MAN-05005

Shelbourne REYNOLDS

9-25m³

OPERATORS MANUAL

ORIGINAL INSTRUCTIONS

POWERMIX PRO

Shelbourne Reynolds Engineering Ltd
Stanton
Bury St Edmunds
Suffolk
IP31 2AR
England

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www.shelbourne.com

DEALER PRE-DELIVERY / INSTALLATION CHECK AND WARRANTY REGISTRATION – POWERMIX PRO

DEALERS PRE-DELIVERY / INSTALLATION CHECK

IMPORTANT⚠

All items listed below must be checked, and adjusted if necessary. The person conducting the inspection should tick each item in the space provided, indicating whether or not adjustments were required. In the event of additional work being needed, details should be given in the additional work / discrepancy box, located at the bottom of this sheet, or on a separate sheet if required. When the inspection is complete, THIS FORM MUST BE COPIED & RETURNED TO: - Shelbourne Reynolds within 30 days of delivery to customer, otherwise the invoice date to the dealer will be deemed to be the start date for the warranty period.

SERIAL NUMBER: ..... MACHINE NUMBER: .....

MODEL: .....

PLEASE TICK APPROPRIATE COLUMN FOR EACH ITEM UNDERTAKEN

Dealer Pre Customer Delivery / Installation / Commissioning	Checks OK	Adjusted
Check the PTO shaft length is compatible with the tractor. (see section 5.2)		
Rotate the auger & check there is no unusual scratching or knocking sounds.		
Check the drawbar height is adjusted to suit the tractor. (see section 5.1)		
Check configuration of auger blades, and remove the blade guards. (see section 5.5)		
Ensure the hoses are not taught when connected to the tractor.		
Check planetary & 2-speed gearbox oil levels.		
Check operation of all hydraulic services.		
Check hydraulic system for leaks.		
Check tyre pressures. (see section 8.2)		
Check wheel nuts for correct torque setting. (see section 8.3)		
Check brake ram operation & adjustment.		
Check braking system for oil leaks.		
Check operation of handbrake.		
Lubricate all grease points.		
Check in general that nuts & bolts are tight.		
Check paintwork & finish.		
Ensure that all safety guards & decals are fitted.		
Ensure that an operator's manual is supplied with the machine.		
Additional Comments:		
Dealer Representative's Name:	Date:	

Customer Instruction	Actioned
Explain the correct setting & operation of the machine to the customer.	
Ensure the machine is correctly attached to the customer's tractor.	
Ensure the maintenance schedule is explained to the customer.	
Ensure the lubrication & grease points are indicated to the customer.	
Ensure all safety precautions & warning decals are explained to the customer.	
Ensure the warranty policy is explained to the customer.	
Ensure that the operator's manual is handed to the customer.	
Additional Comments:	
Dealer Representative's Name:	Date: .....

For specific details please refer to the operator's manual.

DEALER PRE-DELIVERY / INSTALLATION CHECK AND WARRANTY REGISTRATION – POWERMIX PRO

Dealer Name: .....

Address: .....

.....

Post / Zip code: .....

Dealer Salesman Name: .....

Customer Name: .....

Business Name (if different from above): .....

Address: .....

.....

Post / Zip code: .....

Email Address: .....

Tel No. Home / Office: ..... Cell / Mobile: .....

SERIAL NUMBER: ..... MACHINE NUMBER: .....

MODEL: .....

Dealer Signature: .....

Print Name: ..... Date: .....

Privacy Notice

Here at Shelbourne Reynolds Engineering Ltd we take your privacy seriously and will only use your personal information to administer your account and provide the products and services you have requested from us.
We would occasionally like to contact you with details of other products you may be interested in, special offers we provide and details/invitations to shows, working demonstrations and open days, however this would be no more than once or twice per year. If you consent to us contacting you for this purpose please tick a box or boxes to say how you would like us to contact you.

Post ☐ **Email** ☐ **Telephone/SMS** ☐

If you prefer not to be contacted, then please tick this box ☐

For further information please refer to our Privacy Policy at www.shelbourne.com

Customers Signature: .....

Print Name:..... Date:.....

The customer's signature certifies that the machine was delivered in a satisfactory condition and that adequate instruction was received as to its correct operation, safety requirements, and maintenance as stated in the operator's manual. Also that the customer has read, understood, and agrees to the Terms and Conditions of Sale along with the Warranty Policy (including the disclaimers and limitations) contained in the operator's manual.

Additional work / discrepancies:

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.....

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.....

This page must be faxed or emailed to Shelbourne Reynolds Engineering Ltd.
Fax No: +44 (0)1359 250464 Email: warranty@shelbourne.com

WARRANTY POLICY (ALL PRODUCTS)

MACHINE REGISTRATION

To qualify for the full benefit of the warranty set out in this warranty policy (the "**Warranty**"), it is the purchaser's responsibility to ensure that the Shelbourne authorised dealer has completed the warranty registration details and that they are submitted to Shelbourne Reynolds Engineering Ltd. within 15 days from the date of delivery. If the warranty registration has not been completed and returned to warranty@shelbourne.com before the expiration of 15 days from the date of delivery, any claims made will be refused.
Using the machine implies the knowledge and acceptance of these warranty terms.

1. LIMITED WARRANTIES

1.5 NEW MACHINE WARRANTY

All new machines supplied by **Shelbourne Reynolds Engineering Ltd**. **("Shelbourne"),** are warranted to the original purchaser, under normal use and service, to be free from defects in material and workmanship for a period of 12 months from the date of delivery to the original purchaser (the **Warranty Period**), subject to the terms set out in this warranty policy.

No other warranty is given by Shelbourne regarding the machine, and no person has any authority to give any such warranty for or on behalf of Shelbourne, other than were given in writing signed by a director of Shelbourne.

1.2 WARRANTY ON SPARE PARTS

Shelbourne warrants that any spare part or component supplied by Shelbourne or the Shelbourne authorised dealer in accordance with this limited warranty are free from defects in material or workmanship from the date of sale to the original purchaser for 6 months, subject to the conditions and limitations in clauses 2 to 5 of this warranty policy. Shelbourne will at its option, either repair or replace the defective part free of charge providing that any warranty claim is supported with a copy of the invoice to the end user for the failed part. No claims will be considered for which sales invoices are not provided. Original Purchaser shall be responsible for labour and all freight charges to and from the place where the warranty work is performed.

Shelbourne Reynolds Engineering Ltd. cannot be held responsible for any failures or safety implications arising from the use of non-genuine parts. Use of non-genuine parts may seriously affect the machine's performance and safety.

1.3 WARRANTY ON DEALER STOCK MACHINES

No warranty is available or will be given on machines held in dealer stock for more than 6 months before sale.

1.4 TRANSFER OF WARRANTY

Shelbourne may at its sole discretion allow this warranty to be transferred to a subsequent owner of the machinery for the balance of the Warranty Period, subject to all the warranty conditions being met and only with Shelbourne giving prior written consent.

1.5 EXTENDED WARRANTY - Only available on the following Trimmer & Powermix Ranges

Trimmer – 7000 & 8000 Series

Shelbourne will provide an extended Warranty on certain parts of the 7000 and 8000 Trimmer ranges for an additional 12 months, beyond the initial Warranty Period. This is indicated in the table below and is subject to all the other terms and conditions of this warranty policy. This is a conditional extended warranty offered solely at the discretion of Shelbourne and is on a parts only basis.

	Standard (0-12 months)	Extended (12-24 months)
Gearbox	✓	✓
Hydraulic Valves	✓	✓
Hydraulic Pump	✓	✓
Hydraulic Motor	✓	✓
Hydraulic Cylinders	✓	✓
Booms/Main Frame	✓	✓
PTO Shaft	✓	X
Electronic Controls	✓	✓
Hoses	✓	X
Joystick	✓	X

X = Not Covered ✓ = Covered

Note: Components not indicated have a Shelbourne standard 12 months warranty and are subject to all other terms and conditions of this warranty policy.

Powermix - All Models

Shelbourne will provide an extended Warranty on certain parts of all Powermix models for an additional 12 months and 24 months beyond the initial Warranty Period. This is indicated in the table below, and subject to all the other terms and conditions of this warranty policy.

This is a conditional extended warranty offered solely at the discretion of Shelbourne and is on a parts only basis. It is contingent on the recommended service schedule outlined in the operator's manual being followed and in the event of a claim proof of servicing will be required.

	Standard (0 - 12 months)	Extended (12 - 24 months)	Extended (24 – 36 months)
PTO Shaft	✓	X	X
Planetary Gearbox	✓	✓	✓
2 Speed Gearbox	✓	✓	✓
Hoses	✓	X	X
Scale Head	✓	✓	X
Electronic Controls	✓	X	X
Load Cells	✓	X	X
Valve Block	✓	X	X
Conveyor Belt	✓	X	X

X = Not Covered ✓ = Covered

Note: Components not indicated have a Shelbourne standard 12 months warranty and are subject to all other terms and conditions of this warranty policy.

2. EXCLUSIONS

Shelbourne will not be liable for the machine's failure to comply with the Warranty in any of the following circumstances:

1) damage due to improper use or abusive operation

2) damage or depreciation caused by normal wear and tear.

3) the machine been subjected to alteration, modification, or fitment of non-genuine Shelbourne parts without the prior consent of Shelbourne.

4) wilful or accidental damage, including (but not limited to) damage caused by contact with overhead power lines, damage caused by foreign objects (e.g., stones, metals, and any materials other than vegetation).

5) the machine has not been maintained and serviced fully in accordance with the details and maintenance schedule set out in the Shelbourne Operators Manual, and only using Shelbourne genuine parts. Proof of service work may be requested prior to approval of any claim under the Warranty.

6) failure due to use of incorrect oil or lubricants, contamination of the oil, or oil which has served its useful life or failure to carry out proper maintenance as recommended in the Shelbourne Operators Manual.

7) the original purchaser failed to follow Shelbourne's oral or written instructions (including instructions in the Shelbourne Operators Manual) for the transportation, storage, commissioning, installation, use and maintenance of the machine or (if there are none) good trade practice regarding the same.

8) where the original purchaser has continued to use the machine after they became (or should reasonably have become) aware of the defect with the machine. **Continued use of the machine after a defect is discovered could cause further failures for which Shelbourne cannot be held liable and may also have safety implications**.

9) the Shelbourne serial number plate on the machine has been removed or altered.

10) failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.

11) the product is attached to, connected with, or used in conjunction with, any other product which it is not compatible for use with (whether that other product is a Shelbourne or non-Shelbourne product);

In addition, it is the purchaser's responsibility to ensure that where the purchased Shelbourne product is to be attached to a tractor or other vehicle, the product falls within the carrying capacity as well as compatibility of the tractor or machinery which it is to be mounted on or to. Acceptance of an order and the supply of a product by Shelbourne does not indicate Shelbourne's approval of the purchaser's intended choice of tractor or machinery for installation, nor its compatibility with the purchased Shelbourne product.

The Warranty shall not apply in respect of any:

1) wearing items including but not limited to drive belts, conveyor belts, conveyor rollers, rubber flaps, flails, skids, bearings, pins, bushes, blades, pneumatic tyres, or any other items which are soil engaging or normal wearing or consumable items

2) hoses that have suffered external damage. Complete hoses must be returned for warranty within this period. Any which have been cut or repaired will be rejected.

3) repeat or additional repairs resulting from incorrect diagnostics, unless advised by Shelbourne.

4) poor-quality previous repair work (unless carried out by Shelbourne).

3. LIMITATIONS OF LIABILITY

Shelbourne and the Shelbourne authorised dealer shall not be liable to the original purchaser under any circumstance for injuries, death, property damage or damages of any kind whatsoever directly, consequential, or contingent to any person or property caused by the use of the machine.

Shelbourne shall not be liable for any consequential loss such as the following costs or types of loss (whether direct or indirect):

1) Loss of profit;
2) Loss of or damage to goodwill;
3) Loss of sales or business;
4) Loss of agreements or contracts or business opportunity;
5) The cost of lost consumables (such as oil);
6) Any loss or costs arising from the inability to use the machine due to any defect with the machine, and during the time taken to repair or replace the machine;
7) The cost of hire or purchase of any replacement machine;
8) Recovery of broken-down machine;
9) Damage to or loss of crops or vegetation;
10) Labour cost;
11) Damage to carrying tractor;
12) Damage caused by exceeding the tractor OEM (original equipment manufacturers) specification for implement mounting and hitch capability; and
13) Any other indirect or consequential loss.

In view of the Warranty given by Shelbourne, the terms implied by sections 13 to 15 of the Sale of Goods Act 1979, and all other implied warranties or conditions regarding the quality or suitability of the machine, are, to the fullest extent permitted by law, excluded from this warranty policy and any contract or agreement between Shelbourne and either the original purchaser or the Shelbourne authorised dealer.

The liability of Shelbourne for any failure by the machine to comply with the Warranty shall be limited to repair or replacement of the product, or refund of the purchase price, of the product as set out in clause 4 of this warranty policy.
Nothing in this warranty policy limits any liability which cannot legally be limited, including liability for:

1) death or personal injury caused by negligence.
2) fraud or fraudulent misrepresentation.

3) breach of the terms implied by section 12 of the Sale of Goods Act 1979 (title and quiet possession); and
4) breach of section 2 of the Consumer Protection Act 1987.

4. WARRANTY CLAIMS

All claims must be submitted by a Shelbourne authorised dealer on behalf of the original purchaser, providing that the original purchaser has:

1) given notice in writing with full information regarding the failure, to Shelbourne (or the Shelbourne authorised dealer) during the Warranty Period, and within 15 days of discovery of the failure. The Shelbourne authorised dealer will be responsible for forwarding the claim to Shelbourne directly, and where appropriate, the Shelbourne authorised dealer may be responsible for dealing with warranty claims as directed by Shelbourne;

2) given Shelbourne (or the Shelbourne authorised dealer) a reasonable opportunity to examine the machine or the damaged or defective parts; and

3) if requested by Shelbourne (or the Shelbourne authorised dealer), returned the damaged or defective parts (via the original Shelbourne authorised dealer) within 30 days of notification of a defect, as long as the request by Shelbourne (or the Shelbourne authorised dealer) is made within that time frame, otherwise, within a time frame as specified by Shelbourne (or the Shelbourne authorised dealer).

then Shelbourne shall, at its option, repair or replace the defective parts, or refund the price of the defective parts or approve that the Shelbourne authorised dealer does the same.

5. REPAIR COSTS

The original purchaser or Shelbourne authorised dealer shall not repair, or arrange for a repair, of the machine without the prior written authority of Shelbourne. Such authority may only be given by Shelbourne service personnel. **Shelbourne will not be liable for the cost of any repairs carried out without its prior written consent to the work being done.**

If Shelbourne authorises a repair of the machine, all claims for repair costs must be submitted to Shelbourne by a Shelbourne authorised dealer within 15 days of the date of repair on a Shelbourne Warranty Claim Form (in accordance with clause 7 of this warranty policy).

Repairs should only be completed by a Shelbourne authorised dealer (or another repairer with the prior written consent of Shelbourne).

The submission of a claim is not a guarantee of payment. Shelbourne will only reimburse the reasonable costs and expenses incurred in connection with any repair. The decision reached by Shelbourne is final.

6. DAMAGE TO NEW MACHINES

All goods must be examined on receipt, please examine all machines and packages, if there is any damage or short shipment sign ‘Damaged’ or ‘Detail any item not received’ and notify both Shelbourne Reynolds warranty department by phone or E Mail and the carrier within 24 hours of any damage or missing parts. **No claims will be accepted after this time.**

7. CLAIMS PROCEEDURE

All claims must be submitted by a Shelbourne authorised dealer. Full information relating to the failure must be submitted using the claim form available on the Shelbourne website under the "Support" section, with all required fields completed with the relevant information and then emailed to warranty@shelbourne.com. Full information on warranty claim submission can be found set out in the warranty procedures document.

Where repairs are completed by a Shelbourne authorised dealer (or another repairer with the prior written consent of Shelbourne), then completed form(s) must be received by Shelbourne **NOT LATER THAN 15 DAYS** from the date of repair. When requested by Shelbourne, additional information or failed parts must be received by Shelbourne **WITHIN 15 DAYS** of claim submission.

If in exceptional circumstances a non-Shelbourne part is used for a repair, warranty reimbursement will be at no more than Shelbourne's standard dealer cost for the genuine part.

If parts are returned and the claim is subsequently rejected and you require the parts sent back to you, please notify Shelbourne within 7 days of receiving rejection notification.

Following examination of the claim and parts, Shelbourne will pay at their discretion, for any valid claim the invoiced cost of any parts supplied by Shelbourne and appropriate labour and mileage allowances if applicable. **Maximum mileage per claim is capped at 80 miles unless otherwise pre-authorised and confirmed in writing by the Shelbourne Reynolds Service Manager.**

For any claims submitted, which are intentionally misleading or fraudulent, Shelbourne shall be entitled to charge an appropriate hourly rate to recover any costs incurred as a result.

8. FAILED PARTS

Ensure that all hydraulic ports on returned components are drained of oil and securely and appropriately plugged with the caps that came fitted to the replacement components to avoid oil leakage and contamination entering the assemblies. Hydraulic cylinders must be cleaned of oil and fully retracted.

Electrical items being returned must be suitably packaged and protected to reduce the risk of transportation damage.

Due to strict time constraints enforced by our suppliers, you must immediately return any failed hydraulic components such as pumps, motors, cylinders, valves, and hoses; electrical components, such as solenoid valves, control boxes, sensors/switches; or driveline components such as gearboxes, PTOs, and bearings if the machine is still within its relevant warranty period.

Hydraulic parts such as pumps, motors and cylinders, and driveline parts such as gearboxes must be returned to us unopened and unexamined. With hydraulic valve blocks and electrical control boxes there is the ability to replace specific serviceable components within them, such as valve cartridges, spool assemblies, circuit boards, relays, switches, and joystick should the need arise to resolve a fault within.

Any parts replaced under warranty remain the property of Shelbourne. They must be returned to Shelbourne on request. In all other cases, unless informed otherwise, they must be retained for a period of 90 days after such time they must be destroyed and rendered physically unusable and not sold or reconditioned for sale to a third party.

9. REIMBURSMENT

All claims, to the extent which it has been agreed by Shelbourne that a refund will be made, will be settled with the Shelbourne dealer, by credit memo, within 30 days of acceptance of the claim.

10. EXPORT CUSTOMERS

If you are based outside of the UK, warranty terms and conditions outlined above may differ depending on your market. Please contact Shelbourne Reynolds Engineering Ltd. for further information.

Dear Customer,

Parts manuals are not supplied with this machine, but they can be ordered from your Shelbourne Reynolds dealer. Alternatively they can be downloaded from the Shelbourne Reynolds website www.shelbourne.com by clicking on the Parts and Service section of the website, and then selecting manuals followed by Powermix Manuals.

The Machine and Parts Manual Number for your machine is -

Tick	Machine No.	Manual No.	Machine Description
	619928 02	MAN-05105	Powermix Pro 9m3 Express
	619930 01	MAN-05106	Powermix Pro 9m3 Popular
	619929 01	MAN-05107	Powermix Pro 16m3 Twin Express
	619929 04	MAN-05107	Powermix Pro 16m3 Twin Express C/W rear door
	619932 01	MAN-05108	Powermix Pro 9m3 2 rear door Popular

Powermix Pro Serial Number

ORDERING SPARE PARTS

To ensure that you order the correct part from your SRE dealer please use the following procedure.

ALWAYS QUOTE THE MACHINE AND SERIAL NUMBERS WHEN ORDERING.

Refer to the Parts Manuals front page/s, listing the machine numbers. Select the correct machine number which is printed in the top left corner of the page (starting with 6199_ _01). The machine number is listed above or can be found printed on the identification plate, which is located on the LH side of the chassis member.

Scan down the page, and select the relevant sub assembly your required part falls within. Sub-assemblies start from 6190_ _ 01. Note the year or serial number of the machine may determine a correct sub assembly if more than one is listed.

Continue through the manual and find the relevant sub assembly parts listing. Again the number will be printed in the top left corner; the sub-assemblies are in numerical order.

Having found the correct parts list, you will find the corresponding drawing by either looking at the facing page or progressing through the manual to the next drawing.
The drawings indicate the components by item numbers, which you will find, are repeated in the left-hand side of your parts listing, and therefore referring to the correct part.

Please note that if certain parts cannot be found listed below the sub-assembly numbers, they are likely to form part of a specific optional kit. These kits will be found in numerical order further through the manual and start with KIT- _ _ _ _ _.

The lists shown on the following pages highlight the optional build kits that also make up your exact configuration of machine.

Non-current production highlighted

Tick	Part No.	Description
		Drive options
	KIT-03594	Single speed drive kit (Popular)
	KIT-03580	Single speed drive kit (Express)
	KIT-03693	Single speed drive kit (Twin Express)
	KIT-03683	2 Speed drive kit (Express)
	KIT-03608	2 Speed drive kit (Popular)
	KIT-03585	2 Speed drive kit (Twin Express)
	KIT-03586	Gear change lever arm kit (cable)
	KIT-03838	Gear change lever kit (fixed)
	KIT-03956	Handset for electric gear change kit (for use with KIT-03899)
		PTO shaft options
	KIT-03595	W-A PTO (Comer) (Popular)
	KIT-03595B	W-A PTO (Walt) (Popular)
	KIT-03657	STD PTO (Comer) (Popular)
	KIT-03657A	STD PTO (Weasler) (Popular)
	KIT-03657B	STD PTO (Walt) (Popular)
	KIT-03588	W-A PTO(Comer) (Exp Single)
	KIT-03588B	W-A PTO (Walt) (Exp Single)
	KIT-03647	STD PTO (Comer) (Exp Single)
	KIT-03647A	STD PTO (Weasler) (Exp Single)
	KIT-03647B	STD PTO (Walt) (Exp Single)
	KIT-03609	W-A PTO (Comer) (2 speed Single)
	KIT-03658	STD PTO (Comer) (2 speed Single)
	KIT-03658B	STD PTO (Walt) (2 speed Single)
	KIT-03618	W-A PTO 21 spline (2 speed Twin)
	KIT-03659	STD PTO 21 spline (2 Speed Twin)
	KIT-03587	W-A PTO (Comer) (2 Speed Twin)
	KIT-03587A	W-A PTO (Weasler) (2 Speed Twin)

	KIT-03587B	W-A PTO (Walt) (2-Speed Twin)
	KIT-03660	STD PTO (Comer) (2 Speed Twin)
	KIT-03660A	STD PTO (Weasler) (2 speed Twin)
	KIT-03660B	STD PTO (Walt) (2 speed Twin)
	KIT-03692A	W-A PTO (Single speed Twin)
	KIT-03692	STD PTO (Single speed Twin)
	KIT-03908A	W-A PTO (Walt)
	KIT-03876A	Input PTO Shaft
Towing eye options		
	KIT-03439	Continental towing eye
	KIT-03741	Heavy duty UK towing eye
	KIT-03740	UK swivel towing eye
	KIT-03422	UK towing eye
	KIT-03513	Scharmuller hitch fixing kit
Ladder options		
	KIT-03714	Standard rear ladder
	KIT-03715	Ladder extension (11 and 19m³)
	KIT-03715A	Ladder extension (13 and 22m³)
	KIT-03715B	Ladder extension (15 and 25m³)
	KIT-03723	Platform option
Conveyor options		
	KIT-03767	PVC web conveyor system
	KIT-03964	PVC web conveyor spring tensioner
	KIT-60009	PVC web conveyor spring tensioner
	KIT-03761	PVC web conveyor system
	KIT-03691	PVC web conveyor system
	KIT-03644	Web conveyor system
	KIT-03579	Conveyor mounting kit (Single)
	KIT-03582	Conveyor mounting kit (Twin)

	KIT-03634	3m web conveyor (Single)
	KIT-03634A	3m web conveyor (twin)
	KIT-03699	Fixed front conveyor (Single)
	KIT-03650	Fixed front conveyor (Twin)
	KIT-03612	1m side conveyor (RH popular door)
	KIT-03785	Conveyor deflector kit
	KIT-03700	Direct hydraulic flat web conveyor
Transfers		
	KIT-03598	Transfers for single Express
	KIT-03596	Transfers for Popular
	KIT-03597	Transfers for twin Express
Blade options		
	KIT-03710A	Standard blade kit
	KIT-03710	Tungsten coated blade kit
	KIT-03577	Blade kit (up to 21/11/08)
	KIT-03578	Large blade kit (up to 21/11/08)
	KIT-03735	600mm auger extension standard blades
	KIT-03716	300mm auger extension standard blades
	KIT-03716A	300mm auger extension tungsten
	KIT-03735A	600mm auger extension tungsten
	KIT-03826A	Standard blade kit
	KIT-03826	Tungsten coated blade kit
	KIT-03827A	600mm auger extension tungsten
	KIT-03827	600mm auger extension standard blades
	KIT-03828A	300mm auger extension tungsten
	KIT-03828	300mm auger extension standard blades
	KIT-60014	Blade protection kit
Weigher options		
	KIT-03470	Dummy weigh cell kit
	KIT-03470A	Dummy weigh cell kit (Twin)

	KIT-03537	Weigh cell system
	KIT-03538	Weigh cell system (Twin)
	KIT-03456	Basic level display (EZ2000V)
	KIT-03456A	Basic level display (EZ2000V remote)
	KIT-03759	Basic level display and radio link
	KIT-03717	Basic level display (EZ2400V)
	KIT-03442	Mid level display (EZ3200V)
	KIT-03614	Mid level display (EZ3200V)
	KIT-03442A	Mid level display (EZ3200V remote)
	KIT-03751	Mid level display (EZ3400V)
	KIT-03805	Basic display (EZ2500V)
	KIT-03610	Top level display (3 pin plug wireless)
	KIT-03471	Top level display (3 pin plug)
	KIT-03471A	Top level display (European plug)
	KIT-03728B	Top level display, Cab control, TMR tracker LITE with USB flash drive
	KIT-03728D	Top level display, TMR tracker LITE with USB flash drive
	KIT-03728E	Top level display, RD2400 remote display, TMR tracker PRO with USB flash drive
	KIT-03728F	Top level display, Cab control, TMR tracker PRO+ with USB flash drive, RF data link
	KIT-03467	Remote zero function
	KIT-03616	Data down loader kit
	KIT-03615	PROX sensor kit
	KIT-03611	Cab control display kit
	KIT-03567	Remote display
	KIT-03483	Flashing light kit
	KIT-03510	Alarm kit
	KIT-03933	Weigh cell system (Single)
	KIT-03941	Weigh cell system (DG) (Twin)
	KIT-03943	Weigh cell system (DG) (Single)
	KIT-03949B	TMR3610 Display C/W TMR tracker Lite software + USB and cab control with wireless modem.
	KIT-03895	DG400 Basic display
	KIT-03896	DG600 Mid level display
	KIT-60015	DG8000IC Top level display
	KIT-03904	Bluetooth Modem kit
	KIT-03900	3-pin plug connection kit
	KIT-03958	DINA TEL Remote display
	KIT-03955	GPRS Data transfer kit
	KIT-03995	DG Mounting kit

Lights		
	KIT-03431	Lighting kit
Wheel and tyre options		
	KIT-03544	305/55R22.5 assembly
	KIT-03629	445/45R19.5 Wide option
	KIT-03607	445/45R19.5 Wide option (Twin)
	KIT-03672	435/50R19.5 Goodyear marathon
	KIT-03672A	435/50R19.5 Doublecoin
	KIT-03646	18R22.5 For single axle twin auger
	KIT-03678	Axle packer plate kit for above
	KIT-03628	18R22.5 Single axle twin (8 stud)
	KIT-03671	385/55R22.5 assembly (Twin)
	KIT-03734	385/55R22.5 assembly
	KIT-03704	Axle spacer kit (for kit-03734)
	KIT-03544A	305/55R22.5 assembly (Twin)
	KIT-03511	Super single tyre kit (385/65R22.5)
	KIT-03757	355/55R22.5 Bandenmarkt
	KIT-03757A	355/55R22.5 Bandenmarkt (Twin)
	KIT-03671B	385/55R22.5 Longmarch
	KIT-03512	Axle spacer kit (for KIT-03511)
	KIT-03821	425/40B17 Delcora
	KIT-03800	Super single (385/65R22.5) - Twin
	KIT-03736	Axle spacer kit (for KIT-03800)
	KIT-03934	385/55R19.5 Doublecoin (Single)
	KIT-03934A	385/55R19.5 Doublecoin (Twin)
Axle options		
	KIT-03433C	Hydraulic braked axle
	KIT-03433B	Hydraulic braked axle
	KIT-03433	Hydraulic braked axle

	KIT-03446B	Unbraked axle
	KIT-03446	Unbraked axle
	KIT-03633	Braked single axle (twin 8 stud)
	KIT-03627	Unbraked single axle (Twin 8 stud)
	KIT-03809	Hydraulic braked single axle (Twin 10 stud)
	KIT-03673	Hydraulic braked single axle (Twin 10 stud)
	KIT-03645	Unbraked single axle (Twin 10 stud)
	KIT-03811	Hydraulic braked axle tandem underslung bogie rear steering
	KIT-03624	Hydraulic braked axle tandem underslung bogie rear steering
	KIT-03583	Hydraulic braked axle tandem underslung bogie
	KIT-03694B	Hydraulic braked axle tandem underslung bogie
	KIT-03694	Hydraulic braked axle tandem underslung bogie
	KIT-03803	Hydraulic braked axle tandem underslung bogie
Extension side options		
	KIT-03605	900mm extension (15m³)
	KIT-03396A	600mm extension (13m³)
	KIT-03642	450mm extension (12m³)
	KIT-03681	250mm extension (10.5m³)
	KIT-03395A	300mm extension (11m³)
	KIT-03655	800mm extension (25m³)
	KIT-03453	600mmm extension (22m³)
	KIT-03651	450mm extension (21m³)
	KIT-03674	250mm extension (18m³)
	KIT-03452	300mm extension (19m³)
	KIT-03845	800mm extension (15m³)
Rubber retaining ring options		
	KIT-02651	Rubber retaining ring (9m³)
	KIT-03622	Rubber retaining ring (11m³)
	KIT-03641	Rubber retaining ring (12m³)
	KIT-03620	Rubber retaining ring (13m³)

	KIT-03604	Rubber retaining ring (15m³)
	KIT-03461	Rubber retaining ring (16m³)
	KIT-03623	Rubber retaining ring (19m³)
	KIT-03652	Rubber retaining ring (21m³)
	KIT-03619	Rubber retaining ring (22m³)
	KIT-03654	Rubber retaining ring (25m³)
	KIT-03847	Rubber retaining ring (15m³)
General options		
	KIT-03504	Rubber door flap (RH side door)
	KIT-03505	Rubber door flap (LH side door)
	KIT-03720	Rubber door flap (LH rear door)
	KIT-03720A	Rubber door flap (RH rear door)
	KIT-03632	Mud flap kit
	PLG-0005	7 pin plug
	KIT-02602	Brake relief kit
	KIT-03576	300mm auger extension
	KIT-03599	Hydraulic jack (hand pump/reservoir)
	KIT-03514	Hydraulic jack (direct spool)
	KIT-03449	Mechanical jack
	KIT-03719	Auger magnet kit (15mm thick flights)
	KIT-03300	Auger magnet kit (front auger only)
	KIT-03617	Dummy ram kit
	KIT-03837	Battery pack kit
	KIT-03512	4 Tub raise kit
	KIT-03684	150mm Extension top
Anti-rotation plate options		
	KIT-03448	Bolt in fixed anti-rotation plates
	KIT-03447	Blade type anti-rotation plates
	KIT-03849	Anti-rotation kit

Hydraulic options (up to 07/07/07)		
	KIT-03436	Direct tractor connection (LH)
	KIT-03460	Direct tractor connection (LH Twin)
	KIT-03507	2 station spool valve (2 door op)
	KIT-03440	Direct tractor connection (RH)
	KIT-03574	Direct coupled hydraulics (1m side)
	KIT-03621	Manual lever spool valve (1m side)
	KIT-03613	Electric solenoid hydraulics (1m side)
	KIT-03434	Lever arm kit (spool valve - machine)
	KIT-03455	Lever arm kit (spool valve - tractor)
	KIT-03487	Direct coupled hydraulic (Web conveyor)
	KIT-03486	Manual lever spool valve (Web conveyor)
	KIT-03492	Electric solenoid (Web conveyor)
	KIT-03635	Electric solenoid (3m web conveyor)
Hydraulic options (Popular)		
	KIT-03666	1st stage hydraulics (LH side door)
	KIT-03665	1st stage hydraulics (RH side door)
	KIT-03722	1st stage hydraulics (rear door)
	KIT-03667	Direct Coupled (side and rear door)
	KIT-03670	Direct coupled (RH side door)
	KIT-03668	Electric solenoid (RH side door)
	KIT-03669	Manual lever (RH side door)
	KIT-03434	Lever arm kit (Spool valve-machine)
	KIT-03455	Lever arm kit (spool valve-tractor)
Hydraulic options (Express)		
	KIT-03661	1st stage hydraulics (Front door)
	KIT-03700	Direct coupled (Front fixed)
	KIT-03662	Direct coupled (Web conveyor)
	KIT-03663A	Electric solenoid (flow divider)
	KIT-03664	Manual lever (Web conveyor)
	KIT-03780	Electric solenoid (vari-speed controller)
	KIT-03797	Electric solenoid (vari-speed controller)
	KIT-03779	Electric Solenoid (manual speed controller)
	KIT-03798	Electric Solenoid (manual speed controller)

	KIT-03434	Lever arm kit (spool valve-machine)
	KIT-03455	Lever arm kit (spool valve-tractor)
	KIT-03907	Hydro kit electric solenoid
	KIT-03967	Hydro kit electric solenoid (¾" hoses)
	KIT-03968	Hydro kit electric solenoid (¾" hoses)
	KIT-03942	Wireless electric solenoid (¾" hoses)
	KIT-60004	Wireless hydraulic valve kit
	KIT-60074	1st Stage hydraulic kit
Country area kits		
	KIT-03249	UK area kit
	KIT-03959	UK area kit (2018 and on)
	KIT-03251	USA area kit
	KIT-03248	German area kit
	KIT-03250	European area kit
Extra options		
	LCL-04130	Sensor cable
	LCL-01210	Power cable
	MOTH16000	Conveyor motor (160cc)

EC Declaration of conformity for machinery

(Machinery Directive 2006/42/EC, Annex II., sub. A)

Manufacturer: Shelbourne Reynolds Engineering Ltd.

Address: Shepherds Grove Industrial estate,
Stanton,
Bury St Edmunds,
Suffolk.
England.
IP31 2AR

Name and address of the person *(established in the European Community/EEA)* authorised to compile the technical file *(to the authorities on request)*:

Name: Mr Neil Smith

Address: As stated above.

