

Spearhead

Debris Blower



Edition 1.0 – April 2014
Part No. 8999001

HANDBOOK & PARTS MANUAL

Spearhead Debris Blower

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

01/04/2014

IMPORTANT VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Spearhead Machinery Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the Spearhead Machinery Limited web site at www.spearheadmachinery.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the Spearhead Service Department on 01789 491867.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section has been completed and signed by the selling dealer to verify that your machine has been registered with Spearhead Machinery Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – *refer to torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

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CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with Spearhead Machinery Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. All machines supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.
- 1.02. All spare parts supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months.
- 1.03. The manufacturer will replace or repair for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined.
- 1.04. This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, flails, bushes, belts, flap kits, skids, shields, guards, wear pads or pneumatic tyres.

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- 1.05. Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.
- 1.06. Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.
- 1.07. Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which Spearhead Machinery Ltd cannot be held liable, and may have safety implications.
- 1.08. Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of Spearhead Machinery Ltd.
- 1.09. For machine warranty periods in excess of 12 months the following additional exclusions shall apply:
- 1.09.1. Hoses, external seals, exposed pipes and hydraulic tank breathers.
 - 1.09.2. Filters
 - 1.09.3. Rubber mountings
 - 1.09.4. External electric wiring.
 - 1.09.5. Labour and mileage costs.
- 1.10. All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. Spearhead Machinery Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

2. REMEDIES AND PROCEDURES

- 2.01. The warranty is not effective unless the Selling Dealer registers the machine, via the Spearhead Machinery web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.
- 2.02. Any fault must be reported to an authorised Spearhead Machinery dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which Spearhead Machinery Ltd cannot be held liable.
- 2.03. Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days

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after the parts were supplied will be rejected, unless the delay has been authorised by Spearhead Machinery Ltd.

2.04. All claims must be submitted, by an authorised Spearhead Machinery Service Dealer, within 30 days of the date of repair.

2.05. Following examination of the claim and parts the manufacturer will pay, at their discretion, for any valid claim the cost of any parts and an appropriate labour allowance if applicable.

2.06. The submission of a claim is not a guarantee of payment.

2.07. Any decision reached by Spearhead Machinery Ltd is final.

3. LIMITATION OF LIABILITY

3.01. The manufacturer disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.

3.02. The manufacturer makes no warranty as to the design, capability, capacity or suitability for use of the goods.

3.03. Except as provided herein, the manufacturer shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.

3.04. No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.

4. MISCELLANEOUS

4.01. The manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.

4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.

4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.

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Spearhead Debris Blower

Introduction

The Spearhead Debris Blower is a self contained unit which blows the debris generated during flail cutting off the highway and onto the verge. The Debris Blower is mounted on brackets attached to the hedge cutter and is powered by the tractors hydraulics, there are a range of mounting brackets available to suit all Spearhead machines.

The term Left and Right hand applies to the machine when coupled to the tractor and viewed from the rear, this also applies to the tractor.

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.

Please ensure that this manual is handed to the operator before using the machine for the first time. The operator must fully understand the contents of this manual before using this machine.
(If the machine is resold the Manual must be given to the new owner.)

Safety Recommendations

- Ensure the operator has read this handbook and has been trained to use the machine.
- Ensure all cab safety guards are in place and all tractor windows closed.
- Before leaving the tractor cab always ensure that the flail head is firmly on the ground, no weight is on the machine's hydraulics and the rotor has stopped spinning.
- Check that all guards are properly fitted and there are no damaged or loose parts.
- Ensure that all warning labels are always visible and that they are not damaged, defaced or missing..
- Ensure tractor guards are fitted correctly and are undamaged.
- Work at a safe speed, taking into account terrain, passing vehicles and obstacles.
- Check that fittings and couplings are in good condition.

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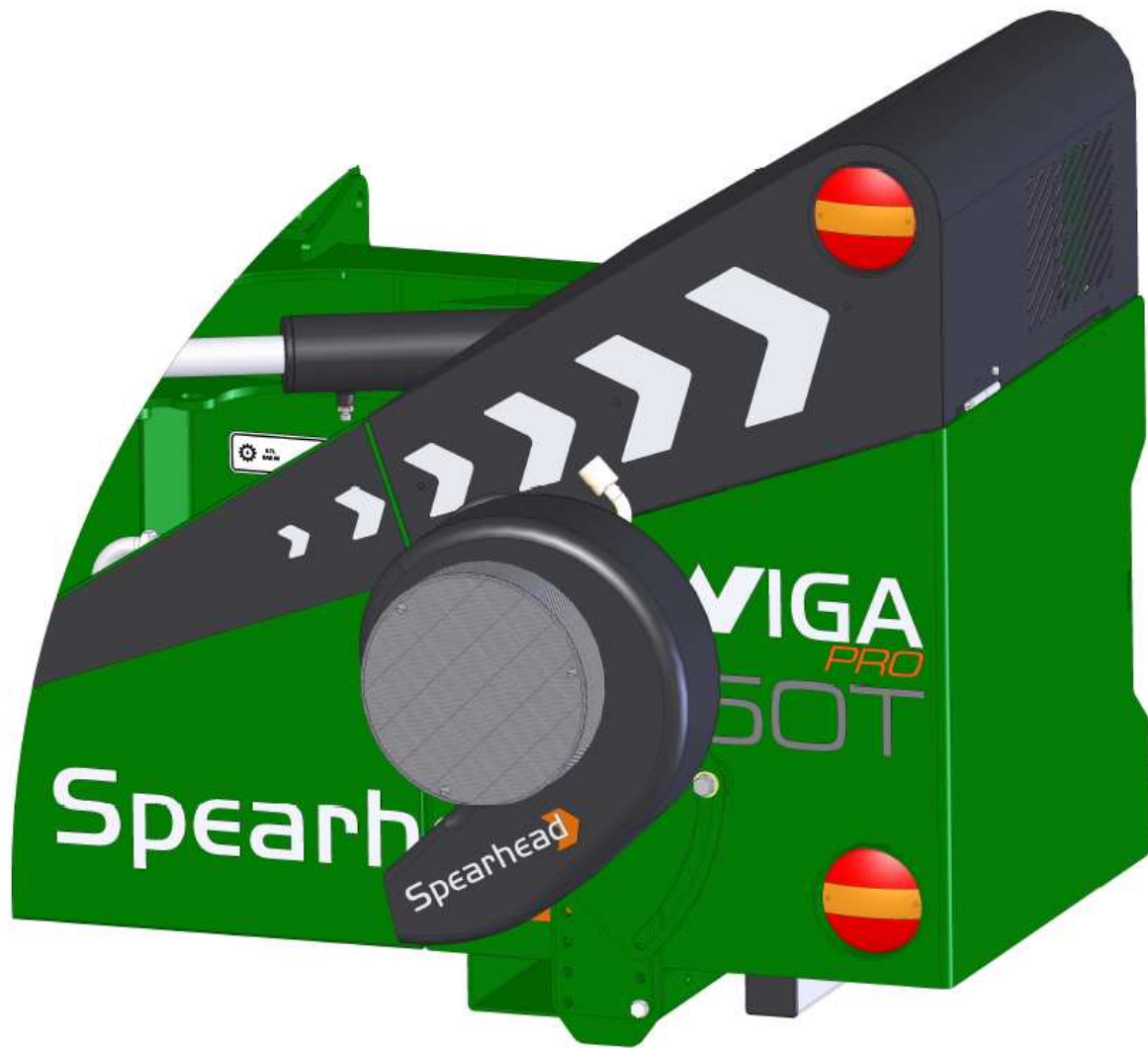
Attaching to the machine

