OPTICUT
DISC MOWERS

Models 220, 260 & 300

OPERATOR & PARTS MANUAL

Publication 655 *Part No.22674.55*

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IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION

DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Twose of Tiverton 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 Twose web site at **www.twose.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 Twose Office on 01884 253691.

Registration Verification

Dealer Name: ……

Dealer Address: ……

Customer Name: ……

Date of Warranty Registration: ……/……/..…… Dealer Signature: ……

NOTE TO CUSTOMER / OWNER

Please ensure that the above section above has been completed and signed by the selling dealer to verify that your machine has been registered with Twose of Tiverton 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.

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 Twose of Tiverton 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 Twose of Tiverton Ltd 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 Twose of Tiverton Ltd and purchased by the end user 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. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.

1.03. The warranty offered by Twose of Tiverton Ltd is limited to the making good by repair or replacement 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. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.

1.04. This warranty does not extend to any product from which Twose of Tiverton Ltd's serial number plate has been removed or altered.

1.05. 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, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.

1.06. Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.

1.07. 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.

1.08. 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 Twose of Tiverton Ltd cannot be held liable, and may have safety implications.

1.09. If in exceptional circumstances a non Twose of Tiverton Ltd part is used to effect a repair, warranty reimbursement will be at no more than Twose of Tiverton Ltd's standard dealer cost for the genuine part.

1.10. Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of Twose of Tiverton Ltd.

1.11. For machine warranty periods in excess of 12 months the following additional exclusions shall apply:

1.11.1. Hoses, exposed pipes and hydraulic tank breathers.

1.11.2. Filters.

1.11.3. Rubber mountings.

1.11.4. External electric wiring.

1.11.5. Bearings and seals.

1.12. *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.*
1.13. *Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.*

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. Twose of Tiverton 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 Twose of Tiverton Ltd 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 Twose of Tiverton Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which Twose of Tiverton 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 Twose of Tiverton Ltd. Please note that failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.*
2.04. *All claims must be submitted, by an authorised Twose of Tiverton Ltd Service Dealer, within 30 days of the date of repair.*
2.05. *Following examination of the claim and parts, Twose of Tiverton Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by Twose of Tiverton Ltd and appropriate labour and mileage allowances if applicable.*
2.06. *The submission of a claim is not a guarantee of payment.*
2.07. *Any decision reached by Twose of Tiverton Ltd is final.*

3. LIMITATION OF LIABILITY

3.01. T*wose of Tiverton Ltd 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. *Twose of Tiverton Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
3.03. *Except as provided herein, Twose of Tiverton Ltd 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. *Twose of Tiverton Ltd 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.*

EC DECLARATION OF CONFORMITY

Conforming to EEC Directive 89/392/EEC

We,

TWOSE OF TIVERTON LIMITED,
6 Chinon Court, Lower Moor Way,
Tiverton Business Park, Tiverton, Devon, EX16 6SS.

Declare under our sole responsibility that:

The product *(type)* Rotary Disc Mower

……...

Product Code Opticut 220 / 260 / 300

Serial No. & Date ……. Type ……..

Manufactured by the above company/* ……

……...
(insert business name and full address if not stated above)*

Complies with the required provisions of the Machinery Directive 98/37/EC, * previously Directive 89/392/EEC as amended by Directives 91/368/EEC, 93/44/EEC and 93/68/EEC.

For the relevant implementation of the safety and health requirements mentioned in the Directives, the following standards have been respected:

EN 292-1/1991 EN292-2/1991 EN294/1992 EN349/1993

EN 1553/1999 EN 1152/1994 EN 953/1997 EN 982/1996

Signed ……..…….....
on behalf of TWOSE OF TIVERTON *Responsible Person*

Status: Chief Design Engineer *Date:* August 2010

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TECHNICAL DATA

SPECIFICATION	OPTICUT 220	OPTICUT 260	OPTICUT 300
Attachment (3-point hitch)	*Cat. II*	*Cat. II*	*Cat. II*
Working width	*2119mm*	*2472mm*	*2895mm*
Weight	*520kg*	*560kg*	*590kg*
Transport height	*2745mm*	*3100mm*	*3530mm*
Transport width	*1935mm*	*1935mm*	*1935mm*
Maximum PTO speed	*540RPM*	*540RPM*	*540RPM*
Disc rotation speed	*3000RPM*	*3000RPM*	*3000RPM*
No. of discs	*5*	*6*	*7*
No. of blades	*10*	*12*	*14*
Minimum power requirement	*30Kw/40HP*	*38Kw/50HP*	*48Kw/60HP*
Cutting capacity	*2.6 ha/h*	*3 ha/h*	*3.5 ha/h*
Working speed	*Up to 18 km/h*	*Up to 18 km/h*	*Up to 18 km/h*

MACHINE SERIAL NUMBER PLATE

All machines will have a serial number plate fitted to them stating; the machine model, serial number of the machine, and the machine's weight. When ordering replacement parts or requesting service information always quote the machine model and serial number as stated on its serial number plate.

DESCRIPTION

The Twose Opticut Series disc mowers are three-point linkage tractor mounted agricultural implements specifically designed for the mowing of grass and clover on even terrain. The machines feature belt driven cutterbars fitted with rotating discs each equipped with 2 cutting knives that perform efficient cutting of vegetation.
Mower components are protected by a mechanical breakback system and the machines are equipped with a hydraulic 'fold up' system for ease of transportation.

These machines must only be used to perform the designated task for which they were designed. Use of these machines for any other function may cause damage to the machine and possible injury to the operator or other persons.

SAFETY INFORMATION

In the interest of safety it is important that great care is adopted at all times during the attachment, transportation, operation and maintenance of this machine. Both the owner and the operator of the machine should read and understand the following section to ensure the safety of themselves and all other persons who enter into the close proximity of these machines.

- In addition to the instructions stated here always abide by general safety and accident regulations.
- Safety and warning decals placed on the machine give important instructions for safe work - take them into consideration for your safety and the safety of others.
- While driving on public roads always abide by traffic signs and road regulations.
- Familiarise yourself with the controls and functions of the machine and practice them in a safe location before attempting to start work.
- Never approach this machine whilst it is working or running – switch off the machine and wait until it has stopped fully before approaching.
- Do not wear loose fitting clothes in the vicinity of this machine - clothes should fit tight to the user's body.
- Check no one is near to, or on, the machine before attempting to start or transport it. Ensure your visibility is kept clear at all times.
- Never permit anyone to ride on this machine.
- Implements should always be attached according to the manufacturer’s instructions and fastened correctly to the prescribed devices using the correct components.
- When disconnecting the machine from the tractor select a firm level site and use the support leg.
- Take care when connecting or disconnecting the implement to the tractor – keep onlookers at a safe distance.
- Ensure controls for the machine are positioned such that the machine cannot accidentally be started during transport.
- For transportation on the road, prepare and secure the machine according to the manufacturer's instructions.
- Never leave the driver seat whilst the tractor or the machine is running.

- Always adjust the driving speed to suit the driving conditions. Avoid fast turning when driving uphill, downhill or across a slope. Braking performance and turning ability will be affected when implements are connected or mounted to the tractor - allow extra time for turning and braking.

- Never attempt to operate a machine without its safety devices fitted or incorrectly secured.

- Ensure all bystanders are kept at a safe distance from a moving or working machine.

- Even when the machine is unattached some hydraulic or mechanical components on the machine are able to be rotated or moved by hand and are therefore capable of causing injury to fingers or hands due to trapping. Wherever possible secure these components during storage to prevent accidental injuries.

- Always place the machine in a safe position before leaving the tractor - lower the implement completely, switch off the engine and remove the ignition key.

- Never permit anyone between the machine and the tractor whilst either is working or when the machine is in a raised position.

- Only use machines on a tractor that is capable of taking its weight - use weights or ballast as required ensuring stability of the unit.

- Be aware at all times of the width, height and length of any machinery you are operating – especially when transporting on the public highway or near obstructions.

- Ensure the work area is clear of obstructions before starting work – clear stones, wire, glass or any other dangerous objects from the work site before attempting to start work.

Although the information given here covers a wide range of safety subjects it is impossible to predict every eventuality that can occur under differing 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 Twose machine.

SAFETY DECALS

1. **WARNING! Always 'Read the Operator Manual'.**
2. **DANGER! Pinch & Crush Zone – Keep hands and limbs clear whilst machine is working.**
3. **DANGER! Wait until machine has stopped completely before approaching.**
4. **DANGER! Keep clear of mower knife area whilst tractor or machine is running.**
5. **DANGER! Keep clear of machine whilst tractor or machine is running.**
6. **WARNING! Switch off tractor engine & remove key before performing maintenance or repair.**
7. **DANGER! Keep clear of danger area between tractor and machine.**
8. **DANGER! Keep clear of raised machine.**
9. **WARNING! Maximum RPM – 540RPM machines only (where applicable).**
10. **WARNING! Maximum RPM – 1000RPM machines only (where applicable).**
11. **INFORMATION! Blade Information**
12. **INFORMATION! Check tightness of nuts & bolts every couple of working hours.**

TRACTOR REQUIREMENTS

The tractor to which this machine is to be fitted must meet the following criteria:

- 3-point linkage connection – Cat. II.
- Minimum power requirement of: 38kW (50HP) for Opticut 260 machines
  48kW (60HP) for Opticut 300 machines
- PTO shaft speed: Maximum 540RPM
- Hydraulic service connection.

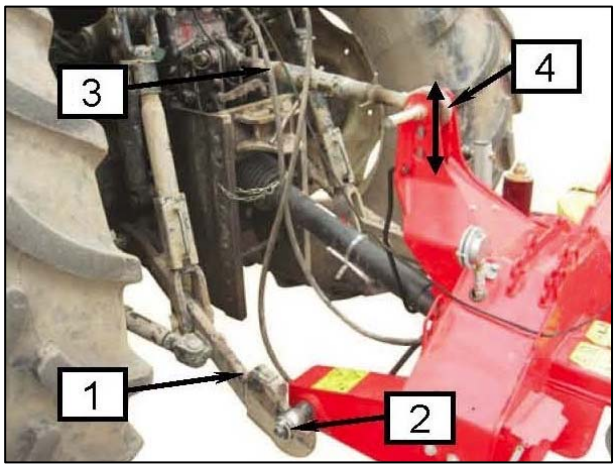
Attachment to Tractor

Select a firm level site on which to attach the mower to the tractor.

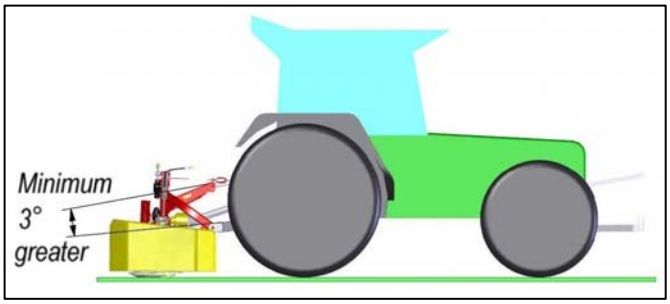
Reverse tractor up to machine positioning linkage arms (1) at a suitable height for attachment, secure in position with locking pins (2).

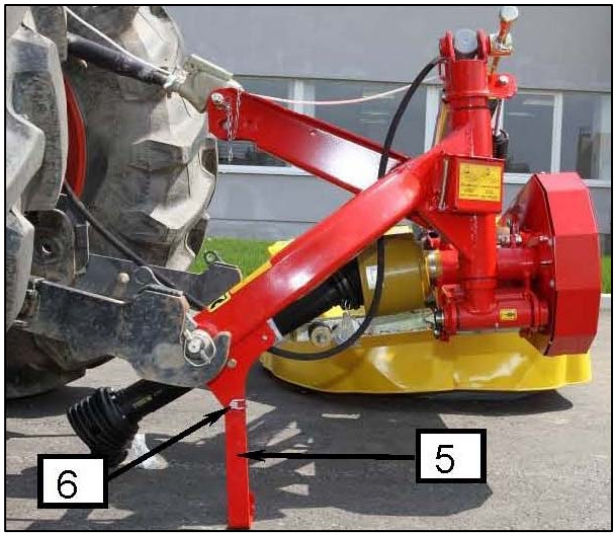
Fit top link (3) and secure with link pin and locking pin (4).

Ensure linkage lift rods on both sides are set at the same height and secured.



Note: The top link should be adjusted to an angle of at least 3° greater than the lower links arms – *refer to diagram below.*



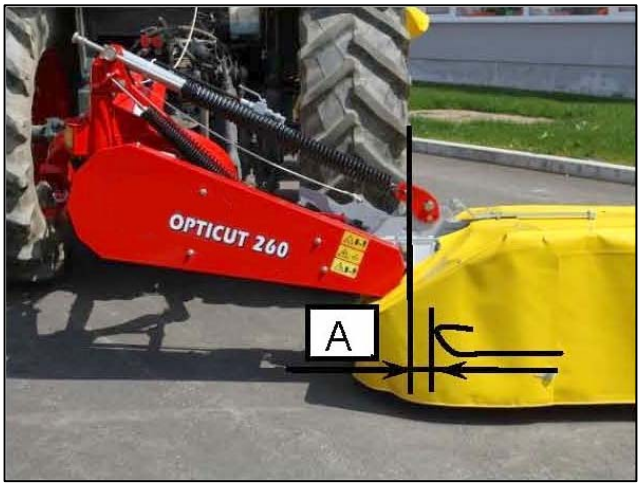


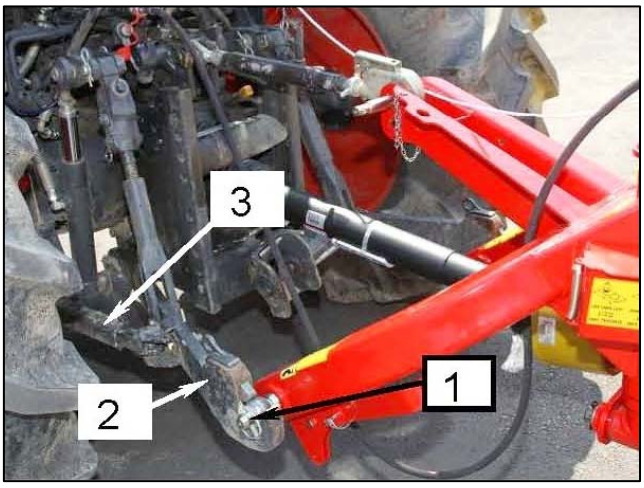
Raise support leg (5) into the stowed position and secure in place with its lock pin (6). Do not remove the support leg.

Setting of Side Position

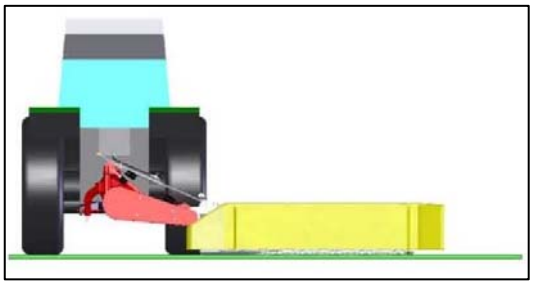
The working position of the machine (side position) is set by sideways adjustment of the lower link arms to a point where the cutting area of the machines is just beyond the tractor wheel on its working side – *see illustrations below.*

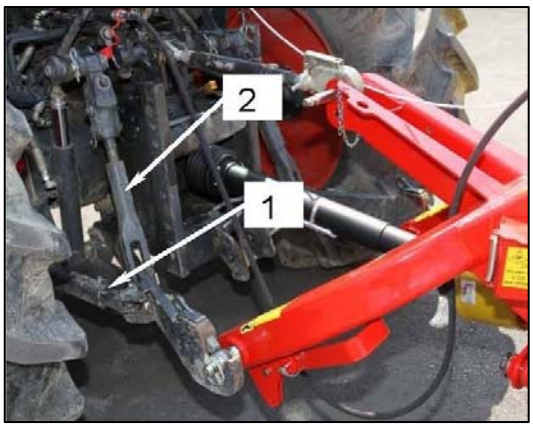
Shift the mower sideways on the lower link arms (2) to achieve the required distance (A), secure in position with stabiliser arms (3). Additional shift (± 100mm) is available by altering the position of the lower linkage pins.





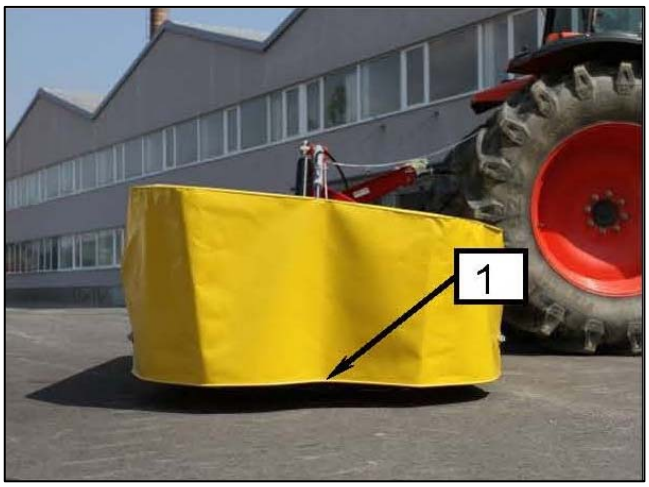
Vertical Adjustment (Side to Side)
Ensure the frame of the machine is vertical as shown opposite ►

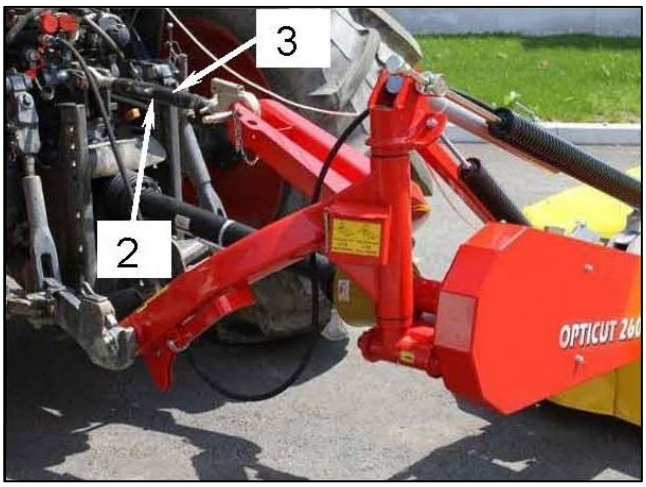




◄ If required, adjust the lower links (1) and lift rods (2) to bring the frame into the vertical *(side to side)* position.

Vertical Adjustment (Front to Back)
The correct vertical position of the frame, front to back, is with the frame tilted forward by 2° in the direction of travel, this can be gauged by viewing the protection curtain (1); all the lower edges should be equidistant to the ground when the machine is set correctly.
Rotate the adjuster nut (3) on top link (2) to achieve this setting – *refer to illustrations below.*



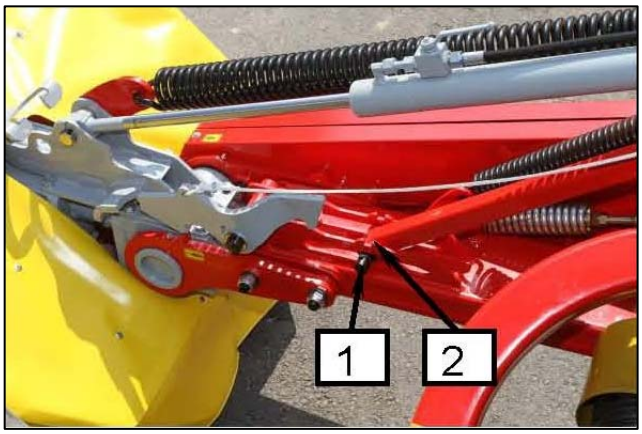


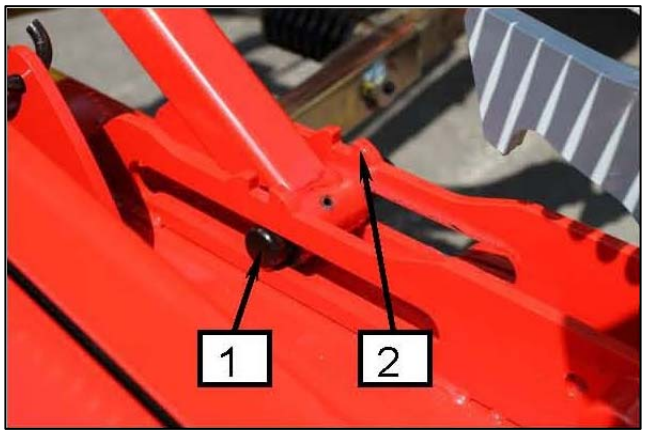
Note: This 2° inclination of the machine will produce a grass cut height of 50 – 55mm. The tilt angle may be adjusted to suit individual preference but under no circumstances should it exceed 7°.

The support leg is designed so the machine is automatically leaned forward by 2° when the machine is disconnected.

Adjusting Frame Work Height

Place the machine into the working position; the optimal working position is when the base end of the support arm (1) is located midway within its guide slot – an indicator 'notch' (2) marks this position. Raise or lower the machine on the tractors three-point linkage to achieve this central position. Secure the linkage in position when the working height has been set.

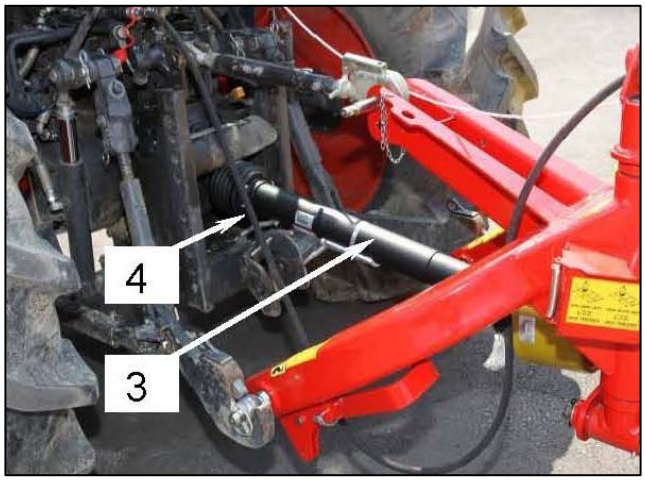




Note: This machine has the ability to work with the cutterbar at angles of between -30° and +45°; when working at these angles the cutterbar should be brought back into the parallel position every 15 minutes or so and run for 4 minutes to ensure continuous lubrication.

PTO Shaft Fitment

On initial fitment the PTO shaft halves (1 & 2) will need to be measured and cut to suit the particular application – *refer to following page for details.*



Install PTO shaft (3) and fit torque chains to PTO guard (4) at each end of the shaft to prevent them from rotating with the shaft.

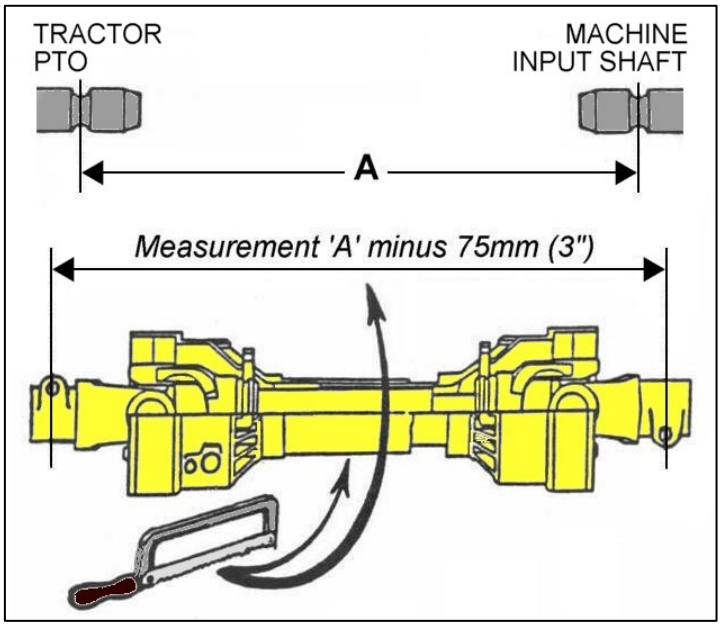
Check the PTO shaft does not foul on the tractor or machine during normal operation and manoeuvring; failure to observe this can result in damage to components.

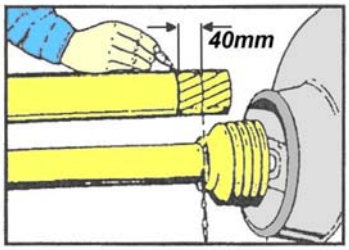
PTO Driveshaft

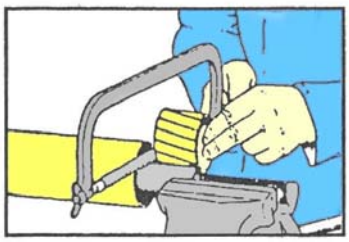
The PTO driveshaft attaches between the tractor and the machine gearbox to transfer the power required to the run and operate the machine – it is important to achieve the correct shaft length to avoid risk of it 'bottoming out' when raising or lowering the machine.
The procedure for measuring and cutting the shaft is as follows:

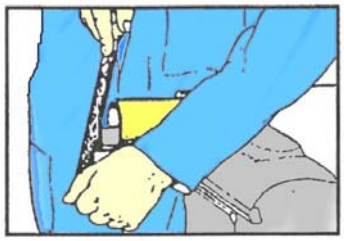
Measuring the PTO Shaft

With the machine attached to the tractor in the working position measure the horizontal distance 'A' from the tractor's PTO to the input shaft on the machines gearbox and subtract 75mm *(3") – this figure is the required shaft length.*
Place the fully closed PTO shaft on the ground and measure its overall length, if the shaft is shorter than the required length you can use it without the need to shorten - *providing it allows for a minimum 150mm (6") overlap when fitted.*
If the shaft is longer subtract the required shaft length plus an additional 75mm *(3") - the resulting figure is the excess length that will need to be removed from each half of the shaft.*









Cutting the PTO Shaft

Separate the two halves and using the measurement obtained above shorten both the plastic guarding and the inner steel profile tubes of each shaft by this same amount. De-burr the cut tubes with a file to remove rough or sharp edges and thoroughly clean to remove swarf before greasing, assembling and fitting the shaft.

