



8 Bale Windrower Accumulator

Model 1422

**Instruction Manual
& Operating Guide**



EC Declaration of Conformity

in accordance with BS EN ISO/IEC 17050-1:2004



David Ritchie (Implements) Ltd.,
Carseview Road, Forfar, Scotland DD8 3BT

declare that:

Equipment: **8 Bale Windrower Accumulator**
Model No: **1422**
Serial No:

in accordance with the following directive:

2006/42/EC Conforms with the essential requirements of the Machinery Directive
and its amending directives

has been designed and manufactured to the following specifications:

BS EN ISO 12100 -1: 2003 Safety of Machinery - Basic concepts, general principals for design - Basic terminology, methodology.


BS EN ISO 12100 -2: 2003 Safety of Machinery - Basic concepts, general principals for design - technical principals and specifications.

BS EN 982: 1996
Safety of machinery. Safety requirements for fluid power systems and their components - Hydraulics

BS EN ISO 4254-1:2009
Agricultural machinery - Safety - Part 1: General requirements

BS EN ISO 13857:2008
Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.

BS EN ISO 14121-1: 2007
Safety of machinery - Risk assessment - Part 1: Principles

Signed:- 

Robert Ritchie Al agr E
Agricultural Sales Director

at:- David Ritchie Implements Ltd. Forfar, UK
on:- 20th December 2010

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Foreword

The Cook 8 Bale Windrower Accumulator has been designed for the grouping together of bales and is not intended for any other use. David Ritchie Implements shall not be liable for damage resulting from inappropriate use of the machine. The user shall bear all responsibility.

Intended use also comprises adherence to the operating, maintenance and servicing instructions contained in this manual.

The machine must only be used in perfect working condition. Any functional disorders, especially those which affect the health and safety of personnel must be rectified immediately.

The Bale Accumulator must only be used by an experienced, competent operator who has been trained in the use of the machine and who has read the operator's instruction manual.

Following the setting up, operating and maintenance instructions contained in the manual should allow the operator to achieve the best performance from the machine, resulting in increased reliability.

Operator's should read carefully all safety notes contained within the manual prior to using the machine in order to help avoid dangerous situations, expensive repairs and prolonged downtime. In addition operator's should also read any relevant legislation regarding health and safety and accident prevention applicable to the country in which the machine is to be used.

The right to alter specifications, equipment and maintenance instructions at any time, without notice is reserved as part of our policy of continuous development and improvement.

No liability can be accepted for inaccuracies or omissions in this manual, although every possible care has been taken to make it as complete and accurate as possible.

Owners who encounter a problem not covered in this manual should contact David Ritchie Implements Ltd at the address given on the rear cover of the manual, or consult their local Ritchie dealership.



Warranty

The machine should be checked over at time of delivery for transport damage. Check also that the specification is complete and that the data plate contains the serial number of the machine. All claims must be delivered to the manufacturer in written form within 48 hours.

David Ritchie Implements Ltd. guarantee subject to certain conditions that the goods supplied will be free of defects both in material and workmanship.

The following conditions apply:-

- The machine should only be used for the purpose indicated in this manual.
- Service and warranty work is carried out only by authorised Ritchie dealers.
- The original specification of the machine has not been subject to unauthorised modification.

Correct operation of the machine and regular maintenance will help to prevent breakdowns. If however operating trouble is experienced during the warranty period the following actions should be adopted:-

Notify the dealer immediately from whom the machine was purchased, quoting the model and serial number.

Do not operate the machine. Damage resulting from failure to report a fault may not be covered by warranty.

The manufacturer cannot accept liability for damage to machines or third party through operational negligence.

Intended Use

The **Cook 8 Bale Windrower Accumulator model 1422**, is designed to work behind most modern balers, where bale sizes are 14" - 16" high and 18" or 19" wide. Bales should be in the region of 36" in length and not more than 42" .

The Bale Accumulator is attached to the Bale Chamber to accept bales via a front chute. Each bale is guided through the Accumulator until 2 rows of 4 bales have been formed. The Windrower Accumulator allows the operator to hold the pack whilst the next pack is being formed, with the operator releasing when convenient. When released behind the machine packs are ready for handling with the 'Ritchie Flat Eight Grab'.

The machine is designed to be used by a single operator only (tractor driver).

Inappropriate Use

The machine must not be used for purposes other than those indicated in this manual.



Safety Information

Please read these instructions carefully. Ignoring these instructions could result in personal injury or damage to the machine.

These instructions apply to all personnel involved with the operation, maintenance and servicing of the machine.

General

The machine must only be used by an experienced, competent operator who has been trained to use the machine.

The operator should consult the tractor handbook, and Baler Instruction book for information and instruction on safety issues.

Only operate this machine from the tractor seat (work station).

Never allow personnel to ride on the machine, either on the road or in the field.

Do not modify any part of the machine unless modifications or additions are approved by the manufacturer. This also applies to welding work.

Do not use the machine if a malfunction occurs as this could result in damage to the machine.

Warn bystanders to keep clear of the machine whilst operational.

Hay and Straw are flammable - so always keep the machine in a clean condition away from open fires and smoking materials. Keep a fire extinguisher in the tractor cab!

Before and During Operation

Never leave the tractor cab while the engine is running. Always switch off and remove the ignition key and apply the tractor handbrake.

Take particular care when mounting the implement to the Bale Chamber. Always position the machine on flat level concrete or tarmac.

Never work on ground exceeding 8° in inclination.

