Melvelle Equipment Corp Pty Ltd

"Proud Australian Manufacturers"

164 Fast Clipper

Operation Manual

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Part Number – Manual-164

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Notes:

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1. Preface

Every attempt has been made to present accurate and current information within this manual. However, as product development on the power pack and components used within is continuous, the information contained herein may be subject to change without notice, and without incurring obligation.

The information provided within this manual is the sole property of Melvelle Equipment Corporation Pty Ltd (MEC) and as such, reproduction or replication of any material contained within is not allowed without the written consent of MEC.

Information provided within this manual assumes:

- The person(s) operating the machinery have read and understand this manual and other manuals provided for specific components
- The person(s) operating are properly trained and equipped to safely and professionally operate this machinery
- The person(s) operating utilise the correct attachments and/or tools, and are trained and equipped to use them safely and professionally

SERVICING THE 164 FAST CLIPPER

This manual contains safety, operation and periodic maintenance instructions. MEC recommends that servicing of equipment, other than periodic maintenance, must be performed by MEC or certified and authorised dealer. Please read the following warning.

WARNING

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS EQUIPMENT.

REPAIRS AND / OR SERVICE OF THIS EQUIPMENT MUST ONLY BE PERFORMED BY MELVELLE EQUIPMENT CORP. PTY LTD. OR CERTIFIED AND AUTHORISED DEALER.

2. Safety Information

This operation and training manual is intended to complement existing site procedures.

The following site documentation must be reviewed by the trainee before commencing training:

- Safe Work Procedures (SWP)
- Isolation Procedures

If the training package information conflicts with existing site documentation, then the authorised site and/or end user is to consult with MEC in regards to any possible amendments or modifications required.

The following practices and procedures must be adhered to:

- Always complete Pre-Operation Checks prior to use and report any defects if found
- Only connect equipment with compatible MEC equipment
- Only operate the equipment for its intended purpose
- Never operate with guards missing or damaged
- PPE Equipment as a minimum should be worn at all times according to this manual and as per site specifications
- Ensure Isolation Procedures are followed prior to carrying out any maintenance
- If any faults or damage to this machine are found during pre-operation checks or operation, tag the machine “Out-of-Service” and follow site procedures

Following the above mentioned and the information contained within this manual will ensure safe, efficient operation of the equipment.

3. Safety Symbols

The safety symbols and signal words, as shown below, are used to emphasise all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to the equipment.

3.1. Safety Symbols & Signal Words

	**This safety alert and signal word indicates a hazardous situation which, if not avoided, will result in death or serious injury.**
	**This safety alert and signal word indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**
	**This safety alert and signal word indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.**
	**This signal word indicates a potentially hazardous situation which, if not avoided, may result in property damage.**
	**This signal word indicates a situation which, if not avoided, will result in damage to the equipment.**
	**This signal word indicates a situation which, if not avoided, may result in damage to the equipment.**

3.2. Hazard Warning Signs

	**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all instructions to avoid possible injury or death.**
	**This is the fire risk symbol. It is used to alert you to the potential of a fire starting if ignition sources are present.**
	**This is the explosive risk symbols. It is used to alert you to the potential of an explosion /explosive substances present.**
	**This is the toxic hazard symbol. It is used to alert you to the presence of toxic substances.**
	**This is the corrosive risk symbol. It is used to alert you to the presence of corrosive substances.**
	**This is the electric shock risk symbols. It is used to alert you to the presence of an electrical supply.**
	**This is the battery symbol. It is used to alert you to the potential hazard of electrical supply, battery acid and leaking batteries.**

	**This is the hot surface symbol. It is used to alert you that the surfaces may be hot.**
	**This is the dangerous gases symbol. It is used to alert you to the presence of dangerous gases.**
	**This is the fluid under pressure symbol. It is used to alert you that there are fluids under pressure in this machinery.**
	**This is the sharp edges symbol. It is used to alert you to the presence of sharp edges or cutting hazard.**
	**This is the keep hands clear symbol. It is used to warn you to keep hands clear as there are pinch points present.**
	**This is the rotating parts symbols. It is used to warn you of rotating parts on the machinery. Keep clear of rotating parts.**

3.3. Personal Protection Symbols

	**This is the eye protection symbol. It is used when eye protection must be worn.**
	**This is the hearing protection symbol. It is used when hearing protection must be worn.**
	**This is the head protection symbol. It is used when head protection must be worn.**
	**This is the hand protection symbol. It is used when hand protection must be worn.**
	**This is the foot protection symbol. It is used when feet protection must be worn.**
	**This is the protective body clothing symbol. It is used when protective clothing must be worn.**

	**This is the face protection symbol. It is used when face protection must be worn.**
	**This is the long hair protection symbol. It is used when long hair is required to be contained or restrained.**

3.4. Prohibition Symbols

	**This is the naked flame symbol. It is used when there is not to be a fire, naked flame, ignition sources and smoking nearby.**

4. Safety Precautions

To ensure safe operation, please read and understand the following statements and their meanings. Also refer to supporting manuals from the engine manufacturer on specific operation and maintenance of the engine. This manual contains safety precautions which are outlined below.

WARNING

Ensure all personnel operating this equipment are properly trained to ensure safe operation

WARNING

Wear personal protective equipment around this machinery.
For example: safety glasses, hearing protection, head protection, protective clothing and safety shoes at all times.

WARNING

Accidental Starts can cause severe death or injury.
Disable engine by disconnecting negative (-) battery cable. Ensure machinery are started in the neutral position.

WARNING

Rotating parts can cause severe injury
Stay away whilst machine is in operation. Ensure ALL guarding is in place and secured before operation.

WARNING

Hot parts can cause severe burns.
Do not touch machinery whilst in operation.

WARNING

Carbon monoxide can cause severe nausea, fainting or death.
Avoid inhaling exhaust fumes and never operate the engine in a closed or refined area.

WARNING

Fuel can cause fires and severe burns.
Do not fill the fuel tank while the engine is hot or running.

WARNING

Explosive gas can cause fires and severe acid burns.
Charge battery only in a well ventilated area. Keep sources of ignition away.

WARNING

High Pressure fluids can puncture skin and cause severe injury or death.
Do not work on fuel or hydraulic system without proper training and safety equipment. Ensure all hose connections are tight.

WARNING

Clamping parts can cause severe injury.
Stay away whilst machine is in operation. Ensure ALL guarding is in place and secured before operation.

WARNING

Loose hair, clothing and jewellery can cause severe injury.

	Ensure hair is restrained; loose clothing not to be worn and jewellery must be removed before operating the machinery.

CAUTION 	WARNING 
Electrical shock can cause injury. Do not touch wires whilst engine is running.	**Attachment hoses must have a minimum working pressure rating of 3000psi.**Do not use hoses and fittings that are not pressure rated.

WARNING 	WARNING 
Ignition sources can cause fires and severe burns. There is <u>not</u> to be a fire, naked flame, ignition sources or smoking around any MEC machinery.	**Toxic and/or Hazardous substances utilised in this machinery.** Beware of toxic and/or hazardous substances used within this machinery. Do not inhale, swallow or touch toxic/hazardous substances.

WARNING

Injury can occur due to terrain and operating speeds.
To ensure safe work is achieved, do not exceed walking pace whilst operating this equipment. Also note the terrain conditions (underfoot and rail conditions). Do not walk on sleepers or the rail head.

WARNING

Electrification can occur if used on live third rail and/or fourth rail.
Do not use equipment on live third rail and/or fourth rail electrification.

WARNING

Injury can occur through incorrect operation of the equipment.
Only operate the equipment for its intended use. Failure to do so may result in injury. Do not ride on or tow the equipment.

Vibration Hazard
Normal and proper use of this equipment will expose the operator to vibration. Vibration exposure may cause and/or contribute to injury throughout the body. Ensure proper procedures are followed for vibration exposure levels to reduce the risk of injury. Refer to Specifications for vibration level data.

Noise Hazard.
Ensure adequate hearing protection is worn whilst using this machinery. High sound levels may cause permanent hearing loss.
Refer to Specifications for noise level data.

5. Equipment Stickers & Tags

Below are the stickers and tags utilised on this equipment.

IDTAG01 – Melvelle Identification Tag

IDTAG02 – Model & Serial No. Tag

IDTAG12 – Emergency Stop Warning Label

LAB0003 – Melvelle Newcastle Sticker

LAB0004 – Melvelle Achieving Excellence Sticker

LAB0006 – Danger – Keep Hands and Feet Clear Sticker

LAB0007 – Danger – Moving Parts Sticker

LAB0008 – Safety Label

LAB0009 – Hydraulic Oil Label

6. Emergency Stop

This machine has been fitted with an Emergency Stop to increase the operational safety of MEC machinery.

Important information about the Emergency Stop:

- The Emergency Stop is designed to stop the engine and hence the work head in Emergency situations

- Dedicated machines have a dedicated Emergency Stop to the power pack – they are wired into the machine

- Trackpacks fitted with a wiring harness will not operate unless a work head with an Emergency Stop is connected and the wiring harness connectors are joined

- The Emergency Stop **WILL NOT OPERATE** unless it is electrically connected to the power pack. For Trackpack heads, if the Trackpack is not fitted with a wiring harness and plug, the Emergency Stop will not work

- The Emergency Stop is not intended to be used for normal stopping of the machinery

7. Introduction

Melvelle Equipment Corp Pty Ltd (MEC) supply Fastclip and Trak-Lok Inserter/Removers to the rail industry. The 164 work head is designed to remove and install Fastclip and Trak-Lok Clips that are used to fasten the rail to sleepers. The 164 has the ability to be used on rail sizes from 47kg/m to 68kg/m rail with Fastclip on concrete sleepers and Trak-Lok clips on steel sleepers.

The 164 work head removes and installs Fastclip and Trak-Lok clips using hydraulic force rather than operator exertion. This significantly improves efficiency and eliminates manual handling hazards associated with installing and removing Fastclip and Trak-Lok clips.

With the floating jaws producing 4 tonne of force even painted or galvanised clips are easily inserted. Working on both sides of the rail simultaneously, the 164 clips/unclips a sleeper in 3 seconds.

The 164 work head is packed with features making it a valuable tool for track maintenance and construction. They include:

- Precisely balanced – only 3-5 kg on operator
- Designated lift point for mechanical lifting
- Easy change over between clipping and unclipping
- Easy access grease points

With safety being Melvelle's 1st priority the 164 workhead has been design with the following safety features:

- Fully guarded – there is no access to pinch or crush points.
- Clips fully restrained during Unclipping
- "Dead Man" lever requiring two-handed operation.
- Emergency stop
- All hydraulic hoses are fitted with hose protection

8. Specifications

8.1. FP-164-TP-FC01 – TRACKPACK WORKHEAD FASTCLIP

Engine	MEC Trackpack
Dimensions	800mm long x 740mm wide x 1060mm high
Weight (wet)	88kg
Pressure (max)	193bar / 2500psi
Pump Flow	Trackpack
Fuel Type	Trackpack
Battery	Trackpack
Hydraulic Oil*	ISO68
Hydraulic Hose Connection Size	½”
Pressure Settings:	
DCV Relief	2200psi
Kickdown Relief	1800psi

8.2. FP-164-TP-TL01 – TRACKPACK WORKHEAD TRAKLOK 2

Engine	MEC Trackpack
Dimensions	800mm long x 740mm wide x 1060mm high
Weight (wet)	90kg
Pressure (max)	193bar / 2500psi
Pump Flow	Trackpack
Fuel Type	Trackpack
Battery	Trackpack
Hydraulic Oil*	ISO68
Hydraulic Hose Connection Size	½”
Pressure Settings:	
DCV Relief	2200psi
Kickdown Relief	1800psi

*The type of hydraulic oil depends on ambient air temperatures. ISO68 is a good, general purpose oil for ambient conditions between 10-30°C. If the ambient temperature is between 0-10°C use the next lighter oil grade. If the ambient temperature is between 30-50°C, use the next heavier oil grade.

9. Operation

9.1. Operating Conditions

The following outlines the duties and conditions for which the equipment is intended to be operated:

- Used on the intended rail line (gauge)
- Used within a possession
- Not to be used on third and/or fourth rail electrification
- Has the ability to be used in all environmental conditions providing the rail is clean and accessible (i.e. snow, extreme heat, etc may be considered hazardous to operation of the equipment)
- Equipment is designed to install & remove Fast clip and Trak-lok 2 clips only.
- Ensure operators are using hearing protection when using this machinery that is applicable to industry standards to reduce noise to acceptable levels
- Ensure operators adhere to industry accepted operating times for vibration exposure levels

9.2. Pre-Operation Checks

Overall Inspection

1. Check that the equipment is free from damage or defects
2. If damaged, DO NOT USE. Contact MEC for repairs

Engine Oil

1. Check the level and quality of the engine oil and add if required
2. If contaminated or old, engine oil will be dark (nearly black)
3. If contaminated with water, engine oil will be a milky colour
4. Refer to manufacturer's instructions for specific data
5. If engine oil contaminated, replace before use

Hydraulic Oil

1. Check the level and quality of the hydraulic oil and add if required
2. Oil level to be just above the centre cone under the filter breather cover by 2-20mm
3. If contaminated, hydraulic oil will be discoloured
4. If contaminated with water, hydraulic oil will be a milky colour
5. If hydraulic oil contaminated, replace before use

Fuel

1. Check the level of fuel and add if required

Battery (if applicable)

1. Visually inspect the condition of the battery
2. Ensure there is no damage, acid levels are OK and the battery leads are free from defects
3. If damaged, replace before use

Light (if applicable)

1. Visually inspect condition and leads of light
2. Ensure there is no damage and leads are free from defects
3. Before starting, ensure the light is off
4. If damaged, replace before use

Hydraulic Hoses & Filter

1. Visually inspect the hoses and filter
2. Ensure there is no damage
3. If damaged, replace before use

Guards

1. Inspect all guards are in place and secure – refer to Further documents for locations
2. Ensure there is no damage
3. If damaged, DO NOT use machinery. Contact MEC for repairs.

Emergency Stop

1. Ensure all electrical plugs are connected.
2. Inspect the wiring and ensure free from damage and defects
3. Ensure all connections are clean and dry.

Braking System

1. Ensure the wiring is connected or the manual pull brake cable is connected to the brake trigger.
2. Ensure the brake trigger is free from damage and moves through its full range of motion.
3. Ensure the brake cable if applicable is free from damage.

9.3. Assembly Procedures

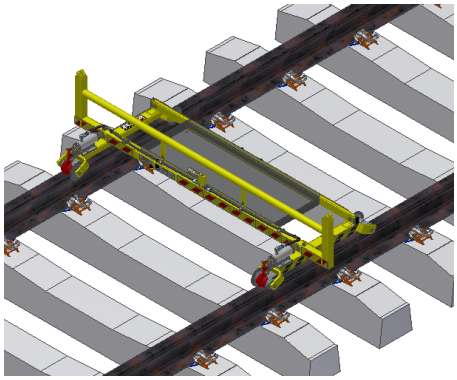
WARNING

Before any assembly and/or maintenance are performed, ensure the work head and engine are off and in a neutral position

9.3.1. Machine Trolley (Braked and Un-Braked)

1. Inspect the trolley and ensure it is not damaged and free from defects, and all pre operation checks are done as per section 9.2

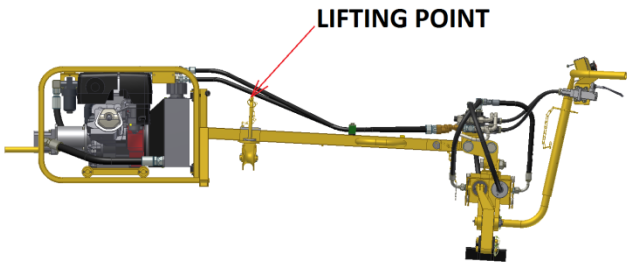
2. The machine trolley weighs approximately 36kg. Using a minimum of 2 people or certified lifting device, lift the trolley onto the rail lines. This can be achieved by lifting from the cross bar (tube).



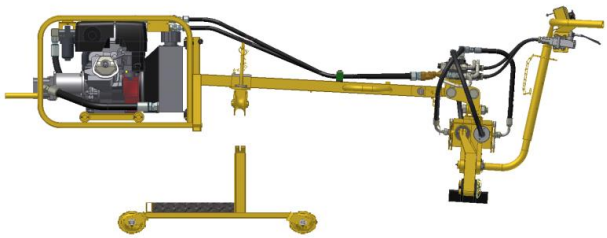
3. Ensure the trolley sits stationary before attaching Trackpack and work head, if braked trolley attach brakes (refer to braked machine trolley operation manual for more information)

9.3.2. Machine Assembly – Dedicated Machine

1. Observe all safety precautions. Ensure the operation is being performed on safe and steady ground (no excessive slopes or dangerous terrain).
2. Inspect the Clipper and ensure they are not damaged and are free from defects.
3. A dedicated Clipper Machine weighs approximately 200kg. Using a certified lifting device (min 250kg), attach slings or a lifting hook to the lifting point on the machine.



4. By following safe lifting procedures, lift the machine onto the trolley. The cross trolley rollers will sit onto the cross bar (tube).



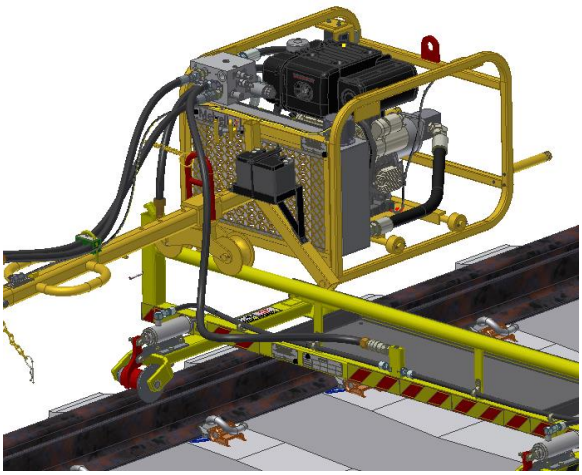
⚠ CAUTION

When placing the machine onto the trolley, ensure hands are clear of the cross trolley rollers and cross bar (tube) as personal injury may occur.

5. By attaching the clipper to the trolley, the head will rest on the ground and stop the trolley from moving.
6. Remove the slings and/or hooks. The machine can now be moved to either rail for use. This is achieved by raising the head off the ground and sliding across the trolley. A second person may be required to assist and push the engine across the trolley.

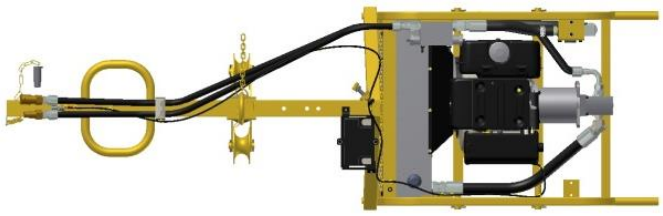
7. Attach the chain to the trolley to ensure the machine will not roll during operation.

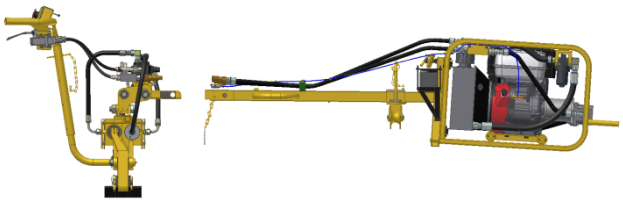
8. Connect the brake hose to the trolley if applicable. The machine is now ready to be used.

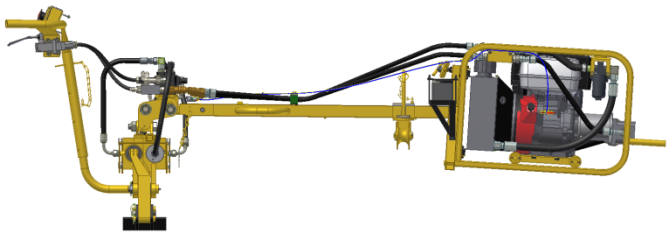


9.3.3. Trackpack Work Head and Power Pack

1. Observe all safety precautions. Ensure the operation is being performed on safe and steady grounding (no excessive slopes or dangerous terrain conditions).
2. Inspect the Fast Clipper Head and Trackpack and ensure they are not damaged and are free from defects.
3. A Trackpack Fast Clipper Head weighs approximately 90 kg and a Trackpack weighs approximately 120kg.
4. Place work head onto the ground (Follow safe lifting procedures)
5. Adjust the pivot position (cross trolley rollers) to the correct position for the machine. For the Fast Clipper this is the second furthest hole from the engine (refer further document drawing for pin locations). Attach slings to the Trackpack.
6. By following safe lifting procedures, lift the Trackpack using slings ensuring it is kept level and easy to move.
7. Guide the Trackpack towards the work head and align the square attachment (hayman-reese style) and slide the items together. Insert the locking pin between the items. Lower the Trackpack to the ground and remove the slings.
8. Connect the hydraulic quick snaps, the electrical plug, and also the manual pull brake cable if fitted to the trackpack.







