

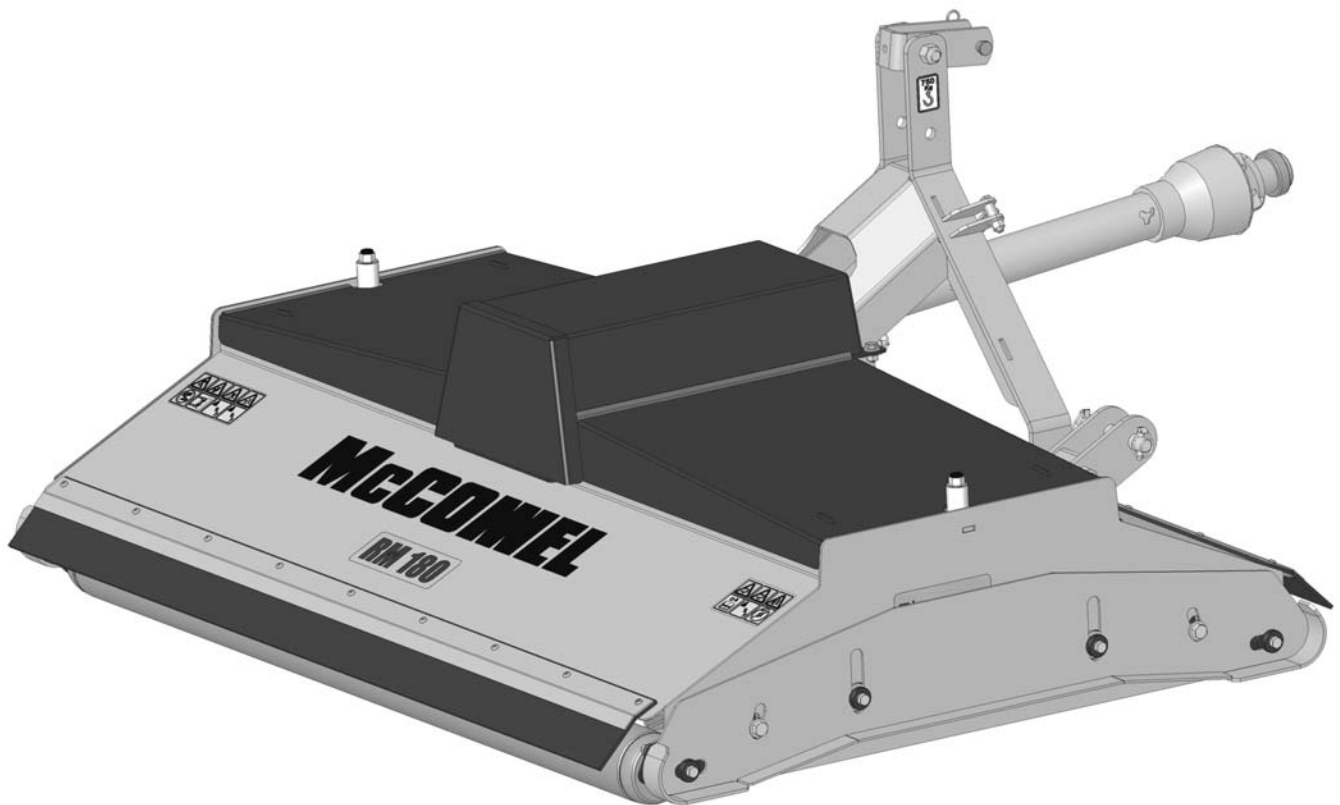
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RM180 & RM240 ROLLER MOWERS

Mk2 Models

Operator & Parts Manual



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 Mounted Roller Mower*

Product Code; *RM18, RM24*

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.

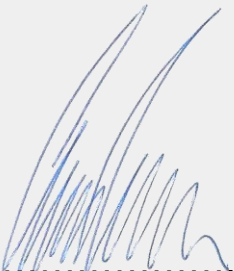
McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

This system is continually assessed by the;

British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK

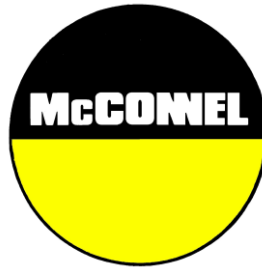
BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.

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*



For Safety and Performance...

ALWAYS READ THE BOOK FIRST

McCONEL LIMITED

**Temeside Works
Ludlow
Shropshire
England**

**Telephone: +44 (0)1584 873131
www.mcconel.com**

- NOISE STATEMENT -

The equivalent daily personal noise exposure from this machine measured at the operators' ear is within the range 78 – 85 dB, these figures apply to a normal distribution of use where the noise fluctuates between zero and maximum. The figures assume that the machine is fitted to a tractor with a 'quiet' cab with the windows closed in a generally open environment. We recommend that the windows are kept closed. With the cab rear window open the equivalent daily personal noise exposure will increase to a figure within the range 82 – 88 dB. At an equivalent daily noise exposure level of 85 – 90 dB ear protection is recommended and must always be used if any window is left open.



Operating, servicing and maintaining this equipment can expose you to chemicals including gasoline, diesel fuel, lubricants, petroleum products, engine exhaust, carbon monoxide, and phthalates, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. This website, operated by California's Office of Environmental Health Hazard Assessment, provides information about these chemicals and how individuals may be exposed to them.

Read The Book First

It is important that all operators or fitters that work with this machine have read and fully understood all aspects of this manual before attempting to operate or maintain the machine – the safety of yourself and others should be paramount at all times.

Always Use Genuine Parts

McConnel Genuine Parts are designed and tested specifically for use on our machines - the use of non-genuine parts is not advisable as this can affect both the performance and warranty on the machine.

Parts Ordering

When ordering parts please quote the following information:

- *Machine Model & Specification.*
- *Machine Serial No.*
- *Make & Model of tractor to which the machine is fitted.*
- *Dealer Order Number.*

This information will speed up the ordering process and ensure that the correct parts for the machine are ordered.

Parts can be ordered direct by:

Telephone: 01584 876888

Fax: 01584 876463

Email: parts@mcconnel.com

Online: www.mcconnel.com

We continually strive to better our products in both performance and value through a continual programme of re-design and testing – where applicable, if an existing part has been superseded by an updated version, the latter will always be supplied.

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1. GENERAL INFORMATION

1.1 This operation and maintenance manual is intended for the professional user. It is mandatory to follow these instructions in order to prevent events which could endanger the operator's and other people's safety, apart from the correct functioning of the shredder .In case of doubt, do not experiment, call McConnel after-sales service instead, or the specialised McConnel dealer.

1.2 Identifying the machine

Each shredder is fitted with an identification plate: both the data necessary to identify the model and the serial number to order spare parts or after-sales service are stamped on the plate.

It is strongly recommended to use genuine spare parts to avoid altering the technical features of the mower. McConnel is not responsible for any damage or injuries to people due to unauthorised modifications or the use of non-genuine spare parts.

This machine is in conformity with the following provisions of law:

Directive Machine 89/392/CEE and following additions: 91/368/CEE, 93/44/CEE and 93/68/CEE;

Regulations UNI EN 292/1 and 292/2 (machinery safety).

2 TECHNICAL FEATURES

2.1 General Description

The RM180 & RM240 Rotary Finishing Mower is primarily designed for turf and grass maintenance in areas such as parks and playing fields. Its lightweight design and low power requirement makes it best suited to small tractors. Any other use is considered improper and the manufacturer disclaims all responsibility for any consequential injuries to people or for damage to the machine caused by improper use or failure to adhere to the safety and maintenance information provided.

TECHNICAL SPECIFICATIONS

	RM180	RM240
Width of Cut	1860mm	2460mm
Min. Tractor Power req'd	25kw / 32hp	30kw / 40hp
PTO Speed (<i>max</i>)	540 rpm	540 rpm
Weight	540 kg	646 kg
Tractor Attachment	Cat.1& Cat. 2	Cat.1& Cat. 2
No. of Blades Spindles	3	4
Height of Cut (<i>min / max</i>)	12mm / 90mm	12mm / 90mm
Overall Width	2020mm	2620mm
Length	1520mm	1520mm
Blade Tip Speed	86m/s	86m/s
Blade Overlap	38mm	38mm

SAFETY RULES

General safety rules:

- It is mandatory to read and follow instructions for the use and maintenance of the machine before carrying out any operation or attempting to move with the machine.
- Improper use or an incorrect move may seriously damage things and people.
- Both the operator and the maintenance fitter must know the mower well, especially regarding dangers resulting from improper use or incorrect repairs.
- Before starting, checks on tractor and mower, must be carried out as regards: functionality, road safety, accident prevention rules.
- Even when using the mower correctly, stones or other objects may be thrown a long distance. Therefore nobody must stand within the danger area. Special attention must be paid when working near roads or buildings.
- Always use tractors with cabs.
- The condition of Blades and all Guards must be checked before beginning the daily work - they must be replaced if damaged or missing.
- During checks or repairs, make sure nobody could start the machine by mistake.
- Never wear loose or fluttering clothes.
- Never carry passengers on the tractor.
- Never carry passengers on the machine.
- Never connect the power takeoff with the engine running.
- Never approach the machine until Blade rotation has completely stopped.
- Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
- Keep the PTO shaft guard in good order.
- Before starting check the surrounding area for the likely presence of children and/or animals.
- Do not stand or allow others in the range of the operation of the machine.
- The PTO shaft must be assembled and disassembled only with the engine stopped and the starting key removed.
- Before connecting the power takeoff, check that the speed and the rotational direction correspond to those of the machine.
- Before leaving the tractor with the mower attached, proceed as follows:
 1. Disconnect the power takeoff,
 2. Put the machine steadily on the ground (with the hydraulic lift)
 3. Apply the hand brake and, if the ground is steeply sloping, wedge the tractor.
 4. Take out the starting key.
- Immediately replace any safety sign, or any missing or damaged decal.

Safety Rules concerning Road Traffic

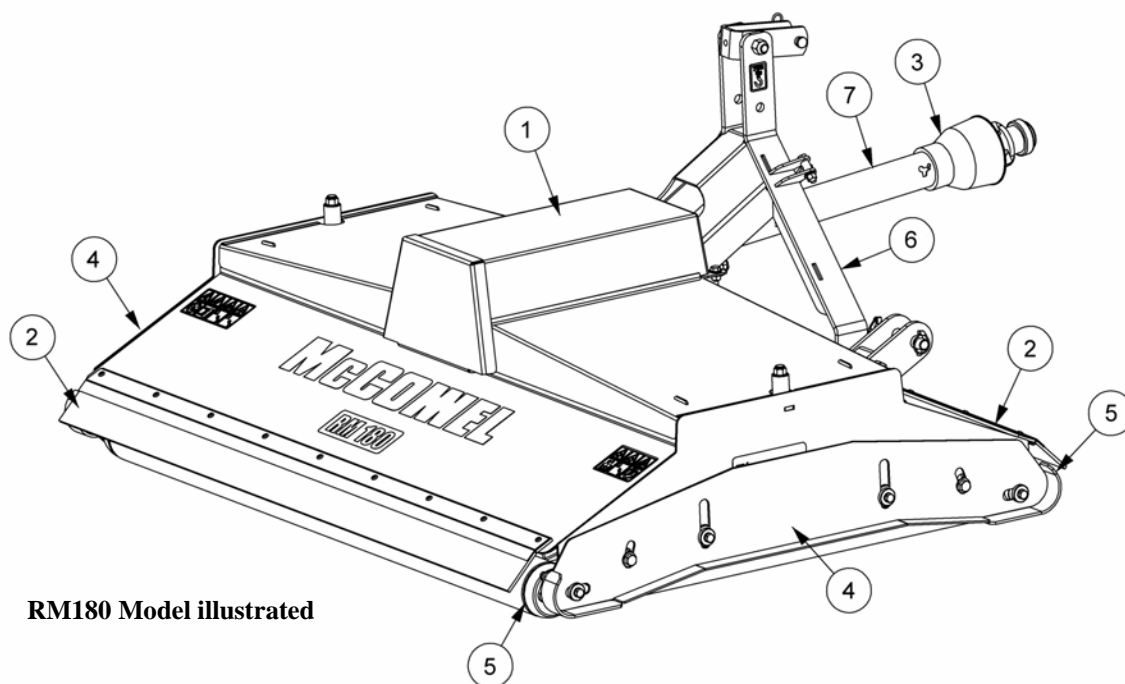
- In transport, reduce speed, especially on bumpy roads. The very weight of the machine may render driving difficult and damage the machine itself.
- Check that the levers that operate the hydraulic lift are locked, to avoid lowering of the machine during transport.
- When driving on public roads, respect all road rules in force.
- Never transport the mower with the Blades moving, even for short distances.

