to the parents machines quick coupling system, ensure compatibility and follow parents machines quick coupling systems instruction.

MOUNTING OPTIONS

LOADER FRAME [UNIVERSAL/DEDICATED]



ENSURE Auger Drive attachment is placed on level ground and is stable. **SLOWLY** maneuver parent machine, ensuring alignment with mounting frame. Latch top of parent machine mounting plate first, rotate parent machine carriage until full engagement is secured.



ALWAYS refer to parent machine operating instruction for correct mounting and dismounting of attachments. Upon latching, **SLOWLY** raise loader arms, rotate assembly towards driver, lock out using the parent machine mechanical/automatic locking system.

HYDRAULIC CONNECTION

SAFETY PRECAUTIONS



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/wood or similar to find leaks. **DO NOT** use any part of your body to check for leaks and ensure that all appropriate personal protective equipment is used/worn. If any fluid is injected into the skin it **MUST** be surgically removed. See **IMMEDIATE** medical attention.

PARENT MACHINE REQUIREMENTS

ALL Auger Drive attachments can rotate in both a clockwise and anti clockwise direction. As such a double acting hydraulic circuit is required. Fitting and Auger Drive attachment to a single acting hydraulic circuit will result in the unit only rotating in a single direction. Refer to Parent machine specifications/operational manual for further detail. **See page 27**

It is **CRITICAL** that the hydraulic supply to the attachments is within the stated limits found within the attachment specification page, **See page 27**. Failure to operate within these stated limits can result in premature failure of the attachment, injury or death.

HYDRAULIC HOSE CONNECTION

When fitting hydraulic hose assemblies, ensure all hydraulic seals and fittings are clean and free from contamination and tightened to the appropriate figure, please see the following.

ITEM	DESCRIPTION	TORQUE SPECIFICATION FT-LBS [NM]
1	1/2" [12.7MM] BORE	41/45FT-LBS [55/61NM]
2	3/4" [19.1MM] BORE	54/59FT-LBS [73/80NM]
3	1" [25.4MM] BORE	81/86FT-LBS [110/117NM]

HYDRAULIC HOSE SPECIFICATION

ITEM	DESCRIPTION	HYDRAULIC HOSE SPECIFICATION
1	1/2" [12.7MM] BORE	EN 853 2ST/2SN SAE 100R2 MINIMUM WORKING PRESSURE 3990PSI [27.5 MPa]
2	3/4" [19.1MM] BORE	EN 857 2SC SAE 100R12 MINIMUM WORKING PRESSURE 4000PSI [28.0 MPa]
3	1" [25.4MM] BORE	EN 856 4SP SAE 100R12 MINIMUM WORKING PRESSURE 4640PSI [32.0 MPa]

HYDRAULIC CONNECTION

PERIODIC CHECKS

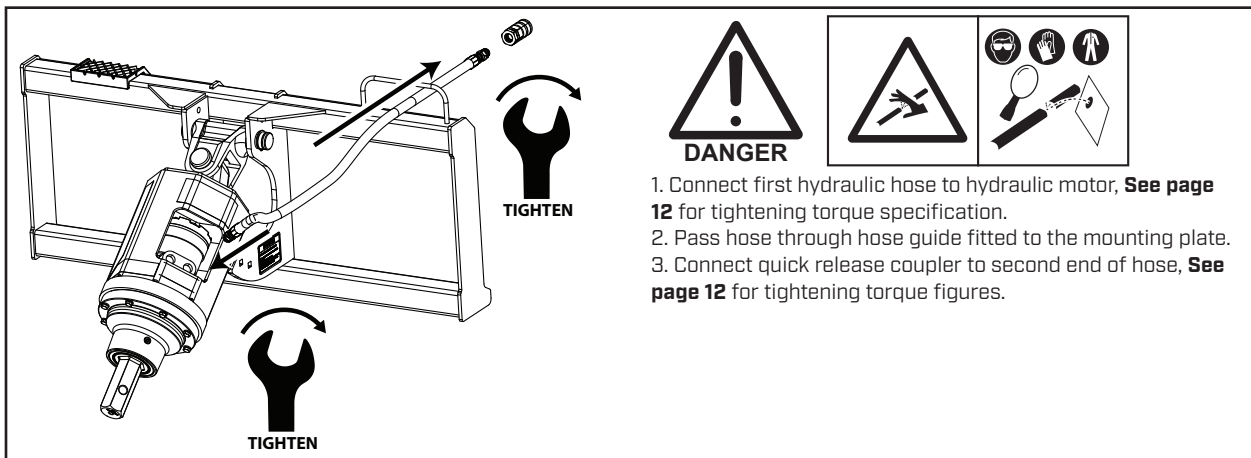


Periodically check the condition of hydraulic hoses and associated components. The hydraulic hoses **MUST** immediately be replaced if **ANY** defects are found.

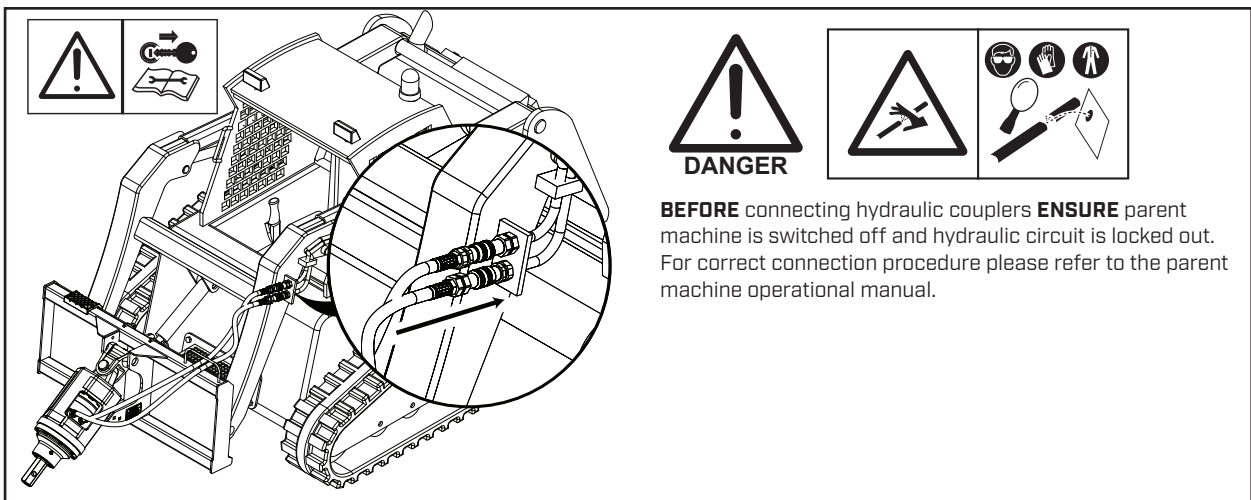
Contact Belltec Inc. or your Belltec approved representative for further assistance. When sourcing hydraulic hoses **ENSURE** that they meet the rated specification found on **See page 12**.

Failure to replace damaged hoses and associated components in addition to not conforming the **MINIMUM** specifications contained within may result in injury or death. **See page 12**.

HOSE CONNECTION

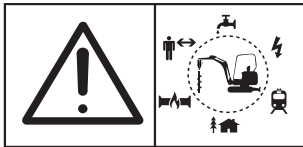


HYDRAULIC QUICK COUPLER CONNECTION

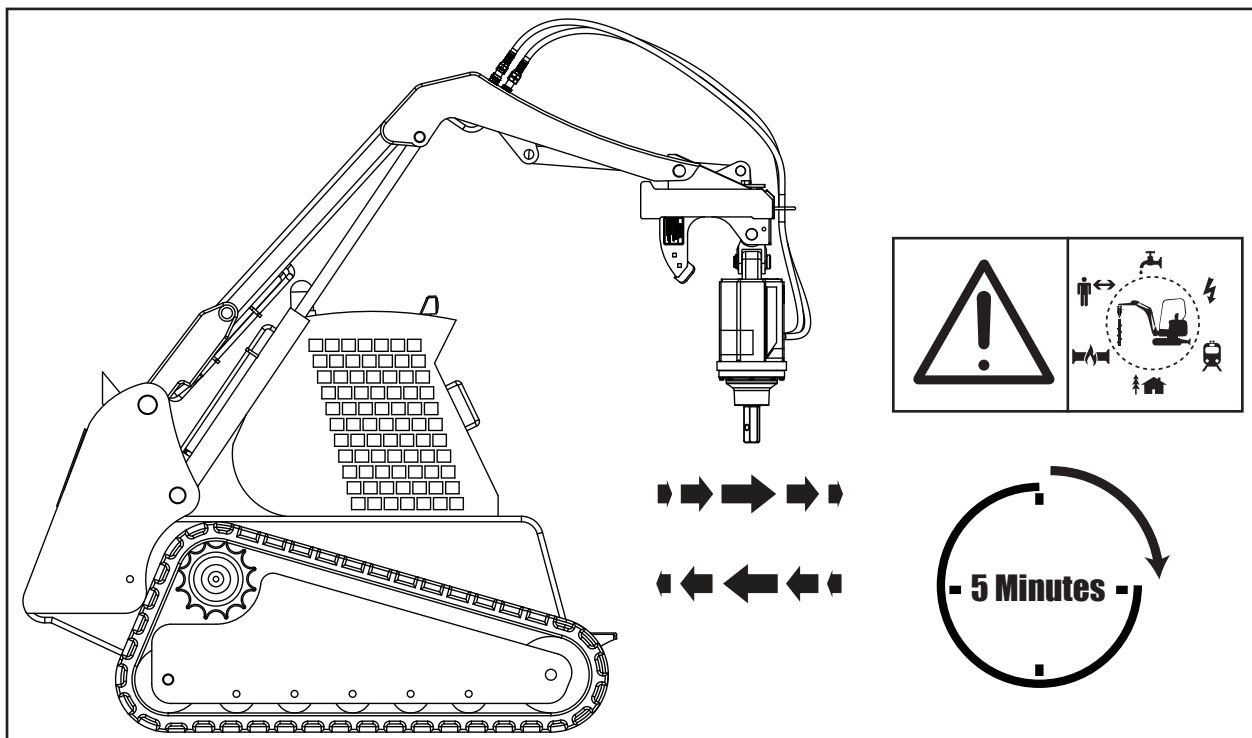


FIRST OPERATION

FIRST START UP PROCEDURE



As with **ALL** operations, ensure a **MINIMUM** working radius of 20 Feet [6 Meters].
NOTE: You Belltec Auger Drive unit is supplied pre-filled with the correct amount of gear oil.

