



Twose Series ROTA-ROLL

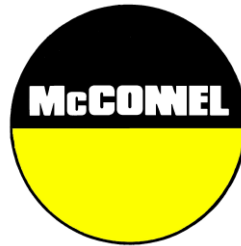
3.6M Folding Roller Operator & Parts Manual

Publication 686

May 2016

IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with McConnel 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 McConnel Limited web site at **www.mcconnel.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 McConnel Service Department on 01584 875848.

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 McConnel 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.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

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 McConnel 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 mounted machines supplied by McConnel 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.*
All Self Propelled Machines supplied by McConnel 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 or 1500 hours. Engine warranty will be specific to the Manufacturer of that unit.
- 1.02. *All spare parts supplied by McConnel 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 McConnel 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 McConnel Ltd's serial number plate has been removed or altered.*
- 1.05. *The warranty policy is valid for machines registered in line with the terms and conditions detailed and on the basis that the machines do not extend a period of 24 months or greater since their original purchase date, that is the original invoice date from McConnel Limited.*
Machines that are held in stock for more than 24 months cannot be registered for warranty.
- 1.06. *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.*
- 1.07. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.08. *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.*
- 1.09. *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 McConnel Ltd cannot be held liable, and may have safety implications.*
- 1.10. *If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.*

- 1.11. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnell Ltd.*
- 1.12. *For machine warranty periods in excess of 12 months the following additional exclusions shall apply:*
 - 1.12.1. *Hoses, exposed pipes and hydraulic tank breathers.*
 - 1.12.2. *Filters.*
 - 1.12.3. *Rubber mountings.*
 - 1.12.4. *External electric wiring.*
 - 1.12.5. *Bearings and seals*
 - 1.12.6. *External Cables, Linkages*
 - 1.12.7. *Loose/Corroded Connections, Light Units, LED's*
 - 1.12.8. *Comfort items such as Operator Seat, Ventilation, Audio Equipment*
- 1.13. *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.*
- 1.14. *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. McConnell 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 McConnell 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 McConnell 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 McConnell 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 McConnell 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 McConnell Ltd Service Dealer, within 30 days of the date of repair.*
- 2.05. *Following examination of the claim and parts, McConnell Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnell 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 McConnell Ltd. is final.*

3. LIMITATION OF LIABILITY

- 3.01. *McConnell 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. *McConnell Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
- 3.03. *Except as provided herein, McConnell 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. McConnel 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.*

McConnel Limited



DECLARATION OF CONFORMITY

Conforming to EU Machinery Directive 2006/42/EC

We,

McCONNEL LIMITED, Temeside Works, Ludlow, Shropshire SY8 1JL, UK

Hereby declare that:

The Product; *Tractor Trailed Folding Roller*

Product Code; *TWBR*

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 ISO 14120 (2015) 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.

McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

This system is continually assessed by the;

British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK
BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.
The EC declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed *Responsible Person*
CHRISTIAN DAVIES on behalf of McCONNEL LIMITED

Status: *General Manager*

Date: *January 2018*

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GENERAL INFORMATION

Always read this manual before fitting or operating the machine – whenever any doubt exists contact your dealer or the McConnel Service Department for advice and assistance.

Use only McConnel Genuine Service Parts on McConnel Equipment and Machines

DEFINITIONS – The following definitions apply throughout this manual:

WARNING

An operating procedure, technique etc., which –
can result in personal injury or loss of life if not observed carefully.

CAUTION

An operating procedure, technique etc., which –
can result in damage to either machine or equipment if not observed carefully.

NOTE

An operating procedure, technique etc., which –
is considered essential to emphasis.

LEFT AND RIGHT HAND

This term is applicable to the machine when attached to the tractor and is viewed
from the rear – this also applies to tractor references.

MACHINE & DEALER INFORMATION

Record the Serial Number of your machine on this page and always quote this number when ordering parts. Whenever information concerning the machine is requested remember also to state the make and model of tractor to which the machine is fitted.

Machine Serial Number:

Installation Date:

Machine Model details:

Dealer Name:

Dealer Address:

Dealer Telephone No:

Dealer Email Address:

MACHINE DESCRIPTION & PURPOSE OF USE

The Twose 'Rota-Roll' is tractor trailed, hydraulically folding, single unit roller equipped with a drawbar hitch coupling system for attachment to agricultural vehicles. The sole purpose of the machine is for use in rolling cultivated land.

For simplicity of use and efficient transportation the machine has an ingenious 'self-folding' system that allows the operator to rapidly move the machine between the work position and a compact 'inline' transport positions in under a minute.

This machine should only be used to perform the task for which it was designed – use of the machine for any other purpose may be dangerous to persons and damaging to components and therefore not advisable.

MACHINE IDENTIFICATION

Each machine is fitted with an identification plate with the following information:

1. Machine (Part Number)
2. Machine Serial No.
3. Machine Weight

When ordering spares or replacement parts from your local dealer it is important to quote both Part Number and Serial Number as stated on the identification plate so the machine and model can be quickly and correctly identified.



Machine Identification Plate

TECHNICAL SPECIFICATIONS

Specification	SRR1239
Working Width	3600mm (12' 0")
Machine Width	3910mm (13' 3")
Transport Width	2200mm (7' 2")
Transport Length	5500mm (18' 0")
Minimum Tractor Power Requirement	30kw / 100HP
Machine Weight	2,200kg
Machine Weight including Ballast (water)	4,200kg
Tractor Attachment	Hitch
No. of Drums	2
Drum Width	1800mm (6' 0")
Drum Diameter	390mm (3' 3")
Drum Axle Diameter	65mm
No. of Wheels	2
Tyres	12.5 / 80 x 15.3 (14ply)
Maximum Hydraulic Pressure	200bar

SAFETY INFORMATION

General safety rules:

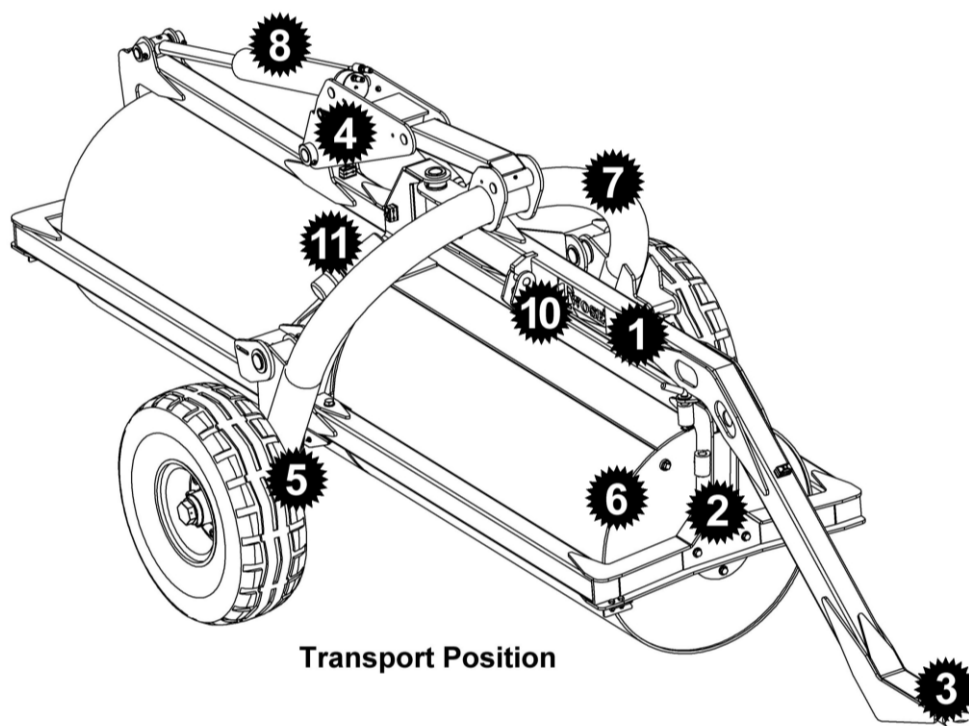
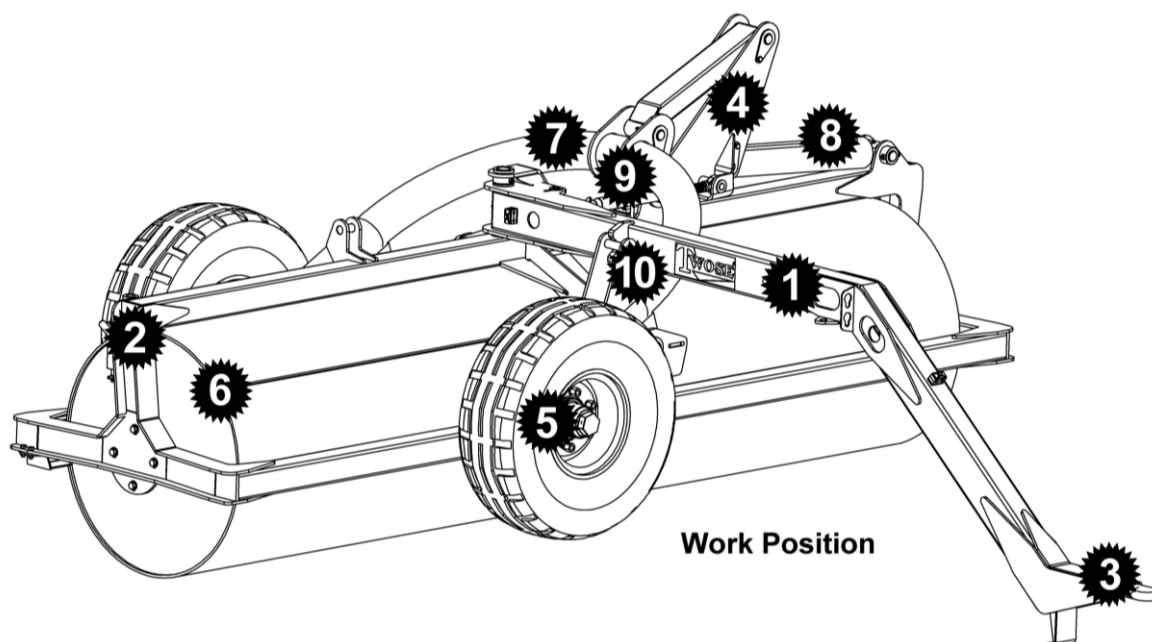
- ▲ Always read and follow the instructions for the use and maintenance of the machine before carrying out any work operations or servicing tasks.
- ▲ Attachment, Detachment, Storage and Folding of this machine must be on firm level ground only - never attempt any of these procedures on sites where the machine is at risk of moving or sliding under its own weight. Keep bystanders at a safe distance during all manoeuvres.
- ▲ Improper use of the machine is both highly dangerous to persons and damaging to the machine components – only use the machine for its designated task.
- ▲ Both operators and the maintenance fitters should be familiar with the machine and fully aware of dangers surrounding improper use or incorrect repairs.
- ▲ Before starting, checks to both tractor and machine must be carried out as regards: functionality, road safety, accident prevention rules.
- ▲ During checks or repairs, ensure nobody can start the machine by mistake.
- ▲ Never carry passengers on the tractor.
- ▲ Never carry passengers on the machine.
- ▲ Never allow anyone to approach the machine when it is working or whilst it is being folded.
- ▲ Before starting, check the surrounding area for the likely presence of persons and/or animals.
- ▲ Never allow persons to stand near the machine when it is operating.
- ▲ Replace missing or damaged safety decals immediately.
- ▲ Ensure there is sufficient space before attempting to unfold or fold the machine.
- ▲ Always fit the transport pin and secure before transporting the machine.
- ▲ Always park or store the machine on a firm level site and chock the wheels securely.
- ▲ Never allow children to climb or play on the machine under any circumstances.