Safety Rules during use

- Pay special attention when working with the machine, not to touch fixed objects, such as road drains, walls, shafts, kerbs, guard rails, tracks etc. This could cause breakage of the Blades, which would be thrown at very high speed.
- If wires, ropes or chains should get entangled in the Blades, stop immediately to prevent damage or a dangerous situation; stop the machine and the tractor and remove the starting key. Put working gloves on, clear the entanglement with the aid of pliers or shears. Do not try to disentangle by inverting the rotational direction of the Blades.
- Do not use the machine when vibration is evident, as this would cause breakage and serious damage. Find the cause of the vibration and eliminate it.

MACHINE GUARDS & COMPONENT LOCATIONS

1. Belt, Pulley & Drive Guard
2. Front & Rear Rubber Skirts
3. PTO Shaft Guard
4. Side Skids
5. Front & Rear Roller
6. A-Frame
7. PTO Shaft



RM180 Model illustrated

INSTALLATION AND HANDLING INSTRUCTIONS

Lifting and Unloading.

To handle the machine, use an elevator with a lifting capability suitable to the weight of the machine.

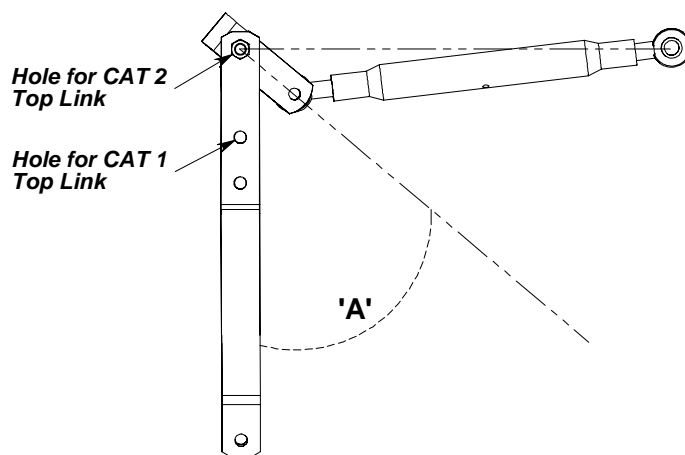
Attaching and Detaching the Machine.

Before attaching the machine to the tractor for use it is mandatory to:

- Visually check the condition of the machine in general.
- Ensure all guards are fitted correctly and are in good condition.
- Ensure Blades are fitted correctly and are in good condition.
- Grease bearings and any other part as indicated by a decal.
- Check that the number of revolutions and the rotational direction of the PTO correspond to the requirement of the machine.

To Attach the Machine:

- With the tractor and machine on firm level ground, back the tractor up to the machine so that the Lower Draft Links are in alignment with the machines Lower Lift Pins
- Place tractor in park, switch off engine and remove key.
- Connect the tractor and Stabiliser Bars to the Lower Lift Pins.
- Lock the parallel links of the power lift with the relative chains and rods on the tractor to prevent the coupled machine from moving in a horizontal direction.
- Fit the Driveline to the power take off on the tractor making sure it has seated in the correct position and that it is free to turn and fixed with the relative latches, both on the tractor and on the machine.
- Connect the Top Link and adjust as necessary to achieve alignment with the ground. With both tractor and mower on firm level ground adjust the top link to give an angle at 'A' of approx. 45° so that the mower, sitting on its rollers, is able to follow ground undulations behind the tractor, both up and down - *Refer to diagram below.*



- Detachment of the machine is a reversal of the above procedure.

FITTING THE PTO SHAFT - Driveline Length Check Procedure

WARNING:

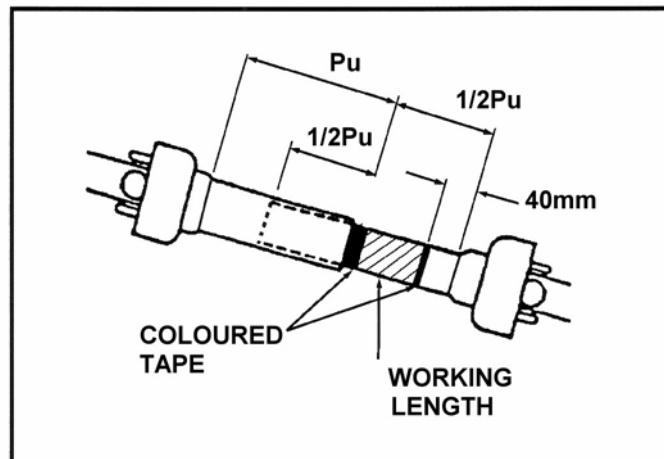
A loose shaft could slip off resulting in personal injury or damage to the machine.
When attaching PTO yoke to tractor PTO shaft ensure that the spring activated locking collar slides freely and that the locking balls are seated in the groove on PTO shaft.

NOTE: QS-lock is fully engaged if collar can be rotated freely.

WARNING:

Before operating mower –
Check to make sure the driveline will not ‘bottom out’ or become disengaged.

- Disengage the driveline from the tractor PTO shaft.
- Slide the driveline together until it ‘bottoms out’ solidly. Extend shaft 40mm, then apply coloured tape level with outer tube shield – *this shows minimum shaft length.*
- Slide driveline apart until $\frac{1}{2}$ PU length of inner shaft shield is exposed (*see diagram below*), apply coloured tape level with outer tube shield as before – *this then indicates maximum shaft length.*
- Re-attach driveline to tractor PTO shaft.



Driveline in maximum extended position

With the **PTO not turning**, (disengaged), slowly drive the tractor with mower attached through the most severe terrain conditions expected and watch shaft movement. The end of the outer shield should always be located between the tape markers.

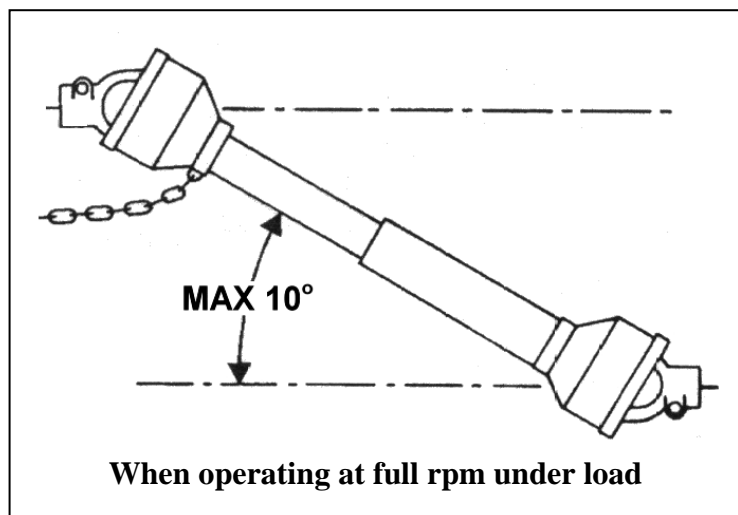
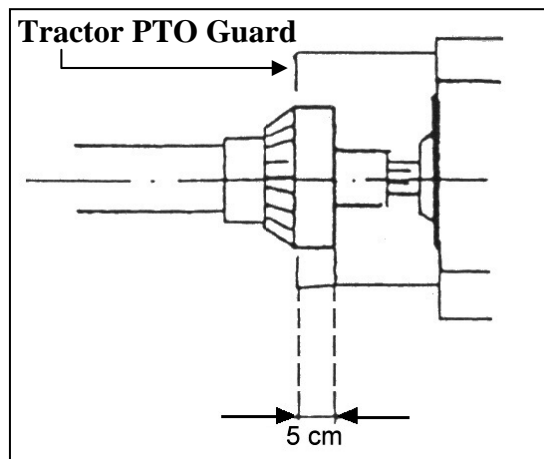
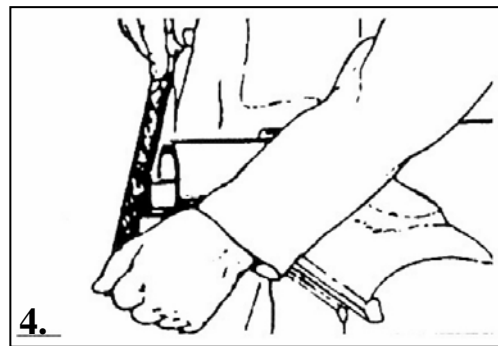
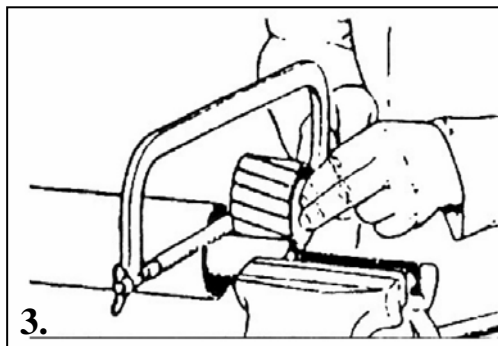
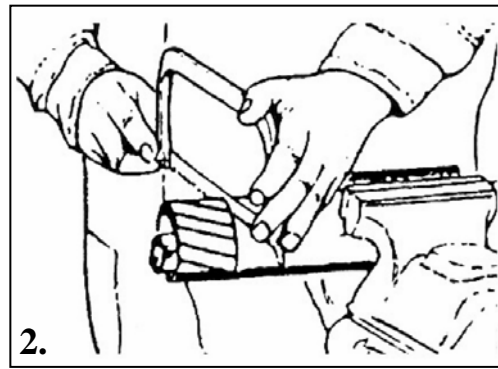
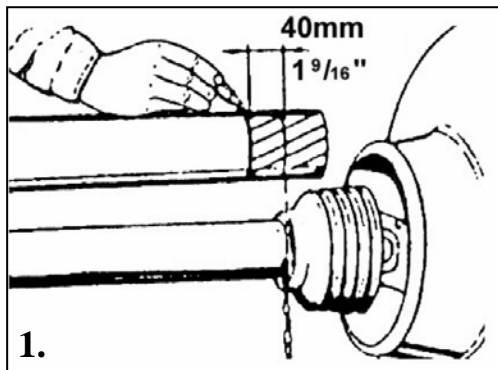
Check position which places driveline at maximum extended length and at minimum compressed length – *the minimum compressed length should always maintain at least 40mm (1-9/16”) clearance, if not shorten as described in the following page.*

If driveline cannot be shortened and still maintain $\frac{1}{2}$ PU dimension engagement when at maximum extended length, then the operator should be aware of it, so that the operator can recognise the terrain conditions that might cause problems (avoiding possible damage by disconnecting driveline from tractor) and cross the terrain in a different manner. If driveline is shortened, re-apply the coloured tapes and re-check length, as above.

See special instructions for rough terrain operation.

