

INSTRUCTION AND PARTS MANUAL AU



Topcon Control

All models from 2020

(400 & 800mm wide floor-belts
single and tandem axle)



6 TONNE TANDEM-AXLE

THANKS FOR CHOOSING A SAM

This Instruction and Parts Manual covers all Topcon Control spreaders manufactured since 2020.

For all other SAM Machinery Instruction Manuals please visit www.samfarmmachinery.com

SERIAL NUMBER

All SAM Machinery products are identified with a unique serial number located on the front of the machine (e.g. '20 S 1234'). Please include this number with all parts and servicing enquiries so we can provide you with fast and accurate assistance.



INTRODUCTION

Coombridge & Alexander have created SAM Spreaders from over 70 years' experience making agricultural machinery. SAM Spreaders are the gold standard for spreading techniques throughout Australasia. Strong, simple and smart, each machine is handcrafted from the very best materials and componentry we can find. They are known for their practical design and easy to use operation.

A family-owned and operated company, Coombridge & Alexander control the complete manufacturing process of the iconic SAM range: Fertiliser Spreaders, Combo Spreaders, Orchard Spreaders, Feed Wagons, Hydraulic Trailers and Quick Hitches.

We stand by the quality of all of our products - our team have put the hard work in so you can expect a long working life out of your gear. All the best with your new SAM. We trust you will love it.

For all parts, servicing or support enquiries please contact your local dealership.

www.samfarmmachinery.com

MODEL DETAILS

MODEL	
SERIAL NUMBER	

QUALITY GUARANTEE

SAM Machinery products are guaranteed against any defects in either material or manufacture for a period of 24 months from delivery date, provided that the equipment is properly maintained and 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 distributor 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 24 months from date of purchase. Such warranty is subject to the following conditions:

1. That the basic maintenance (as noted in P5) is followed.
2. This warranty covers the repair or replacement of parts or machinery sold by Coombridge & Alexander Ltd and damaged as a result of faulty workmanship or faulty materials.
It does not extend to any other loss or damage including consequential loss or damage to other property or persons.
3. No responsibility will be accepted for repairs made other than by Coombridge & Alexander Ltd 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
4. Damage to any goods which have been altered or modified by someone other than Coombridge & Alexander Ltd or its authorised dealers.
5. 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. PFG Australia 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. After consultation with Coombridge & Alexander Ltd they 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 purchaser is not an authorised dealer -
 - a. The loss or damage should be reported directly to PFG Australia Ltd who will consult with Coombridge & Alexander Ltd, PFG Australia 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 roll-over 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 being 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.

HEALTH & SAFETY RISK ASSESSMENT



A hazard identification, assessment and control procedure has been conducted on a representative SAM 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.	<ol style="list-style-type: none">1. Deep cuts or amputation2. Bruising3. Fractures	<p>Avoid wearing loose clothing, jewellery or gloves - they increase the risk of entanglement.</p> <p>Stand a safe distance from the machine when under operation.</p>
Leaking hydraulic hoses and/or couplings.	<ol style="list-style-type: none">1. Leaking oil may get into skin2. Skin and eye irritation3. Breathing difficulties	<p>Apply a programme of preventive maintenance (hydraulic hoses and hydraulic hose couplings).</p> <p>Leaking oil, or bulging or abraded hose walls, must have faulty parts replaced.</p> <p>Never use hands or fingers to detect leaks.</p> <p>Wear appropriate PPE (personal protective equipment).</p>
Tractor and/or Fertiliser Spreader roll-over due to instability under varying conditions and terrain.	<ol style="list-style-type: none">1. Serious injury2. Fatality	<p>Do not use the machine in steep areas, or on unstable ground.</p>



To keep your SAM Spreader in excellent working condition, please follow these basic maintenance procedures as you go.

1. Keep your machine fairly clean and very well greased.
2. Before each use; check the hydraulic system for signs of oil leaks or wear. Check there is no play in the spinner bearings by lifting up on the spinner discs. Tension the spinner bearings by tightening the large nyloc nut at the top of the spinner shaft (this can be adjusted by undoing the grub screws).
3. After every five hours of operation grease 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 check all bolts are tight, including the wheel nuts, joiners and spinner discs and vanes. Check all nipples and grease points on the front floor adjusters slides, drawbar jack, 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. Adjust when necessary.
6. All roller chains should be kept well oiled, particularly during long periods of storage.
7. Check the couplings above the spinner tubes stay approximately 2mm between the top and bottom halves.
8. Check your linkage/tow pins.
9. Always ensure tractor oils are kept in excellent condition. Beware when changing a Spreader between different tractors. Pump oil out of the hoses unless they use the same hydraulic oil.
10. If you have load cells, please make sure the bolts are regularly tightened.
11. **Avoid high pressure hosing/waterblasting around your load cells, sensors and monitor.**
12. Do not weld on this machine. Welding will destroy load cells and computer.