Transportation Safety

- ▲ Ensure the machine is folded fully into its transport position and the transport locking pin is correctly fitted before attempting to transport the machine.
- ▲ In transport always keep speed to a minimum, especially on bumpy roads, the weight of the machine may render driving difficult and could cause damage to the machine.
- ▲ When driving on public roads, respect all road rules in force.
- ▲ Be aware of the machines width and length when transporting the machine; allow sufficient space to manoeuvre around buildings and other road users.

Although the information given here covers a wide range of safety subjects, it is impossible to predict every eventuality that can occur under differing circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your Twose machine.

COMPONENT IDENTIFICATION & LOCATION



1. Main Beam
2. Roller Frame
3. Hitch
4. Rocker
5. Wheel/Axle Assembly
6. Roller
7. Axle Bridge
8. Fold Ram
9. Adjustable Link
10. Machine Brace Position
11. Manual Holder

HANDLING AND PRE-INSTALLATION

Lifting and Unloading

Unloading and handling of the machine should be performed using suitable overhead lifting equipment with a minimum capacity in excess of the total weight of the machine, ensure the machine is in a balanced condition before lifting. Keep all persons at a safe distance from the raised load.

Pre-Attachment

Before attaching the machine to the tractor for use it is important to;

- Visually check the general condition of the machine and check that all parts are present and intact.
- Grease the machine fully – *refer to maintenance section for details.*



WARNING!

Attachment, removal and storage of the machine must always be on a firm level site – failure to observe this precaution can result in serious injury or damage.

Attaching the Machine

- With the tractor and machine on firm level ground, back the tractor up to the machine with the tractors pick up hitch centrally in line with the tow ring on the rollers tow bar.
- Lower the tractors pick up hitch to a height lower than the tow ring and reverse into a position where the hitch is directly below it.
- Slowly raise the pickup hitch ensuring that it is engaged in the rollers tow ring, continue to raise the hitch until it is securely locked.
- Connect the hydraulic hoses of the roller to tractors service.
- Remove any wheel chocks that have been used to secure the machine.
- Place the machine into the required position for either work or transport; if transporting the machine, ensure it is folded fully in and the transport pin fitted and secured.

NOTE: For transportation on the public highway ensure that a legally approved lighting board is fitted and connected.

Detaching the Machine

Detachment of the machine is a reversal of the procedure above. Ensure the site chosen for machine detachment is a firm, level location for both safe parking and subsequent ease of re-attachment. Keep bystanders at a safe distance and always chock the wheels to prevent any risk of machine movement whilst parked or stored.

Machine Storage

The machine should ideally be stored in a clean, dry environment where it is protected from the elements. Clean and lubricate the machine prior to storage, and inspect for damaged and/or missing components so they can be pre-ordered and fitted ready for the next seasons work. Ensure the machine is parked safely at all times with no risk of moving or falling. Always drain water ballast from the rollers prior to long term storage; this is especially important for storage of the machine over winter periods.

It is recommended, wherever possible, that the machine is stored in its work position; in this mode the wheels are raised clear of the ground so the weight of the machine is supported on the rollers and not on the tyres. An additional benefit when folded into this position is that the ram rod will be retracted within the cylinder therefore protecting its chromed surface.

TRANSPORT & WORK POSITIONS



CAUTION!

Unfolding or folding the machine must only be performed on a firm level site – never attempt to unfold or fold the machine on sloping or soft ground.

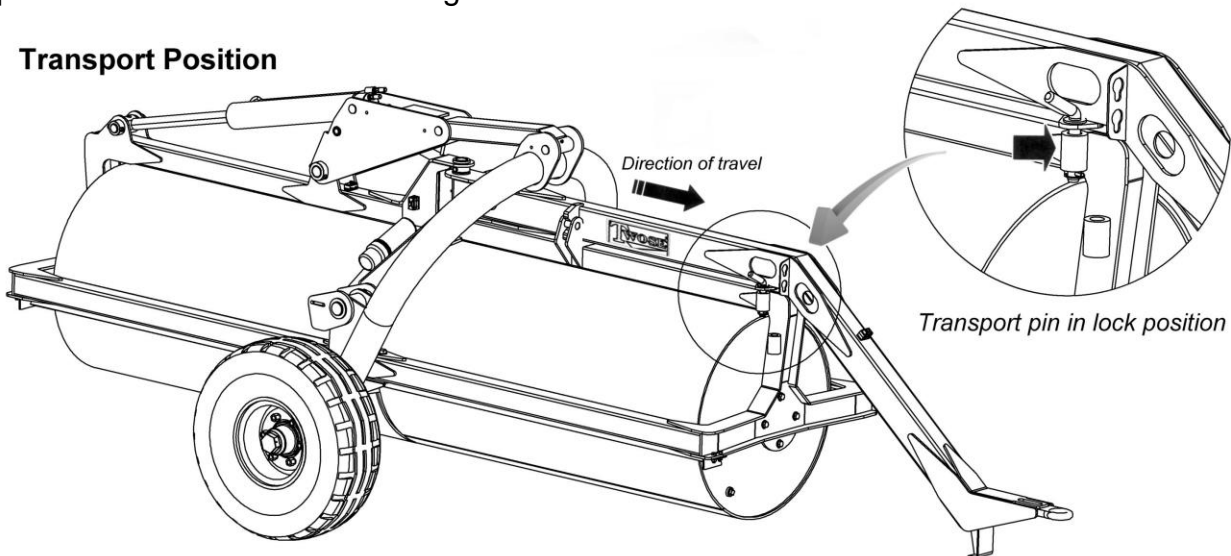
Transport

For transportation the roller is folded into the 'inline' position; in this mode the wheels are on the ground and fully supporting the raised roller. During transport the main beam and the roller support beam must be locked in position with the transport pin and secured with the linch pin. For machine transport keep the driving speed to a minimum, especially on bumpy roads as the weight of the machine may render driving difficult.

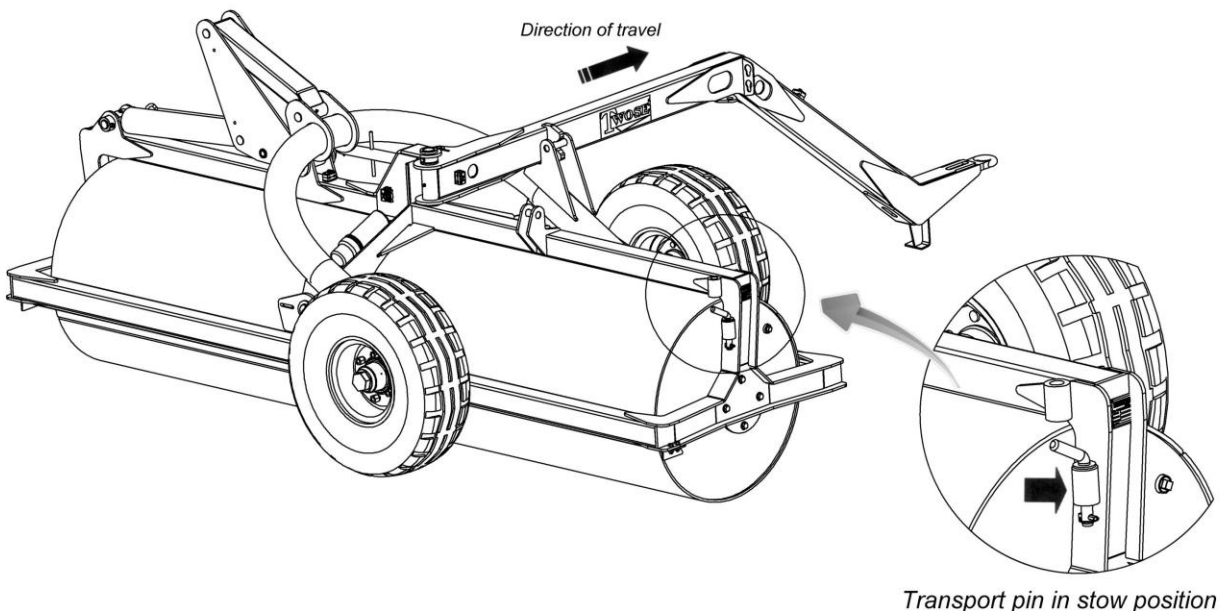
Work

The procedure for moving the machine from transport to work position is as follows; Release and remove the transport pin from its locking position, and store it in the stowage location provided on the vertical strut of the roller frame. Slowly operate the tractor's spool valve to retract the machines hydraulic ram; the roller unit will rotate about its axis and gradually lower to the ground at which point the wheels will be raised clear of the ground, continue to operate the controls until the machine has folded out fully - the machine is now in the work position. The working speed will vary depending on various factors but in general the slower the driving speed to more effective the rolling.

