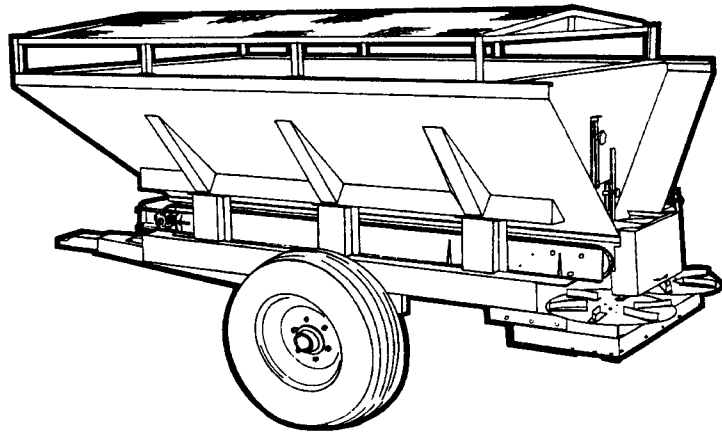


T/A

# ROVIC & LEERS



## Instruction Manual

### Spreader Models

**R 3 T**

**R 3 T ORCHARD**

**R 4 T SQUART**

**R 5 T SUPER**

PO BOX 281, KUISRIVER SOUTH AFRICA 7579  
SAXENBURG ROAD BLACKHEATH SOUTH AFRICA 7581  
TEL: 27 (0) 21 905 1158 – FAX: +27 (0) 21 905 1570

**Rovic**  
*....for superior quality implements*

# INDEX

Description	Page
General Description _____	1
Spreader Specifications _____	1
Lubrication _____	2
Field operation and set up _____	2
Safety precautions _____	3
Spreading width _____	3
Calibration _____	4
Notes _____	5
Sowing charts _____	6 - 7
Removal of the conveyor cassette _____	8
Replacing of conveyor belt _____	9
Setting of conveyor belt _____	10 - 11
Setting of the spinner drive V-belt _____	12
Assembly adjustments _____	13
3 - Speed ratios _____	14
Notes _____	15
Notes _____	16

## Spare parts

Chassis and drawbar _____	11
Hopper _____	12 - 13
Spinner disc drive _____	14 - 15
90° gear box _____	16
Conveyor cassette _____	17 - 18
Axle and wheel assy _____	19 - 20
P.T.O. drive assy _____	21 - 22
Clutch and wheel drive assy _____	23 - 24
Conveyor belt drive gearbox _____	25
Decals and positions _____	26
Chute and spinner disc assy _____	27 - 28
Bunky chute (optional) _____	29
Hungry boards (optional) _____	30
3 - speed kit (optional) _____	31 - 32

Dear Farmer

Congratulations, you are now another proud owner of a Rovic spreader.

Rovic would like to say thank you for purchasing one of our products and we will do our utmost to keep you a satisfied and proud customer.

## GENERAL DESCRIPTION

The Rovic spreader is a multipurpose machine with a wide range of options and abilities. It gives an even spread width from 6 - 18 m and handles a variety of materials such as lime, gypsum, langfos, granular fertilizers and poultry manure.

With the aid of the adjustable feed gates at the rear of the spreader a wide range of applications (kg/ha) can be obtained.

The Rovic spreaders mainly consist of 4 modules namely a hopper, chassis, conveyor cassette and spinner cassette being bolted together for ease of: assembly, repairs, maintenance or replacement of complete modules if necessary.

An added advantage is the "ground wheel drive", driving the feed belt. This enables a constant volume of material to be spread, irrespective of the travelling speed of the spreader.

Different size wheel sprockets are available as well as a 3-speed kit to provide for different conveyor belt speeds. The conveyor belt is engaged from the tractor with a hydraulic assisted clutch mechanism.

The spinners are PTO driven.

The hopper, spinners, chute and several other components are powder coated. Since the introduction of the R5T super model, the bolts and nuts are of stainless steel.

### *Spreader Specifications*

MODEL	HOPPER CAPACITY (liter)	MASS EMPTY (kg)	BIN WIDTH (m)	TOTAL LENGTH (m)	HEIGHT (m)	WHEEL WIDTH (m)	TYRE SIZE	AXLE CARRYING CAPACITY
R3T	1700	800	1.86	3.25	1.69	1.83	12.0x18	3ton
R3.5TOS	1860	950	1.8	4.05	1.57	2.1	12.0x18	3ton
R4T Squat	2030	940	1.67	4.1	1.6	2.1	12.0x18	5ton
+Hungry boards	3210				1.85			
R5T	2840	1000	1.97	4.1	1.78	2.1	12.0x18	5ton
R5T Super	2840	1300	1.97	4.1	2.04	2.23	16.9x28	6ton
+Hungry boards	4280				2.29			

## LUBRICATION

To obtain long service from your Rovic Spreader regular attention to routine lubrication is of the utmost importance.

### NO. 1 GEAR BOXES

Belt drive reduction gearbox - capacity = 0,35 liter.  
Spinner drive 90° gearbox - capacity = 0,45 liter.

- A Use SAE 90 EP gear oil
- B Check levels regularly
- C Annually - Drain, flush out and refill gearbox

### NO. 2 AXLE WHEEL HUB BEARINGS

- A Check bearing preload weekly
- B Repack wheel bearings annually

### NO. 3 GREASE NIPPLES (18) DAILY

- A PTO (2) *(see page 21)*
- B Main drive shaft (3) *(see page 21)*
- C Spinner drive box bearings (6) *(see page 14)*
- D Belt drive roller (2) *(see page 17)*
- E Belt tension roller (2) *(see page 17)*
- F Idler shaft (2) *(see page 17)*
- G Clutch shaft (1) (belt drive) *(see page 23)*

### NO. 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 to suit the tractor drawbar and spreader before operating.
- 3) Ensure that PTO yokes are locked in position.
- 4) It is advisable to 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 discs as a stair.
- 5) Prevent any foreign material like stones, rocks and metal objects falling in the hopper.
- 6) Tow your Rovic spreader at a safe speed on roads.
- 7) Only use a PTO shaft speed of 540 rpm.
- 8) Tighten all bolts and nuts regularly.
- 9) Do not remove any safety guards or covers, these have been fitted for you 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.

## SPREADING WIDTH

There are many misconceptions when using the phrase "spreading width".

