Standen

FERTILISER UNIT Mk2

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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.

The dealer/distributor should read through the operating and safety instructions with the customer and ensure that they are fully conversant with these instructions prior to handing over the machine.

On delivery of the machine, the dealer/distributor should complete the warranty registration document and have it countersigned by the customer. The document is proof that the correct procedures have been followed.

The warranty registration document is invalid unless returned to STANDEN ENGINEERING LIMITED or the importer within fourteen days of delivery to the customer.

On taking delivery of your STANDEN machine check that it is as ordered and that it has not been damaged in transit. Please report any shortfall to your dealer.

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

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

Plate No
PH-04
0397

WARRANTY

Should defective material and/or workmanship used in manufacture give rise to failure, the products themselves or the components and sub-assemblies affected, will be replaced or repaired free of charge during the first 12 months. The fitting of non STANDEN parts, or repairs, or modifications carried out by unauthorised persons may invalidate the warranty. No major work to be undertaken without prior consultation with STANDEN Engineering Co. Ltd.
Save to the extent covered by the warranty, the Company shall not be liable in any circumstances for any loss, injury or expense, whether direct or indirect, which may arise for any reason whatsoever from any defect in or otherwise in connection with any goods supplied or work done by the company.

REPLACEMENT PARTS

Use only genuine STANDEN spares as these replacement parts are designed for your machine to give the best possible performance and also have the full backing of the warranty. See the parts section for the required part number and description when ordering spares.

DEFINITION OF FRONT, REAR, LEFT, RIGHT

Throughout this manual the terms 'Front', 'Rear', 'Left-hand'(LH) and 'Right-hand' (RH) are derived from the tractor drivers normal position facing forward

The left hand components are those which move the soil to the left and the right hand components are those which move the soil to the right.

INTRODUCTION TO THE MANUAL

The provision of this manual is a requirement of the Supply of Machinery (Safety) Regulations 1992.

This Manual has been written and provided to enable operators of STANDEN Products to :

1. Understand how the machine operates.
2. Be able to operate the machine safely and without hazard to either the operator or persons in the vicinity.
3. Be able to use the machine to its full potential

The operator must read all of the manual and fully understand its contents before attempting to operate, adjust or service the machine.

The contents of this manual are intended as a guide to the operation and servicing of the machine. It is not a training manual.

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

Whilst all care and attention has been taken in the design and production of all STANDEN Products, as with all machinery there remains a certain amount of risk to personnel whilst the machine is in use.

It is strongly recommended that operators take all possible precautions to ensure both their own safety and that of others that may be in the vicinity

In accordance with the Supply of Machinery (Safety) Regulations 1992, note:
The equivalent continuous A-weighted sound pressure level at the driver's seat does not exceed 70 dB(A).

SAFETY PRECAUTIONS

SAFETY

STANDEN Products have been designed and constructed to comply with current safety regulations. However, as with all machinery there are inherent dangers whilst operating and carrying out maintenance on the machine. The following list of items should therefore be brought to the attention of the persons operating or working on the machine and should be complied with at all times

BEFORE USE

Read and familiarise yourself with the operator's instruction manual for this machine and the tractor before use.

Consult the tractor manufacturer's manual for instructions on mounting implements and safe working methods.

Ensure the work area is clear of bystanders.

Ensure all guards. covers. warning labels and safety devices are in position and operative.

Inspect the work area for obstructions that may constitute a hazard.

Ensure that the tractor is of a suitable size to lift the machine safely. This may require the fitting of front weights to counterbalance the machine when in the raised position.

DURING USE

Observe all safe working procedures such as reducing speed on slopes and sharp turns. The rear of the machine can travel very quickly and sweep a wide arc.

Avoid working on ground where there is a risk overturning.

Do not cut across the face of slopes.

Avoid inhalation of dust and fumes generated by the machine.

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

Observe all relevant regulations whilst on a pub highway

AFTER USE

Inspect the machine for damage and replace parts as necessary.

Check that all bolts, nuts and screws are tight.

Carry out lubrication and maintenance as detailed to maintain the machine in a safe working condition

ALWAYS

Wear safety footwear.

Avoid loose clothing that may be caught in moving parts.

Take care when working on the implement as there are many sharp and protruding components that can cause serious injury.

Lower the machine gently onto the ground.

NEVER

Carry out adjustments unless the tractor engine is stopped and the machine is firmly supported or lowered to the ground.

Leave the tractor unattended unless the machine is lowered, the engine stopped, the parking brake applied, the gear shift lever in neutral and the ignition key removed.

Allow children or untrained persons to operate the machine.

Operate the machine with persons on or near it.

Touch any moving parts or parts that may be hot from operation.

Use the machine for purposes other than what it was originally designed for.

Stand on the machine to carry out adjustments or maintenance

REMEMBER

SAFETY IS THE RESPONSIBILITY OF THE PERSONS WORKING WITH THIS MACHINE.
THINK "*SAFETY*" AT ALL TIMES.
READ AND REMEMBER THE CONTENTS OF THIS MANUAL

General Description of Machine

The STANDEN Fertiliser Hopper is an attachment designed to fit onto the STANDEN Ridger.

The Hopper has four distribution units at its base, that deliver fertiliser down four separate clear plastic tubes, directly in front of the ridger bodies. The fertiliser is therefore turned into the central raised bed and the two half beds on the left and right hand of the machine. This particular method of fertiliser placement is considered to be less wasteful than other methods.

The Hopper, which has a capacity of approximately 28 cwt (1.4 tons), is bolted inside a frame which consists of two formed steel end plates, four box section cross pieces and an 'A' frame mounting channel. The hopper is covered by a waterproof cover that is held taught by a tubular steel frame which folds flat when opened , exposing the opening at the top of the hopper to make emptying of bulk fertiliser bags a simple operation. There are two angled dividers in the middle of the hopper that assist the flow of the fertiliser to the distribution units. Sitting almost level to the top of these dividers are two steel mesh sieves that will act to stop any large, solid lumps of fertiliser ,or any other foreign bodies reaching the distribution units and causing a blockage.

The distribution units have white plastic feed wheels mounted on a square section hollow steel shaft, which in turn runs in two plastic bushes at either end of the unit. On leaving the unit, the fertiliser is guided to a position in front of the ridger bodies by means of a clear plastic tube, which is held in the desired position by an adjustable steel hoop and clamp arrangement.

Drive to the distribution units is by means of a steel landwheel arrangement, which runs in the base of the furrow made by the left hand ridger body. The drive is transferred forward from the landwheel by means of a chain and short transfer shaft, to the side drive arrangement on the left hand endplate. The forward of the two drive chains has the facility to accommodate various sizes and combinations of sprockets so that the desired application rate for the type of fertiliser being used can be acheived. All the chains are guarded by steel guards that are either bolted or clamped in place. Drive from this chain is then transferred to the distribution units by means of three steel shafts. The shafts on the left hand and right hand of the machine pass through the hollow section shaft in each unit and are either bolted or otherwise held in place by pipe linch pins . Drive to the units feeding the two half beds can be

disconnected for passes along the headland or at the edge of a field simply by removing the pipe linch pins .

The distribution units and the landwheel , can be mounted in a variety of positions to suit the particular width of the potato bed (the machine is designed to cope with bed widths from 64" to 80" in 4" increments). When the distribution boxes are positioned where required, the unused apertures in the hopper base plate are blanked off using the supplied rectangular plates.

The distribution units are supplied from the factory in the 'full rate' condition (fitted with two toothed feed wheels and one blank). If it proves difficult to acheive the desired application rate, then there is the option to either add another toothed wheel (supplied with the machine as standard) or another blank roller (available on request). Access to the units for inspection and cleaning is via a small steel door which is held in place by an over centre catch and securing 'R' clip.

Full details of application rates and calibration procedures are to be found in the relevant section of this book.

Machine Specification

HOPPER CONSTRUCTION	Bolted steel sheet type construction, with formed steel strengthener strips and sheet steel divider panels.
FRAME CONSTRUCTION	All welded construction consisting of formed steel sheet endplates and box section cross members, with a formed steel channel and steel plate mounting point.
FIXING OF HOPPER INTO FRAME	Hopper is retained in the frame by round head, square neck bolts passing through the sheet steel endplates of the frame and the hopper end panels.
EMPTY WEIGHT OF MACHINE	Approx. 650 kgs.
GROSS WEIGHT OF MACHINE	Approx. 2150 kgs.

Instructions for mounting of Fertiliser Hopper to Ridger

If your Fertiliser Hopper is not delivered already fitted to a Ridger, you will have to follow these simple instructions to mount the hopper onto the Ridger frame.

Supplied with the Hopper should be four large box section propstands, two tall straight stands and two shorter angled stands of opposite hand. The tall stands fit into the large box section cross member at the front of the hopper and the two angled stands fit into the similar sized box section at the rear of the hopper under the rear footstep. These propstands should be fitted when the Hopper is safely supported at the desired level with a forklift, using the two hoops that are positioned in between the 'A' frame mounting channels (please ensure that the mounting channels sit close to the front of the forklift mast for maximum stability and that the forklift is capable of safely lifting the Hopper to the desired height). Once the propstands have been fitted secure them in place using the four pins that are supplied ensuring that the pins themselves are secured using the four 'R' clips supplied. The Hopper should be set down on its stands gently, on a level, firm surface such as a concrete yard.

