

Spearhead

HXF FRAME 2302/2802/3302



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Part No. 8999109

HANDBOOK & PARTS MANUAL

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.

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.
- 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 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.

This machine is produced by Greentec A/S on behalf of Spearhead Machinery Limited.

**CE Declaration of Conformity,
Conforming to EU Machinery Directives
2006/42/EF**

We, GreenTec A/S, Merkurvej 25, DK-6000 Kolding hereby declare that:

Product

Product Code.....

Serial No......

Type.....

Manufactured by: GreenTec A/S, Merkurvej 25, DK-6000 Kolding

In terms of its design, method of construction and execution thereof, the item of machinery described above complies with the basic health and safety regulations of the respective EU Directives. The Machinery Directive is supported by the following harmonized standards:

- DS/EN ISO 12100 3rd edition 2011. Safety of Machinery – General principles for design – Risk assessment and risk reduction.
- DS/EN 953+AI 4th edition 2010. Safety of Machinery – Guards – General requirements for the design and construction of fixed of moveable guards.
- DS/EN ISO 4413 1st edition 2010. Hydraulic fluid power – General rules and safety requirements for systems and their components

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



Signed

(On behalf of GreenTec A/S)

Status

Sales Director

Date

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INTRODUCTION

The Spearhead HXF Frame is a professional attachment designed specifically for mounting on skid steer and front loaders, telescopic handlers and other types of carriers. A large selection of attachment tools can be fitted to the HXF frame to enable your carrying machine to cater for the maintenance of windbreaks, hedges, woodlands and under fence mowing.



Available in width of 2.3 m (2302), 2.8 m (2802) and 3.3 m (3302) the HXF frame is equipped with a break-back system protecting the frame and carrying vehicle if the arm comes in contact with a stationary object with an automatic return capability to bring the frame back to its original working position. Head angle of the tool attachment can be adjusted using the manual adjustable top link or with the addition of an optional hydraulic ram. To place the HXF frame from transport to working position a removable pin is removed and then replaced to rotate and lock the frame in the various positions.

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 operator

GENERAL INFORMATION

Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the Spearhead Machinery Service Department for assistance.

Only use 'Genuine Spearhead Parts' on Spearhead Machinery and equipment.

DEFINITIONS: *The following definitions apply throughout this manual;*

DANGER



DANGER: Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

WARNING



WARNING: Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

CAUTION



CAUTION: Alerts to a hazardous situation which could result in damage to the machine and/equipment if not observed correctly.

NOTICE



NOTICE: Specific or general information considered important or useful to emphasise.

LEFT HAND (LH) & RIGHT HAND (RH): These terms are applicable to the machine when fitted to the tractor and viewed from the rear; these terms also apply to the tractor references.

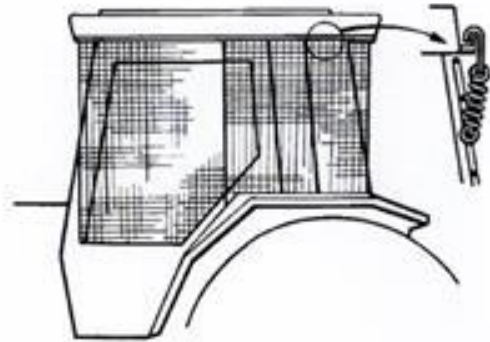
SERIAL PLATE

All machines are equipped with a serial plate containing important information relating to the machine including a unique serial number used for identification purposes.

Note: Images in this manual are provided for instruction and information purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; when this occurs the general procedure will be basically the same.

VEHICLE/TRACTOR PREPARATION

We recommend vehicles are fitted with cabs using 'safety glass' windows and protective guarding when used with our machines. Fit the Operator Guard (see drawing) using the hooks provided. Shape the mesh to cover all vulnerable areas. The driver must be looking through mesh and/or polycarbonate glazing when viewing the complete working machine in any working position – unless the vehicle/cab manufacturer can demonstrate that the penetration resistance



is equivalent to, or higher than, that provided by mesh/polycarbonate glazing. If the tractor has a roll bar only, a frame must be made to carry both mesh and polycarbonate glazing. The operator should also use personal protection equipment (PPE) to reduce the risk of serious injury such as; eye protection (mesh visor to EN1731 or safety glasses to EN166), hearing protection to EN352, safety helmet EN297, gloves and high visibility clothing.

Vehicle Ballast

It is imperative when attaching 'third-party' equipment to a vehicle that the maximum possible stability can be accomplished by the utilisation of 'ballast' in order to counter-balance the additional equipment added.

Front Weights

May be required for rear mounted machines to place 15% of total outfit weight on the front axle for stable transport on the road and to reduce 'crabbing' due to the drag of the cutting unit when working on the ground.

Rear Weights

May be required to maintain a reasonable amount of rear axle load on the Opposite wheel from the arms when in work; for normal off-ground work i.e. hedge cutting this should be 20% of rear axle weight or more for adequate control, and for ground work i.e. verge mowing with experienced operators, this can be reduced to 10%. All factors must be addressed in order to match the type and nature of the equipment added to the circumstances under which it will be used – in the instance of Power Arm hedge cutters it must be remembered that the machines centre of gravity during work will be constantly moving and will differ from that during transport mode, therefore balance becomes critical.

Factors That Affect Stability

- Centre of gravity of the tractor/machine combination.
- Geometric condition e.g. position of the cutting head and ballast.
- Weight, track width and wheelbase of the tractor.
- Acceleration, braking, turning and the relative position of the cutting head during these operations.
- Ground conditions, e.g. slope, grip, load capability of the soil/surface.
- Rigidity of implement mounting.

Suggestions To Increase Stability

- Increasing wheel track; a vehicle with a wider wheel track is more stable.
- Ballasting the wheel; it is preferable to use external weights but liquid can be added to around 75% of the tyre volume – water with anti-freeze or the heavier Calcium Chloride alternative can be used.
- Addition of weights – care should be taken in selecting the location of the weights to ensure they are added to a position that offers the greatest advantage.
- Front axle locking (check with tractor manufacturer).

NOTE: The advice above is offered as a guide for stability only and is not a guide to vehicle strength. It is recommended that you consult your vehicle manufacturer or local dealer to obtain specific advice on this subject, additionally advice should be sought from a tyre specialist with regard to tyre pressures and ratings suitable for the type and nature of the machine you intend to fit.

SAFETY

This machine has the potential to be extremely dangerous – in the wrong hands it can kill or maim; it is therefore imperative that both owner and operator of the machine reads and understands the following section to ensure they are fully aware of the dangers that do, or may exist, and their responsibilities surrounding the use and operation of the machine. The operator of this machine is responsible for not only for their own safety but equally for the safety of others who may come into the close proximity of the machine, as the owner you are responsible for both.

All operators must be fully competent in the use of this machine and also the machine to which it is attached and must read and understand the operation manuals for both machines before attempting to attach or operate this equipment.

When the machine is not in use it should be lowered to rest on the ground. In the event of any fault being detected with the machine's operation it must be stopped immediately and not used again until the fault has been corrected by a qualified technician.

SAFETY FOR MAINTENANCE & OPERATOR

The safety advice in this manual, the present national emergency preventing precepts and existing in-house work, operation and safety precepts must be complied with.

Additionally the safety precepts of the vehicle manufacturer must be complied with. If the machine is used on public roads, the existing laws apply.

Safety Advice For Maintenance And Inspection:

- The head of operations must see it that all maintenance, inspections and fittings are carried out by authorized personnel who have read and understood the contents of this manual.
- Maintenance must only be carried out when the machine is at standstill. This procedure as described in Spearhead's manual must be carefully observed.
- When maintaining a HXF frame and/or a machine that is lifted, always secure with suitable support units.
- When replacing knives and the like on the tool attached to the HXF frame always check the hydraulic system for remaining pressure; always reduce the pressure to zero.
- Only use suitable tools and always wear work gloves, safety shoes and goggles.
- Dispose of oil and grease according to regulation.
- Immediately after finishing work, all safety ad protection units must be installed and activated again.
- Before any use, the sections "Putting Into Operation" by the manufacturer of the tractor/vehicle must be carefully followed.

Safety Advice For The Head Of Operation/User:

- It is of the most utmost importance to be familiar with the equipment and the operational units before starting work. Afterwards it is too late.
- Work wear must be tight fitted. Avoid loose fitted clothes. Check surroundings before work (children or obstacles such as rocks, fence posts, wire etc.). Always make sure there is a sufficient view. Safety distance for a tool in work is stated in the manual.
- Riding the HXF or the machine attached to it when transported or in work is not permitted.
- Never leave the driver's seat when driving.
- Staying in the work area is forbidden. Safety distance for the HXF frame is stated in the manual.
- Take extra precautions when working underneath power lines. Always keep a safe distance to power lines.
- Before leaving the vehicle, always lower machine/HXF frame to the ground, remove the ignition key and secure the vehicle from inadvertent activation and rolling!

SAFETY AND INSTRUCTIONAL DECALS IDENTIFICATION



Warning
 Avoid fluid escaping under pressure. Consult technical manual for service procedures.



Warning
 Stop engine and remove key before performing maintenance or repair work.



Warning
 Danger – flying objects. Keep safe distance from the machine as the engine is running.



Warning
 Check all nuts and bolts are tight every 8 hours – retighten if required.



Warning
 Stay clear of rotating saw blades.



Warning
 Carefully read operators manual before handling this machine. Observe instructions and safety rules when operating.



Warning
 Do not remove/open guard when parts are rotating.



Warning
 Do not stand and ride on the machine at any time.

ADDITIONAL SAFETY ADVICE

Training

Operators need to be competent and fully capable of operating this machine in a safe efficient way prior to attempting to use it in any public place. We advise therefore that the prospective operator make use of relevant training courses available such as those run by the Agricultural Training Board, Agricultural Colleges, Dealers and Spearhead.

Working In Public Places

When working in public places such as roadsides, consideration should be paid to others in the vicinity. Stop the machine immediately when pedestrians, cyclists and horses etc. pass. Restart only when they are at a distance that causes no risk to their safety.

Warning Signs

It is advisable that any working area be covered by suitable warning signs and statutory in public places. Signs should be highly visible and well placed in order to give clear advanced warning of the hazard. Contact the Department of Transport of your Local Highway Authority to obtain detailed information on the subject. The latter should be contacted prior to working on the public highway advising them of the time and location of the intended work asking what is required by the way of signs and procedure – ‘Non-authorized placement of road signs may create offences under the Highways Act’.

Suggested Warning Signs Required

The reach arm machine must be fitted with a white on blue, 600mm diameter ‘**Keep Left**’ (*) direction arrow. A white with red border ‘**Hedge Cutting**’ warning triangle of at least 750mm tall must be placed at no greater distance than 500m from the tractor at any time. These hedge cutting signs should also be placed at key restricted view areas such as bridges and sharp bends.

****NOTE – this applies to UK Market machines where traffic passes to the right of a machine working in the same direction as the traffic flow. The direction, use and colour of the arrow depend on the country of use and the Local Highway Authorities regulations in the locality.***

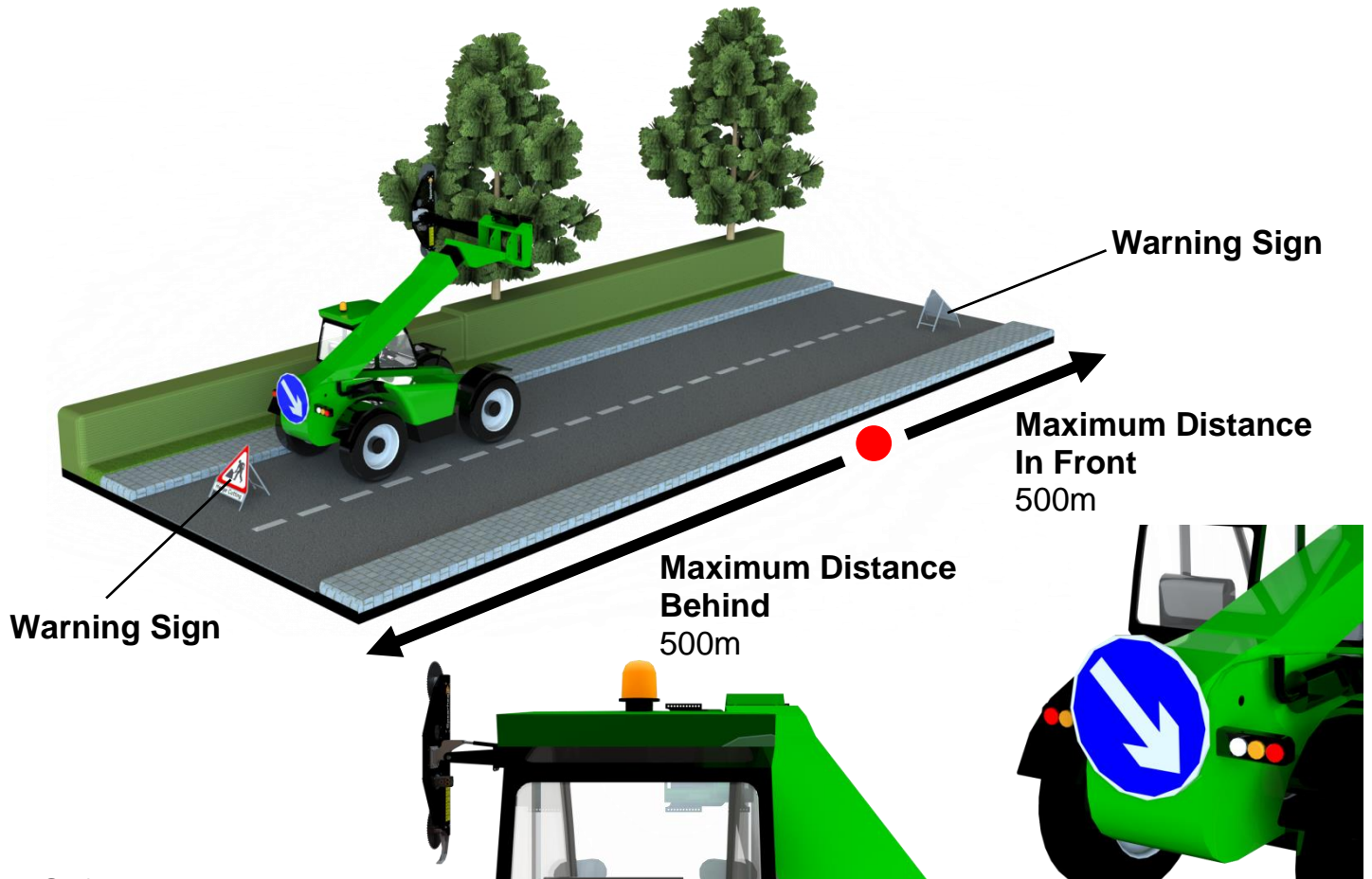
Use of Warning Signs

- On two-way roads, one set of signs is required to be facing in each direction.
- Work should be carried out within 500m of the signs. The signs will then be required to be moved.
- Work only when visibility is good and at times of flow e.g. NOT during ‘rush-hour’.
- Vehicles should have at least one 360° visible amber flashing beacon (preferably two) or a light bar comprising at least two



independent light sources which are clean.

- Ideally, vehicles should be conspicuously coloured and have high visibility rear markings which are clean
- Debris should be removed from the road and path as soon as practicable, and at regular intervals, wearing high visibility clothing and before removing the hazard warning signs.
- Collect all road signs promptly when the job is complete.



