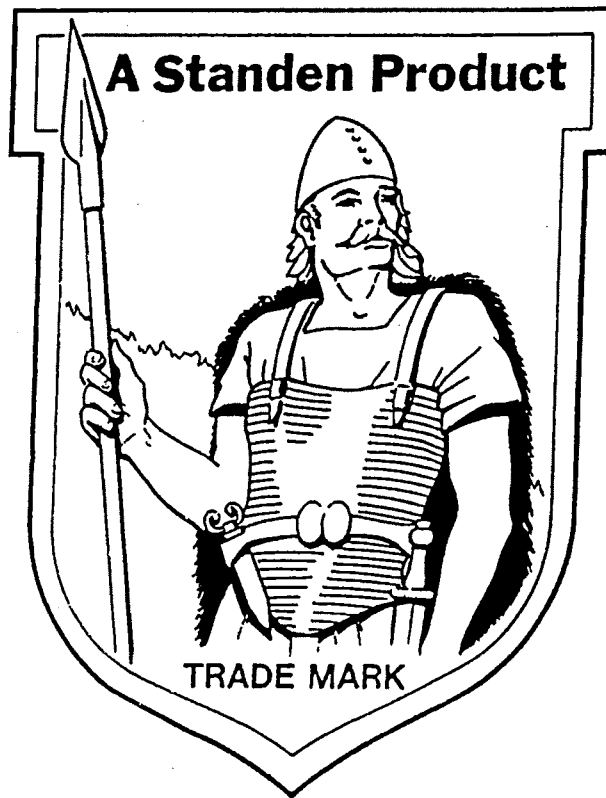


Standen



Spectra De-stoner/De-clodder

Machines from serial No. DS 113

Standen Engineering Limited.
Hereward Works,
Station Road, Ely,
Cambridgeshire.
CB7 4BP
England.

Tel: 01353 661111

www.standen.co.uk

Fax: 01353 662370

IMPORTANT

- This operators handbook should be regarded as part of the machine. Suppliers of both new and second-hand machines are advised to retain documentary evidence that this handbook was supplied along with the machine.
- On installation of the machine (i.e. starting off in the field), the New Machine Installation Record Card should be completed by the dealer/distributor and be countersigned by the customer. The document is proof that the correct procedures have been followed.
- The New Machine Installation Record Card should be returned to Standen Engineering Limited within 7 days of installation. Failure to do so may invalidate the machine warranty.

On delivery, check that the machine is as ordered and has not been damaged in transit. Please report any shortfall to your Standen dealer.

The contents of this handbook, although correct at the time of publication, may be subject to alteration by the manufacturers without prior notice.

Standen Engineering Limited operate a policy of continual product development. Therefore, some illustrations and/or text within this publication may differ from your machine.

The copyright of this handbook is the property of Standen Engineering Limited, Hereward Works, Station Road, Ely, Cambridgeshire. CB7 4BP. This handbook is issued on the condition that it must not be used, copied or exhibited without their written permission.

CONTENTS

INTRODUCTION

Introduction to the Handbook	1.1
Warranty	1.1
Replacement Parts	1.2

SAFETY PRECAUTIONS

Safety	1.3
Operation	1.3
Transport	1.4
Maintenance	1.4

INSTALLATION

Standen Spectra	1.5
Tractor Suitability	1.5
Tractor Wheel Setting	1.5
Attaching the Machine to the Tractor	1.5
PTO Shaft	1.6

OPERATION

1st Stage	1.8
Diablo Rollers	1.8
Automatic Depth Control	1.8
Setting the Digging Depth	1.8
Disc Coulters	1.9
Disc Coulter Depth and Width Adjustment	1.9
Shares	1.10
Digger Web	1.10
Digger Web and Agitator Drive Adjustment	1.10
Clod Breaking Rotor	1.11
Rotor Drive Adjustment	1.12
2nd Stage	1.12
2nd Stage Drive Adjustment	1.13
Scrubber Web	1.13
3rd Stage	1.14
3rd Stage Drive Adjustment	1.14
Cross Conveyor	1.14
Lowering the Cross Conveyor Extension	1.15
Raising the Cross Conveyor Extension	1.15

Rear Axle	1.16
Rear Axle Adjustment	1.16
Electrical Control System	1.17
Hydraulic Systems	1.17

MAINTENANCE

Maintenance of the Mechanical Drives	1.18
Maintenance of the Hydraulic Systems	1.18
Maintenance of the Electrical Control System	1.20
Lubrication	1.21
Service Schedule	1.22

CIRCUIT DIAGRAMS

Ram/Motor Hydraulic Circuit	1.23
Rotor/Agitator Hydraulic Circuit	1.24
Electrical Circuit	1.25

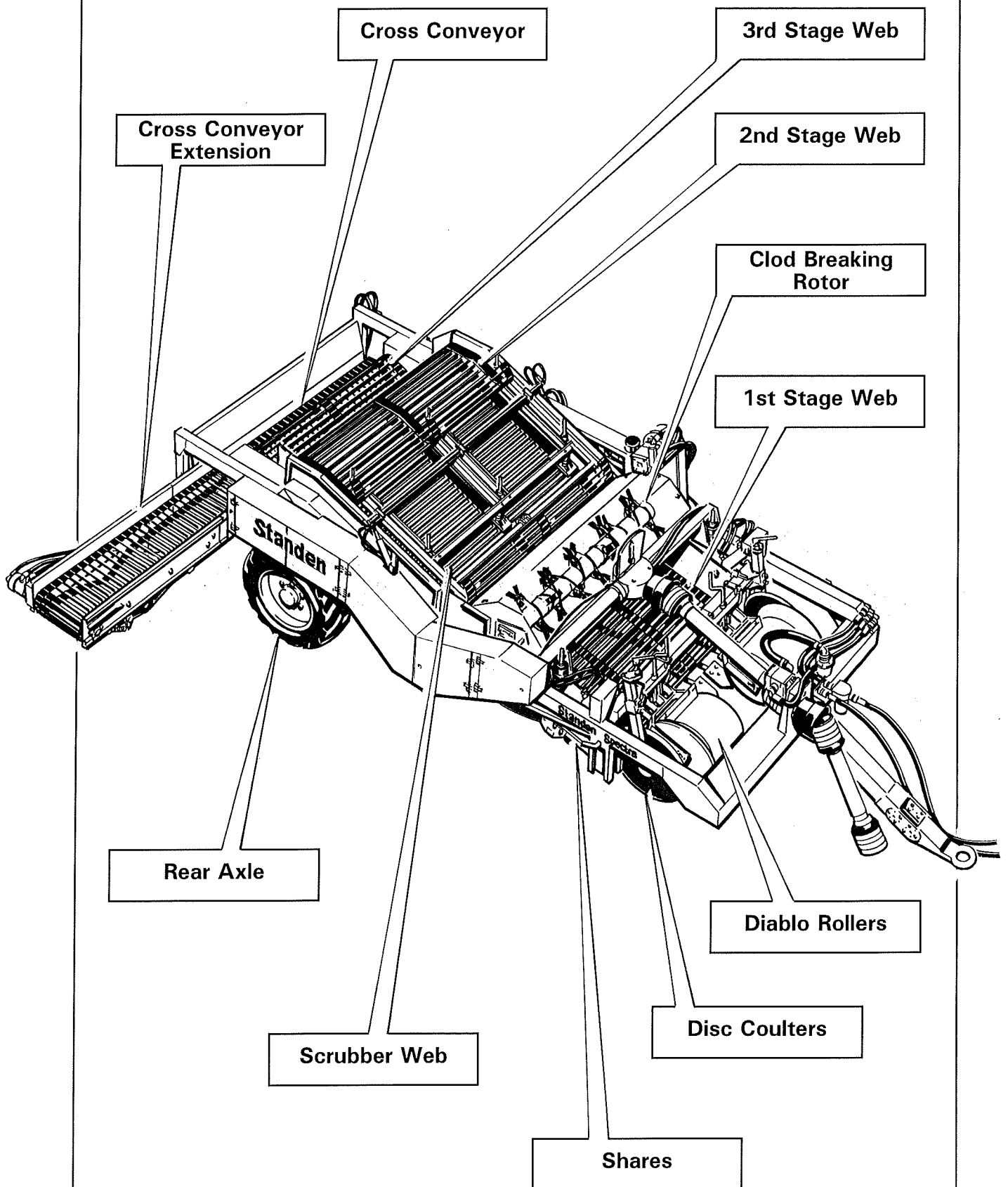
SPECIFICATIONS

Nut/Bolt Tightening Torque	1.26
Dimensions	1.26
Technical Data	1.26

APPENDIX

Rear Axle Self Centring (machines from 1998)	1 a
---	-----

CONTENTS



Introduction to the Handbook

This handbook provides the information for the operation, adjustment and maintenance of your **Standen Spectra**. To enable you to achieve the best results from the machine, the manufacturer recommends that you read the handbook thoroughly prior to using the machine for the first time.

Record below the details of your machine.

Dealers name.....

Address.....

.....

Telephone number.....

Machine serial number.....

Date purchased.....

Date started work.....



This symbol indicates important safety messages within this handbook. When you see this symbol, be alert to the possibility of injury to yourself or others and/or damage to the machine and carefully read the message that follows.

Throughout this handbook the terms 'front', 'rear', 'left hand' (LH) and 'right hand' (RH) are derived from the tractor drivers position facing forward in the normal direction of travel.

Adjustments to the machine may have to be made singly or in combination according soil conditions. Always allow the machine to settle to a new setting before making further adjustments.

Warranty

Should the machine suffer any faults or defects within the warranty period, please contact your dealer. The warranty shall be effective only if the dealer is informed of any such defect as soon as practicable upon discovery.

Replacement Parts

Recommended replacement parts are designed for your machine and have the full backing of the warranty. Only when recommended parts are used can responsibility be considered under the terms of the warranty.

Section 2 of this handbook contains a list of spare parts available through your Standen Agents. Each illustration shows a complete unit or assembly in exploded form. Standen's policy of continual product development means that components or even complete assemblies are redesigned from time to time. Where possible the modifications are shown in the remarks column.

The first printing of each page in the spare parts section is identified as issue 1 at the foot of the page. When a complete unit or assembly has been redesigned the appropriate pages are revised and printed as issue 2. The revised pages are filed behind the existing issue so that a complete modification history is gradually built up. When using an illustration and parts list it is essential that both are of the same issue.

Note: Always quote the full serial number of your machine when ordering spare parts.

SAFETY

The Standen Spectra has been designed to comply with current Safety Regulations. However, as with all machinery there will be inherent dangers whilst operating and carrying out maintenance on the machine. The following list of precautions should therefore be brought to the attention of all persons operating and working on the machine. The list is not exhaustive. All machinery is potentially dangerous and great care must be exercised by the operators at all times. Standen Engineering Limited will not accept liability for damage or injury caused by their products except when such liability is specifically imposed by English statute.

OPERATION



The machine must never be operated by untrained personnel or children.



Before attempting to lower the 1st stage, ensure the locking pins are in the unlocked position.



Never operate the machine with the cross conveyor extension in the folded transport position. When in operation, the cross conveyor extension must be locked in the working position.



Never set machinery in motion before ensuring that everyone in the vicinity is aware of your intentions.



Never allow children in the vicinity where machines are working and never allow anyone to ride on the machine.



Never attempt to fit drive chains or drive belts to the machine while the drive sprockets or pulleys are in motion.



Normal safe working procedures should be adopted at all times. Reduce speed when transporting the machine on sloping ground.



Do not work on ground where there is a possibility of overturning or across steep slopes.



The working area should be kept clear and free of obstructions at all times.



Be alert for hidden obstructions. Should the machine hit an obstruction, stop and check for damage before proceeding.



Wear substantial or proper safety footwear. Avoid loose clothing near moving parts. Wear gloves when handling the implement or parts with sharp edges.



Before carrying out any work on the machine, lower the machine to the ground, switch off the tractor engine, apply the handbrake, remove the ignition key and disconnect the PTO shaft.



The operator must not leave the tractor seat until the machine has been lowered to the ground, the tractor engine switched off, the handbrake applied and the ignition key removed.



Never reverse or turn unless the 1st stage is in the fully raised position.



All guards, covers, warning transfers and safety devices must be correctly fitted and operable at all times.



Inspect the machine on a regular basis and replace damaged or worn parts as necessary.



Inspect the machine for damage after use. Rectify as required.



Never operate the machine in a state of disrepair.

TRANSPORT



When in transport, the 1st stage must be locked in the raised position using the locking pins.



When in transport the cross conveyor extension must be raised in the transport position.



Only transport the machine at a speed suitable to the prevailing conditions. Be aware of the weight and overall length of the machine at all times

MAINTENANCE



When left free standing i.e. not attached to the tractor, the machine must be on level ground.



When working under the machine or if the machine is to be left to stand for any length of time, the 1st stage must be locked in the raised position using the locking pins.



Before working on the machine, all free moving parts should be locked to prevent them moving.



Inspect the hydraulic hoses and fittings for cuts and abrasions. Replace immediately.



The hydraulic system may be under pressure with the machine at rest. Ensure all residual pressure is released before disconnecting any pipework.



Regularly lubricate the machine as per the operators handbook and check the tightness of all nuts and bolts.



Always use mechanical or additional help when lifting heavy parts.



Safety is the responsibility of the persons working with this machine. Think "safety" at all times. Read and remember the contents of this handbook.

Standen Spectra

The Standen Spectra de-stoner/de-clodder is a 3 web machine with the option of a powered rotary clod breaker mounted over the digger web.

All of the hydraulic rams, with the exception of the boulder box rams, are operated electronically from the in-cab control box. The boulder box rams (if fitted) are controlled directly from the tractor double-acting spool valve.



Before operating the machine, check that the wheel nuts and the sprocket keys are tight. Also check the bearing grub screws, especially before starting off a new machine and then during the first day or two of work.



Pay attention to the lubrication and maintenance instructions within this handbook and pay particular attention to the safety precautions, they are written as a guide to protect you and others.

Tractor Suitability

The tractor power requirement for the Spectra is 100hp minimum. The machine also requires a constant hydraulic flow and return rate from the tractor of 45 litre/min (10 gal/min) and a double-acting spool valve for control of the boulder box rams (if fitted).

Tractor Wheel Setting

Both the front and rear wheels of the tractor must be set to straddle the bed. This will ensure the wheels run in the centre-line of the wheelings. The instructions for adjusting the tractor wheels are given in the tractor manufacturer's handbook.



When carrying out wheel adjustments, always place the jack on firm ground under a solid part of the tractor. Before removing a wheel, place a stout support under the tractor frame in case the jack should become dislodged.

Attaching the Machine to the Tractor



The operator should have read and understood the tractor operators manual prior to attaching the machine and putting it into work.

1. Level the machine whilst standing it on a firm piece of ground and reverse the tractor up to it.
2. Adjust the drawbar to align with the tractor pick-up hitch ensuring that the towing eye remains parallel with the ground. To adjust the angle of the towing eye, remove the twelve securing bolts (*item 1, figure 1*) and loosen the four pivot bolts (*item 2, figure 1*). Reposition the towing eye and securing bolts and retighten.

3. Attach the machine to the tractor pick-up hitch.
4. Connect the hydraulic pressure hose (*item 1, figure 2*) (the hose connected to the pressure filter) to the tractor supply port. Connect the return hose (*item 2, figure 2*) to the tractor return port.
5. Set the tractor hydraulics to give a constant flow of 45 litre/min (10 gal/min).
6. Connect the two hoses for the boulder box rams (if fitted) to the tractor double-acting valve.
7. Situate the in-cab control box in a convenient position inside the tractor cab.
8. With the tractor battery disconnected, connect the negative (-) blue lead from the control box to the negative (-) terminal on the battery and then connect the positive (+) brown lead to the positive (+) terminal on the battery.

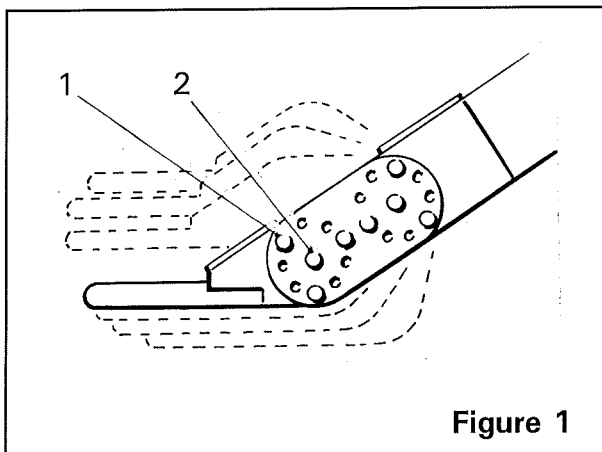


Figure 1

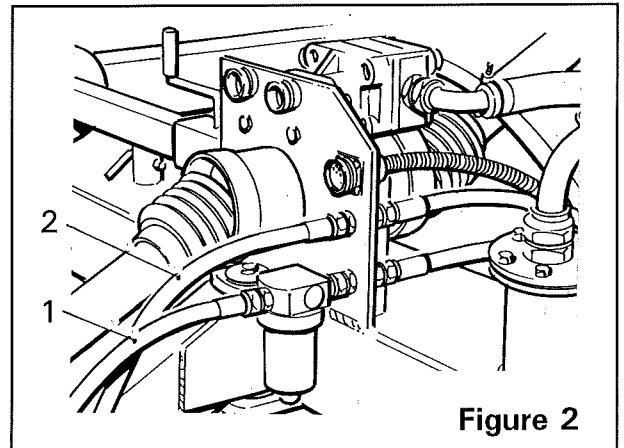


Figure 2

PTO Shaft



It is essential that the PTO shaft is matched to the tractor to give the correct drive line and to ensure that it is safe in work.

The PTO shaft supplied with the machine may require cutting to the correct length to suit individual tractors. To do this:

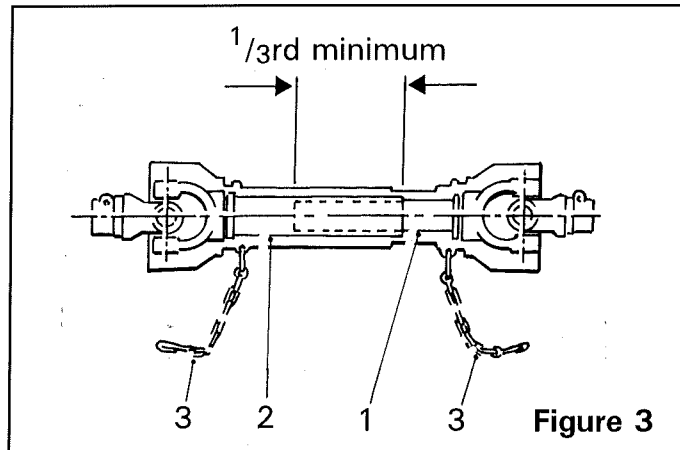
1. Part the two ends of the shaft and fit one end to the tractor and the other end to the machine.
2. The male shaft (*item 1 figure 3*) and female shaft (*item 2, figure 3*) can now be measured alongside each other and adjustments made by cutting the surplus length from both male and female shafts.



Ensure that there will be a minimum of $\frac{1}{3}$ rd overlap and that there is no possibility of the shafts butting up when the tractor linkage is raised.

3. Once the correct length of shaft has been obtained, deburr the ends and remove chips. Grease the shafts to enable them to move correctly when in work.

4. Shorten the shield tubes to match the shafts and reassemble.
5. Fit the PTO shaft to the tractor and machine.
6. Check the PTO shaft does not foul any part of the machine or tractor and inspect all guards to make sure they are fitted correctly and are not damaged.
7. Finally, attach the safety chains (*item 3, figure 3*) to secure points on the tractor and machine ensuring that the chains will not overtighten when the machine is lifted.



Refer to the manufacturers instructions, these are fitted to all PTO shafts when the machine is delivered.



An incorrectly fitted or badly guarded PTO shaft can be lethal. Do not take chances.

1st Stage

The 1st stage, which includes the digger web, digger share, diablo rollers and disc coulters is hydraulically adjustable for height. To raise or lower the 1st stage, operate the control box switch marked 'Digger Raise/Lower'.



Before attempting to lower the 1st stage, ensure that the locking pins (item 1, figure 4) are in the unlocked position. To unlock the 1st stage, raise the digger web slightly and then rotate the locking pins through 90° and pull them out.

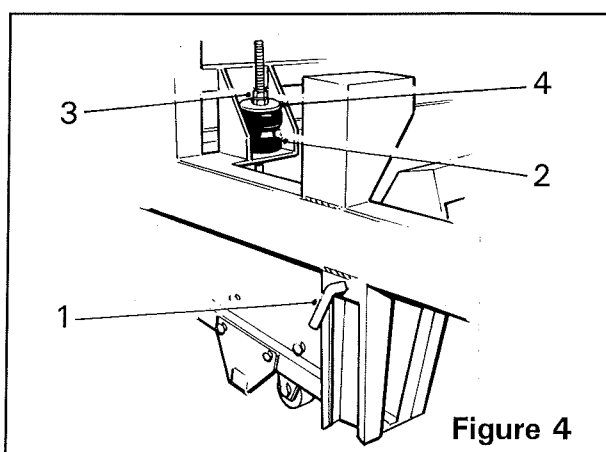


Figure 4

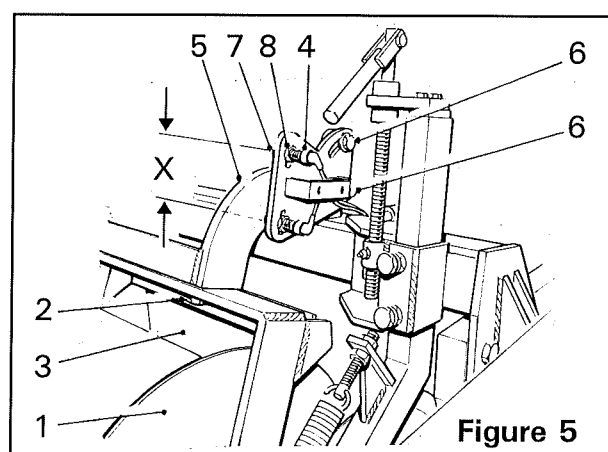


Figure 5

Diablo Rollers

The diablo rollers (item 1, figure 5) control the digging depth while at the same time ensure even digging with the help of the dampers (item 2, figure 4). The rollers are adjustable for depth of work and for different widths of bed.

The large flanges on the outer edge of the diablo rollers assist in holding the bed together when digging. To adjust the diablo rollers for different width beds, loosen the retaining bolts (item 2, figure 5) and slide the complete units to the required position and retighten. Ensure the adjustment is made equally about the centre-line of the machine.

The diablo rollers are each fitted with a scraper (item 3, figure 5). The scrapers must be kept as close as possible to the roller to enable their efficient operation.

Automatic Depth Control

With the in-cab control box 'Auto Depth' switch in the 'On' position, the two proximity switches (item 4, figure 5) maintain share digging depth by constantly monitoring the height of the diablo rollers as they follow the contours of the bed. The switches sense the top and bottom edges of the sensor arm (item 5, figure 5) which in turn actuate the 1st stage rams to raise/lower the shares. When the rollers rise, the top sensor is activated causing the 1st stage to raise. When the rollers fall, the bottom sensor is activated causing the 1st stage to lower. In this way the distance between the shares and the bottom of the diablo rollers is maintained.

The depth at which the shares dig is adjusted by loosening the retaining bolts (*item 6, figure 5*) and rotating the switch plate (*item 7, figure 5*). Rotating the switch plate up will increase digging depth. Rotating the switch plate down will decrease digging depth.

The sensitivity of the depth control can be increased/decreased by altering the distance 'X' between the two proximity switches (*see figure 5*). To adjust, loosen the retaining nuts (*item 8, figure 5*) and slide the switches either closer together (for increased sensitivity) or further apart (for decreased sensitivity). Adjust both switches evenly. After adjustment, ensure a distance of approximately 1-2mm exists between the proximity switches and the sensor arm (*item 5, figure 5*). Do not overtighten.

Setting the Digging Depth

1. Loosen and completely back-off the damper locknuts (*item 3, figure 4*) until at the top of the damper rods.
2. Set the machine into work and adjust the digging depth manually using the in-cab control box switch marked '1st Stage Raise/Lower'. Once the desired depth is achieved, stop the machine leaving the 1st stage in the digging position.
3. Check the distance 'X' between the proximity switches (*see figure 5*), this should be more than 105mm. Adjust if necessary.
4. Loosen the retaining bolts (*item 6, figure 5*) and rotate the switch plate (*item 7, figure 5*) until the proximity switches are evenly set about the sensor arm (*item 5, figure 5*). Retighten the retaining bolts.
5. Finally, turn the damper locknuts (*item 3, figure 4*) until the lower nut touches the washer (*item 4, figure 4*) and then lock it in position using the top nut. Adjust both sides equally. The automatic depth control is now set to the required digging depth.

Discs Coulters

The discs (*item 1, figure 6*), fitted on either side of the digger web, are designed to retain the soil whilst feeding it onto the digger web. The setting of the discs is very important. An incorrect setting may result in a loss of soil in the bed. The springs (*item 2, figure 6*) allow the discs to ride over obstructions and can be adjusted to increase/decrease soil penetration. The discs are also adjustable for depth and width.

Disc Coulter Depth and Width Adjustment

To adjust the depth of the discs, loosen the three retaining bolts (*item 3&4, figure 6*) and turn the depth screw (*item 5, figure 6*) to give the desired setting.

Note: When retightening the retaining bolts (*item 3&4, figure 6*), always fully tighten the inner bolt (*item 3, figure 6*) first.

To adjust the discs for different bed widths, slacken the clamps (*item 6, figure 6*) and slide the disc units to the required position and retighten.

Shares

The shares are mounted on a fixed share bar. The width of the bed determines the share arrangement used.

Narrow Setting 152cm (60")-163cm (64") wheelings)

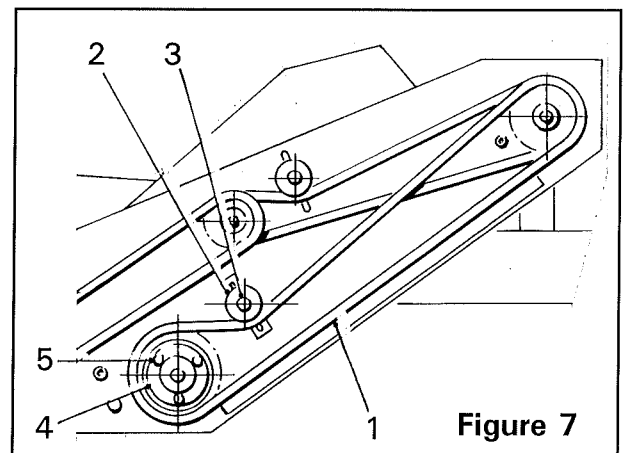
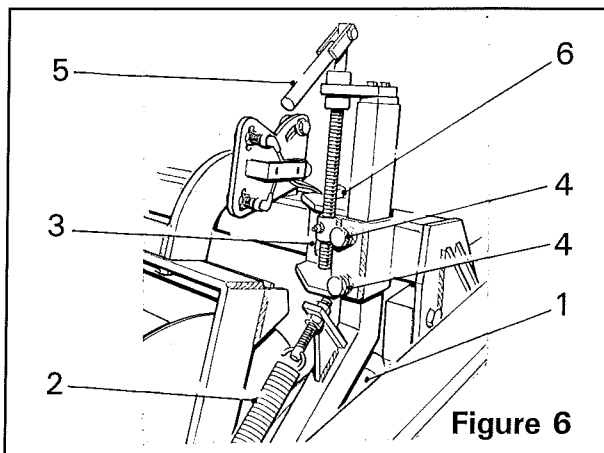
When digging this width of bed, the two outer shares blades will be narrower than the inner ones.

Middle Setting 173cm (68")-183cm (72") wheelings).

When digging this width of bed, all of the shares blades will be the same width.

Wide Setting 203cm (80") wheelings).

When digging this width of bed, the two outer share blades will be wider than the inner ones.



Digger Web

The digger web is 1560mm wide from inner web side to inner web side and is available in 36mm, 42mm, 45mm and 50mm pitches. The soil, clod and stones etc. are fed onto the digger web by the shares. The digger web is shaken by an agitator which assists in sieving the soil through the web.

Digger Web and Agitator Drive Adjustment

The digger web drive chain (*item 1, figure 7*) is tensioned by a roller (*item 2, figure 7*). To adjust the tension of the drive chain, loosen the securing bolt (*item 3, figure 7*) and slide the roller to achieve the correct tension. Once achieved, retighten the securing bolt ensuring that the roller is still able to turn.

The digger web torque limiter (*item 4, figure 7*) is fitted to prevent serious damage should the digger web become jammed or obstructed. The amount of torque required to start the torque limiter slipping can be varied by turning the three setscrews (*item 5, figure 7*).



Over-tightening of the setscrews (item 5, figure 7) will render the torque limiter ineffective. The setting of the torque limiter should be checked regularly to ensure that it is working correctly.

The torque limiter should be set to just drive without slipping under normal working conditions. Adjust the three setscrews (item 5, figure 7) a 1/4 turn at a time. Always adjust the setscrews equally.

The agitator drive chain (item 1, figure 8) is tensioned by roller (item 2, figure 8). To adjust the tension of the drive chain, loosen the securing bolt (item 3, figure 8) and slide the roller to increase/decrease the chain tension. Once the correct tension is achieved, retighten the securing bolt ensuring that the roller is still able to turn.

