

McIntyre | Manual



McIntyre

The gold standard in recycling systems

320, 407, 500, and 600

Alligator Shears



(800) 321-3396 www.nascoop.com

Original Manual as required by: Machinery Directive (2006/42/EC)

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1. Introduction

This Manual covers the operation and maintenance of the single and three phase versions of the 320, 407, 500, and 600 Shears, including the CAT versions and diesel powered version of the 407 Shear.



McIntyre machines are designed to give long and trouble-free life, provided that simple maintenance procedures are carried out as described in this Manual. It is recommended that you take out a service contract with the supplier to ensure the Shear is kept in best working order.

Remember that scrap metal processing can be hazardous. Before operating the equipment, it is important that you read and understand the safety instructions contained in this Manual. Please ensure that your Operators are fully trained in the use of the Shear and, should you decide against a service contract, that you conduct periodic safety reviews of the equipment's safety features and Warning Labels. Replacement Warning Labels and other items of safety equipment such as the Blade Guard, Foot Pedal and Tongs can be obtained at cost from the Manufacturer. If you would like more safety or operating information for this type of scrap metal processing equipment, then this can be obtained by contacting any one of the organisations listed at the end of this Manual.

If you need any further help or assistance, or wish to order parts or a service contract, please contact your local agent or the manufacturer:

JMC Recycling Systems Ltd
Unit 2, Harrimans Lane, Dunkirk, Nottingham, England NG7 2SD
Tel: UK +44 (0) 115 940 9630 Fax: UK +44 (0) 115 979 1478
www.jmcrecycling.com email: info@jmcrecycling.com

2. Warnings



Read & Understand this Manual before operating the Shear

2.1. Operating Warnings

BEFORE OPERATING THIS SHEAR ENSURE THAT:

- You, as the Operator, have read and understood this Manual.
- You are fully familiar with the Shear's Controls.
- The Blade Guard is correctly fitted.
- Any Covers are in place and correctly fitted.
- All Warning Notices are clean and legible.
- The Foot Pedal Cable is free from damage.
- There are no obstructions to any air vents or intakes.
- You are wearing appropriate Protective Clothing.
- The working area around the Shear is clear of metal and debris.
- The Hydraulic Fluid level is correct.
- Visual Daily Operator Inspection Checks have been carried out.
- You have carried out a Shear Safety Inspection using the Shear Safety Checklist.

DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO SHEAR:

- Totally enclosed vessels, sealed cylinders, gas containers, aerosols or any other pressurised container.
- Vessels containing volatile or flammable substances, acids or alkalines.
- Ammunitions, cartridges, or explosive material of any type.
- Hardened or high-speed steels, engine pistons, automotive valves or valve seats.
- Any metal or substance likely to fly from the blades of the Shear whilst being cut.
- Inflated automobile and lorry tyres.
- Any other substances likely to cause injury to the Operator or bystander.

DO NOT:

- Hold bundles of items whilst shearing.
- Put hands or fingers into open ends of tubes or cylinders whilst shearing.

- Put hands or fingers in to open sided sections.
- Attempt to cut small items without the use of pliers or tongs.
- Operate the Shear from the front, back or left hand side of the Shear.

ALWAYS:

- Stand between the material being cut and the Controls of the Shear.
- Use the Shear from the Right (Control Box) side.
- Always hold long lengths of material to the right hand side of the body.
- Use the Blade Guard to clamp material when possible.

DANGEROUS WORKING PRACTICES

- Do Not point items to be sheared towards the body.
- Do Not operate the Shear in the manner shown in the following illustrations:



Material and tools may jerk up or jump out of the closing blades causing injury.



Always feed material from the Control Box side of the Shear.



2.2. Warning Labels

The Warning Labels illustrated are examples of those attached to all McIntyre Shears. Keep all notices clean and legible. Replacement labels can be obtained directly from JMC Recycling Systems Ltd.

UK labels are shown here. Colour and language of other countries labels may differ to meet appropriate standards.

Label A.



WARNING

Do not start, operate or service machine until you have read and understood the operator's manual.

Failure to do so could result in serious injury.

JMC/04

Label B.



WARNING

Switch off the machine and isolate from electrical supply before clearing blockages or conducting maintenance procedures.

Label C.

SAFETY INSTRUCTIONS

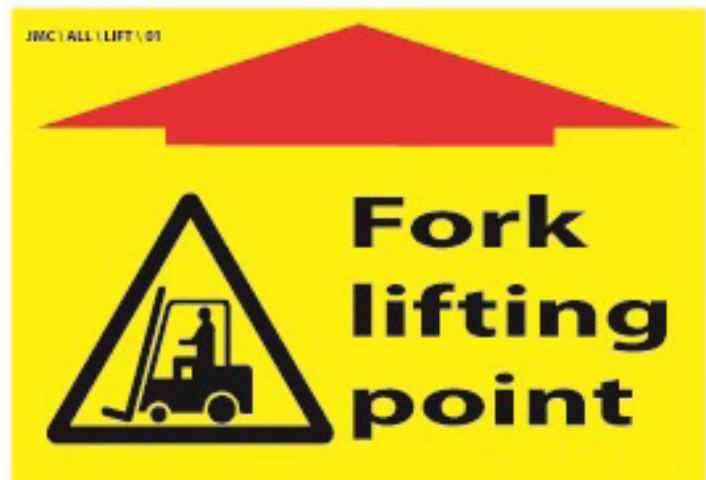
1. Read and understand the Operation Manual and all safety labels before operating this machine.
2. Only a single trained person is to be permitted to operate this equipment. No unauthorised persons should operate this machine.
3. No persons under the age of 18 should operate this machine.
4. Keep the working area around the machine clear from metal or debris.
5. The equipment is only to be used for the purpose for which it is constructed.
6. Do not attempt to shear pressurised containers, ammunitions, hardened steels, metals likely to fly from the blades of the shear, inflated tyres or any other substances likely to injure the operator or a bystander.
7. Use tongs to handle small items.
8. Do not hold bundles of items whilst shearing
9. Do not put hands or fingers into open ends of tubes or cylinders whilst shearing.
10. Under no circumstances are the safety characteristics of this equipment to be altered.
11. Daily visual operator checks must be carried out to ensure that all guards and safety features are retained and function correctly.
12. Do not wedge foot pedal in operating position.

JMC/SHEAR/01

Label D.



Label E.



Label F.



Label G.



WARNING

Shear Hazard. One operator Only
 Keep hands clear from under the Blade
 Keep hands clear from under the Guard or Infeed Clamp
 DO NOT Operate with Guard removed.
 Turn power OFF before servicing.

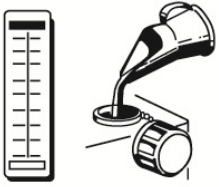
JMC/SHEAR/05

Label H.

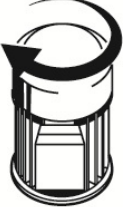
Do not run motor before filling machine with hydraulic oil to heavy black line.

Use only oils :

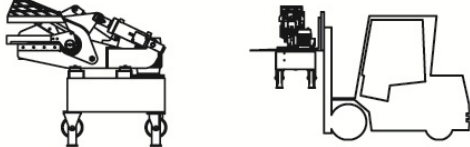
- BP HLP46
- Shell Tellus Oil 46
- Mobil DTE25
- Esso NUTO H46



Motor direction must be clockwise as seen from the end.
DO NOT run motor anti-clockwise, this will result in pump damage.



200B, 320, 407 & 500 SHEAR
Machine should be lifted with the aid of a forklift using the forklift sockets.



JMC/ALL/08

Label I.



DANGER
Inflammable oil

Label J.



Label K.



Crush Hazard

Stand clear when this machine is in operation

Label L.

WARNING!

Scrap metal handling can be hazardous.

Wear protective clothing at all times whether operating, adjusting or servicing this machine.

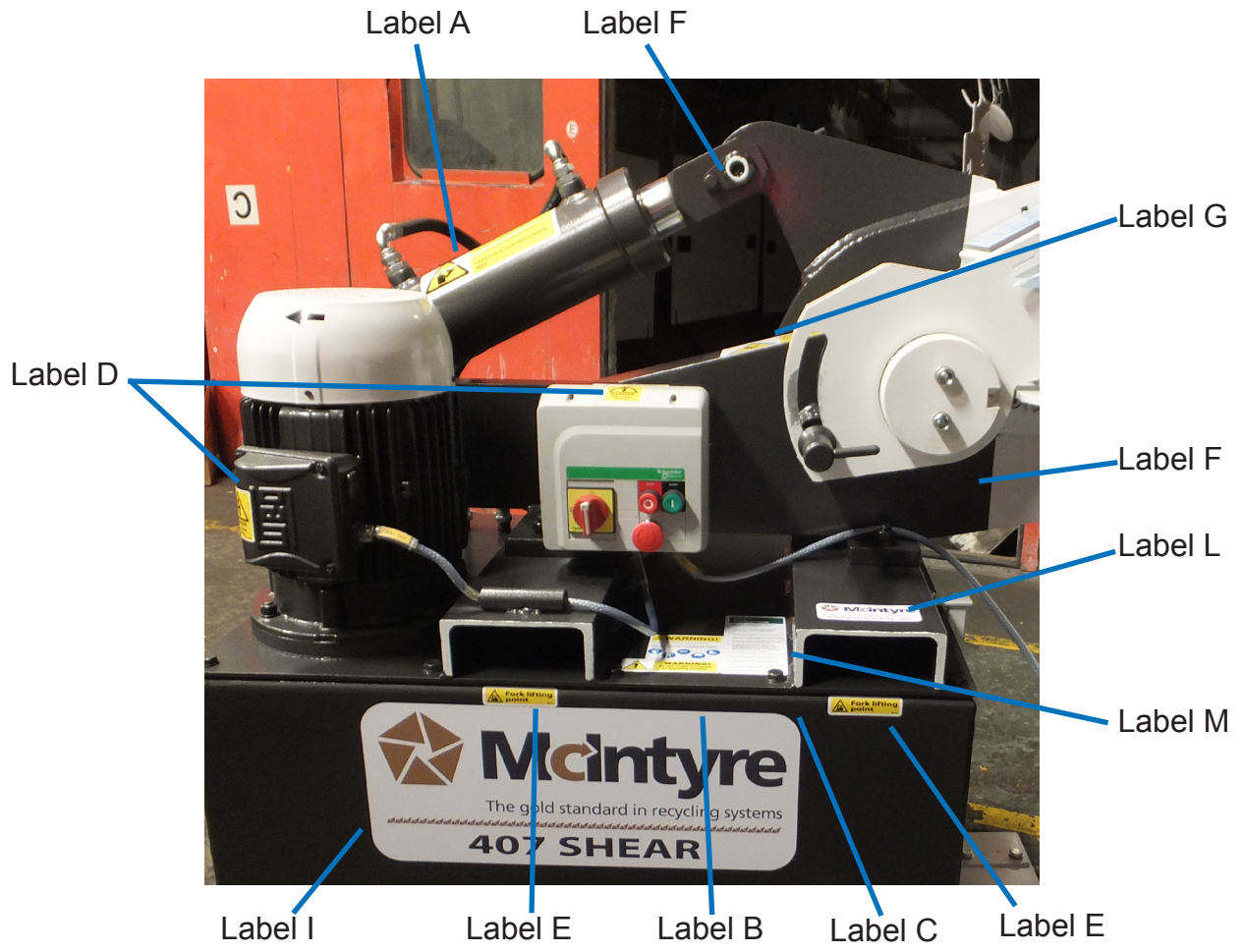


Label M.



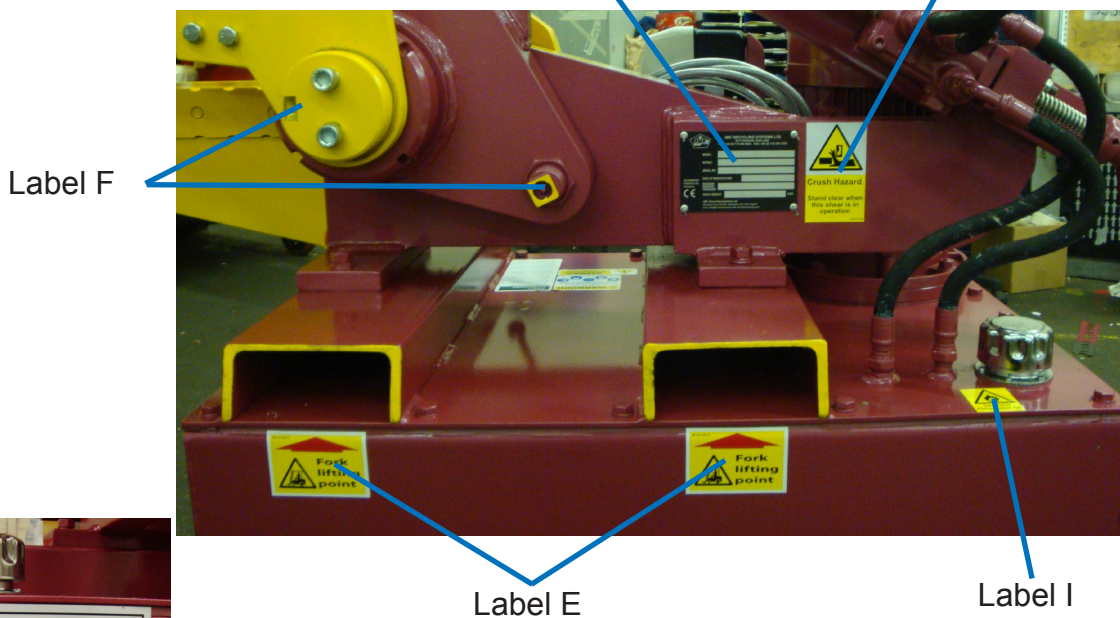
WARNING!
Do not wedge foot pedal in operating position.

2.2.1. Positioning of Labels



Serial Number Plate

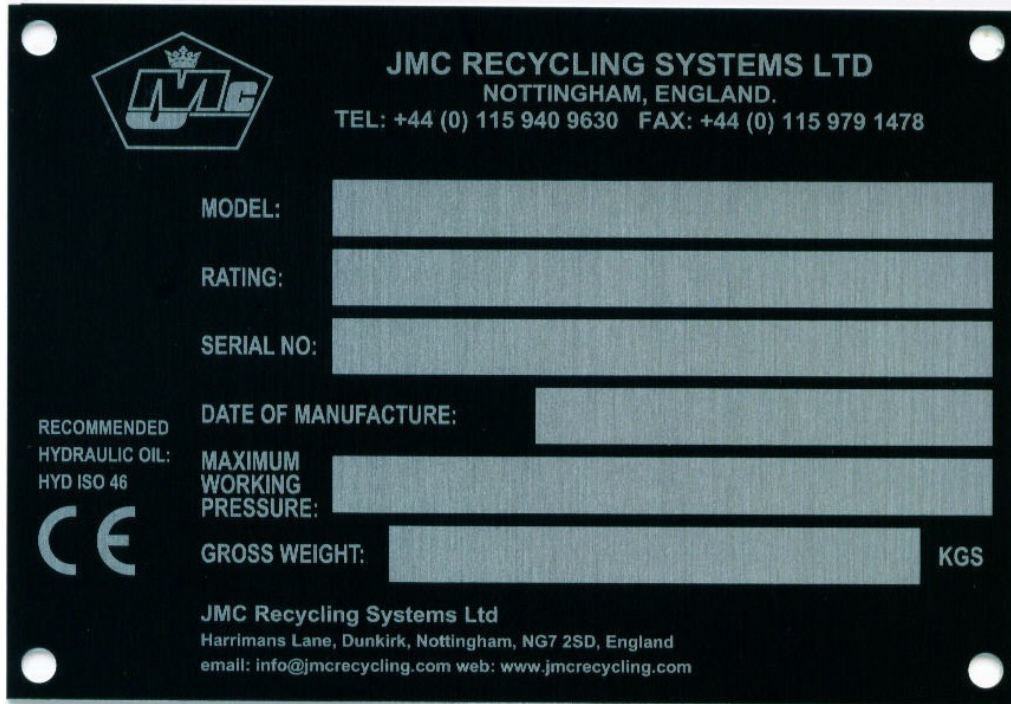
Label K



2.3. Important Information

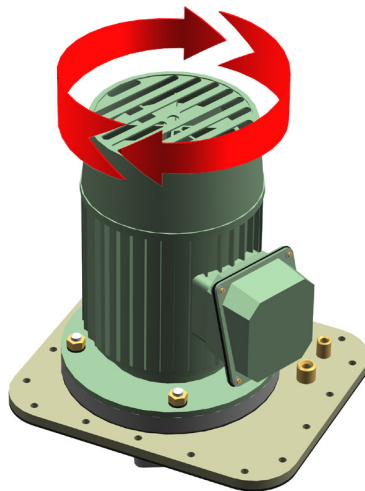
2.3.1. Serial Number Plate

Below is an example of a JMC serial number plate declaring the EEC requirement for a CE Mark along with the gross weight of the machine and the maximum working pressure of the hydraulic system.