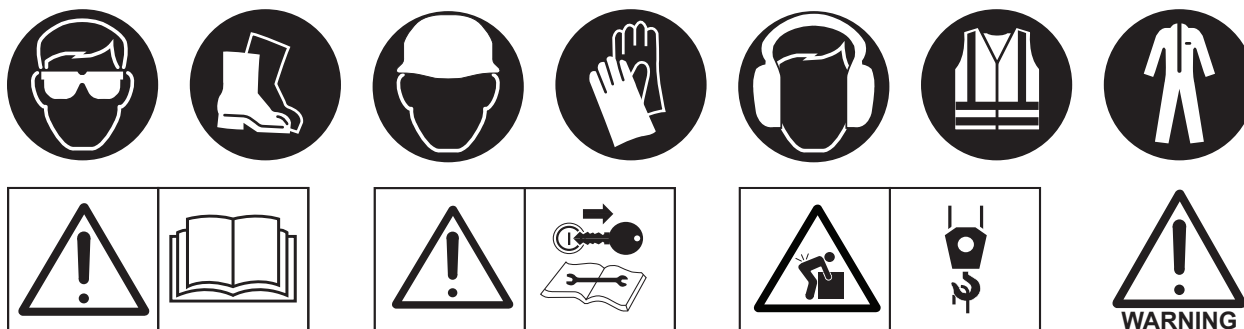


To optimize the life of your Belltec Auger Drive attachment, a minimum running in procedure **MUST** be followed. To undertake this procedure first connect the attachment to your parent machine, **See page 13**, connect the hydraulic supply and hang in a vertical position. **DO NOT** connect an Auger Bit as this time.

1. Activate hydraulic supply and run the unit, in a clockwise rotation (normal drilling direction), at 30% of its rated speed, **See page 27**, for a period of 5 Minutes.
2. Repeat step 1. but in the anti clockwise rotation.

TOOL FITTING PROCEDURE

TOOL FITTING - PRECAUTIONS



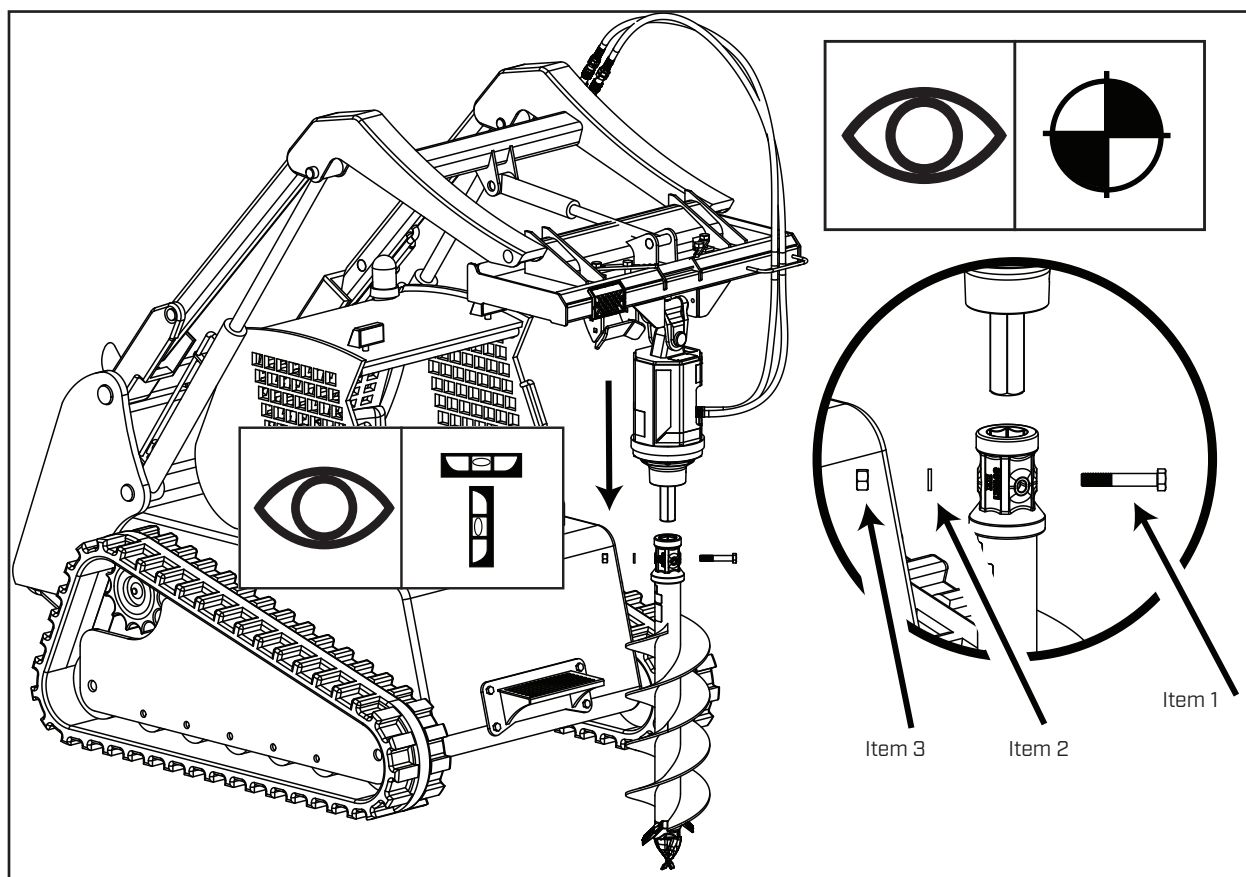
ALWAYS work in pairs [Two skilled operatives] whenever mounting/dismounting attachments/components or during assembly/disassembly.

ALWAYS check the weight of the attachments/components and ensure suitable lifting equipment is used where necessary.

ALWAYS Check that the Parent machine is;

- Switched off and with hydraulics locked out.
- Parked correctly on flat, stable ground.
- Has its parking break applied(when applicable).
- Is in good general working condition/working health.

TOOL FITTING - AUGER BIT



TOOL FITTING PROCEDURE

TOOL FITTING - AUGER BIT - CONTINUED

ENSURE Auger Bit and Auger Drive unit are compatible, **ONLY** use genuine Belltec equipment. Rotate auger bit so locating holes align. Secure and stabilise the Auger Bit.

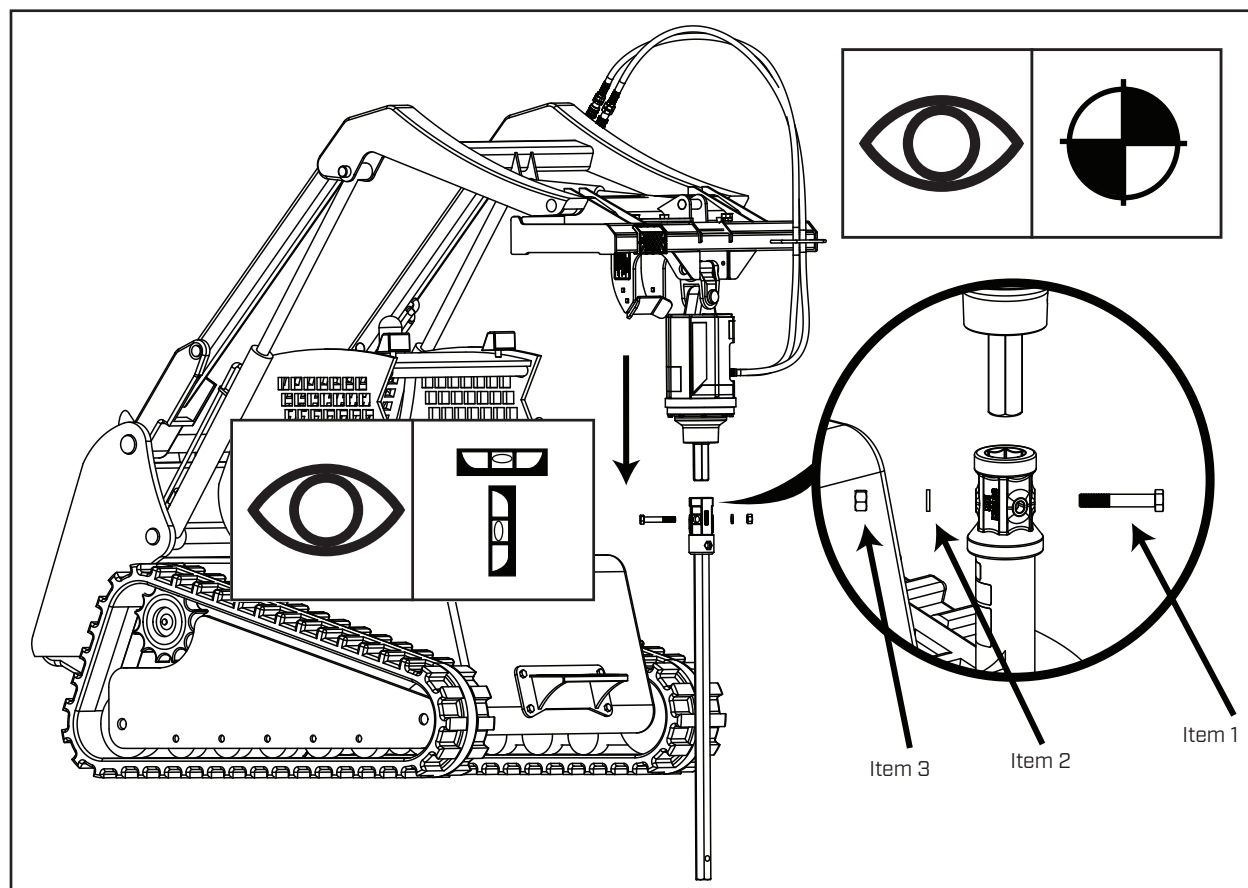
Lower parent machine boom/Auger Drive assembly, engaging into the female coupler of the Auger Bit.

