Spearhead

OFFSET FLAIL

Q1200-OS/Q1600-OS/Q2000-OS

Edition 1.1 - **Jan** 2011
Part No. 8999058

HANDBOOK & PARTS MANUAL

CE Declaration of Conformity, Conforming to EU Machinery Directive 2006/42/EC

We, Spearhead Machinery Ltd, Green View, Salford Priors, Evesham, Worcestershire, WR11 8SW hereby declare that:

Product .....

Product Code.....

Serial No.....

Type.....

Manufactured by: Alamo Manufacturing Services (UK) Limited, Station Road, Salford Priors, Evesham, Worcestershire, WR11 8SW

Complies with the required provisions of the Machinery Directive 2006/42/EC. The Machinery Directive is supported by the following harmonized standards:

- BS EN ISO 14121-1 (2007) Safety of Machinery – Risk Assessment, Part 1: Principles Part 2: Practical Guide and Examples of Methods.
- BS EN ISO 12100-1 (2010) Safety of Machinery – Part 1: Basic Terminology and Methodology Part 2: Technical Principles.
- BS EN 349 (1993) + A1 (2008) Safety of Machinery – Minimum Distances to avoid the Entrapment of Human Body Parts.
- BS EN 953 (1998) Safety of Machinery – Guards General Requirements for the Design and Construction of Fixed and Movable Guards.
- BS EN 982 (1996) + A1 (2008) Safety Requirements for Fluid Power Systems and their Components. Hydraulics.

The EC Declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed

(On behalf of Spearhead Machinery Ltd)

Status General Manager

Date .....

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Safety

- Never operate the machine with other people present, as it is possible for debris, including stones, to be discharged from the front and rear of the flail hood.
- Always ensure all cab safety guards are in place and all tractor windows closed.
- Never allow an inexperienced person to operate the machine without supervision.
- Never allow children to play on or around the machine at any time.
- Never attempt any maintenance or adjustment without first disengaging the PTO, lowering to the ground, stopping the tractor engine applying the tractor parking brake and on level ground.
- Before leaving the tractor cab always ensure that the machine is firmly on the ground, and the rotor has stopped spinning.
- Never stop the engine with the PTO engaged.
- Always check that all guards are properly fitted, check there are no damaged or loose parts. Particular attention should be given to the flails to ensure they are not damaged, cracked or missing.
- Never operate with flails missing.
- Always operate PTO at recommended speed 540/1000 R.P.M. as indicated on the decal.
- Always inspect work area for wire, steel posts, large stones and other dangerous materials and remove before starting work.
- Never operate with wire/debris around rotor. Stop immediately.
- Never attempt to use the machine for any purpose other than that it was designed for.
- Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.
- Never transport with the PTO engaged.
- When parking up, always lower to the ground

Safety Warning Stickers

Carefully read Operator's Manual before handling this machine. Observe instructions and safety rules when operating.

Shut off engine
Remove key

Keep nuts and bolts tight, check every 8 hours.

Stay clear of mower flails/blades

Keep a safe distance When the machine is running

Beware of escaping fluid

Do not remove/open guard.

Introduction

The Spearhead Q120-OS, Q160-OS and Q200-OS are robust high capacity flail mowers that are easy to operate and maintain, but to ensure trouble-free operation this manual should be carefully studied.

Safety First

Do not start the machine until you fully understand operation and safety precaution requirements.

Tractor Requirements

- Spearhead strongly recommends using a 60+HP tractor for 1.2m, 80+HP tractor for 1.6m and 100+Hp tractor for the 2.0m
- with **CATEGORY 2** front or rear linkage.
- Minimum tractor weight including ballast must be 2500kg.
- PTO must be independent live drive to enable continuous PTO drive even when tractor clutch is pressed down.
- Before hitching, ensure position control is selected. Do not attempt to hitch in draft control.
- Check chains and stabilizers must be in good working order to hold the machine firmly. Do not operate without checking that chains and stabilizers are tight.
- Spearhead particularly recommend ‘turn buckle’ type check chains.
- Set linkage lift rods to an equal length.
- Two double acting spool are required.
- Clockwise rotating tractor PTO as standard, anti-clockwise available as an option.

Attaching To the Tractor

Fit the machine to the tractor linkage in the standard way, ensuring the correct match of linkage (**CAT 2 pins**). Check that the top link is in good order and threads are well lubricated, (as fine adjustment to height of cut is regulated by the top link). Use stabilizers to take any free movement out of lower link arms. Before fitting the machine to the tractor linkage you should ensure there is sufficient front weight to ensure the front wheels are always in contact with the ground. This is most important for safe transport and stability when turning on slopes.

Before fitting the PTO for the first time, it may be necessary to adjust the length. There should be maximum engagement of the sliding tubes without bottoming at the shortest operation position. To check, first connect the mower to the tractor. Pull the PTO shaft apart and connect to the tractor PTO output shaft and the gearbox input shaft. Hold the half shafts next to each other in the shortest working position.

NOTE – CHECK ROTATION OF OVERRUN CLUTCH BEFORE CUTTING PTO SHAFT

If necessary, shorten the inner and outer guard tubes equally (Fig. 2). Shorten the inner and outer sliding profiles by the same length as the guard tubes. File all sharp edges and remove burrs. Grease sliding profiles.

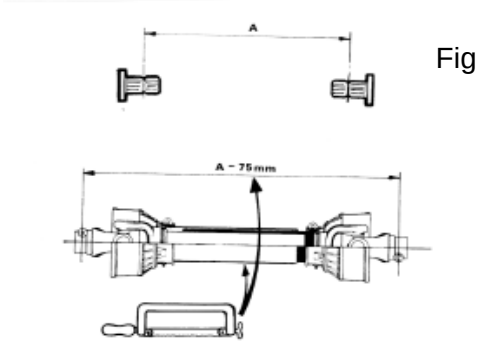
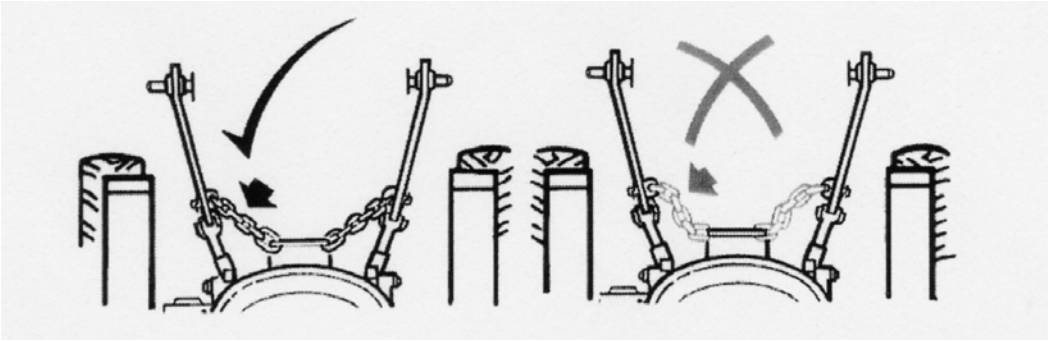


Fig 2

To fit the PTO, first clean and grease. Press pins on the yoke and simultaneously push the PTO drive shaft on to PTO shaft of the tractor until pins engage.

The PTO shaft is fitted with a non-rotating safety guard. It should be secured to the machine and tractor with the two retaining chains provided.



Warning

Fully tighten check chains and linkage stabilisers to hold the machine rigid. There must be no side ways movement, it is dangerous.

Setting Up & Adjustment

Hydraulic Offset

Can be moved from central to fully offset by operating the tractor external spool valve to the desired position

Front Linkage Mounting

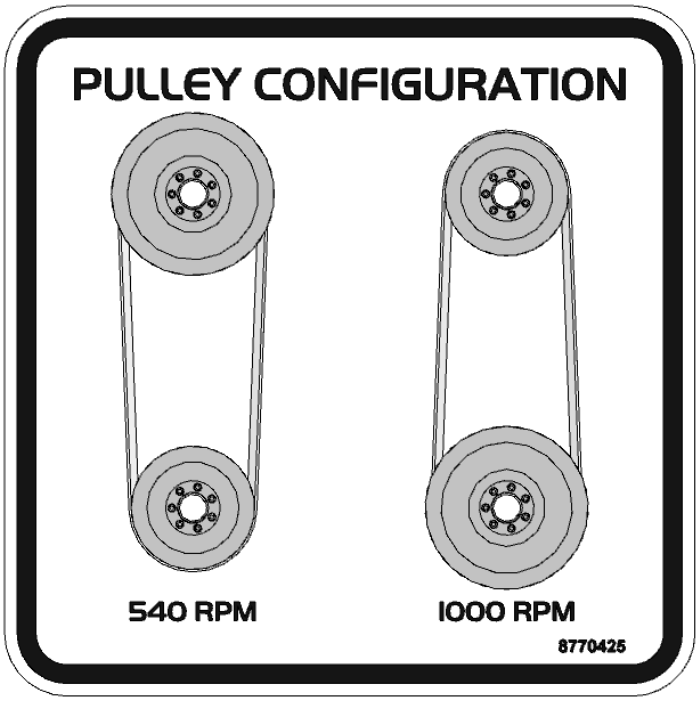
Tractor front PTO's has no standard rotation so it may be necessary to turn the gearbox through 180 degrees (top to bottom), to compensate for this irregularity. It is important the rotor rotates (Fig. 5a) to ensure the flails cut.

540 or 1000 RPM

If the tractor has only 540rpm PTO, the larger pulley should drive the smaller pulley to act as an increaser.
If the tractor has only 1000rpm PTO, the smaller pulley should drive the larger pulley to act as a reducer.

(Fig. 5). ***Never operate the PTO at 1000 RPM with the larger pulley driving the smaller gearbox pulley.*** This will drive the rotor at higher speed and will result in severe damage to the machine.

Fig. 5



Operation

Engage the PTO only when the tractor engine is at low revs to prevent shock damage to machine. Slowly increase the engine revs to achieve the standard 1000/540 RPM PTO speed, as indicated by the decal. ***If at any time serious vibration occurs, stop the engine immediately and check that no flails are missing, (***following all safety precautions). The cause must be found and rectified immediately or other components may be affected.

When in work, lower the machine head into float so that it drops to the ground, then lower link arms until roller is in full contact with the ground. allowing the machine to follow the contours of the ground with the head in float. Select a sensible forward speed bearing in mind the density of growth, the terrain, and the available horsepower, taking extra care when turning, particularly on slopes. When turning it is not necessary to lift the machine off the.

Quality of finish is determined by the forward speed i.e. a slow speed will produce a high quality of cut, whereas faster forward speeds are used when high output is first priority.

Rotor Care

Always operate at the correct PTO speed, 540/1000 r.p.m.

Always inspect the condition of flails and bolts on a very regular basis.

Always replace bushes, bolts and nuts when replacing flails.