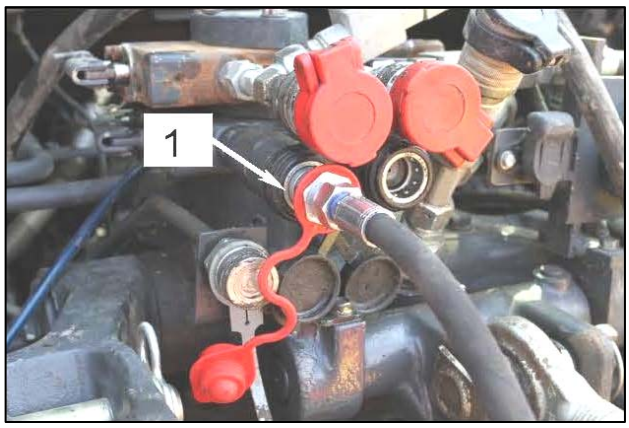
Always secure the PTO guards with torque chains to prevent them from rotating with the shaft. Check to ensure the shaft does not contact or foul tractor or machine components during normal operation - failure to observe this can result in damage to the tractor and/or machine.

NOTE: For subsequent use with different tractors the shaft should be measured again to check suitability – *there must be a minimum shaft overlap of 150mm (6").*

Maintenance

To increase the working life of the PTO shaft it should be periodically checked, cleaned and lubricated – *refer to the PTO maintenance section for further details on this subject.*

Hydraulic Connection
The machine requires one hydraulic connection; this is for operation of the hydraulic ram that raises and lowers the cutterbar.



The minimum working pressure necessary to operate the machine is 50bar and a maximum of 200bar.

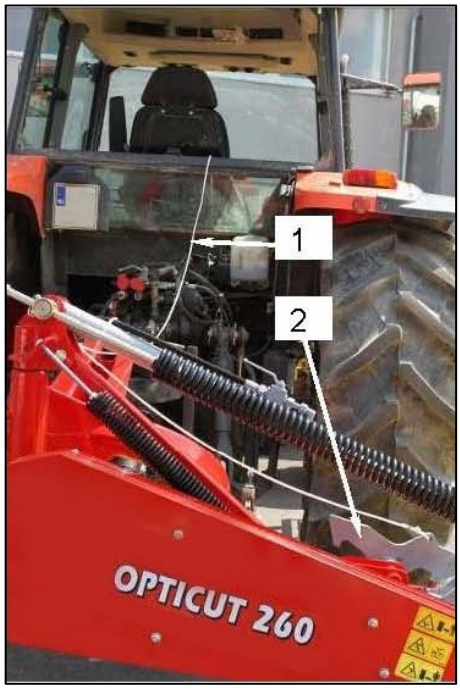
Before connecting the hydraulic hose (1) to the tractor ensure that the control for that service is in the midpoint 'off' position and the system is not pressurised.

NOTE: Ensure all hydraulic connections are kept free from dirt and other contaminates that can cause damage to a hydraulic system.

Transport Locking Mechanism
Route the operation cord (1) for the transport locking mechanism (2) into the tractor cab through the rear window – ensure sufficient slack is retained in the cord run to avoid accidental operation of the mechanism.

Fix the cord to a suitable location in the cab that is easily accessible to the operator.

WARNING!
The transport latch operation cord must be slack at all times to avoid unintentional operation of the latch. Ensure the cord is kept clear of any components on the tractor and the machine that may cause accidental tightening of the cord and operation of the latch.



Ballast
Add front end weights to the tractor if required to increase stability of the unit for both transportation and work. Refer to tractor manufacturer's handbook for advice on ballasting.

Post Attachment Checks
After attaching the machine the following checks should be performed, ensure the tractor is switched off and the starting key removed.

Check the attachment of the machine to the tractor;

- Operating height of the hitch.
- Hitch installation.
- Frame angle *(2° inclination in the direction of travel)*.

Check position of the support leg.

Check all guarding is correctly located and undamaged.

Check lubrication levels in all drives.

Check all vital parts are present and working correctly.

Check parts for wear, damage or looseness on used machines, particularly;

- Blades.
- Discs.
- Quick change blades.
- Belts.
- Guards.
- Protection curtain.

In the event of damage or excessive wear to vital parts of the machine, replacements must be sourced and fitted before attempting to operate it. Each disc on the machine is fitted with 2 blades; these must be new or evenly worn. For safety and long working life always replace components with genuine parts from the manufacturer.

With all persons are kept at a safe distance from the machine, conduct a test run with the machine running at 540RPM.

- In the event of excessive noise and/or vibration, stop the machine and correct the problem.
- If the problem continues, contact authorised service centre for advice or help.

If all the above criteria are met the machine is ready for operation.

Spring Assisted Weight Distribution

To aid weight distribution and reduce mechanical stress the machine is fitted with 2 spring dampeners; the smaller spring supports the heel of the cutterbar and the larger spring supports the whole cutterbar. These are adjustable to suit operating preference and specific working conditions.

Factory setting for the spring is: Distance 'X' = 70mm

Spring Adjustments

To reduce spring tension on the cutterbar, reduce distance 'X' on small spring (1) and relocate pin (2) on the large spring to the previous hole position, to increase tension, increase distance 'X' and move pin (2) to the next hole.

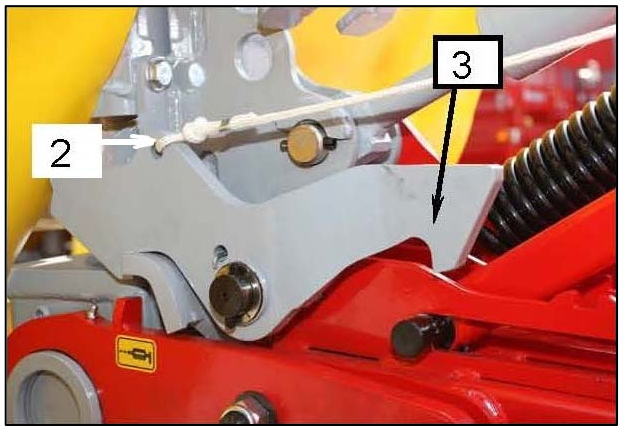
NOTE: Adjustment to the larger spring must be performed with the machine folded into the transport position.

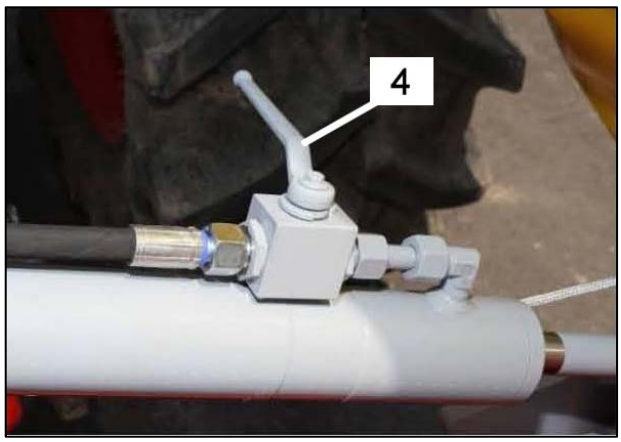
Moving Into Transport Position

For transportation of the machine the cutterbar must be raised into the vertical position; the procedure for moving into transport is as follows:

- With the machine in the horizontal work position, fold the outer end of the protection curtain (1) over the top of the cutterbar.
- Pull and retain tension on the operation cord (2) to disengage the transport locking mechanism.
- Operate the hydraulic ram to raise the cutterbar. *Tension on the operation cord can be released once the cutterbar has reached an angle in excess of 60°.*
- Continue operation of the ram until the cutterbar is upright at 90° and the transport lock has fully engaged.
- Close tap (4) on the ram valve.

The machine is now folded and ready for transportation.





▲
Ensure ram tap is closed for transportation.

WARNING! Always be aware of the height of the machine during transport and take extra care when manoeuvring close to buildings and under low bridges.

Moving from Transport into Work Position
The procedure for moving from transport to work position is basically a reversal of moving from work into transport.

- Open tap on ram valve.
- Pull and retain tension on the operation cord to disengage the transport locking mechanism.
- Operate the hydraulic ram to lower the cutterbar.
  Tension on the operation cord can be released once the cutterbar reaches an angle of approximately 80°.
- Continue operation of the ram until the cutter has reached its horizontal work position and the latch has re-engaged.
- Re-position the protection curtain.

The machine is now ready for work.

Raising and Lowering the Cutterbar in Work
Raising and lowering the cutterbar when moving between rows or turning on the headland is performed by operation of the hydraulic ram. Do not pull the cord for the transport latch.

Raising the cutterbar during work is by operating the ram with the transport latch engaged.

CAUTION!
When raising the cutterbar with the machine running there is risk of danger from flying objects such as stones or other hard objects; ensure persons and animals are clear of the danger zone before raising the cutterbar when the machine is running. Always cease working and stop the machine when persons approach, do not re-start until they are clear of the danger zone.

Instructions for Safe Mowing

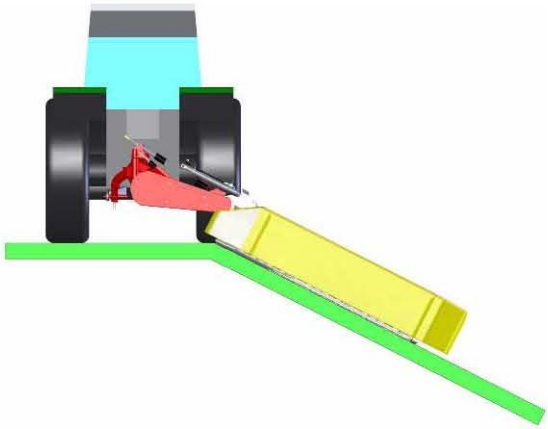
- Always ensure that each disc is fitted with 2 knives, either new or equally worn.
- Always replace damaged or worn blades, knives, and knife holders immediately – never attempt to operate the machine with any of these components in a damaged or overly worn condition.
- Stop the machine immediately if an increase in noise or vibration is experienced – continue work only when the reason for the disturbance has been investigated and resolved. *Ensure both the machine and the tractor's engines are switched off before nearing the mower to investigate.*
- Only operate the machine at the correct PTO speed.

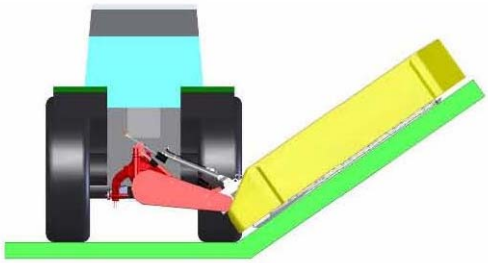
Mowing Instructions

- Allow the mower to reach its maximum permitted PTO speed before entering it into the grass to cut and keep the machine at this speed for the duration of the mowing to ensure a clean cut.
- Select a gear that will enable best mowing according to the ground conditions.
- Replace worn knives – sharp knives produce a cleaner more efficient cut.

Working on Banks

The machine has the ability to work at angles between -30° and +45°; this is particularly useful for work on undulating terrain or for mowing banks and ditches.





NOTE: When working the machine in these conditions it is important that after every 15 minutes of work the machine is returned to the horizontal position and run for 4 minutes to ensure continuous lubrication of cutterbar components.

Working on Inclines

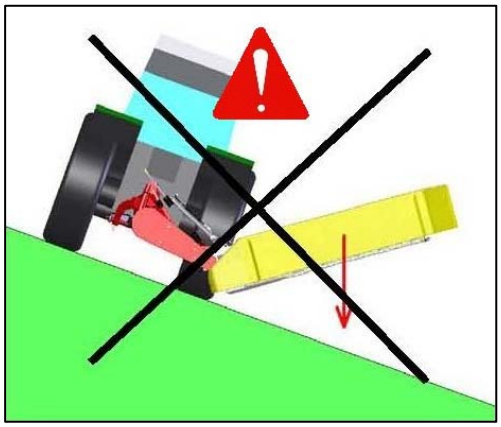
Caution must always be adopted when working the machine and tractor on an incline, as moving the position of the cutterbar can dramatically alter the balance characteristics of the unit which can cause instability and risk of overturn.

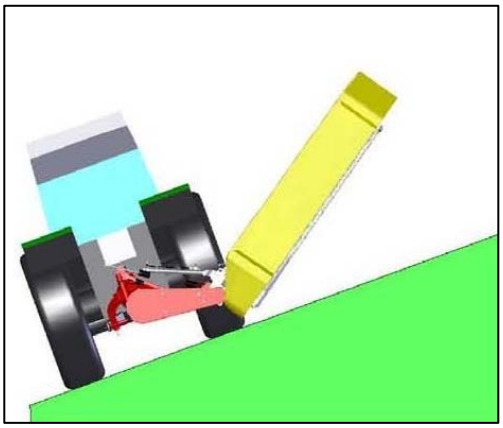
Risk of instability on inclines is increased when:

- Raising the cutterbar of on machine when it is operating to the lower side.
- Turning downhill with the cutterbar in transport position or raised on the lower side.

Reduce risk by:

- Operating the machine on the upper side of the slope.
- Avoid raising the cutterbar.
- Reducing speed and avoiding turns.



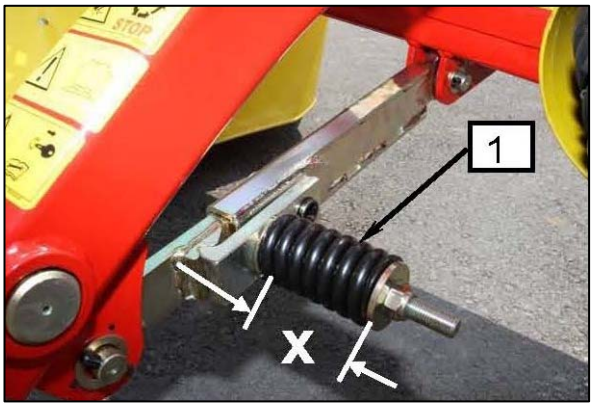


If possible work or transportation of the machine on steep slopes should be avoided.

Breakback Protection System

The machine features an inbuilt breakaway system to protect the machine should it come into contact with a heavy or fixed obstacle.

The spring loaded mechanism (1) holds the mower arm in the forward work position but allows it freedom to 'breakback' when sufficient force is met, thus avoiding possible damage to the machine. The safety mechanism is factory pre-set and should not require any altering or adjustment.



Distance 'X' is factory set to 112mm ►

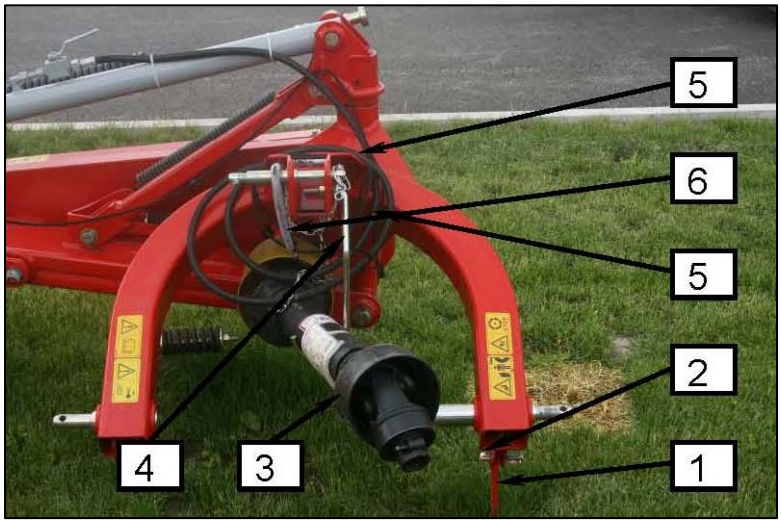
If 'breakback' occurs the tractor should be stopped immediately and the machine switched off before inspecting the cause and checking the machine. To return to the work position lower the machine and reverse slowly until the safety lock re-engages. The obstacle should be removed or avoided before continuing work.

Machine Removal

Select a firm level site on which to detach and park the machine.

- Lower support leg (1) and secure in position (2).
- Lower machine to the ground ensuring it is stable.
- Release pressure completely from the hydraulic system.
- Disconnect PTO shaft (3) and place on support hook (4).
- Disconnect hydraulic hose (5) and place in stowage location (7) on machine hitch.
- Remove transport lock cord (6) from tractor cab and stow neatly on the machine.
- Disconnect upper and lower three-point linkage points.

Always ensure the machine is parked up in a safe secure condition.



Blade Replacement

The blades of the mower are either left or right cutting and therefore must only be mounted on one of the discs that rotate in the same cutting direction – blades are marked with their cutting direction for ease of identification.

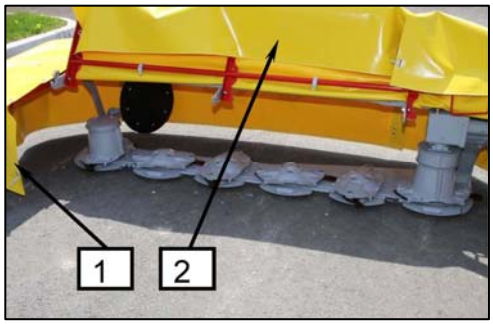
The life expectancy of the blades will primarily be determined by the type of ground surface on which you are working – stony ground will cause damage to blades and reduce their life expectancy.

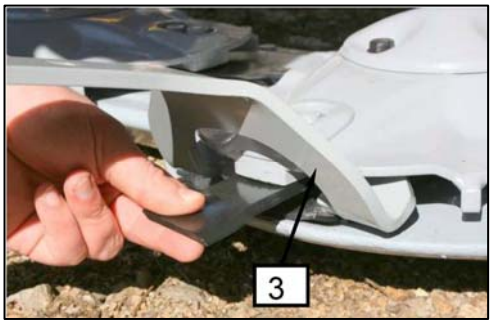
The machine features a quick change blade system – a special blade replacement tool *(shown above)* is supplied for this purpose.

Sharp blades produce a cleaner cut and higher mowing performance, reverse or replace blades regularly to retain optimum performance. Always replace both blades on individual discs at the same time. Ensure blades are always fitted correctly to match their specific cutting direction.

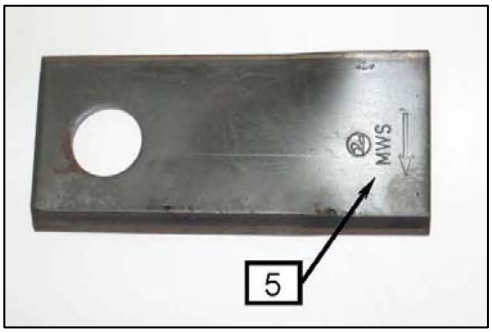
The procedure for changing blades is as follows;

- Place mower into work position.
- Release and open front protection curtain (1).
- Raise front guard (2) to allow access to discs.
- Select replacement blade from the blade storage box (4), ensuring the cutting direction matches the disc direction (5).
- Using the blade tool supplied (3), remove and replace the blade, make sure it is correctly and securely fitted.
- Lower front guard (2) and re-attach protection curtain (1).

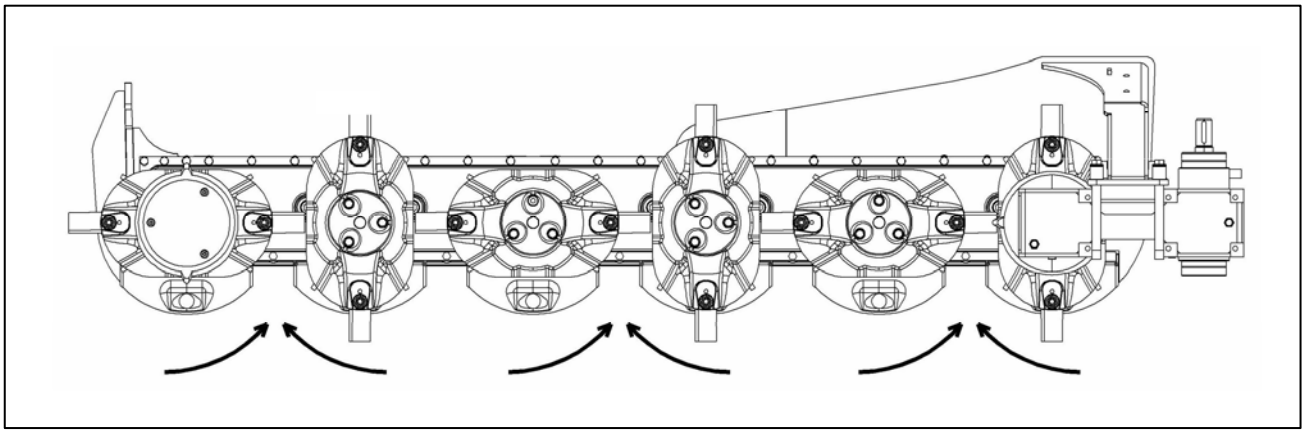




Blade storage box has 2 separate compartments with clear identification for storage of left and right hand blades ▼



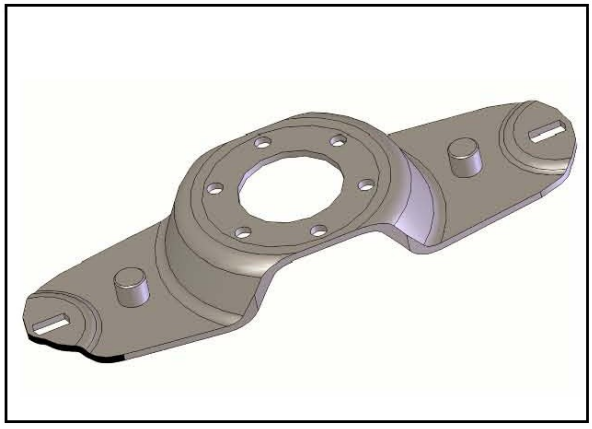
Cutting Direction of Discs

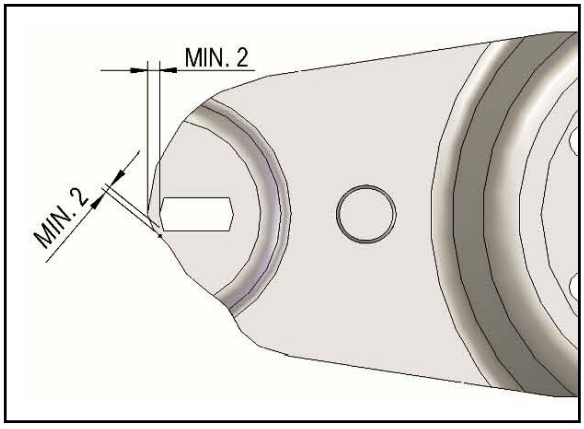


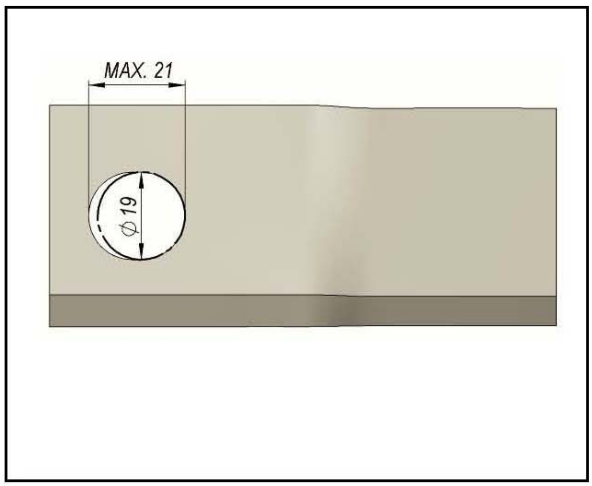
Always ensure blades are fitted correctly to match the specific cutting direction of each disc.

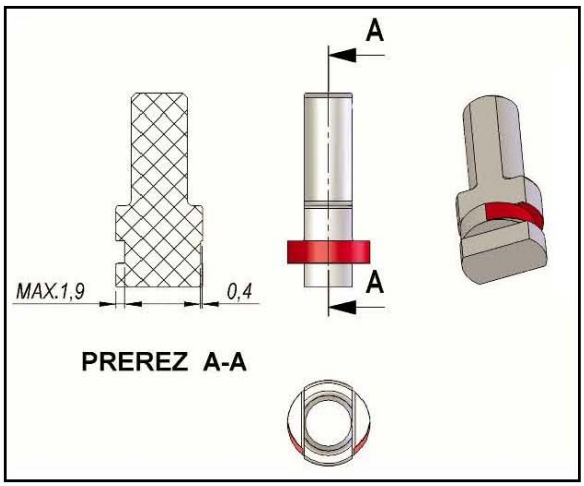
Replacing Blade Holders, Blades & Bolts

The blade holders, blades and bolts should be inspected routinely and checked for signs of wear. The blade holder should be replaced when the width of material from its outer edge to the blade bolt slot has worn down to 2mm. Blades should be replaced when their holes have worn to a diameter of 21mm and the blade bolts replaced when they have worn to a diameter of 19mm, *refer to illustrations below;*





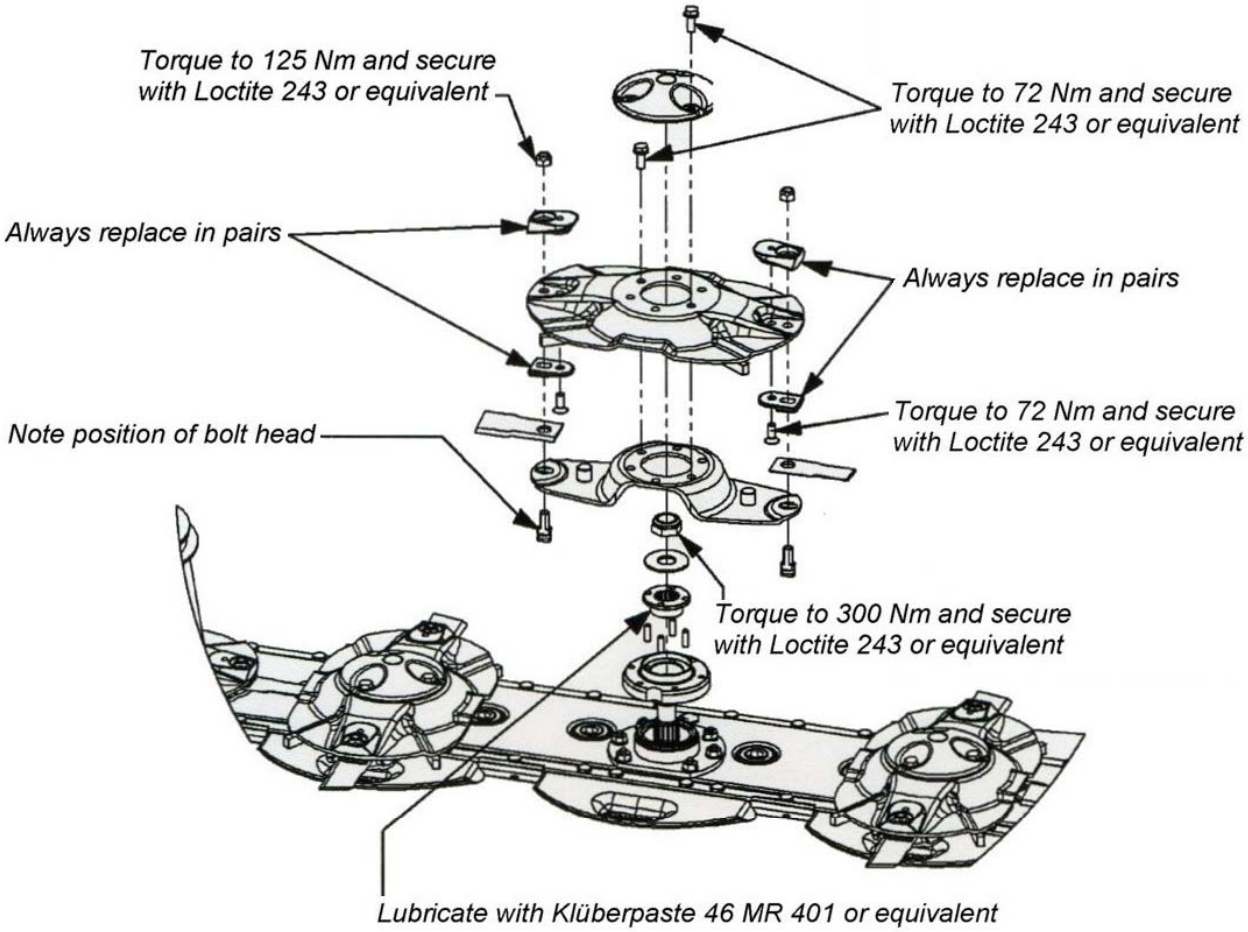


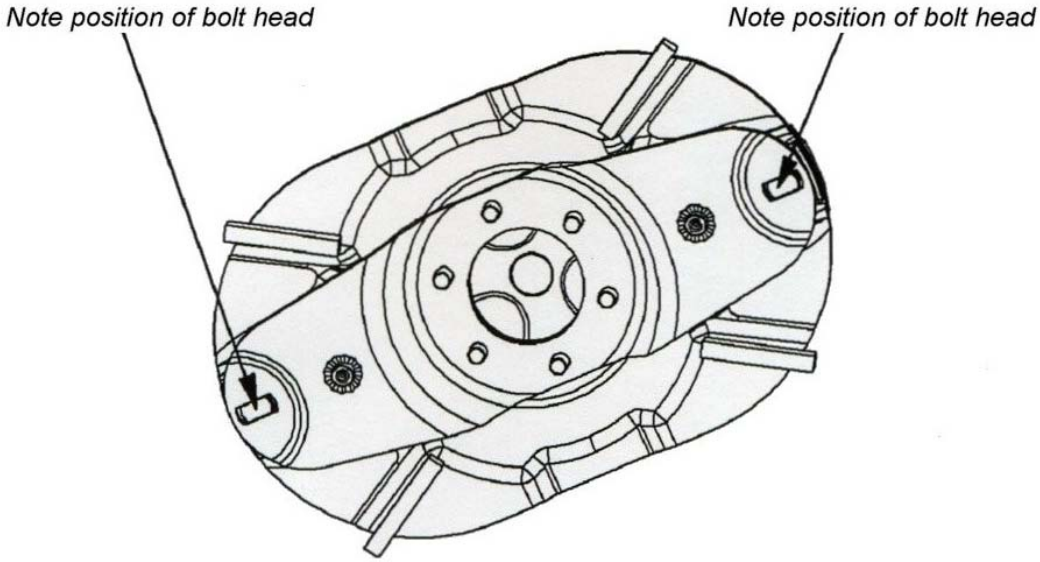


Replacement of Safety Pins on Individual Discs
Hitting an obstruction may lead to a large load on the individual disc. To prevent possible damage to discs and ridge caps, buffers are installed. If the protective caps are cut, they can be replaced quickly and easily.

