



# **ANGLEMASTER 3000MC**

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## **Bedknife Grinder**



**ISSUE 02 — 2017/02**

## **User Guide & Instruction Manual**

Please read this manual carefully before using the Anglemaster 3000MC.  
This manual should be kept in a safe place so that it can be used for future reference.





# ANGLEMASTER 3000MC

## Bedknife Grinder

Welcome to the Bernhard Anglemaster 3000MC. If cared for and operated correctly this machine will give you years of good service.

This manual will enable you to get the best results from your Anglemaster so please read it thoroughly before using your machine.

If you have any service or operational issues please contact your distributor or phone our technical support hotline

**Technical Helpline (USA only) – 1-888 474 6348**

**Rest of World: UK Head Office – (+44) 1788 811600**

**Email: support@bernhard.co.uk**

Technical FAQs can be found on our website:

**www.bernhard.co.uk**

When ordering spare parts please quote the machine type and serial number.

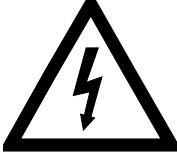






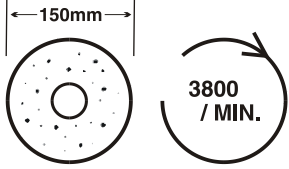
**THE MANUFACTURERS ACCEPT NO RESPONSIBILITY FOR ANY SITUATION ARISING FROM THE FITTING AND/OR USE OF NON-ORIGINAL SPARE PARTS.**

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# Identification of Pictograms

	<p><b>BEWARE! HIGH VOLTAGE</b></p>
	<p><b>BEWARE! MOVING COMPONENTS KEEP HANDS AND OTHER OBJECTS CLEAR</b></p>
	<p><b>POINTS FOR ATTACHING LIFTING EYES</b></p>
	<p><b>DO NOT LIFT HERE</b></p>
	<p><b>TOTAL WEIGHT OF MACHINE (KG)</b></p>
	<p><b>WEAR EYE, EAR AND BREATHING PROTECTION</b></p>
	<p><b>BEWARE! MOVING GRINDSTONE AND SHAFT</b></p>
	<p><b>MAXIMUM GRINDSTONE DIAMETER 150mm MAXIMUM SPEED 3800 Rev/Min</b></p>



# Operation Pictograms

	<p><b>COOLANT PUMP</b></p>
	<p><b>TRAVERSE</b></p>
	<p><b>GRINDING MOTOR</b></p>
	<p><b>EMERGENCY STOP</b> <b>TWIST ANTI-CLOCKWISE TO</b> <b>RELEASE</b></p>



# Understanding the Machine

## Machine Functions

The Anglemaster uses three separate motors to drive the grind stone, traverse drive and coolant pump. Each function has its own start and stop button on the main control panel.

### Grind Stone

Directly driven by the main motor at up to 3800 rpm.

### Traverse

Powered by a motor/gearbox unit situated under the grinding head carriage. It drives along a fixed, damped, chain run. Traverse is physically engaged using the over centre lever on the left front of the carriage.

### Coolant pump

Fitted into the top of the coolant reservoir/settlement tank which is located beneath the machine.

### Emergency stop

Press the large red mushroom headed button to stop ALL motors. The button will then be locked in the off position and it will be impossible to start any motors until the E-Stop is released. To release the E-Stop twist the red button counter clockwise.

### Guard Interlock

For your protection and in order to comply with health and safety legislation, the safety guard is fitted with an interlock switch that prevents the machine being used with the guard open.



# 1. Safety

- 1.1 Always wear eye protection when operating the machine
- 1.2 Never leave rags or tools on the machine or wear loose clothing while operating the machine as these items could easily get caught in the bedknife, grinding stone or shaft.
- 1.3 Never allow combustible materials to be placed on or around the machine.
- 1.4 Always ensure that all parts of the bedknife you are grinding are secure.
- 1.5 Do not use this machine for any purpose other than that for which it was designed.
- 1.6 We recommend ear defenders should be worn at all times while the machine is in operation. As an indication, the maximum noise, with a heavy grind on a 36" bedknife has been measured at 85 decibels.
- 1.7 Always ensure that all electrical connections are sound and that cables are safely routed.
- 1.8 **NEVER** fit or use a grind stone unless you are certain it was designed specifically for use on the Anglemaster range.
- 1.9 **NEVER** fit or use a grind stone that has been dropped or damaged in any way.
- 1.10 Coolant should always be mixed and applied in accordance with manufacturer instructions.
- 1.11 **NEVER** allow coolant to wash over the control box or other electrical components.
- 1.12 Extreme caution should be used when handling the bedknife. We recommend protective gloves should be worn at all times.
- 1.13 It is always advisable to replace worn components on this machine with original spare parts. Failure to do so may cause injury or invalidate warranty.

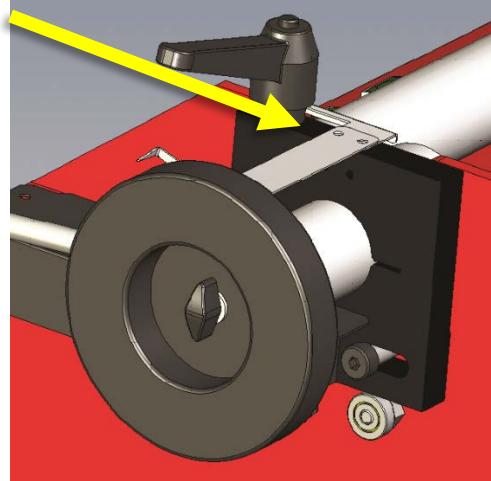


## 2. Set Up and Installation

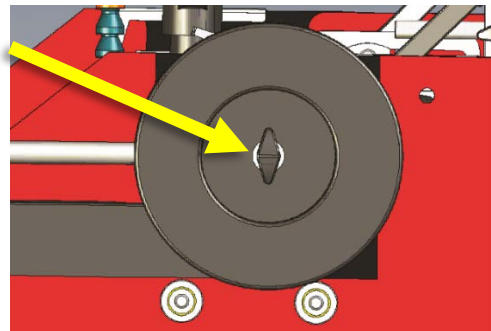
### 2.1 Fitting Pointer and Protractor Drum

To prevent damage during shipment the pointer is taped to the protractor drum and placed with the tool kit for the machine which is packaged in a separate black wallet.

- 2.2 To assemble, fit the pointer to the right hand mounting bar clamp, using the two button head socket screws provided (the same screws that secure the parallel scale pointers).



- 2.3 Fit the protractor drum to the end of the mounting bar, using the knob screw provided.







## 2. Setup and installation (Continued)

### 2.4 Handling

The machine weight is clearly shown on a plate on the front of the machine.

If the machine is supplied crated, it should be removed using a suitable forklift or pallet truck. The forks should be placed under the crate base (skid).

Once the lid and sides of the crate have been removed, the machine remains bolted to the base (skid).

LIFTING WITH CHAINS/STRAPS MUST ONLY BE CARRIED OUT AS INDICATED BY LABELS ON THE MACHINE. **DO NOT** FIX ANYTHING TO THE TRAVERSE GUIDE RAILS.

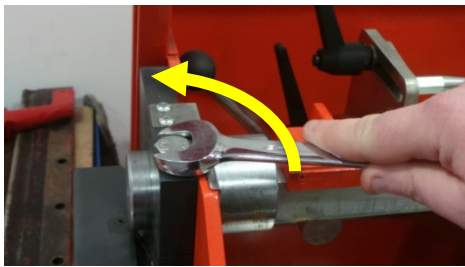


### 2.5 Locating Your Machine

The machine should be installed in a well-lit area, set up on a solid floor base of concrete or similar. Wooden floors should be avoided.

To level the machine place a spirit level across / along the traverse rails, the machine can be easily levelled using the screwing feet supplied with the machine.

2.6 For transit purposes the blade mounting bar is locked into position at both ends. Some units may have a hex head bolt fitted to the right hand clamp. To remove, use the clamp lock down lever provided in the tool wallet. Remove the hex head bolt, replace with the lever and tighten it down.



The hex head bolt on the left-hand clamp (lock down lever) should be eased off and adjusted to permit rotation of the bar allowing for a small amount of resistance.

Do not release the right hand clamp (lock down lever) until weight has been applied to the angle control lever. After this initial set up you will only use the lock down levers to hold the mounting bar in position. If the lock down lever does not appear to be applying enough force, tighten the hex head bolt slightly to create resistance and stop the free rotation of the mounting bar.



## 2. Setup and installation *(Continued)*

### 2.7 Electrical Supply

USE A QUALIFIED ELECTRICIAN.

All motors are 220V/60Hz or 230V/50Hz, single phase induction motors.

Electrical connection should be via the electrical cable/plug/socket provided to a 20A breaker.

The main grinding head motor is overload protected, whilst coolant pump and traverse motors are independently fused.

Ensure that cables / conduits running to the machine do not represent a hazard to the operator or other personnel.

The machine **MUST BE EARTHED**.

### 2.8 Coolant

Check the coolant settlement tray has not moved during transit. The settlement tray is located in the coolant tank which is situated in the left-hand drawer of the machine. It sits beneath the collector funnel outlet. You should also check the connection of the coolant supply hose to the pump outlet.

The soluble coolant additive supplied with the machine should be used in the coolant tank and mixed according to the manufacturer's instructions at 1 – 1½ capfuls of additive per FULL tank of water. This fluid is suitable for all types of blade grinding and has good rust inhibiting properties if applied correctly).

Please note, exceeding the recommended concentration may lead to “loading” of the grind stone. This means the stone is too wet which will impact the quality of grind.

Sediment in the coolant tank should not exceed ½”. Surplus liquid should be returned to the tank and solid deposits removed at regular intervals, depending upon workload.





### 3. Setting Up

#### 3.1 General

The Anglemaster can grind bedknife/bedbar assemblies up to 40" in length or up to 42" for plain blades clamped directly to the mounting bar.

#### 3.2 Mounting a bedknife

The machine is equipped with adjustable universal bedknife mounting brackets. These can easily be set to marry up with the bed-bar fixing holes. This means the bedknife is placed on the machine in a way that mimics its natural position in a cutting unit. Special adapters are available if required for specific cutting units.



To correctly position the bedknife, align the trough lines with the edge of the mounting bar. The bedknife should always overhang the mounting bar. If it does not protrude the stone will grind the back of the blade. As a quick guide the leading edge of the bedknife will be around 3/8" - 1/2" (9.5 - 12.7mm) forward of the front edge of the mounting bar.

#### 3.3 Dressing the Stone

The Anglemaster 3000MC has a built-in diamond dresser which is fitted into the front face of the mounting bar.

For best results, the grind stone should be dressed periodically. To do this set the mounting bar parallel to the guide rails (use the reference scales provided). Feed the grind stone to the dresser using the feeder columns. If necessary loosen the retaining grub screw to allow the dresser to protrude further from the mounting bar. Make sure you tighten the grub screw again before dressing. Make a few light passes with the grind head to stop the stone becoming clogged or "loaded".

**ALWAYS** dress new stones before use.

**Ensure that adequate eye / breathing protection is used this process.**

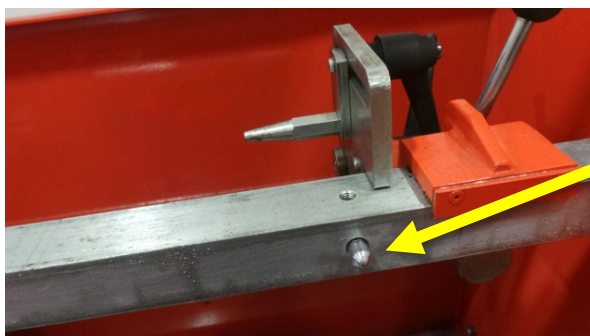


Fig. 3.3. Diamond dresser



### 3. Setting Up (Continued)

#### 3.4 Grinding stone replacement

Isolate the electrical supply. Rotate the mounting bar so that the top face of the bar is facing the operator. Wind the grinding head back to its rear-most position.

Remove the two wing nuts (marked with yellow arrow in the photo below). Remove the stone guard. Use the stone spanners provided to loosen the stone nut (as shown below).



Before fitting a replacement stone, check the new stone for any signs of damage. Hold the stone loosely and carry out a ring test by tapping gently with a non-metallic object such as a screwdriver handle. A good stone will make a clear ringing noise. Reject a stone that sounds "dead". Make sure that there is no loose grit/debris between the stone and the mounting flanges.



## 4. Setting Angles of Cut

4.1 The angle of cut is adjusted by rotating the mounting bar assembly, complete with bedknife, so that it is presented to the grinding stone at the required angle. Take the weight of the assembly on the control lever, loosen lock-down lever then use the control lever to rotate the assembly to the required angle, tighten the lock-down lever.

### 4.2 Applying a cut

The Bedknife blade is adjusted parallel to the grinding access. To parallel the mounting bar and bedknife assembly, draw them towards the grind stone using the two handwheels or "feeder columns".

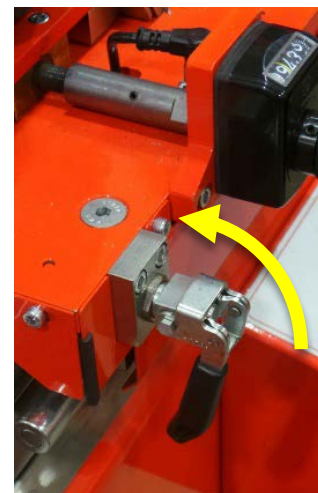
The feeder columns must be moved equal amounts. Moving one more than the other could lead to mounting bar misalignment which may result in the slide block/feed screws jamming.

Once the bedknife has been set, apply the cut using the single point handwheel on the grinding head or carriage.



4.3 Rotate the mounting bar so that the bedknife is vertical.

4.4 If not already done, release the motor unit from the traverse chain using the lever at the front left hand side of the motor unit.





## 4. Setting Angles of Cut (Continued)

4.5 The guard that is mounted on top of the motor unit can be adjusted so that you can see the contact point of the stone to the bedknife. Slacken the locating screws to move this and retighten. The guard should only be moved a minimum amount, just enough to allow visibility. This will need adjusting as the stone wears over time.



4.6 Moving the carriage by hand with the grinding motor switched off, scratch across the top face of the bedknife.

Adjust the mounting bar so that the grinding stone scratches the full worn face of the bedknife from edge to edge in one spot. By doing this you have effectively found the datum relationship between the reel and bedknife.

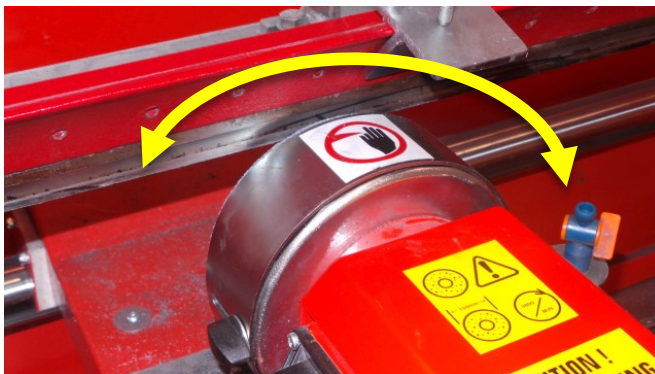
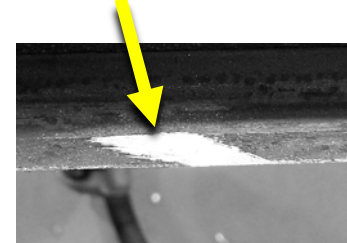


Fig. 4.6. Correct scratch



4.7 Adjust the protractor scale to 0°. Now the bedknife' blade and machine are both set to 0°.

**FOR NEW BEDKNIVES:** instead of setting the scale to 0°, set it to the coloured zones on the protractor depending upon size:

**-7° for small units; -9° for medium units; -12° for large units.**

These are the correct factory produced angles.





## 4. Setting Angles of Cut *(Continued)*

### 4.8 Grinding the Top Face of the bedknife

Next apply a relief grind or reverse angle to the top face of the bedknife by releasing the mounting bar and pushing back on the control lever.

APPLY:

**Small blades**  $-5^{\circ}$  to  $-9^{\circ}$ , **green zone** (e.g. greens mowers)

**Medium blades**  $-6^{\circ}$  to  $-12^{\circ}$ , **red zone** (tees, surrounds and small fairway)

**Heavy blades**  $-7^{\circ}$  to  $-15^{\circ}$ , **blue zone** (large fairway and gang units)

In each case use the lowest angle for very clean conditions, the highest angle for rough conditions.

On new bedknives add only  $1^{\circ}$  to the scratch setting, i.e. the angle applied at the factory.



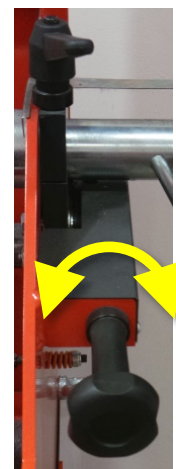
### 4.9 Start the grinding wheel motor and slowly hand traverse the grinding carriage along the length of the bedknife using very light contact.

Set the traverse stops on the front of the machine chassis, so that the grinding stone just clears the ends of the blade.

Preliminary setup passes using hand traverse may be made without coolant. During normal grinding, a moderate flow of coolant should be directed onto the bedknife, as close as possible to the point of contact with the grinding stone.

Make sure that the ground surface is parallel along the whole length of the bedknife.

