SUMO TRIO

2.5m and 3.0m machines

# 2014
# Operator Manual
# and
# Parts List

SUMO UK LIMITED
Agricultural Machinery Manufacturers

www.sumo1.com

Redgates
Melbourne
York
YO42 4RG
Tel. 01759 319900
Fax. 01759 319901

## 1.0 Registration

**To activate your SUMO Warranty**, you must complete this page and send it back to us at:


Sumo UK Ltd
Redgates
Melbourne
York
YO42 4RG
Tel. 01759 319900
Fax. 01759 319901


**(NO REGISTRATION = NO WARRANTY)**

| | |
|---|---|
| SUMO SERIAL No:<br>For your own records. | |

---

## Sumo Trio Registration Document

| | |
|---|---|
| NAME: | |
| ADDRESS:<br><br>Postcode: | |
| Telephone Number: | |
| DATE: | |
| SUMO SERIAL No.<br>(Serial plate on side of headstock) | |
| DEALERSHIP NAME AND BRANCH: | |
| COMMENTS: | |

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

Sumo UK Ltd
Redgates
Melbourne
York
YO42 4RG
Tel. 01759 319900
Fax. 01759 319901

SUMO SERIAL No:

Overall size:
tick where applicable

| | |
|---|---|
| Small (38 chest) | |
| Medium (42 chest) | |
| Large (46 chest) | |
| Extra large (50 chest) | |
| XX Large (54 chest) | |
| XXX Large (58 chest) | |

NAME:

ADDRESS:

## 2.0 Summary

The SUMO Trio, a unique one pass soil conditioning machine designed and manufactured in Britain, comprising as its name suggests of three parts, each of these tuned to comprehensively create the finish required.

**Firstly**

The ultra low draught Subsoiler legs are mounted in a staggered pattern on a heavy duty frame, adjusting to a maximum depth of 400mm (at the point) via pins. Due to the design of the legs and their mounting, when the Auto-Reset system allows the leg to trip, both the first and second rows of legs trip in a fashion which allows the point to come clear of the ground and to pass by the obstacle. These legs feature quick change points and shins.

**Secondly**

A double row of 500mm concave discs, mounted on independently suspended arms giving a shock-proof durable system with quality low maintenance triple sealed taper roller bearings. Double mounting gives unrivalled performance when working in adverse conditions.

**Finally**

The patented Multipacka is uniquely designed to fulfil a number of criteria, comprising, 508mm x 10mm tube mounted on heavy duty quality bearings fitted with notched cutting/ drive rings to keep turning in arduous conditions, giving a total diameter of 660mm. The ring shoulders feature a convex shape adjacent to the barrel, creating consolidation and cracking even on the top of the ridge. Further to this is the ability to unbolt every individual packer quadrant for replacement without having to use any heat or cutting equipment. All these features make a packer which presses and firms to a higher quality with a lower power requirement than any other packer available.

Before using the SUMO Trio it is absolutely necessary that you read this Operators Manual and Safety Instructions attentively.

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

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## 3.0 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, using the machine and be available 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 claims for damages becoming invalid.

### 3.1 Qualification and Training

- Ensure that only reliable, authorized personnel work on or with the machine. Statutory minimum age limits must be observed.
- Employ only trained or instructed staff; the individual responsibilities of the personnel concerning operation, setting up, maintenance and repair must be clearly established.
- Define the machine operators' responsibilities – also with regard to observing traffic regulations. The operator must have the authority to refuse any instructions issued by third parties, which contravene safety.
- Persons undergoing training or instruction or taking part in a general training course should not be allowed to work on or with the machine unless they are under the constant supervision of an experienced person.
- The use of spare parts, accessories and ancillary equipment not supplied and/or not approved by SUMO could have detrimental effects to the construction of the SUMO machine or on its functions and hence impair the active and/or passive driving and/or operational safety (accident prevention).
- SUMO shall not be responsible for any damage caused by the use of spare parts, accessories and ancillary equipment not supplied and/or approved by SUMO.
- Conversions of or modifications to the machine may only be carried out after consultation with SUMO.

## 3.2 General safety

- Warning signs and other notices on the machine provide important information for the safe operation. Observing them will serve your safety.
- Before starting work, make yourself familiar with all the equipment and controls as well as their functions.
- The user should wear close-fitting clothing.
- Keep the machine and in particular the 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 wide overhang and/or the sideways force acting on the machine when turning or negotiating curves.

## 3.3 Special safety instructions

- Take extreme care when hitching up or unhitching machine to/from the tractor.
- Never allow persons to stand between the tractor and the machine unless the tractor is secured against rolling away by means of parking brake and/or wheel chocks.
- During transport, secure the packer (using both pins) to prevent shock loading when encountering road undulations. Ensure stands are raised to their transport position.
- It is forbidden to allow persons to ride on the machine at any time. A safe distance should be maintained from the machine by observers when in work.
- Driving, steering and braking characteristics are influenced by mounted machines and ballast weights. Therefore, ensure adequate steering and braking ability.
- Never stand or work beneath suspended loads. **Ensure stands are in the lowered position before commencing maintenance work or adjustment on the legs/points.** Ensure ground conditions are able to support the weight of the machine on the stands.
- If there is a requirement to lift the Sumo Trio, appropriate lifting apparatus must be attached through the lifting eye in the centre of the machine. The 3m Trio weighs approximately 2800kg.
- When making adjustments to the machines care should be taken not to trap any body parts in moving or pivoting parts.

  .

## Top Link Pin

Due to the physical nature and weight distribution of the Sumo Trio **a category three enclosed ball top link** is highly recommended.

Due to the exaggerated loads experienced during normal working conditions, the top link pin is considered as a consumable part and should be checked for wear on a regular basis.

**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 | 2 - low_med | 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 | 4 - med_high | 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 | 2 - low_med | Most alterations and maintenance do not require the operator the 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… |

# 4.0 Operation and Adjustment

## 4.1 Operation

Before attaching a Trio to a tractor it is essential that the **stands are in the down position** to ensure a short top link when attached. Once attached securely to the tractor the machine can then be raised and the stands lifted out of the way. When the machine is removed from the tractor it is equally as important to leave the machine on the stands.

The top link should be as short as possible whilst remaining as close to horizontal as is achievable. It is important to ensure the machine is running level to allow the optimum level of soil disturbance as well as to prolong the life of the wearing parts.

Changing the points on the Trio must only be done on level ground. When it is deemed necessary to change the points, the stands should be lowered to the static position and other appropriate jacks, stands and chocks put into position in sensible locations. To avoid the risk of sinking and potential injury it is important to **only change the points where ground conditions permit**, i.e. solid concrete, tarmac etc. Care should be taken to ensure the Trio is firmly and safely held before changing the points. The tractor engine must be turned off with the parking brake applied.

Bearings should be greased (see 5.0 Maintenance); stands must be in the raised position and all relevant pins in the correct holes prior to commencing work.

The subsoiler legs can be lifted and lowered and the end of the field if so desired. If the hoses are plugged into the tractor then it is simply a matter of operating the spool valve from the cab up/down. When the legs are put back into their work position, the spool should be returned to float position to ensure any tractor back pressure is dumped. This allows the hydraulic auto-reset valve to function correctly.

Forward working speed should be governed by the local conditions as well as the finish produced by the Sumo Trio.

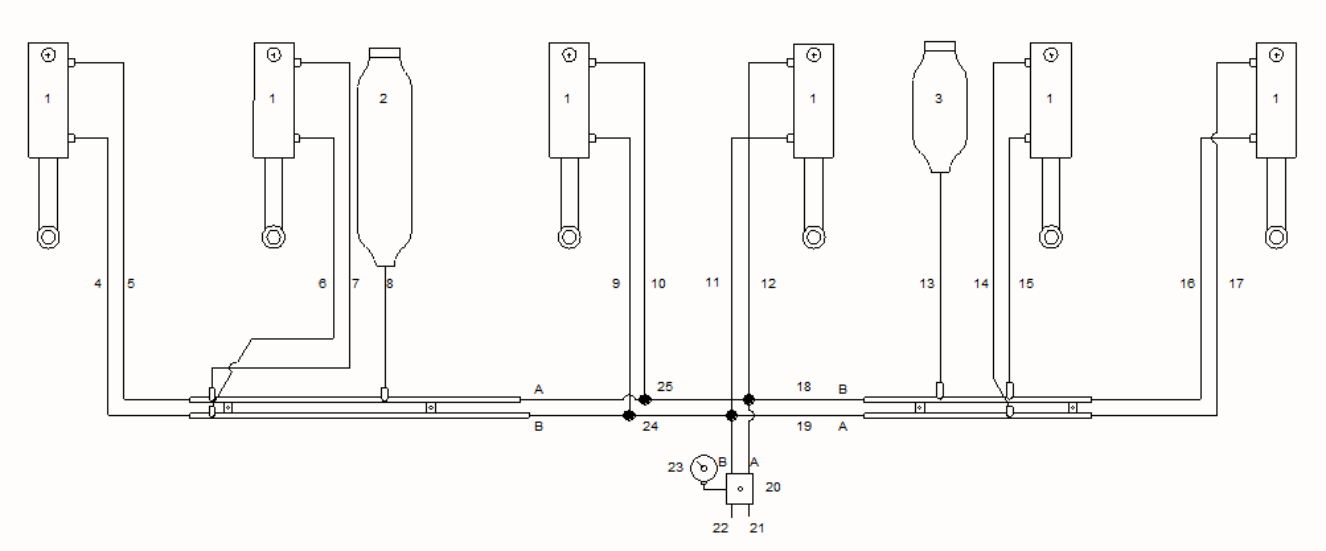
## 4.2 Adjustments

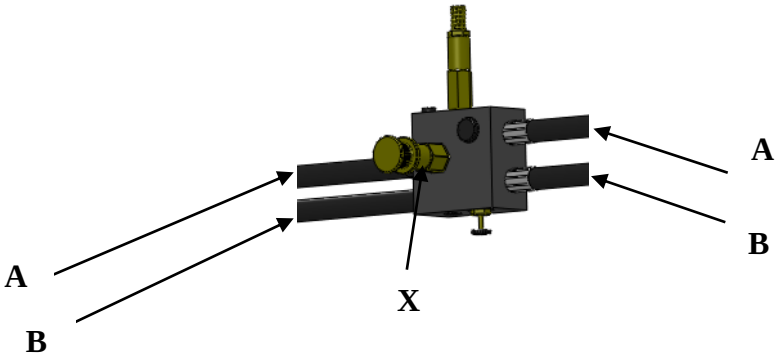
Depth adjustment of the subsoiler legs at the front of the Trio is achieved by removing the lynch clip and depth pin then lifting or lowering the leg and replacing the pin in the appropriate hole. The maximum leg depth is 400mm. Keep fingers clear of depth holes.