Steps for replacing protective caps;

- When hitting an obstruction, stop the machine and switch off the tractor as soon as possible.
- Check for damage.
- Rotate the discs so they are pointed at 90 degrees to each other.
- This way, you can easily and efficiently determine whether any of the discs has an angle greater than 90 degrees.
- Clean the ridge to avoid dirt reaching the bearing area.
- Unscrew the bolt of the top lid and remove it.
- Unscrew the bolt of the disc and remove it together with the quick hitch.
- Check for damage to the disc, blade bolts, protective forgings and quick couplings.
- In the event of damage, elements must be replaced and the disc must be rebalanced – *this is essential for long life and efficiency of the machine.*
- Unscrew the M24 nut and remove the upper and lower flanges.
- Remove the cut protective caps from both parts.
- Clean the surface of both parts.
- Lubricate with ‘Kluberpaste’ 46MR 401 grease to ensure required slip condition.
- Place the upper part into the lower one and replace the protective caps.
- When reassembling, be careful of the proper positioning of the bracket onto the gear shaft.
- After installation, make sure the discs are completely perpendicular to each other - *if they are not, repositioning of the flange shaft is required.*
- Tighten the M24 nut at a torque of 300Nm.
- Attach the disc with quick coupling - tighten and bond bolts with a torque of 72Nm.
- Check if the quick coupling is correctly positioned - when replacing blades, the bearings should not come into contact.
- Attach the upper cover - tighten and bond bolts with a torque of 72Nm.
- Restart the machine and observe for possible vibrations.
- In the event of vibrations, the entire disc must be rebalanced or replaced.

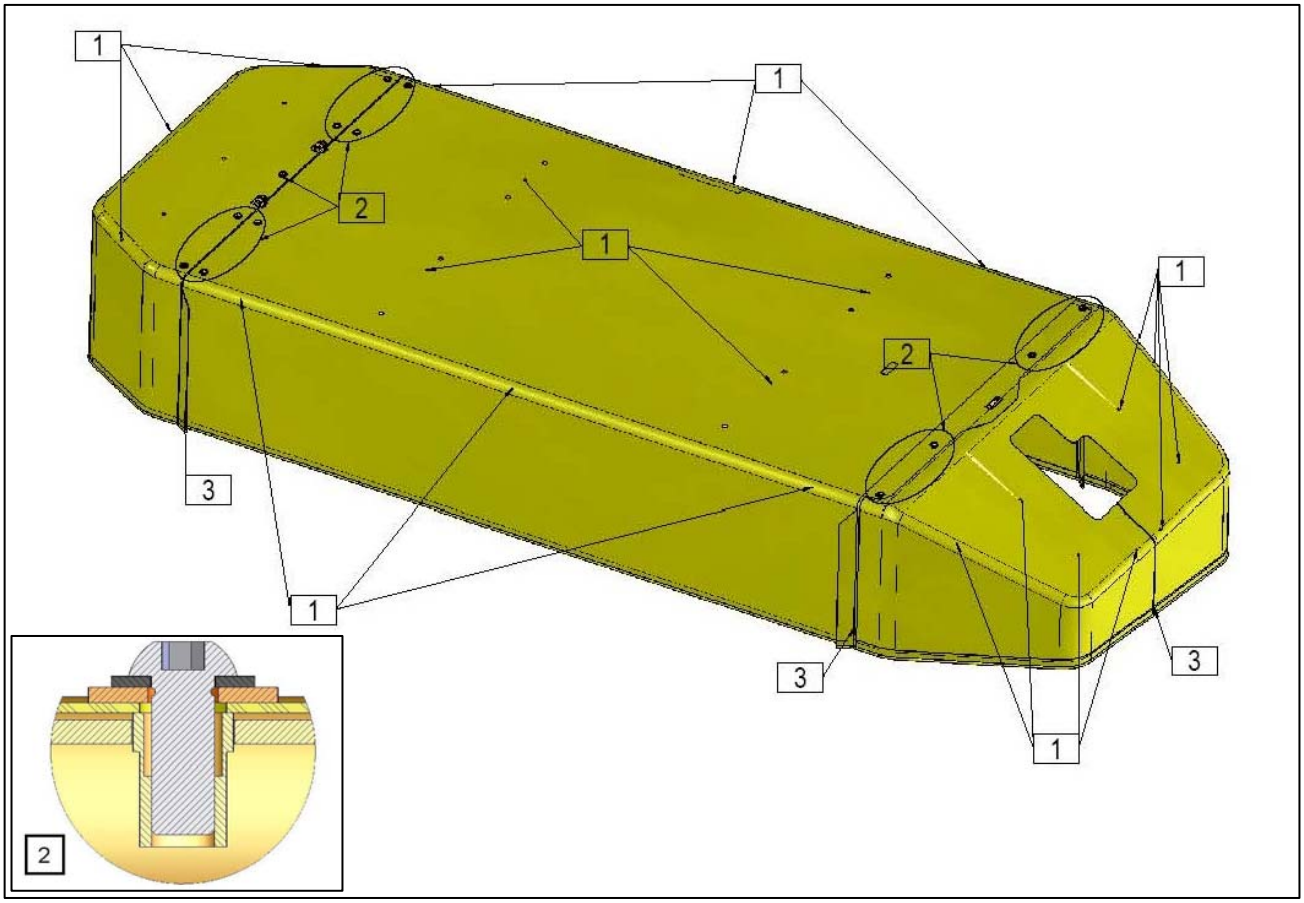

Torque to 125 Nm and secure with Loctite 243 or equivalent
Torque to 72 Nm and secure with Loctite 243 or equivalent
Always replace in pairs
Always replace in pairs
Note position of bolt head
Torque to 72 Nm and secure with Loctite 243 or equivalent
Torque to 300 Nm and secure with Loctite 243 or equivalent
Lubricate with Klüberpaste 46 MR 401 or equivalent


Note position of bolt head
Note position of bolt head

Protective Curtain Replacement

For reasons of safety, protective curtains and fixings should be regularly inspected for signs of excessive wear or damage and must always be replaced when they have deteriorated to a point where they no longer perform their correct function.

The illustrations below show locations of the curtain attachment points and type of fixing;

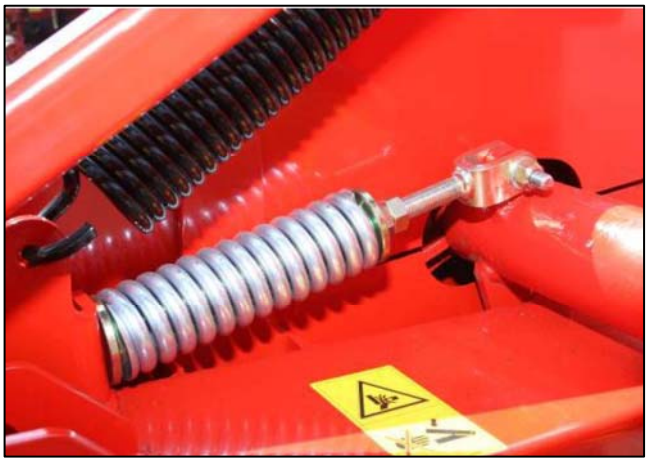


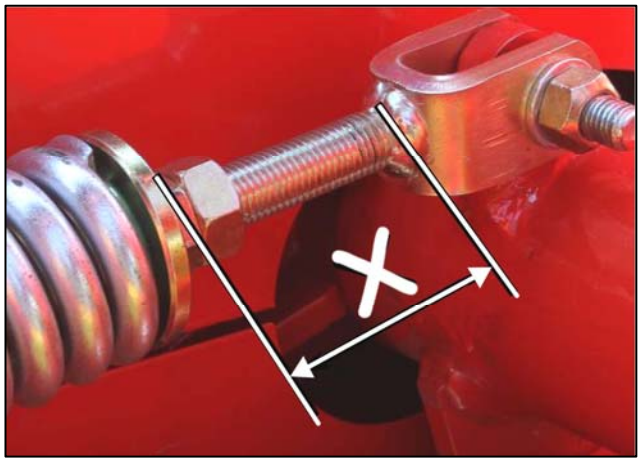
Drive Belt
On initial use of a new machine, the 'V' belt tension must be checked, and re-adjusted if required, at the following intervals;

- **After 1 hour.**
- **After 6 hours.**
- **After 15 hours.**

There are 2 methods available for adjustment of belt tension;

Belt Tension - Method 1
Belt tension is correct when distance 'X' = 68mm *(refer to photo below right).*

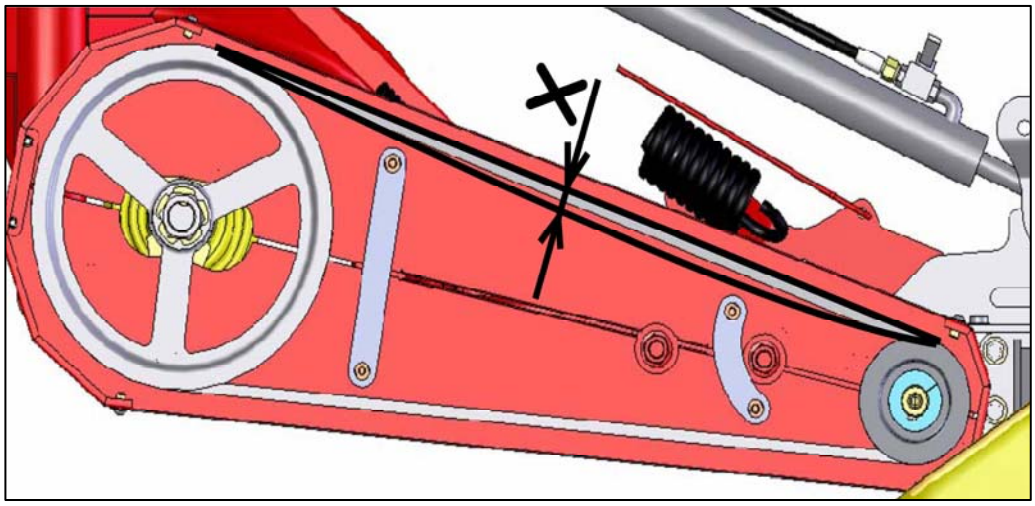




Belt Tension - Method 2 (Recommended)
Correct belt tension demands a frequency of;

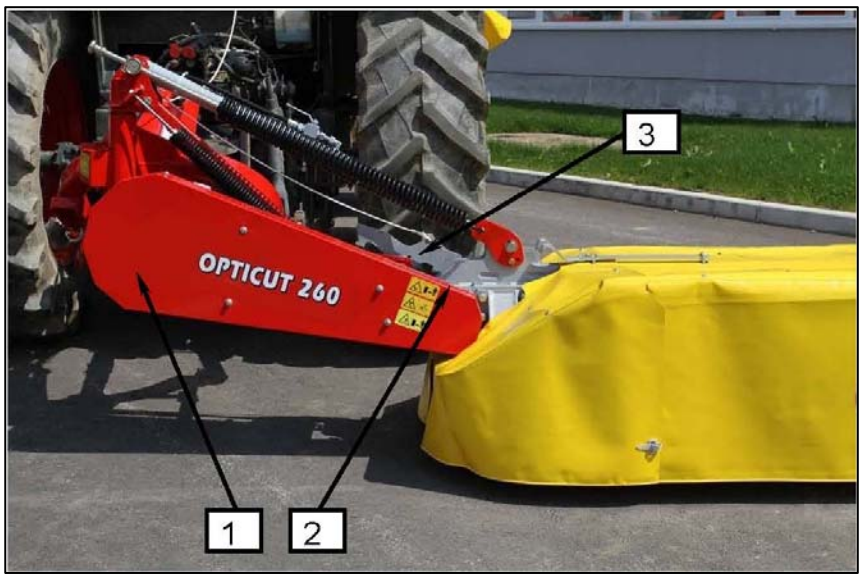
39-40Hz for new belts. Deflection 'X' = 14mm with a force of 33N

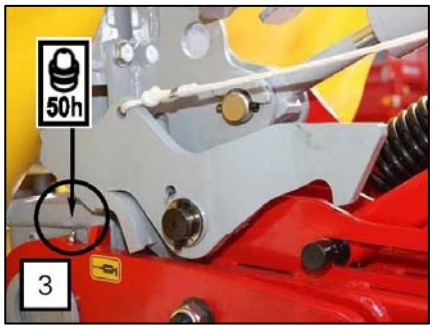
36-37Hz for used belts. Deflection 'X' = 14mm with a force of 28N

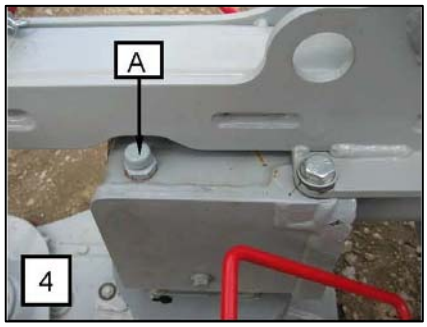


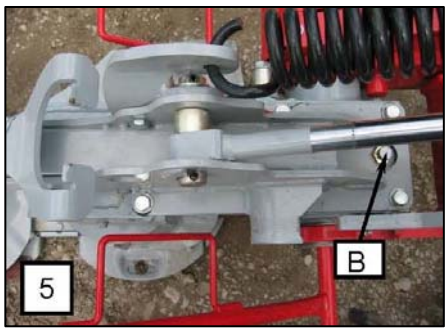
NOTE
If belt tension is too high there is risk of damage to bearings and drive shaft, if tension is too low the belts may slip resulting in belt damage. Always replace belts in complete sets.

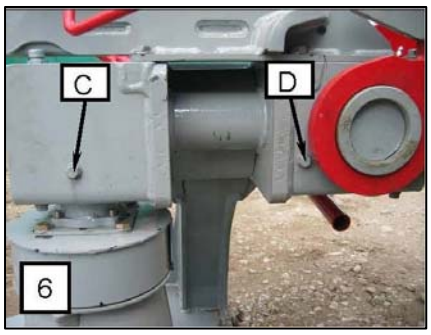
Lubrication
To ensure a long life the machine should be lubricated at the points and timescales stated below;

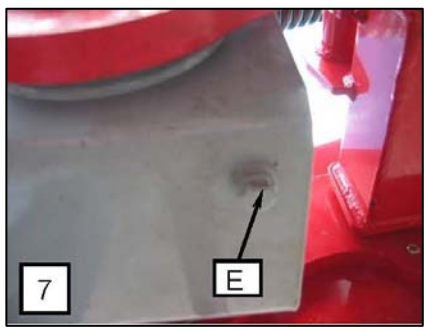


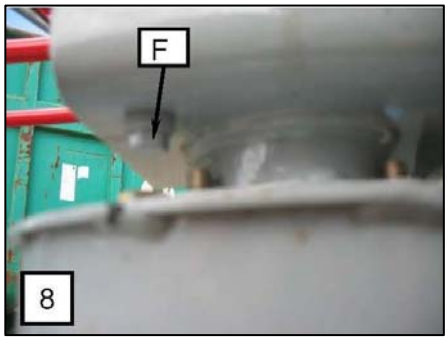












1. Grease Point - lubricate every 50 hours.
2. Grease Point - lubricate every 50 hours.
3. Grease Point - lubricate every 50 hours.
4. Gearbox Filler Plug/Vent (A)
5. Gearbox Filler Plug/Vent (B)
6. Gearboxes - Oil Level Plug (C) & Oil Level Plug (D)
7. Gearbox Drain Plug (E)
8. Gearbox Drain Plug (F)

Gearbox Oil
Change gearbox oil after initial 50 hours of work and thereafter at 250 hour intervals or every 4 years, whichever occurs first.
Refill using SAE90 Gearbox Oil.

Checking Gearbox Oil Levels
Run machine to warm the oil before switching it off and parking on firm level site.

Raise the front guard and remove oil level plugs ‘C’ & ‘D’.

Oil levels are correct if the oil is level with the plug, if not the oil must be replenished.

Replace level plugs when completed using suitable sealant paste.

Replenishing Oil
Remove gearbox filler plug and oil level plug.

Pour oil slowly into gearbox through the filler plug until oil starts to seep from the level plug.

Replace level plug using suitable sealant paste.

Replace filler plug.

Draining Gearboxes
With the machine parked on a firm level site, raise the front guard.

Remove specific drainage plug ‘E’ or ‘F’ to release oil into a suitable container.

Replace drainage plugs using suitable sealant paste when all the oil has been released.

Refill using SAE90 Gearbox Oil as described above.

Cutterbar Oil Level
On a firm level site, run the machine until the oil is warm.

Switch machine off.

Raise the mowing bar to the figure shown in the photo (9) on the following page for your specific model - prop it on the right hand side at this height using a suitable piece of timber.

Lower the left hand side to on the ground.

Wait for 15 minutes.

Check the oil level through hole using a dipstick.

Introduce the oil level dipstick vertically to the mowing bar until it reaches the bar floor.

Required oil level is:

11 mm for Opticut 220 / 14 mm for Opticut 260 / 17 mm for Opticut 300

If it should not be possible to check the oil level inside the bar, the oil will have to be drained totally and fresh oil added up to the correct level.

Draining Cutterbar Oil
Place machine into transport position.

Remove lower slider under gear.

Remove filler plug.

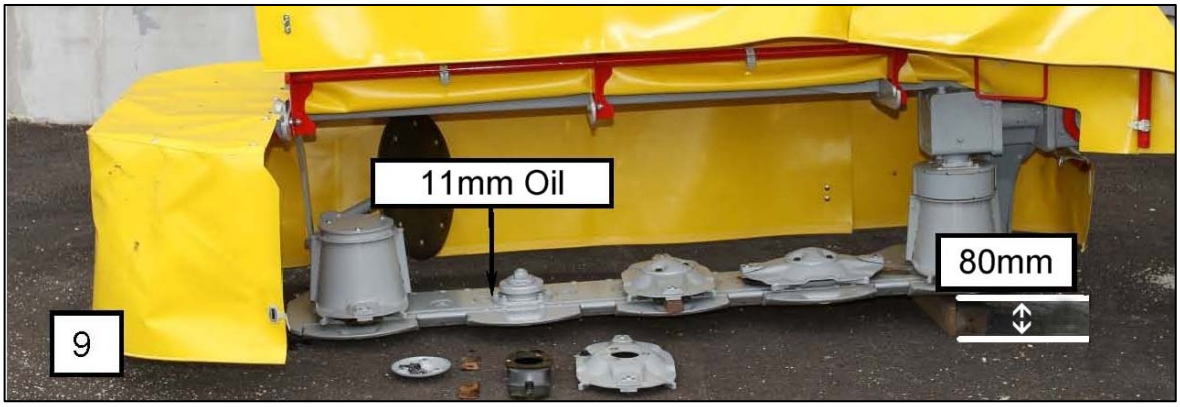
Remove drain plug to release oil into suitable container.

Replace drain plug using suitable sealant paste.

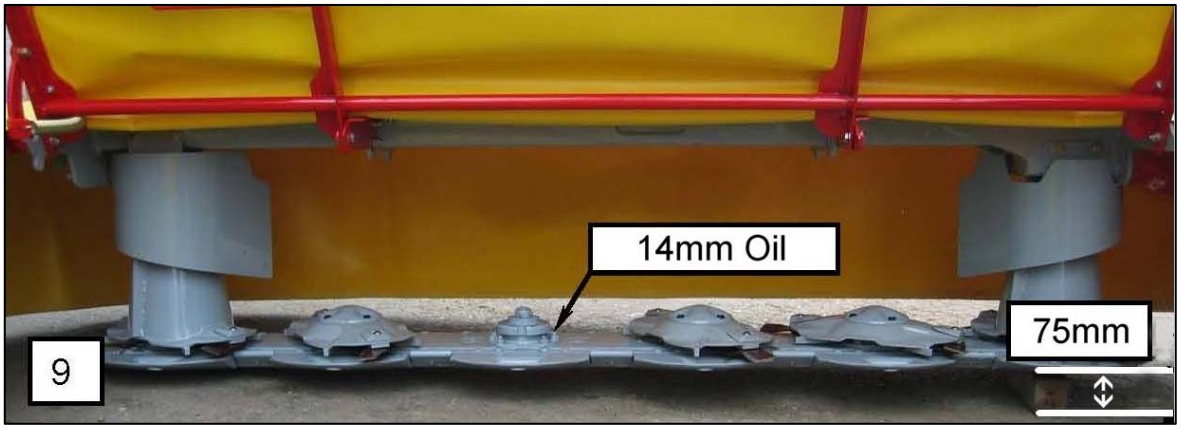
Return machine to horizontal ‘propped’ position – *see following page.*

Fill with oil to level stated for the specific model.