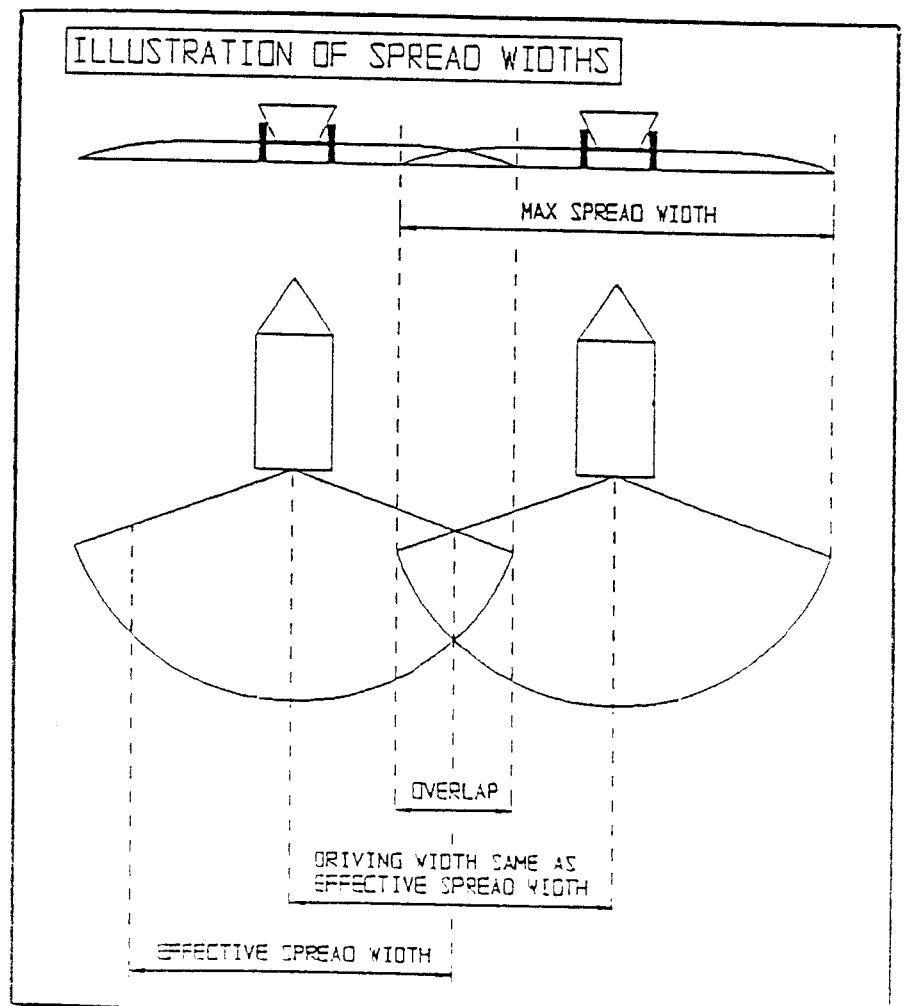
Spreading width varies considerably with different materials.

(Maximum spreading width) - the furthest points to left and right where material is thrown.

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

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



## CALIBRATION

### STEP 1 - DETERMINING THE EFFECTIVE SPREADING WIDTH

- A Fill up the hopper with required material.
- B Set gate opening according to sowing chart indicating the application rate and approximate width you intend to spread.  
Example: Granular - small gate = 147 kg/ha  
Drive sprocket = 8 tooth  
Gate opening = 20 mm  
Spread width = 10 m
- C Engage the spinners and conveyor belt and drive for approximately 10 m.
- D Measure the max spreaded width.
- E Do another run as in point C. 10 m from centre of run to centre of next run.
- F Observe whether you are satisfied with the spread pattern (evenness of material)
- G You can now determine the ideal distance between bouts which will be the effective spreading width.

### STEP 2 - CALCULATING THE APPLICATION (kg/ha)

With the effective spreading width determined as above, proceed as follow to determine the mass of material delivered over a 100 m run.

- 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 chart. (See wheel size)
- D Catch material delivered and weigh. (The amount for 100 m)

### STEP 3

Use the formula to calculate the kg/ha application.

$$\frac{100 \text{ m (width of ha)}}{\text{Effective spread width}} \quad \times \quad \text{Mass of material (step 2)}$$

The gate setting can now be altered to obtain the correct application.

- NB
- 1) The charts are only an indication.
  - 2) Repeat steps 2 and 3 more than once to double check quantities.
  - 3) If the amount delivered at a 20 mm gate opening is 100 kg/ha and 200 kg/ha is required, then DO NOT assume that the gate can only be set at 40 mm.
  - 4) Recheck calibration after each setting.

# NOTES

## GRAIN AND FERTILIZER SOWING CHARTS

NB Please note that all quantities are APPROXIMATE only, as materials from different suppliers, moisture contents and densities could vary considerably.

All quantities are in kg/ha.

### CHARTS FOR 12.0 X 18 X 10 PLY TYRES ( 36 wheel rotations = 100meters )

#### WHEAT - SMALL GATE

GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		25mm		30mm		35mm		40mm	
	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t
DRIVE	12	18	33	48	57	83	80	117	100	146	12	175	147	214	167	244
WIDTH	11	13	19	36	62	90	87	127	109	159	131	191	160	233	182	265
IN	10	15	22	42	71	104	100	146	125	182	150	219	184	268	209	305
METERS	9	16	23	44	64	76	111	107	156	133	194	160	233	196	286	324
	8	18	26	50	73	85	124	120	175	150	219	180	263	220	321	250

#### GRANULAR FERTILISER - SMALL GATE

GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		25mm		30mm		35mm		40mm		50mm		
	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	
DRIVE	12	20	29	52	76	81	118	123	179	154	225	193	281	234	341	257	375	335	489
WIDTH	11	21	31	58	85	88	128	133	194	168	245	211	308	256	373	280	408	367	535
IN	10	23	34	63	92	96	140	147	214	184	268	232	338	280	408	308	449	402	586
METERS	9	26	38	70	102	107	158	163	238	205	299	258	376	312	455	343	500	447	652
	8	29	42	79	115	120	175	183	267	230	335	290	423	350	510	386	563	502	732

#### GRANULAR FERTILISER - BIG GATE

GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		
	8t	12t	8t	12t	8t	12t	8t	12t	
DRIVE	12	77	112	197	287	253	369	413	602
WIDTH	11	84	123	215	314	276	403	450	656
IN	10	92	134	236	344	304	443	496	723
METERS	9	102	149	262	382	338	493	550	802
	8	115	168	295	430	380	554	620	904



## GRAIN AND FERTILIZER SOWING CHARTS

NB Please note that all quantities are APPROXIMATE only, as materials from different suppliers, moisture contents and densities could vary considerably.

