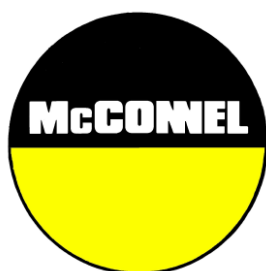


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# McCONEL

## ROBO-TRENCHER

ROBOCUT ACCESSORY

Operation & Parts 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.*

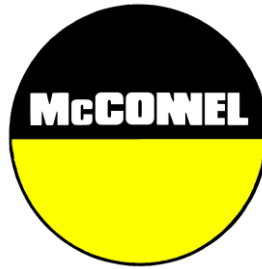
#### **4. MISCELLANEOUS**

- 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.*

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*McConnel Limited*





*For Safety and Performance...*

**ALWAYS READ THE BOOK FIRST**

**McCONEL LIMITED**

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Ludlow  
Shropshire  
England**

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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.





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## GENERAL INFORMATION

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Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the McConnel Service Department for assistance.

**Only use 'Genuine McConnel Parts' on McConnel machinery and equipment.**

DEFINITIONS: *The following definitions apply throughout this manual;*

### **⚠ DANGER**

**DANGER:** *Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.*

### **⚠ WARNING**

**WARNING:** *Alerts to a hazardous situation which could result in death or serious injury if not observed carefully.*

### **⚠ CAUTION**

**CAUTION:** *Alerts to a hazardous situation which could result in damage to the machine and/or equipment if not observed carefully.*

### **NOTICE**

**NOTICE:** *Specific or general information considered important or useful to emphasise.*

**LEFT HAND (LH) & RIGHT HAND (RH):** *These terms are applicable to the machine when fitted to the tractor and viewed from the rear; these terms also apply to tractor references.*

### **SERIAL PLATE**

*All machines are equipped with a serial number plate containing important information relating to the machine including a unique serial number used for identification purposes.*

**Note:** *Images contained in this manual are provided for instruction and informational purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; where this occurs general procedures will be basically the same. E&OE.*

## MACHINE & DEALER INFORMATION

|  |                    |
|--|--------------------|
| Record the serial number of your machine on this page and always quote it when ordering parts. Whenever information concerning the machine is requested remember to also state the make and model of tractor to which the machine is fitted. |                    |
| Machine Serial Number:   | Installation Date: |
| Machine Model Details:   |                    |
| Dealer Name & Branch:  |                    |
| Dealer Address:  |                    |
| Dealer Telephone No:   |                    |
| Dealer Email Address:  |                    |

## INTRODUCTION

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The McConnel 'Robo-Trencher is a trench digging attachment for use on McConnel Robocut machines. It has been designed for use as a professional tool for trenching operations on topsoil with the ability of digging trenches up to 90cm deep and 15cm wide. The trencher is equipped with a powerful hydraulic motor and features an adjustable boom angle for accurate depth control with an option of standard or heavy-duty tungsten teeth.

Machines must only be used to perform the duties for which they were designed; use of this machine for any other tasks will risk injury to persons and/or damage to the machine.



## MACHINE IDENTIFICATION

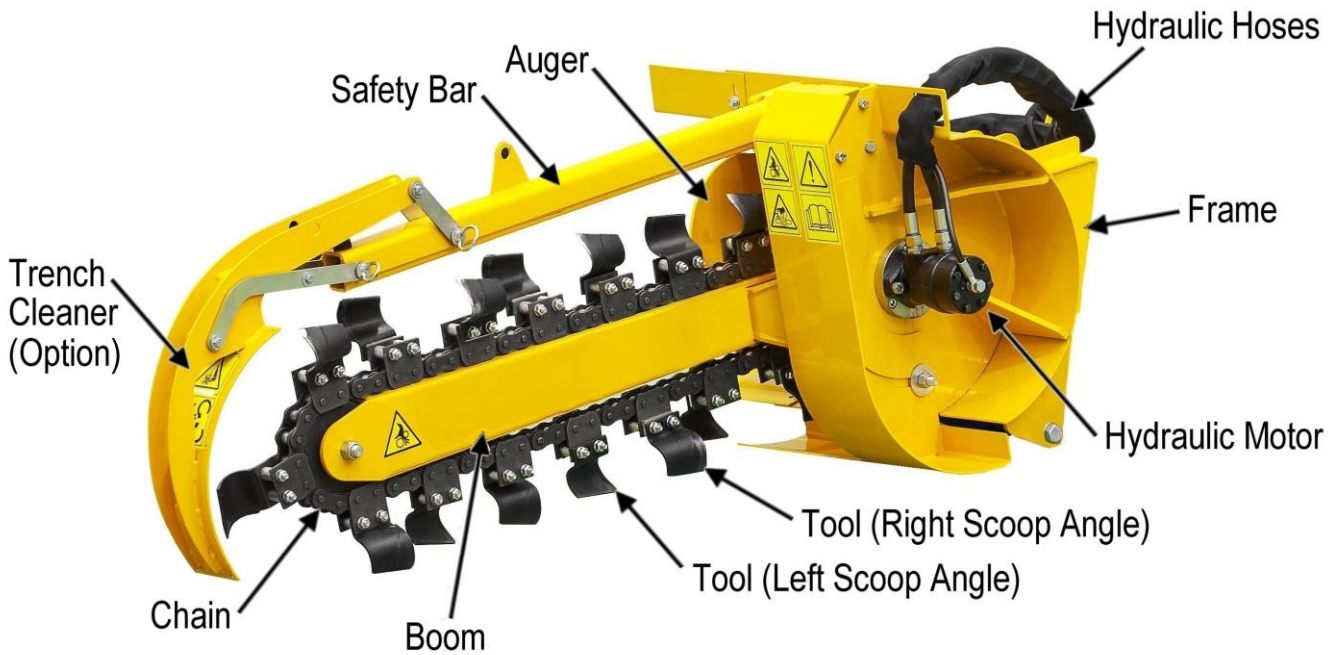
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Each machine is fitted with an identification plate in the location indicated below.



Always quote machine type and the unique serial number as stated on the identification when ordering replacement parts.

## COMPONENT IDENTIFICATION



## SPECIFICATIONS

|  |                  |
|--|------------------|
| Machine height                             | 75cm             |
| Machine width                              | 75cm             |
| Machine length                             | 210cm            |
| Transport length (maximum with 100cm boom) | 190cm            |
| Digging depth                              | 90cm             |
| Digging width                              | 15cm             |
| Machine weight                             | 260kg            |
| Chain length                               | 64 pins          |
| Chain pitch                                | 42.01mm          |
| Tool holder plates (No.)                   | 16 (19 optional) |

## NOISE LEVEL

**L<sub>pA</sub>**  
**99**

L<sub>pA</sub> = the value indicates the maximum sound level perceived by the operator at a distance of 1m from the machine.

**L<sub>wA</sub>**  
**105**

L<sub>wA</sub> = the value indicates the sound level outside the machine and refers to the noise perceived by those who are in the vicinity of the work area.

## SAFETY INFORMATION

---



In addition to the general advice stated below, the main safety implications surrounding the use of this machine relate to the safe use of the Robocut machine; it is therefore vital that all users have read and understood all safety information in the operation manual provided with that machine.

**Ensure that all users of this machine are trained in its safe use and have read the operation manual for both this machine and the Robocut machine.**

### **General safety rules:**

- ▲ Always read and follow the instructions for the use and maintenance of the machine before carrying out any work operations or servicing tasks.
- ▲ Improper use of the machine is both highly dangerous to persons and damaging to the machine components – only use the machine for its designated task.
- ▲ Both operators and the maintenance fitters should be familiar with the machine and fully aware of dangers surrounding improper use or incorrect repairs.
- ▲ Before starting, checks to both the carrying vehicle and the machine must be carried out with regard to: functionality, safety, and accident prevention.
- ▲ Immediately replace missing or damaged safety decals.
- ▲ Inspect the work area prior to operation and remove dangerous or hazardous objects.
- ▲ Always ensure there are no electrical cables, gas pipes, water pipes or other such items either above or below the ground in the intended work area
- ▲ Even when using the machine correctly, stones or other objects may be thrown a long distance, therefore nobody must stand within the danger area. Special attention must be paid when working near roads, vehicles and buildings.
- ▲ The condition of the chain, tools and safety guards must be checked before beginning work; they must be replaced if damaged or missing before attempting to operate the machine.
- ▲ During checks or repairs, make sure nobody could start the machine by mistake.
- ▲ Protective clothing and safety equipment appropriate for the job must always be worn.
- ▲ Only operate the machine from a safe position with a clear uninterrupted view of the immediate work area.
- ▲ Before starting the machine, check the surrounding area for the likely presence of persons and/or animals.
- ▲ Never carry passengers on the machine.
- ▲ Never leave a running machine unattended.
- ▲ Never approach the machine until the rotor has completely stopped.
- ▲ Stop operating the machine immediately and switch it off if persons or animal enter the work zone and do not re-start until they are clear of the danger area (min.100 metres).
- ▲ Do not stand ahead of the machine whilst operating.
- ▲ Take extra care when working on rough or uneven terrain.
- ▲ Do not work on slopes in excess of the machines capability.

- ▲ Only operate the machine in daylight conditions or high quality artificial lighting.
- ▲ Before leaving the machine, park it safely on firm level site and remove the carrying vehicle's starting key.

