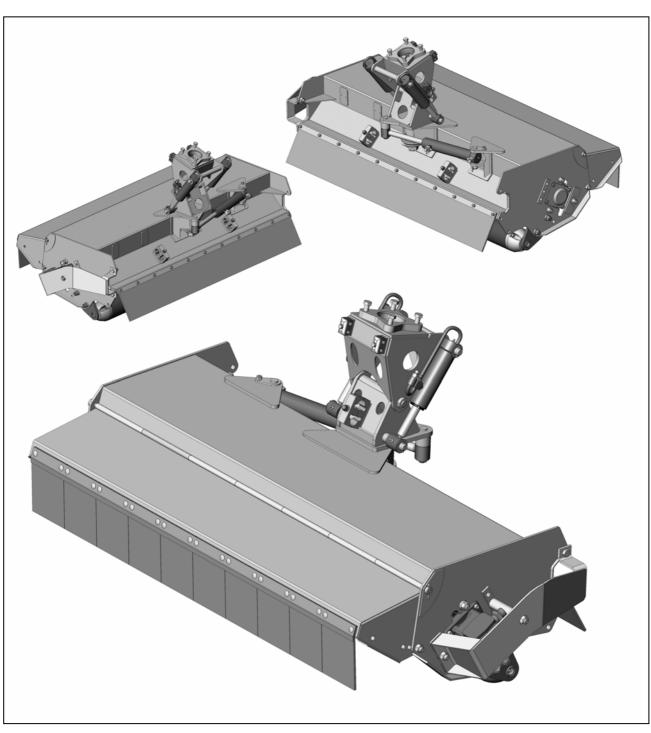
Publication 526 September 2007 Part No. 41571.26

1.5M MULTICUT ROTATOR / ORBITER FLAILHEAD



Operator & Parts Manual



EC DECLARATION OF CONFORMITY

Conforming to EEC Machinery Directive 98/37/EC*

We,

McC(DNNEL	LIMITED,
	<i>_</i> 1111	

Temeside Works, Ludlow, Shropshire SY8 1JL.

Chief Design Engineer

Status:

Declare under our sole responsibility that:
The product (type) Hydraulic Arm Mounted Flail Head
Product Code BD12, BD16, F110, F112, F115, F012, F016
Serial No. & Date
Manufactured by the above company/*
(* insert business name and full address if not stated above)
Complies with the required provisions of the Machinery Directive 98/37/EC, *previously Directive 89/392/EEC as amended by Directives 91/368/EEC, 93/44/EEC and 93/68/EEC. The machinery directive is supported by; • BS EN ISO 12100:2003 Safety of Machinery. This standard is made up of two parts; Part 1 Terminology, methodology, Part 2 Technical Specifications. • BS EN 1050 Safety of machinery - Principles of risk assessment. • and other national standards associated with its design and construction as listed in the Technical File. The Machinery Directive is fully implemented into UK law by means of the Supply of Machinery (Safety) Regulations 1992 (SI 1992/3073) as amended by The Supply of Machinery (Safety) (Amendment) Regulations 1994 (SI 1994/2063).
Signed John Fank on behalf of McCONNEL LIMITED Responsible Person

September 2007

Date:

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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:				





This machine has the potential to be extremely dangerous, in the wrong hands it can kill or maim. It is therefore imperative that both owner, and operator of this machine, read and understand the following section to ensure that they are fully aware of the dangers that do, or may exist, and their responsibilities surrounding the use and operation of the machine. The operator of this machine is responsible not only for their own safety but equally for the safety of others who may come into the close proximity of the machine, as the owner you are responsible for both.

When the machine is not in use the cutting head should be lowered to rest on the ground. In the event of a fault being detected with the machine's operation it should be stopped immediately and not used again until the fault has been corrected by a qualified technician.

POTENTIAL SIGNIFICANT DANGERS ASSOCIATED WITH THE USE OF THIS MACHINE:

- ▲ Being hit by debris thrown by rotating components.
- ▲ Being hit by machine parts ejected through damage during use.
- ▲ Being caught on a rotating power take-off (PTO) shaft.
- ▲ Being caught in other moving parts i.e.: belts, pulleys and cutting heads.
- ▲ Electrocution from Overhead Power Lines (by contact with or 'flashover' from).
- ▲ Being hit by cutting heads or machine arms as they move.
- ▲ Becoming trapped between tractor and machine when hitching or unhitching.
- Tractor overbalancing when machine arm is extended.
- ▲ Injection of high-pressure oil from hydraulic hoses or couplings.
- ▲ Machine overbalancing when freestanding (out of use).
- Road traffic accidents due to collision or debris on the road.

BEFORE USING THIS MACHINE YOU MUST:

- ▲ Ensure you read all sections of the operator handbook.
- ▲ Ensure the operator is, or has been, properly trained to use the machine.
- ▲ Ensure the operator has been issued with and reads the operator handbook.
- ▲ Ensure the operator understands and follows the instructions in operator handbook.
- ▲ Ensure the tractor front, rear and side(s) are fitted with metal mesh or polycarbonate guards of suitable size and strength to protect the operator against thrown debris or parts.
- ▲ Ensure tractor guards are fitted correctly, are undamaged and kept properly maintained.
- ▲ Ensure that all machine guards are in position, are undamaged, and are kept maintained in accordance with the manufacturer's recommendations.
- ▲ Ensure flails and their fixings are of a type recommended by the manufacturer, are securely attached and that none are missing or damaged.
- ▲ Ensure hydraulic pipes are carefully and correctly routed to avoid damage by chaffing, stretching or pinching and that they are held in place with the correct fittings.
- ▲ Always follow the manufacturer's instructions for attachment and removal of the machine from the tractor.
- ▲ Check that the machine fittings and couplings are in good condition.
- ▲ Ensure the tractor meets the minimum weight recommendations of the machine's manufacturer and that ballast is used as necessary.
- ▲ Always inspect the work area thoroughly before starting to note obstacles and remove wire, bottles, cans and other debris.
- ▲ Use clear suitably sized warning signs to alert others to the nature of the machine working within that area. Signs should be placed at both ends of the work site. (It is recommended that signs used are of a size and type specified by the Department of Transport and positioned in accordance with their, and the Local Highways Authority, quidelines).
- ▲ Ensure the operator is protected from noise. Ear defenders should be worn and tractor cab doors and windows must be kept closed. Machine controls should be routed through proprietary openings in the cab to enable all windows to be shut fully.
- Always work at a safe speed taking account of the conditions i.e.: terrain, highway proximity and obstacles around and above the machine. Extra special attention should be applied to Overhead Power Lines. Some of our machines are capable of reach in excess of 8 metres (26 feet) this means they have the potential to well exceed, by possibly 3 metres (9' 9"), the lowest legal minimum height of 5.2 metres from the ground for 11,000 and 33,000 volt power lines. It cannot be stressed enough the dangers that surround this capability, it is therefore vital that the operator is fully aware of the maximum height and reach of the machine, and that they are fully conversant with all aspects regarding the safe minimum distances that apply when working with machines in close proximity to Power Lines. (Further information on this subject can be obtained from the Health & Safety Executive or your Local Power Company).

- ▲ Always disengage the machine, kill the tractor engine, remove and pocket the key before dismounting for any reason.
- ▲ Always clear up all debris left at the work area, it may cause hazard to others.
- Always ensure when you remove your machine from the tractor that it is left in a safe and stable position using the stands and props provided and secured if necessary.

WHEN NOT TO USE THIS MACHINE:

- ▲ Never attempt to use this machine if you have not been trained to do so.
- ▲ Never use a machine until you have read and understood the operator handbook, are familiar with it, and practiced the controls.
- ▲ Never use a machine that is poorly maintained.
- ▲ Never use a machine if guards are missing or damaged.
- ▲ Never use a machine on which the hydraulic system shows signs of wear or damage.
- ▲ Never fit, or use, a machine on a tractor that does not meet the manufacturer's minimum specification level.
- ▲ Never use a machine fitted to a tractor that does not have suitable front, rear and side(s) cab guarding made of metal mesh or polycarbonate.
- ▲ Never use the machine if the tractor cab guarding is damaged, deteriorating or badly fitted.
- ▲ Never turn a machine cutting head to an angle that causes debris to be ejected towards the cab.
- ▲ Never start or continue to work a machine if people are nearby or approaching Stop and wait until they are at a safe distance before continuing. WARNING: Some Cutting Heads may continue to 'freewheel' for up to 40 seconds after being stopped.
- ▲ Never attempt to use a machine on materials in excess of its capability.
- ▲ Never use a machine to perform a task it has not been designed to do.
- ▲ Never operate the tractor or machine controls from any position other than from the driving seat, especially whilst hitching or unhitching the machine.
- ▲ Never carry out maintenance of a machine or a tractor whilst the engine is running the engine should be switched off, the key removed and pocketed.
- ▲ Never leave a machine unattended in a raised position it should be lowered to the ground in a safe position on a level firm site.
- ▲ Never leave a tractor with the key in or the engine running.
- ▲ Never carry out maintenance on any part or component of a machine that is raised unless that part or component has been properly substantially braced or supported.
- ▲ Never attempt to detect a hydraulic leak with your hand use a piece of cardboard.
- ▲ Never allow children near to, or play on, a tractor or machine under any circumstances.

ADDITIONAL SAFETY ADVICE

Training

Operators need to be competent and fully capable of operating this machine in a safe and efficient way prior to attempting to use it in any public place. We advise therefore that the prospective operator make use of relevant training courses available such as those run by the Agricultural Training Board, Agricultural Colleges, Dealers and McConnel.

Working in Public Places

When working in public places such as roadsides, consideration should be paid to others in the vicinity. Stop the machine immediately when pedestrians, cyclists and horse riders etc. pass. Restart only when they are at a distance that causes no risk to their safety.

Warning Signs

It is advisable that any working area be covered by suitable warning signs and statutory in public places. Signs should be highly visible and well placed in order to give clear advanced warning of the hazard. Contact the Department of Transport or your Local Highways Authority to obtain detailed information on this subject. The latter should be contacted prior to working on the public highway advising them of the time and location of the intended work asking what is required by way of signs and procedure. – 'Non-authorised placement of road signs may create offences under the Highways Act'.

Suggested Warning Signs Required

"Road works ahead" warning sign with a supplementary "Hedge cutting" plate. "For 1 mile" or appropriate shorter distance may be added to the plate.

"Road narrows" warning sign with supplementary "Single file traffic" plate.

White on blue "Keep right" (*) arrow sign on rear of machine.

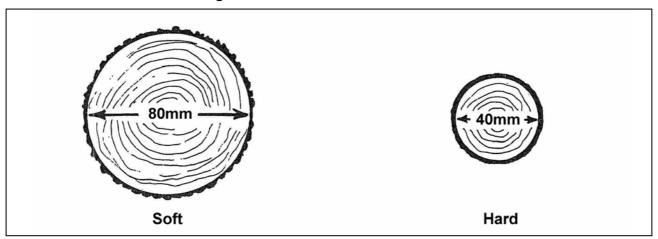
* Note – this applies to UK Market machines where traffic passes to the right of a machine working in the same direction as the traffic flow. The direction, use and colour of the arrow sign will depend on the country of use and the Local Highway Authorities regulations in the locality.

