sam MACHINERY

INSTRUCTION AND PARTS MANUAL

400mm FLOOR-BELT
POLYETHYLENE BIN

FERTILISER SPREADERS
ALL MODELS FROM 2005

4 TONNE TANDEM-AXLE

5 TONNE SINGLE-AXLE

6 TONNE TANDEM-AXLE

Ph 07 847 8492

www.sammachinery.co.nz

MODELS

This Instruction and Parts Manual covers all SAM Fertiliser Spreaders fitted with a 400mm floor-belt manufactured since 2005.

For all other SAM Machinery Instruction Manuals please visit www.sammachinery.co.nz

SERIAL NUMBER

All SAM Machinery products are identified with a unique serial number located on the front of the machine (e.g. '15 S 1234'). Please include this number with all parts and servicing enquiries so we can provide you with fast and accurate assistance.

INTRODUCTION

Rugged, reliable and built to last. Coombridge & Alexander have developed SAM Fertiliser Spreaders from over 65 years' experience manufacturing agricultural machinery for local conditions, setting the benchmark for trailed bulk fertiliser spreaders in New Zealand.

Coombridge & Alexander Ltd is a family-owned company located in Frankton, Hamilton. We have been active in the agricultural machinery industry since 1945 designing, manufacturing and servicing machinery including Fertiliser Spreaders, Feed Wagons and Hydraulic Trailers.

Coombridge & Alexander Ltd controls the complete manufacturing process of SAM Machinery, closely monitoring and guaranteeing the quality of all our products. Customer satisfaction and brand reputation are our primary principles, from gaining a deep understanding of customer and on-farm requirements, through to manufacturing and product delivery.

For all parts, servicing or support enquiries please contact us on 07 847 8492.

For international parts and servicing please contact Coombridge & Alexander Ltd directly on 0064 7 847 8492.

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MODEL DETAILS

MODEL	
SERIAL NUMBER	

QUALITY GUARANTEE

SAM Machinery products are guaranteed against any defects in either material or manufacture for a period of 12 months from delivery date provided that the equipment has not been subject to abuse or misuse, operated incorrectly, over loaded or used for purposes other than for which the equipment is designed or is not maintained correctly or if fitted with other than genuine parts.

Claims are only valid when approved by the manufacturer. No person or agent is authorised to assume any liability.

As the use of the equipment is outside our control we can only guarantee quality. No liability for loss, direct expenses incurred from the use of this equipment or from any other cause of in respect of performance etc. can be accepted.

Defective parts must be returned freight paid to the manufacturer or available to be inspected as directed. Should such parts prove to the manufacturers satisfaction to be faulty - repair of - replacement of defective parts shall constitute fulfillment of guarantee obligations. Parts destroyed, lost or tampered with nullify guarantee.

WARRANTY

SAM Machinery products as designed and supplied by Coombridge & Alexander Ltd are warranted against faulty workmanship and defective materials for a period of 12 months from date of purchase. Such warranty is subject to the following conditions:

1. This warranty covers the repair or replacement of parts or machinery sold by Coombridge & Alexander Ltd and damaged as a result of faulty workmanship of materials in such part of machinery. It does not extend to any other loss or damage including consequential loss or damage to other property or persons.
2. No responsibility will be accepted for repairs made other than by Coombridge & Alexander Ltd or its accredited agent and without prior authorisation by Coombridge & Alexander Ltd.
    a. Without limiting the generality of paragraph 1. above, this warranty does not cover the following;
    b. Losses sustained through delay in delivery
    c. Travel expenses
    d. Damage caused by accident, misuse or abuse
3. Damage to any goods which have been altered or modified by someone other than Coombridge & Alexander Ltd or its authorised dealers.
4. Procedure for recovery under warranty;
    1. No loss or damage will be covered under warranty unless the following procedure is followed by the purchaser.
        1. If the purchaser is an authorised dealer -
            a. Coombridge & Alexander Ltd must first be advised of details of the goods concerned, the loss or damage sustained and the circumstances in which the loss or damage arose.
            b. Coombridge & Alexander Ltd will then decide if such loss or damage is within the terms of warranty and shall advise the dealer as to how the loss or damage is to be repaired.
        2. If the purchase is not an authorised dealer -
            a. The loss or damage should be reported directly to Coombridge & Alexander Ltd who will advise whether it is covered by the warranty and direct the purchaser accordingly as to what action is to be taken.

BASIC SAFETY

Many agricultural machines have potentially dangerous moving parts, which can cause serious or fatal injuries. Remember;

1. Read ALL warning labels on the machine and ensure you understand operating instructions
2. Turn off the tractor before removing any guards, blockages or servicing the machine
3. Never use your hands or fingers to check for hydraulic oil leaks
4. Keep at least 15 metres distance from the spinner discs when operating
5. Do not use the machine in steep areas where there is a high-risk of rollover occurring.

OPERATIONAL CHECK

Before you start work with a machine there are a few basic checks that can be carried out. Ask yourself:

1. Is the machine you intend to use suitable for the job e.g. in good working order and safe to use?
2. Are all safety devices such as guards in place and working correctly?
3. Are there any known mechanical defects – pay particular attention to items such as wheels and tyres, and moving parts?
4. Are you (or the operator) properly trained to do this job/use this machine?
5. Has the instruction manual for the machine been provided, read and understood?
6. Is the right personal protective equipment (PPE) available and worn?
7. Has a risk assessment been carried out?
8. Has the work been properly planned and communicated to those who may be at risk?
9. Is the machine operator competent to do the job safely?
10. Hitching and attachment points for trailed machinery, check that it has been safely attached to the towing vehicle such as a tractor. Pay attention to the condition of drawbar/pick-up hitch, and hitch rings, pins, clips etc.
11. Carry out any pre-use checks as specified in the operator's manual.