Debris Blowers are attached to the hedge cutters using a mounting kit designed specifically for your particular machine. A "T" shaped plate is mounted to the blower and in turn mounts to the machine specific bracket mounted to the hedge cutter, both are equipped with a series of holes to allow height adjustment.

The blower mount also has a radial slot which allows the whole unit to be angled to ensure effective coverage over the highway.



Spearhead Debris Blower



Note: when fitting is complete there should be a minimum of 30mm of clearance between the rear of the tank and the blower motor.

It is the aim to mount the blower as far towards the outside edge of the tank as possible to give maximum coverage across the road. The height to the centre of the blower from the ground should be approximately 650mm, whilst the angle adjustment is obtained through operational experimentation.

These settings are recommendations for general flail operations, they are open to variation depending on individual conditions.

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Hydraulic Connections

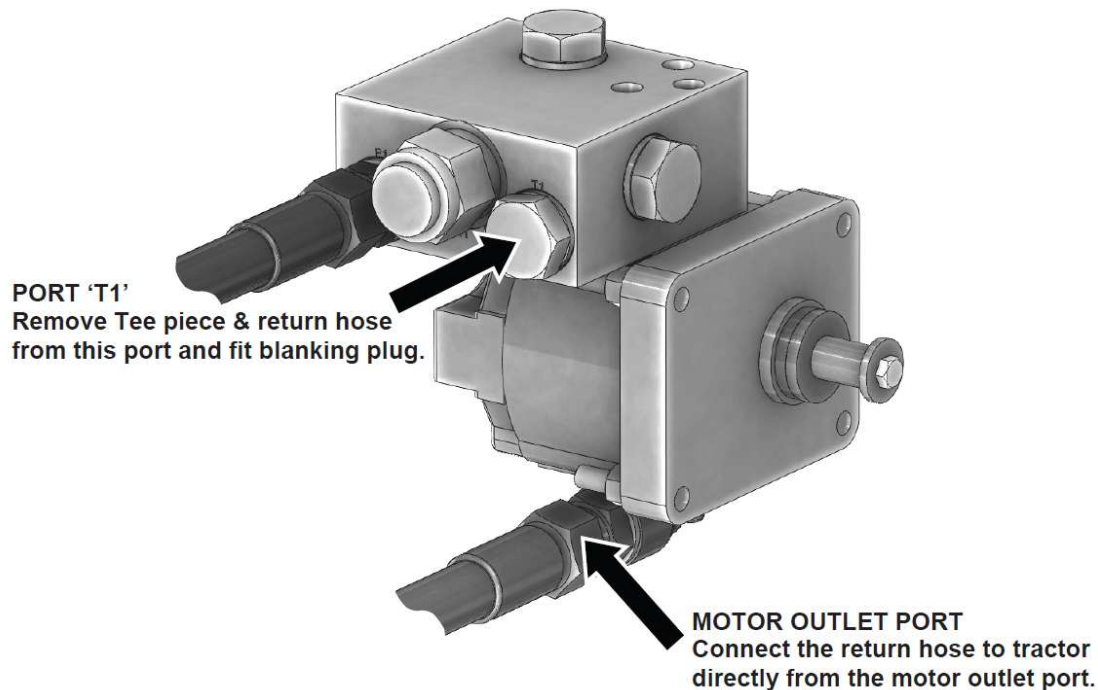
The oil supply for the blower is taken from the tractors single acting auxilliary service and is connected to the flow control valve block opposite the hexagon head of the valve in the port marked 'P'.

The returns hose from the motor is connected to the tractors transmission casing. The oil must be returned beneath the oil level inside the casing, contact your dealer for the correct procedure for your individual tractor.

CAUTION! Connecting the returns hose to a tractors double acting spool can result in a blown shaft seal due to back pressure caused by the fan over-run and the restricted returns line.

Tractors with 'Closed Centre' Hydraulics

For tractors with closed centre hydraulics the following modifications are required:



The tee piece, the long returns hose to the tractor and the short returns hose from the motor outlet port should be removed from port 'T'.

Port 'T1' should be fitted with a blanking plug as shown in the illustration above.

The long returns hose should then be connected directly to the motor outlet port, oil is then returned directly to the tractors transmission casing.

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Operation

The debris blower incorporates a speed control valve to govern the fan maximum speed, pumping excessive oil through the debris blower will not increase the speed, it will just heat the oil. After connecting the debris blower it is suggested the following procedure is followed:

- Turn the flow control on the tractors spool to a minimum.
- Start the debris blower by engaging the spool valve.
- Set the engine to normal operating speed.
- Turn the flow control up until the fan reaches its maximum speed and set it there.

To stop the debris blower, reduce the engine speed to idle and disengage the spool valve, float is the best option as this allows the motor to run down smoothly.

Debris Blower Parts Book

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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 requirement outside factory hours.

