

# CUB



## FORAGE WAGONS

**OPERATING INSTRUCTIONS AND SPARE PARTS  
READ CAREFULLY BEFORE OPERATING MACHINE**

# CUB

## FEED OUT WAGON

### OPERATOR INSTRUCTIONS AND PART LIST

**Read and fully understand the following instructions before operating; or carrying out maintenance.**

The machine is delivered fully assembled, however, before use carefully check the entire machine for transit damage and report any problems immediately.

- **Make Sure Machine is Greased Before Start Up.**
- **Refer to 'Smart-Valve' Set-up Page 5 Before Using the Machine.**



**AGRICULTURAL IMPLEMENT WHOLESALERS**  
P.O. Box 578 30 Hurlstone Drive NEW PLYMOUTH 4340  
Ph. (06) 759 8402 Fax (06) 753 2741

## DEAR CUSTOMER

We take this opportunity of welcoming you as the owner of an Agriquip CUB Feed Out Wagon. We want your Feed Out Wagon to be the most efficient and productive piece of equipment you have. This manual will help you to achieve this objective.

The safe operation and maintenance of your Feed Out Wagon is very important to prevent any personal injury and/or equipment damage.

## WARRANTY

Agriquip warrants new products sold by it to be free from defects in material and workmanship for a period of twelve months for farmers or six months for contractors, after delivery to the initial user. This warranty is for the replacement or repair of any part found to be defective during the warranty period. This warranty excludes any transport freight costs incurred by Agriquip in giving effect to the warranty and specifically excludes all normal maintenance costs. Replacement parts provided under the terms of this warranty are covered for the remainder of the warranty period applicable to the product in which they are installed as if such parts were original components of that product.

*The manufacturer's obligation under this warranty is limited to correcting without charge at its factory, or by one of its authorised Dealers with the manufacturer's approval, any parts thereof, within 12 months from date of purchase by the original user, and which upon examination shall disclose to the manufacturer's satisfaction to have been originally defective.*

*Correction of such defect by repair to, or supplying of replacements of defective parts, shall constitute fulfilment of all obligations to the original user. The manufacturer shall not be liable for loss, damage, or expense directly or indirectly from the use of its product or from any other cause. Defective parts must be returned freight paid each way by the purchaser-to the manufacturer.*

*This warranty shall not apply to any parts which must be replaced because of normal wear, or which have been subject to misuse, negligence or accident or which have been repaired or altered outside of the manufacturer's factory, unless authorised by the manufacturer. This warranty should not be construed as a free service period during the warranty period.*

*No person, agent, or dealer is authorised to give any warranties on behalf of the manufacturer nor to assume for the manufacturer any other liability in connection with any of its product unless made in writing from the manufacturer.*

## CONTACT DETAILS

Phone: 06 759 8402  
Address: 30 Hurlstone Drive, New Plymouth, New Zealand  
Postal Address: P O Box 578, New Plymouth 4340, New Zealand

- Make Sure Machine is Greased Before Start Up.
- Refer to 'Smart-Valve' Set-up Page 5 Before Using the Machine.

# CUB

## FEED OUT WAGON



### Technical Specifications

Model	90	110	130	170	210
Overall Length (mm)	5600	6100	6850	7410	8600
Loading Height (mm)	2450	2450	2550	2680	2680
Overall Height (mm)	2800	2800	2800	2850	2850
Overall Width (mm) incl. tyres, standard	2740	2740	2870	3060	3060
Bin Length (to centre of elevator panel) (mm)	3200	3700	4450	5010	6200
Bin Height (mm)	1320	1320	1420	1520	1520
Bin Width (mm)	2090	2090	2090	2290	2290
No of Floor Chains	2	2	2	3	3
No of Elevator Chains	2	2	2	3	3
No of Gearboxes on Floor	1	1	1	2	2
No of Gearboxes on Elevator	1	1	1	1	1
Standard Wheel Size	11.5/80x15" (SA)	11.5/80x15" (TA)	15/55x17" or 400/60x15.5" (TA)		500/60-22.5 (TA)
Tare Weight approx (kg)	2,000	2,020	2,170	2,470	2,700
Cubic Capacity (cubic metres)	9	11	13	17	21
Min Oil Flow Required ltrs/min	40	40	40	60	60
Min/Max Oil Pressure (psi)	2300-2900	2300-2900	2300-2900	2300-2900	2300-2900
Side Feed Belt Width (where fitted) (mm)	850	850	850	850	850
Optional Wheel Size	15/55x17"	15/55x17"	n/a	n/a	n/a

## DESCRIPTION

CUB Wagons have been designed and refined over many years to feed out all manner of forage materials. They are built specially for pit silage, but with a little care and common sense they will effectively feed round or square baleage, silage bales and hay bales. (See further notes under 'Operation')

Cub builds two styles of feed out wagons - CENTRE FEED and CROSS CONVEYOR.

