



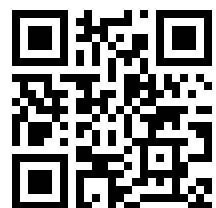
GROWING WITH YOU

# MIXIDISC

## 2023 Mounted Range (MIX)

Machine Manual & Parts Book

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## Introduction

Before reading this Machine Manual & Parts Book, please read the Cultivators Operator Manual in Full. This manual contains information specific to the machine/range but does not include all the general safety guidelines and practices necessary to understand and correctly use the machine. It is required that both manuals be read and understood before using any Sumo machine. For more information contact your local dealership/Sumo directly.

Please note, specifications, descriptions and illustrations in this manual are accurate, as known, at the time of publication but may be subject to change. If you notice any discrepancy and are in need of clarification, please contact us on the details given previously.

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## 1. Machine Range Summary

The Mixidisc is designed for high-speed stubble cultivation to quickly incorporate and mulch large volumes of crop residues and create a micro tilth in the soil for fast germination of volunteers and weed seeds in one pass.

It can also be used for seedbed preparation, straw harrowing, or furrow levelling with low power requirement.

It does this in two stages depending on whether the machine is mounted or trailed:

### **Stages One**

A double row of 500mm concave discs (20"), mounted on independently suspended arms, gives a shock-proof, durable system with quality low maintenance triple sealed taper roller bearings. This provides a quick and shallow tillage solution.

### **Stage Two**

The patented Multipacka fulfils a number of criteria, comprising of a round tube mounted on heavy duty quality bearings fitted with notched cutting/ drive rings to keep turning in arduous conditions. 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.

Note: This stage description is based on our standard offering but will change depending on packer selected. Consult the Cultivation Operators manual for more information.

## 2. Product Specifications

For standard machine dimensions and weight, see Cultivator Operators Manual. Note: Weights is described as the maximum laden mass but will increase with optional extras and attachments.

### Mixidisc Mounted Range

Spec	Mixidisc 3m	Mixidisc 4m
Code	MIX3	MIX4
Disc Diameter	500mm	500mm
Disc Qty	24	32
Disc Depth	30-100mm	30-100mm
Machine Type	Rigid	Folding

### Available Options

Code	Option Code	Description	Specifications
MIX3	MIX3.MP	Multipacker 250	Rings: 12 – Spacing 250mm
MIX4	MIX4.MP	Multipacker 250	Rings: 18 – Spacing 250mm

Other options may be available – See Sumo website / Contact your local dealer.

### 3. Transport Positions & Dimensions

The following transport positions must be followed before taking the specified Sumo machine on any public road. Failure to do so may mean the machine is no longer considered road legal. It is the sole responsibility of the owner/operator to ensure the machine is correctly positioned prior to transport and complies with all local laws and regulations.

For all Sumo guidelines and safety protocols, read the related Sumo Cultivator Operators Manual thoroughly.

#### Transport Dimensions (Approximate)

Note: Due to the fabricated and assembled construction of Sumo machines dimensions may vary and should only be used for reference.

Shown dimensions are of maximum extremities (Excluding assembly/fabrication tolerances) but can be reduced/increased by adjusting implement positions, chassis height/angle, and reversing pins with handles. It is solely the owner/operator's responsibility to ensure they transport the machine within local legislation & laws.

#### Machines (Excluding Options)

Code	Length	Width	Height
MIX3	1995	3160	1432
MIX4	1480	2830	2392

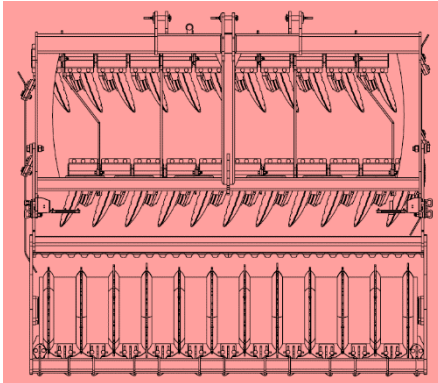
#### Machines (Including Options)

Code	Length	Width	Height
MIX3.MP	2645	-	-
MIX4.MP	2774	-	-

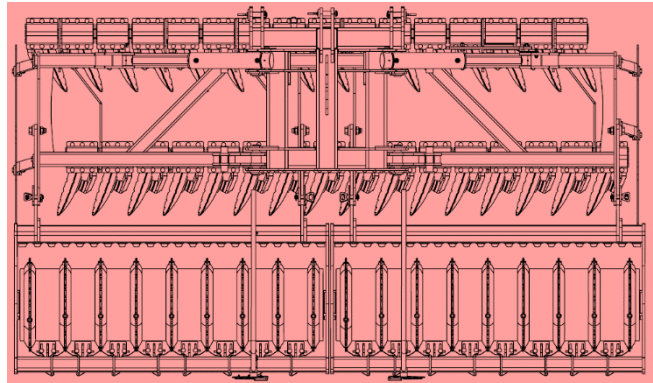
## 4. Danger Zone

The area marked red indicates the Danger Zone of the machine. This refers to both folded & unfolded states.

**Mounted 3m Mixidisc**



**Mounted Folding 4m Mixidisc**



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!
- Follow all safety guidelines and procedures as outlined within the Cultivator Operators Manual.

## 5. Risk Assessments

**Model:** Mounted Mixidiscs

**Notes:** Ensure the Cultivator Operators Manual, & Machine Manual are read and fully understood.

**Purpose of machine:** High-speed multipurpose cultivator for tilling, levelling and incorporating large volumes of crop residue.

**Description of machine:** A three-point-linkage mounted farm implement consisting of 2 major elements.

1. A bank of two rows of rubber suspended cultivating discs.
2. A rigid roller.

All the above is arranged in a rigid/hydraulically folding 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 - Mid	Tail lights, Side Lights & Indicator, reflectors.	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	Warning Stickers	Observe warning signs, maintain safe distance from moving parts, wear gloves. Ensure both of the stands are down. Clear excess soil (weight) from points before attempting to adjust legs.



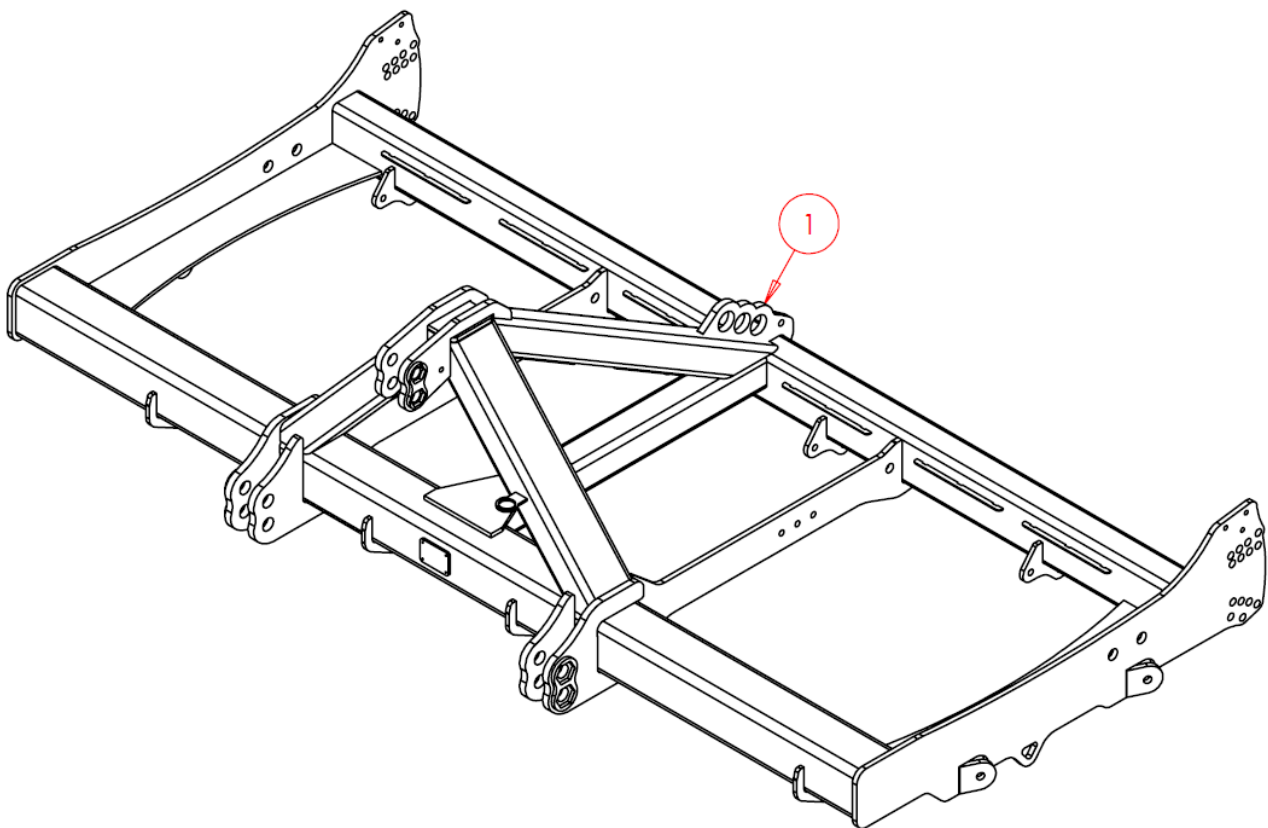
## 5 Risk Assessments - Continued

Hazard Identified in Using Machine	Who Might Be Harmed	Risk Evaluation /Level (1-5)	Precautions In Place	Further Action Required
Risk of crushing: - When coupling a tractor to the Sumo implements. - When changing points. - Rotating parts - When folding/unfolding - Machine tipping over	Operator	4 Mid - High	Warnings, Maintenance Stands	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 implements. Stay clear of any folding/unfolding elements. Lower wings slow and evenly to ensure the machine does not tip over. Be mindful of environmental factors.
Falling from machine	Operator	2 Low - Mid	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...
Pressurised oil/Burst hoses	Operator	4 Mid - High	Warnings	Always wear appropriate PPE. Do not remove hoses whilst pressurised, do not feel for leaks. If contact is made, wash affected area immediately. Do not inhale or consume.
Risk of crush during machine roll back	Operator, Members of The Public	4 Mid - High	Warnings, Parking stands and Features.	Always park correctly on a solid stable land and firmly apply brakes, stands and any other parking features. If the machine still seems unstable use wooden chocks etc.

## 6. Parts Book Index

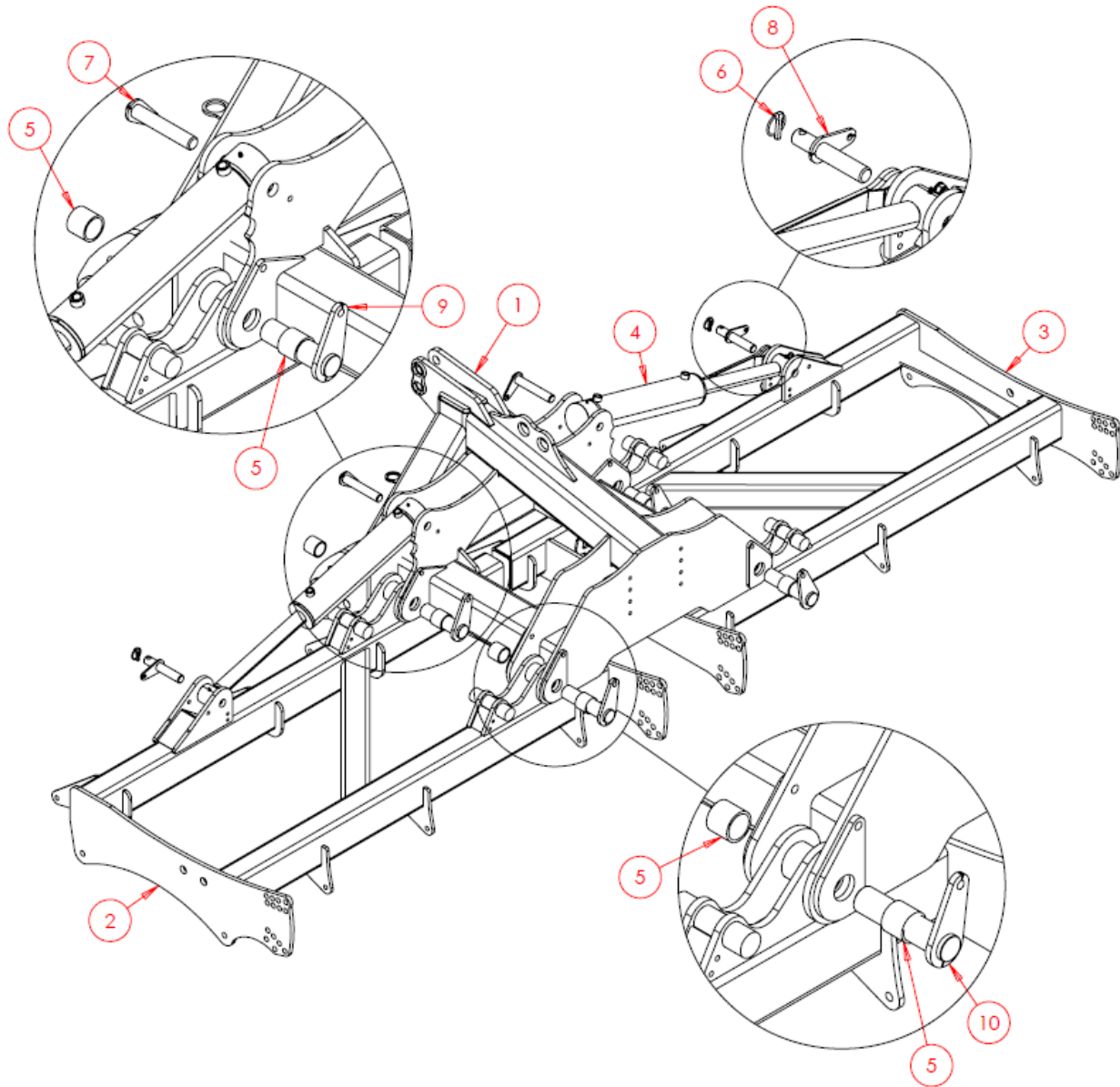
For older machines, see manuals & parts book available on the Sumo website.