To adjust the disc working depth, the weight must first be taken off the packer arms before the lynch pins and depth pins are removed. A new depth position can then be selected by replacing the pins in higher or lower holes. The disc unit slices, mixes and cultivates the top 50 - 100mm of soil.

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

## 4.3 Auto Reset hydraulic circuit




1) To lift the legs up and out of the work position; pressurize line B (the lower of the two hoses entering the valve block & marked "B" on the valve itself). The legs will lift as oil is returned to the tractor through Line A.

2) To lower the legs back down and into the work position; pressurize line A, the legs will lower one by one. Keep pumping until all of the legs come to a stop at the end of their stroke. Keep pumping for a few more seconds and the two lines will then pressure up. Keep an eye on the gauge on the right hand side of the machine as this displays the leg trip resistant pressure. The system needs then to be put into the "float" or pressureless state between the tractor and the valve so that any back pressure from the tractor does not affect the preset valve pressures. Putting the system into "float" means the factory set pressure readings of 80bar on the full bore side of the ram (gauge on RHS of machine) and 20bar on the rod side of the ram. This is unless of course they have been adjusted to suit local conditions. The resistant pressure in adjustable up to a maximum of 150bar

3) To increase the trip resistance of the legs – the knob marked X should be wound in. The lift and lower process should then be repeated.

## 5.0 Maintenance

The packer bearings should be greased with one pump once a week and after washing off.

The disc bearings should be greased until old grease is forced out once a week when in normal use and after washing off.

The condition of the subsoiler legs, the points and the discs should be regularly monitored in order to maintain the most efficient use of the machine.

The condition and position of the packer scrapers should also be observed in order to prevent soil building up on the packer. Ensure the scrapers are not touching the packer though, as this will add rolling resistance as well as causing premature wear of the packer.

Hydraulic cylinders - Exposed chrome ram rods should also be lightly greased occasionally to prevent these valuable parts from rusting and causing costly oil leaks.

### 5.1 Spares

When ordering replacement parts please have your serial number, part numbers (listed in Section 6.0) and quantities at hand.

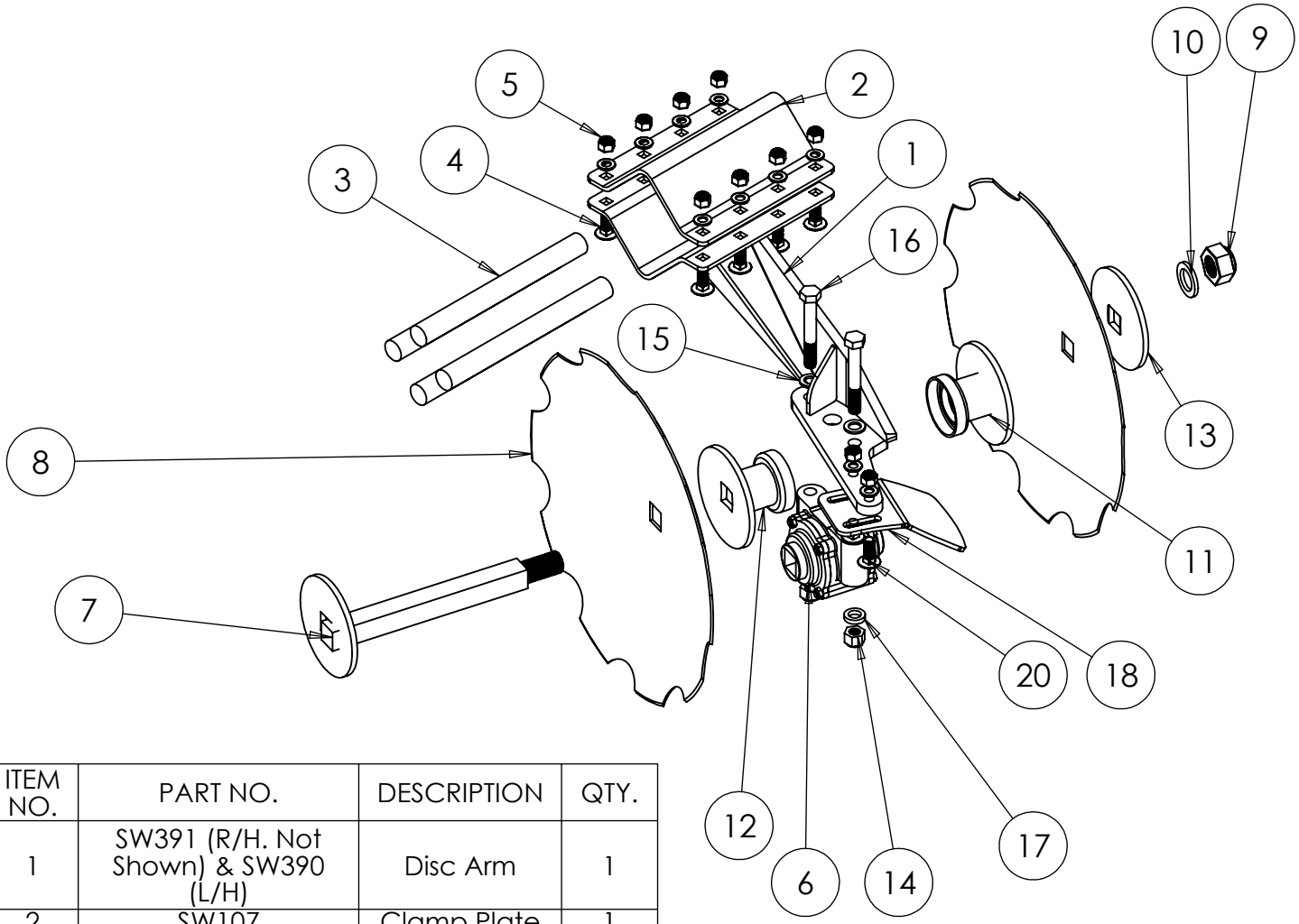
### 5.2 Winter storage

When machines are to be parked up for the winter period, correct storage techniques are an important part of protecting the machine to ensuring a hassle free season. When the machine has finished work it should be cleaned down and washed off to remove all traces of soil.

Following washing off, the packer bearings should be greased with one pump and the disc bearings should be greased until old grease is forced out. Other grease points are located on all rams on auto reset machines and these should receive two or three pumps of grease.

When the machine is parked up a note should be made of what wearing parts require replacing ready for the next seasons work. The wearing parts can then be ordered in time ready for the next season's work in good time to avoid delays when the machine is required earlier than expected!

# 6.0 Parts & Assembly




| 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 | SWM16004 | M16 Nylock 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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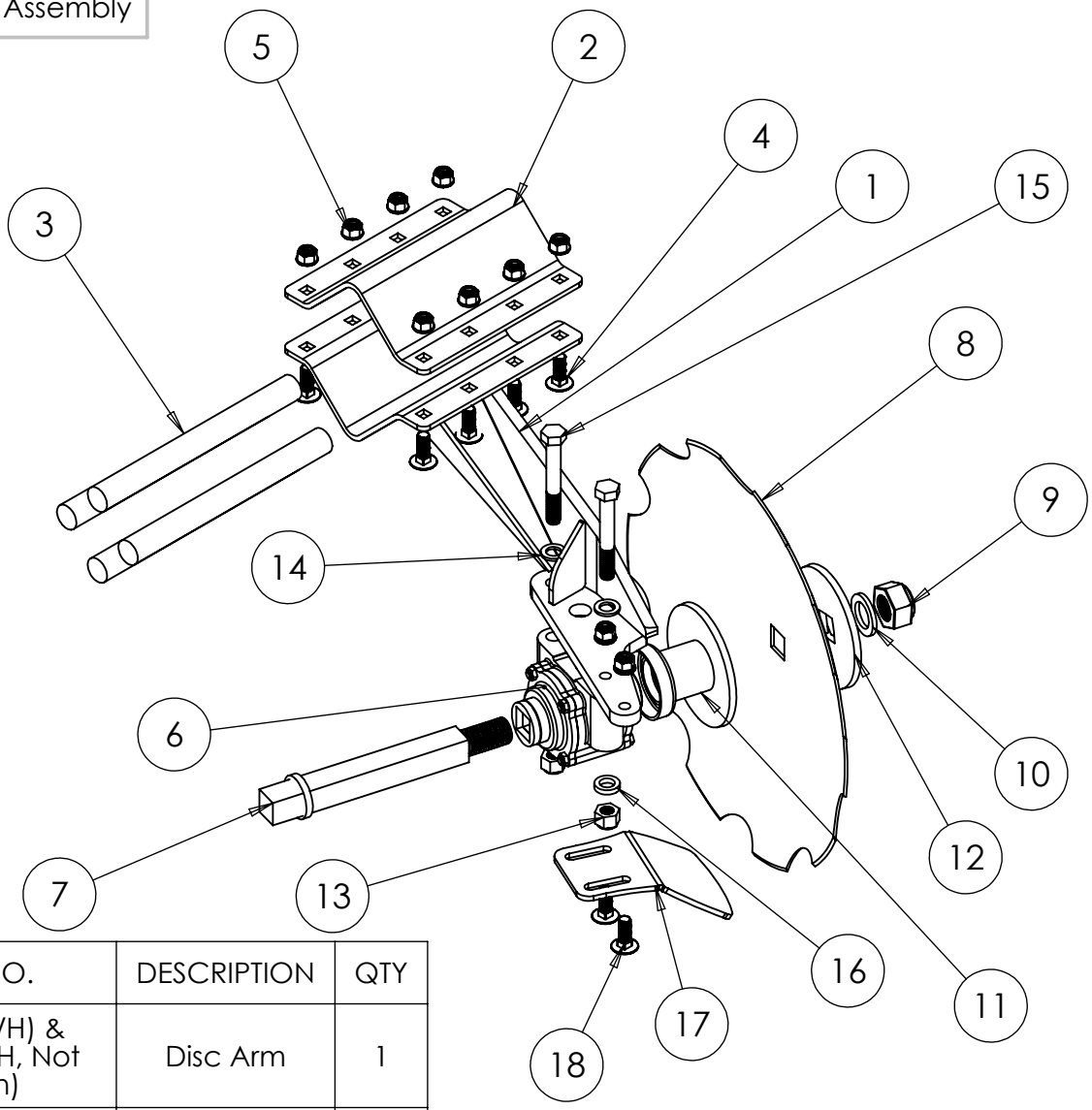
SCALE 1:20 | REVISION: | DATE: 15/10/12 | INITIAL: TW

