

TWOSE

**5 Gang Folding Rollers
10.4m & 12.4m Models
UWF Models prior to 01/12**

Operation & Parts Manual

Publication 537

May 2012 (Rev. 29.07.13)

IMPORTANT VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Twose of Tiverton Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the Twose web site at www.twose.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the Twose Office on 01884 253691.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section above has been completed and signed by the selling dealer to verify that your machine has been registered with Twose of Tiverton Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – *refer to torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with Twose of Tiverton Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. *All machines supplied by Twose of Tiverton Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.*
- 1.02. *All spare parts supplied by Twose of Tiverton Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.*
- 1.03. *The warranty offered by Twose of Tiverton Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.*
- 1.04. *This warranty does not extend to any product from which Twose of Tiverton Ltd's serial number plate has been removed or altered.*
- 1.05. *This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.*
- 1.06. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.07. *Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.*
- 1.08. *Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which Twose of Tiverton Ltd cannot be held liable, and may have safety implications.*
- 1.09. *If in exceptional circumstances a non Twose of Tiverton Ltd part is used to effect a repair, warranty reimbursement will be at no more than Twose of Tiverton Ltd's standard dealer cost for the genuine part.*
- 1.10. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of Twose of Tiverton Ltd.*
- 1.11. *For machine warranty periods in excess of 12 months the following additional exclusions shall apply:*
 - 1.11.1. *Hoses, exposed pipes and hydraulic tank breathers.*
 - 1.11.2. *Filters.*
 - 1.11.3. *Rubber mountings.*
 - 1.11.4. *External electric wiring.*
 - 1.11.5. *Bearings and seals.*

- 1.12. All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.
- 1.13. Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. Twose of Tiverton Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

2. REMEDIES AND PROCEDURES

- 2.01. The warranty is not effective unless the Selling Dealer registers the machine, via the Twose of Tiverton Ltd web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.
- 2.02. Any fault must be reported to an authorised Twose of Tiverton Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which Twose of Tiverton Ltd cannot be held liable.
- 2.03. Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by Twose of Tiverton Ltd. Please note that 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.
- 2.04. All claims must be submitted, by an authorised Twose of Tiverton Ltd Service Dealer, within 30 days of the date of repair.
- 2.05. Following examination of the claim and parts, Twose of Tiverton Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by Twose of Tiverton Ltd and appropriate labour and mileage allowances if applicable.
- 2.06. The submission of a claim is not a guarantee of payment.
- 2.07. Any decision reached by Twose of Tiverton Ltd is final.

3. LIMITATION OF LIABILITY

- 3.01. Twose of Tiverton Ltd disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.
- 3.02. Twose of Tiverton Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.
- 3.03. Except as provided herein, Twose of Tiverton Ltd shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.
- 3.04. No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.

4. MISCELLANEOUS

- 4.01. Twose of Tiverton Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.



DECLARATION OF CONFORMITY

Conforming to EU Machinery Directive 2006/42/EC

We,

TWOSE of TIVERTON LIMITED,
6 Chinon Court, Lower Moor Way,
Tiverton Business Park, Tiverton, Devon, EX16 6SS, UK

Hereby declare that:

The Product; *Tractor Trailed Horizontal Folding Rollers*

Product Code; *TWBR , TWFR , THFR*

Serial No. & Date Type

Manufactured in; *United Kingdom*

Complies with the required provisions of the Machinery Directive 2006/42/EC
The machinery directive is supported by the following harmonized standards;

- BS EN ISO 12100 (2010) Safety of machinery – General principles for design – Risk assessment and risk reduction.
- BS EN 349 (1993) + A1 (2008) Safety of machinery - Minimum distances to avoid the entrapment with human body parts.
- BS EN 953 (1997) + A1 (2009) Safety of machinery - Guards general requirements for the design and construction of fixed and movable guards.
- BS EN 4413 (2010) Hydraulic fluid power. Safety requirements for systems and their components.

Signed  *Responsible Person*
CHRISTIAN DAVIES on behalf of TWOSE OF TIVERTON LIMITED

Status: *General Manager*

Date: *September 2015*

**THIS MANUAL IS TO BE HANDED TO THE CUSTOMER
BEFORE THE MACHINE IS TO BE USED FOR THE FIRST TIME**



TWOSE OF TIVERTON LIMITED
6 CHINON COURT
LOWER MOOR WAY
TIVERTON BUSINESS PARK
TIVERTON
DEVON
EX16 6SS

TEL: 01884 253691
FAX: 01884 255189

All dimensions and capacities mentioned in this book are approximate. In pursuance of the Companies policy of constant development, the right is reserved to depart, without notice, from any detail illustrated or specified in this book, without incurring the obligation to provide such modifications on machines previously delivered.

No responsibility will be accepted by Twose of Tiverton Limited for any injury, damage or loss arising from the improper use or lack of maintenance of any machinery supplied by them or from any failure of the user to comply with all instructions published by Tractor or Loader manufacturers, particularly with regard to maximum load capacities, tyre pressures and stability, or with instructions and regulations pertaining to Tractor Cabs.

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SAFETY NOTES AND WARNINGS

Throughout the handbook the following sub headings are used to draw attention to various points of importance:

DANGER OR WARNING:

This is to draw attention to very important instructions which **MUST** be followed precisely to avoid injury or death.

CAUTION:

This is used to draw attention to instructions which **MUST** be followed to avoid harm to the operator or damage to machine, process or the environment.

NOTE:

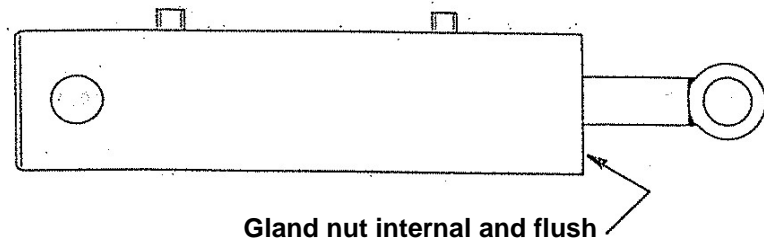
This is used to highlight points used for supplementary information.