The Ridger should be fitted to the tractor, as per the instructions in the Ridger Handbook. It will be found that it will be a lot easier to fit the Hopper onto the Ridger 'A' frame if the top link is lengthened slightly compared to the normal working length. Once the Ridger has been secured to the tractor then, you must firstly remove the slotted locking plate and bolts etc. on the front of the frame in between the two mounting channels. You can then reverse the tractor carefully under the two mounting channels with the Ridger lowered to the necessary level (in the case of the Hydraulic Auto Reset version, the heel of the mole attachment may well be scraping the ground, in which case, it may be necessary to remove the lower of the two bolts securing them in place and then pivot the mole upwards until the Ridger can pass under the mounting channels. Replace the bolts after attaching the Hopper). Once the Ridger 'A' frame has been positioned centrally under the mounting channels, some fine adjustment to the angle of the frame relative to the channels may be necessary before raisung the tractor hydraulics. After the Ridger has been raised into position and the channels are fully seated over the 'A' frame then the slotted locking plate should be bolted into position, ensuring that the protruding tongue is tight against the underside of the Ridger 'A' frame.

The Hopper and Ridger combination can then be raised clear of the ground and the propstands removed in readiness for work.

Setting the Fertiliser Hopper up for work

To avoid damage during transportation, certain items are removed from the Hopper and need to be refitted to allow the machine to work. These items are:-

* ***Steel landwheel***

* ***Landwheel beam***

* ***Landwheel spring pressure assembly***

* ***Plastic feed tubes and 'Jubilee' clips (four of each)***

* ***Feed tube support bracket assemblies (four of each)***

These items are either stowed in the Hopper itself or strapped to the rear footstep. In addition to these items, there are also four spare white nylon feed wheels and the pins and 'R' clips used to secure the propstands in place.

Firstly, secure the landwheel beam in place on the box section cross member immediately under the rear footstep, with the steel guard on your right,looking forward. The beam is clamped into place using the large clamping plate and four bolts, once the short drive shaft has been connected to the drive coupling on the inside of the left hand side plate using the nut and bolt supplied. Then the spring pressure assembly can be bolted in place on the swan necked support bracket and the tensioner rod secured to the landwheel beam. Finally, fit the landwheel to the hub, with the lugs on the landwheel angled forward at the point where the wheel contacts the ground.

The landwheel can be moved to run exactly in the middle of the furrow bottom, behind the left hand ridger body simply by loosening the clamping plate that secures the wheel beam to the hopper, removing the chainguard and unbolting the sprocket at the top of the landwheel beam and repositioning the wheel roughly in line with the centre of the furrow bottom. Then, the sprocket should be re-aligned with the nearest hole in the drive shaft, the nut and bolt replaced and re-tightened and the wheel beam pivot pushed up against the boss on the sprocket. The wheelbeam clamping plate should then be re-tightened and the chainguard bolted back into place.

The plastic feed tubes should be fitted onto the exit pipe of each feed unit and secured in place using the 'Jubilee' clips supplied. Then the feed tube support

bracket assemblies should be bolted into place on the front lower box section beam, with the 'U' clamp upside down and the bracket facing to the rear of the machine, making sure to feed the plastic tubes through the support hoops first. The tubes can then be pointed in the desired direction by sliding the support brackets along the front beam and angling the support hoop, followed by tightening of all the nuts and bolts.

Before loading any fertiliser into the hopper, you should at first check that there are no obstructions in the feed units by removing the small rear door on each one, and then rotating the landwheel by hand for a few revolutions. Once you are satisfied that the units are free of obstruction, replace the lids and secure the catches in place using the 'R' clips. Then check inside the hopper to ensure the two mesh grids are in place.

Once the Hopper has been filled and the machine has been calibrated (see relevant section in this book), the Ridger and Hopper combination should be set in the correct working attitude and a small run of a few yards made in the field. It is then reccommended that the tractor is stopped but the ridger left in work and the pressure on the landwheel checked, to ensure that there is no chance of the wheel skipping and interrupting the flow of fertiliser. If neccessary, the small locking pin on the multi-holed quadrant plate should be re-positioned to increase or decrease the pressure on the landwheel.

It must always be remembered that the land wheel is protruding from the rear of the fertiliser hopper when manoeuvring in the field and when transporting the combination down public highways.

Calibrating the Fertiliser Hopper

To acheive the desired application rate, the following procedure should be followed:-

* Fill the hopper with fertiliser as required

* Obtain four clean, dry empty sacks and place one under each feed tube

* Remove the large guard on the left hand sideplate and check that a one to one drive is being acheived on the forward of the two chains (the machine should be sent from the factory with a 14 tooth sprocket driving a 14 tooth sprocket on both chains. It should be noted at this point that the sprocket ratio on the rear of the two chains should not be changed from its one to one ratio). Before starting the calibration procedure, replace the large guard after checking the tension on the two chains.

* Rotate the landwheel a few revolutions to ensure that the distribution units are fully charged with fertiliser and empty the bags into the fertiliser hopper replacing them under the feed tubes afterwards.

* Rotate the landwheel exactly ten (10) revolutions and weigh the total amount (kilogrammes) of fertiliser collected over the four distribution units (ensuring that the weight of any receptacle that the fertiliser is placed in for weighing is not included in the final weight). It is recommended that the weight of fertiliser from each unit is compared to ensure that they are all working correctly.

* Reference should then be made to Chart 'A' and a figure corresponding to the desired application rate (hundredweight per acre) and the particular bed width at which the machine is working (inches) obtained.

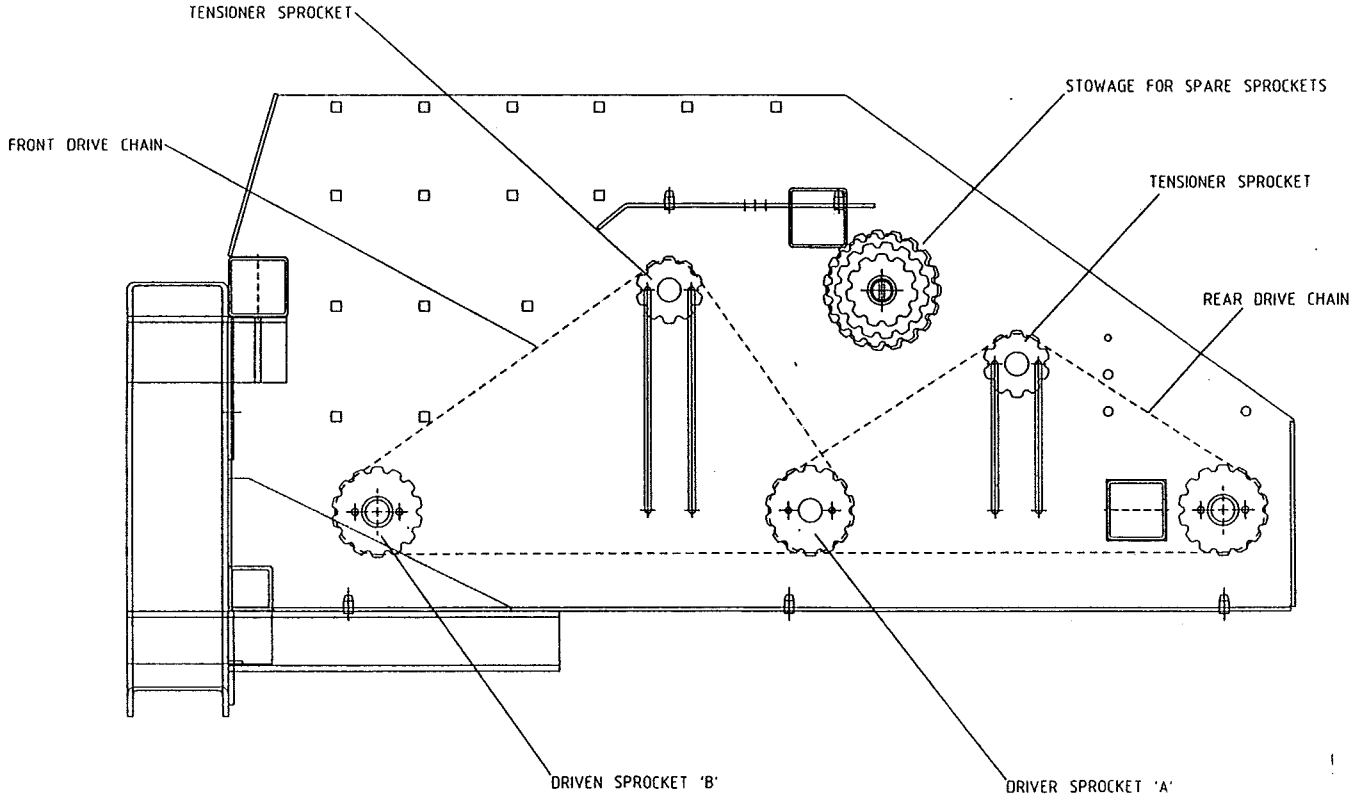
* The actual rolling circumference of the landwheel should be determined under working conditions in the field, preferably with the wheel running in the furrow bottom (the lugs on the wheel will of course sink into the soil slightly, thus decreasing the actual effective rolling circumference, thus the need for this check to be carried out).

