ETERRA
USA ESSENTIAL EQUIPMENT

99-95200405 - REV 09.2

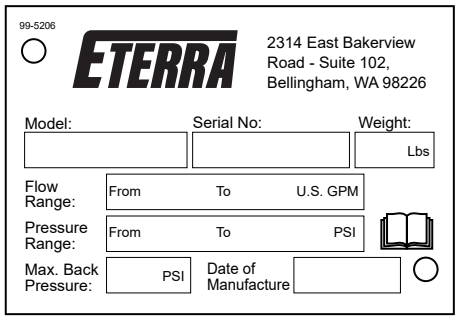
EARTH DRILL OPERATORS MANUAL

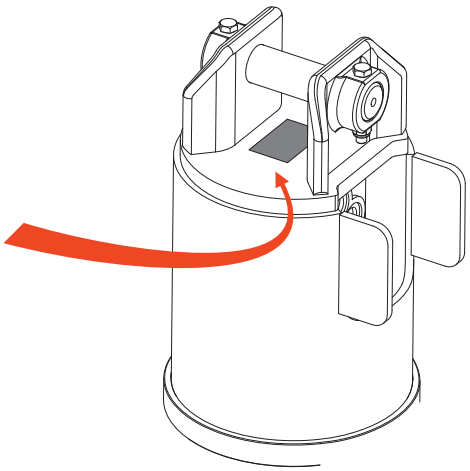
INDEX

FOREWORD

Enquiries

Please state the model type and serial number when making enquiries or orders and all written correspondence. The serial number is recorded on a plate located on the top of the drive unit.





Operating Limits

This equipment must be operated within the parameters stated on the serial plate. Failure to do so may cause damage to the equipment and invalidate the warranty. If in doubt, contact your nearest Eterra dealer.

REGISTRATION

For warranty purposes this form **MUST** be completed and returned to Eterra within 14 days of purchase by the end user.

Eterra
2316 East Bakerview Rd.
Bellingham,
Washington 98226
USA
Tel: 360-203-7730
sales@eterraattachments.com

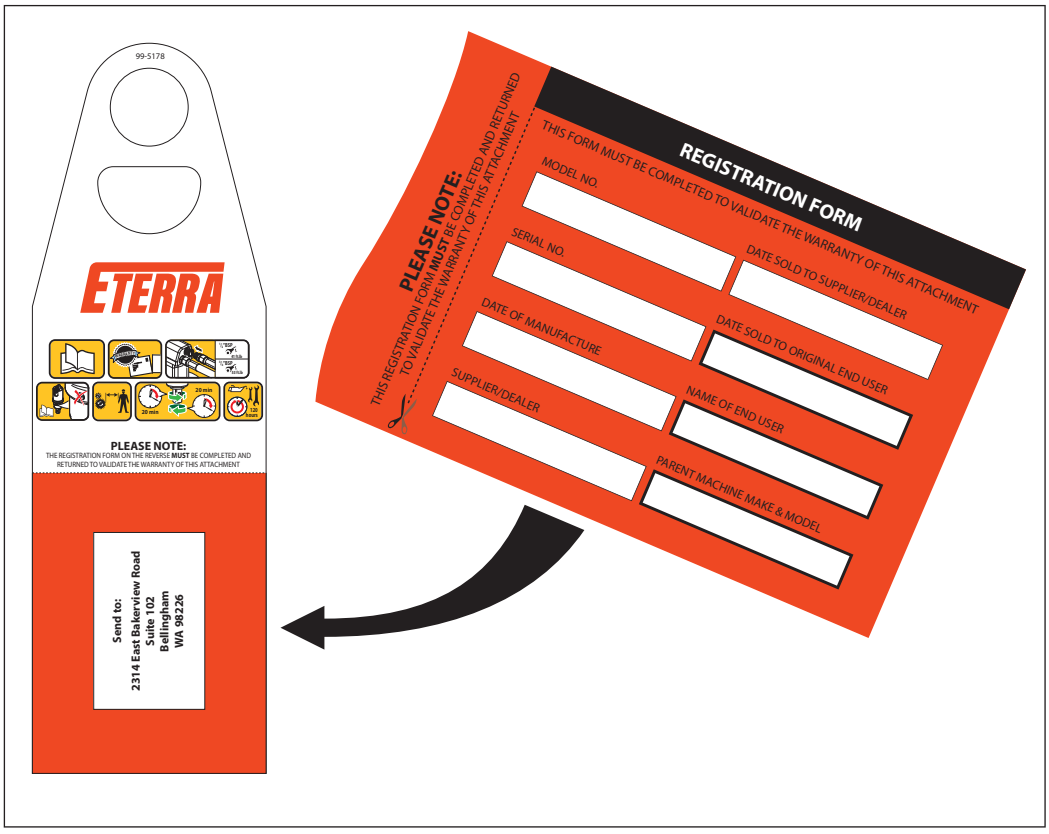
MODEL NUMBER:
SERIAL NUMBER:
DATE OF MANUFACTURE:
SUPPLIER / DEALER:
DATE SOLD TO SUPPLIER / DEALER:
DATE SOLD TO ORIGINAL END USER:
OWNER OR OPERATOR:
PARENT MACHINE MAKE & MODEL:

Note; Always quote the serial number in any communication with your supplier / dealer

For warranty purposes the form on the reverse of this page should be completed and returned to the appropriate address.

Eterra
2316 East Bakerview Rd.
Bellingham,
Washington 98226
USA
Tel: 360-203-7730

Alternatively, if your machine has a pre-installation checks label, like this;-



**Just fill in the details on the back and post it to us,
the address is printed on the front.**

REGISTRATION

Complete this form and keep it with the manual

Eterra
2316 East Bakerview Rd.
Bellingham,
Washington 98226
USA
Tel: 360-203-7730
sales@eterraattachments.com

MODEL NUMBER:
SERIAL NUMBER:
DATE OF MANUFACTURE:
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DATE SOLD TO SUPPLIER / DEALER:
DATE SOLD TO ORIGINAL END USER:
OWNER OR OPERATOR:
PARENT MACHINE MAKE & MODEL:

Note; Always quote the serial number in any communication with your supplier / dealer

INTRODUCTION

Eterra thank you for purchasing your new product. This operating manual has been prepared to enable you to operate the equipment in a safe manner.

Eterra Earth Drill Units have been designed for use with specific Eterra mounting frames, Augers, Auger extensions and Auger wear parts. Provided these are used and maintained correctly, they will provide a safe and reliable method of boring holes in the earth.

For information on lubrication and maintenance intervals, see pages 28 to 30
Before operating the Earth Drill, please note:

Your Earth Drill comes complete, filled with the correct amount of oil. There is no need to check the oil level.

Hydraulic hoses must be fitted and tightened to the correct torque (see page 17).

The unit must be run in following the recommended procedure (see page 19).

NOTE:

This operating manual should be used in conjunction with the parent machine's operating instructions.

Instruction books should be regarded as part of the machine. They should always be kept safe with the machine for easy and quick reference.

New or extra copies can be obtained from your Eterra dealer or direct from Eterra.

Eterra Earth Drill Units have been designed for use with specific parent machines along with the Eterra range of mounting frames, Augers, Auger extensions and Auger wear parts. Provided these are used and maintained correctly, they will provide a safe and reliable method of boring holes in the earth.

Eterra continually strives to improve and increase its range of products and therefore reserves the right to alter its specifications at any time without notice or obligation. The company accepts no responsibility for discrepancies which may occur between specifications of its machines and descriptions thereof contained in its publications.

SAFETY NOTES

Protect Yourself

Make sure you wear protective clothing and personal safety items.

You May Need

- A Hard Hat
- Safety Goggles
- Hearing Protection
- Foul Weather Clothing
- Reflective Clothing
- Protective Gloves
- Safety Boots

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

Know Your Equipment

Get to know all you how to operate all controls on the machine and the attachments

IF THERE IS SOMETHING IN THE MANUAL WHICH YOU DO NOT UNDERSTAND, CONTACT THE MACHINE AGENT OR MANUFACTURER AND ASK THEM TO EXPLAIN IT TO YOU.

Danger, Warning And Caution

This symbol below has 3 important meanings when used with the following captions.

DANGER: An IMMINENTLY HAZARDOUS situation that WILL result in DEATH or VERY SERIOUS INJURY

WARNING: A POTENTIALLY HAZARDOUS situation that COULD result in DEATH or VERY SERIOUS INJURY

CAUTION: A POTENTIALLY HAZARDOUS situation that MAY result in MINOR INJURY

Protective And Safety Devices

Keep all protective devices in place and securely fastened. Make sure all guards, sheilds and safety signs are properly installed and are in good condition.

Check The Equipment

Before you operate the equipment, take time to check your machine and ensure that all systems are in good operational order.

- Never operate the equipment with worn, damaged or missing parts. Use only genuine replacement parts.
- Always ensure that the parent machine is secure and stable with its engine switched off and hydraulic pipes disconnected before carrying out any maintenance work.
- Check for loose, broken, missing or damaged parts. Have everything put into good repair and make sure all safety devices are in place.
- Perform all maintenance procedures outlined for the equipment.
- Always protect hands. Select appropriate gloves when handling the equipment during fitting, removing or adjusting
- Always protect feet with safety boots.

WARNING: Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious PERSONAL INJURY, BLINDNESS OR DEATH.
Fluid leaks under pressure may not be visible. Use a piece of wood or thick cardboard to find leaks. DO NOT USE YOUR BARE HANDS.
Wear safety goggles for eye protection.
If any fluid is injected into the skin, it MUST be surgically removed.
SEE A DOCTOR IMMEDIATELY

Make sure all hydraulic lines are correctly installed

Before applying pressure to the hydraulic system be sure all connections are tight and that lines, pipes and hoses are not damaged. Before disconnecting hydraulic lines, be sure to relieve all pressure.

Hazard Classification

DANGER: IMMEDIATE HAZARD! - Failure to understand or obey this information is likely to result in personal injury or death.

WARNING: Failure to follow these instructions may result in personal injury or death.

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.

CLEAN OR REPLACE THE SAFETY LABELS IF THEY CANNOT BE CLEARLY READ OR UNDERSTOOD

Safety Precautions

NEVER operate or assemble the equipment without ***fully*** understanding the operating instructions of both the equipment unit and the parent machine.

Auger Torque recommend you receive dealer instruction before operating the unit.

NEVER operate the equipment unless you are in good physical condition and mental health.

NEVER operate the equipment under the influence of any substance (including drugs & alcohol) which might impair vision.

NEVER operate the equipment with worn, damaged or missing parts. Use only genuine replacement parts.

NEVER proceed with works before completing a site risks assessment immediately before commencing work. Nominating the safe work exclusion zone radius for persons and animals as part of identifying risks and implementing controls.

NEVER allow minors to operate the equipment.

ALWAYS survey the work area before commencing operations. Check for potential hazards,
eg. Electricity or communication cables etc.

ALWAYS ensure that the parent machine is secure and stable with it's engine switched off before carrying out any maintenance work.

ALWAYS ensure the hydraulic oil supply to the attachment is disconnected by uncoupling the hydraulic hose connectors before fitting, removing or adjusting the equipment

ALWAYS wear head protection and eye protection when working on the unit.

ALWAYS protect hands. Select appropriate when handling the equipment

during fitting, removing or adjusting the unit.

