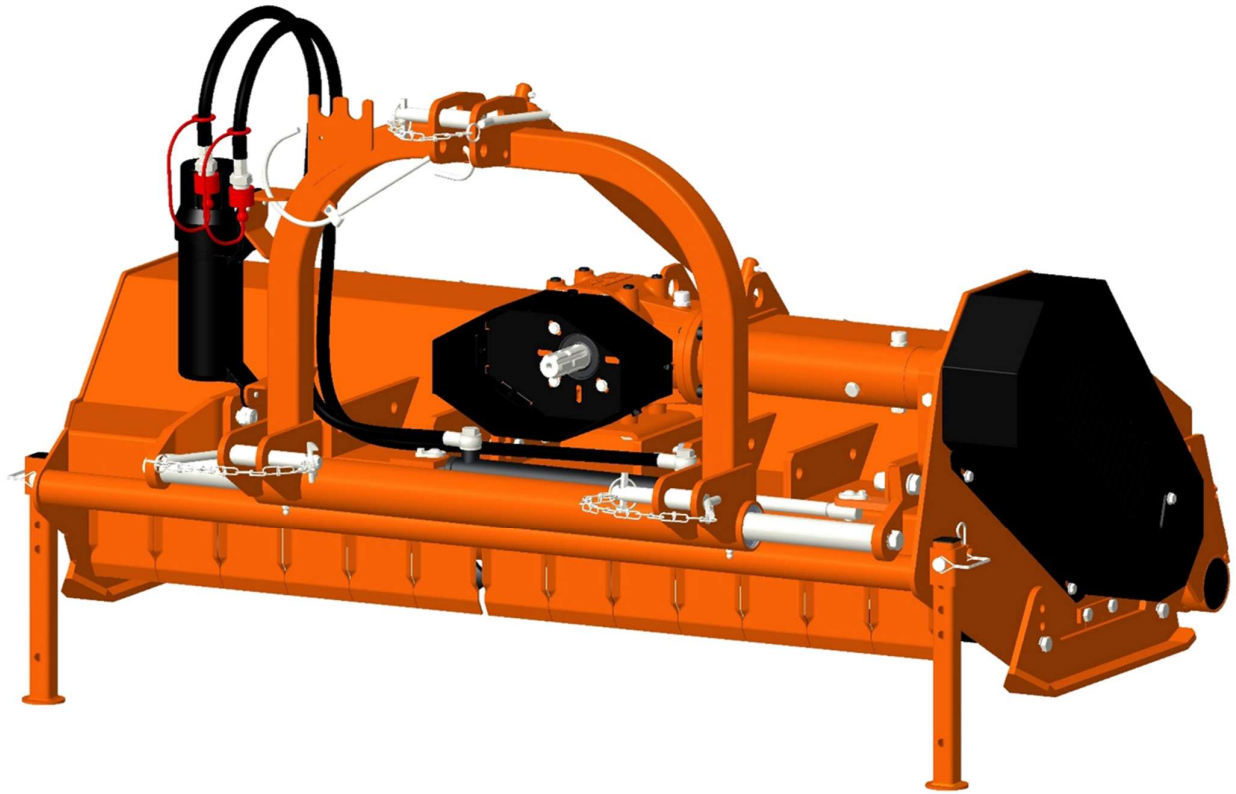


SFM Series Mulcher

V2-2022



OPERATOR'S MANUAL

OM2221-11EN-000_NOV_22

Congratulation for purchasing your new Cosmo Bully mulcher!

This machine has been designed and manufactured following all safety and quality requirements needed for safe and satisfactory use over time.

Carefully reading this manual will permit you to familiarize with your new equipment and will provide you all the tools needed to use it safely.

Proper maintenance and knowledge of the safety rules will allow you to obtain the best performance and a long service life of the machine.



The Safety Alert Symbol used throughout this manual and on safety decals of the machine indicates the presence of potential hazard to the operator. When you see this symbol, be alert and carefully read the message that follows it.

The Safety Alert Symbol is used in conjunction with following Signal Words, according to the degree of possible injuries that may result operating the implement:



DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

a potentially hazardous situation that, if not avoided, could result in death or serious injury. Indicates hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT

Indicates instructions or procedures that, if not observed, can cause damage to equipment or environment.

NOTE

Indicates helpful information.

READ, UNDERSTAND, and FOLLOW the safety messages following the Safety Alert Symbol and Signal Words. Failure to comply with safety messages could result in serious injury or possibly death.

TO THE PURCHASER

This manual contains valuable information about the SFM SERIES V2 mulcher. It has been carefully prepared to give you helpful suggestions for operating, adjusting, servicing repair parts.

Keep this manual in a convenient place for quick and easy reference. Study it carefully. You have purchased a dependable and sturdy Mulcher, but only with proper care and safe operation can you expect to get the service and long life for which it was designed.

RIGHT-HAND AND LEFT-HAND sides are determined from the rear of the tractor.

To make the illustrations clearer, some images in the manual may show the implement with guarding (e.g. safety devices and barriers) removed. ALL guarding must be in place during operation.

As some point in time, your mulcher may need parts. Please log the information below referring to the information on the serial number plate of your mulcher. This will greatly assist your local COSMO BULLY dealer to source any parts you may require.

Customer information

Name _____

Purchased from _____

Purchased date _____

Model No. _____

Serial No. _____

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1. ABOUT THIS MANUAL

The operator must read the manual to fully understand the possible hazards of operating the mulcher, as well what is required to obtain optimum performance.

The manual is part of the machine. It must be kept in good condition and remain with the machine even in case of resale, until its demolition. If the manual is lost or damaged, request a new copy from your dealer, the importer, or the manufacturer.

The information, descriptions and illustrations in this manual describe the state of the product at the time of its publication and may not reflect the product in the future. The Manufacturer reserves the right to make design improvements or changes in specifications without incurring in any obligation to install them on previously sold machines.

Text, illustrations, and drawings of this manual cannot be disclosed or transmitted, in whole or in part, to third parties without the written permission of the Manufacturer. All rights are reserved.

2. INTRODUCTION

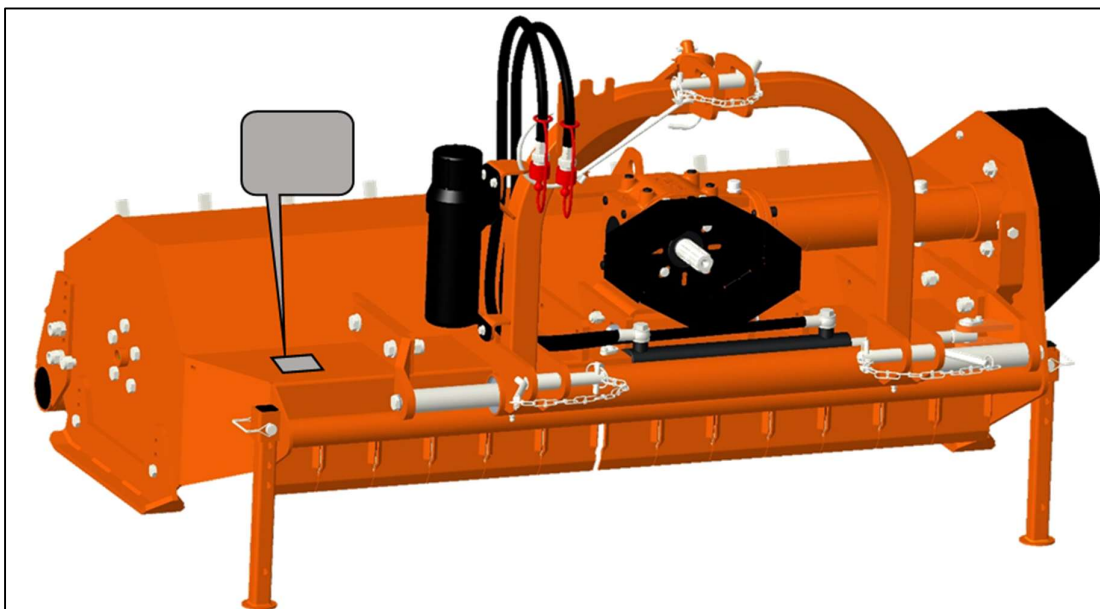
2.1. MACHINE IDENTIFICATION

Each mulcher is provided with a plate for unique identification (see position in picture below), showing the CE marking together with following information:

- Manufacturer name and address
- Product
- Model
- Chassis Serial Number
- Month & Year of manufacture
- Type
- Size/Working Width
- Weight
- Required Size of Prime mower

It's recommended to note down all data shown on the plate (on page 3).

Any request for assistance or information regarding the machine must be directed to the Manufacturer or Dealer always referring to the model and serial number as shown on the plate affixed to the machine.



2.2. INTENDED USE

The SFM Series V2 mulcher is designed specifically for cutting grass and for mulching fibrous and wood stalks, corn and branches up to a diameter of 50mm |2” with hammers blades and under 12mm |1/2” with ‘Y’ blades. The mulchers are designed to be mounted on a tractors universal three-point hitch and driven by the power of the tractor through the PTO driveshaft. You must ensure that your tractor can support the weight of the implement. Some models (SFM-h) require hydraulic remotes to be able to use the hydraulic side shift

To operate the SFM Series V2 mulcher, tractors must have the following requirements:

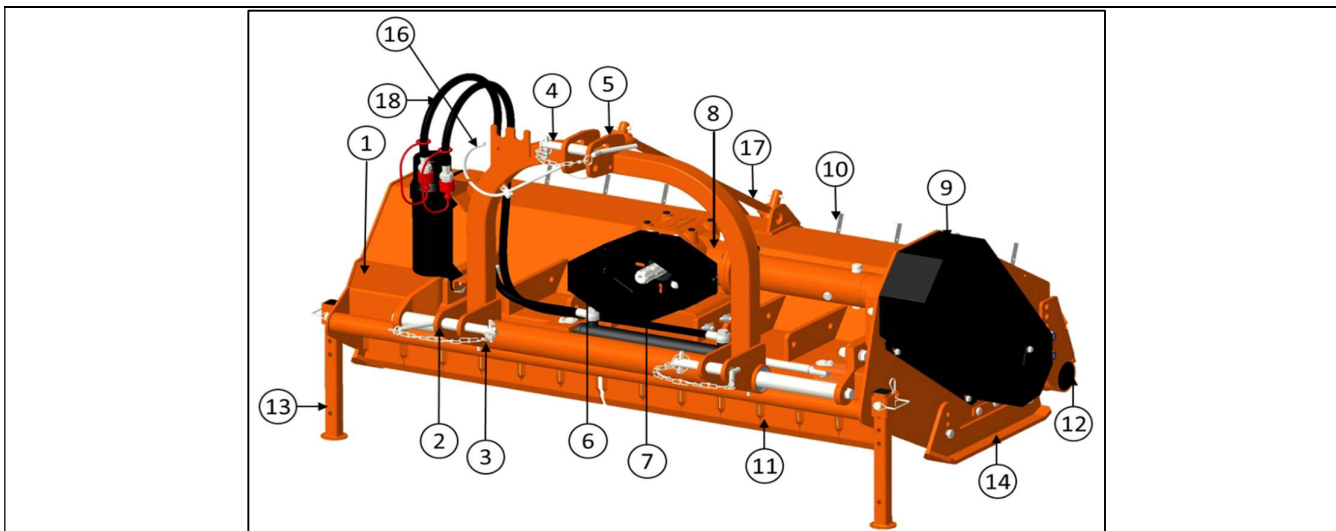
- Hitch Category: 3-point hitch, I / II Category standard
- PTO: 540 RPM, 6-spline, 1 ³/₈ Z6
- Horsepower: As per specification table (refer page 9).