Transport Position



Work Position



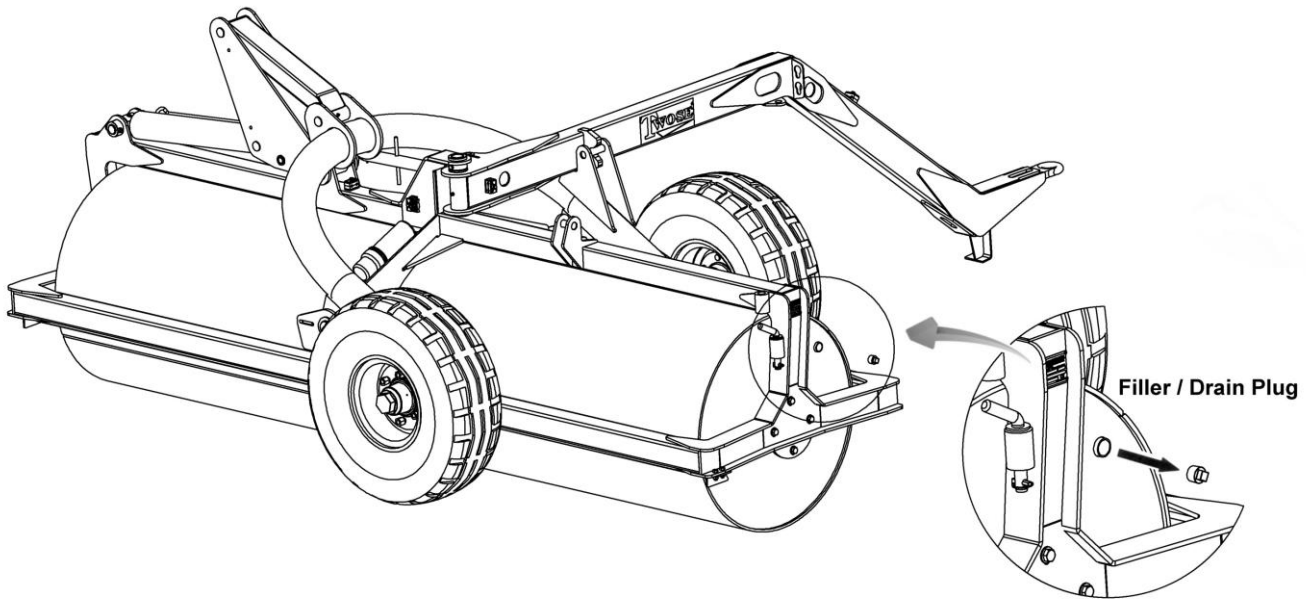
ADDITIONAL BALLAST

The outer ends of each roller is equipped with an access plug allowing them to be filled with a water in order to provide extra ballast. Each roller has a maximum capacity of 1000 litres; if both are filled to capacity this would provide an additional overall rolling weight of approximately 2 tonnes.

The rollers can be filled to any level to suit requirements but the amount of ballast used in each must always be equal so that the rolling is even during work, and the machine is evenly balanced for transportation.

It is important that any water in the rollers is drained prior to storage, and vital before winter storage – failure to observe this can result in serious damage to the rollers should any water in them freeze.

It is not recommended that oils, chemicals or other hazardous liquids be used in the rollers for ballast as there are environmental risks involved in subsequently attempting to drain them.



BRACE SYSTEM & ADJUSTMENT

Brace System

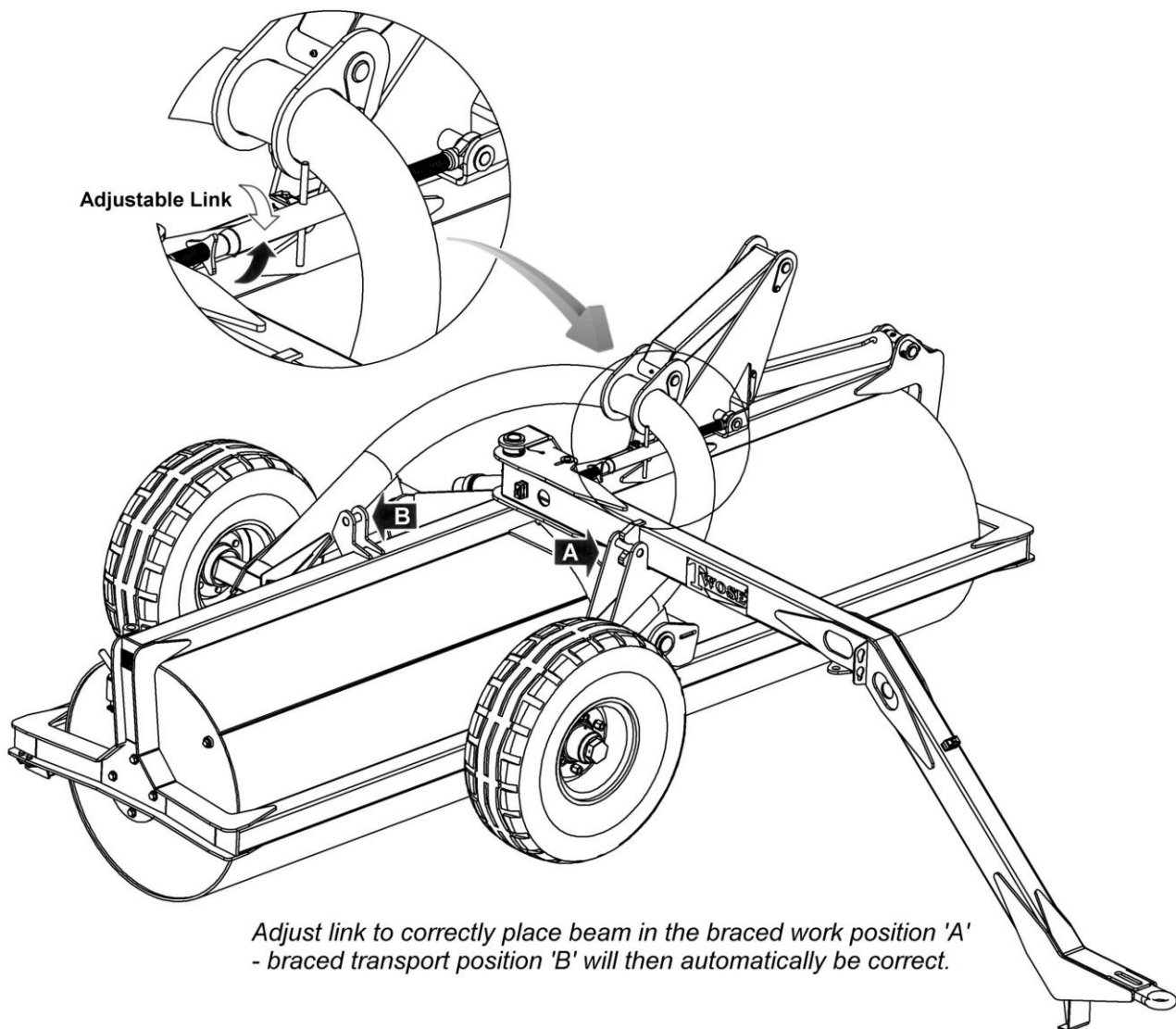
In order to 'brace' the machine in both transport and work position, a fixed lug on the main beam is designed to locate with receiver brackets positioned on the roller frame and on the axle bridge assembly respectively; when correctly engaged, in either position, it acts as a locking mechanism for the main beam to reduce stress on the main pivot position.

It is important that the machine always fully engages in both the positions; if the machine fails to engage correctly the folding mechanism will require adjusting, this is performed by altering the length of the adjustable link between the main beam and the rocker assembly.

Brace Adjustment

Adjustment must only be made with the machine in the work position; tighten or loosen the link to bring the beam into a position where the fixed lug 'just' fully locates with its receiving bracket, adjustment of the link is only required in the work position as the machines geometry dictates that the transport position will then automatically be correct.

The adjustable link should be inspected on a regular basis for signs of wear on the end joints; these should be replaced when signs of wear are detected as this will alter the geometry resulting in the machine not 'bracing' correctly.



MAINTENANCE

Daily Maintenance

- Grease shaft bearings thoroughly.
- Check wheel nuts for tightness – 185 lbs/ft. (250Nm).