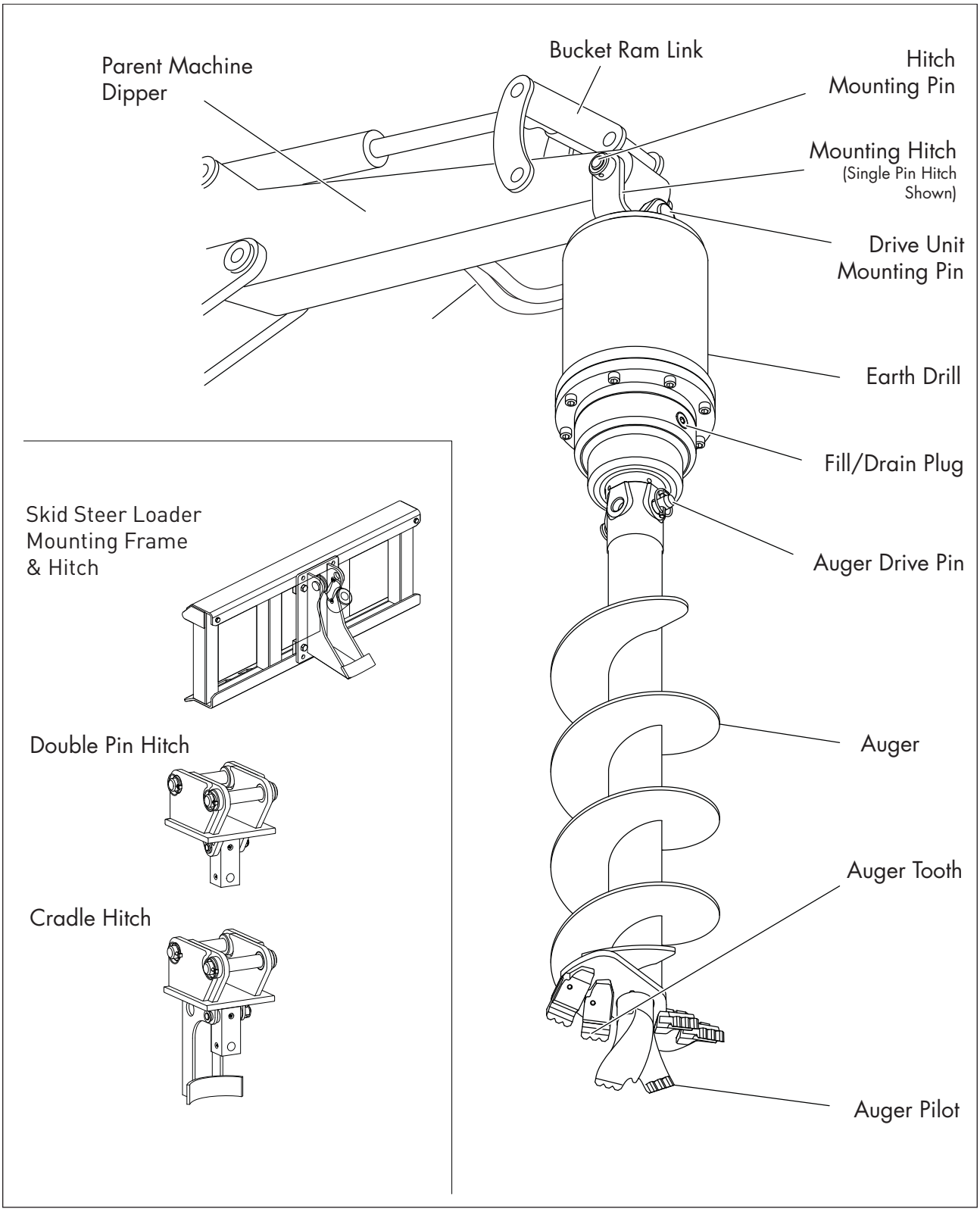
ALWAYS protect feet. Wear approved safety boots.

ALWAYS follow the parent machine instructions regarding noise protection.

STAY ALERT. Should something break, come loose or fail to operate on your equipment, STOP WORK, lower equipment to the ground, shut off the engine and lock out hydraulic supply, inspect the machine and have repairs or adjustments made before resuming operation.

IDENTIFICATION

Typical Setup



MOUNTING - HITCH FITTING

Single Pin Hitch

SAFETY FIRST

ALWAYS work in pairs (2 skilled operatives) whenever Earth Drill unit components are being assembled or disassembled from the parent machine. Always check the weight of the attachment and ensure you have the correct equipment for handling it.

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

Check that the mounting frame is of the correct model and type to fit the parent machine.
Ensure mounting frame and attachment points are clean before fitting.
Use suitably rated lifting equipment if required (see data plate for weight).

DIN 1284

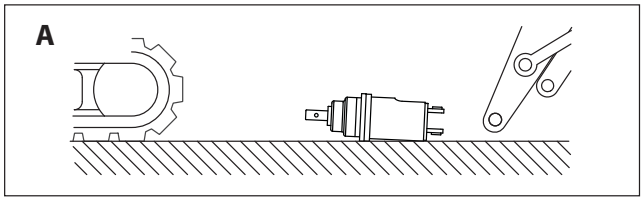
NOTE: The single Pin Hitch ***CANNOT*** be fitted to a quick Hitch.
FITTING Ensure all components are greased on assembly:

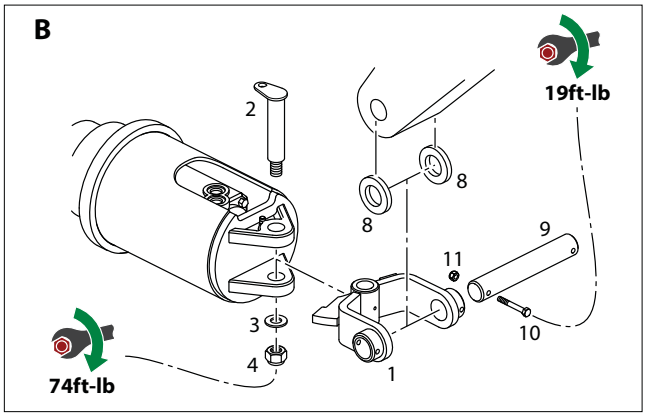
Set the Earth Drill unit horizontally, with the output shaft towards the parent machine as in fig A.

Pin for fitting the hood to the Mounting Hitch (1):

The ***Threaded Mounting Pin*** (item 2, fig B) Has a locating plate with a hole that fits over a peg in the hood ear. Align the Pin holes, fit the Pin (2), washer (3) and nylon insert nut (4) and torque to 74ft-lb.

Fitting to the parent machine is with through-bolted Pins in all cases:
Align the Pin holes of the mounting Hitch (1) and parent machine. Align bolt location holes fit spacers (8) if required to centralise the Hitch. Push the Pin (9) fully home, taking care to line up the Through Bolt holes. Fit the Through Bolts (10) and Nylon Insert Nuts (11) and tighten to 19ft-lb. Once fitted, check the Earth Drill swings freely in all directions.





Double Pin Hitch

SAFETY FIRST

ALWAYS work in pairs (2 skilled operatives) whenever Earth Drill unit components are being assembled or disassembled from the parent machine. Always check the weight of the attachment and ensure you have the correct equipment for handling it

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

Check that the mounting frame is of the correct model and type to fit the parent machine.
Ensure mounting frame and attachment points are clean before fitting.
Use suitably rated lifting equipment if required (see data plate for weight).

DIN 1284

NOTE: If a quick Hitch is fitted to the parent machine, refer to the quick Hitch manufacturer's installation instructions for correct fitting procedure.
FITTING ensure all components are greased on assembly:

Set the Earth Drill unit horizontally, with the output shaft towards the parent machine as in fig A.

There are two types of Pin for fitting the hood to the Mounting Hitch (1):

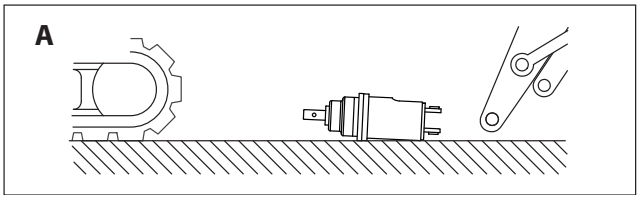
The ***Threaded Mounting Pin*** (item 2, fig B) has a locating plate with a hole that fits on a peg in the hood ear. Align the Pin holes, fit the Pin (2), washer (3) and nylon insert nut (4) and torque to 74ft-lb.

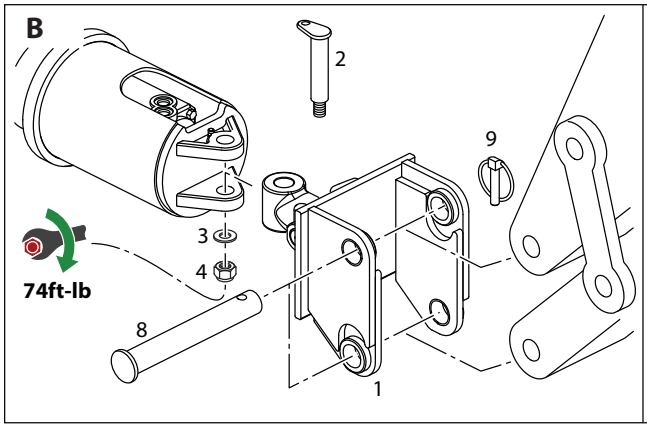
To fit the ***Through-Bolted Mounting Pin*** (item 5, fig C), align the Pin holes and push the Pin (5) fully home taking care to line up the Through Bolt holes. At both ends of the Pin fit the Through Bolts (6), Nylon Insert Nuts (7) and tighten to 19ft-lb.

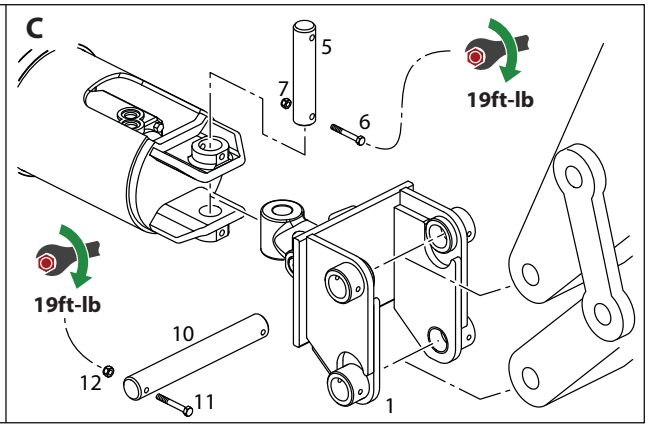
There are two types of Pin for fitting the Mounting Hitch (1) to the Parent Machine:

To attach a ***Linch Pin*** fitting (item 8, fig B), align the Pin holes, push the Pin (8) fully home and fit the linch Pin (9)

To fit the ***Through-Bolted Mounting Pin*** (10, fig C), align the Pin holes and push the Pin (10 fully home taking care to line up the Through Bolt holes, fit the Through Bolts (11) and Nylon Insert Nuts (12) and tighten 19ft-lb.







Cradle Hitch

SAFETY FIRST

ALWAYS work in pairs (2 skilled operatives) whenever Earth Drill unit components are being assembled or disassembled from the parent machine. Always check the weight of the attachment and ensure you have the correct equipment for handling it.

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

Check that the mounting frame is of the correct model and type to fit the parent machine.
Ensure mounting frame and attachment points are clean before fitting.
Use suitably rated lifting equipment if required (see data plate for weight).

DIN 1284

NOTE: If a quick Hitch is fitted to the parent machine, refer to the quick Hitch manufacturer's installation instructions for correct fitting procedure.
FITTING Ensure all components are greased on assembly:

Set the Earth Drill Unit horizontally in the cradle Hitch, with the output shaft towards the parent machine as in Fig A.

