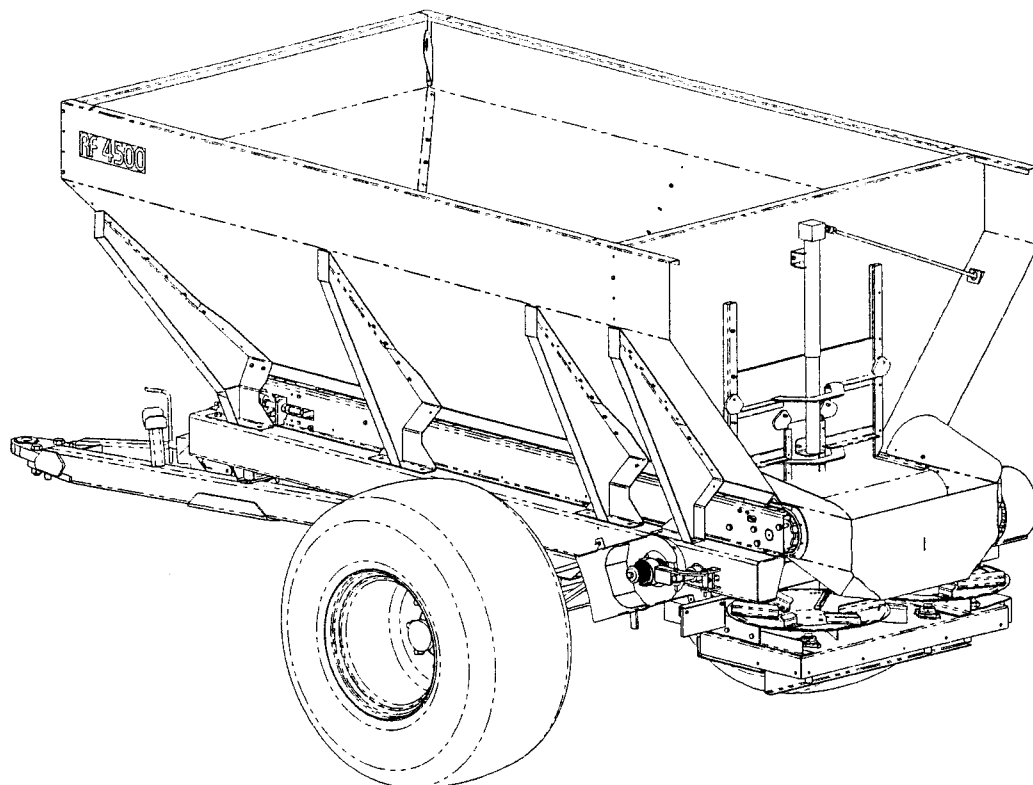


T/A

ROVIC & LEERS



RF4500 L Trailed Spreader Operator and parts manual

Rovic & Leers
Head office
Saxenburg Road
Blackheath
Cape Town
R.S.A.

Tel: 00 27 (21) 905 1158
Fax: 00 27 (21) 905 1570
e-mail: admin@rovicleers.co.za

(Edition no.1 - August 03)

INDEX

Description	Page no.
General description	
Technical specifications -----	1
Lubrication	
Field Operation	
Safety precautions -----	2
Setting the track of the conveyer belt -----	3 - 4
Calibration -----	5 - 6
Calibration charts -----	7 - 8
Notes -----	9 - 10
Parts Manual -----	11
Parts Index -----	12

RF 4500 L Trailed Spreader

Rovic & Leers is a company with more than 40 years experience in the manufacture of premium quality agricultural equipment. The versatile "Rovic" 4500L spreader has been designed specifically to meet the stringent requirements of broad-acre operations where tough, reliable implements, which are easy to use and ensure trouble free service, are at a premium. It will successfully spread a range of materials, including lime, granular fertilizers and certain organic substances. The double disc-spinner box fitted with two Ø600mm spinner-disc's is driven off the tractor's p.t.o. A land wheel, however, drives the 800mm wide conveyor belt carrying the material from the hopper to the spinners. This guarantees an even application, irregardless of the tractor speed across the ground. The conveyor belt drive can be engaged or disengaged by means of a clutch operated from the tractor's hydraulics. The spreading rates can easily adjusted by simply raising or lowering the rear calibration gate. (Crown wheel and pinion jack) This combination allows the spreader to handle application rates from as little as 25kg/ha granulated fertilizer to 14000 kg/ha Lime and Gypsum.

Technical specifications RF4500 L Spreader	
Capacity	- Struck - 4500 Liter (4.5 ³) - Heaped - 5100 Liter (5.1 ³)
Permissible axle capacity	8000 kg x 8 Stud
Tyres	560 x 22.5 (Trelliborg)
Conveyor belt width	800 mm
Conveyor belt drive	Ground wheel drive
Calibration gate	Mechanical adjustment (Crown wheel & Pinion)
Application rate per/ha	- From as little as 25kg/ha to 8000kg/ha Lime or Gypsum
Spread widths	- Granulated up to 24m - Non - granulated up to 12m
Overall height	2300mm
Overall length	4785mm
Width across tyres	2512mm
Width of bin	2000mm
Spinner height	790 mm
PTO speed	540 RPM
Optional equipment	Sieve 16.9 x 28 tyre
Paint finish	Twin pack
All weights, measurements and specifications are approximate and subject to change without prior notification.	

LUBRICATION

To ensure long service from your Rovic spreader regular attention to routine lubrication is of great importance.

1. Gearboxes

- a) Belt drive reduction gearbox - capacity = 0.35 Liter
- b) Spinner drive 90° gearbox - capacity = 0.45 Liter
 - ◆ Use SAE 90 EP gear oil
 - ◆ Check level regularly
 - ◆ Annually - Drain, flush out and refill gearbox

2. Axle wheel hub bearings

- a) Check bearing pre-load weekly
- b) Repack wheel bearings annually

3. Grease nipples

- a) PTO (2)
- b) Main drive shaft (*See Page 32 Item 1, 2 & 4*)
- c) Spinner drive box bearings (6) (*See page 30 Item 10*)
- d) Belt drive roller bearing (2) (*See page 16 Item 6*)
- e) Belt tension roller bearing(2) (*See page 16 Item 9*)
- f) Idler shaftbearing (2) (*See page 16 Item 13*)
- g) Clutch shaft (1) (*See page 34*)

4. PTO Shaft

Separate the two sliding sections of the PTO shaft, clean well and smear with graphite or molybdenum disulphide grease.