Use of Warning Signs

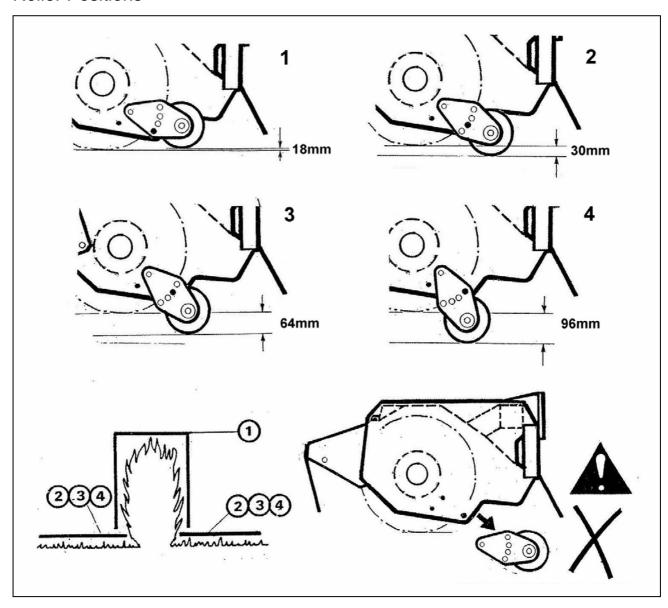
- ▲ On two-way roads one set of signs is needed facing traffic in each direction.
- ▲ Work should be within 1 mile of the signs.
- ▲ Work only when visibility is good and at times of low risk e.g.: NOT during 'rush-hour'.
- ▲ Vehicles should have an amber-flashing beacon.
- ▲ Ideally, vehicles should be conspicuously coloured.
- ▲ Debris should be removed from the road and path as soon as practicable, and at regular intervals, wearing high visibility clothing and before removing the hazard warning signs.
- ▲ Collect all road signs promptly when the job is completed.

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 McConnel machine.

Material Thickness Cutting Limitations

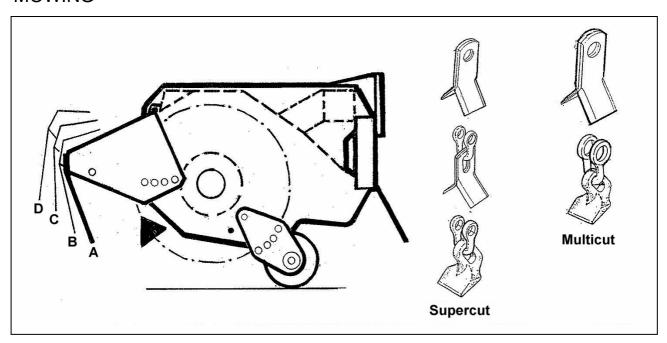


Roller Positions



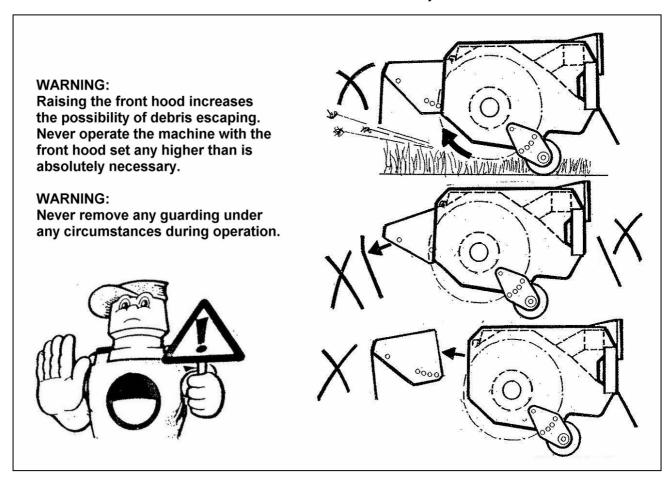
FLAILHEAD ARRANGEMENT

MOWING

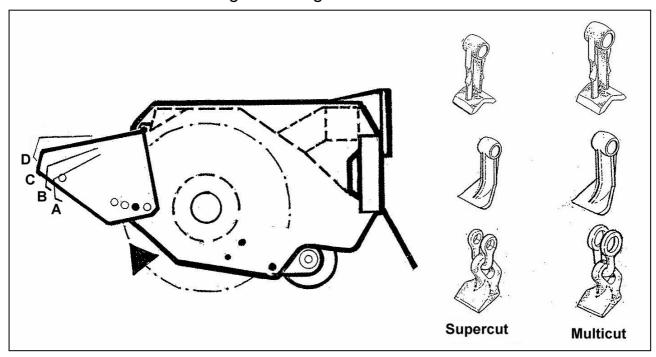


When mowing the rotor must always cut with an upwards rotation and the roller position must always be set below the level of the skid, or rotor if skids are not fitted, i.e. in positions 2, 3 or 4, - see roller position page.

The front hood has 4 adjustment positions for height – the lowest possible position which allows the material to be cut to enter the head should always be used.



HEDGE CUTTING - Average Working Conditions

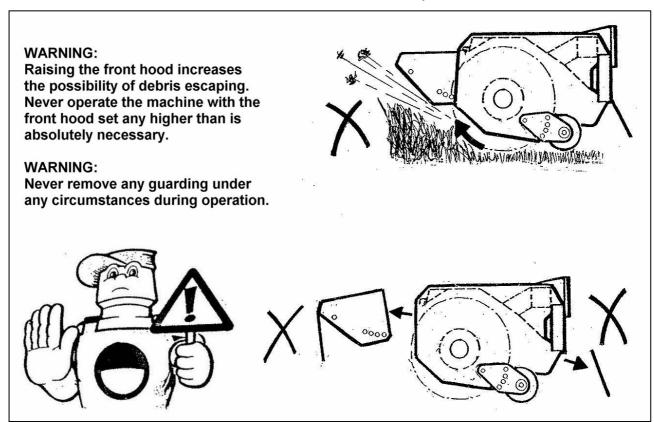


For the best finish the rotor should cut with an upwards rotation.