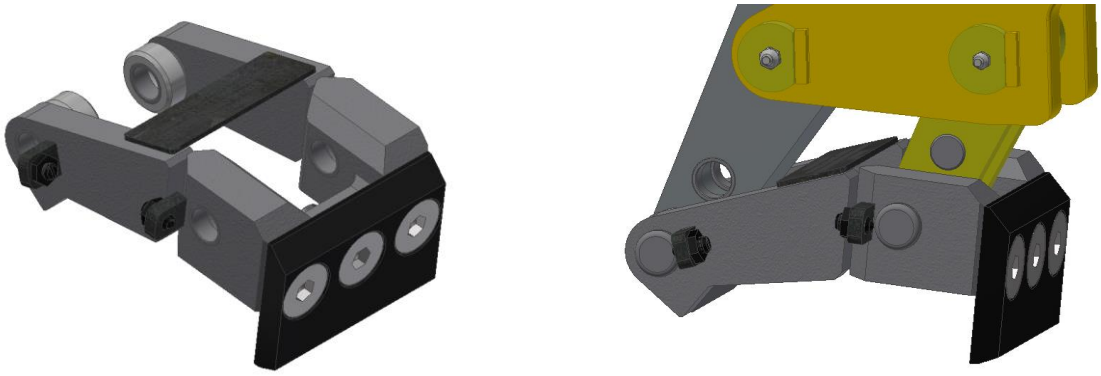
NOTE - This procedure to be used as a guide only. Other methods may be suitable for the connection of Trackpack and Workhead

9.4. FastClip and TrakLok 2 Jaw Selection and Jaw/reaction plate setup

9.4.1. FastClip jaws

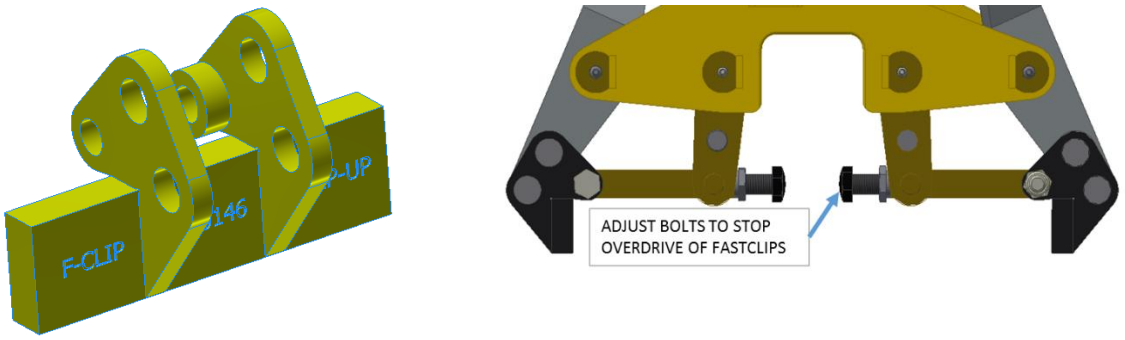
The FastClip Jaws are used to install and remove Pandrol FastClip on concrete sleepers. The amount of insertion of the clip is controlled by the inbuilt stop in the jaws. The stops should allow the clips to be inserted with 1mm clearance to the insulator.

FastClip Un-Clipping Jaws



FastClip Un-Clipping Jaw (41-68kg/m) - MEC Part No. **1640215**
Removable Wear Pad - MEC Part No. **1640106**

FastClip Clipping Jaws – All Rail Sizes



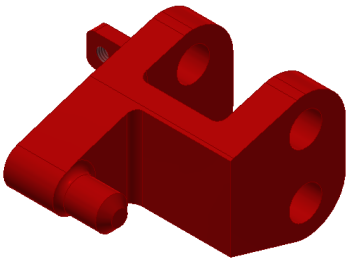
FastClip Clipping Jaw
Suits all rail sizes
MEC Part No. **1640146**

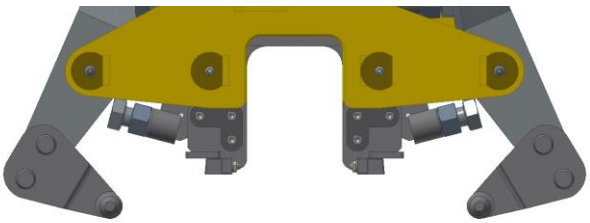
9.4.2. Traklok 2 Clipping and Removal Jaws

The head also has the capabilities of removing and inserting Trak-Lok B296 steel clips on steel sleepers. Regardless of Traklok sleeper/shoulder/insulation arrangements, the same setup is used. Setup changes to the reaction plate is all that is required changing between insulated and non-insulated sleepers.

See section 9.4.3 for setup of reaction plate with Traklok 2.

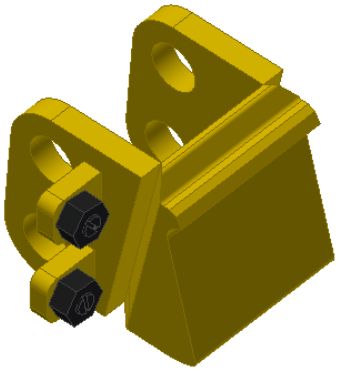
Traklok Un-Clipping – With/without insulation Pads and with/without spacers.

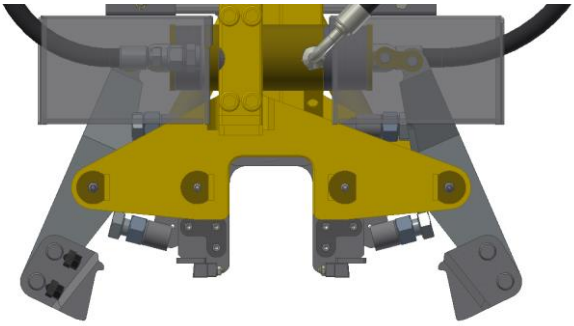




Traklok Unclip Jaw
Suits all rail sizes
MEC Part No. **1640183**

TrakLok Clipping – With/without insulation Pads and with/without spacers.



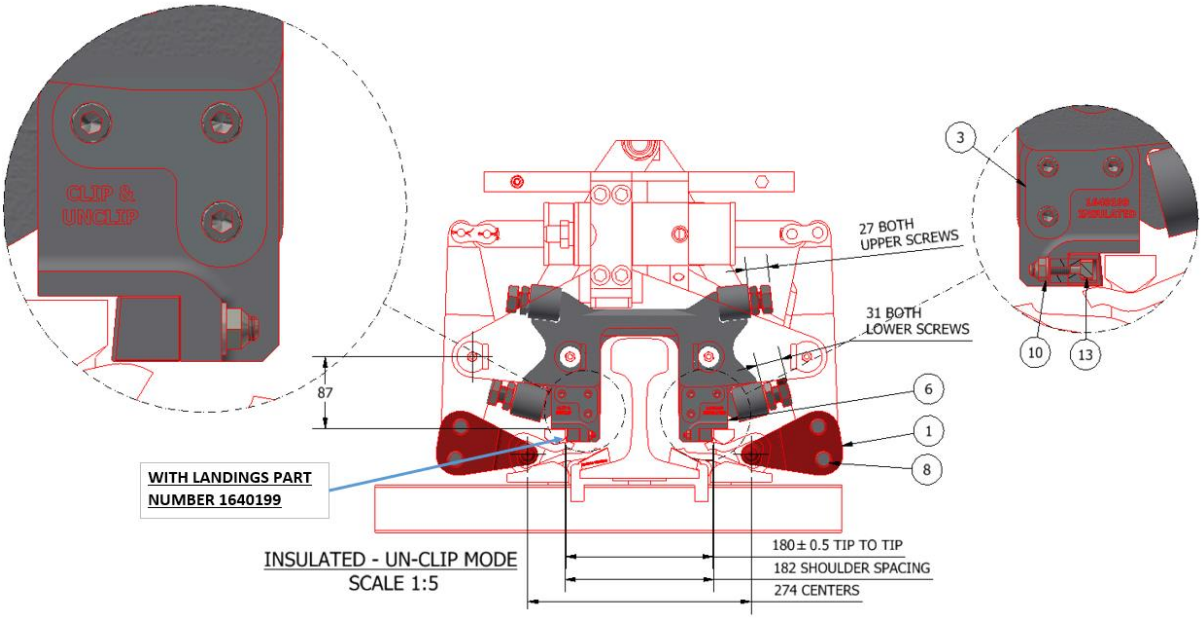


Trak-Lok B296 Steel Clipping Jaw
Suits all rail sizes
MEC Part No. **1640153**

9.4.3. Traklok 2 Reaction plate setup.

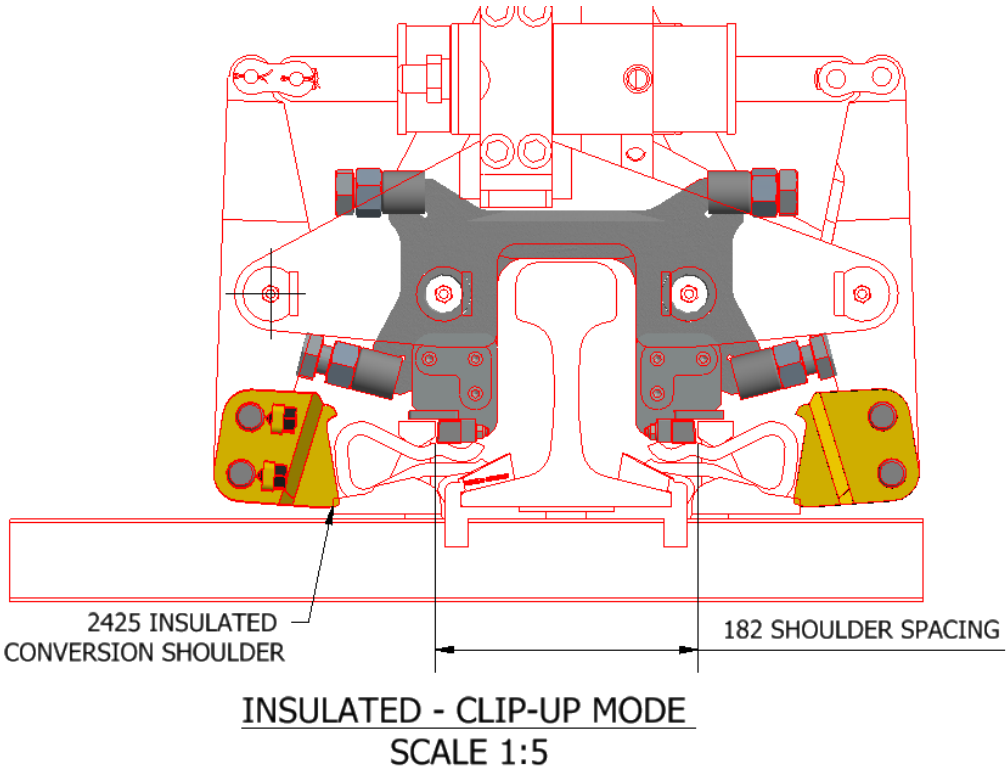
Unclipping insulated. – Refer image below

Ensure the correct landings are fitted and the upper and lower bolts are set to the correct dimensions.



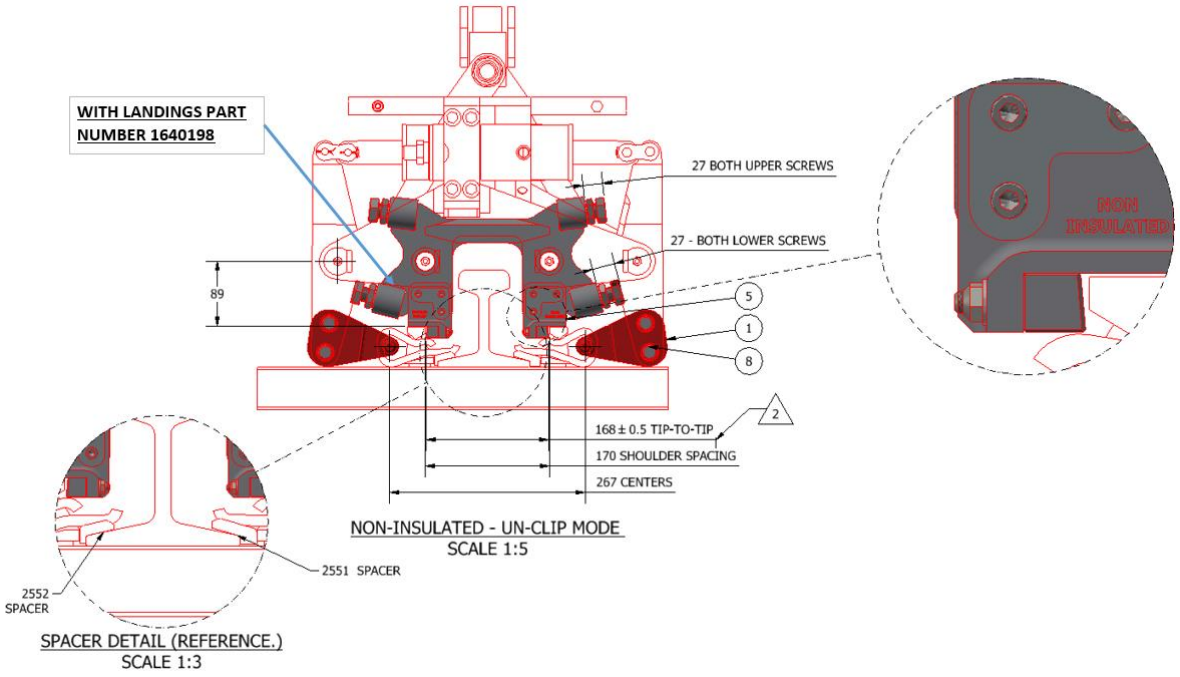
Clipping insulated. – Reaction plate same setup

The landings and bolt dimensions are the same as unclipping above. Only a Jaw change is required.



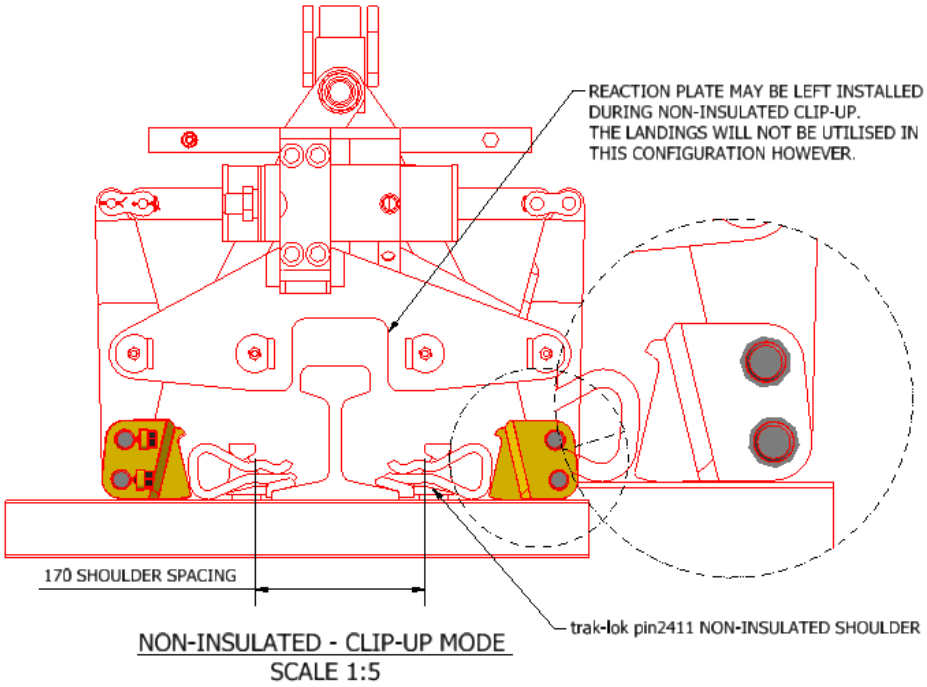
Unclipping Non-insulated. – Refer image below

Ensure the correct landings are fitted and the upper and lower bolts are set to the correct dimensions.



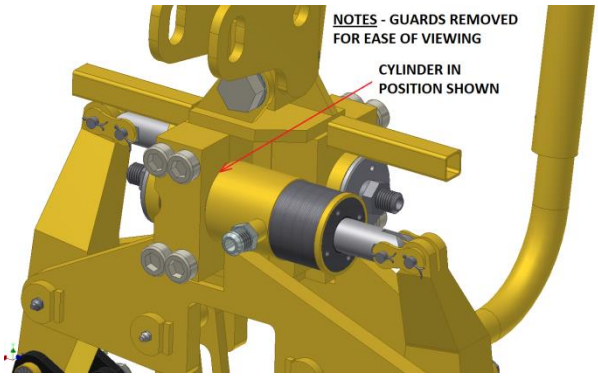
Clipping insulated. – Reaction plate same setup

The landings and bolt dimensions are the same as unclipping above. Only a Jaw change is required.



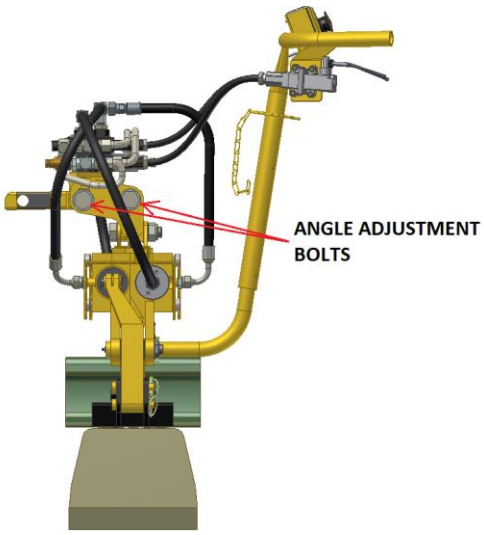
9.4.4. Setting the Jaws – Fast Clip

1. Ensure machinery is off and in neutral position and correctly supported before undertaking any work/adjustment
2. Ensure the machines cylinders are in the correct position with the clamps around the opposite end of cylinder rod.

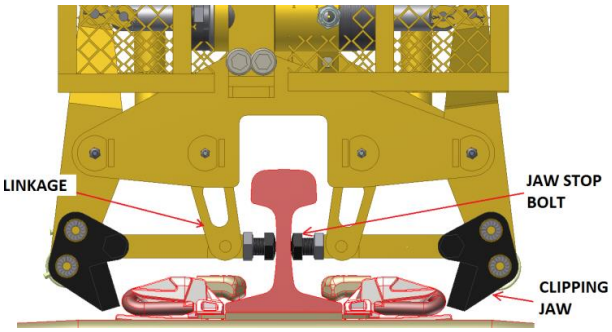


3. Attach the jaws to connecting arms using the two pins in each jaw with the lynch pins securing the pins. Ensure the rest of the linkage and pins are secured and tight. (For jaw selection refer to section 9.4.1 & 0)

4. Set the Entire work head and jaws level with the rail foot. This is done by adjusting the two 1" bolts attached to the main mount bracket. Ensure the work head is sitting on the rail in the correct clipping position and tighten the bolts when the work head is level to the rail.
   Note: When moving to a new size rail the machine has to readjusted to suit the difference in rail height.



5. Set the jaws around a correctly inserted pair of clips. Adjust the jaw stop bolt so that it is touching the web of the rail and lock into place. This ensures the clips are not overdriven.
   Note: When moving to a new size rail with a different foot width the jaw stop bolt has to adjusted.
6. Start the engine (refer starting the engine). By holding the Left Hand (LH) trigger to initiate flow through the circuit, squeeze the Right Hand (RH) trigger to insert the clips. If the jaw stops are properly adjusted, the clips should be inserted with approximately 1mm clearance on the insulator or shoulder



7. Shut down machinery and inspect inserted clips. If inserted correctly, ensure all bolts are tight and replace guards. If inserted incorrectly, repeat steps 5 onwards

Note: Make sure that the clipper head sits parallel with the rail and is not skewed. Make sure that the jaws do not have ballast stone between the jaws and/or clips.

9.5. Operation Procedures

9.5.1. Starting the Engine – Electric Start[1]

1. Observe all safety precautions as per section 4.

2. Ensure all pre-operation checks have been conducted as per section 9.2.

3. Assemble the work head, track pack and trolley as per section 9.3.

4. Ensure Emergency Stop is electrically connected to power pack and not activated.

5. Place the throttle at 50% power.

6. Turn the key to its first position (on position).

7. Press the decompression lever and hold (if Diesel)

8. Turn key to second position (starting position). Hold until engine starts and the release, allowing the key to return to its first position.