* Now, the figure obtained from Chart 'A' should be multiplied by the actual rolling circumference of the landwheel and divided by two. This answer should then be divided by the total weight of fertiliser collected from the four distribution units (kilogrammes). The answer from this second calculation will represent the required

from either side of each unit and engaging the small catch hook in the hole in the end of the hollow feedshaft.

To re-engage the drive, simply dis-engage the catch hook and replace the 'pipe' linch pins (it may be necessary to rotate either the feedshaft or the landwheel slightly, to re-align the holes in the centre driveshaft and the feed shaft.

Diagram showing layout of side drive chains and sprockets



sprocket ratio for the side drive. Reference should then be made to Chart 'B' to find the sprocket combination that gives the ratio nearest to the one calculated.

* When changing the sprockets around to get the desired ratio, it may be necessary to fit one or two different size sprockets from the spares that are left to the idler/tensioner position, to ensure that there is enough adjustment in the slots to tension the chain effectively.

Sample calculation for determining the required sprocket combination

If the weight from all four distribution units is a total of 15kg, the bed width is 72", the desired application rate is 15cwt/acre (hundredweight per acre) and the actual rolling circumference of the wheel is 2.4m , then the calculation should proceed as follows:-

$$\frac{\text{Corresponding figure from Chart 'A' x Actual rolling circumference of landwheel}}{2}$$

i.e.:-

$$\frac{13.76 \times 2.4}{2} = 16.51$$

then:-

$$16.51 / 15 = 1.101 \text{ (desired sprocket ratio)}$$

Reference should be then be made to Chart 'B', to determine the sprocket combination. In the case of the sample calculation above, we would have an 11 tooth driving a 10 tooth sprocket. You may of course get an answer from this calculation, that gives you a ratio somewhere *between* two figures in the Chart 'B'. In this case, your own discretion will have to be used to determine whether it is acceptable to be applying slightly more, or slightly less, fertiliser.

If, after performing the above calculation, it is found that the distribution units still do not give the desired ouput using the sprocket combinations available, then it

is suggested that you install the extra feedwheel into each distribution unit. Doing this should give an approximate increase in output of 50%. Therefore, it will be necessary to carry out the previous calibration procedure again, to determine the required sprocket combination for the side drive.

Procedure for removal/installation of white plastic feedwheels

* Disconnect all drive couplings.

* Remove all driveshafts.

* Remove the small cover on each unit that is retained by an over centre catch.

* Un-bolt the bearing end-plate on each box and slide them off over the feedshaft.

* Slide out the square section feedshaft and remove the feedwheels through the rear aperture.

* Inspect the feedwheels for any damage and take this opportunity to clean any hardened fertiliser from the interior of the distribution unit.

* Re-install the feedwheels, adding the extra central one if required.

* In the event of two distribution units being mounted directly next to one another on the base of the hopper, it may be necessary to remove one of the two boxes to allow both the feedshafts to be removed.

A reversal of the above procedure should be followed to re-assemble the units.

Procedure for shutting off either of the outer distribution units

It may be necessary to stop the flow of fertiliser to either, or both, of the outer two distribution units say for instance when a headland run is being made. This is a simple procedure and is performed, simply by removing both the 'pipe' linch pins

Chart 'A'

	Bed Width Centres (inches)					
Application Rate (cwt/acre)	**80"**	**76"**	**72"**	**68"**	**64"**	**60"**
4	4.08	3.87	3.67	3.46	3.26	3.06
5	5.1	4.84	4.59	4.34	4.08	3.83
6	6.13	5.82	5.51	5.2	4.89	4.59
7	7.12	6.77	6.42	6.07	5.71	5.36
8	8.15	7.74	7.34	6.94	6.52	6.12
9	9.18	8.72	8.26	7.8	7.34	6.88
10	10.18	9.68	9.18	8.68	8.16	7.66
11	11.23	10.66	10.1	9.54	8.98	8.42
12	12.27	11.64	11.02	10.4	9.78	9.18
13	13.26	12.6	11.94	11.28	10.6	9.94
14	14.25	13.54	12.84	12.14	11.42	10.72
15	16.24	14.52	13.76	13	12.24	11.48
16	16.29	15.48	14.68	13.88	13.06	12.25
17	17.32	16.46	15.6	14.74	13.86	13.02
18	18.33	17.42	16.52	15.62	14.68	13.78
19	19.36	18.4	17.44	16.48	15.5	14.54
20	20.4	19.38	18.36	17.34	16.32	15.3

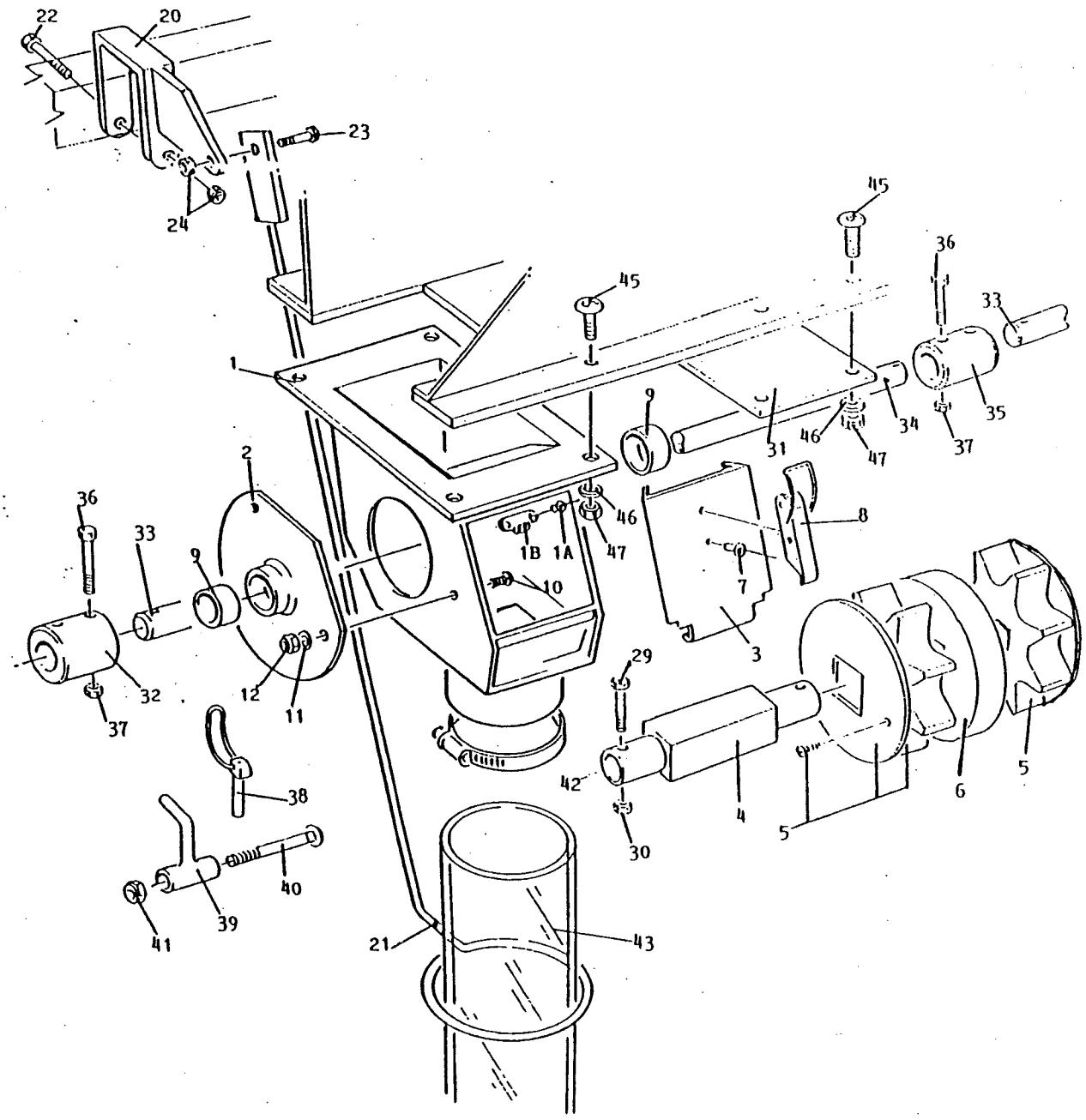
Chart 'B'

Sprocket Combinations & Ratios

Driver Sprocket 'A'	Driven Sprocket 'B'	Ratio		Driver Sprocket 'A'	Driven Sprocket 'B'	Ratio
10T	19T	0.526		19T	18T	1.055
10T	18T	0.555		15T	14T	1.071
11T	19T	0.579		11T	10T	1.1
11T	18T	0.611		18T	15T	1.2
10T	15T	0.666		19T	15T	1.267
10T	14T	0.714		14T	11T	1.273
11T	15T	0.733		18T	14T	1.285
14T	19T	0.737		19T	14T	1.357
14T	18T	0.777		15T	11T	1.364
11T	14T	0.786		14T	10T	1.4
15T	19T	0.789		15T	10T	1.5
15T	18T	0.833		18T	11T	1.636
10T	11T	0.909		19T	11T	1.727
14T	15T	0.933		18T	10T	1.8
18T	19T	0.947		19T	10T	1.9
14T	14T	1				

