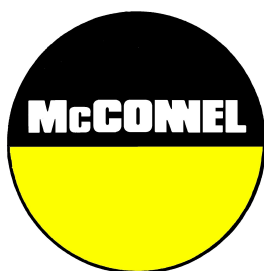


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# **McCONEl**

## **ROBO-TRENCHER**

### ROBOCUT ACCESSORY (4056138)

Operation Manual





# IMPORTANT

## VERIFICATION OF WARRANTY REGISTRATION



### Dealer Warranty Information & Registration Verification

It is imperative that the selling dealer registers this machine with McConnel Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines; log onto <https://my.mcconnel.com> and select 'Machine Registration' which can be found in the 'Warranty' section of the site. **Confirm to the customer that the machine has been registered by completing the verification form below.**

<b>Registration Verification</b>	Serial No. <input type="text"/>
Dealer Name: .....	
Dealer Address: .....	
Customer Name: .....	
Date of Warranty Registration: ...../...../..... Dealer Signature: .....	

### Note to Customer / Owner

Please ensure the section above has been completed and signed by the dealer to verify your machine has been registered with McConnel Limited.

**IMPORTANT:** During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – *refer to torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machine's general maintenance procedure.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

### Torque Settings for Hydraulic Fittings

Hydraulic Hose Ends		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

Port Adaptors with Bonded Seals		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm



# WARRANTY POLICY

## WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with McConnel Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

### 1. LIMITED WARRANTIES

- 1.01. *All mounted machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.*  
*All Self Propelled Machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months or 1500 hours. Engine warranty will be specific to the Manufacturer of that unit.*
- 1.02. *All spare parts supplied by McConnel Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.*
- 1.03. *The warranty offered by McConnel Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.*
- 1.04. *This warranty does not extend to any product from which McConnel Ltd's serial number plate has been removed or altered.*
- 1.05. *The warranty policy is valid for machines registered in line with the terms and conditions detailed and on the basis that the machines do not extend a period of 24 months or greater since their original purchase date, that is the original invoice date from McConnel Limited.*  
*Machines that are held in stock for more than 24 months cannot be registered for warranty.*
- 1.06. *This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.*
- 1.07. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.08. *Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.*
- 1.09. *Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which McConnel Ltd cannot be held liable, and may have safety implications.*
- 1.10. *If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.*

- 1.11. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnell Ltd.*
- 1.12. *For machine warranty periods in excess of 12 months the following additional exclusions shall apply:*
  - 1.12.1. *Hoses, exposed pipes and hydraulic tank breathers.*
  - 1.12.2. *Filters.*
  - 1.12.3. *Rubber mountings.*
  - 1.12.4. *External electric wiring.*
  - 1.12.5. *Bearings and seals*
  - 1.12.6. *External Cables, Linkages*
  - 1.12.7. *Loose/Corroded Connections, Light Units, LED's*
  - 1.12.8. *Comfort items such as Operator Seat, Ventilation, Audio Equipment*
- 1.13. *All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.*
- 1.14. *Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.*

***NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. McConnell Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.***

## **2. REMEDIES AND PROCEDURES**

- 2.01. *The warranty is not effective unless the Selling Dealer registers the machine, via the McConnell web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.*
- 2.02. *Any fault must be reported to an authorised McConnell Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which McConnell Ltd cannot be held liable.*
- 2.03. *Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by McConnell Ltd. Please note that failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.*
- 2.04. *All claims must be submitted, by an authorised McConnell Ltd Service Dealer, within 30 days of the date of repair.*
- 2.05. *Following examination of the claim and parts, McConnell Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnell Ltd and appropriate labour and mileage allowances if applicable.*
- 2.06. *The submission of a claim is not a guarantee of payment.*
- 2.07. *Any decision reached by McConnell Ltd. is final.*

## **3. LIMITATION OF LIABILITY**

- 3.01. *McConnell Ltd disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.*
- 3.02. *McConnell Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
- 3.03. *Except as provided herein, McConnell Ltd shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.*
- 3.04. *No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.*

#### **4. MISCELLANEOUS**

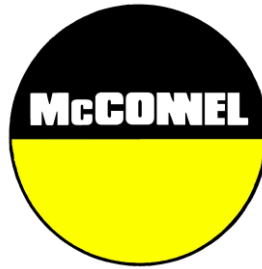
- 4.01. McConnel Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.*
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.*
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.*

---

*McConnel Limited*







*For Safety and Performance...*

**ALWAYS READ THE BOOK FIRST**

**McCONEL LIMITED**

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Ludlow  
Shropshire  
England**

**Telephone: +44 (0)1584 873131  
www.mcconel.com**

**▲ WARNING**

**Cancer and Reproductive Harm**  
www.P65Warnings.ca.gov

D960

Operating, servicing and maintaining this equipment can expose you to chemicals including gasoline, diesel fuel, lubricants, petroleum products, engine exhaust, carbon monoxide, and phthalates, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov). This website, operated by California's Office of Environmental Health Hazard Assessment, provides information about these chemicals and how individuals may be exposed to them.



# INDEX

Foreword .....	1
Enquiries .....	1
Operating Limits .....	1
Introduction .....	2
Safety Notes .....	3
Protect Yourself .....	3
You May Need .....	3
Know Your Equipment .....	3
Danger, Warning and Caution .....	3
Protective and Safety Devices .....	4
Check the Equipment .....	4
Hazard Classification (Only Applicable to ANSI Safety Labels).....	4
Safety Precautions.....	5
Identification .....	6
Typical Setup .....	6
Fitting the Trencher Unit .....	7
Hydraulic Connections .....	8
Running-In .....	9
Preparation .....	10
Trench Depth Setting.....	11
Skid Side Plate Adjustment .....	12
Working Procedure .....	13
Transportation .....	15
Transportation on Public Highways.....	15
Transportation Within the Job Site.....	15
Recommended Travel Position .....	15
Maintenance & Lubrication .....	16
Routine Maintenance .....	17
Daily Checks .....	17
Weekly Checks (In Addition to Daily Checks).....	17
Oil Capacity .....	17
Oil Change Procedure .....	18
Chain Adjustment.....	19
Chain Removal/Replacement .....	20
Cutting Tooth Maintenance .....	21
Nose Roller Bearing Replacement .....	22
Sprocket Removal & Replacement - MT/MT <sub>DD</sub> Trencher .....	23
Sprocket Removal & Replacement - XHD Trencher .....	24
Troubleshooting.....	25

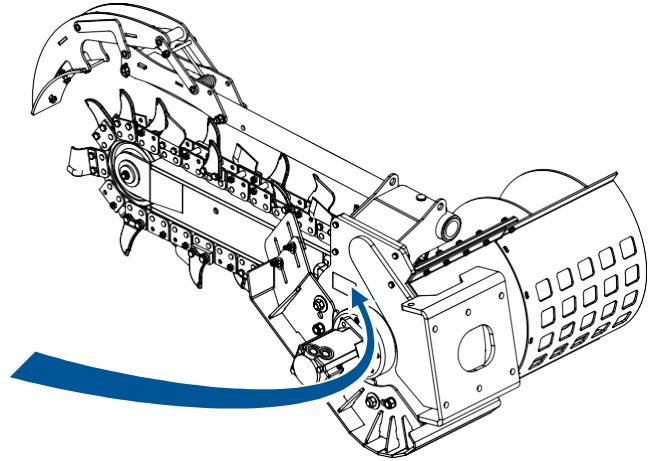
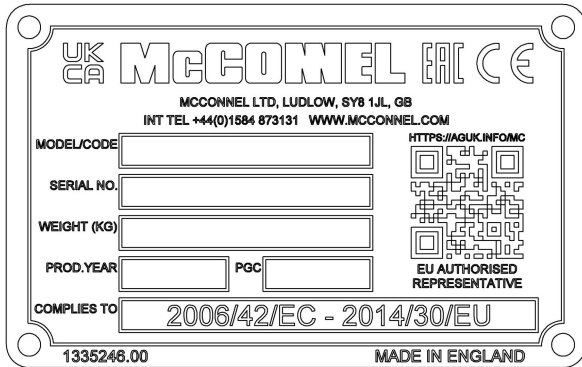


# FOREWORD

## 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 side of the Trencher .

## Identification Plate



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 dealer .

## **INTRODUCTION**

Thank you for purchasing this product. This operating manual has been prepared to enable you to operate the equipment in a safe manner .

This machine has been designed for use with specific parent machines. Provided the machine is used and maintained correctly, it will provide a safe and reliable method of earth trenching.

**For information on lubrication and maintenance intervals, see page 17**

**Before operating the drive unit, please note:**

Your drive unit 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 8).

The unit must be ‘run in’ following the recommended procedure (see page 9) .

### **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 .

Copies can be obtained from McConnel Limited or accessed and/or downloaded from our website.

McConnel Limited 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 occur between specifications of its machines and descriptions thereof contained in its publications .

