Shearer

Grow a Better Crop

JOHN SHEARER

3.0 & 3.5 Pasture Tyne Drill

3.0 & 3.5 Pasture DDO Drill

Operators Manual

138J3

SAFETY

SAFETY FIRST

DO NOT OPERATE THE IMPLEMENT WITH CHAIN DRIVE GUARDS REMOVED

DO NOT ATTEMPT ANY WORK ON THE IMPLEMENT WHILE THE IMPLEMENT IS IN MOTION. (I.E. CLEANING OF BOXES OR LUBRICATION OF DRIVES ETC.

PRIOR TO WORKING UNDERNEATH THE IMPLEMENT (E.G. CHANGING POINTS ETC.) ALWAYS CHECK THAT THE IMPLEMENT IS ADEQUATELY SUPPORTED ON BLOCKS.

CUSTOMER'S WARRANTY REGISTRATION CARD

(Please retain for your records)

Customer copy

IMPLEMENT TYPE:

IMPLEMENT SIZE: SERIAL NO

SELLING DEALER: DATE PURCHASED:

PLEASE READ THE OPERATOR'S MANUAL TO ENSURE CORRECT APPLICATION, OPERATION AND MAINTAINANCE FOR THIS MACHINE.

THANK YOU FOR BUYING JOHN SHEARER

PLEASE COMPLETE AND RETURN THE WARRANTY CARDS ON THE FOLLOWING PAGE TO ENSURE WARRANTY IS VALID.

IF THE WARRANTY CARDS ARE NOT CONFIRMED, THE WARRANTY PERIOD WILL BEGIN ON THE DATE THE MACHINE LEAVES THE FACTORY.

Dealer copy **WARRANTY REGISTRATION CARD**

DEALER NAME: …… DEALER TOWN: ……

IMPLEMENT MODEL: …… SIZE: ……

PRODUCT No. (As per price book)…… SERIAL NO. ……

DEALER'S PRE DELIVERY IMPLEMENT CHECK WHEN DONE…… SIGNATURE……

PURCHASERS NAME (Full)……

ADDRESS (Full)……

DATE OF PURCHASE:……

PURCHASER ACKNOWLEDGES THAT THE IMPLEMENT WAS RECEIVED IN GOOD ORDER & CONDITION AND THAT PURCHASERS ATTENTION HAS BEEN DRAWN TO THE TERMS AND CONDITIONS OF THE JOHN SHEARER LIMITED WARRANTY POLICY ENDORSED HERE-ON.

PURCHASERS SIGNATURE……

John Shearer Pty Ltd copy **WARRANTY REGISTRATION CARD**

DEALER NAME: …… DEALER TOWN: ……

IMPLEMENT MODEL: …… SIZE: ……

PRODUCT No. (As per price book)…… SERIAL NO. ……

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PURCHASERS SIGNATURE……

CUSTOMER'S MACHINERY REGISTER

We ask for your assistance in registering your holdings of equipment. This information can assist us greatly in after sales service, development of new products and customer awareness of Shearer products.

1. Name:……

   Address:……

   …… State:…….. Postcode:……

   Phone…… E-mail:……..

2. Type of purchaser (please tick) ☐ Owner / Manager ☐ Share Farmer ☐ Contractor

3. Major activities (please number in order of importance)

☐ Sheep and cereal grain	☐ Vegetables	☐ Sugar
☐ Sheep only	☐ Poultry	☐ Tobacco
☐ Cereal Grain Only	☐ Pigs	☐ Oilseeds
☐ Meat Cattle	☐ Vineyards	☐ Others (please list)
☐ Milk Cattle	☐ Fruit	☐ ……

4. What is the size of your holding (hectares)?……

   What is the total area of your crop (hectares)?……

   What is your area under cereal crop (hectares)?……

5. In what town is your associated Shearer dealer? (i.e. either the dealer with whom you normally trade or the one who is closest)……

6. What John Shearer machines do you currently have on your property?

Serial No.	Implement type	Size	Date Delivered	Comments

Thank you for your assistance; please feel free to use the back of this form to make any comments you wish.

Congratulations on the purchase of your new JOHN SHEARER PTY LTD implement. You have just joined the growing number of John Shearer customers and we trust that your implement will give you many years of satisfaction. The following information contained in this manual is provided with regards to your implement's operation, maintenance and warranty; however, should you require further assistance, contact your registered John Shearer Dealer.

WARRANTY POLICY

This warranty ('**this Warranty**') provides information regarding the operation, maintenance and warranty of John Shearer Pty Limited's ('**John Shearer**') products.

Warranty against Defects

John Shearer warrants to the original purchaser ('**you**' or '**your**') that any product manufactured by John Shearer ('**Product**') and sold to you whether directly or through a dealer ('**the Dealer**') will be free from defects to the extent set out in this Warranty.
John Shearer warrants that any Product or parts of a Product proven to be defective ('**the Defective Product**') will either be repaired or replaced by John Shearer.
Products will only be proven to be defective by a person appointed by John Shearer.
John Shearer holds the discretion to determine whether a Defective Product is to be repaired or replaced.
Any Defective Product must be returned to the Dealer at your cost within 12 months of delivery of the Product to you.
No warranty is given in relation to:

- any Product that has been misused;
- any Product that has been used contrary to its normal and, or intended use;
- any Product that has been used contrary to the recommendations of John Shearer and, or the Dealer;
- any Product that has been altered, modified or had any parts substituted in any way not authorised by John Shearer and, or the Dealer;
- any defect of which you should have reasonably identified by examining the Product or of which you were notified of; and
- general wear and tear during normal use of the Product.

All defects must be reported immediately by you to the Dealer.

Modifications by John Shearer

John Shearer reserves the right at all times to vary, modify and, or improve its Products or parts without notification.
John Shearer has no responsibility to vary, modify and, or improve Products sold to conform with any such modifications.

Freight and Travel Charges

John Shearer accepts no responsibility in relation to:

- travelling and, or freight charges; and
- damage caused during travel and, or freight.

Limitation of Liability

To the fullest extent permitted by law, John Shearer and the Dealer will not be liable for any actions, suits, proceedings, claims, demands, costs, expenses or damages whatsoever which may arise either directly or indirectly in respect of the Product, including but not limited to negligent use of the Product.
To the fullest extent permitted by law, any non-compliance with this Warranty will automatically void any warranty given by John Shearer in relation to the Product.
No warranty is given if you have breached any terms and conditions forming part of the contract between you and John Shearer and, or the Dealer by which the Product was sold to you.
John Shearer will not be held responsible for any third party warranties offered in addition to the warranties offered under this Warranty. Any third party warranties are directly between you and the third party offering those warranties.

Consumer Rights

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
The warranties given by John Shearer under this Warranty are in addition to your other rights and remedies under the Australian Consumer Law in relation to the Product.
However, to the fullest extent permissible by law, John Shearer does not provide any consumer guarantees which are not required to be given at law.

Service and Maintenance

It is your responsibility to:

- maintain and operate the Product in a safe and correct manner and in accordance with the specifications and operating limitations set out by John Shearer; and
- service the Product regularly in accordance with the recommendations of John Shearer.

Claims

All claims under this Warranty are to be sent to for the attention of Franco Perrotta at John Shearer Pty Ltd. P.O. Box 2466 Regency Park SA 5942
For further assistance, contact the Dealer.

Warranty Provider

This Warranty is provided to you by:
John Shearer Pty Limited
34 Burleigh Ave, Woodville North SA 5012
(08) 8468 4190
info@johnshearer.com.au

PRE-DELIVERY CHECK

1. On delivery of 3.0m or 3.5m PASTURE DRILL ensure there are no shortages.

2. Check Implement equipment, to ensure as ordered.

3. Check for trans-shipping damage.

4. Refer to lubrication section, page 14, for greasing and routine check points.

5. Check and tighten bolts and nuts, (including wheel nuts).

6. Check tyne spacing. For specific dimensions refer to page 28 to 31.

7. Ensure that implement is fully assembled and operating correctly.

8. Demonstrate and explain operation to the client.

9. Explain terms and conditions of Warranty to client

JOHN SHEARER PTY LTD

ESTABLISHED 1877
INCORPORATED IN SOUTH AUSTRALIA

HEAD OFFICE & FACTORY
PO Box 2466 REGENCY PARK
SOUTH AUSTRALIA 5942

TELEPHONE +61 8 8468 4190
STREET LOCATION: 34 BURLEIGH AVE, WOODVILLE NORTH
FAX No. +61 8 8468 4135 (SPARE PARTS)
Website: www.johnshearer.com.au
Spare parts email: spares@johnshearer.com.au

WHEN ORDERING SPARE PARTS PLEASE STATE:

1. **MODEL, SERIAL NUMBER & SIZE (OF THE MACH. / IMP.)**
2. **PART NUMBER AND DESCRIPTION (OF THE SPARE PART).**
3. **NUMBER OF PARTS REQUIRED.**
4. **FORWARDING INSTRUCTIONS.**
5. **CORRECT NAME & ADDRESS OF DESTINATION.**

MODEL & SERIAL NUMBER PLATE
IS PLACED ON THE LEFT HAND FRONT OF THE MAIN FRAME.

MADE & PRINTED IN AUSTRALIA BY JOHN SHEARER PTY LTD.

M138J3 JUNE 2018

CONTENTS

SPECIFICATION

No. OF SOWING ROWS		19	23	23
SOWING WIDTH:	m	2.95	2.92	3.45
	(ft)	(9'2")	(9'2")	(10'10")
SOWING SPACING:		155.5mm	127mm	150mm
		(6.1")	(5")	(5.9")
BOX CAPACITY:				
Rear – fertilizer -	kg	755	755	885
	(lb)	(1665)	(1665)	(1951)
Front – seed -	kg	418	418	490
	(lb)	(923)	(923)	(1080)
DDO DRILL:				
DDO Type -		Parallelogram		
Travel (Total) -		254mm (10")		
Disc Size -		15" x 4mm		
DDO Spacing:				
Between Rows -		900mm		
Along Rows -		311mm	254mm	300mm
Weight Empty -	kg	2680	2925	2965
(approx.)	(lb)	(5908)	(6449)	(6537)
TYNE DRILL:				
Tyne Type –		"580" spring release		
Jump Height –		250mm (10")		
Tyne Breakaway Force –		16mm diameter spring, adjustable to a maximum 740N (165lbf)		
Tyne Spacing:				
Between Rows -		1st and 2nd – 475mm (18 7/8")		
		2nd and 3rd – 425mm (16 7/8")		
Along Rows -		466.5mm		
Weight Empty -	kg	TBA		
(approx.)	(lb)	(TBA)		

DISC DRILL:		
Disc Diameter -		330mm (13")
Jump Height -		350mm (13 ¾")
Disc Spacing -		155.5mm (6.1")
Weight Empty -	kg	TBA
(approx)	(lb)	(TBA)

DEPTH WHEELS:	215/85 x 16 or 12.5/80-15.3 Max. working depth 100mm (4") Adjustable by mechanical screw.

SEED & FERTILISER DISTRIBUTORS:	
Seed -	Fluted roller with restrictor for small seeds, low rates
Fertilizer -	Nylon peg tooth distributor roller.
Gates -	Adjustable rubber in both compartments.
GEARBOX:	Infinitely variable roller clutch gearbox
OPTIONAL EQUIPMENT:	Coulter Bar Broad Bean Rollers A wide range of Points & Fittings Heavy Duty Wheels Shearer 31 speed Gearbox

Due to our policy of continuing research, these specifications are subject to change without prior notification.

SETTING UP / OPERATING INSTRUCTIONS

Congratulations on the purchase of your new 3.0m or 3.5m PASTURE DRILL.

This manual has been prepared to assure the proper set up, operation and trouble free service.

After reading this manual, keep it in the carrier provided on the implement for quick and easy reference should any question arise concerning operation or service.
Your PASTURE DRILL is designed to give maximum service life, but a routine lubrication and maintenance schedule must be followed as shown on the lubrication chart (see page 14)

SETTING UP – TRAILED IMPLEMENT

IMPLEMENT LEVELLING “FRONT TO REAR”.
Adjust hitch link to level implement “front to rear”. Extend the link to increase depth of working of the rear tynes. Set the Disc Drill with the grain and fertilizer box support “level” in the working position.

IMPLEMENT LEVELING “SIDE TO SIDE” / DEPTH ADJUSTMENT
Set the adjusting screws on each side.

TURNING
Avoid turning sharply with tynes / discs in the ground. Lift the machine out of the ground at corners and sow headlands separately to avoid oversowing.

SOWING RATES & CALIBRATION
See page 15

GRAIN AND FERTILISER BOX CAPACITIES
The Grain and Fertilizer box is fitted with distributors, which allow either grain or fertilizer in both compartments. The two compartments of the box are unequal in volume. This feature allows whichever material is being used in higher quantities to be placed in the larger (rear) compartment. The relative volumes are:-

FRONT COMPARTMENT = 45%, REAR COMPARTMENT = 55%
Where both compartments are being used for the same material, optimum use is made of the whole box capacity if the sowing rates selected for each compartment are in the same ratio as the compartment volumes.

$$\text{i.e. } \frac{1.25}{1}$$

For example: If a sowing rate of 100 kg/ha is required, the sowing rates selected for the front compartment should be 45kg/ha and for the rear 55kg/ha. This will provide, as near as possible, simultaneous emptying of both compartments.

DISTRIBUTORS
The peg tooth distributor in the front compartment is suitable for both fertilizer and smaller grains, up to the size of peas and lupins.
The fluted distributor in the rear compartment is suitable for fertilizers and grains including pasture and larger seeds. For low rates use the restrictor.

DO NOT USE THE RESTRICTOR WITH FERTILISERS.
NOTE: For broad beans, a special distributor is available. (see page 34-35)

STORAGE

At seasons end, this implement should be stored away, jacked up and placed on blocks to take the weight off the tyres. It should be thoroughly cleaned, removing all traces of seed or fertilizer from compartments and distributors.

Fill gearbox with oil.

Remove chains, clean, lubricate and store in a clean, dry location.

Grease all bearings.

Touch up scratched or damaged paintwork.

FERTILIZER CORROSION DAMAGE

The hopper must be “COMPLETELY AND THOROUGHLY CLEANED OUT” after use, to help prevent corrosion. It is especially important that the hopper is not left overnight with any fertilizer remaining in it. Particular attention should be paid to keeping the area around the critical distributor/bearing/gate components free of fertilizer

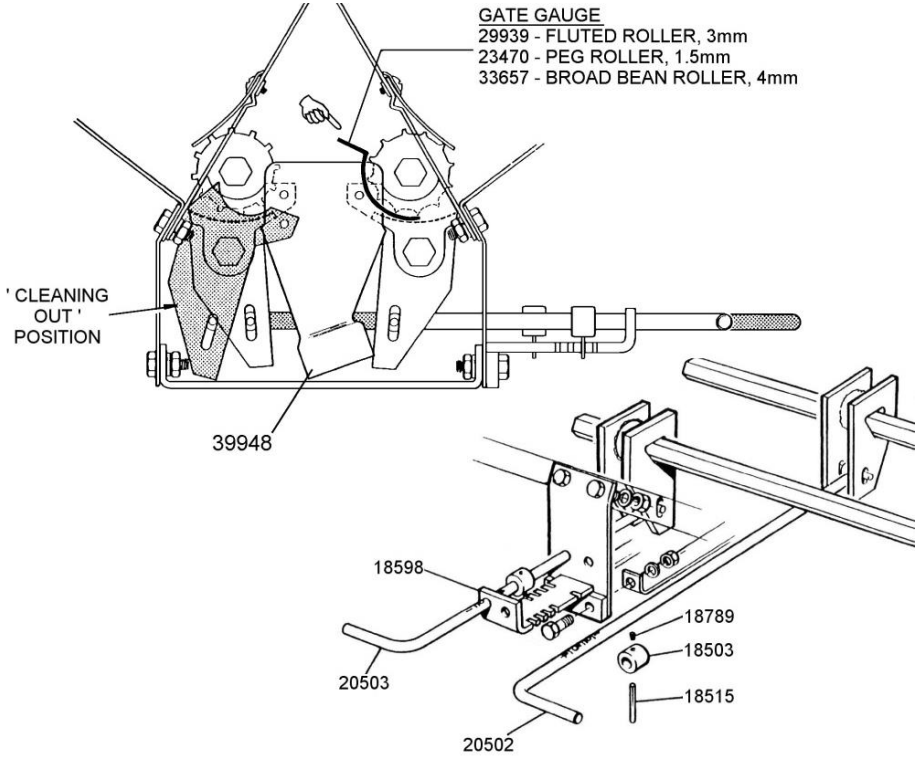
This recommendation is applicable irrespective of the kind of fertilizer in use, but is more important with the higher analysis, high nitrogen, fertilizers.

GATE SETTING

The seed and fertilizer metering rollers have an adjustable gate at the metering point under the roller. This adjustment allows for the diversity in size of seed and types of fertilizer. To ensure accurate metering of material, it is essential that these gates be correctly adjusted in accordance with the information supplied below.

Gauges for Setting Gap

# 29939	Gauge gate 3mm	Fluted roller
# 23470	Gauge gate 1.5mm	Peg roller
# 33657	Gauge gate 4mm	Broad bean roller



Procedure for resetting gates if required:

1. Remove the sowing cups part number 39948.
2. Loosen collar part number 18503 on gate levers and disengage pin part number 18515 from bracket assembly part number 18598.
3. Obtain a spanner to fit the gate shafts. (20mm)
4. With one hand place the gauge between the lip of the gate and the roller.
5. With other hand move the gate shaft using the spanner until the gauge fits nicely between roller and the gate (rather like a feeler gauge)
6. Do not have too tight, otherwise the edge of gate will wear on rollers.
7. When you have the gauge (as selected) in this position, you have gate setting **one (1).**
8. For placing the pin part number 18515 in position **one (1)** on bracket part number 18598 and tightening socket screw part number 18789 – it is preferable to have the help of another person.
9. Note the gate levers when set in position **one (1)**, are in a different relationship to each other.

GEARBOX SETTINGS

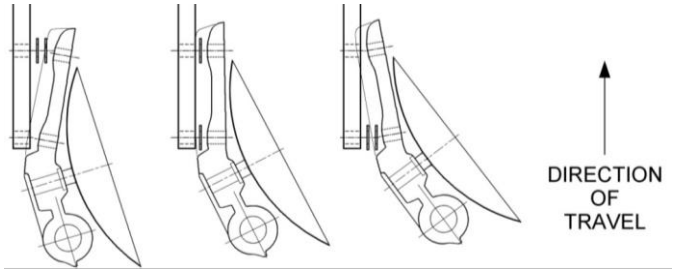
The gearbox can be adjusted to any rate between 0 (no distributor rotation) to 100 percent. The charts on pages 16-25 are a guide to what rate can be expected for various products. Be aware that these chart is a guide only and for accuracy a calibration check must be done before seeding.

TYNE SPRING TENSION
Set tyne spring tensions equally on each row.
Tynes on the front two rows are more likely to need tension. To avoid higher loads than necessary on the tyne assembly components, use the minimum spring tension that will achieve the penetration required.

PASTURE DISC DRILL – SINGLE DISC

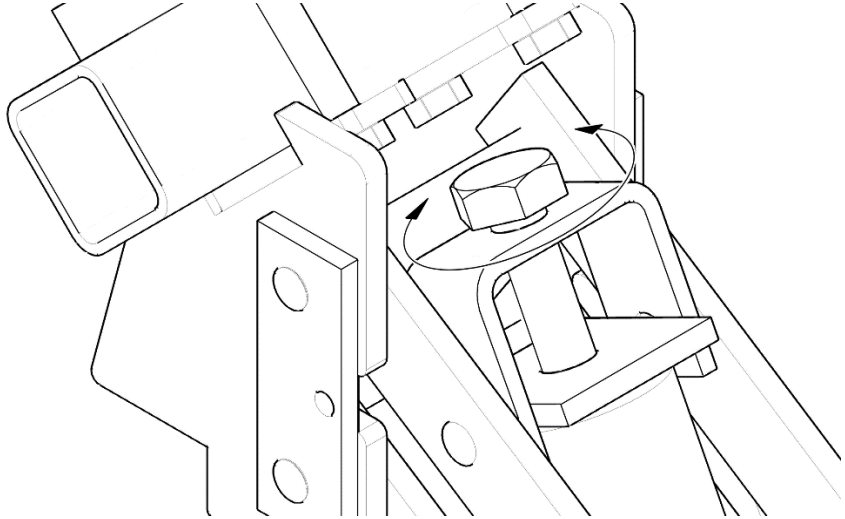
PENETRATION OF DISCS
Where you are unable to gain enough penetration with the discs due to hard conditions, more pressure can be obtained by compressing the springs on the pressure rods.

BREAST SET ON DISCS
The set of the disc may be altered by fitting or removing breast adjustment spacers (item 18, page 53) between the arm and the drill boot.
Spacers fitted between the arm and the front hole of the disc boot gives a 50mm set to the disc and to the back hole gives a 70mm set. Spacers taken out all together give a 60mm set to the disc. Increasing breast angle of disc aids trash or clod clearance, but reduces penetration.
The breast cut of the discs is adjustable to vary the width of the sowing slot.



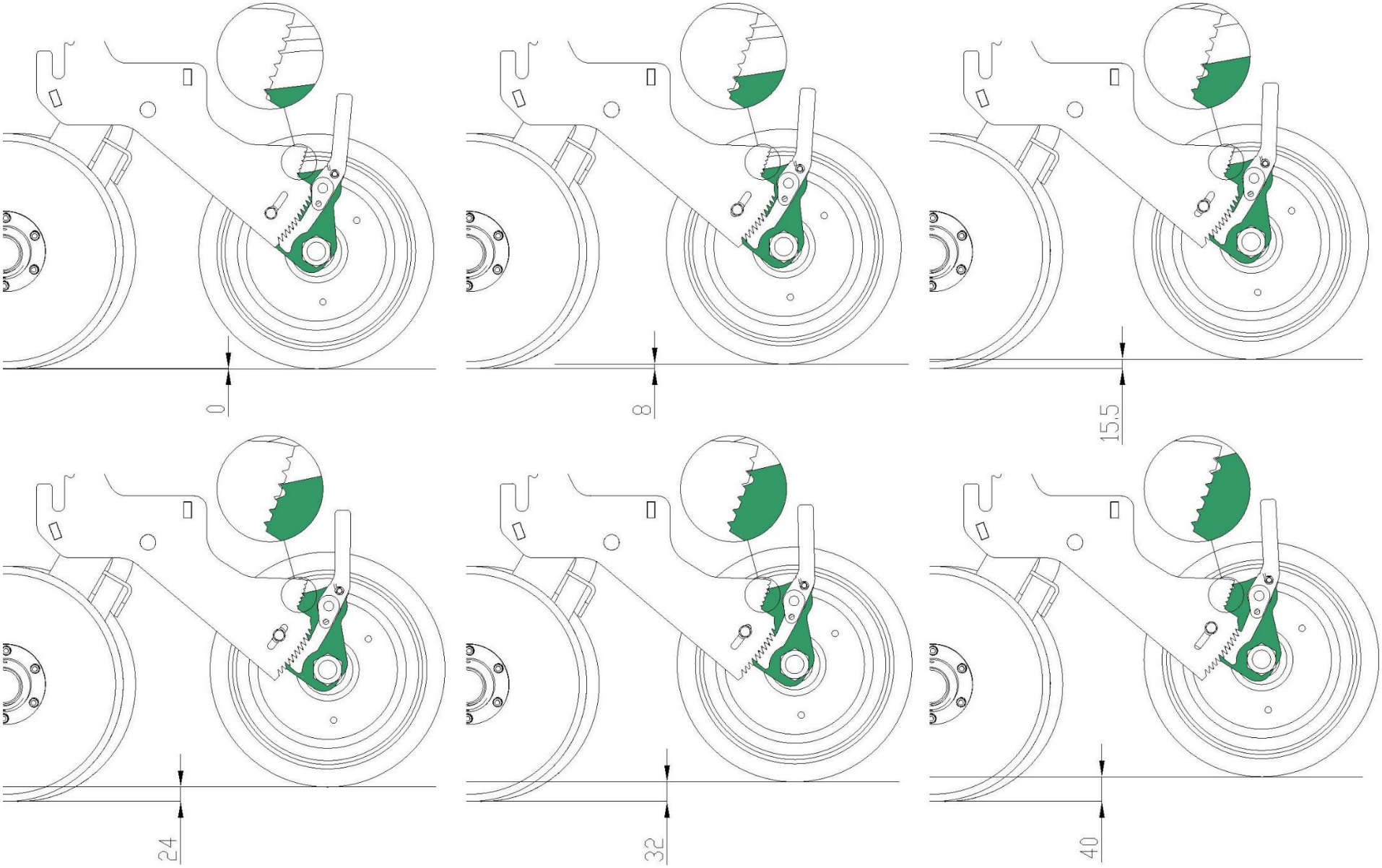
DOUBLE DISC OPENERS

DOWN PRESSURE
For best results, set the pressure only enough to ensure adequate penetration. Packing pressure for use in soft ground should be much lower than for hard ground.
To adjust, turn the bolt as shown below to increase or decrease the spring pressure as required. Increasing spring pressure will increase the down pressure on the opener/press wheel.