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

Important Note

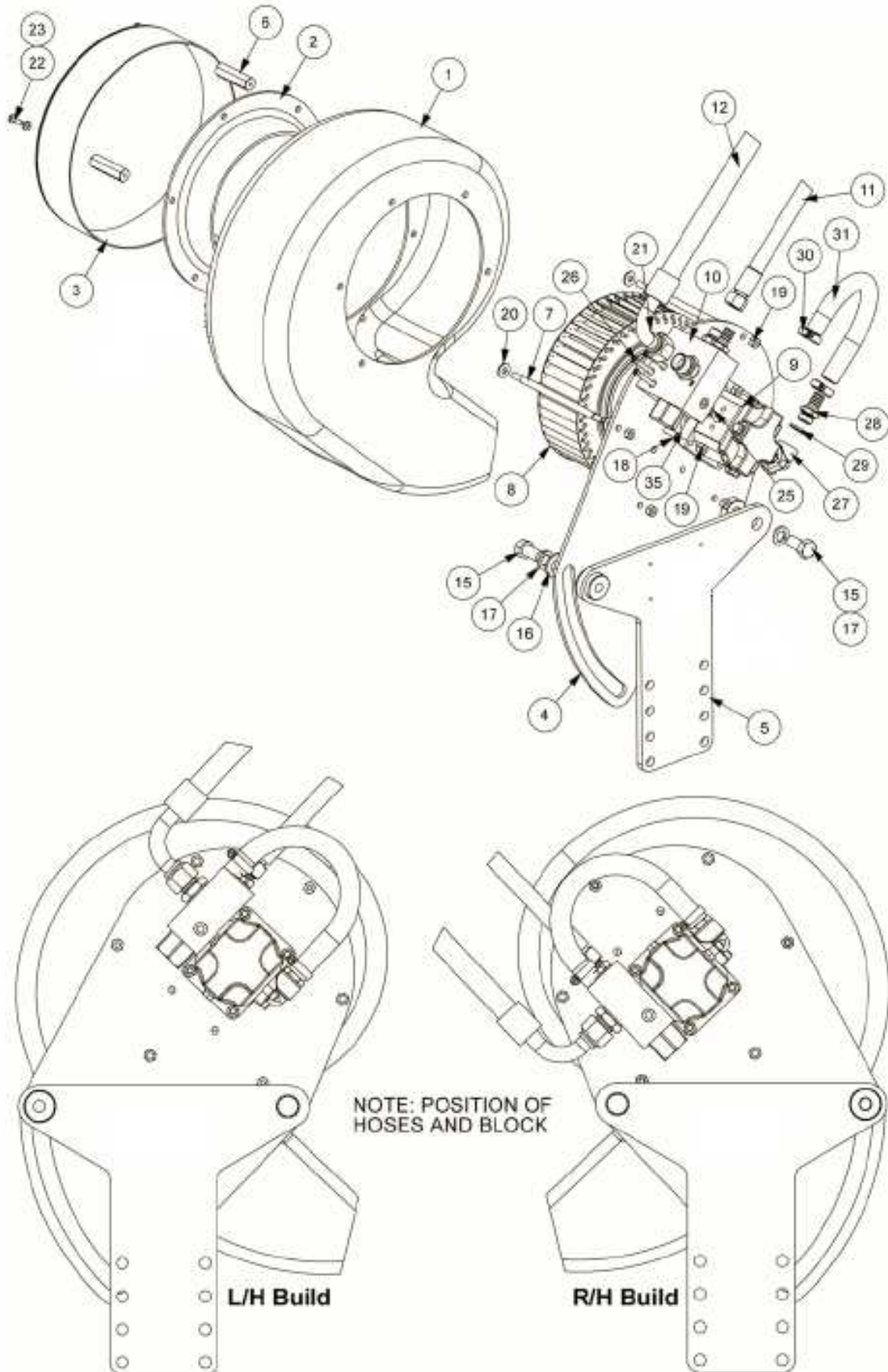
The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the machine it relates to, please contact the "After Sales Department"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

Key:

(LH) = Left hand
(RH) = Right hand
(LP) = Low pressure hydraulics
(HP) = High pressure hydraulics
(RR) = Rotor reverse

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FAN CASING ASSEMBLY



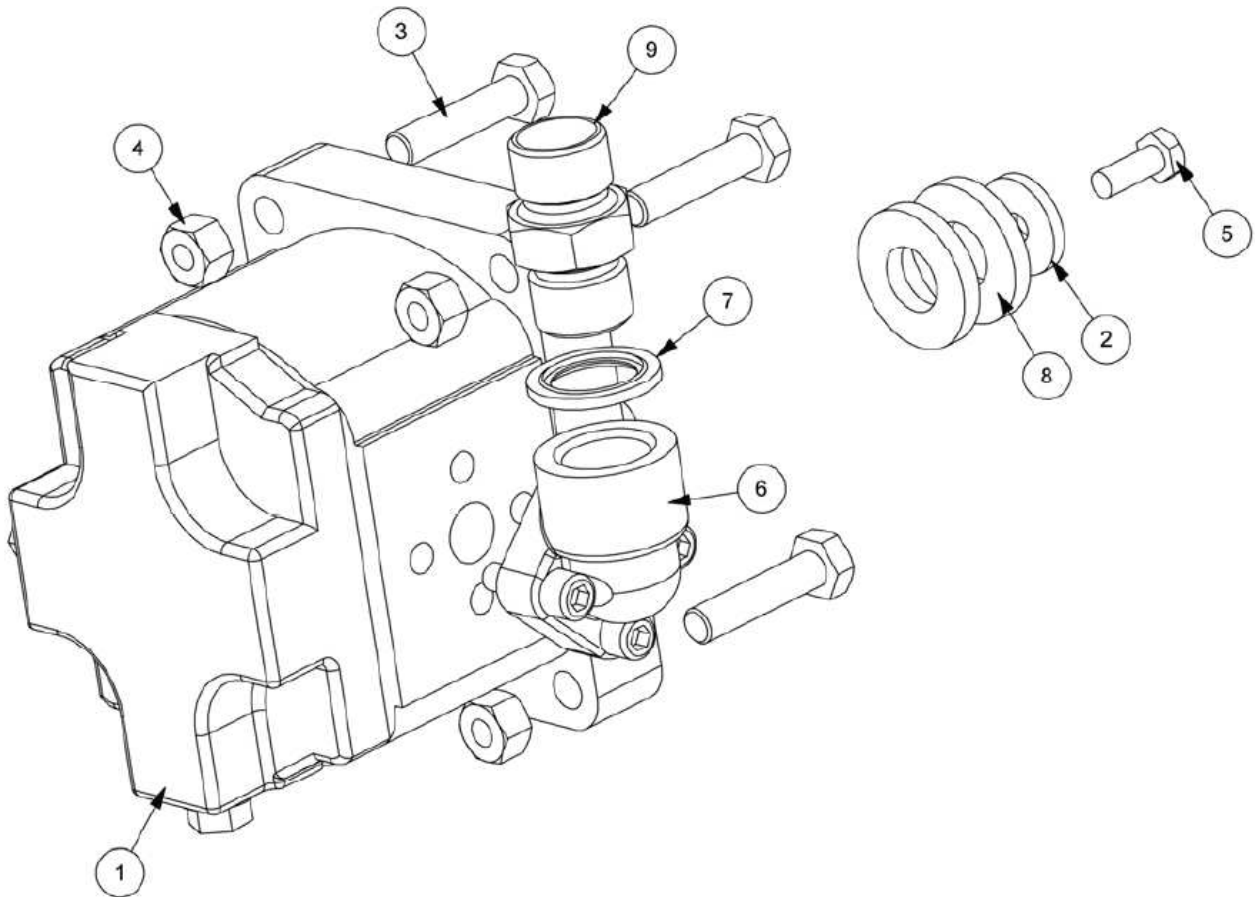
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FAN CASING ASSEMBLY

