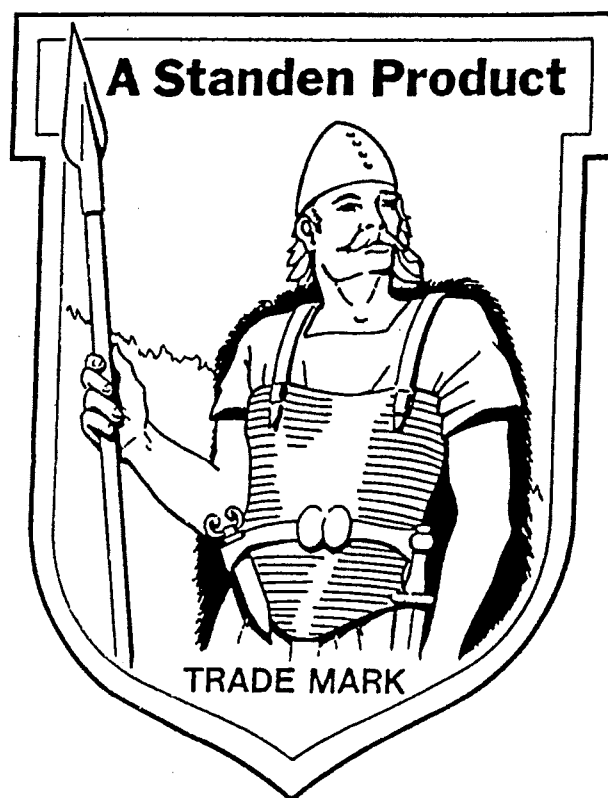


Standen



STATESMAN Mk2

**Two Row
Potato Harvester**

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SECTION 1

INSTRUCTION MANUAL

INTRODUCTION

This manual provides the information for the adjustment and maintenance of your Standen Statesman, to help you obtain the best results from the machine. Before putting the machine to work, read the manual through carefully to obtain a full understanding of what the machine should do and how to obtain it.

Adjustments may have to be made singly or in combination according to crop and soil conditions. Allow the machine to settle to a new setting before making more adjustments.

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

Record below details of your machine in the space provided. Always quote the serial number when ordering spare parts. The serial number of the machine is found on the harvester as shown in fig. 1.

Date Purchased

Date Started Work

Serial Number

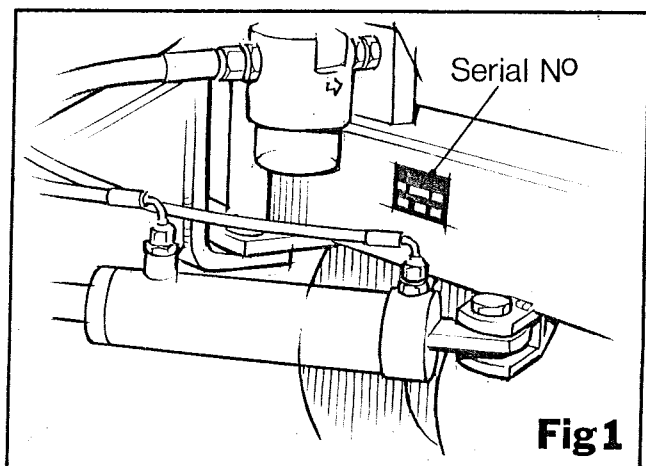
Agent's Name

Agent's Address

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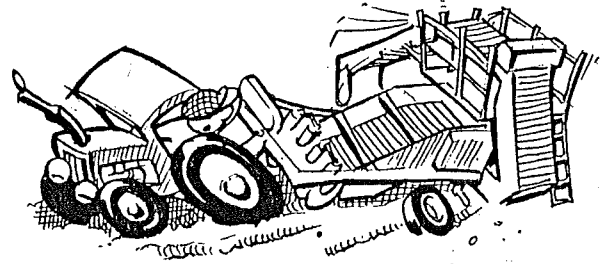
Agent's Telephone Number



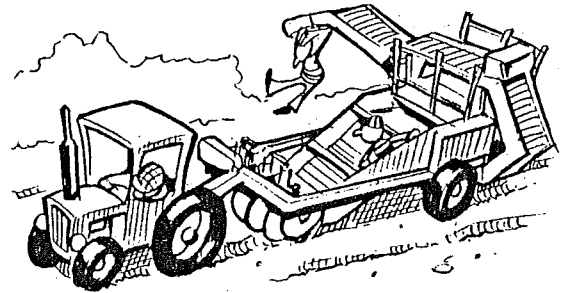
The Statesman is manufactured under licence from:-
NIEWOHNER GmbH & Co.,
4830 GUTERSLOH 11

SAFETY PRECAUTIONS

NEVER Operate the machine in a state of disrepair



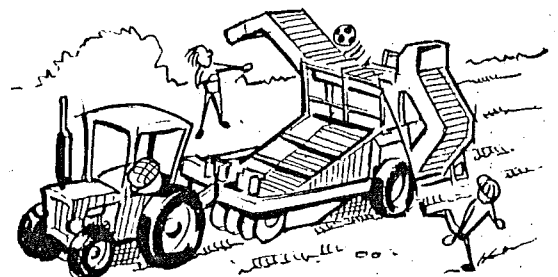
NEVER Allow anyone especially children to ride on the machine (except on the manned machine where platforms are provided).



NEVER Operate the machine with any of the safety guards removed, remember they are fitted for two reasons - to keep dirt out, and more important to protect you and others from the various working parts. So, make sure they are always kept in good condition and they are fitted correctly when the machine is in work.



NEVER Allow children to be in the vicinity where machines are working.

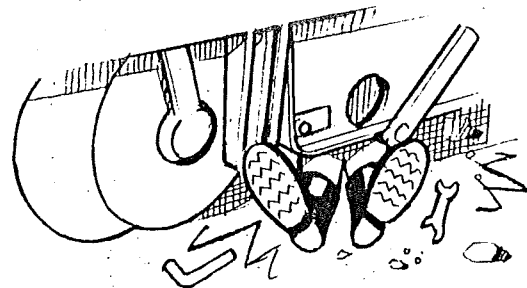


NEVER Set the machinery in motion before ensuring that every one in the vicinity is aware of your intention.



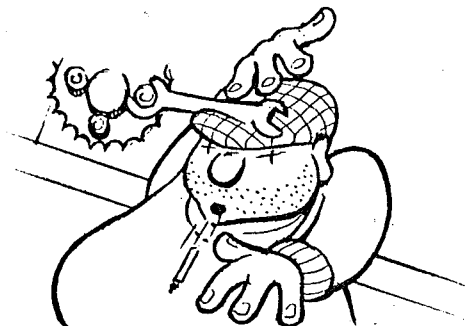
NEVER

Work under the machine when it is in a raised position on the tractor hydraulic lift linkage.



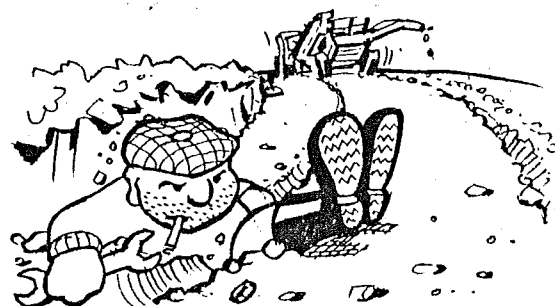
NEVER

Fit drive chains or drive belts while the drive sprockets or drive pulleys are in motion.



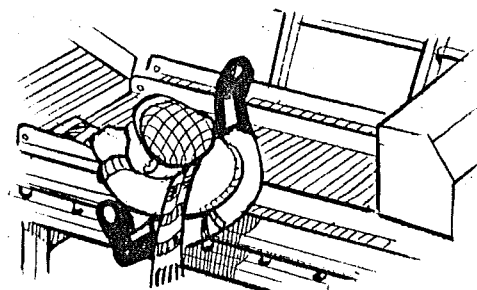
NEVER

Attempt to adjust or clean any part of the machine with the tractor power take-off in motion and always stop the tractor engine.



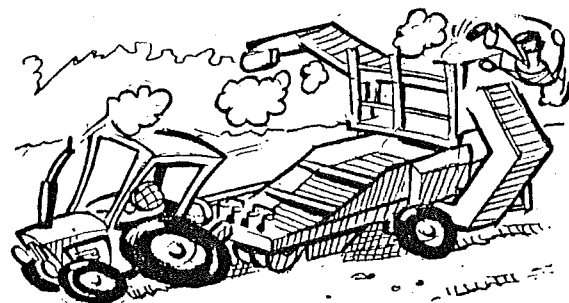
NEVER

Wear loose clothing and always tie back long hair whilst working on the picking area of the machine.



NEVER

Operate machine without giving prior notice to the pickers.



The above list of precautions is not exhaustive. All machinery is potentially dangerous and great care must be exercised by the operator(s) at all times.

Standen Engineering Limited will not accept liability for damage or injury caused by their products except when such liability is specially imposed by English Statute.

INSTALLATION

The Standen Statesman is a two row potato harvester, designed to lift clean and load the potatoes into a trailer running alongside the harvester. The machine basically comes in two forms, a manned machine and an unmanned machine. The manned machine is fully equipped with two platforms giving adequate room for six pickers to work in comfort.

The tractor requirement for the Statesman is 70hp with 4 wheel drive. In addition the Statesman requires a constant flow (6 gals/min) and return from the tractor hydraulics. All hydraulic rams with exception of one operate from the electrical control box. The only hydraulic ram that does not operate from the control box is the drawbar steer ram which is optional. This ram is operated from the tractor hydraulics, therefore the tractor requires a double acting spool valve.

Check that the wheel nuts and bolts and sprocket keys are tight, also the grub screws in the bearings, especially before starting off a new machine and during the first day or two of work.

Do not reverse or turn at the end of a row unless the digger assembly is in its raised position.

Pay particular attention to the lubrication and maintenance and also pay attention to the safety precautions; they are written as a warning to protect you and others.