Install item 1 through auger bit assembly.

Install item 2 and 3.

Tighten item 3 to 180 to 200 Ft-Lbs [245-300 Nm]

TOOL FITTING - EXTENSION SHAFTS



ENSURE Extension shaft and Auger Drive unit are compatible, **ONLY** use genuine Belltec equipment. Rotate auger bit so locating holes align. Secure and stabilise the Auger Bit.

Lower parent machine boom/Auger Drive assembly, engaging into the female coupler of the Auger Bit.

Install item 1 through extension bit assembly.

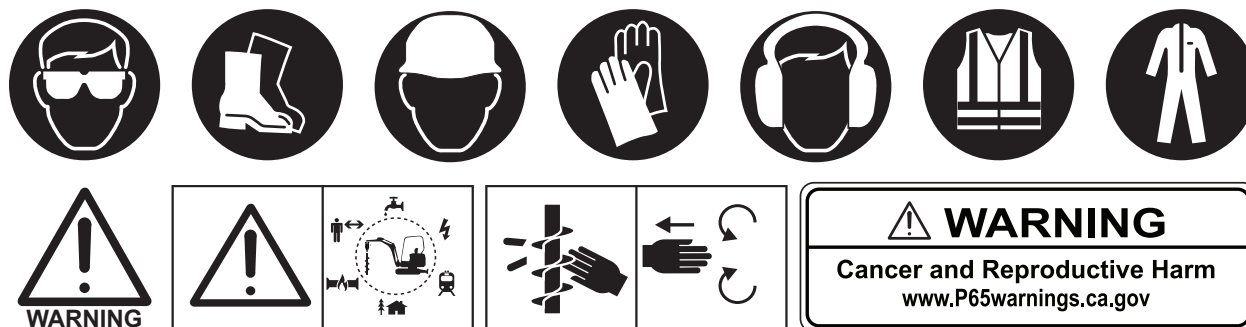
Install item 2 and 3.

Tighten item 3 to 180 to 200 Ft-Lbs [245-300 Nm].

For attaching an Auger bit to this Extension shaft please **See page 15**.

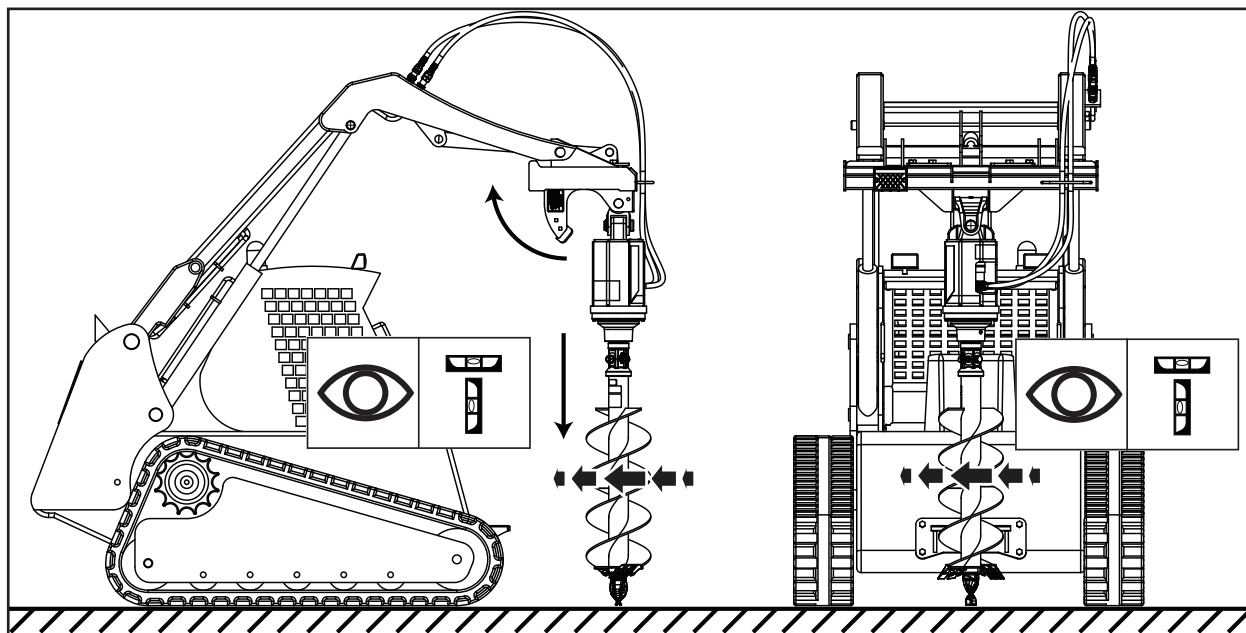
WORKING PROCEDURE

PREPARATIONS



CONSIDER the topography [e.g. **RISK** of subsidence slope angle, position to the embankment, in situ infrastructure and any previous excavation]. Cordon off work area from by standers, livestock etc. Rotating components can cause serious injury or death. **ALWAYS** perform a site survey and risk assessment **BEFORE** commencing any works.

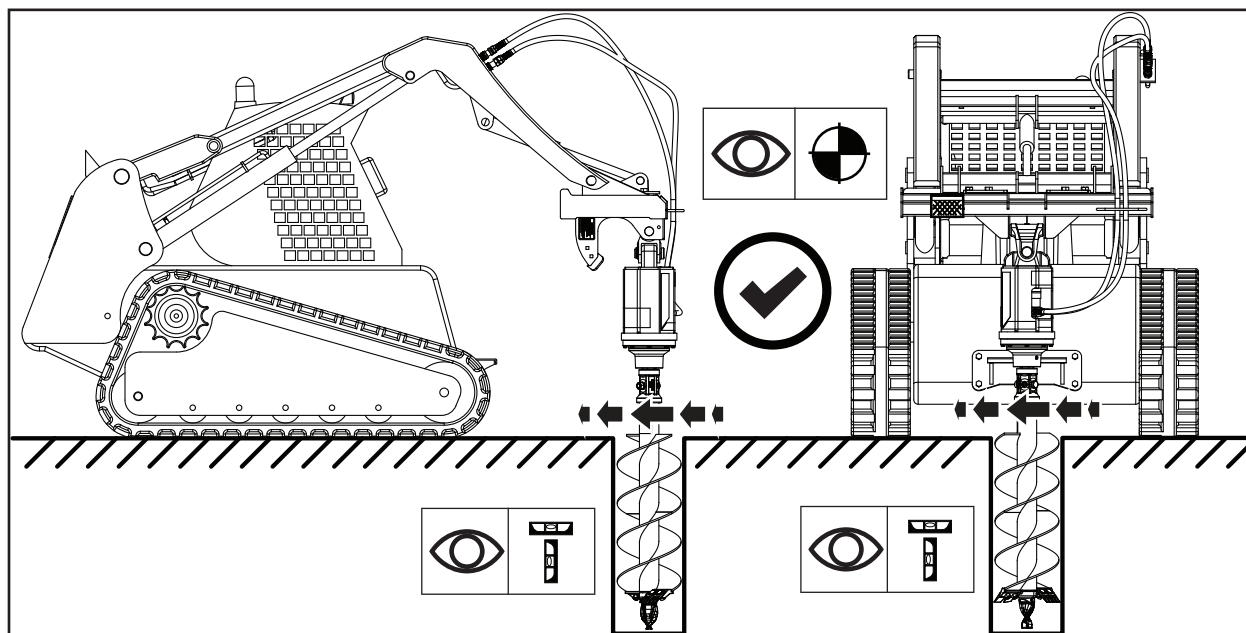
INITIAL START



Position Auger Drive assembly.
Retract cradle from Auger Drive assembly.
Start rotation.
Apply steady down pressure. **ENSURE** maximum down force is applied without stalling the Auger Drive assembly.

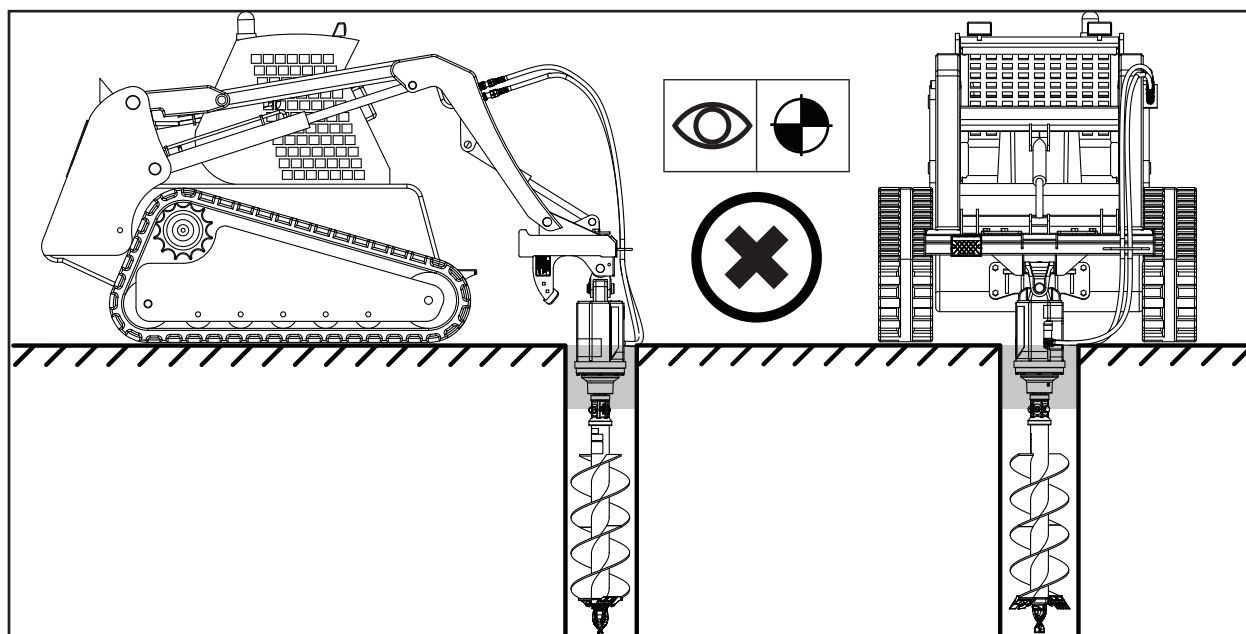
WORKING PROCEDURE

CORRECT DRILLING PROCEDURE



During drilling cycle maintain steady down pressure, ensuring continual rotation. **ENSURE** vertical alignment during the entire drilling process. Side loading of the Auger Drive attachment is **NOT** permitted and may result in premature failure. **IF IN DOUBT** contact Belltec. Occasionally raise the Auger assembly from the hole to clear spoil.