FIELD OPERATION AND SET UP

1. Lubricate all grease nipples. Replace all damaged or blocked nipples.
2. Cut PTO to correct length.
3. Ensure that PTO yokes are locked in position
4. Engage PTO at low engine rpm and gradually increase the engine speed till the PTO runs at a constant 540 rpm
5. DO NOT oil or grease wheel drive chains

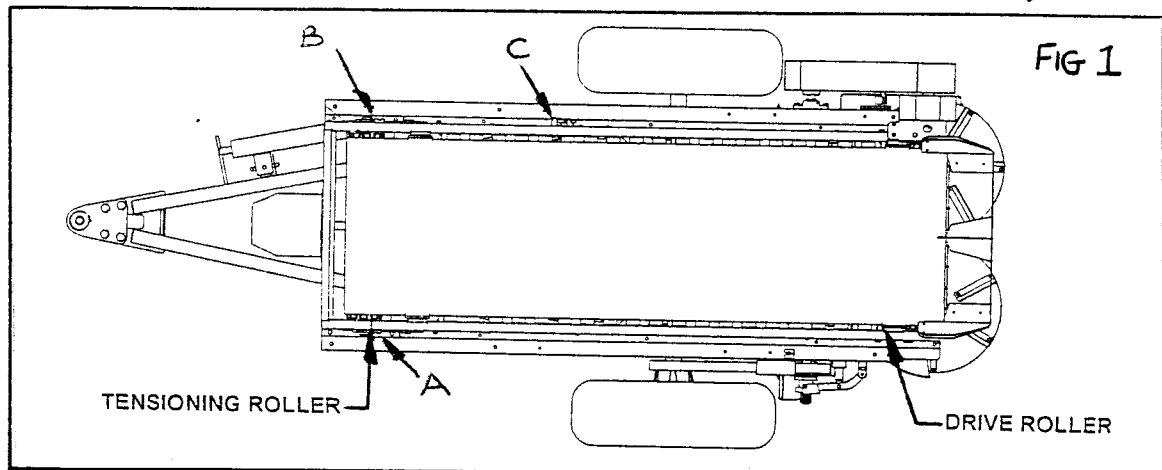
SAFETY PRECAUTIONS

1. Do not allow any bystanders behind the spreader whilst in operation.
2. Do not allow any passengers on the spreader or tractor.
3. Disengage the PTO before dismounting tractor.
4. Do not use the spinner disc as a stair.
5. Prevent any foreign material like stones, rocks or metal objects falling into the hopper.
6. Tow your Rovic spreader at a safe speed on the road and in operation.
7. Do not exceed a PTO speed of 540 rpm
8. Tighten all nuts and bolts regularly.
9. Do not remove any safety guards or covers, these have been fitted for your safety.
10. Keep PTO shaft safety tubes and yoke covers intact - NB - Replace if damaged.
11. Remove drive wheel chain when towing at high speeds. (20km plus)

SETTING THE TRACK OF THE CONVEYOR BELT

(All directions are from the rear of the spreader facing forward)

- ◆ The conveyor belt system consist of two rollers over which a conveyor belt spans. The first roller, referred to as the "drive roller" (See page 16 Item 7) is situated at the rear of the conveyor and the second roller, the "tensioning roller" (See page 16 Item 8) situated at the front.
- ◆ There are two kinds of tensioning mechanism on the conveyor system, namely the "take up bearings" (See page 16 Item 9) situated at the front of the conveyor and an "adjustable wood bearing" (See page 16 Item 4) found in the center on the R.H. side of the conveyor cassette.



MAKING THE ADJUSTMENTS

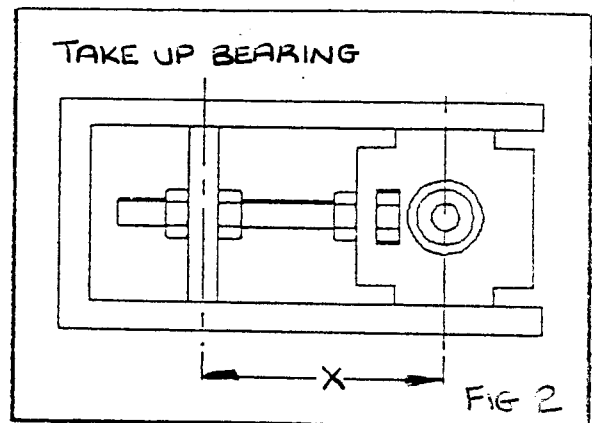
The conveyor tracking is set using two procedures in sequence. The first would be a **NO LOAD** setting and the second a **FULL LOAD** setting. The schematic illustration (**Fig. 1**) will assist you with the setting of the conveyor belt.

STEP 1 - NO LOAD ADJUSTMENT (Hopper empty)

The take up bearings on either side of the conveyor must be adjusted to track the belt true. (**Fig. 1 a & b**)

Belt moves to the Left

If the belt moves to the left, then the L.H. take up bearing (A) must be adjusted forward to increase the belt tension. (**Fig 2 x**) If the belt tension is already tight, then back off the right hand take up bearing (B) to decrease the tension



Belt moves to the right

If the belt moves to the right, then the R.H. take up bearing (B) must be adjusted forward to increase the belt tension. If the belt tension is already tight, then back off the left hand take up bearing (A) to decrease the tension.

Note!

Small adjustments should be made and checked after a distance of $\pm 100\text{m}$ plus has been covered. (The conveyor belt must complete one full revolution) Once the belt is running true, the **FULL LOAD** adjustment can be done.

STEP 2 - FULL LOAD ADJUSTMENT

(The bin should now be filled with the required load)

The wood bearing which houses the idler rollers can move backwards or forwards. This is done by adjusting the set-screw in or out. (Fig 3)

Belt moves to the left.

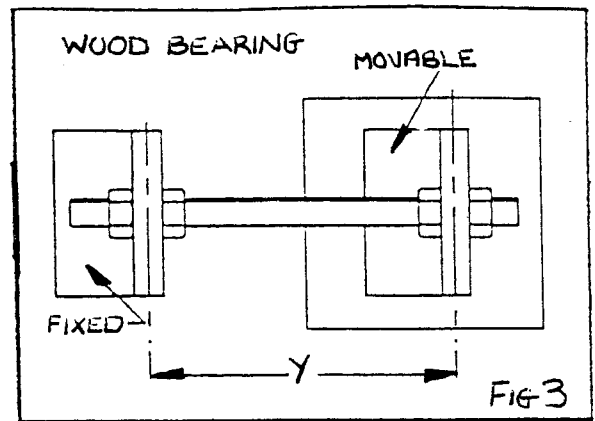
If the belt moves to the left, then the wood bearing must be adjusted slightly forward 2mm (Increase distance Y) This adjustment will move the idler rollers slightly forward.