TRACTOR WHEEL SETTING

Both front and rear tractor wheels must be set to straddle the rows of potatoes. For example, if the crop is grown at 30" row centres, then the distance measured between the tractor tyre centres must be 60" (152.4 cms.). This will ensure that the wheels run in the centre line between the rows of potatoes. The instructions for adjusting the tractor wheels are given in the tractor manufacturer's handbook.

SAFETY FIRST



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

CONNECTING THE HARVESTER TO THE TRACTOR

Level the harvester whilst standing it on a firm piece of ground and reverse the tractor up to it. Adjust the drawbar to align with the tractor pick-up hitch ensuring that the towing eye is parallel with the ground.

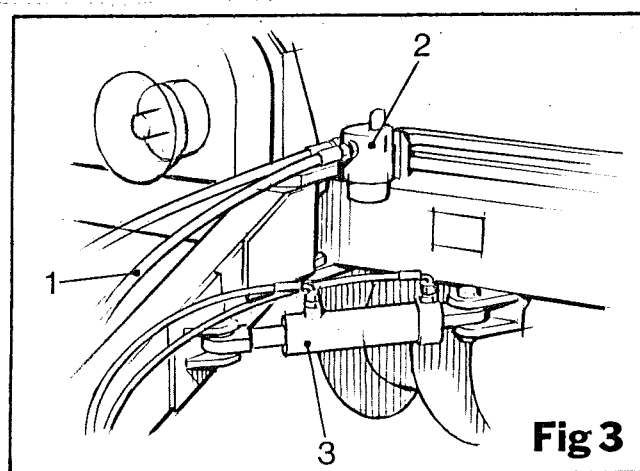
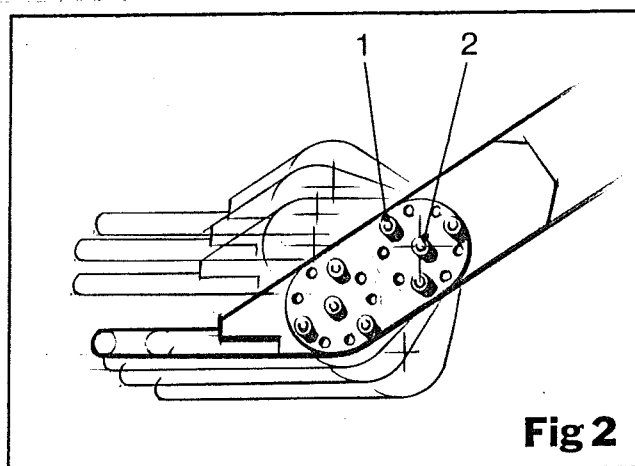
To adjust the towing eye:-

1. Remove the 12 securing bolts (item 1, fig 2).
2. Slacken the 4 pivot bolts (item 2, fig 2).
3. Adjust the towing eye into one of the seven positions in fig 2 so that it approximately aligns with the tractor pick-up hitch.
4. Retighten the 4 pivot bolts (item 2, fig 2).
5. Refit the 12 securing bolts (item 1, fig 2).
6. Pick up the harvester on the tractor pick-up hitch.

Once the harvester is attached to the tractor, the electrics and hydraulics have to be connected.

1. Connect the pressure line (item 1, fig 3) (the pipe within line filter (item 2, fig 3)) into the tractor supply line. The tractor must be set up to give a constant oil flow of 6 gals/min.
2. Connect the harvester return line into the tractor return port.
3. Connect the two pipes from the drawbar ram (item 3, fig 3), if fitted, into the double acting spool on the tractor.

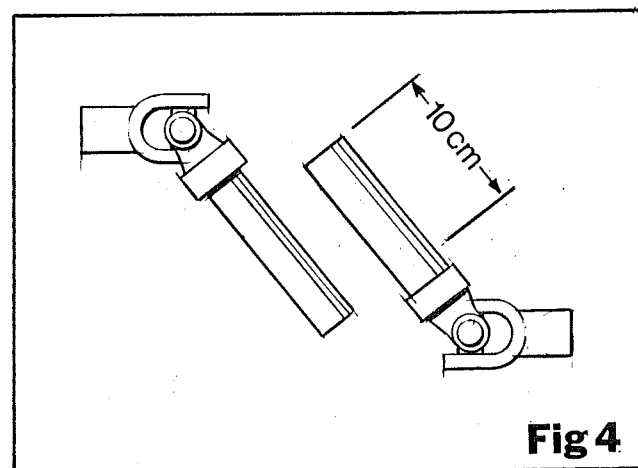
4. Situate the control box in a convenient place in the tractor; two magnetic feet are supplied to secure it.
5. With tractor battery disconnected, connect the black lead (-) from the control box to the negative side of the battery and connect the red lead (+) to a positive terminal on the tractor.



PTO COUPLING TO TRACTOR AND HARVESTER

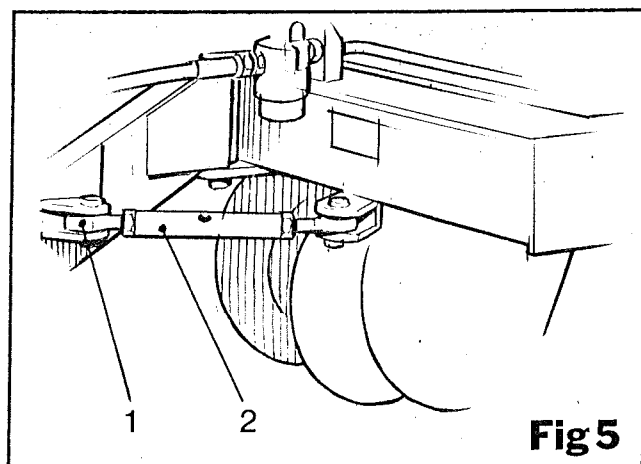
The PTO coupling supplied with the harvester may require cutting to a correct length to suit individual tractors. To do this the coupling should be parted and the two ends fitted to the tractor and harvester respectively.

The male and female shafts can be measured alongside each other and an adjustment made by cutting the surplus bar from both the male and female shafts. At least 4" (10 cms.) overlap should be allowed, see fig 4. After the correct length of the coupling has been obtained, the PTO coupling guard should be cut to correspond with the coupling. Finally, before engaging the PTO, secure the guard by fixing the chain to a convenient place on the harvester.



DRAWBAR

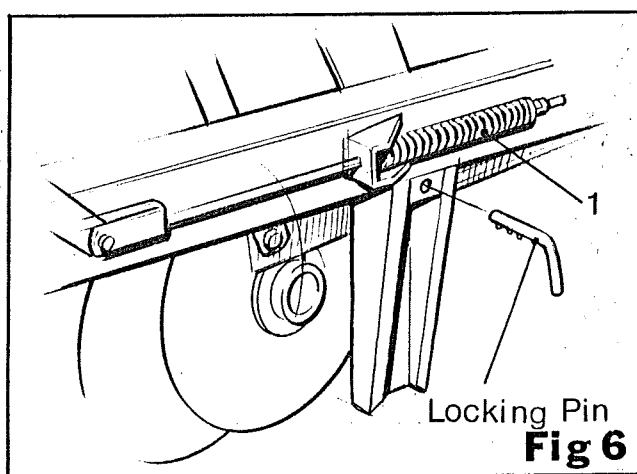
The drawbar is fixed to the machine by a pivot pin, thus enabling the drawbar to pivot. This provides easy manoeuvrability of the harvester to align it with the crop. The adjustment is provided by an adjusting stay (item 1, fig 5) or an optional hydraulic ram. To adjust the drawbar manually simply turn the bar (item 2, fig 5). To adjust the drawbar hydraulically, actuate the double acting spool on the tractor.



FRONT ASSEMBLY

The front assembly, which includes the main (1st) digger web, digger share, diablo rollers and disc coulters, is hydraulically adjustable for height. To raise or lower the front assembly move the lever on the control box marked 'digger shares' in the required direction.

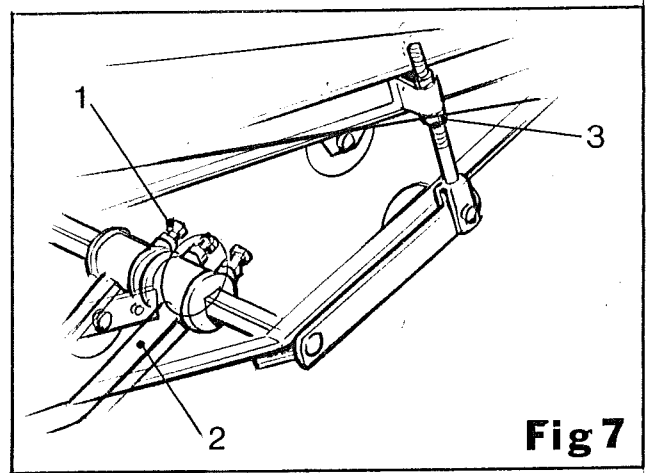
The front assembly is retained in its raised (transport) position by two locking pins. The locking pins can be removed by turning them through 90°, see fig 6. Ensure the locking pins are relocated for transport.



SHARES

The digging shares are individually adjustable for 28" (70 cms.) to 36" (90 cms.) row spacing, with single or triple blade options. To adjust for different row spacing, loosen the securing bolts (item 1, fig 7) and slide the share arms (item 2, fig 7) along the mounting bar. Once positioned, ensure all securing bolts are retightened. This adjustment is also used to set the width of the three piece shares.

The digging angle of the shares is also adjustable by turning the adjusting nut (item 3, fig 7) on either side of the harvester in the direction required.



DISC COULTERS

The Statesman is fitted with four 64 cm. disc coulters, one either side of the digger shares. The discs are designed to cut down and part haulm and weed, whilst simultaneously feeding the ridge onto the 1st sieving web. The discs are adjustable for depth of work and for different row settings. To adjust the discs for depth, loosen the locking bolt (item 1, fig 8) and turn the adjusting screw (item 2, fig 8). Once the required position is obtained resecure with the locking bolt if required. The locking bolt is fitted so that, if necessary, the disc coulters can be fixed, to stop them from swivelling. To adjust for different row centres, slacken the four retaining bolts (item 3, fig 8) and slide the complete assembly along the support beam (item 4, fig 8) to the required position. The disc coulters can also be adjusted for different row widths by slackening the four retaining bolts (item 3, fig 8) and removing the adjustable tie bar (item 5, fig 8) from the disc arm (item 6, fig 8). Slide the disc assembly to the required position and tighten the retaining bolts (item 3, fig 8). Finally reassemble the tie bar (item 5, fig 8) with the disc arm. Once assembled ensure the discs are tracked correctly, ensuring they are parallel with each other. The discs are fitted with scrapers (item 7, fig 8), these must be kept as close to the disc as possible to enable efficient operation.