Note: The working pressure and weight is specific to each machine and should not be taken as standard for similar machines.

2.3.2. Electric Motor Rotation



Electric Motor rotation is clockwise at the fan end.



Do not run the Motor anti-clockwise as this will result in Hydraulic Pump damage.

2.3.3. *Continual Improvement Policy*

JMC Recycling Systems reserves the right to make changes and/or improvements to our machines without obligation to incorporate such changes on machines previously sold.

2.4. **A Cautionary Tale**

The McIntyre 320 model Shear pictured below came into the manufacturer's works for reconditioning and resale in May 2001. It had been operating in the field since November 1989. At some time during its history, the Shear had been refurbished by someone other than the manufacturer. The Blade Guard had been removed and not re-fitted. The Foot Pedal had been modified by removing a large section of shielding. Removal of the Foot Pedal shrouding could result in accidental operation of the equipment by either the Operator, someone stumbling onto the Pedal, or even a piece of falling metal. All Warning Labels had been removed.

Modifications of this type cannot be condoned since they could result in serious injury to the Operator. If you see, are offered, or are asked to work on a machine which has been altered in such a way as to compromise Operator safety, then please contact the manufacturer, trade organisation, and/or your local Health and Safety Executive. Replacement Guards, Covers, Foot Pedals, Cables and Warning Labels etc can be obtained at cost from the manufacturer.



3. Installation

3.1. Lifting & Transporting

For safe movement of the Shear there are two Fork Lift Channels as shown below. Use at all times when lifting the Shear and check the capacity of the equipment to be used.



Fork Lift Channels



Do not attempt to lift the Shear by any other means

The Shear is also on wheels, however for movement over longer distances or uneven ground lifting the Shear with a forklift is advisable.

3.2. Siting & Installation

The Shear must be sited on level ground, ideally on sound concrete, and in good ambient lighting. The Shear must not be allowed to rock back and forth while in operation. Site the Shear in a position which will allow the Operator to walk freely and unhindered around all sides. Ensure that the working area around the Shear is kept clear of metal and debris.

The Shear should be sited such that the noise generated is not reverberated or amplified by the surroundings and does not disturb other Workstations or Operators.



Sound Pressure Level above 70 dBA

3.2.1. *Electrical Power Supply*

The Shear installation requires a 63A single or 32A three phase electrical supply. As part of the installation, we strongly recommend the use of an earth leakage trip or Residual Current Detector (RCD).

Ensure that the electrical supply is compatible with the Shear. Use armoured supply cable complying with local regulations. Route the Supply Lead in such a manner as to leave it free from trapping points and areas where it is likely to hinder the efficient operation of the Shear, or cause a hazard.



The electrical supply to the Shear must only be installed by an approved electrician.

3.3. Hydraulic Fluid



Do not run the Shear before filling the Hydraulic Tank with Hydraulic Oil. Do not use a liquid other than Hydraulic Oil.

Before starting the Shear ensure the Tank is filled with Hydraulic Oil to the heavy black line on the Level Gauge.

Recommended oil types:

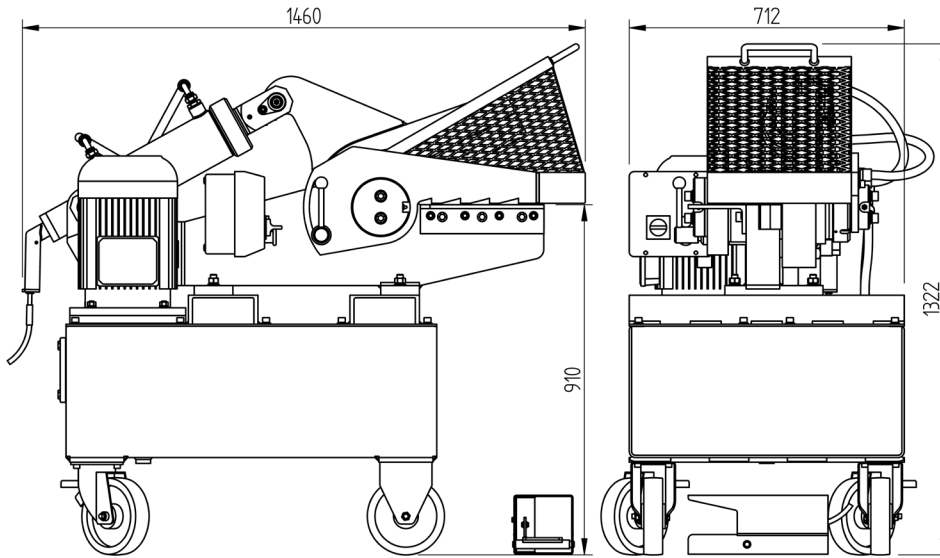
- BP HLP 46;
- Shell Tellus Oil 46;
- Mobile DTE 25;
- Esso Nuto H46.



Monitor the oil temperature and do not allow it to exceed 65 Degrees Centigrade

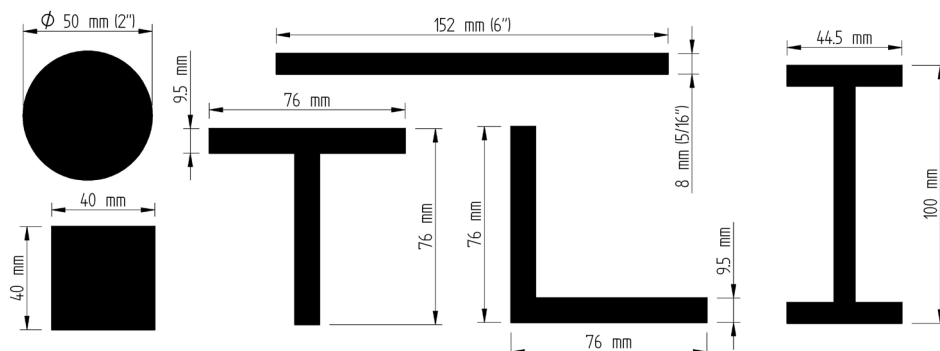
3.4. Dimension & Technical Specification

3.4.1. 320 Shear

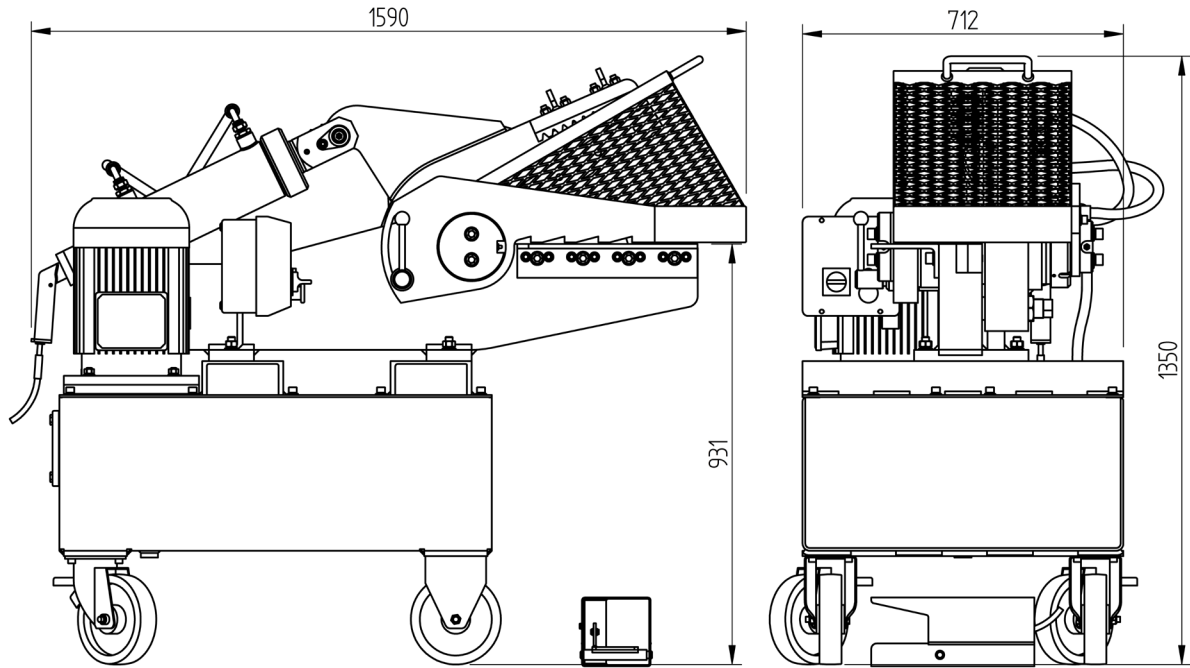


	Single Phase	Three Phase
Blade Length	320mm (12.5")	320mm (12.5")
Tip to Tip Opening	165mm (6.5")	165mm (6.5")
Shearing Height	910mm (35.8")	910mm (35.8")
Weight (with Oil)	830kg	830kg
Oil Capacity	200 Litres (44 Imp Gal)	200 Litres (44 Imp Gal)
Sound Pressure Level (Operating Position - normal conditions)	TBC	77 +/-3 dBA
Peak Sound Pressure Level	TBC	84 dBC
Sound Power Level	TBC	83 +/- 3 dBA
Cutting Control	Single Cut - Repeating	Single Cut - Repeating
Standard Power Supply	63A 1ph 230V 50hz	32A 3ph 380-415V 50hz
Motor Rating	5.5kW (7.5hp) @ 1420rpm	7.5kW (10hp) @ 1450rpm
Max System Pressure	172Bar (2500psi)	172Bar (2500psi)
Max Shear Force	67 Tonnes	67 Tonnes
Cutting Speed (Max Stroke)	up to 11 cycles/min	up to 16 cycles/min
Cutting Speed (40% Stroke)	up to 29 cycles/min	up to 41 cycles/min

Cutting Capacity (Mild Steel 43A):

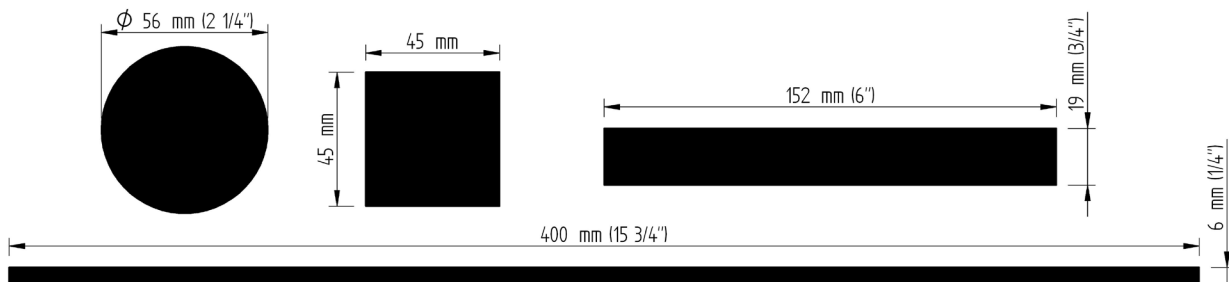


3.4.2. 407i & 407CAT Shear

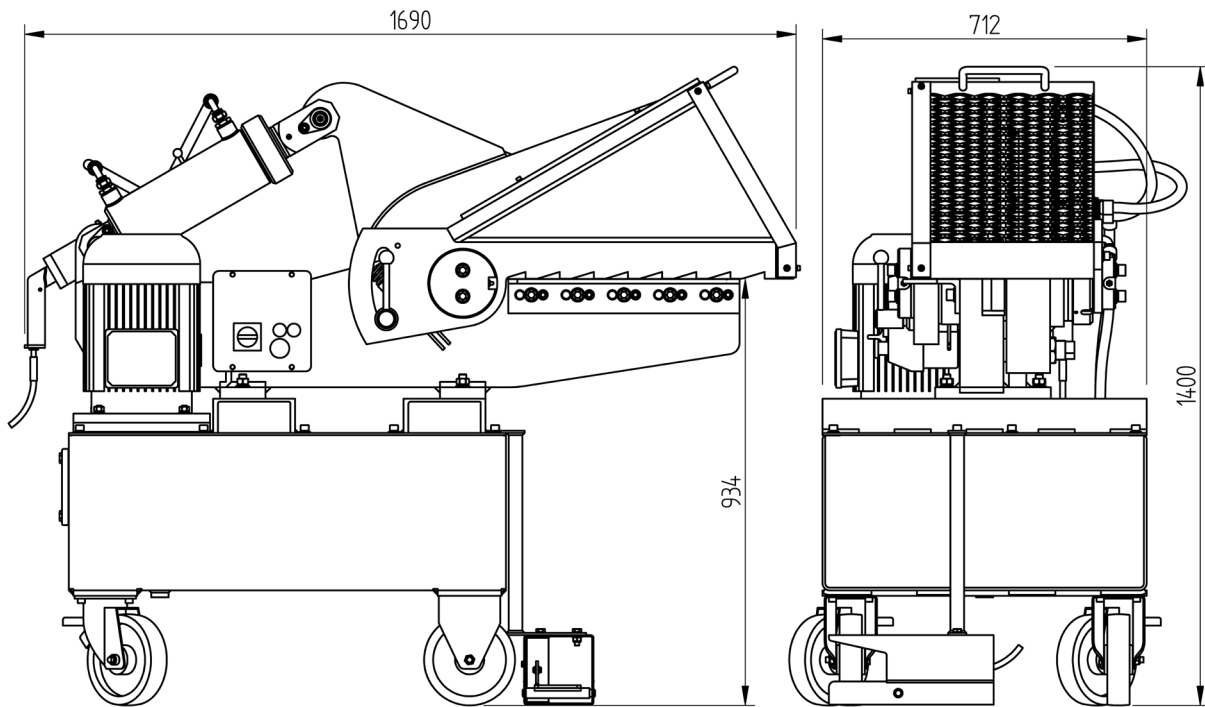


	Single Phase	Three Phase
Blade Length	407mm (16")	407mm (16")
Tip to Tip Opening	225mm (8.8")	225mm (8.8")
Shearing Height	931mm (36.6")	931mm (36.6")
Weight (with Oil)	900kg	900kg
Oil Capacity	200 Litres (44 Imp Gal)	200 Litres (44 Imp Gal)
Sound Pressure Level (Operating Position - normal conditions)	TBC	77 +/-3 dBA
Peak Sound Pressure Level	TBC	84 dBC
Sound Power Level	TBC	83 +/- 3 dBA
Cutting Control	Single Cut - Repeating	Single Cut - Repeating
Standard Power Supply	63A 1ph 230V 50hz	32A 3ph 380-415V 50hz
Motor Rating	5.5kW (7.5hp) @ 1420rpm	7.5kW (10hp) @ 1450rpm
Max System Pressure	193Bar (2800psi)	214Bar (3100psi)
Max Shear Force	80 Tonnes	90 Tonnes
Cutting Speed (Max Stroke)	up to 8 cycles/min	up to 11 cycles/min
Cutting Speed (40% Stroke)	up to 21 cycles/min	up to 28 cycles/min

Cutting Capacity (Mild Steel 43A):