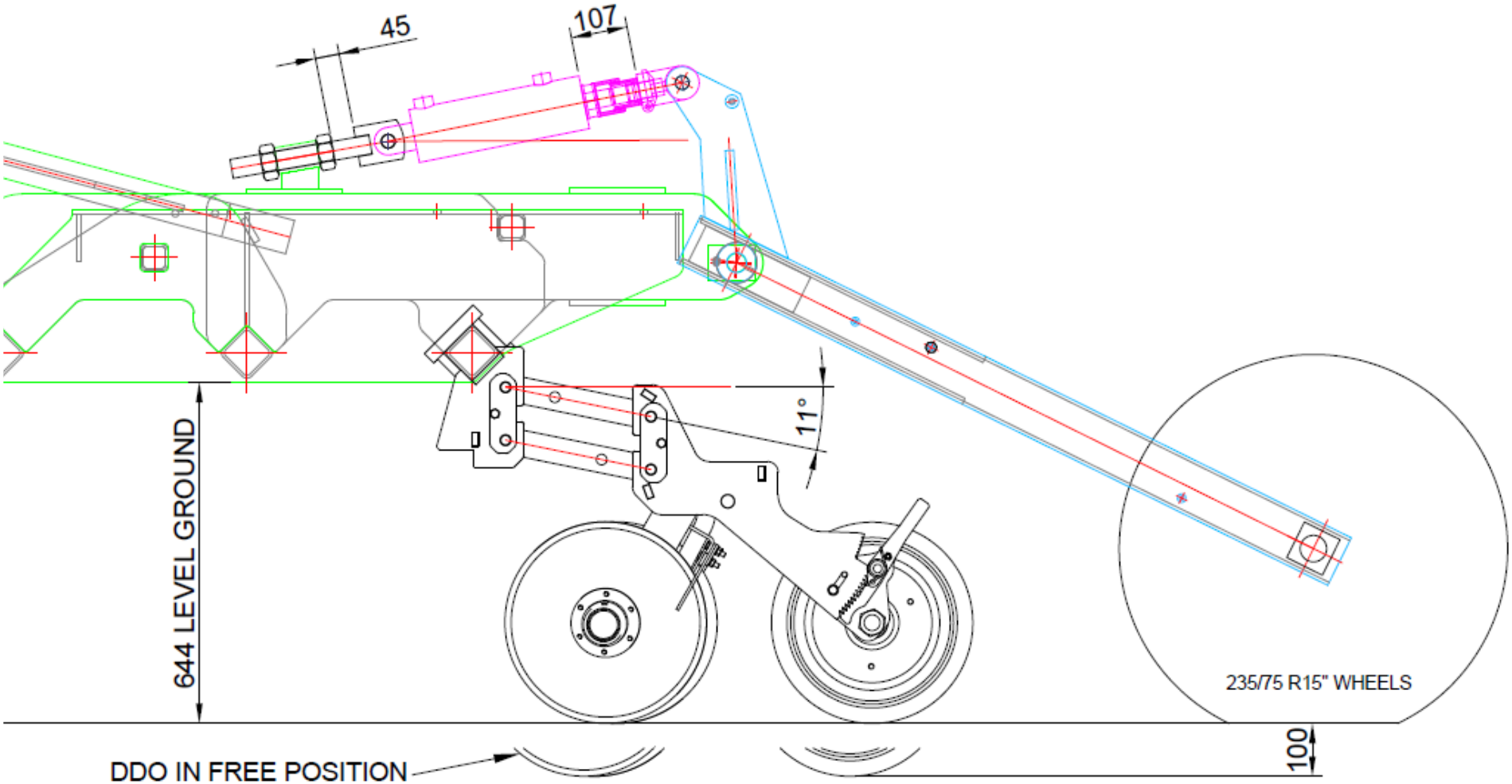
TURNING
Lift the disc clear of the ground when turning to avoid damage.

DDO DEPTH SETTINGS



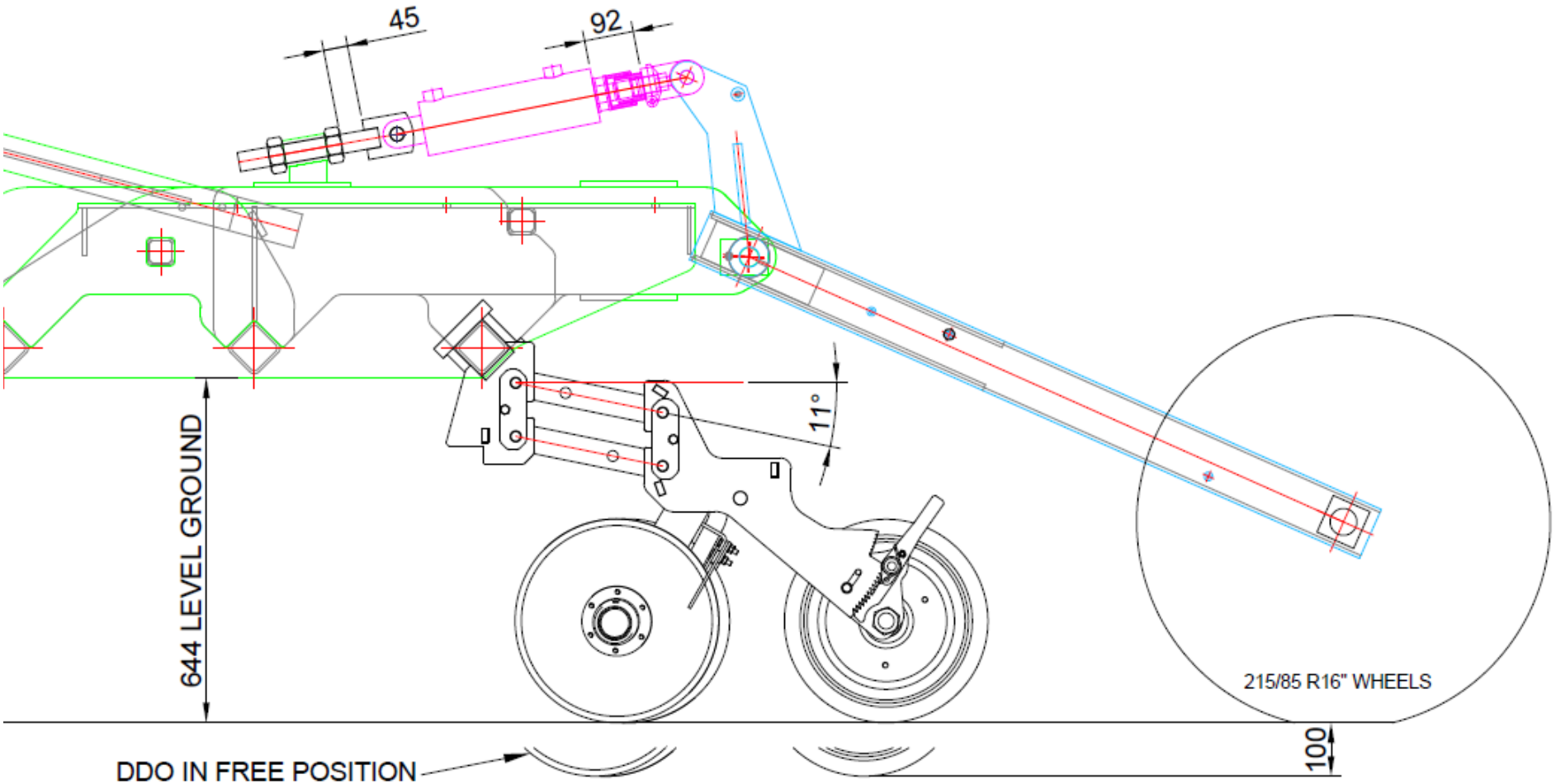
3.0m DDO SETUP (15” Wheels)

To set the correct working height, use the diagram below as a guide to the setup. This will give the openers around 150mm of upward travel to allow for bumps and 100mm downward travel for holes or dips.



3.5m DDO SETUP (or Machines with 16“ wheels optioned)

To set the correct working height, use the diagram below as a guide to the setup. This will give the openers around 150mm of upward travel to allow for bumps and 100mm downward travel for holes or dips.



SAFETY FIRST

DO NOT OPERATE THE IMPLEMENT WITH CHAIN DRIVE GUARDS REMOVED.

DO NOT ATTEMPT ANY WORK ON THE IMPLEMENT WHILE THE IMPLEMENT IS IN MOTION. (I.E. CLEANING OF BOXES OR LUBRICATION OF DRIVES ETC.).

PRIOR TO WORKING UNDERNEATH THE IMPLEMENT (E.G. CHANGING POINTS, ETC.) ALWAYS CHECK THAT THE IMPLEMENT IS ADEQUATELY SUPPORTED ON BLOCKS.

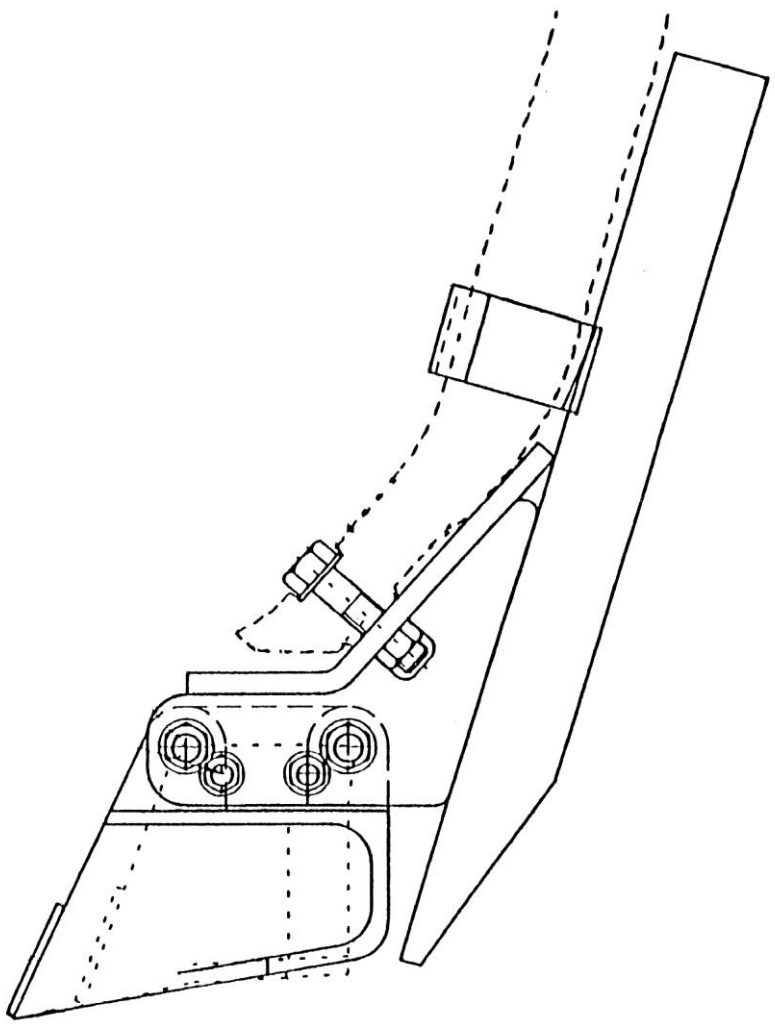
MAINTENANCE OF “T” BOOTS
A tungsten carbide insert has been fitted to the leading edge of the blade

Because the blade is expected to carve a channel through hard abrasive soils, stones and rocks etc., DO NOT DISREGARD NORMAL MAINTENANCE. Continual maintenance of the blade is necessary. The tungsten carbide will slowly wear, but blade surfaces will wear more quickly.
Regularly check that all bolts are tight
Ensure that the boot is kept clean of blockages due to buildup of grain or fertilizer so that an unrestricted flow of product is possible.

TENSION ON SPRINGS
The pressure is taken at the bolt that holds the boot on. The correct pressure on tynes is important, the tynes must work on their springs and vibrate to crumble the soil and create tilth over the seed.

3 POINT LINKAGE MACHINES
When using 3-point linkage implements fitted with “T” boots there are guide lines to follow to minimize wear.

a) When drilling you must sow in a straight line.
b) If you turn without lifting you will cause excessive wear on sides of blades and sowing tubes.
c) Lift implement when you come to a corner.
d) Be in motion when entering ground and lift when stopping.
e) Do not let implement roll back, if you do, sowing tubes will block with soil forced into opening.



“T” BOOT

LUBRICATION

Item	Operation	Schedule
Wheel Hub	Grease	200hrs
Axle Rockshafts	Grease	Daily / 10hrs
Clutch	Grease	Daily / 10hrs
DDO Press wheel	Grease	200hrs
Tynes	Grease	Daily / 10hrs
Distributor shafts	Grease	50hrs
Trimming Screw	Grease	Annually
Gearbox (Infinitely Variable)	Check for leaks (topup if necessary- Shell Helix 20W50 Motor Oil)	Annually
Gearbox (31 Speed)	Check for leaks (topup if necessary- SAE 120)	Annually
Tyres	Check Pressure	Daily
Chains	Check adjustment	Daily
Chains	Annual Maintenance – thorough check and re-grease	Annually
General Inspection (Nut & Bolts)	Check for tightness	Daily
Hopper	Clean out at end of each day (Particularly Hydroscopic Fertilizer)	Daily
Grease Nipples	Lubricate all prior to storage at the end of each working period	Seasonally

DO NOT LEAVE FERTILISER IN THE IMPLEMENT OVERNIGHT. (PARTICULARY HYGROSCOPIC FERTILISER, WHICH WILL TAKE UP MOISTURE AND HARDEN)

TYRE PRESSURES

TYRE PRESSURES ARE IMPORTANT
OVER INFLATION will impair flotation – Increasing sowing depth variations as ground conditions vary. UNDER INFLATION can result in tyre failures.

TYRE SIZE	19 ROW		
	TYNE	T & C	DDO
215/85 R16 TYRE PRESSURE kPa	230	260	350
psi	34	38	50
12.5/80-15.3 TYRE PRESSURE kPa	155	170	230
Psi	22	25	34

SPEED LIMIT 25 km/h (10 km/h SOWING)

SOWING RATES

Select sowing rates as per chart on the left hand side of the implement. N.B. This chart is to be used as a guide only.

Check sowing rates as follows:
Example: For tyre size 235/75x15 the sowing rate chart is based on an effective wheel rolling radius of 330mm. For a 19 row drill at 155.5mm spacings, 1638 revolutions of the drive wheel corresponds to 1 hectare.

Rotating drive wheel:

1. Lower the machine to engage drive clutch, jack up the left hand drive wheel.

2. Rotate the wheel (anti-clockwise)
   33 times – 19 row (15" wheels)
   29 times – 19 row (16" wheels)
   25 times – 23 row 3.5m (16" wheels)
   28 times – 19 & 23 row 3.0m (15.3" wheels)
   24 times – 23 row 3.5m (15.3" wheels)

3. Collect and weigh the delivered seed or fertilizer and multiply by 50. This will give the actual sowing rate per hectare for that particular product.
   See table below for different configurations of:

TYRE	LOADED RADIUS (mm)	WHEEL REVS. /Ha
3.0m 19 Row PASTURE DRILL		
215/85x16	374	1445
12.5/80-15.3	390	1386
235/75x15	330	1638
3.0m 23 Row PASTURE DRILL		
12.5/80-15.3	390	1397
3.5m 23 Row PASTURE DRILL		
215/85x16	374	1233
12.5/80-15.3	390	1183

tyre/machine size/cranking revolutions

Rotating the crank handle:

1. Lift the machine using the hydraulics to disengage the clutch.

2. Set the gearbox in the neutral position for the compartment not being tested.

3. Turn the crank handle anti-clockwise
   - 12 times for 3.0m drill with 15" wheels
   - 10.5 times for 3.0m drill with 16" wheels
   - 9 times for 3.5m with 16" wheels

4. Collect and weigh the output of product and multiply it by 50 to give an output for a full hectare.

Note: the above is based on checking for all rows. If you want to only calibrate using some of the outlets you will need to calculate accordingly.
Equation:

$$\frac{(kg\ collected)\ \times\ (Rows\ on\ the\ machine)\ \times\ 50}{(Rows\ collected\ from)} = kg/ha$$

example
If you turn the handle 10.5 times and weigh the output collected from 3 rows and it is 0.19 kg (190 grams), then multiply this weight by 19 (for a 19 row drill) and then divide by 3 (for the 3 rows). Since 10.5 turns is equal to 1/50 of a hectare, you need to multiply this by 50 to get the rate per hectare, which is in this example, 60 kg/ha.

$$\frac{(0.19kg)\ \times\ (19\ Rows)\ \times\ 50}{(3\ Rows)} = 60\ kg/ha$$

APRIL 2014

3.0M PASTURE DRILL GRAIN & FERTILIZER CHART - Sowing at 155.5mm spacing.

P/No. 44062

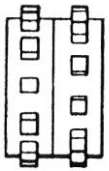
TO SUIT 31 SPEED GEARBOX

QUANTITIES SHOWN ARE IN KG/HA AND ARE APPROXIMATE ONLY.
CHECK IN FIELD WHEN SOWING COMMENCES

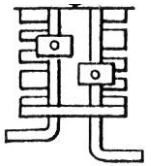
GEARBOX SETTING		F6	F5	F4	E6	E5	F3	D6	E4	D5	F2	C6	E3	D4	C5	B6	A6	A5	B4	C3	D2	A4	E1	B3	C2	A3	D1	B2	A2	C1	B1	A1	GATE SET.
GRAN. SUPER PHOS.	NO	52	60	71	73	84	87	93	99	107	111	113	120	126	131	134	154	177	181	188	197	209	214	221	240	255	274	283	326	333	393	453	2
HIGH ANAL. FERT.	NO	36	42	49	51	58	60	65	69	74	77	79	83	88	91	93	107	123	126	131	137	145	149	154	167	177	190	197	227	231	273	315	2
UREA	NO	20	23	28	28	32	34	36	38	42	43	44	47	49	51	52	60	69	70	73	77	81	83	86	93	99	106	110	127	130	153	176	1
WHEAT & PEAS	COARSE	7	8	10	10	11	12	13	13	14	15	15	16	17	18	18	21	24	25	25	27	28	29	30	33	34	37	38	44	45	53	61	W,2.P,3.
	NO	30	35	41	42	49	50	54	57	62	64	66	70	74	76	78	90	103	106	109	115	122	125	129	140	148	159	165	190	194	229	264	
OATS & RICE	COARSE	4	5	6	6	7	7	8	8	9	9	10	10	11	11	11	13	15	16	16	17	18	18	19	21	22	23	24	28	28	33	39	2
	NO	17	19	23	24	27	28	30	32	35	36	37	39	41	42	43	50	57	59	61	64	68	69	72	78	82	89	92	106	108	127	147	
BARLEY	COARSE	5	6	7	7	8	8	9	10	10	10	11	11	12	12	13	15	17	17	18	19	20	20	21	23	24	26	27	31	32	38	43	2
	NO	20	23	28	29	33	34	36	39	42	43	44	47	49	51	52	60	69	71	74	77	82	84	87	94	100	107	111	128	130	154	177	
LUPIN & SOYBEAN	NO	40	47	55	57	65	68	72	77	83	86	88	93	98	102	104	120	137	141	146	153	162	166	172	186	198	213	220	253	259	305	352	3
SORGHUM	FINE	4	5	6	6	7	7	7	8	8	8	9	9	10	10	10	12	14	14	15	15	16	17	17	19	20	21	22	25	26	31	35	1
MILLET & CANARY	FINE	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	9	9	10	10	11	11	11	12	13	14	15	17	17	20	23	1
SUNFLOWER	NO	7	9	10	10	12	12	13	14	15	16	16	17	18	19	19	22	25	26	27	28	30	30	31	34	36	39	40	46	47	56	65	2
LINSEED	NO	14	16	19	20	23	24	25	27	29	30	31	33	34	36	36	42	48	49	51	54	57	58	60	65	69	74	77	89	91	107	123	1
LUCERNE & CANOLA	FINE	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	11	11	12	13	14	15	16	17	18	19	20	21	22	23	27	30	1
RYE GRASS	FINE	2	2	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	5	6	6	6	7	7	7	8	8	9	9	10	11	13	1
RYE GRASS	NO	10	10	15	15	15	15	15	20	20	20	20	20	20	25	25	25	25	25	30	30	30	35	35	35	40	40	45	45	50	55	65	1

NO RESTRICTOR RESTRICTOR RESTRICTOR

FLUTED ROLLER DISTRIBUTOR



PEG TOOTH ROLLER DISTRIBUTOR



When lower sowing rates are required use restrictor.
Factors are:- COARSE = UNRESTRICTED x .25
FINE = UNRESTRICTED x .2
Grain or fertilizer can be sown from either the front or rear compartment. If grain or fertilizer is sown from both compartments, the sum of feed rates selected from each compartment should equal total rate required.

This implement delivers similar VOLUME of all materials.
Sowing rates in kg/ha vary in proportion to density (kg/L) of materials.
Sowing rates for unlisted materials may be estimated as follows:-

$$\text{rate for wheat} \times \frac{\text{kg/L (for material)}}{\text{.8 (kg/L for wheat)}}$$

NOTES

Shearer
FINEST IN THE FIELD

SEPTEMBER 2013

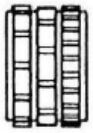
3.0M PASTURE DRILL GRAIN & FERTILIZER CHART - Sowing at 155.5mm spacing.
TO SUIT INFINITELY VARIABLE GEARBOX

P/No. 43875

QUANTITIES SHOWN ARE IN KG/HA AND ARE APPROXIMATE ONLY.
CHECK IN FIELD WHEN SOWING COMMENCES

GEARBOX SETTINGS		0	10	20	30	40	50	60	70	80	90	100	GATE SET
GRAN. SUPER PHOS.	NO	0	45	91	136	182	227	273	318	364	409	454	2
HIGH ANAL. FERT.	NO	0	32	63	95	126	158	190	221	253	284	316	2
UREA	NO	0	18	35	53	71	88	106	124	141	159	177	1
WHEAT & PEAS	COARSE	0	6	12	18	24	31	37	43	49	55	61	W, 2.P,3.
	NO	0	26	53	79	106	132	159	185	212	238	265	
OATS & RICE	COARSE	0	4	8	12	16	20	23	27	31	35	39	2
	NO	0	15	29	44	59	74	88	103	118	133	147	
BARLEY	COARSE	0	4	9	13	17	22	26	30	35	39	43	2
	NO	0	18	36	53	71	89	107	124	142	160	178	
LUPIN & SOYBEAN	NO	0	35	71	106	141	177	212	247	283	318	353	3
SORGHUM	FINE	0	4	7	11	14	18	21	25	28	32	35	1
MILLET & CANARY	FINE	0	2	5	7	9	12	14	16	18	21	23	1
SUNFLOWER	NO	0	7	13	20	26	33	39	46	52	59	65	2
LINSEED	NO	0	12	25	37	49	62	74	86	99	111	123	1
LUCERNE & CANOLA	FINE	0	3	6	9	12	15	18	21	24	27	30	1
RYE GRASS	NO	0	7	13	20	26	33	39	46	52	59	65	1
RYE GRASS	COARSE	0	2	3	5	7	8	10	11	13	15	16	1
RYE GRASS	FINE	0	1	3	4	5	7	8	9	10	12	13	1

NO RESTRICTOR



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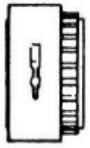
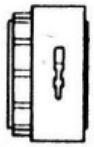


FINE

RESTRICTOR



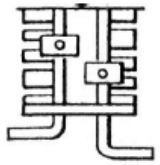
COARSE

FLUTED ROLLER DISTRIBUTOR

When lower sowing rates are required use restrictor.
Factors are:- COARSE = UNRESTRICTED x 0.25
FINE = UNRESTRICTED x 0.2

Grain or fertilizer can be sown from either the front or rear compartment. If grain or fertilizer is sown from both compartments, the sum of feed rates selected from each compartment should equal total rate required.

