

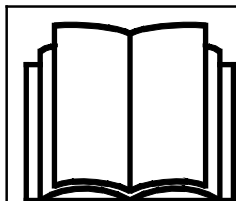
AVANT[®]

Operator's Manual for Attachment



Forestry mulcher I350

Product number:
Forestry Mulcher I350 A457772



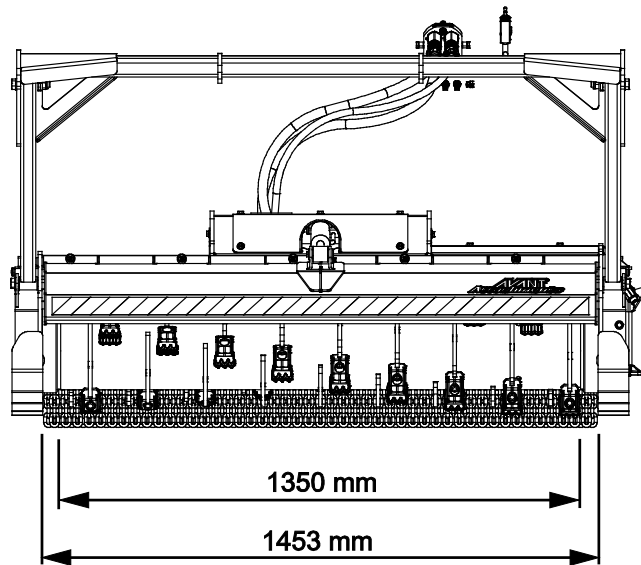
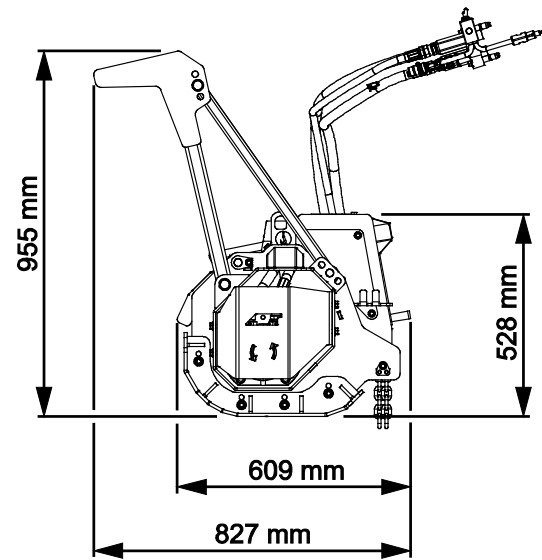
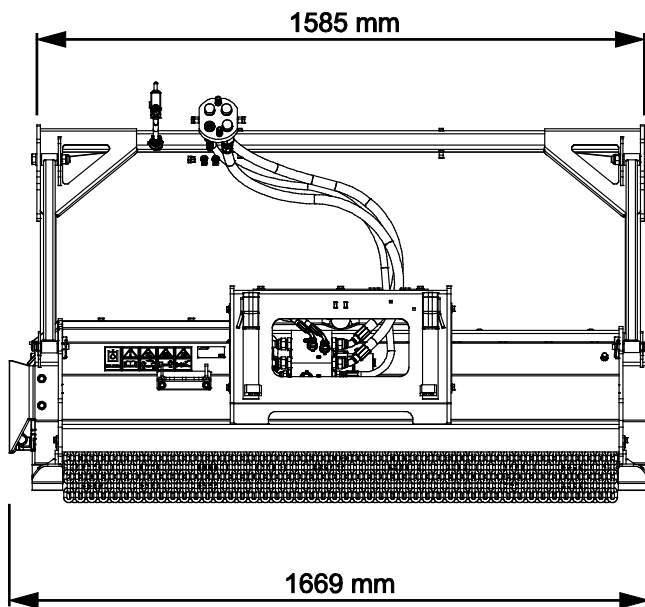
Please read this manual carefully before using the equipment,
and follow all instructions.

Keep this manual for later reference.

Manufacturer:

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I. Foreword

Avant Tecno Oy would like to thank you for your purchase of this attachment for your Avant loader. It has been designed and manufactured based on years of experience on product development and manufacturing. By familiarizing yourself with this manual and following the instructions, you ascertain your safety and ensure the reliable operation and long service life of the equipment. Read the instructions carefully before starting to use the equipment or performing maintenance.

The purpose of this manual is to help you to:

- operate the equipment in a safe and efficient manner
- observe and prevent any hazardous situations
- keep the equipment intact and ensure a long service life

With these instructions, even an inexperienced user can use the attachment and loader safely. The manual includes important instructions for experienced AVANT operators as well. Ensure that all persons using the loader have received proper guidance and familiarised themselves with the manual of the loader, each attachment that are used, and all safety instructions before using the equipment. Using the equipment for other purposes or use in any other way than described in this manual is prohibited. Keep this manual at hand throughout the service life of the equipment. If you sell or transfer the equipment, be sure to hand over this manual to the new owner. If the manual is lost or damaged, you can request a new one from your Avant dealer or from the manufacturer.

In addition to the safety instructions included in this Operator's Manual, you must observe all occupational safety regulations, local laws, and other regulations concerning the use of the equipment. Particularly the regulations concerning the use of the equipment on public road areas must be observed. Contact your Avant dealer for more information about local requirements before you operate the loader on road areas.

Contact your local AVANT dealer for any questions, service, spare parts or about any problems that may occur with the operation of your machine.

This manual contains the original instructions in English. Due to continuous product development some of the details shown in this manual may differ from your equipment. Pictures may also depict optional equipment or features that are not currently available. We reserve the right to change the contents of the manual without notification. Copyright © 2024 Avant Tecno Oy. All rights reserved.

Warning symbols used in this manual

The following warning symbols are used throughout this manual. They indicate factors that must be taken into account to reduce the risk of personal injury or damage to property:



WARNING SAFETY ALERT SYMBOL

This symbol means: **“Warning, be alert! Your safety is involved!”**

Carefully read the message that follows, it warns of an immediate hazard that could cause serious personal injury.

The safety alert symbol by itself and with related safety statement indicates important safety messages throughout this Manual. It is used to draw attention to instructions involving your personal safety or the safety of others. When you see this symbol, be alert, your safety is involved, carefully read the message that follows, and inform other operators.

DANGER

This signal word indicates a hazardous situation which, if not avoided, will cause death or serious injury.

WARNING

This signal word indicates a potentially hazardous situation which, if not avoided, could cause serious injury or death.

CAUTION

This signal word is used when minor injury could result if the instructions are not followed properly.

NOTICE

This signal word indicates information about the correct operation and maintenance of the equipment.

Failure to observe the instructions accompanying the symbol can lead to equipment breakdown or other property damage.

