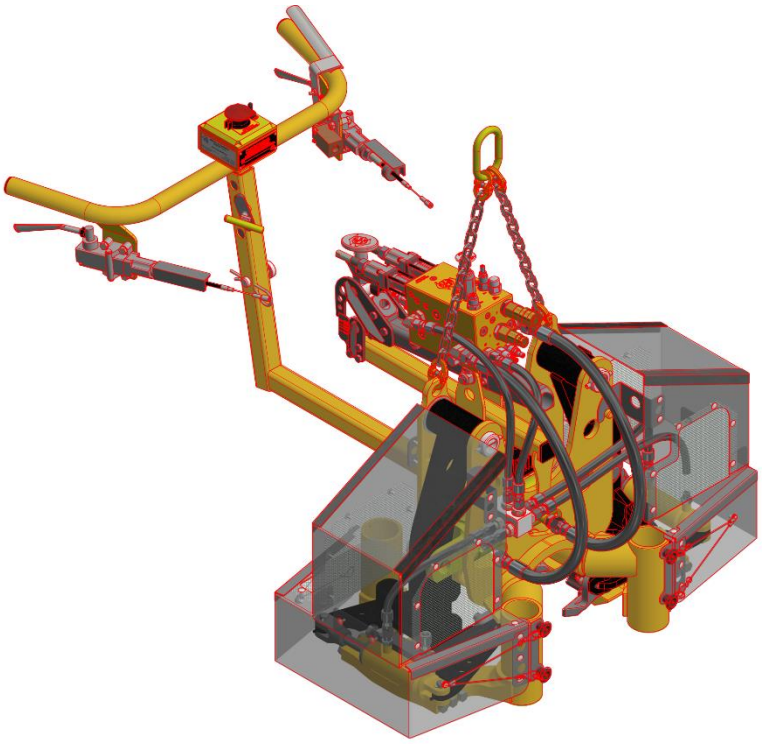
Melvelle Equipment Corp Pty Ltd

"Proud Australian Manufacturers"

171 Safelok 1, Inserter and Remover

Operation, Training & Maintenance Manual



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PART NO. – MANUAL-171

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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 Safelok Clipper 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 171 Safelok 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.

THE USER SHALL NOT MODIFY THE DESIGN OR CONFIGURATION OF EQUIPMENT WITHOUT CONSULTING MEC

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.

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

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

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

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

Hot parts can cause severe burns.
Beware of hot parts on the machinery – i.e. exhaust, engine, hoses, radiator, solenoids, exposed metal components, etc.

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.

CAUTION

Electrical shock can cause injury. Do not touch wires whilst engine is running. Disconnect negative (-) battery cable before any work on wires.

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

Attachment hoses must have a minimum working pressure rating of 2800psi. Do not use hoses and fittings that are not pressure rated.

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.

WARNING

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.

WARNING

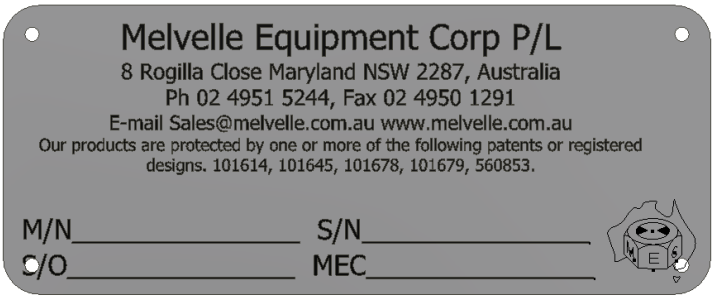
Accumulator Hazard.
This machine utilises hammers that have a pressure accumulator.
DO NOT disassemble hammers without consultation with MEC.

WARNING	WARNING
	
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

IDTAG04 – Emergency Stop Warning Label

IDTAG08 – Lifting Point WLL 150kg

LAB0003 – Melvelle Newcastle Sticker

LAB0004 – Melvelle Achieving Excellence Sticker

LAB0006 – Danger – Keep Hands and Feet Clear Sticker

LAB0008 – Safety Label

LAB0009 – Hydraulic Oil Label

LAB0024 – LASHING POINT NO LIFTING

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 Safelok Clippers to the rail industry. The 171 Clipper is designed to remove and install Safelok 1 Fasteners that are used to retain the rail to sleepers. The 171 has the ability to be used on rail sizes from 41kg/m to 68kg/m rail using traditional concrete sleepers.

The 171 work head removes and installs Safelok Clips using hydraulic force rather than operator exertion. This significantly improves efficiency and eliminates manual handling hazards associated with installing and removing Safelok clips.

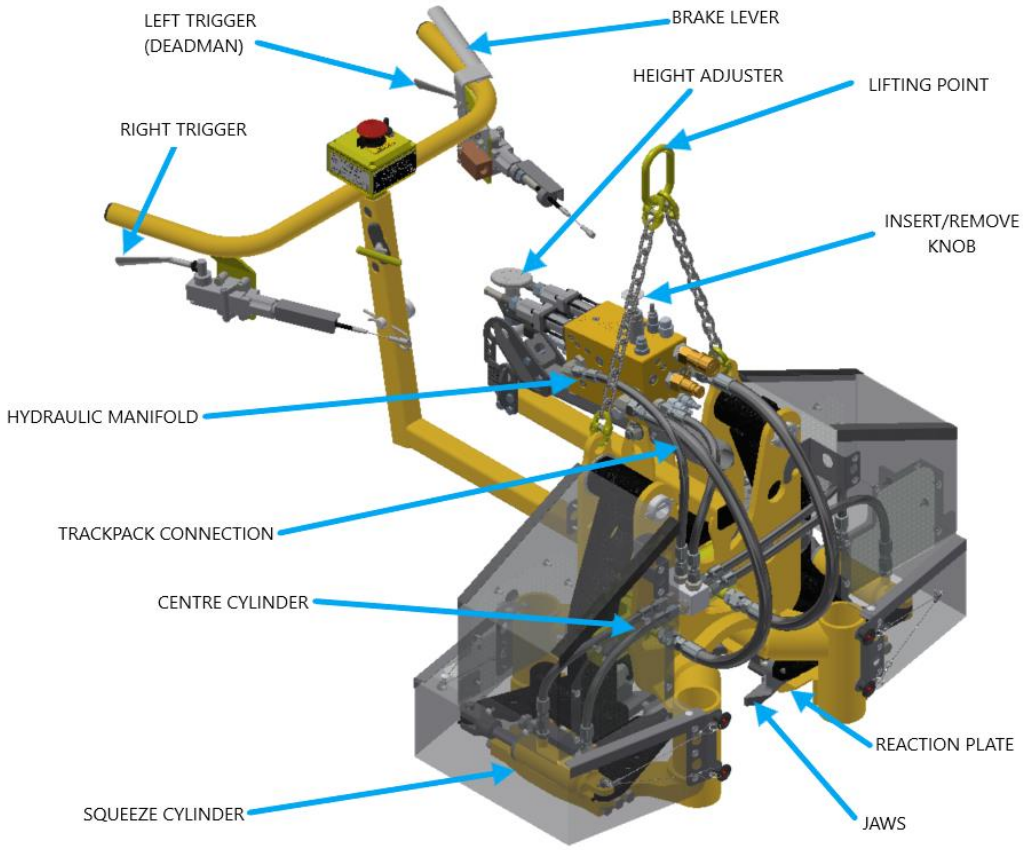
By using the "171 Clipper", injuries from traditional methods of removing these clips (Hand Tools) have been eliminated. These are (but not limited to):

- Back strain
- Repetitive strain injury
- Hammer strikes to legs
- Damage to feet through striking/or clips hitting ball of foot
- Struck by flying clips
- Infrastructure damage

The 171 work head is packed with features making it a valuable tool for track maintenance and construction. They include:

- Simple Tool-free set up on track[1]
- Clip drive adjustment, preventing over/under drive
- Simple push/pull knob change between Clipping and Unclipping
- Work light
- Ergonomic, height adjustable handles
- Precisely balanced – only 3-5 kg on operator
- Designated lift point for mechanical lifting

[1] When shoulder-shoulder centres change (i.e. sleepers differ between rail sizes) a spanner is required to adjust width.


LEFT TRIGGER
(DEADMAN)
BRAKE LEVER
HEIGHT ADJUSTER
LIFTING POINT
RIGHT TRIGGER
INSERT/REMOVE
KNOB
HYDRAULIC MANIFOLD
TRACKPACK CONNECTION
CENTRE CYLINDER
REACTION PLATE
SQUEEZE CYLINDER
JAWS

8. Specifications

8.1. FP-171-TPM3- Trackpack Work head

Engine	**MEC Trackpack**
Dimensions	1200mm long x 900mm wide x 700mm high
Weight (wet)	145kg
Pressure (max input from power pack)	185bar / 2680psi
Battery	12V
Hydraulic Oil[1]	ISO68
Hydraulic Hose Connection Size	½"
Pressure Settings:	
Relief Valve P.O. Kick Down	183bar / 2654psi
Pressure Relief Valve Pilot Operated	55bar / 798psi
Sequence Valve (1 & 2)	150bar / 2175psi
Counterbalance Valve	120bar / 1740psi
Relief Valve P.O. Vented	190bar/ 2755psi

9. Operation

WARNING

Before use of the equipment, be aware of the operating environment and conditions for which the equipment is to be used. Ensure all users are trained to operate the machinery before 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 remove and install Safelok 1 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
- Used on compatible rail sizes only

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 & Stickers/Tags

1. Inspect all guards and stickers/tags are in place and secure – refer to further document drawings for locations

2. Ensure there is no damage

3. If damaged, DO NOT use machinery. Replace before use

Emergency Stop

1. Ensure Emergency Stop plug is electrically connected

2. Ensure the wires are free from damage and connections are clean and dry

Jaws

1. Inspect jaws for damage and wear before use

Centre and Squeeze cylinders

1. Inspect for leaks and damage before use

Trigger cables

1. Inspect damage and smooth operation

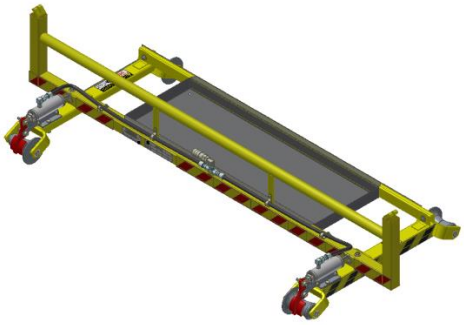
9.3. Assembly/Setup Procedures

WARNING

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

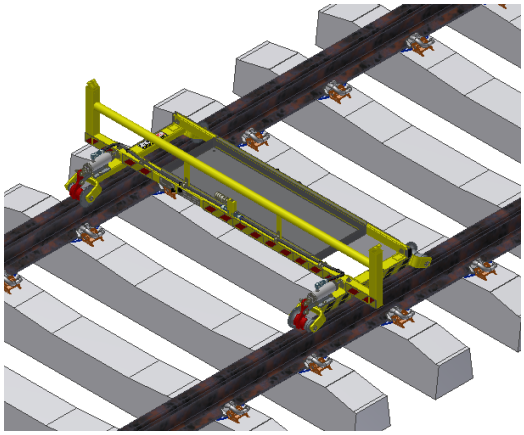
9.3.1. Braked Machine Trolley

1. Conduct all pre-operational checks as per section 9.2.



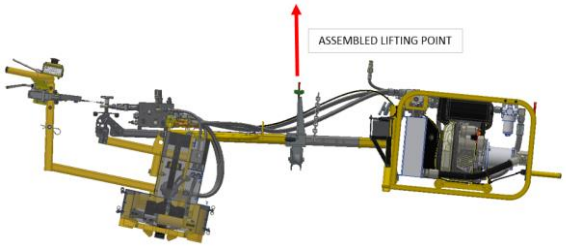
2. Assemble the trolley to the rail lines.

   Refer to Braked Machine Trolley Operation Manual for more information

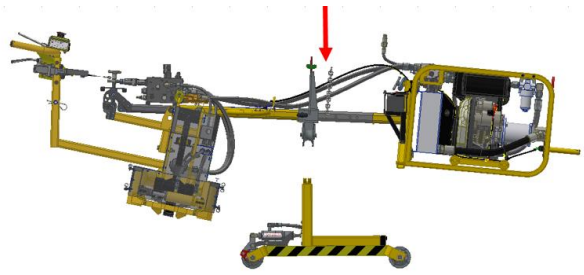


9.3.2. Machine Assembly – Assembled Machine

1. Observe all safety precautions. Ensure the operation is being performed on safe and steady ground (no excessive slopes or dangerous terrain).
2. Conduct all pre-operational checks as per section 9.2.
3. An assembled Safelok Machine and trackpack weighs approximately 275kg. Using a certified lifting device (min 300kg), 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).