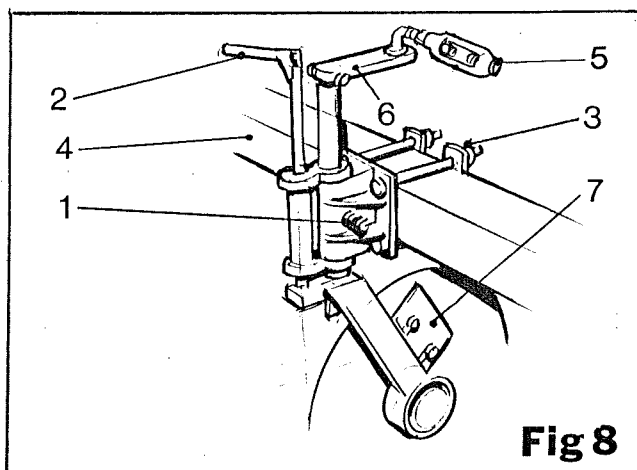


Fig 8

FRONT ASSEMBLY SETTINGS

As a general rule, heavy and/or stony conditions require shallow digging with the disc coulters set at minimum possible width and depth. The compensator springs should be slackened off enough to allow share penetration. Lighter soil requires deeper and wider width settings of shares and disc coulters to retain the soil. The compensator springs should be adjusted to allow them to transfer the weight of the digger assembly to the main frame.

MAIN (1ST) DIGGER WEB

The main web is 1,520 mm wide and is available in 36 mm, 40 mm, 45 mm, and 50 mm pitches. The separation of soil from crop can be increased or decreased by altering the movement of the agitator rollers (item 1, fig 10) on both the agitator systems.

This adjustment is carried out by actuating a hydraulic ram (item 2, fig 10). To adjust move the lever on the control box marked 'Agitator Adjustment' in the required direction.

DIABLO ROLLER

The diablo rollers control the digging depth whilst at the same time ensuring even digging with the help of compensator springs (item 1, fig 6), fitted either side of the harvester. The diablo rollers are adjustable for different row settings and for depth. The row setting adjustment is the same as the disc coulters, by loosening the four retaining bolts (item 1, fig 9). To adjust the depth of the diablo rollers, slacken the lock nut (item 2, fig 9) and turn the adjusting screw (item 3, fig 9) until the rollers are correctly adjusted. Again as the disc coulters, the diablo rollers are fitted with scrapers (item 4, fig 9) and these should be kept as close to the roller as possible.

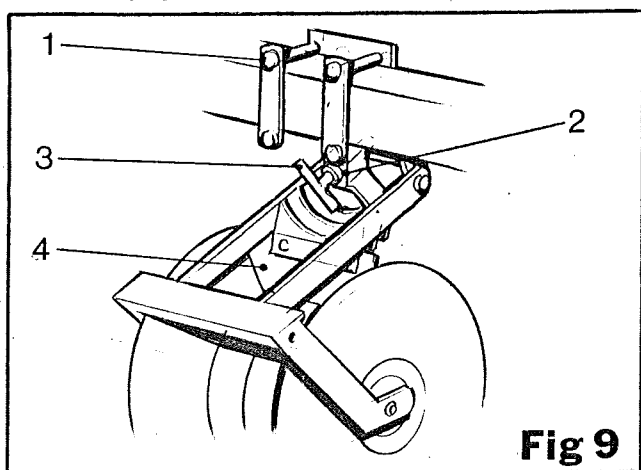


Fig 9

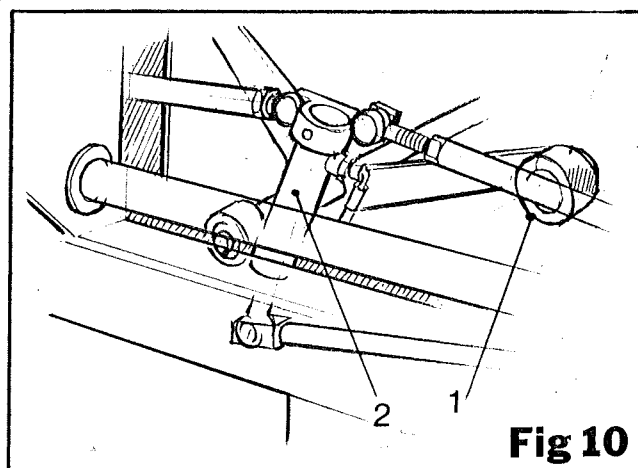


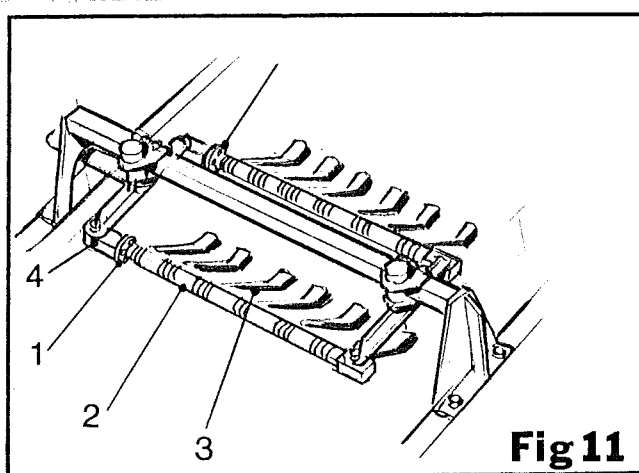
Fig 10

SAFETY FIRST



Before carrying out any adjustments or removing any guards, switch off the engine of the tow vehicle and apply the hand-brake

The fitting of a clod sweeping finger kit (optional) will assist in separation. The sweeping clod fingers are fully adjustable for height so enabling the operator to vary the amount of separation. To adjust, remove the four retaining bolts (item 1, fig 11), and pivot the support beam (item 2, fig 11) until the clod fingers (item 3, fig 11) are at the required height to give the desired separation. Once set re-align two of the holes in the support beam with the two holes in the pivot bracket (item 4, fig 11), finally replace all four retaining bolts. Care must be taken not to over separate, as this causes potatoes to roll back down the digger web.



HAULM AND CLOD REMOVAL ROLLER

A combination of haulm and clod rollers can be fitted to the Statesman. If haulm rollers are fitted, they are located behind both the digger web and the 2nd web. If a clod roller is fitted, it will be located behind the 2nd web only.

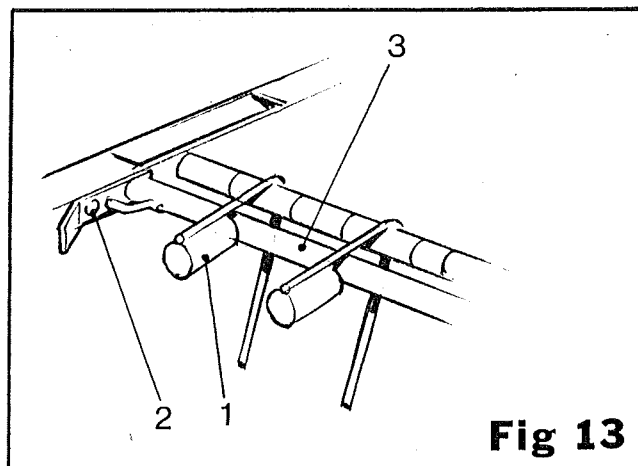
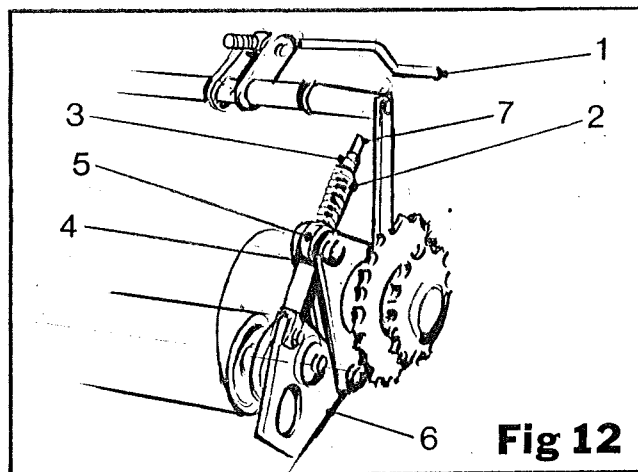
Both rollers are adjustable for height and tension. To adjust the height of the roller turn the handle (item 1, fig 12) in the required directions. A spring (item 2, fig 12) is used to tension the roller. The tension should be such that the roller is pulled back into position after a stone etc., has passed through. Too much tension makes the roller ineffective. To increase or decrease the tension turn the adjusting nuts (item 3, fig 12).

The gap between the rubber roller and the web can be increased or decreased to allow for different field conditions.

The roller is factory set to be as close to the web as possible, if any adjustment is required add shims between the stop (item 4, fig 12) and the spring boss (item 5, fig 12).

To add shims remove the two adjusting nuts (item 3, fig 12) and the spring (item 2, fig 12) whilst simultaneously supporting the bottom of the mounting plate (item 6, fig 12); this operation is necessary on both ends of the haulm roller. Once the lock nuts and springs are removed, allow the mounting plate to swing down thus pulling the spring rod (item 7, fig 12) from the spring boss (item 5, fig 12). Add the shims and reassemble. The position of both these rollers in relation to the webs are dependant on the crop conditions. The higher or further away the rollers are positioned determines how much haulm and clod is taken out. If the roller is set too high or a too large gap exists then there is a possibility that small potatoes will be lost.

Weighted haulm guides (item 1, fig 13) are fitted to guide haulm into the haulm rollers. They can be adjusted by slackening the retaining bolt (item 2, fig 13), and pivoting the adjusting bar (item 3, fig 13) to the required position.