DANGER

Any use of the machine other than the intended use is non-intended use and is to be considered as unauthorized and dangerous. The manufacturer assumes no liability for damage resulting from non-intended use.

2.3. MAIN PARTS DESCRIPTION



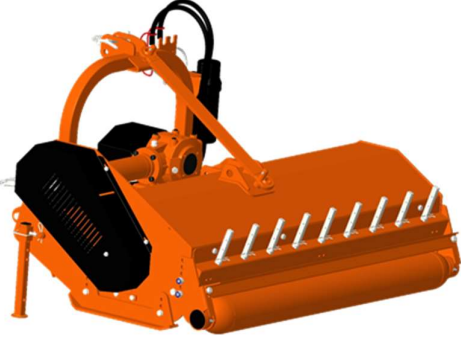
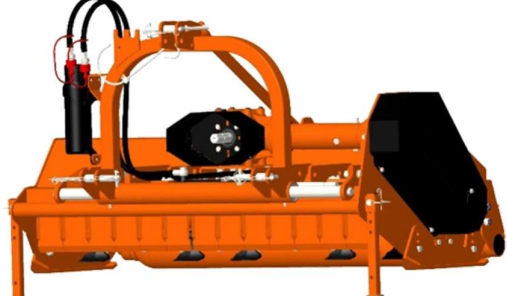
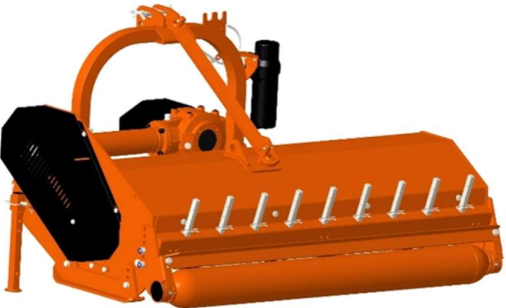
1. Mulcher frame	10. Racks
2. Lower hitch	11. Mulching chamber
3. Lower hitch pin	12. Roller
4. Upper hitch pin	13. Parking stand
5. Upper hitch	14. Side skid
6. PTO shield	15. Hydraulic hoses
7. Implement Input Connection	16. Driveshaft support
8. Gearbox with free wheel inside	17. Tie-rod
9. Side transmission case	

NOTE

To make the illustrations clearer, some images in the manual may show the implement with guarding (e.g. safety devices and barriers) removed. ALL guarding must be in place during operation.

2.4. CONFIGURATIONS

The SFM Series V2 mulcher can be set in different configurations:

SFM-h. Hydraulic side shift	
	
<ul style="list-style-type: none"> • Tower with hydraulic cylinder • Side shift range 0-300mm • Rear roller • Rake cover • Hammers blades • 'Y' blades (optional) 	
SFM-m. Bolted 3-position side shift	
	
<ul style="list-style-type: none"> • Bolted 3-position tower • Side shift in 150mm increments (max. 300mm) • Rake roller • Rake cover • Hammers blades • 'Y' blades (optional) 	

It is not easy to change from one configuration to the other. Please make sure you choose the 'configuration' that suits your tractor at the time of purchase

2.5. TECHNICAL SPECIFICATIONS

		Size					
		130	145	160	175	205	220
Overall dimensions	cm	145x112x92	162x112x92	177x112x92	192x112x92	222x112x92	237x112x92
Working width	cm	130	145	160	175	205	220
	inches	51.2"	57.1"	63.0"	68.9"	80.7"	86.6"
Recommended tractor size	Hp	35-50			50-70		
3-point hitch type	-	Cat. I/II					
Hammers	No.	16	18	20	22	26	28
PTO speed	rpm	540					
Rotor speed	rpm	2453					
Side transmission	-	4 belts XPB type					
Side shift (max)	mm	300					
Rotor diameter	mm	160					
	inches	6.3"					
Rotor swing diameter	mm	383					
	inches	15.1					
Weight (approx. PTO not included)	Kg	396	419	444	480	515	540
	lbs.	873	924	979	1058	1136	1191

3. SAFETY

Proper use of the mulcher, a strict observance of the safety instructions (listed below) and safe operating procedures to avoid any risks, accidents, or injury, will increase the longevity of your mulcher, minimizes failures and result in a superior end result.

The manufacturer assumes no liability for any damage resulting from not applying the behavioral rules indicated into the manual.

3.1. GENERAL SAFETY INSTRUCTION



DANGER

The machine must be used only by authorized and well-trained operators. The operator must have read and understood the instructions of this manual, it must make adequate preparation for the proper use of the machine and must hold a driving license. In case of doubt about the use of the machine and/or the interpretation of this manual, the operator must contact the Manufacturer or the Dealer.



WARNING

The manual must always remain with the machine. In case of loss or damage, request a new copy to the Manufacturer or your Dealer.



WARNING

Follow strictly the rules prescribed by the safety pictograms applied to the machine.



WARNING

Be sure that all safety pictograms are legible. If pictograms are worn, they must be replaced with others obtained from the Manufacturer and placed in the position indicated by this manual.



DANGER

Before using the machine, make sure that all safety devices are installed and in good working conditions. In case of damages of shields, replace them immediately.



DANGER

Is absolutely forbidden to remove or alter safety devices.



DANGER

Before starting, and during operation of the mulcher, make sure there are no people or animals in the operation area: the machine can project material from the back, with risks of serious injury or death.



DANGER

Pay maximum attention to avoid any accidental contact with rotating parts of the machine.



DANGER

During operation, adjustment, maintenance, repairing or transportation of the machine, the operator must always use appropriate Personal Protective Equipment (PPE).



DANGER

Do not operate the implement while wearing loose fitting clothing that can give rise to entanglement in parts of the machine.



DANGER

Do not operate the implement when tired, not in good condition or under the influence of alcohol or drugs.



CAUTION

If the use of the machine is required at night or in conditions of reduced visibility, use the lighting system of the tractor and possibly an auxiliary lighting system.

3.2. EQUIPMENT SAFETY INSTRUCTION



WARNING

Use the mulcher for its intended purpose only. Improper use can damage the mulcher and cause serious injury to persons, animals, or death.



DANGER

The machine should be used by a single operator driving the tractor.



WARNING

Any unauthorized modification of the machine may cause problems in safety and relieves the Manufacturer from any liability for damages or injuries that may result to operators, third parties and objects.



WARNING

Before using the machine, familiarize yourself with its controls and its working capacity.



WARNING

Do not leave the mulcher unattended with tractor engine running.



WARNING

Do not operate mulcher on too muddy, sandy or rocky soils.



WARNING

Keep the machine clean from debris and foreign objects which may damage functioning or cause injury.



WARNING

Do not use the machine if the category of the connecting pins of the mulcher does not match that of the tractor hitch system.



WARNING

Do not use the machine with missing bolts, screws, pins or safety pins, safety guards etc.



WARNING

Never use the machine to transport or lift people, animals, or objects.



WARNING

Make certain, by adding front ballast, that at least 20% of the total weight (tractor, implement and ballast) is on the front axle of the tractor, to ensure stability.



WARNING

Before engaging the tractor PTO, make sure the tractor PTO speed is set as required for the mulcher (540 rpm). Do not over speed PTO or machine breakage may result.



DANGER

Do not operate the mulcher if the driveshaft is damaged. The driveshaft could be subject to breakage during operation, causing serious injury or death. Remove the driveshaft and replace it with an undamaged.



WARNING

With mulcher disconnected from tractor, rest the driveline on the provided support of the mulcher.

3.3. OPERATING SAFETY INSTRUCTION



WARNING

Before using the machine, be sure to have cleared the operating area from obstacles (stones, branches, debris, foreign objects, etc...). Mark all obstacles that cannot be eliminated (e.g. using flags).



DANGER

Never engage the tractor PTO in the presence of people close to the driveshaft. The body, hair or clothing of a person can get caught in rotating parts, causing serious injury or death.



DANGER

Before engaging the PTO and during all operations, make sure that no person or animal is in immediate area of action of the machine. Never use the mulcher if people are in his working area.



DANGER

It's absolutely forbidden to stand near the mulcher with moving parts.



WARNING

The operator must operate machine lifting/lowering only from the driving seat of the tractor. Do not perform lifting maneuvers on side or behind the tractor.



WARNING

Before making changes in direction, turns or going in reverse, slightly lift the mulcher from the ground after disengaging the power take-off, to avoid damage to the machine.

**DANGER**

In presence of steep slopes (greater than 15 degrees) the rotating action of the implement may cause instability of the tractor with risk of serious injury or death hazard. Consult the tractor manual to determine the maximum slope that the tractor is designed to operate.

**DANGER**

Always disengage the PTO before raising the mulcher, and never engage the PTO with the mulcher in the raised position. The machine might throw objects at high speed, causing serious injury or death.

**WARNING**

Never leave the driver's seat when the tractor is turned on. Before leaving the tractor, lower the mulcher to the ground, disengage the PTO, insert the parking brake, stop engine and remove the key from the control panel.

**DANGER**

The PTO shields of tractor and implement side, the driveshaft shielding and the driveshaft retaining chains must be properly installed and in good condition, to avoid risk of entanglement with serious injury or death.

**DANGER**

Before engaging the PTO of the tractor, always make sure that the driveshaft is mounted in the correct direction, and that its clamping elements are properly connected both to tractor side and to mulcher side.

**WARNING**

Stop operating immediately if blades strike a foreign object. Repair all damage and make certain rotor and blades are in good condition before resuming operation.

**WARNING**

Always disengage the tractor PTO when the driveshaft exceeds an angle of 10 degrees up or down while operating. An excessive angle with driveshaft rotating can break the driveshaft and cause flying projectiles.

**CAUTION**

Prolonged use of the mulcher can cause overheating of the gearbox. Do not touch the gearbox during use and immediately after, it could be extremely hot and cause severe burn.

**WARNING**

All adjustment operations on the mulcher must be performed by qualified and trained operators, with the tractor engine off, the PTO disengaged, the mulcher lowered to the ground or on security stands, the ignition key off and the parking brake set.

3.4. TRANSPORTING SAFETY INSTRUCTION

**WARNING**

Before transporting the machine, determine the stopping characteristics of the tractor and implement.



WARNING

Transport only at speeds where you can maintain control of the equipment.



WARNING

When driving on roads, the implement must be in transport position adequately raised from the road surface, with tractor lifting hydraulics locked so that the mulcher cannot be lowered accidentally.



DANGER

The implement may be wider than the tractor. Pay attention during transporting to persons, animals or obstacles exposed.



WARNING

When turning, use extreme care and reduce tractor speed.



WARNING

Do not operate the tractor with weak or faulty brakes or worn tires.



CAUTION

Always use tractor lighting system and auxiliary lighting system for an adequate warning to operators of other vehicles, especially when transporting at night or in conditions of reduced visibility.



DANGER

In case is required the lifting of the machine, make sure that the lifting device chosen is suitable to perform the operation safely, and use only the lifting points prescribed on mulcher.

3.5. MAINTENANCE SAFETY INSTRUCTION



WARNING

All maintenance and repairing operations must be performed by qualified and trained operators, with the tractor engine off, the PTO disengaged, the mulcher lowered to the ground or on security stands, the ignition key off and the parking brake set.



WARNING

Perform repairs and replacements necessary to the machine using only original spare parts provided by the manufacturer or your Dealer.



DANGER

Perform maintenance operations always using appropriate Personal Protective Equipment (protective eyeglasses, hard hat, hearing protection, safety shoes, overall and work gloves, filter-mask)



CAUTION

Before any maintenance operation, make sure that the parts which may become hot during use (gear box) have cooled.