There are two types of Pin for fitting the Hood to the Mounting Hitch (1):

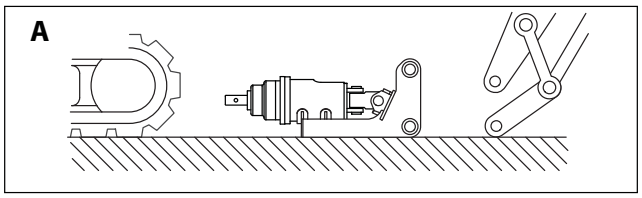
The ***Threaded Mounting Pin*** (item 2, Fig B) has a locating plate with a hole that fits on a peg in the hood ear. Align the Pin holes, fit the Pin (2), Washer (3) and Nylon Insert Nut (4) and torque to 74ft-lb.

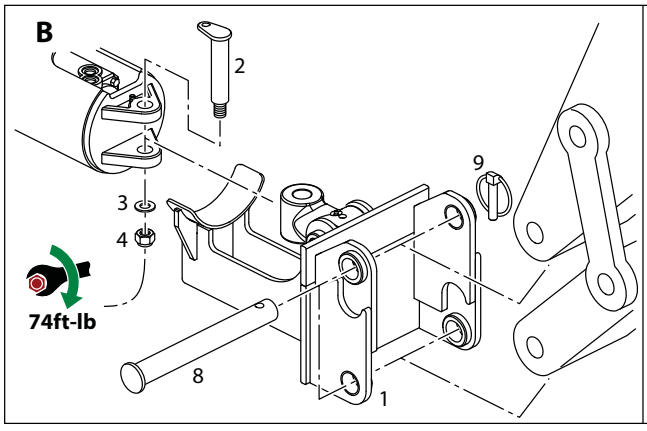
To fit the ***Through-Bolted Mounting Pin*** (item 5, Fig C), align the Pin holes and push the Pin (5) fully home taking care to line up the Through Bolt holes. At both ends of the Pin fit the Through Bolts (6) and Nylon Insert Nuts (7) and tighten to 19ft-lb.

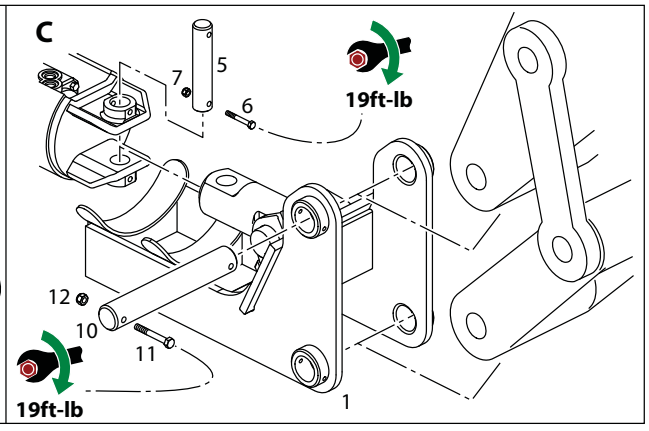
There are two types of Pin for fitting the Mounting Hitch (1) to the Parent Machine:

To attach a ***Linch Pin*** fitting (item 8, Fig B), align the Pin holes, push the Pin (8) fully home and fit the Linch Pin (9)

To fit the ***Through-Bolted Mounting Pin*** (item 10, Fig C), align the Pin holes and push the Pin (10) fully home taking care to line up the Through Bolt holes, fit the Through Bolts (11) and Nylon Insert Nuts (12) and tighten to 19ft-lb.







Skid Steer Loader & Telehandler

SAFETY FIRST

ALWAYS work in pairs (2 skilled operatives) whenever Earth Drill unit components are being assembled or disassembled from the parent machine. Always check the weight of the attachment and ensure you have the correct equipment for handling it.

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

Check that the mounting frame is of the correct model and type to fit the parent machine.
Ensure mounting frame and attachment points are clean before fitting.
Use suitably rated lifting equipment if required (see data plate for weight).

DIN 1284

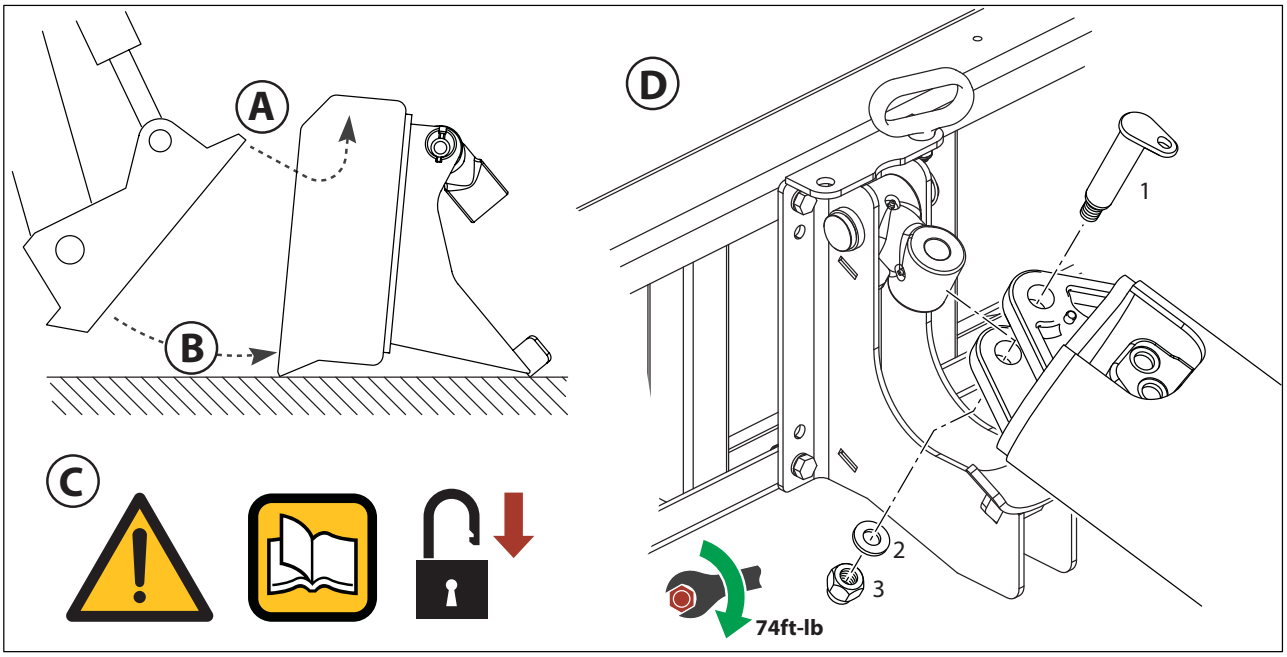
FITTING: Ensure all components are greased on assembly:

A Slot the top of the parent machine frame under the top edge of the Mounting Frame or Locating Hooks (refer to parent machine operator's manual).

B Swing the parent machine frame to the vertical position.

C Following the parent machine operator's manual, ensure that the Mounting Frame is securely locked in place.

D Working as a pair, lift the Earth Drill in to place with the port opening facing upwards Align hood ears with the hole in the linkage block. Secure the Earth Drill with the Pin (1), Washer (2) and Nylon Insert Nut (3) and torque to 74ft-lb.



HYDRAULIC CONNECTIONS

WARNING:

Hydraulic fluid under pressure can penetrate the skin or eyes and cause 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. Wear safety goggles to protect your eyes. If any fluid is injected into the skin, it ***MUST*** be surgically removed. Seek immediate medical attention.

All Eterra Earth Drill Units require a 'flow' and 'return' of hydraulic oil from the parent machine's auxiliary hydraulic power supply to operate. All gearboxes are reversible, but require the host machine to be fitted with a two-way flow auxiliary circuit. (Check with parent machine dealer for advice).

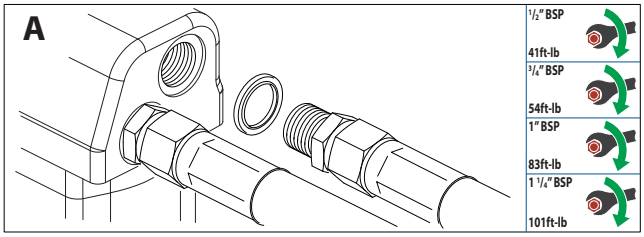
When fitting hydraulic hoses, ensure that they are tightened to the correct torque for the hose fittings (Fig A).

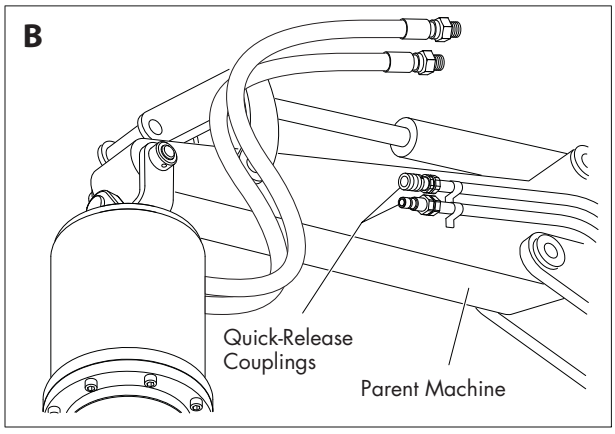
Quick Release Couplers are required for connection to the parent machine, but may not supplied with the unit. These can be sourced locally and should be compatible with the auxiliary hydraulic Quick Release Couplers on the parent machine (Figs B & C). The parent machine auxiliary hydraulic connections are normally located near the end of the loader arms, excavator dipper or truck crane booms.

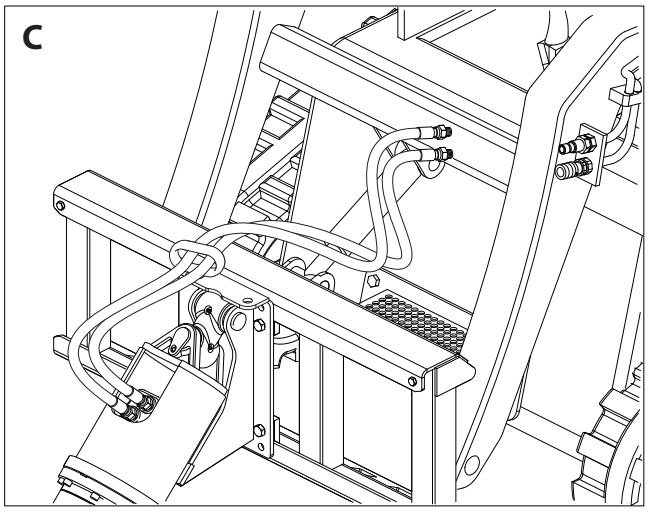
Ensure that the drilling rotation of the Earth Drill Unit is clockwise.

It is critical that the supply of oil is within the stated flow & pressure limits for the particular Earth Drill;

Refer to the serial plate on the top of the Earth Drill hood (see page 4).





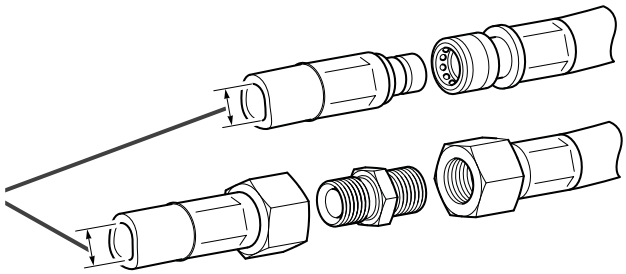


Earth Drill Maximum Permissible Back Pressures

Model	psi
2500	406
ML2500	406
3500	478
4500	478

Hoses Specifications

Minimum internal diameter



Minimum hydraulic hose requirements		
Model	**Minimum internal hose diameter (in)**	**Minimum working pressure (psi)**
2500	1/2"	3482
ML2500	1/2"	3480
3500	1/2"	3480
4500	1/2"	3480

Replacement hydraulic hoses ***MUST*** be rated equal or greater than the minimum working pressure.