SECOND WEB

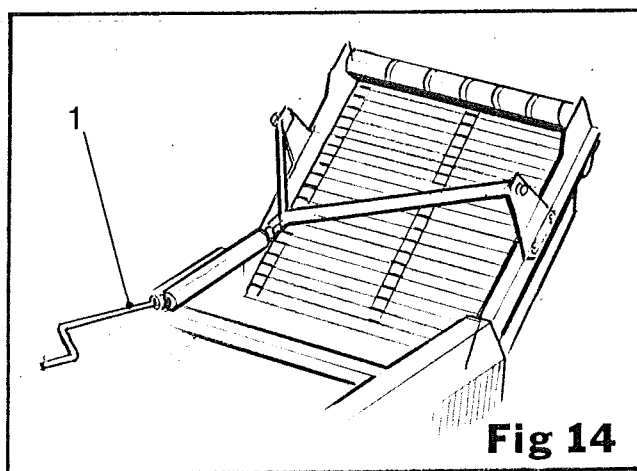
The second web is available in 4 different pitches: 32 mm, 36 mm, 40 mm and 45 mm. This web as the main web, is fitted with split type sprockets to allow easy removal and replacement. For instruction see paragraphs headed 'Split Sprockets'.

TRANSFER WEB

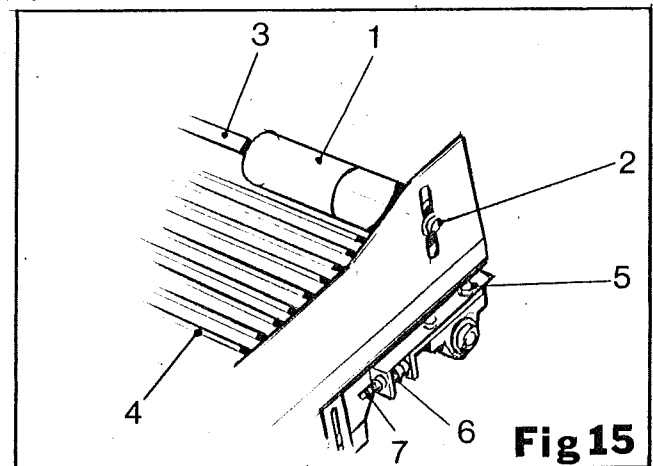
The transfer web is rubber covered to protect the crop and is fitted with a drop-away link to allow out any unwanted stones and clods, etc. The only function of this web is to transfer the crop onto the separating belt.

SEPARATING BELT

The separating belt at the rear of the harvester is the final place for removal of small haulm, leaf and weeds etc. The belt is adjustable for angle of work. The angle should be set so that marketable potatoes are allowed to roll back down the belt and onto the discharge elevator while simultaneously the leaves and clods, etc., are held, so discharging them at the rear of the harvester. To adjust the angle, turn the handle (item 1, fig 14). The adjustment can also be carried out by a hydraulic ram (this is optional). To adjust move the lever on the control box marked 'Haulm Elevator' to the direction required.



A set of weighted barrels (item 1, fig 15) are fitted to the separating belt to remove stubborn potatoes from the haulm. The barrels are adjustable so that the distance between them and the belt can be increased or decreased. To adjust, slacken the securing bolts (item 2, fig 15) and slide the adjusting bar (item 3, fig 15) either up or down its slot to give the required setting. Finally resecure with the bolts (item 2, fig 15).



Adjustment is provided to keep the belt (item 4, fig 15) tensioned correctly.

To adjust, loosen the bearing bolts (item 5, fig 15) and slacken the lock nut (item 6, fig 15), then turn the adjusting nut (item 7, fig 15) to give the required result. Both bearings should be adjusted equally in order to keep the belt running centrally in the frame.

COILS AND STARS SEPARATOR

A separating unit can be fitted in place of the transfer web. The separator unit can either be in the form of stars or coils. Both separator units have been designed so that the centres of the coils or stars can be adjusted (see fig 16). To adjust turn the handle (item 1, fig 16). The distance between the coils or stars is dependent on the crop condition and the amount of clod to be removed. The larger the distance, the larger the clod that will be removed. If the centres have been set to wide then there is a possibility that small potatoes will be lost

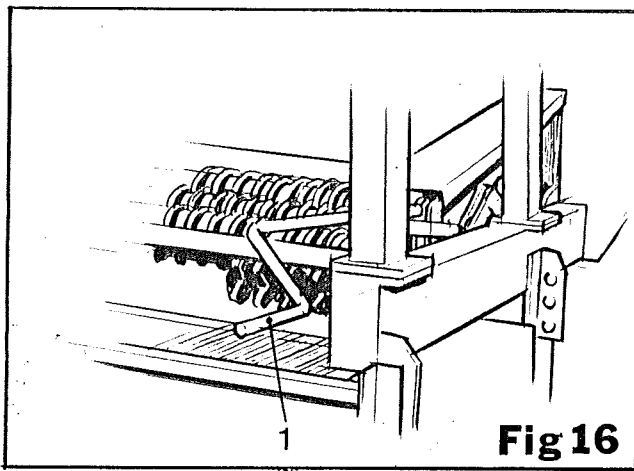


Fig 16

DISCHARGE ELEVATOR

The discharge elevator is designed to provide easy folding from the working position to the transport position and vice-versa.

To operate move the lever on the control box, marked 'Discharge Elevator' (in or out) in the required direction. The Swan neck of the elevator is also adjusted hydraulically to provide even filling of the trailer and also to keep the drop of the potatoes to a minimum. To adjust move the lever on the control box marked 'Discharge Elevator' (lower or raise) in the required direction.

Adjustment is provided to keep the web (item 1, fig 17) tensioned correctly. To adjust loosen the retaining bolts (item 2, fig 17) and the lock nut (item 3, fig 17) and turn the adjusting nut (item 4, fig 17), both sides should be adjusted equally to ensure the web runs centrally in the frame.

The discharge elevator web is driven by a hydraulic motor. To put the web in motion, push the lever on the control box marked 'Discharge Elevator Engage', in the direction required.

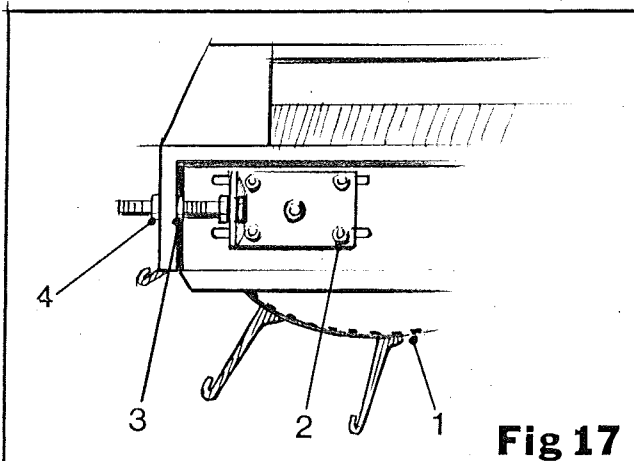


Fig 17

'C' ELEVATOR

The 'C' elevator is designed to transfer the potatoes from the transfer web or separator unit to the picking table. The 'C' elevator is equipped with soft rubber flights to minimise potato damage.

Adjustment is provided to keep the web tensioned correctly. The adjustment is identical to that of the unmanned discharge elevator.

PICKING TABLE

A double platform allows up to six pickers to work in comfort, three either side of the picking table. Two wooden rails (item 1, fig 18) are positioned above the picking web so providing the pickers with two moving reject belts. On the manned machine the 'C' Elevator, Picking Table and Discharge Elevator are all hydraulically driven and can be varied in speed to suit the crop conditions. To adjust the speed of the elevators, turn the control knob (item 2, fig 18) situated on the front platform near the steps. The higher the number, the faster the web will travel.

Care must be taken at all times when working on moving machinery. Never wear loose clothing and always ensure that long hair is tied back. People working on the harvester must be aware of the tractor drivers intentions.

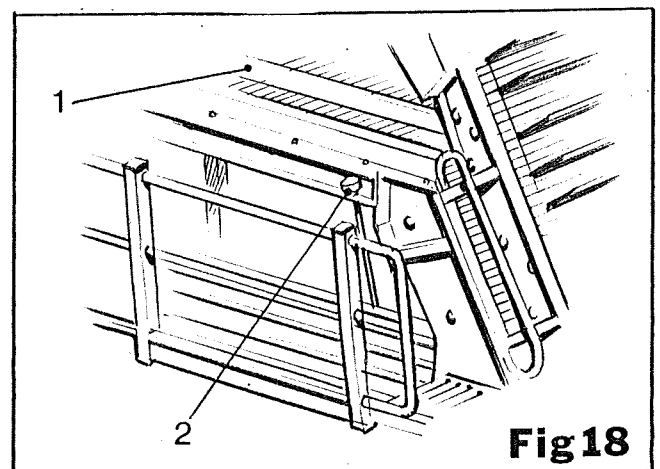


Fig 18

REAR AXLE

The rear wheels are steerable to assist with hillside work and also to enable easier headland turning. To steer the rear wheels move the lever on the control box marked 'Axle Steering' in the direction required. A switch marked 'centre steering' on the control box enables the operator to centralise the rear wheels automatically.

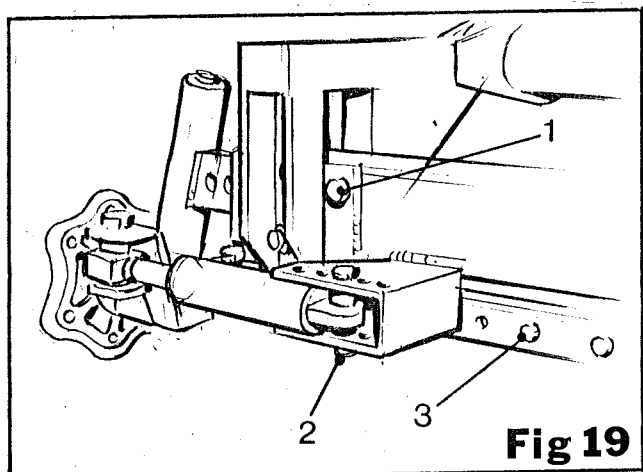


Fig 19

SAFETY FIRST



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

The rear wheels are adjustable for different row settings varying from 71 cm (28") to 91 cm (36").