    8.1. If Diesel, with the decompression lever pressed, the flywheel will quickly gain momentum (2-3 seconds) as the starter motor is activated.
    8.2. With the engine spinning, release the decompression lever whilst maintaining the key in the start position.
    8.3. The engine will start almost immediately. Once started return key to first position. **Note: if the track-pack has a push button start, ignore key first position steps. Pressing the push button is the same as the key second position**

9. Place throttle in idle (min) position and allow engine to warm up – refer manufacturers manual for required times.

10. Move throttle to required rpm position, normally full throttle[2].

11. Power pack and hydraulic circuit are now in operation and tooling is able to be used.

[1] Refer to engine manual for detailed engine instructions and requirements
[2] During first 50hrs do not exceed 70% maximum rated power

9.5.2. Starting the Engine – Recoil Start[1]

1. Observe all safety precautions as per section 4.
2. Ensure all pre-operation checks have been conducted as per section 9.2.
3. Assemble the workhead, track pack and trolley as per section 9.3.
4. Ensure Emergency Stop if electrically connected to power pack and not activated.
5. Place the throttle at 50% power.
6. Turn the key to its first position (on position) if applicable.
7. Hold the grip and pull the cord until compression is found.
8. Completely rewind the cord (allow to retract).
9. Press the decompression lever (if Diesel).
10. Using two hands, firmly and quickly pull the cord to start.
11. Place throttle in idle (min) position and allow engine to warm up – refer manufacturers manual for required times.
12. Place throttle at required rpm position, normally full throttle[2].
13. Power pack and hydraulic circuit are now in operation and tooling is able to be used.

[1] Refer to engine manual for detailed engine instructions and requirements
[2] During first 50hrs do not exceed 70% maximum rated power

9.5.3. Equipment operation – Fastclip Clipping

1. Observe all safety precautions

2. Ensure all pre-operation checks have been conducted

3. Ensure the clipper is on safe and steady grounding (no excessive slopes or dangerous terrain conditions)

4. Start the engine as per Starting the Engine instructions (listed above)

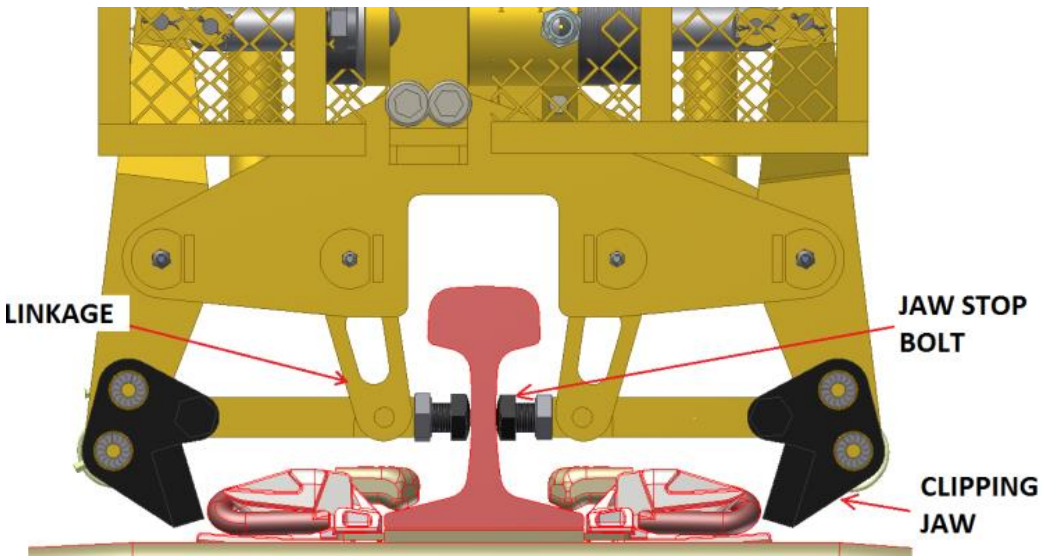
5. Check that the clip has entered the shoulder and is straight.

6. Squeeze and hold the left hand trigger. This will allow the jaws to open.

7. Depress the brake lever to release the brakes and position the workhead over the pair of clips to be inserted. Note you can operate the brake lever as well as the operation triggers.

8. Whilst holding the left hand trigger, squeeze and hold the right hand trigger and ensure the jaws have picked up both clips. The jaws will insert the clips into the sleeper until the jaw stop hits the web of the rail

9. Once the clips are inserted, release the right hand trigger to open the cylinder jaws and move forward to the next set of clips. Release the left hand trigger to place the machine in neutral.
   Note: If you continue holding both triggers after the clips are inserted, the engine will stall.



9.5.4. Equipment operation – Fastclip Un-Clipping

1. Observe all safety precautions.

2. Ensure all pre-operation checks have been conducted.

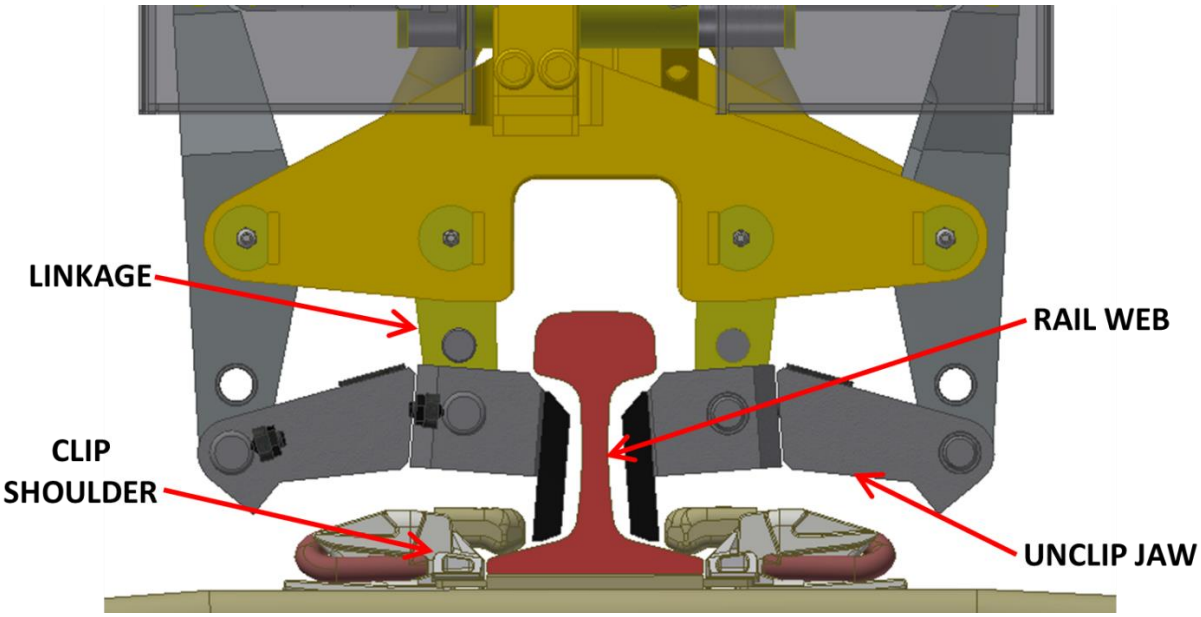
3. Ensure the clipper is on safe and steady grounding (no excessive slopes or dangerous terrain conditions).

4. Start the engine as per Starting the Engine instructions (listed above).

5. Squeeze and hold the left hand trigger. This will allow the jaws to open.

6. Depress the brake lever to release the brakes and position the work head over the pair of clips to be removed.

7. Whilst holding the left hand trigger, squeeze and hold the right hand trigger to move the jaws in. Place the jaws over the clips and release the trigger to remove the clips. The jaws will remove the clips until the jaw hits the sleeper shoulder. Squeeze the right trigger again to move to the next set of clips. Release the left trigger to place the machine in neutral.



9.5.4. Equipment operation – Traklok Clipping

1. Observe all safety precautions.

2. Ensure all pre-operation checks have been conducted.

3. Ensure the clipper is on safe and steady grounding (no excessive slopes or dangerous terrain conditions).

4. Start the engine as per Starting the Engine instructions (listed above).

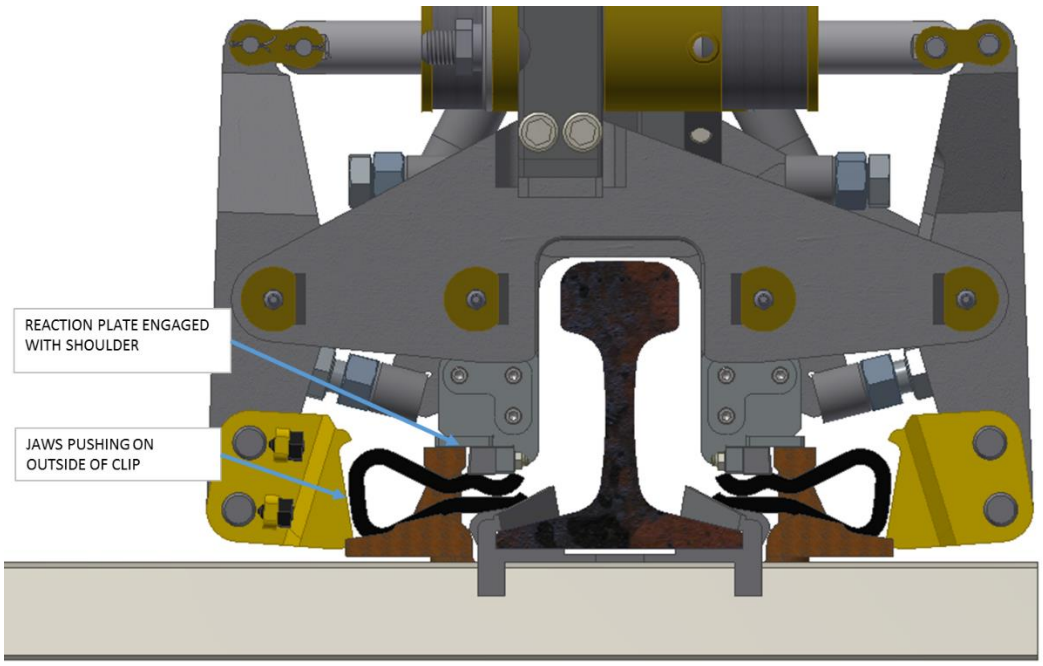
5. Check that the clip has entered the shoulder and is straight.

6. Squeeze and hold the left hand trigger. This will allow the jaws to open.

7. Depress the brake lever to release the brakes and position the work head over the pair of clips to be inserted. Note you can operate the brake lever as well as the operation triggers.

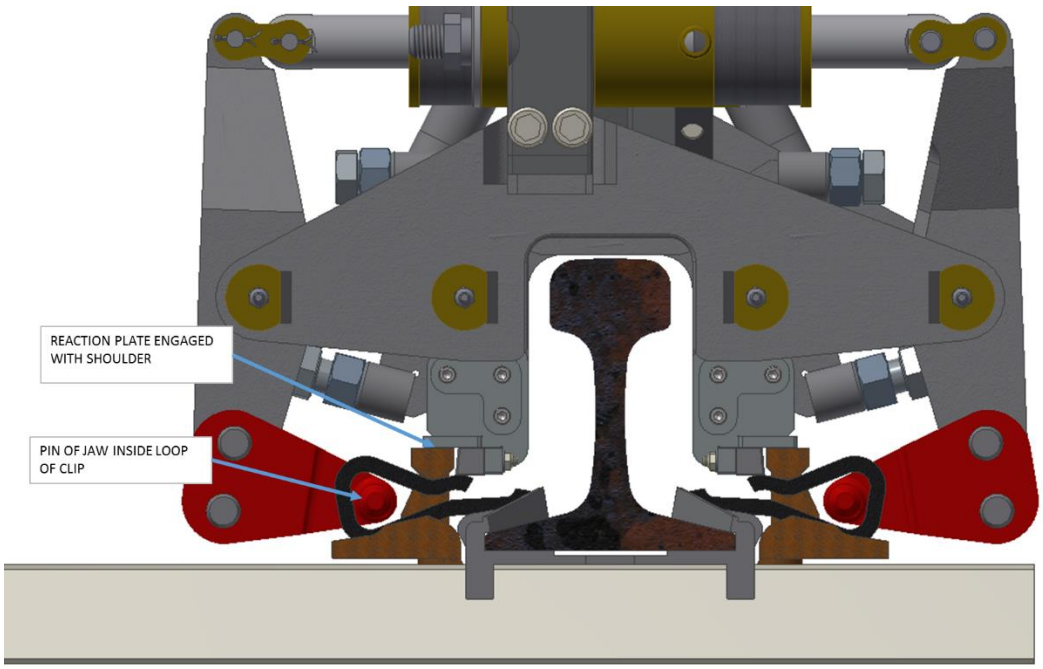
8. Whilst holding the left hand trigger, squeeze and hold the right hand trigger and ensure the jaws have picked up both clips. The jaws will insert the clips into the shoulder.

9. Once the clips are inserted, release the right hand trigger to open the cylinder jaws and move forward to the next set of clips. Release the left hand trigger to place the machine in neutral.



9.5.5. Equipment operation – Traklok Unclipping

1. Observe all safety precautions.
2. Ensure all pre-operation checks have been conducted.
3. Ensure the clipper is on safe and steady grounding (no excessive slopes or dangerous terrain conditions).
4. Start the engine as per Starting the Engine instructions (listed above).
5. Squeeze and hold the left hand trigger. This will allow the jaws to open.
6. Depress the brake lever to release the brakes. Whilst holding the left hand trigger, squeeze and hold the right hand trigger to move the jaws in.
7. Move forward and engage the reaction plate with the shoulders, while watching the jaw pins engage the loop of the Traklok clip.
8. With the jaws fully engaging the clip release the right trigger to remove the clips.
9. Move the machine slightly backwards to allow the clips to fall off the jaws, and then move forward to the next pair of clips. The left hand can be either continuously held during operation or released to place the machine in neutral.



9.5.6. Stopping the Engine

1. Place tooling and power pack to “NEUTRAL” position.
2. Set the engine speed to idle (min) using throttle lever.
3. Turn the ignition key to OFF.

9.5.7. Lifting the machinery

1. DO NOT manually lift machinery.
2. Observe all safety precautions.
3. Ensure all pre-operation checks have been conducted.
4. Attach slings or hooks into lifting points on the machinery – see Further Documents for details.
5. Using a certified lifting device to >250kg, lift the machinery to required position.

10. Equipment Protection & Care

NOTICE

In addition to the Safety Precautions found in this manual and the supporting tool and engine manuals, observe the following for equipment protection and care

- Make sure all couplers are wiped clean before connection
- The hydraulic circuit control valve in “NEUTRAL” position when coupling or uncoupling hydraulic tools. Failure to do so may result in damage to the couplers and cause overheating of the hydraulic system
- Always store hoses coupled together in a ‘loop’ to stop hydraulic lock due to the hoses and hydraulic oil heating
- Always store the clipper in a clean dry space, safe from damage or pilferage
- Make sure the power pack hydraulic circuit PRESSURE hose (male quick disconnect) is connected the PRESSURE hose for the tool (female quick disconnect) and vice versa for the RETURN hoses. Do not reverse circuit flow. This can cause damage to the internal seals of the equipment
- Always replace hoses, couplings and other components with replacement parts recommended by MEC. Hydraulic hoses must have a minimum working pressure of 2500psi
- Always keep critical tool markings such as warning stickers and tags legible
- Power pack repairs and/or service work must only be performed by MEC or certified and authorised dealer
- Do not use the power pack and/or tooling for applications for which it is not intended
- Ensure all bolts are tight and all covers/guards are fitted

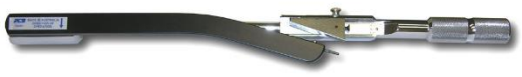
11. Maintenance[1]

WARNING

Before any maintenance of the machine or trolley is performed, ensure the work head and engine are off and in a neutral position. Ensure all potential energy is released from the system (springs, cylinders, etc). Ensure maintenance is performed by a competent and authorised person.

11.1. Tools Required to Complete Maintenance

Below are initial tools required to complete general maintenance tasks. Additional tools may be required.

• Allen Keys (various)	
• Hammer	
• Pin Punch (1/8” or 4mm)	
• Ruler and/or Vernier’s	
• Shifter or	
• Spanners (various)	
• Tension wrench 20-120Nm and sockets	

[1] Refer to engine manual for detailed engine instructions and requirements

11.2. Maintenance Period

REGULAR SERVICE PERIOD* Perform at every indicated month or operating hour interval, whichever comes first.		Each use	Every 1 month or 10hrs	Every 3 months or 50hrs	Every 6 months or 250hrs	Every year or 500hrs
ITEM						
Engine oil	Check level	X				
	Change			X (1)	X	
Engine oil filter	Change			X (1)		X
Fuel lines	Check		X			
Fuel Filter	Change					X
Air cleaner	Clean		X			
Engine cooling fins	Clean					X
Rocker arms clearance	Check & set					X (2)
Injectors	Clean & set					X (2)
Hydraulic oil Filter	Change			X (1)	X	
Hydraulic oil	Check	X				
	Change				X	
Hydraulic hoses	Check	X				
	Check/Change					X (3)
Hydraulic pump	Check			X (1)		X (4)
Battery	Check	X				
Grease Nipples	Fill			X		
Jaws	Check	X				
Guards	Check	X				

*If heavy machine use, the service period may be less.

(1) First 50 hrs of use
(2) Only to be performed by MEC or certified and authorised dealer.
(3) A thorough inspection is required. If hoses undamaged, may leave in service. However, replace hoses every 3 years of operation.
(4) Flow and Pressure Check

12. Troubleshooting[1]

PROBLEM	POSSIBLE CAUSE	CORRECTION
Engine won't start	Refer to engine manual for details	
	Battery charge low	Charge battery
	Battery connections loose/not attached	Check battery connections
	No engine oil	Check engine oil
	No fuel	Check fuel quantity
	Fuel filter blocked	Check fuel filter
	Fuel solenoid is off	Check fuel solenoid position
	Emergency stop not connected	Connect emergency stop
No hydraulic oil flow/little flow	No hydraulic oil	Check hydraulic oil level
	Operation lever in neutral	Check operation lever position
	Couplers or hoses blocked	Remove restriction
	Filter Blocked or Old	Replace filter
	Hoses leaking	Check hoses
	Pump damaged	Check pump
Hydraulic oil overheating	Air obstruction	Remove obstruction to ensure sufficient air flow around heat exchanger
	Incorrect oil for operating temperature	Replace oil with correct grade for operating conditions
	Dirty/old oil	Replace oil
	Tool valve closed	Change tool or valve to 'open centre'
Unable to connect hoses	Oil temperature and pressure increase in hoses	Allow hoses to cool
	Operation lever in operation position	Place lever in neutral
Emergency Stop does not work	Emergency Stop not connected to the machine	Connect Emergency Stop to the power pack
	Wiring and/or connections damaged	Inspect wiring and replace damaged parts
	Switch Damaged	Check/Replace switch
Machine does not fully insert clips	Low hydraulic pressure (see above)	See above (No hydraulic oil flow/little flow)
	Incorrect jaws for clip type	Change jaws as per jaw selection page
	Jaw stops incorrectly adjusted	Adjust stops as per setting jaws
Machine does not remove clips	Low hydraulic pressure (see above)	See above (No hydraulic oil flow/little flow)
	Incorrect jaws for clip type and size of rail	Change jaws as per jaw selection page
	Incorrect machine adjustment e.g. Angle and alignment	Align machine correctly and ensure correctly adjusted(refer pre operation checks)

[1] Refer to engine manual for detailed engine instructions and requirements

13. Further Documents

Please refer to the further documents within for drawing, risk assessment and other related information.

Further documents for the 164 Pandrol Fastclipper:

Document No.	Description	Type
164-OPRA	Operational Risk Assessment	Document
143-48	Trackpack Boom Adjustment	Drawing
164-121	Hydraulic Circuit Diagram	Drawing
164-126	Main Cylinder Assembly	Drawing
164-148	Fast Clipper Quick Change Work Head	Drawing
164-149	Fast Clipper Trackpack Head	Drawing
164-179	Traklok 2 Reaction Plate Setup	Drawing
164-203	Fastclip trackpack Head	Drawing
164-204	Traklok 2 Trackpack Head	Drawing
164-233	Trolley To Powerpack Attachment	Drawing
164-234	Workhead To Trackpack Attachment	Drawing

13.1. Operational Risk Assessment

	Machine: FP-164								Form No.: :	
	ABN								Issue Date	8/12/2011
									Version:	0

Company	**MELVELLE EQUIPMENT CORP**	**Department / Workplace:**	**Melvelle Offices**	**Date of Assessment 14/11/2011**	**Commenced:**	9am	**Completed:**	12md

Scope of Assessment: Identify the risks and hazards associated with the operation of a rail maintenance machine to remove rusted pandrol e-clips from in situ tracks.