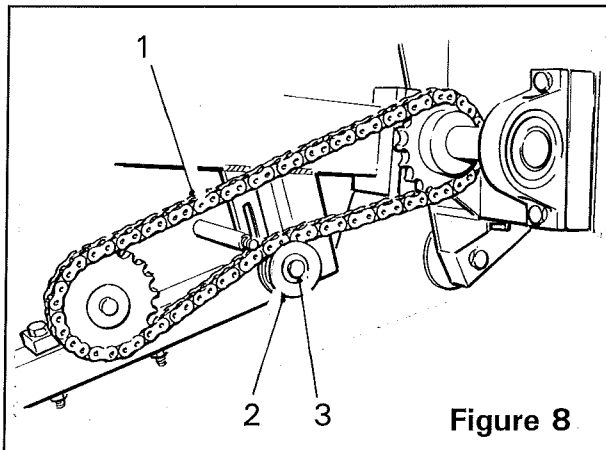


Figure 8

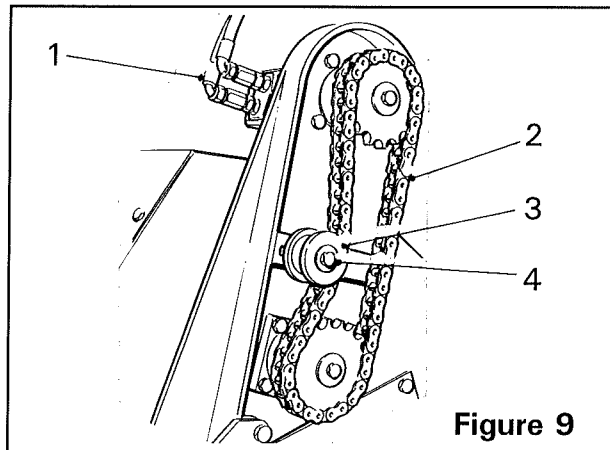


Figure 9

Clod Breaking Rotor Unit

The optional clod breaking rotor is mounted above the digger web. As the name suggests, the clod breaker breaks up the soil passing beneath it and in doing so helps it to pass through the machine much more quickly. The rotor height and speed is adjustable.

To adjust the height of the rotor unit, operate the control box switch marked 'Rotor Raise/Lower'. With the rotor in the fully raised position, the soil is able to pass underneath the rotor without the soil flow being disturbed.



Always switch off the rotor when in the fully raised position.

To adjust the rotor speed, turn the valve control knob (item 7, figure 16). The higher the number, the faster the rotor will turn. By turning the dial below '1', the rotor can be stopped.

Note: If the rotor is turning too slowly relative to the speed of the digger web, the rotor may cause an obstruction to the soil flow.

Rotor Drive Adjustment

The clod breaking rotor is driven by a hydraulic motor (*item 1, figure 9*). A check valve (*item 8, figure 16*) is fitted to the hydraulic system which allows the rotor to gradually slow down when the power has been switched off.



The check valve (item 8, figure 16) is an important safety feature and must remain fitted and operable at all times.



When replacing rotor blades, ensure all nuts and bolts are fitted with the nyloc nut facing towards the drive end of the rotor shaft.

The rotor unit drive chain (*item 2, figure 9*) is tensioned by a roller (*item 3, figure 9*). To adjust the chain, loosen the securing bolt (*item 4, figure 9*) and slide the roller to achieve the correct tension. Once achieved, retighten the securing bolt ensuring that the roller is still able to turn.

2nd Stage

The 2nd stage provides another area for the soil to be separated. The 2nd stage web is available in 36mm, 42mm and 50mm pitches.

The 2nd stage web is shaken by an agitator which assists in sieving the soil through the web. To increase/decrease the agitator speed, turn the valve control knob (*item 6, figure 16*). The higher the number, the faster the agitator will turn. By turning the dial below '1', the agitator can be stopped.

The angle of the 2nd stage can be adjusted to facilitate hillside work. To increase/decrease the angle of the 2nd stage, operate the control box switch marked '2nd Stage Raise/Lower'.

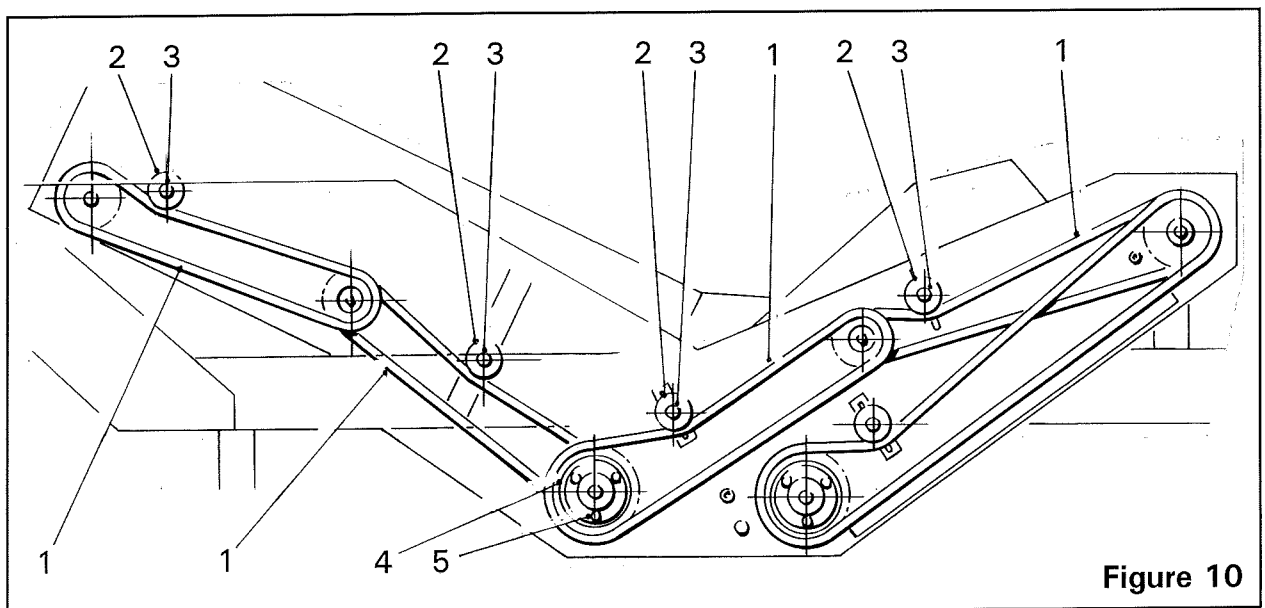


Figure 10

2nd Stage Drive Adjustment

The 2nd stage is driven by four drive chains (*item 1, figure 10*). Each drive chain is tensioned by a roller (*item 2, figure 10*). To adjust the tension of a chain, loosen the securing bolt (*item 3, figure 10*) and slide the roller to achieve the correct tension. Once achieved, retighten the securing bolt ensuring that the roller is still able to turn.

The 2nd stage torque limiter (*item 4, figure 10*) is fitted to prevent serious damage should the 2nd stage become overloaded, jammed or obstructed. The amount of torque required to start the torque limiter slipping can be varied by turning the three setscrews (*item 5, figure 10*).



*Over-tightening of the setscrews (*item 5, figure 10*) will render the torque limiter ineffective. The setting of the torque limiter should be checked regularly to ensure that it is working correctly.*

The torque limiter should be set to just drive without slipping under normal working conditions. Adjust the three setscrews (*item 5, figure 10*) a 1/4 turn at a time. Always adjust the setscrews equally.

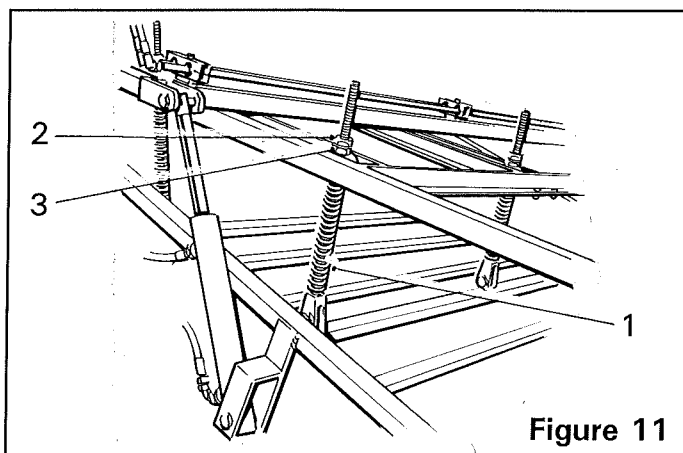


Figure 11

Scrubber Web

The scrubber web, fitted above the 2nd stage web, provides yet another facility for soil separation. The scrubbing web is spring loaded to ensure sufficient pressure to break up the clods etc. Adjustment is provided to vary the pressure applied by the springs (*item 1, figure 11*). To adjust the pressure, loosen the locknuts (*item 2, figure 11*) and turn the adjusting nuts (*item 3, figure 11*).

The height of the scrubber web relative to the 2nd stage web is adjustable. The height can be increased/decreased by operating the in-cab control box switch marked 'Scrubber Web Raise/Lower'.

Note: Lowering the scrubber web will increase the pressure exerted by the springs and may have the adverse effect of forcing stones through the 2nd stage web.

3rd Stage

The hydraulically driven 3rd stage provides another area for the soil to be separated. The 3rd stage web is available in 28mm 36mm and 42mm pitches. To increase/decrease the speed of the web, turn the valve control knob (*item 3, figure 16*). The higher the number, the faster the web will travel.

The 3rd stage web is shaken by an agitator which assists in sieving the soil through the web. Agitation can be varied by repositioning the roller adjuster arm (*item 1, figure 13*) located behind the rear righthand guard door.

3rd Stage Drive Adjustment

The 3rd stage web and agitator are driven by two drive chains (*item 1, figure 12*). Each drive chain is tensioned by a tension block (*item 2, figure 12*). To adjust the tension of the chains, loosen the securing bolts (*item 3, figure 12*) and slide the blocks to achieve the correct tension. Once achieved, retighten the securing bolt.

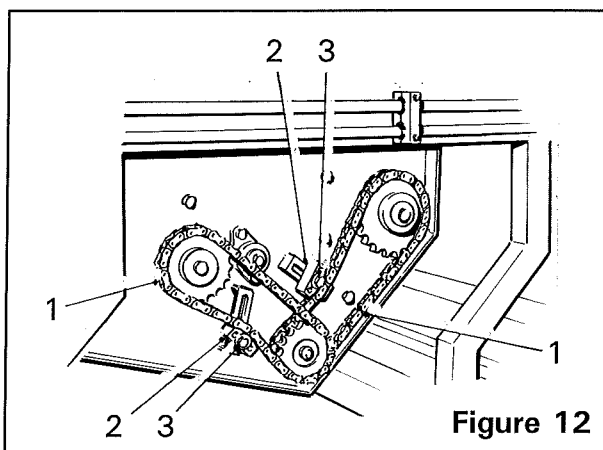


Figure 12

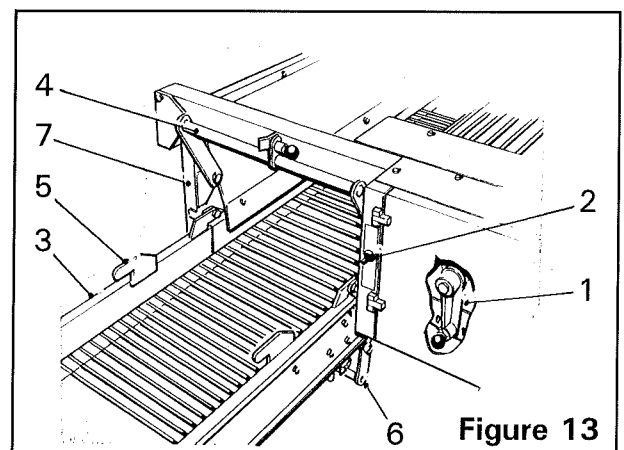


Figure 13

Cross Conveyor



Never operate the cross conveyor when the extension is folded in the transport position. When in operation, the cross conveyor extension must be locked in the working position using the locking arm (item 6, figure 13).

The cross conveyor is designed to transfer the stone and clod etc. from the 3rd stage and place it into the bottom of the wheelings. A hydraulic ram positions the cross conveyor to discharge on either the left or right hand side of the machine. To position the cross conveyor to the right or left, operate the control box switch marked 'Cross Conveyor Side Shift'.

The cross conveyor web is driven by two hydraulic motors. To alter the direction of discharge, operate the control box switch marked 'Cross Conveyor Drives'. To increase/decrease the speed of the web, turn the valve bank control knob (*item 10, figure 16*). The higher the number, the faster the web will travel.

Lowering the Cross Conveyor Extension

To lower the cross conveyor extension into the working position:

1. Using the 'Cross Conveyor Side Shift' switch (*item 2, figure 13*) and with the tractor maintaining a constant flow of oil to the valve bank, lower the conveyor extension (*item 3, figure 13*) by gently moving the cross conveyor to the left. Continue until the lifting arm (*item 4, figure 13*) is clear of the lifting lugs (*item 5, figure 13*).
2. Swing the lifting arm (*item 4, figure 13*) into its upper position as shown and secure it in place using the locking mechanism.
3. Move the cross conveyor fully to the right
4. Swing the conveyor extension locking arm (*item 6, figure 13*) up until it locates in the slots and secure it in place using the locking mechanism.

Raising the Cross Conveyor Extension

To raise the cross conveyor extension into the transport position:

1. Using the 'Cross Conveyor Side Shift' switch (*item 2, figure 13*) and with the tractor maintaining a constant flow of oil to the valve bank, move the cross conveyor fully to the right.
2. Release the conveyor extension locking arm (*item 6, figure 13*) and allow it to swing down.
3. Move the cross conveyor to the left until the lifting lugs (*item 5, figure 13*) are behind the post (*item 7, figure 13*).
4. Release the lifting arm (*item 4, figure 13*) and lower it onto the conveyor extension (*item 3, figure 13*).
5. Gently move the cross conveyor to the right ensuring that the lifting arm (*item 4, figure 13*) locates correctly under the lifting lugs (*item 5, figure 13*). Continue moving the conveyor to the right until the extension is in the fully raised position.



Stand clear of the cross conveyor extension when raising and lowering.



*Always ensure the lifting arm (*item 4, figure 13*) locates correctly under the lifting lugs (*item 5, figure 13*) before raising.*

Rear Axle

The rear wheels are steerable to assist with hillside work and also enable easier headland turning. Operation of the rear wheels is controlled from the in-cab control box. To steer the rear wheels, operate the switch marked 'Rear Axle Right/Left'.

The rear wheels can be centralised automatically by pressing the switch marked 'Rear Axle Auto Centre'. If the wheels do not centralise properly, adjustment can be made by adjusting the self centring switch (*item 1, figure 14*).

To adjust the self centring switch:

1. Centre the wheels (a judgement can be made by checking the wheels are parallel to the chassis).
2. Switch off the tractor engine, apply the handbrake and remove the ignition key.
3. Switch off the in-cab control box.
4. Ensure the pointer (*item 2, figure 14*) is in the vertical (centre) position.
5. Loosen the cam plate grub screw (*item 3, figure 14*). Set the cam plate so that the corner 'A' touches the switch wheel and a click is heard. Retighten the grub screw.

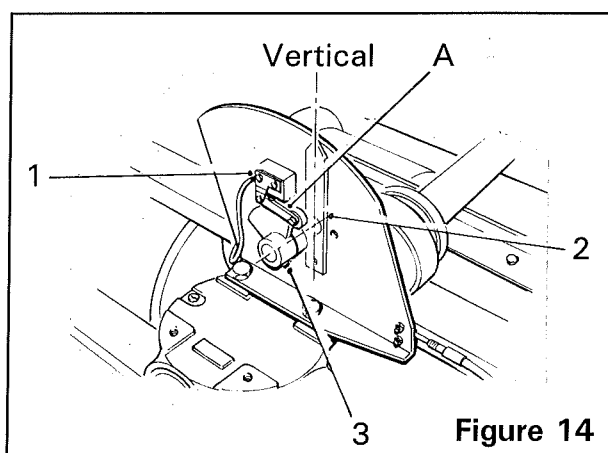


Figure 14

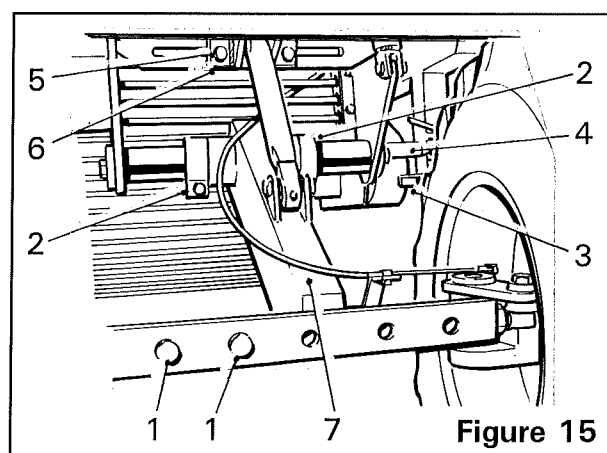


Figure 15

Rear Axle Adjustment

The rear wheels are adjustable from 152cm (60") to 203cm (80") wheelings.

To adjust the rear wheels:

1. Switch off the tractor engine, apply the handbrake and remove the ignition key.
2. Remove the two track rod securing bolts (*item 1, figure 15*).
3. Loosen the two clamps (*item 2, figure 15*).
4. Using the jack supplied, position the jack in the jacking position (*item 3, figure 15*) and raise the wheel.
5. Adjust the wheel using the adjusting link (*item 4, figure 15*) and then retighten the clamps (*item 2, figure 15*).

6. Loosen the retaining bolts (*item 5, figure 15*) and slide the stay bracket (*item 6, figure 15*) until the ram/stay is in line with the wheel leg (*item 7, figure 15*). Retighten the retaining bolts (*item 5, figure 15*).
7. Lower the wheel to the ground and repeat for the other wheel.
8. After adjusting both wheels, lower the machine to the ground and refit the track rod securing bolts (*item 1, figure 15*) into the appropriate holes.

Electrical Control System

Control for the major functions of the Standen Spectra are provided electrically by the switches mounted on the in-cab control box. The switches operate the solenoid valves on the valve bank (*item 1, figure 16*). The solenoid valves can be manually activated by operating the valve knobs (*item 2, figure 16*).



Never leave or store the control box outside in the open. Always disconnect the control box from the tractor electrical supply when not in use, so avoiding the possibility of draining the battery.

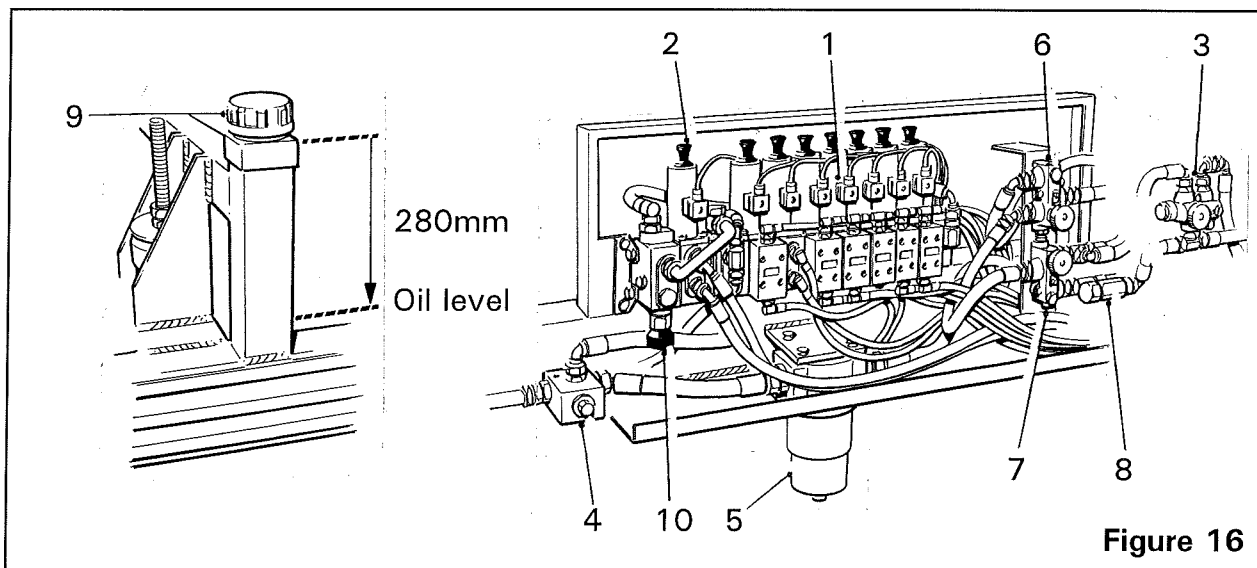


Figure 16

Hydraulic Systems

The Standen Spectra has two separate hydraulic systems. One system is fed from the tractor hydraulic supply, the other system is fed from the Spectra pump and integral hydraulic oil reservoir.

Tractor System:

The hydraulic oil from the tractor operates the hydraulic rams, 3rd stage motor and cross conveyor motors. The system requires a constant flow of 45 litre/min (10 gal/min). From the tractor, the oil passes through the pressure filter (*item 1, figure 17*) and then to the variable flow divider (*item 3, figure 16*) which powers the 3rd stage motor. The bypass flow from the flow divider is then recombined with the return flow from the 3rd stage motor and pressurises the valve bank (*item 1, figure 16*) which operates the cross conveyor motors and hydraulic rams.

Machine System:

The Spectra hydraulic pump (*item 2, figure 17*) supplies pressurised oil to drive the clod breaking rotor and 2nd stage agitator motor. The pump produces a flow rate of 63 litre/min (14 gal/min) at 540rpm PTO speed. The oil reservoir for the system is integral within the front and left hand frame members of the chassis. The pressurised oil from the pump passes through the relief valve (*item 4, figure 16*) which is designed to protect the hydraulic system. From the relief valve, the oil passes through the pressure filter (*item 5, figure 16*) and then travels to the 2nd stage agitator variable flow divider (*item 6, figure 16*). The bypass flow from the flow divider is recombined with the return flow from the agitator motor and travels to the clod breaking rotor variable flow divider (*item 7, figure 16*). The check valve (*item 8, figure 16*) linked into the motor pressure line is designed to allow the rotor to gradually slow down after the power has been switched off.



The pressure relief valve (item 4, figure 16) is fitted to protect the hydraulic system should any major blockage occur. It is an essential safety feature preset at the factory and should never be tampered with.



The check valve (item 8, figure 16) is an important safety feature and must remain fitted and operable at all times.

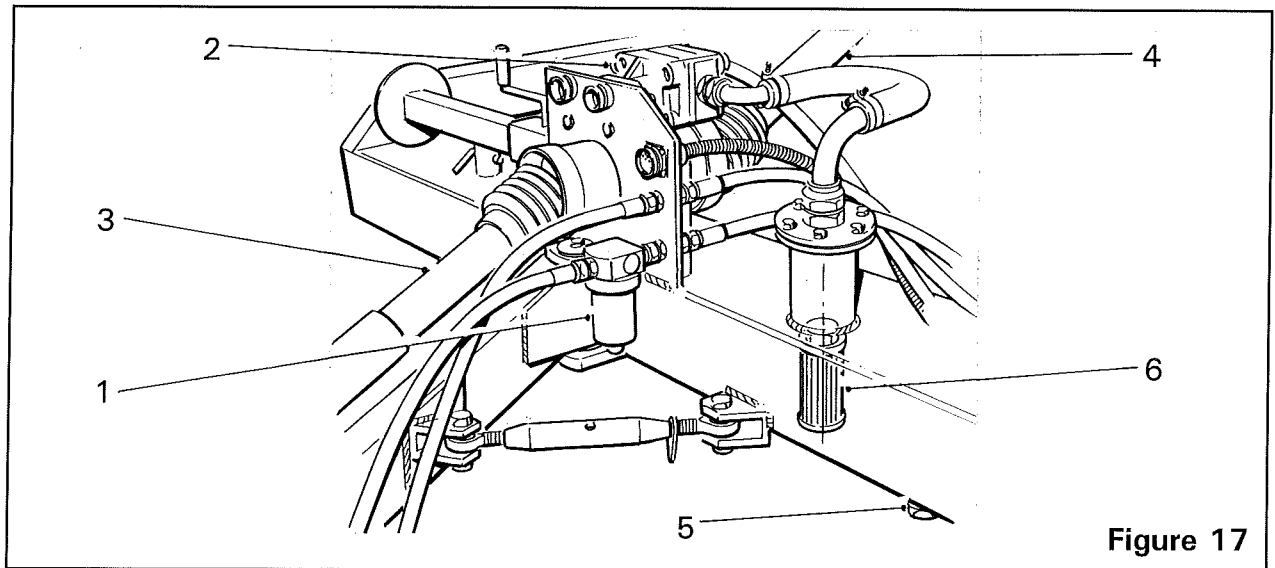


Figure 17

Maintenance of the Mechanical Drives

The various drives involved in the design of the Standen Spectra consist of chains, sprockets, shafts and gearboxes etc. Each drive chain is fitted with its own tensioner. The chains should be tensioned correctly to ensure the efficient working of the machine. The chains should not be over-tightened, as this will result in excessive wear of the drive components. Instructions for the adjustment of each drive chain are given in the paragraph relating to that assembly.



All revolving drive machinery; chains, sprockets, pulleys and shafts etc. are potentially dangerous. Before attempting any adjustment or maintenance of the drive equipment, switch off the tractor engine, apply the handbrake, remove the ignition key and disconnect the PTO shaft. Failure to observe the above precaution could result in serious injury to personnel.

The drive is transferred from the tractor to the machine by the PTO shaft (*item 3, figure 17*). The PTO shaft drives the gearbox which in turn drives the hydraulic pump (*item 2, figure 17*). The PTO shaft should be checked occasionally to ensure that the inner and outer tubes can slide freely. Binding of the tubes may cause premature wear of the gearbox input bearings.

From the gearbox, the drive is taken via a universal coupling (*item 4, figure 17*) to the second gearbox. The second gearbox transmits the drive to both the 1st and 2nd stages of the machine. The gearbox oil levels should be checked occasionally and topped up with EP 90 gear oil as necessary.

Maintenance of the Hydraulic Systems

The components utilised in the design of the hydraulic systems have been chosen for their maintenance-free characteristics. The only components requiring maintenance are as follows.

The pressure line filter (*item 1, figure 17*) is fitted with an indicator. When the indicator is pointing to the red segment, the filter element should be replaced. To replace the element, unscrew it from the bottom of the filter assembly.



The hydraulic system may be under pressure with the machine at rest. Ensure all residual pressure is released before disconnecting any pipework.

The pressure filter (*item 5, figure 16*) should be replaced after the first 50 hours running time and then every 500 hours or annually thereafter.

Check the reservoir oil level regularly by removing the filler/breather cap (*item 9, figure 16*) and top up with Nuto 46 Centistroke Oil to the dimension shown (*see figure 16*).

Every 500 hours or annually, drain the hydraulic reservoir and clean the magnetic drain plug (*item 5, figure 17*). Remove and clean the suction strainer (*item 6, figure 17*). Refill the hydraulic reservoir with Nuto 46 Centistroke Oil (160 litres/35 gallons).



When carrying out maintenance on the hydraulic system, cleanliness is of the utmost importance. Avoid any dirt entering the system.



Remember that the tractor hydraulic oil supply serves the machine. Ensure the tractor hydraulic system is serviced in accordance with the manufacturers recommendations to prevent cross contamination of the machine system

Maintenance of the Electrical Control System

Trouble shooting of the electrical control system must be carried out by a competent engineer familiar with electrical servicing. The basic test to confirm an electrical fault if a service does not operate, is to try to operate the service using the manual override knobs fitted to the hydraulic valve bank. If the service operates manually, then checks should be made to see if power is reaching the relevant solenoid on the valve. If the service does not operate manually , then it is possible the fault lies within the hydraulic system.

Lubrication

Regular maintenance will ensure the Standen Spectra provides a long and efficient service life. Depending on soil and weather conditions, the service schedule can vary.

Correct lubrication should be employed to ensure the full life of the various working parts and the efficient operation of the machine.

Shafts and bearings fitted with grease nipples should be lubricated using a good quality general purpose grease. Bearings must not be allowed to run dry. When greasing it is better to give a little frequently than a lot a long intervals.

Note: With reference to the lubrication chart (*see figure 18*), some of the bearings are sealed and pre-lubricated. Care should be taken not to flood these bearings with grease or the seals may burst allowing grease to escape and dirt to get in. Should this happen, more frequent greasing will be required in order to keep the dirt at bay. When lubricating sealed bearings, only two or three strokes of the grease gun every twenty acres of work is necessary.