2. Designed purpose of use

The AVANT Forestry mulcher 1350 is an attachment that is suitable for use with AVANT compact loaders that are shown in Table 1. The forestry mulcher is intended for clearing bushes, brushwood and similar vegetation. It can also cut and crush small trees and grind small tree stumps above ground level. The use of the forestry mulcher is possible at areas where there are trees of up to 15 cm thick.

The forestry mulcher is a mulching and shredding machine for places where a lot of mulching power is needed and a rough cut is acceptable. Forestry mulchers are commonly used in areas with taller bushes, scrub, boundary lines, forest roads, and yard spaces. The mulcher can be used for clearing of areas below electric power lines. It can also be used for preventing spreading of wildfires by creating wildfire buffer zones.

As standard, the forestry mulcher is equipped with a hydraulically driven drum with replaceable blades. The cutter drum is equipped with 27 carbide tooth blades as standard. The forestry mulcher can also be equipped with optional knife type of blades, when working on soft, rockless soil.

The attachment is equipped with a hydraulically controlled front hatch. The mulcher can be used with the front hatch in open or closed position depending on type of use, as shown in this manual.

There are also adjustable skids and push bar as standard. The push bar is intended to direct small trees and bushes away from the loader.

The counter blades are located in the frame of the attachment, the rear one is adjustable.

An auxiliary hydraulic cooler is available as an option. The auxiliary cooler is recommended when operating the mulcher in professional manner in warm or hot environment. When the auxiliary cooler is installed the loader must also be equipped with the optional Opticontrol® system to operate the cooler.

Due to the typical use of the attachment and typical operating conditions, the mulcher can throw debris, rock, or other materials, far away from the attachment and with high speed. There is a serious risk of injury for anyone within the operating area of the mulcher. There must be no persons within at least 50 m away from the mulcher. When operating the forestry mulcher, the loader must be equipped with a cab with front window (L, LX, DLX or GT) in order to protect the driver against debris that might get thrown by the mulcher.

The Forestry mulcher 1350 is not intended to be operated on horizontally inclined areas which can cause the loader to tip over. On inclined areas the mulcher should be used driving up or down the slope. The Forestry mulcher 1350 is not designed for any other use than what is specified in this manual and must not be used for any other purposes than what is intended for.

The attachment has been designed to require as little maintenance as possible. The operator can perform regular maintenance tasks. All repair work can't be performed by the operator, and demanding repair and maintenance operations are to be left for professional technicians. All maintenance work must be done using proper safety equipment. Spare parts must be identical with original specifications, which can be ensured by using only original spare parts. A separate spare parts catalogue may be available, consult your Avant dealer.

Familiarise yourself with the manual's instructions regarding service and maintenance. Please contact your AVANT dealer if you have additional questions about the operation or maintenance of the equipment, or if you require spare parts or maintenance services.

Table 1 - Forestry mulcher 1350 - Compatibility with Avant loaders

Avant					630	645i		
					635	650i		e5
	220 _{series 2}	313S	419	520	640	745	850	e6
	225	320S	420	525LPG	635i	750	860i	e513
		320S+	423	528	640i	755i		e527
					735	760i		
A457772	-	-	-	-	-	•	•	-

Compatibility recommendations are based on the recommended input of hydraulic energy and the width of the attachment.

It is recommended to use the attachment only with loaders marked with • in Table 1. When using with models marked with (•), full performance may not be achieved. Additional counterweights may also be required. For compatibility with a model not shown in table, contact your Avant dealer.

3. Safety instructions for using the attachment

Please bear in mind that safety is the result of several factors. The loader-attachment combination is highly powerful and improper or careless use or maintenance may cause serious personal injury or property damage. Due to this, all operators must carefully familiarise themselves about correct use and the operator's manuals of both the loader and the attachment before starting operation. Do not use the attachment if you have not completely familiarised yourself with its operation and the related hazards.



DANGER

Misuse, careless use, or using an attachment that is in poor condition may cause risk of serious injuries. Familiarise yourself with the controls of the loader, correct coupling procedure, and the correct way to operate the attachment at a safe area. Study especially how to stop the equipment in a safe manner. Read all safety precautions carefully.

Read all safety instructions carefully before handling the attachment



WARNING

- When attaching an attachment to the loader, **ensure that the locking pins of the loader's quick attach plate are in the lower position and that they have locked the attachment to the loader.** Never lift or move an unlocked attachment.
- This attachment is designed to be used by one operator at a time. Do not let others near the danger area of the equipment when it is in use.
- Always transport the attachment as low as possible to keep the centre of gravity low, and keep the telescopic boom retracted during driving.
- **Impact hazard - Thrown objects.** Do not let bystanders stand closer than the safety distance of 50 metres from the machine. Stop the attachment if others get within the safety distance.
- **Risk of cutting, severing, and entanglement - Never leave the driver's seat when the attachment is running or if the auxiliary hydraulics control lever is locked on.** Always return the auxiliary hydraulics control lever to its neutral position, following the safe stopping procedure. The blades move for a short period of time after the hydraulic supply has been shut off. Wait until the blades have stopped completely before going near the attachment.
- **Risk of crushing under the attachment or the loader boom - Lower the attachment firmly on the ground before leaving the driver's seat.** Make sure that the attachment is properly supported during any maintenance or inspections. Do not leave the driver's seat when the loader boom is lifted. Going under a raised attachment or loader boom is dangerous, as the boom may lower due to loss of stability, mechanical fault, or if another person operates the controls of the loader.
- Keep hands and feet away from moving components. Risk of entanglement, do not wear loose clothes, such as loose shoelaces, or long scarves, should be avoided when working with the attachment.
- Use the attachment only for its intended use and only with original tools and spare parts.
- Shut down the loader and place the attachment to a safe position as shown in Safe stopping procedure before any cleaning, maintenance, or adjustments.
- Pay attention to the surroundings and any other persons and machines moving in the vicinity. Pay attention to the contours of the terrain and other hazards, such as branches and trees that can reach to the driver's area, loose rocks, and slippery surfaces.



- Make sure to use only an attachment that is in good condition. Do not modify the attachment in any way that could affect its safety.
- Use the equipment only for its intended purpose. Other use may create unnecessary safety risks, and the equipment may get damaged.
- Make sure that the loader is equipped with necessary safety components, and that they are in working condition. Seat belt must be used. If there are specific hazards related to the operating area, use appropriate safety equipment.
- Stop the loader engine and release any residual pressure before adjustments or maintenance work.
- Also read the safety instructions and correct use of the loader from the operator's manual of the loader.



Wrong, improper, or careless use of the attachment causes serious risk of severe injuries or death. Familiarise yourself with the controls of the loader in a safe area. Pay particular attention to the safe stopping of the attachment and the loader; follow the safe stopping procedure shown in this manual before leaving the driver's seat.