With the auto traverse engaged, grind the bedknife until it "sparks out" that means only occasional sparks can be seen as the grinding stone passes the blade indicating there is no real metal removal.





## 4. Setting Angles of Cut *(Continued)*

### 4.10 Grinding the Front Face of the bedknife

Turn the mounting bar forwards, through 0°, through 90° and onto the 5° position for the front face.



As previously grind the bedknife parallel from end to end.

Check that the cutting edge is sharp and remove any burr as necessary.

- 4.11 Unbolt the bedbar from the bedknife mounting brackets and remove the bedknife assembly from the Anglemaster. Operation is complete.





# 5. Parts List

## Parts Lists and Diagrams

ANGLEMASTER 3000MC .....19

A05663 Lower Half Machine Assembly.....20

A05543 Electrical Panel (New Legs).....22

A05098 Coolant Tank & Pump Assembly .....25

A05248 Door Assembly (New Legs) .....26

A05662 Machine Top Half Assembly .....28

A04687 Left Hand Reversing Stop Assembly .....30

A04686 Right Hand Reversing Stop Assembly.....31

A03785 CE Guard Assembly.....33

A05544 Button Box Assembly .....34

A05557 Mounting Bar Assembly .....36

A03799 Mounting Bar Jacking Screw Assembly.....39

A09547 Soleplate Bracket Assembly R/H.....40

A09548 Soleplate Bracket Assembly L/H.....42

A04696 Mounting Bar Adjuster Handle Assembly .....44

A05667 Carriage Assembly .....45

A05609 Reversing Switch Cover Assembly .....46

A05666 Trolley Loom.....47

A05047 Rear Rail Guard Assembly .....49

A05675 Upper Half Carriage Assembly .....50

A05045 Traverse Chain Assembly .....52

A05043 Arbor Assembly .....53

A04664 Feed Screw Assembly .....55

A05036 Carriage Base Assembly .....56

A05046 Traverse Switch Assembly.....58

A05074 Reversing Bar Assembly.....59

A05383 Eccentric Bearing Assembly .....60

A05075 Toggle Clamp Assembly .....61

A05077 Clutch Engagement Assembly.....62

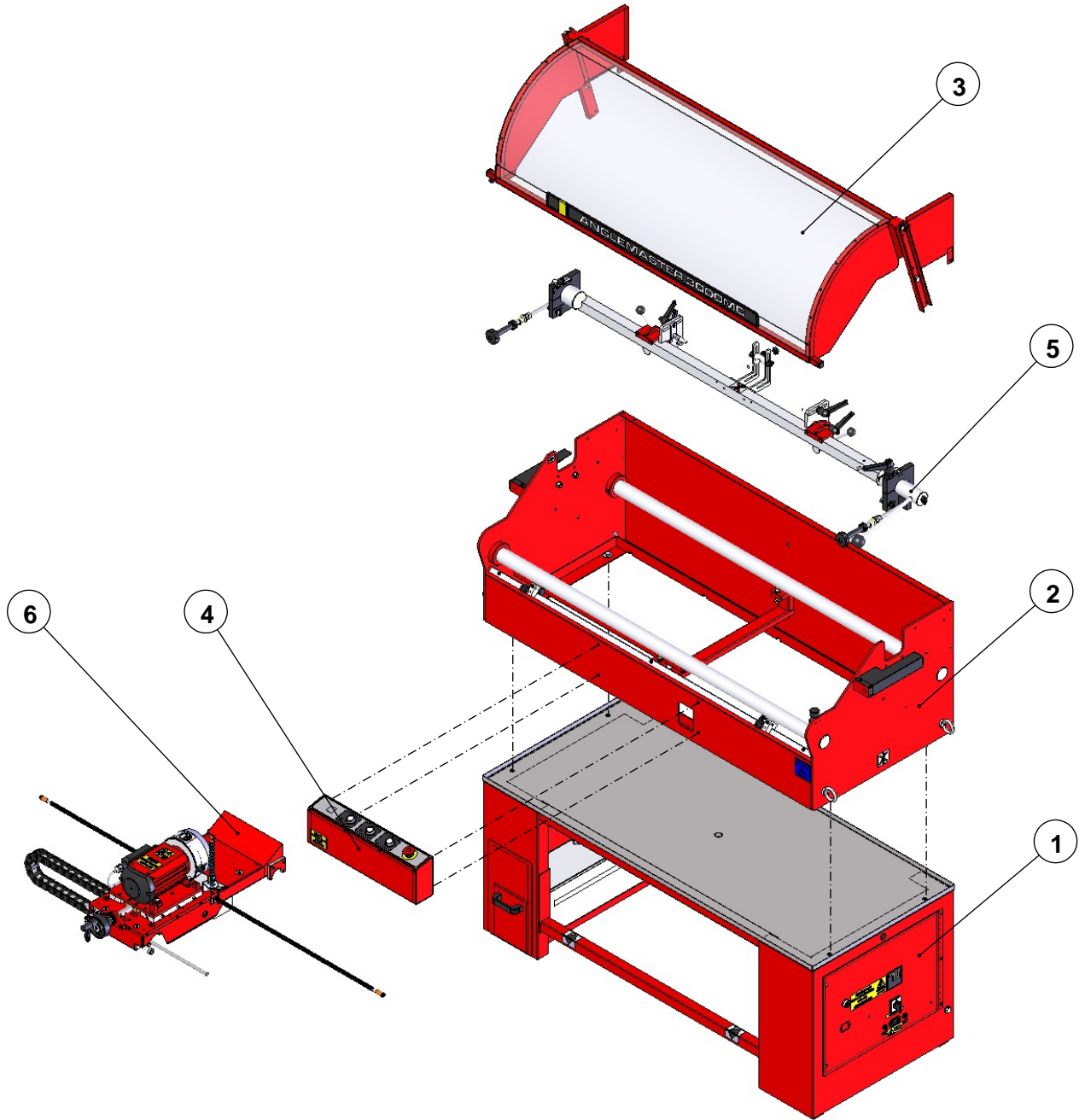
A05078 Rear Bearing Block Assembly .....63





### 5. Parts List (Continued)

**ANGLEMASTER 3000MC**



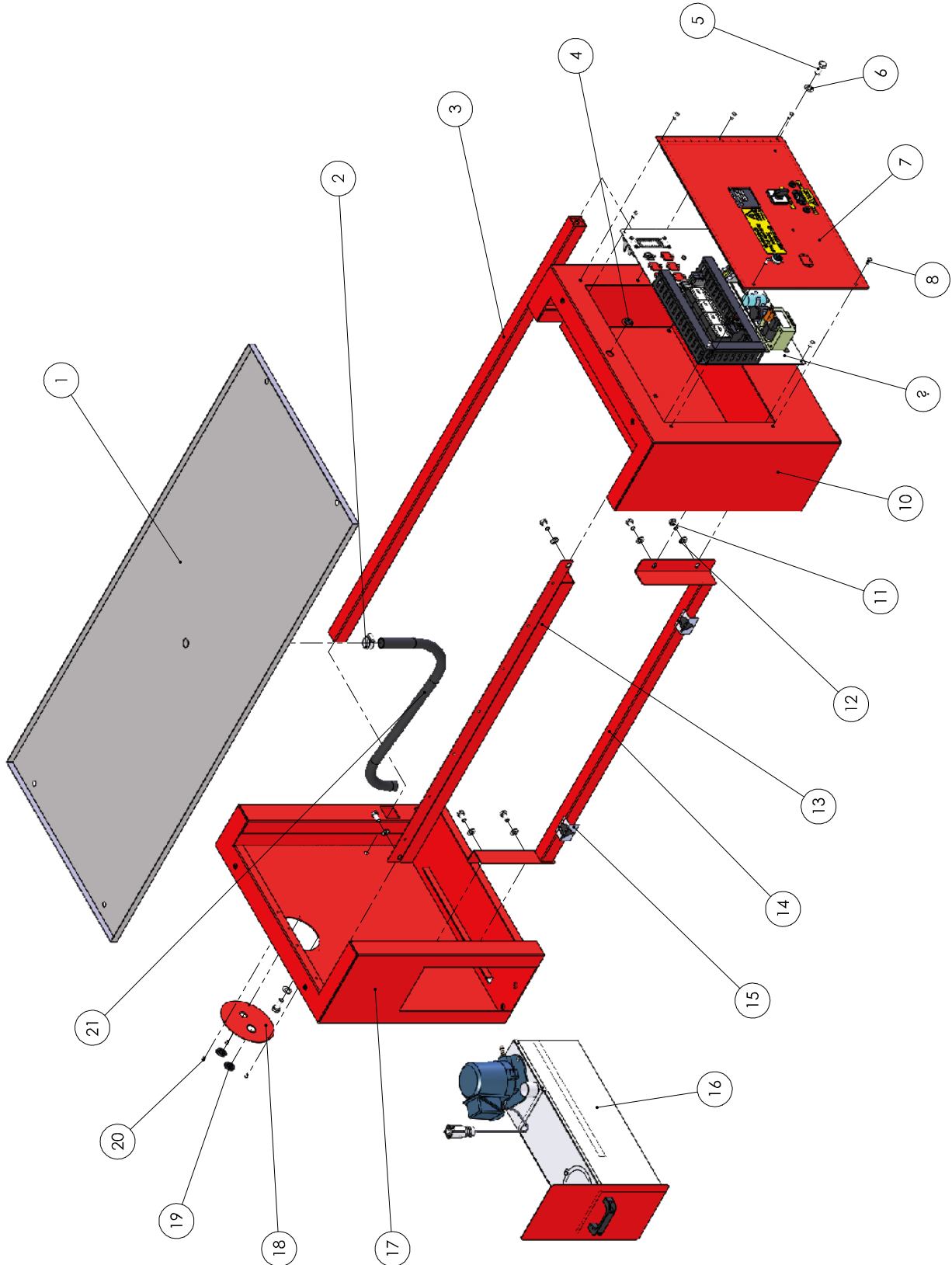
**AM3000**

Ref #	Part #	Name of Part .....	Qty.
1	05663	Lower Half Machine Assembly .....	1
2	05662	Machine Top Half Assembly .....	1
3	03785	AM3000 MC Guard Complete Assembly .....	1
4	05544	Button Box Assembly .....	1
5	05557	Mounting Bar Assembly .....	1
6	05667	Carriage Assembly.....	1



## 5. Parts List (Continued)

### A05663 LOWER HALF MACHINE ASSEMBLY





## 5. Parts List (Continued)

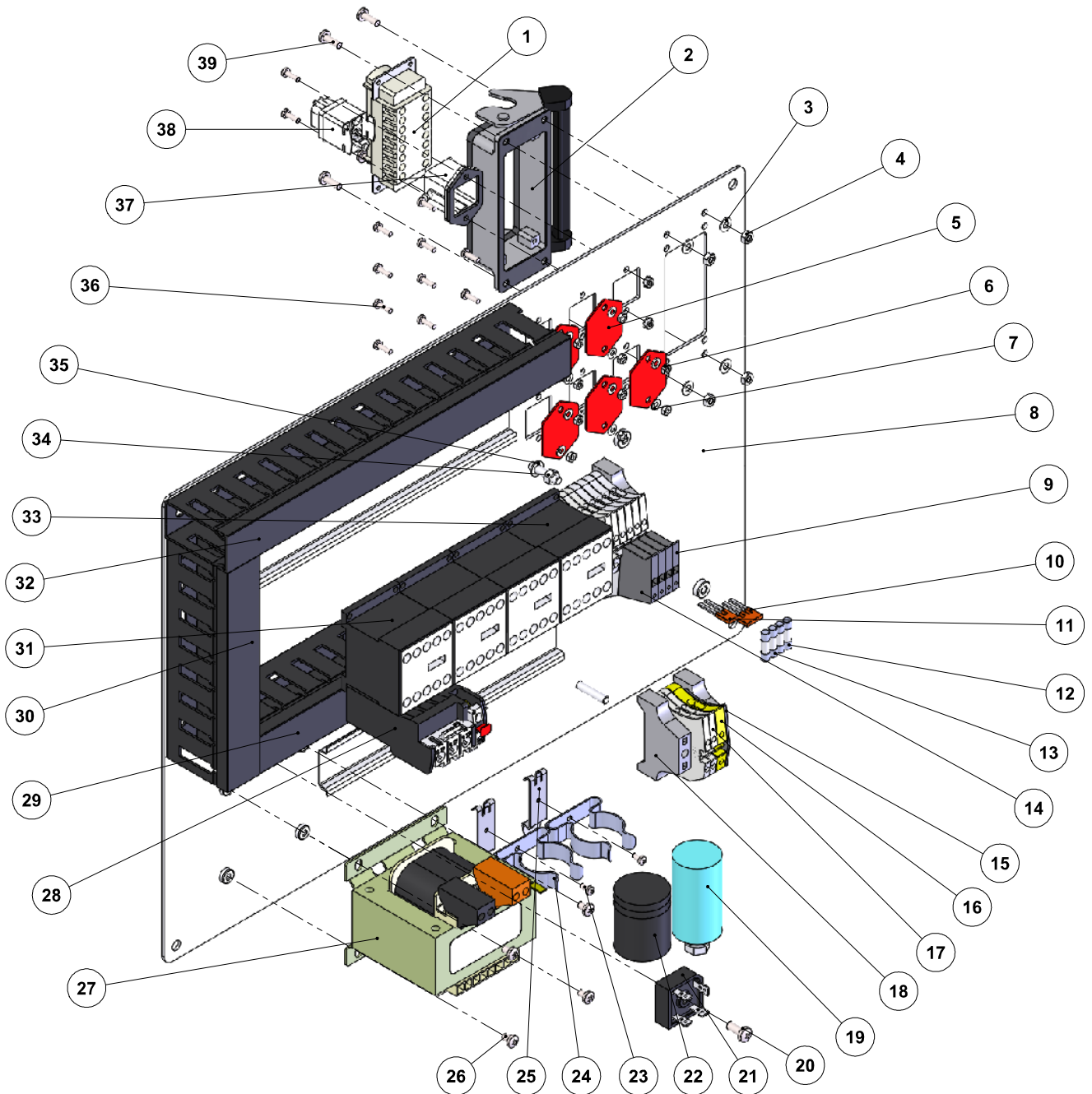
### A05663 LOWER HALF MACHINE ASSEMBLY \_\_\_\_\_

Ref #	Part #	Name of Part .....	Qty.
1	03767	Stainless Steel Tray .....	1
2	02746	1 A Jubilee Clip (Box 10) .....	1
3	04449	Base Rear Box Fabrication .....	1
4	08020	20mm Blanking Grommet .....	1
5	05713	M12 x 30 Hex Set Screw .....	2
6	05315	M12 Form B Washer.....	2
7	05248	Door Assembly (New Legs) .....	1
8	05148	M6 x 16 Button Head Socket Screw.....	9
9	05543	Electrical Panel (New Legs).....	1
10	03956	RH Base Leg Fabrication .....	1
11	05702	M10 x 20 Hex Set Screw .....	6
12	05310	M10 Washer Form B.....	6
13	04923	Cable Holder Support .....	1
14	04734	Front Box Support Fabrication .....	1
15	06639	Forklift Label .....	2
16	05098	Coolant Tank & Pump Assembly .....	1
17	03957	LH Base Leg Fabrication .....	1
18	06961	Cover Disc .....	1
19	08191	25 mm Blanking Grommet .....	2
20	08184	M4 x 8 Button Head .....	3
21	03984	Coolant Pipe 740 mm .....	1



## 5. Parts List (Continued)

### A05543 ELECTRICAL PANEL (NEW LEGS)





## 5. Parts List (Continued)

### A05543 ELECTRICAL PANEL (NEW LEGS)

Ref #	Part #	Name of Part	Qty.
1	08900	HBE-16 Female Insert	1
2	08894	HBE-16 Panel Base	1
3	05317	M4 Washer	4
4	05511	M4 Hex Nut	4
5	03983	Socket Cover Plate	5
6	05510	M3 Hex Nut	12
7	05340	M3 Washer	12
8	04725	Electric Chassis Panel Fabrication	1
9	08609	LED Din Rail Fuse Terminal 24 V	1
10	08959	Bridging Bar	1
11	08959	Bridging Bar	1
12	08085	Fuse 2 A x 20	2
13	08153	Ceramic Fuse 1.25 A for PCB	2
14	08973	LED Din Rail Fuse Terminal	3
15	08960	End Cap	1
16	08230	Earth Terminal	1
17	08958	Terminal 2.5 mm	4
18	08192	End Stop	3
19	08395	6 µF Capacitor	1
20	05474	M5 x 12 Pan Head	1
21	08350	Bridge Rectifier	1
22	08004	10000 µF Capacitor	1
23	08108	M3 x 6 Posi Drive Pan Head	2
24	08343	80-32 Terry clip	2
25	08070	Din Rail Adaptors	2
26	05413	M4 x 6 Pan Head Screw	4
27	08639	18 V Control/Magnet Transformer	1
28	04928	Thermal Overload relay 6-9 A	1
29	08781	Black Open Slot Trunking (1 m)	1
30	08781	Black Open Slot Trunking (1 m)	1
31	08502	24 V DC Contactor	3
32	08781	Black Open Slot Trunking (1 m)	1
33	08496	24 V DC Contactor	1
34	05512	M5 Full Nut	1
35	05318	M5 Form B Washer	1
36	05406	M3 x 10 Pan Head Screw	12
37	08316	Electrical Socket 10.4220.00	1
38	08308	HA-3 Female Insert	1
39	08109	M4 x 12 Pan Head	4