If the required sprocket ratio is ***more*** than stated in the above table, remove the plain roller in each distribution unit and replace with a toothed feed roller (as supplied with the new machine). **The machine should then be re-calibrated, following the calibration procedure described in the instruction book.**

If the required sprocket ratio is ***less*** than stated in the above table, remove one feed roller per distribution unit, replacing with a plain roller (ensuring that a steel spacer disc is attached to one side by self tapping screws). **The machine should then be re-calibrated, following the calibration procedure described in the instruction book.**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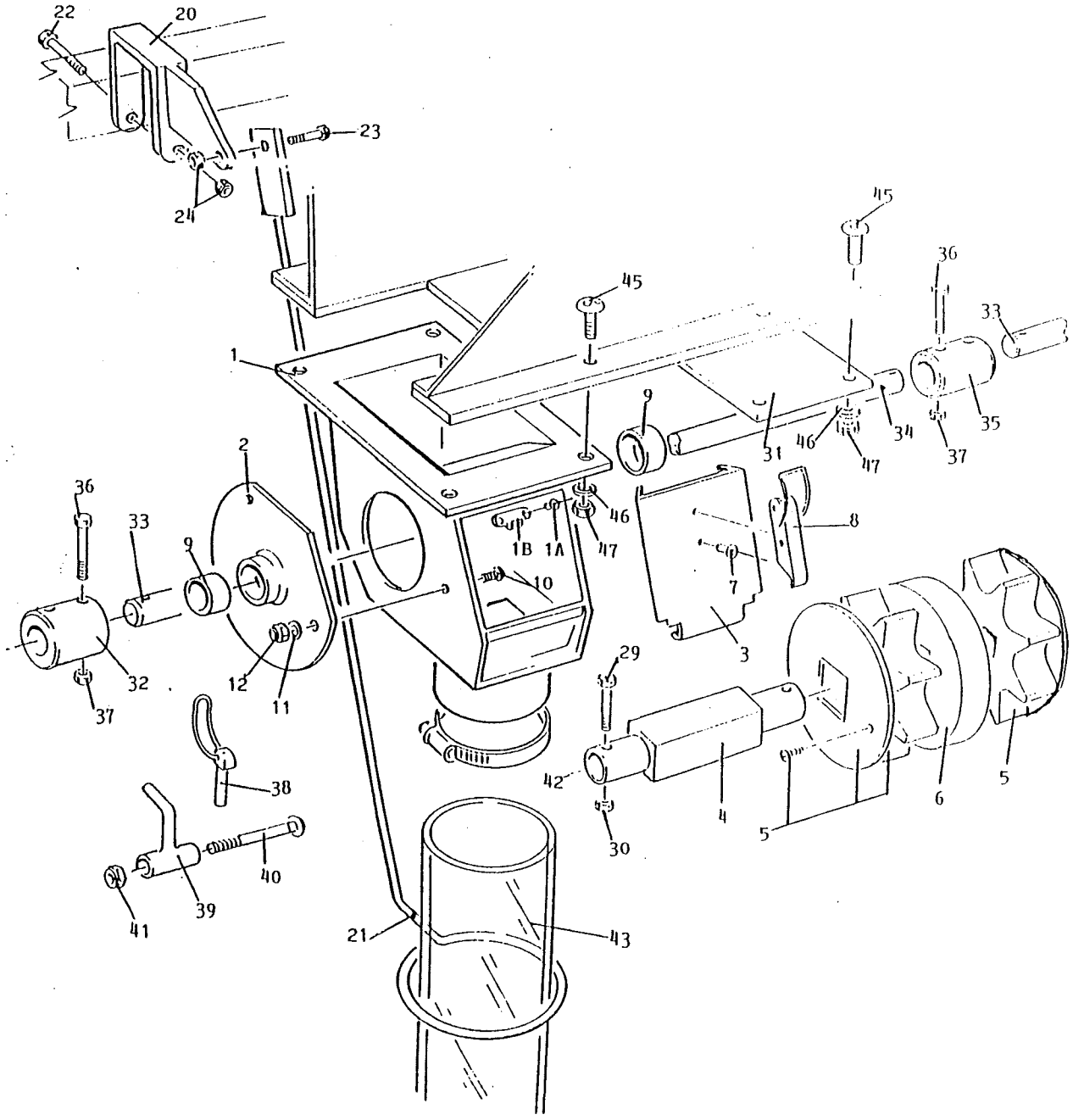
ITEM NO.	PART NUMBER	PART DESCRIPTION	QTY.
	802003	FEED BODY ASSEMBLY each comprising:-	4
1	802070	FEED BODY includes:-	1
1A	208032350	POP RIVET	2
1B	208062140	CATCH PLATE	1
2	802081	BEARING SIDEPLATE	1
3	802085	FEED BODY LID	1
4	802067	FEED SHAFT	1
5	802068	* FEED ROLLER ASSEMBLY (30mm Thk.) each includes:-	2
	801575	WEARING DISC	1
	208047050	SCREW	2
		* Note: Early 1997 machines were fitted with the following alternative parts:-	
	801593	* FEED ROLLER ASSEMBLY (31.6 mm Thk.) each includes:-	2
	208047050	SCREW	2
	801575	WEARING DISC	1
	801592	* WEARING DISC	2
6	801570	+ SPACER ROLLER	1
	802069	+ FEED ROLLER	1
		+ Alternatives	
7	208032350	POP RIVET	2
8	208062090	TOGGLE LATCH	1
9	252832201	BUSH	2
10	321208205	BOLT (M8 x 20) RD.HD.SQ.NECK	3
11	308080045	WASHER (8mm) SPRING	3
12	307208015	NUT (M8)	3
14-19	Not Allocated		
	802004	FEED TUBE SUPPORT ASSEMBLY each comprising:-	4
20	802160	SUPPORT BRACKET	1
21	802163	SUPPORT HOOP	1
22	301210955	BOLT (M10 x 90)	1
23	301410305	SCREW (M10 x 30)	1
24	307210055	NUT (M10) NYLOC	2
25-28	Not Allocated		
29	301208405	BOLT (M8 x 40)	1