### 6.1 MIX3 Base Machine



Item No.	Part Number	Description	Qty
1	SWA2358	Chassis	1

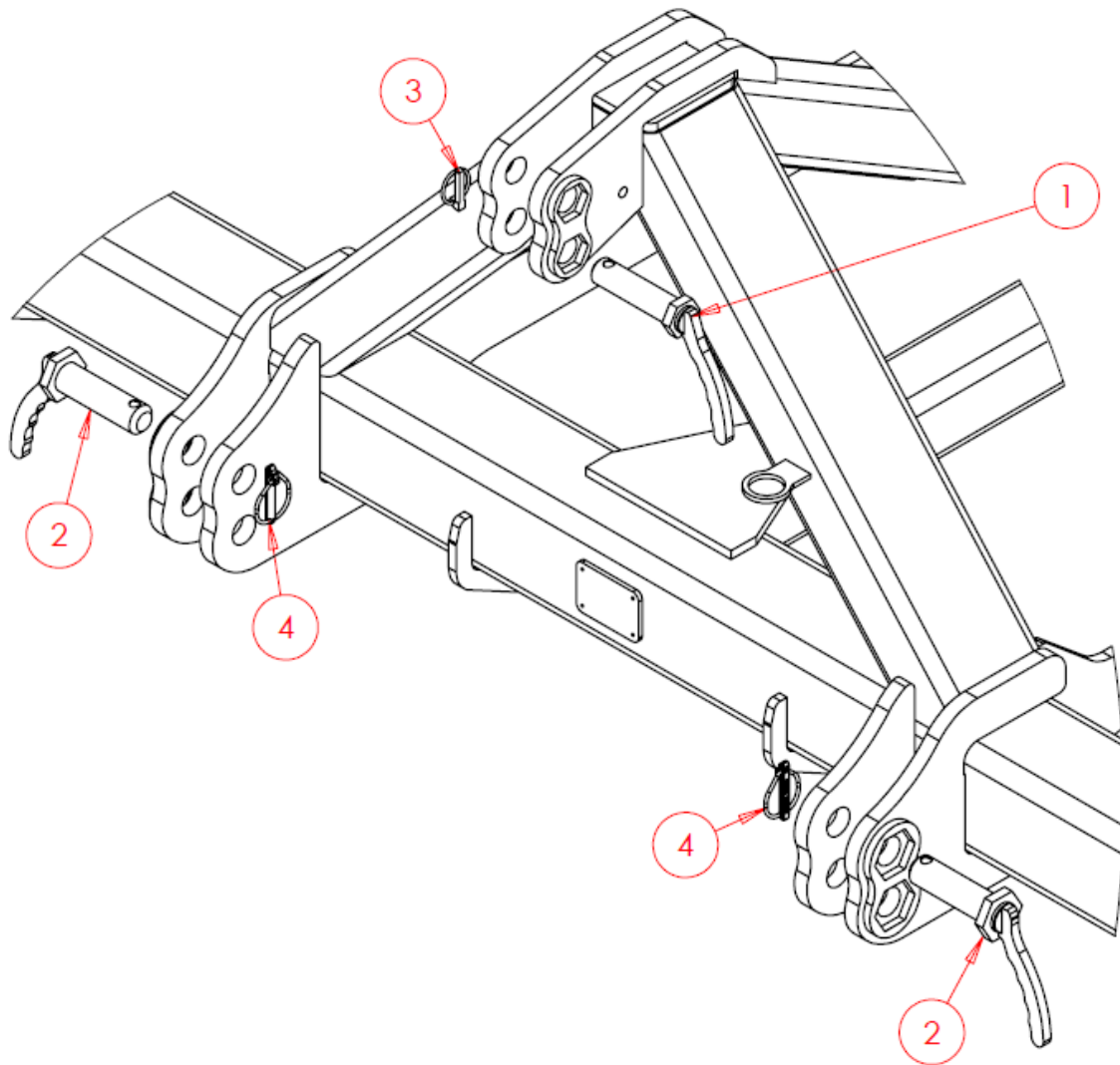
## 6.2 MIX4 Base Machine



Item No.	Part Number	Description	Qty
1	SW3577	Headstock	1
2	SW6510	Wing LH	1
3	SW6511	Wing RH	1
4	SWH430	Hydraulic Cylinder	2
5	SWB1046	Self-Lubricating Bush	8
6	SWB105	Lynch Pin	2
7	SWP30X170	Pin	2
8	SWP30x110DB	Pin - Dog Bone	2
9	SWP50X170	Pin	2
10	SWP50X195	Pin	2

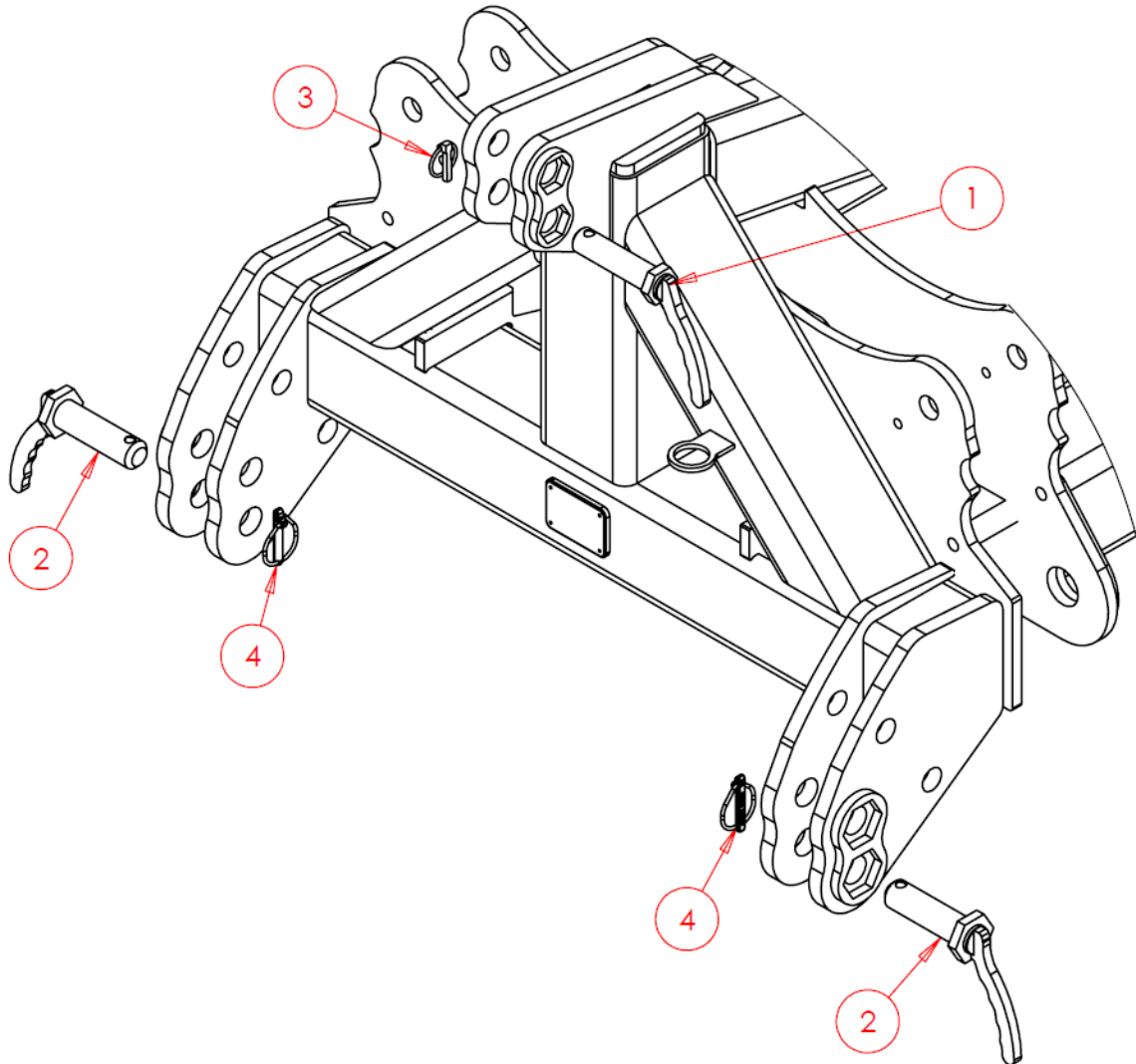
## 6.3 Standard Assemblies

### 6.3.1 Three-Point Linkage Pins – MIX3 Only



Item No.	Part Number	Description	Qty
1	SW627	Top Hitch Pin – CAT3	1
2	SW626	Lower Hitch Pin – CAT3	2
3	SWB105	Lynch Pin	1
4	SWB107	Lynch Pin	2

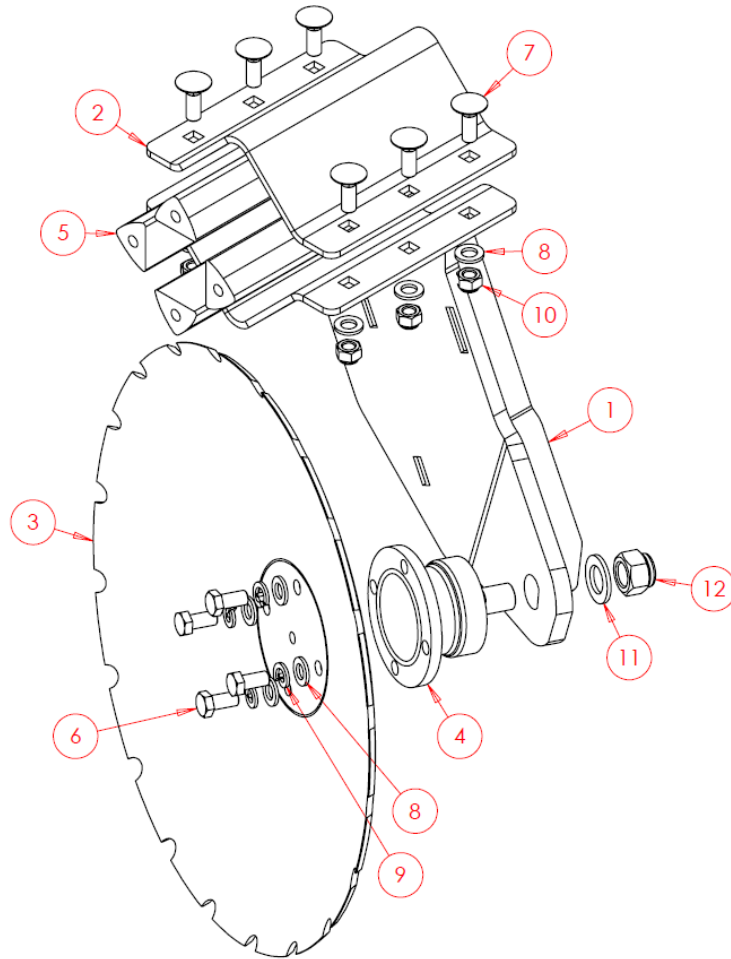
### 6.3.2 Three-Point Linkage Pins – MIX4 Only