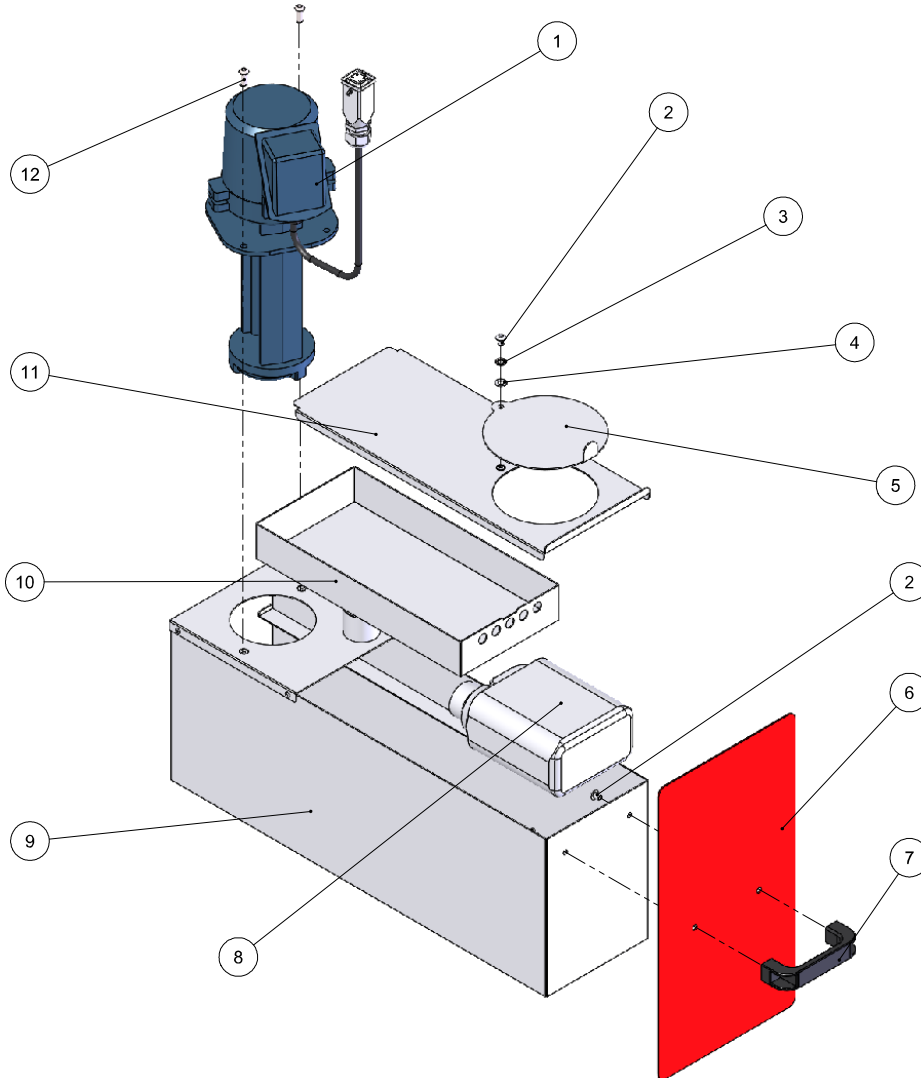






### 5. Parts List (Continued)

#### A05098 COOLANT TANK & PUMP ASSEMBLY \_\_\_\_\_

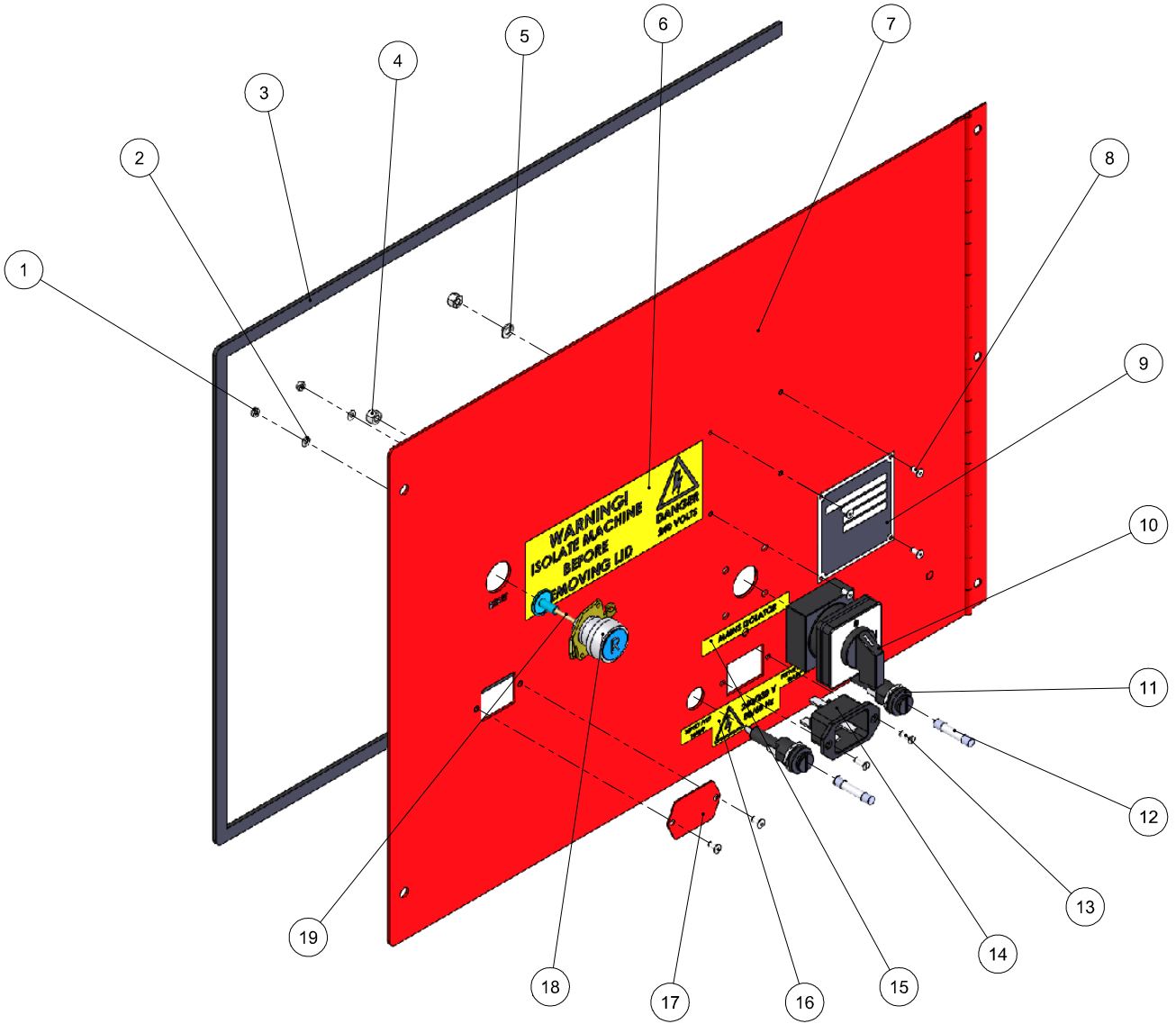


Ref #	Part #	Name of Part .....	Qty.
1	09565	Coolant Pump with Cable.....	1
2	05158	M6 x 8 Button Head Socket Screw.....	3
3	05604	M6 Single Coil Spring Washer .....	1
4	05320	M6 Form B Washer.....	1
5	03962	Coolant Tank Filler Cover .....	1
6	03964	Coolant Tank Front Cover.....	1
7	06110	Drawer Handle.....	1
8	05883	1 Lt Coolant & Container.....	1
9	03960	Coolant Tank Base Fabrication.....	1
10	03963	Coolant Settlement Tray .....	1
11	03961	Coolant Tank Lid Fabrication .....	1
12	05148	M6 x 16 Button Head Socket Screw.....	2



## 5. Parts List (Continued)

### A05248 DOOR ASSEMBLY (NEW LEGS)





## 5. Parts List (Continued)

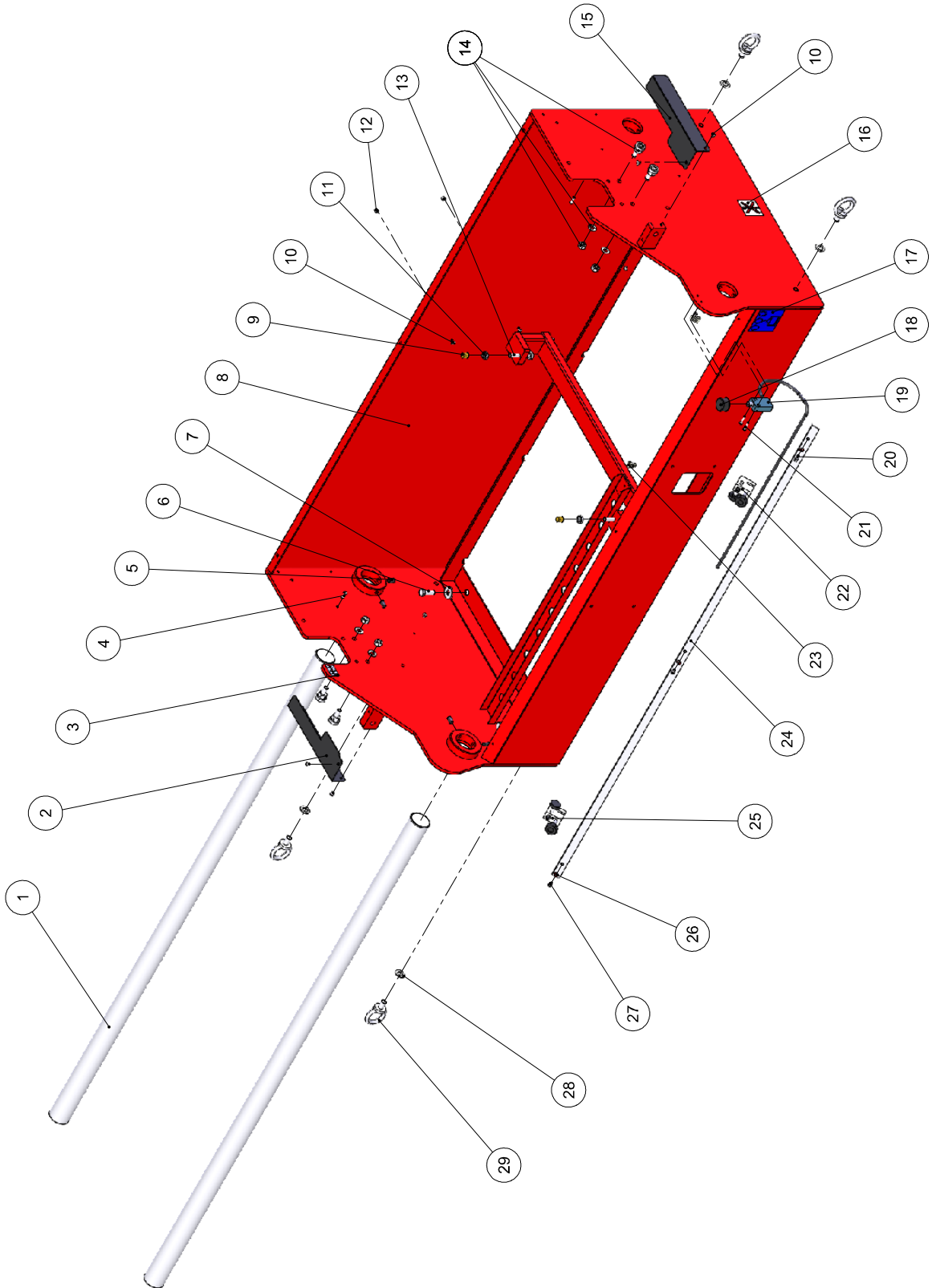
### A05248 DOOR ASSEMBLY (NEW LEGS)

Ref #	Part #	Name of Part .....	Qty.
1	05510	M3 Hex Nut .....	2
2	05340	M3 Washer .....	2
3	06921	EPDM Sealing Strip 3 mm x 12 mm x 141 cm .....	1
4	05512	M5 Full Nut .....	2
5	05318	M5 Form B Washer.....	2
6	06550	Label For Clear Cover on Drawer .....	1
7	04697	Electric Panel Door Fabrication.....	1
8	05405	3 mm x 10 mm Pop Rivet.....	6
9	09625	Number Plate.....	1
10	03303	Rotary Cam Switch .....	1
11	08174	1 1/4 Fuse Holder .....	2
12	08084	Fuse 16 A x 32 Supply.....	2
13	05465	M3 x 10 CSK Machine Screw .....	2
14	08901	16 A Chassis Mount Socket.....	1
15	06546	Voltage Label for Isolator .....	1
16	06545	Voltage Label for Isolator .....	1
17	04746	Electric Panel Vac Blank Plate.....	1
18	08130	Reset Button .....	1
19	09220	Reset Button Rod.....	1



## 5. Parts List (Continued)

### A05662 MACHINE TOP HALF ASSEMBLY





## 5. Parts List (Continued)

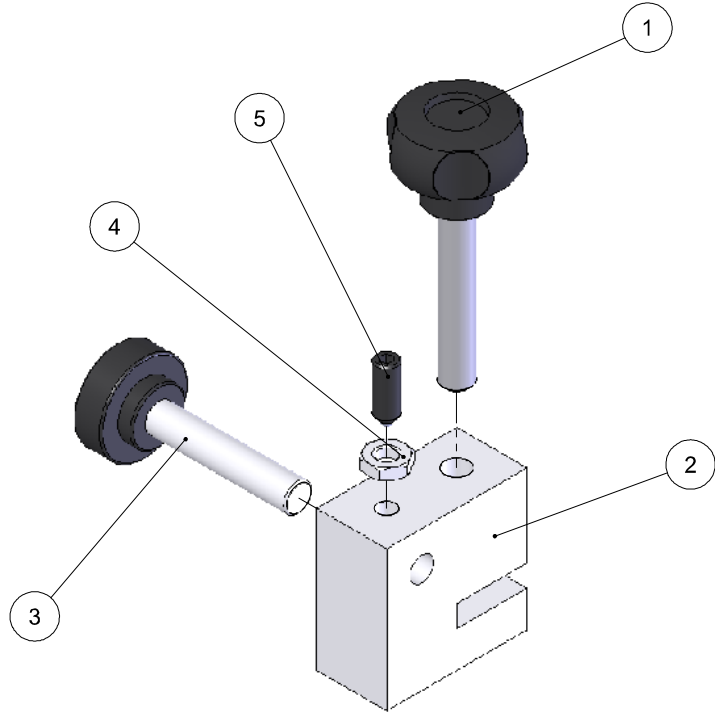
### A05662 MACHINE TOP HALF ASSEMBLY

Ref #	Part #	Name of Part	Qty.
1	06717	50 mm Hardened Precision Ground Rail	2
2	03781	LH Feed Screw Cover	1
3	06609	Mounting Bar Scale	2
4	05133	M5 x 16 Button Head	2
5	05114	M10 x 16 Socket Grub screw	8
6	05705	M10 x 30 Hex Set Screw	4
7	05192	M10 Penny Washer	4
8	03764	Frame Fabrication	1
9	09222	Brass Cap	2
10	05138	M5 x 6 Button Head BZP	8
11	05505	M10 Nylon Lock Nut	2
12	05512	M5 Full Nut	3
13	05755	Rail Adjuster Bolt	2
14	05383	Eccentric Bearing Assembly	4
15	03782	RH Feed Screw Guard	1
16	06647	AM NO. 9	2
17	06678	Express Dual & Anglemaster No.12 Label	1
18	04749	Microswitch Guard Buffer Stop	1
19	08225	Microswitch Body Plunger Type	1
20	05132	M5 x 16 Cap Head	1
21	05412	M4 x 20 Pan Head Pozi Drive MC Screw	2
22	04686	RH Reversing Stop Assembly	1
23	08007	4.8/6.4 mm P-Clip	2
24	06351	Stainless Steel Strip	1
25	04687	LH Reversing Stop Assembly	1
26	04688	5 mm Fibre Washer	3
27	05759	M5 x 8 Cap Head Socket Screw	2
28	05315	M12 Form B Washer	4
29	05435	M12 Lifting Eye	4