PTO SHAFT – Length Adjustment

1. Shorten outer plastic tube to 40mm less than shortest envisaged PTO shaft length.
2. Remove the marked tube – *ensure a square cut*.
3. Remove same length from inner plastic tube and metal shaft profiles (inner & outer).
4. De-burr all edges and remove swarf to ensure smooth operation.

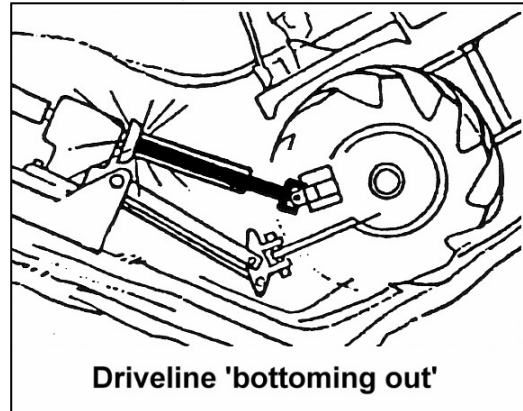


SPECIAL INSTRUCTIONS FOR ROUGH TERRAIN OPERATIONS

When crossing ditches with steep banks or manoeuvring up sharp inclines it is possible to 'bottom out' the driveline that connects the tractor PTO to the gearbox on the mower.

NOTE:

To 'bottom out' means that the inner shaft has penetrated into the outer housing to its maximum depth until the assembly becomes solid – it can shorten no more. See diagram opposite.



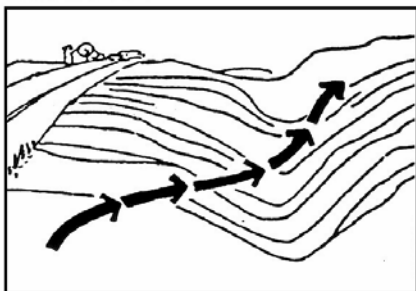
If this happens, it can cause serious damage to the tractor PTO by pushing the PTO into the tractor through the support bearings or downward onto the PTO shaft, breaking it off.

WARNING:

Either failure can allow the driveline to come loose from the tractor which could cause bodily injury to the operator or others in the vicinity in addition to expensive damage to the tractor and/or mower.

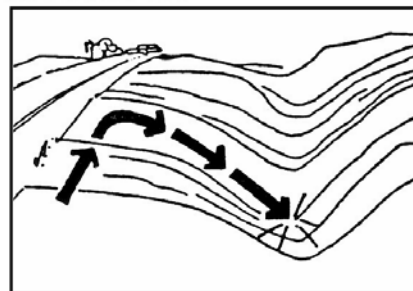
If you have a condition where your tractor will be manoeuvring up a steep incline whilst the mower remains on flat ground or coming down the opposite incline, you have a potential problem. The correct preventative measure is to cross this type of terrain at an angle – refer to diagrams below. This will reduce the angle between the tractor and the mower.

CORRECT



Approach ditch at angle

INCORRECT



DO NOT approach ditch straight on

Tractor Stability

Due to the design of Mowers and the work they do, it is essential to ensure tractor stability in order to eliminate any risk of imbalance or overturning.

Lift the machine and check that it does not mount up, if imbalance is detected it should be counteracted by the fitting of suitable ballast weights.

Parking

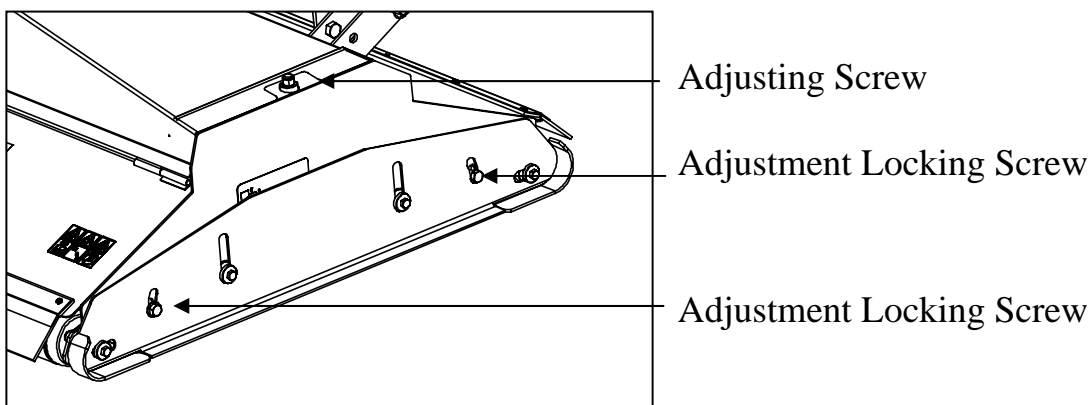
Parking of the tractor and machine should be in a safe place away from risk on a firm, flat surface with the mower lowered to the ground to prevent rolling over or falling. Never park up and leave the machine raised. Remove the tractor key before leaving the tractor and machine.

ADJUSTMENT AND SETUP

Cutting Height Adjustment

Adjustment to the cutting height is achieved by means of raising or lowering the front and rear rollers. The procedure for adjusting the cutting height is as follows:

- With the mower coupled to the tractor, raise the mower with the power lift to a position that will enable adjustment of the rollers.



- Turn off the tractor engine, engage the parking brake, remove and pocket the key.

CAUTION:

Ensure that no part of your body is under the machine at any time as the machine will be unpropped.

- Working on one side of the mower at a time, slacken the height adjustment locking screws and adjust roller height with the top adjustment screw, retighten locking screws when correct height has been achieved (*refer to decal on machine*). Repeat procedure for other side. Ensure adjustments made are the same for both sides of the mower.

NOTE

For easiest roller height adjustment: -

To raise cutting height – raise mower clear of ground to adjust.

To lower cutting height – adjust with mower on the ground - *you are then lowering the weight of the rollers or deck, not raising the weight.*

Belt Adjustment

The two belts are adjusted independently as follows:

- Slacken locknut **1** only sufficient enough to allow the pulley to move in the slot.
- Back off locknut **2**.
- Tension belt by adjustment of nut **3** to correct deflection – *see note below*.
- Re-tighten all locking nuts, and re-check belt tension.

NOTE:

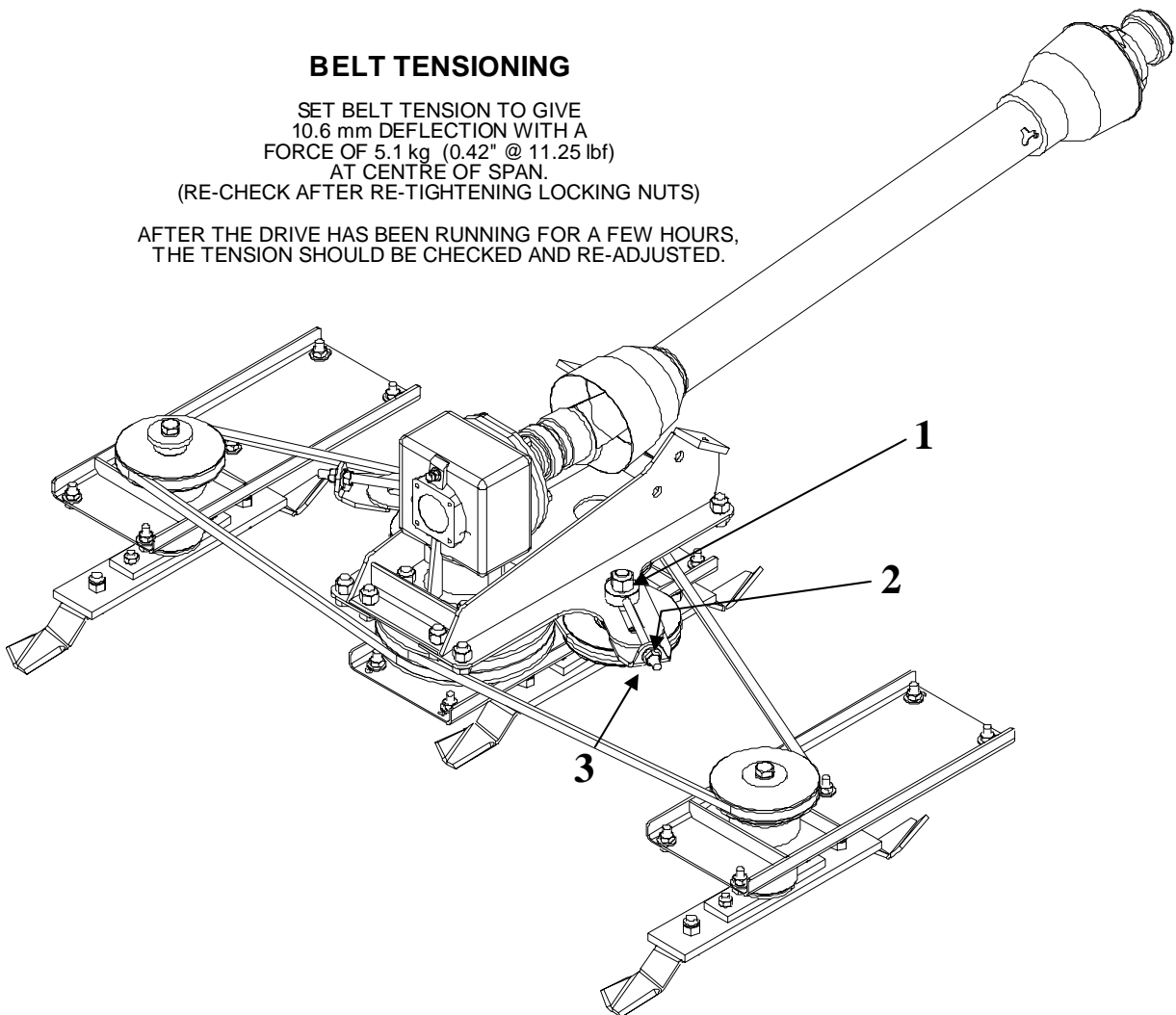
It is important to pull the belt ‘around’ by hand as it is being tensioned to allow the belt to ‘creep’ on the drive pulley – tightening the belt without pulling it round will over tension the belt between drive and centre pulley causing premature failure of the belt.

BELT TENSIONING

SET BELT TENSION TO GIVE
10.6 mm DEFLECTION WITH A
FORCE OF 5.1 kg (0.42" @ 11.25 lbf)
AT CENTRE OF SPAN.

(RE-CHECK AFTER RE-TIGHTENING LOCKING NUTS)

AFTER THE DRIVE HAS BEEN RUNNING FOR A FEW HOURS,
THE TENSION SHOULD BE CHECKED AND RE-ADJUSTED.



USE AND OPERATION

Starting

Before using the machine ensure that you, and all other operators, have read and fully understood this entire manual, and that you are familiar with all aspects relating to correct use of this mower with the emphasis on safety.

Before beginning work:

- Check oil level in Gearbox before starting.
- Check all parts for signs of wear or deterioration, replace if worn or damaged.
- Ensure all Guards are in position and in good condition.
- Check PTO rpm and rotational direction corresponds to machine – *refer to Gearbox decal for details.*
- Always engage PTO at low engine rpm to avoid damage to Gearbox and Belts.

Working

- Adjust the machines cutting height to suit the type of work to be done and the materials to be cut.
- Work at a speed to suit the materials to be cut and the degree of chopping required – *optimum speed range is from 3 to 8 km/h (2-6 mph)*
- Start tractor and raise mower before engaging PTO, allow mower to achieve working speed and lower onto material to be cut.
- After a short distance mowing, check that the grass is being cut to the desired height.

Stopping

- Lower machine to the ground.
- Disconnect the PTO.
- Stop the tractor, apply handbrake and remove the key. If the ground is sloping block tractor wheels.

Transport Position

During transportation of the machine ensure the following:

- Observe all road transport regulations and display all necessary warning signs.
- Reduce speed especially on bumpy or uneven roads as the weight of the machine may render driving difficult and damage the machine itself.
- Always disengage the PTO.