Transportation and Storage

Before travelling on public roads ensure the machine is free of loose material and equipment.

Move the Drawbar from the centre (working position) to the side attachment point (road transport position, page 11).

Secure the rear door by fitting the bolt and wing nut as described on page 12, and fold the rear section into the road transportation position.

Road speed should not exceed 20 mph (30 km/h).

When turning or at bends take the width and length of the machine into consideration.

Take extra care when reversing the machine.

When stopped, always use the parking brake.

When storing the machine- clean thoroughly. Position the machine on flat level concrete or tarmac where it presents no hazard to people or animals.



Servicing and Maintenance

After servicing is complete check all nuts and bolts have been tightened satisfactorily.

If the optional hydraulic release kit (1422-600) is fitted:-

Only use suitably qualified engineers working to the relevant standards and codes of practice when repair work to the hydraulic system is to be undertaken.

Never attempt maintenance or servicing work on the system when coupled to the tractor with the engine running. Release any residual hydraulic pressure to the system by operating the spool valves in both directions.

Switch off the tractor engine and remove the ignition key!

After cleaning the machine check the hydraulic hoses for leaking or operational damage.

Damaged hoses should be replaced immediately.

Adhere to replacement intervals noted in the manual even if signs of wear to component parts is not evident.

Dispose of used oils carefully with due consideration to the environment.

When replacing equipment on the machine always use original spare parts.



Features

- Proven reliability over many years of service.
- Uncomplicated design and robust construction resulting in trouble free operation.
- Suitable for use with most modern balers including Welgar.
- Operator controlled bale release on completion of the pack.
- Easy Adjustment and Maintenance.

Specifications

Transport Length	-	4800 mm	Working Length	-	6300 mm
Transport Height	-	1220 mm	Working Height	-	850 mm
Width	-	2750 mm			
Weight	-	410 kg			
Wheel size	-	4.80/4.00 - 8 6 ply			

If the optional **Bale Accumulator Hydraulic Release Kit (1422-600)** is fitted the following requirements apply:-

Tractor Hydraulic Requirements	One Single Acting Spool Valve
Minimum Hydraulic Oil Flow	30 Ltrs/min
Maximum Oil Pressure	172 bar (2500 psi)