### 5. Parts List (Continued)

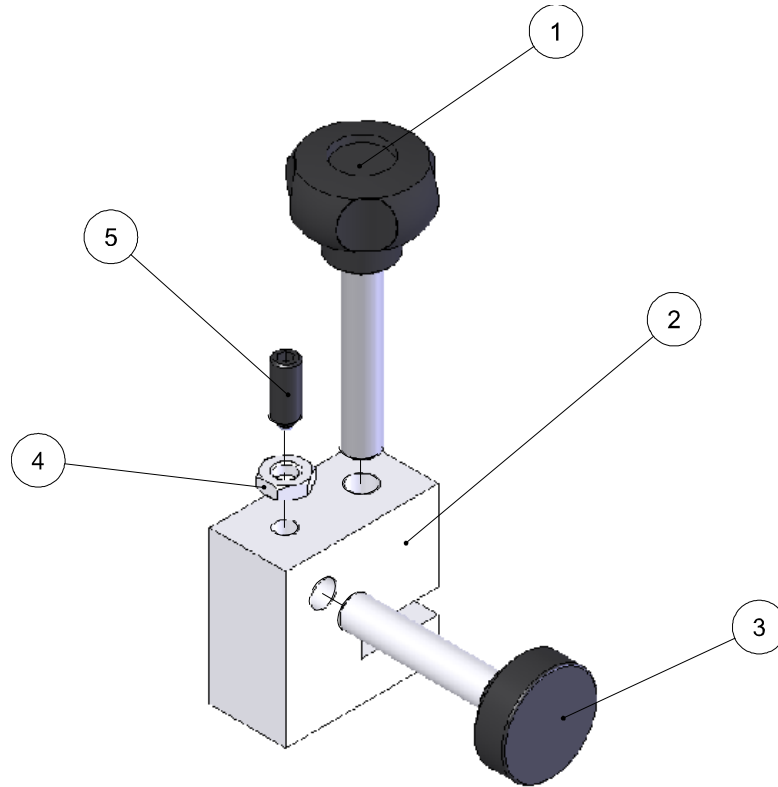
#### A04687 LEFT HAND REVERSING STOP ASSEMBLY \_\_\_\_\_



Ref #	Part #	Name of Part .....	Qty.
1	06133	M8 x 45 4 Lobe Knob.....	1
2	04115	Reversing Stop Block.....	1
3	04485	Adjustable Traverse Stop Knob .....	1
4	04654	M6 Half Nut.....	1
5	04509	M6 Ball Spring Plunger .....	1

## 5. Parts List (Continued)

A04686 RIGHT HAND REVERSING STOP ASSEMBLY \_\_\_\_\_



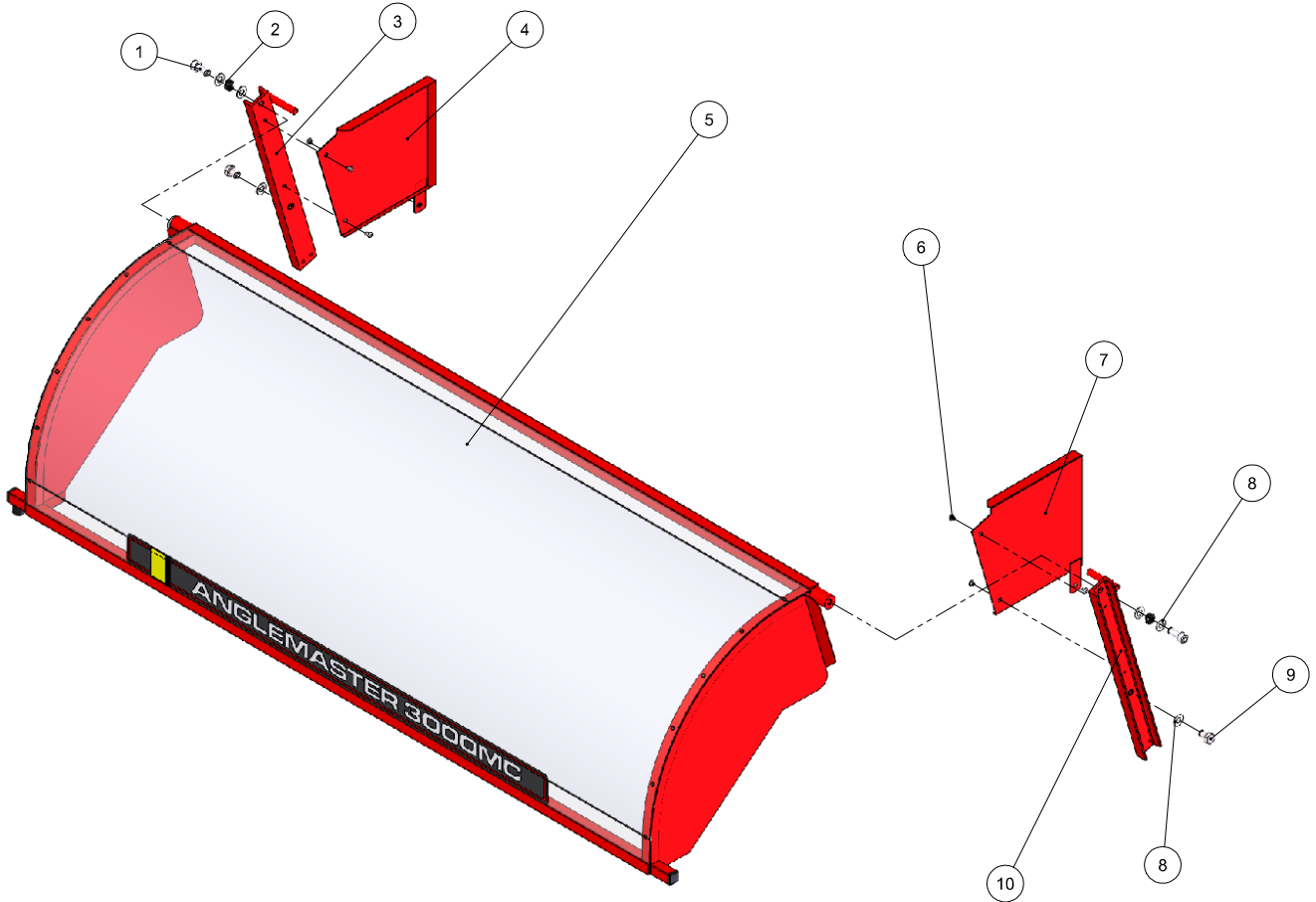
Ref #	Part #	Name of Part .....	Qty.
1	06133	M8 x 45 4 Lobe Knob.....	1
2	04115	Reversing Stop Block.....	1
3	04485	Adjustable Traverse Stop Knob .....	1
4	04654	M6 Half Nut.....	1
5	04509	M6 Ball Spring Plunger .....	1





## 5. Parts List (Continued)

### A03785 CE GUARD ASSEMBLY

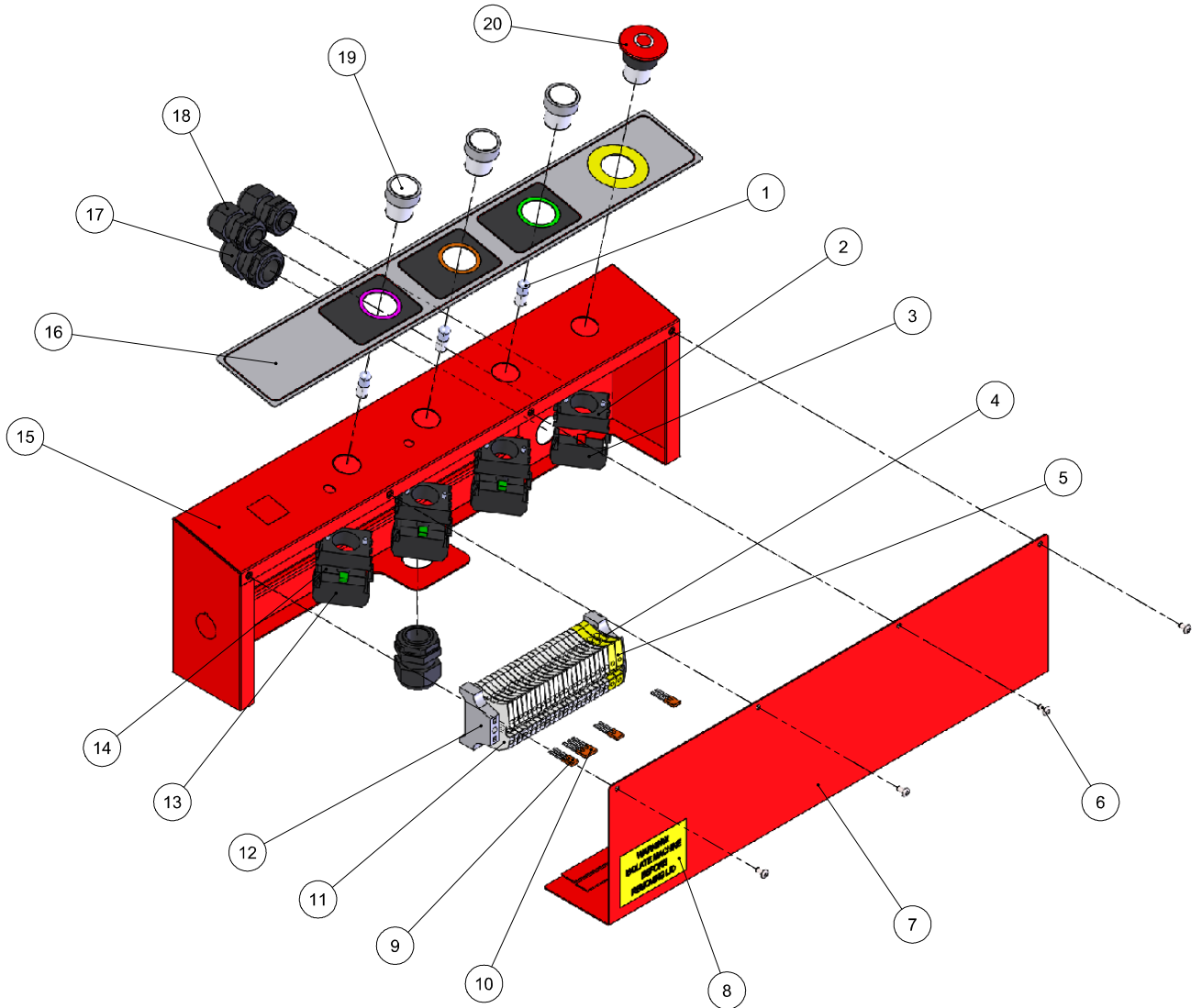


Ref #	Part #	Name of Part .....	Qty.
1	05116	M10 x 25 Cap Head .....	2
2	05309	M10 Double coil spring .....	2
3	03789	Anglemaster 3000MC LH Guard Upright .....	1
4	03787	Anglemaster 3000MC LH Rear Infill Fabrication .....	1
5	05674	Guard Front Assembly .....	1
6	05138	M5 x 6 Button Head BZP .....	6
7	03786	Anglemaster 3000MC RH Rear Infill Fabrication.....	1
8	05310	M10 Washer .....	6
9	05149	M10 x 16 Hex Head .....	2
10	03788	Anglemaster 3000MC Guard upright RH .....	1



## 5. Parts List (Continued)

### A05544 BUTTON BOX ASSEMBLY





## 5. Parts List (Continued)

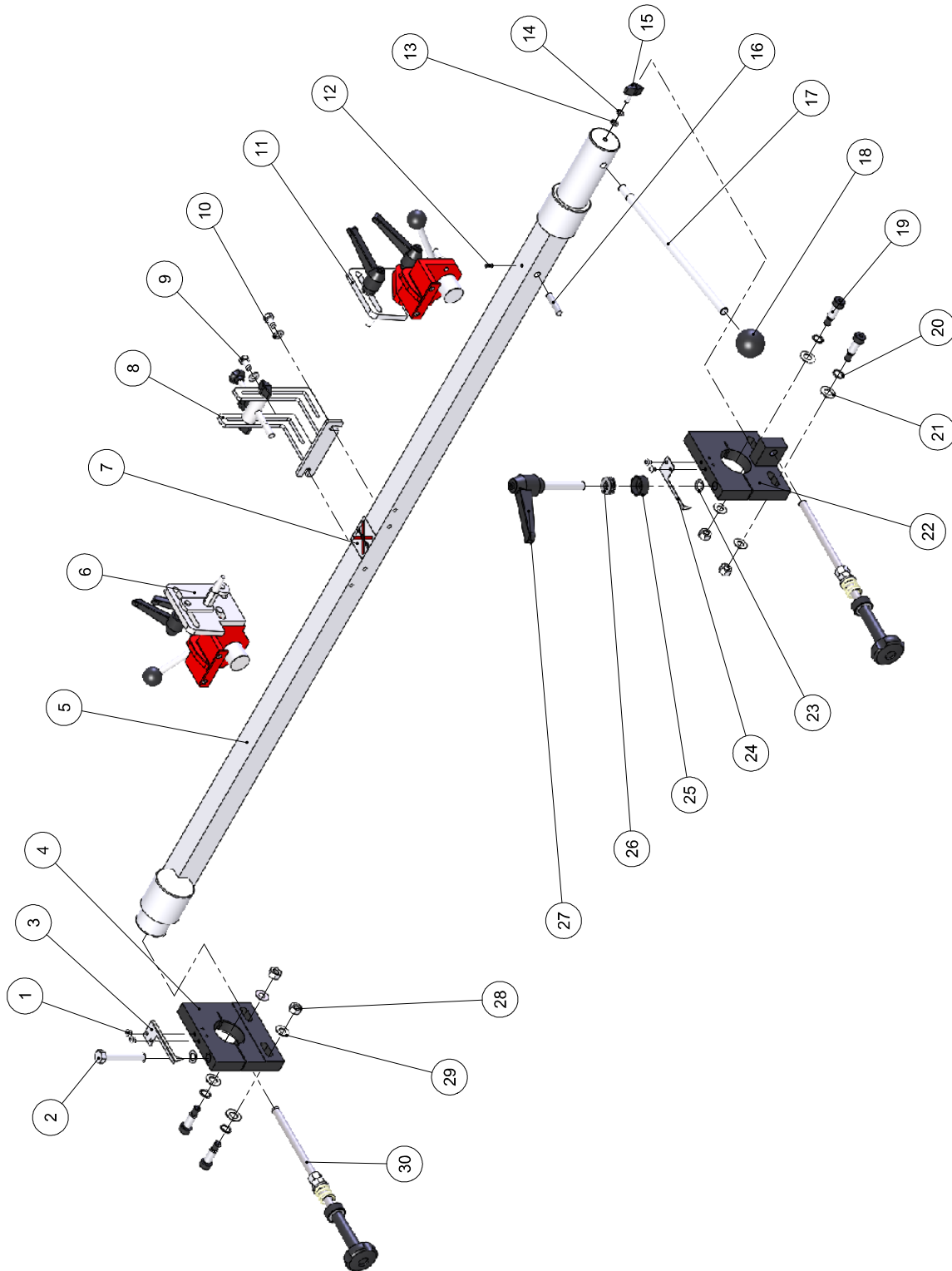
### A05544 BUTTON BOX ASSEMBLY \_\_\_\_\_

Ref #	Part #	Name of Part .....	Qty.
1	08204	24 V Neon Lamp .....	3
2	08037	3 Connector Body .....	4
3	08038	Normally Closed Contact Block.....	1
4	08960	End Cap.....	1
5	08230	Earth Terminal .....	2
6	08184	M4 x 8 Button Head .....	4
7	03975	Switch Box Lid Fabrication.....	1
8	06606	Safety Sticker (1 Set).....	1
9	08959	Bridging Bar .....	3
10	08959	Bridging Bar .....	1
11	08958	Terminal 2.5 mm.....	22
12	08192	End Stop .....	2
13	08039	Normally Open Contact Block.....	3
14	08036	B3F Lamp Holder.....	3
15	03974	Switch Box Base .....	1
16	07010	Control Box Label .....	1
17	08849	25 mm Gland .....	2
18	08114	20 mm Gland .....	2
19	08040	B4 DL Clear Push Button.....	3
20	08073	Emergency Stop Button .....	1



