

SPEARHEAD

MULTICUT 160/200



Edition 4.1 – December 2020
Part No - 8999008

HANDBOOK

MULTICUT 160/200

IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Spearhead Machinery 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 Spearhead Machinery Limited web site at www.spearheadmachinery.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 Spearhead Service Department on 01789 491867.

Registration Verification

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

NOTE TO CUSTOMER / OWNER

Please ensure that the above section has been completed and signed by the selling dealer to verify that your machine has been registered with Spearhead Machinery 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

MULTICUT 160/200

MULTICUT 160/200

Contents

Important Safety	6
Safety Stickers	7

Installing Your Machine

Introduction	8
Safety First	8
Tractor Requirements	8
Attaching To The Tractor	9
Setting Up & Adjustments	12
Machine Protection	12
Operation	13
Transportation	13

Servicing & Maintenance

Safety First	14
Torque Settings	14
Daily/Every 8 Hours	15
Every 20 Hours	15
Regularly	15
Blades	16
Optional Chain Kit	16
Skids	16
Storage	17
After Storage	17
Trouble shooting	18

MULTICUT 160/200

Important Safety



Safety

- Never operate the machine with other people present, as it is possible for debris, including stones, to be discharged from the front and rear of the main deck. **Bystanders should be kept 92m (300feet) away from the mowing operation.**
- Always ensure all safety guards are in place and all tractor windows are closed.
- Never allow an inexperienced person to operate the machine without supervision.
- Never allow children to play on or around the machine at any time.
- Never attempt any maintenance or adjustment without first disengaging the PTO, lowering to the ground, stopping the tractor engine and applying the tractor parking brake.
- Before leaving the tractor cab always ensure that the machine is firmly on the ground, and the rotor has stopped spinning
- Never stop the engine with the PTO engaged.
- Always check that all guards are properly fitted, check there are no damage or loose parts. Particular attention should be given to the flails to ensure they are not damaged, cracked or missing.
- Never operate with damaged blades.
- Always operate PTO at recommended speed.
- Always inspect work area for wire, steel posts, large stones and other dangerous materials and remove before starting work.
- Never operate with wire around rotor. Stop immediately.
- Never attempt to use the machine for any purpose other than that it was designed for.
- Ensure that all warning labels are always visible and that they are not damaged, defaced or missing.
- Never transport with the PTO engaged.
- When parking up always lower to the ground.
- Where applicable, check condition of tyres and that wheel nuts are tight.
- During transport, ensure linkage stabilisers are fully tightened and observe public highway regulations.

MULTICUT 160/200

Safety Stickers



Warning
Stay clear of mower blades.



Warning
Shut off engine and remove key.



Warning
Keep a safe distance when the machine is running.



Warning
Beware of escaping fluid.



Warning
Do not remove/open guard.



Warning
Carefully read operator's manual before handling this machine. Observe instructions and safety rules when operating.



Warning
Beware of overhead electrical power line.



Warning
Check all nuts are tight every 8 hours.

MULTICUT 160/200

Introduction

The Spearhead Multicut 160 and 200 are very robust high capacity Rotary Cutters which are easy to operate and maintain to ensure trouble-free operation this manual should be carefully studied.

Safety First

Do not start the machine until you fully understand operation and safety precaution requirements. Always ensure the operators are proficient with the operation of this type of this machine.

Tractor Requirements

- Spearhead strongly recommends 40hp min - MC160 / 45hp min - MC200 tractor with **CATEGORY 2** rear linkage.
- Ensure there is sufficient weight on front wheels of the tractor for safe transport and stability.
- PTO must be independent live drive to enable continuous PTO drive even when tractor clutch is pressed down.
- Before hitching, ensure position control is selected. Do not attempt to hitch in draft control.
- Check chains and stabilizers must be in good working order to hold the machine firmly. Do not operate without checking that chains and stabilizers are tight.
- Spearhead particularly recommend 'turn buckle' type check chains
- Set linkage lift rods to an equal length.

Attaching To The Tractor

Fit the machine to the tractor in the standard way, ensuring the correct match of linkage (CAT 2). Check that the top link is in good order and threads are well lubricated. Use stabilisers to take any free movement out of lower link arms.

Before fitting the machine to the tractor linkage you should ensure there is sufficient front weight to ensure the front wheels are always in contact with the ground. This is most important for safe transport and stability when turning on slopes.

Before fitting the PTO for the first time, it may be necessary to adjust the length. There should be maximum engagement of the sliding tubes without bottoming at the shortest operation position. To check, first connect the mower to the tractor. Pull the PTO shaft apart and connect to the tractor PTO output shaft and the gearbox input shaft. Hold the half shafts next to each other in the shortest working position.