All quantities are in kg/ha.

CHARTS FOR 16.9 X 28 X 10 PLY TYRES ( 23 wheel rotations = 100meters )

### WHEAT - SMALL GATE

GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		25mm		30mm		35mm		40mm		
	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	
DRIVE	12	7.7	11	21	31	36	53	51	75	64	93	77	112	94	137	107	156
WIDTH	11	8.3	12	23	34	40	58	56	81	70	102	84	122	102	149	117	170
IN	10	9.6	14	27	39	45	67	64	93	80	116	96	140	118	172	134	195
METERS	9	10	15	28	41	49	71	68	100	85	124	102	149	125	183	142	207
	8	12	17	32	47	54	79	77	112	96	140	115	168	141	205	160	234

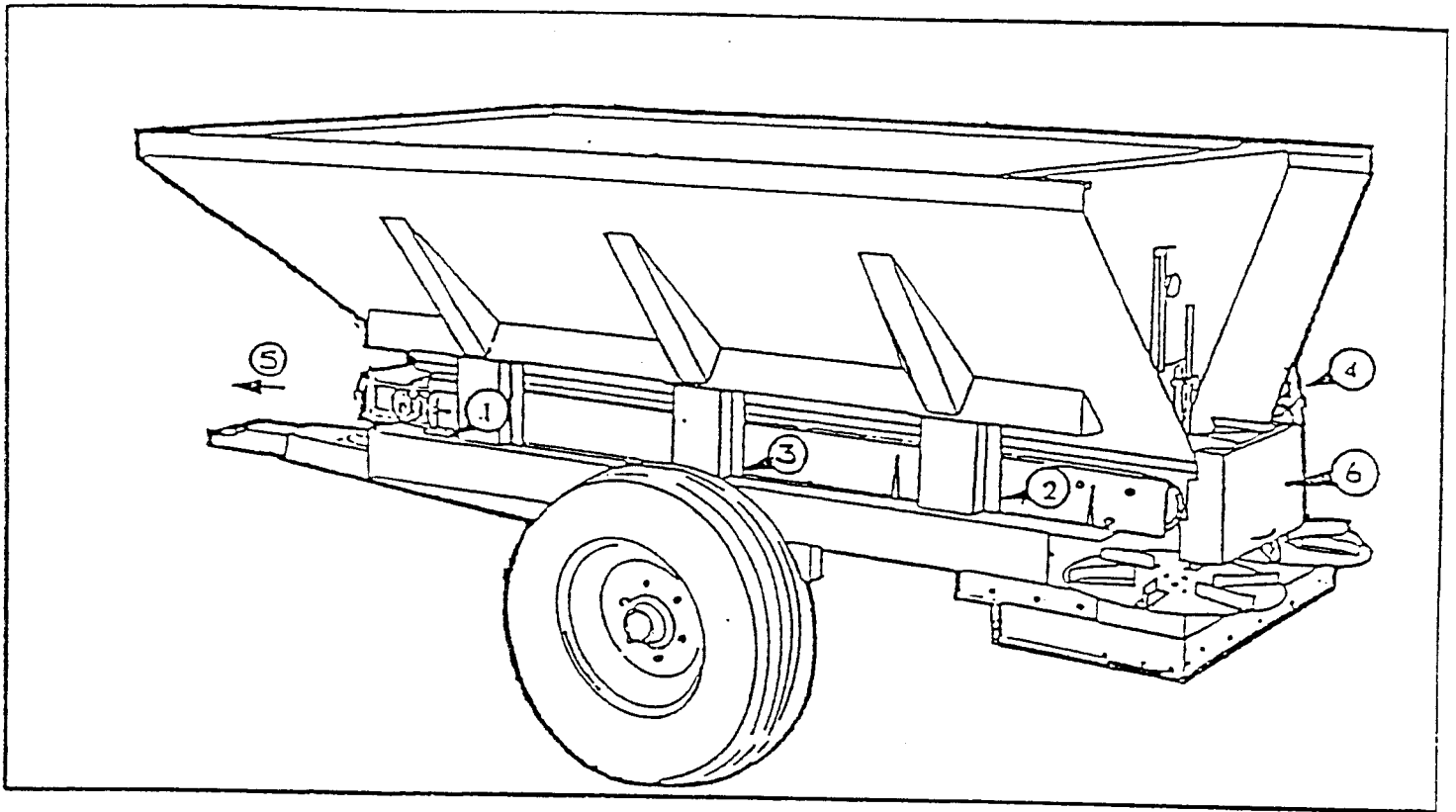
### GRANULAR FERTILISER - SMALL GATE

GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		25mm		30mm		35mm		40mm		50mm		
	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	8t	12t	
DRIVE	12	13	19	33	49	52	76	79	115	99	144	124	180	150	218	164	240	214	313
WIDTH	11	13	20	37	54	56	82	85	124	108	157	135	197	164	239	179	261	235	342
IN	10	15	22	40	59	61	90	94	137	118	172	148	216	179	261	197	287	257	375
METERS	9	17	24	45	65	68	101	104	152	131	191	165	241	200	291	220	320	286	417
	8	19	27	51	74	77	112	117	171	147	214	186	271	224	336	247	360	321	468

### GRANULAR FERTILISER - BIG GATE

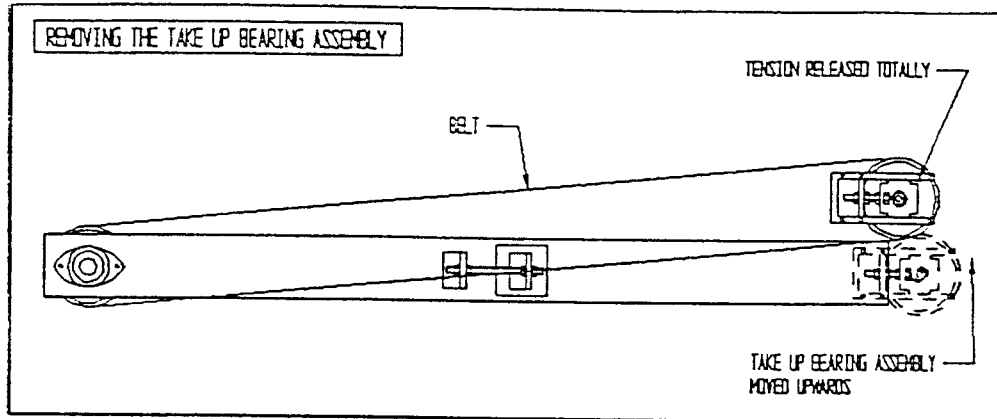
GATE OPENING DRIVE SPROCKET	5mm		10mm		15mm		20mm		
	8t	12t	8t	12t	8t	12t	8t	12t	
DRIVE	12	49	72	126	184	162	236	264	385
WIDTH	11	54	79	138	201	177	258	288	420
IN	10	59	86	151	220	195	284	317	462
METERS	9	65	96	168	244	216	316	352	513
	8	74	108	189	275	243	355	397	579