# SAFETYNOTES

## 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 YOUR DEALER 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 IMMEDIATELY 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, shields 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 (Only applicable to ANSI Safety Labels)



**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.

**We 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 its 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.

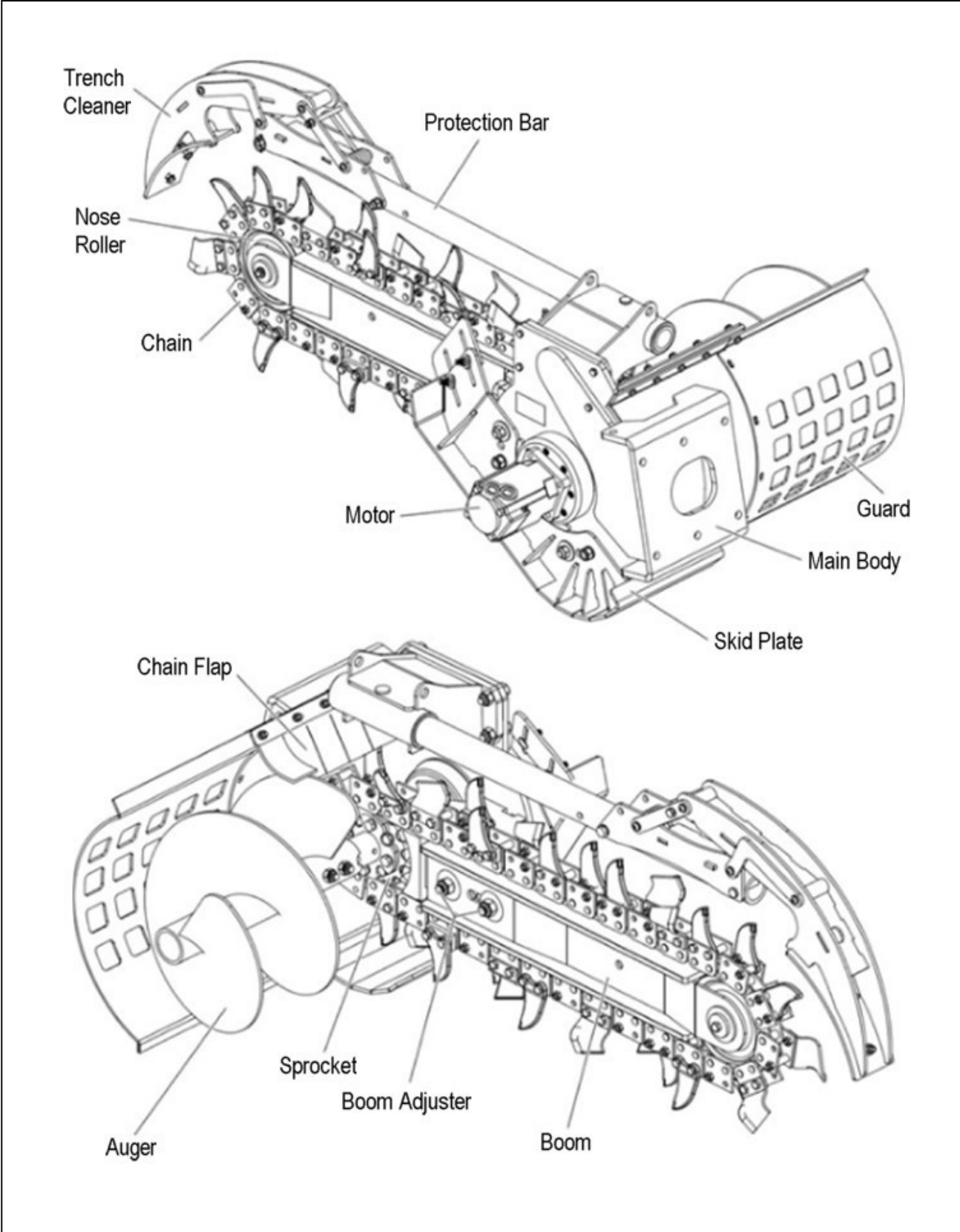
**ALWAYS** protect feet. Wear approved safety boots.

**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



# FITTING THE TRENCHER UNIT

## SAFETY FIRST



**Always** work in pairs (2 skilled operatives) whenever Trencher 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).



**FITTING** Ensure all components are greased on assembly:

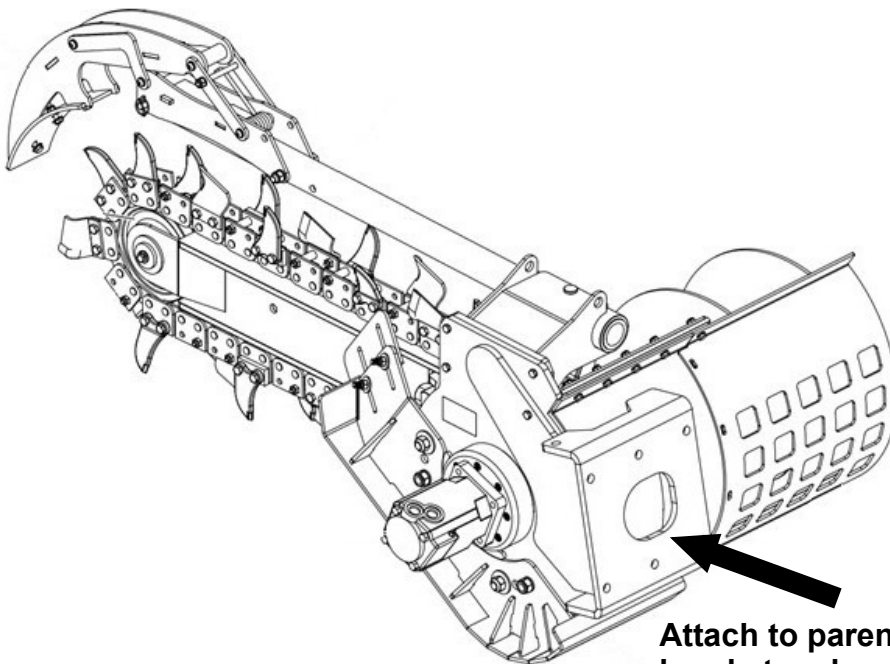
Refer to the parent machines operators manual for attaching accessories.

- 1). Position mounting frame adjacent to parent machine mounting frame.
- 2). Align bolt location holes and fit fixing bolts and nyloc nuts.
- 3). Torque M12 bolts to 130 Nm / 96 ft-lb .

Locate the flow and return hydraulic pipes onto the Trencher Unit (see page 17).

Connect quick release couplers .

Check that the hydraulic pipes are of sufficient length to allow the trencher to articulate during work.



**Attach to parent machine mounting bracket and secure with fixings.**

# HYDRAULIC CONNECTIONS

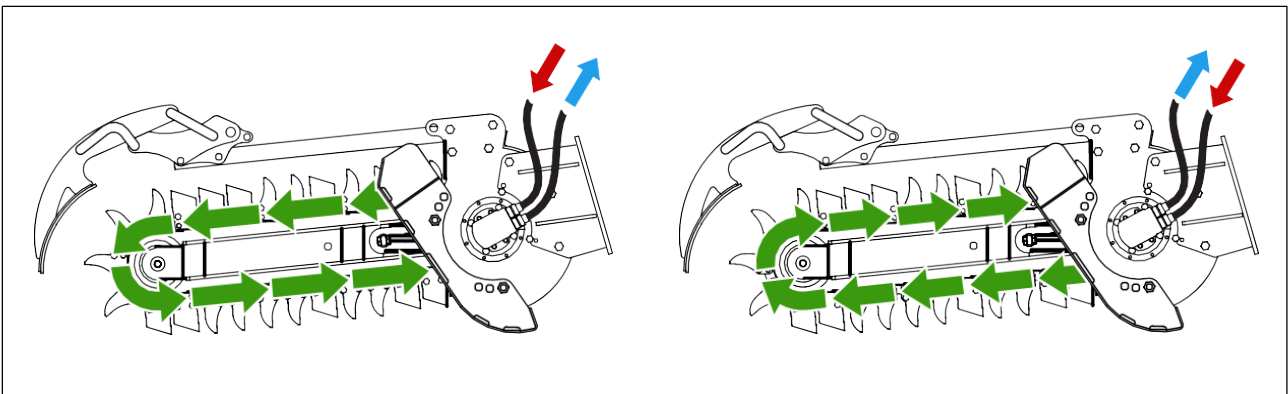


**WARNING:**

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.

This machine is designed for use with the manufacturers mounting frames and wearing parts. Provided these are used and maintained correctly, they will provide a safe and reliable method of trenching in the earth.

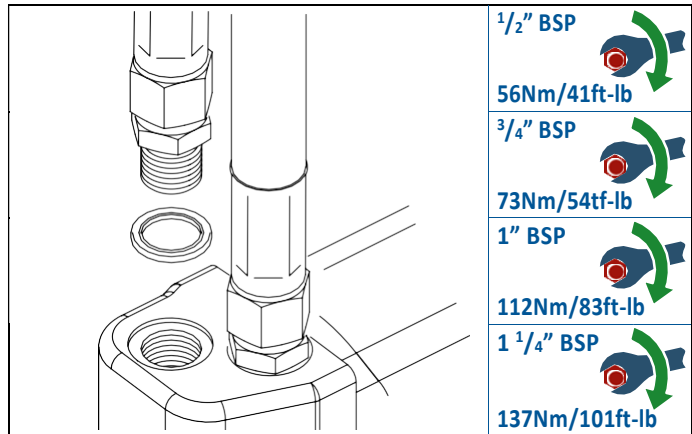
This Trenching machine require a 'flow' and 'return' of hydraulic fluid from the parent machine's auxiliary hydraulic power supply to operate. The Trencher is reversible and requires the host machine to be fitted with a two-way flow auxiliary circuit.