30	307208055	NUT (M8) NYLOC	1
31	802053	BLANKING PLATE	4
32	802093	DRIVE COUPLING	1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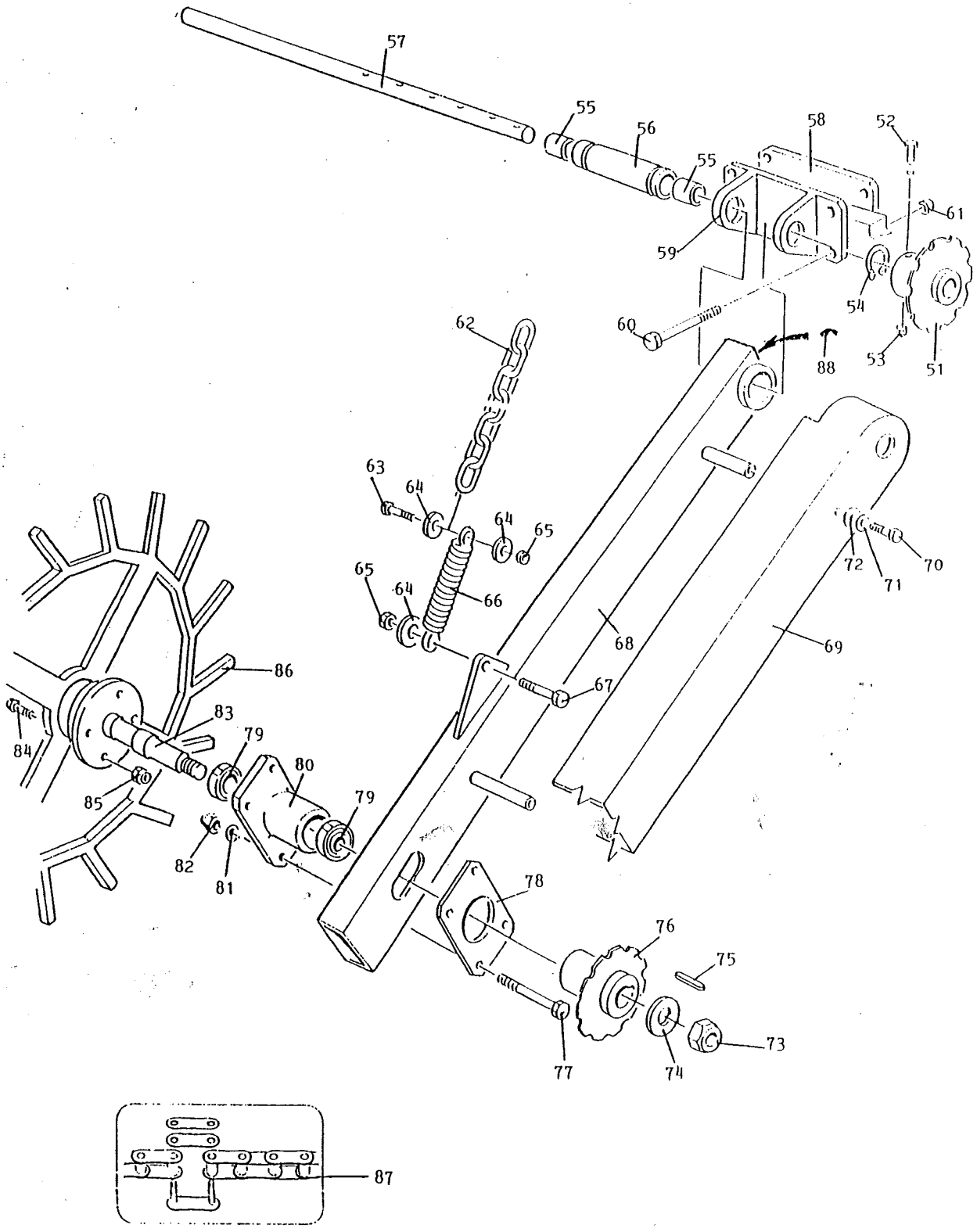
ITEM NO.	PART NUMBER	PART DESCRIPTION	QTY.
33	802091	FRONT DRIVEN SHAFT	2
34	802092	FRONT CONNECTING SHAFT	1
35	802094	DRIVE COUPLING (LONG)	2
36	301208505	BOLT (M8 x 50)	6
37	307208055	NUT (M8) NYLOC	6
38	208014730	PIPE LINCH PIN	4
39	802062	HOOK	2
40	321208605	BOLT (M8 x 60) RD.HD.SQ.NECK	2
41	307208055	NUT (M8) NYLOC	2
42	208003730	HOSE CLIP	4
43	802086	PVC TUBE	4
44	321208205	BOLT (M8 x 20) RD.HD.SQ.NECK	32
45	308080045	WASHER (8mm) SPRING	32
46	307208015	NUT (M8)	32
47-50	Not Allocated		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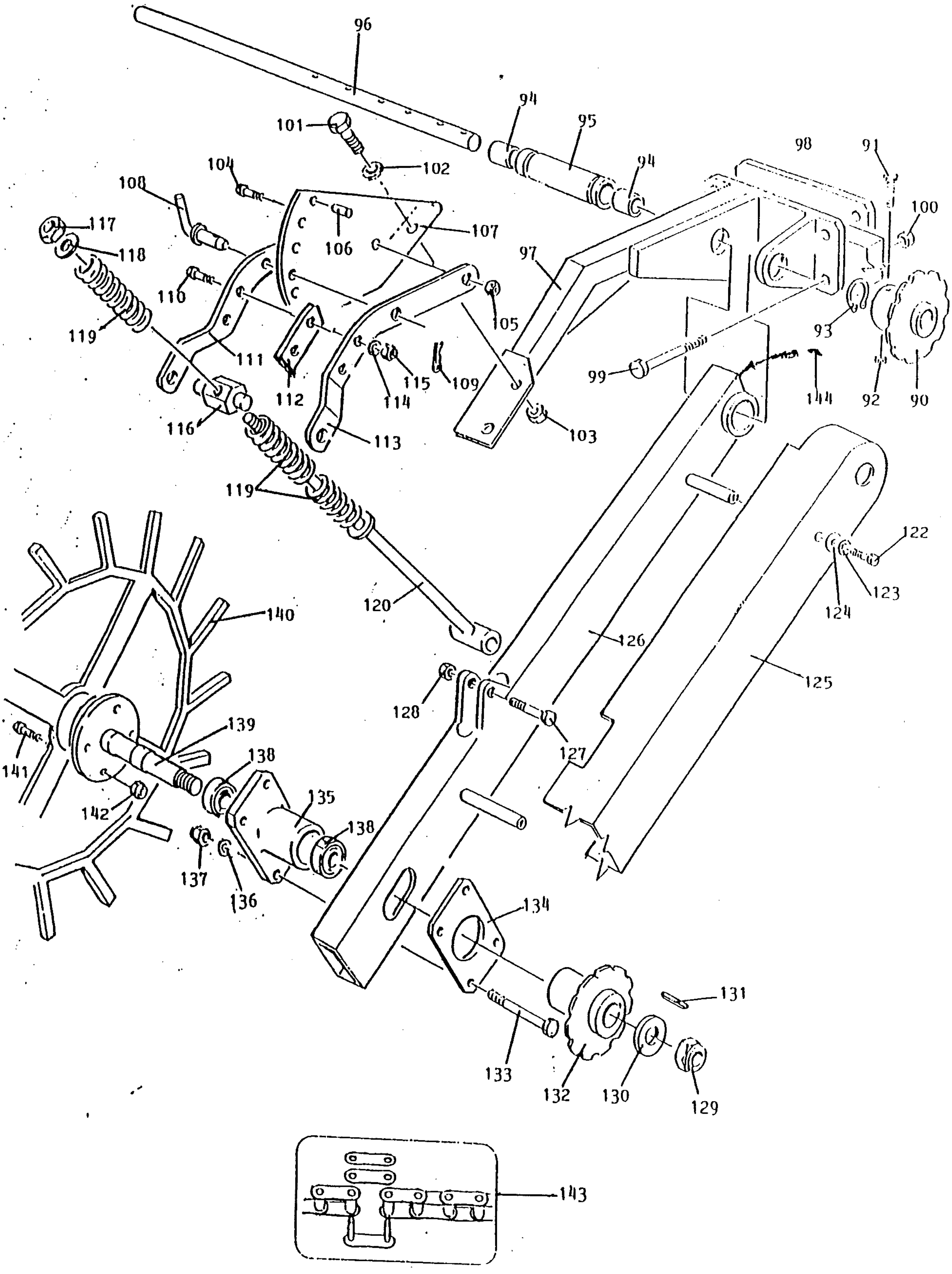
ITEM NO.	PART NUMBER	PART DESCRIPTION	QTY.
	802011	LANDWHEEL ASSEMBLY	1
		comprising:-	
51	801639	DRIVEN SPROCKET	1
52	301208505	BOLT (M8 x 50)	1
53	307208055	NUT (M8) NYLOC	1
54	208102310	CIRCLIP - EXTERNAL (40mm)	2
55	252528301	BUSH (PG252830F)	2
56	801642	SUPPORT TUBE	1
57	802090	REAR DRIVE SHAFT	1
58	802138	BACKING PLATE	1
59	802135	PIVOT BRACKET	1
60	301612125	BOLT (M12 x 120)	4
61	307212055	NUT (M12) NYLOC	4
62	800193	ADJUSTER CHAIN	1
63	301412405	SCREW (M12 x 40)	1
64	209019430	LARGE FLAT WASHER	3
65	307212055	NUT (M12) NYLOC	2
66	820059	SPRING	1
67	301412455	SCREW (M12 x 45)	1
68	802124	WHEEL ARM	1
69	802181	COVER	1
70	301410205	SCREW (M10 x 20)	2
71	308100045	WASHER (10mm) SPRING	2
72	308100015	WASHER (10mm) FLAT	2
73	307220055	NUT (M16) NYLOC	1
74	308200010	WASHER (20mm) FLAT	1
75	208081470	KEY (8 x 7 x 40) RD. ENDS	1
76	801634	DRIVE SPROCKET	1
77	301210855	BOLT (M10 x 80)	4
78	801640	BACKING PLATE	1
79	253055131	BEARING (6006-2RS)	2
80	801628	BEARING HOUSING	1
81	308100045	WASHER (10mm) SPRING	4
82	307210015	NUT (M10)	4
83	801625	LANDWHEEL AXLE	1