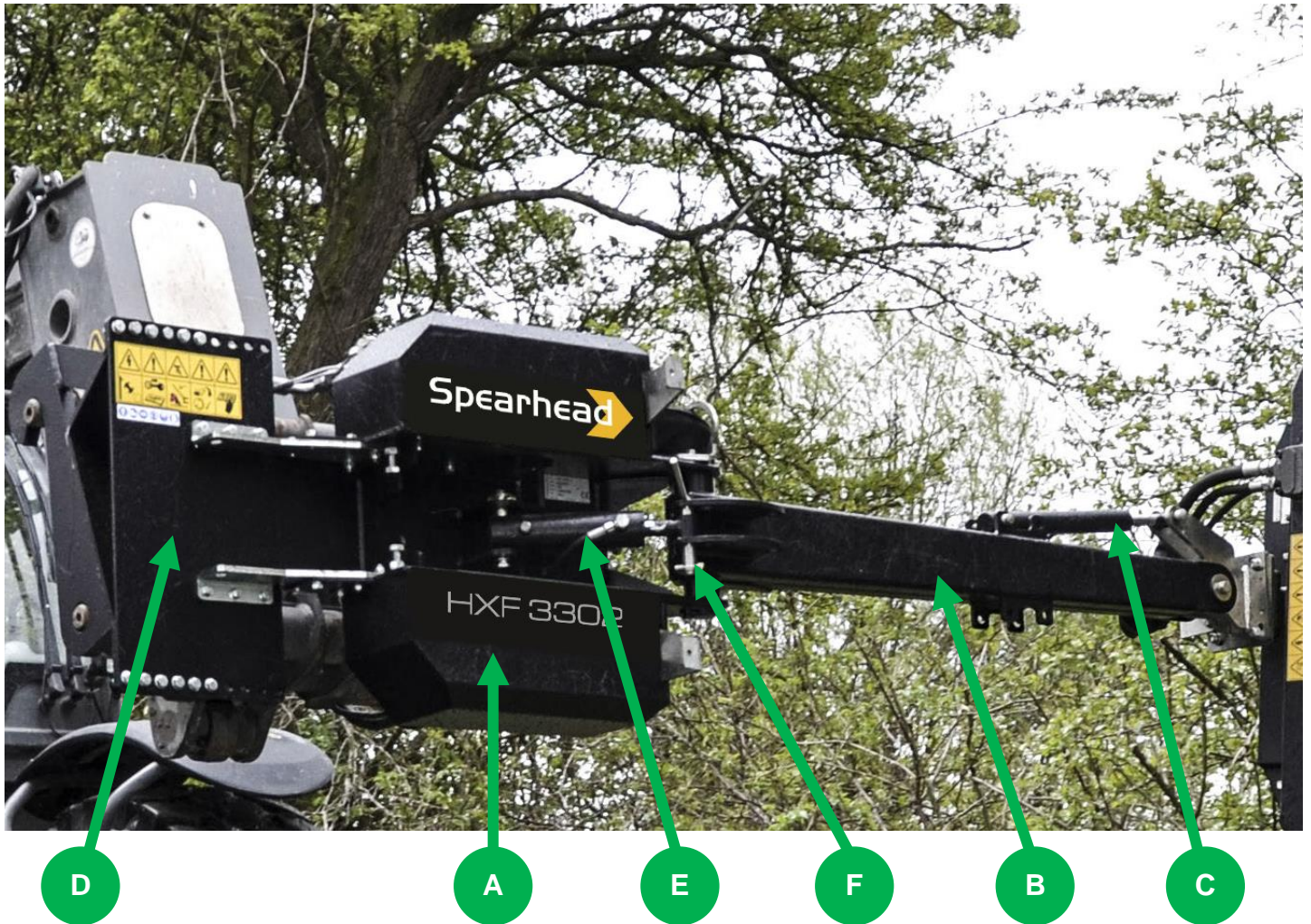
Safety Gear

It is recommended that the following personal protective equipment is worn when the operating and/or maintaining this machine; coveralls, safety boots, safety glasses, hearing protection, safety helmet, protective gloves.



Although the information stated here covers a wide range of safety subjects it is impossible to predict every eventuality that can occur under different circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your Spearhead machine.

COMPONENTS IDENTIFICATION



- a) Mainframe
- b) Arm
- c) Head Angle Adjuster Link/Ram (optional)
- d) Mounting Plate
- e) Breakback Assembly
- f) Removable Locking Pin

Please note the machine shown above is in Left-hand configuration.

FEATURES

- HXF frame is the most road safe solution on the market.
- Professional attachment with an ability to fit a wide range of machines and tools.
- Fitted with an automatic hydraulic breakback which is activated by an accumulator fitted within the frame of the HXF.
- Weight without tool is 110kg (2302), 150kg (2802) and 200kg (3302).
- Hydraulic quick release hoses.
- Working width of 2.3m (2302), 2.8m (2802) and 3.3m (3302).
- Transport width of 1.3m (2302), 2.0m (2802) and 2.2m (3302).
- Mechanical angle adjustment control with the option of hydraulic.
- Manual switch from working to transport position.
- Right or left mounting options.
- Optional Euro bracket fitment.
- Optional counterweights can be fitted to the HXF 3302. Weight 105kg.

SPECIFICATION

Specification/Model	2302	2802	3302
Reach Width	2.3m	2.8m	3.3m
Transport Width	1.3m	2.0m	2.2m
Oil Flow Rate	25 l/min	40 l/min	50 l/min
Weight	110kg	150kg	200kg

SAFETY AROUND THE MACHINE

Beware of the following Potential Dangers:

- Becoming trapped when hitching or unhitching and when slewing the HXF frame from transport to work position.
- Tractor overbalancing when the HXF frame is in work position.
- Electrocutation due to hitting overhead power lines.
- Being hit or caught by any moving part.
- Being hit by flying debris or machine parts due to machine damage.
- Machine overbalancing when not in use.
- Injection of high pressure oil from damaged couplings or hydraulic hoses.
- Accidents due to collision with other machines, or debris left on road.

Always

- 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. If the tractor is without cabin then mount metal mesh or polycarbonate guards of a suitable size and strength to protect the operator against thrown debris or parts.
- Before leaving the tractor cab always ensure the HXF frame and the attached tool is firmly on the ground, no weight is on the machines' hydraulics and the rotor has stopped spinning.
- Check that all guards are properly fitted and they're not damaged or have loose parts. Attention should also be given to the attachment to the HXF frame also.
- Inspect work area for wire, steel posts, large stones and other dangerous materials and remove before starting work.
- Beware of the danger of overhead power cables. The operator must be aware of the maximum height and reach of the machine when working under power cables. The minimum height for 11,000 and 22,000-volt cables is 5.2 metres from the ground. When fully extended, the machine and the HXF frame may well exceed this height so extreme caution should be practised. For more information contact the Health and Safety Executive or your local power company.
- Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.
- Lower the HXF frame to the ground when parking up. No weight is on the tractors hydraulics. Make sure the machine has stopped before leaving the tractor.
- Fit locking pins when hitching up the HXF frame and other attachments where applicable.
- Wear ear defenders if operating without a quiet cab or with cab windows open.
- Ensure tractor guards are fitted correctly and are undamaged.
- Work at a safe speed, taking into account terrain, passing vehicles and obstacles.

- Ensure that the tractor meets the minimum weight recommendations of the machine manufacturer and that ballast is used if necessary.
- Check that machine fittings and couplings are in good condition.
- Follow the manufacturer's instructions for attachment and removal of the machine from the tractor.
- Use clear warning signs to alert others to the type of machine working in the vicinity. Signs should be placed at both ends of the work site and should be in accordance with the Department of Transport recommendations.
- Ensure hydraulic pipes are correctly routed to avoid damage from chafing, stretching, pinching or kinking.
- Disengage the machine, stop the engine and remove the key before leaving the tractor cab for any reason.
- Clean up any debris left at the work site.
- Ensure that when you remove the machine from the tractor it is secured in a safe position using the stands provided.

Never

- Never operate the HXF frame and the working tool with other people present, as it is possible for debris, including stones, to be discharged from the front and rear of the head. **WARNING:** Some cutting heads may continue to 'freewheel' for up to 20 seconds or more after being stopped.
- Never operate the machine until you have read and understood the relevant handbook and are familiar with the controls.
- Never use a machine that is poorly maintained or has guards damaged or missing.
- Never allow an inexperienced person to operate the machine without supervision.
- Never use or fit a machine onto a tractor if it doesn't meet manufacturer specification.
- Never use a machine if the hydraulic system shows signs of damage.
- 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 the HXF frame or attachment to the ground, stopping the tractor engine and applying the tractor parking brake.
- Never leave the cab without removing the ignition key.
- Never operate the tractor or controls from any position than the driving seat.
- Never stop the engine with the PTO engaged.
- Never operate with the sawblades/flails missing.
- Never operate the attached tool to the HXF frame with wire around any rotor/sawblade. Stop immediately.
- Never use the tool attached to the HXF frame at any angle, which may throw debris towards the cab.
- Never attempt to use the machine for any purpose which it wasn't designed for.
- Never transport with PTO engaged
- Never enter the working area of the machine (risk of injury!)

- Never transport with the controls live, always turn off the isolator switch (red) and disconnect supply.
- Transport the machine without the blade protection guards mounted.
- Attempt to detect a hydraulic leak with your hand; use a piece of card.
- Exceed maximum oil pressure of 250 bar in the hydraulic hoses.

BEFORE STARTING WORK:

Description of the HXF Frame:

Professional attachment designed for mounting on skid steer and front loaders, telescopic handlers and other types of carrier to carry a range of various attachments to cater for the maintenance of windbreaks, hedges, woodlands and under fence mowing.

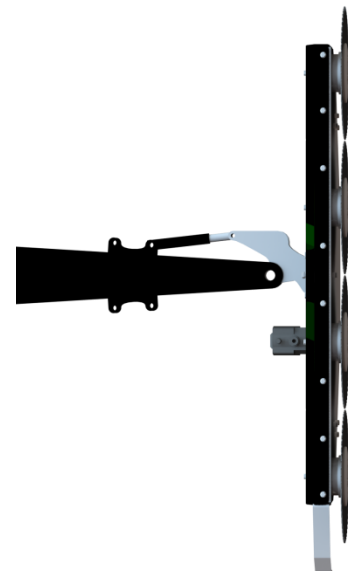
Available in width of 2.3 m (2302), 2.8 m (2802) and 3.3 m (3302) the HXF frame is equipped with a break-back system protecting the frame and carrying vehicle if the arm comes in contact with a stationary object with an automatic return capability to bring the frame back to its original working position. Head angle of the tool attachment can be adjusted using the manual adjustable top link or with the addition of an optional hydraulic ram. To place the HXF frame from transport to working position a removable pin is removed and then replaced to rotate and lock the frame in the various positions.

Setting Up For Work:

- Wear safety glasses and work gloves.
- Remove the transport bolt and turn the arm into the work position. Mount the bolt in the ram. Remember the safety pin.
- Start the tool at low oil flow (low rpm). Let the tool warm up for a few minutes.

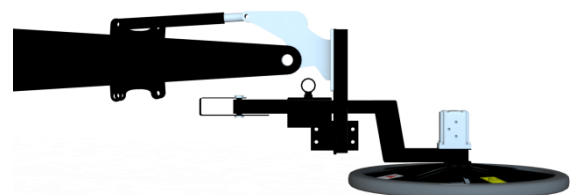
Hedges

- Adjust the HXF frame to vertical for hedge cutting and adjust to work position.



Grass

- Adjust the HXF frame to horizontal for cutting grass and raise/lower to work position.



Tool Start:

- Choose low engine RPM.
- Make sure that the surrounding area is secured.
- **Warm start** – start the tool.
- **Cold start** – never start the tool at maximum speed. Let the tool run without much strain for approximately 15 minutes to heat up the oil.
- Slowly increase rpm until the correct oil amount is reached.
- Never attempt to restart a strained/wedged in tool. Stop the tool and the vehicle engine. Remove the ignition key and engage the handbrake. Only then it is safe to remove the wedged in material. Always wear safety glasses and work gloves.

Tool Stop:

- Reduce engine RPM to fast idling and stop the tool.
- Never increase or reduce the oil amount too fast. This will damage the hydraulic system on a long-term basis.
- When you are finished working, stop the engine, remove the ignition key and engage the handbrake. Always wear safety glasses and work gloves. Refit safeguard to the attached tool to the HXF frame. Beware of sharp cutting parts!
- Always show consideration for other road users during transportation.

Power Lines:

- Always pay close attention to overhead lines. Between power poles there is always risk of hitting overhead lines. When in doubt please contact your local power station for advice concerning safety distance.



CUTTING ANGLE ADJUSTMENT

The cutting angle of the HXF 2302, 2802 and 3302 are as standard fitted with a manual adjustable top link. This can only be adjusted when the machine is stopped.

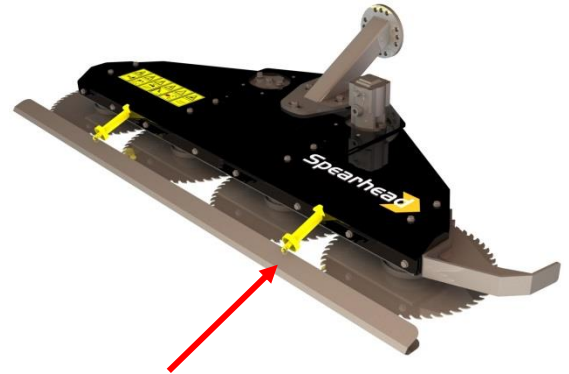
For the HXF 2802 and HXF 3302 and optional hydraulic ram can be mounted in replacement of the manual adjustable top link. Operate the ram in the required direction to set the desired cutting angle before starting work. The ram may be operated during work to make minor angling adjustments, but it is recommended to stop work before making major adjustments to the cutting angle.

MOUNTING/DISMOUNTING WITH A QUADSAW OR CUTTER BAR

WARNING



Mounting the tool must be done on a flat and level surface. Always pay close attention when mounting the Quadsaw/Cutter Bar to the HXF frame; make sure that no persons are within range of the saw/blades, as these can cause injuries even when stationary. For safety reasons the saw/blade must always be fitted with the safety caps, as these should only be removed when starting the work.



Safety caps should be placed over the blades at all times unless the Quadsaw is in use

DANGER



Never use the tool on an unstable or non suitable vehicle.

Mounting To An Arm System, Or Similar

NOTICE



Tools can be mounted to the arm system with a Quickshift. Spearhead HXF frames are specially designed to fit onto the various models of Spearhead Quadsaw, Cutter Bar and RI barrier mowers.

NOTICE



Spearhead's range of HXF frames are a system designed to be mounted on tractors and telescopic and compact loaders. They have a range of 2.3m (2302), 2.8m (2802) and 3.3m (3302) from the tractor, a 180° manual folding system and hydraulic anti-collision. The total weights of the units are 110kg (2302), 150kg (2802) and 200kg (3302). If necessary, ballast can be mounted on the vehicle or the arm systems to ensure stability and balance during any work or working conditions.

Spearhead HXF FRAME 2302/2802/3302

1. Approach slowly. Adjust the angle of the vehicle to the HXF frame to line up the pin holes. Place the pins where required to connect the HXF frame to the loader.



WARNING



For all Quadsaw models, blades must be mounted in downward cutting rotation only.

2. After mounting, slowly raise the HXF frame.



3. Tip the tool to vertical. Then mount the hydraulic hoses and if fitted, the electric cables. Dismounting is done in reverse order.



WARNING



Never use the tool with broken or missing blades/knives.

MOUNTING/DISMOUNTING WITH A RI60/80 BARRIER MOWER

WARNING



Mounting the tool must be done on a flat and level surface. Always pay close attention when mounting the RI60/80 to the HXF frame; make sure that no persons are within range of the saw/blades, as these can cause injuries even when stationary.

DANGER



Never use the tool on an unstable or non suitable vehicle.

Mounting To An Arm System, Or Similar

Tools can be mounted to the arm system with a Quickshift. Spearhead HXF frames are specially designed to fit onto the various models of Spearhead Quadsaw, Cutter Bar and RI barrier mowers.

Spearhead's range of HXF frames are a system designed to be mounted on tractors and telescopic and compact loaders. They have a range of 2.3m (2302), 2.8m (2802) and 3.3m (3302) from the tractor, a 180° manual folding system and hydraulic anti-collision. The total weights of the units are 110kg (2302), 150kg (2802) and 200kg (3302). If necessary, ballast can be mounted on the vehicle or the arm systems to ensure stability and balance during any work or working conditions.

1. Approach slowly. Adjust the angle of the vehicle to the HXF frame to line up the pin holes. Place the pins where required to connect the HXF frame to the loader.



2. After locking the loader and HXF frame together slowly raise the loader. Dismount the supporting leg.



3. Mount the hydraulic hoses and if fitted the electric cables. Dismounting is done in reverse order.

WARNING



Never use the tool with broken or missing blades/knives.

TRANSPORT/WORKING WITH THE QUADSAW OR CUTTER BAR

1. Remove the bolt from the arm.



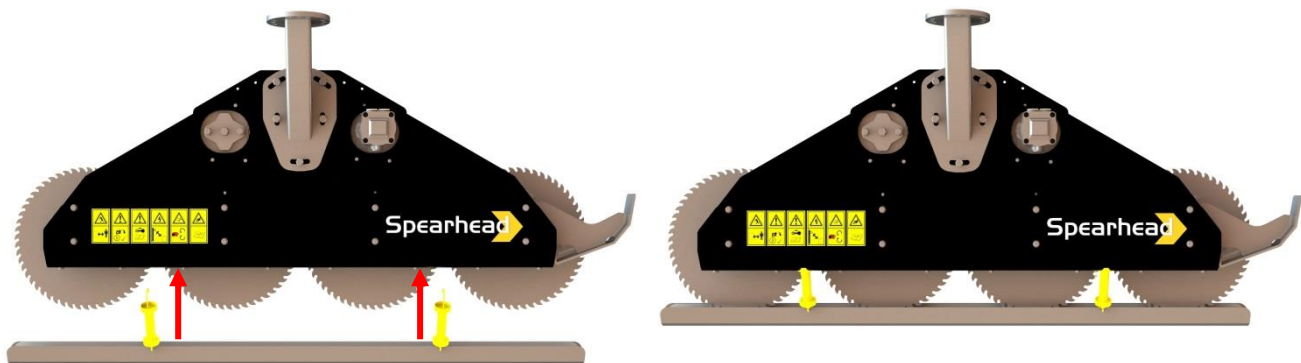
2. Manually turn the arm 180° from the work position.