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

Some models of Trencher are supplied with hydraulic hoses, but less hydraulic quick release couplers, which are required for connection to parent machine.

These should be sourced locally and be compatible with the auxiliary hydraulic quick release couplers on the parent machine.



The parent machine auxiliary hydraulic connections are normally located near the end of the loader arms or excavator dipper.

It is critical that the supply of oil is within the stated limits for the particular Trenching Unit;

Check that the rated flow (l/min - gal/min) & pressure (Bar - PSI) of your machine do not exceed the limits of the Trencher Unit.

## RUNNING-IN

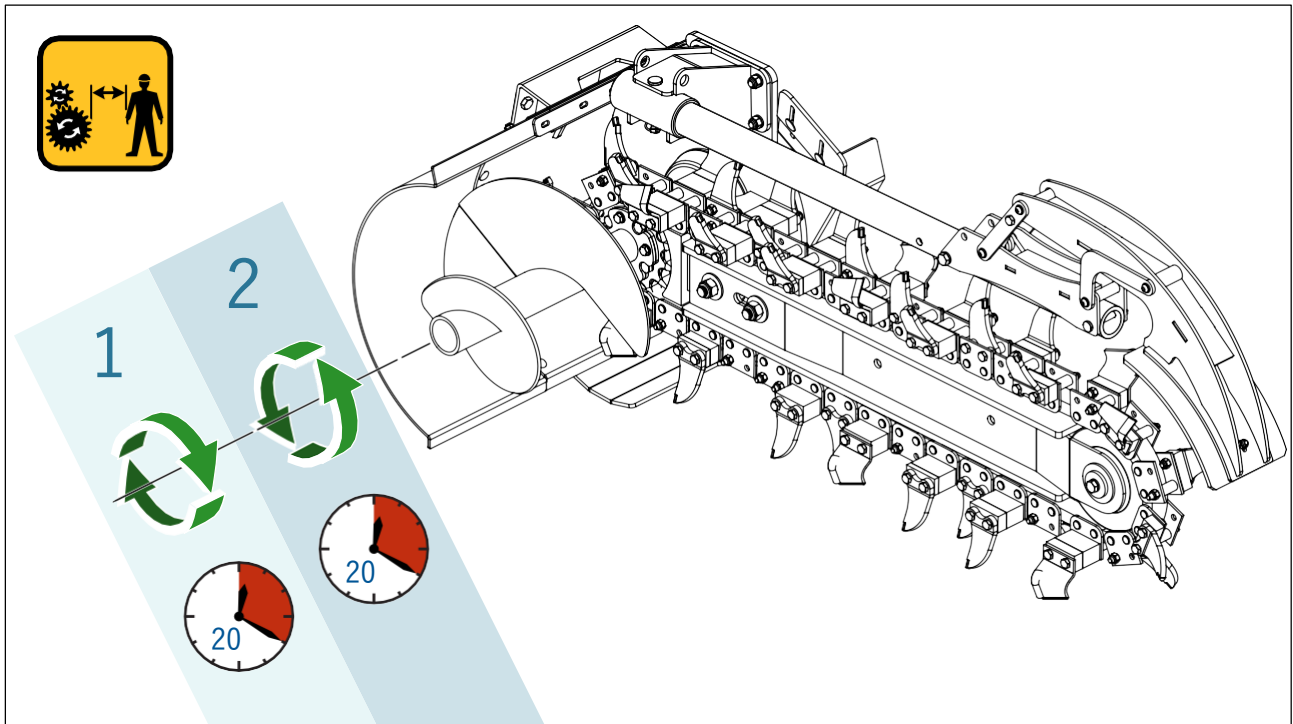
To maximise the life of the motor, it must be 'run in' for a period.

To carry out the running in procedure, suspend the trencher unit clear of the ground, with the boom horizontal.

For the duration of the 'running in' procedure, ensure no bystanders are 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 16 for lubrication instructions.



## PREPARATION



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



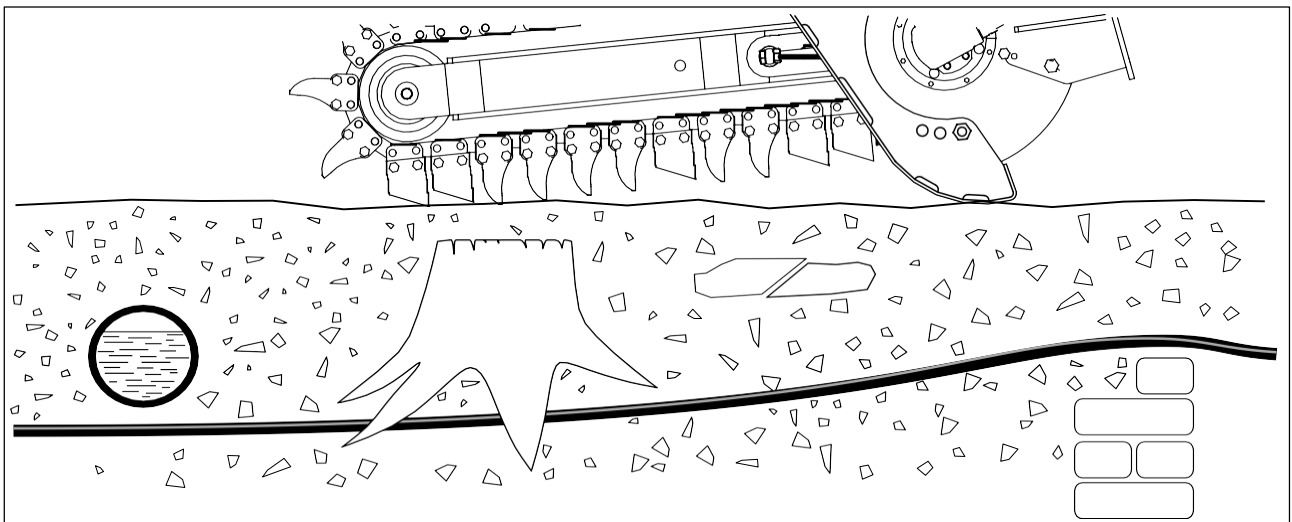
**NOTE** the type of soil and its condition to enable selection of suitable teeth and pilot.

**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 .



# TRENCH DEPTH SETTING

The trenching depth is controlled by the skid plate, which runs with its flat surface on the ground. By changing the angle of the skid plate, the trencher can operate at one of three depth settings.

The skid plate is secured by 2 nuts to studs on the main body as indicated by the arrows. 3 pairs of mounting holes in the skid plate allow the trenching depth to be set as shown in the diagrams below.

Once the trench depth is set, torque the nuts to 138Nm/102ft-lb .

<b>Depth Setting Chart</b> (Dimensions in mm/in.)		MT/MT <sub>DD</sub> TRENCHER			XHD TRENCHER		
		600	900	1200	900	1200	1500
		300	600	800	600	800	1000
		12	24	32	24	32	40
		450	750	1000	750	1000	1250
		18	30	40	30	40	50
		600	900	1200	900	1200	1500
		24	36	48	36	48	60