84	301410355	SCREW (M10 x 35)	4
85	307210055	NUT (M10) NYLOC	4
86	801620	LANDWHEEL	1
87	801584	DRIVE CHAIN	1
88	202030110	GREASER	1
89	Not Allocated		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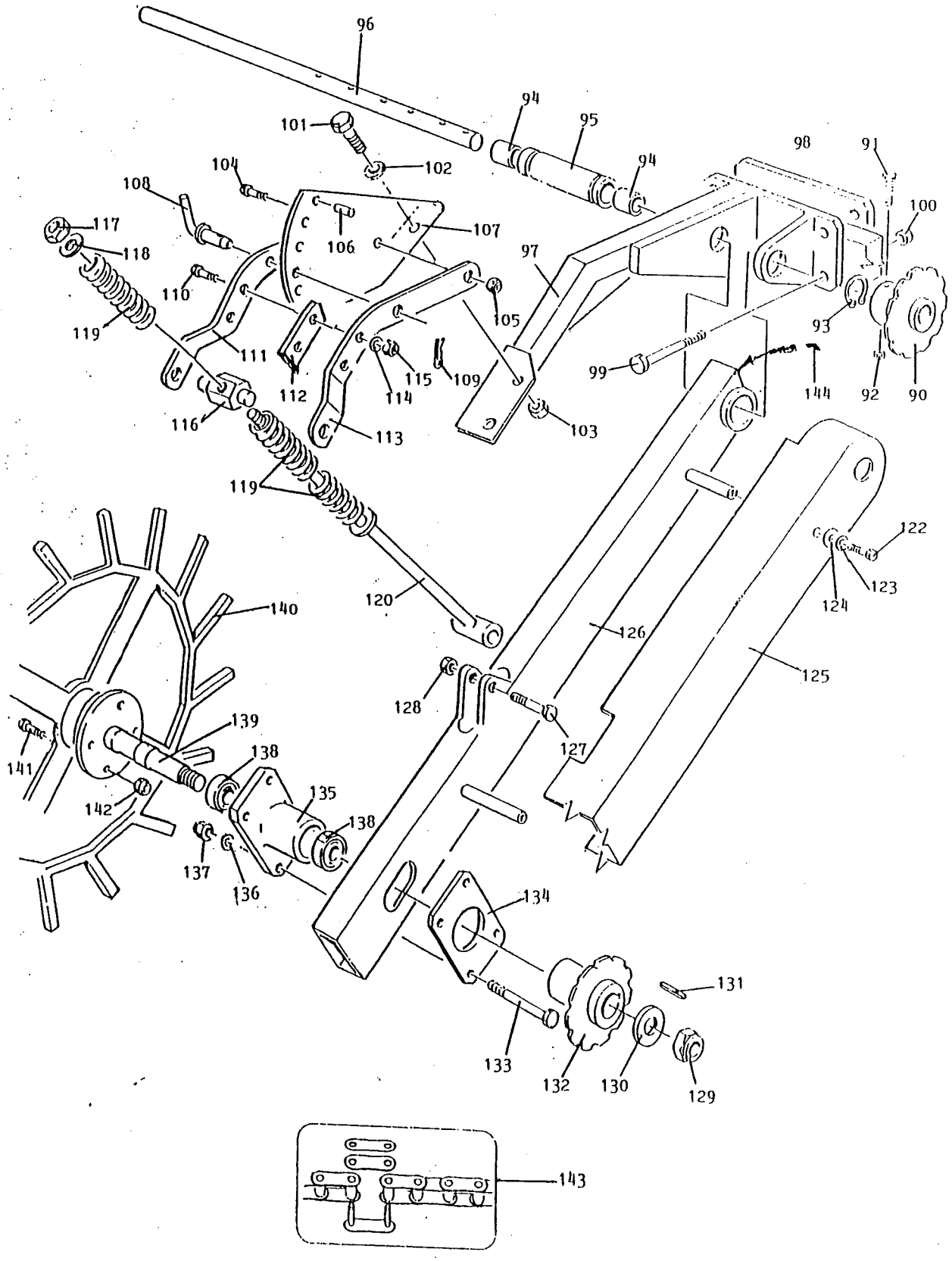
	802007	LANDWHEEL ASSEMBLY	1
		comprising:-	
90	801639	DRIVEN SPROCKET	1
91	301208505	BOLT (M8 x 50)	1
92	307208055	NUT (M8) NYLOC	1
93	208102310	CIRCLIP - EXTERNAL (40mm)	2
94	252528301	BUSH (PG252830F)	2
95	801642	SUPPORT TUBE	1
96	802090	REAR DRIVE SHAFT	1
97	802126	ARM PIVOT BRACKET	1
98	802131	BACKING PLATE	1
99	301612125	BOLT (M12 x 120)	4
100	307212055	NUT (M12) NYLOC	4
101	301416455	SCREW M16 x 45)	2
102	308160015	WASHER (16mm) FLAT	2
103	307216055	NUT (M16) NYLOC	2
	802012	WHEEL ARM PRESSURE ASSEMBLY	1
		comprising:-	
104	301212405	BOLT (M12 x 40)	1
105	307212055	NUT (M12) NYLOC	1
106	208012865	TENSION PIN	1
107	650127	SHIELD SELECTOR	1
108	650113	PIN	1
109	330237	CLIP PIN	1
	650115	ADJUSTMENT ARM ASSEMBLY	1
		comprising:-	
110	301212405	BOLT (M12 x 40)	2
111	650116	ARM L.HD.	1
112	650119	SPACER	1
113	650117	ARM R.HD.	1
114	308120045	WASHER (12mm) SPRING	2
115	307212015	NUT (M12)	2
116	801282	TRUNNION	1
117	307216055	NUT (M16) NYLOC	1
118	308160015	WASHER (16mm) FLAT	1
119	650124	SPRING	3
120	802136	SPRING BAR	1
121	Not Allocated		
122	301410205	SCREW (M10 x 20)	2
123	308100045	WASHER (10mm) SPRING	2
124	308100015	WASHER (10mm) FLAT	2
125	802100	ARM COVER	1
126	802125	WHEEL ARM	1
127	301212755	BOLT (M12 x 75)	1
128	307212055	NUT (M12) NYLOC	1
129	307220055	NUT (M20) NYLOC	1
130	308200010	WASHER (20mm) FLAT	1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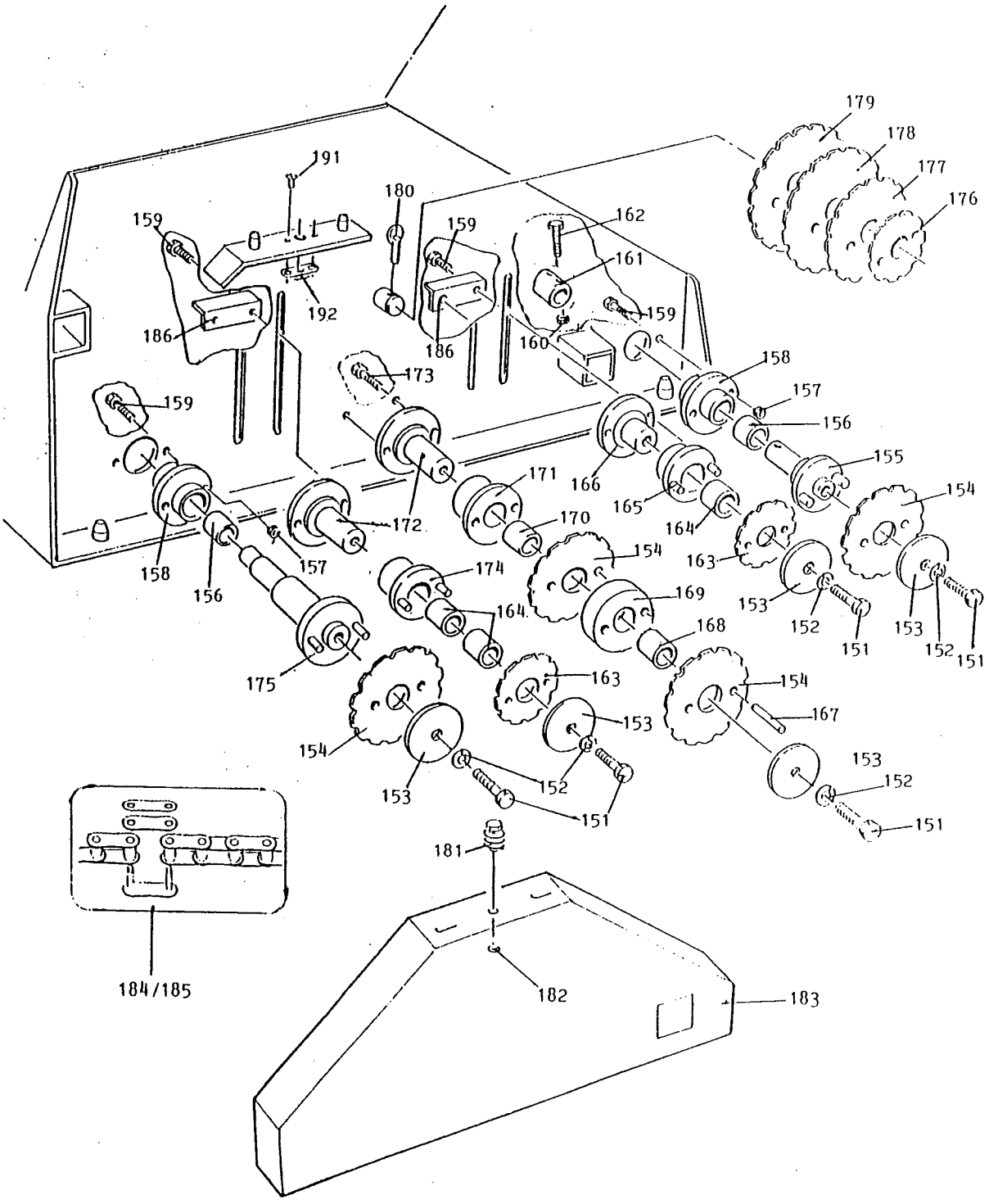
131	208081470	KEY (8 x 7 x 40) RD. ENDS	1
132	801634	DRIVE SPROCKET	1
133	301210855	BOLT (M10 x 85)	4
134	801640	BACKING PLATE	1
135	801628	BEARING HOUSING	1