MACHINE MAINTENANCE

All maintenance, cleaning, and repair operations must be carried out with the machine firmly lowered to the ground and detached from the tractor, or with the PTO disconnected, engine off, and the starting key removed.

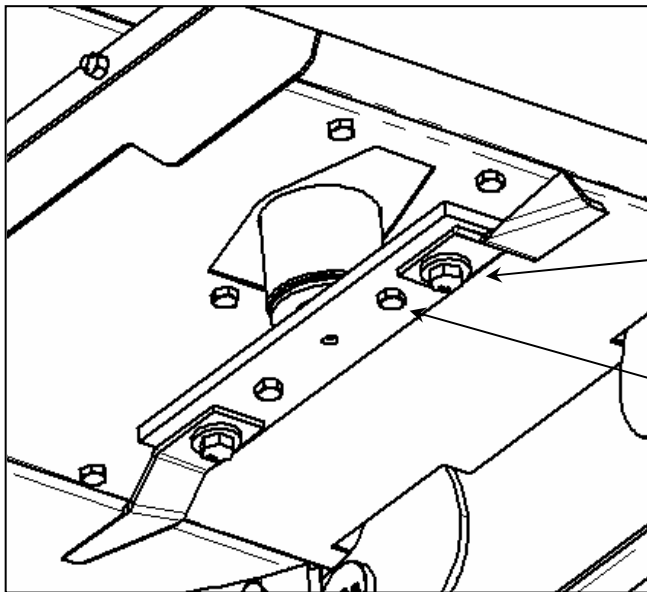
Initial Checks

After the first two hours of operation from new – or after the fitting of new belts – check the belt tension. Check the level of the oil in the gearbox after the first 10 hours of operation – *the level is correct when it reaches the lower edge of the plug hole at the side of the housing*. If ‘top up’ with oil is required, pour it through the fill hole after having unscrewed the vent plug. Refit the fill plug and the vent plug on completion of this operation.

REGULAR MAINTENANCE

Every 8 hours of work

- Ensure the nuts that fix the Blades to the Rotors are firmly torqued.
- Grease the PTO Shaft.
- Ensure Blades are in good condition, replace worn or damaged blades (in pairs) immediately; *The replacement of blades requires the mower to be raised, and supported in position, with strong, suitable stands.*



Check blade pivot bolts and nuts are tightened to correct torque settings.

Ensure blade carrier bolts/nuts are tight.

Refer to Torque Setting Chart on next page for tightening details.

- Check Gearbox Oil level – Top up if required using **SAE 90EP** oil - *fill to level hole on side of gearbox.*

Every 4 Weeks

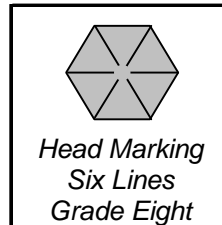
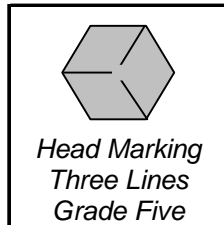
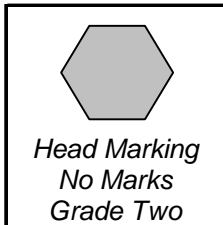
- Grease Roller Bearings (4 off) - *this should be done slowly using 1 ‘shot’ of grease only to avoid blowing out the seals.*
- Grease Roller Adjuster Slides – *1 each side, inside of cover.*
- Remove plastic plug at top of adjuster screws and run oil around adjuster threads, replace plugs.

TORQUE SETTINGS FOR FASTENERS

The Chart below lists the correct tightening torque for fasteners. The Chart should be referred to when tightening or replacing bolts in order to determine the grade of bolt and the correct torque except where specific torque values are assigned in the text of this manual.

Recommended torque is quoted in Foot-Pounds and Newton-Metres within this manual. The equation for conversion is 1 Nm. = 1.356 ft. lbs.

TORQUE VALUES FOR IMPERIAL BOLTS



NOTE:
The values in the chart apply to fasteners as received from the supplier, dry or when lubricated with normal engine oil. They DO NOT apply if special graphited, molydisulphide greases, or other extreme pressure lubricants are used. This applies to both UNF and UNC coarse threads.

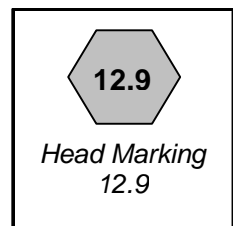
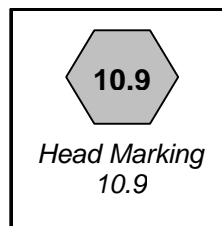
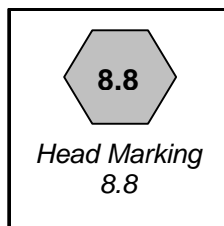
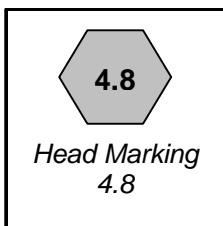
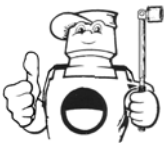
Bolt Dia.
1/4"
5/16"
3/8"
7/16"
1/2"
9/16"
5/8"
3/4"
7/8"
1"
1-1/8"
1-1/4"
1-3/8"
1-1/2"

Value (Dry)	
ft.lb.	Nm.
5.5	7.5
11	15.0
20	27.0
32	43.0
50	68.0
70	95.0
100	135.0
175	240.0
175	240.0
270	360.0
375	510.0
530	720.0
700	950.0
930	1250.0

Value (Dry)	
ft.lb.	Nm.
9	12.2
18	25.0
33	45.0
52	70.0
80	110.0
115	155.0
160	220.0
280	380.0
450	610.0
675	915.0
850	115.0
1200	1626.0
1550	2100.0
2100	2850.0

Value (Dry)	
ft.lb.	Nm.
12.5	17.0
26	35.2
46	63.0
75	100.0
115	155.0
160	220.0
225	305.0
400	540.0
650	880.0
975	1325.0
1350	1830.0
1950	2650.0
2550	3460.0
3350	4550.0

TORQUE VALUES FOR METRIC BOLTS.



Bolt Dia.
6mm
8mm
10mm
12mm
14mm
16mm
18mm
20mm
22mm
24mm
27mm
30mm

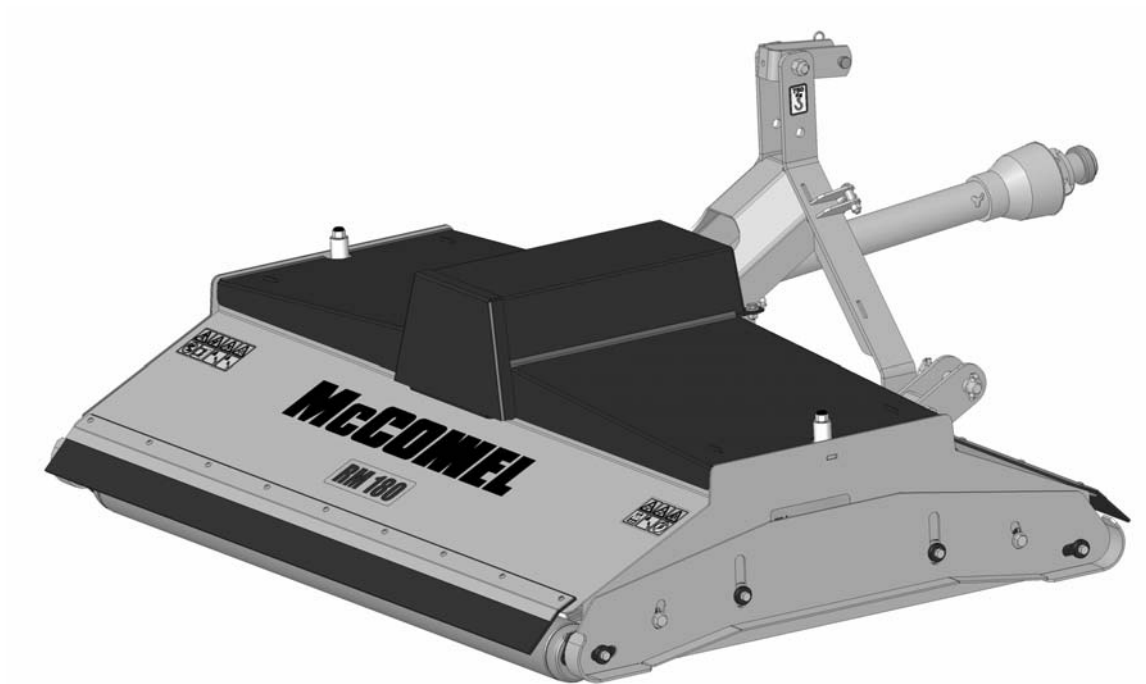
Value (Dry)	
ft.lb.	Nm.
4.5	6.1
11	14.9
21	28.5
37	50.2
60	81.4
92	125.0
125	170.0
180	245.0
250	340.0
310	420.0
450	610.0
625	850.0

Value (Dry)	
ft.lb.	Nm.
8.5	11.5
20	27.1
40	54.2
70	95.0
110	150.0
175	240.0
250	340.0
350	475.0
475	645.0
600	810.0
875	1180.0
1200	1626.0

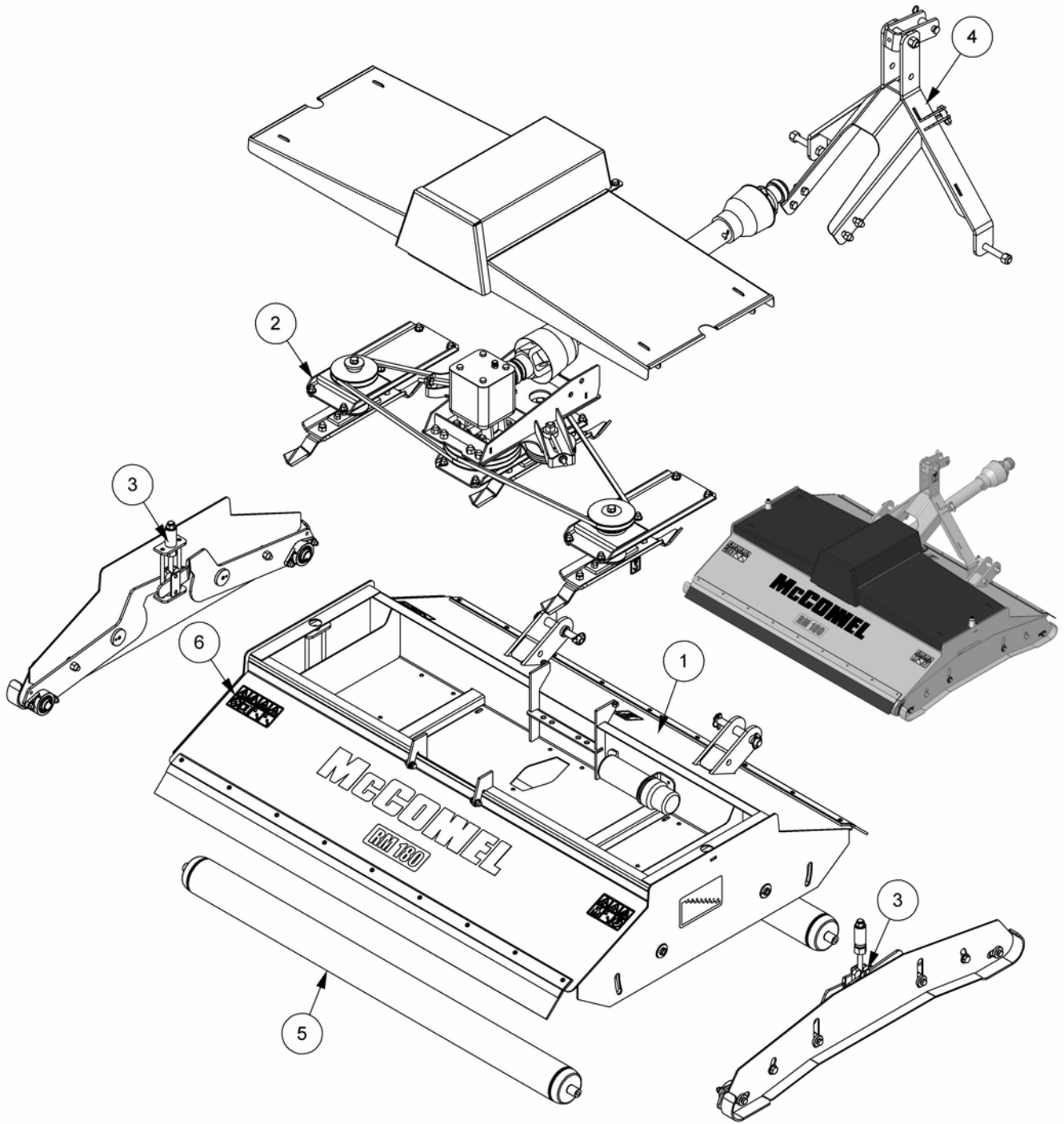
Value (Dry)	
ft.lb.	Nm.
12	16.3
30	40.1
60	81.4
105	140.0
165	225.0
255	350.0
350	475.0
500	675.0
675	915.0
850	1150.0
1250	1700.0
1700	2300.0