RAM IDENTIFICATION

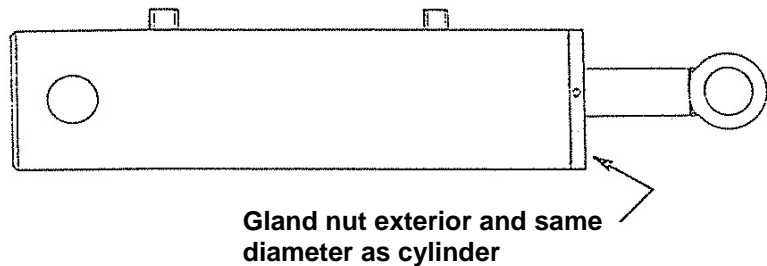
When ordering seal sets, ram parts etc. please follow the simple guidelines below to ensure receipt of compatible parts:

Examine the gland nut area of the ram in question – it will be one of three possible types:

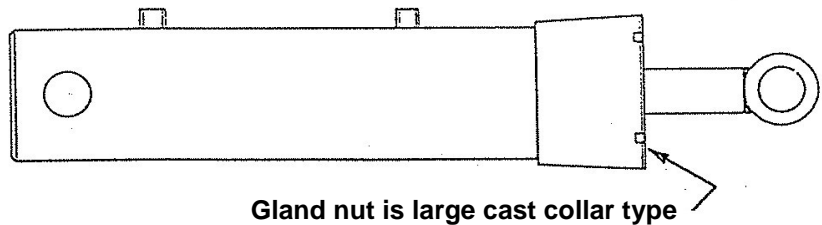
RAM TYPE 'A'



RAM TYPE 'B'



RAM TYPE 'C'



When ordering parts please state: Type 'A', 'B' or 'C' - This does not apply when a complete ram is required as all types are fully interchangeable.

SPECIFICATIONS

		10.4m Model	12.4m Model
Rolling Width	22" C Rings	10.4m (34' 1")	12.4m (40' 8")
	19" CB Rings	10.4m (34' 1")	12.4m (40' 8")
	22" CB Rings	10.4m (34' 1")	12.4m (40' 8")
Transport Width	22" C Rings	2.9m (9' 6")	2.9m (9' 6")
	19" CB Rings	2.9m (9' 6")	2.9m (9' 6")
	22" CB Rings	2.9m (9' 6")	2.9m (9' 6")
Transport Length	22" C Rings	6.19m (20' 4")	6.19m (20' 4")
	19" CB Rings	6.19m (20' 4")	6.19m (20' 4")
	22" CB Rings	6.19m (20' 4")	6.19m (20' 4")
Weight	22" C Rings	4668Kg	5566Kg
	19" CB Rings	5270Kg	6290Kg
	22" CB Rings	6542Kg	7800Kg
Min Power Req't	22" C Rings	75kW (100HP)	80kW (110HP)
	19" CB Rings	75kW (100HP)	80kW (110HP)
	22" CB Rings	75kW (100HP)	80kW (110HP)

NOTE: All weights, dimensions, and details are for guidance only.

GENERAL INFORMATION

NOTE:

The provision of this information is a requirement of the Health & Safety at Work Act 1974.

NOTE:

This handbook has been designed to help the operator and service/mechanic; to use and understand the machine fully, safely and efficiently, bearing in mind the Health & Safety requirements and the new CE requirements which come into force from January 1 st 1995.

NOTE:

The handbook/manual will be supplied in a waterproof plastic outer cover to prevent damage from rain, condensation etc. The cover of the handbook will include its own part number, which includes information as to machine type and issue date of manual in question.

DANGER NOTE:

It is very important that the handbook/manual has been read thoroughly - throughout, and is completely understood before attempting to attach or use machine in any way.

CAUTION:

When ordering spares, please state clearly:

- (a) Machine type and Model No.
- (b) Part No. of component.
- (c) Description of component.
- (d) Quantity required.
- (e) Full address to which spares are to be sent.
- (f) Method of delivery required.

CAUTION:

Always insist on genuine and correct spare parts.

NOTE:

Further copies of this handbook/manual can be obtained from:

TWOSE OF TIVERTON LIMITED
6 CHINON COURT
LOWER MOOR WAY
TIVERTON BUSINESS PARK
TIVERTON
DEVON
EX16 6SS
TEL: 01884 253691
FAX: 01884 255189

MACHINE DESCRIPTION

This is a set of Hydraulic Folding Cast Rollers with an option of Cambridge or Cambridge/Breaker rings. It is intended to be attached to an agricultural vehicle by means of the 'drawbar-hitch' couple-up system. A set of wheels aids the transportation of the machine to and from the desired place of work.

The purpose for its production and its sole intention is to roll cultivated land. At no time must this machine be used for anything other than, or to do any job other than for which it has been designed as stated above.

SAFETY INFORMATION



Never attempt to assemble, couple up, or operate machinery until you understand fully the functions, controls and safety precautions required, as shown in the operators manual.

DANGER WARNING:

Always follow tractor safety operations and instructions **VERY** carefully. **NEVER TAKE RISKS**

CAUTION:

Be aware of warning stickers and instruction stickers on machine as care must be taken and instructions obeyed.

CAUTION:

Contact your dealer should you need advice, assistance, or if you do not understand the manual or machine. "NEVER ASSUME" - if not sure - ASK.

CAUTION:

Machine **MUST NOT** be altered or modified in any way without permission - No liability will be accepted in respect of a machine that has been modified without manufacturers permission.

DANGER WARNING:

Never drive machinery at speeds that could cause danger to other persons or properties, or in a manner that may cause accidents.

CAUTION:

Always 'SWITCH-OFF' tractor engine before attempting to carry out adjustment or service repairs and inspections on the machinery.

DANGER WARNING:

Always be aware of your surroundings - and operate machinery accordingly. Beware of confined-tight areas, low height restrictions, buildings and overhangs etc. Also drive and operate bearing in mind weather conditions such as sun, rain, ice, snow, wind etc. Make allowances in all situations.

CAUTION:

Never carry 'passengers' on machinery or on tractor.

Ensure bystanders/onlookers are kept well away from operational area of apparatus.

CAUTION:

'PARKING UP' THE MACHINE - When machine is being removed from tractor linkage and being 'parked up' it is essential that a good firm base and level site be found. Always chock and prop machine to ensure a good firm position to leave parked. Ensure that stand legs of machine are correctly locked into position.

CAUTION:

Never allow children to play on, or around, parked machinery.

CAUTION:

Never wear loose fitting or ragged clothing which could get caught in machinery or controls.

CAUTION:

Ensure visibility is clear through cab-screens at all times.

CAUTION:

Always dispose of discarded or worn out parts thoughtfully - by disposing of them in an approved and specified legal scrap site, bin or skip.

CAUTION:

Worn out and spent waste oil, grease and other obnoxious substances must always be disposed of in suitable and legally approved dumping containers suitable for the waste in question.