## 6.2 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 | SWM16004 | M16 Nylock 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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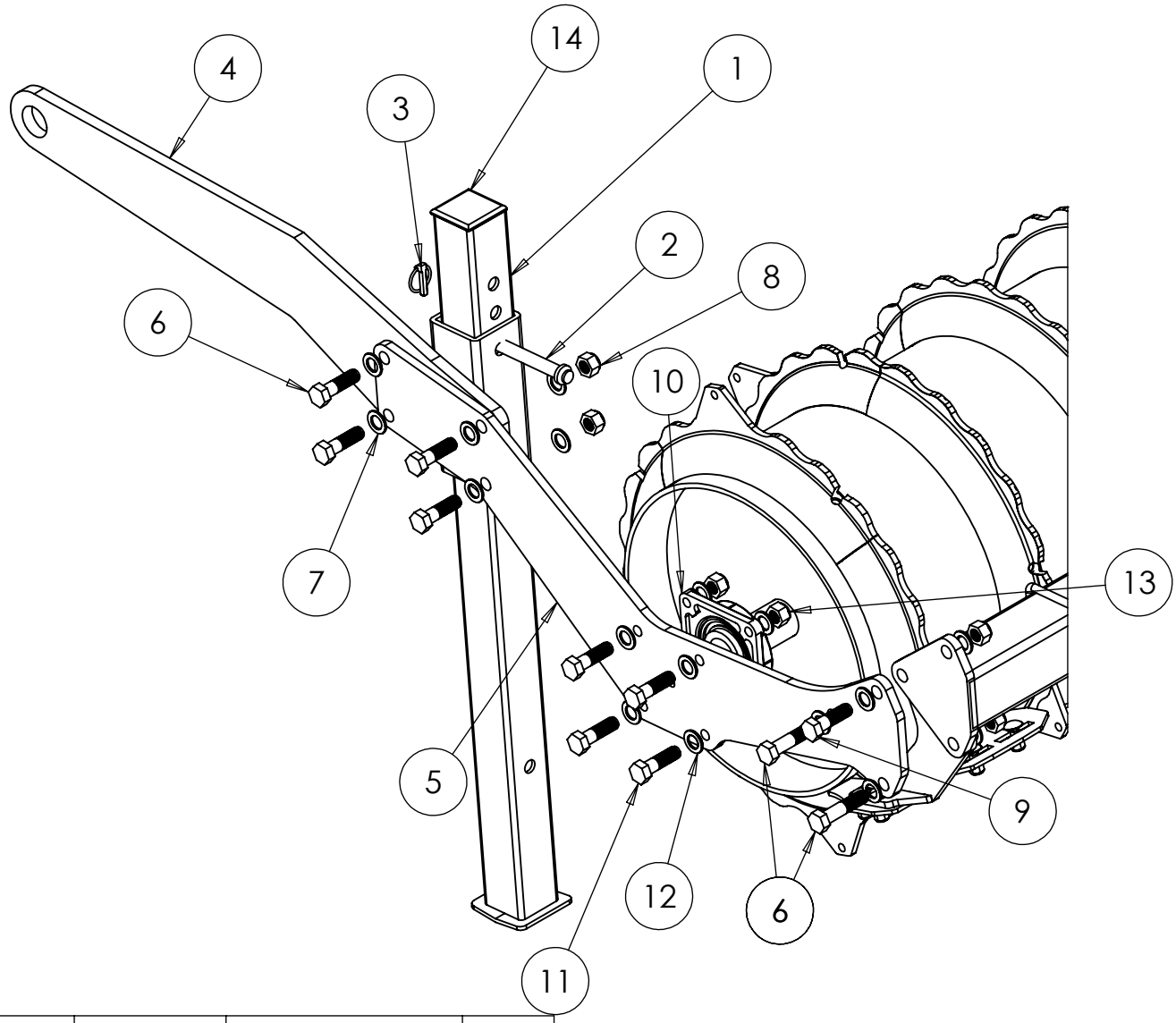
SCALE 1:8 | REVISION: | DATE: 21/10/13 | INITIAL: TW




| 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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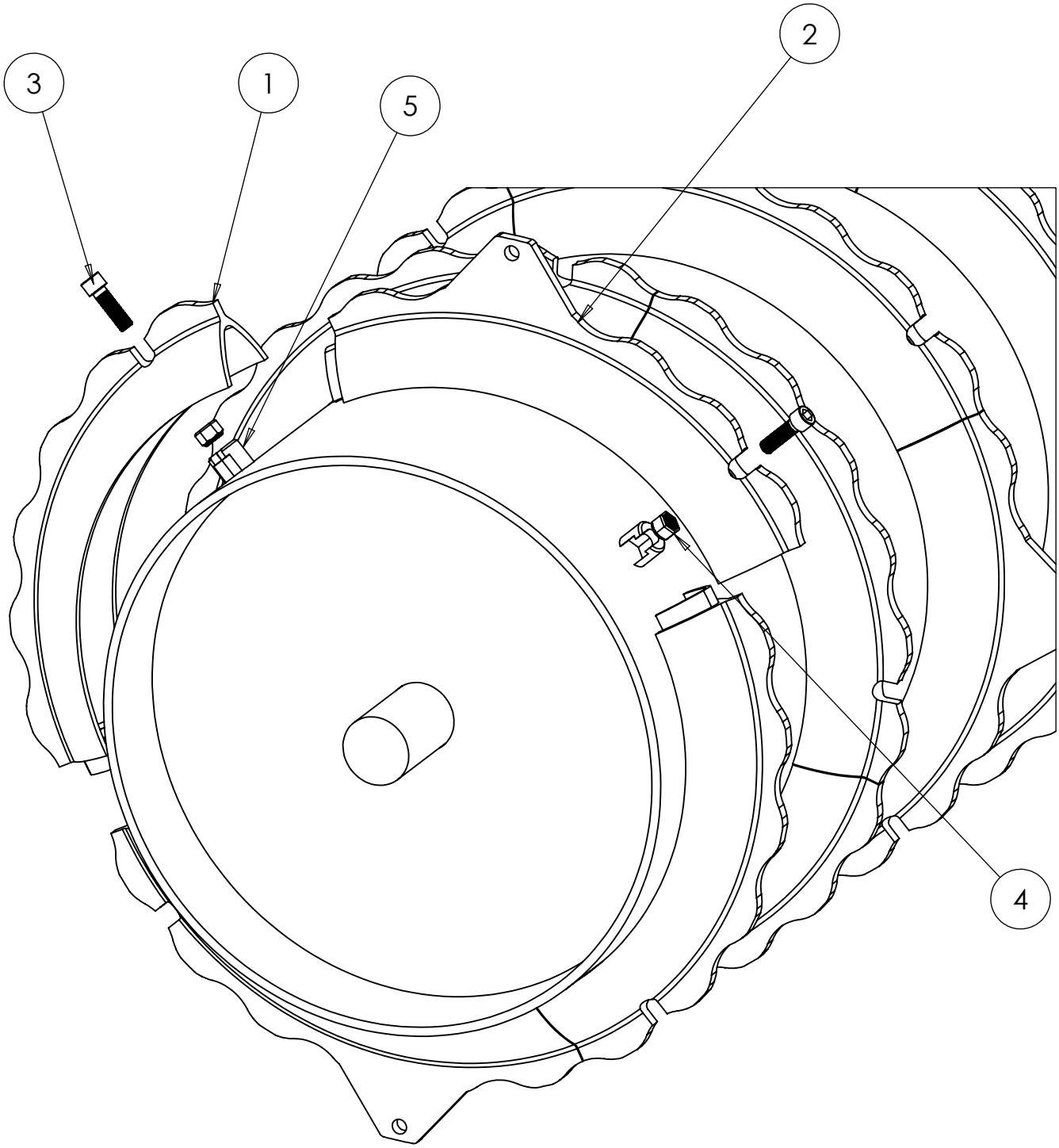
6.4 Packer Quadrant Assembly




| 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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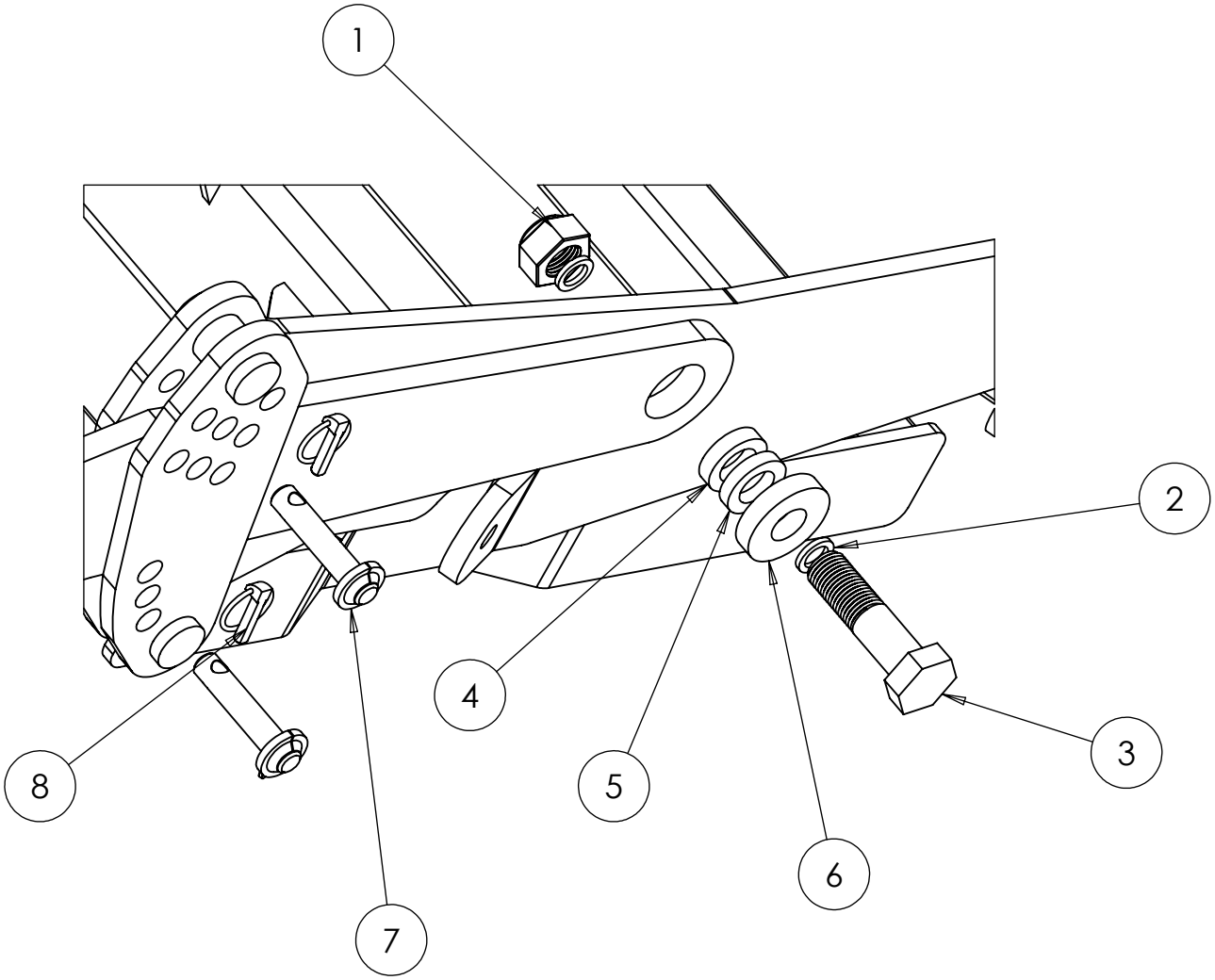
SCALE 1:5 | REVISION: | DATE: 22/10/12 | INITIAL: TW




