Spearhead

Q15S, Q18S & Q21S
Flail Mowers

6th Edition – July 2014
Part No. 8999014

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.

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

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

Product .....

Product Code.....

Serial No.....

Type.....

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

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

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

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

Signed

(On behalf of Spearhead Machinery Ltd)

Status General Manager

Date .....

Contents

Safety

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

Introduction

The Spearhead Q15S, Q18S and Q21S are robust high capacity flail mowers that are easy to operate and maintain, but to ensure trouble-free operation this manual should be carefully studied.

Safety First

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

Tractor Requirements

- Spearhead strongly recommends using a 25 - 50hp tractor with **CATEGORY 1** rear linkage.
- Minimum tractor weight including ballast must be 2500kg.
- PTO must be independent live drive to enable continuous PTO drive even when tractor clutch is pressed down.
- Before hitching, ensure position control is selected. Do not attempt to hitch in draft control.
- Check chains and stabilizers must be in good working order to hold the machine firmly. Do not operate without checking that chains and stabilizers are tight.
- Spearhead particularly recommend ‘turn buckle’ type check chains
- Set linkage lift rods to an equal length.

Attaching To The Tractor

Fit the machine to the tractor linkage in the standard way, ensuring the correct match of linkage (**CAT 1 pins**). Check that the top link is in good order and threads are well lubricated, (as fine adjustment to height of cut is regulated by the top link). Use stabilizers to take any free movement out of lower link arms. Before fitting the machine to the tractor linkage you should ensure there is sufficient front weight to ensure the front wheels are always in contact with the ground. This is most important for safe transport and stability when turning on slopes.

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

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

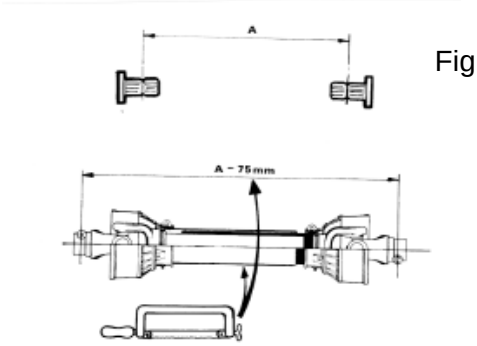
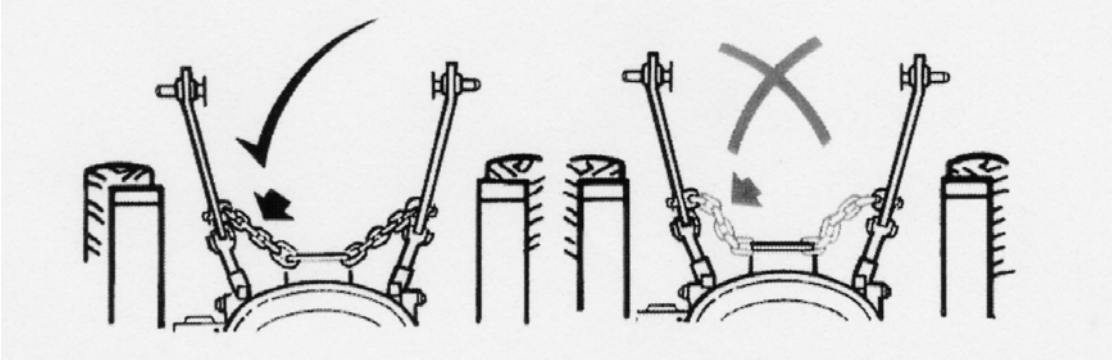


Fig 2

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

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



Warning

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

Setting Up & Adjustment

Height Adjustment

To achieve major adjustment to height of cut; reposition the two side plates attached to the rear roller. A finer adjustment to cut can be achieved by lengthening or shortening the top link of the tractor (Fig. 3).

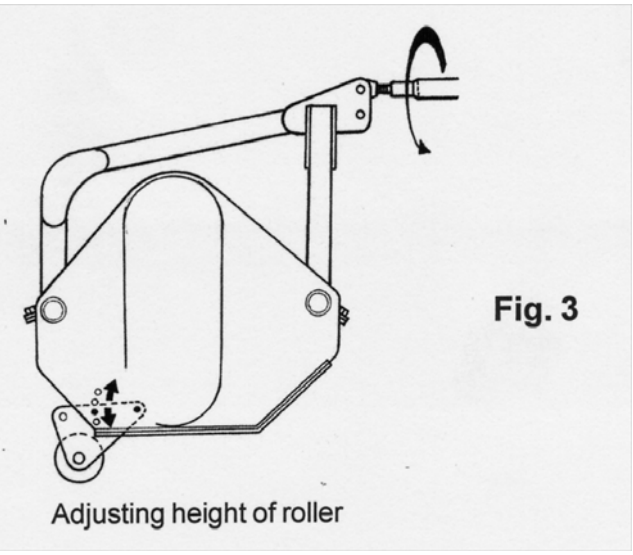


Fig. 3

Adjusting height of roller

Mechanical Offset

The linkage 'A' frame (Fig. 4) can be slid along the tube to obtain numerous settings from central to fully offset by simply slackening the clamping bolts, position the 'A' frame and re-tighten the bolts. Remember to regularly check that these bolts are tight.

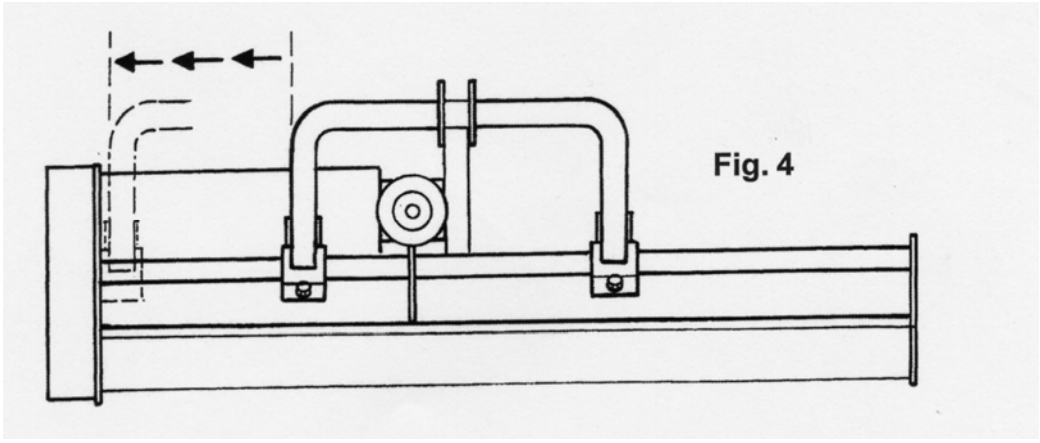


Fig. 4

Front Linkage Mounting

Simply remove the clamping bolts and revolve the 'A' frame through 180 degrees so the linkage mounting pins are facing the rear of the mower. It is recommended the slotted hole in the top link bracket is used when mounting onto the front linkage, this allows the front of the mower to float over obstacles more easily.