CENTRE FEED wagons are very good at handling most types of materials especially cut silage and bales since there is reduced chance of blockage in the elevator region in a centre feed wagon. Fine cut materials can also be fed with a centre model but the window will tend to be wide with spillage off the front edge of the floor.

CROSS CONVEYOR wagons can also handle most types of forage material including round and square bales. Cross conveyor wagons are generally recognised as the more versatile of the two styles with the ability to feed a narrow controlled row either on the ground, beneath or through a fence, or into a feed bin – especially for maize silage.

All CUB Wagons are powered hydraulically through gearboxes, with a load sensing system and speed controls to protect the wagon.

## NOTES ON HYDRAULIC PERFORMANCE AND OPERATING PRINCIPLES

All new CUB hydraulic feed out wagons are fitted with a unique hydraulic system, which when tuned correctly will maximise the efficiency of the hydraulic power available from your tractor.

The main components in every CUB system are:

- Three hydraulic motors on all cross conveyor wagons or two hydraulic motors on centre feed wagons. These are different sizes according to the application. The elevator and floor motors are coupled directly to gearboxes, which are coupled direct to drive shafts.
- The aluminium block (Smart Valve) houses the circuitry necessary to co-ordinate the efforts of all the hydraulic motors. It includes a load sensing system, which constantly monitors the load on the shredder elevator. If the load reaches a predetermined set-point, the floor is automatically slowed or stopped to allow the elevator a chance to clear rather than stall. If a stall situation does develop occasionally, simply reverse the floor slightly then bring the load forward again to continue feeding out. If the elevator is stalling constantly and causing problems, the sensing valve needs adjusting (*refer to 'Trouble Shooting' page 8*).

Remember that the floor speed is adjustable independent of the other motors in the system. This applies to cross-conveyor as well as centre-feed wagons. The floor speed is infinitely variable in the forward direction, providing the tractor is delivering enough oil to drive it.

The cross conveyor motors and elevator motors are in series, so you never get a belt blockage, if the elevator is running so will the cross feed.

## FLOW & PRESSURE RATES

- ★ The optimum/recommended oil flow is 60-70 ltrs/min.
- ★ The optimum pressure rate is 2500-2900 psi.
- ★ Flow rates of less than 60 ltrs/min will operate the wagon but will result in a slower transmission rate of the floor and elevator chains.
- ★ With low flow rates below 60 ltrs/min the pressure sensitive 'smart valve' may not divide the pressure equally or correctly to the floor or elevator transmission. This will result in the floor moving faster than the elevator or vice versa, (This may cause a blockage or incorrect function of the machine).
- ★ Very low flow rates (less than 60 ltrs/min) can be used if needed, however, the hydraulic circuit would need to be adjusted to a 'series' type system, which then does not allow for the pressure sensitive 'smart valve' to operate.

## SERVICING GUIDELINES FOR ALL CUB WAGONS

Prior to delivery of your machine, your dealer should have completed a pre delivery check. It is advantageous to you to check the following points before using the machine for the first time.



**CAUTION: Do not stand in the bin near the shredder elevator while the machine is running.**

- ★ CHECK FLOOR CHAIN TENSION. A simple check is to stand in the bin and exert a strong pull at the centre of the floor. There should be approximately 70mm of vertical movement in this area.
- ★ CHECK ELEVATOR CHAIN TENSION. Pull at the mid-point of the elevator face. If necessary adjust for approximately 30mm of movement from the rest towards the rear of the wagon.
- ★ CHECK THE CROSS-CONVEYOR BELT. This should be checked for alignment, and adjusted if necessary to ensure it is tracking correctly. See the notes on cross conveyor belt adjustment.
- ★ CHECK GREASE POINTS. There are 20 Grease Points on the CUB wagons.
  - Tow Eye (1) \*
  - Lower Elevator Sprockets (2) \*
  - Rear Floor Chain Adjusters (2) \*
  - Tandem Axle Walking Beams (3 each side) \*
  - Upper Elevator Shaft (2)
  - Cross Feed Unit (4)
  - Floor Chain Front Shaft Bearings (3)

\* grease  
regularly

### 'SMART VALVE' SET-UP:

Before using your Smart Wagon, you must set the valve to suit the conditions and work you are going to do with it.