| 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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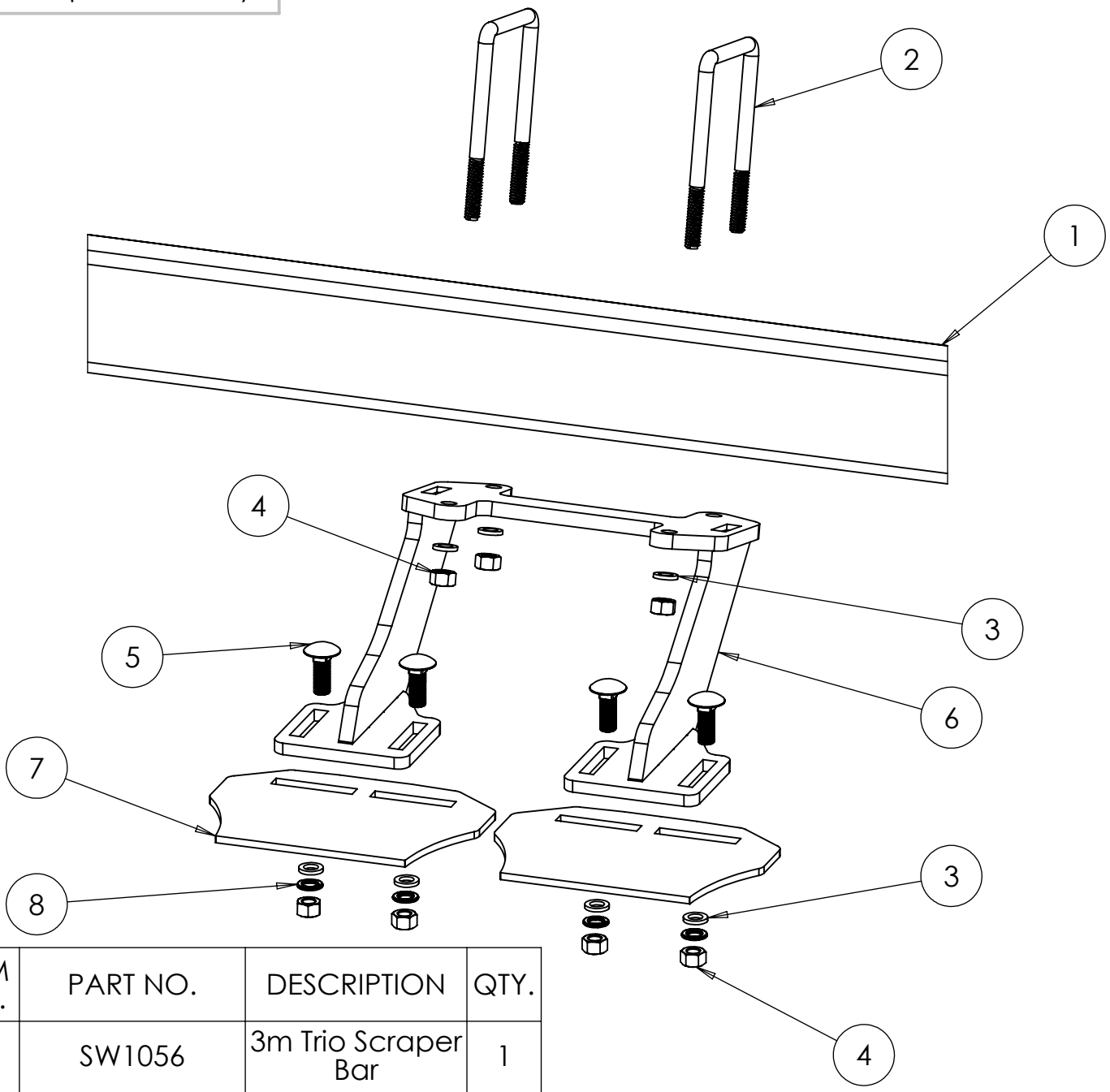
# 6.6 Scraper Assembly




| 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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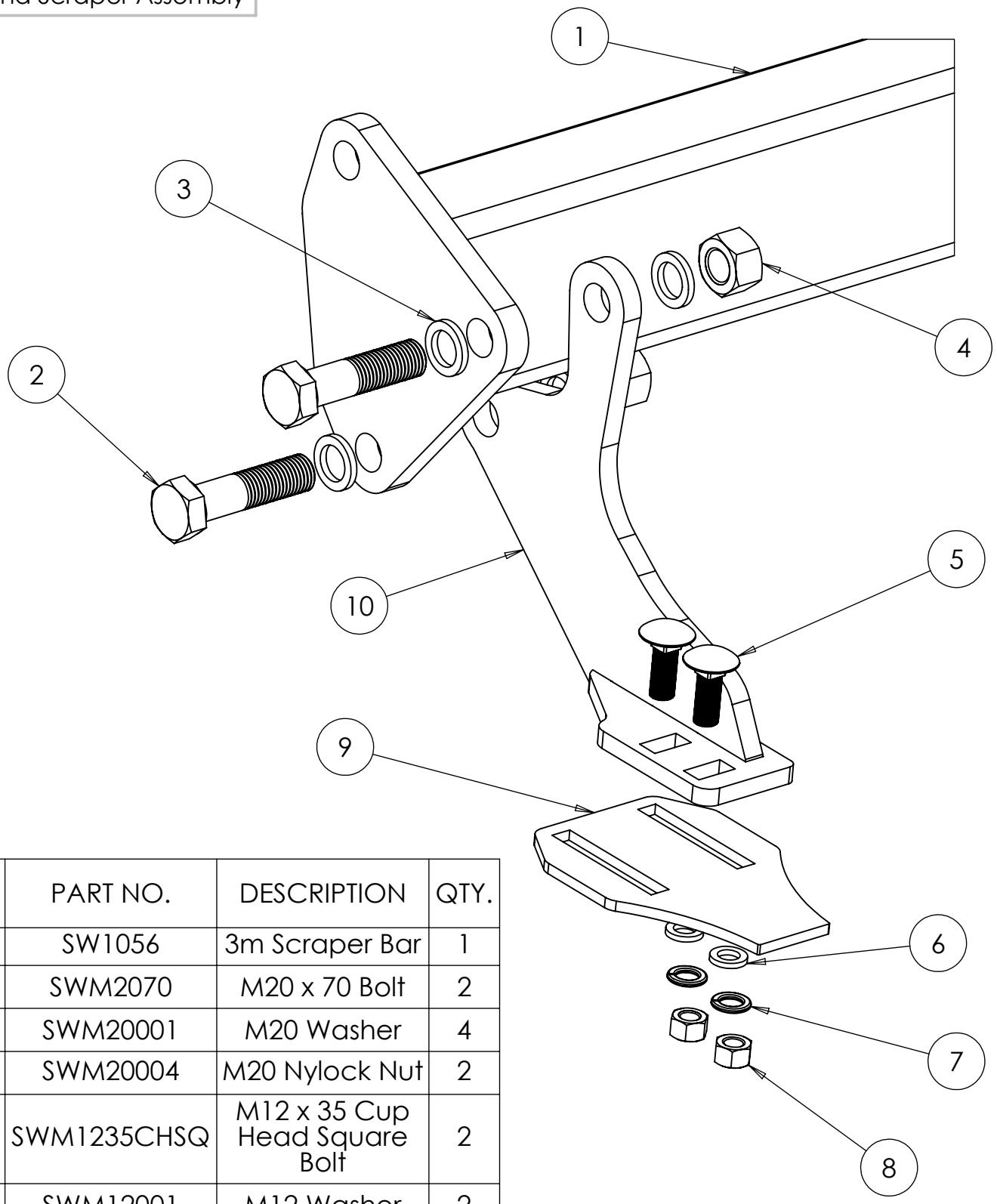
SCALE 1:5 | REVISION: | DATE: 18/10/13 | INITIAL: TW