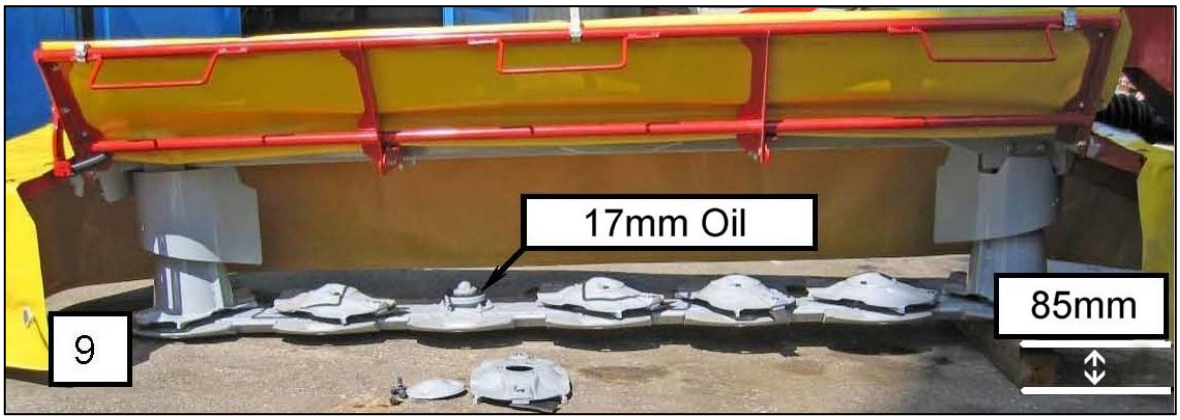
Opticut 220 Models



Opticut 260 Models

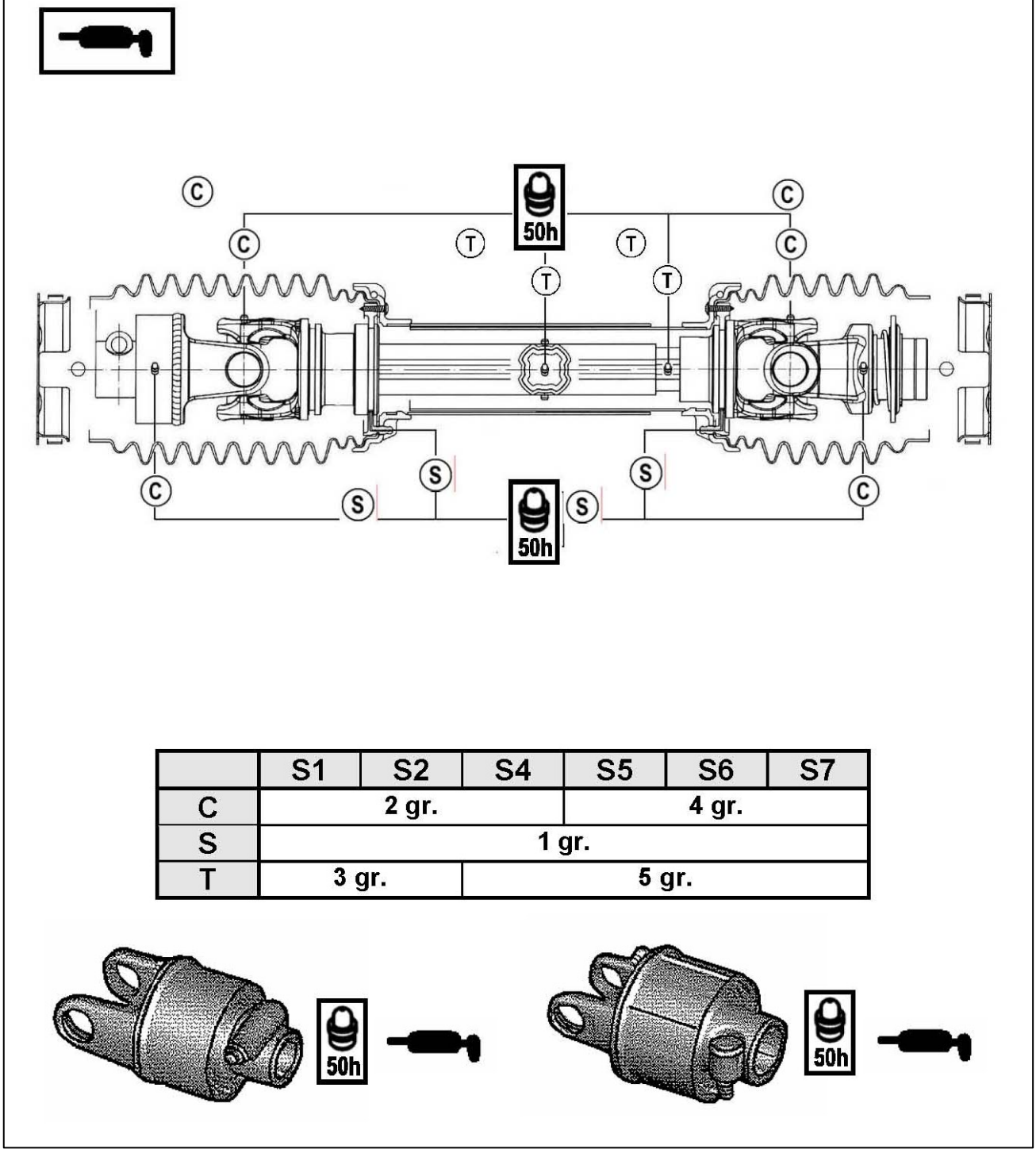


Opticut 300 Models



PTO Driveshaft Lubrication

Grease PTO shaft at the locations and time intervals stated on the illustration below;



	S1	S2	S4	S5	S6	S7
C	2 gr.			4 gr.		
S	1 gr.					
T	3 gr.		5 gr.			

Storage

Wherever possible for extended storage periods the machine should be placed in a safe clean dry environment to protect it from the elements.

Prior to storage the machine;

- Thoroughly clean and dry the machine both inside and out – *use of a high pressure washer is not recommended as these can easily cause damage to paintwork.*
- Check flexible parts and joints – dismantle, clean and check wear levels. Replace parts if required to ensure the machine is ready for the next seasons work.
- Lubricate and grease the machine.
- Grease the PTO shaft bearings.
- Coat vulnerable areas of the machine with grease to protect it from corroding.

Removing from Storage

- Remove protective coatings of grease.
- Re-lubricate the machine to eliminate condensation from bearings.
- Check lubricant levels and refill or top up if required.
- Check tightness of nuts, bolts and screws.

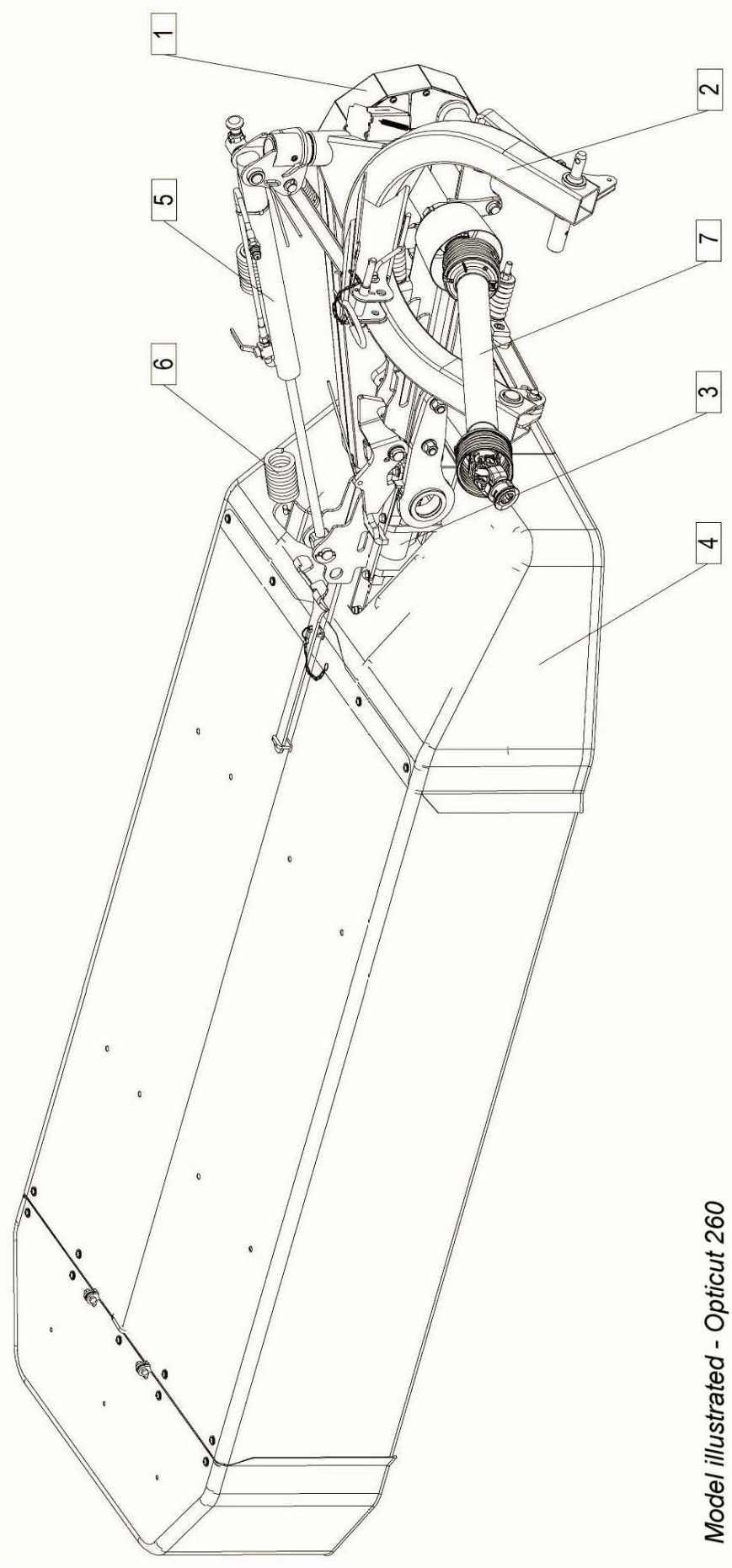
Parts Manual

OPTICUT

Rotary Disc Mowers
Models 220 / 260 / 300

CONTENTS

MAIN ASSEMBLIES



Model illustrated - Opticut 260

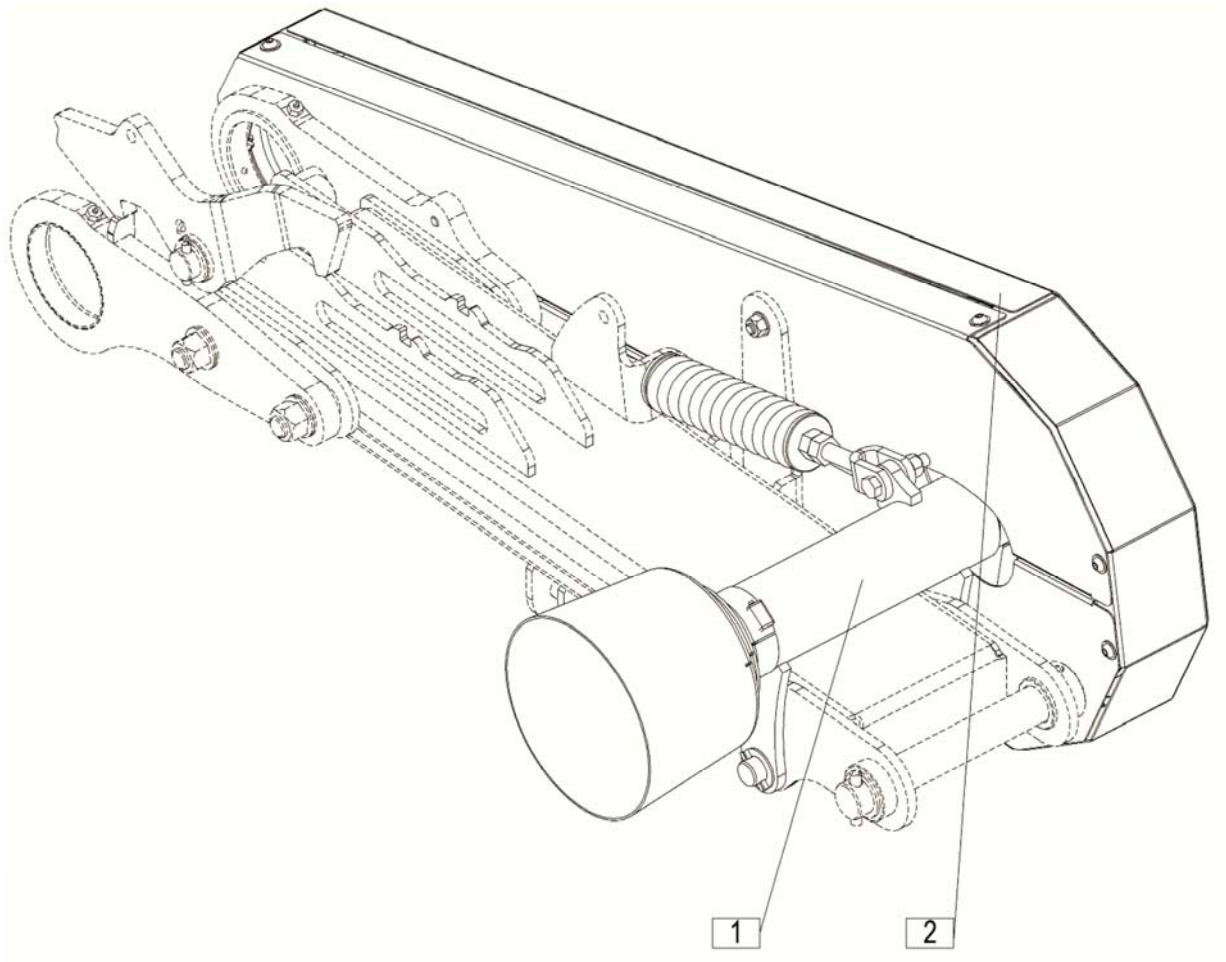
MAIN ASSEMBLIES

REF.	QTY.	PART No.	DESCRIPTION
			MAIN ASSEMBLIES - Opticut 220
1	1	1022958	BELT DRIVE ASSEMBLY
2	1	1022959	HITCH FRAME & ARM ASSEMBLY
3	1	1023100	CUTTERBAR ASSEMBLY
4	1	1023101	PROTECTION CURTAIN ASSEMBLY
5	1	1022962	HYDRAULIC ASSEMBLY
6	1	1023102	SUSPENSION ASSEMBLY
7	1	1022964	PTO SHAFT

REF.	QTY.	PART No.	DESCRIPTION
			MAIN ASSEMBLIES - Opticut 260
1	1	1022958	BELT DRIVE ASSEMBLY
2	1	1022959	HITCH FRAME & ARM ASSEMBLY
3	1	1022960	CUTTERBAR ASSEMBLY
4	1	1022961	PROTECTION CURTAIN ASSEMBLY
5	1	1022962	HYDRAULIC ASSEMBLY
6	1	1022963	SUSPENSION ASSEMBLY
7	1	1022964	PTO SHAFT

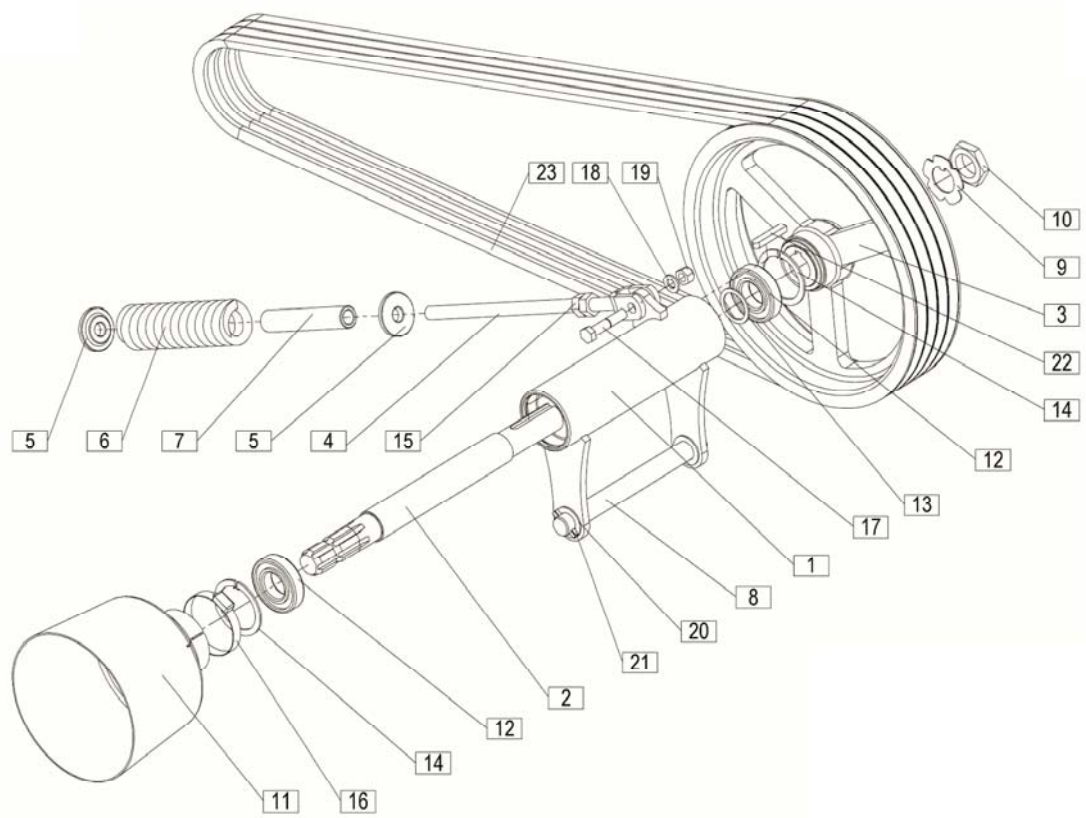
REF.	QTY.	PART No.	DESCRIPTION
			MAIN ASSEMBLIES - Opticut 300
1	1	1022958	BELT DRIVE ASSEMBLY
2	1	1022959	HITCH FRAME ASSEMBLY
3	1	1023094	CUTTERBAR ASSEMBLY
4	1	1023095	PROTECTION CURTAIN ASSEMBLY
5	1	1022962	HYDRAULIC ASSEMBLY
6	1	1022963	SUSPENSION ASSEMBLY
7	1	1022964	PTO SHAFT

DRIVE & GUARD ASSEMBLY



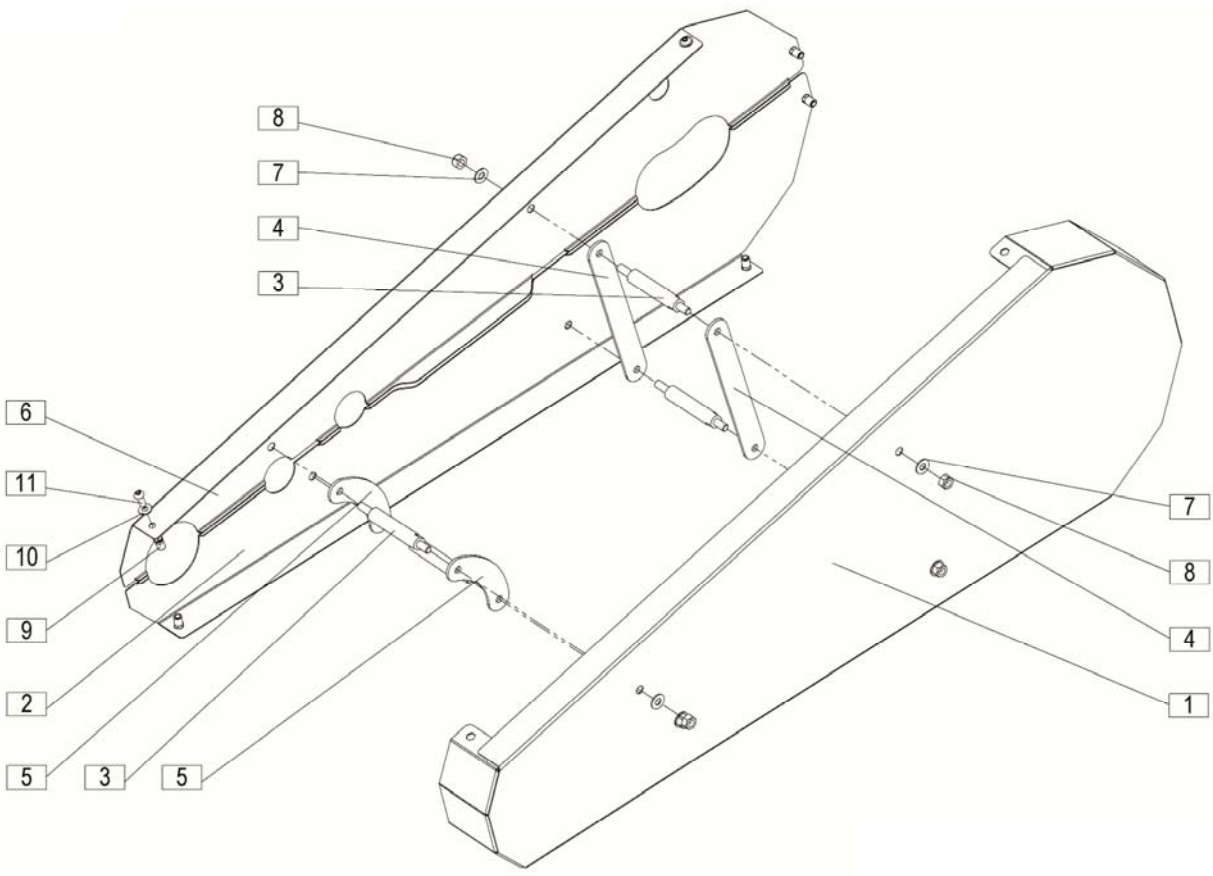
REF.	QTY.	PART No.	DESCRIPTION
			DRIVE & GUARD ASSEMBLY
1	1	1022965	MAIN DRIVE ASSEMBLY
2	1	1022966	PULLEY GUARD ASSEMBLY

BELT DRIVE ASSEMBLY



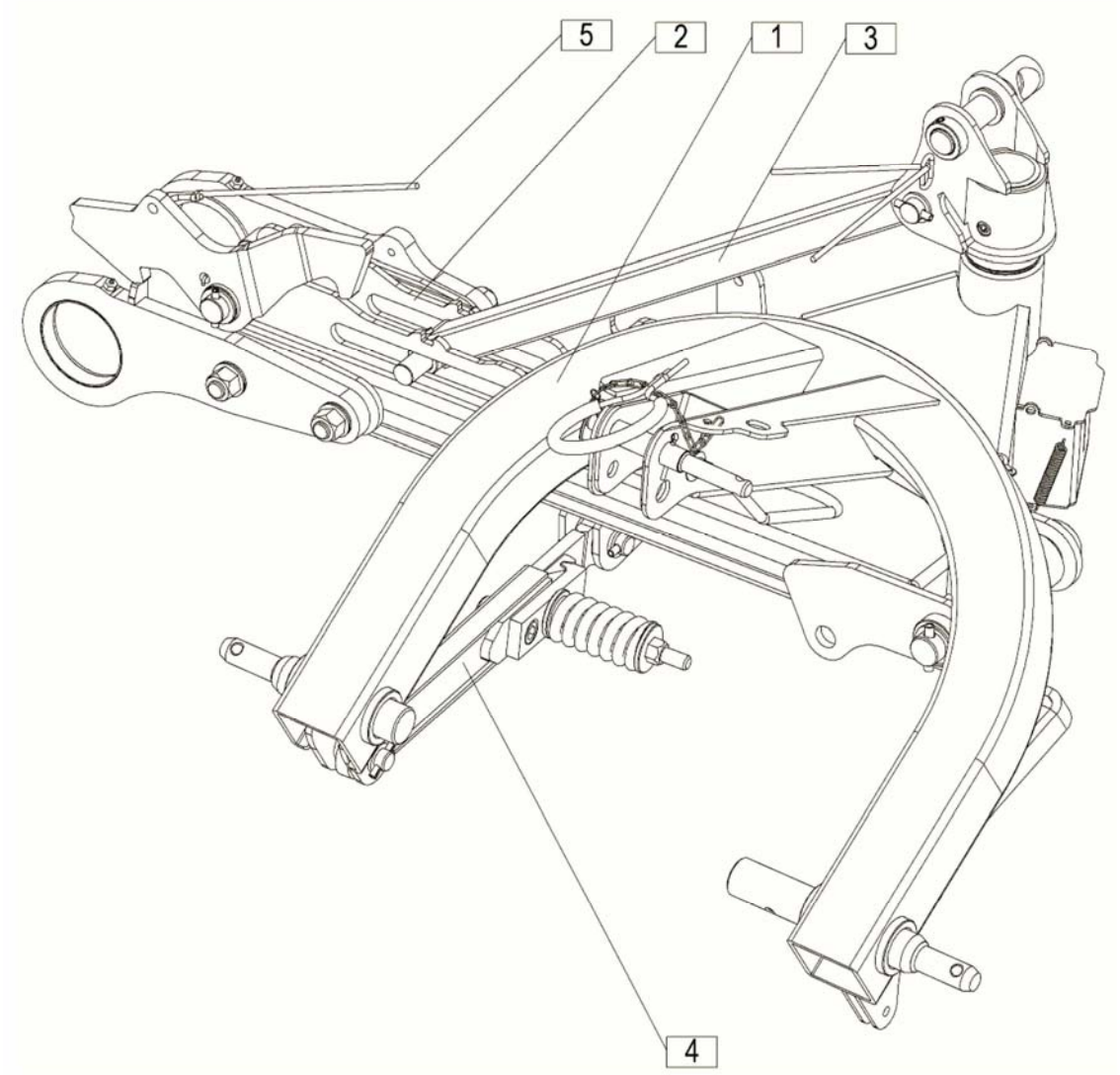
REF.	QTY.	PART No.	DESCRIPTION
			BELT DRIVE ASSEMBLY
1	1	1022967	BEARING HOUSING
2	1	1022968	SHAFT
3	1	1022969	PULLEY
4	1	1022970	TENSIONER
5	2	1022971	WASHER
6	1	1022972	PRESSURE SPRING
7	1	1022973	SLEEVE
8	1	1022974	PIN
9	1	1022050	TAB WASHER
10	1	1022049	NUT
11	1	1021797	PTO GUARD
12	2	1021023	BEARING
13	1	1021618	WASHER
14	2	1021126	CIRCLIP
15	2	1021619	NUT
16	1	1022975	BINDING CLIP
17	1	1022286	SCREW
18	1	1021604	WASHER
19	1	1021178	NUT
20	4	1021906	WASHER
21	2	1021059	TENSION PIN
22	1	1022976	KEY
23	4	1022977	VEE-BELT

BELT GUARD ASSEMBLY



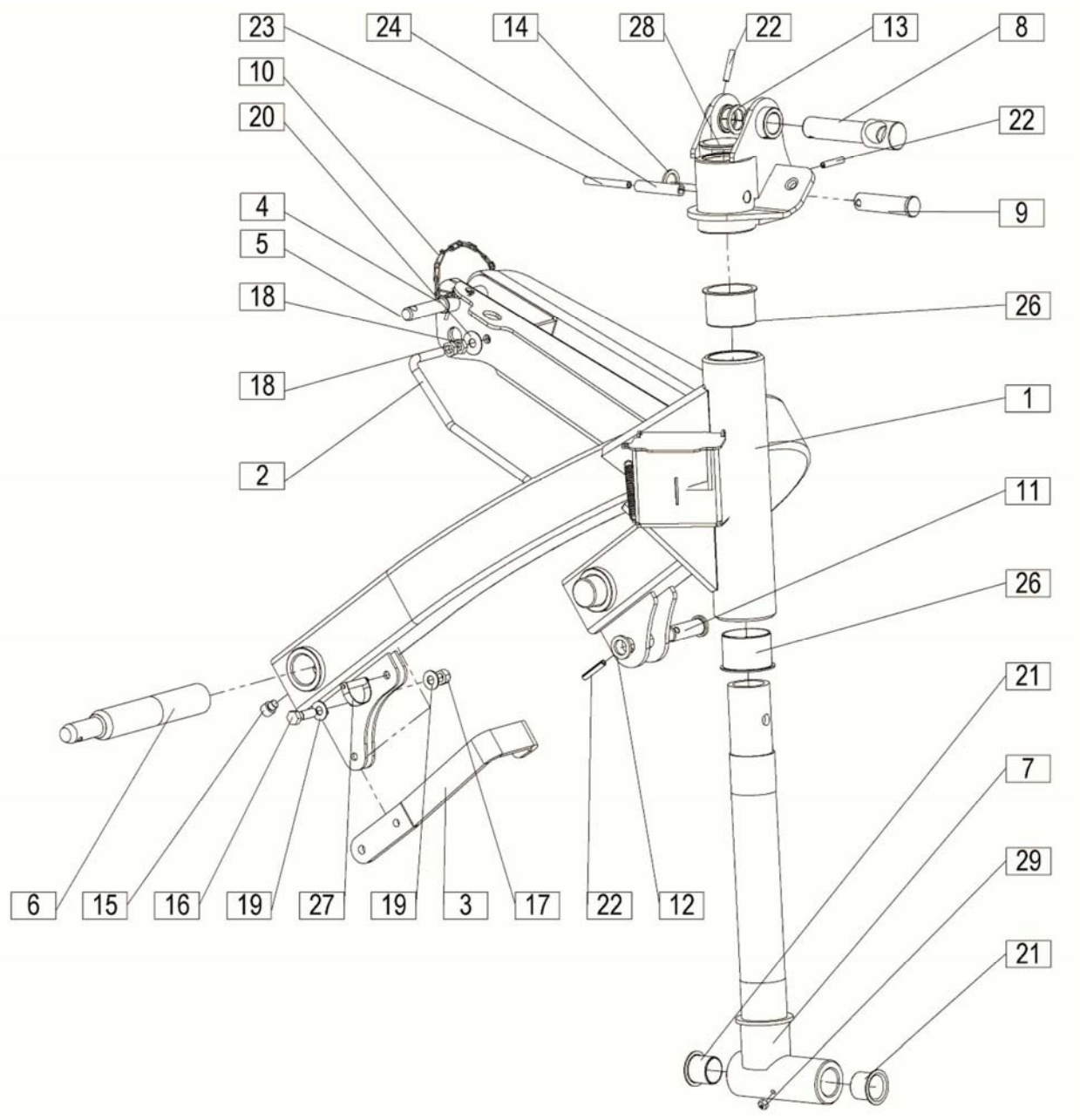
REF.	QTY.	PART No.	DESCRIPTION
			BELT GUARD ASSEMBLY
1	1	1022978	OUTER PULLEY GUARD
2	1	1022979	BOTTOM INNER PULLEY GUARD
3	4	1022980	BOLT
4	2	1022981	REINFORCER
5	2	1022982	REINFORCER
6	1	1022983	TOP INNER PULLEY GUARD
7	6	1021067	WASHER
8	6	1021876	NUT
9	6	1022984	RIVET
10	6	1021070	WASHER
11	6	1022985	SCREW