3. Replace the bolt in the original removed location. Remember the safety pin!



4. Replace the transport protection caps from the cutting tool.



TRANSPORTING THE RI60/80 BARRIER MOWER

1. Remove the bolt from the RI60/80 anti collision safety.



2. Remove the bolt from the ram on the HXF frame.



3. Manually turn the arm to 150° or 180° to place the machine into the work position.



WORK POSITION OF THE RI60/80 BARRIER MOWER

1. Mount the bolt to the cylinder. Remember the safety pin! The set is now ready for work. Always wear safety glasses if the tractor/load is without a cab!



WORK POSITION OF THE HXF FRAME WITH VARIOUS TOOLS

180° with the Quadsaw and Cutter Bar. (Possible with the RI60/80 barrier mower depending on the compact loader.)



150° with the RI60/80 barrier mower.



FIELD OF APPLICATION

The various HXF frame arm systems are used for the ability to cut hedges, branches and trees using a variety of front loaders and carriers. In addition it gives the ability to cut around the bases of lamp posts, trees and similar when using the correct attachment tool.

The Spearhead 2302, 2802 and 3302 HXF frames have been specially designed to be used with Spearhead's various Quadsaw, Cutter Bar and RI barrier mower machines.

To find out more information about Spearhead's various attachments for the HXF frame, please visit www.spearheadmachinery.com, or contact your local Spearhead dealer.

If you already have a Spearhead Quadsaw, Cutter Bar or RI barrier mower, please consult your specific machines Operators and Parts Manual for the guidance into the correct and safe operation of the machine. The spare parts lists and images are located at the rear of the manual.

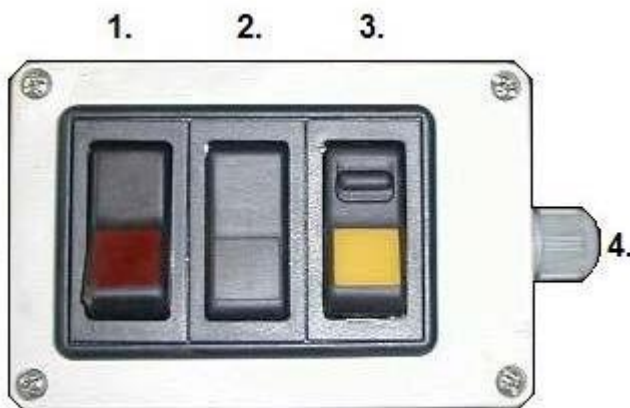
Any other use than the one described is against the intended use. Spearhead Machinery is not liable for damages as a result of this; the risk lies solely on the user.

EXTRA EQUIPMENT – HXF 2802/3302

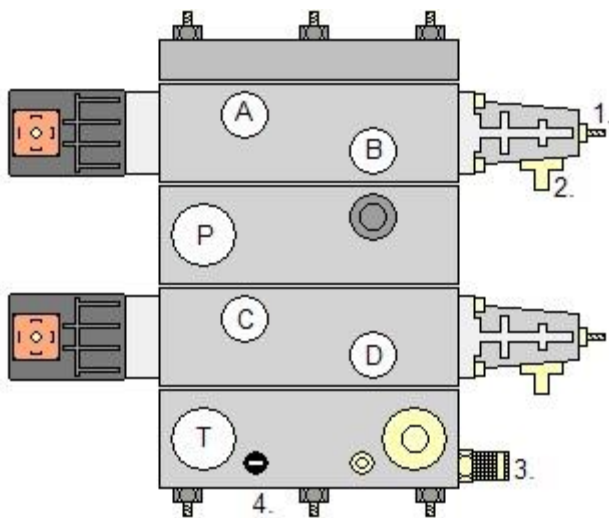
Hydraulic Angle Adjustment

- This equipment allows you to adjust the cutting angle from the cabin.
- Work the machine by using the black switch (2) on the control panel.
- Once the correct angle is set you can begin to work.
- Correction is also possible while working. Use small movements. Large corrections are best done when stationary

Control Panel



1. Switch on/off
2. Cutting angle
3. Tool on/off
4. Fuse in the plug (8 amp)



1. Flow adjustment
2. Manual over steering
3. Mini-mesh
4. Pressure relief valve (200 bar)

- A. Flow to tool (regulated)
- B. Not in use
- C. Cutting angle
- D. Cutting angle
- P. Pressure, flow from pump
- T. Tank connection, pressure less
+ T from motor

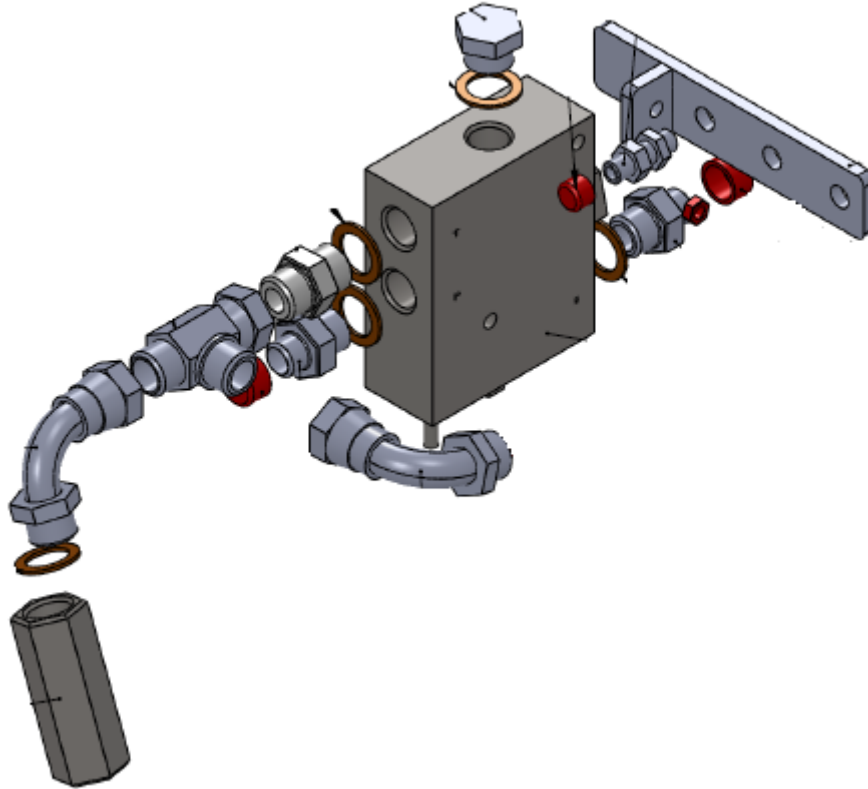
EXTRA EQUIPMENT – HXF 3302

Counterweight

- A counterweight can be bought separately for the HXF 3302. A counterweight set contains 9 weights, each of 11.6 kg (total 105kg).

DIAGRAMS - HXF 2802/3302

Splitter Valve

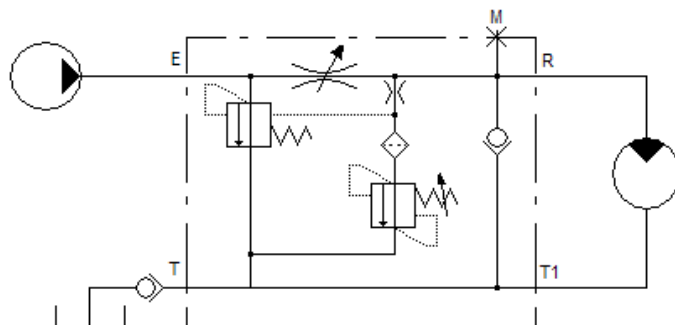
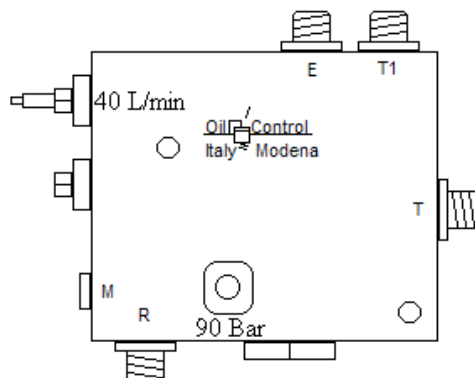


E	P fra pumpe	P von Pumpe	P from pump	Max. 150 L/min.
R	Reguleret flow	Regulierte Öl menge	Regulated oil flow	Max. 90 L/min.
T1	Retur fra motor	Zurück von Motor	Return from Motor	
T	Tankforbindelse	Tankverbindung	Tank connection	
M	Manometertilslutning	Manometer anchluss	Manometer test plug	

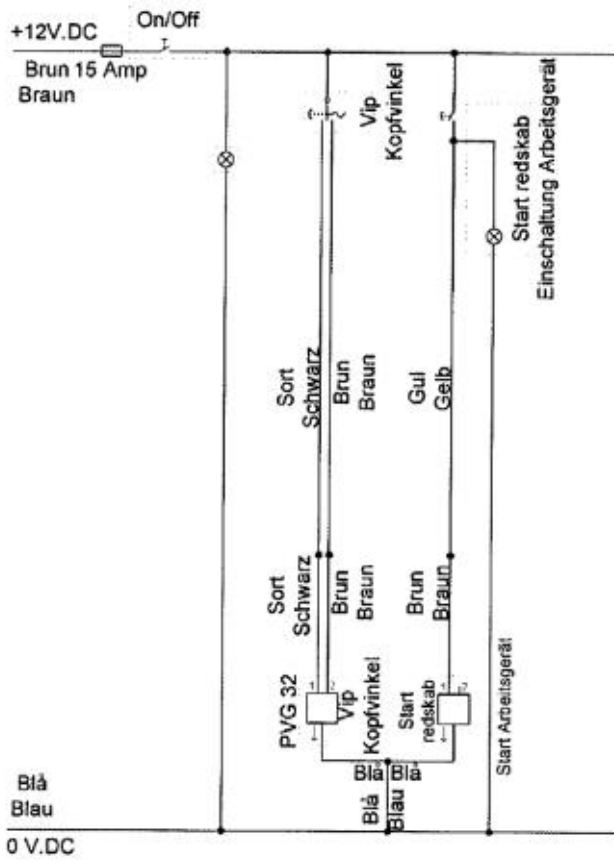
E-R-T1-T = 3/4" Gevind / Gewind / Thread

M = 1/4" Gevind / Gewind / Thread

HXF 3300
50 L/min
150 bar

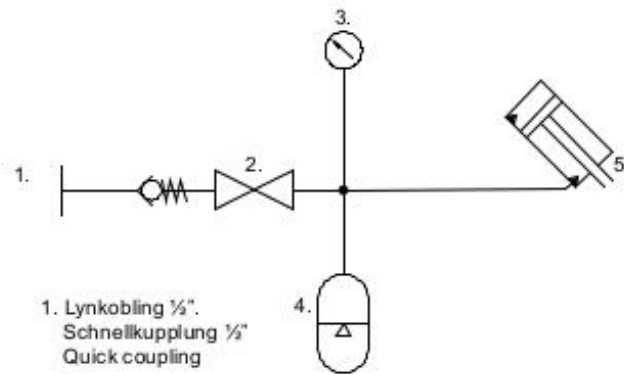


ELECTRIC DIAGRAM

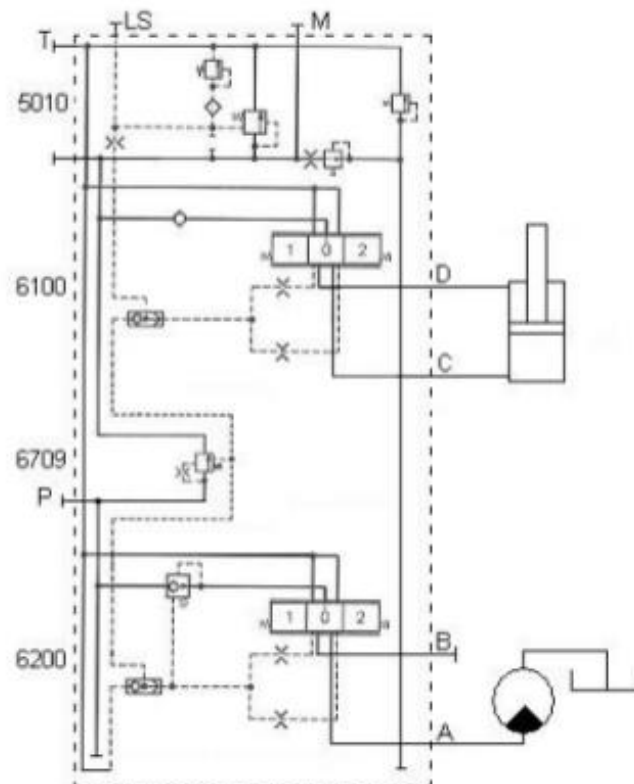


HYDRAULIC DIAGRAMS

Twiga HXF 3300
 Pækørselssikring 40-50 bar
 Anfahrsicherung 40-50 bar
 Break-back 40-50 bar



1. Lynkobling 1/2".
Schnellkupplung 1/2"
Quick coupling
2. Afspæringshane
Absperrhahn
Cut-off valve
3. Manometer. Mini-mesh
4. Akkumulator 32 bar
Drückspeicher 32 bar
Accumulator 32 bar
5. Pækørselscylinder
Anfahrsicherungs Zylinder
Break back ram



MAINTENANCE

The HXF frame must only be used, maintained and serviced by authorized and educated personnel. Area of responsibility, qualifications and supervision of personnel must be carefully regulated by the head of operations. If personnel do not meet these terms they must be trained and instructed.

Head of operations must also make sure that the content of the manual is understood and implemented.

Maintenance procedures not mentioned in this manual must only be carried out by authorized repair shops.

Bypassing the safety advice may result in endangering persons, environment and/or the tool.

Bypassing the safety advice may result in all compensations claim being repealed.

To be exact bypassing the safety advice may result in:

- Endangering persons at non-secured work areas!
- Malfunction of important machine functions!
- Malfunction of prescribed methods for maintenance and service!
- Endangering persons following mechanical or chemical impact!
- Endangering the environment following a hydraulic oil leak!

Only carry out service with machine shut off. The procedure for stopping the machine as described in Spearhead's manual must be followed.

When carrying out maintenance on a lifted machine, secure with suitable support elements.

When changing components where hydraulics are involved or are influencing, always check the hydraulic system for remaining pressure. If present reduce to zero.

Only use suitable tools and wear work gloves, safety shoes and safety glasses.

Dispose of oil and grease according to regulations.

Directly after finishing work, all safety and protection mechanisms must be remounted and reactivated.

MAINTENANCE

Regular Maintenance

Regular maintenance carried out at the intervals specified in the maintenance chart below will ensure that the machine operates correctly and safely and minimise operational down time. See following page for maintenance safety before attempting to work on the machine.

LUBRICATION

Grease the lubrication points on machine on the following basis:

- Daily prior to use.
- Always prior to storage.
- Always after it has been washed.

NOTICE



Never use grease that contains Molybdenum Disulfide on Nylon bushes.

HYDRAULIC HOSES

CAUTION



Carefully check condition of all hoses during routine service paying particular attention to chafed outer casing.

NOTICE



Daily inspect all hydraulic hoses and fittings to be in good order. Any damages or leaks must be rectified immediately; is part of the daily maintenance and is your responsibility, to ensure a long reliable working life.

DANGER



Spearhead's hydraulic system works at very high pressure. When replacing hoses use only genuine hoses. A burst hose could be very dangerous!

NOTICE



When replacing hoses avoid twisting fitting, use two spanners to slacken and tighten.

NOTICE



Never use grease that contains Molybdenum Disulfide on Nylon bushes.

		<p>Warning!</p> <p>Hoses are weakened when installed in a twisted position. Also, pressure pulses in a twisted hose tend to fatigue wire and loosen fitting connections. Design so that the machine produces bending rather than torsion.</p>
--	--	--

All hose connections are of a 'soft seal' type and should be turned to the torque settings shown below in order to be leak proof.

Torque Settings For Hydraulic Hoses

BSP (size)	Nm
1/4"	25
3/8"	40
1/2"	60
3/4"	115
1"	140

Check daily for all hydraulic connections and fittings to see they are in good condition. Any defect or leak must be immediately repaired, it is part of the daily maintenance that will reduce costs and prolong machine life.

If fittings require tightening use 2 spanners and avoid overtightening. If the fitting continues to leak; replace it.

Always check the black protective sleeve to make sure it is in good order. To replace the sleeve is far cheaper than replacing expensive hoses.

Hose warranty is limited to replacement of hoses due to faulty materials or manufacture. Warranty will not be considered on hoses damaged by chafing, abrasion, cuts or pinching while in work, or to damaged threads due to overtightening.

OIL SUPPLY

Check oil level tank in the tank each day prior to starting work – it is good practice to constantly keep an eye on the sight glass level as a ruptured pipeline can empty a system within minutes; a pump or motor that runs out of oil will be damaged beyond repair very quickly. The oil must be changed if there are signs that it is contaminated (discoloured).

Ensure cleanliness when replacing or topping up the oil by:

- Carefully cleaning around the filler neck prior to opening.
- Always using clean containers for refilling the system.
- Regular inspection of the filtration system.
- Never letting the oil level fall below the level in the sight glass.

Regular Maintenance Tasks On The Lubrication System

After every 4 hours of use the following maintenance tasks should be placed on the machine:

- Check bolts for tightness and retighten if required.
- Check valve block, hoses and fittings for signs of leaks – retighten or replace seals if required.
- Bolts and bushes should be greased and retightened.