REF NO.	PART NO.	QTY.	DESCRIPTION
1	7319270	1	FAN CASING
2	7319271	1	SHROUD
3	7319272	1	MESH GUARD
4	7319273	1	BACK PLATE
5	7319274	1	PIVOT PLATE
6	7319004	3	GUARD SPACER
7	7319005	3	CASING SPACER
8	7319007	1	LH FAN ASSEMBLY
8	7319008	1	RH FAN ASSEMBLY
9	8301317	1	MOTOR (8cc - 250 BAR)
10	8132259	1	FLOW CONTROL VALVE
11	8513024	1	1/2" HOSE
12	8537015	1	3/4" HOSE
13	8770688	1	SPEARHEAD DECAL
14	7319013	1	WASHER
15	9313067	2	M16 X 30 BOLT
16	100106	1	5/8" FLAT WASHER
17	9100207	2	M16 SPRING WASHER
18	9213074	4	M8 X 35 BOLT
19	9143004	10	M8 NYLOCK
20	9100104	9	M8 FLAT WASHER
21	9313054	3	M8 X 25 BOLT
22	9383043	3	M6 X 20 SLOTTED SCREW
23	9100103	3	M6 FLAT WASHER
24	9313033	1	M6 X 16 BOLT
25	8600402	1	O RING
26	9343104	3	M8 X 50 SOCKET CAP SCREW
27	8301045	1	PORT ELBOW
28	8002059	1	RETURNS CONNECTOR
29	8650104	1	1/2" BONDED SEAL
30	0904204	2	HOSE CLIP
31	8501100	1	5/8" HOSE: 300mm
32	05.433.06	1	1/2" PLUG
33	05.313.01	1	3/4" PLUG
34	7135084	1	CABLE TIE - SM
35	7319014	1	SPACER
36	8770330	1	SERIAL NUMBER PLATE
37	7103230	4	RIVET

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MOTOR

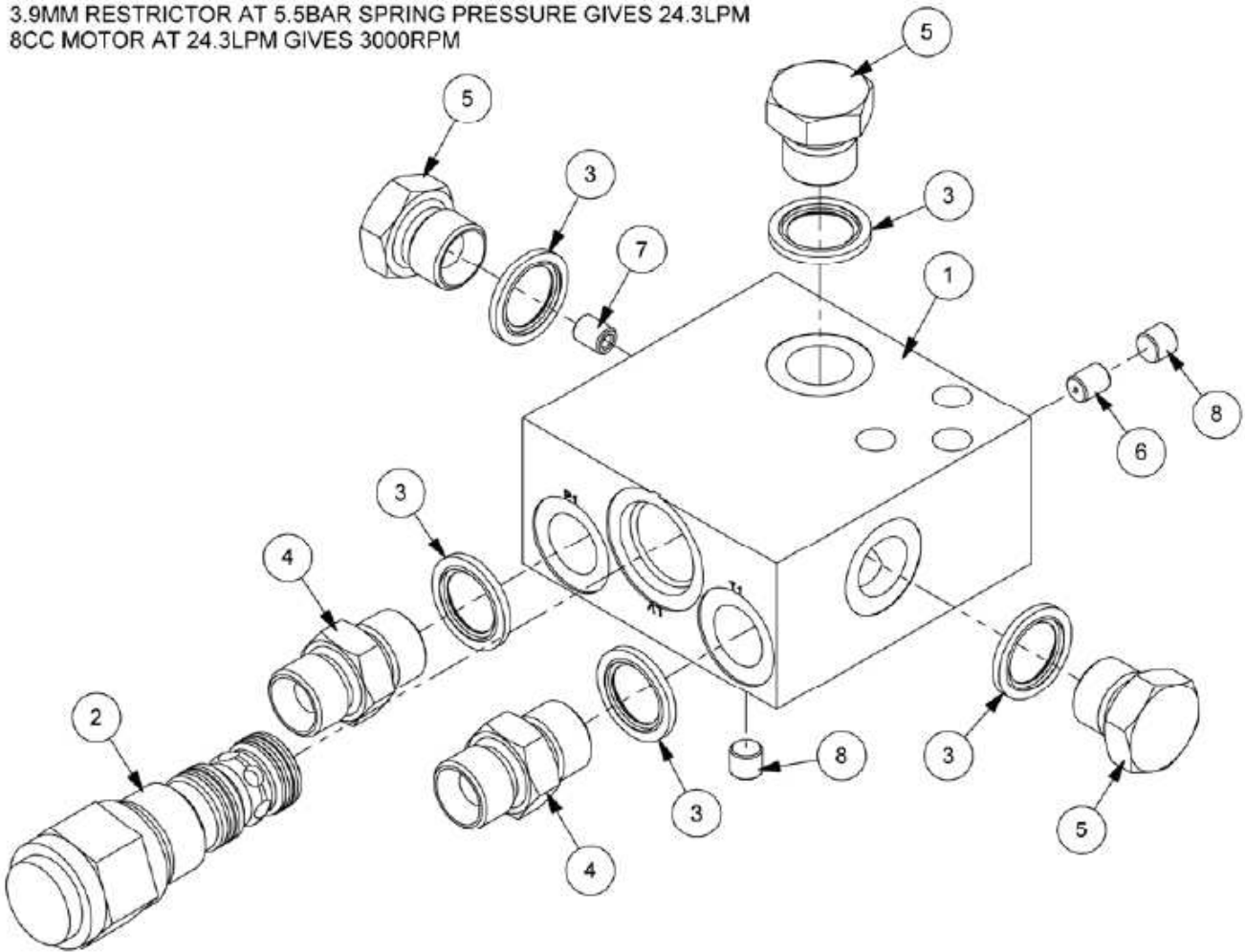


REF NO.	PART NO.	QTY.	DESCRIPTION
1	8301317	1	MOTOR - 8cc 250 BAR
2	7319013	1	WASHER
3	9213074	4	M8 X 35 BOLT
4	9163004	4	M8 NYLOCK
5	9313033	1	M6 X 16 BOLT
6	8301045	1	PORT ELBOW
7	8650104	1	1/2" BONDED SEAL
8	7318014	2	SPACER
9	8581110	1	1/2" M-M ADAPTOR