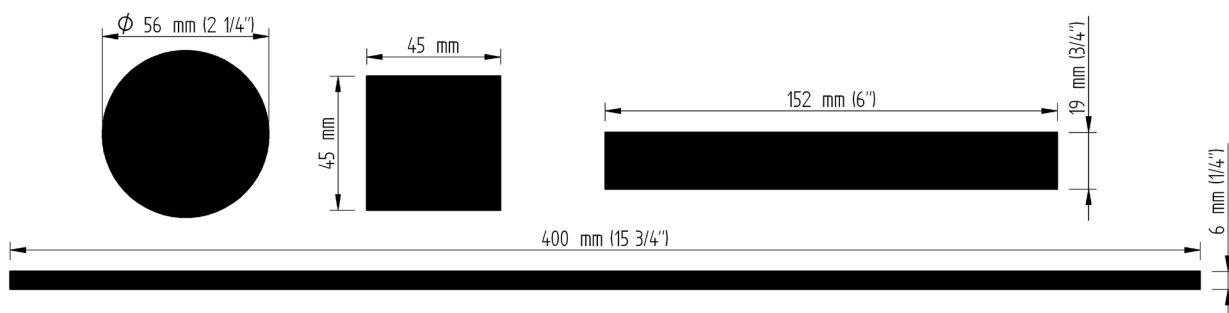


3.4.3. 500 LGT and 500 CAT

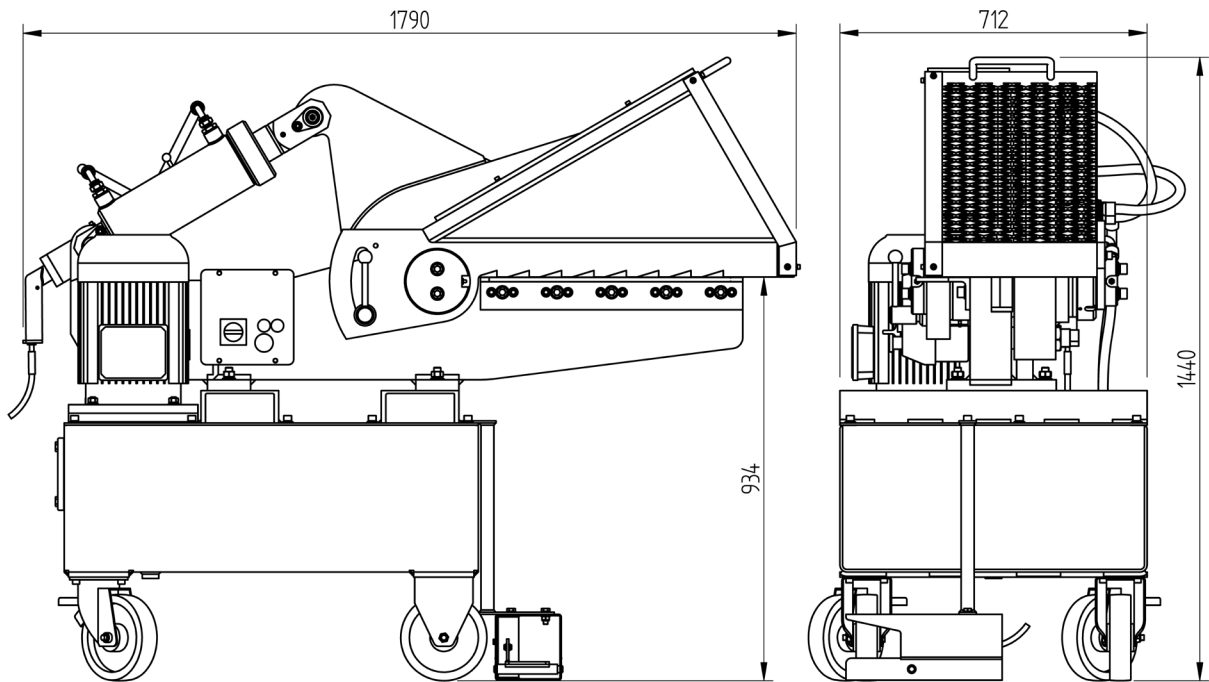


	Single Phase	Three Phase
Blade Length	508mm (20")	508mm (20")
Tip to Tip Opening	225mm (8.9")	225mm (8.9")
Shearing Height	934mm (36.75")	934mm (36.75")
Weight (with Oil)	990 kg	990 kg
Oil Capacity	200 Litres (44 Gal)	200 Litres (44 Gal)
Sound Pressure Level (Operating Position - normal conditions)	TBC	76 +/-3 dBA
Peak Sound Pressure Level	TBC	82 dBC
Sound Power Level	TBC	74 +/-3 dBA
Cutting Control	Single Cut - Repeating	Single Cut - Repeating
Standard Power Supply	63A 1ph 230v 50hz	32A 3ph 380-415v 50hz
Motor Rating	5.5kW (7.5hp) @ 1420rpm	7.5kW (10hp) @ 1450rpm
Max System Pressure	193 Bar (2800 psi)	241 Bar (3500 psi)
Max Shear Force	Up to 96 Tonnes	Up to 120 Tonnes
Cutting Speed (Max Stroke)	Up to 8 cycles/min	Up to 8 cycles/min
Cutting Speed (40% Stroke)	Up to 21 cycles/min	Up to 21 cycles/min

Cutting Capacity (Mild Steel 43A):

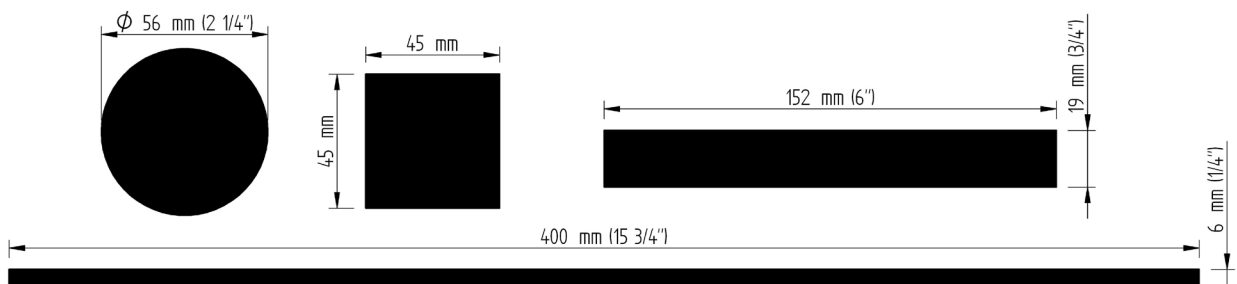


3.4.4. 600 LGT and 600 CAT



	Single Phase	Three Phase
Blade Length	608mm (23.9")	608mm (23.9")
Tip to Tip Opening	264mm (10.4")	264mm (10.4")
Shearing Height	934mm (37")	934mm (37")
Weight (with Oil)	1030 kg	1030 kg
Oil Capacity	200 Litres (44 Gal)	200 Litres (44 Gal)
Sound Pressure Level (Operating Position - normal conditions)	TBC	75 +/-3 dBA
Peak Sound Pressure Level	TBC	82 dBC
Sound Power Level	TBC	73 +/-3 dBA
Cutting Control	Single Cut - Repeating	Single Cut - Repeating
Standard Power Supply	63A 1ph 230v 50hz	32A 3ph 380-415v 50hz
Motor Rating	5.5kW (7.5hp) @ 1420rpm	7.5kW (10hp) @ 1450rpm
Max System Pressure	193 Bar (2800 psi)	241 Bar (3500 psi)
Max Shear Force	Up to 96 Tonnes	Up to 120 Tonnes
Cutting Speed (Max Stroke)	Up to 8 cycles/min	Up to 8 cycles/min
Cutting Speed (40% Stroke)	Up to 21 cycles/min	Up to 21 cycles/min

Cutting Capacity (Mild Steel 43A):



4. Operation of the Shear



The Shear must only be operated by a single person at any time. Persons operating the Shear must have received adequate training and have read and understood this Manual.



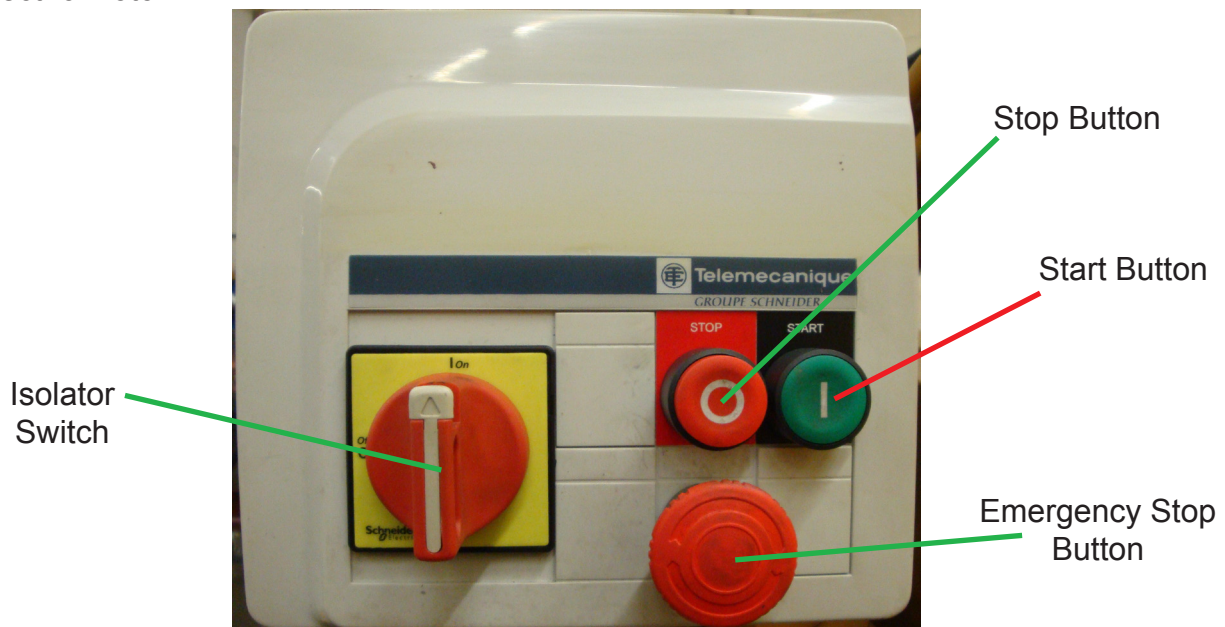
Use the Shear Safety Checklist at least once a day.

4.1. Starting & Stopping the Shear

4.1.1. Start & Stop Buttons

Pressing the green button marked 'START', or 'I', will energise the starter, and in turn start the Electric Motor on the Shear. If, on pressing the green Button, the Motor fails to start, ensure the E-Stop Button has been reset and the Isolator Switch is set to the ON position.

Pressing the red Button marked 'STOP', or 'O', stops the Electric Motor on the Shear. This button also acts as the reset for the thermal overload trip switch used to protect the Electric Motor.



It is good practice to test the Stop Button each time you start up the Shear. The Stop Button must be kept in good working order to protect the Operator.

4.1.2. Use of the Electrical Isolator Switch

If the Shear is not to be used for long periods of time or if maintenance is to be carried out, the Isolator Switch should be set to the OFF position.

4.1.3. *The Emergency Stop (E-Stop) Button*

The Emergency Stop button should only be used to stop the Shear when there is a risk of injury to the Operator, for routine stopping of the Shear use the Stop Button. Once the E-Stop Button has been pressed it locks the Shear from restarting until it has been reset. To reset the E-Stop Button, gently twist it clockwise and it should spring back to its normal position.

4.2. **Foot Pedal Control**

4.2.1. *Using the Foot Pedal*

Always start up the Shear before depressing the Foot Pedal. Depressing the Foot Pedal activates the shearing action at a speed controlled by the amount of depression. Releasing the Foot Pedal Plate should always return the Top Jaw of the Shear to the open position. The Foot Pedal should be placed so that easy up and down movement of the Foot Pedal Plate can be achieved.

When the Foot Pedal is depressed, the Top Jaw of the Shear will close until the Top and Bottom Blade meet each other. If the Foot Pedal is held at mid point of travel, the movement of the Top Jaw will stop, both on the up and down stroke. This enables the Shear to nip and hold an item to be sheared.

The Ram will repeat stroke automatically by keeping the Foot Pedal in the fully depressed position.



Only a single person must operate and feed the Shear. Do Not operate the Shear if the Foot Pedal or Foot Pedal Cable are damaged. Do Not wedge the Foot Pedal in the down position. Do Not modify the Foot Pedal.

The Foot Pedal is fully shielded to prevent accidental operation of the equipment. The Foot Pedal Cable is direct-acting, ensuring that the Shear always returns to the fully open position when pressure is released from the Foot Pedal. Always check that the Foot Pedal and Foot Pedal Cable are free from damage or kinks before operating the equipment.

4.2.2. *Siting the Foot Pedal*

The Foot Pedal should be placed in a position that ensures that the Control Buttons are easily accessible to the Operator and that easy up and down movement of the Foot Pedal can be achieved by the Operator.



Only operate and feed the Shear from the Right (Control Box Side).

4.3. Starting & Stopping the diesel powered 407 Shear

The engine speed Governor is preset to 2200rpm. Do not adjust.



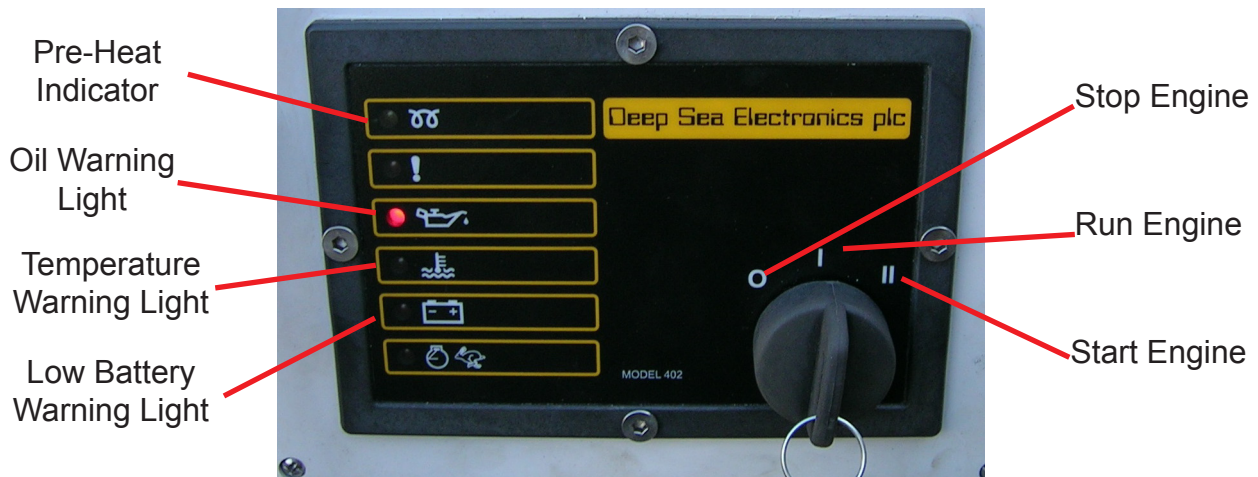
Do Not Adjust the Engine Speed Governor. Do Not Override the Fuel Shut-Off Mechanism.



Do not run the Shear without a fully charged battery connected

Never run the Engine without a fully charged battery connected. The Fuel Shut Off mechanism requires battery power to operate correctly. Never override the Fuel Shut Off mechanism as the Key Switch Mechanism requires it to function properly.

4.3.1. To Start the Shear



The engine is operated via a 3 position waterproof key switch with Stop 'O', Run 'I' and Start 'II' positions. Turning the switch to the Run position will initiate the following sequence:

- Initiate the Pre-Heat Relay and Pre-Heat Timer.
- Once the Pre-Heat Timer has completed (approximately 10 seconds) the Pre-Heat Relay will disengage and the Pre-Heat Indicator will extinguish.
- The Fuel Relay will then engage and the Fuel Shut Off Timer will commence.
- After approximately 20 seconds the Fuel Shut Off Timer will finish and the Fuel Relay will disengage unless the key is turned to the Start position.