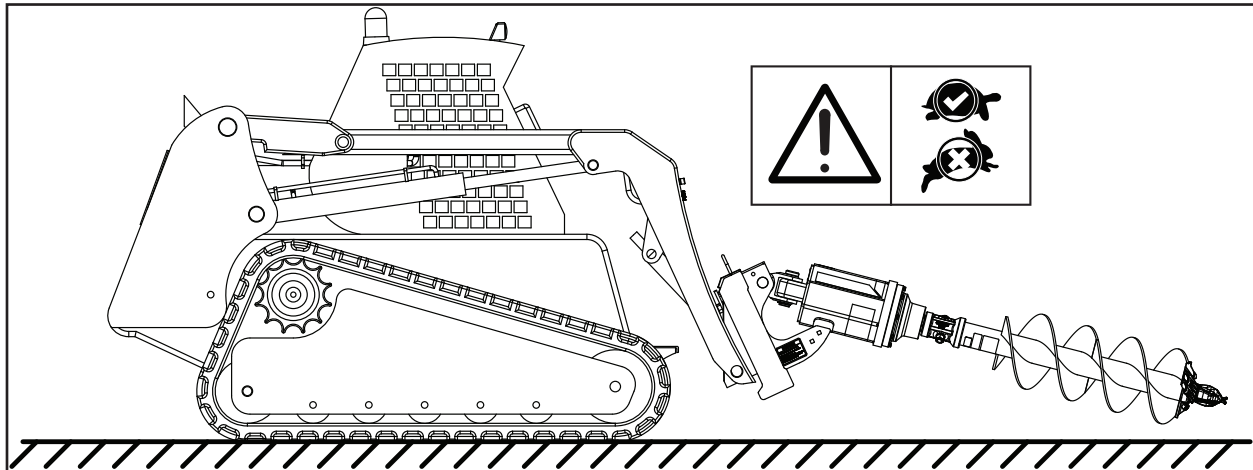
INCORRECT OPERATION



NEVER drill beyond the length of the Auger Bit and/or extension assembly. **NEVER** submerge the Auger Drive unit into loose spoil, this **WILL** result in premature failure of the sealing systems. When deeper holes are required utilise additional extension shafts, please **See page 16** for further information.

WORKING PROCEDURE

TRANSPORTATION WITHIN THE WORK ZONE



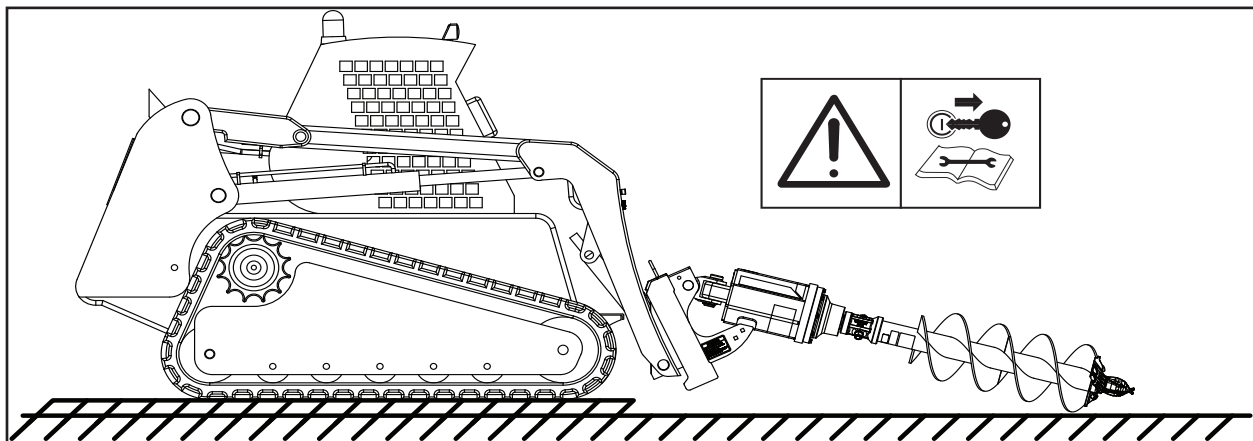
When transporting the parent machine with the auger drive assembly fitted, maneuver slowly and with caution, avoiding sudden movements and unintended auger swing.

Where possible, transport the auger drive assembly, ensuring the attachment is kept as low to the ground as practicable.

Do not activate the auger drive assembly during transport.

If safe transport cannot be assured, remove the auger drive assembly and transport it separately.

PARKING



When parking the machine, do not leave the auger drive assembly suspended.

The auger drive assembly must be fully lowered to the ground when the machine is parked.

Do not operate the auger drive assembly while the machine is in the parked position.

TRANSPORTATION ON PUBLIC HIGHWAYS

Transportation on Public Highways (United States)

Before transporting the equipment on public highways, the auger drive assembly must be removed from the parent machine.

The auger drive assembly and all associated components must be properly secured using suitable rated strapping and designated tie-down points to prevent movement, shifting, or detachment during transport.

The operator is responsible for ensuring that the load is secured in accordance with all applicable U.S. federal, state, and local transportation and safety regulations.

MAINTENANCE

DAILY CHECKS

- Check **ALL** grease points (where applicable)
- Check condition of hydraulic components. **See page 12.**
- Check the condition of Auger Drive (Leaks), Auger Bit (Wearing parts / Extension segments).

WEEKLY CHECKS

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

- Check the structural integrity of the Auger Drive unit, Mounting Frame, Auger Bits, Extension tools. Replace/repair where necessary.
- Check the condition of **ALL** mounting hardware and pins. Replace/repair where necessary.

GEAR OIL

Each Belltec Auger Drive unit is supplied pre-filled with gear oil. This gear oil requires changing at regular intervals. Changing the oil at regular intervals will prolong the life of your unit.

MODELS	OIL TYPE/ GRADE	QUANTITY	FIRST SERVICE INTERVAL	SUBSEQUENT IN- TERVALS
LC-150, LC-200, LC-300, LC-350	AGMA 6EP / ISO EP320 PAO	16 FL-OZ [0.474 LITRES]	6 MONTHS/250 HOURS WHICHEVER OCCURS FIRST	EVERY 12 MONTHS/250 HOURS, WHICHEVER OCCURS FIRST
H-200, H-300, H-350	AGMA 6EP / ISO EP320 PAO	32 FL-OZ [0.946 LITRES]	6 MONTHS/250 HOURS WHICHEVER OCCURS FIRST	EVERY 12 MONTHS/250 HOURS, WHICHEVER OCCURS FIRST

OIL DISPOSAL

Oil Disposal Disclaimer (United States and State Jurisdictions)

Used oil and oil-contaminated materials must be handled and disposed of in accordance with all applicable federal, state, and local laws and regulations, including requirements enforced by the U.S. Environmental Protection Agency (EPA) and applicable state and local environmental regulatory agencies.

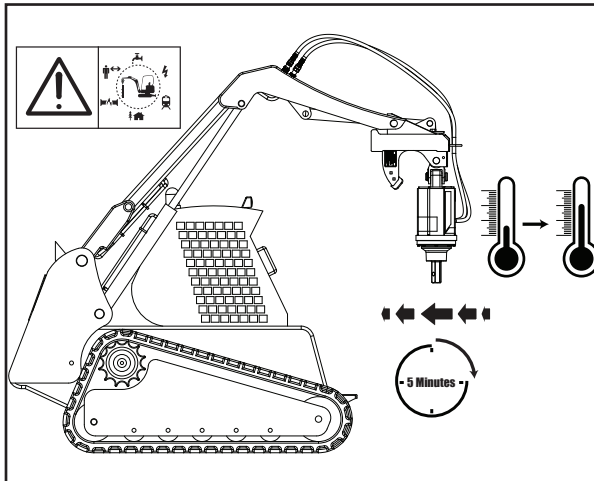
Improper disposal of oil, including discharge to land, storm drains, waterways, or municipal waste systems, is prohibited and may result in civil or criminal penalties under federal and state law.

The user assumes full responsibility and liability for the proper collection, handling, transportation, recycling, and disposal of all oil and oil-contaminated materials and for ensuring compliance with all applicable environmental laws and regulations in the state(s) of use.

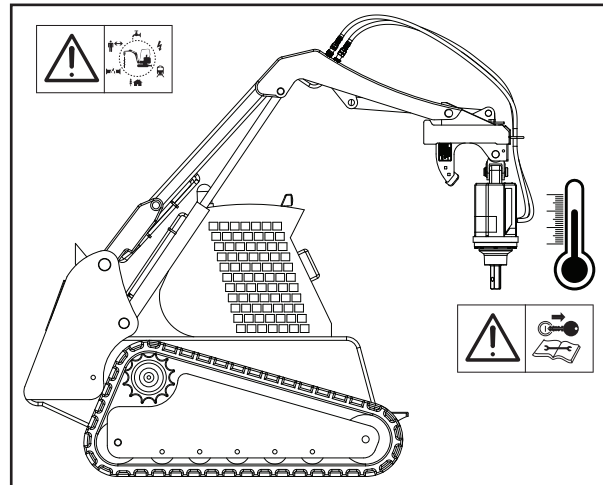
The manufacturer, supplier, and distributor expressly disclaim any and all liability for improper handling or disposal of oil, including but not limited to regulatory violations, fines, penalties, environmental damage, or re-mediation costs.