Check daily for all hydraulic connections and fittings to see they are in good condition. Any defect or leak must be immediately repaired, it is part of the daily maintenance that will reduce costs and prolong machine life.

If fittings require tightening use 2 spanners and avoid overtightening. If the fitting continues to leak; replace it.



WARNING!

The recommended oil flow has been informed by the manufacturer. Never exceed this.

Regular Service Chart

Service	Service Points	Grease	Drain	Check	Clean	Change
1-4 hours	Bolts are fully tightened			(X)		
	Seals on valve block (if leaking change as soon as possible)			(X)		(X)
	Check for leaks from fittings and hoses			(X)		
	Pins and bushes lubricated, tightened			(X)		

Lubricating Oil Precautions

Avoid excessive skin contact with used oil. Used oil contains potentially harmful contaminants which may cause skin cancer or other serious skin disorders. Avoid excessive skin contact with used lubricating oils and always adhere to the health protection precautions.

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Avoid contaminating clothes with oil (particularly those next to the skin). Overalls must be cleaned regularly. Discard heavily soiled clothing or oil impregnated footwear.
- First aid treatment should be obtained immediately for open cuts and wound
- Apply barrier creams before each work period, to help lubricating oil from contaminating the skin.
- Use moisturisers after cleaning; preparations containing lanolin help replace the skin's natural oils which have been removed.
- If skin disorders develop, obtain medical advice without delay.
- Wear eye protection (e.g. goggles or a face shield) if there is risk of eye contamination. Eye wash facilities should be provided in close vicinity of the work area.

PINS AND BUSHES

All main pivot points are furnished with replaceable bushes. If there are any signs of wear, these must be replaced. All bushes are available from Spearhead's Parts Department.

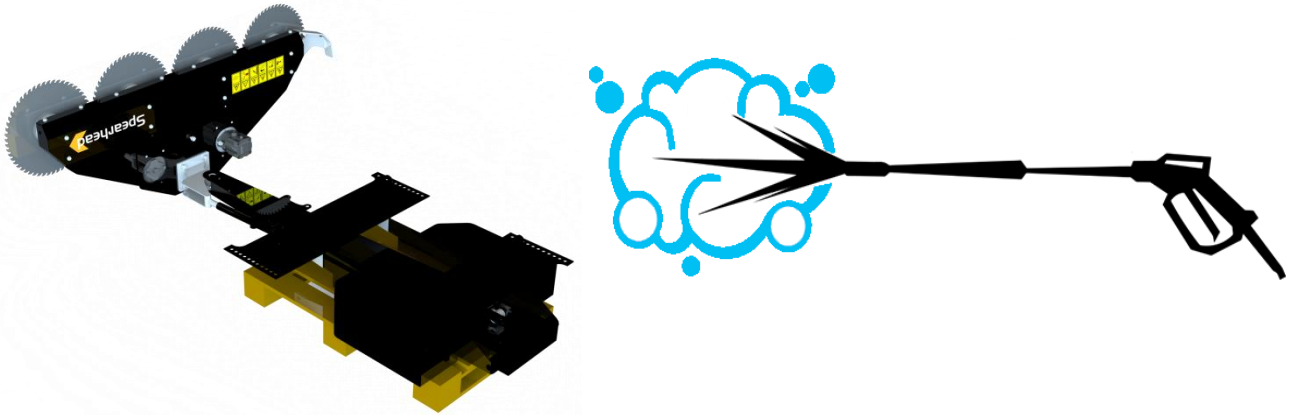
NOTICE



Never use grease that contains Molybdenum Disulfide on Nylon bushes.

STORAGE

Before storage always wash the machine carefully. Remove all traces of grass and dirt.



CAUTION Be careful and never use a high pressure cleaner close to the lacquer. Steam cleaning must be done with caution. Remove all traces of detergents to avoid discolouration or damage to the lacquer. Grease all grease points until fresh grease shows. Slacken rotor drive belts (where fitted). It is important to store the machine covered from rain or sunlight. The machine must be placed horizontally on a level surface or pallet.



CAUTION Make sure that the machine is unable to tip or fall down when stored. Find a suitable storage place and support the machine.



NOTICE Never leave hydraulic hoses on the floor. They pose a risk of stumbling. Place all hoses on the machine or rotary head.



NOTICE Always store the machine in cleaned condition. Dirt attracts moisture and this may result in increased corrosion. Damage to lacquer must be repaired.



NOTICE Smear grease on all areas vulnerable to corrosion

REMEMBER:

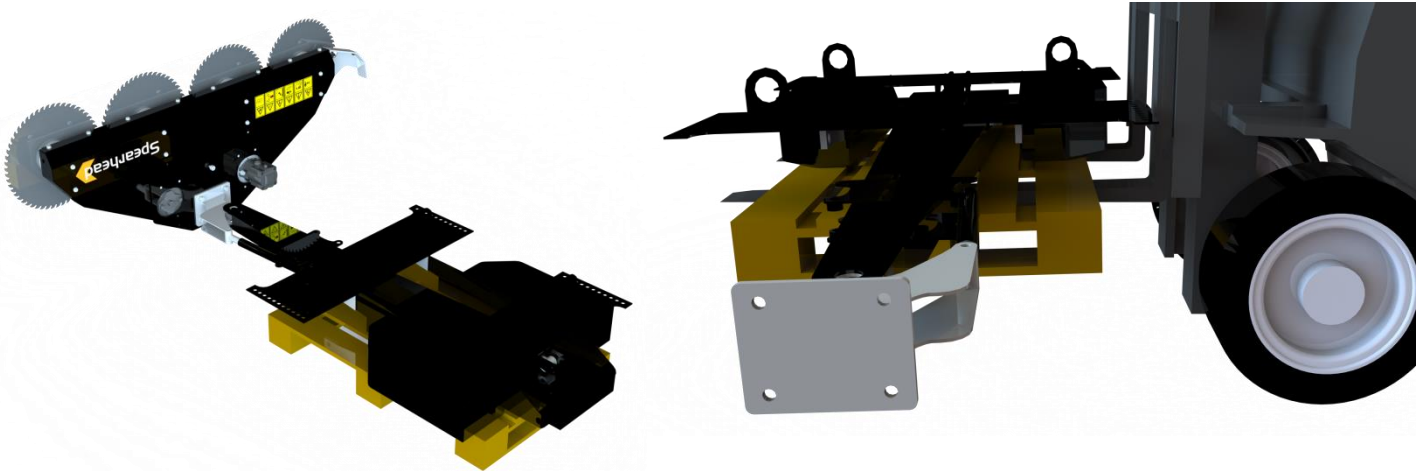
Regular maintenance will increase the lifespan and the resale price of the machine.

PROBLEM SOLVING

Problem	Cause	Solution
Valve or engine leak	Return oil pressure too high	Check oil pressure. Free to tank. Change washer.
	Leak oil pressure too high	Check oil pressure. Free to tank. Change washer.
	Return hose not mounted correctly or fallen off	Install correctly or reinstall. Change valve seals.
Over heating	Incorrect tool speed	Test RPM on tool
	Wrong oil level	Check oil level
	Wrong oil type	Empty the tank and refill with correct oil type
	Blockage of blades	Remove cuttings/debris
	Air temperature is too high	Install a hydraulic fan. Reduce operating speed
Electrical failure	Wrong supply from compact loader	Check the security fuse connections from your loader
	Contacts have been exposed to water	The machine should be stored under a roof or covered up
Hydraulic failure	Oil level too low	Refill with oil to the correct position
	Pressure hose is broken	Check that the pump rotates
	Oil leak in pressure hose	Check machine for leaks
	Oil pump filter is blocked	Replace the filter element
Irregular arm movements	Broken spring in the valve	Check the spring
	Defective seals in hydraulic cylinder	Hydraulic ram repair
Electrically operated valve is not responding	Defective wiring	Check the wiring and switches
	Dirt in valve	Check for ingress of dirt
	Valve stuck	Replace the valve
	Insufficient voltage	Check for loose connections

CORRECT LIFTING OF THE HXF FRAME

Spearhead recommends that the HXF frame is stored on a suitable pallet when not in use. If it needs to be moved use a pallet lifter or forklift. The 2302 weighs 110 kg, the 2802 weighs 150 kg and the 3302 weighs 200 kg.



After Storage:

Follow the recommended maintenance advice given in this manual.

Remember that the HXF frame (all models) is constructed to resist even the toughest conditions and that with some care and attention it will supply you with many years of problem-free service. To avoid problems and ensure that it is covered by the guarantee, always use original spare parts and make sure that the machine is not used for anything else than described in this manual.



WARNING!

Before attempting to repair, maintain or adjust the machine, always make sure that the tool has stopped, the ignition key is removed, hydraulics disconnected, hand brake secured and the tool is safe on the ground.



REMEMBER:

Regular maintenance will increase the lifespan and the resale price of the machine.

SUPPLIER INFORMATION & CE DECLARATION

Supplier Information:

Company Name: Spearhead Machinery Limited
Address: Green View, Salford Priors, Evesham, Worcestershire
Postcode: WR11 8SW
Telephone: +44 (0)1789 491860
Email: enquiries@spearheadmachinery.com

CE Declaration:

Manufacturer: Spearhead Machinery Limited
Telephone: +44 (0)1789 491860
Email: enquiries@spearheadmachinery.com
Machine No: Spearhead HXF 2302, Spearhead HXF 2802, Spearhead HXF 3302
Machine Type: Loader Carrier Frame
Delivery Date:
Delivery Year: 2017

WARNINGS, BANS & DIRECTIONS

WARNING



Never attempt any maintenance or adjustment without first disengaging the PTO/hydraulic pump.

WARNING



Only authorised personnel are allowed to do maintenance on the equipment.

CAUTION



Read this manual carefully before using the machine.

DISASSEMBLING

Machine disengaged from all connections.



To ensure the most environmentally friendly removal, the machine must be disassembled and the parts separated as following:

Category	Example of Parts
Rubber & Plastic	Hoses, Rubber Guards, Stabilisers, Plastic Strips etc.
Technical Components	Pumps, Motors, Hydraulic Hoses etc.
Pure Metal	Plates, Pipe Guards, Blades, Pulleys etc.

Disposal must be carried out according to present national and EC legislations.

ORDERING PARTS

When ordering parts, please refer to your parts list to help your dealer with your order. Please provide the following information:

Model Number

Part Number and quantity

Description

Serial number of 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.

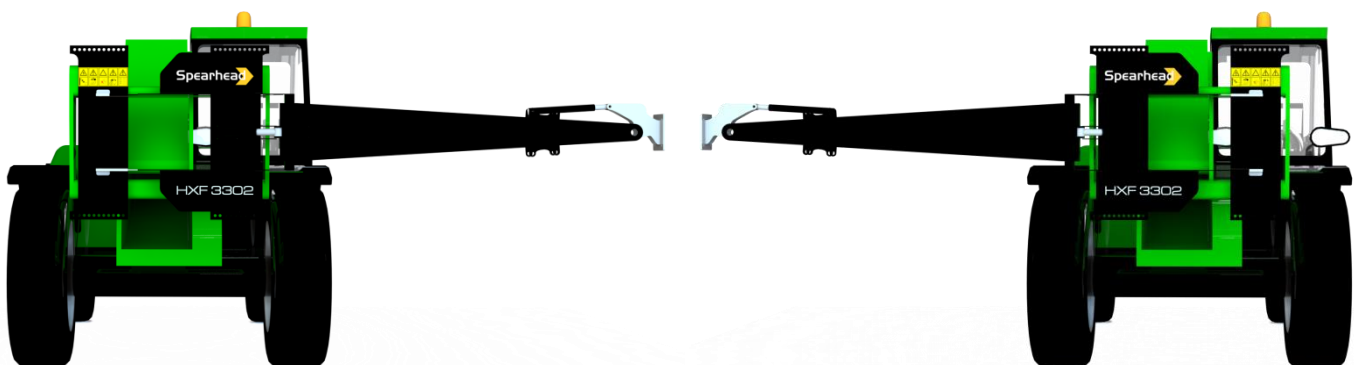
Important Note:

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 the “After Sales Department” at Spearhead Machinery for advice.

Key:

LH: Left Hand

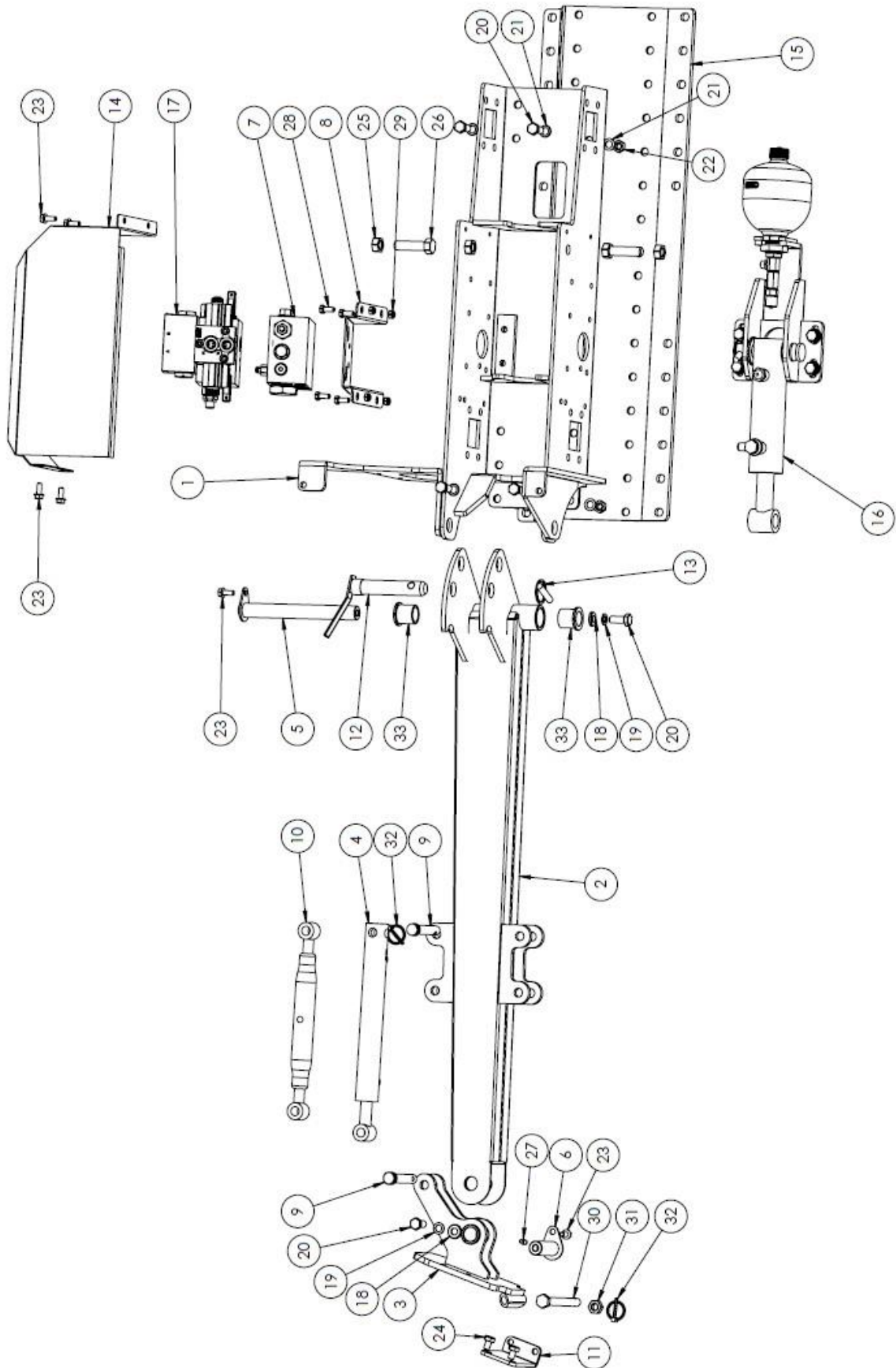
RH: Right Hand



LH Mounted Machines
(Viewed from front position)

RH Mounted Machines
(Viewed from front position)