---

Although the information given here covers a wide range of safety subjects, it is impossible to predict every eventuality that can occur under differing circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your McConnel machine.

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### Personal Safety Gear



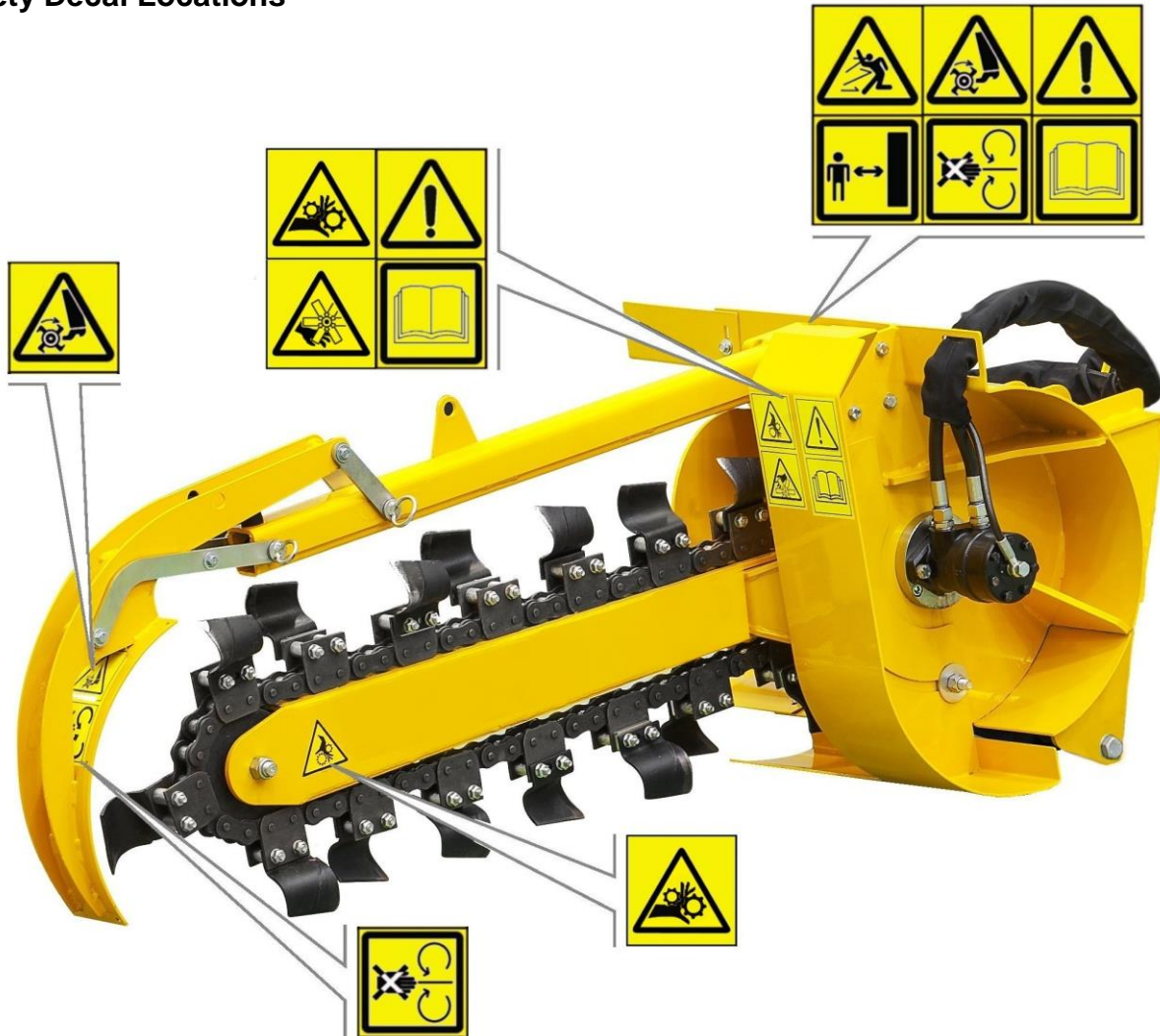
Users should wear suitable personal safety gear at all times whilst operating this machine. *Suggested safety gear is as follows;*

- **Dust Mask**
- **Safety Boots**
- **Eye Protection** (*Safety Goggles, Safety Glasses with side shields or Safety Visor*).
- **Ear Defenders**
- **Safety Helmet**
- **Safety Gloves**
- **Overalls**

# MACHINE SAFETY DECALS

Safety warning decals are placed in various locations on the machine to indicate the presence of moving components; ensure all users fully understand and abide by the safety decal messages located on the machine.

## Safety Decal Locations



NOTE: machine shown for illustration purposes may vary to the actual machine.

## Safety Decal Messages

1. **WARNING! Read the Manual;**  
*Read manual before operating the machine.*
2. **DANGER! Rotating components hazard;**  
*Keep hands away from moving components.*
3. **DANGER! Thrown object risk;**  
*Keep clear of the working machine.*
4. **DANGER! Rotating components hazard;**  
*Keep hands and feet clear at all times.*



1.

2.

3.

4.



Safety decals should be kept in a clean readable condition at all times and must be replaced immediately if they are found to be missing, damaged or unreadable.



## MACHINE HANDLING

---

### Lifting the Machine

Handling of the machine should always be performed using suitable overhead lifting equipment with a minimum safe lifting capacity over and above the maximum weight of the machine. Always ensure the machine is balanced during the lifting procedure and that all bystanders are kept well clear of the raised machine.

### Lifting Points

The location of the machines lifting points will be clearly indicated by lifting point decals. Lifting slings and/or chains should be adjusted to ensure the machine remains level and balanced when it is raised clear of the ground.



## ATTACHING THE MACHINE

Attachment and removal of the machine must always be performed on a firm level site. Ensure bystanders are kept at a safe distance from the machines during the attachment process. The procedure for attaching the machine to a Robocut is as follows;

### Mounting Procedure

Align the Robocut until its mounting plate (1) is centred and parallel to the trencher's mounting plate (2).

Lower Robocut mounting plate (1) and move forwards slowly until the plate is in contact with the Trencher mounting plate (2).

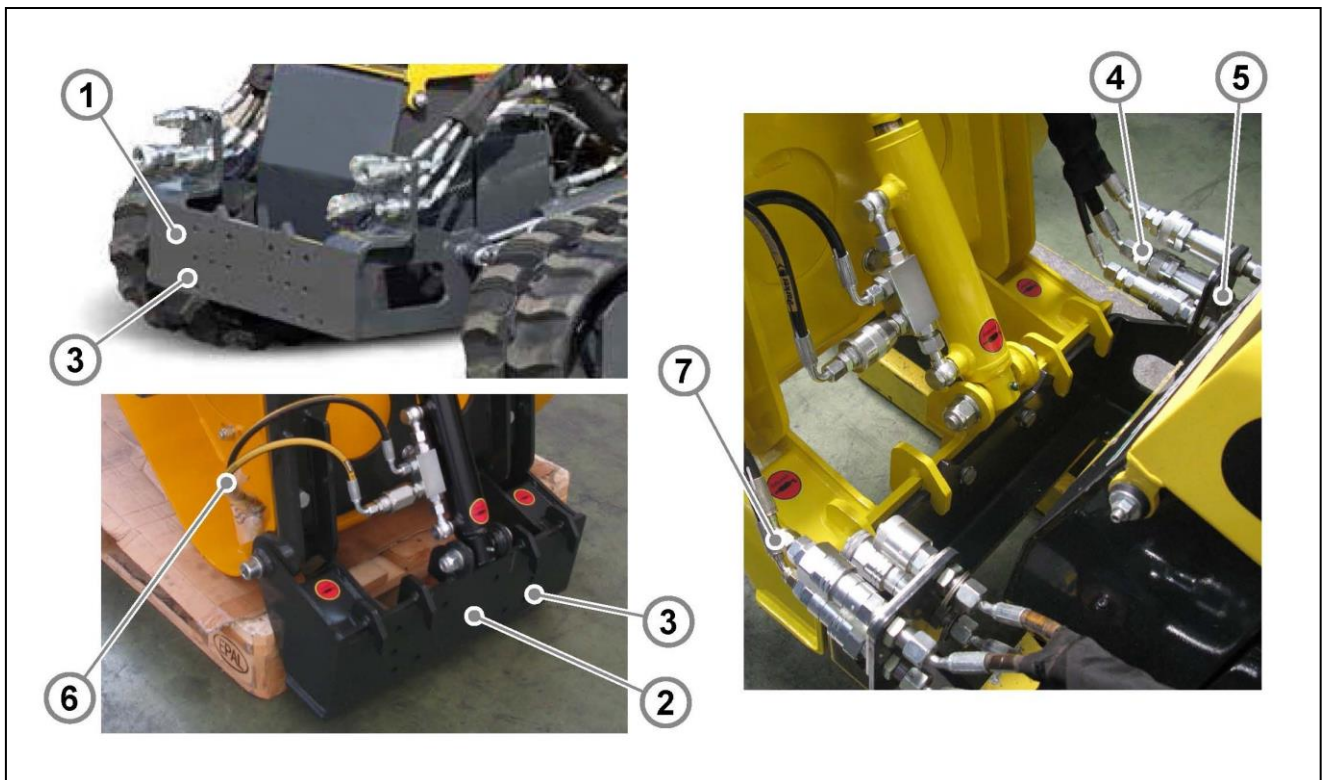
Raise the mounting plate (1) until the Trencher's mounting plate is fully connected.