Machine Overview - Model 1422

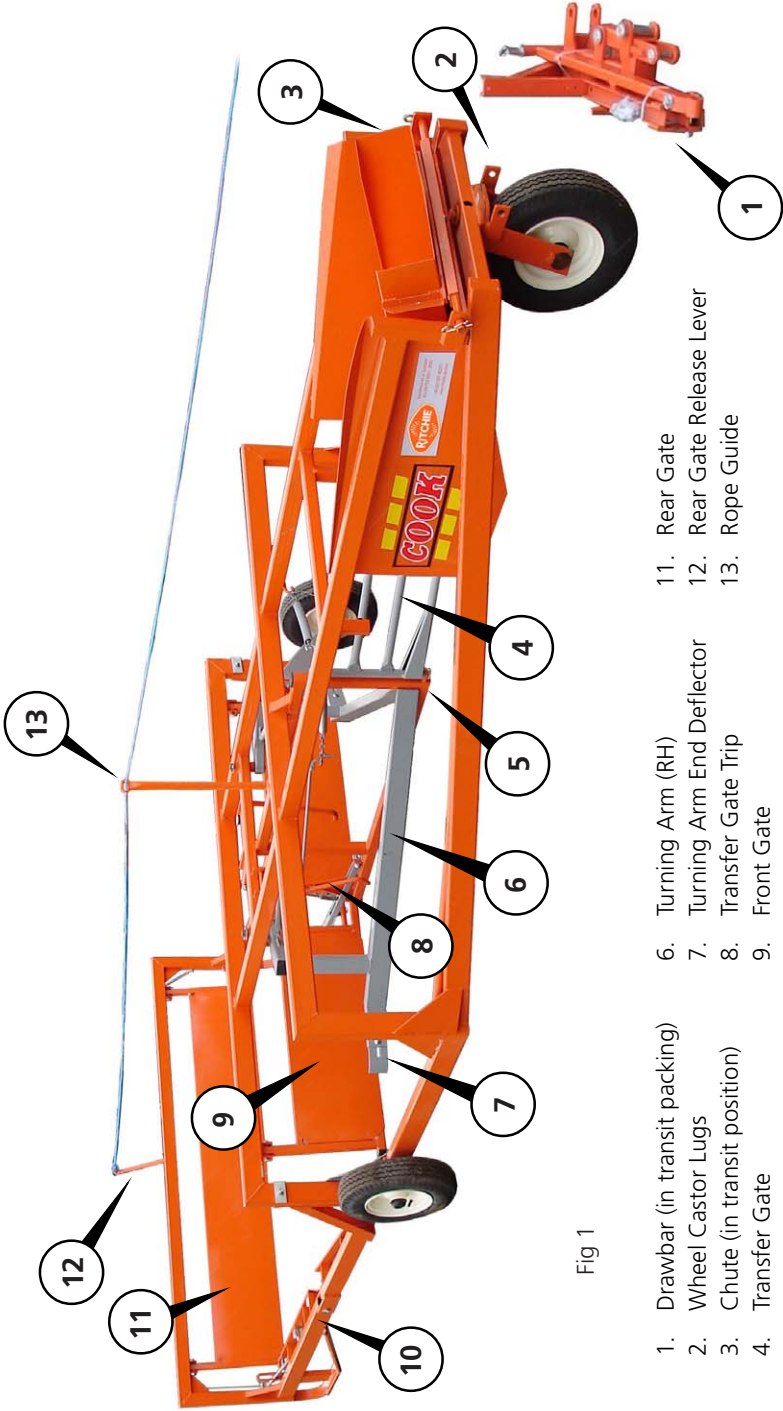


Fig 1

- | | | |
|---------------------------------|------------------------------|-----------------------------|
| 1. Drawbar (in transit packing) | 6. Turning Arm (RH) | 11. Rear Gate |
| 2. Wheel Castor Lugs | 7. Turning Arm End Deflector | 12. Rear Gate Release Lever |
| 3. Chute (in transit position) | 8. Transfer Gate Trip | 13. Rope Guide |
| 4. Transfer Gate | 9. Front Gate | |
| 5. Centre Frame | 10. Folding Rear Frame | |

Preparation

When despatched from the factory the Bale Accumulator is partly dismantled to save space on vehicles, after unpacking assemble as follows:-

Drawbar and Chute

Remove the chute from the transport position, Fig 2, by releasing the R-pins at both ends of the swivel (arrowed) and lifting the chute out.

Unpack the drawbar and fit the t-bar, Fig 3, (circled) to the slides on the underside of the chute.



Fig 2

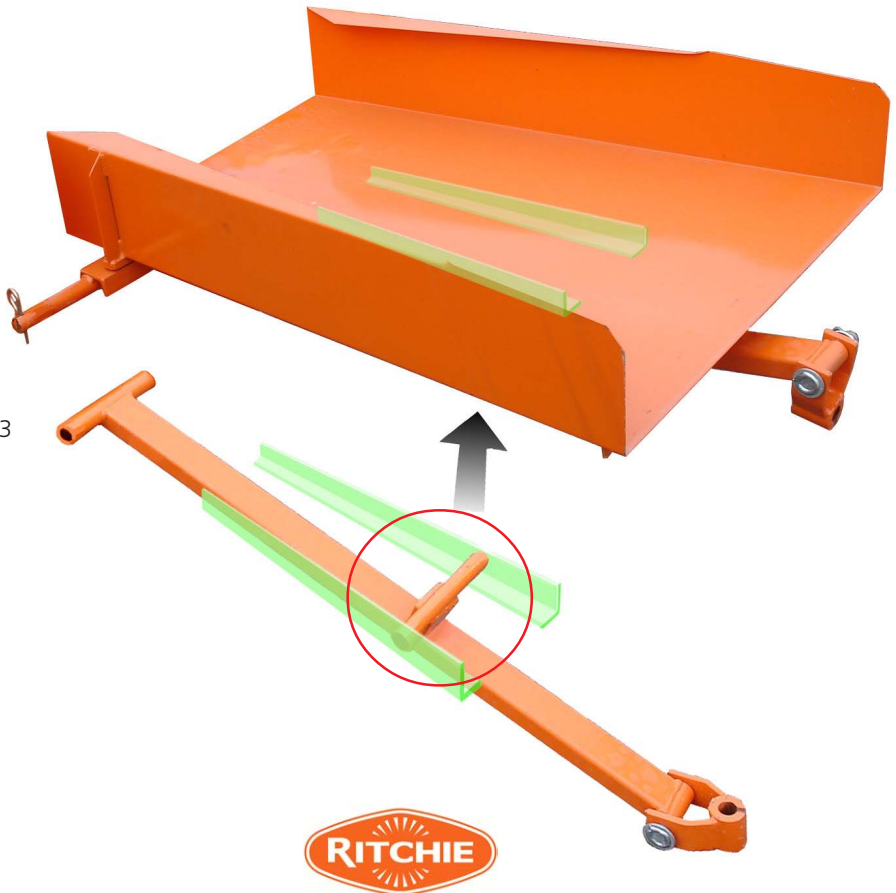


Fig 3

Attach the drawbar to the lugs on the wheel castor, arrowed, Fig 4 - 1.
Refit the Chute swivel to the lugs provided and secure with R-pins, Fig 4 -2.

Fitting of Towing Bracket

Use only the special towing bracket supplied with the Bale Accumulator.
If the Baler to be used is fitted with a manufacturer's bracket - this should be removed.
Remove also the rear delivery tray from the baler before fitting the towing bracket.
Follow the instructions shown on Figs 5 and 6 to fit the bracket correctly.