Value (Dry)	
ft.lb.	Nm.
14.5	20.0
35	47.5
70	95.0
120	160.0
190	260.0
300	400.0
410	550.0
580	790.0
800	1090.0
1000	1350.0
1500	2000.0
2000	2700.0

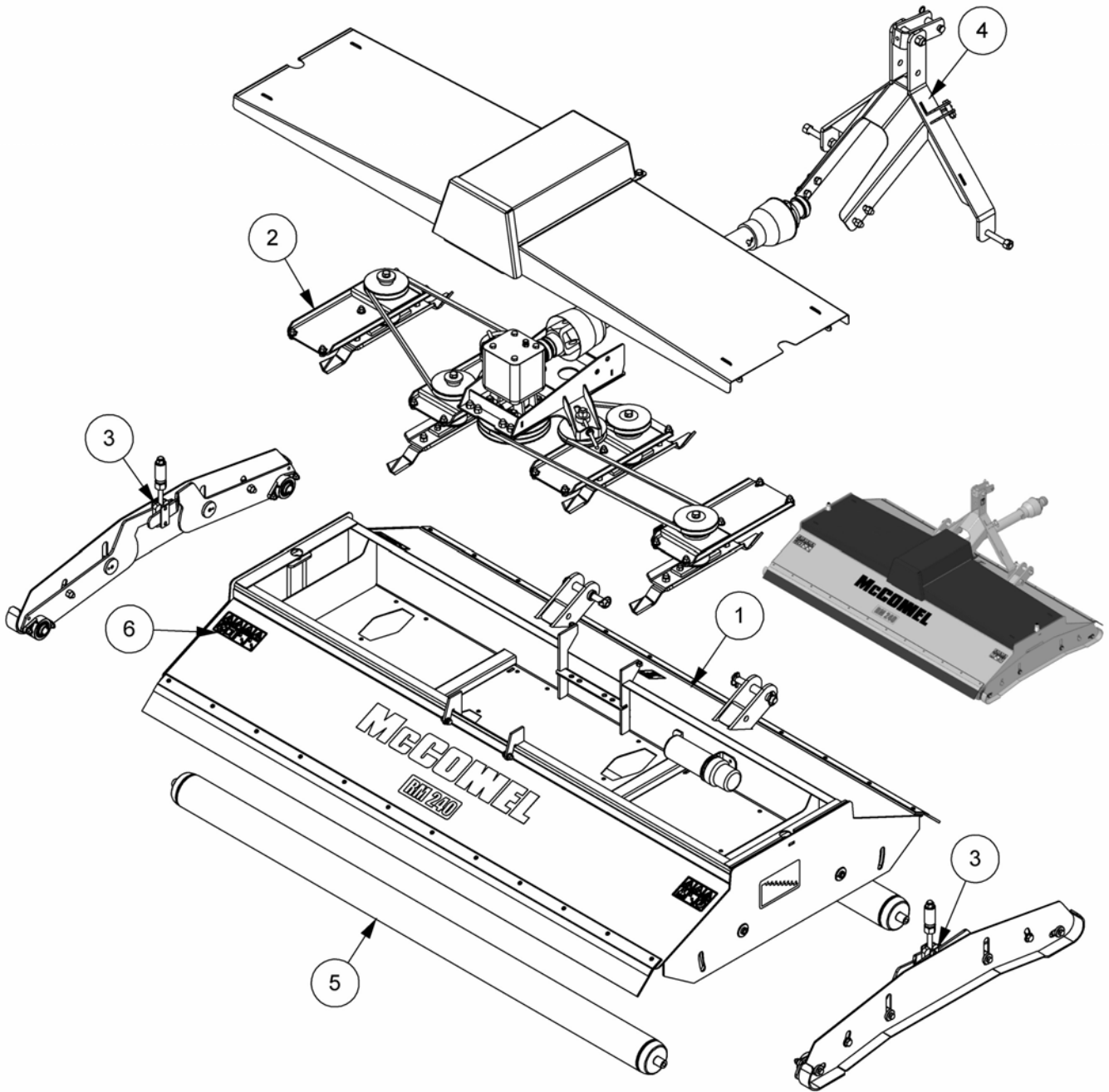
Spare Parts Section



Module(s): 1057904



REF.	QTY.	PART No.	DESCRIPTION
		1057904	RM180 REAR MOUNT ROLLER MOWER Mk2
1	1	1057700	RM180 DECK MODULE
2	1	1057702	RM180 DRIVE MODULE
3	2	1057706	RM180/240 SIDE SKID & ADJUSTER MODULE
4	1	1057707	RM180/240 A-FRAME MODULE
5	2	21019.01	RM180 ROLLER ASSEMBLY
6	1	21048.01	RM180 DECAL MODULE

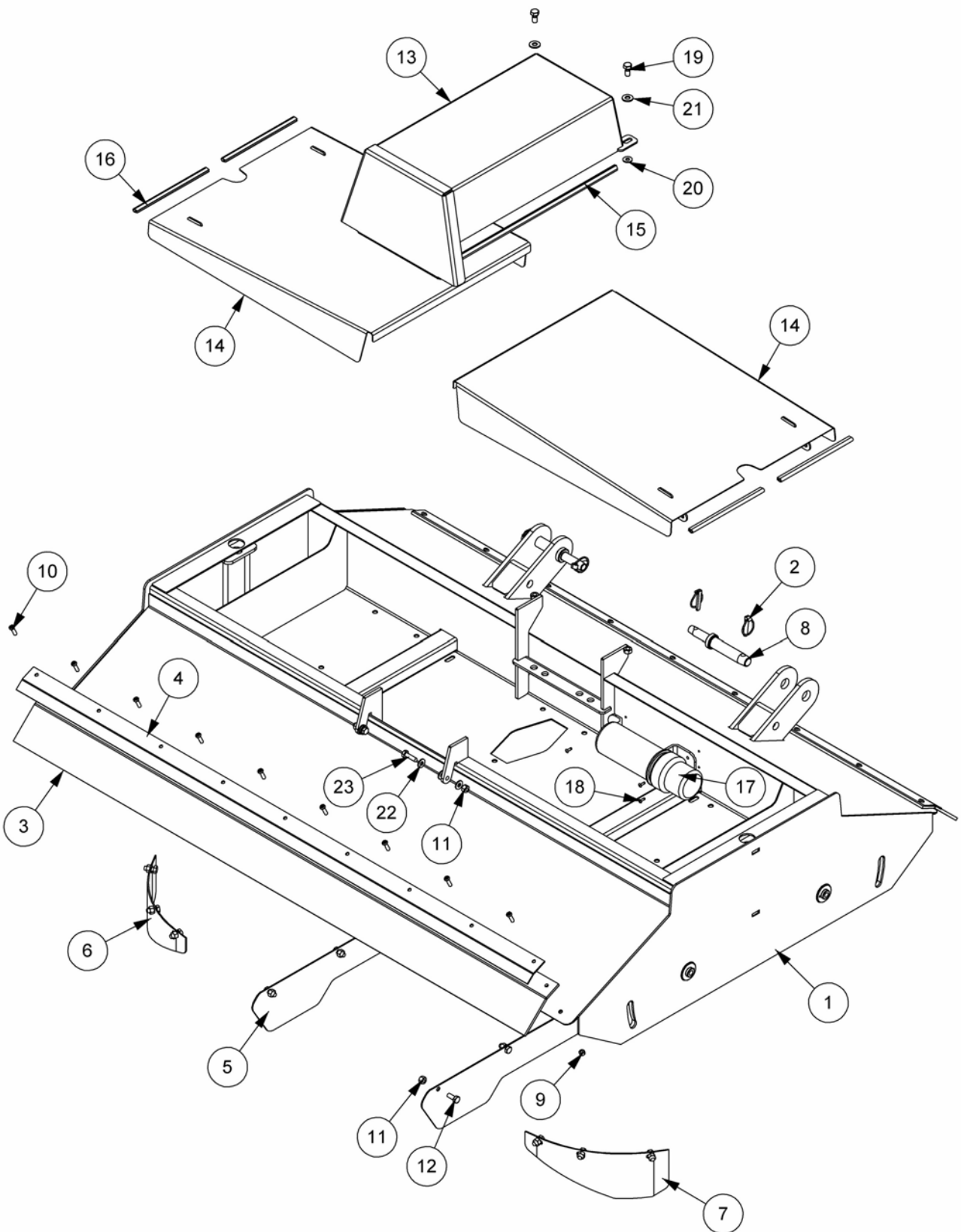


REF.	QTY.	PART No.	DESCRIPTION
		1057911	RM240 REAR MOUNT ROLLER MOWER Mk2
1	1	1057701	RM240 DECK MODULE
2	1	1057703	RM240 DRIVE MODULE
3	2	1057706	RM180/240 SIDE SKID & ADJUSTER MODULE
4	1	1057707	RM180/240 A-FRAME MODULE
5	2	21019.02	RM240 ROLLER ASSEMBLY
6	1	21048.02	RM240 DECAL MODULE