Always use genuine flails, bolts and nuts. The flails and bolts are made to a very high standard from a high tensile steel, being fully heat treated and subjected to rigorous testing in very stringent conditions to comply with our rigid quality control requirements

Never operate with bolts loose or flails missing.

Never change to a different spec or type of flail, this will immediately put the rotor out of balance.

Never engage rotor at high PTO speeds.

Remember, the rotor is highly complex and expensive to manufacture, please treat with care and enjoy the benefits of the Spearhead Rotor.

Warning

Rotor is balanced to be run at PTO speed, do not operate above or below this speed. Optimum rotor speed 2200r.p.m.

Warning

Never carry out any servicing or maintenance work without first disengaging the PTO and stopping the tractor.

Servicing & Maintenance

Gearbox

- Before first use check gearbox oil level, thereafter check every 8 hours.
- After the first 50 hours drain and replace the gearbox oil, thereafter annually. Replace with EP90.
- Regularly inspect gearbox seals. If oil is leaking replace immediately. This is your responsibility to maintain a long and reliable working life.
- Check that gearbox bolts are fully tightened, and secured with loctite.

Warning

Check that all gearbox bolts remain tight. When the machine is new there will be a 'bedding in' period when very frequent checking is important.

Warning

It is imperative the screws are checked on the pulley taper locks (once bedded in, loctite compound may prove useful).

Warning

Never carry out any servicing or maintenance work without first disengaging the PTO and stopping the tractor.

Flail Rotor (Daily)

- Grease all bearings daily.
- Check there is no wrapping of string, plastic, grass or other debris on rotor shaft and rear roller bearing.
- Check the condition of flails and ensure all retaining bolts are tight. When flails are replaced, care must be taken to maintain balance of the rotor shaft, do not change to a different type.
- Check flail retaining bolt and nut for tightness, 160lb.ft – 200Nm.
- Never operate with any flails missing. This will cause severe vibration and lead to rapid bearing wear and quickly cause the hood to crack.

- Blunt flails leave an untidy finish and absorb excessive power, when re-sharpening always wear protective clothing and goggles.
- When flails are showing severe wear, damage or cracking, they must be replaced immediately. Never attempt to weld the flails, as this will make them very brittle, thus extremely dangerous. Do not take risks with the cutting flails, if in doubt replace.
- When replacing flails always replace bolts and nuts for new.
- Regularly check that all bearing bolts are tight.
- It is imperative the screws are checked on the taper locks (once bedded in loctite glue may prove useful).

Greasing

Daily grease all points shown below.

Fig 6

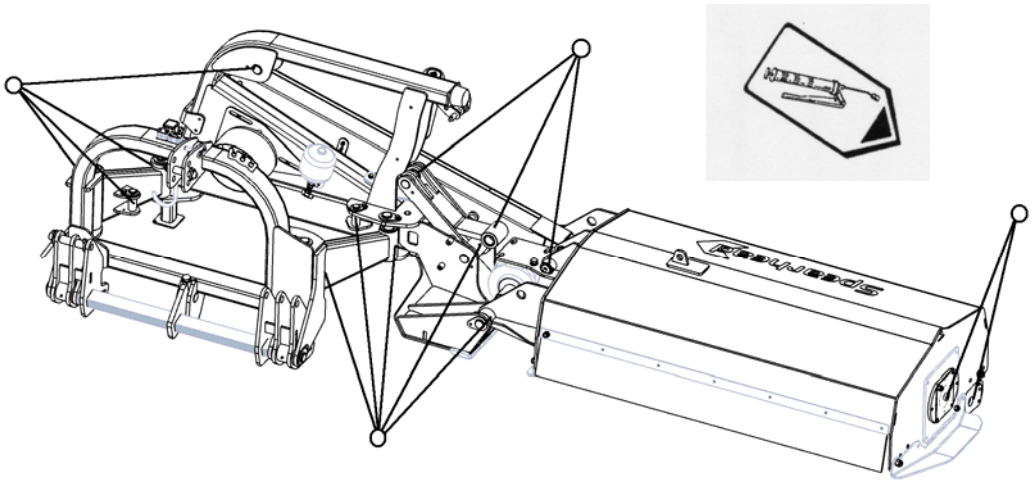


Fig. 6
Grease point for rotor, cross shaft and rear roller bearings.

Warning

Grease rotor bearing and rear roller at least every 8 hours and especially after washing.

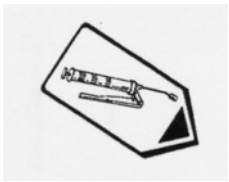


Fig 7

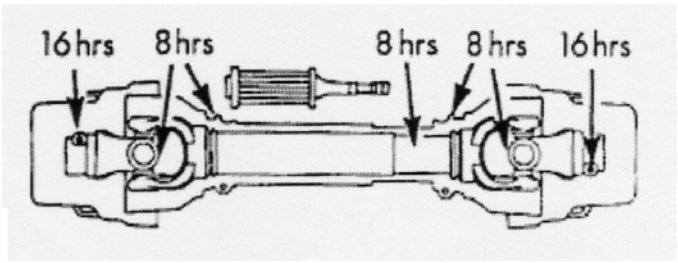


Fig. 7
Dismantle and clean PTO sliding surfaces and re-grease universal joints.

Regularly

- Check the condition of drive belts, ensuring they are aligned and properly tensioned to avoid any unnecessary belt wear. The belt is tensioned by an adjuster bolt, (fig 9)
- Remove both guards for access when tensioning belts; ensure belts are running in line after adjustment. The tension required is shown in figure 8

N.B.
The pulleys are fitted with taper locks which have 7 screws to tighten, and 3 holes to aid removal in the pulley centers.

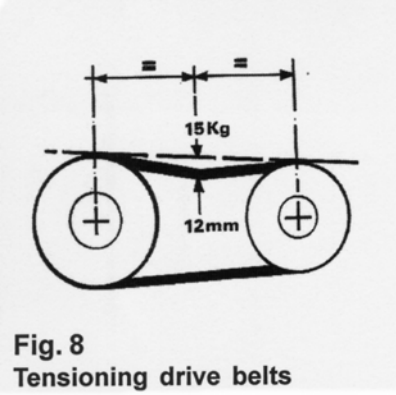
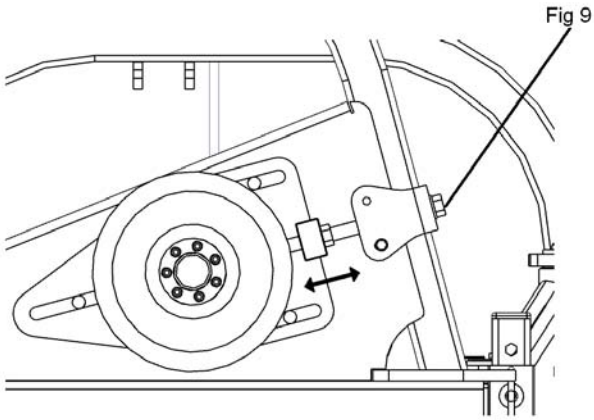


Fig. 8
Tensioning drive belts



- Check there is no wrapping of string, plastic, grass or other debris on rear roller.

Skids

When operating on abrasive soils, particularly in stubbles and similar conditions with thin ground cover, excessive skid wear may be expected

Storage

At the end of the season before storing, thoroughly wash the machine off, removing all traces of grass and dirt. Great care must be taken when washing with high-pressure hoses, do not hold the water jet close to the paintwork. Use steam cleaners with caution and be sure to remove all detergents to avoid any discoloring or damage to paint. Grease all grease points until fresh grease shows.

Transportation

Please observe Public Highway Regulations, concerning transport of machines and securely attach a registration/lighting board. Take care when travelling over rough ground to avoid bouncing the machine on the tractor linkage, causing unnecessary strain. When in transport pin must be fitted to stop head falling.

Servicing Checklist *(see relevant sections for full details)*

Regularly	Gearbox: Inspect seals, check bolts for tightness.
	Flail rotor: check bolts for tightness, check condition of flails, check retaining bolts for tightness, check rotor bearing bolts for tightness.
Daily	Maintain correct belt tension.
	Check gearbox oil level.
	Grease PTO shaft.
	Grease all points as shown in diagram.
Every Year	Drain and replace gearbox oil with EP90.

Torque Settings

Size:	Tensile strength:	Description:	Torque setting - Nm.
M8	12.9	Pulley clamps	45
M10	8.8	General fasteners	65
M12	8.8	General fasteners	114
M16	8.8	Roller plate bolts	280
M14	10.9	Flail bolts	200
M24	8.8	Head stock bolts	950

Troubleshooting

Problem	Cause	Solution
Gearbox Overheating	Oil level incorrect Oil grade incorrect Implement overloaded Wrong P.T.O. speed	Check oil level Check oil grade Reduce forward speed Ensure tractor P.T.O. speed matches implement.
Excessive Belt Wear	Belt and Pulley condition Pulley Alignment Incorrect belt tension Overloading of implement	Replace if necessary Check Alignment Tension belts to spec. Reduce forward speed or increase height of cut.
P.T.O. wear UJ failure	Working angle too great Shaft incorrect length i.e. Bottoming out Lack of maintenance	Reduce offset of implement Resize P.T.O. shaft as recommended Grease P.T.O. shaft as recommended.
Cut quality	Flails worn Rotor speed/Direction Crop condition.	Replace worn flails Check tractor P.T.O. speed Look for suitable conditions.
Rotor bearing failure	Rotor out of balance Wire/string in bearing Lack of maintenance Water in bearing.	See rotor vibration Replace bearings Re-balance/replace rotor Remove debris.

The Spearhead Warranty

Spearhead warrants that the Spearhead machine referred to in the Warranty Registration Form will be free from defects in materials and workmanship for a period of 12 months from the date of sale. This warranty does not affect your statutory rights, but merely adds to them. Should you have a problem within 12 months from the date of sale please contact your original Spearhead dealer, or Spearhead's Service Department. Any part found to be defective during this period would be replaced or repaired, at Spearhead's discretion, by the dealer or a Spearhead Service Engineer.

Spearhead Warranty Conditions

1. The Warranty Registration Form must be completed and returned to Spearhead within 30 days of the date of sale.

2. This warranty does not cover defects arising from fair wear and tear, willful damage, negligence, misuse, abnormal working conditions, use in competition, failure to follow Spearhead's instructions (oral or written, including all instructions and recommendation made in the Operator's Manual) or alteration or repair of the machinery without Spearhead's approval.

3. The machinery must have been serviced in accordance with the Operator's Manual and the Service Log must have been kept up to date and made available to the dealer should service, repair or warranty work be undertaken.

4. This warranty does not cover claims in respect of wearing parts such as blades, flails, paintwork, tyres, belts, hydraulic hoses, bearings, bushes, linkage pins, top links, ball ends unless there is a manufacturing or material defect or the cost of normal servicing items such as oils and lubricants.