DANGER WARNING:

When unfolding, roller must be coupled to tractor and hydraulic hoses attached at all times.

DANGER WARNING:

Never attempt to unfold the roller on sloping land.

DANGER WARNING:

Always treat the roller with great respect and unfold/crowd machine at very slow speeds, keeping hydraulic flows to minimum.

DANGER WARNING:

It should be noted and remembered that the 12.4m roller requires a setting up area of approx. 14.0m wide x 18.0m long to unfold in safety.

DANGER WARNING:

The 10.4m roller requires a setting up area of approx. 12.0m wide x 18.0m long to unfold in safety.

DANGER WARNING:

Transportation speed must not exceed a maximum of 12mph.

GENERAL INSTRUCTIONS



1. Before attaching any machine to a tractor or loader make sure that implement is still standing firmly on good solid - level site as it will be, providing unit was previously parked correctly.
Check that all wheels are 'chocked' correctly and that supports/props are in position where necessary to prevent booms etc. dropping.
2. Before and during all maneuverings of the tractor or vehicle in order to attach the machinery/implement ensure that no other persons are in the vicinity.
Keep other persons well clear and make known your intentions whilst keeping a sharp lookout during reversing and aligning machines for coupling up.
3. Always secure tractor into selected position by ensuring that brakes are applied correctly in order to prevent vehicle moving off on its own to cause injury and damage.
4. Make sure that the lift arms and top link ball ends of the tractor are properly fitted to the machine/implement by using correct adaptor sleeves where necessary, and that retaining pins of the correct type are used on all three point linkage points. Secure pins with relevant pin and ring assembly.
5. If the machine is of the drawbar type - check that the hitch on the tractor is in good condition and that the hitch pin used is of the correct size and type, and is properly secured when fitted.
6. Should it become necessary to make adjustments or service the machine while it is raised on the tractor linkage, or raised on a front end loader - trestles or suitable supports **MUST** be positioned to support machine to prevent accidental dropping of lift arms, loader arms or mechanical failure. **THE MACHINE MUST ALWAYS BE PROPPED AND CHOCKED.**
7. Never attempt to work on, adjust or service repair machinery of any kind whilst it is still running or working. Always stop the machine and **STOP THE TRACTOR ENGINE** - before any service/repairs begin. **(SWITCH OFF TRACTOR ENGINE BEFORE LEAVING TRACTOR SEAT)**

8. In transit always use transport stays or locking devices where provided. If, as in the case of some longer machines, the unit is transported lengthways - make sure that the front of the tractor is suitably ballasted to maintain stability. A method of achieving this would be to add suitable weights to a correctly specified and fitted front weight frame.
9. Always use machines in a sensible and reasonable manner and do not attempt to use them in work for which they are not intended. Avoid overloading and abusing them as this can cause damage to machine and tractor and can be very dangerous.
10. When unhitching/detaching a machine from a tractor three point linkage or from a front end loader ensure that any stands or legs are securely positioned and that the machine is parked where it will not be a safety hazard or cause annoyance to others. Make sure that chose 'parking site' is a firm and level site.
11. Carry out regular periodic maintenance - Always with safety in mind.
12. Ensure regular maintenance procedures are maintained for the lifetime of the machine.
13. **HEALTH AND SAFETY RULES AND REGULATIONS MUST BE ADHERED TO IN ALL AGRICULTURAL RESPECTS.**

ATTACHING ROLLER TO TRACTOR

1. Attach roller to tractor via pick-up hitch ensuring hitch and hook/pin align. If applicable use the Drawbar conversion Bush provided. If tractor drawbar is to be used it may be necessary to couple the two snap ends of Drawbar ram hoses to tractor to enable the drawbar of roller to align with tractor towing hitch.
2. Couple the remaining two male quick release couplings into the tractors double-acting service. NOTE, Ensure hoses are coupled correctly to tractor double acting spool.
3. Hydraulically raise the roller (by operating the main drawbar ram) high enough to enable the spring clips and pins to stand legs to be removed - where fitted.
4. Raise the stand legs to the maximum height setting - replace pins to locate and refit the spring clips - where fitted.

UNFOLDING AND SETTING UP THE ROLLER FOR WORK

1. Make sure the unfolding site is clear of all obstacles and people before the procedure is attempted.
2. Position tractor and roller at suitable selected spot and ensure tractor handbrake is ON.
3. Remove transport stay from rear of roller by removing the spring clips from the two anchor pins and sliding off the adjusting bar. Replace spring clips into anchor pins for safe keeping.
4. Place transport stay into storage position on the main drawbar and secure with spring clip through anchor pin.
5. Reverse tractor/roller 'SLOWLY' (and in a straight line) which will allow the wing sections to fold outwards about the pivots at nearside and offside of main centre frame. Continue reversing until both nearside and offside 'double' wing sections are at an angle of approximately 30 degrees from starting position.
6. Move hydraulic lever (SLOWLY) to operate both the rack/gear cylinders. This operation will swing out the 'outer' offside and rearside wing sections.
It may be found necessary to assist the start of the folding of outer section to intermediate section as the support bracket between the 2 frames may be 'tight' depending on the roller lie:
7. Reverse the unit until whole roller is 'in line'.
8. Tractor handbrake should now be at this stage released (IN THE OFF) position and ensure also now that tractor is OUT of gear. This is to allow the tractor to 'move' and 'roll' with the roller whilst continuing the unfolding operation.
9. The whole machine has now been opened into a long line and is now to be crowded forward allowing tractor to roll with it. The crowding operation is done by operating the main drawbar cylinder.
Continue the crowding movement until all the roller wing section seats onto the ground and that transport wheels are raised to a horizontal position.
10. The tractor handbrake should now be applied (to the 'ON') position, in order to stabilise unit.
11. NOTE: It may be necessary to raise or lower the actual drawbar eye bracket in drawbar to ensure that drawbar is parallel to floor when rolling. (3 positions are available).
12. Ensure tractor hydraulic levers are now in "float position" to allow machine to follow ground contours.
13. The machine is now ready for rolling.