PEG TOOTH ROLLER DISTRIBUTOR



This implement delivers similar VOLUME of all materials.
Sowing rates in kg/ha vary in proportion to density (kg/L) of materials.
Sowing rates for unlisted materials may be estimated as follows:-

$$\text{rate for wheat} \times \frac{\text{kg/L (for material)}}{\text{.8 (kg/L for wheat)}}$$

NOTES

Shearer
FINEST IN THE FIELD

DECEMBER 2014

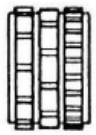
3.0M PASTURE DRILL GRAIN & FERTILIZER CHART - Sowing at 127mm spacing.
TO SUIT INFINITELY VARIABLE GEARBOX

P/No. 44204

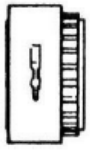
QUANTITIES SHOWN ARE IN KG/HA AND ARE APPROXIMATE ONLY.
CHECK IN FIELD WHEN SOWING COMMENCES

GEARBOX SETTINGS		0	10	20	30	40	50	60	70	80	90	100	GATE SET
GRAN. SUPER PHOS.	NO	0	56	111	167	222	278	334	389	445	501	556	2
HIGH ANAL. FERT.	NO	0	39	77	116	155	193	232	271	309	348	387	2
UREA	NO	0	22	43	65	86	108	130	151	173	194	216	1
WHEAT & PEAS	COARSE	0	7	15	22	30	37	45	52	60	67	75	W, 2.P,3.
	NO	0	32	65	97	130	162	194	227	259	292	324	
OATS & RICE	COARSE	0	5	10	14	19	24	29	34	38	43	48	2
	NO	0	18	36	54	72	90	108	126	144	162	180	
BARLEY	COARSE	0	5	11	16	21	26	32	37	42	48	53	2
	NO	0	22	43	65	87	109	130	152	174	196	217	
LUPIN & SOYBEAN	NO	0	43	86	130	173	216	259	302	346	389	432	3
SORGHUM	FINE	0	4	9	13	17	21	26	30	34	39	43	1
MILLET & CANARY	FINE	0	3	6	8	11	14	17	20	23	25	28	1
SUNFLOWER	NO	0	8	16	24	32	40	48	56	64	72	80	2
LINSEED	NO	0	15	30	45	60	75	91	106	121	136	151	1
LUCERNE & CANOLA	FINE	0	4	7	11	15	18	22	26	29	33	37	1
RYE GRASS	NO	0	8	16	24	32	40	48	56	64	72	80	1
RYE GRASS	COARSE	0	2	4	6	8	10	12	14	16	18	20	1
RYE GRASS	FINE	0	2	3	5	6	8	10	11	13	14	16	1

NO RESTRICTOR

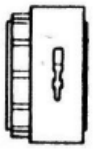


RESTRICTOR



FINE

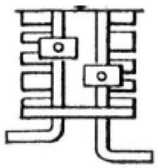
RESTRICTOR



COARSE

FLUTED ROLLER DISTRIBUTOR

PEG TOOTH ROLLER DISTRIBUTOR



When lower sowing rates are required use restrictor.
Factors are:- COARSE = UNRESTRICTED x 0.25
FINE = UNRESTRICTED x 0.2

Grain or fertilizer can be sown from either the front or rear compartment. If grain or fertilizer is sown from both compartments, the sum of feed rates selected from each compartment should equal total rate required.

This implement delivers similar VOLUME of all materials. Sowing rates in kg/ha vary in proportion to density (kg/L) of materials.

Sowing rates for unlisted materials may be estimated as follows:-

$$\text{rate for wheat} \times \frac{\text{kg/L (for material)}}{\text{.8 (kg/L for wheat)}}$$

NOTES

FINEST IN THE FIELD

FEBRUARY 2015

3.5M PASTURE DRILL GRAIN & FERTILIZER CHART - Sowing at 150mm spacing.

P/No. 44323

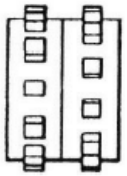
TO SUIT 31 SPEED JSL GEARBOX

QUANTITIES SHOWN ARE IN KG/HA AND ARE APPROXIMATE ONLY.
CHECK IN FIELD WHEN SOWING COMMENCES

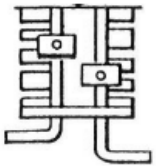
GEARBOX SETTING		F6	F5	F4	E6	E5	F3	D6	E4	D5	F2	C6	E3	D4	C5	B6	A6	A5	B4	C3	D2	A4	E1	B3	C2	A3	D1	B2	A2	C1	B1	A1	GATE SET.
GRAN. SUPER PHOS.	NO	53	61	73	75	86	89	95	101	109	114	116	123	129	134	137	158	181	185	192	202	214	219	226	246	261	280	290	333	341	402	463	2
HIGH ANAL. FERT.	NO	37	43	50	52	59	61	66	71	76	79	81	85	90	93	95	109	126	129	134	140	148	152	158	171	181	194	202	232	236	279	322	2
UREA	NO	20	24	29	29	33	35	37	39	43	44	45	48	50	52	53	61	71	72	75	79	83	85	88	95	101	108	113	130	133	157	180	1
WHEAT & PEAS	COARSE	7	8	10	10	11	12	13	13	14	15	15	16	17	18	18	21	25	26	26	28	29	30	31	34	35	38	39	45	46	54	62	W,2.P,3.
	NO	31	36	42	43	50	51	55	58	63	65	68	72	76	78	80	92	105	108	112	118	125	128	132	143	151	163	169	194	198	234	270	
OATS & RICE	COARSE	4	5	6	6	7	7	8	8	9	9	10	10	11	11	11	13	15	16	16	17	18	18	19	21	23	24	25	29	29	34	40	2
	NO	17	19	24	25	28	29	31	33	36	37	38	40	42	43	44	51	58	60	62	65	70	71	74	80	84	91	94	108	110	130	150	
BARLEY	COARSE	5	6	7	7	8	8	9	10	10	10	11	11	12	12	13	15	17	17	18	19	20	20	21	24	25	27	28	32	33	39	44	2
	NO	20	24	29	30	34	35	37	40	43	44	45	48	50	52	53	61	71	73	76	79	84	86	89	96	102	109	114	131	133	158	181	
LUPIN & SOYBEAN	NO	41	48	56	58	66	70	74	79	85	88	90	95	100	104	106	123	140	144	149	157	166	170	176	190	203	218	225	259	265	312	360	3
SORGHUM	FINE	4	5	6	6	7	7	7	8	8	8	9	9	10	10	10	12	14	14	15	15	16	17	17	19	20	21	23	26	27	32	36	1
MILLET & CANARY	FINE	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	9	9	10	10	11	11	11	12	13	14	15	17	17	20	24	1
SUNFLOWER	NO	7	9	10	10	12	12	13	14	15	16	16	17	18	19	19	23	26	27	28	29	31	31	32	35	37	40	41	47	48	57	66	2
LINSEED	NO	14	16	19	20	24	25	26	28	30	31	32	34	35	37	37	43	49	50	52	55	58	59	61	66	71	76	79	91	93	109	126	1
LUCERNE & CANOLA	FINE	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	11	11	12	13	14	15	16	17	18	19	20	21	23	24	28	31	1
RYE GRASS	NO	10	10	15	15	15	15	15	20	20	20	20	20	20	26	26	26	26	26	31	31	31	36	36	36	41	41	46	46	51	56	66	1
	COARSE	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	8	8	8	9	9	9	10	10	12	12	13	14	17	1
	FINE	2	2	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	5	6	6	6	7	7	7	8	8	9	9	10	11	13	1

NO RESTRICTOR RESTRICTOR RESTRICTOR

FLUTED ROLLER DISTRIBUTOR



PEG TOOTH ROLLER DISTRIBUTOR



When lower sowing rates are required use restrictor.

Factors are:- COARSE = UNRESTRICTED x .25
FINE = UNRESTRICTED x .2

Grain or fertilizer can be sown from either the front or rear compartment. If grain or fertilizer is sown from both compartments, the sum of feed rates selected from each compartment should equal total rate required.

This implement delivers similar VOLUME of all materials.
Sowing rates in kg/ha vary in proportion to density (kg/L) of materials.
Sowing rates for unlisted materials may be estimated as follows:-

$$\text{rate for wheat} \times \frac{\text{kg/L (for material)}}{\text{.8 (kg/L for wheat)}}$$

NOTES

FINEST IN THE FIELD

FEBRUARY 2015

3.5M PASTURE DRILL GRAIN & FERTILIZER CHART - Sowing at 150mm spacing.

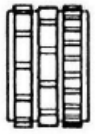
P/No. 44322

TO SUIT INFINITELY VARIABLE GEARBOX

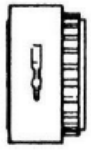
QUANTITIES SHOWN ARE IN KG/HA AND ARE APPROXIMATE ONLY.
CHECK IN FIELD WHEN SOWING COMMENCES

GEARBOX SETTINGS		0	10	20	30	40	50	60	70	80	90	100	GATE SET
GRAN. SUPER PHOS.	NO	0	46	93	139	185	232	278	324	371	417	463	2
HIGH ANAL. FERT.	NO	0	32	64	97	129	161	193	226	258	290	322	2
UREA	NO	0	18	36	54	72	90	108	126	144	162	180	1
WHEAT & PEAS	COARSE	0	6	12	19	25	31	37	44	50	56	62	W, 2.P,3.
	NO	0	27	54	81	108	135	162	189	216	243	270	
OATS & RICE	COARSE	0	4	8	12	16	20	24	28	32	36	40	2
	NO	0	15	30	45	60	75	90	105	120	135	150	
BARLEY	COARSE	0	4	9	13	18	22	26	31	35	40	44	2
	NO	0	18	36	54	72	91	109	127	145	163	181	
LUPIN & SOYBEAN	NO	0	36	72	108	144	180	216	252	288	324	360	3
SORGHUM	FINE	0	4	7	11	14	18	21	25	29	32	36	1
MILLET & CANARY	FINE	0	2	5	7	9	12	14	16	19	21	24	1
SUNFLOWER	NO	0	7	13	20	27	33	40	47	53	60	66	2
LINSEED	NO	0	13	25	38	50	63	75	88	101	113	126	1
LUCERNE & CANOLA	FINE	0	3	6	9	12	15	18	21	25	28	31	1
	NO	0	7	13	20	27	33	40	47	53	60	66	1
RYE GRASS	COARSE	0	2	3	5	7	8	10	12	13	15	17	1
	FINE	0	1	3	4	5	7	8	9	11	12	13	1

NO RESTRICTOR

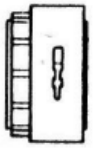


RESTRICTOR



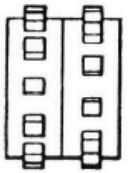
FINE

RESTRICTOR

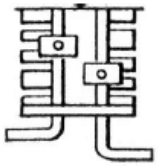


COARSE

FLUTED ROLLER DISTRIBUTOR



PEG TOOTH ROLLER DISTRIBUTOR



When lower sowing rates are required use restrictor.
Factors are:- COARSE = UNRESTRICTED x 0.25
FINE = UNRESTRICTED x 0.2

Grain or fertilizer can be sown from either the front or rear compartment. If grain or fertilizer is sown from both compartments, the sum of feed rates selected from each compartment should equal total rate required.

This implement delivers similar VOLUME of all materials.
Sowing rates in kg/ha vary in proportion to density (kg/L) of materials.
Sowing rates for unlisted materials may be estimated as follows:-

$$\text{rate for wheat} \times \frac{\text{kg/L (for material)}}{\text{.8 (kg/L for wheat)}}$$

NOTES

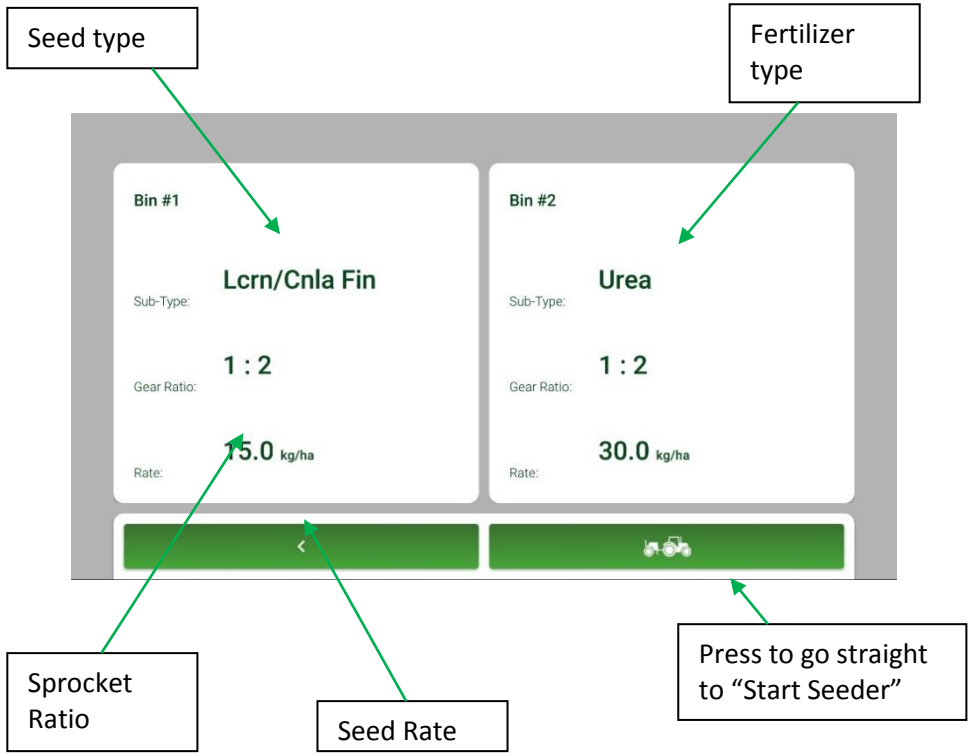
Setup and Operation

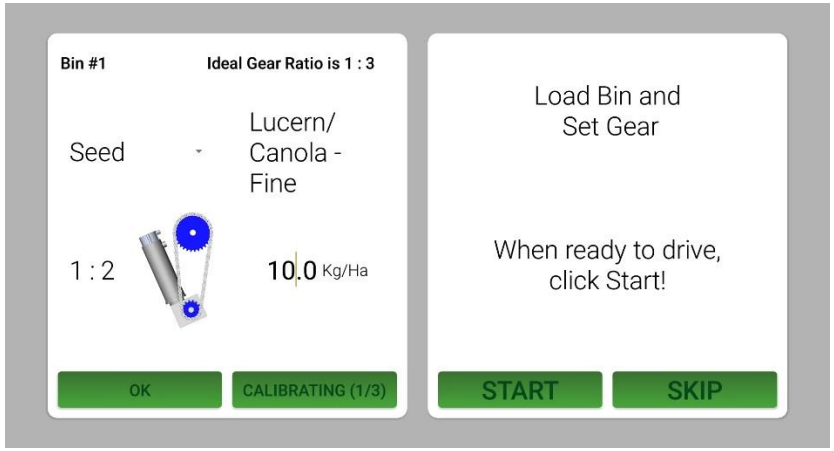
The John Shearer App on the tablet will step you through the setup. Here is a guide to how it works:

1st) Wheel Calibration:
In order to get an accurate measurement of distance and therefore an accurate rate, it is necessary to perform a wheel calibration. This should be performed before the first use of the machine or if a change is made to the wheels on the machine (such as a change in the size of wheels and/or tyres). It is *not* necessary to do this every time the machine is used.
In this process you will need to tow the machine a set number of sensor pulses which will be shown on screen. It is recommended that you perform this test at roughly the same speed as you would normally sow (typically around 8km/h), although it is best to slow down towards the end of the count down, in order to stop accurately at a sensor pulse.

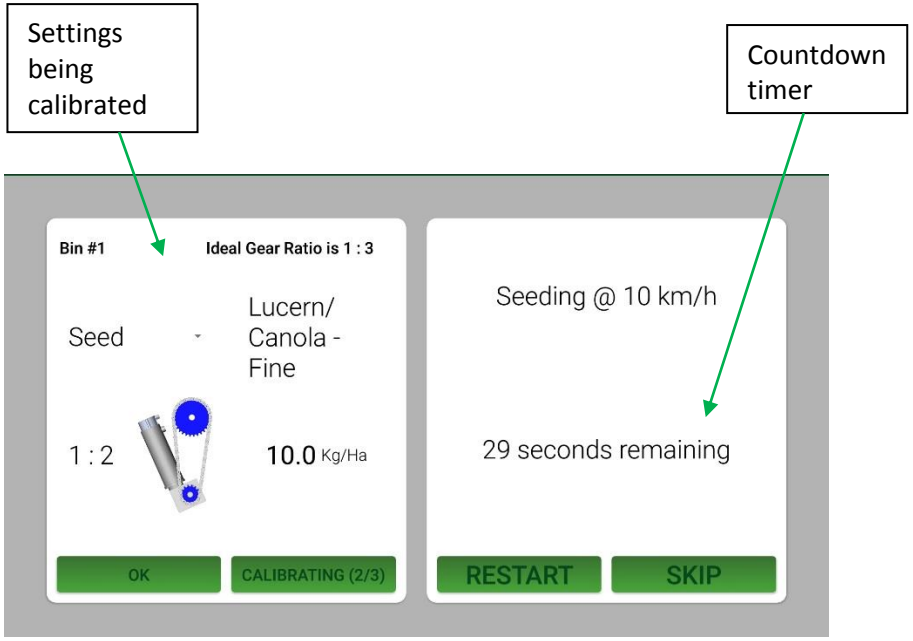
2nd) Seed calibration:
Choose what seeds and/or fertilizer you want to sow first, and what rate (in kg/ha) you want to sow at. The front box (1) usually holds seed, and the rear (2) fertilizer. In "Configure Bins" you can choose these variables and perform a calibration.

The calibration is necessary since not all seeds are the same (for example, wheat from one bag may not be the same as another, due to the size of the grains, moisture content and other factors). The machine remains stationary through this process. The ratio of the drive sprockets is important as it will affect the output. These ratios can be changed to allow for particularly low or high rates to be achieved (see table below). Performing this calibration regularly will help maintain an accurate rate.

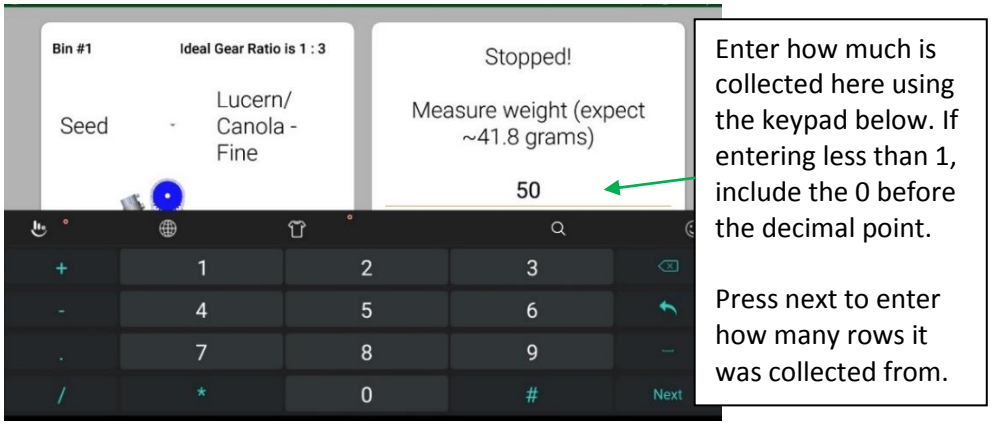




On this page select the type of seed or fertilizer, the seeding rate and the sprocket ratio (note: the image helps to identify where the sprockets are positioned). When these have been entered, the box is full and you are ready to collect the product, press “Start”. You can collect the product for as many rows as you like (more rows is more accurate). It is recommended to collect from at least 3 rows.



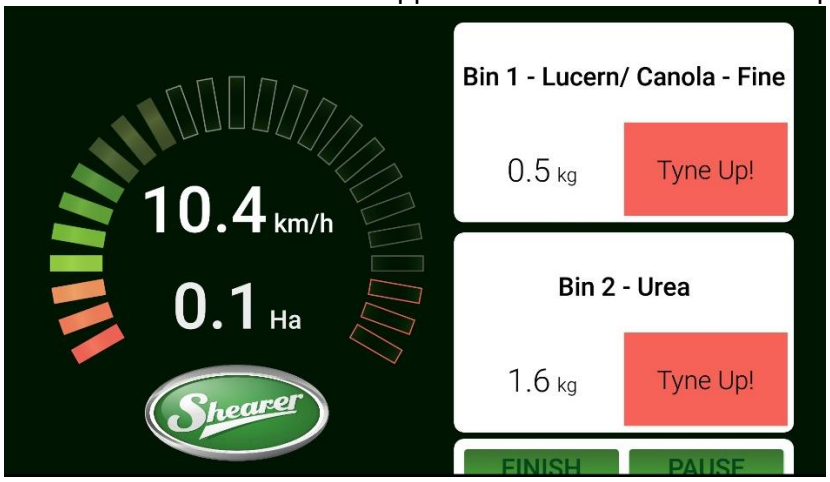
The motor will turn and the screen will show a countdown equating to 100m of travel at 10km/h.



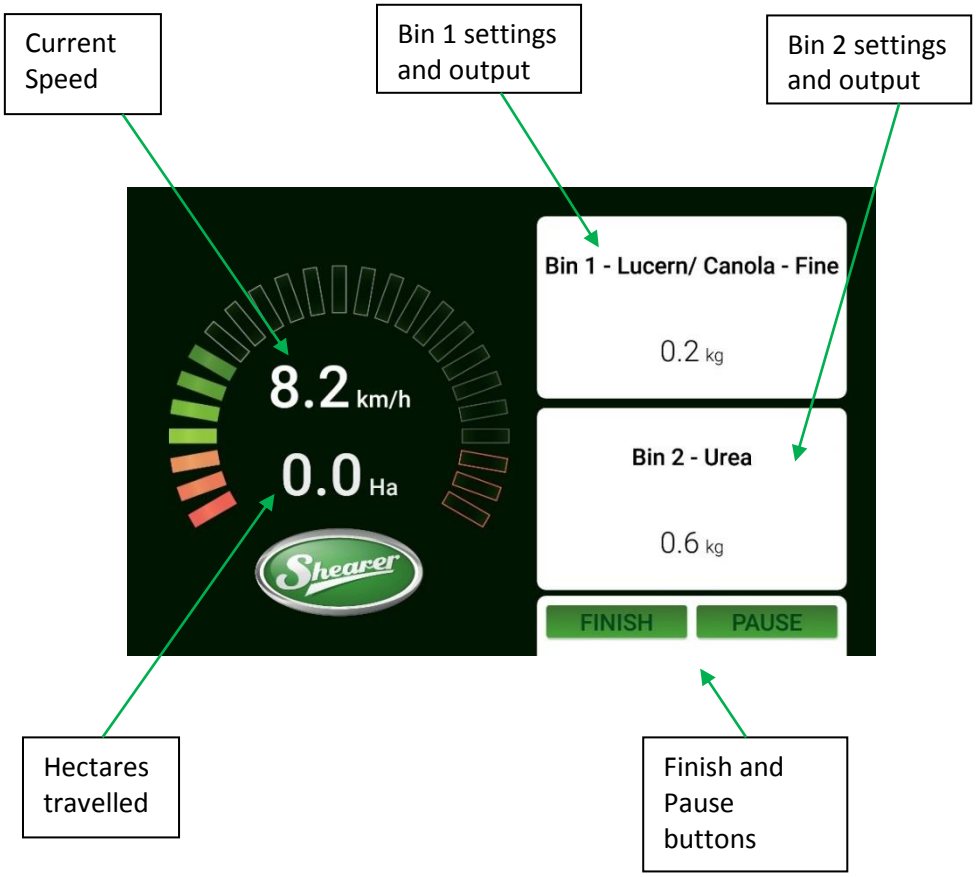
When the calibration stops, enter the amount of grain collected and how many rows it was collected from.

3rd) Operation:

Go to the “Start Seeder” screen – when the machine is lifted out of the ground you will see a warning on the screen to that effect. When you lower the machine into the ground, this warning will disappear and sowing can commence. Ensure the hopper is filled with the calibrated products.

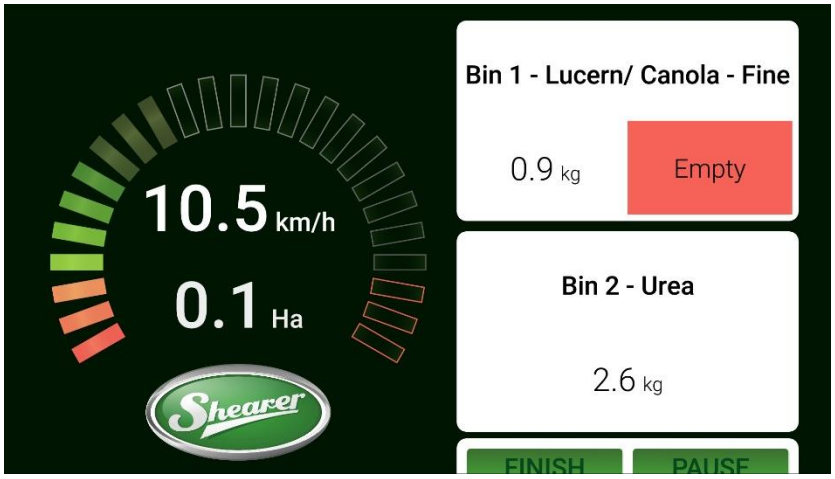


Press the run button on the screen to start sowing. The display will show the distance covered in hectares and the amount of product that has been distributed in the current run. Seeding will automatically stop when the machine stops (or drops below 3km/h) to conserve product. You can also adjust rates up and down on this screen.



If the incorrect sprocket ratio has been selected for the product, or you are driving too fast, you may see a warning like this:

This means that the limits of the motor have been exceeded. The solutions could be to either drive slower or to calibrate with a more acceptable sprocket ratio for the selected rate. If seeding continues with this warning, the rate accuracy will be affected.



On machines with bin level sensors, “empty” will show up when a bin is very low.