5. This warranty does not cover any expenses or losses incurred whilst the machinery is out of use for warranty repairs or parts replacement.

6. This warranty does not extend to parts, materials or equipment not manufactured by Spearhead, for which the Buyer shall only be entitled to the benefit of any such warranty or guarantee given by the manufacturer to Spearhead. Only genuine Spearhead replacement parts will be allowable for warranty claims.

7. All parts replaced by Spearhead under warranty become the property of Spearhead and must be returned to Spearhead if Spearhead so request. Such parts may only be disposed of after a warranty claim has been accepted and processed by Spearhead.

8. Spearhead is not liable under this warranty for any repairs carried out without Spearhead's written consent or without Spearhead being afforded a reasonable opportunity to inspect the machinery the subject of the warranty claim. Spearhead's written consent must, therefore, be obtained before any repairs are carried out or parts replaced. Use of non-Spearhead parts automatically invalidates the Spearhead Warranty. Failed components must not be dismantled except as specifically authorized by Spearhead and dismantling of any components without authorization from Spearhead will invalidate this warranty.

9. All warranty claims must be submitted to Spearhead on Spearhead Warranty Claim Forms within 30 days of completion of warranty work.

Using the machine implies the knowledge and acceptance of these instructions and the limitations contained in this Manual

Extended Warranty

As an extension to the 12-month warranty set out above, Spearhead will provide an additional 12 month warranty cover subject to the Spearhead Warranty Conditions above and the Extended Warranty Conditions below.

Extended Warranty Conditions

1. The extended warranty applies to hydraulic pumps, motors, valves and gearboxes only. It does not apply to other parts, to consumables such as lubricants, seals or filters or to labor charges

2. The machinery must have had an annual service carried out by an Authorized Spearhead Dealer or a Spearhead Service Engineer within 1 month of the first anniversary of the date of sale and the Service Report form must have been completed and stamped by the servicing dealer or Spearhead Service Engineer and sent to Spearhead within 14 days after the first annual service.

3. The extended warranty does not cover costs of transportation of the machinery to or from the dealer or Spearhead or the call out costs or traveling expenses of on-site visits.

Transfer of Warranty

The Spearhead warranty may be transferred to a subsequent owner of the machinery (for use within the UK) for the balance of the warranty period subject to all of the warranty conditions and provided that the Change of Owner form is completed and sent to Spearhead within 14 days of change of ownership.

Spearhead reserves the right to make alterations and improvements to any machinery without notification and without obligation to do so.

OFFSET Flail Mowers

Q1200-OS/Q1600-OS
Q2000-OS

Parts Book

Edition 1.1 – Jan 2011

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Ordering Your Part's

When ordering parts please refer to your parts list to help your dealer with your order.

Part number and quantity
Description
Machine model number
Serial number of the machine
Delivery instructions (e.g. next day).

Delivery is normally via carrier direct to your dealer. Please check with your dealer for stock availability and arrangement of dispatch. Ensure you or your dealer has sufficient cover for parts required outside factory hours.

When ordering your seal kits please quote both codes stamped on the base of the cylinder.

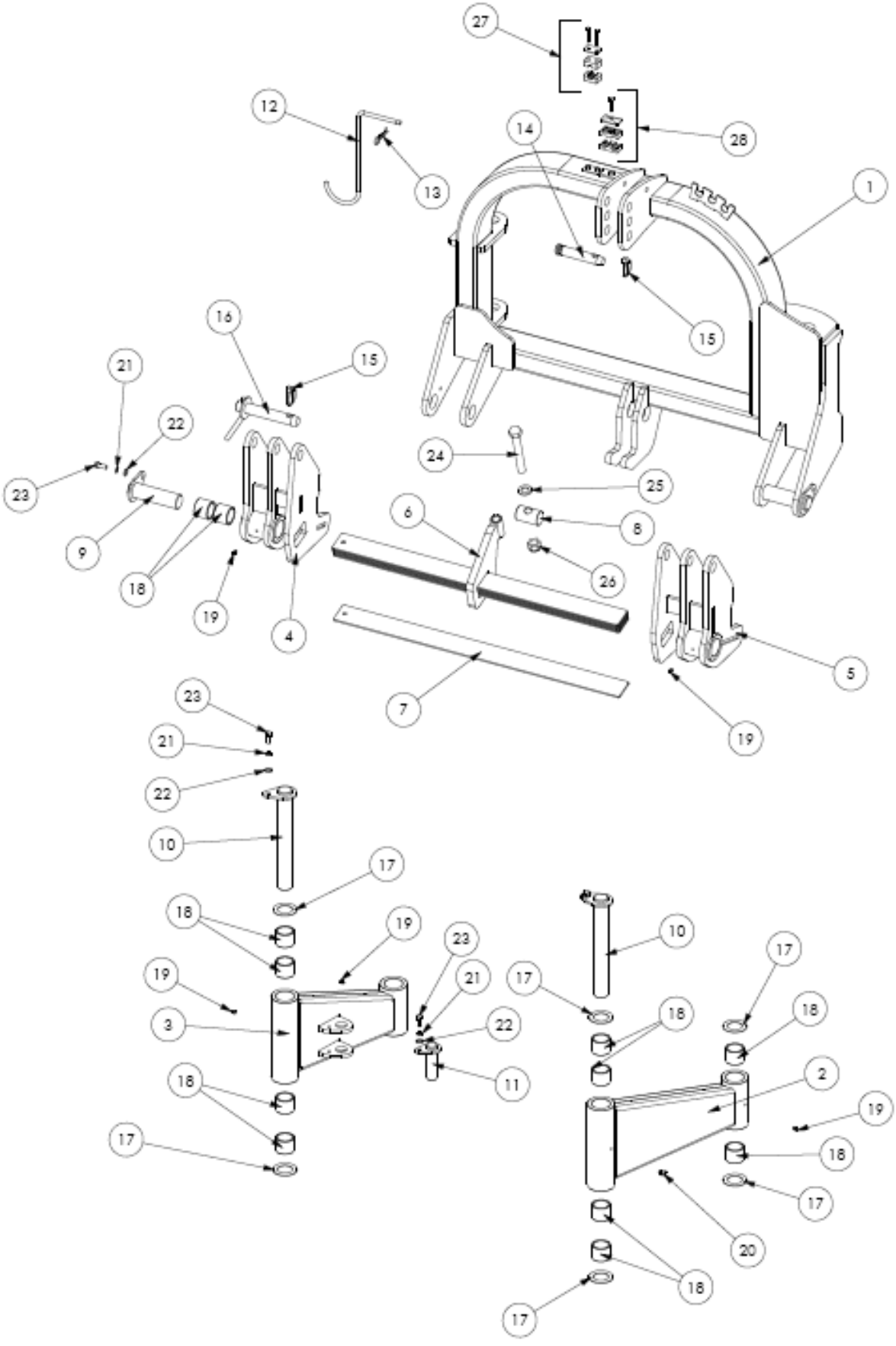
Important Note

The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the machine it relates to, please contact the "After Sales Department" for advice.

Key:

(LH) = Left hand
(RH) = *Right hand*

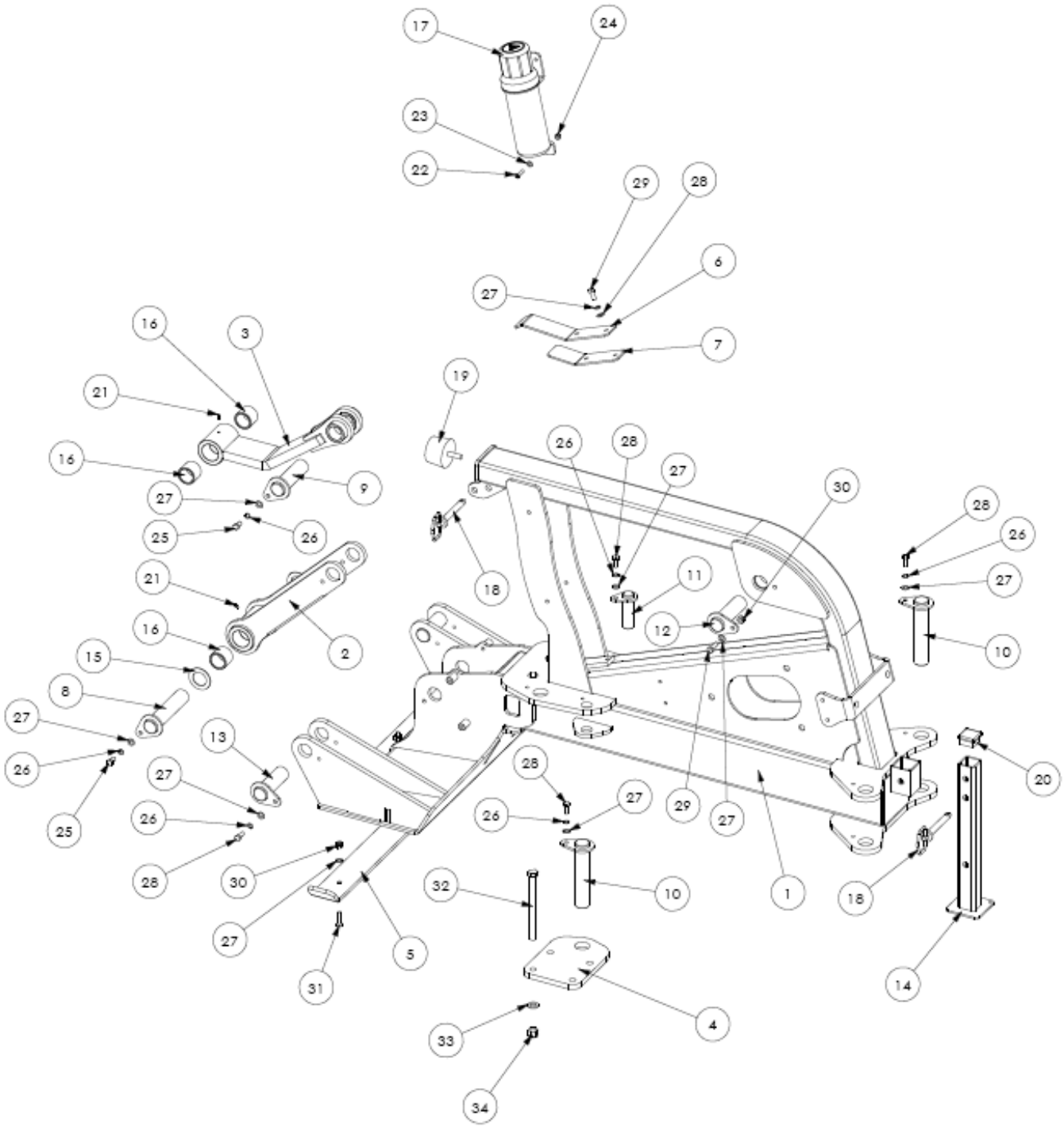
LH HEADSTOCK - SI80023.01
RH HEADSTOCK - SI80023.30