ARMSYSTEM - 2302

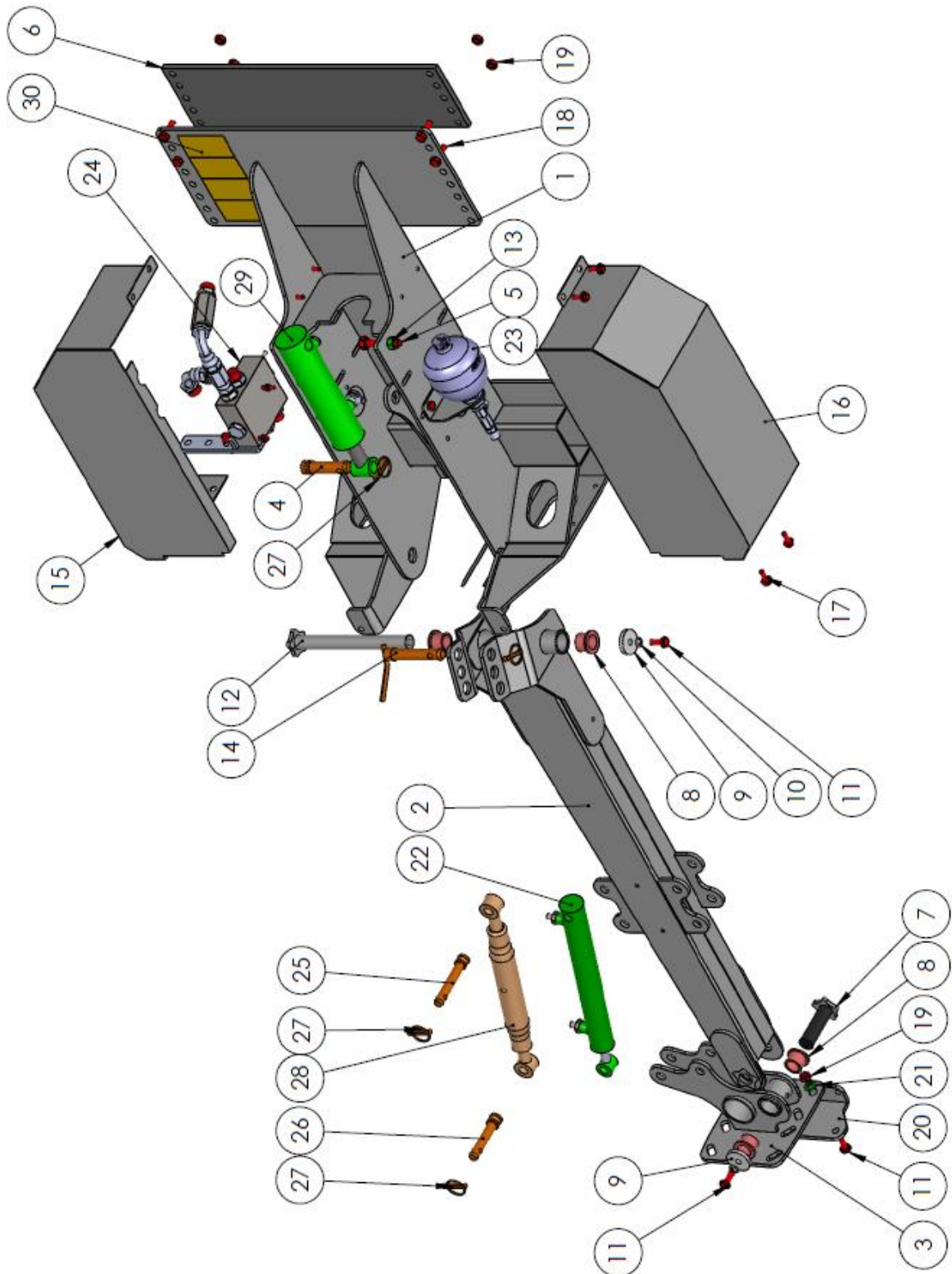


Spearhead HXF FRAME 2302/2802/3302

ARMSYSTEM - 2302

ITEM NO.	PART NUMBER	DESCRIPTION,	QTY.
1	6701506	MAINFRAME	1
2	6701507	ARM	1
3	6701508	HEAD CROWD BRACKET	1
4		LOOK UNDER "HEAD ANGLE RAM"	1
5	6701509	MAIN PIN	1
6	6701510	PIN	1
7		LOOK UNDER "SPLITTER VALVE SIMPLE"	1
8	6701002	MOUNTING PLATE FOR VALVE	1
9	6706001	PIN	2
10	6706002	TOP LINK	1
11	6701003	SUPPORT LEG	1
12	6706003	PIN WITH HANDLE	1
13	6706004	LYNCH PIN	1
14	6701004	LID "RIGHT"	1
14	6701008	LID "LEFT"	
15	6701001	MOUNTING PLATE	1
16		LOOK UNDER "BREAK BACK SYSTEM"	1
17		SPLITTER VALVE WITH "HEAD ANGLE"	1
18	8222011	WASHER HD	2
19	8222005	LOCK WASHER	2
20	8222006	BOLT	7
21	2770434	FLAT WASHER	10
22	8362005	NYLOCK NUT	5
23	6702001	BOLT	6
24	6702002	BOLT	2
25	2770449	NUT	2
26	8362002	BOLT	2
27	2770467	GREASE NIPPLE	1
28	6702003	BOLT	4
29	2770416	NYLOCK NUT	4
30	6701511	QUICK RELEASE BOLT	1
31	6702004	NUT	1
32	6706005	LYNCH PIN	3
33	6704001	BUSH	2

ARMSYSTEM - 2802

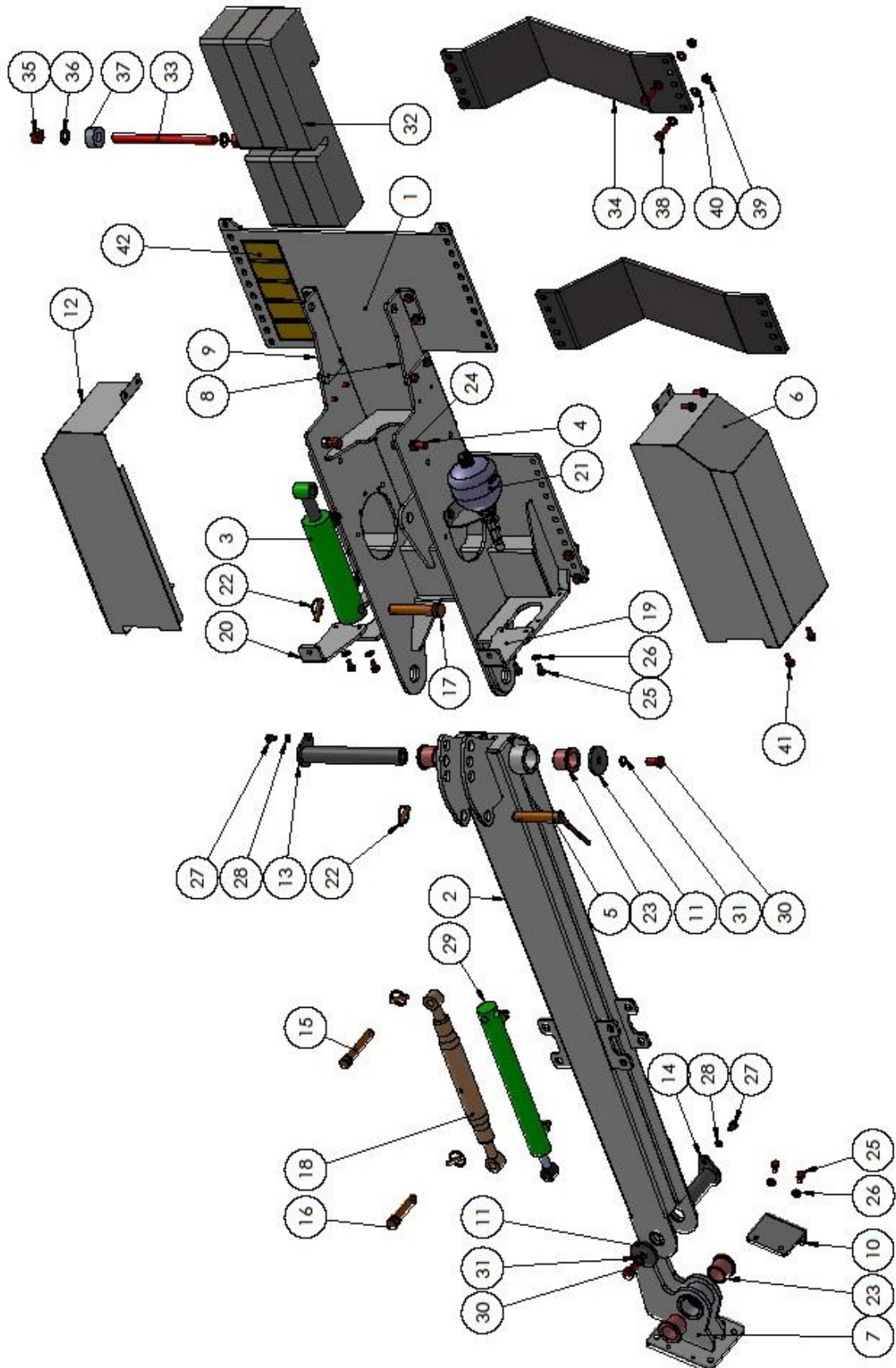


Spearhead HXF FRAME 2302/2802/3302

ARMSYSTEM - 2802

ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8281502	MAINFRAME	1
2	8281504	ARM	1
3	8281505	HEAD CROWD BRACKET	1
4	8286001	PIN	1
5	8282001	ADJUSTER BOLT	2
6	8331001	MOUNTING PLATE	2
7	8281506	STAR PIN	1
8	4600135B	BUSH	4
9	8281001	RETAINING WASHER	2
10	8222005	LOCK WASHER	2
11	8222006	BOLT	4
12	8281507	STAR PIN	1
13	2770449	NUT	2
14	6706003	BOLT WITH HANDLE	1
15	8281508	COVER	1
16	8281509	COVER	1
17	200104.0	SCREW	8
18	8362006	BOLT	8
19	8362005	LOCK NUT	10
20	8281002	LEG STAND	1
21	2770434	WASHER	2
22		LOOK UNDER "HEAD RAM"	1
23		LOOK UNDER "ACCUMULATOR"	1
24		LOOK UNDER "SPLITTER VALVE"	1
25	8286002	PIN	1
26	6310202	PIN	1
27	00.372.01	LYNCH PIN	4
28	8286003	TOP LINK	1
29		LOOK UNDER "AHS RAM"	1
30		LOOK UNDER "DECALS"	1

ARMSYSTEM - 3302



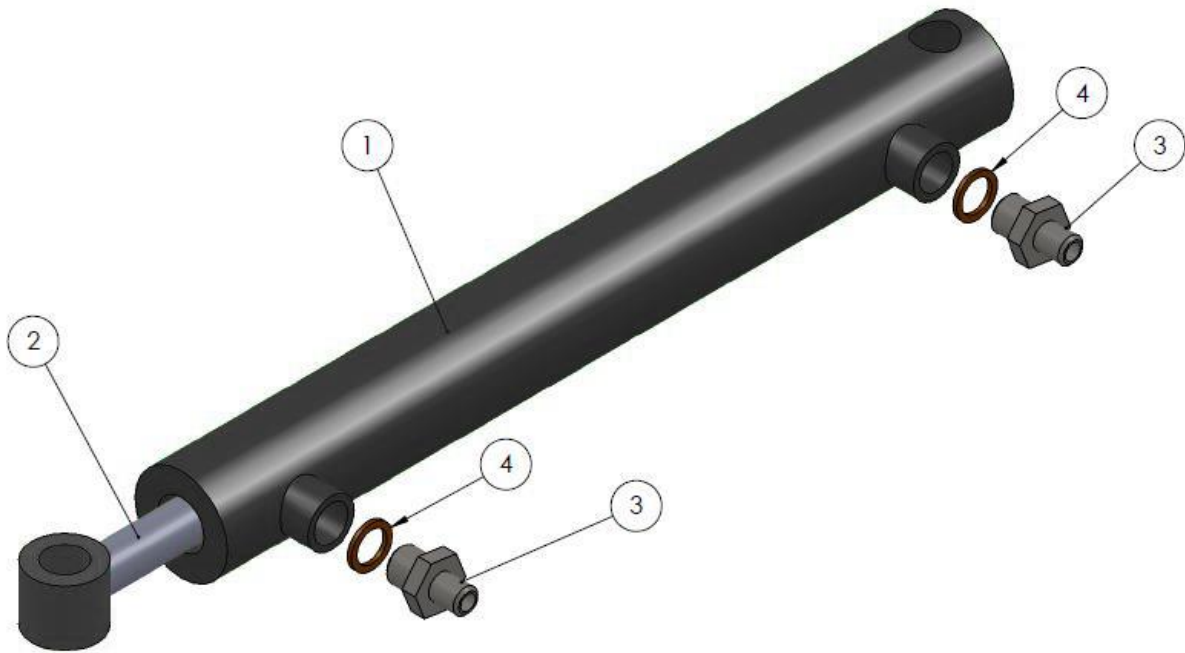
Spearhead HXF FRAME 2302/2802/3302

ARMSYSTEM - 3302

ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1		MAINFRAME	1
2		ARM	1
3		BREAKBACK RAM	1
4		SUPPORT BOLT	3
5		PIN WITH HANDLE	1
6		LID	1
7		HEAD CROWD BRACKET	1
8		REINFORCEMENT PLATE	1
9		REINFORCEMENT PLATE	1
10		LEG	1
11		RETAINING WASHER	2
12		LID	1
13		PIN	1
14		PIN	1
15		PIN	1
16		PIN	1
17		PIN	1
18		TOP LINK CAT 1	1
19		LEG	1
20		LEG	1
21		ACCUMULATOR	1
22		LYNCHI PIN	4
23		FLANGE BUSH	4
24		NUT	3
25		BOLT	14
26		FACET WASHER	14
27		BOLT	2
28		WASHER	2
29		RAM (OPTION)	1
30		BOLT	2
31		WASHER	2
32		COUNTERWEIGHT (OPTION)	3
33		BOLT (OPTION)	1
34		LOADER MOUNT BRACKET	2
35		NUT	2
36		FACET WASHER	2
37		STEEL BUSH	1
38		BOLT	8
39		NUT	8
40		FACET WASHER	16
41		SCREW	8
42		STICKER KIT	1

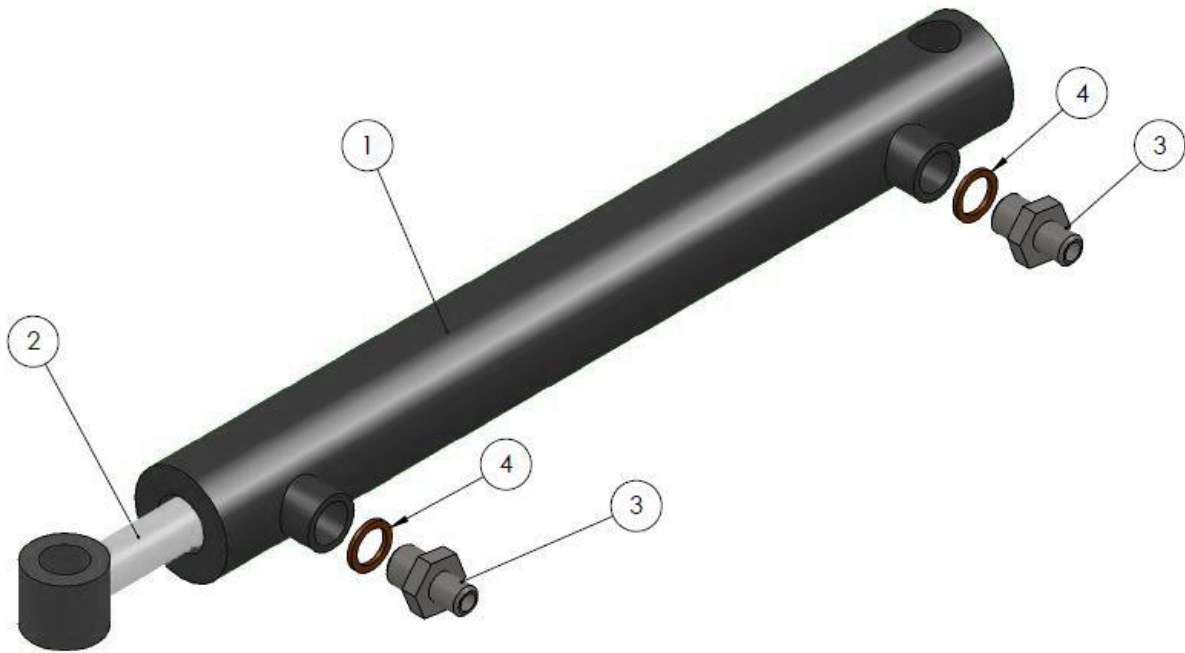
Spearhead HXF FRAME 2302/2802/3302

HEAD ANGLE RAM - 2302



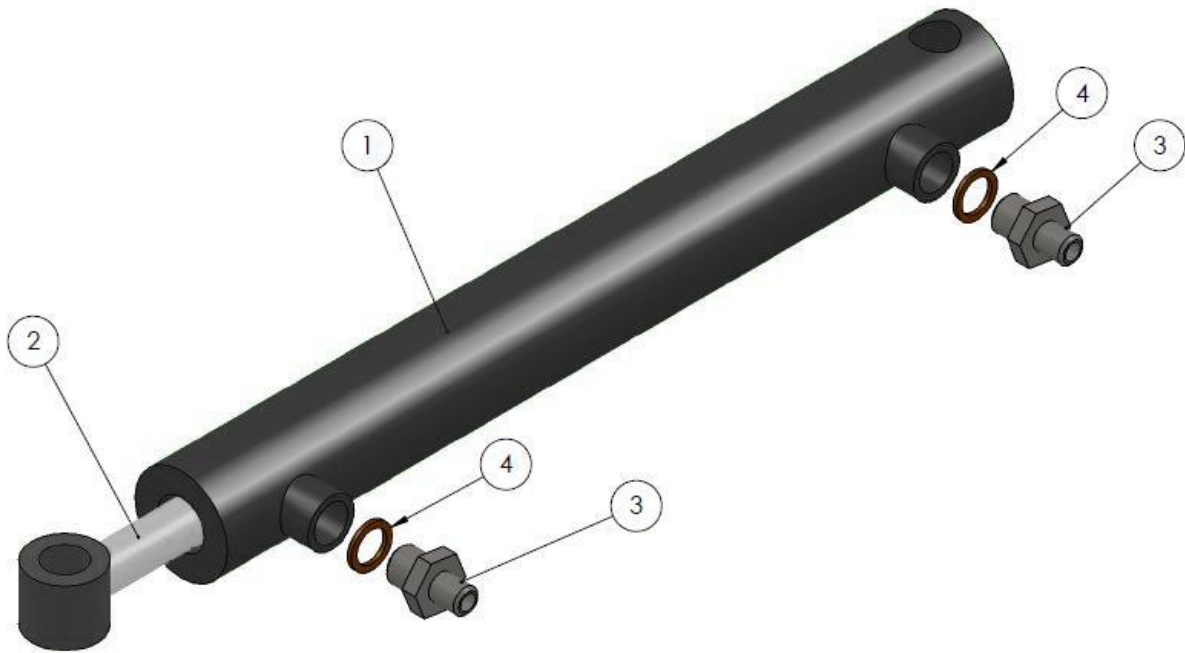
ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6703001	HEAD ANGLE RAM	1
2		N/A	1
3	6703002	NIPPLE W/REDUCTION	2
4	6703003	SEAL	2