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SPEED CONTROL VALVE

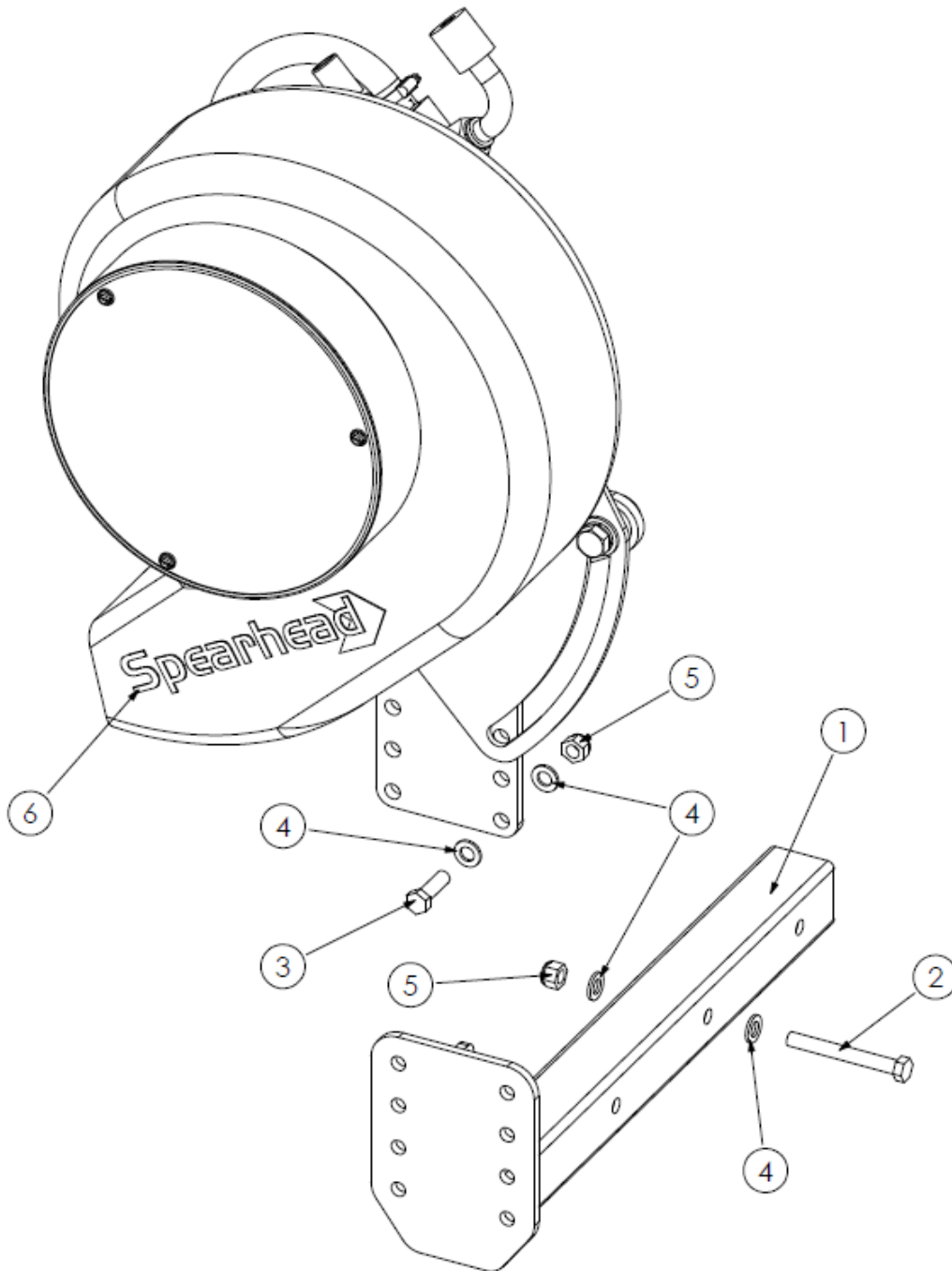
3.9MM RESTRICTOR AT 5.5BAR SPRING PRESSURE GIVES 24.3LPM
8CC MOTOR AT 24.3LPM GIVES 3000RPM



REF NO.	PART NO.	QTY.	DESCRIPTION
	8132315	-	VALVE ASSEMBLY
1	8132312	1	MANIFOLD
2	8104048	1	LOGIC VALVE
3	8650104	5	1/2" BONDED SEAL
4	8581110	2	1/2" M-M ADAPTOR
5	05.433.06	3	1/2" PLUG
6	9363056	1	RESTRICTOR - 0.7mm
7	9363060	1	RESTRICTOR - 3.9mm
8	8582041	2	PLUG