LH HEADSTOCK - SI80023.01
RH HEADSTOCK - SI80023.30

REF NO	PART NO	QTY	DESCRIPTION
1	180548	1	LH HEADSTOCK
1	180567	1	RH HEADSTOCK
2	180550	1	LH PARALLEL LINK
3	180551	1	RH PARALLEL LINK
4	180552	1	RH LOWER LINK BRACKET
5	180553	1	LH LOWER LINK BRACKET
6	180554	1	TENSIONING BRACKET
7	180555	8	BREAK BACK LEAF
8	6310228	1	BREAK BACK TENSIONING PIN
9	1782110	2	PEAR PIN: 40 X 134mm
10	1782111	2	PEAR PIN: 40 X 292mm
11	1782113	1	PEAR PIN: 30 X 90mm
12	1777434	1	PTO SUPPORT BRACKET
13	6310194	1	R-CLIP
14	6310203	1	CAT 2 TOP LINK PIN
15	00.372.01	3	LYNCH PIN
16	6310208	2	LOWER LINK PIN
17	191.067	8	SPACER
18	4600125	16	BUSH
19	2770467	5	M6 ST GREASE NIPPLE
20	2770497	1	M6 90° GREASE NIPPLE
21	2770469	5	M10 SPRING WASHER
22	2770434	5	M10 FLAT WASHER
23	2770407	5	M10 X 25 BOLT
24	05.292.47	1	M20 X 140 BOLT
25	2770517	1	M20 FLAT WASHER
26	2770409	1	M20 NYLOCK
27	3870631	1	SINGLE HOSE CLAMP
28	3870632	1	DOUBLE HOSE CLAMP

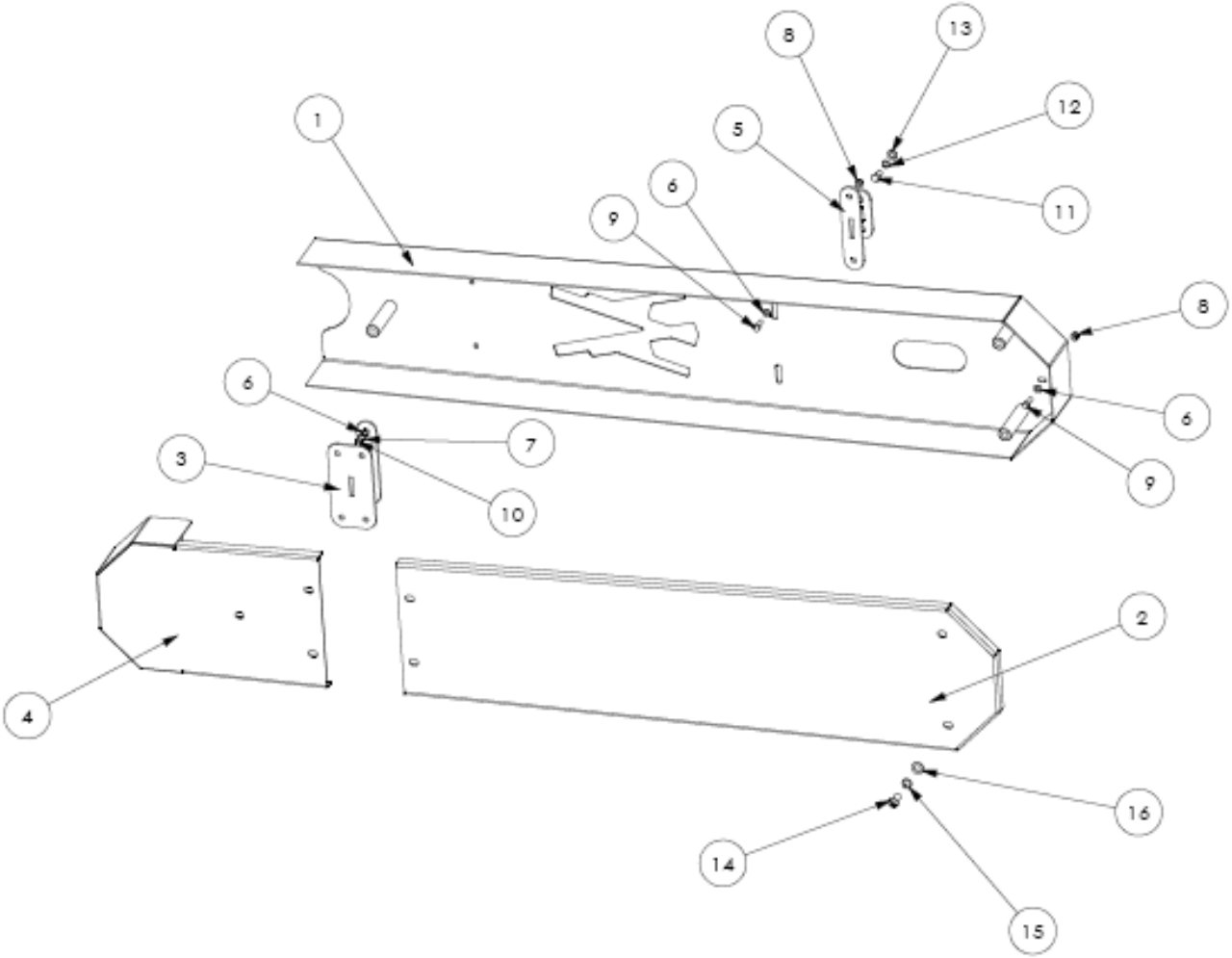
REAR FRAME - SI80023.02



REAR FRAME - SI80023.02

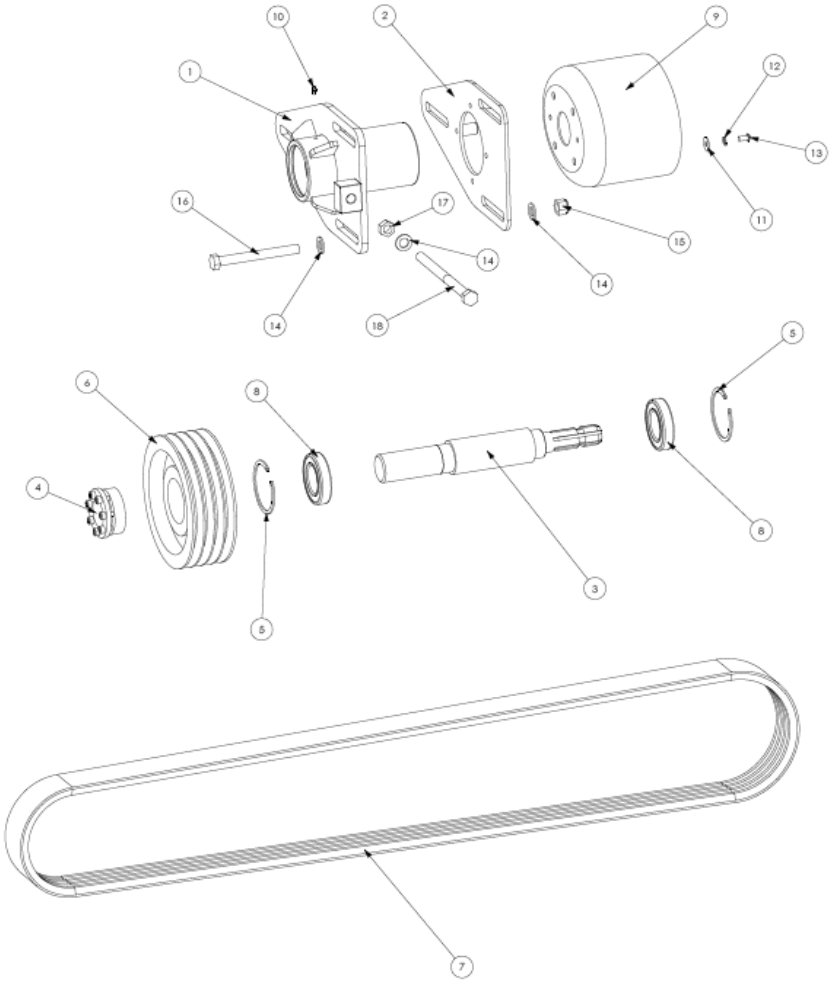
REF NO	PART NO	QTY	DESCRIPTION
1	180549	1	REAR FRAME
2	180556	1	STRAIGHT LINK
3	180557	1	CURVED LINK
4	180558	1	PARRALLEL LINK MOUNT PLATE
5	180561	1	SKID
6	180546	1	OUTER SPRING PLATE
7	180547	1	INNER SPRING PLATE
8	1782104	1	PEAR PIN: 40 X 174mm
9	1782105	1	PEAR PIN: 40 X 130mm
10	1782112	2	PEAR PIN: 40 X 182mm
11	1782113	1	PEAR PIN: 30 X 90mm
12	1782114	1	PEAR PIN: 40 X 124mm
13	1782115	2	PEAR PIN: 40 X 116mm
14	1777870	1	LEG STAND
15	191.067	4	SPACER
16	4600125	4	BUSH
17	46505.01	1	DOCUMENT HOLDER
18	6310220	2	PIN
19	8770634	1	BUMP STOP
20	07.262.03	1	PLASTIC CAP
21	2770467	2	M6 ST GREASE NIPPLE
22	2770398	2	M8 X 30 SKT BUTTON BOLT
23	2770432	2	M8 FLATY WASHER
24	2770416	2	M8 NYLOCK
25	2770418	2	M10 X 20 BOLT
26	2770469	9	M10 SPRING WASHER
27	2770434	10	M10 FLAT WASHER
28	2770407	7	M10 X 25 BOLT
29	2770396	1	M10 X 35 BOLT
30	2770412	4	M10 NYLOCK
31	2770422	3	M10 X 45 SKT CSK SCREW
32	41769.01	2	M16 X 200 BOLT
33	2770454	2	M16 FLAT WASHER
34	2770447	2	M16 NYLOCK