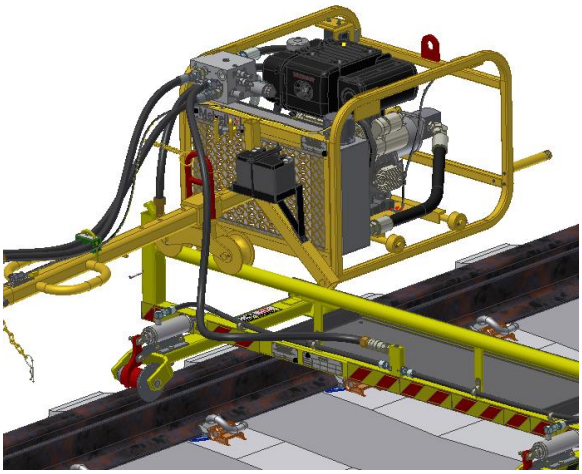


⚠ CAUTION

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. 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.

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

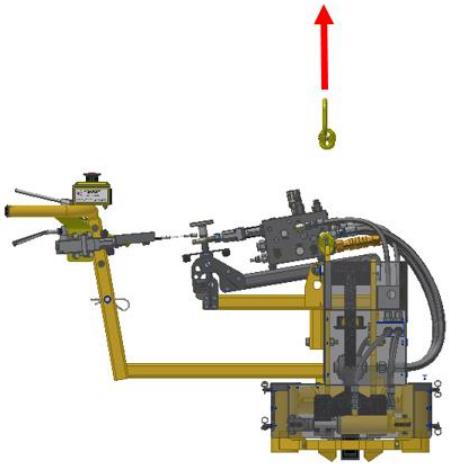


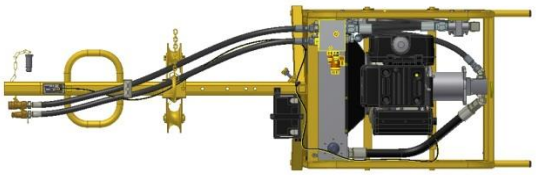
7. Connect the Brake hose to the Cylinder on the trolley.

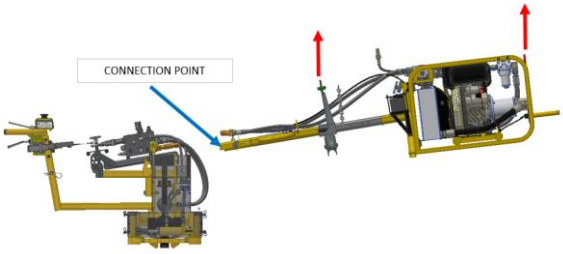
8. The equipment is now ready for use.

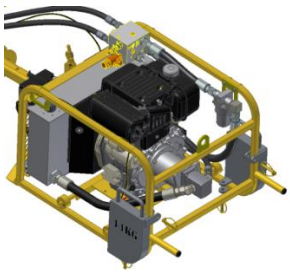
9.3.3. Machine Assembly – Trackpack to Workhead

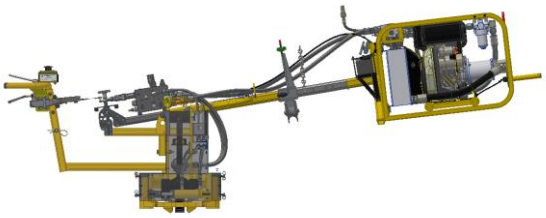
1. Observe all safety precautions. Ensure the operation is being performed on safe and steady ground (no excessive slopes or dangerous terrain).
2. Conduct all pre-operational checks as per section 9.2.
3. A Trackpack “171 Clipper” Head weighs approximately 145 kg and a Trackpack weighs approximately 120kg.
4. Place work head onto the ground as shown using lifting point. (Follow safe lifting procedures)
5. Adjust the pivot position (cross trolley rollers) to the correct position for the machine. For the Safelok Remover this is the furthest hole from the engine (refer section 14 for drawing of pin locations). Attach slings to the lifting lugs on the Trackpack.
6. By following safe lifting procedures, lift the Trackpack using slings ensuring it is kept level and easy to move (For more information refer to the Trackpack Manual).
7. Guide the Trackpack towards the work head and align the square attachment (hayman-reese style), sliding the items together. Insert the locking pin between the items and lock in position with the R -Clip. Lower the Trackpack to the ground and remove the slings.
8. Connect the hydraulic quick snaps together. Connect the electrical deutsch plugs together to ensure the Emergency stop and brake is connected to the trackpack.
9. The Trackpack and work head are now attached and can be lifted onto the machine trolley (the same as a dedicated machine). Refer to section 9.3.2 above for procedure on attaching to machine trolley.











9.3.4. Handle Adjustment

The adjustment of the handles is done to achieve a comfortable height for the operator whilst using the machine.

To adjust the handles:

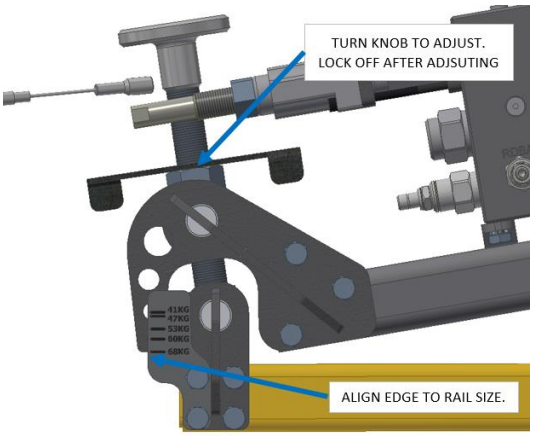
1. Loosen the T-Bolt and locking nut.
2. Remove the R-Clip and adjustment bolt from the handles.
3. Stand in the operating position and lift/lower the handles to the required height.
4. Replace the adjustment bolt and R-clip.
5. Tighten the T-Bolt and locking nut.

9.3.5. Machine Adjustment – Workhead Angle

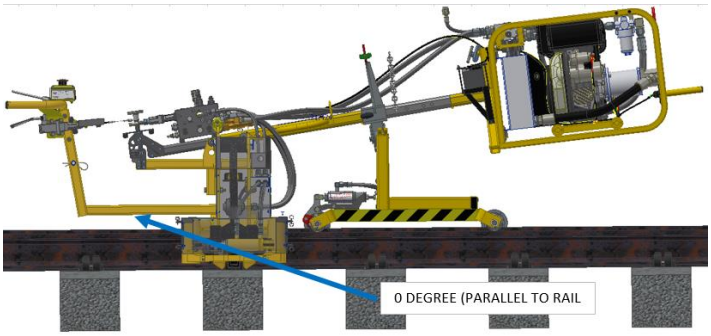
The head angle adjustment is required to ensure the 171 work head is level with the rail and ensures correct engagement with the clips. This is required as the rail height changes between rail sizes and hence, the angle of the work head. Incorrect work head angle hinders the operation of the machine and operators will find it difficult to use the machinery.

To adjust the Workhead angle:

1. Ensure the Workhead is on the rail and connected to a Trackpack as per sections 9.3.1, 9.3.2, & 9.3.3 above. Turn knob to align edge of indicator plate to correct rail size. Tighten locking nut firmly by hand.

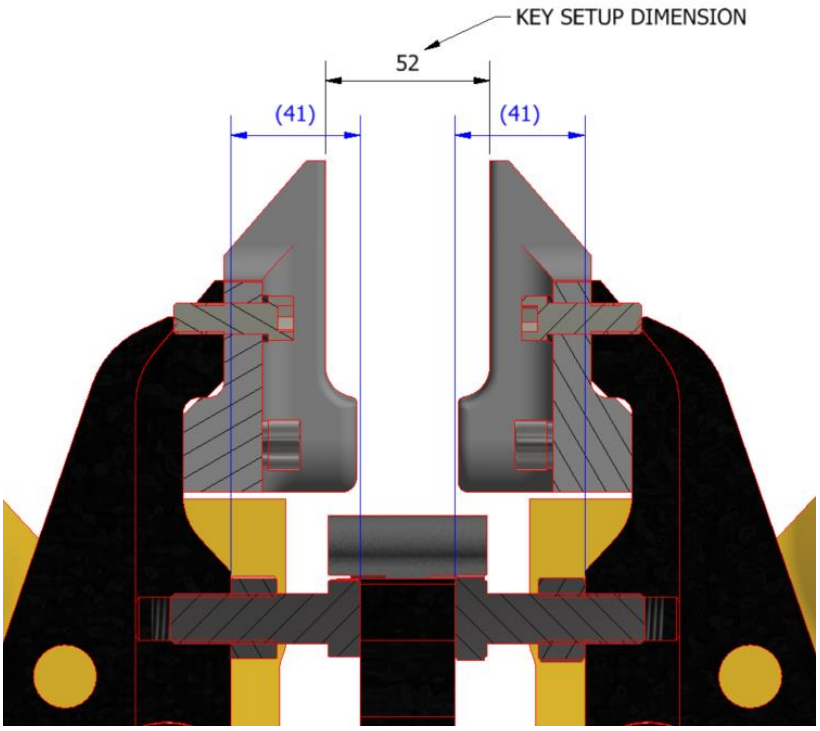


2. Following the above steps will align the work head parallel to the rail. Significantly worn rail may require a minor re-adjustment to ensure the work head is set parallel to the rail.

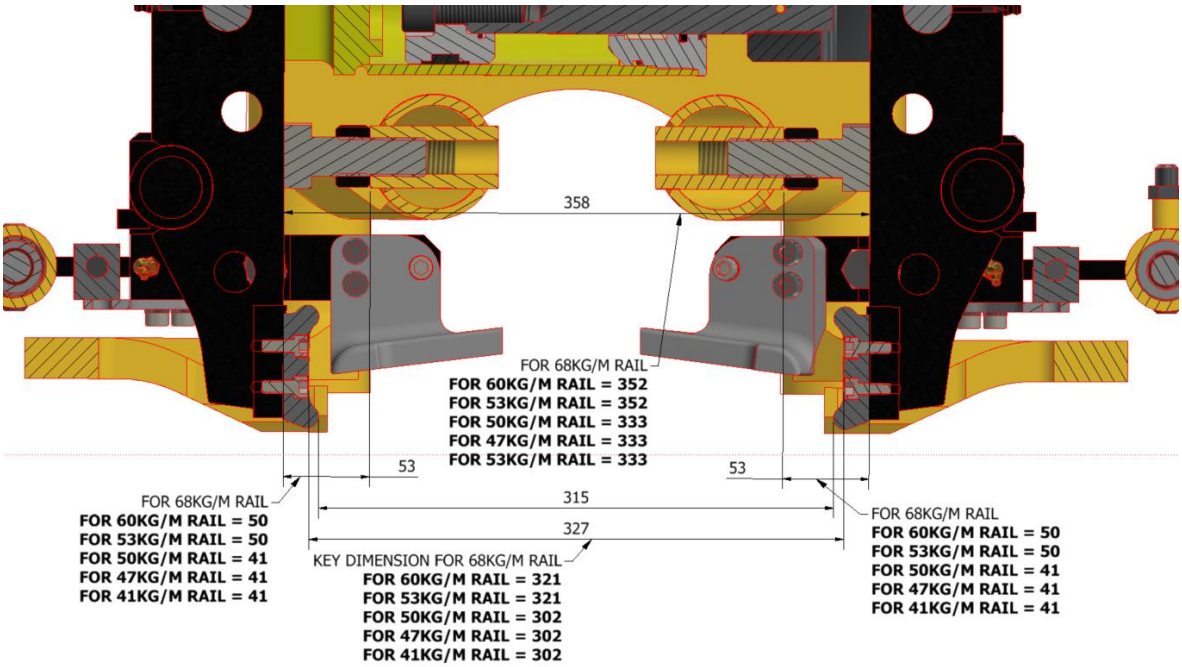


9.3.6. Squeeze Arm and Centre Arm Setup.

Set the Squeeze arms to the dimension shown when pivoting the arms all the way in.



Set the main Centre Arms to the corresponding dimensions as shown below for the Rail being used.



9.4. Operation Procedures

WARNING

Only authorised personnel shall start, operate or interfere with the normal working of portable machines or trolleys. The user shall be careful to use the machine in the intended way, avoiding over-loading.

9.4.1. Starting the Engine – Electric Start[1]

1. Observe all safety precautions
2. Ensure all pre-operation checks have been conducted
3. Assemble the work head, track pack and trolley as per the above assembly procedure.
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 (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.
    a. If Diesel, with the decompression lever pressed, the fly wheel will quickly gain momentum (2-3 seconds) as the starter motor is activated.
    b. With the engine spinning, release the decompression lever whilst maintaining the key in the start position.
    c. The engine will start almost immediately. Once started return key to first position.
    d. 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

9.4.2. Starting the Engine – Recoil Start[1]

1. Observe all safety precautions
2. Ensure all pre-operation checks have been conducted
3. Assemble the work head, track pack and trolley as per the above assembly procedure.
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) 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.