HEALTH & SAFETY RISK ASSESSMENT

A hazard identification, assessment and control procedure has been conducted on a representative SAM Fertiliser Spreader and where necessary appropriate risk control measures have been outlined below;

HAZARD	HARM	CONTROLS
Contact, impact or entanglement from moving parts/ loose objects inc. gears, chains, sprockets, spinner shafts and discs, and wheels.	1. Deep cuts or amputation 2. Bruising 3. Fractures	AVOID wearing loose clothing, jewelery or gloves - they increase the risk of entanglement. Stand a SAFE distance from the machine when under operation.
Leaking hydraulic hoses and/or couplings.	1. Leaking oil may get into skin 2. Skin and eye irritation 3. Breathing difficulties	APPLY a programme preventive maintenance (hydraulic hoses and hydraulic hose couplings). Leaking oil, or bulging or abraded hose walls, MUST have faulty parts replaced. NEVER use hands or fingers to detect leaks. WEAR appropriate PPE (personal protective equipment).
Tractor and/or Fertiliser Spreader roll-over due to instability under varying conditions and terrain.	1. Serious injury 2. Fatality	DO NOT use the machine in steep areas, or on unstable ground.

BASIC MAINTENANCE

To ensure your SAM Fertiliser Spreader continues to operate in excellent working condition, please follow these basic maintenance procedures;

1. Before EACH USE; check the hydraulic system for signs of oil leaks or wear; check that there is no play in the spinner bearings by lifting up on the spinner. Tension the spinner bearings by tightening the large nylon nut at the top of the spinner shaft (this can be adjusted by undoing the grub screws).
2. After an INITIAL TEN HOURS of operation, check all bolts are tight, including the wheel nuts, and spinner discs and vanes.
3. After EVERY FIVE HOURS of operation all nipples on the front and back floor shafts, and the four spinner shaft bearings should be well greased.
4. After EVERY TEN HOURS of operation all nipples and grease points on the front floor adjusters slides, drawbar jack, clutch pivot bearings, back door jack, hubs and tandem axle pivot points.
5. The floor-belt should be tensioned with a 40mm sag below the middle of the chassis, with an even curve/sag from front to back.
6. All roller chains should be kept well oiled, particularly during long periods of storage.
7. Always ensure the mesh grill mounted inside the spreader bin remains in place for application rates below 500kg per hectare. If the mesh grill is removed, serious damage can occur to the spinner mechanism from foreign objects e.g. rocks and wood.
8. To guard against fertiliser corrosion, apply used oil (mixed with diesel) to the spinner discs and deflector plates. Do not let oil come in to contact with the rubber floor-belt or rubber side skirts.

SET-UP AND OPERATION - PLEASE READ

Before starting work with your SAM Fertiliser Spreader please read the following application and set-up instructions to ensure safe and productive operation.

SPREAD RATE SETTING

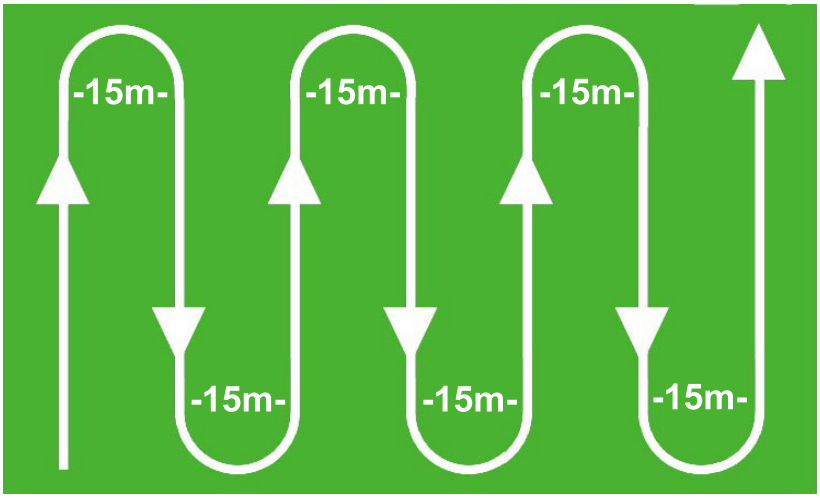
The required fertiliser application rate can be set by adjusting the back door jack and viewing the spread rate sticker to achieve the desired rate per hectare. The floor-belt speed is ground-driven from the wheel ensuring the application rate at the desired back door setting will remain constant regardless of tractor speed.

The back door settings on the spread rate sticker are a guide only. Note, various fertiliser products will flow differently. We recommend applying the first bin load of product onto a measured paddock/area and carefully checking application rates to ensure spread rate accuracy.

Within this manual we have included a more comprehensive spread rate chart that includes product densities for a selection of known fertiliser products for your reference. The spread rate (back door settings) are typically very similar for fertiliser products of the same density and granule type.

SPREADING CENTRES

We recommend spreading at 15 metre centres for granulated fertiliser products and 10 metre centres for powdered or fine granulated products such as Lime. Within the included spread rate chart we have also included spreading rates at 17.5 and 20 metre centres if required. For fertiliser application rates over 500kg per hectare we suggest selecting closer spreading centres with a lower back door setting.



HYDRAULICS

Standard SAM Fertiliser Spreaders are fitted with two OMP32 hydraulic motors running in series, requiring an external oil flow of 35 litres/minute at 2000psi.

We recommend adjusting the hydraulic oil flow from the tractor back to 35 litres/minute if possible. If the two OMP32 hydraulic motors are run in series with hydraulic oil flows over 35 litres/minute, the extra oil flow will be automatically bypassed back to the tractor through the flow control valve. Note, the higher the bypass oil flow, the higher the pressure in the Fertiliser Spreaders hydraulic system. If the tractors external hydraulics have a oil flow of between 24 and 34 litres we can supply alternative OMP25 motors.

