



GROWING WITH YOU

GLS

2023 Range

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 Grassland Subsoiler (GLS) is designed to rejuvenate tired, stale and compacted grassland. It does this in three stages:

Stages One

The leading row of straight serrated discs cuts through the turf on individually suspended arms. The discs have adjustable depth positions which are easily altered via a one-bolt system. This allows the following Subsoiler legs easy entry into the pre-cut soil.

Stage Two

The staggered subsoiler legs lift and fracture the soil alleviating any compaction. The legs are manufactured from 20mm Hardox 500 and have a pin adjustable depth of between 4"-14" deep and are available with either shear pin or hydraulic auto reset protection.

Stage Three

The shark fin design ensures important surface aeration across the full working width of the machine. A ring of packer teeth run directly behind, that close and firms the opening the leg has made in the worked pasture. The teeth also work as a continuous grip, ensuring that the packer always turns and drives in any condition.

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.

Optional Extra: Following Harrow

If attached, the scarifying harrow disturbs and removes dead vegetation. The adjustable harrow can be moved out of work, when not required.

2. Product Specifications

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

Grassland Subsoiler Mounted Range

Code	GLS 3	GLS 4	GLS 5
Legs Qty	3	4	5
Leg Spacing	833mm	580mm	580mm
Disc Qty	3	4	5
Disc Diameter	Ø450mm	Ø450mm	Ø 450mm
Disc Adjustment	Manual	Manual	Manual
Machine Type	Rigid	Rigid	Rigid

Available Options

Code	Option Code	Description	Specifications
GLS3	GLS3.AR	Auto Reset System	Max Leg Depth: 100-350mm *
	GLS3.FP	Flat Packer	Rows: 7 - Spacing: 285mm
	GLS3.SFK	Seeder Fitting Kit	Turbojet i-CON 8 - 3 Outlets
	GLS3.FH	Following Harrow	Harrow Qty: 16 - Spacing: 140mm
GLS4	GLS3.AR	Auto Reset System	Max Leg Depth: 100-350mm *
	GLS3.FP	Flat Packer	Rows: 7 - Spacing: 285mm
	GLS3.SFK	Seeder Fitting Kit	Turbojet i-CON 8 - 3 Outlets
	GLS3.FH	Following Harrow	Harrow Qty: 16 - Spacing: 140mm
GLS5	GLS3.AR	Auto Reset System	Max Leg Depth: 100-350mm *
	GLS3.FP	Flat Packer	Rows: 9 - Spacing: 285mm
	GLS3.SFK	Seeder Fitting Kit	Turbojet i-CON 8 - 3 Outlets
	GLS3.FH	Following Harrow	Harrow Qty: 20 - Spacing: 140mm

* Only applies to standard Sumo low disturbance legs & points

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, many 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.

Mounted GLS

Due to mounted and adjustable nature of the GLS machines, they do not have a set transport position, but it is advised that: All legs are retracted/lifted to ensure that they do not contact the ground and the packer is in its shallowest depth (Highest pinnable position). Ensure all stands are fully lifted and securely pinned. Ensure rear lights and reflectors are suitably angled down.

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
GLS3	2600	2500	1520
GLS4	2600	2500	1520
GLS5	2600	2990	1520

Machines (Including Options)

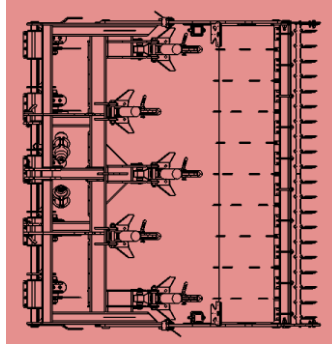
Code	Length	Width	Height
GLS3.AR	-	-	1615 *
GLS3.FP	-	-	-
GLS3.SFK	-	-	2400
GLS3.FH	2880	-	-
GLS4.AR	-	-	1615 *
GLS4.FP	-	-	-
GLS4.SFK	-	-	2400
GLS4.FH	2800	-	-
GLS5.AR	-	-	1615 *
GLS5.FP	-	-	-
GLS5.SFK	-	-	2400
GLS5.FH	2880	-	-

* Only applies to standard Sumo low disturbance legs & points

4. Danger Zone

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

Mounted GLS



Due to the nature of Sumo machinery the entire machine is considered a danger zone.

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.
- Moving parts can cause finger traps.

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 Grassland Subsoiler

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

Purpose of machine: Primarily designed to alleviate compaction and improve soil structure with minimal surface disturbance.

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

1. A row of rubber suspended, straight, notched discs.
2. A bank of staggered low disturbance subsoiler legs.
3. A toothed roller, optionally followed by a scarifying harrow.

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

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, 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	Warnings, Maintenance Stands	Observe warning signs, maintain safe distance from moving parts, wear gloves. Ensure both stands are down. Clear excess soil (weight) from points, before attempting to adjust legs.
Risk of crushing: - When coupling a tractor to the Sumo implements. - When changing points. - Rotating Parts	Operator	4 Mid - High	Warnings, Maintenance Stands	Take extreme care when working on legs, changing depth, replacing points etc, make sure both 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.

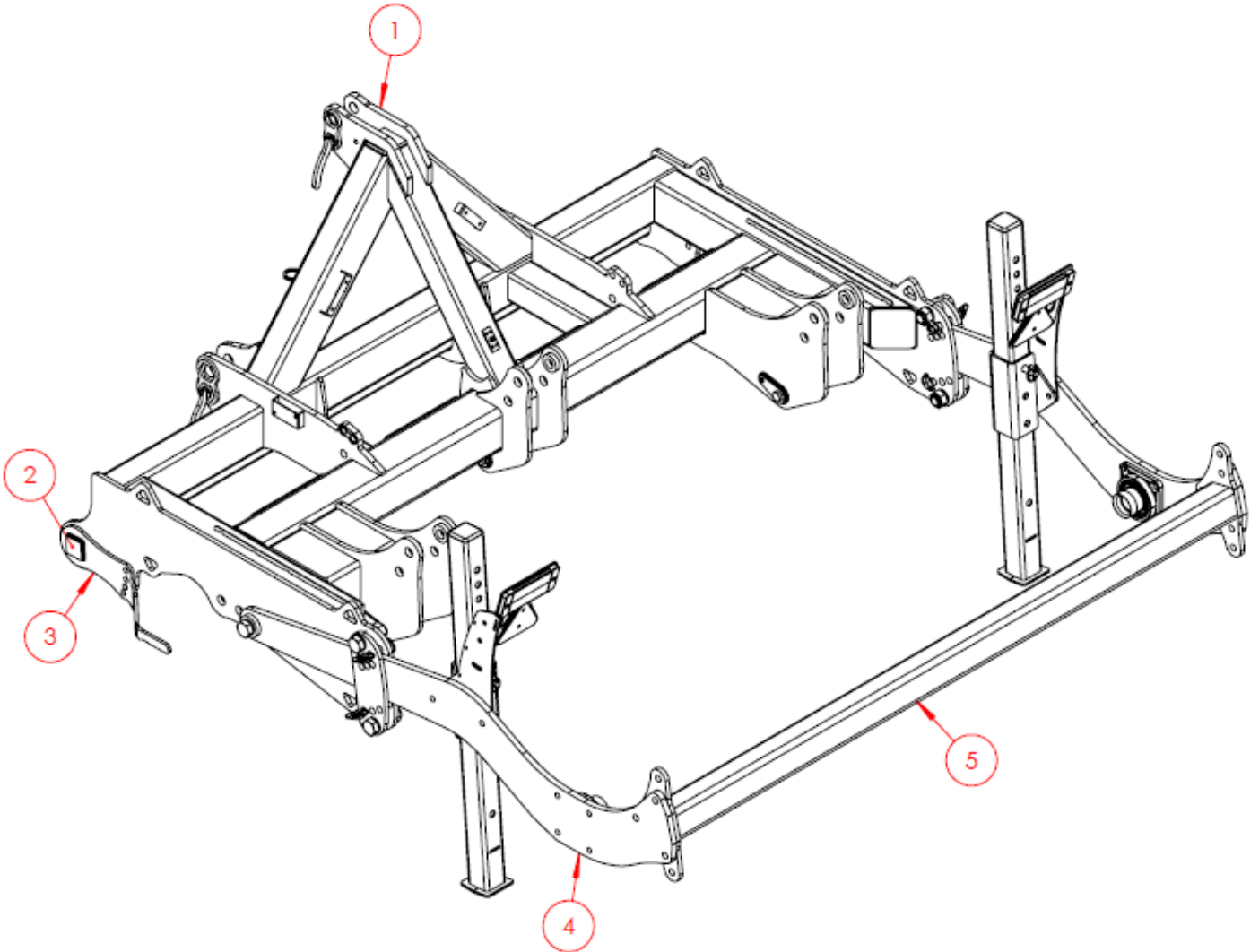
5 Risk Assessments - Continued

Hazard Identified in Using Machine	Who Might Be Harmed	Risk Evaluation /Level (1-5)	Precautions In Place	Further Action Required
Falling from machine	Operator	2 Low - Mid	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...
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.

6. Parts Book Index

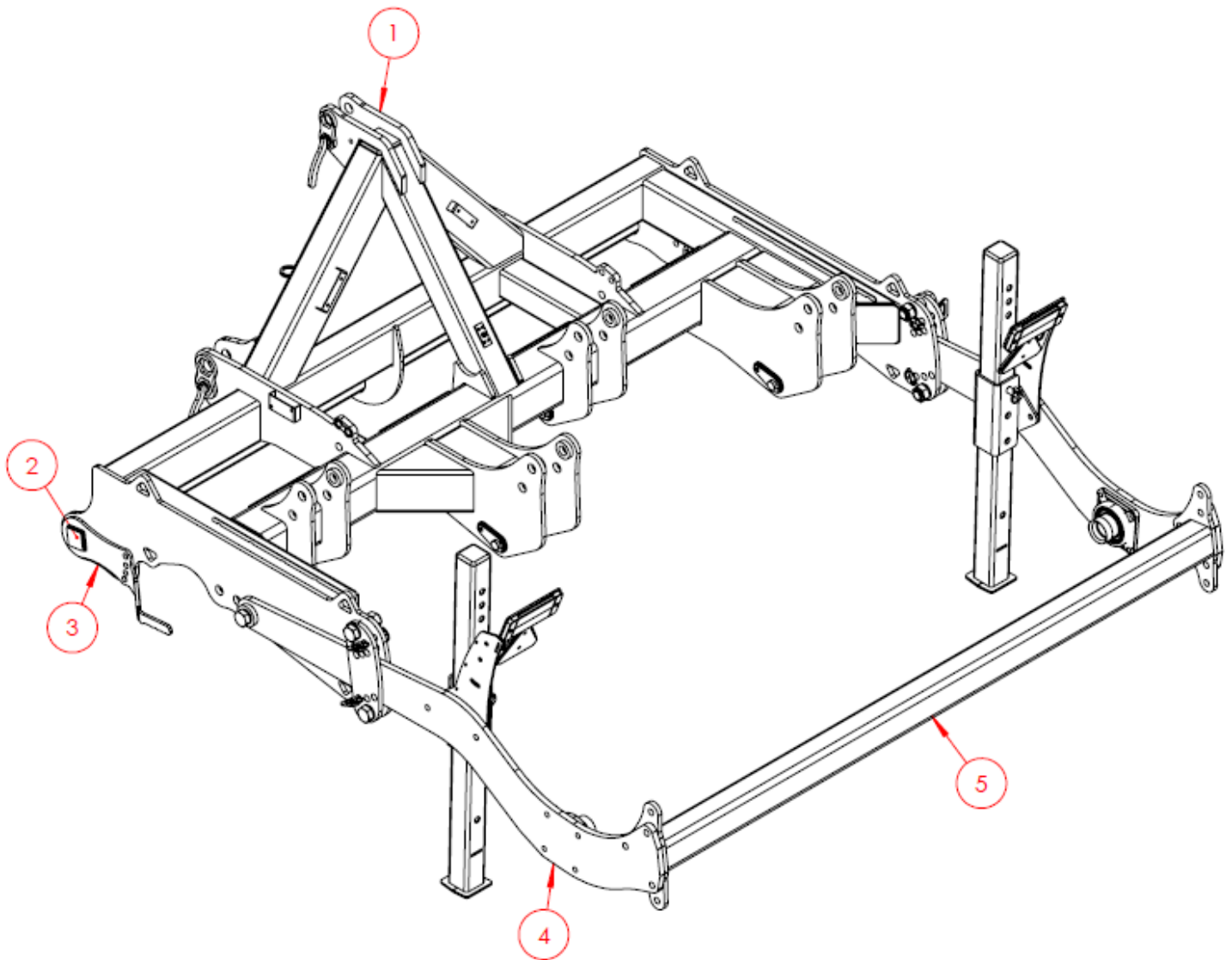
For older machines, see manuals & parts book available on the Sumo website.