HEAD ANGLE RAM - 2802



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8283007	HEAD RAM	1
3	6703002	ADAPTOR WITH RESTRICTOR	2
4	6703003	BONDED SEAL	2

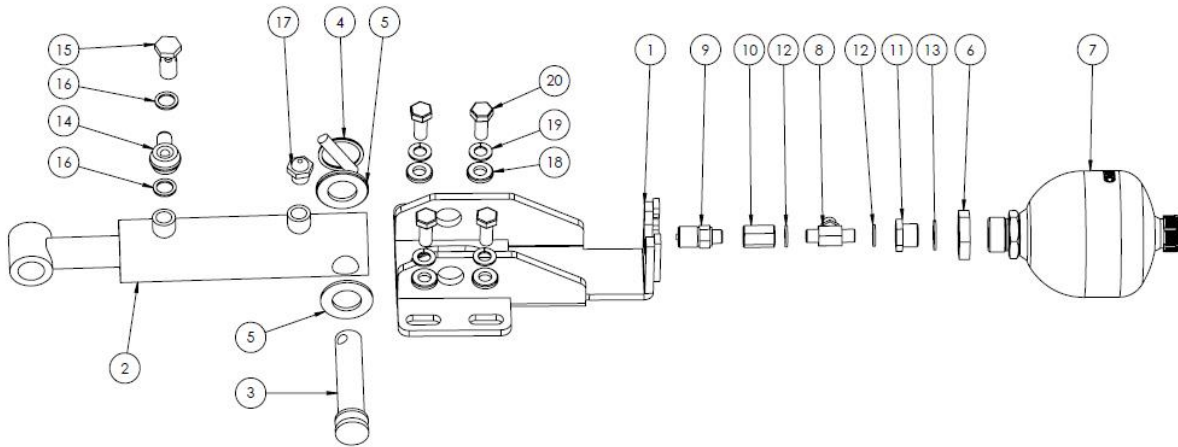
HEAD ANGLE RAM - 3302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	481177182	HEAD ANGLE RAM	1
3	02BP0604-Ø08	ADAPTOR	2
4	PPC45-C	BONDED SEAL	2

Spearhead HXF FRAME 2302/2802/3302

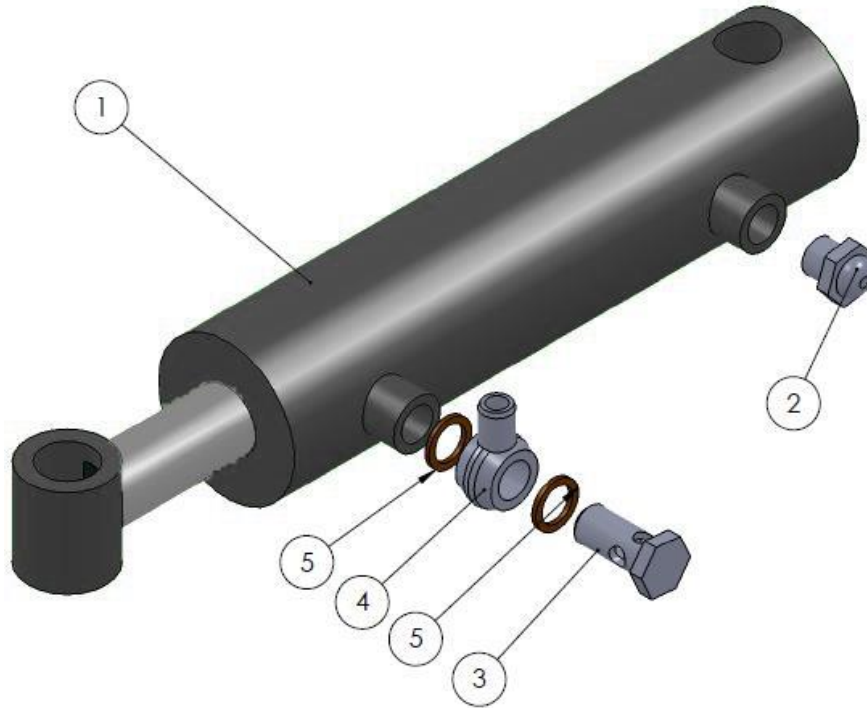
BREAKBACK SYSTEM – 2302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6701512	MOUNTING PLATE	1
2	6703004	RAM "BREAKBACK"	1
3	6706006	PIN	1
4	00.372.01	LYNCH PIN	1
5	2770464	WASHER	2
6	6702005	NUT	1
7	6703005	ACCUMULATOR 0.75L	1
8	6703006	TEE ADAPTOR	1
9	6703007	MINI-MESH	1
10	6703008	SOCKET	1
11	6703009	REDUCTION	1
12	8143005	SEAL	2
13	6703010	SEAL	1
14	6703011	BANJO	1
15	6703012	BANJO BOLT	1
16	6703003	SEAL	2
17	6703013	FILTER	1
18	8222011	M12 HD WASHER	4
19	8222005	M12 LOCK WASHER	4
20	8222006	BOLT	4

BREAKBACK SYSTEM - 2802

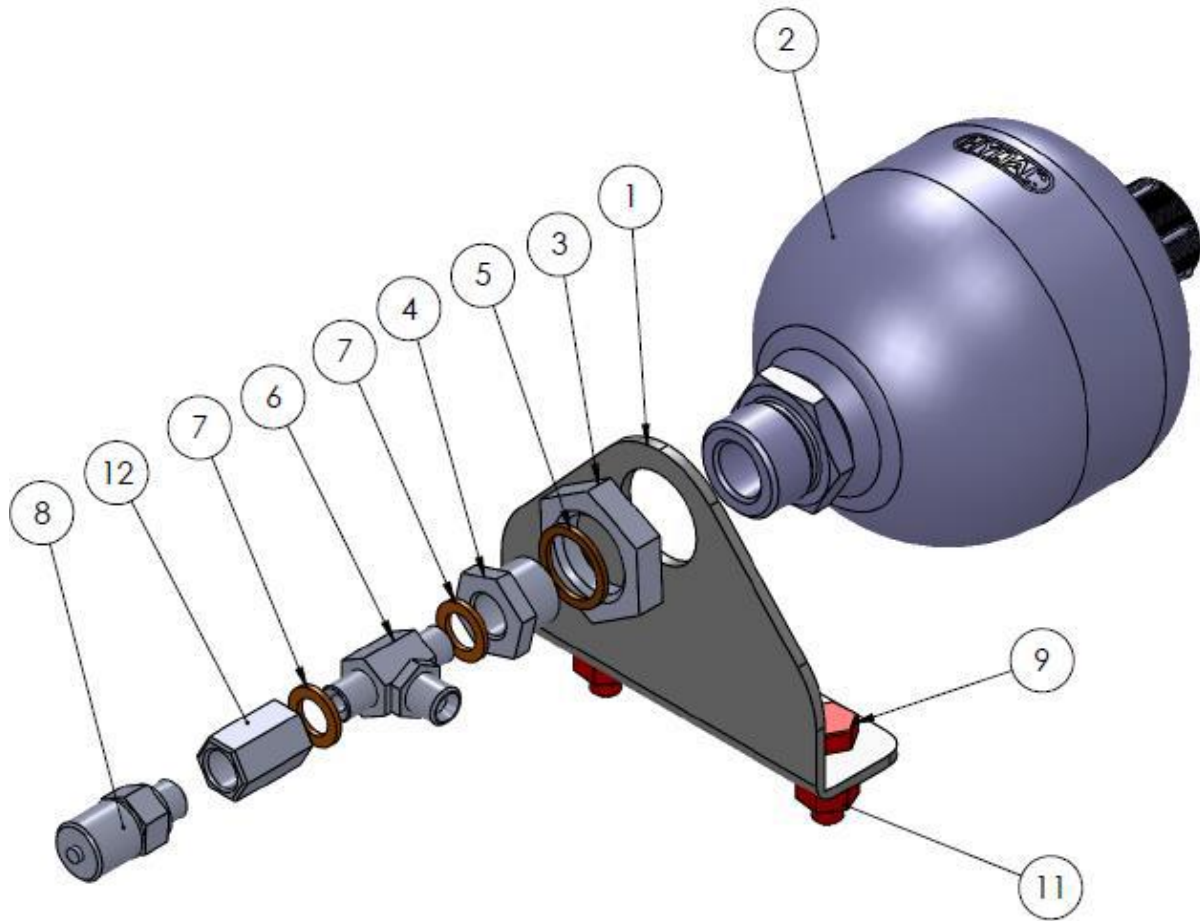
BREAKBACK RAM



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8283017	BREAKBACK RAM	1
2	6703013	AIR FILTER	1
3	6703012	BANJO BOLT	1
4	6703011	BANJO	1
5	6703003	BONDED SEAL	2

BREAKBACK SYSTEM – 2802

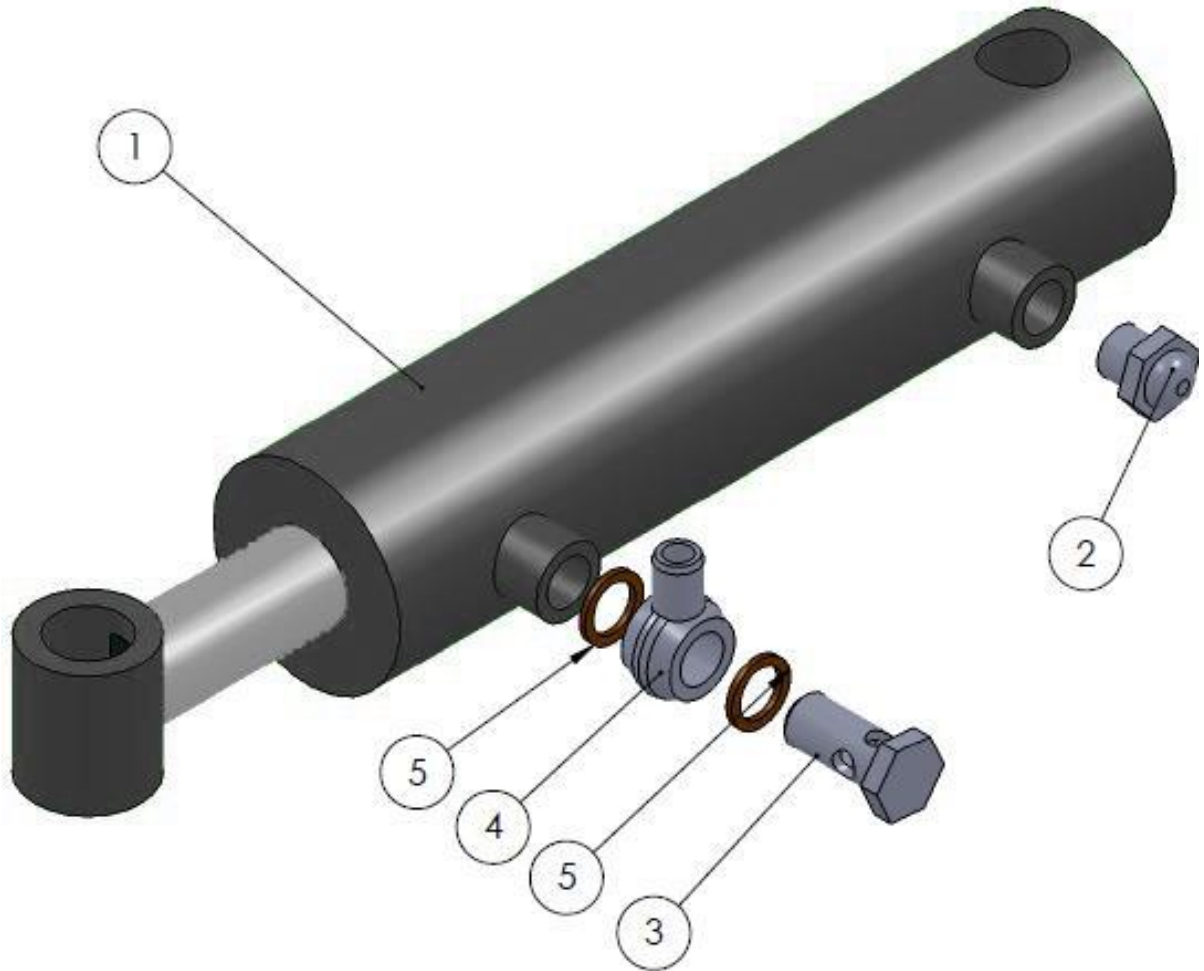
ACCUMULATOR



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8281003	BRACKET	1
2	6703005	ACCUMULATOR (NOT PRESSURE SET)	1
3	6702005	NUT	1
4	6703009	REDUCTION	1
5	6703010	BONDED SEAL	1
6	6703006	TEE ADAPTOR	1
7	8143005	BONDED SEAL	2
8	6703007	MINI-MESH	1
9	8222006	BOLT	2
10	2770436	FACET WASHER	2
11	2770412	LOCK NUT	2
12	6703008	SOCKET	1

BREAKBACK SYSTEM - 3302

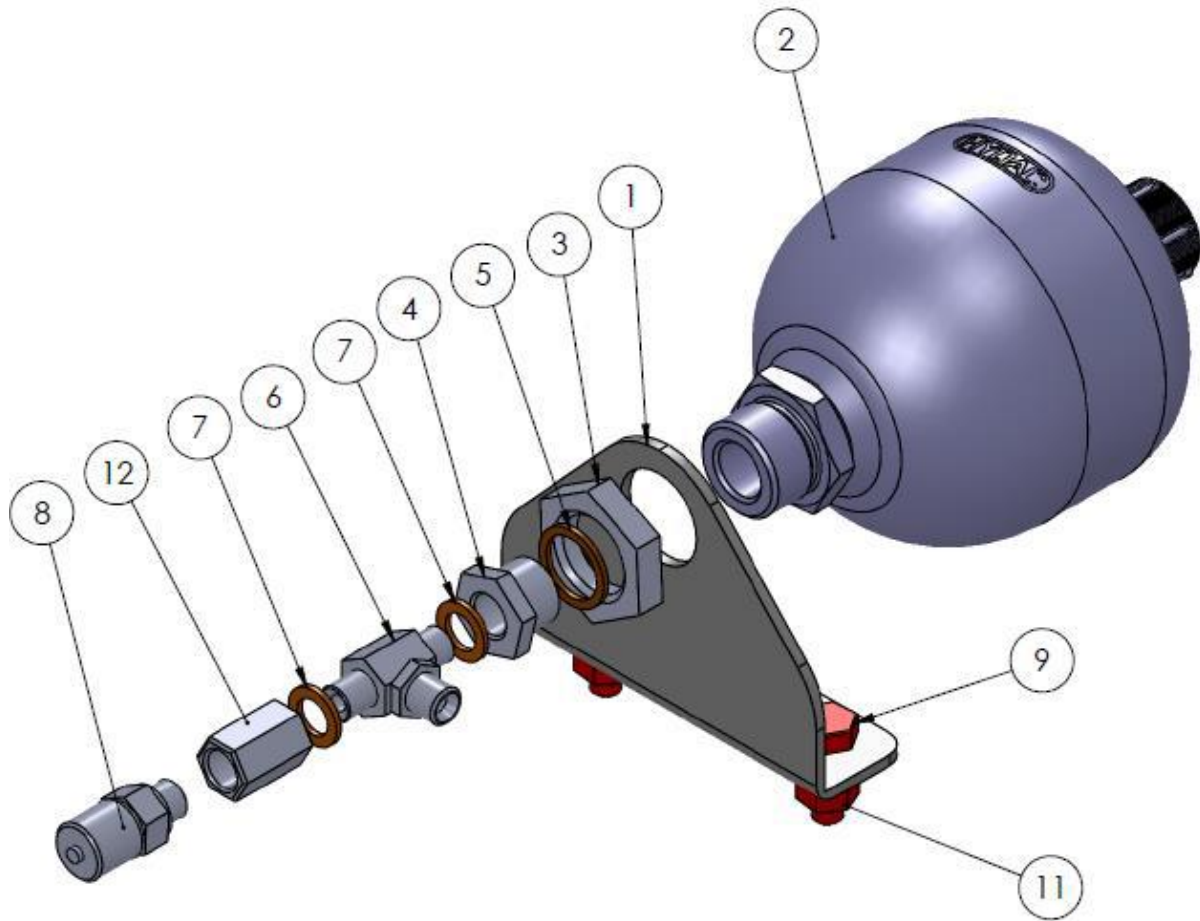
BREAKBACK RAM



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	482677062	BREAKBACK RAM	1
2	F38	BREATHER	1
3	52BP06	BANJO BOLT	1
4	42BP0406	BANJO	1
5	PP45-C	SEAL	2