Risk of entanglement and crushing - Stop the attachment before cleaning or removing blockages. The attachment can start to rotate immediately after a blockage is removed. Always follow the safe stopping procedure to prevent all rotating parts from moving when clearing a blockage.



Risk of cutting and severing - Sharp edges and severing points on work tools. Beware of the sharp blades and risk of crushing especially during maintenance or when removing blockages. Always stop the attachment by following the safe stopping procedure. To make sure that the attachment will not rotate, disconnect the multiconnector (or hydraulic quick couplings) before going near it. Note that the loader boom moves down and may be tilted even if the engine has been stopped. Never go under a raised boom or any component of the attachment. Keep away from the moving linkage.



Crushing hazard - Never allow anyone to get under a lifted attachment or loader boom. Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down. The loader is not intended to be left to keep a load elevated for longer periods. Always lower the attachment to a safe position before leaving the driver's seat.





WARNING

Risk of cutting and thrown objects - Make sure all guards are in place. Never run the attachment if all guards are not in place. Exposed blades can throw material at very high speed, creating serious danger to the operator and any person also at a distance of up to 100 m from the attachment.



3.1 Personal protective equipment

Remember to wear proper personal protective equipment:



- The noise level at the driver's seat may exceed 85 dB(A) depending on loader model and operating cycle. Extended exposure to loud noise can cause hearing impairment. Wear hearing protection while working with the loader.



- Wear protective gloves.



- Wear safety boots whenever working with the loader.



- Wear safety glasses.

3.2 Safe shutdown procedure

Safe stopping of the attachment, before going near the attachment:



WARNING

Always stop the attachment following safe stopping procedure before leaving the driver's seat. Safe stopping procedure prevents all unintentional movements of the attachment. Note that the loader boom can move down even if the engine of the loader is turned off. Safe stopping procedure:

- Lower the boom and the attachment on the ground.
- Shut down the loader engine and lock the parking brake.
- Release residual pressure from the hydraulic system; move all hydraulic control levers to their extreme positions a couple of times.
- Prevent starting of the machine, remove ignition key.

4. Technical specifications

Product number	A457772
Working width:	1350 mm
Total width:	1670 mm
Working depth:	0 or 20 mm above the ground
Other dimensions:	See page 2
Drive system:	Hydraulic motor
Rotation speed:	2000 rpm @ 65 l/min (1800-2250 rpm, 60...75 l/min)
Blade:	Carbide teeth A450267
Number of blades:	27 pcs
Effective crushing capability:	Trees up to diameter of 15 cm
Weight:	410 kg
Recommended hydraulic oil flow:	60...70 l/min, 20,0 MPa (200 bar)
Maximum input of hydraulic energy:	75 l/min, 22,5 MPa (225 bar)
Compatible Avant loaders:	See Table 1
Options	
Auxiliary hydraulic oil cooler:	A458046
Knife blade, turnable:	A450266

4.1 Safety labels and main components of the attachment

Listed below are the labels and markings on the attachment. They must be visible and readable on the equipment. Replace any unclear or missing label. New labels are available via your retailer or contact information provided on the cover.



Make sure all warning decals are readable. The warning labels contain important safety information and they help to identify and remember the hazards related to the equipment. Replace damaged or missing warning labels with new ones.



A46771



A46772



A46799



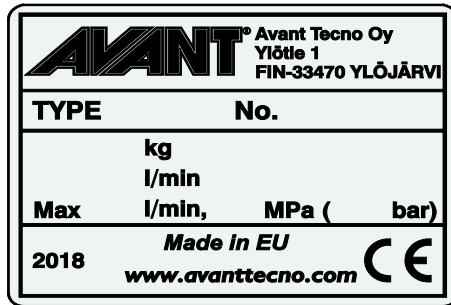
A46803



A46806



A466474



Attachment identification plate A464385

A464386

To apply a new label: Clean the surface thoroughly to remove all grease. Allow it to dry completely. Peel off the protective film of the label and press firmly to apply. Take care not to touch the glue of the label.

Table 3 - Decal locations and warning messages

Decal		Warning message
1	A46771	Misuse hazard - Read instructions before use.
2	A46772	Crushing hazard - Do not go under a raised attachment; stay away from raised equipment.
3	A46799	Beware of thrown objects; keep a safe distance from the equipment (50 m minimum, up to 100 m).
4	A46803	Pinching and cutting hazard, keep clear of moving parts, do not leave the equipment running. Operate the attachment only from the driver's seat.
5	A46806	Hazard of entanglement, abrasions, and friction - Keep clear of all moving parts.
6	A466474	Risk of flying debris - Use the attachment with enclosed cabin only.
7	A464386	Hydraulic oil flow 65 l/min
8	A464385	Attachment identification plate

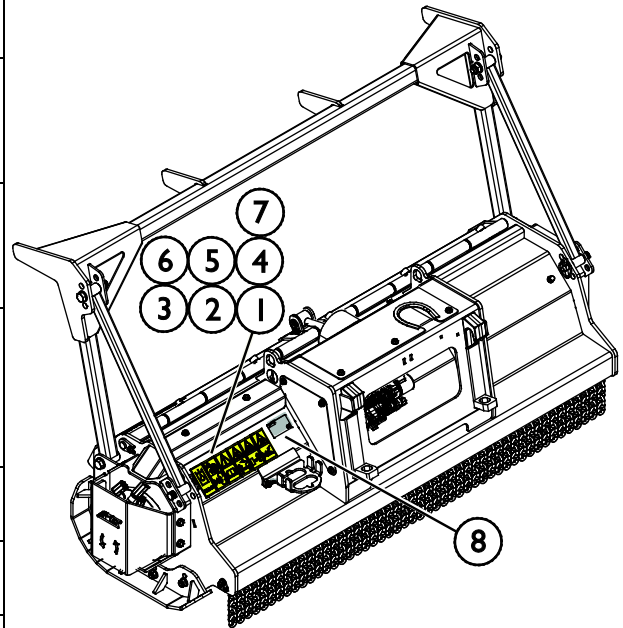
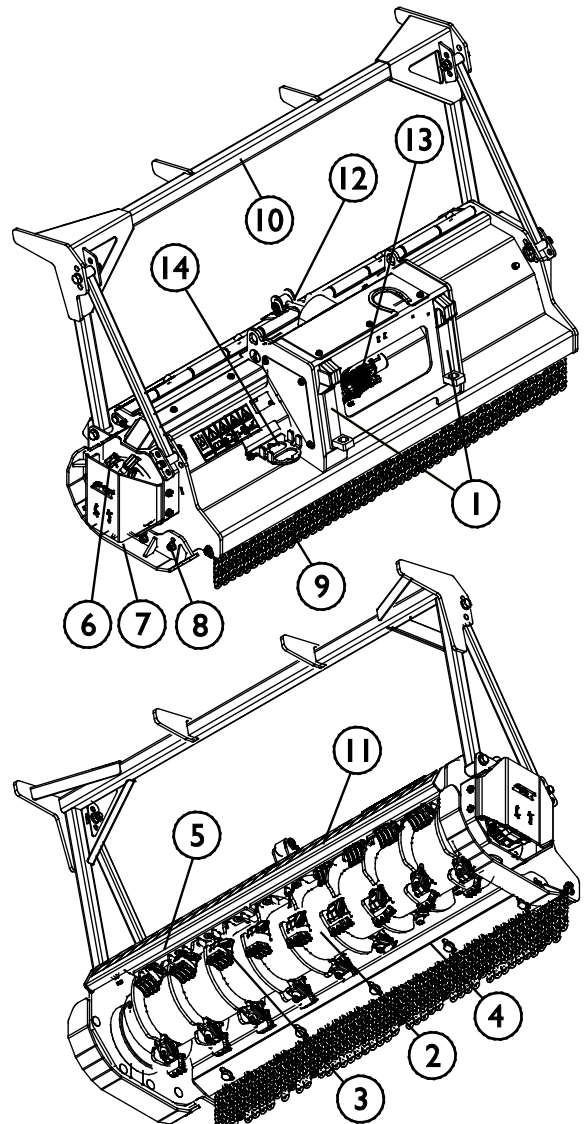