BELT GUARD - SI80023.03



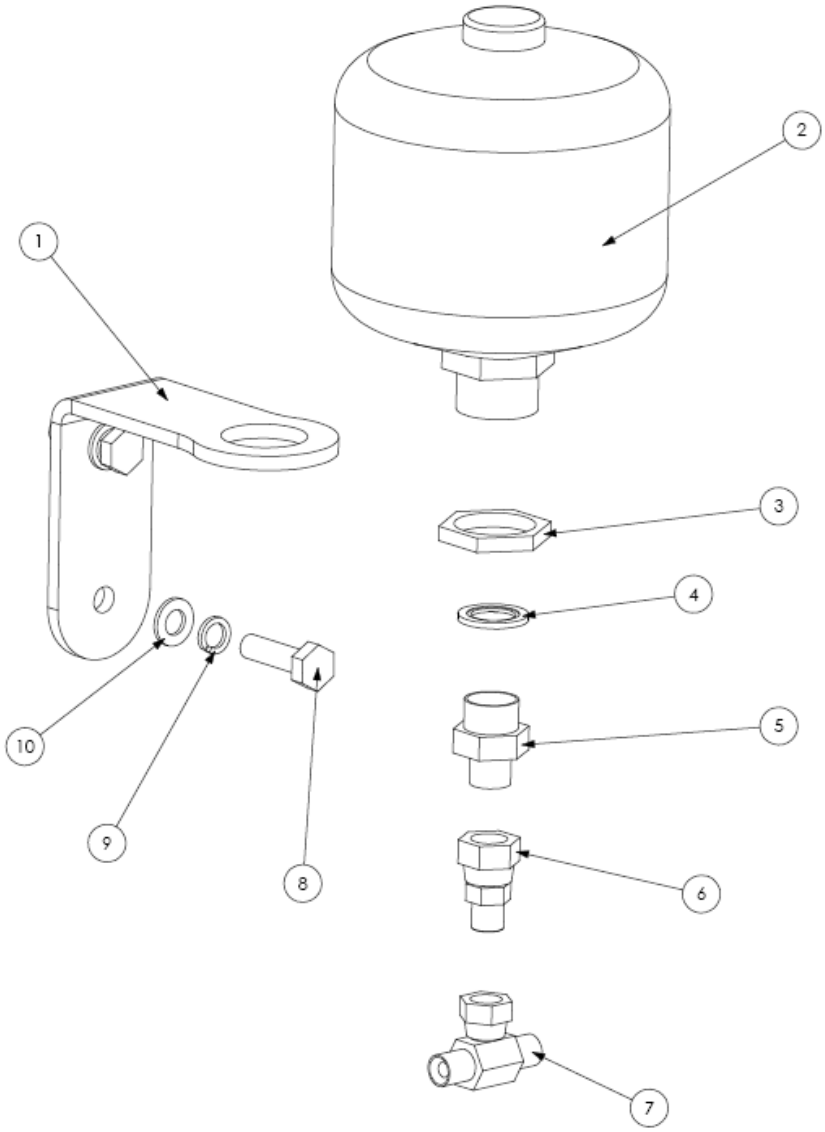
REF NO	PART NO	QTY	DESCRIPTION
1	180562	1	INNER BELT GUARD
2	180563	1	OUTER BELT GUARD
3	180564	1	BELT GUARD INTERNAL BRKT
4	180565	1	GEARBOX GUARD
5	180566	1	BELT GUARD EXTERNAL BRKT
6	2770432	6	M8 FLAT WASHER
7	2770433	2	M8 SPRING WASHER
8	2770416	4	M8 NULOCK
9	2770415	4	M8 X 25 BOLT
10	2770386	2	M8 X 40 BOLT
11	2770418	2	M10 X 20 BOLT
12	2770469	2	M10 SPRING WASHER
13	2770434	2	M10 FLAT WASHER
14	05.625.10	7	M12 X 30 SKT BUTTON BOLT
15	2770442	7	M12 SPRING WASHER
16	2770436	7	M12 FLAT WASHER

PULLEY SUPPORT - SI80023.04



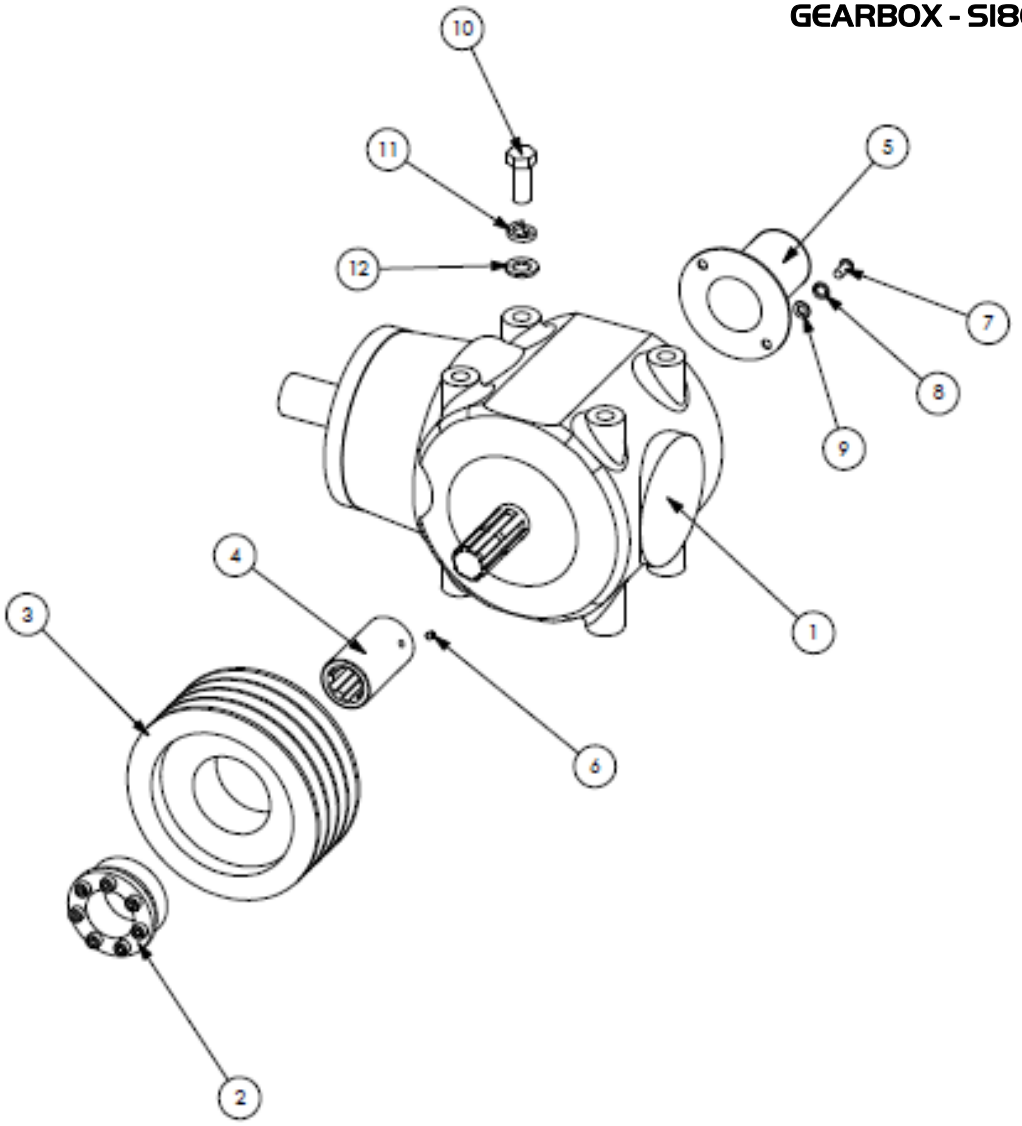
REF NO	PART NO	QTY	DESCRIPTION
1	180559	1	BEARING HOUSING
2	180560	1	SUPPORT PLATE
3	5770051	1	DRIVE SHAFT
4	4770922	1	CLAMPING ELEMENT
5	2771109	1	CIRCLIP
6	4770920	1	PULLEY: 250
7	4770970	1	BELT
8	4771607	2	BEARING
9	5770106	1	CONE
10	2770467	1	M6 ST GREASE NIPPLE
11	2770244	4	M8 REPAIR WASHER
12	2770469	4	M8 SPRING WASHER
13	2770370	4	M8 X 16 SKT BUTTON BOLT
14	2770454	7	M16 FLAT WASHER
15	2770447	3	M16 NYLOCK NUT
16	05.292.51	3	M16 x 170 BOLT
17	05.286.04	1	M16 FULL NUT
18	2770627	1	M16 X 230 BOLT
19	43602.02	1	PTO

ACCUMULATOR BOTTLE - SI80023.05



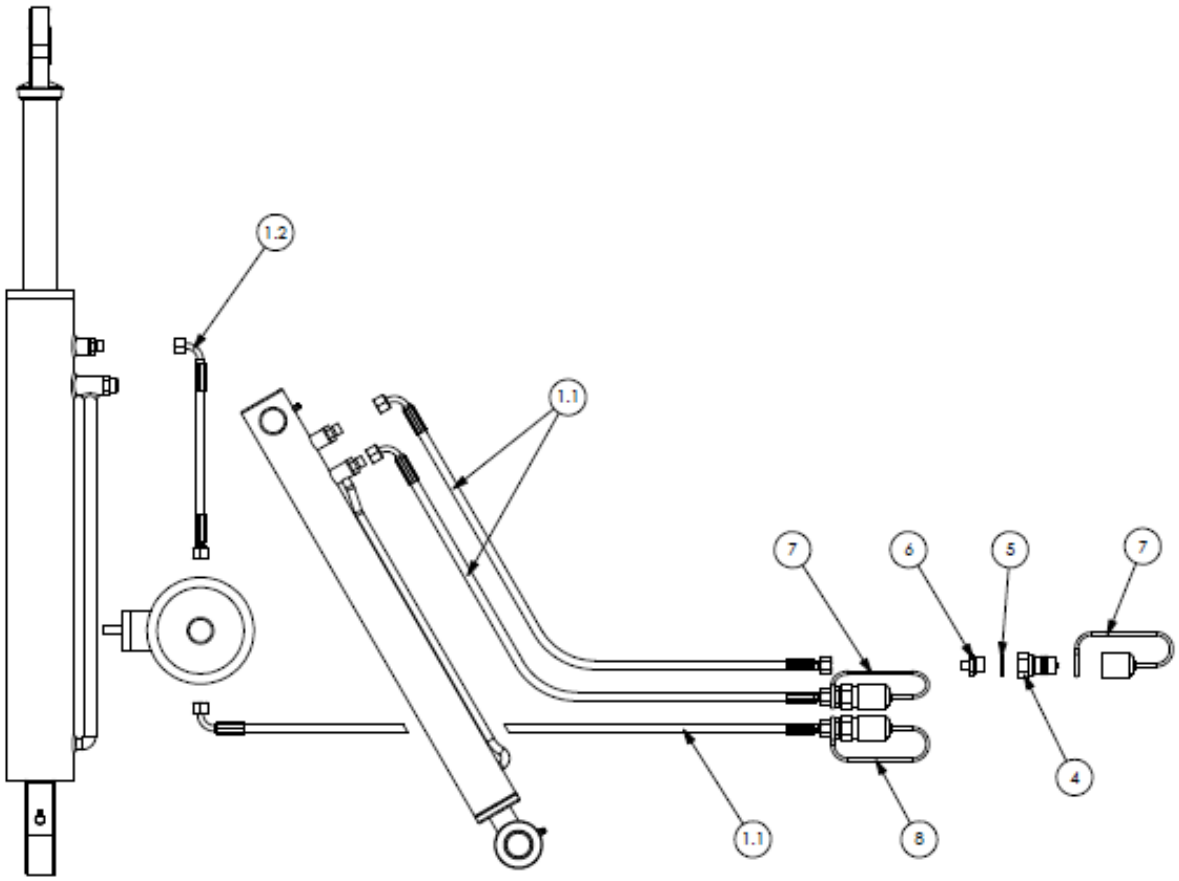
REF NO	PART NO	QTY	DESCRIPTION
1	180441	1	BOTTLE BRACKET
2	3900071	1	ACCUMULATOR
3	8126035	1	M33 NUT
4	8650322	1	M22 DOWTY
5	G2410380	1	M22 X 3/8 ADAPTOR
6	3360079	1	3/8 TO 1/4 ADAPTOR
7	3460101	1	1/4 TEE
8	2770434	2	M10 FLAT WASHER
9	2770469	2	M10 SPRING WASHER
10	2770418	2	M10 X 20 BOLT