BREAKBACK SYSTEM - 3302

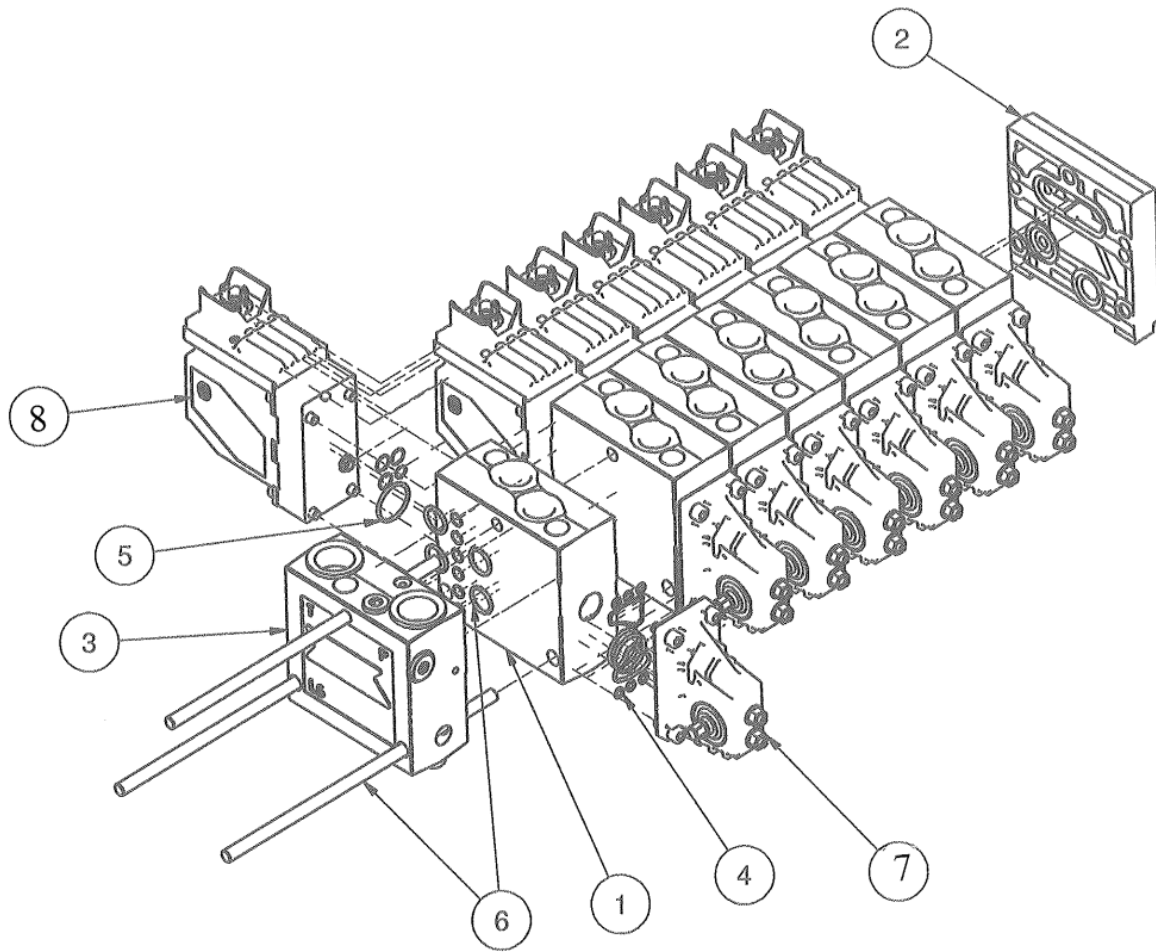
ACCUMULATOR



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	05-02-03-18 ver1	BRACKET	1
2	3041935	ACCUMULATOR	1
3	295359	NUT	1
4	09BP0804	REDUCTION	1
5	PP45-D	BONDED SEAL	1
6	15BP04SP	TEE ADAPTOR	1
7	PP45-B	SEAL	2
8	MT01-104	MINI-MESH	1
9	933120302	BOLT	2
10	2770436	FACET WASHER	2
11	2770412	NUT	2
12	20BP04	ADAPTOR	1

Spearhead HXF FRAME 2302/2802/3302

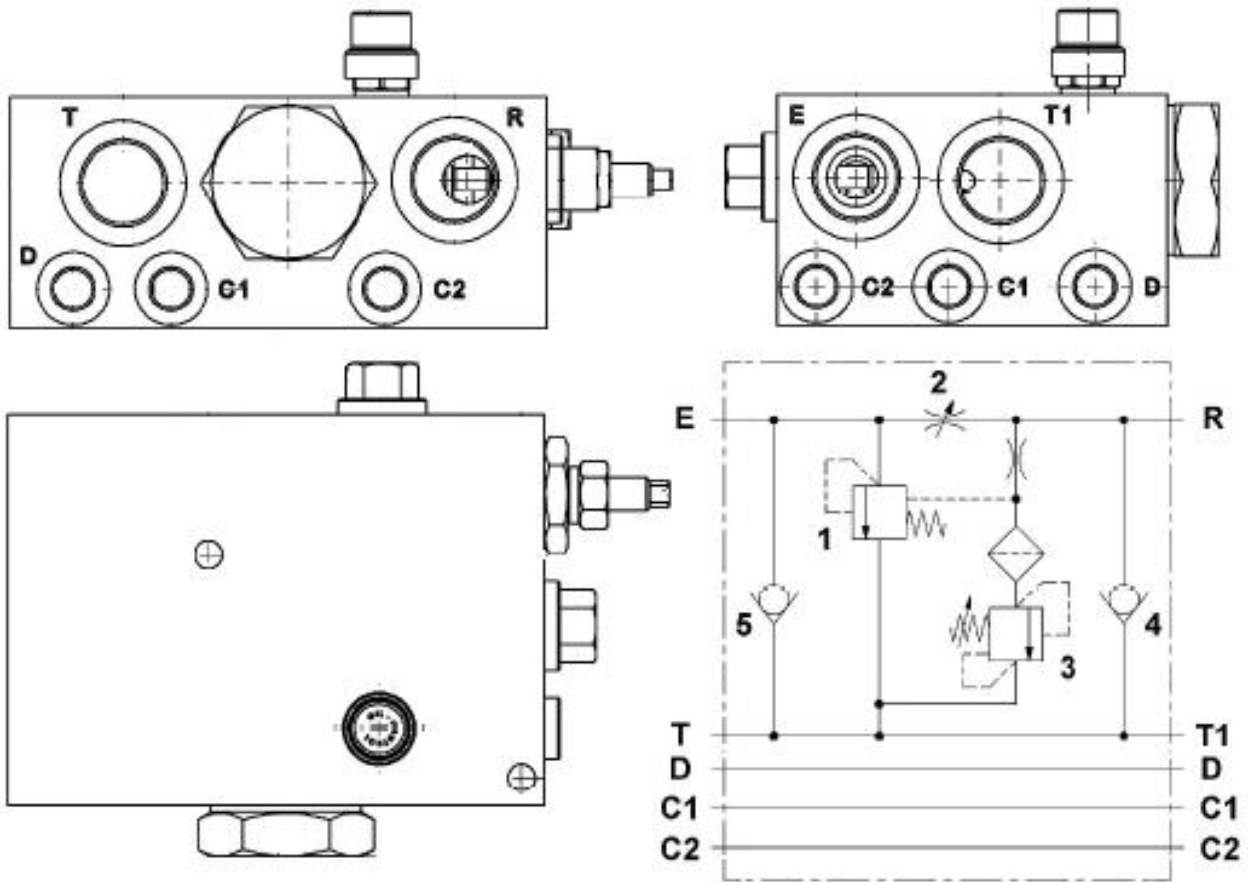
DANFOSS PVG VALVE - 2802/3302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
	11039586	COMPLETE VALVE	1
1	157B6709	PRIORITY MODULE (NO. IS STAMPED IN END)	1
	157B6200	MOTOR MODULE (NO. IS STAMPED IN END)	1
	157B6100	TOOL MODULE (NO. IS STAMPED IN END)	1
2	157B2018	END LID	1
3	157B5010	END LID - PRESSURE (NO. IS STAMPED IN END)	1
4	157B3999	SEAL KIT FOR MECHANICAL PART	1
5	157B4997	SEAL KIT FOR ELECTRIC PART	1
6	157B8003	COMPLETE SEAL KIT FOR 3 MODULE	1
7	157B3173	COMPLETE HOUSE FOR MANUAL OPERATION (INC ITEM 4)	1
8	157B4216	COMPLETE 12V ELECTRIC MODULE (INC ITEM 5)	1
NOT SHOWN	157B7000	SPOOL DA 10 I	1
NOT SHOWN	157B7103	SPOOL DA 65 L OPEN	1

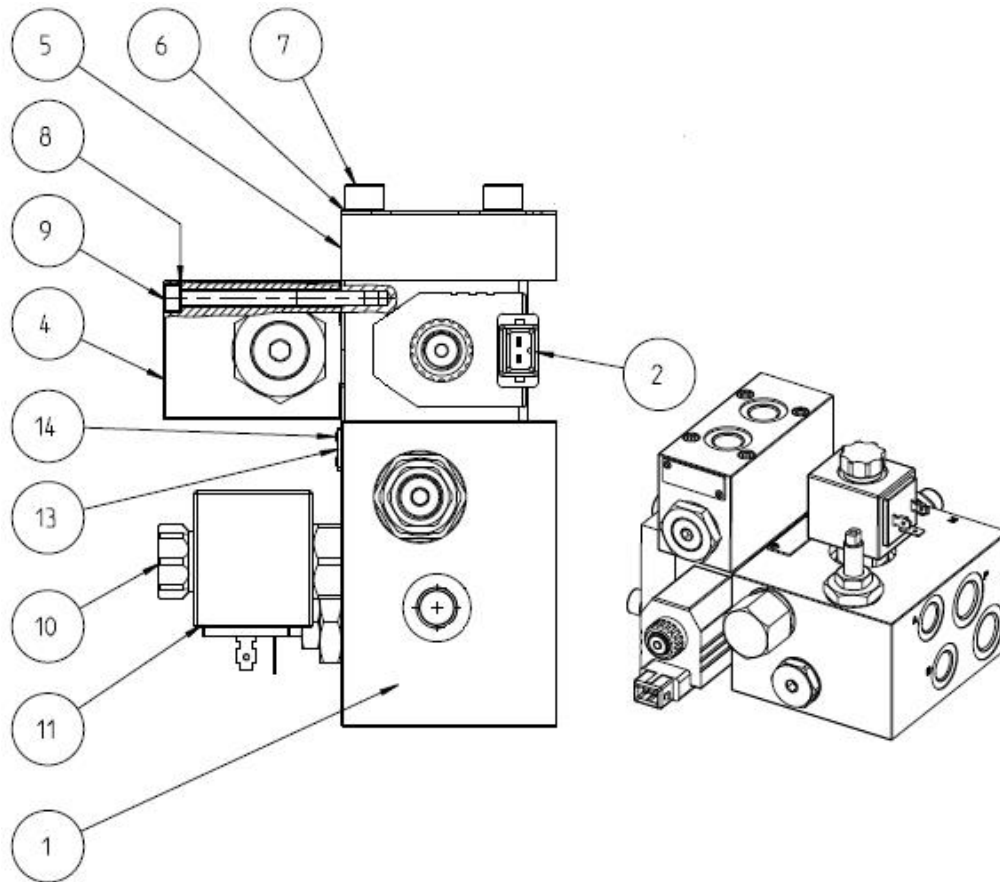
Spearhead HXF FRAME 2302/2802/3302

SPLITTER VALVE SIMPLE - 2302



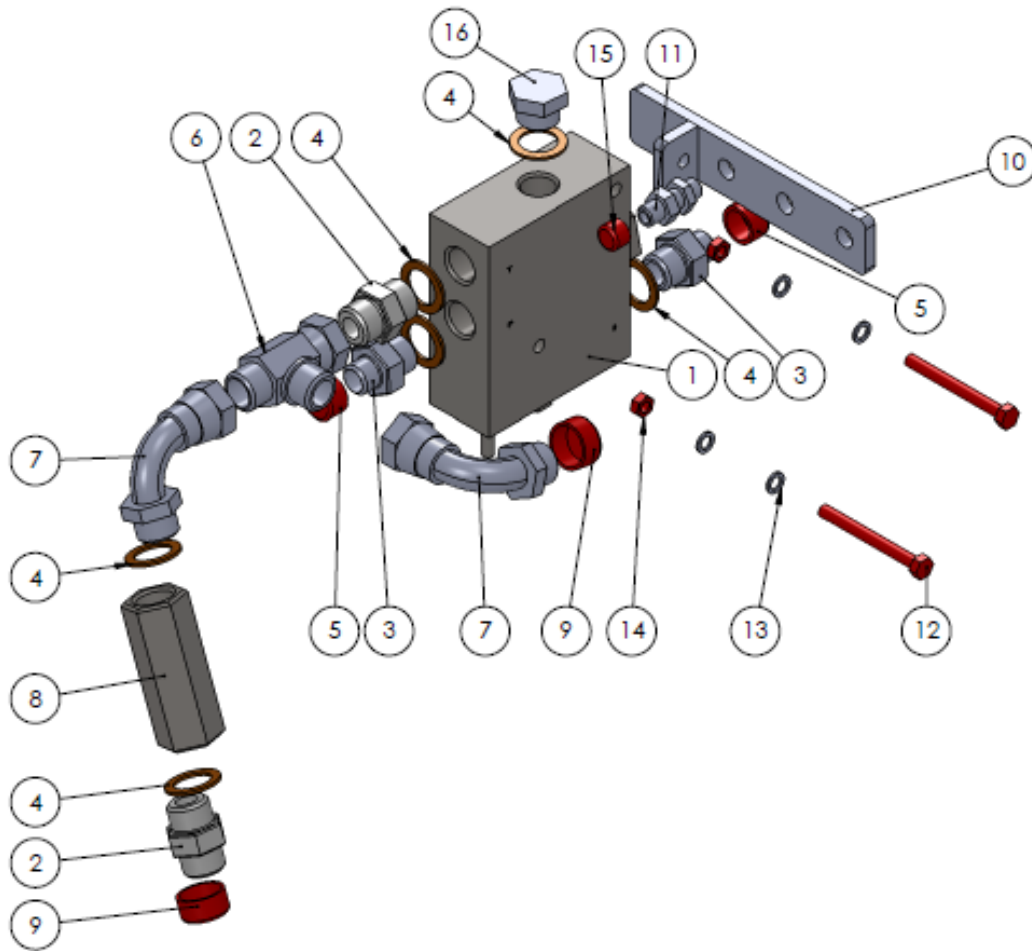
ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6703014	SPLITTER VALVE ASSEMBLY	1