6.7 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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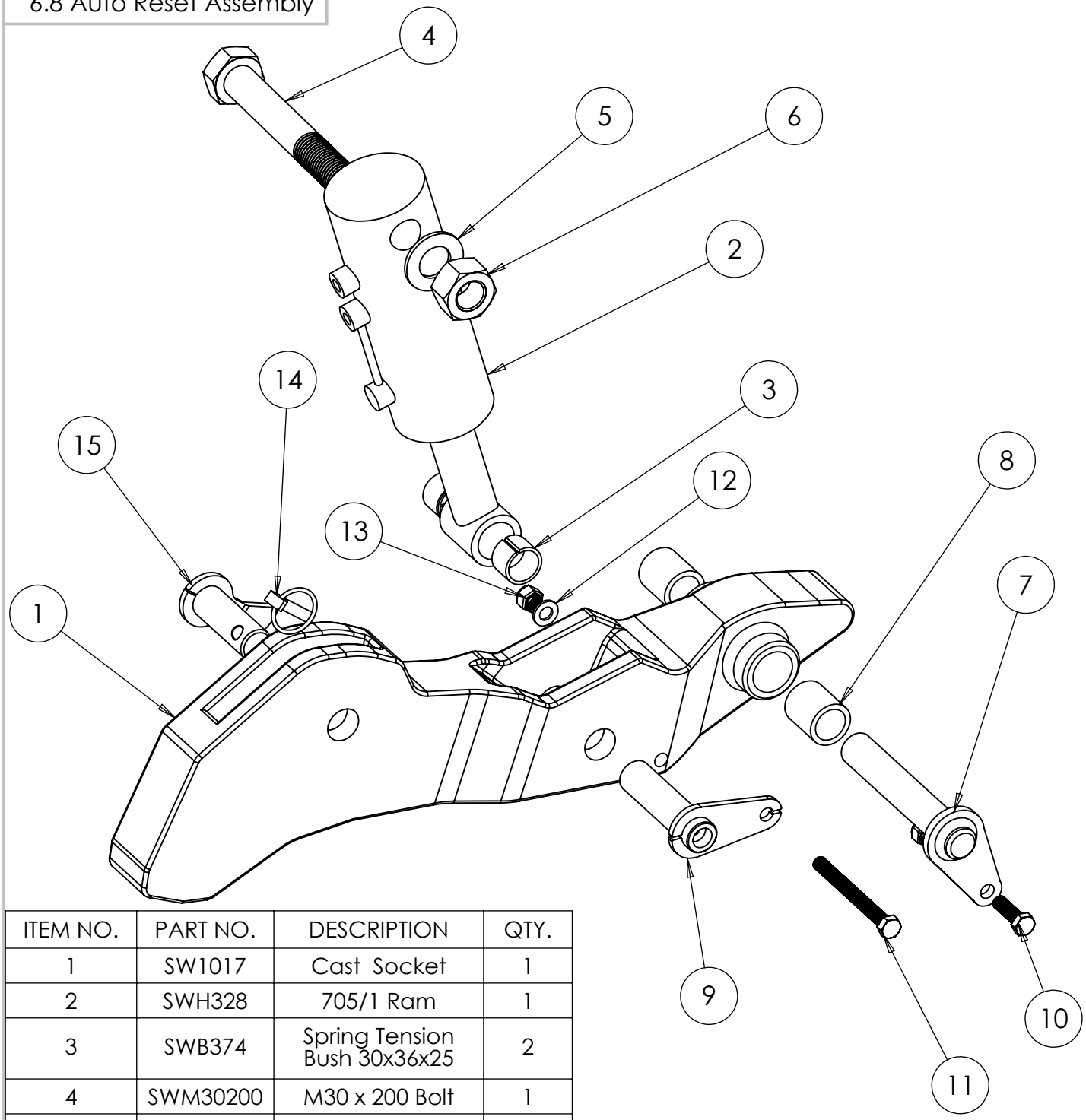
SCALE 1:3 | REVISION: | DATE: 18/10/13 | INITIAL: TW

# 6.8 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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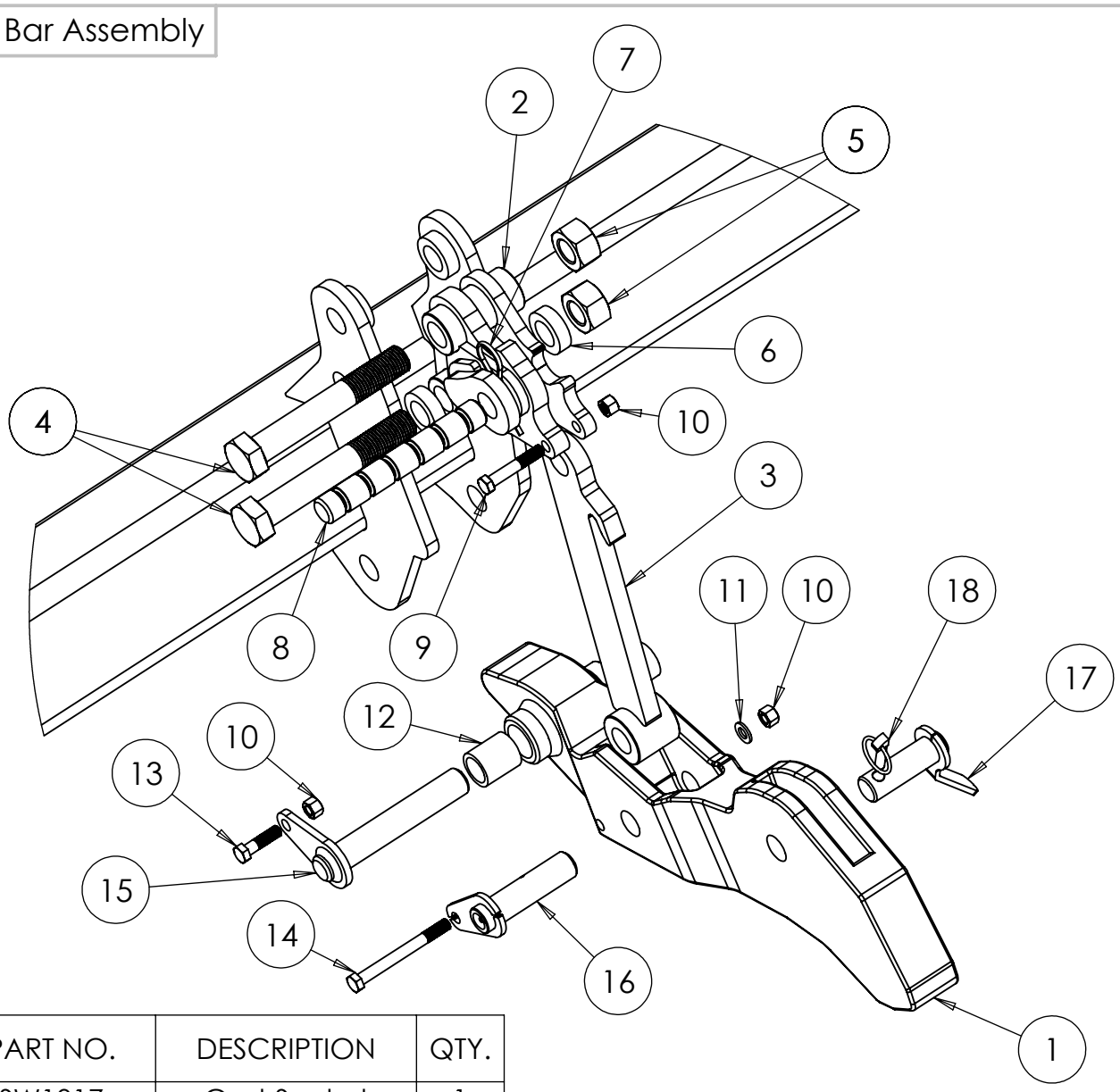
Scale 1:5 | REVISION: | DATE: 19/1012 | INITIAL: TW

# 6.9 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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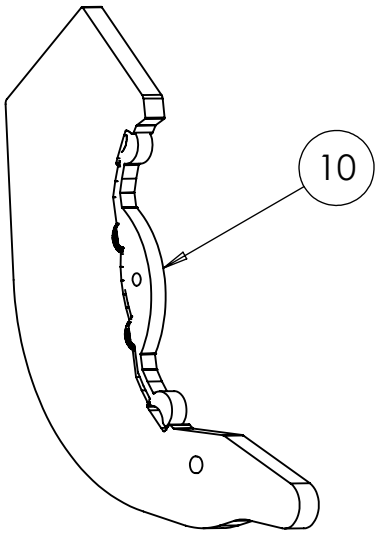
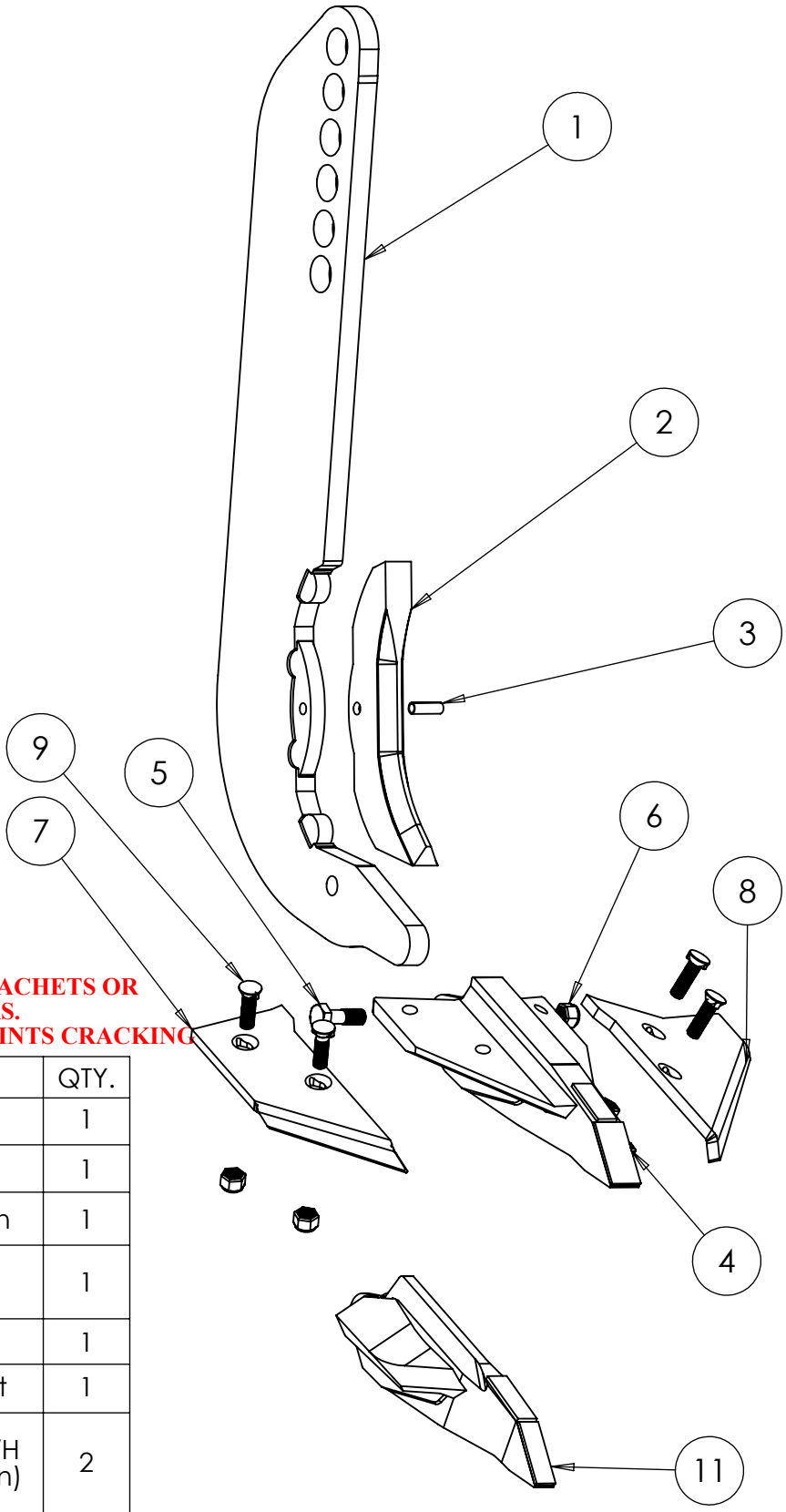
SCALE 1:7 | REVISION: | DATE: 29/11/12 | INITIAL: TW