Herewith we declare that:	DESIGNATION	**DIET FEEDER**
	MAKE:	**POWERMIX PRO**
	MACHINE No:	
	SERIAL No:	

- is in conformity with the relevant provisions of the Machinery Directive (2006/42/EC)
- is in conformity with the relevant provisions of the EMC Directive (2004/108/EC)

Neil Smith
Director

Place : **Stanton, England.** Date :

CONTENTS

Section 5 PREPARATIONS FOR USE

Section 6 OPERATING THE MACHINE

Section 7 MAINTENANCE AND STORAGE

SECTION 1: INTRODUCTION

1.1 FOREWORD

This manual will aid the user when setting, operating and servicing their Shelbourne Reynolds Powermix Pro. Scheduled information is listed to ensure the operator follows safe and efficient working procedures. It must be read & understood by all persons who are required to carry out work either on or with the machine, and should be used in conjunction with the operator's manual of the tractor or prime mover.

1.2 IMPROVEMENTS AND CHANGES

Shelbourne Reynolds Engineering are continually improving their products to meet the farmers needs and therefore reserve the right to make improvements and changes when practical to do so, without incurring any obligation to make changes and additions to equipment which has been sold previously.
We also reserve the right to make changes to the illustrations, data and specifications contained within this manual.

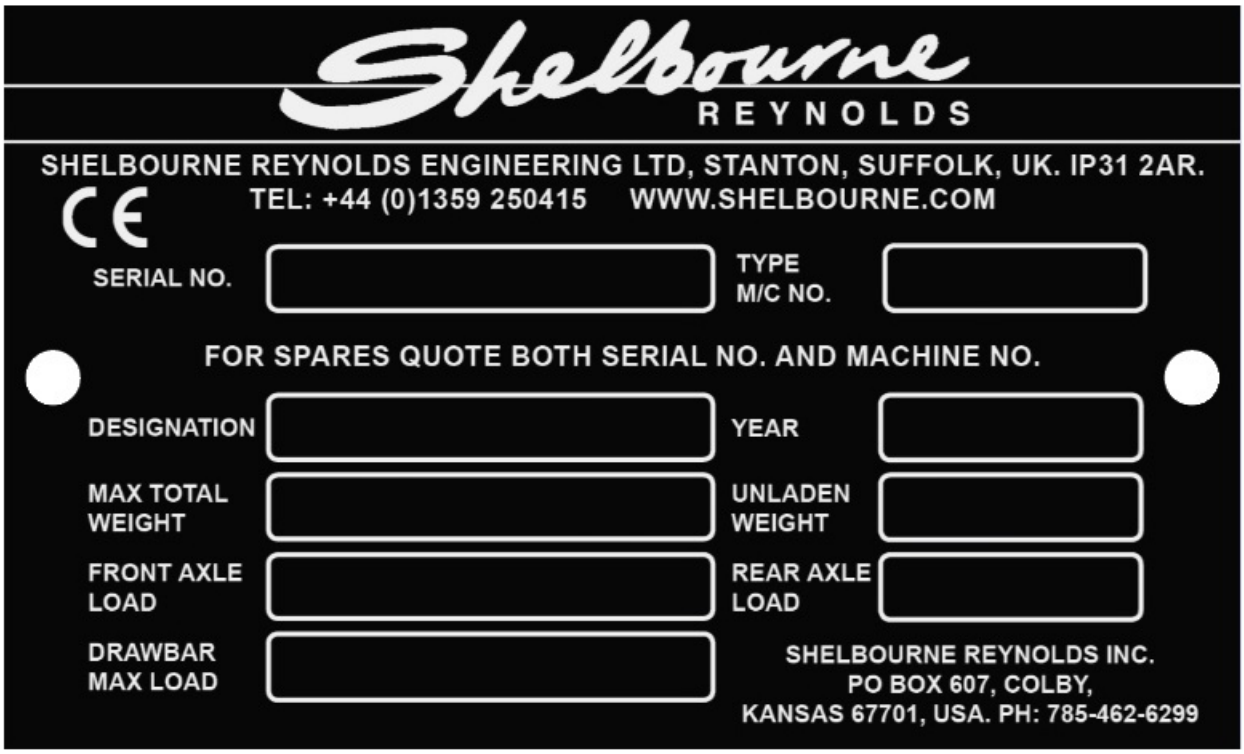
1.3 SERVICE PARTS

Use guaranteed and genuine Shelbourne Reynolds Engineering service parts on Shelbourne Reynolds machinery to ensure maximum life and best performance. These are available through your Shelbourne Reynolds Engineering dealer.

1.4 MACHINE IDENTIFICATION

The serial and machine numbers are printed on a plate (Fig. 1), attached midway along the LH side of the chassis.

Fig. 1



SECTION 2: SAFETY PROCEDURES

2.1 ACCIDENT PREVENTION

The following safety instructions are applicable for all sections of this manual.

Accident prevention programmes can only avert accidents with the co-operation of the persons responsible for the operation of the equipment.

For the safety of yourself and others, operate equipment with care and do not take unnecessary risks.

Please read all safety instructions contained in this operating manual with the utmost care and observe all safety signs attached to the Powermix.
Follow these instructions to help prevent accidents. These instructions must also be made available to all other users.

All relevant accident prevention regulations governing the operation of agricultural machinery, as well as other generally acknowledged health and safety regulations and road traffic regulations must be strictly observed.

The tractor manufacturer's operator's manual and listed safety precautions should also be adhered to when using the Powermix.

The 'Safe stop' procedure is mentioned throughout this manual. It is extremely dangerous to carry out any work on a machine while it is under power. The most important safety measure to follow is the Safe Stop procedure; use it before carrying out any maintenance or adjustments, including dealing with a blockage or other problem:
The procedure is as follows:

- Put the handbrake on.
- Make sure the controls are in neutral
- Stop the engine
- Remove the key

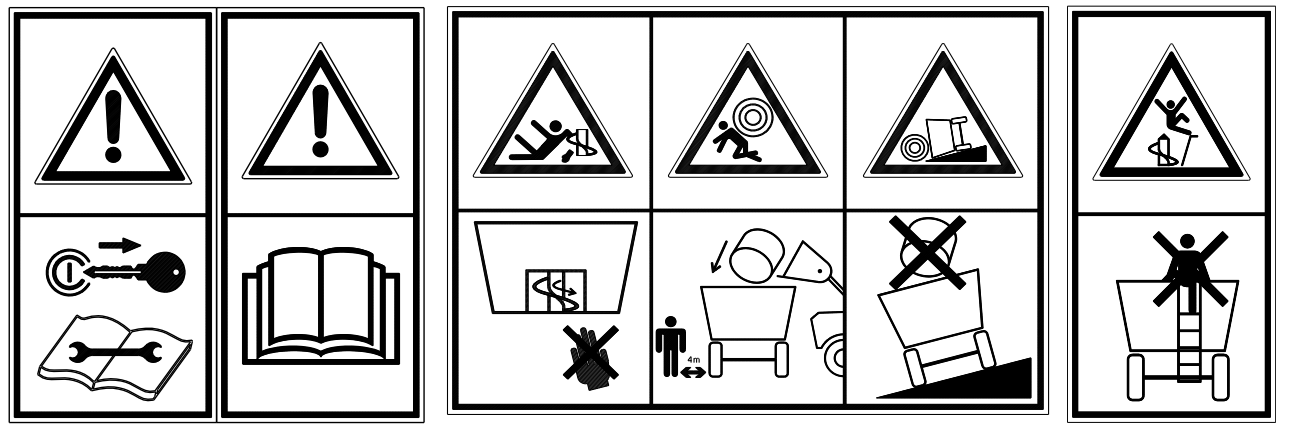
CAUTION

This symbol will appear throughout this manual whenever your safety, the safety of others or the machinery, is involved.

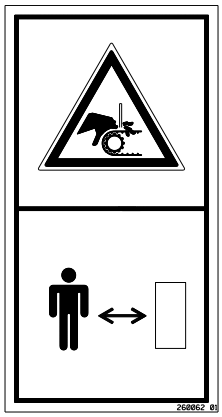
2.2 DANGER / WARNING SYMBOLS

The following safety signs appear on the machine, they provide important instructions for safe work. – Take them into consideration for your safety and the safety of others. Ensure that you identify each symbol and understand its warning.
Attached to the PTO guards are additional safety signs, refer to the driveshaft operators manual for their meaning.

These safety signs must be kept in a legible condition and must be replaced if missing or damaged. This is especially the case when whole sections are replaced when making repairs. Replacement safety signs are available as spare parts through your dealer or importer.



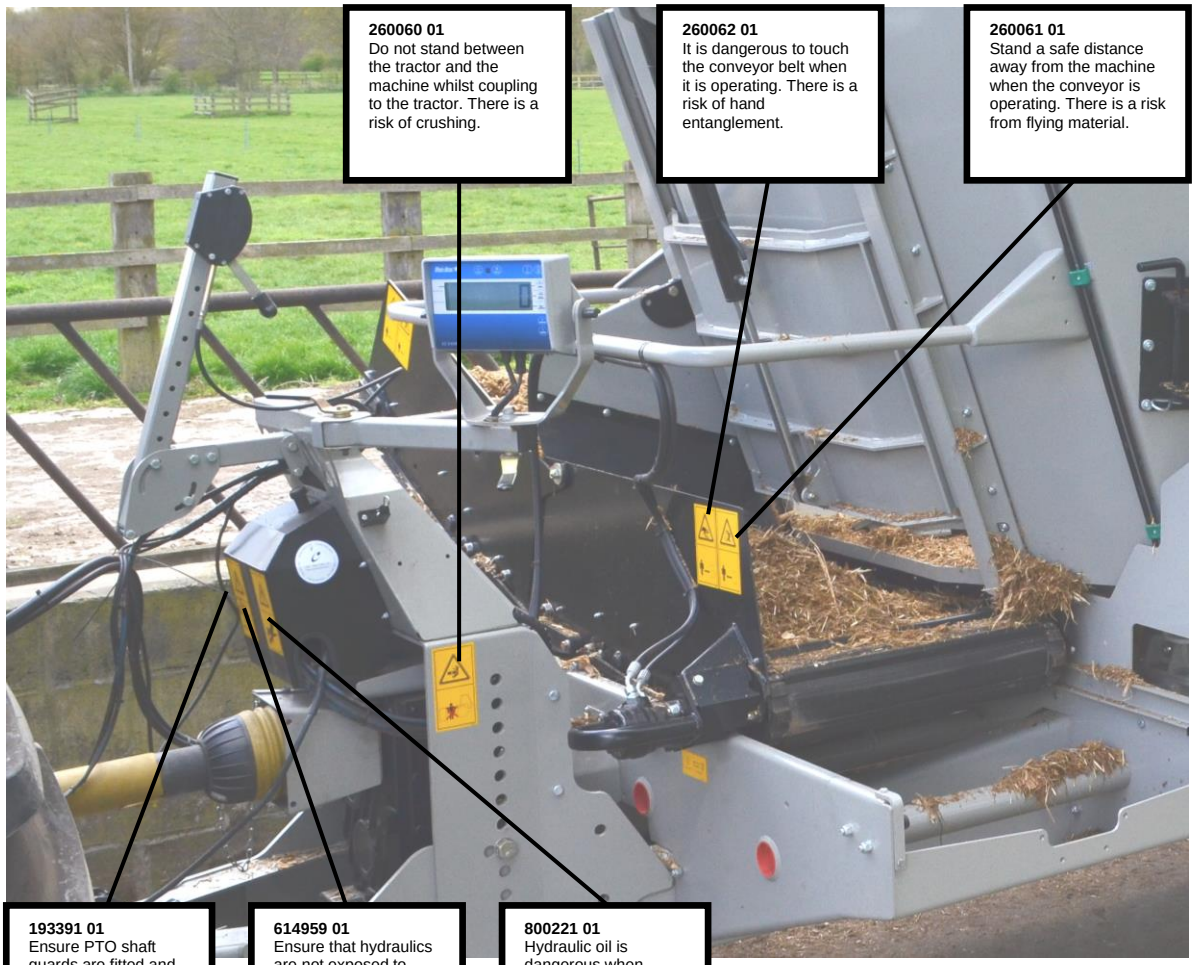
TNF-0011 Stop the engine and remove the key from the tractor ignition before carrying out any work on the machine.	**TNF-0011** Carefully read the operators manual before handling / operating the machine.	**610253 01** Beware of sharp blades on auger. Serious injury may result from falling into the door opening with the auger stationary or rotating.	**610253 01** Ensure that there are no persons standing in the vicinity of the machine when loading. Serious injury may result from a falling bale.	**610253 01** Beware when using on side slopes, the machine may be unstable when a whole bale is first loaded, and may topple over	**610259 01** Do not attempt to climb into the machine using the ladder, serious injury may result from falling into the tub.



260060 01
Do not stand between the tractor and the machine whilst coupling to the tractor. There is a risk of crushing.

260062 01
It is dangerous to touch the conveyor belt when it is operating. There is a risk of hand entanglement.

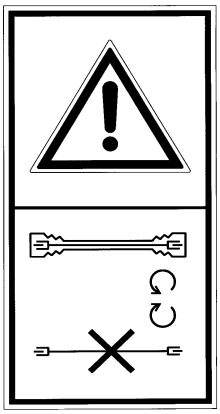
260061 01
Stand a safe distance away from the machine when the conveyor is operating. There is a risk from flying material.

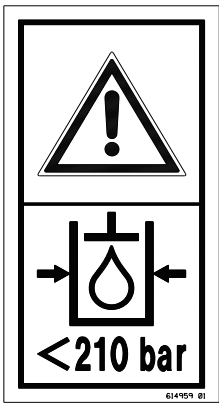


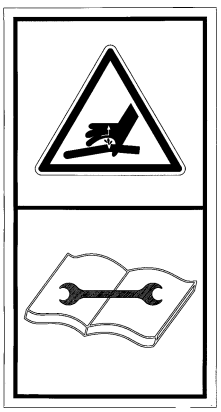
193391 01
Ensure PTO shaft guards are fitted and safety chains are attached.

614959 01
Ensure that hydraulics are not exposed to more than 210 bar of pressure. There is a risk of explosive damage to hoses and other components.

800221 01
Hydraulic oil is dangerous when under pressure and can be injected into the body. Always ensure the hoses are ingood condition before operating.







2.3 ACCIDENT PREVENTION BEFORE STARTING THE MACHINE.

Read the manual thoroughly.

If moving the Powermix by overhead lifting, use the designated lifting points. (See section 4.1). Ensure that the slings / chains are rated accordingly, and that the angles of the slings / chains are set in accordance to lifting regulations.

Ensure bystanders are at a safe distance when the Powermix is being suspended above the ground while lifting and unloading.

A visual check of the load cell mounts would be advisable on older machines, as the chassis will be suspended on the hopper by these mountings

Ensure bystanders are at a safe distance while moving the Powermix from the delivery trailer using a tractor.

Ensure the hydraulic brakes are attached to the tractor before attempting to move the Powermix.

Ensure a suitably sized tractor is used to move the Powermix.

Ensure the tractor is fitted with Mirrors to guarantee lateral visibility on both sides of the machine.

Follow the ‘safe stop’ procedure before carrying out the PDI checks or adjustments.

Do not carry out any PDI work or adjustments without wearing appropriate protective clothing and long hair tied back. (Gloves, safety boots, close fitting clothing etc.)

Before adjusting the front drawbar height, ensure the machine is uncoupled from the tractor and is sitting securely on a temporary solid support situated underneath the front chassis member.

The front drawbar weighs approximately 90kg; so the use of suitable lifting apparatus is advisable to take the weight of the assembly while it is moved.

If the length of the PTO shaft needs adjusting always follow relevant workshop & power tool health and safety procedures / guidelines.

Follow appropriate manual handling procedures, when lifting PTO shaft.

Caution must be taken while entering and moving inside the tub as there is a risk of slipping / falling onto the auger blades.

Beware when adjusting the auger blades or removing the protective cover as the cutting edge will be sharp.

Check there are no foreign objects inside the machine.

Always perform an internal inspection inside, around and under the machine before attempting to start, transport or load the machine.

The Powermix may be used only if all safety devices, e.g. detachable guards, are fitted and in proper working order.

Familiarise yourself with the controls and functions of the machine and practice them in a safe location before attempting to start work.

Only use the machine if you are a competent operator and fully trained. After the machine is sold it is the owner's responsibility to ensure the machine is only used by competent and fully trained personnel.

2.4 ACCIDENT PREVENTION WHEN COUPLING AND UNCOUPLING TO THE TRACTOR.

The work of coupling and uncoupling the Powermix involves a high risk of injury Follow the procedure described in section 5.1 for further information.

Ensure the pickup hitch of the tractor is rated to withstand the maximum load seen at the drawbar, and that it matches the drawbar eye of the Powermix.

Ensure the max permissible rear axle load of the tractor will not be exceeded by the weight of the Powermix.

Ensure the machine is parked on a firm level site for attaching and detaching, ensure the handbrake of the Powermix is applied.

Check that all observers are clear of the Powermix and tractor. Warn bystanders by sounding the horn of the tractor several times.

When reversing the tractor towards the Powermix always ensure there are no other persons in the vicinity or between the machine and the tractor.

Connect the Powermix to the tractor's hitch using only the method recommended in the tractor's operator manual.

Ensure there is sufficient clearance between the PTO shaft and the drawbar when turning on undulating ground.

Ensure the machine is parked on a firm & level site and the 'safe stop' procedure is followed before raising / lowering the parking foot. This is to ensure that the unit does not unexpectedly move while the operator or person is in close proximity to the machine

Be aware of the pinch point between the parking foot and the drawbar while raising the parking foot.

Never leave the driver seat whilst the tractor or machine is running.

Ensure the machine is parked on a firm & level site and the 'safe stop' procedure is followed before connecting / disconnecting the power and hydraulic supplies. This is to ensure that the unit does not unexpectedly move or start up while the operator or person is in close proximity to the machine.

2.5 ACCIDENT PREVENTION WHEN USING THE HYDRAULIC SYSTEM

Ensure the machine is parked on a firm & level site and the ‘safe stop’ procedure is followed before connecting / disconnecting the hydraulic couplings. This is to ensure that the unit does not unexpectedly move while the operator or person is in close proximity to the machine.

Do not connect to tractor’s hydraulic system if it can deliver more than 210 bar.

Ensure the hydraulic couplings supplied with the Powermix are compatible with the tractor.

Due to the possibility of oil contamination on your hands / contact with hot or pressurised oil, it is recommended to use PPE (Personnel Protective Equipment), when handling hydraulic hoses & connectors.

Do not connect the hydraulic hoses to the tractor’s hydraulic system until you have made sure that the system is at zero pressure on both the tractor and the Powermix.

Do not check the hydraulic system for leaks unless the system is at zero pressure. Hydraulic systems can generate extremely high pressures. Use proper and thorough means of searching for leakage (do not use your hands), and repair all damage immediately. Spurting hydraulic oil can cause injuries. Seek medical advice immediately in the event of injury.

Hydraulic systems can generate heat within its components, be aware if touching / servicing components directly after use.

In order to exclude the possibility of incorrect connection, all mating plugs and sockets belonging to the hydraulic connections between the tractor and the Powermix should be marked with matching colours.

Always ensure the hydraulic hoses & fittings are in good order before operating.

2.6 ACCIDENT PREVENTION WHEN USING THE PTO SHAFT

In conjunction with the following safety measures, always refer to the safety manual supplied separately with the PTO shaft.

Ensure the machine is parked on a firm & level site and the ‘safe stop’ procedure is followed before proceeding to fit / remove / grease or change the shearbolt on the PTO shaft. This is to ensure that the unit does not unexpectedly move / start up while the operator or person is in close proximity to the machine.

It is recommended to use appropriate PPE (Personnel Protective Equipment), wear gloves, close fitting clothing and ensure long hair is tied back when dealing with the PTO shaft.

Keep the PTO shaft horizontal during handling to prevent the halves from sliding apart, which could cause injury or damage the guarding. Use suitable means to move heavy PTO shafts.

Use only the PTO shaft, which is supplied with the Powermix and is intended for use with the Powermix.

Ensure the PTO shaft is fitted with the prescribed protective equipment (protective tube and funnel-shaped PTO shaft guard).

Be aware of the risk of pinching your fingers / hand between the guard and the end yoke of the PTO shaft.

Ensure the tubes of the PTO shaft overlap by the prescribed distance in both straight-ahead and in turning positions and are secured in such a way that they cannot rotate with the shaft.

Ensure the PTO guard safety chains are fitted and secure.

Before starting work ensure the PTO end yokes are properly engaged.

Be absolutely sure there is nobody standing in dangerous proximity to the Powermix when you switch on the PTO shaft. Contact can cause death;

The PTO shaft speed of the tractor must correspond with the maximum permissible rotational speed of the Powermix.

The angle of attachment will depend on the type of PTO shaft and on the type of tractor hitch. Always switch off the PTO shaft if the angle of divergence is excessive or whenever the PTO shaft is not required.

2.7 ACCIDENT PREVENTION WHEN OPERATING THE MACHINE

The Powermix must not be put into operation until the user has been given proper initial instructions either by the dealer or by one of ‘Shelbourne Reynolds' representatives or employees.

PPE (Personnel Protective Equipment) is recommended while mixing / feeding certain ingredients due to skin irritation and inhalation of fine particles. In this case wear face / dust mask, goggles, gloves and overalls.

Only use the Powermix on a tractor that is capable of taking its weight.

The machine shall be used by one person only. When the operator identifies somebody in the mixing / loading area, the operator shall not operate the starting controls.

Due to safe working practices, it is our recommendation that the tractor and Powermix are not left unattended, even for short periods of time. This includes when ingredients are being fetched and loaded.

Bystanders must be kept at a safe distance from the Powermix and tractor while it is being operated. Warn bystanders by sounding the horn of the tractor several times and give them time to move away before starting.

Always inspect inside, around and under the machine before attempting to start, or load the machine.

Ensure the machine has stopped and has been made secure before viewing the mix or tipping minerals into the tub via the inspection ladder

Only carry a suitable amount of minerals while climbing the inspection ladder as there is a risk of falling / body strain injury.

When performing an internal inspection or when tipping minerals into the tub, climb the inspection ladder with caution, the steps may be slippery and there is a risk of slipping / falling.

Inspect ingredients before loading to ensure they do not contain any foreign objects.

If another person is involved in loading the Powermix, ensure the work has been planned and a system of communication has been agreed on.

Only load the machine with a suitable device.

Do not overload the Powermix.

Do not load the machine on a slopping / slippery site.

Never leave the driver seat while the tractor or machine is running.

Do not reach into the machine whilst it is running as there is a risk of entanglement / drawing in / cutting by the auger and auger blades.

Ensure the machine is parked on a firm & level site and the ‘handbrake is applied before unfolding and climbing the viewing ladder. This is to ensure that the unit does not unexpectedly move while the operator or person is in close proximity to the machine.

Do not observe or let anybody else observe the operation of the machine from a high make shift gallery, unfenced platform, silo, hay barn or the like.

Ensure the ‘safe stop procedure is employed before making any adjustments to the machine, this includes lowering / raising the conveyor Deflector, adjusting the side door chute, removing / replacing the lynch pins from the side door safety flap, altering the angle of the blade retarders and removing or replacing the fixed retarders.

Ensure the door safety strap is fitted (see section 7.1) and the ‘safe stop’ procedure is employed, and the PTO shaft is disconnected before climbing into the mixing chamber to remove / replace or swap the fixed retarders.

Ensure the door safety strap is fitted (see section 7.1) and the ‘safe stop’ procedure is employed, and the PTO shaft is disconnected before climbing into the mixing chamber to adjust or replace the auger blades.

Caution must be taken while handling the auger blades as the edges will be sharp.

Caution must be taken while entering and moving inside the mixing chamber as there is a risk of slipping / falling onto the auger blades.

While lowering / raising the conveyor deflector be aware of the pinch point between the pivot bracket and door frame.

While adjusting the blade retarders, be aware of the pinch point as the blade rotates.

If the windows of the tractor are open while mixing / feeding, it is recommended that personnel hearing protectors are used due to the noise levels involved.

Keep a safe distance from the distribution conveyor while the machine is operating.

Do not use the machine to transport people, animals or objects.

Do not operate the machine for long periods of time in a closed building.

When operating the 2-speed gear change lever do not overreach or force the lever.

Ensure the tractors rear window is correctly secured before reaching to operate the gear change lever or the manual lever hydraulic control valve.

Ensure the ‘safe stop’ procedure is employed before proceeding to change a shearbolt.

When operating the weigh display, ensure it is rotated so it is not directly above the PTO shaft. Never reach over the PTO shaft to operate the weigh display.

When operating the weigh display be aware that feed stuff may be ejected from the top of the mixing chamber.

Do not operate the hydraulic / wireless hand controller from outside the tractor cab. Ensure the hydraulic spool valves have been switched to neutral and the PTO is switched off before leaving the tractor cab.

Do not adjust the hydraulic manual speed control valve while the PTO is engaged.

Ensure the Handbrake is applied before operating the hydraulic manual speed control valve.

In the event of a malfunction, immediately cease operation and secure the Powermix in its stationary position. Malfunctions must be eliminated immediately. – Ensure the ‘safe stop’ procedure is employed.

Always replace all guards after making any adjustments or lubricating the machine. Replace or repair any damaged or missing guards immediately.

Keep children away from the machine at all times.

2.8 ACCIDENT PREVENTION WHEN TAKING ON PUBLIC ROADS

UK road traffic regulations must be observed when towing the Powermix on the public highway.

The Powermix must be in a road-worthy condition.

Check the tyre pressures regularly. Incorrect tyre pressure will reduce the carrying capacity of the tyre as well as the life of the tyre.

Regularly check & tighten wheel nuts to the recommended torque.

Only use the Powermix on a tractor that is capable of taking its weight.

Disconnect the PTO driveshaft and all hydraulic connections (excluding braking service) from the Powermix during road transport so it cannot be inadvertently operated.

Ensure that all braking systems and lighting systems are in full working order. Make sure they are connected, and the vehicle towing the Powermix can fully and correctly operate them.

Ensure the rear road lights are free of debris and are clearly visible.

Do not overload the machine. Observe the maximum permissible axle loads, the load bearing capacity of the tyres and the maximum total weights in order to ensure adequate steering and braking. Attached implements also influence the behaviour of the tractor.

No person may be allowed to ride on the Powermix.

Always adjust the driving speed to suit the driving conditions. Avoid fast turning when driving uphill, downhill or across a slope. Braking performance and turning ability will be affected when implements are connected to the tractor.

Be aware of the width, height and length of the machine when transporting on the public highway or near obstructions.

2.9 ACCIDENT PREVENTION WHEN LEAVING THE MACHINE

Never leave the driver seat whilst the tractor or machine is running.

Park the machine on a firm and level site.

Follow the safe stop procedure before leaving the tractor cab. If being left unattended lock the tractor cab.

Ensure the ‘safe stop’ procedure is followed before applying the handbrake on the Powermix.

When unhooking the Powermix, apply the machines handbrake before moving the tractor away.

Do not leave the machine adjacent to a building, hay stack or the like, where persons could climb and fall into the tub.

Store the PTO shaft on the stand provided, and locate the hydraulic hoses in the hose parking station positioned at the front of the machine.

Even when the machine is not running, certain components can be moved or rotated by hand, causing injury to fingers or hands due to trapping. Wherever possible secure components during storage to prevent accidental injuries.

2.10 ACCIDENT PREVENTION WHEN CHANGING A WHEEL

Position the machine on a flat hard standing surface capable of withstanding the loading of a jack.

Where possible avoid changing a wheel near live traffic.

Wear High visibility clothing and position warning signs / cones if a wheel needs to be changed near live traffic.

If carrying out the procedure on a public highway, consider the gradient of the camber before jacking and propping.

Before jacking ensure the wheels are chocked and the machine is hitched to the tractor with its parking brake effectively engaged.

Know the weight of the load and only use adequately rated equipment for the load.

It is advised to use air actuated jacks that can extend high enough to reach the jacking point. Standard trolley or bottle jacks will not have sufficient travel height.

Do not lift the machine via the lifting eyes located on the top rim using a Crane or tele-handler when changing a wheel.

Never rely on the hydraulics / air of any lifting equipment. Do not use uneven timber or cement blocks as props, always use heavy duty axle stands

Stay clear of the danger zone / crush area if the machine were to collapse off its temporary supports.

Use mechanical aids to lift / position wheels.

Ensure the wheels are safely replaced, the wheel nuts are correctly torqued, and the repair site is cleared.

Do not attempt to change a wheel unless you have the proper equipment and experience to do the job. If in doubt use a skilled professional. The cost is minimal compared to the costs associated with the serious consequences if something goes wrong.

2.11 ACCIDENT PREVENTION WHEN SERVICING OR WORKING ON THE MACHINE

Ensure the machine is parked on a firm & level site and the 'SAFE STOP' procedure is followed before servicing or working on the machine. This is to ensure that the unit does not unexpectedly move or start up while the operator or person is in close proximity to the machine

The Powermix must be maintained and repaired only by persons who are familiar with its working and have been made fully conversant with the risks involved.
If in doubt contact a qualified engineer

Any malfunctions or defects, which might affect the safe operation of the Powermix, must be immediately eliminated.

Do not carry out any work without appropriate protective clothing and long hair tied back. (Gloves, safety boots, close fitting clothing etc.)

Do not climb on the machine to access grease points as parts of the machine could be extremely slippery. Always use suitable climbing apparatus.

While loosening / tightening nuts & bolts avoid overreaching yourself and consider the consequences of the spanner slipping, or the fastener suddenly breaking or coming loose. If the result is likely to involve a fall, or the removal of flesh from your knuckles, then reconsider your approach.

When entering the mixing chamber to replace, or adjust the auger blades or to fit wear kits to the auger/s, firstly follow the 'safe stop' procedure. As an extra precaution disconnect the PTO shaft & hydraulic services from the tractor. Ensure the door has been secured from accidently dropping by using the safety strap which attaches to the hydraulic door cylinder (see section 7.1), and enter the tub only via the door opening.

Caution must be taken while entering and moving inside the tub as there is a risk of slipping / falling onto the auger blades.

Beware when replacing / adjusting the auger blades as the cutting edge will be sharp.

Ensure there is plenty of ventilation in the workshop. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.

Do not tension the conveyor belt while the belt is running, always employ the 'safe stop' procedure.

Ensure the 'SAFE STOP' procedure is followed, the Powermix is perfectly stable, the handbrake applied and the ground is firm when undertaking work underneath the machine such as changing the gearbox oil, or adjusting the brake rams.

Caution must be taken when changing the gearbox oil as the oil may be hot.

Never work underneath or near the Powermix if it has been raised using only a jack. Always make sure the jack is used in conjunction with stands or other effective supports, and that the jack & stands used can bear the weight.

Always tighten wheel nuts and other components to the stated recommended torque.

Some parts such as brake drums may become extremely hot in use.

Perform an inspection of the tyre before inflation. Check for any defects and wear which may reduce its capacity to withstand its stated inflation pressure.

The tyre should be inflated to its correct pressure, according to the tyre manufacturer's load/inflation specifications. Always stand outside the likely explosion trajectory when inflating a tyre. An inflation cage should be used when inflating large tyres.

With respect to servicing or working with hydraulic components, refer to points listed in section 2.5.

With respect to servicing or working with the PTO shaft, refer to points listed in section 2.6.

Replace all guards after servicing.

Respect the environment and do not dump oil & grease. They should be disposed of in accordance with the regulations at a waste collection point, waste disposal centre or recycling centre.

2.12 ACCIDENT PREVENTION WHEN CLEANING AND STORING THE MACHINE

If the Powermix is connected to a tractor while cleaning, ensure the ‘safe stop’ procedure is followed and the machine is parked on a firm level site. This is to ensure that the unit does not unexpectedly move / start up while the operator or person is in close proximity to the machine.

Do not clean the machine without appropriate protective clothing and long hair tied back. (dust mask, goggles, Gloves, safety boots, close fitting clothing etc.)

When unhooking the Powermix, apply the machines handbrake before moving the tractor away.

Do not leave the machine adjacent to a building, hay stack or the like, where persons could climb and fall into the tub.

Store the PTO shaft on the stand provided and locate the hydraulic hoses in the hose parking station at the front of the machine.

Do not run the machine while cleaning.

If cleaning the machine using a steam cleaner or pressure washer, follow the recommended precautions given by the washing equipment manufacturer.

When entering the tub, to clean the machine, firstly follow the ‘safe stop’ procedure. As an extra precaution disconnect the PTO shaft & hydraulic services from the tractor. . Ensure the door has been secured from accidently dropping by using the safety strap which attaches to the hydraulic door cylinder, and enter the tub only via the door opening.

Do not climb on or over the parked / stored machine, due to a risk of falling in or off.

Even when the machine is unattached, certain components can be moved or rotated by hand, causing injury to fingers or hands due to trapping. Wherever possible secure components during storage to prevent accidental injuries.

2.13 NOISE EMISSIONS

Sound pressure level measured at operator's seat in tractor cab.	Just tractor running. (full operating speed)	Tractor window closed.	74 dB(A)
		Tractor window open.	76 dB(A)
	Tractor and Powermix running. (full operating speed)	Tractor window closed.	76 dB(A)
		Tractor window open.	88 dB(A)

Sound pressure levels measured all around the tractor and Powermix at a distance away of 1 metre and a height of 1.6 metres, ranged from 74 - 88 dB(A).

(The above test results were obtained using a randomly selected / modern tractor)

If the windows of the tractor are open while operating, it is recommended that personnel hearing protectors are used due to the noise levels involved.
The control of noise at work regulations 2005 state 85 decibels and above before hearing protectors are required.

2.14 PROPER USE

The Shelbourne Reynolds Powermix is intended for use on typical farms and to be employed in cutting and/or mixing and discharging materials suitable for feeding to livestock. Any uses other than those for which the Powermix is intended, such as transportation, will automatically exempt Shelbourne Reynolds or the supplier from its / his liability in respect of ensuing damage. Such cases of improper use will therefore be entirely at the user's own risk.

The Shelbourne Reynolds Powermix is based on state-of-the-art technology and is manufactured in accordance with recognised safety requirements. Nevertheless the use of the Powermix does not preclude the risk of injury to the user or third parties and/or the risk of damage to the Powermix itself or to other materials or items of other equipment.

Always make sure that the Powermix is in a technically perfect condition and that it is used properly and for its intended purpose and entirely in accordance with the instructions given in this manual. Any malfunctions or defects, which might affect the safe operation or the Powermix, must be immediately eliminated.

The Powermix must be used, maintained and repaired only by persons who are familiar with its working and have been made fully conversant with the risks involved.

All relevant accident prevention regulations, as well as other generally acknowledged health and safety regulations and road traffic regulations must be strictly observed.

Improper use also comprises of failure to observe the instructions given in this operating manual and the manufacturer's maintenance and servicing requirements.

2.15 NO LIABILITY FOR CONSEQUENTIAL DAMAGE

Even though your Shelbourne Reynolds Powermix has been manufactured with the utmost care and you are using it properly, fluctuations and interruptions in feed rate may still occur.