RUNNING-IN

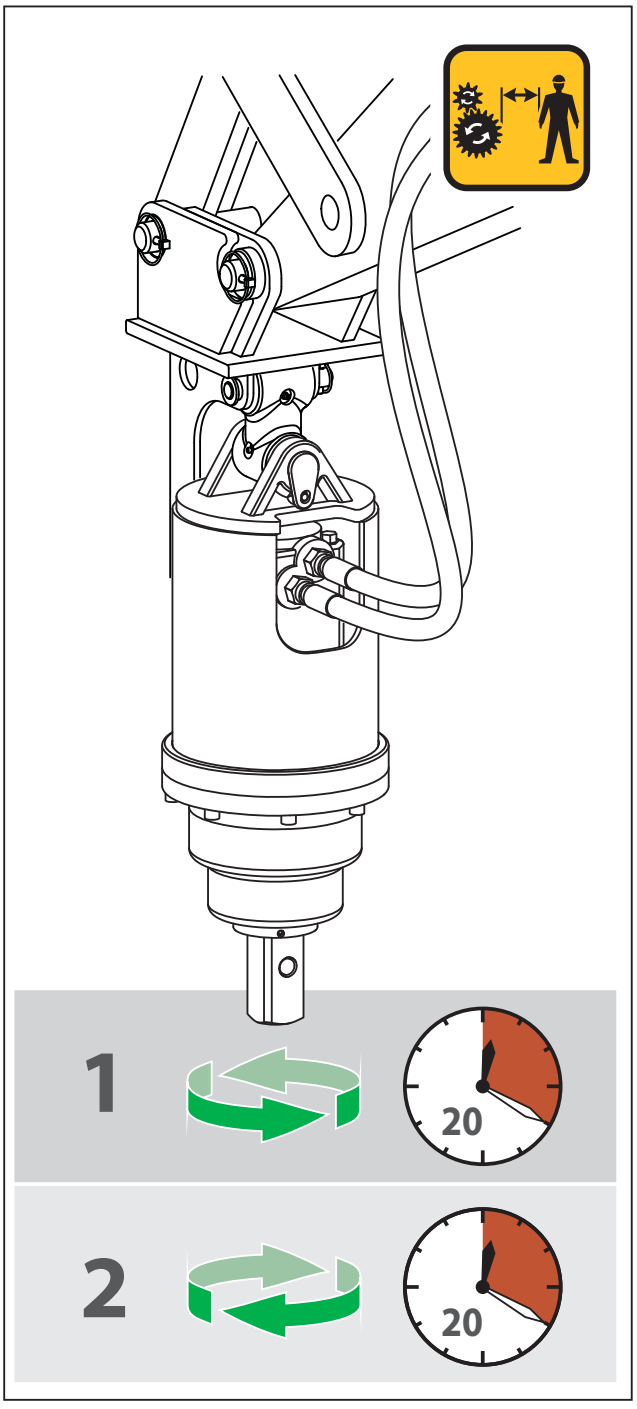
To maximise the life of the unit, it must be run in for a period.

To carry out the running in procedure, suspend the Earth Drill in it's vertical, working position.

For the duration of the running in procedure, ensure there are no bystanders within the nominated radius as defined in the risk assessment completed prior to commencing any works.

Operate the motor at 30% of rated pressure for 20 minutes in each direction before application of full operating load.

To further ensure best motor life and maintain warranty, refer to page 29 for lubrication instructions.



FITTING THE AUGER

SAFETY FIRST

ALWAYS work in pairs (2 skilled operatives) whenever Earth Drill Unit components are being assembled or disassembled from the parent machine.

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

CHECK that the Auger is the correct model and type to fit the Earth Drill Unit.

ENSURE that the Auger connections are clean before fitting.

USE suitably rated lifting equipment if required (see data plate for weight).

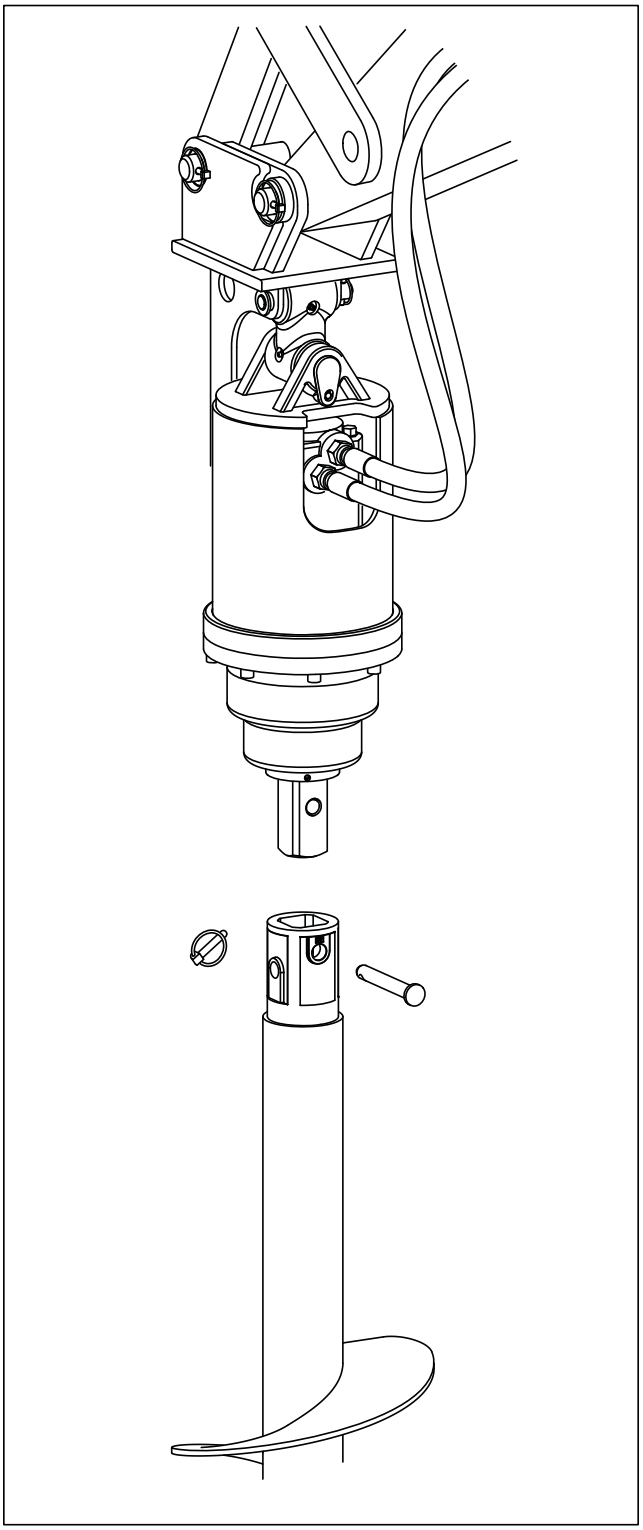
Position the Auger in the vertical work position and support it so that it cannot fall over.

Position the Earth Drill over the Auger and align the pin holes.

Lower the Earth Drill Unit onto the Auger

Locate the Auger Drive Pin

Secure the Auger Drive Pin with Linch Pin



PREPARATION

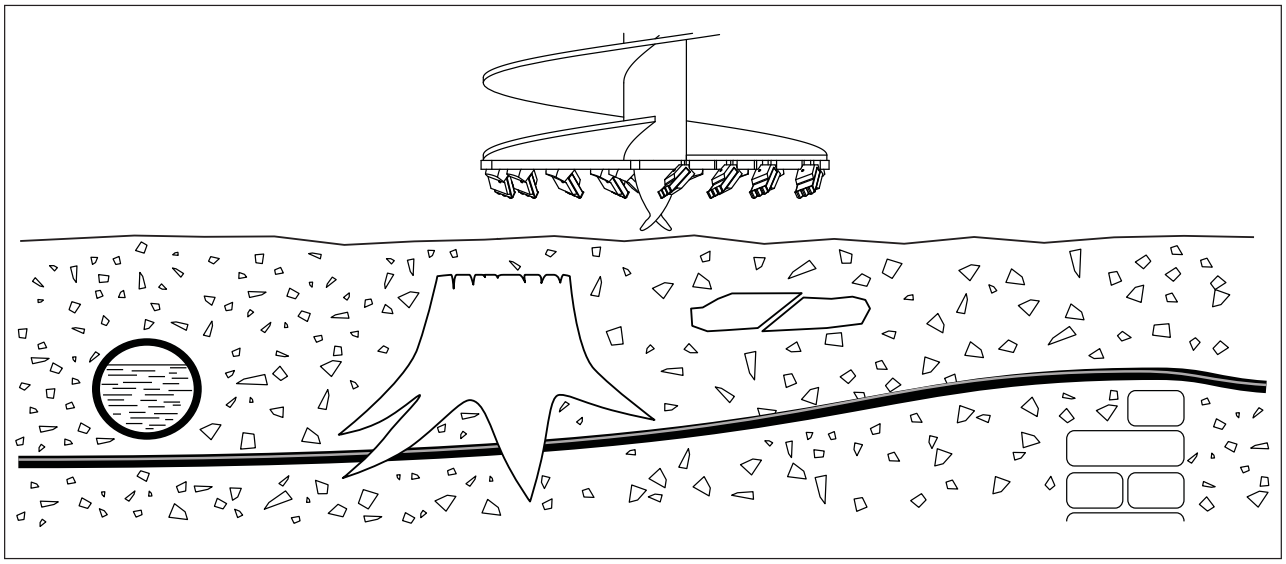
CONSIDER the topography (e.g. risk of subsidence, slope angle, position to embankments and any previous excavation).

NOTE the type of soil and its condition to enable selection of suitable teeth and pilot

ALWAYS carry out a site survey and risk assessment ***BEFORE*** starting work

AVOID underground hazards, such as water / gas / electricity / communication lines etc.

If in doubt detection equipment and professional advice should always be considered before carrying out any work.



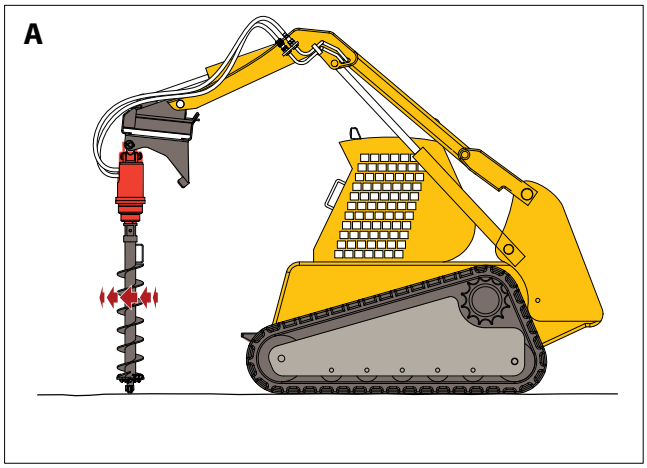
WORKING PROCEDURE

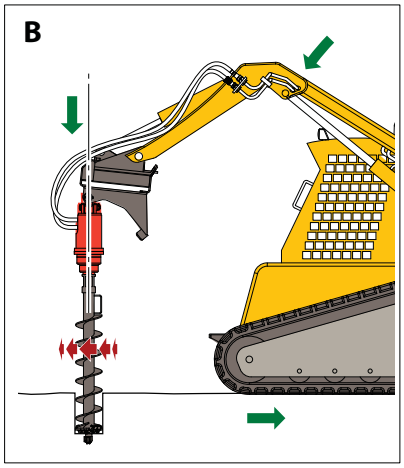
Before commencing work, ensure that:

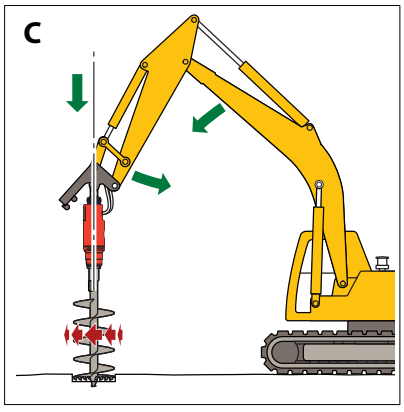
The correct hoses are fitted and tightened correctly ***(See page 17)***.
The unit has been properly run in ***(See page 19)***.