Please keep these checks up for the lifetime of your SAM.



BEFORE STARTING WORK please read the following application and set-up instructions to ensure safe and productive operation.

HYDRAULICS (TRACTOR OIL FLOW REQUIREMENTS)

For the Spreader to operate at its maximum rates, a tractor hydraulic flow of approximately 90 litres per minute is required. Standard SAM Computer Controlled Spreaders are fitted with two OMP50 hydraulic motors running in series, requiring an external oil flow of a max of 50 litres per minute. The floor drive requires approximately 40 litres per minute to rotate at its maximum speed.

It is very important that you adjust the hydraulic oil flow from the tractor as above. Note, the higher the bypass oil flow, the higher the pressure in the e-Spreader's hydraulic system.

COUPLING THE HYDRAULICS

The live hose (red) must be coupled to a high pressure outlet point on the tractor's 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) can be coupled into the same double acting bank or a free flow dump return using the quick release coupling supplied.

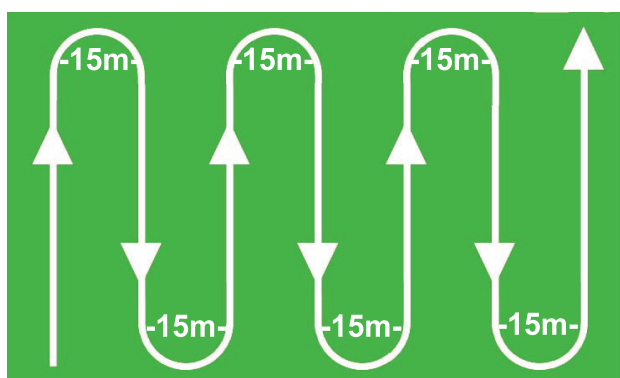
HYDRAULIC OPERATION

The hydraulic spinners and valve control must be coupled to the tractors hydraulic system to ensure safe operation. If you are unsure of set up please contact your local dealership or Coombridge & Alexander directly.

Always ensure tractor oils are kept in excellent condition. Beware when changing an Spreader between different tractors. Pump oil out of the hoses unless they use the same hydraulic oil.

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. You can choose any spread width in the set-up mode.



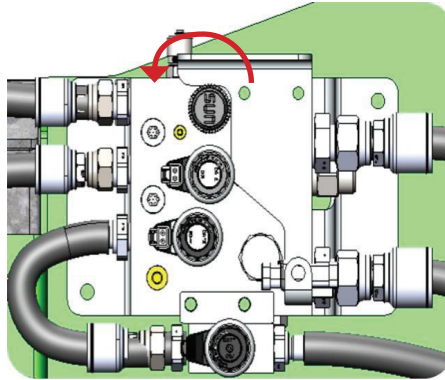
MESH SCREEN

We recommend removing the mesh screen from inside the polyethelene bin when spreading lime.

SPINNERS

1. The Spreader's spinners are adjustable from the valve block at the back of the machine (see the drawing below).

Wind the knob on the valve block anti-clockwise until the spinner speed in the grey box is at 850rpm. Then tighten the lock ring.



TOPCON

For all TOPCON set up instructions - see the TOPCON manual provided.

There is also a video on the SAM YouTube channel - 'How to set up your SAM Computer control Spreader'. This is for dealers at delivery.

<https://www.youtube.com/watch?v=B4lus9ZULZE>

BULK DENSITY

TO MEASURE BULK DENSITY OF PRODUCT BEING SPREAD

This quick process is very important for spread accuracy.

1. Turn on the scales. Put the empty scoop on the scales. Then zero the scale (by pressing the TARE button).



2. Take scoop off the scales and fill to the top. Product must be level with the top.
3. Put the scoop and product back on the scales and weigh it.

782 grams = a density of 782 kilograms per cubic metre.



Note: You can take multiple samples and average them to double-check your accuracy.