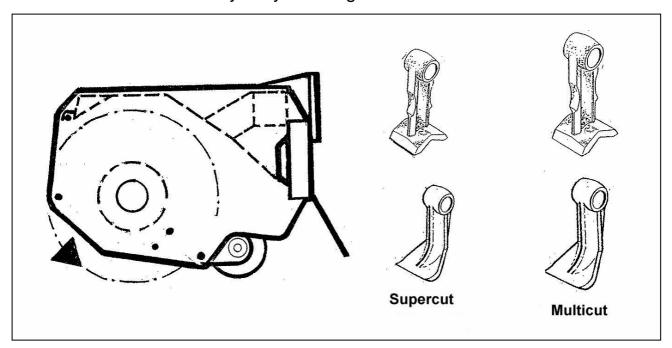
The roller should be set slightly above the rotor i.e. in position 1 – see roller position page.

On universal heads the front rubber flaps, and skids if fitted, may be removed to aid the entry of the material to be cut into the flail head.

The front hood has 4 adjustment positions for height – the lowest possible position which allows the material to be cut to enter the head should always be used.

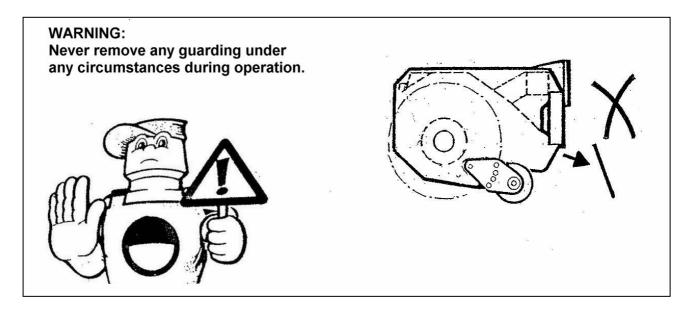


HEDGE CUTTING - Heavy Duty Working Conditions



Where the size of material to be cut makes it necessary for the front hood to be removed to allow the rotor to cut, the rotor must always cut with downward rotation. This will result in a poorer finish and require more power than cutting upwards.

The roller should be set slightly above the rotor i.e. in position 1 - see roller position page.

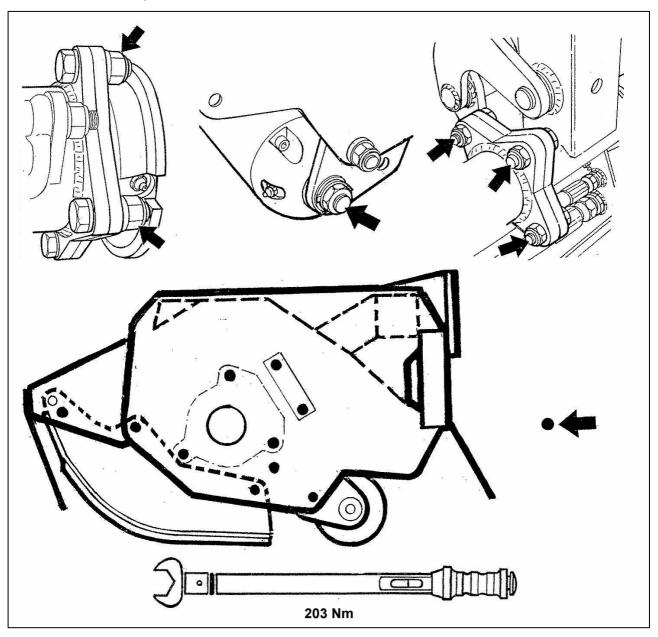


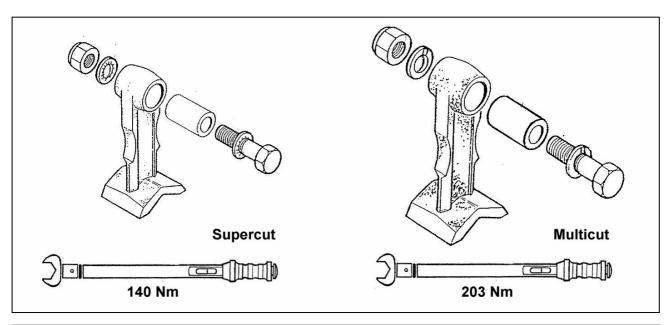
MAINTENANCE

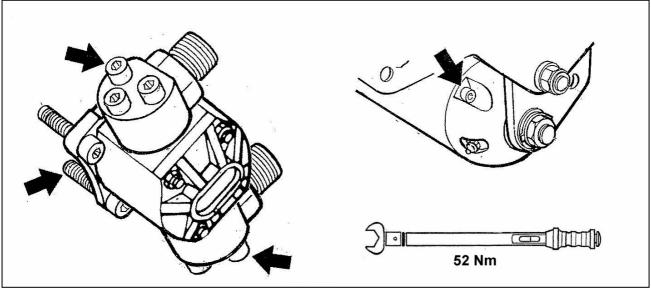
Frequently inspect the rotor assembly for damaged or missing flails – Never operate or attempt to run the rotor with flails missing, imbalance will cause severe vibration and can rapidly damage the rotor shaft bearings. As an emergency measure, if a flail is broken off or missing, removal of an opposing flail on the opposite side of the rotor will retain the balance. Replace the flails at the earliest possible opportunity and always replace in opposite pairs. Never match up a new flail with a sharpened or damaged flail as the latter will be lighter thus causing imbalance of the rotor.