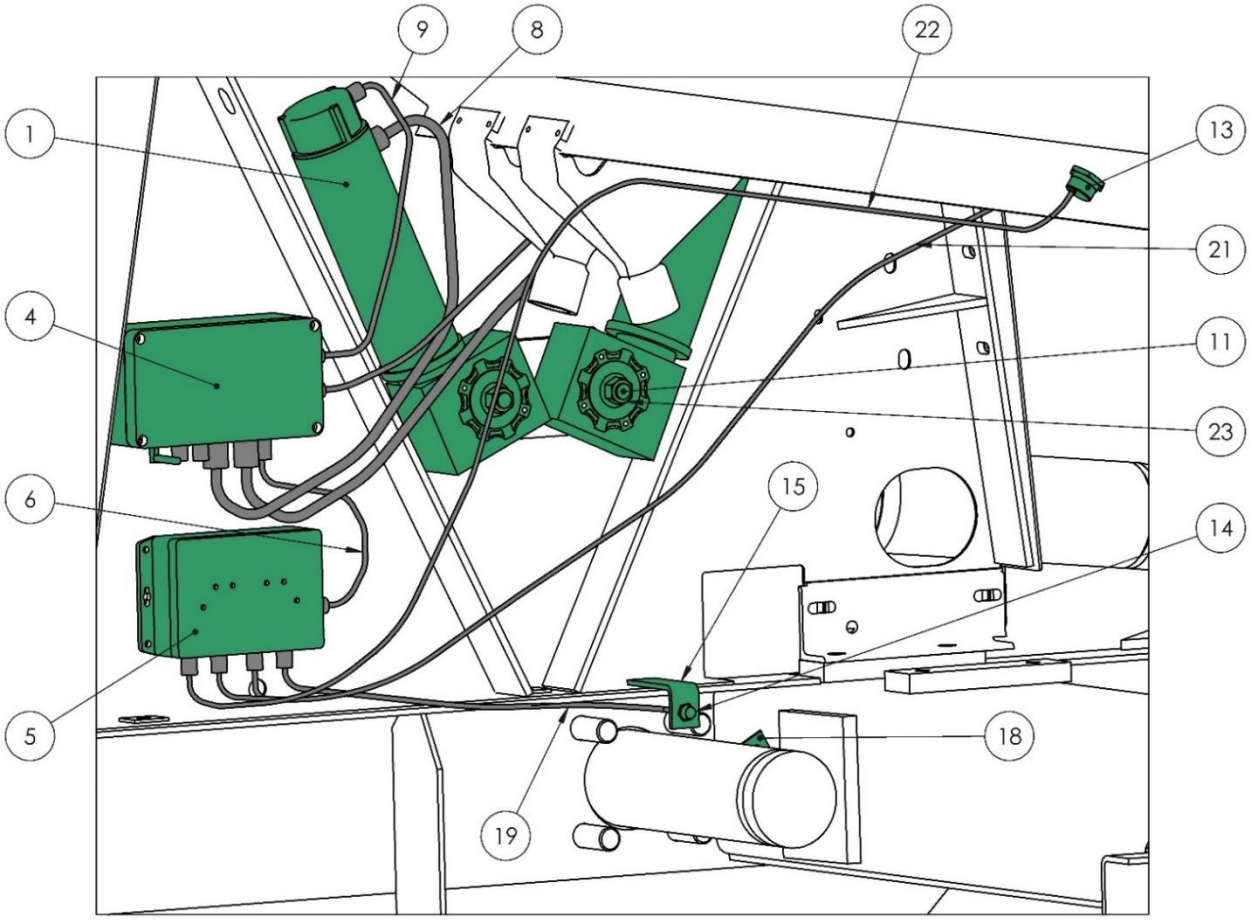
Electric Drive Guideline chart

ratio	**1 : 3**	**1 : 2**	**1 : 1**	**2 : 1**	**3 : 1**
Ideal	medium high rate small seeds (such as canola) very low rate medium seeds (wheat, rye)	medium rate small seeds	medium rate medium seeds	very high rate medium seeds	
Acceptable	low rate small seeds (such as canola)	low rate medium seeds	medium rate small seeds	medium rate medium seeds	very high rate medium seeds
Not Recommended	medium high rate medium seeds	medium to high rate medium seeds low or high rate small seeds	high rate medium seeds (especially with no restrictor) any seeds at low rate	low rate medium seeds	small seeds low rate medium seeds

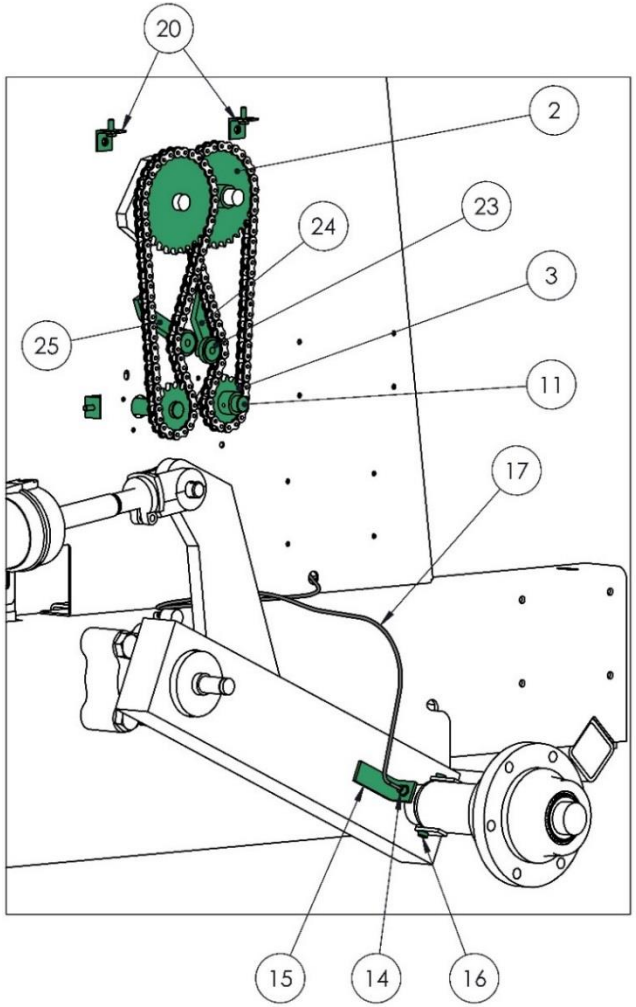
GATE SETTINGS

PRODUCT	GATE SETTING
GRANULAR SUPER PHOSPHATE	2
HIGH ANALYSIS FERT.	2
UREA (granular)	2
WHEAT	2
PEAS	3
OATS	2
RICE	2
BARLEY	2
LUPIN	3
SOYBEAN	3
SORGHUM	1
MILLET	1
CANARY	1
SUNFLOWER	2
LINSEED	1
LUCERNE	1
CANOLA	1
RYE GRASS	1

ELECTRIC DRIVE COMPONENTS



INSIDE VIEW



OUTSIDE VIEW

ELECTRIC DRIVE COMPONENTS

ITEM	Part No	DESCRIPTION	QTY.	ITEM	Part No	DESCRIPTION	QTY.
1	44977	MOTOR ASSEMBLY	2		19431	SETSCREW, M10x25	2
2	46370	SPROCKET, 30T	2		FBW4	WASHER, 10mm	2
3	46371	SPROCKET, 15T	2	24	46378	TENSIONER - DRIVE	1
4	46445	BOX, MAIN CONTROL	1		18805	SETSCREW, M12x30	1
5	46446	BOX ASSY, SPLITTER	1		18414	NUT, M12	1
6	-	CABLE, LINK (PART OF 46446)	1		FBW6	WASHER, 12mm	1
7	-	CABLE, MOTOR (PART OF 44977)	1	25	46378	TENSIONER - DRIVE	1
8	-	CABLE, MOTOR (PART OF 44977)	1		18805	SETSCREW, M12x30	1
9	-	CABLE, ENCODER (PART OF 44977)	1		18414	NUT, M12	1
10	-	CABLE, ENCODER(PART OF 44977)	1		FBW6	WASHER, 12mm	1
11	45927	SHAFT, MOTOR	2				
12	46351	GUARD, ELECTRIC DRIVE (NOT SHOWN)	1				
13	46013	SENSOR, BIN LEVEL	2			EXTRA/ALTERNATE SPROCKETS	
14	44975	SENSOR, HALL EFFECT	2		46372	SPROCKET, 10T (FOR USE ON 3 : 1 RATIO)	2
15	46356	BRACKET, SENSOR	2		46371	SPROCKET, 15T (FOR USE ON 1 : 1 RATIO)	2
16	46359	MAGNET	3				
17	-	CABLE, WHEEL SENSOR (PART OF 44975)	1				
18	46355	BRACKET, MAGNET	1				
19	-	CABLE, "TYNE-UP" (PART OF 44975)	1				
20	26147	BRACKET ASSY, SUPP'T GUARD	3				
21	-	CABLE, BIN LEVEL (PART OF 46013)	1				
22	-	CABLE, BIN LEVEL (PART OF 46013)	1				
23	18668	ROLLER, NYLON	2				

TROUBLE SHOOTING

PROBLEM	**CAUSE**	**REMEDY**
DISTRIBUTORS WILL NOT TURN	Clutch not engaged (if trailing hitch kit fitted) Gearbox not engaged Gearbox shear pins broken Secondary shaft shear pins broken	Check clutch Check gearbox Replace Replace
FERTILIZER RATE VARIES	Fertiliser build-up on distributors	Clean distributor rollers
SOWING DEPTH DIFFERS FROM ONE SIDE OF THE MACHINE TO THE OTHER	Ram lug assembly not adjusted properly Hydraulic cylinders out of phase (if trailing hitch kit fitted)	Check ram lug assembly and adjust if necessary Re-phase cylinders (see page 27)
DISTRIBUTOR ROLLERS DAMAGE SEED	Gate positions are set too close	Re-adjust gate settings
IMPLEMENT KEEPS DROPPING SEED AND FERTILIZER WHEN IN THE TRANSPORT POSITION	Gate settings too wide Gate settings in cleaning out position	Re-adjust gates to recommended setting
SOWING RATE UNEVEN ACROSS GRAIN AND FERTILIZER BOX	Gate setting is unequal across box	Re-adjust gates to recommended setting

TROUBLESHOOTING - PHASING HYDRAULIC CYLINDERS

[Note: the numbers in brackets below refer to the item numbers on the hydraulics part pages (page 58 & 59)]

The two cylinders are connected in series, such that each moves together to provide a level lift of the implement.

When the implement is RAISED, oil delivered from the tractor is directed to the piston end of the master cylinder (5), oil from the rod end flows to the piston end of the next cylinder (4), and oil from the rod end of (4) flows back to tractor. The volumes of the cylinders are matched so that both cylinders extend and retract simultaneously.

To ensure that all cylinders begin work “in phase”, each cylinder has a “phasing bypass” hole in the barrel that allows a small volume of oil to pass across the piston when the cylinder is fully extended (implement fully raised).

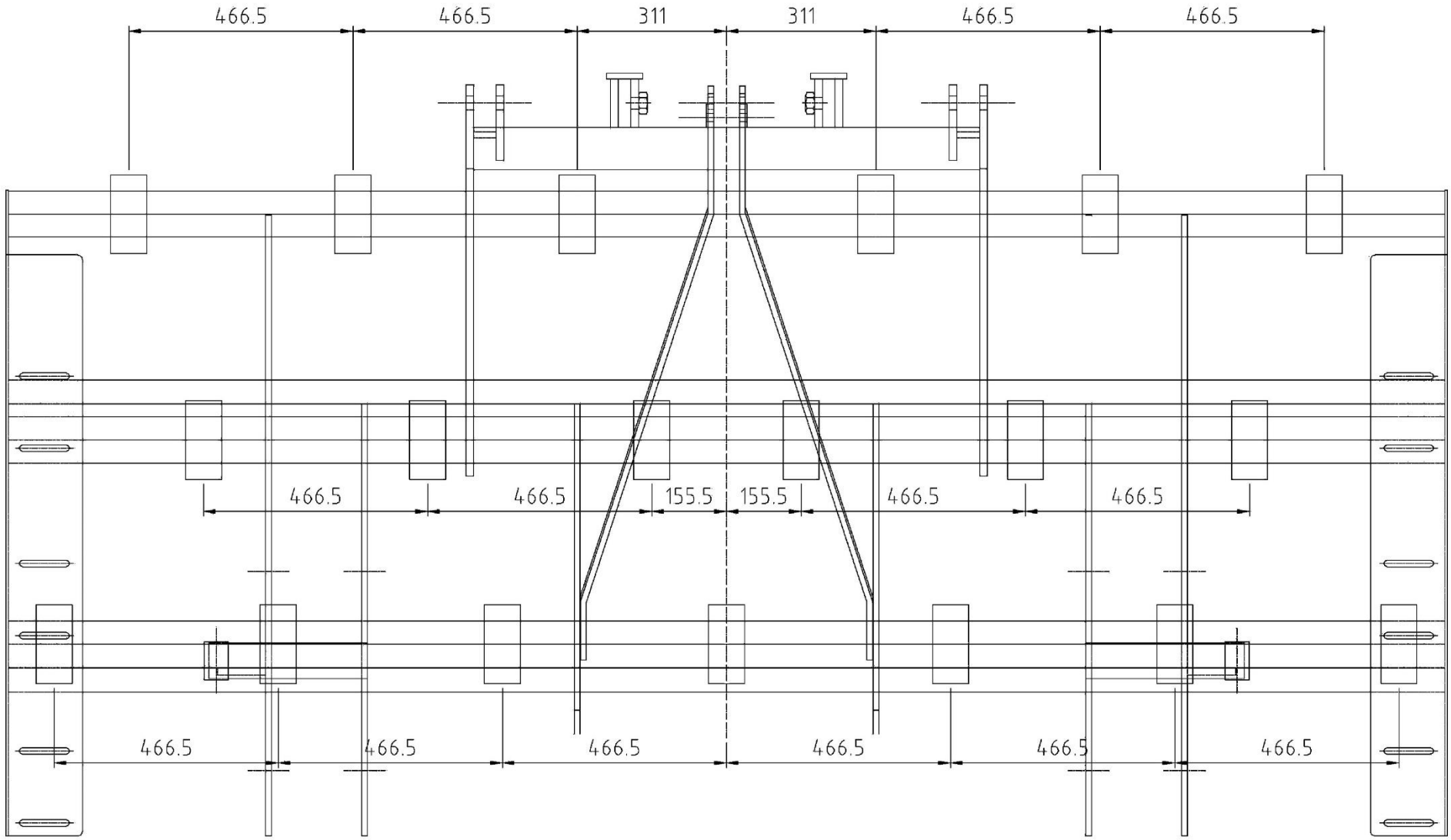
To achieve levelling of the implement (initially, or after storage, or as a result of one cylinder having an imperfect piston seal) the implement should be:
- Fully raised,
- The tractor control valve be held in the raise position with the tractor at idle (it may require holding the valve for several minutes to fully purge the system),
- All cylinders be viewed separately to ensure that they have reached full extension (cylinder travel has ceased),
- The tractor valve is then released and the implement can be lowered, levelled with the levelling screw assembly on the hitch, or transported, as required.

Should a leaking piston seal be suspected, identify cylinder by:
- Phasing the implement as above,
- Lower implement slightly, but with tynes still clear of the ground,
- Close the needle valve (16) to ensure no flow back to tractor,
- Measure the shiny rod extending from each of the cylinders,
- Leave the implement stand long enough to be able to measure any change in the dimensions measured (overnight, and not in direct sunshine is preferable).

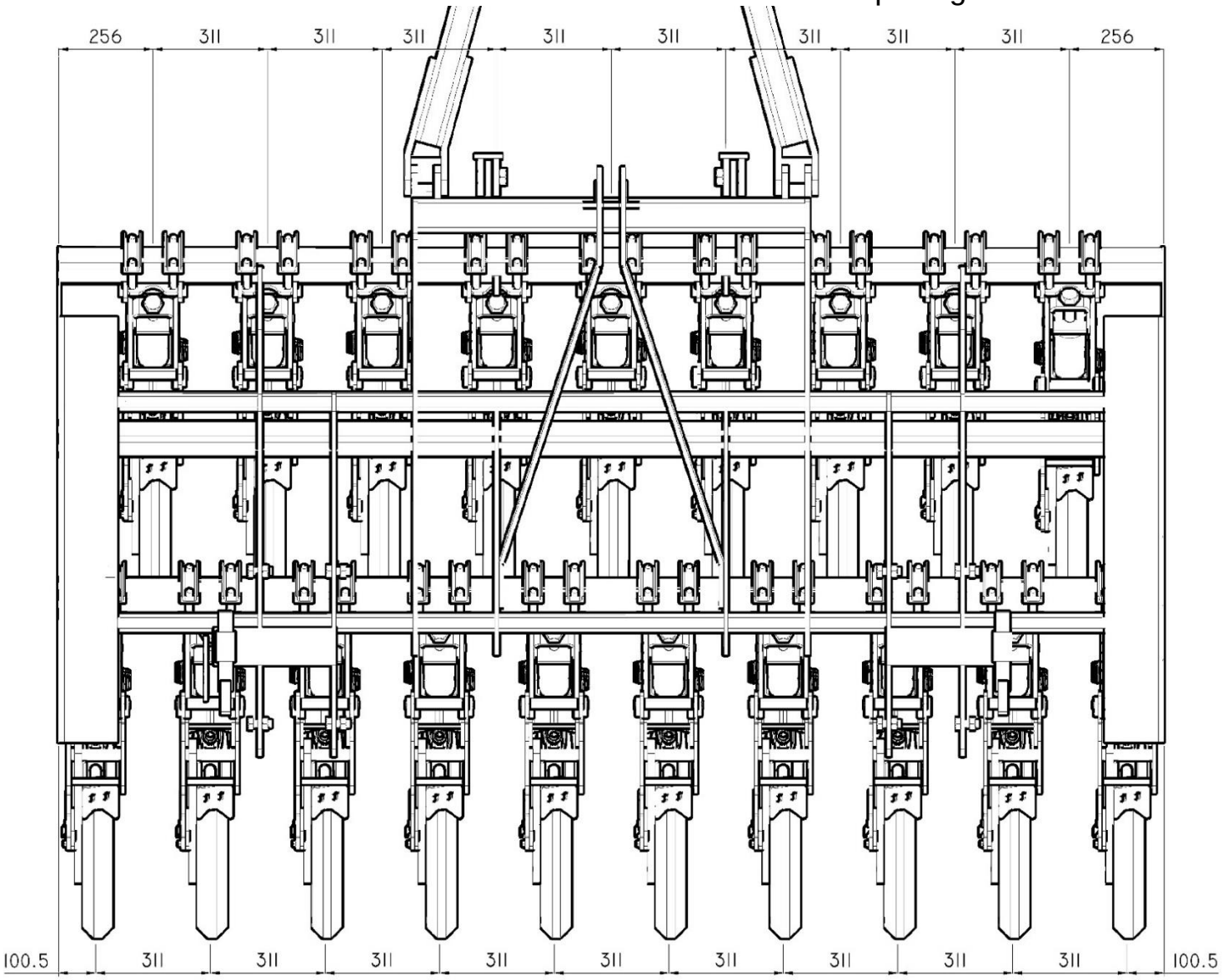
The first cylinder in the series, that has “dropped” is at fault. If only one has “dropped”, it is at fault. If both have “dropped”, the “master cylinder” (5) is at fault

This of course assumes no external leakages from any of the cylinders, or their connecting plumbing.

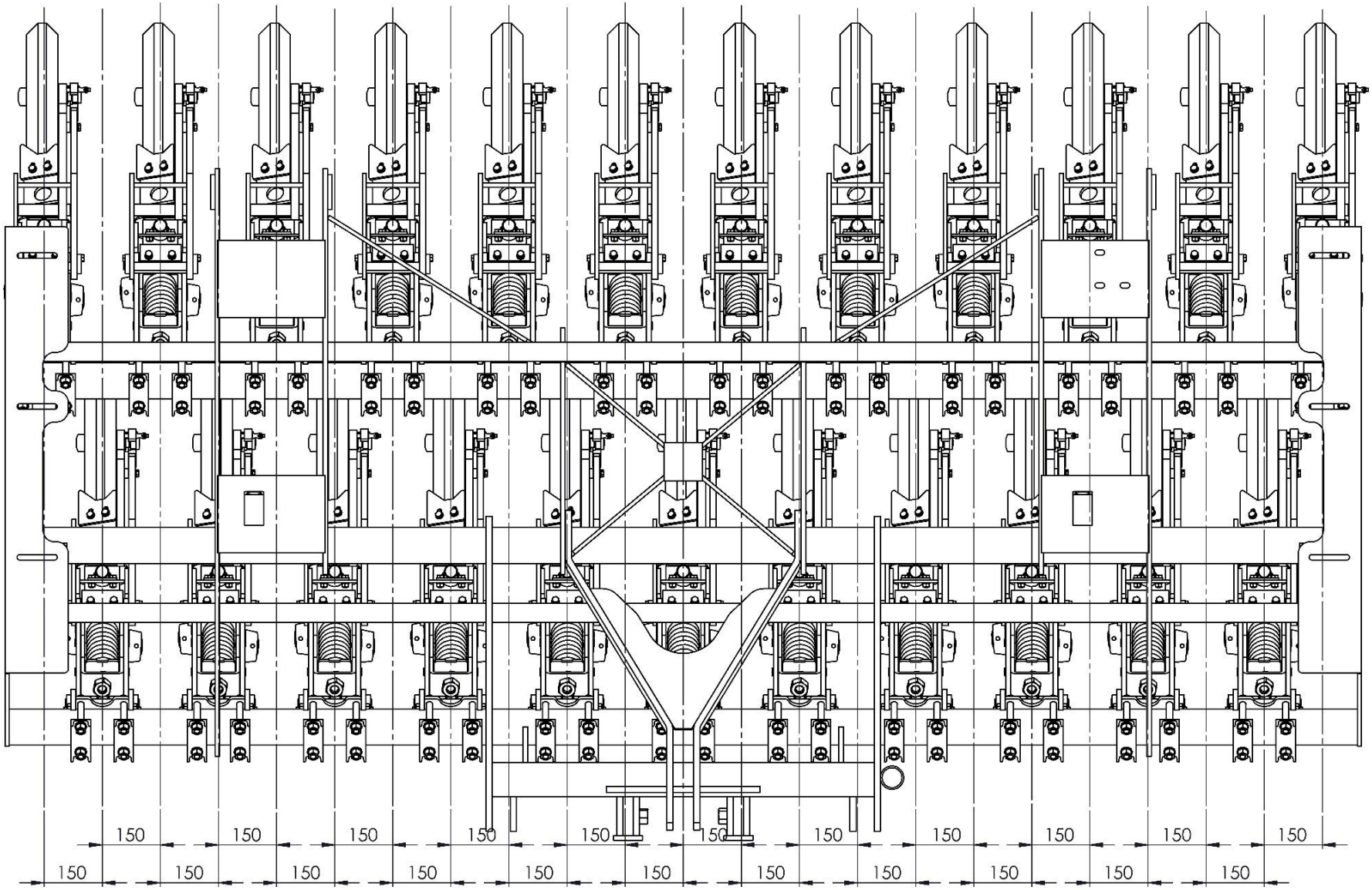
TYNE / TYNE & COULTER SPACING – 3.0m / 6” Spacing



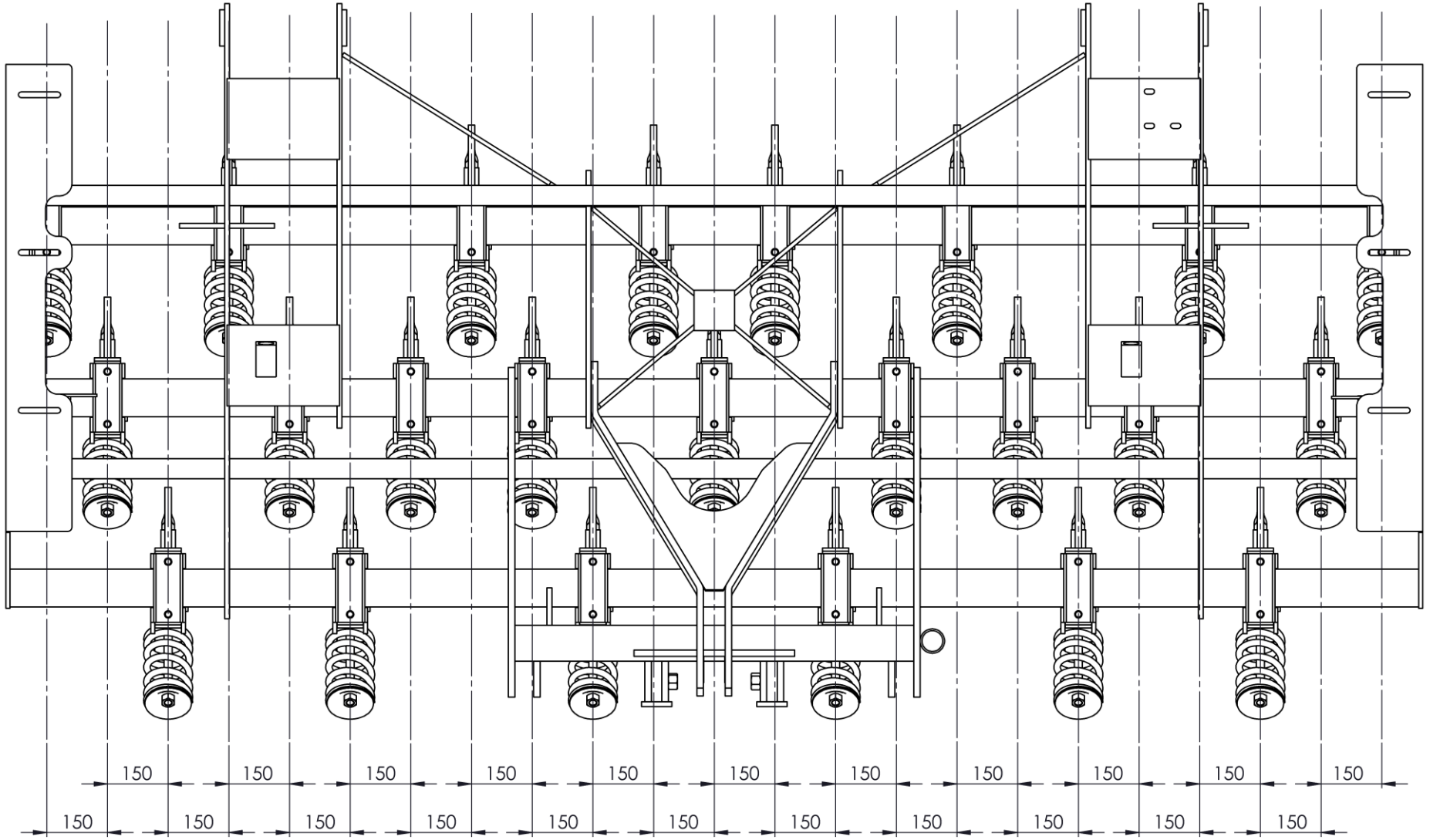
DDO DRILL - DISC SPACING – 3.0m / 6” Spacing