If necessary, shorten the inner and outer guard tubes equally. Shorten the inner and outer sliding profiles by the same length as the guard tubes. File all sharp edges and remove burrs. Grease sliding profiles.

To fit the PTO to the machine, first remove bolt and tapered pin from the slip clutch yoke and push onto splined shaft of gearbox ensuring it is fully engaged before refitting retaining bolt/pin.

To fit the PTO, first clean and grease press pins on the yoke and simultaneously push the PTO drive shaft onto PTO shaft of the tractor until pins engage.

The PTO shaft is fitted with a non-rotating safety guard. It should be secured to the machine and tractor with the two retaining chains provided.

MULTICUT 160/200

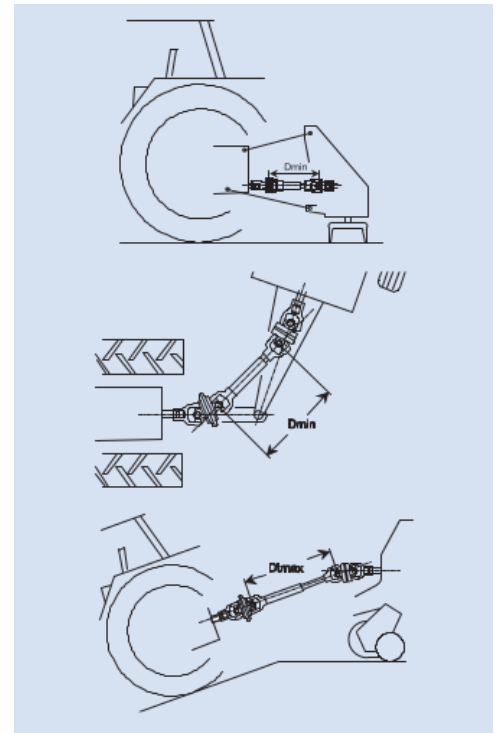
Attaching To The Tractor

Determining The Correct Length PTO Shaft

To determine the correct length of the driveline, it is advisable to hook the machine to the tractor and place the machine in order for it be at a minimum distance between the power takeoffs.

Install the two uncoupled and unprotected semi-shafts to their respective PTOs.

At this point, verify any interference of the outer tube with the yoke inner tube and establish how much the outer tube needs to be shortened.



Bondioli & Pavesi does not recommend modifications to its products. If the driveline needs to be shortened, proceed as described below. If you are unsure of the procedure, or need additional assistance, please contact your local implement dealer or qualified service centre.



1. Remove shielding.
2. Shorten drive tubes by required length. In normal conditions, telescoping tubes must always overlap by at least a $\frac{1}{2}$ of their length. During manoeuvres, when the driveline is not rotating, the telescopic tubes must have a suitable overlap to maintain the tubes aligned and allow them to slide properly

If the driveline is fitted with a single chain restraint system (splined inner tube), the tubes can be shortened by a limited amount (normally no more than 70mm) to avoid eliminating the splined ring connecting the two shield tubes.

If the driveline is fitted with a greasing system incorporated in the inner drive tubes, the tubes can be shortened by a limited amount to avoid damage to the lubrication system. Carefully measure and shorten each drive tube equally.

MULTICUT 160/200



3. Carefully deburr the ends of the tubes with a file and remove any chippings from the tubes



4. Shorten shield tubes one at a time by cutting the same length that was cut from the drive tubes. If the driveline is equipped with Single Chain Restraint System, shortening the driveline will involve removal of the plastic ring which connects the shield tubes. If it is necessary to remove this collar, ADD A RETAINING CHAIN TO THE TRACTOR SIDE OF THE DRIVELINE SHIELD.



5. Grease the internal drive tube. Reassemble the shield on the driveshaft.

ATTENTION: SFT drivelines with 4-tooth profiles must be reinstalled in such a way that the grease fittings on the cross kit bearings are aligned.



6. Check the length of the driveshaft at the minimum and maximum positions of the machine. Telescoping tubes must always overlap by at least a $\frac{1}{2}$ of their length. During manoeuvres, when the driveline is not rotating, the telescopic tubes must have a suitable overlap to maintain the tubes aligned and allow them to slide properly.

MULTICUT 160/200

Setting Up & Adjustment

Height

Cutting height adjustment is achieved by raising or lowering the wheel. Lowering the wheel produces a longer cut, raising the wheel leaves a shorter cut. Always set machine level front to rear and side to side.

The wheel acts a 'middle skid', therefore it should be set to take equal weight to the skids. When set properly this should prevent scalping.