Blunt flails absorb more power and leave an untidy finish to the work. They should be sharpened on a grindstone or with a portable grinder periodically. Always wear protective gear when sharpening flails.

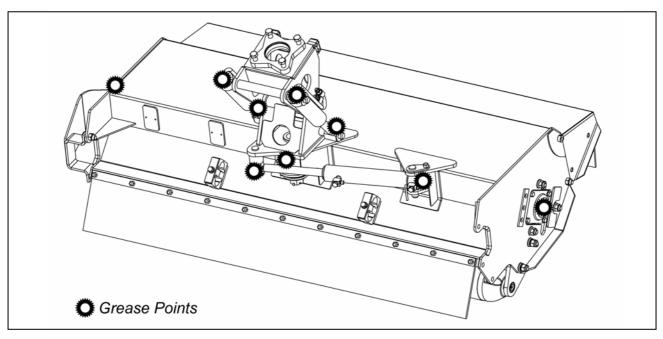
Check on a regular basis, prior to operation that all bolts are tight and that torque figures are correct for the specific locations shown below.







Lubrication
Grease daily the lubrication points indicated below





For best performance ...

USE ONLY GENUINE McCONNEL SERVICE PARTS

To be assured of the latest design improvements purchase your 'Genuine Replacements' from the 'Original Equipment Manufacturer'

McCOWEL LIMITED

Through your local Dealer or Stockist

Always quote:

- Machine Type
- Serial Number
- Part Number

Design improvements may alter some of the parts listed in this manual – the latest part will always be supplied when it is interchangeable with an earlier one.

1.5m Multicut Rotator / Orbiter Flailhead FLAIL HEAD CASING ASSEMBLY Module: Sub-assembly of 7352780 27 25

16

FLAIL HEAD CASING ASSEMBLY



REF.	QTY.	PART No. 7352780	DESCRIPTION 1.5M FLAIL HEAD CASING ASSEMBLY
1	1	22330.01	CASING
2	1	42431.01	FRONT HOOD
3	1	43486.01	MOTOR COVER - L/H BUILD
4	1	7190292	COVER PLATE
5	1	41293.03	HOOD PIVOT PIN
6	1	42440.01	REAR FLAP
7	1	42439.01	CLAMP STRIP (REAR)
8	11	9143005	SELF-LOCKING NUT
9	11	9313065	SETSCREW
10	4	30.073.25	BOLT
11	5	9100028	SELF-LOCKING NUT
12	2	21649.02	GLACIER BUSH
13	1	0901121	GREASE NIPPLE - STRAIGHT
14	6	9100205	SPRING WASHER
15	4	9313045	SETSCREW
16	2	9100025	DOME NUT
17	2	9100105	FLAT WASHER
18	2	06.418.05	CLAMP PLATE
19	4	45630.01	HOSE CLAMP
20	2	04.282.10	STUD
21	1	9501406	SPLIT PIN
22	1	9200034	BOLT
23	1	21978.03	DECAL KIT
24 25 26	1 10 20	21954.01 21955.01 7290053 9293054	FRONT FLAP KIT CLAMP STRIP (FRONT) FRONT FLAP CUP HEAD SCREW
27	20	9143004	SELF-LOCKING NUT

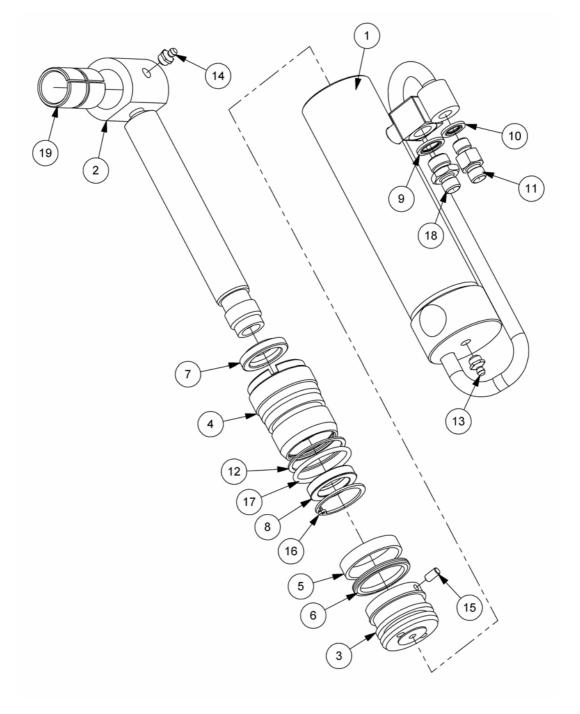
1.5m Multicut Rotator / Orbiter Flailhead **ORBITER ASSEMBLY** Module: Sub-assembly of 7352780 (25) (23 (13 10)





REF.	QTY.	PART No. 7352780	DESCRIPTION 1.5M FLAIL HEAD ORBITER ASSEMBLY
1	1	22325.02	HEAD BRACKET - ORBITER
2	1	22324.01	ORBITER ATTACHMENT BRACKET
3	1	7560358	HEAD ROTATOR RAM
4	2	43377.03	RAM ASSEMBLY
5	1	7418739	ROTATOR HYDRAULICS MODULE
6	2	21649.02	GLACIER BUSH
7	2	0901121	GREASE NIPPLE - STRAIGHT
8	1	9100025	DOME NUT
9	1	9100205	SPRING WASHER
10	2	21135.02	THRUST WASHER
11	1	22204.01	RETAINING WASHER
12	1	9183010	SLOTTED NUT
13	1	9100105	FLAT WASHER
14	2	9100204	SPRING WASHER
15	5	7192001	WASHER (THIN)
16	1	41.235.02	PIN
17	6	0425540	SPRING DOWEL
18	2	7101083	LINK BUSH
19	4	9213167	BOLT
20	4	9143007	SELF-LOCKING NUT
21	1	22168.01	RAM BASE PIN
22	1	9313065	SETSCREW
23	1	9143005	SELF-LOCKING NUT
24	1	9501507	SPLIT PIN
25	2	45630.01	HOSE CLAMP
26	1	04.282.10	STUD
27	1	06.418.05	CLAMP PLATE
28	4	7193065	HOSE CLAMP (HALF)
29	2	7193066	CLAMP PLATE
30	2	9213084	BOLT