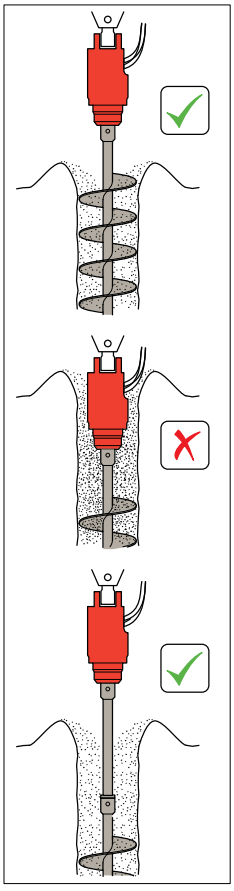
There are no bystanders within the nominated radius as defined in the risk assessment completed prior to commencing any works.

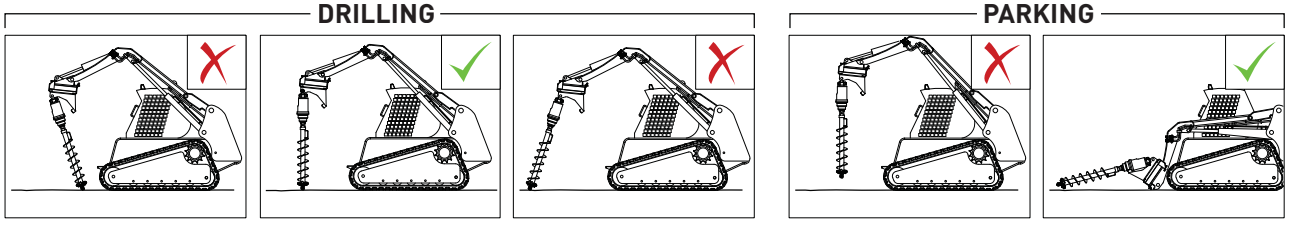
SET Auger in a vertical drilling position (Fig A).
ENSURE the direction of rotation is ***CLOCKWISE***.
ONLY start drilling after a site survey on a pre-marked safe location ***(see page 21)***.
GRADUALLY lower the parent machine arm(s) to apply down force to the Auger.
The harder the ground the more down force required.
Maintain drilling speed. ***DO NOT CONTINUALLY STALL*** the Earth Drill unit with excessive down force, as this will overheat the hydraulic oil and could damage the machine.
KEEP THE AUGER VERTICAL;
For skid steer machines (Fig B);
Adjust the angle of the arms, mounting frame and the position of the parent machine as necessary.
For excavators (Fig C);
Adjust the angle of the dipper and boom.
MAXIMISE efficiency and avoid damaging the Auger assembly by keeping the Auger vertical.
REGULARLY raise the Auger out of the ground to clear material from the Auger. This will help maintain drilling effectiveness and ensure your machine does not become unstable.
NEVER Drill beyond the length of the Auger.
NEVER leave the Auger assembly suspended.
ALWAYS park with the Auger on the ground.











DRILLING WITH FIXED EXTENSIONS

When the required hole depth is greater than the length of the Auger, an Extension should be used. ***DO NOT*** allow the Earth Drill to enter the hole as seals can be damaged by spoil being extracted.

SAFETY FIRST

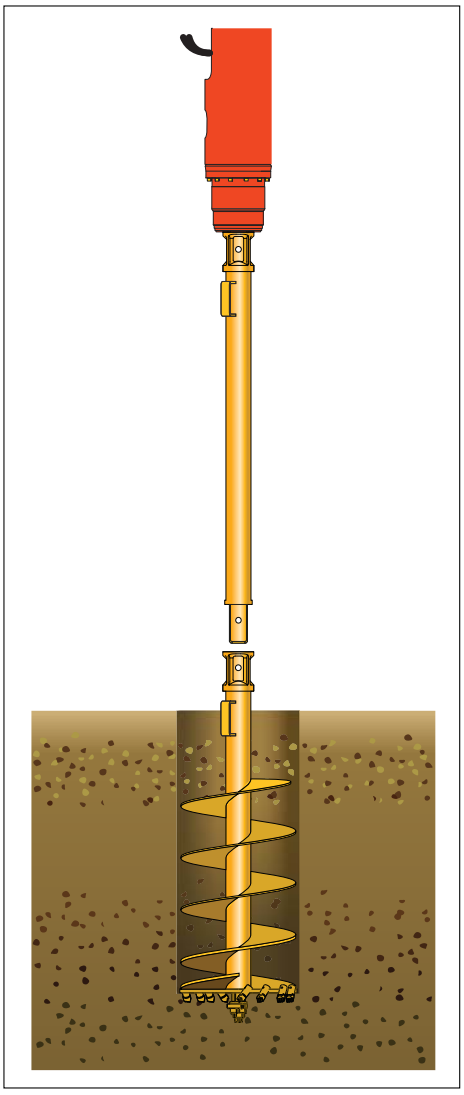
Whenever Earth Drill Unit components are being assembled or disassembled from the parent machine ***ALWAYS*** work in pairs (2 skilled operatives). While fitting components,

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, its hydraulic circuit locked out and its engine switched ***OFF***.

CHECK that the Extension is the correct model and type to fit the Earth Drill Unit and Auger.
ENSURE that all Earth Drill, Auger and Extension connections are clean before fitting.
USE suitably rated lifting equipment if required.

When using extensions in drilling operations, a length of timber is required for supporting the Auger while removing the Extension. The timber must be of minimum dimensions 6 in. deep x 2 in. wide and long enough to span the hole being drilled, plus an additional 12 in. length at each end.



Fitting A Fixed Extension

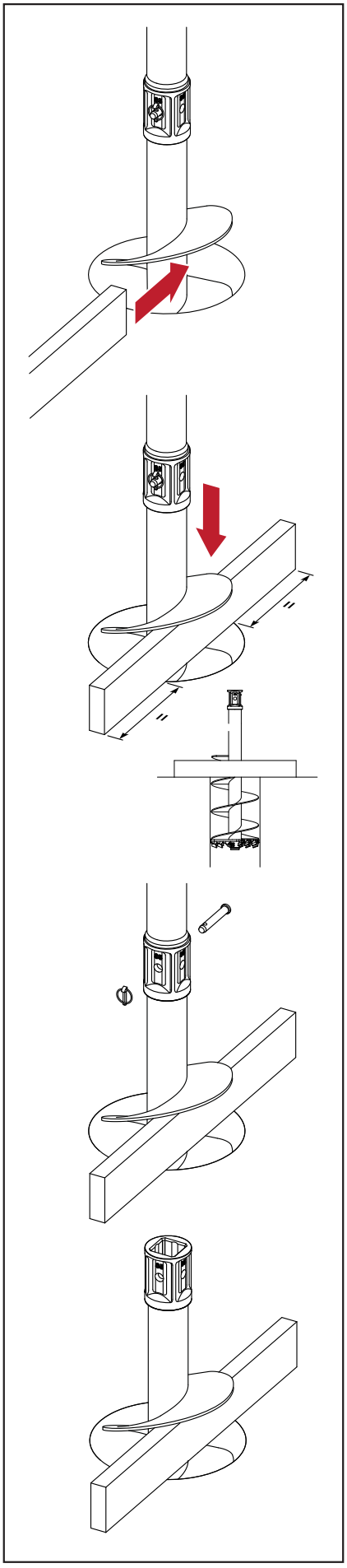
When the hole has been drilled to the point where the top of the auger comes within 8 in. above ground level;

- Stop drilling.
- Remove the auger from the hole and clear the spoil from the auger.
- Lower the auger back into the hole so that its' weight is supported and remove the Linch Pin and Auger Drive Pin.
- Lift the Earth Drill clear of the Auger and slew it to one side, clear of the hole and set it to a height that will allow the extension to be fitted easily.
- Position the Extension in the vertical work position and support it so that it cannot fall over.
- Position the Earth Drill over the Extension and align the pin holes.
- Lower the Earth Drill Unit onto the Extension.
- Insert the Extension Drive Pin.
- Secure the Extension Drive Pin with Linch Pin.
- Position the Earth Drill and Extension over the Auger and align the pin holes.
- Lower the Earth Drill and Extension onto the Auger.
- Insert the Auger Drive Pin.
- Secure the Auger Drive Pin with Linch Pin.
- Continue drilling.

REMOVING A FIXED EXTENSION

If the parent machine has a high reach, it may be possible to lift the auger clear of the hole to clear the spoil without removing the Extension. For smaller machines, and in cases where multiple Extensions are being used, it may be necessary to remove the Extension first.

- Lift the Earth Drill until the Auger Flight is clear of the ground and insert the timber support through the Auger Flight.
- Lower the Earth Drill until the weight of the Auger and Extension are supported by the timber. Make sure that the load is spread equally on either side of the hole.
- Remove the Linch Pin and Auger Drive Pin.
- Lift the Earth Drill until the Extension is clear of the Auger and slew it to one side, clear of the hole and set it to a height that will allow safe removal of the extension.
- Support the weight of the Extension.
- Remove the Linch Pin and Extension Drive Pin.
- Remove the Extension and lay it on the ground.
- Position the Earth Drill over the Auger and align the pin holes.
- Lower the Earth Drill Unit onto the Auger.
- Insert the Auger Drive Pin.
- Secure the Auger Drive Pin with the Linch Pin.
- Lift the Earth Drill to remove the load from the timber support.
- Remove the timber support.



Multiple Fixed Extensions

Following the procedures above, multiple fixed Extensions may be added to further increase the hole depth. As with the Auger, each Extension is fitted with a handle through which the timber support can be inserted to support the Extension while adding or removing additional Extensions.

DRILLING WITH TELESCOPIC EXTENSIONS

Telescopic Extensions enable the drilling holes deeper than the Auger length, without the need to remove the Extension to extract the Auger.

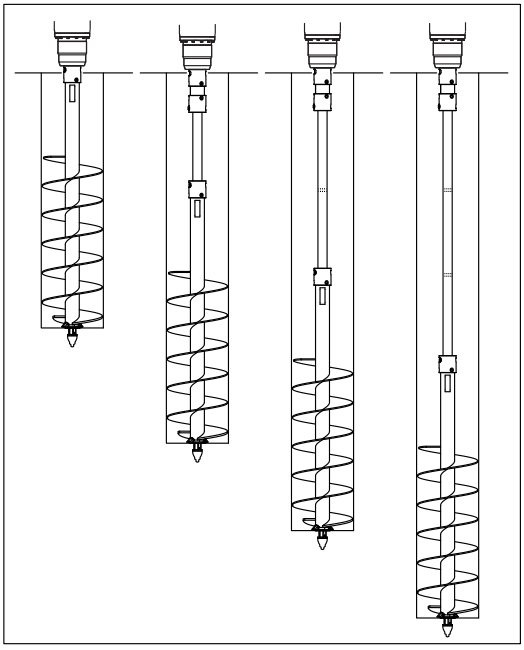
DO NOT allow the Earth Drill to enter the hole as seals can be damaged by spoil being extracted.