Machine Protection

To prevent gearbox damage the PTO is fitted with a slip clutch. When cutting in conditions where solid objects are likely to be found it is recommended that the operator reduces the engine revs to allow the blades to pivot more easily when striking solid objects, and proceed with caution.

The clutch settings should not be altered without reference to the Spearhead Service Department. Never over-tighten the pressure plates on the slip clutches, this could result in severe damage to the gearbox and drive lines, as well as infringing the warranty. (The correct length of **h** is 17mm).



Fig 1

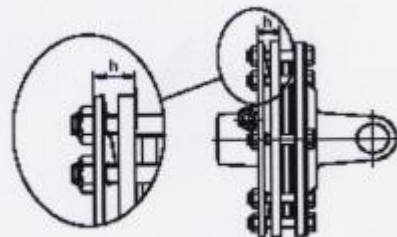


Fig 2

Important

If the machine has been laid up for any length of time, there is a risk of the clutch plates resting and seizing together. Never operate the machine in this condition as there will be no protection to the drive line and gearboxes against shock loading. Refer to after storage (page 19).

MULTICUT 160/200

Operation

Engage the PTO only when the tractor engine is at low revs to prevent shock damage to the machine. Slowly increase the engine revs to achieve the standard 540rpm PTO speed. *If at any time serious vibration occurs, stop the engine immediately and check that no blades are missing* - following all safety precautions. The cause must be found and rectified immediately or other components may be affected.

When in work, lower the machine to the ground carrying all its weight on the skids/wheel, allowing the machine to follow the contours of the ground and ensuring there is sufficient slack in the wire ropes. Select a sensible forward speed bearing in mind the density of growth, the terrain, and the available horsepower, taking extra care when turning, particularly on slopes.

When turning, it is not necessary to lift the machine off the ground but instead allow sufficient room to turn in a large radius. The machine only needs to be raised when turning in a tight corner or reversing over dense undergrowth or when operating on the front linkage.

The machine is fitted with, as standard, 3 high lift blades complete with fin, to aid spreading/mulching.

Transportation

Please observe Public Highway Regulations concerning the towing of implements, and securely attach a registration and lighting board. Take care to slow when travelling over rough ground and avoid bouncing machine on linkage causing unnecessary strain.

MULTICUT 160/200

Safety First

- Never leave the tractor seat without first disengaging the PTO and stopping the engine.
- Ensure all rotating parts have stopped turning.
- Never attempt any repairs, maintenance, service or any other checks with the machine carried on the tractor hydraulics.
- Always fully lower to the ground, or securely prop the machine on substantial servicing stands.
- Always replace all guards and retaining chains after servicing/maintenance is completed.



Important

On delivery of your machine check that the dealer has completed the P.D.I. form ensure the warranty registration form is completed and returned.

It is imperative that the following checks are carried out in order not to invalidate your warranty; these are carried out **before the first operation, after the first hour, then after 4 hours**. These checks are:

- Wheel nuts and tyre pressure (50psi)
- Gearbox bolts
- Blade bolts are fully tightened and in particular the castle headed nut on the blade rotor
- Retaining bolts on the drive shaft
- Grease all points
- After the first 50 hours drain and replace the gearbox oil. Replace with EP90 Gear oil
- It is your responsibility to maintain, to ensure a long reliable working life

Torque Settings

The Torque figures given below are recommended maximum settings only.

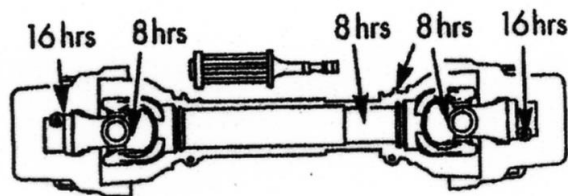
Size:	Tensile strength:	Description:	Torque setting: Nm
M16	8.8	Gearbox bolts	280
M16	8.8	Blade carriers	280
M24	8.8	Blade bolts	950

MULTICUT 160/200

Daily/Every 8 hours

- Grease all grease points, on PTO.
- Check condition of blades and blade bushes and ensure all retaining bolts are fully tight.
- Check gearbox oil, replenish with 'EP90' gear oil as necessary to the correct level line on the dipstick provided with each gearbox.
- Dismantle and clean PTO sliding surfaces and re-grease. Grease universal joints (Fig. 3).