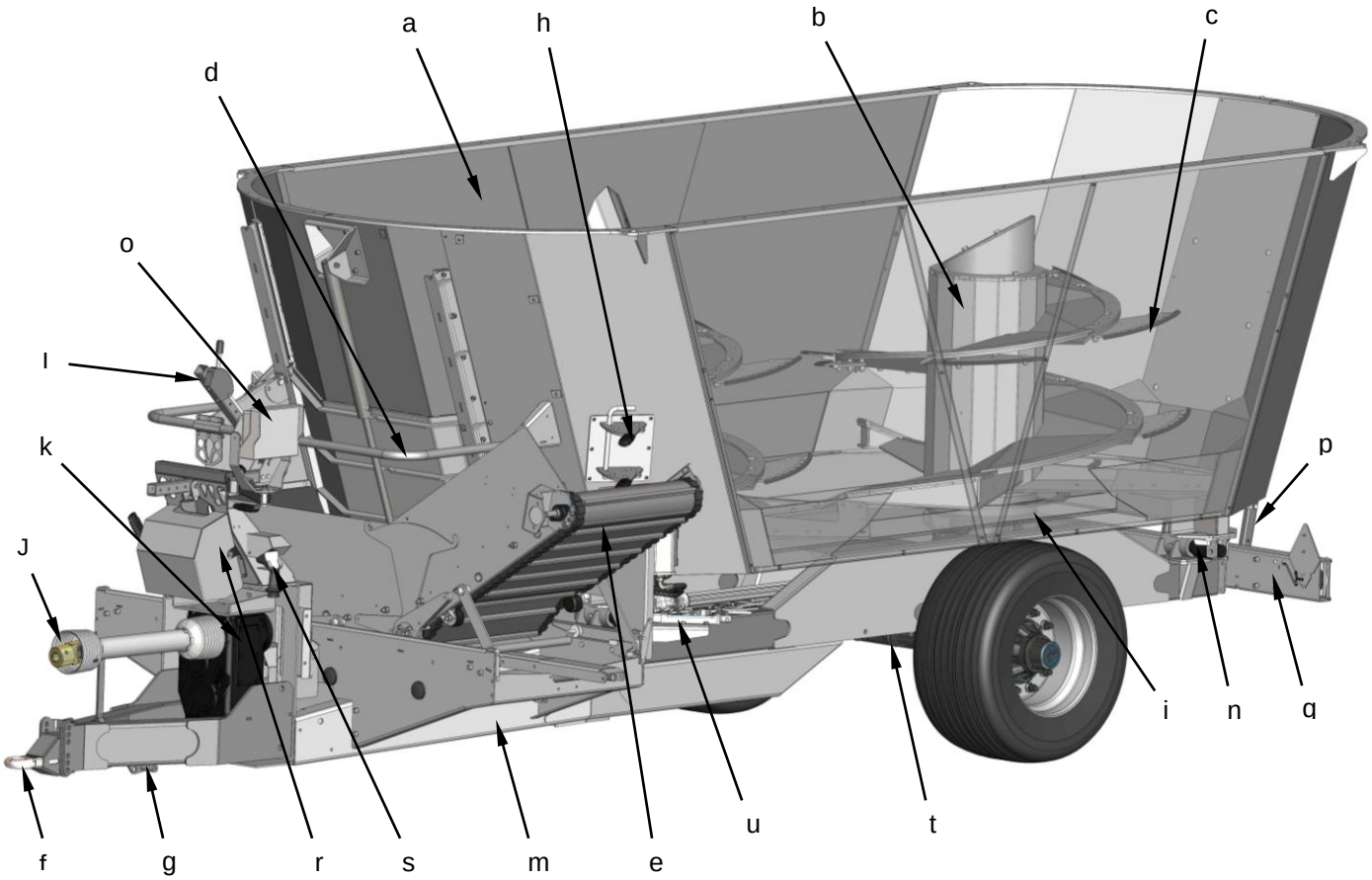
It is the duty of the operator/user to ensure that foreign objects, e.g. stones, metal objects etc. are not allowed to enter the machine and are not allowed to be mixed-in with the feed. Failure to observe this may result in damage to the Powermix and/or injury to the operator/user and/or injury to the livestock.

Any claims for damages not directly incurred by the Powermix cannot be accepted. By the same token, Shelbourne Reynolds cannot be held liable for any consequential damage resulting from incorrect use of the Powermix.

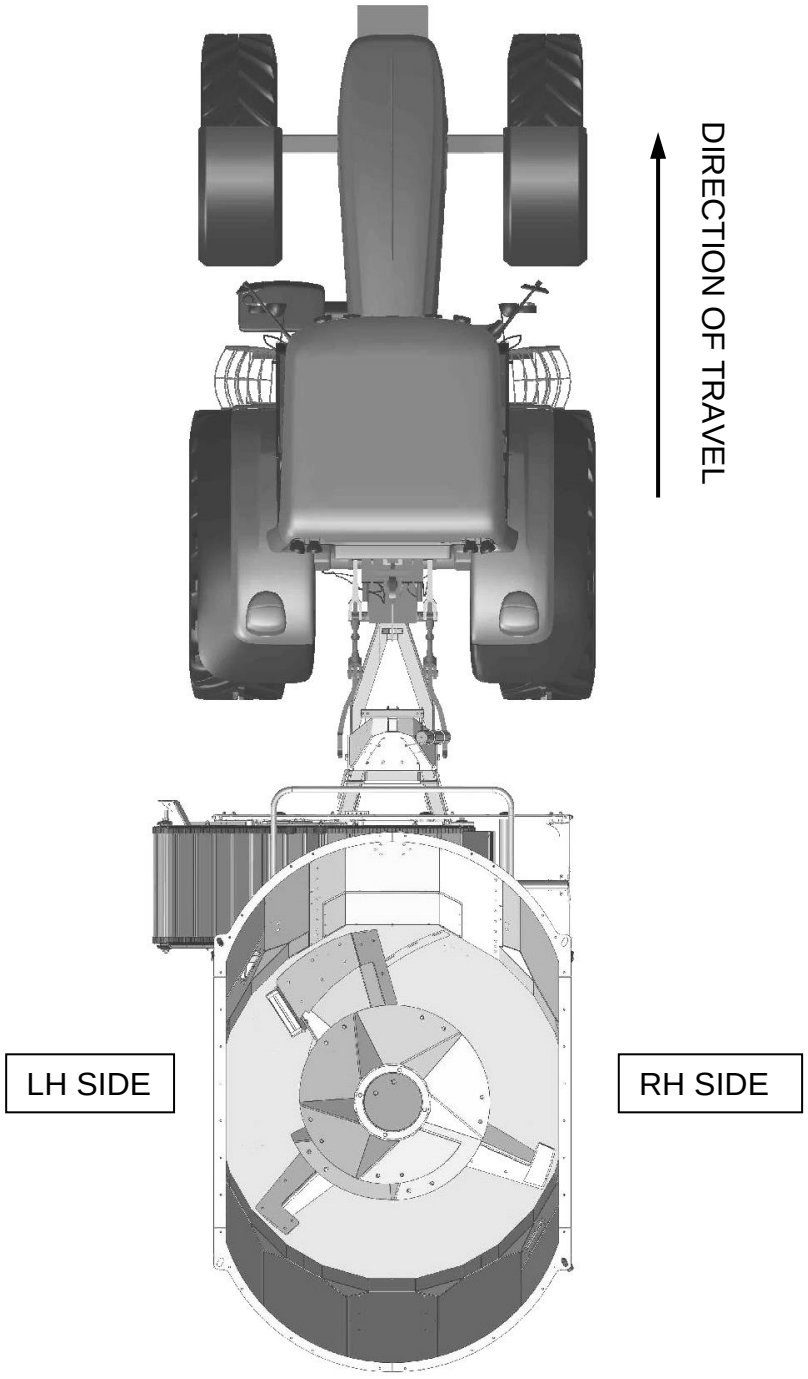
SECTION 3: SPECIFICATION

3.1 DESCRIPTION

The machine consists of a mixing chamber (a) with a central auger/s (b). Fitted to the auger are horizontal knives (c). At the side, or front of the hopper is a door (d). The Powermix may be fitted with a front webbing conveyor (e). Located at the front is an adjustable towing eye (f), and an adjustable parking stand (g). Located in the sidewall of the mixing chamber are adjustable blades, or fixed anti-rotation plates (h). Bolted to the floor of the mixing chamber is a planetary gearbox (i), which drives the auger via the PTO shaft (J). As an option the machine may be fitted with a 2-speed input gearbox (k), which is operated by a gear change lever (l). The mixing chamber is bolted to the chassis (m) via three-load cells (n), the load cells are wired into a visual read out (o). At the rear of the machine is an inspection ladder (p), and a light board (q). The hydraulic services may be operated by a hydraulic valve (r) via a hand controller (s). The machine may be fitted with a hydraulic braked axle (t), and a handbrake (u).



Right and Left hand of the machine as termed in this manual is for an operator sitting in the tractor seat looking forward.



3.2 INTENDED USE

The machine is intended to be used on typical farms employed in cutting and/or mixing and discharging materials suitable for feeding to livestock.
A high proportion of these materials may be in powder, liquid or granular form. The machine is at its best when a portion of the material is fibrous and may or may not require further cutting. A typical mixing operation would take 5-10 minutes whilst further cutting may take up to 20 minutes.
An additional feature is that this machine will accept fibrous material in a baled form i.e. round or square bales of grass silage, hay or straw from cereals, rice and other crops. Root crops may also be added.

3.3 SPECIFICATION / TABLE

POWERMIX PRO MODELS	Unladen Weight	Unladen Drawbar Weight	Gross Weight	Max Drawbar Weight	Max Axle Weight	Capacity (Volume)	Capacity (Weight)	Standard Tyre size	MIN H.P Required	Road Speed Max (km/h)	Hydraulics 3000(psi max) (210 bar)	Load Cells
9m³ POPULAR	3780kg 8335lbs	608 kg 1341 lbs	8680 kg 19139 lbs ***As above**	1074 kg 2368 lbs ***As above**	7606 kg 16771 lbs ***As above**	9m³ 318ft³	4900 kg 10805 lbs ***As above**	385/55R19.5	75	32	35 ltrs/min	12v DC
11m³ POPULAR	4040 kg 8908 lbs	632 kg 1394 lbs	8940 kg 19713 lbs ***As above**	1092 kg 2408 lbs ***As above**	7848 kg 17305 lbs ***As above**	11m³ 388ft³	4900 kg 10805 lbs ***As above**	385/55R19.5	85	32	35 ltrs/min	12v DC
13m³ POPULAR	4205 kg 9272 lbs	647 kg 1427 lbs	9105 kg 20077 lbs ***9955 kg *21951 lbs**	1107 kg 2441 lbs ***1186 kg *2615 lbs**	7998 kg 17636 lbs ***8769 kg *19336 lbs**	13m³ 459ft³	4900 kg 10805 lbs ***5750 kg *12679 lbs**	385/55R19.5	95	32	35 ltrs/min	12v DC
15m³ POPULAR	4365 kg 9625 lbs	659 kg 1453 lbs	10165 kg 22414 lbs ***10515 kg *23186 lbs**	1203 kg 2653 lbs ***1236 kg *2725 lbs**	8962 kg 19761 lbs ***9279 kg *20460 lbs**	15m³ 530ft³	5800 kg 12789 lbs ***6150 kg *13560 lbs**	385/55R19.5	105	32	35 ltrs/min	12v DC
9m ³ EXPRESS	4100 kg 9041 lbs	899 kg 1982 lbs	8850 kg 19514 lbs ***As above**	1261 kg 2781 lbs ***As above**	7589 kg 16734 lbs ***As above**	9m³ 318ft³	4750 kg 10474 lbs *** As above**	385/55R19.5	75	32	35 ltrs/min	12v DC
11m³ EXPRESS	4360 kg 9592 lbs	919kg 2026lbs	9110kg 20088lbs ***9960 kg *21962 lbs**	1281kg 3312lbs ***1345 kg *2966 lbs**	7829kg 17263lbs ***8615 kg *18996 lbs**	11m³ 388ft³	4750kg 10474lbs ***5600 kg *12348 lbs***	385/55R19.5	85	32	35 ltrs/min	12v DC
13m³ EXPRESS	4525 kg 9956 lbs	932 kg 2055 lbs	9275 kg 20451 lbs ***10125kg *22326lbs**	1294 kg 2853 lbs ***1358kg *2994lbs**	7981 kg 17631 lbs ***8767kg *19331lbs**	13m³ 459ft³	4750kg 10474 lbs ***5600 kg *12348 lbs**	385/55R19.5	95	32	35 ltrs/min	12v DC
15m³ EXPRESS	4685 kg 10330 lbs	944 kg 2082 lbs	10335 kg 22789 lbs ***10685 kg *23560 lbs**	1374 kg 3030 lbs ***1401 kg *3089 lbs**	8961 kg 19759 lbs ***9284 kg *20471 lbs**	15m³ 530ft³	5650 kg 12458 lbs ***6000 kg *13230 lbs**	385/55R19.5	105	32	35 ltrs/min	12v DC
16m³ EXPRESS (TANDEM AXLE)	8325 kg 18357 lbs	1700 kg 3749 lbs	16175 kg 35666 lbs ***As above**	2524 kg 5565 lbs ***As above**	13651 kg 30100 lbs ***As above**	16m³ 565ft³	7850 kg 17309 lbs ***As above**	385/55R22.5	110	32	35 ltrs/min	12v DC
19m³ EXPRESS (TANDEM AXLE)	8730 kg 19250 lbs	1743 kg 3843 lbs	16580 kg 36559 lbs ***17280 kg *38102 lbs**	2567 kg 5660 lbs ***2640 kg *5821 lbs**	14013 kg 30899 lbs ***14640 kg *32281 lbs**	19m³ 671ft³	7850 kg 17309 lbs ***8550 kg *18853 lbs**	385/55R22.5	120	32	35 ltrs/min	12v DC
22m³ EXPRESS (TANDEM AXLE)	8960 kg 11757 lbs	1768 kg 3898 lbs	16810 kg 37066 lbs ***18860 kg *41586 lbs**	2592 kg 5715 lbs ***2778 kg *1625 lbs**	14218 kg 31351 lbs ***16082 kg *35461 lbs**	22m³ 777ft³	7850 kg 17309 lbs ***9900 kg *21830 lbs**	385/55R22.5	130	32	35 ltrs/min	12v DC
25m³ EXPRESS (TANDEM AXLE)	9160 kg 20198 lbs	1789 kg 3945 lbs	16810 kg 37066lbs ***20410 kg *45004 lbs**	2592kg 5715 lbs ***2970 kg *6548 lbs**	14218 kg 31350 lbs ***17440 kg *38455 lbs**	25m³ 883ft³	7650kg 16868 lbs ***11250 kg *24806 lbs**	385/55R22.5	140	32	35 ltrs/min	12v DC
16m³ EXPRESS (SINGLE AXLE)	8030 kg 17706 lbs	1542 kg 3400 lbs	12030 kg 26526 lbs ***14730 kg *32480 lbs**	1895 kg 4178 lbs ***2134 kg *4705lbs**	10135 kg 22348 lbs ***12596 kg *27774 lbs**	16m³ 565ft³	4000 kg 8820 lbs ***6700 kg *14774 lbs**	435/50R19.5	110	32	35 ltrs/min	12v DC
19m³ EXPRESS (SINGLE AXLE)	8435 kg 18599 lbs	1578 kg 3480 lbs	12135 kg 26758 lbs ***15135 kg *33373 lbs**	1970 kg 4344 lbs ***2170 kg *4785 lbs**	10165 kg 22414 lbs ***12965 kg *28588 lbs**	19m³ 671ft³	3700 kg 8159 lbs ***6700 kg *14774 lbs**	435/50R19.5	110	32	35 ltrs/min	12v DC

Note: All weights and other data are approximate.

Weights in standard text and a 32km/h speed limit must not be exceeded if the machines are to be taken on public roads.

These weights are derived due to the following:

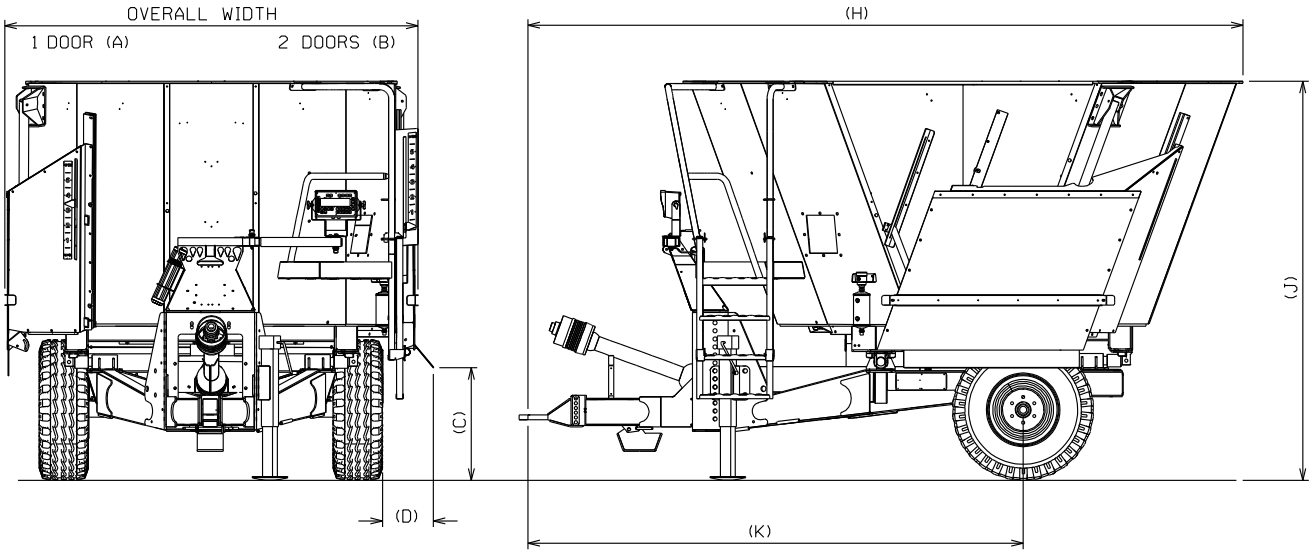
There is a limitation on the carrying capacity of the tyre at 32km/h for single axle machines (9-15m³ models)
For the single axle 16m³machine, regulations state that the weight at the wheels must not exceed 10170kg
For tandem axle machines, regulations state that the weight at the wheels must not exceed 14230kg.

***Increased weights (shown in bold text) are for field use only (max speed 10km/h). They are derived from the maximum weights you can physically put into the machine, (figures based on typical animal feed being no heavier than 450kg/m³). The increased weights listed for the 16 & 19m³ single axle models are limited due to the maximum carrying capacity of the tyres and axle.**

3.4 POPULAR MODEL OVERALL DIMENSIONS

Powermix Pro

Popular specification



Above machine supplied with single axle fitted with 305/55R22.5 tyres

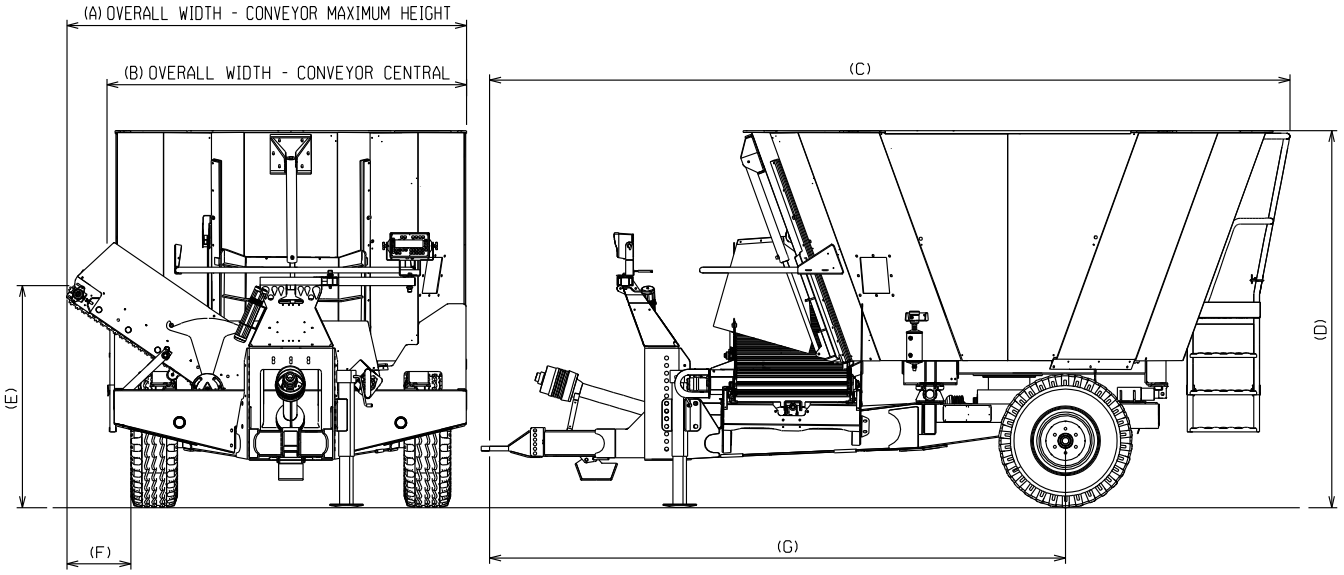
	A	B	C	D	H	J	K
9m³	2458mm 8’	2600mm 8’6”	740mm 2’5”	330mm 1’1”	4605mm 15’1”	2515mm 8’3"	3105mm 10’2”
11m³	2458mm 8’	2600mm 8’6”	740mm 2’5”	330mm 1’1”	4715mm 15’6”	2815mm 9’3"	3105mm 10’2”
13m³	2458mm 8’	2600mm 8’6”	740mm 2’5”	330mm 1’1”	4825mm 15’10”	3115mm 10’3"	3105mm 10’2”
15m³	2458mm 8’	2600mm 8’6”	740mm 2’5”	330mm 1’1”	4935mm 16’2”	3315mm 10’11"	3105mm 10’2”

Note: All dimensions are approximate.

3.5 EXPRESS MODEL OVERALL DIMENSIONS

Powermix Pro

Express specification



Above machine supplied with single axle fitted with 305/55R22.5 tyres

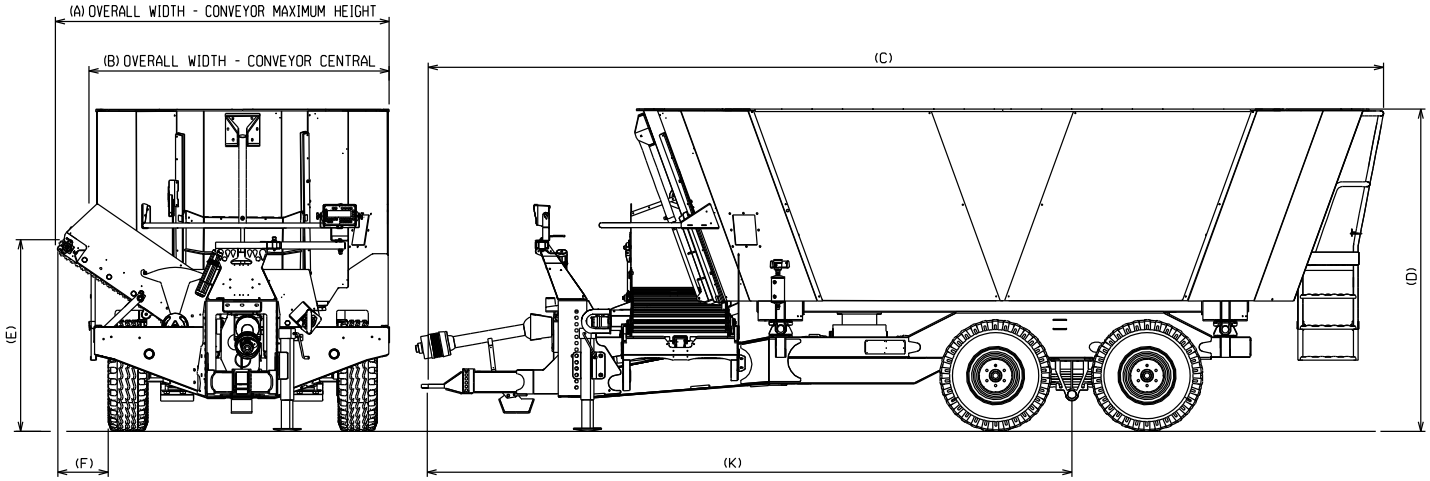
	A	B	C	D	E	F	G
9m³	2730mm 9’	2350mm 7’9”	5300mm 17’5”	2515mm 8’3”	1425mm 4’8”	470mm 1’7”	3690mm 12’1”
11m³	2730mm 9’	2350mm 7’9”	5410mm 17’9”	2815mm 9’3”	1425mm 4’8”	470mm 1’7”	3690mm 12’1”
13m³	2730mm 9’	2350mm 7’9”	5520mm 18’1”	3115mm 10’3”	1425mm 4’8”	470mm 1’7”	3690mm 12’1”
15m³	2730mm 9’	2350mm 7’9”	5630mm 18’6”	3315mm 10’11”	1425mm 4’8”	470mm 1’7”	3690mm 12’1”

Note: All dimensions are approximate.

3.6 TWIN EXPRESS (Tandem axle) MODEL OVERALL DIMENSIONS

Powermix Pro

Twin Express specification



Above machine supplied with sprung loaded tandem axle fitted with 385/55R22.5 tyres.

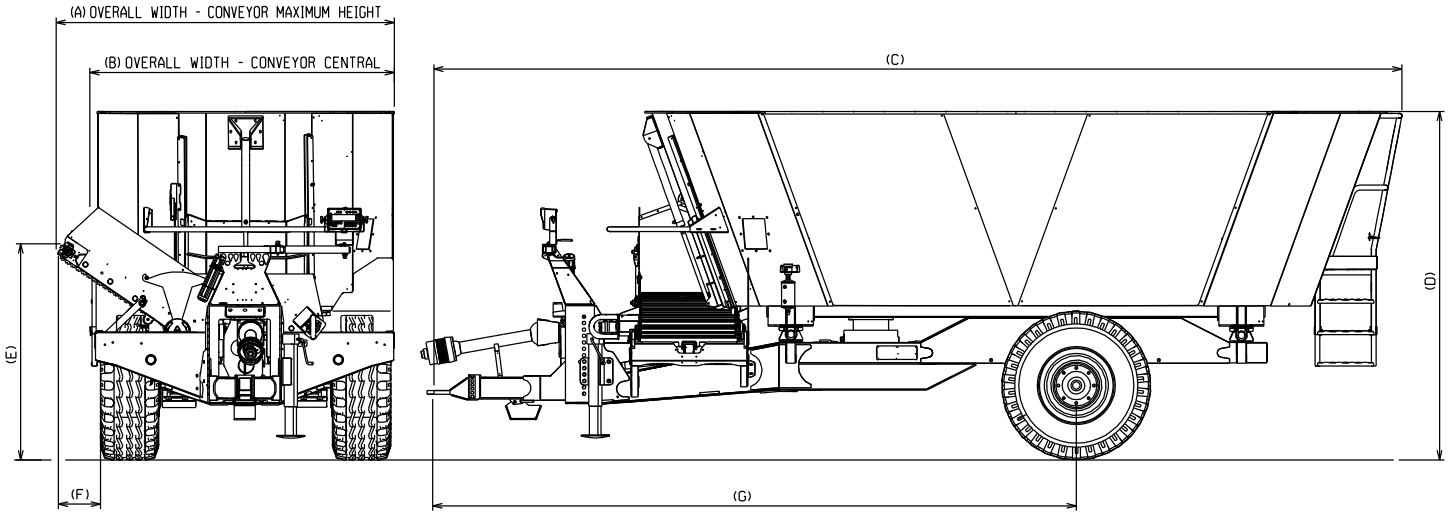
	A	B	C	D	E	F	K
16m³	2730mm 9’	2350mm 7’9”	7580mm 24’10”	2599mm 8’6"	1500mm 4’11”	465mm 1’6”	5010mm (16’5”) or 5200mm (17’)
19m³	2730mm 9’	2350mm 7’9”	7690mm 25’3”	2899mm 9’6"	1500mm 4’11	465mm 1’6”	5010mm (16’5”) or 5200mm (17”)
22m³	2730mm 9’	2350mm 7’9”	7800mm 25’7”	3199mm 10’6"	1500mm 4’11	465mm 1’6”	5200mm 17’
25m³	2730mm 9’	2350mm 7’9”	7870mm 25’10”	3399mm 11’2”	1500mm 4’11	465mm 1’6”	5200mm 17’

Note: All dimensions are approximate.

3.7 TWIN EXPRESS MODEL (Single axle) OVERALL DIMENSIONS

Powermix Pro

Twin Express specification



Above machine supplied with a single axle fitted with 18R22.5 or 435/50 R19.5 tyres.

	A	B	C	D	E	F	G
16m³ (18 R22.5 TYRES FITTED)	2730mm 9’	2350mm 7’9”	7580mm 24’10”	2730mm 9’	1670mm 5’6”	415mm 1’4”	5115mm 16’10”
16m³ (435/50 R19.5 TYRES FITTED)	2730mm 9’	2350mm 7’9”	7580mm 24’10”	2520mm 8’3"	1460mm 4’9”	410mm 1’4”	5115mm 16’10”
19m³ (18 R22.5 TYRES FITTED)	2730mm 9’	2350mm 7’9”	7690mm 25’3”	3030mm 10’	1670mm 5’6”	415mm 1’4”	5115mm 16’10”
19m³ (435/50 R19.5 TYRES FITTED)	2730mm 9’	2350mm 7’9”	7690mm 25’3”	2820mm 9’3”	1460mm 4’9”	410mm 1’4”	5115mm 16’10”

Note: All dimensions are approximate.

SECTION 4 HANDLING & TRANSPORTATION

Refer to section 2 for safety procedures.

4.1 HANDLING

Refer to section 2.3 – Accident prevention before starting the machine for safety procedures.

The Powermix should only be moved by one of the following methods:

1. By the use of a crane type-lifting device (Tele-handler, jib / gantry crane)
2. Attaching to a tractor / towing vehicle

If using method 1, firstly attach an appropriate overhead lifting device, with sufficiently rated slings / chains. Next connect the slings / chains to the machines sling points which are positioned in each corner at the top of the tub. (Do not lift the machine using the sling point's position on the extension tops). When all bystanders are clear of the danger / crush zone, slowly lift the Powermix from the ground / delivery trailer. Ensure the machine lifts level, it may be necessary to lower the machine to the ground and adjust the sling / chain lengths to accomplish this.
Once the machine is raised and hanging level, carefully and gently move it to lessen swinging, and lower it to the ground as soon as possible.

The centre of gravity for all models is approximately 300mm from the centre of the tub floor to the front of the tub.

(Please note, this dimension is only approximate and fine adjustments may be required to ensure, the machine lifts level)

If method 2 (attaching to a tractor / towing vehicle) is chosen to move the Powermix ensure the below procedure is followed:

Refer to section 2.4 – Accident prevention when coupling & uncoupling to a tractor for safety procedures

1. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
2. Reverse the tractor slowly towards the Tow eye of the Powermix, ensure there are no bystanders positioned in the danger / crush zone
3. Lower the pick-up hitch, and manoeuvre the tractor, so the pickup hitch is directly underneath the tow eye of the Powermix.
4. Raise the pick-up hitch, ensuring the tow eye of the Powermix is engaged, and locked in position.
5. Switch off the tractor, apply the tractors handbrake and pull out the ignition key.
6 Connect the braking coupling.
7. Disengage the handbrake of the Powermix.
8. Slowly manoeuvre the Powermix. If removing from or loading a delivery vehicle, pay particular attention to the width of the machine as a portion of the tyre may overhang the bed of the lorry, so care must be taken to keep the machine central.

4.2 TRANSPORTATION

Refer to section 2.8 – Accident prevention when taking on public roads for safety procedures.

Refer to section 2.3 – Accident prevention before starting the machine for safety procedures

TRANSPORTING ON DELIVERY VEHICLE:

Ensure the Powermix is securely fastened to the deck of the lorry. Use adequately rated ratchet straps which are in good order. Finally block the wheels and activate the handbrake.

TRANSPORTING ON PUBLIC HIGHWAY:

UK road traffic regulations state that the maximum weight bearing down on a single axle must be limited to 10170kg. For a tandem axle the maximum weight must not exceed 14230kg – The weights stamped on the machines identification plate will ensure this figure is not exceeded, and must be adhered to if the machine is to be taken on public roads.

The Powermix must not be towed on the public highway at a speed greater than 32 mph. UK road traffic regulations state that a speed of 32mph must not be exceeded if the towed vehicle weighs more than 3500kg and does not have all axle suspension, and ABS brakes fitted, or if it's overall width is between 2.55 & 3m.

UK road traffic regulations also state that brakes controlled by the tractor / drawing vehicle should be fitted to a towed vehicle weighing more than 3500kg.
Standard lighting and hydraulic brake coupling connections are provided with the Powermix and must be connected when towing the machine on the public highway.

SECTION 5: PREPARATIONS FOR USE

Refer to section 2 for safety procedures.

The Powermix is delivered to the dealer fully assembled and the dealer is responsible for carrying out all the necessary PDI checks; however certain adjustments will need to be made to ensure it is set-up correctly to suit the customer's tractor.
As well as the instructions listed in this section, always follow the guidelines as specified in the tractors operators manual.
The Powermix should only be connected to a tractor with a suitable power rating and weight, capable of operating and driving steadily with the machine. (For recommended minimum tractor sizes refer to section 3.3).

5.1 COUPLING & UNCOUPLING

Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

COUPLING OF TRACTOR

1 Secure the Powermix against rolling by applying the parking brake or positioning wheel chocks.
2 Reverse the tractor slowly towards the tow eye of the Powermix.
3 Lower the pick-up hitch, and manoeuvre the tractor, so the pickup hitch is directly underneath the tow eye of the Powermix.
4 Raise the pick-up hitch, ensuring the tow eye of the Powermix is engaged, and locked in position.
5 Ensure all tractors hydraulic spool valves are in their neutral position. Switch off the tractor and pull out the ignition key. (Safe stop procedure).
6 Connect the PTO shaft, ensuring that the shearbolt clutch is mounted on the Powermix side.
7 Connect and secure the PTO guard safety chains.
8 Connect the lighting socket.
9 Connect the braking coupling.
10 Connect all other auxiliary couplings
11 Rotate the adjustable parking stand to the raised position (see section 5.9).
12 Disengage handbrake or remove wheel chocks.

Do Not Stand between the tractor and the Powermix while the tractor backs up to the Powermix during hitching.