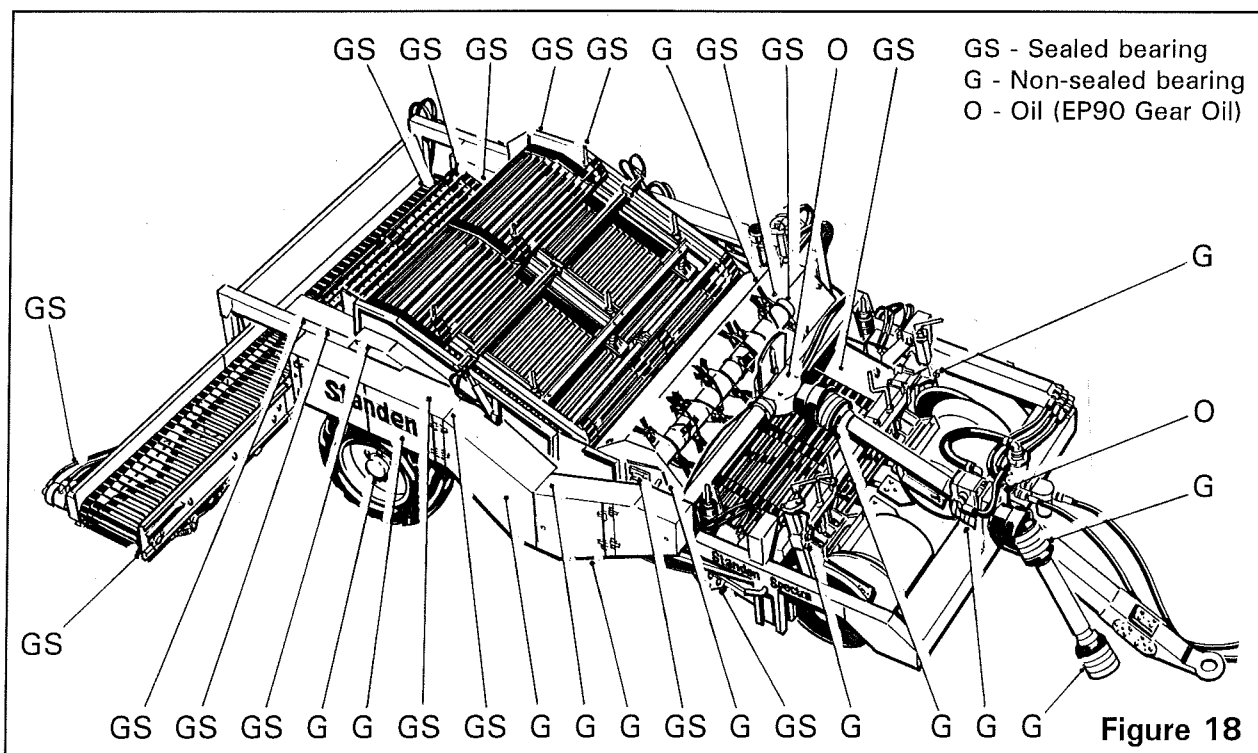
The non-sealed bearings should be greased at least once a day or every ten acres.

The gearboxes should be checked occasionally and topped up with EP 90 gear oil as necessary.

The universal couplings (such as the PTO shaft) should be dismantled periodically and their shafts smeared with grease.

Apply grease to all pivot points and slideways etc. to ensure they move easily and are free from corrosion.

Particular care must be taken to ensure that grease or oil does not come in contact with the torque limiters.



Service Schedule

On delivery and after the first 2 hours

Nuts, bolts and keyways	Check tightness
Machine	Lubricate

Every day (or every 10 acres)

Hydraulic oil	Check level
Nuts, bolts and keyways	Check tightness
Non-sealed bearings	Lubricate
Hydraulic hoses and fittings	Check condition
Machine components	Check condition

Every two days (or every 20 acres)

Sealed bearings	lubricate
Chain drives	Check tension
Shafts and chains	Lubricate

After the first 50 hours

Pressure filter (<i>item 5, figure 16</i>)	Replace filter element
--	------------------------

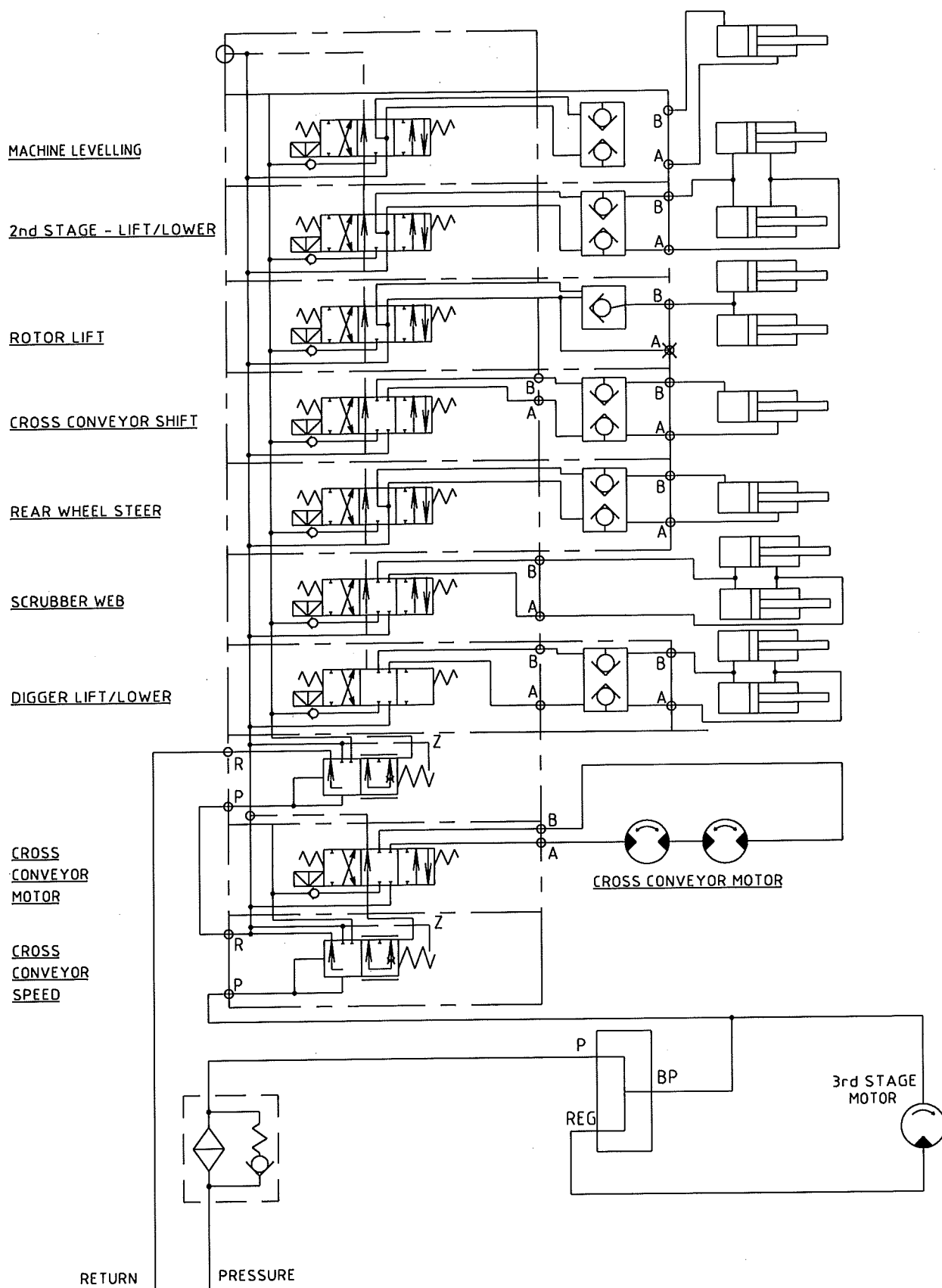
Every 500 hours (or annually)

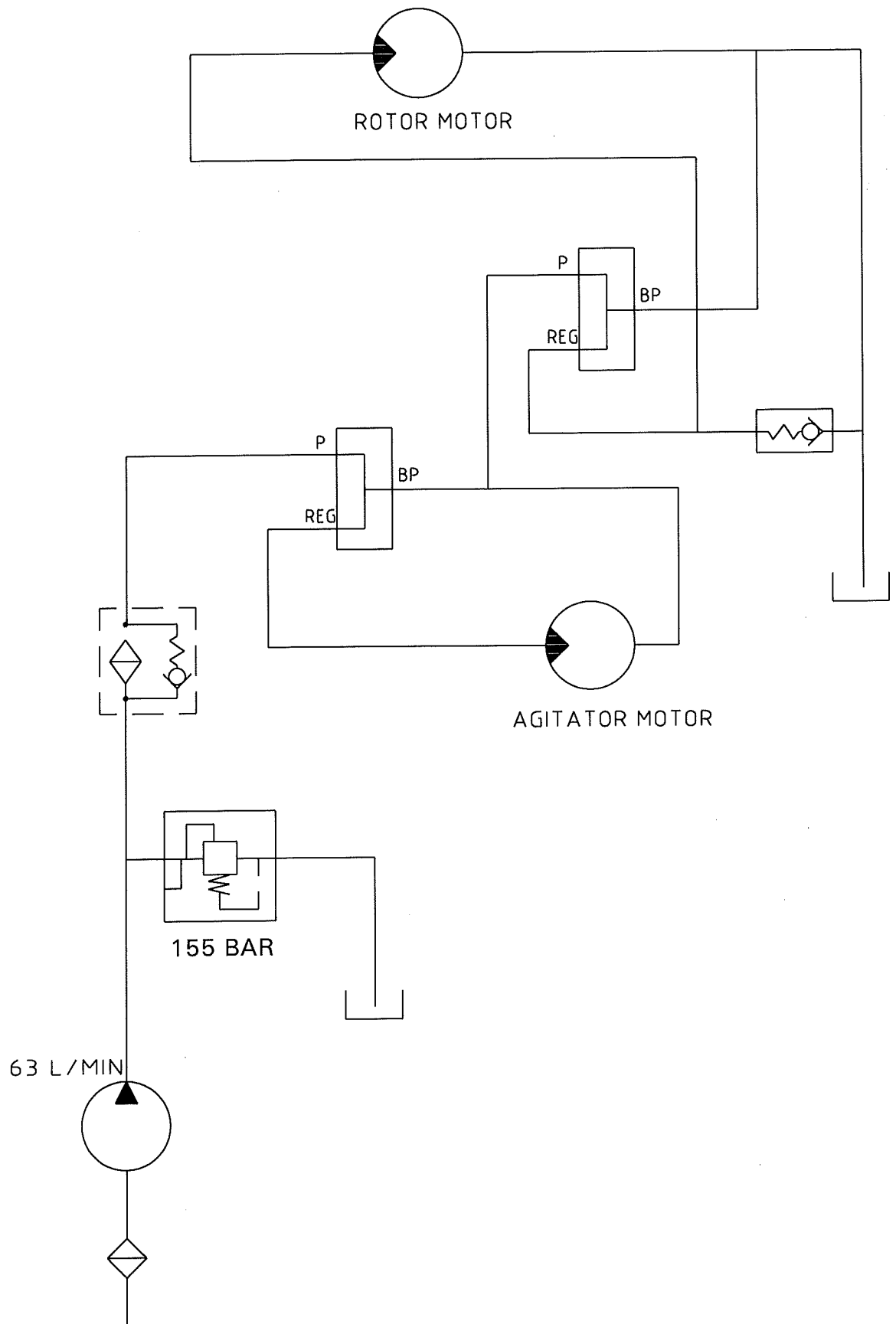
Pressure filter (<i>item 5, figure 16</i>)	Replace filter element
Hydraulic oil	Change
Suction strainer and magnetic drain plug	Clean

End of the season

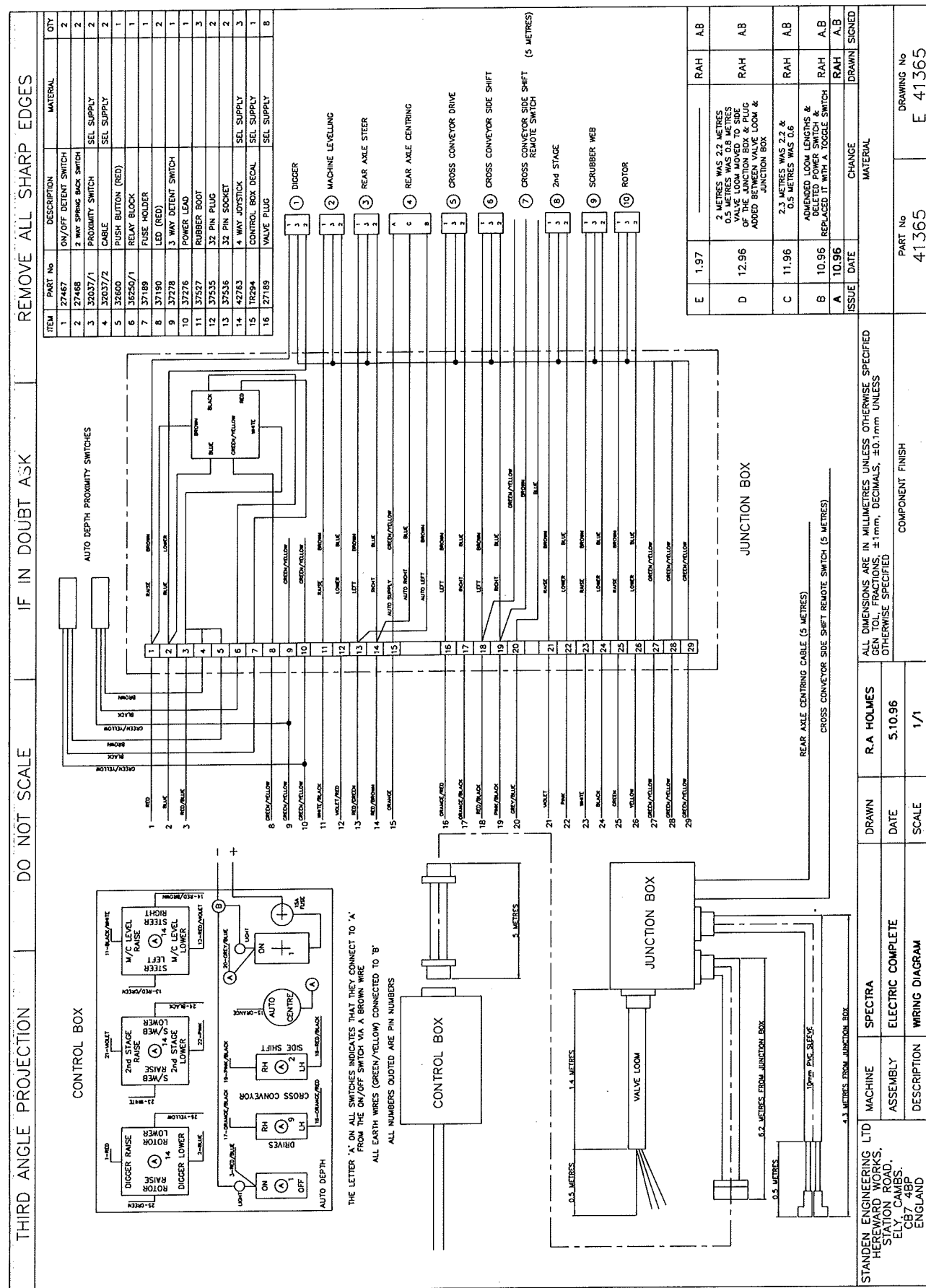
Machine	Clean down thoroughly
Machine components	Check condition
Nuts, bolts and keyways	Check tightness
Machine	Lubricate
Bright surfaces	Treat with rust preventative
Paintwork	Check condition
Torque Limiters	Slacken off
Machine	Store in a dry place

Ram/Motor Hydraulic Circuit (machines from serial no. DS 113)



Rotor/Agitator Hydraulic Circuit (machines from serial no. DS 113)

Electrical Circuit (machines from serial no. DS 113)



Nut/Bolt Tightening Torque

<i>Description</i>	<i>Torque</i>		<i>Description</i>	<i>Torque</i>
M6 nyloc zinc plated nut	13.5Nm (10lb/ft)		M6 bolt/steel nut	9.5Nm (7lb/ft)
M8 nyloc zinc plated nut	31Nm (23lb/ft)		M8 bolt/steel nut	25.7Nm (19lb/ft)
M10 nyloc zinc plated nut	60Nm (44lb/ft)		M10 bolt/steel nut	51.5Nm (38lb/ft)
M12 nyloc zinc plated nut	118Nm (87lb/ft)		M12 bolt/steel nut	95Nm (70lb/ft)
M16 nyloc zinc plated nut	282Nm (208lb/ft)		M16 bolt/steel nut	230Nm (170lb/ft)
M20 nyloc zinc plated nut	515Nm (380lb/ft)		M20 bolt/steel nut	440Nm (325lb/ft)
M24 nyloc zinc plated nut	935Nm (690lb/ft)		M24 bolt/steel nut	766Nm (565lb/ft)

Dimensions

Length	7.7m
Width (in transport)	2.9m
Height (in transport)	2.6m

Technical Data

Weight (with clod breaking rotor)	4.4t
Working width	152cm(60")-203cm(80")
Tractor hp requirement	100hp
Tractor hydraulic flow rate required	45 litre/min(10 gal/min)
Hydraulic pump flow rate	63 litre/min(14 gal/min)
Pressure Relief Valve Setting	155 bar(2250 psi)
Oil reservoir (Nuto 46 Centistroke Oil)	160 litres(35 gal)
Tyre pressure	2.8 bar(40 psi)
Wheel Nut Torque	251Nm(185lb/ft)

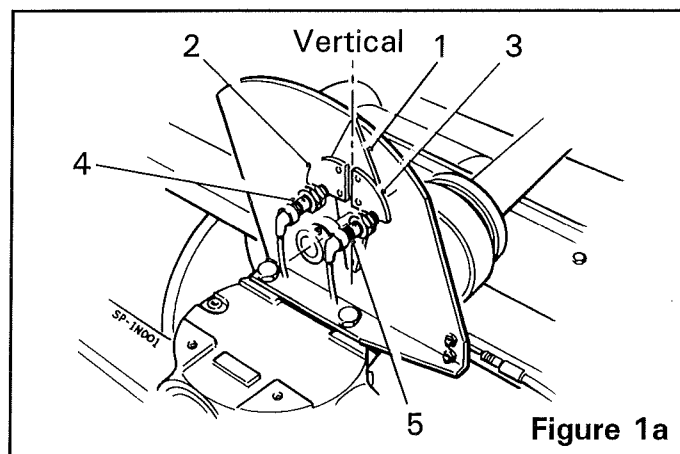
Standen Engineering's policy of continual product development means that specifications may be altered without prior notice. All dimensions are approximate.

Rear Axle Self Centring (machines from 1998)

The rear wheels can be centralised automatically by pressing the switch marked 'Rear Axle Auto Centre'. If the wheels do not centralise properly, adjustment can be made by resetting the self centring mechanism.

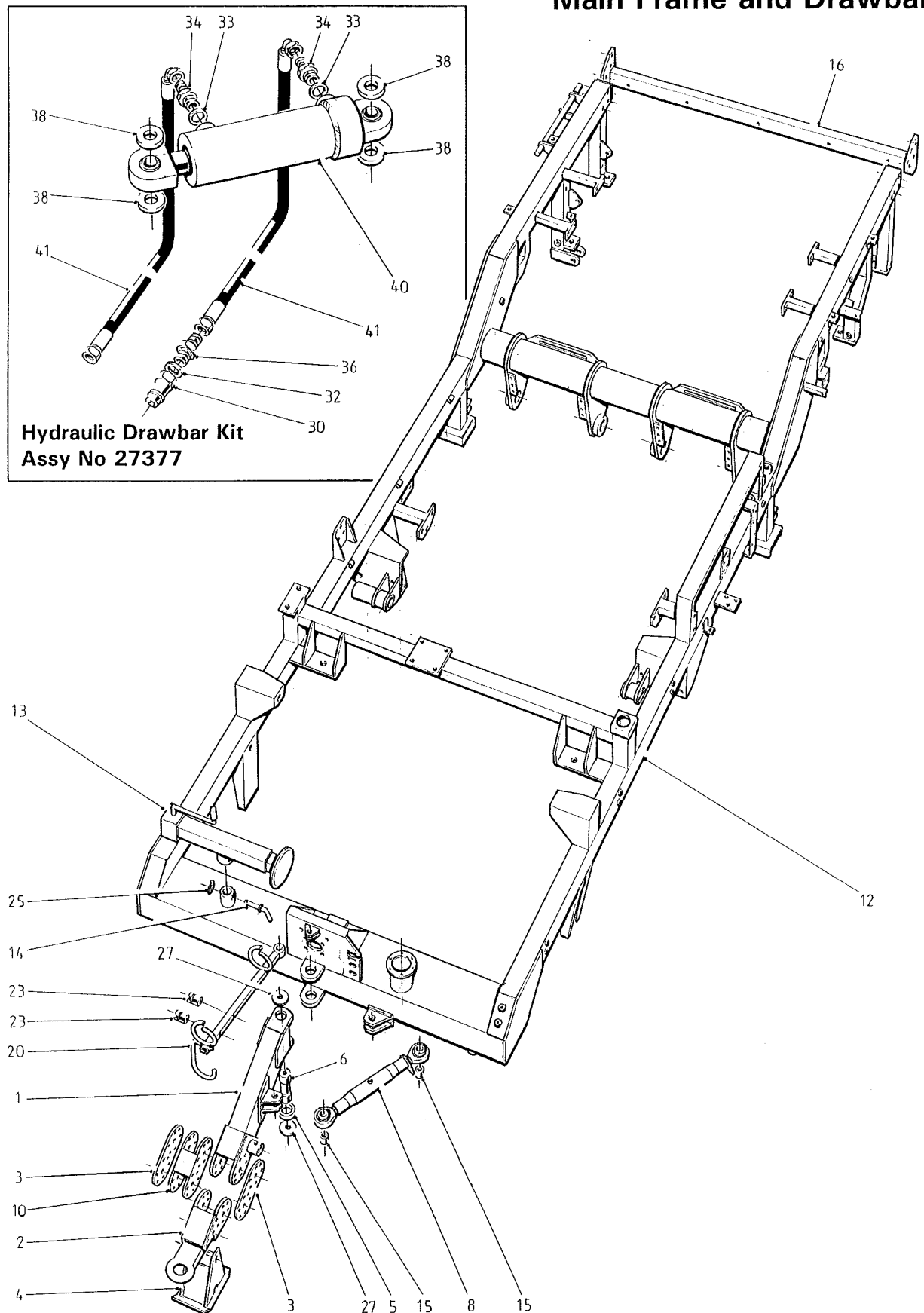
To adjust the self centring mechanism:

1. Centre the wheels (a judgement can be made by checking the wheels are parallel to the chassis).
2. Switch off the tractor engine, apply the handbrake and remove the ignition key.
3. Switch off the in-cab control box.
4. Ensure the pointer (*item 1, figure 1a*) is in the vertical (centre) position and then loosen the cam plate setscrews just enough to be able to move the cam plates (*item 2 & 3, figure 1a*).
5. Switch on the control box and press the 'Rear Axle Auto Centre' button.
6. Move the cam plate (*item 2, figure 1a*) until a red light appears on the sensor (*item 4, figure 1a*) and then retighten. Repeat for the other cam plate (*item 3, figure 1a*) and sensor (*item 5, figure 1a*).



Machines from Serial No DS 113

Main Frame and Drawbar



2.1a	SPARE PARTS
-------------	--------------------

2.1a	SPARE PARTS
-------------	--------------------

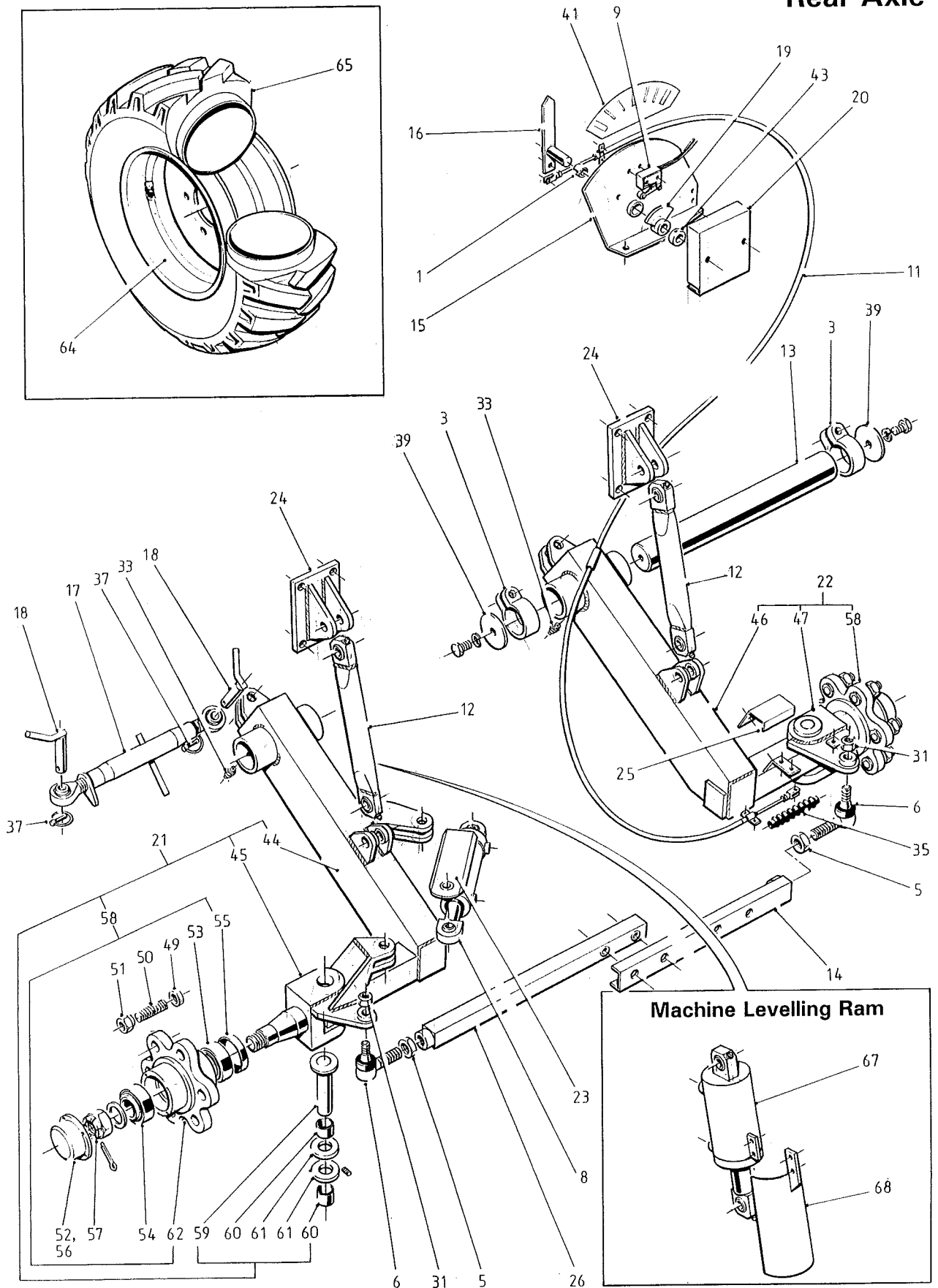
Machines from Serial No DS 113

Main Frame and Drawbar

[illegible]

Machines from Serial No DS 113

Rear Axle



2.2a

SPARE PARTS

Machines from Serial No DS 113

Rear Axle

Item	Part No.	Description	Qty.	Remarks
1	12120	Bush	1	
2				
3	13012	Clamp	4	
4				
5	23275	Locknut	2	
6	23276	Steering Joint	2	
7				
8	27215	Hydraulic Ram	1	
9	27507	Centring Switch	1	
10				
11	41043	Indicator Cable Complete	1	
12	41046	Axle Stay	2	(Qty 1 with hydraulic levelling)
13	41052	Pivot Shaft	2	
14	41054	Track Rod Channel	1	
15	41061	Indicator Backplate	1	
16	41062	Indicator Pointer	1	
17	41063	Top Link Assembly	2	
18	41064	Locating Pin	4	
19	41353	Centring Cam	1	
20	41354	Switch Guard	1	
21	41367	LH Wheel Leg Assembly	1	(see list at end)
22	41368	RH Wheel Leg Assembly	1	(see list at end)
23	41369	Ram Shield	1	
24	41370	Stay Bracket	2	
25	41371	Cable Shield	1	
26	41372	Track Rod Tube	1	
27				
28				
29				
30				
31	22098062	5/8"UNF Nyloc Nut	2	
32				
33	GS411	1/8"BSP Angled Grease Nipple	2	
34				
35	KA17396	Rubber Gaiter	1	
36				
37	REK215	Linch Pin	4	
38				
39	SS095017/006	Steel Spacer	4	
40				
41	TR270	Transfer	1	
42				
43	W0979	Locking Collar	1	
	41367	LH Wheel Leg Assembly		
	41368	RH Wheel Leg Assembly		
		Consists Of:		
44	41367/1	LH Wheel Leg	1	Assy 41367 only
45	41367/2	LH Stub Axle	1	Assy 41367 only
46	41368/1	RH Wheel Leg	1	Assy 41368 only
47	41368/2	RH Stub Axle	1	Assy 41368 only
48				
49	KA10008	3/4"UNF Locknut	6	
50	KA10009	3/4"UNF Wheel Stud	6	