1.5m Multicut Rotator / Orbiter Flailhead ORBITER RAM ASSEMBLY Module: 43377.03



ORBITER RAM ASSEMBLY

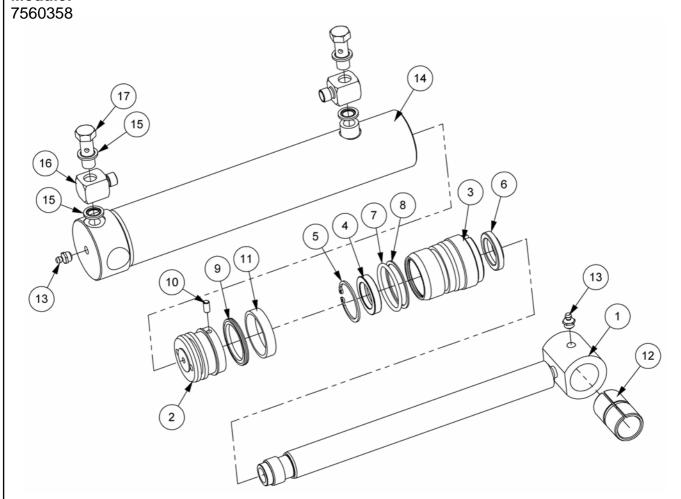


REF.	QTY.	PART No.	DESCRIPTION
		43377.03	RAM ASSEMBLY
1	1	43377.34	BARREL
2	1	09.987.62	PISTON ROD
3	1	7560095	PISTON
4	1	7135291	GLAND HOUSING
5	1	8629188	GUIDE RING
6	1	8629187	PISTON SEAL
7	1	8629149	SCRAPER RING
8	1	8629148	GLAND SEAL
9	1	8650103	BONDED SEAL
10	1	8650102	BONDED SEAL
11	1	8130037	ADAPTER RESTRICTOR - 1.15 'S'
12	1	8609302	AE RING
13	1	0901125	GREASE NIPPLE - 45°
14	1	0901121	GREASE NIPPLE - STRAIGHT
15	1	9363023	GRUB SCREW
16	1	0416240	INTERNAL CIRCLIP
17	1	8600302	O RING
18	1	8130066	ADAPTER RESTRICTOR - 1.15 'S'
19	1	7105050	ROD END BUSH
		8699188	SEAL KIT

ROTATOR RAM ASSEMBLY



Module:

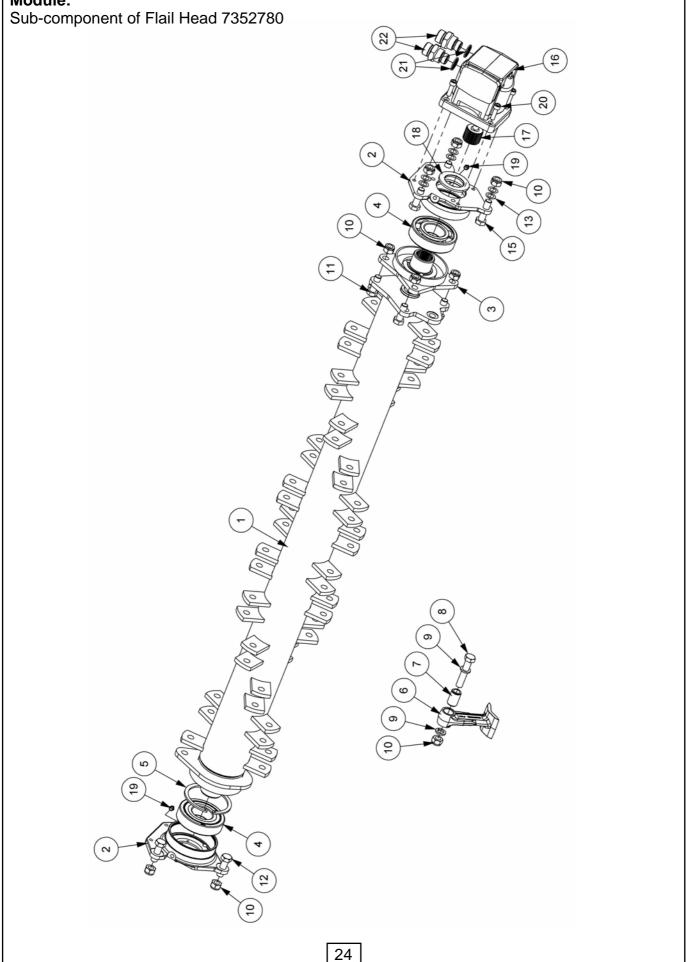


ROTATOR RAM ASSEMBLY



RE	EF. Q	TY.	PART No. 7560358	DESCRIPTION HEAD ROTATOR RAM
•	1	1	7195010	PISTON ROD
2	2	1	7560095	PISTON
(3	1	7135291	GLAND HOUSING
4	4	1	8629148	GLAND SEAL
į	5	1	0416240	INTERNAL CIRCLIP
(6	1	8629149	SCRAPER RING
7	7	1	8600302	O RING
8	8	1	8609302	AE RING
Ç	9	1	8629187	PISTON SEAL
1	0	1	9363023	GRUB SCREW
1	1	1	8629188	GUIDE RING
1	2	1	7105050	ROD END BUSH
1	3	2	0901121	GREASE NIPPLE
1	4	1	7195305	RAM BARREL
1	5	4	8650102	BONDED SEAL
1	6	2	8581258	BANJO BODY
1	7	2	8581257	BANJO BOLT
			8699188	SEAL KIT