UNCOUPLING OF TRACTOR

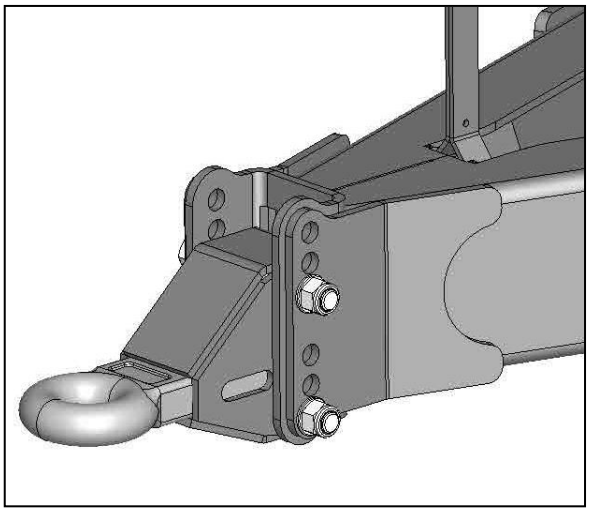
1 Ensure all tractors hydraulic spool valves are in their neutral position, switch off the tractor and pull out the ignition key. (Safe stop procedure).
2 Ensure the handbrake on the Powermix is engaged.
3 Rotate the adjustable parking stand to its lower position.
4 Disconnect the auxiliary hydraulic couplings.
5 Disconnect the braking coupling.
6 Disconnect the lighting socket.
7 Locate the hydraulic hoses & lighting cable in the hose parking station at the front of the machine.
8 Disconnect the PTO guard safety chains, remove the PTO yoke from the tractor and park the PTO shaft on the parking stand of the Powermix.
9 Start the tractor, and lower the pick-up hitch until the adjustable parking stand sits firmly on the ground.
10 Manoeuvre the tractor away from the Powermix.
11 Switch off the tractor and pull out the ignition key.

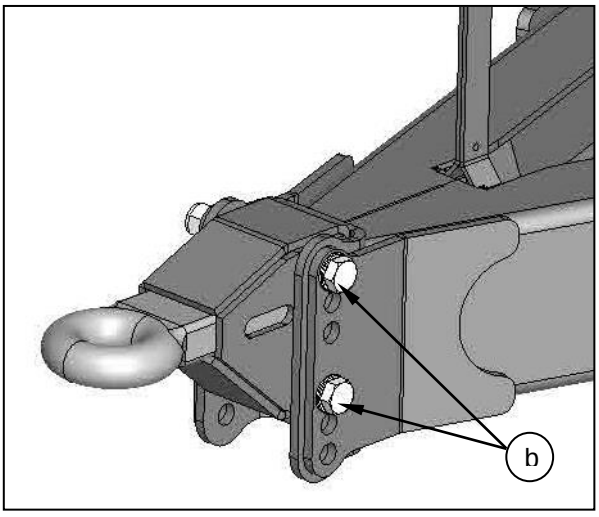
5.2 ADJUSTING THE DRAWBAR HEIGHT

Refer to section 2.3 – Accident prevention before starting the machine for safety procedures.

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

The Powermix is supplied with a standard 50mm diameter tow eye. The machine performs best when sitting level while hitched onto the tractor. The height of the tow eye is adjustable; and if not set correctly will adversely affect the mixing and feeding functions.
Small adjustments in height can be accommodated by repositioning the tow eye which is bolted to the end of the drawbar.
In total six heights are achievable by adjusting the height of the tow eye. As standard the machine is set as shown below left; in this orientation the tow eye can be lifted a further 30mm or 60mm, which if altered will effectively lower the front of the machine.
If additional adjustment is required the tow eye can be rotated 180 degrees to gain an extra 15-45mm worth of height adjustment (shown below right).





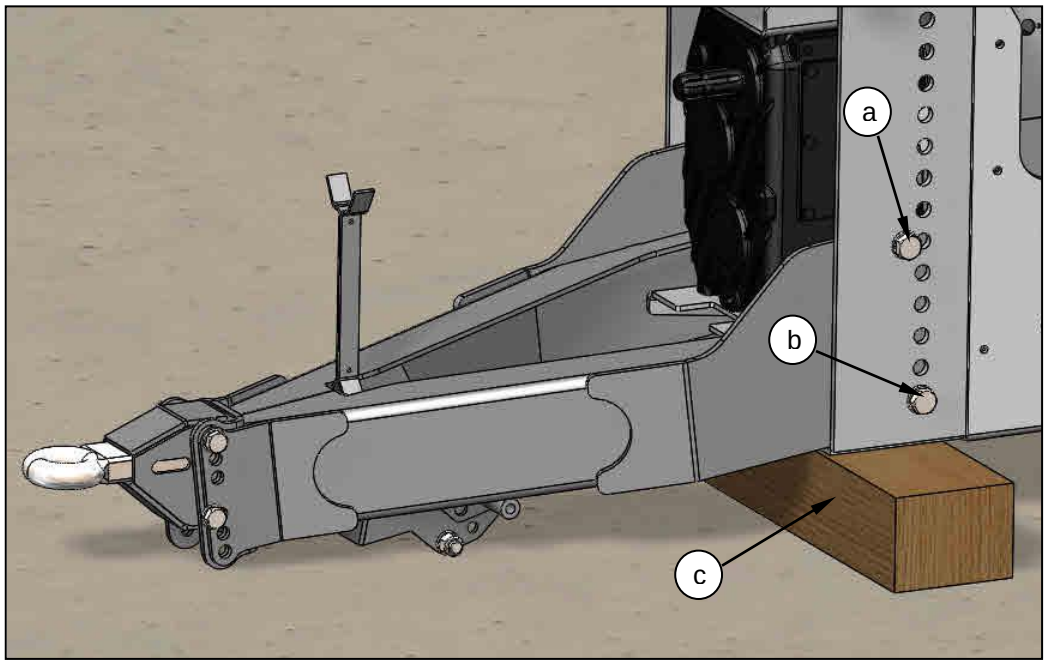
To alter the height of the tow eye, follow the procedure as described below:

1. Lower the parking stand or parking jack as described in section 5.9
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. Uncouple the Powermix from the tractor as described in section 5.1.
4. Remove bolts (b), as shown above and re-position the towing eye as required.
5. Replace the M20x180mm bolts ensuring they are tightened to 435Nm (321lb-ft).

If further height adjustment is required the complete drawbar can be moved upwards at 50mm increments. If large diameter wheels or axle raisers have been fitted, it may be necessary to lower the towing hitch height; this can be done by pivoting the drawbar downwards by moving the upper drawbar fixings into position (a).

To alter the height or to pivot the drawbar downwards, follow the procedure as described below:

1. Park the machine on firm even ground.
2. Place a support such as axle props or heavy duty sleeper (c) underneath the front chassis member, as shown below.
3. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
4. Uncouple the Powermix from the tractor as described in section 5.1, slowly dropping the chassis onto the securely placed support.
5. Fix slings or chains around the drawbar assembly, using lifting apparatus carefully take the weight or the drawbar, pay particular attention not to raise the chassis from the temporary support (c).
6. If the drawbar needs to be lifted, remove bolts (b) and (a), lift the drawbar as required, then refit the bolts ensuring they are tightened to 435Nm (321lb-ft).
7. If the drawbar needs to be lowered, slacken bolt (b), and remove bolt (a), lower the drawbar so it pivots on bolt (b), refit bolt (a) in the new position. Tighten each bolt to 435Nm (321lb-ft).



5.3 CONNECTING THE HYDRAULIC SUPPLY

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

With a clean cloth wipe any dirt from the couplings before connecting to the tractors hydraulic system.

Proceed to connect the hydraulic brake coupling and the auxiliary hydraulic couplings to the tractor via the 1/2 BSP male quick release couplings provided.

The machine will be supplied with either a hydraulic control valve, which is connected to one of the tractors double acting spool valves by a single set of feed and return hoses, or it will be supplied with a set of direct connection hoses. If the Powermix is not supplied with its own hydraulic control valve then up to three double acting spool valves may be required to operate all the hydraulic functions, one of which would require adjustable flow to operate the conveyor motor.

If the Powermix has been supplied with a conveyor system, a minimum oil flow of 35l/m is required to optimise the operation of all the hydraulic functions

In order to exclude the possibility of incorrect connection, all mating plugs and sockets belonging to the hydraulic connections between the tractor and the Powermix should be marked with matching colours.

Ensure the tractors maximum hydraulic pressure does not exceed 210bar, failure to check this may result in component failure.

Do not connect the quick release coupling if they are not compatible with the tractor.

Ensure the hydraulic hoses are long enough, to suit the tractor, and are not taught.

Ensure that the hoses do not hang down and obstruct the tractor lift arms or any moving parts.

5.4 CONNECTING THE POWER SUPPLY

Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

As standard the weighing and lighting circuits are wired into a single 7-pin lighting plug. Consequently the power for the weighing equipment is available when the sidelights of the tractor are turned on.

If the weighing equipment needs to operate independently from the lights then a second plug can be fitted to provide power to the weighing equipment only, this will require a 12v D.C power source, fused at 5 amps.
If the second plug is a 7-pin type lighting socket, firstly remove the weigh displays four-core power cable from the existing 7-pin lighting socket and then connect the black wire (Negative D.C) to the earth (terminal 3), and connect the red wire (+12v D.C) to the RH or LH sidelights (terminals 5 or 7). The orange and blue wires are not used and should be wrapped with insulating tape and secured.
If a 3-pin tractor plug is to be used, connect the black wire (Negative D.C) to the negative terminal and the red wire (+12v D.C) to the positive terminal. Again the orange and blue wires are not required and should be wrapped with insulating tape and secured.

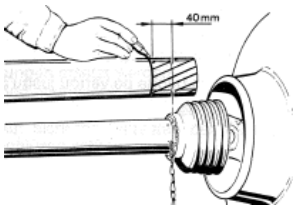
As an option the machine may be supplied with a self-contained battery to power the weighing equipment. In this case it is not necessary to connect the 7-pin lighting plug to operate the weighing equipment. The battery can be recharged using a conventional 12 Volt battery charger - refer to the battery charger instructions before recharging the battery. The battery can be accessed, by turning the isolator switch to "off" and opening the cover. Do not connect the tractor lighting circuit to the weigh cell system when a battery power supply is fitted to the Powermix.
Always switch off the isolator switch when the Powermix is not being used, to preserve the life of the battery.

5.5 ADJUSTING THE PTO DRIVE SHAFT LENGTH

Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

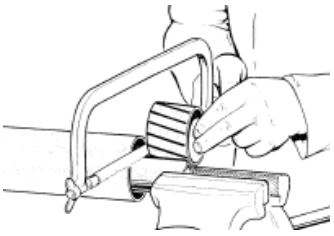
The correct length of the PTO drive shaft may vary depending on the tractor in use. It may be necessary to shorten the PTO drive shaft.

Follow the below procedure:

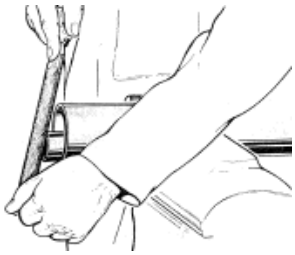


To adjust the lengths hold the half shafts next to each other in the shortest working position and mark them 40mm as shown.

Shorten the inner and outer guard tubes equally.



Shorten the inner and outer Sliding profiles by the same length as the guard tubes.



Remove all sharp edges and burrs, grease the sliding . Profile tubes

Grease the profile tubes before they are assembled, as they will otherwise be exposed to high friction forces.

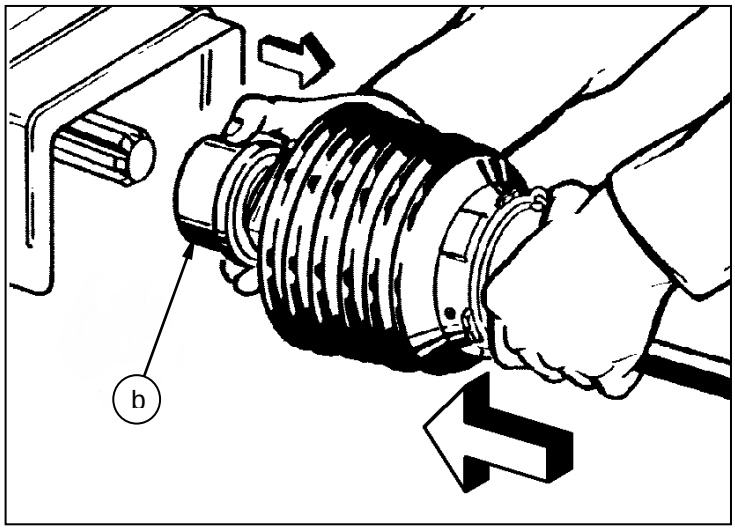
Ensure the inner and outer PTO shafts are overlapped by at least 250mm when the tractor and machine are straight. Check that the PTO shaft will not run out of slide travel before the tractor reaches its full articulation. Damage to the shaft and injury may result.

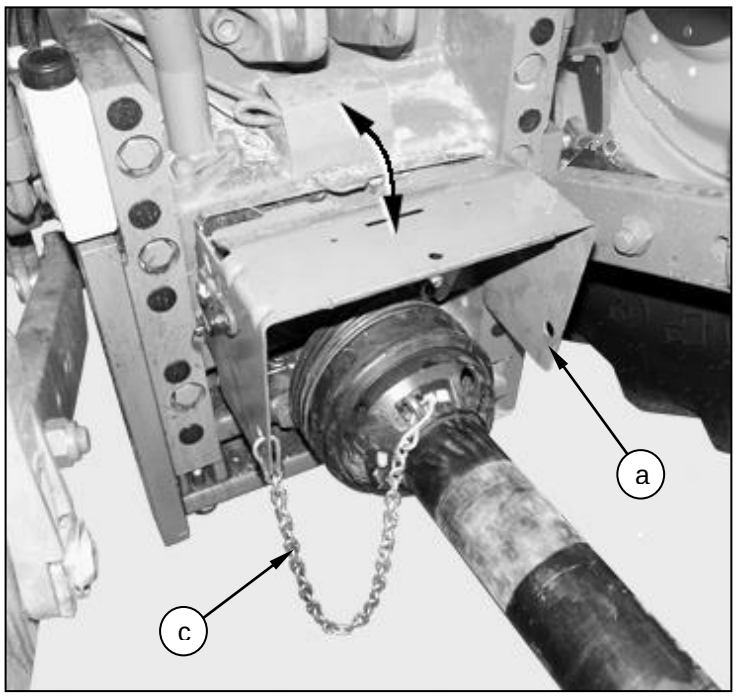
Keeping PTO guards in place and in good order is a requirement of the law as well as safe practice.
Having connected the PTO shaft, ensure the anti-rotation chains are clipped to the chassis or tractor at both ends. The PTO shaft should turn clockwise ONLY.

5.6 COUPLING THE PTO DRIVE SHAFT TO THE TRACTOR

Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

1. Clean and grease the PTO shaft on the tractor.
2. Ensure the Powermix is securely hitched to the tractor.
3. Ensure the tractors PTO drive is set to neutral.
4. Ensure the 'safe stop' procedure is followed and the tractors ignition key has been removed.
5. Raise the tractor's PTO guard (a).
6. Turn the drive shaft yoke on the Powermix end so that the splined grooves inside the yoke line up with the splines on the tractors PTO shaft.
7. Slide back the locking collar (b) on the end yoke, push the end yoke onto the tractors PTO shaft until it locks into the groove of the PTO shaft.
8. Lower tractor PTO shield (a).
9. Attach chain (c) to the provided attaching hole on the tractor. Ensure the chains are fixed as close to a right angle to the PTO drive shaft as possible.
10. Ensure there is sufficient slack in the safety chains to allow for movement during operation.





Ensure the inner and outer PTO shafts are overlapped by at least 250mm when the tractor and machine are straight. Check that the PTO shaft will not run out of slide travel before the tractor reaches its full articulation. Damage to the shaft and injury may result.

Keeping PTO guards in place and in good order is a requirement of the law as well as safe practice.
Having connected the PTO shaft, ensure the anti-rotation chains are clipped to the chassis or tractor at both ends. The PTO shaft should turn clockwise ONLY.

5.7 ADJUSTING THE POSITION OF THE 2-SPEED GEAR CHANGE LEVER.

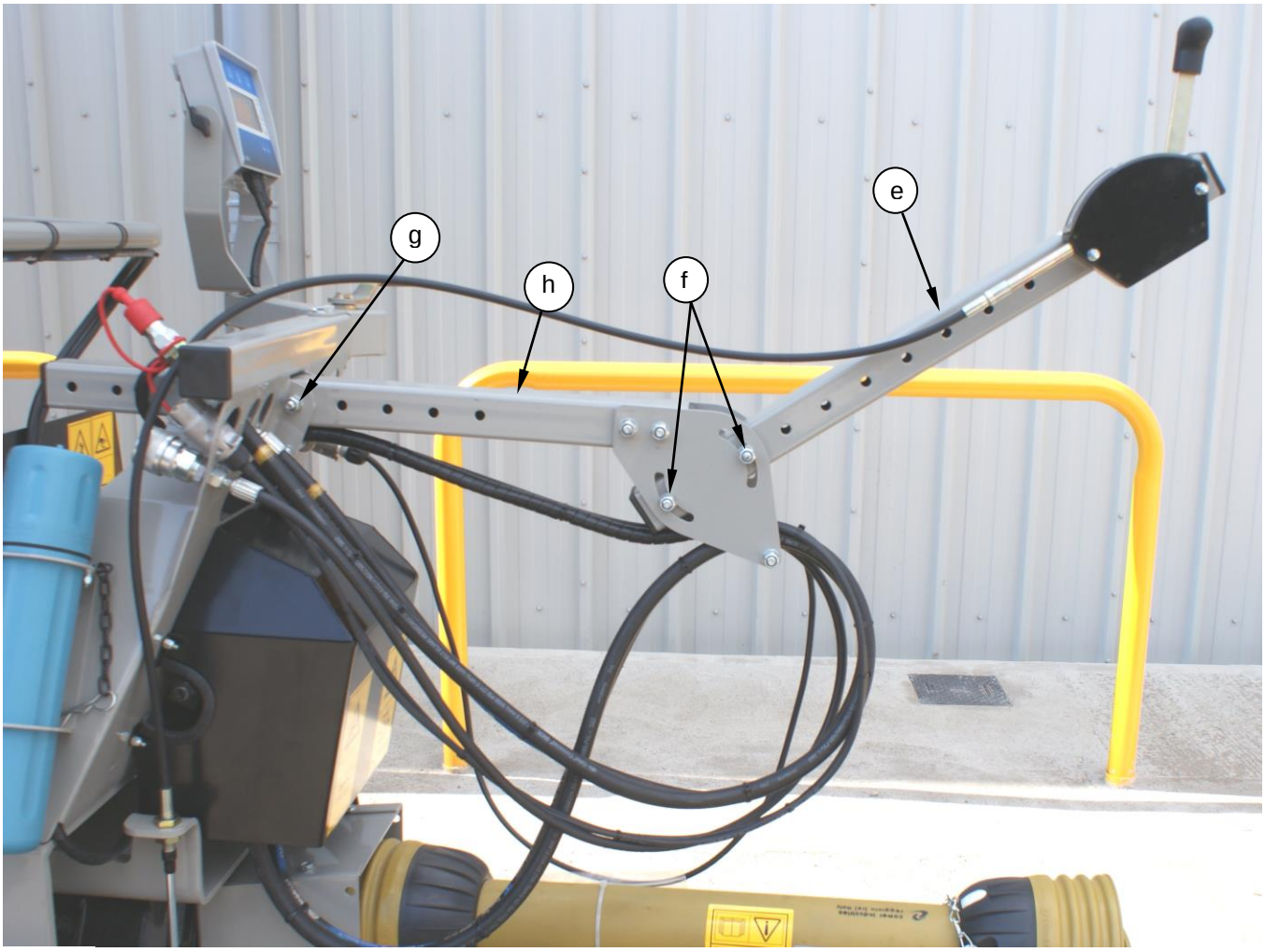
Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Once the Powermix has been attached to the tractor the 2-speed gear change lever may have to be moved to enable comfortable & safe operation.

Follow the below procedure when adjusting the lever position:

1. Ensure the Powermix is attached to the tractor.
2. Ensure the 'safe stop' procedure is followed.
3. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
4. Open the tractors rear window; make sure it is correctly secured.
5. The angle of outer arm (e) can be changed by slackening bolts (f). Ensure the bolts are re-tightened once the desired angle has been obtained.
6. If a change in length is required bolts (f) or bolts (g) can be removed, enabling the inner arm (h) or the outer arm (e) to slide back & forth on their mounting brackets.
7. Once positioned replace fixing bolts (f) or (g) and re-tighten.



Ensure there is sufficient clearance between the gear change lever and the rear of the tractor when turning sharply & when travelling over undulating ground.

5.8 ADJUSTING THE POSITION OF THE MANUAL LEVER CONTROL VALVE

Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

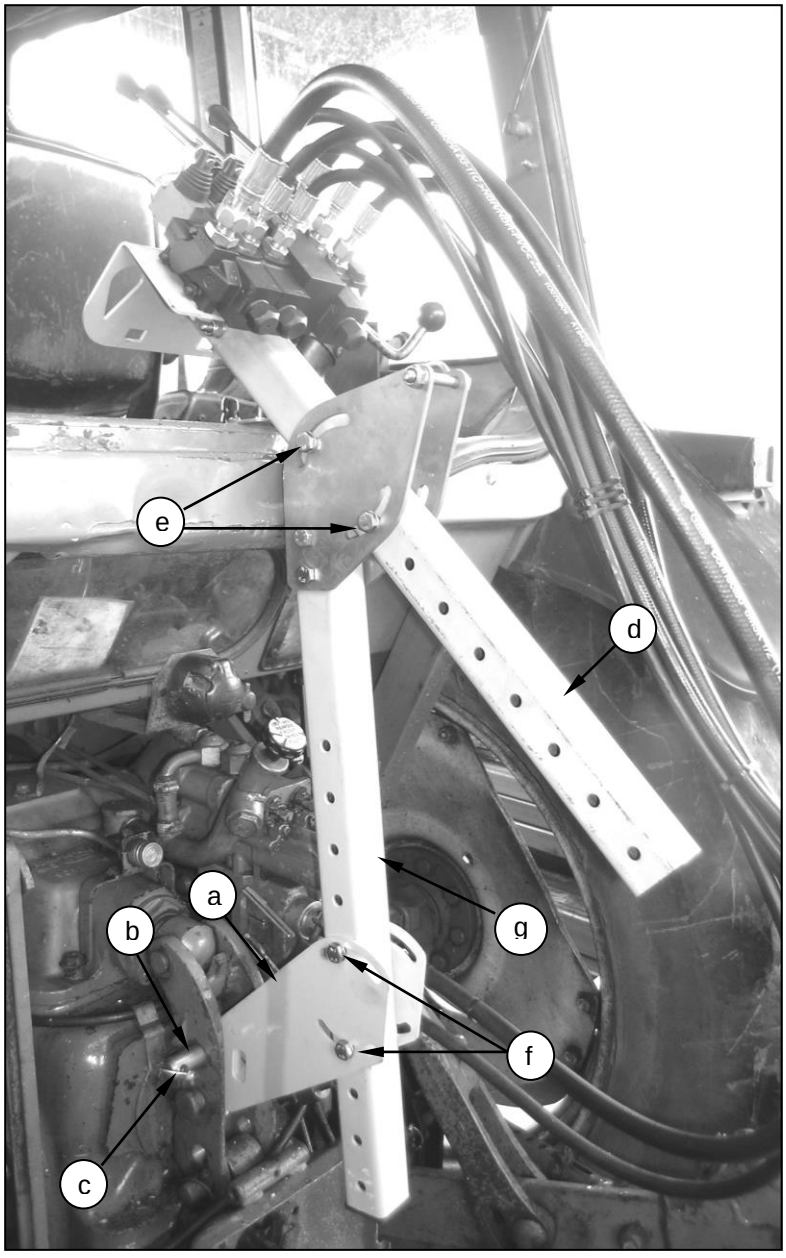
Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

Once the Powermix has been attached to the tractor the fixing arm which supports the manual lever control arm will need to be adjusted. This mounts to the tractors top link bracket and should be positioned to ensure comfortable and safe operation.

Follow the below procedure to adjust the control valve position:

1. Ensure the Powermix is attached to the tractor.
2. Ensure the 'safe stop' procedure is followed.
3. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
4. Open the tractors rear window; make sure it is correctly secured.
5. Fit the support arm (a) to the tractors top link position. Insert pin (b) and secure by fitting 2 lynch pins (c), one each side of the pin (b).
6. The angle of outer arm (d) or inner arm (g) can be changed by slackening bolts (e) or (f).. Ensure the bolts are re-tightened once the desired angle has been obtained.
7. If a change in length is required bolts (e) or bolts (f) can be removed, enabling the inner arm (g) or the outer arm (d) to slide back & forth on their mounting brackets.
8. Once positioned replace fixing bolts (e) or (f) and re-tighten.



Ensure the hydraulic hoses are long enough, to suit the tractor, and are not taught

Ensure that the hoses do not hang down and obstruct the tractor lift arms or any moving parts

5.9 RAISING / LOWERING THE PARKING STAND

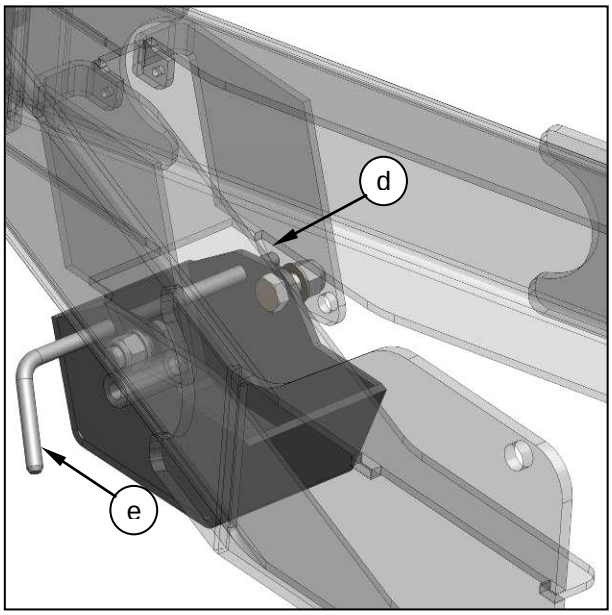
Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

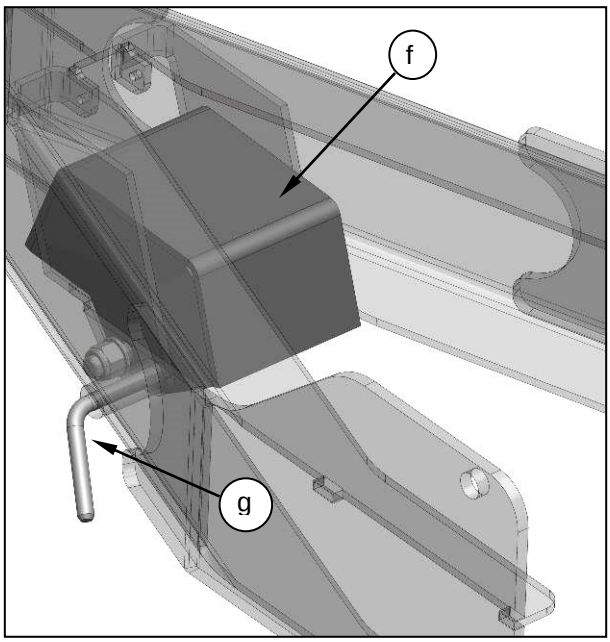
Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Once the Powermix has been attached to the tractor the parking stand must be rotated to the raised position. This is to gain extra ground clearance, while operating.

Follow the below procedure for raising the sparking stand:

1. Ensure the ‘safe stop’ procedure is followed.
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. Remove R-clip (d), and then extract pin (e).
4. Rotate the parking stand (f), as shown in the lower illustration.
5. Replace pin into guide tube (g) and replace R-clip (d).





5.10 CHECK OPERATION OF WEIGHING SYSTEM

Refer to section 2.3 – Accident prevention before starting the machine, for safety procedures.

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Your Powermix may be supplied with a Digi-star or Dinamica Generale weighing system, it is important to check its operation and calibration settings before first use.

Ensure the Powermix is attached to the tractor with the PTO disengaged. Make sure that the handbrake of the Tractor and Powermix are applied. Connect the Electrical socket to power the weighing system.
Turn on the side lights if the display is wired to a 7-pin socket, and turn on the isolator switch if the display is connected to a battery box.

The set-up and calibration numbers should be set as follows for Digi-star displays:

THREE LOAD CELL SINGLE AUGER MACHINE
CALIBRATION NUMBER = 10994
SETUP NUMBER = 594010

FOUR LOAD CELL TWIN AUGER MACHINE
CALIBRATION NUMBER = 14659
SETUP NUMBER = 594015

To check and adjust the setup and calibration numbers on a Digi-star display follow the procedure as described below:

1. Repeatedly press (SELECT), until *SETUP* is displayed.
2. Press and hold (FUNCTION) for 3 seconds .
3. The six digit setup number *(SETUP)* is displayed. Use (FUNCTION) to select the digit to be changed. Press (SELECT) to change the digit.
4. Press (ON) to save the setup number. The calibration number *(CAL)* appears on the display. Use keys (SELECT) and (FUNCTION) change the calibration number *(CAL)*.
5. Press (ON) to save the calibration number and to return to gross weighing mode.

For further information on how to operate the Digi-star weighing system, refer to the following operating manuals:

EZ2500V Display	Digi-star Manual number	D3895-GB
EZ3400V Display	Digi-star Manual number	D3714-GB
EZ3600V Display	Digi-star Manual number	D3715-GB

Once the Setup and calibration numbers have been checked and changed if necessary, a known weight must be placed inside the mixing chamber (100kg min) to verify the Powermix is weighing correctly.

The calibration number should be set as follows for Dinamica Generale displays:

THREE LOAD CELL SINGLE AUGER MACHINE
CALIBRATION NUMBER = 5005

FOUR LOAD CELL TWIN AUGER MACHINE
CALIBRATION NUMBER = 6674

To check and adjust the calibration number on a Dinamica Generale display follow the procedure as described below:

1. Switch on by pressing 
2. Once the software revision has been displayed, the message "------"will appear on the display.
3. Press the setting key  to enter the password configuration mode. The message "Config" will appear on the display. Release the "setting" key when –PASSWORD- appears on the LCD display.
4. Use the minus and plus keys to enter the number 12 into the display. Then press at the same time the PARTIAL and TOTAL keys.

5. The word CALIB will appear on the display. Press the MINUS and PLUS keys to change the value of this parameter to either 5005 or 6674.
6. Press the PARTIAL and TOTAL keys together in order to confirm the new calibration parameter. The message "CALIB OK" will appear.
7. The indicator will then return to password 0.
8. Switch the display OFF to exit the password configuration mode.

For further information on how to operate the Dinamica Generale weighing system, refer to the following operating manuals:

DG400 Display	Dinamica Generale Manual number – 985-0094
DG600 Display	Dinamica Generale Manual number - 985-0092

Once the calibration number has been checked and changed if necessary, a known weight must be placed inside the mixing chamber (100kg min) to verify the Powermix is weighing correctly.

5.11 CONFIGURATION OF THE AUGER BLADES

Refer to section 2.3 – Accident prevention before staring the machine, for safety procedures.

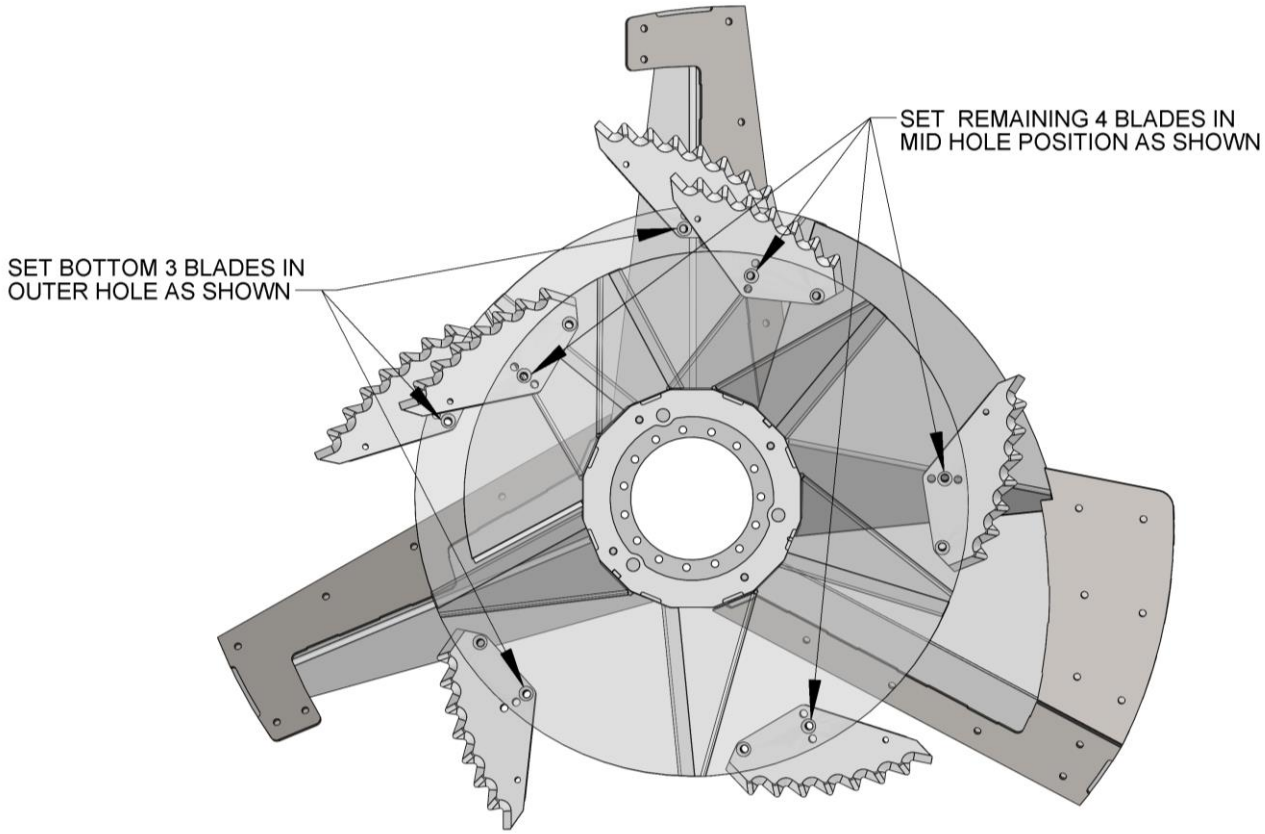
Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Refer to section 7.1 – Connecting the door safety strap

In order to configure the auger blades correctly you should consider a number of factors. PTO rpm / auger speed, auger blade adjustment, order and type of ingredients and the use of the anti-rotation blades will all affect the mixing / chopping time and overall result. The following information will help you decide how to configure your auger blades for the first time; this may have to be amended once you have experienced how your feed has behaved in the mixing chamber:

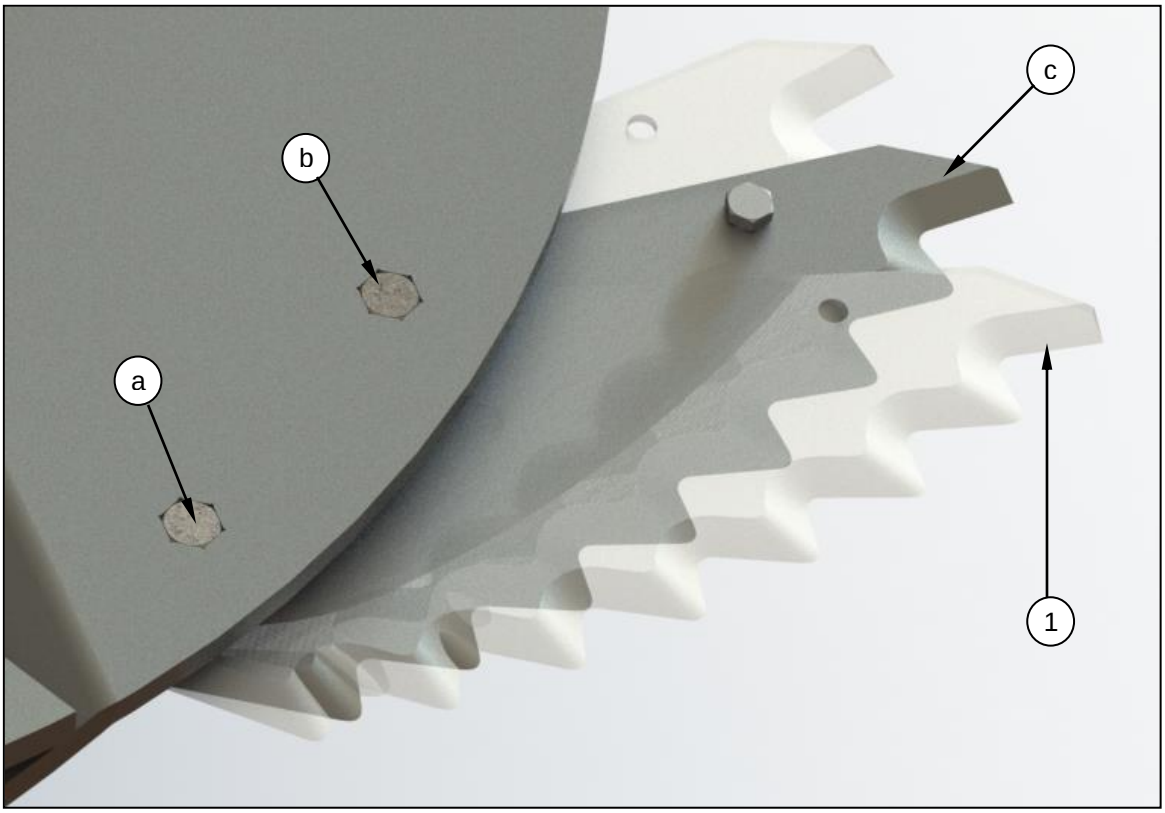
There are 7 auger blades per auger on 9, 11, 16 & 19m^3 machines and 10 auger blades on 13, 15, 22 & 25m^3 models. It is possible to adjust the angle of each blade, to vary how aggressive the blades are at chopping.