Table 4 - Forestry mulcher 1350 - Main components

1	Coupling plate with Avant quick coupling brackets
2	Mulching drum with 27 blades
3	Blade with carbide tip (27 pcs)
4	Rear counter blade (adjustable)
5	Front counter blade (3 pcs)
6	Hydraulic motor
7	Skids (2 pcs)
8	Skid height adjustment, 0 or 20 mm
9	Rear guard, chains
10	Push bar
11	Front hatch
12	Hydraulic cylinder for the front hatch
13	Control valve
14	Multiconnector holder

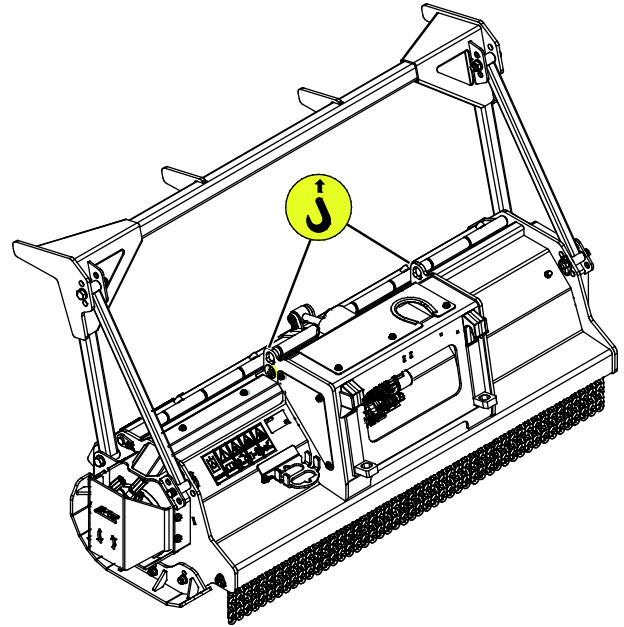


4.2 Lifting

Make sure that the attachment is properly secured against unintended movements during lifting operation. Use appropriate type of lifting accessories, lifting straps, chains or hooks, for example. Do not use lifting accessories if there are signs of damage, deformation, or otherwise unsafe conditions.

Make sure that the attachment is properly secured against unintended movements during lifting operation. Use appropriate type of lifting accessories, lifting straps, chains or hooks, for example. Do not use lifting accessories if there are signs of damage, deformation, or otherwise unsafe conditions.

Lift the attachment by using the lifting points, that are shown in the adjacent figure.



5. Attaching the attachment

Attaching the attachment to the loader is quick and easy, but it must be done carefully. The attachment is mounted to the loader boom by using the quick coupling plate on the loader boom and the counterpart on the attachment.

If the attachment is not locked to the loader, it may fall from the loader and cause a hazardous situation. Never drive with the loader and never lift the loader boom if the attachment has not been fully locked. To prevent hazardous situations, always follow the coupling procedure shown below. Also remember the safety instructions shown in this manual.



WARNING

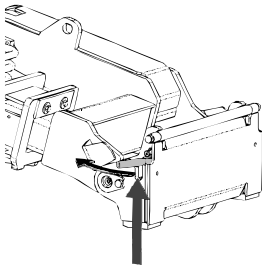
Crushing risk - Make sure that an unlocked attachment will not move or fall over.

Do not stay in the area between the attachment and the loader. Mount the attachment only on level surface.

Never move or lift an attachment that has not been locked.

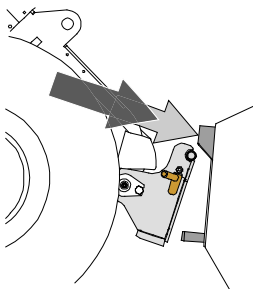
Avant quick coupling system:

Step 1:



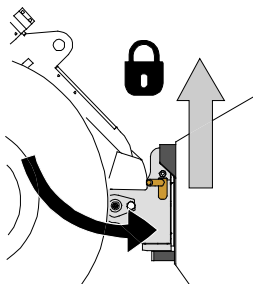
- Lift the locking pins of the quick coupling plate of the loader up, and turn them backwards into the slot, so that they are locked in the upper position.
- If your loader is equipped with a hydraulic attachment locking system, see additional instructions about the use of the locking system from the operator's manual of the loader.
- Make sure that the hydraulic hoses and the electric cables are positioned so that they will not get in between the coupling plate of the loader and the attachment, and that they will not get squeezed or chafed against sharp edges.

Step 2:



- Turn the quick coupling plate hydraulically to an obliquely forward position.
- Drive the loader onto the attachment. If your loader is equipped with a telescopic boom, you can utilise this.
- Align the upper pins of the loader's quick coupling plate so that they are under the corresponding brackets of the attachment.