RM180 REAR MOUNT Mk2 - DECK ASSEMBLY

McCONEL

Module(s): 1057700



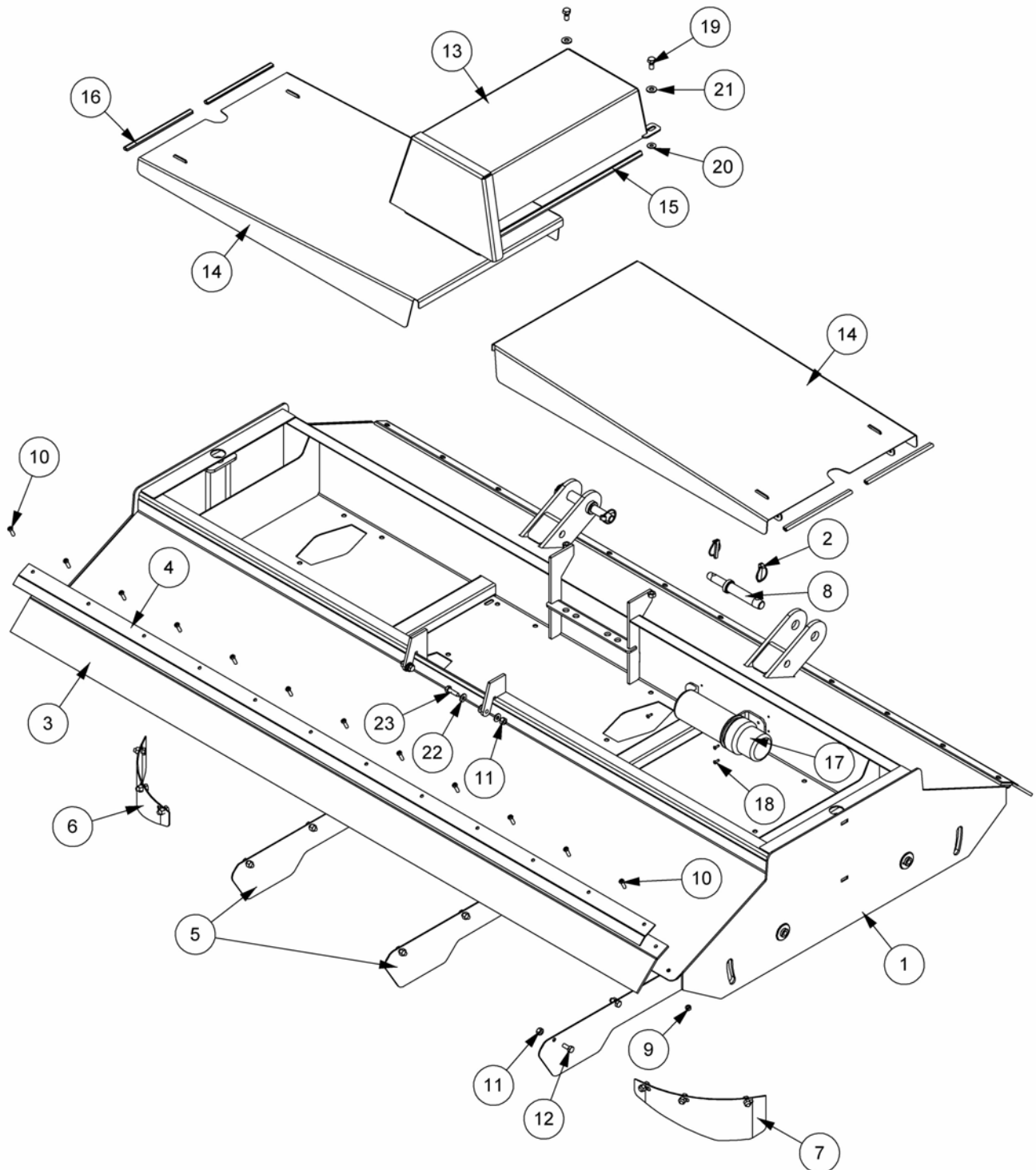
Module(s): 1057700

REF.	QTY.	PART No.	DESCRIPTION
		1057700	RM180 Mk2 DECK ASSEMBLY
1	1	21003.06	DECK - RM180 Mk2
2	4	0431217	LINCH PIN
3	2	21038.01	RUBBER SKIRT
4	2	21038.02	SKIRT PLATE
5	2	21037.01	BAFFLE PLATE
6	1	21003.72	BAFFLE - L/H
7	1	21003.73	BAFFLE - R/H
8	2	21158.01	LOWER LINK PIN
9	18	9143004	SELF-LOCKING NUT
10	18	9300151	BUTTON HEAD CAP SCREW
11	18	9143005	SELF-LOCKING NUT
12	16	9313055	SETSCREW
13	1	21016.05	GEARBOX COVER
14	2	21016.07	DRIVE COVER - RM180 Mk2
15	2	41741.18	EDGING STRIP (570mm)
16	4	41741.17	EDGING STRIP (260mm)
17	1	46505.01	LITERATURE HOLDER
18	3	21612.01	POP RIVET
19	2	21044.01	CAPTIVE SCREW
20	2	21044.02	CAPTIVE WASHER
21	2	9100106	FLAT WASHER
22	6	9100105	FLAT WASHER
23	2	9313075	SETSCREW

RM240 REAR MOUNT Mk2 - DECK ASSEMBLY

McCONEL

Module(s): 1057701

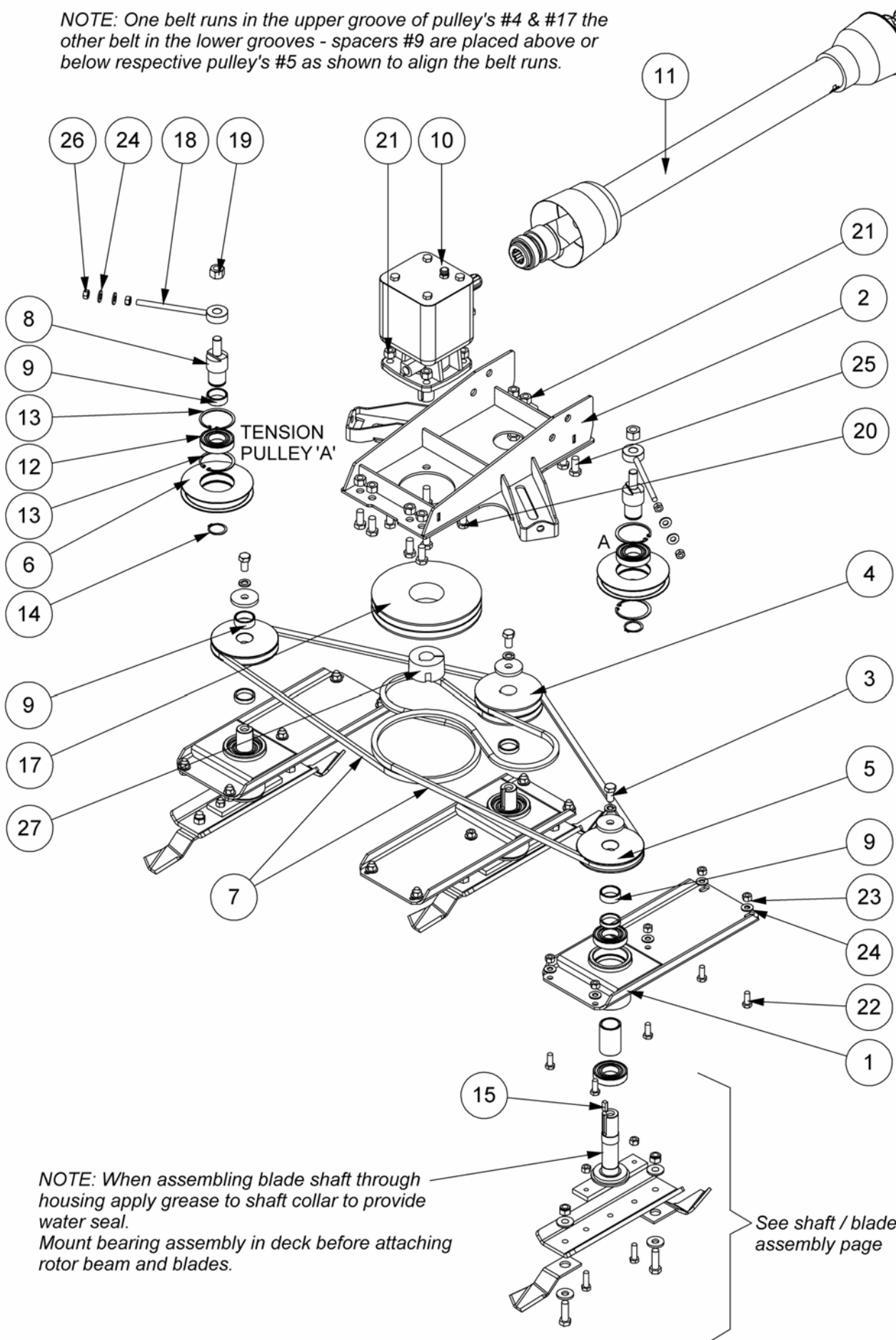


Module(s): 1057701

REF.	QTY.	PART No.	DESCRIPTION
		1057701	RM240 Mk2 DECK ASSEMBLY
1	1	21003.05	DECK - RM240 Mk2
2	4	0431217	LINCH PIN
3	2	21038.03	RUBBER SKIRT
4	2	21038.04	SKIRT PLATE
5	3	21037.01	BAFFLE PLATE
6	1	21003.72	BAFFLE - L/H
7	1	21003.73	BAFFLE - R/H
8	2	21158.01	LOWER LINK PIN
9	24	9143004	SELF-LOCKING NUT
10	24	9300151	BUTTON HEAD CAP SCREW
11	23	9143005	SELF-LOCKING NUT
12	21	9313055	SETSCREW
13	1	21016.05	GEARBOX COVER
14	2	21016.06	DRIVE COVER - RM240 Mk2
15	2	41741.18	EDGING STRIP (570mm)
16	4	41741.17	EDGING STRIP (260mm)
17	1	46505.01	LITERATURE HOLDER
18	3	21612.01	POP RIVET
19	2	21044.01	CAPTIVE SCREW
20	2	21044.02	CAPTIVE WASHER
21	2	9100106	FLAT WASHER
22	6	9100105	FLAT WASHER
23	2	9313075	SETSCREW

Module(s): 1057702

NOTE: One belt runs in the upper groove of pulley's #4 & #17 the other belt in the lower grooves - spacers #9 are placed above or below respective pulley's #5 as shown to align the belt runs.



*NOTE: When assembling blade shaft through housing apply grease to shaft collar to provide water seal.
Mount bearing assembly in deck before attaching rotor beam and blades.*