FOLDING THE ROLLER FROM WORK TO TRANSPORT POSITION

1. Make sure the folding site is suitable – clear area of obstacles and people, before the procedure is attempted.
2. Position tractor and roller at suitable - selected spot and ensure tractor handbrake is in the OFF position.
3. Crowd whole machine ‘back’ from the ‘work’ position to the position where the transport wheels move from a horizontal to a vertical line and contact the ground. This is done by extending hydraulically the main drawbar ram. This operation will move tractor, which will ‘roll’ back with machine and will follow the drawbar ram "instructions". This can only be done with handbrake ‘OFF’ NEVER attempt this operation with brake "ON".
4. With the transport wheels now vertical and on the ground the machine should be pulled forward by tractor to position the intermediate rollers to an angle of approx. 45 degrees to the "work line".
5. The extreme offside and nearside roller sections should now be hydraulically folded in behind the intermediate frames fully, - ensuring in the case of the 12.4m machine only that the guide support is located between the two frames. The outer frames and the intermediate frames should now be together, on both sides of the roller.
6. Put tractor into LOW forward gear and move slowly forward - in a straight line. This will allow the outer and intermediate section at both nearside and offside to follow tractor and will align themselves until parallel and will eventually stop once the stop brackets have been contacted.
7. Release safety spring clip and remove transport stay from storage point on drawbar and replace spring clip for safe keeping.
8. Remove spring clips from transport stay pins.
9. Fit transport stay to stay pins and secure with spring clips.
10. Adjust transport stay by turning centre tube (as standard tap link adjust) to lock into parallel position. The transport lock position is achieved when the stop brackets which are situated at inner edge of intermediate frames, are in firm contact with rear face of main centre frame.
11. When packing and disconnecting, roller parking stands must be lowered to ‘down’ position and secured by security pins where fitted.

ROUTINE MAINTENANCE AND STORAGE

DAILY



WARNING

Grease wheel bearings.
Check wheel nut tightness – torque setting is 340Nm / 250lbs.ft.

WEEKLY



WARNING

Grease all pivot points.



WARNING

Check all nuts and bolts for tightness.



WARNING

Check tyre pressure – correct pressure is 70psi / 4.8 BAR.

STORAGE



WARNING

Ram rods must be closed or greased to protect the chromed surface.



WARNING

Clean machine and note any damage or repairs needed – arrange for replacement parts or repairs to be made before next use of the machine.

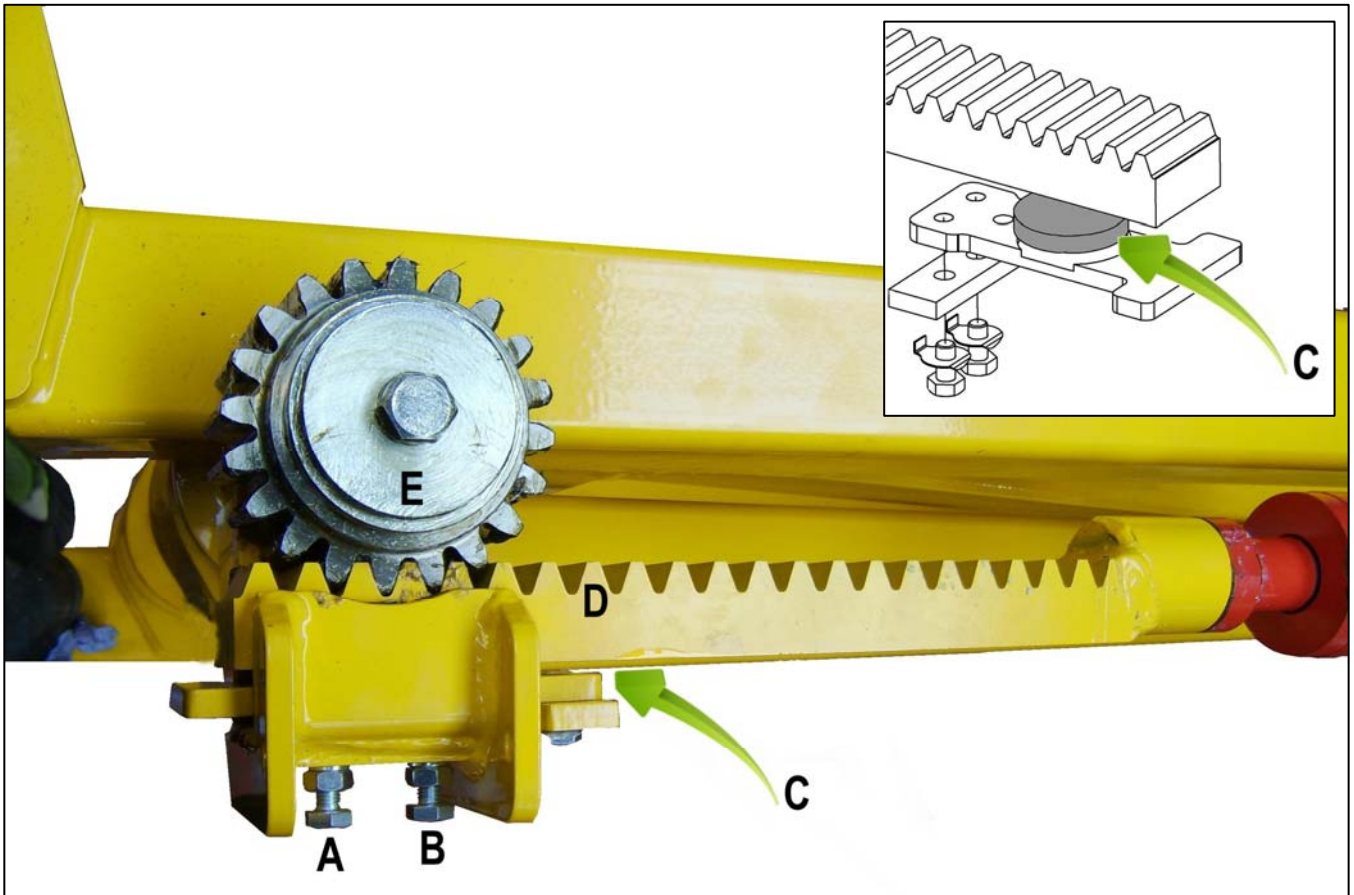


WARNING

Fully lubricate and preferably store in a clean dry location protected from the elements.

WEAR PAD INSPECTION & ADJUSTMENT

Wear Pads must be inspected on a regular basis and adjusted if the following criteria are not met. The duty of the pads is to provide a replaceable ‘wearing’ surface for the rack to move along and should be tensioned to a point where the gears of the cog and the rack mesh correctly. If adjusted too tightly excessive interference between the gears will cause inefficient operation and rapid wear to the gear teeth. If the pads are under-tightened there will be too much slack in the gears which can cause them to ‘slip’ or in extreme cases even break the ends off the teeth. The procedure for setting the wear pads is stated below.