# 6.10 Trio 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 | 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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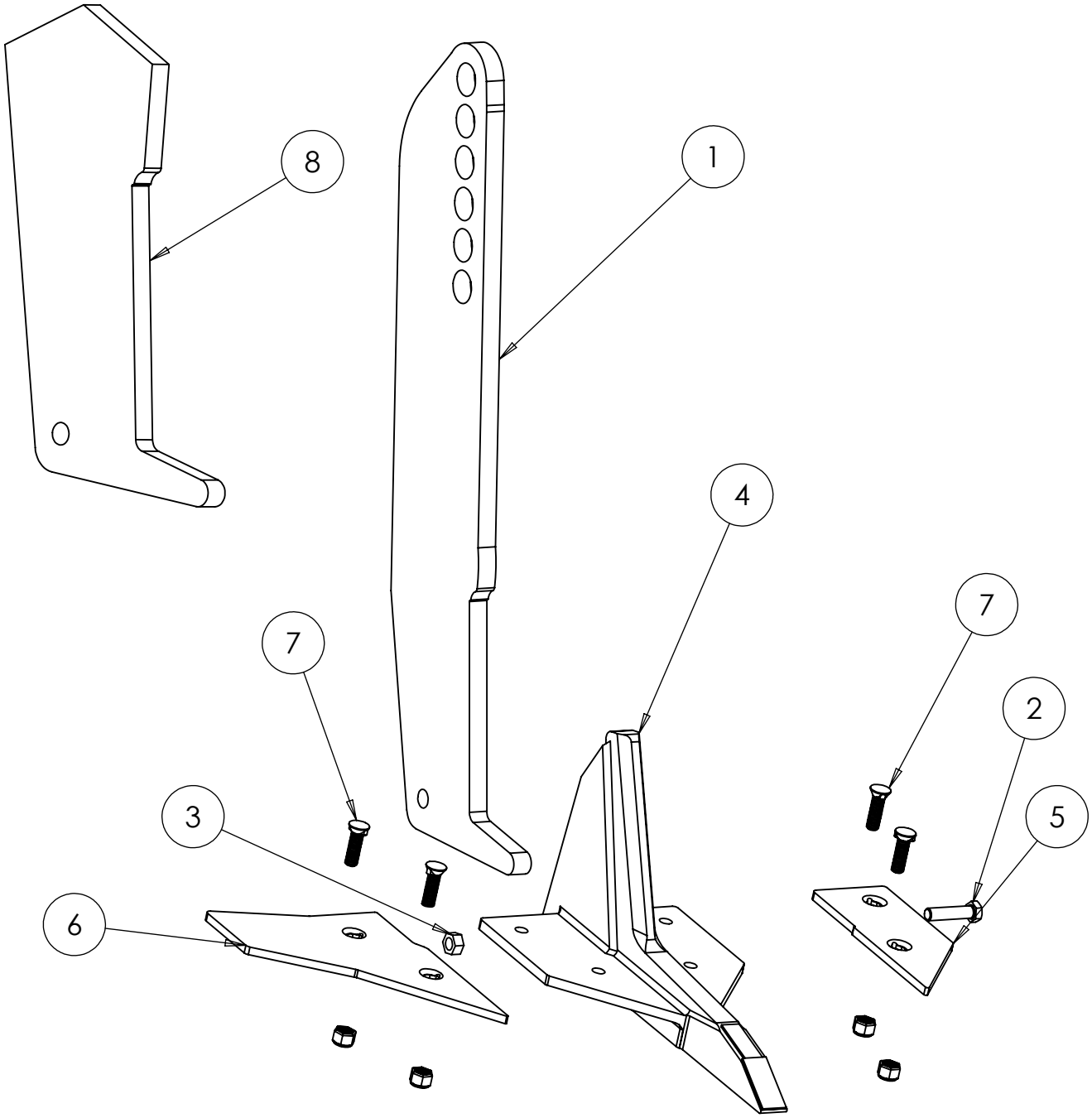
SCALE 1:6 | REVISION: | DATE: 19/10/12 | INITIAL: TW




**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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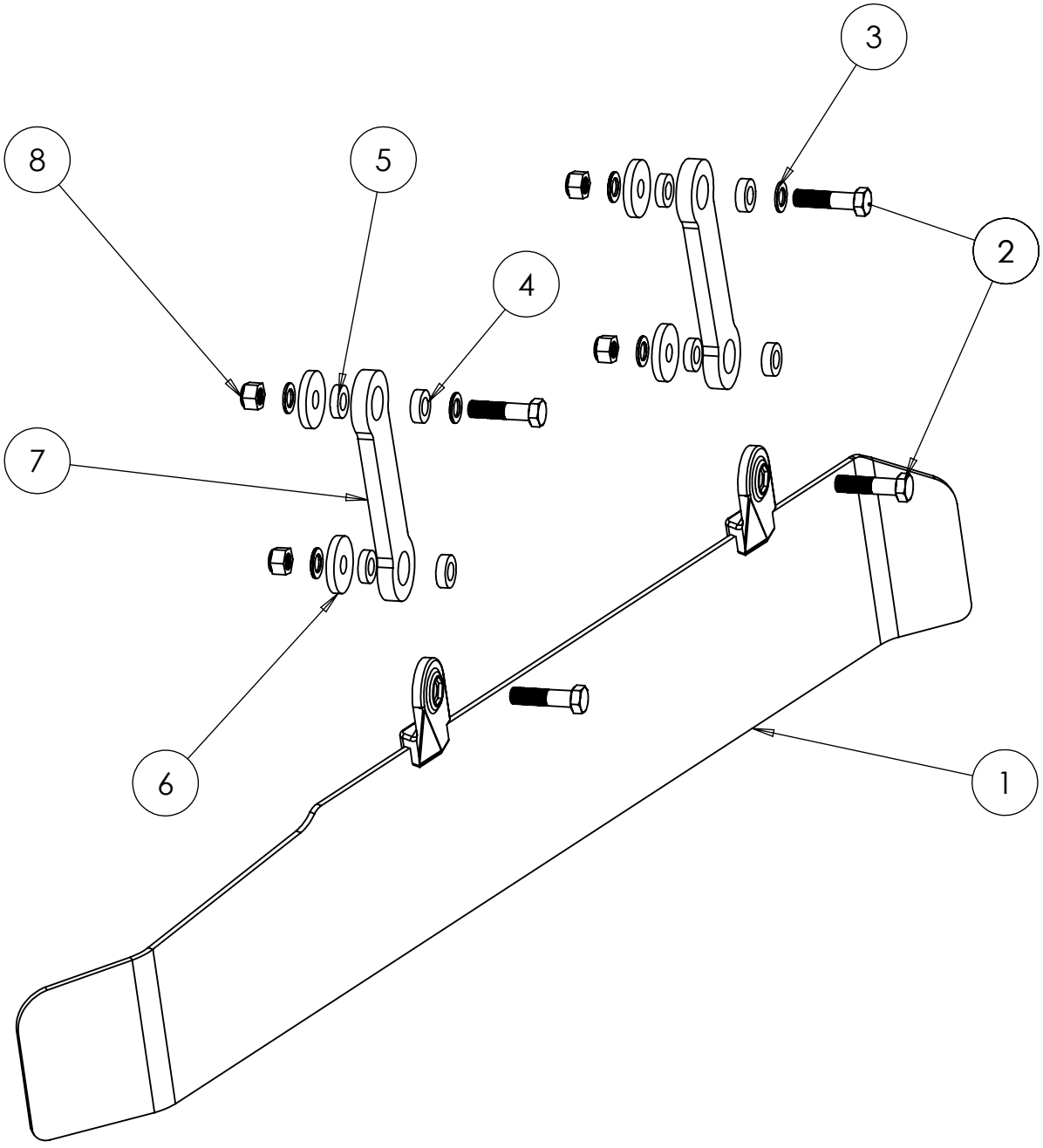
SCALE 1:6 | REVISION: | DATE: 19/10/12 | INITIAL: TW