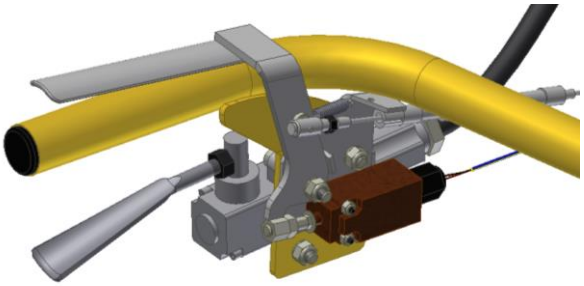
[1] Refer to engine manual for detailed engine instructions and requirements
[2] During first 50hrs do not exceed 70% maximum rated power

9.4.3. Equipment Operation – Releasing the Brake

All new machine trolleys are fitted with fail-safe brakes. These brakes are released by hydraulic pressure, supplied by connecting the ¼" hydraulic hose line to the trolley as stated in assembly procedures.

To release the brake on the trolley:

1. Observe all safety precautions
2. Ensure all pre-operation checks have been conducted as per section 9.2.
3. Ensure all Assembly Procedures have been followed and the 171 Clipper is set up correctly on track as per sections 9.3.1, 9.3.2, 9.3.3, 9.3.4, & 9.3.5.
4. Ensure all hydraulic and electrical connectors are connected – these control the operation of the brakes and also the machine.
5. If there is a manual pull cable for the brake manifold (small flexible cable), connect this to the trigger – as shown.
6. To assemble a manual pull cable to the brake trigger, slide the cable through the outer cable holder. Pull down on the cable connection at the end of the cable to open and slide over the ball located on the trigger. The outer cable should locate on the back of the outer cable holder. Adjustment of the cable may be required before and after assembly of the cable to the trigger.



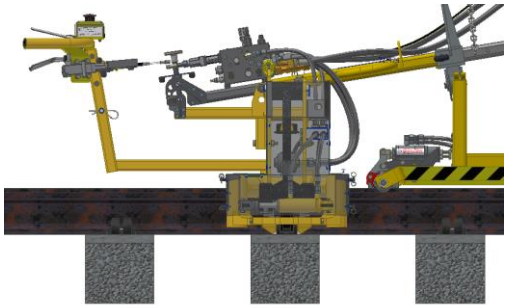
7. Start the engine as per sections 9.4.1 & 9.4.2.

8. To release the brakes, push down the trigger on top of the handles.

9. The brakes will release and allow movement of the machine. For further information, please see trolley manual or contact MEC.

9.4.4. Equipment Operation – Removing Clips

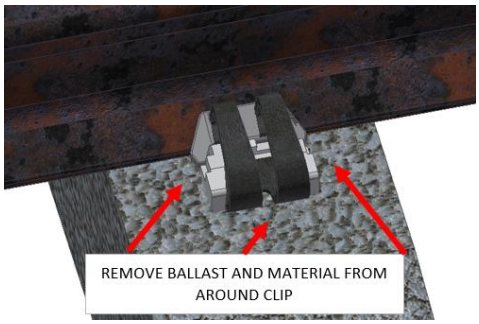
1. Observe all safety precautions.



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

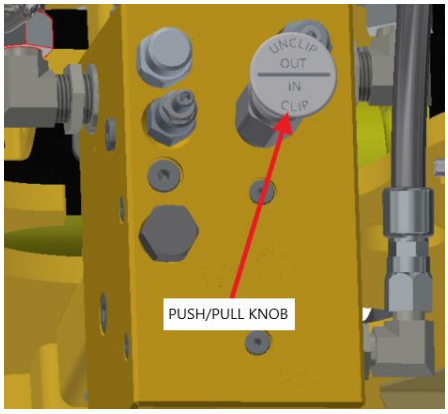
3. Ensure the 171 is assembled onto track with the brakes connected as per sections 9.3.1, 9.3.2, 9.3.3, 9.3.4, & 9.3.5.

4. Ensure the work head angle, and adjustment screws are set correctly as per section 9.3.5 respectively.



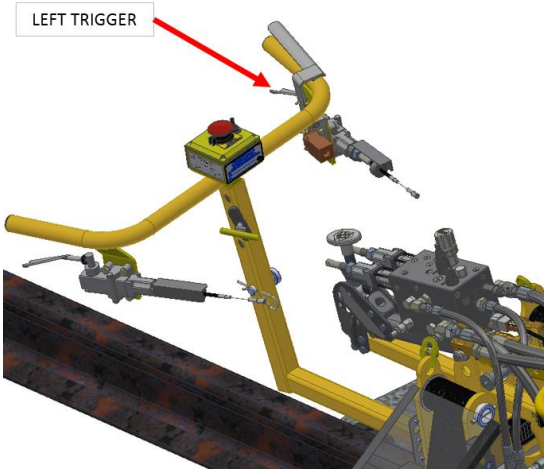
5. Ensure the sleeper is clean around the edges of the shoulder. Material build-up in this area will make it difficult to align the reaction plate with the clip/shoulder.

6. Start the engine as per sections 9.4.1 & 9.4.2.



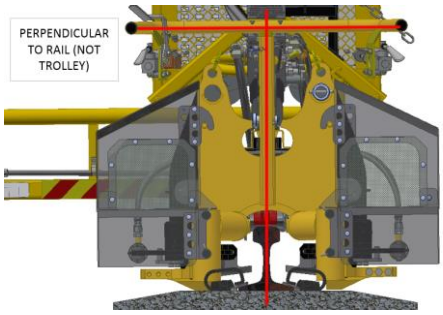
7. Pull the knob on the hydraulic manifold up to set the machine into UNCLIP mode.

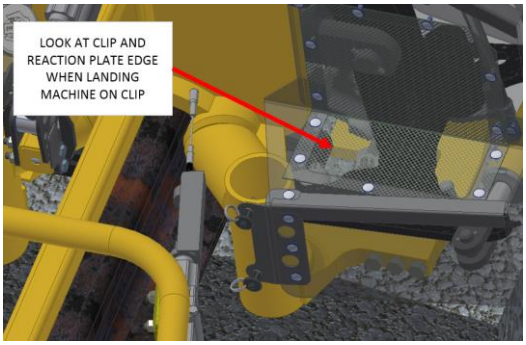
8. Squeeze and hold the left hand trigger as well as holding the brake lever at the same time (Note if working on gradients the brakes can be released to hold the unit stationary). This will allow the cylinders to open up.



9. Lift the handles and roll forward and position the workhead over the clip. Note the CANT of the rail and ensure the work head comes down perpendicular to the rail.

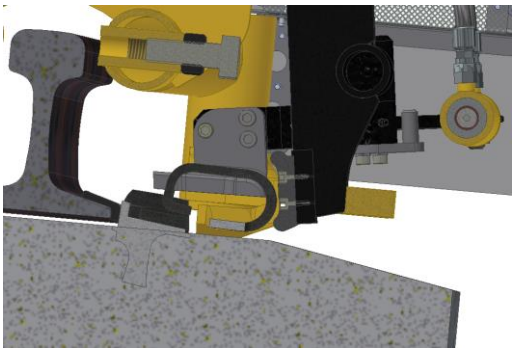
10. The viewing window is quite narrow but with the practise and patience smooth and easy workflow can be achieved. It is best to look at the reaction plate through the guard and align with the clip.





11. The machine is now positioned correctly, ready to remove the clips. With the left trigger still held, squeeze the right trigger for approx.. 2 seconds, then release the right trigger. This will have removed the clips.

12. Lift the handles up and move forward by holding the brake lever. The left trigger can wither be held or released between sleepers. Releasing the trigger is preferred as it places the unit into “Neutral”.

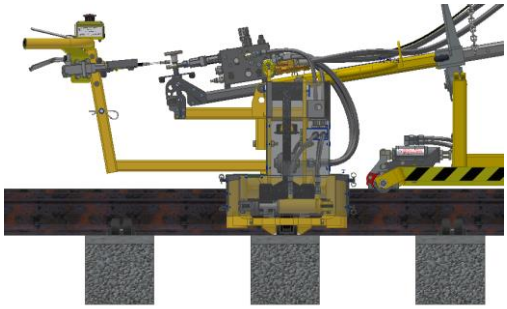


9.4.5. Equipment Operation – Inserting Clips

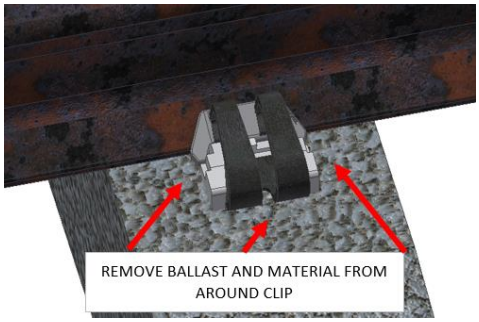
1. Observe all safety precautions.

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

3. Ensure the 171 is assembled onto track with the brakes connected as per sections 9.3.1, 9.3.2, 9.3.3, 9.3.4, & 9.3.5.



4. Ensure the work head angle, and adjustment screws are set correctly as per section 9.3.5 and respectively.



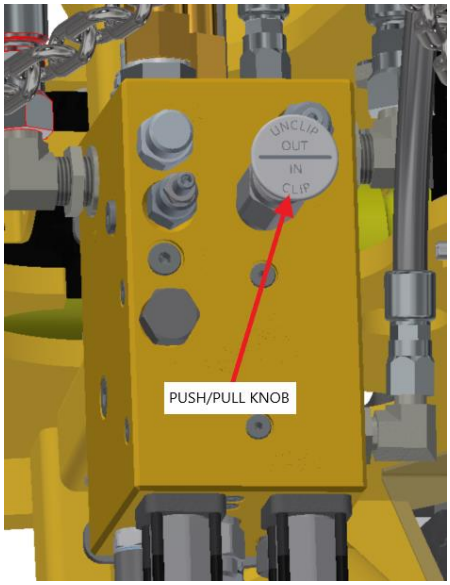
5. Ensure the sleeper is clean around the edges of the shoulder. Material build-up in this area will make it difficult to align the reaction plate with the clip/shoulder.

6. Start the engine as sections 9.4.1 & 9.4.2.

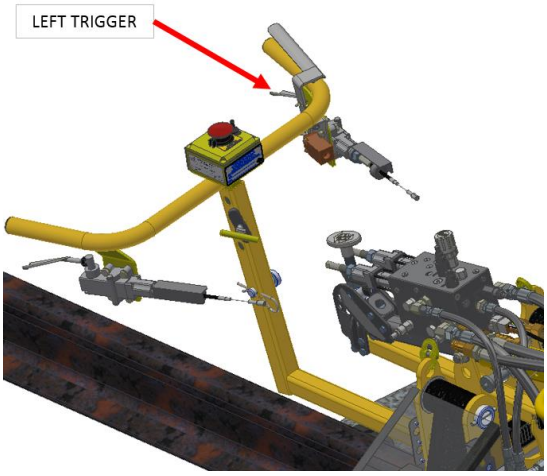
7. Insert the clip so the base of the clip engages with the shoulder.

8. Push the knob on the hydraulic manifold down to set the machine into CLIP mode.

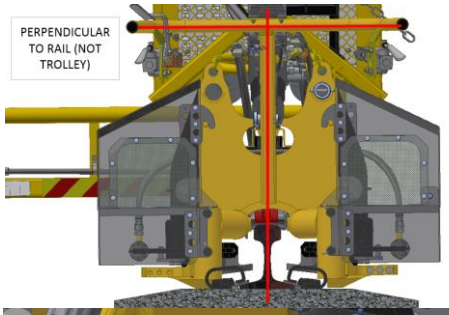
9. Squeeze and hold the left hand trigger as well as holding the brake lever at the same time (Note if working on gradients the brakes can be released to hold the unit stationary). This will allow the cylinders to open up.

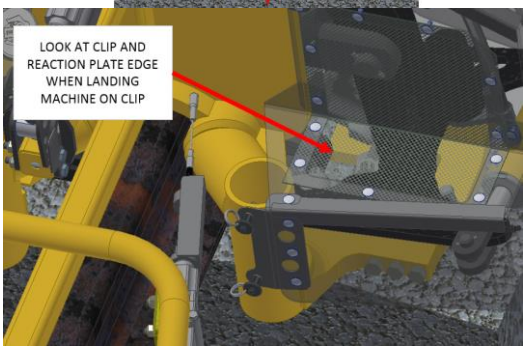


10. Lift the handles and roll forward and position the workhead over the clip. Note the CANT of the rail and ensure the work head comes down perpendicular to the rail.



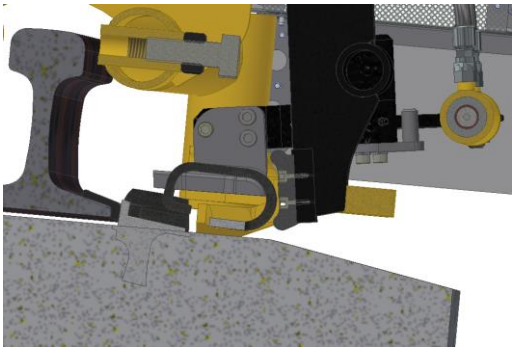
11. The viewing window is quite narrow but with practise and patience smooth and easy workflow can be achieved. It is best to look at the reaction plate through the guard and align with the clip.