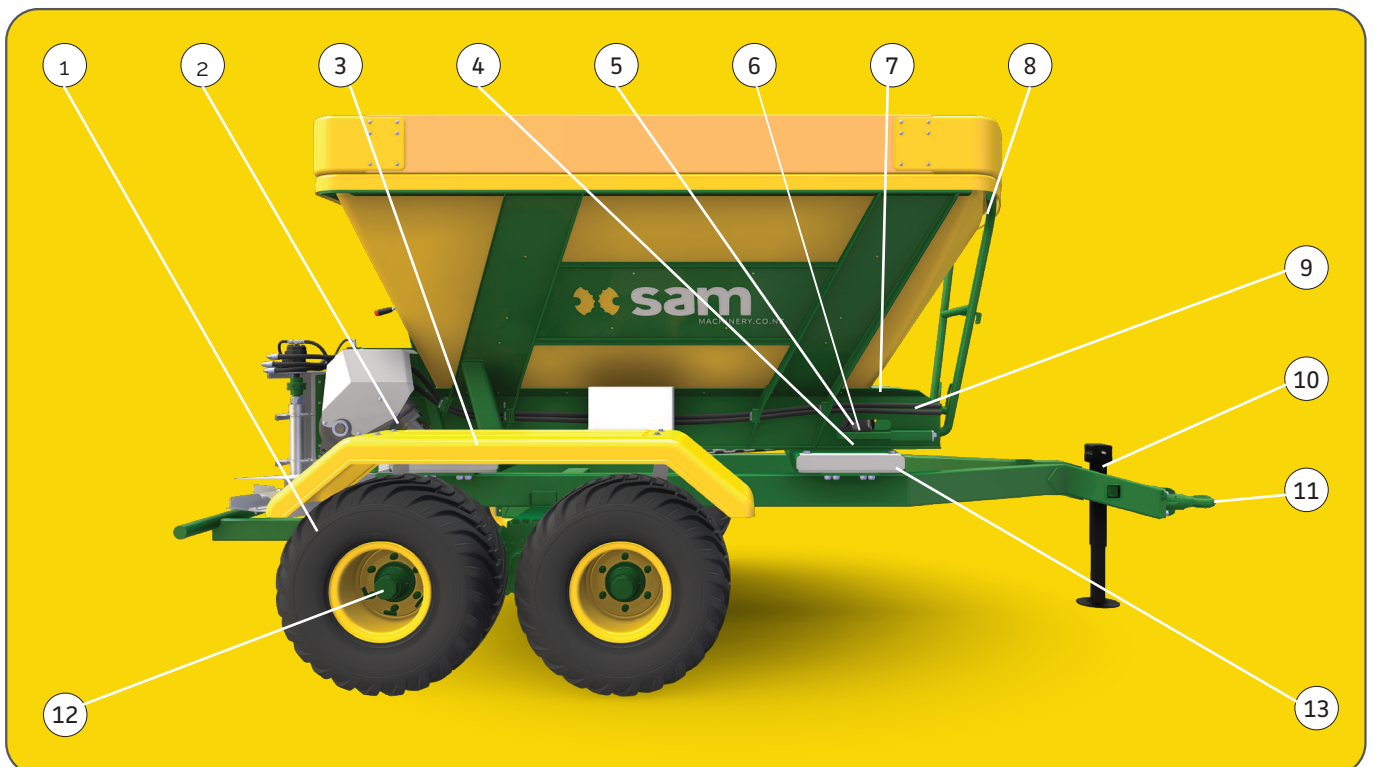
SPARE-PARTS FOR COMPUTER CONTROLLED SPREADER

MACHINE SIDE-VIEW - For 3.8, 5, 6 Tonne Computer Controlled Spreaders - Both 400 & 800 wide belts

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	7815	Gear Box	1
3	P4769	Mudguard	2
4	P4697A	Floor Tension Adjusters	2
5	P3022	Front Shaft (Complete) 1.5" - (inc. Sprockets + Spacer Ring) <i>For all 400 wide belt</i>	1
	P4826	Front Shaft (Complete) 1.5" <i>For 800 wide belt - 5 & 6 Tonne</i>	1
6	P5049	Floor tension adjuster	2
7	6535	Front Bin Skirt Rubber <i>For 800 wide belt</i>	1
	3526	Front Bin Skirt Rubber <i>For 400 wide belt</i>	1
8	1609	Serial Number Plate	1
9	7500	Hose Kit - D200 <i>For 400 wide belt</i>	1
	7501	Hose Kit - <i>For 800 wide belt - 5 & 6 tonne</i>	1
10	P1402	Jack Stand (70sq) - DG701	1
11	P3557	Swivel Tow Hitch (12mm Mounting Plate) - 50mm Ball Eye	
12*	-	Hub & Stub - 70sq	2-4
13	5924	Load cells	8

* Wheel & Tyre, Tow Hitch and Hub & Stub set-up varies depending on machine model, size and year of manufacture.

NB: the image below is showing a 6 Tonne SAM Spreader with Computer Control and a 400mm wide-belt.