See shaft / blade assembly page

Module(s): 1057702

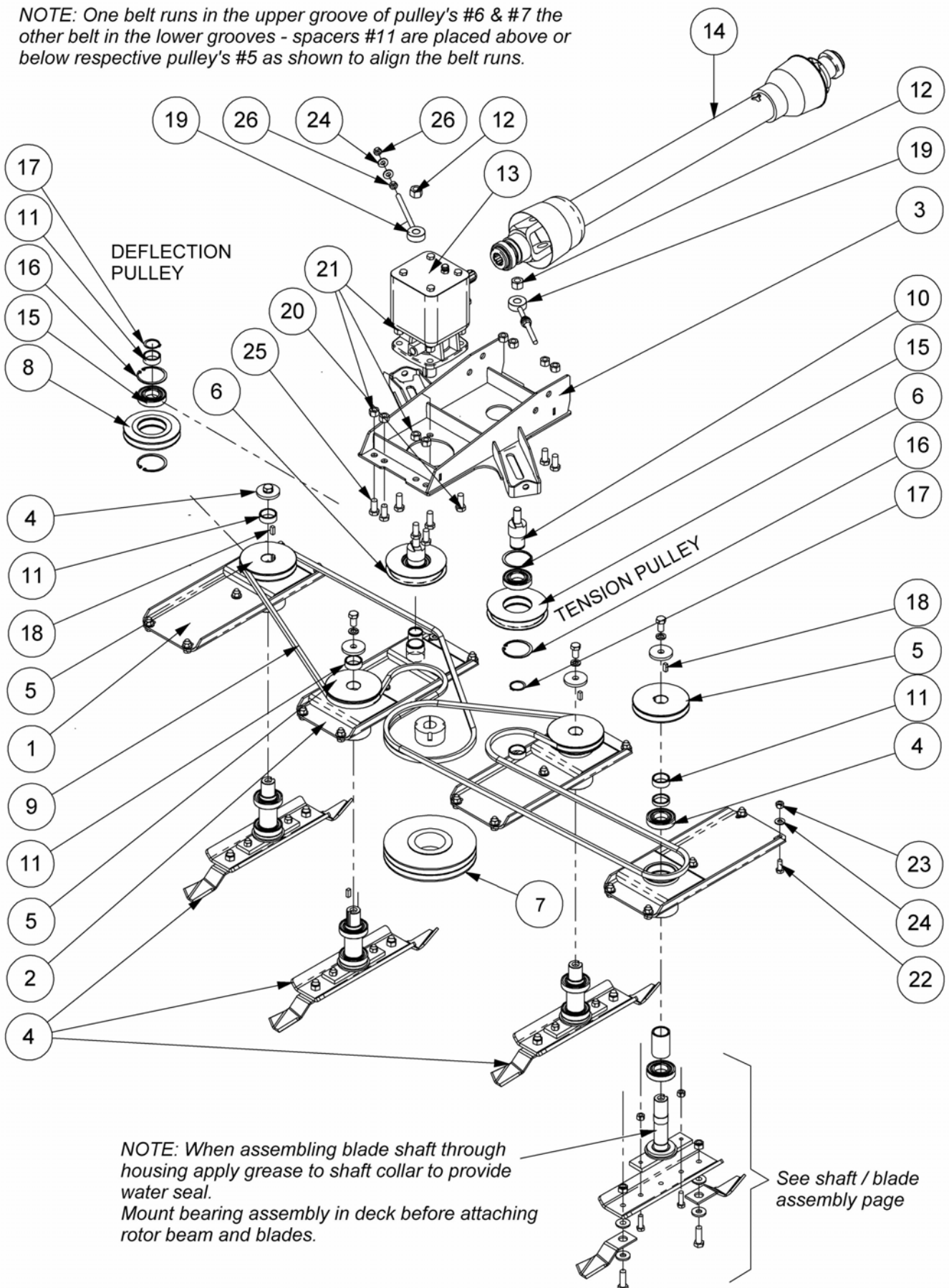
REF.	QTY.	PART No.	DESCRIPTION
		1057702	RM180 Mk2 DRIVE ASSEMBLY
1	3	21024.01	BEARING FABRICATION
2	1	21017.04	GEARBOX MOUNTING PLATE
3	3	21025.21	SHAFT BLADE ASSEMBLY
4	1	21028.02	DRIVEN PULLEY
5	2	21028.03	DRIVEN PULLEY
6	2	21028.04	TENSION PULLEY
7	2	21032.01	WEDGE BELT
8	2	21029.31	TENSIONER SHAFT
9	4	21028.31	SPACER TUBE
10	1	21030.01	GEARBOX
11	1	21040.01	PTO SHAFT
12	2	0600014	BALL BEARING
13	4	0411280	INTERNAL CIRCLIP
14	2	0401240	EXTERNAL CIRCLIP
15	2	21025.37	KEY
16	1	21025.33	KEY
17	1	21028.01	2-BELT PULLEY
18	2	21025.03	TENSION ADJUSTER
19	2	9143008	SELF-LOCKING NUT
20	4	9313087	SETSCREW
21	12	9143007	SELF-LOCKING NUT
22	15	9313066	SETSCREW
23	15	9143006	SELF-LOCKING NUT
24	19	9100106	FLAT WASHER
25	8	9313077	SETSCREW
26	4	9113006	NUT
27	1	05.424.23	TAPER LOCK BUSH

RM240 REAR MOUNT Mk2 - DRIVE ASSEMBLY

McCONEL

Module(s): 1057703

NOTE: One belt runs in the upper groove of pulley's #6 & #7 the other belt in the lower grooves - spacers #11 are placed above or below respective pulley's #5 as shown to align the belt runs.

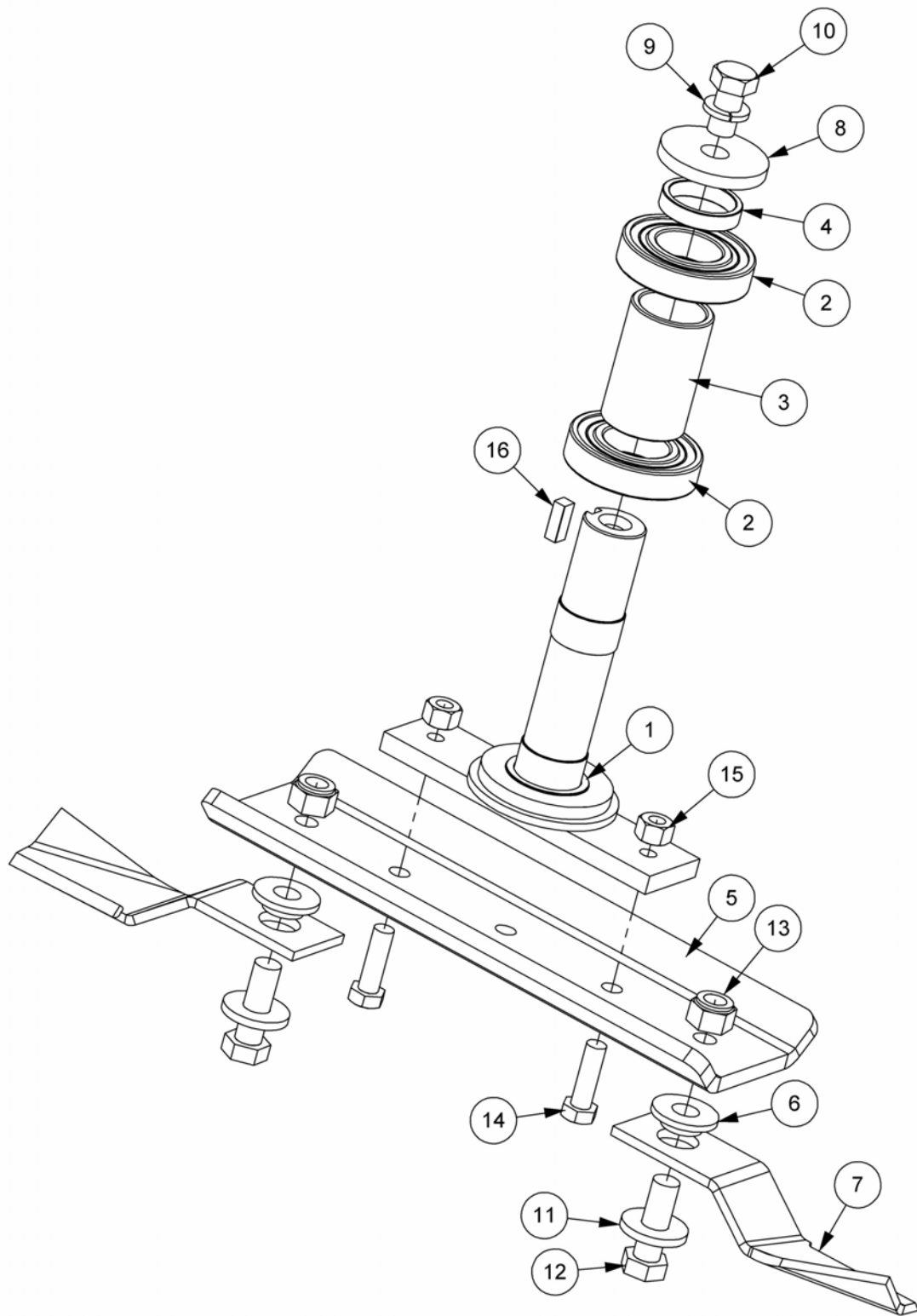


*NOTE: When assembling blade shaft through housing apply grease to shaft collar to provide water seal.
Mount bearing assembly in deck before attaching rotor beam and blades.*

See shaft / blade assembly page

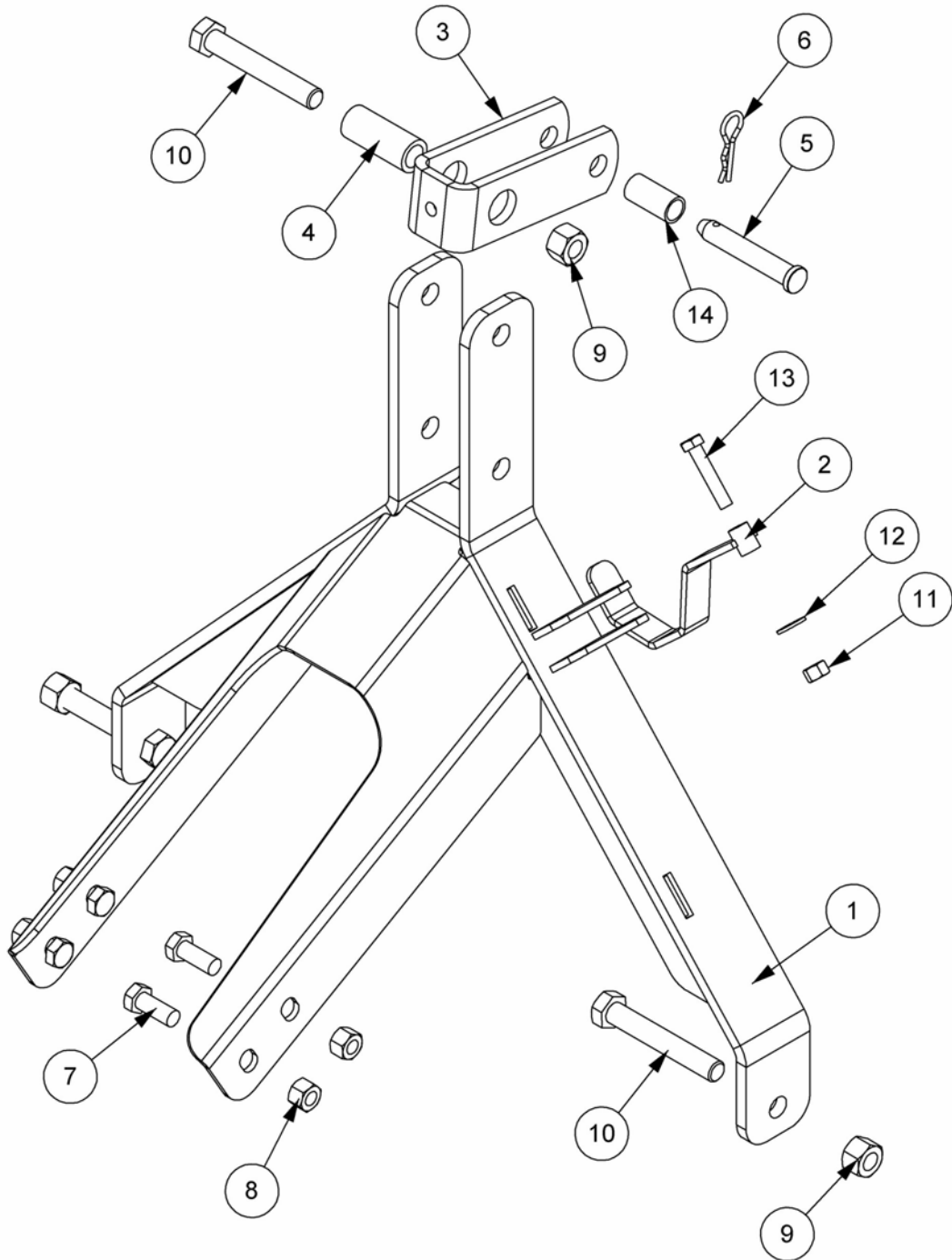
Module(s): 1057703

REF.	QTY.	PART No.	DESCRIPTION
		1057703	RM240 Mk2 DRIVE ASSEMBLY
1	3	21024.01	BEARING FABRICATION
2	1	21024.02	BEARING FABRICATION
3	1	21017.03	GEARBOX MOUNTING PLATE
4	4	21025.21	SHAFT BLADE ASSEMBLY
5	4	21028.03	DRIVEN PULLEY
6	2	21028.04	TENSION PULLEY
7	1	21028.01	2-BELT PULLEY
8	1	21028.06	DEFLECTION PULLEY
9	2	21032.02	WEDGE BELT
10	2	21029.31	TENSIONER SHAFT
11	7	21028.31	SPACER TUBE
12	2	9143008	SELF-LOCKING NUT
13	1	21030.01	GEARBOX
14	1	21040.01	PTO SHAFT
15	3	0600014	BALL BEARING
16	6	0411280	INTERNAL CIRCLIP
17	3	0401240	EXTERNAL CIRCLIP
18	4	21025.37	KEY
19	2	21025.03	TENSION ADJUSTER
20	4	9313087	SETSCREW
21	12	9143007	SELF-LOCKING NUT
22	20	9313066	SETSCREW
23	20	9143006	SELF-LOCKING NUT
24	24	9100106	FLAT WASHER
25	8	9313077	SETSCREW
26	4	9113006	NUT
27	1	05.424.23	TAPER LOCK BUSH