12. The machine is now positioned correctly, ready to Insert the clips. With the left trigger still held, squeeze the right trigger for approx.. 2 seconds, then release the right trigger. This will have installed the clips

13. Lift the handles up and move forward by holding the brake lever. The left trigger can wither be held or released between sleepers. Releasing the trigger is preferred as it places the unit into “Neutral”.



9.4.6. Stopping the Engine[1]

1. Place tooling and power pack to “NEUTRAL” position (All triggers released)
2. Set the engine speed to idle (min) using accelerator
3. Turn the ignition key to OFF
4. Turn the battery isolator to off if machine is to stationary for a period of time.

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

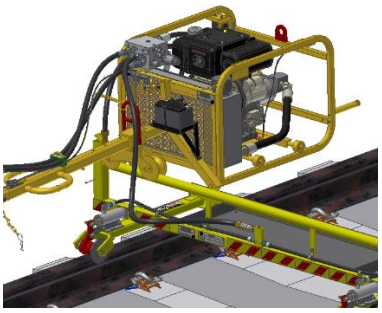
9.5. Disassembly Procedures

9.5.1. Removal Machine from Track

1. Observe all safety precautions

2. Ensure engine is off and no hydraulic flow is operating to brake cylinders

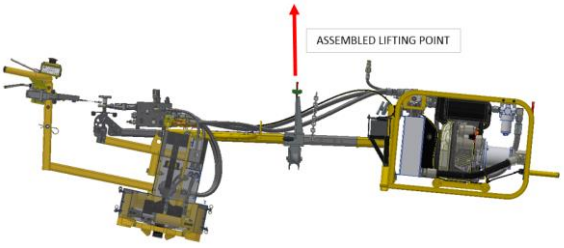
3. Disconnect the brake hose from the trolley cylinder



4. Disconnct the chain from the retaining profile to release the machine from the trolley

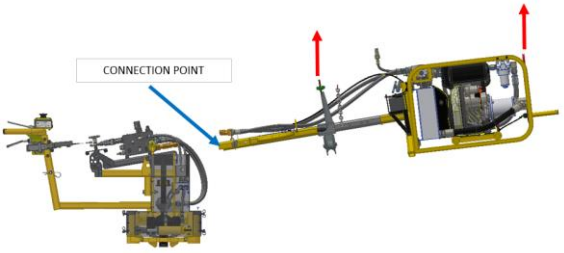
5. Lift and remove the workhead (and Trackpack) from the trolley using a certified lifting device (>300kg)

6. Whilst still coupled together, fit work head to stowage frame as per details below. The unit can now be safely loaded onto a truck/trailer for transport.



*Expected time for removal of trolley with workhead assembled is approximately five (5) minutes (using certified lifting devices). These times may increase or decrease depending on location, conditions, etc.

7. If required the unit can also be further separated as shown.



9.5.2. 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 below
5. Using a certified lifting device to >300kg, lift the machinery to required position as per machine assembly and disassembly.

10. Storage & Transport

10.1. Storage of Safelok Machine

MEC equipment should be stored in a secure, safe, dry location to ensure the equipment is not damaged and maintained in good working order. If possible, machines may be placed onto racks or placed on the ground for storage. Storing the machines in the storage/transport frames will also help to keep the equipment free from damage and allow it to sit level.

Storage of the Safelok machine can either be done connected to a Trackpack or with the work head separate.

11. 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/connectors 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 Safelok Machine 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 2800psi
- Always keep critical tool markings such as warning stickers and tags legible
- Power pack and tooling 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

12. Maintenance

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.

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)	

12.1. Maintenance Period[1]

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 Level	Check/Fill	X				
Fuel Lines	Check		X			
	Replace					X
Fuel Filter	Check/Clean			X		
	Change					X
Air Filter	Check			X		
	Replace				X	
Engine cooling fins	Clean					X
Rocker arms clearance	Check & set					X (2)
Injectors	Clean & set					X (2)
Spark Plug	Check				X	
	Replace					X
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) (4)		X (4)
Battery	Check	X				
Grease Nipples	Fill			X		
Trigger Cables	Check	X				
Brake Lift Switch	Check	X				
Emergency Stop	Check	X				
Guards	Check	X				
Clip up jaw insert	Check		X			
Unclip Jaw Inserts	Check		X			
Reaction plate wear points	Check		X			
Nuts, Bolts, Screws, Fittings	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

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

13. 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
	Emergency Stop not connected	Check Emergency stop connection
	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
No hydraulic oil flow/little flow	No hydraulic oil	Check hydraulic oil level
	Pressure and Tank (return) hoses interchanged	Check connection.
	Operation lever in neutral	Check operation lever position
	Couplers or hoses blocked	Remove restriction
	Filter Blocked or Old	Replace filter
	Hoses leaking	Check hoses
	Contamination in relief valve	Clean relief valve
	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

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

Unit not responding to trigger movements	Air in hydraulic circuit	Start and run unit for 1 minute checking oil level. Cycle unit many times(up to a minute) by operating left and right trigger
	No hydraulic flow to unit	See above for flow check
	Trigger cables not adjusted correctly	Adjust cables
	Incorrect pressure settings of hydraulic valves	***Only perform adjustments with adequate hydraulic training, and correct pressure monitoring equipment. A circuit diagram can be found at the end of this manual. *Centre cylinder retracting, and squeeze cylinders moving a small amount then stopping – Relief Valve P.O. Kickdown set to low. *Centre cylinder extending quickly but retracting slowly – Counterbalance Valve set to high, or Pressure Relief Valve set to low. *Centre cylinder extending, then squeeze cylinders beginning to retract then stop. – Counterbalance Valve set to high. *Centre cylinder not retracting at all – Pressure Relief Valve set to low.
Machine not landing correctly and engaging with clips correctly	Height adjuster set incorrectly	Set machine level by adjusting height adjuster
	Unit not pulled fully to one side on trolley	Ensure chain connected to trolley and pulled as far as possible to operation side
	Jaw and arm Jacking screw stops set incorrectly	Set stops as found above in this manual
	Ballast around shoulder	Clear ballast of shoulder

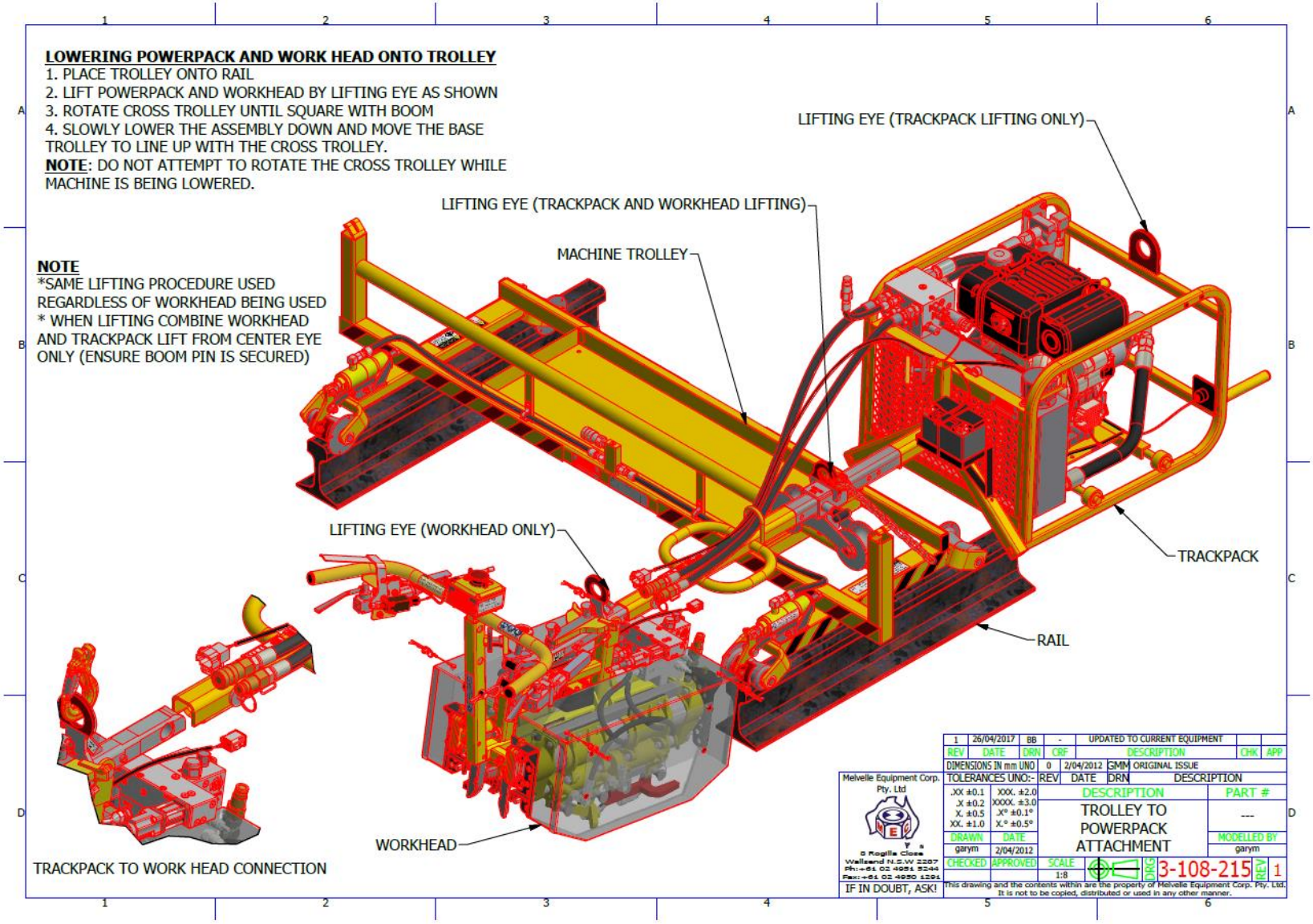
14. Further Documents

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

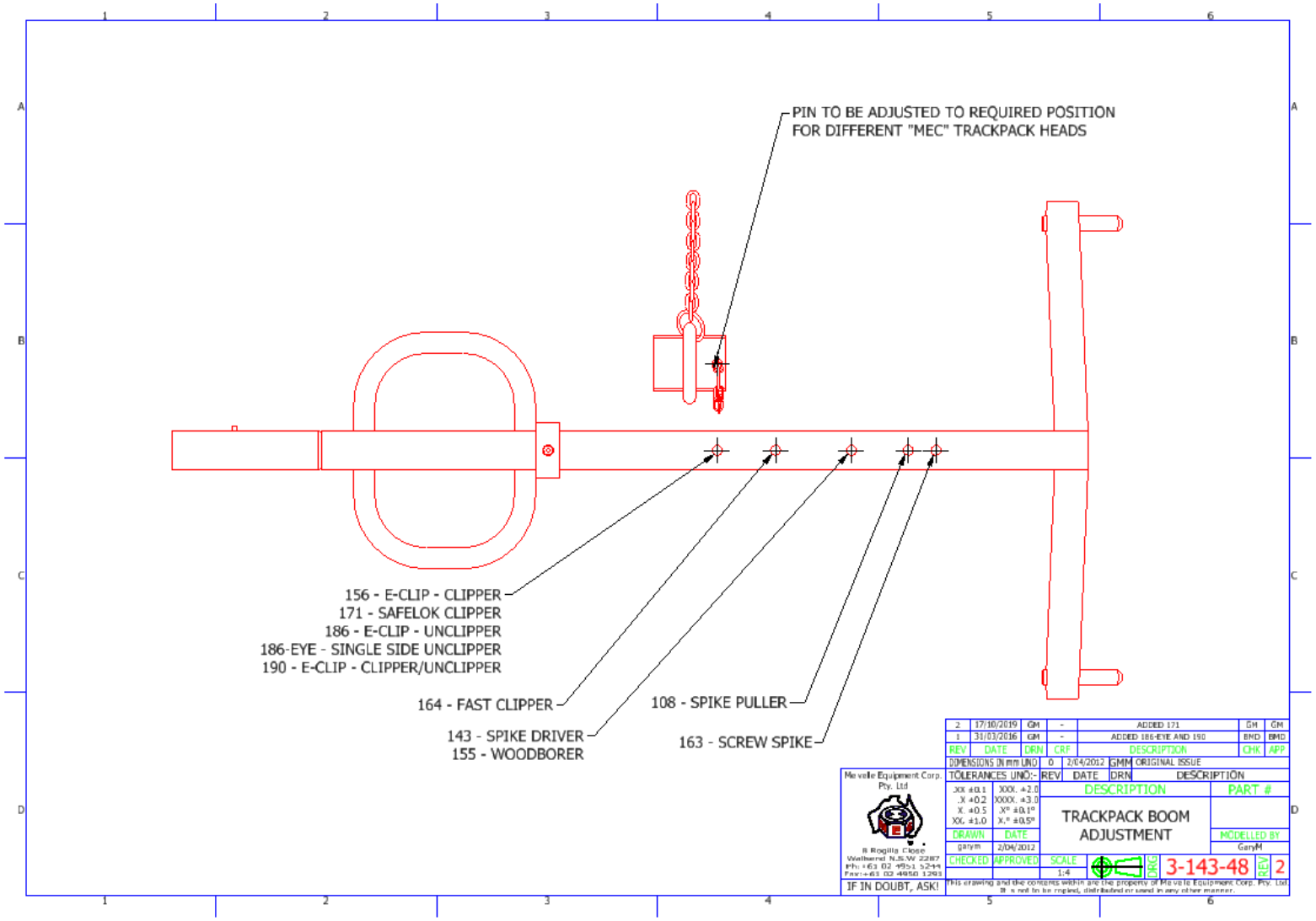
Further documents for the 171 Safelok Inserter/Remover:

Document No.	Description	Type
108-215	Trolley to Power Pack Attachment	Drawing
143-48	Trackpack Boom Adjustment	Drawing
171-112	FP-171-TP Top level Assembly Drawing	Drawing
171-133	Centre Cylinder Assembly	Drawing
171-139	Squeeze Cylinder Assembly	Drawing
171-180	Hydraulic Circuit Diagram	Drawing
190-127	Electrical Circuit Diagram	Drawing
171-OPRA	Operational Risk Assessment	Document

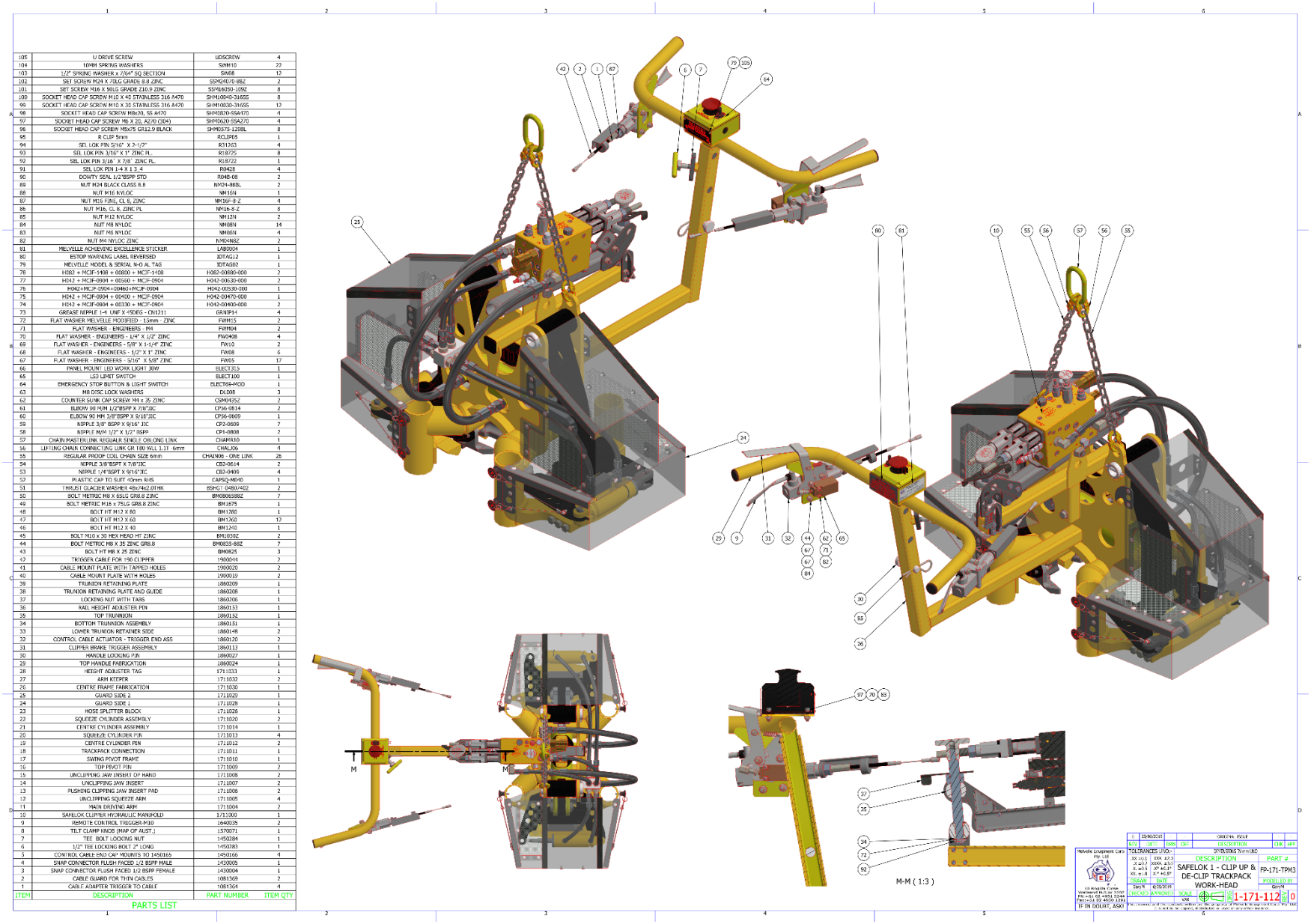
14.1. Trolley to Power Pack Attachment



14.2. Trackpack Boom Adjustment



14.3. Top level assembly Drawing

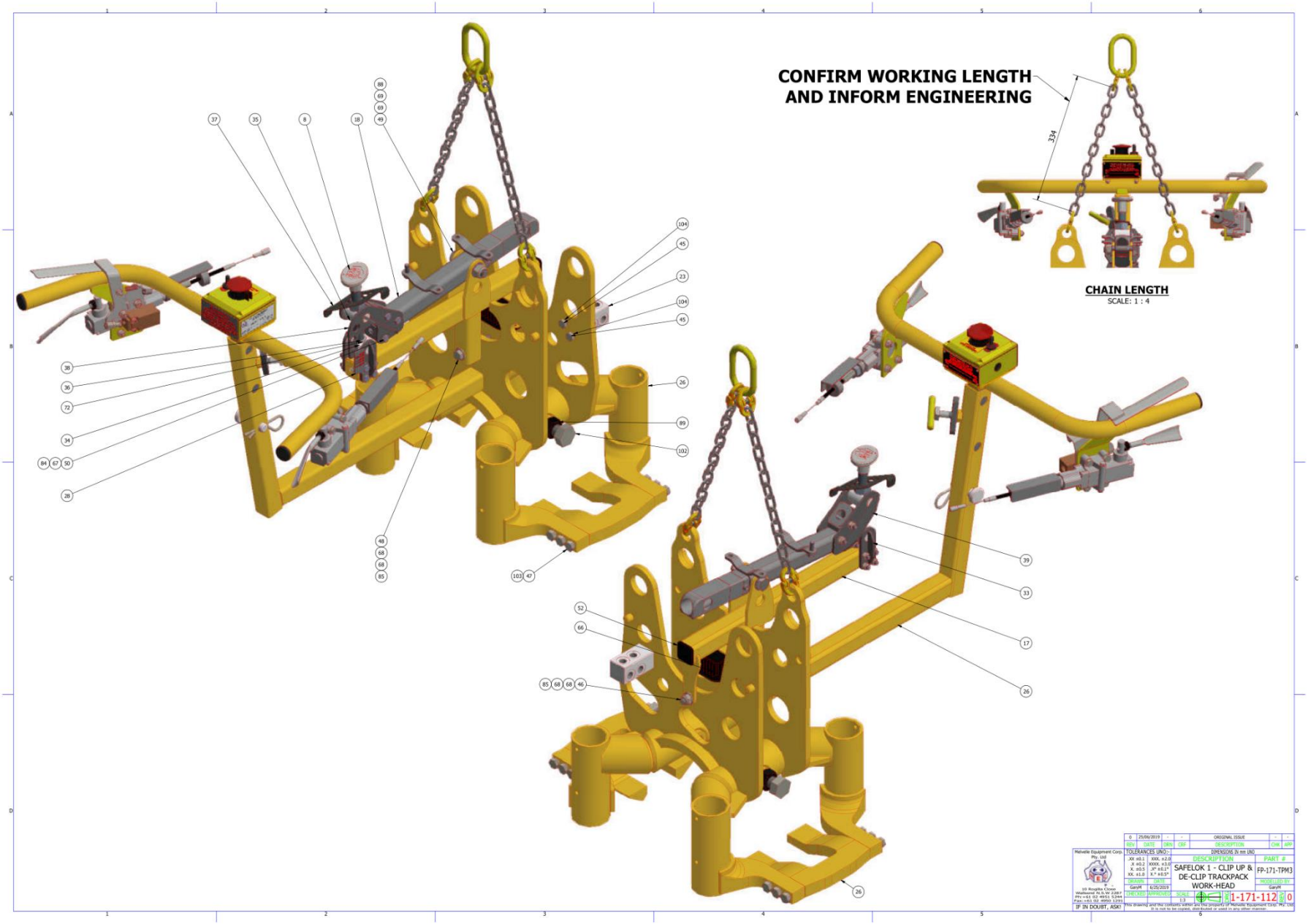


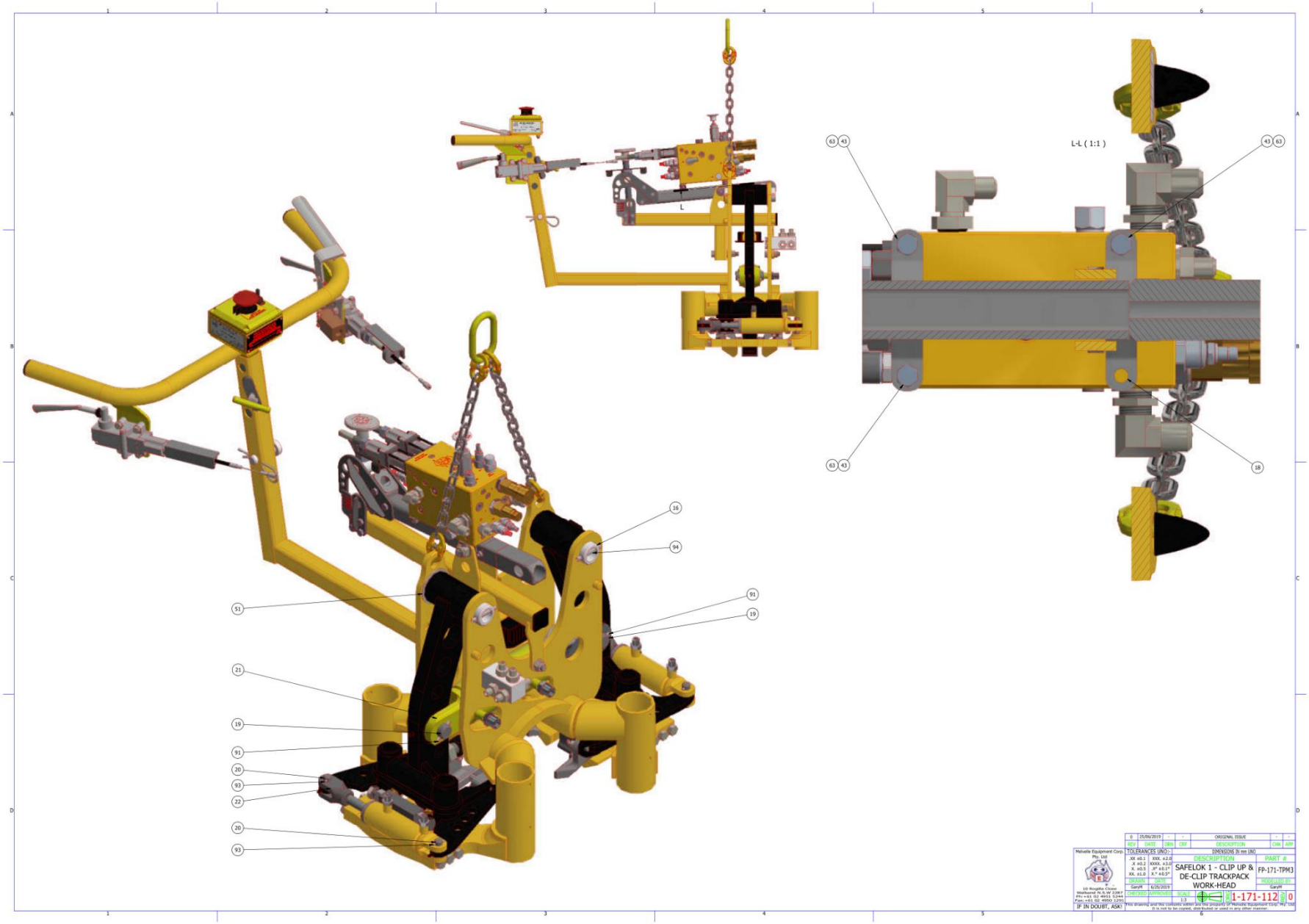
ITEM	DESCRIPTION	PART NUMBER	ITEM QTY
105	U DRIVE SCREW	UDSCREW	4
104	10MM SPRING WASHERS	SWM10	22
103	1/2" SPRING WASHER x 7/64" SQ SECTION	SW08	12
102	SET SCREW M24 X 70LG GRADE 8.8 ZINC	SSM24070-88Z	2
101	SET SCREW M16 X 50LG GRADE Z10.9 ZINC	SSM16050-109Z	8
100	SOCKET HEAD CAP SCREW M10 X 40 STAINLESS 316 A470	SHM10040-316SS	8
99	SOCKET HEAD CAP SCREW M10 X 30 STAINLESS 316 A470	SHM10030-316SS	12
98	SOCKET HEAD CAP SCREW M8x20, SS A470	SHM0820-SSA470	4
97	SOCKET HEAD CAP SCREW M6 X 20, A2/0 (304)	SHM0620-SSA270	4
96	SOCKET HEAD CAP SCREW M8x75 GR12.9 BLACK	SHM0575-129BL	8
95	R CLIP 5mm	RCLIP05	1
94	SEL LOK PIN 5/16" X 2-1/2"	R31263	4
93	SEL LOK PIN 3/16" X 1" ZINC PL.	R18725	8
92	SEL LOK PIN 3/16" X 7/8" ZINC PL.	R18722	1
91	SEL LOK PIN 1-4 X 1 3 .4	R0428	4
90	DOWTY SEAL 1/2"BSPP STD	R04B-08	2
89	NUT M24 BLACK CLASS 8.8	NM24-88BL	2
88	NUT M16 NYLOC	NM16N	1
87	NUT M16 FINE, CL 8, ZINC	NM16F-8-Z	4
86	NUT M16, CL 8, ZINC PL	NM16-8-Z	8
85	NUT M12 NYLOC	NM12N	2
84	NUT M8 NYLOC	NM08N	14
83	NUT M6 NYLOC	NM06N	4
82	NUT M4 NYLOC ZINC	NM04N8Z	2
81	MELVELLE ACHIEVING EXCELLENCE STICKER	LAB0004	1
80	ESTOP WARNING LABEL REVERSED	IDTAG12	1
79	MELVELLE MODEL & SERIAL N-O AL TAG	IDTAG02	1
78	H082 + MCIF-1408 + 00800 + MCIF-1408	H082-00800-000	2
77	H042 + MCIF-0904 + 00360 + MCIF-0904	H042-00630-000	2
76	H042+MCIF-0904+00460+MCIF-0904	H042-00530-000	1
75	H042 + MCIF-0804 + 00400 + MCIF-0904	H042-00470-000	1
74	H042 + MCIF-0804 + 00330 + MCIF-0904	H042-00400-000	2
73	GREASE NIPPLE 1-4 UNF X 45DEG - CN1211	GRNIP14	4
72	FLAT WASHER MELVELLE MODIFIED - 15mm - ZINC	FWM15	2
71	FLAT WASHER - ENGINEERS - M4	FWM04	2
70	FLAT WASHER - ENGINEERS - 1/4" X 1/2" ZINC	FW0408	4
69	FLAT WASHER - ENGINEERS - 5/8" X 1-1/4" ZINC	FW10	2
68	FLAT WASHER - ENGINEERS - 1/2" X 1" ZINC	FW08	6
67	FLAT WASHER - ENGINEERS - 5/16" X 5/8" ZINC	FW05	17
66	PANEL MOUNT LED WORK LIGHT 30W	ELECT1313	1
65	L53 LIMIT SWITCH	ELECT100	1
64	EMERGENCY STOP BUTTON & LIGHT SWITCH	ELECT69-MOD	1
63	M8 DISC LOCK WASHERS	DL008	3
62	COUNTER SUNK CAP SCREW M4 x 35 ZINC	CSM04035Z	2
61	ELBOW 90 M/M 1/2"BSPP X 7/8"JIC	CP56-0814	2
60	ELBOW 90 MM 3/8"BSPP X 9/16"JIC	CP56-0609	1
59	NIPPLE 3/8" BSPP X 9/16" JIC	CP2-0609	7
58	NIPPLE M/M 1/2" X 1/2" BSPP	CP1-0808	2
57	CHAIN MASTERLINK REGULAR SINGLE ORLONG LINK	CHAMR10	1
56	LIFTING CHAIN CONNECTING LINK GR 100 WLL 1.1T 6mm	CHALJ06	4