Turning the key to the Start position will initiate the following sequence:

- Cancel the Fuel Shut Off Timer, disengage the Pre-Heat Relay if it was engaged and cancel the Pre-Heat Timer if it was active.
- Activate the Starter Relay.

Note the Key Must be held in the Start position until the engine is running, it can then be released and will return to the Run position.

Note that if the Key is turned to the Start position before the Pre-Heat Relay is disengaged the engine is unlikely to start.

4.3.2. *To Stop the Shear*

To stop a Diesel Shear, simply turn the key to the Stop position.

The Shear can also be stopped using the Emergency Stop (E-Stop) Button.

4.3.3. *The Emergency Stop (E-Stop) Button*

The Emergency Stop button should only be used to stop the Shear when there is a risk of injury to the operator, for routine stopping of the Shear turn the key to the Stop position. Once the E-Stop Button has been pressed it locks the Shear from restarting until it has been reset. To reset the E-Stop Button, gently twist it and it should spring back to its normal position.

Further information on the running and maintenance of the Engine is presented in Lister Petter's Operators Handbook, Part No: P027-08376.



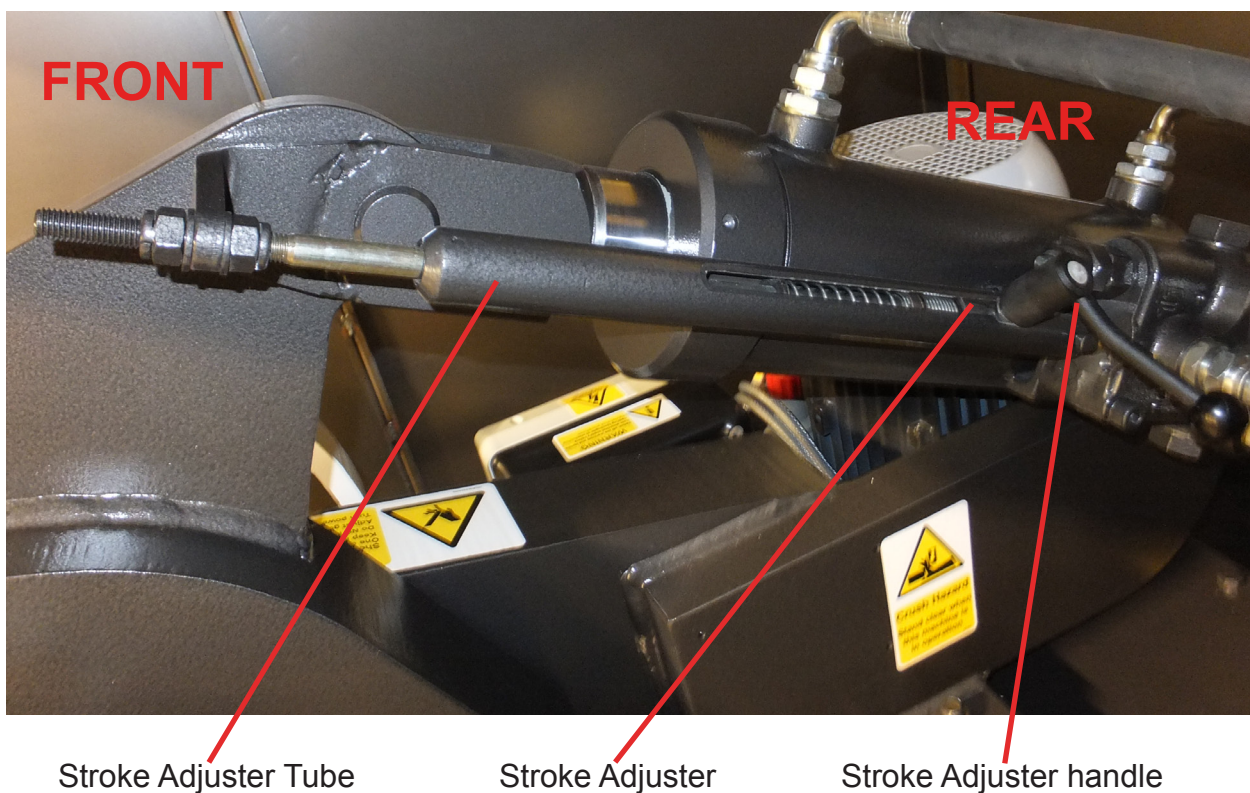
Only operate and feed the Shear from the Right (Engine Side).



4.4. Adjusting the Stroke

The Top Jaw opening may be adjusted to suit the type of material being sheared. To achieve this:

- First stop and switch off the Shear with the Jaws in the closed position.
- Loosen the handle on the Stroke Control Mechanism.
- Slide the Stroke Adjuster up or down the Stroke Adjuster Rod. Sliding to the REAR lengthens the stroke, sliding to the FRONT reduces it.
- When the desired position has been obtained, tighten the handle to lock the Stroke Adjuster in place.



Always switch off the Shear before adjusting the Stroke Adjuster Mechanism.

4.5. The Blade Guard

The Shear is equipped with a Blade Guard which also acts as an Infeed Clamp. The Guard is adjustable and is locked in place using the Blade Guard Handle. The Guard should always be adjusted to leave minimum space for the feeding of material in order to prevent the material being sheared from kicking up or skidding forward.

Do not use the Shear if the Blade Guard is; incorrectly fitted, broken, bent or if the securing bolts are loose.



**Do Not use the Shear without the Blade Guard in Place.
Always adjust the Guard to the lowest position.**

4.6. Protective Clothing

The following Protective Clothing must be worn at all times, while operating and maintaining the Shear:

- Steel Toe Capped Safety Boots
- Gloves and Protective Apron or Overalls
- It is recommended that a Hard Hat and Face Shield is worn.
- It is recommended that Hearing Protection is worn.

4.7. Shearing Large Items

Always adjust the Blade Guard to suit the material to be cut.



If the Jaw stops moving part way through cutting a large item, release the Foot Pedal. Ensure that the material to be cut is within the capacity of the Shear (See Section 3.4, Page 12), if it is try to cut the material again ensuring that the Foot Pedal is fully depressed. If the Jaw stops again consult the Troubleshooting Guide (See Section 6.1, Page 30)

4.8. Shearing Small Items

When shearing small items, always use tongs or long handled pliers in order to keep hands well clear of the Blade and Blade Guard.



Do Not feed small items directly by hand.

320/407/500/600.41912-ENG

4.9. Using the CAT Bracket & V-Block

The McIntyre CAT Shears are fitted with a CAT Bracket as standard. The CAT Bracket has been specifically designed to aid in the processing of Catalytic Converters (CAT's). Once the CAT has been cut using the blades of the Shear, the CAT can be placed with the squashed end under the CAT Bracket, with the edge against the side of the Top Jaw. The Top Jaw is then lowered and the CAT Bracket will compress the end of the CAT, re-opening it, thus allowing the material inside to be recovered.



CAT's may jerk up or shift while being cut. Always keep hands well clear of the Blade Guard and the Shear Jaws while processing CAT's.

The McIntyre CAT Shears can be fitted with the V-Block attachment as an optional extra. This is designed to work with the CAT Bracket to make re-opening the CAT's even easier. After being cut, the CAT is simply placed with the squashed end in the V-Block, up against the side of the Top Jaw. The V-Block holds the CAT in the correct position for the CAT Bracket to re-open the CAT, when the Top Jaw is lowered.

If you have a CAT Shear and would like to have a V-Block fitted, please contact your local agent or the manufacturer:

JMC Recycling Systems Ltd

Unit 2, Harrimans Lane, Dunkirk, Nottingham, England NG7 2SD

Tel: UK +44 (0) 115 940 9630 Fax: UK +44 (0) 115 979 1478

www.jmcrecycling.com email: info@jmcrecycling.com

5. Periodic, Routine Care & Maintenance

Most sites on which the Shear may be operated are by their nature extremely dirty. You will see from the following Routine and Periodic Maintenance Schedule that emphasis is placed on regularly cleaning some aspects of the Shear.

Should you decide against a service contract, ensure you conduct periodic maintenance.

5.1. Warnings



- For electrical adjustments and/or inspections, use Qualified Personnel, familiar with the latest I.E.E. Regulations, or local equivalent.
- Wear full protective clothing when carrying out maintenance on this Shear.
- Do not modify in any way, the mechanisms or intended operation of this equipment.
- For safety and to achieve optimum performance only use genuine JMC Recycling Systems Ltd approved parts. Use of non-approved parts may invalidate the warranty.

5.2. Hydraulic Fluid

5.2.1. *Storage, Handling & Disposal*

- Store hydraulic fluids under cover away from sources of heat.
- Dispense carefully into clean containers and avoid contact with skin or eyes.
- Use local official collection points for disposal. Do not pollute drains or soil.
- Used fluids pose a higher health risk and suitable measures should be taken to avoid continuous or repeated contact with them.

5.2.2. *First Aid Measures*

- EYE: Flush with water for 15-20 minutes. Seek medical attention if irritation develops.
- SKIN: Wash immediately with soap and water. Remove contaminated clothing and launder before reuse. Discard shoes and leather articles saturated with the product. Obtain medical advice if irritation occurs.
- INHALATION: Remove exposed person to fresh air. If breathing is laboured give oxygen. If breathing has stopped apply artificial respiration. Get immediate medical attention.
- INGESTION: DO NOT INDUCE VOMITING. If conscious, give 2 glasses of water. If vomiting does occur, keep head below hips to reduce risk of aspiration. Get immediate medical attention.

5.2.3. Fire Fighting Measures

- Use carbon dioxide, dry powder or foam type Extinguishers.



Never use Water to combat any Oil or Fuel Fire.

- Avoid spraying directly into storage containers because of the danger of boil over.
- Water may be used to cool nearby heat exposed areas / objects / packages.
- Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water.
- Combustion Products: Toxic fumes may be produced on burning or exposure to heat.



Fires in confined spaces should be dealt with by trained personnel wearing self contained breathing apparatus.

5.3. Daily Operator Inspection



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

1. Check Hydraulic Fluid Level Gauge, and top up if necessary.
2. Check for signs of hydraulic fluid leaking from Hydraulic Hoses, Rams and Hydraulic Tank. Report any defect to the Supervisor.
3. Check for loose, missing or damaged items such as Cables, Switches, Covers, Signs and Warning labels, flat or blistered Hoses. Report any defect to the Supervisor.
4. Check the Electrical cables are intact and fully shielded/insulated. Report any defect to the Supervisor.
5. Check that the Start Button, Stop Button and Emergency Stop Button work correctly. Check that the Mains Isolator operates correctly. Report any defect to the Supervisor.
6. Ensure that the housing of the Foot Pedal is free from debris and any obstructions to the mechanism. Ensure that the Foot Pedal Plate moves smoothly in both directions, and rests in the uppermost position. Report any defect to the Supervisor.
7. Ensure that all Motor ventilation grills are free from obstruction.
8. With the Top Jaw in the fully down position, check that the Shear blades are intact, seated correctly and free from chips or breakages. Report any defect to the Supervisor.
9. Ensure that the immediate area around the Shear is clean and free from any obstructions, metal or debris underfoot. This will prevent accidental stumbling or slipping. Ensure that you can operate the Shear comfortably and that you have good visibility of all working parts.
10. Ensure that all warning labels are present, clear and legible. Report any missing or damaged labels to the Supervisor.
11. Report any defect, unusual occurrence or incident to the Supervisor.



Use the Shear Safety Check list at least once a day

5.3.1. Diesel Engine version

- Check the correct functioning of the Engine Control Box. Report any defect to The Supervisor.
- Ensure that all ventilation grills, the Air Intake and Mesh around the Flywheel are free from obstruction.

- Check the Engine Oil and Engine Coolant levels and check for signs of leakage.
- Ensure that there is enough Fuel for the day's operation. Check for signs of Diesel Fuel leakage from the tank, hoses, filter and all connections.



Always turn off the Diesel Engine and remove the key before maintenance.



Never run with low fuel. Never let the system run dry.

5.4. Weekly Routine Maintenance



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

1. Grease the Jaw Pivot, the Blade Guard Pivot, the Jaw Take Up Screw and both the Ram Pivots.
2. Test the Shear Blades, for tightness and correct adjustment.
3. Test the Foot Pedal for correct adjustment. (See Section 6.9, Page 42)
4. Vacuum or brush down the Hydraulic Tank.
5. Vacuum or brush down any dust and debris built up on the Blade Guard.
6. Vacuum or wipe down the Warning Labels and ensure that they are legible at all times.
7. Vacuum or wipe down the Control Box Legend and Instruction Plates. Ensure that all are legible.

Note: The grease used for routine lubrication must be suitable for both Nylon 66 and Phosphor Bronze Bearings.

5.4.1. Additional check for 407, 500, and 600 CAT Shears

8. Check Jaw Extension Wear Plate, replace if teeth are heavily worn down or badly damaged. (See Section 6.11, Page 44)

5.5. Three Month Periodic Maintenance



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

To include previous items 1 to 8.

9. Check the hydraulic fluid level and top up if necessary.
10. Test the Top Jaw Main Pivot for side movement, adjust the Take Up Screw if necessary. (See Section 6.6.3, Page 36)
11. Clean off any excess grease from the Top Jaw Main Pivot and Thrust Pad.
12. Apply a light oil to the Stroke Adjuster Mechanism Springs and Bearing.
13. Apply a light oil to the Foot Pedal Chain, the pivot of the Chain Housing, all ends of the Foot Pedal Cable and the Foot Pedal pivot.
14. Check the Stroke Adjuster Springs are intact and not squashed. Replace if damaged.
15. Examine the Hydraulic Hoses for scuffing, replace if damaged and re-route if needed.
16. Remove the Pump Motor fan cowl with care to expose the Motor ventilation impeller. Vacuum the impeller and down the Motor cooling fins. Replace the fan cowl, check the Motor Terminal Box Cover fixings for tightness.
17. Examine and test all Shear Blade fixings. Use only well-fitting hexagon wrenches if adjustment is needed.
18. Examine and test the Foot Pedal ensuring a clearance of 6mm (0.25in) between the Foot Pedal Plate and the Housing when in the fully depressed position (See Section 6.9.2, Page 42).
19. Examine the Foot Pedal Cable for kinks and breakages. Replace if damaged. (See Section 6.9, Page 42)

Restore the mains power supply, and test that the Shear functions correctly.

5.5.1. Diesel Engine version



Always turn off the Diesel Engine and remove the key before maintenance.

- Remove the Mesh and vacuum out the Air Intakes.
- Check Air and Fuel Filters. Clean or replace as necessary.
- Start up the Diesel Engine, and test that the Shear functions correctly.

5.6. Twenty-Four Month Periodic Maintenance



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

To include previous items 1 to 20.

20. Change the Pump Suction Filter. (See Section 6.10, Page 43)
21. Renew the Hydraulic Oil (See Section 3.4, Page 12, for quantity required). It is good practice to replace the Filler Breather Cap when replacing a significant volume of the Hydraulic Oil.



Always dispose of hydraulic fluid responsibly and in accordance with local regulations.

6. Servicing & Repair

6.1. Troubleshooting



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

6.1.1. *Hydraulic Fluid is getting hot*



The Oil temperature Should Not exceed 65 degrees centigrade

The possible reasons for hydraulic fluid getting hot are numerous. The following are some of the main causes:

- A. Ensure items being processed are within the capabilities of the Shear.
- B. Hydraulic Tank needs topping up with hydraulic fluid. Refill to heavy black line on sight gauge.
- C. Motor cooling fan and fins need cleaning.
- D. Hydraulic Pump Suction Filter clogged. Replace with new Suction Filter.
- E. Split or loose Hydraulic Hose and/or connections inside the Hydraulic Tank.
- F. Hydraulic Control Valve is not moving full stroke. Check for dirt or a bent Valve Spool.
- G. Hydraulic Ram Seals need renewing. Test the Ram by bottoming out and monitoring return flow of hydraulic fluid.
- H. Pump fitting cracked or seal burst. Replace the Pump. Also check the Relief Valve setting. (See Section 3.4, Page 12, for Maximum System Pressure)



Do Not set the Relief Valve to a setting above the Maximum System Pressure for the Shear.