SPARE-PARTS FOR TOPCON CONTROL SPREADER

MACHINE REAR-VIEW - For 3.8, 5, 6 Tonne Computer Controlled Spreaders - Both 400 & 800 wide belts

REFERENCE	PART NUMBER	DESCRIPTION	QTY.
1	P5077	Danfoss OMP50/9 Hydraulic Motor	2
2*	P3040	Skirt Pressing (S/S) - (inc. Rubber + Rivets) <i>specify left/right</i>	2
	P4686	Skirt Rubber & Rivet Set - x2 (2.77 x 80mm) + 34 Rivets	1
3*	P3067	Floor-belt and Chain (Complete) <i>for 4, 5, 6 Tonne 800 wide belt</i>	1
	P0391	Floor-belt and Chain (Complete) <i>for 4, 5, 6 Tonne 400 wide belt</i>	1
4	P4882	Spinner Tube Mounting Frame <i>for 800 wide belt</i>	1
	P202	Spinner Tube Mounting Frame <i>for 400 wide belt</i>	1
5*	P4857	Deflector + Divider S/S Panel (Complete) <i>for 800 wide belt</i>	1
	P4452	Deflector + Divider S/S Panel (Complete) <i>for 400 wide belt</i>	
6	P2809	Back Door Jack <i>for 400 wide belt</i>	1
	P2101	Back Door Jack <i>for 800 wide belt</i>	1
7	7311	Hydraulic Sensor Valve HCV 3749-1	1
8	P440	Flexi Coupling CA90 - 25mm/1" (with rubber insert)	2
9	3424	UNF Nyloc Nut 1 1/4" & Grubscrew 3/8"	2
10	P4695	Mollybush Bearing and Housing set. <i>Check the length - long or short</i>	2
11	P4683	Back Shaft - 50mm (Complete inc. 5T Sprockets) <i>for 800 wide belt</i>	1
	P4664	Back Shaft - 50mm (Complete inc. 5T Sprockets) <i>for 400 wide belt</i>	1
12	P20H	Spinner Tube - Complete <i>for 800 wide belt</i>	2
	P20C	Spinner Tube - Complete <i>for 400 wide belt</i>	2
13*	P2103	Spinner Vanes - Set 5CR12 Vanes <i>for 400 wide belt</i>	1
	P4684	Spinner Vanes - Set 5CR12 Vanes (with bis inserts) <i>for 800 wide belt</i>	1



BEARINGS / SEALS

HUB MAKE / MODEL	HUB SIZE	BEARINGS	SEAL	HUB CAP
ADR Mk7	70sq	30213/32210	100 x 120 x 8	Screw on
ADR Mk7	80SQ	32215/32212	130 X 77	Screw on

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 pointers on 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 TABLE					
Set pointer to the centre of the box with the rate required.					
Rates are in kg per hectare. Detailed spread tables are in your manual.					
Door Height	Lime 10m Centres		Super 15m Centres		Door Height
	Density 1.6 t/cu.m	Density 1.1 t/cu.m	Density .77 t/cu.m		
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

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	10	N/A	10	N/A				
Spread Width in M	15	17.5	20	1499	1249	1071	1374	1178	1030	1499	1285	1124	1624	1392	1218	1954	1675	1466	3141			3350	20
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 Settings					
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																	

TROUBLESHOOTING

If you are experiencing something that is not listed here, please contact your local dealership.

QUESTION / PROBLEM	SOLUTION
What is the Spreader bin capacity?	<p>3.8t Fertiliser Spreader = 3m³ of fertiliser 3.6t of Superphosphate (1.2t/m³ density) 4.8t of Lime (1.7t/m³ density) 2.3t of Urea (0.8t/m³ density)</p> <p>5t Fertiliser Spreader = 4.25m³ of fertiliser 5t of Superphosphate (1.2t/m³ density) 6.8t of Lime (1.6t/m³ density) 3.2t of Urea (0.77t/m³ density)</p> <p>6t Fertiliser Spreader = 5m³ of fertiliser 6t of Superphosphate (1.2t/m³ density) 8t of Lime (1.6t/m³ density) 3.8t of Urea (0.77t/m³ density)</p>
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 directly for more information.
How do I prevent Urea blocking the back door exit?	A sheet for 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.

QUESTION / PROBLEM	SOLUTION
What hydraulic oil flow is required?	Standard SAM Fertiliser Spreaders are fitted with two OMP50 hydraulic motors running in series, requiring an external oil flow of 50 litres per minute plus 40 litres for the floor. For a total requirement of 90 litres per minute.
What RPM should the spinner shaft turn at?	The spinner shaft should turn at approx 850RPM.
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?	<p>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.</p> <p>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.</p>

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