MAINTENANCE - OIL SERVICE

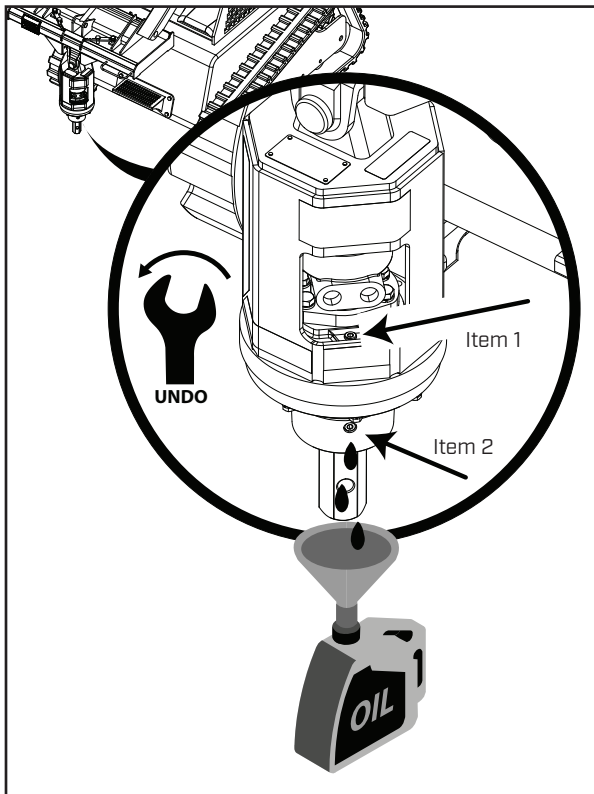
OIL SERVICE



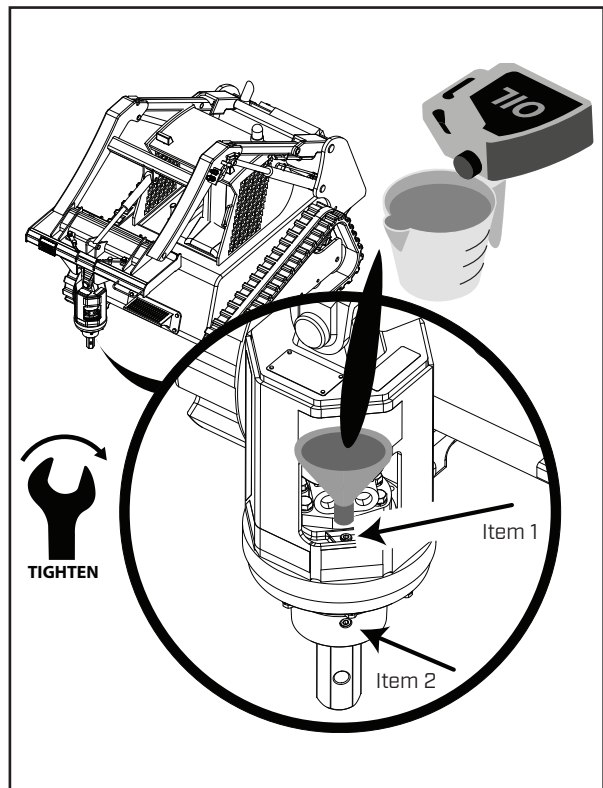
Pre-heat Auger Drive assembly, **WITHOUT** an Auger bit fitted, for 5 minutes.



Once pre-heated, switch off parent machine and lock out hydraulics.



Place suitable container beneath lower drain port [Item 2]. Remove Item 2. Oil will start to drain. Remove item 1, oil drain speed will increase. **ENSURE** all oil is removed. **See page 20** for disposal notes.



Measure out the correct amount of oil for your specific unit.

See page 27.

Install item 2 - 11/13Ft-Lbs [15/18Nm]

Fill unit.

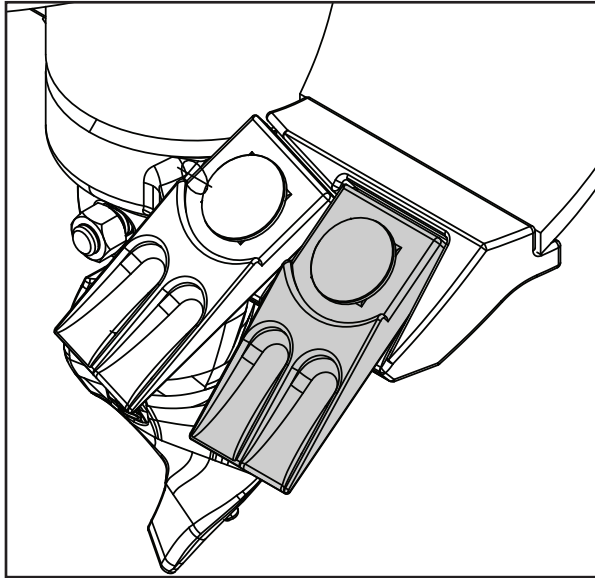
Re-fit Item 1 - 11/13Ft-Lbs [15/18Nm]

Follow First start up procedure. **See page 14.**

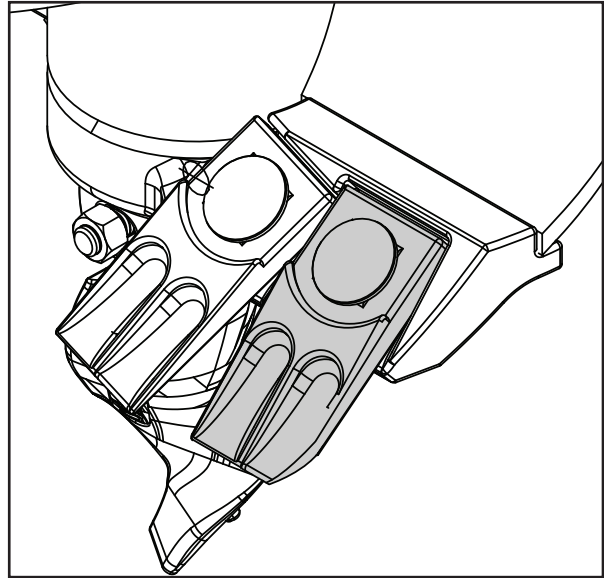
MAINTENANCE - AUGER TOOLS

AUGER BIT WEAR PART CONDITION

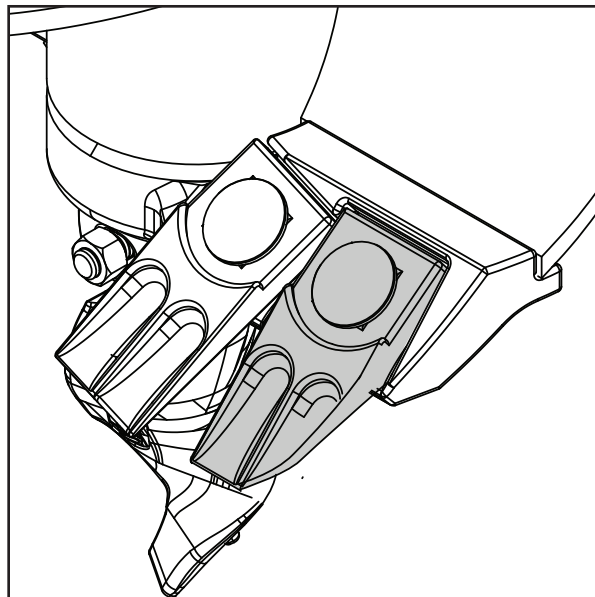
The auger bit wearing parts should be checked regularly for wear. Failure to replace wearing parts, in a timely manner, **WILL** result in poor drilling performance and/or damage to the Auger bit.



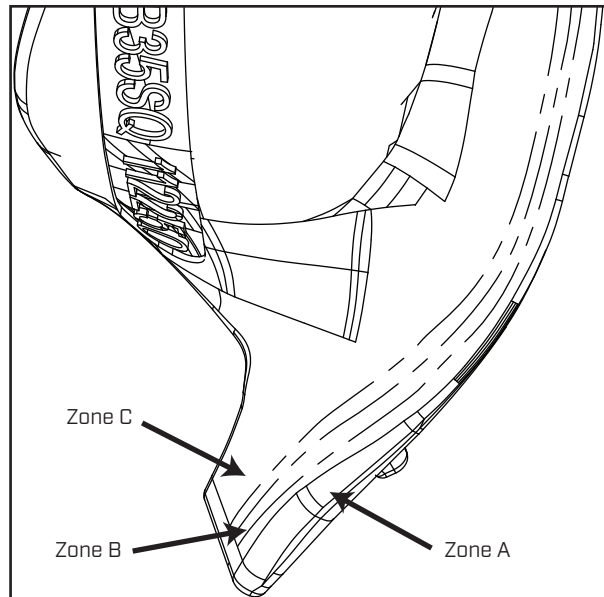
New wearing parts - optimal performance



Partially worn wear parts - performance reduced



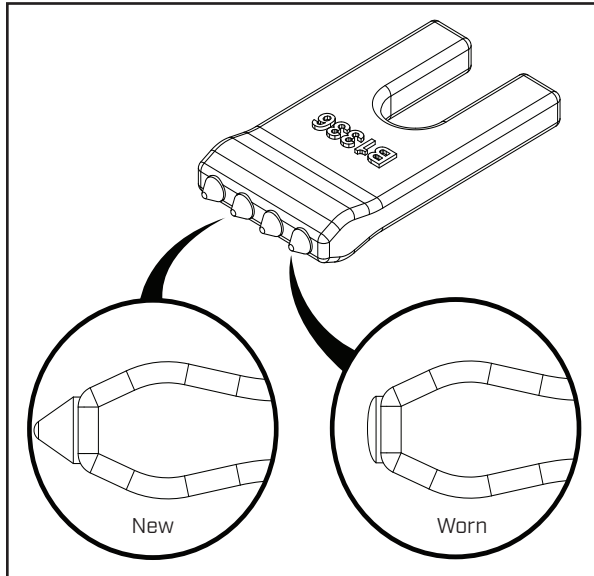
Excessively worn wearing parts - severe performance reduction - replace **IMMEDIATELY**.