Module(s): 21025.21

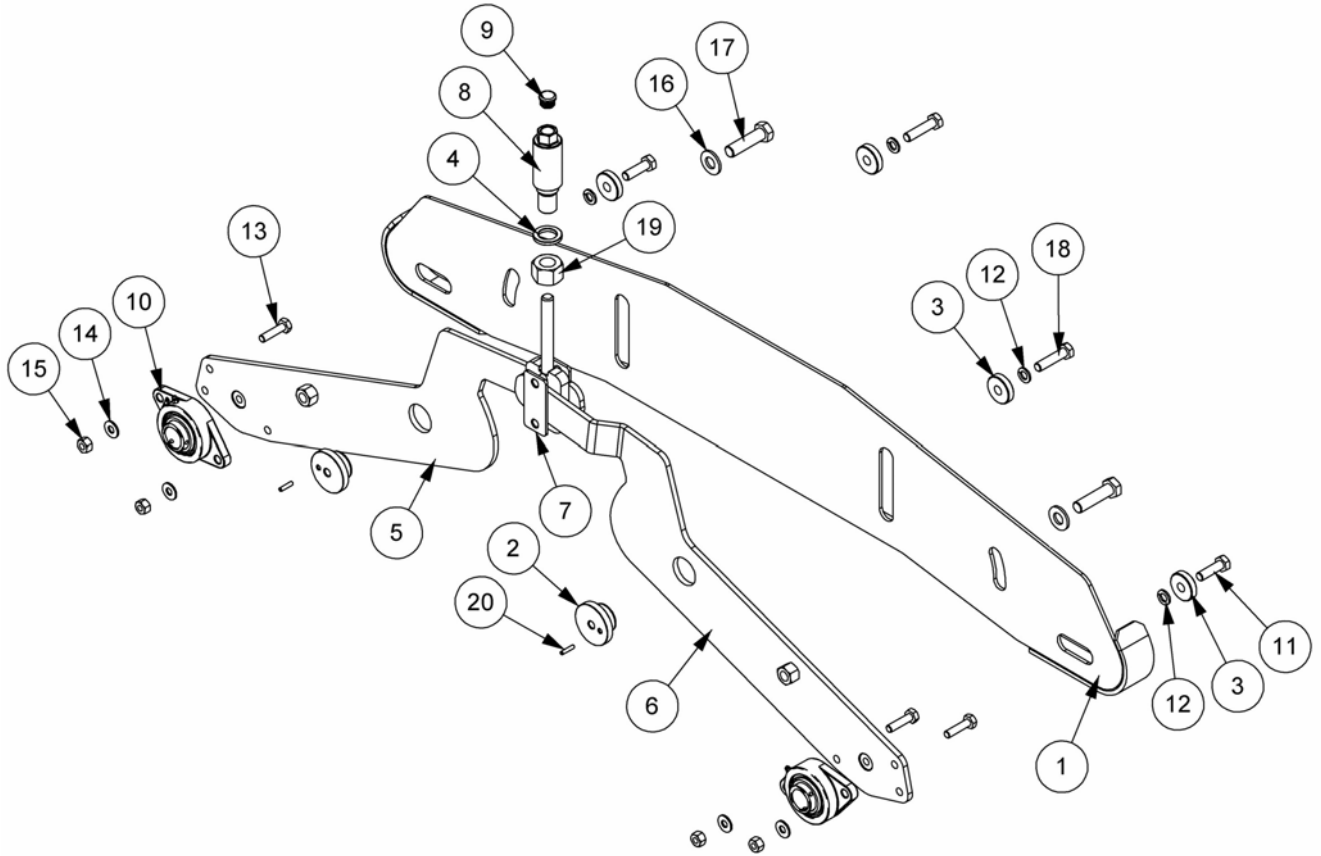
REF.	QTY.	PART No.	DESCRIPTION
		21025.21	BLADE & SHAFT ASSEMBLY
1	1	21025.01	ROTOR SHAFT
2	2	0600014	BALL BEARING
3	1	06.782.01	BEARING SPACER
4	1	21025.34	PULLEY SPACER
5	1	21025.32	ROTOR BEAM
6	2	06.237.02	COLLAR
7	2	06.208.02	BLADE (CCW)
8	1	04.252.01	WASHER
9	1	9100207	SPRING WASHER
10	1	9313067	SETSCREW
11	2	06.236.01	WASHER
12	2	05.839.06	BOLT
13	2	05.948.17	NUT
14	2	9313086	SETSCREW
15	2	9143006	SELF-LOCKING NUT
16	1	21025.37	KEY



Module(s): 1057707

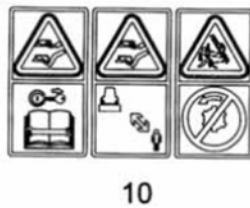
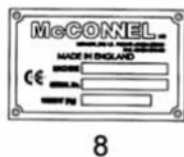
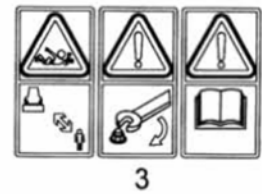
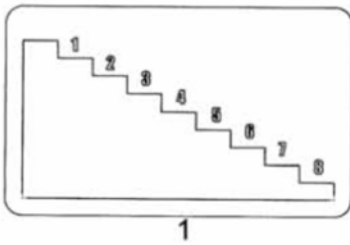
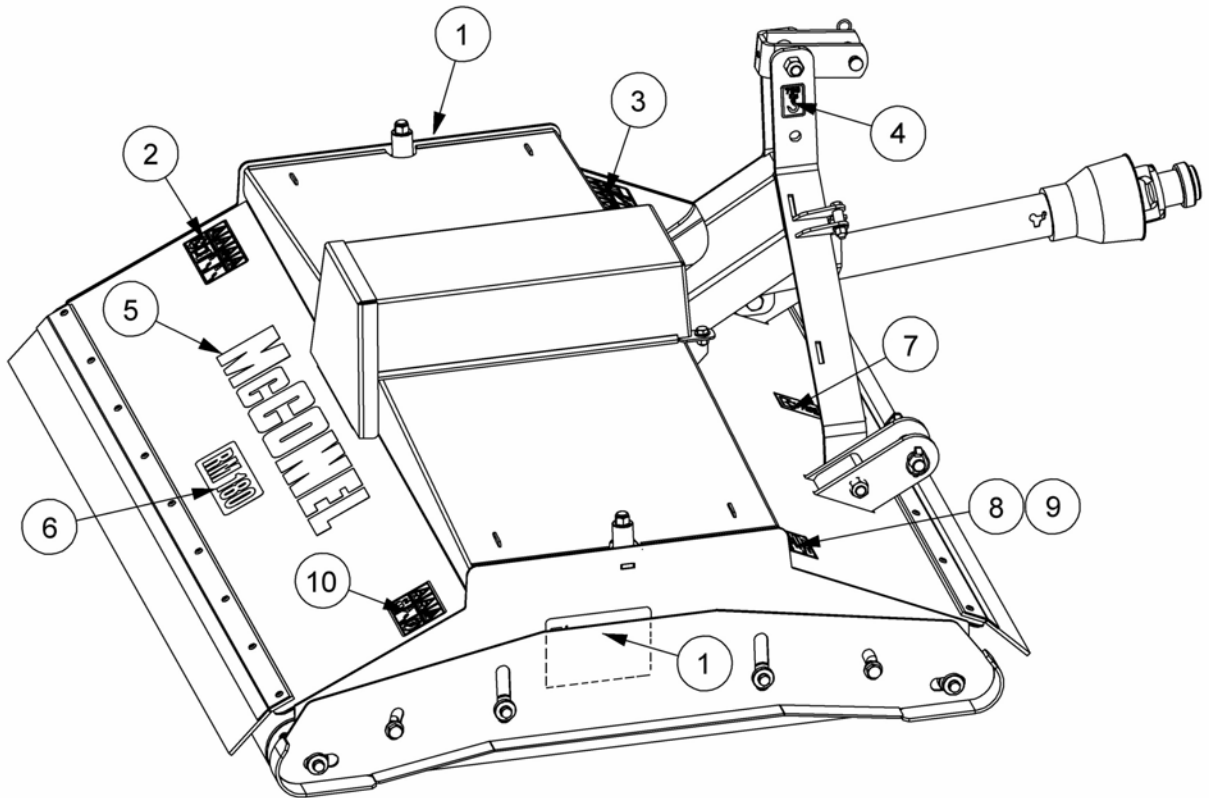
REF.	QTY.	PART No.	DESCRIPTION
		1057707	A-FRAME ASSEMBLY
1	1	22593.01	A-FRAME
2	1	21159.02	PTO SUPPORT
3	1	00766540	TOP LINK
4	1	00766542	BUSHING
5	1	37107B12	PIN - TOP LINK
6	1	0431105	SPRING COTTER
7	4	9313087	SETSCREW
8	4	9143007	SELF-LOCKING NUT
9	3	9143008	SELF-LOCKING NUT
10	3	9213268	BOLT
11	1	9143006	SELF-LOCKING NUT
12	1	9100106	FLAT WASHER
13	1	9313126	SETSCREW
14	1	1467063	SLEEVE (CAT.1 TO CAT.2)

Module(s): 1057706



Module(s): 1057706

REF.	QTY.	PART No.	DESCRIPTION
		1057706	SIDE SKID ASSEMBLY
1	1	21018.01	SIDESKID ASSEMBLY
2	2	21020.10	TAPPED BOSS
3	4	21020.12	WASHER PLATE
4	1	21020.15	THRUST WASHER
5	1	21020.16	STRAIGHT ROLLER SIDE PLATE
6	1	21020.17	OFFSET ROLLER SIDE PLATE
7	1	21020.18	ADJUSTABLE SLIDE
8	1	21020.50	SHORT ADJUSTMENT NUT
9	1	43358.02	PLASTIC BUNG
10	2	46092.01	FLANGE BEARING UNIT
11	2	9213086	BOLT
12	4	9100206	SPRING WASHER
13	4	9213085	BOLT
14	4	9100105	FLAT WASHER
15	4	9143005	SELF-LOCKING NUT
16	2	0100106	WASHER
17	2	9213127	BOLT
18	2	9213106	BOLT
19	1	9143009	SELF-LOCKING NUT
20	2	0425522	SPRING DOWEL



Module(s): 21048.01, 21048.02

REF.	QTY.	PART No.	DESCRIPTION
		21048.01	RM180 DECAL KIT
		21048.02	RM240 DECAL KIT
1	2	21048.31	DECAL - CUTTING HEIGHT
2	1	09.821.29	COMBINED EURODECAL
3	1	09.821.34	COMBINED EURODECAL
4	1	09.843.04	DECAL - 750 Kg
5	1	1290527	DECAL - McCONNEL
6	1	21048.32	DECAL - RM180
	1	21048.33	DECAL - RM240
7	1	09.811.04	DECAL - 540 MAX ACW
	1	09.811.02	DECAL - 1000 MAX ACW
8	1	1335246	SERIAL No. PLATE
9	4	7103230	POP RIVET
10	1	09.821.30	EURODECAL ROTARY



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