138Nm/102ft-lb

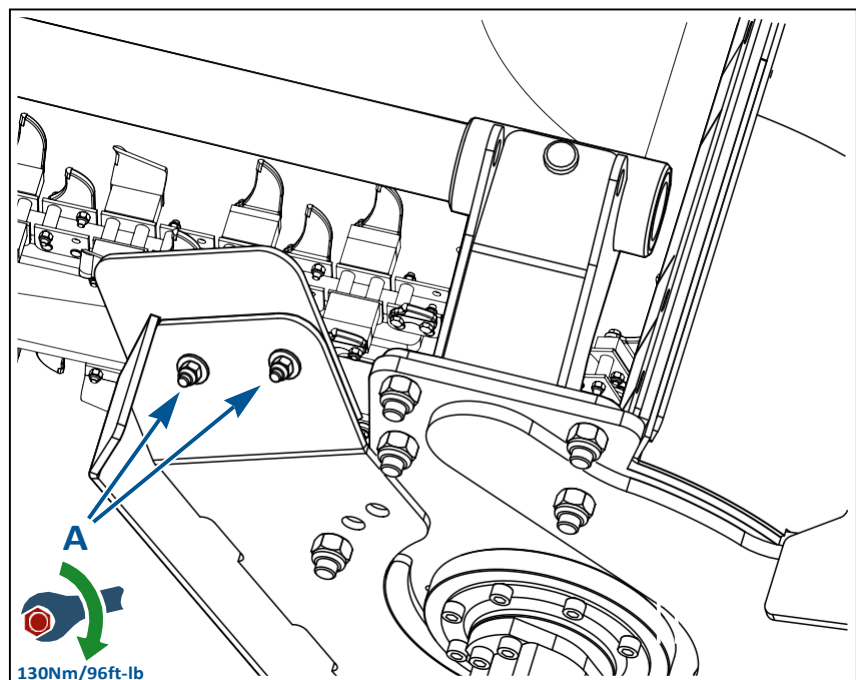
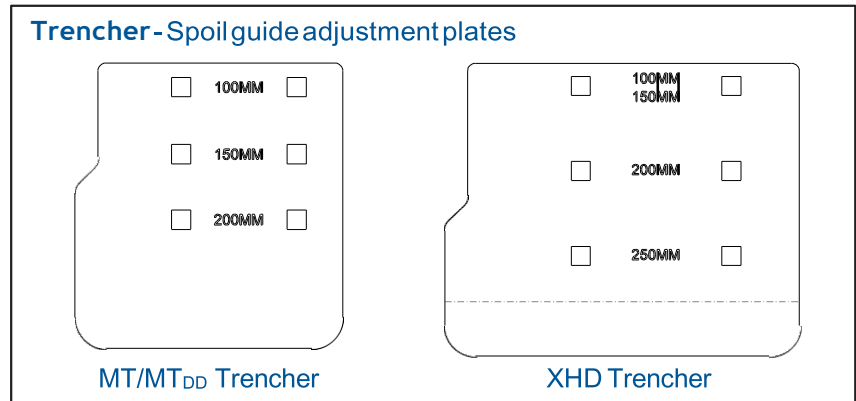
## SKID SIDE PLATE ADJUSTMENT

To ensure that the left-hand side of the trench is free from spoil, the skid is fitted with a side plate to deflect spoil back on to the chain. This ensures that the maximum amount of spoil is removed on the right-hand side by the auger.

Trenchers have an adjustable side plate. This must be adjusted to suit chain width to provide the optimum spoil removal without causing damage to the chain.

Loosen the nuts (A) and adjust the side plate to the correct hole position to for chain fitted to achieve the right clearance between the plate and the widest teeth.

Tighten the nuts.





## WORKING PROCEDURE

Before commencing work, ensure that;



The correct hoses are fitted and tightened correctly (See page 8).  
The unit has been properly run in (See page 9).



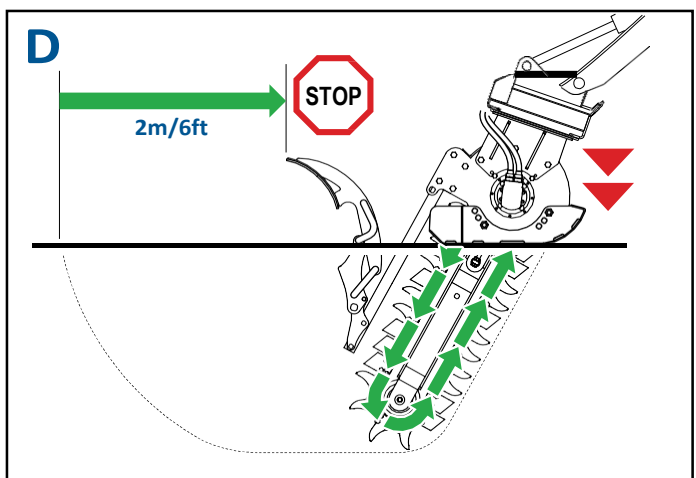
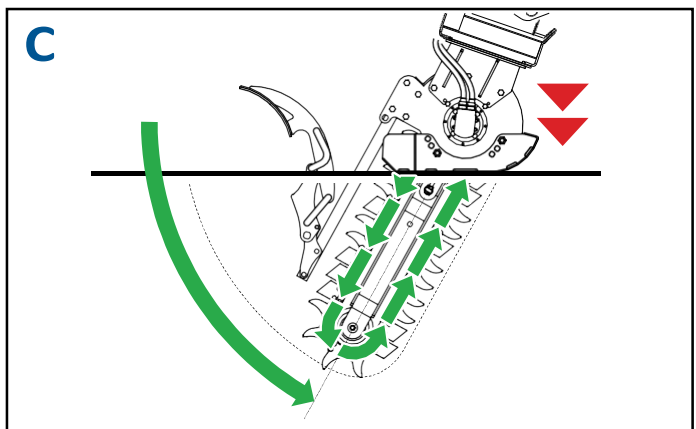
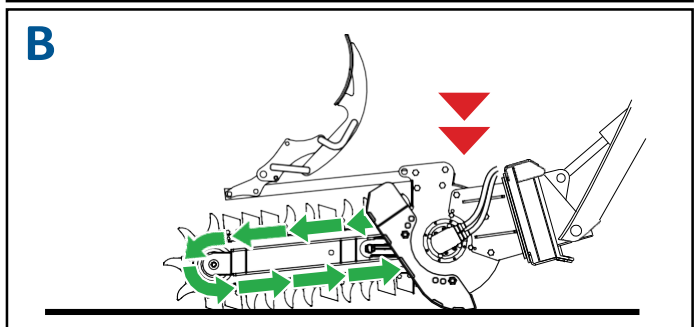
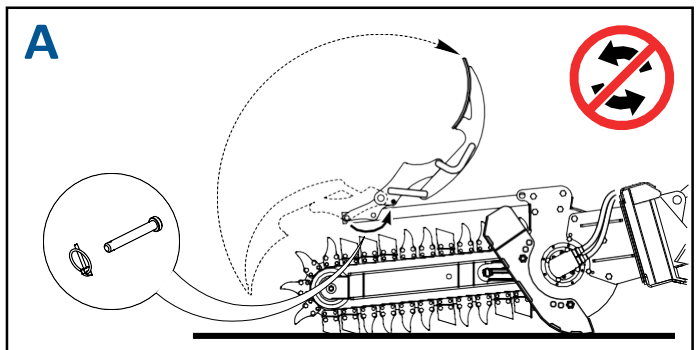
There are no bystanders within the nominated radius as defined in the risk assessment completed prior to commencing any works.

**A** Switch off parent machine and ensure the hydraulic system is locked out. Set the Trench Cleaner in its OPEN position and secure it with lynch pin.

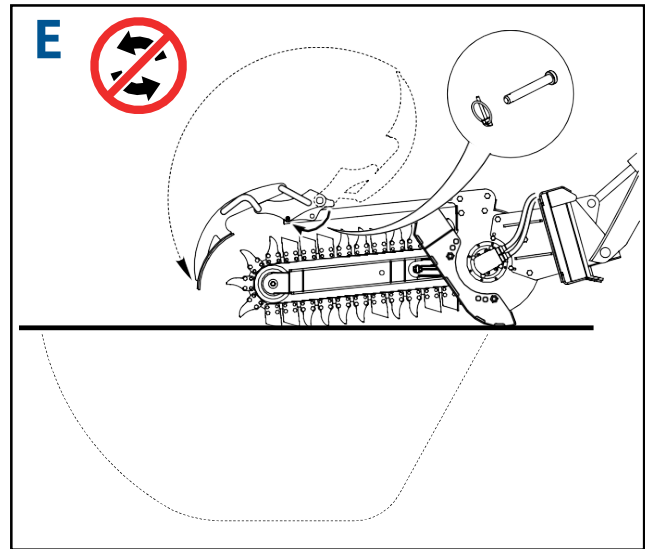
**B** Start the parent machine, engage the hydraulic system, and ensure that the chain is moving in the correct direction. Set the trencher with the rear of the skid firmly on the ground.

**C** With trencher chain operating and weight applied to the skid plate, gradually rotate the trencher on so that it penetrates the ground. Always keep the weight on the skid plate while cutting.

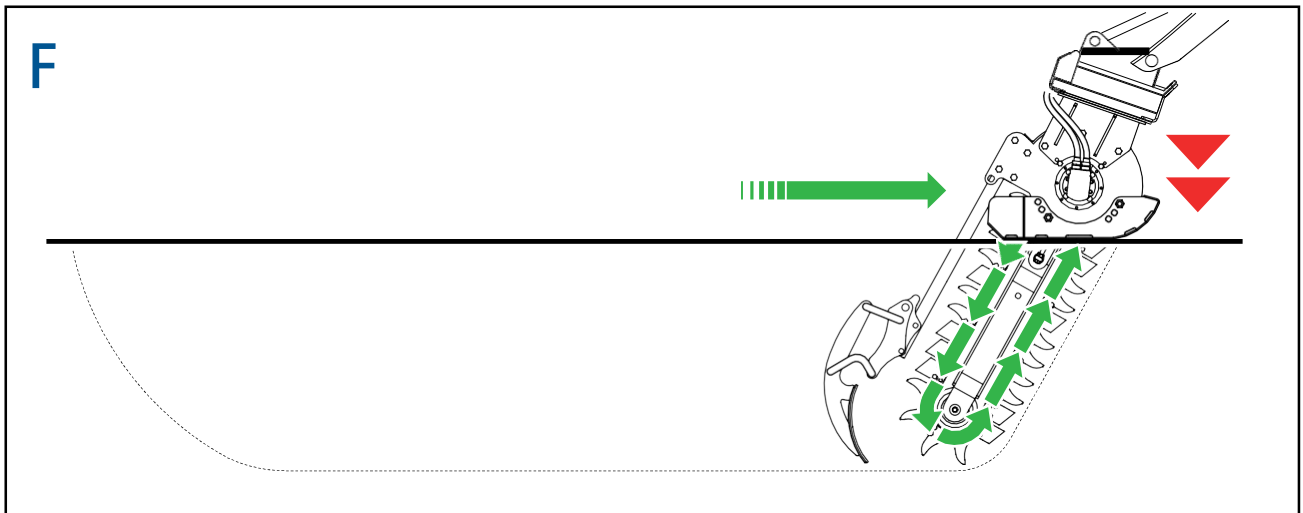
**D** When the flat face of the skid plate is firmly in contact with the ground, **steadily** reverse the parent machine. Avoid stalling the chain. After at least 2 metres (6') of trenching, STOP the parent machine.