Wear Pad Setting

With their locking nuts released, tighten bolts ‘A’ and ‘B’ equally to a point where pad ‘C’ is tight to rack ‘D’ then slacken them back them off slightly enough only to allow gear teeth on ‘D’ and ‘E’ the freedom to mesh correctly without any excessive play. Secure adjustment bolts ‘A’ and ‘B’ by re-tightening their locking nuts. Replace safety guards.

NOTE: Failure to ensure wear pads are regularly and correctly tensioned can result in the loss of loosely fitted pads or expensive component damage as previously described.



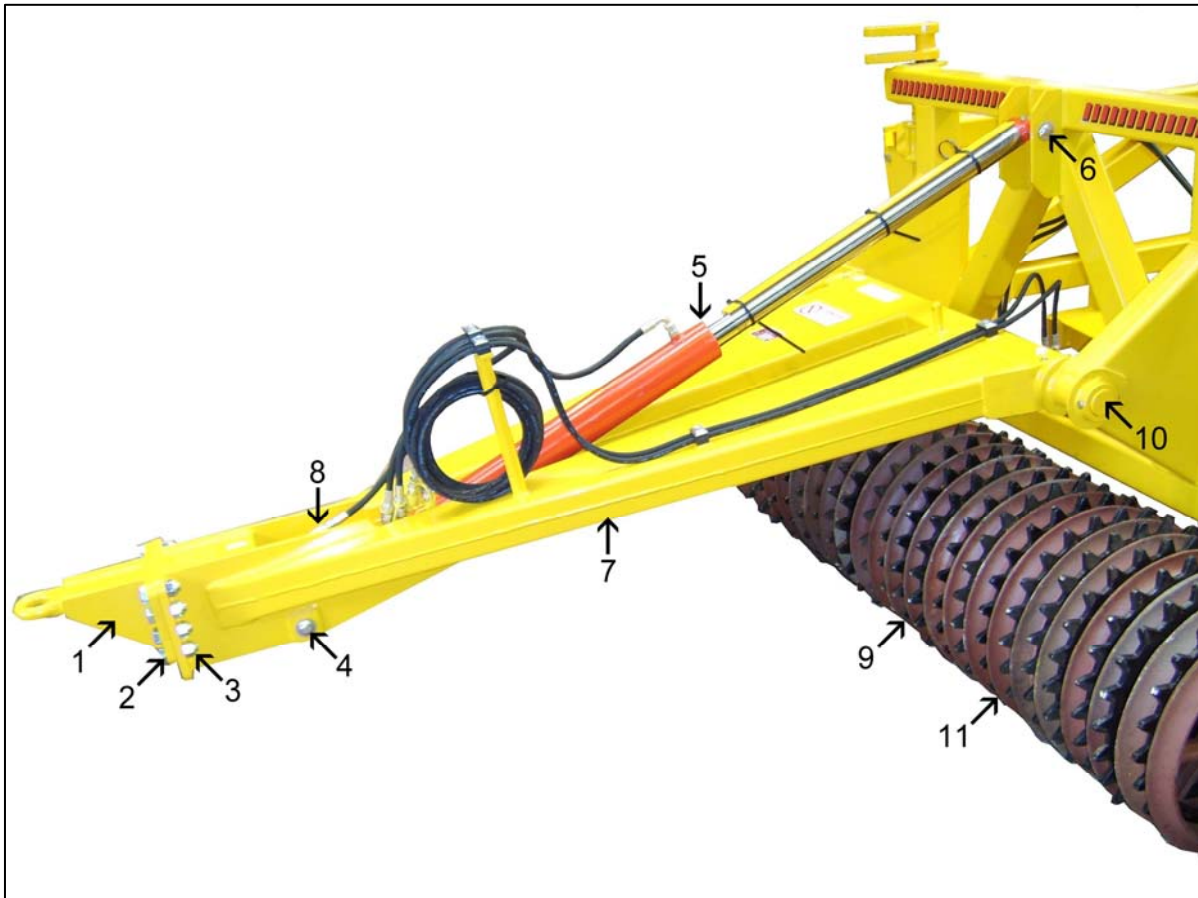
DANGER! Never attempt to operate the machine or manually move the wings if gears are slipping or broken; replace damaged components immediately and correctly set the pads before use.

Refer to Safety and General Information sections before servicing the machine.

5 Gang Folding Rollers
10m & 12m Series

Parts Section

FRONT DRAWBAR ASSEMBLY



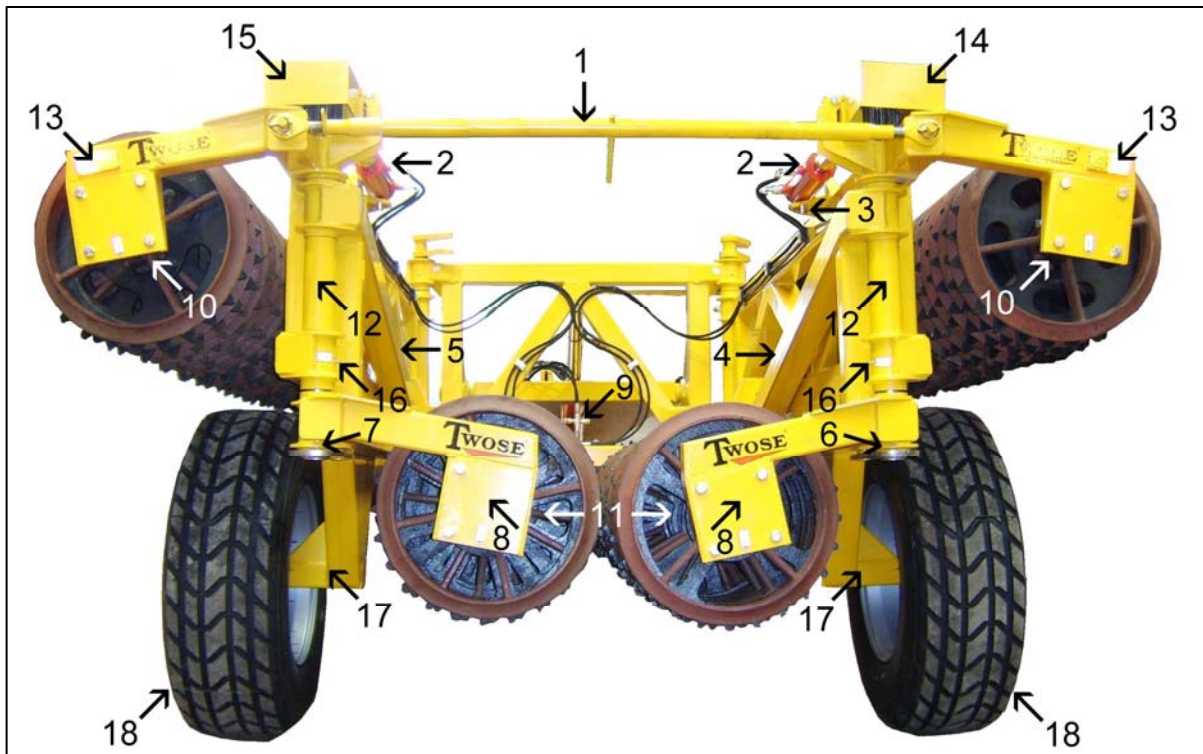
REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
FRONT DRAWBAR ASSEMBLY				
1	1	1	181.074	Ring Hitch
2	8	8	05.285.01	Bolt
3	8	8	05.287.06	Lock Nut
4	1	1	181.028	Ram Cylinder Pin
5	1	1	T1810030	Main Folding Ram
6	1	1	181.027	Ram Rod Pin
7	1	1	181.073	Drawbar
8	1	1	T7867	Restrictor (One way)
9	1	1	181.031	Roller Shaft (Centre)
10	1	1	181.029	Drawbar Pivot Pin
11	<i>Refer to specific ring page</i>			Rings