## 5. Parts List (Continued)

### A05557 MOUNTING BAR ASSEMBLY





## 5. Parts List (Continued)

### A05557 MOUNTING BAR ASSEMBLY

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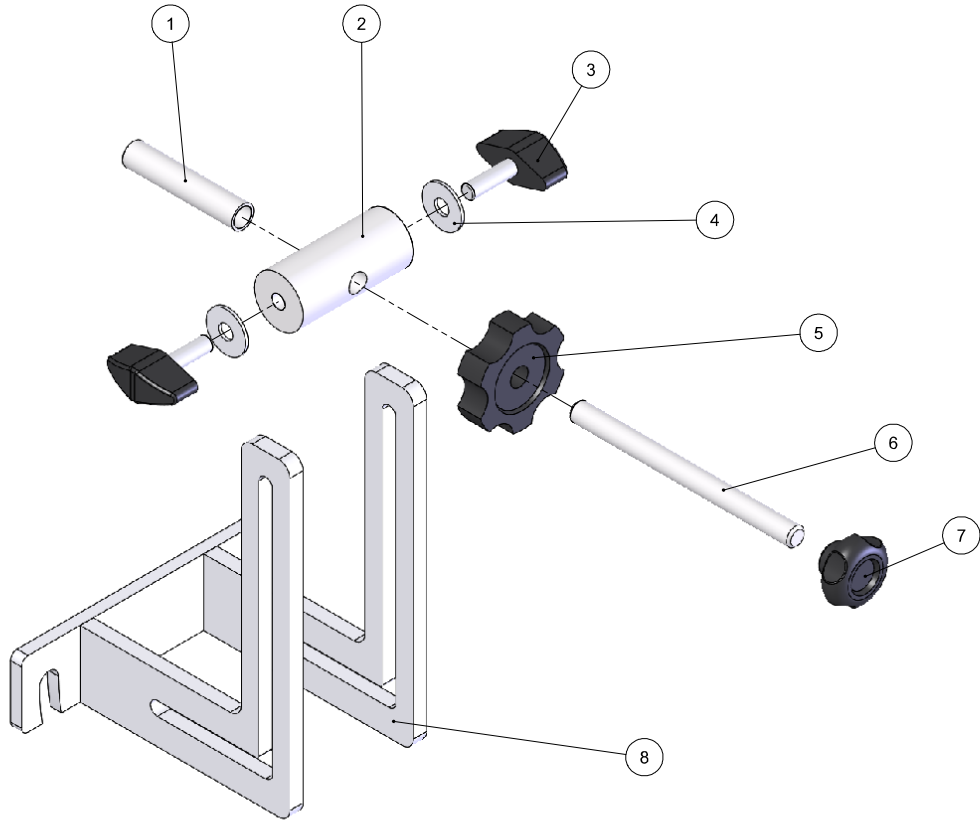
Ref #	Part #	Name of Part .....	Qty.
1	05138	M5 x 6 Button Head Screw .....	4
2	05715	M12 x 75 Hex Bolt.....	1
3	06340	Mounting Bar Pointer R.H. ....	1
4	04082	Mounting Bar Block L.H. ....	1
5	03770	Anglemaster 3000MC Mounting Bar Fabrication.....	1
6	09548	Anglemaster 3000MC Soleplate Bracket Assembly Complete LH .....	1
7	06647	AM NO. 9.....	1
8	03799	Anglemaster 3000MC Jacking Screw Assembly .....	1
9	05731	M8 x 16 Hex Set Screw .....	2
10	05321	M8 Form B Washer.....	2
11	09547	Anglemaster 3000MC Soleplate Bracket Assembly complete RH.....	1
12	05146	M6 x 12 Grub Screw .....	1
13	05320	M6 Form B Washer.....	1
14	05604	M6 Single Coil Spring Washer .....	1
15	06129	Wing Knob M6 x 15.....	1
16	06737	Diamond dresser.....	1
17	09070	Mounting Bar Handle .....	1
18	06134	Ball Knob .....	1
19	05120	Shoulder Screw M10 x 12 x 25 .....	4
20	05312	M12 SQ.Section Spring Washer .....	4
21	05315	M12 Form B Washer.....	4
22	04083	Mounting Bar Block R.H.....	1
23	05487	M12 Form B Washer Turned Down.....	2
24	06339	Mounting Bar L.H. Pointer.....	1
25	06195	Thrust Bearing Cap.....	1
26	07738	Thrust Bearing .....	1
27	06196	Kip Lever M12 x 80.....	1
28	05503	M10 Full Nut .....	4
29	05310	M10 Washer Form B.....	4
30	04696	Mounting Bar Adjustment Handle Assembly .....	2





### 5. Parts List (Continued)

**A03799 MOUNTING BAR JACKING SCREW ASSEMBLY** \_\_\_\_\_

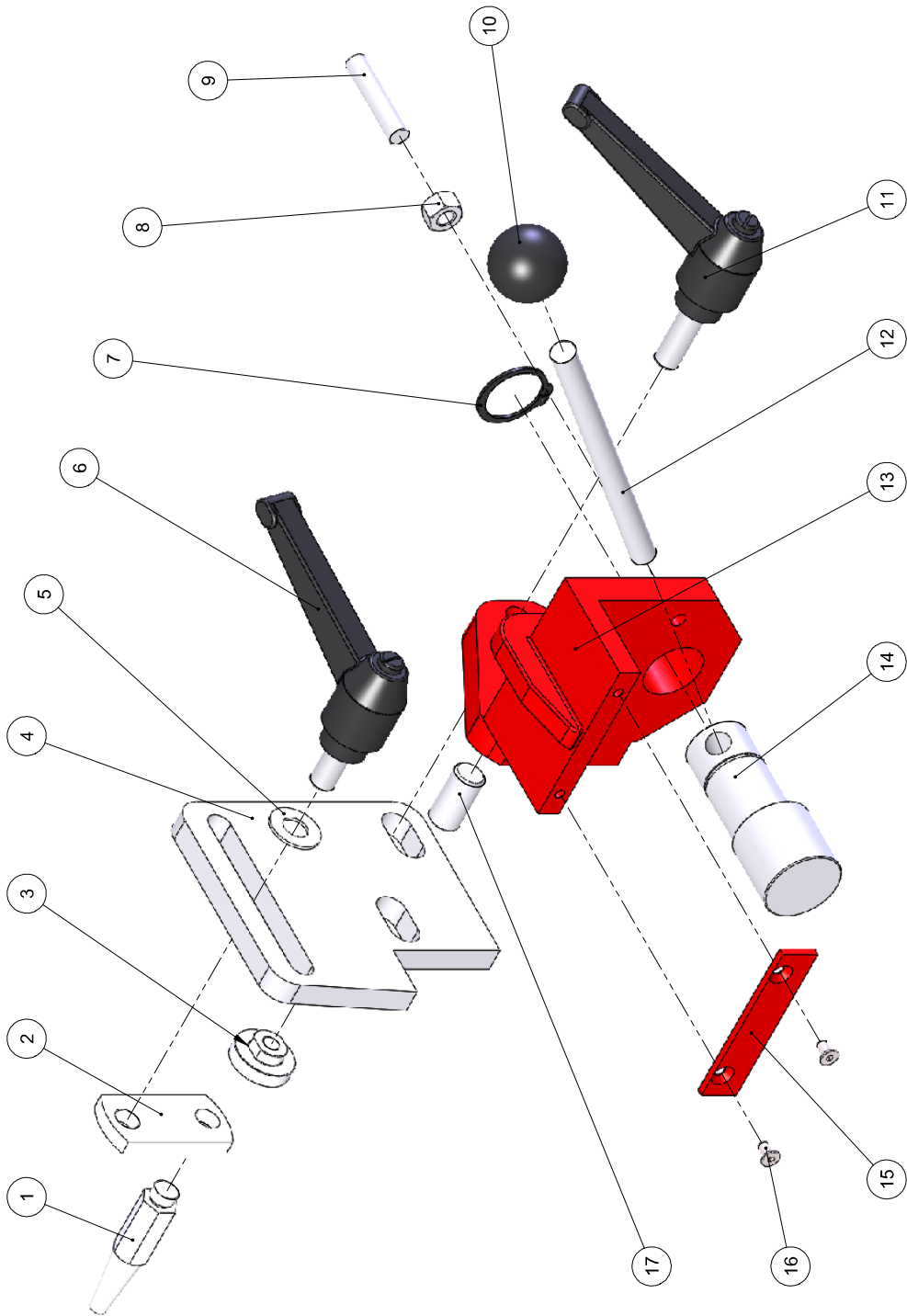


Ref #	Part #	Name of Part .....	Qty.
1	09197	Thread Extension.....	1
2	09198	Mounting Bar Bracket Boss.....	1
3	06129	Wing Knob M6 x 15.....	2
4	05320	Bright washer BS 4320 - M6 (Form B) .....	2
5	06179	M8 Locking Nut.....	1
6	05470	Jacking Screw.....	1
7	03299	Plastic Knob.....	1
8	03772	Centre Jacking Screw Bracket Fabrication.....	1



## 5. Parts List (Continued)

A09547 SOLEPLATE BRACKET ASSEMBLY R/H \_\_\_\_\_







## 5. Parts List (Continued)

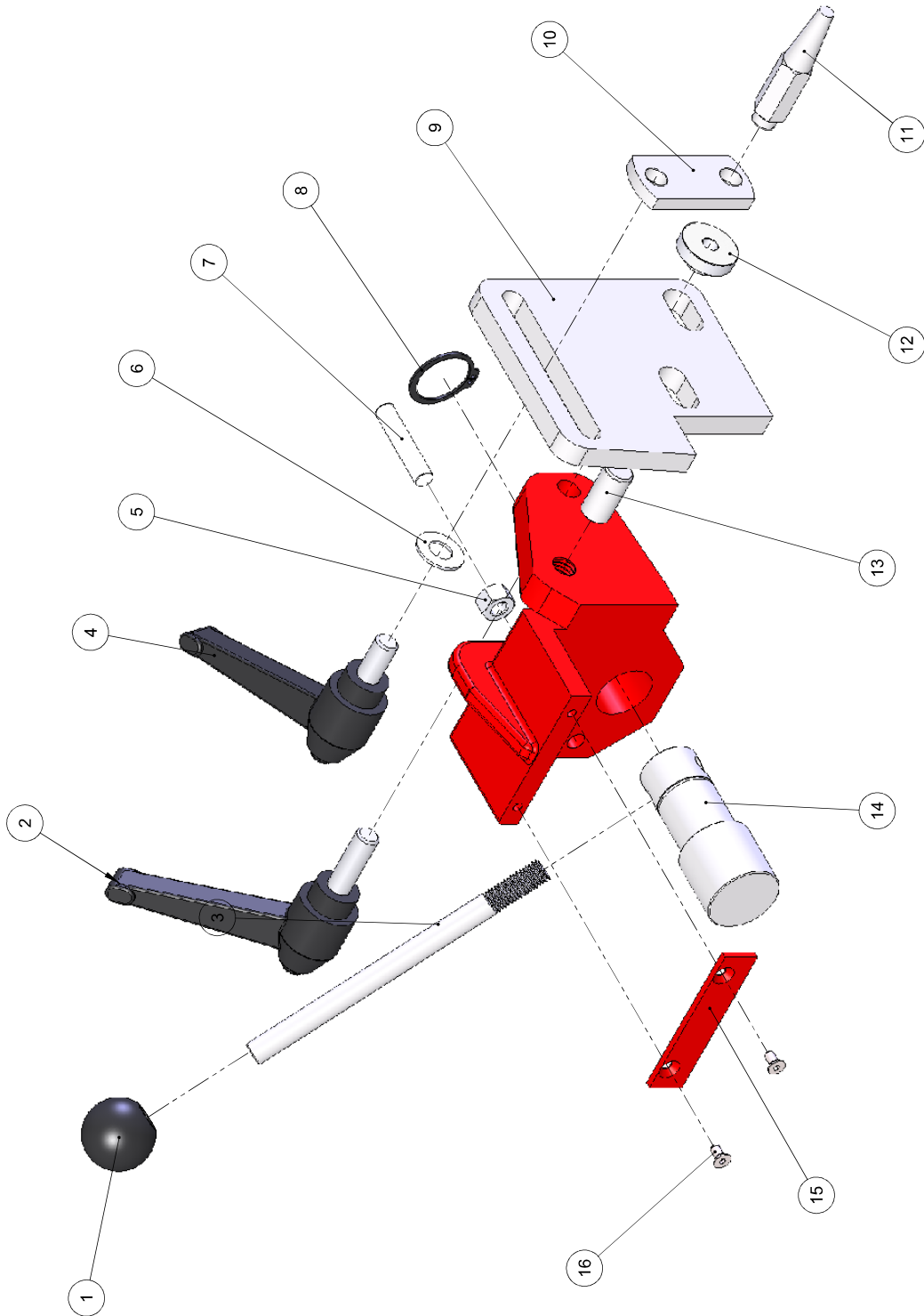
### A09547 SOLEPLATE BRACKET ASSEMBLY R/H \_\_\_\_\_

Ref #	Part #	Name of Part .....	Qty.
1	09119	Taper pin.....	1
2	04089	Taper Pin Plate .....	1
3	09023	Captive Nut M10 .....	1
4	04302	Quadrant Plate.....	1
5	05310	M10 Washer .....	1
6	06118	Adjustable Handle Lever M10 x 20 .....	1
7	05603	25 mm Circlip.....	1
8	05519	M8 Hex Nut.....	1
9	09062	Lever Stop .....	1
10	06115	Ball Knob .....	1
11	06119	Adjustable Handle Lever M10 x 30 .....	1
12	09035	Eccentric Lever .....	1
13	04131	Soleplate Casting RH.....	1
14	09031	Eccentric Pin.....	1
15	04132	Soleplate Casting Retaining Strip.....	1
16	05127	M4 x 8 Countersunk Screw .....	2
17	09105	Quadrant Pivot Pin.....	1



## 5. Parts List (Continued)

A09548 SOLEPLATE BRACKET ASSEMBLY L/H \_\_\_\_\_





## 5. Parts List (Continued)

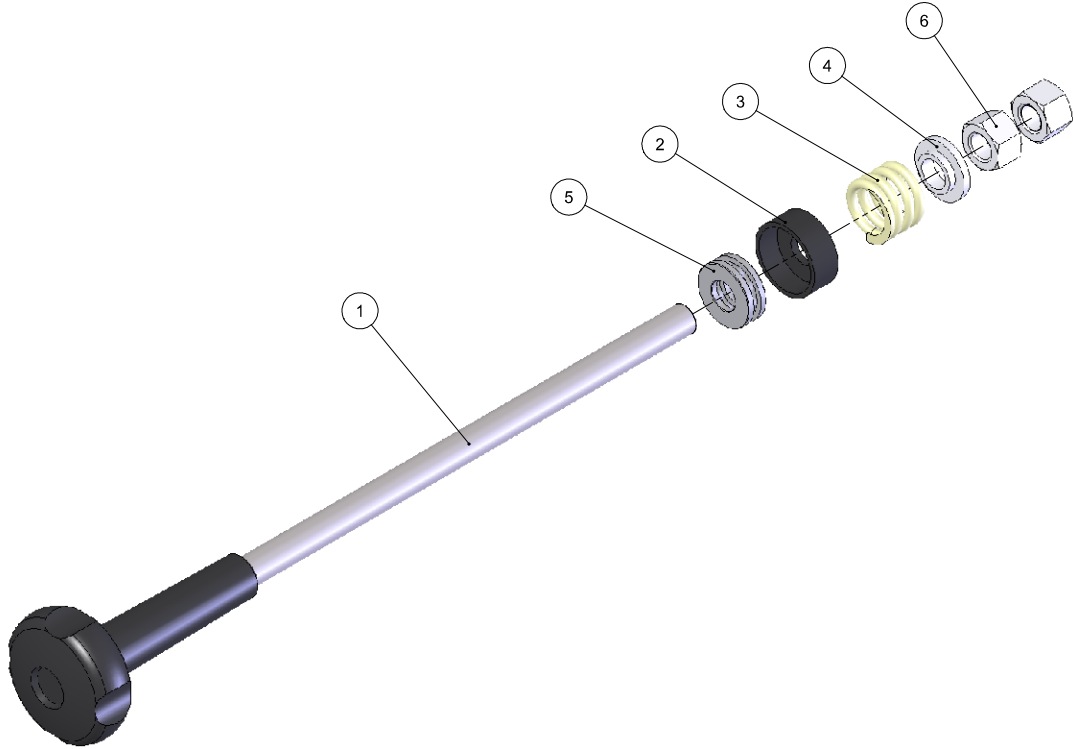
### A09548 SOLEPLATE BRACKET ASSEMBLY L/H \_\_\_\_\_

Ref #	Part #	Name of Part .....	Qty.
1	A06115	Ball Knob .....	1
2	A06119	M10 x 30 Locking Lever .....	1
3	A09035	Eccentric Lever .....	1
4	A06118	M10 x 20 Locking Lever .....	1
5	A05519	M8 Hex Nut .....	1
6	A05310	M10 Washer Form B .....	1
7	A09062	Lever Stop .....	1
8	A05603	25mm Circlip .....	1
9	A04302	Quadrant Plate .....	1
10	A04089	Taper Pin Plate .....	1
11	A09119	Taper pin .....	1
12	A09023	Captive Nut M10 .....	1
13	A09105	Quadrant Pivot Pin .....	1
14	A09031	Eccentric Pin .....	1
15	A04132	Soleplate Casting Retaining Strip .....	1
16	05127	M4 x 8 Countersunk Screw .....	2
17	A04130	Soleplate Casting LH .....	1