Item No.	Part Number	Description	Qty
1	SW627	Top Hitch Pin – CAT3	1
2	SW626	Lower Hitch Pin – CAT3	2
3	SWB105	Lynch Pin	1
4	SWB107	Lynch Pin	2

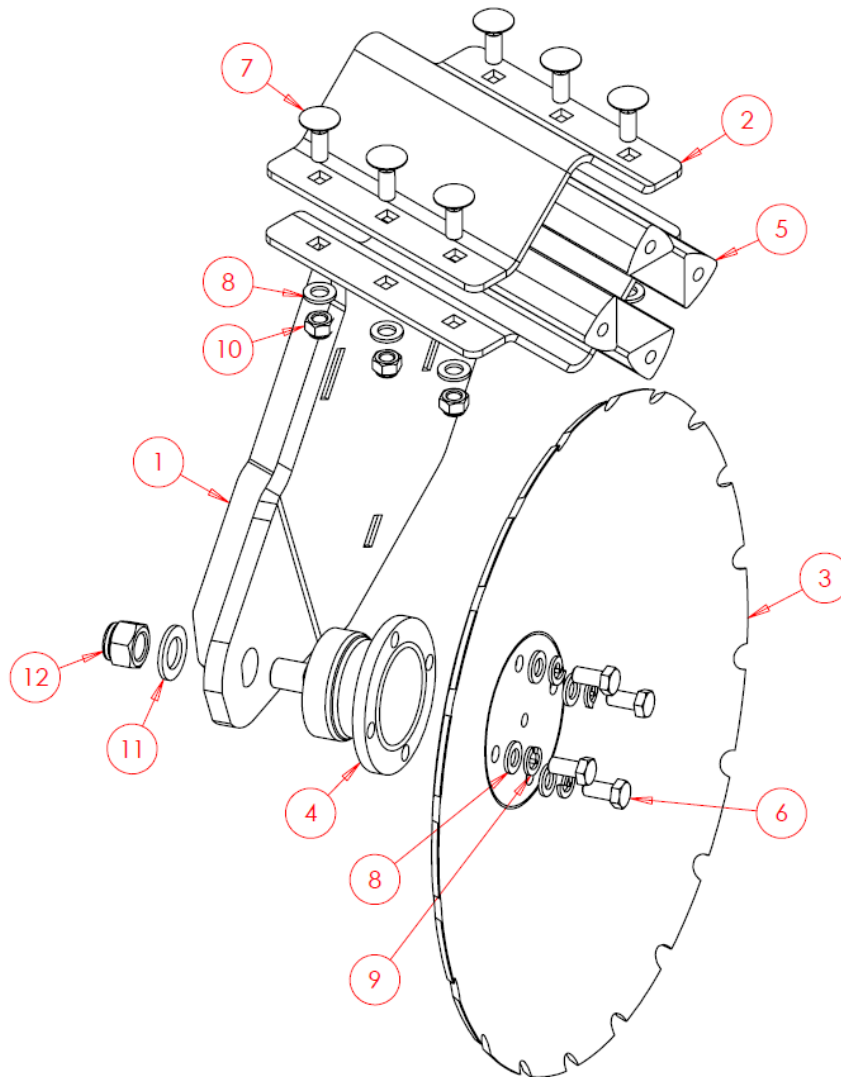
### 6.3.3 Disc Assemblies

#### 6.3.3.1 Disc Assembly – Left Hand



Complete Assembly – SWA572			
Item No.	Part Number	Description	Qty
1	SWA1738	Disc Hanger LH	1
2	SWS8731	Clamp	1
3	SWB863	Disc	1
4	SWB399	Bearing	1
5	SWB866	Rubber Triangle	4
6	SWM1225FP	M12x25 Fine Thread Screw	4
7	SWM1235CHSQ	M12x35 Cup Head Square Screw	6
8	SWM12001	M12 Washer – Flat	10
9	SWM12002	M12 Washer – Spring	4
10	SWM12004	M12 Nut – Nylock	6
11	SWM22001	M22 Washer – Flat	1
12	SWM22004FP	M22 Fine Thread Nut – Nylock	1

### 6.3.3.2 Disc Assembly – Right Hand

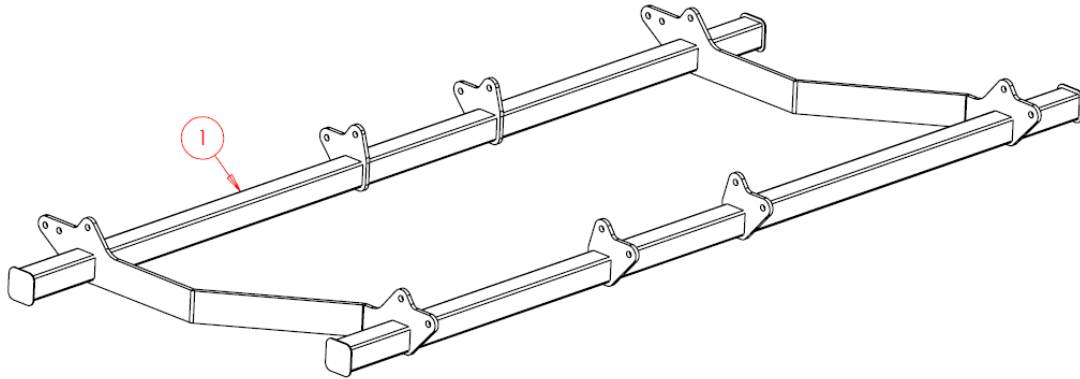


#### Complete Assembly – SWA573

Item No.	Part Number	Description	Qty
1	SWA1739	Disc Hanger RH	1
2	SWS8731	Clamp	1
3	SWB863	Disc	1
4	SWB399	Bearing	1
5	SWB866	Rubber Triangle	4
6	SWM1225FP	M12x25 Fine Thread Screw	4
7	SWM1235CHSQ	M12x35 Cup Head Square Screw	6
8	SWM12001	M12 Washer – Flat	10
9	SWM12002	M12 Washer – Spring	4
10	SWM12004	M12 Nut – Nylock	6
11	SWM22001	M22 Washer – Flat	1
12	SWM22004FP	M22 Fine Thread Nut – Nylock	1

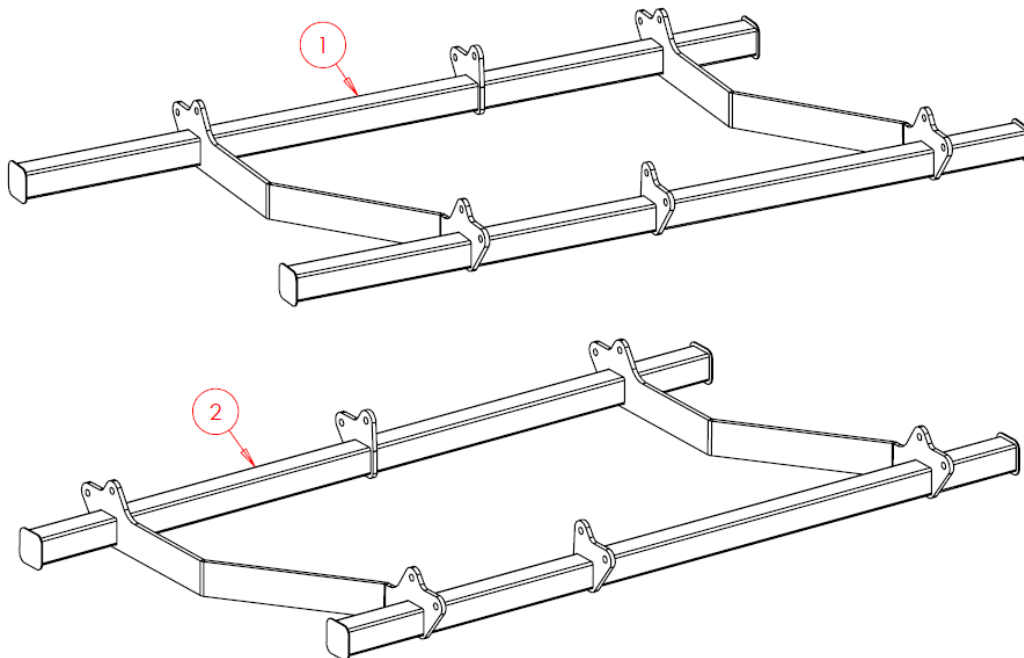
### 6.3.4 Disc Frames

#### 6.3.4.1 Disc Frame – MIX3 Only



Item No.	Part Number	Description	Qty
1	SWA2356	Disc Frame	1

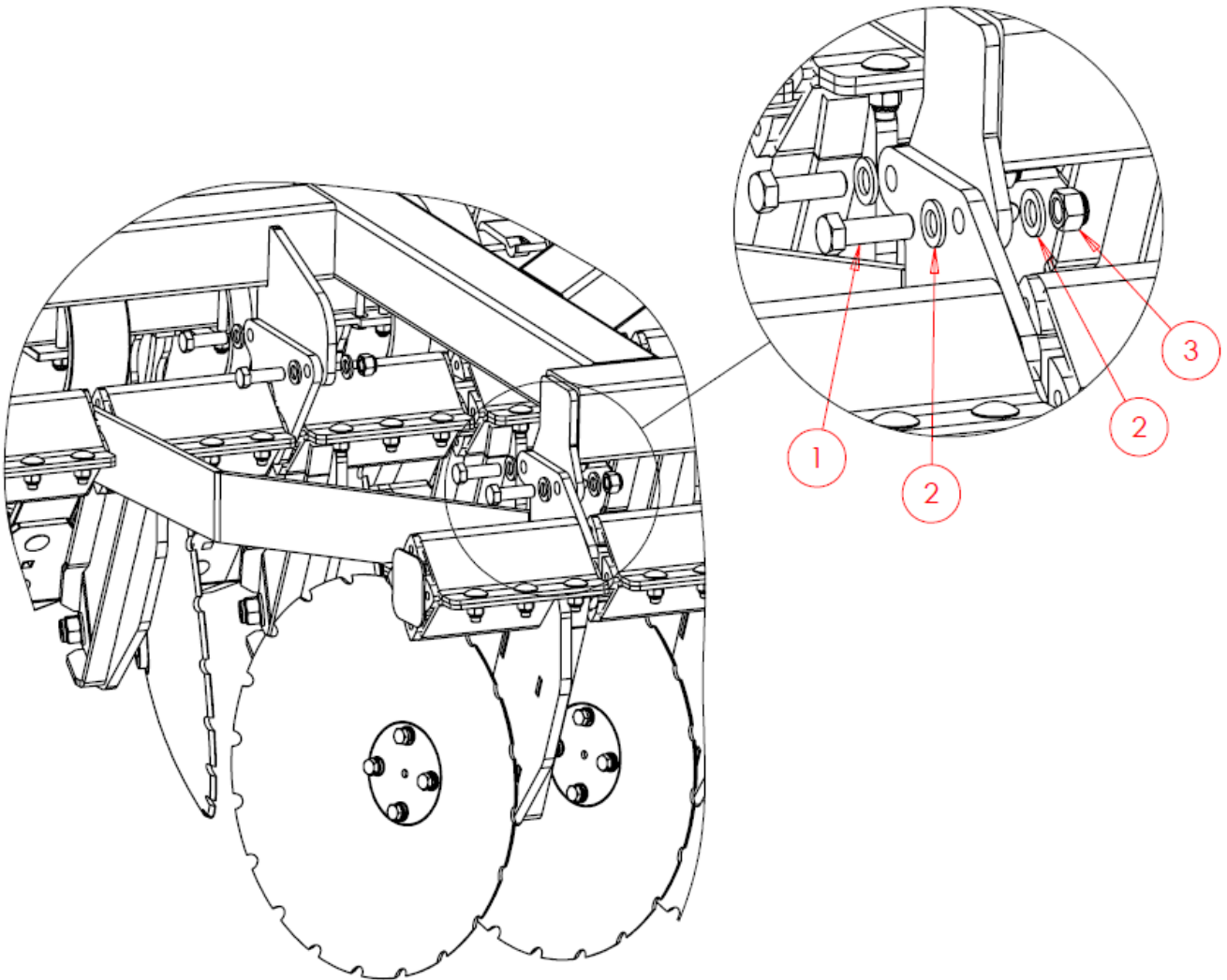
#### 6.3.4.2 Disc Frames – MIX4 Only



Item No.	Part Number	Description	Qty
1	SWA2752	Disc Frame – Left	1
2	SWA2753	Disc Frame – Right	1



#### 6.3.4.3 Disc Frame Mounting Arrangement

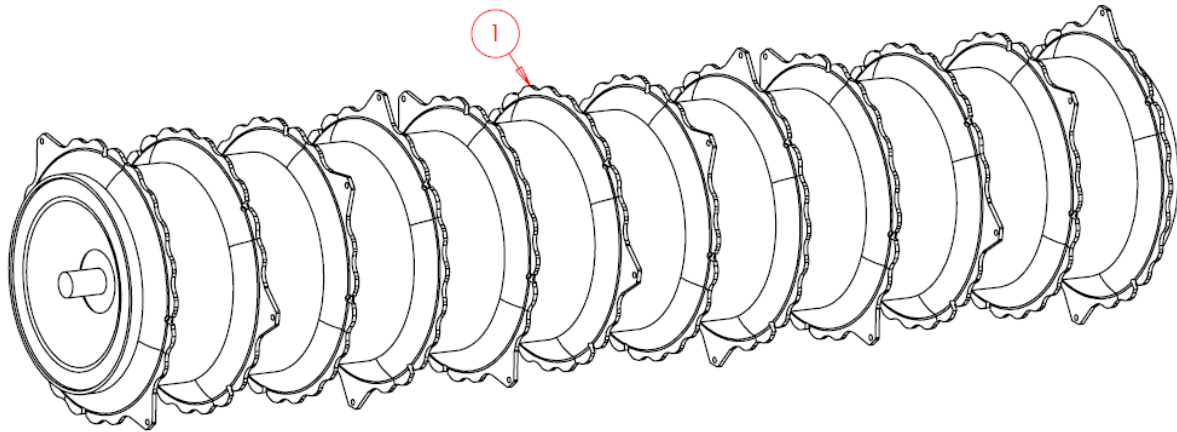


Quantities are per machine.