As standard the auger blades are configured as shown below: This configuration is usually sufficient in most situations, but adjustments are recommended in certain types of mix.
In a light high straw content mix, where the power requirement to process the mix is low, it is beneficial to angle all the blades except the very top one to their most aggressive position. This will help accelerate the chopping process and will also improve the feed out from the door.
Likewise in heavier dense mix's, where the power requirement to process the mix is high, it would be beneficial to position the blades in their least aggressive position to reduce the power consumption, changing the angle of the blades to the less aggressive position in very dense mixes can reduce the power consumption and fuel costs.



Follow the below procedure when changing the angle of the auger blades:

1. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
2. Ensure the Powermix is detached from the tractor with the door fully raised.
3. Attach the feed door safety strap to prevent the door from inadvertently dropping.
4. Manually rotate the mixing auger via the PTO drive shaft, so that the auger blades are facing away from the door opening.
5. Ensure you are wearing suitable PPE. Enter the mixing chamber only via the door opening.
6. With a 24mm spanner slacken bolt (a), and remove bolt (b).
7. Pivot auger blade (c) together with its backing plate to the required position. Position (1) is set in the most aggressive position.
8. Replace the fixings and tighten to a torque of 225Nm.



There is a high risk of severe injury from falling onto the blades. Refer to section 2.11, ‘Accident prevention when servicing the machine’, before entering the machine. Remember that the floor of the machine will be very slippery, particularly if wet and or polished with use. Approach the task with caution.

Care must be taken when handling the blades. They are very sharp. Use protective gloves and be aware of the position of the other blades on the auger when standing in the mixing chamber.

5.12 PRE OPERATION CHECK LIST

Refer to section 2.3 – Accident prevention before staring the machine safety procedures.

Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Your Powermix has been checked and run at the factory and your dealer should have undertaken all necessary assembly work and pre delivery checks, but as a precaution before first use please check and carry out the following:

- Read this operator's manual thoroughly
- Check the Powermix has been attached to the tractor correctly.
- Check the drawbar or towing eye has been correctly adjusted, so that the Powermix sits level when coupled to the tractor.
- Check the PTO shaft is connected correctly and is the correct length.
- Check the hydraulic hoses are connected correctly and are long enough.
- Check the electric connection is correct.
- Check the gear change lever mounting arm has been set correctly.
- Check the weighing system is weighing correctly.
- Check the protective covers have been removed from the auger blades.
- Check the auger blades have been adjusted correctly.
- Check the conveyor belt tension & speed adjustment settings. (Refer to section 7.10, 7.11 & 6.19).
- Check the torque of the wheel nuts. (Refer to section 7.4).
- Check the tyre pressures. (Refer to section 7.3)
- Check the oil level in the planetary gearbox/es and 2-speed gearbox. (Refer to section 7.13)
- Check and grease if necessary all grease points. (Refer to section 7.12)
- Check that all guards and safety devices are in place.

After the above checks have been carried out, start the machine. Initially run the machine at approximately 300rpm and check for any unusual scratching or knocking sounds. Check the operation of all hydraulic services to familiarise yourself with the operating controls, pay particular attention to the conveyor systems hydraulic movement and conveyor speed.

If a potential error is found or you are not 100% satisfied with your machine please contact your SRE dealer or a member of our service and support team.

SECTION 6: OPERATING THE MACHINE

Refer to section 2 for safety procedures.

6.1 LOADING THE MACHINE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Follow the below procedure when loading the machine:

1. Ensure the Powermix is correctly coupled to the tractor
2. Position the tractor / Powermix near the product to be loaded.
3. Apply the tractors hand brake. Engage the tractors PTO shaft. Ensure the correct speed is selected (see section 6.7). Please note the Powermix may be loaded without the PTO shaft running, however the mixing and chopping process will be greatly accelerated if the Powermix is running while being loaded.
4. Check there are no foreign objects in the mixing chamber.
5. Ensure there are no bystanders situated around the danger zone.
6. Switch on the weighing equipment and position the display so it can be seen during loading.
7. Load the machine from the side. This is the widest section, and will provide more space to manoeuvre the loading grab or bucket.
8. Do not drop the material into the mixing chamber from an unnecessarily high height, try to position the edge of the loading grab or bucket just inside the mixing chamber. Doing this will prevent high impact and avoid damaging the auger blades and auger.

Do not leave the tractor and Powermix unattended, even for short periods of time. This includes when ingredients are being fetched and loaded.

Do not overload the Powermix

Do not load the machine on a slopping site as the dynamic effects of mixing / chopping may reduce stability.

6.2 MIXING / INGREDIENT LOADING SEQUENCE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Mixing time and loading sequence are important factors in producing a consistent mixed ration. Typically the loading sequence that provides the best result is based on loading the light forage ingredients first. Whether it is in baled or pre chopped form. The denser fermented ingredients should be added next followed by the wet bi-products such as molasses. The dry ingredients such as rolled corn, or mineral supplements should be added last.
When the last ingredient has been added the feed must be mixed for between 5 and 10 minutes. The optimum mixing time will vary depending on the feed composition, so the best way to determine whether the mix is finished is to look into the mixing chamber via the rear inspection ladder (See section 6.21). When the mix looks homogenous it is time to feed.

The following is an example of a ration and recommended loading sequence.

Ingredient	**Loading order and instructions**
Baled Straw	Load this first while the PTO is running, Allow sufficient time for the bale to break down and chop before adding the next ingredient.
Grass silage (clamp)	The weight of the heavier clamped grass silage will compact the straw and accelerate the chopping process.
Maize silage	Again the weight of the maize silage will compact the straw and accelerate the chopping process.
Molasses	Load this next try to distribute this evenly on top of the mix
Mineral supplements	Load these last, after loading allow 5-10 minutes for all ingredients to mix together.

Ensure the machine has stopped and has been made secure before viewing the mix or tipping minerals into the tub via the inspection ladder.

6.3 CHOPPING ROOT CROPS

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

The Powermix can be used to chop and incorporate a wide variety of root crops such as potatoes, sugar beet, fodder beet and carrots. The only way to successfully chop these ingredients down to a safe size that will not present a choking hazard is to chop them as a batch. Adding 500kg of sugar beet to the top of a mix will just result in the beet being suspended in the mix but not being chopped.
It is generally necessary to chop at least 1.5 tonnes at a time in order to get enough roots in the bottom of the tub to cover the second blade on the auger. It should be possible to chop down 1.5 tons of beet in 15 minutes. If this is the correct amount for the ration then you can proceed with loading the rest of the ration, starting with the light forage. If you require less than 1.5 tons for the ration then it will be necessary to unload some of the beet before loading the remaining ingredients.

The optional blade type retarders, described on the next page, will accelerate the chopping of root crops, if the contents are filled to a level above the top anti-rotational blade.
A faster chop can be obtained by increasing the auger speed (See section 6.7)

6.4 CHOPPING BALED FORAGE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

As stated in section 6.2, baled forage should be added to the mixing chamber first, as the volume of the bales will increase considerably once the bales have been shredded. A faster chop can be achieved by increasing the auger speed (see section 6.7) while the bales are being processed. It is advisable to reduce the auger speed before adding the remaining ingredients. This is for two reasons, firstly it will minimise power consumption, and secondly, the heavier ingredients which are added on top of the dry forage will help accelerate the chopping process, meaning a faster auger speed is not required.

Always load the bales whilst the machine is level as the machine is particularly top heavy when bales are first loaded into the machine. This may combine with unfavourable dynamic forces!

Beware of falling objects. Stand clear of the machine while bales are being chopped.

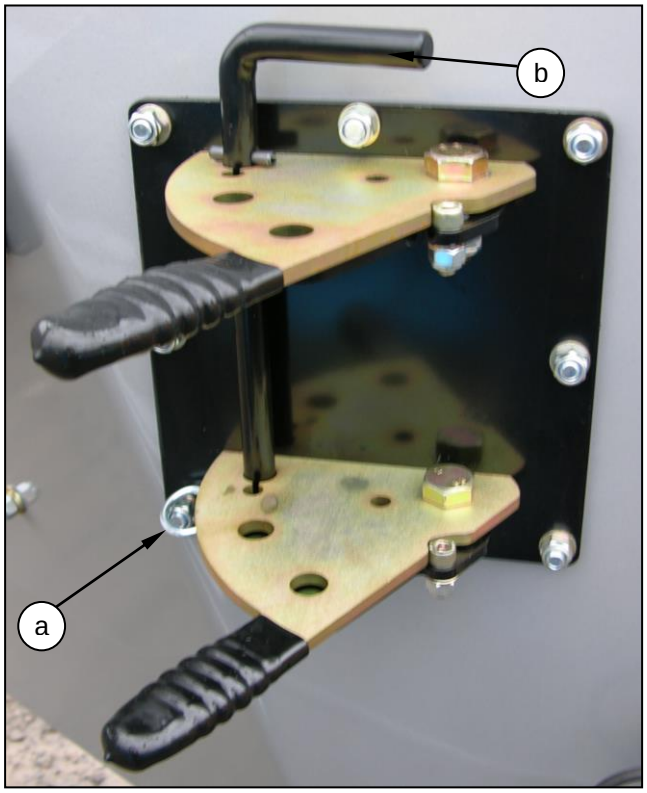
6.5 OPERATING THE ANTI-ROTATION BLADES

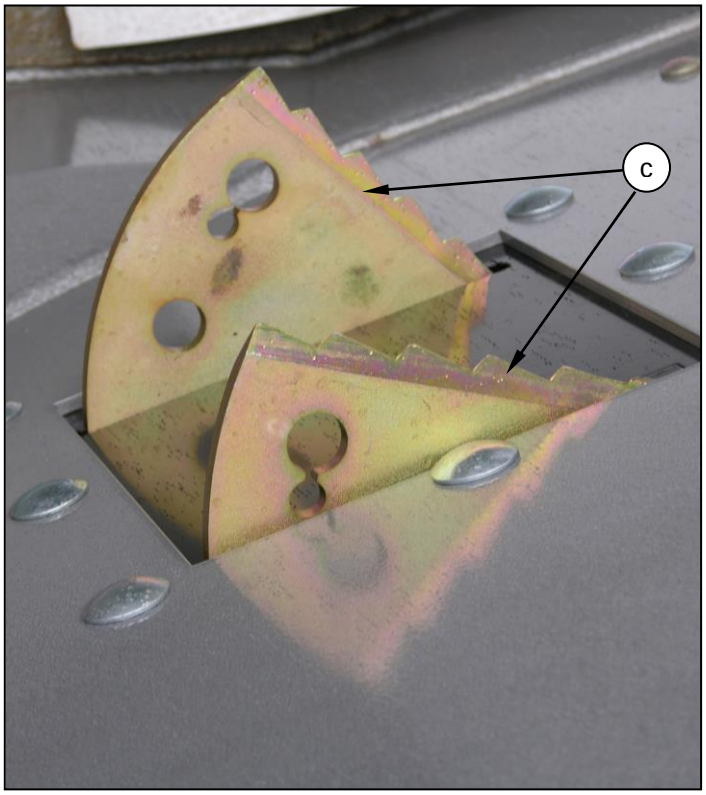
Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

When processing baled forage or root crops, the anti-rotation blades can be employed. Their internal knifed edge will not only chop but will also assist the chopping by the auger blades by momentarily stalling the rotation of the feed in the mixing chamber, enabling the auger blades to cut the feed more aggressively as the auger rotates.

Follow the below procedure when operating the anti-rotation blades

1. Ensure the tractors hand brake has been applied and the tractors PTO shaft is disengaged.
2. Remove ‘R’ clip (a) and extract pin (b).
3. Rotate the anti-rotation blades (c) to the required position. Trial and error is the best way to determine the optimum set up angle for the feed to be processed.
4. Replace the pin (b), ensuring it passes through both anti-rotation blades (c).
5. Replace the ‘R’ clip (a).





Do not adjust the anti-rotation unless the auger has stopped; as the rotation of material inside the tub will cause the blade handle to retract suddenly.

6.6 USING THE FIXED ANTI-ROTATION PLATES

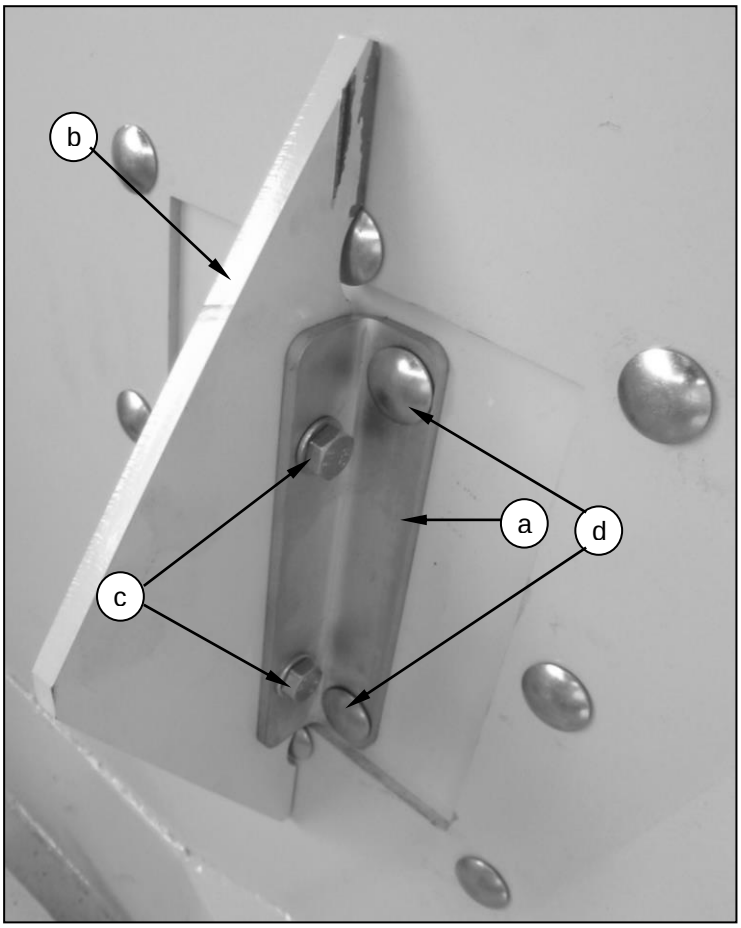
Refer to section 2.3 – Accident prevention before staring the machine, for safety procedures.

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Refer to section 7.1 – Connecting the door safety strap

Fixed anti-rotation plates can be used as an alternative to the anti-rotation blades as described in section 6.5. The fixed anti-rotation plates are fitted on the side wall of the mixing chamber, but do not provide the flexibility of the bladed version as they have to be altered / removed from inside the mixing chamber when the machine is empty. They work in a similar way to the bladed type by momentarily stalling the rotation of the feed in the mixing chamber, enabling the auger blades to cut the feed as the auger rotates. Usually the brackets themselves (a), without the triangular anti-rotation plates (b) fitted provide adequate resistance for a consistent chop, but trial and error is recommended to optimize the set-up to suit the structure of the feed.

Follow the below procedure when removing / replacing the anti-rotation plates:



1. Secure the Powermix against rolling by applying the handbrake/ positioning wheel chocks.
2. Ensure the Powermix is detached from the tractor with the door fully raised.
3. Attach the feed door safety strap to prevent the door from inadvertently dropping.
4. Manually rotate the mixing auger via the PTO drive shaft, so that the auger blades are facing away from the door opening.
5. Ensure you are wearing suitable PPE. Enter the mixing chamber only via the door opening.
6. Using a 19mm spanner remove bolts (c).
7. Remove the anti-rotation plate (b).
8. If the brackets (a) need to be removed extract coachbolts (d). Ensure the coachbolts are replaced after the brackets have been removed.
9. Ensure all the plates and fixings are removed from the mixing chamber before starting the Powermix,

There is a high risk of severe injury from falling onto the knives. Remember that the floor of the machine will be very slippery, particularly if wet and or polished with use. Approach the task of removing/fitting the anti-rotational plates with caution.

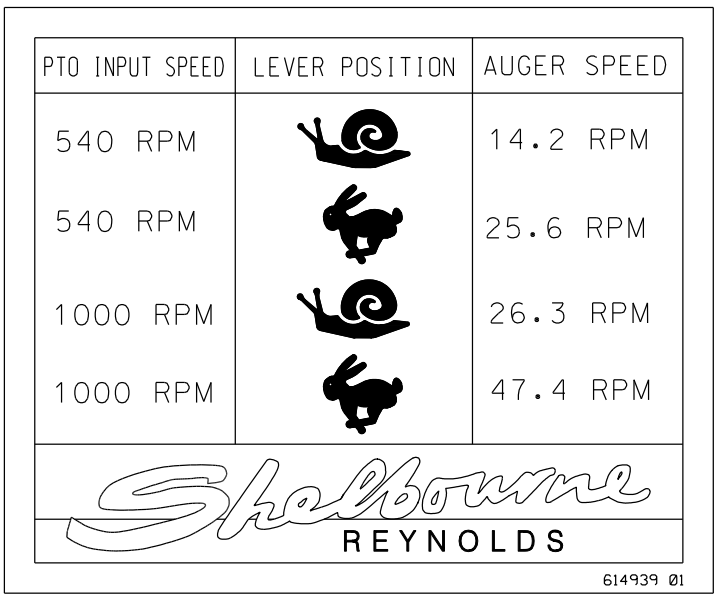
6.7 AUGER SPEEDS & DRIVE CONFIGURATIONS

SINGLE AUGER MACHINES

Most single auger machines (9m^3-15m^3), are specified with a single speed drive system, this provides an auger speed of 25.6 rpm, when the PTO shaft speed of the tractor is at 540 rpm.
This speed is ideal for the majority of mixing and chopping situations.
If the tractor has the facility to switch the PTO shaft speed to 1000 rpm, this may be used to provide an auger speed of 47.4 rpm, and can be employed to speed up the chopping of dry fibrous material such as baled straw or small batches of root crops.
The fast auger speed can also be used to clear material from the auger flight, once feeding is complete.

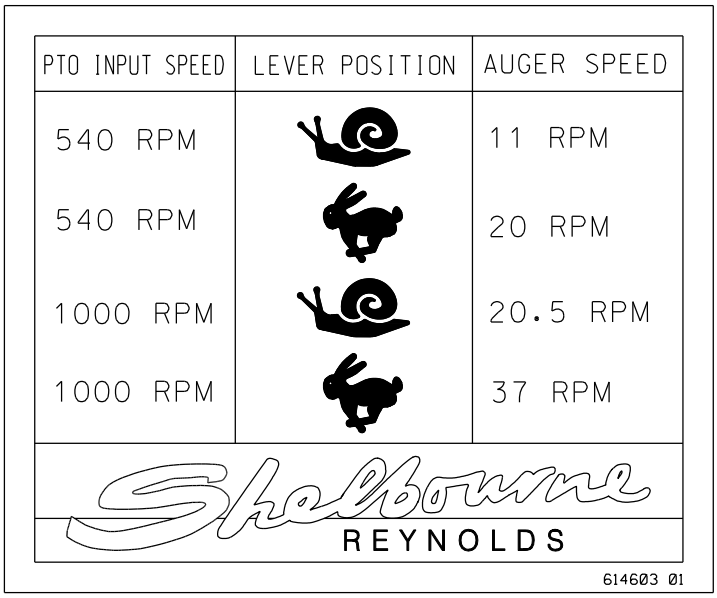
Operating the machine using the faster auger speed will increase the horsepower requirements. It is not recommended this be used if the total weight in the tub exceeds 2000kg.

As an option, single auger machines can be fitted with a 2-speed gearbox. With this, 4 auger speeds are available:
The 26.3 & 47.4-rpm auger speeds can be used as described above. The difference is that the 2 speeds are possible with only one tractor PTO shaft speed of 1000-rpm.
The slow auger speed of 14.2-rpm is useful for re-starting the machine after a mix has laid dormant for a number of hours. With some mixes the material settles, and in some cases hardens, which increases the power required to start the machine.
As the auger is rotating slower in this mode, the horsepower required to drive the machine is reduced; this means it is possible to drive the machine using a smaller tractor than usual say (50-60 hp). The slow auger speed is not recommended for chopping material, it is only suitable for certain mixing applications.
If only 540-rpm PTO shaft speed is available, the 25.6-rpm auger speed should be suitable for most applications.



TWIN AUGER MACHINES

All twin auger machines (16m^3-22m^3), are specified with 2-speed drives. With this, 4 auger speeds are available:



The 20 or 20.5 rpm auger speeds are suitable for the majority of mixing and chopping situations. Preferably run the tractor at 1000 rpm tractor PTO (20.5rpm auger speed) where possible, as this will decrease the torque seen at the PTO.

If the tractor only has the option of a 540-rpm PTO shaft speed, use the 20-rpm auger speed for general mixing & chopping, and revert to the 11-rpm auger speed if a heavy mix is to be stopped & re-started. Operating the machine at the 11rpm auger speed will also reduce the horsepower required to mix, meaning it is possible to drive the machine using a smaller tractor than usual say (90-100 hp). The slow auger speed is not recommended for chopping material, it is only suitable for certain mixing applications

The fastest 37 rpm auger speed, as with the single auger machine, can be employed to speed up the chopping of dry fibrous material, chopping small batches of root crops, and mixing smaller rations, as well as being used to clear material from the auger flight, once feeding is complete.

Operating the machine using the faster auger speed will increase the horsepower requirements. It is not recommended this be used, if the total weight in the tub exceeds 4000kg.

6.8 OPERATING THE 2-SPEED GEARBOX

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

In order to change the gear it is necessary to stop the PTO shaft of the tractor. After the PTO shaft has stopped the gear can be changed by means of operating a fixed linkage lever (Fig 8) or an adjustable cable operated hand lever (Fig 9).

An emblem is located next to the lever to indicate whether the slow or fast speed is selected.

In some instances where a heavy diet is being mixed, it may prove difficult to change the gear due to high friction forces inside the gearbox. If this is the case rotate the PTO shaft momentarily while the 2-speed gearbox is in the neutral gear. Stop the PTO shaft and then proceed to try and select the correct gear again.

Fig 8

Fig 9

When operating the 2-speed gear change lever do not overreach or force the lever.

Ensure the tractors rear window is correctly secured before reaching to operate the gear change lever or the manual lever hydraulic control valve.

6.9 FEEDING PROCEDURE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

There are potentially four ways to alter the amount of feed to be distributed. The forward speed, the amount the door has been opened, how fast the augers are rotating, and if a conveyor system is involved, how fast the conveyor belt is rotating. Realistically trial and error is the best way to fine tune these settings to achieve the best results, however to help you distribute the feed as evenly as possible it is extremely useful to view the weigh display as the machine empties – When half the feed has been emptied, half the distance should have been covered. Causes of slow or uneven feed out can be an insufficient chopping time resulting in long fibres blocking the door opening , having blunt or incorrectly configured auger blades, which will hamper their effect of pushing material out of the door, or the fact that the auger(s) are rotating too slowly resulting in insufficient material movement.

The standard PTO shaft which is supplied with the Powermix only tolerates a small deviation in angle when operating; therefore ensure that the Powermix and the tractor are standing in line before engaging the PTO before feeding. If the machine needs to be manoeuvred around corners during mixing / feeding, it is essential to substitute the standardly supplied PTO shaft with a wide angle version.

Follow the below procedure when feeding:

1. When chopping and mixing is complete stop the tractors PTO shaft.
2. Rotate the weigh display so it is clearly visible from the tractor cab.
3. Move the tractor and machine to the feed area, ensuring the tractor and machine are standing in a straight line.
4. Check there is nobody in the danger zone or in the driving line of the machine.
5. Engage the PTO and gradually increase the rpm to the required speed.
6. If your machine is fitted with a feeding conveyor, adjust the conveyor movement cylinder if required, and start the conveyor rotation function, ensure the speed is correctly set.
7. Now open the door slowly and wait for the feed out to settle before further adjustment
8. Move forward in the lowest gear possible, until an optimum speed and door opening is found.
9. At the end of each straight run stop the PTO and close the door.
10. Start the procedure again once the Powermix and tractor has been position in a straight line.
11. When the mixing chamber is almost empty the auger speed can be increased to the maximum to clear the feed from the auger.

Avoid shock loads to the machine whilst moving. It may result in damage to the load cells.

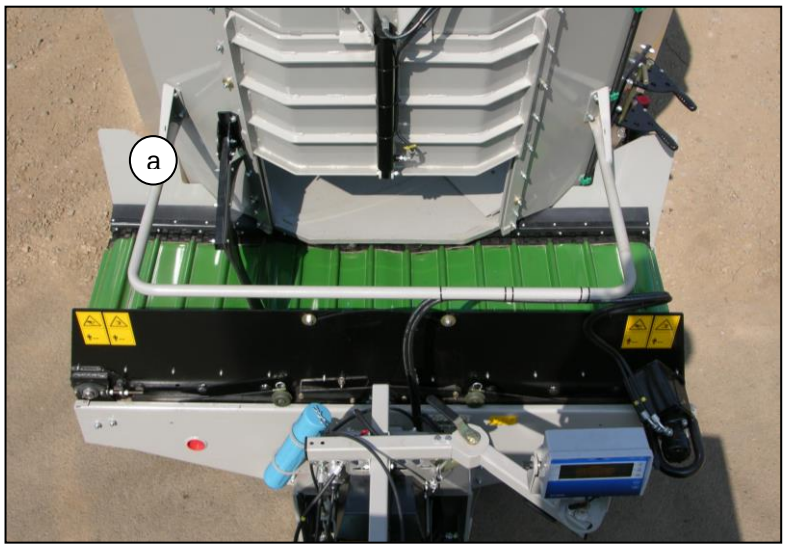
In narrow feed passages with barrier type troughs, be careful not to trap the heads of animals between the machine and the barriers on <u>both</u> sides of the feed passage.

It is very dangerous to approach the machine when the door is open and the mixing augers are rotating. Always ensure there is nobody in the vicinity of the machine while you are feeding.

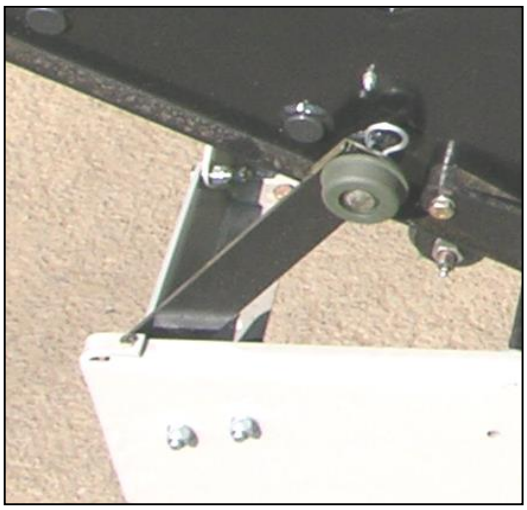
6.10 OPERATING THE FRONT ELEVATING WEB CONVEYOR

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

The front elevating web conveyor has a unique 1 piece conveyor belt. The construction of which allows the conveyor system to effectively bend which enables the conveyor to feed either side and reach multiple feeding heights and distances. (For feeding heights refer to sections 3.5, 3.6 & 3.7.



The movement of the conveyor belt is generated by operating a single hydraulic cylinder (a) which is situated centrally underneath the conveyor belt. To move and elevate the conveyor to the left the hydraulic cylinder is extended, and to move and elevate the conveyor to the right the hydraulic cylinder is retracted. The conveyor system starts to elevate when the jacking arms (b) reach a stop which allows one half of the conveyer frame to pivot which in turn starts the lifting motion.
The rotation of the conveyor belt is via a single hydraulic motor (c). The hydraulic motor can be driven in either direction and the speed of rotation can be varied by altering the flow of hydraulic oil.



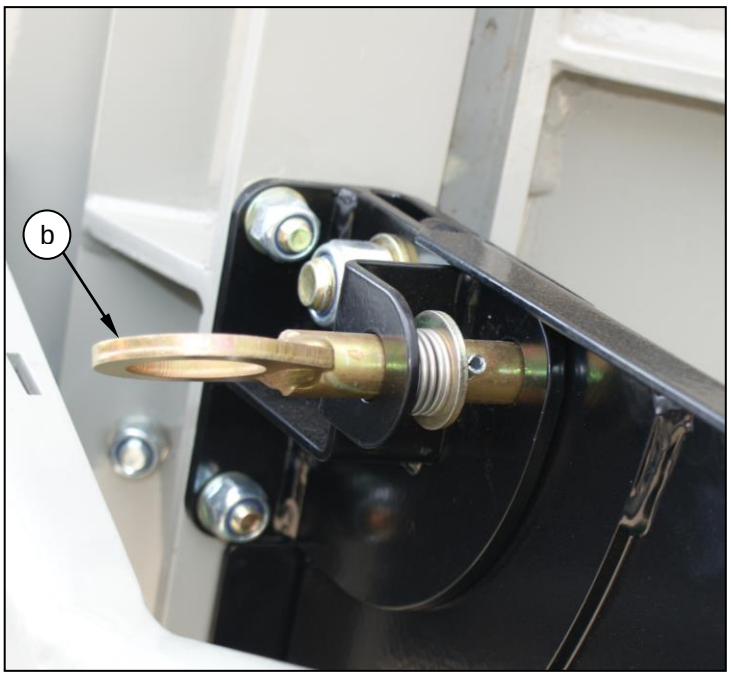
Bystanders must be kept at a safe distance from the Powermix and tractor while it is being operated.

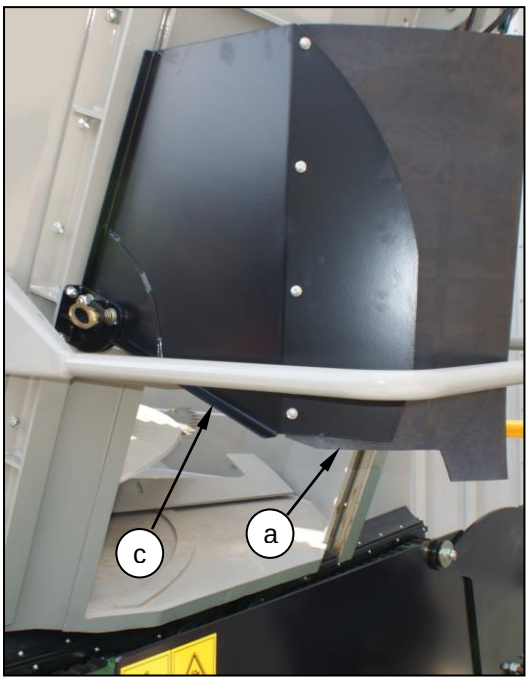
6.11 OPERATING THE CONVEYOR DEFLECTOR

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

When the elevating web conveyor is fully extended to the left, the conveyor deflector must be located in the down position (top illustration). To lower the deflector, follow the below procedure:

1. Ensure the ‘safe stop’ procedure is followed before approaching the machine,
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. To lower the conveyor deflector (a) from its storage position, take the weight of the assembly and pull pin (b), gently lower the deflector (a) until the edge flange od the deflector (c) rests on the door frame.
4. When feeding centrally or to the right ensure the conveyor deflector is raised and locked in its storage position.





6.12 OPERATING THE FIXED FRONT WEB CONVEYOR

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

An alternative to the front elevating web conveyor is a fixed front web conveyor.
The conveyor belt has the same construction as the elevating version but will not slide to the left or right and will not elevate. However it does have the facility to feed to the left or right and the conveyor belt speed can be adjusted to alter how far the feed will be thrown.

Listed below are the maximum barrier heights which can be fed over with this conveyor system, when the machine is fitted with standard tyres
If a higher feed height is required, it is possible to lift the conveyor by fitting larger diameter tyres or axle risers.