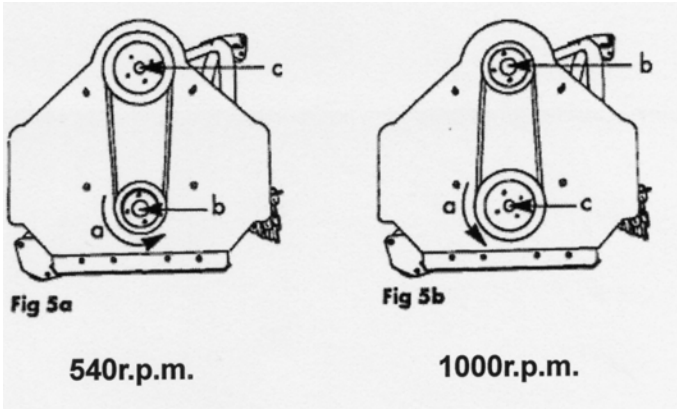
The tractor front PTO has no standard rotation so it may be necessary to rotate the gearbox through 180 degrees, to compensate for this irregularity. For most conditions it is important the rotor rotates as indicated in Fig. 5a.

540 or 1000 RPM

If the tractor has only 1000 rpm. PTO output speed, it is possible to compensate by swapping the top drive pulley onto the rotor and rotor pulley to the top drive shaft i.e. smaller pulley driving the larger pulley will act as a reducer (Fig. 5b). ***Never operate the PTO at 1000 rpm with the larger pulley driving the smaller rotor pulley.*** This will drive the rotor at higher speed and will result in severe damage to the machine.

Fig. 5a - position of pulleys for 540rpm.
Fig. 5b - position of pulleys for 1000rpm

A. Rotation Anti-Clockwise
B. Shaft Pulley 150mm
C. Shaft Pulley 200mm



Operation

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

When in work, lower the machine to the ground carrying all its weight on the rear roller, allowing the machine to follow the contours of the ground. Select a sensible forward speed bearing in mind the density of growth, the terrain, and the available horsepower, taking extra care when turning, particularly on slopes. When turning it is not necessary to lift the machine off the ground but instead allow sufficient room to turn in a large radius. The machine only needs to be raised when turning a tight corner, or reversing over dense undergrowth.

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

When cutting in extreme conditions or when small stumps, stones and other such solid objects are likely to be found it is recommended the operator reduces the engine revs to allow the flails to pivot more easily when striking solid objects, and proceed with caution.

Rotor Care

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

Always replace bolts and nuts when replacing flails

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

Never operate with bolts loose or flails missing.

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

Never engage rotor at high PTO speeds.

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

Warning

Rotor is balanced to be run at PTO speed, do not operate above or below this speed.

Warning

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

Servicing & Maintenance

Gearbox

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

Warning

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

Warning

It is imperative the grub screws are checked on the taper locks (once bedded in, locative glue may prove useful).

Warning

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

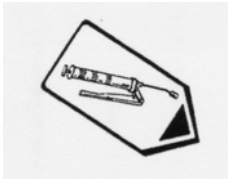
Flail Rotor (Daily)

- Grease all bearings daily.
- Check there is no wrapping of string, plastic, grass or other debris on rotor shaft and rear roller bearing.
- Check the condition of flails and ensure all retaining bolts are tight. When flails are replaced, care must be taken to maintain balance of the rotor shaft, do not change to a different type.
- Check flail retaining bolt and nut for tightness.
- Never operate with any flails missing. This will cause severe vibration and lead to rapid bearing wear and quickly cause the hood to crack.
- Blunt flails leave an untidy finish and absorb excessive power, when re-sharpening always wear protective clothing and goggles.

- When flails are showing severe wear, damage or cracking, they must be replaced immediately. Never attempt to weld the flails, as this will make them very brittle, thus extremely dangerous. Do not take risks with the cutting flails, if in doubt replace.
- When replacing flails always replace bolts and nuts for new.
- Regularly check that all rotor-bearing bolts are tight.
- It is imperative the grub screws are checked on the taper locks (once bedded in locative glue may prove useful).

Greasing

Daily grease all points shown below.



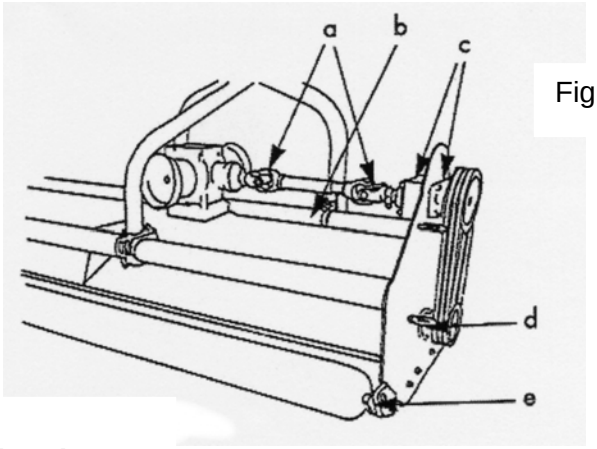
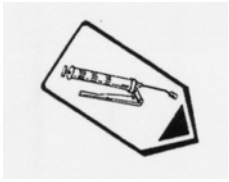


Fig 6

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

Warning

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



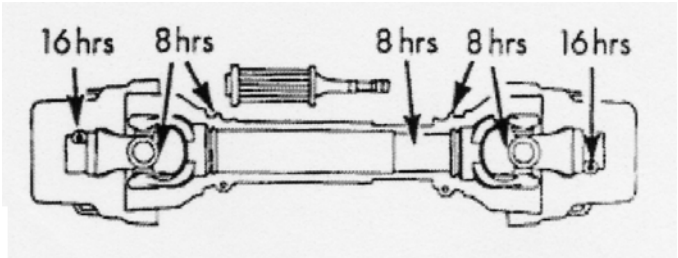


Fig 7

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

- Check the condition of drive belts, ensuring they are aligned and properly tensioned to avoid any unnecessary belt wear.
- Remove both guards for access when tensioning belts, ensure belts are running in line after adjustment.
- Check there is no wrapping of string, plastic, grass or other debris on rear roller.