## REMOVAL OF THE CONVEYOR CASSETTE



- 1) Position 1, 2 and 3  
Remove the bolts (4 on R3T and 6 on R4T Squat and R5T models) as shown, in the illustration above, on the left and right hand sides.
- 2) Position 4  
Remove the two bearing grub screws (*see pg 17 item 1*) securing the reduction gearbox to the drive shaft. ( IF FITTED )  
  
Do not replace the grub screws.  
  
Remove the wheel drive chain.  
  
Remove the 2 securing bolts on the gearbox mounting bracket (*see pg 23 item 16*).  
  
Pull gearbox out towards you.
- 3) Position 6  
Remove the 4 bolts (*see pg 27 item 6*) on the chute mounting brackets.
- 4) Position 5  
Slide the conveyor cassette out towards the FRONT as shown in the illustration.

## REPLACING THE CONVEYOR BELT



- 1) Remove the conveyor cassette. (see page 10A )
- 2) Turn the conveyor cassette upside down - the idler shaft and scraper will now be facing you. (see pg 17 item 7 & 8).
- 3) Release the tension totally on the tensioner roller by adjusting the take up bearings backward. (see pg 17 item 27). Do not remove the tensioner roller.
- 4) Remove the belt support. (see pg 17 item 19)
- 5) Remove the beauty panel at the front end of the cassette (see pg 17 item 31). em 9).
- 6) Remove the 8 mounting bolts (see pg 17 item 25) and the nylon belt guides (see pg 17 item 47).
- 7) Remove the bottom belt guide (see pg 17 item 44) and brackets (see pg 17 item 45).
- 8) Move the tensioning roller to the position as indicated in the diagram and then remove it sideways (away from yourself).
- 9) Remove the belt support (see pg 17 item 12) by removing the 8 mounting bolts.
- 10) Remove the idler shaft and rear scraper (see pg 17 item 7 & 8) by removing the 4 bolts (see pg 17 item 2).
- 11) The belt can now be removed by sliding it over the side of the cassette. Also check that the rollers are clean and for abnormal wear in the wood bearings.
- 12) The new belt can now be installed and the above procedures repeated in reverse, except that the idler shaft and rear scraper must be fitted last. Ensure that the scraper is set up against the shaft with a 1mm clearance.
- 13) The conveyor cassette must now be turned the right way up.
- 14) Fit the belt support (see pg 17 item 19) and bottom belt guide (see pg 17 item 44).
- 15) The conveyor cassette can now be slid back into the spreader chassis and tightened. (Check for measurement on page 34 side view D)
- 16) The belt must now be readjusted as described under "Setting of the conveyor belt."

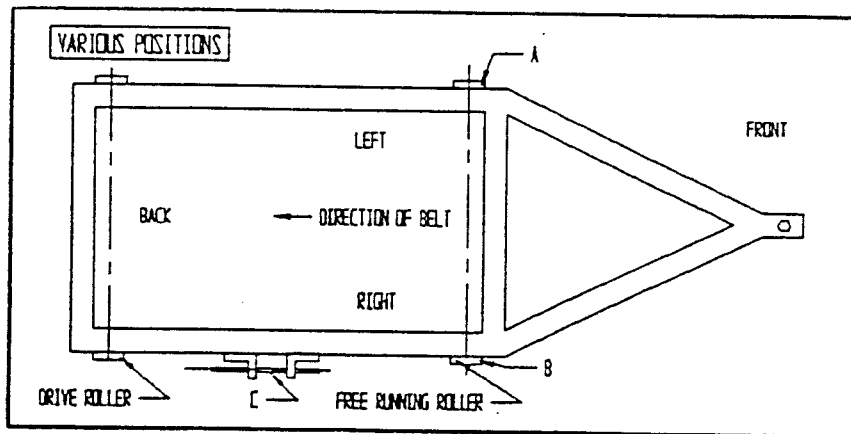
## SETTING OF THE CONVEYOR BELT

Firstly, your conveyor system consists of two rollers, namely a drive roller (see fig 17 item 5) situated at the rear and a tensioning roller (see fig 17 item 28) situated at the front of the conveyor.

There are 2 kinds of tensioning mechanisms on the conveyor system, namely a take up bearing (see fig 17 item 27) situated at the front and an adjustable wood bearing (see fig 17 item 38) situated in the centre of the righthand side of the conveyor cassette.

### ADJUSTMENTS:

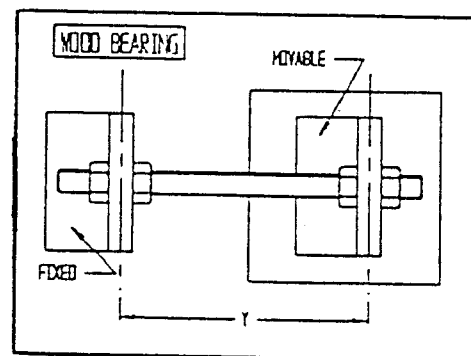
The conveyor tracking is set using two procedures. The first is a NO LOAD and the second a FULL LOAD adjustment. Before any adjustments are made, the nylon belt guide (see fig 17 item 43) and the bottom belt guide (see fig 17 item 44) must be slackedened and positioned so that they do not interfere with the tracking of the belts. The schematic diagram below will assist you with the setting of the conveyor belt:



### 1. NO LOAD ADJUSTMENT

The take up bearings, where an increase in distance X will increase the tension in the belt and vice versa (refer to accompanying figure), must now be adjusted.

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



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

Adjustments should be made and checked only after a distance of approximately 100m has been covered as this is the distance needed in order for the conveyor belt to make one complete revolution.

Only after the belt is running true should the second procedure be followed.

Only after the belt is running true should the second procedure be followed.

## 2. FULL LOAD ADJUSTMENT:

The bin should now be filled with the required load.