Item No.	Part Number	Description	Qty
1	SWM1650	M16x50 Bolt	32
2	SWM16001	M16 Washer - Flat	64
3	SWM16004	M16 Nut - Nylock	32

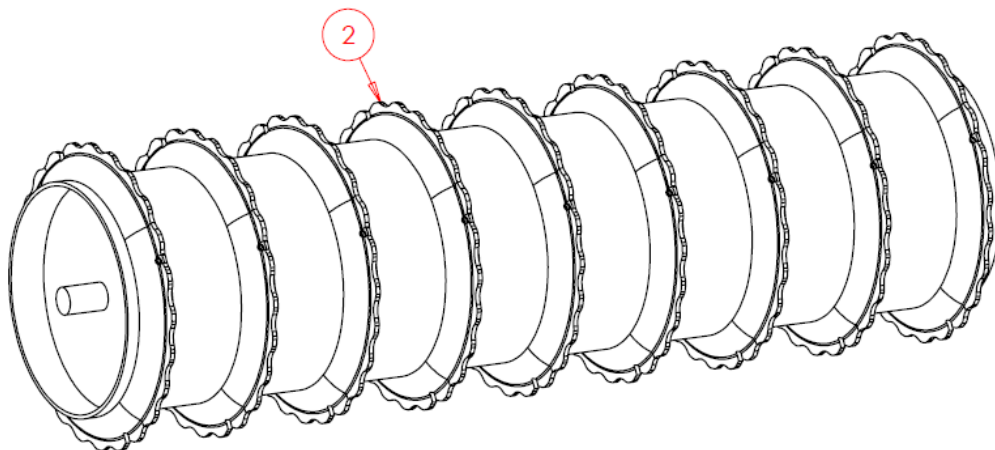
### 6.3.5 Packer Options

#### 6.3.5.1 Multipacker – MIX3 Only



Item No.	Part Number	Description	Qty
1	SW1054	Multipacker (MIX3 Only)	1

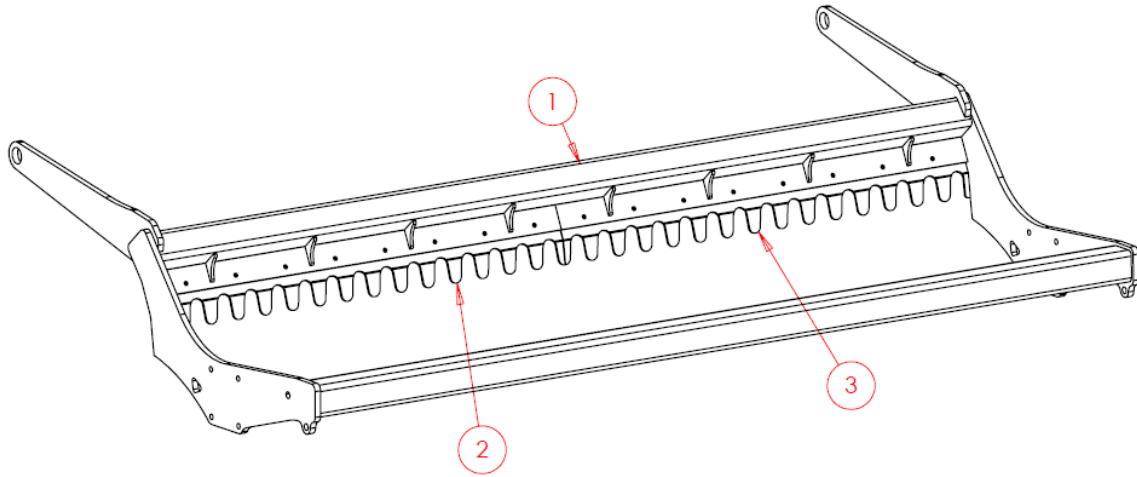
#### 6.3.5.2 Multipacker – MIX4 Only



Item No.	Part Number	Description	Qty
1	SWA711	Multipacker (MIX4 Only)	2

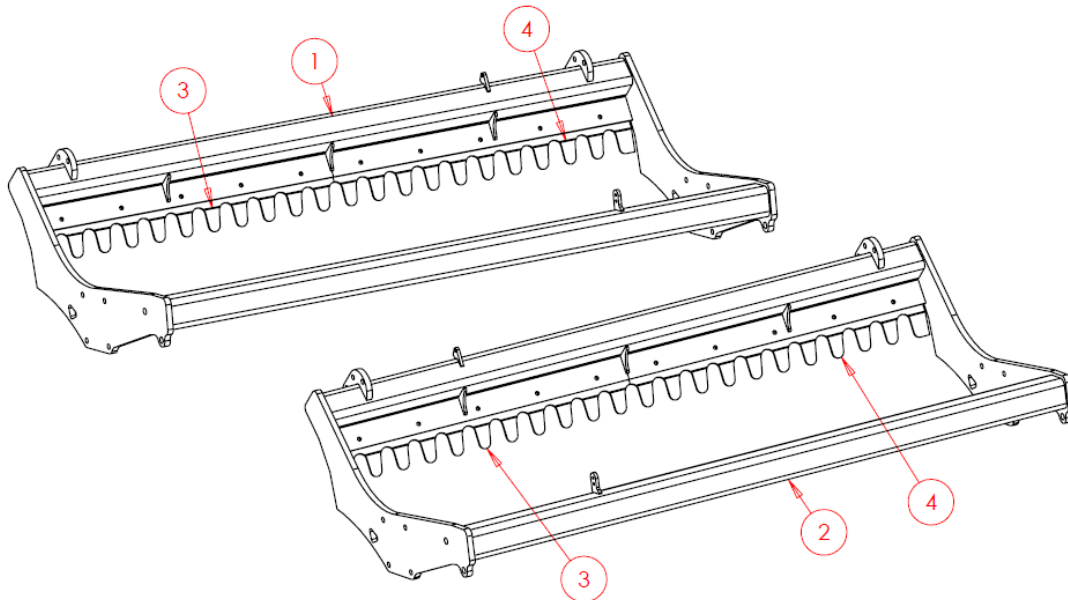
### 6.3.6 Packer Frames

#### 6.3.6.1 Multipacker Frame – MIX3 Only



Item No.	Part Number	Description	Qty
1	SW2488	Multipacker Frame (MIX3 Only)	1
2	SW2492-LH	Soil Guard LH	1
3	SW2492-RH	Soil Guard RH	1

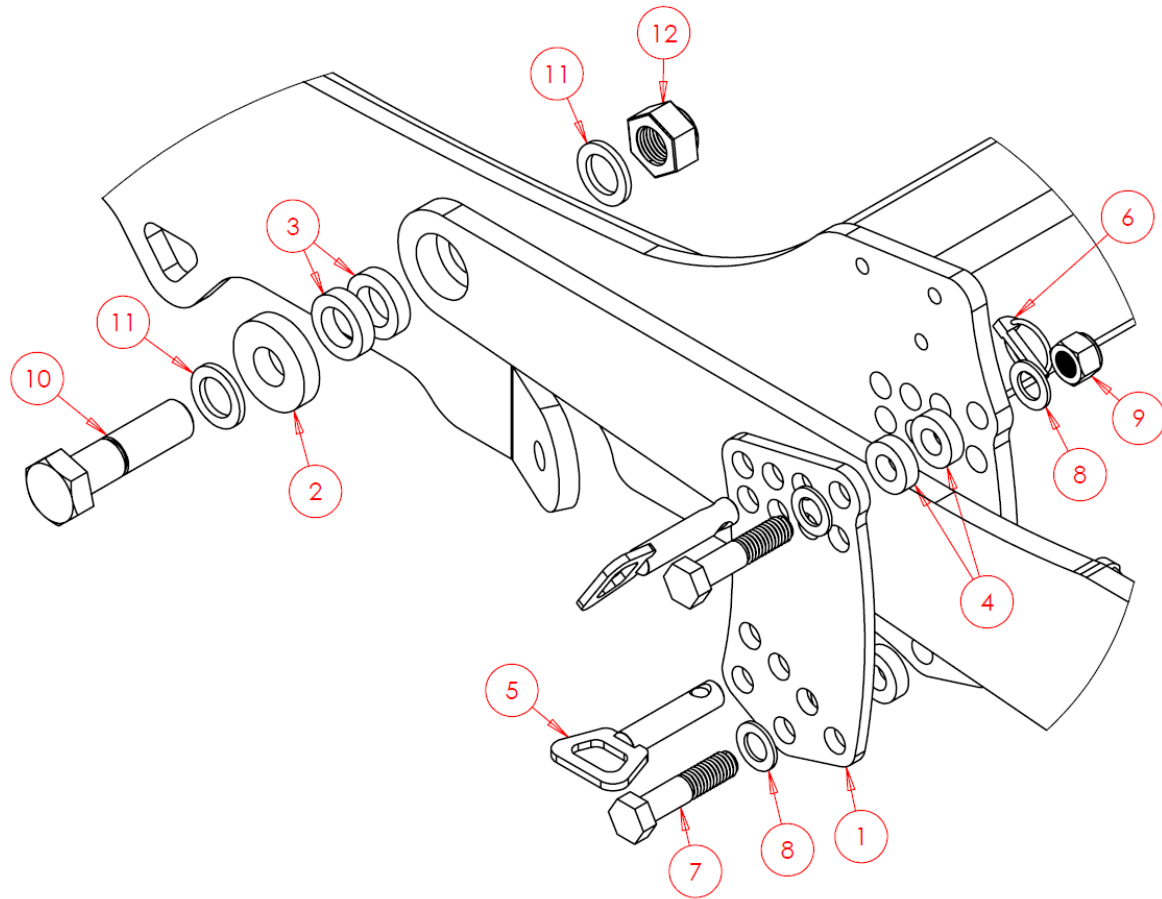
#### 6.3.6.2 Multipacker Frame – MIX4 Only



Item No.	Part Number	Description	Qty
1	SW6516	Multipacker Frame LH (MIX4 Only)	1
2	SW6517	Multipacker Frame RH (MIX4 Only)	1
3	SWS11403-LH	Soil Guard LH	1
4	SWS11403-RH	Soil Guard RH	1