- 1) Unwind floor speed (black control knob) fully open so floor runs at max speed.
- 2) Load wagon with feed.
- 3) Loosen hexagonal lock-nut on sensing valve and fully unwind allen screw adjuster out.
- 4) Engage hydraulics so elevator and side feed will now operate (floor will not move at this point).
- 5) Allow elevator and side feed to clear feed it has taken.
- 6) While hydraulics still engaged, slowly wind in the sensing valve allen screw hex adjuster until the first signs of the floor starting to move.
- 7) Now at the very first sign of floor moving, turn a further ¼-turn (*½-turn max*) in and this will now be set correctly for use.

## OPERATION

### All Models:

- ★ Grease daily all the grease points indicated as 'grease regularly' on previous page (*marked with ⚙*) for the first week, then at weekly intervals during each feeding out season.  
*Always grease and oil the machine after it has been in storage or not used for a long period of time.*
- ★ Change oil in gearboxes at regular intervals (e.g. every season). Check the oil in gearboxes, and make sure the seals are not leaking. Oil type – 80W gear oil.
- ★ Load the wagon from the rear to the front. When difficult material has to be handled, e.g. long, wet silage, load the material in sections. It may sometimes be necessary to reverse the load a short distance, and then bring it forward again to present a new face to the elevator.  
**Note:** reverse the floor by pushing the hydraulic lever on your tractor in the opposite direction, with CUB's unique hydraulic system only the floor will reverse.
- ★ Best feeding out conditions occur when the wagon is freshly loaded. If left loaded over night the material can settle into hard mass which becomes difficult to feed out. The practice of leaving a load in the machine for hours before feeding out will also accelerate the deterioration of the wagon because of the acidic nature of silage.
- ★ Controlling the feed out rate is done by using the control rod mounted on the drawbar - turn anti-clockwise to speed up the floor and clockwise to slow it down. This adjusts the load pressure that the hydraulic sensing valve uses to start and stop the floor automatically. When you have adjusted the feed out rate to your requirements, the valve will maintain an even flow of material to the elevator by automatically adjusting the floor speed. As the wagon empties the floor will automatically speed up.
- ★ Feeding out round bales can be carried out provided the bales are properly 'cut', and care is taken to ensure the whole bale is not lifted over the elevator. (This can happen if the elevator is run excessively fast). Use common sense and operate carefully.

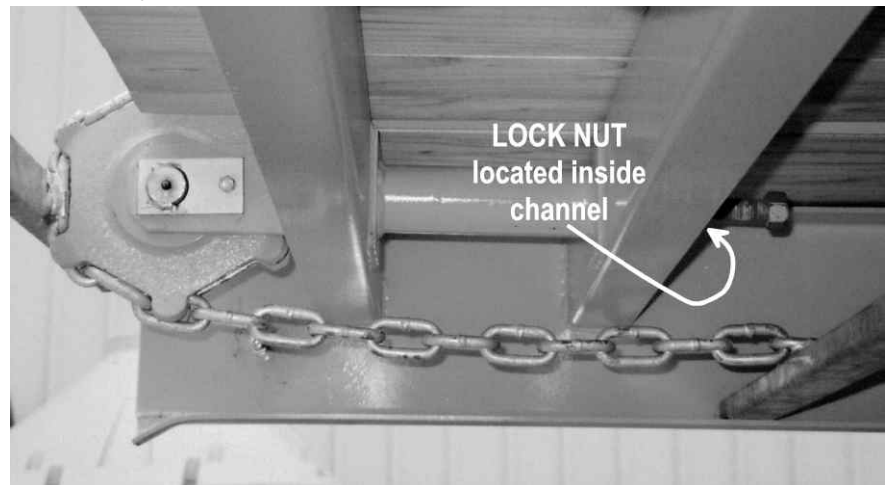
In the reverse direction, the belt and /or elevator are stopped, with the floor motor receiving full tractor oil flow, i.e. full speed. You cannot adjust the floor speed in reverse.