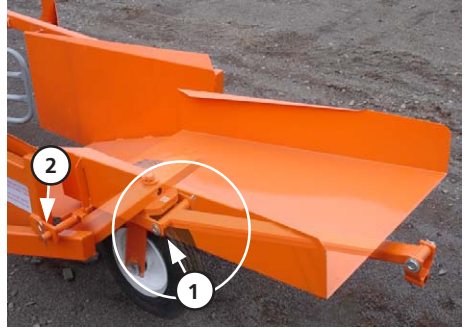


Fig 4

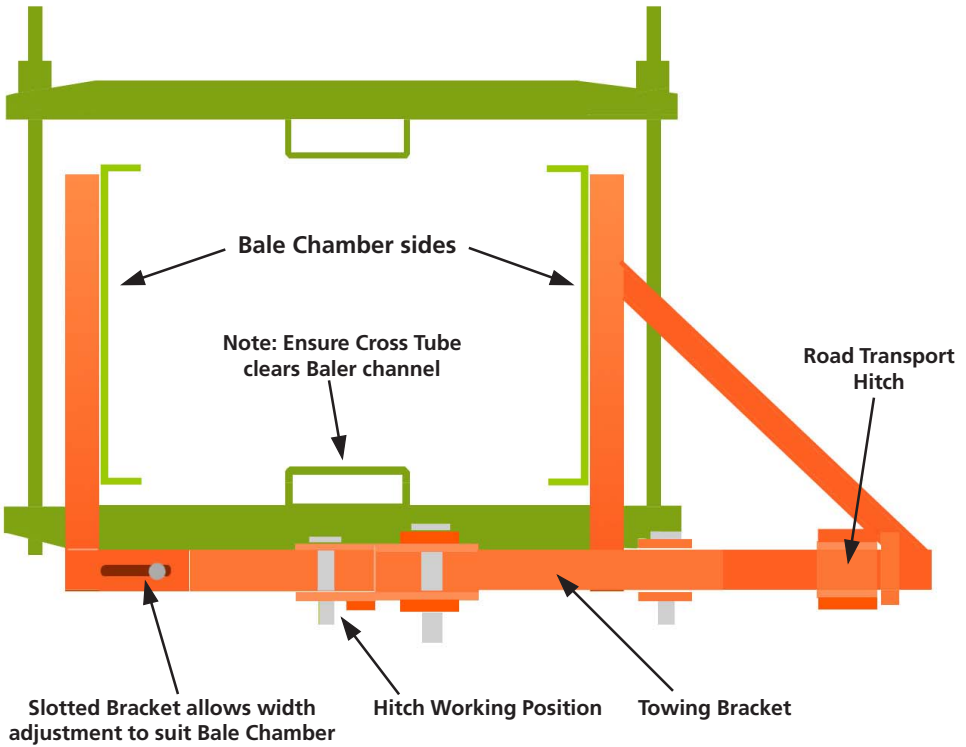


Fig 5



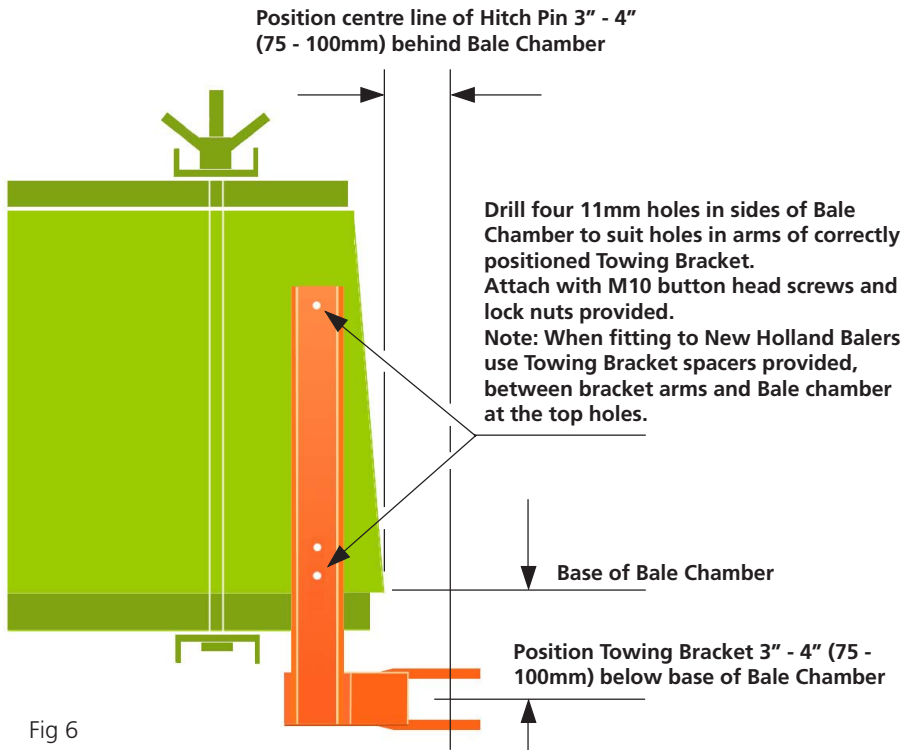


Fig 6

When fitting of Towing Bracket is complete - Hitch Bale Accumulator Drawbar to Towing Bracket in either the working or the transport position as shown, Fig 7.