Belt moves to the Right

If the belt moves to the right, then the wood bearing must be adjusted slightly to the rear by 2mm (Decrease distance Y) This adjustment will move the idler rollers slightly to the rear.

Note!

2mm adjustments should be made at a time and checked after a distance of $\pm 100\text{m}$ plus has been covered. (The conveyor belt must complete one full revolution)



SETTING OF THE SPINNER DRIVE "V" BELT

STEP 1 - TO CHECK THE "V" BELT TENSION

- Take hold of both spinner disc, one in each hand and try to force both spinner disc in the same direction, left or right.
- If both spinners can turn in any one direction with the same movement force, then the "V" belt is to slack and should be tensioned.

STEP 2 - TO ADJUST THE BELT TENSION

- The tension on the belt is controlled/set by means of the R.H. pulley (See page 30 Item 12) found inside the spinner box.
- Loosen the lock nuts securing both bearings under the R.H. spinner disc (See page 30 Item 24)
- Now adjust the tensioner bracket by turning the set- screw clockwise(small adjustments) until the disc do not move (Step 1 a & b) (See page 30 Item 4 & 25)
- Tighten lock nuts securing bearings under R.H. spinner disc.

CALIBRATION

SPREADING WIDTH

There are many misconceptions when using the phrase “spreading width”

“Spreading width” or “Maximum spreading width” is the furthest points to the left and right where material is thrown. This width will vary considerably with different materials.

With any type of disc spreader the material thins out to the maximum positions to the left and right. Therefore its essential to overlap the bouts or runs to obtain an “even spread” which is referred to as the “effective spreading width”.

(See Fig. 5)

When setting up your spreader in the field it is essential to do 2 or more bouts (runs) to ascertain the most effective spreading width or distance between bouts. Most farmers prefer to do a 100% overlap, but this depends on the material and purpose of spreading for specific needs.

SPREAD PATTERN

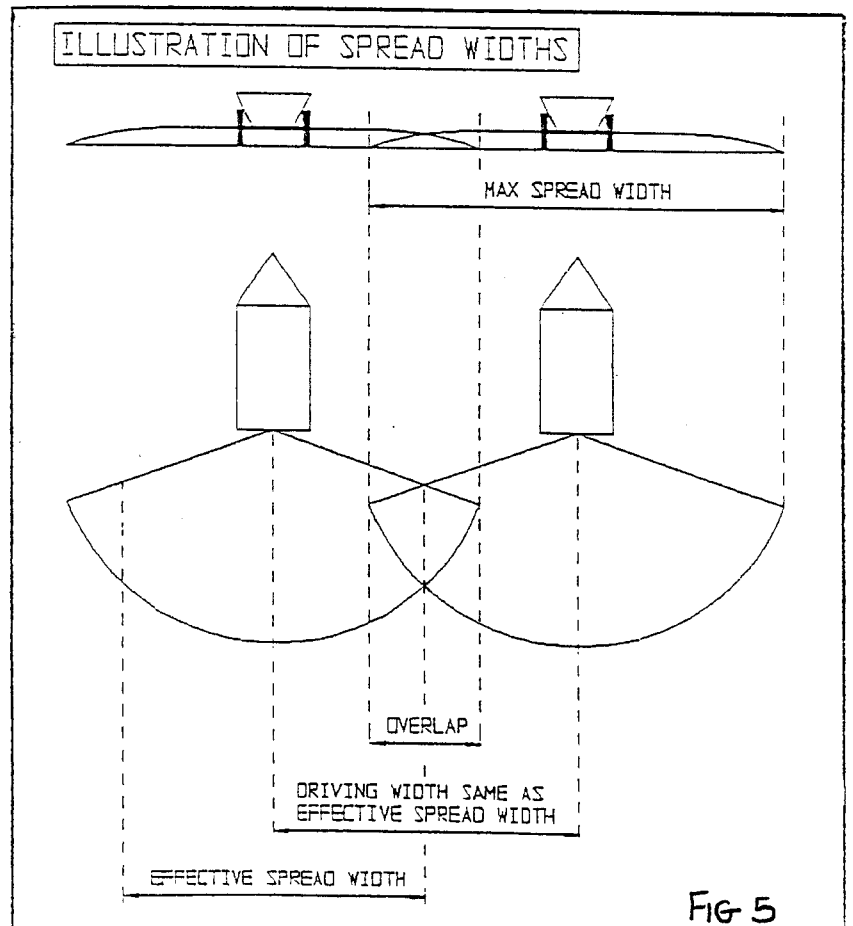


FIG 5

HOW TO CALIBRATE

STEP 1 - Determine the effective spreading width

- a) Fill the hopper with the required material
- b) Set the gate opening. (With reference to the calibration charts page 8)
 - Select the desired application rate and approximate *row width* you intend to spread.
 - Read of the corresponding gate opening. (Be advised that the charts merely serve as an indication)
- c) Engage the spinners and conveyor belt and drive for approximately 10m
- d) Measure the maximum spreading width in meters.
- e) Do another run as in point (c) The center distance between the two runs must be the selected *row width (b)* taken from the sowing chart.
- f) Make sure that you are satisfied with the spread pattern. (Evenness of material)
- g) You can now determine the ideal center distance between bouts in meters. (*Effective spreading width in meters*)

STEP 2 - Calculating the desired application rate (kg/ha)

With the distance between bouts determined (*Effective spreading width*) as above (g) Proceed as follows to determine the correct gate setting to give you the desired kg/ha

- a) Jack up the drive wheel to rotate freely
- b) Adjust feed gate to required setting as per chart.
- c) Rotate wheel number of revolutions according to the chart (See wheel size) This will give you the distance the wheel will rotate over a 100m
- d) Catch material delivered and weigh. (Amount over a 100m)

STEP 3 - Use the formula to calculate the desired kg/ha application

$\frac{100\text{m (Width of hectare)}}{\text{Center dist. between bout in m (Step 1)}} \times \text{Mass of material kg (Step 2d)} = \text{Kg/Ha}$
--

The gate setting can be altered to obtain the correct application rate per hectare

Note!