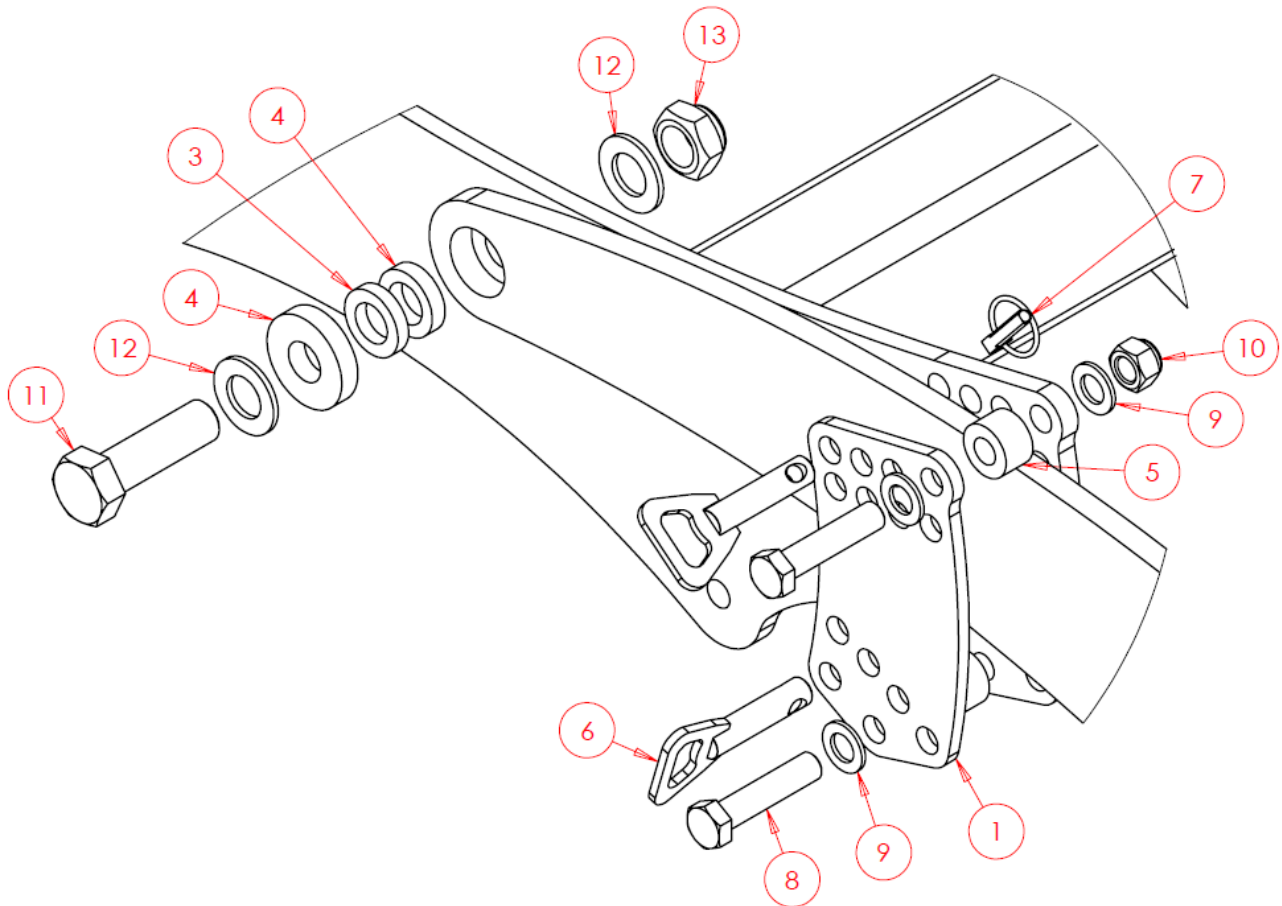
### 6.3.7 Packer Mounting Arrangements

#### 6.3.7.1 Packer Mounting Arrangement – MIX3 Only



Item No.	Part Number	Description	Qty
1	SW2490	Packer Guide Plate	2
2	SW129	Ex Large Washer	2
3	SW723	Bearing	4
4	SW2491	Compression Spacer	8
5	SWP20X77HDP	Pin	4
6	SWB105	Lynch Pin	4
7	SWM2090	M20x90 Bolt	4
8	SWM20001	M20 Washer – Flat	8
9	SWM20004	M20 Nut – Nylock	4
10	SWM30110	M30x110 Bolt	2
11	SWM30001	M30 Washer – Flat	4
12	SWM30004	M30 Nut – Nylock	2

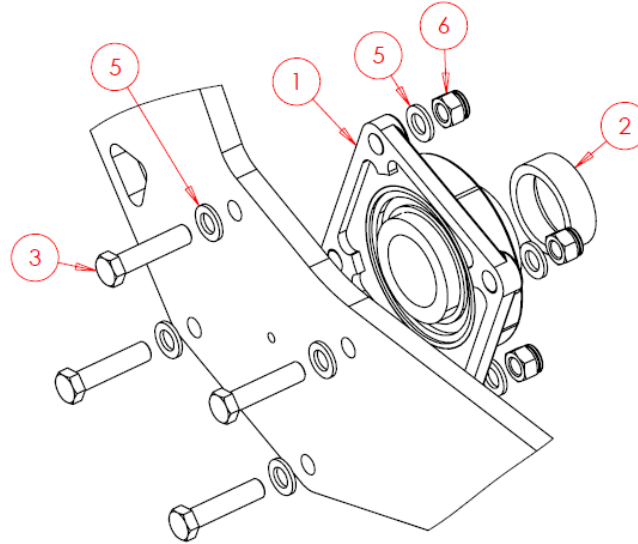
### 6.3.7.2 Packer Mounting Arrangement - MIX4 Only



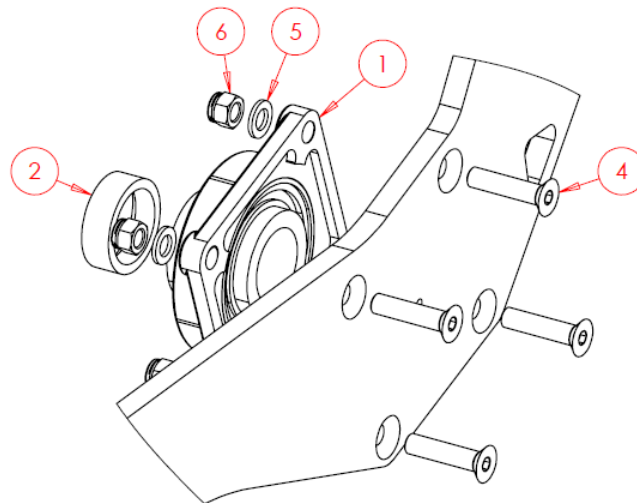
Item No.	Part Number	Description	Qty
1	SW3590	Packer Guide Plate	4
2	SW129	Ex Large Washer	4
3	SW723	Bearing 10mm	4
4	SW723	Bearing 12mm	4
5	SW3591	Compression Spacer	8
6	SWP20X60HDP	Pin	8
7	SWB105	Lynch Pin	8
8	SWM2090	M20x90 Bolt	8
9	SWM20001	M20 Washer - Flat	16
10	SWM20004	M20 Nut - Nylock	8
11	SWM30100	M30x100 Bolt	4
12	SWM30001	M30 Washer - Flat	8
13	SWM30004	M30 Nut - Nylock	4

### 6.3.8 Packer Bearings Assembly

#### External Arrangement (MIX3 & MIX4)



#### Internal Arrangement (MIX4 Only)

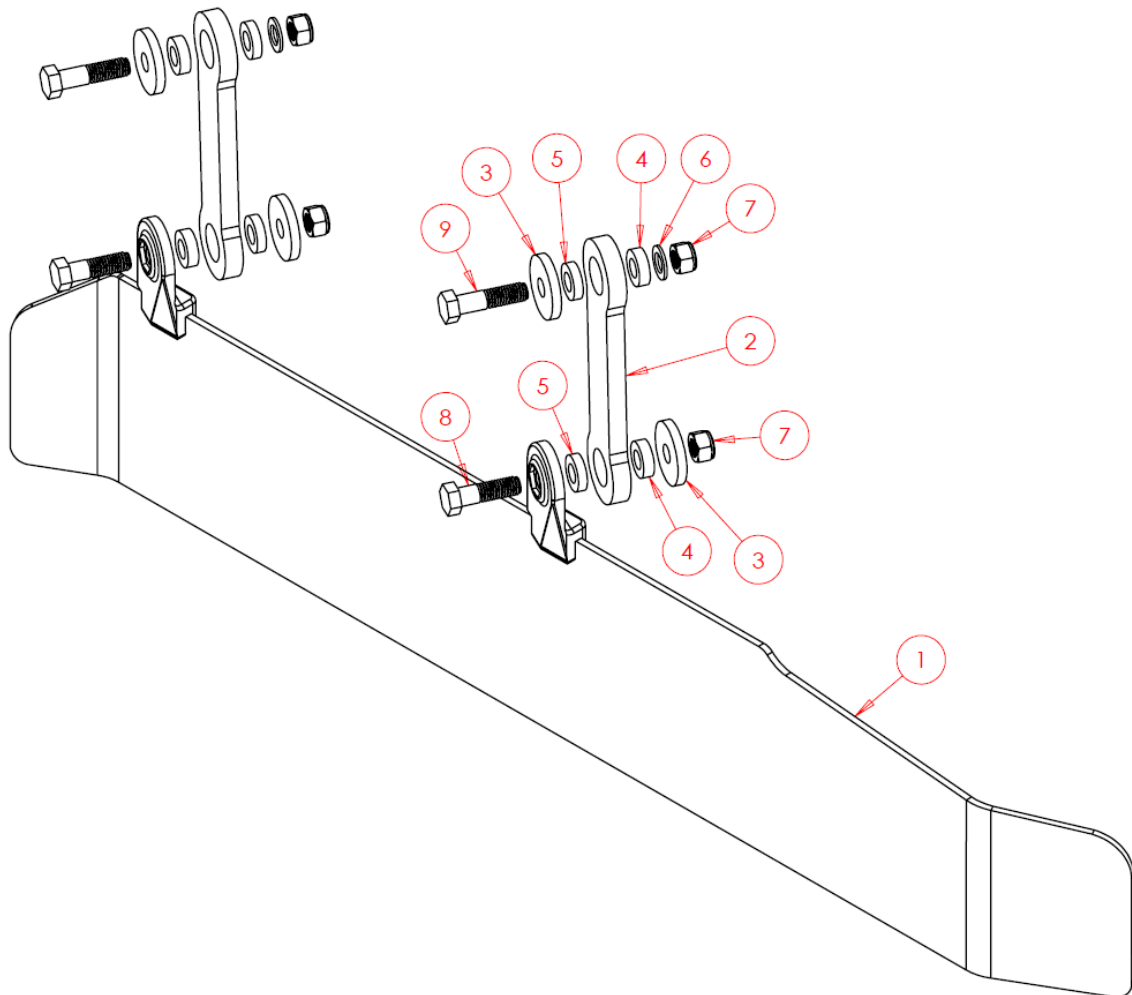


Quantities are per packer, not per machine.

Item No.	Part Number	Description	Qty
1	SWB104	Bearing	2
2	SWS3272	Spacer Collar	2
3	SWM1670	M16x70 Bolt	4
4	SWM1665CSK	M16x65 Counter Sink Screw	4
5	SWM16001	M16 Washer – Flat	12
6	SWM16006	M16 Nut – Aerotight	8

### 6.3.9 Soil Retainers

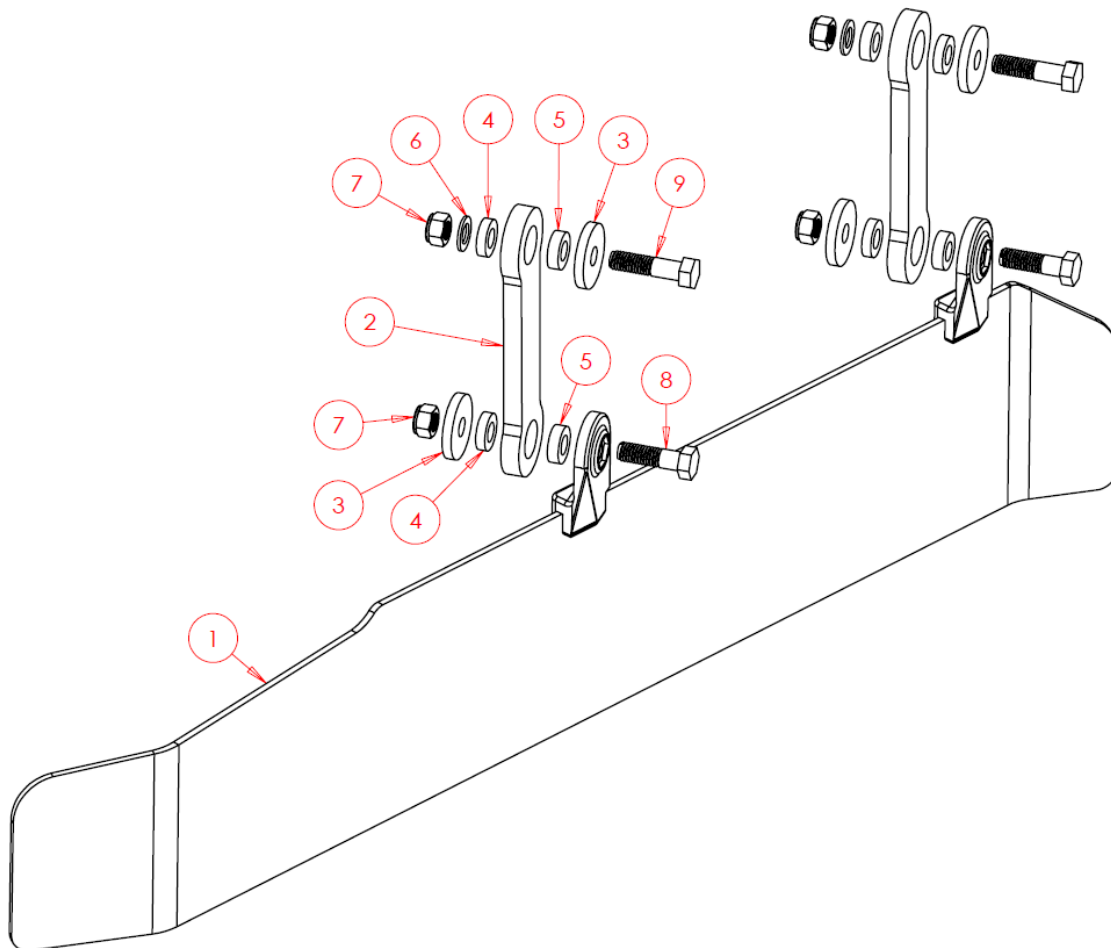
#### 6.3.9.1 Soil Retainer – MIX3 Only - Left



