



## **2017 Operator Manual and Parts List**

### **Mounted Trio**



**Read this manual carefully prior to operating the machine  
and store with the machine.**

SUMO Serial No. :



Redgates  
Melbourne  
York  
YO424RG

Tel: 01759 319900

Fax: 01759 319901

[www.sumo1.com](http://www.sumo1.com)

## **EC DECLARATION OF CONFORMITY (RL 2006/42/EC)**

**MANUFACTURER:** Sumo UK Ltd

**ADDRESS:** Redgates, Melbourne, York, YO42 4RG.

**COUNTRY:** United Kingdom

**PRODUCT DESCRIPTION:** Sumo Mounted Trio

**MODEL:** 2.5,3 and 3.5m Mounted Trio

**DATE:** March 2015

This product conforms to all the essential health and safety requirements of the EC Directive 2006/42/EC



This document is approved by:

**NAME:** Mr. Shaun Wealleans

**POSITION:** Technical Director

**SIGNATURE:**

**PLACE:** Sumo UK Ltd, Redgates, Melbourne, York, YO42 4RG, United Kingdom.

**DATE:** March 2015



## Machine Registration

Warranty claims will NOT be accepted unless this machine registration form is completed and returned to the address below:

Sumo UK Ltd  
Redgates  
Melbourne  
York  
YO42 4RG

Serial number: .....

Machine: .....

Model: .....

Delivery date: .....

I confirm that I have received and read the Operator's Manual for the machine written above and I have been instructed by a Sumo dealer or trained operative in the safe and correct operation of this machine.

.....

Signed by dealer or operative

.....

Print name

### **Sumo Dealer**

Name: .....

Address: .....

.....

.....

Postcode: .....

Tel: .....

Email: .....

### **Customer**

Name: .....

Address: .....

.....

.....

Postcode: .....

Tel: .....

Email: .....

I am aware that a warranty claim can only be carried out if this form is filled in and returned to Sumo UK Ltd once initial instruction has taken place.

Date: .....

.....

Receiver's signature

.....

Print name



**In order to obtain your free pair of Sumo overalls and baseball cap** please fill in this form and send back to us at:

Sumo UK Ltd  
Redgates  
Melbourne  
York  
YO42 4RG  
Tel: 01759 319900  
Fax: 01759319901

<b>Overall Size</b>	Tick where applicable.
Small (38 chest)	
Medium (42 chest)	
Large (46 chest)	
Extra-large (50 chest)	
XX Large (54 chest)	
XXX Large (58 chest)	

<b>Position</b>	
Farm Owner	
Farm Manager	
Farm Worker	

<b>Farm type</b>	
Arable	
Vegetable	
Livestock	
Mixed	

<b>Farm Size</b>	
0-250ac	
251-500ac	
501-1000ac	
1000+ac	

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## 1.0 Introduction

Prior to operating the machine, these instructions must be read and complied with. This will reduce the chance of injury, reduce the chance of machine misuse which could result in failure of parts and significantly reduce the service life of the machine.

Sumo will not accept liability for any injuries or damage caused from failing to comply with the instructions within this manual.

The instructions within this manual will enable the operator to operate the machine in a safe manner and reduce risk to themselves and persons around the machine while it is in operation.

As well as reading the instructions of operation contained within this manual, a trained technician or dealer should also instruct you on the correct and safe use of the machine and maintenance of the machine to ensure a long service life.

By signing the document contained at the front of this manual you are accepting the receipt of this manual. The warranty starts on the day of delivery of the machine.

The illustrations within this manual may be subject to change and may differ from the machine you have received.

## 2.0 Warnings

Within these instructions are warnings of safety to protect the health of the user and the persons surrounding the machine during its operation.

Please read and ensure that these warnings are complied with.

The designations "left", "right", "front" and "rear" refer to the direction of travel, as seen in the direction of travel, as the operator is sat in the driving seat looking forward.

## 3.1 Service

Sumo endeavour to ensure that the machine leaves the factory in perfect working order, if this is not the case then please let us know as soon as possible.

If you encounter any issues with your machine please contact us or your Sumo dealer, and we will work to resolve the issue as quickly as possible.

To allow us to process the problem quickly we will need the following information:

- Customer name and address
- Sumo dealer name
- Machine model
- Serial number
- Area covered by machine
- Type of problem

## 3.2 Warranty claims

Any warranty claims must be submitted through your local Sumo dealer.

If damage to the machine has been caused by external influences then the warranty claim cannot be honoured. Influences such as:

- Excessive wear of wearing parts
- Missing wearing parts
- Excessive operating speeds
- Excessive transport speeds

- Incorrect set up of machine (hydraulic connections, non-even depth adjustment)
- Failing to comply with safety and operating instructions
- Neglect of maintenance of the machine.

## 4.1 Safety and Responsibility

The following warnings and safety instructions apply to all sections of these operating instructions.

The machine has been designed and manufactured to meet all of the relevant safety regulations. These regulations along with the instructions provided within this manual will ensure that risk of injury to yourself or others is minimised.

Please read **ALL** of these safety instructions prior to the first use of the machine to prevent safety issues or potential machine damage to the machine through incorrect use.

### 4.2 Intended use

Any use outside of the intended use of the machine can lead to injury or persons operating or within the area of the machine during operation and can also lead to invalidating the warranty. The machine is intended to be used for normal soil cultivation in agricultural practices.

Any faults with the machine should be rectified prior to use of the machine. Faults can cause safety issues and can also cause the machine to work in an unsatisfactory manner.

Only qualified persons may operate this machine, they must be familiar with the

machine and familiar with the dangers of the machine.

### 4.3 Spares

The machine has been designed to take Sumo manufactured spares; non-genuine parts may damage the machine as they are untested and not recommended for use with the Sumo machine. Sumo will not honour warranty claims if deemed to be caused by the use of non-genuine parts or accessories.

Safety stickers should always be replaced along with the components they are attached to; this will ensure the safety of the machine is not compromised.

### 4.4 Qualification of operators

Use of the machine by untrained operators can lead to injury or even death. To prevent accidents occurring ensure that operators have been trained by a Sumo dealer or technician. The following requirements must be met:

- Personnel must be of statutory minimum age in the country of operation.
- Ensure only authorised persons operate or work on the maintenance of the machine.
- The person has read and understood these instructions in full.
- The person is fully competent in operating the machine towing the equipment.
- Local traffic laws are abided by
- A person being instructed on the use of the machine must be done so under the instruction of a trained individual.

The owner of the machine must ensure that these requirements are met and the area of responsibility is met, train any per-

sons intending on using the machine to ensure they are up to the required standards and ensure that they have read and understood this manual.

#### **4.5 Machine operators**

These persons have been trained by the owner or dealer to use and set up the machine in the field, transport the machine on the road, maintain the machine and troubleshoot errors with the machine.

#### **4.6 Sumo trained operators**

Higher training by Sumo is required for the following operations; loading for truck transportation, commissioning of new machines, advanced troubleshooting and repair.

Any repair work to structural components of the machine must be carried out by Sumo or a workshop approved by Sumo, otherwise the warranty will be compromised.

#### **4.7 Children**

Young persons are less able to react to danger and are unlikely to have enough experience to react to situations so as such should be kept clear of the operating zone of the machine. Children should NOT be left in the tractor even when the machine has been shut down as hydraulics can still be operated if they are a mechanical spool. The minimum age of children riding on agricultural equipment locally in the country of operation must be adhered to.

#### **4.8 Personal Protective Equipment (PPE)**

To protect the user and persons surrounding the machine during operation suitable PPE must be worn.

Tight fitting clothes or overalls should be worn to ensure no loose clothing is able to get caught in the machine while it is in operation, this includes long hair, which should be tied up or placed in a hair net.

Suitable footwear should be worn, steel toe capped shoes/boots should be worn to protect when components are being lowered to the floor.

Eye protection such as safety glasses or goggles must be worn during the changing of wearing components as these may be under pressure and can release suddenly, and when working with hydraulic components as the pressure may not have been released properly and could release suddenly.

Jewellery such as rings, bracelets and watches should not be worn while operating this machine as it has the ability to get caught and cause further injury to the operator.

Hand protection should be worn during the attachment of the machine to a tractor as hydraulic oil can cause injury if it is under pressure as it can pierce the skin and can cause serious health problems if it enters the blood stream.

#### **4.9 Road transportation**

When the machine is being transported on the road the local road regulations must be adhered to, regulations such as transport width and height. The route

planned should also be considered to ensure that the machine will fit under low bridges and between narrow gaps.

The way in which the Sumo Trio is configured means the transportation wheels are at the very rear of the machine, meaning that it cuts corners, ensure that a wide swing is taken to tackle corners to prevent damage being caused to the machine or the machine fouling other vehicles on the highway.

When transporting the machine on the highway it must be folded into the correct transportation position.

#### **4.10 Operation Safety**

This manual contains basic advice, which should be observed during setting-up, operation and maintenance. Therefore, this operating manual must be read by the personnel concerned prior to starting up and using the machine and be accessible at all times.

If safety instructions are not complied with, then this can lead to the risk of injury to yourself and others as well as damage to the environment or the machine. Non-compliance to the safety instructions can also lead to any warranty claims becoming invalid.

#### **4.11 General Safety**

To avoid serious injury please ensure that the tractor keys are removed before making any adjustments and maintenance.

Warning signs and other notices on the machine provide important information for the safe operation. Observing them

will serve your safety. Before commencing work, make yourself familiar with all the equipment and controls as well as their functions. Keep the machine and in particular; any bearings clean to avoid risk of fire.

Check around the machine before moving off or starting up (watch out for children!). Make sure you have adequate all-round visibility. Always match your speed to the local conditions. Avoid sudden turning manoeuvres when driving uphill or downhill or when travelling across a slope. Observe the respective regulations when using public roads. Take into account the length, the wide overhang, the folded height and the sideways force acting on the machine when turning or negotiating corners.

### **5.1 Commissioning & Care**

Before operation of the Sumo Trio, a full commissioning should take place to avoid the potential for severe or even fatal accidents. Whilst the Sumo Trio undergoes a thorough inspection before leaving the factory, it cannot be guaranteed that it is safe to use for immediate operation. This could be due to a number of factors including tampering or the transport environment it has been delivered in. It is imperative that full instruction should be undertaken by an authorised SUMO dealer or by an appropriate SUMO UK technician, on initial operation. It is policy that a machine should be registered for use by the end user on delivery of the machine by Sumo UK, or any authorised SUMO dealer. Any

initial operation prior to an official commissioning of the machine that leads to damage of the machinery, or the serious/fatal injury to personnel/third party claimants will not be the responsibility of SUMO UK. It is highly recommended that prior to initial/daily use that nuts and bolts be checked and tightened appropriately on vital components to avoid unnecessary damage and or injury.

### **5.2 Avoiding damage to the machine**

Avoiding unnecessary damage can both prolong the life of the machine and ensure that the machine can be operated safely throughout its life. Damage to the machine can result in serious or fatal injury to operators and third parties. Care should be taken in identifying damaged parts and appropriately replacing the damaged items with Sumo genuine parts. Unnecessary damage can be avoided if the machine is regularly serviced and maintained within SUMO guidelines. Items that should be inspected daily as a good safety practice are:

- Hydraulic System
- Brakes
- Hitch System
- Lighting
- Wheels and tyres
- Any safety Mechanisms

If a particular component is showing signs of damage that poses a risk to operator and/or third party safety, operation must either not commence or cease until the fault is assessed and rectified by a competent/qualified person(s).

### **5.3 Retrofitting**

Structural changes and extensions can adversely affect the functionality and the operational safety of the machine. This can lead to severe or even fatal physical injuries.

- Do not make any structural changes or extensions which have not been approved by SUMO UK.
- Structural changes and extensions must only be made in an authorised workshop or by an operator who has been instructed by SUMO UK.
- Comply with country specific instructions for weights, weight distribution and dimensions.

For retrofits influencing the weight or weight distribution one must check and comply with the regulations concerning towing facilities, support and axle loads.

### **5.4 Hitching and Unhitching**

Faulty hitching up of the machine to the tractor causes dangers, which could result in severe accidents. Hitching and unhitching of the machine should only take place on a secure and level surface with chocks placed under the machine transport wheels to prevent machine rolling away.

Never allow persons to stand between the tractor and the SUMO machine whilst the tractor is manoeuvring into position. Once the tractor is in position and secured against rolling away by means of parking brake and/or wheel chocks, can the operator/third party secure the machine to the tractor.

Ensure the wings are either fully up and folded in the “transport” position or fully

down in the “work” position before uncoupling from the tractor. The machine should always remain secured to the tractor when the wings are anywhere between fully up and fully down.

### **5.5 Hydraulic System**

The hydraulic system is under high pressure. Hydraulic oil escaping under pressure can penetrate the skin and cause serious injuries. In the event of injury, consult a doctor immediately.

The machine's hydraulic system has several functions, which can cause injury to persons or damage to the machine, if operated incorrectly.

- Do not connect hydraulic hoses to the tractor, before both hydraulic systems on machine and tractor are de-pressurised.
- The hydraulic system is under high pressure. Check all lines, hoses and screwed connections regularly for leaks and any visible external damage!
- Use only appropriate means when searching for leaks. Repair any damage immediately! Oil sprays can cause injuries and fire!
- Power sockets and connectors on the hydraulic connections should be marked in order to exclude operating errors.
- In the case of injury, contact a doctor immediately!

### **5.6 Pressure Accumulator**

The hydraulic system uses high pressure accumulators, which can present a danger if tampered with or misused. This includes drilling, welding or any other process that could compromise the safety of the accumulator. It is recommended that the

operator, or any third party does NOT try to dismantle or adjust the accumulator in any way. If the accumulator fails it should be changed under the instruction of SUMO UK.

### **5.7 Brake System**

Brake systems are usually one of two formats, either pneumatic or hydraulically operated. Each system should be checked daily before use to determine if the braking is fully functional. Any adjustments or modifications to the braking system should be carried out by or under the instruction of SUMO UK.