For tractors with oil flows in excess of 55 litres/minute where the hydraulic oil flow cannot be adjusted to lower rates (>35 litres/minute), the two OMP32 motors should be run in parallel.

Running the two OMP32 motors in parallel provides the spinner discs with more torque while running the spinners at lower pressures. However, the SAM Fertiliser Spreader will only operate with a minimum oil flow of 55 litresmin. Please contact us for more information and instructions.

SET-UP AND OPERATION - PLEASE READ

COUPLING THE HYDRAULICS

The live hose (red) must be coupled to a high pressure outlet point on the tractors external hydraulic system. This take off point can be fitted to an existing double acting valve already fitted for farm machinery, or a new fitting can be installed.

The return hose (yellow) must be coupled into the same double acting bank using the quick release coupling supplied.

HYDRAULIC OPERATION

To operate the clutch follow the instructions found on the front of the plastic spreader bin. The floor-belt has an in/out clutch (including a double acting clutch ram) that is activated automatically from the tractor seat when the hydraulic spinners are started.

To start the hydraulic spinners and engage the clutch, pressurise the live (red) hose, this will place the clutch into gear and subsequently start the hydraulic spinners turning.

To stop the hydraulic spinners and place the clutch out of gear, move the hydraulic lever to pressurise the return (yellow) hose for one second then place the lever to neutral.

The hydraulic spinners and valve control must be coupled to the tractors hydraulic system to ensure safe operation. Please contact your local dealership or Coombridge & Alexander directly if there is any doubt. Note, the adjustable control valve on the hydraulic valve block controlling the spinner speed is pre-set in the factory and should not be altered.

Valve Control Settings (Preset)

- Danfoss OMP32 Motor - running in Series = 1 5/8 turns out for 850 RPM
- Danfoss OMP 32 Motor - running in Parallel = 2 1/4 turns out for 850 RPM

If coupling the hydraulics to John Deere 30, 40 or 50 Series tractors, the oil in the live hose (red) may need to be restricted with a needle valve, to a flow less than the charge pump capacity. On some late model John Deere tractors with built in flow controls, set the hydraulic flow control valve as per the above settings and adjust the tractors built in flow control down to 35 litres/minute, leaving this set in this position (mark is necessary).

ALWAYS ensure tractor oils are kept in excellent condition. Beware when changing a Fertiliser Spreader between different tractors, pump oil out of the hoses unless they use the same hydraulic oil.

Please contact your local dealership or Coombridge & Alexander directly for operational support.

FERTILISER SPREADER CAPACITIES (400mm Floor-Belt)

Spreader Capacity	Fertiliser (m3)	Superphosphate (t)	Lime (t)	Urea (t)
4t Fertiliser Spreader	3.2m3	4t (1.3t/m3 density)	5.5t (1.7t/m3 density)	2.6t (0.8t/m3 density)
5t Fertiliser Spreader	3.9m3	5t (1.3t/m3 density)	6.6t (1.7t/m3 density)	3.1t (0.8t/m3 density)
6t Fertiliser Spreader	4.6m3	6t (1.3t/m3 density)	7.7t (1.7t/m3 density)	3.7t (0.8t/m3 density)