6.1 GLS3 Base Machine



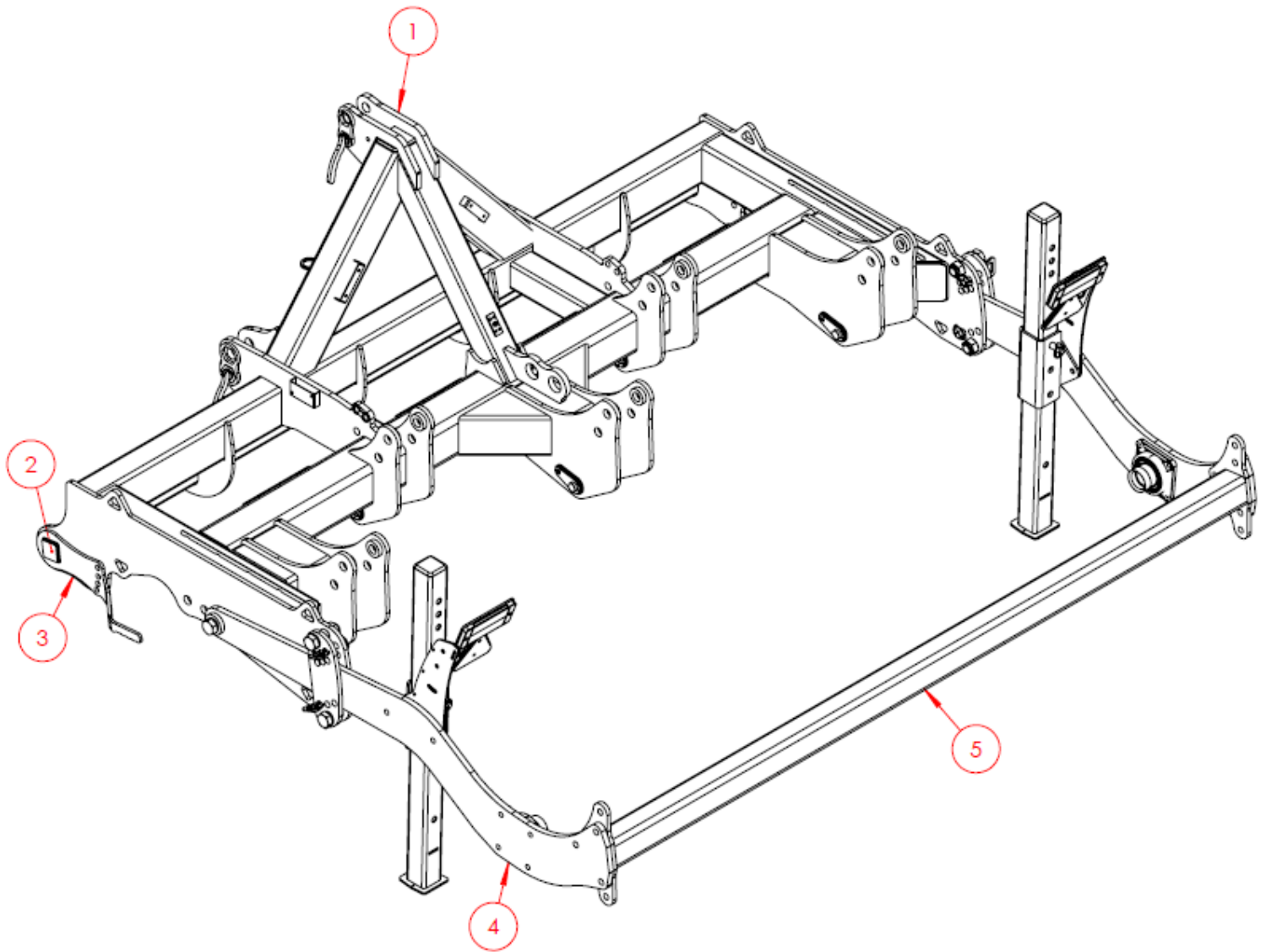
Item No.	Part Number	Description	Qty
1	SWA2616	Main Frame/Chassis	1
2	SW1988	Front Disc Bar	1
3	SW763	Front Disc Bar Adjuster Handle	1
4	SW1985	Packer Arms	2
5	SW1413	Scraper Bar	1

6.2 GLS4 Base Machine



Item No.	Part Number	Description	Qty
1	SWA2617	Main Frame/Chassis	1
2	SW1988	Front Disc Bar	1
3	SW763	Front Disc Bar Adjuster Handle	1
4	SW1985	Packer Arms	2
5	SW1413	Scraper Bar	1

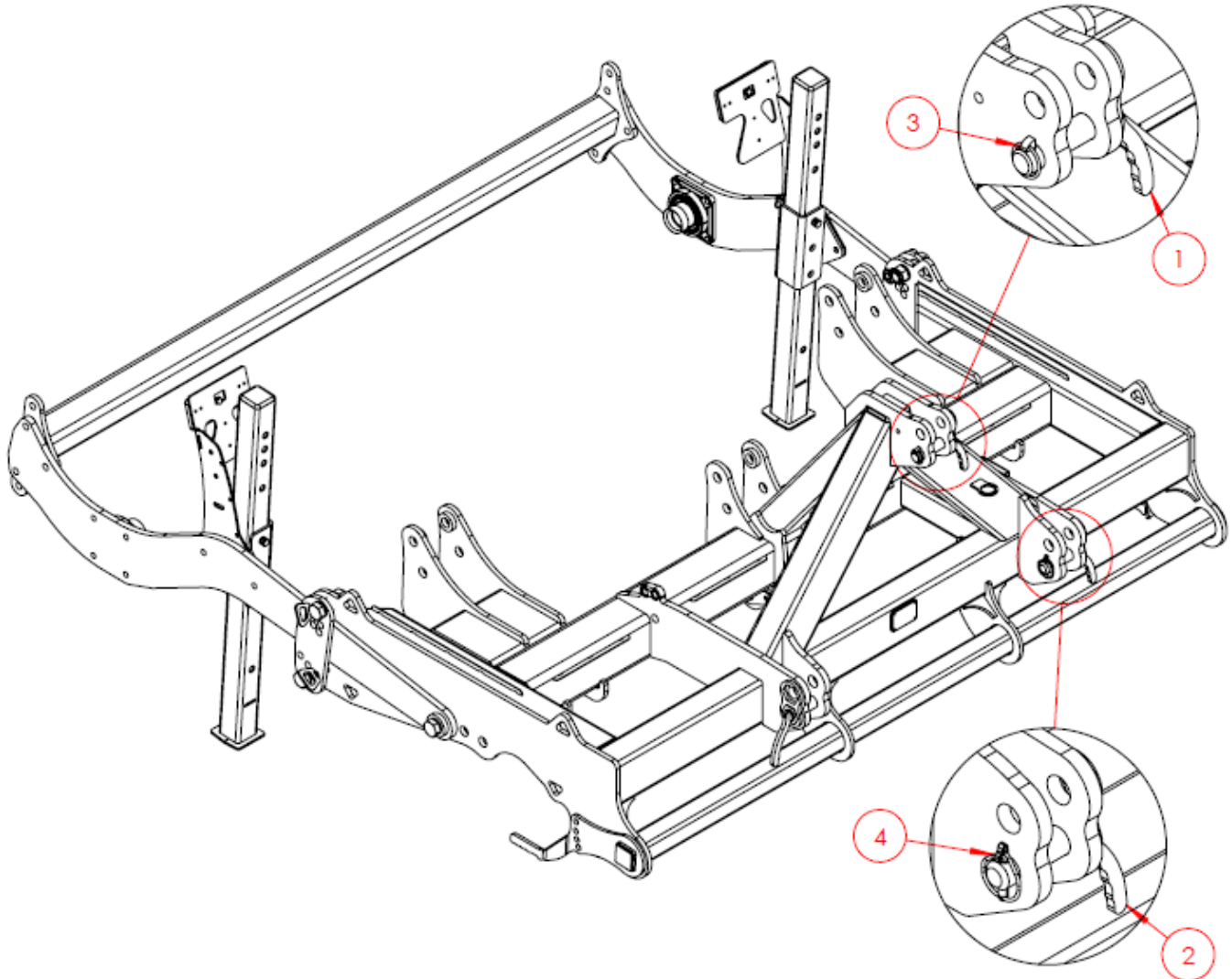
6.3 GLS5 Base Machine



Item No.	Part Number	Description	Qty
1	SWA2631	Main Frame/Chassis	1
2	SW1283	Front Disc Bar	1
3	SW763LH	Front Disc Bar Adjuster Handle	1
4	SW1985	Packer Arms	2
5	SW1414	Scraper Bar	1

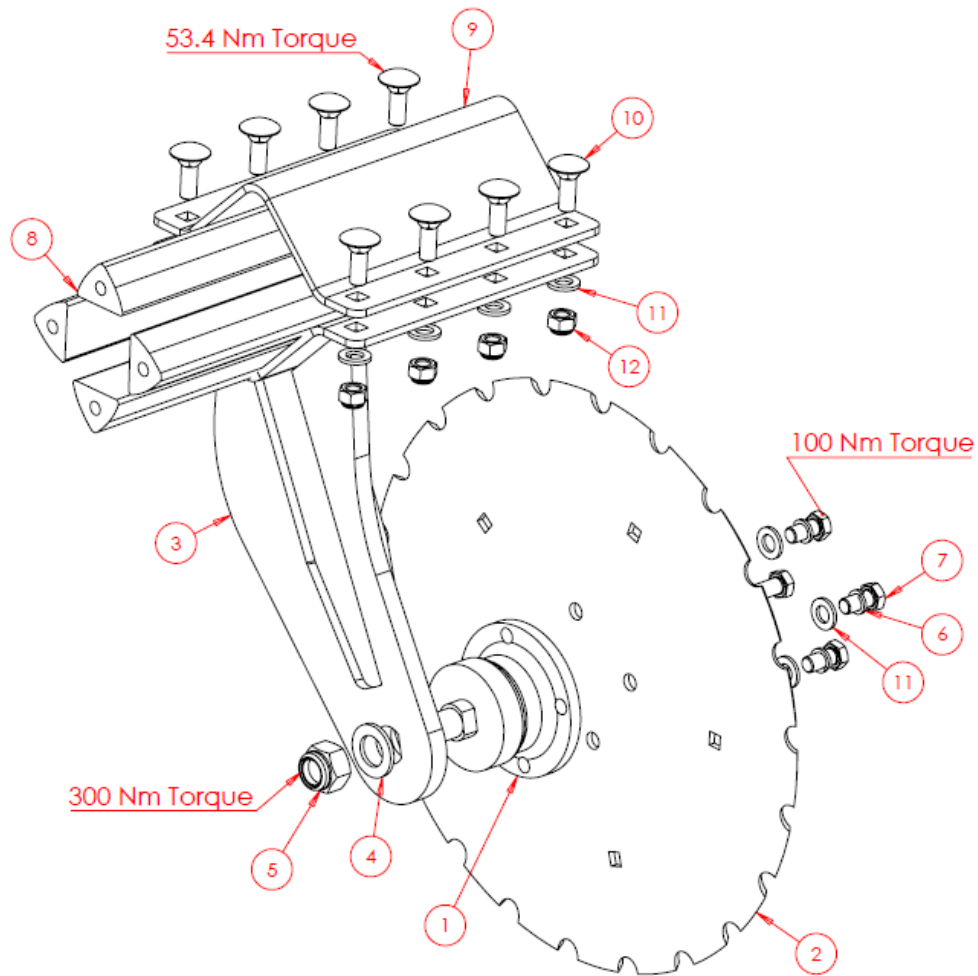
6.4 Standard Assemblies

6.4.1 Three Point Linkage Pins



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

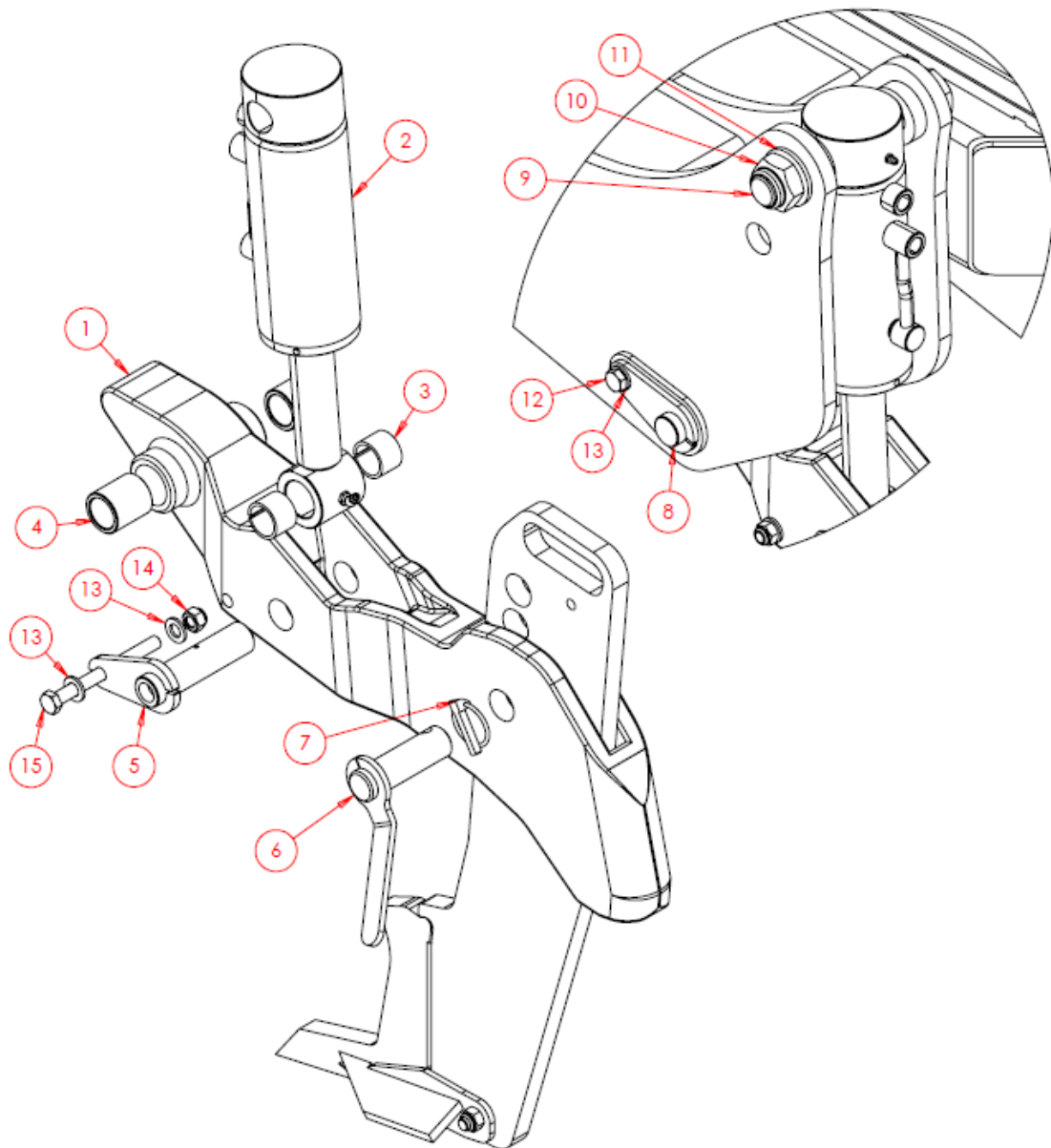
6.4.2 Single Disc Unit



Complete Assembly - SWA2659

Item No.	Part Number	Description	Qty
1	SWB399	SKF Agri-hub Bearing	1
2	SWB442	450mm Leading Straight Disc	1
3	SW6279	Disc Arm	1
4	SWM22001	M22 Washer - Flat	1
5	SWM22004FP	M22 Nut - Fine Pitch	1
6	SWM12002	M12 Washer - Spring	4
7	SWM1225FP	M12x25 Bolt - Fine Pitch	4
8	SWB679	Rubber Cord - Triangular	4
9	SW107	Clamp Plate	1
10	SWM1235CHSQ	M12x35 Bolt - Cup Head Square Bolt	8
11	SWM12001	M12 Washer - Flat	12
12	SWM12004	M12 Nut - Nylock	8