### **5.8 Overhead power lines**

Special care should be taken when folding and un-folding a machine in the proximity of overhead power lines. To prevent severe injury or damage to the machine always keep a safe distance from pylons and power lines when unfolding. When the machine is being operated it is important to manoeuvre around pylons and overhead power lines carefully to avoid damage to pylons that may even cause a pylon collapse resulting in severe or fatal injury and/or machine electrical damage. A machine should also never be parked or accessed beneath power lines as this could cause a voltage flashover leading to severe/fatal electric shock or even fire.

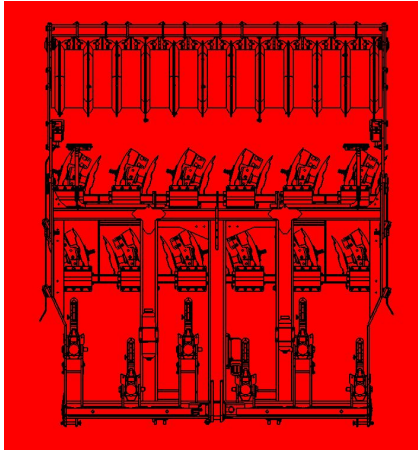
### **5.9 Environmental Protection**

Operating fluids such as hydraulic oil and lubricants are damaging to the environment. Special care should be taken to ensure that operating fluids are not leaking to ensure safe operation of the machine and damage to the environment. When servicing of the machine it is

important that the disposal of used operating fluids is done responsibly.

### 5.10 Danger Zone

The area marked red indicates the danger zone of the machine.








The danger zone around the machine poses the following endangerments:

- Accidental operation of the hydraulic system can trigger dangerous movements of the machine.
  - Defective or not correctly fastened electric lines can cause electric shocks.
- With the drive still running, machine parts may rotate or swing out.
  - Hydraulically raised machine parts can lower slowly and unnoticed.
- Failing to pay attention to the danger zone can result in severe or even fatal physical injuries.
- Do not stand under lifted loads. Lower such loads to the ground first.
  - Instruct persons to leave the danger zone around the machine and tractor.
  - Before working in the danger zone of the machine or between machine and tractor: **Shut down the tractor!** This also applies for short-term inspection work. **Many accidents happen because of carelessness and running machines!**
  - Pay attention to the information in all operating instructions.

## 6.0 Safety Stickers

Safety stickers on the machine warn of dangerous points and are an important part of the safety equipment of the machine. Missing safety stickers increase the risk of severe or even fatal physical injuries.

	<p>Risk of falling.</p> <p>No persons to ride on the machine.</p>
	<p>Risk of crush injuries.</p> <p>Stay clear of unfolding and/or swinging elements of the machine.</p>
	<p>Stay clear of machine while manoeuvring and working.</p>
	<p>CAUTION.</p> <p>Read manual carefully before operation</p>
	<p>Never reach in to working parts.</p> <p>Risk of crush injury.</p>

## 7.0 Operation

### 7.1 Operation – Overview

The SUMO Mounted Trio is a versatile machine which offers a multitude of benefits. It is a one pass soil conditioning machine designed and manufactured in Britain.

The first element of the machine is the loosening legs mounted in a staggered pattern, these are designed to run through the soil and loosen the soil profile and break any pan that may be present in the soil. The legs are mounted on a cast socket with either shear bar or hydraulic auto reset, these systems allow the leg to come completely clear of the ground to pass over any obstacle. These legs feature quick change points, wings and shins. There are two different point options for the standard leg, the standard concord point and the low disturbance point, where low surface disturbance is required.

The second part of the machine is two rows of 500mm diameter concave discs mounted in pairs to aid drive, mounted on independently suspended arms giving a durable, shock proof system with a quality, low maintenance triple sealed taper roller bearing. The double mounting of the discs gives unrivaled performance in adverse conditions ensuring that the discs carry on turning no matter what.

The patented Multipacka is the final part of the machine, it is uniquely designed to fulfill a number of criteria, comprising of a 508x10mm tube mounted on heavy duty, quality bearings and fitted with notched cutting and drive rings to keep the packer turning in arduous conditions. The shoulders of the notched drive rings are of a convex shape to create consolidation and cracking, even on the top of the ridge. All these features make a packer which presses and firms to a higher quality with a lower power requirement than other packers available.

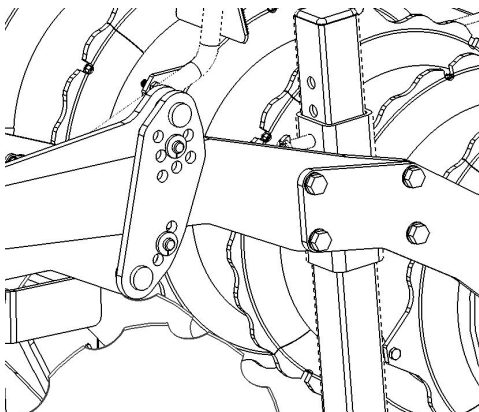
Before using the SUMO Trio it is absolutely necessary that you read this operators manual and safety instructions.

Specifications, descriptions and illustrations in this brochure are accurate, as known, at the time of publication and may be subject to change.

### 7.2 Operation – Set up of machine

The procedure for operating and setting up the machine for use in the field should be followed in order to prevent damage to the machine or to personnel.

The machine will operate at its optimum and create maximum lift and cultivation effect when it is set up so the frame is running parallel to the ground, this will mean the different elements are aligned correctly in the manner they were intended. This is achieved by setting the working depth via the pin adjustment on the packer, to do this the packer should be lifted so it is clearing the ground and the pin hole required is clear. This will set the working depth of the discs; the machine should then be leveled up by lengthening or shortening the top link on the tractor, lengthening the top link will lift the front end of the machine and shortening it will lower the front end.



The next adjustment to make is to the working depth of the legs, it is advised that the soil is assessed prior to working to determine the level of compaction within the soil profile and the depth this compaction is at. The legs should then be adjusted to work just below this level in the soil by removing the handled pin holding the leg in place in the cast socket and moving the leg up or down as required. The leg should always be moved up and down by holding onto the bottom of the leg where the point is as opposed to the top or through the holes that may be exposed through the top of the cast socket as this can lead to fingers getting trapped and serious injury. The legs should only be adjusted from a safe position, NEVER work underneath a raised machine without using the stands to hold it off the ground.

### **7.3 Operation – In the field**

When using the machine in the field the machine should be operated in the correct manner in order to prevent excessive stresses being imposed upon components of the machine. When working with a curve, wherever possible the legs should be lifted clear of the ground before going round the corner.

### **7.4 Operation – Hydraulics**

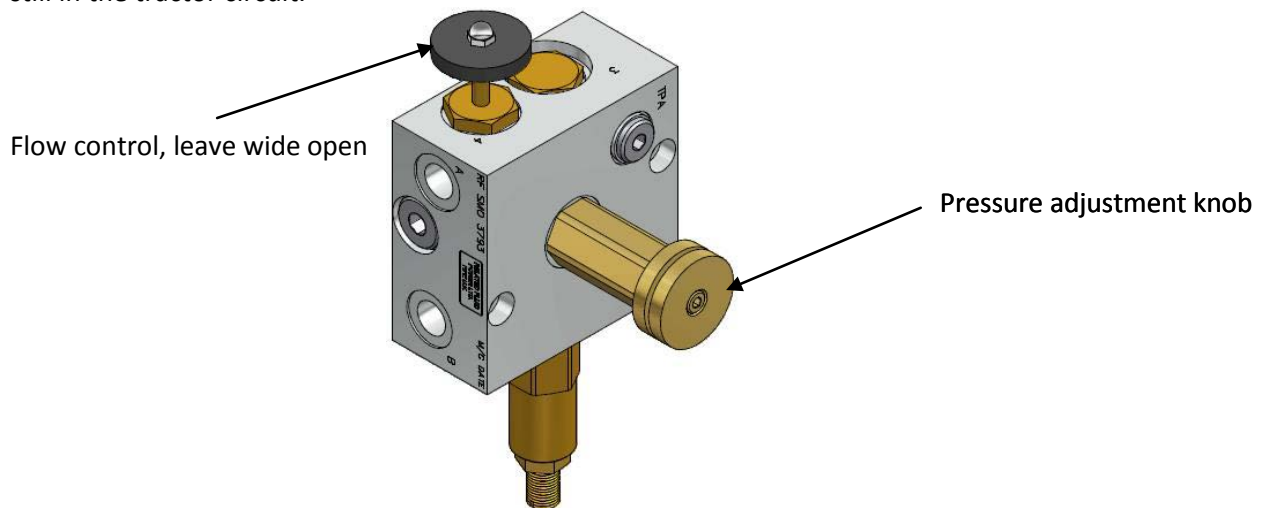
The auto reset Mounted Trio will only have one set of hydraulic hoses, a shear bar machine will have no hydraulic services. The quick couplers on the single set of services will have blue cable ties on to indicate which pipe is which, the pressure line will have two blue cable ties on and the return line will have one single tie.

### 7.5 Operation – Auto-Reset Legs

This section only applies to machines fitted with a hydraulic auto reset system, not to the machines fitted with a shear bar protection system.

The pressure in the hydraulic circuit controlling the auto-reset legs can be altered depending on the conditions and circumstances it is being used within, it can be adjusted up to a maximum of 120 bar, exceeding this pressure may result in serious damage to the machine). The higher the pressure in the system, the greater the resistance against the legs tripping, but increasing the risk of damage to the machine due to underground obstacles.

The pressure is adjusted by turning the large gold/silver knob with a lock off ring on the auto reset valve, located on the left hand side of the headstock, turning clockwise and screwing the knob inwards will increase the pressure in the system. Adjustments should be made in small steps to ensure that the maximum pressure is not exceeded. Once the valve has been adjusted the legs should then be cycled up and then down again, this will set the pressure in the circuit to where the valve has been set, and the spool should then be floated to avoid interference from and pressure still in the tractor circuit.



It is advised that on a machine fitted with auto reset legs the double acting feature is used in road transport to retract the legs and reduce the overall width of the machine on the road and move the sharp points to well within the vehicle's width.

### 7.6 Operation – Maintenance

On the machine there are several grease points which require attention every 50 working hours, these are the bushes and rams on the auto reset sockets. The packer bearings should be greased with one pump of grease once a week and one pump after it has been washed to expel any water that may have ingressed during the washing process. The disc bearings should receive grease once a week until grease is forced out of the bearing, keeping the grease in the bearing fresh and lubricating to its maximum capability.

The condition of the packer scrapers should be checked regularly, when these are worn they will allow build up of soil on the packer, and mean the packer is not working to its optimum. They can be adjusted to run closer to the packer as they wear but care should be taken to ensure that the scraper runs clear of the packer, if it is touching the packer it will cause necessary rolling resistance as well as wearing away the packer barrel, leading to costly repairs.



The points on the legs of the machine should be inspected regularly to ensure the machine is working at optimum efficiency, when the points and wings are worn they will not be giving optimum lifting action. When replacing the points on the legs, they should be tightened by hand, NOT using an air or electric powered impact gun, this will over tighten the bolts and lead to the rear edge of the point cracking off and the point then falling off or causing further damage to the machine. The packer scrapers should also be inspected regularly as these will wear away and such should be adjusted to ensure they are running close to the packer barrel to prevent soil build up. The scrapers should NOT be touching the packer barrel as this will cause premature wear of both the packer barrel and the scrapers; it will also cause unnecessary rolling resistance increasing horsepower usage and increase fuel consumption.

When ordering new parts, it is always a good idea to have your serial number and the part numbers listed in section 8 of this manual to hand in order to ensure the correct parts are ordered for your machine model

### **7.7 Winter storage**

When machines are to be parked up for the winter period, correct storage techniques are an important part of preserving the machine and ensuring that it is still in good order to use the next season. When the machine has finished work it should be cleaned down and washed off to remove all traces of soil and debris that may have built up on it during work. Following washing off the machine should then be greased on every grease point on the machine, the packer bearings should be greased with one pump and the packer bearings until grease is forced out, this will force out any water sat in the bearings and help the bearing give a long and trouble free service life. Other grease points on the machine such as the rams and any other pins or bushes should receive two or three pumps to remove any traces of water in the bushes.