**Complete Assembly – SWA930**

Item No.	Part Number	Description	Qty
1	SW1061	Soil Retainer	1
2	SW1049	Hanger	2
3	SW123	Spacer – 21x70x10	4
4	SW125	Spacer – 21x40x12	4
5	SW126	Spacer – 21x40x10	4
6	SWM20001	M20 Washer - Flat	2
7	SWM20004	M20 Nut – Nylock	4
8	SWM2070	M20x70 Bolt	2
9	SWM2080	M20x80 Bolt	2

### 6.3.9.2 Soil Retainer – MIX3 Only - Right



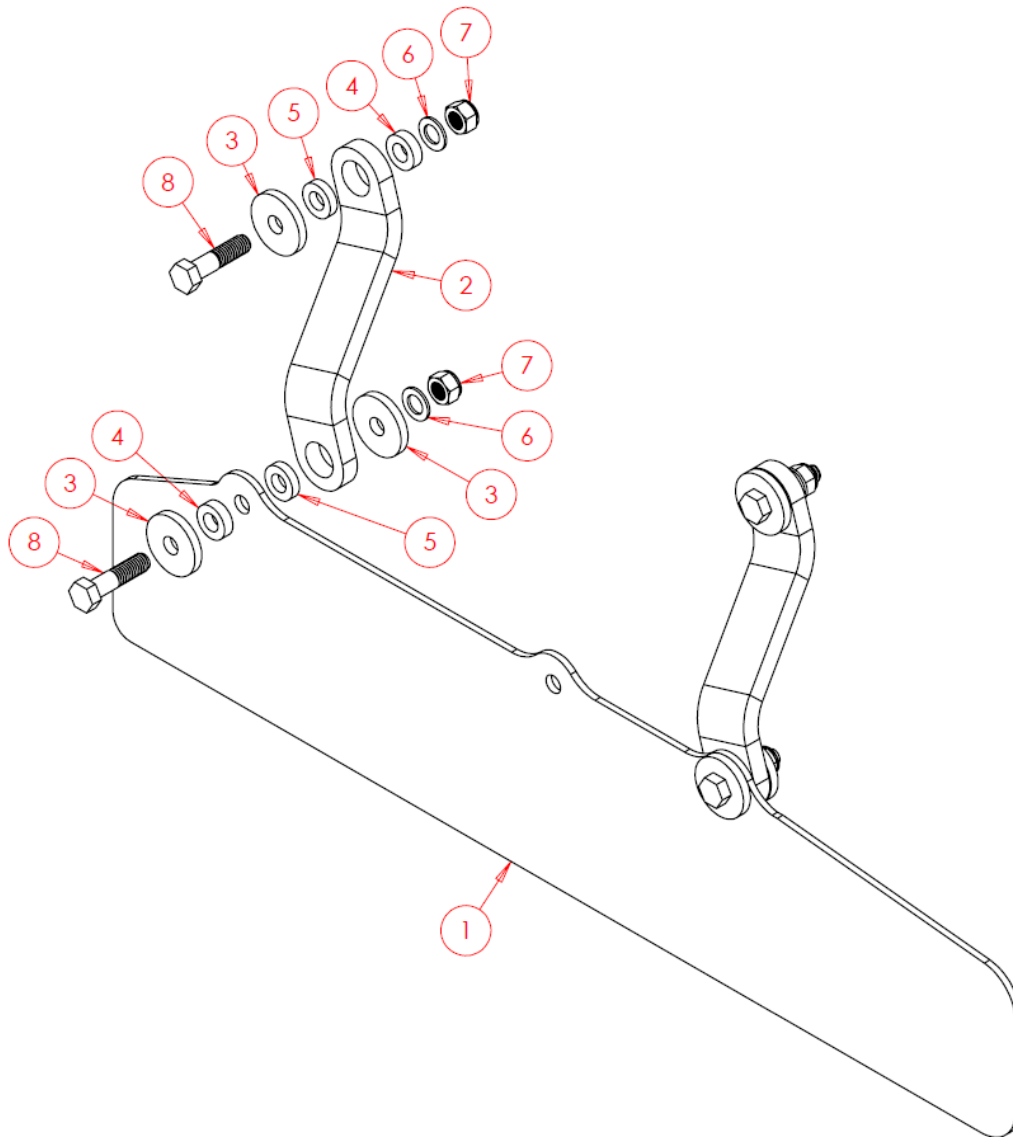
**Complete Assembly – SWA929**

Item No.	Part Number	Description	Qty
1	SW1062	Soil Retainer	1
2	SW1049	Hanger	2
3	SW123	Spacer – 21x70x10	4
4	SW125	Spacer – 21x40x12	4
5	SW126	Spacer – 21x40x10	4
6	SWM20001	M20 Washer - Flat	2
7	SWM20004	M20 Nut – Nylock	4
8	SWM2070	M20x70 Bolt	2
9	SWM2080	M20x80 Bolt	2



### 6.3.9.3 Soil Retainer – MIX4 Only

Left & Right-Hand versions required but parts are the same regardless of hand.

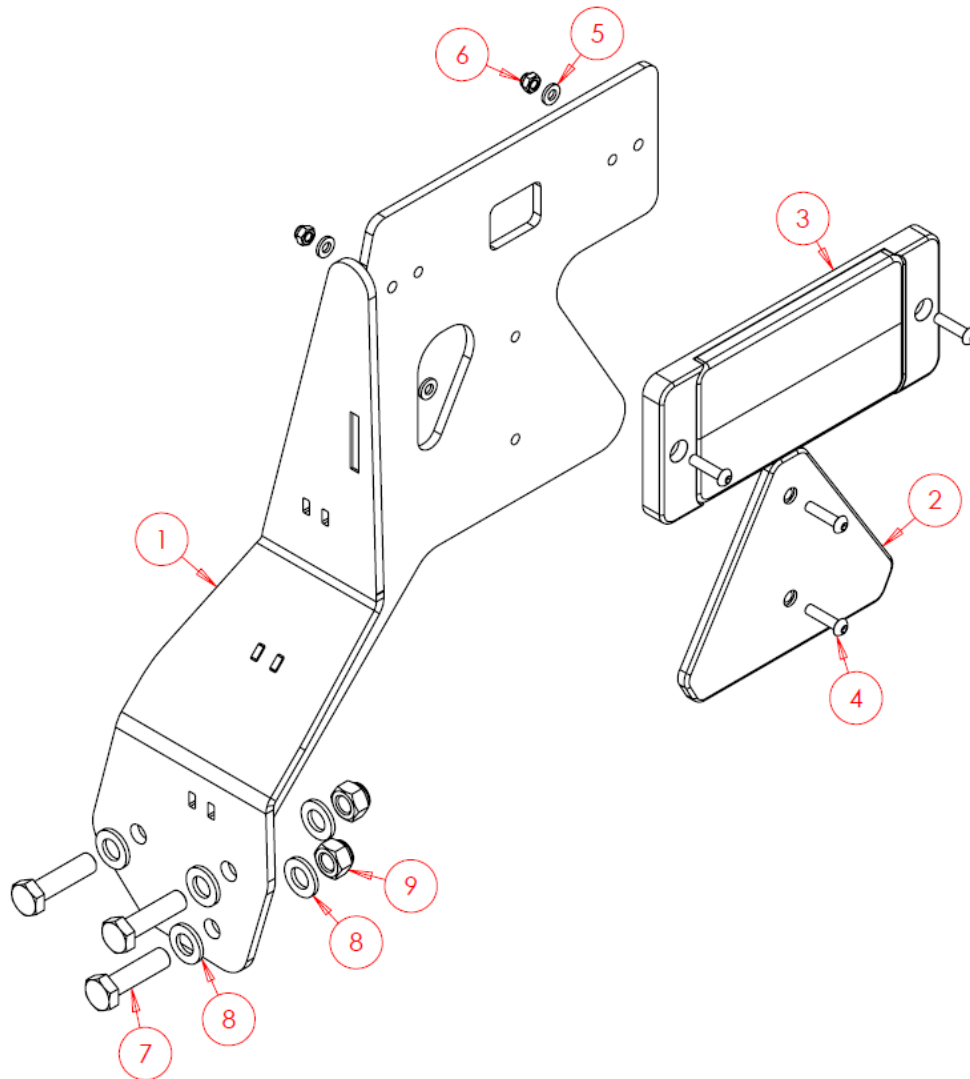


Quantities below are per machine.

Item No.	Part Number	Description	Qty
1	SWS24120	Soil Retainer	2
2	SW4766	Hanger	4
3	SW123	Spacer – 21x70x10	12
4	SW125	Spacer – 21x40x12	8
5	SW126	Spacer – 21x40x10	8
6	SWM20001	M20 Washer - Flat	8
7	SWM20004	M20 Nut – Nylock	8
8	SWM2080	M20x80 Bolt	8

### 6.3.10 Light Brackets

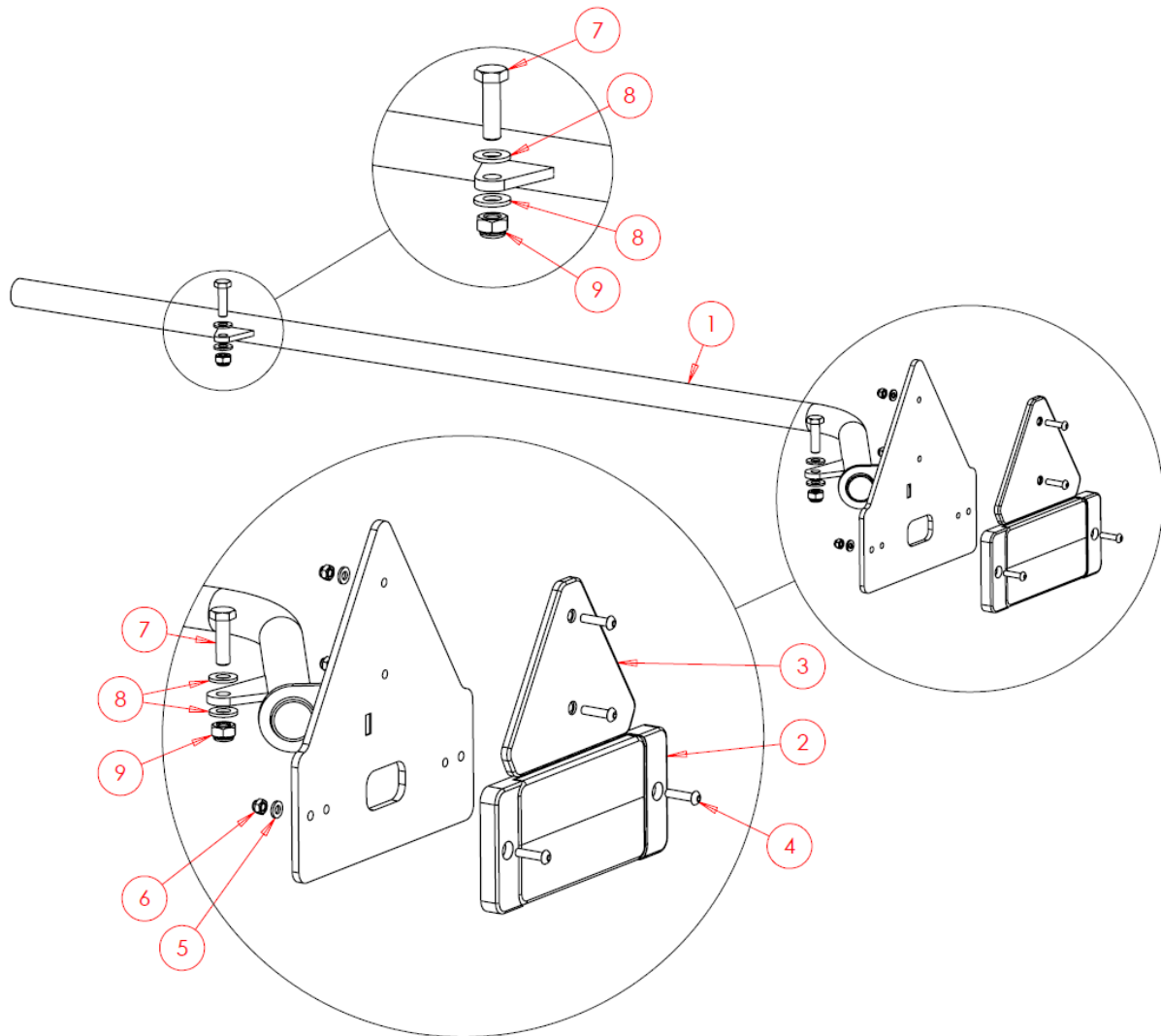
#### 6.3.10.1 Light Brackets – MIX3 Only



Left & Right-hand version of the light bracket required. Left hand version shown.