- E** Raise the trencher above ground level  
Fig E.  
Switch off parent machine and ensure the hydraulic system is locked out.  
Set the Trench Cleaner in its closed position and secure it with lynch pin.



- F** Start the parent machine, engage the hydraulic system and lower the trencher into the trench until the flat face of the skid plate is firmly on the ground with weight applied and continue trenching Fig F.



# TRANSPORTATION

## Transportation on Public Highways



**ALWAYS** remove the Trencher Unit before driving or transporting the parent machine on public highways.

**ALWAYS** store the Trencher Unit securely and safely when removed from the parent machine taking special care of the hydraulic hoses and connections.

## Transportation Within the Job Site



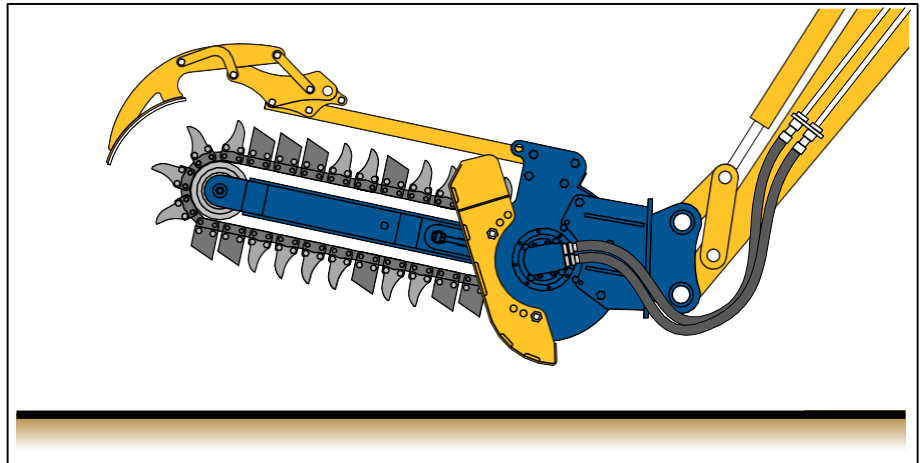
**ALWAYS** disengage the rotation of the Trencher chain, whenever operating the parent machine, whilst the Trencher Unit is not trenching.

**ALWAYS** operate the parent machine slowly when on site, keeping the Trencher Unit as close to the parent machine and as low as possible.

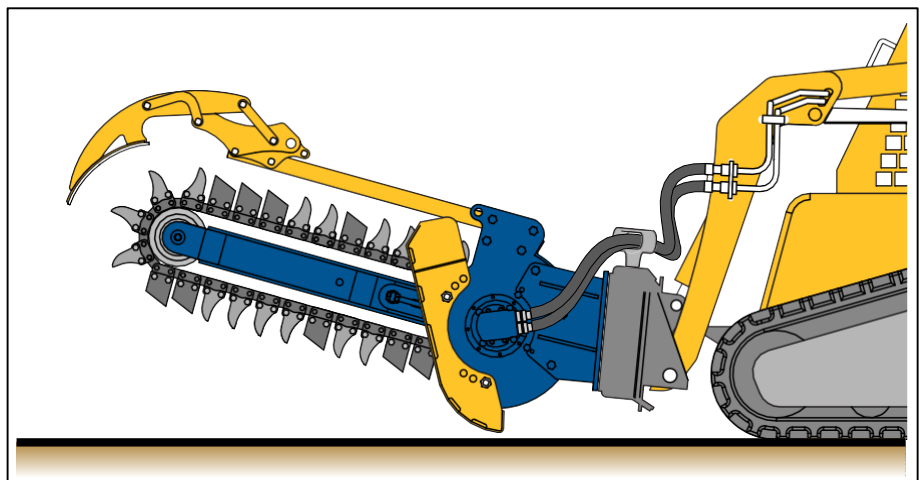
The best travelling positions for Excavator and Skid Steer loader are shown below.

## Recommended Travel Position

Excavator



Skid Steer Loader



## 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 eyeprotection:**

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 ingest:**

If swallowed seek medical advice immediately.

**Routine Maintenance:**

After your first 50 metres/160 foot of trenching, raise the Trencher unit and check the chain tension. Refer to page 28 for chain adjustment instructions. Chain tension should be checked after every 500 metres/550 yards of trenching.

The Trencher features a sealed gear housing filled with gear oil to lubricate the planetary gear set components and bearings within the housing.

These machines are low maintenance, however regular checks for oil leaks and following the service schedules are recommended to ensure a trouble-free product.

**Daily checks:**

Check Chain adjustment (see page 19).

Check Tooth wear.

Check Condition of nose roller assembly.

Check for oil leaks.

**Weekly checks (in addition to daily checks):**

Check overall condition of the Trencher unit and Mounting frame.

Check drive sprocket for wear (see page 23 & 24 for correct replacement details).

Check hydraulic hoses for any damage.

**After first 100 hours of operation or six (6) months:**

To maximise life and maintain warranty the Trencher Unit gear oil requires draining and replacing with Mobil Gear 600XP (or equivalent) after the first 100 hours of operation or six (6) months from date of purchase – whichever occurs first (see page 18 for oil change details)

**Yearly or after every 500 hours of use (whichever is sooner):**

The Trencher Unit gear oil requires draining and replacing with Mobil Gear 600XP (or equivalent) every twelve (12) months or 500 hours – whichever occurs first.

**Oil capacity**

Refer to page 17 for the correct volume of oil for your trencher.

If in doubt contact McConnel Limited or your local dealer.

## 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.



Pre-heat the oil by running the unit for 15 minutes.

Ensure that the unit is securely supported so that you have safe access to the underside of the drive unit.

Locate the fill plug in the top of the output housing and the drain plug in the bottom of the housing (Fig. A).

To ensure that the unit drains completely, make sure that the boom is horizontal (Fig. B).

Place a tray beneath the unit to catch the oil. Remove the fill plug, then the drain plug (Fig. C).

Allow the oil to drain for 10 minutes (Fig. D).

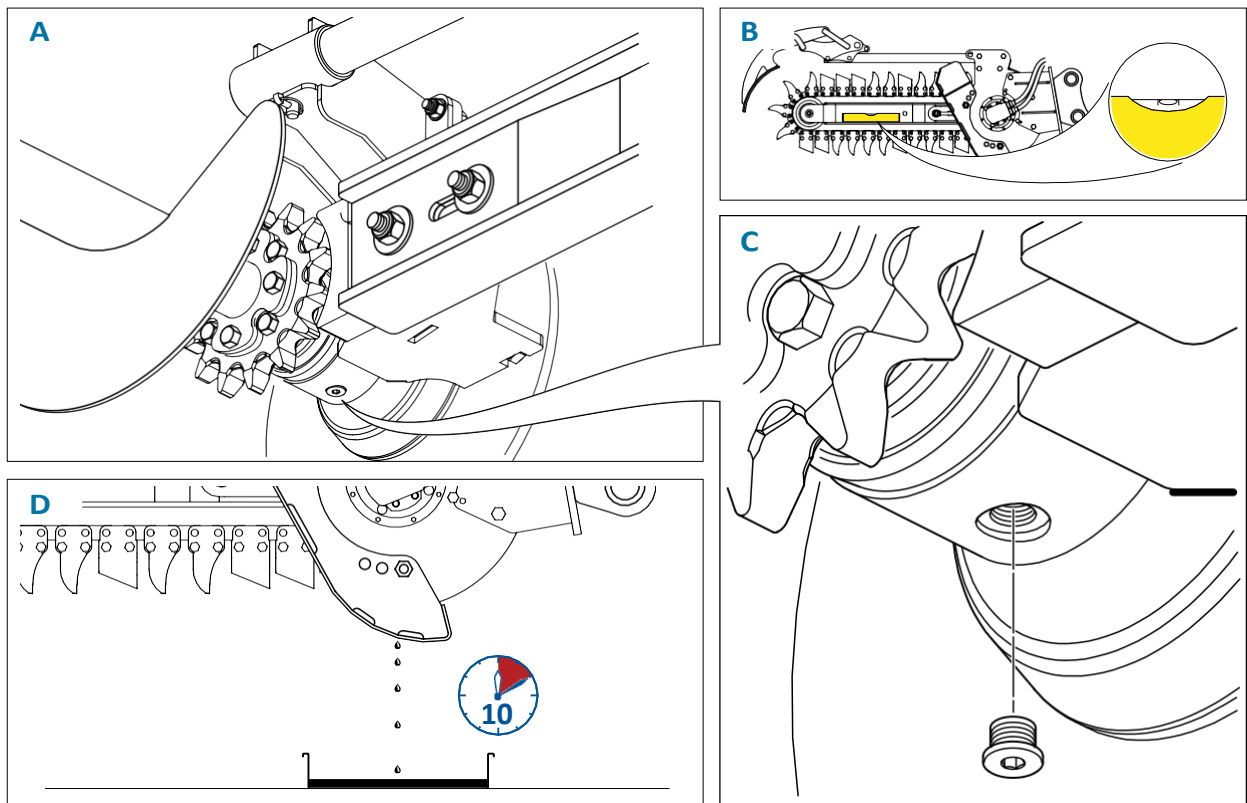
Replace the drain plug and add the correct quantity of Mobil Gear 600XP ISO320 gear oil;