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

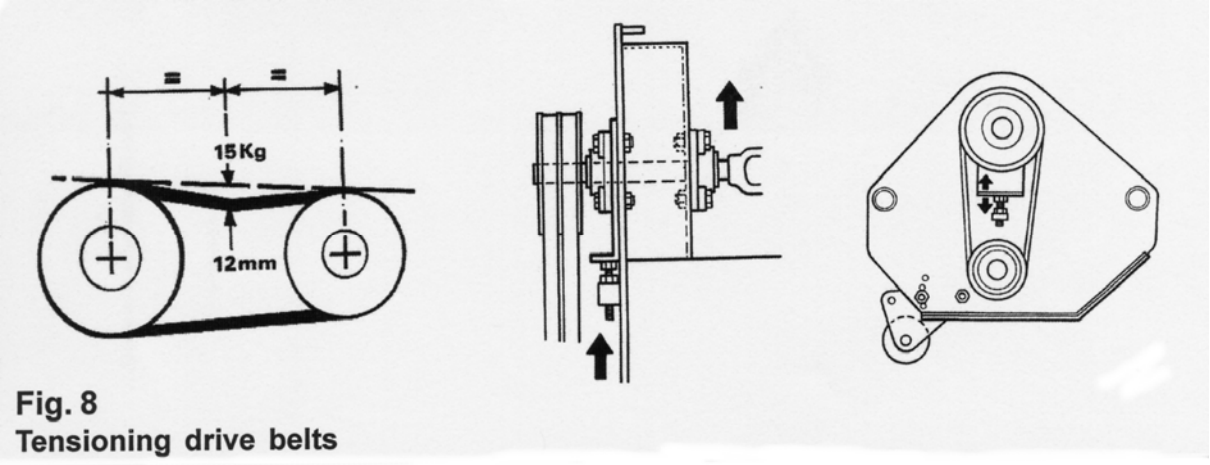


Fig. 8
Tensioning drive belts

Skids

When operating on abrasive soils, particularly in stubbles and similar conditions with thin ground cover, excessive skid wear may be expected. To provide extra protection and to prolong life of the skids, special hard facing rods can be used.

Storage

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

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

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

Torque Settings

The torque figures given are recommended maximum settings only

Size:	Tensile strength:	Description:	Torque setting: Nm.
M8	12.9	Pulley clamps	45
M10	8.8	General fasteners	65
M12	8.8	General fasteners	114
M16	8.8	Roller plate bolts	280
M12	10.9	Flail bolts	100
M24	8.8	Head stock bolts	950

Troubleshooting

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

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

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

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

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

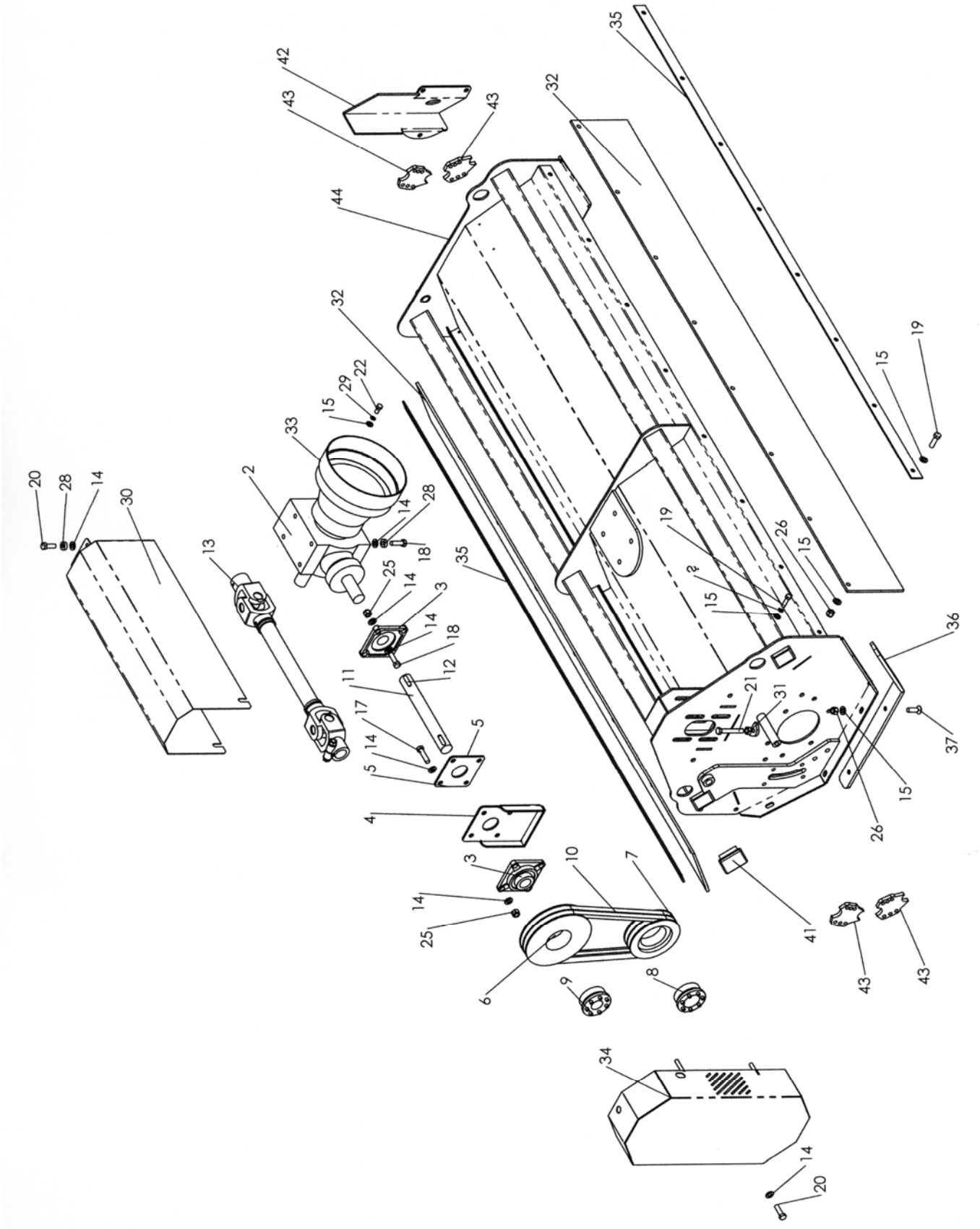
Important Note

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

Key:

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

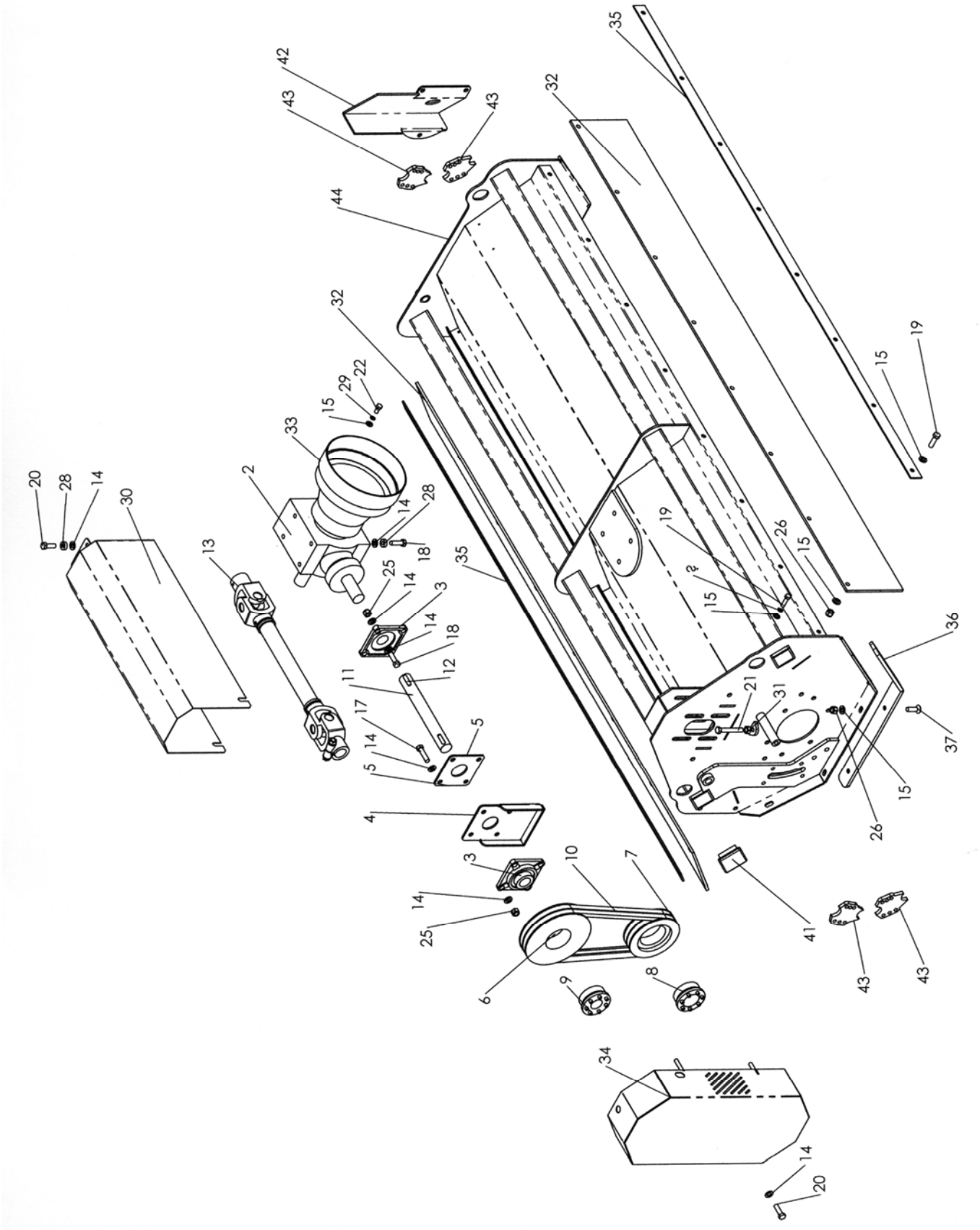
Main Body Assembly



Main Body Assembly

REF. NO	PART NO.	DESCRIPTION
1	1771532B	1.5M MAIN BODY
	1771538B	1.8M MAIN BODY
	1771584B	2.1M MAIN BODY
2	5770010	GEARBOX
3	4770860EC	BEARING
4	1771513	TENSIONED BRACKET
5	1771520	BACKING PLATE
6	4770926	PULLEY 200MM
7	4770927	PULLEY 150MM
8	4770922	CLAMPING ELEMENT
9	4770923	CLAMPING ELEMENT
10	4770870	DRIVE BELT
11	1772211	LAY SHAFT
12	4772229	KEY
13	5770066	CROSS SHAFT 1.5 & 1.8M
	5770115	CROSS SHAFT 2.1M
14	2770436	WASHER
15	2770434	WASHER
17	2770419	BOLT
18	2770443	BOLT
19	2770396	SCREW
20	2770535	SCREW
21	2770393	BOLT
22	2770418	SCREW
23		
24	2772283	BOLT
25	2770417	NUT
26	2770412	NUT
28	2770442	WASHER
29	2770469	SPRING WASHER
30	1771511A	CROSS SHAFT GUARD 1.5 & 1.8M
	1771511L	CROSS SHAFT GUARD 2.1M
31	2770536	NUT
32	8550130	RUBBER FLAP 1.5M
	8400205	RUBBER FLAP 1.8M
	8400209	RUBBER FLAP 2.1M
33	5770107	GUARD
34	1771514C	BELT GUARD
35	1771534	RETAINING STRIP 1.5M

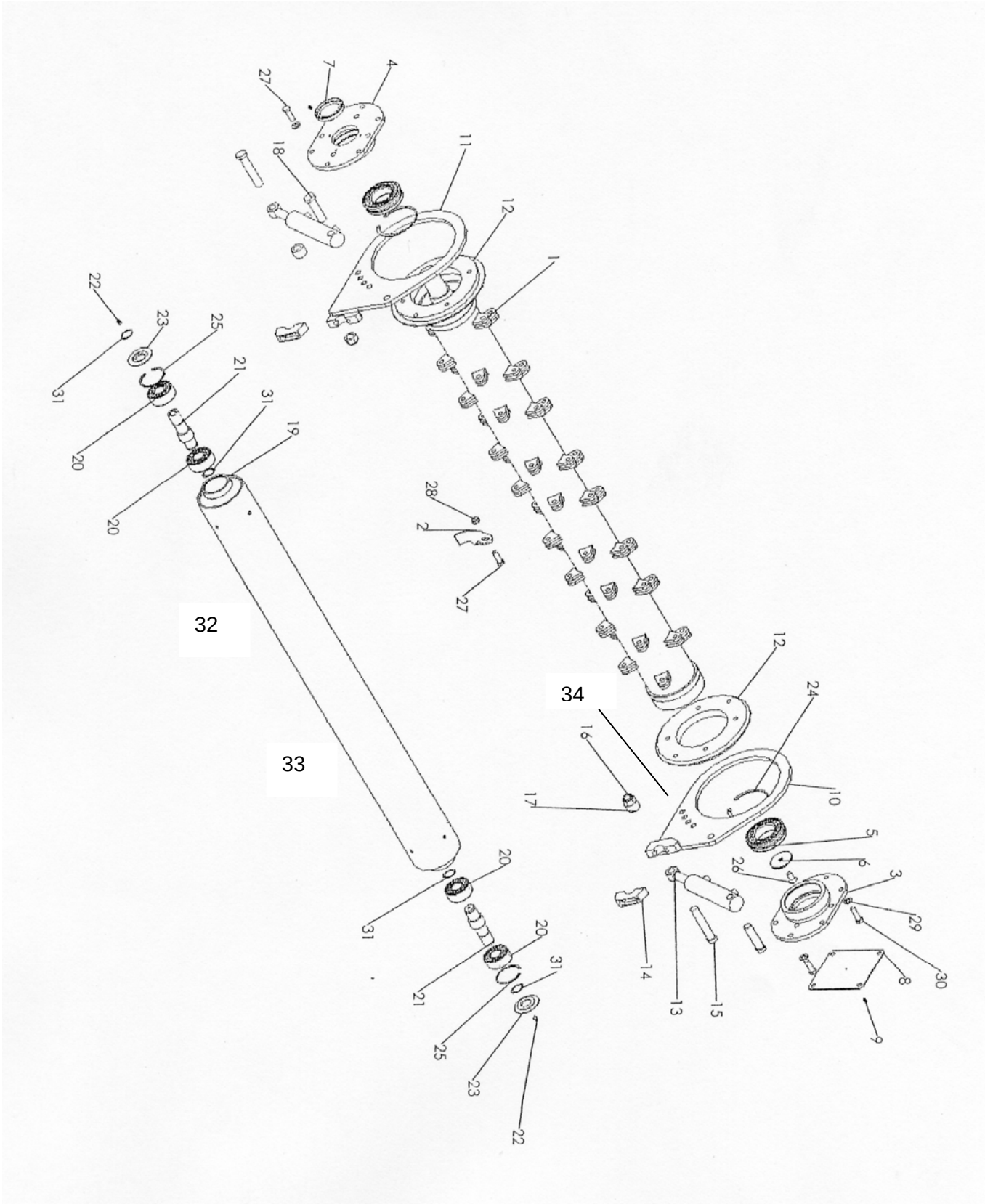
Main Body Assembly



Main Body Assembly

REF. NO	PART NO.	DESCRIPTION
	1771531	RETAINING STRIP 1.8M
	1771572	RETAINING STRIP 2.1M
36	1771530	SKID
37	2770509	SCREW
41	07.262.03	END CAP
42	1771509R	RAM GUARD RH
	1771509L	RAM GUARD LH
43	1778063	ADJUSTABLE STOP PLATE