136	308100045	WASHER (10mm) SPRING	4
137	307210015	NUT (M10)	4
138	253055131	BEARING (6006-2RS)	2
139	801625	LANDWHEEL AXLE	1
140	801620	LANDWHEEL	1
141	301410355	SCREW (M10 x 35)	4
142	307210055	NUT (M10) NYLOC	4
143	801584	DRIVE CHAIN	1
144	202030110	GREASER	1
144-150	Not Allocated		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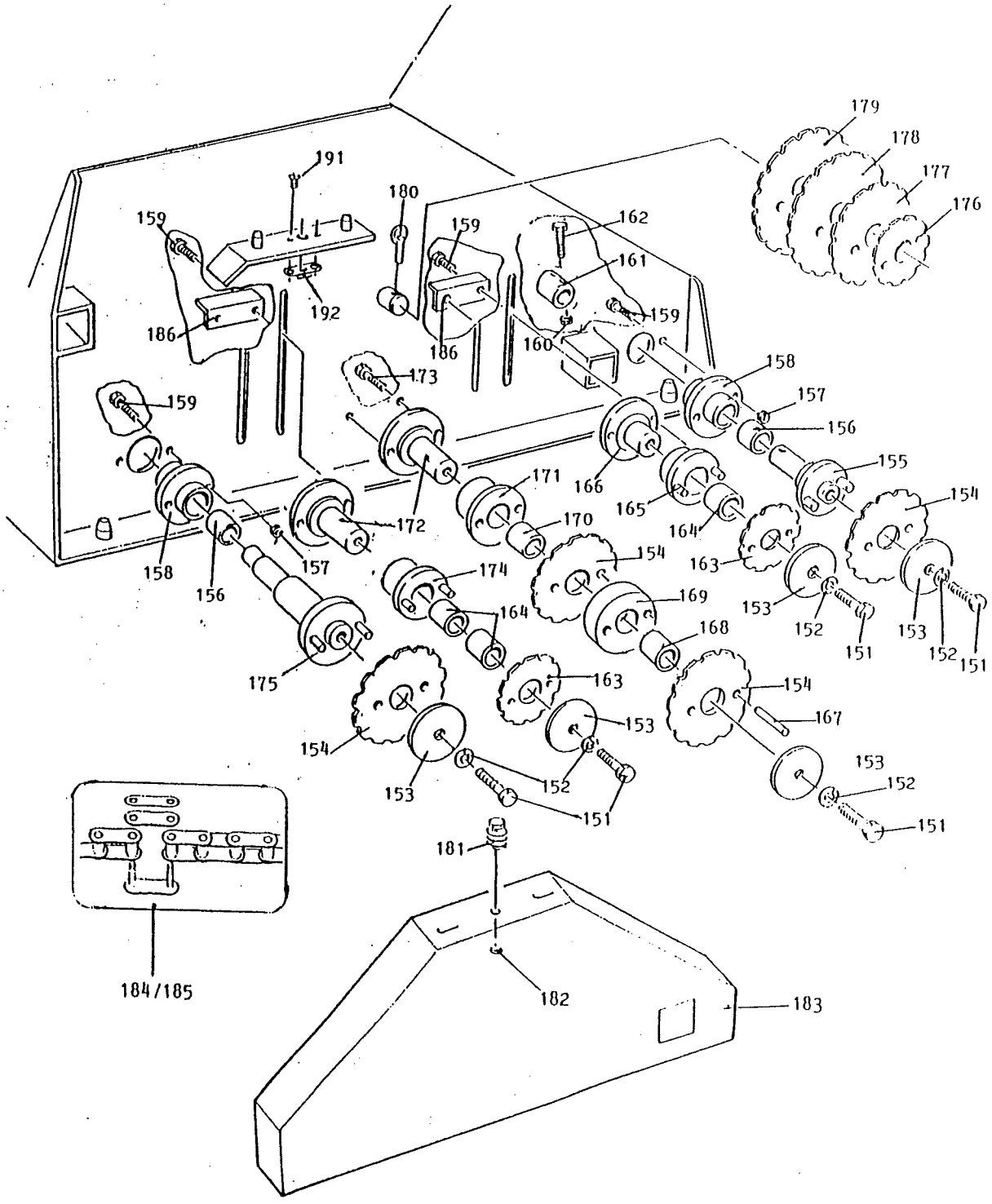
	802005	TRANSMISSION ASSEMBLY	1
		comprising:-	
151	301412205	SCREW (M12 x 20)	5
152	308120045	WASHER (12mm) SPRING	5
153	801601	CLAMPING WASHER	5
154	801607	SPROCKET (14T)	4
155	801594	DRIVE STUB	1
156	252528301	BUSH (MB2530DU)	2
157	307208055	NUT (M8) NYLOC	4
158	801600	BEARING HOUSING	2
159	301408305	SCREW (M8 x 30)	8
160	307208055	NUT (M8) NYLOC	2
161	801581	DRIVE COUPLING	1
162	301208505	BOLT (M8 x 50)	2
163	801605	SPROCKET (10T)	2
164	253034251	BUSH (MB3025DU)	3
165	801598	SPROCKET MOUNT	1
166	801602	IDLER SHAFT	1
167	208086400	SPIROL PIN (6 x 30mm)	2
168	253034151	BUSH (MB3015DU)	1
169	802104	DRIVE CONNECTOR	1
170	253034201	BUSH (MB3020DU)	1
171	801599	SPROCKET MOUNT	1
172	802102	IDLER SHAFT (LONG)	2
173	301408255	SCREW (M8 x 25)	2
174	802108	SPROCKET MOUNT (LONG)	1
175	802106	STUB SHAFT (LONG)	1
176	801606	SPROCKET (11T)	1
177	801608	SPROCKET (15T)	1
178	801609	SPROCKET (18T)	1
179	801610	SPROCKET (19T)	1
180	208092070	LINCH PIN	1
181	208060090	CAMLOC STUD	1
182	208060100	CAMLOC RETAINING WASHER	1
183	802097	COVER	1
184	802095	DRIVE CHAIN (66 LINKS)	1
185	802096	DRIVE CHAIN (60 LINKS)	1
186	801603	ADJUSTING CLAMP	2
187	308080015	WASHER (8mm) FLAT	1
188-190	Not Allocated		
NI	802091	* FRONT DRIVE SHAFT	2
NI	802092	* FRONT CONNECTING SHAFT	1
NI	802093	* DRIVE COUPLING	1
NI	802094	* DRIVE COUPLING (LONG)	2
NI	208014730	* PIPE LINCH PIN	4
NI	301208405	* BOLT (M8 x 40)	4
NI	301208505	* BOLT (M8 x 50)	6
NI	307208055	* NUT (M8) NYLOC	6