GEARBOX - SI80023.06



REF NO	PART NO	QTY	DESCRIPTION
1	5770450	1	GEARBOX
2	4770922	1	CLAMPING ELEMENT
3	4770918	1	PULLEY: 190
4	5770111	1	SPLINED COUPLING
5	1777602	1	COVER
6	05.388.03	2	M6 X 6 GRUB SCREW
7	2770370	2	M8 X 16 SKT BUTTON BOLT
8	2770469	2	M8 SPRING WASHER
9	2770432	2	M8 FLAT WASHER
10	05.264.35	8	M16 X 40 BOLT
11	2770456	8	M16 SPRING WASHER
12	2770454	8	M16 FLAT WASHER

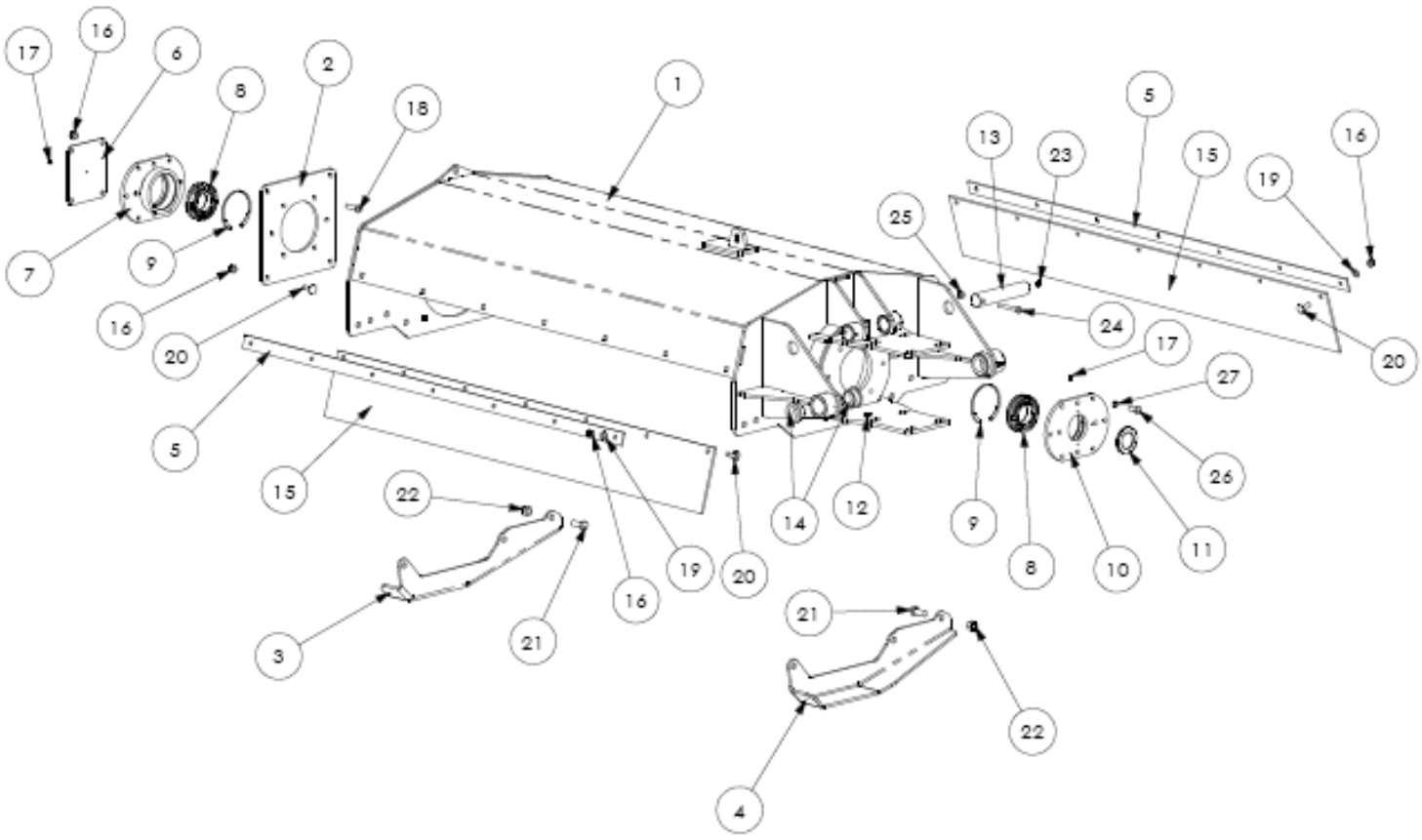
HYDRAULIC CIRCUIT - SI80023.07



HYDRAULIC CIRCUIT - SI80023.07

REF NO	PART NO	QTY	DESCRIPTION
1	3751001	1	HOSE KIT
1.1	3751001.01	3	HOSE: 1/4 X 3M
1.2	3751001.02	1	HOSE: 1/4 X 0.6M
2	43543.03	1	SM HOSE SLEEVE: 1000mm
3	30.058.66	5	SM CABLE TIE
4	3750153	3	1/2 QUICK RELEASE COUPLING
5	3260072	3	1/2 DOWTY
6	3250154	3	1/2-1/4 M-M (REST. 1mm)
7	3700236	2	RED DUST CAP
8	T5386	1	ORANGE DUST CAP

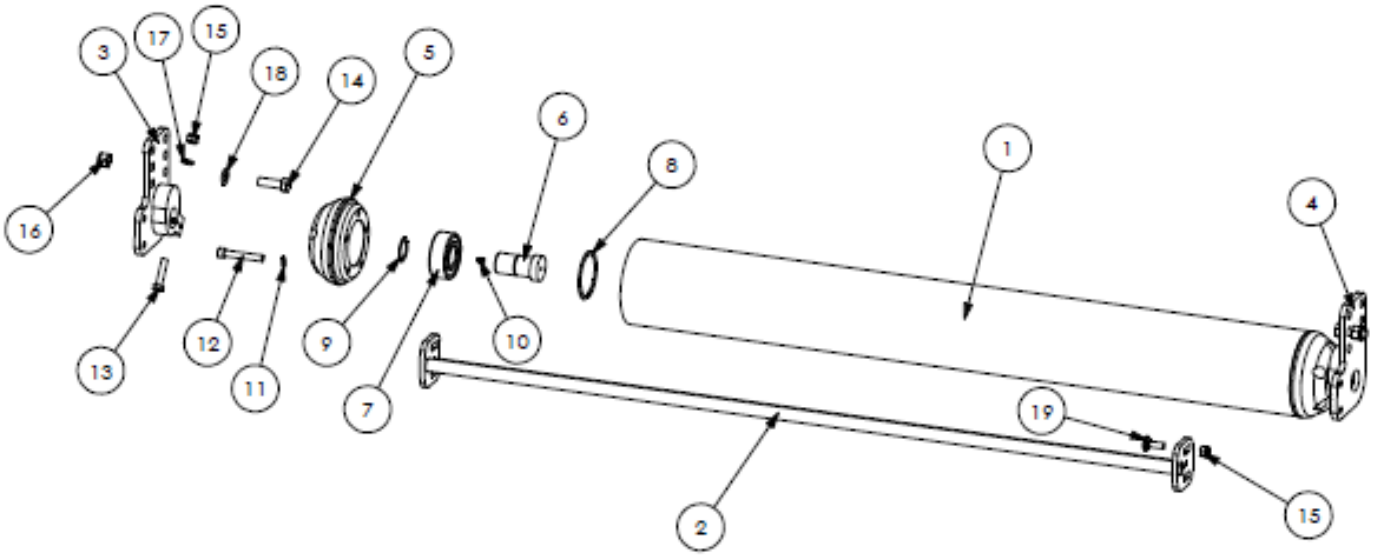
1.2M FLAIL HEAD - SI80023.24
1.6M HEAD COWL - SI80023.08
2.0M HEAD COWL - SI80023.09



1.2M FLAIL HEAD - SI80023.24
1.6M HEAD COWL - SI80023.08
2.0M HEAD COWL - SI80023.09

REF NO	PART NO	QTY 1.2M	QTY 1.6M	QTY 2.0M	DESCRIPTION
1	180541	1	-	-	1.2M HEAD COWL
1	180530	-	1	-	1.6M HEAD COWL
1	180540	-	-	1	2.0M HEAD COWL
2	180544	1	1	1	NON-DRIVE MOUNT PLATE
3	180531	1	1	1	LH SKID
4	180532	1	1	1	RH SKID
5	1777398	2	-	-	1.2M FLAP RETAINING STRIP
5	1771534	-	2	-	1.6M FLAP RETAINING STRIP
5	1772290	-	-	2	2.0M FLAP RETAINING STRIP
6	1777312	1	1	1	NON-DRIVE END COVER
7	1777310	1	1	1	BEARING HOUSING
8	4770891	2	2	2	BEARING
9	2771610	2	2	2	CIRCLIP
10	180914	1	1	1	BEARING HOUSING
11	4771511	1	1	1	SEAL
12	2770459	2	2	2	M6 45° GREASE NIPPLE
13	180391	1	1	1	PIN: 40 X 210mm
14	4600126	4	4	4	BUSH
15	8400207	2	-	-	1.2M RUBBER FLAP
15	8550130	-	2	-	1.6M RUBBER FLAP
15	8400201	-	-	2	2.0M RUBBER FLAP
16	2770417	20	24	26	M12 NYLOCK
17	2770467	2	2	2	M6 ST GREASE NIPPLE
18	2770458	6	6	6	M12 X 45 BOLT
19	2770436	10	14	16	M12 FLAT WASHER
20	05.839.35	14	18	20	M12 X 40 COACH BOLT
21	05.264.35	6	6	6	M16 X 40 BOLT
22	2770447	6	6	6	M16 NYLOCK
23	2770497	1	1	1	M6 90° GREASE NIPPLE
24	05.291.19	1	1	1	M10 X 70 BOLT
25	2770412	1	1	1	M10 NYLOCK
26	2770420	6	6	6	M12 X 30 BOLT
27	2770442	6	6	6	M12 SPRING WASHER
28	05.388.03	3	3	3	M6 GRUB SCREW