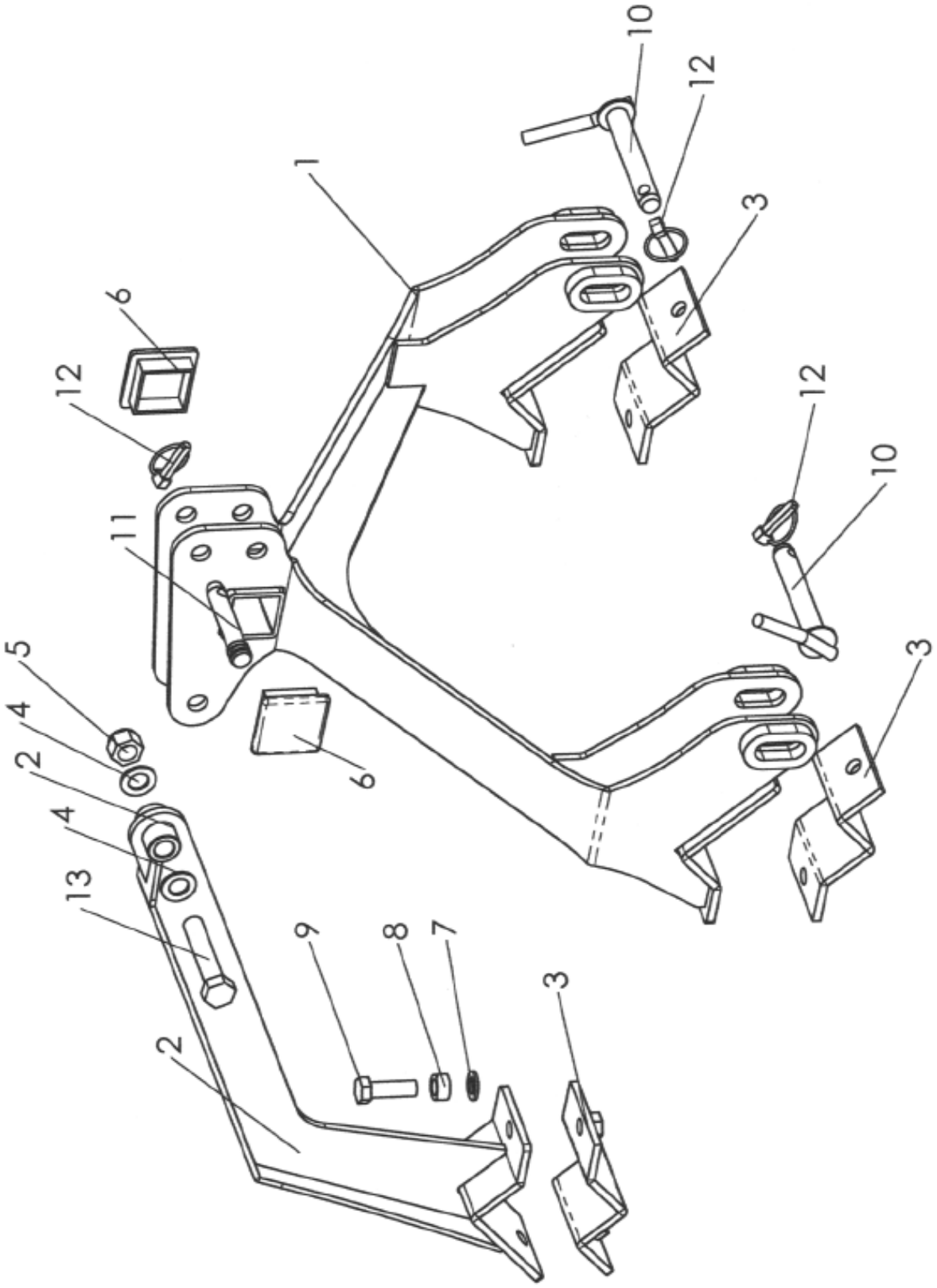
Rotor & Roller Assembly



Rotor & Roller Assembly

REF. NO	PART NO.	DESCRIPTION
1	SA00092	ROTOR ASSEMBLY 1.5M
	SA00102	ROTOR ASSEMBLY 1.8M
	SA00103	ROTOR ASSEMBLY 2.1M
2	7770715	TWISTED FLAIL (1.5X48, 1.8X60, 2.1X75)
3	1777310	BEARING HOUSING
4	1771529	BEARING HOUSING
5	4770891	BEARING
6	1777207	RETAINING WASHER
7	4771123	SEAL
8	1777312	END COVER
9	2770467	GREASE NIPPLE
10	1771526BR	ROLLER BRACKET RH
11	1771526B	ROLLER BRACKET LH
12	1777719	ROTOR SHIELD
13	3580664	RAM
	3580664W	SEAL KIT
14	040000D	CLAMP
15	2772309	RAM PIN
16	2770344	NUT
17	1778062	BUSH
18	2772308	RAM PIN
19	1771533	ROLLER
	1771527	ROLLER
	1771582	ROLLER
20	4771604	BEARING
21	1777314A	SHAFT
22	2770468	GREASE NIPPLE
23	1777231A	HUB COVER
24	2771610	CIRCLIP
25	2771108	CIRCLIP
26	2770506	SCREW
27	2770364	BOLT
28	2770574	LOCK NUT
29	2770436	WASHER
30	2770397	BOLT
31	2777519	CIRCLIP
32	SA02015	ROLLER ASSEMBLY
	SA02018	ROLLER ASSEMBLY
	SA02021	ROLLER ASSEMBLY
33	6770933	SCRAPER WIRE
	6770932	SCRAPER WIRE
34	2770259	CUP SQUARE BOLT