SPARE PARTS

2.2b

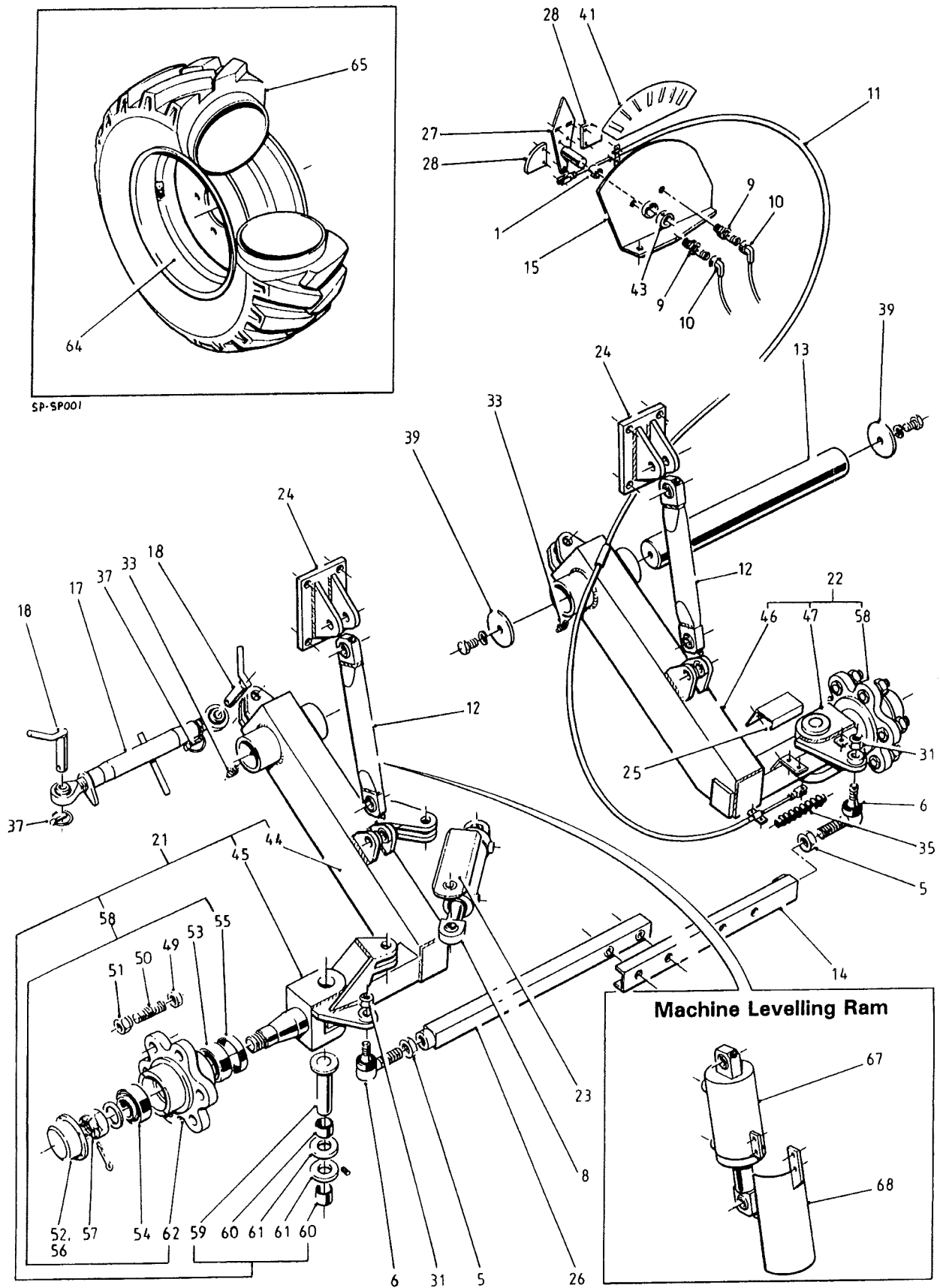
Machines from Serial No DS 113

Rear Axle

Item	Part No.	Description	Qty.	Remarks
51	KA10010	3/4"UNF Wheel Nut	6	
52	KA10016	Hub Cap	1	
53	KA10017	Inner Bearing	1	
54	KA10018	Outer Bearing	1	
55	KA10019	Oil Seal	1	
56	KA10020	Hub Cap Gasket	1	
57	KA10021	Castellated Nut	1	
58	KA10025	Hub c/w Bearings and Seals	1	
59	KA10050	King Pin	1	
60	KA10051	Bush	2	
61	KA10052	Thrust Washer	2	
62	KA10053	Hub	1	
63				
	37772	12.5x18 Wheel Consists Of:		
64	2510400000/1	11x18 Wheel Rim	1	Options
65	2510400000/2	12.5x18 Tyre and Tube	1	
66				
	41355	10.5x18 Wheel Consists Of:		
64	41339	9x18 Wheel Rim	1	Options
65	41338	10.5x18 Tyre and Tube	1	
66				
		Machine Levelling Ram Consists Of:		
67	41045	Hydraulic Ram	1	Optional
68	41059	Ram Shield	1	

Machines from 1998

Rear Axle



2.2a

SPARE PARTS

Machines from 1998

Rear Axle

Item	Part No.	Description	Qty.	Remarks
1	12120	Bush	1	
2				
3				
4				
5	23275	Locknut	2	
6	23276	Steering Joint	2	
7				
8	27215	Hydraulic Ram	1	
9	32037/1	Proximity Switch	2	
10	32037/2	Switch Lead	2	
11	41043	Indicator Cable Complete	1	
12	41046	Axle Stay	2	(Qty 1 with hydraulic levelling)
13	41052	Pivot Shaft	2	
14	41054	Track Rod Channel	1	
15	41061	Indicator Backplate	1	
16				
17	41063	Top Link Assembly	2	
18	41064	Locating Pin	4	
19				
20				
21	41367	LH Wheel Leg Assembly	1	(see list at end)
22	41368	RH Wheel Leg Assembly	1	(see list at end)
23	41369	Ram Shield	1	
24	41370	Stay Bracket	2	
25	41371	Cable Shield	1	
26	41372	Track Rod Tube	1	
27	41478	Indicator Pointer	1	
28	41479	Cam Plate	2	
29				
30				
31	22098062	5/8"UNF Nyloc Nut	2	
32				
33	GS411	1/8"BSP Angled Grease Nipple	2	
34				
35	KA17396	Rubber Gaiter	1	
36				
37	REK215	Linch Pin	4	
38				
39	SS095017/006	Steel Spacer	4	
40				
41	TR270	Transfer	1	
42				
43	W0979	Locking Collar	1	
	41367	LH Wheel Leg Assembly		
	41368	RH Wheel Leg Assembly		
		Consists Of:		
44	41367/1	LH Wheel Leg	1	Assy 41367 only
45	41367/2	LH Stub Axle	1	Assy 41367 only
46	41368/1	RH Wheel Leg	1	Assy 41368 only
47	41368/2	RH Stub Axle	1	Assy 41368 only
48				
49	KA10008	3/4"UNF Locknut	6	
50	KA10009	3/4"UNF Wheel Stud	6	

SPARE PARTS

2.2b

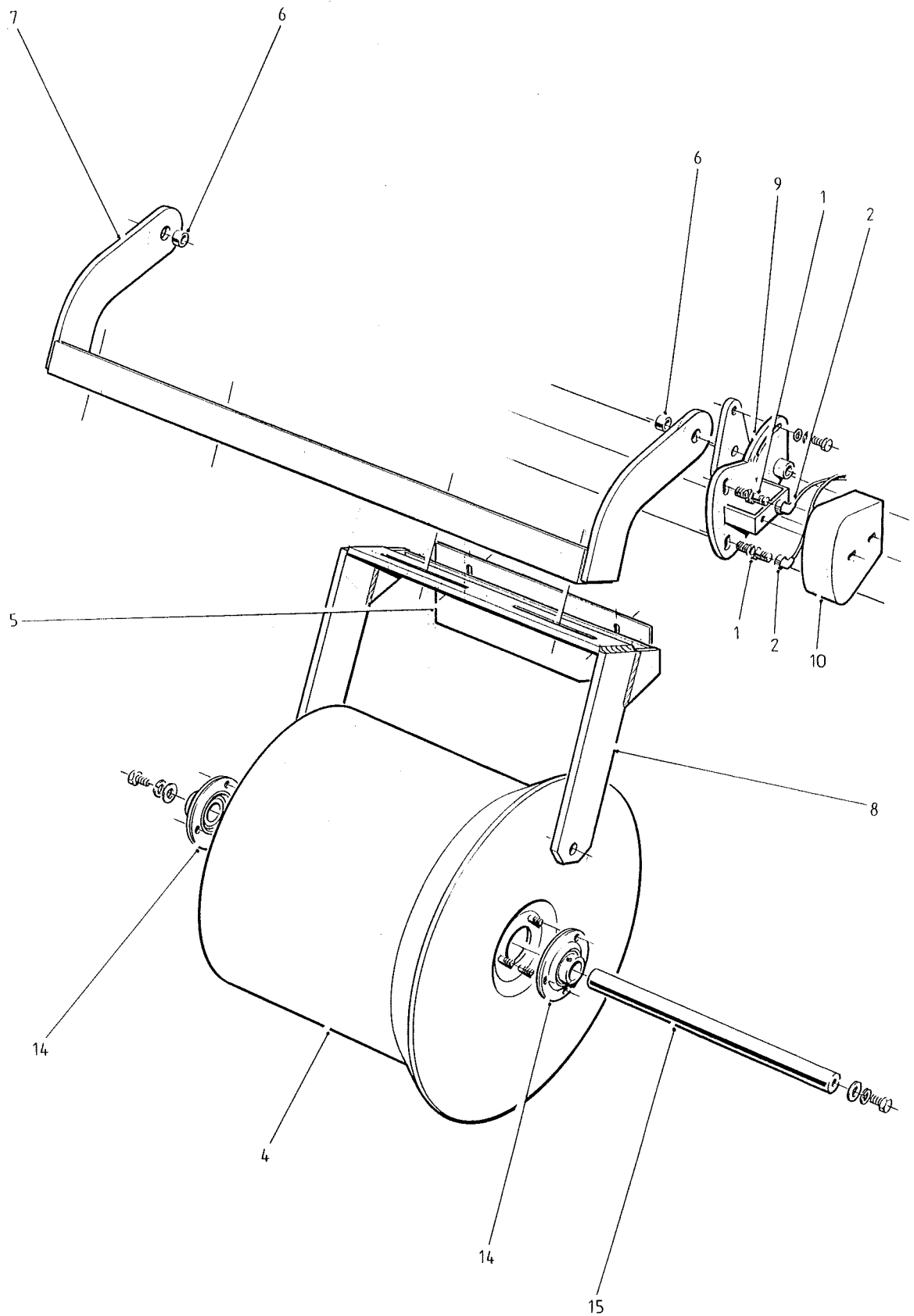
Machines from 1998

Rear Axle

Item	Part No.	Description	Qty.	Remarks
51	KA10010	3/4"UNF Wheel Nut	6	
52	KA10016	Hub Cap	1	
53	KA10017	Inner Bearing	1	
54	KA10018	Outer Bearing	1	
55	KA10019	Oil Seal	1	
56	KA10020	Hub Cap Gasket	1	
57	KA10021	Castellated Nut	1	
58	KA10025	Hub c/w Bearings and Seals	1	
59	KA10050	King Pin	1	
60	KA10051	Bush	2	
61	KA10052	Thrust Washer	2	
62	KA10053	Hub	1	
63				
	37772	12.5x18 Wheel Consists Of:		
64	2510400000/1	11x18 Wheel Rim	1	Options
65	2510400000/2	12.5x18 Tyre and Tube	1	
66				
	41355	10.5x18 Wheel Consists Of:		
64	41339	9x18 Wheel Rim	1	Options
65	41338	10.5x18 Tyre and Tube	1	
66				
		Machine Levelling Ram Consists Of:		
67	41045	Hydraulic Ram	1	Optional
68	41059	Ram Shield	1	

Machines from Serial No DS 113

Diablo Rollers



2.3a**SPARE PARTS**

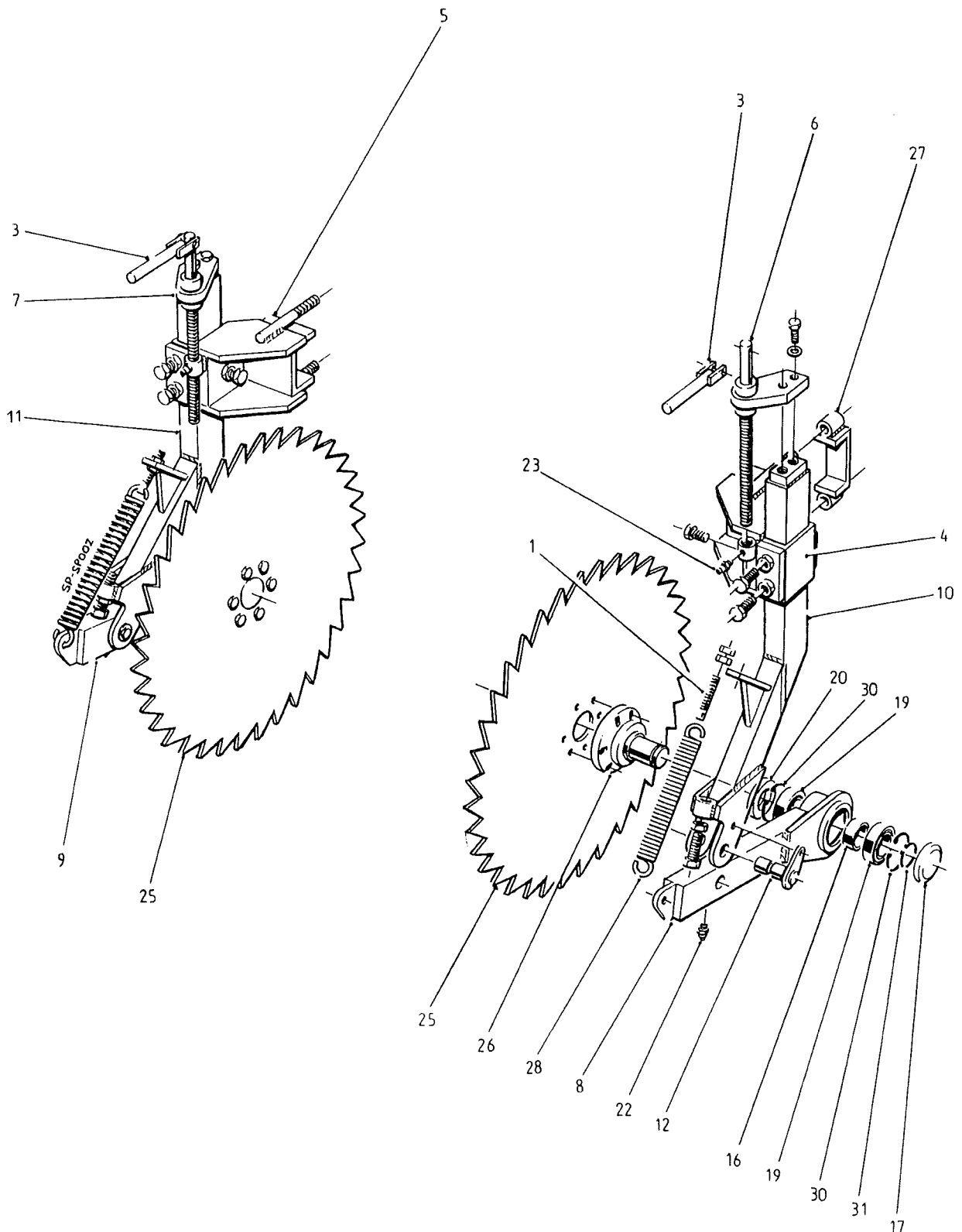
Machines from Serial No DS 113

Diablo Rollers

Item	Part No.	Description	Qty.	Remarks
1	32037/1	Proximity Switch	2	
2	32037/2	Proximity Switch Cable	2	
3				
4	41067	Diablo Roller	2	
5	41068	Scraper	2	
6	41071	Pivot Boss	2	
7	41349	Support Frame	1	
8	41350	Roller Frame	2	
9	41351	Switch Mounting	1	
10	41352	Switch Shield	1	
11				
12				
13				
14	2020800000/1	Bearing	4	
15	4502503001	Diablo Shaft	2	

Machines from Serial No DS 113

Disc Coulters



2.4a**SPARE PARTS**

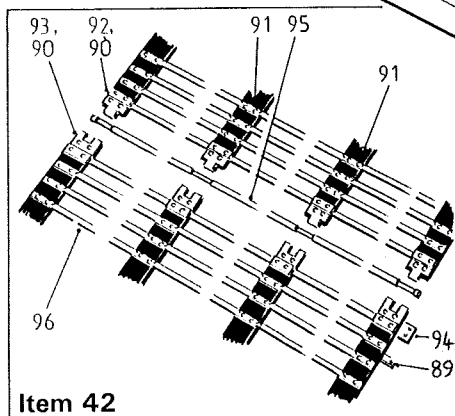
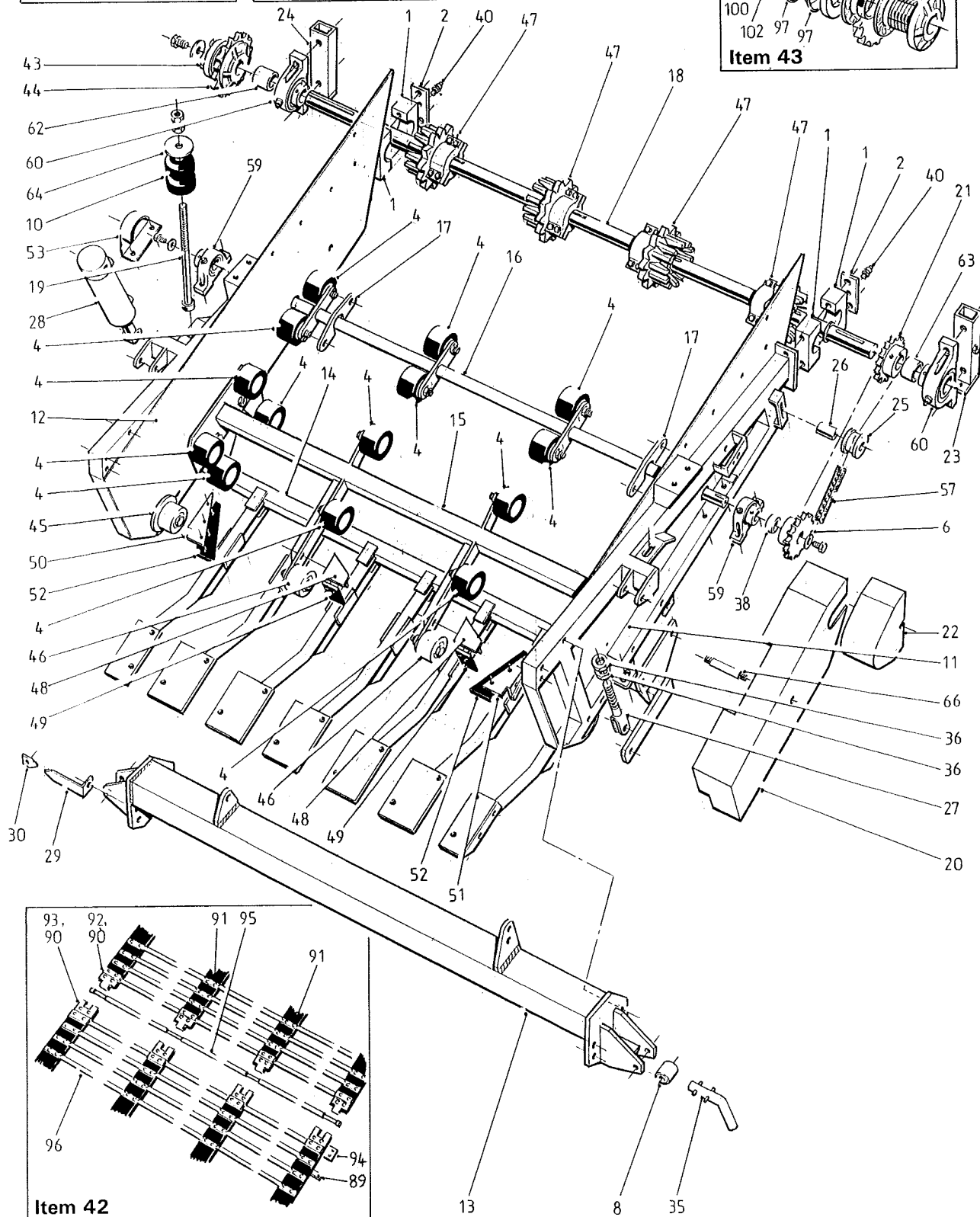
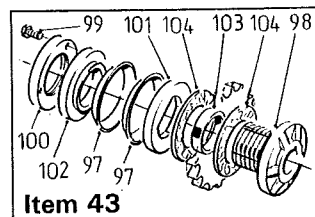
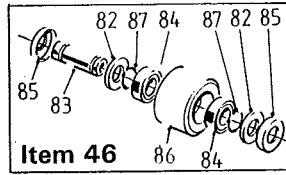
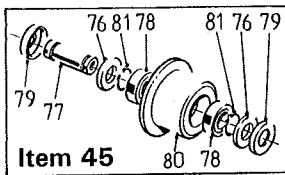
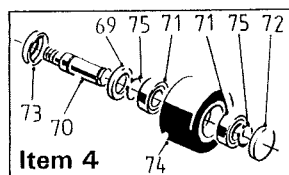
Machines from Serial No DS 113

Disc Coulters

Item	Part No.	Description	Qty.	Remarks
1	11813	Tensioner	2	
2				
3	41072	Adjuster Handle	2	
4	41075	LH Disc Mounting Bracket	1	
5	41076	RH Disc Mounting Bracket	1	
6	41079	LH Disc Adjuster Screw	1	
7	41080	RH Disc Adjuster Screw	1	
8	41435	LH Disc Arm	1	
9	41436	RH Disc Arm	1	
10	41437	LH Disc Leg	1	
11	41438	RH Disc Leg	1	
12	41439	Pivot Pin	2	
13				
14				
15				
16	2000703002	Spacer	2	
17	2000703003	Dust Cap	2	
18				
19	6009RS	Bearing	4	
20	6009ZJV	Nilos Ring	2	
21				
22	GS411	1/8"BSP Angled Grease Nipple	2	
23	GS412	1/8"BSP Straight Grease Nipple	2	
24				
25	KA12107	Plain Disc	2	Options
	41468	Serrated Disc (Ø760mm)	2	
	41471	Serrated Disc (Ø700mm) (standard)	2	
26	KA20422	Disc Spindle	2	
27	KA20425	Clamp	2	
28	KA35066	Spring	2	
29				
30	W0116	Internal Circlip	4	
31	W0117	External Circlip	2	

Machines from Serial No DS 113

Digger Web



2.5a**SPARE PARTS**

Machines from Serial No DS 113

Digger Web

Item	Part No.	Description	Qty.	Remarks
1	12292	Bearing Block	4	
2	12293	Clamp Plate	2	
3				
4	19356	Roller Assembly	20	(see list at end)
5				
6	27758	23T Sprocket	1	
7				
8	37263	Front Beam Roller	2	
9				
10	41042	Rubber Damper Spring	2	
11	41081	LH Digger Web Side	1	
12	41082	RH Digger Web Side	1	
13	41083	Front Beam	1	
14	41085	Share Bar	1	
15	41087	Roller Support	1	
16	41089	Agitator Shaft	1	
17	41091	Roller Locking Plate	2	
18	41092	Drive Shaft	1	
19	41096	Damper Rod	2	
20	41097	Agitator Drive Guard	1	
21	41099	23t Sprocket	1	
22	41100	Bearing Guard	1	
23	41111	LH Bearing Mounting	1	
24	41112	RH Bearing Mounting	1	
25	41117	Nylon Tension Roller	1	
26	41118	Tension Roller Spindle	1	
27	41330	Share Bar Adjuster	2	
28	41337	Hydraulic Ram	2	
29	41446	Inner Depth Marker	2	
30	41447	Outer Depth Marker	2	
31				
32				
33				
34				
35	0902106000	Transport Safety Bolt	2	
36	22034024	M24 Locknut	4	
37				
38	A14	Plastic Spacer	1	
39				
40	GS411	1/8"BSP Angled Grease Nipple	2	
41				
42	KA11251	36mm Pitch Digger Web Assembly	1	Options
	KA11252	42mm Pitch Digger Web Assembly	1	
	KA11253	45mm Pitch Digger Web Assembly	1	
	KA11254	50mm Pitch Digger Web Assembly	1	
43	KA15660	Torque Limiter Complete	1	(see list at end)
44	KA15661	28T Sprocket	1	
45	KA16021	Short Roller Assembly (Options)	2	(see list at end)
	41461	Long Roller Assembly (Options)	2	(see list at end)
46	KA16023	Roller Assembly	2	(see list at end)
47	KA16360	36mm Pitch Web Sprocket	4	Options
	KA16313	42mm Pitch Web Sprocket	4	
	KA16314	45mm Pitch Web Sprocket	4	
	KA16315	50mm Pitch Web Sprocket	4	
48	KA20201	Roller Scraper	2	

SPARE PARTS

2.5b

Machines from Serial No DS 113

Digger Web

Item	Part No.	Description	Qty.	Remarks
49	KA20210	Scraper	2	
50	KA20305LH	Scraper Bracket	1	
51	KA20305RH	Scraper Bracket	1	
52	KA20306	Scraper	2	
53	KA20459	Bearing Guard	1	
54				
55				
56				
57	PS871/77	3/4"Pitch Drive Chain	1	
58				
59	SL35A	Bearing	2	
60	SL50	Bearing	2	
61				
62	SS060052/060	Steel Spacer	1	
63	SS060052/075	Steel Spacer	1	
64	SS080022/008	Steel Spacer	2	
65				
66	TBM24M	Guard Bolt	1	
67				
68				
			1	
	19356	Roller Assembly Consists Of:	1	
69	0000300504	Felt Seal	2	
70	11265	Spindle	1	
71	6005RS	Bearing	1	
72	PH407	Seal	1	
73	PH408	Seal	2	
74	PH77AR	Plain Roller		
75	PS843	Circlip		
	KA16021	Short Roller Assembly Consists Of:	2	
76	0000300504	Felt Seal	1	
77	KA16021/4	Short Spindle	2	
78	6005RS	Bearing	2	
79	PH408	Seal	1	
80	KA16021/1	Short Flanged Roller	2	
81	PS843	Circlip		
	41461	Long Roller Assembly Consists Of:	2	
76	0000300504	Felt Seal	1	
77	41460	Long Spindle	2	
78	6005RS	Bearing	2	
79	PH408	Seal	1	
80	41459	Long Flanged Roller	2	
81	PS843	Circlip		
	KA16023	Roller Assembly Consists Of:		
82	0000300504	Felt Seal	2	
83	KA16021/4	Spindle	1	
84	6005RS	Bearing	2	
85	PH408	Seal	2	
86	KA16023/1	Plain Roller	1	
87	PS843	Circlip	2	

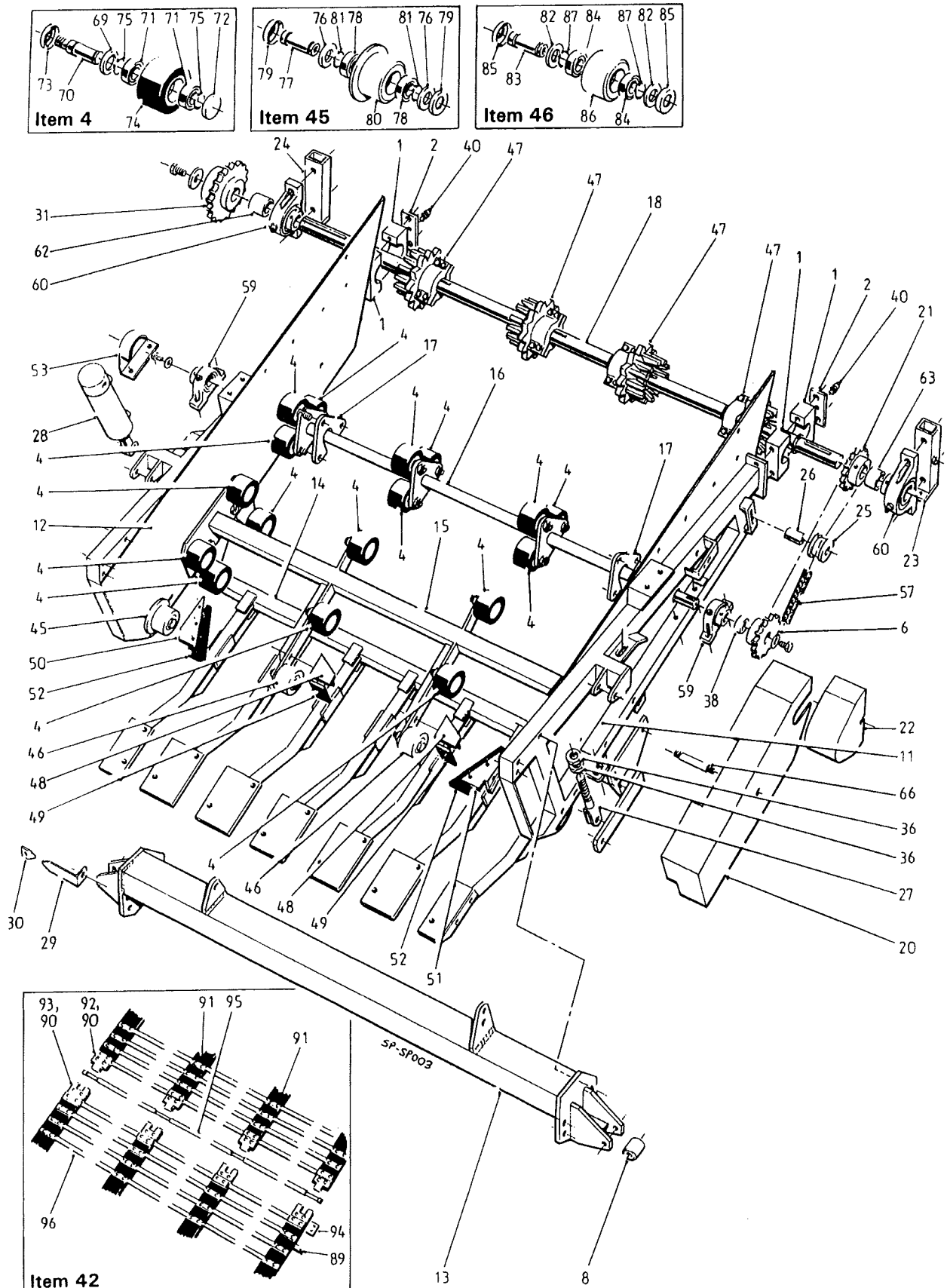
Machines from Serial No DS 113

Digger Web

Item	Part No.	Description	Qty.	Remarks
	KA11251	36mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	720	
89	KA16048	Web Bar Backplate	360	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16090	36mm Pitch Web Belt (per metre)	4	
92	KA16110	36mm Pitch Male Connector	4	KA16086 complete
93	KA16111	36mm Pitch Female Connector	4	
94	KA16112	36mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	92	
	KA11252	42mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	616	
89	KA16048	Web Bar Backplate	308	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16091	42mm Pitch Web Belt (per metre)	4	
92	KA16113	42mm Pitch Male Connector	4	KA16071 complete
93	KA16114	42mm Pitch Female Connector	4	
94	KA16115	42mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	79	
	KA11253	45mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	568	
89	KA16048	Web Bar Backplate	284	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16092	45mm Pitch Web Belt (per metre)	4	
92	KA16116	45mm Pitch Male Connector	4	KA16074 complete
93	KA16117	45mm Pitch Female Connector	4	
94	KA16118	45mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	73	
	KA11254	50mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	496	
89	KA16048	Web Bar Backplate	248	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16093	50mm Pitch Web Belt (per metre)	4	
92	KA16119	50mm Pitch Male Connector	4	KA16075 complete
93	KA16120	50mm Pitch Female Connector	4	
94	KA16121	50mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	64	
	KA15660	Torque Limiter Complete Consists Of:		
97	KA15124	Disc Spring	2	
98	KA15664	Integral Hub and Pressure Plate	1	
99	KA15665	Pressure Setscrew	3	
100	KA15681	Adjuster Ring	1	
101	KA15684	Pressure Plate	1	
102	KA15686	Pilot Plate	1	
103	KA15697	Bush	1	
104	KA15698	Friction Facing	2	