Weekly Maintenance

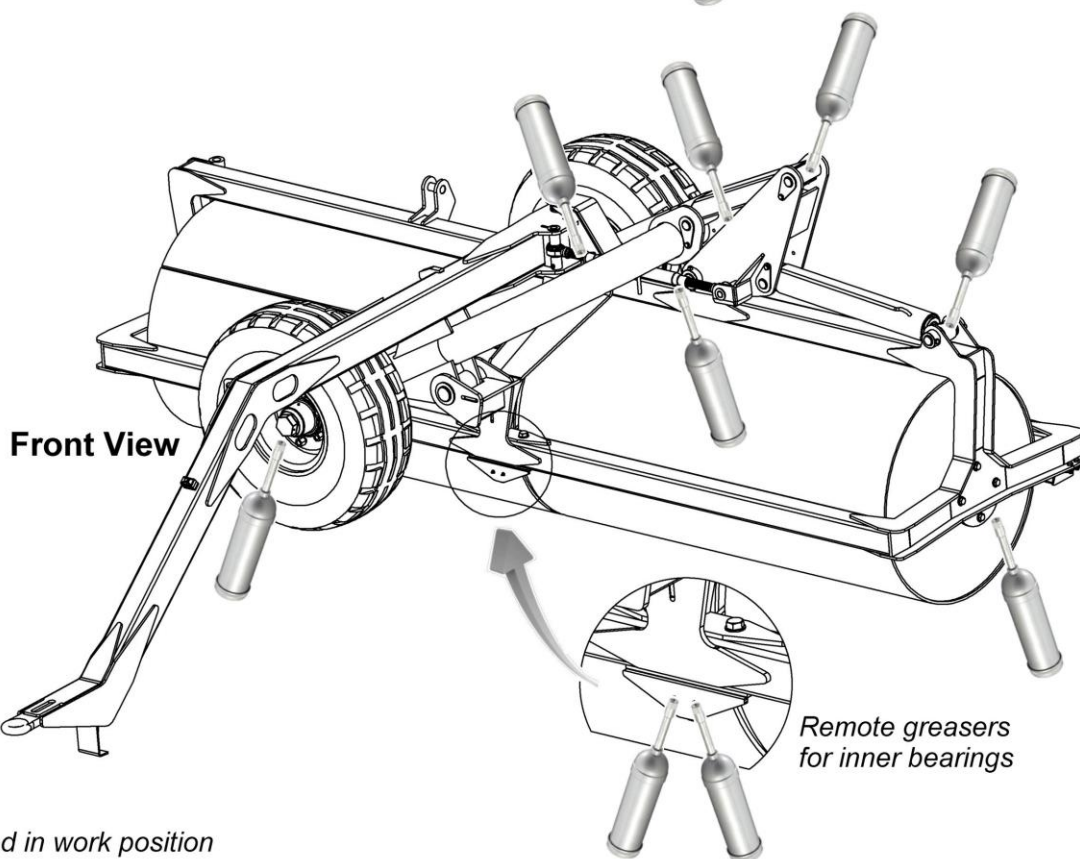
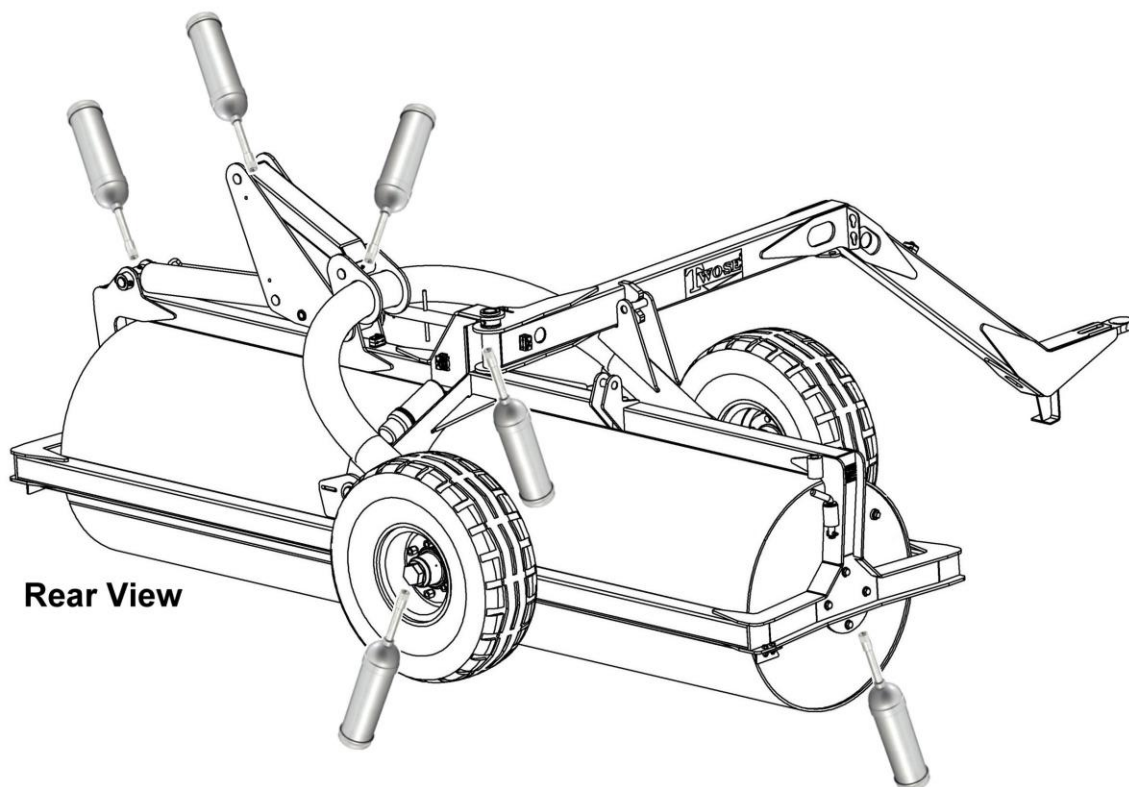
- Grease pivot points thoroughly.
- Check all nuts and bolts for tightness.
- Check tyres for damage and ensure they are correctly inflated to 70psi (5.2Bar).
- Check and grease wheel bearings.
- Inspect hoses for splits or damage.
- Inspect hydraulics rams for signs of leaks or damage.

Laying Up & Pre-Storage Maintenance

- Ram rods should be closed or greased to protect chrome surfaces.
- Drain water ballast from rollers.
- Clean machine thoroughly and inspect for damaged or worn components; *arrange for spares or repair if required to ensure the machine is ready for next seasons work.*
- Lubricate the machine fully and store in a dry undercover location.

Lubrication Points

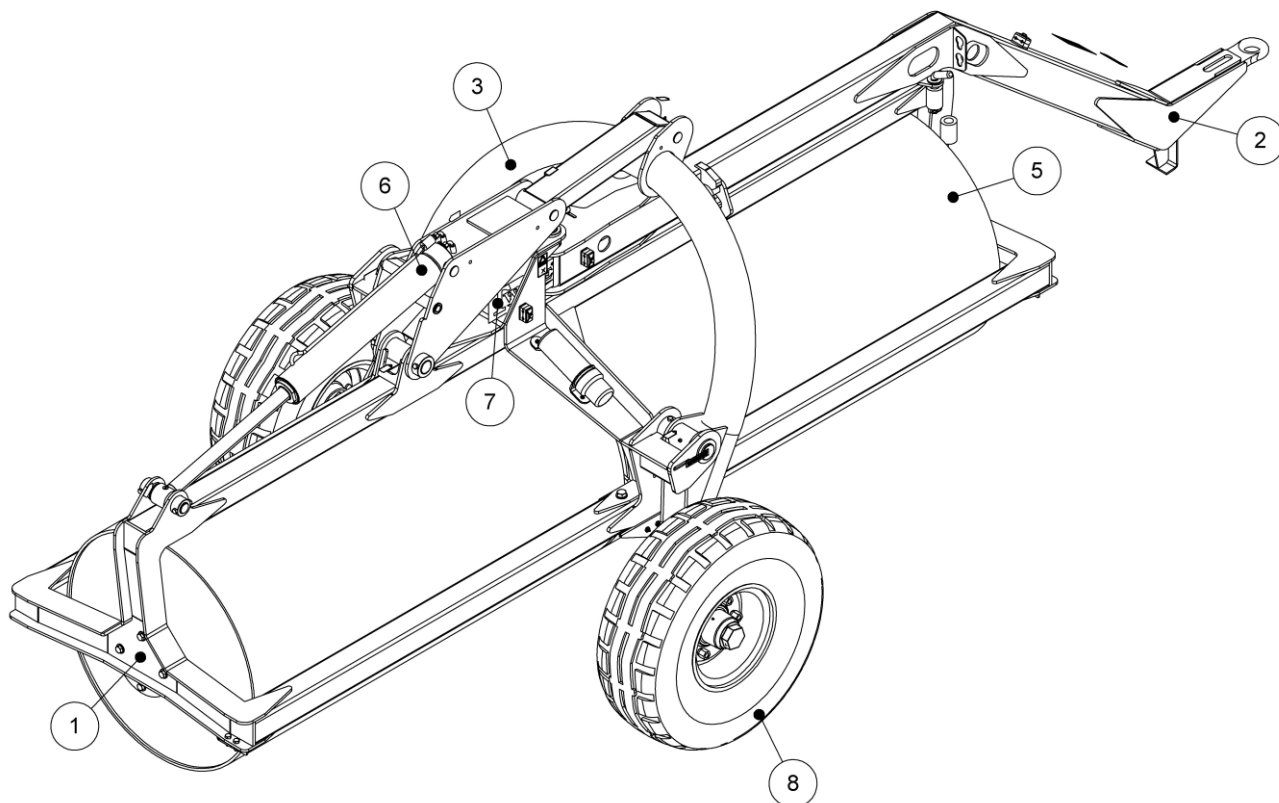
The illustrations below indicate the locations of the machines lubrication points; always grease the machine fully before use and prior to storage – *refer to maintenance schedule on previous page for details.*



Roller illustrated in work position

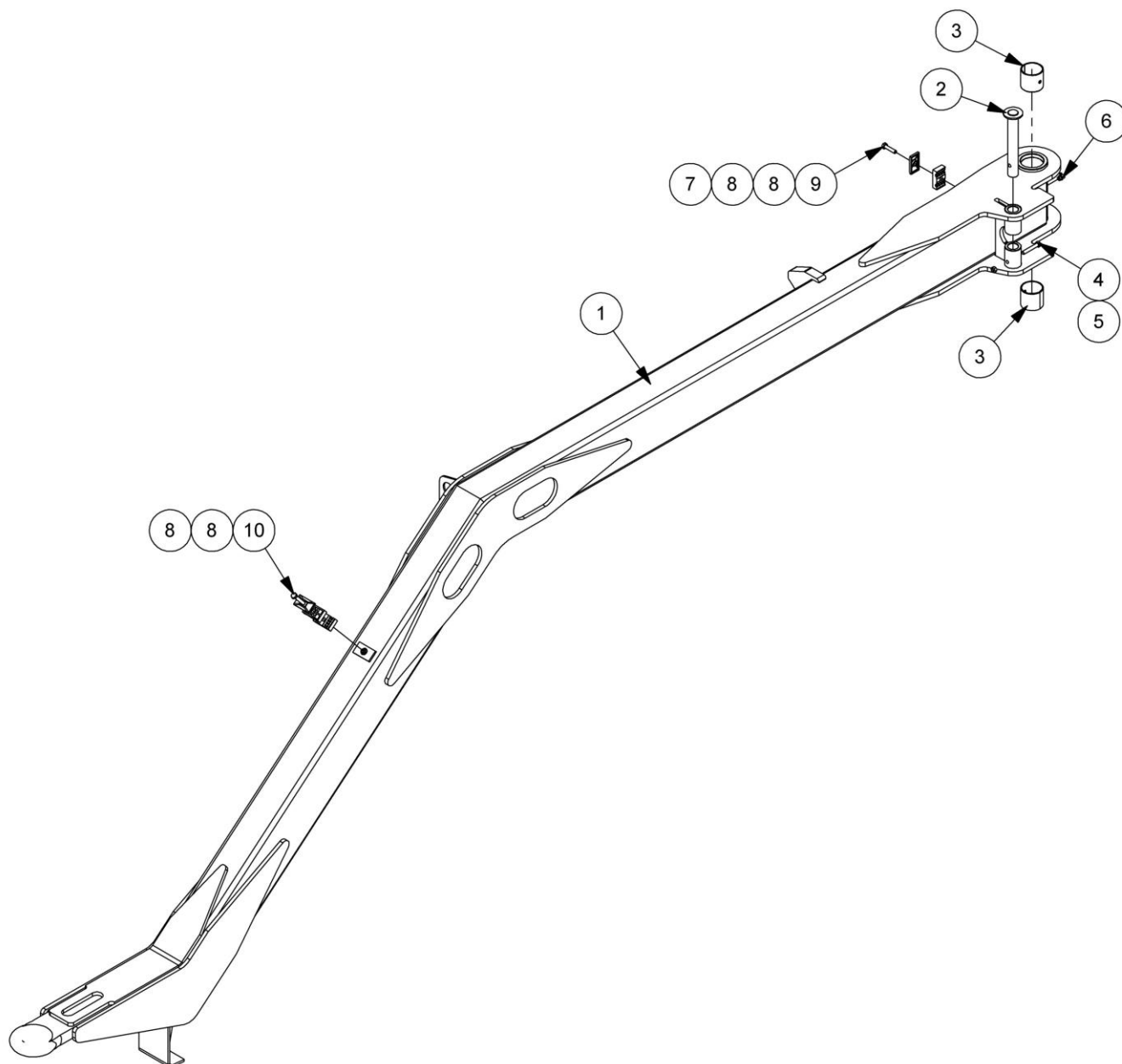
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Parts Manual