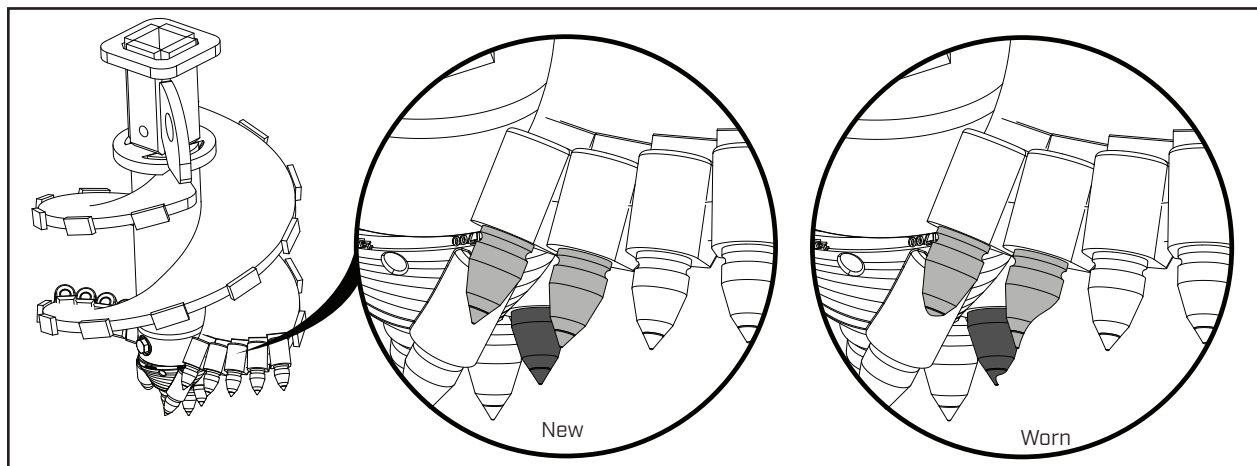
- Zone A - New - optimal performance
- Zone B - Partially worn - Reduced performance
- Zone C - Excessively worn - Severe performance reduction - replace **IMMEDIATELY**.

MAINTENANCE

AUGER BIT WEAR PART CONDITION - CONTINUED



New wearing parts - optimal performance.
Excessively worn wearing parts - severe performance reduction replace **IMMEDIATELY**.
Excessively worn components include dull, chipped or lost tungsten carbide.



New wearing parts - optimal performance.
Excessively worn wearing parts - severe performance reduction - replace **IMMEDIATELY**.
Excessively worn components include dull, chipped or lost tungsten carbide.

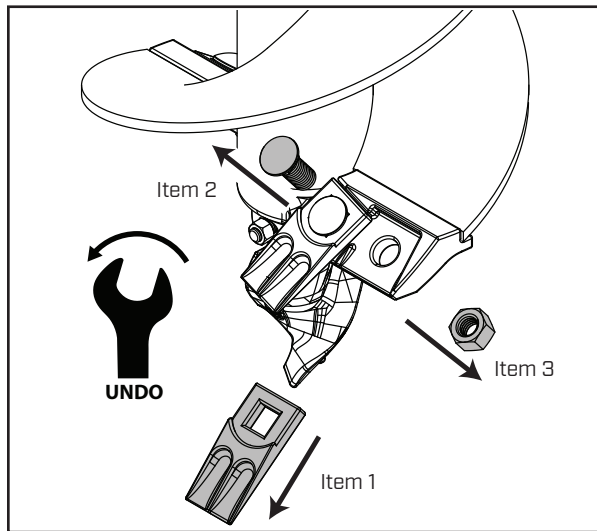
MAINTENANCE

WEAR PART CHANGE

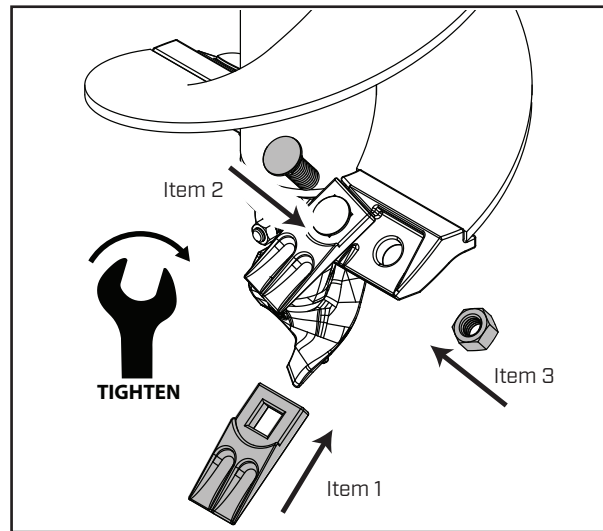


The cutting teeth and pilot must be checked regularly for wear. Failure to replace these wearing parts when required may result in reduced drilling performance and potential damage to the auger bit assembly.

BOLT ON TEETH

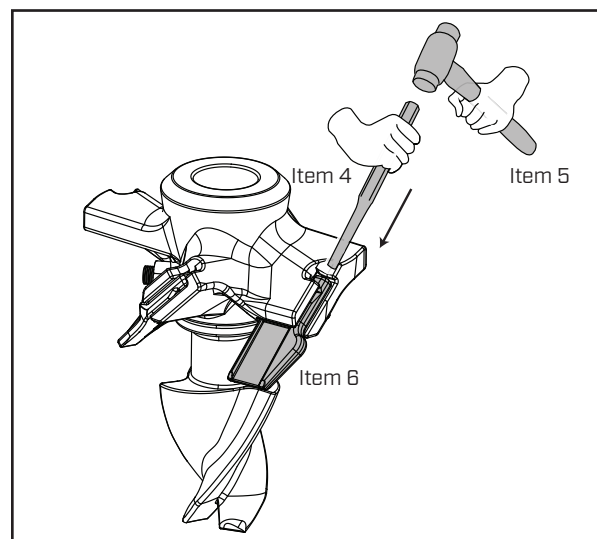


Undo and remove Item 3, remove item 2, remove item 1.

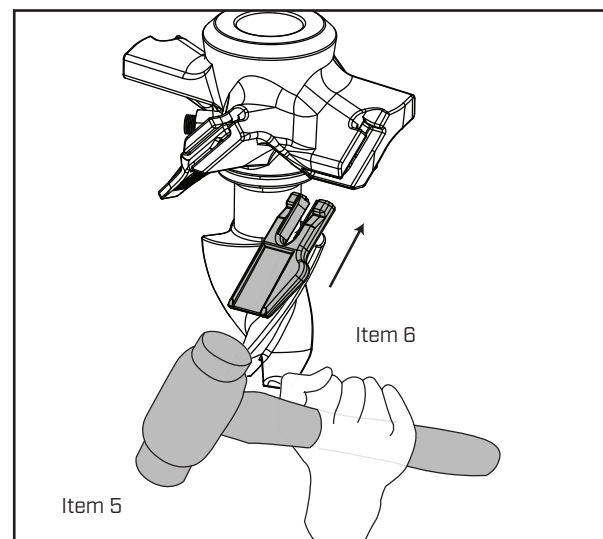


Install item 1, align and install Item 2, install Item 3. Tighten assembly to 22/26Ft-Lbs [30/36Nm].

WEDGE STYLE TEETH



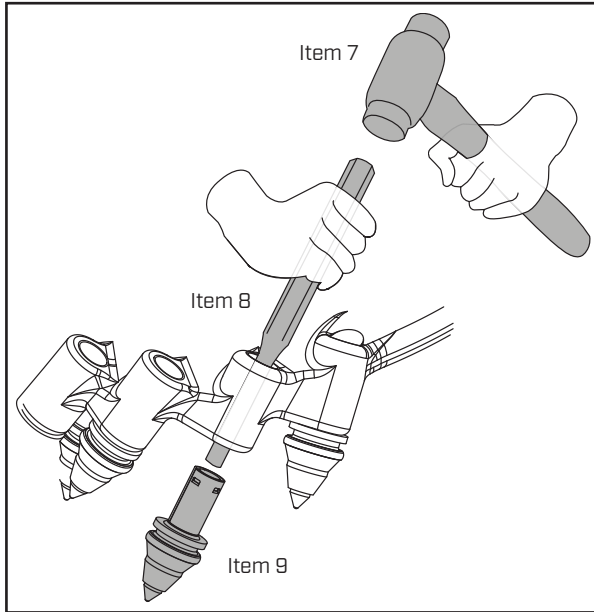
Using a soft face mallet, Item 5 and Suitable drift punch, Item 4, Strike Item 6 from the rear to remove.



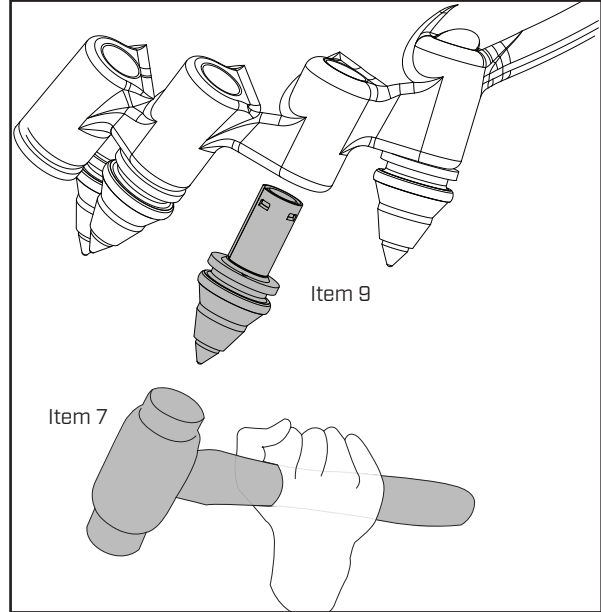
Align and hand fix item 6. Using a soft faced mallet, Item 5, strike Item 6 until fully seated.