Machines from 1998

Digger Web



2.5a**SPARE PARTS**

Machines from 1998

Digger Web

Item	Part No.	Description	Qty.	Remarks
1	12292	Bearing Block	4	
2	12293	Clamp Plate	2	
3				
4	19356	Roller Assembly	24	(see list at end)
5				
6	27758	23T 3/4"Pitch Sprocket	1	
7				
8	37263	Front Beam Roller	2	
9				
10				
11	41081	LH Digger Web Side	1	
12	41082	RH Digger Web Side	1	
13	41083	Front Beam	1	
14	41085	Share Bar	1	
15	41087	Roller Support	1	
16	41472	Agitator Shaft	1	
17	41474	Roller Locking Plate	2	
18	41092	Drive Shaft	1	
19				
20	41097	Agitator Drive Guard	1	
21	41099	23T 3/4"Pitch Sprocket	1	
22	41100	Bearing Guard	1	
23	41111	LH Bearing Mounting	1	
24	41112	RH Bearing Mounting	1	
25	41117	Nylon Tension Roller	1	
26	41118	Tension Roller Spindle	1	
27	41330	Share Bar Adjuster	2	
28	41337	Hydraulic Ram	2	
29	41446	Inner Depth Marker	2	
30	41447	Outer Depth Marker	2	
31	41481	28T 1"Pitch Sprocket	1	
32				
33				
34				
35				
36	22034024	M24 Locknut	4	
37				
38	A14	Plastic Spacer	1	
39				
40	GS411	1/8"BSP Angled Grease Nipple	2	
41				
42	KA11251	36mm Pitch Digger Web Assembly	1	Options
	KA11252	42mm Pitch Digger Web Assembly	1	
	KA11253	45mm Pitch Digger Web Assembly	1	
	KA11254	50mm Pitch Digger Web Assembly	1	
43				
44				
45	KA16021	Short Roller Assembly (Options)	2	(see list at end)
	41461	Long Roller Assembly (Options)	2	(see list at end)
46	KA16023	Roller Assembly	2	(see list at end)
47	KA16360	36mm Pitch Web Sprocket	4	Options
	KA16313	42mm Pitch Web Sprocket	4	
	KA16314	45mm Pitch Web Sprocket	4	
	KA16315	50mm Pitch Web Sprocket	4	
48	KA20201	Roller Scraper	2	

SPARE PARTS

2.5b

Machines from 1998

Digger Web

Item	Part No.	Description	Qty.	Remarks
49	KA20210	Scraper	2	
50	KA20305LH	Scraper Bracket	1	
51	KA20305RH	Scraper Bracket	1	
52	KA20306	Scraper	2	
53	KA20459	Bearing Guard	1	
54				
55				
56				
57	PS871/77	3/4"Pitch Drive Chain	1	
58				
59	SL35A	Bearing	2	
60	SL50	Bearing	2	
61				
62	SS060052/060	Steel Spacer	1	
63	SS060052/098	Steel Spacer	1	
64				
65				
66	TBM24M	Guard Bolt	1	
67				
68				
			1	
	19356	Roller Assembly Consists Of:	1	
69	0000300504	Felt Seal	2	
70	11265	Spindle	1	
71	6005RS	Bearing	1	
72	PH407	Seal	1	
73	PH408	Seal	2	
74	PH77AR	Plain Roller		
75	PS843	Circlip		
	KA16021	Short Roller Assembly Consists Of:	2	
76	0000300504	Felt Seal	1	
77	KA16021/4	Short Spindle	2	
78	6005RS	Bearing	2	
79	PH408	Seal	1	
80	KA16021/1	Short Flanged Roller	2	
81	PS843	Circlip		
	41461	Long Roller Assembly Consists Of:	2	
76	0000300504	Felt Seal	1	
77	41460	Long Spindle	2	
78	6005RS	Bearing	2	
79	PH408	Seal	1	
80	41459	Long Flanged Roller	2	
81	PS843	Circlip		
	KA16023	Roller Assembly Consists Of:		
82	0000300504	Felt Seal	2	
83	KA16021/4	Spindle	1	
84	6005RS	Bearing	2	
85	PH408	Seal	2	
86	KA16023/1	Plain Roller	1	
87	PS843	Circlip	2	

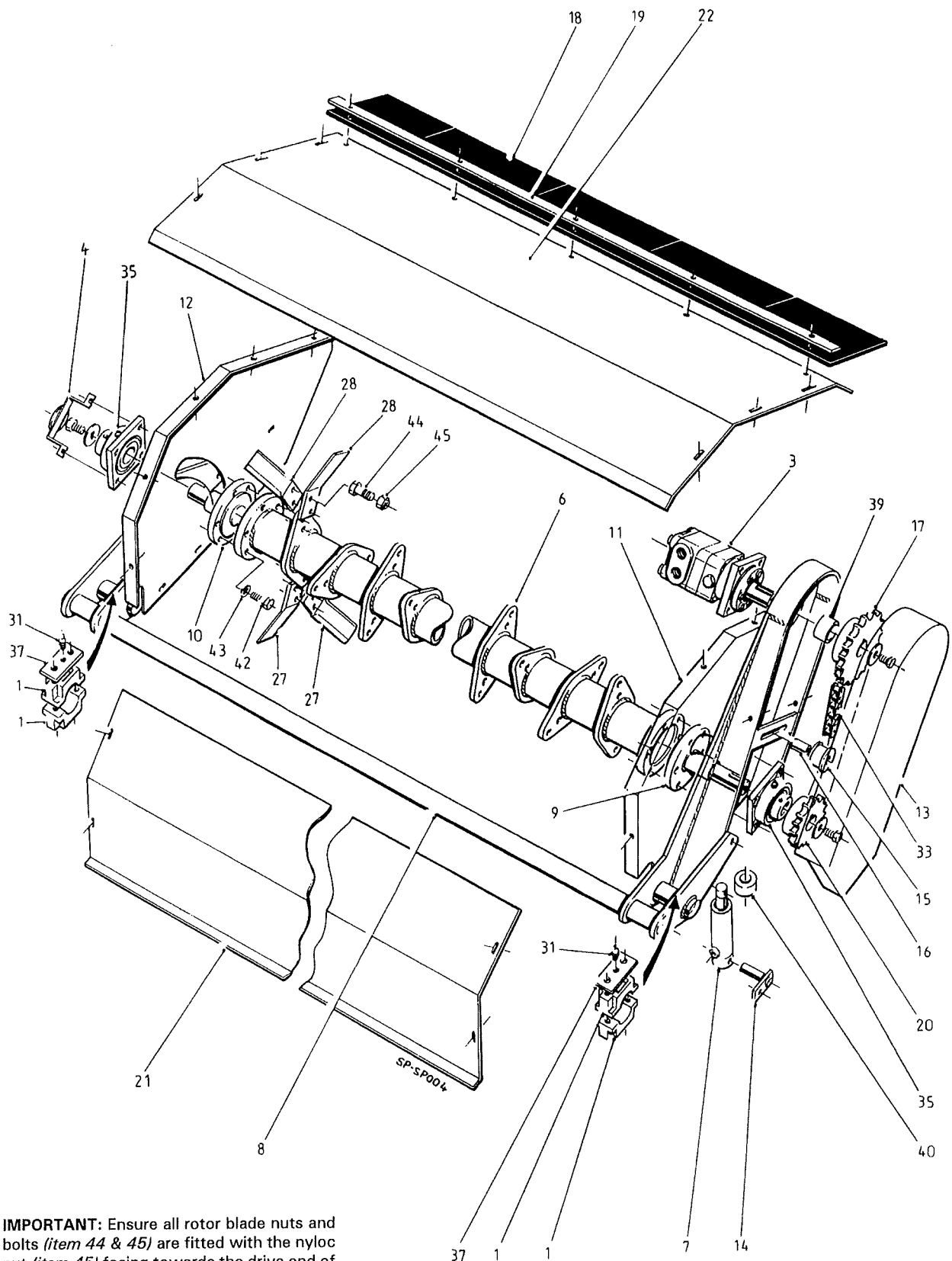
Machines from 1998

Digger Web

Item	Part No.	Description	Qty.	Remarks
	KA11251	36mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	720	
89	KA16048	Web Bar Backplate	360	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16090	36mm Pitch Web Belt (per metre)	4	
92	KA16110	36mm Pitch Male Connector	4	KA16086 complete
93	KA16111	36mm Pitch Female Connector	4	
94	KA16112	36mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	92	
	KA11252	42mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	616	
89	KA16048	Web Bar Backplate	308	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16091	42mm Pitch Web Belt (per metre)	4	
92	KA16113	42mm Pitch Male Connector	4	KA16071 complete
93	KA16114	42mm Pitch Female Connector	4	
94	KA16115	42mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	79	
	KA11253	45mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	568	
89	KA16048	Web Bar Backplate	284	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16092	45mm Pitch Web Belt (per metre)	4	
92	KA16116	45mm Pitch Male Connector	4	KA16074 complete
93	KA16117	45mm Pitch Female Connector	4	
94	KA16118	45mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	73	
	KA11254	50mm Pitch Digger Web Consists Of:		
88	KA16047	Web Bar Rivet (M5x20mm)	496	
89	KA16048	Web Bar Backplate	248	
90	KA16059	Connector Rivet (M5x32mm)	32	
91	KA16093	50mm Pitch Web Belt (per metre)	4	
92	KA16119	50mm Pitch Male Connector	4	KA16075 complete
93	KA16120	50mm Pitch Female Connector	4	
94	KA16121	50mm Pitch Connector Backplate	8	
95	KA16208	Joining Bar (Ø11mm)	1	
96	KA16209	Web Bar (Ø12mm)	64	

Machines from Serial No DS 113

Rotor Unit



IMPORTANT: Ensure all rotor blade nuts and bolts (*item 44 & 45*) are fitted with the nyloc nut (*item 45*) facing towards the drive end of the rotor shaft as shown.

2.6a**SPARE PARTS**

Machines from Serial No DS 113

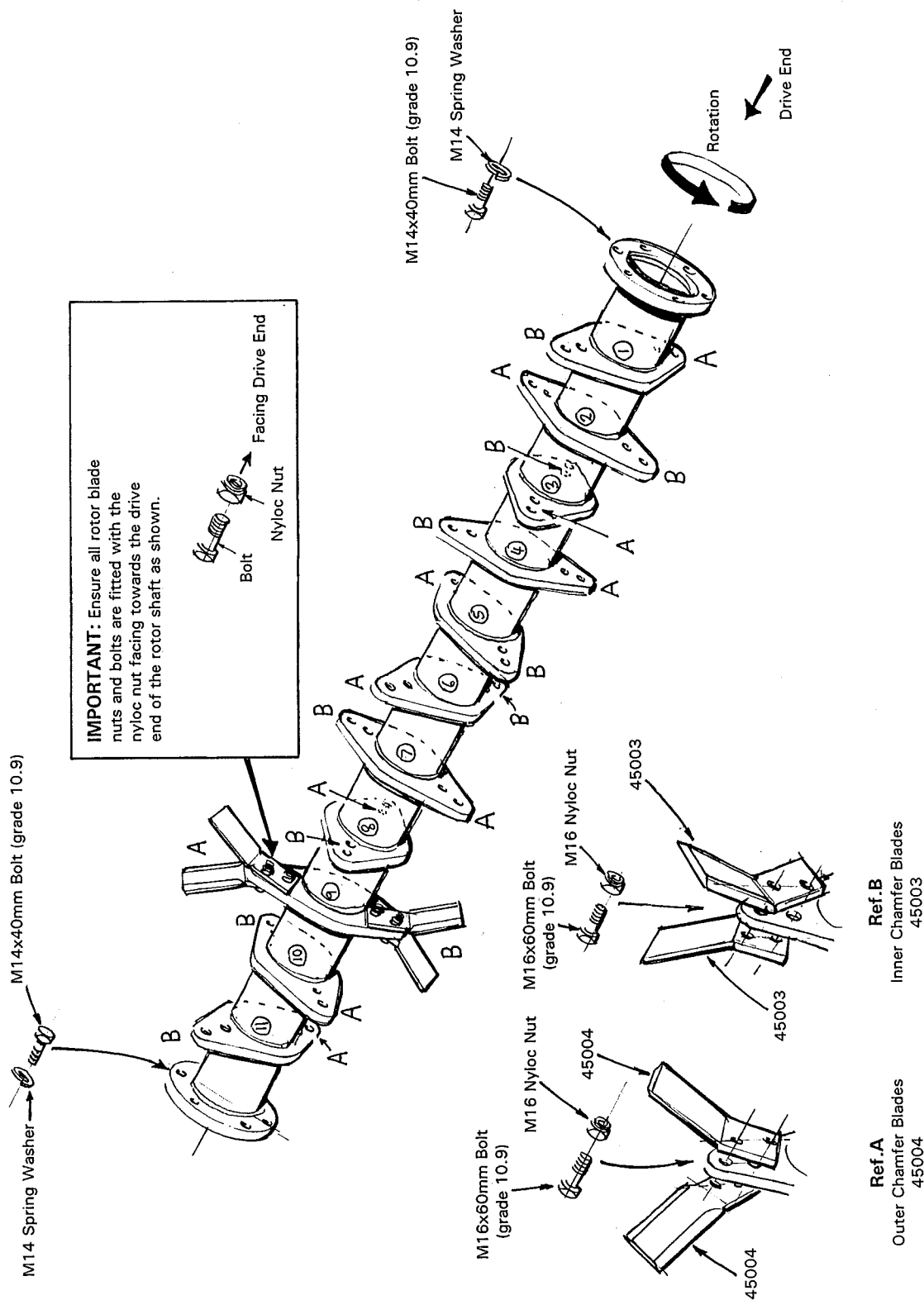
Rotor Unit

Item	Part No.	Description	Qty.	Remarks
1	10415	Bearing Block	4	
2				
3	32021	Hydraulic Motor (OMT200)	1	
4	32440	Bearing Guard	1	
5				
6	41024	Rotor Shaft	1	
7	41039	Hydraulic Ram	1	
8	41101	Rotor Frame	1	
9	41103	Stub Shaft (long)	1	
10	41104	Stub Shaft (short)	1	
11	41106	LH Side Panel	1	
12	41107	RH Side Panel	1	
13	41109	Drive Guard	1	
14	41110	Ram Pin	1	
15	41117	Nylon Tension Roller	1	
16	41118	Roller Spindle	1	
17	41246	24T Sprocket	1	
18	41260	Rubber Deflector	1	
19	41261	Clamp Strip	1	
20	41270	17T Sprocket	1	
21	41319	Front Panel	1	
22	41320	Top Panel	1	
23				
24				
25				
26				
27	45003	Rotor Blade (inner chamfer)	22	
28	45004	Rotor Blade (outer chamfer)	22	
29				
30				
31	GS412	1/8"BSP Straight Grease Nipple	2	
32				
33	PS429/58	1"Pitch Drive Chain	1	
34				
35	SF40	Bearing	2	
36				
37	SPCT143	Clamp Plate	2	
38				
39	SS050041/040	Steel Spacer	1	
40	SS051026/040	Ram Spacer	1	
41				
42	-	M14x1.5x40mm Bolt (grade 10.9)	12	
43	-	M14 Spring Washer	12	
44	-	M16x1.5x60mm Bolt (grade 10.9)	44	
45	-	M16x1.5 Nyloc Nut	44	

Machines from Serial No DS 113

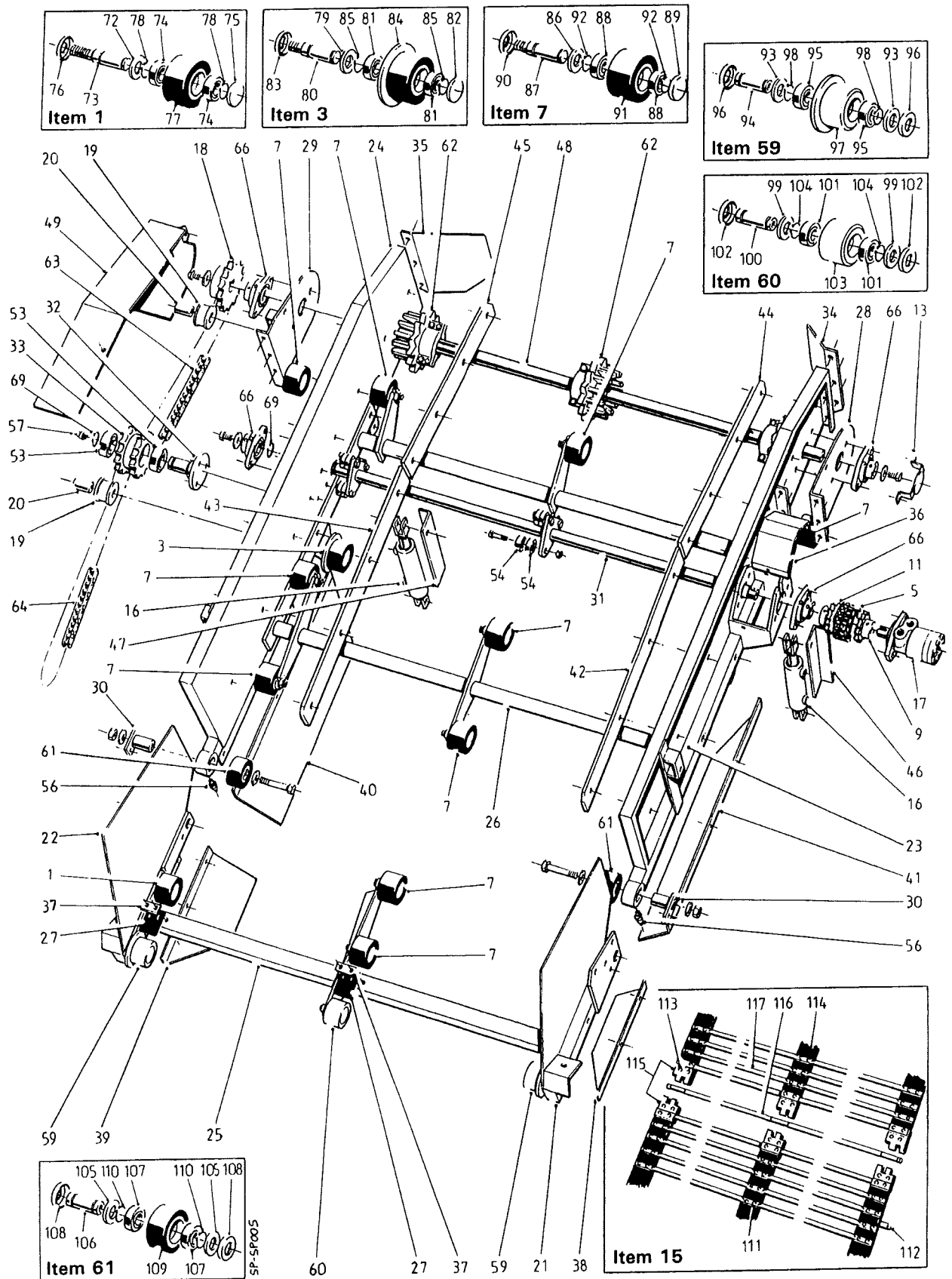
Rotor Unit

Rotor Blade Fitting Instructions



Machines from Serial No DS 113

2nd Stage



2.7a**SPARE PARTS**

Machines from Serial No DS 113

2nd Stage

Item	Part No.	Description	Qty.	Remarks
1	11568	Roller Assembly	2	(see list at end)
2				
3	12506	Roller Assembly	2	(see list at end)
4				
5	17088/15	Drive Coupling Chain	1	
6				
7	19356	Roller Assembly	13	(see list at end)
8				
9	23490	15T Drive Coupling Sprocket	1	
10				
11	24262	15T Drive Coupling Sprocket	1	
12				
13	32440	Bearing Guard	1	
14				
15	41011	36mm Pitch Web Assembly	1	Options
	41012	42mm Pitch Web Assembly	1	
	41469	45mm Pitch Web Assembly	1	
	41013	50mm Pitch Web Assembly	1	
16	41037	Hydraulic Ram	2	
17	41049	Hydraulic Motor (OMR315)	1	
18	41105	19T 1"Pitch Sprocket	1	
19	41117	Nylon Tension Roller	2	
20	41118	Roller Spindle	2	
21	41135	LH Lower Web Side	1	
22	41136	RH Lower Web Side	1	
23	41137	LH Upper Web Side	1	
24	41138	RH Upper Web Side	1	
25	41139	Lower Roller Frame	1	
26	41141	Upper Roller Frame	1	
27	41144	Scraper	3	
28	41145	LH Bearing Plate	1	
29	41146	RH Bearing Plate	1	
30	41147	Pivot Pin	2	
31	41148	Agitator Shaft	1	
32	41149	Idler Spigot	1	
33	41150	17T 1"Pitch Double Sprocket	1	
34	41153	LH Top Deflector	1	
35	41154	RH Top Deflector	1	
36	41155	Drive Coupling Guard	1	
37	41162	Scraper Clamp Plate	3	
38	41256	LH Lower Soil Deflector	1	
39	41257	RH Lower Soil Deflector	1	
40	41258	Upper Soil Deflector	1	
41	41259	Upper Soil Deflector	1	
42	41331	LH Lower Wear Strip	1	
43	41332	RH Lower Wear Strip	1	
44	41333	LH Upper Wear Strip	1	
45	41334	RH Upper Wear Strip	1	
46	41340	LH Ram Shield	1	
47	41341	RH Ram Shield	1	
48	41373	Drive Shaft	1	
49	41433	Drive Guard	1	
50				
51				
52				

SPARE PARTS

2.7b

Machines from Serial No DS 113

2nd Stage

Item	Part No.	Description	Qty.	Remarks
53	6008RS	Bearing	2	
54	6204 2RS	Bearing	18	
55				
56	GS411	1/8"BSP Angled Grease Nipple	2	
57	GS412	1/8"BSP Straight Grease Nipple	1	
58				
59	KA16021	Roller Assembly	2	(see list at end)
60	KA16023	Roller Assembly	1	(see list at end)
61	KA16038	Roller Assembly	2	(see list at end)
62	KA16360	36mm Pitch Web Sprocket	3	Options
	KA16313	42mm Pitch Web Sprocket	3	
	KA16314	45mm Pitch Web Sprocket	3	
	KA16315	50mm Pitch Web Sprocket	3	
63	PS429/80	1"Pitch Drive Chain	1	
64	PS429/83	1"Pitch Drive Chain	1	
65				
66	SFT40A	Bearing	4	
67				
68				
69	W0162	External Circlip	2	
70				
71				
	11568	Roller Assembly Consists Of:		
72	0000300504	Felt Seal	1	
73	PH406AM	Spindle	1	
74	6005RS	Bearing	2	
75	PH407	Seal	1	
76	PH408	Seal	1	
77	PH77AR	Plain Roller	1	
78	PS843	Circlip	2	
	12506	Roller Assembly Consists Of:		
79	0000300504	Felt Seal	1	
80	11265	Spindle	1	
81	6005RS	Bearing	2	
82	PH407	Seal	1	
83	PH408	Seal	1	
84	PH51AR	Flanged Roller	1	
85	PS843	Circlip	2	
	19356	Roller Assembly Consists Of:		
86	0000300504	Felt Seal	1	
87	11265	Spindle	1	
88	6005RS	Bearing	2	
89	PH407	Seal	1	
90	PH408	Seal	1	
91	PH77AR	Plain Roller	1	
92	PS843	Circlip	2	
	KA16021	Roller Assembly Consists Of:		
93	0000300504	Felt Seal	2	
94	KA16021/4	Spindle	1	
95	6005RS	Bearing	2	

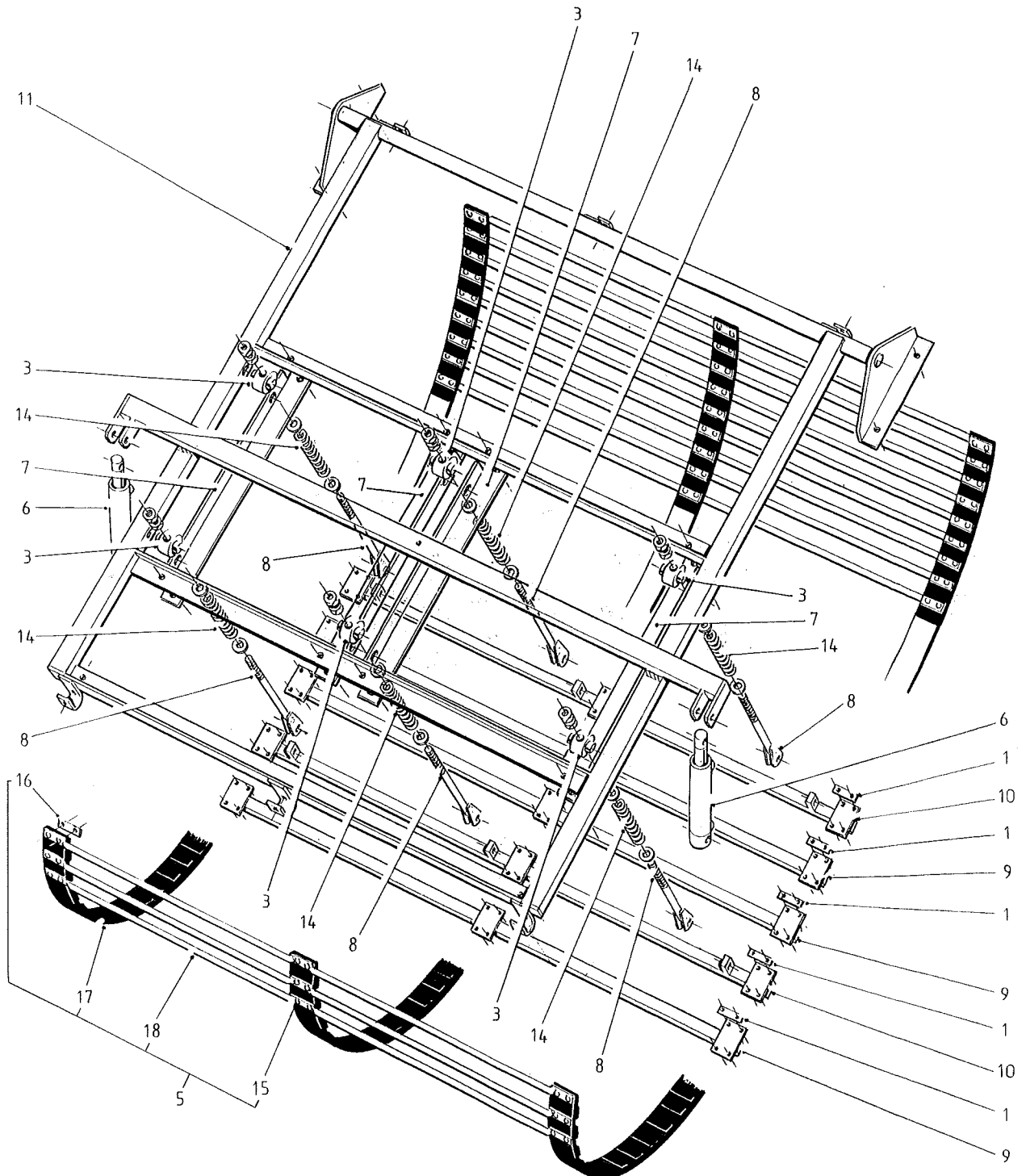
Machines from Serial No DS 113

2nd Stage

Item	Part No.	Description	Qty.	Remarks
96	PH408	Seal	2	
97	KA16021/1	Flanged Roller	1	
98	PS843	Circlip	2	
	KA16023	Roller Assembly Consists Of:		
99	0000300504	Felt Seal	2	
100	KA16021/4	Spindle	1	
101	6005RS	Bearing	2	
102	PH408	Seal	2	
103	KA16023/1	Plain Roller	1	
104	PS843	Circlip	2	
	KA16038	Roller Assembly Consists Of:		
105	0000300504	Felt Seal	2	
106	KA16038/2	Spindle	1	
107	6005RS	Bearing	2	
108	PH408	Seal	2	
109	KA16038/1	Plain Roller	1	
110	PS843	Circlip	2	
	41011	36mm Pitch Web Assy Consists Of:		
111	KA16047	Web Bar Rivet (M5x20mm)	768	
112	KA16048	Web Bar Backplate	384	
113	KA16059	Connector Rivet (M5x32mm)	24	
114	KA16090	36mm Pitch Web Belt (per metre)	3	
115	KA16220	36mm Pitch Connector Complete	3	(pair)
116	KA16229	Joining Bar (Ø11mm)	1	
117	41012/1	Web Bar (Ø12mm)	130	
	41012	42mm Pitch Web Assy Consists Of:		
111	KA16047	Web Bar Rivet (M5x20mm)	660	
112	KA16048	Web Bar Backplate	330	
113	KA16059	Connector Rivet (M5x32mm)	24	
114	KA16091	42mm Pitch Web Belt (per metre)	3	
115	KA16223	42mm Pitch Connector Complete	3	(pair)
116	KA16229	Joining Bar (Ø11mm)	1	
117	41012/1	Web Bar (Ø12mm)	112	
	41469	45mm Pitch Web Assy Consists Of:		
111	KA16047	Web Bar Rivet (M5x20mm)	618	
112	KA16048	Web Bar Backplate	309	
113	KA16059	Connector Rivet (M5x32mm)	24	
114	KA16092	45mm Pitch Web Belt (per metre)	3	
115	KA16224	45mm Pitch Connector Complete	3	(pair)
116	KA16229	Joining Bar (Ø11mm)	1	
117	41012/1	Web Bar (Ø12mm)	105	
	41013	50mm Pitch Web Assy Consists Of:		
111	KA16047	Web Bar Rivet (M5x20mm)	552	
112	KA16048	Web Bar Backplate	276	
113	KA16059	Connector Rivet (M5x32mm)	24	
114	KA16093	50mm Pitch Web Belt (per metre)	3	
115	KA16225	50mm Pitch Connector Complete	3	(pair)
116	KA16229	Joining Bar (Ø11mm)	1	
117	41012/1	Web Bar (Ø12mm)	94	