WARNING

Do not perform repairs that you do not know. Always follow the manual instructions and in case of doubt contact the Manufacturer or your Dealer.



DANGER

Do not swallow fuels or lubricants. In case of accidental contact with eyes, rinse well with water and consult a doctor.

3.6. INFORMATION ON STORAGE



WARNING

Never leave the tractor unattended with the mulcher in lifted position. Accidental operation of lifting lever or a hydraulic failure may cause sudden drop of unit with injury or death by crushing.



DANGER

Following operation, or before unhooking the machine, stop the tractor, set the brakes, disengage the PTO, lower the mulcher to the ground, shut off the engine, remove the ignition key and wait for all moving parts to stop.



WARNING

Make sure all parked machines are on a hard, level surface and engage all safety devices.



CAUTION

Place support blocks under mulcher as needed to prevent unit from tipping over onto a child and/or an adult. A mulcher that tips over can result in injury or death.



CAUTION

Store the unit in an area away from human activity.

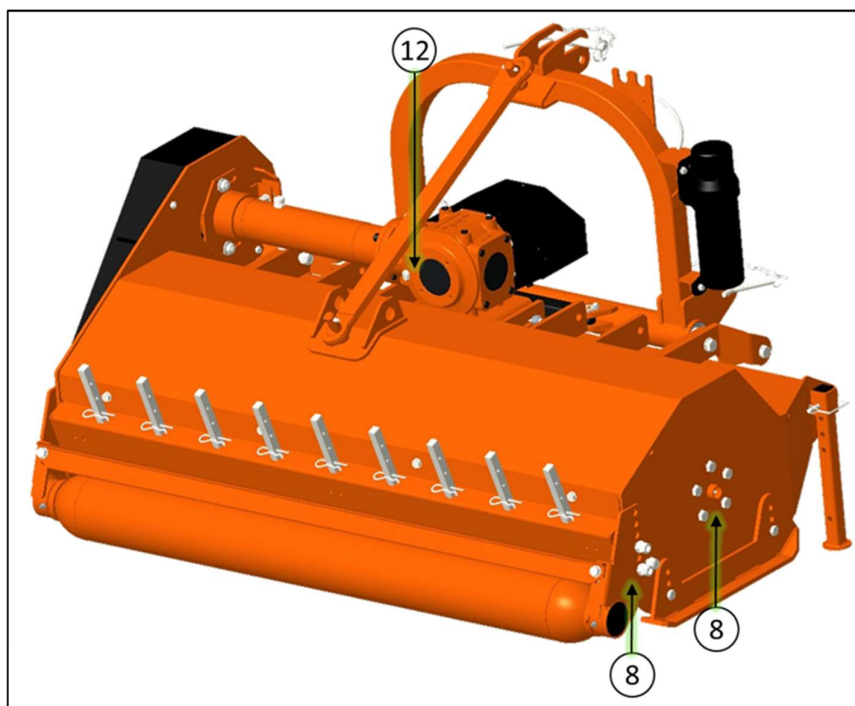
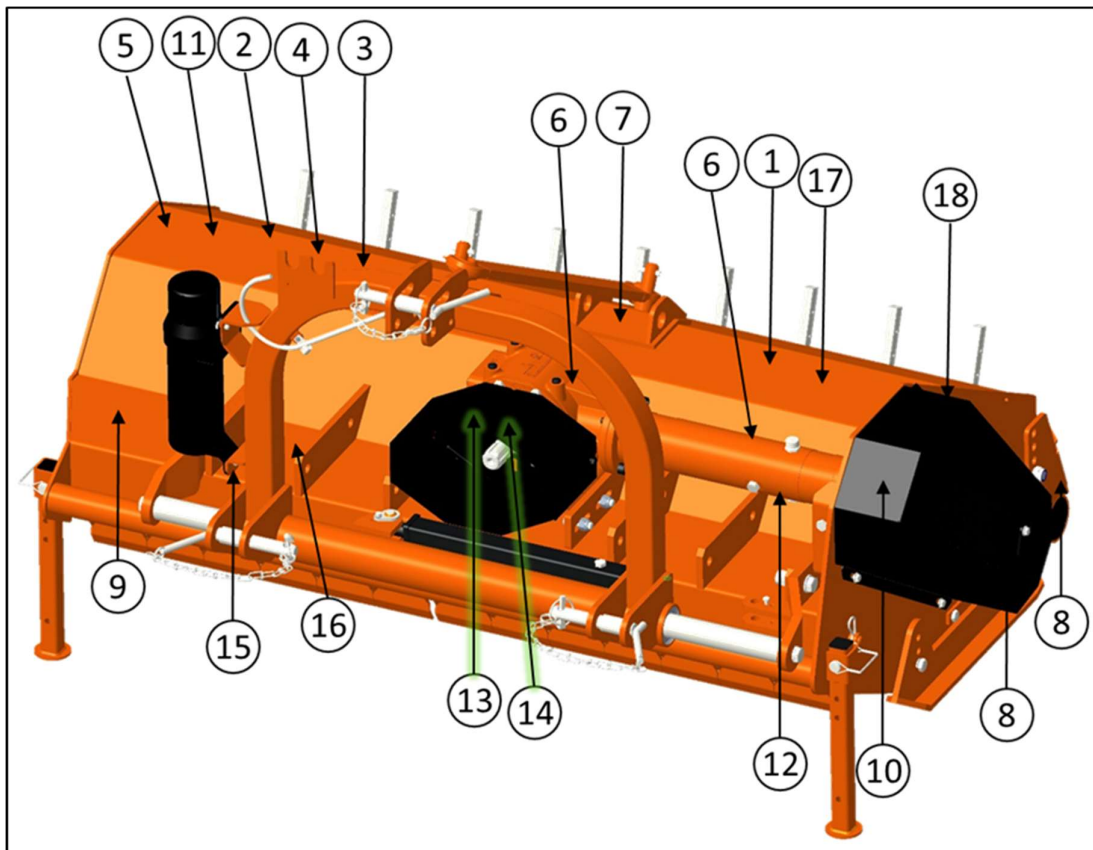
3.7. SAFETY LABELS





The safety labels on the machine provide key safety information.







Make sure all the labels are in good condition. If the labels have deteriorated, been damaged or are illegible, they must be replaced in the same positions as shown in this manual. Your local dealer can order replacement safety labels.





Before ordering replacements, first clean them to see if they do require replacing.




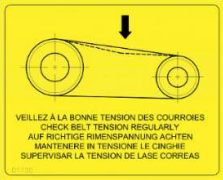
SAFETY LABELS POSITION AND DESCRIPTION



<p>1</p>	<p>D1090</p>		<p>WARNING: ALWAYS READ THE OPERATOR MANUAL</p>
<p>2</p>	<p>D1082</p>		<p>SAFETY EQUIPMENT</p>
<p>3</p>	<p>D1038</p>		<p>MAINTENANCE: TURN OFF TRACTOR & REMOVE KEY</p>
<p>4</p>	<p>D1095</p>		<p>THROWN OR FLYING OBJECTS HAZARD</p>

5	D1096		ROTATING KNIVES, LOWER LIMBS HAZARD
6	D1007		OIL FILLING PLUG
7	D1083		LIFTING HOOK JOINT
8	D1008		GREASE
9	D1078		HAND HAZARD
10	D1094		FINGERS OR HAND ENTANGLEMENT HAZARD

<p>11</p>	<p>D1097</p>		<p>CRUSHING HAZARD BY LINK LIFTING</p>
<p>12</p>	<p>D1006</p>		<p>MAINTAIN OIL LEVEL</p>
<p>13</p>	<p>D1098</p>		<p>IMPLEMENT INPUT DRIVELINE</p>
<p>14</p>	<p>D1099</p>		<p>TRACTOR PTO RPM & ROTATION DIRECTION</p>

<p>15</p>	<p>D1100</p>		<p>LOWER LIMBS CRUSHING HAZARD</p>
<p>16</p>	<p>D1101</p>		<p>DO NOT STAND REAR THE MACHINE</p>
<p>17</p>	<p>D1093</p>		<p>FLUID UNDER PRESSURE, READ MANUAL</p>
<p>18</p>	<p>D1130</p>		<p>BELT TENSION CHECKING</p>

4. SET UP

The mulcher is delivered equipped with a PTO driveshaft and related operating manual.

When the machine is delivered, check that there is no damage to the mulcher or PTO driveshaft. In case of damage or missing parts immediately notify the Importer or your Dealer.

Because of its size, the mulcher might be delivered partially assembled. In this case, the assembly of such parts is the responsibility of the owner and must be performed carefully, with reference to the information in the spare parts section.



WARNING

For proper tightening torques of bolts and screws, refer to the table in this manual (page 38)

4.1. CONNECTING TO THE TRACTOR

The mulcher is designed to be mounted on tractors equipped with 3-point Hitch Category I (ISO 730 standard).

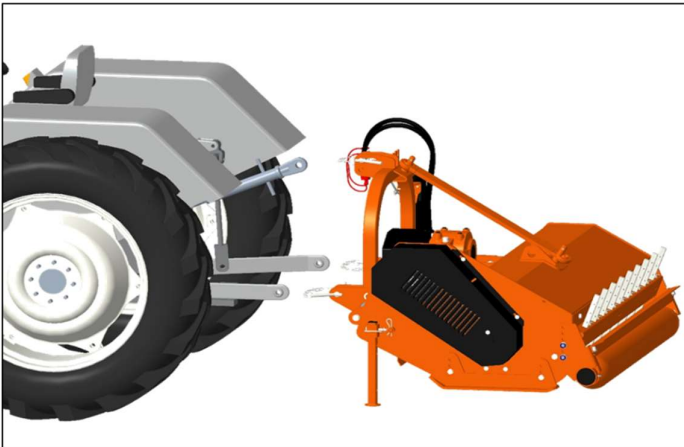


WARNING

Before connecting the mulcher to the tractor, make sure you are on a flat, stable, dry surface.

To connect the mulcher to the tractor the operator must do the following:

- Remove the safety clips and mounting pins from the mulcher;
- Reverse the tractor up to the mulcher making sure to align the tractor's lower linkage arms in between the lower hitch points of the mulcher (see picture below);



- set the tractor's parking brake, stop engine, remove the ignition key and get off the tractor;
NOTE: the lower linkage arms of all tractors can be adjusted both vertically and laterally. The lateral movement allows you to position the arm between the hitch point and provides a little movement to assist you to fit the pin that connect the mulcher to the tractor. The vertical adjustment ensures you can ensure the mulcher is level (left to right across the width of the tractor). Loosen the arms to make connecting easier BUT always ensure you tighten them to prevent movement/swinging that could compromise the stability of tractor and machine.
- slide the pin into the mulcher lower hitch point, through the tractor's lower linkage arm and out the other side of the mulcher's lower hitch point. Secure the pin with the safety clip then repeat for the other side/arm.
- adjust the tractor's top link so you can secure it to the upper top hitch point of the mulcher with the pin and slip.
- the mulcher must be parallel to the ground when operating. Once you have determined the cut height (by setting the skids and/or rear roller) wind the tractor's adjustable top link in/out to adjust the position of the mulcher.
- when raised on the tractor's lower linkage arms, the mulcher should also be leveled left to right. If one side is higher/lower than the other, adjust using the vertical adjustment found on one of the tractor's lower linkage arm.
- finally raise the parking stand to the highest point and secure with the safety pin/clip.

4.2. DRIVELINE INSTALLATION

The gearbox is equipped with a free wheel inside. The free wheel is designed to absorb the inertia and prevent damage to the drive train when the PTO is shut off (at the tractor) while the rotor of the mulcher is still spinning. Consequently, your COSMO BULLY mulcher does not require a PTO shaft with free wheel.