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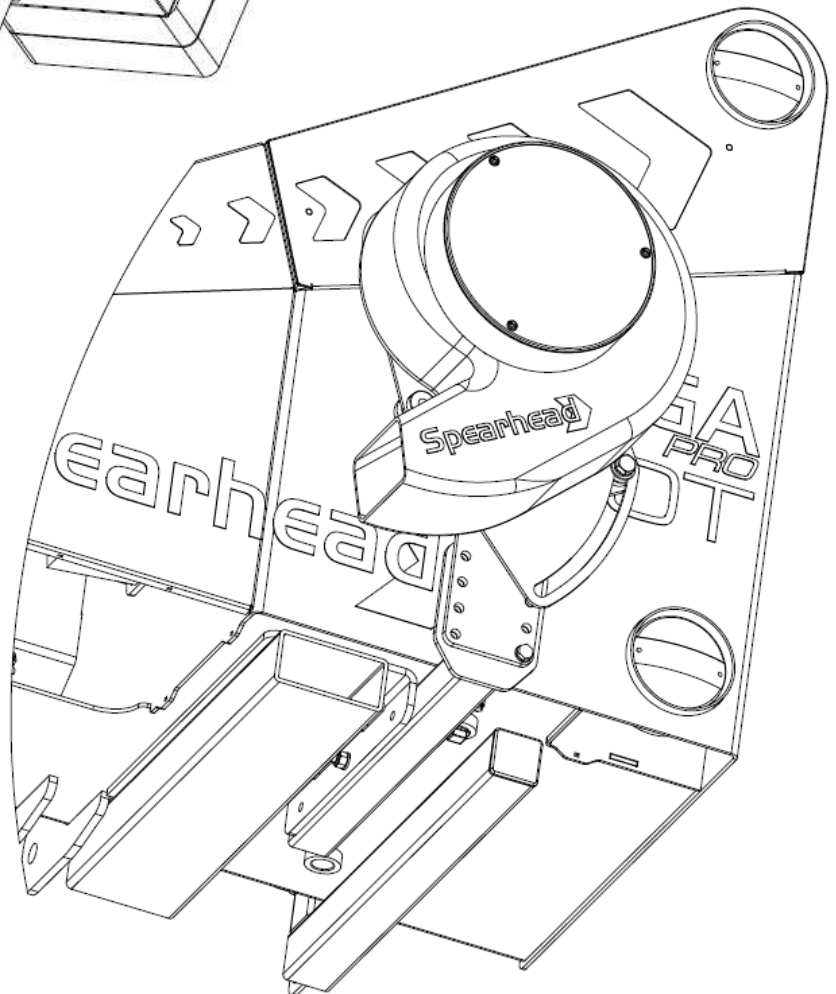
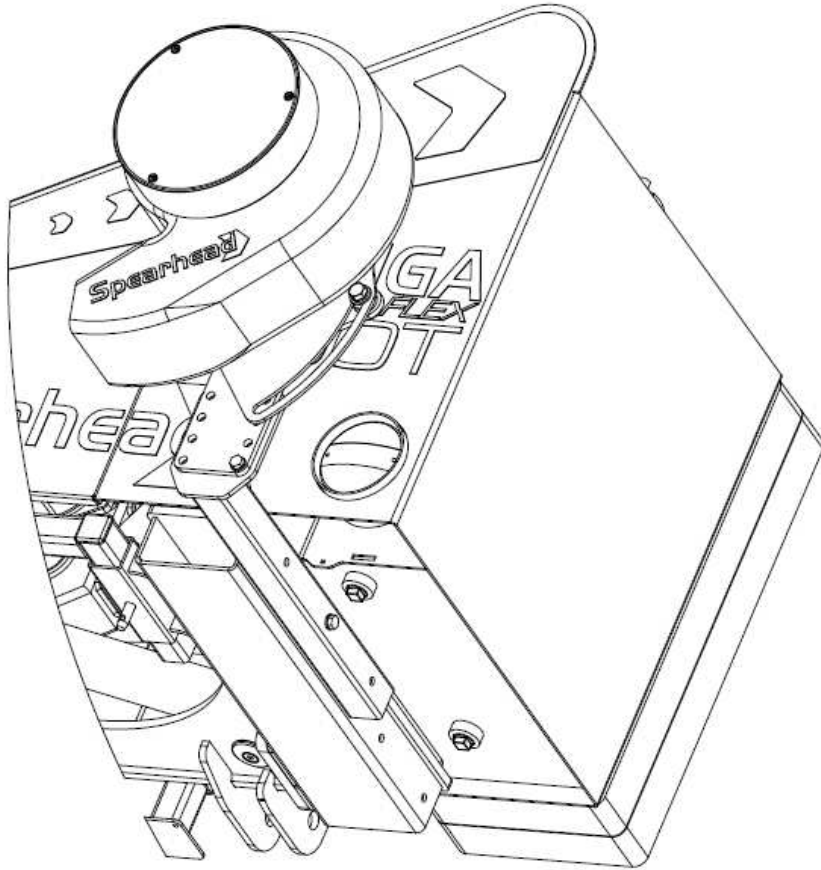
OPT0698 - LH DEBRIS BLOWER KIT - TWIGA PRO/FLEX MACHINES
OPT0699 - RH DEBRIS BLOWER KIT - TWIGA PRO/FLEX MACHINES



REF NO.	PART NO.	QTY.	DESCRIPTION
1	180891	1	BRACKET
2	2770471	3	M12 X 100 BOLT
3	2770443	4	M12 X 40 BOLT
4	2770436	14	M12 FLAT WASHER
5	2770417	7	M12 NYLOCK
6	8770688	1	DECAL

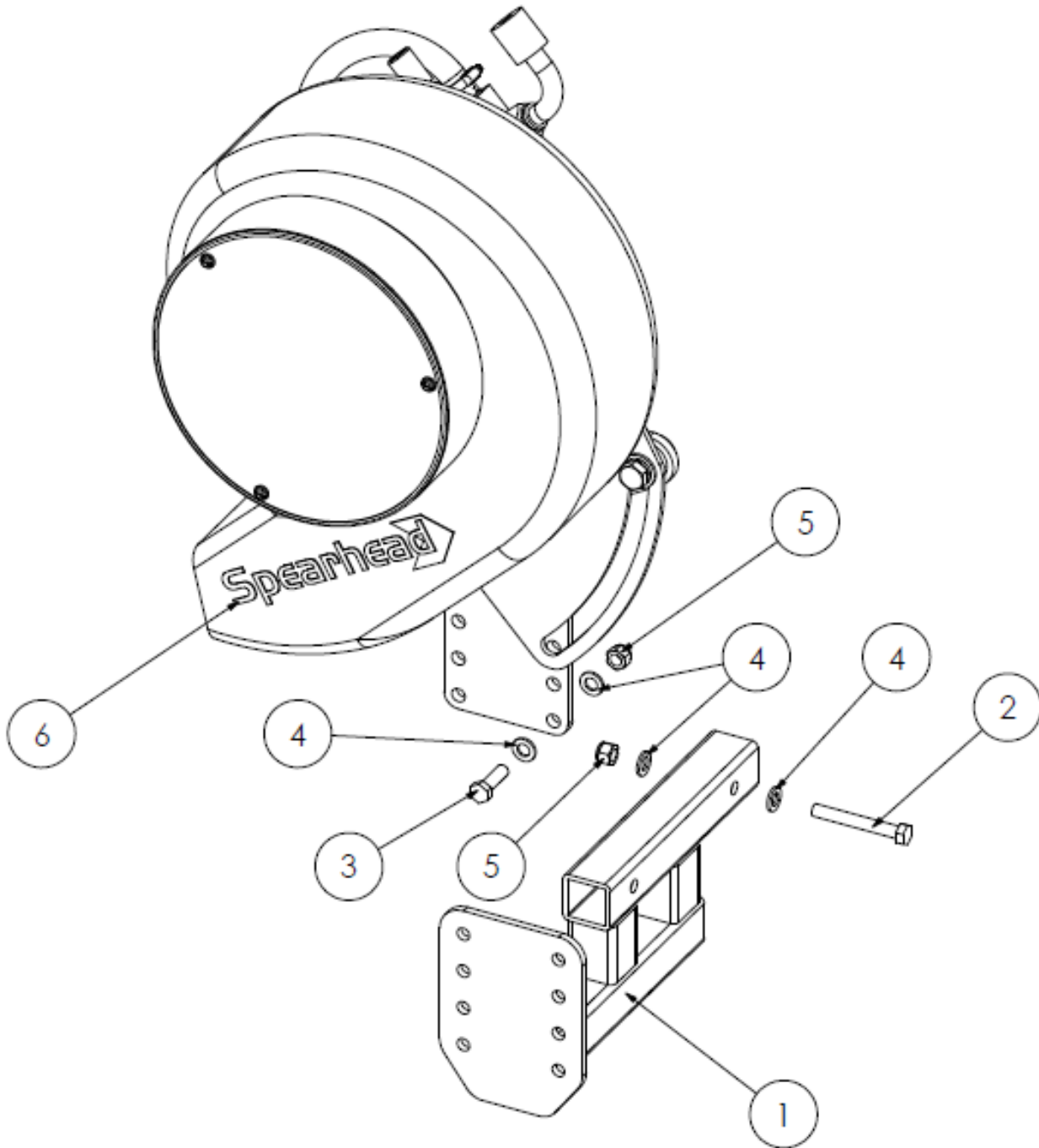
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OPT0698 - LH DEBRIS BLOWER KIT - TWIGA PRO/FLEX MACHINES
OPT0699 - RH DEBRIS BLOWER KIT - TWIGA PRO/FLEX MACHINES