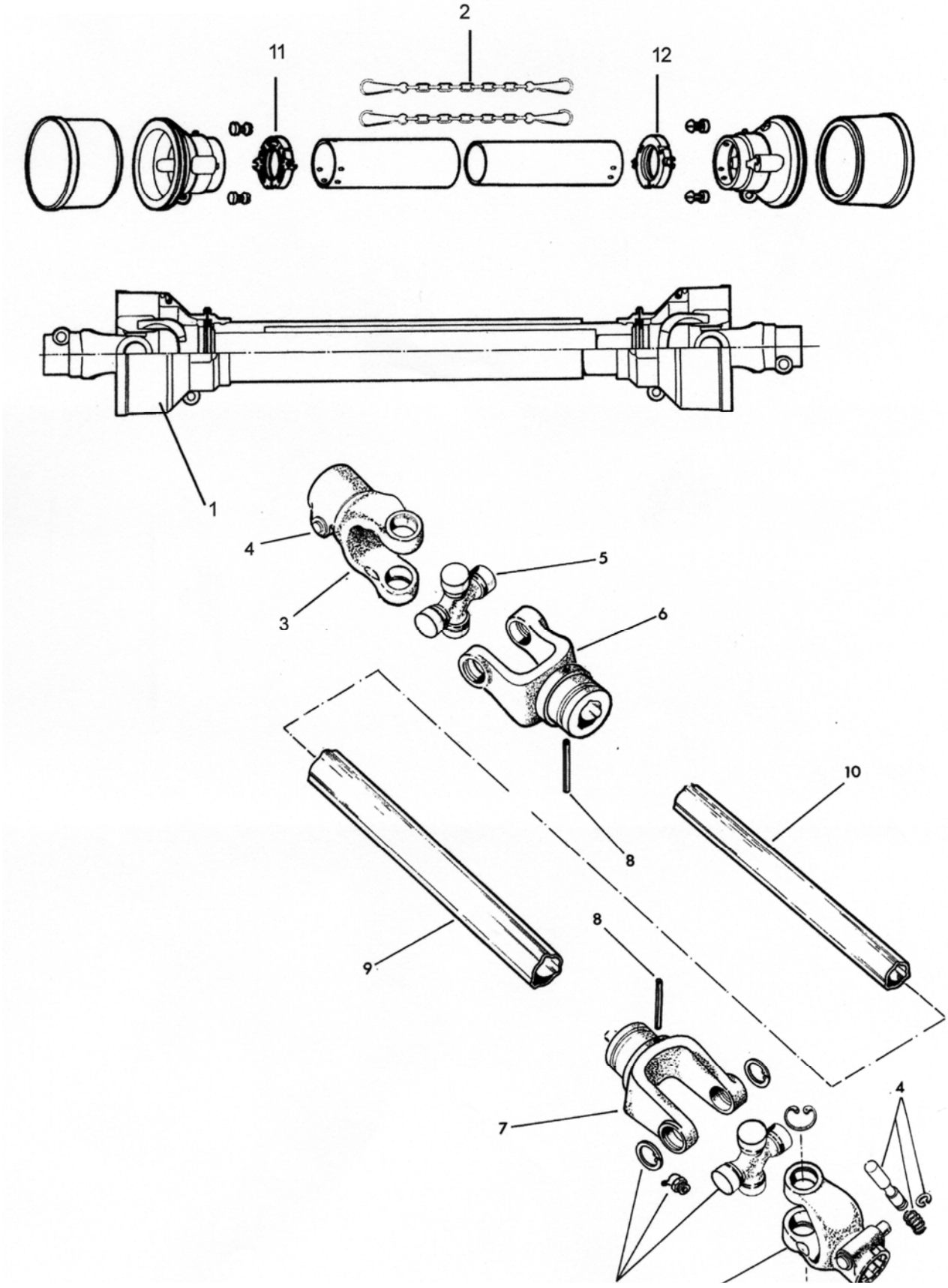
Headstock Assembly



Headstock Assembly

REF. NO	PART NO.	DESCRIPTION
1	1771524A	HEADSTOCK – POST MAY 2000
2	1771573	HEADSTOCK REAR LINK
3	1771503A	HEADSTOCK CLAMP
4	2770517	FLAT WASHER
5	2770409	NUT
6	8777516	END CAP
7	2770454	FLAT WASHER
8	2770456	SPRING WASHER
9	2770425	BOLT
10	6310229	LOWER LINK PIN
11	6310202	TOP LINK PIN
12	6310206	PIN
13	2770549	BOLT