**MT:** 0.8 litres/1.7 US pints

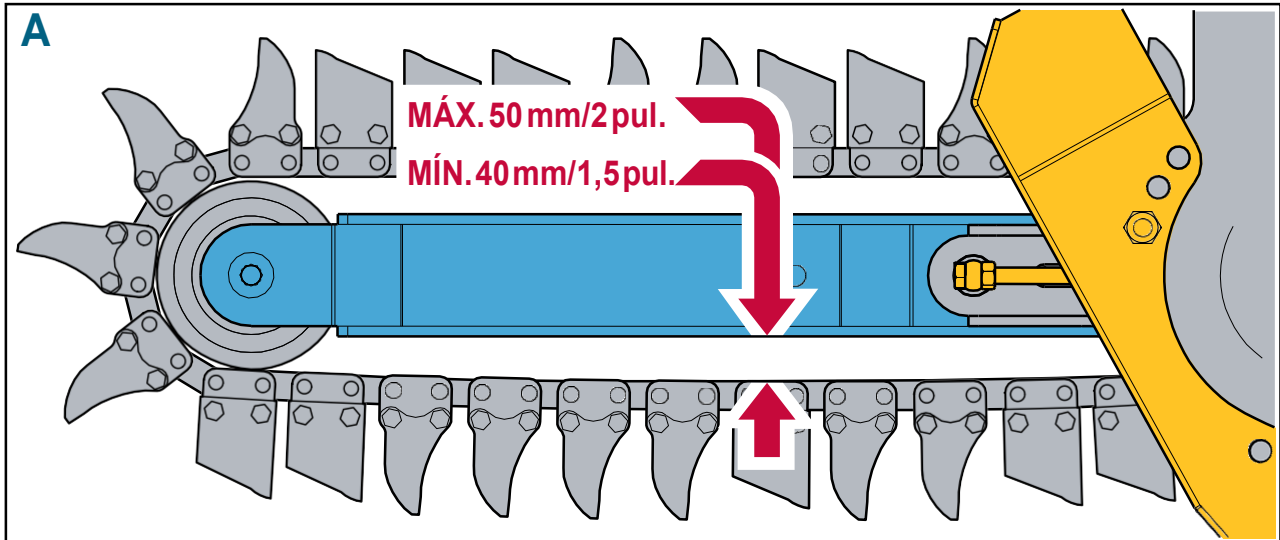
**DDT:** 0.4 litres/0.8 US pints

**XHD:** 0.8 litres/1.7 US pints

Replace the fill plug and ensure both plugs are tightened securely.



## Chain Adjustment

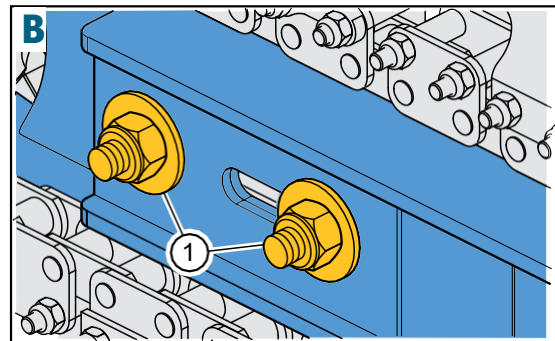


Check the chain tension by measuring the clearance between the chain and the boom as shown in Fig A.

### Step 1

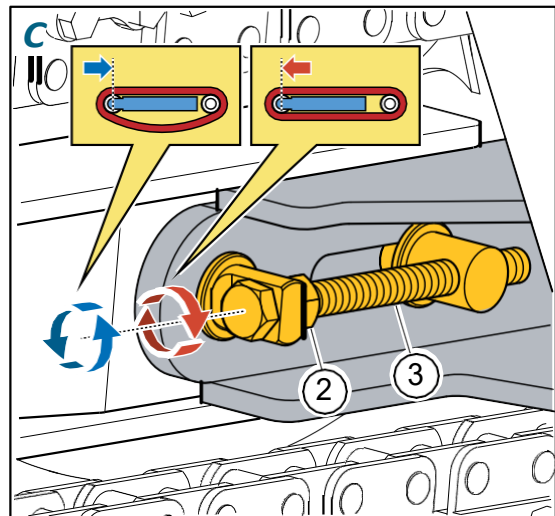
The correct clearance should be between a minimum of 40mm/1.5in and a maximum of 50mm/2in.

If adjustment is necessary, loosen the two nuts (1) on the auger side of the boom Fig B.



### Step 2

Loosen the tensioner locknut (2) Fig C and adjust the tension by turning the screw (3) as shown in the diagram.



### Step 3

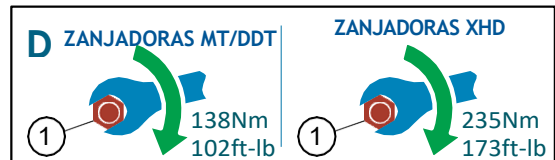
Check the chain tension as shown in Fig A and re-adjust as necessary until the correct clearance is achieved.

### Step 4

Tighten the locknut (2) Fig C.

### Step 5

Tighten the two nuts (1) Fig B using the torque values in Fig D.



**CHECK THAT ALL NUTS ARE RE-TIGHTENED BEFORE OPERATING THE TRENCHER**

## Chain Removal/Replacement



The chain ends are joined with a pin, which is secured with a split cotter pin.

Ensure that the chain is slackened off completely, following the 'Chain Adjustment' instructions on page 19.

Locate the joining pin and rotate the chain so that you have easy access to both ends of the pin.

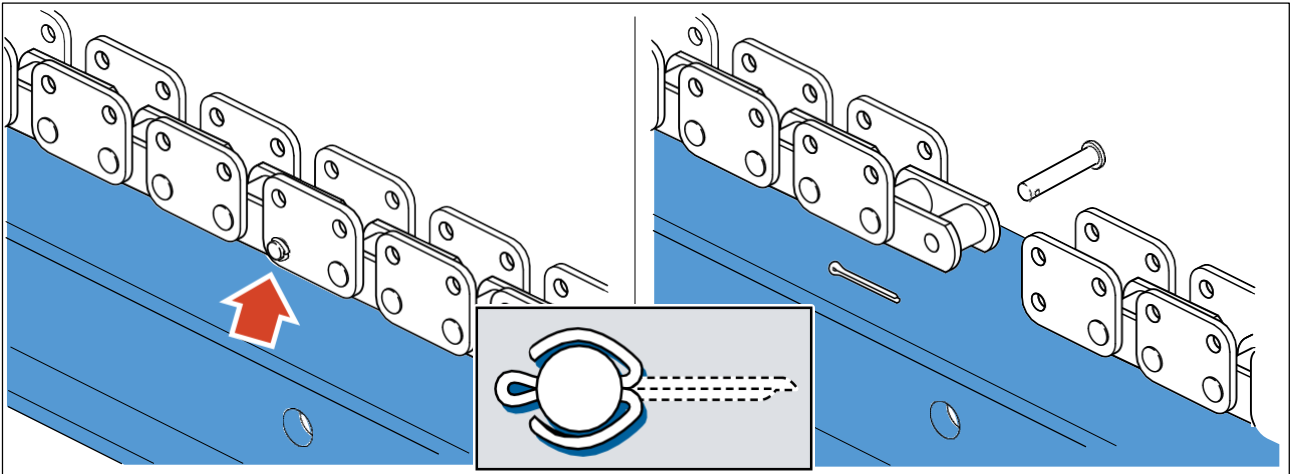


**CAUTION:** Once the joining pin is removed, the weight of the chain will cause it to swing or fall, take care to either secure the chain or make sure that it will not cause any damage when released.

Remove the split pin and press out the joining pin.

Replacement is the reverse of removal, apply grease to the holes and pin before fitting.

Fit a new split pin and ensure that the ends of the split pin are securely bent over before running.