Names of Risk Assessment Team: Gary Morris, Adrian Gersbach	**Names of additional personnel consulted during Risk Assessment:**	**Identified limitations of risk assessment: Only applies to risks identified as part of the operation of the machine.**
		Information Sources / References: AS4024.1-2006 Safety of Machinery, AS4024-2601-Two Handed Control Device

RISK ASSESSMENT MATRIX

Potential Consequences			**Likelihood**				
			Almost Certain	**Likely**	**Possible**	**Unlikely**	**Rare**
Keyword	**Description Safety Health & Hygiene**	**Description Environmental**	*Expected to occur*	*Will occur occasionally*	*May Occur*	*Not expected to occur*	*Requires unusual chain of events*
Minor	First Aid Injury	On-site release immediately contained with business unit resources	**Medium 8**	**Medium 7**	**Low 3**	**Low 2**	**Low 1**
Significant	Medical Treated Injury or illness	On-site release or offsite release immediately contained with smelter resources	**High 14**	**Medium 10**	**Medium 9**	**Low 5**	**Low 4**
Serious	Lost Time Injury or illness	Off-site release causing nuisance or community complaint. Breach of license condition	**High 16**	**High 15**	**Medium 12**	**Medium 11**	**Low 6**
Severe	Fatality or Permanently disabling injury of illness	Off-site release with detrimental impact to environment or community. Repeated breach of license conditions	**Extreme 24**	**Extreme 22**	**High 20**	**High 18**	**Medium 13**
Disastrous	Multiple Fatalities or work-related fatal diseases	Toxic release off-site with detrimental impact to environment or community	**Extreme 25**	**Extreme 23**	**Extreme 21**	**High 19**	**High 17**

LEGEND	**ACTION REQUIRED**	**NOTIFY**
LOW 1-6	Tolerable - Manage by Routine Procedures	
MEDIUM 7-13	Risk reduction required to "As low as Reasonably Practicable" ALARP	Design Team/Engineer
HIGH 14-20	Immediate action required to reduce risk. Authorisation required before proceeding on task	CEO
EXTREME 21 25	Intolerable. Cease activity until controls in place to reduce risk. Immediate & urgent Senior Management Team action required	CEO

MANAGEMENT ACTIONS	
Comments	Refer to Action Plan
Risk Assessment Referred to:	Design Team
Risk Assessment Accepted by:	Andrew Melvelle
Risk Assessment findings recorded in the Project Design Folder	Design Team
Risk Assessment Findings communicated to:	Design Team, Melvelle Equipment Corp.

		Raw Risk Rating (no controls)				Residual Risk Rating (after controls)					
Ref no	Description / hazard / risk	Consequence (no controls)	Likelihood	Risk Level & Score	Controls	Consequence	Likelihood	Risk Level & Score	Is Risk Tolerable Y/N	Additional Controls Req	Action By / Name & date required
	Manual lifting of machine or segments of machine is dangerous to the operators back, and other areas	Serious	Likely	15	Use of lifting points for machines(crane) to lift the machine. No person to lift any machine at all	Serious	Rare	6	Y	Document lifting points	
	Weight at handles through incorrect trackpack setup causing strain on operator (trackpack only)	Significant	Likely	10	Correctly adjust trackpack pin location. Details shown in manual	Significant	Rare	4	Y	Documented in trackpack manual	
	Machine handles too low/high causing injury	Significant	Possible	9	Handles adjusted to the correct height. Procedure shown in manual	Significant	Rare	4	Y	Procedure shown in manual	
	Fluid levels too high causing overflow and low causing machine damage	Significant	Likely	10	Pre-start checklist requiring operator to check fluid levels before operating machine	Significant	Rare	4	Y	Pre start checklist	
	Exposure to hazardous materials such as fuel and oils	Significant	Likely	10	Hazardous material documentation in MSDS.	Significant	Rare	4	Y	MSDS	
	Fueling the fuel tank can lead to explosions, fires, and dangerous fumes being inhaled	Serious	Possible	12	Engine must only be re-filled when the power pack is stopped and in well ventilated area	Serious	Rare	6	Y		
	Injury can occur through connection of quick snap connections	Minor	Possible	3	Must be connected parellel to each other.	Minor	Rare	1	Y		
	Setting of height and backstops can lead to injury	Serious	Likely	15	Ensure machine is turned off and deadman employed. Use of manuals and procedures	Serious	Rare	6	Y	Procedure/manual	
	General machine operation	Significant	Likely	10	Procedures developed such as prestart checklist	Significant	Rare	4	Y	Pre start checklist	
	Injury through oil injection through hydraulic failure	Serious	Possible	12	Checking of all hydraulics eg Hose's for damage	Serious	Rare	6	Y	Procedure on hose checks	
	Loud noise from engine and machine causing permanent hearing damage	Serious	Likely	15	Manufacturer specifications rate the motor at 94dba at 1m.Motor fitted with muffler. Operator required to wear hearing protection.	Serious	Unlikely	11	Y		

		Raw Risk Rating (no controls)				Residual Risk Rating (after controls)					
Ref no	Description / hazard / risk	Consequence (no controls)	Likelihood	Risk Level & Score	Controls	Consequence	Likelihood	Risk Level & Score	Is Risk Tolerable Y/N	Additional Controls Req	Action By / Name & date required
	Serious burns can occur through the touching of hot surfaces	Significant	Likely	10	Include warning signs. Include warnings in training and operating manuals.	Significant	Unlikely	5	Y	Warning sticker list	
	Battery contains corrosive material. Operator can be exposed to injury from battery acid spills	Serious	Possible	12	Batteries securely mounted.Wear protective clothing when handling battery.	Serious	Rare	6	Y		
	Trip hazard through ballast and loose items on rail way	Significant	Likely	10	Correct training in railway safety	Significant	rare	4	Y	Railway Safety	
	Crushing injury through falling machine if incorrectly supported	Serious	Likely	15	Correctly secured to rail trolley and powerpack (if applicabe)	Serious	Rare	6	Y		
	Pinch points exist through the connection of power pack to trolley and powerpack to work head	Significant	Possible	9	Procedure shown on connection of powerpack, trolley, and work head. Gloves to be worn	Significant	Unlikely	5	Y	procedure shown in connection of items	
	Injury through crushing during clip extraction	Serious	Possible	9	Guarding of moving parts and pinch points, Use of 2 handed controls meaning hands are at a safe area, Training of pinch areas in manual	Serious	Rare	6	Y		
	Injury Through clip projectile	Significant	Possible	9	Guarding of Clip extraction Area	Significant	Rare	4	Y		
	Injury through Kicking of machine under incorrect alignment	Minor	Likely	7	Correct training in machine use through manual	Minor	Unlikely	2	Y		
	Hitting of ballast by machine causing projectiles	Minor	Likely	7	Guarding of machine. Adequate cleaning of ballast through use of manual	Minor	Unlikely	2	Y		
	Pinch points on cylinder and pilot valve	Significant	Possible	9	Guarding of cylinder pich points. Gloves to be worn. Training in operation of machinery	Significant	Unlikely	5	Y		
	Injury through use of incorrect tools	Minor	Likely	7	Enure correct tools are being used through experinced tradesperson	Minor	Rare	1	Y	Ensure manual is supplied in dispatch	

13.2. Trolley to Power Pack Attachment

1 OF 1	MAIN SHEET
SHEET #	SHEET DESCRIPTION

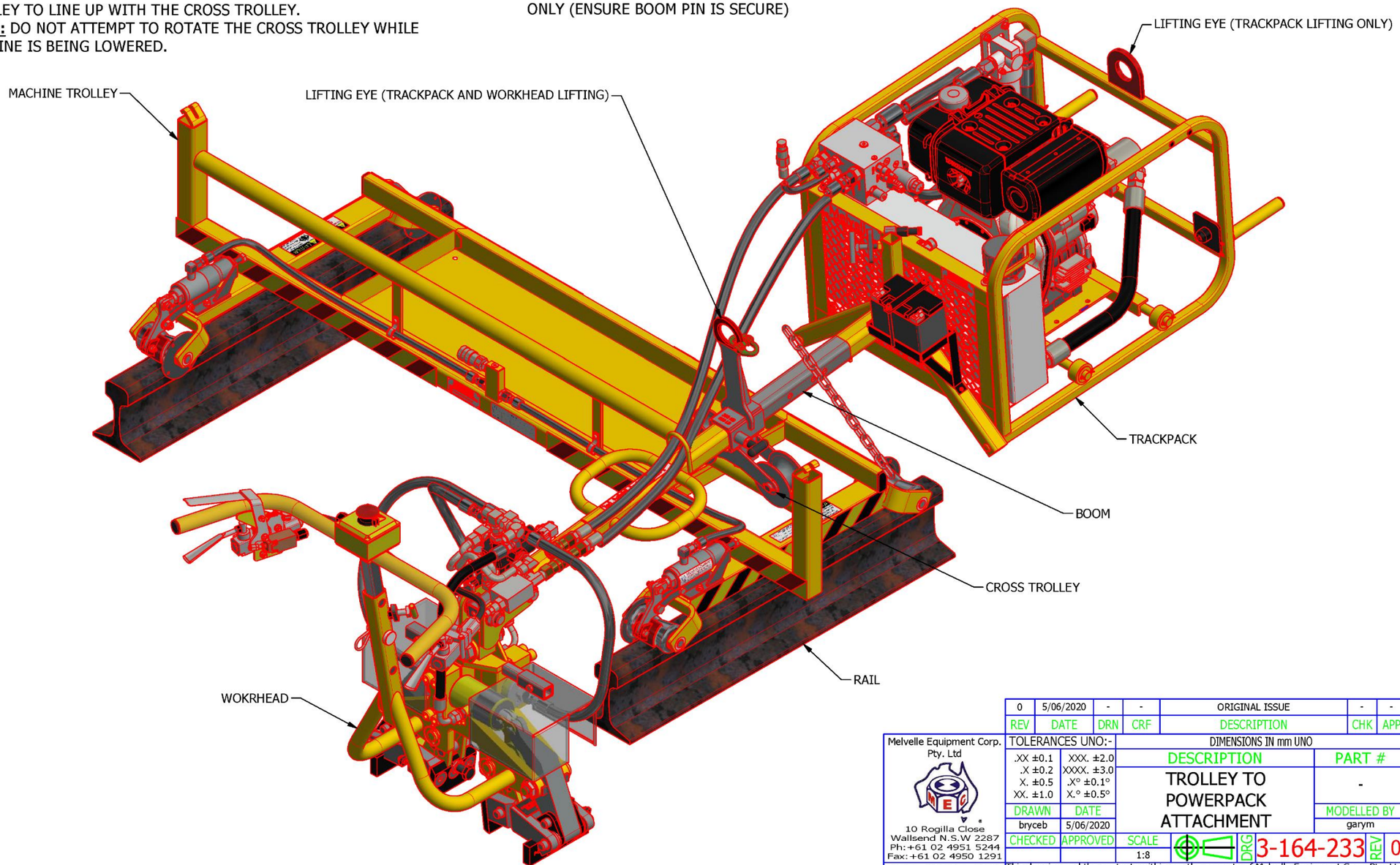
LOWERING POWERPACK AND WORKHEAD ONTO TROLLEY

1. PLACE TROLLEY ONTO RAIL.
2. LIFT POWERPACK AND WORKHEAD BY LIFTING EYE AS SHOWN.
3. ROTATE CROSS TROLLEY UNTIL SQUARE WITH BOOM.
4. SLOWLY LOWER THE ASSEMBLY DOWN AND MOVE THE BASE TROLLEY TO LINE UP WITH THE CROSS TROLLEY.

NOTE: DO NOT ATTEMPT TO ROTATE THE CROSS TROLLEY WHILE MACHINE IS BEING LOWERED.

NOTE

*SAME LIFTING PROCEDURE USED REGARDLESS OF WORKHEAD BEING USED
*WHEN LIFTING COMBINE WORKHEAD AND TRACKPACK LIFT FROM CENTRE EYE ONLY (ENSURE BOOM PIN IS SECURE)



REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/06/2020	-	-	ORIGINAL ISSUE	-	-

Melvelle Equipment Corp. Pty. Ltd
10 Rogilla Close
Wallsend N.S.W 2287
Ph:+61 02 4951 5244
Fax:+61 02 4950 1291

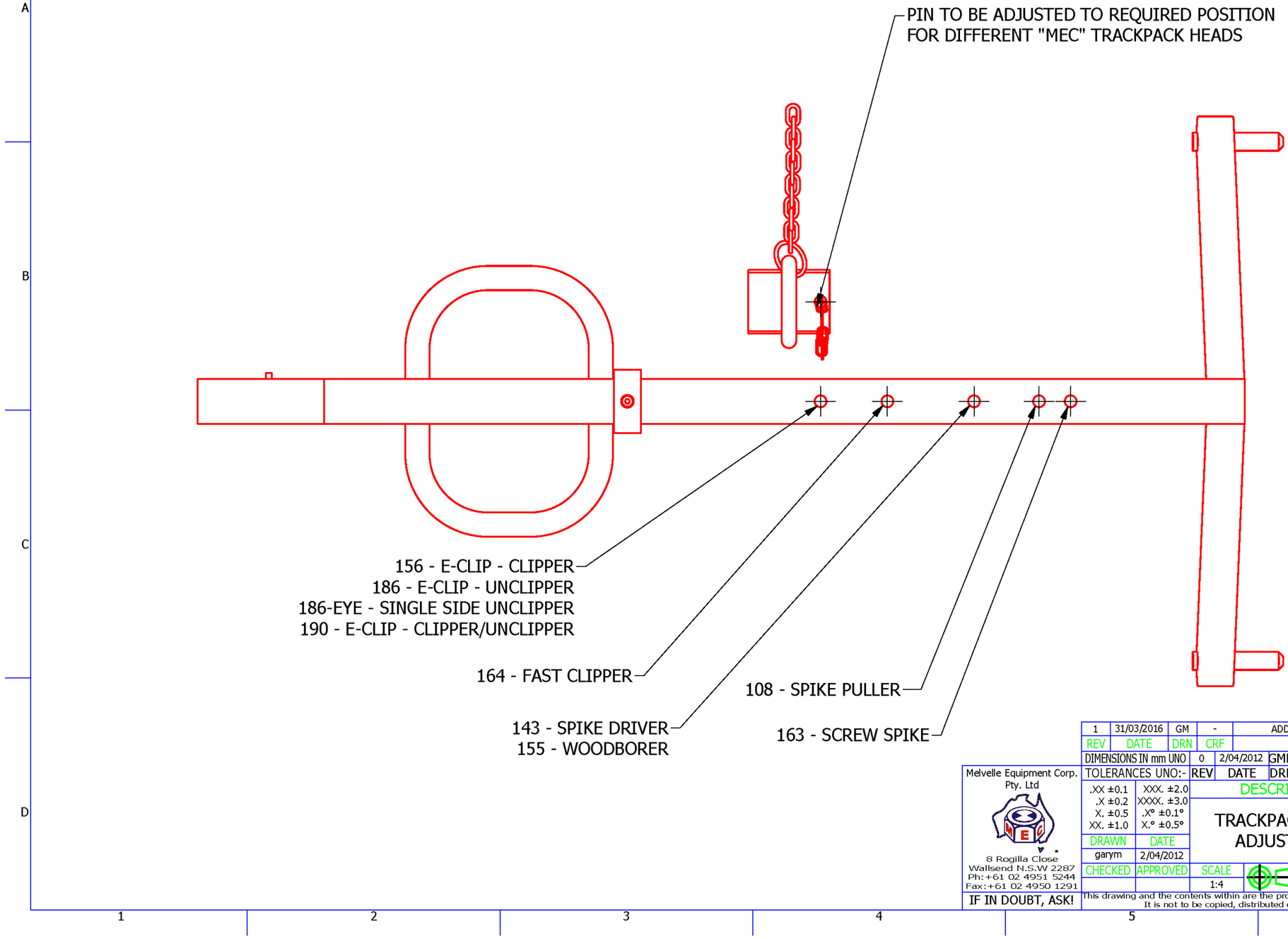
IF IN DOUBT, ASK!

TOLERANCES UNO:-
.XX ±0.1 XXX. ±2.0
.X ±0.2 XXXX. ±3.0
X. ±0.5 .X° ±0.1°
XX. ±1.0 X.° ±0.5°

DIMENSIONS IN mm UNO

DESCRIPTION	PART #
TROLLEY TO POWERPACK ATTACHMENT	-
DRAWN: bryceb — DATE: 5/06/2020	MODELLED BY: garym
CHECKED — APPROVED — SCALE: 1:8	DRG: 3-164-233 — REV: 0

13.3. Trackpack Boom Adjustment



REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
1	31/03/2016	GM	-	ADDED 186-EYE AND 190	BMD	BMD
DIMENSIONS IN mm UNO			0	2/04/2012 GMM ORIGINAL ISSUE		

Melvelle Equipment Corp. Pty. Ltd
8 Rogilla Close
Wallsend N.S.W 2287
Ph:+61 02 4951 5244
Fax:+61 02 4950 1291
IF IN DOUBT, ASK!

TOLERANCES UNO:-
.XX ±0.1 XXX. ±2.0
.X ±0.2 XXXX. ±3.0
X. ±0.5 .X° ±0.1°
XX. ±1.0 X.° ±0.5°

DESCRIPTION: TRACKPACK BOOM ADJUSTMENT
PART #:
DRAWN: garym
DATE: 2/04/2012
MODELLED BY: GaryM
CHECKED:
APPROVED:
SCALE: 1:4
DRG: 3-143-48
REV: 1

13.4. Workhead to Trackpack Attachment

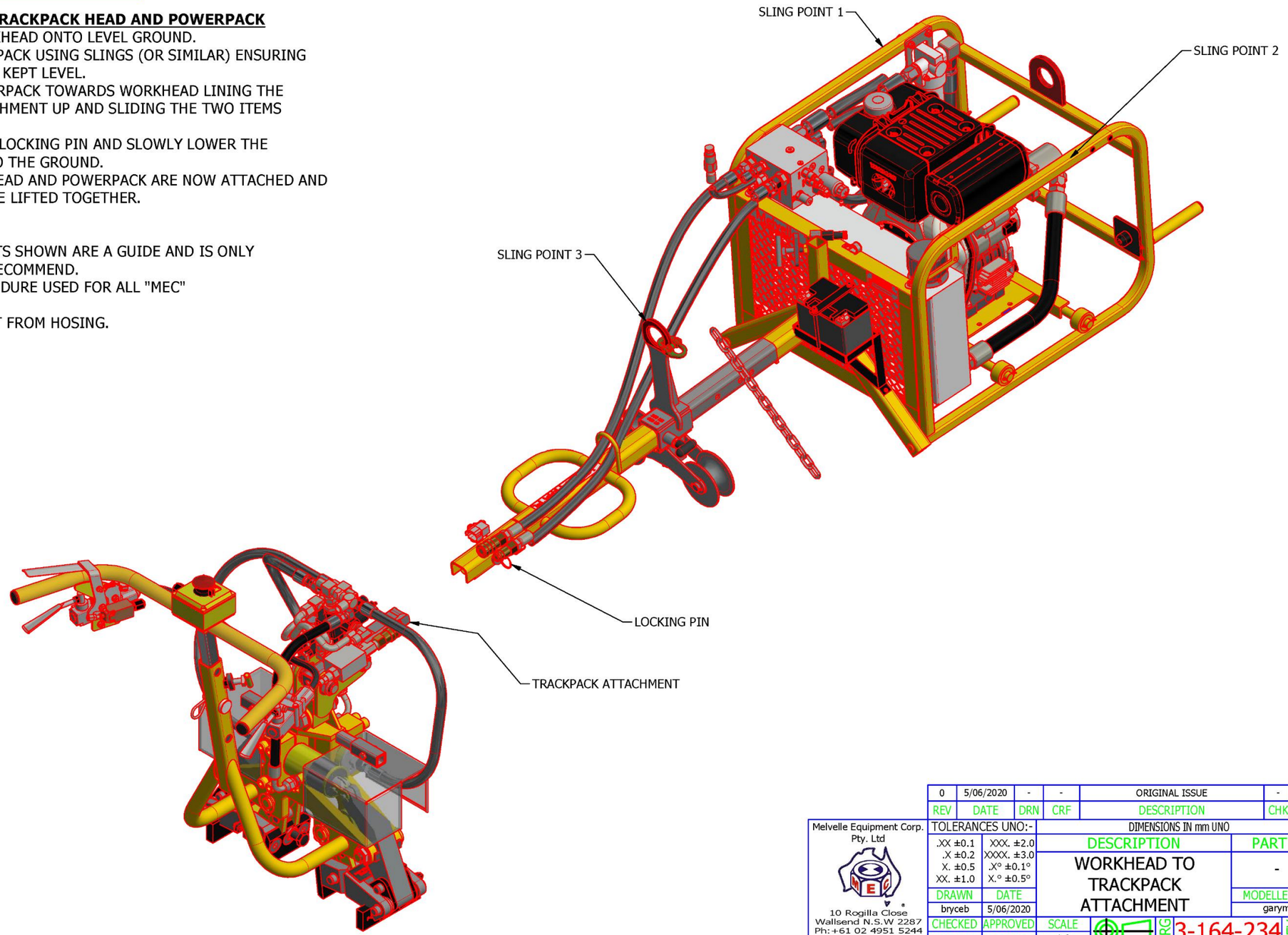
1 OF 1	MAIN SHEET
SHEET #	SHEET DESCRIPTION

ATTACHING TRACKPACK HEAD AND POWERPACK

1. PLACE WORKHEAD ONTO LEVEL GROUND.
2. LIFT POWERPACK USING SLINGS (OR SIMILAR) ENSURING POWERPACK IS KEPT LEVEL.
3. GUIDE POWERPACK TOWARDS WORKHEAD LINING THE SQUARE ATTACHMENT UP AND SLIDING THE TWO ITEMS TOGETHER.
4. INSERT THE LOCKING PIN AND SLOWLY LOWER THE POWERPACK TO THE GROUND.
5. THE WORKHEAD AND POWERPACK ARE NOW ATTACHED AND ARE FREE TO BE LIFTED TOGETHER.