# 6.12 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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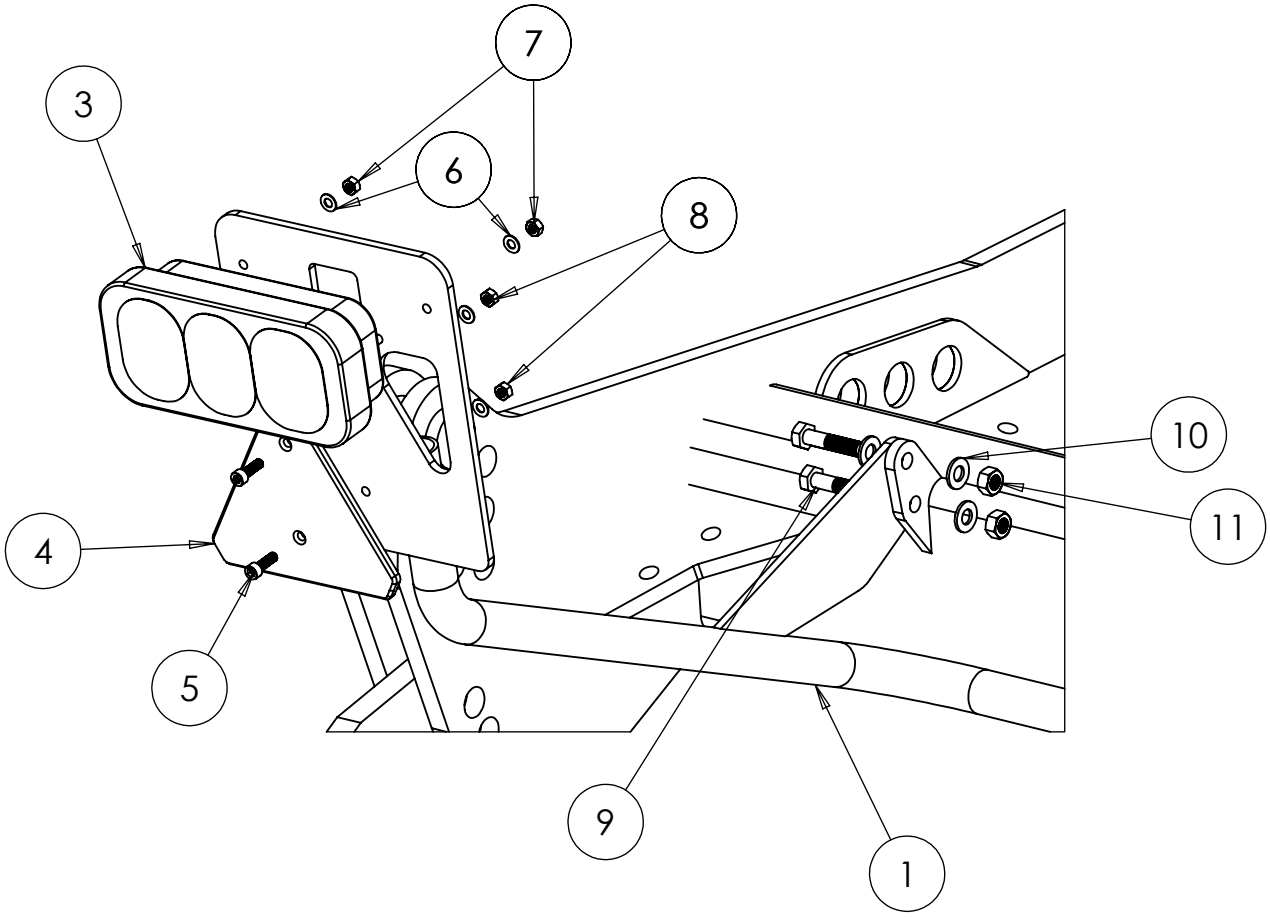
SCALE 1:8 | REVISION: | DATE: 22/10/12 | INITIAL: TW

# 6.13 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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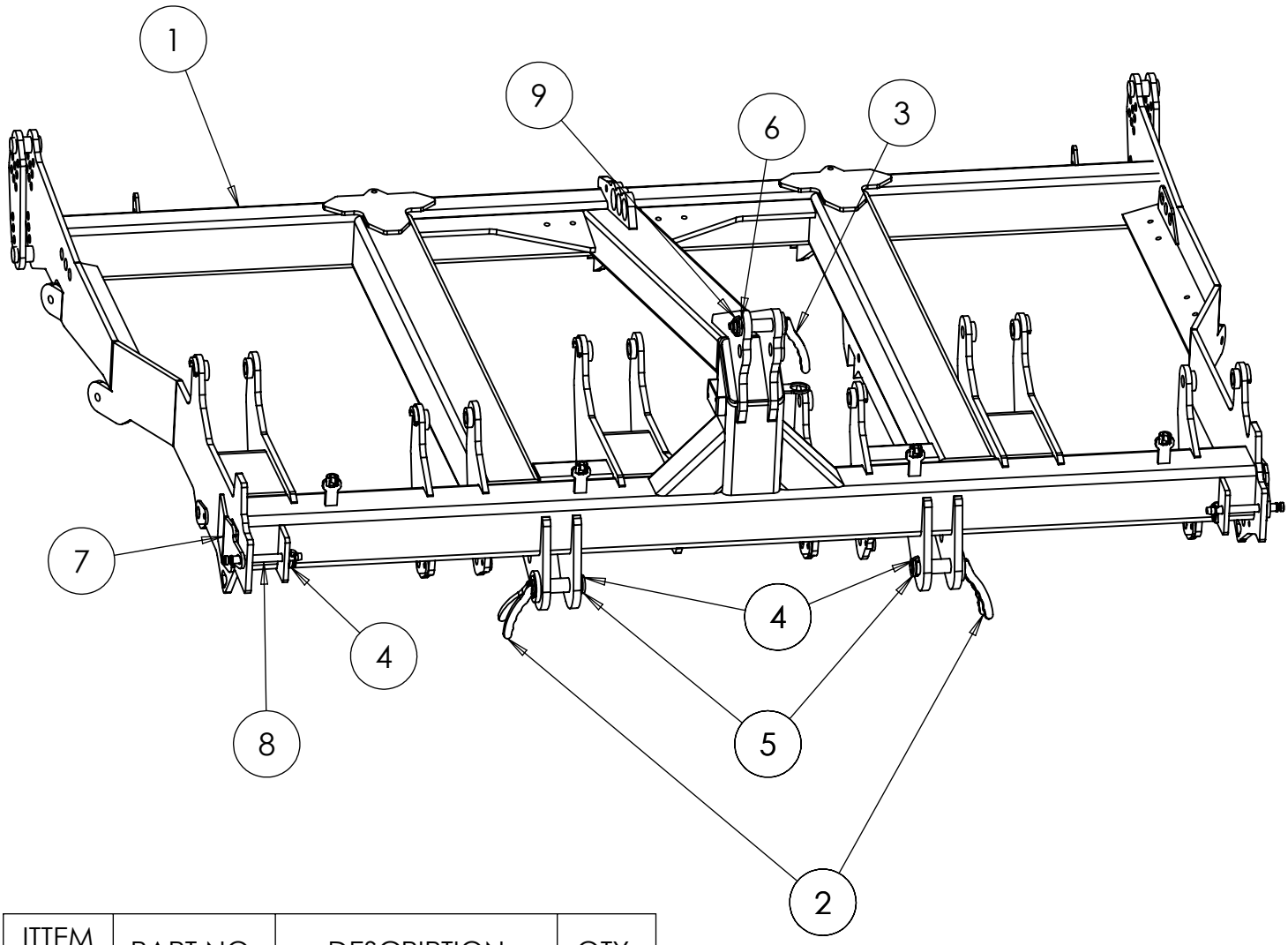
SCALE 1:5 | REVISION: | DATE: 22/11/12 | INITIAL: TW

# 6.14 Main Frame




| ITTEM 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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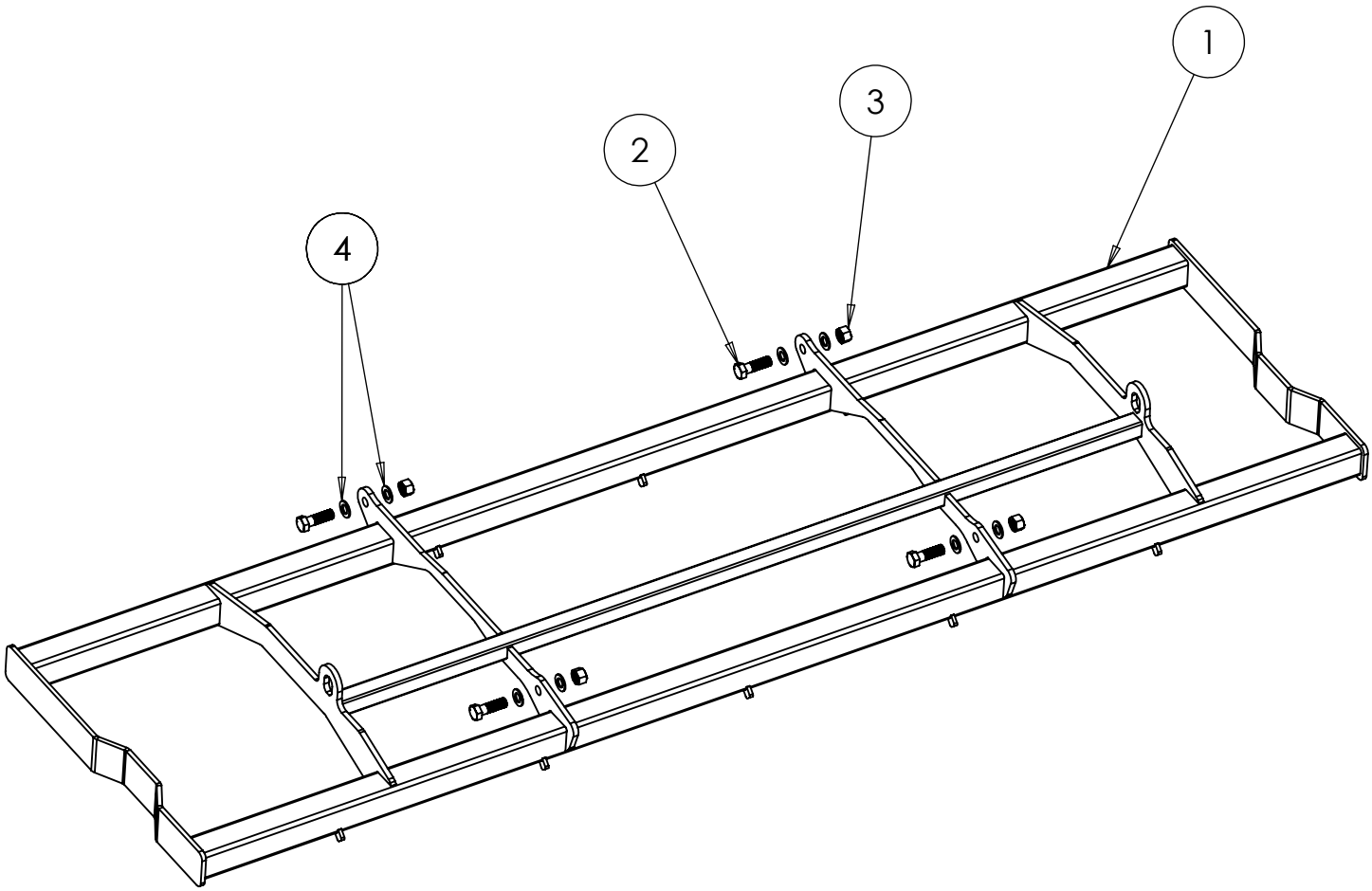
SCALE 1:17 | REVISION: | DATE: 23/11/12 | INITIAL: TW

# 6.15 Disc Frame




| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | SW1307 | 3m Trio Disc Frame | 1 |
| 2 | SWM2060 | M20 x 60 Bolt | 4 |
| 3 | SWM20004 | M20 Nylock Nut | 4 |
| 4 | SWM20001 | M20 Washer | 8 |
| 5 | SW1428 | 2.5m Trio Disc Frame | 1 |