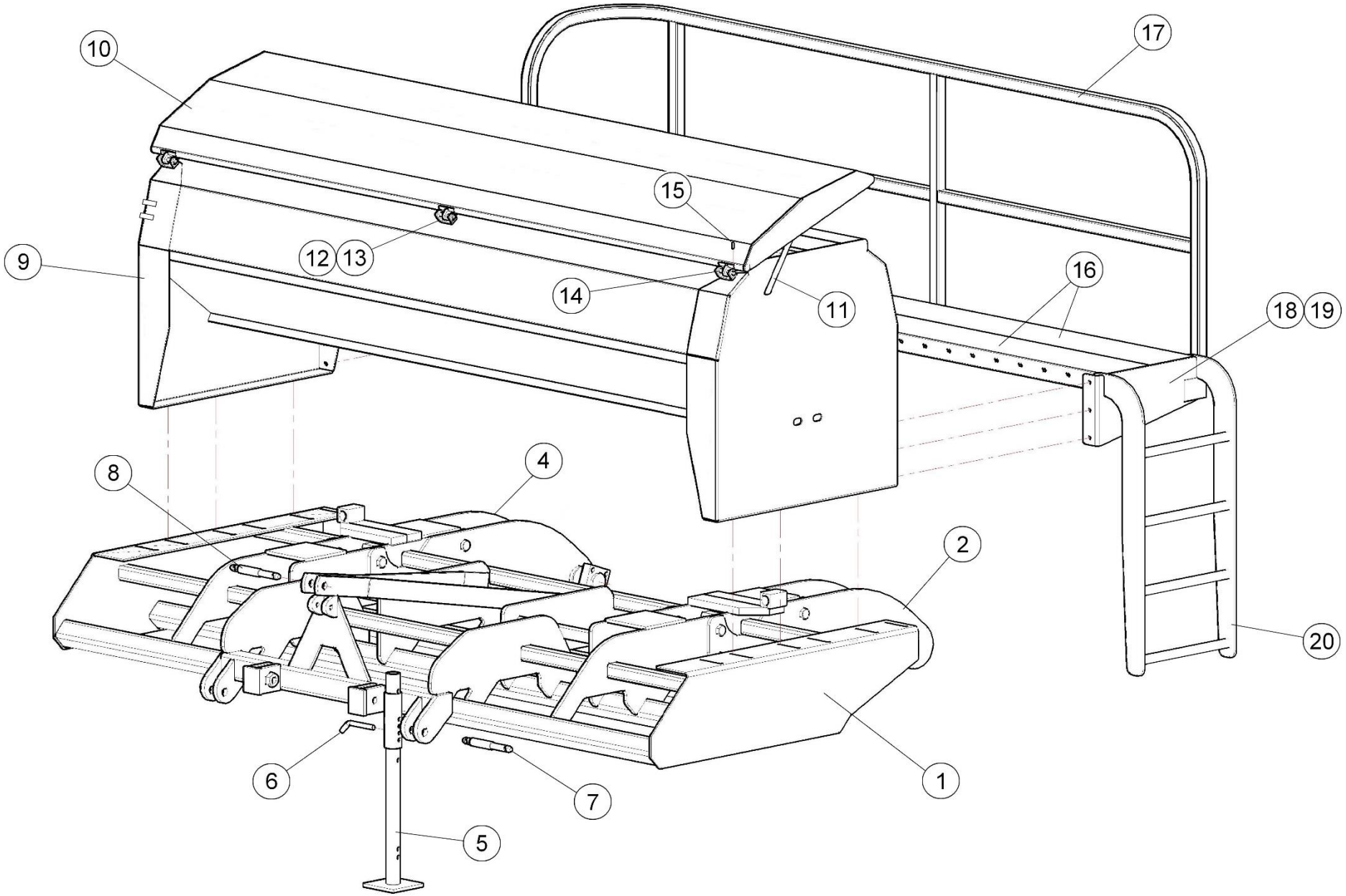


DDO DRILL - DISC SPACING – 3.5m / 6” Spacing



TYNE DRILL - TYNE SPACING – 3.5m / 6” Spacing

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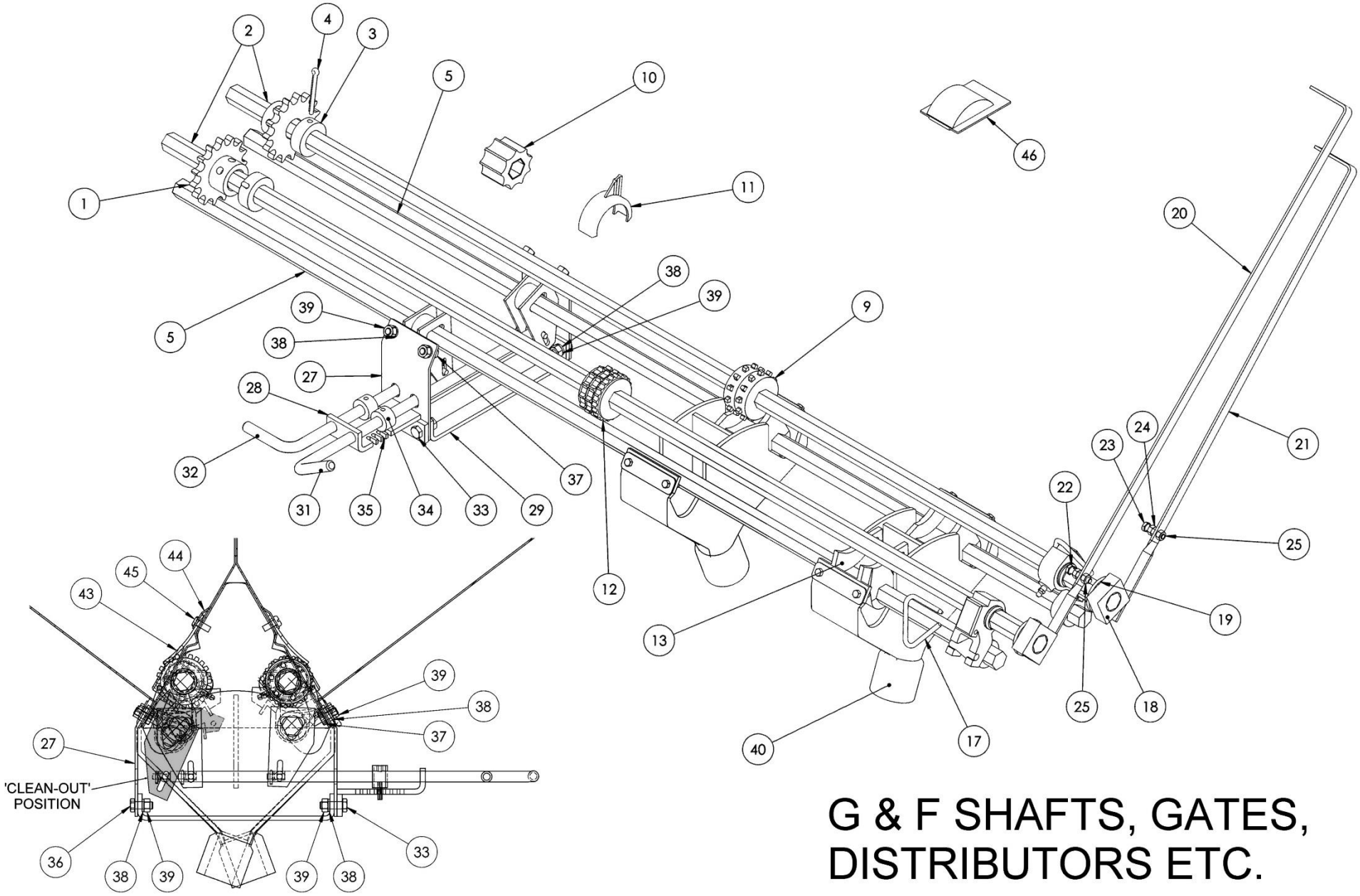
MAIN FRAME, GRAIN AND FERTILIZER BOX, PLATFORM ETC. (3.0 & 3.5 PASTURE DRILL)

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION	
1	43549	FRAME ASSY	19R (3.0 P.D.)	17	43554	HANDRAIL ASSY	3.0m PD
	44418	FRAME ASSY	23R (3.0 P.D.)		44345	HANDRAIL ASSY	3.5m PD
	44260	FRAME ASSY	23R (3.5 P.D.)	18	43594	BRACKET ASSY	Platform LH
2	43982	MOUNT ASSY	Wheel (LH)	19	43593	BRACKET ASSY	Platform RH
4	43983	MOUNT ASSY	Wheel (RH)	20	43672	LADDER ASSY	
5	34352	STAND ASSY			(44055	GRIP TAPE)	
6	H160-105	PIN	Locating	21	37590	LATCH	Draw
	H160-106	PIN	Hair		37549	SPACER	Latch
7	43618	PIN	Hitch bottom - Cat 2		37591	SCREW	C'Sunk thread M5 x 50mm
	22889	PIN	Lynch (& Clip)		33575	WASHER	Spring 5mm 3/32" x 1/16"
8	44388	PIN	Hitch top - Cat2		37999	NUT	Hex – M5 plated
	22889	PIN	Lynch (& Clip)		39625	SCREW	C'Sunk thread M5 x 20mm
9	44018	HOPPER ASSY	19R (3.0 P.D.) IV Gearbox				
	44017	HOPPER ASSY	19R (3.0 P.D.) 31 Speed				
	44141	HOPPER ASSY	23R (3.0 P.D.) IV Gearbox				
	44407	HOPPER ASSY	23R (3.0 P.D.) 31 Speed				
	44409	HOPPER ASSY	23R (3.5 P.D.) IV Gearbox				
	44411	HOPPER ASSY	23R (3.5 P.D.) 31 Speed				
	18805	BOLT	Hex M12 x 30				
	18414	NUT	Hex M12				
	17616J1	WASHER	Spring Ø12				
10	43650	LID ASSY	3.0 P.D.				
	44273	LID ASSY	3.5 P.D.				
	43547	FLAP	Dust (3.0 P.D.)				
	44417	FLAP	Dust (3.5 P.D.)				
	30748	STRIP	Retainer				
	30747	BOLT	Self Drilling #10 x 16				
11	36964	STRUT	Gas – 350N				
12	30985	HINGE ASSY	Lid				
13	30988	PACKER	Centre – Hinge				
14	30986	PIN	Hinge				
15	16945J1	PIN	Cotter Ø3.2 x 20				
16	43592	WALKWAY GRATING	3.0m PD				
	44346	WALKWAY GRATING	3.5m PD				
	942-652	BOLT	Cup Hd M8 x 90				
	18464	NUT	M8				
	989-337	CLIP	Anchorage				
	18465	WASHER	Spring M8				

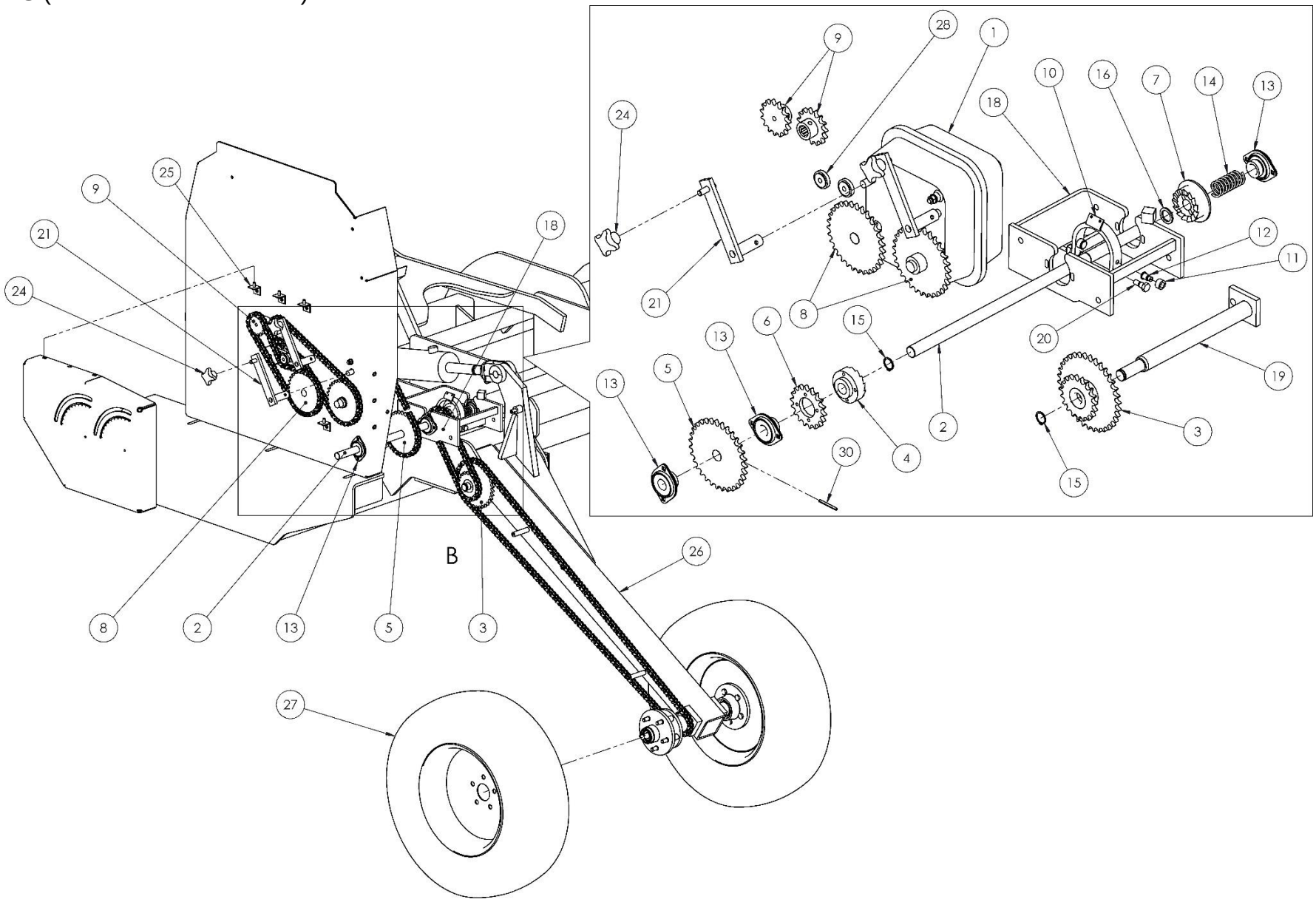


G & F SHAFTS, GATES, DISTRIBUTORS ETC.

GRAIN & FERTILIZER SHAFTS, GATES, DISTRIBUTORS ETC.

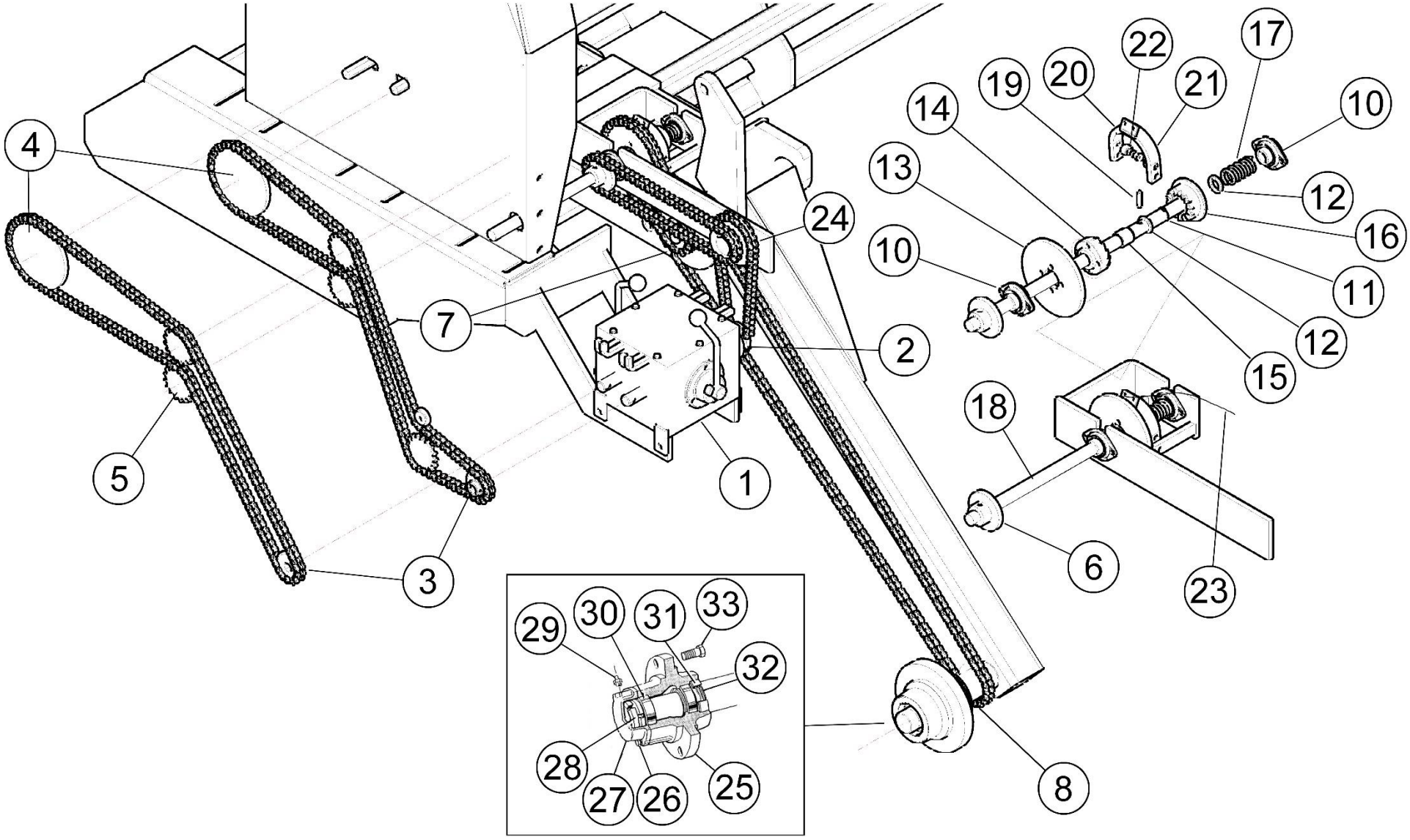
ITEM	PART No	DESCRIPTION	ITEM	PART No	DESCRIPTION
1	18802	SPROCKET ASSY, 15T	33	19151	AS 1110.2 - M8 x 25 -N
	18892	SCREW, SOC HD M10x16 CONE PT	34	18503	BUSH, ADJUSTING
2	43894	SHAFT, DIST. - 3.0m	35	18515	PIN, SELLOCK 3x20
3	18652	COLLAR, STOP - SHAFT	36	18463	BOLT, HEX - M8 x 20
4	17589J1	PIN, COTTER - 5x50mm	37	18502	BOLT, HEX - M8 x 16
5	43895	SHAFT, GATE - 19R 3.0m	38	18465	WASHER, SPRING M8
	43895B	SHAFT, GATE - 19R 3.0m	39	18464	NUT, HEX - M8
	44422	SHAFT, GATE - 23R 3.0m	40	42977	CUP, HOSE SINGLE
	44423	SHAFT, GATE - 23R 3.0m	41	35531	BOLT, HEX - M5 x 20
	44414	SHAFT, GATE - 23R 3.5m	42	37999	NUT, HEX - M5
	44415	SHAFT, GATE - 23R 3.5m	43	44417	FLAP, BOX BOTTOM - 3.5m
6	20504	LINKAGE ASSY, GATE SHAFT	44	18636	STRIP, RETAINER - FLAP (4 HOLE)
	18893	SCREW, SOC HD M8x10 CONE PT		21767	STRIP, RETAINER - FLAP (3 HOLE)
7	20680	PIN, COTTER - 2.5x12mm	45	GB7G	BOLT/NUT, GUTTER 5/8" x 1/4"
8	18647	WASHER, THICK - 6mm	46	18424	COVER, CUT-OFF - DISTRIBUTOR
9	18435	ROLLER, DISTIBUTOR - PEG			
10	31187	ROLLER ASSY, BROADBEAN			ASSEMBLIES
11	27897	RESTRICTOR, WHEEL DISTRIBUTOR			
12	32198	FLUTED ROLLER ASSY		18847	BEARING DISTRIBUTOR ASSY. COMPLETE
13	39994	GATE, DISTRIBUTOR			item 14
14	18848	BEARING, SHAFT DISTRIBUTOR			
15	18422	BUSH, SHAFT DISTRIBUTOR		18648	KIT. INDICATOR GRAIN & FERTILIZER
16	18596	NIPPLE, GREASE - SELF TAPPED			items 16 - 20
17	20525	RETAINER, BEARING			
18	18649	BLOCK, INDICATOR		23470	GAUGE Gate 1.5mm peg tooth roller
19	FBW11	WASHER, 24mm			
20	30944	INDICATOR, LONG - G&F BOX		29939	GAUGE Gate 3mm fluted roller
21	30940	INDICATOR, SHORT - G&F BOX			
22	31242	BOLT, HEX - M6 x 30		33657	GAUGE Gate 4mm broad bean roller
23	18659	BOLT, HEX - M6 x 25			
24	18656	NUT, HEX - M6			
25	936-602	NUT, NYLOC - M6		32198	KIT. FLUTED ROLLER & RESTRICTOR
26	43646	PLATE, WASHER			items 11 & 12
27	18599	BRACKET, REAR - GRAIN & FERT. LEVER			
28	18598	BRACKET ASSY, G & F LEVER			
29	18657	BRACE, SUPPORT			<u>REMOTE GREASING KITS</u>
30	18849	HINGE, GATE		43896	KIT, REMOTE GREASING 19 R (3.0m)
31	20502	LEVER, FRONT		44420	KIT, REMOTE GREASING 23 R (3.0m)
32	20503	LEVER, REAR		44421	KIT, REMOTE GREASING 23 R (3.5m)

DRIVES (INFINITELY VARIABLE)



DRIVES (INFINITELY VARIABLE)