6.4.3 Auto-Reset Leg



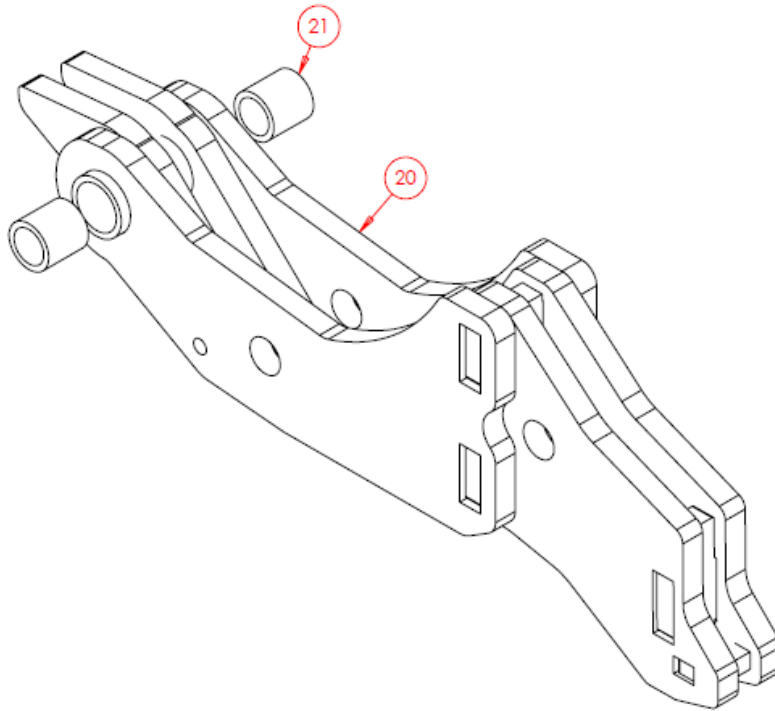
Complete Assembly – SWA2700

Item No.	Part Number	Description	Qty
1	SW1017	Auto Reset Socket inc PB1 Bushes	1
2	SWH328	Hydraulic Cylinder	1
3	SWB374	Split Tension Bush – 36x30x25	2
4	SW188	PB1 Bush – 40x30x45	2
5	SWP30x105G	Pin – Grease	1
6	SWP30x90H	Pin – Handle	1
7	SWB105	Lynch Pin	1
8	SWP30x180	Pin – Tabbed	1
9	SWM30200	M30x200 Bolt	1

6.4.3 Auto-Reset Leg - Continued

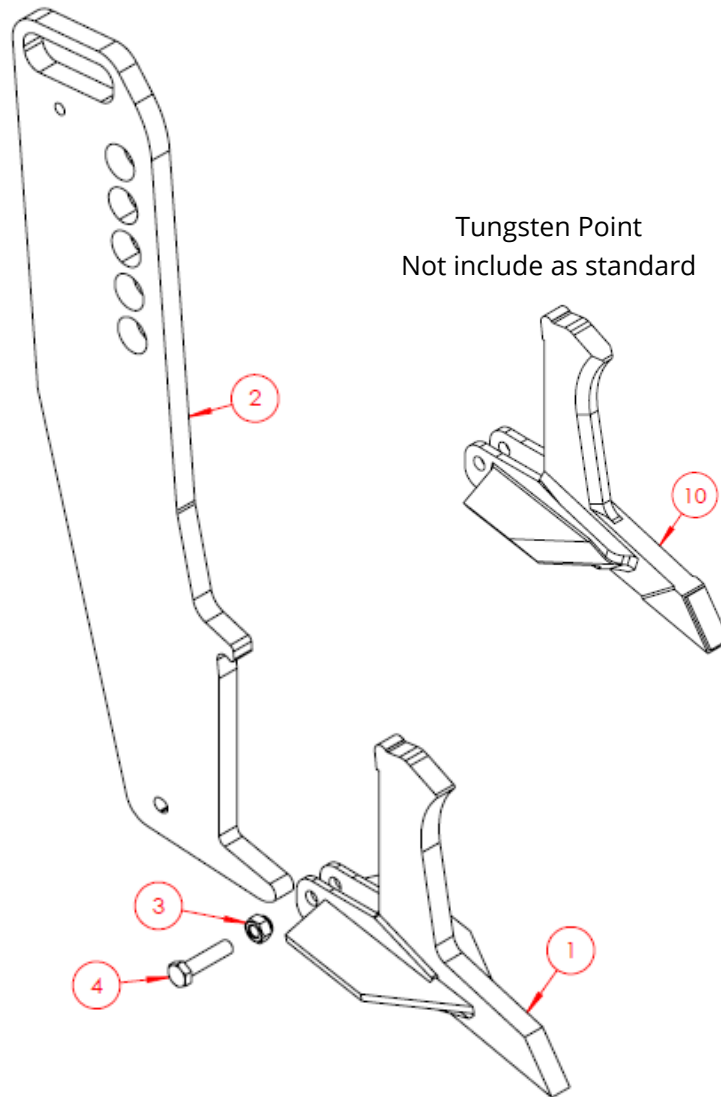
Complete Assembly – SWA2700 - Continued			
10	SWM30004	M30 Nut – Nylock	1
11	SWM30001	M30 Washer - Flat	2
12	SWM1250	M12x50 Bolt	1
13	SWM12001	M12 Washer – Flat	4
14	SWM12004	M12 Nut - Nylock	2
15	SWM12130	M12x130 Bolt	1

Alternative fabricated socket arrangement below (All other details remain the same). This version is interchangeable with the cast socket but will only be supplied in the event of the cast version being unavailable.



Item No.	Part Number	Description	Qty
20	SW6525	Auto Reset Socket (Fabricated)	1
21	SWB1235	Bush – 40x30x40	2

6.4.4 Low Disturbance Legs & Points



Complete Assembly - SWA2873			
Item No.	Part Number	Description	Qty
1	SW1116	Low Disturbance Point	1
2	SW1151	Leg	1
3	SWM12004	M12 Nut - Nylock	1
4	SWM1250	M12x50 Bolt	1

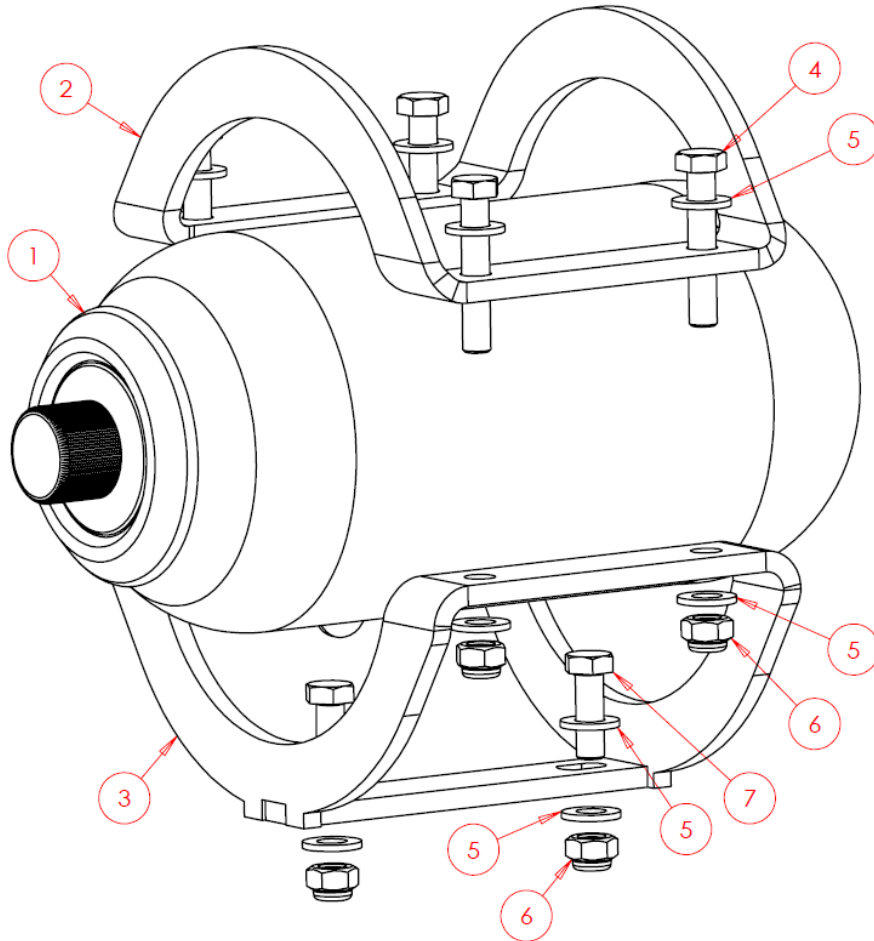
Alternative tungsten tip point is also available but will need specifying separate.

Item No.	Part Number	Description	Qty
10	SW1087	Low Disturbance Point c/w Tungsten Tip	1

6.4.5 Accumulators & Valve Block (Auto Reset Only)

For full system details see Hydraulic Connection Diagrams.

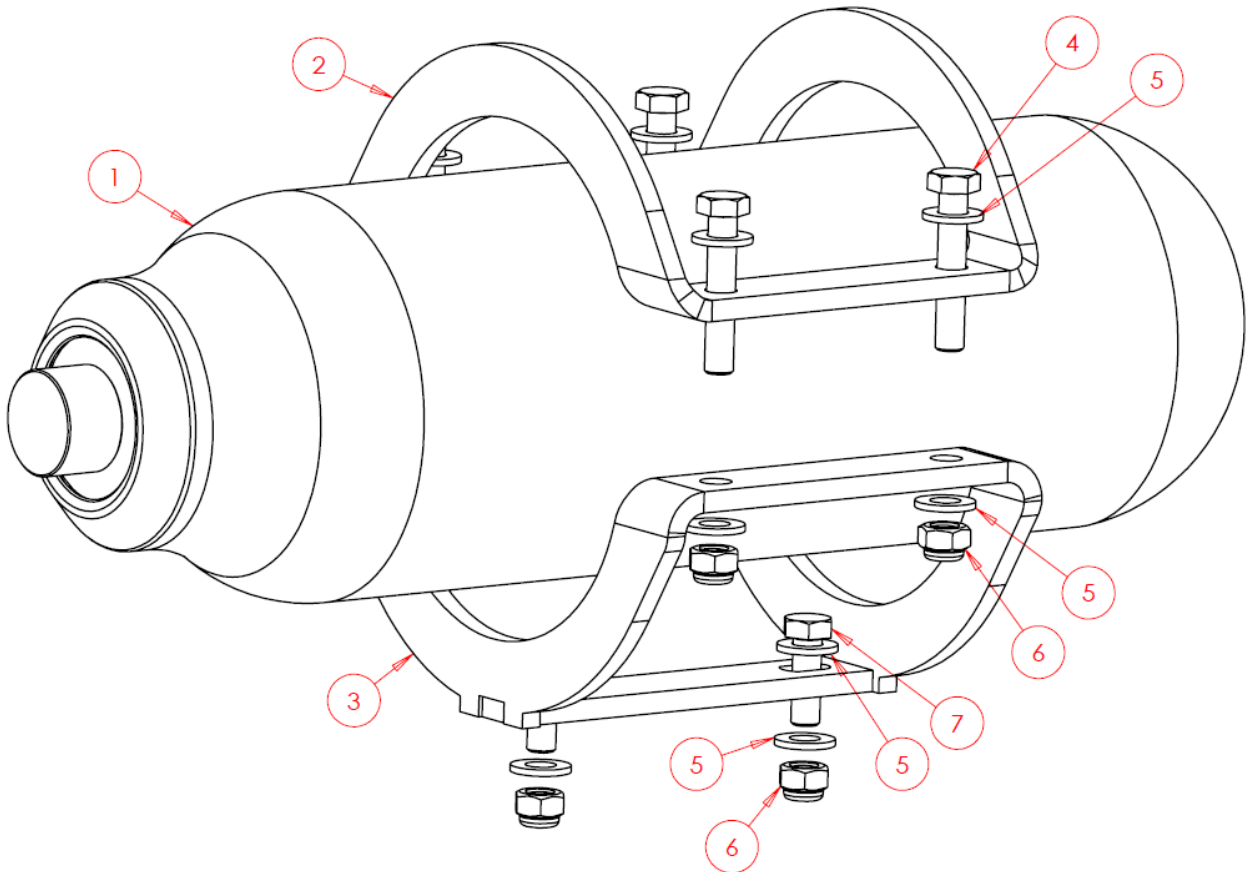
6.4.5.1 1.4 Litre Membrane Accumulator Mounted Assembly



Complete Assembly - SWA2152

Item No.	Part Number	Description	Qty
1	SWH685	1.4 Litre Membrane Accumulator	1
2	SW1510	Top Bracket	1
3	SW1511	Base Bracket	1
4	SWM845	M8x45 Bolt	4
5	SWM8001	M8 Washer - Flat	12
6	SWM8004	M8 Nut - Nylock	6
7	SWM825	M8x25 Screw	2