Turn off the Robocut and remove the security key from the controls.

Fix mounting plate (1) to mounting plate (2) using the 6 screws in the location holes (3); secure in place with self-locking nuts.

Connect the machines 2 'quick release' hoses (4) to the Robocut's external connection points (5). *Ensure that all connections are clean and correctly attached.*

Start the Robocut and carefully operate the controls to verify they correspond to their correct functions.



With the Robocut switched off and the security removed from the controls, carefully check the machines hydraulic hoses and connections to ensure there are no signs of oil leaks.

### **⚠ DANGER**

Never search for oil leakages with your bare hands; use cardboard or rags to identify a leak. Always wear waterproof safety gloves, eye protection and protective clothing when dealing with oil leaks.

## MACHINE OPERATION

---

### Pre-Operation Machine Checks

ALWAYS perform a general check of the machine prior to starting work;

- Check machine is correctly fitted to the Robocut.
- Check all machine components are present and in good working condition.
- Check chain and auger are free from the presence of foreign bodies that may prevent the machine from being started.
- Check chain tension is correct.
- Check all blade tools are present, correctly fitted, and free from damage other than normal wear.
- Check safety guard is present and correctly fitted.
- Check there are no indications of oil leakage from hoses or fittings.
- Check machine has been lubricated in line with recommended requirements.
- Check and confirm operating direction of control switches for correct machine operation.

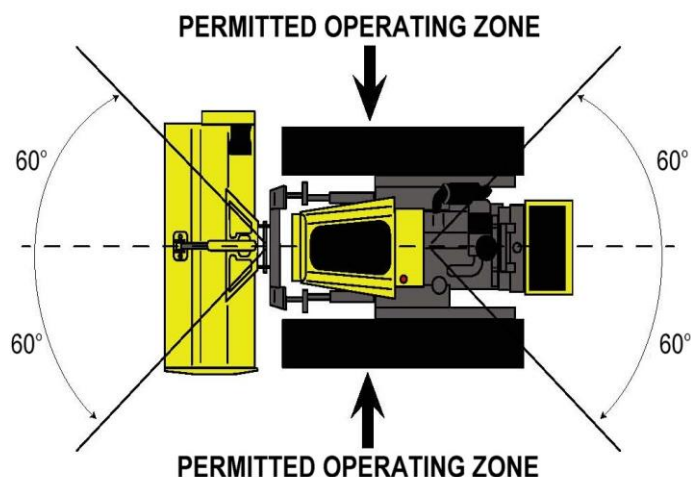
### Pre-Operation Work Site Checks

ALWAYS perform a work site check prior to starting work with the machine;

- Check the surface of the work site to ensure it is firm enough to support the weight of the machinery.
- Check that any work site slopes or inclines are within the safe recommended limits for operation of the machinery.
- Check and remove any obstacles or foreign objects that are located on the work site; any immovable objects should be clearly marked so they can be easily avoided whilst working.
- Check that there are no electrical cables, pipes, drains or other such items above or below the ground in the area where the trencher will be working.
- Check that there are no persons, animals or vehicles located within the danger zone of the working machinery.

### Operating Position

Whilst working or manoeuvring the machine the operator should remain at a safe distance from the machinery at all times and stand only in the Robocut's permitted operating zone.



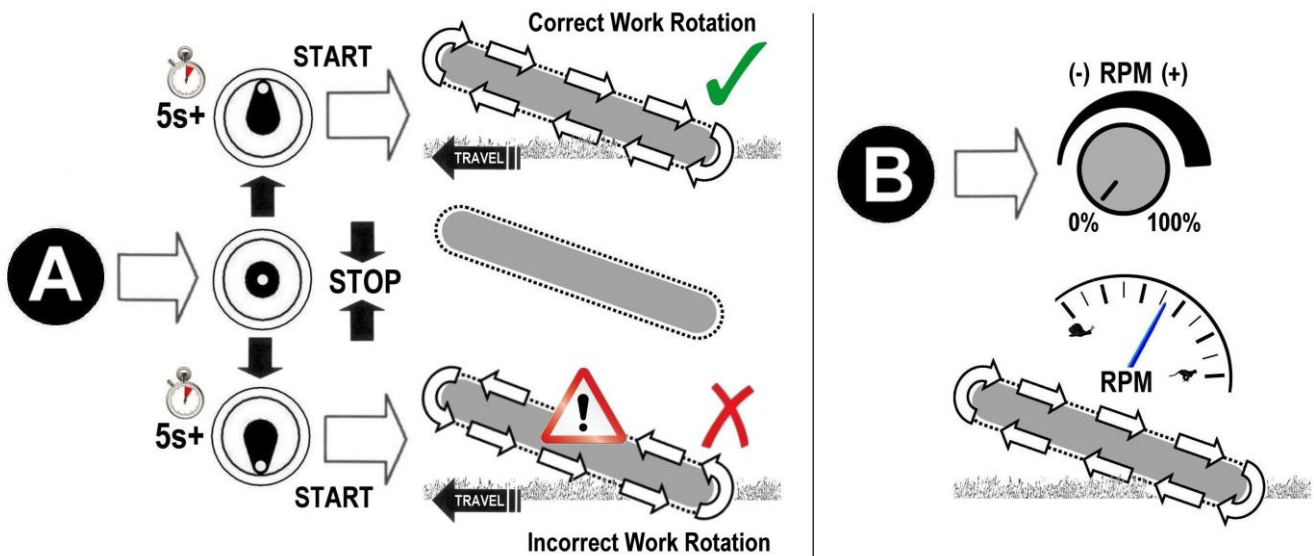
## Controls Functions

The Robo-Trencher is operated using the remote control unit of the Robocut; the switches indicated in the illustration below operate the functions of the Robo-Trencher.

**Switch 'A'** starts & stops the chain drive.

**Switch 'B'** controls the operating speed of the chain drive.

**Switch 'C'** operates the angle ram for raising or lowering the boom (work depth setting).



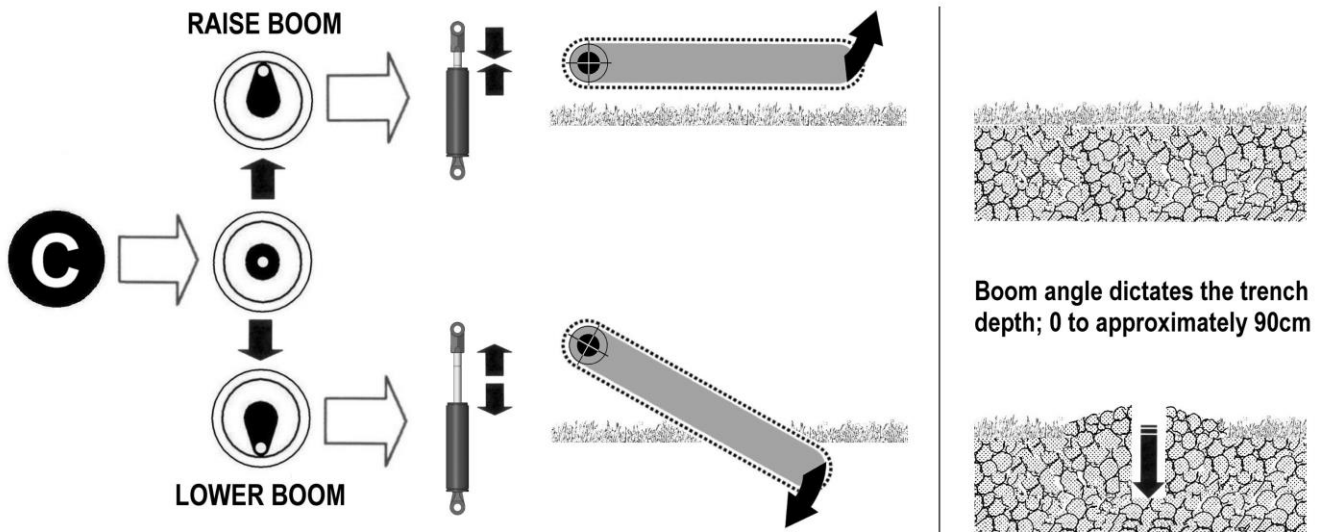
*NOTE: The rotation direction of the function controlled by Switch 'A' may differ to the example shown above; always check the configuration of the particular machine before use - the rotation direction can be swapped to suit personal preference by swapping the pressure and return hoses connection positions.*

## Working Speed

The working speed will vary depending on local conditions; in all instances the machine's rotation speed and ground travel speed of the unit should be kept at a rate that provides efficient digging without excessively labouring the machine. Never operate at ground speeds that cause the tracks of the Robocut to skid or lose traction.

## Boom Angle Control (Trench Depth)

Operation of Switch 'C' controls the boom angle ram; set the angle of the boom to a position that offers the required trench depth – the machine has the ability to work to a maximum depth of approximately 90cm (35.4").