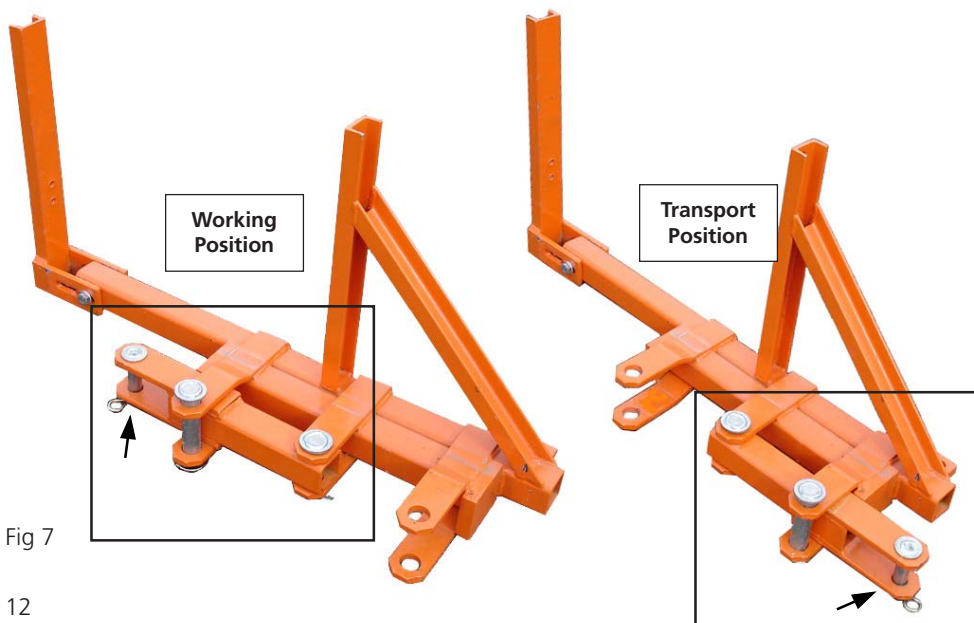


Fig 7

Rear Section

The 8 Bale Windrower has a folding rear section for ease of transportation, Fig 8.

When setting up the machine, the rear section should be lowered to the working position with skids resting on the ground.

Note: Two persons are required when folding or unfolding due to the weight of the rear section.

Never hold the rear bow when folding as this comes down onto the main frame bow.

Take care to ensure the bolt and wing nut which locks the rear door latch is fitted in position, Fig 9. This prevents the rear door from swinging open.

The wing nut and bolt should only be removed when preparing for work. Failure to do so will prevent the rear door from opening when required during operations.

**Bolt and Wing nut
in 'Lock' position
ready for folding**

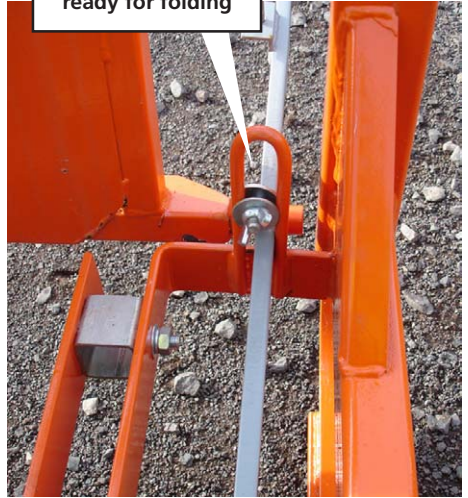


Fig 9



Fig 8



Setting Up and Adjustment

On arrival in the field transfer the drawbar from the side position to the (centre) working position, Fig 7.

Set the baler to produce bales of the required length, preferably 36", and not more than 42".

Follow the instructions on the previous page to fold down the rear section, and remove the bolt and wing nut which locks the rear gate latch.

Transfer Gate trip adjustment

Most Balers make bales which are 14" high, with some producing bales at 16" high.

Set the Transfer Gate trip adjustment according to the height of the bales to be gathered.

It is important that the trip rod is fastened in the upper hole on the trip lever for bales which are 16" high and in the lower hole for 14" high bales, Fig 10.

Bale Guide Supports - Spacers

If working with 19" wide bales it is necessary to remove the RHS spacer blocks - fitted to the bale guide supports to both left and right hand sides of the machine (on the rear folding section), Fig 11.

The spacers can be re-attached until needed again on the outside of the bale guide supports as shown.

Rope Guide

Attach the rope guide to the main frame in any position to suit the operator, Fig 12. Thread the rope through the eye and extend to the tractor cab.

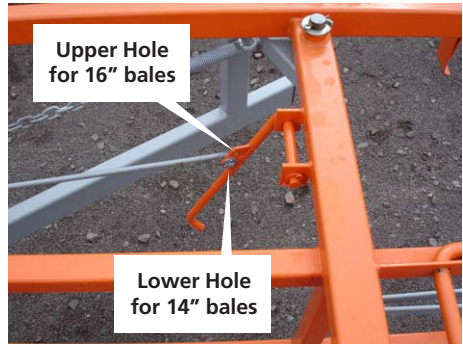


Fig 10

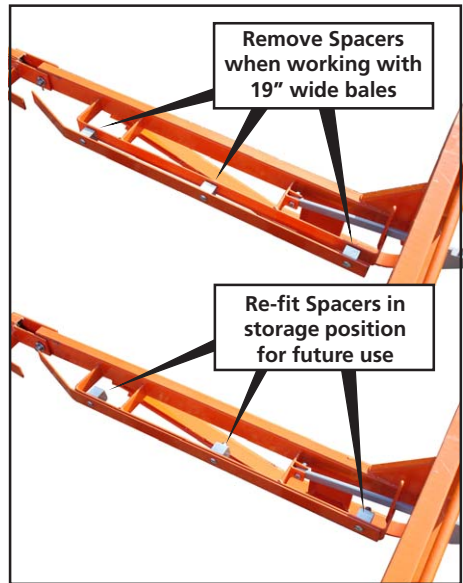


Fig 11



Fig 12

Optional Hydraulic Release Kit (1422 - 600)

The Bale Accumulator hydraulic release kit can be fitted in factory when ordering the machine.

If this option is supplied in kit form however, follow these instructions for installation.

The kit consists of the following parts -

Description	Qty
Bracket clamp plate	2
Lever / Ram assembly	1
Hydraulic hose	1
M8 zinc plated nyloc nut	4
M8 zinc plated washer	4
M8 x 90 zinc plated bolt	4

Position the mounting bracket assembly on the main frame top member, as Fig 13, and secure with the clamp plates and bolts provided.