Step 3:



- Lift the boom slightly – pull the boom control lever backward to lift the attachment just off the ground.
- Turn the boom control lever left to turn the bottom section of the quick coupling plate of the loader onto the attachment.
- Lock the locking pins manually or lock the hydraulic locking.
- **Always check the locking of both locking pins.**



WARNING

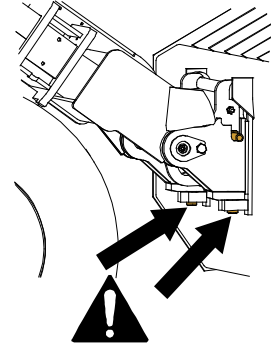
Risk of crushing - Avoid tipping over the attachment. Excessive tilting or lifting of an unlocked attachment increases the risk of tipping the attachment over. Do not use the automatic locking of the locking pins when the attachment is lifted more than one meter from the ground. If the locking pins do not return to the normal position when tilting, do not tilt or raise the attachment any more. Lower the attachment on the ground and secure the locking manually.



WARNING

Risk of falling objects - Prevent dropping of attachment.

An attachment that has not been completely locked to the loader may fall on the boom or towards the operator, or fall under the loader during driving, causing loss of control of the loader. Never move or lift an attachment that has not been locked. Before moving or lifting the attachment, make sure that the locking pins are in the lower position and come through the fasteners on the attachment on both sides.



WARNING

Make sure the loader is compatible with the attachment. Stability of the loader, possible overload of the attachment, and compatibility of loader control systems must be ensured in addition to mechanical compatibility of the attachment. If you use the attachment with a loader that is not fit to be used with the attachment model you have, risks include tipping over, damage to attachment due to overload, and risks related to uncontrolled motion of attachment and its parts. If your loader is not listed in Table 1 on page 6, ask your Avant dealer before using this attachment.

5.1 Connecting and disconnecting hydraulic hoses

On Avant loaders the hydraulic hoses are connected using the multi connector system. If you have an older model Avant 300-700 series loader with the conventional quick couplers, and you want to change to the multi connector system, contact your Avant dealer or service point for instructions or installation services.



WARNING

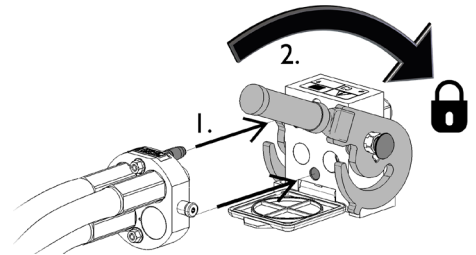
Risk of movement of the attachment and ejection of hydraulic oil - Never connect or disconnect quick couplings or other hydraulic components while the control lever of the auxiliary hydraulics control lever is locked on or if the system is pressurized. Connecting or disconnecting the hydraulic couplings while the system is pressurized may lead to unintended movements of the attachment, or ejection of high-pressure fluid, which can cause serious injuries or burns. Follow safe stopping procedure before disconnecting hydraulics.

NOTICE

Keep all fittings as clean as possible; use the protective caps on both the attachment and the loader. Dirt, ice, etc. may make using the fittings significantly more difficult. Never leave the hoses hanging on the ground; place the couplings onto the holder on the attachment.

Connecting the multiconnector system:

1. Align the pins of the attachment connector with corresponding holes of the loader connector. The multiconnector will not connect if the attachment connector is upside down.
2. Connect and lock the multiconnector by turning the lever towards the loader.

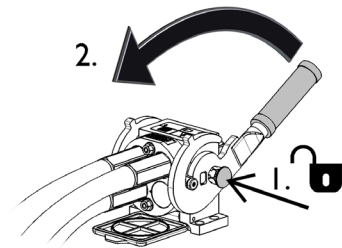


The lever should move easily all the way to its locking position. If the lever does not slide smoothly, check the alignment and position of the connector and clean the connectors. Also shut down the loader and release the residual hydraulic pressure.

To disconnect the multiconnector system:

Before disconnecting put the attachment down on a solid and even surface.

1. Switch off the auxiliary hydraulics of the loader.
2. While pushing unlock button, turn the lever to disconnect the connector.
3. After ending operation put the multiconnector on its holder on the attachment.



Disconnecting hydraulic hoses:

Before disconnecting the fittings, lower the attachment to safe position on solid and level surface. Turn the control lever of the auxiliary hydraulics to its neutral position.

NOTICE

When uncoupling the attachment, always disconnect the hydraulic couplings before unlocking the quick coupling plate, to prevent hose damage and any oil spills. Reinstall the protective caps on the fittings to prevent impurities from entering the hydraulic system.

Releasing residual hydraulic pressure:

In case residual pressure is left in the hydraulic system of the attachment, it is often possible to disconnect the hydraulic couplings, but it may be difficult to connect them the next time. If the fittings will not connect, the residual pressure must be released by turning the auxiliary hydraulics control lever of the loader, when the engine is turned off. To make sure that there will not be residual pressure in the hydraulic system of the attachment, shut down the loader engine and move the auxiliary hydraulics control lever of the loader back and forth before disconnecting the couplings.

5.2 Electric connection

Electric functions of the attachment:

As standard, the Forestry mulcher is equipped with a hydraulic hatch opening. The hatch opening can be controlled with the standard electric harness that is supplied with the attachment or with the Opticontrol® system.

If the attachment is equipped with an optional auxiliary hydraulic oil cooler, the Opticontrol® system is necessary.

5.2.1 To connect the electric harness of the attachment to the loader

There are three ways to connect the electric connector, depending on the equipment on the loader and the attachment. These options are listed and explained below.

1. ***If your loader is not equipped with the Opticontrol® or the Attachment control switch pack:***

Use the separate cable kit with a switch that is supplied with the attachment. Connect this cable to the 12 V electric socket near the operator's seat of the loader, and to the electric plug of the attachment.

1. Electric plug, connects to the 12 V electric socket near the operator's seat of the loader.

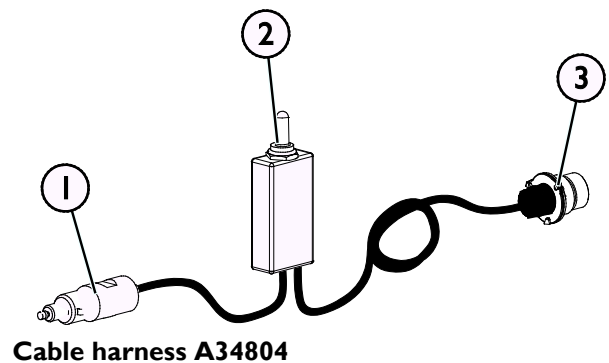
More information about the power outlet of the loader can be found in the operator's manual of the loader.

2. ON-OFF-ON switch

Select the location of the switch in the cab so that it is easily accessible but will not be used inadvertently.

3. Connect to the electric plug of the attachment.

If the attachment is equipped with an electric plug that is integrated to the multiconnector of the attachment, disconnect the electric cable from the multiconnector.