- The tractor remote hydraulic lever must be disengaged before attempting to adjust the machine.
- The floor speed can be adjusted with the machine running.
- High tractor revs, especially on low flow tractors = fast machine speed  
**Note:** Due to the difficult specifications of the tractor hydraulics between manufactures, sometimes a minor adjustment to the load sensing pressure in the hydraulic valve is necessary to tune the wagon to exactly suit the tractor being used. In this case Agriquip will advise the adjustment to be made, since it may vary between tractor oil pressure.

The elevator chain adjusters and floor chain adjusters are shown below:



**Elevator Chain Adjusters**

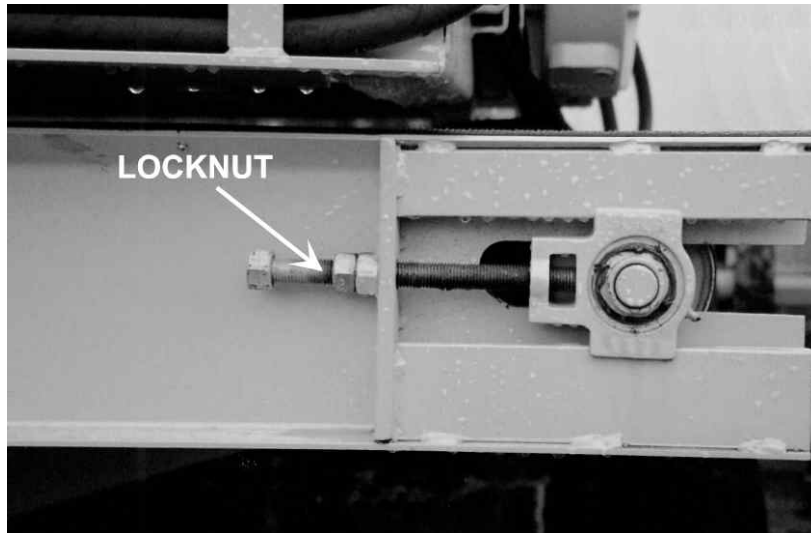


**Floor Chain Adjusters**  
(under the rear of the wagon floor)

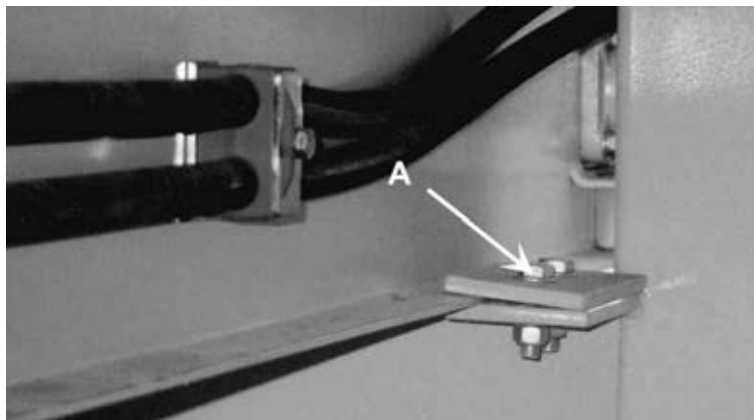
## BELT ADJUSTMENT FOR ALL CROSS CONVEYOR MODELS

The cross conveyor belts are set up and adjusted at the factory before delivery. You may notice after a period of use that the belt will need adjusting slightly, due to the belt stretching and running off centre.

Simply adjust the take up bearing a little at a time until the belt runs true again. Where you should, either loosen one adjuster slightly or tighten the other, or a combination of both. Any adjustments must be made with the wagon running, preferable empty. Only adjust  $\frac{1}{4}$  of a turn at a time, and run for at least 5 minutes between adjustments. The belt will run to the loose side. Do not over tighten as this will cause a power loss.