MACHINE SIDE-VIEW - DRIVE

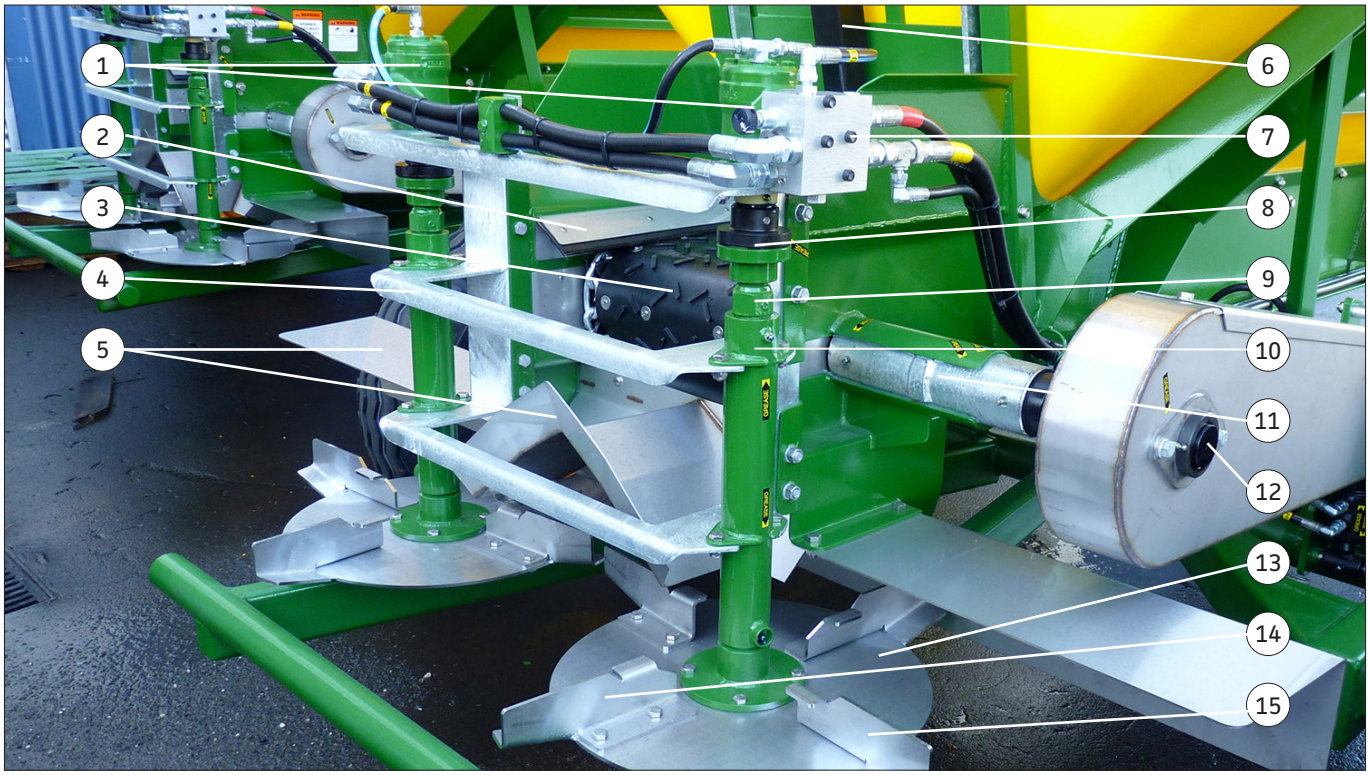
REFERENCE	PART NUMBER	DESCRIPTION	QTY.
1*	3103	Wheel & Tyre - 11.5/80 x 15.3 (12ply)	2-4
	3107	Wheel & Tyre - 400/60 X 15.5 (TR Tread)	
	3948	Wheel & Tyre - 550/60 x 22.5 (16ply)	
2	P250	Chain & Sprocket - Drive Housing S/S (see Ground Drive diagram)	1
3	-	Ground Drive - Gear Assembly (see Ground Drive diagram)	1
4	P4697	Belt & Floor Chain Tension Adjusters - Left/Right	2
5	P3022	Front Shaft (Complete) 1.5" - (inc. Sprockets + Spacer Ring)	1
6	0220	Deadeye Bearing 1.5"	2
7	3526	Front Bin Skirt Rubber	1
8	1609	Serial Number Plate	1
9	3796	Hose Kit - D200	1
10	P1402	Jack Stand (70sq) - DG701	1
11*	P3145D	Fixed Tow Hitch (16mm Mounting Plate) - 50mm Donut Eye	1
	P3145	Fixed Tow Hitch (16mm Mounting Plate) - 37mm Ball Eye	
	P3557B	Swivel Tow Hitch (16mm Mounting Plate) - 37mm Ball Eye	
	P3557	Swivel Tow Hitch (16mm Mounting Plate) - 50mm Ball Eye	
	P2102	Swivel Tow Hitch (20mm Mounting Plate) - Ball/No Ball	
12*	-	Hub & Stub	2-4

* Wheel & Tyre, Tow Hitch and Hub & Stub set-up varies depending on machine model, size and year of manufacture. Please include the machine serial number with all parts and servicing enquiries.

MACHINE REAR-VIEW - SPINNER SET-UP

REFERENCE	PART NUMBER	DESCRIPTION	QTY.
1	1018	Danfoss OMP32/8 Hydraulic Motor	2
2*	P3040*	Skirt Pressing (S/S) - (inc. Rubber + Rivets) 2860mm - Left/Right	2
	P4686	Skirt Rubber & Rivet Set - x2 (2.77 x 80mm) + 34 Rivets	2
3*	P0391*	Floor-belt and Chain (Complete)	1
4	P202	Spinner Tube Mounting Frame	1
5	P4726	Deflector + Divider S/S Panel (Complete)	1
6	P2809	Back Door Jack (DT490)	1
7	3793	Hydraulic Flow Control Valve - HCV 2197	1
8	P440	Flexi Coupling CA90 - 25mm/1"	2
9*	3424	UNF Nyloc Nut 1 1/4" & Grubscrew 3/8"	2
10	P20	Spinner Tube - Complete	2
11	P4695	Mollybush Bearing and Housing - Long/Short	2
12	P4664	Back Shaft - 50mm (Complete inc. 5T Sprockets)	1
13*	P620	Spinner Disc 5mm + Vanes (5CR12)	2
14	P621	Spinner Vanes (Long) - Left/Right (5CR12)	2
15	P622	Spinner Vanes (Short) - Left/Right (5CR12)	2

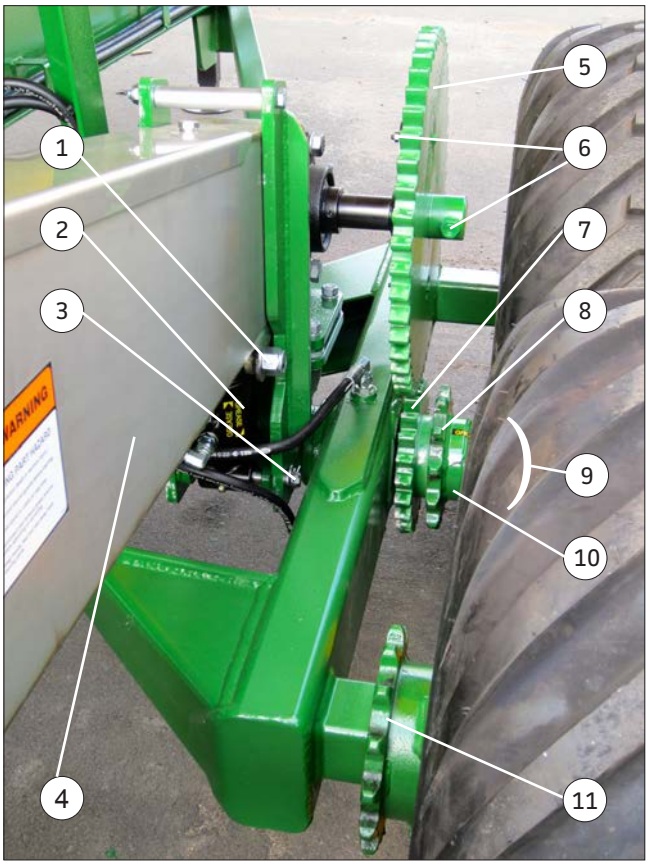
* Floor-Belt and Chain, Skirt Pressings, Couplings and Back/Front Shafts vary depending on machine model, size and year of manufacture. Please include the machine serial number with all parts and servicing enquiries.