## 5. Parts List (Continued)

### A04696 MOUNTING BAR ADJUSTER HANDLE ASSEMBLY \_\_\_\_\_

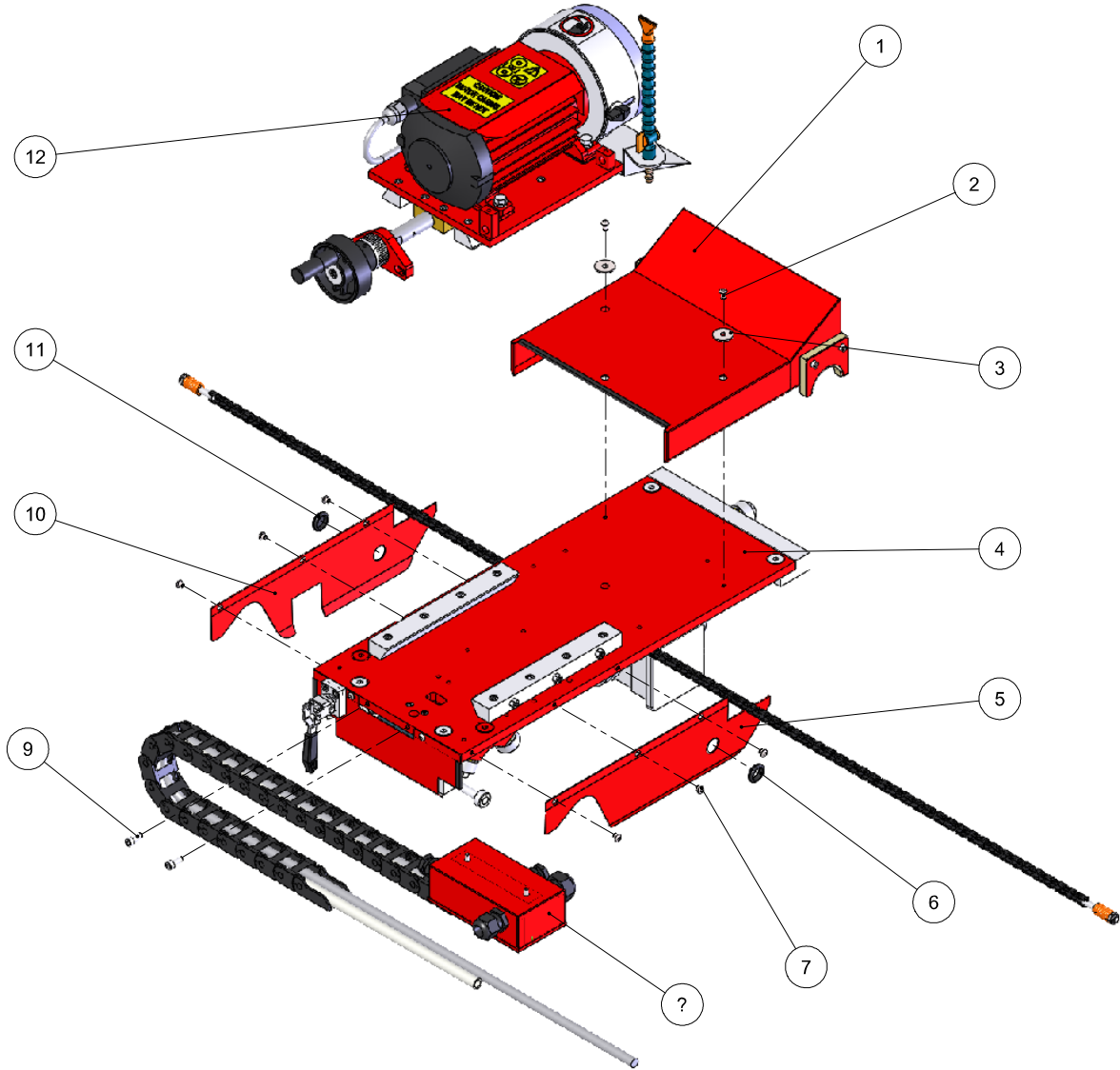


Ref #	Part #	Name of Part .....	Qty.
1	05417	Mounting Bar Feedscrew Adjuster .....	1
2	06195	Thrust Bearing Cap.....	1
3	06278	5/8" Die Spring.....	1
4	04512	Die Spring Cap .....	1
5	07738	Thrust Bearing .....	1
6	05506	M12 Full Nut .....	2



### 5. Parts List (Continued)

#### A05667 CARRIAGE ASSEMBLY

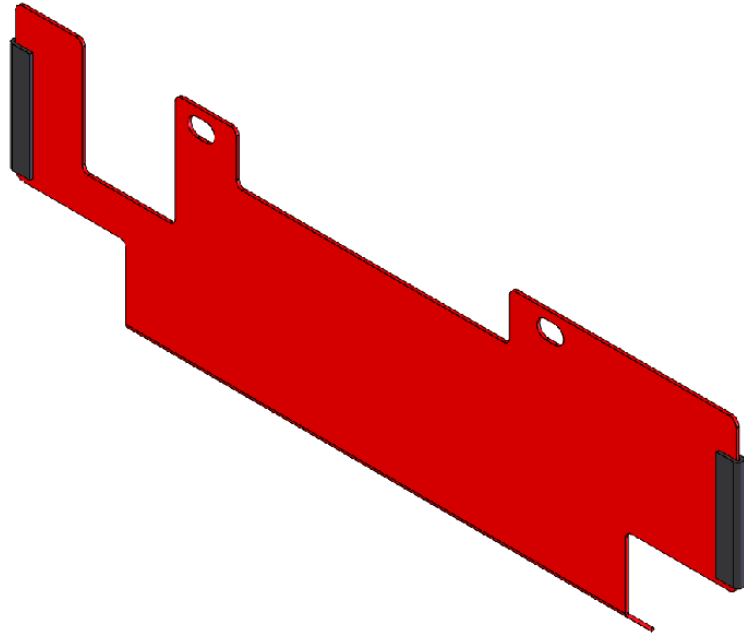


Ref #	Part #	Name of Part .....	Qty.
1	05047	Rear Rail Guard Assembly.....	1
2	05129	M5 x 10 Button Head .....	2
3	05337	M6 Penny Washer .....	2
4	05036	Carriage Base Assembly .....	1
5	03278	Lower Trolley Guard R/H .....	1
6	08021	20 mm Open Grommet .....	1
7	05138	M5 x 6 Button Head BZP .....	6
8	05666	Cable Track Assembly.....	1
9	05754	M6 x 16 Cap Head.....	2
10	03277	Lower Trolley Guard L/H.....	1
11	08020	20 mm Blanking Grommet .....	1
12	05675	Upper Half Carriage Assembly.....	1



## 5. Parts List *(Continued)*

A05609 REVERSING SWITCH COVER ASSEMBLY \_\_\_\_\_

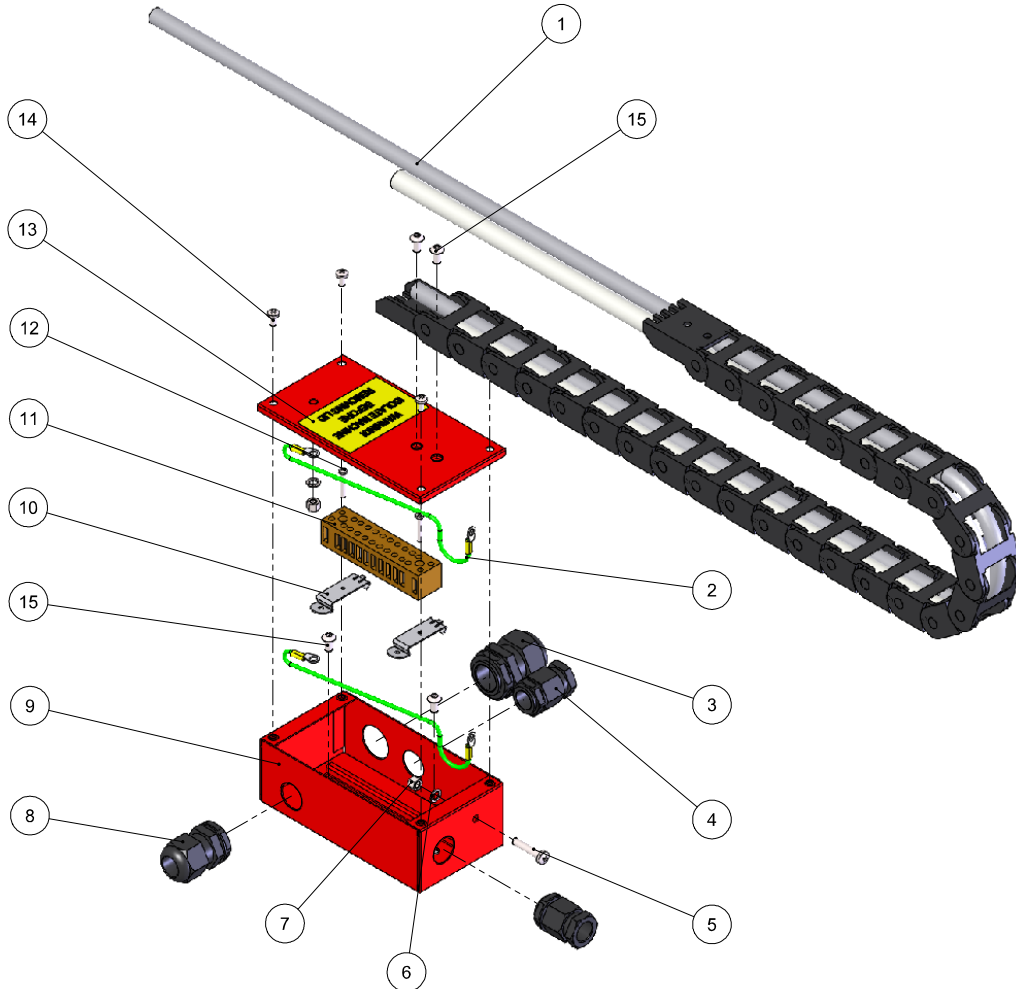


Ref #	Part #	Name of Part .....	Qty.
1	04958	Reversing Bar Switch Cover .....	1
2	08273	Grommet Strip-Thin-Meter .....	2



## 5. Parts List (Continued)

### A05666 TROLLEY LOOM



Ref #	Part #	Name of Part .....	Qty.
1	03194	Cable Track Complete .....	1
2	05088	Guard Earth Wire Assembly.....	2
3	08849	25 mm Gland .....	1
4	08104	Large Plastic Cable Gland .....	2
5	05415	M5 X 25 Pan Head Screw.....	1
6	05319	M5 Star Washer.....	2
7	05512	M5 Full Nut .....	2
8	08114	20 mm Gland .....	1
9	08030	6 x 3 x 2 Electric Box Fabrication .....	1
10	08070	Din Rail Adaptors.....	2
11	08041	BK12 Connector Block.....	1
12	05430	M3 x 20 Pan HD Cross Screw BZP.....	2
13	06606	Safety Sticker (1 Set) .....	1
14	05087	M4 x 8 Pan Pozi Machine Screw .....	4
15	05129	M5 x 10 Button Head .....	4

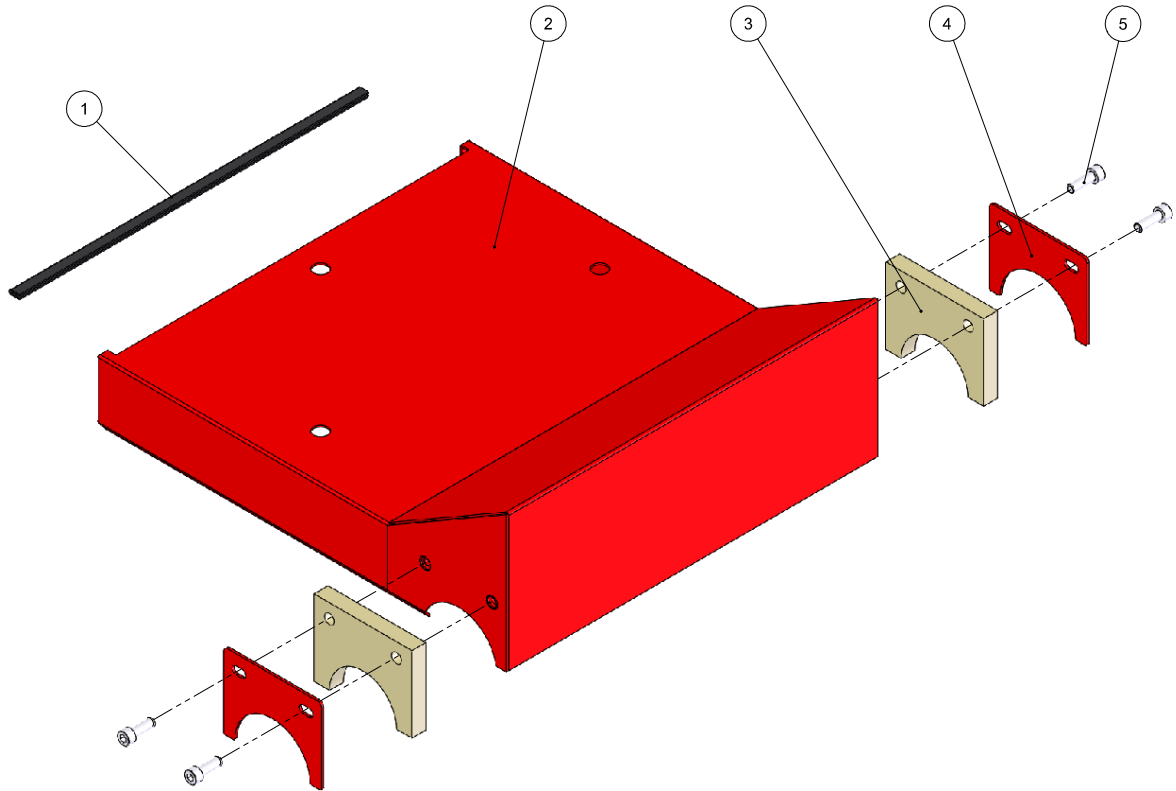






### 5. Parts List (Continued)

#### A05047 REAR RAIL GUARD ASSEMBLY

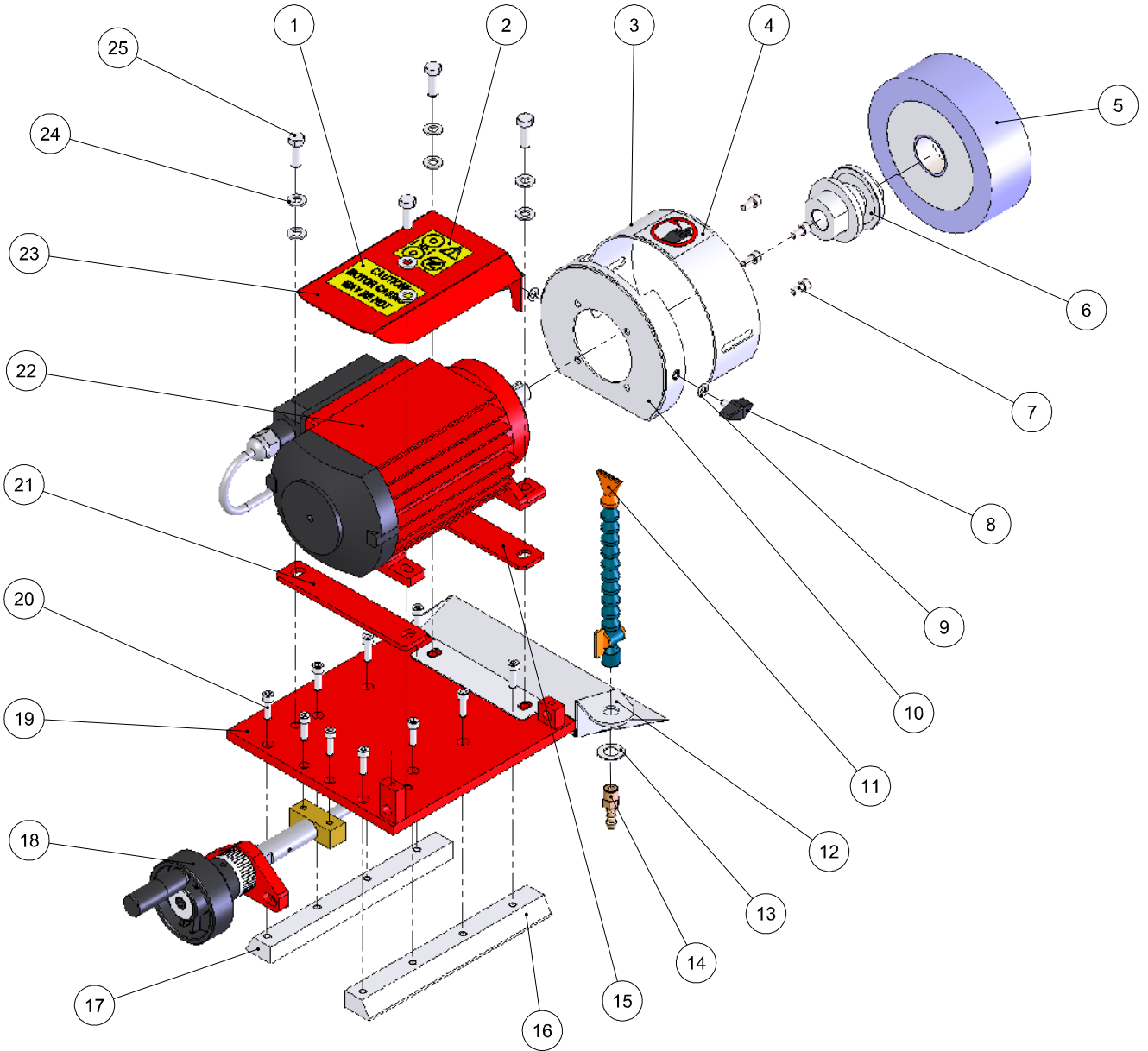


Ref #	Part #	Name of Part .....	Qty.
1	08273	Grommet Strip-Thin 25 cm Long .....	1
2	06347	Rear Rail Guard Fabrication .....	1
3	06766	Wiper Felt .....	2
4	04104	Wiper Plate .....	2
5	05132	M5 x 16 Cap Head .....	4