Item No.	Part Number	Description	Qty
1	SW1554	Light Bracket LH	1
1	SW1555	Light Bracket RH (Not Shown)	1
2	SWB162	Reflector – Red Triangle	2
3	SWB715	Rear Light Stop Light / Indicator	2
4	SWM625AKH	M6x25 Cap Head Screw	8
5	SWM6001	M6 Washer – Flat	8
6	SWM6004	M6 Nut – Nylock	8
7	SWM1245	M12x45 Bolt	6
8	SWM12001	M12 Washer – Flat	12
9	SWM12004	M12 Nut – Nylock	6

### 6.3.10.2 Light Brackets – MIX4 Only

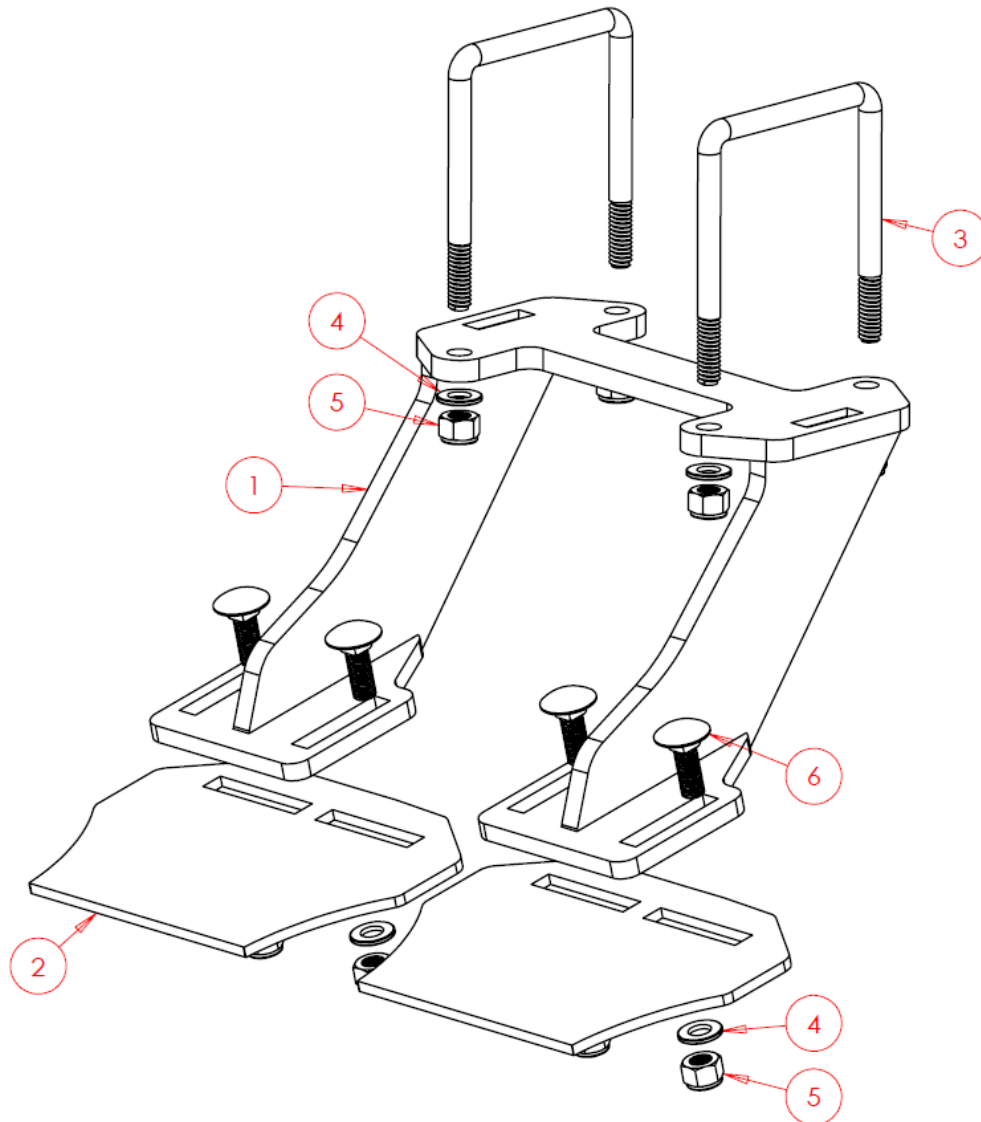


Left & Right-hand version of the light bracket required. Left hand version shown.

Item No.	Part Number	Description	Qty
1	SW1505	Light Bracket LH	1
1	SW1506	Light Bracket RH (Not Shown)	1
2	SWB715	Rear Light Stop Light / Indicator	2
3	SWB162	Reflector – Red Triangle	2
4	SWM625AKH	M6x25 Cap Head Screw	8
5	SWM6001	M6 Washer – Flat	8
6	SWM6004	M6 Nut – Nylock	8
7	SWM10040	M10x40 Hex Bolt	4
8	SWM10001	M10 Washer – Flat	8
9	SWM10004	M10 Nut – Nylock	4

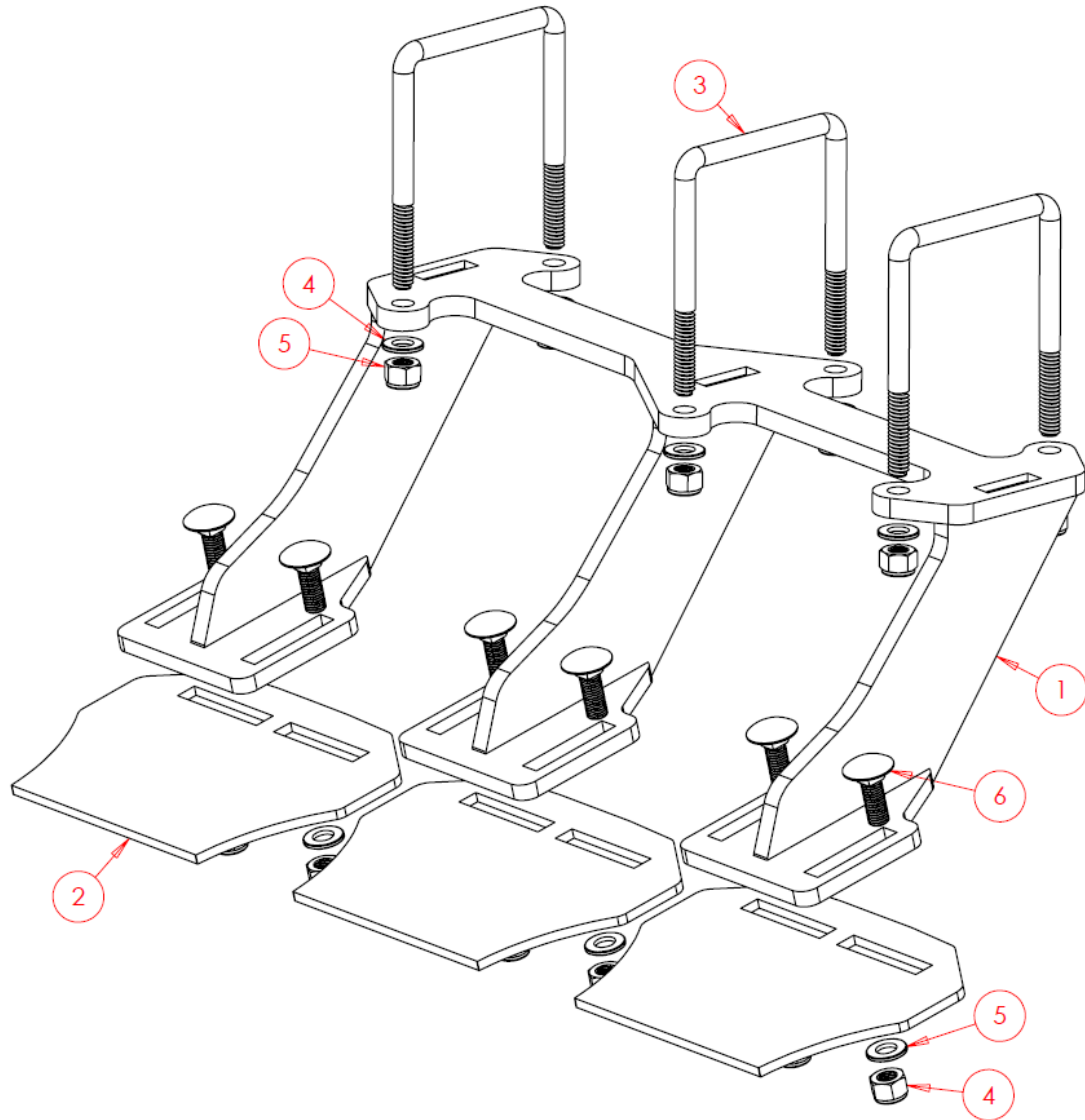
### 6.3.11 Scraper Assemblies

#### 6.3.11.1 All Multipacker Options – Double Scraper



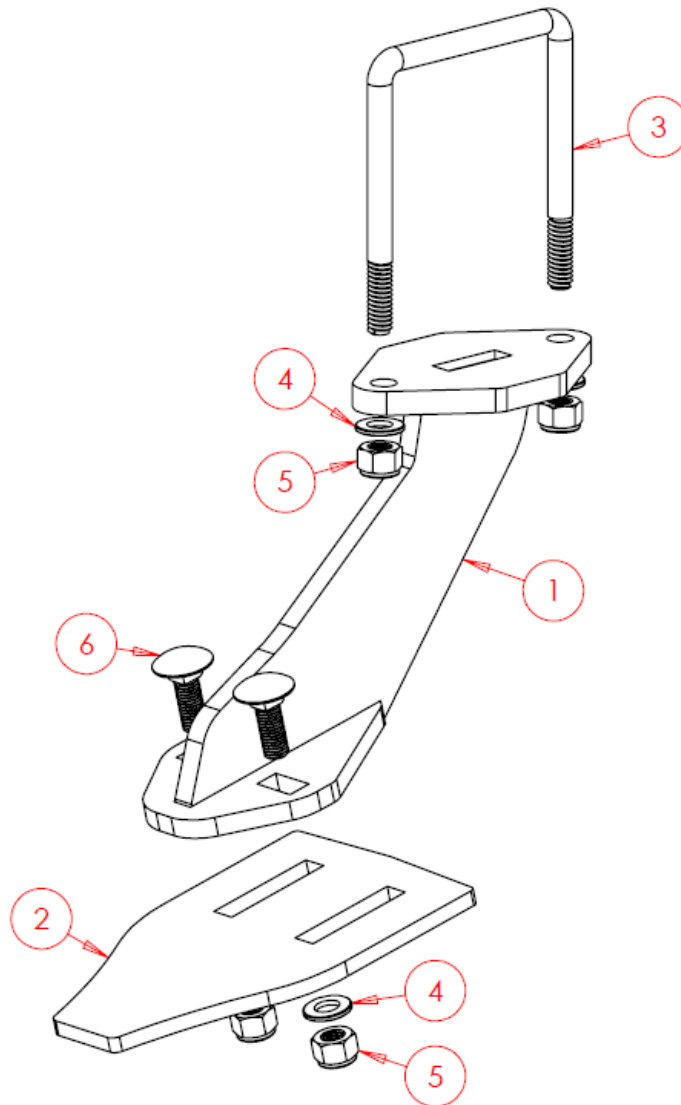
Complete Assembly – SW1388			
Item No.	Part Number	Description	Qty
1	SW1044	Hanger	1
2	SW1043	Scraper	2
3	SWM12100UB	M12x100 U bolt	2
4	SWM12001	M12 Washer – Flat	8
5	SWM12004	M12 Nut – Nylock	8
6	SWM1235CHSQ	M12x35 Bolt – Cup Head Square Bolt	4