Before installing the PTO driveshaft, the operator must read the manual supplied with the tractor and the manual of the PTO driveshaft supplier. The operator needs to determine the tractors output shaft rpm and direction of rotation are compatible with the mulcher. If the direction of rotation of the PTO tractor does not match that of the machine, contact the Manufacturer or your Dealer.

DRIVELINE LENGTH CHECK

Before operating the mulcher for the FIRST time or if you are using the mulcher on a different tractor, the operator MUST ensure that the length of the driveshaft is suitable.

The driveshaft supplied with the machine has a standard length. This is usually 'longer' as PTO shafts can be shortened. There is a lot more work to make them longer.

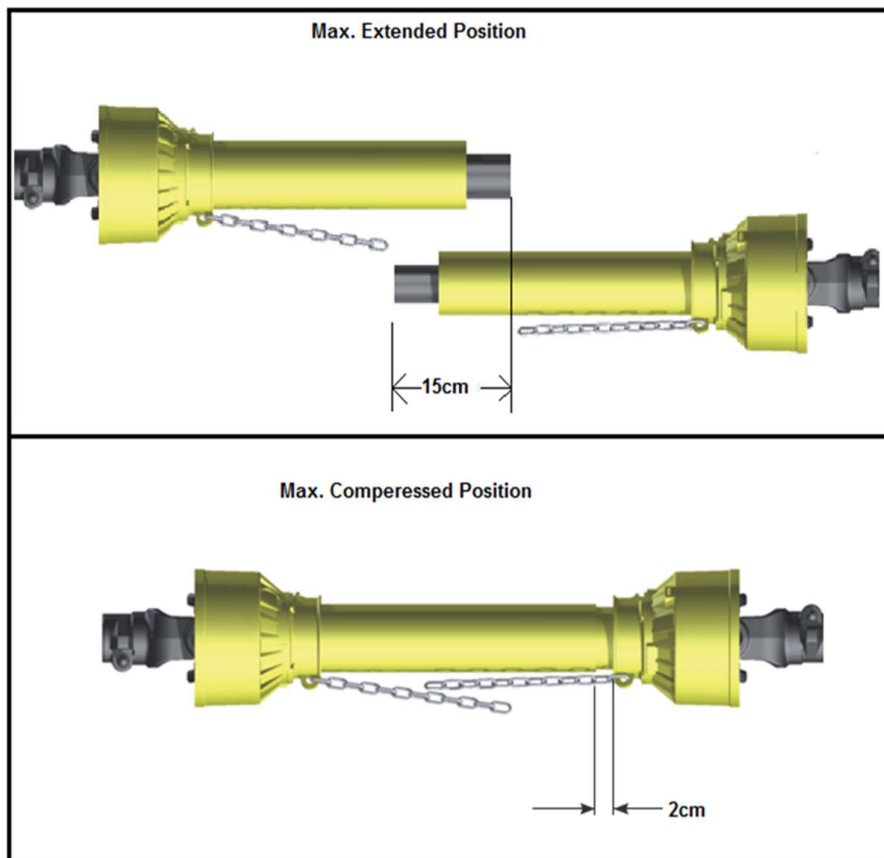
What length the PTO shaft ends up becoming will depend on the tractor and mulcher.

The length of the PTO shaft MUST be shortened to avoid transmission tubes running out of 'travel'. In adulating conditions or when the mulcher is raised, if the shaft runs out of 'travel' (i.e. it is too long) it becomes rigid, and the force can cause damage to the gearbox and/or mounting point of the gearbox on the mulcher.

Then, the PTO cannot be too short. It needs to have enough male/female shaft contact to transmit the torque required to power the mulcher. It is also paramount that the shaft cannot separate during operation.

As per the images below, a PTO shaft is deemed suitable when:

- there is a minimum of 15cm of transmission shaft overlap (max. Extended Position).
- there is at least 2 cm between both transmission tube covers and the universal joints. (Max. Compressed Position)



When shortening a PTO shaft, please note that you must shorten both the male and the female transmission shafts as well as BOTH covers. If the safety cover is removed (to facilitate shortening the shaft) it MUST be refitted so you comply with Health and Safety protocols.

The PTO shaft manual has more details on how to shorten the PTO shaft and if you are still unsure, your local dealer (likely the business that sold the mulcher) will have trained professionals that can provide such a service.

Once the PTO is the correct length, to connect the driveshaft to the tractor and implement, the operator must:

- park tractor and mulcher on a flat surface, with parking brake set, engine off, and ignition key removed;
- check that driveshaft, mulcher, and tractor are in good condition, otherwise provide for their replacement;
- remove the input shaft cover on the mulcher by removing the mounting bolts/screws;
- check that the 'spring release' pins on the PTO shaft are lubricated and working;
- at the mulcher end, lift the PTO shaft up to the input shaft, and rotate the PTO shaft so the 'splines' line up;
- slide the PTO shaft onto the splined shaft, depress the 'spring release' pin and move the shaft towards the gearbox until the 'spring release' pin locks on to the input shaft;
- replace input shaft cover on the mulcher by removing the mounting bolts/screws;
- at the tractor end, repeat the same again ensuring the 'spring release' pin secures the PTO shaft onto the tractor's output shaft;

NOTE

some tractors have a cover that protects the output shaft. Often this cover can be removed to make attaching the PTO shaft easier. IF you remove this cover, it must be replaced to comply with Health and Safety protocols.

If your PTO shaft has safety covers with chains, these chains are designed to stop the covers spinning. At both the tractor and mulcher ends, the chains must be secured to prevent shielding rotation during functioning of the machine.

IMPORTANT

Before operating the mulcher for the first time or after a period of inactivity make sure that the driveshaft is lubricated in accordance with how indicated in the instruction booklet.

Always engage the tractor PTO at low rpm and build to the required speed, to minimize the effect of the 'torque loading' on the driveline and the mulcher.

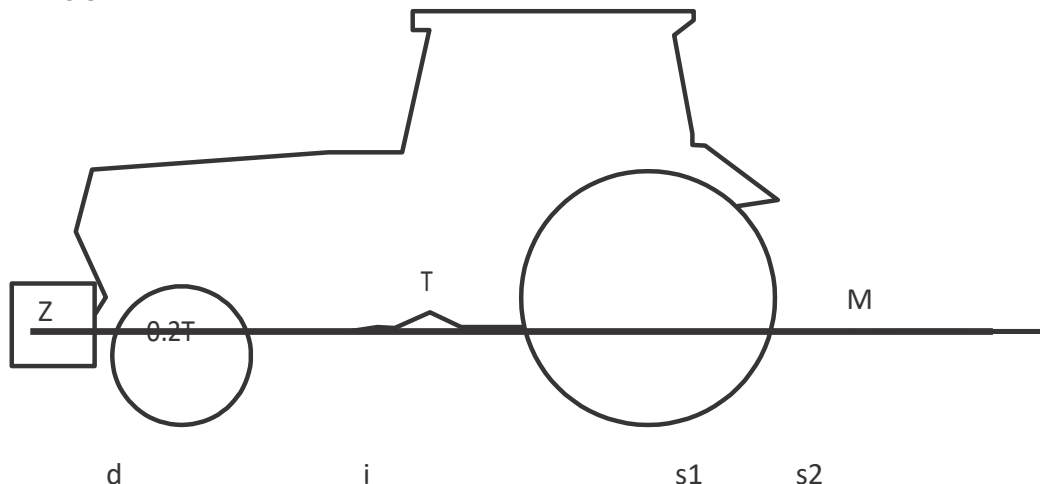
4.3. TRACTOR-MULCHER STABILITY

The weight of the machine modifies the stability of the system tractor-mulcher, can MIGHT result in loss of steering control and/or the ability of the operator to stop (i.e. loss of braking).

The front axle of the tractor should always be loaded with at least 20% of the overall weight of the system tractor-mulcher.

To check the lifting capacity and stability of the tractor to ensure it complies, please us the following formular and table below for definitions:

- $M \times (S1+S2) \leq 0.2 \times T \times i + Z \times (d+i)$
- $M \leq 0.3T$



i = Tractor wheelbase (cm)

d = Distance between front axle and ballast center of mass (cm)

T = Weight of tractor + operator (75 kg)

Z = Ballast weight (kg)

M = Implement weight (kg)

$s1$ = Distance between rear axle and lower hitch points (cm)

$s2$ = Distance between lower hitch points and implement center of mass = 61 cm

5. OPERATING

Before operating the mulcher, make sure you have read and understood the operating manuals of the mulcher, tractor, and PTO shaft, and followed what is described in the section "Set Up".



DANGER

During operation, adjustment, maintenance, repairing or transportation of the machine, the operator must always use appropriate Personal Protective Equipment (PPE).

Before starting work, ensure that all machine guards are in good conditions and fully functional.

During operation, the machine can throw material from the back: prevent people and animals to approach the operational area.

5.1. START-UP



WARNING

Before conducting the above inspections and service, make sure the tractor engine is off, all rotation parts are completely stopped, and the tractor is in park with the parking brake engaged. Make sure the machine is resting on the ground or securely blocked up and the tractor lifting hydraulics locked.

Before the start up and before each use, perform the following pre-operation inspections and service of the implement:

- check that the mulcher for damage and repair and/or replace as required;
- check that the machine has no missing parts (pins, safety pins, plugs oil ...). Replace missing parts;
- check that all guards and safety devices have no damages and are properly installed. Repair and/or replace the damaged shielding;
- verify that the PTO driveshaft is properly installed (see section: Connection of the drive shaft);
- re-grease all greasing points of the machines (driveshaft supports...) (see sections: Maintenance / Driveline and Maintenance / Support rotor);
- check for oil leaks. If discovered, identify the possible reason for the leak, then repair and/or replace the damaged components. DO NOT USE the mulcher until corrective action has been completed;
- check the oil level in the gearbox and in transmission side box (see section maintenance). If outside of the min/max range, add oil BEFORE use;
- check the drive belts for wear and tear and tension. Take corrective action as required;
- check that blades are not excessively worn, and the relating hardware is correctly tightened (see section Maintenance);
- check all hardware (nuts, bolts, etc.) are all securely tightened. Refer to the tightening table in the manual for proper torque values;
- check that all safety decals are correctly positioned, in good condition and legible. Replace any damaged decals;
- check that there is nothing constraining the movement of the mulcher. Remove any constraint.

To carry out some of the inspections listed above, you will need to raise the mulcher off the ground. BEFORE raising the mulcher, disengage the PTO and bring the tractor to a stop. Wait for all moving parts to stop rotating then raise the implement well off the ground. BEFORE leaving the tractor seat, set the parking brake, stop the engine, and remove the ignition key.

Once the pre-operation check (above) has been completed, return to the tractor seat, start the tractor and drive to the work area. Once you reach the area of operation:

- carry out a thorough investigation to ensure the area is clear of foreign objects (rocks, branches, or debris). If discovered, remove smaller foreign objects, and visibly highlight immovable obstacles (i.e. by means of flags or markers);
- position the tractor and mulcher where you intend to start operating, stop and lower the mulcher to the ground.
- carry out a 360° visually inspection of the area to make sure there are no people or animals in the area. Stop or do not commence operations if people, animals, or vehicles enter the operating area;
- engage the tractor's PTO at low rpm (mulcher should still be on the ground);
If the environmental temperature is extremely cold, it's recommended to keep the tractor stationary and run the PTO at low rpm to allow the oil to come to temperature so it can protect moving parts;
- increase the tractor speed engine until the tractor's PTO output shaft reaches 540 rpm;
- engage a low (slow) speed and start driving the tractor forward. Subsequently increase the ground speed depending on ground conditions;
- after about 50m, reduce the speed of the tractor, then reduce the speed of the PTO and bring the tractor to a stop, so you can check the quality of the work being performed by the mulcher.
- If you need to get off the tractor (to inspect the quality of work or make height adjustments) disengage the PTO, wait for the mulcher to come to a complete stop before you set the parking brake, stop engine and remove the ignition key.
- For height adjustments, raise the mulcher 30-50mm off the ground before you set the parking brake, stop engine and remove the ignition key.