To adjust:-

1. Jack up machine.
2. Remove axle bolt (item 1, fig 19).
3. Remove ram bolt (item 2, fig 19).
4. Remove retaining bolt (item 3, fig 19).
5. Slide stub axles to required position (see fig 20).
6. Reposition all bolts in correct holes (see fig 20) and retighten.

The rear axle has been designed so that the angle of the machine can be altered in relation to the axle. To adjust move the lever on the control box marked 'machine levelling' in the direction required.

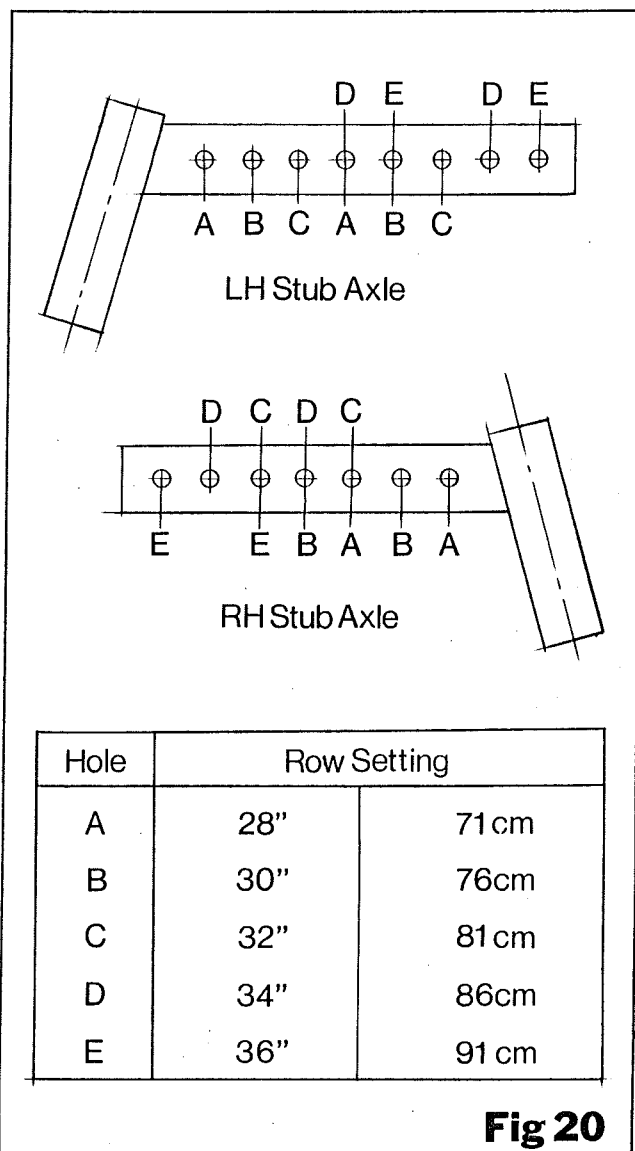


Fig 20

MECHANICAL DRIVES

The various mechanical drives that are involved in the operation of the Standen Statesman consist of chains, sprockets, pulleys and belts. Each drive chain or belt has its own tension adjustment. The chains and belts should be correctly tensioned to ensure the efficient working of the machine. It is important that the drive chains and belts are not over tightened as this will cause excessive chain and sprocket wear.

CAUTION

All revolving drive machinery chains, shafts and sprockets, etc., are potentially dangerous. Therefore before attempting any adjustment or maintenance of the drive equipment, switch off the engine of the tow vehicle, disconnect the power take-off shaft and set the handbrake. Failure to observe the above caution could result in serious injury to personnel.

MAIN DRIVES

The drive is taken from the tractor PTO to a centrally mounted input bearing housing (item 1, fig 21) by a universal coupling shaft. (This shaft should be checked occasionally to ensure that the inner and outer tubes can slide freely. Binding of the tubes will cause premature failure of the input bearings). The drive is then taken from the input bearing housing (item 1, fig 21) by two triple pulleys and triple vee belt to the main drive shaft.

Besides providing a drive, vee belts also act as a slip clutch. It is therefore important that the belt tension is sufficient to drive normally without slip, but not so great that the belt cannot slip when the drive is obstructed.

To adjust the vee belt loosen the retaining bolt (item 2, fig 21). Once the correct tension has been achieved, resecure by tightening the bolt.

A 35% speed reduction can be obtained by swapping over the driver and driven pulleys.

The main drive shaft transfers the drive to a gearbox. The oil in the gearbox should be checked regularly and topped up if necessary with EP90 gear oil. From the gearbox the drives are transferred both forwards to drive the agitators and backwards to drive the main digger web.

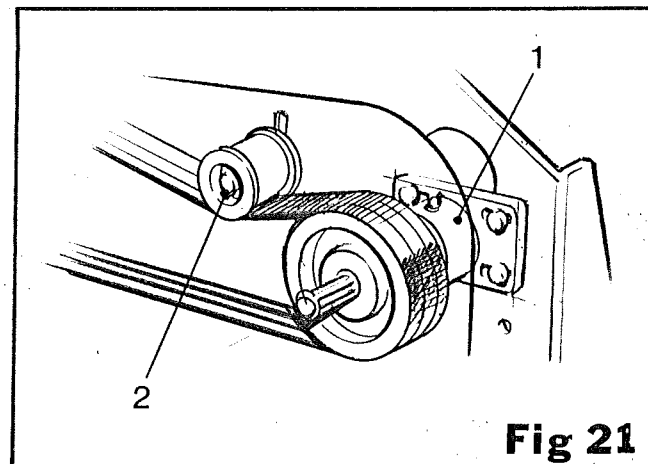
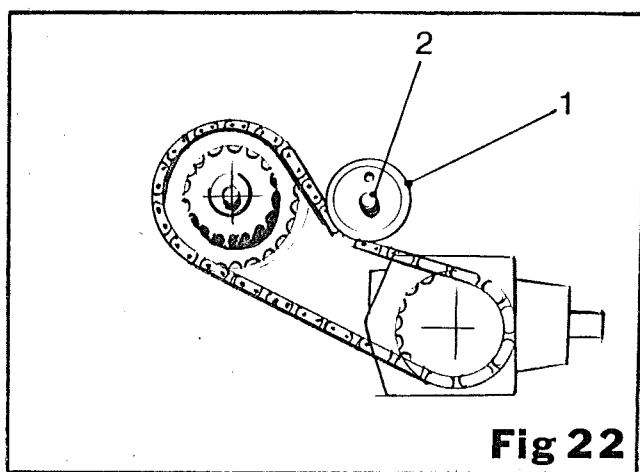


Fig 21

MAIN DIGGER WEB DRIVE

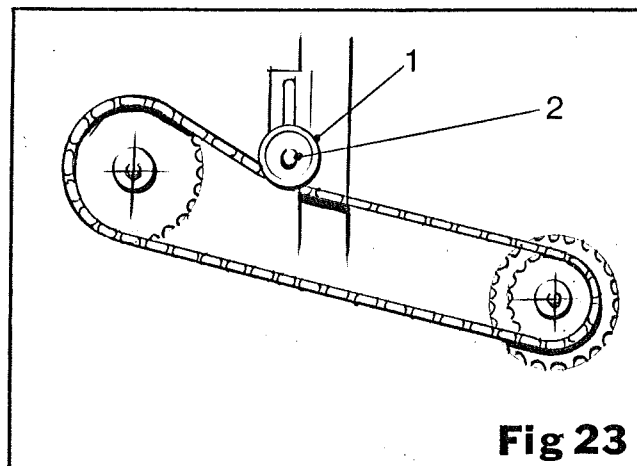
The main digger web is driven by two sprockets and a drive chain. The chain is tensioned by a tensioner block (item 1, fig 22). To adjust, loosen the securing bolt (item 2, fig 22) and slide the block to increase the tension. Once the correct tension has been achieved, resecure the block. Additional adjustment can be obtained by repositioning the securing bolt (item 2, fig 22) into the second alternative hole in the tension block (item 1, fig 22).



Always replace safety guards before attempting to engage PTO guard.

SECOND WEB DRIVE

The second web drive is taken from the main digger web drive shaft, via two sprockets and a drive chain. The chain is tensioned by a roller (item 1, fig 23). To adjust for tension, slacken the bolt (item 2, fig 23) and slide the roller as required.



TRANSFER WEB DRIVE

The transfer web drive is taken from the second web drive shaft via two sprockets and a drive chain. The chain is tensioned by a roller. Adjustment is identical to the second web tensioner.

COILS AND STARS SEPARATOR UNIT DRIVE

The drive for the separator unit is taken from the second web drive shaft. The chain is tensioned by a nylon tensioner (item 1, fig 24). To adjust the chain slacken the two retaining bolts (item 2, fig 24) and slide the mounting angle (item 3, fig 24) to gain the required tension. The separator unit is protected by a shear pin (item 4, fig 24). This shear pin transmits the drive between the two sprockets (item 5, fig 24). If a blockage occurs the pin breaks and stops the drive to the separator unit.

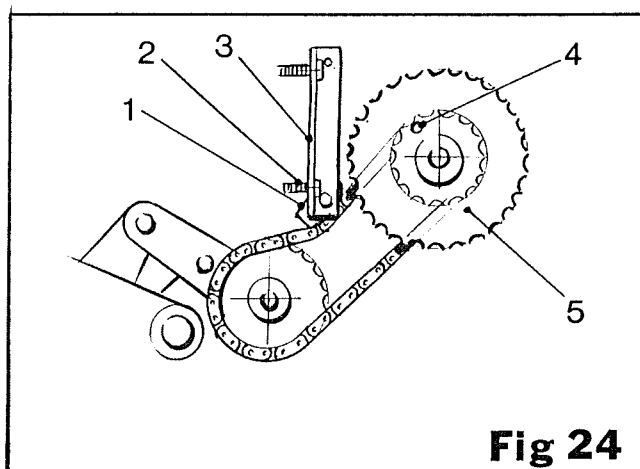


Fig 24

SEPARATING BELT & FEED WEB DRIVE

The drive for the feed web is identical to that of the coils and stars separator unit.