55	REGULAR PROOF COIL CHAIN SIZE 6mm	CHALN06 - ONE LINK	26
54	NIPPLE 3/8"BSPT X 7/8"JIC	CB2-0614	2
53	NIPPLE 1/4"BSPT X 9/16"JIC	CB2-0409	4
52	PLASTIC CAP TO SUIT 40mm RHS	CAPSQ-M040	1
51	THRUST GLACIER WASHER 48x74x2.01HK	RSHGT 0480/402	2
50	BOLT METRIC M8 X 65LG GR8.8 ZINC	BM0806588Z	7
49	BOLT METRIC M16 x 75LG GR8.8 ZINC	BM1675	1
48	BOLT HT M12 X 80	BM1280	1
47	BOLT HT M12 X 60	BM1260	13
46	BOLT HT M12 X 40	BM1240	1
45	BOLT M10 X 30 HEX HEAD HT ZINC	BM1030Z	2
44	BOLT METRIC M8 X 35 ZINC GR8.8	BM0835-88Z	7
43	BOLT HT M8 X 25 ZINC	BM0825	3
42	TRIGGER CABLE FOR 190 CLIPPER	1900041	1
41	CABLE MOUNT PLATE WITH TAPPED HOLES	1900020	2
40	CABLE MOUNT PLATE WITH HOLES	1900019	2
39	TRUNION RETAINING PLATE	1860209	1
38	TRUNION RETAINING PLATE AND GUIDE	1860208	1
37	LOCKING NUT WITH TABS	1860206	1
36	RAIL HEIGHT ADJUSTER PIN	1860153	1
35	TOP TRUNNION	1860152	1
34	BOTTOM TRUNNION ASSEMBLY	1860151	1
33	LOWER TRUNION RETAINER SIDE	1860148	2
32	CONTROL CABLE ACTUATOR - TRIGGER END ASS	1860120	2
31	CLIPPER BRAKE TRIGGER ASSEMBLY	1860113	1
30	HANDLE LOCKING PIN	1860027	1
29	TOP HANDLE FABRICATION	1860024	1
28	HEIGHT ADJUSTER TAG	1711033	1
27	ARM KEEPER	1711032	2
26	CENTRE FRAME FABRICATION	1711030	1
25	GUARD SIDE 2	1711029	1
24	GUARD SIDE 1	1711028	1
23	HOSE SPLITTER BLOCK	1711026	1
22	SQUEEZE CYLINDER ASSEMBLY	1711020	2
21	CENTRE CYLINDER ASSEMBLY	1711014	1
20	SQUEEZE CYLINDER PIN	1711013	4
19	CENTRE CYLINDER PIN	1711012	2
18	TRACKPACK CONNECTION	1711011	1
17	SWING PIVOT FRAME	1711010	1
16	TOP PIVOT PIN	1711009	2
15	UNCLIPPING JAW INSERT OP HAND	1711008	2
14	UNCLIPPING JAW INSERT	1711007	2
13	PUSHING CLIPPING JAW INSERT PAD	1711006	2
12	UNCLIPPING SQUEEZE ARM	1711005	4
11	MAIN DRIVING ARM	1711004	2
10	SAHELOK CLIPPER HYDRAULIC MANIFOLD	1711000	1
9	REMOTE CONTROL TRIGGER-M10	1640035	2
8	TILT CLAMP KNOB (MAP OF AUST.)	1570071	1
7	TEE BOLT LOCKING NUT	1450284	1
6	1/2" TEE LOCKING BOLT 2" LONG	1450283	1
5	CONTROL CABLE END CAP MOUNTS TO 1450166	1450166	4
4	SNAP CONNECTOR FLUSH FACED 1/2 BSPP MALE	1430009	1
3	SNAP CONNECTOR FLUSH FACED 1/2 BSPP FEMALE	1430004	1
2	CABLE GUARD FOR THIN CABLES	1081369	2
1	CABLE ADAPTER TRIGGER TO CABLE	1081364	4

PARTS LIST

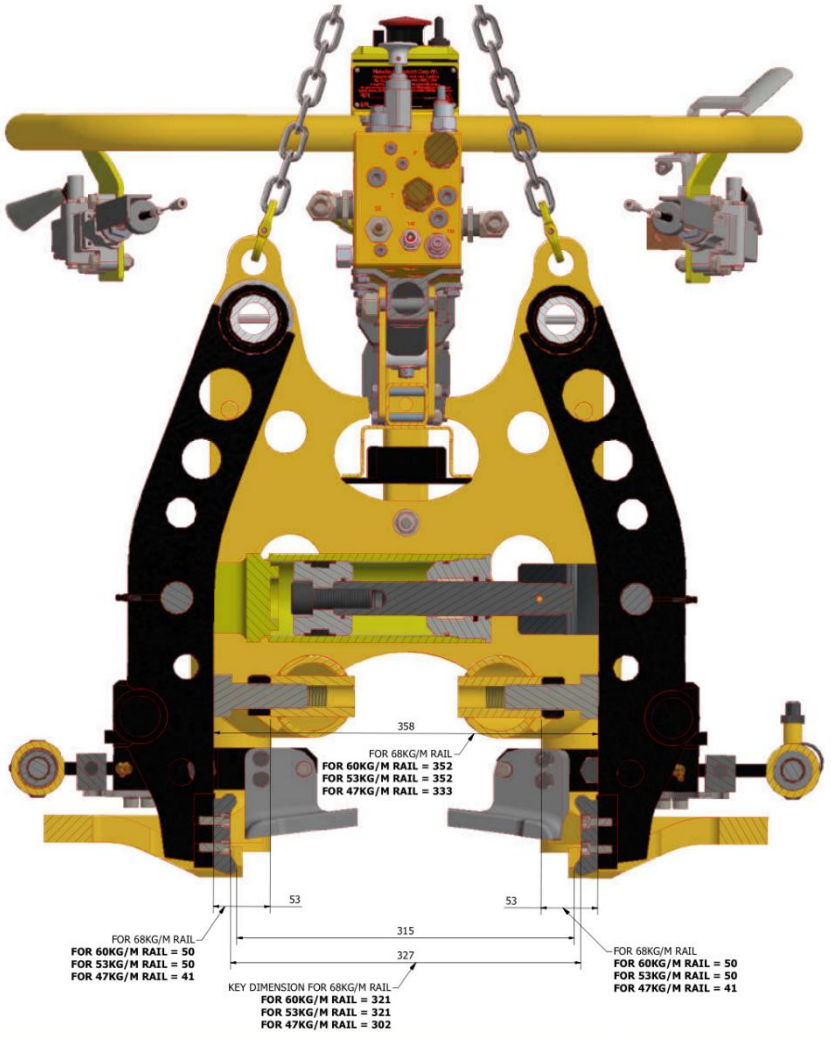
M-M (1:3)


KEY DIMENSION
52
41
41
34
34
SETUP DIMENSION
SCALE: 1:2
K (3:2)
73
73
11
12
101
86
27
86
101
12
104
99
15
100
99
104
14
104
98
98
13
K
SAFELOK 1 - CLIP UP & DE-CLIP TRACKPACK WORK-HEAD
FP-171-TPM3
1-171-112


CONFIRM WORKING LENGTH
AND INFORM ENGINEERING
334
CHAIN LENGTH
SCALE: 1 : 4
SAFELOK 1 - CLIP UP &
DE-CLIP TRACKPACK
WORK-HEAD
FP-171-TPM3
1-171-112


L-L (1:1)
SAFELOK 1 - CLIP UP & DE-CLIP TRACKPACK WORK-HEAD
FP-171-TPM3
1-171-112

N-N
SETUP DIMENSIONS
SCALE: 1:2



0	25/06/2019	-	-	ORIGINAL ISSUE	-	-
ISS	DATE	DR	CH	DESCRIPTION	CHK	APP

Melvale 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 XXX. ±1.0
X. ±0.5 X° ±0.1°
XX. ±1.0 X.° ±0.5°
DRAWN: GaryH DATE: 6/25/2019
CHECKED: APPROVED: SCALE: 1:2