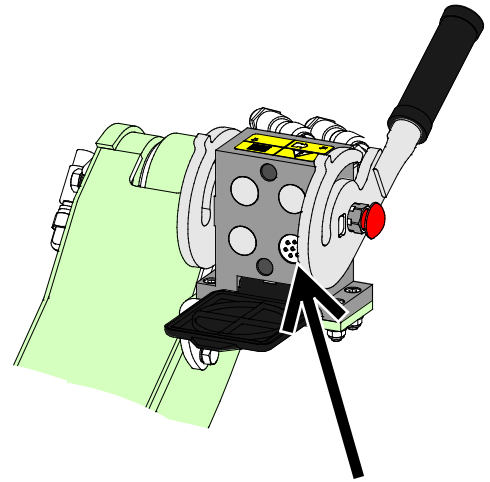
Cable harness A34804

2. If your loader is

- equipped with the Opticontrol[®] or
- the Attachment control switch pack, and the loader is manufactured **after** 2016:

If the electric socket is integrated in the multiconnector, the electric harness of the attachment is connected when the multiconnector is coupled. Clean both multiconnectors before connecting the multiconnector.

The separate cable harness A34804 is not needed in this case.



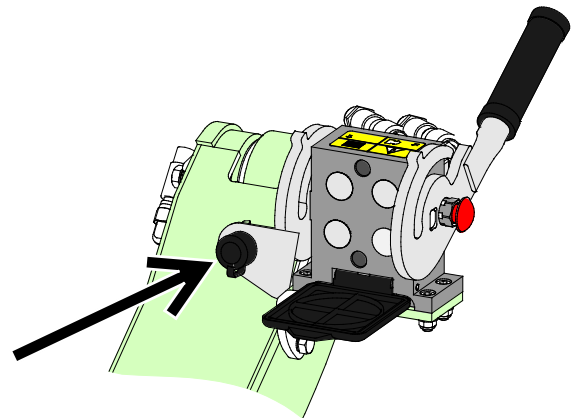
Opticontrol[®], or Attachment control switch pack, loader manufactured in 2016 or later

3. If your loader is

- equipped with the Attachment control switch pack, and the loader is manufactured **before** 2016:

If there is an electric socket near the multiconnector of the loader, disconnect the electric plug from the multiconnector and connect it to the electric plug of the loader.

The separate cable harness A34804 is not needed in this case.



Attachment control switch pack, loader manufactured before 2016

NOTICE

Make sure that electric cables will not get stuck, squeezed, or stretched when the equipment moves.

With the help of the attachment control switch pack available for the loader, the attachment control switches are easily accessible at the end of the boom control lever.

More information about the power outlet of the loader can be found in the operator's manual of the loader.

6. Instructions for use

Check the attachment and the operating environment once more before starting to work, and that all obstacles have been removed from the operating area. Quick inspection of the equipment and the operating area before use are parts of ensuring safety and the best performance of the equipment.



WARNING

Hazard of thrown objects, risk of injury to eyes - Use this attachment only with loaders that have front window installed. The attachment can throw stones, gravel, or other debris at high speed. In some cases objects and debris can get thrown towards the driver's seat either directly or by bouncing back from other surfaces. Make sure the front window of the loader is intact before operating this attachment. Always use personal protective equipment as well.



WARNING

Hazard of thrown objects - Keep bystanders away. Note that the attachment can throw stones, gravel, or other objects found in the area at high speed. Always keep a safety distance of at least 50 metres to other persons.



WARNING

Entanglement hazard - Keep away from moving parts. Keep a safety distance of at least 50 metres from the attachment when it is running and stop the attachment immediately if anyone gets too close. Beware of the rotating parts which create entanglement hazard. Never reach into a running attachment by any means. Shut down the loader engine following the safe stopping procedure if reaching into the work tools of the attachment.





WARNING

Risk of tipping over - Avoid overload. Loader can tip over when handling too heavy loads, or because of dynamic movements caused by driving with and handling of a heavy load. Do not extend the telescopic boom when the load approaches the lifting capacity of the loader, or when the loader boom is in horizontal position. When you notice that the rear wheels of the loader are about to lift from the ground, or if the load indicator of the loader (if fitted) signals:

- Lower the load calmly and retract the telescopic boom
- Avoid sudden changes in speed or direction whenever load is lifted
- Use additional counterweights as needed



WARNING

Crushing hazard - Never allow anyone to get under a lifted attachment or loader boom. Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down. The loader is not intended to be left to keep a load elevated for longer periods. Always lower the attachment to a safe position before leaving the driver's seat.



6.1 Checks before use

- Check that all obstacles, including any possibly hidden ones, have been removed from the working area or marked visibly before operation.
- Check daily that the blades are intact and the cutter drum can rotate freely. Never use if blades are missing or broken.
- Check that there is no string or other foreign material around the cutter drum.
- Ensure that bystanders are at a safe distance when operating the equipment. Do not let anyone to enter danger area of the boom or to stay directly in front of the loader. Also make sure that it is safe to reverse with the loader. Never assume that bystanders will remain where you last saw them; especially children are often attracted to the moving equipment.
- Check the general condition of the attachment and the loader, and check for possible hydraulic oil leaks. Do the daily checks of the loader, see the operator's manual of the loader. The attachment must not be used, if there is a fault in the hydraulic system of the loader or the attachment. Refer to Chapter 7 for maintenance instructions.
- Operate the attachment and the controls of the loader only when seated on the driver's seat. Ensure that the loader and the attachment are used in a safe manner and as intended. Do not allow children to operate the equipment.
- Remember correct working methods and avoid leaving the driver's seat unnecessarily.

**WARNING**

Hazard of thrown objects - Check all blades are connected securely. Check that all blades are connected securely and that none of the blades is missing. Loose, damaged, or missing blades can cause ejection of parts from the attachment. Only use original fixing parts for fastening the blades.

6.2 Operator qualification

Anyone who intends to use the attachment must:

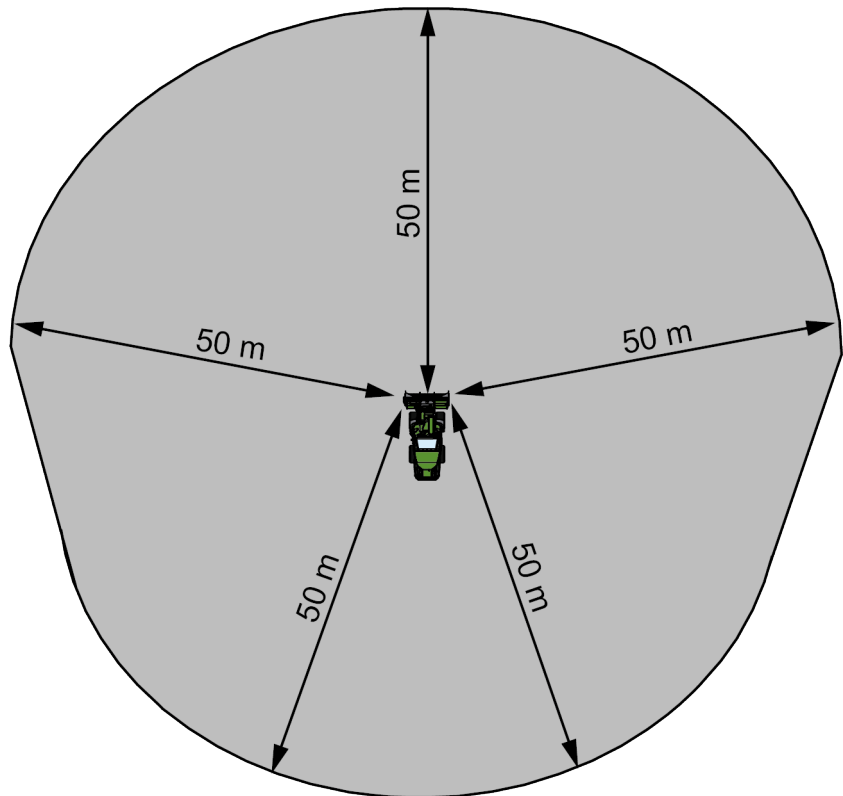
- Know the intended use of the attachment.
- Know how to use the loader safely in different operating conditions.
- Read and always follow the instructions concerning the use of the attachment in this operator's manual.
- Have this manual and the operator's manual of the loader available.
- Ensure that the loader and the attachment are used in a safe manner and as intended.
- Never allow children to operate the equipment.
- Never operate the loader or attachments while under the influence of alcohol, drugs, medication that may impair judgement or cause drowsiness, or if not otherwise medically fit to operate the equipment.
- Complete any possible mandatory training required by the employer before use.
- Have valid driver's license when operating the equipment on road areas when required by law.

6.3 Operating the Forestry mulcher

Safety distance

The minimum safety distance of the attachment is 50 metres from the machine. Stop the attachment if others get within the safety distance.

Do not let bystanders get any closer than 50 metres from the attachment. Exposed blades can throw material at very high speed, creating serious danger to the operator and any person also at a distance of up to 100 m from the attachment.



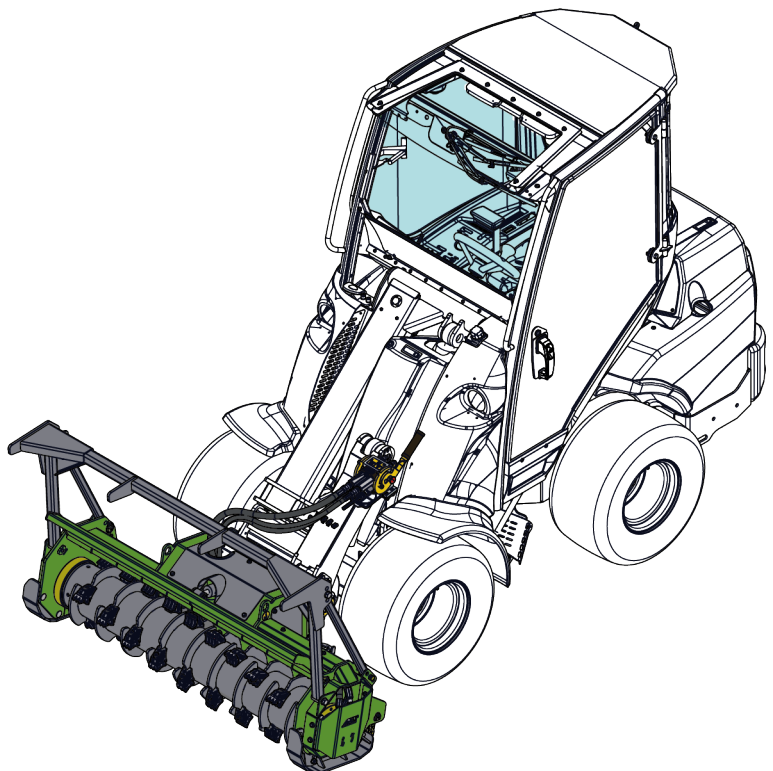
Before use

Read all safety instructions.

Starting to use the Forestry mulcher

1. To set the Forestry mulcher to its correct operating position, lower the attachment lightly near the ground.
2. Lift the hydraulic hatch up, if necessary. The hatch is operational only when the cutter drum is rotating, see page 25 for more information about controls of the attachment.
3. When the cutter drum is rotating, tilt the attachment so that the skids touch the ground lightly along with the cutter drum as shown in the adjacent figure.

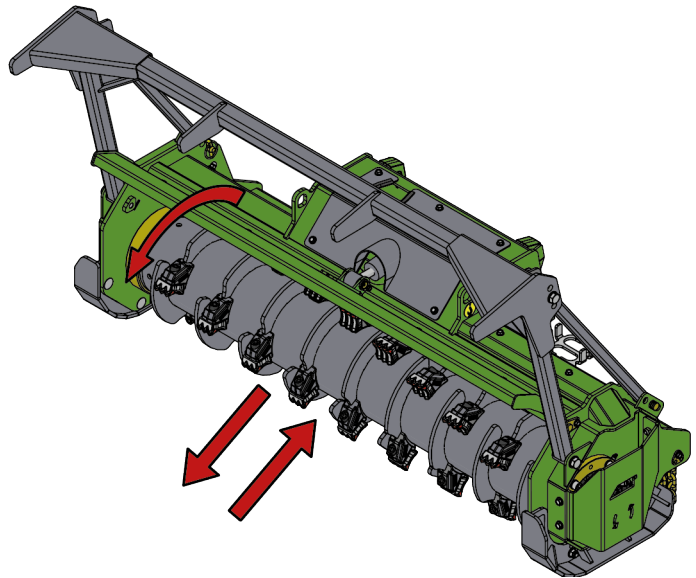
Operate the controls of the loader and its attachment in a careful and smooth manner, and avoid sharp turns whenever using this attachment.



Direction of operation

The Forestry mulcher is intended to rotate only to its normal operating direction so that the cutter drum will push material downwards.

The attachment can be operated by driving forwards or backwards with the loader.



Starting the Forestry mulcher



Risk of serious personal injuries - Never leave the equipment running unattended. Start the attachment only when it is ready to be used. Do not go near the equipment when another person operates the controls of the loader.



Burn hazard - Keep clear of hot surfaces. The surfaces of the attachment will get hot quickly. Parts of the unit, i.e. hydraulic hoses and hydraulic motor, can be hotter than 80 °C. Keep clear of hot surfaces. Wear personal protective equipment, if necessary.