Fit the hydraulic hose to the ram coupling and check there is sufficient length to reach the tractor outlet. If not, the bracket may have to be moved slightly further forward.

Once fitted, clamp the hose using the hose clamping plates.

Fit the rope through the lever eye and tie securely.

Note: The rope should be tied with all slack taken up when the ram is in the closed position. Do not cut the rope until you are fully satisfied with the position of the mounting bracket and have checked that the hydraulic hose reaches from the ram to the tractor outlet.

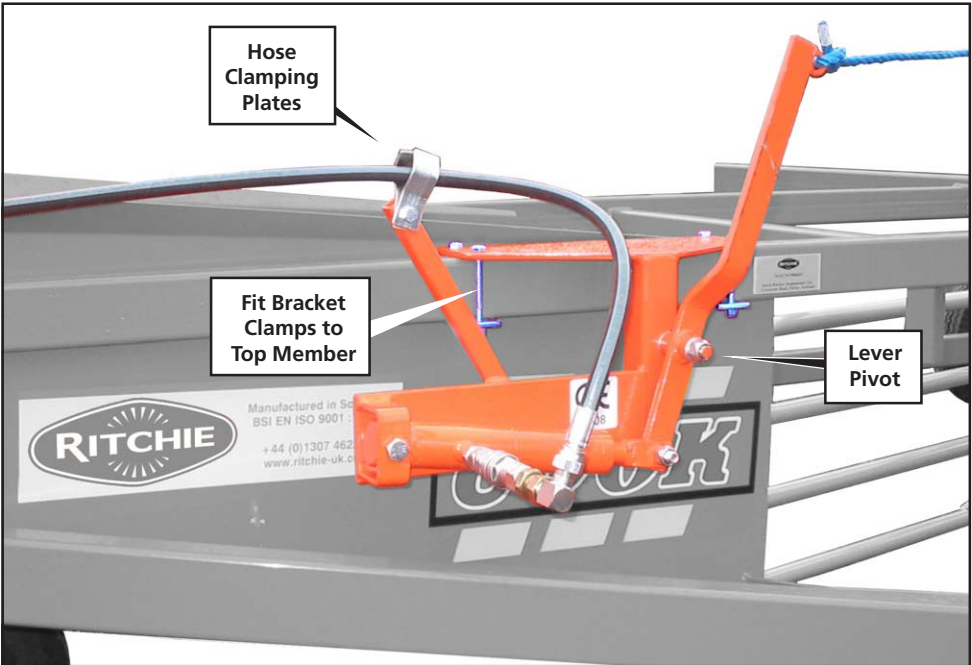


Fig 13

Check all nuts and bolts are tight once fitting is complete with the exception of the lever pivot which must remain free to rotate, Fig 13.

Before connecting the hydraulic hose check to ensure the quick release coupling and tractor spool block plug are clean.

Take care when coupling / uncoupling hydraulic hoses to the tractor. Hydraulic oil under pressure can damage your skin. Always seek immediate medical advice in such circumstances.

Fit the hydraulic hose and test the operation.

Note: The hose and ram when first installed are dry and will require bleeding. Activation of the spool lever in the tractor cab will charge the system with oil. Run the system through a few cycles to 'bleed off' any trapped air.



Warning: Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious personal injury or blindness. Fluid leaks, under pressure, may not be visible. Use a piece of cardboard or wood to find leaks.

DO NOT use your bare hand. Wear safety goggles for eye protection. If any fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury.



Operation

When baling, the Accumulator operates as follows:-

As bales pass over the chute they are gripped and held to the ground by the inward protruding points at the Accumulator end of the chute. These points should always be approximately 16" apart.

The first bale is guided to the outside of the Accumulator on the right hand side and as it approaches the front gate is rotated by, and itself rotates, the right hand turning arm.

The second bale is guided into the remaining space beside the centre frame, where it moves the transfer gate trip which swings the transfer gate from left to right.

The third bale is guided to the left hand side of the machine, being rotated by and rotating, the left hand turning arm.

The fourth bale is guided into the remaining space beside the centre frame where it operates the front gate trip and releases the 4 bales into the rear section where they are held in line by the rear gate.

These operations repeat for bales 5, 6 and 7 and the final eighth bale trips the front gate allowing these 4 bales to enter the rear section to be held along with the first 4 bales.

Baling can continue into the front section for up to **three** more bales before the back gate has to be released by pulling the trip cord.

It is suggested however, when starting a field; the operator should release the first pack of eight bales after **two** additional bales have reached the front section, allowing greater flexibility for releasing into windrows on the second and subsequent rounds of the field.