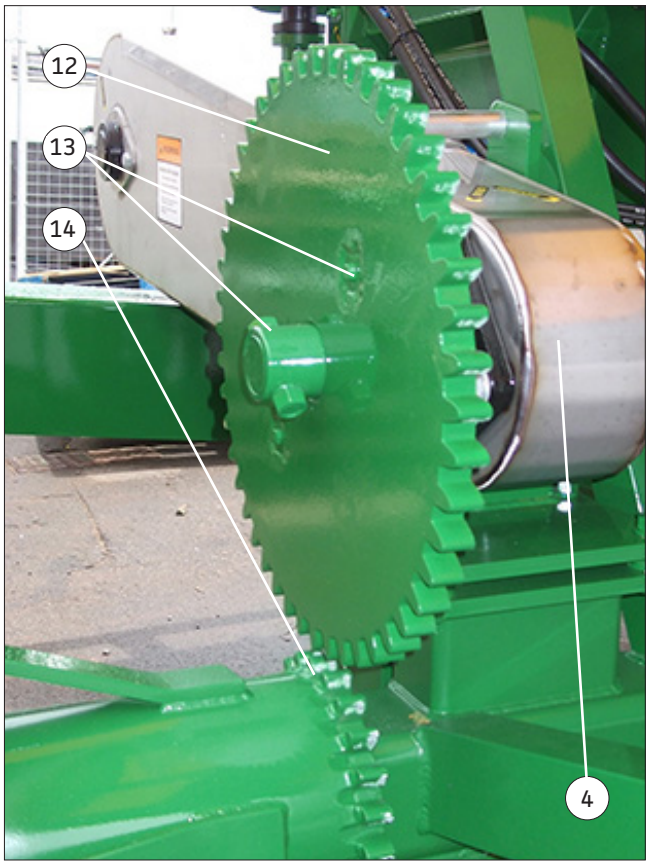
GROUND DRIVE

REFERENCE	PART NUMBER	DESCRIPTION	QTY.
1	4011 & 4012	Bolt 3/4"x5" UNC & Nyloc Nut 3/4" UNC	1
2	4282	Clutch RAM - 2.5" D/A	1
3	P4704	3/4" Stainless Steel Ram Pin & S10 R Clip	1
4 (Enclosed)	P0424	Chain 16B (1" Pitch) - 46 Outer Links + Joiner	1
	3694	Sprocket 30T - 50mm Bore, 1/2" Keyway	1
	P4689	Mollybush Bearings - Gearbox	2
	2824 or 4074	Sprocket 11T or 15T, 1.5" Bore, 3/8" Keyway (3)	1
5 & 12	P4668	Drive Gear 48T - 20mm Bisalloy	1
6 & 13	P1005	Shear Plate Assembly Complete with 1.5" ID Boss	1
7	P4669	Drive Gear 22T - Bisalloy - 100mm Bore - 13D	1
8	2397	Sprocket 12T - 100mm Bore16mm	1
9	P363	Tandem 22T Gear + Sprocket Idler Assembly - No Shaft	1
10	3575	Hubcap 90mm (70sq) + Grease Nipple	1
11	2396	Sprocket 14T - 5-1/2" Bore (Welded to 125mm BH Pipe)	1
14	P4670	Gear - 22T Bisalloy - 140mm Bore - 13C	1
-	P0433	Chain CA550 - 16 Outer Links + Crank + Joiner	1

TANDEM-AXLE



SINGLE-AXLE



COMMON BEARING SIZES AND DIMENSIONS

BEARING SIZES BY HUB MAKE / MODEL

HUB MAKE / MODEL	HUB SIZE	BEARINGS	SEAL	HUB CAP
ADR Mk2	60sq	30211 / 30208	100 x 57 x10 Mk2	80mm
ADR Mk3	60sq	30211 / 30208	100 x 56 x 10 Mk3	80mm
ADR Mk3	70sq	30213 / 32210	120 x 67 x 10 Mk3	90mm
ADR Braked	70sq Braked	30213 / 32210	120 x 67 Mk1	90mm
ADR Mk3	80sq	32215 / 32212	130 x 77 x10 Mk3	110mm
ADR Mk5	60sq	30211 / 30208	100 x 73 x 13 Mk5	80mm
ADR Mk5	70sq	30213 / 32210	120 x 93 x 13 Mk5	90mm
ADR Mk6	60sq	30211 / 30208	100 x 56 Mk6	82mm - Screw on
ADR Mk6	70sq	30213 / 32210	120 x 67 Mk6	92mm - Screw on
ADR Mk6	80sq	32215 / 32212	130 x 77 Mk6	124mm (+ Cap Screws)
FAD	60sq	30211 / 30208	100 x 70 x 10 100 x 65 x10 100 x 60 x 10	80mm
FAD	70sq	30213 / 30210	120 x 80 x 12	90mm
FAD	80sq	32215 / 32211	130 x 90 x12	100mm
TVS	60sq	30211 / 30208	100 x 80 x12	80mm
TVS	70sq	32213 / 32210	120 x 90 x12	90mm
TVS Braked	70sq & 80sq	Check	Check	90mm & 110mm
TVS	80sq	32215 / 32212	130 x100 x14	110mm
Monroc	60sq	30211 / 30207	105 x 72 x10	73.5mm - Screw on
Monroc	80sq	30215 / 32211	135 x 95 x 14	101.5mm - Screw on