DIMENSIONS IN mm UNO

DESCRIPTION: SAFELOK 1 - CLIP UP & DE-CLIP TRACKPACK WORK-HEAD

PART #: FP-171-TPM3

MODELLED BY: GaryH

A1-171-112 0

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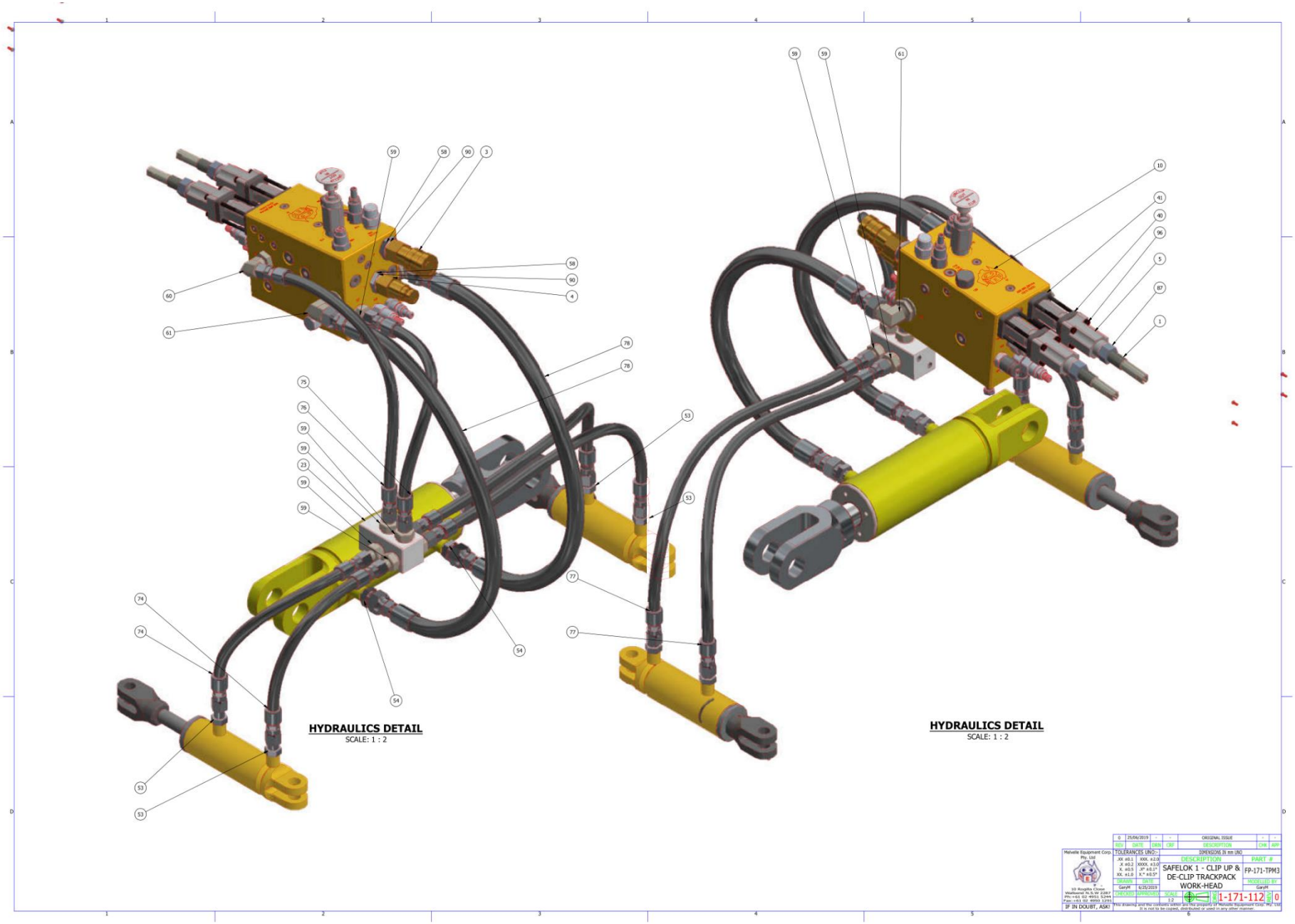
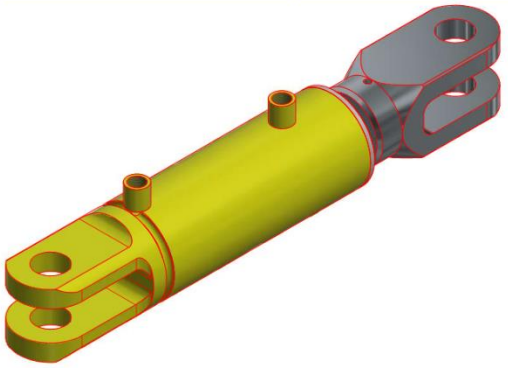
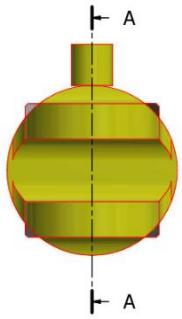
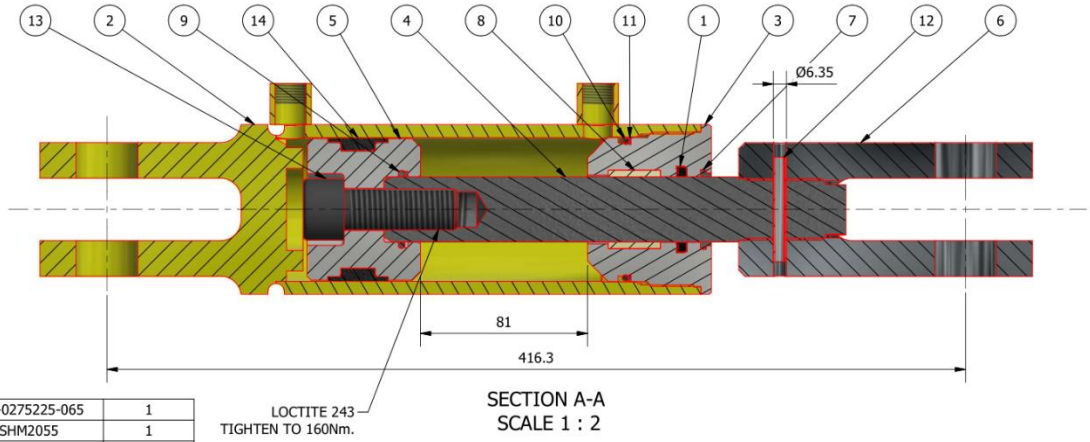

HYDRAULICS DETAIL
SCALE: 1 : 2
HYDRAULICS DETAIL
SCALE: 1 : 2
SAFELOK 1 - CLIP UP & DE-CLIP TRACKPACK WORK-HEAD
FP-171-TPM3
1-171-112

14.4. Centre Cylinder assembly

1 OF 1	ASSEMBLY
SHEET #	SHEET DESCRIPTION







SECTION A-A
SCALE 1 : 2

ITEM	DESCRIPTION	PART NUMBER	ITEM QTY
14	PISTON SEAL 2-3/4" BORE	SPL-0275225-065	1
13	SOCKET HEAD CAP SCREW M20 X 55	SHM2055	1
12	SEL LOK PIN 1/4` X 2`	R0432	1
11	BACKUP 2.5" x 2.75" x 0.125"	OR8230	1
10	ORING 2.5" x 2.75" x 0.125"	OR2230	1
9	ORING 1-1/4" - 1-1/2" - 1/8"	OR2218	1
8	WEAR INSERT 1-1/4"ID - 1" LONG	BRG-B1-0150125-100	1
7	ROD WIPER SEAL 1-1/4"	940-01250	1
6	CENTRE CYLINDER CLEVIS	1711019	1
5	CENTRE CYLINDER PISTON	1711018	1
4	CENTRE CYLINDER ROD	1711017	1
3	CENTRE CYLINDER GLAND	1711016	1
2	CYLINDER BODY AND END	1711015	1
1	ROD SEAL 1-1/4" - 1-5/8"	23-18701250	1

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	21/06/2019	-	-	ORIGINAL ISSUE	-	-

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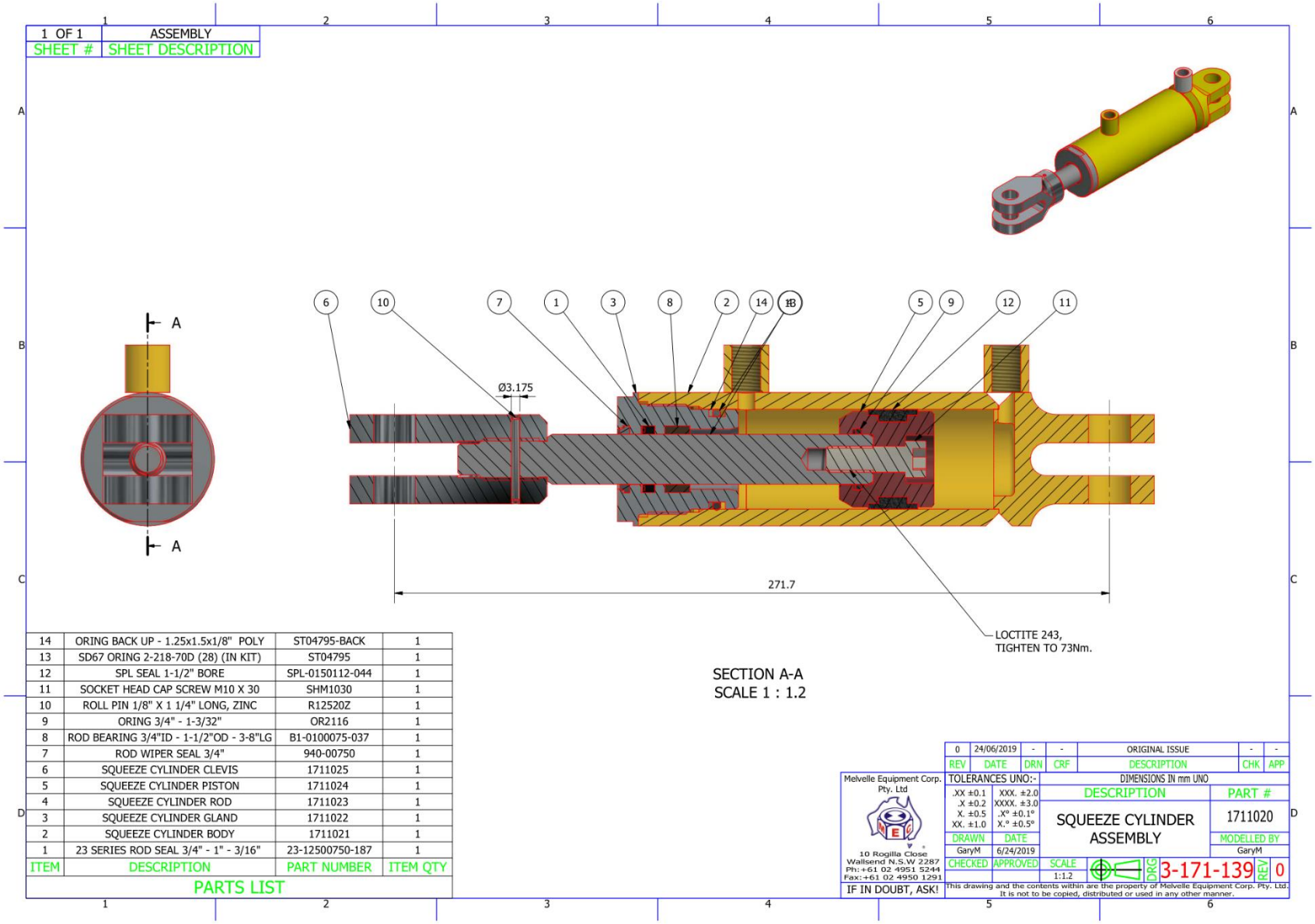
Wallsend N.S.W 2287
Ph:+61 02 4951 5244
Fax:+61 02 4950 1291
IF IN DOUBT, ASK!