- I. Pump bearings worn out and Pump body scored. Check Suction Filter for aluminium filings. Replace the Pump and Suction Filters.

6.1.2. The Shear runs too slowly

- A. Check D to I as for 6.1.1.

6.1.3. Loss of power when cutting heavy items

- A. Check that the clearance between the Foot Pedal Plate and Housing is not less than 6mm (0.25in) when in the fully depressed position, (See Section 6.9.2, Page 42).
- B. Check D to I as for 6.1.1.
- C. Check Motor to Pump Drive Coupling for slippage.

6.1.4. The Shear will not repeat stroke.

- A. Examine the Stroke Adjuster Springs. Replace if squashed or damaged.
- B. Ensure the Foot Pedal is free to move and that the Foot Pedal Cable is correctly connected and undamaged.

6.1.5. The Hydraulic Fluid becomes aerated or frothy

- A. Hydraulic fluid return line hose from the Control Valve to the Hydraulic Tank is loose. Check all hoses are undamaged and correctly tightened.
- B. Hydraulic Pump shaft seals worn out. Replace the Hydraulic Pump

6.1.6. The Motor trips out due to overload or overheating

- A. Ensure the items being sheared are within the capabilities of the Shear.
- B. Check the Motor Fan Blades and air passageways are clear from dust and debris.
- C. To reset the overload press the Stop Button and wait 10 seconds before restarting the Shear.

6.1.7. The Motor trips out repeatedly

- A. Check A & B as for 6.1.6.
- B. Have a qualified electrician check the overload settings, the incoming voltage supply, and all connections for corrosion which could cause a voltage drop.

6.2. Electrical Cable Schedule - Three Phase

Cable No.	Size	Cores	Cable	Source	Destination
JMC001	4.0	3	SY	32A Plug	Control Panel Isolator
JMC002	4.0	3	SY	Starter Relay	Pump Motor

6.2.1. JMC001



Source: 32A Plug

Destination: Control Panel Isolator

Core No.	Plug Terminal No.	Isolator Terminal No.	Function
Earth	Earth	Earth	Earth
1	1	L1	Power Supply
2	2	L2	Power Supply
3	3	L3	Power Supply

6.2.2. JMC002



Source: Starter Relay

Destination: Pump Motor

Core No.	Relay Terminal No.	Motor Terminal No.	Function
Earth	Earth	Earth	Earth
1	2	U1	Motor Winding
2	4	V1	Motor Winding
3	6	W1	Motor Winding

Note: Connect Motor Terminals for Motor rotation to be CLOCKWISE at fan end.

6.3. Electrical Cable Schedule - Single Phase

Cable No.	Size	Cores	Cable	Source	Destination
JMC001	4.0	3	SY	63A Plug	Control Panel Isolator
JMC002	4.0	3	SY	Starter Relay	Pump Motor

6.3.1. JMC001



Source: 63A Plug

Destination: Control Panel Isolator

Core No.	Plug Terminal No.	Isolator Terminal No.	Function
Earth	Earth	Earth	Earth
1	Live	L1	Power Supply
2	Neutral	L3	Power Supply

6.3.2. JMC002



Source: Starter Relay

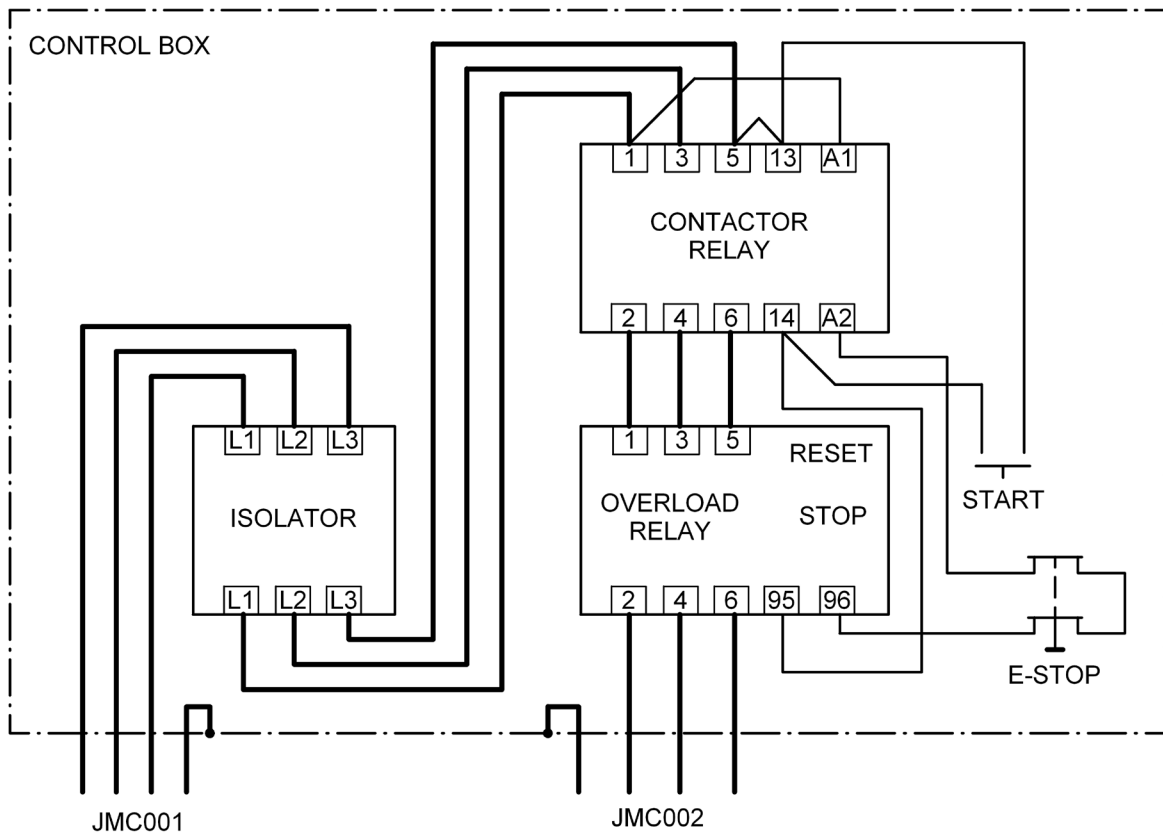
Destination: Pump Motor

Core No.	Relay Terminal No.	Motor Terminal No.	Function
Earth	Earth	Earth	Earth
1	2	Either	Motor Winding
2	6	Either	Motor Winding

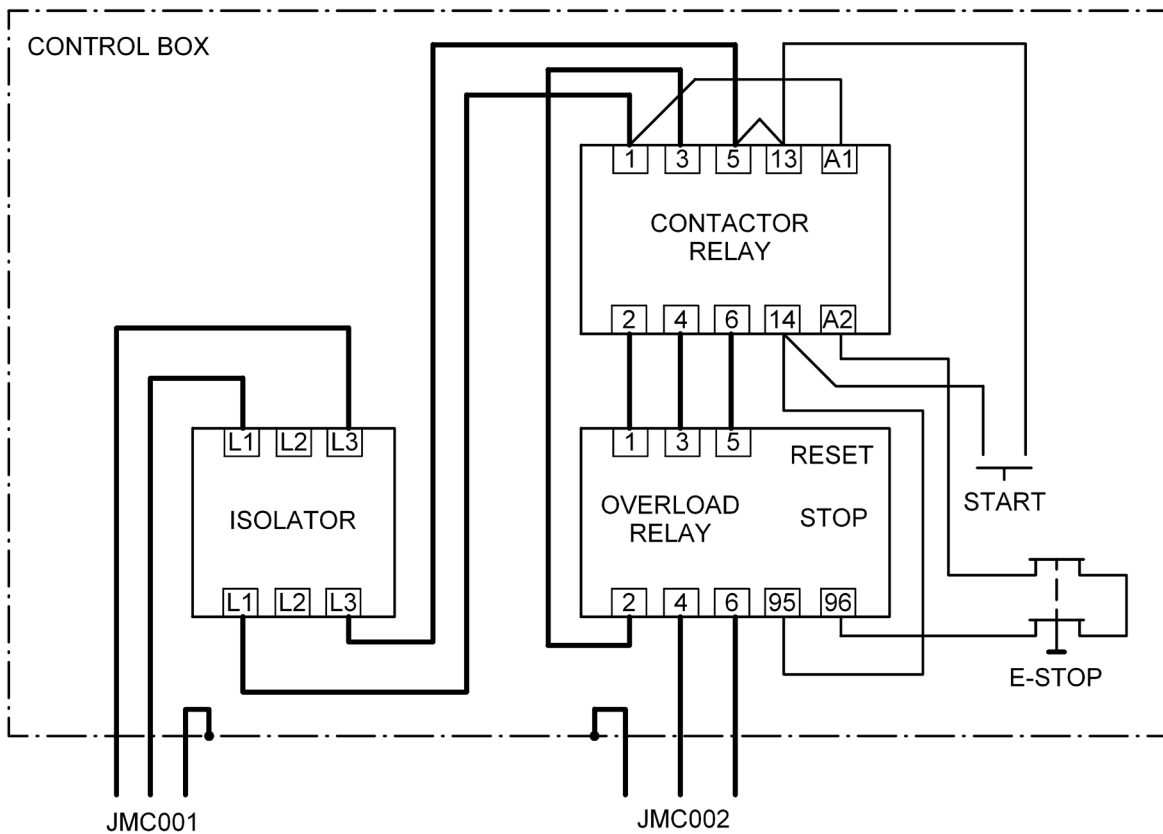
Note: Connect Motor Terminals for Motor rotation to be CLOCKWISE at fan end.

6.4. Electrical Wiring Diagram

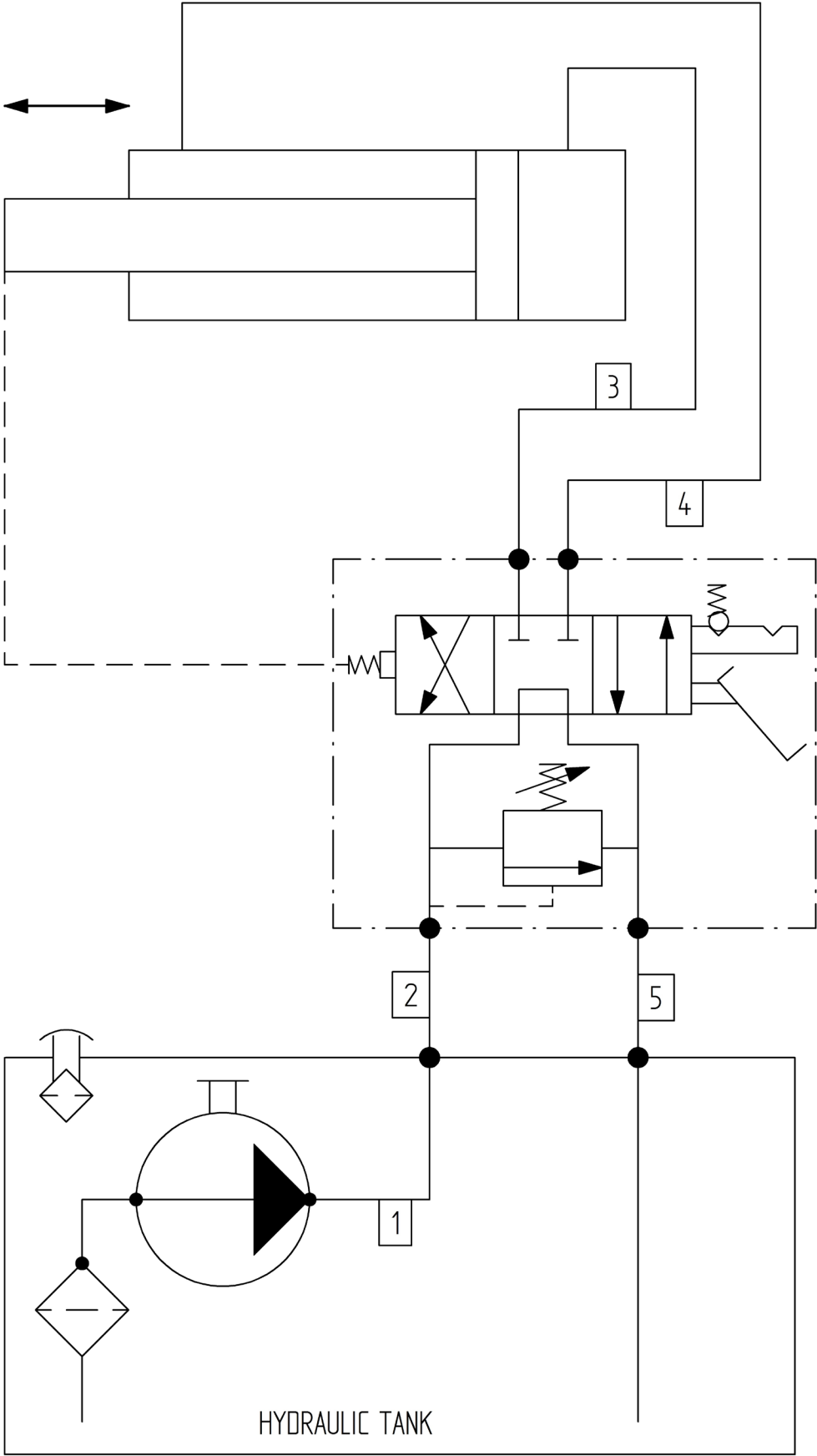
6.4.1. Three Phase



6.4.2. Single Phase



6.5. Hydraulic Circuit Diagram



6.6. Shear Blade Turning & Changing

(See Illustration 7.1, Page 46)



Always switch off and isolate the Shear from the mains electrical supply before maintenance.



Always wear Gloves when handling Blades. Only use McIntyre Blades.

6.6.1. Introduction

The Blades supplied with the Shear are not re-grindable, however they have four cutting edges and can be rotated through eight cutting positions.

Note: The fixing screws are smeared with copper based grease to aid subsequent removal.

6.6.2. Replacing or Turning the Top Blade

- Close the Top Jaw, stop and isolate the Shear from the electrical supply.
- Remove the Top Blade, Item 1.37.
- Examine the Top Jaw, Item 1.36, it should be flat and burr free, file off any burrs. It is important that the Blade sits against the Jaw without any gaps. Rectify if this is not the case.
- Remove any burrs from the Top Blade, choose a new cutting edge, or replace with a new item, and refit the Top Blade with the Fasteners, Items 1.35. Ensure that the Fasteners are tight.

Note: Top and Bottom Blades are interchangeable and should be replaced or turned at the same time for optimum Blade life and cutting performance.

- The Fasteners should not protrude from the Blade when fully tightened, Rectify if this is the case.

6.6.3. Removing side movement from the Main Pivot

Excessive side movement in the Main Pivot Bearing will negate Bottom Blade settings. It is necessary to remove any side movement in the Main Pivot before resetting the Bottom Blade. To do this:

- Loosen the Take-Up Screw Lock Nut, Item 1.20, then unscrew the Take-Up Screw, Item 1.21, by about six turns.
- Remove the Pivot Lock Nut's Grub Screw, Item 1.31.

- With a soft drift or peg spanner tighten the Pivot Lock Nut, Item 1.22, as far as possible.
- Replace Grub Screw and tighten.
- Re-tighten the Take-Up Screw and its Lock Nut.

6.6.4. *Replacing or Turning the Bottom Blade*

Before replacing or turning the Bottom Blade remove any side movement from the Main Pivot as any side movement will negate Bottom Blade setting and will reduce cutting efficiency and Blade life.