FRAME & HITCH ASSEMBLY



REF.	QTY.	PART No.	DESCRIPTION
			FRAME & HITCH ASSEMBLY
1	1	1022986	HITCH FRAME ASSEMBLY
2	1	1022987	ARM ASSEMBLY
3	1	1022988	TENSION LINK ASSEMBLY
4	1	1022989	BREAKAWAY ASSEMBLY
5	1	1022678	CORD

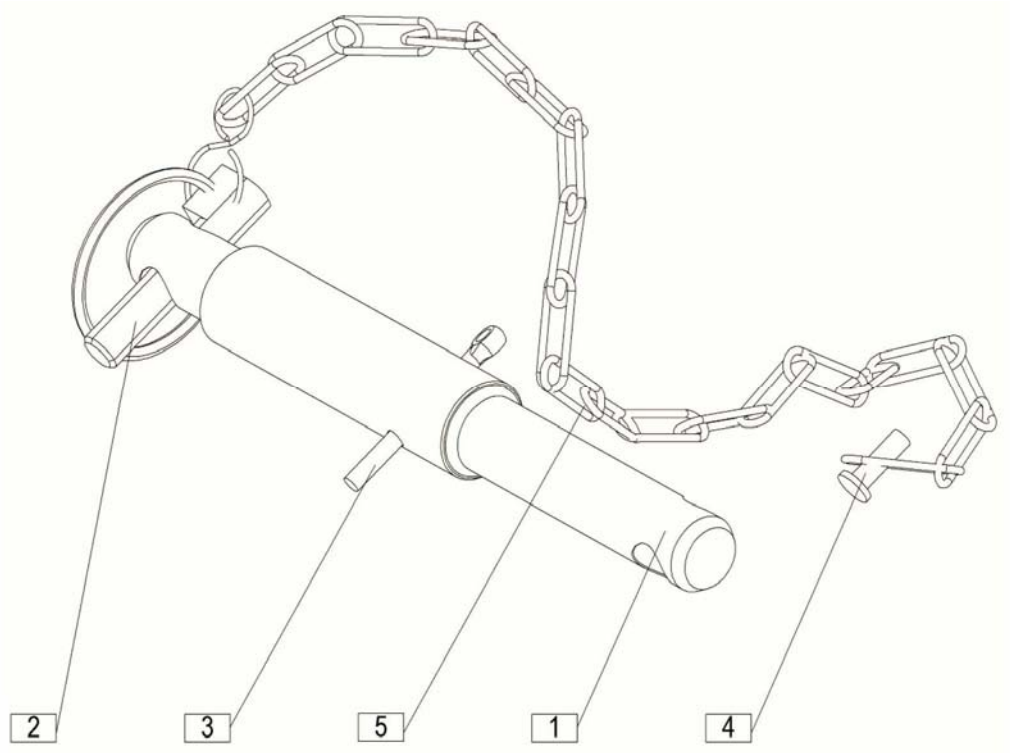
HITCH FRAME ASSEMBLY



HITCH FRAME ASSEMBLY

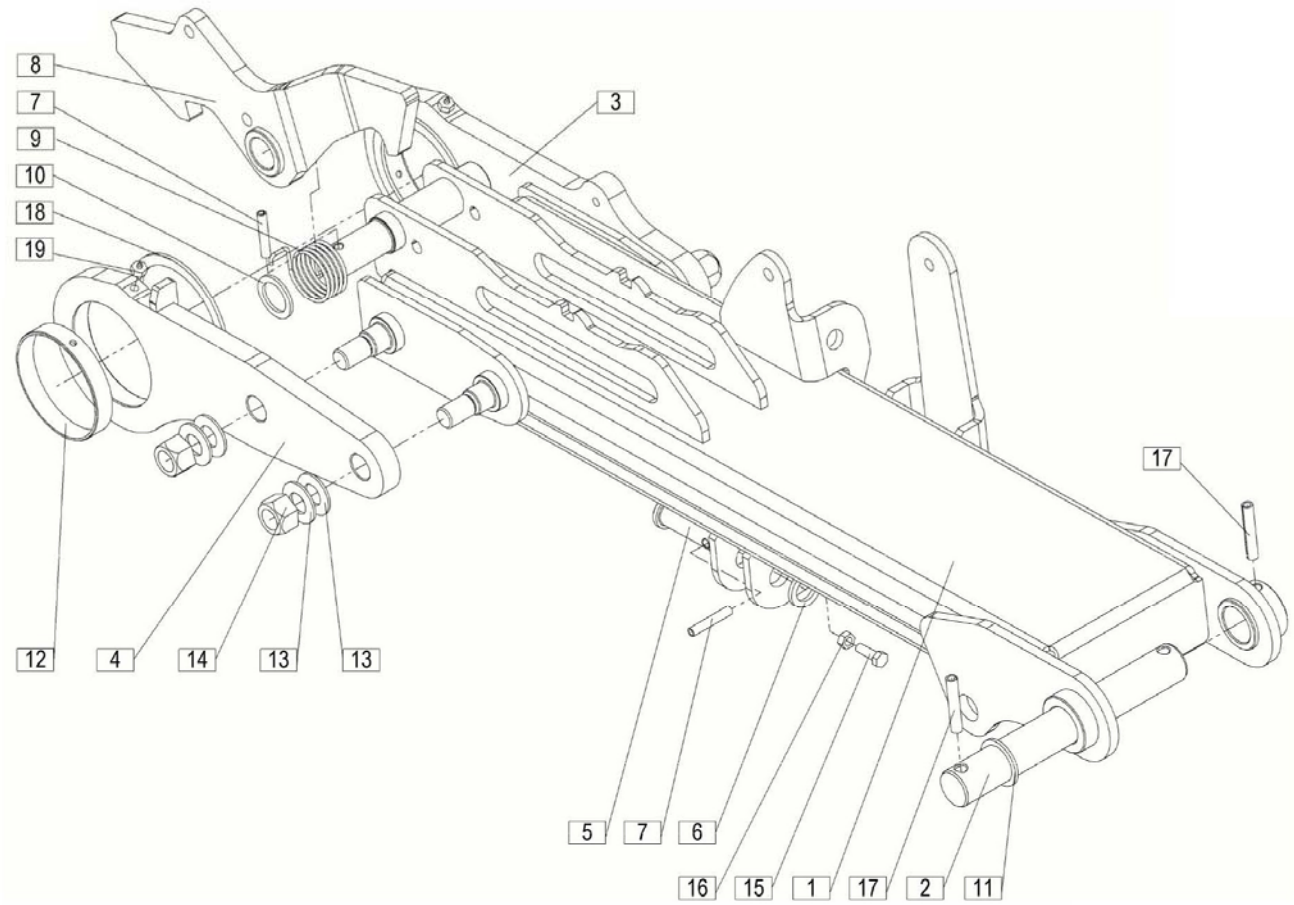
REF.	QTY.	PART No.	DESCRIPTION
			HITCH FRAME ASSEMBLY
1	1	1022990	HITCH FRAME
2	1	1022991	PTO SUPPORT
3	1	1022992	JACK STAND
4	1	1022993	PIN ASSEMBLY
5	1	1022994	PIN
6	1	1022995	LINKAGE PIN
7	1	1022996	HINGE ASSEMBLY
8	1	1022997	PIN
9	1	1022998	PIN
10	1	1022999	CHAIN
11	1	1023000	PIN
12	1	1022862	WASHER SET (40,3/58)
13	2	1023001	WASHER SET (30/42)
14	1	1023002	WASHER SET (25/35)
15	2	1023003	SCREW
16	1	1022244	SCREW
17	1	1021178	NUT
18	4	1021964	NUT
19	2	1021100	WASHER
20	2	1022569	SPRING WASHER
21	2	1023004	BEARING SLEEVE
22	3	1021655	TENSION PIN
23	1	1023005	TENSION PIN
24	1	1023006	TENSION PIN
25	1	1022695	SPRING
26	2	1023007	BEARING
27	1	1023008	LINCH PIN
28	1	1023009	COVER
29	1	1021064	GREASE NIPPLE

TOP LINK PIN ASSEMBLY



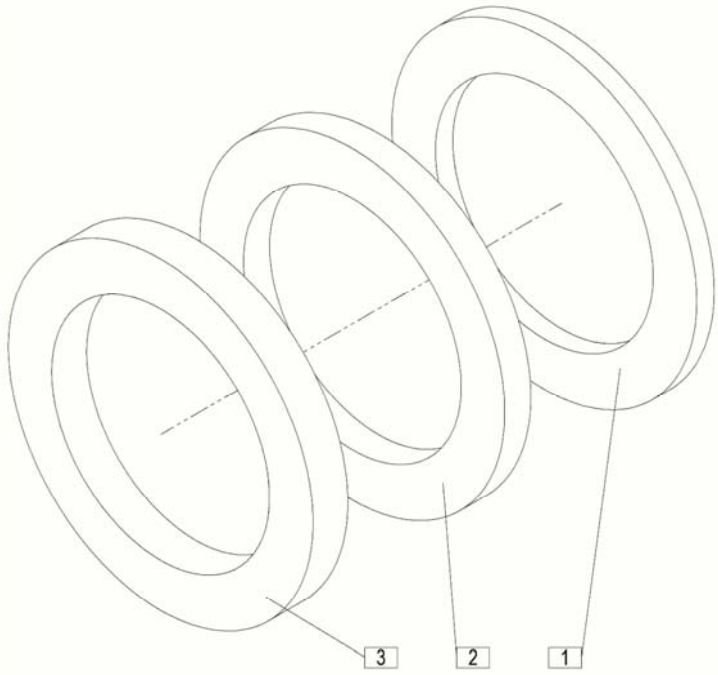
REF.	QTY.	PART No.	DESCRIPTION
			TOP LINK PIN ASSEMBLY
1	1	1023010	TOP LINK PIN
2	1	1021857	LINCH PIN
3	1	1022696	COTTER PIN
4	1	1023011	RIVET
5	1	1022697	CHAIN c/w HOOK

FRAME ASSEMBLY

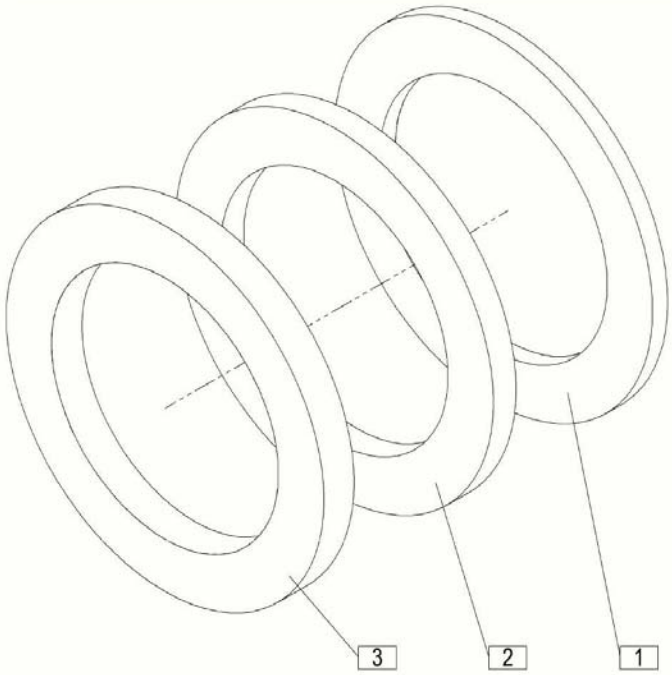


REF.	QTY.	PART No.	DESCRIPTION
			FRAME ASSEMBLY
1	1	1023012	ARM
2	1	1023013	PIN
3	1	1023014	HINGE
4	1	1023015	STRAP
5	1	1023000	PIN
6	1	1022862	WASHER SET (40,3/58)
7	2	1021655	TENSION PIN
8	1	1023016	HOOK
9	1	1023017	SPRING
10	1	1023001	WASHER SET (30/42)
11	1	1023018	WASHER SET (35/45)
12	2	1023019	SLEEVE
13	8	1023020	PLATE SPRING
14	4	1023021	NUT
15	1	1022620	SCREW
16	1	1021239	NUT
17	2	1022166	TENSION PIN
18	2	1023022	WASHER
19	2	1022647	GREASE NIPPLE

WASHER SETS

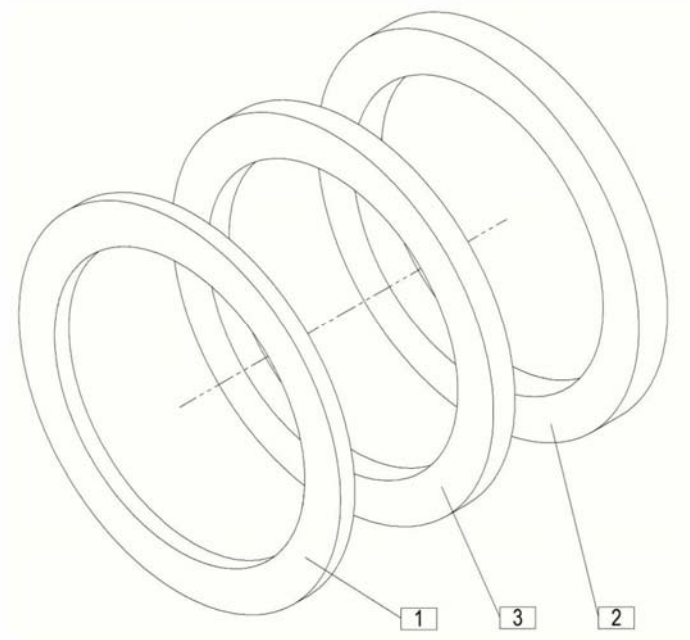


REF.	QTY.	PART No.	DESCRIPTION
			WASHERS 25/35
1	1	1022573	WASHER 25/35-2
2	1	1023025	WASHER 25/35-3
3	1	1023026	WASHER 25/35-4

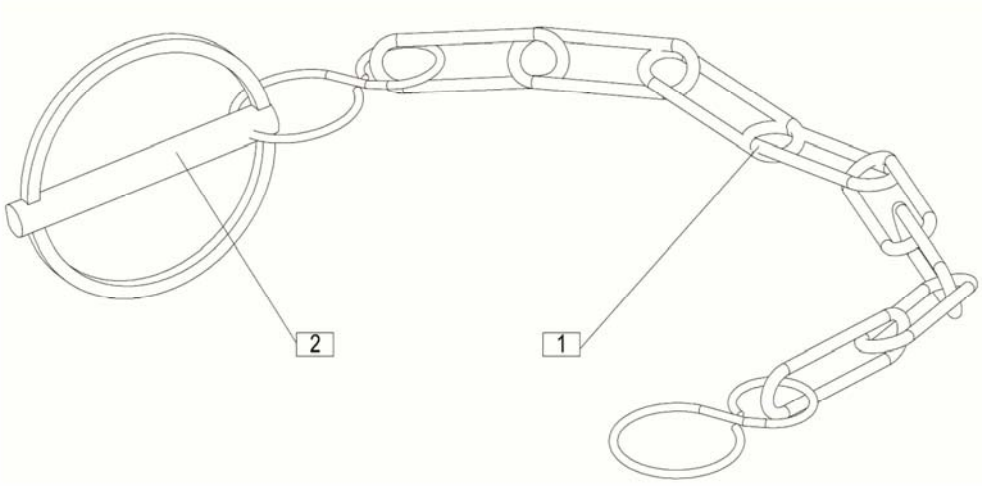


REF.	QTY.	PART No.	DESCRIPTION
			WASHERS 30/42
1	1	1022561	WASHER 30/42-2
2	1	1023023	WASHER 30/42-3
3	1	1023024	WASHER 30/42-4

WASHER SET / CHAIN ASSEMBLY

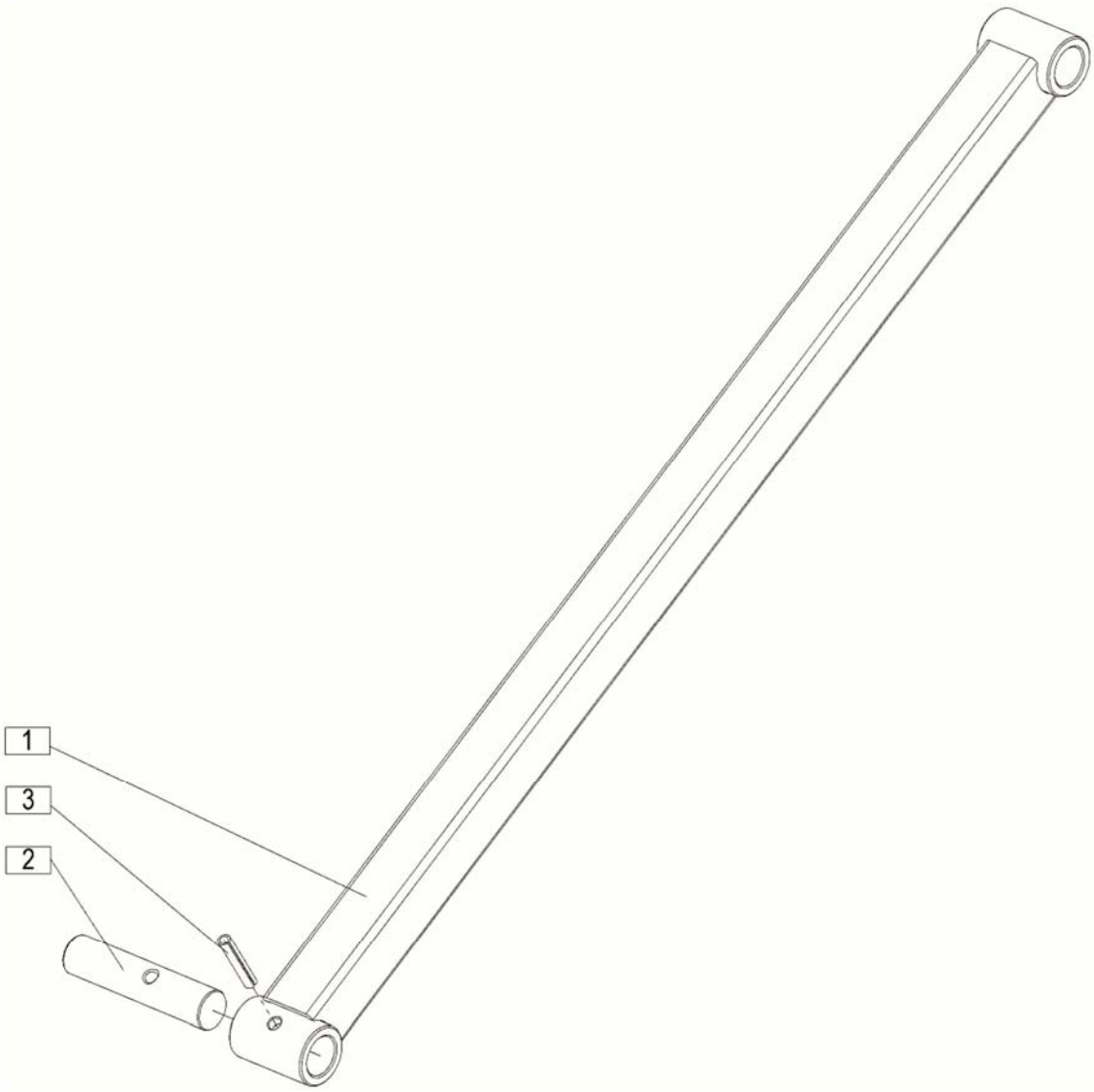


REF.	QTY.	PART No.	DESCRIPTION
			WASHERS 35/45
1	1	1022571	WASHER 35/45-2
2	1	1023027	WASHER 35/45-3
3	1	1023028	WASHER 35/45-4



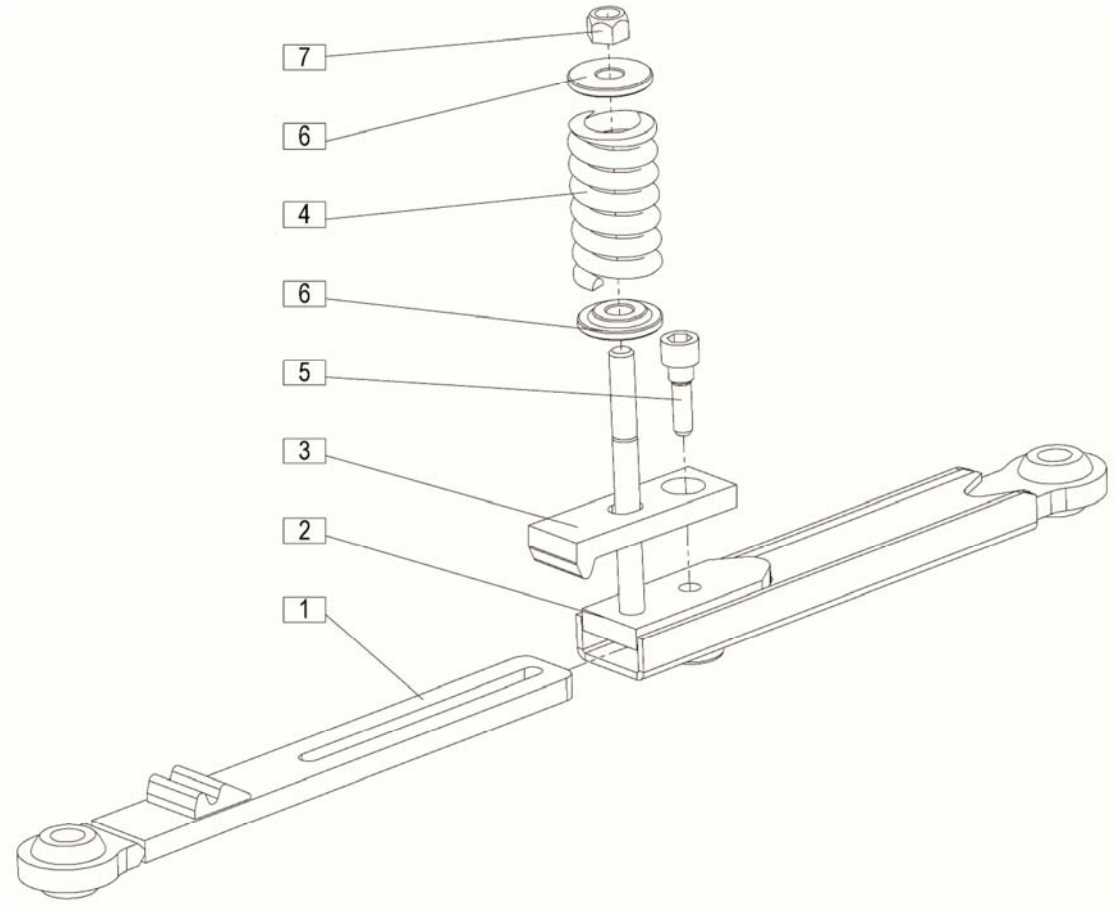
REF.	QTY.	PART No.	DESCRIPTION
			CHAIN ASSEMBLY
1	1	1023034	CHAIN c/w HOOK
2	1	1022565	LINCH PIN

TENSION LINK ASSEMBLY



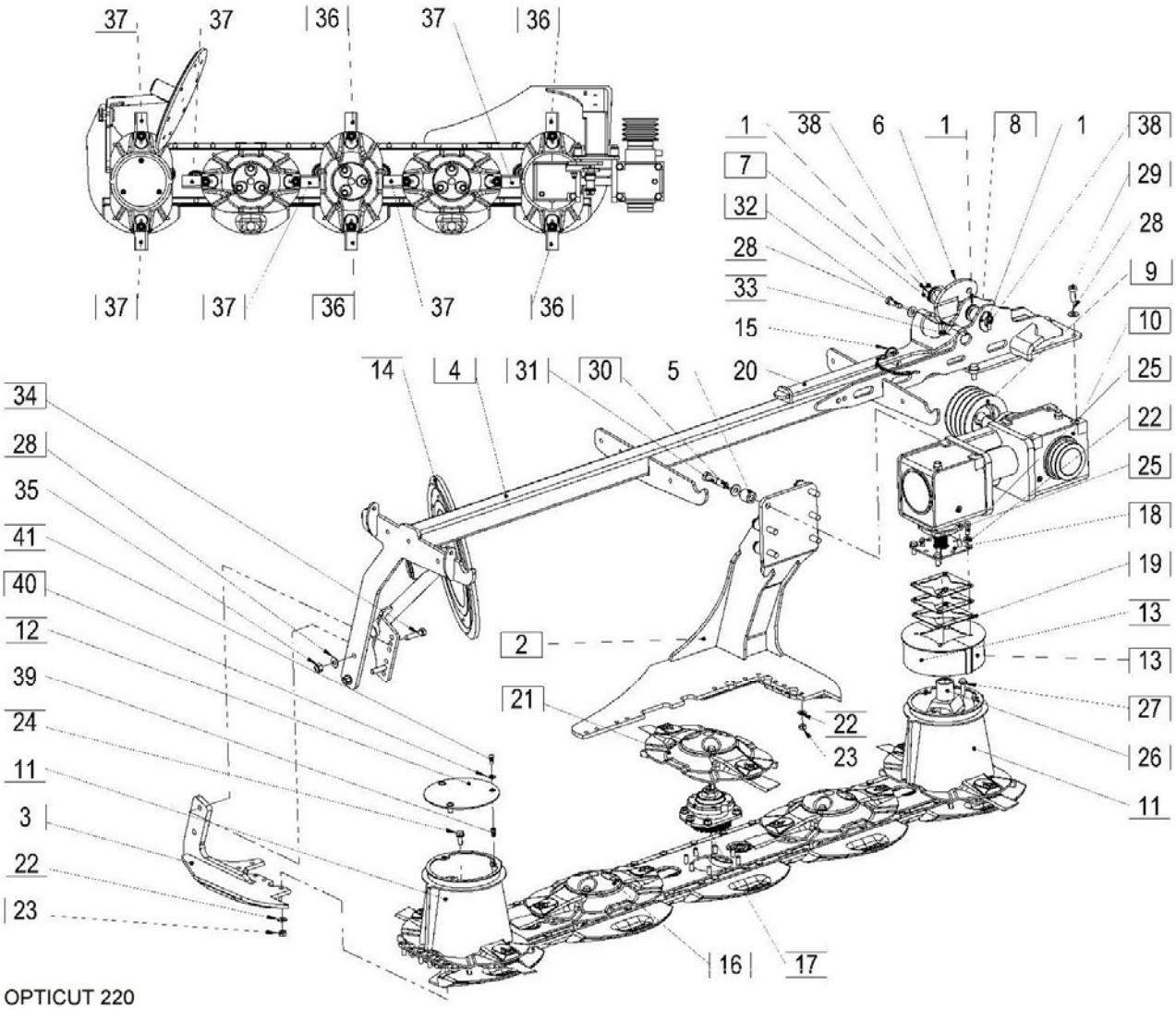
REF.	QTY.	PART No.	DESCRIPTION
			TENSION LINK ASSEMBLY
1	1	1023025	TENSION LINK
2	1	1023026	PIN
3	1	1021655	TENSION PIN