Spearhead Debris Blower

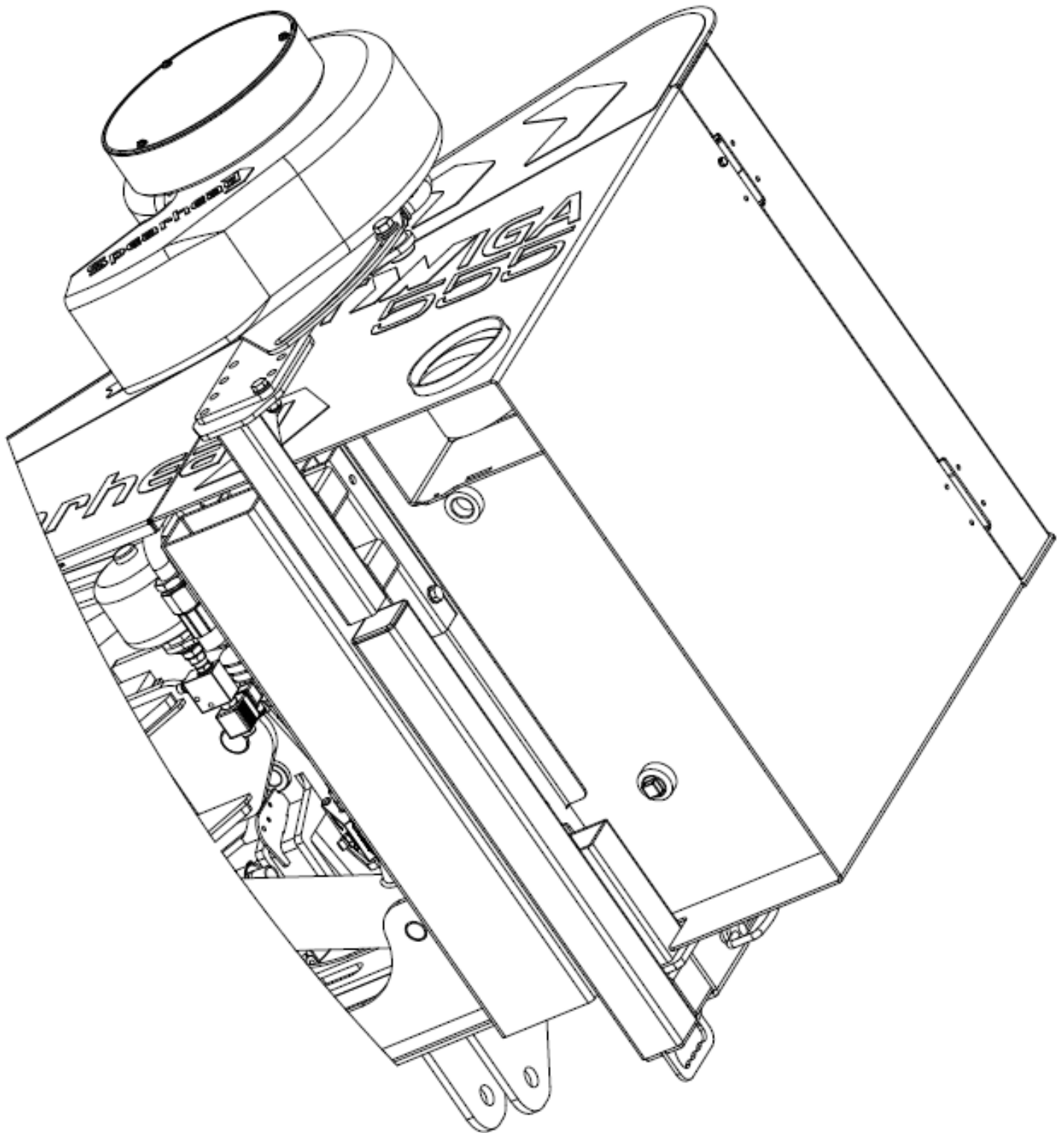
OPT0204 - LH DEBRIS BLOWER - TWIGA MACHINES
OPT0205 - RH DEBRIS BLOWER - TWIGA MACHINES



REF NO.	PART NO.	QTY.	DESCRIPTION
1	180227	1	BRACKET
2	2770481	2	M12 X 90 BOLT
3	2770443	4	M12 X 40 BOLT
4	2770436	12	M12 FLAT WASHER
5	2770417	6	M12 NYLOCK