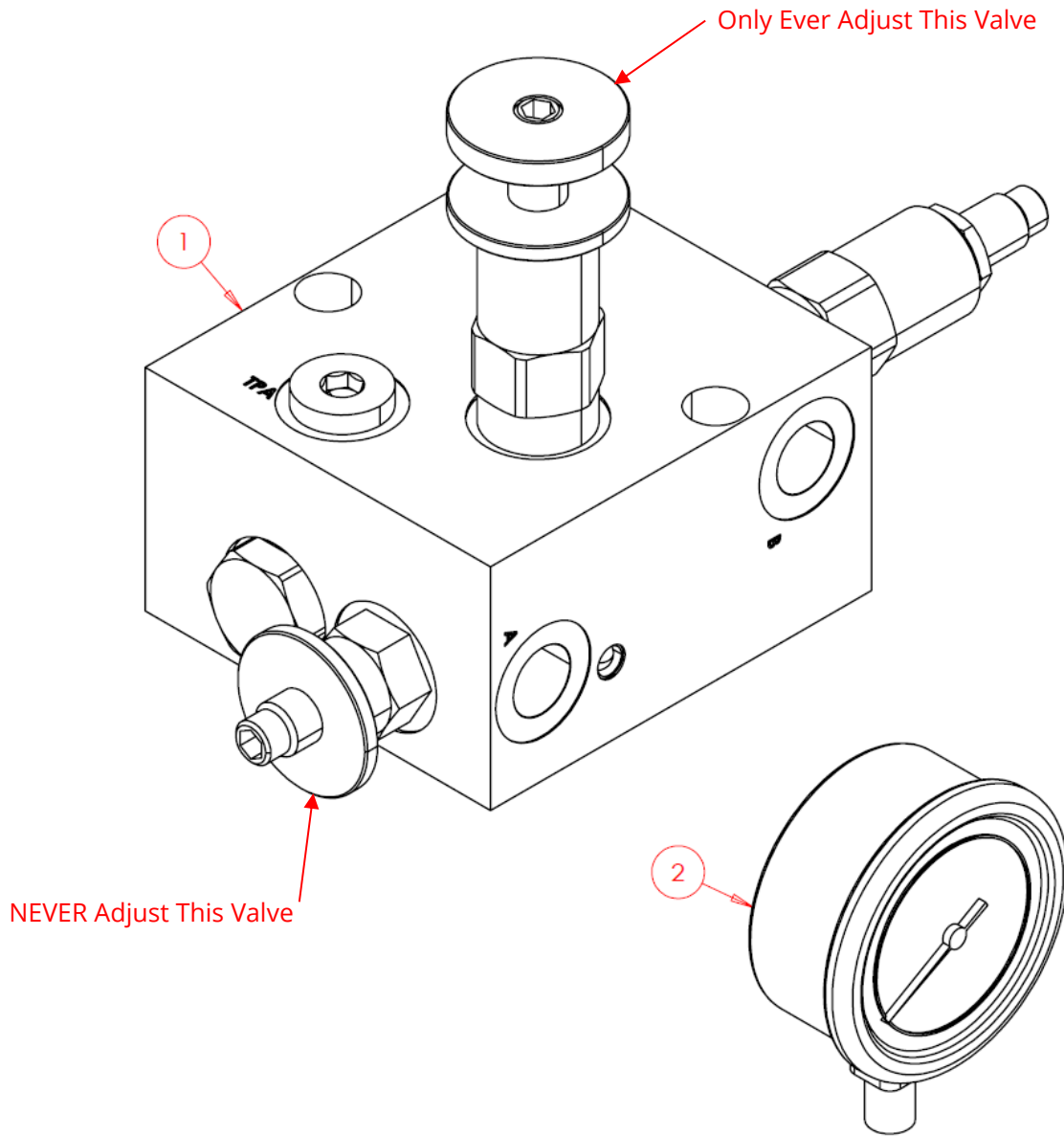
6.4.5.2 2.8 Litre Membrane Accumulator Mounted Assembly



Complete Assembly - SWA2153

Item No.	Part Number	Description	Qty
1	SWH686	2.8 Litre Membrane Accumulator	1
2	SW1510	Top Bracket	1
3	SW1511	Base Bracket	1
4	SWM845	M8x45 Bolt	4
5	SWM8001	M8 Washer - Flat	12
6	SWM8004	M8 Nut - Nylock	6
7	SWM825	M8x25 Screw	2

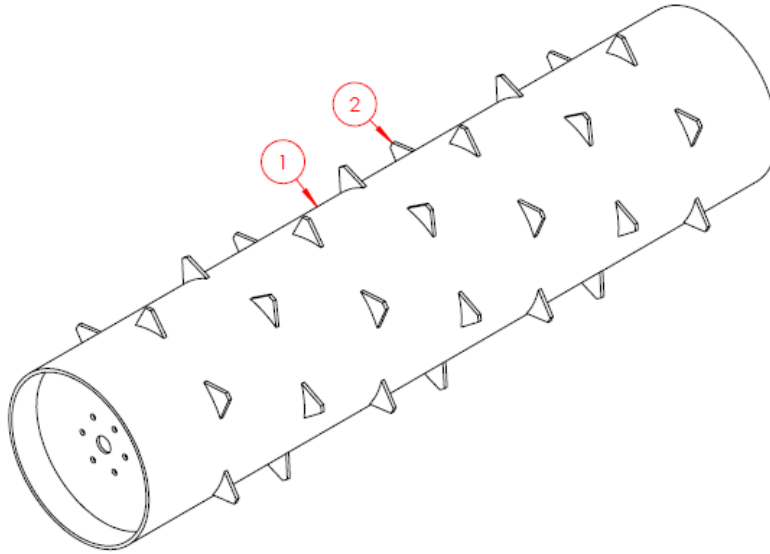
6.4.5.3 Standard Auto Reset Valve Block & Pressure Gauge



Item No.	Part Number	Description	Qty
1	SWH298	Auto Reset Valve Assembly	1
2	SWH612	Pressure Gauge	1

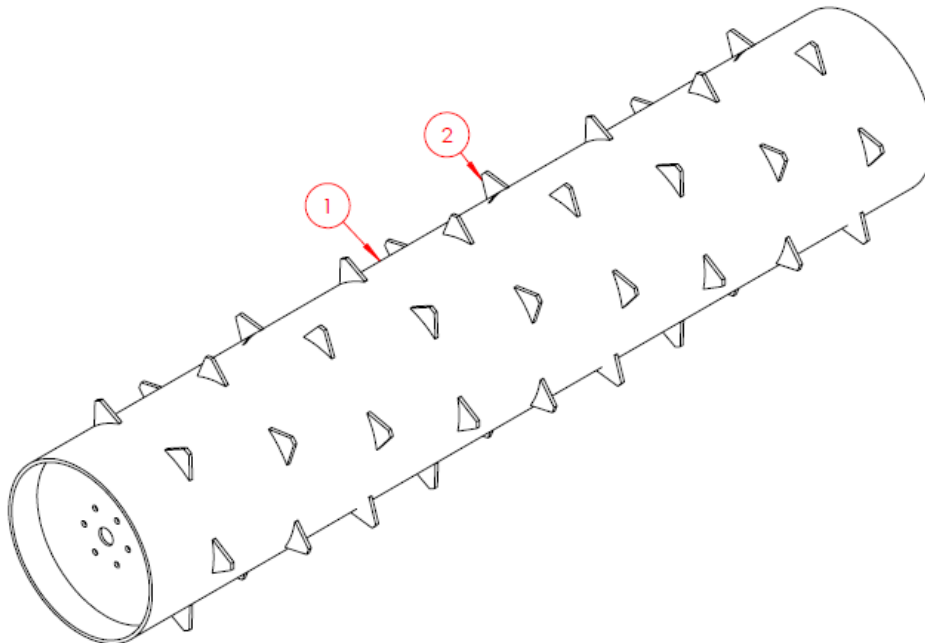
6.4.6 Packers Options

6.4.6.1 GLS3 & GLS4 - Flat Packer



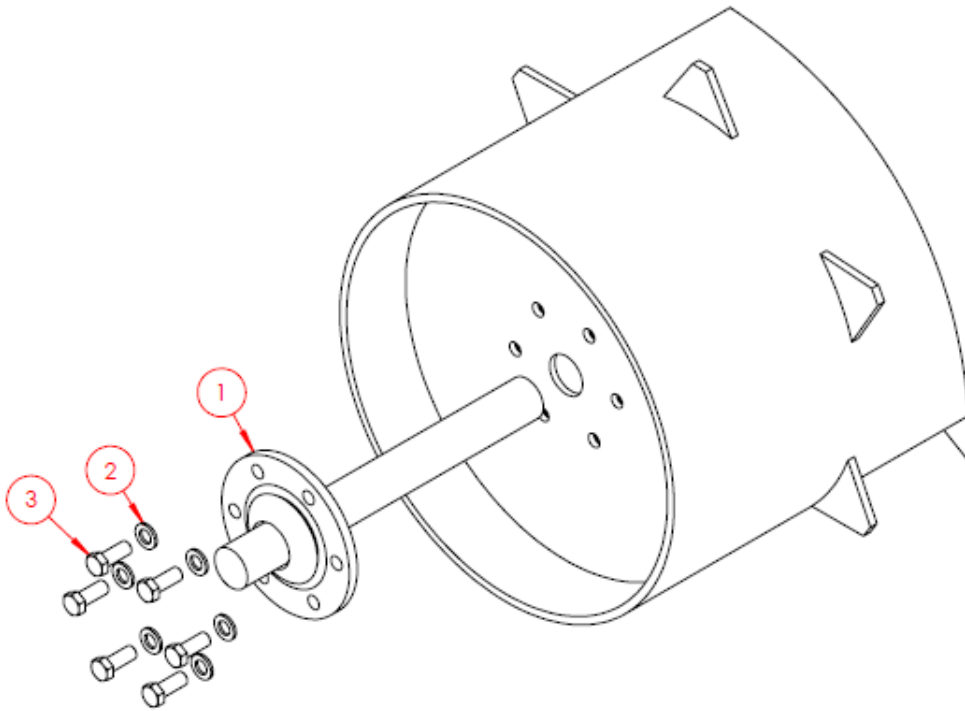
Item No.	Part Number	Description	Qty
1	SW1416	GLS3 / GLS4 Flat Packer	1
2	SWS4950	Weld On Fin	42

6.4.6.2 GLS5 - Flat Packer



Item No.	Part Number	Description	Qty
1	SW1417	GLS5 Flat Packer	1
2	SWS4950	Weld On Fin	54

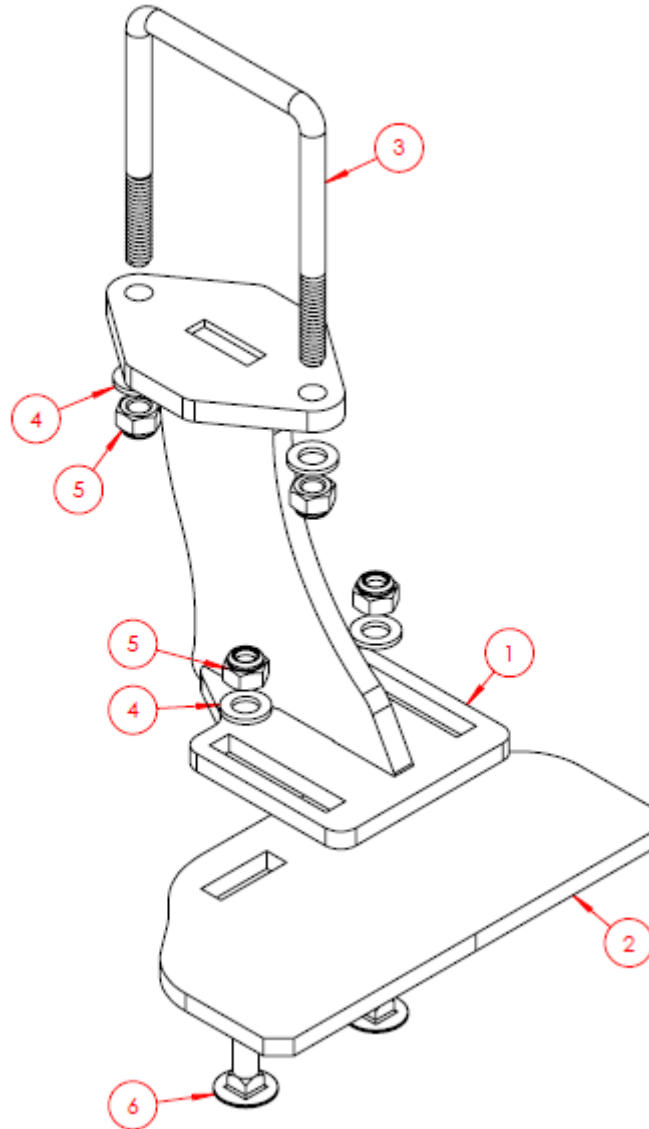
6.4.6.3 Flat Packer Axle Assembly



Item No.	Part Number	Description	Qty
1	SW750	Packer Axle	2
2	SWM16001	M16 Washer - Flat	12
3	SWM1640	M16x40 Screw	12