DO NOT SCALE DRAWING

MACHINE/COMPONENT: Sumo Trio

TITLE:

# Disc Frame

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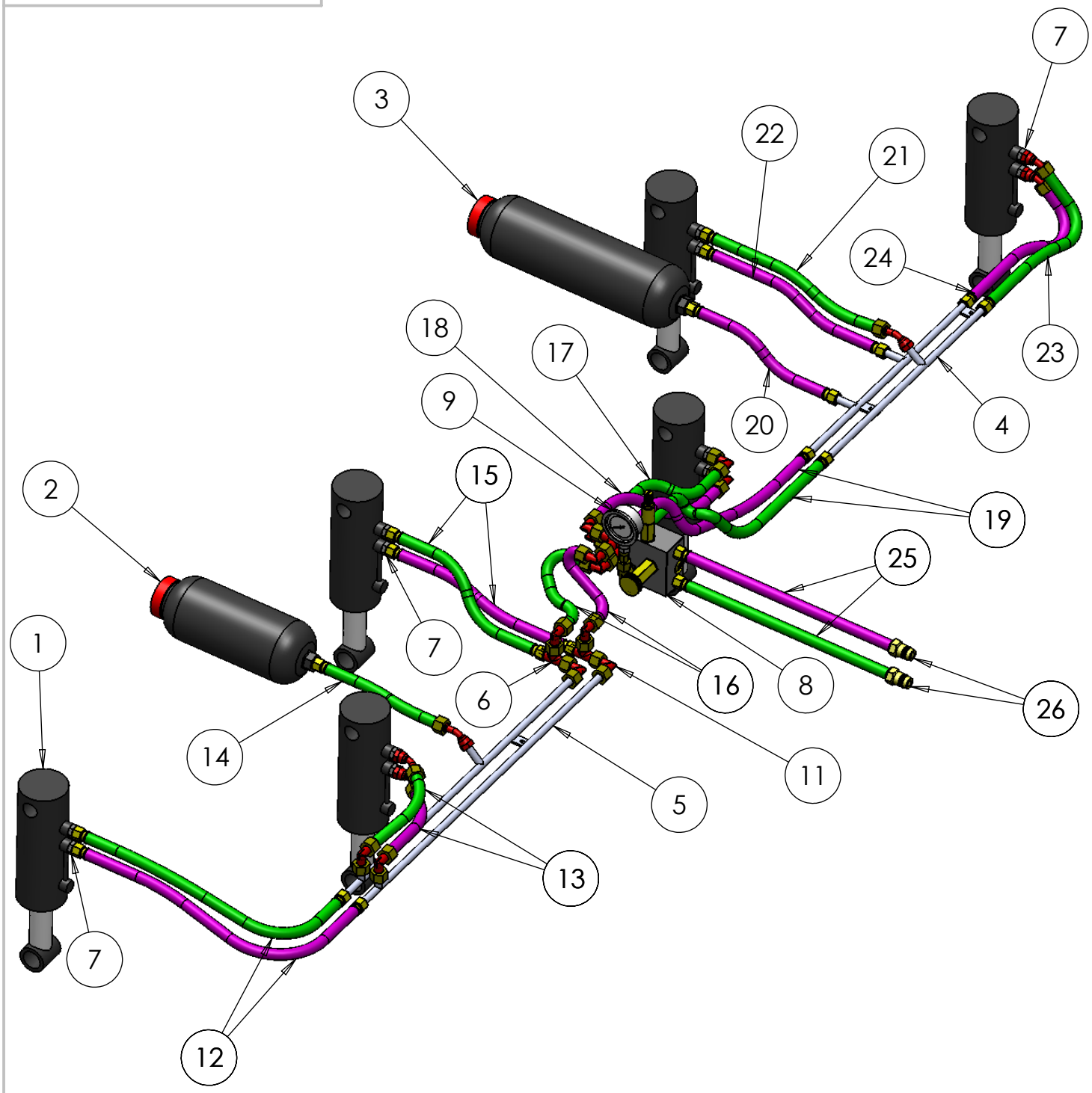
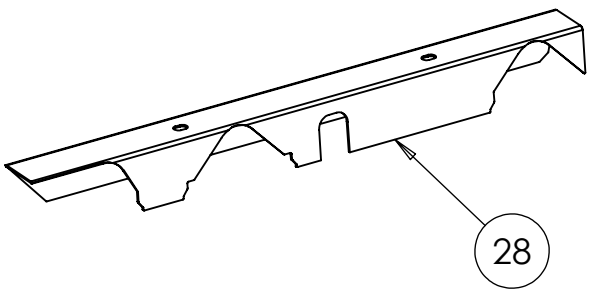
SCALE 1:15 | REVISION: | DATE: 21/10/13 | INITIAL: TW

# 6.16 Hydraulic Circuit




DO NOT SCALE DRAWING

MACHINE/COMPONENT: 3m Sumo Trio

TITLE:

# Hydrualic Circuit

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SCALE: 1:10 | REVISION: | DATE: 18/10/13 | INITIAL: TW

| 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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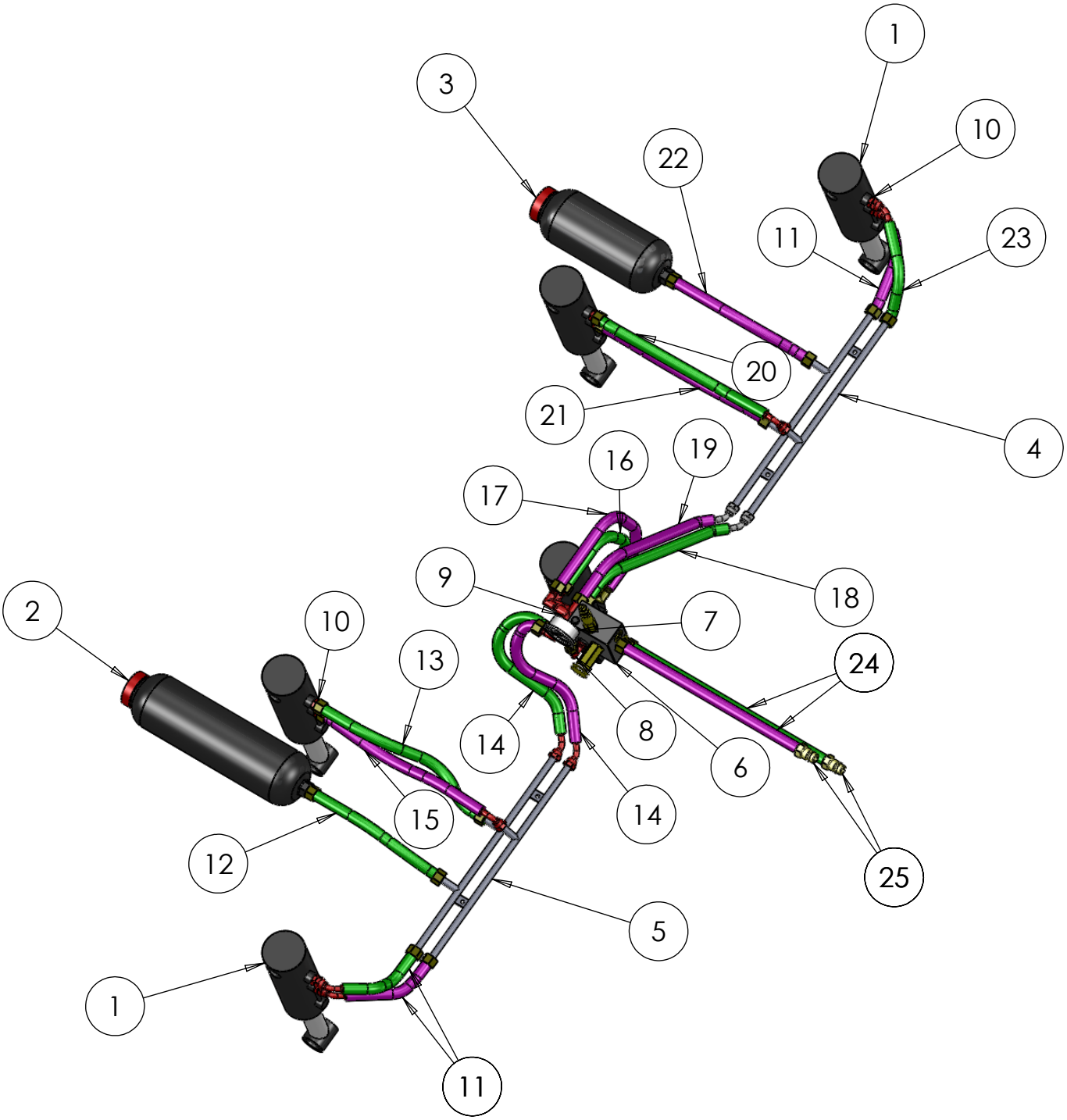
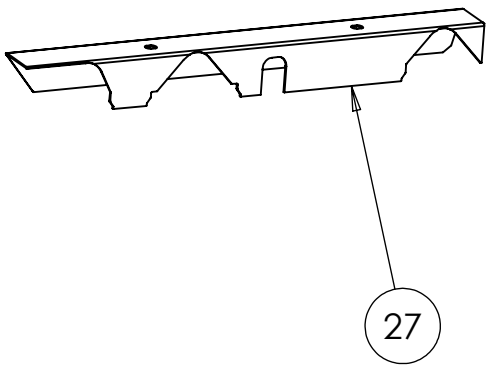
SCALE 1:10 | REVISION: | DATE: 18/10/13 | INITIAL: TW

# 6.17 Hydraulic Circuit




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. | DECRIPTION | 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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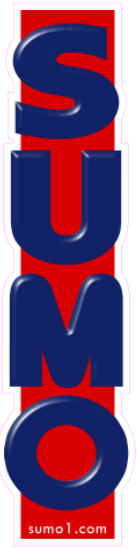
SCALE 1:12 | REVISION: | DATE: 22/11/12 | INITIAL: TW

## 6.18 Stickers and Paint

| Sticker | Description | Quantity | Part No. |
|---|---|---|---|
| | Big Sumo horizontal sticker<br>450 x 125mm | 2 | SWB125 |
| | Big Trio 3 sticker<br>320 x 125mm | 2 | SU006 |
| | Big Union Jack sticker<br>150 x 100mm | 2 | SWB127 |
|  | Vertical Sumo sticker<br>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 |