COMMON BEARING SIZES AND DIMENSIONS

BEARING	INTERNAL DIAMETER (ID)	OUTSIDE DIAMETER (OD)	WIDTH
30208	40mm	80mm	19.75mm
30210	50mm	90mm	21.75mm
32210	50mm	90mm	24.75mm
30211	55mm	100mm	22.75mm
32211	55mm	100mm	26.75mm
32212	60mm	110mm	29.75mm
30213	65mm	120mm	24.75mm
32213	65mm	120mm	32.75mm
32215	75mm	130mm	33.25mm
67048 / 010	1.25”	2.328”	0.625”

TROUBLESHOOTING

If you are experiencing a problem or have a question that is not listed in this chart below, please contact Coombridge & Alexander directly or see your local dealership for parts and service.

QUESTION / PROBLEM	SOLUTION
What hydraulic oil flow is required?	Standard SAM Fertiliser Spreaders are fitted with two OMP32 hydraulic motors running in series, requiring an external oil flow of 35 litres/minute at 2000psi.
What RPM should the spinner shaft turn at?	The spinner shaft should turn at approx. 850RPM at 35 litres/minute at 2000psi.
What direction do the spinner discs turn in?	When standing at the back of the machine, the right-hand spinner disc should turn clockwise and the left-hand spinner disc anti-clockwise.
How do I prevent fertiliser product falling out the sides and/or front of the spreader bin (e.g. striping)?	The side-skirts (running the length of the machine, inside the plastic bin) and front/rear bin scrapers will require regular adjustment, particularly when the machine is new. Both the side-skirts and front/rear bin scrapers are bolted (slotted holes) onto the machine - these bolts can be simply loosened and the skirt or scraper maneuvered to be flush with the floor-belt.
What tension should be on the floor-belt and chain assembly?	The floor-belt should be tensioned with a 40mm sag below the middle of the chassis, with an even curve/sag from front to back.
What are the minimum and maximum application rates for various fertiliser products?	From 45kg/hectare at 15m spreading centres for Urea (and similar products), and up to 3,000kg/hectare at 10m spreading centres for Lime.
How accurate is the spread pattern?	Representative machines have been tested using the nationally recognised Spreadmark test for accuracy. Spread patterns are rated using Coefficient of Variation (CV), a measure of the percentage of fertiliser outside a perfect spread - 0% being a perfect spread pattern. New Zealand standards recognise a CV under 15% as acceptable for nitrogenous fertilisers (DAP, Urea, Nitroposka Blue etc.). SAM Fertiliser Spreaders have achieved a 7.1% CV for Urea and 8.1% CV for Superphosphate - well within industry standards.

TROUBLESHOOTING

If you are experiencing a problem or have a question that is not listed in this chart below, please contact Coombridge & Alexander directly or see your local dealership for parts and service.

QUESTION / PROBLEM	SOLUTION
What is the spreader bin capacity?	4t Fertiliser Spreader = 3.2m3 of fertiliser 4t of Superphosphate (1.3t/m3 density) 5.5t of Lime (1.7t/m3 density) 2.6t of Urea (0.8t/m3 density) 5t Fertiliser Spreader = 3.9m3 of fertiliser 5t of Superphosphate (1.3t/m3 density) 6.6t of Lime (1.7t/m3 density) 3.1t of Urea (0.8t/m3 density) 6t Fertiliser Spreader = 4.6m3 of fertiliser 6t of Superphosphate (1.3t/m3 density) 7.7t of Lime (1.7t/m3 density) 3.7t of Urea (0.8t/m3 density)
How does the automatic clutch work?	As the hydraulic spinners are engaged (live hose pressurised) oil closes a hydraulic ram inside the clutch assembly engaging the two ground-drive gears to start the floor. When the hydraulic spinners are stopped (return hose pressurised) and the lever returned to neutral, the two ground-drive gears are disengaged stopping the floor-belt. The system can be engaged or disengaged while moving.
What is the life expectancy of the gears?	As the gears only engage at low pressure they should last many thousands of tonnes before requiring replacement.
What paint treatment does the chassis receive?	The chassis is firstly sand-blasted, then thermal-arc spray galvanised, primed, followed by a final two-pot epoxy top-coat.
Can I get different wheel/tyre options?	A variety of tyre options are available for each model. Please contact Coombridge & Alexander Ltd directly for more information.
How do I prevent Urea blocking the back door exit?	A sheet or chicken wire with 1/2”/1.5cm gaps (or similar) can be fixed to the existing mesh grill inside the spreader bin to prevent larger clumps of product blocking the back door exit.

SPREADING TABLES

400 Wide Mat or Low Speed 800 Wide Mat — Spread Widths In Metres Centre to Centre

All Rates In Kilograms Per Hectare. — Door Settings 1 to 20 (Read from Ruler Level/Top of the Back Door). — Check Fertiliser Densities with Manufacturer