*NOTE: The boom raise & lower function controlled by Switch 'C' may differ to the example shown above; always check the configuration of the particular machine before use - the raise & lower control direction can be swapped to match the personal preference of the operator by swapping the ram hoses connection positions.*

## Operating Procedure

With the machine safely positioned on the work site;

- Perform pre-work machine checks.
- Perform pre-operation work site checks.
- Start the Robocut – *run engine at idle until normal working temperature is reached.*
- With the trencher boom raised, position the unit at the start of the required digging path.
- Operate the angle ram to position the trenching teeth just clear of the ground.
- Activate the chain drive; *verify rotation is in the correct direction for work.*
- Gradually increase chain rotation speed to a suitable rate for work.
- Lower the boom until it penetrates the ground to the required digging depth; *this should be performed gradually to avoid 'labouring' the motor*
- Start machine travel in the work direction and accelerate to suitable operating speed.  
*Subsequent adjustments to ground speed and chain rotation speed may be required to achieve optimum digging performance to suit particular conditions.*

At the end of the trenching operation bring the unit to a standstill, reduce chain rotation speed and carefully raise the machine out of the ground before halting chain rotation entirely.



<https://www.youtube.com/watch?v=MnZGG69T1BU>

**⚠ CAUTION**

**Corners & Bends**

Manoeuvring around corners and tight bends must be avoided whilst trenching as excessive sideways leverage on the boom can damage machine components.

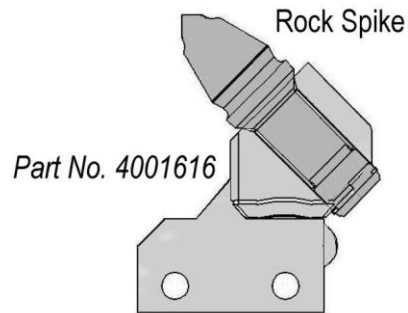
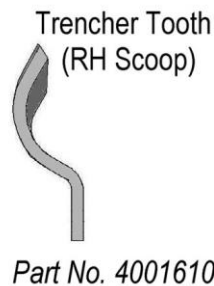
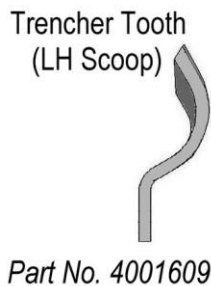
**⚠ CAUTION**

**Working Conditions**

The machine has been designed and constructed for trenching duties in topsoil; use for any other purpose is not advisable and must therefore be avoided.

**Digging Tools**

Trencher chainsets are available in a choice of configurations; Standard Chainset (15x100) or Rock Spike Chainset (15x100) – *the digging tools fitted to the chainsets are stated below:*



**Standard Chainset – for trenching work in normal topsoil**

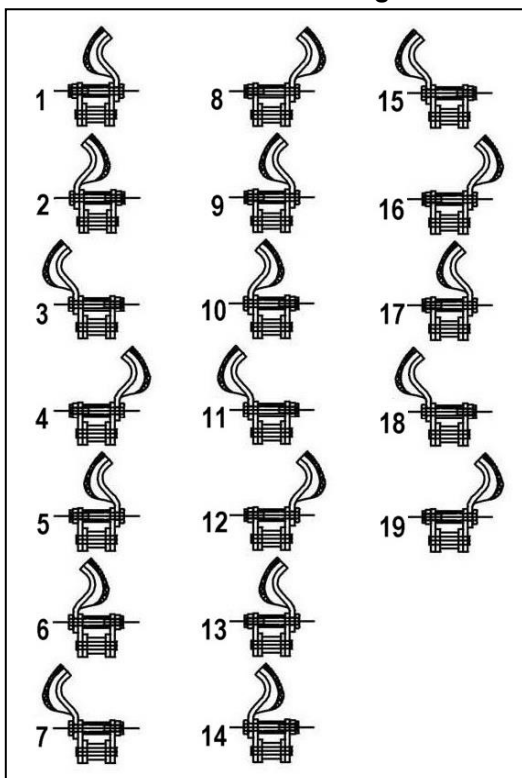
Equipped with 9 x LH Scoop & 10 x RH Scoop Trencher Teeth

**Rock Spike Chainset (Option) – for trenching work in heavier conditions**

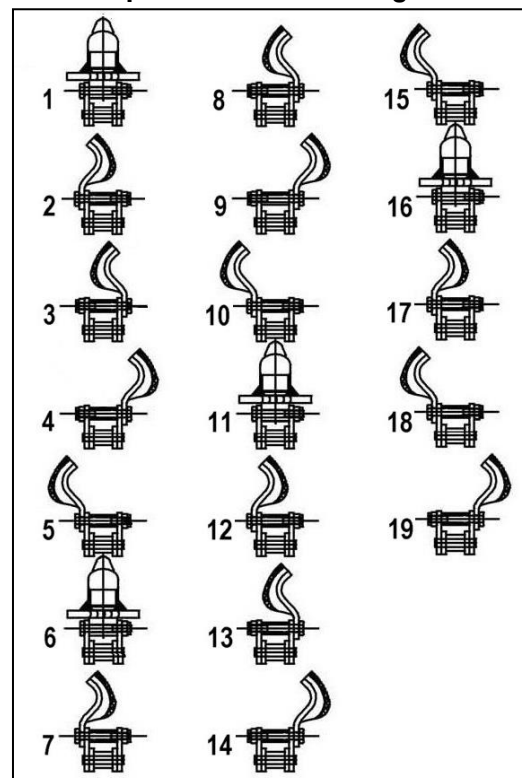
Equipped with 8 x LH Scoop, 7 x RH Scoop Trencher Teeth & 4 x Rock Spikes

**Tool Mounting Locations / Positions**

**Standard Chainset Configuration**



**Rock Spike Chainset Configuration**



NOTE; LH & RH 'scoop' teeth must be mounted in their correct working direction - they not reversible.

### **Machine Transport**

For transport in and around the work site the machine should be switched off and carried in its raised position; *never transport the machine with the boom in contact with the ground or with the chain rotating.*

### **Post Work Tasks**

After each session of trenching the machine should be switched off and the chainset carefully cleared of any dirt or debris that may have accumulated as a result of the work.

Check the chainset for signs of excessive wear or damage and replace excessively worn or damaged components if necessary.

### **Machine Storage**

Machines should ideally be stored in a clean dry environment protected from the elements to avoid risk of corrosion. Clean the machine thoroughly and lubricate all grease points prior to storage. Excessively worn or damaged components should be replaced prior to storage to ensure the machine is fully prepared for the next season of work.

For extended periods of storage, all mechanical component that are subjected to friction should thoroughly greased and a thin layer of protective grease applied to the hydraulic ram rod; *the grease on the ram rod should be carefully removed with a clean rag prior to subsequent use of the ram.*

### **Recommissioning the Machine**

After storage the machine should be thoroughly inspected and the following tasks performed;

- Check all components are present and in good working condition.
- Check all nuts and bolts are tight.
- Check chain tension; adjust if required.
- Remove any protective grease from the rod of the hydraulic ram.
- Grease main shaft bearings and idler sprocket bearings.
- Lubricate the chainset.
- Test run the machine in a safe environment to confirm it functions correctly.

## MAINTENANCE

**⚠ WARNING** All maintenance, cleaning and repairing operations must be carried out with machinery turned off and starting key removed.

The machine should be inspected on a daily basis prior to starting work to ensure it is in good working order, the following points should be addressed during routine inspections;

- Check tightness of nuts and bolts, retighten if required.
- Check all components for signs of wear and tear; replace components if excessive wear or damage is detected.
- Check chain tension; adjust if required.
- Check hydraulic hoses and hydraulic connections for signs of damage or leakage, replace damaged components immediately.
- Lubricate machine at the required intervals.

### Chain Tension

The correct chain tension is approximately 12–19mm (1/2 –3/4") of chain sag at the centre point of the lower chain run between the boom and the top of the chain span; tension should be measured with the boom positioned parallel to the ground.

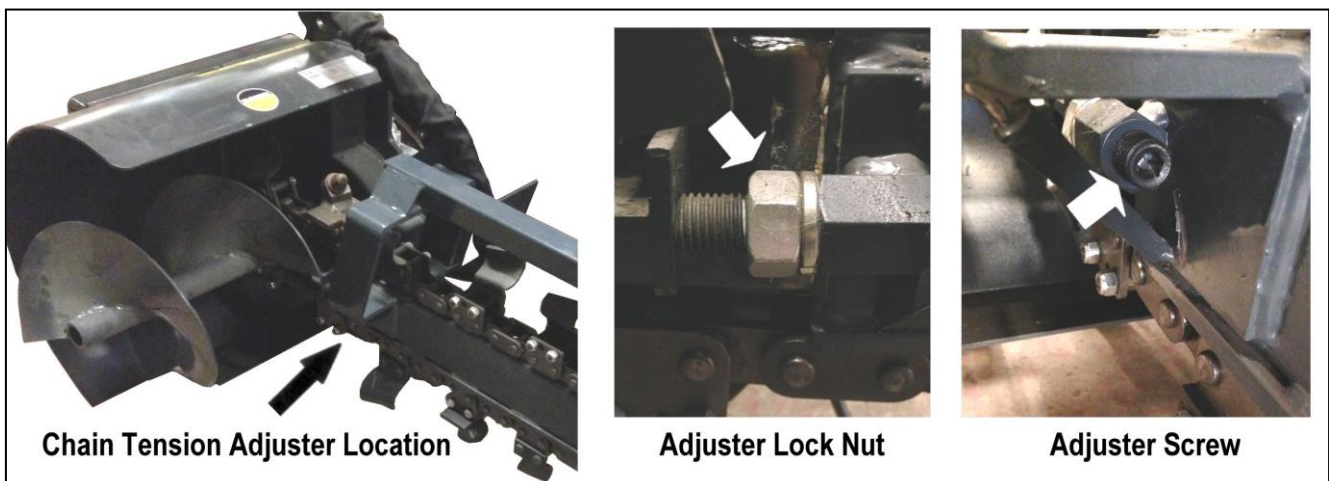


On new machines the chain tension should be checked after an initial hour of work and thereafter at regular intervals. The frequency at which adjustment will be required will vary depending on the working conditions.