## 5. Parts List (Continued)

### A05675 UPPER HALF CARRIAGE ASSEMBLY





## 5. Parts List (Continued)

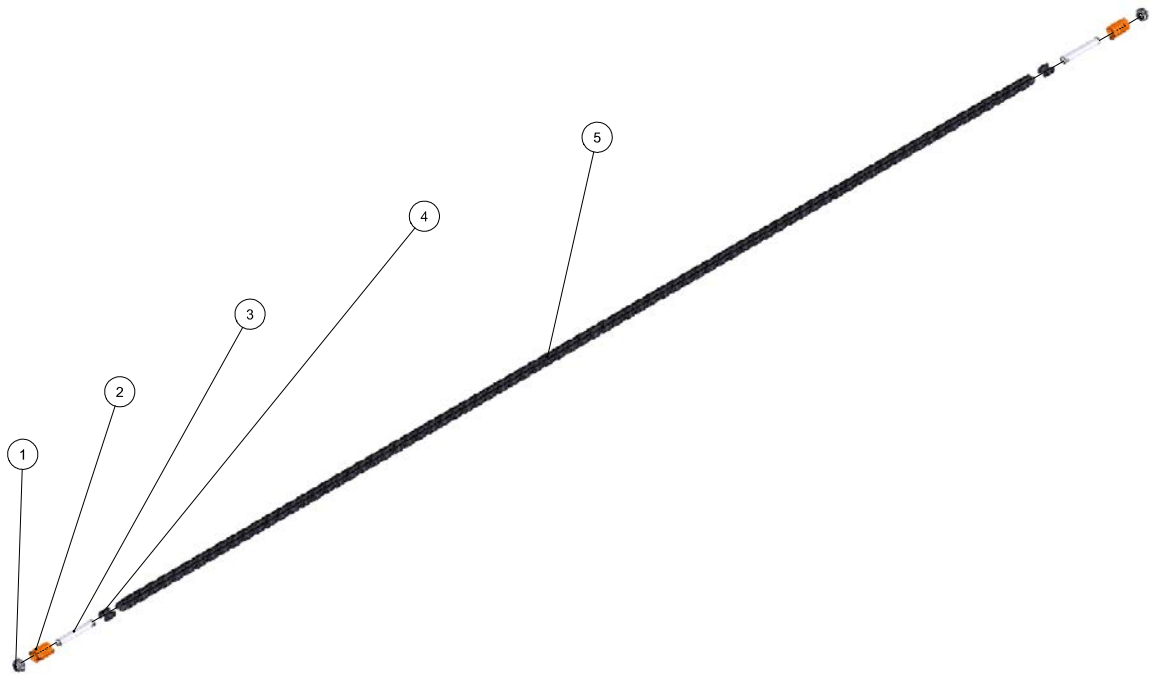
### A05675 UPPER HALF CARRIAGE ASSEMBLY \_\_\_\_\_

Ref #	Part #	Name of Part .....	Qty.
1	06691	Label Caution Motor Casing - May Be Hot .....	1
2	06642	AM No. 14.....	1
3	06377	Anglemaster 1000 Stone Guard outer.....	1
4	06646	AM No. 10 50 mm x 50 mm .....	1
5	06980	Grindstone SuperBlue Parallel Cup .....	1
6	05043	Arbor Assembly .....	1
7	05171	M6 x 12 Cap Head .....	4
8	06126	Wing Knob M6x10.....	2
9	05320	M6 Form B Washer.....	2
10	06376	AM1000 Stone Guard Inner .....	1
11	06773	Stay Put Hose.....	1
12	03776	Anglemaster 3000MC Drip Tray Catcher Fabrication.....	1
13	05315	M12 Form B Washer.....	1
14	06726	1/4" BSP Brass Nipple .....	1
15	03775	Motor Spacer Plate - 1 mm .....	1
16	04077	Motor Plate Slide L.H. ....	1
17	04305	Motor Plate Slide R.H. ....	1
18	04664	Feed Screw Assembly .....	1
19	09555	Motor Plate Fabrication.....	1
20	05150	M6 x 20 Cap Head.....	10
21	54114	Motor Spacer Plate (Long).....	1
22	05041	Main Motor Assembly .....	1
23	06446	Anglemaster 1000 Motor cover .....	1
24	05484	M8 Form 'A' Washer .....	8
25	05723	M8 x 25 Hex Head Screw .....	4



## 5. Parts List (Continued)

### A05045 TRAVERSE CHAIN ASSEMBLY \_\_\_\_\_

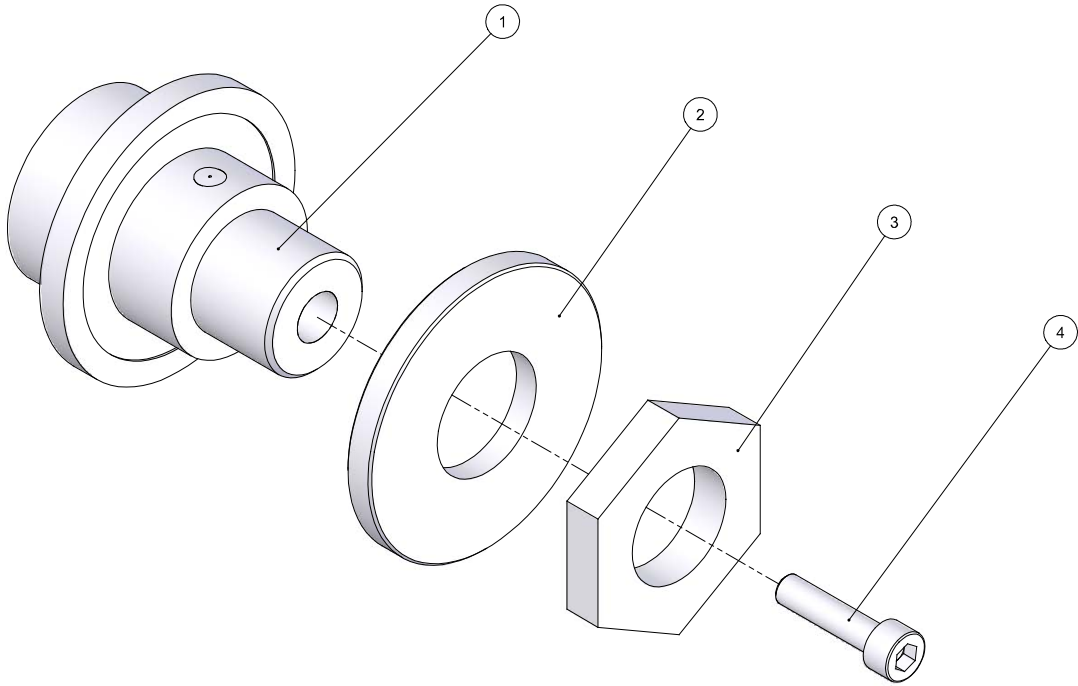


Ref #	Part #	Name of Part .....	Qty.
1	05520	M8 Nylon Lock Nut.....	2
2	06739	Tension Spring.....	2
3	05420	Chain Tension Bolt.....	2
4	07502	Chain Link.....	2
5	04144	Traverse Chain .....	1



## 5. Parts List (Continued)

### A05043 ARBOR ASSEMBLY

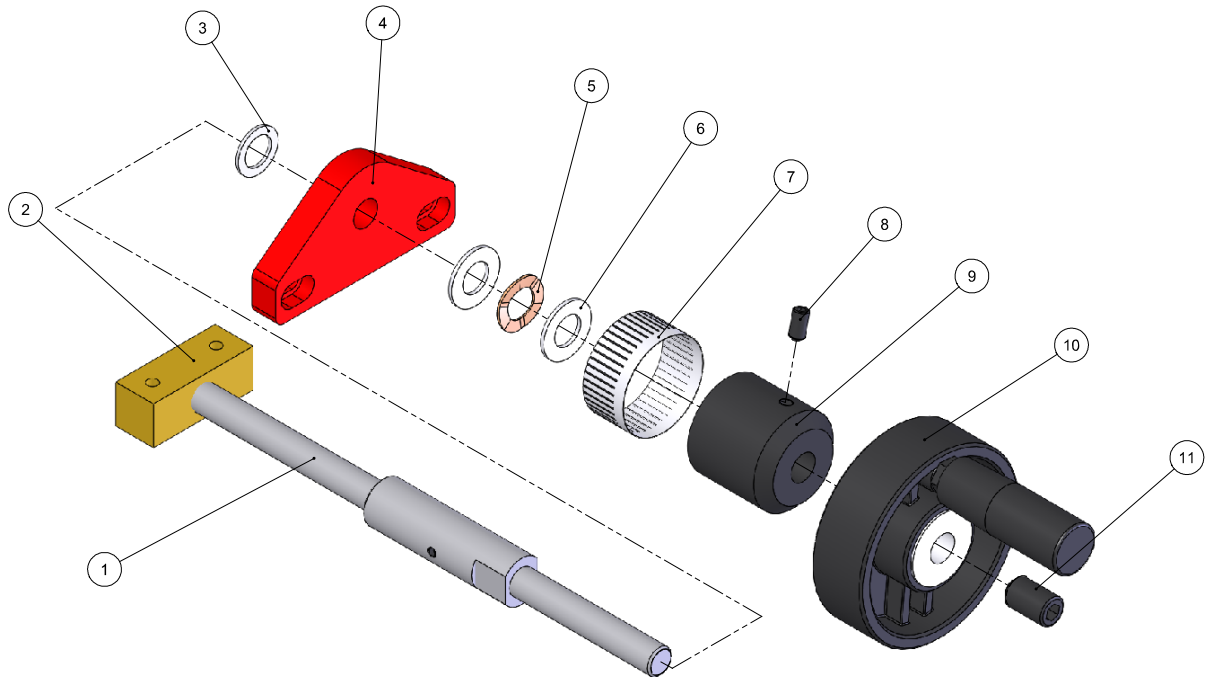


Ref #	Part #	Name of Part .....	Qty.
1	05042	Grinding Wheel Extension Shaft .....	1
2	09054	Extension Shaft Flange .....	1
3	09055	Extension Shaft Nut .....	1
4	05152	M6 x 25 Cap Head .....	1



## 5. Parts List (Continued)

### A04664 FEED SCREW ASSEMBLY

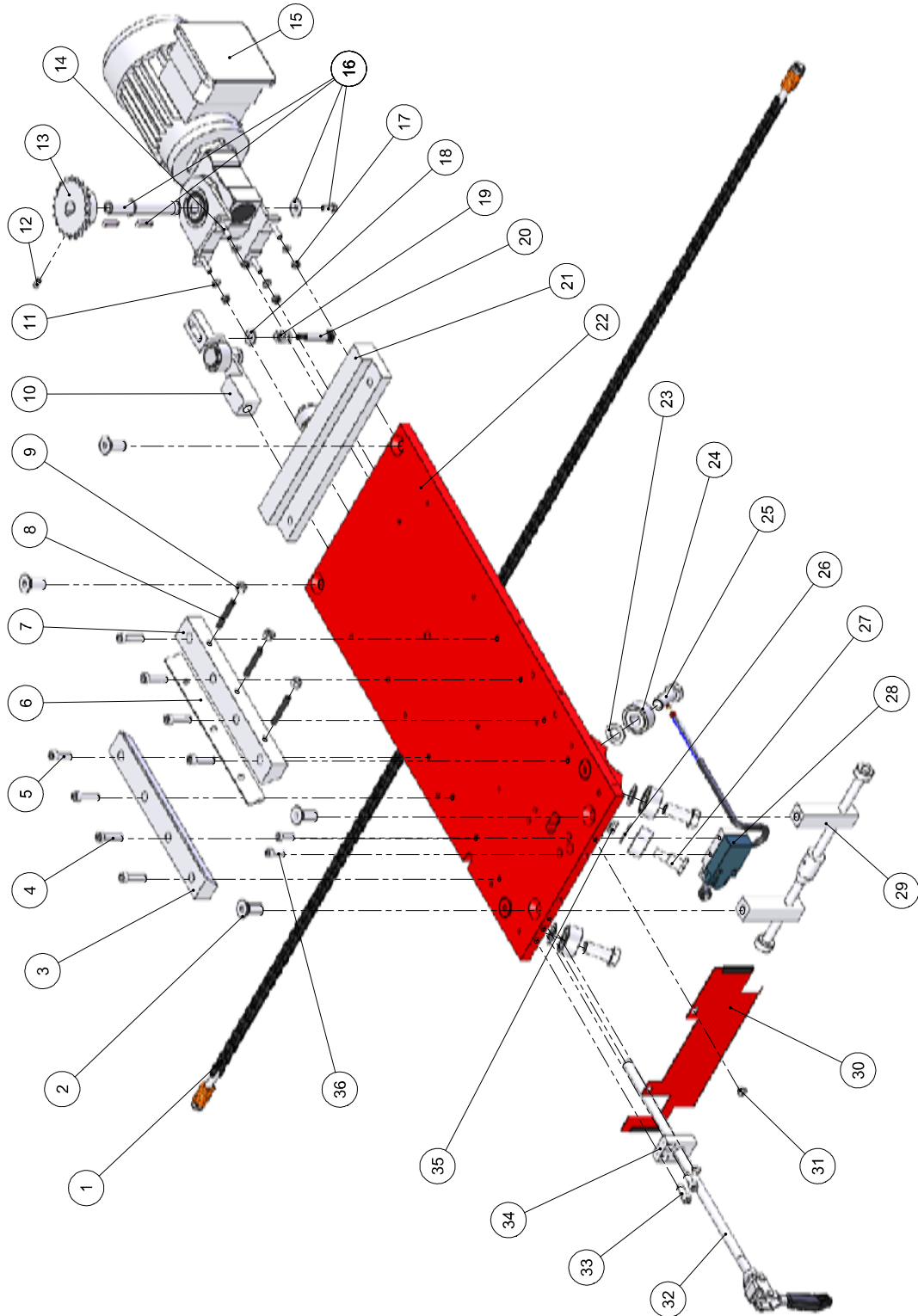


Ref #	Part #	Name of Part .....	Qty.
1	09213	Carriage Feedscrew.....	1
2	04040	Motor Slide Nut .....	1
3	05315	Turned Down Washer .....	1
4	04957	Feed Screw Support Block Wide .....	1
5	05325	M12 Crinkle Washer .....	1
6	05315	M12 Form B Washer.....	2
7	07015	Protractor Scale Tape .....	1
8	05146	M6 x 12 Grub Screw .....	1
9	03774	Feedscrew Nylon Spacer.....	1
10	03839	Feedscrew Handle .....	1
11	05486	M12 x 20 Grub Screw .....	1



## 5. Parts List (Continued)

### A05036 CARRIAGE BASE ASSEMBLY







## 5. Parts List (Continued)

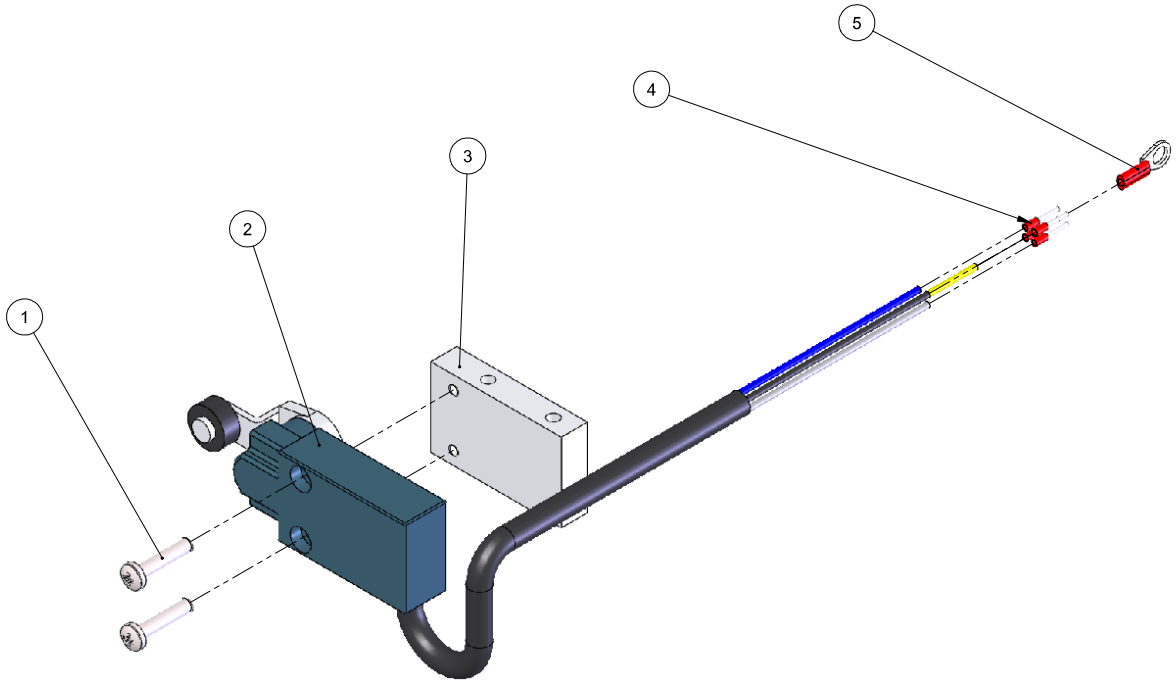
### A05036 CARRIAGE BASE ASSEMBLY

Ref #	Part #	Name of Part	Qty.
1	05045	Traverse Chain Assembly	1
2	05115	M10 x 25 Countersunk Screw	4
3	04024	Carriage Plate Slide L.H.	1
4	05152	M6 x 25 Cap Head	7
5	05150	M6 x 20 Cap Head	1
6	04061	Jib Strip	1
7	04304	Carriage Plate Slide R.H.	1
8	05111	M6 x 40 Socket Screw	3
9	05516	M6 Full Nut	3
10	05077	Clutch Engagement Assembly	1
11	05318	M5 Form B Washer	4
12	05131	M5 x 10 Grub Screw	1
13	07606	Parvalux Traverse Motor Sprocket	1
14	05134	M5 x 25 Cap Head Socket Screw	4
15	06069	Traverse Motor 50/60 Hz	1
16	09226	Shaft for Anglemaster 3000MC for Traverse Motor	1
17	05513	M5 Nylon Lock Nut	4
18	05484	M8 Form 'A' Washer	1
19	04936	Clutch Engagement Bracket Spring	1
20	04937	M6 x 8 x 30 Socket Shoulder Bolt	1
21	05078	Rear Bearing Block Assembly	1
22	09554	Base Carriage Fabrication	1
23	05211	M12 Turned & Chamfered Washer	4
24	07713	Bearing	5
25	05713	M12 x 30 Hex Set	4
26	05315	M12 Form B Washer	1
27	09032	Eccentric Bolt	1
28	05046	Traverse Switch Assembly	1
29	05074	Reversing Bar Assembly	1
30	05609	Reversing Switch Cover Assembly	1
31	05138	M5 x 6 Button Head BZP	2
32	05075	Toggle Clamp Assembly	1
33	05754	M6 x 16 Cap Head	2
34	04291	Chain Engagement Handle Block	1
35	05520	M8 Nylon Lock Nut	1
36	05132	M5 x 16 Cap Head	2