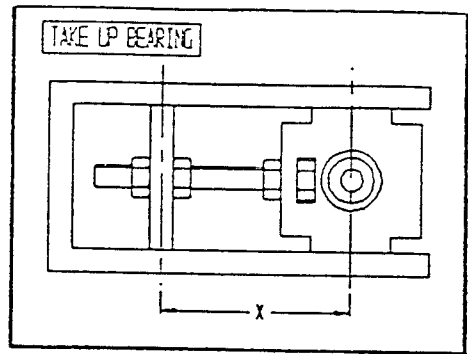
The wood bearing, where, an increase in distance Y will move the idler rollers (see fig 17 item 14) slightly forward, and vice versa, must now be adjusted.

If the belt moves to the left, then the wood bearing (C) should be adjusted slightly forward, thereby moving the idler rollers slightly forward.

If the belt moves to the right, then the wood bearing (C) should be adjusted slightly back, thereby moving the idler rollers slightly back.

Do not adjust the wood bearing more than 1mm forward or backward at a time as it is very sensitive.

The nylon belt guide and the bottom belt guide must now be adjusted and tightened so that it can assist the belt tracking correctly. Care must be taken not to adjust the guides incorrectly, thereby hindering the belt tracking.



## SETTING OF THE SPINNER DRIVE V-BELT

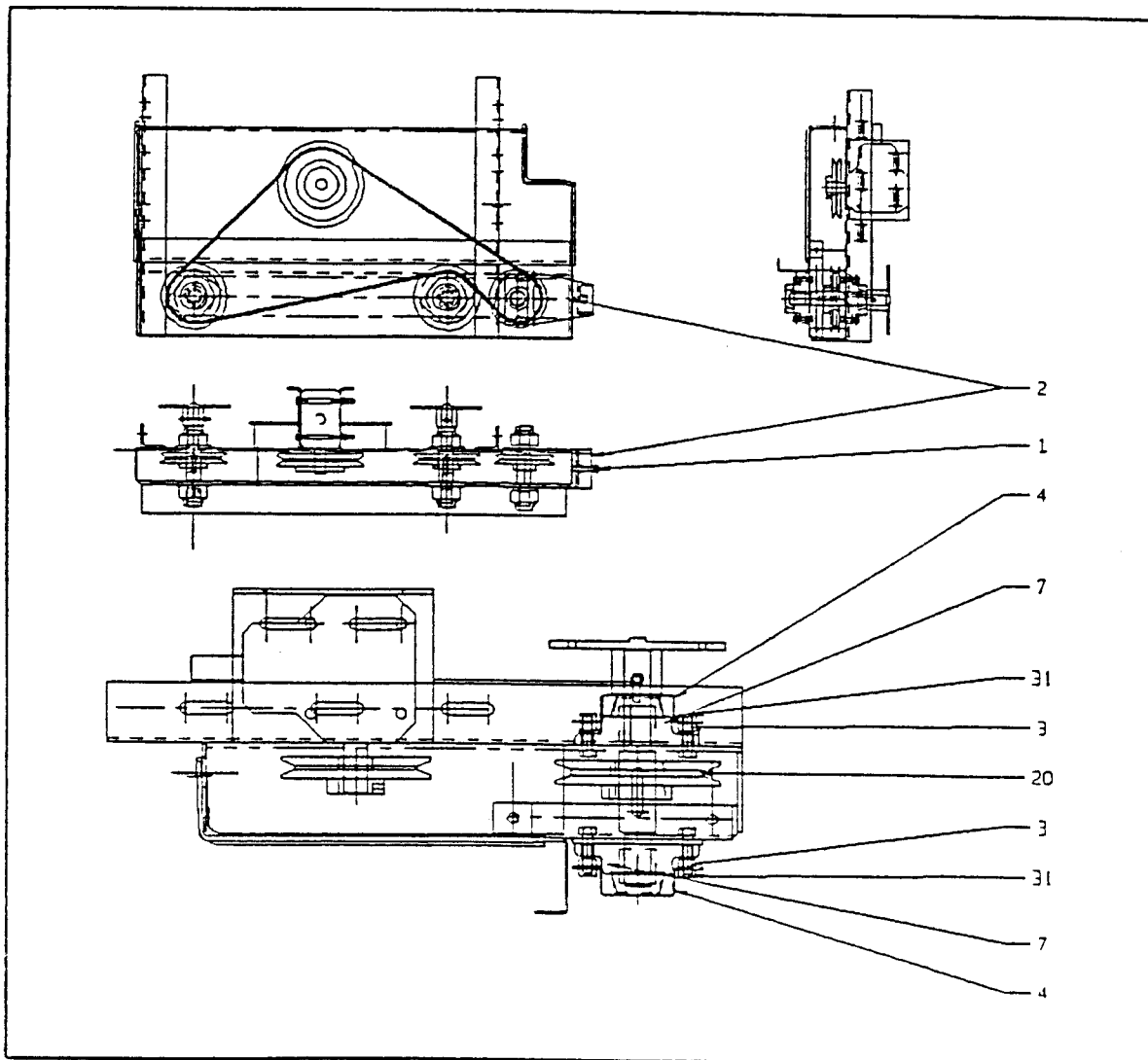
### TO CHECK THE V-BELT TENSION

Take hold of both spinner discs with one hand on each disc and try to force both 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 too slack and should be tensioned.

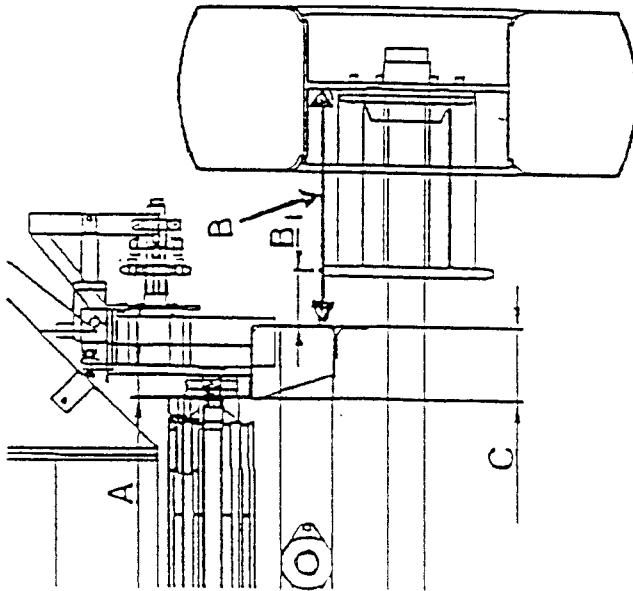
### TO ADJUST THE BELT TENSION

- 1) The belt is set by the R/H pulley (see pg.10 & 14 item 20) inside the spinner box.
- 2) Back off the locknuts (see pg.10 & 14 item 31) on top of bearing cap straps (see pg.10 & 14 item 4) and the nuts (see pg.10 & 14 item 3) securing the bearings (see pg.10 & 14 item 7). This should be done on the far RH top and bottom of the spinner box.
- 3) Now adjust the tensioner bracket (see pg.10 & 14 item 2) with the set screw (see pg.10 & 14 item 1).