NOTE:

1) SLING POINTS SHOWN ARE A GUIDE AND IS ONLY WHAT "MEC" RECOMMEND.
2) SAME PROCEDURE USED FOR ALL "MEC" WORKHEADS.
3) DO NOT LIFT FROM HOSING.



REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/06/2020	-	-	ORIGINAL ISSUE	-	-

Melvelle Equipment Corp. Pty. Ltd
10 Rogilla Close
Wallsend N.S.W 2287
Ph:+61 02 4951 5244
Fax:+61 02 4950 1291
IF IN DOUBT, ASK!

TOLERANCES UNO:-
.XX ±0.1 XXX. ±2.0
.X ±0.2 XXXX. ±3.0
X. ±0.5 .X° ±0.1°
XX. ±1.0 X.° ±0.5°

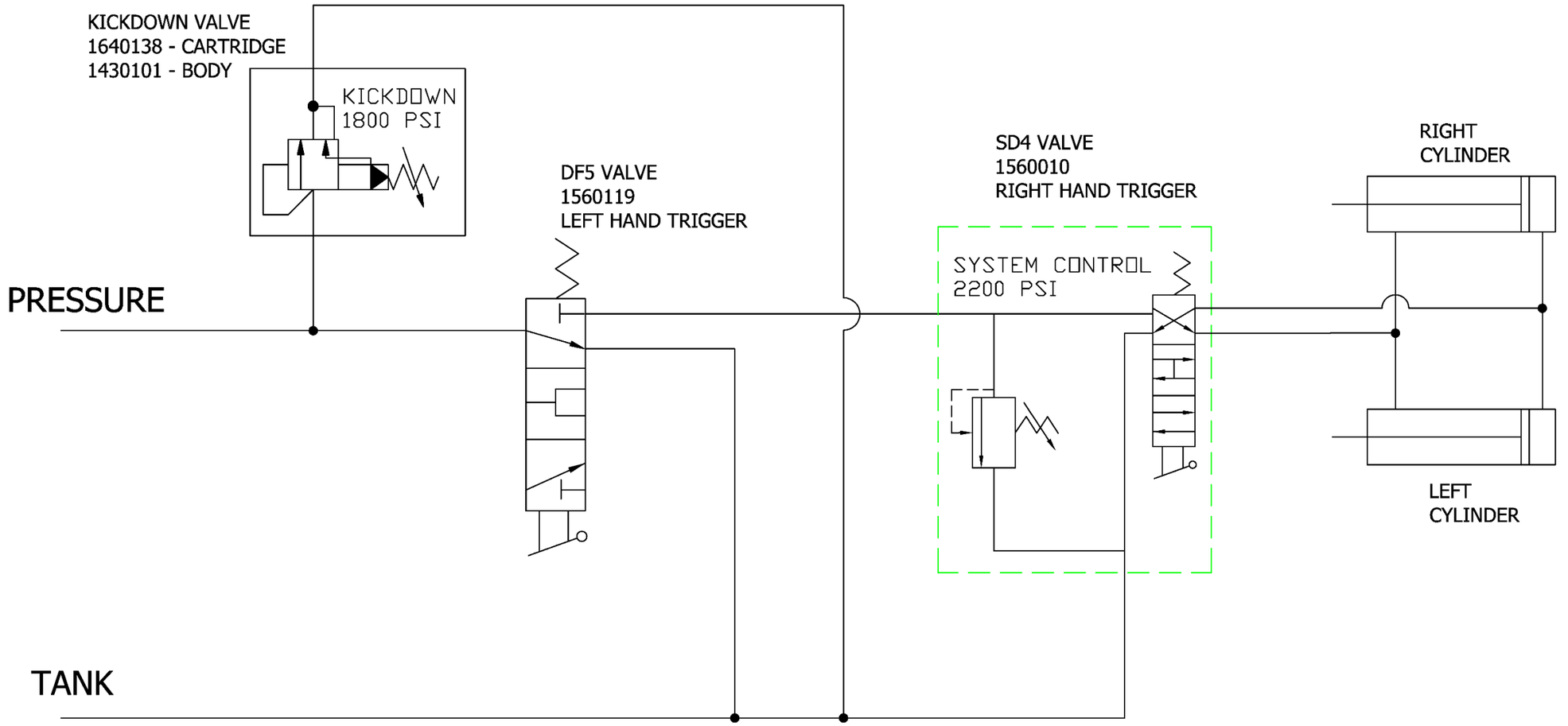
DIMENSIONS IN mm UNO

DESCRIPTION	PART #
WORKHEAD TO TRACKPACK ATTACHMENT	-

DRAWN	DATE	MODELLED BY
bryceb	5/06/2020	garym

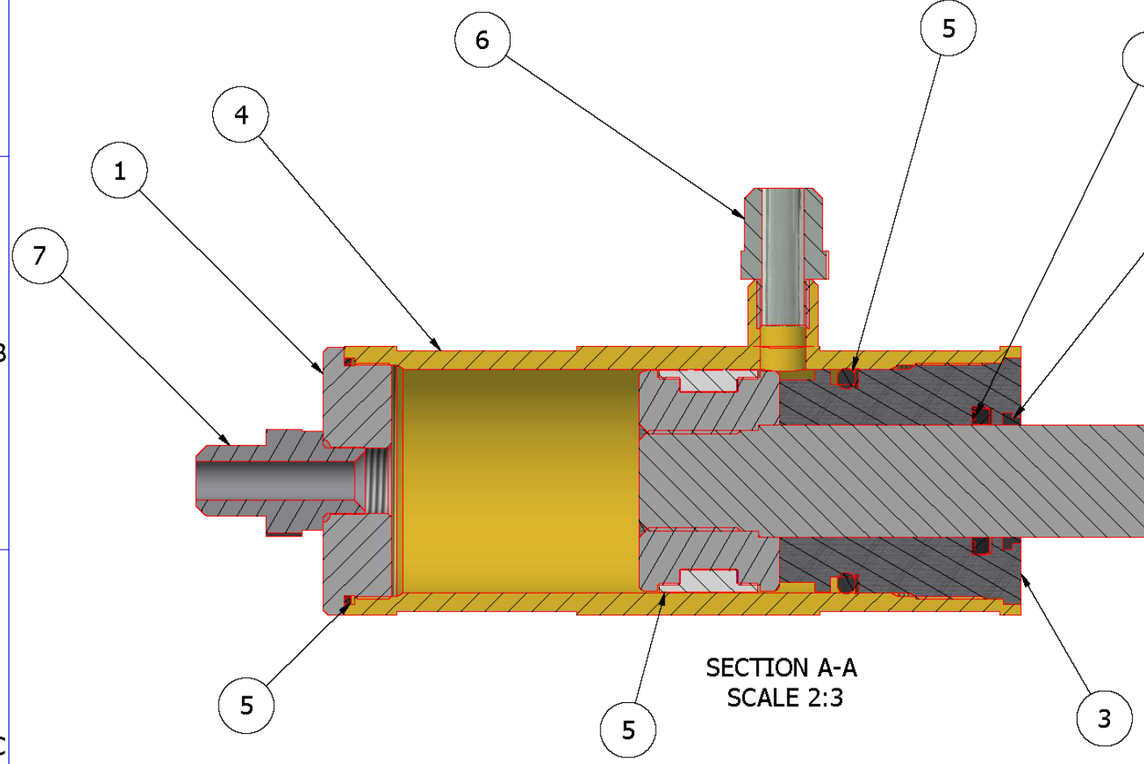
CHECKED	APPROVED	SCALE	DRG	REV
		1:8	3-164-234	0

13.5. Hydraulic Circuit Diagram

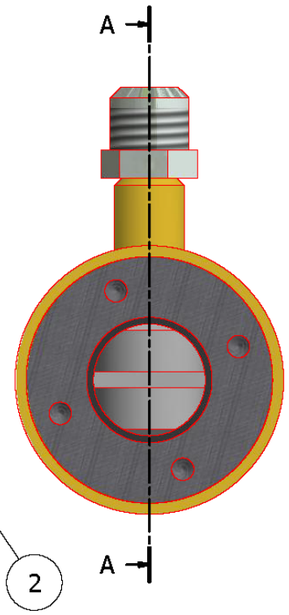


Melvelle Equipment Corp. Pty. Ltd.	DIMENSIONS IN mm UNO	0		GM	ORIGINAL ISSUE
8 Rogilla Close Wallsend N.S.W. 2287 Ph: +61 02 4951 5244 Fax: +61 02 4950 1291	TOLERENCES UNO:-	REV	DATE	DRN	DESCRIPTION
IF IN DOUBT, ASK!	.XX ±0.1 / .X ±0.2 / X. ±0.5 / XX. ±1.0 — XXX. ±2.0 / XXXX. ±3.0 / .X° ±0.1° / X.° ±0.5°	DESCRIPTION: 164 FASTCLIPPER HYDRAULIC CIRCUIT DIAGRAM			PART#: FP-164
	DRAWN: GMM	DATE: 17-10-12			AUTOCAD DRAWING
	CHECKED	APPROVED	SCALE: NTS	DRG: 3-164-121	REV: 0
	This drawing and the contents within are the property of Melvelle Equipment Corp. Pty. Ltd. It is not to be copied, distributed or used in any other manner than that intended.				

13.6. Main Cylinder Assembly (1640119)



SECTION A-A
SCALE 2:3



ITEM	QTY	DESCRIPTION	PART NUMBER
7	1	NIPPLE 1/2"BSPP X 7/8"JIC	CP2-0814
6	1	NIPPLE 3/8"BSPT X 7/8"JIC	CB2-0614
5	1	FAST CLIPPER CYLINDER SEAL KIT 2 PER M/C	1640118
4	1	CYLINDER - FC-HINGED - TUBE ONLY	1640083
3	1	CYLINDER GLAND	1640080
2	1	PISTON & ROD WELDED	1640048
1	1	CYLINDER BLIND END	1450107

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	22/07/2015	-	-	ORIGINAL ISSUE	-	-

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TOLERANCES UNO:-
.XX ±0.1 XXX. ±2.0
.X ±0.2 XXXX. ±3.0
X. ±0.5 .X° ±0.1°
XX. ±1.0 X.° ±0.5°

DIMENSIONS IN mm UNO

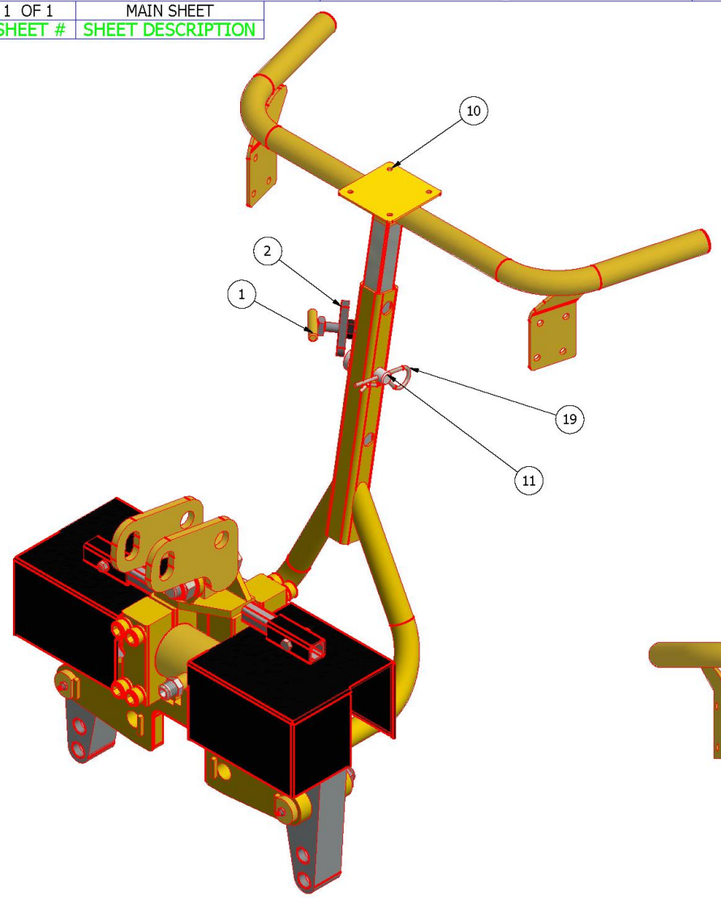
DESCRIPTION	PART #
CYLINDER ASSEMBLY	1640119
	MODELLED BY: GaryM

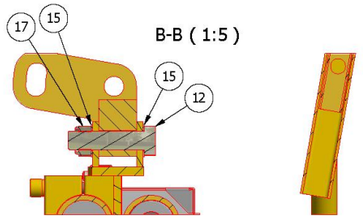
DRAWN	DATE	SCALE	DRG	REV
garym	22/07/2015	2:3	3-164-126	0

CHECKED APPROVED

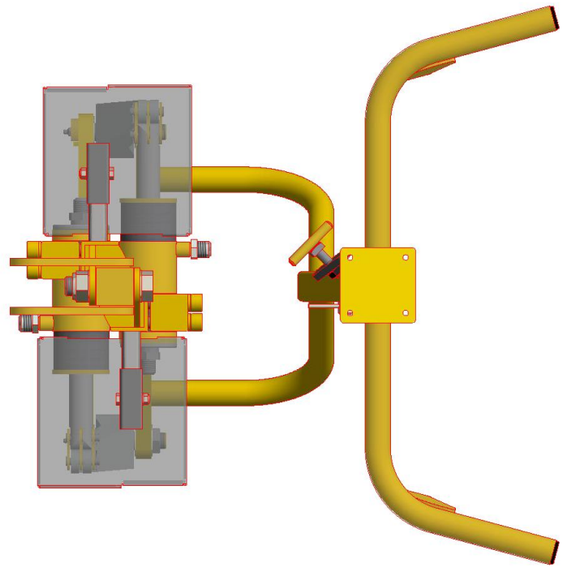
13.7. Fast Clipper Quick Change Work Head (FP-164-QC)

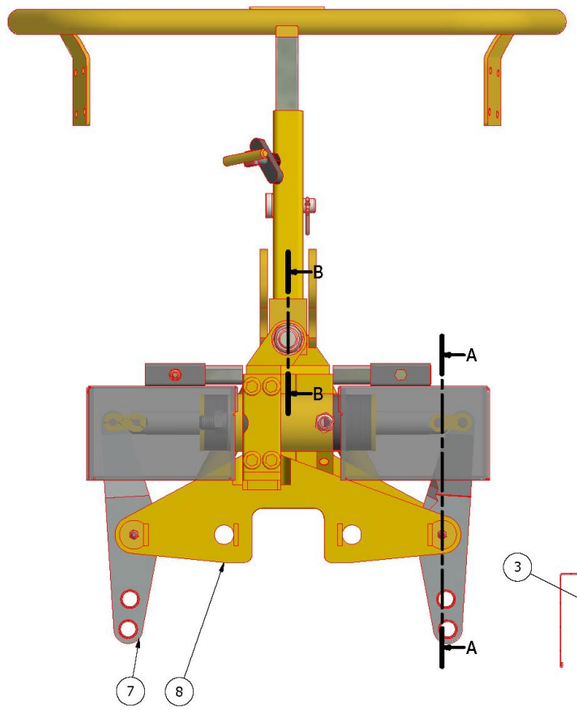
1 OF 1 | MAIN SHEET
SHEET # | SHEET DESCRIPTION

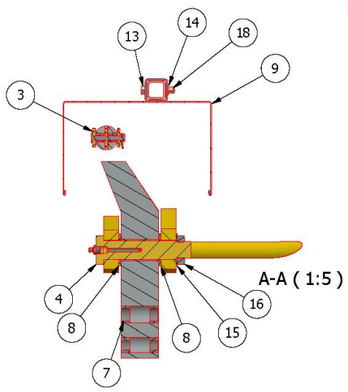




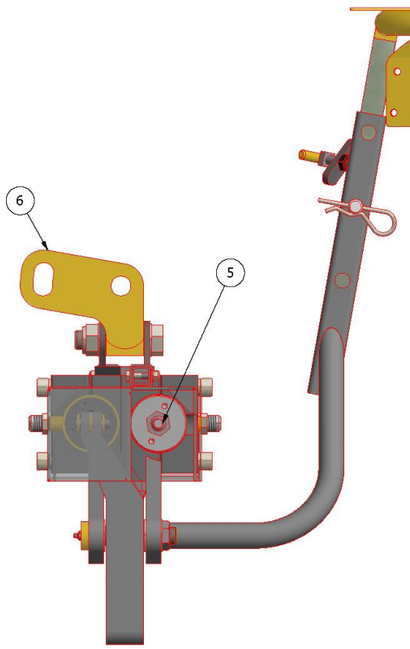
B-B (1:5)







A-A (1:5)



ITEM	QTY	DESCRIPTION	PART NUMBER
19	1	R CLIP 5mm	RCLIP05
18	2	NUT M8 NYLOC	NM08N
17	1	NUT 1" UNF NYLOC NUT	N16NFN
16	2	NUT 7/8' UNF HALF NYLOC	N14NFNH
15	8	ENGINEER WASHER 1' x 1 78'	FW16
14	2	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05
13	2	BOLT METRIC M8 X 40LG ZINC GR8.8	BM0840
12	1	BOLT 1" UNF x 4" LG 12TPI ZINC	BF1664
11	1	HANDLE LOCKING PIN	1860027
10	1	TOP HANDLE FABRICATION	1860024
9	2	FAST CLIPPER GUARD NEW STYLE FABRICATION	1640181
8	1	CYLINDER CLAMP BODY AND SIDE PLATES - SINGLE HANDLE UPRIGHT	1640170
7	2	TRAKLOK CLIP ARM ASSEMBLY	1640148
6	1	ADJUSTABLE BOOM MOUNT BRACKET	1640120
5	2	CYLINDER ASSEMBLY	1640119
4	2	JAW ARM PIVOT BOLT	1640089
3	2	JAW TO PISTON ROD CONNECTING LINK	1640086
2	1	TEE BOLT LOCKING NUT	1450284
1	1	1/2" TEE LOCKING BOLT 2" LONG	1450283

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/05/2016	GM	1296	ORIGINAL ISSUE - CHANGED TO STANDARD HANDLE AND LARGER JAW PINS	BMD	BMD