MAINTENANCE

ROTATING PICK CHANGE

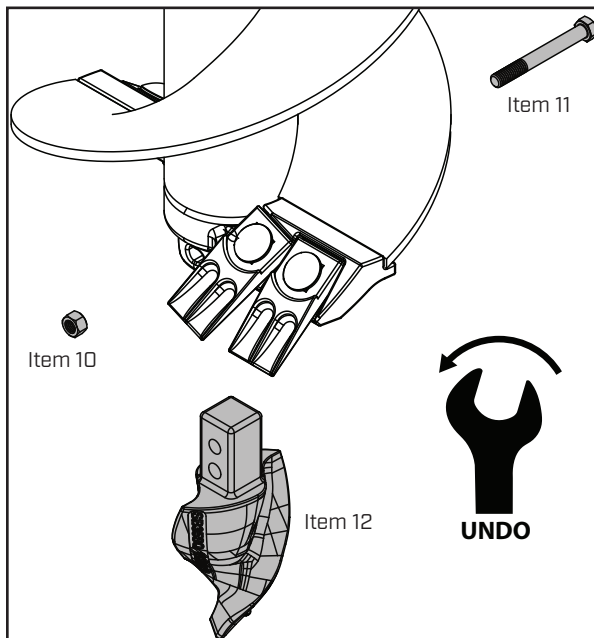


Using a soft face mallet, Item 7, and Suitable drift punch, Item 8, Strike Item 9 from the rear to remove.

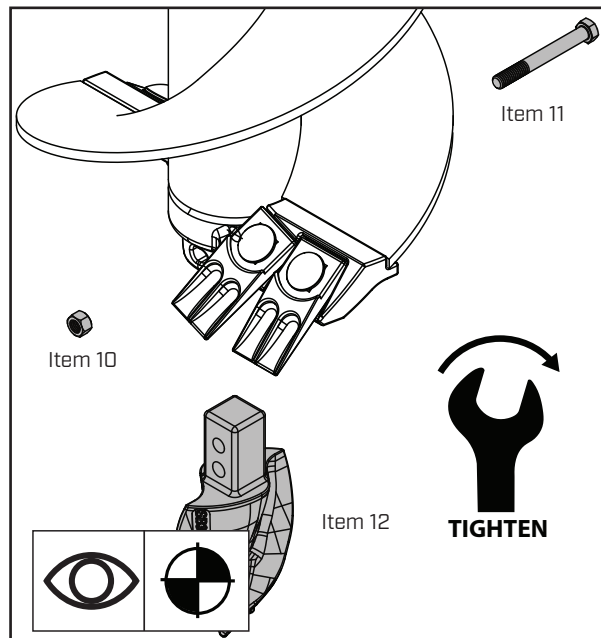


Align and hand fix item 9. Using a soft faced mallet, Item 7, strike Item 9 until fully seated.

PILOT BIT CHANGE



Undo and remove Item 10, remove item 11, remove item 12.



Install item 12, align and install Item 11, install Item 10. Tighten assembly to 22/26Ft-Lbs [30/36Nm].

TROUBLE SHOOTING

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 pressure	Check Parent machine. Refer to the required specifications for the Auger Drive unit fitted. See page 27.
	Auger drive unit seized	Contact Belltec or your representative 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 page 27.
Slow digging speed / Rotation	Insufficient hydraulic oil flow	Check Parent machine. Refer to the required specifications for the Auger Drive unit fitted. See page 27.
	Incompatible Auger Drive unit	Check Parent machine. Refer to the required specifications for the Auger Drive unit fitted. See page 27.
	Auger Bit too large	Fit suitably sized Auger Bit.
	Auger Teeth/Pilot excessively worn	Replace worn parts. See page 24.
	Worn hydraulic motor	Contact Belltec or your representative for further assistance.
	Excessive parent machine down pressure	Reduce parent machine down pressure. See page 17.
	Insufficient parent machine down pressure	Increase parent machine down pressure. See page 17.
Auger bit stall during operation	Insufficient hydraulic oil pressure	Increase hydraulic oil pressure. See page 27.
	Insufficient hydraulic oil flow	Increase hydraulic oil flow. See page 27.
	Blocked hydraulic filter	Refer to parent machine manufacturer/maintenance manual/schedule.
	Excessive parent machine down pressure	Reduce parent machine down pressure. See page 17.

TROUBLE SHOOTING - CONTINUED

FAULT	POSSIBLE CAUSE	ACTION
Auger bit stall during operation	Incompatible Auger Drive unit / Auger Bit / Parent machine combination.	Fit compatible equipment. See page 27.
	Parent machine hydraulic pressure relief valve set too low / faulty.	Reset/replace parent machines pressure relief valve. See page 27 for specifications.
Excessive rotational speed	Excessive input hydraulic oil flow.	Check and adjust input oil flow, See page 27 for specifications.
	Incompatible Auger Drive unit.	Fit compatible equipment, See page 27 for specifications.
Mounting frame does not fit parent machine	Incorrect or non-genuine mounting frame used.	Fit compatible mounting frame. Contact Belltec for further assistance.
Excessive movement in locating pins	Damaged\Worn components.	Repair/Replace worn components ONLY use genuine Belltec components.
Auger Drive units does not fit mounting frame.	Incorrect\Non-genuine mounting frame used.	Fit compatible mounting frame. Contact Belltec for further assistance.

SPECIFICATIONS

MODEL	LC-150	LC-200	LC-300	LC-350
Service weight LBS [Kg's] (DRIVE ONLY)	150 [68]	150 [68]	150 [68]	151 [69]
Operating pressure range PSI {BAR}	1740-3500 [120-240]	1740-3500 [120-240]	1740-3500 [120-240]	1740-3500 [120-240]
Operating oil flow range GPM [LPM]	5-15 [20-57]	9-20 [35-76]	16-30 [60-114]	18-35 [70-132]
Max. Output torque Ft-Lbs [Nm]	1764 [2392]	2038 [2763]	2929 [3971]	3529 [4785]
Max. speed RPM	91	105	110	106
Motor port connection	7/8"-14 ORB	7/8"-14 ORB	7/8"-14 ORB	7/8"-14 ORB
Gearbox oil grade	AGMA 6EP / ISO EP320 PAO	AGMA 6EP / ISO EP320 PAO	AGMA 6EP / ISO EP320 PAO	AGMA 6EP / ISO EP320 PAO
Gearbox oil capacity Fl Oz [litres]	16 {0.474}	16 {0.474}	16 {0.474}	16 {0.474}

SPECIFICATIONS - CONTINUED

MODEL	H-200	H-300	H-350
Service weight LBS [Kg's] (DRIVE ONLY)	183 [83]	185 [84]	216 [93]
Operating pressure range PSI {BAR}	1740-3500 [120-240]	1740-3500 [120-240]	1740-3500 [120-240]
Operating oil flow range GPM [LPM]	9-20 [35-76]	6-30 [60-114]	16-35 [60-132]
Max. Output torque Ft-Lbs [Nm]	2486 [3371]	3572 [4843]	4303 [5834]
Max. Speed RPM	86	90	87
Motor port connection	7/8"-14 ORB	7/8"-14 ORB	7/8"-14 ORB
Gearbox oil grade	AGMA 6EP / ISO EP320 PAO	AGMA 6EP / ISO EP320 PAO	AGMA 6EP / ISO EP320 PAO
Gearbox oil capacity Fl Oz [litres]	32 [0.946]	32 [0.946]	32 [0.946]

GENERAL TERMS AND CONDITIONS

1. General Terms. These Terms and Conditions of Sale ("Terms of Sale") are applicable to the person, firm, company or other purchasing entity ("Customer"), and Belltec Industries, Inc. ("Belltec"), for items ordered by Customer from Belltec in whatever form or quantity ("Goods") within the United States. Any other document(s) containing terms and/or conditions that are in addition to or inconsistent with these Terms of Sale listed herein, including but not limited to penalties or liquidated damages for Belltec's failure to meet delivery dates or any other reason, are rejected by, and shall not be binding upon, Belltec. Belltec's failure to object to any additional, inconsistent, or other provisions contained in any other order or form of communication from Customer shall not be construed as either a waiver or acceptance of such provisions. Belltec reserves the right to correct any clerical or typographical errors at any time.

2. Acceptance. These Terms and Conditions constitute the entire agreement between Belltec and the Customer, superseding all prior agreements, understandings, and communications. Amendments must be in writing and signed by authorized representatives of both parties.

3. Pricing. All prices are in US Dollars. The purchase price of the Goods shall be those in effect on the date of Order Acknowledgment, unless otherwise specified by Belltec.

4. Governing Law and Jurisdiction. All agreements, sales, and transactions between Belltec Industries, Inc. ("Belltec") and any customer (the "Customer") shall be governed by and construed in accordance with the laws of the State of Texas. The parties agree that any dispute arising from these Terms shall be subject to the exclusive jurisdiction of the courts located in Bell County, Texas.

5. Invoices and Payment Terms. Goods will be invoiced at the time of dispatch. Payment is due within the agreed-upon term period of the invoice date. Late payments may incur finance charges at a rate of 1.5% per month, not exceeding the maximum permitted by Texas usury law. Belltec reserves the right to apply payments against any outstanding balance at its discretion.

6. Credit Approval and Security Interest. All orders are subject to credit approval. Customers shall provide annual financial statements and execute any required security agreements as specified by the Company. Belltec retains a security interest in all goods until payment is received in full and may file a UCC-1 financing statement to perfect this interest under Texas law.