- a) The calibration charts serve merely as an indication
- b) Repeat steps 2 and 3 more than once to double check the quantities
- c) If the amount delivered at a 20mm gate opening is a 100kg/ha and 200kg/ha is required, DO NOT assume that the gate opening can be set to 40mm.
- d) Re check calibration after each setting.

RF 4500 L Spreader gear cluster configurations

RF 4500L SPREADER (WIDE BELT)			
Wheel size 56x22.05 (Trelliborg) 29 Wheel revolutions = 100m			
DRIVE SPROCKETS FRONT		DRIVEN SPROCKETS REAR	
			GEAR SPEED RATIO
18t		27t	1st Gear 1 : 0.667
18t		22t	2nd Gear 1 : 0.818
23t		27t	3rd Gear 1 : 0.852
23t		22t	4th Gear 1 : 1.045
30t		27t	5th Gear 1 : 1.111
18t		15t	6th Gear 1 : 1.2
30t		22t	7th Gear 1 : 1.364
23t		15t	8th Gear 1 : 1.533
30t		15t	9th Gear 1 : 2.0

FR 4500 L Calibration charts

Note! All gate openings, row widths & quantities listed are approximate and serve merely as an indication to assist with proper calibration as prescribed on page 5 & 6

Lime & Gypsum (Big gate)

RF 4500L Spreader (Wide Belt)							LIME & GYPSUM BIG GATE			
<i>Wheel size : 56x22.05</i>							5th Gear = 30t to 27t sprocket			
<i>29 wheel revolutions = 100m</i>										
ROW WIDTHS	GATE SETTINGS in millimeters									
	20	40	60	80	100	120	140	160	180	200
6m	567	1134	1700	2267	2834	3401	3967	4534	5101	5668
8m	425	850	1275	1700	2125	2550	2975	3400	3825	4250
10m	340	680	1020	1360	1700	2040	2380	2720	3060	3400
All quantities listed are in kg/ha										

Lime & Gypsum (Big gate)

RF 4500L Spreader (Wide Belt)							LIME or GYPSUM BIG GATE			
<i>Wheel size : 56x22.05</i>							9th Gear = 30t to 15t sprocket			
<i>29 wheel revolutions = 100m</i>										
ROW WIDTHS	GATE SETTINGS in millimeters									
	20	40	60	80	100	120	140	160	180	200
6m	1022	2044	3067	4089	5111	6133	7155	8178	9200	10222
8m	767	1533	2300	3066	3833	4599	5366	6132	6899	7665
10m	613	1226	1840	2453	3066	3679	4292	4906	5519	6132
All quantities listed are in kg/ha										

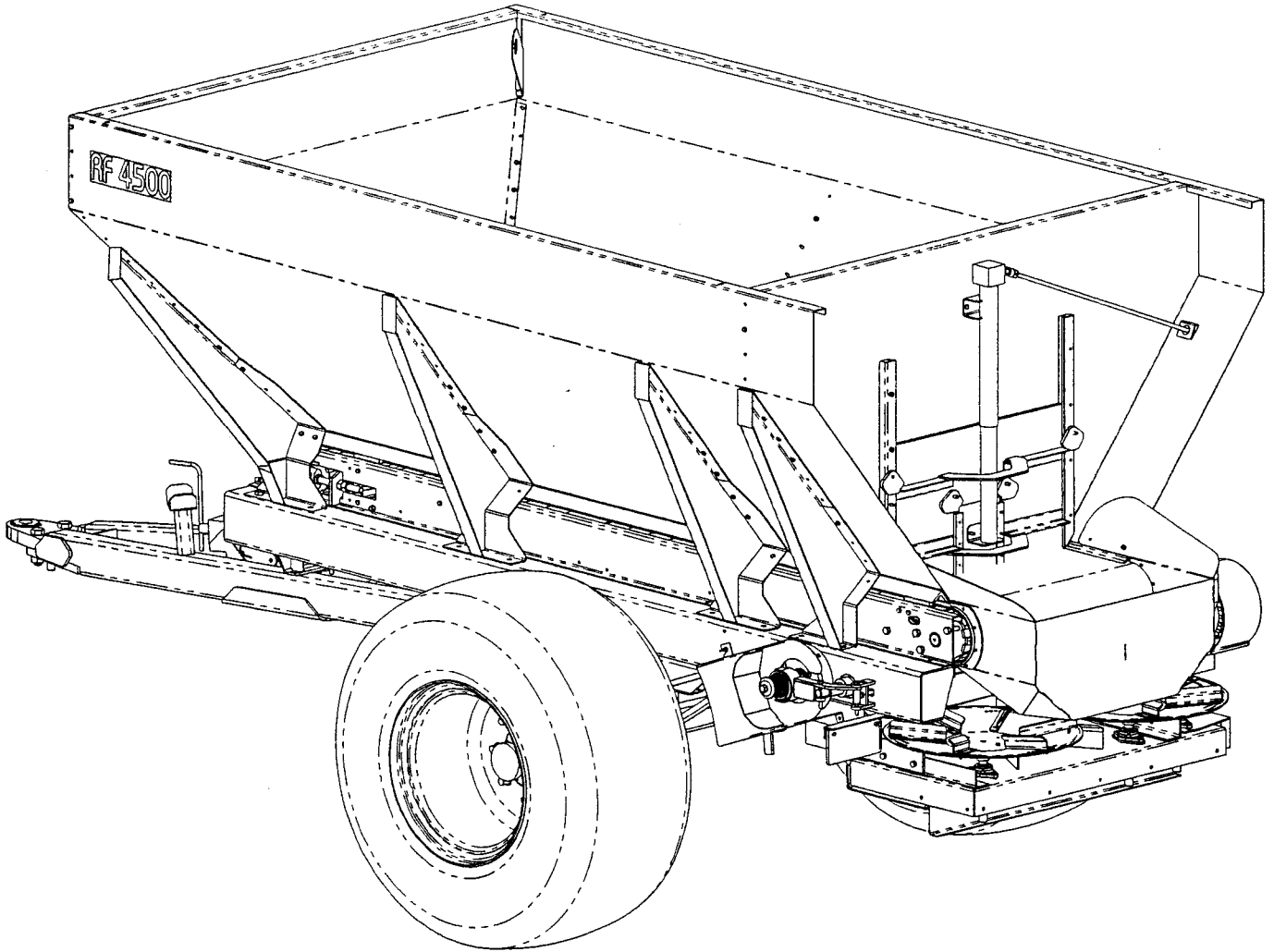
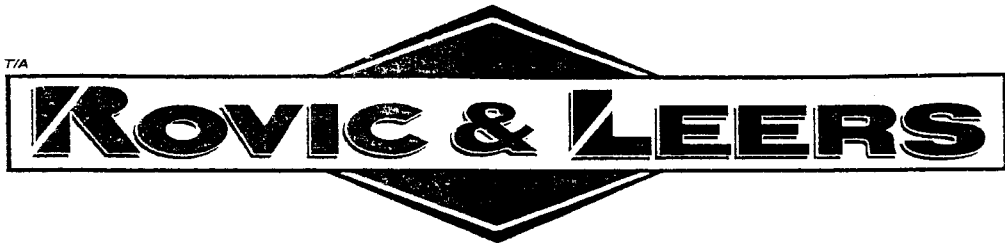
Granular Fertilizer - (Big gate)