The separating belt drive is taken from the feed web drive shaft via two sprockets and a drive chain (item 1, fig 25), and then from the bottom drive shaft the drive is taken up the right hand side of the separating belt to the top drive shaft by two pulleys and a vee belt.

To adjust the first drive chain (item 1, fig 25) slacken the securing bolt (item 2, fig 25) and slide the adjusting block (item 3, fig 25).

To adjust the tension of the vee belt (item 1, fig 26) slacken the retaining bolt (item 2, fig 26) and slide the roller (item 3, fig 26) as required.

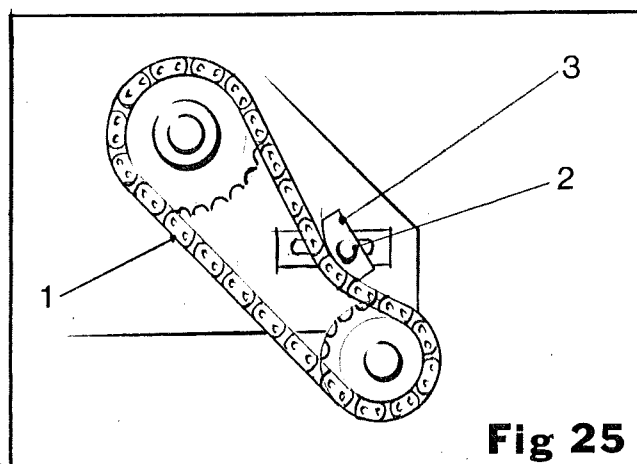


Fig 25

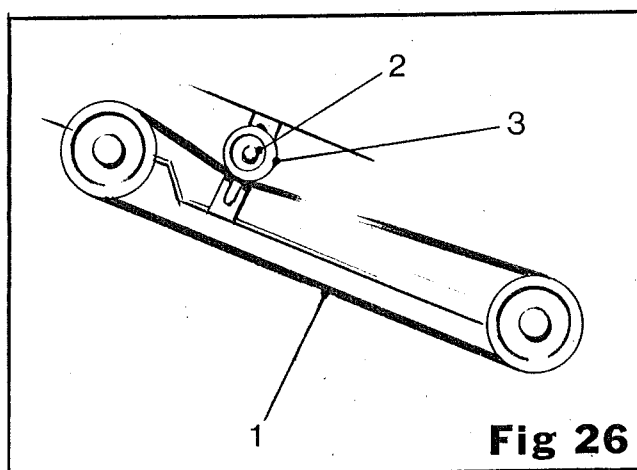


Fig 26

DISCHARGE ELEVATOR & PICKING TABLE DRIVE

The discharge elevator and picking table are driven by a hydraulic motor, two sprockets and a drive chain. The chain can be adjusted for tension by loosening the retaining bolt (item 1, fig 27) and sliding the roller (item 2, fig 27) to the required position.

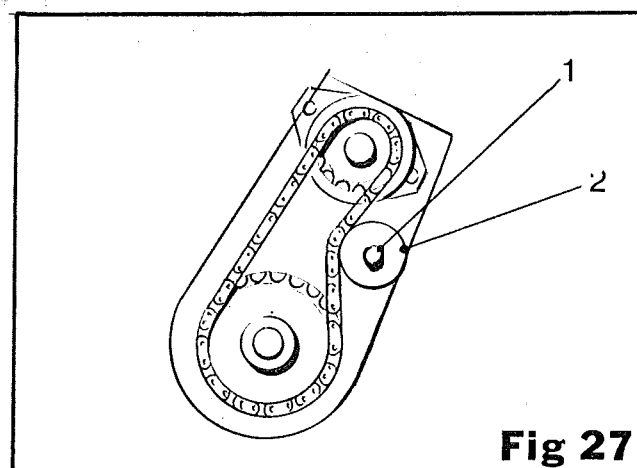


Fig 27

SPLIT SPROCKETS

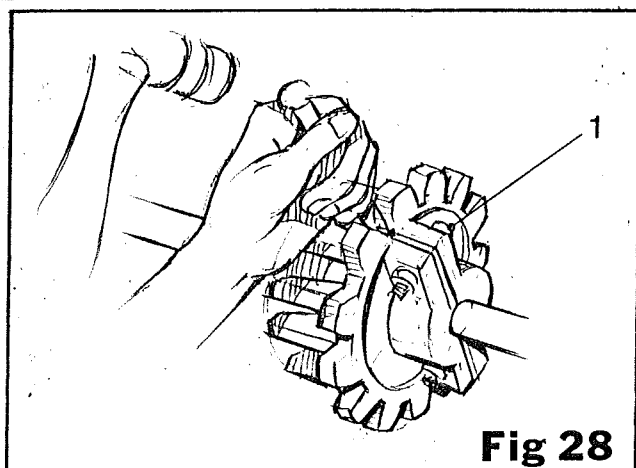
Various webs on the Statesman are driven by split web sprockets. These sprockets have been designed to simplify the maintenance work. Rather than dismantling a complete drive assembly, the sprocket can be individually split and removed from the shaft as described below.

SPROCKET REMOVAL

1. Loosen the fixing bolts (item 1, fig 28) and remove.
2. Using a hammer and chisel, split the sprocket along the groove provided (fig 28).
3. Remove both halves of the sprocket from the shaft.

SPROCKET REPLACEMENT

1. Mark each half of the sprocket clearly before splitting.
2. Split the sprocket with a hammer and chisel in the groove provided (fig 28).
3. Locate both halves on the shaft and secure using the fixing bolts (item 1, fig 28).



ELECTRICAL CONTROL SYSTEM

Control for the eight major functions of the Statesman is provided by eight robust toggle switches mounted on top of the remote control box (item 1, fig 30). Seven of these functions are operated by actuating their individual hydraulic rams, the rams being actuated by a bank of solenoid valves (item 1, fig 29).

These valve being energised from the remote control box. The remaining function operated from the control box is the engagement of the various hydraulic drives. These drives are controlled by the switch marked 'Discharge Elevator (engage or disengaged)', this switch energises an on/off valve (item 2, fig 29) which in turn permits a flow of oil to the motors.

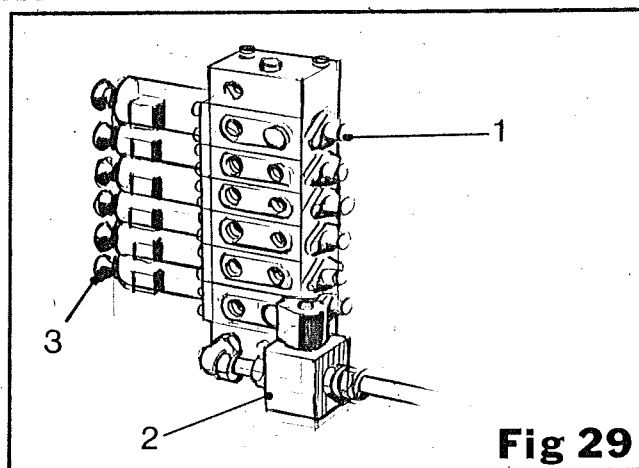
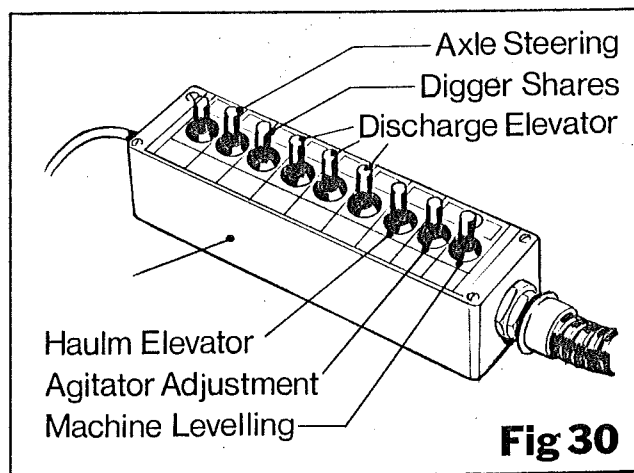


Figure 30 shows the control box with the various functions they operate and an electrical diagram is shown in figure 34.



Always disconnect the control box from the tractor when not in use, so avoiding the possibility of draining the battery.

For installation of the control box see section headed Connecting the Harvester to the Tractor.

HYDRAULIC SYSTEM

The hydraulic oil to operate the various functions of the Statesman can either be supplied direct from the tractor or from an optional Power Pack which can be fitted to the harvester (see separate section for Power Pack). A schematic hydraulic layout is shown in Fig 35 depicting the main items of the hydraulic system. Control for the hydraulic system is provided electrically from the tractor cab and is described separately. The only item requiring any maintenance is the pressure line filter (item 1, fig 31). When the indicator (item 2, fig 31) is pointing to the red segment then the element (item 3, fig 31) will need replacing. To replace the element simply unscrew it from the bottom of the filter assembly.

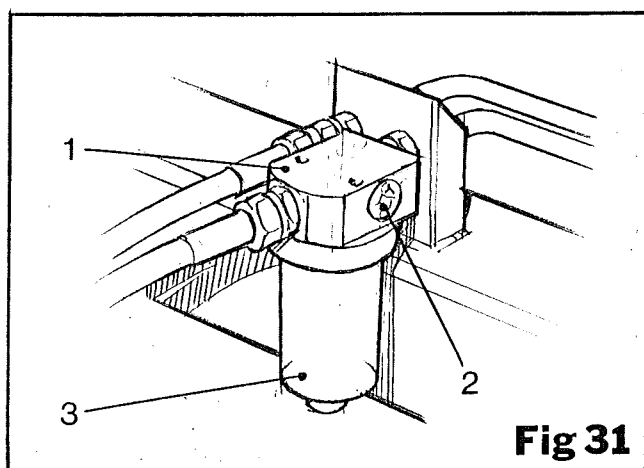


Fig 31

HYDRAULIC DRIVES (POWER PACK)

A power pack can be fitted as an option to compensate for the tractor not being able to supply the required flow of oil to operate the various hydraulic motors and rams.