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

DESCRIPTION: CENTRE CYLINDER ASSEMBLY
PART #: 1711014
DRAWN: GaryM 6/22/2019
MODELLED BY: GaryM
CHECKED APPROVED
SCALE: 1:2
DRG: 3-171-133 REV: 0

14.5. Squeeze Cylinder Assembly



ITEM	DESCRIPTION	PART NUMBER	ITEM QTY
14	ORING BACK UP - 1.25x1.5x1/8" POLY	ST04795-BACK	1
13	SD67 ORING 2-218-70D (28) (IN KIT)	ST04795	1
12	SPL SEAL 1-1/2" BORE	SPL-0150112-044	1
11	SOCKET HEAD CAP SCREW M10 X 30	SHM1030	1
10	ROLL PIN 1/8" X 1 1/4" LONG, ZINC	R12520Z	1
9	ORING 3/4" - 1-3/32"	OR2116	1
8	ROD BEARING 3/4"ID - 1-1/2"OD - 3-8"LG	B1-0100075-037	1
7	ROD WIPER SEAL 3/4"	940-00750	1
6	SQUEEZE CYLINDER CLEVIS	1711025	1
5	SQUEEZE CYLINDER PISTON	1711024	1
4	SQUEEZE CYLINDER ROD	1711023	1
3	SQUEEZE CYLINDER GLAND	1711022	1
2	SQUEEZE CYLINDER BODY	1711021	1
1	23 SERIES ROD SEAL 3/4" - 1" - 3/16"	23-12500750-187	1

PARTS LIST

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	24/06/2019	-	-	ORIGINAL ISSUE	-	-

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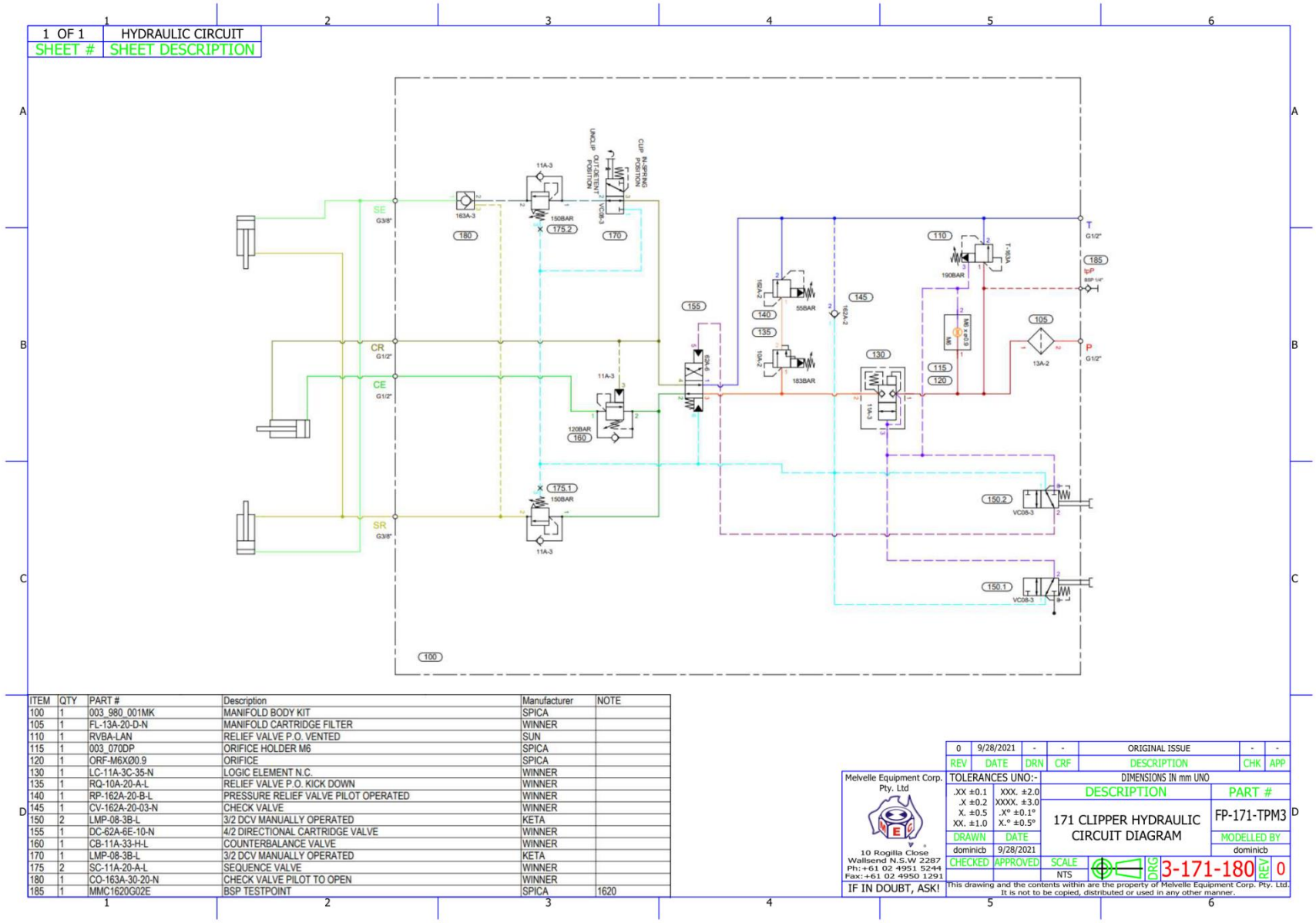
Wallsend N.S.W 2287
Ph:+61 02 4951 5244
Fax:+61 02 4950 1291
IF IN DOUBT, ASK!

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: SQUEEZE CYLINDER ASSEMBLY
PART #: 1711020
DRAWN: GaryM 6/24/2019
MODELLED BY: GaryM
CHECKED
APPROVED
SCALE: 1:1.2
DRG: 3-171-139
REV: 0

14.6. Hydraulic Circuit Diagram



ITEM	QTY	PART #	Description	Manufacturer	NOTE
100	1	003_980_001MK	MANIFOLD BODY KIT	SPICA	
105	1	FL-13A-20-D-N	MANIFOLD CARTRIDGE FILTER	WINNER	
110	1	RVBA-LAN	RELIEF VALVE P.O. VENTED	SUN	
115	1	003_070DP	ORIFICE HOLDER M6	SPICA	
120	1	ORF-M6XØ0.9	ORIFICE	SPICA	
130	1	LC-11A-3C-35-N	LOGIC ELEMENT N.C.	WINNER	
135	1	RQ-10A-20-A-L	RELIEF VALVE P.O. KICK DOWN	WINNER	
140	1	RP-162A-20-B-L	PRESSURE RELIEF VALVE PILOT OPERATED	WINNER	
145	1	CV-162A-20-03-N	CHECK VALVE	WINNER	
150	2	LMP-08-3B-L	3/2 DCV MANUALLY OPERATED	KETA	
155	1	DC-62A-6E-10-N	4/2 DIRECTIONAL CARTRIDGE VALVE	WINNER	
160	1	CB-11A-33-H-L	COUNTERBALANCE VALVE	WINNER	
170	1	LMP-08-3B-L	3/2 DCV MANUALLY OPERATED	KETA	
175	2	SC-11A-20-A-L	SEQUENCE VALVE	WINNER	
180	1	CO-163A-30-20-N	CHECK VALVE PILOT TO OPEN	WINNER	
185	1	MMC1620G02E	BSP TESTPOINT	SPICA	1620

REV	DATE	DRN	CRF	DESCRIPTION	CHK	APP
0	9/28/2021	-	-	ORIGINAL ISSUE	-	-

Melvelle Equipment Corp. Pty. Ltd
10 Rogilla Close
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 XXXX. ±3.0
X. ±0.5 .X° ±0.1°
XX. ±1.0 X.° ±0.5°

DIMENSIONS IN mm UNO

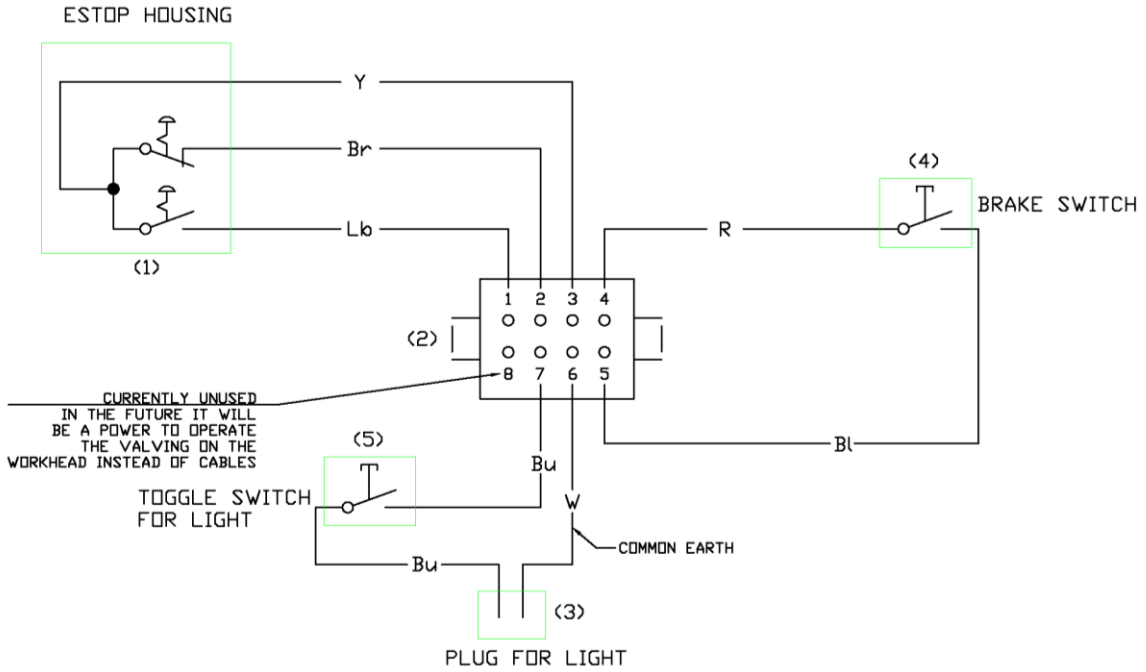
DESCRIPTION	PART #
171 CLIPPER HYDRAULIC CIRCUIT DIAGRAM	FP-171-TPM3

DRAWN	DATE	MODELLED BY
dominicb	9/28/2021	dominicb

CHECKED	APPROVED	SCALE	DRG	REV
		NTS	3-171-180	0

14.7. Electrical Circuit Diagram

Wire Colours			
Bl	Black	Br	Brown
Y	Yellow	O	Orange
Bu	Blue	Lb	Light Blue
G	Green	Lg	Light Green
R	Red	P	Pink
W	White	Gr	Green
G/W	Green/White		



ITEM	QTY	DESCRIPTION	LENGTH	PART No.
5	1	TOGGLE SWITCH ON/OFF WITH ON/OFF TAB	N/A	ELECT123
4	1	LS3 LIMIT SWITCH	N/A	ELECT100
3	1	DT2 FEMALE HOUSING 2 WAY	N/A	ELECT96
2	1	DT8 MALE HOUSING 8 WAY	N/A	ELECT92
1	1	EMERGENCY STOP ENCLOSURE	N/A	ELECT69

MATERIAL/CUT LIST

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!

TOLERENCES UNO:-		DIMENSIONS IN mm UNO	
.XX ±0.1	XXX. ±2.0	DESCRIPTION	PART#
.X ±0.2	XXXX. ±3.0	TRACKPACK HEAD ELECTRIC SCHEMATIC	TP HEAD
X. ±0.5	.X° ±0.1°		AUTOCAD
XX. ±1.0	X.° ±0.5°		DRAWING
DRAWN	DATE		
GM	13/11/2015		
CHECKED	APPROVED	SCALE	DRG 3-190-127 REV 0
GaryM	AdrianG	NTS	

14.8. Operational Risk Assessment

	Machine: FP-171-TP - Safelok Clipper							Form No.: :	
	ABN							Issue Date	17/10/2019
	WORKPLACE GENERIC HIRARC FORM							Version:	0

Company	**MELVELLE EQUIPMENT CORP**	**Department / Workplace:**	**Melvelle Offices**	**Date of Assessment 17/10/2019**	**Commenced:**	10am	**Completed:**	12md

Scope of Assessment: Identify the risks and hazards associated with the operation of a rail maintenance machine to insert and remove Safelok Clips from in situ tracks.

Names of Risk Assessment Team: Gary Morris, Jason Casboult	**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 . Lifting information supplied in manual	Serious	Rare	6	Y		
	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		
	Machine handles too low/high causing injury	Significant	Possible	9	Handles adjusted to the correct height. Procedure shown in manual	Significant	Rare	4	Y		
	Fluid levels too high causing overflow and low causing machine damage	Minor	Likely	7	Pre-start checklist requiring operator to check fluid levels before operating machine	Minor	Rare	1	Y		
	Exposure to hazardous materials such as fuel and oils	Minor	Likely	7	Hazardous material documentation in MSDS.	Minor	Rare	1	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		
	Hand 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 adjustment can lead to injury	Significant	Likely	10	Ensure machine is turned off and deadman employed. Use of manuals and procedures	Significant	Rare	4	Y	Procedure/manual	
	Injury through oil injection through hydraulic failure	Serious	Possible	12	Hose Protection installed. Maintenance/Inspection frequencies provided in manual	Serious	Rare	6	Y		
	Loud noise from engine and machine causing permanent hearing damage	Serious	Likely	15	Warning stickers instructing operator to wear hearing protection Operating instructions in Manual Instruct operator 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 Card (RISI or equivalent)	
	Crushing injury through falling machine if incorrectly supported	Serious	Likely	15	Manual provides safe operating and handling instructions	Serious	Rare	6	Y		
	Pinch points exist through the connection of power pack to trolley and powerpack to work head	Significant	Possible	9	Procedure provided in manual 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 setup through manual.	Minor	Unlikely	2	Y		
	Hitting of ballast by machine causing projectiles	Minor	Likely	7	Guarding of machine. Adequate cleaning of ballast shown in manual	Minor	Unlikely	2	Y		