If the cutting height and/or the quality of the finish are not as desired, correct them by adjusting the roller or the wheels (see sections "Adjustments").

5.2. OPERATING INSTRUCTIONS

During operations:

- always keep the tractor engine at a speed that will maintain 540rpm at the PTO output;
- adjust the tractor speed to the working conditions (from 2 to 10 km/h approx.).

Reduce speed in the case of thick, heavy and/or wet conditions;

- choose a driving pattern that provides the maximum pass length and minimizes turning;
- when turning sharply or if you need to 'reverse', disengage the PTO and slightly raise the mulcher slightly off the ground to avoid damage;
- when working in the hills do not work across the slope only up and down (top to bottom):
- during operations, keep visually inspecting the area for foreign object. If detected, take corrective action (refer page 24)
- listen to the 'noise' being made by the tractor and mulcher. If you detect a 'change' stop and carry out the pre-operation inspections (refer page 24);
- if you 'feel' the rotor strike a foreign object, you also need to stop top and carry out the pre-operation inspections (refer page 24);
- if you discover an issue because of 'a change of noise' or due to 'feeling the mulcher strike a foreign object', rectify any and all issues BEFORE continuing to use the mulcher.

Typical problems that may occur operating the mulcher are described into Troubleshooting section, together with their solutions.

5.3. ADJUSTMENTS



WARNING

All adjustment operations must be performed with the tractor engine off, the PTO disengaged, the mulcher lowered to the ground or on security stands, the parking brake set, and the ignition key off.

CUTTING HEIGHT ADJUSTMENT

The cutting height of the mulcher is determined by the position of the rear roller. The roller is bolted to the mulcher and there are a series of holes that allow you to raise or lower the working height.

Using the upper/top holes on the roller bracket, lowers the roller which increases the distance the hammers are from the ground. This results in a higher working height.

On the contrary, using the lower/bottom holes on the roller bracket, raises the roller which reduces the distance the hammers are from the ground. This results in a lower working height.

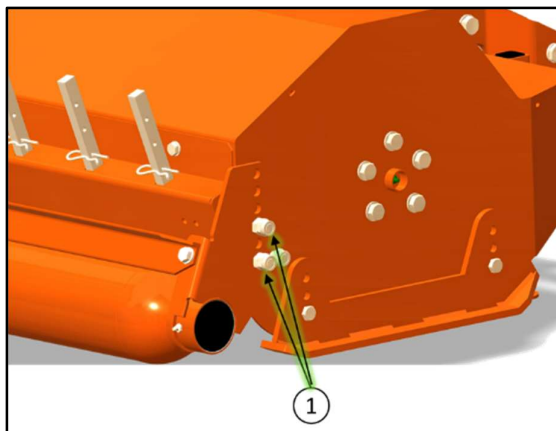
After making a change to the cutting height, especially if you are lowering the working height, it is possible that the hammers maybe able to directly contact the ground. Direct contact with the ground can result in premature wear of the hammers and belts. It may also be the cause of drive line failure (due to the shock loads caused by the hammer 'impacting' the ground).

NOTE

On soft ground the mulcher working height maybe reduced compared to the hard surface where height adjustments were first calculated. After making working height adjustments, ensure you check the 'actual' working height when you first start operating.

To adjust the working height of a mulcher with a rear roller:

- start the tractor and using the tractor's lower linkage, lift the mulcher off the ground;
- set the park brake, turn off the tractor engine and remove the key;
- using a load rated (approved) safety stand, block the mulcher from the underside;
- once the clock is in position, return to the tractor and lower the mulcher onto the block;
- check that the mulcher is secure on the block and that it cannot be lowered;
- once secure and safe;
- loosen the nuts (Ref 1) that secure the roller supports so they are finger tight. Repeat on the opposite side;
- supporting the weight of one end of the roller, remove the nut and bolts and adjust to the desired height;



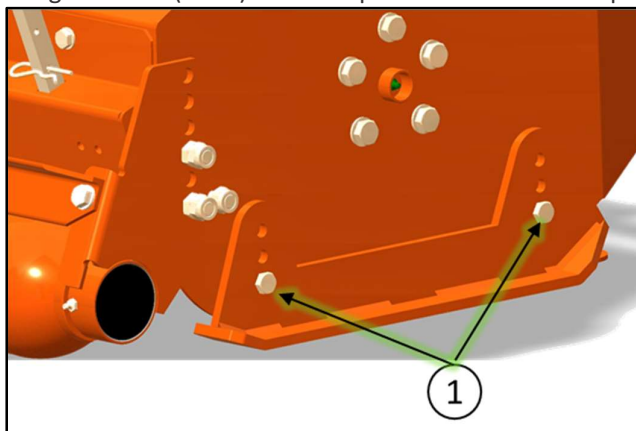
- replace the bolts/nuts (so they are finger tight) and repeat on the opposite end;
- check the holes positions selected on both the roller brackets is the same;
- tighten the bolts (correct torque value can be found in the torque table in this manual);
- return to the tractor seat, insert the key, start the engine and raise the mulcher off the block;
- if safe, remove park brake, drive forward (so the mulcher clears the block) then lower the mulcher to the ground;
- stop, set the park brake, turn off the tractor engine and remove the key;
- move to the rear of the mulcher and ensure it is level (both left to right and front to back) adjust if required;
- finally, carryout an inspection of the hammers in relation to the ground for adequate clearance.

Depending on the holes used, it is possible to set the mulcher to four different working heights: 32mm, 57mm, 82mm and 107 mm.

SKID ADJUSTMENT

The position of the skids can be adjusted by:

- start the tractor and using the tractor's lower linkage, lift the mulcher off the ground;
- set the park brake, turn off the tractor engine and remove the key;
- using a load rated (approved) safety stand, block the mulcher from the underside;
- once the clock is in position, return to the tractor and lower the mulcher onto the block;
- check that the mulcher is secure on the block and that it cannot be lowered and once secure and safe;
- loosening and removing the bolts (Ref 1) that clamp the skids to the side plates of the deck;



- reposition the skids according to the desired height, and
- retightening the bolts (correct torque value can be found in the torque table in this manual);
- repeat for the other skid/side;
- return to the tractor seat, insert the key, start the engine and raise the mulcher off the block;
- if safe, remove park brake, drive forward (so the mulcher clears the block) then lower the mulcher to the ground;
- stop, set the park brake, turn off the tractor engine and remove the key;
- move to the rear of the mulcher and ensure it is level (both left to right and front to back) adjust if required;
- finally, carryout an inspection of the hammers in relation to the ground for adequate clearance.

The skids offer 3 different working positions. However, when the rear roller is fitted, they should be set off the ground and should be there only to protect the side plates of the frame from contacting the ground should the tractor's lower linkage arms be set too low.

NOTE

Skids should not be positions below the rear roller. The rear roller should always carry the load and setting the working height.

RAKES ADJUSTMENT

The function of the rear rakes is to obtain a fine mulch by holding the material within the mulcher's chamber for longer.

Depending on the height of the roller and/or skids, it is possible for the rakes to contact the ground. This can put excessive loads on the rear rake holder and cause structural damage to your mulcher. Therefore, you **MUST** check and adjust ALL the rear rakes immediately after changing the working height of the mulcher.

With the tractor off, park brake set and mulcher on the ground, adjust the rear rakes by:

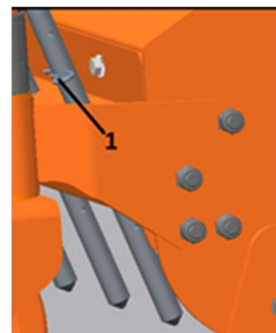
- grab the top of the rake and remove it from the rear rake holder
- remove the split pin (Ref 1) from one of the rakes;

NOTE

if the split pin is towards the top of the rake, it will result in more material inside the mulcher's chamber and obtain a fine mulch.

Vice versa, if the split pin is in the middle of the rake, it will allow material to exit the chamber earlier and result in a coarser mulch;

- insert the split pin into one of the holes in the rake and check if this is at the desired position;
- If it is, count the number of holes above the split pin and adjust every split pin in all the rakes to be the same;
- If it is not the desired position (maybe the rake is too close to the ground), remove the split in and re-position until it is in the desired position then adjust all split pins/rakes to be identically positioned.



TOWER ADJUSTMENT

The SFM Series V2 mulchers can be configured with bolted tower or hydraulically shifting tower.

In case of bolted tower (SFM-M Series), to shift the position of the tower:

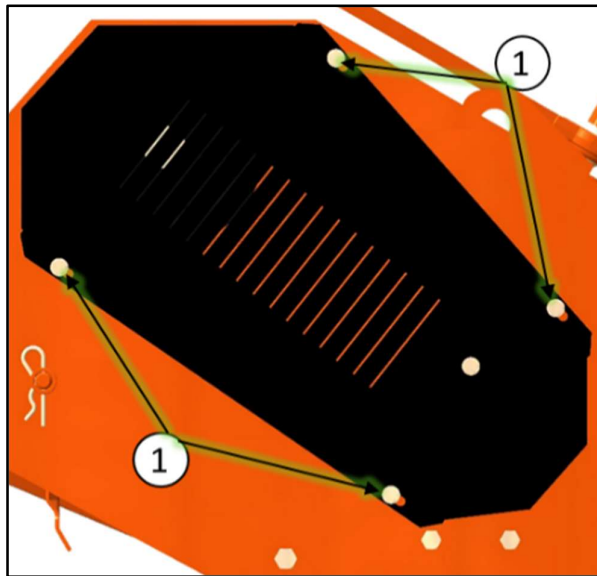
- turn off the tractor engine, disengage the PTO, set the parking brake and remove the key from the ignition;
- remove the mulcher from the tractor (refer page 21 - **CONNECTING TO THE TRACTOR**).
- manually undo the bolts that fix the tower to the deck on both sides.
- position the tower to desire position – there are three (3) positions available
- place the bolts through the tower and corresponding deck mounting position.
- tighten the screws in accordance with the torque table (page 39).

In case of configuration with hydraulic side shift (SFM-h Series) the movement is controlled via a double acting hydraulic cylinder. After the mulcher is connected to the tractor (refer page 21 - CONNECTING TO THE TRACTOR) the mulcher's hydraulic hoses need to be connected to the tractor. Once connected:

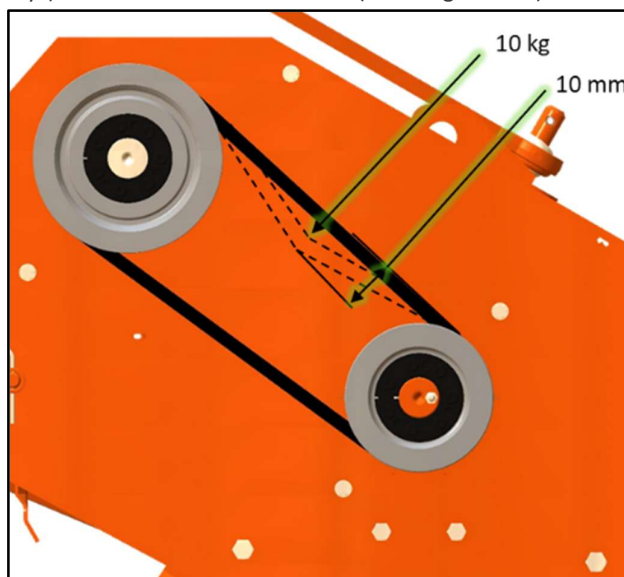
- bring the tractor to a stop and disengage the PTO and set the parking brake;
- using the 3-point linkage arms, raise the mulcher slightly off the ground;
- using the tractor's hydraulic control lever, slowly engage the flow to move the mulcher into the desired position;
- remove the park brake, drive the tractor to the area you plan to operate, engage the PTO and commence operating.