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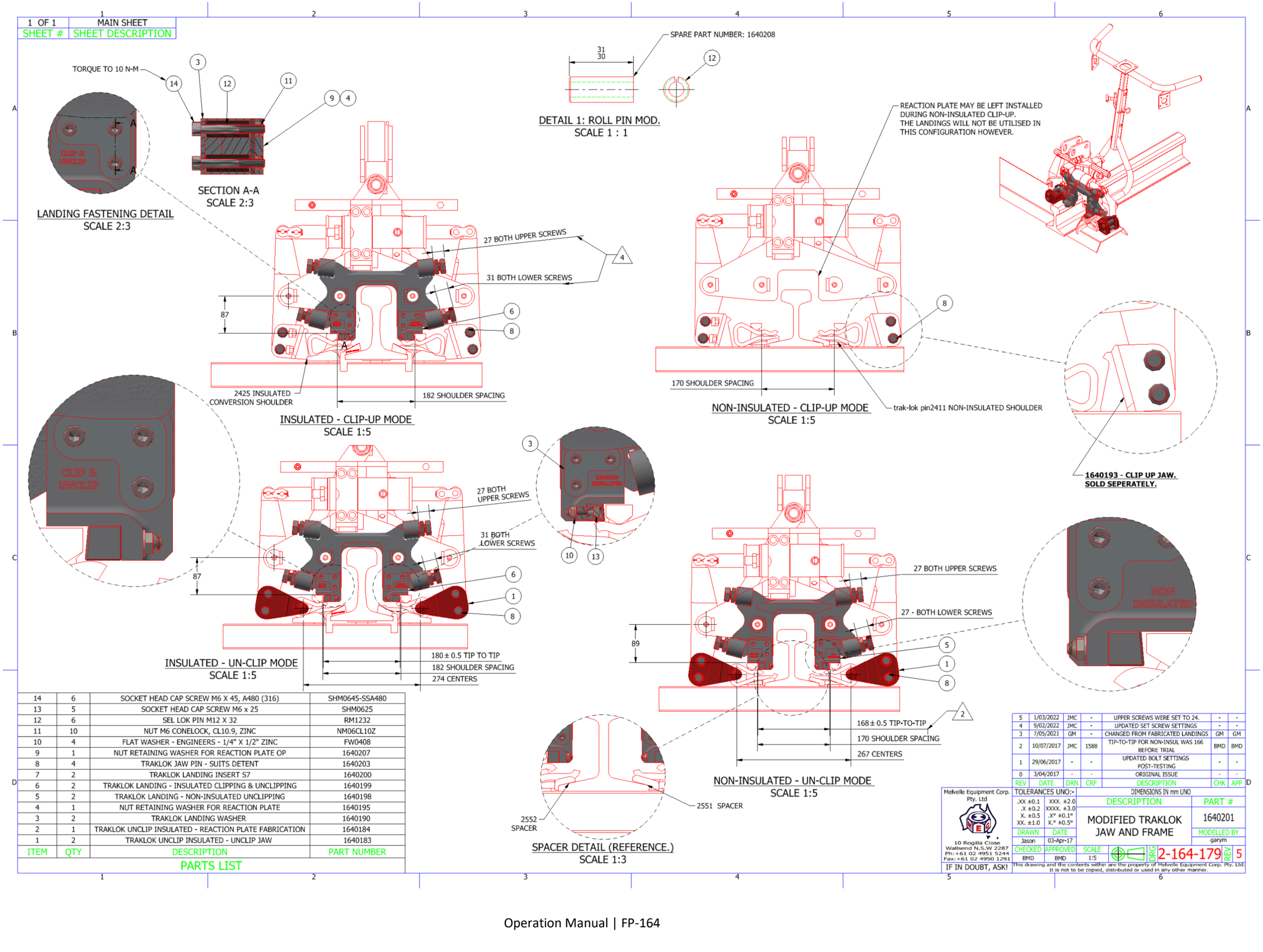
TOLERANCES UNO:- | DIMENSIONS IN mm UNO

.XX ±0.1 | XXX. ±2.0
.X ±0.2 | XXXX. ±3.0
X. ±0.5 | X° ±0.1°
XX. ±1.0 | X.° ±0.5°

DESCRIPTION: FAST CLIPPER BASE HEAD NO JAWS
PART #: FP-164-QC-B
DRAWN: garym 5/05/2016
MODELLED BY: BenD
CHECKED: BMD
APPROVED: BMD
SCALE: 1:5
DRG: 2-164-148
REV: 0

13.8. Traklok 2 Reaction Plate Setup



ITEM	QTY	DESCRIPTION	PART NUMBER
14	6	SOCKET HEAD CAP SCREW M6 X 45, A480 (316)	SHM0645-SSA480
13	5	SOCKET HEAD CAP SCREW M6 x 25	SHM0625
12	6	SEL LOK PIN M12 X 32	RM1232
11	10	NUT M6 CONELOCK, CL10.9, ZINC	NM06CL10Z
10	4	FLAT WASHER - ENGINEERS - 1/4" X 1/2" ZINC	FW0408
9	1	NUT RETAINING WASHER FOR REACTION PLATE OP	1640207
8	4	TRAKLOK JAW PIN - SUITS DETENT	1640203
7	2	TRAKLOK LANDING INSERT S7	1640200
6	2	TRAKLOK LANDING - INSULATED CLIPPING & UNCLIPPING	1640199
5	2	TRAKLOK LANDING - NON-INSULATED UNCLIPPING	1640198
4	1	NUT RETAINING WASHER FOR REACTION PLATE	1640195
3	2	TRAKLOK LANDING WASHER	1640190
2	1	TRAKLOK UNCLIP INSULATED - REACTION PLATE FABRICATION	1640184
1	2	TRAKLOK UNCLIP INSULATED - UNCLIP JAW	1640183

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
5	1/03/2022	JMC	-	UPPER SCREWS WERE SET TO 24.	-	-
4	9/02/2022	JMC	-	UPDATED SET SCREW SETTINGS	-	-
3	7/05/2021	GM	-	CHANGED FROM FABRICATED LANDINGS	GM	GM
2	10/07/2017	JMC	1588	TIP-TO-TIP FOR NON-INSUL WAS 166 BEFORE TRIAL	BMD	BMD
1	29/06/2017	-	-	UPDATED BOLT SETTINGS POST-TESTING	-	-
0	3/04/2017	-	-	ORIGINAL ISSUE	-	-

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TOLERANCES UNO:- DIMENSIONS IN mm UNO

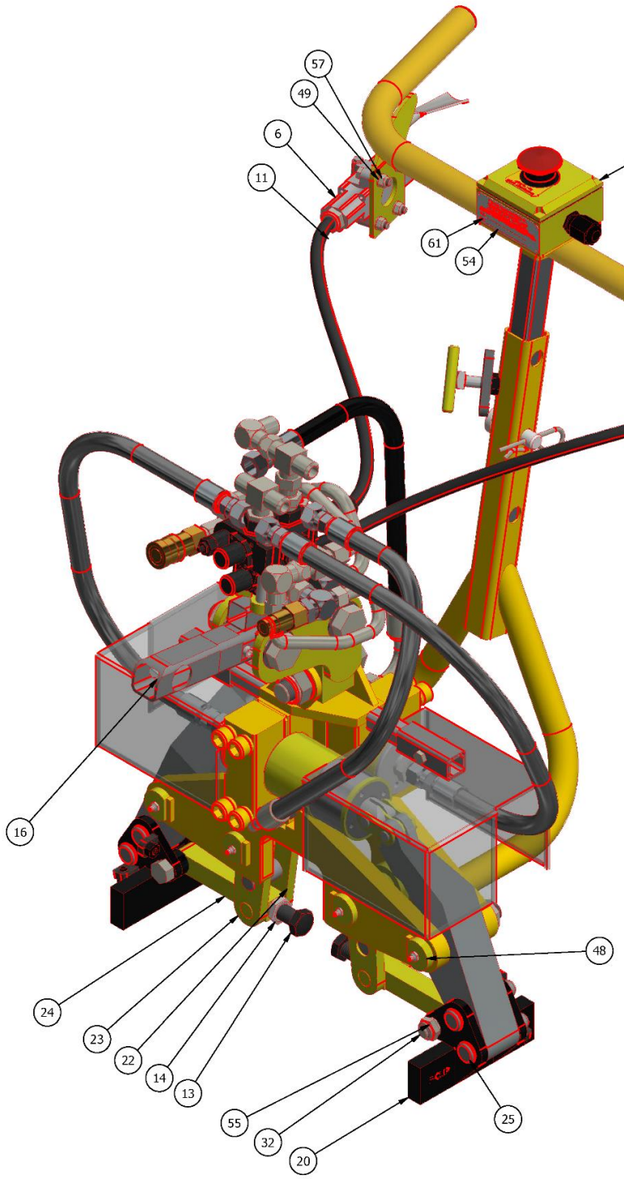
.XX ±0.1	XXX. ±2.0	DESCRIPTION	PART #
.X ±0.2	XXXX. ±3.0	MODIFIED TRAKLOK JAW AND FRAME	1640201
X. ±0.5	.X° ±0.1°		
XX. ±1.0	X.° ±0.5°		
DRAWN	DATE		MODELLED BY
Jason	03-Apr-17		garym
CHECKED	APPROVED	SCALE	DRG 2-164-179 REV 5
BMD	BMD	1:5	

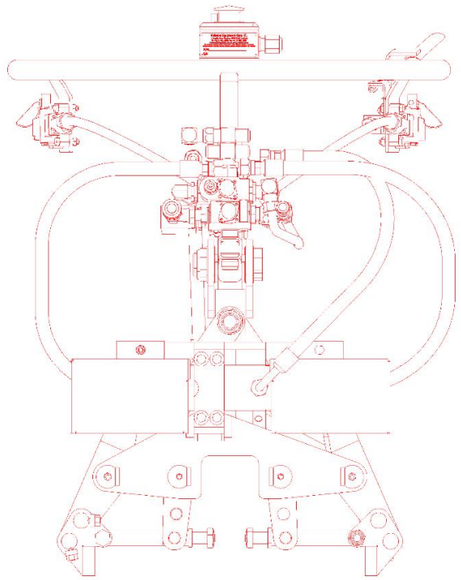
13.9. Fast Clipper Trackpack Head (FP-164-TP-FC01)

1 OF 3	CLIP UP MODE
SHEET #	SHEET DESCRIPTION

ITEM	QTY	DESCRIPTION	PART NUMBER
61	4	U DRIVE SCREW	UDSCREW
60	2	5-8 SPRING WASHER	SW10
59	2	5/16" SPRING WASHER	SW05
58	2	LYNCH PIN	PIN0640
57	7	NUT M8 NYLOC	NM08N
56	2	NUT 1 UNF NYLOC THIN	N16NFNH
55	2	NUT 5/8" UNF HALF NYLOC	N10NFNH
54	1	MELVELLE MODEL & SERIAL N/O AL TAG	IDTAG02
53	2	H082 + MCJF-1408 + 00740 + MCJF-1408	H082-00820-000
52	1	H082 + MCJF-1408 + 00618 + MCJF90M-1408	H082-00720-005
51	1	H082 + MCJF-1408 + 00460 + MCJF90M-1408	H082-00560-005
50	12	FLAT WASHER - ENGINEERS - 1" X 1-7/8" ZINC	FW16
49	7	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05
48	1	FAST CLIPPER BASE HEAD NO JAWS	FP-164-QC-B
47	1	COUNTER SUNK CAP SCREWS M6 X 50	CSM0650
46	6	COUNTER SUNK CAP SCREW 3/4 UNF x 1-3/4" LG GR12.9	CSF1228
45	1	NIPPLE 3/8"BSPP X 1/2"BSPT	CPB1-0608
44	1	TEE MALE 7/8"JIC X 1/2"BSPP X 7/8"JIC	CP67-140814
43	2	TEE - MALE 7/8"JIC X 7/8"JIC X 1/2"BSPP	CP65-141408
42	2	ELBOW 90 M/M 1/2"BSPP X 7/8"JIC	CP56-0814
41	1	ELBOW 90 M/M 3/8"BSPP X 7/8"JIC	CP56-0614
40	1	ADAPT M/F 1/2"BSPP X 7/8"JIC	CP27-0814
39	1	ADAPTOR M/F 3/8"BSPP X 7/8"JIC	CP27-0614
38	1	TEE M/M/F 1/2"BSPT/BSPT/BSPP	CB61-080808
37	1	TEE M/M/M 7/8"JIC	C63-141414
36	2	ADAPTOR 90 M/F 7/8"JIC X 7/8"JIC	C46-1414
35	2	BOLT METRIC M8 X 90LG ZINC GR8.8	BM0890
34	7	BOLT METRIC M8 X 35 ZINC GR8.8	BM0835-88Z
33	2	BOLT 1" UNF x 4" LG 12TPI ZINC	BF1664
32	2	BOLT HT 5/8"UNF x 3.5'	BF1056
31	1	CARRYING HANDLE FOR MEC WORKEADS	1860121
30	1	CLIPPER BRAKE TRIGGER ASSEMBLY	1860113
29	1	TOP HANDLE FABRICATION	1860024
28	4	UNCLIP JAW PIN	1640216
27	2	UNCLIP JAW FABRICATION	1640215
26	1	UNCLIP JAW FOR REPLACEABLE INSERT	1640212
25	4	CLIP UP JAW MAIN PIN	1640175
24	2	JAW STOP WITH TRUNIONS	1640174
23	4	JAW LINK TO FRAME WITH NO BOSSES	1640172
22	4	JAW LINK TO FRAME WITH 2 BOSSES	1640171
21	2	CENTER QUICK CHANGE PIN ASSEMBLY	1640154
20	2	FASTCLIP CLIP UP JAW ALL RAIL	1640146
19	1	KICKDOWN - UNLOAD CARTRIDGE -	1640138
18	1	TUBE F - SUIT 164 HEADS	1640133
17	1	TUBE E - SUIT 164 HEADS	1640132
16	1	TRACKPACK QUICK CHANGE BOOM END	1640123
15	2	WEAR PLATE	1640106
14	2	CLIPPING JAW STOP ADJ NUT	1640098
13	2	CLIPPING JAW STOP ADJ BOLT	1640097
12	2	REMOTE CONTROL TRIGGER-M10	1640035
11	2	CONTROL CABLE - 1M LONG	1630079
10	1	VALVE MOUNTING SPACER TUBE	1560124
9	1	VALVE 2 POS 3 WAY - MODIFIED BODY 3/8" PORTS DIVERTER	1560119
8	1	HOSE ASSY - TUBE A - SUIT 1560115	1560116
7	1	VALVE-DIRECTIONAL CONTROL VALVE 1/2" BSP	1560010
6	2	CONTROL CABLE END CAP MOUNTS TO 1450165	1450166
5	2	CONTROL CABLE ACTUATOR - TRIGGER END ASS	1450165
4	1	BODY TO SUIT SUN CARTRIDGE - 1/2 BSPP PORTS	1430101
3	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP MALE	1430005
2	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP FEMALE	1430004
1	1	WIRING HARNESS	1081366

PARTS LIST





REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
1	5/06/2020	JMC	-	ADDED NEW UNCLIP JAWS	-	-
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

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Fax: +61 02 4950 1291

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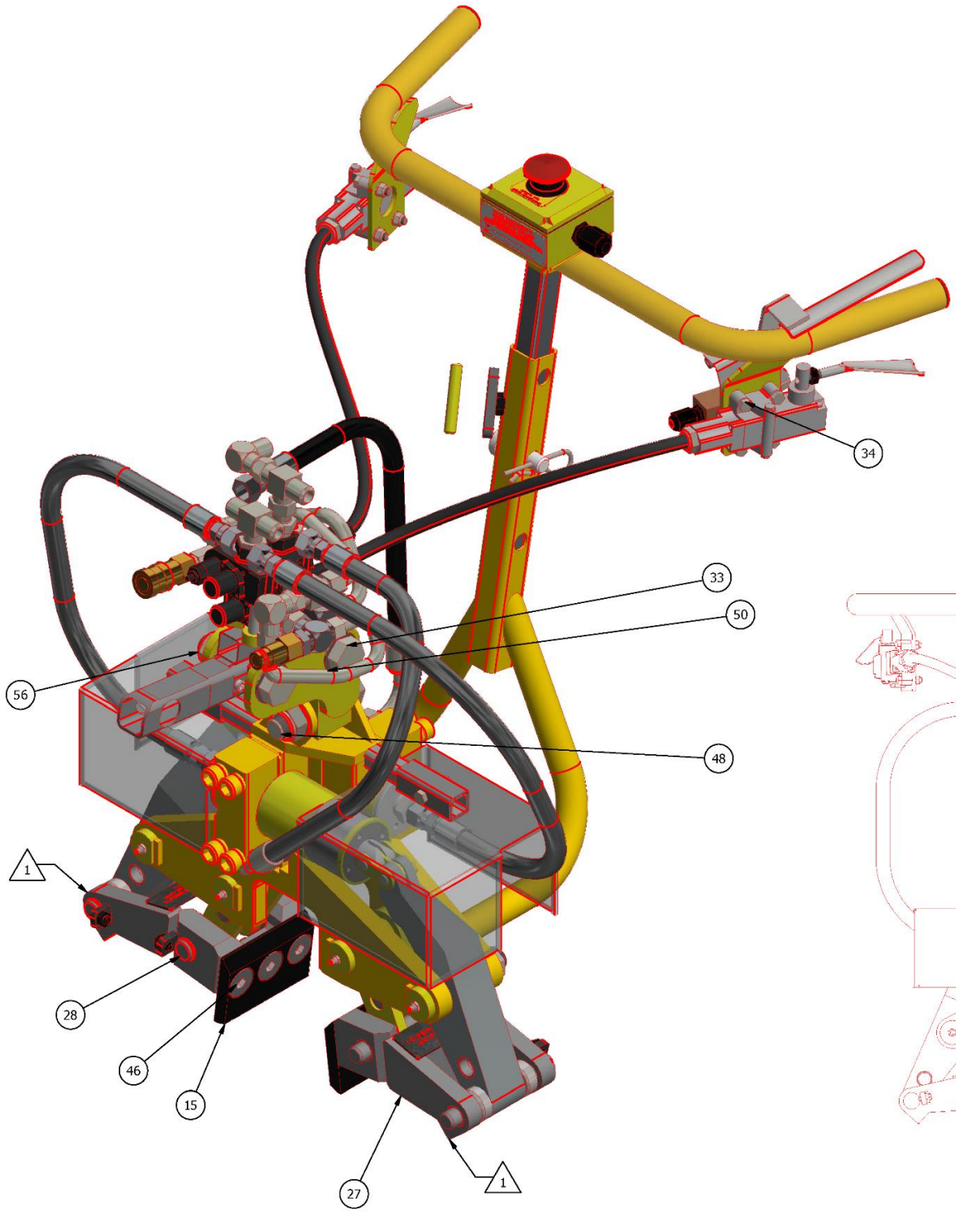
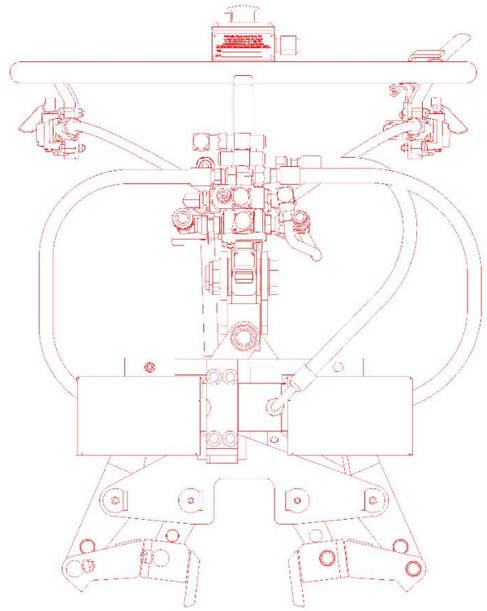
TOLERANCES UNO:-		DIMENSIONS IN mm UNO
.XX ±0.1	XXX. ±2.0	DESCRIPTION: TRAKPACK HEAD FASTCLIP
.X ±0.2	XXXX. ±3.0	PART #: FP-164-TP-FC01
X. ±0.5	.X° ±0.1°	
XX. ±1.0	X.° ±0.5°	MODELLED BY: garym
DRAWN: garym	DATE: 5/05/2016	
CHECKED: BMD	APPROVED: BMD	SCALE: 1:4