FRONT CENTRE FRAME



REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
FRONT CENTRE FRAME				
1	1	1	181.053	Centre Frame
2	1	1	181.054	Inner Wing - N/S
3	1	1	181.055	Inner Wing - O/S
4	1	1	181.068	Compensator Link
5	1	1	181.067R	Pivot Pin - N/S
	4	4	T6935	Pivot Pin Bush - <i>Not shown</i>
6	1	1	181.067L	Pivot Pin - O/S
	4	4	T6935	Pivot Pin Bush - <i>Not shown</i>
7	4	4	05.292.49	Bolt
8	4	4	05.287.05	Lock Nut
9	2	2	207.126	Roller Shaft Bearing
10	2	2	181.062	Pivot Pin Spacer
11	2	2	7560155	Adhesive Reflector (Yellow)

REAR ROLLER FRAME



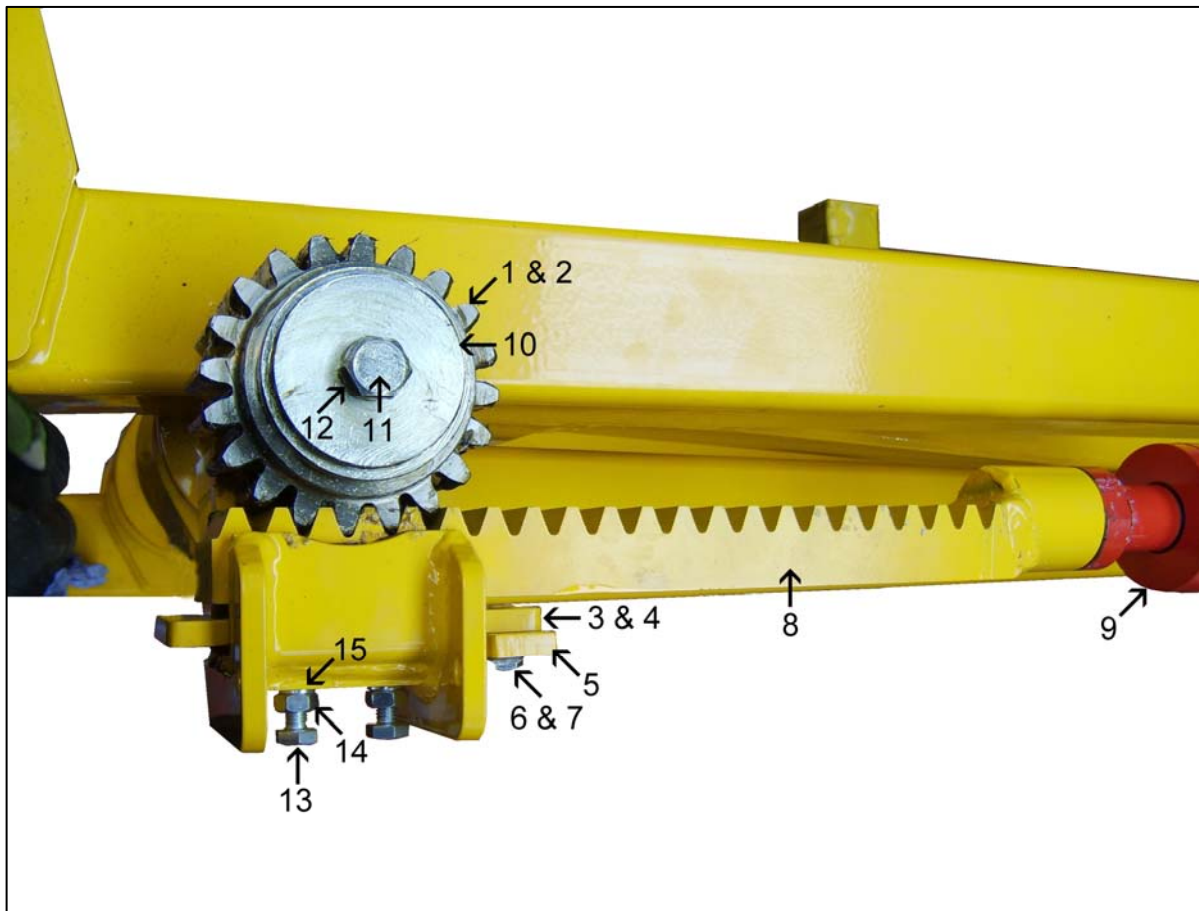
REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
REAR ROLLER FRAME				
1	1	1	181.040	Adjustable Tie Bar
2	2	2	T1810025	Outer Wing Folding Ram
3	2	2	181.026	Outer Wing Ram Pivot Pin
4	-	1	181.057	Outer Wing N/S
	1	-	181.058	Outer Wing N/S
5	-	1	181.056	Outer Wing O/S
	1	-	181.059	Outer Wing O/S
6	1	1	181.016L	Outer Wing Pivot Pin (N/S)
	4	4	T6935	Pivot Pin Bush (Not Shown)
7	1	1	181.016R	Outer Wing Pivot Pin (O/S)
	4	4	T6935	Pivot Pin Bush (Not Shown)
8	4	4	207.126	Outer Wing Roller Bearing
9	2	2	8107020	Wing Speed Control Valve
10	2	2	181.032	Inner Wing Roller Shaft
	-	2	181.031	Outer Wing Roller Shaft
11	2	-	181.064	Outer Wing Roller Shaft
12	2	2	181.018	Outer Pivot Pin Spacer
13	2	2	7560093	Adhesive Reflector (Red)
14	1	1	208.015	Rack & Pinion Guard O/S
15	1	1	208.014	Rack & Pinion Guard N/S
16	14	14	05.953.03	Grease Nipple
17	2	2	<i>See axle page</i>	Axles
18	2	2	T8105	Wheel & Tyre 16.5 x 18