1.5m Multicut Rotator / Orbiter Flailhead 1.5M ROTOR ASSEMBLY Module: Sub-component of Flail Head 7352780







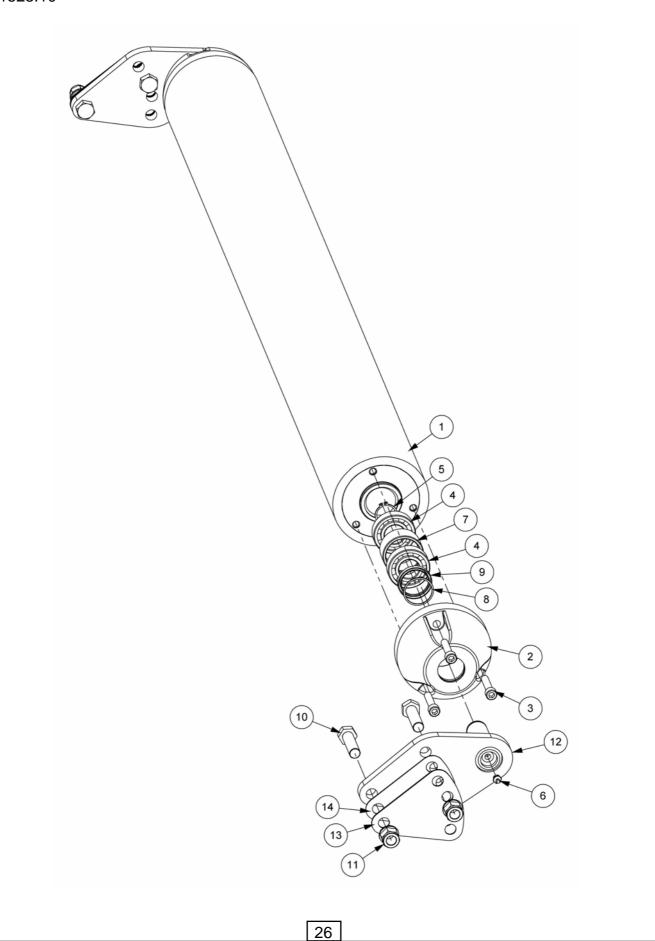
ı	REF.	QTY.	PART No. 7352780	DESCRIPTION 1.5M FLAIL HEAD 1.5M ROTOR ASSEMBLY
	1	1	42428.01	1.5M ROTOR
	2	2	7190261	BEARING HOUSING
	3	1	43389.03	DRIVE HUB
	4	2	0600018	BALL BEARING
	5	1	7190022	INTERNAL CIRCLIP
	6	24	7314366	F10H CAST FLAIL
	7	24	7314223	FLAIL PIVOT BUSH (NARROW)
	8	24	7390025	SPECIAL BOLT
	9	48	0100206	SPRING WASHER
	10	34	9100028	SELF-LOCKING NUT
	11	4	9200028	BOLT
	12	5	9200025	BOLT
	13	as req'd	8121044	SHIM - 0.6mm
	14	as req'd	8121043	SHIM - 0.4mm
	15	1	9200031	BOLT
	16	1	8301304	MOTOR (BACK PORTED)
	17	1	43390.02	DRIVE COUPLING - 27 TOOTH
	18	1	7190015	LOCATING WASHER
	19	2	0901121	GREASE NIPPLE - STRAIGHT
	20	4	9300144	CAPSCREW
	21	2	8650106	BONDED SEAL
	22	2	8581295	ADAPTOR

1.5M ROLLER ASSEMBLY



Module:

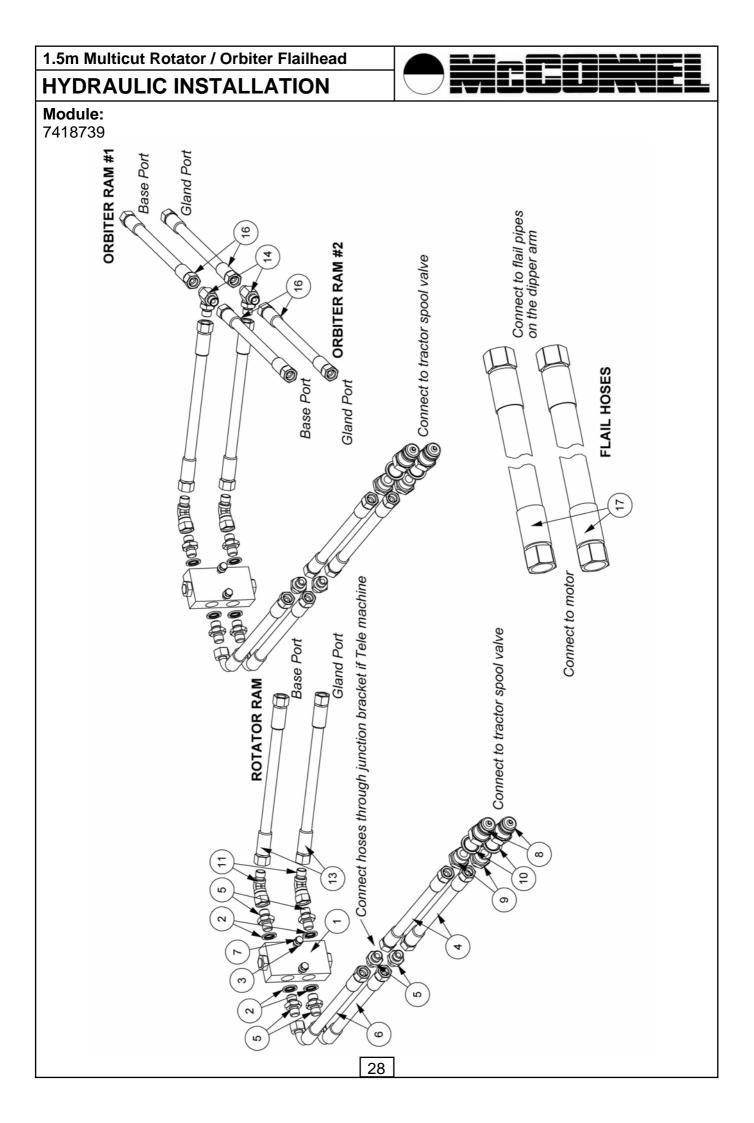
21523.10



1.5M ROLLER ASSEMBLY



REF.	QTY.	PART No. 21523.10	DESCRIPTION 1.5M ROLLER ASSEMBLY
1	1	21526.07	RUBBER ROLLER - 1.5M
2	2	21394.32	ROLLER END CAP
3	6	9343105	CAPSCREW
4	4	0600111	BALL BEARING
5	2	0401230	EXTERNAL CIRCLIP
6	2	0901121	GREASE NIPPLE - STRAIGHT
7	2	21523.31	BEARING SPACER
8	2	0402240	INTERNAL SPIROLOX RING
9	2	8629239	ROTARY SHAFT SEAL
10	4	9200031	BOLT
11	4	9100024	SELF-LOCKING FLANGE NUT
12	2	21524.11	ROLLER BRACKET
13	2	42257.06	SHIM - 2.0mm
14	2	42257.05	SHIM - 1.2mm



HYDRAULIC INSTALLATION



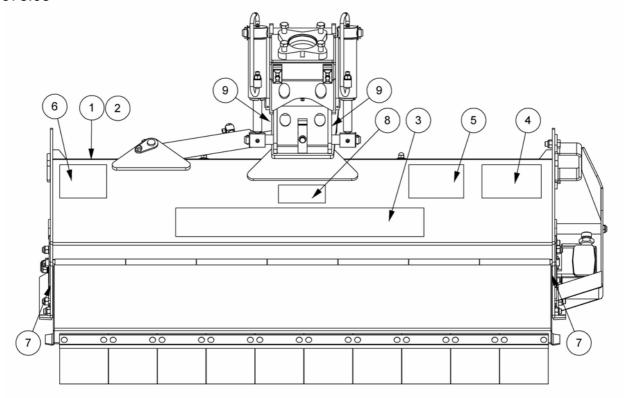
REF	. QTY.	PART No. 7418739	DESCRIPTION ROTATOR HEAD HOSE INSTALLATION
1	2	8132290	DOUBLE CHECK VALVE
2	8	8650102	BONDED SEAL
3	4	9100203	SPRING WASHER
4	4	10.001.75	HOSE - 1/4" BSP FS/FS x 6500mm
5	12	8581169	ADAPTOR
6	4	10.002.90	HOSE - 1/4" BSP FS/F90 x 8000mm
7	4	9213063	BOLT
8	4	8590074	QUICK RELEASE CONNECTION
9	4	8581172	ADAPTOR
10	4	8650104	BONDED SEAL
11	4	8581347	STEEL ELBOW -135° (M-F)
12	2	10.001.37	HOSE - 1/4" BSP FS/FS x 2700mm
13	2	10.001.24	HOSE - 1/4" BSP FS/FS x 1400mm
14	2	8581320	ADAPTER TEE (M-M-M)
15	2	10.001.07	HOSE - 1/4" BSP FS/FS x 350mm
16	2	10.001.08	HOSE - 1/4" BSP FS/FS x 400mm
17	2	10.011.58	HOSE - 1" BSP FS/FS x 4800mm

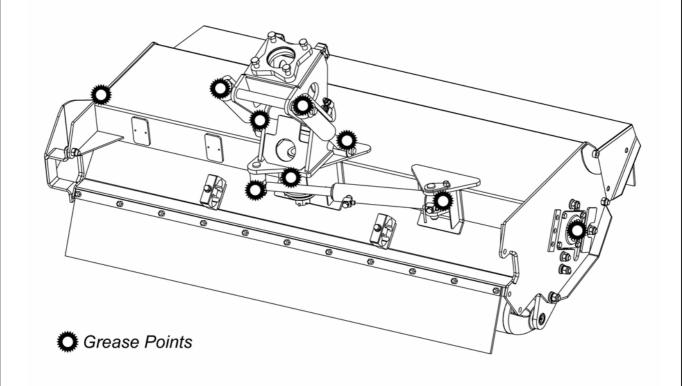
DECALS & GREASING POINTS



Module:

21978.03





DECALS & GREASING POINTS



REF.	QTY.	PART No. 21978.03	DESCRIPTION DECAL KIT
1	1	1335246	SERIAL No. PLATE
2	4	7103230	POP RIVET
3	1	1290527	DECAL - McCONNEL
4	1	1290341	DECAL - WARNING
5	1	1290392	DECAL - PARTS
6	1	1290462	DECAL - INSTRUCTION
7	2	09.810.01	DECAL - GREASE POINT (8hrs)
8	1	1290491	DECAL - 65HP
9	2	02962764	DECAL - PINCH POINT