SAFETY BREAKAWAY SYSTEM



REF.	QTY.	PART No.	DESCRIPTION
			BREAKAWAY SYSTEM
1	1	1023029	BREAKAWAY LATCH BAR
2	1	1023030	BREAKAWAY RECEIVER BAR
3	1	1023031	LATCH PLATE
4	1	1023032	SPRING
5	1	1023033	SCREW
6	2	1022971	WASHER
7	1	1021643	NUT

CUTTERBAR & DRIVE ASSEMBLY – Opticut 220

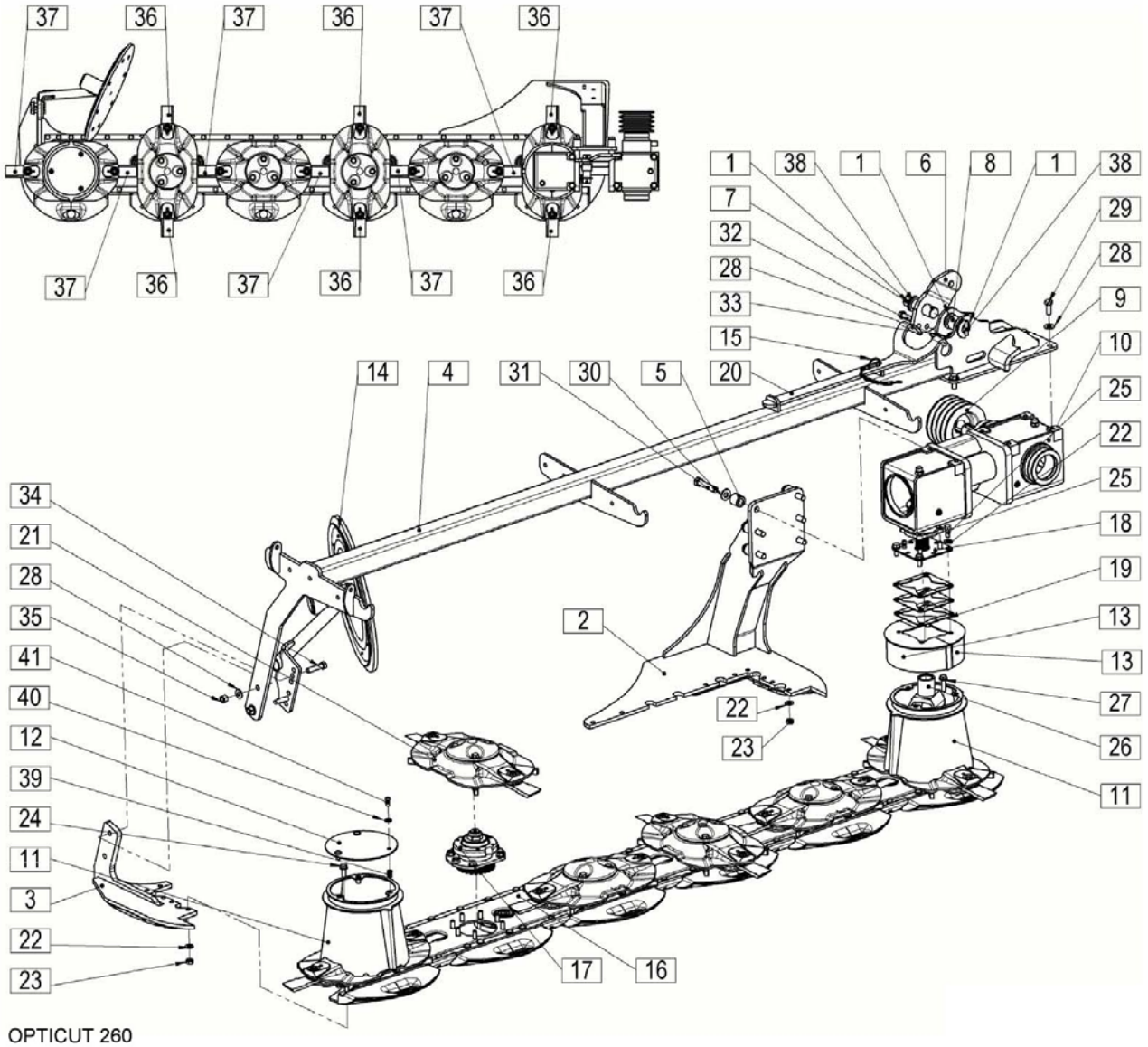


OPTICUT 220

CUTTERBAR & DRIVE ASSEMBLY – Opticut 220

REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR ASSEMBLY - Opticut 220
1	3	1023001	WASHER SET (30/42)
2	1	1023103	HEEL
3	1	1023036	HEEL RH
4	1	1023104	FRAME
5	6	1023038	SLEEVE
6	1	1023105	STRAP
7	1	1023040	PIN
8	1	1023041	SLEEVE
9	1	1023042	PULLEY ASSEMBLY
10	1	1023043	GEARBOX ASSEMBLY
11	2	1023044	CONE ASSEMBLY
12	1	1023045	COVER
13	2	1023046	CONE
14	1	1023047	SWATH DISC RH
15	1	1022871	CHAIN ASSEMBLY
16	1	1023106	CUTTERBAR ASSEMBLY
17	6	1022723	FLANGE ASSEMBLY
18	1	1022725	PLATE
19	6	1022728	WASHER
20	1	1022872	BLADE TOOL
21	4	1022866	DISC ASSEMBLY
22	16	1021067	WASHER
23	8	1021179	NUT
24	6	1022867	SCREW
25	8	1021936	SCREW
26	1	1023049	PTO SHAFT
27	6	1022737	SCREW
28	10	1021100	WASHER
29	6	1022157	SCREW
30	6	1022162	WASHER
31	6	1023113	SCREW
32	1	1022236	SCREW
33	1	1022770	NUT
34	2	1023051	SCREW
35	2	1021178	NUT
36	6	1022868	BLADE (RIGHT)
37	6	1022869	BLADE (LEFT)
38	2	1021655	TENSION PIN
39	3	1022984	RIVET NUT
40	3	1021070	WASHER
41	3	1022985	SCREW

CUTTERBAR & DRIVE ASSEMBLY – Opticut 260

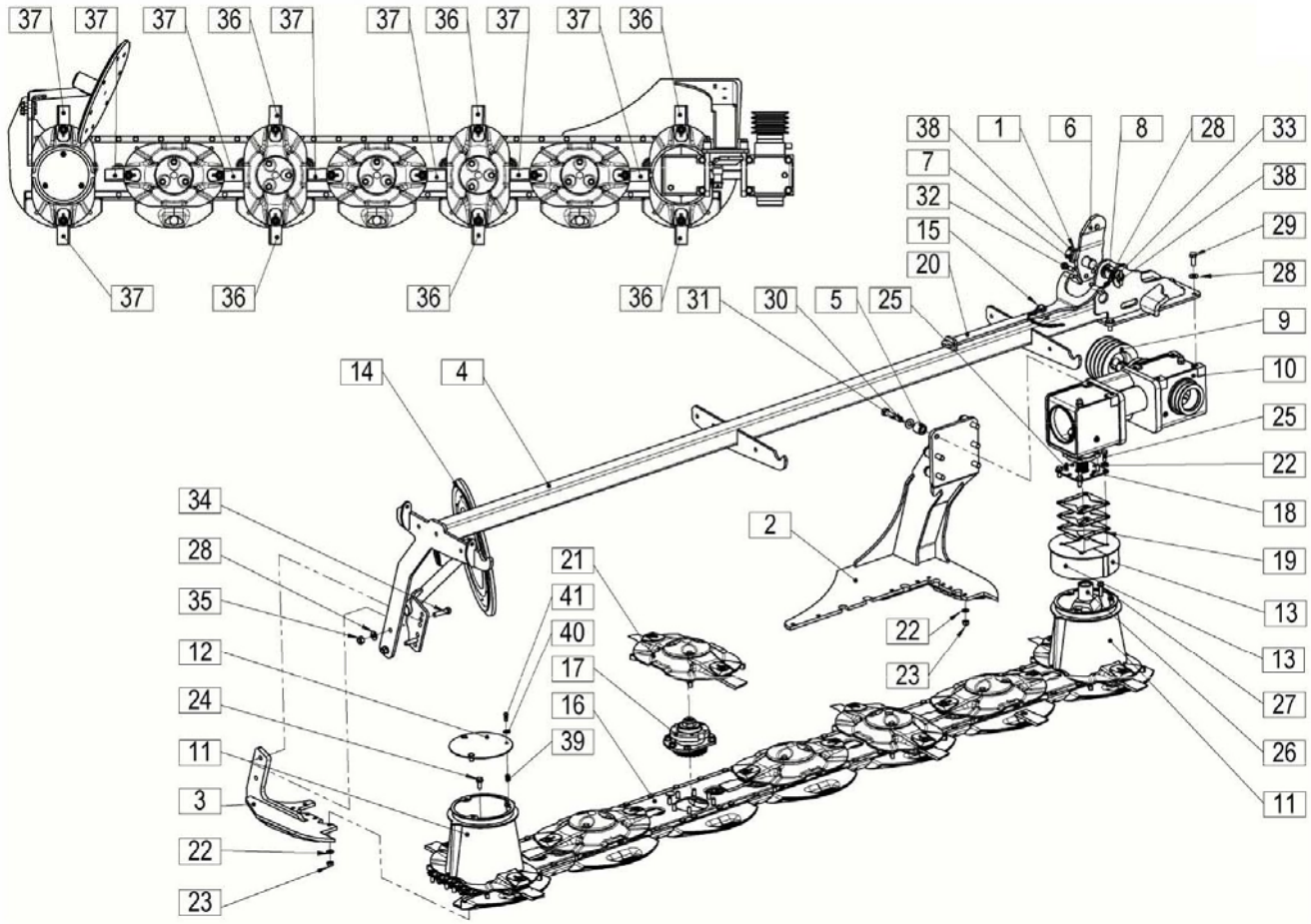


OPTICUT 260

CUTTERBAR & DRIVE ASSEMBLY – Opticut 260

REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR ASSEMBLY - Opticut 260
1	3	1023001	WASHER SET (30/42)
2	1	1023035	HEEL
3	1	1023036	HEEL RH
4	1	1023037	FRAME
5	6	1023038	SLEEVE
6	1	1023039	STRAP
7	1	1023040	PIN
8	1	1023041	SLEEVE
9	1	1023042	PULLEY ASSEMBLY
10	1	1023043	GEARBOX ASSEMBLY
11	2	1023044	CONE ASSEMBLY
12	1	1023045	COVER
13	2	1023046	CONE
14	1	1023047	SWATH DISC RH
15	1	1022871	CHAIN ASSEMBLY
16	1	1023048	CUTTERBAR ASSEMBLY
17	6	1022723	FLANGE ASSEMBLY
18	1	1022725	PLATE
19	6	1022728	WASHER
20	1	1022872	BLADE TOOL
21	4	1022866	DISC ASSEMBLY
22	16	1021067	WASHER
23	8	1021179	NUT
24	6	1022867	SCREW
25	8	1021936	SCREW
26	1	1023049	PTO SHAFT
27	6	1022737	SCREW
28	10	1021100	WASHER
29	6	1022157	SCREW
30	6	1022162	WASHER
31	6	1023050	SCREW
32	1	1022236	SCREW
33	1	1022770	NUT
34	2	1023051	SCREW
35	2	1021178	NUT
36	6	1022868	BLADE (RIGHT)
37	6	1022869	BLADE (LEFT)
38	2	1021655	TENSION PIN
39	3	1022984	RIVET NUT
40	3	1021070	WASHER
41	3	1022985	SCREW

CUTTERBAR & DRIVE ASSEMBLY – Opticut 300

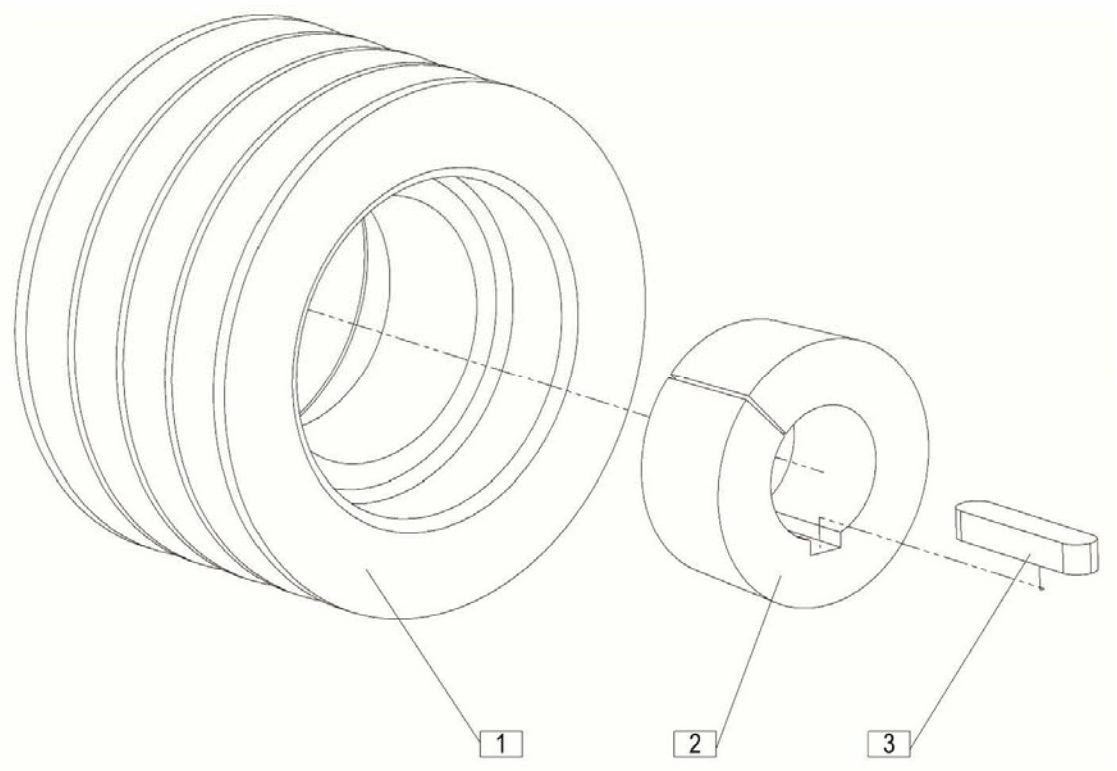


OPTICUT 300

CUTTERBAR & DRIVE ASSEMBLY – Opticut 300

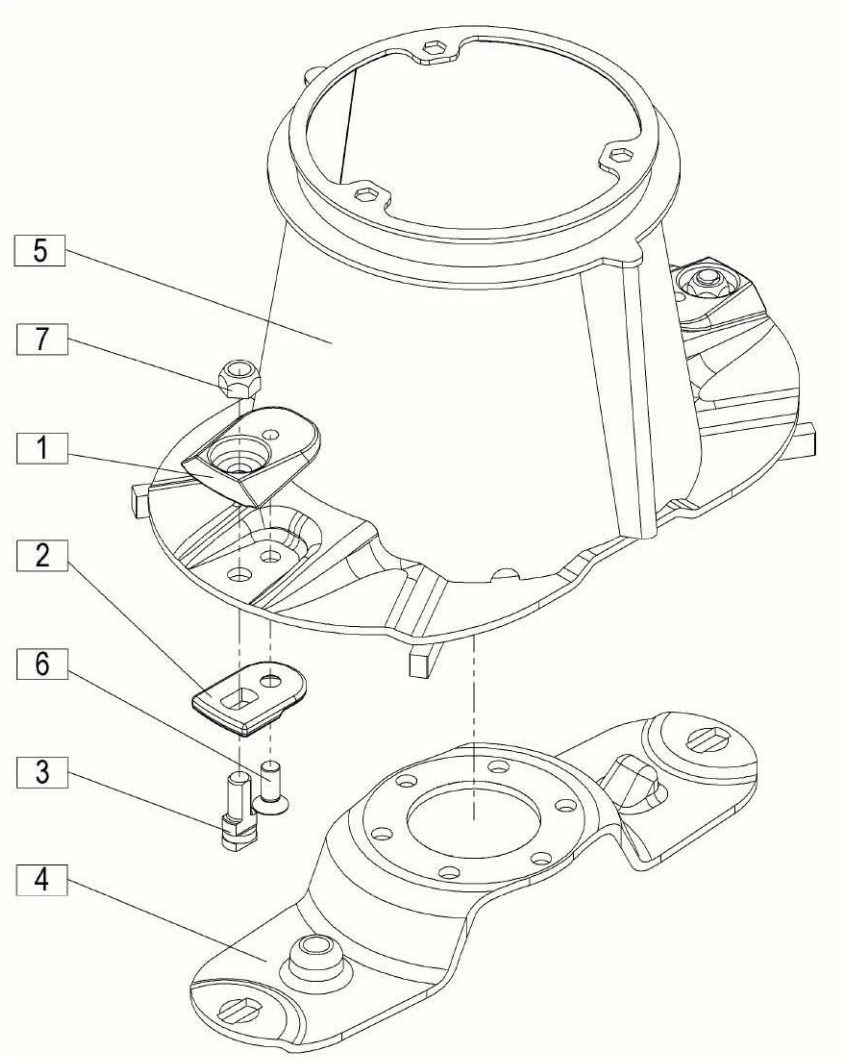
REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR ASSEMBLY - Opticut 300
1	3	1023001	WASHER SET (30/42)
2	1	1023035	HEEL
3	1	1023036	HEEL RH
4	1	1023090	FRAME
5	6	1023038	SLEEVE
6	1	1023039	STRAP
7	1	1023040	PIN
8	1	1023041	SLEEVE
9	1	1023042	PULLEY ASSEMBLY
10	1	1023043	GEARBOX ASSEMBLY
11	2	1023044	CONE ASSEMBLY
12	1	1023045	COVER
13	2	1023046	CONE
14	1	1023047	SWATH DISC RH
15	1	1022871	CHAIN ASSEMBLY
16	1	1022722	CUTTERBAR ASSEMBLY
17	7	1022723	FLANGE ASSEMBLY
18	1	1022725	PLATE
19	6	1022728	WASHER
20	1	1022872	BLADE TOOL
21	5	1022866	DISC ASSEMBLY
22	16	1021067	WASHER
23	8	1021179	NUT
24	6	1022867	SCREW
25	8	1021936	SCREW
26	1	1023049	PTO SHAFT
27	6	1022737	SCREW
28	10	1021100	WASHER
29	6	1022157	SCREW
30	6	1022162	WASHER
31	6	1023050	SCREW
32	1	1022236	SCREW
33	1	1022770	NUT
34	2	1023051	SCREW
35	2	1021178	NUT
36	6	1022868	BLADE (RIGHT)
37	8	1022869	BLADE (LEFT)
38	2	1021655	TENSION PIN
39	3	1022984	RIVET NUT
40	3	1021070	WASHER
41	3	1022985	SCREW

PULLEY ASSEMBLY



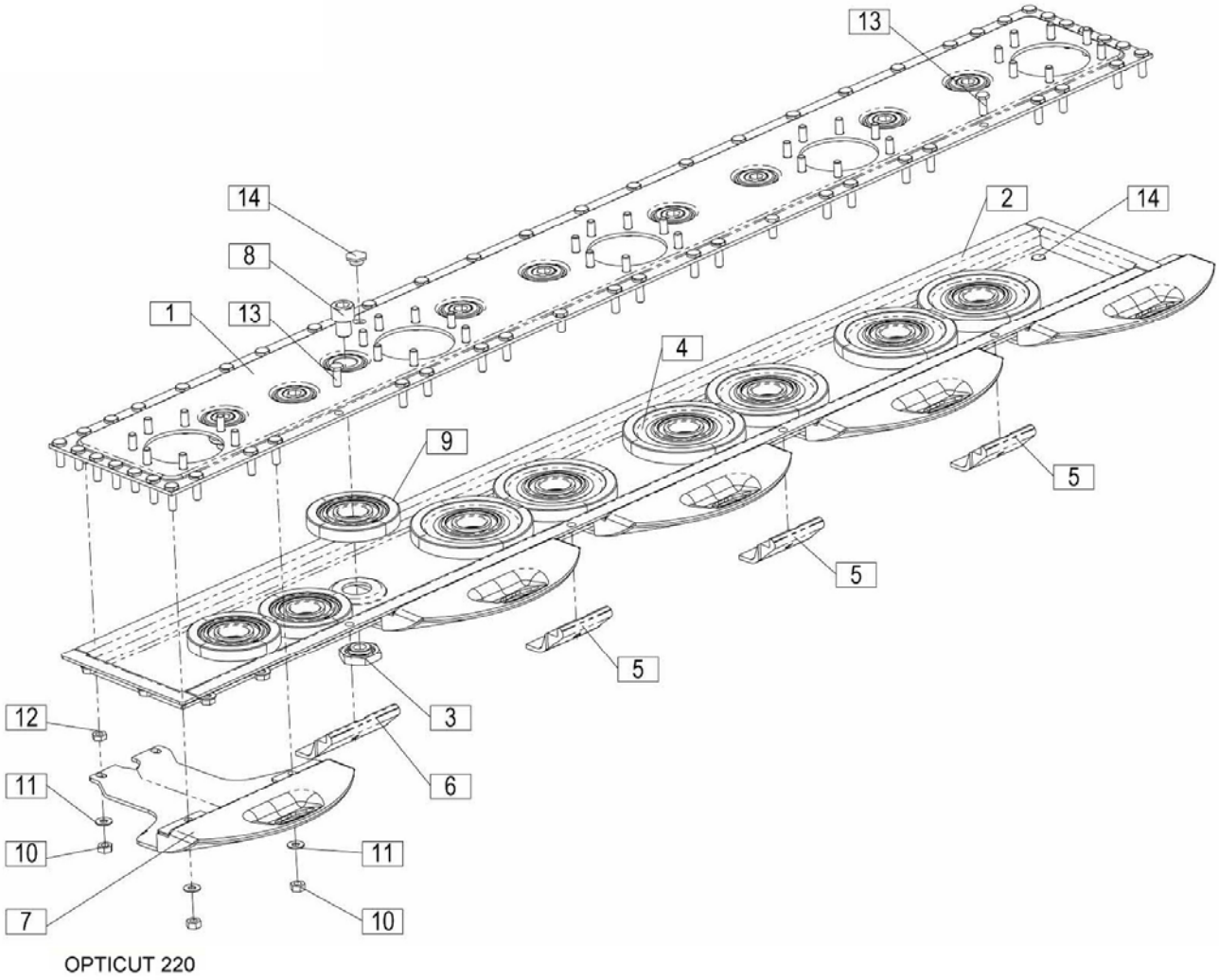
REF.	QTY.	PART No.	DESCRIPTION
			PULLEY ASSEMBLY - Opticut 260 & 300
1	1	1023052	PULLEY
2	1	1023053	TAPERLOCK
3	1	1022053	KEY

CONE ASSEMBLY



REF.	QTY.	PART No.	DESCRIPTION
			CONE ASSEMBLY - Opticut 260 & 300
1	2	1022883	PLATE - UPPER
2	2	1022884	PLATE - LOWER
3	2	1022885	SCREW
4	1	1022887	QUICK CHANGE SYSTEM ASSEMBLY
5	1	1023054	CONE ASSEMBLY
6	2	1021992	SCREW
7	2	1022770	NUT