MODEL	TYRES FITTED	MAX BARRIER HEIGHT (DISTANCE FROM FLOOR TO TOP OF CONVEYOR BELT)
Single auger 9-15m3	305/55R22.5	870mm
	355/50R22.5	870mm
	385/55R19.5	870mm
Twin auger single axle 16-19m3	435/50R19.5	860mm
	18R22.5	1065mm
Twin auger tandem axle 16-25m3	355/50R22.5	955mm
	385/55R19.5	955mm
	385/55R22.5	985mm

Bystanders must be kept at a safe distance from the Powermix and tractor while it is being operated.

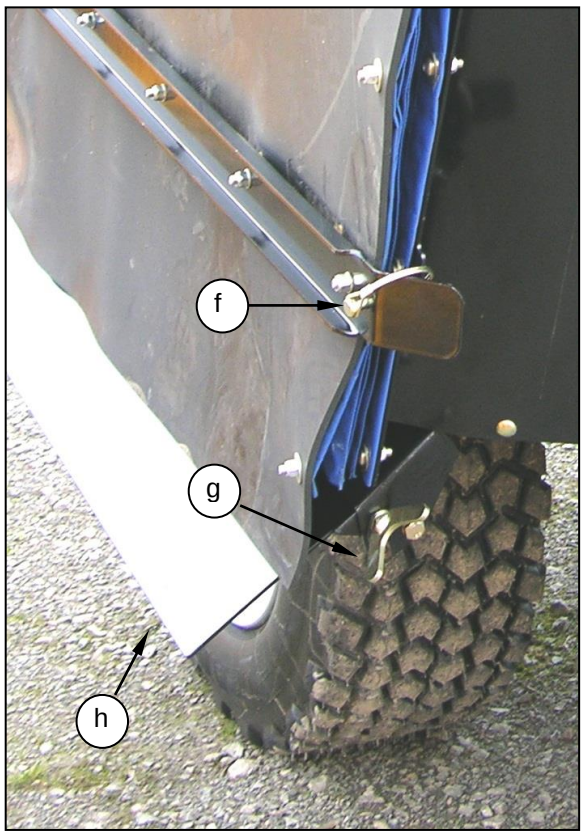
6.13 SIDE DELIVERY OPTION

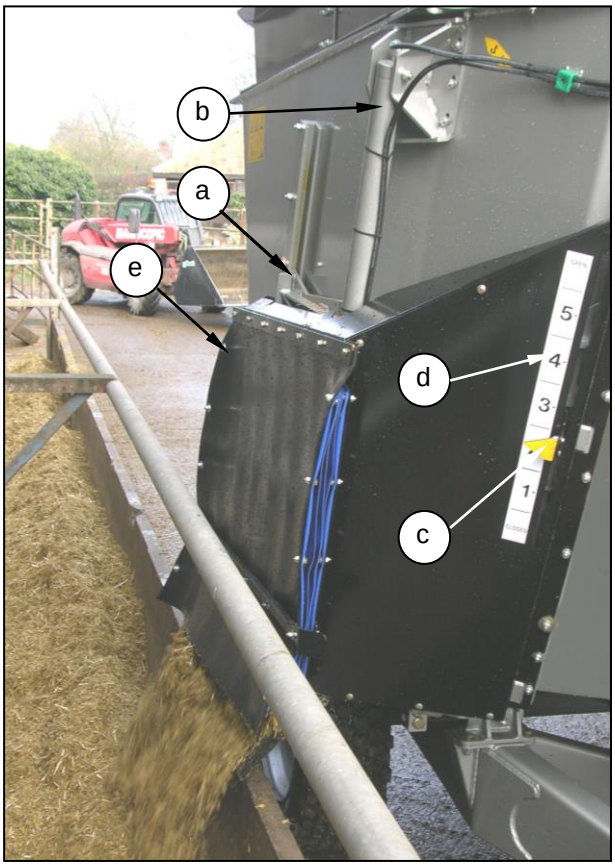
Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

The discharge door (a) is opened and closed via a hydraulic cylinder (b).
To determine the opening height of the door, a pointer (c) moves along a scale (d) as the door is raised or lowered.
The side door is fitted with a safety flap (e), it covers the feed door to prevent direct access to the revolving auger and blades, and is a requirement for safety reasons. It also helps to deflect the feed downward into a neat row.
The D-clip (f) must be removed while feeding, this will allow the safety flap to flex and allow the feed to flow freely. The D-clip (f) must be replaced during transport to ensure the safety flap is secured.
The side door is also equipped with an adjustable lower chute, which allows feed to be deflected into a trough with a maximum height of 740mm (2'5").

To adjust the angle of the chute follow the below procedure:

1. Ensure the 'safe stop' procedure is followed.
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. Slacken bolt (g).
4. Rotate the lower chute (h) by hand.
5. Tighten bolt (g) to secure the lower chute (h) in the required position.





Bystanders must be kept at a safe distance from the Powermix and tractor while it is being operate

6.14 1m SIDE CONVEYOR OPTION

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

The feeding height of the conveyor is adjusted by the operation of the hydraulic lift cylinder (a).
The rotation of the conveyor belt is via a single hydraulic motor (b). The speed of rotation of the hydraulic motor can be varied by altering the flow of hydraulic oil.
The 1m side conveyor is capable of delivering feed at a height from the ground of between 1050mm (3ft 5”) - 1350mm (4ft 5”)
To ensure the conveyor is less vulnerable while manoeuvring around the farm the conveyor can be placed in the parked position, this is achieved when the hydraulic lift cylinder is fully closed. (Illustrated lower left)

Bystanders must be kept at a safe distance from the Powermix and tractor while it is being operate

Beware of rotating and moving parts, injury may occur if there is contact between the conveyor and your animals.

6.15 DIRECT COUPLED HYDRAULIC CONTROLS

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

This hydraulic control system connects the conveyor motor, conveyor movement cylinder and feed door cylinder directly to the hydraulic spool valves of the tractor. When using this system double acting spool valve is required to operate each hydraulic function. To activate each hydraulic service it is simply a case of engaging the relevant spool valve in the tractor cab.
If this connection method is used, the hydraulic spool which operates the conveyor motor service must have the facility to limit the hydraulic flow to 30l/m. This is to ensure the rotational speed of the conveyor belt is limited to a maximum of 450rpm.

In order to exclude the possibility of incorrect connection, all mating couplings and sockets belonging to the hydraulic connections between the tractor and the Powermix should be marked with matching colours.

Do not connect to tractor's hydraulic system if it can deliver more than 210 bar.

Ensure the hydraulic couplings supplied with the Powermix are compatible with the tractor.

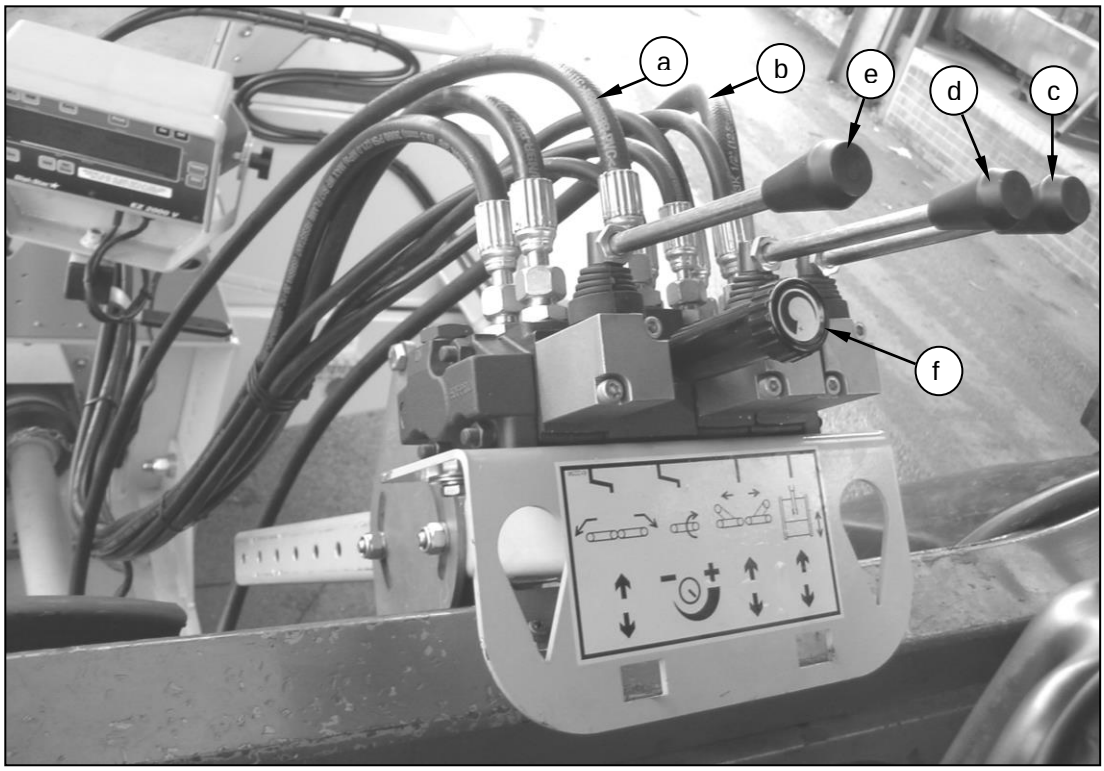
6.16 MANUAL LEVER HYDRAULIC VALVE CONTROLS

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

If this connection method is used, the pressure hose (a) is connected to a double acting hydraulic spool valve on the tractor and the return hose (b) is coupled to free flow return to tank.

To open the feed door, lift lever (c) and to close the feed door, lower lever (c).
To slide and elevate the conveyor to the left, lift lever (d) and to slide and elevate the conveyor to the right, lower lever (d). If operating a side conveyor, lifting lever (d) will raise the conveyor and lowering lever (d) will lower the conveyor.
To start the conveyor motor feeding to the right / rotating forward, detent the lever (e) in the up position, to reverse the motor and feed to the left detent the lever (e) to its down position.
To increase the speed of the conveyor motor, rotate knob (f) in an anti-clockwise direction. To decrease the speed of the conveyor motor rotate knob (f) in a clockwise direction.



Do not connect to tractor's hydraulic system if it can deliver more than 210 bar.

Ensure the hydraulic couplings supplied with the Powermix are compatible with the tractor.

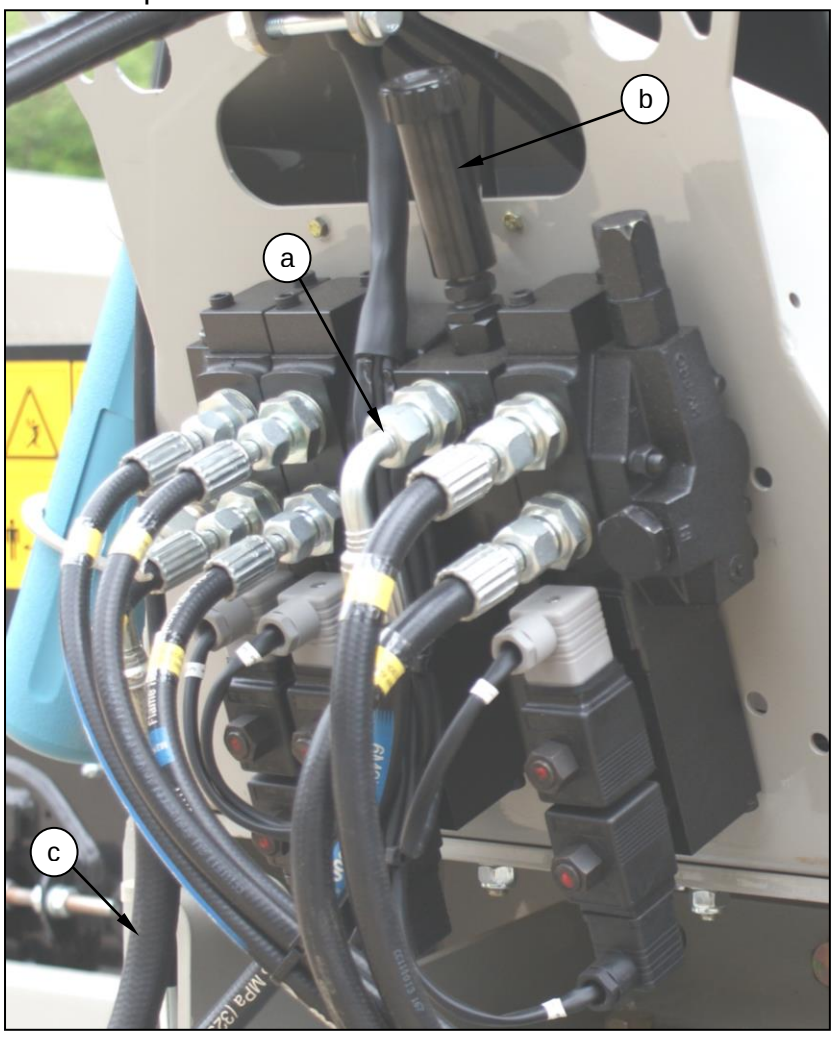
6.17 SEMI-ELECTRIC HYDRAULIC VALVE CONTROLS

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

If this connection method is used, the pressure hose (a) is connected to a double acting hydraulic spool valve on the tractor and the return hose (b) is coupled to free flow return to tank.

To open the feed door press and hold switch (d) upwards. To close the feed door, press and hold switch (d) downwards.
If an elevating web conveyor is being operated, press and hold switch (f) upwards to slide and elevate the conveyor to the right, and press and hold switch (f) downwards to slide and elevate the conveyor to the left. If a side conveyor is being operated, press and hold switch (f) upwards to lift the conveyor, and press and hold switch (f) downwards to lower the conveyor.
To start the web conveyor motor feeding to the left, toggle switch (e) to the left. To start the web conveyor motor feeding to the right, toggle switch (e) to the right. To stop the conveyor motor detent switch (e) to its mid position.
If a side conveyor is being operated switching toggle switch (e) to the left will run the motor in a forward direction and switching toggle switch (e) to the right will reverse the motor. Moving the switch to its mid position will stop the hydraulic motor.



To increase the speed of the conveyor motor, rotate knob (b) in an ant-clockwise direction.
To decrease the speed of the conveyor motor, rotate knob (b) in a clockwise direction. All hydraulic services can be stopped by pressing the emergency stop button (g).
Ensure the cover (h) is fitted at all times as this will protect the valve and electrical connectors from direct contact during high pressure cleaning.
When the Powermix is detached form the tractor, ensure the hand controller (i) is placed in the storage housing (j).


g
f
e
d
Shelbourne
REYNOLDS
Fw 0 Rev


h
j
i
<210 bar

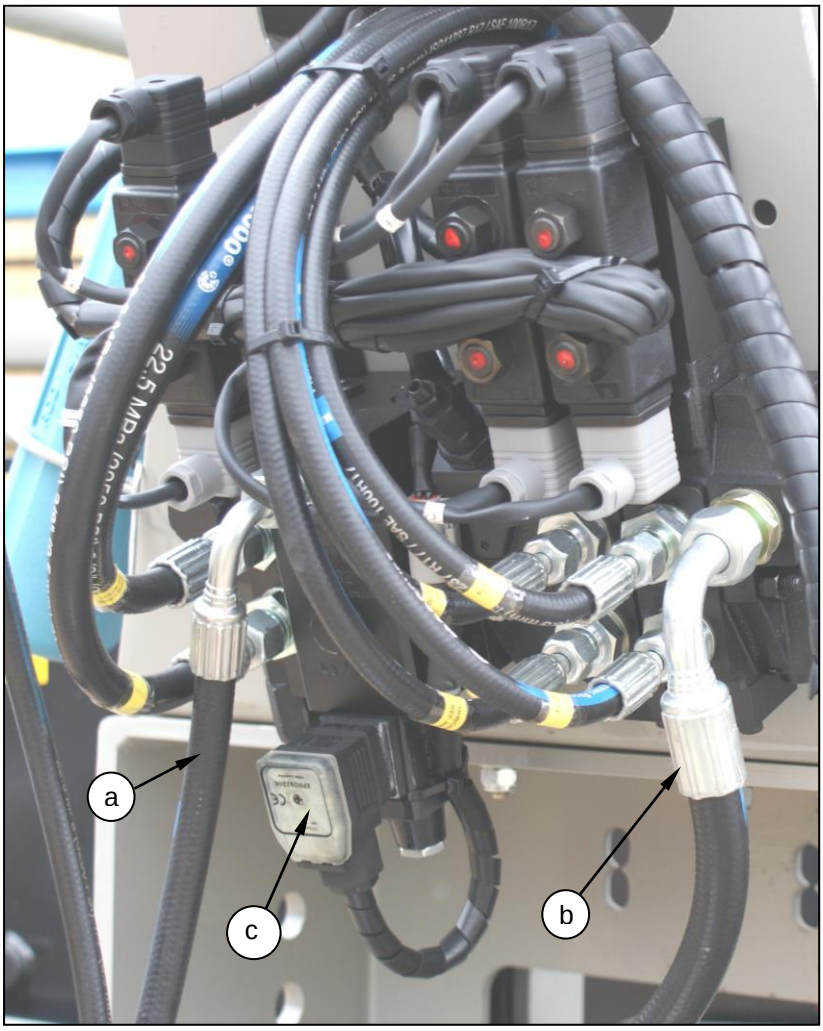
6.18 ALL-ELECTRIC HYDRAULIC VALVE CONTROLS

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

If this connection method is used, the pressure hose (a) is connected to a double acting hydraulic spool valve on the tractor and the return hose (b) is coupled to free flow return to tank.

To open the feed door press and hold switch (g) upwards. To close the feed door, press and hold switch (g) downwards.
If an elevating web conveyor is being operated, press and hold switch (d) upwards to slide and elevate the conveyor to the right, and press and hold switch (d) downwards to slide and elevate the conveyor to the left. If a side conveyor is being operated, press and hold switch (d) upwards to lift the conveyor, and press and hold switch (d) downwards to lower the conveyor.
To start the web conveyor motor feeding to the left, toggle switch (e) to the left. To start the web conveyor motor feeding to the right, toggle switch (e) to the right. To stop the conveyor motor detent switch (e) to its mid position.
If a side conveyor is being operated switching toggle switch (e) to the left will run the motor in a forward direction and switching toggle switch (e) to the right will reverse the motor. Moving the switch to its mid position will stop the hydraulic motor.
To increase the speed of the conveyor motor, rotate the potentiometer knob (f) in a clockwise direction. To decrease the speed of the conveyor motor, rotate the potentiometer knob (f) in an anti-clockwise direction.
The speed range and operating band can be altered by calibrating the proportional driver (c). (Refer to section 6.19 for further instructions).
All hydraulic services can be stopped by pressing the emergency stop button (h).
Ensure the cover (i) is fitted at all times as this will protect the valve and electrical connectors from direct contact during high pressure cleaning.
When the Powermix is detached form the tractor, ensure the hand controller (j) is placed in the storage housing (k).

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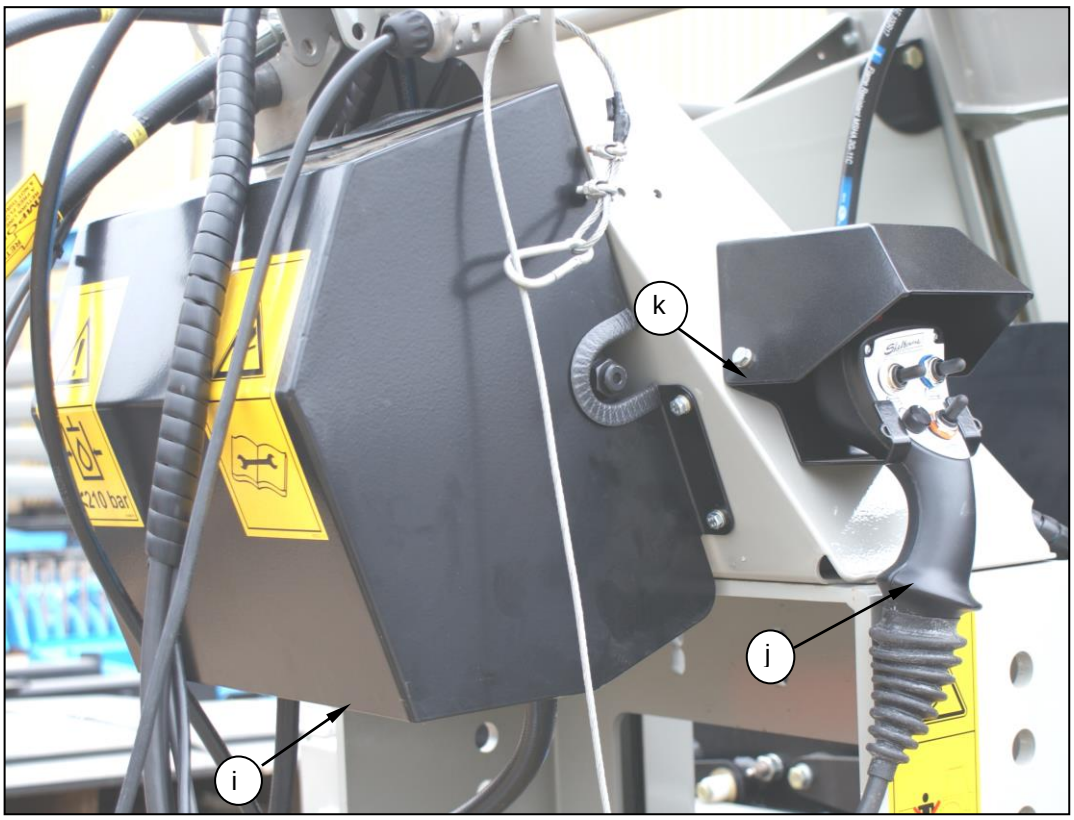
k
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6.19 CALIBRATING THE PROPORTIONAL DRIVER

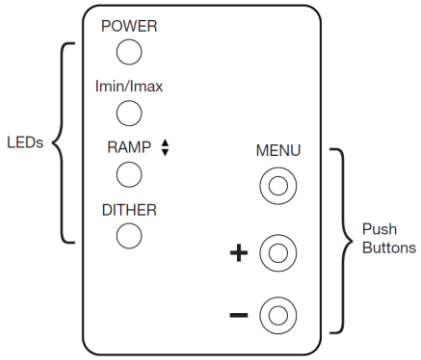
Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Refer to section 2.5 – Accident prevention when using the hydraulic system for safety procedures.

The proportional driver is used with the hard wired hand controller to set the minimum and maximum speeds of the conveyor belt. The recommended maximum speed of the conveyor belt is 450rpm. If the conveyor belt operates above this speed for a prolonged period of time it will cause excess wear and premature failure.

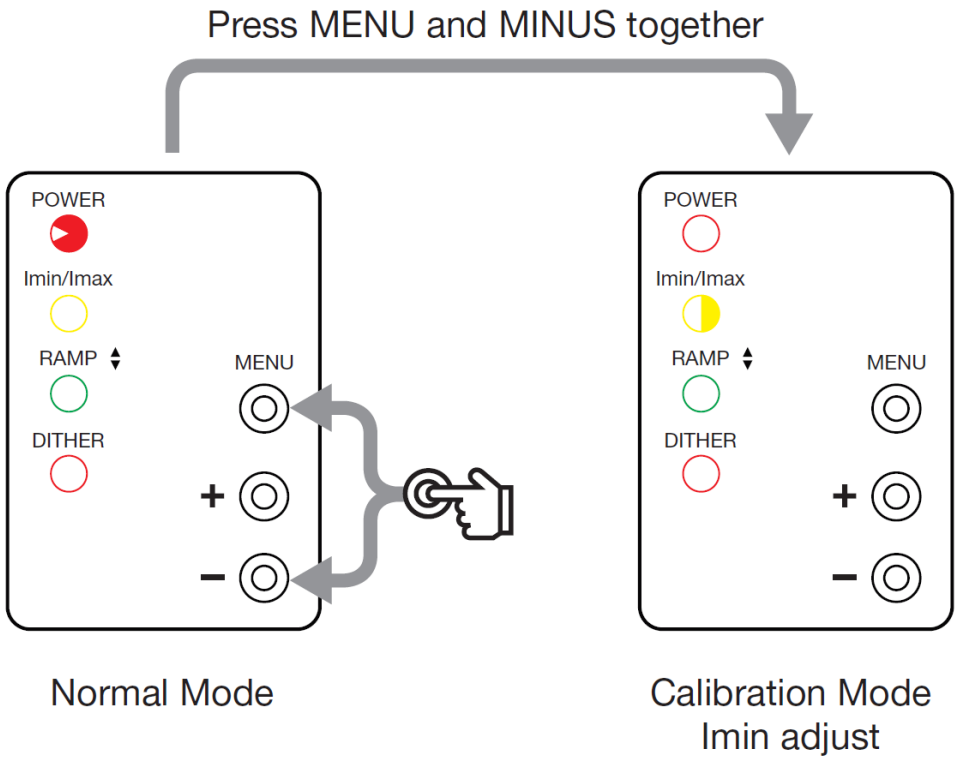
The definitions of the symbols described in this section are shown below:

●	LED switched on
◕	LED switched on with a short blimk every 3 seconds
◐	LED blinking quickly
◑	LED blinking slowly
◔	LED blinking very slowly
○	LED switched off

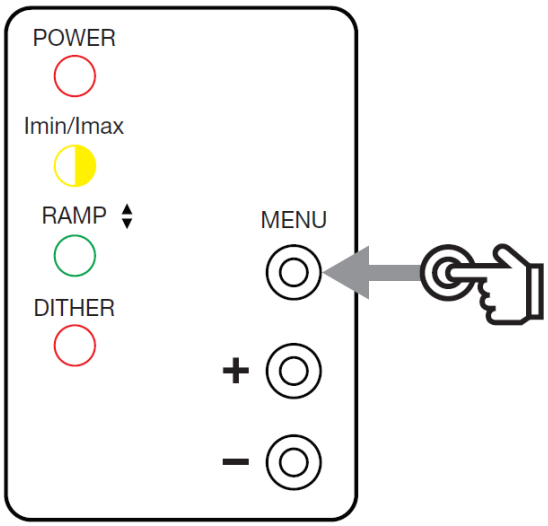


To set the max and min conveyor speeds follow the instructions below:

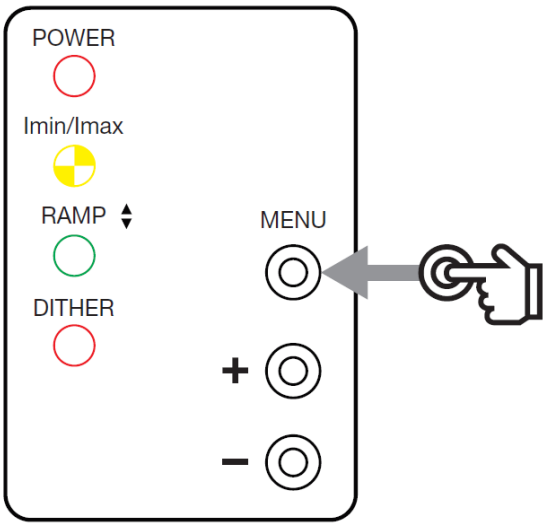
1. First enter calibration mode by pressing the MENU and MINUS buttons together. Once in calibration mode the power LED will be switched off, the Imin/Imax LED will be blinking slowly and the ramp and dither LED's will be switched off.



Imin adjust



Imax adjust



2. Ensure the potentiometer is turned to minimum on the hand controller.

3. The Imin adjust parameter should already be selected when entering calibration mode for the first time. Confirmation of this will be that the Imin/imax LED will be blinking slowly and all other LED's will be switched off.

4. While in the Imin adjust parameter press the + or – buttons to increase or decrease the minimum conveyor speed.

5. Once the minimum speed is correct turn the potentiometer on the hand controller to maximum.

6. While still in calibration mode press the MENU button again to select Imax adjust. When this parameter is selected the Imin/imax LED will be blinking quickly and all other LED's will be switched off.

7. Press the + or – buttons to increase or decrease the maximum conveyor speed.

8. Once the Imin and Imax parameters have been set, escape from calibration mode by pressing together the MENU and MINUS buttons until the power LED is switched on with a short blink every 3 seconds, and all other LED's are switched off.

6.20 OPERATING THE HANDBRAKE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

Single auger models (9-15 m^3) are supplied with a ratchet type handbrake. (Shown below). To apply the handbrake, pull the handle in a clockwise direction until resistance and subsequent tightening of the cable occurs. To release the handbrake rotate the handle sharply in an ant-clockwise direction to disengage the ratchet mechanism.

Twin auger models (16-25 m^3) are supplied with a Rotary spindle type handbrake (See below). To apply the handbrake, simply rotate the crank handle clockwise to tighten the cable which in turn will activate the brake.
(The tightening force required to apply the handbrake is approximately 165N or 17kg)
To release the handbrake turn the crank handle anti-clockwise until the cable goes slack.

Ensure the machine has stopped before activating the handbrake

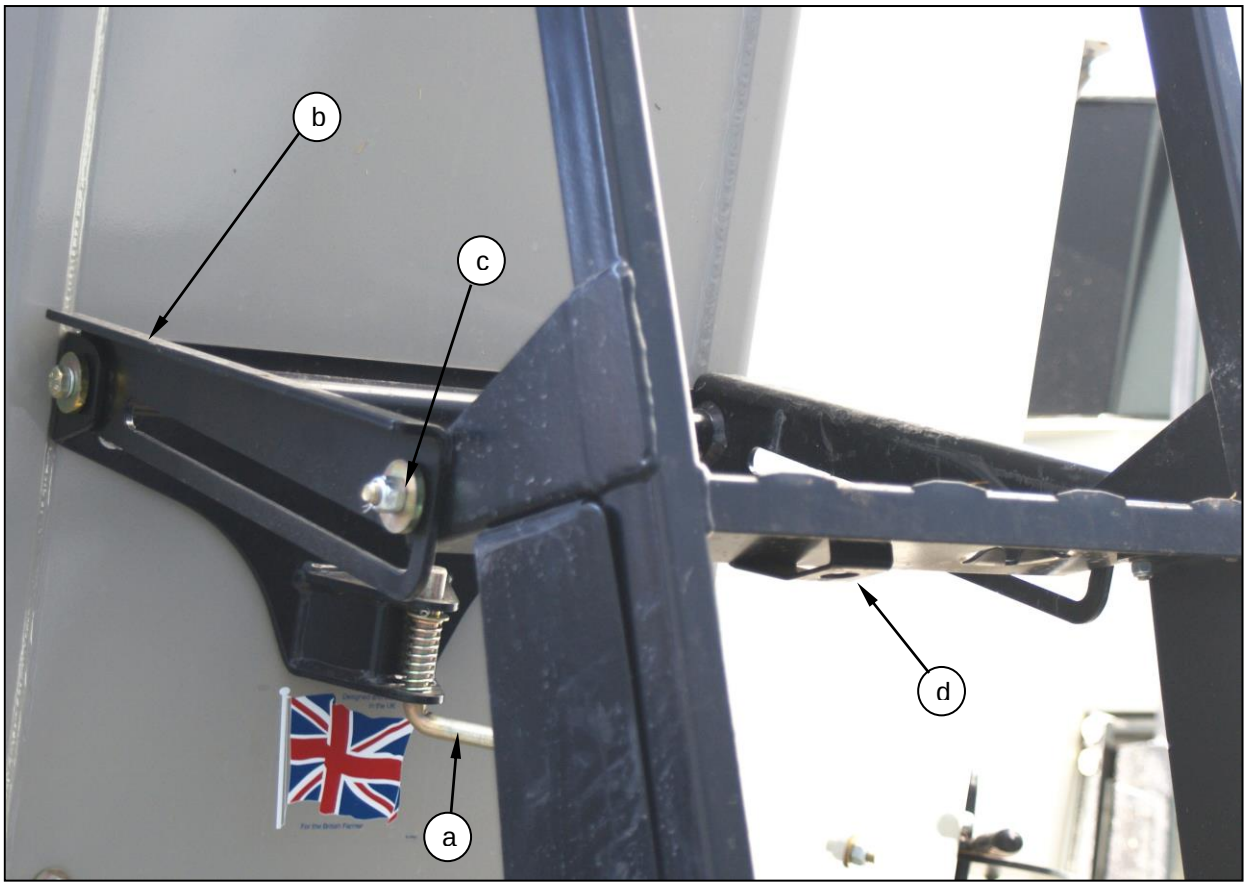
6.21 USING THE INSPECTION LADDER

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

The Powermix is equipped with a rear inspection ladder. The ladder is used to view the feed when deciding whether the mix has finished, or to tip small quantities of minerals into the machine.

Follow the below procedure when unfolding / folding the inspection ladder:

1. Ensure the machine has stopped and the tractor is secure with the handbrake applied. Ensure the side lights of the tractor are left on so the weighing equipment continues to operate.
2. Unlatch the ladder by pulling pin (a).
3. Pull the ladder towards you; lock the side supports (b) into position, by pushing them downwards until they locate into the top of the slot (c).
4. To fold the ladder lift the side supports (b) and push the ladder until the locking latch (d) securely locates onto pin (a).



Do not; under any circumstances enter the mixing chamber via the viewing platform.