DRG 2-164-203 REV 1

2 OF 3	UNCLIP MODE
SHEET #	SHEET DESCRIPTION





ITEM	QTY	DESCRIPTION	PART NUMBER
61	4	U DRIVE SCREW	UDSCREW
60	2	5-8 SPRING WASHER	SW10
59	2	5/16" SPRING WASHER	SW05
58	2	LYNCH PIN	PIN0640
57	7	NUT M8 NYLOC	NM08N
56	2	NUT 1 UNF NYLOC THIN	N16NFNH
55	2	NUT 5/8" UNF HALF NYLOC	N10NFNH
54	1	MELVELLE MODEL & SERIAL N/O AL TAG	IDTAG02
53	2	H082 + MCJF-1408 + 00740 + MCJF-1408	H082-00820-000
52	1	H082 + MCJF-1408 + 00618 + MCJF90M-1408	H082-00720-005
51	1	H082 + MCJF-1408 + 00460 + MCJF90M-1408	H082-00560-005
50	12	FLAT WASHER - ENGINEERS - 1" X 1-7/8" ZINC	FW16
49	7	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05
48	1	FAST CLIPPER BASE HEAD NO JAWS	FP-164-QC-B
47	1	COUNTER SUNK CAP SCREWS M6 X 50	CSM0650
46	6	COUNTER SUNK CAP SCREW 3/4 UNF x 1-3/4" LG GR12.9	CSF1228
45	1	NIPPLE 3/8"BSPP X 1/2"BSPT	CPB1-0608
44	1	TEE MALE 7/8"JIC X 1/2"BSPP X 7/8"JIC	CP67-140814
43	2	TEE - MALE 7/8"JIC X 7/8"JIC X 1/2"BSPP	CP65-141408
42	2	ELBOW 90 M/M 1/2"BSPP X 7/8"JIC	CP56-0814
41	1	ELBOW 90 M/M 3/8"BSPP X 7/8"JIC	CP56-0614
40	1	ADAPT M/F 1/2"BSPP X 7/8"JIC	CP27-0814
39	1	ADAPTOR M/F 3/8"BSPP X 7/8"JIC	CP27-0614
38	1	TEE M/M/F 1/2"BSPT/BSPT/BSPP	CB61-080808
37	1	TEE M/M/M 7/8"JIC	C63-141414
36	2	ADAPTOR 90 M/F 7/8"JIC X 7/8"JIC	C46-1414
35	2	BOLT METRIC M8 X 90LG ZINC GR8.8	BM0890
34	7	BOLT METRIC M8 X 35 ZINC GR8.8	BM0835-88Z
33	2	BOLT 1" UNF x 4" LG 12TPI ZINC	BF1664
32	2	BOLT HT 5/8"UNF x 3.5'	BF1056
31	1	CARRYING HANDLE FOR MEC WORKEADS	1860121
30	1	CLIPPER BRAKE TRIGGER ASSEMBLY	1860113
29	1	TOP HANDLE FABRICATION	1860024
28	4	UNCLIP JAW PIN	1640216
27	2	UNCLIP JAW FABRICATION	1640215
26	1	UNCLIP JAW FOR REPLACEABLE INSERT	1640212
25	4	CLIP UP JAW MAIN PIN	1640175
24	2	JAW STOP WITH TRUNIONS	1640174
23	4	JAW LINK TO FRAME WITH NO BOSSES	1640172
22	4	JAW LINK TO FRAME WITH 2 BOSSES	1640171
21	2	CENTER QUICK CHANGE PIN ASSEMBLY	1640154
20	2	FASTCLIP CLIP UP JAW ALL RAIL	1640146
19	1	KICKDOWN - UNLOAD CARTRIDGE -	1640138
18	1	TUBE F - SUIT 164 HEADS	1640133
17	1	TUBE E - SUIT 164 HEADS	1640132
16	1	TRACKPACK QUICK CHANGE BOOM END	1640123
15	2	WEAR PLATE	1640106
14	2	CLIPPING JAW STOP ADJ NUT	1640098
13	2	CLIPPING JAW STOP ADJ BOLT	1640097
12	2	REMOTE CONTROL TRIGGER-M10	1640035
11	2	CONTROL CABLE - 1M LONG	1630079
10	1	VALVE MOUNTING SPACER TUBE	1560124
9	1	VALVE 2 POS 3 WAY - MODIFIED BODY 3/8" PORTS DIVERTER	1560119
8	1	HOSE ASSY - TUBE A - SUIT 1560115	1560116
7	1	VALVE-DIRECTIONAL CONTROL VALVE 1/2" BSP	1560010
6	2	CONTROL CABLE END CAP MOUNTS TO 1450165	1450166
5	2	CONTROL CABLE ACTUATOR - TRIGGER END ASS	1450165
4	1	BODY TO SUIT SUN CARTRIDGE - 1/2 BSPP PORTS	1430101
3	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP MALE	1430005
2	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP FEMALE	1430004
1	1	WIRING HARNESS	1081366

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
1	5/06/2020	JMC	-	ADDED NEW UNCLIP JAWS	-	-
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

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IF IN DOUBT, ASK!

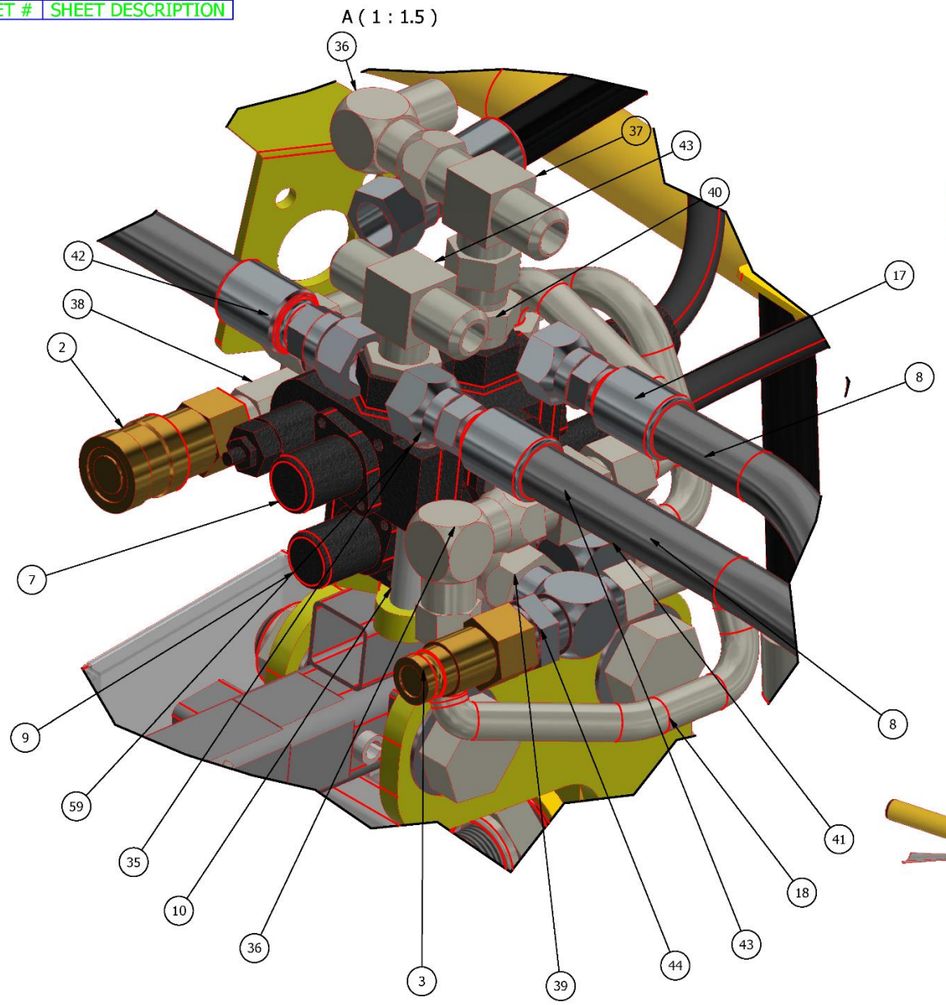
TOLERANCES UNO:- | DIMENSIONS IN mm UNO

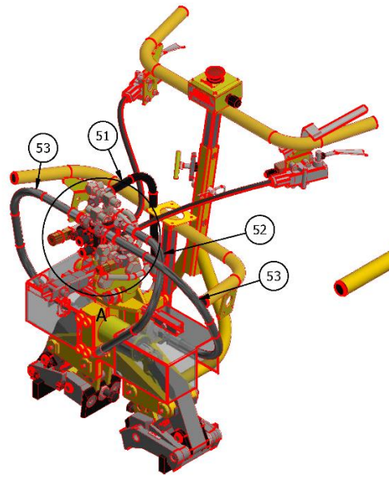
.XX ±0.1 | XXX. ±2.0
.X ±0.2 | XXXX. ±3.0
X. ±0.5 | .X° ±0.1°
XX. ±1.0 | X.° ±0.5°

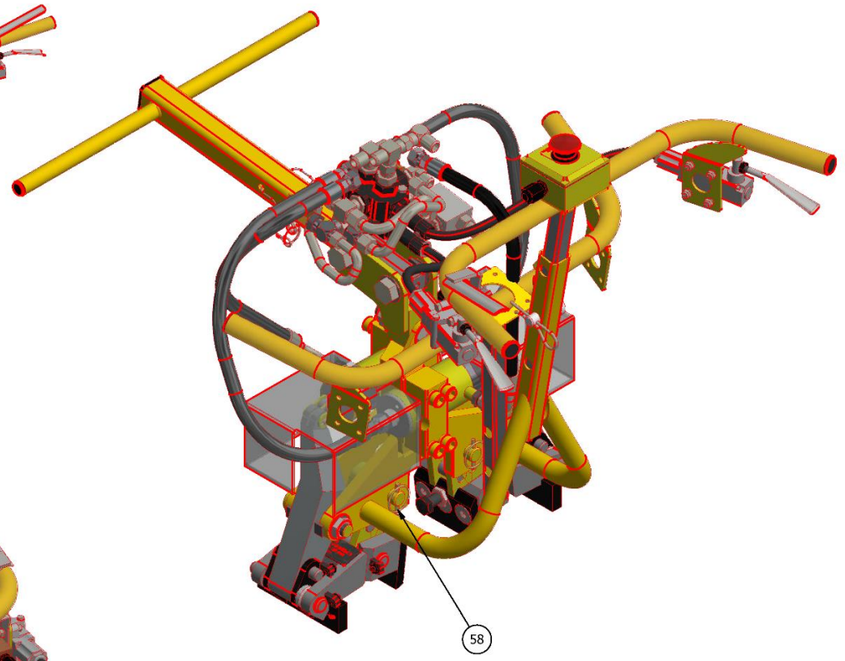
DESCRIPTION: TRAKPACK HEAD FASTCLIP
PART #: FP-164-TP-FC01
DRAWN: garym | DATE: 5/05/2016
MODELLED BY: garym
CHECKED: BMD | APPROVED: BMD | SCALE: 1:4
DRG: 2-164-203 | REV: 1

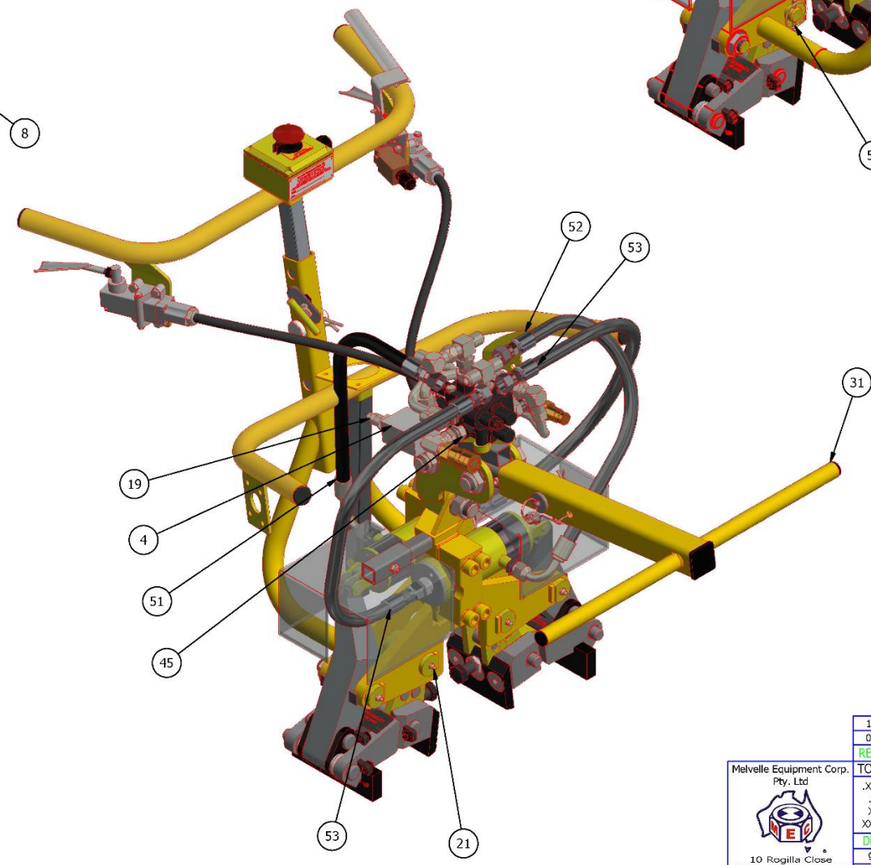
3 OF 3	UNCLIP MODE
SHEET #	SHEET DESCRIPTION

A (1 : 1.5)









REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
1	5/06/2020	JMC	-	ADDED NEW UNCLIP JAWS	-	-
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

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Wallsend N.S.W 2287
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Fax: +61 02 4950 1291

IF IN DOUBT, ASK!

TOLERANCES UNO: -

.XX ±0.1	XXX. ±2.0
.X ±0.2	XXX. ±3.0
X. ±0.5	.X° ±0.1°
XX. ±1.0	X.° ±0.5°

DIMENSIONS IN mm UNO

DESCRIPTION	PART #
TRAKPACK HEAD FASTCLIP	FP-164-TP-FC01

DRAWN	DATE	MODELLED BY
garym	5/05/2016	garym

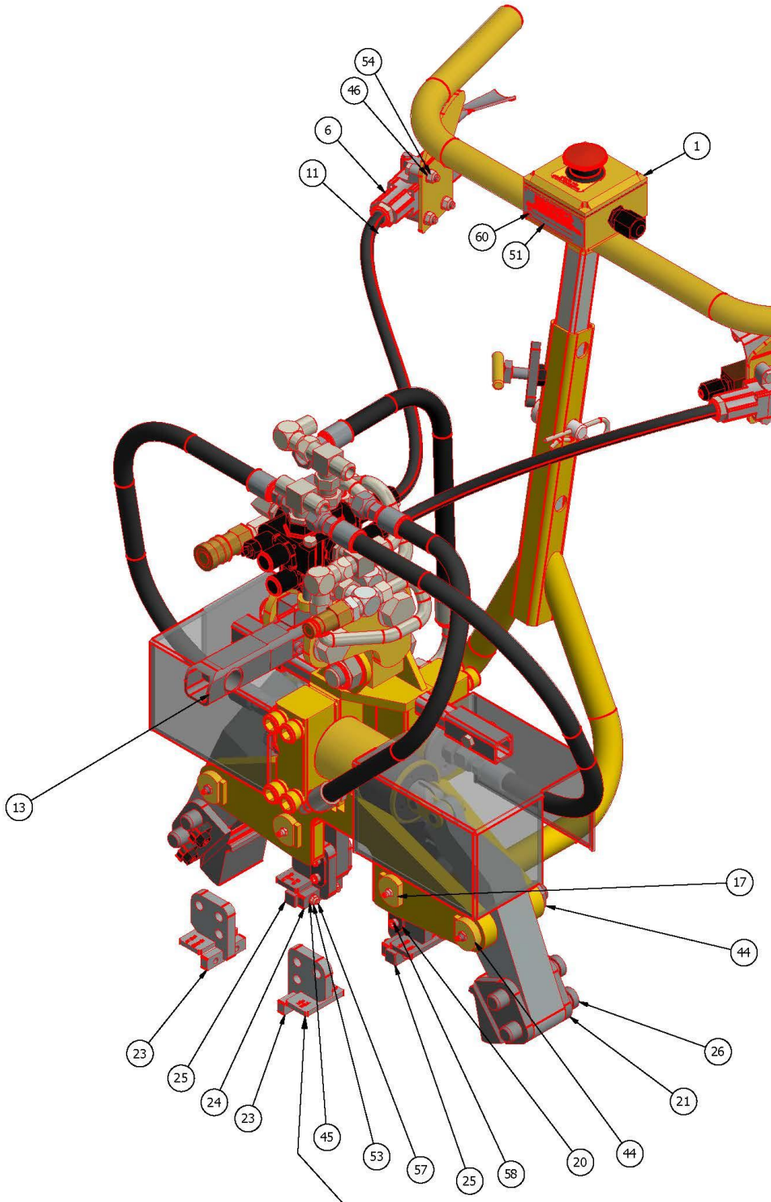
CHECKED	APPROVED	SCALE	DRG	REV
BMD	BMD	1:4	2-164-203	1

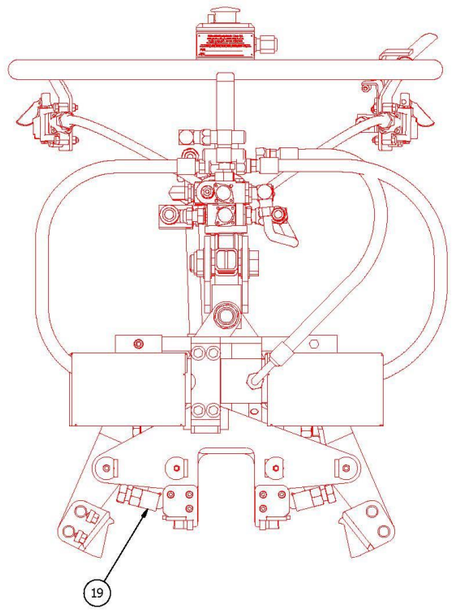
13.10. Traklok 2 Trackpack Head (FP-164-TP-TL01)

1 OF 3	CLIP UP MODE
SHEET #	SHEET DESCRIPTION

ITEM	QTY	DESCRIPTION	PART NUMBER
60	4	U DRIVE SCREW	UDSCREW
59	2	5/16" SPRING WASHER	SW05
58	6	SOCKET HEAD CAP SCREW M6 X 45, A480 (316)	SHM0645-SSA480
57	4	SOCKET HEAD CAP SCREW M6 x 25	SHM0625
56	6	SEL LOK PIN M12 X 32	RM1232
55	2	LYNCH PIN	PIN0640
54	7	NUT M8 NYLOC	NM08N
53	10	NUT M6 CONELOCK, CL10.9, ZINC	NM06CL10Z
52	2	NUT 1 UNF NYLOC THIN	N16NFNH
51	1	MELVELLE MODEL & SERIAL N/O AL TAG	IDTAG02
50	2	H082 + MCJF-1408 + 00740 + MCJF-1408	H082-00820-000
49	1	H082 + MCJF-1408 + 00618 + MCJF90M-1408	H082-00720-005
48	1	H082 + MCJF-1408 + 00460 + MCJF90M-1408	H082-00560-005
47	8	FLAT WASHER - ENGINEERS - 1" X 1-7/8" ZINC	FW16
46	7	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05
45	4	FLAT WASHER - ENGINEERS - 1/4" X 1/2" ZINC	FW0408
44	1	FAST CLIPPER BASE HEAD NO JAWS	FP-164-QC-B
43	1	COUNTER SUNK CAP SCREWS M6 X 50	CSM0650
42	1	NIPPLE 3/8"BSPP X 1/2"BSPT	CPB1-0608
41	1	TEE MALE 7/8"JIC X 1/2"BSPP X 7/8"JIC	CP67-140814
40	2	TEE - MALE 7/8"JIC X 7/8"JIC X 1/2"BSPP	CP65-141408
39	2	ELBOW 90 M/M 1/2"BSPP X 7/8"JIC	CP56-0814
38	1	ELBOW 90 M/M 3/8"BSPP X 7/8"JIC	CP56-0614
37	1	ADAPT M/F 1/2"BSPP X 7/8"JIC	CP27-0814
36	1	ADAPTOR M/F 3/8"BSPP X 7/8"JIC	CP27-0614
35	1	TEE M/M/F 1/2"BSPT/BSPT/BSPP	CB61-080808
34	1	TEE M/M/M 7/8"JIC	C63-141414
33	2	ADAPTOR 90 M/F 7/8"JIC X 7/8"JIC	C46-1414
32	2	BOLT METRIC M8 X 90LG ZINC GR8.8	BM0890
31	7	BOLT METRIC M8 X 35 ZINC GR8.8	BM0835-88Z
30	2	BOLT 1" UNF x 4" LG 12TPI ZINC	BF1664
29	1	CARRYING HANDLE FOR MEC WORKEADS	1860121
28	1	CLIPPER BRAKE TRIGGER ASSEMBLY	1860113
27	1	NUT RETAINING WASHER FOR REACTION PLATE OP	1640207
26	4	TRAKLOK JAW PIN - SUITS DETENT	1640203
25	2	TRAKLOK LANDING INSERT S7	1640200
24	2	LANDING FABRICATION - INSULATED CLIPPING & UNCLIPPING	1640199
23	2	LANDING FABRICATION - NON-INSULATED UNCLIPPING	1640198
22	1	NUT RETAINING WASHER FOR REACTION PLATE	1640195
21	2	MODIFIED TRAKLOK CLIP UP JAW QUICK CHANGE	1640193
20	2	TRAKLOK LANDING WASHER	1640190
19	1	TRAKLOK UNCLIP INSULATED - REACTION PLATE FABRICATION	1640184
18	2	TRAKLOK UNCLIP INSULATED - UNCLIP JAW	1640183
17	2	CENTER QUICK CHANGE PIN ASSEMBLY	1640154
16	1	KICKDOWN - UNLOAD CARTRIDGE -	1640138
15	1	TUBE F - SUIT 164 HEADS	1640133
14	1	TUBE E - SUIT 164 HEADS	1640132
13	1	TRACKPACK QUICK CHANGE BOOM END	1640123
12	2	REMOTE CONTROL TRIGGER-M10	1640035
11	2	CONTROL CABLE - 1M LONG	1630079
10	1	VALVE MOUNTING SPACER TUBE	1560124
9	1	VALVE 2 POS 3 WAY - MODIFIED BODY 3/8" PORTS DIVERTER	1560119
8	1	HOSE ASSY - TUBE A - SUIT 1560115	1560116
7	1	VALVE-DIRECTIONAL CONTROL VALVE 1/2" BSP	1560010
6	2	CONTROL CABLE END CAP MOUNTS TO 1450165	1450166
5	2	CONTROL CABLE ACTUATOR - TRIGGER END ASS	1450165
4	1	BODY TO SUIT SUN CARTRIDGE - 1/2 BSPP PORTS	1430101
3	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP MALE	1430005
2	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP FEMALE	1430004
1	1	WIRING HARNESS	1081366

PARTS LIST





QA SHEET TO SPECIFY
WHICH LANDINGS TO FIT
AT CUSTOMERS REQUEST.