RF 4500L Spreader (Wide Belt)							FERTILISER BIG GATE			
<i>Wheel size : 56x22.05</i>							1st Gear = 18t to 27t sprocket			
<i>29 wheel revolutions = 100m</i>										
ROW WIDTH	GATE SETTINGS in millimeters									
	20	40	60	80	100	120	140	160	180	200
10	210	410	620	820	1030	1240	1440	1650	1850	2060
12	252	492	744	984	1236	1488	1728	1980	2220	2472
14	294	574	868	1148	1442	1736	2016	2310	2590	2884
16	336	656	992	1312	1648	1984	2304	2640	2960	3296
18	378	738	1116	1476	1854	2232	2592	2970	3330	3708
All quantities listed are in kg/ha										

Notes

Notes

T/A



PARTS MANUAL
RF 4500 L Trailed Spreader

PARTS INDEX

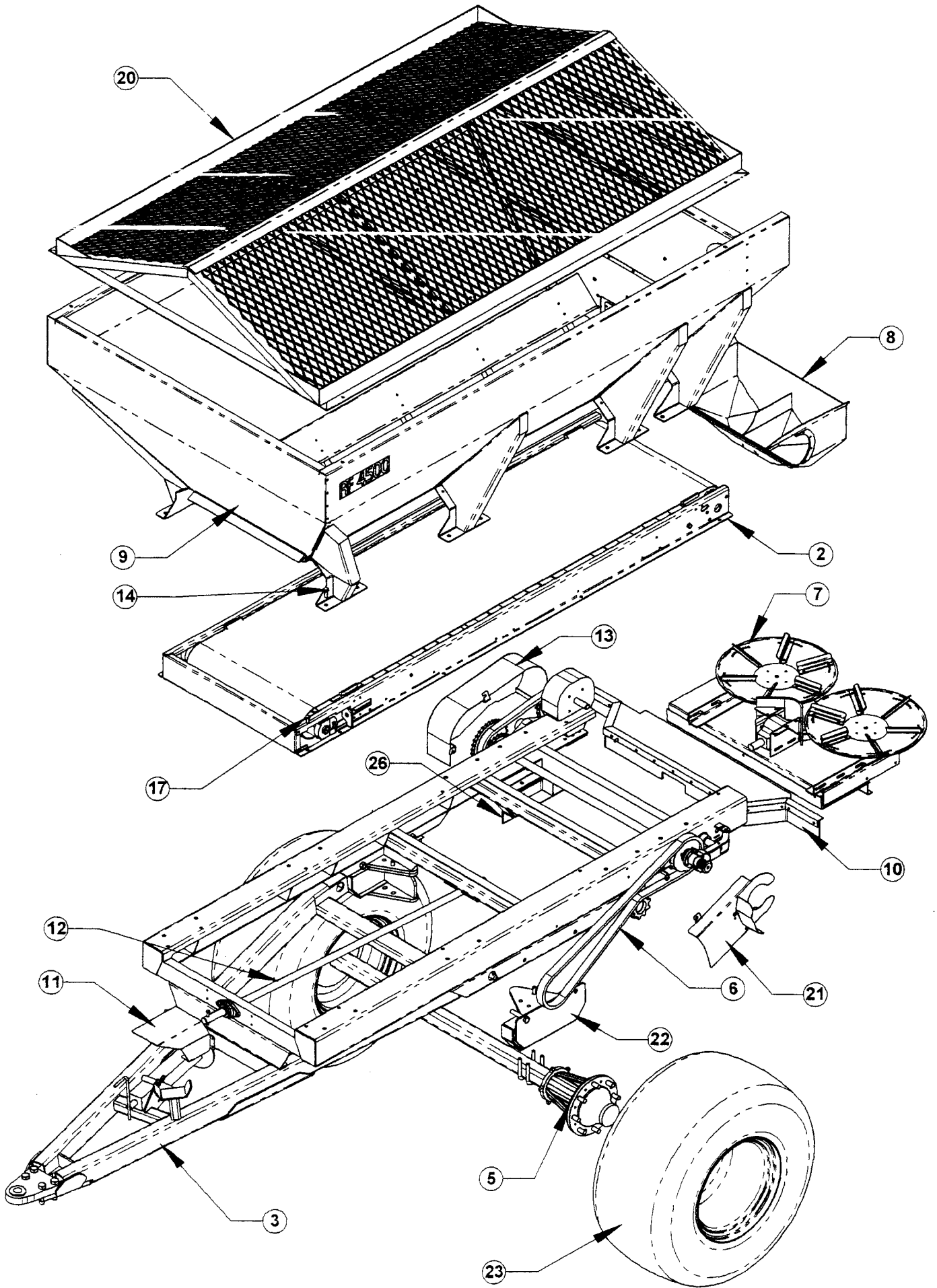
Description	Page no.
RF 4500 L Spreader Sub assembly -----	13 - 14
4500L Conveyor belt cassette -----	15 - 16
Belt guides & support-----	17
Drawbar -----	18
Hitch mount -----	19
Axle spacer (560 x 22.5 Trelliborg) -----	20
Spinner box hanger bracket R.H. & L.H. -----	20
Axle-----	21
Axle wheel drive sprocket -----	21
Rim & Tyre (560 x 22.5 Trelliborg) -----	22
4500 Liter Bin -----	23 -24 -25
Calibration gate jack -----	26
Calibration gate RF 4500 L-----	27
Distribution chute RF4500 L -----	28
Lime bridge -----	29 - 30
Spinner box -----	31 - 32
Spinner disc -----	33 - 34
Spinner disc guard-----	35
Spinner box drive -----	36
Conveyor belt drive -----	37 - 38
Clutch slide head -----	39
Clutch drive sprocket -----	40
Clutch fork -----	41
Wheel drive chain tensioner -----	42
Gearbox chain drive tensioner-----	43
Wheel drive chain cover (Trelliborg) -----	44
PTO Guard -----	45
Drawbar chassis spacer -----	46
Clutch hydraulic hose -----	47
Conveyor drive gearbox -----	48
Spinner box gear box 90° -----	49
RF 4500 L Sieve -----	50