Ensure the machine has stopped and has been made secure before viewing the mix or tipping minerals into the tub via the inspection ladder

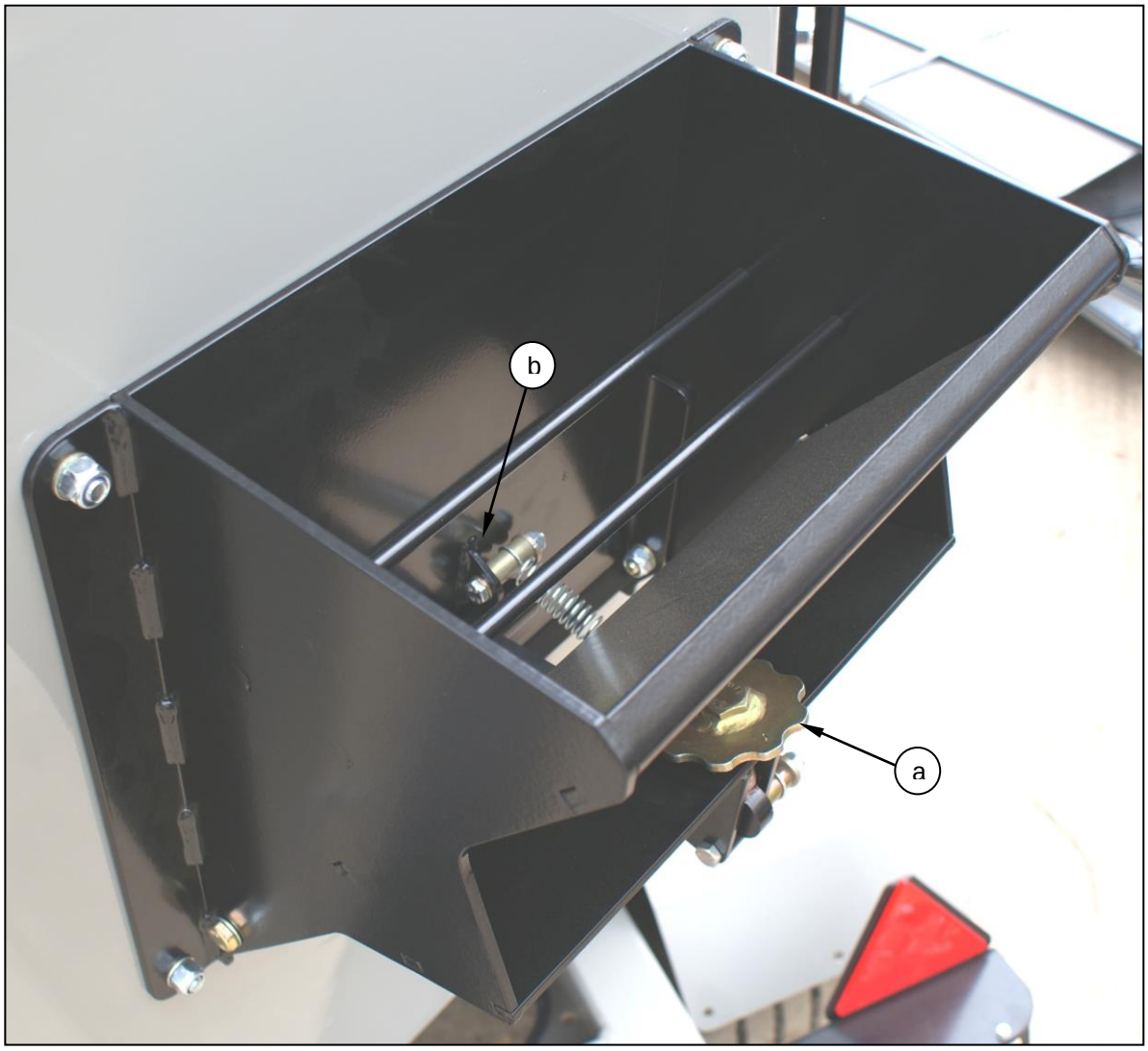
6.22 USING THE MINERAL CHUTE

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

As an option a mineral chute can be fitted to the RH rear of the machine. This is used to add small amount's of minerals or other fodder additives to the mixing chamber while standing on the ground.

Follow the below procedure when using the mineral chute:

1. Ensure the 'safe stop' procedure is followed.
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. Wind out the adjuster bolt (a) to open the access panel (b).
4. Pour the minerals / additives into the chute.
5. Once the minerals / additives have entered the mixing chamber, wind in adjuster bolt (a) until the access panel (b) is tightly closed.
6. Start the mixing auger/s and continue to mix until the ration is complete.

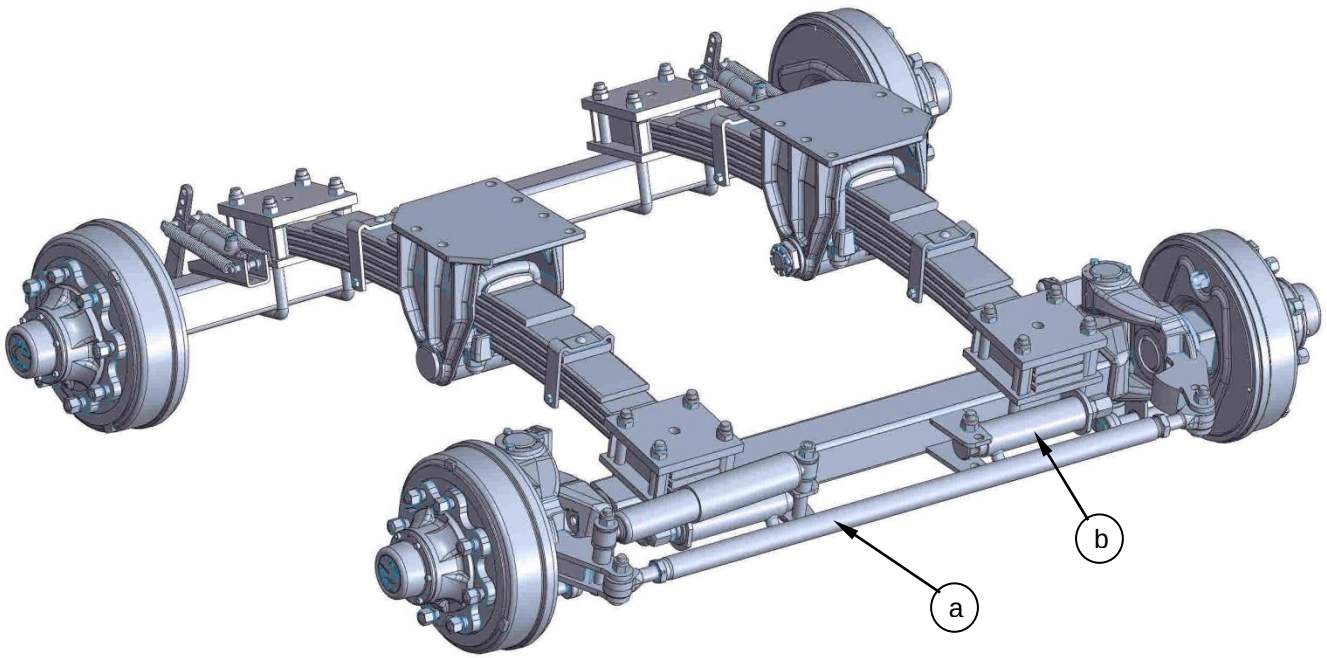


Ensure the machine has stopped before using the mineral chute

6.23 OPERATING THE BOGIE WITH A REAR STEERING AXLE (OPTION)

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

As an option on twin auger models, the tandem bogie may be specified with a rear steering axle. Steering axles have a suspended traverse with two spindles that can swivel about a kingpin. This can considerably reduce tyre wear, improve the manoeuvrability and significantly reduce the forces seen on the chassis and wheels if used correctly.
The wheel alignment is finely controlled by a tie rod (a), which is adjusted by turning the tie rod, which has a left-hand thread at one end and a right-hand thread at the other.
The articulation is operated hydraulically by one of the single acting hydraulic levers of the tractor.
When travelling forward the hydraulic lever of the tractor must be locked in a position to enable the oil from the locking cylinders (c) to return to tank. Alternatively if the steering axle is equipped with dual locking cylinder the central port must be connected to a free flow return line to the tractor.
When reversing, the locking cylinder/s must be activated to prevent the two rear wheels from steering, otherwise the two rear wheels will stand crosswise.



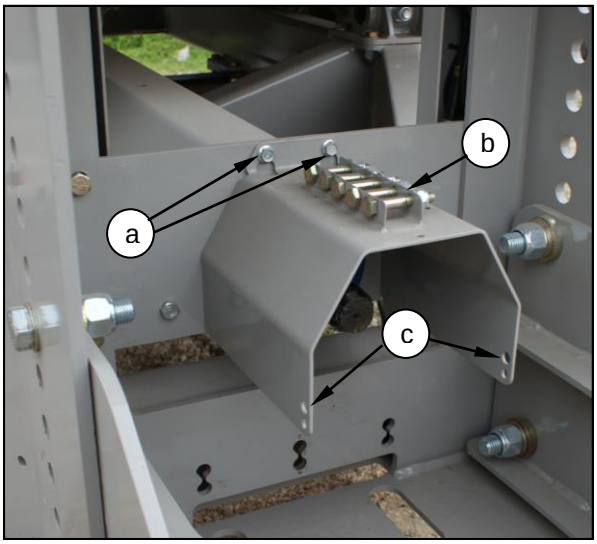
6.24 SHEARBOLT REPLACEMENT

Refer to section 2.7 – Accident prevention when operating the machine, for safety procedures.

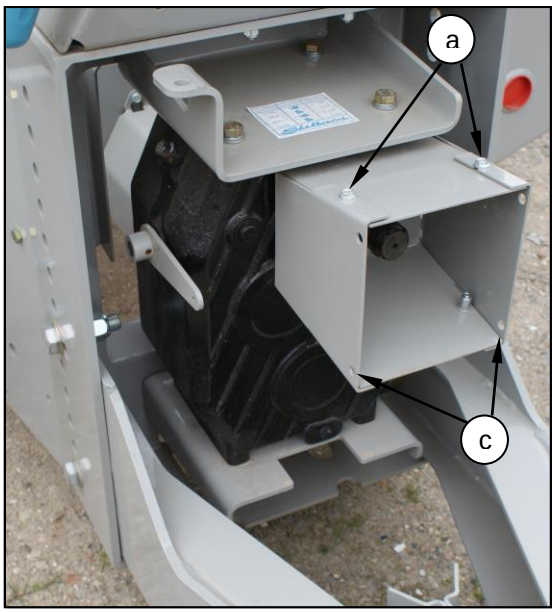
Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

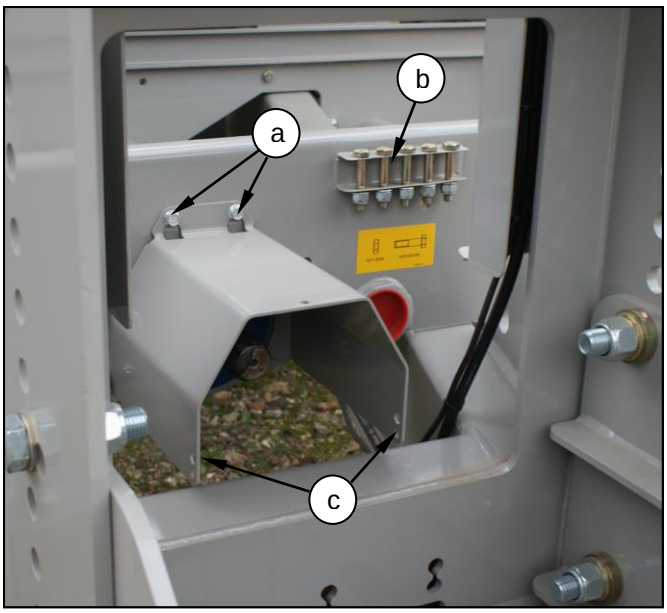
In the event of a drive overload the shear bolt in the PTO shaft will break and drive will cease. Should this occur, follow the below procedure:

1. Ensure the ‘safe stop’ procedure is followed.
2. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
3. Unhook the PTO shaft safety chain from the Powermix end of the PTO shaft.
4. Slacken bolts (a) and remove the PTO guard. Illustrated top right is the PTO guard on a side discharge machine with a single speed. Shown lower left is the PTO guard fitted to machines equipped with a 2-speed gearbox and depicted lower right is the PTO guard fitted to a front door machine with a single speed drive kit.
5. Remove the broken shearbolt, and replace the bolt with the appropriate size and grade. The shear bolt is located in the machine end of the PTO shaft. You will find spare bolts in the magazine (b), located on top of the PTO guard or on the conveyor-mounting frame. An emblem stating the correct shearbolt part number should be located next to the shearbolt magazine.
6. Replace the PTO guard and tighten bolts (a).
7. Attach the PTO shaft safety chain to hole (c) in the PTO guard.



<u>Shearbolt Part number (All models)</u>
BLTA10380 M10x60, Grade 8.8 shearbolt
NUT-0265 M10 Nyloc Nut





Ensure the ‘safe stop’ procedure is followed before changing the shearbolt.

.SECTION 7: MAINTENANCE AND STORAGE

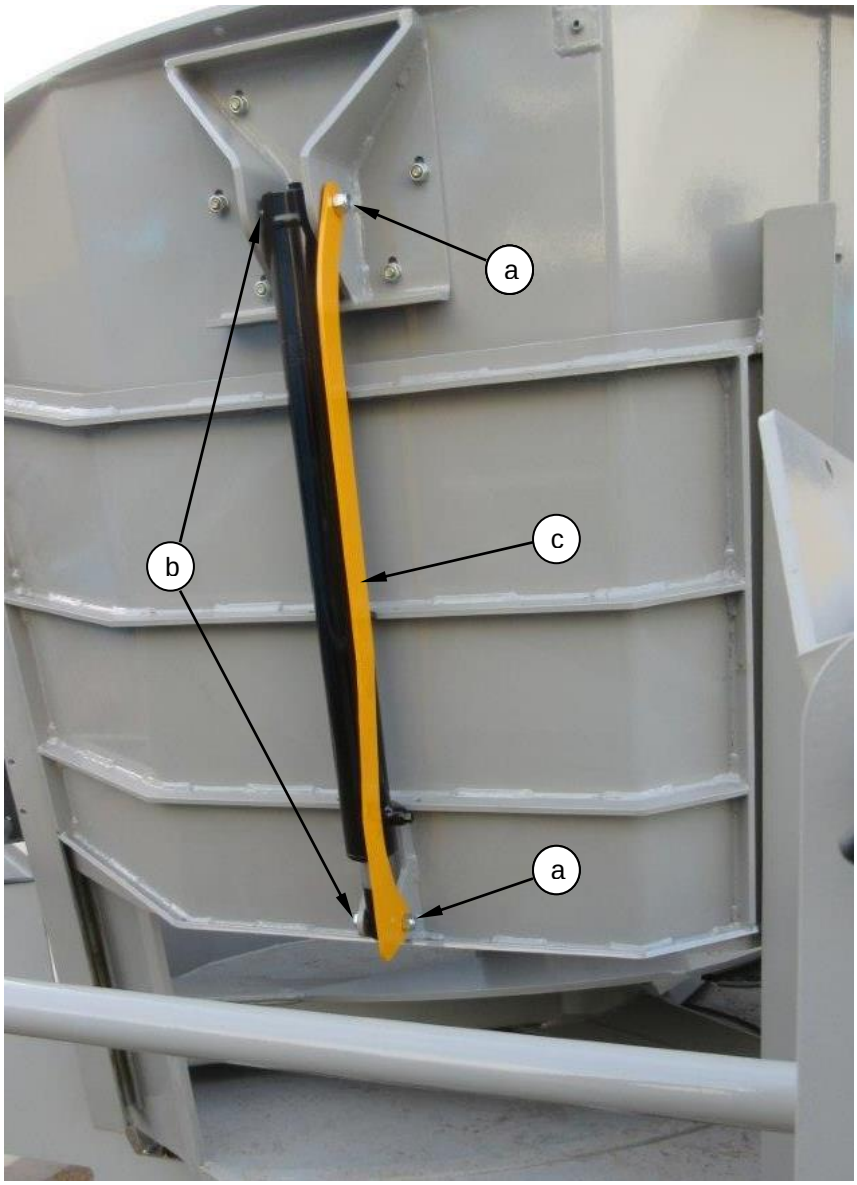
Refer to section 2 for safety procedures.

7.1 CONNECTING THE DOOR SAFETY STRAP

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Before entering the mixing chamber through the front door opening, the door safety strap must be fitted. This is to prevent the door from inadvertently dropping while you climb through the opening.
Follow the below procedure to connect the safety strap:

1. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
2. Ensure the Powermix is detached from the tractor with the door fully raised.
3. Remove nuts (a), but ensure bolts (b) are left in pace.
4. Fit safety strap (c) over bolts (b).
5. Replace nuts (a) and tighten.



7.2 REPLACING THE AUGER BLADES

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Refer to section 2.6 – Accident prevention when using the PTO shaft for safety procedures.

Refer to section 2.4 – Accident prevention when coupling & uncoupling to the tractor for safety procedures.

Refer to section 7.1 – Connecting the door safety strap

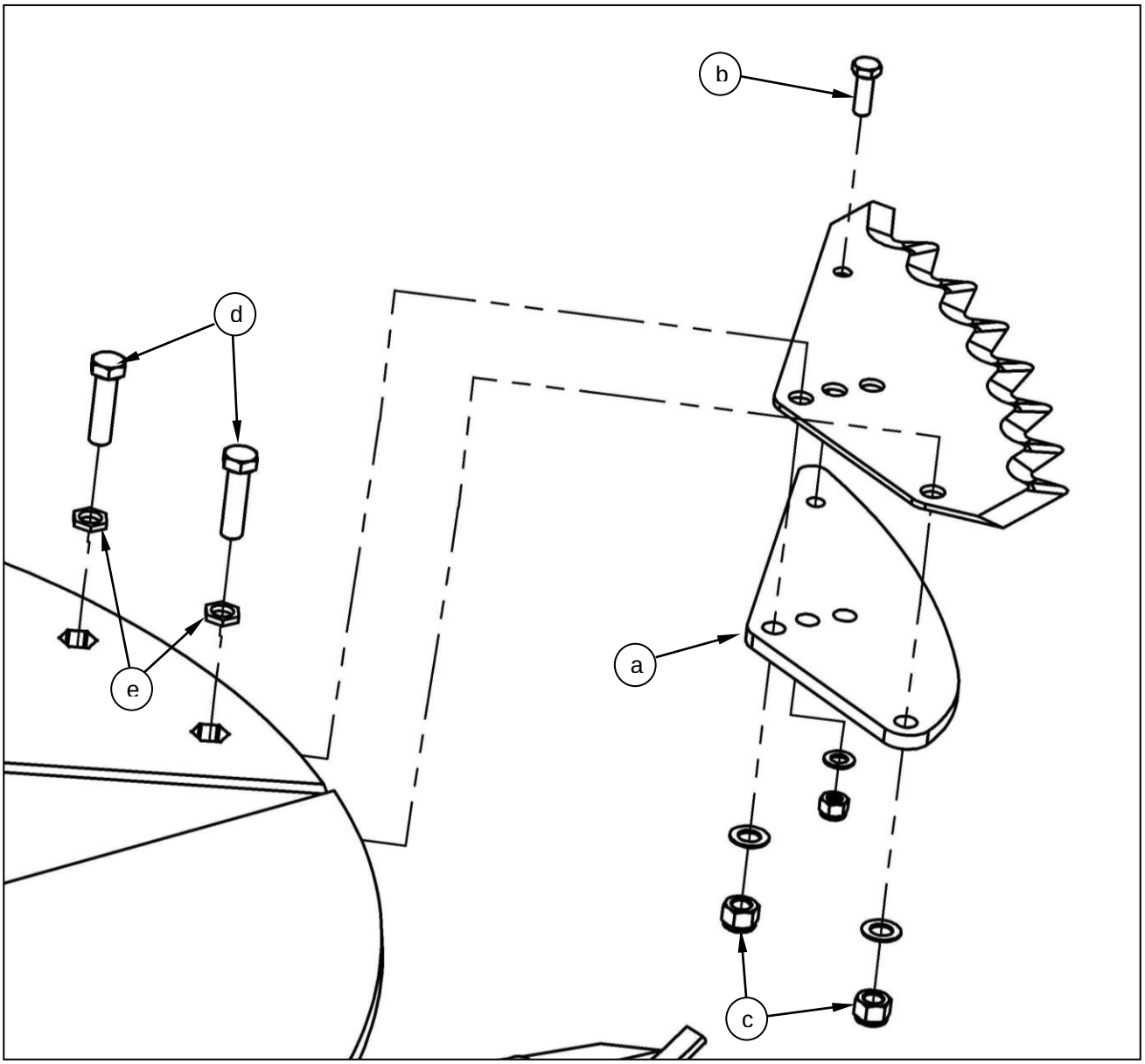
Due to the abrasive and corrosive nature of the material being mixed / chopped, it will be necessary to replace the auger blades after a period of operation. The longevity of the auger blades will depend on the materials being mixed or chopped, the make-up of the ration, and the usage of the machine. Check the condition of the auger blades once a week, by viewing them from the inspection ladder while the machine is empty. Operating the machine with sharp auger blades will increase the life of the machine as less wear will take place due to the quicker processing times.

Indications that the blades should be replaced are:

Noticeable increase in time required to chop and process forage
Noticeable increase in the power required to chop and mix, thus also increasing the tractors fuel consumption.
The feed out will become slower and more irregular.

Follow the below procedure when replacing the auger blades (illustrated opposite):

1. Secure the Powermix against rolling by applying the handbrake / positioning wheel chocks.
2. Ensure the Powermix is detached from the tractor with the door fully raised.
3. Attach the Feed door safety strap to prevent the door from inadvertently dropping.
4. Manually rotate the mixing auger via the PTO drive shaft, so that the auger blades are facing away from the door opening.
5. Ensure you are wearing suitable PPE. Enter the mixing chamber only via the door opening.
6. Inspect the auger back-up plate (a). If this is not worn or distorted it can be re-used.
7. Using a 19mm spanner remove bolt (b). This will release the blade from the back-up plate
8. With a 24mm spanner remove nuts (c). Carefully take the weight of the blade and back-up plate, as the nuts are unscrewed.
9. If fixing bolts (d) are to be replaced ensure the hexagon spacers (e) are positioned underneath the head of the new fixing bolts before re-fitting.
10. Fit the new auger blade at the correct angle (See section 5.11). Ensure the back-up plate is located underneath the blade.
11. Tighten the M16 nuts (c) to a torque of 225Nm, and tighten the M12 bolt (b) to a torque of 90Nm. It is recommended to coat the fixing bolts with an anti-seize compound prior to assembly to ease future maintenance.
12. After completing the work, leave the mixing chamber through the door opening. Ensure all foreign objects (tools etc.) are removed from the mixing chamber.
13. Finally, remove the safety strap before next operation.



There is a high risk of severe injury from falling onto the blades. Refer to section 2.11, ‘Accident prevention when servicing the machine’, before entering the machine, remember that the floor of the machine will be very slippery, Particularly if wet and or polished with use. Approach the task with caution.

Care must be taken when handling the blades. They are very sharp. Use protective gloves and be aware of the position of the other blades on the auger when standing in the mixing chamber.

7.3 CHECKING TYRE PRESSURES

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

To ensure maximum tyre life and performance, it is advisable to check the tyre pressures before initial use and regularly during use. If the machine has not been used for a long period, check the tyre pressures before putting the machine back into operation. Ensure there are dust caps on the valves.

The Powermix may be fitted with the following wheel & tyre assemblies:

Wheel & tyre kit number	Description	Pressure (Bar)	Pressure (psi)
KIT-03432	Goodyear 340/65R18 FS24	6	87
KIT-03544 & KIT-03544a	Bandenmarkt 305/55R22.5 Kargo-Radial TL	7	102
KIT-03629 & KIT-03607	Bandenmarkt 445/45R19.5 Kargo-Radial TL	9	130
KIT-03628	Bandenmarkt 18R22.5 Kargo-Radial TL	6	87
KIT-03672	Goodyear Marathon 435/50R19.5	9	130
KIT-03672a	Double Coin 435/50R19.5	9	130
KIT-03757 & KIT-03757a	Bandenmarkt 355/50R22.5	9	130
WHL-01919	Double Coin 385/55R19.5	9	130
KIT-03671 & KIT-03671a	Longmarch 385/55R22.5	9	130

IMPORTANT - When inflating tyres it is recommended to –

- Firstly inspect tyre and wheel for any cuts or damage, replace or get repaired if necessary.
- Use a clip on airline connector; do not use the type that requires the operator to hold in place on valve.
- Use an airline that allows the operator to stand at least 3 meters away from tyre.
- Use a calibrated pressure gauge.
- Stand to the side of the tyre, in line with the tread, do not stand facing the side wall of the tyre.
- Never lock on the pressure gauge, always manually activate gauge.
- Keep bystanders clear at all times while inflating.
- Wear appropriate PPE, safety shoes / clothing, glasses, gloves and ear defenders.
- Only inflate to the correct pressure for the size and ply rating stated, never over inflate.

7.4 TIGHTENING WHEEL NUTS

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Number of studs, stud size and nut type	Torque (Nm)	Torque (lb/ft)	Socket size
8 studs, M18 x 1.5mm pitch, “Bec” taper cone nut	270	200	29mm
10 studs, M22 x 1.5mm pitch, “Bec” taper cone nut	450	332	32mm

The wheel nuts must be tightened diagonally using the appropriate sized socket to the torque stated using a torque wrench.

It is recommended that wheel nuts should be checked / tightened :

- Before use at Pre Delivery Inspection stage.
- After the first use / laden journey.
- After the first day of use. Depending if the wheel nuts have become loose then repeat check / tighten daily until no loosening occurs.
- After the first week of use. Depending if the wheel nuts have become loose then repeat check / tighten weekly until no loosening occurs.
- Regularly during use onwards.

Repeat every time the wheels are changed or removed.

7.5 CHECKING THE AXLE HUBCAPS

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Check that the hubcaps are in place and in perfect condition.

Missing or damaged hubcaps must be replaced immediately, to avoid dirt penetrating into the hub, and consequently damaging the wheel bearings.

For press fit hubcaps, check visually that they are fully home.
For hubcaps attached using screws, fit a new gasket if the hubcap is removed, and tighten the screws regularly (Every 3 months).

7.6 CHECKING THE WHEEL BEARINGS

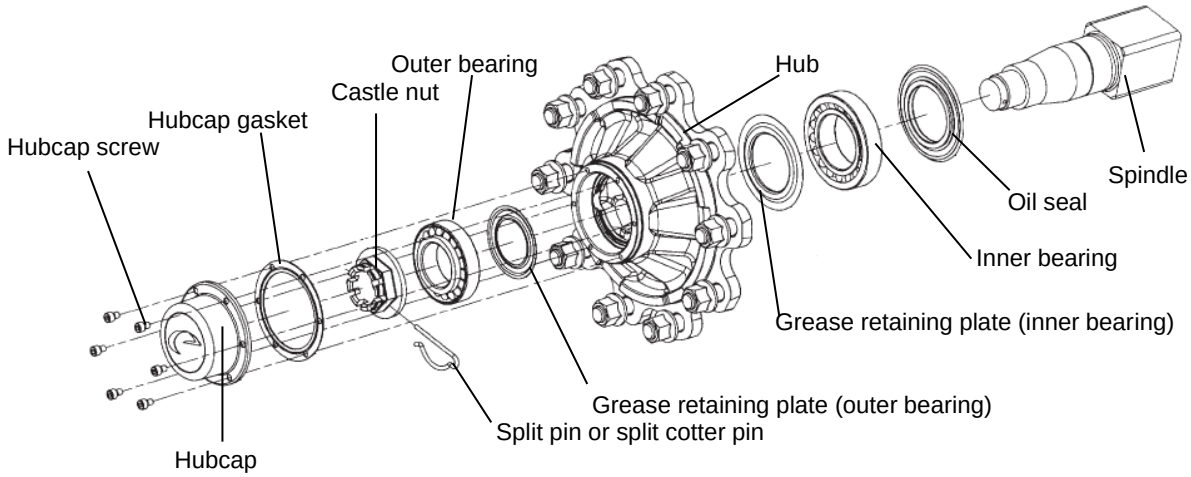
Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Wheel bearings are subject to wear; their lifetime depends on the operating conditions, the load, the speed, the adjustment and lubrication.

They should be checked after the first 1000km, before intensive use or every 3 months or 5,000km.

Checking the play in the wheel bearings:

- Raise the axle until the wheel is no longer resting on the ground.
- Release the brake, and grip the wheel at the top and the bottom, and check the play by trying to tilt it.
- If you can feel any play, adjust the wheel bearing, as described below



1. Remove the hubcap.
2. Remove the cotter pin or hairpin clip from the spindle.
3. Tighten the castle nut (Right hand thread) to take up the internal play, (the spherical roller bearings should then be firmly held between the hub seating , the pressure ring spindle and castle nut
4. The rotation of the hub should feel to be slightly stiff, slacken the castle nut until there is no friction between the castle nut and the outer bearing, and the hole for the pin is aligned with a notch in the castle nut.
5. Tap the hub gently using a mallet to shake down the assembly.
6. Check that the hub rotates more freely, it is best to be too free rather than too tight.
7. When the hub has been adjusted, fit a new split cotter pin.
8. Refit the Hubcap, and tighten the hubcap screws.
9. When the wheel has been re-fitted, turn it slightly. It should come to rest with a slow rocking movement due to the imbalance

Checking if the wheel bearings are damaged or worn:

- Lift the wheel of the ground.
- Turn in both directions slowly to check for any rough points or friction.
- Turn it at high speed to check for unusual noises, such as grating or knocking.

If the bearing is damaged or worn, please consult your dealer.

Lubricating the wheel bearings

In normal operating conditions, lubricate the bearings every 2 years or every 40,000km, or when the brake shoes are replaced.

The axle hubs will need to be disassembled in order to lubricate the wheel bearings, this work should be carried out in a clean environment with appropriate tools as the slightest bit of dirt can damage the bearings or even the spindle.

When carrying out maintenance on the bearings, check the brake linings, drum & return springs.

If in doubt please consult your dealer to carry out this work.

7.7 CHECKING BRAKE CLEARANCE & WEAR

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Check and test the brakes before intensive use and every 3 months.

Lining inspection hole

Check the brake wear, and the clearance between the brake linings and the drum visually, by looking through the lining inspection hole.
It is probable that the linings are worn when the hydraulic cylinder travel has increased significantly.

The minimum lining thickness of the brake shoe should be 2mm.

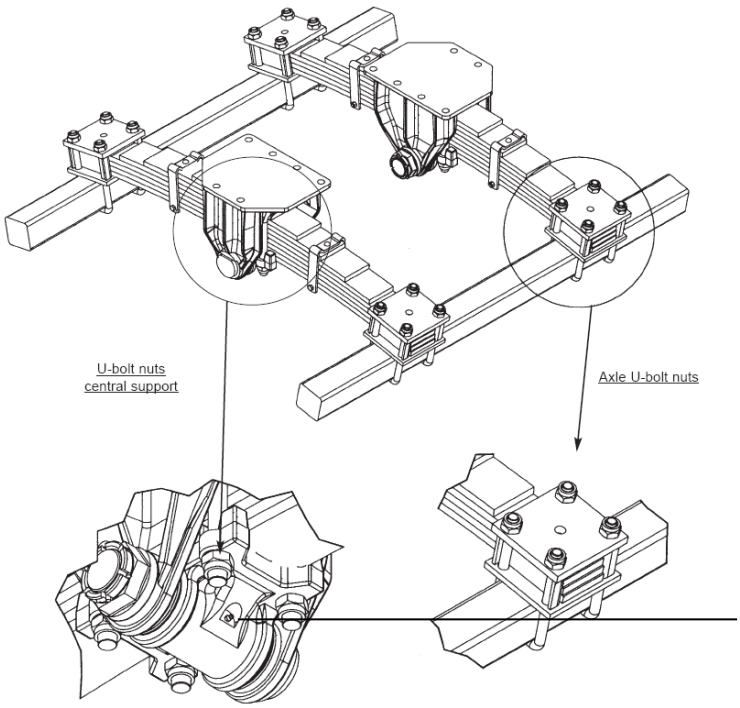
When replacing the brake shoes, always repack the bearings with grease.
If in doubt please consult your dealer to carry out this work.

Adjusting the brake levers.

The brake levers may need adjusting when the brake shoes begin to wear. This is done by taking up the slack when the hydraulic brake cylinder reaches about two thirds of its maximum travel. To take up the slack, turn the brake-operating lever by one or more splines, ensuring that the brakes are not touching when released.
The brake operating levers contain several holes. Always mount the hydraulic cylinder and the handbrake cable in the original holes, as this will affect the machines braking efficiency.

7.8 BOGIE SUSPENSION MAINTENANCE

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.



After the first laden journey, before intensive use, or every 3 months please ensure that you:

Check and tighten the central support U-bolt nuts to 590Nm (Dia 27mm U-bolt).

Check and tighten the axle U-bolt nuts to 445Nm
(Dia 22mm U-bolt).

Check the bolts that fix the Bogie to the chassis. They should be tightened to 435Nm. (M20)

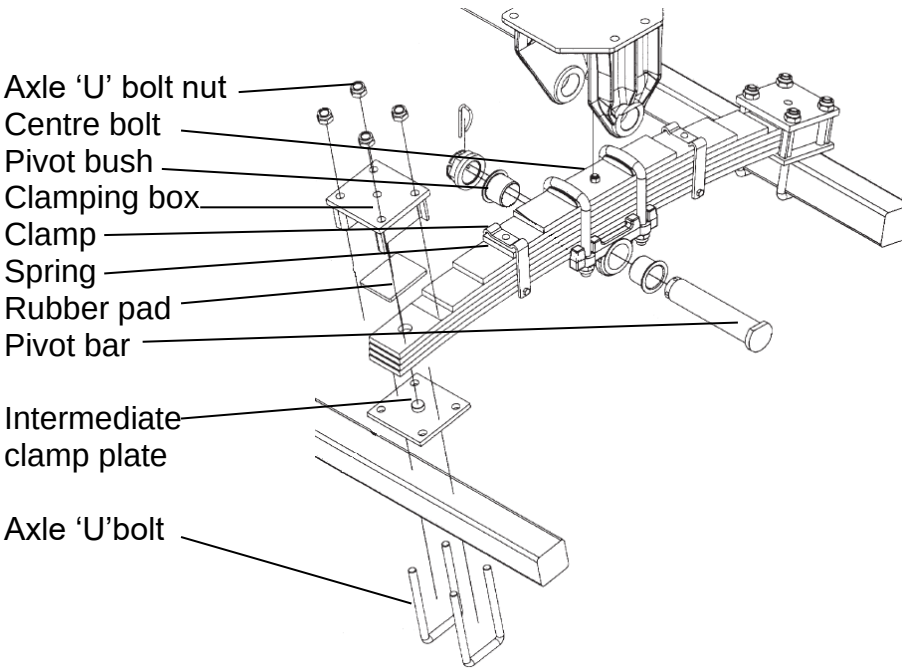
Lubricate the pivot trunnion of the bogie every 3 months.

Yearly maintenance checks should include:

Check the play between the bushes and the pivot bars. If there is excessive play, replace the worn parts

Check the general condition of the springs – Clean them thoroughly and brush the sides of the springs to check for cracks.

If there is any play between the spring and the axle, check the whole of the clamping system.