ROTA-ROLL ASSEMBLY

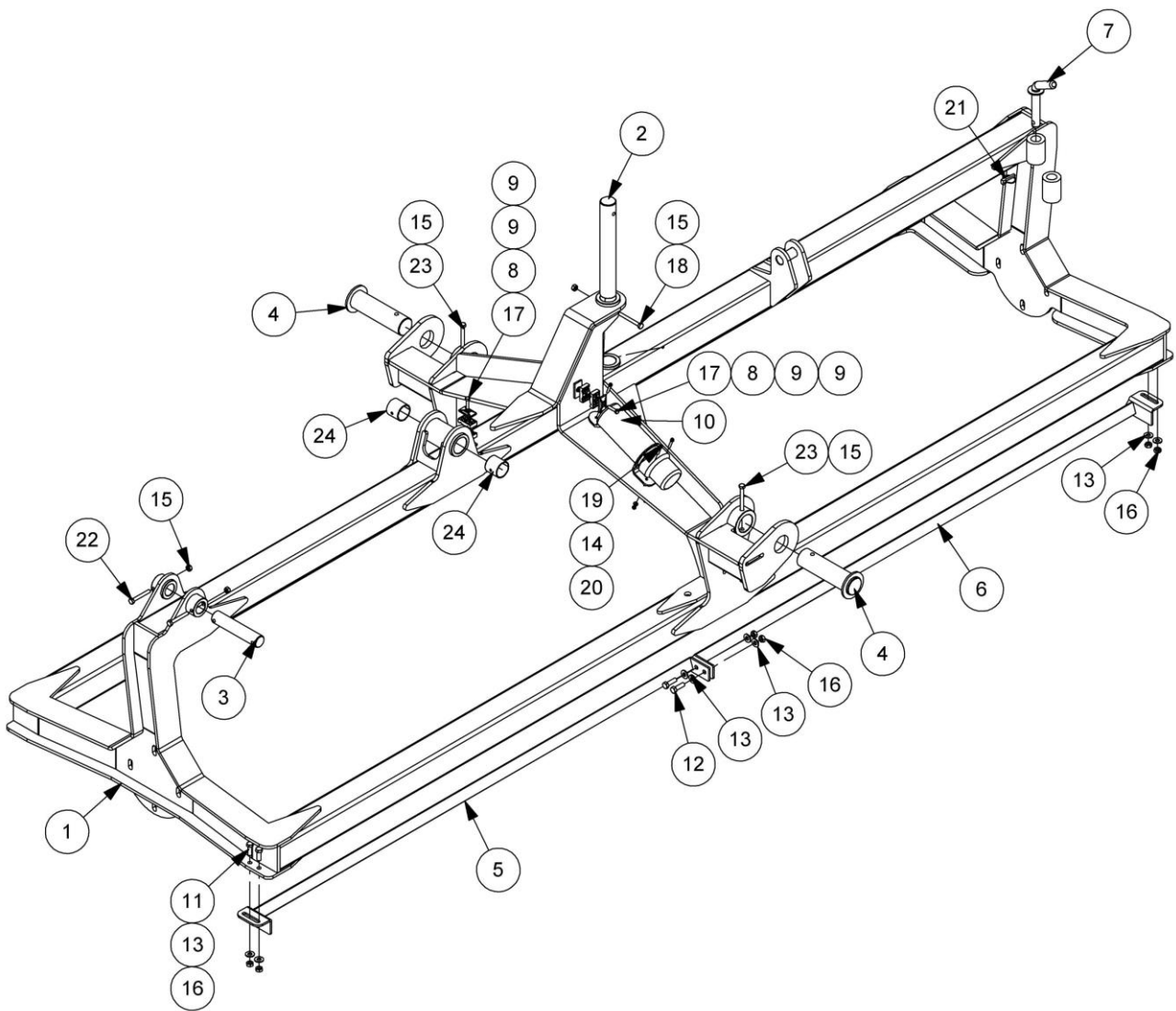


REF.	QTY.	PART No.	DESCRIPTION
		SRR1239	FOLDING ROLLER (ROTA-ROLL)
1	1	217.200	MAINFRAME MODULE
2	1	217.201	DRAWBAR MODULE
3	1	217.202	LEG/AXLE MODULE
4	1	217.203	LIFT/ANGLE MODULE
5	1	217.204	ROLLER MODULE
6	1	217.205	HYDRAULIC INSTALLATION
7	1	217.206	DECAL KIT
8	1	217.233	TYRE MODULE

DRAWBAR MODULE



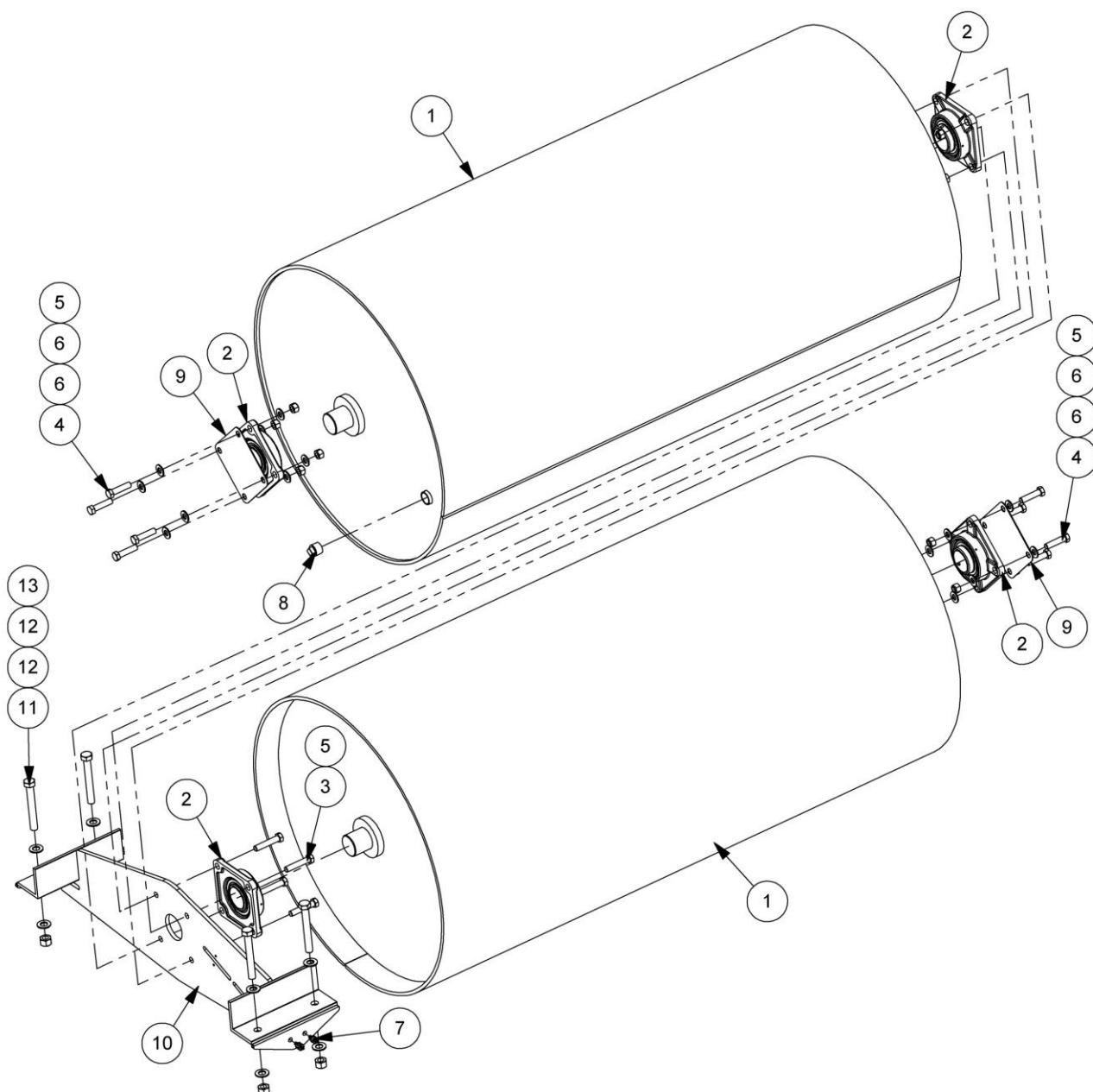
REF.	QTY.	PART No.	DESCRIPTION
		217.201	DRAWBAR MODULE
1	1	217.002	DRAWBAR
2	1	217.003	SLEW PIN
3	2	7560050	BUSH
4	1	05.264.07	SETSCREW
5	1	05.287.01	SELF-LOCKING NUT
6	1	05.953.04	GREASE NIPPLE
7	2	5351.1	TOP PLATE
8	4	5351.2	CLAMP JAW
9	1	05.291.02	BOLT
10	1	05.291.05	BOLT