RF 4500 L Spreader sub assembly

LT57100 – 4500L SPREADER SUB ASSEMBLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION	PAGE NO.
1	1	LT57110	4500L CHASSIS	14
2	1	LT57130	4500L CONVEYOR BELT CASSETTE	15-16
3	1	LT58241	DRAWBAR	18
4	1	LT58249	DRAWBAR / CHASSIS SPACER	46
5	1	LT58250	AXLE & WHEEL DRIVE SPROCKET	21
6	1	LT58235	CONVEYOR BELT DRIVE	37-38
7	1	LT57520	SPINNER BOX	31-34
8	1	LT57513	DISTRIBUTION CHUTE	41
9	1	LT57160	4500L BIN	23-25
10	1	LT57418	SPINNER DISC GUARD	35
11	1	LT58253	PTO GUARD	45
12	1	LT58254	SPINNER BOX DRIVE	36
13	1	LT58255	GEARBOX CHAIN COVER	14
14	16	M16X40SSS	S/STEEL SET SCREW	
15	16	M16SFW	S/STEEL FLAT WASHER	
16	16	M16SNY	S/STEEL NYLOCK NUT	
17	10	M12X30SSS	S/STEEL SET SCREW	
18	10	M12SFW	S/STEEL FLAT WASHER	
19	10	M12SNY	S/STEEL NYLOCK NUT	
20	1	LT58256	4500L SIEVE	50
21	1	LT58260	WHEEL DRIVE CHAIN COVER (TRELLEBORG)	43
22	2	LT58268	560 X 22.5 AXLE SPACER (TRELLEBORG)	20
23	2	LT58276	RIM & TYRE (560 X 22.5 TRELLEBORG)	22
24	1	LT58257	CHAIN COVER MOUNTING	28
25	1	LT58311	SPINNERBOX HANGER BRACKET - LH	20
26	1	LT58312	SPINNERBOX HANGER BRACKET - RH	20