SAFETY FIRST

Whenever Earth Drill Unit components are being assembled or disassembled from the parent machine ***ALWAYS*** work in pairs (2 skilled operatives).

While fitting components, ***ALWAYS*** check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake ***ON***, hydraulic circuit locked out and its engine switched ***OFF***.



CHECK that the Extension is the correct model and type to fit the Earth Drill Unit and Auger.

ENSURE that all Earth Drill, Auger and Extension connections are clean before fitting.

USE suitably rated lifting equipment if required.

When using Telescopic Extensions in drilling operations, a length of timber is required for supporting the Auger while adjusting the Extension. The timber must be of minimum dimensions 6 in. deep x 2 in. wide and long enough to span the hole being drilled, plus an additional 12 in. length at each end.

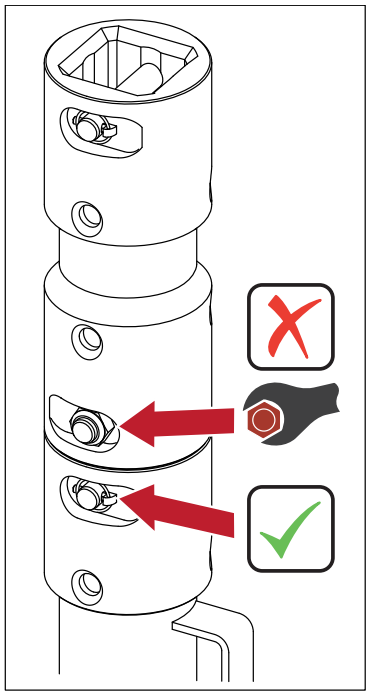
NOTE: Minimum auger diameter to be used with a telescopic extension is 12 in.

Fitting A Telescopic Extension

NOTE: The Telescopic Extension Hub is bolted to the Extension Shaft, ***DO NOT*** remove this bolt. The extension is fixed to the Auger with a pin and linch pin.

The Telescopic Extension can be fitted before drilling commences:

- Insert the Extension into the Auger, ensuring that the pin holes line up.
- Fix the extension to the Auger at the top pin hole (the shortest setting).
- Position the Auger and Extension in the vertical work position and support it so that it cannot fall over.
- Position the Earth Drill over the Auger and Extension align the pin holes.
- Lower the Earth Drill Unit onto the Extension.
- Insert the Extension Drive Pin.
- Secure the Extension Drive Pin with Linch Pin.
- Commence drilling.



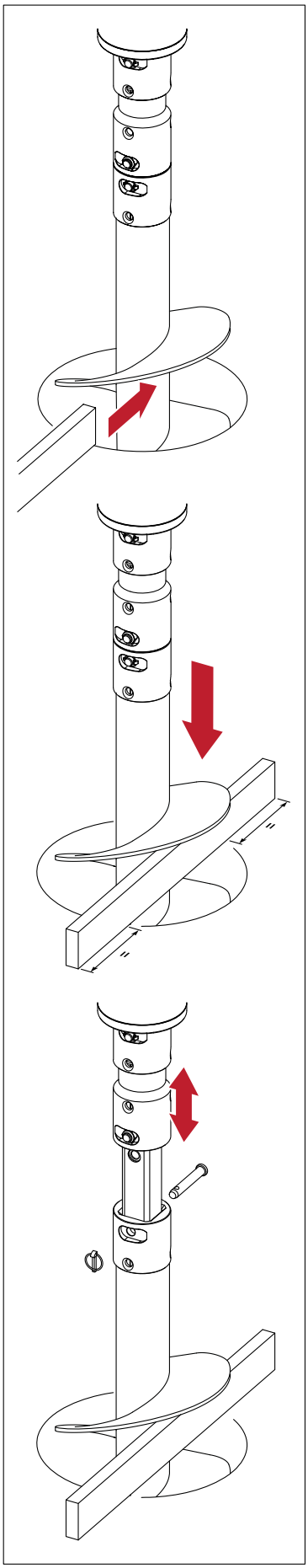
ADJUSTING A TELESCOPIC EXTENSION

To adjust the Extension length:

- Lift the Earth Drill until the Auger Flight is clear of the ground and insert the timber support through the Auger Flight.
- Lower the Earth Drill until the weight of the Auger and Extension are supported by the timber. Make sure that the load is distributed equally on either side of the hole.
- Remove the Linch Pin and Auger Drive Pin.
- Lift the Earth Drill until the desired Extension length is achieved and the holes in the Auger and Extension line up.

NOTE: The shaft of the Telescopic Extension has a red painted portion at the bottom end. When lifting the shaft out to increase the Extension length, the appearance of the red area above the Auger hub indicates that you are approaching the longest setting and the end of the shaft. Careful height adjustment in this area prevents the shaft coming out of the Auger and having to be lined up and re-inserted.

- Insert the Auger Drive Pin.
- Secure the Auger Drive Pin with the Linch Pin.
- Lift the Earth Drill to remove the load from the timber support.
- Remove the timber support.



TRANSPORTATION

When attached to the parent machine the standard Auger Unit is free to swing and can be extremely dangerous during transport.

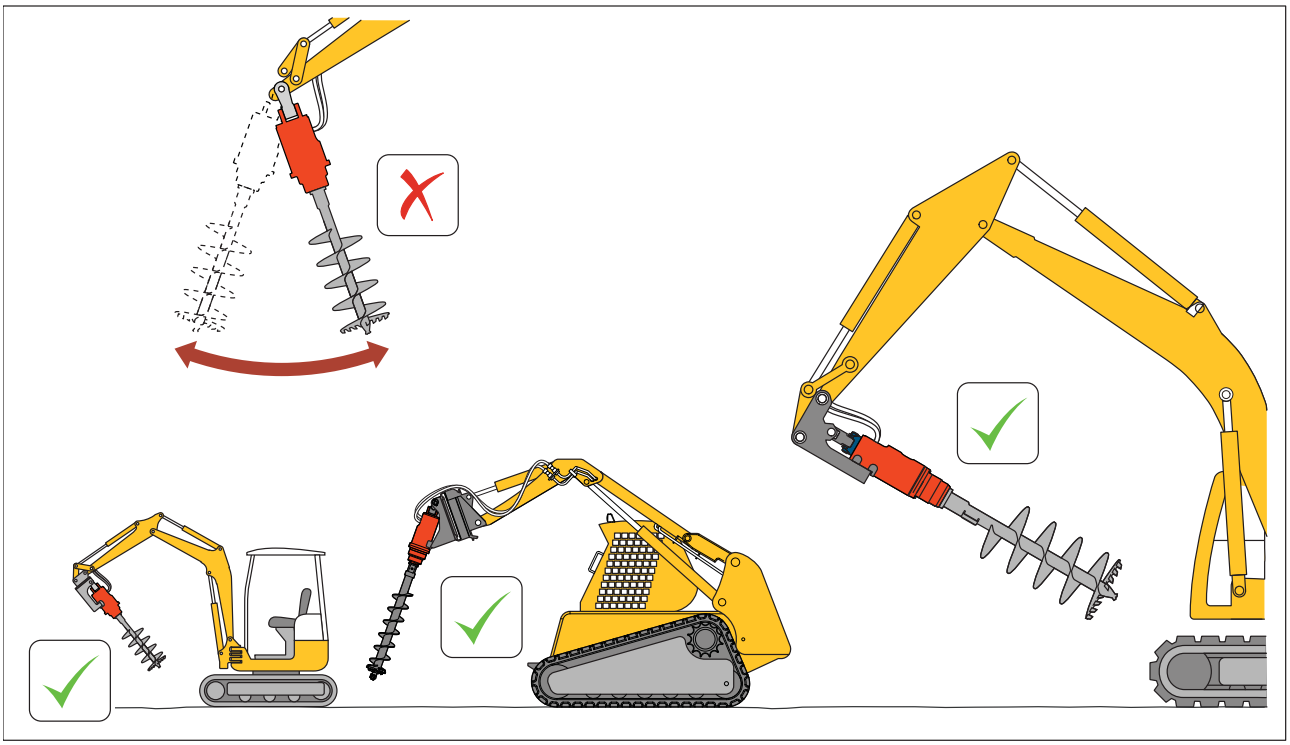
Transportation On Public Highways

ALWAYS remove the Auger and Earth Drill before driving or transporting the parent machine on public highways.
ALWAYS store the Auger and Earth Drill securely and safely when removed from the parent machine taking special care of the hydraulic hoses and connections.

Transportation Within The Job Site

ALWAYS operate the parent machine slowly when on site taking great care to avoid the Auger swinging.
RECOMMENDED: where fitted use the hitch cradle to support the Earth Drill Unit when manoeuvring on site.

Cradle Hitch Support



MAINTENANCE & LUBRICATION

SAFETY

Safety at all times

Ensure environmentally safe disposal of waste oil:

Do not pour down drain!

Avoid Fire or Explosion:

Do not smoke near, or expose lubricants to, any possible sources of ignition (e.g. fire, electrical sparks or heat sources.)

All lubricants are toxic and potentially carcinogenic (cancer causing).

Avoid contact with skin and eyes:

Wear suitable protective clothing and gloves.

Always use a suitable barrier cream in case of skin contact.

Always wear eye protection:

In the event of skin contact wash with soap and water.

In the event of eye contact wash with water and seek medical advice.

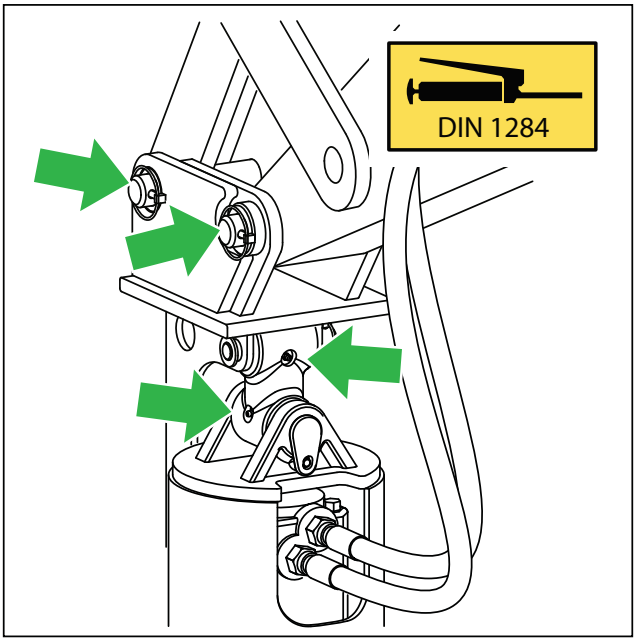
Do not digest:

If swallowed seek medical advice immediately.

Service Intervals

Your Eterra Earth Drill Unit features a sealed gear housing filled with gear oil to lubricate the planetary gearset components and bearings within the housing.

Eterra Earth Drill Units are low maintenance, however regular checks for oil leaks and following the service schedules are recommended to ensure a trouble free product.



Weekly:

Grease hitch and Earth Drill pivot pins.

Oil Lubrication

Your Earth Drill has been prefilled with Gear Oil. This oil requires regular changing. Changing the oil at regular intervals will prolong the life of the unit.

Important

To maintain product warranty, your Eterra Dealer MUST record proof of each oil change.

Please have your Earth Drill serviced as specified in the chart below by an Authorised Eterra service representative.

Make sure that each service is documented in the Service Record section of this manual to ensure product warranty is retained and the product life is extended.