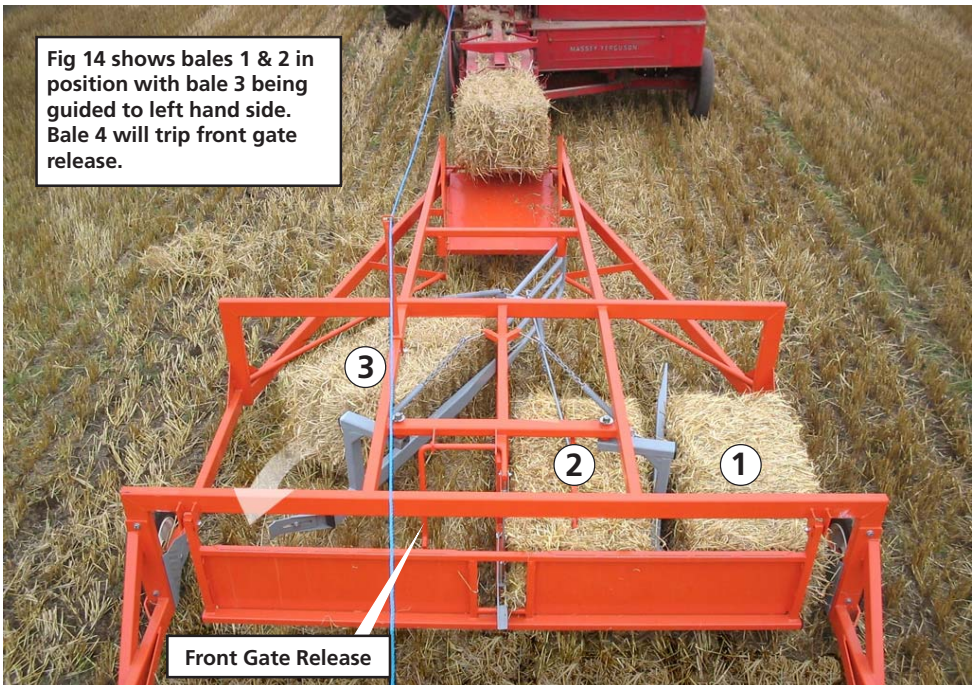


Fig 14



Fig 15



Fig 16

Further Adjustments

Spring Tension

All springs should be adjusted so that there is just sufficient tension to hold the parts they control at the 'at rest' position.

Adjust springs by releasing the chain from the end of the hook bolt and relocating in an alternative link, Fig 17.

Turning Arm End Deflector

The Turning Arm End Deflector, Fig 18, is slotted to provide angular adjustment to the turning arm.

Ideally the turning arm should take up a position slightly 'off parallel' with the sides of the accumulator when the first bale is in place, thus providing the correct angle to accept the second bale, see Fig 19.

Note that in Fig 19 - distance **A** should be slightly narrower than distance **B** when the first bale is in position.

The same applies for the left hand arm.