ONCE LANDINGS SPECIFIED REACTION PLATE BOLTS MUST BE SET AS PER DRAWING 164-179.

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

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Wallsend N.S.W 2287
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Fax: +61 02 4950 1291
IF IN DOUBT, ASK!

TOLERANCES UNO:- DIMENSIONS IN mm UNO
.XX ±0.1 .XXX. ±2.0
.X ±0.2 .XXX. ±3.0
.X. ±0.5 .X° ±0.1°
.XX. ±1.0 .X.° ±0.5°

DESCRIPTION: TRAKPACK HEAD TRAKLOK 2
PART #: FP-164-TP-TL01
DRAWN: garym 5/05/2016
MODELLED BY: garym
CHECKED: BMD APPROVED: BMD
SCALE: 1:4
DRG: 2-164-204 REV: 0

2 OF 3	UNCLIP MODE
SHEET #	SHEET DESCRIPTION

ITEM	QTY	DESCRIPTION	PART NUMBER
60	4	U DRIVE SCREW	UDSCREW
59	2	5/16" SPRING WASHER	SW05
58	6	SOCKET HEAD CAP SCREW M6 X 45, A480 (316)	SHM0645-SSA480
57	4	SOCKET HEAD CAP SCREW M6 x 25	SHM0625
56	6	SEL LOK PIN M12 X 32	RM1232
55	2	LYNCH PIN	PIN0640
54	7	NUT M8 NYLOC	NM08N
53	10	NUT M6 CONELOCK, CL10.9, ZINC	NM06CL10Z
52	2	NUT 1 UNF NYLOC THIN	N16NFNH
51	1	MELVELLE MODEL & SERIAL N/O AL TAG	IDTAG02
50	2	H082 + MCJF-1408 + 00740 + MCJF-1408	H082-00820-000
49	1	H082 + MCJF-1408 + 00618 + MCJF90M-1408	H082-00720-005
48	1	H082 + MCJF-1408 + 00460 + MCJF90M-1408	H082-00560-005
47	8	FLAT WASHER - ENGINEERS - 1" X 1-7/8" ZINC	FW16
46	7	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05
45	4	FLAT WASHER - ENGINEERS - 1/4" X 1/2" ZINC	FW0408
44	1	FAST CLIPPER BASE HEAD NO JAWS	FP-164-QC-B
43	1	COUNTER SUNK CAP SCREWS M6 X 50	CSM0650
42	1	NIPPLE 3/8"BSPP X 1/2"BSPT	CPB1-0608
41	1	TEE MALE 7/8"JIC X 1/2"BSPP X 7/8"JIC	CP67-140814
40	2	TEE - MALE 7/8"JIC X 7/8"JIC X 1/2"BSPP	CP65-141408
39	2	ELBOW 90 M/M 1/2"BSPP X 7/8"JIC	CP56-0814
38	1	ELBOW 90 M/M 3/8"BSPP X 7/8"JIC	CP56-0614
37	1	ADAPT M/F 1/2"BSPP X 7/8"JIC	CP27-0814
36	1	ADAPTOR M/F 3/8"BSPP X 7/8"JIC	CP27-0614
35	1	TEE M/M/F 1/2"BSPT/BSPT/BSPP	CB61-080808
34	1	TEE M/M/M 7/8"JIC	C63-141414
33	2	ADAPTOR 90 M/F 7/8"JIC X 7/8"JIC	C46-1414
32	2	BOLT METRIC M8 X 90LG ZINC GR8.8	BM0890
31	7	BOLT METRIC M8 X 35 ZINC GR8.8	BM0835-88Z
30	2	BOLT 1" UNF x 4" LG 12TPI ZINC	BF1664
29	1	CARRYING HANDLE FOR MEC WORKEADS	1860121
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25	2	TRAKLOK LANDING INSERT S7	1640200
24	2	LANDING FABRICATION - INSULATED CLIPPING & UNCLIPPING	1640199
23	2	LANDING FABRICATION - NON-INSULATED UNCLIPPING	1640198
22	1	NUT RETAINING WASHER FOR REACTION PLATE	1640195
21	2	MODIFIED TRAKLOK CLIP UP JAW QUICK CHANGE	1640193
20	2	TRAKLOK LANDING WASHER	1640190
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11	2	CONTROL CABLE - 1M LONG	1630079
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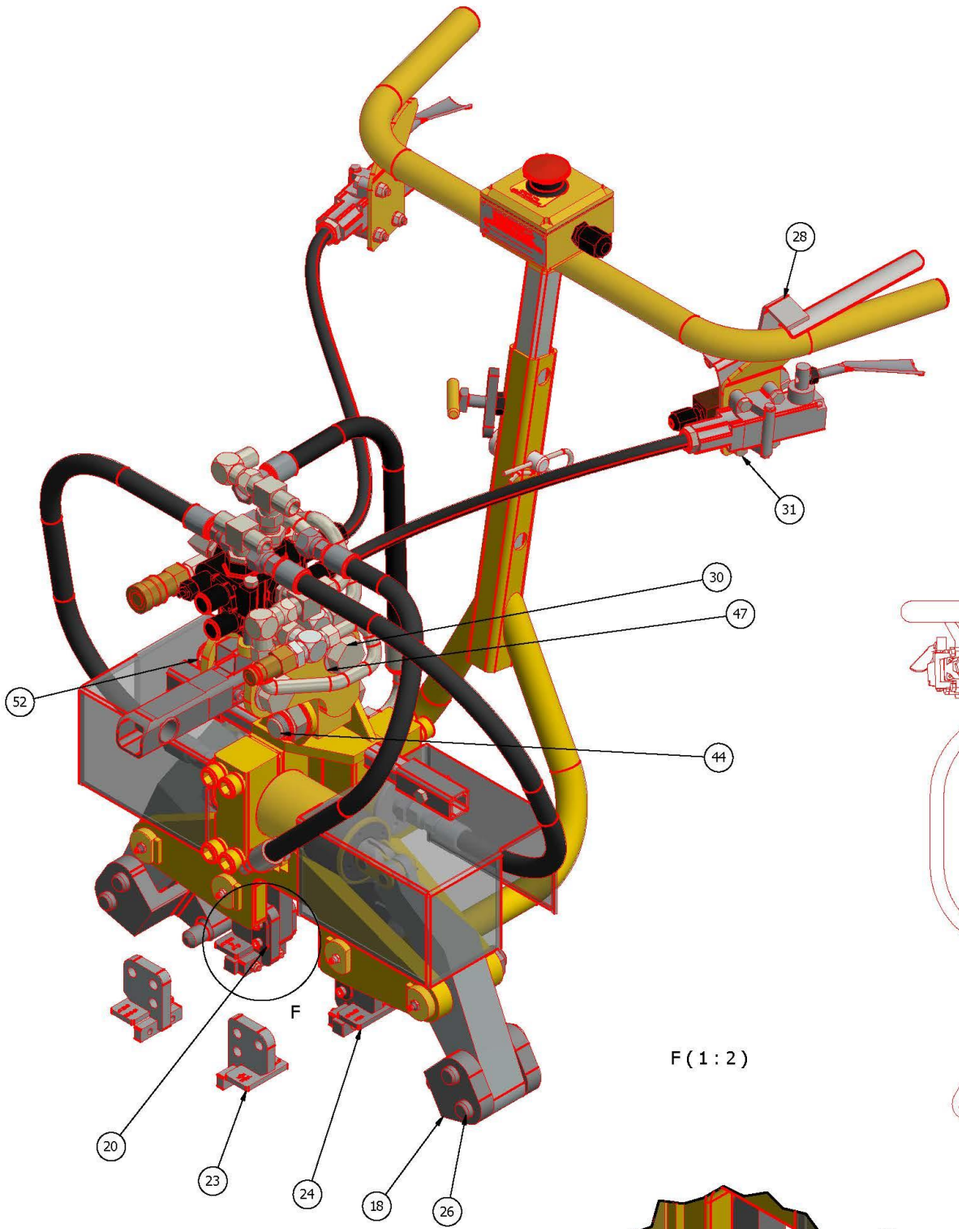
4	1	BODY TO SUIT SUN CARTRIDGE - 1/2 BSPP PORTS	1430101
3	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP MALE	1430005
2	1	SNAP CONNECTOR FLUSH FACED 1/2 BSPP FEMALE	1430004
1	1	WIRING HARNESS	1081366

PARTS LIST



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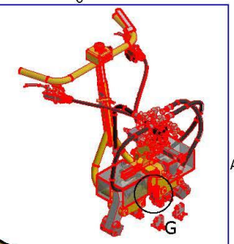

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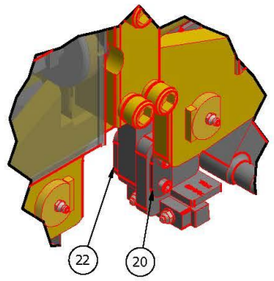
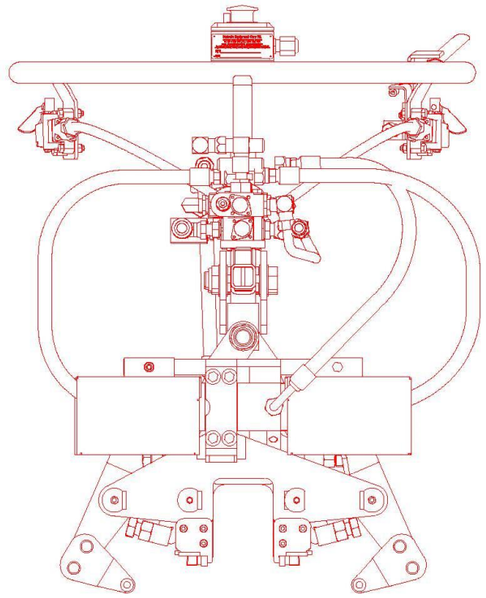
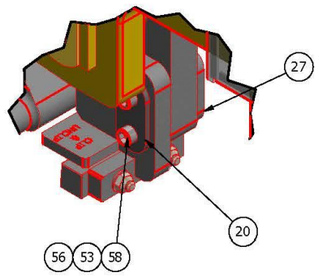


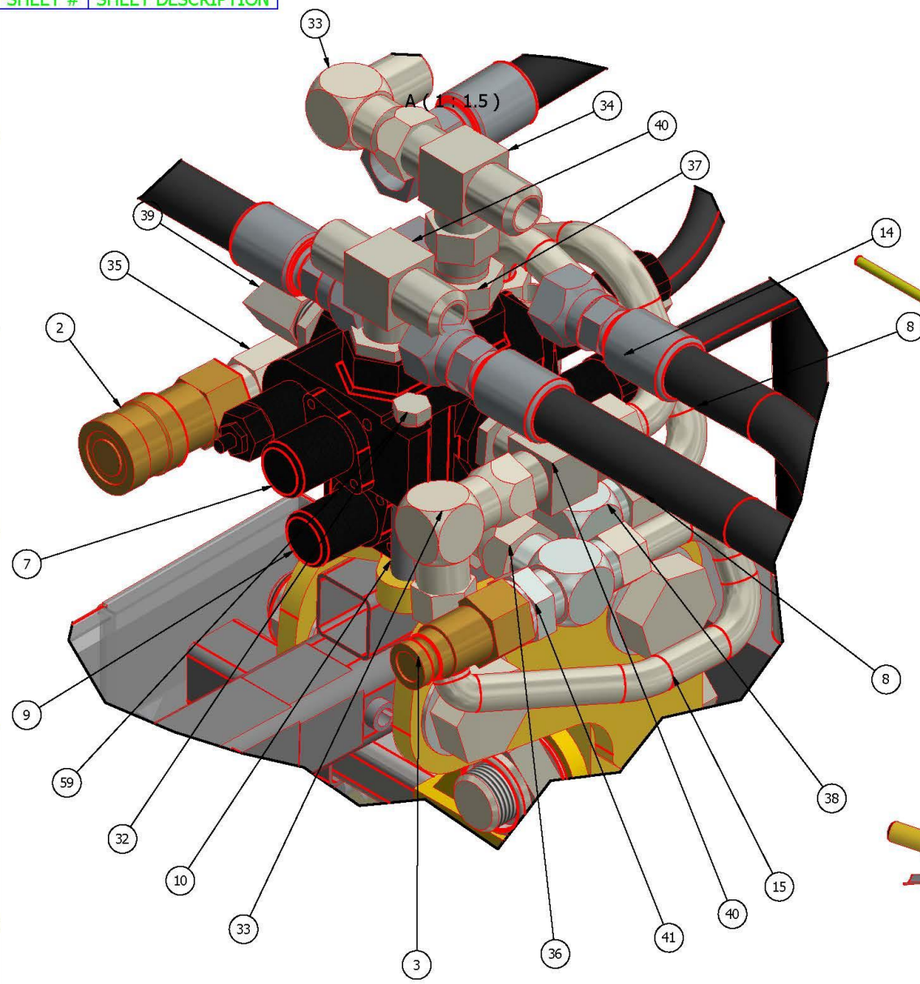


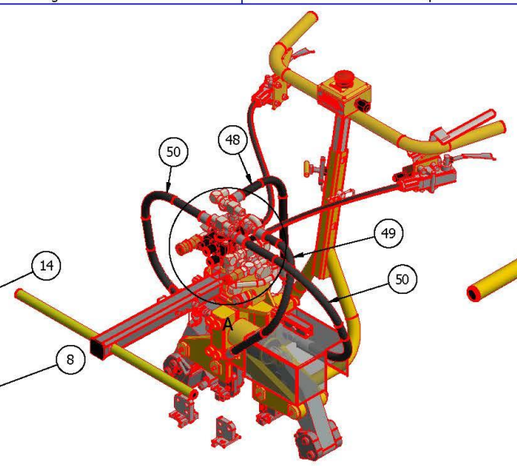


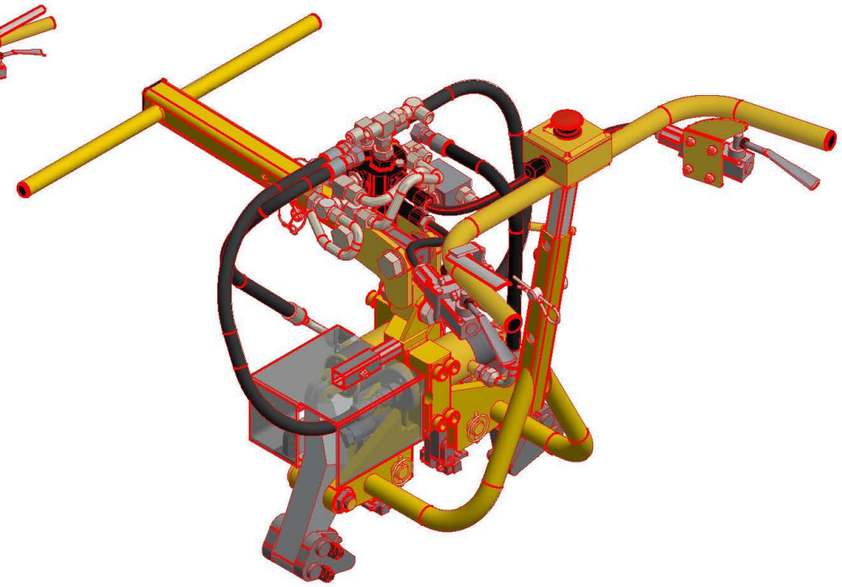
REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

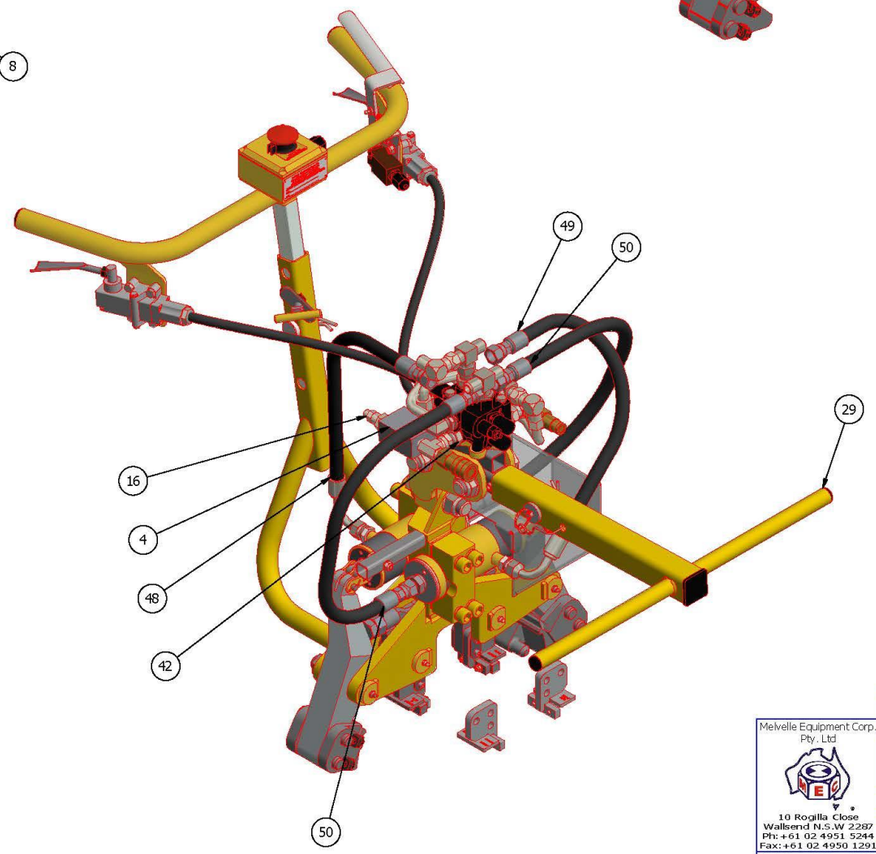
Melvelle Equipment Corp. Pty. Ltd	TOLERANCES UNO:-	DIMENSIONS IN mm UNO	DESCRIPTION	PART #
10 Rogilla Close Wallsend N.S.W 2287 Ph:+61 02 4951 5244 Fax:+61 02 4950 1291	.XX ±0.1 .X ±0.2 .X. ±0.5 .XX. ±1.0	.XXX. ±2.0 .XXX. ±3.0 .X° ±0.1° .X.° ±0.5°	TRAKPACK HEAD TRAKLOK 2	FP-164-TP-TL01
IF IN DOUBT, ASK!	DRAWN garym	DATE 5/05/2016		MODELLED BY garym
	CHECKED BMD	APPROVED BMD	SCALE 1:4	DRG 2-164-204 REV 0

3 OF 3	FITTINGS
SHEET #	SHEET DESCRIPTION









REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	5/05/2016	-	-	ORIGINAL ISSUE	-	-

Melvelle Equipment Corp. Pty. Ltd
10 Rogilla Close
Wallsend N.S.W 2287
Ph: +61 02 4951 5244
Fax: +61 02 4950 1291

IF IN DOUBT, ASK!

TOLERANCES UNO:-

DIMENSIONS IN mm UNO

.XX ±0.1	XXX. ±2.0	DESCRIPTION	PART #
.X ±0.2	XXXX. ±3.0	TRAKPACK HEAD TRAKLOK 2	FP-164-TP-TL01
X. ±0.5	.X° ±0.1°		
XX. ±1.0	X.° ±0.5°		

DRAWN	DATE	MODELLED BY
garym	5/05/2016	garym

CHECKED	APPROVED	SCALE	DRG	REV
BMD	BMD	1:4	2-164-204	0