BELT TENSION ADJUSTMENT

Mulchers are belt driven via a side transmission. To check that the belts are the correct tension and transferring power to the mulcher's rotor and hammers remove the safety cover of the belts by loosening the four bolts (Ref 1) that secure the cover to the frame (refer image below):



Once the cover has been removed, to check that the belt tension is correct, apply a force of approx. 10-15kg in the middle of the belts (halfway between the two pulleys) and measure the deflections (see image below)

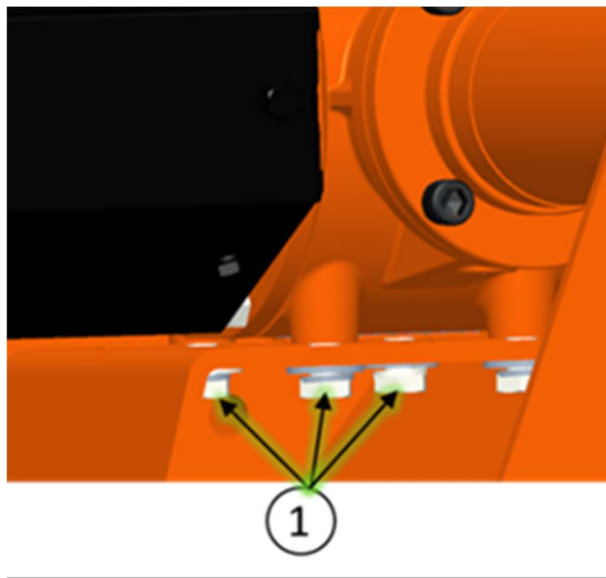


If the deflection is approx. 10 mm, the tension is correct.

If the amount of deflection is greater than 10mm, the belts need adjustment.

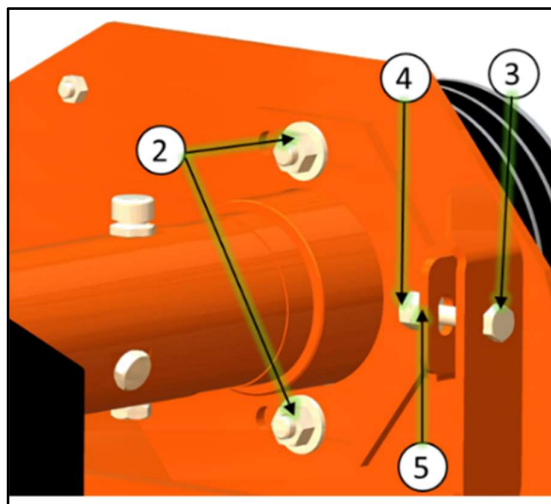
To adjust the belt tension you will be required to re-position the gearbox and the lateral drive shaft. To do this please refer to the image below and the following instructions:

1. loosen the four bolts and washers (Ref 1 in the image below) under the gearbox;



Referring to the image on the right:

2. loosen the two nuts (Ref 2) that hold the extension tube in place;
3. secure the head of the screw (Ref 3) so it cannot rotate and loosen the lock nuts (Ref 4);
4. Adjust the tensioning bolt (Ref 5) to get the correct amount of deflection.
if belt deflection was greater than 10mm, tighten
If belt deflection was less than 10mm, loosen
5. retighten the lock nut (Ref 4) and the two nuts extension tube nuts (Ref 2)
before tightening the gearbox bolts (image above) it is paramount to ensure the lateral shaft is at 90° so there is equal tension on all belts.
If the lateral shaft is slightly forward or back, one belt will have more load than the others and this will result in premature wear of the belts.



6. With the gearbox loose, it is possible to slide the gearbox forwards and backwards to achieve a 90° angle and equal tension on all belts.
7. Once everything is in position, retighten the four bolts and washers (Ref 1) under the gearbox;
8. Refit the belt safety cover

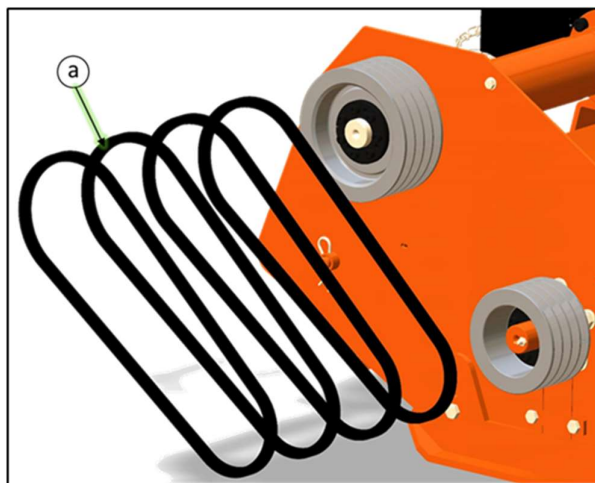
NOTE

The correct bolt torque tension can be found on page 39

If the belts require replacing, remembering it is next to impossible to equally tension a combination of old and new belts. To save time and money, replace all the belts at the same time not just 1 or 2.

To replace the belts:

- remove the belt safety cover (refer Belt Tension Instructions on page 28);
- loosen the gearbox (refer Belt Tension Instructions on page 28);
- loosen the lateral drive tube (refer instructions and image above);
- loosen the lock nut and tension bolt (refer instructions and image above) until the belts are as loose as possible;
- starting from the external position (a), unseat the first belt from the outer groove of the pulley to remove;
 - to unseat the belt, pull the belt laterally away from the mulcher as you rotate the pulleys;
 - move each belt individually (one at a time) from groove to groove, until all belts have been removed;
- to fit the new belts, you need to use a combination of rotating the pulleys while apply pressure on the belt to 'push' it into the groove of the pulley;
 - move each belt individually (one at a time) from outer groove to inner groove
- reset belt tension, secure lateral tube, adjust and tighten the gearbox and replace the belt safety cover (refer Belt Tension Instructions on page 28 & 29);



5.4. STOPPING AND DISCONNECTION

When you have finished 'mulching' the correct procedure to disengage the transfer of power from the tractor to the mulcher (via the PTO shaft) involves:

- reduce the speed of the tractor and bring the tractor to a complete stop;
- place the tractor's transmission in park or neutral and apply the park brake;
- reduce the engine speed to idle and wait for moving parts to slow down;
- once parts have slowed, disengage the tractor's PTO drive (refer to the tractor manual on the operation of your tractor's PTO drive);
- wait for all rotating parts to stop;
- raise the mulcher off the ground into the transport position (see TRANSPORTING) via the tractor's lower linkage controls;
- remove the park brake, select an appropriate speed/gear and travel to the mulcher's storage location;
- once at the storage location, lower the implement to the ground;
- set the parking brake, shut down the engine and remove the key before exiting the tractor;
- lower the mulcher's parking stand(s);
- disconnect the PTO shaft from the tractor and mulcher and store in a safe dry location;
- disconnect the mulcher from the tractor (see below)
- carry out the necessary cleaning and maintenance so the mulcher is ready for next use (see Maintenance).



WARNING

Never leave the tractor unattended with the implement in the lifted position.

To disconnect the mulcher from the tractor (i.e. change of implement):

NOTE

PTO should have already been disengaged and all moving parts should have stopped rotating.

- park the tractor on a dry and level surface;
- set the tractor's park brake, start engine, and raise the mulcher off the ground by around 100mm;
- stop the engine, remove the ignition key and get off the tractor;
- lower the mulcher leg stands by remove the safety clip(s) and pin(s);
- lower the leg stand(s) by securing the pin(s) in the top hole with the safety clip(s);
- place safety blocks where required to stop the mulcher moving;
- return the seat of the tractor and lower the mulcher on the ground;
- disconnect the PTO shaft from the tractor and place in the PTO 'hook' support.

NOTE

If the mulcher is not likely to be use for a long period of time (i.e. over winter) remove the PTO shaft altogether and store in a safe dry location;

- remove the clips holding the two (2) lower linkage pins and the top link pin then remove the pins themselves;
- disconnect the top link and rear lifting arms of the tractor from the mulcher hitches;
- check the mulcher stability. If needed, adjust or use additional safety blocks;
- with the PTO shaft and any cover chains, BOTH lower linkage arms and the top link all disconnected from the tractor, return to the tractor, seat, insert the ignition key, start the engine, select a low/slow speed, and move away from the mulcher;
- make sure the mulcher remains stored in a protected area, to prevent unauthorized personnel approaching.

Before a long-term storage (e.g. at seasonal end), do cleaning and maintenance operations as specified in sections MAINTENANCE and STORAGE.

5.5. TRANSPORTING

To set the mulcher for transportation, perform the following steps:

If the PTO is engaged, start at No.1.

If the PTO is disengaged, start at No.6.

1. reduce the speed of the tractor and bring the tractor to a complete stop;
2. place the tractor's transmission in park or neutral and apply the park brake;
3. reduce the engine speed to idle and wait for moving parts to slow down;
4. once parts have slowed, disengage the tractor's PTO drive (refer to the tractor manual on the operation of your tractor's PTO drive);
5. wait for all rotating parts to stop;
6. with the tractor idling, engage the tractor's lower linkage control and raise the mulcher off the ground

NOTE

A safe transport position is when the mulcher is far enough off the ground that it cannot make contact but lower enough not to compromise the stability of the tractor/mulcher.

The size of the tractor, the ground conditions and desired travel speed all need to be considered when determining how far off the ground you should raise the mulcher for transporting.

In most cases, on level flat ground and with a moderate travel speed, a 'clearance' of 250-350mm is all that is required.

IMPORTANT

As you 'raise' the mulcher, the operator **MUST** ensure that the PTO shaft transmission tubes **DO NOT** contact the tractor or mulcher. A minimum gap of 3cm should be maintained between the tubes and tractor and/or mulcher.

See also section "Driveline Installation" to make sure the PTO shaft does not separate or become 'rigid' and cause other damage.

are not too short/long);

7. lock the tractor tractor's lower linkage control so the lower linkage arms cannot lower while in transit;
8. select the desire (safe) travel speed and transport the mulcher to storage or place of intended operation;
9. After arriving at the location, either:
 - STOPPING AND DISCONNECTION instructions
 - or
 - START-UP and OPERATING INSTRUCTIONS

IMPORTANT

When driving on public roads, follow strictly all local laws and traffic regulations

**WARNING**

When driving on public roads, reduce your speed, be aware of traffic around you and proceed in such a way that faster moving vehicles may pass you safely.

6. MAINTENANCE

Proper and regular maintenance ensures a long life of the mulcher. It helps avoids failures, reduces downtime, and saves costly repairs.

Periodic inspections and maintenance operations described in this section must be performed by operator at the times and terms prescribed. Failure to comply with maintenance prescriptions can compromise the functionality of the mulcher and consequently void the warranty.

The frequency of maintenance indicated refers to operating in 'normal' conditions of use. The maintenance schedule must be increased when the mulcher is being used for long period of time and/or when the operator is frequently starting/stop and regularly engaging/disengaging the PTO.