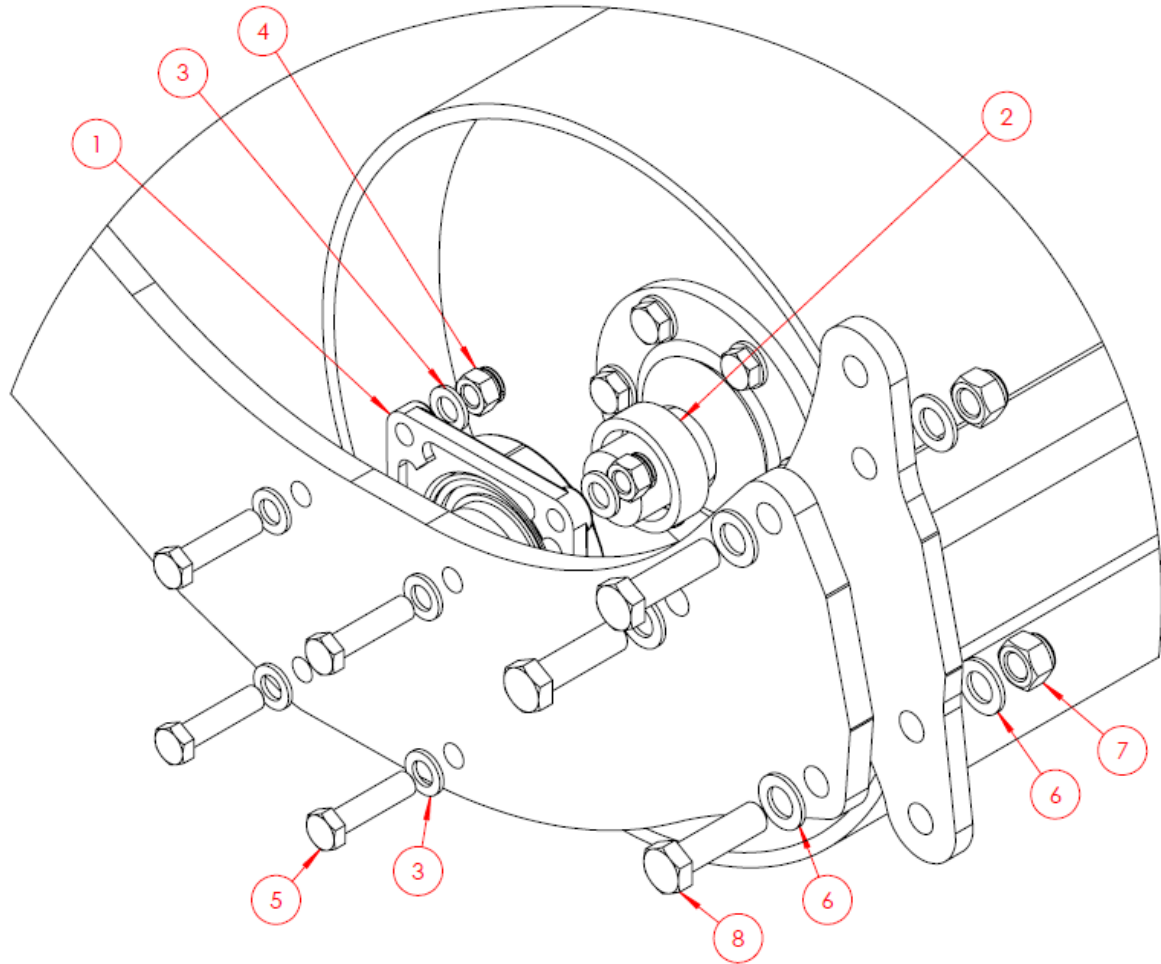
6.4.7 Scraper Assemblies

6.4.7.1 All Flat Packer Options



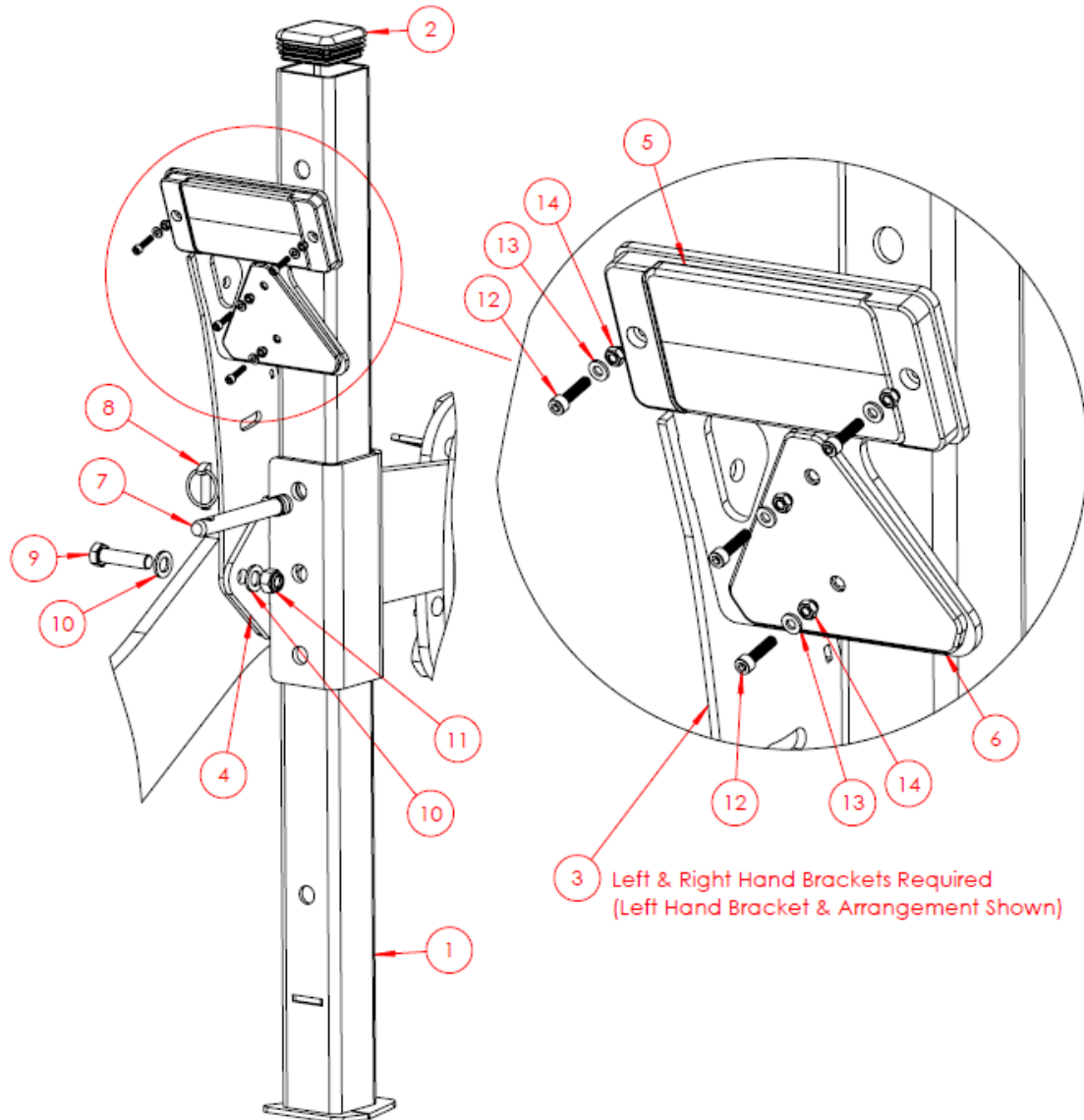
Complete Assembly – SWA209			
Item No.	Part Number	Description	Qty
1	SW751	Hanger	1
2	SW752	Scraper	1
3	SWM12100UB	M12x100 U bolt	1
4	SWM12001	M12 Washer – Flat	4
5	SWM12004	M12 Nut – Nylock	4
6	SWM1240CHSQ	M12x40 Bolt – Cup Head Square Bolt	2

6.4.8 Packer Bearings & Scraper Bar Assembly



Item No.	Part Number	Description	Qty
1	SWB389	Bearing	2
2	SWS3272	Spacer Collar	2
3	SWM16001	M16 Washer - Flat	16
4	SWM16006	M16 Nut - Aerotight	8
5	SWM1665	M16x65 Bolt	8
6	SWM20001	M20 Washer - Flat	12
7	SWM20004	M20 Nut - Nylock	6
8	SWM2070	M20x70 Bolt	6

6.4.9 Lights, Reflectors & Stands

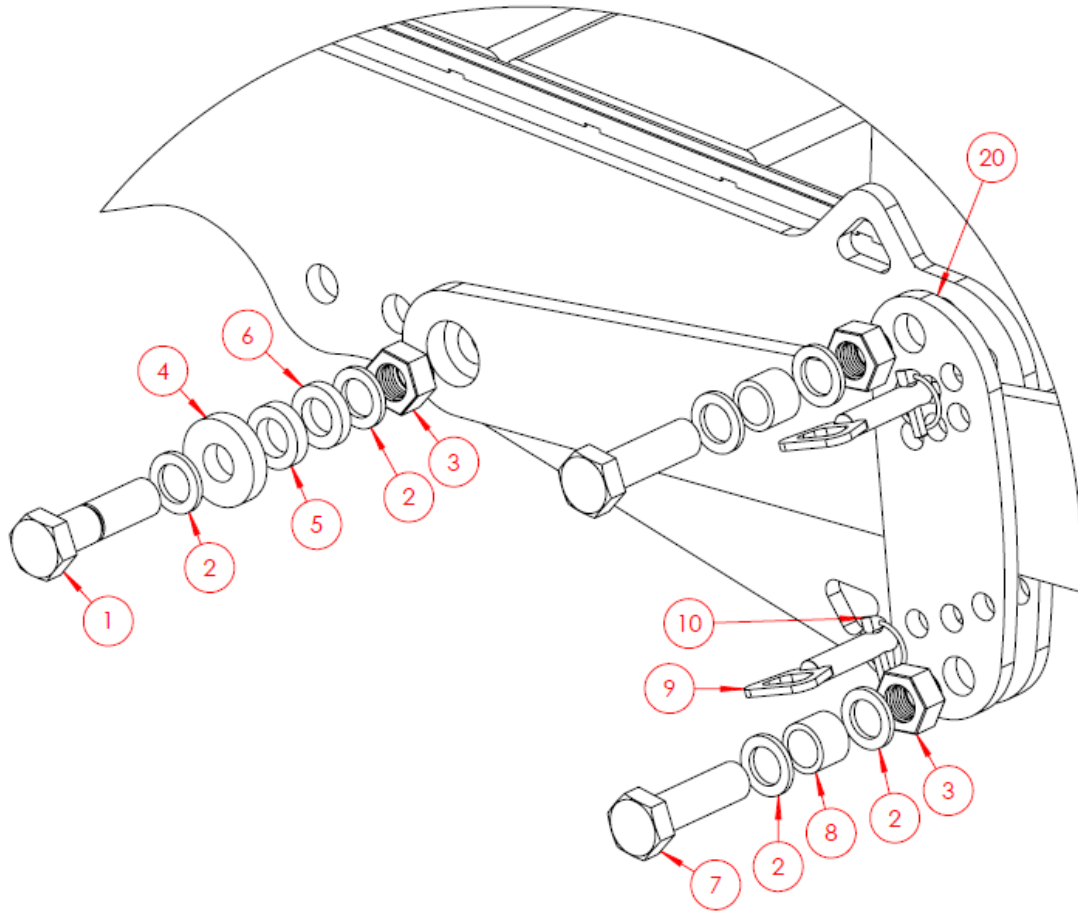


Item No.	Part Number	Description	Qty
1	SW117	Stand	2
2	SWB144	Plastic Bung	2
3	SW761	Light Bracket LH	1
3	SW760	Light Bracket RH (Not Shown)	1
4	SW112	Stand Guide	2
5	SWB715	Rear Light Stop Light / Indicator	2
6	SWB162	Reflector - Red Triangle	2
7	SW118	Stand Pin	2
8	SWB105	Lynch Pin	2
9	SWM1665	M16x65 Bolt	4
10	SWM16001	M16 Washer - Flat	8

6.4.9 Lights, Reflectors & Stands - Continued

11	SWM16004	M16 Nut - Nylock	4
12	SWM625AKH	M6x25 Cap Head Screw	8
13	SWM6001	M6 Washer - Flat	8
14	SWM6004	M6 Nut - Nylock	8

6.4.10 Packer Mounting & Depth Guides

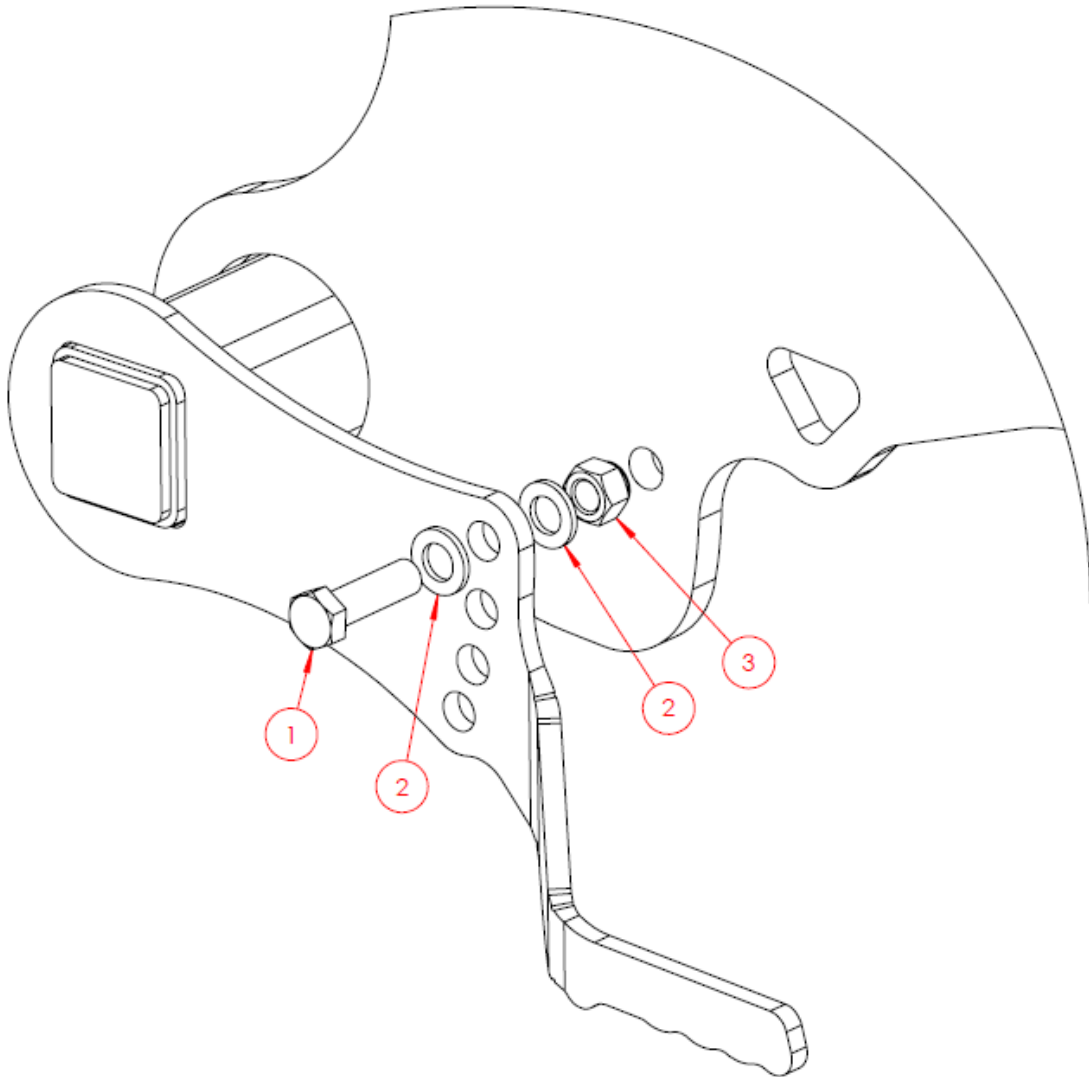


Item No.	Part Number	Description	Qty
1	SWM30110	M30x110 Bolt	2
2	SWM30001	M30 Washer - Flat	12
3	SWM30004	M30 Nut - Nylock	6
4	SW129	Packer Arm Retention Plate	2
5	SW723	Spacer - 12mm	2
6	SW722	Spacer - 10mm	2
7	SWM30100	M30x100 Bolt	4
8	SW6691	Packer Guide Spacer	4
9	SWP20x77HDP	Pin - Handle Depth Pin	4
10	SWB105	Lynch Pin	4

Note: Packer guide profiles can either be fully bolt on or partially welded in depending on the date of manufacture. This will also change quantities provided above.