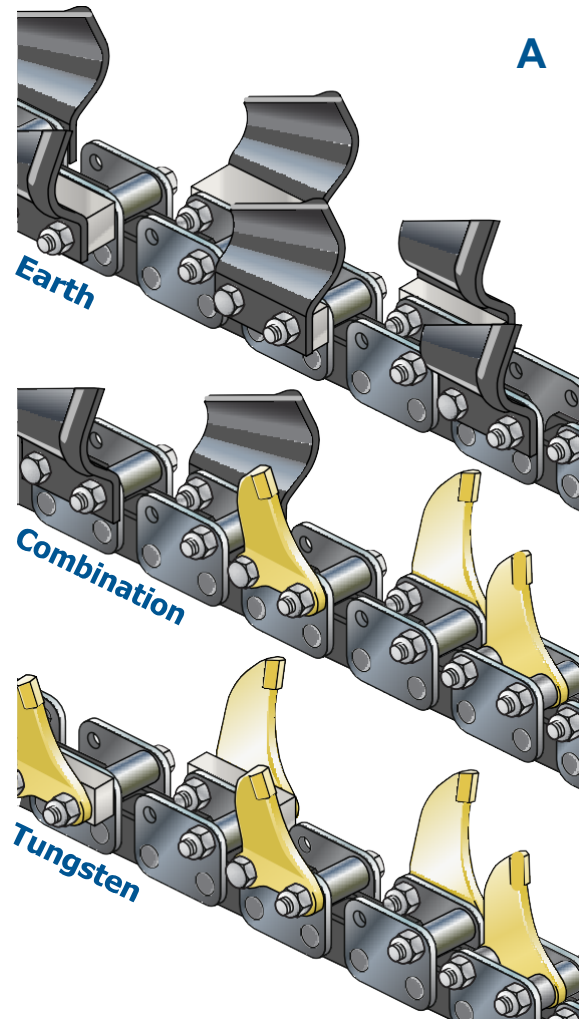
**CAUTION:** Before operating the trencher, set the chain tension following the 'Chain Adjustment' instructions on page 19.



## Cutting Tooth Maintenance

To cope with different types of trenching conditions, the trenching chains are supplied fitted with interchangeable 'Earth' or 'Tungsten' teeth, or a combination of both types (Fig A).

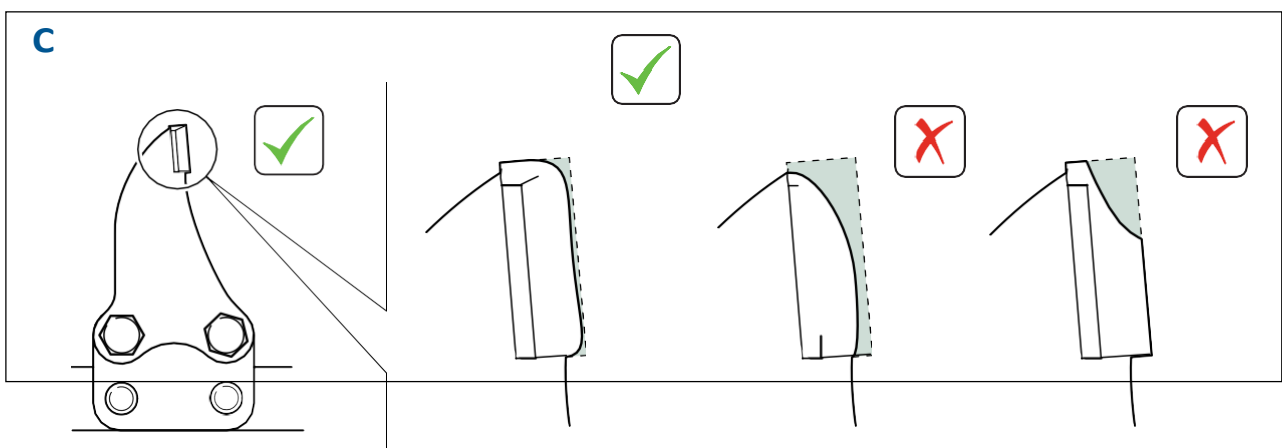
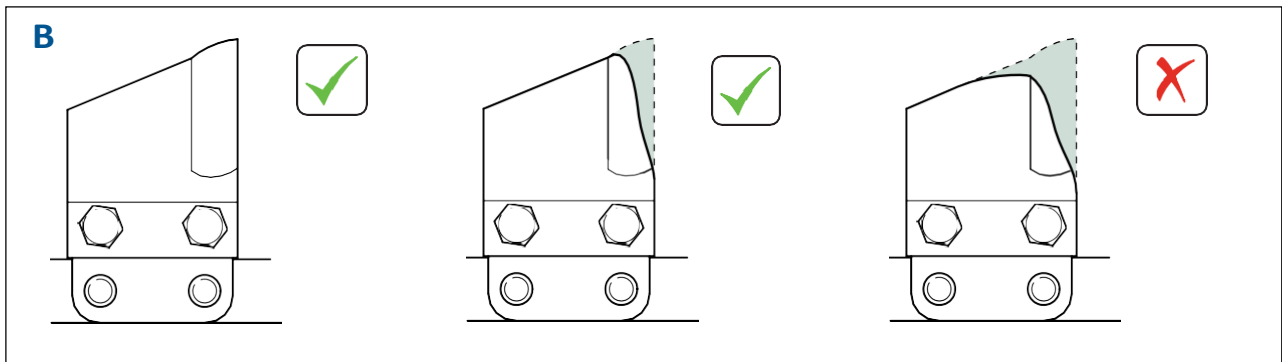
The teeth are bolted directly to the chain, or with spacers to provide a range of trench widths.



After prolonged use, the cutting teeth will show signs of wear and eventually become inefficient.

Fig B shows acceptable levels of wear for the earth teeth.

Tungsten tooth wear limits are shown in Fig C.



## Nose Roller Bearing Replacement

To remove the Nose Roller, first remove the chain as described in 'Chain Removal/Replacement' on page 20.

**A** The Nose Roller is attached by 2 bolts, 2 spring washers and 2 special washers, which secure a square pin between the ears of the boom.

Removing either of the bolts with its washers will enable the square pin to be withdrawn and free the nose roller. The bearing is retained by a shoulder on one side and circlip on the other.

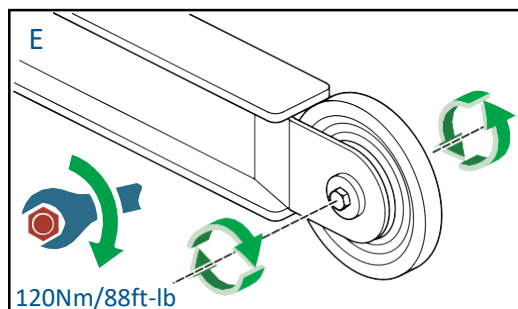
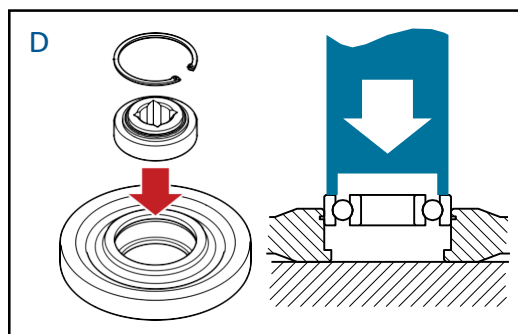
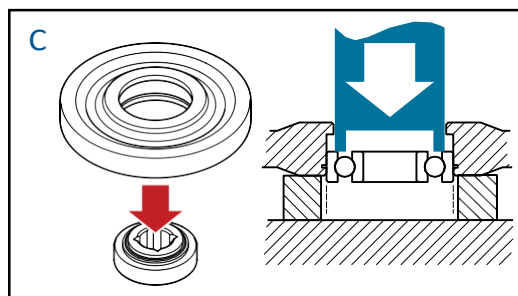
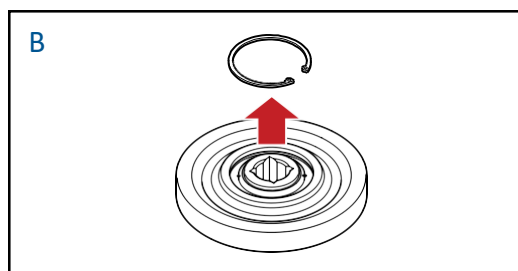
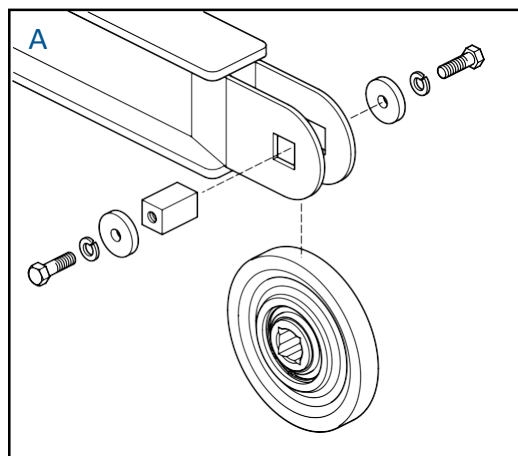
**B** Remove the circlip with a pair of internal circlip pliers.