**Model:** Sumo Trio 3

**Year:** 2012



## **RISK ASSESSMENT**

**Date assessment written:** 9th January 2012

**Assessor:** R. A. Hight

**Notes:** Ensure the operator manual is read and fully understood.

**Purpose of machine:** Primarily designed to cultivate soil prior to sowing crops.

**Description of machine:** A three-point-linkage mounted farm implement consisting of 3 major elements.

1. A row of subsoiler legs, hydraulically protected from obstructions.

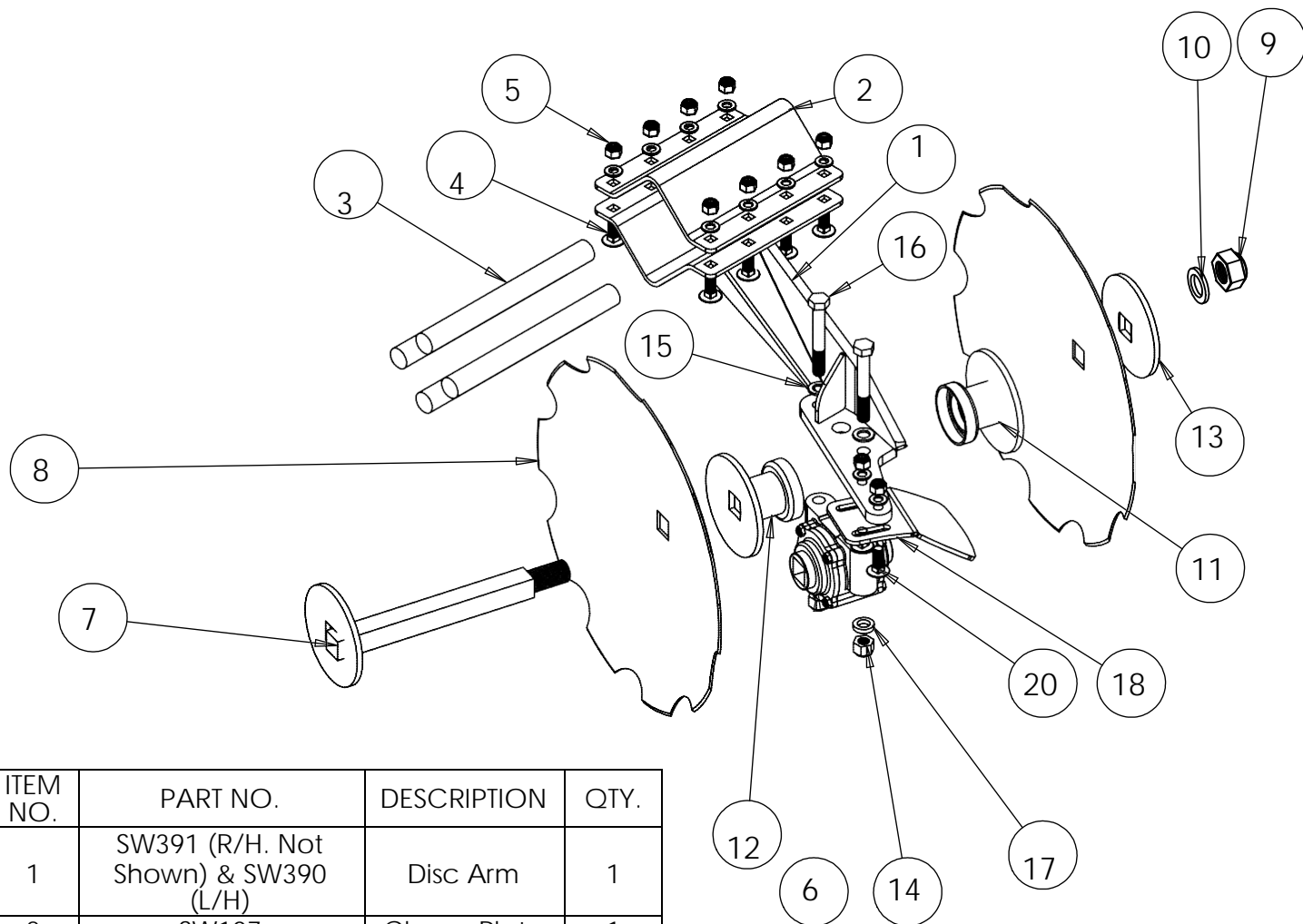
2. A bank of two rows of rubber suspended cultivating discs.

3. A ridged roller.

All of the above is arranged in a heavy duty fabricated steel framework.

The Machine is designed to couple to a suitably powered tractor.

Hazard identified in using machine	Who might be harmed	Risk evaluation/level 1-5	Precautions in place	Further action required
Machine collision while in transport.	Operator, members of the public	-	Tail lights, reflectors, narrowing soil deflectors	Take care when using in both field and road situations. Maintain good visibility at all times.
Trapped fingers during leg depth position change.	Operator	1 - low	Warnings, maintenance stands	Observe warning signs, maintain safe distance from moving parts, wear gloves. Change leg position from underneath machine. Ensure all four stands are down.
Risk of crushing	Operator	-	Maintenance stands, both front & rear	Take extreme care when working on legs, changing depth, replacing points etc, make sure stands are down and the machine is on a suitable firm piece of land. Ensure tractor hydraulics are in good working order. Ensure tractor is safely positioned and the parking brake is engaged when coupling up to the Sumo implement
Falling from machine	Operator	-	Most alterations and maintenance do not require the operator to climb on the machine. If a seeder is fitted, then steps and a handrail will also be fitted to allow access.	Lower the machine to the floor to allow access for greasing discs, checking bearings etc...



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW391 (R/H. Not Shown) & SW390 (L/H)	Disc Arm	1
2	SW107	Clamp Plate	1
3	SWB103	Rubber	4
4	SWM1235CHSQ	M12 x 35 Cup Head Square	10
5	SWM12005	M12 Flanged Nut	10
6	SWB102	Bearing	1
7	SW101	Twin Disc Axle	1
8	SWB101	20" Scalloped Disc	2
9	SWM3004	M30 Nylock Nut	1
10	SWM30001	M30 Washer	1
11	SW103	Dust Cover and Convexed Disc	1
12	SW102	Dust Cover and Concaved Disc	1
13	SW108	Disc Axle Washer	1
14	SWM16006	M16 Locking Nut	2
15	SWM16001	M16 Washer	2
16	SWM16120	M16 x 120 Bolt	2
17	SW1153	M16 Washer (Thick)	2
18	SW646	Disc Scraper	1
19	SWB184	18" Scalloped Disc (end of disc row, Not Shown)	1
20	SWM1240CHSQ	M12 x 40 Cup Head Square	2

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

## Twin Disc Unit Assembly



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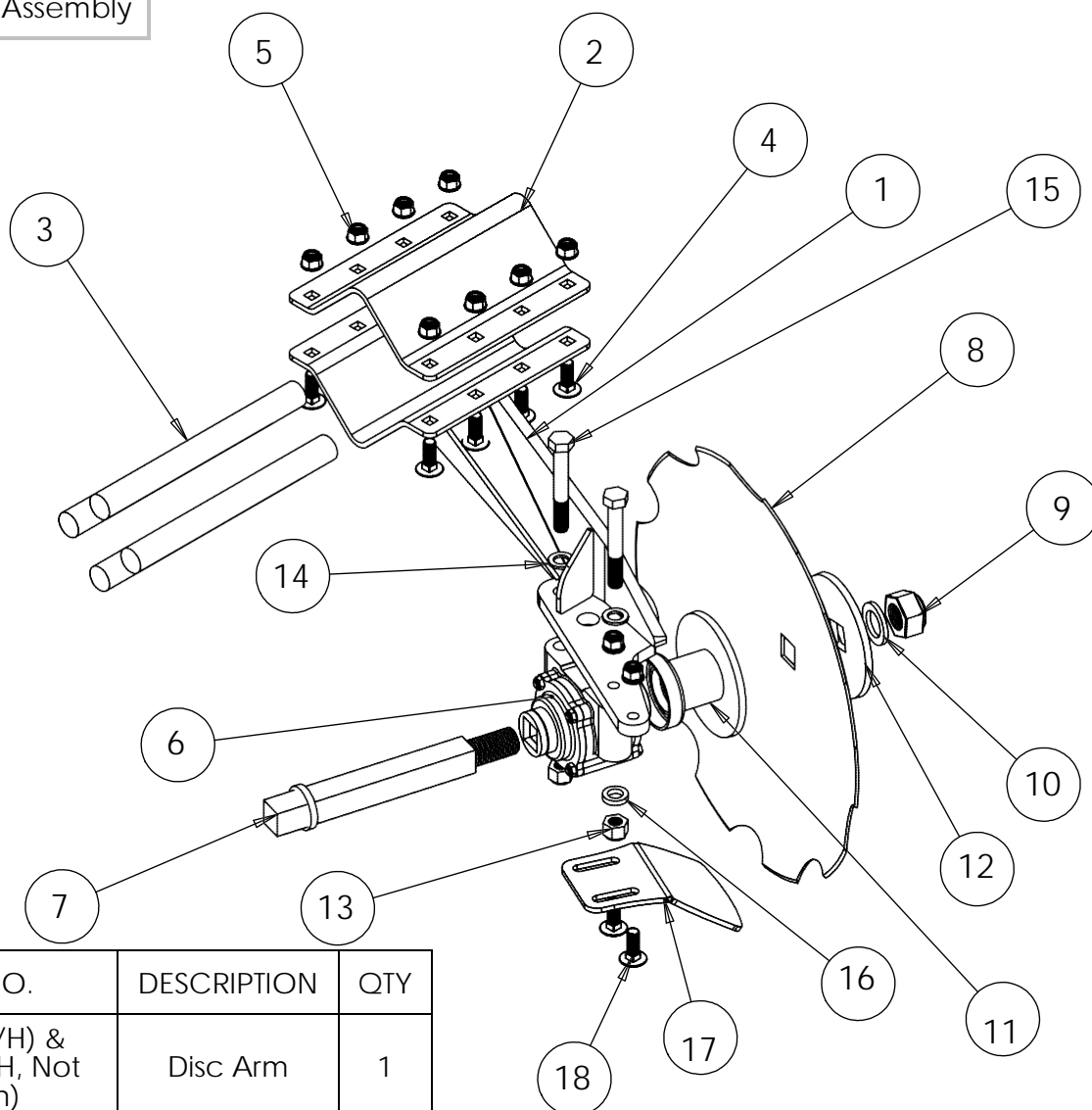
SCALE 1:20

REVISION:

DATE: 15/10/12

INITIAL: TW

## 8.2 Single Disc Unit Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	SW390 (L/H) & SW391 (R/H, Not Shown)	Disc Arm	1
2	SW107	Clamp Plate	1
3	SWB103	Rubber	4
4	SWM1235CHSQ	M12 x 35 Cup Head Square	10
5	SWM12005	M12 Flanged Nut	10
6	SWB102	Bearing	1
7	SW109	Single Disc Axle	1
8	SWB101	20" Scalloped Disc	1
9	SWM30004	M30 Nylock Nut	1
10	SWM30001	M30 Washer	1
11	SW103	Dust Cover and Convexed Disc	1
12	SW108	Disc Axle Washer	1
13	SWM16006	M16 Locking Nut	2
14	SWM16001	M16 Washer	2
15	SWM16120	M16 x 120 Bolt	2
16	SW1153	M16 Washer (Thick)	2
17	SW646	Disc Scraper	1
18	SWM1240CHSQ	M12 x 40 Cup Head Square	2

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Single Disc Unit Assembly



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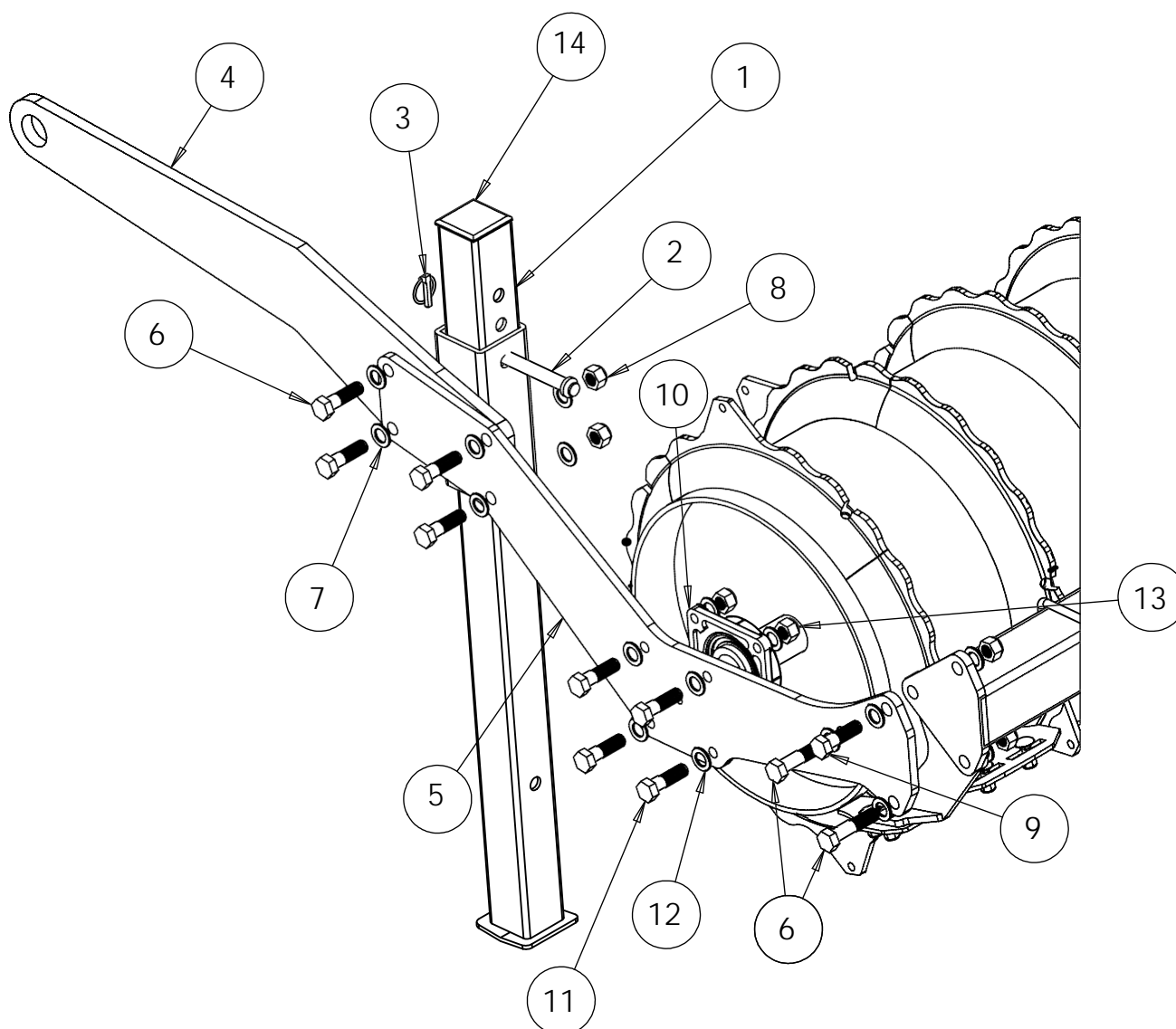
SCALE 1:8

REVISION:


DATE: 21/10/13

INITIAL: TW

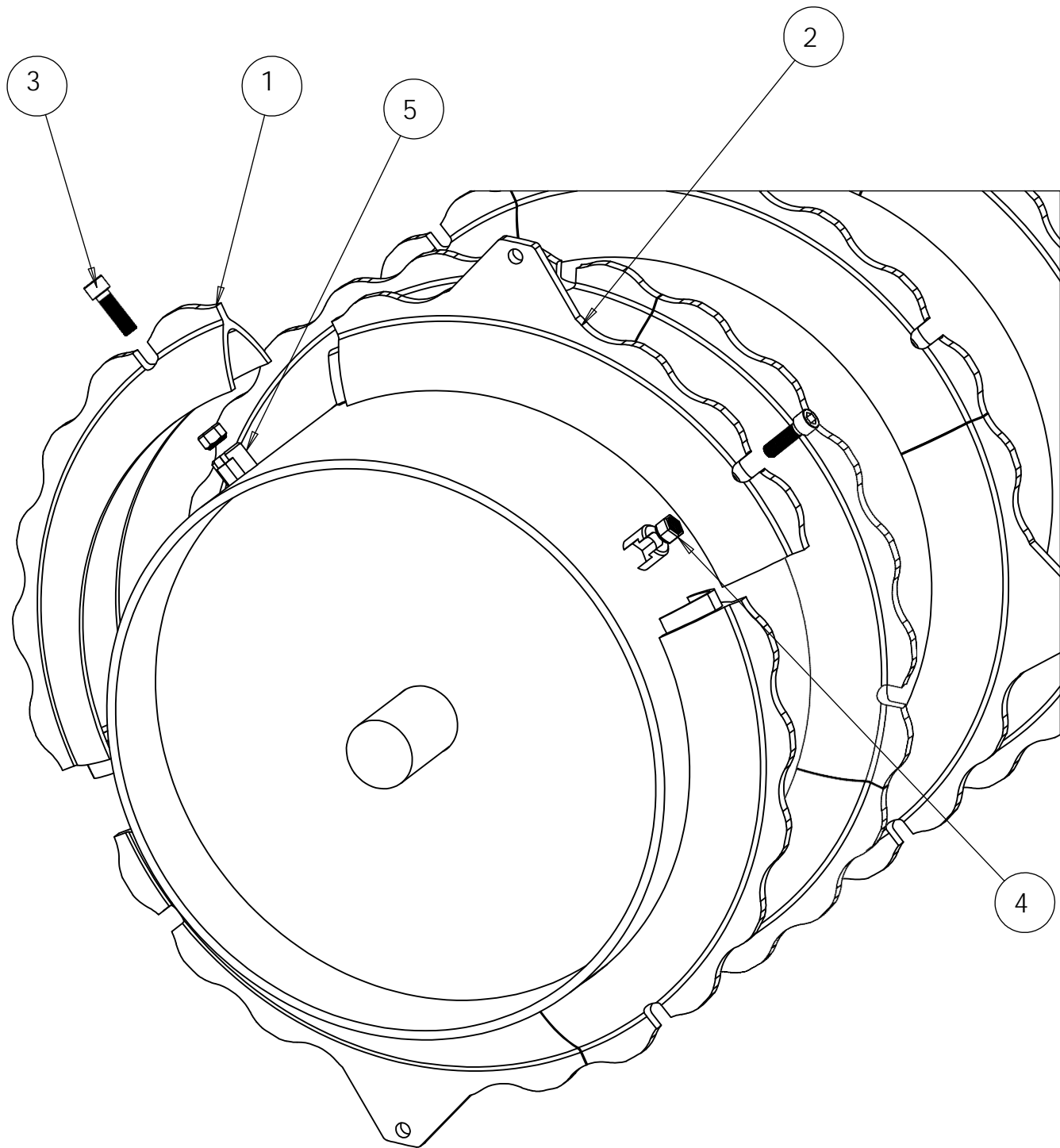
## 8.3 Packer Bearing Assembly




ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW117	Trio Stand	1
2	SW118	Stand Pin	1
3	SWB105	Lynch Pin	1
4	SW1051	Front Packer Arm	1
5	SW1052R Offside	Rear Packer Arm	1
	SW1052L Near Side		1
6	SWM2070	M20 x 70 Bolt	6
7	SWM20001	M20 Washer	14
8	SWM20004	M20 Nylock Nut	7
9	SWM2060	M20 x 60 Bolt	1
10	SWB104	Packer Bearing	1
11	SWM1665	M 16 x 65 Bolt	4
12	SWM16001	M16 Washer	8
13	SWM16004	M16 Nylock Nut	4
14	SWB144	80mm Rubber Stand cap	1

DO NOT SCALE DRAWING	
MACHINE/COMPONENT:	
Sumo Trio	
TITLE:	
Packer Bearing Assembly	
	
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SCALE 1:10	REVISION:
DATE: 16/10/12	INITIAL: TW

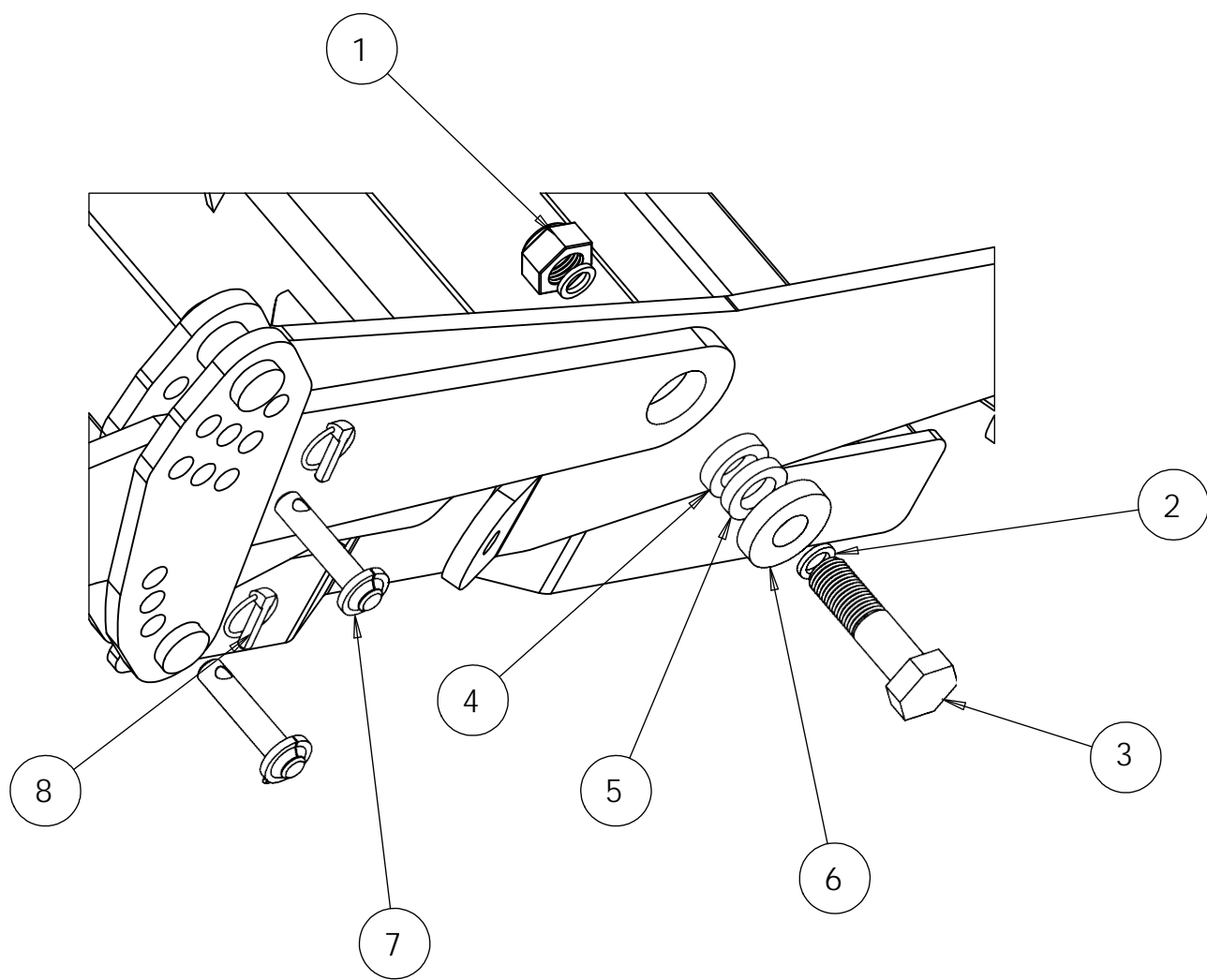
8.4 Packer Quadrant Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SWB331	Non-Lugged Packed Quadrant	24
2	SWB390	Lugged Packer Quadrant	24
3	SWM1240CH	M12 x 40 Cap Head	48
4	SWM12004	M12 Nylock Nut	48
5	SWB477	508 Packer Base	48

DO NOT SCALE DRAWING	
MACHINE/COMPONENT: Sumo Trio	
TITLE: Packer Quadrant Assembly	
	
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SCALE 1:5	REVISION:
DATE: 22/10/12	INITIAL: TW

8.5 Packer Depth Control



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SWM30004	M30 Nylock Nut	1
2	SWM30001	M30 Washer	2
3	SWM30110	M30 x 110 Bolt	1
4	SW723	12mm Small Spacer	1
5	SW722	10mm Small Spacer	1
6	SW129	15mm Large Washer	1
7	SW1367	Packer Depth Pin	2
8	SWB105	Lynch Pin	2


DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Packer Depth Control



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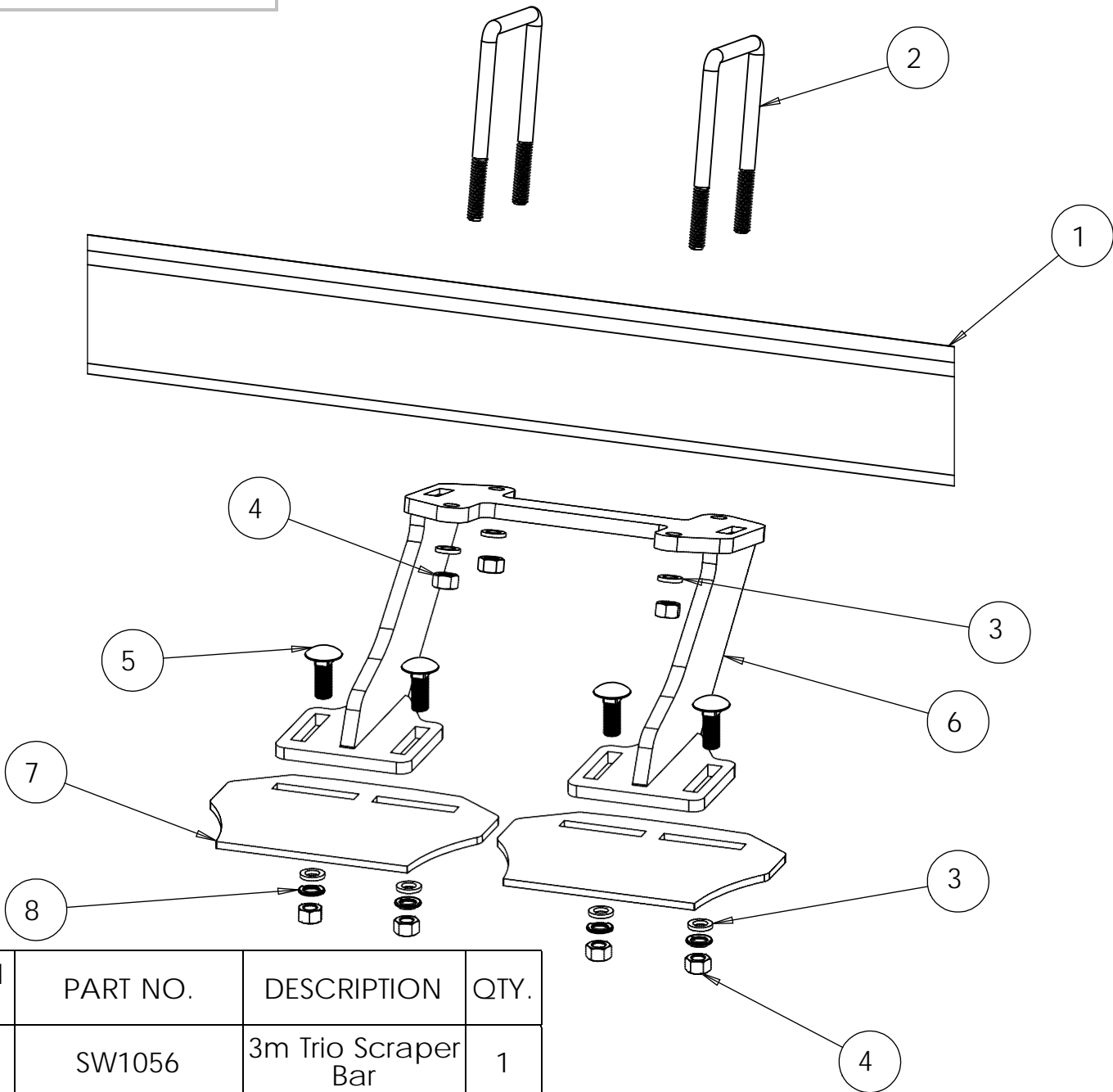
SCALE 1:5

REVISION:

DATE: 22/10/12

INITIAL: TW

8.6 Scraper Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1056	3m Trio Scraper Bar	1
2	SWM12100ub	M12 x 100 U-Bolt	2
3	SWM12001	M12 Washer	8
4	SWM12004	M12 Nylock Nut	8
5	SWM1235CHSQ	M12 x 35 Cup Head Square Bolt	4
6	SW1044	Double Scraper Hanger	1
7	SW1043	Scraper	2
8	SWM12002	M12 Spring Washer	4
9	SW1045	Triple Scraper Hanger (not shown)	1
10	SW1055	2.5m Scraper Bar (not shown)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Scraper Assembly