CRITICAL ASSEMBLY MEASUREMENTS

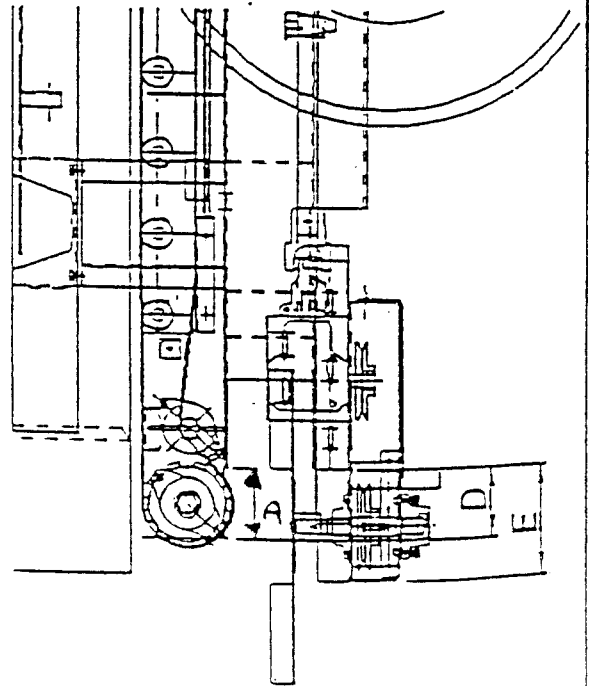
REAR VIEW



REAR VIEW

- A) From inside of conveyor cassette to inside of belt drive gearbox : 65mm
- B) From outside of chassis to outside of wheel hub :
  - R4TS & R5T : 445mm
  - R3T : 300mm
- B<sub>1</sub>) From outside of chassis to centre of wheel drive sprocket : 105mm
- C) From outside of chassis to inside of conveyor cassette : 142mm

SIDE VIEW

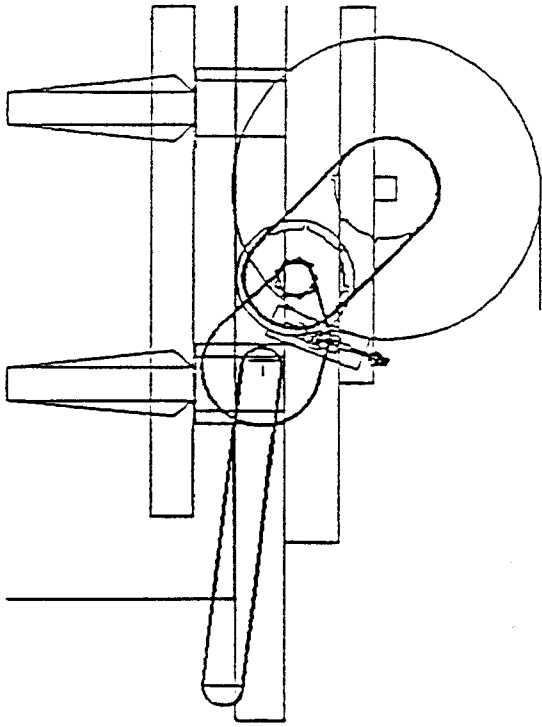


SIDE VIEW

- D) From end of conveyor cassette to end of chassis : 185mm
- E) From end of spinnerbox to end of chassis : 235mm

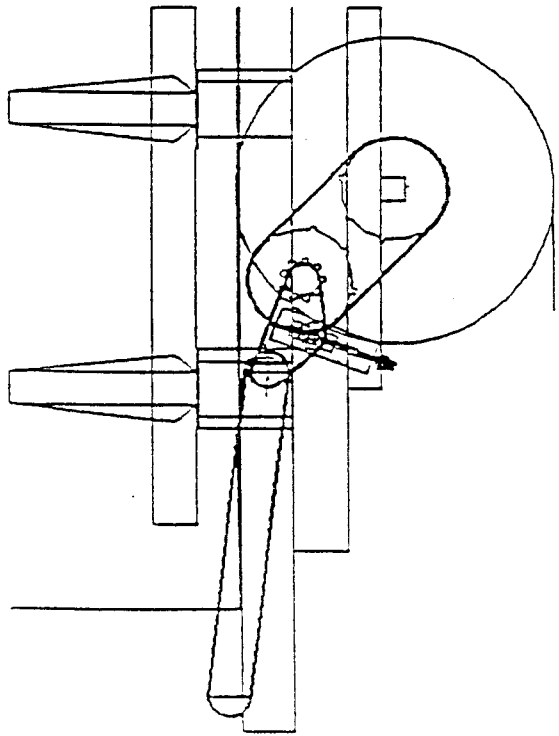
With the "3 Speed kit" the following ratios can be attained:

FIG. A (LOW GEAR)



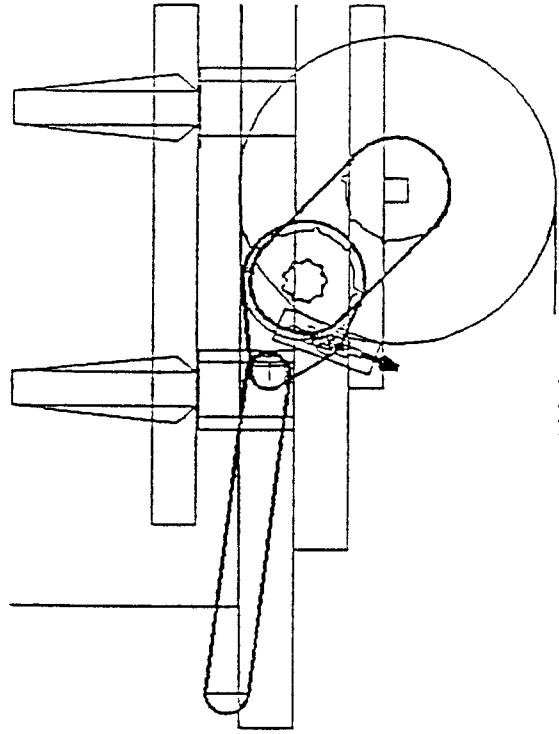
"low gear" (Fig. A) The belt speed is 10 times slower than standard. (27:1)