ITEM	PART No	DESCRIPTION	ITEM	PART No	DESCRIPTION
1	46369	Varidrive Gearbox	28	18668	ROLLER, NYLON
2	43955	SHAFT, CLUTCH	29	36794	TENSIONER ARM (FRONT)
3	27908	SPROCKET ASSY CPTE, 15x36T		22899	TENSIONER ARM (REAR)
	(24788	SPROCKET ASSY, DBL 15 x 36T)	30	18819	PIN, SELLOCK 5 x 50mm
	(37414	BEARING, BALL)			
	(37413	CIRCLIP)			
4	18531	CLUTCH HALF			
5	46963	SPROCKET, 31T			
6	20982	SPROCKET, PRIMARY DRIVE - 18T			
7	18532	CLUTCH, HALF			
8	46974	31T SPROCKET			
9	18802	SPROCKET ASSY, 15T			
10	21825	YOKE ASSY, CLUTCH			
11	18533	FERRULE, CLUTCH			
12	18676	PEG, CLUTCH			
13	18715	BEARING, FLANGE			
14	18681	SPRING			
15	18675	CIRCLIP, SHAFT - 25mm EXT			
16	18534	WASHER, CLUTCH			
17	46973	SPROCKET, 12T			
18	45751	CLUTCH MOUNT ASSEMBLY (IVD)			
19	43962	SHAFT ASSY, ARM			
20	18660	PIN, SWIVEL CLUTCH			
21	46594	HANDLE ASSEMBLY, ADJUSTMENT			
22	31993	NUT, NYLOC M10			
23	FBW4	AS 1237.1 N - 10			
24	43984	KNOB, M12			
25	26147	BRACKET ASSY, SUPP'T GUARD			
26	44013	AXLE ARM ASSY CPTE. 15" WHEELS (L/H)			
	44014	AXLE ARM ASSY CPTE. 15" WHEELS (R/H)			
	45736	AXLE ARM ASSY CPTE. 16" WHEELS (L/H)			
	45735	AXLE ARM ASSY CPTE. 16" WHEELS (R/H)			
	44011	AXLE ARM ASSY CPTE. HD WHEELS (L/H)			
	44012	AXLE ARM ASSY CPTE. HD WHEELS (R/H)			
27	34551	WHEEL ASSY, 15" (3.0m)			
	43159	WHEEL ASSY, 16" (3.5m)			
	42571	WHEEL ASSY, HD (option)			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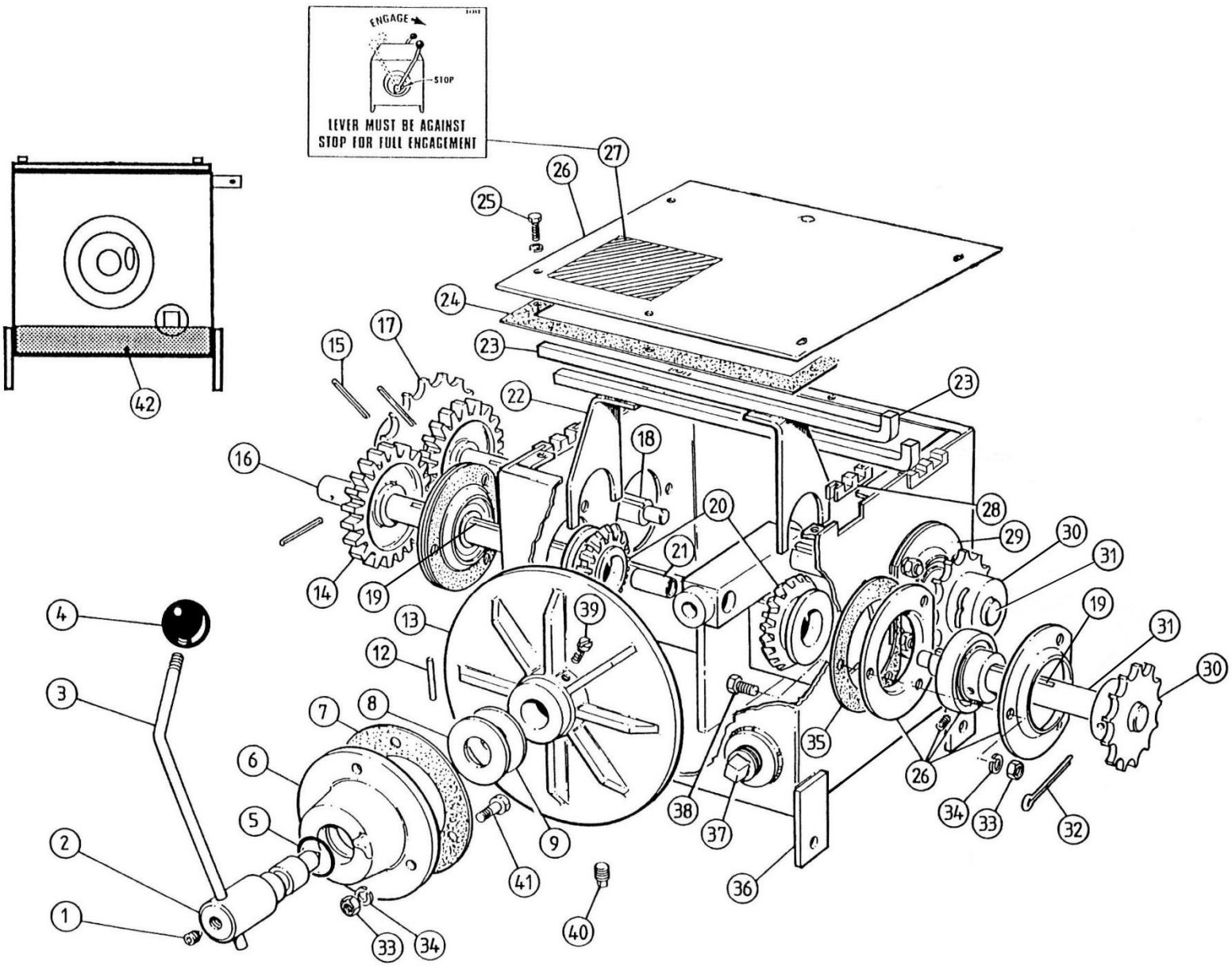
DRIVES (JSL 31SPEED GEARBOX)

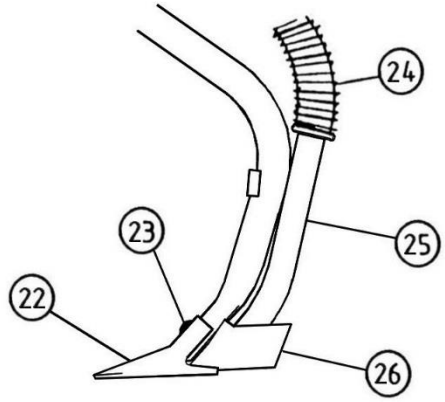
ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION	
1	44038	GEARBOX ASSEMBLY	(See page 42-43)	33	16199J1	BOLT & NUT	2-1/4" x 5/8" UNF h.t. (24 A/F)
2	37680	SPROCKET	Input 14T } Part of item 1		17606J1	WASHER	Spring 16mm
3	30041	SPROCKET	Output 13T } Part of item 1	34	18325	HUB	R/H (Not shown)
4	30039	SPROCKET	Distributor 34T	35	43940	GUARD	31 Speed (Not shown)
5	13482	IDLER SPROCKET					
6	22253	SPROCKET	17T				
7	27908	SPROCKET	36 x 15T (inc. Bearings)				
	(37414	BEARING)					
8	45427	SPROCKET	Extension (16" wheels)				
	45068	SPROCKET	Extension (15" wheels)			(Not Shown)	
	43959	SPROCKET	Ext. 19T (15.3" wheels-opt.)	35	42571	WHEEL ASSEMBLY	15.3"
9	18668	ROLLER		36	42570	TYRE	12.5/80 – 15.3" (14 PLY)
10	18715	BEARING		37	39979	RIM	15.3 X 9"
11	18675	CIRCLIP	Ø25 I.D.				
12	18534	WASHER	Clutch				
13	20964	SPROCKET	Primary Drive - 33T				
14	18531	CLUTCH	Half				
15	18530	SLEEVE	Bearing Plain				
16	18532	CLUTCH	Half				
17	18681	SPRING					
18	43955	SHAFT					
19	18871	PIN	Sellock Ø6 x 36				
20	21825	YOKE ASSY	Clutch				
21	18533	FERRULE	Clutch				
22	18676	PEG	Clutch				
23	34479	CABLE	Clutch				
24	37546	SPROCKET ASSY	Double 23x15T				
25	18331	HUB	L/H				
26	SD2097	SETSCREW					
	STW3	WASHER	Star 5/16"				
27	15305J1	CAP	Hub				
	30195	GASKET	Dust Cap				
28	15205J1	NUT					
29	18596	NIPPLE	Grease				
30	15203J1	BEARING	50mm Cup/Cone				
31	12396	WEAR RING					
32	12395	SEAL	Triple Lipped				

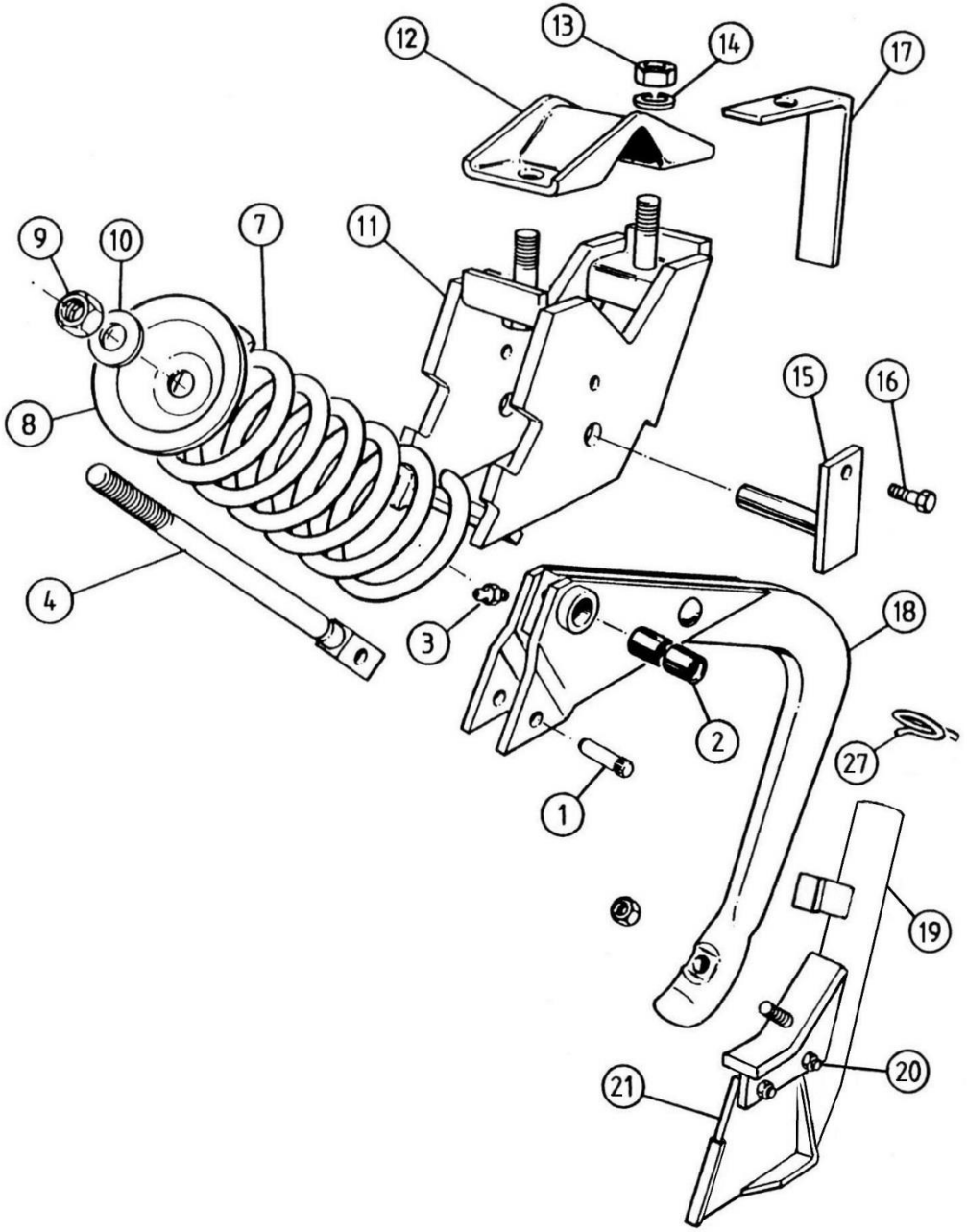

ENGAGE
STOP
LEVER MUST BE AGAINST
STOP FOR FULL ENGAGEMENT

JSL 31 SPEED GEARBOX

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION	
1	18663	SCREW	grub M10 x 10	38	18502	SETSCREW	hex M8 x 16
2	32844	SHAFT	sungear	39	18474	SCREW	locating
3	33276	LEVER	gearbox	40	18493	PLUG	drain ¼" BSPT
4	10440	KNOB	selector	41	18463	BOLT	hex M8 x 20
5	18512	'O' RING	1 ¼" x 1 ½" x 1/8"	42	18511	OIL	SAE 120 I L
6	33278	CAP END	gearbox				
7	18462	GASKET	cap end				
❖8	20518	WASHER	flat I.D. 24 x 15t				
❖9	18466	WASHER	flat ∅24		33607	GEARBOX, COMPLETE	Items 1-39
❖10	36777	SHIM WASHER	(0.1mm) – not shown				
❖11	36778	SHIM WASHER	(0.7mm) – not shown				
12	18661	PIN	sellock ∅5 x 45				
13	32840	GEAR	sun				
14	33622	GEAR	input 25T x 8P				
15	27307	PIN	sellock ∅6 x 40		18490	GEAR	input 15 tooth (optional)
16	33619	SHAFT	output – grass		18491	GEAR	input 35 tooth (optional)
17	37680	SPROCKET	14T				
18	33620	SHAFT	input				
19	18500	KEYSTEEL	90mm long				
♠20	42512	PINION ASSY.					
21	32845	BUSH	sintered				
22	36268	SELECTOR ASSY.	numbered gear				
23	36266	SELECTOR ASSY.	lettered gear				
24	18508	GASKET	cover top				
25	17966J1	SETSCREW	M6 x 12				
	18504	WASHER	spring ∅6				
26	18506	LID	gearbox				
27	34362	TRANSFER	gearbox engagement				
28	18460	GUIDE	nylon				
29	32847	BEARING	'Y'				
30	30041	SPROCKET	13T x 5/8"P				
31	33617	SHAFT	super				
32	17589J1	PIN	cotter ∅5 x 50				
33	18464	NUT	hex M8	♠	Note: Previous pinion assembly with brazed key use P/N 32841		
34	18465	WASHER	spring ∅8				
35	18475	GASKET	bearing	❖	Note: Shim washers are used as required to provide correct fit of sun gear		
36	33608	BOX ASSY.	gear includes item 38				
37	18513	PLUG	¾" BSP sq. hd.				

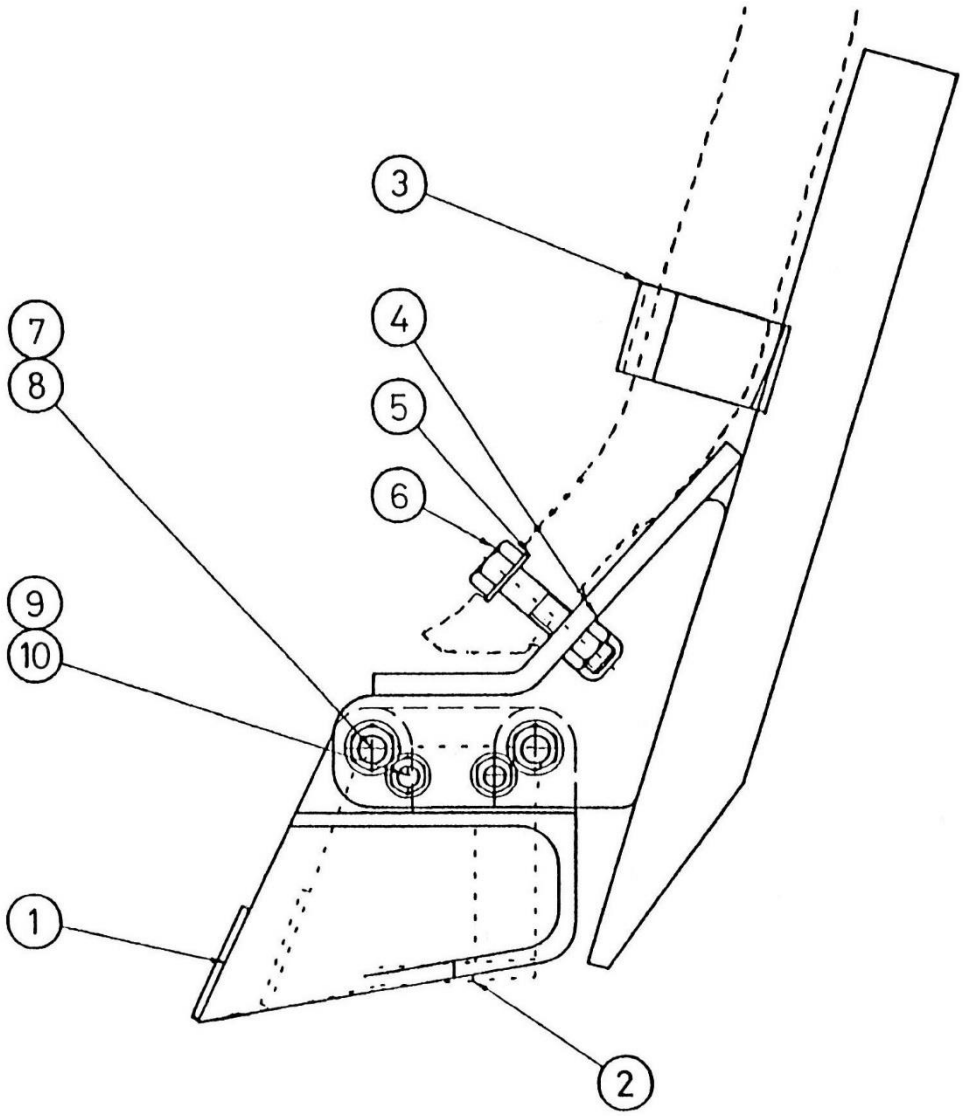
TYNE ASSEMBLY





580 TYNE ASSEMBLY & POINTS ETC.

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION
1	18813	PIN	spring rod		22902	TYNE & SPRING ROD ASSY. items 1, 2, 3, 4, 18
2	21612	TYNE	split			
3	18596	NIPPLE	grease self tap			
4	22913	ROD	spring E.O.T			
5	35236	CUP	spring small (Not Shown)		22900	TYNE ASSY. COMPLETE '580' EDGE - ON
6	35237	SPRING	∅11" x 60 ID (Not Shown)			items 7 - 16 & 22902
7	22927	SPRING	∅16			
8	22926	CUP	spring			
9	22026	NUT	hex M20 nyloc			
10	18312	WASHER	flat ∅20		37412	TYNE ASSY. COMPLETE '580' EDGE–ON (DBL SPR)
11	22921	CARRIER ASSY.				items 5 - 16 & 22902
12	22925	CLAMP	top tyne			
13	18021	NUT	hex M16			
14	17606J1	WASHER	spring ∅16			
15	22931	PIN ASSY.	tyne		33256	'T' BOOT items 19 - 21
16	18824	BOLT	hex M10			
	17776J1	WASHER	spring ∅10			
	17777J1	NUT	hex M10			
17	22097	BRACKET	tyne stop			
18	22904	TYNE ASSY.	edge - on 580			
19	36713	BOOT ASSY.				
20	33259	BOLT	hex M8			
	18464	NUT	hex M8			
21	33258	POINT	blade			
22	16805K1/6	POINT	5" (308-22)			
23	18098	BOLT/NUT	1-15/16" x 7/16" BSW			
	17616J1	WASHER	spring ∅12 pl			
24	21863	HOSE	barvac ∅35 x 1100			
	21839	HOSE	barvac ∅35 x 800			
25	36710	BOOT ASSY.	sowing steel			
26	27796	ATTACHMENT	firm seed bed E.O.T.			
27	35341	CLIP	hose 'T' boot			

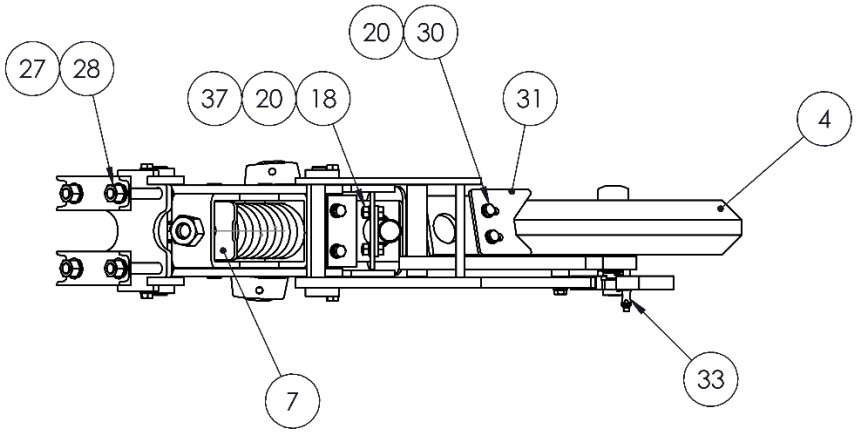


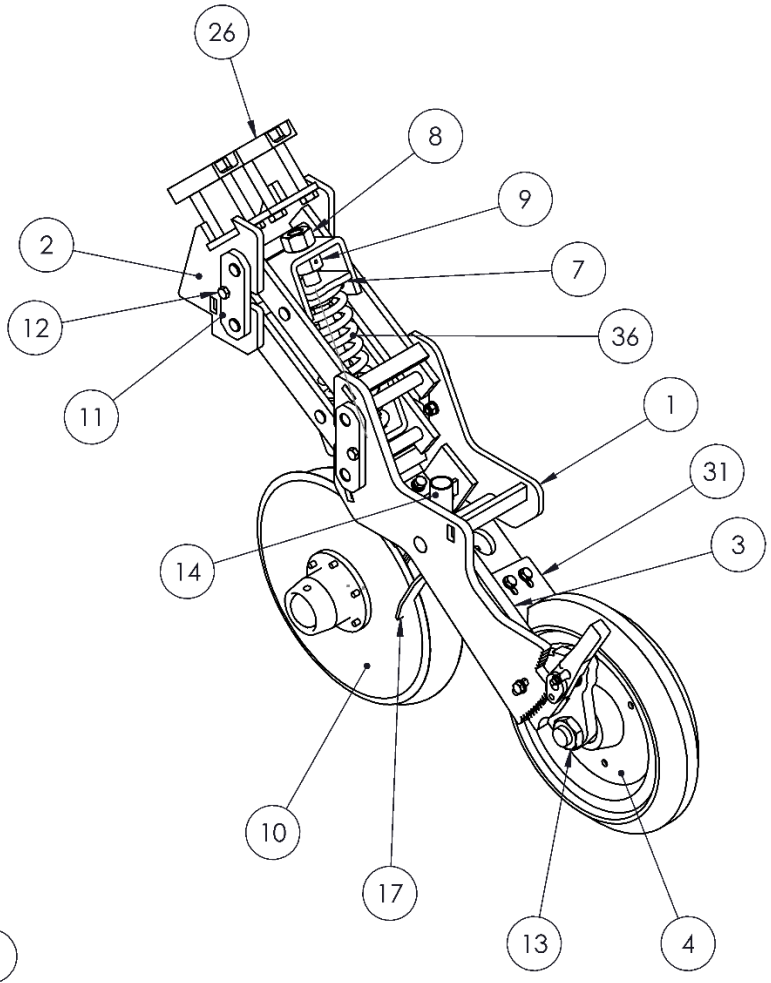
THE PASTURE DRILL BOOT ASSEMBLY IS A MULTI-POINT ADAPTOR, TO ACCEPT EITHER THE MINI T-BOOT OR THE BAKER INVERTED T-BOOT.

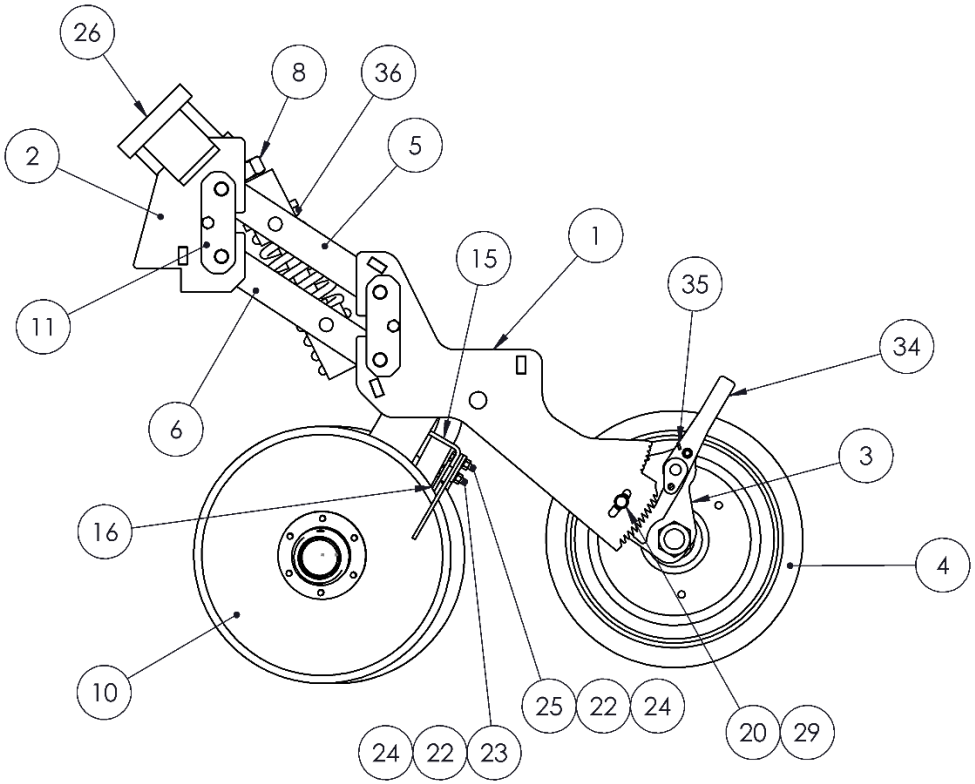
BOOT ASSEMBLY

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION
1	36711	POINT	CBP-60 “Baker T”			
2	33258	POINT	CMTB-32 “Mini T”			
3	36713	‘T’ BOOT				
4	18414	NUT	M12 Gr 8			
5	17616J1	WASHER	Spring 12mm			
6	36893	BOLT	hex M12 x 50 Gr 8.8			
7	31993	NUT	Nyloc, M10 Gr 8			
8	22434	BOLT	hex M10 x 30 Gr 8.8			
9	34095	NUT	Nyloc M8			
10	36892	BOLT	hex M8 x 30 Gr 8.8			
		PASTURE DRILL BOOT ASSEMBLY				
	33256	WITH MINI T-BOOT.				
	36712	WITH BAKER INVERTED T-BOOT.				