MAINFRAME MODULE

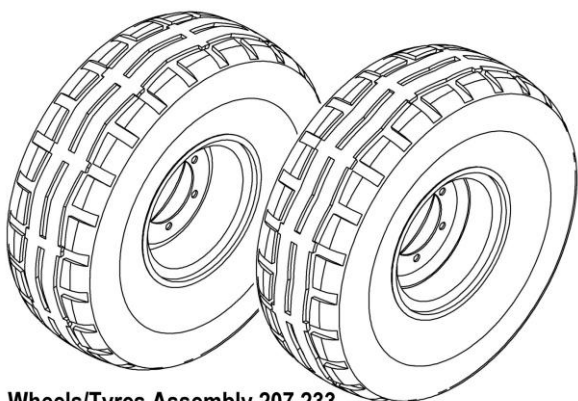
REF.	QTY.	PART No.	DESCRIPTION
		217.200	MAINFRAME MODULE
1	1	217.001	12" BALLAST ROLLER FRAME
2	1	217.010	PIVOT PIN
3	1	217.013	PIVOT PIN
4	2	217.017	LEG PIN
5	1	217.020	FRONT ROLLER SCRAPER
6	1	217.021	REAR ROLLER SCRAPER
7	1	115.020B	PIN ASSEMBLY
8	2	5351.1	TOP PLATE
9	4	5351.2	CLAMP JAW
10	1	46505.01	LITERATURE HOLDER
11	4	05.264.24	SETSCREW
12	2	05.264.25	SETSCREW
13	8	05.281.03	FLAT WASHER
14	6	05.281.10	FLAT WASHER
15	5	05.287.02	SELF-LOCKING NUT
16	6	9143006	SELF-LOCKING NUT
17	2	05.291.02	BOLT
18	1	05.292.12	BOLT
19	3	05.625.16	SOCKET CAPSCREW
20	3	30.070.64	SELF-LOCKING NUT
21	1	00.372.01	LINCH PIN
22	2	05.291.20	BOLT
23	2	05.292.14	BOLT
24	2	7560050	BUSH

ROLLER MODULE

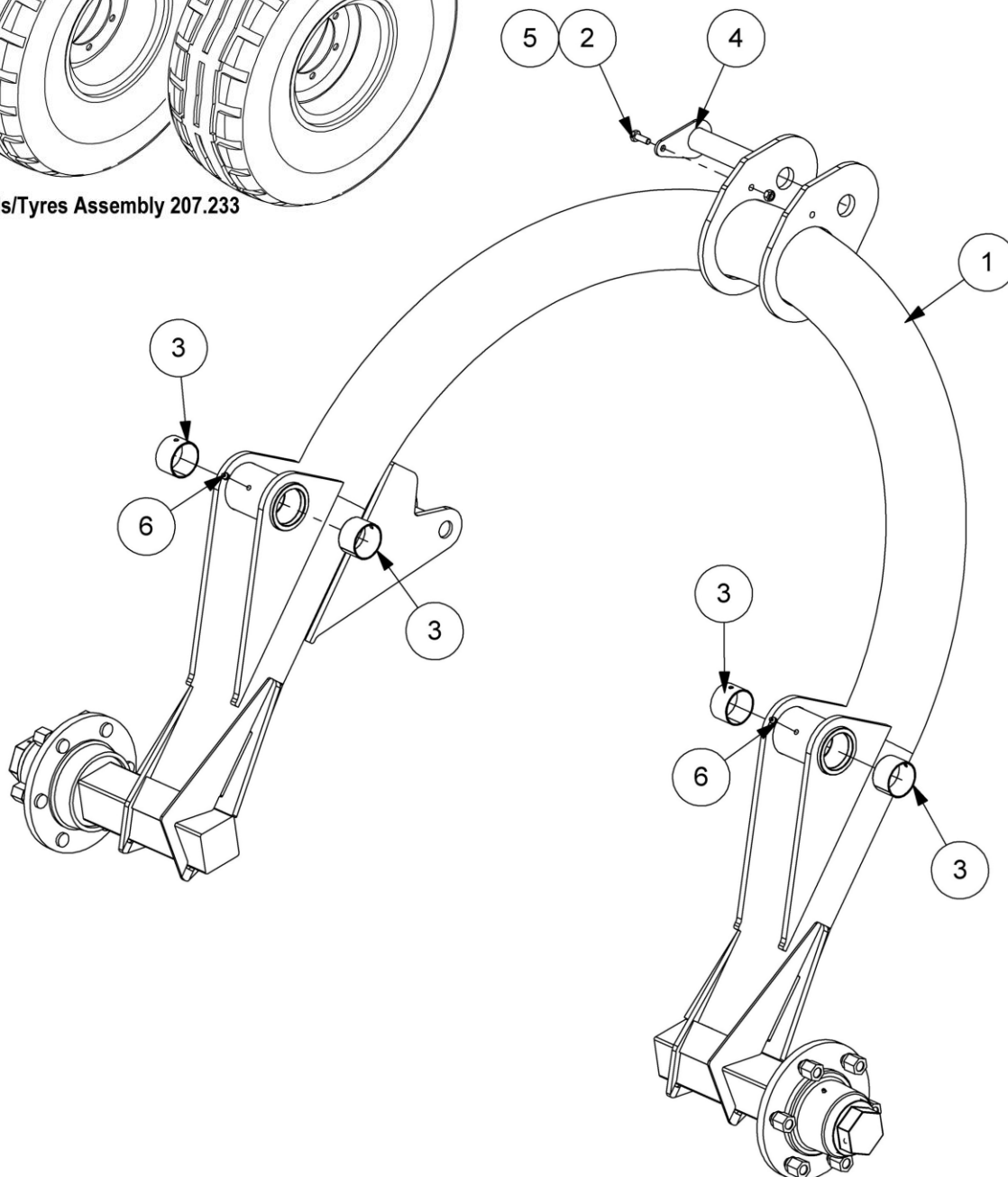


REF.	QTY.	PART No.	DESCRIPTION
		217.204	ROLLER MODULE
1	2	217.007	ROLLER DRUM
2	4	207.126	BEARING
3	4	05.292.31	BOLT
4	8	05.291.38	BOLT
5	12	05.287.04	SELF-LOCKING NUT
6	16	05.281.04	FLAT WASHER
7	2	45677.01	GREASING ASSEMBLY
8	2	T1698	PLUG
9	2	217.008F	SPACER
10	1	217.022	CENTRE BEARING BRACE
11	4	05.292.48	BOLT
12	8	05.281.05	FLAT WASHER
13	4	05.287.05	SELF-LOCKING NUT