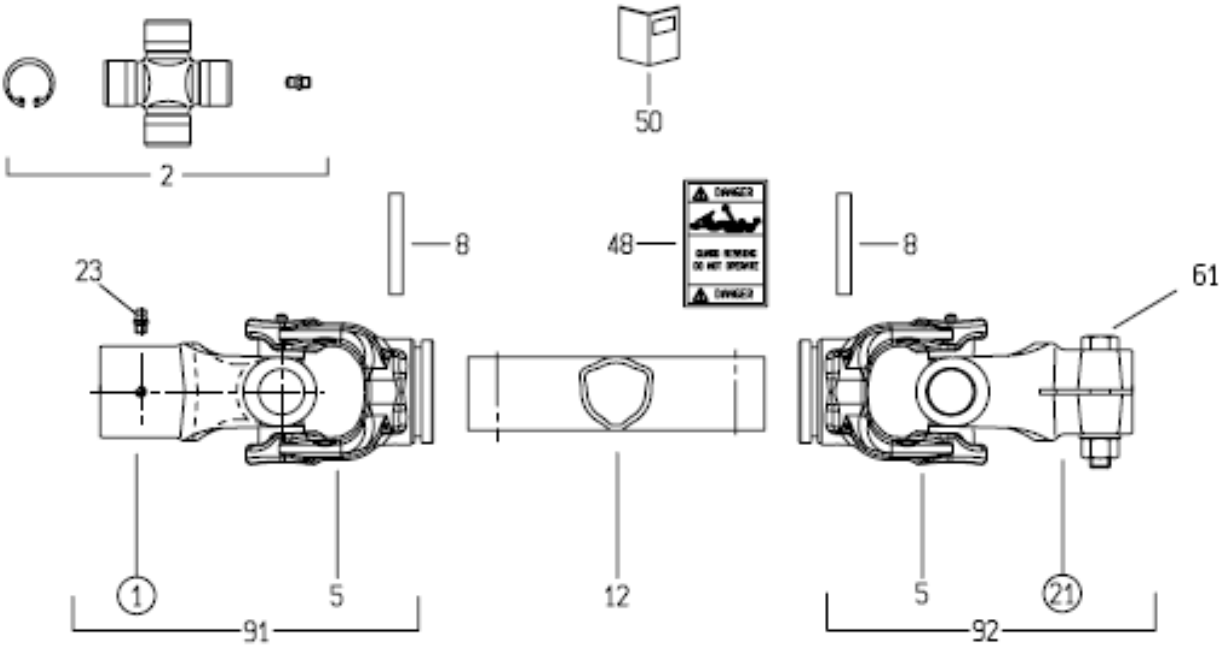
P.T.O. Shaft Assembly



P.T.O. Shaft Assembly

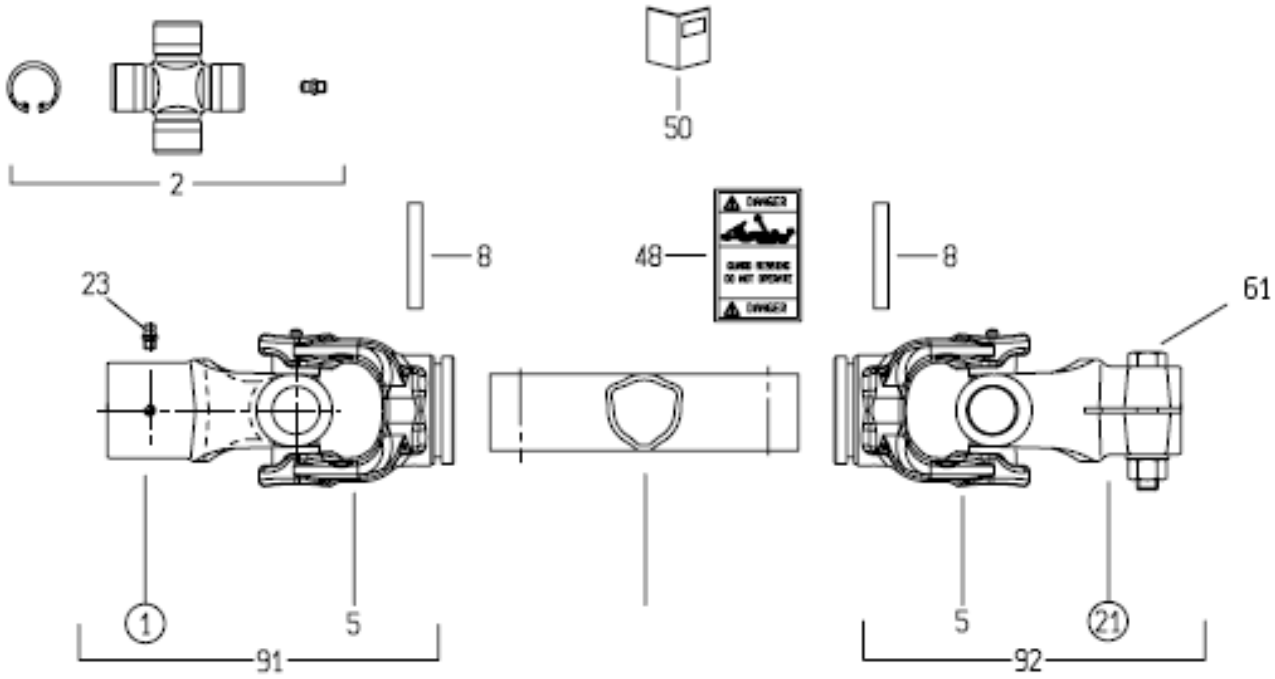
REF. NO	PART NO.	DESCRIPTION
	5770069	P.T.O SHAFT ASSEMBLY
1	5772259	COMPLETE GUARD
2	5771020	RETAINING CHAIN
3	5770112	YOKE
4	5771023	RELEASE BUTTON
5	5770113	CROSS JOURNAL
6	5772273	INNER TUBE YOKE
7	5772274	OUTER TUBE YOKE
8	2770515	ROLL PIN
9	5772270	OUTER PROFILE TUBE
10	5772269	INNER PROFILE TUBE
11	5771336	OUTER BEARING
12	5771337	INNER BEARING

Cross Shaft Assembly 5770529 - Q15S/Q18S



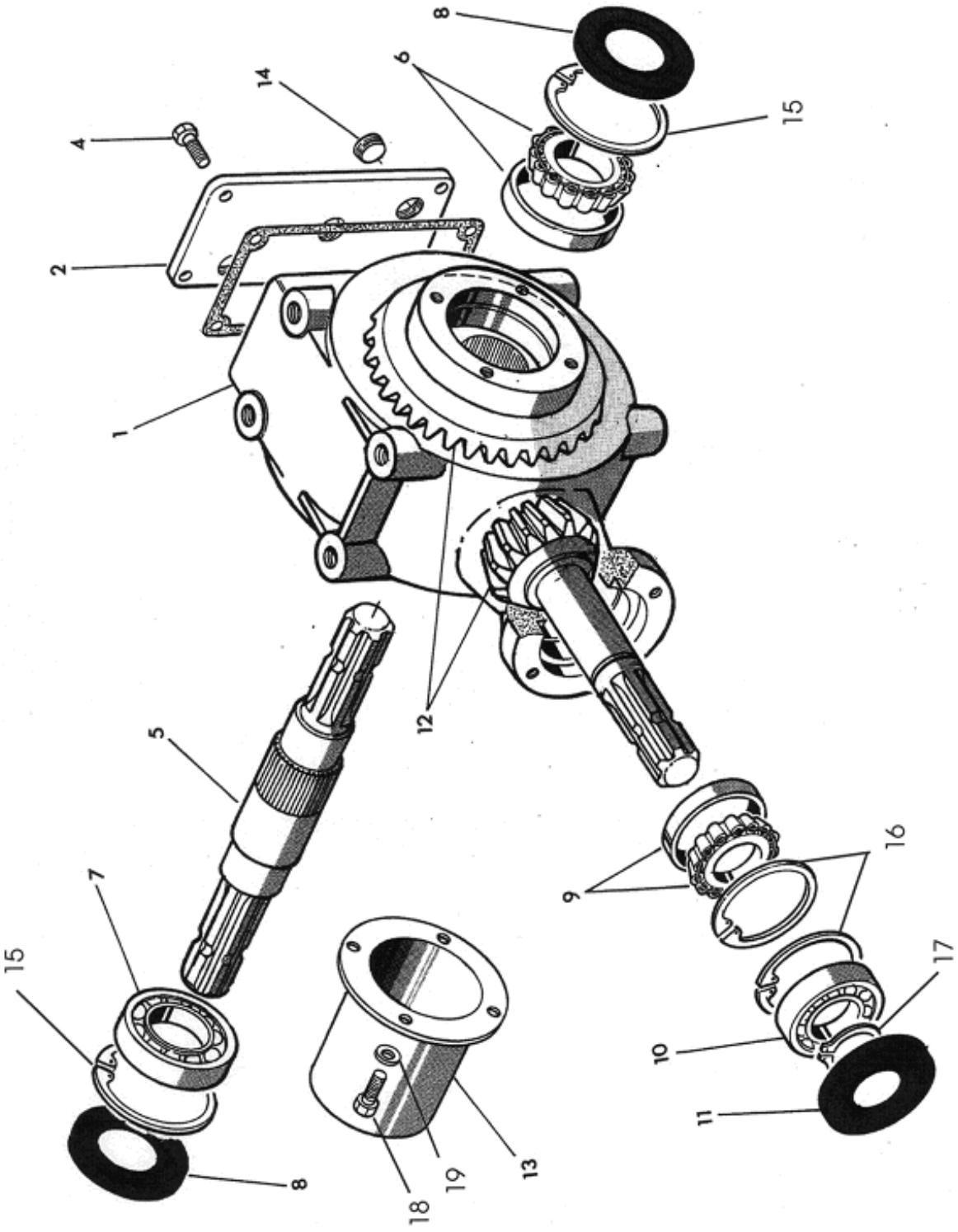
REF NO.	PART NO.	DESCRIPTION.
	5770529	**CROSS SHAFT - Q15S/Q18S**
1	5770529.01	YOKE - GEARBOX END
2	5770529.02	CROSS JOURNAL
5	5770529.03	YOKE - IN-BOARD OUTER
8	5770529.04	PIN
12	5770529.05	TUBE
21	5770529.06	YOKE - PULLEY END
23	5770529.07	GREASE NIPPLE
61	5770529.08	NUT AND BOLT