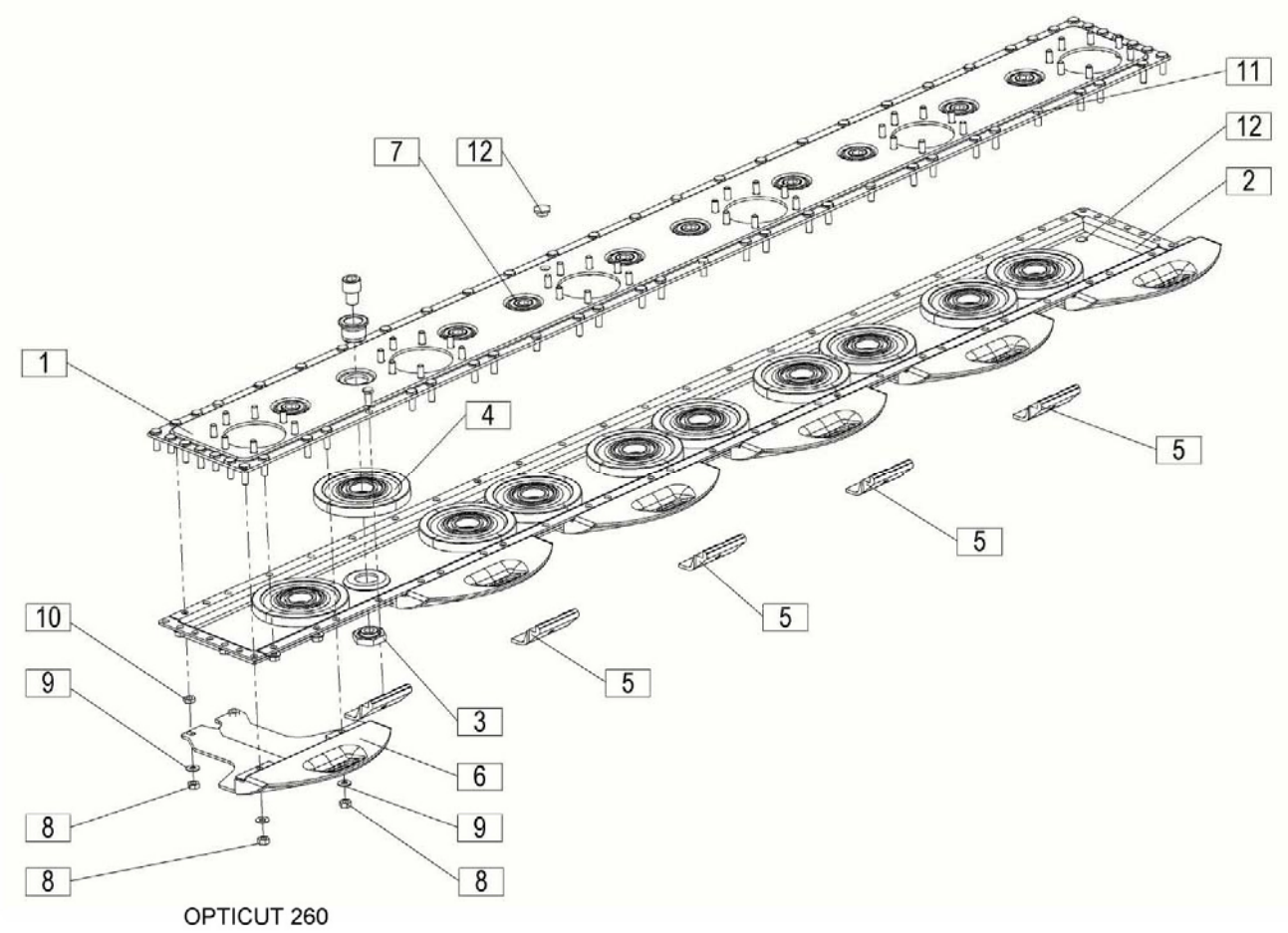
CUTTERBAR ASSEMBLY – Opticut 220



OPTICUT 220

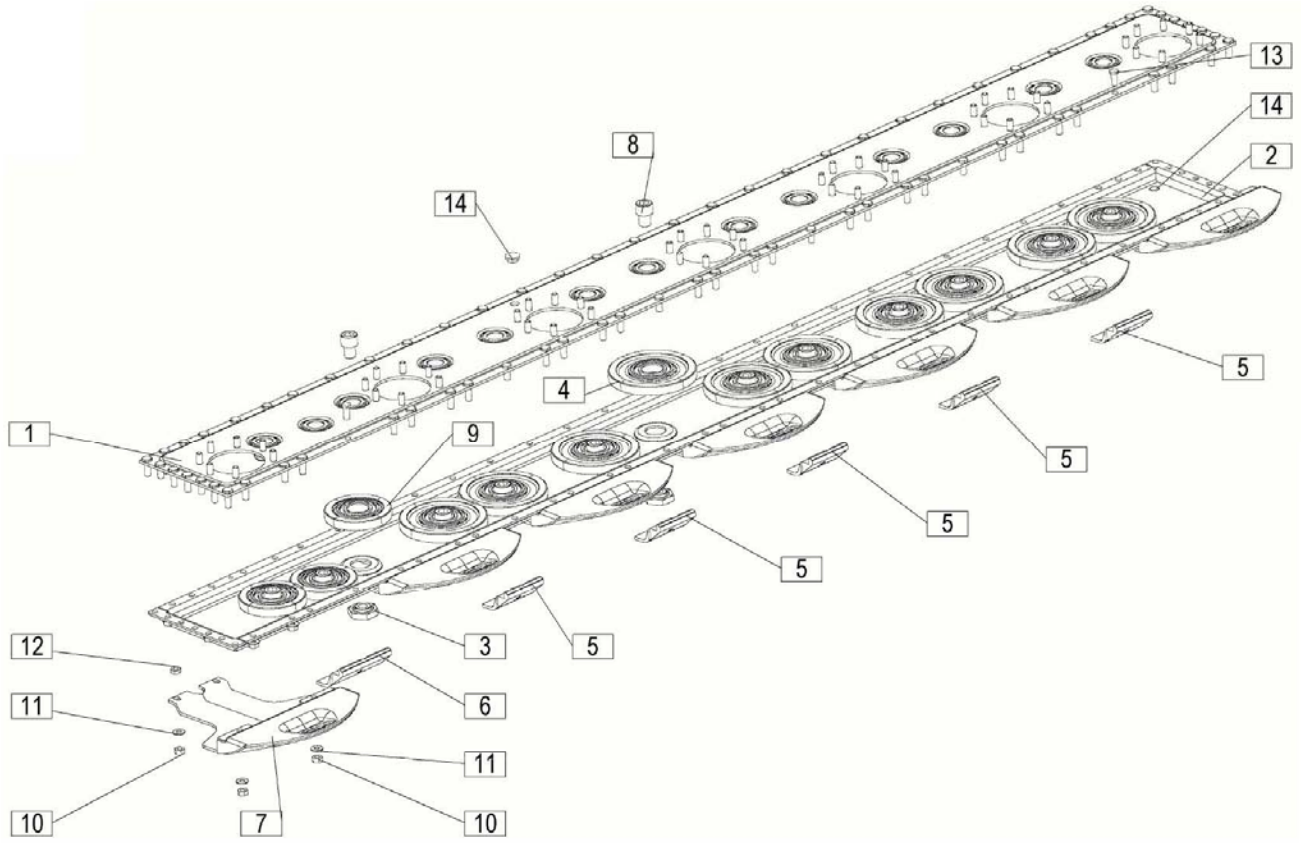
REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR - Opticut 220
1	1	1023107	CUTTERBAR LID
2	1	1023108	CUTTERBAR HOUSING
3	13	1022742	NUT
4	10	1022743	GEAR 39/4 COMPLETE
5	3	1022744	PROTECTION PIECE
6	1	1022745	PROTECTION PIECE
7	7	1022746	SLIDER
8	13	1022747	SCREW
9	3	1022748	GEAR 29/4 COMPLETE
10	81	1021179	NUT
11	61	1021067	WASHER
12	4	1022749	NUT
13	6	1021923	SCREW
14	2	1022750	SCREW

CUTTERBAR ASSEMBLY – Opticut 260



REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR - Opticut 260
1	1	1023055	CUTTERBAR LID
2	1	1023056	CUTTERBAR HOUSING
3	10	1022742	NUT
4	10	1022743	GEAR 39/4 COMPLETE
5	5	1022744	PROTECTION PIECE
6	6	1022746	SLIDER
7	10	1022747	SCREW
8	68	1021179	NUT
9	52	1021067	WASHER
10	4	1022749	NUT
11	5	1021923	SCREW
12	2	1022750	SCREW

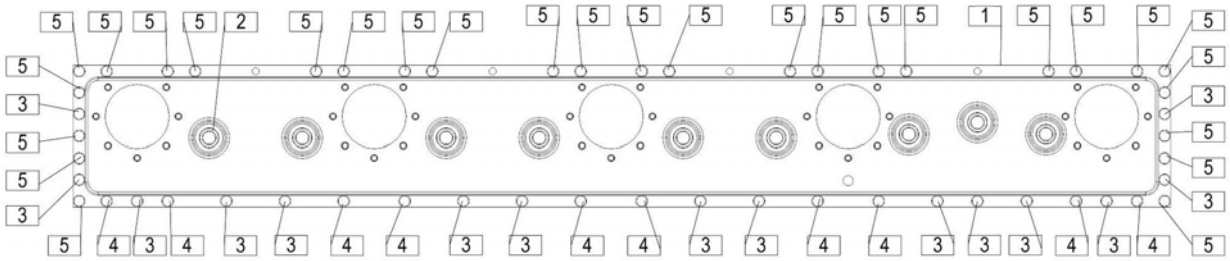
CUTTERBAR ASSEMBLY – Opticut 300



OPTICUT 300

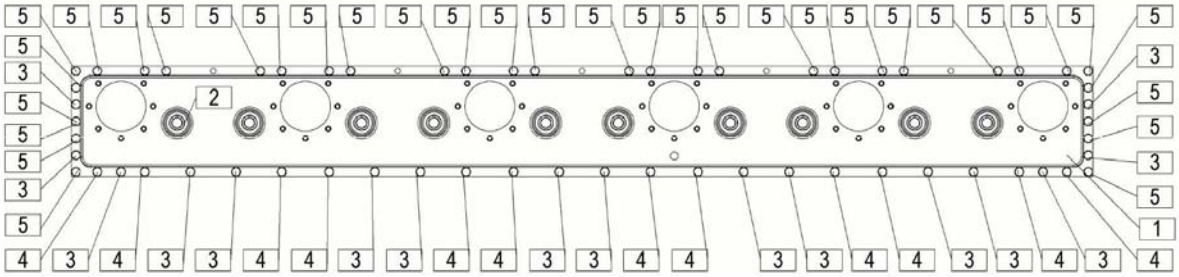
REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR - Opticut 300
1	1	1022740	CUTTERBAR LID
2	1	1022741	CUTTERBAR HOUSING
3	13	1022742	NUT
4	10	1022743	GEAR 39/4 COMPLETE
5	5	1022744	PROTECTION PIECE
6	1	1022745	PROTECTION PIECE
7	7	1022746	SLIDER
8	13	1022747	SCREW
9	3	1022748	GEAR 29/4 COMPLETE
10	81	1021179	NUT
11	61	1021067	WASHER
12	4	1022749	NUT
13	6	1021923	SCREW
14	2	1022750	SCREW

CUTTERBAR LID ASSEMBLY



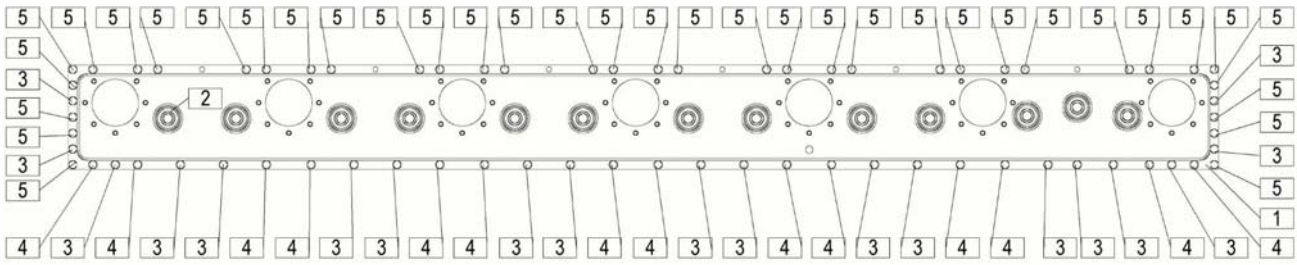
OPTICUT 220

REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR LID - Opticut 220
1	1	1023109	CUTTER BAR LID
2	10	1022752	SLEEVE
3	58	1022753	SCREW
4	12	1022754	SCREW
5	32	1022755	SCREW



OPTICUT 260

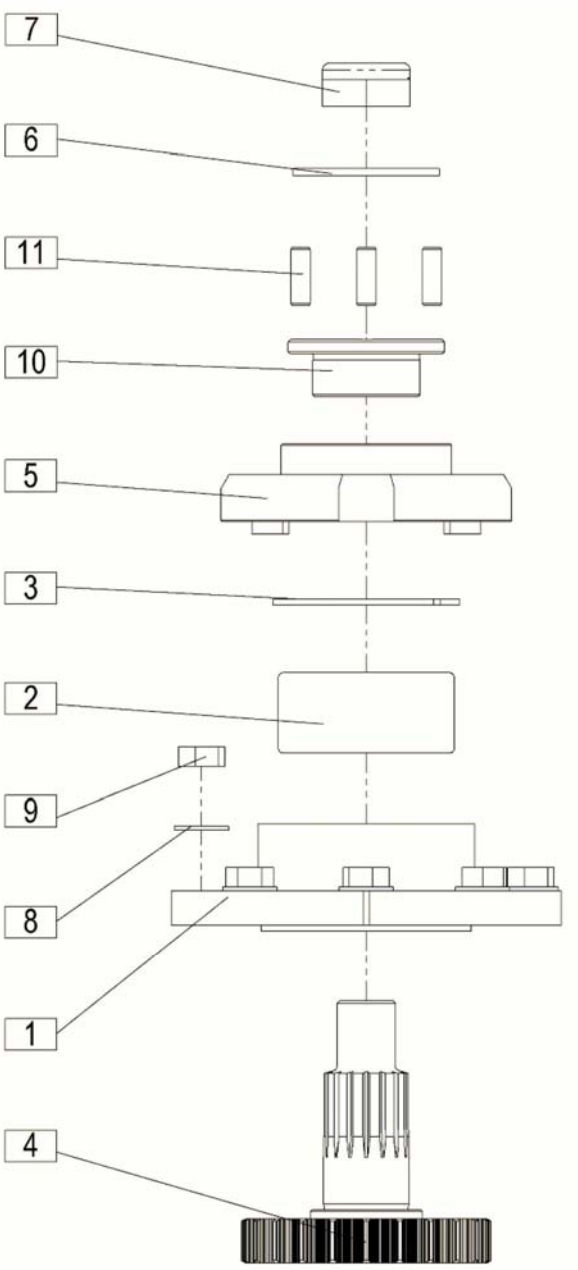
REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR LID - Opticut 260
1	1	1023057	CUTTER BAR LID
2	10	1022752	SLEEVE
3	58	1022753	SCREW
4	12	1022754	SCREW
5	32	1022755	SCREW



OPTICUT 300

REF.	QTY.	PART No.	DESCRIPTION
			CUTTERBAR LID - Opticut 300
1	1	1022571	CUTTER BAR LID
2	13	1022752	SLEEVE
3	68	1022753	SCREW
4	14	1022754	SCREW
5	36	1022755	SCREW

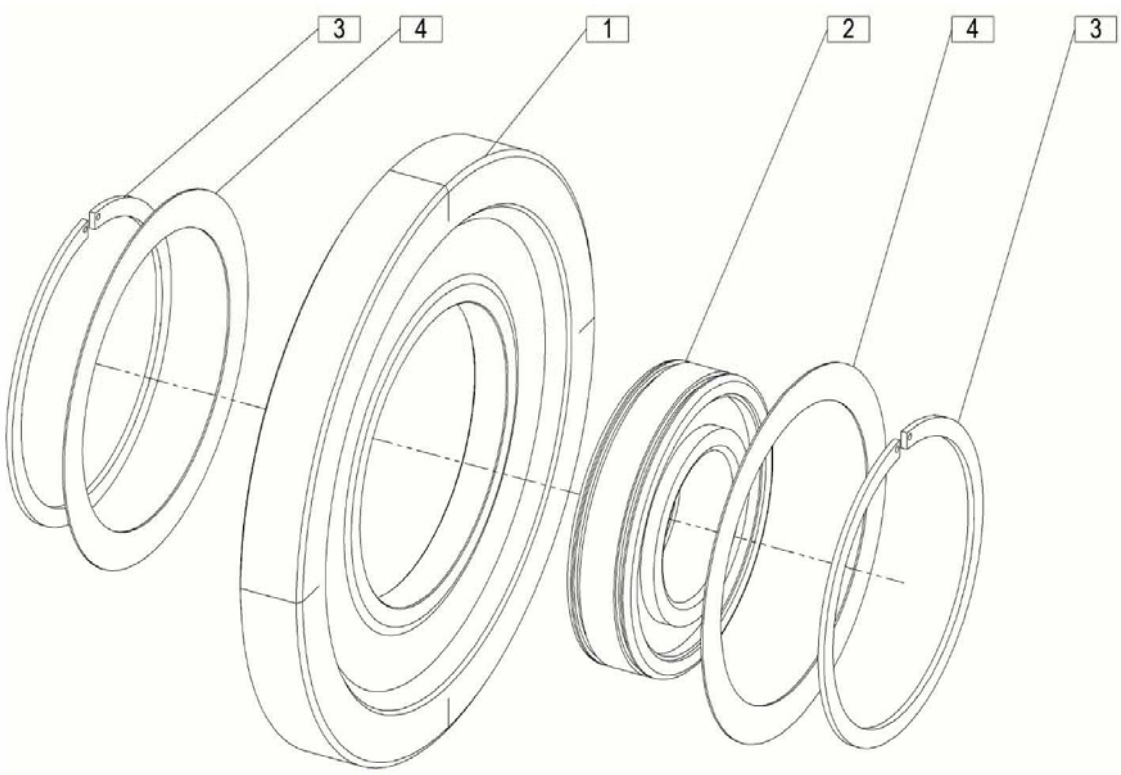
BEARING HOUSING ASSEMBLY



BEARING HOUSING ASSEMBLY

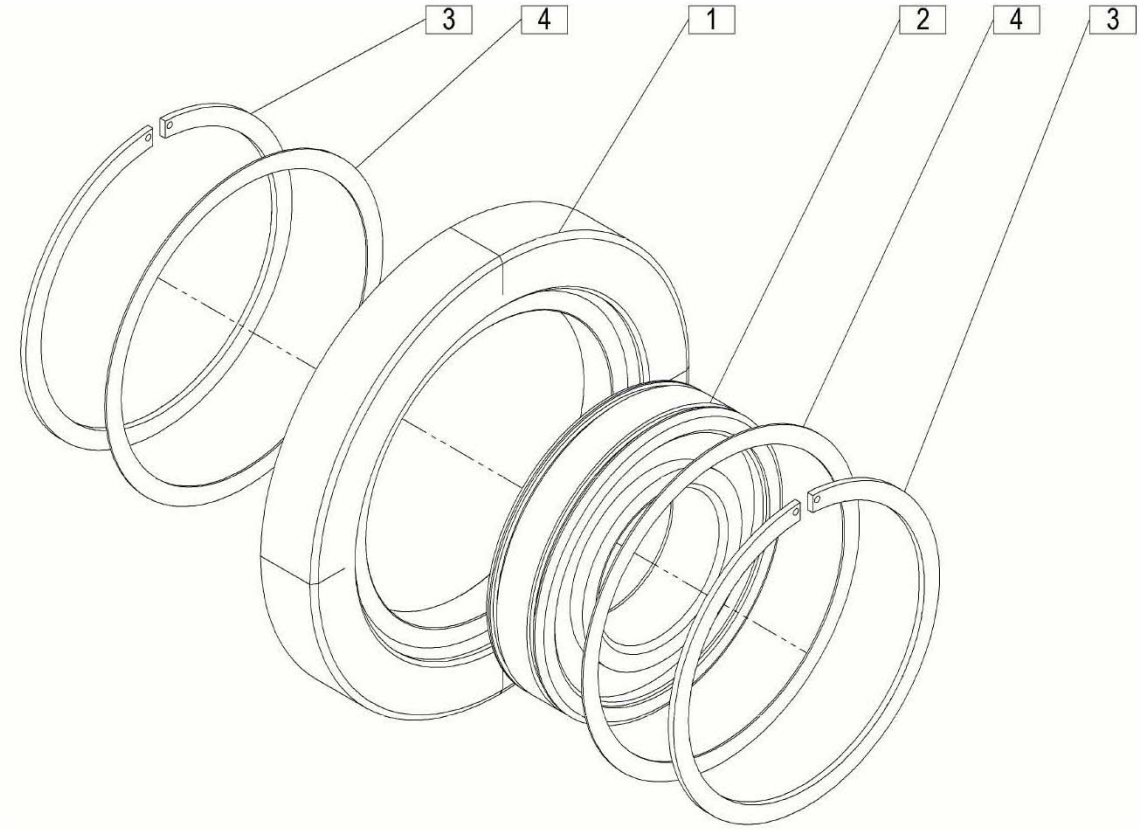
REF.	QTY.	PART No.	DESCRIPTION
			BEARING HOUSING
1	1	1022756	BEARING HOUSING
2	1	1022757	BEARING
3	1	1021126	CIRCLIP
4	1	1022759	GEAR 23/4
5	1	1022873	FLANGE
6	1	1022761	PLATE SPRING
7	1	1022762	NUT
8	7	1021067	WASHER
9	7	1021179	NUT
10	1	1022874	SLEEVE
11	4	1022875	LINCH PIN

GEAR 39/4



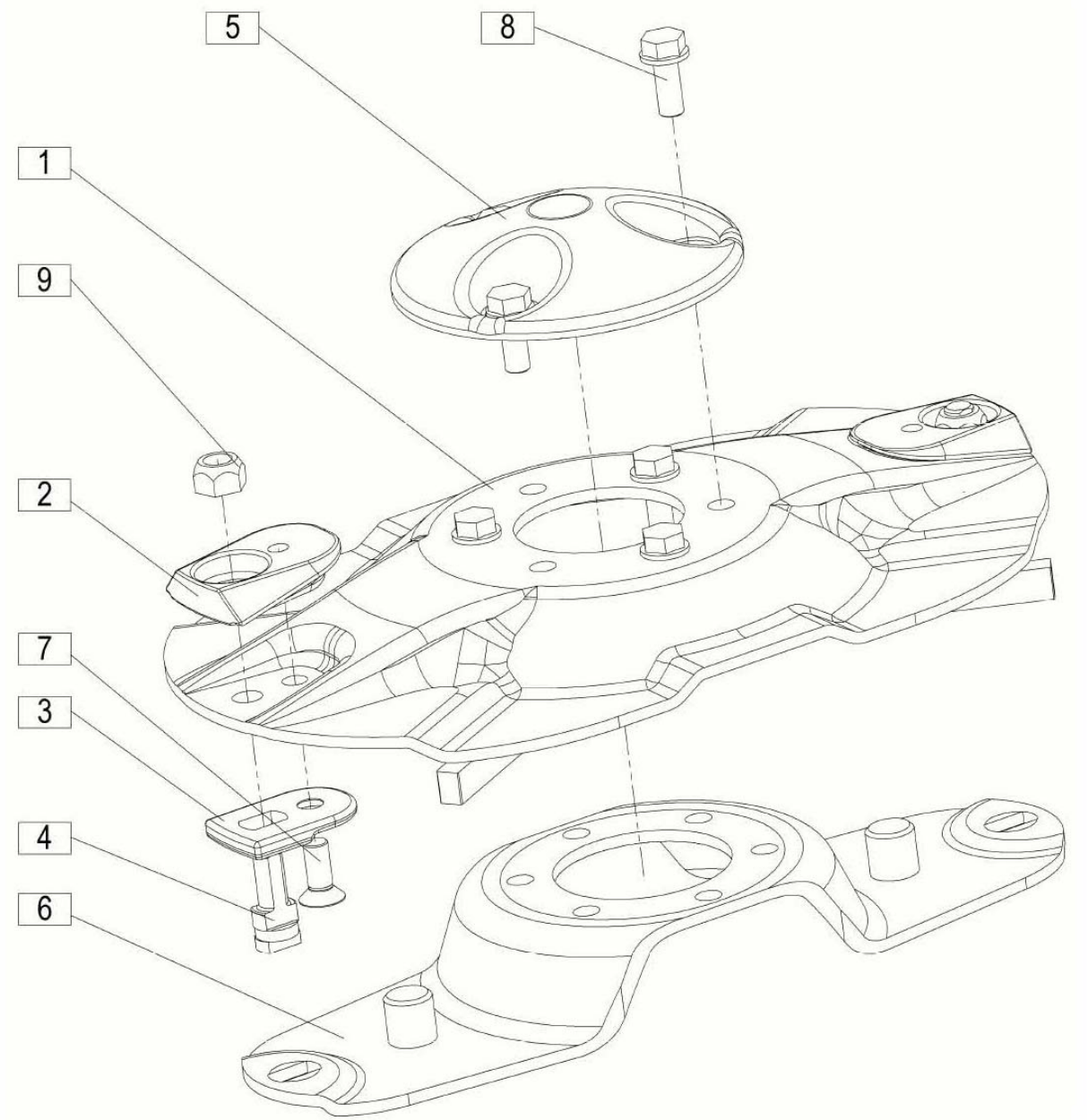
REF.	QTY.	PART No.	DESCRIPTION
			GEAR 39/4
1	1	1022880	GEAR 39/4
2	1	1022877	BEARING
3	2	1022878	RING
4	2	1022881	WASHER

GEAR 29/4



REF.	QTY.	PART No.	DESCRIPTION
			GEAR 29/4
1	1	1022876	GEAR 29/4
2	1	1022877	BEARING
3	2	1022878	RING
4	2	1022879	WASHER