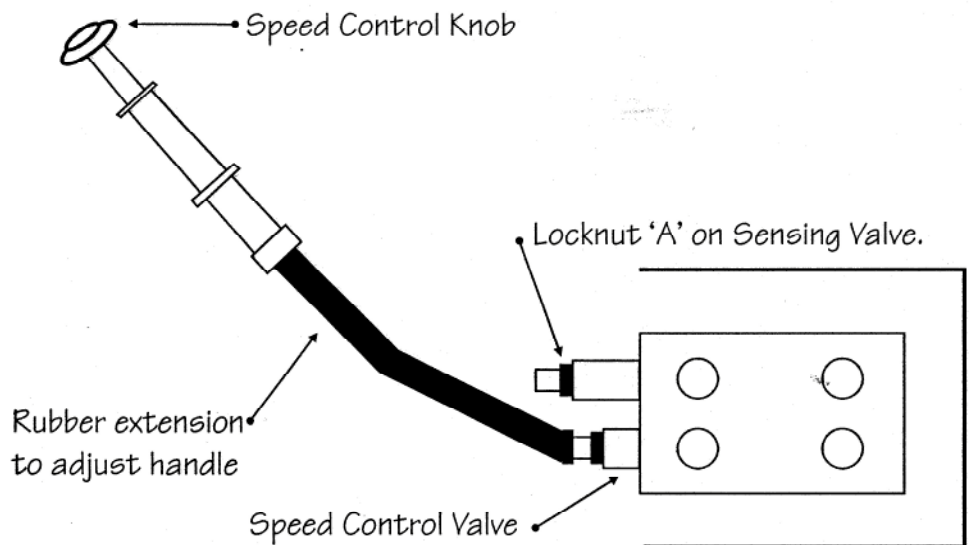
The cross conveyor can be adjusted in or out by loosening the two clamps at the rear of the unit "A" and sliding cross feed conveyor to the desired position.





# 'TROUBLE SHOOTING'

Problem	Remedy	
	Tractor	Wagon
Elevator running too slow.	Low flow tractor, increase revs. Check hydraulic filter may be blocked.	Check flow from tractor is at least 80-100 ltrs/min and 2500 - 2950 psi.
Elevator slowing under load, or, Elevator stalling during load.	Relief pressure too low, contact tractor services re correct settings.	Sensor pressure too high needs re adjusting.
Floor sluggish – not coming forward fast enough.	Low flow, increase revs.	Floor speed adjuster set too slow, increase speed. Sensor pressure too low. (refer Item 2 below)
Machine runs in one direction only.	Snap couplings not compatible or damaged - check/change all. Snap couplings not plugged incorrectly. Tractor remotes set to single acting instead of double acting.	Dirt trapped in valve. Contact Agriquip for advice.
Machine does not run at all.	Faulty tractor pump.	<i>see hydraulic adjustment.</i>
Cross belt doesn't move.	Hose not coupled correctly.	Coupling slipping, no oil to motor.
The elevator or cross feed go but the floor does not go.  or,  Elevator trips out floor drive constantly.	<p>1) The floor control knob is not the proper setting. Turn knob anti-clockwise to get the feed coming onto the elevator at the right speed.</p> <p>2) The sensing valve is set too low for the weight of material, therefore the floor will not move as the sensor has taken over. Undo the locknut 'A' as in sketch and turn the adjustment clockwise to increase the pressure ½-turn = 500 PSI approx. Make this adjustment ½-turn at a time until the floor starts moving forward when the correct adjustment is reached.</p> <p><i>The load should stop if too much pressure is going onto the elevator.</i></p>	