- Close the Top Jaw, stop and isolate the Shear from the electrical supply.
- Remove the Bottom Blade, Blade Back Up Plate and Anvil Bracket, Items 1.37, 1.38 and 1.40.
- Unscrew the Dog Point Grub Screws, Items 1.42, until they are no longer protruding from the Bottom Jaw.
- Inspect the Bottom Jaw and Back Up Plate, they should be flat and free from any burrs, file off any burrs or change the Back Up Plate if necessary.
- File off any burrs from the Bottom Blade, and select a new cutting edge or replace with a new item. Then slide the Back Up Plate and Bottom Blade into place.
- Refit the Anvil Bracket, then loosely fit the Fasteners, Items 1.41.
- Adjust the Fasteners and the Grub Screws, using feeler gauges, until the clearance between the Top and Bottom Blades is 0.05mm along the length of the Blade.
- Ensure all the Fasteners are fully tightened, this should increase the clearance to 0.1mm along the length of the Blade. This is the correct clearance setting.



Never set the Blades in hard contact with each other.

- At no time must the Top and Bottom Blades be set in hard contact with each other, this can be dangerous to the Operator and will also result in short Blade life.
- The Fasteners should not protrude from the Blades when fully tightened, Rectify if this is the case.

6.6.5. *Starting the Shear after Changing or Turning the Blades*

Before starting the Shear ensure the Blade Guard is in place and correctly positioned.



Never operate the Shear with the Blade Guard removed

On starting up the Shear the Top Jaw will automatically return to the Open position. On first closing of the Jaws exercise a slow controlled approach speed and ensure no hard contact of Blades exist. Rectify if hard contact occurs.

6.7. Resealing the Hydraulic Ram



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

6.7.1. Removing the Ram from the Shear

(See Illustration 7.3, Page 49)



Always chock the Top Jaw to prevent movement.

Before removing the Hydraulic Ram from the Shear, ensure that a chock has been fitted between the Top and Bottom Jaws, this will stop the Top Jaw swinging down and potentially causing injury or damage. To remove the Hydraulic Ram from the Shear:

- With the Shear switched off, disconnect the Hoses, Items 3.11 and 3.12 supplying the Hydraulic Ram, plugging both the ports and the Hoses.
- Disconnect the Control Valve and other parts of the Stroke Adjuster Mechanism from the Ram. (See Illustration 7.5, Page 51)
- Using suitable lifting equipment secure the Hydraulic Ram so that it does not drop when released from the Shear.

Note: Hydraulic Ram max weight approx. 45kg

- Unscrew the Fasteners, Items 3.9. Then remove the two Ram Pivot Pins, Items 3.5 releasing the Ram from the Shear.
- Remove the Ram to a clean area. Protect the Piston Rod and safely support the Ram Cylinder for disassembly, remembering that the centre of mass will change as it is dismantled.

6.7.2. Resealing the Hydraulic Ram

(See Illustration 7.4, Page 50)

- With a peg spanner or strap wrench, unscrew the Ring Nut, Item 4.10, and pull the Piston Rod out of the Cylinder with all internals attached.
- Remove the Grub Screw, Item 4.2, from the Rear Piston Half, Item 4.3. Once removed, unscrew the Rear Piston Half and slide all components off the Piston Rod.

- Inspect the Piston Rod and remove or polish out any burrs or score marks. Deep score marks to Piston Rods may be temporarily filled with an epoxy putty providing that it is properly applied.
- Remove the Wiper Seal, Item 4.11, from the Ring Nut. Examine the Ring Nut for burrs and score marks. If all seems satisfactory, fit a new Wiper Seal and slide the Ring Nut back onto the Piston Rod.
- Remove the O-ring, and Single Acting Seal, Items 4.7 and 4.9 from the Gland, Item 4.8. Examine the Gland for burrs and score marks. If all seems satisfactory, fit a new O-ring and Single Acting Seal, ensuring that the Single Acting Seal is orientated correctly. Then slide the Gland back onto the Piston Rod.
- Remove the Piston Seal and O-ring, Items 4.4 and 4.5 from the Front and Rear Piston Halves, Items 4.6 and 4.3. Examine the Piston halves for burrs and score marks. If all seems satisfactory, slide the Front Piston Half onto the Piston Rod, fit a new O-ring and new Piston Seal.
- Screw the Rear Piston Half onto the Piston Rod. Ensure that the rear holes line up exactly, then refit the Grub Screw. Ensure the Grub Screw does not protrude from the end of the Piston Rod, rectify if this is the case.
- Wipe out the Ram Cylinder and ensure that the Cylinder bore is free from any score marks. If this is not the case, it will be necessary to polish out any light score marks. Deep score marks to Cylinder bore cannot be adequately repaired - replace the Cylinder. When all seems satisfactory, smear the Cylinder bore with Hydraulic Oil and refit the Piston Rod assembly into the Ram Cylinder.
- Tighten the Ring Nut.
- Examine the Cylinder clevis and the Piston Rod clevis bores for burrs or any defects. Test the bores with the appropriate Pivot Pins prior to refitting the Hydraulic Ram to the Shear.
- Refit the Hydraulic Ram to the Shear by following the instructions in Section 6.7.1, Page 38, in reverse, ensuring all Hoses and Fasteners are secure.
- After refitting the Hydraulic Ram to the Shear, check the fluid level in the Hydraulic Tank after the first cycle. If necessary top up with clean Hydraulic Fluid.



Only use genuine JMC Recycling Systems Ltd approved seals and parts. Use of non approved parts may invalidate the warranty.

6.8. Hydraulic Relief Valve

(See Illustration 7.3, Page 49)



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

The Hydraulic Relief Valve is incorporated into the Control Valve and is set by the manufacturer and should not require adjustment, however if the Shear is not operating properly and no other cause can be found then the Relief Valve setting should be checked and if necessary adjusted.

6.8.1. Testing for Over-Pressure

With the Shear switched off and isolated from the mains electrical supply:

- Remove the Blanking Plug, Item 3.13, from the top of the Control Valve, Item 3.14.
- Fit a reducer fitting connected to a Pressure Gauge to this port ensuring all fittings are tight.
- Place a large item known to be higher than the cutting capacity of the Shear between the Top and Bottom Jaws. Then turn on and start up the Shear.
- Keep a watchful eye on the Pressure Gauge slowly depress the Foot Pedal until the Pressure Gauge reading stops rising, this is the Relief Valve setting.

Note: Do Not hold the Shear at high pressures for long periods of time as this may cause the Electric Motor to stall.

- If the Pressure Gauge reading is above the Maximum System Pressure for the Shear (See Section 3.4, Page 12), then the System Relief Valve must be reset to the Maximum System Pressure. (See Section 6.8.2, Page 40)
- Before operating the Shear, switch off and isolate the Shear from the mains electrical supply, then disconnect the Pressure Gauge, previously fitted, and refit the Blanking Plug to the Control Valve Port.

Note: A Pressure Gauge reading less than the Maximum System Pressure should not be taken as requirement to readjust the Hydraulic Relief Valve. Pressure loss elsewhere in the hydraulic system will also give a low pressure reading (See Sections 6.1 on Troubleshooting and if uncertain contact the Manufacturer).

6.8.2. Adjusting the Relief Valve Setting

- Follow the instructions in Section 6.8.1, Page 40, to install a Pressure Gauge and check the Relief Valve Setting.
- If the Relief Valve Setting is:
 - » Above the Maximum System Pressure (See Section 3.4, Page 12)

then the Relief Valve Setting must be reduced to the Maximum System Pressure.

- » Below the Maximum System Pressure (See Section 3.4, Page 12) then the Relief Valve Setting may need increased to Maximum System Pressure.

To adjust the Relief Valve Setting:

- Loosen the Lock Nut on the end of the Relief Valve Cartridge on the Control Valve.
- To reduce the setting, turn the Adjustment Screw anti-clockwise.
- To increase the setting, turn the Adjustment Screw clockwise.



Do not set the Relief Valve setting to be above the Maximum System Pressure for the Shear



Do Not adjust the Adjustment Screw while the Relief Valve is under pressure.

- When the correct Relief Valve setting is achieved, tighten the Lock Nut on the Adjustment Screw. Then re-check the setting.
- Before operating the Shear, switch off and isolate the Shear from the mains electrical supply, then disconnect the Pressure Gauge, previously fitted, and refit the Blanking Plug to the Control Valve Port.



Check all hose connections are secure and Do Not leak before running the machine for long periods.

6.9. Foot Pedal Cable

(See Illustration 7.5, Page 51)



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

6.9.1. *Renewing the Foot Pedal Cable*

To fit a new Foot Pedal Cable, first remove the old Cable by starting at the Foot Pedal and work towards the Shear.

- Remove the Clevis, Item 5.54 and Horseshoe Clip Pin, Item 5.57. Save these for later assembly.
- Slide the PVC Dust Cap, Item 5.53, off the Foot Pedal Cable, Item 5.48.
- Remove the Cable Cleat, Item 5.58, and Fixings, Items 5.49, 5.50 and 5.51. Note the position of the Cable relative to the Mounting Plate and remove the Lock Nuts, Item 5.52, releasing the Cable from the Foot Pedal Housing.
- At the Shear end of the Foot Pedal Cable, slacken off the Chain Link Adaptor Lock Nut, Item 5.44. Turn the inner part of the Foot Pedal Cable to unscrew the Cable from the Chain Link Adaptor, Item 5.41.
- Note the position of the Cable relative to the Mounting Bracket. Slide the PVC Dust Cap, Item 5.45, upwards, and unscrew the Lock Nuts, Item 5.47, thereby releasing the Cable from the Shear.
- Lightly oil each end of the new Foot Pedal Cable, and using the saved Clevis parts, refit the new Cable in reverse. Take care to press home the PVC Dust Caps at each end of the Cable.

Note: Replacement parts are available at cost from JMC Recycling Systems Ltd.

6.9.2. *Adjusting the Foot Pedal Cable*



Do not modify in any way the mechanism or the intended operation of the Foot Pedal. Never adjust the Foot Pedal Plate to be higher than the Sides of the Foot Pedal Housing

Use the Lock Nuts, Items 5.52, either side of the Mounting Plate inside the Foot Pedal to raise and lower the Foot Pedal Plate, Item 5.56, position. When the Foot Pedal Plate is fully depressed, ensure that a clearance of 6mm (0.25in) is maintained between the Foot Pedal Plate and the Foot Pedal Housing.

6.10. Changing the Suction Filter

(See Illustration 7.2, Page 48).



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

- Isolate the Shear from the Mains Power Supply. Disconnect the Motor Cable at the Motor Terminal Box.
- Unscrew the four Fasteners, Items 2.35, then using suitable lifting equipment lift up the Electric Motor and store away from the working area.
- Unscrew the four Bell Housing Studs, Items 2.3, then lift the Bellhousing to reveal the Hydraulic Pump, Item 2.21.



Do Not try to lift the Pump clear of the Tank.

- Unscrew the Hydraulic Pump Hose, Item 2.11, connection taking care not to damage the gasket.
- Lift the Bell Housing further to expose the Suction Filter, Item 2.24. Unscrew the filter from the Pump fitting and replace with a new item.
- Reassemble in reverse.

6.11. Renewing the 407 CAT Shear Jaw Extension

(See Illustration 7.6, Page 52)



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

The 407, 500, and 600 CAT Shears are equipped with a Jaw Extension used for reopening a Catalytic Converter tube after shearing. The Jaw Extension has a replaceable Wear Plate, Item 6.3, which can easily be replaced using the following procedure:

- Lower the Blade Guard to its lowest position, this should give easier access to the Jaw Extension Bracket.
- Loosen and remove the Lock Nuts, Items 6.1.
- Remove the Fasteners, Items 6.4, releasing the Wear Plate From the Jaw Extension Bracket.
- If the Fasteners or Lock Nuts are too damaged to be easily removed, it might be required to cut the Lock Nuts off. This will allow the Wear Plate to be removed from the Jaw Extension Bracket.
- Ensure the Jaw Extension Bracket is flat and free Burrs on the side against which the Wear Plate sits. File off any burrs or grind flush if required.
- Place a new Wear Plate against the Jaw Extension Bracket ensuring the holes align.
- Fix the Wear Plate in place with the Fasteners and Lock Nuts. Use new Fasteners and Nuts if the originals are damaged or worn.

6.12. Renewing the CAT Shear V-Block

(See Illustration 7.6, Page 52)



Always switch off and isolate the Shear from the mains electrical supply before maintenance.

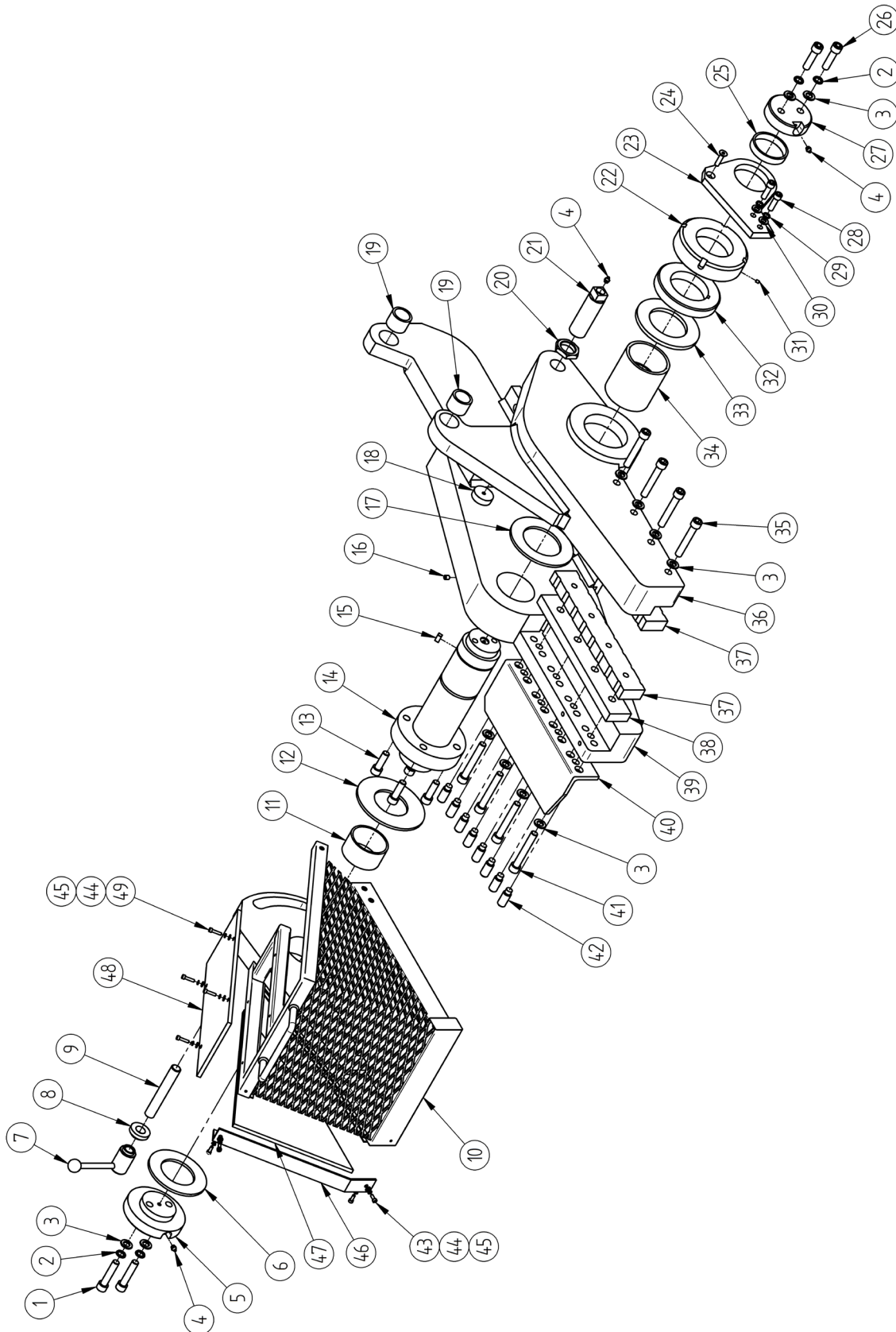
The 407, 500, and 600 CAT Shears can be equipped with a V-Block, Item 6.6, fixed to the Bottom Jaw to aid when re-opening the CAT's. This can easily be replaced when worn using the following procedure:

- Lift the Blade Guard to its upmost position and lock in place.
- Loosen and remove the two Fasteners, Items 6.5, securing the V-Block, Item 6.6, to the Bottom Jaw, Item 6.7.
- Remove the V-Block and replace with a new item.
- Secure the new V-Block to the Bottom Jaw with the Fasteners, replacing any that are damaged or worn.