OUTER WING FRAME



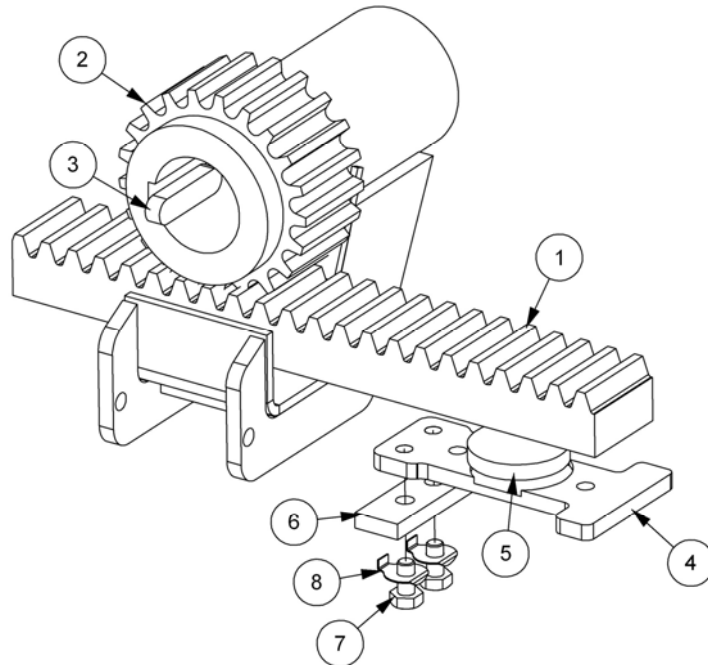
REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
				OUTER WING FRAME
1	2	2	181.063	Outer Wing Support Roller
2	2	2	05.292.38	Bolt
3	2	2	05.287.04	Lock Nut
4	2	2	T1810025	Outer Wing Folding Ram
5	2	2	181.026	Folding Ram Pivot Pin
6	2	2	181.021	Rack
7	1	-	181.058	Outer Wing - N/S
	-	1	181.057	Outer Wing - N/S
	1	-	181.059	Outer Wing - O/S
	-	1	181.056	Outer Wing - O/S

OUTER WING FOLDING RACK & PINION



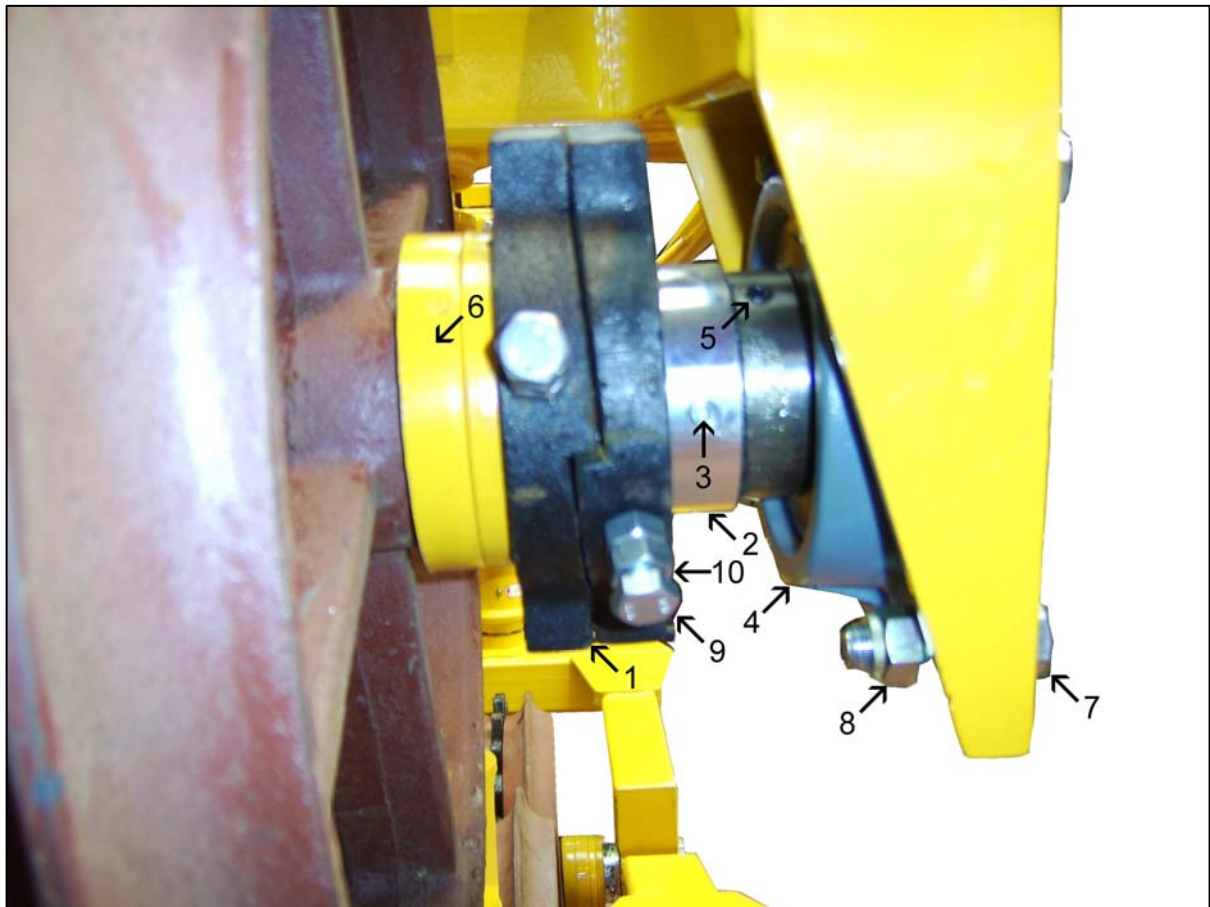
REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
OUTER WING RACK & PINION				
1	2	2	181.022	Gear
2	2	2	T6936	Key - <i>Not shown</i>
3	2	2	181.023	Wear Plate
4	2	2	181.024	Nylon Pad - <i>Not shown</i>
5	2	2	181.023.001	Retaining Plate
6	4	4	05.264.11	Bolt
7	4	4	07.495.01	Lock Tab
8	2	2	181.021	Rack
9	2	2	T1810025	Ram Outer Wing Folding
10	2	2	181-042	Washer
11	2	2	05.264.33	Setscrew
12	2	2	05.282.04	Spring Washer
13	4	4	9313126	Setscrew
14	4	4	05.286.03	Nut
15	4	4	05.282.03	Spring Washer