DOUBLE DISC OPENER ASSEMBLY - SPRING







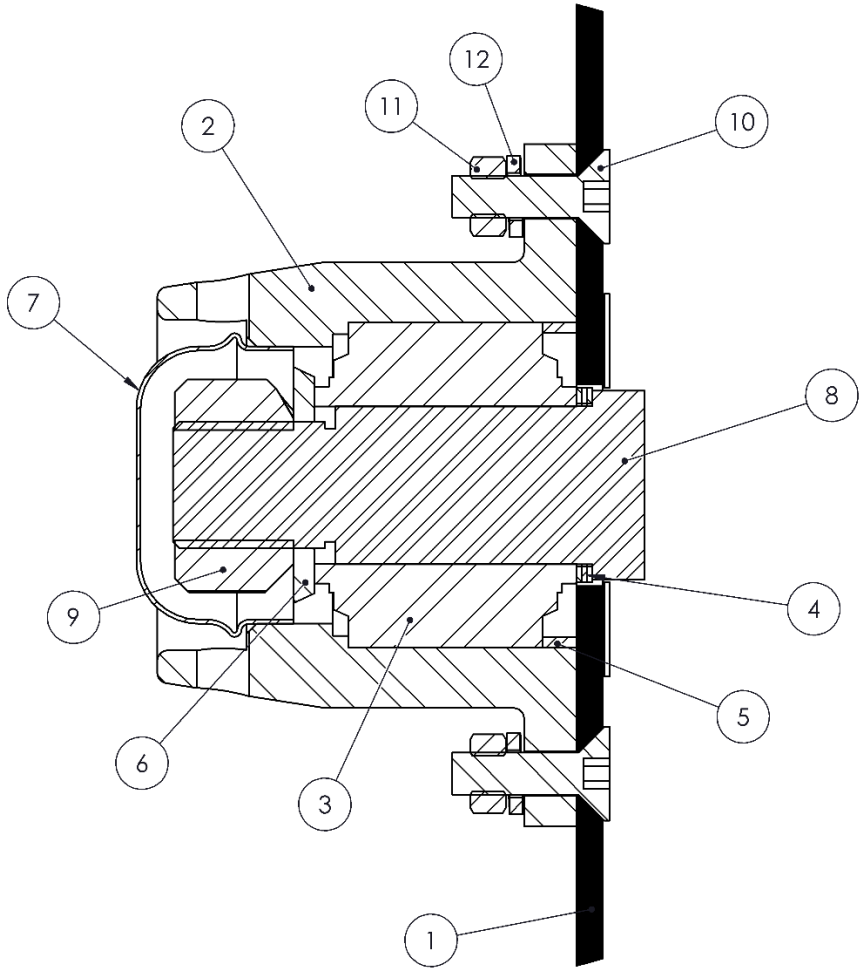
DOUBLE DISC OPENER ASSEMBLY - SPRING

ITEM	PART No	DESCRIPTION	QTY	
1	43021	WHEEL BRACKET ASSEMBLY	1	
2	43271A	BEAM BRACKET ASSEMBLY - DIAMOND	1	
	43271B	BEAM BRACKET ASSEMBLY - SQUARE	1	
3	43047	WHEEL ARM ASSEMBLY	1	
4	43051	PRESS WHEEL ASSEMBLY	1	
5	43013	ARM ASSY, UPPER	1	
6	43068	ARM ASSY, LOWER	1	
7	43023	UPPER SEAT ASSY	1	
8	43046	BOLT, TENSION	1	
9	43274	NUT, DRILLED - M24	1	
10	43272	DISC/HUB ASSEMBLY - PLAIN	2	
	43273	DISC/HUB ASSEMBLY - SCALLOPED	2	
11	43024	PLATE, KEEPER	4	
12	20679	AS 1111.2 - M10 x 35-NN	4	Torque: 17Nm with Loctite
13	17261J1	AS 1112.4 AB- M30-N	1	
14	43669	SEED TUBE ASSEMBLY	1	
15	43661	SCRAPER FRAME	1	
16	44432	SCRAPER, INTERNAL	1	Allow 1-2mm gap to disc/s
17	44431A	SCRAPER, EXTERNAL	2	Allow 1-2mm gap to disc/s
18	31993	AS 1112.2 S2- M10-W-N NYLOC	6	
19	18613	HEX, BOLT - M10 x 20	2	Torque: 8.5Nm with Loctite (note: do not tighten with item 32)
20	FBW4	AS 1237.1 N - 10	11	
21	17776J1	WASHER, SPRING M10	2	
22	34095	AS 1112.2 S2- M8-D-C NYLOC	4	
23		AS-NZS 1390 S - M8 x 40-N Cup Head	2	Torque: 8.5Nm with Loctite
24	FBW3	AS 1237.1 N - 8	4	
25	18437	AS 1110.2 - M8 x 35 -C	2	Torque: 8.5Nm with Loctite
26	43326	CLAMP	2	
27	FBW8	WASHER, FLAT M16	4	
28	28912	NUT, HEX - M16 NYLOC	4	
29	24214	AS 1110.1 - M10 x 50-N	1	Do Not Tighten - allow 1mm gap
30	20800	AS 1110.2 - M10 x 30 -C	2	Torque: 17Nm with Loctite
31	43315	SCRAPER, PRESS WHEEL	1	
32	43929	PLATE, MOUNT	1	
33	45307	PIN, BALL LOCK (PURCH)	1	
34	45306	ARM	1	Torque: 17Nm with Loctite
35	45312	SPRING	1	

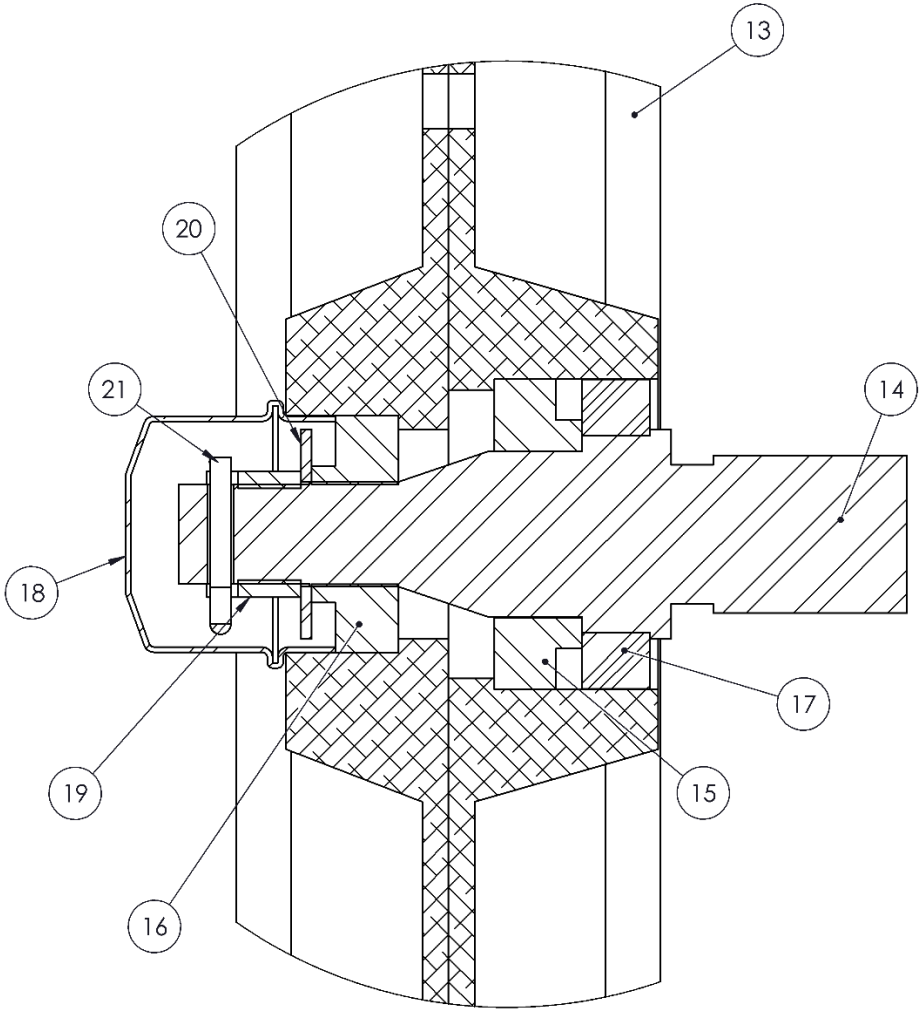
ITEM	PART No	DESCRIPTION	QTY
36	37384	SPRING, 12mm	1
37	18520	HEX, BOLT - M10 x 25	2

PART No	DESCRIPTION
	DOUBLE DISC OPENER COMPLETE ASSEMBLIES
43065	Spring, Diamond Mount, Plain Disc, Single Shoot.
43132	Spring, Square Mount, Plain Disc, Single Shoot
43133	Spring, Diamond Mount, Plain/Scalloped Disc, Single Shoot.
43134	Spring, Square Mount, Plain/Scalloped Disc, Single Shoot.

DOUBLE DISC OPENER DETAIL SECTION VIEWS



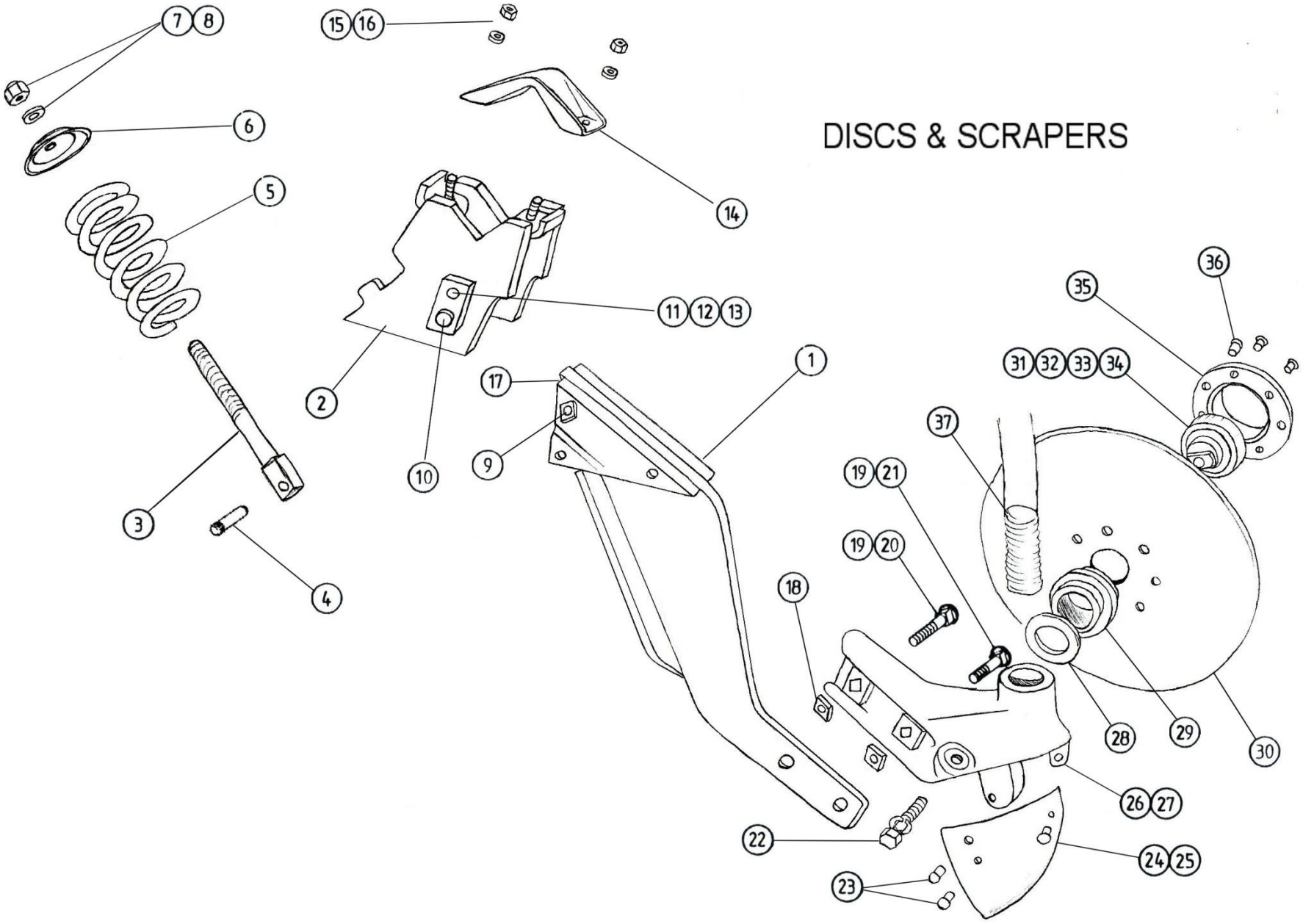
DISC/HUB ASSEMBLY
SECTION VIEW



PRESS WHEEL ASSEMBLY
SECTION VIEW

DOUBLE DISC OPENER DETAIL SECTION VIEWS

ITEM	PART No	DESCRIPTION	QTY	NOTES
1	45043	DISC, PLAIN 15" x 5mm	1	
	45044	DISC, SCALLOPED 15" x 5mm	1	
2	46551	HUB, DISC	1	
3	43026	BEARING, DOUBLE RACE	1	
4	43030	SHIM	3	3 per disc (or as required to achieve 0.1-0.5mm disc gap)
5	43028	RING, SPACER	1	
6	18935	WASHER - STUB AXLE	1	
7	10100N	CAP, DUST 52.9mm WHEEL HUB	1	
8	43014	AXLE, STUB - DISC	1	
9	936-708	NUT, CONELOCK M24	1	
10	44995	M8 x 30 CSK	6	Torque: 30-35Nm with Loctite on thread
11	18464	NUT, HEX - M8	6	
12	18465	WASHER, SPRING M8	6	
13	43060	WHEEL/TYRE ASSEMBLY	1	Replacement Tyre P/N: 43327
14	43050	AXLE, STUB	1	
15	SR552	BEARING	1	
16	43052	BEARING	1	
17	43053	SEAL, TRIPLE LIP	1	
18	43057	CAP, DUST	1	
19	43058	NUT, CASTLE	1	
20	43059	WASHER	1	
21	16859J1	PIN, COTTER 4x32	1	
	43272	DISC HUB ASSEMBLY - PLAIN (ITEMS 1-11, NOTE: ITEM 1 43034)		
	43273	DISC HUB ASSEMBLY - SCALLOPED (ITEMS 1-11, NOTE: ITEM 1 43147)		
	43051	PRESS WHEEL ASSEMBLY (ITEMS 12-20)		


DISCS & SCRAPERS
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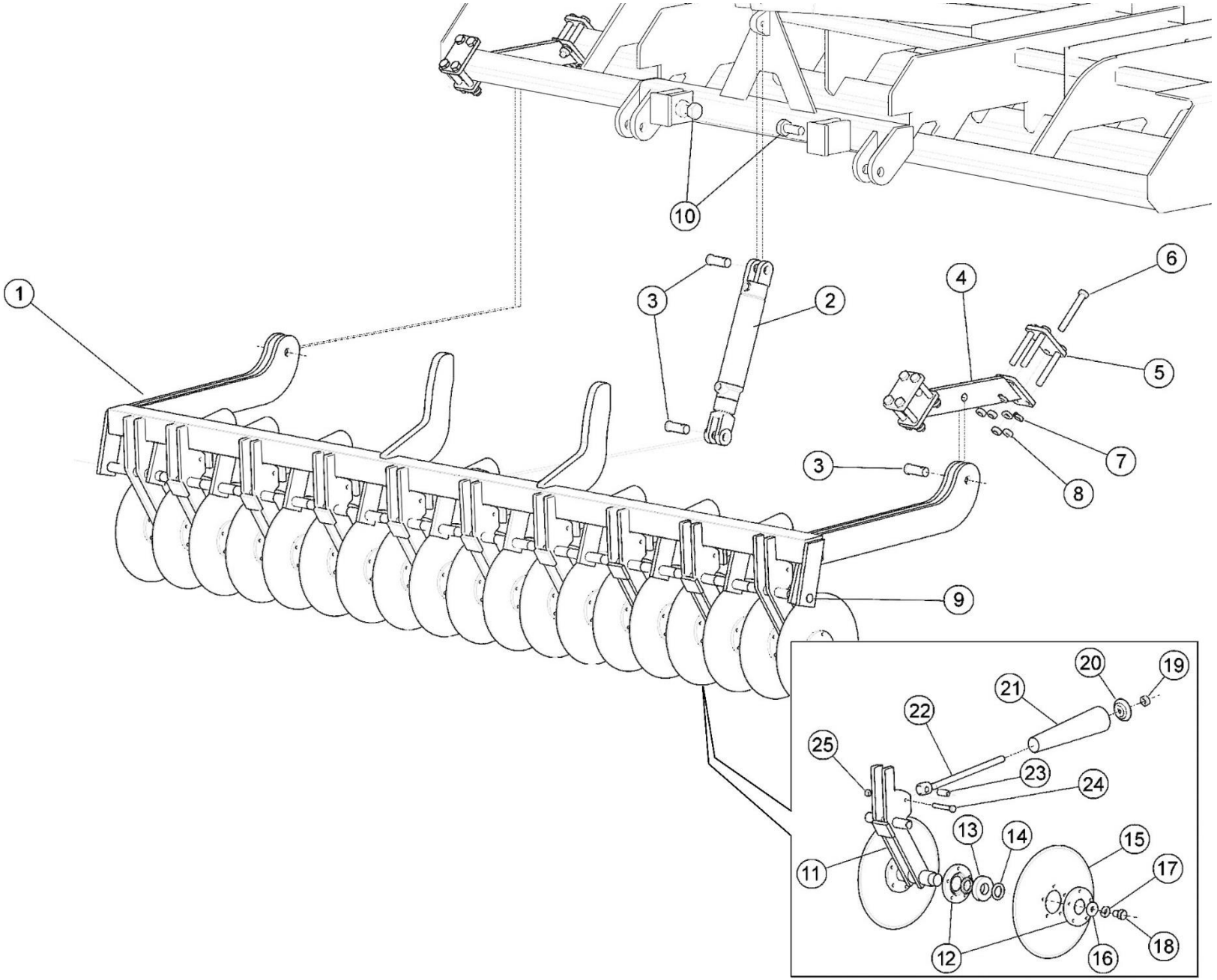
DISCS AND SCRAPERS ETC. ('SINGLE' DISC DRILL)

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION
1	42256	DISC ARM ASSY.				ASSEMBLIES
2	22921	CARRIER ASSY.	Tyne			
3	22913	ROD ASSY.	Spring E.O.T.		10368	BOOT / SCRAPER ASSY. R.H.
4	18813	PIN	Spring rod			Items 23, 24 & 26
5	22927	SPRING				
6	22926	CUP	Spring		10648	BOOT / SCRAPER ASSY. L.H.
7	18312	WASHER	Flat, ∅20 black			Items 23, 25 & 27
8	22026	NUT	Nyloc M20			
9	21612	BUSH	Tyne		10367	DISC / BEARING ASSY.
10	22931	PIN ASSY.	Tyne - cranked			Items 30-36
11	17776J1	WASHER	Spring ∅10 plated			
12	17777J1	NUT	Hex M10 Gr 8.8 plated		10369	BOOT & DISC ASSY. R.H.
13	18824	BOLT	Hex M10 x 30 plain			Items 22-24, 26, 28-36
14	22925	CLAMP	Top - tyne			
15	17606J1	WASHER	Spring ∅16 plated		10649	BOOT & DISC ASSY. L.H.
16	18021	NUT	Hex M16			Items 22, 23, 25, 27-36
17	18596	NIPPLE	grease			
18	490	SPACER	Breast adjustment		11594	BEARING & CAGE ASSY.
19	33099	BOLT	Cup hd. Sq. M12 x 50			Items 31-35
20	33098	BOLT	Cup hd. Sq. M12 x 65 (ext. d/bar)			
21	26892	BOLT	Cup hd. Sq. M12 x 45 (ext. d/bar)			
22	HR115	BOLT	Hex 5/8" BSW x 2-1/4"		42284	DISC ASSEMBLY, COMPLETE - R/H
23	31242	BOLT	Hex M6 x 30 Gr 8.8 (1 off)			Items 1-24, 26, 28-37
	18659	BOLT	Hex M6 x 25 Gr 8.8 (2 off)			
	18656	NUT	Hex M6		42283	DISC ASSEMBLY, COMPLETE - L/H
	18504	WASHER	Spring 6mm			Items 1-23, 25, 27-37
24	99-9	SCRAPER	Disc R.H.			
25	99-10	SCRAPER	Disc L.H.			
26	10338	BOOT	R.H.			
27	10647	BOOT	L.H.			
28	10364	WASHER	Shim 26g			
29	12348	SEAL	Ballrace			
30	240-1008	DISC	∅13" x 9/32" (10342)			
31	34084	SPINDLE	Bearing			
32	34085	COLLAR	Seal			
33	29751	BEARING	Ball – deep			
34	29843	'O' RING				
35	10341	CAGE	Bearing			
36	FHR2	RIVET	Flat hd. ∅¼" x ½"			
37	33105	HOSE ASSY.	convoluted			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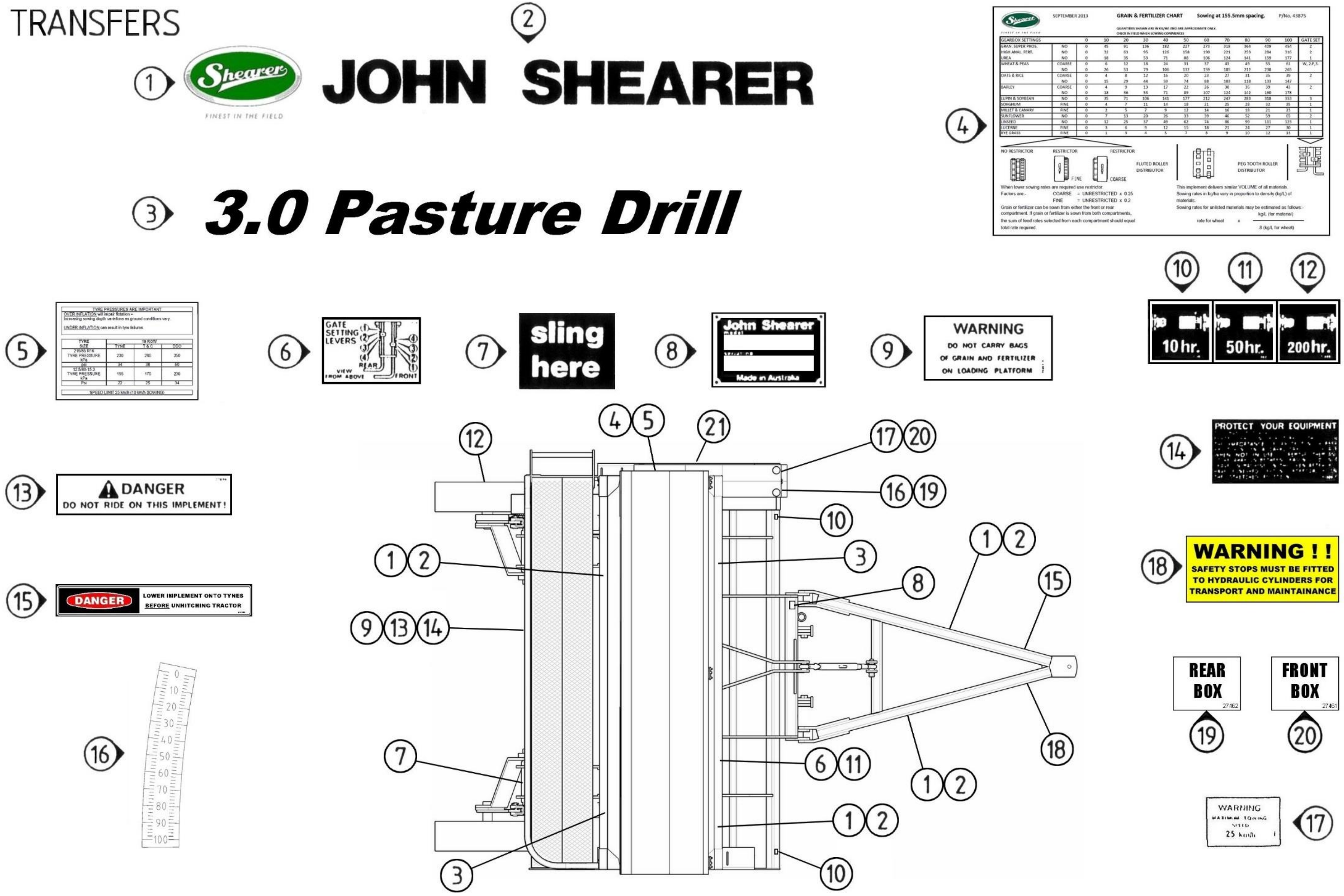
COULTER BAR (Optional)