	Urea Density 0.77 t/cubic m			Sulphate of Ammonia Density 1.0 t/cubic m			DAP Nitrophoska Blue Density 1.1 t/cubic m			Superphosphate Triple Super/Salt Density 1.2 t/cubic m			Serpentine Super Density 1.3 t/cubic m			Dolomite Density 1.4 t/cubic m			React Rock (Sechura) Density 1.5 t/cubic m			Lime Density 1.6 t/cubic m		
	15	17.5	20	12.5	15	17.5	15	17.5	20	15	17.5	20	15	17.5	20	15	17.5	20	10		N/A	10	N/A	
	Spread Width in M			Spread Width in M			Spread Width in M			Spread Width in M			Spread Width in M			Spread Width in M			Spread Width in M			Spread Width in M		
20	905	776	679	1499	1249	1071	1374	1178	1030	1499	1285	1124	1624	1392	1218	1954	1675	1466	3141			3350		20
19	860	737	645	1424	1186	1017	1305	1119	979	1424	1220	1068	1542	1322	1157	1857	1591	1392	2984			3183		19
18	815	698	611	1349	1124	963	1236	1060	927	1349	1156	1012	1461	1253	1096	1759	1508	1319	2827			3015		18
17	769	659	577	1274	1062	910	1168	1001	876	1274	1092	955	1380	1183	1035	1661	1424	1246	2670			2848		17
16	724	621	543	1199	999	856	1099	942	824	1199	1028	899	1299	1113	974	1563	1340	1173	2513			2680		16
15	679	582	509	1124	937	803	1030	883	773	1124	963	843	1218	1044	913	1466	1256	1099	2356			2513		15
14	634	543	475	1049	874	749	962	824	721	1049	899	787	1137	974	852	1368	1173	1026	2198			2345		14
13	588	504	441	974	812	696	893	765	670	974	835	731	1055	905	792	1270	1089	953	2041			2178		13
12	543	465	407	899	749	642	824	707	618	899	771	674	974	835	731	1173	1005	879	1884			2010		12
11	498	427	373	824	687	589	756	648	567	824	707	618	893	765	670	1075	921	806	1727			1843		11
10	453	388	339	749	624	535	687	589	515	749	642	562	812	696	609	977	838	733	1570			1675		10
9	407	349	305	674	562	482	618	530	464	674	578	506	731	626	548	879	754	660	1413			1508		9
8	362	310	272	599	500	428	550	471	412	599	514	450	649	557	487	782	670	586	1256			1340		8
7	317	272	238	525	437	375	481	412	361	525	450	393	568	487	426	684	586	513	1099			1173		7
6	272	233	204	450	375	321	412	353	309	450	385	337	487	418	365	586	503	440	942			1005		6
5	226	194	170	375	312	268	343	294	258	375	321	281	406	348	304	489	419	366	785			838		5
4	181	155	136	300	250	214	275	236	206	300	257	225	325	278	244	391	335	293	628			670		4
3	136	116	102	225	187	161	206	177	155	225	193	169	244	209	183	293	251	220	471			503		3
2	91	78	68	150	125	107	137	118	103	150	128	112	162	139	122	195	168	147	314			335		2
1	45	39	34	75	62	54	69	59	52	75	64	56	81	70	61	98	84	73	157			168		1
Door Settings																								Door Settings

Door Setting Instructions

Step 1. Select the product to be spread at the top of the chart e.g. Superphosphate with a density of 1.2 tonnes per cubic metre

Step 2. Select the spread width for the product either 15,17.5, or 20 metre centres e.g. 15 metre centres

Step 3. Follow this column down to select spreading rate required in kilograms per hectare e.g. 300 kg/h

Step 4. Now Follow row across to find door height setting on left or right columns e.g. no. 4 Set door height

SPREADING TABLES

The spreading table below is fixed beside the back door of each SAM Fertiliser Spreader. The required fertiliser application rate can be set by adjusting the back door jack and viewing the spreading table sticker to achieve the desired rate per hectare - setting the top of the back door level with the selected box. The 'DOOR HEIGHT' side scale (1-20cm) represents the opening space (in centimetres) between the floor-belt and the back door.

Spreading Tables

Set tab on top of door to centre of box with rate required.
All rates in kg per hectare
More detailed spread tables in instruction book

Door Height	Lime 10m Centres Density 1.6 t/cu.m	Super 15m Centres Density 1.1 t/cu.m	Urea 15m Centres Density .77 t/cu.m	Door Height
20	3350	1374	905	20
19	3183	1305	860	19
18	3015	1236	815	18
17	2848	1168	769	17
16	2680	1099	724	16
15	2513	1030	679	15
14	2345	962	634	14
13	2178	893	588	13
12	2010	824	543	12
11	1843	756	498	11
10	1675	687	453	10
9	1508	618	407	9
8	1340	550	362	8
7	1173	481	317	7
6	1005	412	272	6
5	838	343	226	5
4	670	275	181	4
3	503	206	136	3
2	335	137	91	2
1	168	69	45	1
Door Height	Lime 10m Centres	Super 15m Centres	Urea 15m Centres	Door Height

EXTERNAL BATTERY PACK

The Iconix FX15 Monitor is powered by a 12V external battery pack. Supplied with the Iconix FX15 Monitor is two 12V batteries together with a battery charger (AC adaptor).

Battery life and charging frequency will depend on usage and battery care. We recommend always charging the battery (with the supplied charger) for 6-8 hours.

The Iconix FX15 Monitor can also be powered from the round pin connection (7-pin) designed to fit the tractors auxiliary ply. This connection will power the display while the tractor is running but will not charge the battery.

USER GUIDE

1. To turn on the Iconix FX15 Monitor, press the 'ON' button - the display should read '0.0' with the '^' symbol underneath the 'ZERO' label.

2. When loading is completed the load weight will display in kilograms.

3. If the Iconix FX15 Monitor is left 'ON', it will hold the load weight/display until the load starts to discharge. As the load is discharged, the display will provide an accurate reading of the current load throughout the discharge process (subtracting from the initial weight).

4. If the Iconix FX15 Monitor is turned 'OFF' before load discharge begins, there are two methods for discharging;

   Option 1 - push the 'ON' button - this will retrieve the stored load weight. Discharge or further loading can begin. Please note pushing the 'ZERO' button will clear the stored weight if required.

   Option 2 ('Negative' mode) - push the 'ON' button followed by the 'ZERO' button - this will zero the load. As discharge begins the display will show a negative symbol as it counts the kilograms discharged.