7. Retention of Title (Security Interest)

- (a) Title to goods remains with Belltec until full payment is received
- (b) Risk of loss transfers to Customer upon shipment from Belltec's facility (FOB Origin).
- (c) The relationship between Belltec and Customer is fiduciary in nature, with the Customer holding goods as bailee until paid in full.
- (d) Belltec authorizes Customers to resell the goods as agents, provided they do not represent themselves as agents of Belltec to third parties.
- (e) In the event of default, bankruptcy, or insolvency, Belltec may reclaim any unpaid goods as permitted by the Texas Business & Commerce Code.

8. Delivery and Risk of Loss. Belltec ships all goods FOB Origin, Belton, Texas. Risk of loss passes to the Customer at the time of delivery to the carrier. Belltec will make reasonable efforts to meet delivery dates but shall not be liable for delays, including those caused by supply chain disruptions or unforeseen circumstances.

9. Returns and Restocking Fee. All returns require prior written authorization and are subject to a twenty percent (20%) restocking fee. Goods must be returned in new, unused, and saleable condition, in the original packaging (if applicable), within thirty (30) days of delivery, freight prepaid. Special orders, custom-manufactured products, or non-standard items are non-returnable. Acceptance of returns constitutes acceptance of these terms.

10. Right to Refuse Supply. Belltec reserves the right, at its sole discretion, to accept or decline any order as a whole or in part.

11. Liability and Warranty Disclaimer

- (a) Belltec shall not be liable for any indirect, special, consequential, or incidental damage, including but not limited to lost profits, lost business opportunities, or business interruption.
- (b) All implied warranties, including but not limited to merchantability and fitness for a particular purpose, are disclaimed to the fullest extent permitted by Texas law.
- (c) Where Belltec is liable, remedies shall be limited, at Belltec's sole discretion, to:
 - (i) replacement of goods. Where Belltec is liable, remedies shall be limited, at Belltec's sole discretion, to do so.
 - (ii) supply of equivalent goods
 - (iii) refund of the purchase price
 - (iv) repair of goods
 - (v) cost of resupply
- (d) To the extent permitted by Texas law, the Customer waives all rights under the Texas Deceptive Trade Practices Act (DTPA) unless the Customer qualifies as a consumer under the DTPA.

12. Credit Card Transactions. Belltec accepts payments by wire transfer, ACH, or other agreed-upon methods. Credit card payments may be accepted at Belltec's discretion.

13. Default and Remedies. In the event of default on any payment or other obligation, all sums owed become immediately due and payable. The Customer agrees to indemnify Belltec for all costs incurred in enforcing collection, including reasonable attorney fees, as permitted by Texas law.

14. Force Majeure. Belltec shall not be liable for delays or non-performance due to causes beyond its reasonable control, including but not limited to acts of God, labor disputes, supply chain disruptions, or governmental actions.

15. Design Improvements. Goods sold by Belltec are periodically updated with changes intended to enhance the design and construction of the Goods. As such, any illustrations, specifications, or other descriptive material submitted to the Customer may not depict an exact replica of the Goods at the time of delivery, are merely intended as a general description of the Goods, and are not deemed to constitute a part of this proposal or a warranty as to the specifications of the Goods.

WARRANTY POLICY AND PROCEDURE

BELLTEC GENERAL PRODUCT LIMITED WARRANTY

Belltec warrants its products to be free from defects in materials and workmanship for **ONE YEAR** from the original purchase date. Extended coverage applies to certain product groups as outlined in this policy. This warranty does not cover misuse, accidents, unauthorized modifications, non-Belltec parts, or normal wear items such as auger teeth, pilot bits, chains, bearings, drive tools, and blades.

To make a claim, return the **COMPLETE** product, freight prepaid by user, for inspection. If the issue is confirmed to be a defect in materials or workmanship, Belltec will, at its discretion, repair, modify, or replace the product at no charge.

LIMITATIONS OF RESPONSIBILITY

This warranty replaces all other warranties, expressed or implied, and excludes merchantability or fitness for a particular purpose. Belltec is not liable for special or consequential damages, transportation costs, or damage to prime mover equipment. Liability will not exceed the purchase price of the product. Unauthorized repairs or parts, as well as operation outside recommended procedures, void the warranty.

This warranty is void if repairs or disassembly of hydraulic motors, gearboxes, or controls are performed without written approval. The **COMPLETE** product must be returned in its original, allegedly failed condition for inspection. Belltec reserves the right to update designs or specifications at any time without obligation.

WARRANTY PROCEDURE

Upon notification of a problem/failure on a component, please advise a Belltec associate of the following:

1. Part number and serial number of the attachment.
2. Description of specific component failure.
3. Details of the prime mover the attachment is being used on: - machine type, make, and model, and hydraulic system specifications.
4. Comments pertaining to issue and or failure.

If a defective product/component is deemed necessary to be returned to Belltec, a Return Materials Authorization (**RMA**) number will be issued. All shipping documents **MUST** show this **RMA** number. Return the complete unit (freight prepaid by user) to Belltec for inspection and repair. If the problem is confirmed to be a manufacturing defect, Belltec will, at its option, repair, modify, or replace the unit at no charge.

PRODUCT SPECIFIC EXTENDED WARRANTY

Construction attachments Limited Warranty - Belltec warrants every construction attachment against defects in materials and workmanship per the period outlined below by series from the original purchase date. If an issue occurs, return the **COMPLETE** unit (freight prepaid by user) to Belltec for inspection and repair. If the problem is confirmed to be a manufacturing defect, Belltec will, at its option, repair, modify, or replace the unit at no charge.

- MC-Series Hydraulic Auger Drive: 5-Year Limited Warranty.
- LC-Series Hydraulic Auger Drive: 5-Year Limited Warranty.
- M-Series Hydraulic Auger Drive: 5-Year Limited Warranty.
- H-Series Hydraulic Auger Drive: 6-Year Limited Warranty.
- H-Series Replaceable Output Shaft: Lifetime Limited Warranty.
- HTLS-Series Hydraulic Auger Drive: 3-Year Limited Warranty.
- HP Series post drivers - 2-Year Limited Warranty.

Use this page to record observations, calculations, assumptions, decisions, or any additional information relevant to the use of this manual.

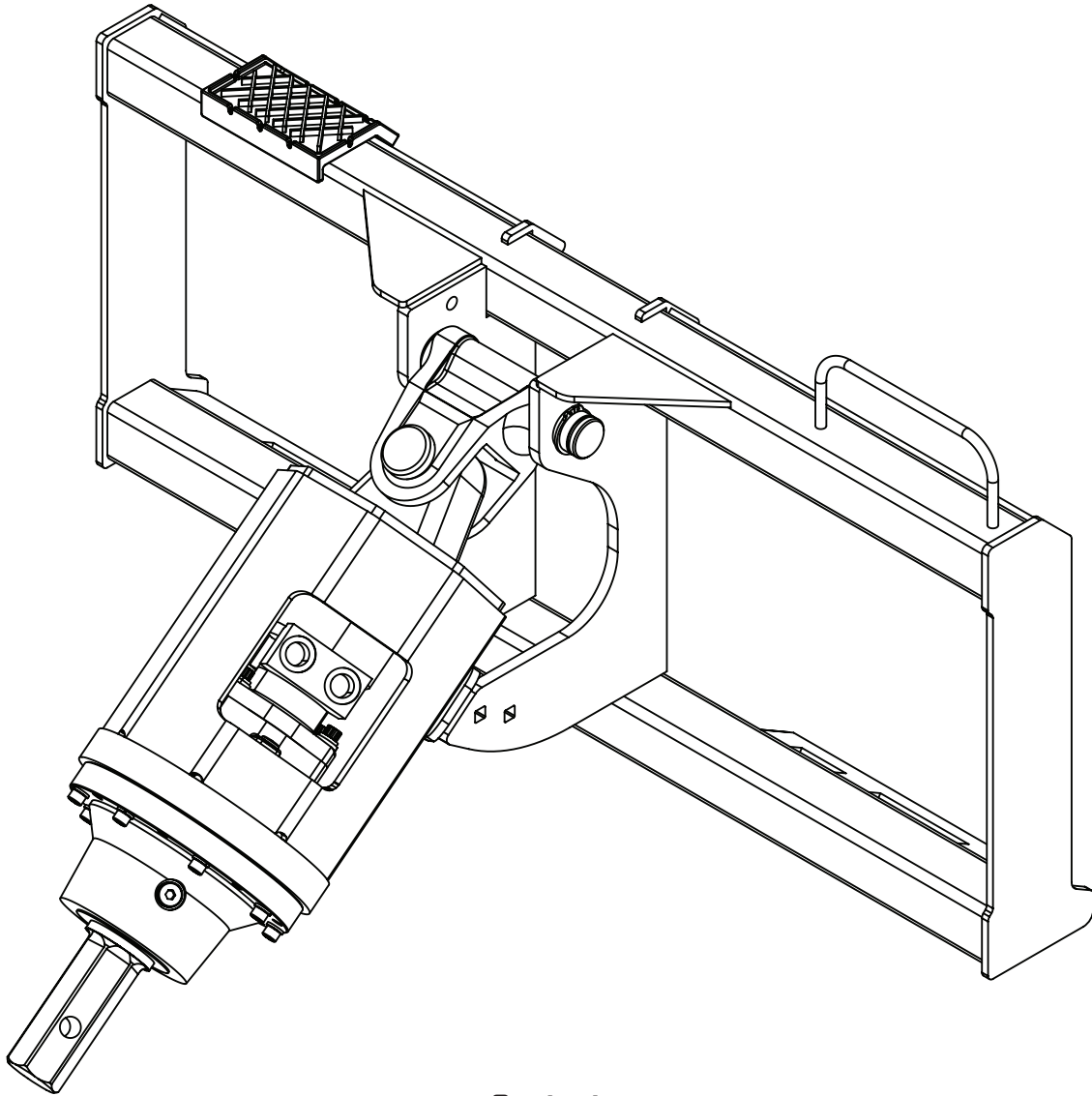
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LC SERIES AUGER DRIVE

Models: LC-150 | LC-200 | LC-300 | LC-350

Safety and operating instructions
Hydraulic Auger Drives

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