Fig. 3



Every 20 hours

- Grease PTO inner tube and push pins (Fig. 3)

Regularly

- Check there is no wrapping of string, plastic, grass or other debris between rotor boss and blades.
- Inspect gearbox seals for leaks.
- Regularly check the rotor boss retaining castle nut for tightness (part no.5771409). First remove the split pin, select the correct size socket in 3/4" drive and fully tighten the nut.
- When replacing the split pin, do not slacken the nut to align the hole, always tighten.
- Failure to regularly check this nut will result in serious wear to hub, which is expensive to repair.
- It is most important that all gearbox and blade bolts are regularly checked to be very tight. **When the machine is new there will be a 'bedding in' period where very frequent checking is important.**

MULTICUT 160/200

Blades

Caution! When carrying out maintenance work on or near the blades be careful of free-swinging blades over-centring and falling. It is recommended that protective headgear, gloves and goggles are worn.

The blades can be re-sharpened by grinding the cutting edges and care must be taken that the blades are of the same weight and length after grinding. Do not over heat when grinding, as this will affect the hardness of the blades.

All the blades are free swinging and swivel on hardened steel bushes, which are easily replaced. When replacing blades, it is important that blades are replaced in sets, in order to retain balance of the rotor. Bushes must be replaced when new blades are to be fitted.

Bushes must be replaced when new blades are to be fitted.

If the blades are showing any signs of severe wear, damage or cracking, they must be replaced immediately. Never attempt to weld the blades; this will make them very brittle thus extremely dangerous. Do not take risks with the cutting blades - if in doubt, replace.

Note – The slip clutch is there to protect the drive train. If the blades strike a large obstacle they may get damaged or break, so avoid these conditions.

Optional Chain Kit

This is available for use in stony conditions for scrub clearance but is not suitable for thick material.



Skids

When operating on abrasive soils, particularly in stubbles and similar conditions with thin ground cover, excessive skid wear may be expected. To provide extra protection and to prolong life of the skids, special hard facing rods are available.

If working in wet and muddy conditions, ensure that debris is not allowed to build up on the deck.

Storage

Before storing away, thoroughly wash the machine removing all traces of grass and dirt. Great care must be taken when washing with high-pressure hoses, do not hold the water jet close to the paintwork. Use steam cleaners with caution, be sure to remove all detergents to avoid any discolouring or damage to paint.

Grease all grease points until fresh grease shows. Store PTO shaft in a dry place.

After Storage

Disassemble the slip clutch and with an emery cloth remove all traces of rust on the metal clutch plates. Check condition on the friction plates, if there is any sign of over hearing, wear or cracking, replace with new. Do not attempt to use the machine with damaged slip clutch plates.

Assemble the clutch and tighten the bolts to achieve a 'h' length of 17mm. Do not over tighten or the clutch will not work.

Check condition of the tyre (where applicable) and then follow the maintenance procedure covered in the servicing part of this manual. Pay particular attention to the condition of the guards and blades.

Remember the Multicut 160 and 200 are designed to withstand the most rigorous conditions and, with a little care and attention, will give many years of trouble free service.

So as not to invalidate the warranty and to avoid problems, use only genuine parts and make sure the machine is not driven at a speed in excess of 540rpm on the PTO.

Trouble Shooting Guide

Broken or Damaged Blades

1. Raise cutting height to avoid striking the ground
2. Remove or avoid obstacles such as rocks
3. Check rotor speed
4. Ensure a steady feed into drive (Do not snatch the PTO)

Damaged Blade Holder

1. As above
2. Failure to keep tight centre retaining nut

Damage Gearboxes

1. Seized slip clutch.
2. Telescopic shafts bottoming out
3. Engaging drive with too much power / revs
4. Lack of grease on sliding tubes of drive shaft

Damage To PTO Shaft

1. Seized slip clutch
2. Telescopic tube bottoming out
3. Engaging drive with too much power / revs
4. Turning too sharp
5. Not enough overlap
6. Lack of grease
7. Build up of Debris under drive shaft

Gearbox Overheating

1. Incorrect oil/grease level
2. Incorrect grade of oil/grease
3. Incorrect operating speed
4. Machine overloaded
5. Rubbish around the gearbox reducing air circulation

Slip Clutches Overheating

1. Machine overloaded
2. Incorrect operating speed
3. Incorrect setting
4. Blades hitting the ground

Oil Leak From Gearbox

1. Damaged shaft seal check for foreign matter (wire-string)
2. Faulty breather
3. Damaged gasket
4. Incorrect oil/grease level

Metal Fatigue On Frame

1. Too fast a traveling / operating speed for conditions
2. Wings not floating i.e. following the ground contours (check tractor spool)
3. Used in a manner or condition contra to its intended purpose

Excessive Skid Wear

1. Fit optional wheel kit to wings and set skids above the ground.

Spearhead Machinery

Station Road

Salford Priors

Evesham

Worcestershire

WR11 8SW

Tel: 01789 491860

Fax: 01789 778683

www.spearheadmachinery.com

enquiries@spearheadmachinery.com