FIG. B (MED. GEAR)



"medium gear" (Fig. B) Same ratio as standard. (2,7 : 1)

FIG. C (HIGH GEAR)



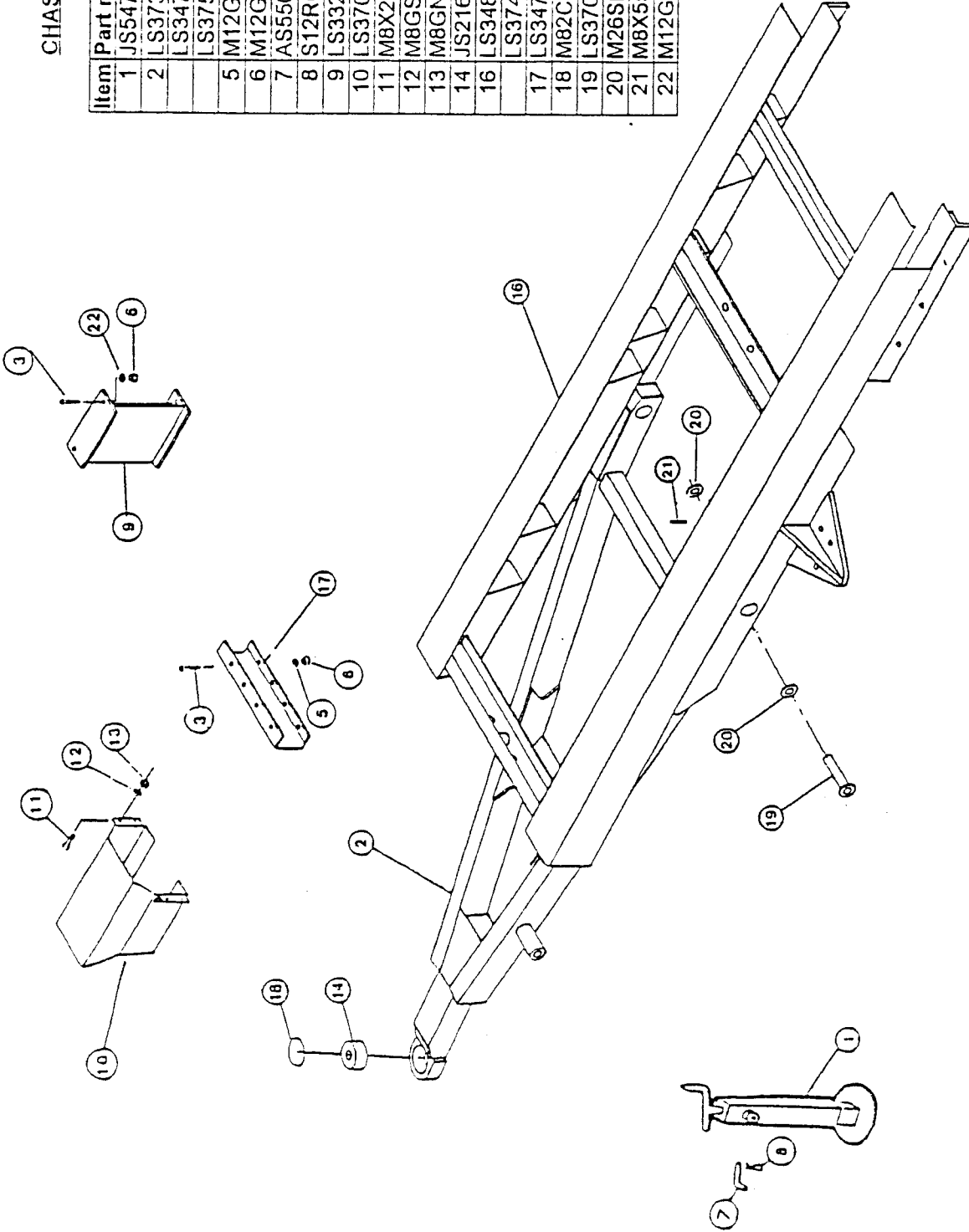
"high gear" (Fig. C) The belt speed is 1,5 times faster than standard. (1,8 : 1)