LEG/AXLE MODULE

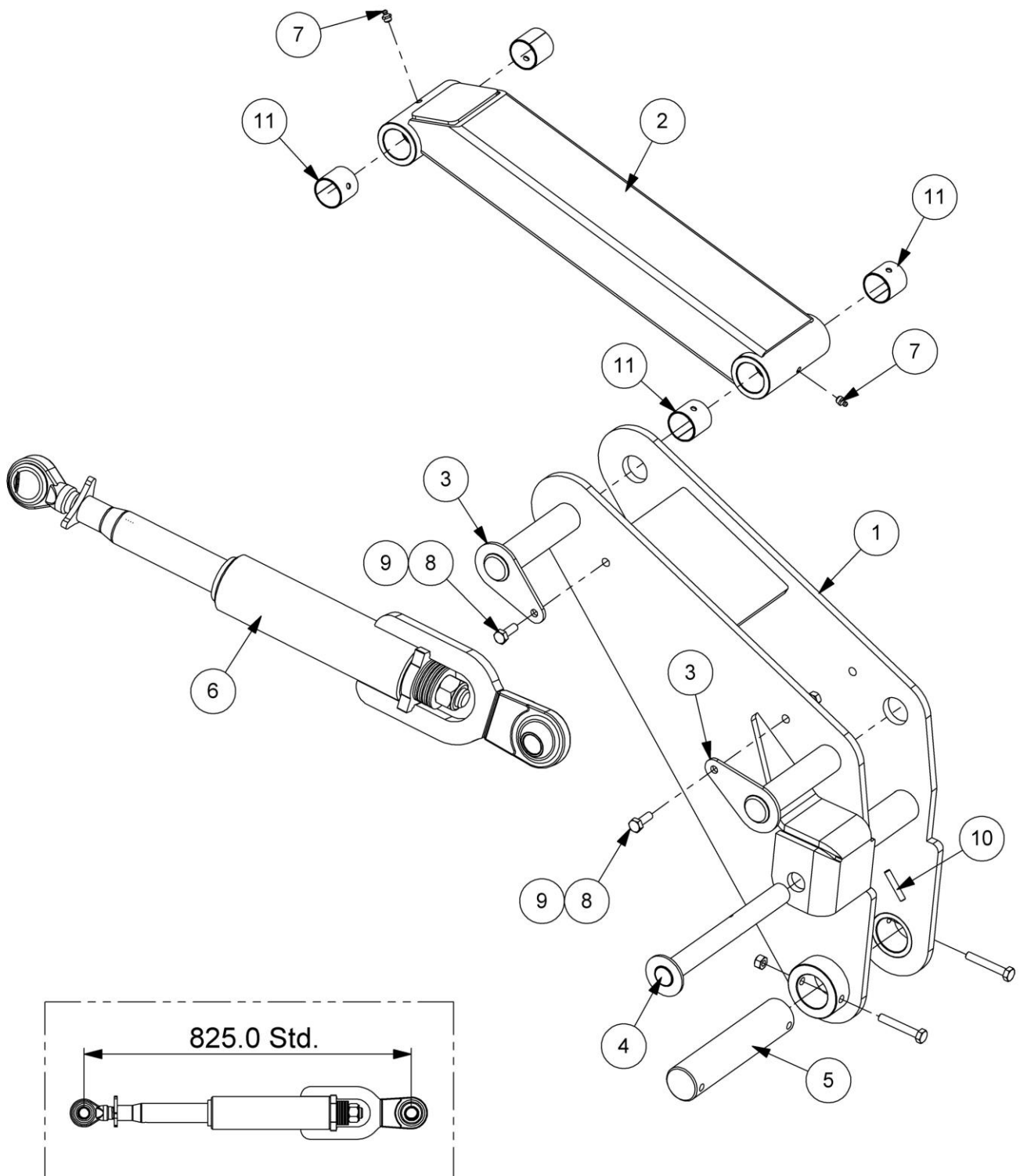


Wheels/Tyres Assembly 207.233



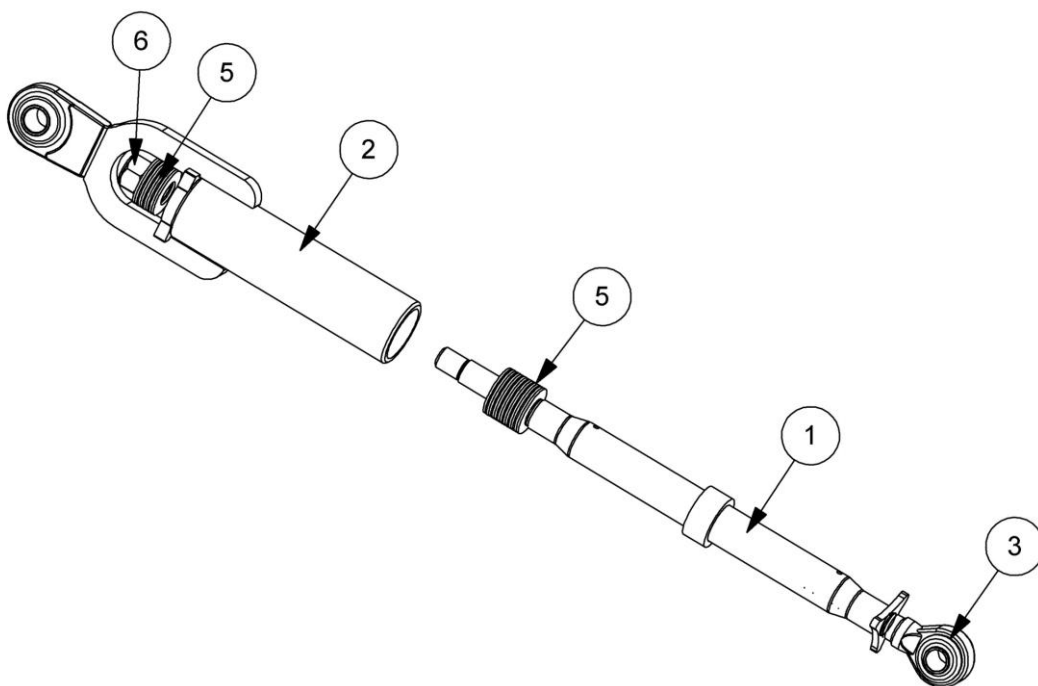
REF.	QTY.	PART No.	DESCRIPTION
		217.202	LEG/AXLE MODULE
1	1	217.005	ROLLER LEG
2	1	05.264.13	SETSCREW
3	4	T6935	BUSH
4	1	217.012	PIN
5	1	05.287.02	SELF-LOCKING NUT
6	2	05.953.03	GREASE NIPPLE

LIFT/ANGLE MODULE



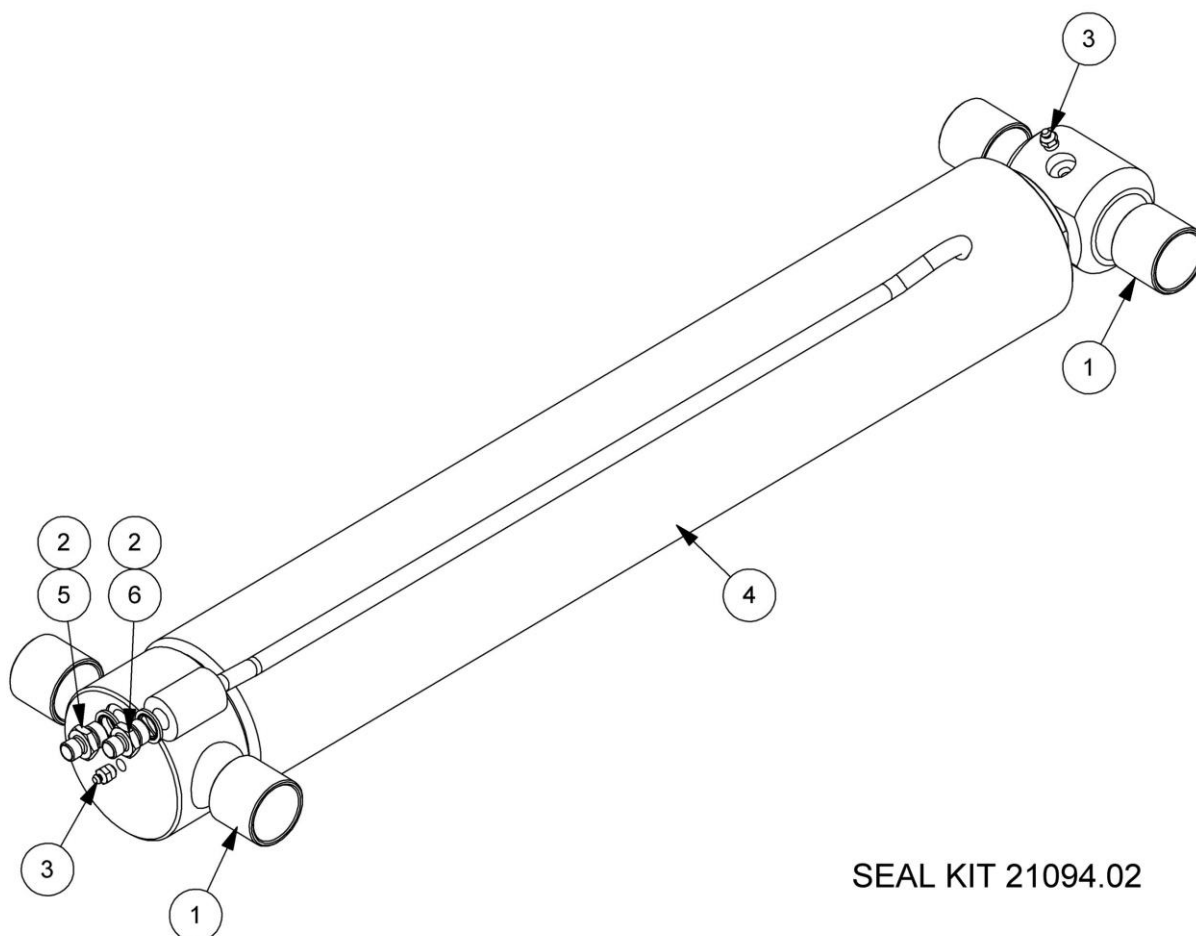


REF.	QTY.	PART No.	DESCRIPTION
		217.203	LIFT/ANGLE MODULE
1	1	217.006	ROCKER
2	1	217.011	SLAVE LINK
3	2	217.012	PIN
4	1	217.014	SLEW PIN
5	1	217.016	ROCKER PIN
6	1	217.023	SPRUNG LINK
7	2	05.953.03	GREASE NIPPLE
8	2	05.264.13	SETSCREW
9	4	05.287.02	SELF-LOCKING NUT
10	1	425845	SPRING DOWEL
11	4	7115208	BUSH
12	2	05.264.51	SETSCREW



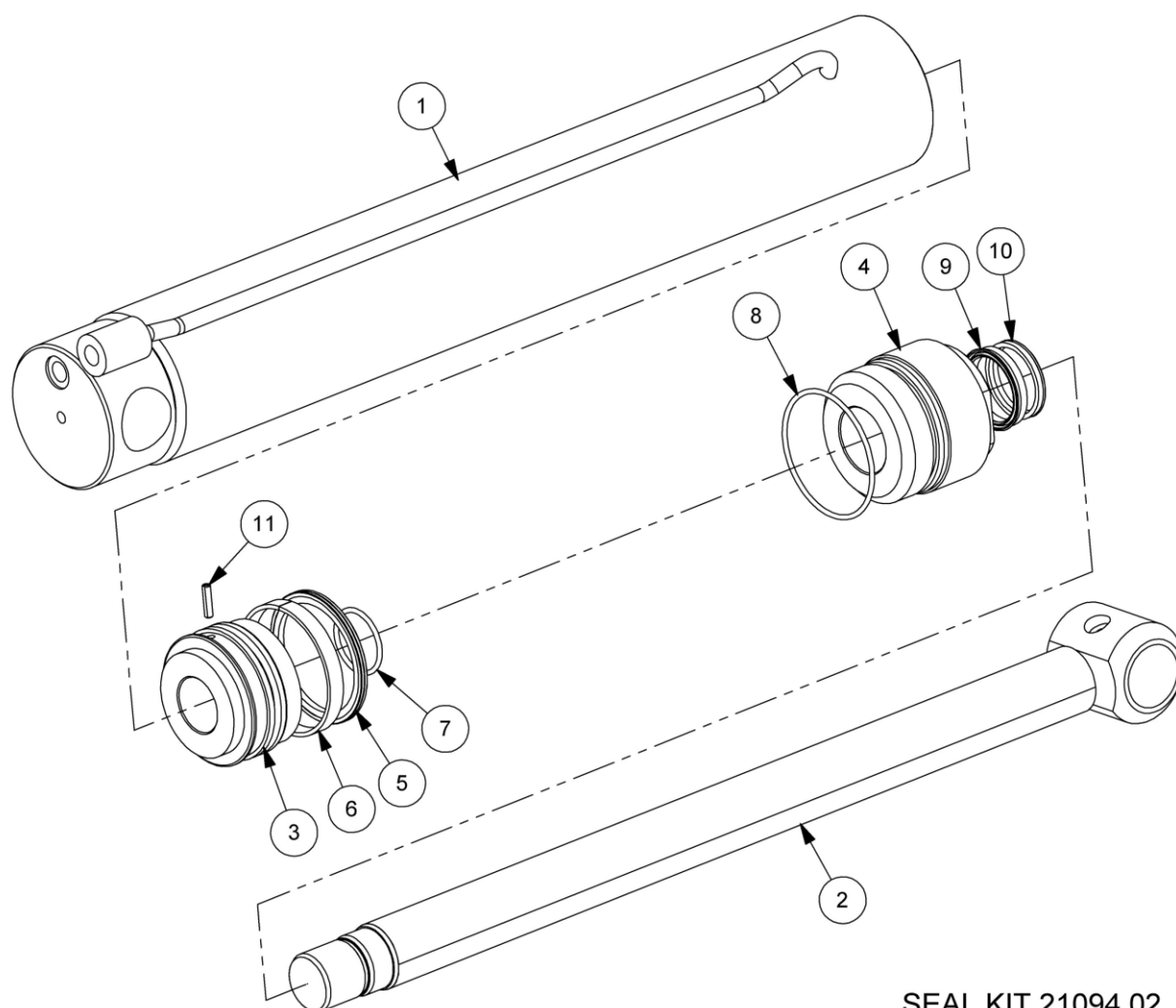
REF.	QTY.	PART No.	DESCRIPTION
		217.023	SPRUNG LINK
1	1	217.023.30	SPRUNG LINK ROD
2	1	217.023.31	SPRUNG LINK SLIDER
3	1	43596.30	BALL JOINT
4	1	21370.35	LOCKING COLLAR
5	21	30.214.47	DISC SPRING
6	1	30.073.90	NYLOC NUT