WEAR PAD CARRIER ASSEMBLY



REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
				WEAR PAD CARRIER
1	1	1	181.021	Rack
2	1	1	181.022	Gear
3	1	1	T6936	Key
4	1	1	181.023	Pad Carrier
5	1	1	181.024	Wear Pad
6	1	1	181.023.001	Retaining Plate
7	2	2	05.264.11	Bolt
8	2	2	07.495.01	Tab Washer

ROLLER SHAFT FIXINGS



REF.	QTY.		PART No.	DESCRIPTION
	10.4	12.4		
ROLLER SHAFT FIXINGS				
1	12	12	1540002B	Adjuster Cam
2	10	10	183.092	Spacer Locking
3	20	20	T7697	Grub Screw
4	10	10	207.126	Roller Shaft Bearing
5	10	10	T60771	Grub Screw
6	<i>As required</i>		039.032.003	Spacer Washer - 3mm
	<i>As required</i>		039.032.006	Spacer Washer - 6mm
	<i>As required</i>		039.032.008	Spacer Washer - 8mm
	<i>As required</i>		039.032.010	Spacer Washer - 10mm
	<i>As required</i>		039.032.012	Spacer Washer - 12mm
	<i>As required</i>		039.032.015	Spacer Washer - 15mm
	<i>As required</i>		039.032.020	Spacer Washer - 20mm
	<i>As required</i>		039.032.025	Spacer Washer - 25mm
	<i>As required</i>		039.032.030	Spacer Washer - 30mm
	<i>As required</i>		039.032.040	Spacer Washer - 40mm
7	40	40	05.291.36	Bolt
8	40	40	05.287.04	Lock Nut
9	12	12	9313126	Setscrew
10	24	24	05.286.03	Nut

FOLDING ROLLER ONLY

Stub Axle (FAD) 10.4 & 12.4 Models

U-WF/--- *Up to 31/05/98*

Axle Assembly	T6941	70mm Square Shaft
Hub Cap	6941.3	900mm Tap-on
Seal	6941.2	
Inner Bearing	6941.4	
Outer Bearing	6941.5	
Wheel Nut	T7660	
Wheel Stud	T7661	
Castle Nut	6941.6	

Stub Axle (FAD) 10.4 & 12.4 Models

U-WF/--- *From 01/06/98 to July 2004*

Axle Assembly	T8102	80mm Square Shaft
Hub Cap	8102.1	110mm Tap-on
Seal	8102.3	
Inner Bearing	8102.4	
Out Bearing	8102.5	
Wheel Studs	T7661	
Wheel Nuts	T7660	
Castle Nut	8102.7	

Stub (ROC) Axle 10.4 & 12.4 Models

U-WF/--- *From July 2004 up to June 2005 Std duty axle fitted short term
No parts stocked for this axle - source from outside suppliers*

		ROC REF.
Axle Assy	706A	80mm (RNG) ROC
Hub Cap	7301302	Screw-on
Seal	7301301	(65 x 119 x 4)
Inner Bearing	505023	(30213)
Outer Bearing	505020	(30209)
Wheel Studs	10096A	M18 x 1.5 IG = 40/54
Wheel Nuts	10859D	M18 x 1.5 24 plated
Castle Nut	7308304	M36 x 2 H = 25

Stub Axle (ROC) Heavy Duty 10.4 & 12.4 Models

U-WF/--- *From June 2005*

Axle Assy	208.013	80mm Square Shaft (RNG)
Hub Cap	208.013.08	Screw-on
Seal	208.013.06	
Inner Bearing	208.013.10	
Outer Bearing	208.013.11	Use 8102.5
Castle Nut	208.013.07	45mm pas 2.00

CAMBRIDGE ROLLER RING QUANTITY

Model	Width	Type	Dia.	Part Number	Description	Qty.
UHF/21/C1	6.3M	C	22"	T1830062	STANDARD HUB	73
UHF/21/CB3	6.3M	CB	19"	T1830051	OFFSET HUB	59
				T1830052	BREAKER	56
UHF/21/CB4	6.3M	CB	22"	T1830060	OFFSET HUB	59
				T1830061	BREAKER	56
UHF/21/LC2	6.3M	LC	24"	T1830091	STANDARD HUB	73
UHF/24/C1	7.2M	C	22"	T1830062	STANDARD HUB	80
UHF/24/CB3	7.2M	CB	19"	T1830051	OFFSET HUB	67
				T1830052	BREAKER	64
UHF/24/CB4	7.2M	CB	22"	T1830060	OFFSET HUB	67
				T1830061	BREAKER	64
UHF/24/LC2	7.2M	LC	24"	T1830091	STANDARD HUB	83
UHF/27/C1	8.1M	C	22"	T1830062	STANDARD HUB	91
UHF/27/CB3	8.1M	CB	19"	T1830051	OFFSET HUB	75
				T1830052	BREAKER	72
UHF/27/CB4	8.1M	CB	22"	T1830060	OFFSET HUB	75
				T1830061	BREAKER	72
UHF/27/LC2	8.1M	LC	24"	T1830091	STANDARD HUB	91
UWF/34/C1	10.4M	C	22"	T1830062	STANDARD HUB	124
UWF/34/CB3	10.4M	CB	19"	T1830051	OFFSET HUB	97
				T1830052	BREAKER	92
UWF/34/CB4	10.4M	CB	22"	T1830060	OFFSET HUB	97
				T1830061	BREAKER	92
UWF/34/LC2	10.4M	LC	24"	T1830091	STANDARD HUB	124
UWF/41/C1	12.4M	C	22"	T1830062	STANDARD HUB	141
UWF/41/CB3	12.4M	CB	19"	T1830051	OFFSET HUB	115
				T1830052	BREAKER	110
UWF/41/CB4	12.4M	CB	22"	T1830060	OFFSET HUB	115
				T1830061	BREAKER	110
UWF/41/LC2	12.4M	LC	24"	T1830091	STANDARD HUB	141