SPLITTER VALVE ADVANCED (OPTION) – 2302



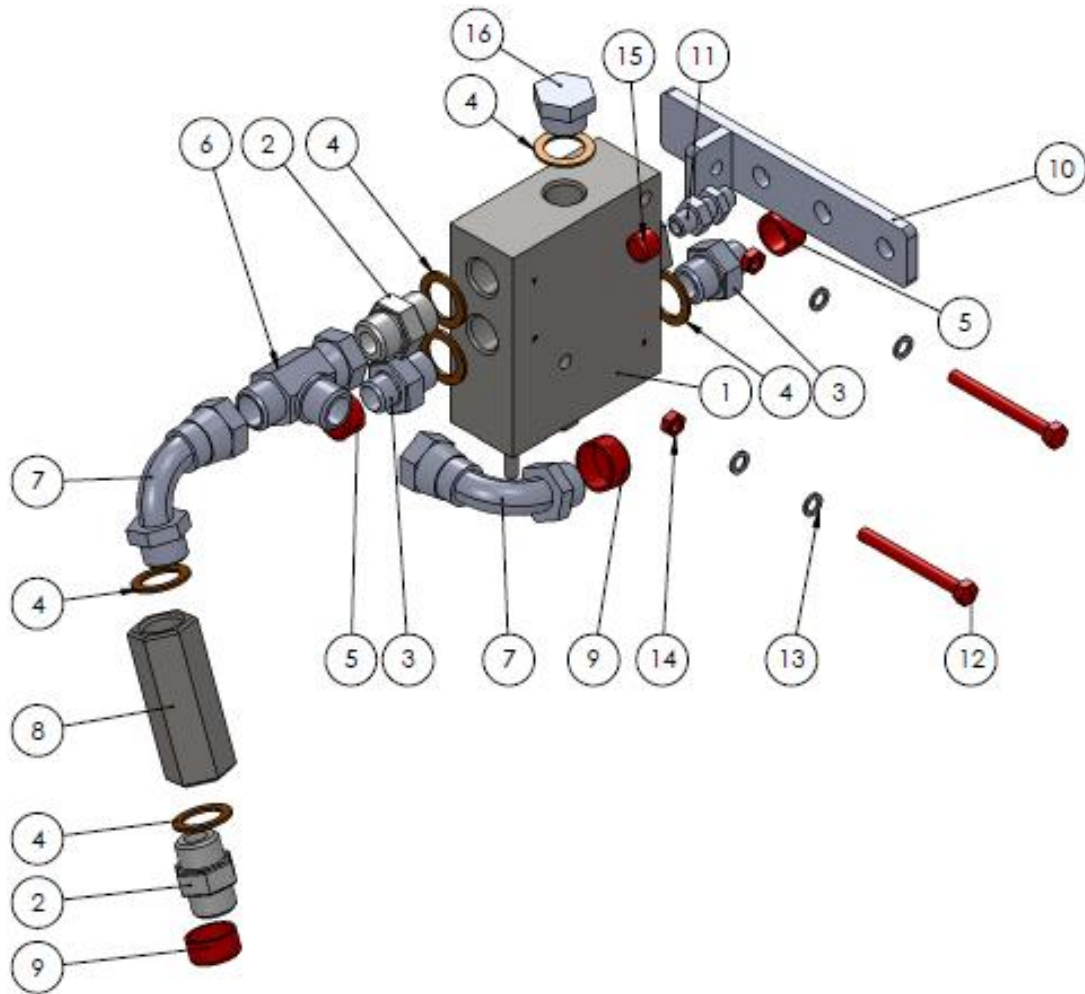
ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6703015	SPLITTER VALVE ASSEMBLY	1
2	6703016	COIL	1
4	6703017	DOUBLE CHECK VALVE	1
5		N/A	
6		N/A	
7		N/A	
8		N/A	
9		N/A	
10	6703018	SOLENOID	1
11	6703019	COIL	1
13		N/A	
14		N/A	
NOT SHOWN	6703020	ADDITIONAL HOSE KIT FOR ELECTRIC VALVE BANK	1

SPLITTER VALVE - 2802



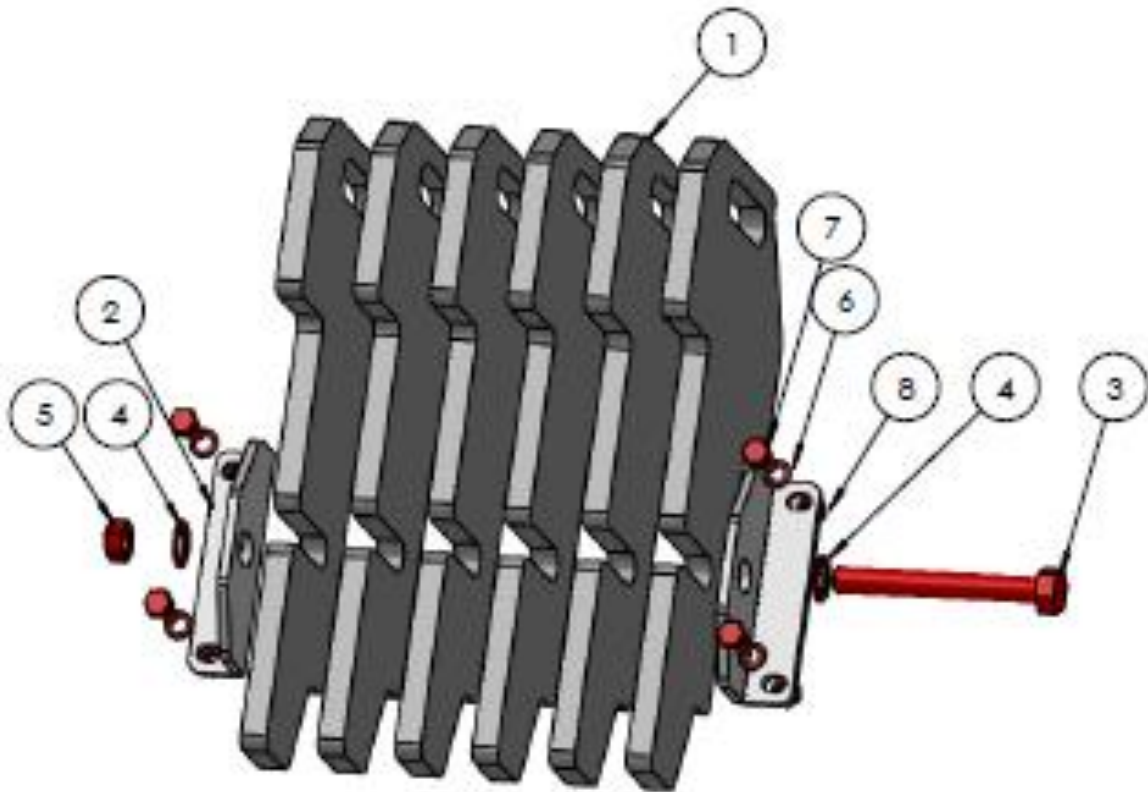
ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8283008	SPLITTER VALVE (NOT ADJUSTED)	1
2	8283009	ADAPTOR	2
3	8283010	ADAPTOR	2
4	8283011	BONDED SEAL	6
5		PLASTIC LID	2
6	8283012	TEE ADAPTOR	1
7	8283013	90 DEGREE ANGLE	2
8	8283014	CHECK VALVE	1
9		PLASTIC LID	2
10	8281501	HOSE HOLDER	1
11	8283015	BULKHEAD ADAPTOR	1
12	8222002	BOLT	2
13	2770456	SPACER	4
14	2770416	LOCK NUT	2
15		PLASTIC LID	1
16	8283016	PLUG	1

SPLITTER VALVE – 3302



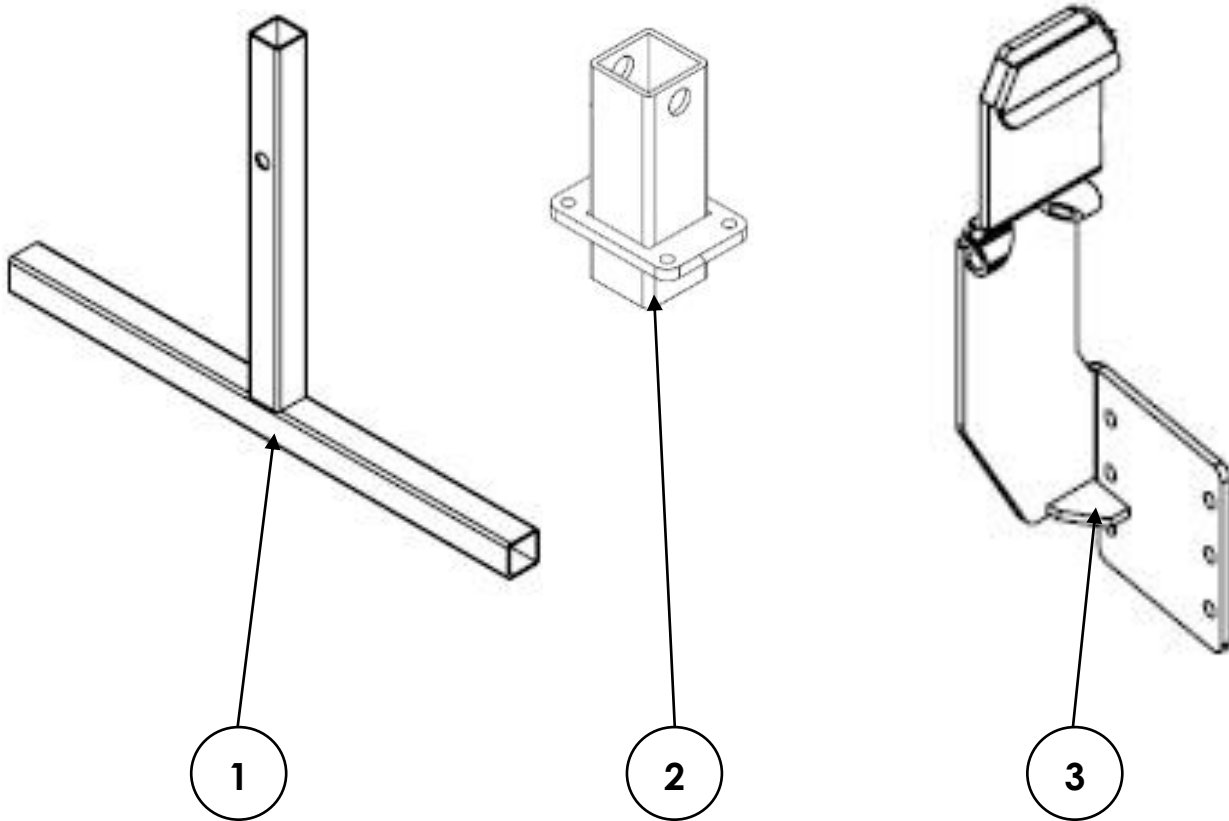
ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	OMC3108	SPLITTER VALVE (NOT ADJUSTED)	1
2	01BP12	ADAPTOR	2
3	02BP1208	ADAPTOR	2
4	PP45-F	SEAL	6
5	R12	PLASTIC CAP	2
6	34BP12	TEE ADAPTOR	1
7	16BP12L	90 DEGREE ANGLE	2
8	CA19	CHECK VALVE	1
9	R34	PLASTIC CAP	2
10	8281501	HOSE BRACKET	1
11	32BP04	ADAPTOR WITH COUNTER NUT	1
12	931080802	BOLT	2
13	2770456	WASHER	4
14	985082	NUT	2
15	R14	PLASTIC CAP	1
16	08BP12	BLANKING CAP	1

COUNTERWEIGHT (OPTION) – 2302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6701005	COUNTERWEIGHT	6
2	6701006	WEIGHT SUPPORT BRACKET	2
3	6702006	BOLT	1
4	2770517	WASHER	2
5	2770409	LOCKNUT	1
6	2770434	WASHER	4
7	8362006	BOLT	4

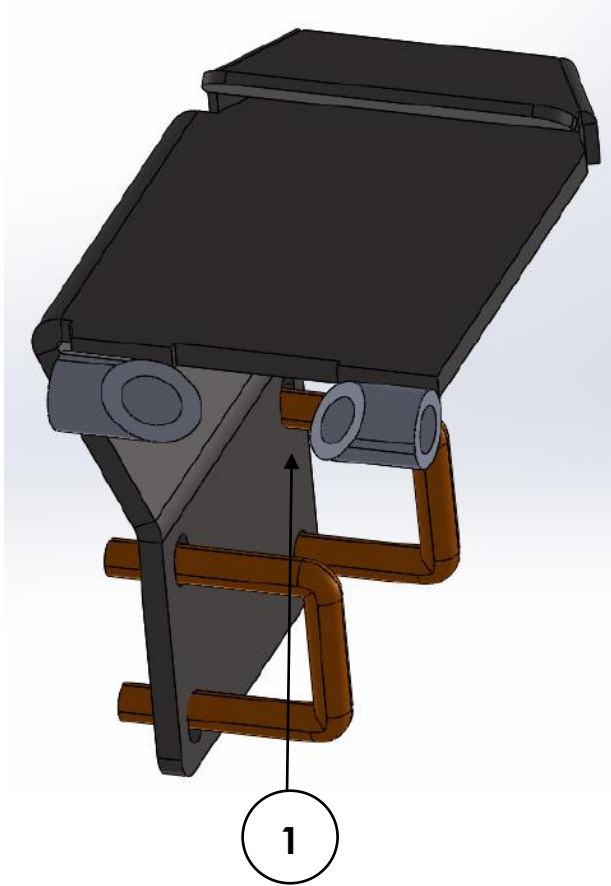
RI 60/80 ADAPTOR KIT - 2302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6701501	LEG	2
2	6701502	LEG SUPPORT	2
3	6701503	MOUNTING BRACKET RI	1

LRS & HL ADAPTOR KIT - 2302

LRS BRACKET



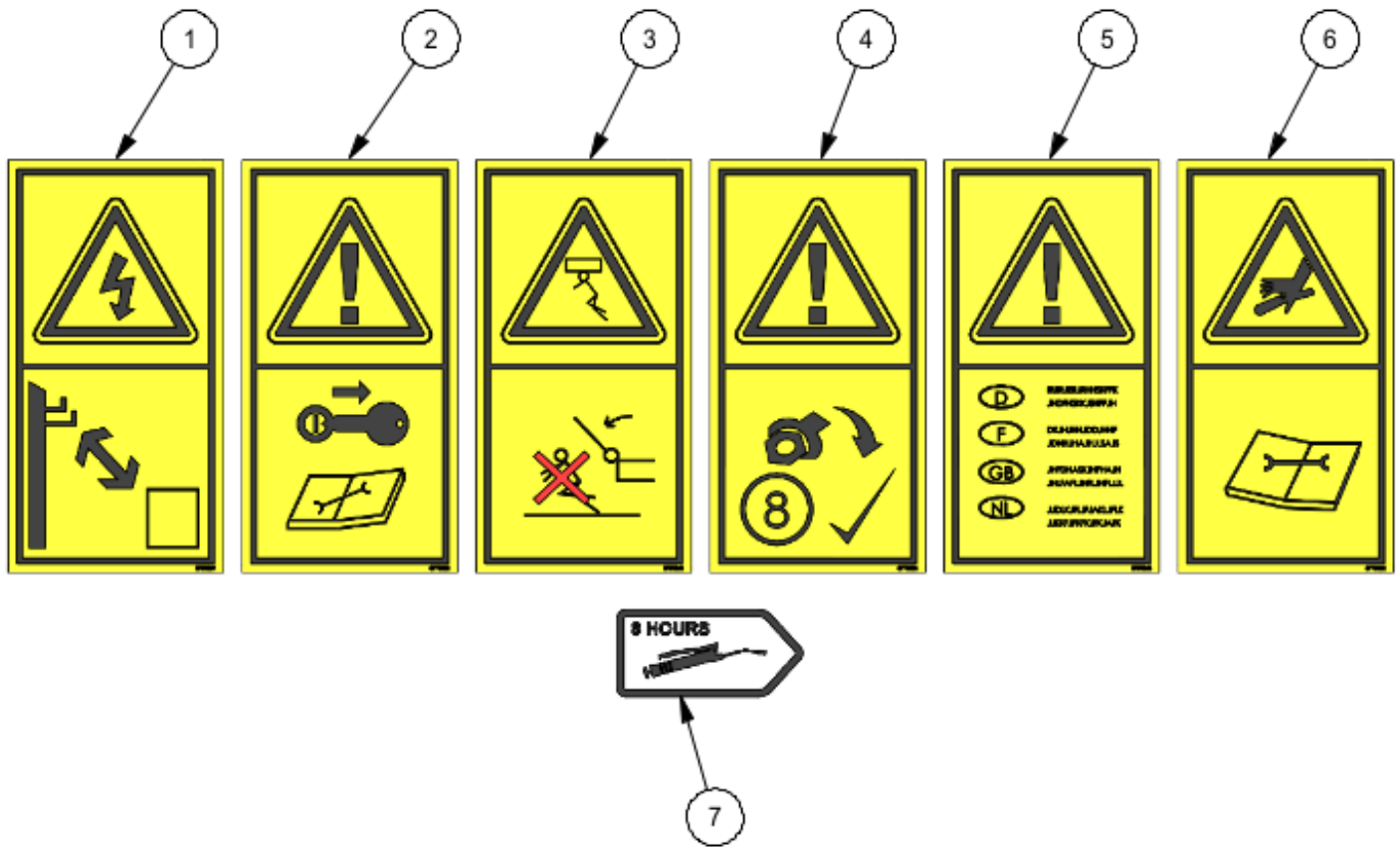
HL BRACKET



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	6701505	MOUNTING BRACKET LRS SAW	1
2	6701504	MOUNTING BRACKET HL HEDGE CUTTER	1

Spearhead HXF FRAME 2302/2802/3302

DECAL KIT – 2302/2802/3302



ITEM NO.	PART NO.	DESCRIPTION.	QTY.
1	8770359	ELECTRICUTION DECAL	1
2	8770358	REMOVE KEY READ MANUAL DECAL	1
3	8770368	FALLING WING DECAL	1
4	8770306	TIGHTEN BOLTS 8 HOURS DECAL	1
5	8770363	READ OPERATORS MANUAL – 4 LANGUAGES DECAL	1
6	8770362	AVOID FLUID ESCAPING DECAL	1
7	8770322	GREASE POINT DECAL	2

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