**Do not over tension the chain; excess chain tension can damage drive components.**

### Chain Tension Adjuster

Refer to illustrations below for location and identification of the chain tension adjuster.



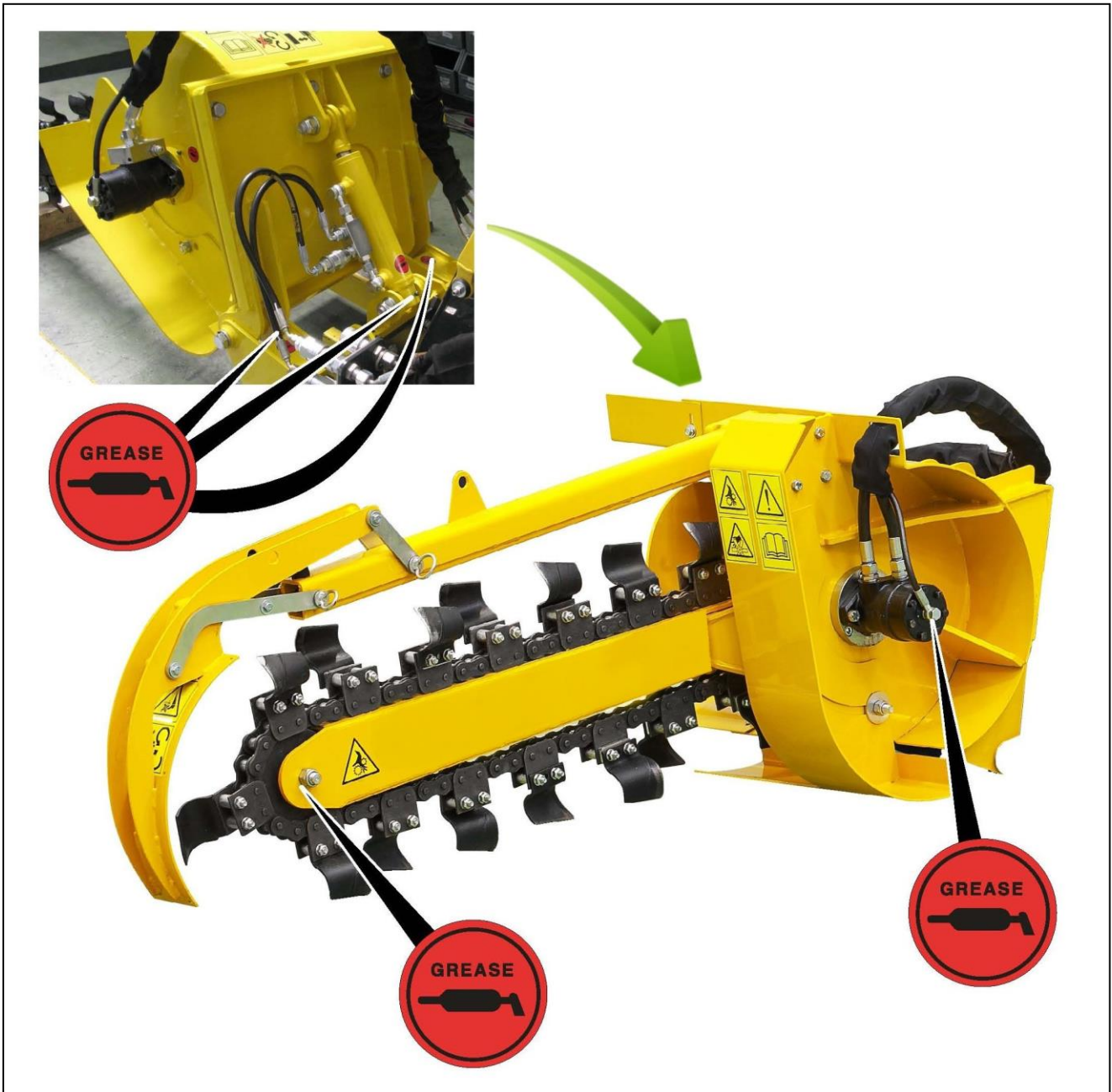


### Adjusting Chain Tension

To adjust chain; loosen the adjuster's lock nut before rotating the adjuster screw in the required direction to either increase or decrease the tension - when the correct chain tension is achieved secure the adjuster by retightening the lock nut.

### Greasing Points

Grease all lubrication points in areas shown below every **50 hours** using AGIP MU EP1 or an equivalent good quality lithium-based grease.



### Hydraulic Hoses

Inspect hoses and hydraulic connections for signs of damage or leaks on a regular basis; replace worn, damaged or leaking components immediately. Hydraulic hoses should be changed as a matter of course on annually or every 2000 hours, *whichever occurs first*.

### Digging Tools

Check the wear status of the chain tools on a daily basis; *replace immediately if excessive wear or damage is observed*.

# ROBO-TRENCHER

Parts Manual



*For best performance ...*

**USE ONLY GENUINE McCONNEL SERVICE PARTS**

*To be assured of the latest design improvements purchase your  
'Genuine Replacements' from the 'Original Equipment Manufacturer'*

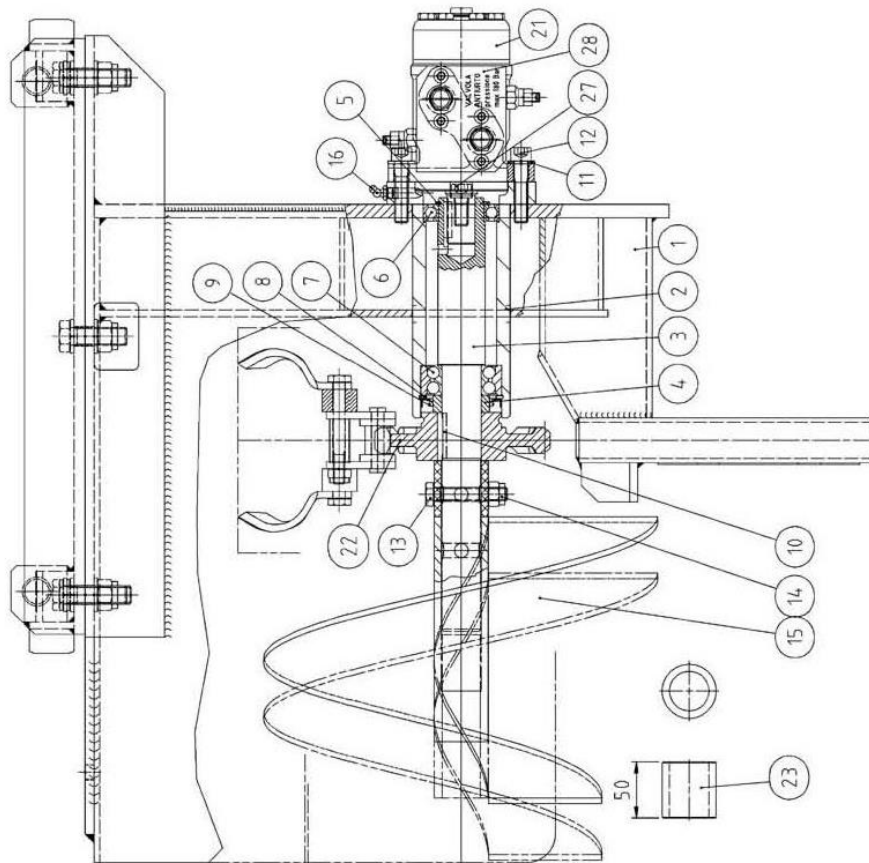
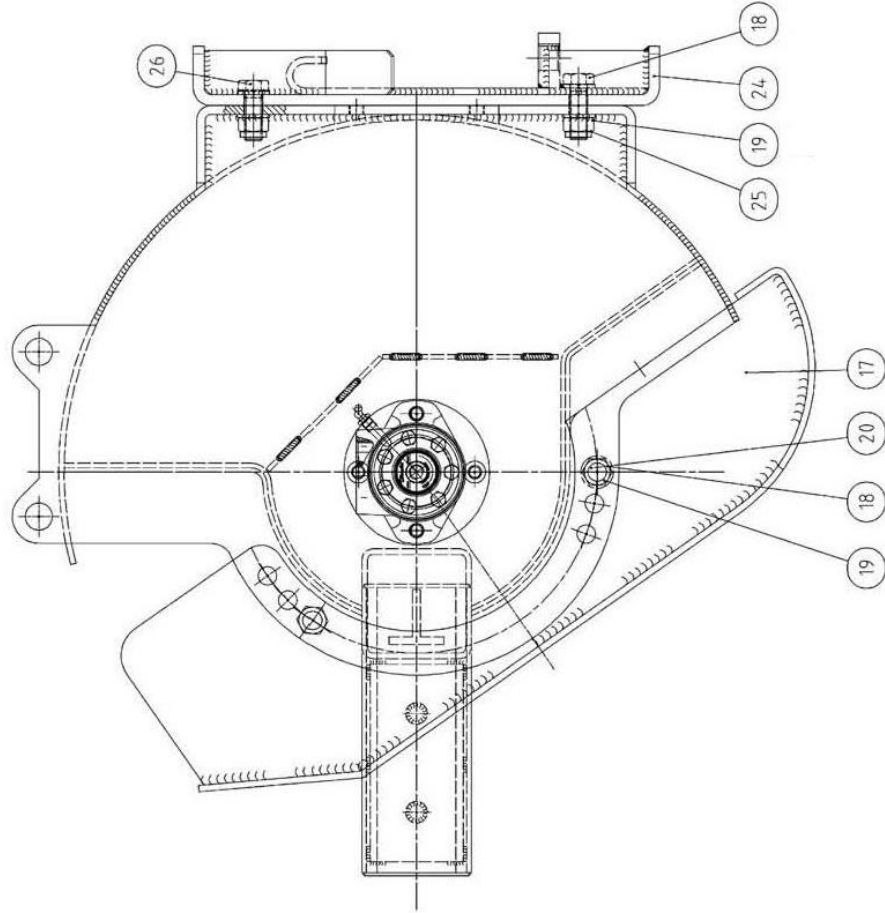
**McCONNEL LIMITED**