## 5. Parts List (Continued)

### A05046 TRAVERSE SWITCH ASSEMBLY \_\_\_\_\_

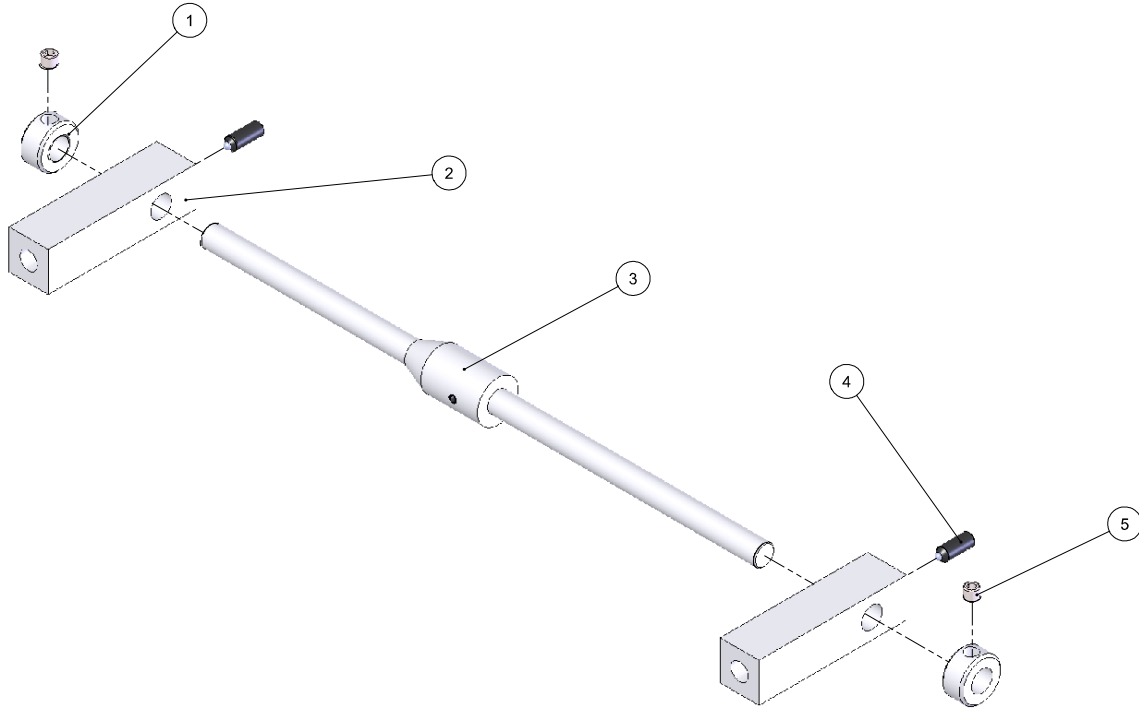


Ref #	Part #	Name of Part .....	Qty.
1	05412	M4 x 20 Pan Head Pozi Drive MC Screw.....	2
2	08133	Microswitch.....	1
3	04075	Microswitch Mounting Block.....	1
4	08953	Red Bootlace Ferrules .....	4
5	08135	Ring Red M5.....	1



### 5. Parts List (Continued)

#### A05074 REVERSING BAR ASSEMBLY \_\_\_\_\_

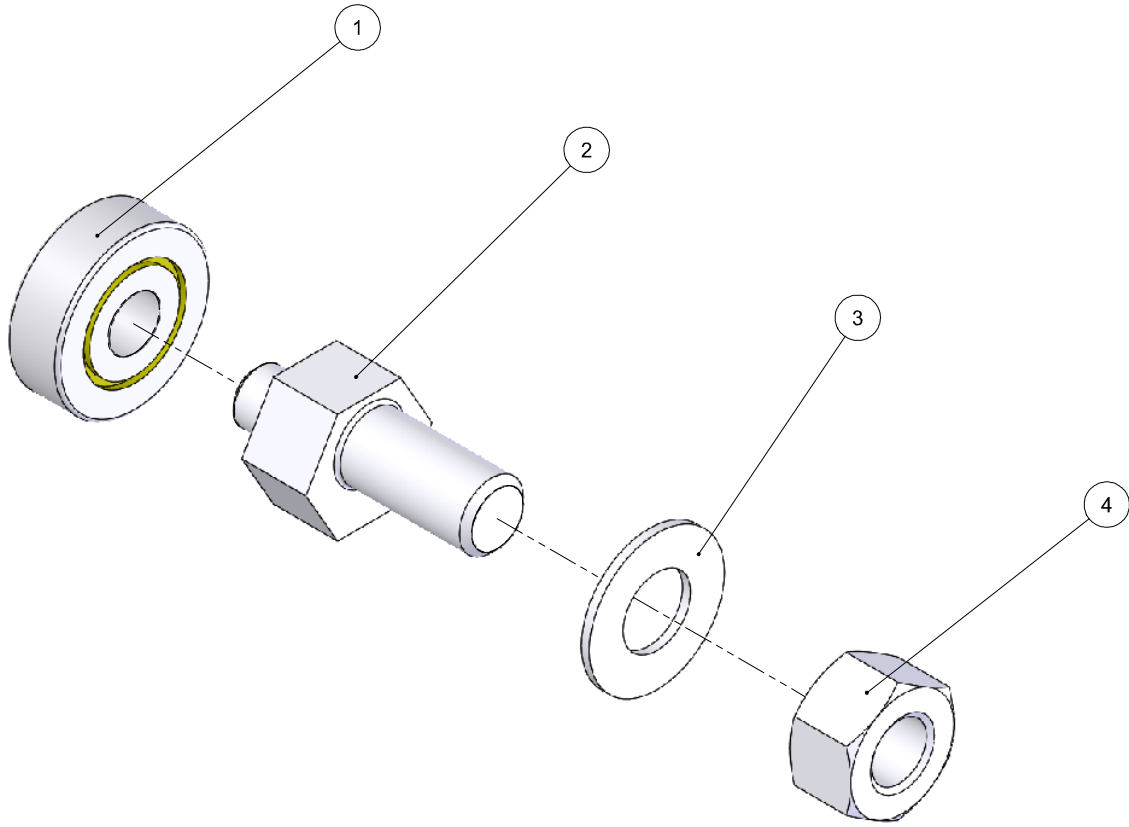


Ref #	Part #	Name of Part .....	Qty.
1	09006	Reversing Bar Collar .....	2
2	04114	Reversing Bar Support Block .....	2
3	09112	Reversing Bar Actuator .....	1
4	04509	M6 Ball Spring Plunger .....	2
5	05156	M6 x 6 Grub Screw .....	2



### 5. Parts List (Continued)

**A05383 ECCENTRIC BEARING ASSEMBLY** \_\_\_\_\_

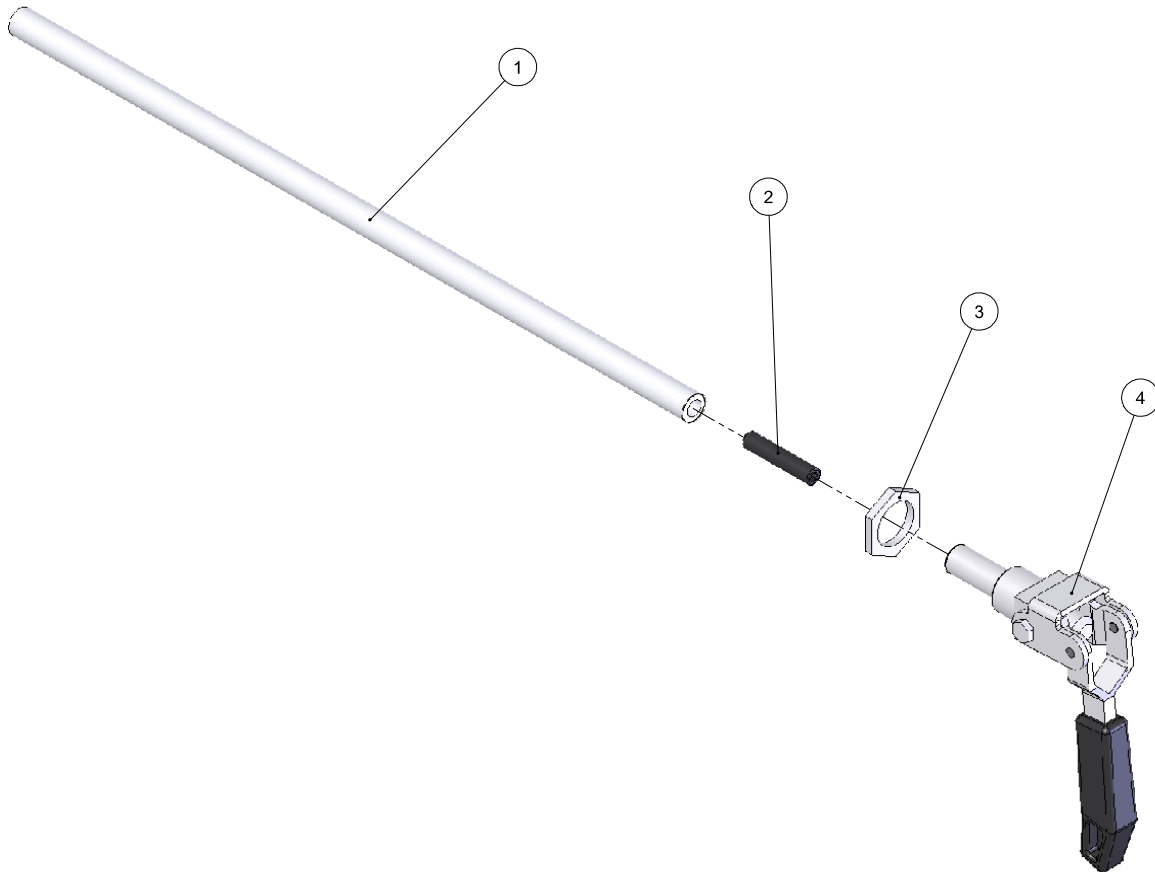


Ref #	Part #	Name of Part .....	Qty.
1	07723	Bearing 628ZZ .....	1
2	09211	Slide Block Eccentric .....	1
3	05310	M10 Washer Form B.....	1
4	05503	M10 Full Nut .....	1

## 5. Parts List (Continued)

### A05075 TOGGLE CLAMP ASSEMBLY

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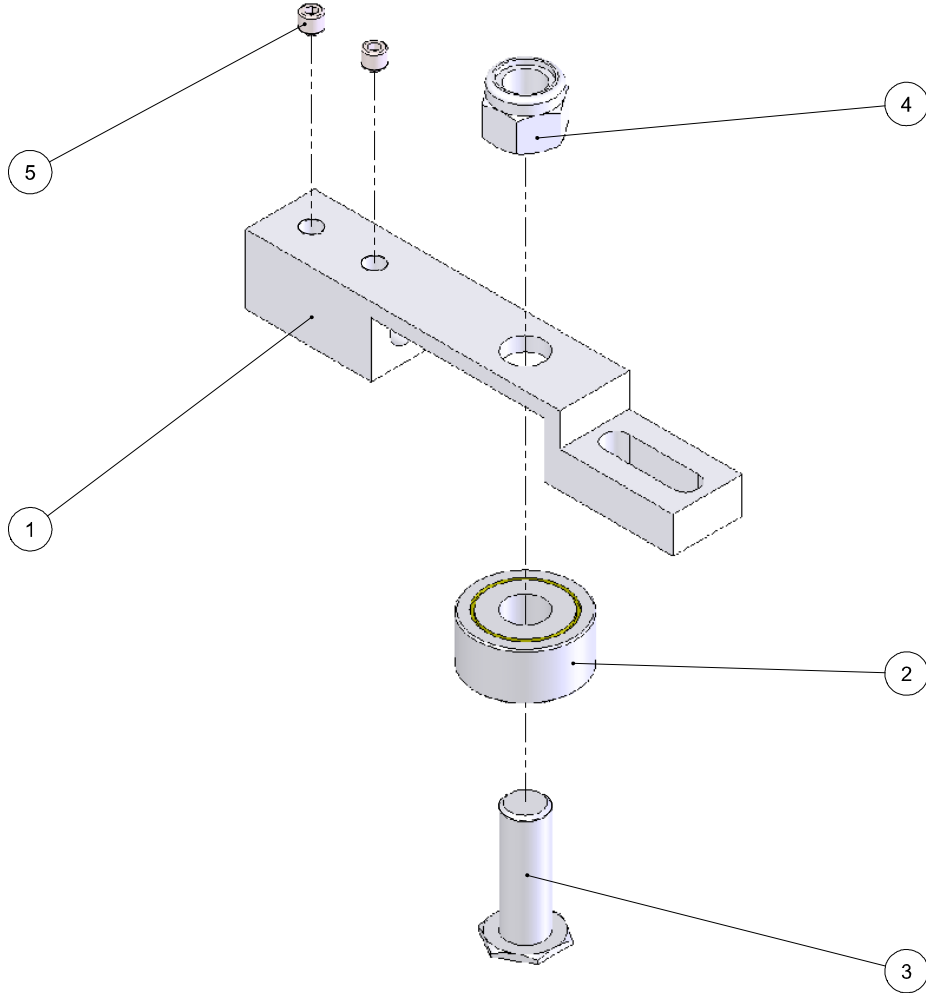


Ref #	Part #	Name of Part .....	Qty.
1	09214	Reversing Bar Actuator Rod .....	1
2	05215	M6 x 30 Socket Set Screw .....	1
3	05527	M16 Half Nut.....	1
4	06884	Push Pull Toggle Clamp .....	1



### 5. Parts List (Continued)

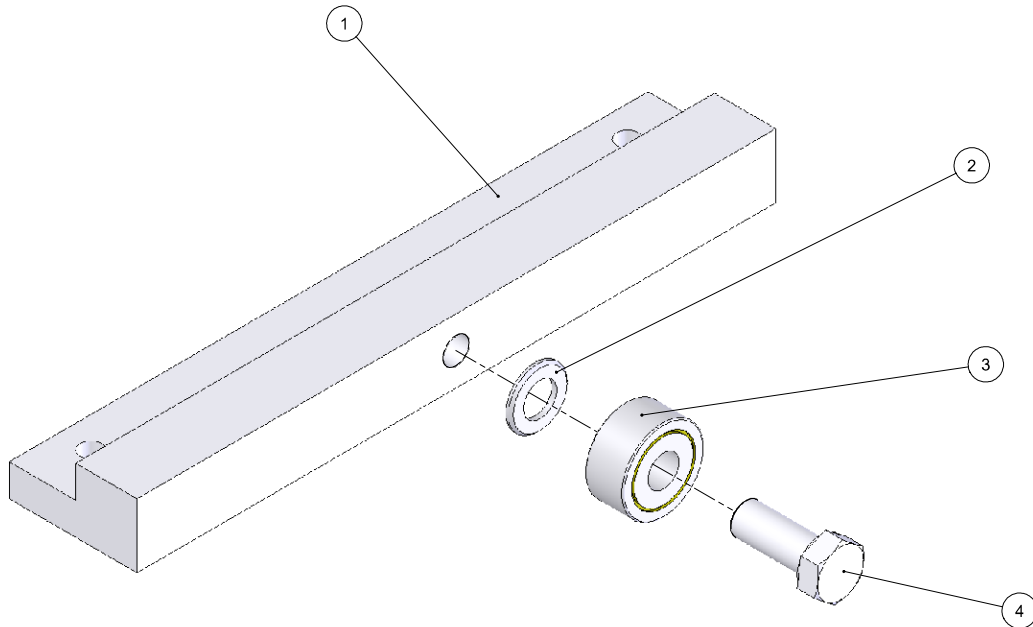
**A05077 CLUTCH ENGAGEMENT ASSEMBLY** \_\_\_\_\_



Ref #	Part #	Name of Part .....	Qty.
1	04292	Clutch Engagement Bracket .....	1
2	07713	Bearing .....	1
3	09065	M12 x 40 Hex Set Special.....	1
4	05507	M12 Nylon Lock Nut.....	1
5	05156	M6 x 6 Grub Screw .....	21

## 5. Parts List (Continued)

### A05078 REAR BEARING BLOCK ASSEMBLY \_\_\_\_\_



Ref #	Part #	Name of Part .....	Qty.
1	04107	Rear Adjustable Bearing Block .....	1
2	05211	M12 Turned & Chamfered Washer .....	1
3	07713	Bearing .....	1
4	05713	M12 x 30 Hex Set .....	1



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