Item No.	Part Number	Description	Qty
20	SWS2566	Packer Depth Guide Plate	2

6.4.11 Disc Bar Mounting

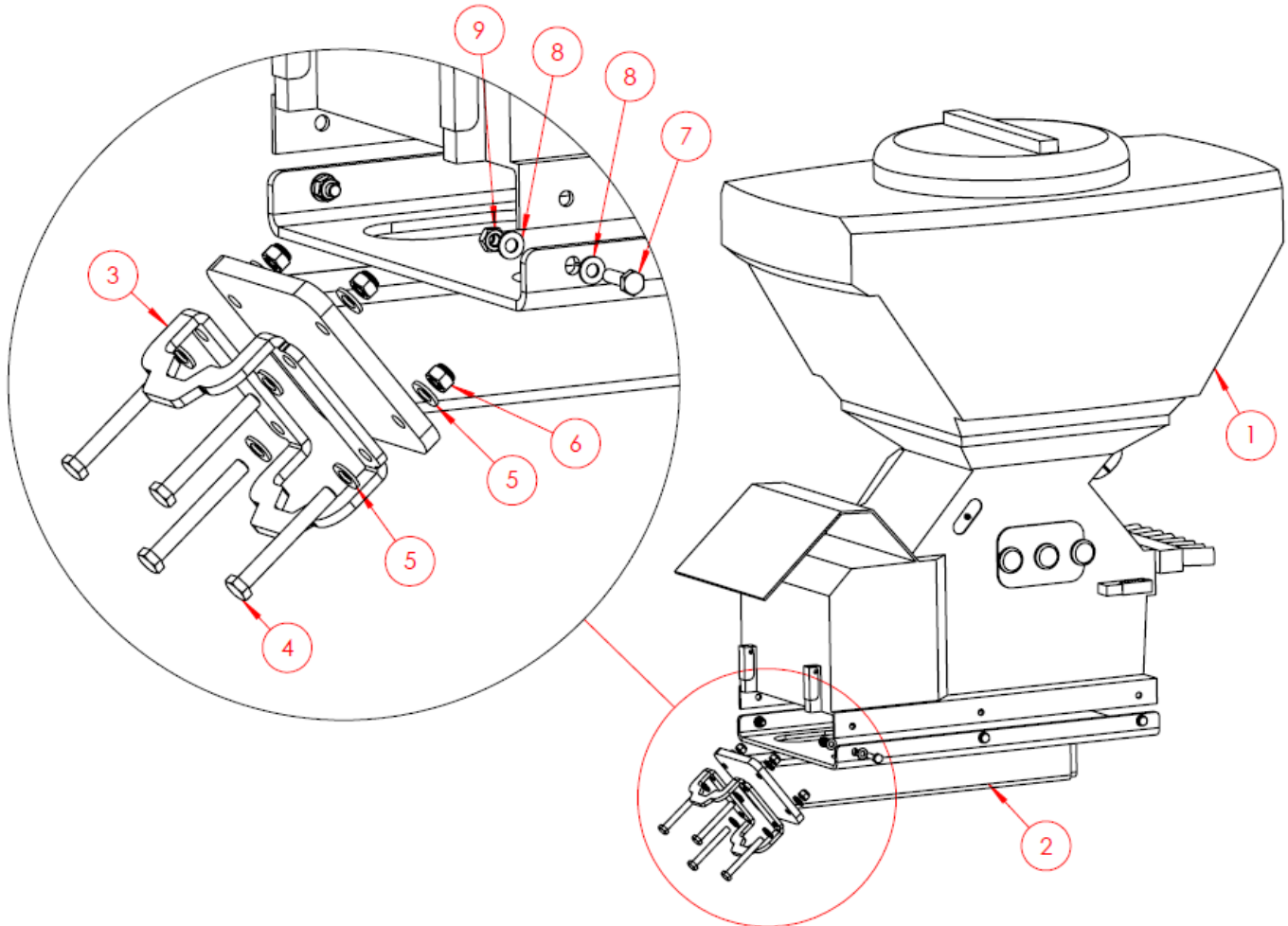


Item No.	Part Number	Description	Qty
1	SWM1655	M16x55 Bolt	1
2	SWM16001	M16 Washer - Flat	2
3	SWM16004	M16 Nut - Nylock	1

6.5 Optional Extras/Attachments

6.5.1 Seeder Fitting Kit

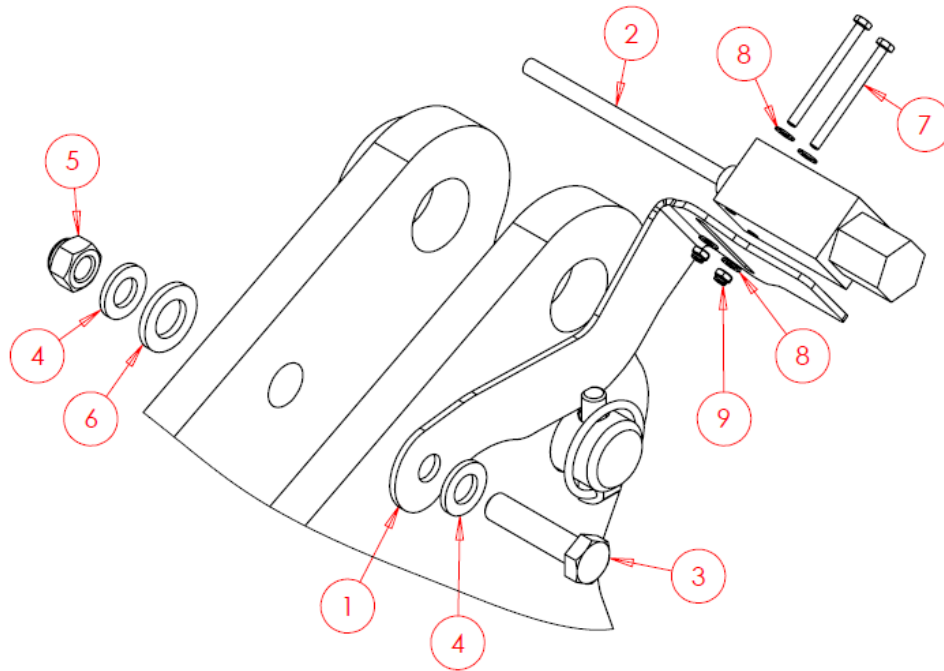
6.5.1.1 Seeder Mounting Set Up



Complete Assembly – SWA2622

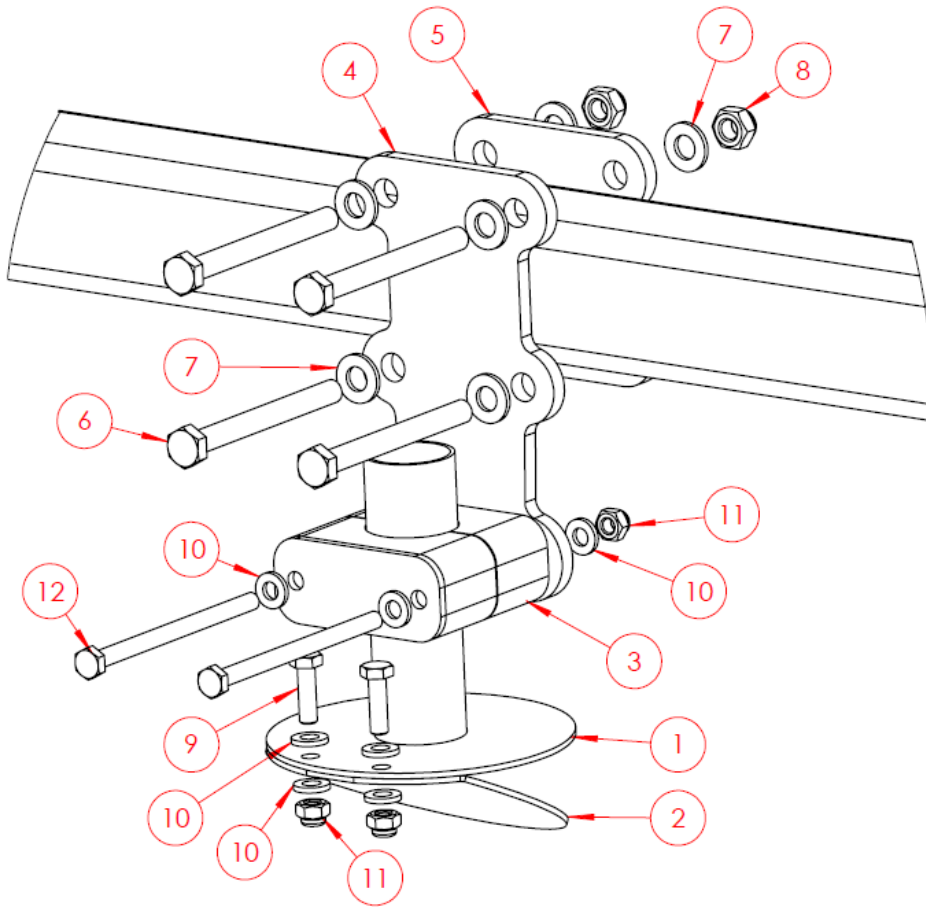
Item No.	Part Number	Description	Qty
1	Turbojet8	Turbojet i-CON 8	1
2	SWA2623	Seeder Mount	1
3	SWS21501	Seeder Mounting Bracket	1
4	SWM12100	M12x100 Bolt	4
5	SWM12001	M12 Washer – Flat	8
6	SWM12004	M12 Nut – Nylock	4
7	SWM1035	M10x35 Screw	6
8	SWM10001	M10 Washer – Flat	12
9	SWM10004	M10 Nut – Nylock	6

6.5.1.2 Finger Switch Assembly



Item No.	Part Number	Description	Qty
1	SW1176	Bracket	1
2	SWB850	Finger Switch	1
3	SWM1250	M12x50 Bolt	1
4	SWM12001	M12 Washer - Flat	2
5	SWM12004	M12 Nut - Nylock	1
6	SWM16001	M16 Washer - Flat	1
7	SWM450	M4x50 Screw	2
8	SWM4001	M4 Washer - Flat	4
9	SWM4004	M4 Nut - Nylock	2

6.5.1.3 Seeder Outlet

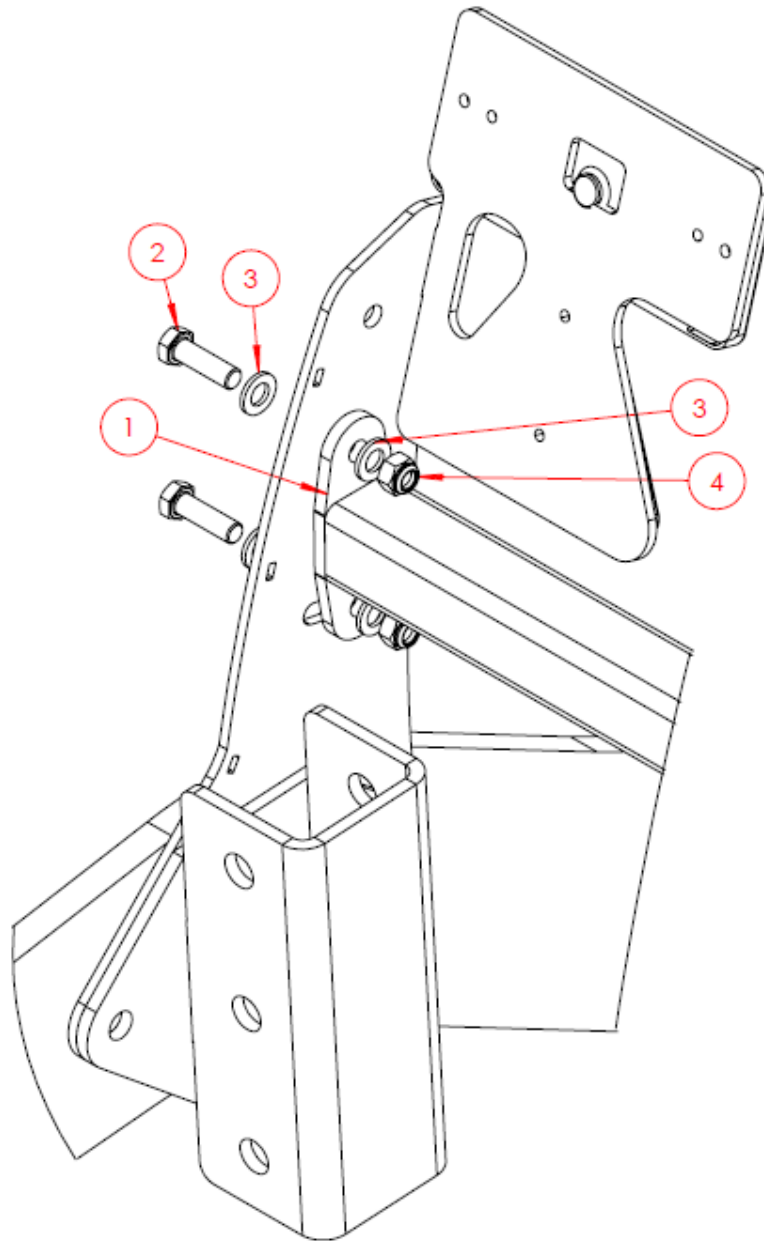


Item No.	Part Number	Description	Qty*
1	SWA2607	Seeder Outlet	1
2	SW6357	Splash Plate	1
3	SWB1385	32mm Stauff Clamp	1
4	SW6413	Outlet Mounting Clamp – Front	1
5	SW6509	Outlet Mounting Clamp – Rear	1
6	SWM880	M8x80 Bolt	4
7	SWM8001	M8 Washer – Flat	8
8	SWM8004	M8 Nut – Nylock	4
9	SWM620	M6x20 Screw	2
10	SWM6001	M6 Washer – Flat	8
11	SWM6004	M6 Nut – Nylock	4
12	SWM690	M6x90 Bolt	2
**	SWB344	Seed Hose	-

* Quantities above are per outlet, NOT per machine.