*Through your local Dealer or Stockist*

**Always quote:**

- **Machine Type**
- **Serial Number**
- **Part Number**

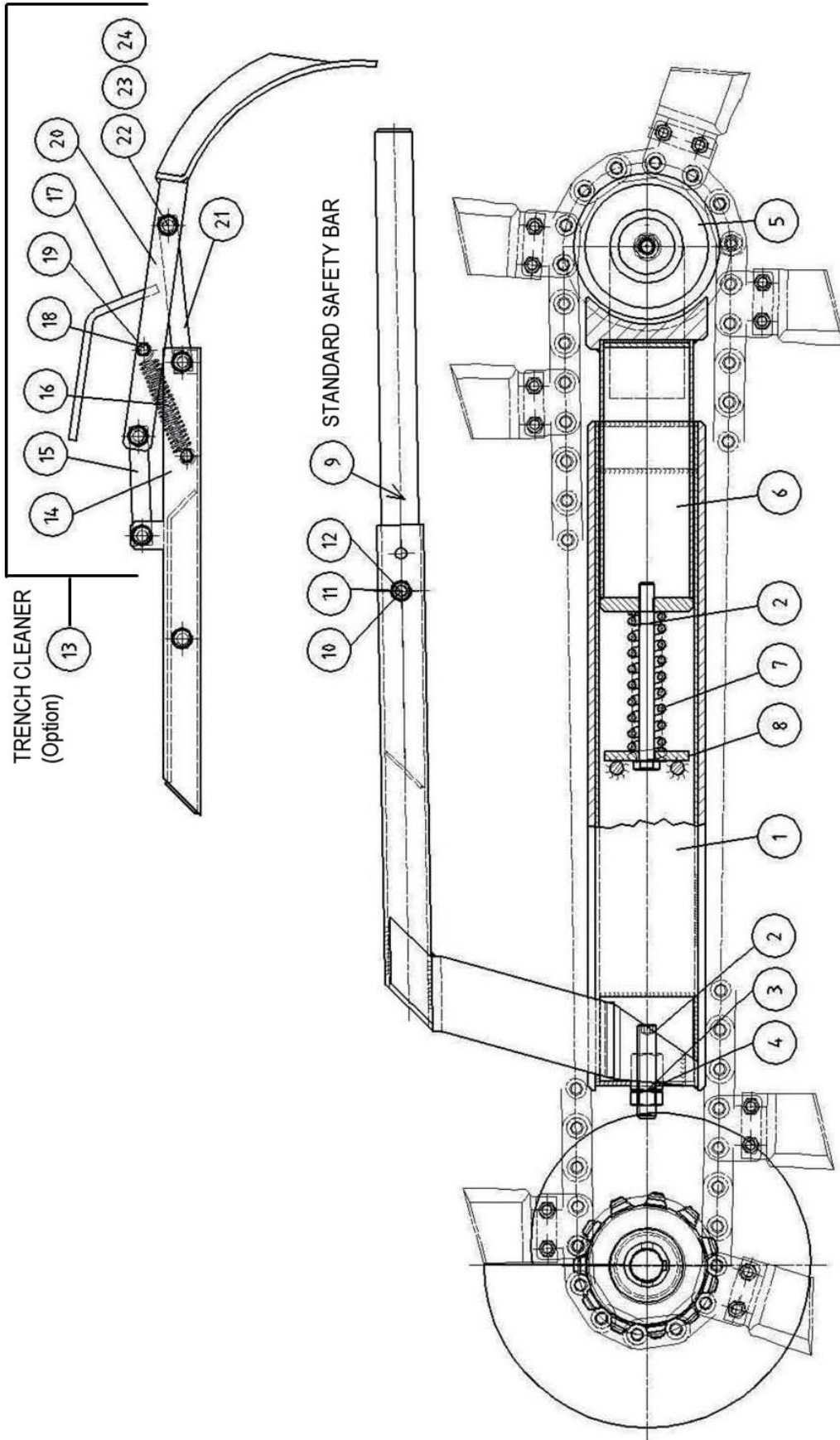
*Design improvements may alter some of the parts listed in this manual –  
the latest part will always be supplied when it is interchangeable with an earlier one.*



**MAIN FRAME MODULE****McCONNEL**

Product: ROBO-TRENCHER

| <b>REF.</b> | <b>QTY.</b> | <b>PART No.</b> | <b>DESCRIPTION</b>       |
|-------------|-------------|-----------------|--------------------------|
|             |             |                 | <b>MAIN FRAME MODULE</b> |
| 1           | 1           | 4001551         | FRAME                    |
| 2           | 1           | 4001552         | COVER                    |
| 3           | 1           | 4001553         | SHAFT                    |
| 4           | 1           | 4001554         | SPACER                   |
| 5           | 1           | 4001555         | RING                     |
| 6           | 1           | 4001556         | BEARING                  |
| 7           | 1           | 4001557         | BEARING                  |
| 8           | 1           | 4001558         | RING                     |
| 9           | 1           | 4001559         | RING                     |
| 10          | 1           | 4001560         | TONGUE                   |
| 11          | 2           | 4001561         | WASHER                   |
| 12          | 2           | 4001562         | BOLT                     |
| 13          | 1           | 4001563         | BOLT                     |
| 14          | 1           | 4001564         | NUT                      |
| 15          | 1           | 4001565         | AUGER                    |
| 16          | 1           | 4001566         | GREASE NIPPLE            |
| 17          | 1           | 4001567         | STAND                    |
| 18          | 4           | 4001568         | BOLT                     |
| 19          | 16          | 4001569         | WASHER                   |
| 20          | 2           | 4001570         | NUT                      |
| 21          | 1           | 4001571         | MOTOR                    |
| 22          | 1           | 4001572         | SPROCKET                 |
| 23          | 1           | 4001573         | SPACER                   |
| 24          | 1           | 4001574         | PLATE                    |
| 25          | 6           | 4001575         | NUT                      |
| 26          | 4           | 4001576         | BOLT                     |
| 27          | 2           | 4001577         | BOLT                     |
| 28          | 1           | 4001578         | VALVE                    |