A thorough maintenance program should also be carried out after a long period of inactivity (i.e. a prolonged winter).

Repairs, maintenance, and modifications other than those mentioned in this paragraph should NOT be performed without consulting the Manufacturer or Importer. Unauthorised repairs, maintenance, and modifications can void you warranty. They may also result in equipment damage and generate risks for the operator.

**WARNING**

For safety reasons, all maintenance operations must be performed with tractor PTO disengaged, mulcher stopped and completely lowered to the ground or onto support blocks, parking brake set, tractor engine shut off, and ignition key removed.

IMPORTANT

Respect the environment. Store or dispose of unused chemicals as specified by the chemical Manufacturer.

6.1. ROTOR HAMMERS REPLACEMENT

Frequently check the wear condition of the blades/hammers on the rotor through visual inspection. The wear of the blades/hammers is very variable depending on the type of operating conditions and the choose working height.

Replace the blades/hammers when you notice;

- increased power absorption during operations, or
- when the blades or hammers dimension is significantly reduced compared to the original, or
- when there is a drop in the quality of the 'finish'.

Before changing the blades/hammers:

- start the tractor and using the tractor's lower linkage, lift the mulcher off the ground;
- set the park brake, turn off the tractor engine and remove the key;
- using a load rated (approved) safety stand, block the mulcher from the underside;
- once the clock is in position, return to the tractor and lower the mulcher onto the block;
- check that the mulcher is secure on the block and that it cannot be lowered;

To perform the replacement of blades:

- remove the nut that secures the bolt and hammer in the lugs on the rotor;
- slide the bolt out of the 'lugs' rotor making sure you secure the blades/hammer so it cannot fall;
- position the new blades/hammer in between the lugs on the rotor and insert the new bolt;
- check the blades/hammers are facing the correct direction (i.e. cutting edge facing in the direction of rotation of the rotor) by reference the other blades/hammers;
- secure the new nut to the new bolt and tighten to the correct torque value (refer to the 'torques table in the manual.
- repeat the same procedure for all the blades/hammers



IMPORTANT

Remove and install one blade/hammer at a time so it is easier to ensure you maintain the cutting edge facing in the direction of rotation of the rotor.

Replace worn blades only with original parts.



WARNING

When the blades/hammers are worn out it is necessary to replace the full set of hammers. When blades/hammers are worn and you don't replace ALL the blades/hammers, it can result in an un-balanced rotor which is likely to cause vibrations, premature wear on parts, compromise the reliability of the mulcher and increase risk to the operator.



CAUTION

Worn blades and hammers may be very sharp! HANDLE WITH GLOVES

6.2. GEARBOX LUBRICATION

Lubricant: HP 85W140LS (API GL4) limited slip gear oil or equivalent



CAUTION

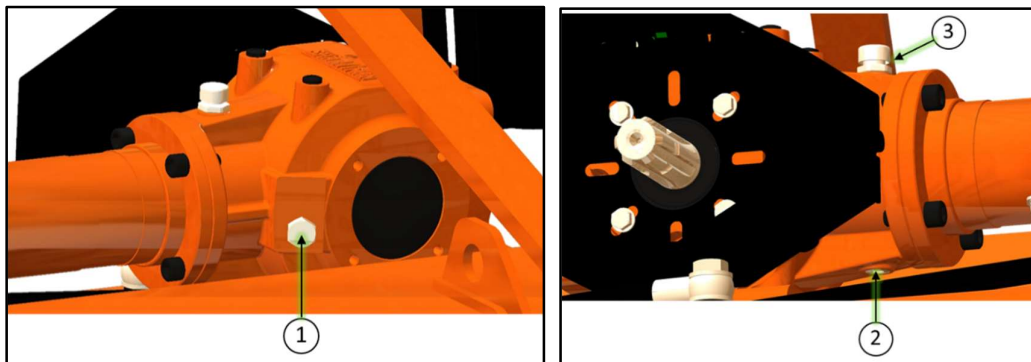
If the mulcher has been operating, the gearbox will be HOT and is a burn hazard. Before touching the gearbox wait until it has cooled sufficiently.

Check the oil level in the gearbox before every use.

The oil level should be aligned with the level plug (Ref 1) on the back of the gearbox.

If the oil level is below the line of the level plug, it's necessary fill up oil until it is restored to the correct level.

The best way to set the oil level is to remove the level plug (Ref 1) and the breather plug (Ref 3) and slowly add oil from the top breather plug (Ref 3) until oil starts to spill from the level plug (Ref 1)



An oil change must be performed:

- after the first fifty (50) working hours; then
- every five hundred (500) subsequent working hours thereafter.

To carry out an oil change:

- unscrew the level plug (Ref 1);
- place a container under the oil drain plug (Ref 2)
- unscrew the oil drain plug (Ref 2) and allow the oil to drain from the gearbox;
- retighten the drain plug (Ref 2);
- unscrew the oil breather plug (Ref 3) on the top of gearbox;
- Slowly fill with oil until the level reaches the hole of the level plug (Ref 1);
- retighten level plug (Ref 1) and the breather plug (Ref 3);
- dispose the discharged oil as per local regulations in your area.

IMPORTANT

Before every use, check for possible oil leaks through visual inspection. If you find signs of oil leakage, resolve before using the mulcher.

Always pay attention to oil when restoring oil level or making oil change to ensure it does not contact and contaminate the ground.

6.3. ROTOR BEARING LUBRICATION

Lubricant: AGIP GREASE MU EP 2 lithium-type grease (or equivalent)

Grease rotor bearings before every use and then after every 2hrs of work

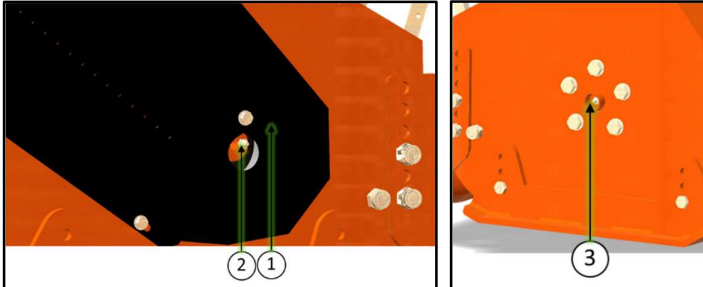
i.e. grease at the start of the day then after every 2hrs of continuous mulching, stop the tractor and re-grease.

Lubricate with multipurpose lithium-type grease with a manual grease pump, after cleaning the grease nipples.

NOTE

At the drive side, it is necessary to move the small flap in the belt cover (Ref 1) to expose a hole (in the cover). Inside the hole in the belt cover, you will find the grease nipple (Ref 2).

At the non-drive side, the grease nipple should be exposed (Ref 3).



To perform lubrication:

- Clean any dirt, dust, or excess grease from the grease nipple;
- Clean any dirt, dust, or excess grease from the grease gun nozzle;
- Insert the grease gun nozzle on to the grease nipple;
- Ensure the grease gun nozzle is secured to the grease nipple;
- Using the pump handle on the grease gun, slowly 'pump' grease into the grease nipple;

NOTE

When the grease gun comes under load, this is the sign that the housing is now full;

- Remove the grease gun nozzle from the grease nipple;
- Clean away any excess grease from the grease nipple.

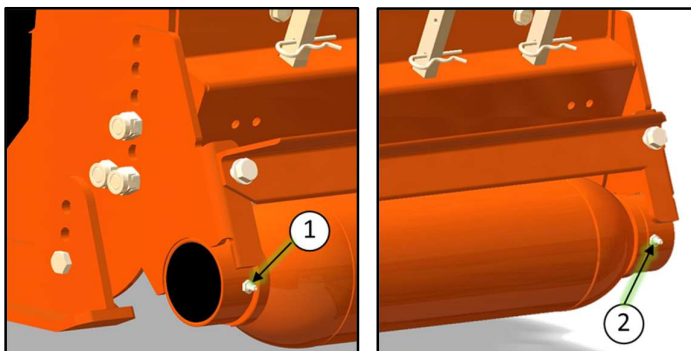
6.4. ROLLER BEARINGS LUBRICATION

Lubricant: AGIP GREASE MU EP 2 lithium-type grease (or equivalent)

Grease roller bearings before every use and then after every 2hrs of work

i.e. grease at the start of the day then after every 2hrs of continuous mulching, stop the tractor and re-grease.

To perform lubrication, follow the steps above (see To perform lubrication) on the grease nipples (Ref 1) and (Ref 2) in the images below.



6.5. 3-POINT HITCH LUBRICATION

Lubricant: AGIP GREASE MU EP 2 lithium-type grease (or equivalent)

Grease the 3-Point Hitch (images below) before every use

NOTE

SFM-h Series. Both greasing points (Ref 1 and Ref 2) are relevant for the COSMO BULLY SFM-h (hydraulic side shift) Mulcher.

SFM-M Series. Only the greasing point in Ref 2 are relevant for the COSMO BULLY SFM-m (manual bolted tower) Mulcher.

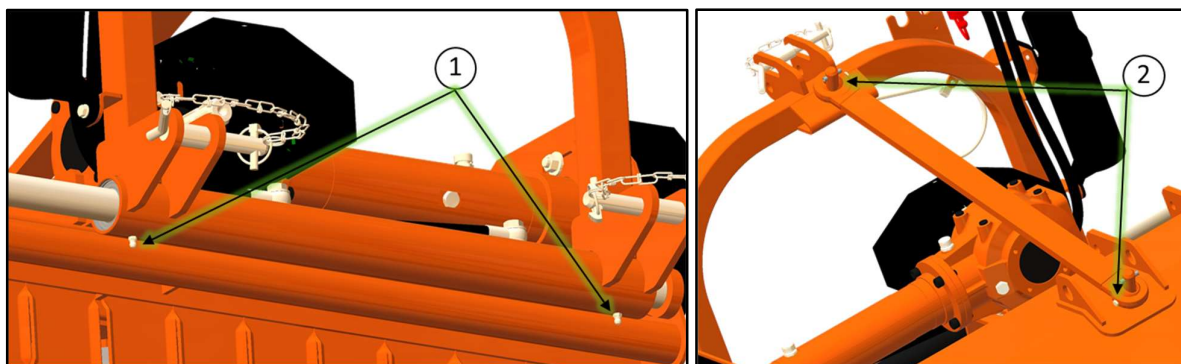
To perform lubrication:

- Clean any dirt, dust, or excess grease from the grease nipple (Ref 1 and Ref 2);
- Clean any dirt, dust, or excess grease from the grease gun nozzle;
- Insert the grease gun nozzle on to the grease nipple (Ref 1);
- Ensure the grease gun nozzle is secured to the grease nipple;
- Using the pump handle on the grease gun, slowly 'pump' grease into the grease nipple;

NOTE

When the grease gun comes under load, this is the sign that the housing is now full;

- Remove the grease gun nozzle from the grease nipple;
- Clean away any excess grease from the grease nipple;
- Repeat for Ref 2.



6.6. DRIVE BELTS REPLACEMENT

Frequently check the wear of the belts, and if one or more of these appears worn replace the full set. To replace the drive belts, refer to the section “Belts tensioning adjustment”.

6.7. DRIVESHAFT MAINTENANCE

Lubricant: AGIP GREASE MU EP 2 lithium-type grease (or equivalent)

Grease the PTO Drive Shaft before every use or every 8hrs (whichever comes first)

Grease the universal cross at BOTH ends, the male and female transmission drive tubes and the plastic rotating parts of the drive tube safety covers.