Cross Shaft Assembly 5770531 - Q21S



REF NO.	PART NO.	DESCRIPTION.
	5770531	**CROSS SHAFT - Q21S**
1	5770529.01	YOKE - GEARBOX END
2	5770529.02	CROSS JOURNAL
5	5770529.03	YOKE - IN-BOARD OUTER
8	5770529.04	PIN
12	5770531.01	TUBE
21	5770529.06	YOKE - PULLEY END
23	5770529.07	GREASE NIPPLE
61	5770529.08	NUT AND BOLT

Gearbox Assembly



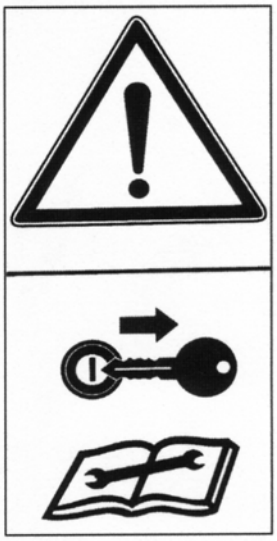
Gearbox Assembly

REF. NO	PART NO.	DESCRIPTION
1	5770010	GEARBOX ASSEMBLY
2	5777201	COVER
3	N/A	GASKET
4	2770402	COVER BOLT
5	N/A	SHAFT
6	4770660A	BEARING
7	4771620	BEARING
8	4771506	OIL SEAL
9	4770658	BEARING
10	4771600	BEARING
11	4771124	OIL SEAL
12	N/A	GEARWHEEL & PINION
13	1777602	REAR SHAFT GUARD
14	5777208	PLUG
15	2771129	CIRCLIP
16	2771108	CIRCLIP
17	2771107	CIRCLIP
18	2770407	BOLT
19	2770434	WASHER

Sticker Assembly


1


2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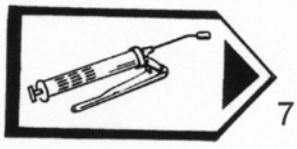
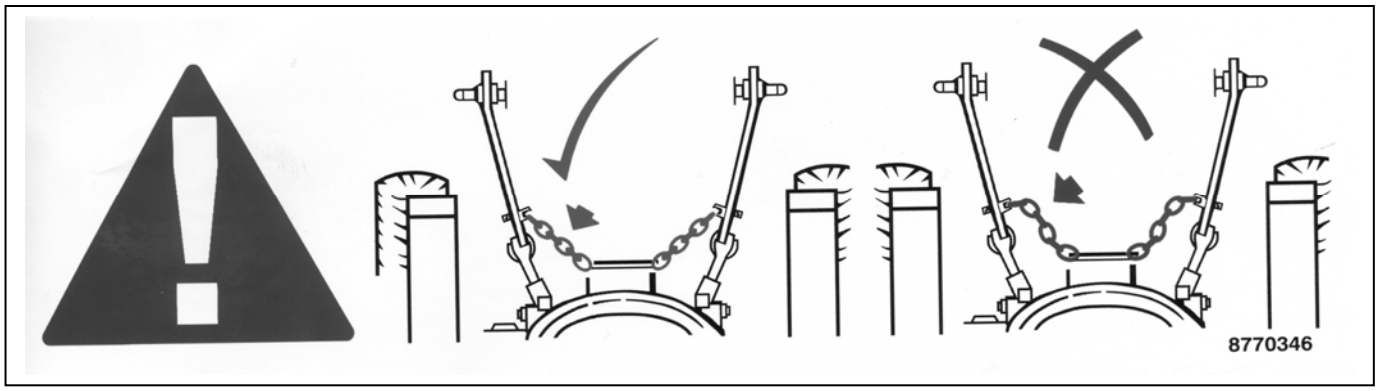

7

Sticker Assembly

REF. NO	PART NO.	DESCRIPTION
1	8770357	‘KEEP SAFE DISTANCE WHEN MACHINE IS RUNNING’ STICKER
2	8770356	‘DO NOT REMOVE/OPEN GUARD’ STICKER
3	8770358	‘SHUT OFF ENGINE, REMOVE KEY’ STICKER
4	8770360	‘STAY CLEAR OF MOWER FLAILS’ STICKER
5	8770363	‘READ MANUAL’ STICKER
6	8770306	‘KEEP BOLT TIGHT’ STICKER
7	8770322	‘GREASE POINT’ STICKER

Sticker Assembly



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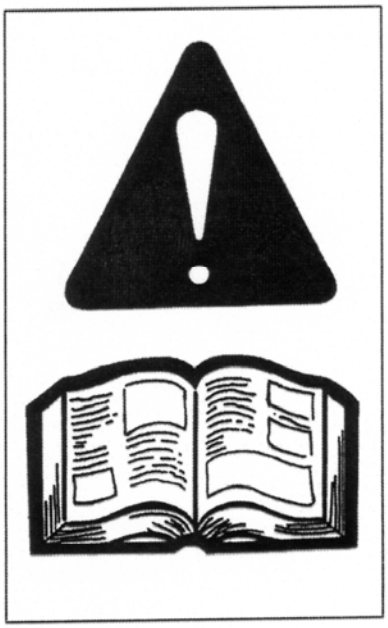

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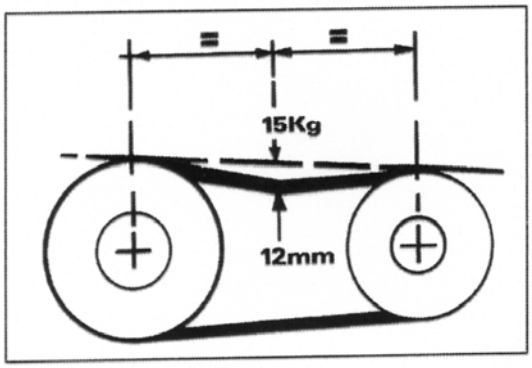

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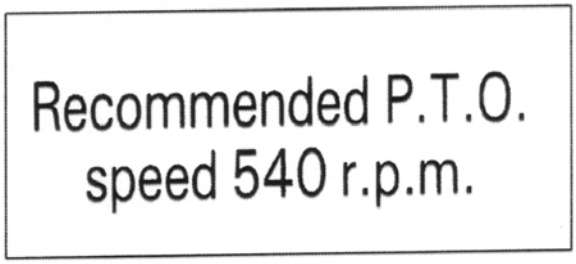

5

Sticker Assembly

REF. NO	PART NO.	DESCRIPTION
1	8770346	‘CHECK – CHAINS’ STICKER
2	8770307	‘MANUFACTURED IN GREAT BRITAIN’ STICKER
3	8770340	‘READ MANUAL’ STICKER
4	8770305	‘RECOMMENDED PTO SPEED 540 RPM’ STICKER
5	8770341	‘BELT TENSION’ STICKER

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