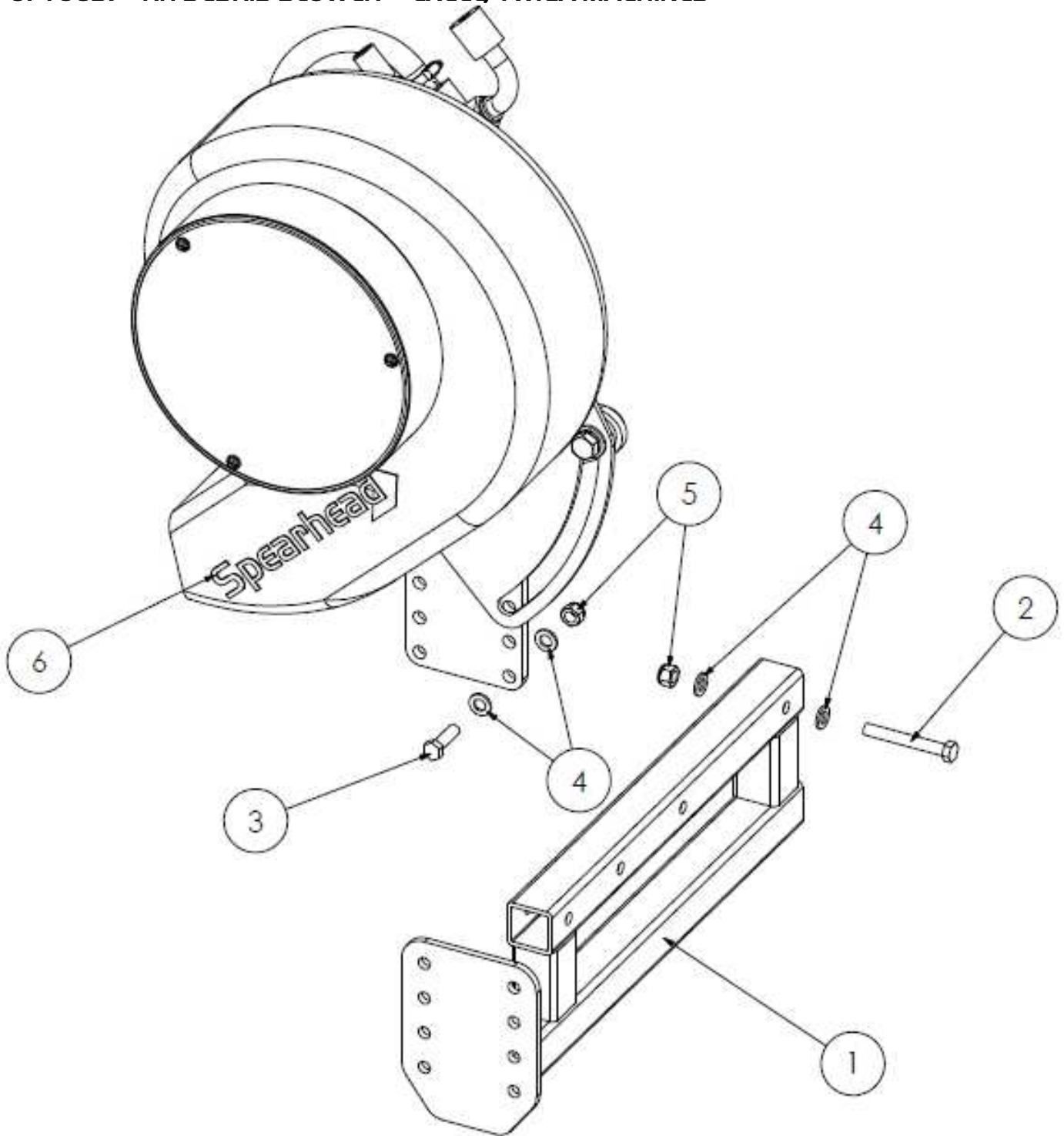
Spearhead Debris Blower

OPT0204 - LH DEBRIS BLOWER - TWIGA MACHINES
OPT0205 - RH DEBRIS BLOWER - TWIGA MACHINES



Spearhead Debris Blower

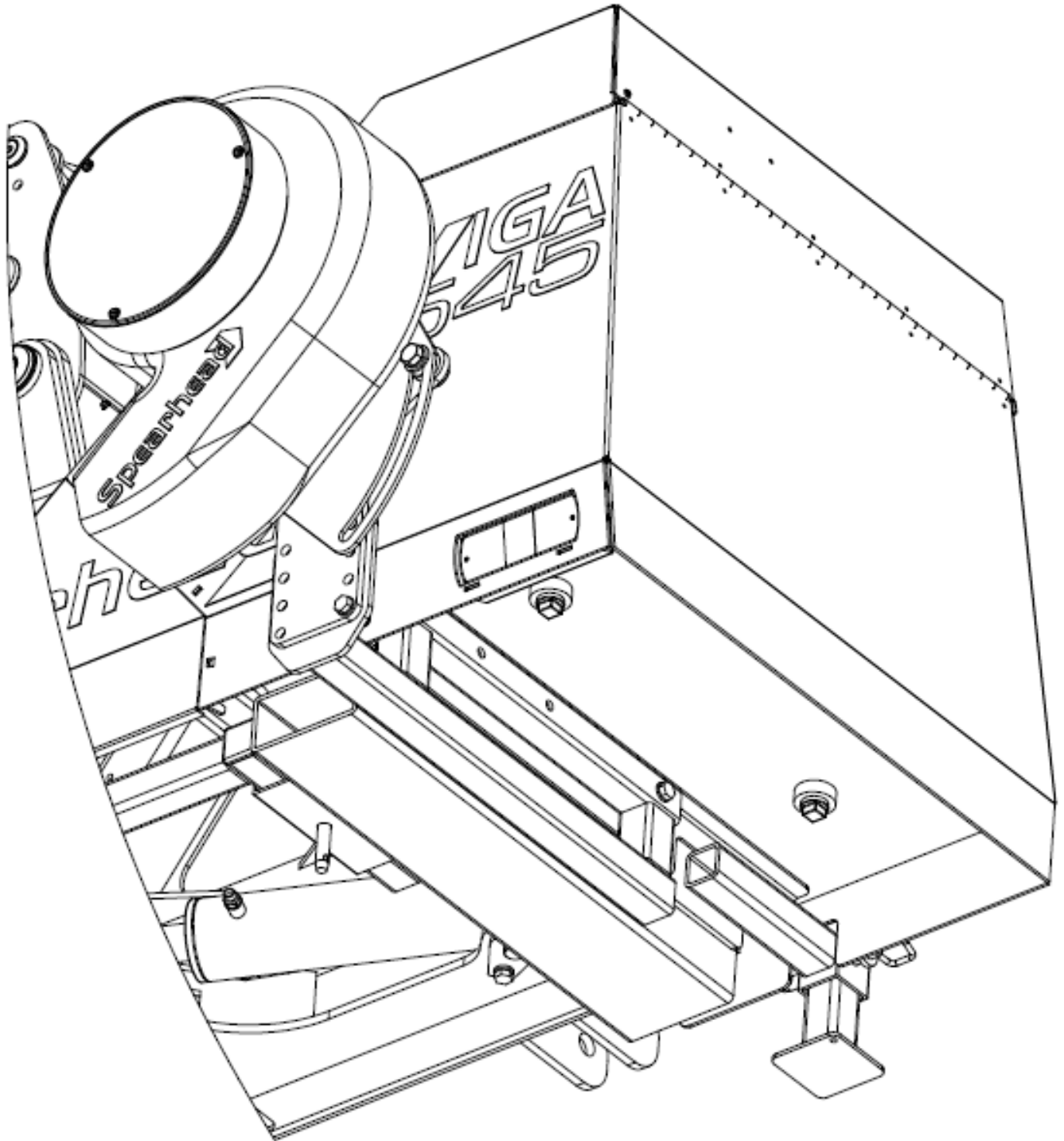
OPT0686 - LH DEBRIS BLOWER – EXCEL/TWIGA MACHINES
OPT0657 - RH DEBRIS BLOWER – EXCEL/TWIGA MACHINES



REF NO.	PART NO.	QTY.	DESCRIPTION
1	180904	1	BRACKET
2	2770471	3	M12 X 100 BOLT
3	2770443	4	M12 X 40
4	2770436	14	M12 FLAT WASHER
5	2770417	7	M12 NYLOCK
6	8770688	1	DECAL

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OPT0686 - LH DEBRIS BLOWER - EXCEL/TWIGA MACHINES
OPT0657 - RH DEBRIS BLOWER - EXCEL/TWIGA MACHINES



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