The power pack for the Statesman comprises of a hydraulic pump (item 1, fig 32) mechanically driven from the PTO of the towing vehicle through a 2.89:1 mechanical gearbox (item 2, fig 32). The pump delivers a flow rate of 12 GPM being fed from a 20 gallon tank mounted on the left hand side of the machine. The tank should be filled with H68 Nuto hydraulic oil or equivalent and should be kept full, especially when storing the machine for long periods of time. A level gauge is positioned on the front of the tank.

The tank has a removable lid for ease of maintenance to the strainer located inside the tank at the output part. This strainer should be dismantled and cleaned thoroughly at the end of every season.

The replacement filter (item 3, fig 32) should be renewed at the completion of the first 100 hours of work and then at every 500 hours.

A shut-off valve (item 4, fig 32) has been fitted to the hydraulic tank to allow the undertaking of any maintenance to the hydraulic system without draining the tank.

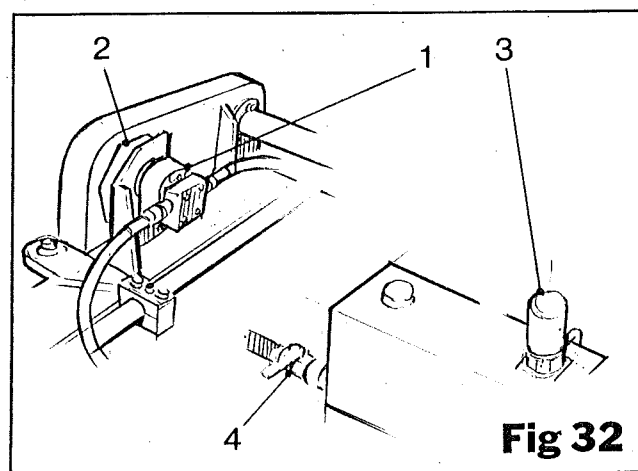


Fig 32

When carrying out any maintenance to the hydraulic system cleanliness is of the utmost importance, so avoid any dirt entering the system.

When topping up the tank, only ESSO H68 NUTO hydraulic fluid or manufacturers direct equivalent should be used.

MAINTENANCE AND LUBRICATION

Regular maintenance will ensure that the Standen Statesman provides a long and efficient service life. Depending on the soil and weather conditions, the maintenance time schedule can vary. However, it is recommended that the machine be lubricated and gearbox oil levels checked once a week throughout the season.

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

A general purpose grease should be used for the bearings and the universal coupling drives.

NOTE: With reference to fig 33 that some of the bearings are sealed and pre-lubricated (Ref. GS) and care should be taken not to flood these bearings with grease, or the seals will burst allowing the 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 required.

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

The gears driving the coils or stars separator unit and the clod rollers should be smeared liberally with BP Energrease GG, each month. These gears are marked 'A' on fig 33.

Particular care must be taken to ensure that the grease or oil does not come into contact with the vee belts.

Grease points requiring individual quantities of lubrication will be found on the lubrication point chart, fig 33.

We recommend that the universal couplings should be dismantled periodically and their shaft smeared with general purpose grease. Also all drive chains should be kept well greased.

The gearbox (Ref. O) should be checked regularly and topped up with EP90 gear oil as necessary.

- GS - Sealed bearings
- G - Non-sealed bearings
- S - Smear with grease
- O - Oil
- A - Use BP ENERGREASE GG only

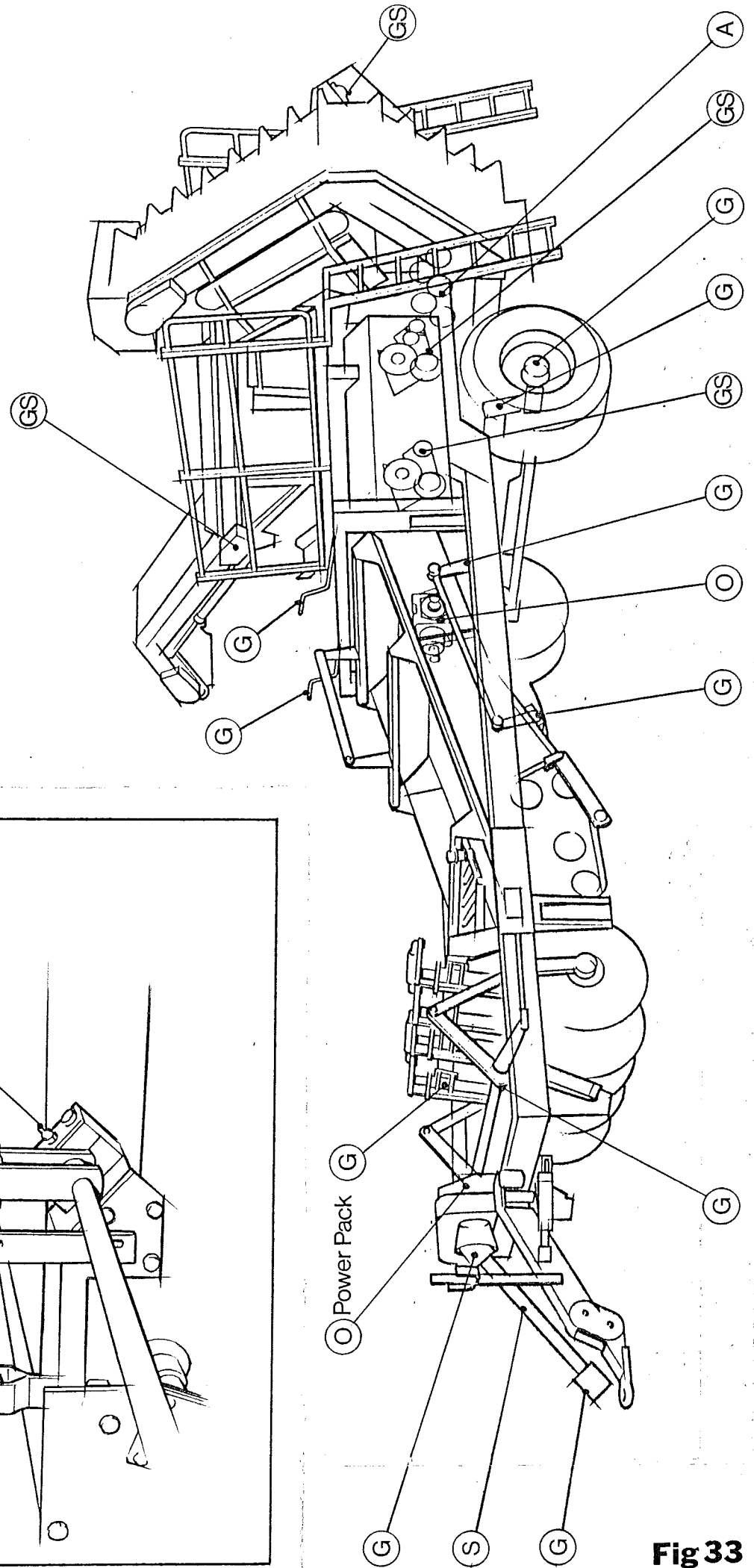
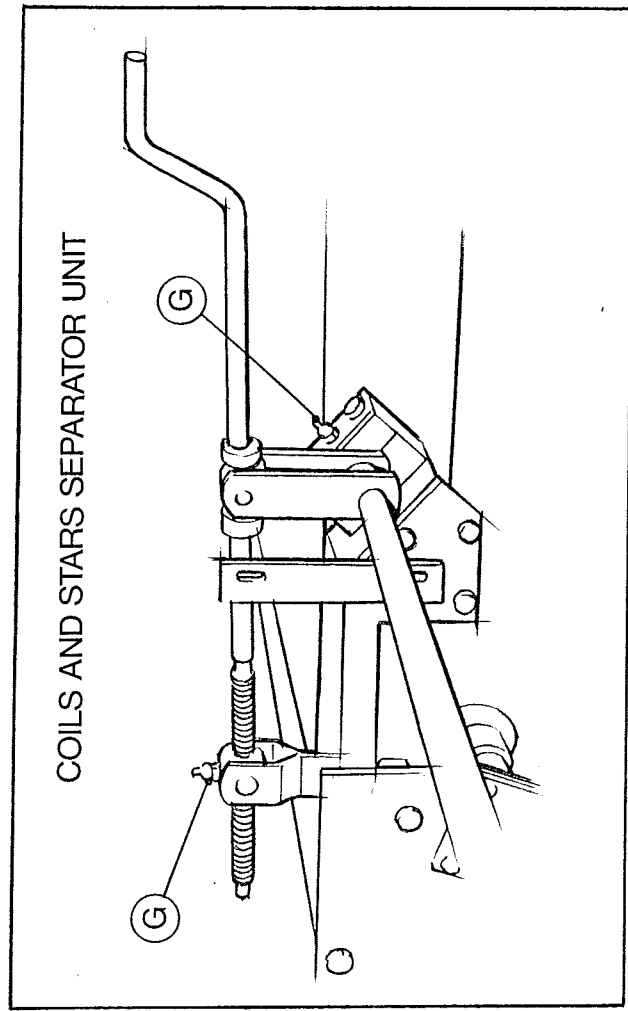