### 6.3.11.2 All Multipacker Options – Triple Scraper



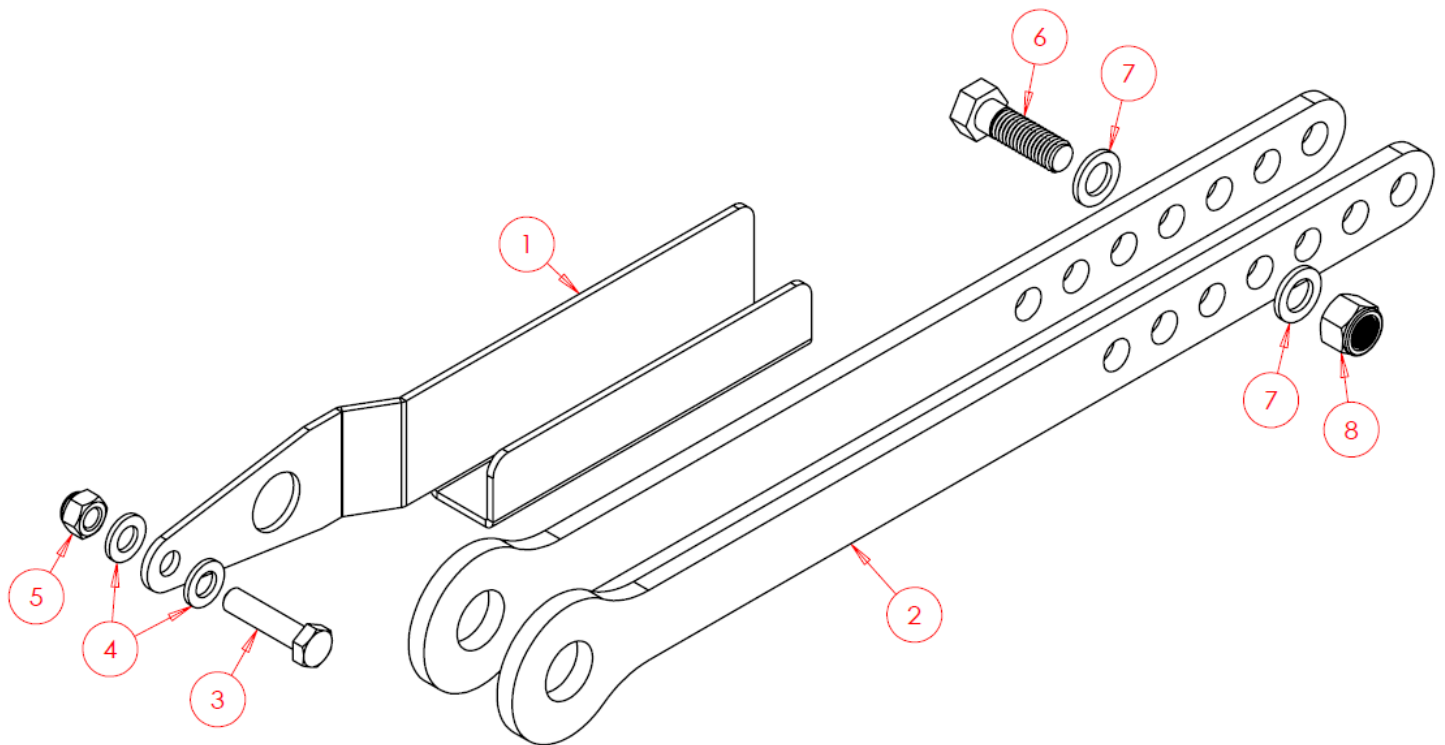
Complete Assembly – SW1389			
Item No.	Part Number	Description	Qty
1	SW1045	Hanger	1
2	SW1043	Scraper	3
3	SWM12100UB	M12x100 U bolt	3
4	SWM12001	M12 Washer – Flat	12
5	SWM12004	M12 Nut – Nylock	12
6	SWM1235CHSQ	M12x35 Bolt – Cup Head Square Bolt	6

### 6.3.11.3 All Multipacker Options – Single Scraper – MIX3 Only



Complete Assembly – SWA203			
Item No.	Part Number	Description	Qty
1	SW1976	Hanger	1
2	SW6652	Scraper	1
3	SWM12100UB	M12x100 U bolt	1
4	SWM12001	M12 Washer – Flat	4
5	SWM12004	M12 Nut – Nylock	4
6	SWM1235CHSQ	M12x35 Bolt – Cup Head Square Bolt	2

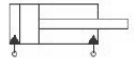

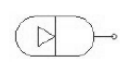
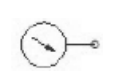

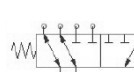

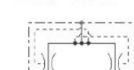
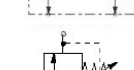
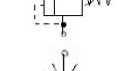
### 6.3.12 Dog Bone Arrangement – MIX4 Only



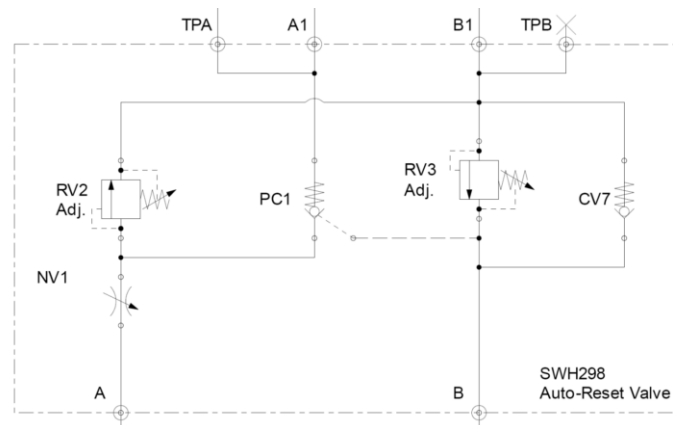
Complete Assembly – SWA1582			
Item No.	Part Number	Description	Qty
1	SWS21165	Holder	1
2	SWS21126	Dog Bone	2
3	SWM1250	M12x50 Bolt	1
4	SWM12001	M12 Washer – Flat	2
5	SWM12004	M12 Nut – Nylock	1
6	SWM1650	M16x50 Bolt	1
7	SWM16001	M16 Washer – Flat	2
8	SWM16004	M16 Nut – Nylock	1

## 7. Hydraulic Function Diagrams

### Standard Symbols Key:

	=	Double Acting Cylinder
	=	Single Acting Cylinder
	=	Accumulator
	=	Pressure Gauge
	=	Quick Release/Check Valve
	=	Six Way Changeover Valve
	=	Ball Valve
	=	Flow Divider/Combiner
	=	Pilot Operated Relief Valve
	=	Flow Restrictor

### Auto Reset Valve:





## 7.1 MIX4 - Hydraulic Function Schematic

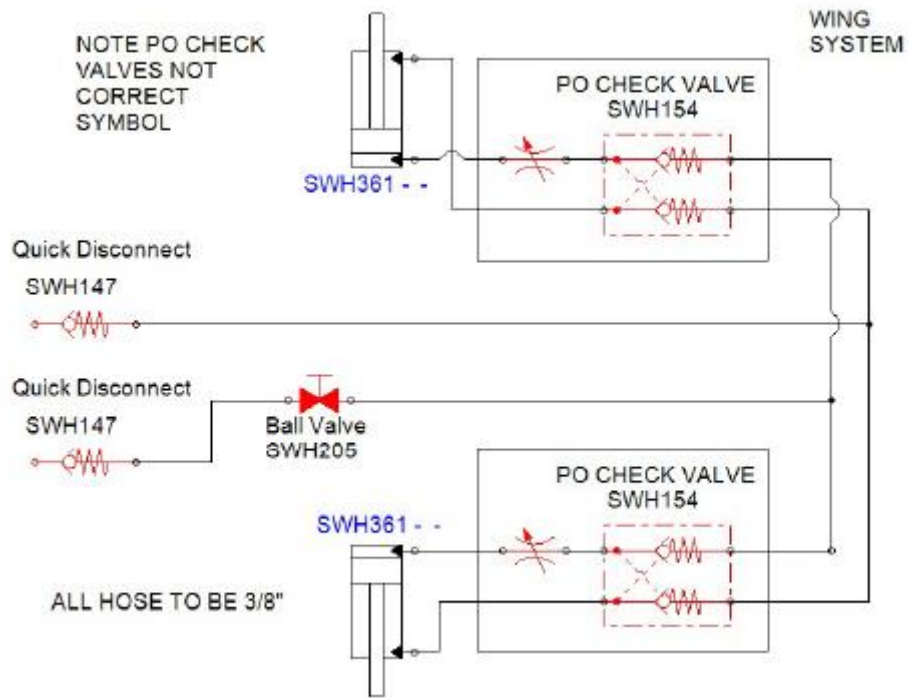
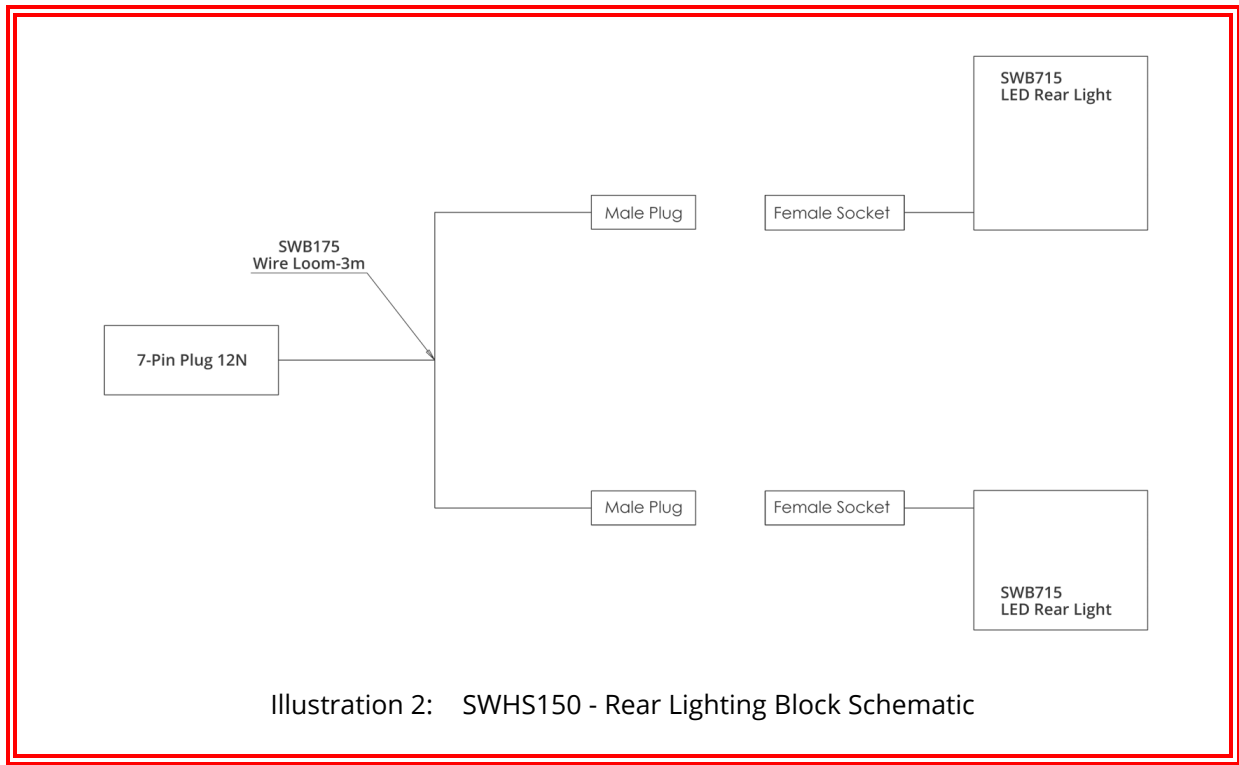


Illustration 1: SWHS39 – Hydraulic Schematic MIX4

## 8. Electrical Schematics



## 9. Standard Torque Values

Non-Standard torque values will appear in the parts book section of this document.

Standard Toque Values (Nm) (Unless Otherwise Stated)			
Thread	Grade 8.8	Grade 10.9	Stainless Steel
M6	10	14	7
M8	25	36	17
M10	50	70	33
M12	86	121	57
M16	215	314	140
M20	410	580	273
M24	710	1000	472
M30	1400	1450	930

For any arrangement using Nord-Lock washers, see Nord-Lock website:

[Torque Guide for Nord-Lock Washers - Nord-Lock Group](#)