Machines from Serial No DS 113

Scrubber Web



2.8a**SPARE PARTS**

Machines from Serial No DS 113

Scrubber Web

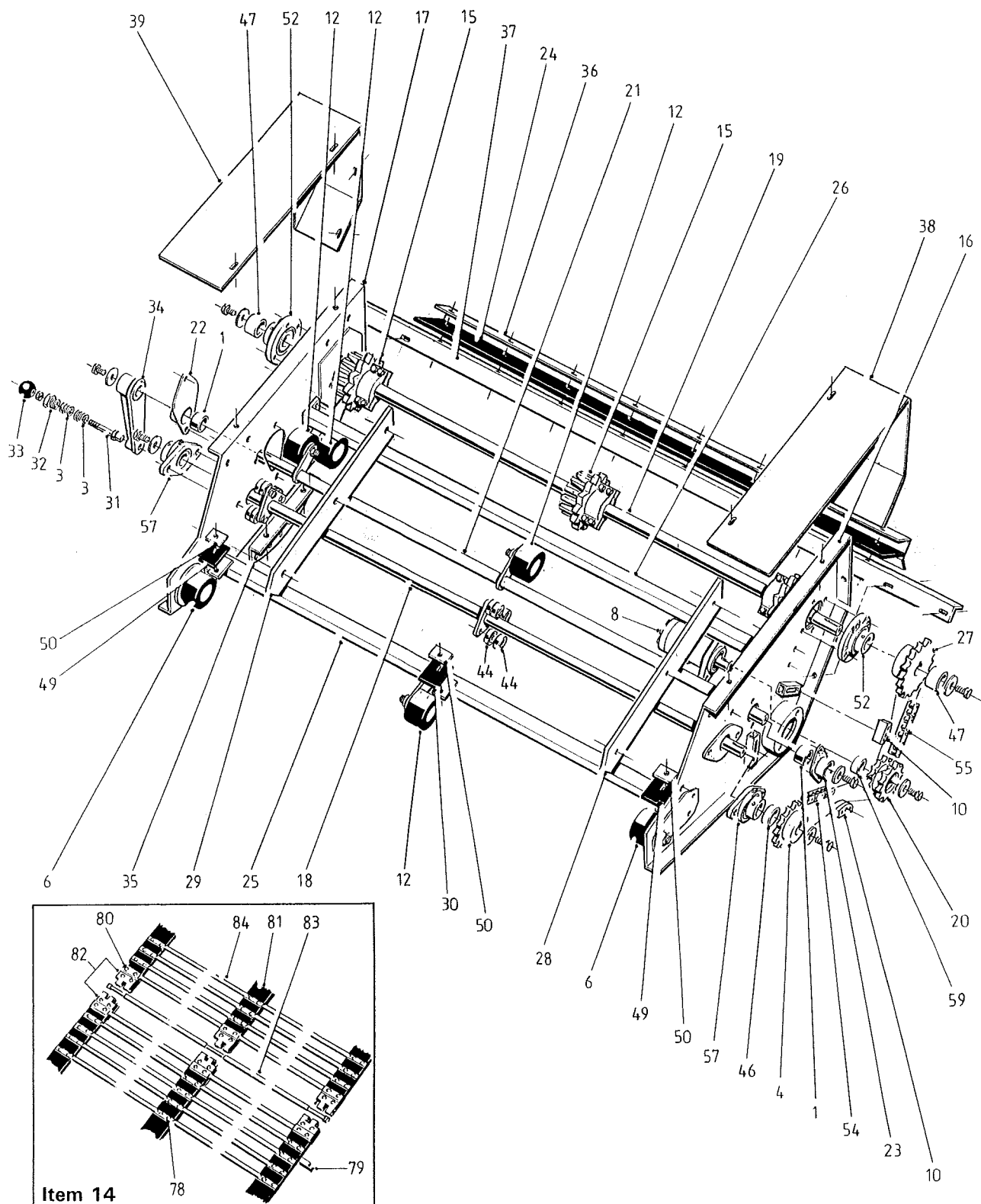
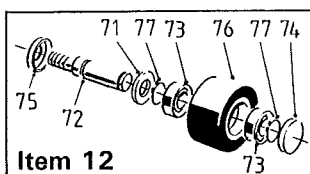
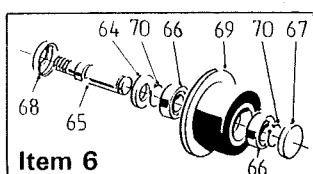
Item	Part No.	Description	Qty.	Remarks
1	12238/6	Clamp Strip	30	(see list at end)
2				
3	32732	Trunnion	6	
4				
5	41021	Scrubber Web Assembly	1	
6	41038	Hydraulic Ram	2	
7	41157	Trunnion Support	4	
8	41158	Adjuster Rod	6	
9	41160	Web Bar (without lugs)	3	
10	41161	Web Bar (with lugs)	2	
11	41374	Frame	1	
12				
13				
14	PS165	Spring	6	
	41021	Scrubber Web Assembly Consists Of:		
15	KA16047	Web Bar Rivet (M5x20mm)	114	
16	KA16048	Web Bar Backplate	57	
17	KA41021/1	Web Belt	3	
18	41012/1	Web Bar (Ø12mm)	19	

SPARE PARTS	2.9
--------------------	------------

SPARE PARTS	2.9
--------------------	------------

Machines from Serial No DS 113

64 70 66 69 70 67 71 77 73 76 77 74 **3rd Stage**



2.9a**SPARE PARTS**

Machines from Serial No DS 113

3rd Stage

Item	Part No.	Description	Qty.	Remarks
1	10337	Bush	2	
2				
3	11289	Spring	2	
4	11833	21T Sprocket	1	
5				
6	12506	Roller Assembly	2	(see list at end)
7				
8	41397	Hydraulic Motor (OMP200)	1	
9				
10	17155	Nylon Tensioner	2	
11				
12	19356	Roller Assembly	6	(see list at end)
13				
14	41017	28mm Pitch Web Assembly	1	Options
	41362	36mm Pitch Web Assembly	1	
	41018	42mm Pitch Web Assembly	1	
15	41050	28mm Pitch Web Sprocket	3	Options
	KA16016	36mm Pitch Web Sprocket	3	
	KA16009	42mm Pitch Web Sprocket	3	
16	41219	LH Web Side	1	
17	41220	RH Web Side	1	
18	41221	Agitator Shaft	1	
19	41223	Drive Shaft	1	
20	41225	17T Double Sprocket	1	
21	41226	Adjustable Roller Shaft	1	
22	41228	RH Pivot Plate	1	
23	41229	LH Pivot Plate	1	
24	41234	Rubber Deflector	1	
25	41236	Front Cross Beam	1	
26	41237	Rear Cross Beam	1	
27	41240	26T Sprocket	1	
28	41242	LH Wear Strip	1	
29	41243	RH Wear Strip	1	
30	41244	Centre Scraper	1	
31	41384	Spring Spindle	1	
32	41385	Spring Cap	1	
33	41394	Ball Knob	1	
34	41440	Adjuster Arm	1	
35	41441	Adjuster Plate	1	
36	41442	Deflector Panel	1	
37	41443	Deflector Support	1	
38	41444	LH Infill Panel	1	Not used with boulder box
39	41445	RH Infill Panel	1	Not used with boulder box
40				
41				
42				
43				
44	6204 2RS	Bearing	18	
45				
46	F14	Plastic Spacer	1	
47	F45	Plastic Spacer	2	Not used with boulder box
48				
49	KA20307	Scraper	2	

SPARE PARTS

2.9b

Machines from Serial No DS 113

3rd Stage

Item	Part No.	Description	Qty.	Remarks
50	KA20420	Scraper Clamp Plate	3	
51				
52	MFC35	Bearing	2	
53				
54	PS871/50	3/4"Pitch Drive Chain	1	
55	PS871/57	3/4"Pitch Drive Chain	1	
56				
57	SFT35	Bearing	2	
58				
59	SS033027/013	Steel Spacer	1	
60				
61				
62				
63				
	12506	Roller Assembly Consists Of:		
64	0000300504	Felt Seal	1	
65	11265	Spindle	1	
66	6005RS	Bearing	2	
67	PH407	Seal	1	
68	PH408	Seal	1	
69	PH51AR	Flanged Roller	1	
70	PS843	Circlip	2	
	19356	Roller Assembly Consists Of:		
71	0000300504	Felt Seal	1	
72	11265	Spindle	1	
73	6005RS	Bearing	2	
74	PH407	Seal	1	
75	PH408	Seal	1	
76	PH77AR	Plain Roller	1	
77	PS843	Circlip	2	
	41017	28mm Pitch Web Assy Consists Of:		
78	KA16047	Web Bar Rivet (M5x20mm)	438	
79	KA16048	Web Bar Backplate	219	
80	KA16059	Connector Rivet (M5x32mm)	24	
81	KA16108	28mm Pitch Web Belt (per metre)	3	
82	KA16222	28mm Pitch Connector Complete	3	(pair)
83	KA16229	Joining Bar (Ø11mm)	1	
84	41012/1	Web Bar (Ø12mm)	75	
	41362	36mm Pitch Web Assy Consists Of:		
78	KA16047	Web Bar Rivet (M5x20mm)	330	
79	KA16048	Web Bar Backplate	165	
80	KA16059	Connector Rivet (M5x32mm)	24	
81	KA16090	36mm Pitch Web Belt (per metre)	3	
82	KA16220	36mm Pitch Connector Complete	3	(pair)
83	KA16229	Joining Bar (Ø11mm)	1	
84	41012/1	Web Bar (Ø12mm)	57	
	14018	42mm Pitch Web Assy Consists Of:		
78	KA16047	Web Bar Rivet (M5x20mm)	276	
79	KA16048	Web Bar Backplate	138	

2.9c	SPARE PARTS
-------------	--------------------

2.9c	SPARE PARTS
-------------	--------------------

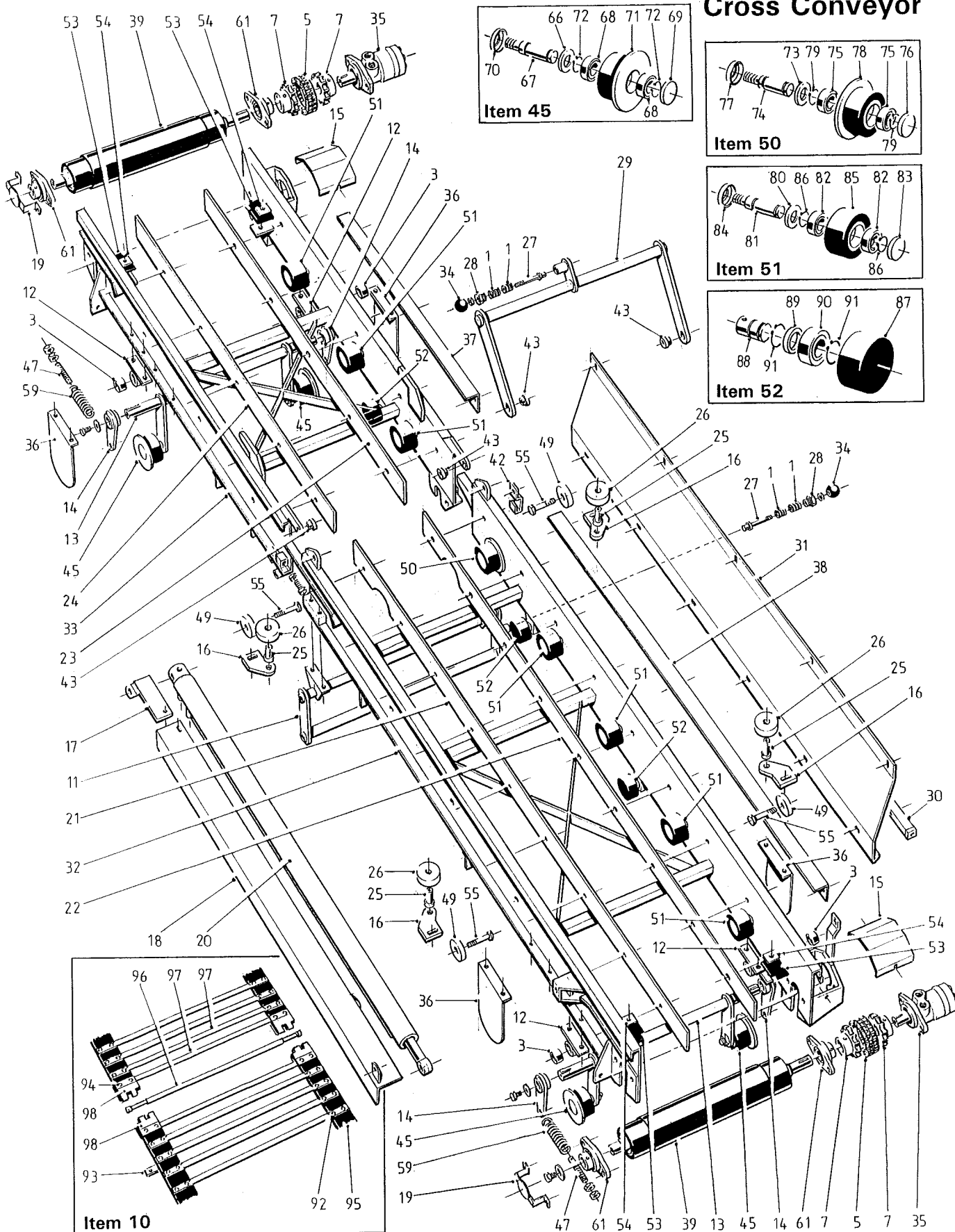
Machines from Serial No DS 113

3rd Stage

Item	Part No.	Description	Qty.	Remarks
80	KA16059	Connector Rivet (M5x32mm)	24	
81	KA16091	42mm Pitch Web Belt (per metre)	3	
82	KA16223	42mm Pitch Connector Complete	3	
83	KA16229	Joining Bar (Ø11mm)	1	
84	41012/1	Web Bar (Ø12mm)	48	

Machines from Serial No DS 113

Cross Conveyor



2.10a**SPARE PARTS**

Machines from Serial No DS 113

Cross Conveyor

Item	Part No.	Description	Qty.	Remarks
1	11289	Spring	4	
2				
3	12286	Bush	4	
4				
5	17088/15	Drive Coupling Chain	2	
6				
7	23490	15T Drive Coupling Sprocket	4	
8				
9				
10	41029	28mm Pitch Cross Web Assembly	1	1.5m extension only
	41364	28mm Pitch Cross Web Assembly	1	1.0m extension only
11	41197	Extension Locking Arm	1	
12	41198	Bush Housing	4	
13	41199	Web Tension Shaft	2	
14	41200	Spring Arm	4	
15	41201	Drive Coupling Guard	2	
16	41202	Support Roller Mounting Plate	4	
17	41204	Ram Guard Bracket	1	
18	41205	Ram Guard	1	
19	41262	Bearing Guard	2	
20	41375	Hydraulic Ram	1	1.0m extension only
	KA17415	Hydraulic Ram	1	1.5m extension only
21	41376	Wear Strip	1	
22	41377	Wear Strip	1	
23	41378	Wear Strip	1	1.5m extension only
	41380	Wear Strip	1	1.0m extension only
24	41379	Wear Strip	1	1.5m extension only
	41380	Wear Strip	1	1.0m extension only
25	41382	Support Roller Spigot	4	
26	41383	Nylon Support Roller (thick)	4	
27	41384	Spring Spindle	2	
28	41385	Spring Cap	2	
29	41386	Lifting Arm	1	
30	41388	Rear Panel Support	1	Not used with boulder box
31	41389	Rear Panel	1	Not used with boulder box
32	41390	Conveyor Frame	1	
33	41391	1.0m Conveyor Extension Frame	1	1.0m extension only
	41392	1.5m Conveyor Extension Frame	1	1.5m extension only
34	41394	Ball Knob	2	
35	41396	Hydraulic Motor (OMP160)	2	
36	41402	Roller Shield	4	
37	41410	Hose Cover Plate	1	1.5m extension only
	41434	Hose Cover Plate	1	1.0m extension only
38	41411	Hose Cover Plate	1	
39	41412	Drive Roller	2	
40				
41				
42	42536	Hose Support	1	
43	42781	Pivot Bush	4	
44				
45	44083	Roller Assembly	4	
46				
47	BM212M	Spring Tensioner	4	
48				
49	KA13105	Nylon Support Roller (thin)	4	

SPARE PARTS**2.10b**

Machines from Serial No DS 113

Cross Conveyor

Item	Part No.	Description	Qty.	Remarks
50	KA16029	Roller Assembly	2	1.5m extension only 1.0m extension only
51	KA16031	Roller Assembly	14	
	KA16031	Roller Assembly	12	
52	KA16338	Roller Assembly	6	
53	KA20307	Scraper	4	
54	KA20420	Scraper Clamp Plate	4	
55	KA20461	Support Roller Spindle	4	
56				
57				
58				
59	PS766	Spring	4	
60				
61	SFT25A	Bearing	4	
62				
63				
64				
65				
	44083	Roller Assembly Consists Of:		
66	0000300504	Felt Seal	1	
67	11265	Spindle	1	
68	6005RS	Bearing	2	
69	PH407	Seal	1	
70	PH408	Seal	1	
71	PH51AR	Flanged Roller	1	
72	PS843	Circlip	2	
	KA16029	Roller Assembly Consists Of:		
73	0000300504	Felt Seal	1	
74	KA16029/2	Spindle	1	
75	6005RS	Bearing	2	
76	PH407	Seal	1	
77	PH408	Seal	1	
78	KA16029/1	Flanged Roller	1	
79	PS843	Circlip	2	
	KA16031	Roller Assembly Consists Of:		
80	0000300504	Felt Seal	1	
81	KA16031/2	Spindle	1	
82	6005RS	Bearing	2	
83	PH407	Seal	1	
84	PH408	Seal	1	
85	KA16031/1	Plain Roller	1	
86	PS843	Circlip	2	
	KA16338	Roller Assembly Consists Of:		
87	KA16338/1	Plain Roller	1	
88	KA16338/2	Spindle	1	
89	KA16338/3	Seal	1	
90	6005 2RS	Bearing	1	
91	PS843	Circlip	2	

2.10c**SPARE PARTS**

Machines from Serial No DS 113

Cross Conveyor

Item	Part No.	Description	Qty.	Remarks
	41029	28mm Pitch Cross Web Assembly (1.5m extension) Consists Of:		1.5m extension only
92	KA16047	Web Bar Rivet (M5x20mm)	1116	
93	KA16049	Web Bar Backplate	558	
94	KA16059	Connector Rivet (M5x32mm)	8	
95	KA16124	28mm Pitch Web Belt (per metre)	2	
96	41029/1	Joining Bar (Ø10mm)	1	
97	41029/2	Web Bar (Ø10mm)	281	
98	41029/3	28mm Pitch Connector	4	
99				
	41364	28mm Pitch Cross Web Assembly (1.0m extension) Consists Of:		1.0m extension only
92	KA16047	Web Bar Rivet (M5x20mm)	980	
93	KA16049	Web Bar Backplate	490	
94	KA16059	Connector Rivet (M5x32mm)	8	
95	KA16124	28mm Pitch Web Belt (per metre)	2	
96	41029/1	Joining Bar (Ø10mm)	1	
97	41029/2	Web Bar (Ø10mm)	247	
98	41029/3	28mm Pitch Connector	4	
99				

2.11a**SPARE PARTS**

Machines from Serial No DS 113

Main Drives

Item	Part No.	Description	Qty.	Remarks
1	24320	Intermediate Drive Coupling	1	(see list at end)
2				
3	27788	PTO Drive Coupling	1	(see list at end)
4				
5	33210	Gearbox Clamp	1	
6				
7	41041	Gearbox Assembly	1	(see list at end)
8	41105	19t Sprocket	1	
9	41117	Tension Roller	3	
10	41118	Tension Roller Spindle	3	
11	41149	Idler Spigot	1	
12	41150	17t Double Sprocket	1	
13	41245	Bearing Housing	1	
14	41246	24t Sprocket	1	
15	41247	17t Sprocket	1	
16	41250	Drive Chain Runner	1	
17	41251	Guard Mounting	1	
18	41252	Drive Shaft	1	
19	41255	Drive Coupling Guard	3	
20				
21				
22				
23				
24	6008RS	Bearing	2	
25	6208RS	Bearing	2	
26				
27	A11	Plastic Spacer	1	
28	A13	Plastic Spacer	1	
29	A20	Plastic Spacer	1	
30	A30	Plastic Spacer	1	
31				
32	GS411	1/8"BSP Angled Grease Nipple	1	
33	GS412	1/8"BSP Straight Grease Nipple	1	
34				
35	KA15120	Torque Limiter Complete	1	(see list at end)
36	KA15661	28t Sprocket	1	
37	KA15671	Guard Extension	1	
38	KA15691	Gearbox Assembly	1	(see list at end)
39				
40	PS429/82	1"Pitch Drive Chain	2	
41	PS429/111	1"Pitch Drive Chain	1	
42				
43	SS040011/045	Steel Spacer	3	
44				
45	W0162	External Circlip	1	
46				
	41041	Gearbox Assembly Consists Of:		
47	27834/1	Case Half (input side)	1	
48	27834/2	Case Half (output side)	1	
49	27834/6	Protection Cap	1	
50	27834/7	Adaptor	1	
51	27834/8	Bolt	10	
52	27834/9	Nut	10	
53	27834/10	Dowel	2	

Machines from Serial No DS 113

Main Drives

Item	Part No.	Description	Qty.	Remarks
54	27834/11	Plug	4	
55	27834/12	Washer	4	
56	27834/13	Breather	1	
57	37564/1	Gear	1	
58	37564/2	Pinion	1	
59	41041/1	Shaft	1	
60				
61	6207	Bearing	4	
62	72x40x10	Oil Seal	2	
	KA15691	Gearbox Assembly Consists Of:		
63	KA15691/1	Input Pinion and Output Gear Set	1	
64	KA15691/2	Output Shaft (gearbox)	1	
65	KA15691/3	Gearcase	1	
66	KA15691/4	Output Shaft	1	
67	KA15691/5	Output Shaft Housing	1	
68	KA15691/6	External Circlip	1	
69	KA15691/7	Internal Circlip	2	
70	KA15691/8	External Circlip	2	
71	KA15691/9	Internal Circlip	1	
72	KA15691/10	End Cap (small)	1	
73	KA15691/11	End Cap (large)	1	
74	KA15691/12	Oil Plug	3	
75	KA15691/13	O'Ring (large)	1	
76	KA15691/14	O'Ring (small)	1	
77	KA15691/15	Shim (45.2x54.8x0.3)	a/r	
78	KA15691/16	Shim (45.2x54.8x0.4)	a/r	
79	KA15691/17	Shim (45.2x54.8x0.6)	a/r	
80	KA15691/18	Shim (45.2x54.8x0.8)	a/r	
81	KA15691/19	Shim (45.2x54.8x1.0)	a/r	
82	KA15691/20	Shim (75.2x84.8x0.3)	a/r	
83	KA15691/21	Shim (75.2x84.8x0.4)	a/r	
84	KA15691/22	Shim (75.2x84.8x0.6)	a/r	
85	KA15691/23	Shim (75.2x84.8x0.8)	a/r	
86	KA15691/24	Shim (75.2x84.8x1.0)	a/r	
87				
88	33164/6	Oil Seal (45x85x10)	2	
89	TH00500307	Bearing	2	
90	6209	Bearing	3	
91	-	M10x30mm Socket Head Setscrew	4	
92	-	M10 Spring Washer	4	
	24320	Intermediate Drive Coupling		
		Consists Of:		
93	24320/1	Male Coupling Complete	1	
94	24320/2	Female Coupling Complete	1	
95	24320/3	Male Lemon Tube	1	
96	24320/4	Female Lemon Tube	1	
97	24320/5	Guard Complete	1	
98				
99	11557/5	Splined Yoke	2	
100	11557/7	Unit Package	2	
101	11557/9	Male End Inner Yoke	1	
102	11557/10	Female End Inner Yoke	1	
103	11557/11	Straight Spring Pin	2	

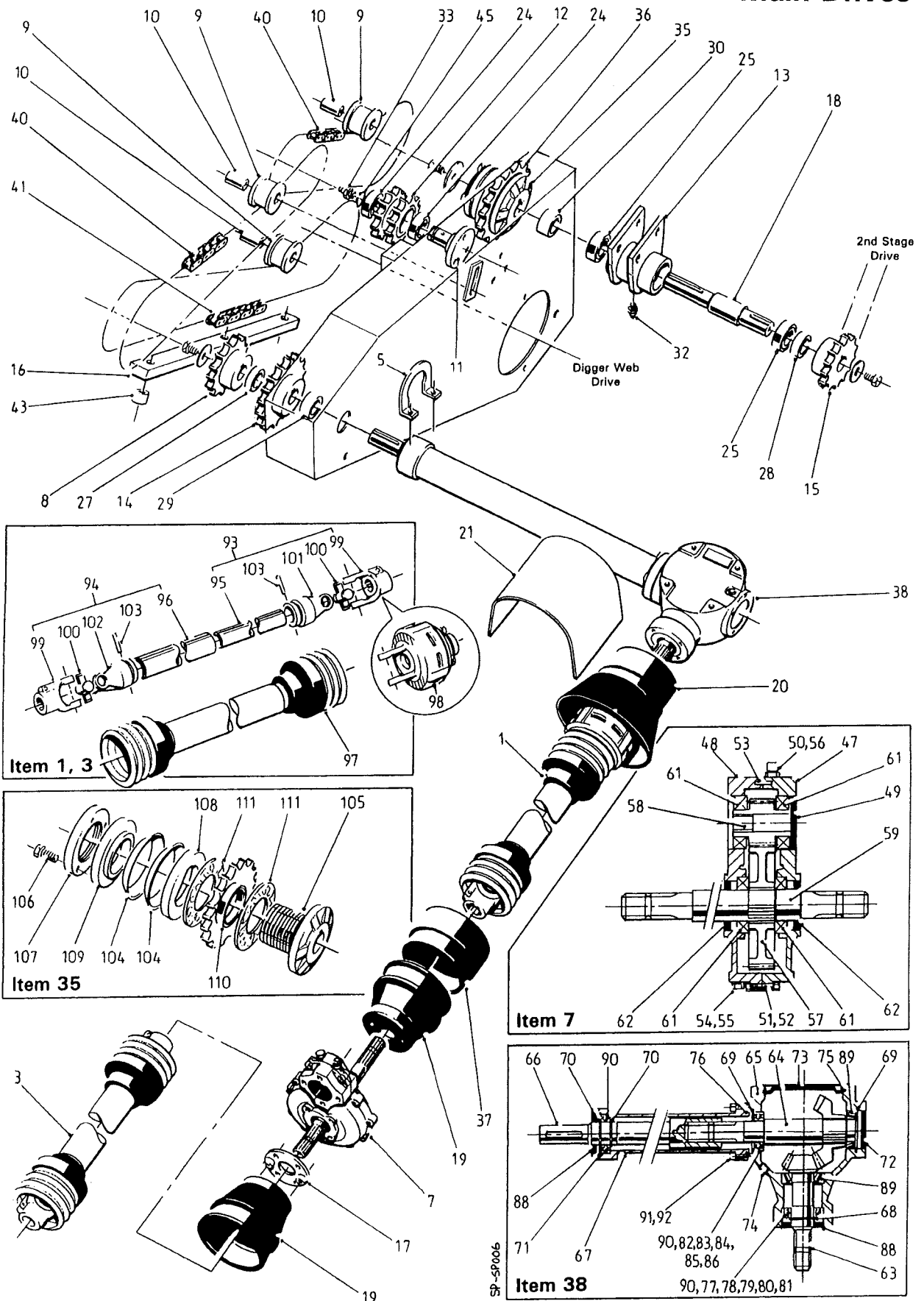
Machines from Serial No DS 113

Main Drives

Item	Part No.	Description	Qty.	Remarks
	27788	PTO Drive Coupling		
		Consists Of:		
93	27788/1	Male Coupling Complete	1	
94	27788/2	Female Coupling Complete	1	
95	27788/3	Male Lemon Tube	1	
96	27788/4	Female Lemon Tube	1	
97	27788/5	Guard Complete	1	
98				
99	11557/5	Splined Yoke	2	
100	11557/7	Unit Package	2	
101	11557/9	Male End Inner Yoke	1	
102	11557/10	Female End Inner Yoke	1	
103	11557/11	Straight Spring Pin	2	
	KA15120	Torque Limiter Complete Consists Of:		
104	KA15124	Disc Spring	2	
105	KA15126	Integral Hub and Pressure Plate	1	
106	KA15665	Pressure Setscrew	3	
107	KA15681	Adjuster Ring	1	
108	KA15684	Pressure Plate	1	
109	KA15686	Pilot Plate	1	
110	KA15697	Bush	1	
111	KA15698	Friction Facing	2	