**BOOM MODULE****McCONNEL**

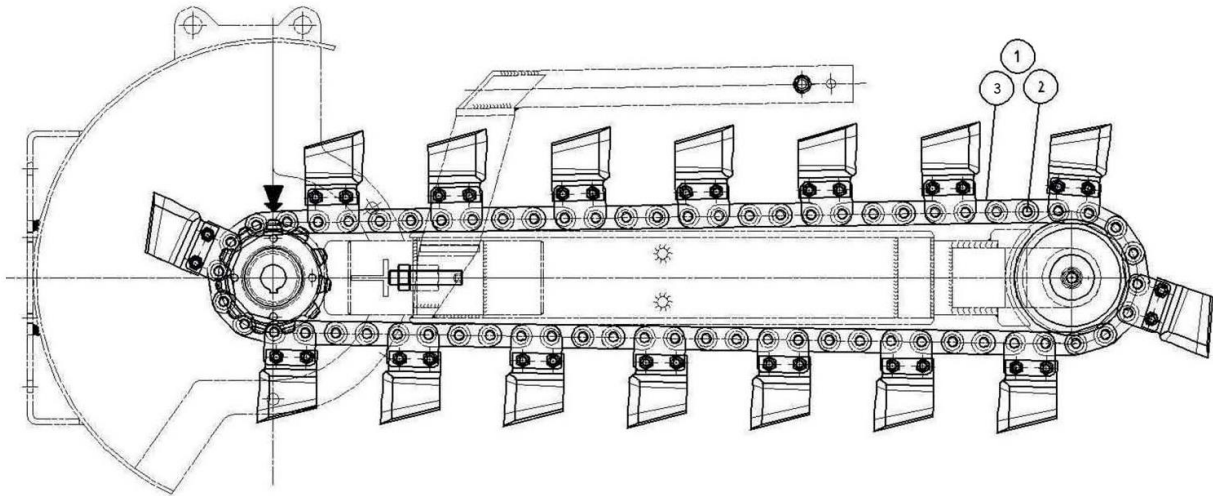
Product: ROBO-TRENCHER

| <b>REF.</b> | <b>QTY.</b> | <b>PART No.</b> | <b>DESCRIPTION</b>          |
|-------------|-------------|-----------------|-----------------------------|
|             |             |                 | <b>BOOM MODULE</b>          |
| 1           | 1           | 4001579         | BOOM                        |
| 2           | 2           | 4001580         | BOLT                        |
| 3           | 1           | 4001581         | NUT                         |
| 4           | 1           | 4001582         | WASHER                      |
| 5           | 1           | 4001583         | SPROCKET                    |
| 6           | 1           | 4001597         | FLANGE                      |
| 7           | 1           | 4001598         | SPRING                      |
| 8           | 1           | 4001599         | PLATE                       |
| 9           | 1           | 4001584         | SAFETY BAR                  |
| 10          | 1           | 4001585         | BOLT                        |
| 11          | 1           | 4001586         | WASHER                      |
| 12          | 1           | 4001587         | NUT                         |
| 13          | 1           | 4001588         | TRENCH CLEANER (Option) c/o |
| 14          | 1           | 4001589         | MOUNT ARM                   |
| 15          | 1           | 4001590         | LEVER                       |
| 16          | 1           | 4001591         | SPRING                      |
| 17          | 1           | 4001592         | HANDLE                      |
| 18          | 2           | 4001593         | BOLT                        |
| 19          | 2           | 4001594         | NUT                         |
| 20          | 1           | 4001595         | SAFETY BAR / CLEANER        |
| 21          | 1           | 4001596         | LEVER                       |
| 22          | 5           | 4001585         | BOLT                        |
| 23          | 5           | 4001586         | WASHER                      |
| 24          | 5           | 4001587         | NUT                         |

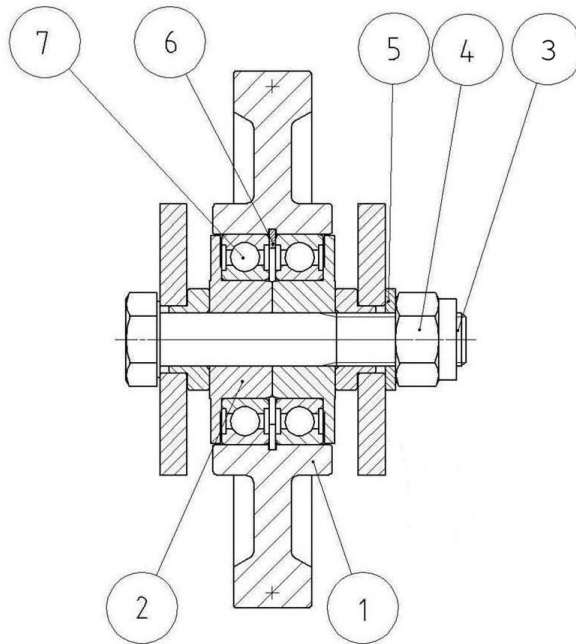
# CHAIN MODULE

Product: ROBO-TRENCHER

# McCONNEL

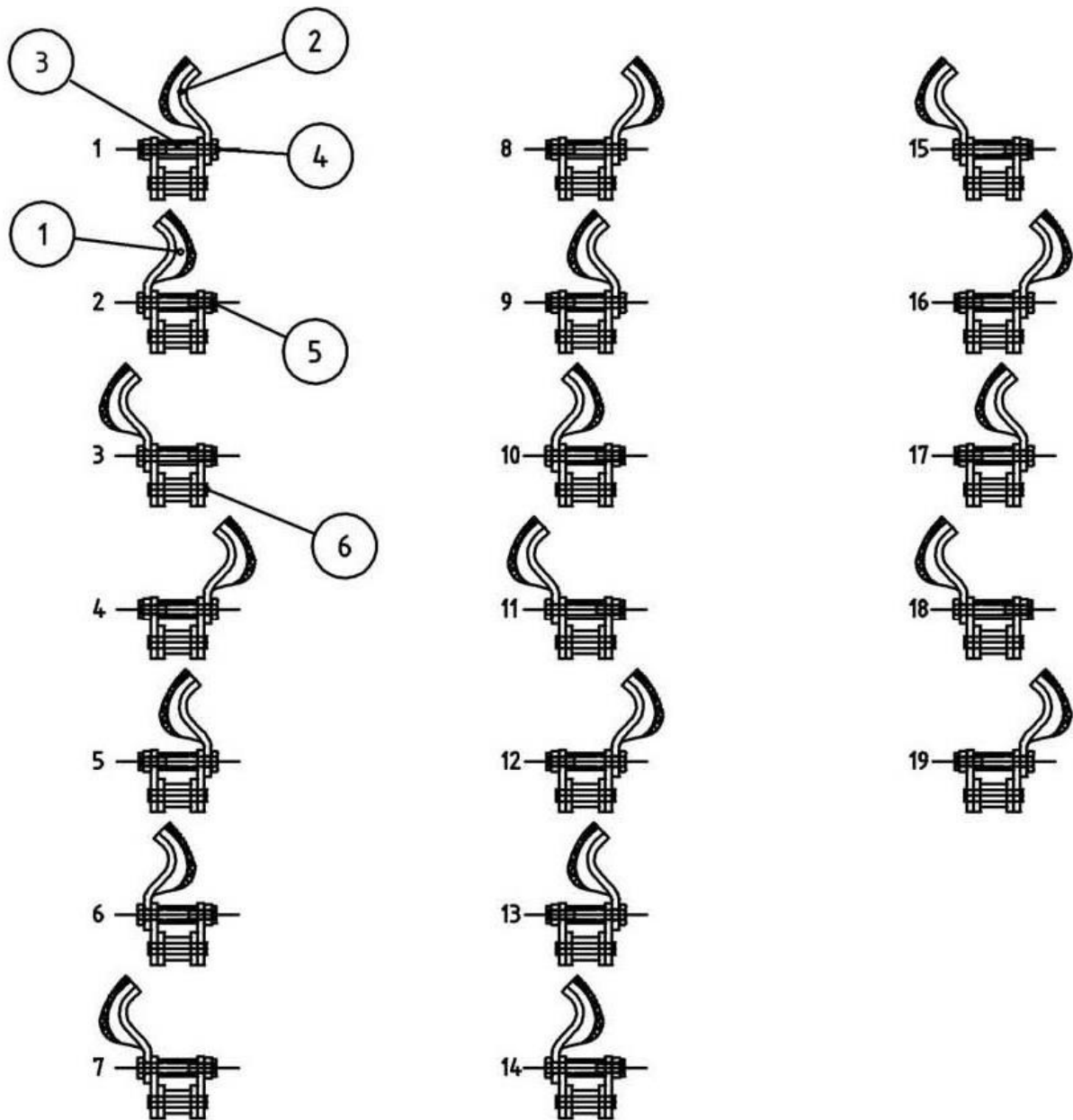


| REF. | QTY. | PART No. | DESCRIPTION        |
|------|------|----------|--------------------|
| 1    | 1    | 4001608  | TRENCHER CHAIN     |
| 2    | -    | 4001606  | CHAIN<br>PIN PLATE |
| 3    | -    | 4001607  | LINK               |



| REF.                     | QTY. | PART No. | DESCRIPTION |
|--------------------------|------|----------|-------------|
| <b>SPROCKET ASSEMBLY</b> |      |          |             |
| 1                        | 1    | 4001600  | SPROCKET    |
| 2                        | 2    | 4001601  | SPACER      |
| 3                        | 1    | 4001602  | PIN         |
| 4                        | 1    | 4001603  | NUT         |
| 5                        | 1    | 4001569  | WASHER      |
| 6                        | 1    | 4001604  | RING        |
| 7                        | 2    | 4001605  | BEARING     |