**C** Press out the bearing, ensuring that the roller is supported close to the opening, leaving enough space below for the bearing to clear the hole.

**D** To fit a new bearing, invert the roller on a flat surface. Check the mating surfaces and the circlip groove to ensure they are clear of obstructions. Press in the new bearing with an adaptor that applies pressure only to the outer journal of the bearing. Ensure that the bearing clears the circlip groove and sits against the shoulder at the bottom of the hole. Refit the circlip.

Refit the nose roller;  
- refer to Fig A for correct sequence of components.

**E** Tighten both bolts to 120Nm/88ft-lb.



## Sprocket Removal & Replacement - MT/MT<sub>DD</sub> Trencher

To remove the sprocket, first remove the chain as described in 'Chain Removal/Replacement' on page 29.

### Step 1

Spoil auger removal. Ensure hydraulic oil supply has been disconnected. Secure the trencher in a stable position. Remove fasteners assembly (1) from the spoil auger (2).

Retract the spoil auger (2) from the output shaft (3).

Refitting is the reverse of removal.

Ensure the fastener assembly is tightened to a torque of 130Nm/96ft-lb.

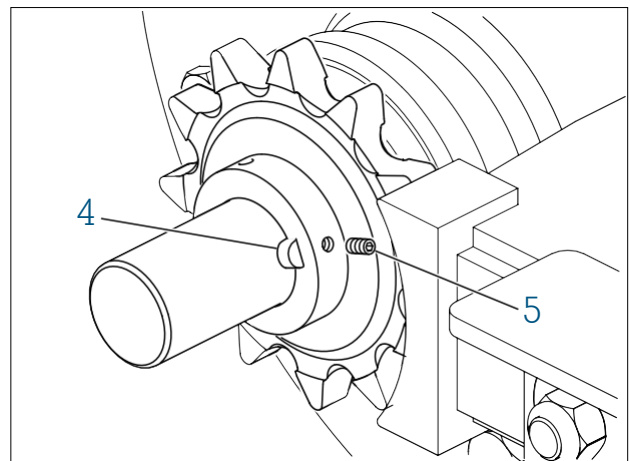
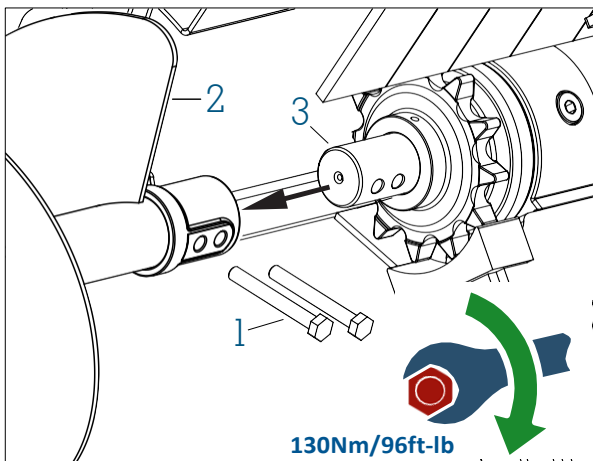
### Step 2

Sprocket removal. Rotate the sprocket until the locating key (4) and setscrew (5) are visible.

Loosen the setscrew and slide the sprocket from the output shaft.

Prior to fitting a new sprocket, ensure that the shaft is free from dirt and debris and apply grease to the mating surfaces.

Slide the sprocket on to the shaft ensuring that the key aligns with the slot and the sprocket is tight against the seal protector before tightening the setscrew.



## Sprocket Removal & Replacement - XHD Trencher

To remove the sprocket, first remove the chain as described in 'Chain Removal/Replacement' on page 20.

### Step 1

Spoil auger removal. Ensure hydraulic oil supply has been disconnected. Secure the trencher in a stable position. Remove fasteners assembly (1 & 2) from the spoil auger (3).

Retract the spoil auger (3) from the output shaft (4).

Refitting is the reverse of removal; ensure the fastener assembly is tightened to a torque of 120Nm/88ft-lb.

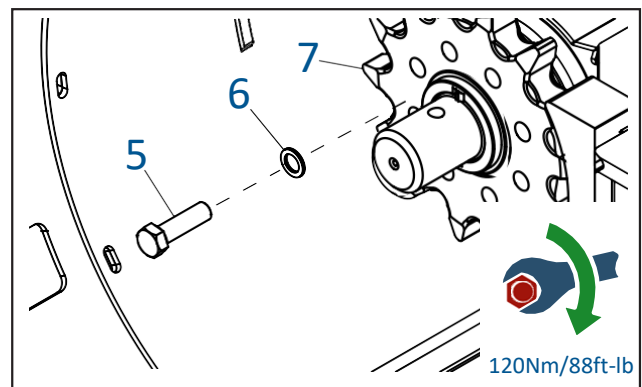
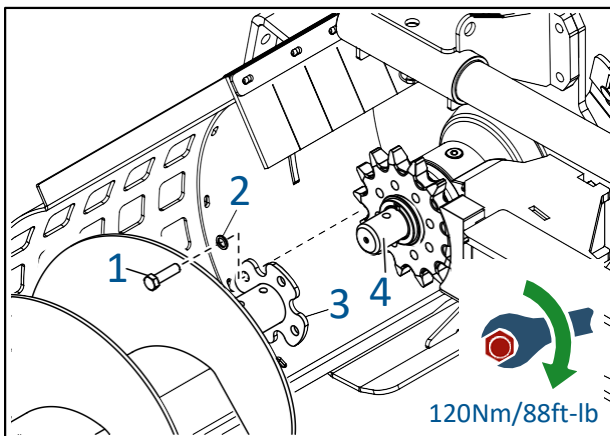
### Step 2

Sprocket removal. Remove fastener assembly (5 & 6)

Remove sprocket (7)

Prior to fitting a new sprocket, ensure that the shaft is free from dirt and debris and apply grease to the mating surfaces.

Refitting is the reverse of removal; ensure the fastener assembly is tightened to a torque of 120Nm/88ft-lb.



# TROUBLESHOOTING

**IF IN DOUBT ASK!** - Contact your local dealer for advice & repair.

**BE SAFE** - only use genuine McConnell parts.

<b>MOUNTING FRAME - ASSEMBLY</b>		
<b>FAULT</b>  Mounting frame does not fit parent machine.	<b>POSSIBLE CAUSE</b>  Incorrect or non-genuine mounting frame being used.  Damaged / worn parts.	<b>ACTION</b>  Refer to both this manual and parent machine's operating assembly instructions.  Repair or replace with genuine mounting frame.
<b>MOUNTING FRAME - OPERATION</b>		
<b>FAULT</b>  Excessive movement in locating pins.	<b>POSSIBLE CAUSE</b>  Incorrect or worn locating pins.  Parent machine pin location / linkage frame pin location worn.  Damaged parts	<b>ACTION</b>  Replace with correct new parts.  Seek advice from parent machine dealer.  Seek advice from McConnell or your local dealer. Only use genuine spare parts.
<b>TRENCHER UNIT - ASSEMBLY</b>		
<b>FAULT</b>  Trencher Unit will not fit mounting frame.    Excessive movement in locating pins.	<b>POSSIBLE CAUSE</b>  Incorrect / incompatible or non-genuine mounting frame / Trencher Unit.  Damaged parts.  Incorrect or worn pins.	<b>ACTION</b>  Obtain & fit correct and compatible genuine parts.  Seek advice from McConnell or your local dealer. Only use genuine spare parts.  Replace with correct new genuine parts.
<b>TRENCHER UNIT - OPERATION</b>		
<b>FAULT</b>  Trencher drive output shaft does not rotate.	<b>POSSIBLE CAUSE</b>  No oil flow.	<b>ACTION</b>  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 operating instructions).

## TRENCHER UNIT - OPERATION

FAULT	POSSIBLE CAUSE	ACTION
Trencher drive output shaft does not rotate.	Parent machine pressure relief valve faulty or set too low.  Trencher unit seized.  Trencher jammed in ground.	Test, reset or replace to parent machine's specification.  Seek advice from your dealer.  Reverse Trencher Chain.
Slow Trenching speed / slow rotation of Trencher Unit output shaft.	Insufficient oil flow from parent machine.  Incompatible Trencher Unit to parent machine combination.  Worn Trencher Unit hydraulic motor possibly due to incorrect or dirty oil supply.	Check that parent machine hydraulic two-way flow system is operating correctly and has sufficient oil of the correct grade.  Check specification. Seek advice from your dealer.  Seek advice from your dealer. Only use genuine spare parts.
Trencher stalls during work	Parent machine pressure relief valve faulty or set too low.  Restricted oil flow.  Blocked hydraulic filter.  Excessive parent machine pull on Trencher.  Insufficient parent machine hydraulic pressure.  Incompatible Trencher / parent machine combination.	Change parent machine hydraulic oil and filter <b>before</b> fitting replacement drive unit.  Reset/replace pressure release valve to parent machine's specification.  Check for damaged or incorrect hydraulic hoses and connections. Change parent machine filter and oil.  Reduce machine pull on Trencher.  Check that parent machine oil pressure meets with Trencher Unit requirements.  Check specification. Seek advice from your dealer.





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