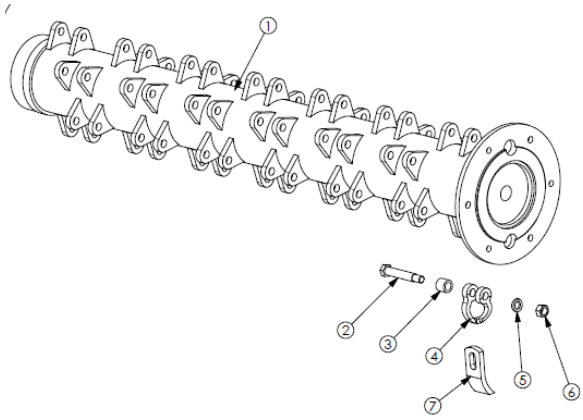
1.2M ROLLER - S180023.25
1.6M ROLLER - S180023.10
2.0M ROLLER - S180023.11



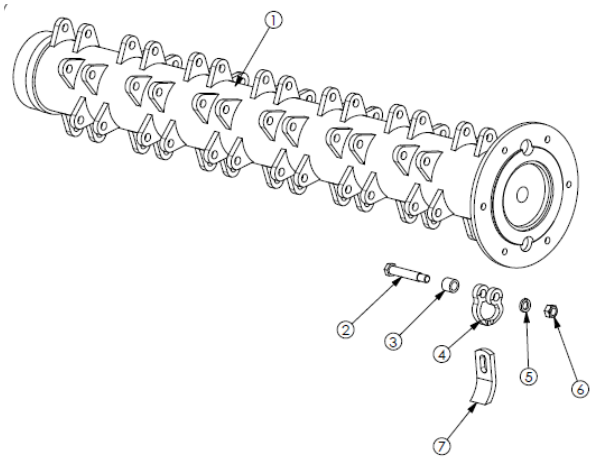
1.2M ROLLER - S180023.25
1.6M ROLLER - S180023.10
2.0M ROLLER - S180023.11

REF NO	PART NO	QTY	DESCRIPTION
1	180905	1	1.2M ROLLER
1	180906	1	1.6M ROLLER
1	180907	1	2.0M ROLLER
2	180529	1	1.2M ROLLER SCRAPER
2	180536	1	1.6M ROLLER SCRAPER
2	180542	1	2.0M ROLLER SCRAPER
3	180533	1	LH ROLLER BRACKET
4	180535	1	RH ROLLER BRACKET
5	180908	2	END CAP
6	180909	2	STUB SHAFT
7	4771612	2	BEARING
8	2771109	2	CIRCLIP
9	2777512	2	CIRCLIP
10	2770468	2	M8 ST GREASE NIPPLE
11	2770442	10	M12 SPRING WASHER
12	2770333	10	M12 X 80 SKT CAP
13	2770450	2	M12 X 55 BOLT
14	2770425	4	M16 X 60 BOLT
15	2770417	2	M12 NYLOCK NUT
16	2770447	4	M16 NYLOCK NUT
17	2770436	2	M12 FLAT WASHER
18	2770454	4	M16 FLAT WASHER
19	05.839.35	4	M12 X 45 COACH BOLT

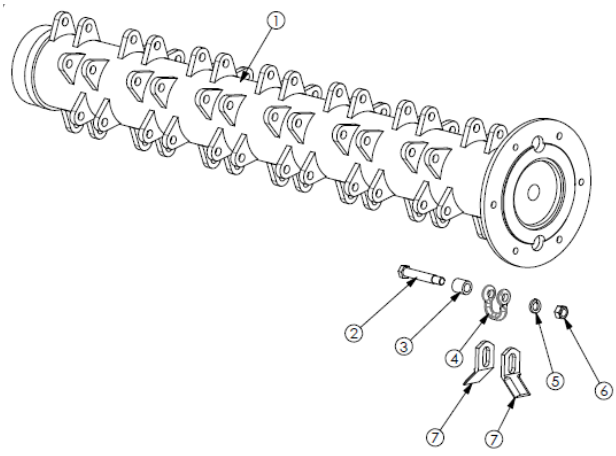
LH J FLAIL 1.2M ROTOR - S180023.26
LH J FLAIL 1.6M ROTOR - S180023.12
LH J FLAIL 2.0M ROTOR - S180023.16



RH J FLAIL 1.2M ROTOR - S180023.27
RH J FLAIL 1.6M ROTOR - S180023.13
RH J FLAIL 2.0M ROTOR - S180023.17



LH/RH BACK TO BACK FLAIL 1.2M ROTOR - S180023.28
LH/RH BACK TO BACK FLAIL 1.6M ROTOR - S180023.14
LH/RH BACK TO BACK FLAIL 2.0M ROTOR - S180023.18



LH J FLAIL 1.2M ROTOR - SI80023.26
LH J FLAIL 1.6M ROTOR - SI80023.12
LH J FLAIL 2.0M ROTOR - SI80023.16

REF NO	PART NO	QTY 1.2M	QTY 1.6M	QTY 2.0M	DESCRIPTION
1	180545	**1**	**-**	**-**	1.2M LH J FLAIL ROTOR SHAFT
1	180537	**-**	**1**	**-**	1.6M LH J FLAIL ROTOR SHAFT
1	180047	**-**	**-**	**1**	2.0M LH J FLAIL ROTOR SHAFT
2	05.775.10	38	48	66	FLAIL BOLT
3	41725.01	38	48	66	SPACER
4	47202.01	38	48	66	SHACKLE
5	2770456	38	48	66	SPRING WASHER
6	05.968.06	38	48	66	NUT
7	09.527.01	38	48	66	J FLAIL

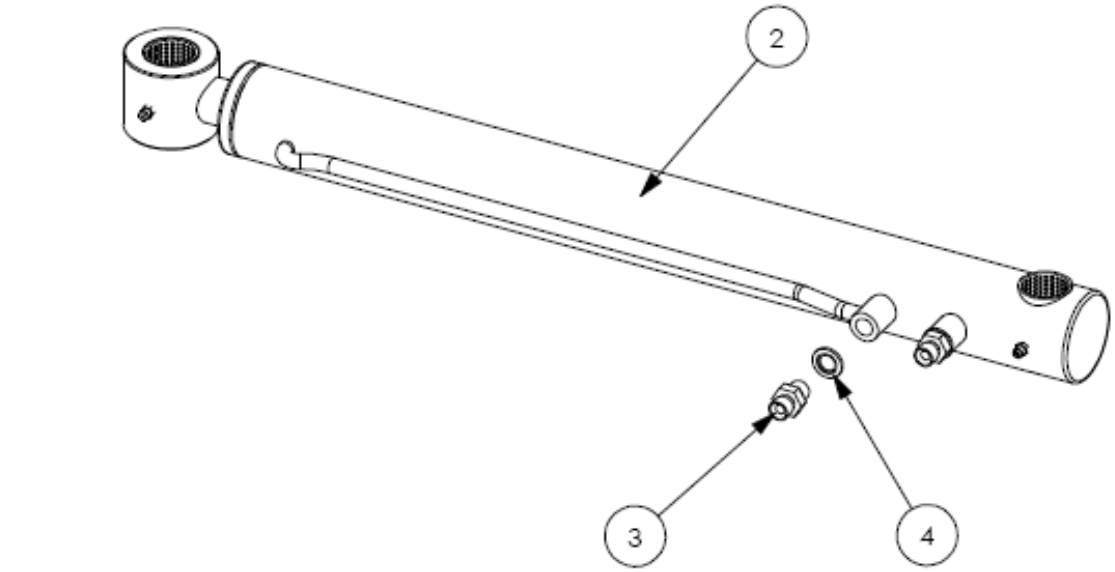
RH J FLAIL 1.2M ROTOR - SI80023.27
RH J FLAIL 1.6M ROTOR - SI80023.13
RH J FLAIL 2.0M ROTOR - SI80023.17

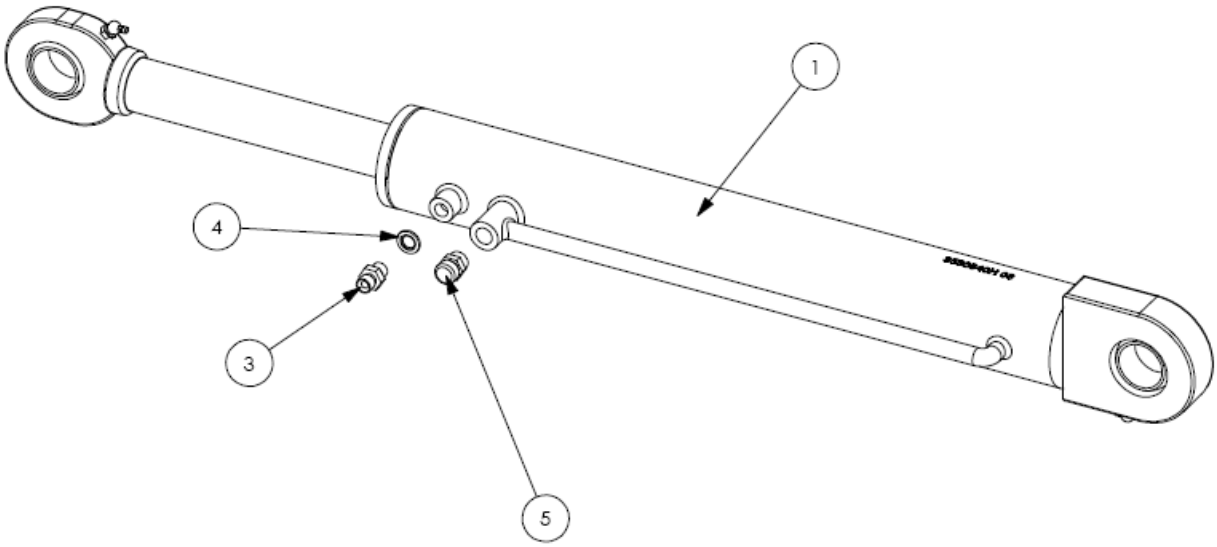
REF NO	PART NO	QTY 1.2M	QTY 1.6M	QTY 2.0M	DESCRIPTION
1	180568	**1**	**-**	**-**	1.2M RH J FLAIL ROTOR SHAFT
1	180045	**-**	**1**	**-**	1.6M RH J FLAIL ROTOR SHAFT
1	180543	**-**	**-**	**1**	2.0M RH J FLAIL ROTOR SHAFT
2	05.775.10	38	48	66	FLAIL BOLT
3	41725.01	38	48	66	SPACER
4	47202.01	38	48	66	SHACKLE
5	2770456	38	48	66	SPRING WASHER
6	05.968.06	38	48	66	NUT
7	09.527.01	38	48	66	J FLAIL