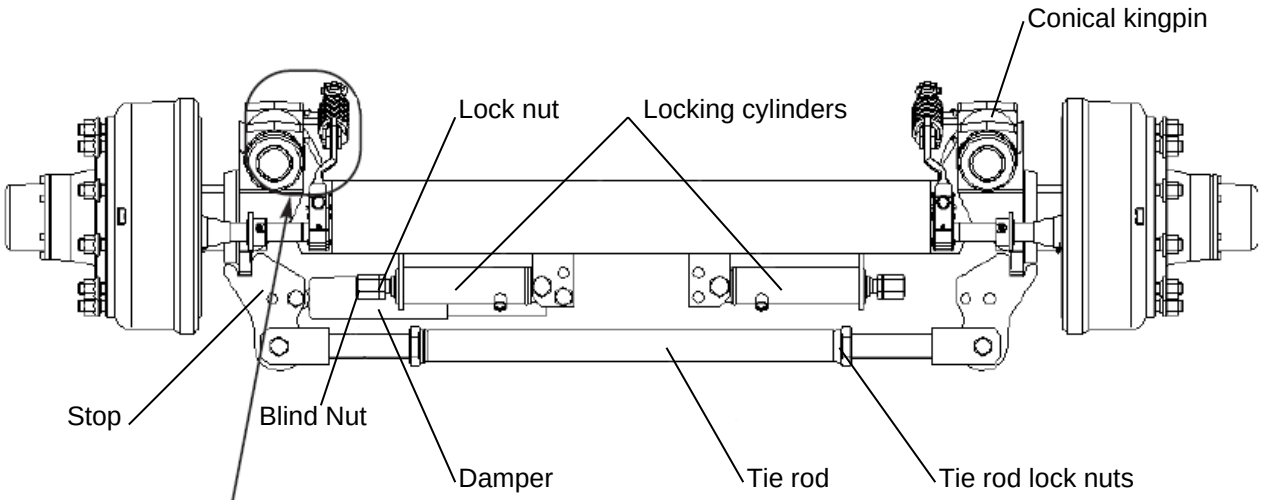
7.9 STEERING AXLE MAINTENANCE AND ADJUSTMENT

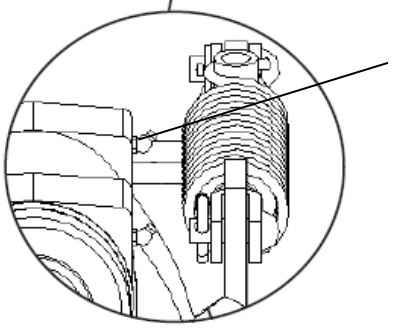
Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

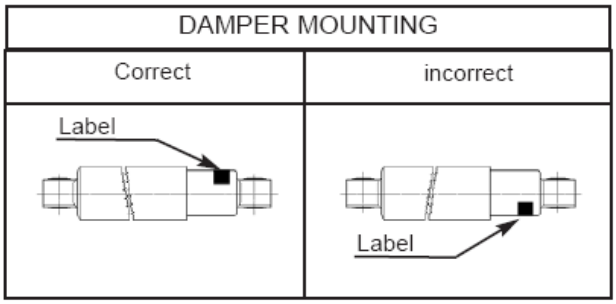
Steering axles should be maintained in the same way as standard axles (See sections 7.4 – 7.8), as well as carrying out the further points as described below:

Before intensive use and every 3 months:

- Lubricate the Kingpins
- Tighten the screws and nuts and all parts mounted on the axle (chambers, cylinders and mountings, locking cylinders, damper and tie rod etc).
- Tighten the blind nut and lock nut on the locking cylinders.
- Ensure the locking cylinders are kept clean, in particular the surface of the cylinder rod, if the seals are leaking they can be replaced – Please consult your dealer.
- Tighten the lock nuts at the end of the tie rod.
- Check the Damper and change if necessary, Ensure the damper is correctly mounted, it should have the label at the top as shown below.
- Check that the tie rod has not been accidentally bent, as this will adversely effect the steered axle, in particular the wheel alignment.
- Check the full lock angle stop screws. (shown on page 89)
- Check the clearance of the conical kingpins.







Check & adjusting the wheel alignment

Align the wheels with the vehicle on a smooth, level surface.
The wheel alignment must be adjusted with the locking cylinder pistons retracted.
Measure the distance between the wheel rims at the front of the rims, and at the back of the rims: The distance should be the same
Move the vehicles forward, so the wheels turn through 180 degrees, and repeat the check, to allow for distorted wheels.

If the wheel alignment is not perfect, adjust it as follows:

- With the locking cylinders pistons retracted, slacken the 2 tie rod lock nuts.
- Turn the tie rod to pull or push the wheels until the distances are the same.
- Lock the tie rod lock nuts when the tie rod has been adjusted, and then adjust the locking cylinders.

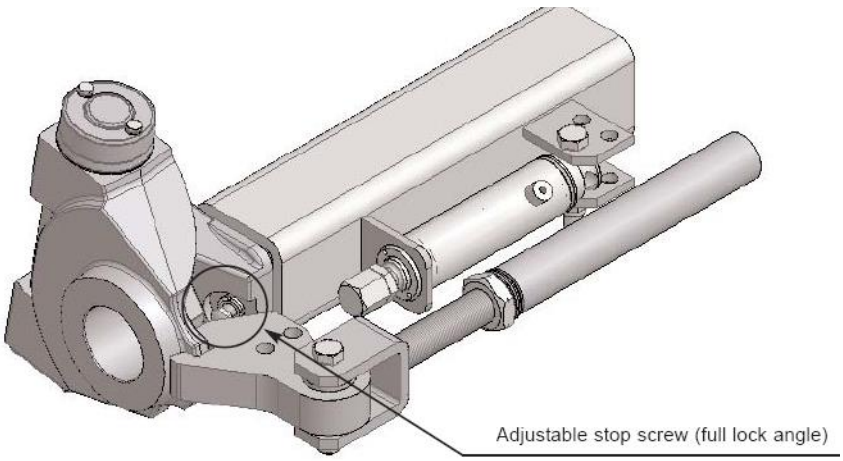
Adjusting the locking cylinders

The locking cylinders centralise the wheels and hold them straight while reversing.
Adjust the locking cylinders after aligning the wheels.

- Firstly move the lock & blind nuts of the locking cylinders, as close to the body of the cylinders as possible.
- Without operating the lock rams, align the steered axle and the vehicle on a smooth, level surface.
- Pressurise the rams and maintain the pressure.
- Screw the blind nuts until they contact the stops, without forcing.
- Turn the lock nuts up against the blind nuts, and tighten.
- Check that the wheels are still aligned.

Adjusting the full lock angle

Adjust the full-lock stop screws to limit the axle full-lock angle when fitting wide tyres.
Check the full-lock angle regularly by turning fully to the right and to the left and checking that the tyres do not touch the chassis or suspension, as this might wear or damage the tyres.
Adjust the full-lock stop screws as required.
Tighten the lock nuts.



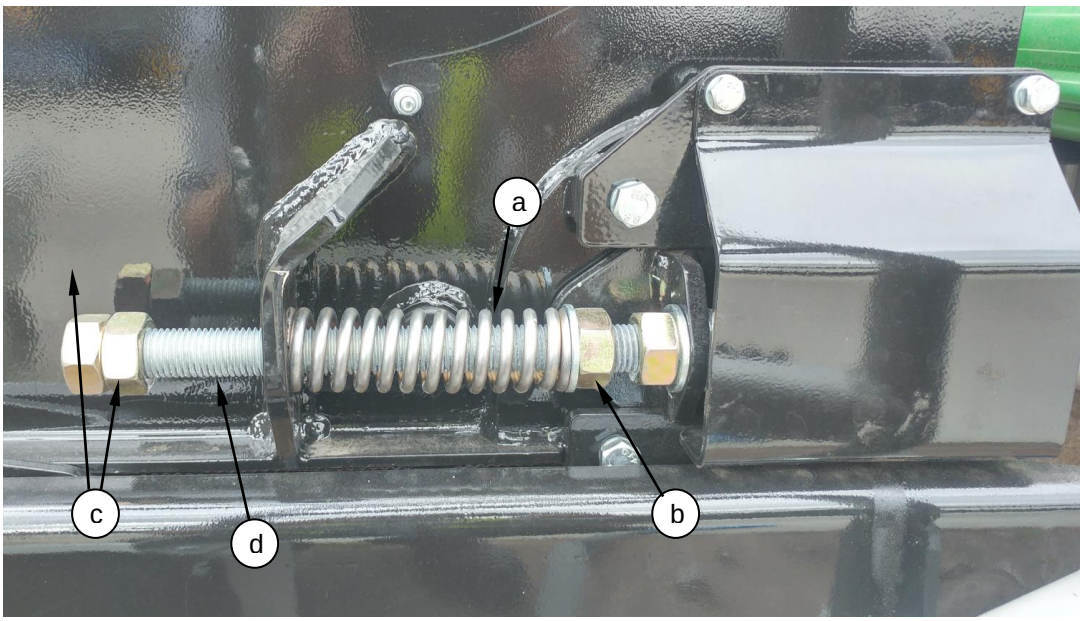
7.10 FRONT WEBBING CONVEYOR MAINTENANCE

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

It is important to keep the belt tensioned correctly to ensure the belt runs smoothly and to ensure the belts longevity.

To tension the conveyor belt follow the below procedure:

1. Ensure the ‘safe stop’ procedure is followed.
2. Secure the Powermix from moving by applying the handbrake / positioning wheel chocks
3. The tensioning of the conveyor belt is aided by two springs (a), positioned on each side of the LH conveyor frame. Wind the nut (b) to compress the springs to 100mm long to ensure the correct tension force is placed on the conveyor belt. It is important that both springs are compressed the same amount to guarantee that the correct force is evenly applied to the conveyor belt.
4. Ensure the 2 off plain nuts (c) are positioned at the end of the tensioning setscrew (d) to enable the idle shaft to float.
5. Check the length of the springs weekly. As the conveyor belt stretches the springs will extend. Compress the length of the springs to 100mm if required to maintain the correct tension force.



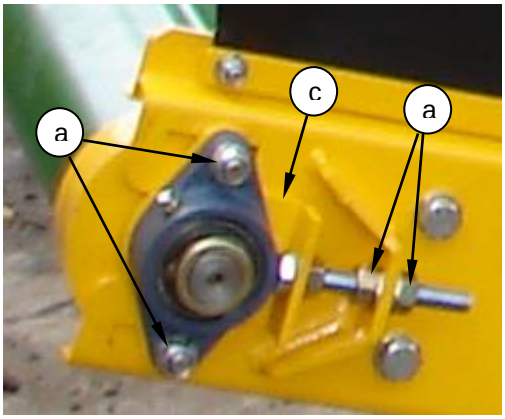
It is important to regularly clean the conveyor system to prevent a build up of material, and subsequent contamination.
Ensure the conveyors roller bearings, and rubber support rollers are regularly greased, as they are working in a very high contamination environment.

Ensure the ‘safe stop’ procedure is followed before tensioning the conveyor belt.

7.11 1m SIDE CONVEYOR MAINTENANCE

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

As with any conveyor belt it is important that the belt is tensioned correctly to ensure smooth running and central tracking.



With the belt slack mark 2 lines 500mm apart on the topside of the belt, along each edge. Tension the belt until the 2 lines have stretched from 500mm to 503mm apart.

Tension the belt, by simply slackening the two nyloc nuts (a) that affix the bearings.
Use the plain nuts (b) on the adjustment screw to move the tension plate / bearing (c)

The belt is equipped with a tracking guide, positioned centrally around the inside of the conveyor belt. The tracking guide runs inside a trough, which is built into the conveyor pan. The tracking guide is designed to help the conveyor belt run centrally within the conveyor frame.
To prolong the life of the belt it is important that the tracking guide does not continuously rub against the trough in the conveyor pan. If this is the case, extra tension must be added to one side of the belt until the belt travels to the centre of the frame. Note that the belt will move to the side with the lowest tension, and only minimal adjustment is required to move the belt.

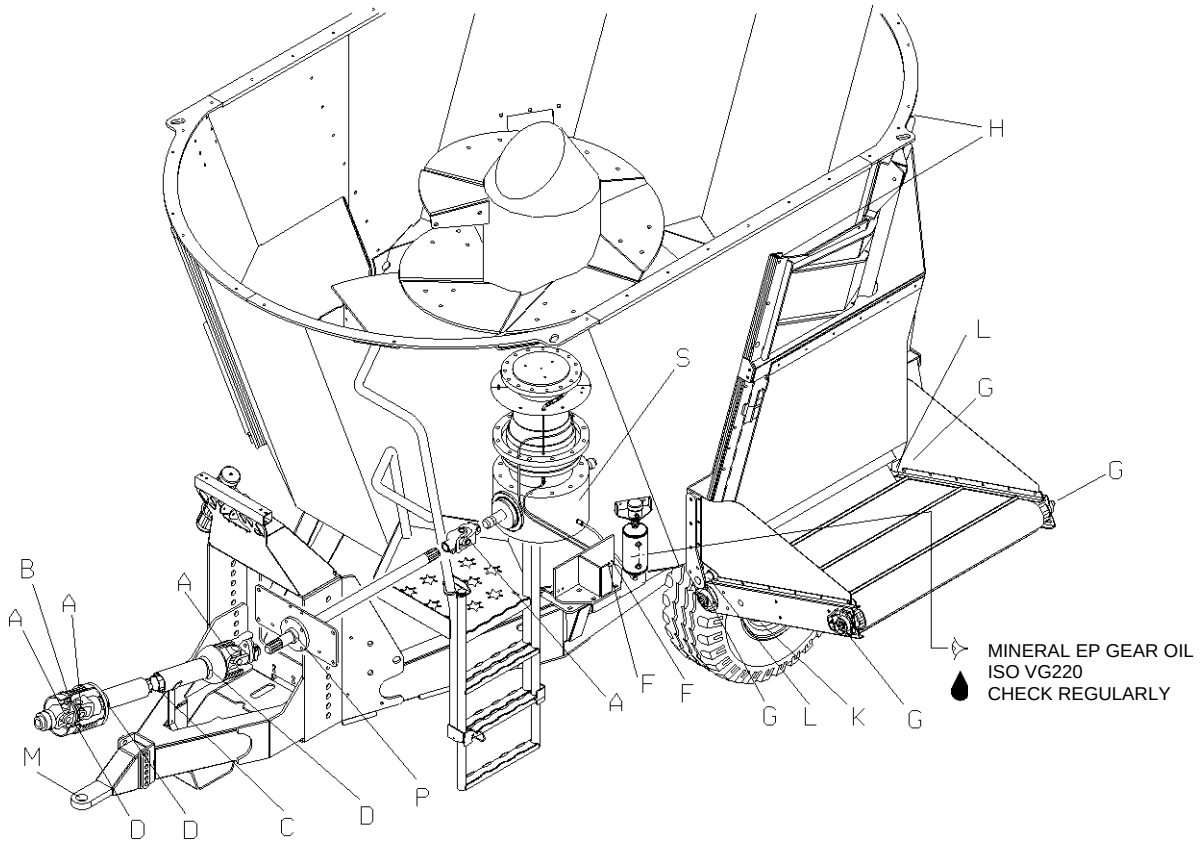
It is important to regularly clean the conveyor system to prevent a build up of material, and subsequent contamination. Pay particular attention to material building up inside the belt. Fixed to the underside of the conveyor pan is a rubber scraper, which acts like a plough to direct material towards the outside of the belt, from there the material can be removed.

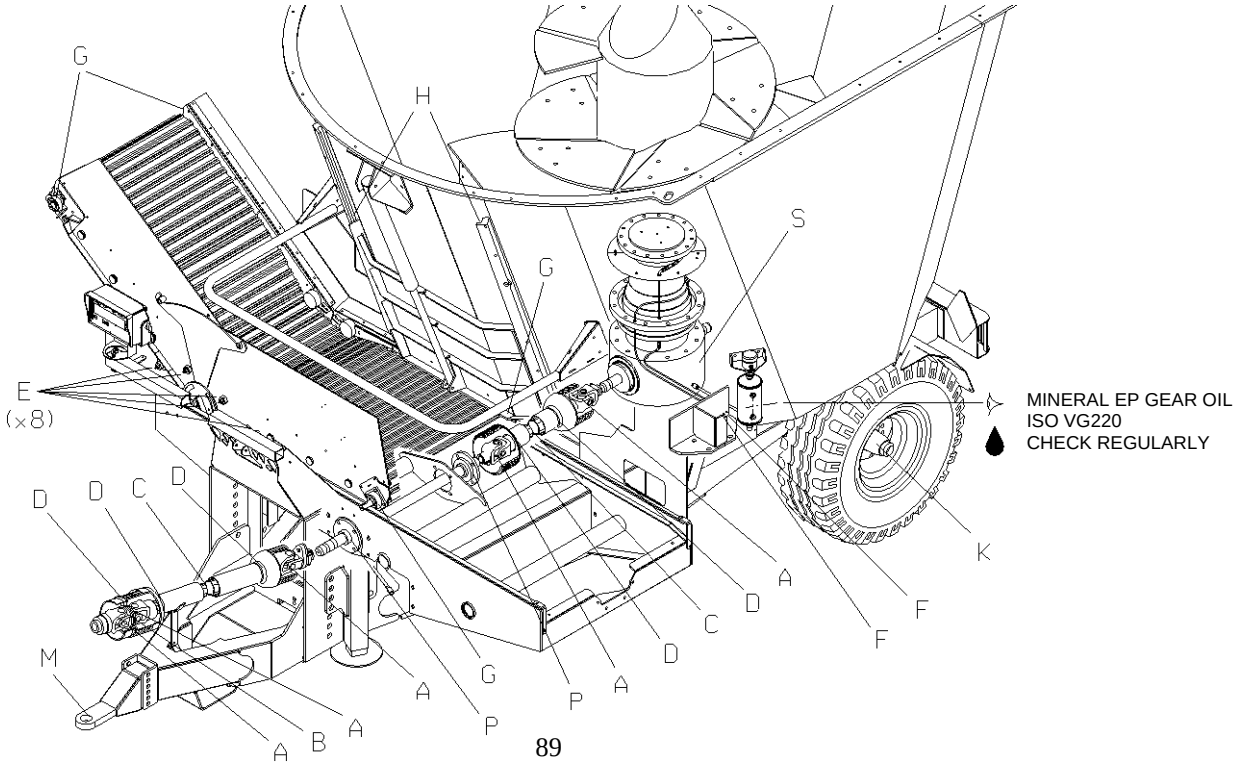
Ensure the conveyors roller bearings, and pivot bushes are regularly greased (See section 7.12 – greasing schedule), as they are working in a very high contamination environment

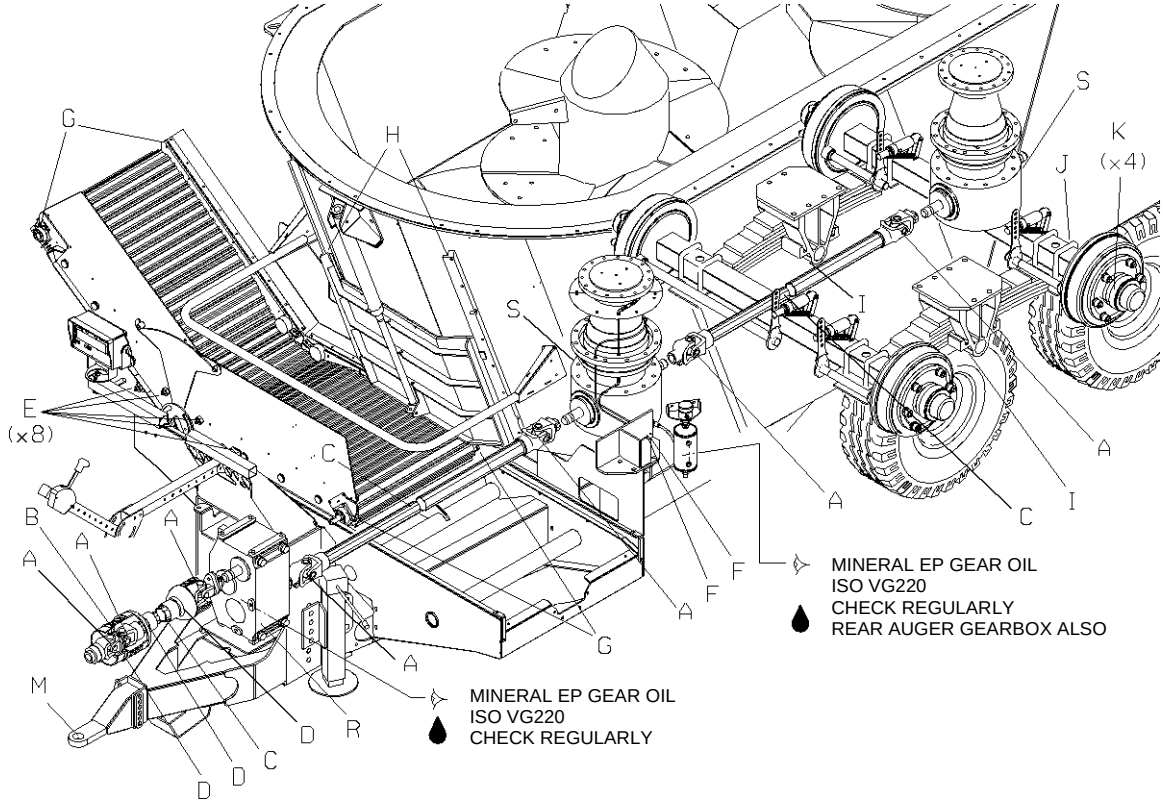
7.12 GREASING SCHEDULE

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

Ensure the machine has been greased as recommended in this section. Greasing the sliding tubes of the PTO shafts is particularly important & is often neglected due to their inaccessibility. If the profile tubes are not greased regularly it will result in high axial forces, which in time will damage the profile tubes, and also connecting shafts & gearboxes.







Recommended grease: Good quality Universal grease

Lubrication Chart:

LOCATION	DESCRIPTION	SCHEDULE
A	CROSS BEARINGS IN PTO SHAFT	GREASE AFTER EVERY **25 HOURS OR WEEKLY**
B	DOUBLE YOKE IN WIDE ANGLE SHAFT	GREASE AFTER EVERY **25 HOURS OR WEEKLY**
C	PROFILE TUBE IN PTO SHAFT	GREASE AFTER EVERY **25 HOURS OR WEEKLY**
E	FRONT CONVEYOR SUPPORT ROLLERS	GREASE AFTER EVERY **25 HOURS OR WEEKLY**
G	CONVEYOR ROLLER BEARINGS	GREASE AFTER EVERY **25 HOURS OR WEEKLY**
P	INPUT SHAFT SUPPORT BEARINGS	GREASE AFTER EVERY **50 HOURS OR FORTNIGHTLY**
H	DOOR SIDE RUNNERS	GREASE AFTER EVERY **100 HOURS OR MONTHLY**
L	PIVOT BUSHES ON SIDE CONVEYOR	GREASE AFTER EVERY **100 HOURS OR MONTHLY**
D	GREASE NIPPLE IN PTO GUARD TUBE	GREASE AFTER EVERY **100 HOURS OR MONTHLY**
J	KINGPINS ON STEERING AXLE	GREASE AFTER EVERY **300 HOURS OR 3 MONTHLY**
I	PIVOT BAR ON BOGIE	GREASE AFTER EVERY **300 HOURS OR 3 MONTHLY**
M	TOWING EYE	GREASE AFTER EVERY **300 HOURS OR 3 MONTHLY**
F	PLANETARY GEARBOX BEARINGS	GREASE AFTER EVERY **600 HOURS OR 6 MONTHLY**
K	WHEEL BEARING	GREASE AFTER EVERY **2 YEARS OR 40,000km**
R	2-SPEED GEARBOX	OIL CHANGE AFTER **1200 HOURS OR ONCE A YEAR**
S	PLANETARY GEARBOX	OIL CHANGE AFTER **1200 HOURS OR ONCE A YEAR**

7.13 GEARBOX OIL CHANGES

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

At the heart of the Powermix pro is a planetary gearbox, used to transmit the torque to the mixing auger. As with any gearbox it is important to change the oil in accordance to the manufactures recommendations to ensure efficient running and long life.
Fitted to the front of all Twin auger machines, and as an option on single auger machines is a 2-speed gearbox, the oil in this gearbox should also be changed as recommended below:

The gearboxes are filled with oil from the factory, however you should check that oil is present before operating the machine.

- The first oil change should be done after **100 working hours.**
- Subsequent oil changes should take place after **1200 hours** or at least once a year.
- In order to avoid sludge deposits, change the oil whilst the gear unit is still warm.
- Clean all plugs.
- For an effective oil change, the units should be flushed through with a liquid detergent recommended by the lubricant supplier.
- Check periodically for oil leaks and the oil level while the unit is idling. If needed top up the unit with the same type of oil.

Attention: If the quantity of oil used during topping up is greater than 10% of the oil capacity then again check for leaks.

LUBRICANT SPECIFICATION:

Use mineral EP gear oil, grade ISO VG220.
(Shelbourne Reynolds Part No – OIL-0075)

Brands of recommended gear oil are:
Mobil Spartan EP series 220
Lodexol Industrial gear oil 220
Fuchs Renolin CLP 220

OIL QUANTITIES

Planetary gearbox (GEA-0177 & GEA-0197 Comer)	19 Litres per unit
Planetary gearbox (GEA-0195 Brevini)	20 Litres per unit
2-speed gearbox (GEA-0164 or GEA-0176)	9 Litres

PLANETARY GEARBOX

The planetary gearbox should be topped up via the expansion tank located on the side wall of the hopper, shown left.
The level of the oil should sit mid-way up the oil level gauge when the oil is cold. The oil level will rise a fall during operation and is dependent on the heat of the oil.

CHANGING THE OIL IN THE PLANETARY GEARBOX'S

- The first oil change should be done after **100 working hours.**
- Subsequent oil changes should take place after **1000 hours** or at least once a year.
- In order to avoid sludge deposits, change the oil whilst the gear unit is still warm.
- Clean all magnetic plugs.
- Check regularly for oil leaks. If needed top up the unit with the same type of oil. Rectify oil leaks immediately.

Attention: If the quantity of oil used during topping up is greater than 2L check for leaks and rectify problem before starting the machine.

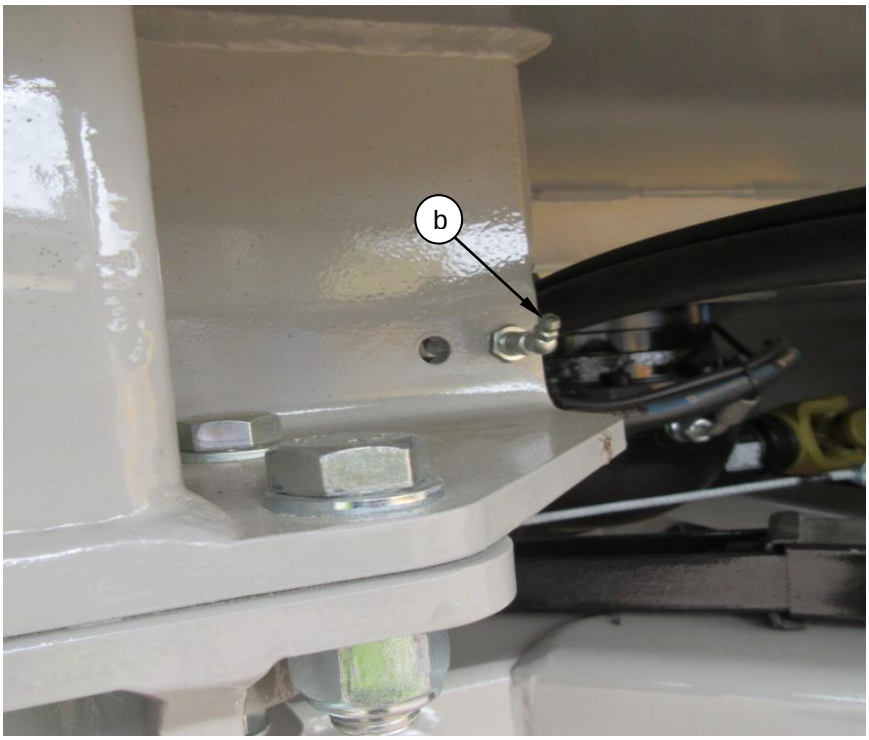
Follow the below procedure when changing the oil:

1. Follow the 'Safe Stop' procedure.
2. Remove the drain / magnetic plug (a) and drain the oil into a container 25L container.
3. Remove the filler / breather cap from the oil expansion tank.
4. Disconnect the filler hose from the expansion tank and drain the remaining oil from the expansion tank and hose into the same 25L container.
5. Clean the drain / magnetic plug (a) thoroughly & then re-connect. This is important to keep the oil clean.
6. Fill the gearbox by connecting the filler hose (which was previously removed from the bottom of the oil expansion tank) to a minimum pressure oil pump. (Maximum 20psi**).** Pump 19 litres of oil into the gearbox.
7. Raise the end of the filler hose to a height level with the middle of the expansion tank. Disconnect the hose from the pump and re-connect it to the expansion tank.
8. Top up the oil by pouring 1L into the expansion tank. Let the oil levels settle and add more oil until the correct oil level is reached.
9. Replace the Filler / breather cap.

The planetary gearbox contains 2 taper roller bearings. These are positioned in the housing above the oil level of the gearbox. Although the bearings are sealed and pre-packed with long life grease, a small amount of long life grease should be applied every 600 hours (or twice a year).

It is important not to over-lubricate the bearings.

The grease nipple (b) to grease the gearbox bearings are mounted next to the loadcell mounts.



2-SPEED GEARBOX

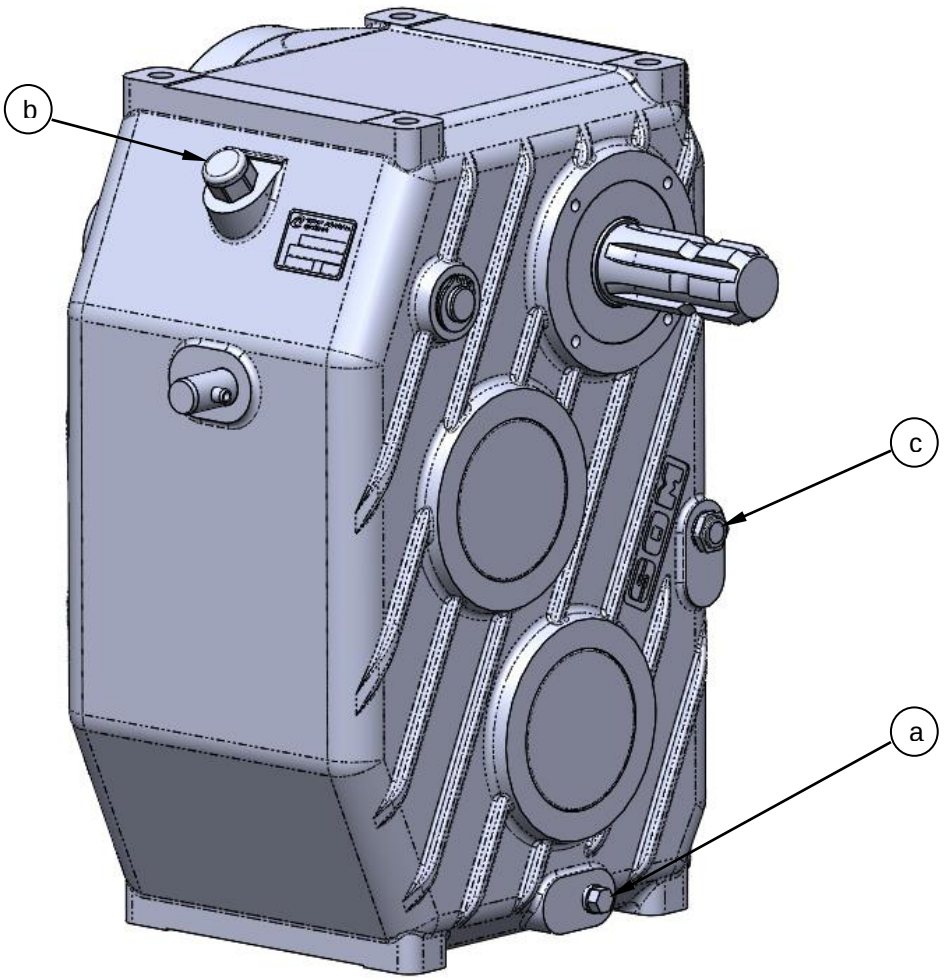
CHANGING THE OIL IN THE PLANETARY GEARBOX'S

- The first oil change should be done after **100 working hours.**
- Subsequent oil changes should take place after **1000 hours** or at least once a year.
- In order to avoid sludge deposits, change the oil whilst the gear unit is still warm.
- Check regularly for oil leaks. If needed top up the unit with the same type of oil. Rectify oil leaks immediately.

Attention: If the quantity of oil used during topping up is greater than 2L check for leaks and rectify problem before starting the machine.

Follow the below procedure when changing the oil:

1. Follow the 'Safe Stop' procedure.
2. Remove the drain plug (a) and drain the oil into a 10L container.
3. Clean the drain plug (a) thoroughly & then carefully re-connect.
4. Remove the filler plug (b) and using a funnel, pour 9L of oil into the gearbox.
5. Re-connect the filler plug (b).
6. Check the oil level in the sight plug (c). Top up with oil if required.



7.14 STORAGE & CLEANING

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

If the machine is to be kept outside, it should be parked with the door open to prevent water sitting in the bottom of the tub, and to prevent the doors hydraulic cylinder from rusting.

If the machine is to be stored clean the machine thoroughly, and apply rust inhibitor or oil to all wearing surfaces.

Do not under any circumstances use a high pressure cleaner near the weigh cells and digital readout.

7.15 WELDING REPAIRS

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

When welding, never let the current run through the weigh cells.
This can be prevented by removing the loadcell cables from the junction box located inside the parking station positioned at the front of the machine.

Always ensure the earth connection of the welding device is positioned next to the place of welding.

7.16 RECOMMENDED PERIODIC MAINTENANCE

Refer to section 2.11 – Accident prevention when servicing or working on the machine for safety procedures.

DAILY

Visual check for any signs of damage / loose items, road lights not working, tyres flat, or wheel nuts loose, rectify if required.

WEEKLY

Grease the PTO cross bearing joints.

Grease the PTO shaft sliding profiles.

Check belt tracking on front web type conveyor, or side conveyor, re-track if necessary, clean thoroughly.

FORTNIGHTLY

Grease front web conveyor support rollers

Grease conveyors cast roller bearings

Grease input shaft support bearing (single auger only)

MONTHLY

Check tyre pressures.

Check wheel nuts.

Lubricate door runners.

Lubricate pivot bushes on side conveyor

Grease the PTO guard tube.

Check the oil level in the planetary gearbox expansion tank/s, and replenish if required.

Remove the level plug from the 2-speed gearbox, check the oil level, and replenish if required.

EVERY 3 MONTHS

Check that the axle hubcaps are in position & in good order.

Check & test the brakes

Check the overall condition of the steering axle (see section 7.9)

Grease kingpins on steering axle

Grease pivot bar trunnion on bogie

Clean locking cylinders on steering axle

Check wheel bearings

Check & tighten 'U' bolts on Bogie suspension.

Check and tighten Bogie fixing bolts to chassis.

Grease towing eye

Check & tighten the weigh cell fixing bolts.

EVERY 6 MONTHS

Grease planetary gearbox bearings.

Check the wheel alignment on steered axle models.

YEARLY

Replace the oil in the planetary & 2-speed gearboxes.

Check for play between the pivot bar and bushes of the suspension bogie.

Check the condition of the suspension springs

2nd YEARLY

Lubricate wheel bearings

Use only genuine Shelbourne Reynolds parts to ensure longevity and performance.