Fig 33

ELECTRICAL CIRCUIT

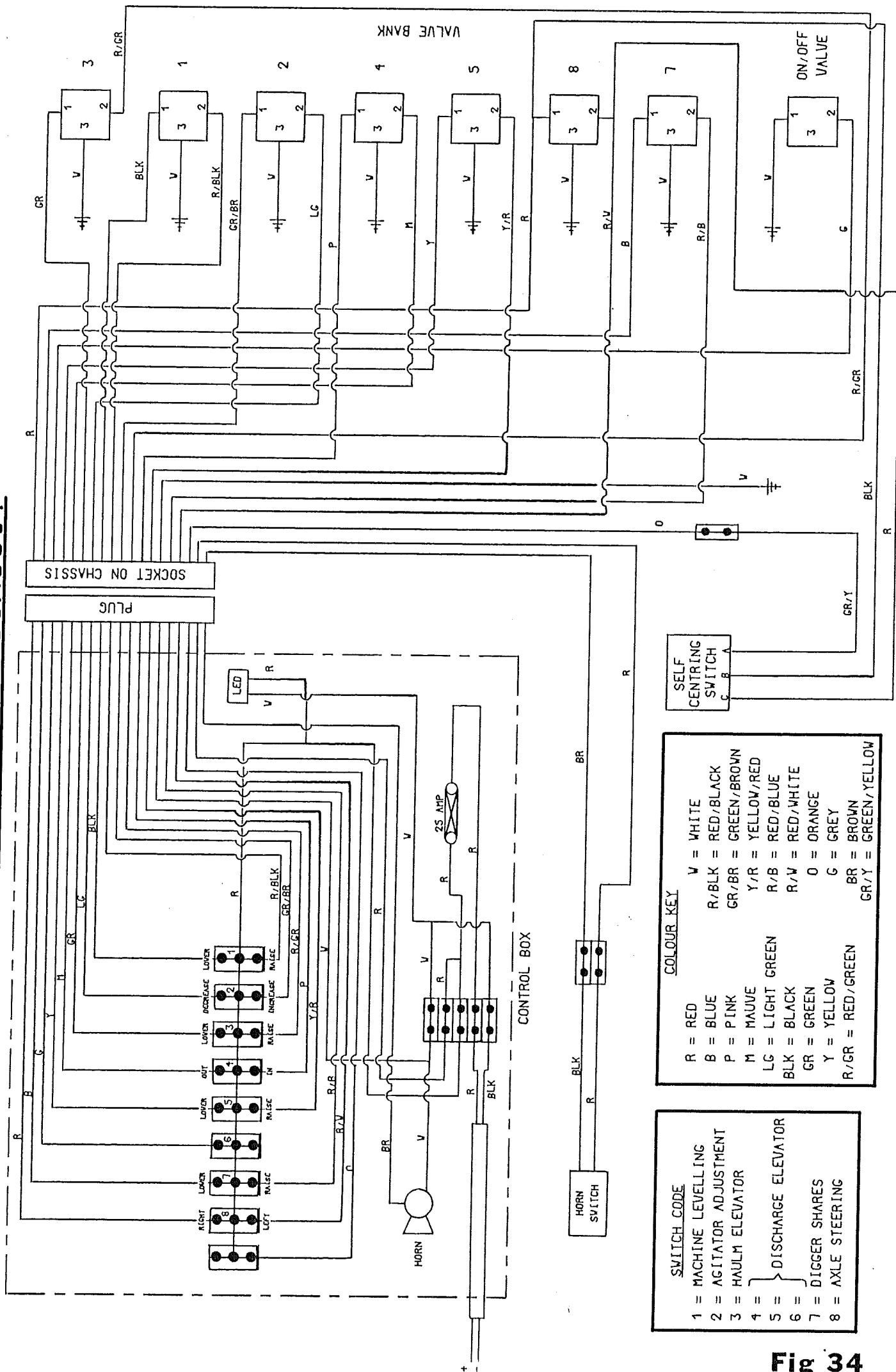


Fig 34

HYDRAULIC CIRCUIT

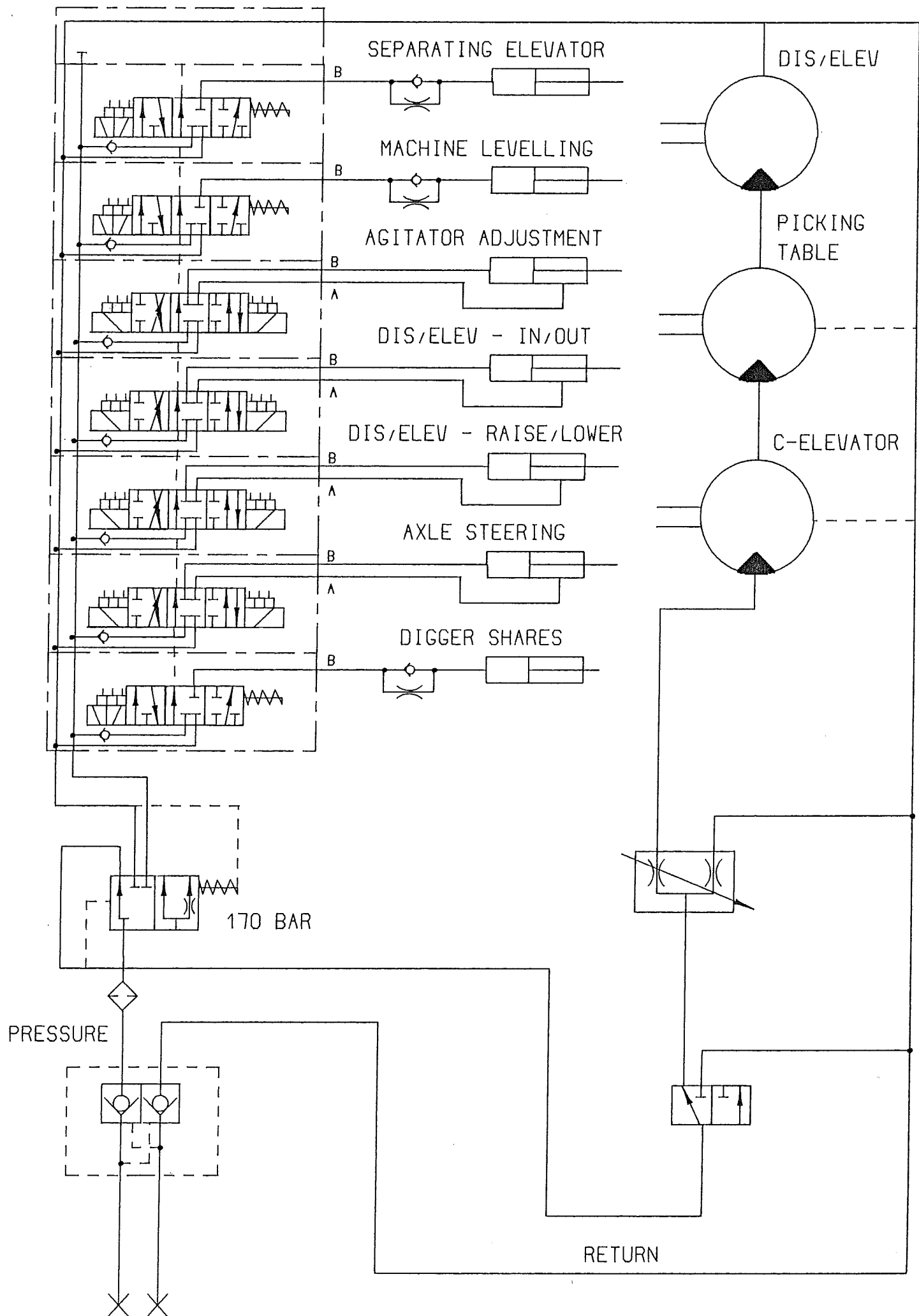


Fig 35

TECHNICAL DATA

	<u>Statesman Unmanned</u>	<u>Statesman Manned</u>
Length	8.1 m	8.7 m
Width (Transport)	2.9 m	3.4 m
Height	3.1 m	3.8 m
Weight	3.4 tonnes	4.1 tonnes
Elevator Clearance (Maximum)	3 m	3 m
Row Widths	28 to 36 inches (710 mm to 915 mm)	28 to 36 inches (710 mm to 915 mm)
Tractor Requirement	70 HP, 4 WD	70 HP, 4 WD
Hydraulic Flow Rate from Tractor	6 gals/min	6 gals/min
Relief Value Setting	170 bar	170 bar
Tyres	12.5 x 18	16 x 20
Tyre Pressure	30 PSI	47 PSI (Max) Field Work 36 PSI (Max) Road Work

Standens policy of continual improvements means that the specifications may be altered without prior notice. Dimensions are approximate.

FAULT ANALYSIS

When considering faults and pinpointing causes, check the causes below and then turn to the appropriate section in the instruction manual.

<u>FAULTS</u>	<u>POSSIBLE CAUSE(S)</u>	<u>CORRECTION</u>
Loss of potatoes	1. Share out of line with row.	Reset shares.
	2. Shares digging too shallow.	Increase depth of shares by adjusting the diablo rollers.
	3. Incorrect share angle.	
	4. Gap between digger web bars too large.	Cover bars with plastic sleeves.
	5. Gap between haulm or clod roller and web too large.	Reduce size of gap.
	6. Too much gap between coils or stars on separator unit.	Decrease gap.
	7. Barrels above separating belt set too high.	Reduce gap between barrel and separating belt.
Cutting or slicing potatoes	1. Shares digging too shallow.	Increase depth of shares by adjusting the diablo rollers.
	2. Front assembly not completely lowered.	Lower assembly. Check adjustment of compensator springs.
	3. Disc coulters cutting too deep.	Lift disc coulters.

Crushing potatoes

- | | |
|--|---|
| 1. Excessive agitation on digger web. | Lift sweeping clod fingers. |
| 2. Wheels of harvester or tractor running on the side of the ridge. | Check setting of wheels on all machines etc., operating in the field. |
| 3. Haulm and clod rollers incorrectly adjusted. | Reduce height and spacing between roller and web. |
| 4. Insufficient soil on digger web, as the soil provides a cushion for the potatoes. | Increase digging depth by adjusting diablo roller. |

Function fails to operate or operates irratically

If a function fails, the initial check is to establish whether it is an electrical fault or a hydraulic fault. To do this pull the knob (item 3, fig 29), if the function operates it is an electrical fault, conversely if it still fails to operate then it is a hydraulic fault.

The following lists possible causes and corrections for both electrical and hydraulic faults.

- | | |
|---|--|
| 1. Wiring breakdown between toggle switch and solenoid valve. | Check wiring. |
| 2. Problem with toggle switch. | Check switch and replace if necessary. |
| 3. Solenoid valve sticking. | Check and replace if faulty. |

All functions fail

- | | |
|-----------------------------|---|
| 1. Poor battery connection. | Remove and clean. |
| 2. Fuse blown. | Check and replace if necessary. |
| 3. Wiring breakdown. | Check all wiring between tractor and control box. |