ITEM	PART No	DESCRIPTION		ITEM	PART No	DESCRIPTION	
1	43620	COULTER CARRY BAR	19R, 3.0m, 11” Coulter	20	22180N	SPRING CAP	
	44281	COULTER CARRY BAR	19R, 3.0m, 16” Coulter	21	22108N	SPRING	
	44284	COULTER CARRY BAR	23R, 3.0m, 11” Coulter	22	18350N	EYEBOLT	
	44162	COULTER CARRY BAR	19R, 3.0m, 16” Coulter	23	13833N	BUSH, EYEBOLT	
	44287	COULTER CARRY BAR	23R, 3.5m, 11” Coulter	24	18897	BOLT	M10 x 75
	44278	COULTER CARRY BAR	19R, 3.0m, 16” Coulter	25	31993	NUT, NYLOC	M10
2	44315	CYLINDER 2.5 x 8”	(with Hydraulic Kit only)				
	34597	LINK ASSEMBLY, TOP – CAT 2					
3	27018	PIN					
	22889	LYNCH PIN					
4	43933	BRACKET					
5	43934	CLAMP PLATE					
6	18879	BOLT	M16 x 130				
7	17606J1	WASHER	Spring 16mm		44290	KIT	Hydraulic Coulter Bar
8	28912	NUT, NYLOC	M16				
9	43986	SHAFT, PIVOT					
10	43545	SETSCREW	M24 x 75				
	16884J1	NUT	M24				
11	43630	ARM ASSY, SINGLE	19R, 3.0m, 11” Coulter				
	43629	ARM ASSY, DOUBLE	19R, 3.0m, 11” Coulter				
	44317	ARM ASSY, SINGLE	19R, 3.0m, 16” Coulter				
	44316	ARM ASSY, DOUBLE	19R, 3.0m, 16” Coulter				
	44319	ARM ASSY, SINGLE	23R, 3.0m, 11” Coulter				
	44318	ARM ASSY, DOUBLE	23R, 3.0m, 11” Coulter				
	44158	ARM ASSY, SINGLE	23R, 3.0m, 16” Coulter				
	44155	ARM ASSY, DOUBLE	23R, 3.0m, 16” Coulter				
	44307	ARM ASSY, SINGLE	23R, 3.5m, 11” Coulter				
	44306	ARM ASSY, DOUBLE	23R, 3.5m, 11” Coulter				
	44305	ARM ASSY, SINGLE	23R, 3.5m, 16” Coulter				
	44304	ARM ASSY, DOUBLE	23R, 3.5m, 16” Coulter				
12	23859	BEARING HOUSING					
	44160	BEARING HOUSING (Countersunk)	23R,3.0m,single cltr				
13	29751	BEARING					
14	42115	SPACER					
15	240-772	COULTER					
16	23989N	BEARING RETAINING WASHER					
17	17606J1	WASHER	Spring				
18	29944	BOLT	M16 x 25				
19	18021	NUT	M16				

TRANSFERS



1 Shearer FINEST IN THE FIELD
2 JOHN SHEARER
3 3.0 Pasture Drill
4 GRAIN & FERTILIZER CHART
5 TYRE PRESSURES ARE IMPORTANT
6 GATE SETTING LEVERS VIEW FROM ABOVE REAR FRONT
7 sling here
8 John Shearer Made in Australia
9 WARNING DO NOT CARRY BAGS OF GRAIN AND FERTILIZER ON LOADING PLATFORM
10 10 hr.
11 50 hr.
12 200 hr.
13 DANGER DO NOT RIDE ON THIS IMPLEMENT!
14 PROTECT YOUR EQUIPMENT
15 DANGER LOWER IMPLEMENT ONTO TYNES BEFORE UNHITCHING TRACTOR
16 0 10 20 30 40 50 60 70 80 90 100
17 WARNING MAXIMUM TOWING SPEED 25 km/h
18 WARNING !! SAFETY STOPS MUST BE FITTED TO HYDRAULIC CYLINDERS FOR TRANSPORT AND MAINTAINANCE
19 REAR BOX 27462
20 FRONT BOX 27461
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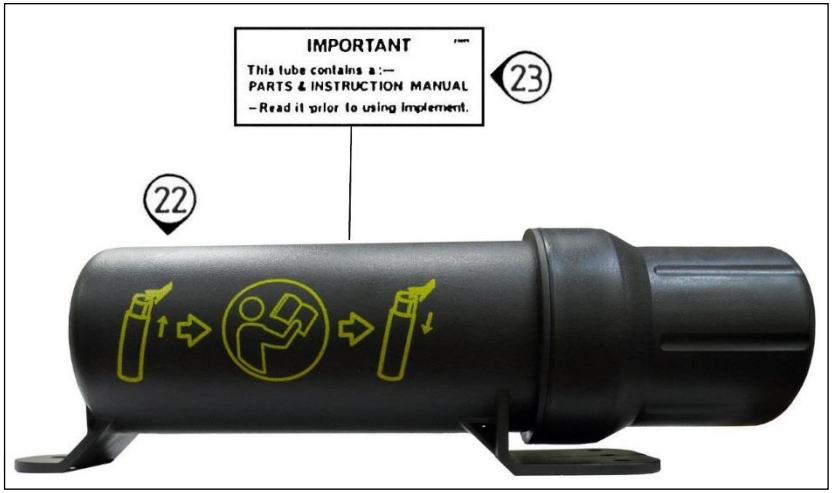
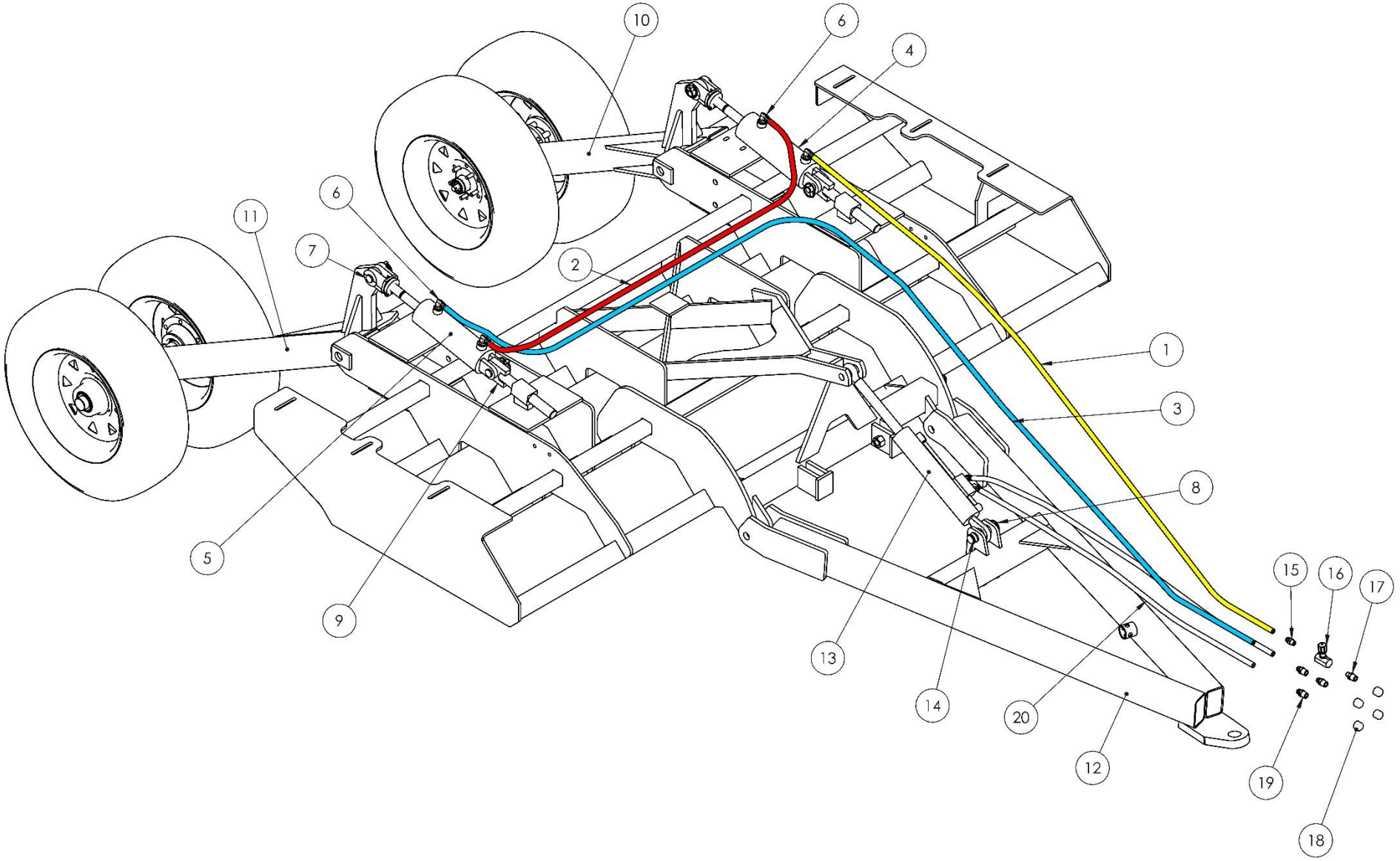
TRANSFERS

ITEM	PART No	DESCRIPTION	
1	36242	TRANSFER	John Shearer trademark
2	15875J2	TRANSFER	John Shearer
3	43680	TRANSFER	3.0 Pasture Drill
	44351	TRANSFER	3.5 Pasture Drill
4	43875	TRANSFER	Chart – grain & fertilizer (3.0 19R I.V.)
	44062	TRANSFER	Chart – grain & fertilizer (3.0 19R 31sp)
	44204	TRANSFER	Chart – grain & fertilizer (3.0 23R I.V.)
	44323	TRANSFER	Chart – grain & fertilizer (3.5 23R 31sp)
	44322	TRANSFER	Chart – grain & fertilizer (3.5 23R I.V.)
5	44064	TRANSFER	Tyre pressures
6	28851	TRANSFER	Gate setting levers
7	15854J1	TRANSFER	Sling here
8	15968J1	PLATE	J.S. model & serial no.
	16161J1	SCREW	Drive 5/16” x 0.116 x 4U
9	15953J1	TRANSFER	Warning do not carry bags
10	27463	TRANSFER	Grease 10 hrs
11	27464	TRANSFER	Grease 50 hrs
12	27409	TRANSFER	Grease 200 hrs
13	22699	TRANSFER	Do not ride on implement
14	15880J1	TRANSFER	Protect your equipment
15	34732	TRANSFER	Lower onto tynes before disconnecting
16	44006	TRANSFER	Scale
17	18949	TRANSFER	Maximum towing speed
18	43539	TRANSFER	Safety Stops must be fitted
19	27462	TRANSFER	Rear Box
20	27461	TRANSFER	Front Box
21	21532	KIT – CARRIER PARTS MANUAL ⇨ Items 22 – 24	
22	43313	TUBE	Carrier parts manual
23	20809	TRANSFER	Parts manual
24	18502	SETSCREW	Hex M8 x 16
	FBW3	WASHER	Flat ∅5/16”
	18464	NUT	Hex M8

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HYDRAULICS

ITEM	PART No	DESCRIPTION	
1	23364	HOSE ASSY	RH to hitch
2	22941	HOSE ASSY	RH to LH
3	44022	HOSE ASSY	LH to hitch
4	21357	RAM R/H	3 ¾" x 8" Ph Cyl. (No Depth Stop)
	(27019	DEPTH STOP)	
	(27356	SEAL KIT FOR 21357)	
4B	44133	RAM R/H	3 ¾" x 8" Ph Cyl (No DS) - EzyFit
	(27019	DEPTH STOP)	
	(44135	SEAL KIT FOR 44133)	
5	21356	RAM L/H	3 ½" x 8" Ph Cyl.
	(27022	SEAL KIT FOR 21356)	
5B	44132	RAM L/H	3 ½" x 8" Ph Cyl. – Ezy Fit
	(44134	SEAL KIT FOR 44132)	
6	15248J1	ELBOW	¾" UN x ¾" JIC M/M 90 deg
7	27018	PIN, CLEVIS	Ram
8	22889	PIN	Lynch & Clip
9	21648	LUG ASSY	
	17267J1	NUT, HEX	M36
10		WHEEL ARM	LH
11		WHEEL ARM	RH
12	44860	HITCH ASSY	
13	43936	TOP LINK ASSY	CAT 2 Hydraulic
14	32741	PIN	CAT 2
15	17257J1	NIPPLE	3/8" BSPT x 3/4" JIC
16	15503J1	VALVE	Needle 3/8" BSPT female
17	15525J1	NIPPLE	1/2" BSP x 3/8" BSP
18	15534J1	CAP	1/2" BSP Malleable
19	14598J1	NIPPLE	1/2" BSP x 3/4" JIC
20	22944	HOSE ASSY	Top link to hitch
	36556	JACK ASSEMBLY (not shown)	

NOTE:
SOME PART NUMBERS HAVE A LETTER (R, G, Y OR B) AT THE END. THIS INDICATES THAT THE PIPE OR HOSE IS COLOUR CODED WITH A COLOURED BAND AT ONE END. THIS COLOUR CODING IS TO AID THE USER IN IDENTIFYING THE SEPARATE HYDRAULIC CIRCUITS SO THAT THEY CAN BE CORRECTLY CONNECTED TO THE TRACTOR AND ENSURE SAFE OPERATION.
SEE THE TABLE BELOW FOR THE RELATIONSHIP BETWEEN COLOUR AND HYDRAULIC CIRCUIT.

WARNING
THE HYDRAULICS (OTHER THAN THE QUICK-COUPLING CONNECTION TO THE TRACTOR) MUST BE CONNECTED BY A QUALIFIED HYDRAULICS TECHNICIAN AND THE OPERATION OF ALL HYDRAULIC FUNCTIONS CHECKED IN A CONTROLLED AND SAFE SITUATION. THIS IS TO ENSURE THAT EVERYTHING IS CORRECT BEFORE THE MACHINE IS USED. ANY MODIFICATIONS TO THE HYDRAULICS MADE AFTER THE MACHINE LEAVES THE FACTORY MUST BE MADE BY A QUALIFIED PERSON AND IT IS THE RESPONSIBILITY OF THAT PERSON TO ENSURE THEY ARE CORRECT AND SAFE.
IT IS THE RESPONSIBILITY OF WHOEVER CONNECTS THE MACHINE TO THE TRACTOR TO ENSURE THAT IT IS CONNECTED CORRECTLY.

LETTER	COLOUR	HYDRAULIC CIRCUIT
Y	YELLOW	MACHINE UP
B	BLUE	MACHINE DOWN

CALIBRATION FACTORS FOR FARMSCAN JACKAL AREA METER

(See page 21 of Farmscan Manual)

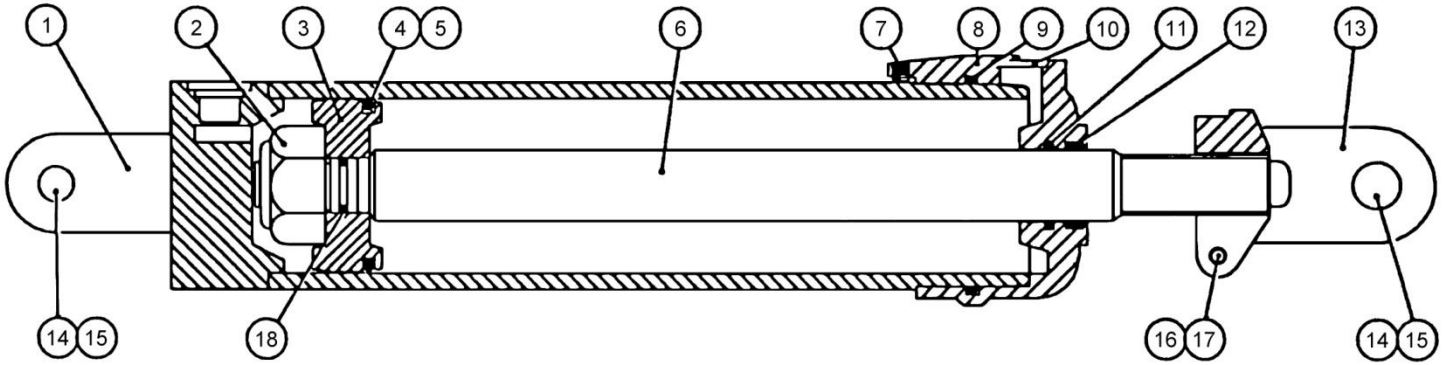
NOTE:

- The Area Meter setup is described in the Jackal manual (Section 5.1 page 21) and requires calibrating the machine over a measured distance.

- The width dimension is shown in the table to the right.

USE THE FOLLOWING SETTINGS FOR JOHN SHEARER MACHINES

IMPLEMENT TYPE	IMPLEMENT SIZE	TYRE	Width
6.90 TCD	21 ROW	16.9 x 28 x 6P	3.78
	27 ROW	18.4 x 30 x 8P	4.86
	33 ROW	23.1 x 30 x 8P	5.94
	27 ROW 4 BIN	23.1 x 30 x 8P	4.86
4.90 TCD	20 ROW	14.9 x 24 x 8P	3.60
	20 ROW	16.9 x 28 x 6P	3.60
	24 ROW	16.9 x 28 x 6P	4.32
	28 ROW	18.4 x 30 x 8P	5.04
	24 ROW 4 BIN	18.4 x 30 x 8P	4.32
PASTURE DRILL	10 ROW	235/75 x 15 x 4P	1.80
	13 ROW	235/75 x 15 x 4P	2.34
	16 ROW	235/75 x 15 x 4P	2.88
	19 ROW	235/75 x 15 x 4P	3.42
	19 ROW DDO	215/85 x 16	3.34
3M PAST. DRILL	19 ROW	215/85 x 16	2.95
	19 & 23 ROW	12.5/80-15.3	2.95
3.5M PAST. DRILL	23 ROW	12.5/80-15.3	3.45



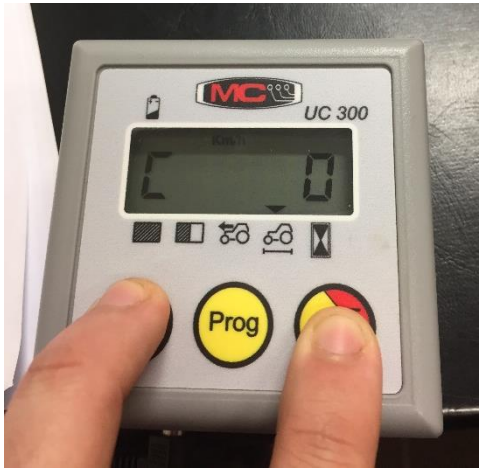
ITEM	21356 3 ½" x 8" PHASING	21357 3 ¾" x 8" PHASING	DESCRIPTION	
1	27128	27347	BASE/BARREL	
2	29065	29065	NUT	Nyloc 1" UNF
3	27006	27351	PISTON	
4	27008	*27352	SEAL	Piston
5	42851	42852	WEAR RING	Piston
6	27045	27097	ROD	Piston
7	28665	28665	BOLT	Hex M8 x 25 nylon
8	27013	27354	GLAND	
9	*27007	*27353	'O' RING	Gland
10	27083	27083	PLUG, PLASTIC	¾" UN – not supplied if attached to machine
11	*27015	*27084	SEAL	Gland
12	*27014	*16181J1	WIPER	Rod
13	27023	27023	CLEVIS	
14	27018	27018	PIN	
15	22889	22889	LYNCH PIN & CLIP	
16	26443	26443	SCREW	Soc. hd. cap - M10 x 45
17	17777J1	17777J1	NUT	Hex - M10
18	*29064	*29064	'O' RING	Piston rod
	27022	27356	SEAL KIT	* DENOTES SEAL KIT PARTS

UC 300 Hectaremeter (P/N: 44430) Calibration

Programming

Step 1 –hold down the programming button for 3 seconds until the screen shows with Un 0 as shown below. This means that the system will be using the metric system. If you are looking to use the imperial system simply press the + arrow so the display shows UN 1. When happy with ether metric of imperial press the programming button once

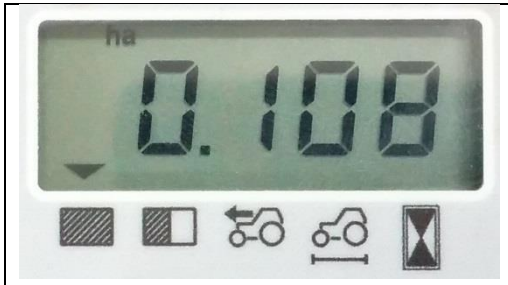
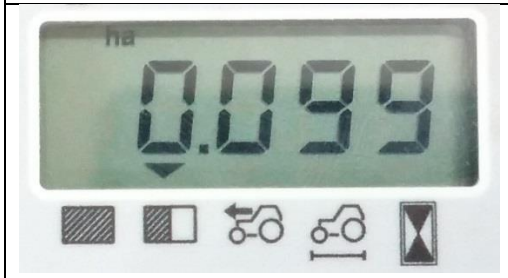
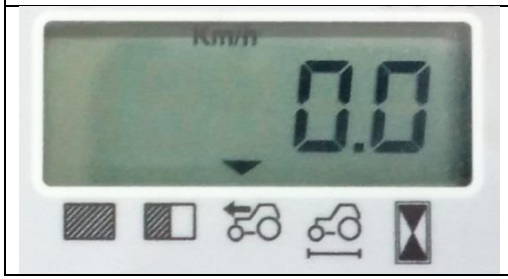
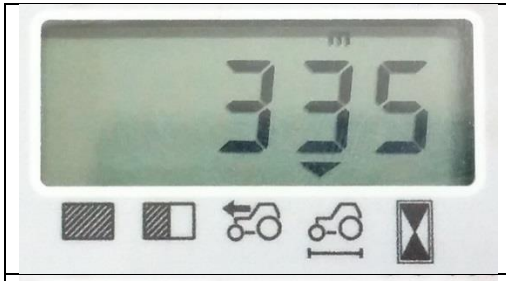
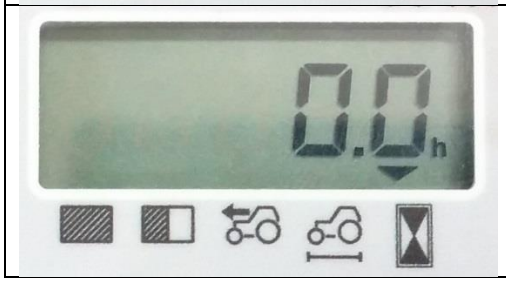
Step 2 – For the next step the display should read C with some numbers followed after it. The C represents the amount of pulses emitted by the speed sensor after each 100 linear meters. The default value for this function is 200 as shown below. If unsure of the value you need for your machine simply press the + and – buttons simultaneously to get the screen to read out C 0 as shown below. Once the screen reads out C 0 simply run your machine for 100 meters and the value displayed should automatically go up accordingly. After you have found the automated value, press Program again to move onto the next step.



Step 3 – for the final step the screen should have L displayed. L is the working width of your machine so simply input the width of the machine into the display using ether the + or – button. (if the buttons are held down the displayed figures move faster in the given direction). Finally hit Program to save all the inputted settings.

Use Modes

The units displayed is chosen in programming. Please read above to find out how to change from metric to imperial or vice versa.

	The first figure is the **total counter** it is the counter used to find out how many hectares have been done in a season, weekly or whatever else you would like to count as a total number.
	The second picture is the **partial counter** which gets reset now and again. It is used more for counting things such as how many hectares have been covered in a day or how many hectares there are in each paddock
	The third picture shows you how fast you are going in km/h.
	The fourth figure tells you how much **distance** has been covered by the machine
	The fifth and final figure is the **working hours** covered which tells you how many hours you have worked

(Each figure must be reset individually by holding the reset button for a few seconds until the figure goes blank)

JACKAL (P/N: 42978) CALIBRATION

1. Press the MENU key until the input the sensor used for calculating rate information is connected to is displayed (input 1 – 6).

2. Press ENTER to edit the input function and use the NAV keys to select the **SPEED** option as shown in Figure 13 below.

Figure 13.

3. Select **SPEED** setting with desired Units.

- **DO NOT MIX METRIC AND IMPERIAL UNITS.**

4. Clear **PULSES** by holding CLEAR for approximately 1 second.

5. Ensure Jackal is in **RUN** mode (when in **HOLD** mode "ON HOLD" is displayed at the top of the screen)

6. Drive a known distance. Jackal should count **pulses**.

7. Enter distance into monitor using NAV keys and hold SET for approximately 1 second to calculate **WHEEL** factor.

8. Enter the Implement **WIDTH** using the NAV keys.

Note: These steps refer to SET and CLEAR buttons. They are activated by the softkeys which will have the words on the screen above the button (as shown in figure 13 above), when in the correct menu.

For more information refer to the Farmscan Jackal manual.

Jackal - Grain & Fertilizer Shaft Monitoring

The distributor shafts have a magnet embedded in them which together with a sensor can be used to monitor shaft rotations. An alarm can be set to warn you if the shaft speed drops below a certain amount (see section 3.2.1.2 of the Farmscan Jackal Manual). We suggest setting a low figure so that the alarm will give a warning if the shaft stops turning for some reason when seeding.

The shaft sensors, as well as the standard area sensor can be connected to inputs B1-6 with the white wire (note: if you expect to use a coil sensor, do not use port B1). The black ground wire for each sensor all connect to port A1. See section 6.3.1 of the Jackal Manual for more information.
The sensors will need to be calibrated on the Jackal monitor as shown in section 4 of the Jackal Manual (note: these are 'Digital inputs').