Fig 17



Fig 16

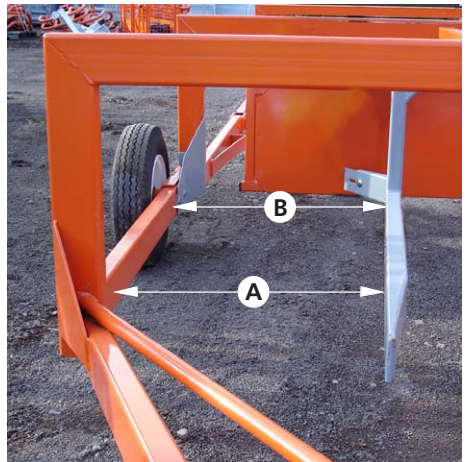


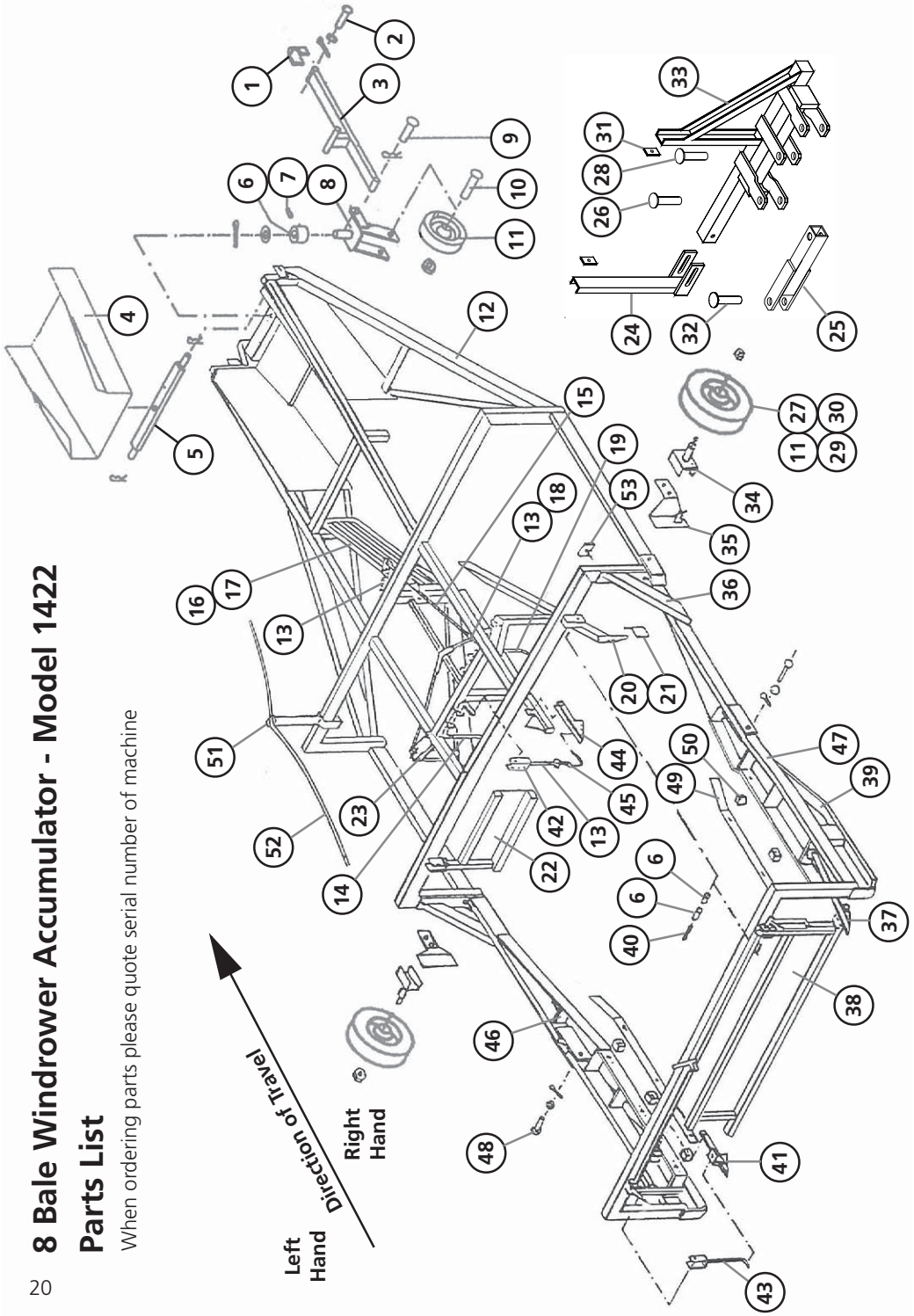
Fig 19



8 Bale Windrower Accumulator - Model 1422

Parts List

When ordering parts please quote serial number of machine



Ref.	Part No.	Description	Qty
1	1426/112	Drawbar Swivel	1
2	1421/93	Swivel Pin	1
3	1421/97	Drawbar	1
4	1421/109	Bale Chute	1
5	1421/117	Swivel Bar	1
6	1422/600	Bush Kit	1
7		Grease Nipple	5
8	1421/103	Front Wheel Fork Assembly	1
9	1421/91	Drawbar Pin	1
10	1421/206	Front Wheel Spindle	1
11		Wheel	3
12	1422/61	Main Frame	1
13	1422/500	Spring Kit	1
14	1421/43	Front Gate Trip	1
15	1421/131	Transfer Gate Trip Rod	1
16	1421/121	Transfer Gate	1
17	1421/129	Transfer Gate Pivot Pin	1
18		M8 x 130 Hook Bolt	3
19	1421/134	Transfer Gate Trip	1
20	1421/137	Turning Arm - Right Hand	1
21	1421/147	Turning Arm End Deflector	2
22	1422/33	Front Gate	1
23	1421/138	Turning Arm - Left Hand	1
24	1421/84	Baler Bracket Adjuster	1
25	1421/80	Switch Bar	1
26	1421/211	Baler Bracket Pin II - (130mm)	1
27		Wheel Bearing	3 pairs

Ref.	Part No.	Description	Qty
28	1421/209	Baler Bracket Pin I - (105mm)	1
29		Hub Cap (Steel - Press on)	2
30		Hub Cap (Plastic - Press on)	2
31	1421/201	Baler Bracket Spacers	2
32	1421/88	Towing Bracket Pin	1
33	1421/70	Baler Bracket	1
34	1422/44	Rear Wheel Spindle	2
35	1422/39	Bale Guide Assembly	1 pair
36	1422/28	Centre Frame RH	1
37	1422/54	Rear Gate Latch - RH	1
38	1421/179	Rear Gate	1
39	1422/4	Rear Skid (welded)	1
40	M10 x 70 Bolt	Front & Rear Gate Pins	4
41	1422/53	Rear Gate Latch - LH	1
42	1421/202B	U-bracket	3
43	1422/57	Rear Latch Rod	2
44	1422/49	Front Gate Latch	1
45	1422/58	Latch Rod Front	1
46	1422/29	Centre Frame LH	1
47	1422/9	Rear Frame	1
48	1421/88	Rear Frame Hinge Pin	2
49	1422/18	Channel Plate	2
50	1422/19	RHS Packer	6
51	1422/68	Rope Guide	1
52		Release Rope	1
53	1422/59	Central Frame Clamp Plate	2

Lubrication & Maintenance

The machine operates mainly by pressure of the bales in contact with the ground and the forward movement of the Bale Accumulator.

All parts should move freely therefore regular oiling of all swivels and gate hinges is recommended to ensure trouble free operation.

Grease the Front Castor bearing - Fig 20, on a regular basis.

Use only good quality grease.

Wheel hubs have sealed bearings which require no lubrication.

Hydraulic System Check

This applies to machines fitted with the optional hydraulic release kit.

The hydraulic system should be checked for leaks prior to each use of the machine.

Read safety instructions on page 7.

The hose on the machine must be replaced every 5 years even if signs of wear or damage are not apparent.

Hose Rating - 1/4" 2 wire

SAE 100 R2 AT • DIN EN 853 2SN

Working Pressure - 330 bar (4800 psi)

Min. Burst Pressure - 1320 bar (19150 psi)



Fig 20

Hose Replacement

It is advisable to wear eye protection when replacing hoses or when working on the hydraulic system.

Before replacing the hose - release any residual pressure in the hydraulic system by operating the tractor spool valves in both directions.

Place a suitable container below the hose to allow the hydraulic oil to be drained.

Detach the hose from tractor and at ram coupling and drain completely.

Reconnect both ends of the new hose and charge the system with oil via the tractor spool valves putting the service through a few cycles to allow the tractor hydraulic system to bleed out any trapped air.

Always dispose of oil responsibly with due consideration to the environment.







the perfect partner

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