LH/RH BACK TO BACK FLAIL 1.2M ROTOR - SI80023.28
LH/RH BACK TO BACK FLAIL 1.6M ROTOR - SI80023.14
LH/RH BACK TO BACK FLAIL 2.0M ROTOR - SI80023.18

REF NO	PART NO	QTY 1.2M	QTY 1.6M	QTY 2.0M	DESCRIPTION
1	180569	**1**	**-**	**-**	1.2M B2B FLAIL ROTOR SHAFT
1	180046	**-**	**1**	**-**	1.6M B2B FLAIL ROTOR SHAFT
1	180048	**-**	**-**	**1**	2.0M B2B FLAIL ROTOR SHAFT
2	05.775.10	38	48	66	FLAIL BOLT
3	02.807.01	38	48	66	SPACER
4	7770741	38	48	66	TWISTED SHACKLE
5	2770456	38	48	66	SPRING WASHER
6	05.968.06	38	48	66	NUT
7	7190166	76	96	132	BACK TO BACK FLAIL

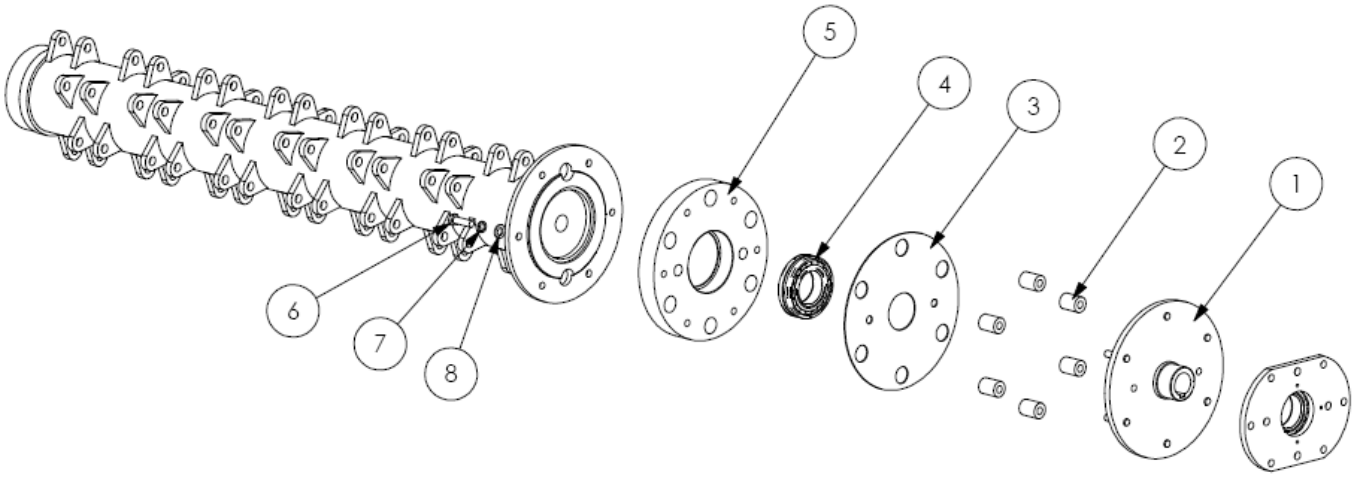
HYDRAULIC RAMS - SI80023.20





REF NO	PART NO	QTY	DESCRIPTION
1	3580640H	1	HEAD RAM
2	3580669	1	OFFSET RAM
3	3360080	3	1/4 M-M
4	3260070	3	1/4 DOWTY
5	09.250.53	1	3/8 BREATHER
6	3580640H.01	0	HEAD RAM SEAL KIT
7	3580669.01	0	OFFSET RAM SEAL KIT

ROTOR DRIVE - SI80023.23



REF NO	PART NO	QTY	DESCRIPTION
1	180538	1	DRIVE END
2	03.871.01	6	RUBBER BUSH
3	5771638	1	RUBBER GASKET
4	4770891	1	BEARING
5	180539	1	SPACER PLATE
6	2770443	6	M12 X 40 BOLT
7	2770442	6	M12 SPRING WASHER
8	2770436	6	M12 FLAT WASHER

SAFETY DECALS - SI80023.21

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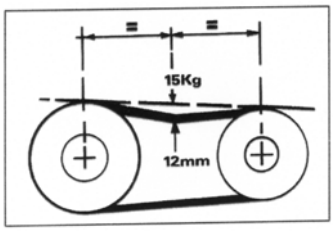

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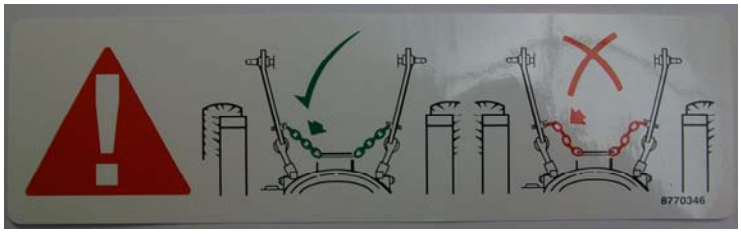

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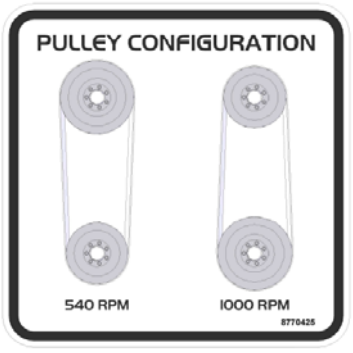


16

SAFETY DECALS - SI80023.21

REF NO	PART NO	QTY	DESCRIPTION
1	8770363	1	CAREFULLY READ MANUAL
2	8770367	1	CAREFULLY READ MANUAL
3	8770342	2	LIFTING POINT
4	8770322	10	GREASE POINT
5	8770340	1	READ OPERATORS BOOK
6	8770360	2	STAY CLEAR OF BLADES
7	8770306	2	BOLTS TIGHT
8	8770355	1	SECURE LIFTING CYLINDER
9	8770362	1	AVOID FLUID ESCAPING
10	8770357	2	KEEP A SAFE DISTANCE
11	8770368	1	FALLING WING
12	8770358	1	SHUT OFF ENGINE & REMOVE KEY
13	8770356	1	DO NOT OPEN
14	8770341	1	BELT TENSION
15	8770346	1	CHECK CHAINS
16	8770425	1	PULLEY CONFIGURATION

Q1200HD DECALS – SI80023.22
Q1600HD DECALS – SI80023.41
Q2000HD DECALS – SI80023.42

8770374

8770371

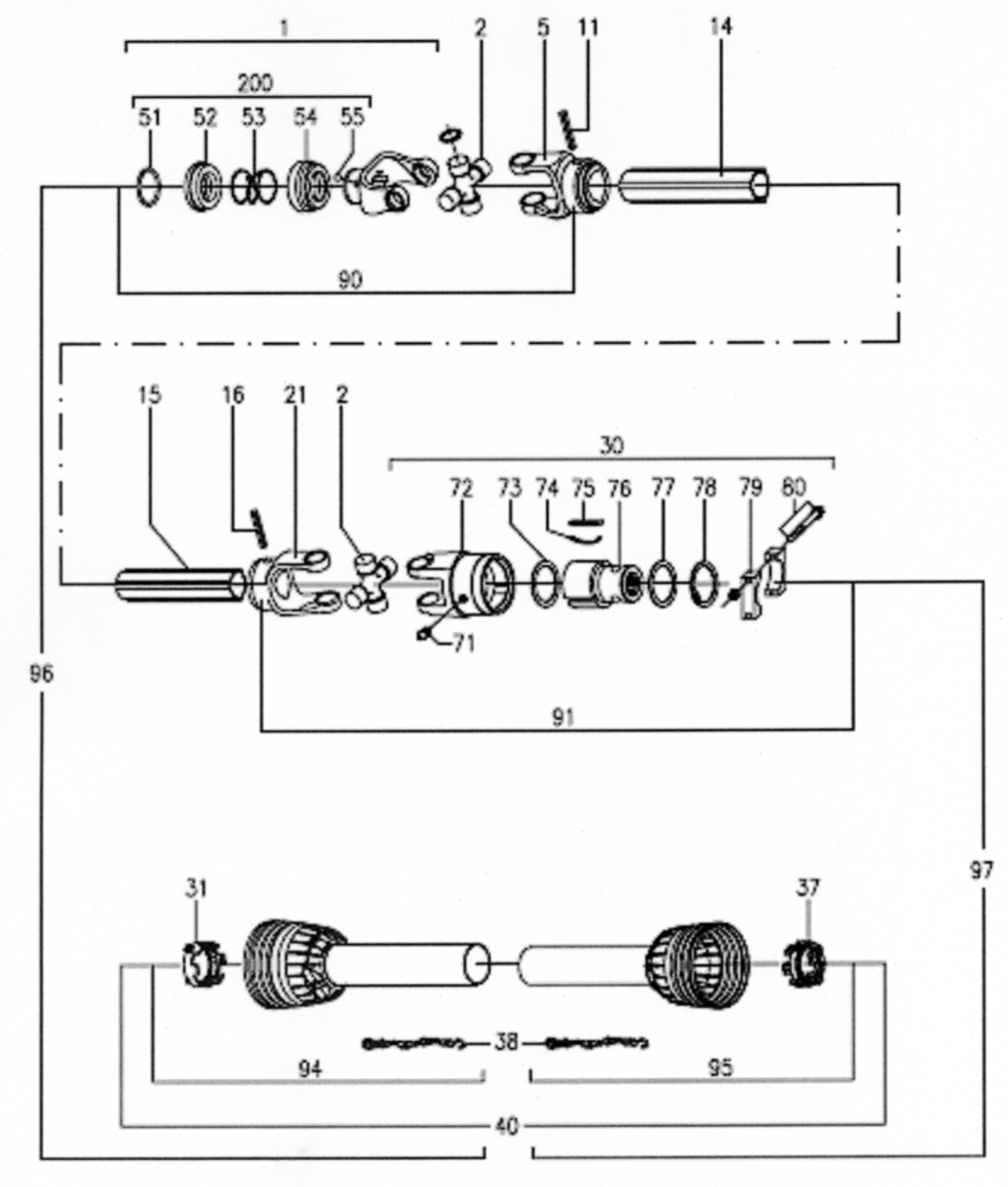
8770426

8770427

8770428

8770307

REAR MOUNT INPUT PTO - SI80023.43
FRONT MOUNT PTO - SI80023.44



REF NO	PART NO	QTY	DESCRIPTION
1	43602.02	1	CLOCKWISE PTO (REAR)
1	43602.03	1	ANTI-CLOCKWISE PTO (FRONT)

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