Machines from 1998

Main Drives



2.11a**SPARE PARTS**

Machines from 1998

Main Drives

Item	Part No.	Description	Qty.	Remarks
1	41483	Intermediate Drive Coupling	1	(see list at end)
2				
3	27788	PTO Drive Coupling	1	(see list at end)
4				
5	41480	Gearbox Restraint	1	
6				
7	41041	Gearbox Assembly	1	(see list at end)
8	41105	19t Sprocket	1	
9	41117	Tension Roller	3	
10	41118	Tension Roller Spindle	3	
11	41149	Idler Spigot	1	
12	41150	17t Double Sprocket	1	
13	41245	Bearing Housing	1	
14	41246	24t Sprocket	1	
15	41247	17t Sprocket	1	
16	41250	Drive Chain Runner	1	
17	41251	Guard Mounting	1	
18	41252	Drive Shaft	1	
19	41255	Drive Coupling Guard	2	
20	41482	Clutch Guard	1	
21	41490	PTO Guard	1	
22				
23				
24	6008RS	Bearing	2	
25	6208RS	Bearing	2	
26				
27	A11	Plastic Spacer	1	
28	A13	Plastic Spacer	1	
29	A20	Plastic Spacer	1	
30	A30	Plastic Spacer	1	
31				
32	GS411	1/8"BSP Angled Grease Nipple	1	
33	GS412	1/8"BSP Straight Grease Nipple	1	
34				
35	KA15120	Torque Limiter Complete	1	(see list at end)
36	KA15661	28t Sprocket	1	
37	KA15671	Guard Extension	1	
38	KA15691	Gearbox Assembly	1	(see list at end)
39				
40	PS429/82	1"Pitch Drive Chain	2	
41	PS429/111	1"Pitch Drive Chain	1	
42				
43	SS040011/045	Steel Spacer	3	
44				
45	W0162	External Circlip	1	
46				
	41041	Gearbox Assembly Consists Of:		
47	27834/1	Case Half (input side)	1	
48	27834/2	Case Half (output side)	1	
49	27834/6	Protection Cap	1	
50	27834/7	Adaptor	1	
51	27834/8	Bolt	10	
52	27834/9	Nut	10	
53	27834/10	Dowel	2	

Machines from 1998

Main Drives

Item	Part No.	Description	Qty.	Remarks
54	27834/11	Plug	4	
55	27834/12	Washer	4	
56	27834/13	Breather	1	
57	37564/1	Gear	1	
58	37564/2	Pinion	1	
59	41041/1	Shaft	1	
60				
61	6207	Bearing	4	
62	72x40x10	Oil Seal	2	
	KA15691	Gearbox Assembly Consists Of:		
63	KA15691/1	Input Pinion and Output Gear Set	1	
64	KA15691/2	Output Shaft (gearbox)	1	
65	KA15691/3	Gearcase	1	
66	KA15691/4	Output Shaft	1	
67	KA15691/5	Output Shaft Housing	1	
68	KA15691/6	External Circlip	1	
69	KA15691/7	Internal Circlip	2	
70	KA15691/8	External Circlip	2	
71	KA15691/9	Internal Circlip	1	
72	KA15691/10	End Cap (small)	1	
73	KA15691/11	End Cap (large)	1	
74	KA15691/12	Oil Plug	3	
75	KA15691/13	O'Ring (large)	1	
76	KA15691/14	O'Ring (small)	1	
77	KA15691/15	Shim (45.2x54.8x0.3)	a/r	
78	KA15691/16	Shim (45.2x54.8x0.4)	a/r	
79	KA15691/17	Shim (45.2x54.8x0.6)	a/r	
80	KA15691/18	Shim (45.2x54.8x0.8)	a/r	
81	KA15691/19	Shim (45.2x54.8x1.0)	a/r	
82	KA15691/20	Shim (75.2x84.8x0.3)	a/r	
83	KA15691/21	Shim (75.2x84.8x0.4)	a/r	
84	KA15691/22	Shim (75.2x84.8x0.6)	a/r	
85	KA15691/23	Shim (75.2x84.8x0.8)	a/r	
86	KA15691/24	Shim (75.2x84.8x1.0)	a/r	
87				
88	33164/6	Oil Seal (45x85x10)	2	
89	TH00500307	Bearing	2	
90	6209	Bearing	3	
91	-	M10x30mm Socket Head Setscrew	4	
92	-	M10 Spring Washer	4	
	41483	Intermediate Drive Coupling		
		Consists Of:		
93	24320/1	Male Coupling Complete	1	
94	24320/2	Female Coupling Complete	1	
95	24320/3	Male Lemon Tube	1	
96	24320/4	Female Lemon Tube	1	
97	24320/5	Guard Complete	1	
98	41483/1	Clutch Unit	1	
99	11557/5	Splined Yoke	1	
100	11557/7	Unit Package	2	
101	11557/9	Male End Inner Yoke	1	
102	11557/10	Female End Inner Yoke	1	
103	11557/11	Straight Spring Pin	2	

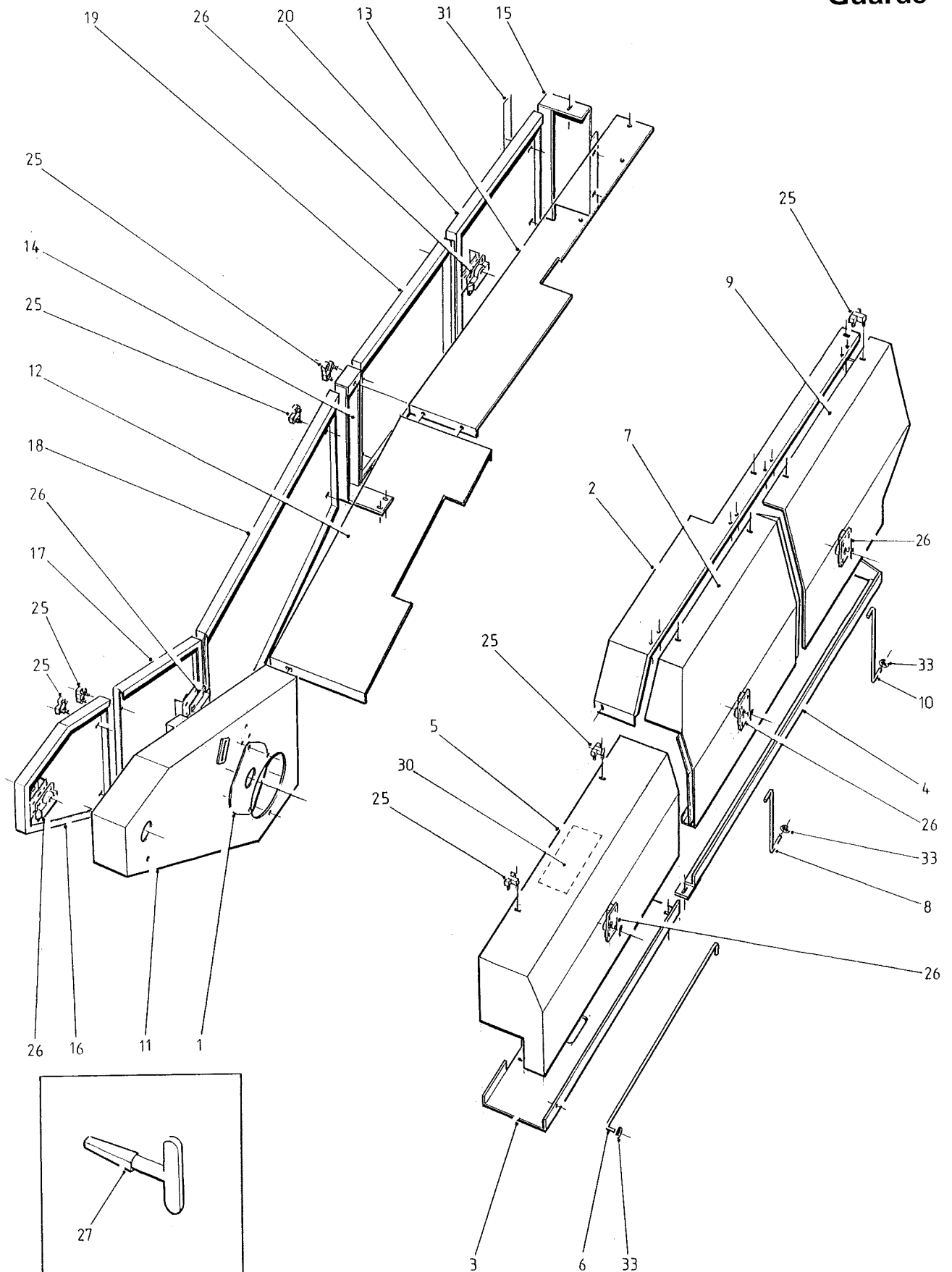
Machines from 1998

Main Drives

Item	Part No.	Description	Qty.	Remarks
	27788	PTO Drive Coupling		
		Consists Of:		
93	27788/1	Male Coupling Complete	1	
94	27788/2	Female Coupling Complete	1	
95	27788/3	Male Lemon Tube	1	
96	27788/4	Female Lemon Tube	1	
97	27788/5	Guard Complete	1	
98				
99	11557/5	Splined Yoke	2	
100	11557/7	Unit Package	2	
101	11557/9	Male End Inner Yoke	1	
102	11557/10	Female End Inner Yoke	1	
103	11557/11	Straight Spring Pin	2	
	KA15120	Torque Limiter Complete Consists Of:		
104	KA15124	Disc Spring	2	
105	KA15126	Integral Hub and Pressure Plate	1	
106	KA15665	Pressure Setscrew	3	
107	KA15681	Adjuster Ring	1	
108	KA15684	Pressure Plate	1	
109	KA15686	Pilot Plate	1	
110	KA15697	Bush	1	
111	KA15698	Friction Facing	2	

Machines from Serial No DS 113

Guards



2.12a**SPARE PARTS**

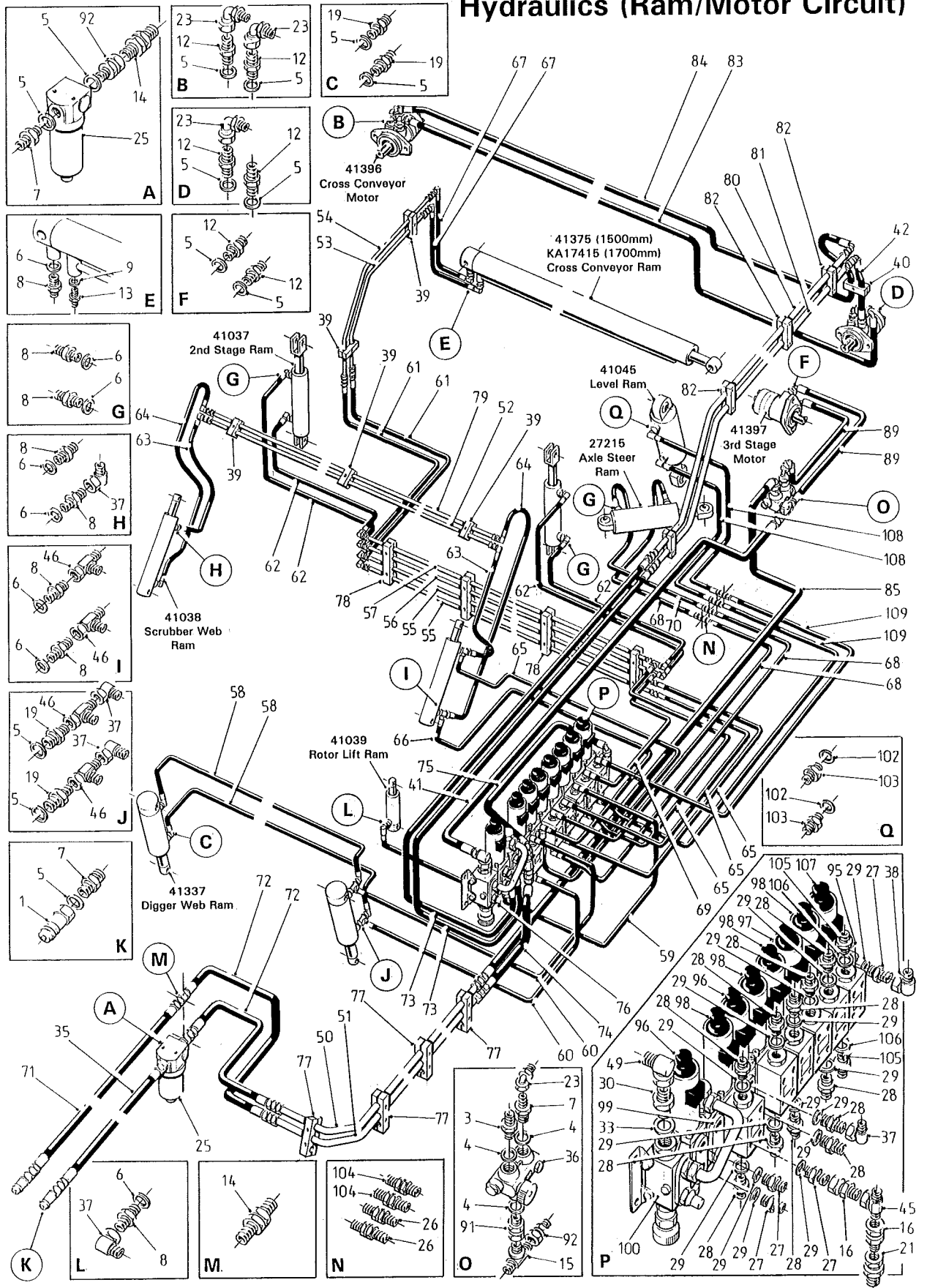
Machines from Serial No DS 113

Guards

Item	Part No.	Description	Qty.	Remarks
1	41347	Cover Plate	1	
2	41414	LH Top Panel	1	
3	41415	LH Front Lower Panel	1	
4	41416	LH Lower Guard Rail	1	
5	41417	LH Front Guard	1	
6	41418	Front Stay	1	
7	41419	LH Centre Guard	1	
8	41420	Centre Stay	1	
9	41421	LH Rear Guard	1	
10	41422	Rear Stay	1	
11	41423	RH Front Guard Back Panel	1	
12	41424	RH Centre Top Panel	1	
13	41425	RH Rear Top Panel	1	
14	41426	Centre Hinge Post	1	
15	41427	Rear Hinge Post	1	
16	41428	RH 1st Guard Door	1	
17	41429	RH 2nd Guard Door	1	
18	41430	RH 3rd Guard Door	1	
19	41431	RH 4th Guard Door	1	
20	41432	RH 5th Guard Door	1	
21				
22				
23				
24				
25	42087	Hinge Complete	16	
26	42458	Door Lock	6	
27	42459	Door Lock Key	1	
28				
29				
30	TR296	"Valve Bank Functions" Transfer	1	
31	TR297	"Conveyor Raise/Lower" Transfer	1	
32				
33	-	Star Washer	3	

Machines from Serial No DS 113

Hydraulics (Ram/Motor Circuit)



2.13a**SPARE PARTS**

Machines from Serial No DS 113

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
1	10140	1/2"BSP Male Probe	2	
2				
3	11115	3/4"BSP M M Adaptor	1	
4	11123	3/4"BSP Dowty Seal	3	
5	11124	1/2"BSP Dowty Seal	14	
6	11125	3/8"BSP Dowty Seal	12	
7	11295	3/4"BSPx1/2"BSP M M Adaptor	4	
8	11336	1/4"BSPx3/8"BSP M M Adaptor	12	
9	11337	1/4"BSP Dowty Seal	1	
10				
11				
12	12315	1/2"BSP M M Adaptor	6	
13	12316	1/4"BSP M M Adaptor	1	
14	12320	3/4"BSP Bulkhead Adaptor	2	
15	12322	3/4"BSP Male Tee	1	
16	12602	1/2"BSP M F Swivel Adaptor	2	
17				
18				
19	16356	1/4"BSPx1/2"BSP M M Adaptor	4	
20				
21	23434	3/4"BSPMx1/2"BSP F Swivel Adaptor	1	
22				
23	26086	1/2"BSP M F Swept 90°Adaptor	4	
24				
25	27158	Pressure Filter Complete	1	(Element only 27158/1)
26	27451	1/4"BSP Bulkhead Adaptor	2	
27	27459	M18x1/2"BSP M M Adaptor	4	
28	27460	M18x1/4"BSP M M Adaptor	11	
29	27461	M18 Dowty Seal	15	
30	27904	M22x3/4"BSP M M Adaptor	1	
31				
32				
33	31167	M22 Dowty Seal	1	
34				
35	32331	5/8"Hose Assembly (2500mm)	1	
36	32405	Variable Flow Divider	1	
37	32474	1/4"BSP M F Compact 90°Adaptor	5	
38	32475	1/2"BSP M F Compact 90°Adaptor	1	
39	32873	Pipe Clamp (2 hole)	5	(pair)
40	32874	Pipe Clamp (2 hole)	1	(pair)
41	32885	5/8"Hose Assembly (1800mm)	1	
42	32888	1/2"Hose Assembly (2200mm)	1	
43				
44				
45	37172	1/2"BSP M M F Tee	1	
46	37197	1/4"BSP F M M Tee	4	
47				
48				
49	41115	3/4"BSP M F Compact 90°Adaptor	1	
50	41119	20mm Steel Pipe Assembly	1	
51	41120	20mm Steel Pipe Assembly	1	
52	41125	10mm Steel Pipe Assembly	1	
53	41126	10mm Steel Pipe Assembly	1	
54	41127	10mm Steel Pipe Assembly	1	
55	41128	10mm Steel Pipe Assembly	2	

SPARE PARTS

2.13b

Machines from Serial No DS 113

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
56	41129	10mm Steel Pipe Assembly	1	
57	41130	10mm Steel Pipe Assembly	1	
58	41163	1/4"Hose Assembly (2900mm)	2	
59	41164	1/4"Hose Assembly (2700mm)	1	
60	41165	1/4"Hose Assembly (2500mm)	2	
61	41166	1/4"Hose Assembly (460mm)	2	
62	41167	1/4"Hose Assembly (600mm)	4	
63	41168	1/4"Hose Assembly (700mm)	2	
64	41169	1/4"Hose Assembly (800mm)	2	
65	41170	1/4"Hose Assembly (1300mm)	4	
66	41171	1/4"Hose Assembly (900mm)	1	
67	41172	1/4"Hose Assembly (650mm)	2	
68	41173	1/4"Hose Assembly (1550mm)	3	
69	41174	1/4"Hose Assembly (1100mm)	1	
70	41177	1/4"Hose Assembly (1400mm)	1	
71	41178	5/8"Hose Assembly (2700mm)	1	
72	41180	5/8"Hose Assembly (1150mm)	2	
73	41190	1/2"Hose Assembly (1100mm)	2	
74	41342	3/4"Hose Assembly (460mm)	1	
75	41343	1/2"Hose Assembly (440mm)	1	
76	41358	Valve Bank Assembly	1	(see list at end)
77	41381	Pipe Clamp (3 hole)	4	(pair)
78	41393	Pipe Clamp (4 hole)	4	(pair)
79	41398	10mm Steel Pipe Assembly	1	
80	41399	15mm Steel Pipe Assembly	1	
81	41400	15mm Steel Pipe Assembly	1	
82	41401	Pipe Clamp (2 hole)	4	(pair)
83	41407	1/2"Hose Assembly (4450mm)	1	1700mm wide only
	41451	1/2"Hose Assembly (3950mm)	1	1500mm wide only
84	41408	1/2"Hose Assembly (6400mm)	1	1700mm wide only
	41452	1/2"Hose Assembly (5900mm)	1	1500mm wide only
85	41409	5/8"Hose Assembly (2000mm)	1	
86				
87				
88				
89	42322	1/2"Hose Assembly (1200mm)	2	
90				
91	TBMW338	3/4"BSP M F Swivel Adaptor	1	
92	TBMW659	1/2"BSPMx3/4"BSP F Swivel Adaptor	2	
93				
94				
	41358	Valve Bank Assembly Consists Of:		
95	27045	End Plate	1	
96	27046	D/A Valve	2	
97	27970	S/A Valve c/w S/A Check Valve	1	
98	27971	D/A Valve c/w D/A Check Valve	4	
99	41358/1	Flow Divider Section	1	
100	41358/2	Proportional Valve	1	
101				
		Machine Levelling Hydraulics Consist Of:		
102	11125	3/8"BSP Dowty Seal	2	Optional
103	11336	1/4"BSPx3/8"BSP M M Adaptor	2	

2.13c**SPARE PARTS**

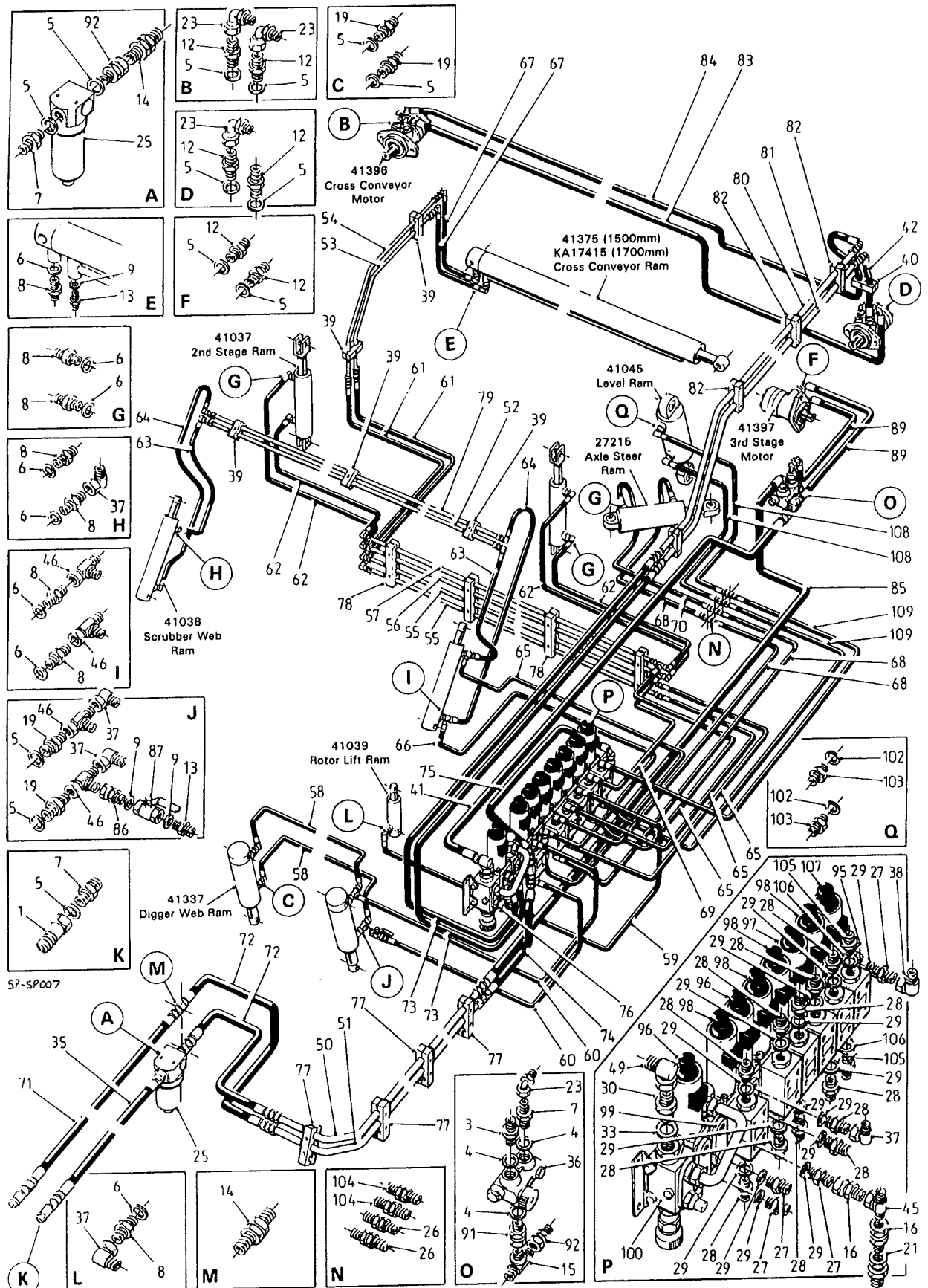
Machines from Serial No DS 113

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
104	27451	1/4"BSP Bulkhead Adaptor	2	Optional
105	27460	M18x1/4"BSP M M Adaptor	2	
106	27461	M18 Dowty Seal	2	
107	27971	D/A Valve c/w D/A Check Valve	1	
108	41168	1/4"Hose Assembly (700mm)	2	
109	41173	1/4"Hose Assembly (1550mm)	2	
110	41448	Valve Block Stud (not shown)	3	
111				
112				

Machines from 1998

Hydraulics (Ram/Motor Circuit)



2.13a**SPARE PARTS**

Machines from 1998

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
1	10140	1/2"BSP Male Probe	2	
2				
3	11115	3/4"BSP M M Adaptor	1	
4	11123	3/4"BSP Dowty Seal	3	
5	11124	1/2"BSP Dowty Seal	14	
6	11125	3/8"BSP Dowty Seal	12	
7	11295	3/4"BSPx1/2"BSP M M Adaptor	4	
8	11336	1/4"BSPx3/8"BSP M M Adaptor	12	
9	11337	1/4"BSP Dowty Seal	3	
10				
11				
12	12315	1/2"BSP M M Adaptor	6	
13	12316	1/4"BSP M M Adaptor	2	
14	12320	3/4"BSP Bulkhead Adaptor	2	
15	12322	3/4"BSP Male Tee	1	
16	12602	1/2"BSP M F Swivel Adaptor	2	
17				
18				
19	16356	1/4"BSPx1/2"BSP M M Adaptor	4	
20				
21	23434	3/4"BSPMx1/2"BSP F Swivel Adaptor	1	
22				
23	26086	1/2"BSP M F Swept 90°Adaptor	4	
24				
25	27158	Pressure Filter Complete	1	(Element only 27158/1)
26	27451	1/4"BSP Bulkhead Adaptor	2	
27	27459	M18x1/2"BSP M M Adaptor	4	
28	27460	M18x1/4"BSP M M Adaptor	11	
29	27461	M18 Dowty Seal	15	
30	27904	M22x3/4"BSP M M Adaptor	1	
31				
32				
33	31167	M22 Dowty Seal	1	
34				
35	32331	5/8"Hose Assembly (2500mm)	1	
36	32405	Variable Flow Divider	1	
37	32474	1/4"BSP M F Compact 90°Adaptor	5	
38	32475	1/2"BSP M F Compact 90°Adaptor	1	
39	32873	Pipe Clamp (2 hole)	5	(pair)
40	32874	Pipe Clamp (2 hole)	1	(pair)
41	32885	5/8"Hose Assembly (1800mm)	1	
42	32888	1/2"Hose Assembly (2200mm)	1	
43				
44				
45	37172	1/2"BSP M M F Tee	1	
46	37197	1/4"BSP F M M Tee	4	
47				
48				
49	41115	3/4"BSP M F Compact 90°Adaptor	1	
50	41119	20mm Steel Pipe Assembly	1	
51	41120	20mm Steel Pipe Assembly	1	
52	41125	10mm Steel Pipe Assembly	1	
53	41126	10mm Steel Pipe Assembly	1	
54	41127	10mm Steel Pipe Assembly	1	
55	41128	10mm Steel Pipe Assembly	2	