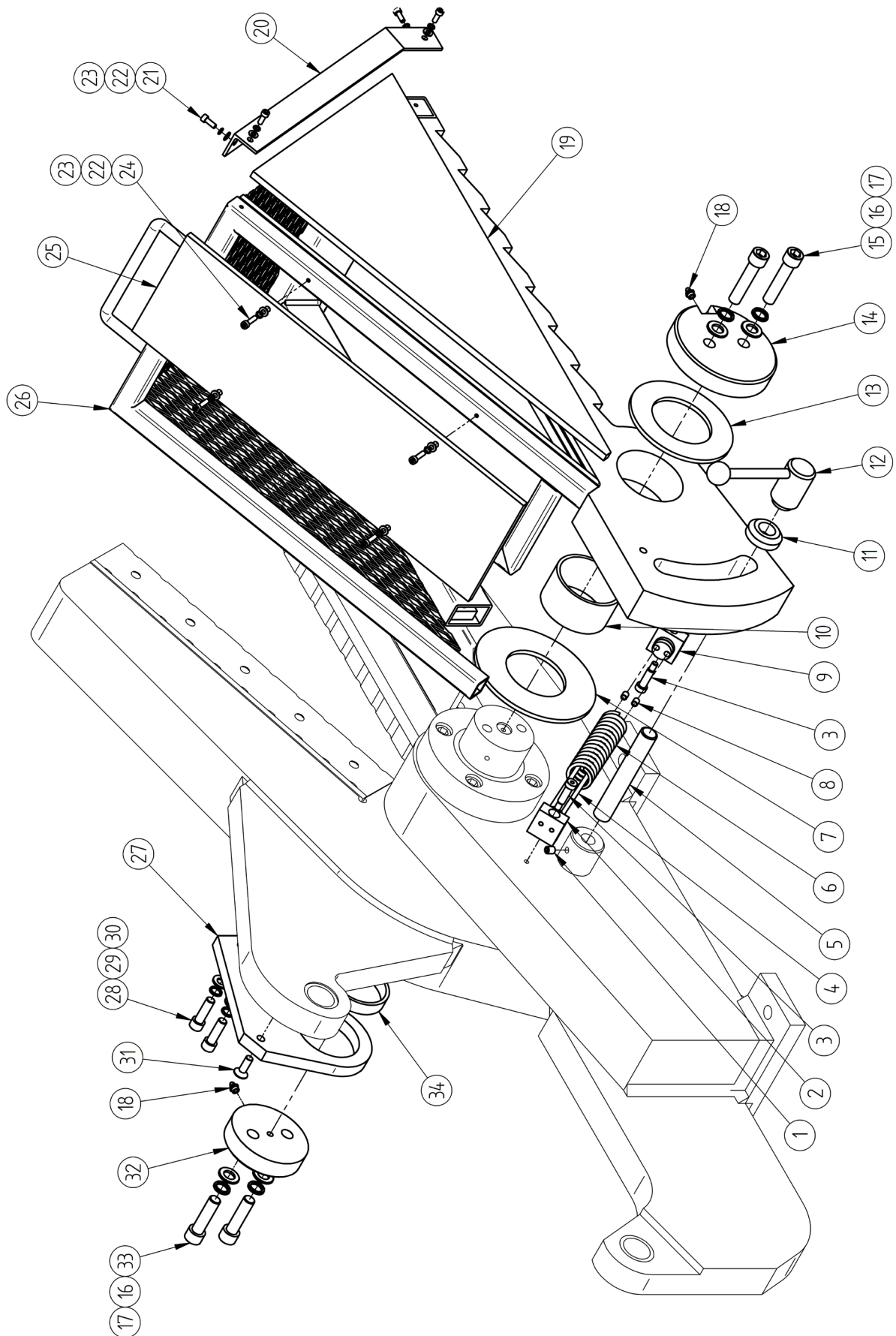
7. Illustrations

7.1. Body, Blades & Blade Guard

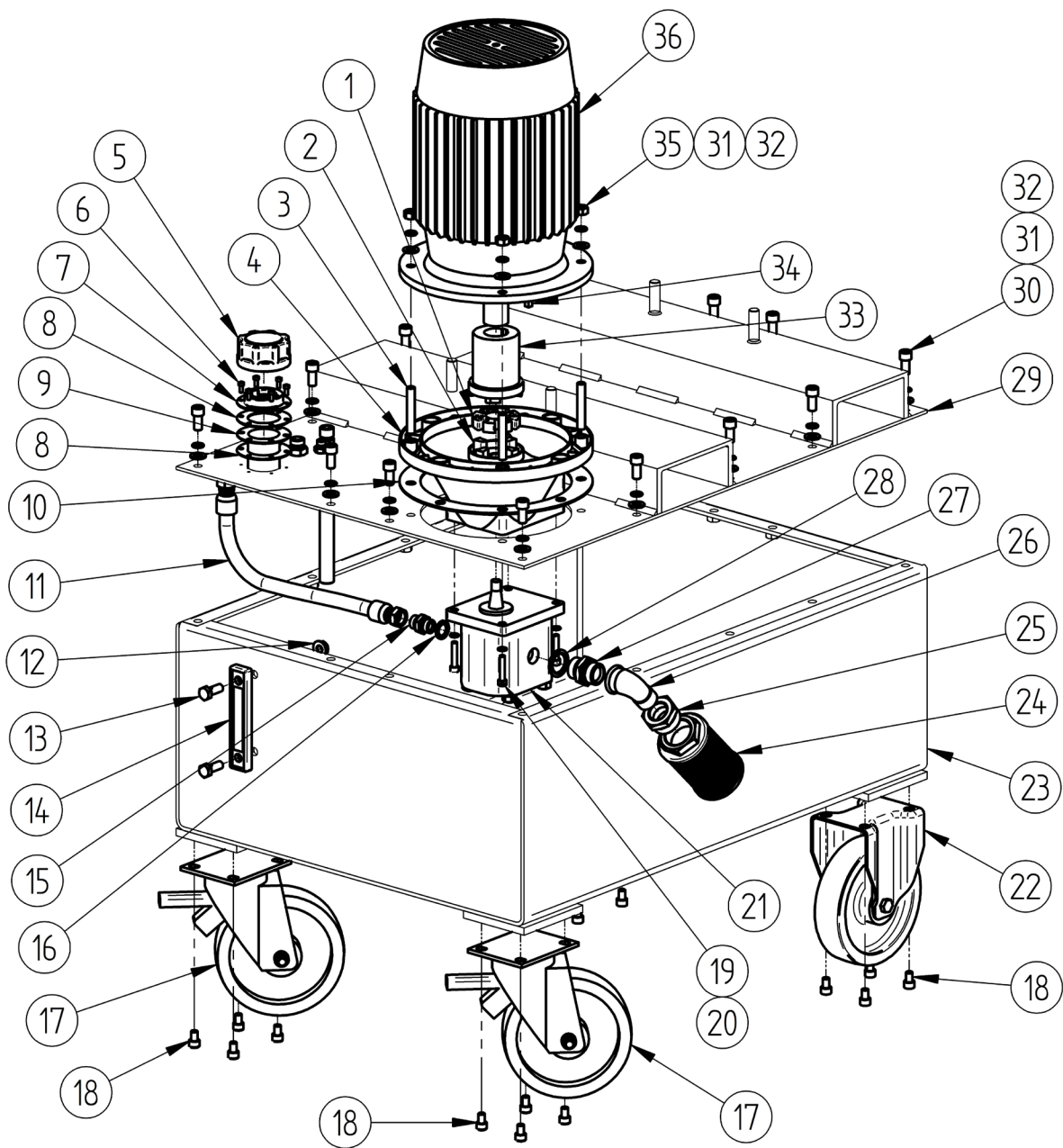
7.1.1. 320 and 407



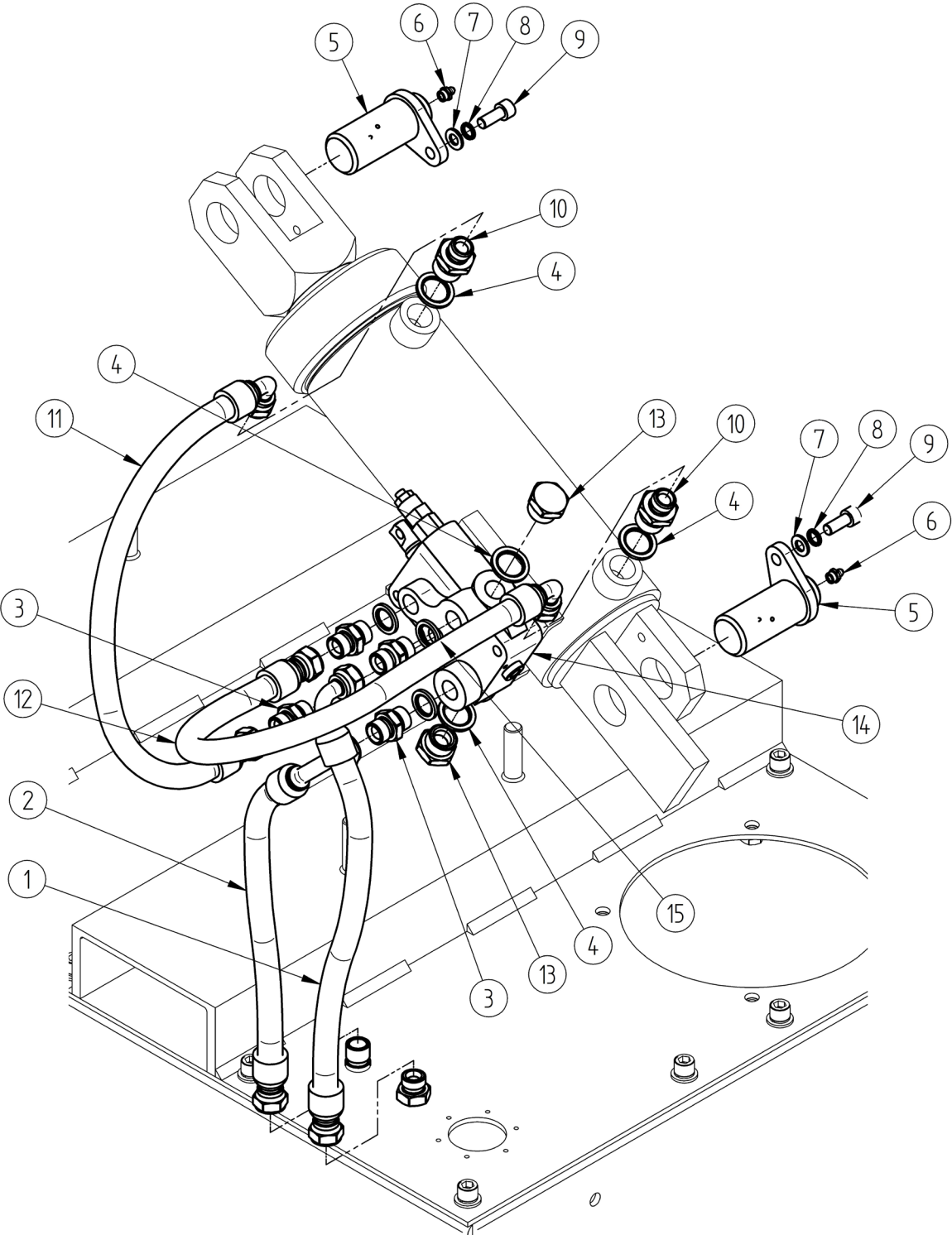
7.1.2. 500 and 600



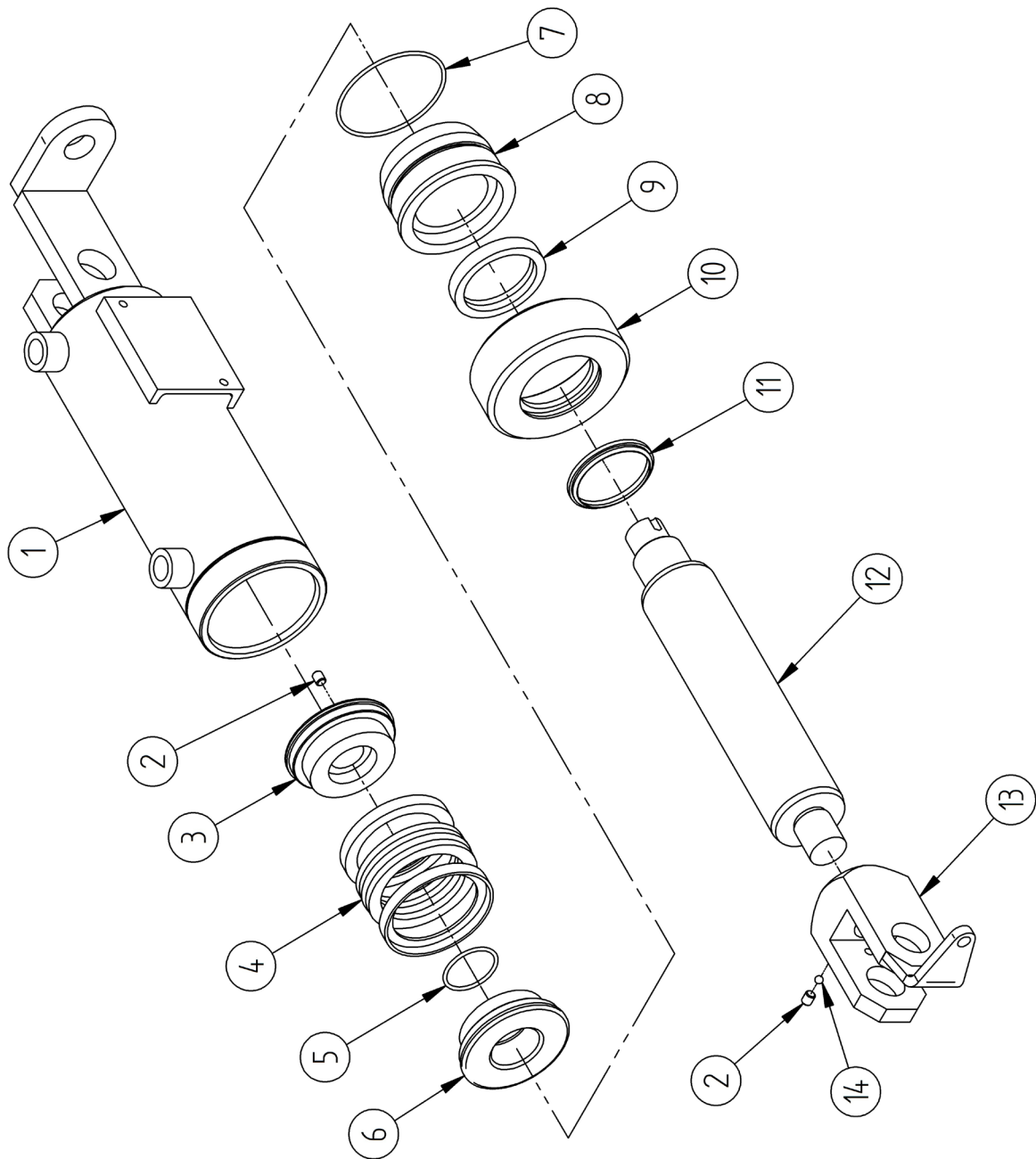
7.2. Hydraulic Tank



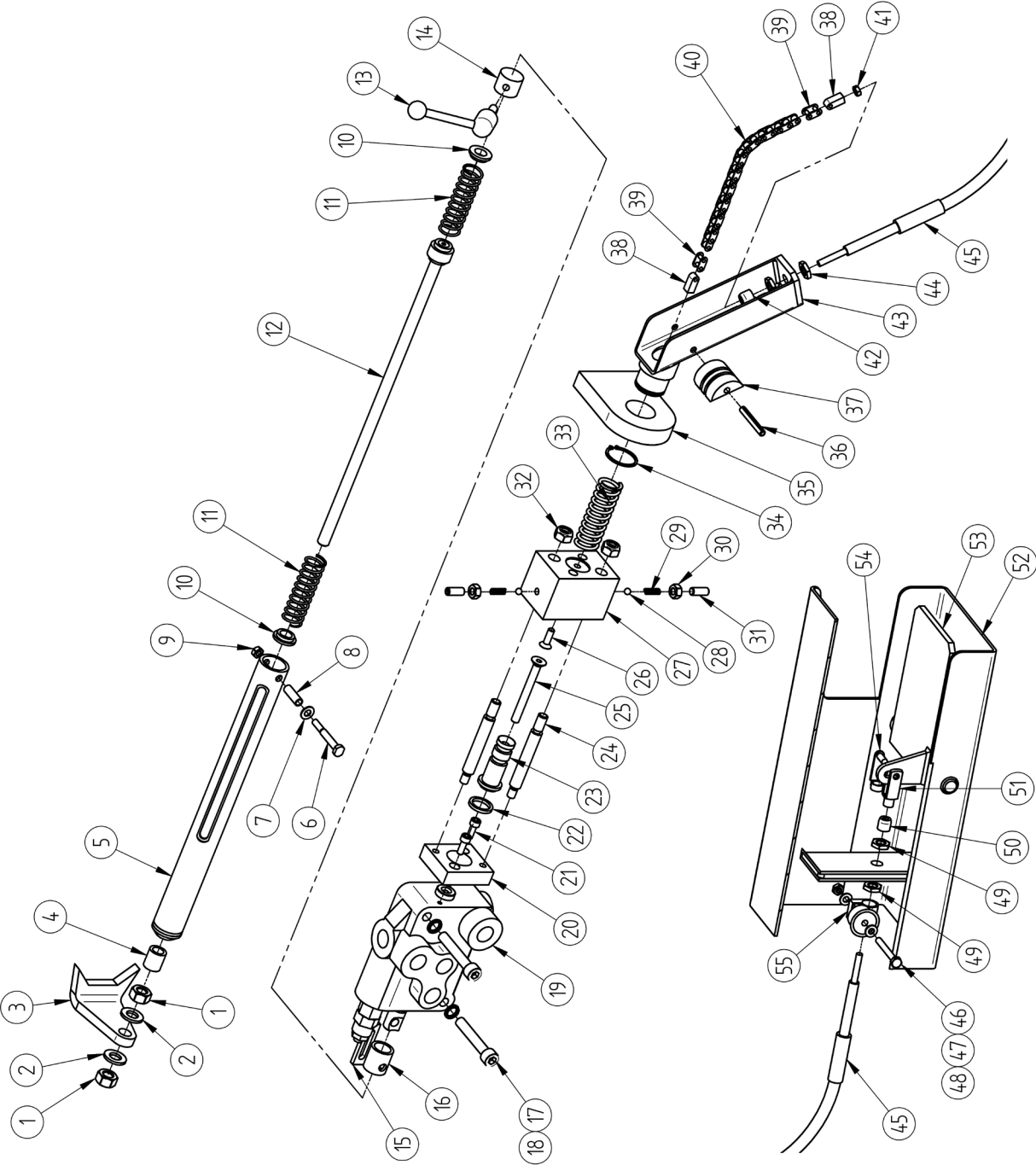
7.3. Control Valve & Ram Supply



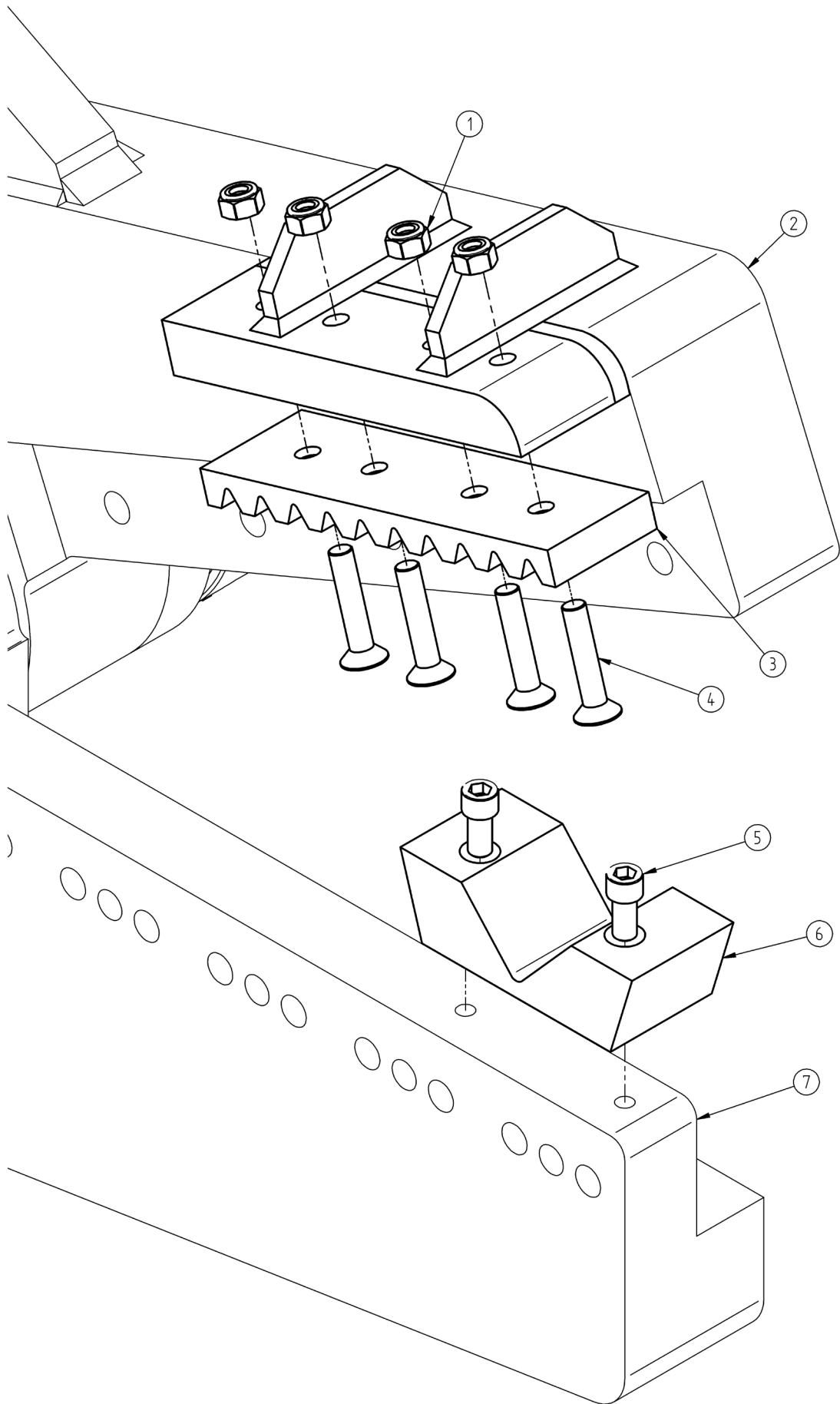
7.4. Hydraulic Ram



7.5. Stroke Adjuster & Foot Pedal



7.6. CAT Bracket & V-Block



8. Ordering Spare Parts

When ordering spares you will need the following:

- Type of equipment
- Model number
- Machine serial number
- Voltage rating
- Colour

This information will be found on the serial number plate attached to the machine. Please also quote the page and part number required.

Spares can be ordered directly from the manufacturer or by contacting your local agent.



For Safety and Optimum Performance only use Genuine JMC Recycling Systems Ltd Approved Parts. Use of non approved parts may invalidate the warranty.

JMC Recycling Systems Ltd

Unit 2, Harrimans Lane, Dunkirk, Nottingham, England NG7 2SD

Tel: UK +44 (0) 115 940 9630 Fax: UK +44 (0) 115 979 1478

www.jmcrecycling.com email: info@jmcrecycling.com

9. Record Keeping

9.1. Useful Contacts

If you require any additional generic safety or operational information on the use of Alligator Shears, or other scrap metal processing equipment, then the following contacts may be of assistance:

British Metals Recycling Association
16 High Street, Brampton
Huntington, Cambs, UK PE28 4TU
Tel: +44 (0) 1480 455249 Fax: +44 (0) 1480 453680
www.recyclemetals.org email: admin@recyclemetals.org

UK Health and Safety Executive (HSE)
HSE Infoline Tel: UK 08701 545500 Fax: UK 02920 859260
www.hse.gov.uk

Bureau of International Recycling (BIR)
Avenue Franklin Roosevelt, 24,
B-1050 Brussels, Belgium
Tel: +32 2 627 5770, Fax: +32 2 627 5773
www.bir.org email: bir.sec@skynet.be

Institute of Scrap Recycling Industries, Inc (ISRI)
1325 G Street NW, Suite 1000, Washington DC 20005-3104, USA
Tel: +1 202/737-1770, Fax: + 1 202/626-0900
www.isri.org email: isri@isri.org

American National Standards Institute (ANSI)
1819L Street, NW, Washington, DC 20036, USA
Tel: +1 202/293-8020, Fax: + 1 202/293-9287
General enquiries: + 1 202/642-4900
www.ansi.org

Occupational Safety & Health Administration (OSHA)
Office of Public Affairs – Room N3647
200 Constitution Avenue
Washington, DC 20210
Tel: +1 202/693-1999
www.osha.gov

JMC Recycling Systems Ltd
Unit 2, Harrimans Lane, Dunkirk, Nottingham, England NG7 2SD
Tel: UK +44 (0) 115 940 9630 Fax: UK +44 (0) 115 979 1478
www.jmcrecycling.com email: info@jmcrecycling.com

9.2. End of Life Disposal

Contact JMC Recycling System Ltd first. We can usually refurbish the machinery or may accept the machine as part exchange against newer models.

If the Shear is to be scrapped then:

- Ensure that the equipment is disconnected from the mains supply.
- Dispose of Hydraulic Oil responsibly, at a local authority facility or recycler.
- All electrical and electronic components should be disposed of in accordance with the WEEE directive 2002/96/EC or returned to the manufacturer.
- Use appropriate lifting equipment and wear protective clothing throughout the dismantling process.
- Take particular care when removing the Hydraulic Ram, Top Jaw and Blade Guard. Use a chock to prevent the Jaw rotating under its own weight. Stand well clear while lifting.



Always chock the Top Jaw to stop movement.



Do not use any heat source to cut open the Hydraulic Tank

9.3. Training, Safety & Ownership Records

The following pages are provided for photocopying as required.

- Operator Training Record
- Shear Safety Checklist
- Ownership Registration Form

Operator Training Record

This Operation and Maintenance Manual must be read before operating the equipment.

- It is the owner's responsibility to ensure that all Operators are fully trained in the use of this equipment, and that each individual Operator has access to this Manual.
- All Operators should be fully trained in safe working practices, and be fully familiar with the safety features of this equipment, which include the Foot Pedal, Blade Guard, Instruction and Warning Labels.
- No unauthorised persons should operate this machine. No persons under the age of 18 should operate this machine.

For your protection, and for the safety of the Operators, we have included the following record:

I have read this Operation and Maintenance Manual and I am fully familiar with the safety features on this equipment. I understand that scrap metal processing can be hazardous and the importance of correct working practices:

Machine Owner:	Signature	Date
1st Operator	Signature	Date
2nd Operator	Signature	Date
3rd Operator	Signature	Date
4th Operator	Signature	Date
5th Operator	Signature	Date
6th Operator	Signature	Date
7th Operator	Signature	Date
8th Operator	Signature	Date
9th Operator	Signature	Date
10th Operator	Signature	Date
11th Operator	Signature	Date
12th Operator	Signature	Date
13th Operator	Signature	Date
14th Operator	Signature	Date
15th Operator	Signature	Date
16th Operator	Signature	Date
17th Operator	Signature	Date
18th Operator	Signature	Date

Attach additional sheets for subsequent Operators if necessary

Shear Safety Checklist

Shear Model: Serial Number:.....

1. Warning Signs

Check that all Signs and Warning Labels are in place and in good, legible condition:

- Safety Instructions
- Protective Clothing Warning Sign
- Shear Hazard Labels
- Read Instruction Manual Label
- Foot Pedal Warning Label
- Crush Hazard Warning Label
- Inflammable Liquid Label

2. Machine Integrity

Check the following:

- Blades - must be intact, seated correctly, free from chips or cracks
- Hydraulic fluid level
- Hydraulic hoses and fittings for leaks
- Loose, missing or damaged items
- Working area - must be free from obstruction, debris, oil and metal
- Ventilation Grills - must be free from obstruction
- Blade Guard - must be properly fitted and undamaged.

3. Control Functions

Check the following Control Functions for correct operation:

- Mains Isolator
- Start Button
- Stop Button
- Foot Pedal
- Stroke Adjuster

Report all Problems to the Supervisor Immediately

Checked By (Print):

Signature:

Date:

Ownership Registration Form

If you have purchased your JMC machine second-hand, then please copy this form and use it to fax your details back to us. This will allow us to keep you informed of any updates relating to your equipment.

Contact:

Company Name:

Address:

.....

.....

.....

Telephone:

Fax:

Email:

Type of equipment:

Model:

Serial Number (shown on black plate):

Colour of equipment:

FAX BACK TO:
+44 (0) 115 979 1478

JMC Recycling Systems Ltd

Unit 2, Harrimans Lane, Dunkirk, Nottingham, England NG7 2SD

Tel: UK +44 (0) 115 940 9630 Fax: UK +44 (0) 115 979 1478

www.jmcrecycling.com email: info@jmcrecycling.com

Declaration of Conformity



The gold standard in recycling systems

We Declare that the machinery detailed below complies with the following directives:

- Machinery Directive - 2006/42/EC
- Low Voltage Directive - 2006/95/EC
- EMC Directive - 2004/108/EC

This Machine is designed for use in the following Explosive Atmosphere Environment -: Safe Area Only

Machine Description:

Serial Number:

Manufacturer: JMC Recycling Ltd

Address: Unit 2, Harrimans Lane
Dunkirk, Nottingham,
NG7 2SD
UK

The following Transposed Harmonised Standards have been applied in the design and construction of this machine:

EN 349: Safety of Machinery - Minimum gaps to avoid crushing parts of the human body

EN 953: Safety of Machinery – General Requirements for the design and construction of fixed and movable guards.

EN ISO 4413: Safety of Machinery – Safety requirements for fluid power systems.

EN ISO 11200: Acoustics - Guidelines for noise emitted by machinery and equipment

EN ISO 12100: Safety of Machinery – Basic concepts, general principles for design, risk assessment and reduction.

EN ISO 13857: Safety of Machinery – Safety Distances to prevent danger zones being reached by upper and lower limbs.

EN 60204 : Safety of Machinery - Electrical equipment of machines – general requirements.

The Manufacturer stated above, holds the Technical Construction File for this equipment.

Name: Philip Pownall

Position: Managing Director

Date:

Signed on behalf of the manufacturer:
(The responsible person)





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Bureau of
International Recycling



About McIntyre Recycling Systems & Services

McIntyre is the gold standard in recycling systems and services, with 27,000 machines installed worldwide and a reputation for the widest and best-performing range of solutions for metal, waste, cars and aluminium. With scrap metal roots extending back to 1872, we have an unrivalled understanding of the challenges faced by scrap merchants, waste managers, car breakers, manufacturers, foundry managers and others with recycling responsibilities. As a result, the McIntyre name has become synonymous with innovative, problem-solving designs, robust products that deliver the best return on investment, and a knowledgeable, friendly and helpful service.



JMC Recycling Systems Ltd

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www.jmcrecycling.com

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