**CHECK TRACTOR FLOW  
RATES 60-70 LTRS/min  
@ 2500 - 2900 PSI**

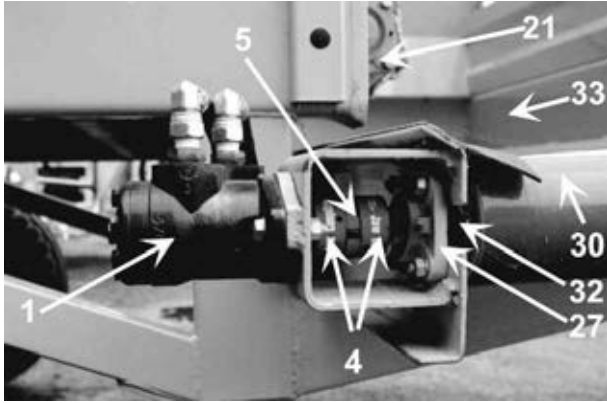
# **CUB**

## **FEED OUT WAGON**

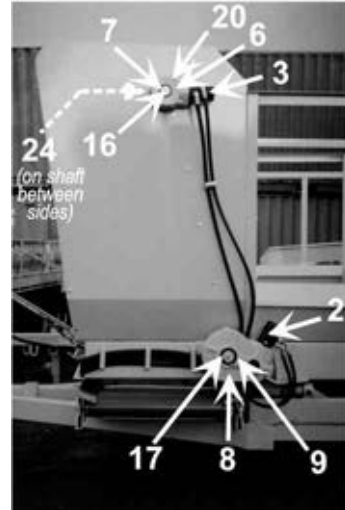


### **Parts List**

Item	Part No.	Description
	SP2101	Stub Axle - Std Feed Wagon
	SP2102	Wheel Assy - Std (9,11 m3) 11.5/80-15
	SP2103	Wheel Assy - Std (13,17,21 m3) 15.0/55-17
	SPU053	Jackstand Assembly - 9m <sup>3</sup>
	SPU053b	Jackstand Assembly - 11m <sup>3</sup>
	SPU053c	Jackstand Assembly - 13m <sup>3</sup>
	SPU053d	Jackstand Assembly - 17m <sup>3</sup>
	SPU053e	Jackstand Assembly - 21m <sup>3</sup>



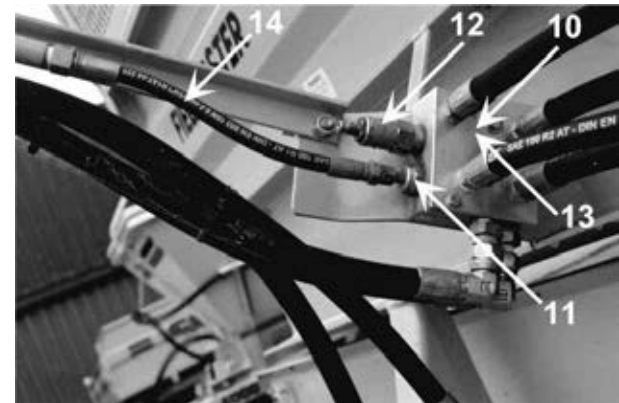
**Cross Feed Belt Assembly**



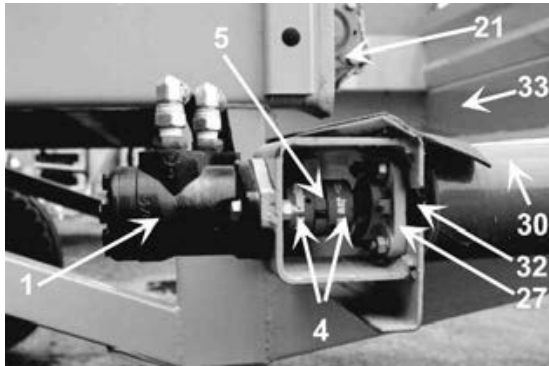
**Elevator & Floor Drive Assy**

Item	Part No.	Description
1	SP2110	Hydraulic Motor - Cross Feed Belt
2	SP2111	Hydraulic Motor - Floor Drive
3	SP2112	Hydraulic Motor - Elevator Drive
4	SPU005	Motor Flexi Coupling - Complete
5	SPU073	Motor Flexi Coupling - Element Only
6	SP2114	Elevator Gearbox - Std
7	SP2114.01	Elevator Gearbox Seal

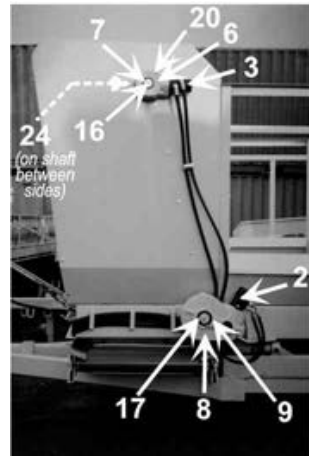
Item	Part No.	Description
8	SP2116	Floor Drive Gearbox - Std (22:1)
9	SP2116.01	Oil Seal Input/Output
	SP2117	Floor Drive Gearbox - Opt (16:1)
10	SP2119	Hydraulic Control Block (Smart Valve)
11	SP2119.01	Flow Control Cartridge
12	SP2119.02	Sensing Valve Cartridge
13	SP2119.03	Valve Block Only
	SP2119.04	Orifice Plate 1mm Hole
12a	SP2119.05	Speed Control Seal Kit
13a	SP2119.06	Sensing Valve Seal Kit
14	SP2119.07	Flow Control Hose & Fittings
15	SP2120	Rear Sprocket Adjusters Complete (w/out sprocket)
16	SP2121	Cross Shaft (Elevator)
17	SP2122	Cross Shaft (Floor)
	SP2123	Elevator Cross shaft Support Bracket
	SP2125	Elevator Chain Assy + Bars - twin chain
	SP2126	Elevator Chain Assy + Bars - triple chain