* See FEED BODY ASSEMBLY - page 2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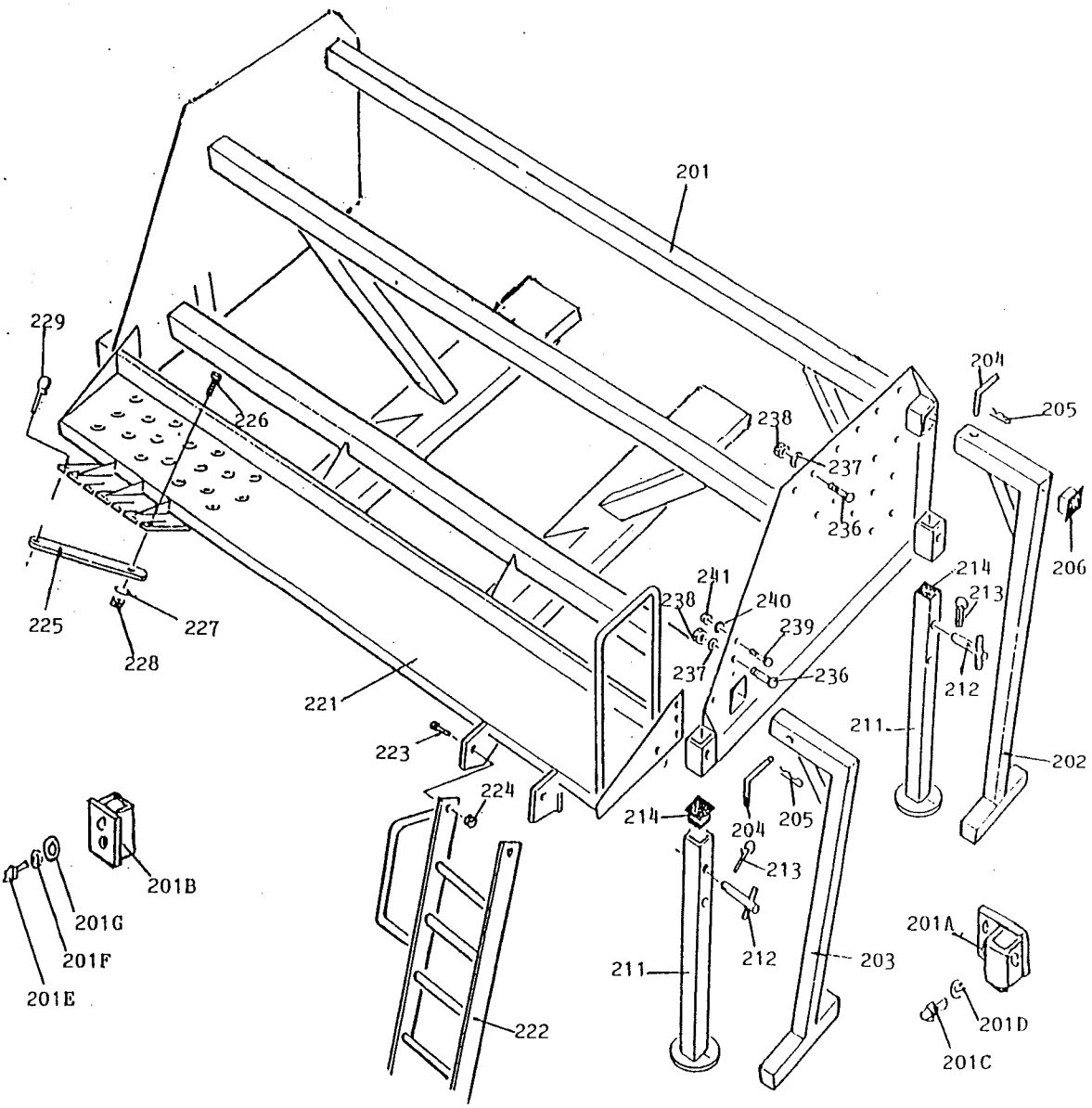
ITEM NO.	PART NUMBER	PART DESCRIPTION	QTY.
191	208032380	POP RIVET	2
192	208060110	CAMLOC RECEPTACLE	1
193-200	Not Allocated		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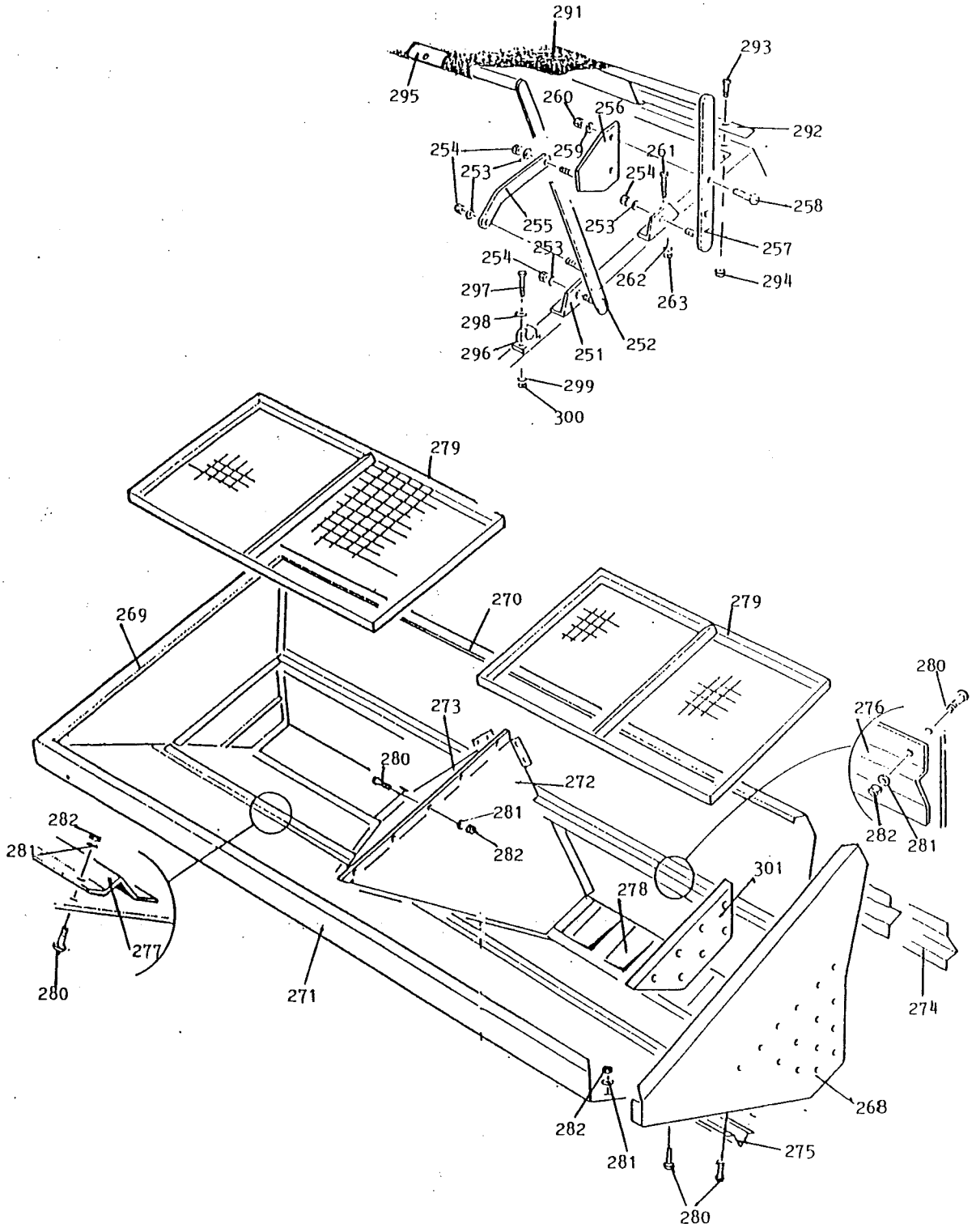
201	802001	FRAME (fitted to machines built early 96)	1
201	802010	FRAME (fitted to machines built late 96/97 on)	1
201A	802037	* PROP STAND BOX R.HD.	1
NI	802038	* PROP STAND BOX L.HD.	1
201B	802167	* PROP ADAPTOR	1
201C	301412255	* SCREW (M12 x 25)	4
201D	308120045	* WASHER (12mm) SPRING	4
201E		*	
201F		*	
201G		*	
		* fitted to machines built late 96/early 97	
202	802170	+ FRONT STAND	2
203	802174	+ REAR STAND R.HD.	1
NI	802175	+ REAR STAND L.HD.	1
204	802179	+ PIN	4
205	208014410	+ R' CLIP	4
206	208044630	+ PLASTIC INSERT (80mm SQ.)	4
		+ fitted to machines built early 96 only	
207-210	Not Allocated		
211	801201	x PROP STAND (LONG)	4
212	650247	x PIN ASSEMBLY	4
213	208092060	x CLIP PIN/RING	4
214	208044090	x PLASTIC INSERT	4
		x fitted to machines built late 96 onwards	
NI	801509	MOUNTING CLAMP	1
215-220	Not Allocated		
	802008	LOADING PLATFORM ASSEMBLY comprising:-	1
221	802145	LOADING PLATFORM	1
222	802155	LADDER	1
223	301416405	SCREW (M16 x 40)	2
224	307216055	NUT (M16) NYLOC	2
225	802142	* LOCK BAR	1
226	301408305	* SCREW (M8 x 30)	1
227	308080015	* WASHER (8mm) FLAT	2
228	307208055	* NUT (M8) NYLOC	1
229	208092090	* LINCH PIN	1
		* fitted to machines built late 96 onwards	
230-235	Not Allocated		
236	105208085	BOLT - UNC (1/2 x 1in) RD.HD.SQ.NECK	36
237	108081445	WASHER (1/2in) SPRING	36
238	107208015	NUT - UNC (1/2in)	36
239	321208205	BOLT (M8 x 20) RD.HD.SQ.NECK	2
240	308080045	WASHER (8mm) SPRING	2
241	307208015	NUT (M8)	2
242-250	Not Allocated		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	802006	COVER SUPPORT MECHANISM	1
		comprising:-	
251	802111	MOUNTING BRACKET R.HD.	2
NI	802110	MOUNTING BRACKET L.HD.	2
252	802118	COVER HOOP (REAR)	1
253	308100015	WASHER (10mm) FLAT	8
254	307210055	NUT (M10) NYLOC	8
255	802116	HOPPER COVER LINK	2
256	802122	SUPPORT PLATE	2
257	802117	COVER HOOP (FRONT)	1
258	321208205	COACH BOLT (M8 x 20)	4
259	308080045	WASHER (8mm) SPRING	4
260	307208015	NUT (M8)	4
261	301408205	SCREW (M8 x 20)	8
262	308080015	WASHER (8mm) FLAT	8
263	307208055	NUT (M8) NYLOC	8
264-267	Not Allocated		
	802002	HOPPER ASSEMBLY	1
		comprising:-	
268	802040	HOPPER END PANEL R.HD.	
269	802041	HOPPER END PANEL L.HD.	1
270	802042	HOPPER FRONT PANEL	1
271	802043	HOPPER REAR PANEL	1
272	802044	DIVIDER PANEL R.HD.	1
273	802045	DIVIDER PANEL L.HD.	1
274	802046	HOPPER STIFFENER (FRONT)	1
275	802048	HOPPER STIFFENER (REAR)	1
276	802047	SIEVE SUPPORT (FRONT)	1
277	802049	SIEVE SUPPORT (REAR)	1
278	802052	HOPPER BASEPLATE	2
279	802054	SIEVE	2
280	321208205	BOLT (M8 x 20) RD.HD.SQ.NECK	124
281	308080045	WASHER (8mm) SPRING	124
282	307208015	NUT (M8)	124
NI	802053	+ BLANKING PLATE	4
		+ See FEED BODY ASSEMBLY - PAGE 2	
283-290	Not Allocated		
291	802123	HOPPER COVER	1
292	802119	COVER RETAINING STRIP	1
293	301406205	SCREW (M6 x 20)	8
294	307206055	NUT (M6) NYLOC	8
295	208003695	COVER CLIP	7
296	208003720	HOPPER CLIP (PLASTIC)	2
297	337304255	SCREW (M4 x 25) CROSS HD	4
298	308040015	WASHER (4mm) FLAT	4
299	308040045	WASHER (4mm) SPRING	4
300	307204015	NUT (4mm)	4
301	802050	SIDE SUPPORT R.HD.	1
NI	802051	SIDE SUPPORT L.HD.	1

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	802009	DECAL SET	1
		comprising:-	
NI	306907	SERIAL NUMBER PLATE	1
NI	208041090	HAMMER DRIVE SCREW	4
NI	800207	DECAL - UNION FLAG	1
NI	990332	DECAL - WARNING FINGER TRAP POINT	1
NI	209095290	DECAL - REFER TO MANUAL	1

FERTILISER Mk.2

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