SPARE PARTS

2.13b

Machines from 1998

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
56	41129	10mm Steel Pipe Assembly	1	
57	41130	10mm Steel Pipe Assembly	1	
58	41163	1/4"Hose Assembly (2900mm)	2	
59	41164	1/4"Hose Assembly (2700mm)	1	
60	41165	1/4"Hose Assembly (2500mm)	2	
61	41166	1/4"Hose Assembly (460mm)	2	
62	41167	1/4"Hose Assembly (600mm)	4	
63	41168	1/4"Hose Assembly (700mm)	2	
64	41169	1/4"Hose Assembly (800mm)	2	
65	41170	1/4"Hose Assembly (1300mm)	4	
66	41171	1/4"Hose Assembly (900mm)	1	
67	41172	1/4"Hose Assembly (650mm)	2	
68	41173	1/4"Hose Assembly (1550mm)	3	
69	41174	1/4"Hose Assembly (1100mm)	1	
70	41177	1/4"Hose Assembly (1400mm)	1	
71	41178	5/8"Hose Assembly (2700mm)	1	
72	41180	5/8"Hose Assembly (1150mm)	2	
73	41190	1/2"Hose Assembly (1100mm)	2	
74	41342	3/4"Hose Assembly (460mm)	1	
75	41343	1/2"Hose Assembly (440mm)	1	
76	41358	Valve Bank Assembly	1	(see list at end)
77	41381	Pipe Clamp (3 hole)	4	(pair)
78	41393	Pipe Clamp (4 hole)	4	(pair)
79	41398	10mm Steel Pipe Assembly	1	
80	41399	15mm Steel Pipe Assembly	1	
81	41400	15mm Steel Pipe Assembly	1	
82	41401	Pipe Clamp (2 hole)	4	(pair)
83	41407	1/2"Hose Assembly (4450mm)	1	1700mm wide only
	41451	1/2"Hose Assembly (3950mm)	1	1500mm wide only
84	41408	1/2"Hose Assembly (6400mm)	1	1700mm wide only
	41452	1/2"Hose Assembly (5900mm)	1	1500mm wide only
85	41409	5/8"Hose Assembly (2000mm)	1	
86	41484	1/4"BSP M F Swivel Adaptor	1	
87	41485	1/4"BSP Shut-off Valve	1	
88				
89	42322	1/2"Hose Assembly (1200mm)	2	
90				
91	TBMW338	3/4"BSP M F Swivel Adaptor	1	
92	TBMW659	1/2"BSPMx3/4"BSP F Swivel Adaptor	2	
93				
94				
	41358	Valve Bank Assembly Consists Of:		
95	27045	End Plate	1	
96	27046	D/A Valve	2	
97	27970	S/A Valve c/w S/A Check Valve	1	
98	27971	D/A Valve c/w D/A Check Valve	4	
99	41358/1	Flow Divider Section	1	
100	41358/2	Proportional Valve	1	
101				
		Machine Levelling Hydraulics Consist Of:		
102	11125	3/8"BSP Dowty Seal	2	Optional
103	11336	1/4"BSPx3/8"BSP M M Adaptor	2	

2.13c**SPARE PARTS**

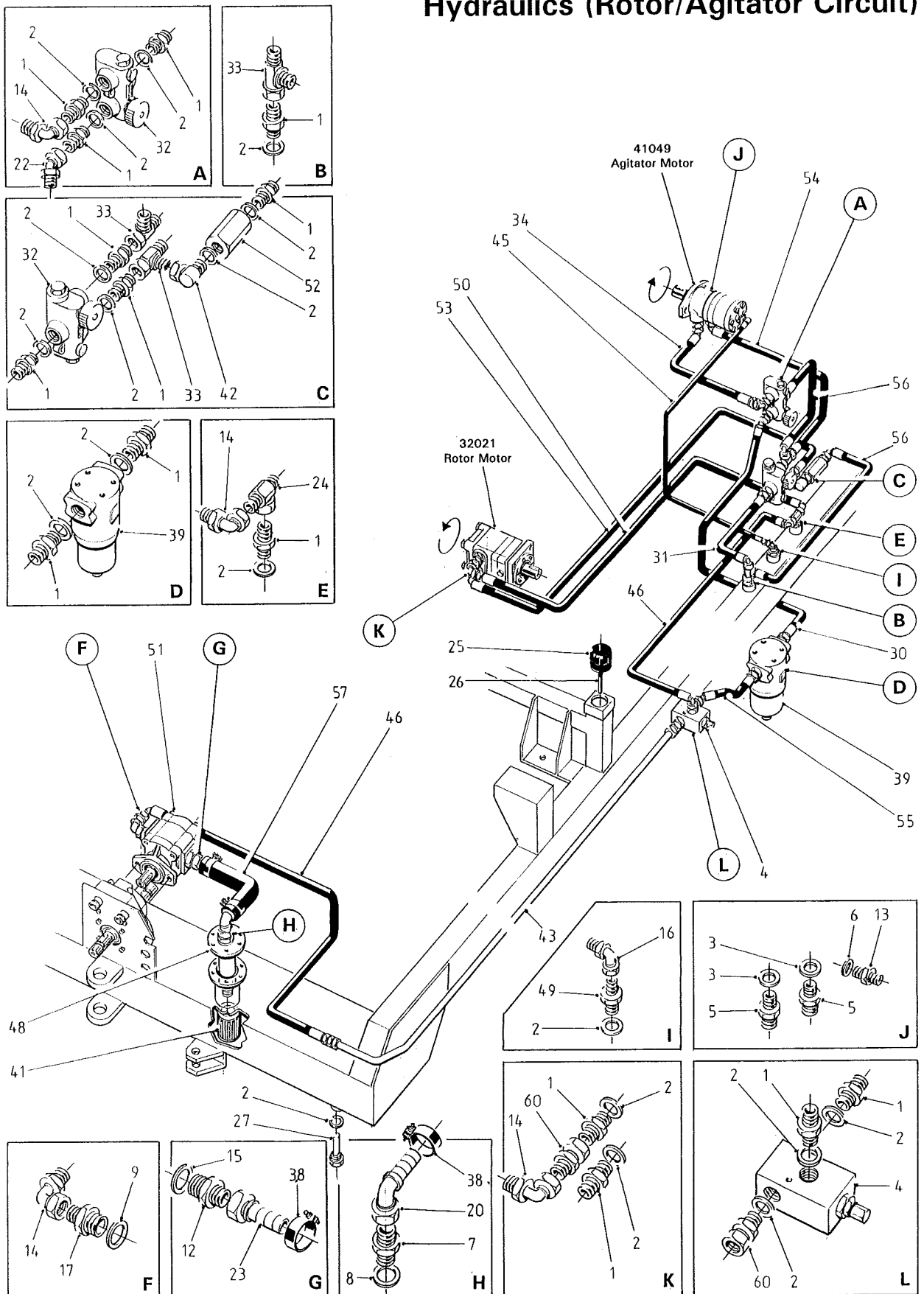
Machines from 1998

Hydraulics (Ram/Motor Circuit)

Item	Part No.	Description	Qty.	Remarks
104	27451	1/4"BSP Bulkhead Adaptor	2	Optional
105	27460	M18x1/4"BSP M M Adaptor	2	
106	27461	M18 Dowty Seal	2	
107	27971	D/A Valve c/w D/A Check Valve	1	
108	41168	1/4"Hose Assembly (700mm)	2	
109	41173	1/4"Hose Assembly (1550mm)	2	
110	41448	Valve Block Stud (not shown)	3	
111				
112				

Machines from Serial No DS 113

Hydraulics (Rotor/Agitator Circuit)



2.14a**SPARE PARTS**

Machines from Serial No DS 113

Hydraulics (Rotor/Agitator Circuit)

Item	Part No.	Description	Qty.	Remarks
1	11115	3/4"BSP M M Adaptor	15	
2	11123	3/4"BSP Dowty Seal	19	
3	11124	1/2"BSP Dowty Seal	2	
4	11132	Pressure Relief Valve	1	
5	11295	1/2"BSPx3/4"BSP M M Adaptor	2	
6	11337	1/4"BSP Dowty Seal	1	
7	11737	1 1/2"BSPx1 1/4"BSP M M Adaptor	1	
8	11740	1 1/4"BSP Dowty Seal	1	
9	11741	1"BSP Dowty Seal	1	
10				
11				
12	12314	1 1/2"BSP M M Adaptor	1	
13	12316	1/4"BSP M M Adaptor	1	
14	12350	3/4"BSP M F Swept 90°Adaptor	4	
15	12352	1 1/2"BSP Dowty Seal	1	
16	12378	1/4"BSP M F Swept 90°Adaptor	1	
17	12560	3/4"BSPx1"BSP M M Adaptor	1	
18				
19				
20	13291	1 1/2"BSP Swept 90°Hose Adaptor	1	
21				
22	23575	3/4"BSP M F Swept 45°Adaptor	1	
23	27807	1 1/2"BSP Straight Hose Adaptor	1	
24	27811	3/4"BSP M M F Tee	1	
25	27897	Filler/Breather	1	
26	27898	Dipstick	1	
27	27899	3/4"BSP Magnetic Drain Plug	1	
28				
29				
30	32276	5/8"Hose Assembly (420mm)	1	
31	32278	5/8"Hose Assembly (660mm)	1	
32	32405	Variable Flow Divider	2	
33	32512	3/4"BSP F M M Tee	3	
34	32589	5/8"Hose Assembly (890mm)	1	
35				
36				
37				
38	37358	45-55mm Hose Clamp	2	
39	37770	Pressure Filter Complete	1	(Element only 37770/1)
40				
41	41048	1 1/2"BSP Suction Strainer	1	
42	41115	3/4"BSP M F Compact 90°Adaptor	1	
43	41121	20mm Steel Pipe Assembly	1	
44				
45	41167	1/4"Hose Assembly (600mm)	1	
46	41179	5/8"Hose Assembly (1500mm)	2	
47				
48	41253	Suction Strainer Fitting	1	
49	41272	1/4"BSPx3/4"BSP M M Adaptor	1	
50	41273	3/4"Hose Assembly (2800mm)	1	
51	41299	Hydraulic Pump	1	
52	41395	3/4"BSP In-Line Check Valve	1	
53	41403	5/8"Hose Assembly (3300mm)	1	
54	41404	5/8"Hose Assembly (550mm)	1	
55	41405	5/8"Hose Assembly (400mm)	1	

SPARE PARTS	2.14b
--------------------	--------------

SPARE PARTS	2.14b
--------------------	--------------

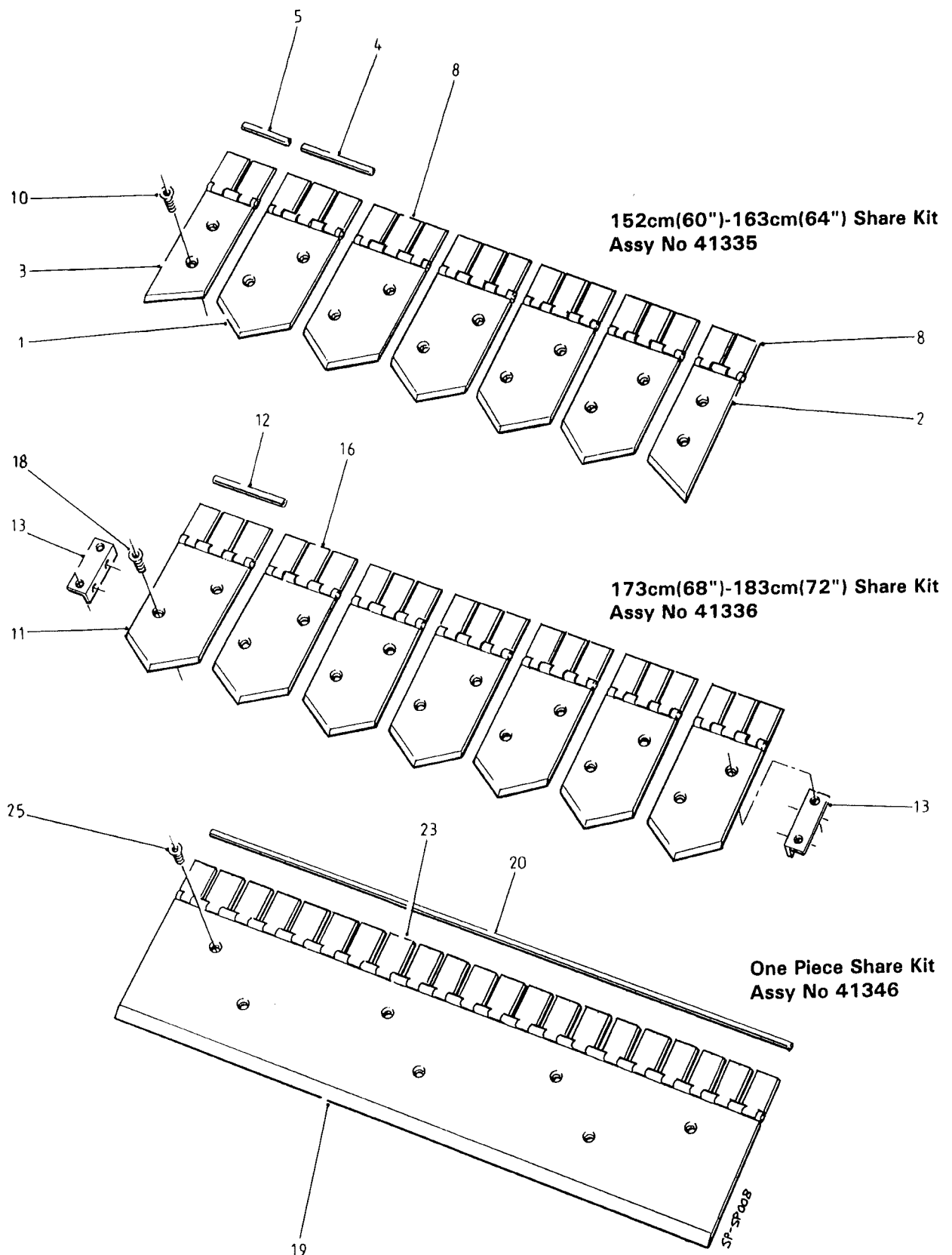
Machines from Serial No DS 113

Hydraulics (Rotor/Agitator Circuit)

Item	Part No.	Description	Qty.	Remarks
56	41406	5/8"Hose Assembly (450mm)	2	
57	41413	1 1/2"Suction Hose (400mm)	1	
58				
59				
60	TBMW338	3/4"BSP M F Swivel Adaptor	2	

Machines from Serial No DS 113

Share Kits



2.15a**SPARE PARTS**

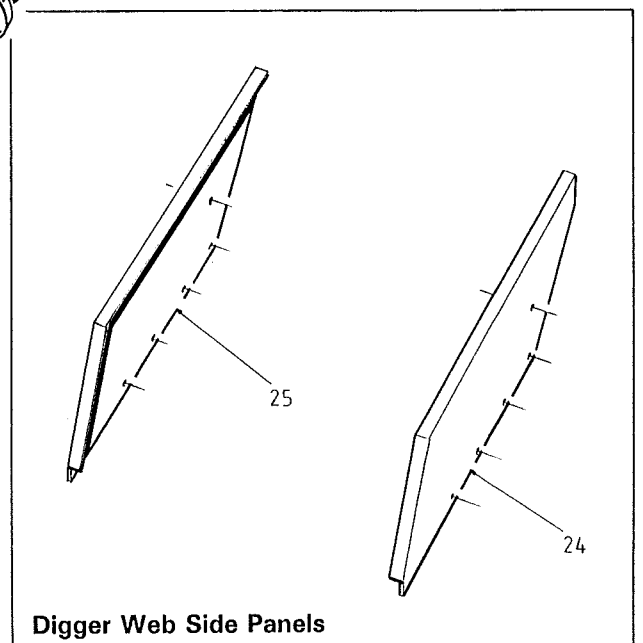
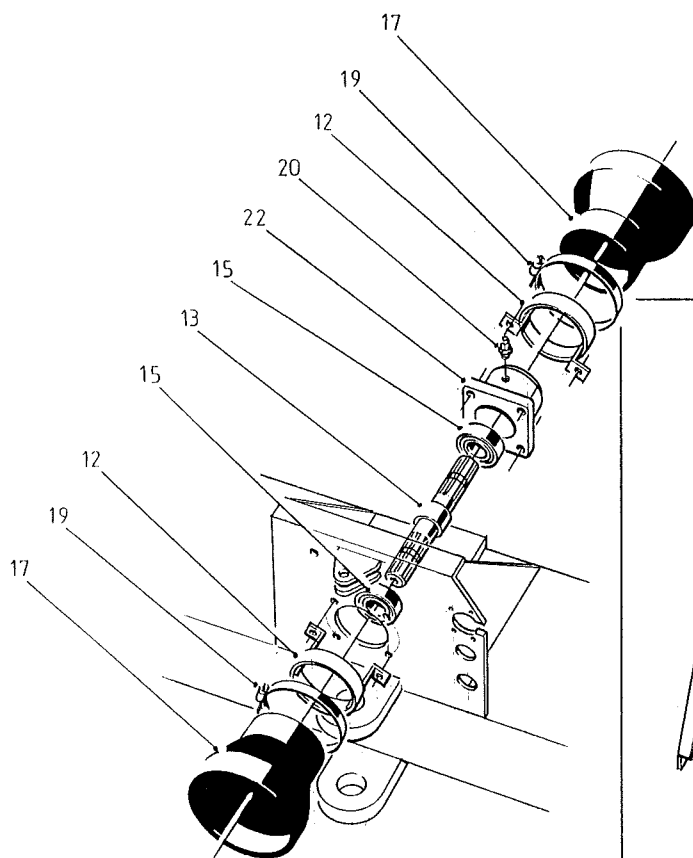
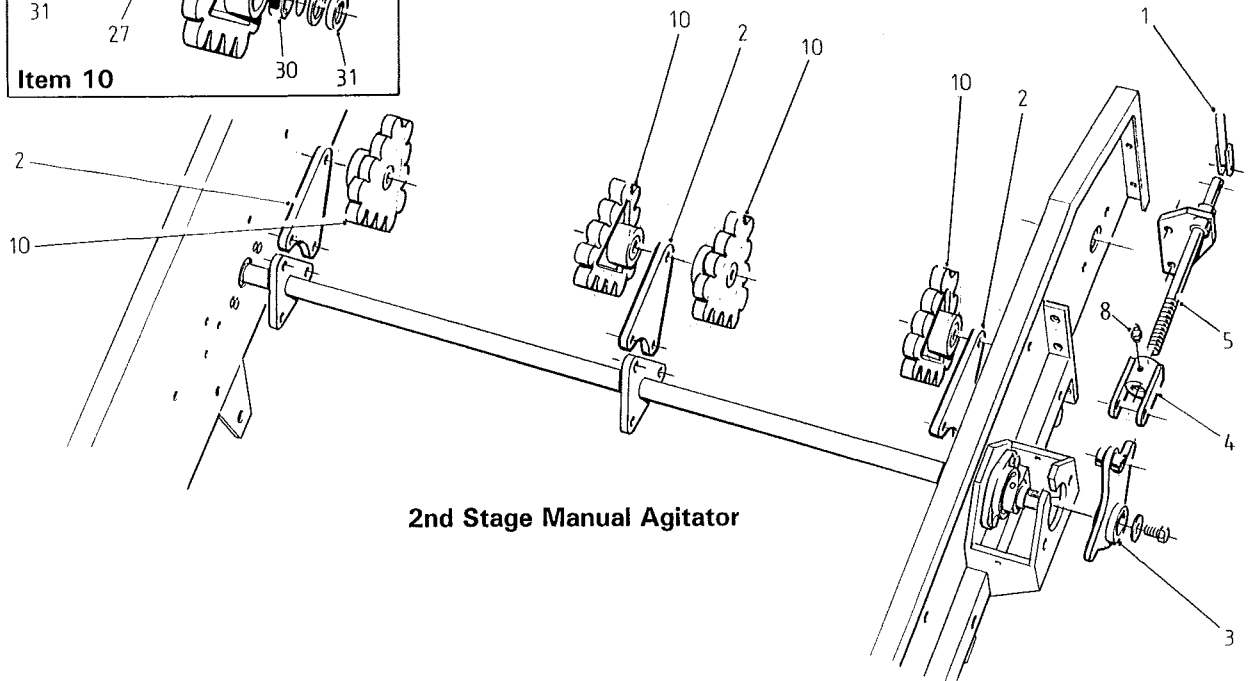
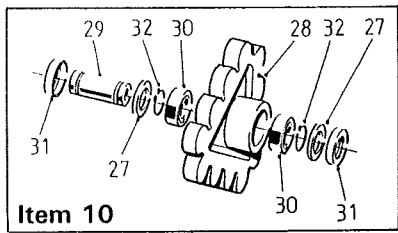
Machines from Serial No DS 113

Share Kits

Item	Part No.	Description	Qty.	Remarks
	41335	152cm(60")-163cm(64") Share Kit		
		Consists Of:		
1	41323	Wide Share Blade	5	
2	41326	LH Narrow Share Blade	1	
3	41327	RH Narrow Share Blade	1	
4	41328	Tip Plate Pivot Bar (176mm)	5	
5	41329	Tip Plate Pivot Bar (116mm)	2	
6				
7				
8	42808	Tip Plate	19	Replaces Part No. 0000204106
9				
10	KA19489	Share Bolt	14	
	41336	173cm(68")-183cm(72") Share Kit		
		Consists Of:		
11	41323	Wide Share Blade	7	
12	41328	Tip Plate Pivot Bar (176mm)	7	
13	41366	Support Angle	2	
14				
15				
16	42808	Tip Plate	21	Replaces Part No. 0000204106
17				
18	KA19489	Share Bolt	14	
	41346	One Piece Share Kit		
		Consists Of:		
19	41344	One Piece Share Blade	1	
20	41345	Tip Plate Pivot Bar	1	
21				
22				
23	42808	Tip Plate	21	Replaces Part No. 0000204106
24				
25	KA19489	Share Bolt	7	

Machines from Serial No DS 113

Components used without Rotor Unit Assy No 41322



2.16a

SPARE PARTS

Machines from Serial No DS 113

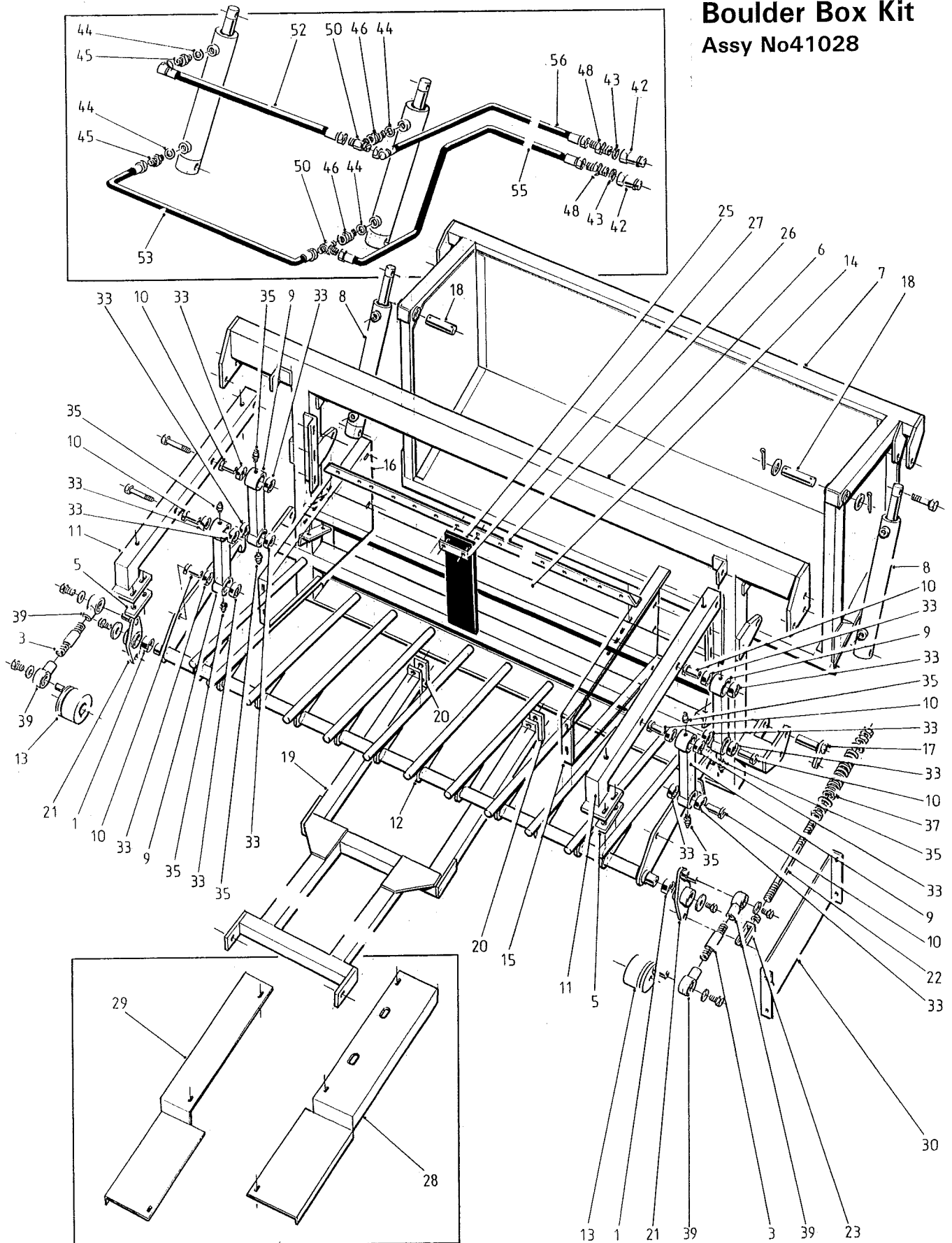
Components used without Rotor Unit

Assy No 41322

Item	Part No.	Description	Qty.	Remarks
		2nd Stage Manual Agitator		
		Consists Of:		
1	41072	Adjuster Handle	1	
2	41302	Agitator Plate	3	
3	41303	Adjuster Plate	1	
4	41304	Adjuster Clevis	1	
5	41305	Adjuster Screw	1	
6				
7				
8	GS412	1/8"BSP Straight Grease Nipple	1	
9				
10	KA16010	Agitator Sprocket Assembly	4	(see list at end)
11				
		Main Drives Input Housing		
		Consists Of:		
12	13118	Guard Support Ring	2	
13	24008	Drive Shaft	1	
14				
15	6207RS	Bearing	2	
16				
17	BM196	Rubber Guard	2	
18				
19	GS407	Jubilee Clip	2	
20	GS412	1/8"BSP Straight Grease Nipple	1	
21				
22	SP44M	Bearing Housing	1	
23				
		Digger Web Side Panels Consist Of:		
24	41300	LH Upper Digger Web Panel	1	
25	41301	RH Upper Digger Web Panel	1	
26				
	KA16010	Agitator Sprocket Assembly		
		Consists Of:		
27	0000300504	Felt Seal	2	
28	KA16010/1	Agitator Sprocket	1	
29	KA16021/4	Spindle	1	
30	6005RS	Bearing	2	
31	PH408	Seal	2	
32	PS843	Circlip	2	

Machines from Serial No DS 113

Boulder Box Kit Assy No41028



2.17a**SPARE PARTS**

Machines from Serial No DS 113

Boulder Box Kit

Assy No 41028

Item	Part No.	Description	Qty.	Remarks
1	10337	Bush	2	
2				
3	13503	Agitator Rod	2	
4				
5	41281	Clamp Plate	2	
6	41284	Mounting Frame	1	
7	41285	Boulder Box	1	
8	41286	Hydraulic Ram	2	
9	41287	Shaker Arm	4	
10	41288	Shaker Arm Pivot Boss	8	
11	41289	Pivot Frame	2	
12	41290	Shaker Frame	1	
13	41291	Shaker Drive Boss	2	
14	41292	Front Panel	1	
15	41293	LH Side Panel	1	
16	41294	RH Side Panel	1	
17	41295	Ram Pivot Pin	2	
18	41296	Boulder Box Pivot Pin	2	
19	41297	Bottom Support Frame	1	
20	41298	Support Frame Clamp Plate	2	
21	41306	Tensioner Pivot Arm	2	
22	41307	Tensioner Rod	2	
23	41308	Tensioner Clevis	2	
24				
25	41455	Rubber Flap	11	
26	41456	Mounting Angle	1	
27	41458	Clamp Strip	11	
28	41464	LH Top Guard	1	
29	41465	RH Top Guard	1	
30	41466	LH Lower Guard Panel	1	
31				
32				
33	6005RS	Bearing	16	
34				
35	GS412	1/8"BSP Straight Grease Nipple	8	
36				
37	PS165	Spring	2	
38				
39	SCHB20	Bearing	4	
40				
41				
		Hydraulic Components Consist Of:		
42	10140	1/2"BSP Male Probe	2	
43	11124	1/2"BSP Dowty Seal	2	
44	11125	3/8"BSP Dowty Seal	4	
45	11336	1/4"BSPx3/8"BSP Male Adaptor	2	
46	11607	1/4"BSPFx3/8"BSP M Swivel Adaptor	2	
47				
48	16356	1/4"BSPx1/2"BSP Male Adaptor	2	
49				
50	27449	1/4"BSP Male Tee	2	
51				
52	32318	1/4"Hose Assembly (2800mm)	1	
53	32488	1/4"Hose Assembly (2000mm)	1	

SPARE PARTS	2.17b
--------------------	--------------

2.17b

Machines from Serial No DS 113

Boulder Box Kit

Assy No 41028

Item	Part No.	Description	Qty.	Remarks
54				
55	41453	1/4"Hose Assembly (11000mm)	1	
56	41454	1/4"Hose Assembly (11000mm)	1	