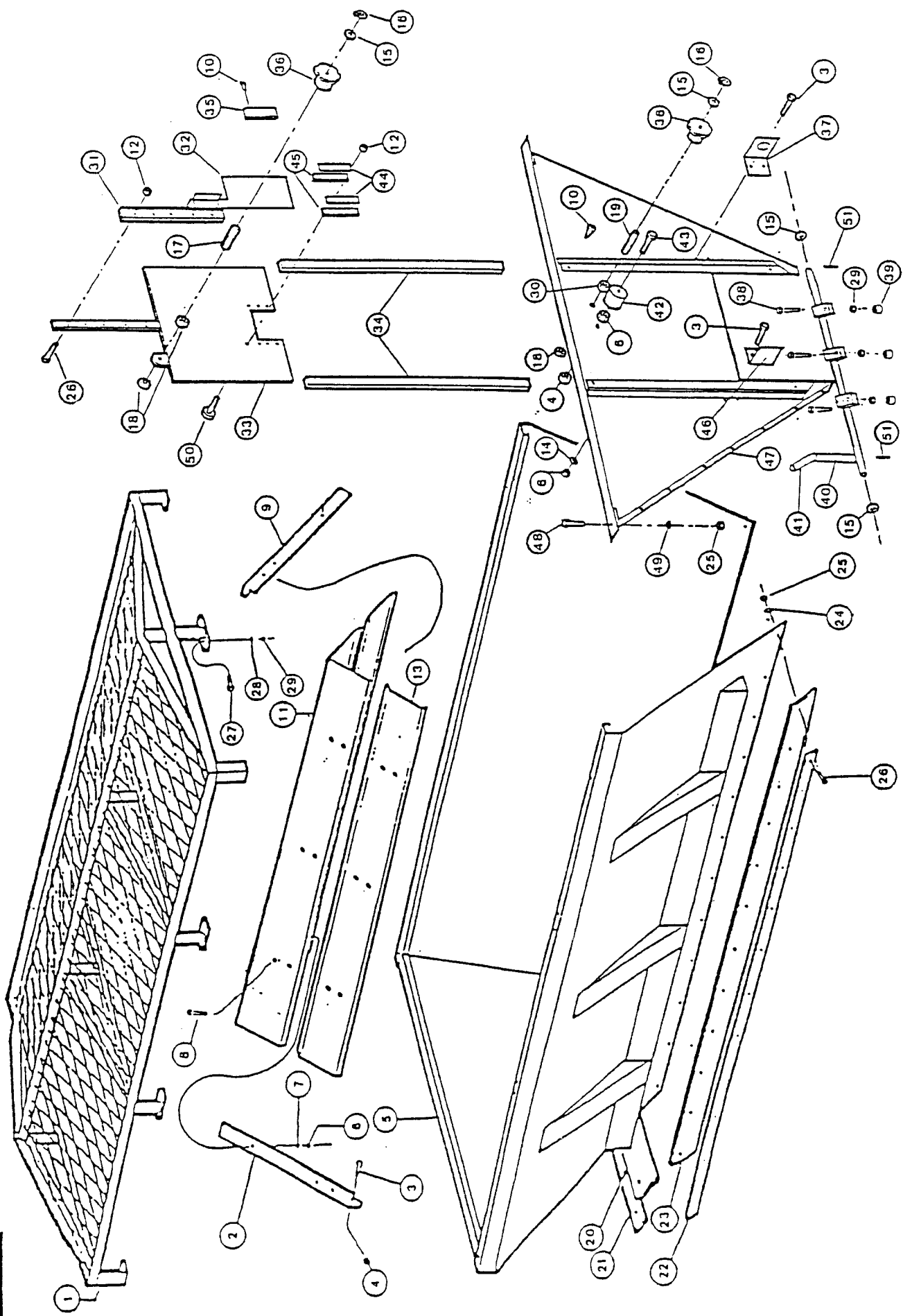
# NOTES

# CHASSIS AND DRAWBAR

Item	Part no.	Description
1	JS54774	Parking jack
2	LS3730	Drawbar (R3T)
	LS3472	Drawbar (R5T & R4TSQ)
	LS3750	Drawbar (R3,5TOS)
5	M12GTW	M12 galv. taper washer
6	M12GN	M12 galv. nut
7	AS55017	Parking jack Securing pin
8	S12RC	R-clip
9	LS3320	Pillar channel assy
10	LS3704	P.T.O. Cover (R5T & R4TSQ)
11	M8X20GSS	M8 x 20 galv. set screw
12	M8GSW	M8 galv. spring washer
13	M8GN	M8 Galv. nut
14	JS21656A	Bush hitch
16	LS3480	Chassis (R5T & R3,5TOS & R4TSQ)
	LS3740	Chassis (R3T)
17	LS3473	Spacer for R5T Super
18	M82CIR	Circlip
19	LS3706	Pin
20	M26SFW	Stainless flat washer
21	M8X55GP	Groove pin
22	M12GFW	M12 galv. flat washer



# HOPPER



HOPPER

Item	Part no.	Description	Item	Part no.	Description
1	LS2017	R3T sieve	26	M8X30GSS	M8 x 30 Galv. set screw
	LS3144	R5T sieve	27	M10X30G	M10 x 30 Galv. bolt
	LS1093	R3,5TOS sieve	28	M10GSSW	M10 Galv. spring washer
	LS1099	R3,5TES sieve	29	M10GN	M10 Galv. nut
2	LS3106RH	Bridge support R/H (R5T)	30	M16GN	M16 Galv. nut
	LS2164RH	Bridge support R/H (R3T)	31	LS3341	Gate long rack
3	M10X25GSS	M10 x 25 Galv. set screw	32	LS3356	Small gate assy
4	M10NY	M10 nylock nut	33	LS3350	Big gate assy
5	LS3418	R3T hopper	34	LS3345	Nylon gate rail (R3T & R5T).
	LS3419	R5T hopper	35	LS3346	Nylon gate rail (R4TSQ)
	LS4025	R3,5TOS hopper	36	LS3344	Gate short rack
	LS3310	R4TSQ hopper	37	LS3342	Pinion knob nylon
6	M8GN	M8 Galv. nut	38	LS3365	Gate lock mounting
7	M8GSSW	M8 Galv. spring washer	39	M10X50	M10 x 50 Bolt
8	M8X30GSS	M8 x 30 Galv. set screw	40	LS3435	Polythene locker
9	LS3106LH	Bridge support L/H (R5T)	41	LS3465	Handle assy
	LS2164LH	Bridge support L/H (R3T)	42	LS3368	Handle grip
10	M4,2X12ST	Self taper pan head	43	LS3369	Rack guide bush (R5T)
11	LS3083	R3T bridge apex	44	LS3370	Rack guide bush (R4TSQ)
	LS3146	R5T & R3,5TOS bridge apex	45	M8X50G	M8 x 50 Bolt galv.
12	M6NY	M6 Lock nut	46	LS3359	Small gate guide retainer
13	LS3084	R3T bridge side	47	LS3367	Small gate guide
	LS3147	R5T & R3,5TOS bridge side	48	LS3413	Gate lever lock
14	M8GFW	M8 Galv. flat washer	49	LS3420	Rear panel assy (R5T)
15	M16GFW	M16 Galv. flat washer	50	LS3423	Rear panel assy (R4TSQ)
16	M16CIR	16mm External circlip	51	LS3427	Rear panel assy (R3T)
17	LS3348	Small gate knob locator	52	M8X20GSS	M8 x 20 Galv. set screw
18	M16-1/2NG	M16 Half galv. nut	53	M8GSSW	M8 Galv. spring washer
19	LS3347	Large gate knob locator	54	LS3428	Gate assy kit (R3T & R5T)
20	LS3078	Rubber skirt (short)	55	LS4028	Gate assy kit (R4TSQ & R3,5TOS)
21	LS3080	Backing strip (short)	56	M4X40SP	Split pin
22	LS2038	R3T backing strip (long)	57	LS2163	R3T Lime bridge complete (Incl.items 2,3,4,6,7,8,11,13)
	LS3018	R5T & R3,5TOS backing strip (long)	58	LS3005	R5T Lime bridge complete (Incl.items 2,3,4,6,7,8,11,13)
23	LS2143	R3T rubber strip (long)			
	LS3077	R5T & R3,5TOS rubber strip (long)			
24	M8GSSW	M8 Galv. spring washer			
25	M8GN	M8 Galv. nut			

SPINNER DISC DRIVE