RF 4500 L Spreader sub assembly

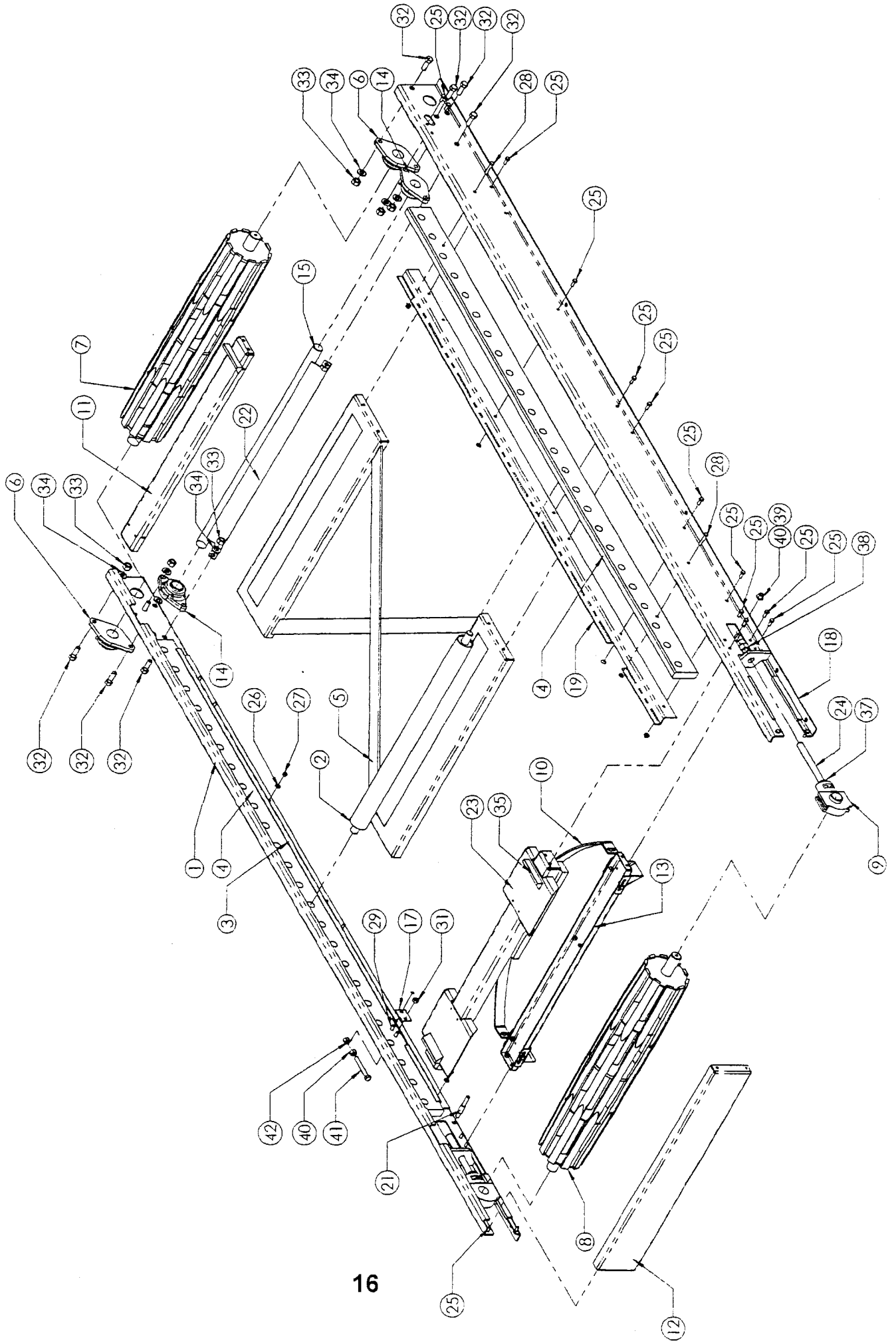


RF 4500 L Conveyor belt cassette

LT57130 – 4500L CONVEYOR BELT CASSETTE

ITEM NO.	QTY.	PART NO.	DESCRIPTION	ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	LT57260	CONVEYOR SIDE ASSY. - RH	22	1	LT57132	CONVEYOR REAR SCRAPER
2	24	LT57220	IDLER ROLLER ASSY.	23	1	LT57431	WIDE BELT SUPPORT
3	1	LT57240	WOOD BEARER SUPPORT - RH	24	2	LT57267	M20 READY BOLT
4	2	LT57253	WOOD BEARER	25	30	M8X20SSS	S/STEEL SET SCREW
5	1	LT57264	CROSS BELT SUPPORT	26	32	M8SFW	S/STEEL FLAT WASHER
6	2	LS2213	NSK UCFL208 Ø40 FLANGE TYPE BEARING UNIT	27	32	M8SNY	S/STEEL NYLOCK NUT
7	1	LT57263	DRIVE SLATTED ROLLER ASSY.	28	2	M8X45S	S/STEEL BOLT
8	1	LT57150	SLATTED IDLER ROLLER ASSY.	29	2	M10X50S	S/STEEL BOLT
9	2	LS2216	NSK UCT207 Ø40 TAKEUP TYPE BEARING	30	2	M10SFW	S/STEEL FLAT WASHER
10	1	LT57265	BELT SCRAPER ASSY.	31	2	M10SNY	S/STEEL NYLOCK NUT
11	1	LT57206	BELT SUPPORT	32	8	M14X40SSS	S/STEEL SET SCREW
12	1	LT57205	BEAUTY PANEL	33	8	M14SNY	S/STEEL NYLOCK NUT
13	1	LT58280	BELT GUIDE & SUPPORT ASSY	34	8	M14SFW	S/STEEL FLAT WASHER
14	2	LS2218	NSK UCFL207 Ø35 FLANGE TYPE BEARING UNIT	35	4	LT58248	NYLON BELT GUIDE
15	1	LT57222	IDLER SHAFT	36	8	M4,2X12SST	S/STEEL SELF TAPPING SCREW
16	1	LT57266	LOOSE ADJ. ASSY.	37	4	M20G1-2N	GALV HALF NUT
17	1	LT57223	IDLER ROLLER ADJ. BRKT BASE PLATE	38	4	M20GN	GALV NUT
18	1	LT57261	CONVEYOR SIDE ASSY - LH	39	2	M12SFW	S/STEEL FLAT WASHER
19	1	LT57239	WOOD BEARER SUPPORT - LH	40	4	M12SNY	S/STEEL NYLOCK NUT
20	1	LT57268	800mm WIDE BELT	41	1	M12X100SSS	S/STEEL SET SCREW
21	2	LT57131	SCRAPER MNTG. PIN	42	1	M12SN	S/STEEL NUT