Recommended Oil Change Intervals

Oil change frequency		
Model	First oil change after initial use	Subsequent oil change frequency
2500	3 Months or 200 hours*	12 Months or 800 hours*
ML2500	3 Months or 200 hours*	12 Months or 800 hours*
3500	3 Months or 200 hours*	12 Months or 800 hours*
4500	3 Months or 200 hours*	12 Months or 800 hours*

* Whichever time period occurs first.

Oil Change Procedure

Before starting any maintenance work on this unit, read the instructions carefully and ensure you have the correct tools, materials and safety equipment to hand.

NOTE: The procedure described below should be carried out by a competent and proficient engineer.

1. Pre-heat the oil by running the unit for 15 minutes (Fig A). Ensure that the unit is safely supported in a horizontal position, with the fill & drain plugs (Fig B, 1 & 2) at top and bottom of the housing

2. Remove drain & fill plugs using correct tooling and allow oil to drain in to a suitable container for a minimum of 10 minutes. For best results leave to drain overnight.

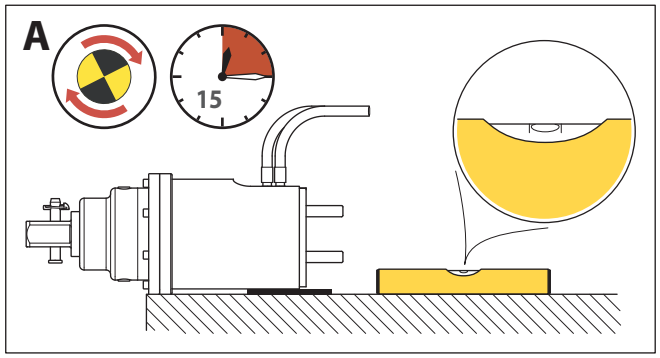
Refer to below for correct oil grades and quantities

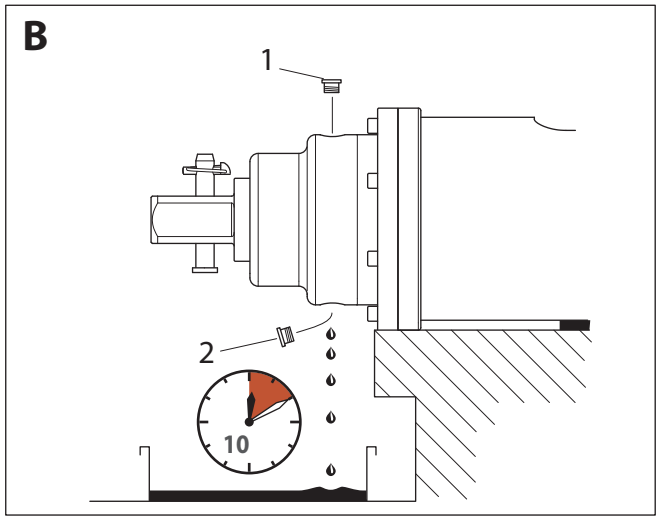
3. Refit drain plug (Fig C, 2) and fill with oil.

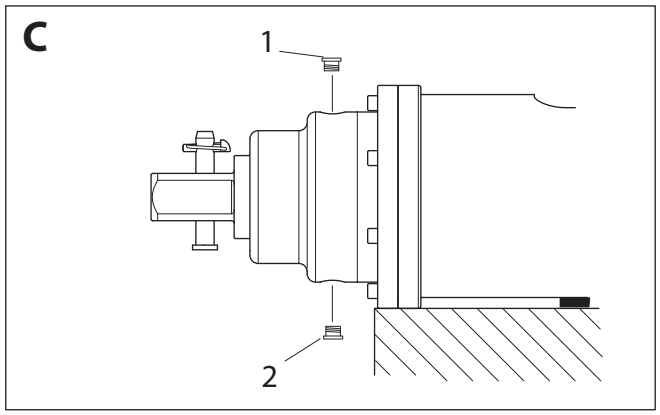
4. Refit fill plug (Fig C, 1).

5. Check for signs of leakage, refill as necessary.

Contaminated fluids / oils ***MUST*** be disposed of in accordance with local environmental regulations.







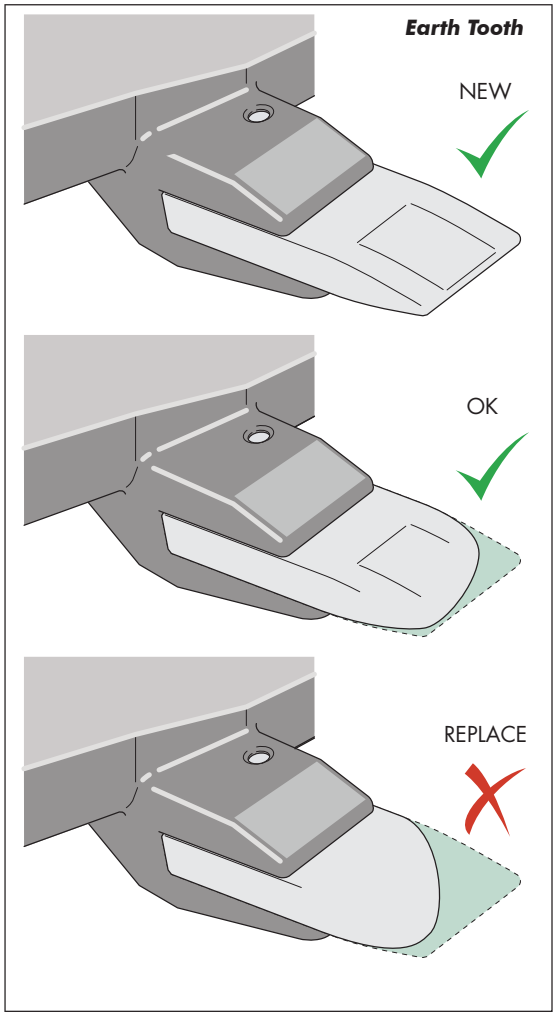
Recommended lubricants					
Model	Oil Quantity pint	Specification	Manufacturer	Planetary	Type
2500	0.85	AGMA 6EP	Millers EP 320 / Mobil 600 Series	Yes	Mineral
ML2500	0.85	AGMA 6EP	Millers EP 320 / Mobil 600 Series	Yes	Mineral
3500	1.79	AGMA 6EP	Millers EP 320 / Mobil 600 Series	Yes	Mineral
4500	1.79	AGMA 6EP	Millers EP 320 / Mobil 600 Series	Yes	Mineral

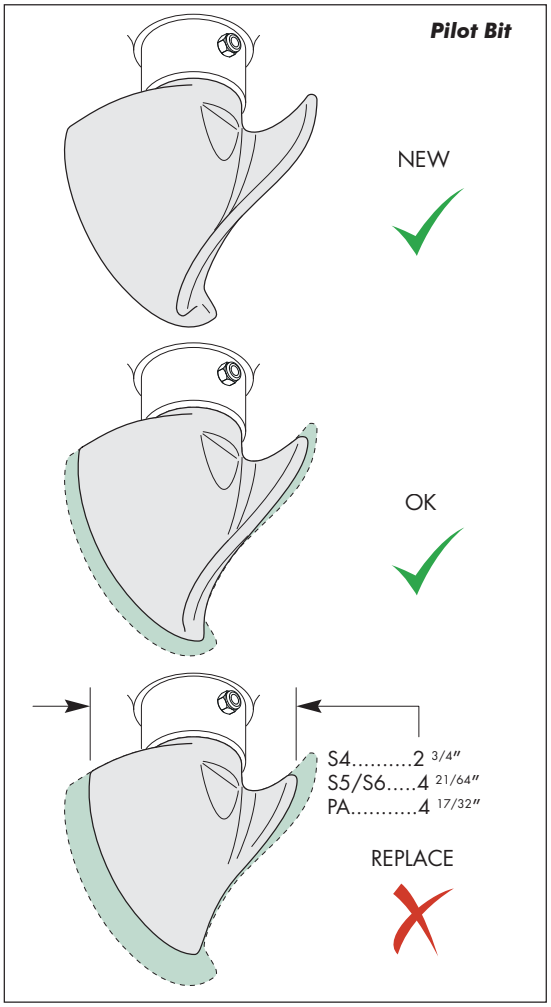
All units are supplied with Mobil Gear 600XP viscosity oil unless otherwise requested.
When using or storing the units below -15°C, an ISO150 viscosity oil must be used.
When using or storing units above 35°C, an ISO460 viscosity oil must be used.

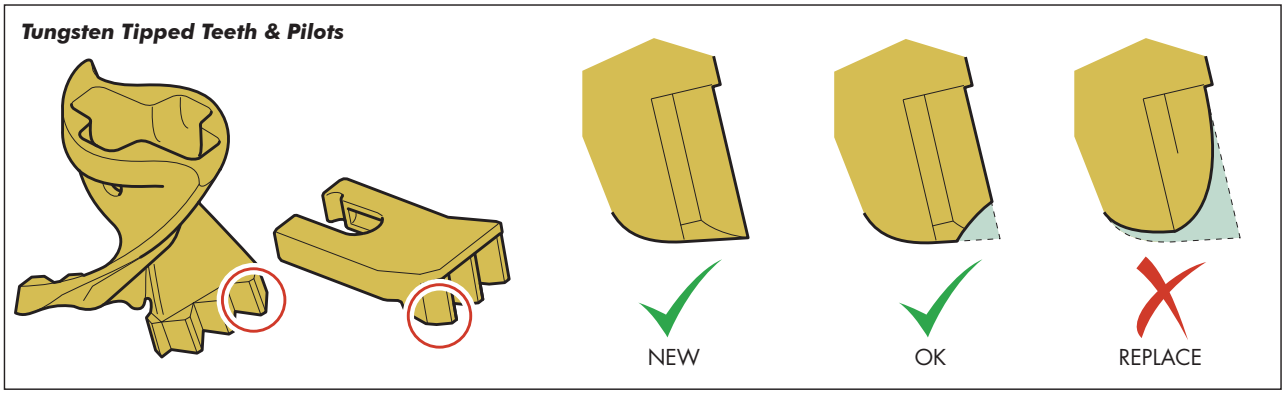
Component Wear

The cutting teeth and pilot should be checked regularly for wear.
The diagrams below show acceptable levels of wear.

NOTE: Excessively worn teeth & pilots may cause damage to the Auger







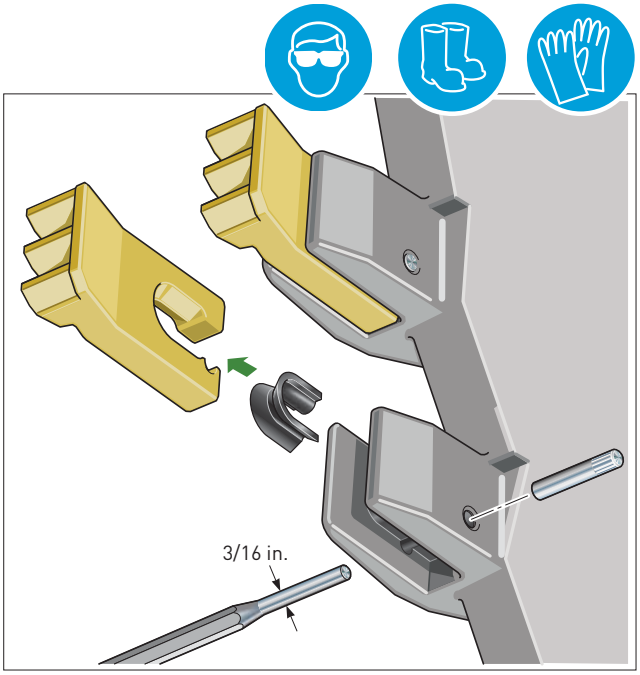
NOTE: Pilots can be replaced by unbolting the old pilot and bolting the new one in its place. For tooth replacement, refer to page 32

Auger Tooth Replacement

NOTE; Before removing Auger teeth, ensure that the Auger is horizontal and securely supported with the teeth easily accessible. Always wear appropriate protective clothing.