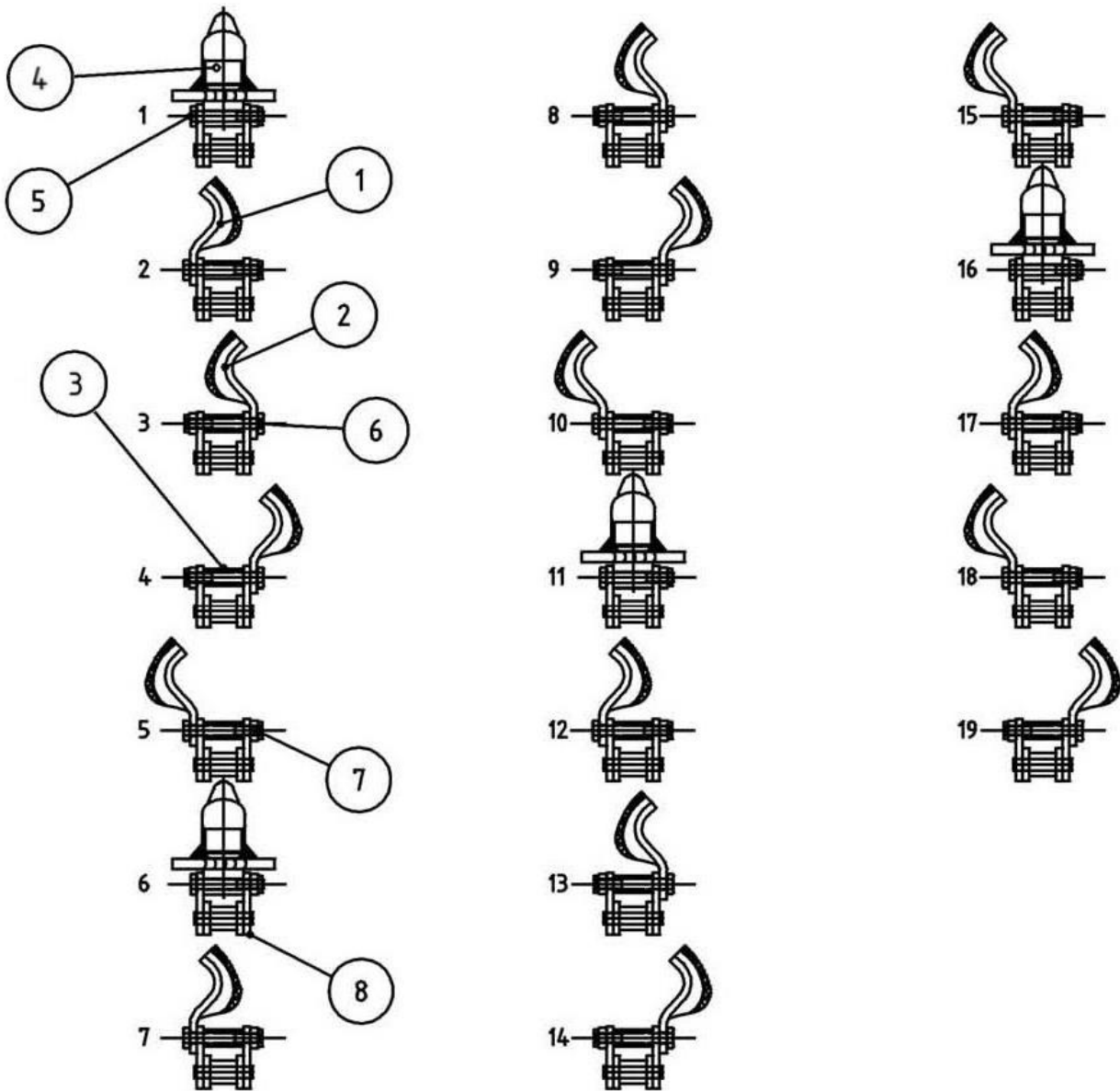


| REF. | QTY. | PART No. | DESCRIPTION                |
|------|------|----------|----------------------------|
| 1    | 9    | 4001609  | TRENCHING TOOTH - LH SCOOP |
| 2    | 10   | 4001610  | TRENCHING TOOTH - RH SCOOP |
| 3    | 38   | 4001611  | SPACER                     |
| 4    | 38   | 4001612  | BOLT                       |
| 5    | 38   | 4001615  | NUT                        |
| 6    | 1    | 4001608  | CHAIN                      |

ROCK SPIKE CHAINSET 15x100

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Product: ROBO-TRENCHER

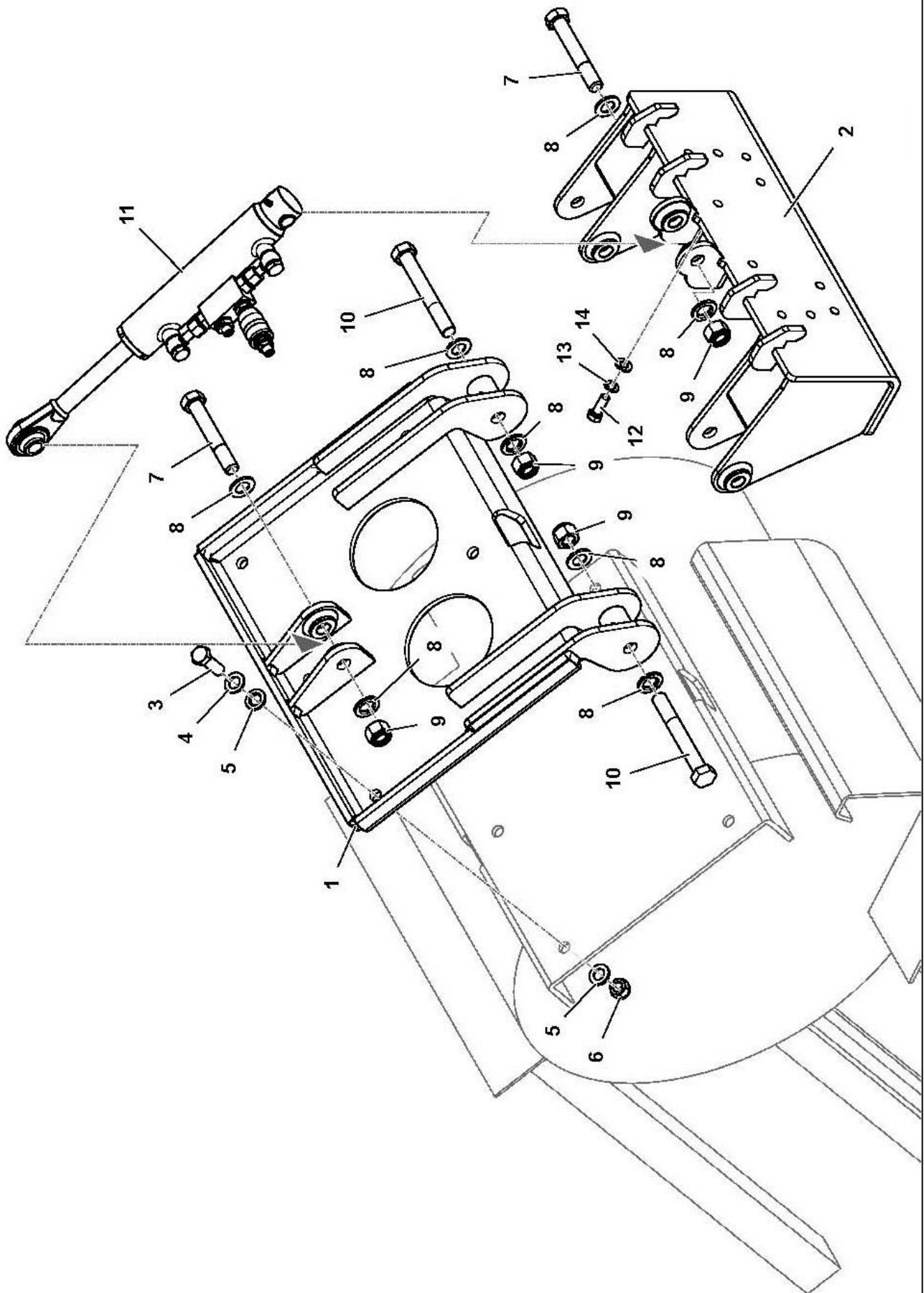


| REF.                              | QTY. | PART No. | DESCRIPTION                |
|-----------------------------------|------|----------|----------------------------|
| <b>ROCK SPIKE CHAINSET 15x100</b> |      |          |                            |
| 1                                 | 8    | 4001609  | TRENCHING TOOTH - LH SCOOP |
| 2                                 | 7    | 4001610  | TRENCHING TOOTH - RH SCOOP |
| 3                                 | 30   | 4001611  | SPACER                     |
| 4                                 | 4    | 4001616  | ROCK SPIKE                 |
| 5                                 | 8    | 4001614  | BOLT                       |
| 6                                 | 30   | 4001612  | BOLT                       |
| 7                                 | 30   | 4001615  | NUT                        |
| 8                                 | 1    | 4001608  | CHAIN                      |

# LINKAGE MODULE

Product: ROBO-TRENCHER

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**LINKAGE MODULE****McCONNEL**

Product: ROBO-TRENCHER

| <b>REF.</b> | <b>QTY.</b> | <b>PART No.</b> | <b>DESCRIPTION</b>    |
|-------------|-------------|-----------------|-----------------------|
|             |             |                 | <b>LINKAGE MODULE</b> |
| 1           | 1           | 4001617         | MOUNTING PLATE        |
| 2           | 1           | 4001618         | MOUNTING BRACKET      |
| 3           | 6           | 4001529         | BOLT                  |
| 4           | 6           | 4000610         | WASHER                |
| 5           | 12          | 4001537         | WASHER                |
| 6           | 6           | 4000221         | NUT                   |
| 7           | 2           | 4001619         | BOLT                  |
| 8           | 8           | 4000370         | WASHER                |
| 9           | 4           | 7316011         | NUT                   |
| 10          | 2           | 4001620         | BOLT                  |
| 11          | 1           | 4001621         | HYDRAULIC RAM         |
| 12          | 10          | 7316033         | BOLT                  |
| 13          | 10          | 9100206         | SPRING WASHER         |
| 14          | 10          | 9100106         | WASHER                |





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