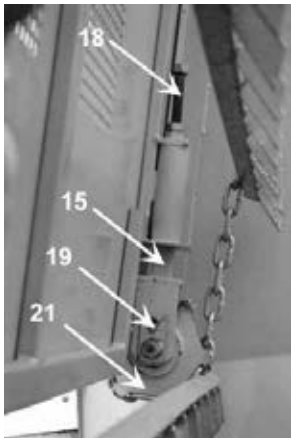
**Flow Control**



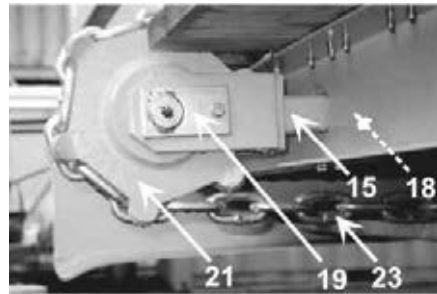
**Cross Feed Belt Assembly**



**Elevator & Floor Drive Assy**



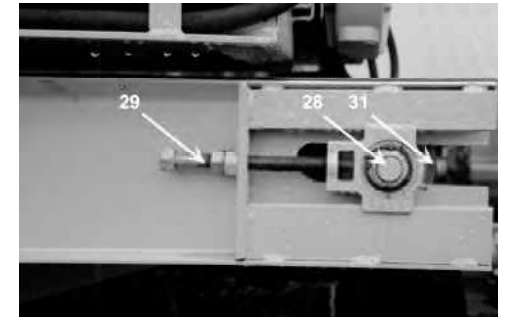
**Elevator Chain Adjustors**



**Conveyor Drive**



**Floor Chain Drive**



**Cross Conveyor Adjustment**

Item	Part No.	Description
	SP2138	Conveyor only (per mtr)
	SP2140	Hydraulic Hose Kit
	SPU032	Swivel Tow Eye (9, 11, 13 m <sup>3</sup> )
	SPU033	Swivel Tow eye (17, 21 m <sup>3</sup> )
	SP2143	Smart Wagon Decal
	SP2144	Cub 90 Model Decal
	SP2145	Cub 110 Model Decal
	SP2146	Cub 130 Model Decal
	SP2147	Cub 170 Model Decal
	SP2148	Cub 210 Model Decal

Item	Part No.	Description
18	SPU091	Sprocket Adjusting Bolts
19	SP2129	Retaining Pin for Conveyor Sprocket
20	SP2130	Cast Drive Chain Sprocket- Bored & Keyed 35Φ
21	SP2131	Cast Drive Chain Sprocket - Bored 35Φ
22	SPU101	Cast Drive Chain Sprocket- Bored & Keyed 40Φ
	SP2133	Floor Chain Assy - Galy + Bars - twin chain (per mtr)
	SP2134	Floor Chain Assy - Galy + Bars - triple chain (per mtr)
	SP2135	Floor Chain Assy - Galv + Bars - 4 pce chain (per mtr)
	SP2136	50 x 25 RHS Floor Chain bar
23	SP2137	Conveyor Chain Jinter Link

Item	Part No.	Description
24	SP2150	Elevator shaft Bearing Assy (3 of)
25	SP2151	Floor Chain shaft Bearing Assy (2 of)
26	SP2151.01	Floor Chain Shaft Bearing Assy (Drive end)
27	SP2152	Cross Feed Shaft Bearing Assy
28	SP2153	Cross Feed Belt Bearing Assy (Adj)
29	SP2154	Cross Feed Belt Bearing Adj Bolts
30	SP2157	Cross Feed Belt - Old (800mm)
30	SP2158	Cross Feed Belt Joiner Pin
30	SP2160	Cross Feed Belt - Current (850mm)
31	SP2162	Cross Feed Roller, Idle (850mm)
32	SP2162a	Cross Feed Roller Drive (850mm)
33	SP2163	Cross Feed Skirt Belting Set
	SP2170	Load Cell Weigh System Complete
	SP2171	12V Battery for Load Cell

Imported and Distributed by:

**AgriQuip**

AGRICULTURAL IMPLEMENT WHOLESALERS

P.O. Box 578 30 Hurlstone Drive New Plymouth  
(06) 759 8402 NEW PLYMOUTH