IMPORTANT

For details about maintenance and lubrication of the driveshaft, refer to the user manual of the driveshaft Manufacturer.

NOTE

For the driveshaft service parts, refer to the user manual of the driveshaft Manufacturer.

7. STORAGE

Before leaving the machine unused for a long time, it's necessary to perform the following tasks to preserve the appearance and functionality of the machine, and to make easier the restart at later use:

- park the mulcher on a flat surface, in a place dry and protected from environment elements;
- thoroughly clean the machine, removing any residues that may cause premature aging;
- Carefully inspect the machine, checking for worn and/or damaged parts;
- Perform all repairs immediately replacing damaged parts so the mulcher is ready next time you use it;
- in case of damaged paint, restore the surface protection through touchup paint to prevent rust;
- check safety decals are in their original positions, intact and legible. IF required, order replacement decals;
- lubricate properly all grease points and restore the oil levels as indicated in the Maintenance section.
- Consider using protective oil to coat the exposed mechanical components and to protect them against rust.

8. SCRAPPING

In case of scrapping, the machine must be disposed in appropriate and authorized sites, according to local legislation.

Before scrapping, separate plastic parts from rubber parts, aluminum, steel, etc.

Recover and dispose any exhausted oils to authorized centers for oil collecting.

9.TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Oil leaking from gearbox/ transmission case	<ul style="list-style-type: none"> • Gearbox overfilled • Loose filling/drain/level plug • Damaged breather plug • Damaged seals 	<ul style="list-style-type: none"> • Drain to proper level • Replace breather plug • Tighten filling/drain/level plug • Replace seals
Finish not uniform	<ul style="list-style-type: none"> • Worn blades/hammers • Roller/wheels set in wrong way • Debris wrapped on rotor • Dirty chamber 	<ul style="list-style-type: none"> • Replace blades/hammers • Set the roller/wheels correctly • Reduce the ground speed • Clean the chamber
Gearbox overheating	<ul style="list-style-type: none"> • Low oil level • Material difficult to be shredded 	<ul style="list-style-type: none"> • Add oil • Reduce the ground speed
Blades/hammers wear frequently	<ul style="list-style-type: none"> • Hard soil • Cutting height too low 	<ul style="list-style-type: none"> • Check the soil in advance • Increase the cutting height
Mulcher noise and vibration noticeable and constant	<ul style="list-style-type: none"> • Unbalanced roller • Worn bearings • Blades/hammers worn, damaged or missing 	<ul style="list-style-type: none"> • Balance the roller in authorized shop • Replace bearings • Replace blades/hammers

10. TORQUE VALUES TABLE

Check frequently mulcher hardware to make sure that screws and bolts are tightened according to torque values listed in following table:

	8.8 GRADE	10.9 GRADE
BOLT SIZE (METRIC)	Nm	Nm
M6	10-11	14-15
M8	25-27	34-36
M10	51-54	69-73
M12	91-97	122-129
M14	137-147	185-196
M16	224-240	302-320
M18	300-321	403-428
M20	440-472	593-630

11. WARRANTY

M/s. Tirth Agro Technology Pvt. Ltd. offer the following warranty to the purchaser of COSMO BULLY equipment mentioned herein above subject to the conditions set out herein after provided the COSMO BULLY equipment shall be in the possession of and used by such purchaser as from the date of delivery.

M/s. Tirth Agro Technology Pvt. Ltd. warrants its products for a period of twelve (12) months from date of delivery, for manufacturing or material defects only. This warranty shall not apply to implements or parts that have been subjected to negligence, of accident, or that have been altered or repaired or used with non-genuine parts.

WARRANTY TERMS & CONDITIONS

If you wish to make a warranty claim, you must first contact the supplier of your goods to begin the claim process.

The following are the warranty terms and conditions for new goods sold in Australia by Farm Implements P/L in conjunction with the manufacture Tirth Agro Technology Pvt. Ltd ("We", "Our" or "Us"), both of 12 Tarmac Way, Pakenham, Victoria, Australia, 3810.

1. To the extent that any goods or services supplied by Us are supplied to a 'consumer' as defined in the Australian Consumer Law, We will comply with any applicable consumer guarantees and the following statement will apply: "Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure."
2. 'Australian Consumer Law' means Schedule 2 of the Competition and Consumer Act 2010 (Cth).
3. The warranties provided in this document are in addition to any other rights or remedies available to you under the law, and do not limit the consumer guarantees for 'consumers' under the Australian Consumer Law.
4. Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the goods.
5. Any warranty claim that is the result of operator abuse, neglect or unauthorised modifications being made to the good will not be considered valid, subject to the Australian Consumer Laws. The warranty does not cover costs of claiming under this warranty; depreciation, damage, malfunction or failure caused by normal wear and tear; lack of reasonable maintenance or improper servicing; failure to follow operating instructions; misuse or lack of proper protection during storage. The expected normal working conditions and maintenance requirements are outlined in the relevant operator's manual.
6. All new Implements are provided with a 12 month comprehensive warranty from the date of invoice against faulty workmanship or materials, under normal working conditions and service, as outlined in the relevant operational manual for the particular good. Your warranty for those goods will be considered void if any damage to the implement is caused by operator abuse, neglect, or if any unauthorised modifications have been made.
7. If you wish to make a warranty claim, **you must immediately report the defect to the supplier within the warranty or consumer guarantee claim period**, including a written statement of your claim, along with photos of the current condition of the goods by mail (or if possible, email) to the address of the place from which you purchased the good. You will be required to present valid proof of purchase, and at your expense promptly provide the goods to the supplier immediately after notification of a service issue.
8. Please note that We require an assessment of the condition of the goods to be conducted by either the supplier, Us or the manufacturer, as well as obtaining a history of use of the good, before We can determine whether a consumer guarantee or manufacturer's warranty is applicable. We are not responsible for any transportation cost incurred in the repair or replacement of parts not covered by the warranty.

9. To the maximum extent permitted by law, and except in circumstances where the consumer guarantee provisions under the Australian Consumer Law apply and are inconsistent with the following, Our liability for the supply of the goods is limited, at Our discretion, to 1) replacement of the goods or the supply of equivalent goods; 2) repair of the goods; 3) payment of the cost of replacing the goods or acquiring equivalent goods; or 4) payment of the cost of having the goods repaired.
10. You acknowledge that use of the goods is inherently dangerous and agree that to the maximum extent permitted by law, We are not liable in any event for consequential loss, damage or injury, including loss of crops, loss of profits, or personal injury or death howsoever caused.
11. Farm Implements Dealers have no authority to make any representation, promise or admission on behalf of Us or to modify the terms or limitations of these Warranty Conditions in any way. Nothing in these Warranty Conditions constitutes a partnership between Us and any Farm Implements Dealer, or constitutes any Authorised Dealer as an agent or employee of Ours for any purpose at all. Our Dealers have no authority or power to bind Us, to contract in the name of Farm Implements P/L or to create a liability against Us in any way or for any purpose at all, including but not limited to representations regarding performance or fitness for any purpose of the goods.
12. **If you have specific queries regarding the warranties or consumer guarantees provided by Farm Implements P/L in conjunction with the manufacture Tirth Agro Technology Pvt. Ltd please send details of your claim to Our attention at 12 Tarmac Way, Pakenham, Victoria, Australia, 3810, or via email at sales@farmimplements.com.au or phone 03 9706 5166.**

THIS CONTRACT WILL BE INEFFECTIVE AND INOPERATIVE IF:

- a. The COSMO BULLY implement was not delivered, assembled, started and put into operation by the company or one of its Authorized Representative.
- b. The warranty card has not been returned within 30 days of date of purchase.
- c. The COSMO BULLY implement parts thereof is subjected to neglect, fire, flood or other acts of God or if in the company's opinion any damage has caused to the COSMO BULLY implement in transportation.
- d. The original numbers are removed, obliterated, or altered from the unit.
- e. Any attempt is made to have the repairs executed by a person or persons, other than the company or its authorized representative.
- f. Any defect is not informed immediately to the company or its authorized representative, any alteration in warranty card is made.
- g. Any change in the location of the COSMO BULLY implement or in its ownership during the warranty period must be intimated in writing to the company or its Authorized Representative ten days before the change. Failure to do so will absolve the company from the obligation under this warranty.
- h. Damage to the COSMO BULLY implement or any part thereof caused, during shifting or transportation is not covered by this warranty.
- i. This warranty is given in lieu of all other guarantees and condition expressed or implied by law or by any person purporting to act on behalf of the COMPANY and excludes every condition, warranty or guarantee not herein expressly set out.

NT – Parts/materials that are not covered by the warranty are as follows:

1. Blade
2. PTO Shaft universal cross
3. Paint
4. Bearing
5. Rubber Parts
6. Gaskets
7. Fasteners

WHEN THE WARRANTY BECOMES VOID

Besides the cases specified in the supply agreement, the warranty shall in any case become void:

- Should there have been a maneuvering error, use of an inadequate safety bolt on the cardan shaft torque limiter or when the cardan shaft clutch has been damaged through improper maintenance.
- When the implement has been used beyond the specified power limit as given in the technical data chart.
- When following repairs made by the customer without authorization from the manufacturer or owing to instillation of spurious spare parts, the machine is subjected to variations and the damage can be ascribed to these variations.
- Whenever the user or anyone else on his behalf applies equipment to the machine that has not been expressly approved by the manufacturer.
- When the user failed to comply with the instructions in this manual book.

12. SPARE PARTS

All repairs and replacements on the machine must be performed only by using original spare parts, which must be obtained from the Manufacturer or your Dealer.

This section contains the information needed to identify the parts of SFM Series V2 mulcher that may be ordered to Manufacturer.

When requesting spare parts, please provide:

- type of machine;
- machine serial number;
- description and part number of the spare part(s);
- quantities required.

NOTE

For identification of part numbers and description for safety decals, refer to the Section Safety labels.

For identification of part numbers and description of PTO driveline parts, refer to the manual of the driveshaft Manufacturer.

The Manufacturer reserves the right to substitute a required part with an equivalent part, if applicable.

13. "EC" DECLARATION OF CONFORMITY

In accordance with the EC Machinery Directive 2006/42/EC

Tirth Agro Technology Pvt. Ltd.

(An ISO 9001:2015 Certified Company)

National Highway – 27, Nr. Bharudi Toll Plaza,
Gondal Road At.: Bhunava – 360311 Ta. Gondal,
Dist.: Rajkot. State: Gujarat- INDIA.

hereby declares that the machine:

Type: COSMO BULLY FLAIL MULCHER

SFM SERIES V2 - HIGH RPM

Model(s): SFM-m & SFM-h

Satisfies the basic safety and health requirements established by European Directive 2006/42/EC.

Harmonized standards used:

EN ISO 12100

Safety of machinery - General principles for design - Risk assessment and risk reduction

EN ISO 4254-1

Agricultural machinery - Safety - Part 1: General requirements

EN ISO 4254-12

Agricultural machinery -- Safety -- Part 12: Rotary disc and drum mowers and flail mowers

EN ISO 17101-2

Agricultural machinery -- Safety -- Part 2: Thrown objects testing of flail mowers.

Other technical standard used:

ISO 11684

Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Safety signs and hazard pictorials - General principles

Rajkot,
Ashwin Gohil / Hasmukh Gohil
Chairman / Managing Director



NOTES:

A series of horizontal dotted lines for writing notes.



Manufactured by:

Tirth Agro Technology Pvt. Ltd.

"SHAKTIMAN", Survey No.-108/1
Plot No. B,NH-27, Nr. Bharudi Toll Plaza
Bhunava (Village), Taluka: Gondal
Dist.: Rajkot - 360311
State: Gujarat- INDIA

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