HYDRAULIC RAM ASSEMBLY



SEAL KIT 21094.02

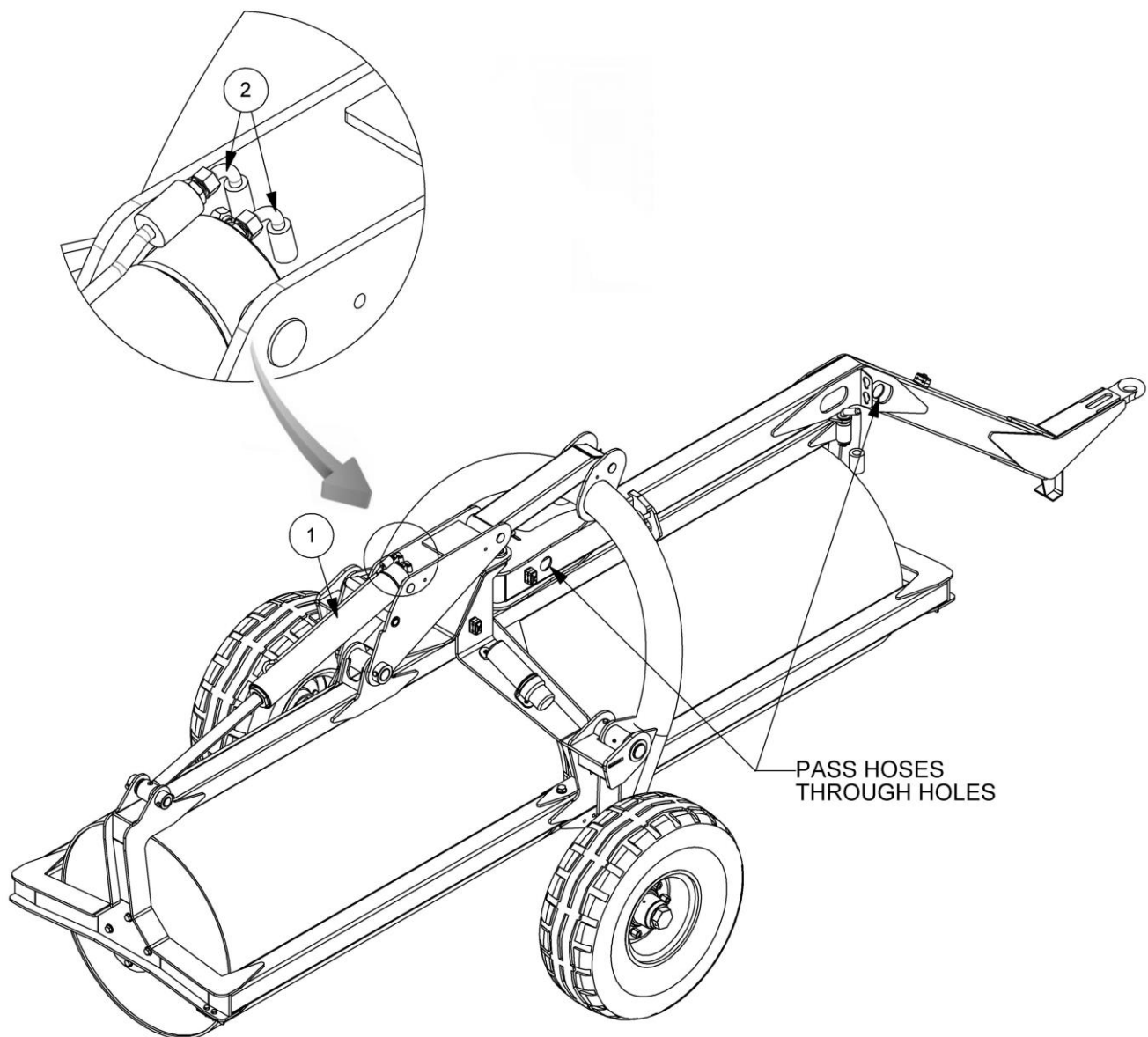
REF.	QTY.	PART No.	DESCRIPTION
		217.004	RAM ASSEMBLY (COMPLETE)
1	4	08.297.02	BUSH
2	2	8650103	BONDED SEAL
3	2	901121	GREASE NIPPLE
4	1	21094.01A	HYDRAULIC RAM
5	1	8130046	RESTRICTOR
6	1	8130048	RESTRICTOR
		21094.02	SEAL KIT



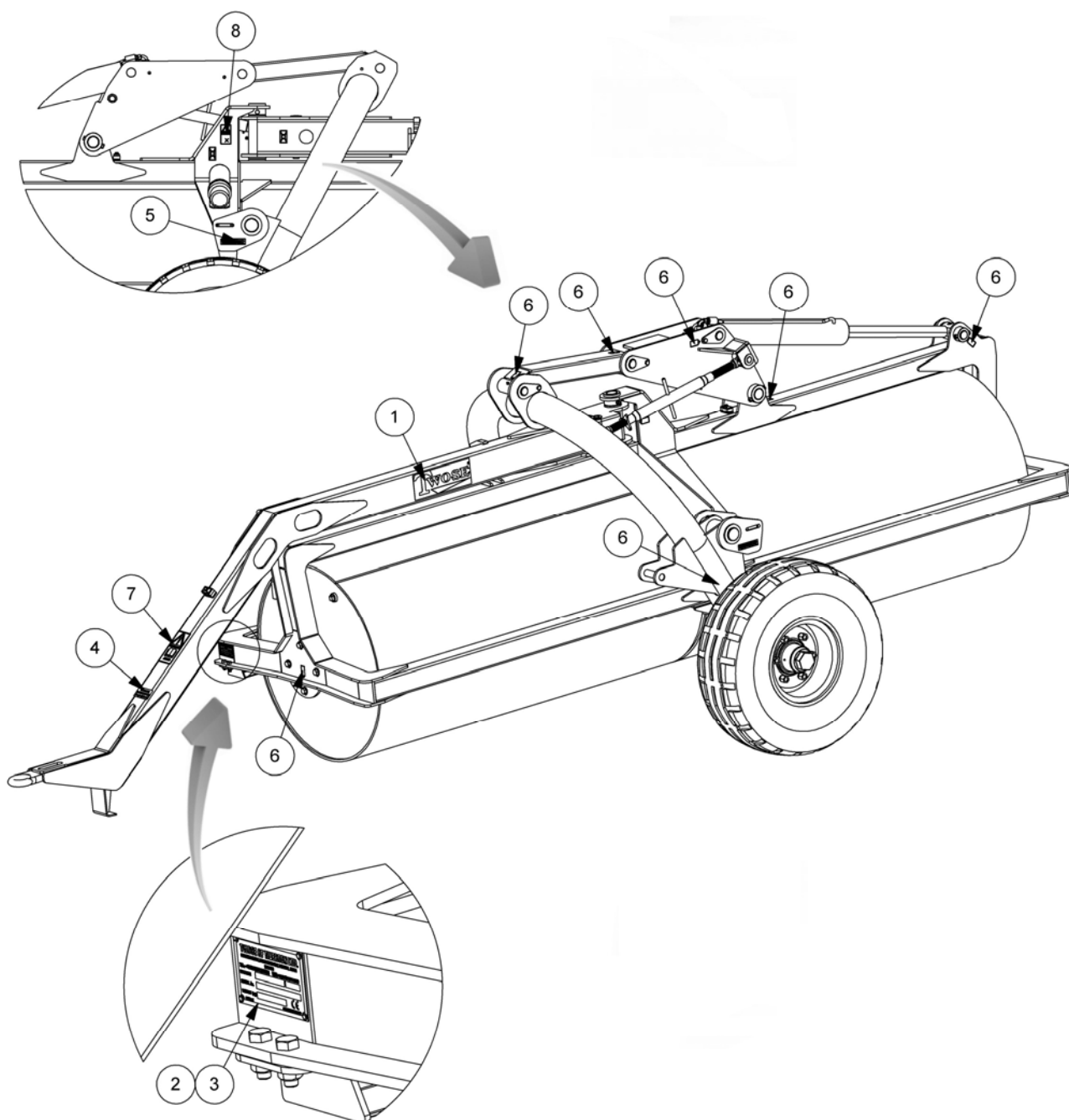
SEAL KIT 21094.02

REF.	QTY.	PART No.	DESCRIPTION
		21094.01AP	HYDRAULIC RAM
1	1	21095.01	BARREL
2	1	21096.01	PISTON ROD
3	1	42655.31	PISTON
4	1	42655.48	GLAND HOUSING
5	1	8629182	PISTON SEAL
6	1	8629183	BEARING RING
7	1	8600302	O RING
8	1	8600317	O RING
9	1	8629184	SEAL
10	1	8629227	SEAL
11	1	42775.01	DOWEL
		21094.02	SEAL KIT

HYDRAULIC INSTALLATION



REF.	QTY.	PART No.	DESCRIPTION
		217.205	HYDRAULIC INSTALLATION
1	2	217.004	RAM ASSEMBLY
2	4	10.002.64	HOSE - 1/4" FS/F90 x 5400mm



REF.	QTY.	PART No.	DESCRIPTION
		217.206	DECAL KIT (ROTA-ROLL)
1	2	200.006	DECAL - TWOOSE
2	4	05.227.01	HAMMER SCREW
3	1	1335246	SERIAL No. PLATE
4	1	1290664	DECAL - MAX SPEED (20MPH)
5	2	1540036	DECAL - CHECK WHEEL TORQUE
6	11	T410201	DECAL - GREASE GUN
7	1	09.821.27	DECAL - READ INSTRUCTION MANUAL
8	1	09.821.23	DECAL - PINCH POINT



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