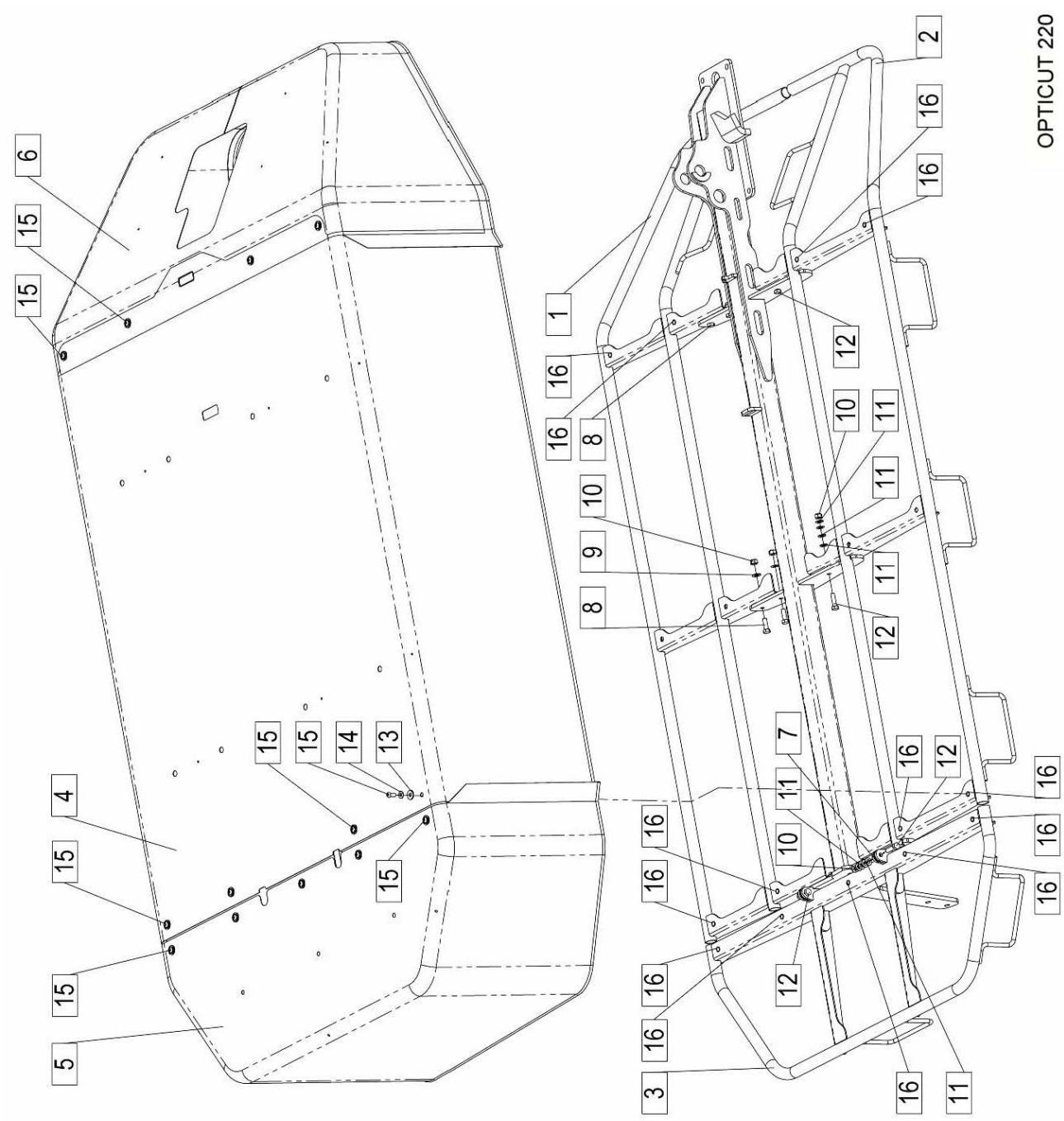
DISC ASSEMBLY



DISC ASSEMBLY

REF.	QTY.	PART No.	DESCRIPTION
			DISC ASSEMBLY - Opticut 260 & 300
1	1	1022882	DISC
2	2	1022883	PLATE - UPPER
3	2	1022884	PLATE - LOWER
4	2	1022885	SCREW
5	1	1022886	DISC LID
6	1	1022887	QUICK CHANGE SYSTEM COMPLETE
7	2	1021992	SCREW
8	6	1022867	SCREW
9	2	1022770	NUT

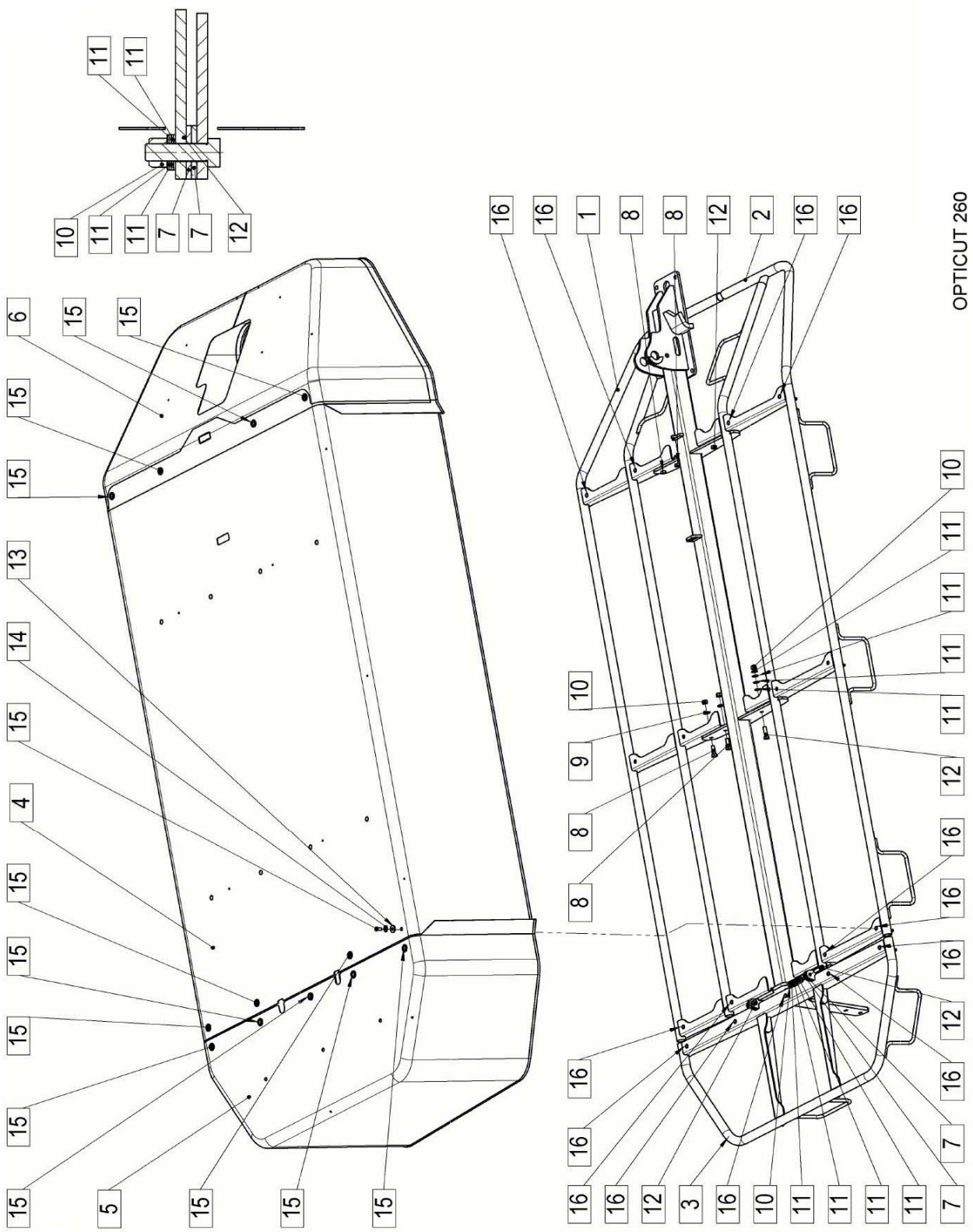
PROTECTION ASSEMBLY – Opticut 220



PROTECTION ASSEMBLY – Opticut 220

REF.	QTY.	PART No.	DESCRIPTION
			PROTECTION ASSEMBLY - Opticut 220
1	1	1023110	REAR PROTECTION FRAME
2	1	1023111	FRONT PROTECTION FRAME
3	1	1023059	OUTER PROTECTION FRAME
4	1	1023112	CENTRE CURTAIN
5	1	1023061	CURTAIN - RH
6	1	1023062	CURTAIN - LH
7	7	1023063	WASHER
8	6	1021933	SCREW
9	6	1021067	WASHER
10	11	1021829	NUT
11	20	1023064	PLATE SPRING
12	5	1021766	SCREW
13	13	1022120	WASHER
14	13	1021070	WASHER
15	13	1022985	SCREW
16	13	1022984	RIVET NUT

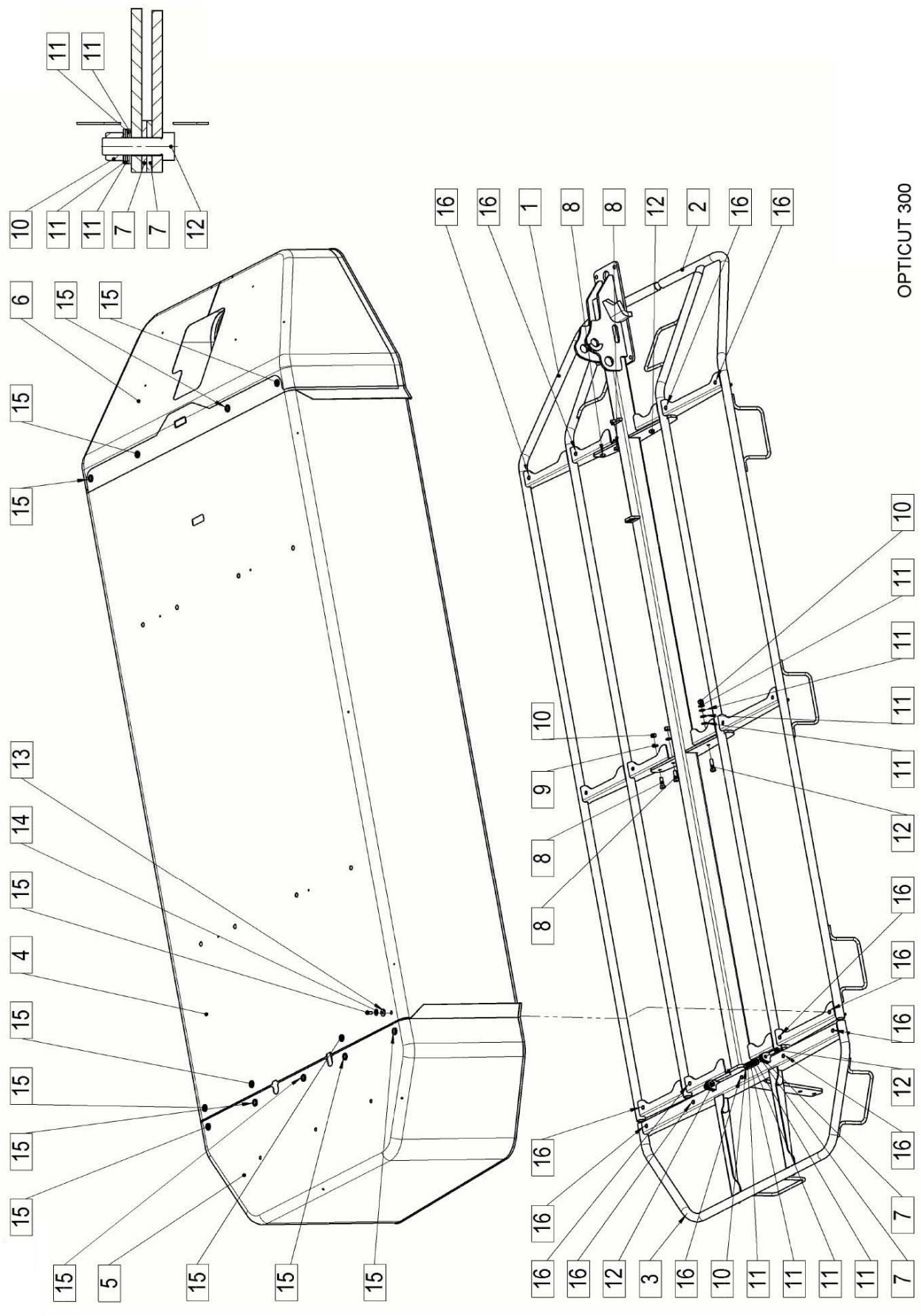
PROTECTION ASSEMBLY – Opticut 260



PROTECTION ASSEMBLY – Opticut 260

REF.	QTY.	PART No.	DESCRIPTION
			PROTECTION ASSEMBLY - Opticut 260
1	1	1023057	REAR PROTECTION FRAME
2	1	1023058	FRONT PROTECTION FRAME
3	1	1023059	OUTER PROTECTION FRAME
4	1	1023060	CENTRE CURTAIN
5	1	1023061	CURTAIN - RH
6	1	1023062	CURTAIN - LH
7	7	1023063	WASHER
8	6	1021933	SCREW
9	6	1021067	WASHER
10	11	1021829	NUT
11	20	1023064	PLATE SPRING
12	5	1021766	SCREW
13	13	1022120	WASHER
14	13	1021070	WASHER
15	13	1022985	SCREW
16	13	1022984	RIVET NUT

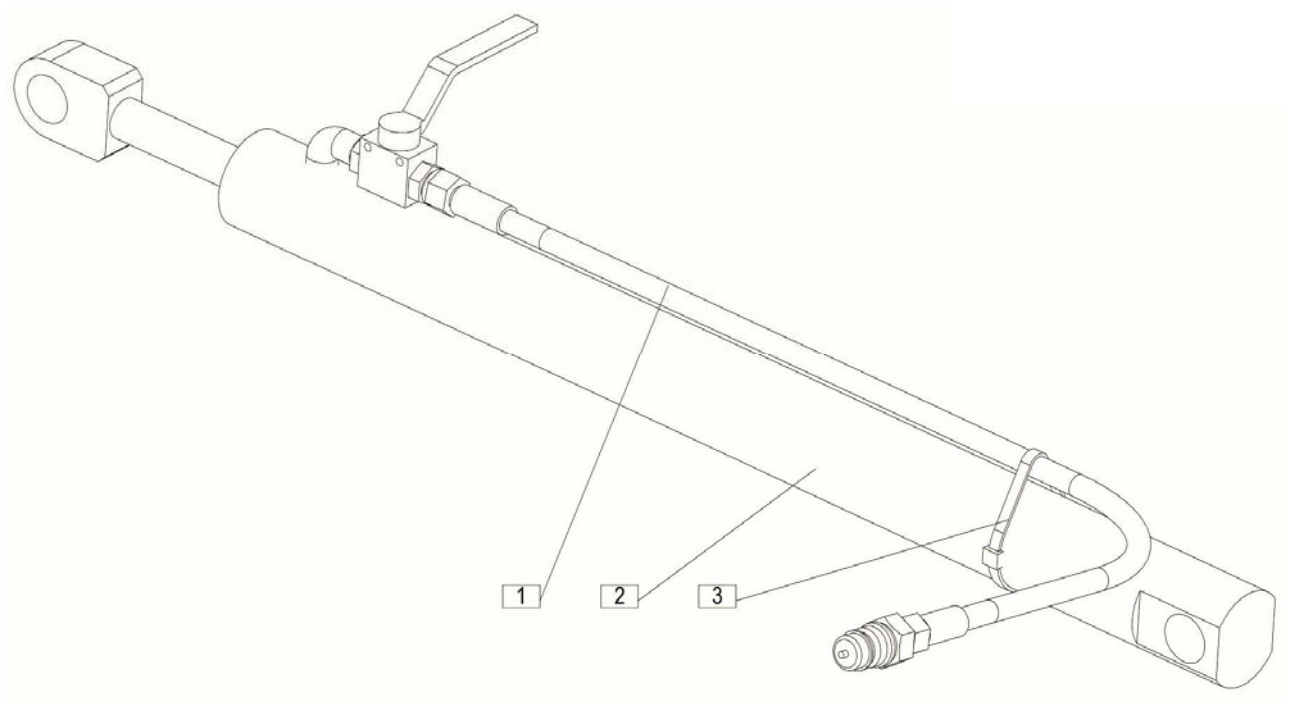
PROTECTION ASSEMBLY – Opticut 300



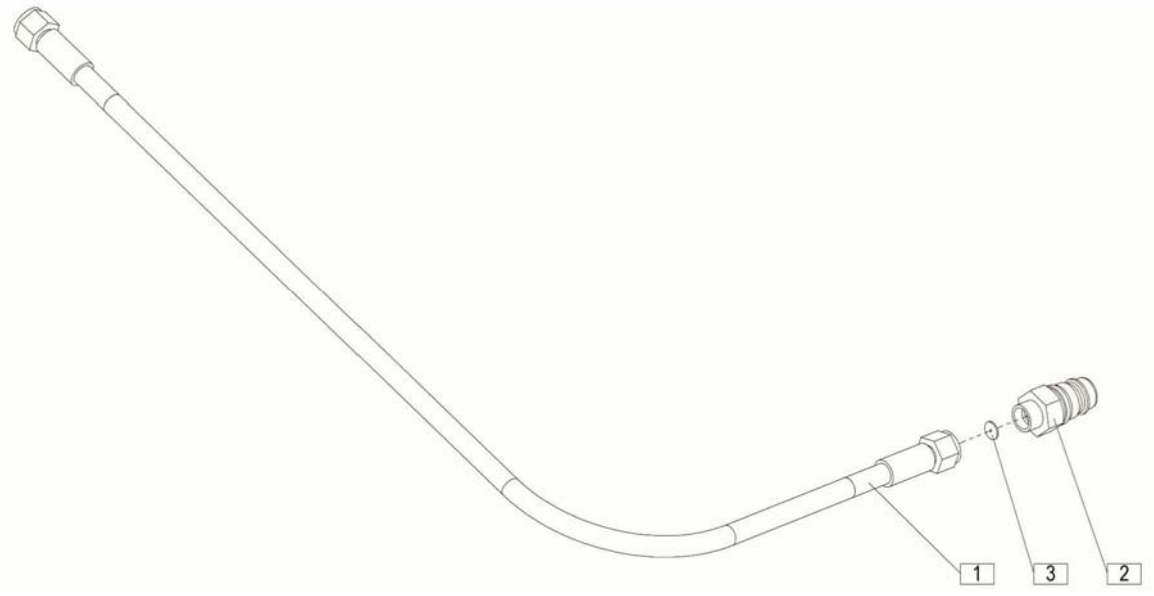
PROTECTION ASSEMBLY – Opticut 300

REF.	QTY.	PART No.	DESCRIPTION
			PROTECTION ASSEMBLY - Opticut 300
1	1	1023091	REAR PROTECTION FRAME
2	1	1023092	FRONT PROTECTION FRAME
3	1	1023059	OUTER PROTECTION FRAME
4	1	1023093	CENTRE CURTAIN
5	1	1023061	CURTAIN - RH
6	1	1023062	CURTAIN - LH
7	7	1023063	WASHER
8	6	1021933	SCREW
9	6	1021067	WASHER
10	11	1021829	NUT
11	20	1023064	PLATE SPRING
12	5	1021766	SCREW
13	13	1022120	WASHER
14	13	1021070	WASHER
15	13	1022985	SCREW
16	13	1022984	RIVET NUT

HYDRAULIC RAM & HOSE ASSEMBLY

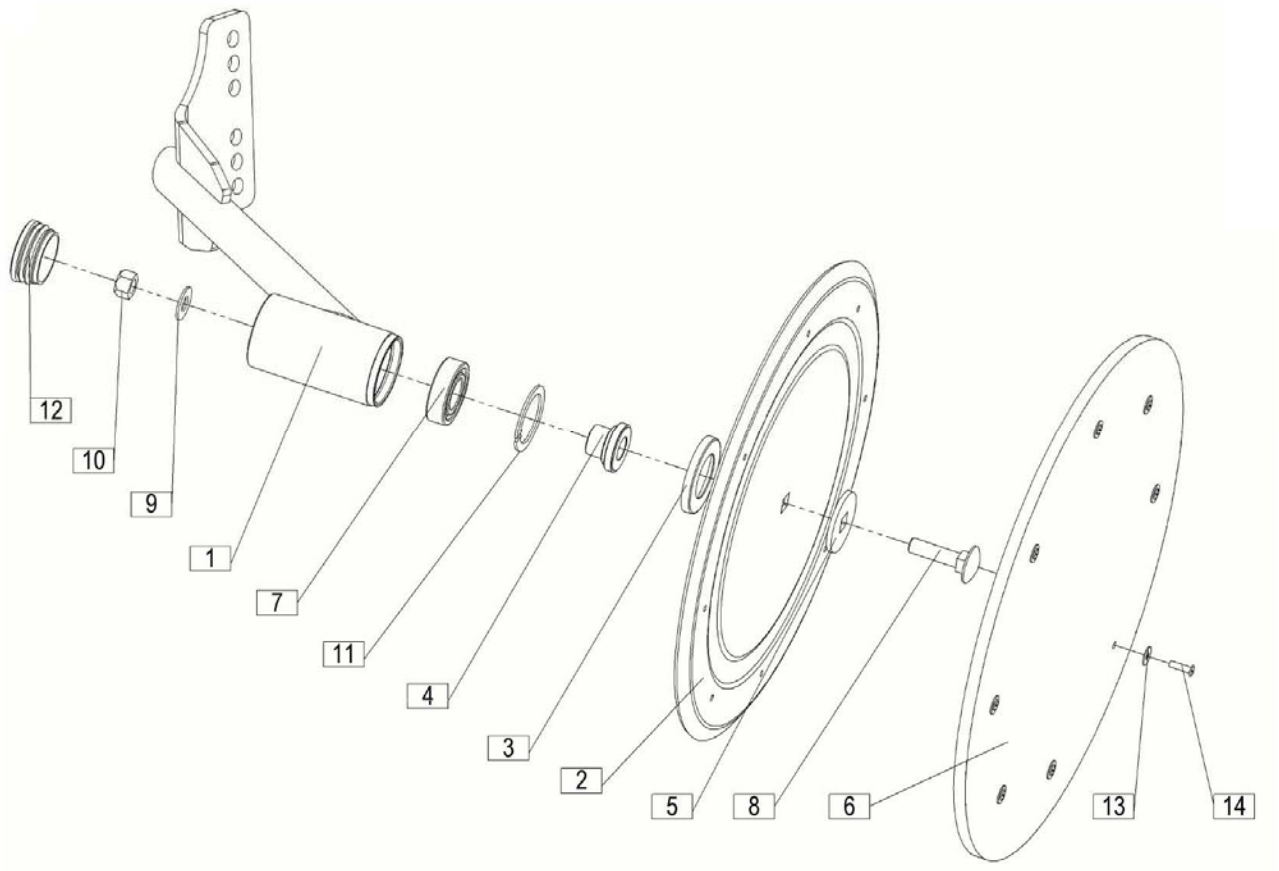


REF.	QTY.	PART No.	DESCRIPTION
			RAM ASSEMBLY - Opticut 260 & 300
1	1	1023065	HOSE ASSEMBLY
2	1	1023066	HYDRAULIC RAM
3	1	1023067	CABLE TIE



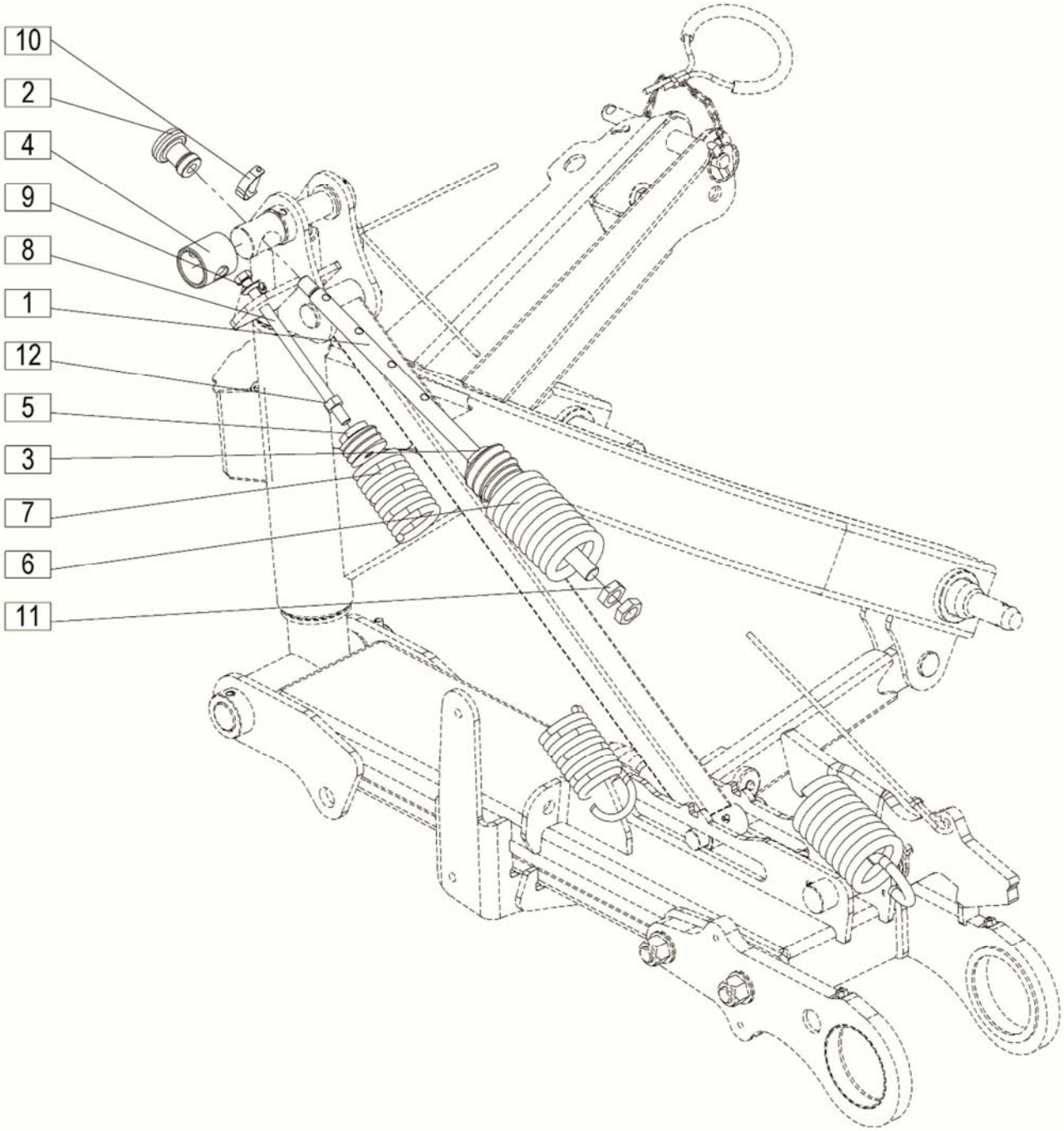
REF.	QTY.	PART No.	DESCRIPTION
			HOSE ASSEMBLY - Opticut 260 & 300
1	1	1022790	HOSE
2	1	1022791	ADAPTOR
3	1	1023068	RESTRICTOR

SWATH DISC ASSEMBLY



REF.	QTY.	PART No.	DESCRIPTION
			SWATH DISC ASSEMBLY - Opticut 260 & 300
1	1	1023079	SWATH DISC RH COMPLETE
2	1	1023080	DISC
3	1	1023081	BEARING PROTECTION
4	1	1023082	BEARING COVER
5	1	1023083	WASHER
6	1	1023084	RUBBER DISC
7	1	1023085	BEARING
8	1	1023086	SCREW
9	1	1021100	WASHER
10	1	1021178	NUT
11	1	1023086	CIRCLIP
12	1	1023087	PLUG
13	8	1021191	WASHER
14	8	1023088	RIVET

SUSPENSION ASSEMBLY



SUSPENSION ASSEMBLY

REF.	QTY.	PART No.	DESCRIPTION
			SUSPENSION ASSEMBLY - Opticut 260 & 300
1	1	1023069	SPRING BAR
2	1	1023070	HANDLE
3	1	1023071	SPRING HOLDER
4	1	1023072	SLEEVE
5	1	1023073	SPRING HOLDER
6	1	1023074	SPRING
7	1	1023075	SPRING
8	1	1023076	SCREW
9	1	1023077	WASHER
10	1	1023078	LINCH PIN
11	2	1022428	NUT
12	1	1021169	NUT