**Hose is typically sold in metres, provide desired cut length when requesting.

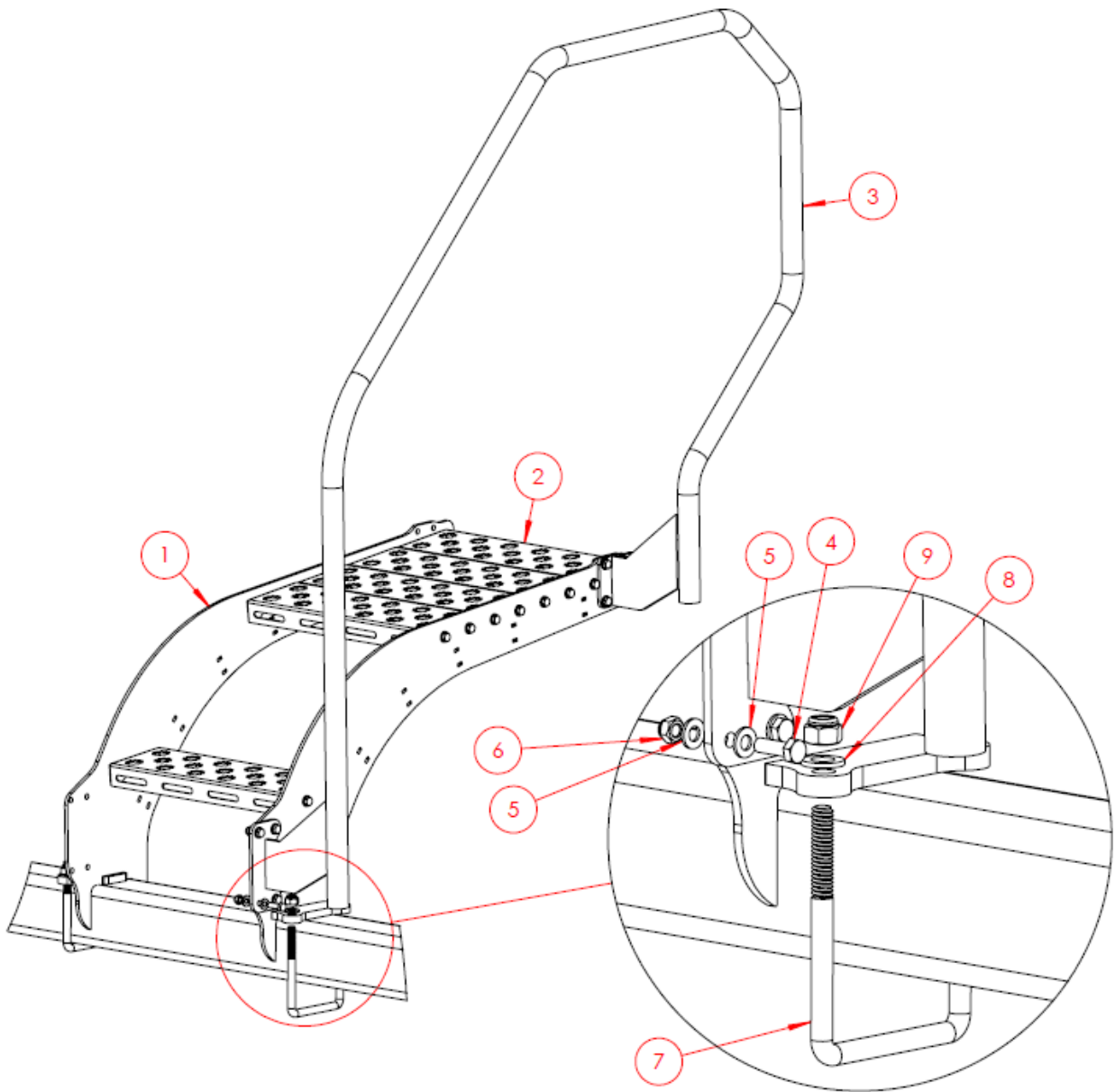
6.5.1.4 Outlet Mounting Bar



Item No.	Part Number	Description	Qty
1	SW1654 *	Outlet Mounting Bar - GLS3 & GLS4	1 *
1	SW1657 *	Outlet Mounting Bar - GLS5	1 *
2	SWM1240	M12x40 Screw	4
3	SWM12001	M12 Washer - Flat	8
4	SWM12004	M12 Nut - Nylock	4

*Pick only the one matching your machine.

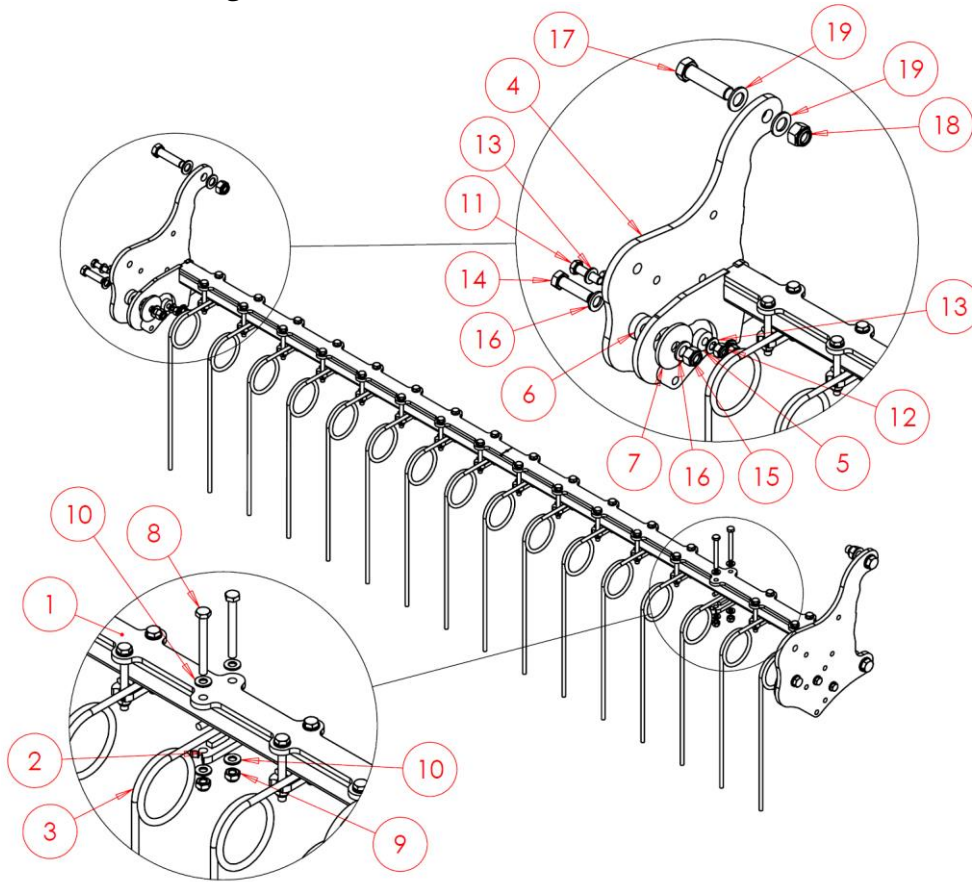
6.5.1.5 Steps & Handrail



Item No.	Part Number	Description	Qty
1	SW1650	Step Arms (Pair)	1
2	SW1290	Step	5
3	SW1651	Handrail	1
4	SWM825	M8x25 Screw	28
5	SWM8001	M8 Washer - Flat	56
6	SWM8004	M8 Nut - Nylock	28
7	SWM12100UB	M12x100 U bolt	2
8	SWM12001	M12 Washer - Flat	4
9	SWM12004	M12 Nut - Nylock	4

6.5.2 Following Harrow

6.5.2.1 Following Harrow - GLS3 & GLS4



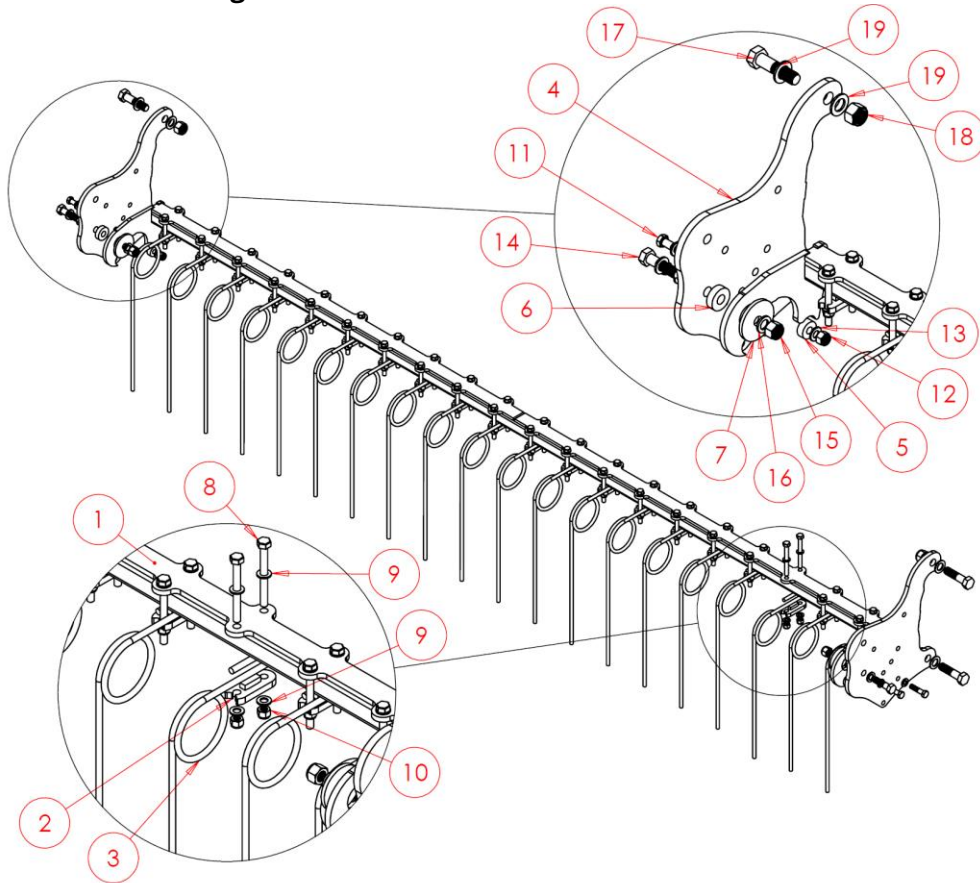
GLS3 & GLS4 - Complete Assembly - SWA222

Item No.	Part Number	Description	Qty
1	SW1997	Harrow Bar - GLS3 & GLS4	1
2	SW983	Tine Clamp	16
3	SWB198	Pigtail Tine	16
4	SW1122	Adapter Plate	2
5	SW757	Spacer - 16x30x12mm	4
6	SW758	Spacer - 16x39x12mm	2
7	SW759	Spacer - 16x70x6mm	2
8	SWM1090	M10x90 Bolt	32
9	SWM10004	M10 Nut - Nylock	32
10	SWM10001	M10 Washer - Flat	64
11	SWM1245	M12x45 Bolt	4
12	SWM12004	M12 Nut - Nylock	4
13	SWM12001	M12 Washer - Flat	8
14	SWM1660	M16x60 Bolt	2
15	SWM16004	M16 Nut - Nylock	2
16	SWM16001	M16 Washer - Flat	4

6.5.2.1 Following Harrow - Continued

GLS3 & GLS4 - Complete Assembly - SWA222 - Continued			
17	SWM2080	M20x80 Bolt	4
18	SWM20004	M20 Nut - Nylock	4
19	SWM20001	M20 Washer - Flat	8

6.5.2.2 Following Harrow - GLS5



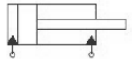

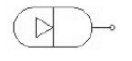
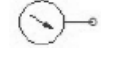
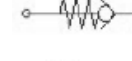

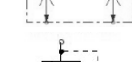
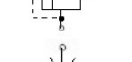

GLS5 Only - Complete Assembly - SWA216			
Item No.	Part Number	Description	Qty
1	SW1285	Harrow Bar - GLS5	1
2	SW983	Tine Clamp	20
3	SWB198	Pigtail Tine	20
4	SW1122	Adapter Plate	2
5	SW757	Spacer - 16x30x12mm	4
6	SW758	Spacer - 16x39x12mm	2
7	SW759	Spacer - 16x70x6mm	2

6.5.2.2 Following Harrow - GLS5 - Continued

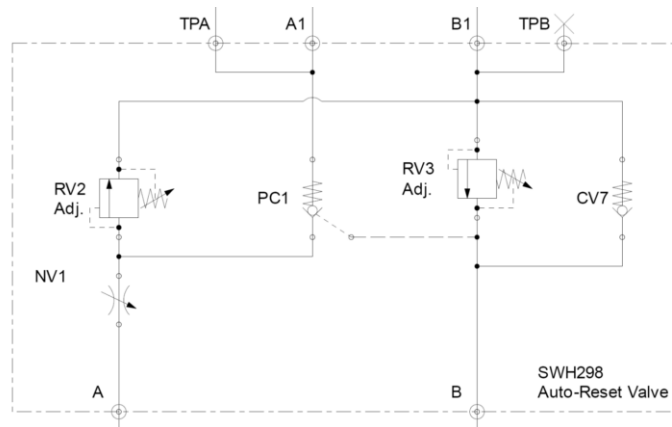
GLS5 Only - Complete Assembly – SWA216 - Continued			
8	SWM10100	M10x100 Bolt	40
9	SWM10004	M10 Nut – Nylock	40
10	SWM10001	M10 Washer – Flat	80
11	SWM1250	M12x50 Bolt	4
12	SWM12004	M12 Nut – Nylock	4
13	SWM12001	M12 Washer – Flat	8
14	SWM1660	M16x60 Bolt	2
15	SWM16004	M16 Nut – Nylock	2
16	SWM16001	M16 Washer – Flat	4
17	SWM2080	M20x80 Bolt	4
18	SWM20004	M20 Nut – Nylock	4
19	SWM20001	M20 Washer – Flat	8

7. Hydraulic Function Diagrams

Standard Symbols Key:

	=	Double Acting Cylinder
	=	Single Acting Cylinder
	=	Accumulator
	=	Pressure Gauge
	=	Quick Release/Check Valve
	=	Ball Valve
	=	Flow Divider/Combiner
	=	Pressure Relief Valve
	=	Flow Restrictor

Auto Reset Valve:



7.1 GLS3AR - Hydraulic Function Schematic

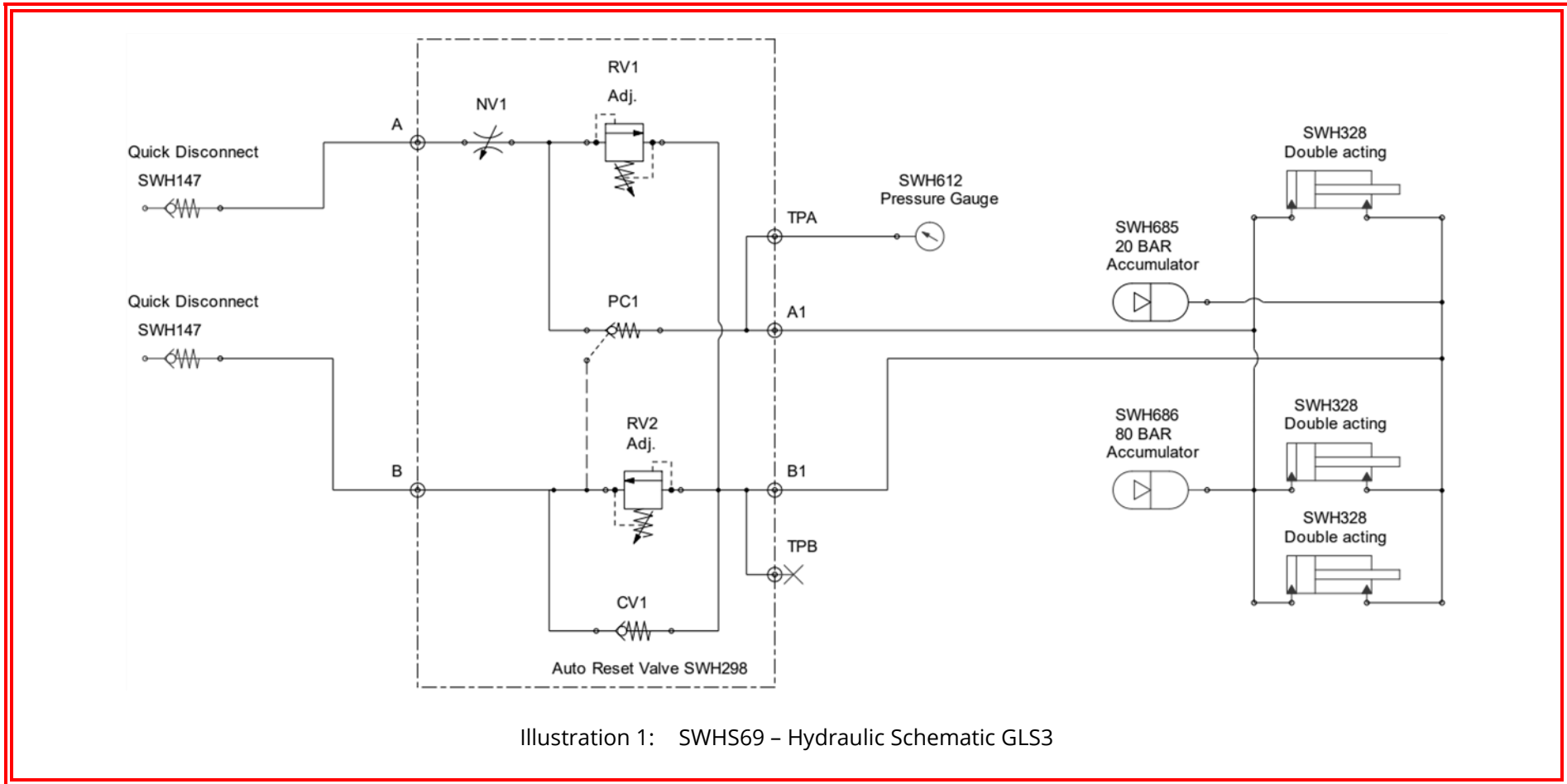


Illustration 1: SWHS69 – Hydraulic Schematic GLS3

7.2 GLS4AR - Hydraulic Function Schematic

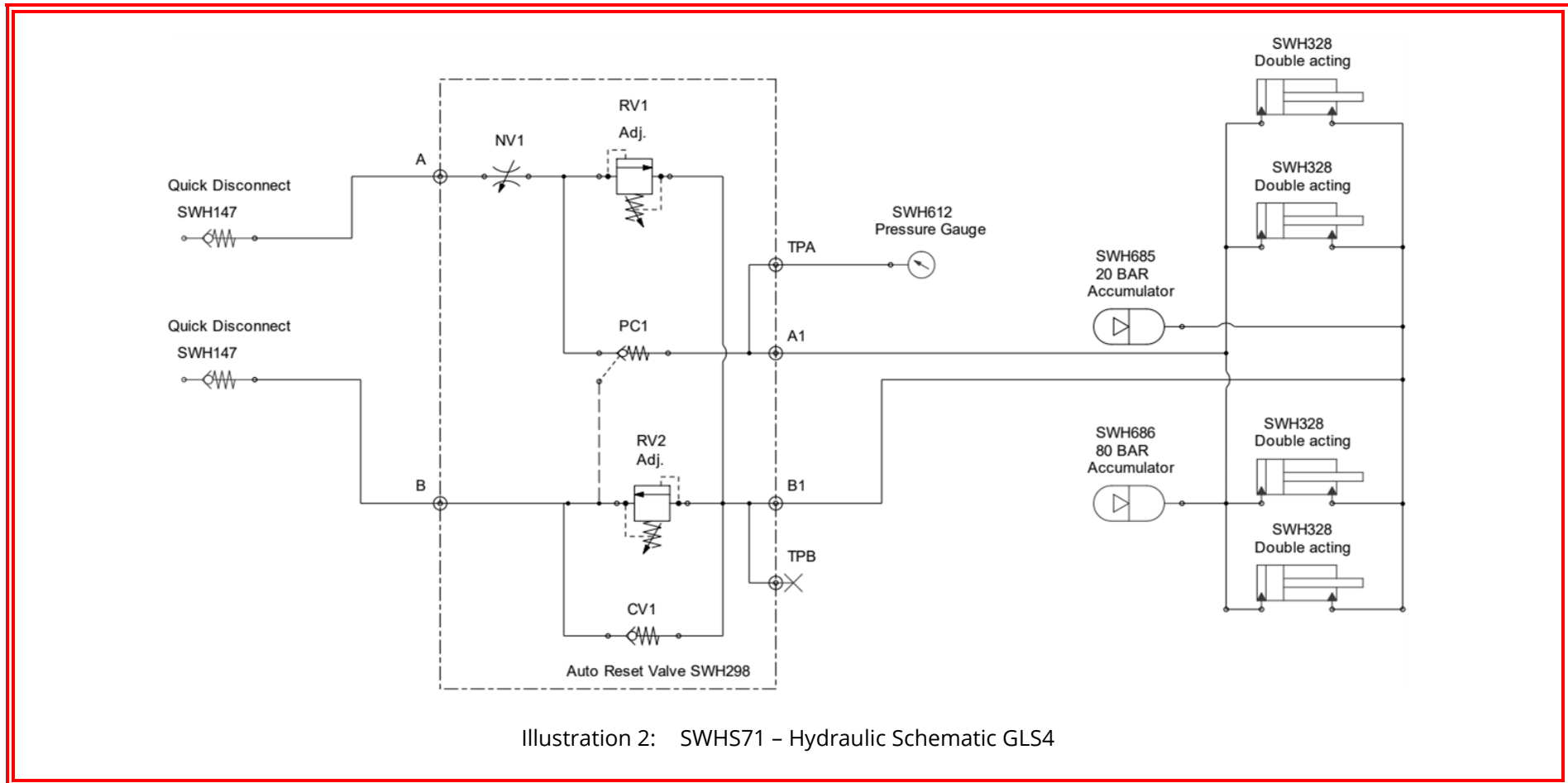


Illustration 2: SWHS71 - Hydraulic Schematic GLS4

7.3 GLS5AR - Hydraulic Function Schematic

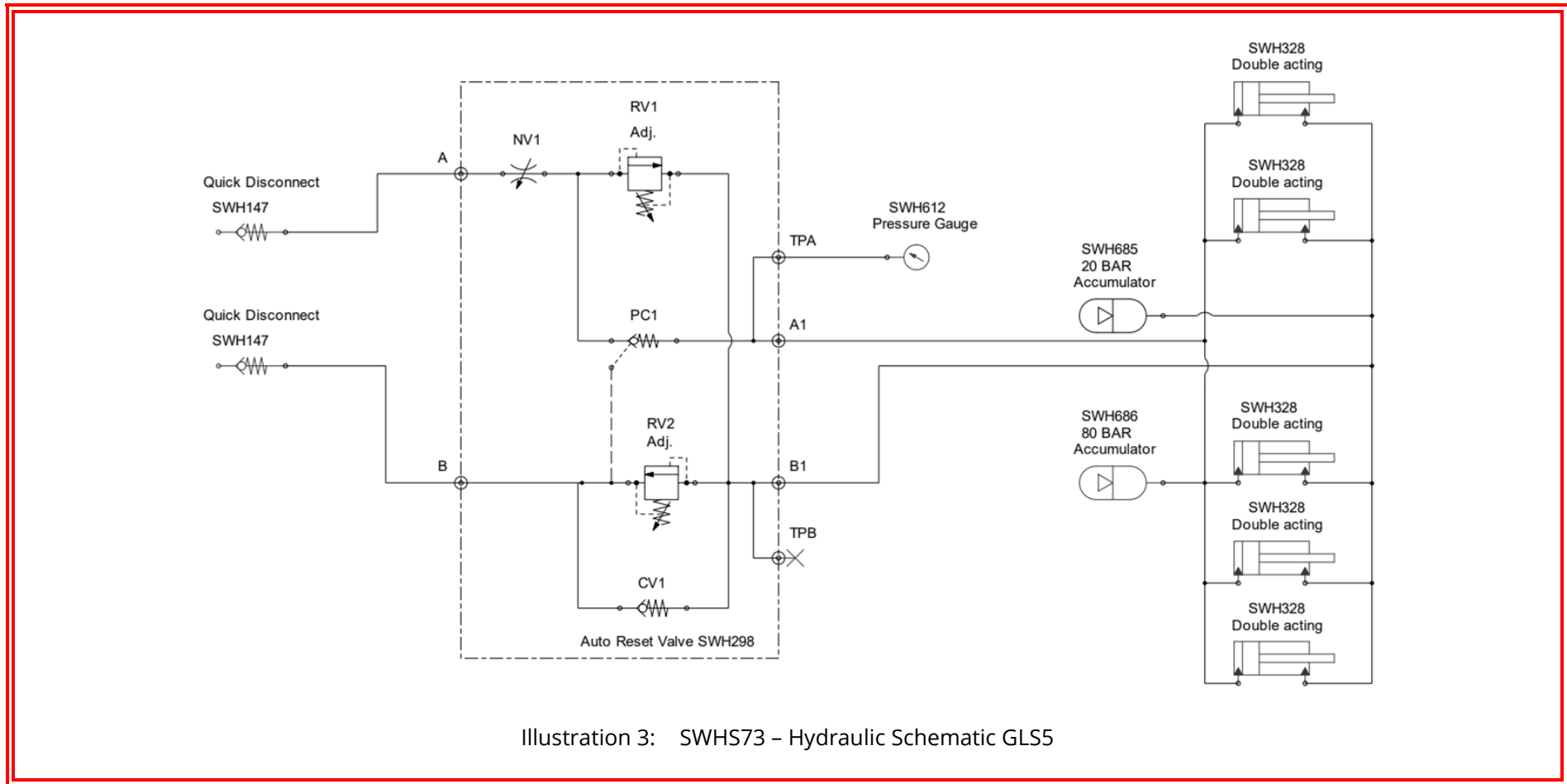
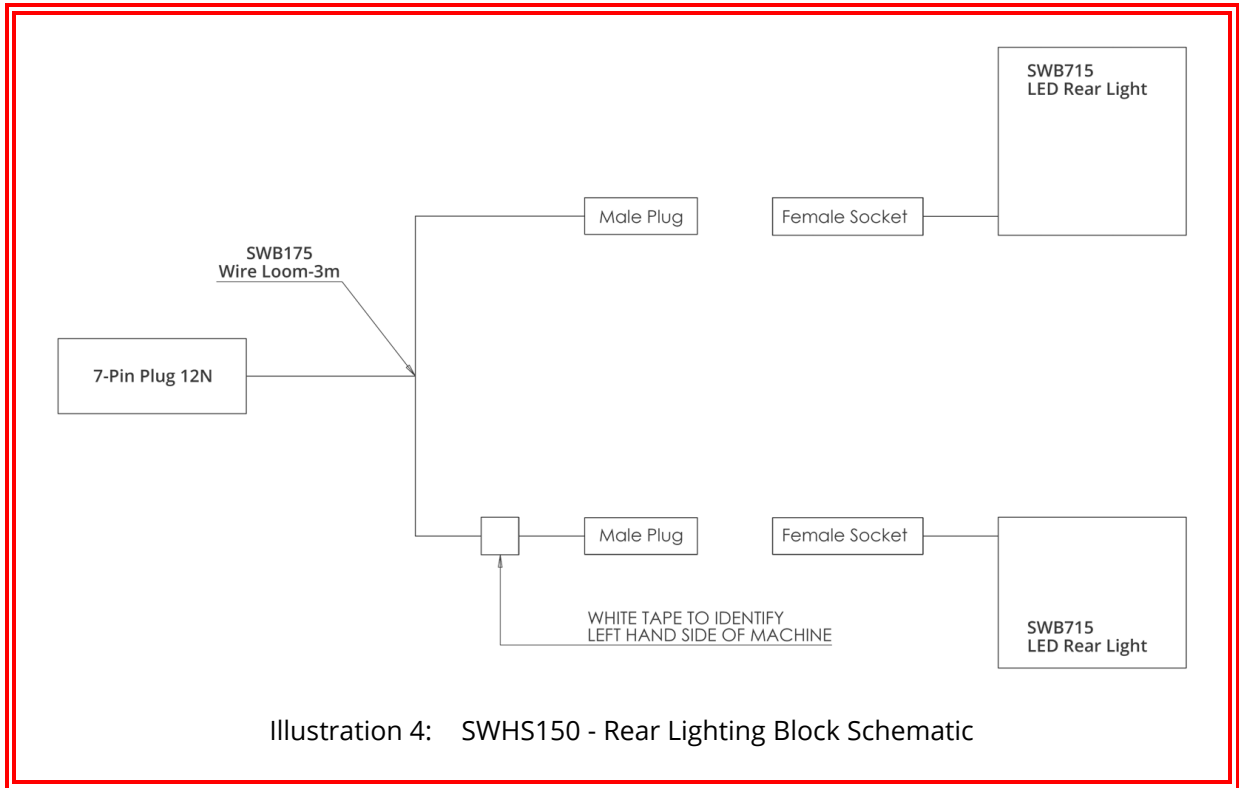


Illustration 3: SWHS73 - Hydraulic Schematic GLS5

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](#)