Only loads greater than 100kgs can be stored when the Iconix FX15 Monitor is turned 'OFF'. When loads exceed 1,000kgs in 'Negative' mode, the dimply will alternately flash the load weight discharged and a negative symbol (as only four digits can be displayed).

ICONIX FX15 MONITOR

TROUBLESHOOTING - ICONIX FX15 MONITOR

QUESTION / PROBLEM	SOLUTION
No display on Iconix FX15 Monitor.	1. Plug the FX15 Monitor into an alternative power source to eliminate potential battery issues 2. If an external power cable is used, please try another power cable 3. If there is still no reading please try another display to determine if the fault is within the Iconix unit or load-cells. If alternative display works the original unit is likely to be faulty and will need to be returned to the manufacturer for diagnosis and repair.
Four flat lines displaying on Iconix FX15 Monitor. OR The displayed weight is unstable and varies up/down.	The load-cells are connected in pairs to a junction box by cables, with a main cable extending from the junction box to the FX15 Monitor. The load-cells are paired up - two in the front and two in the back. 1. Disconnect both load cell cables from the junction box 2. If the FX15 Monitor will not 'ZERO', the unit is likely to be faulty and will need to be returned to the manufacturer for diagnosis and repair 3. If the FX15 Monitor zeros, try the following; 1. Plug in one of the two cables that connect to the junction box 2. If the fault reoccurs, remove the first cable and plug in the second. It is unlikely that there will be a fault with multiple cells, and instead you should be able to isolate the exact faulty load-cell 3. 'ZERO' the FX15 Monitor with the good load-cells (one cable) connected 4. Pull down on the top front of the machine to activate the load-cell/s 5. A negative (-) reading indicates the rear cells are working 6. A positive (+) reading indicates the front cells are working 7. Disconnect the cable (attached to the junction box) for the working load-cells, and reconnect cable for the faulty load-cells. 8. Disconnect the wires at the junction box for both the load-cells. 9. If the reading on the display is incorrect the cable is likely to be damaged/faulty 10. If the FX15 Monitor zeros, connect each load cell individually checking the display after each connection to ensure a normal reading. 11. This will indicate which of the cells, if not both, are faulty. 12. Replace the faulty load-cell or cells, connect all wires and cables and retest.

INSTRUCTIONS - CHANGING MOTORS FROM SERIES TO PARALLEL

To change the OMP 32/8 hydraulic motors from series to run in parallel please follow the below instructions:

1. Remove the four allen head cap screws with a 6mm allen key. These screws hold the hydraulic valve block to the RH motor.

2. Carefully remove the hydraulic valve block away from the motor (be careful to retain the two 'O' rings).

3. Remove the grub screw from inside the lower of the two holes with a 1/4" allen key (see figure 2). If the grub screw is tight give it a hard tap with a punch or similar tool to free.

4. Bolt the hydraulic valve block back onto the motor, ensuring the two 'O' rings are in place.

5. Remove the two hoses that run between the two motors at the hydraulic valve block only. Remove the plug from the parallel pressure port (marked in figure 1 as X plug), and place the plug into the series port below with a 3/16" allen key (marked in diagram 3 as X plug).

6. Move hose no.1 (marked in figure 1) to the port marked parallel pressure (where you have removed the X plug).

7. Move hose no.2 back into its original port (marked Motor Return). A spacer (male to female) adaptor may be required to space the hose out from the no.1 hose (see figure 4).

8. Test to ensure there are no port or hose leaks.

9. The spinner speed must be reset on the hydraulic valve block to approx. 850RPM. Wind the control dial all the way in, then 2.25 turns out for the parallel setting (1-5/8 turns for series setting).

MOTORS IN SERIES

Fig. 1.

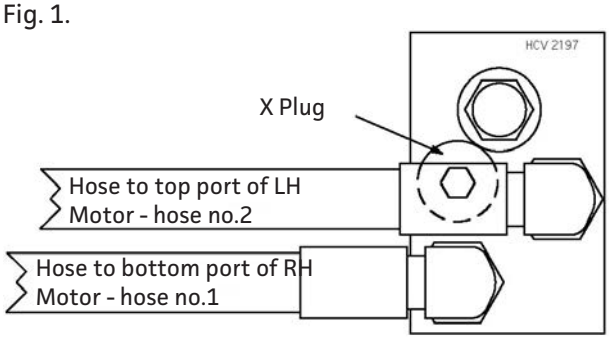
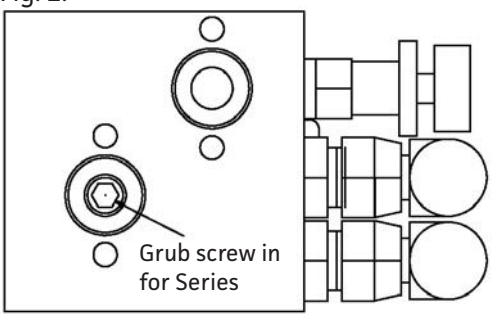


Fig. 2.



MOTORS IN PARALLEL

Fig. 3.

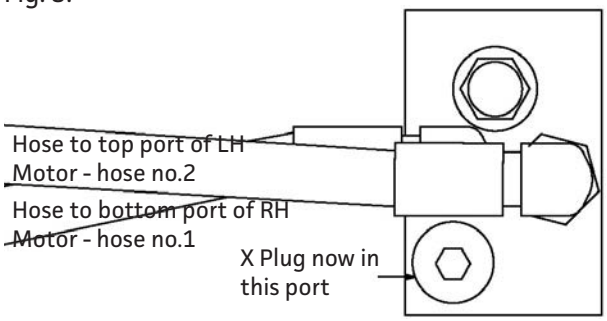


Fig. 4.