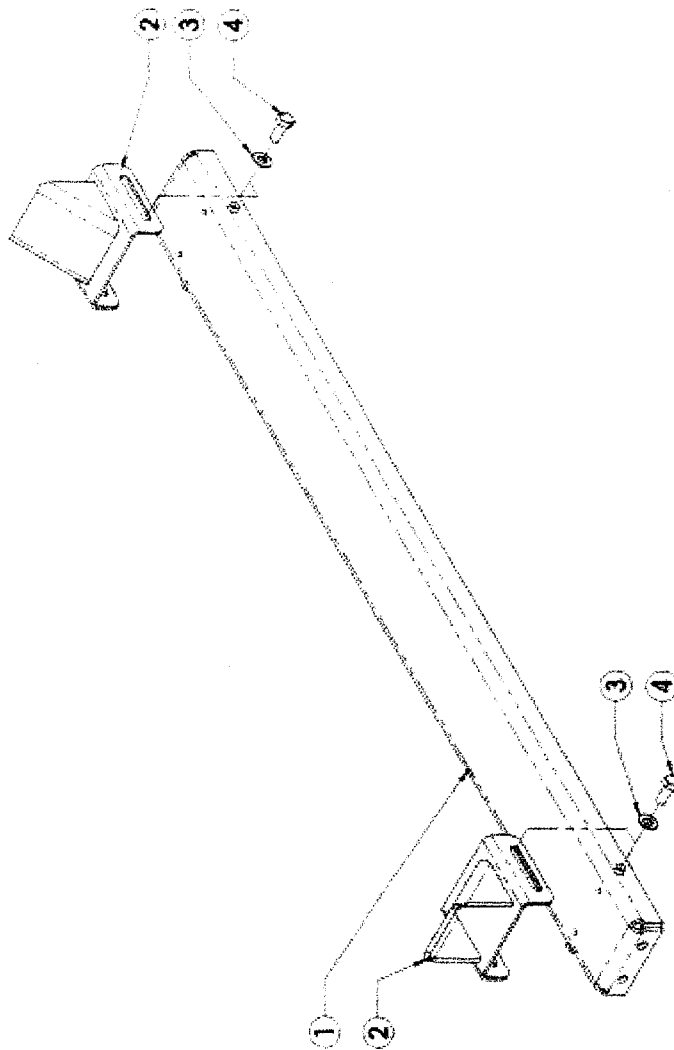
4500 L Conveyor belt cassette



Belt guides & Support

LT58280 - BELT GUIDE & SUPPORT

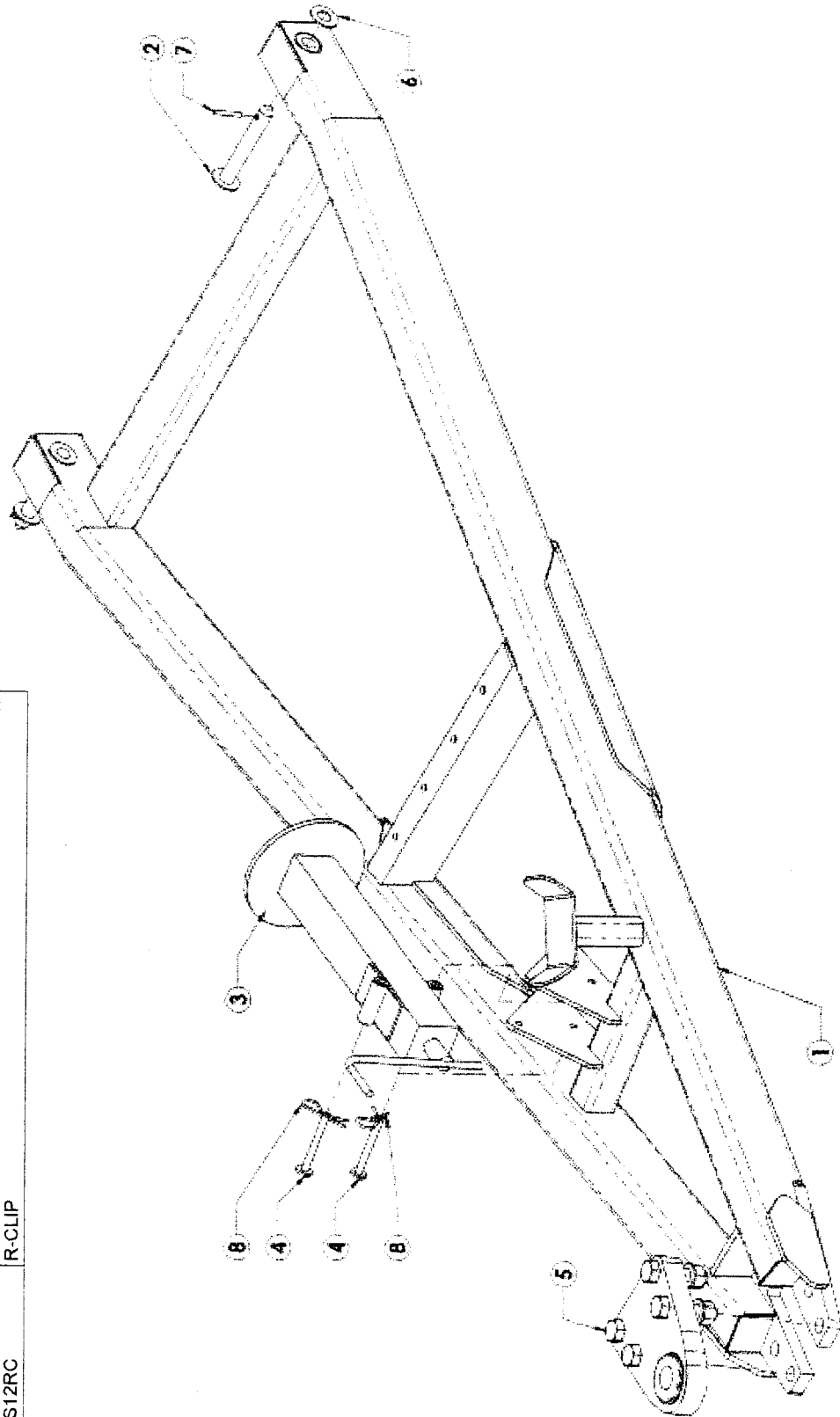
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	LT58281	BELT SUPPORT PAN ASSY
2	2	LT58282	BELT GUIDE ASSY
3	4	M8SFW	S/STEEL FLAT WASHER
4	4	M8X20SSS	S/STEEL SET SCREW



LT58241 – DRAWBAR

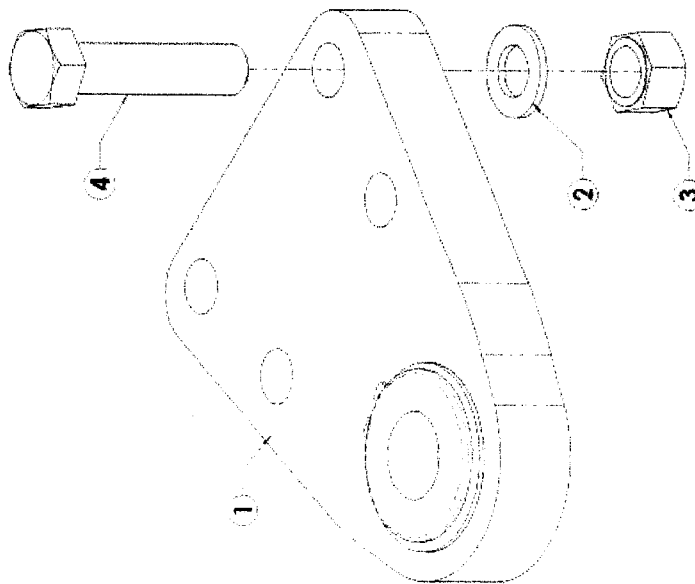
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	LT57190	DRAWBAR ASSY
2	2	LT58244	DRAWBAR PIN ASSY.
3	1	WA10185	PARKING JACK ASSY
4	2	WA10190	PARKING JACK PIN ASSY
5	1	LR10380	HITCH ASSY
6	2	1" X 2" GFW	1" X 2" GALV FLAT WASHER
7	2	M8X55GP	M8X55 GROOVE PIN
8	2	S12RC	R-CLIP

Drawbar



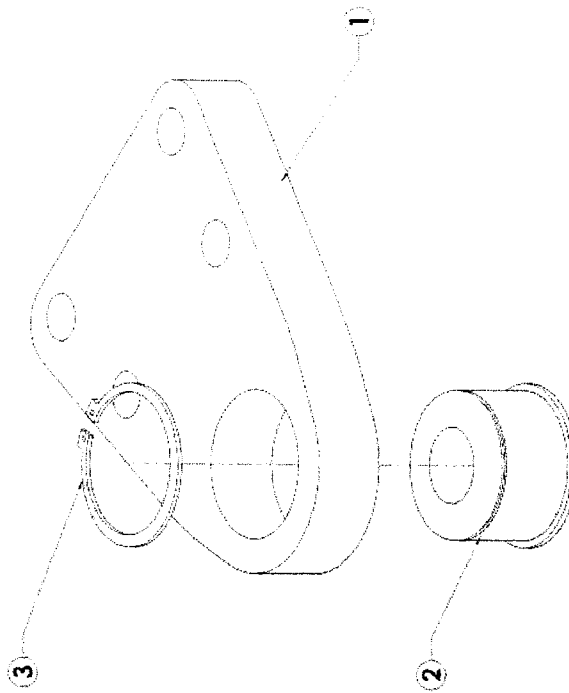
LR10380 -- HITCH MOUNT

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	LR10162	HITCH PLATE ASSY
2	4	M24SFW	S/STEEL FLAT WASHER
3	4	M24SNY	S/STEEL NYLOCK NUT
4	4	M24X100S	S/STEEL BOLT



LR10162 - HITCH BUSH

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	LR10161	HITCH PLATE
2	1	JS21656A	BUSH, TONGUE 1 1/4" HITCH
3	1	M82CIR	M82 EXTERNAL CIRCLIP



Hitch Mount