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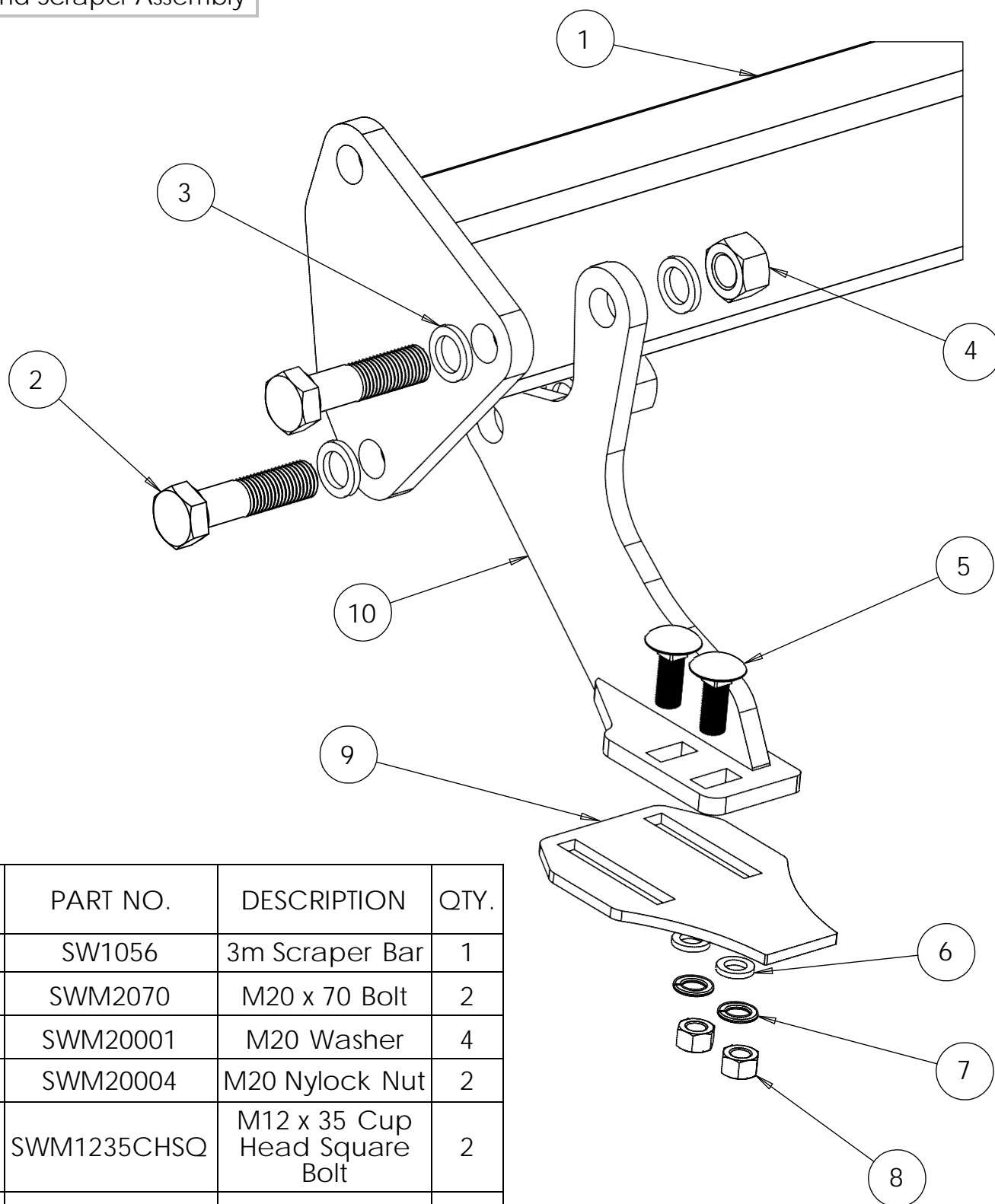
SCALE 1:5

REVISION:

DATE: 18/10/13

INITIAL: TW

## 8.7 End Scraper Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1056	3m Scraper Bar	1
2	SWM2070	M20 x 70 Bolt	2
3	SWM20001	M20 Washer	4
4	SWM20004	M20 Nylock Nut	2
5	SWM1235CHSQ	M12 x 35 Cup Head Square Bolt	2
6	SWM12001	M12 Washer	2
7	SWN12002	M12 Spring Washer	2
8	SWM12004	M12 Nylock Nut	2
9	SW1053	End Scraper	1
10	SW1059	End Scraper Hanger (R/H)	1
11	SW1058	End Scraper Hanger (L/H) not shown	1
12	SW1055	2.5m Scraper Bar (not shown)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

End Scraper Assembly



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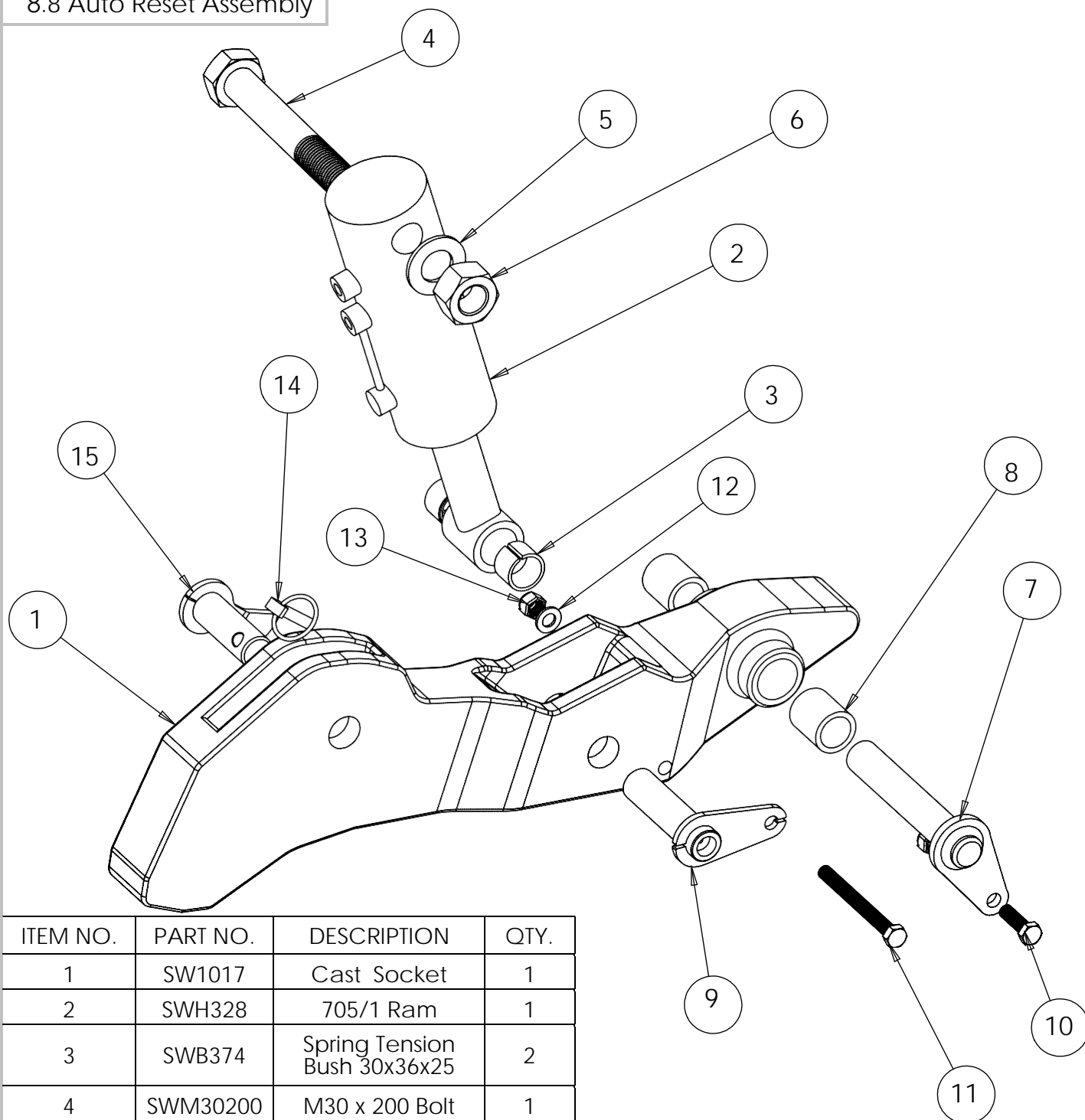
SCALE 1:3

REVISION:

DATE: 18/10/13

INITIAL: TW

## 8.8 Auto Reset Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1017	Cast Socket	1
2	SWH328	705/1 Ram	1
3	SWB374	Spring Tension Bush 30x36x25	2
4	SWM30200	M30 x 200 Bolt	1
5	SWM30001	M30 Washer	1
6	SWM30004	M30 Nylock Nut	1
7	SW183	30mm x 180mm Tabbed Pin	1
8	SW188	30x40x45mm PB1 Bush	2
9	SW1192 & SW1192R	30mm x 120mm Tabbed Pin c/w Grease Nipple (L/H & R/H)	1
10	SWM1240	M12 x 40 Bolt	1
11	SWM12130	M12 x 130 bolt	1
12	SWM12001	M12 Washer	2
13	SWM12004	M12 Nylock Nut	2
14	SWB105	Lynch Pin	1
15	SW451	Leg Depth Pin	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Auto Reset Assembly



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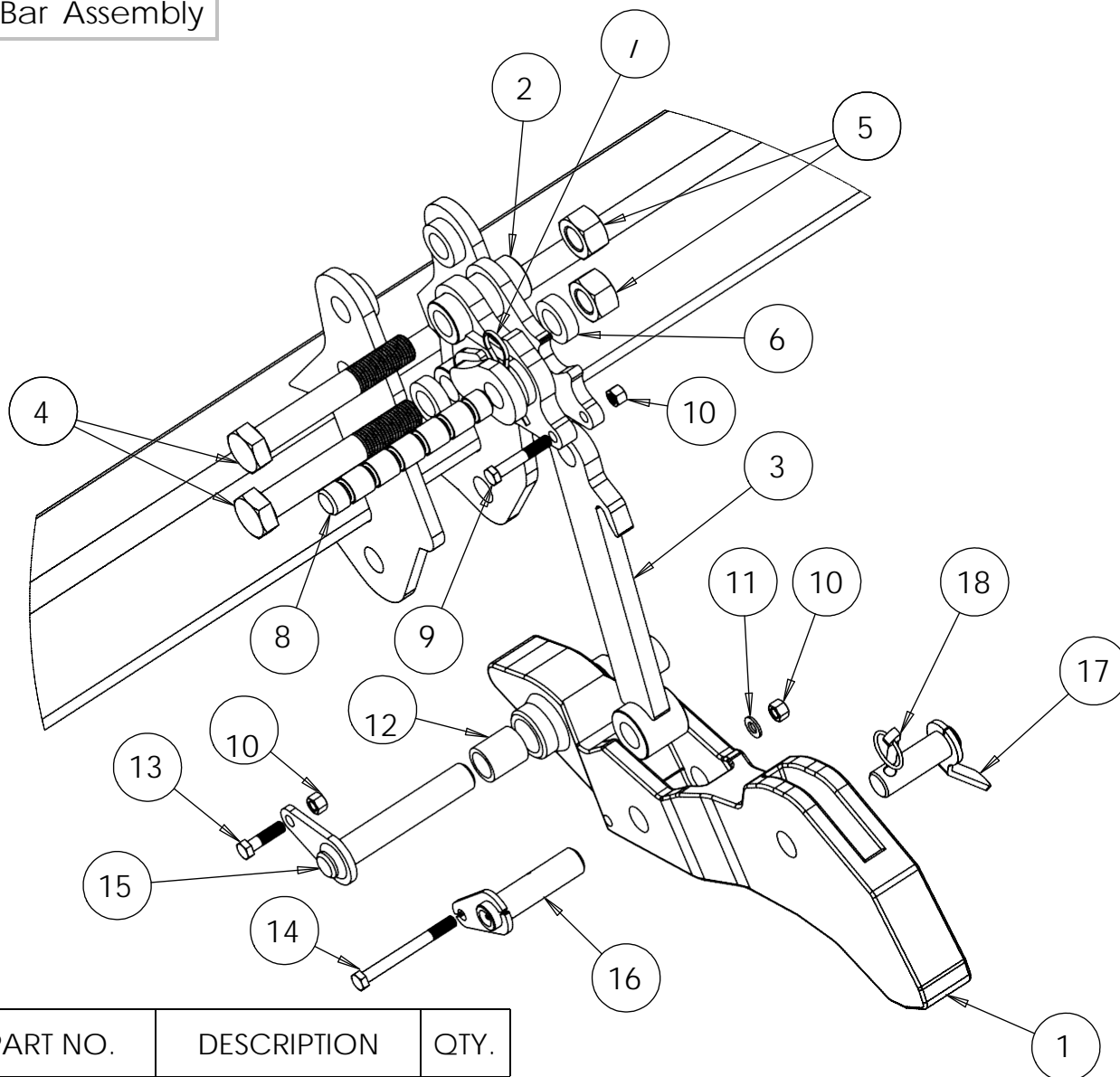
Scale 1:5

REVISION:

DATE: 19/1012

INITIAL: TW

## 8.9 Shear Bar Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1017	Cast Socket	1
2	SW1196	Shear Bar Socket	1
3	SW1197	Shear Push Rod	1
4	SWM30200	M30 x 200 Bolt	2
5	SWM30004	M30 Nylock Nut	2
6	SW1198	50 x 30 x 15mm Spacer	2
7	SWB106	Shear Bar R-Clip	1
8	SWB160	Shear Bar	1
9	SWM1270	M12 x 70 bolt	1
10	SWM12004	M12 Nylock Nut	3
11	SWM120001	M30 Washer	2
12	SW188	30 x 40 x 45mm PB1 Bush	2
13	SWM1240	M12 x 40 Bolt	1
14	SWM12130	M12 x 130 Bolt	1
15	SW183	30 x 170mm Tabbed Pin	1
16	SW1192 & SW1192R	30 x 120mm Pivot Pin c/w Grease Nipple (L/H & R/H)	1
17	SW451	Leg Depth Pin	1
18	SWB105	Lynch Pin	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Shear Bar Assembly



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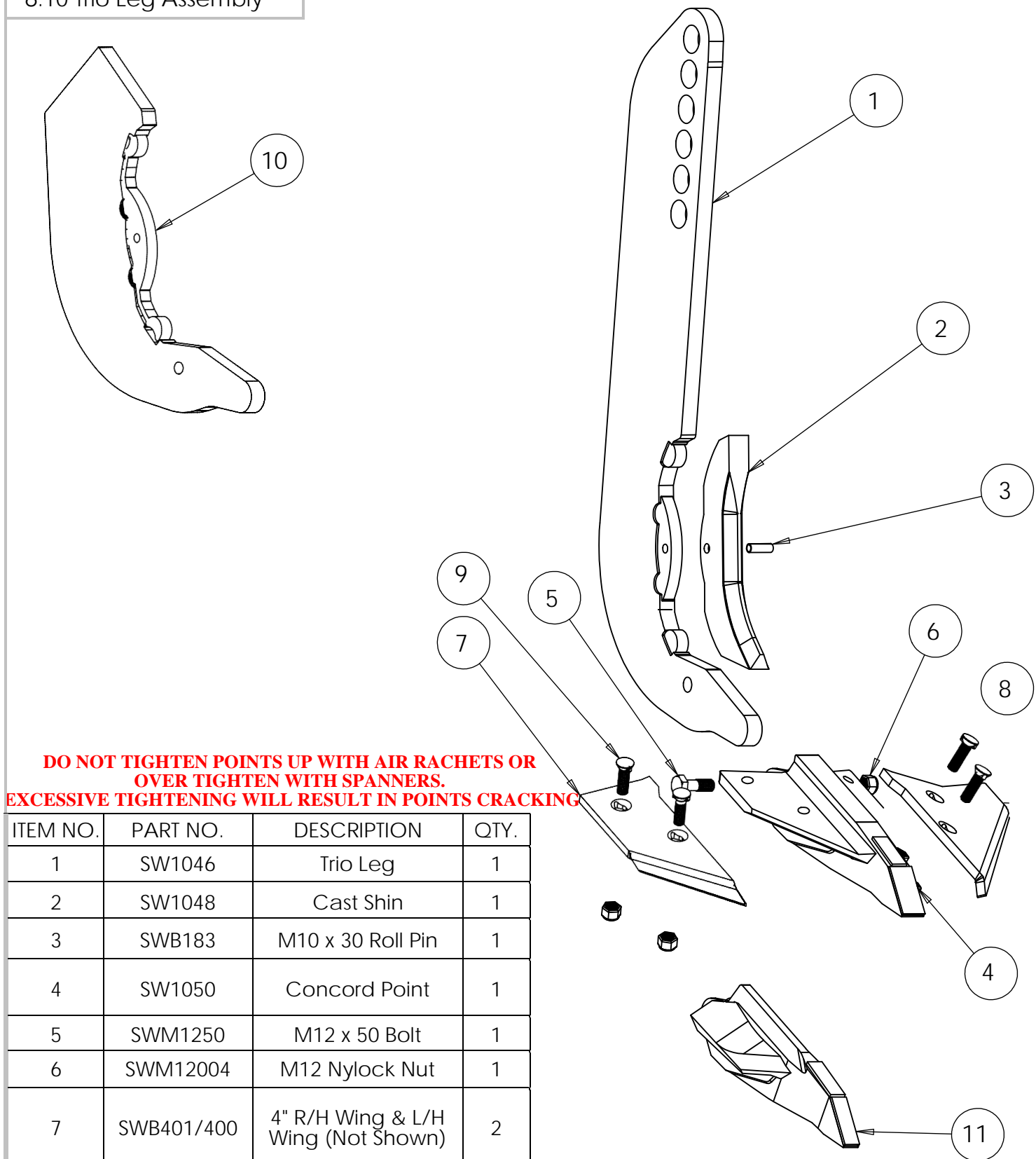
SCALE 1:7

REVISION:

DATE: 29/11/12

INITIAL: TW

## 8.10 Trio Leg Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1046	Trio Leg	1
2	SW1048	Cast Shin	1
3	SWB183	M10 x 30 Roll Pin	1
4	SW1050	Concord Point	1
5	SWM1250	M12 x 50 Bolt	1
6	SWM12004	M12 Nylock Nut	1
7	SWB401/400	4" R/H Wing & L/H Wing (Not Shown)	2
8	SWB366/367	8" L/H Wing & R/H Wing (Not Shown)	2
9	SWM1235TN	M12 x 35 Twin Nibbed Bolt c/w Plain Nut	4
10	SW1047	Trio Weld on Leg Bottom	1
11	SWB441	Low Disturbance Point	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Trio Leg Assembly



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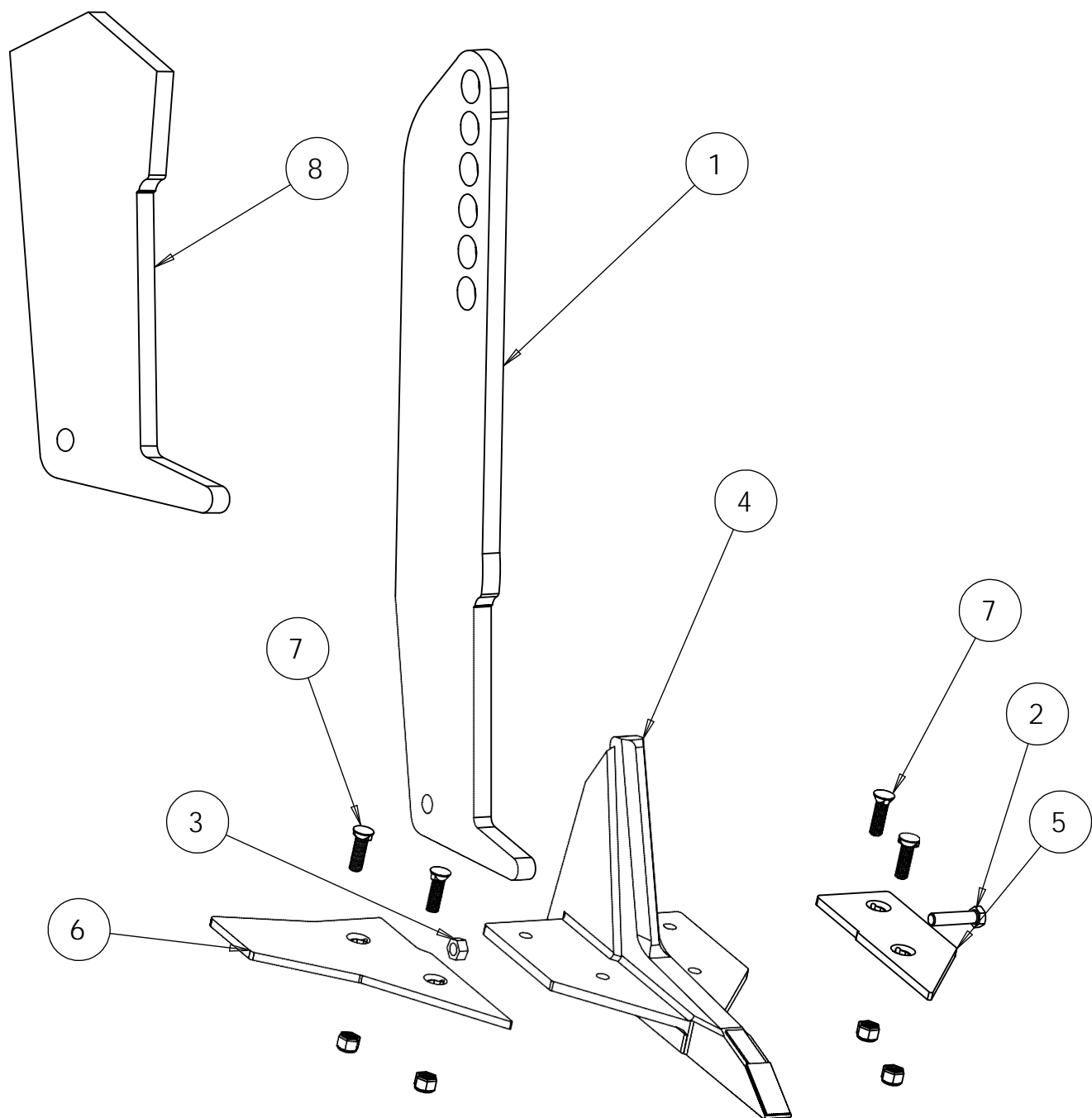
SCALE 1:6

REVISION:

DATE: 19/10/12

INITIAL: TW

8.11 Alternate Leg Assembly



**DO NOT TIGHTEN POINTS UP WITH AIR RACHETS OR  
OVER TIGHTEN WITH SPANNERS.  
EXCESSIVE TIGHTENING WILL RESULT IN POINTS CRACKING**

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW777	Combi Trio Leg	1
2	SWM1660	M16 x 60 Bolt	1
3	SWM16004	M16 Nylock Nut	1
4	SW1100	Combi Trio Point	1
5	SW165/164	4" L/H Wing & R/H Wing (Not Shown)	2
6	SW157/158	8" R/H Wing & L/H Wing (Not Shown)	2
7	SWM1235TN	M12 x 35 Twin Nibbed Bolt c/w Plain Nut	4
8	SW354	Trio Leg Weld on Bottom	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT: Sumo Trio

TITLE: Alternate Trio Leg Assembly



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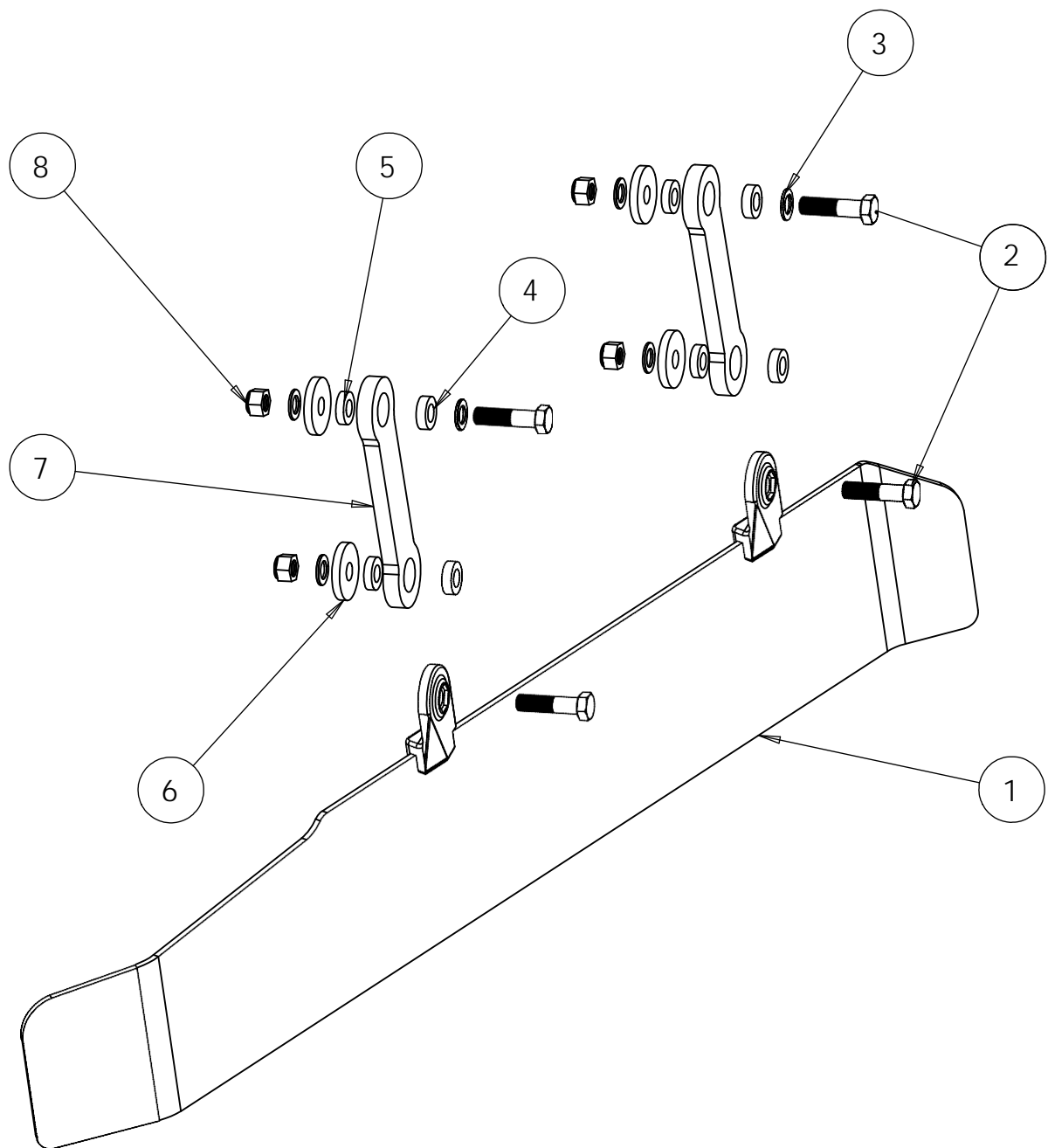
SCALE 1:6

REVISION:

DATE: 19/10/12

INITIAL: TW

8.12 Soil Retainer Assembly




ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1061	R/H Soil Retainer	1
2	SWM2080	M20 x 80 Bolt	4
3	SWM20001	M20 Flat Washer	6
4	SW125	12mm Small Spacer	4
5	SW126	10mm Small Spacer	4
6	SW123	12mm Large Spacer	4
7	SW1049	Soil Retainer Hanger	2
8	SWM20004	M20 Nylock Nut	4
9	SW1062	L/H Soil Retainer (not shown)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT: Sumo Trio

TITLE: Soil Retainer Assembly



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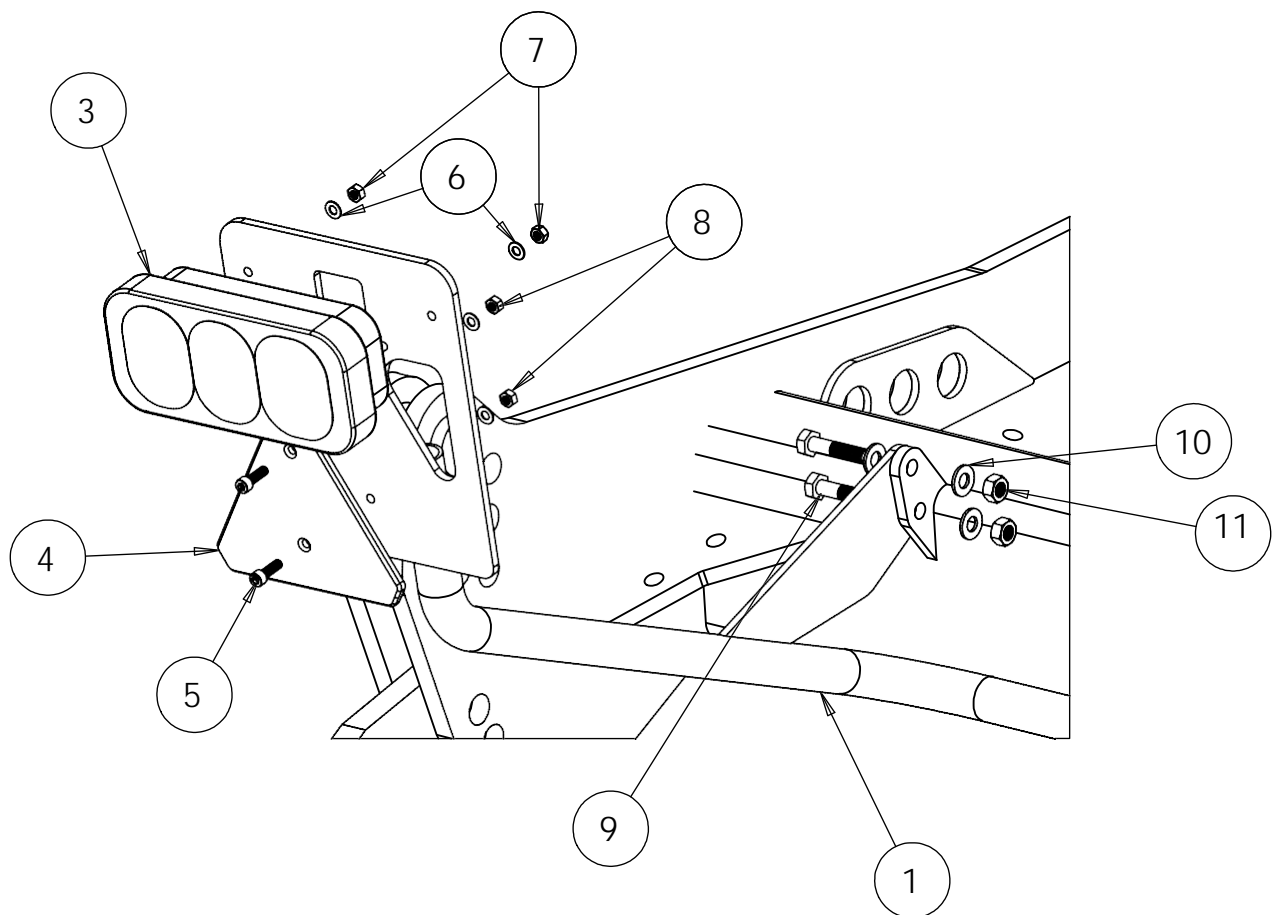
SCALE 1:8

REVISION:

DATE: 22/10/12

INITIAL: TW

## 8.13 Light Assembly



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1193	L/H Light Bracket	1
2	SW1194	R/H Light Bracket (not shown)	1
3	SWB174	Rear Light with Block Connector	1
4	SWB162	Warning Triangle	1
5	SWM616CSK	M6 x 16 Countersunk Bolt	2
6	SWM6001	M6 Washer	4
7	SWM6003	M6 Plain Nut	2
8	SWM6004	M6 Nylock Nut	2
9	SWM1045	M10 x 45 Bolt	2
10	SWM10001	M10 Washer	2
11	SWM10004	M10 Nylock Nut	2
12	SWB175	Mounted Trio Wiring Loom (not shown)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Light Assembly



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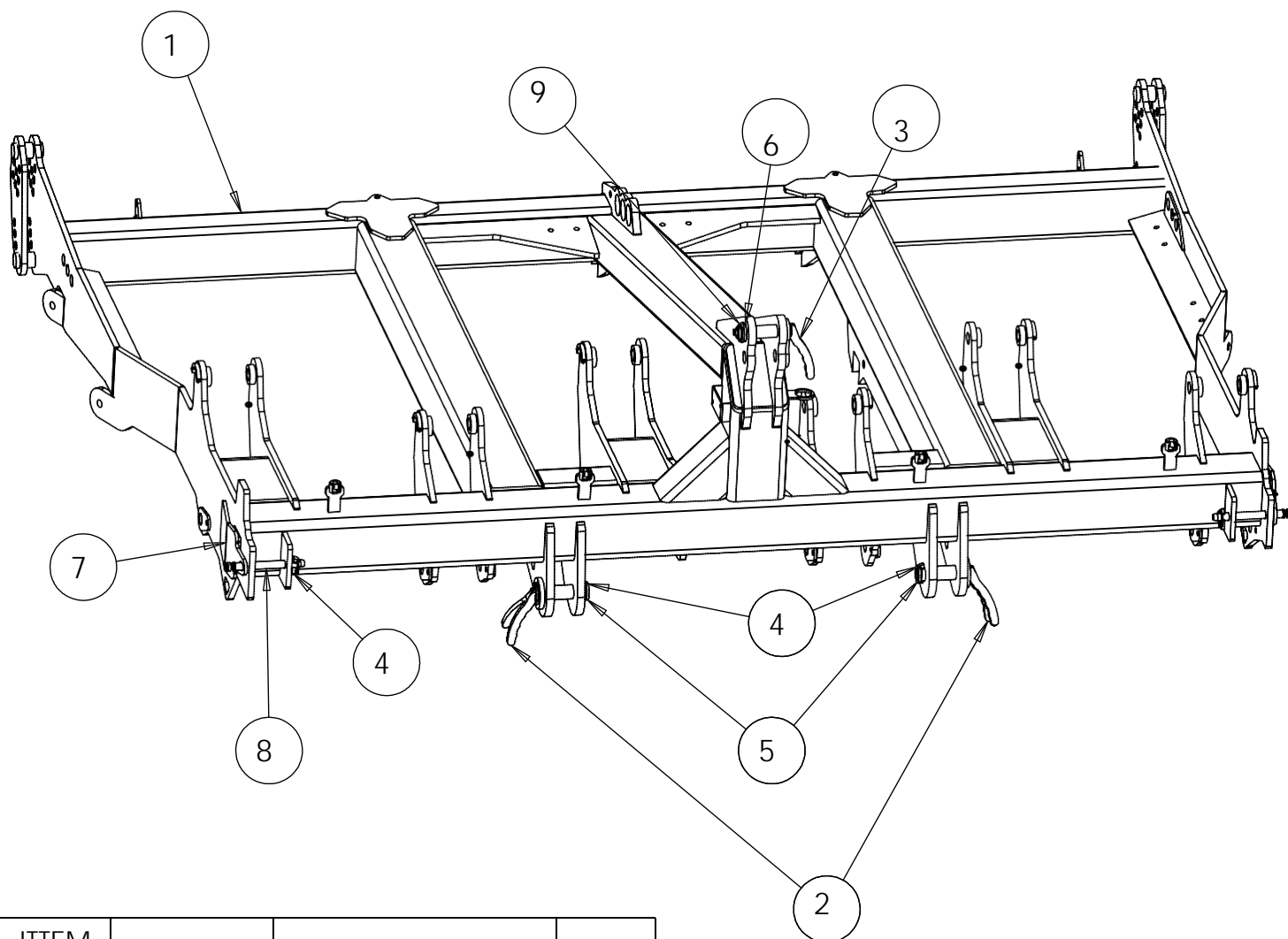
SCALE 1:5

REVISION:

DATE: 22/11/12

INITIAL: TW

## 8.14 Main Frame



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SW1068	3m Auto reset & Shear Pin Trio Frame	1
2	SW626	Cat III Lower Link Pin	2
3	SW627	Cat III Top Link Pin	1
4	SWB107	Lynch Pin	3
5	SW1141	Lower Link Pin Spacer	2
6	SW1142	Top Link Pin Spacer	1
7	SW1195	Trio Front Stand	2
8	SW118	Font Stand Pin	2
9	SWB107	Large Lynch Pin	2
10	SW1067	2.5m Auto reset & Shear Bar Trio Frame (not shown)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

Sumo Trio

TITLE:

Main Frame



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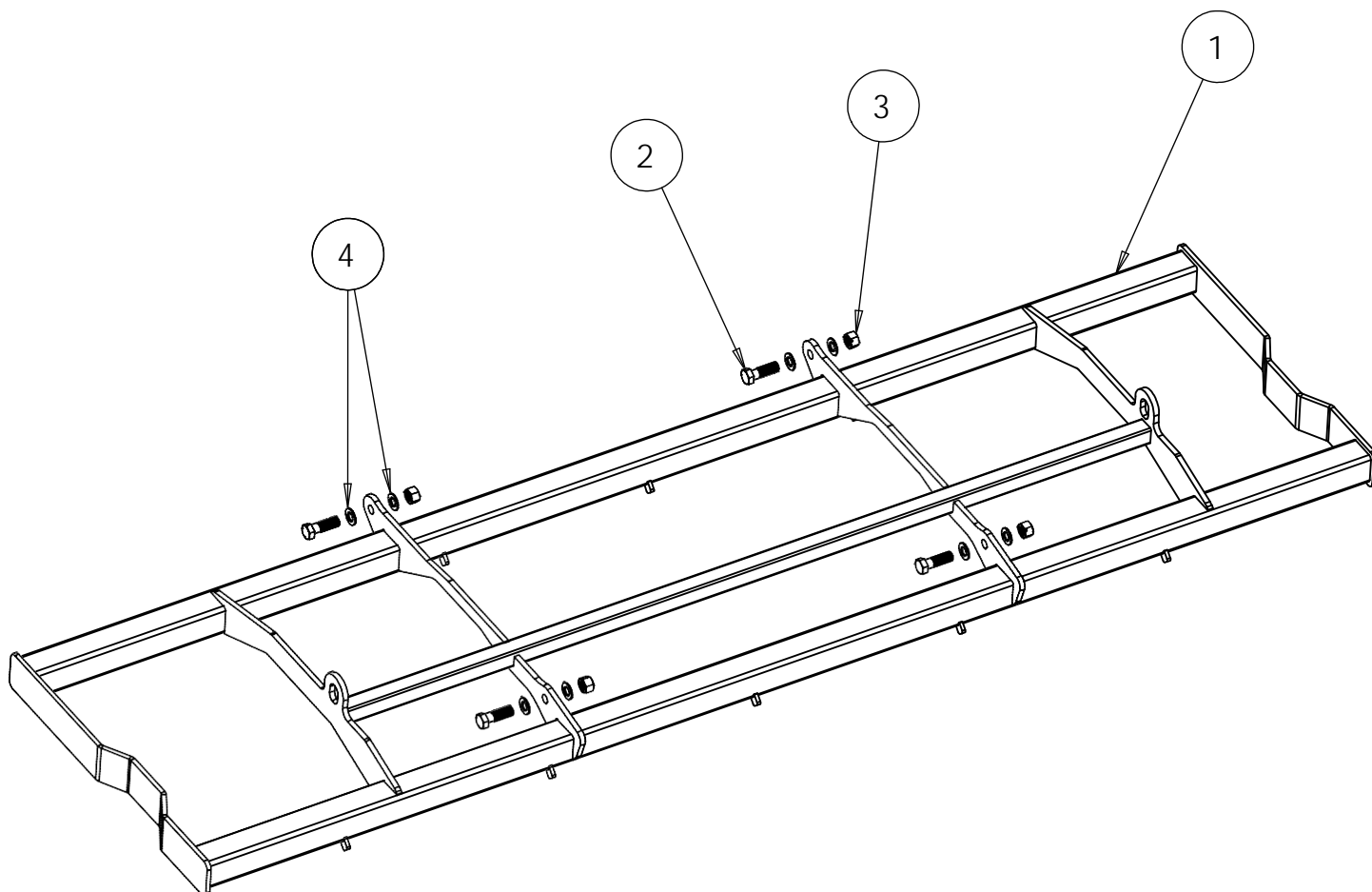
SCALE 1:17


REVISION:

DATE: 23/11/12

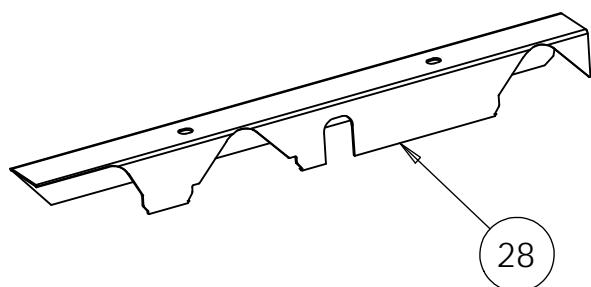
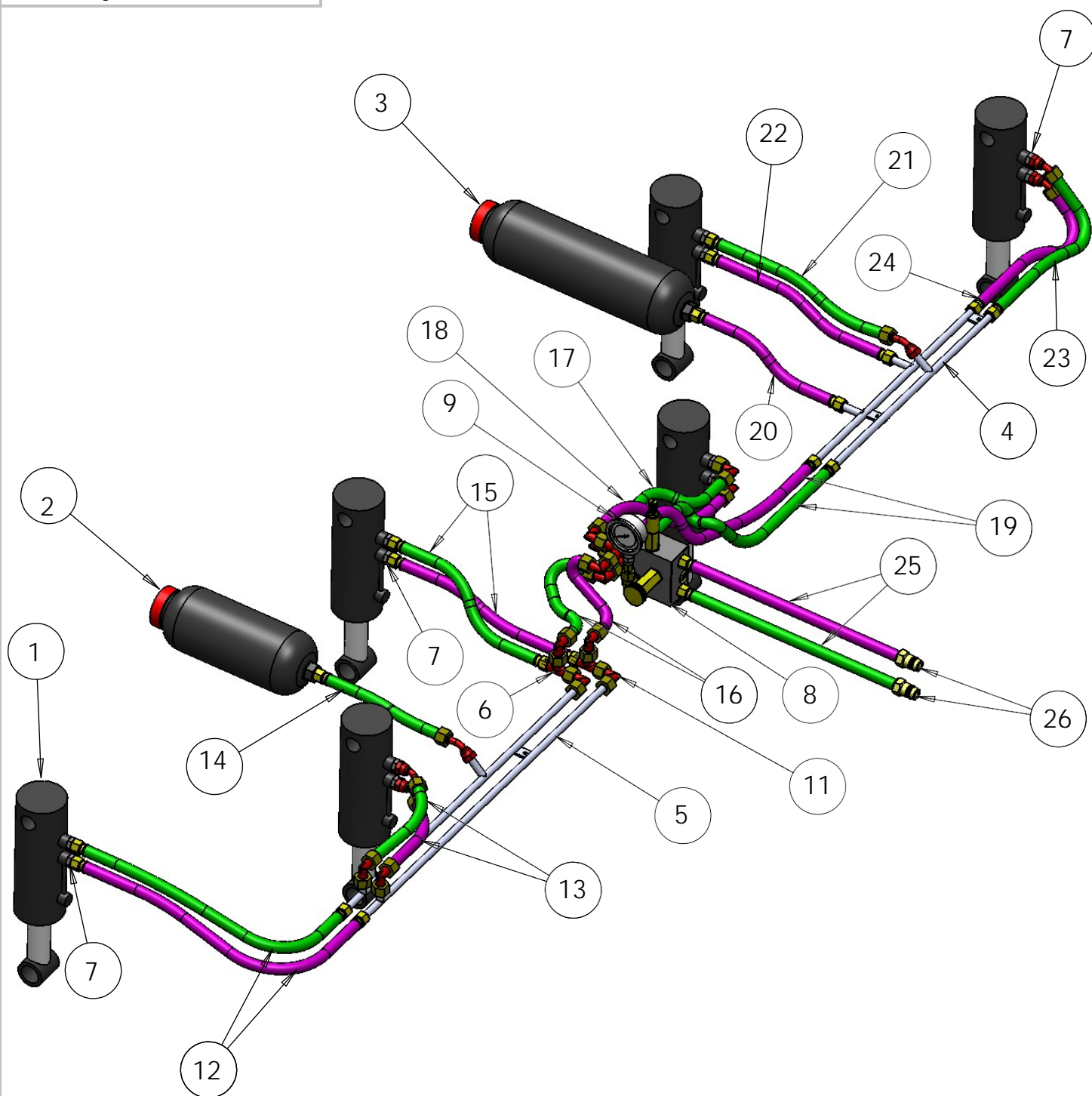
INITIAL: TW

## 8.15 Disc Frame



ITEM NO.	PART NO.	DESCRIPTION	QTY.	DO NOT SCALE DRAWING	
1	SW1307	3m Trio Disc Frame	1	MACHINE/COMPONENT: Sumo Trio	
2	SWM2060	M20 x 60 Bolt	4		
3	SWM20004	M20 Nylock Nut	4	TITLE: Disc Frame	
4	SWM20001	M20 Washer	8		
5	SW1428	2.5m Trio Disc Frame	1	 <small>Drawings and design information found herein remain the sole property of Sumo UK Ltd. Reproductions may only be made with the permission of the owner.</small>	
				SCALE 1:15	REVISION:
				DATE: 21/10/13	INITIAL: TW

## 8.16 Hydraulic Circuit



DO NOT SCALE DRAWING

MACHINE/COMPONENT: 3m Sumo Trio

TITLE:

# Hydraulic Circuit



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SCALE: 1:10

REVISION:

DATE: 18/10/13

INITIAL: TW

## 8.16 Hydraulic Circuit Cont.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SWH328	705/1 Ram	6
2	SWH330	3L Accumulator	1
3	SWH331	1.5L Accumulator	1
4	SWH332	Fixed Pipe Assembly (LH)	1
5	SWH333	Fixed Pipe Assembly (RH)	1
6	SWH156	12L T	2
7	SWH303	12L - 3/8 Adaptor	12
8	SWH298	Auto Reset Valve	1
9	SWH181	Pressure Gauge	1
10	SWH155	12L Cross	2
11	SWH265	12L 90	2
12	SWH334	3/8 hose 12LSF/ 12LSF 640mm	2
13	SWH335	3/8 hose 12L45/ 12L90C 210mm	2
14	SWH336	3/8 hose 12L45/ 15LSF 280mm	1
15	SWH338	3/8 hose 12LSF/ 12LSF 350mm	2
16	SWH350	3/8 hose 12L90C/ 12L90SW 450mm	2
17	SWH341	3/8 hose 12L90C/ 12L90SW 340mm	1
18	SWH342	3/8 hose 12L90C/ 12L90SW 380mm	1
19	SWH337	3/8 hose 12LSF/ 12LSF 610mm	2
20	SWH343	3/8 hose 12LSF/ 15LSF 390mm	1
21	SWH344	3/8 hose 12LSF/ 12L45 370mm	1
22	SWH345	3/8 hose 12LSF/ 12LSF 335mm	1
23	SWH346	3/8 hose 12LSF/ 12L45 310mm	1
24	SWH347	3/8 hose 12LSF/ 12L45 300mm	1
25	SWH349	3/8 hose 12LSF/ 1/2M 1500mm	2
26	SWH147	Quick Release Coupling	2
27	SW1161	Fixed Pipe Cover (L/H) not shown	1
28	SW1162	Fixed Pipe Cover (R/H)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

3m Sumo Trio

TITLE:

Hydraulic Circuit



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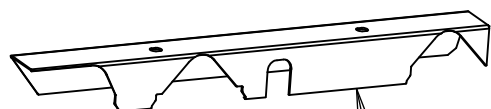
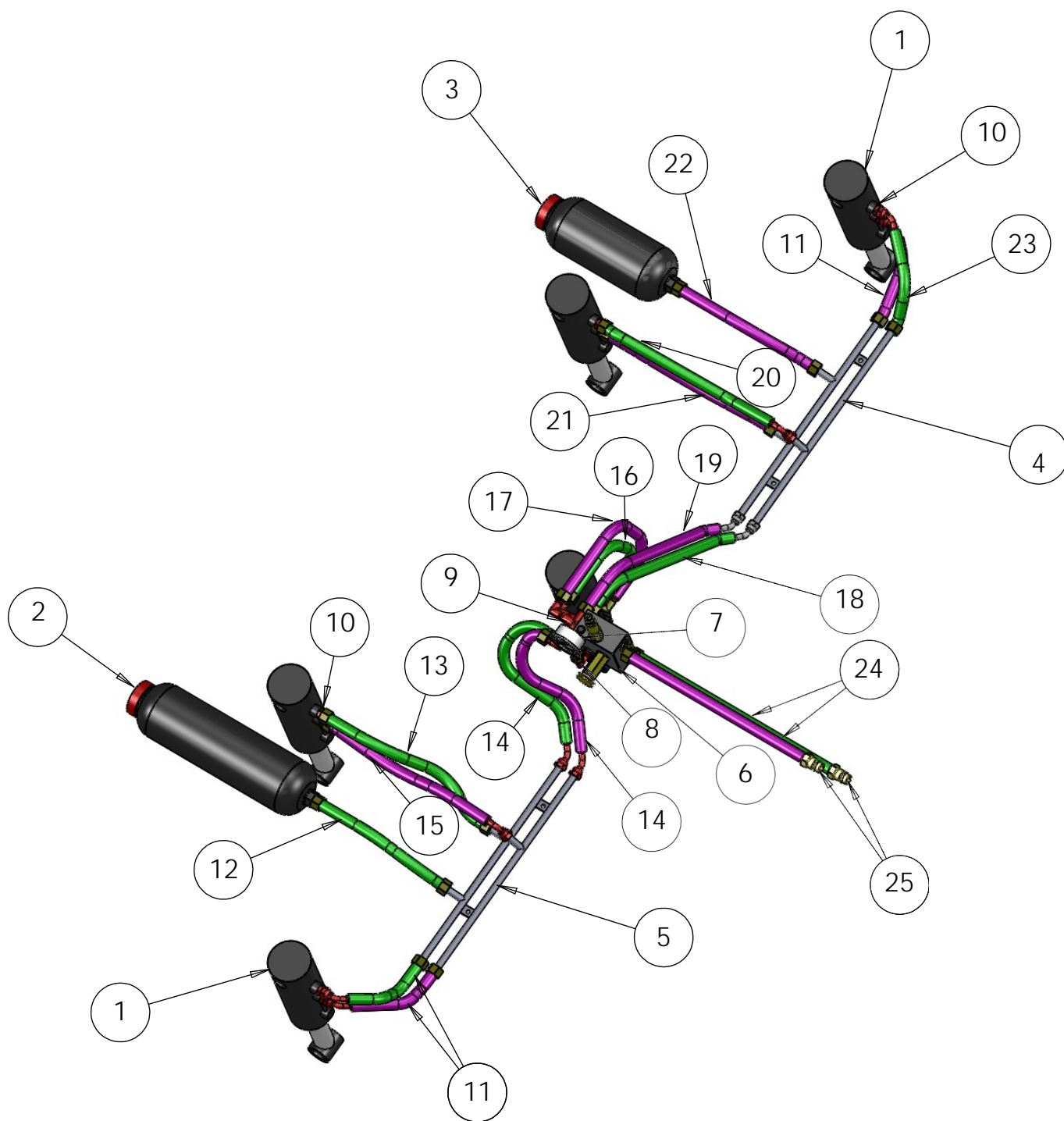
SCALE 1:10

REVISION:


DATE: 18/10/13

INITIAL: TW

## 8.17 Hydraulic Circuit



27

DO NOT SCALE DRAWING			
MACHINE/COMPONENT:		2.5m Sumo Trio	
TITLE:		Hydraulic Circuit	
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SCALE 1:12	REVISION:	DATE: 22/11/12	INITIAL: TW

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	SWH328	705/1 Ram	5
2	SWH330	3L Accumulator	1
3	SWH331	1.5L Accumulator	1
4	SWH351	Fixed Pipe Assembly (L/H)	1
5	SWH352	Fixed Pipe Assembly (R/H)	1
6	SWH298	Auto Reset Valve	1
7	SWH181	Pressure Gauge	1
8	SWH265	12L 90	1
9	SWH155	12L Cross	2
10	SWH303	12L - 3/8 Adaptor	8
11	SWH378	3/8 hose 12LSF/12L45 180mm	3
12	SWH379	3/8 hose 12LSF/15LSF 310mm	1
13	SWH380	3/8 hose 12LSF/12LSF 360mm	1
14	SWH381	3/8 hose 12L45/12L90 600mm	2
15	SWH382	3/8 hose 12LSF/12L45 365mm	1
16	SWH383	3/8 hose 12L90/ 3/8 Banjo 500mm	1
17	SWH384	3/8 hose 12L90/ 3/8 Banjo 550mm	1
18	SWH385	3/8 hose 12LSF/12L45 450mm	1
19	SWH386	3/8 hose 12LSF/12L45 470mm	1
20	SWH387	3/8 hose 12LSF/12L45 365mm	1
21	SWH388	3/8 hose 12LSF/12LSF 340mm	1
22	SWH389	3/8 hose 12LSF/12LSF 400mm	1
23	SWH390	3/8 hose 12LSF/12L45 220mm	1
24	SWH349	3/8 hose 12LSF/ 1/2M 1500mm	2
25	SWH147	Quick Release Coupling	2
26	SW1163	Fixed Pipe Cover (L/H) not shown	1
27	SW1164	Fixed Pipe Cover (R/H)	1

DO NOT SCALE DRAWING

MACHINE/COMPONENT:

2.5m Sumo Trio

TITLE:

Hydraulic Circuit



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SCALE 1:12







REVISION:

DATE: 22/11/12

INITIAL: TW

## 8.18 Stickers and Paint



Sticker	Description	Quantity	Part No.
	Big Sumo horizontal sticker 450 x 125mm	2	SWB125
	Big Trio 3 sticker 320 x 125mm	2	SU006
	Big Union Jack sticker 150 x 100mm	2	SWB127
	Vertical Sumo sticker 80 x 295mm	2	SWB128
	Small Union Jack sticker	2	SWB129
	Small Sumo Horizontal Sticker	6	SWB130
Sumo touch up paint	Sumo Red	1/2 Litre	SWB131
	Sumo Black	1/2 Litre	SWB132