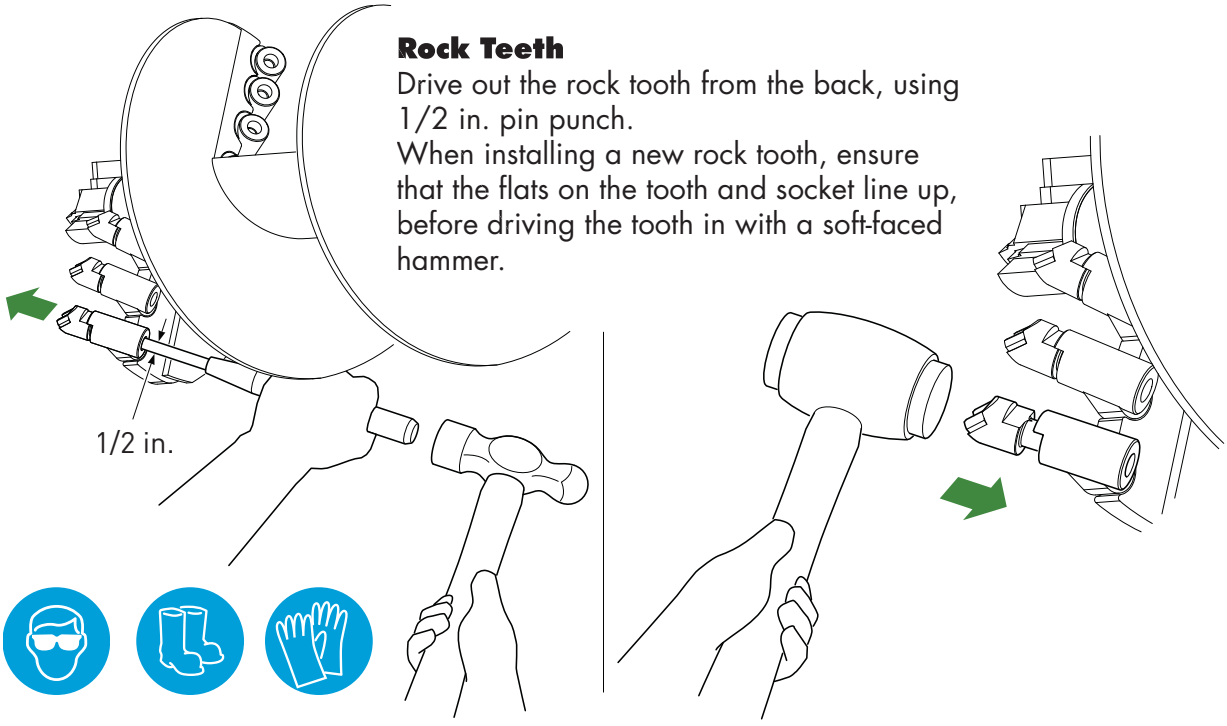
Shock Lock Teeth

Use a 3/16 in. pin punch to drive the retaining pin out through the top of the tooth holder.
The tooth and Shock Lock rubber can then be withdrawn.
To install a replacement Shock Lock tooth, fit the rubber into the slot in the tooth.
Press the tooth and rubber into the tooth holder, ensuring that the cut-out for the pin is on the correct side. You may need to use a soft-faced hammer to drive it in fully.
Insert a new retaining pin into the top of the tooth holder, plain end first.
Drive the pin in, ensuring that it locates in the cut-out in the tooth.
Use a pin punch to make sure that the knurled end of the pin is fully engaged in the hole.



Rock Teeth

Drive out the rock tooth from the back, using 1/2 in. pin punch.
When installing a new rock tooth, ensure that the flats on the tooth and socket line up, before driving the tooth in with a soft-faced hammer.



TROUBLESHOOTING

IF IN DOUBT ASK! - Seek Eterra / parent machine dealer for advice & repair.
BE SAFE - only use genuine Eterra / parent machine spare parts.

MOUNTING FRAME - ASSEMBLY		
FAULT	**POSSIBLE CAUSE**	**ACTION**
Mounting frame does not fit parent machine	Incorrect or non-genuine mounting frame being used	Refer to both this manual and parent machine's operating assembly instructions
	Damaged / worn parts	Repair or replace with genuine mounting frame
MOUNTING FRAME - OPERATION		
FAULT	**POSSIBLE CAUSE**	**ACTION**
Excessive movement in locating pins	Incorrect or worn locating pins	Replace with correct new parts
	Parent machine pin location / linkage frame pin location worn	Seek advice from parent machine dealer
	Damaged parts	Seek advice from Eterra / parent machine dealer. Only use genuine spare parts
AUGER DRIVE UNIT - ASSEMBLY		
FAULT	**POSSIBLE CAUSE**	**ACTION**
Earth Drill Unit will not fit mounting frame	Incorrect / incompatible or non genuine mounting frame / Earth Drill Unit	Obtain & fit correct and compatible genuine parts
	Damaged parts	Seek advice from Eterra dealer. Only use genuine spare parts
Excessive movement in locating pins	Incorrect or worn pins	Replace with correct new genuine parts
EARTH DRILL UNIT - OPERATION		
FAULT	**POSSIBLE CAUSE**	**ACTION**
Earth Drill output shaft does not rotate	No oil flow	Check that quick release coupler(s) are correctly engaged to parent machine
		Check that parent machine hydraulic system is operating correctly and has sufficient oil of the correct grade (refer to parent machine operaing instrucions)

EARTH DRILL UNIT - OPERATION		
FAULT	**POSSIBLE CAUSE**	**ACTION**
Earth Drill output shaft does not rotate	Parent machine pressure relief valve faulty or set too low	Test, reset or replace to parent machine's specification
	Earth Drill unit seized	Seek advice from Eterra dealer
	Auger jammed in ground	Remove auger from ground before starting machine
Slow digging speed / slow rotation of Earth Drill output shaft	Insufficient oil flow from parent machine	Check tha parent machine hydraulic system is operating correctly and has sufficient oil of the correct grade
	Incompatible Earth Drill to parent machine combination	Check specification. Seek advice from Eterra dealer
	Incorrect auger, boring teeth or pilot fitted or worn boring teeth/ pilot	Ensure auger size is compatible with Earth Drill Unit (not to large) and that boring teeth/pilot are suitable for he ground conditions and not worn
	Worn Earth Drill hydraulic motor possibly due to incorrect or dirty oil supply	Seek advice from Eterra dealer. Only use genuine spare parts. Change parent machine hydraulic oil and filter ***before*** fitting replacement drive unit
Auger stalls during work	Parent machine pressure relief valve faulty or set too low	Reset/replace pressure release valve to parent machine's specification
	Restricted oil flow	Check for damaged or incorrect hydraulic hoses and connections
	Blocked hydraulic filter	Change parent machine filter and oil
	Excessive parent machine down force on auger	Reduce down force
	Incompatible Earth Drill / auger size / parent machine combination	Check specification. Seek advice from Eterra dealer

SERVICE RECORD

Ensure that each Earth Drill service is documented in the Service Records below to ensure product warranty is retained and the product life is extended.

Earth Drill Model	
Serial Number	
Make & Model of Parent Machine	
Date of Purchase	

Work carried out - please tick boxes	Date	Hours
Visual Inspection ☐ Oil Change ☐ Lubricant Used Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours	Comments\remarks STAMP	

Work carried out - please tick boxes	Date	Hours
Visual Inspection ☐ Oil Change ☐ Lubricant Used Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours	Comments\remarks STAMP	

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

Work carried out - please tick boxes

Date Hours

Visual Inspection ☐
Oil Change ☐
Lubricant Used
Motor Test ☐
Motor Bolts Torqued ☐
Hood Bolts Torqued ☐

Next Service Date\Hours

Comments\remarks

STAMP

Work carried out - please tick boxes

Date Hours

Visual Inspection ☐
Oil Change ☐
Lubricant Used
Motor Test ☐
Motor Bolts Torqued ☐
Hood Bolts Torqued ☐

Next Service Date\Hours

Comments\remarks

STAMP

Work carried out - please tick boxes

Date Hours

Visual Inspection ☐
Oil Change ☐
Lubricant Used
Motor Test ☐
Motor Bolts Torqued ☐
Hood Bolts Torqued ☐

Next Service Date\Hours

Comments\remarks

STAMP

Work carried out - please tick boxes	Date ____ Hours ____
Visual Inspection ☐ Oil Change ☐ Lubricant Used ____ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ____	Comments\remarks STAMP

Work carried out - please tick boxes	Date ____ Hours ____
Visual Inspection ☐ Oil Change ☐ Lubricant Used ____ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ____	Comments\remarks STAMP

Work carried out - please tick boxes	Date ____ Hours ____
Visual Inspection ☐ Oil Change ☐ Lubricant Used ____ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ____	Comments\remarks STAMP

Work carried out - please tick boxes	Date ___ Hours ___
Visual Inspection ☐ Oil Change ☐ Lubricant Used ___ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ___	Comments\remarks STAMP

Work carried out - please tick boxes	Date ___ Hours ___
Visual Inspection ☐ Oil Change ☐ Lubricant Used ___ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ___	Comments\remarks STAMP

Work carried out - please tick boxes	Date ___ Hours ___
Visual Inspection ☐ Oil Change ☐ Lubricant Used ___ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ___	Comments\remarks STAMP

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

Work carried out - please tick boxes	Date ______ Hours ______
Visual Inspection ☐ Oil Change ☐ Lubricant Used ______ Motor Test ☐ Motor Bolts Torqued ☐ Hood Bolts Torqued ☐ Next Service Date\Hours ______	Comments\remarks STAMP

ETERRA WARRANTY STATEMENT

LIMITED PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in making the product described in this document; Eterra will repair, or at its option, replace, the product at no charge to you, provided it is returned (freight prepaid, with proof of your purchase from the original reseller) within 1 year of the date of original purchase. Some Eterra products may have longer, partial, or more specific additional warranties, please contact your dealer for more information.

RMA REPLACEMENT PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in the refurbishment of an RMA (Return Merchandise Authorization) product replacement; Eterra will repair, or at our option replace the product at no charge to you for a period of 90-days from the date the RMA was created, or until the end of your original warranty period (whichever is greater).

REFURBISHED PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in a product sold as a refurbished unit; Eterra will repair, or at our option replace, the product at no charge to you for a period of 90-days from the original date of purchase.

LEGAL TERMS

Eterra warrants that the equipment delivered by seller will be of the kind and quality described in the order or contract and will be free from defects in workmanship or material. Should any failure to conform with this warranty occur, and the buyer having given written notice to seller within 180 days from the date of purchase, the manufacturer shall correct such nonconformity at its option by either repairing the defective part(s) or making available F.O.B. at sellers locations.

This warranty is in lieu of all warranties of merchantability, fitness for particular purpose or any other warranties, express or implied. Correction and nonconformities in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of seller to buyer, whether based on contract, negligence or otherwise respect to or arising out of such goods.

Neither party shall be liable for special, indirect, or consequential damages. The remedy set forth in this instrument are exclusive, and the liability of seller with respect to any contract or sale of anything done in connection with the same, whether in contract, in tort, under warranty, or otherwise, shall not exceed the price of the goods or part upon which such liability is allegedly based.

All exclusions and limitations of this warranty are made only to the extent permitted by applicable law and shall be of no effect to the extent of conflict with the express requirements of applicable Washington State law.

Notes

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YOUR DEALER IS

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