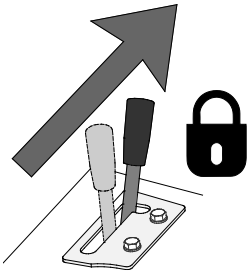
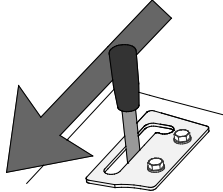
Start the attachment by using slow rotating speed (low loader engine rpm). Increase the speed slowly while observing simultaneously any unusual noise or vibration for example.



Risk of injury from thrown objects and entanglement - Check surroundings before starting the Forestry mulcher. The attachment can throw sand, rocks, or other objects at high speed. Check that there is no one in front of the mulcher. Always direct the mulcher away from people and anything that can get damaged, such as cars, buildings, or other fragile surfaces. Check the recommended hydraulic oil flow before starting the mulcher.

The Forestry mulcher is operated with the auxiliary hydraulics of the loader.

Auxiliary hydraulics control lever:
(or joystick buttons):

	<p>Move the auxiliary hydraulics control lever of the loader towards its locking position to rotate the attachment to its normal operating direction.</p> <p>Stop the attachment by releasing the lever to neutral position.</p>
	<p>The reverse direction is not intended for mulching. It can be used to clear blockages.</p>



CAUTION

Risk of thrown parts - Avoid running the attachment at very high speed. Operating the attachment at too high speed may cause high vibrations, noise, or thrown parts from the attachment, or damage that could lead to personal injury. See recommended input flow in this manual.

Recommended operating speed and maximum allowed oil flow:

NOTICE

Operate the attachment keeping the hydraulic flow within recommended range. Never exceed maximum allowed input of hydraulic energy.

Always start the attachment with slow speed. Check the operator's manual of your loader to determine the loader engine rpm which produces the recommended oil flow for this attachment.

Too slow speed will result in poor performance and blockages are more likely to occur.

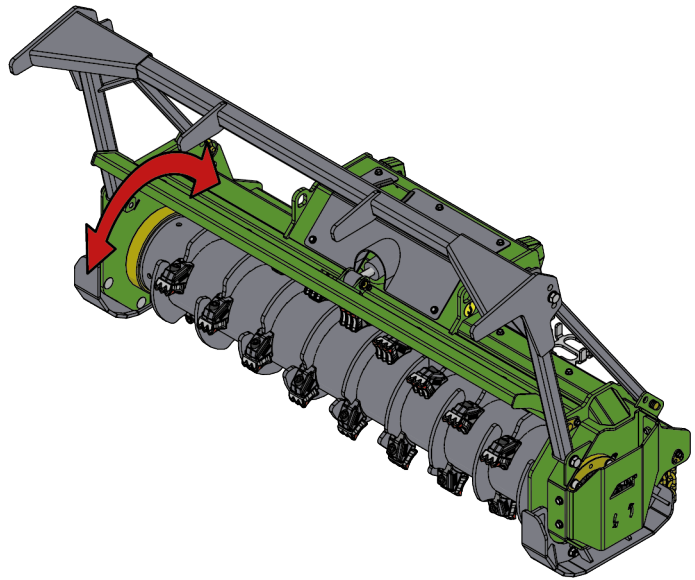
Too high speed will cause more objects to get thrown, more noise, more vibration, more heat to the hydraulic oil, and can cause damage to the attachment.

6.3.1 Hydraulic hatch opening



The hydraulic hatch opening is available as standard. The hatch can be turned backwards by approximately 85 degrees.

The hydraulic hatch opening can be used only when the cutter drum is rotating.

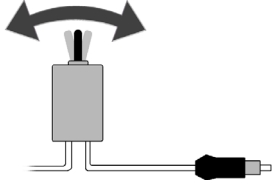
In frequent use it is recommended that the Opticontrol® system is fitted to the loader. See instructions regarding the electric connection from Chapter 5.2.



Using the hydraulic hatch opening with Opticontrol® system:

<p>1.</p>	<p style="text-align: center;">OFF</p> 	<p>Switch OFF the Opticontrol® Auto-PTO mode (if equipped)</p> <p>The hydraulic hatch opening can be used only when the auxiliary hydraulic oil flow is activated from the loader.</p>
<p>2.</p>		<p>The hatch opening functions are controlled with the Opticontrol® switches as follows:</p> <ol style="list-style-type: none"> 1 <i>Not in use with this attachment</i> 2 Push the button left to close the hatch, and right to open the hatch while the attachment is running. 3 <i>Not in use with this attachment</i>

Using the hatch opening with separate switch:

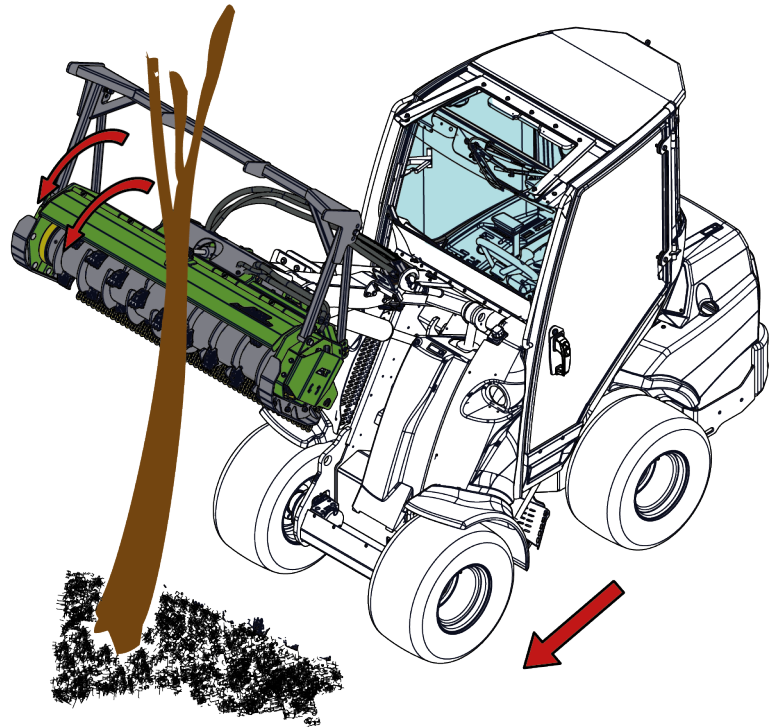
	<p>Keep the separate 3-position switch in the cab in location where it is easily accessible, but will not interfere with other controls, and will not be used inadvertently.</p> <ul style="list-style-type: none"> ■ Turn the switch to either position to open or close the hatch. ■ The hatch will move only while auxiliary hydraulic oil flow is activated from the loader and the mulcher is running.
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6.3.2 Operating techniques

Vertical mulch

Use this mode to, for example, to remove a small tree.

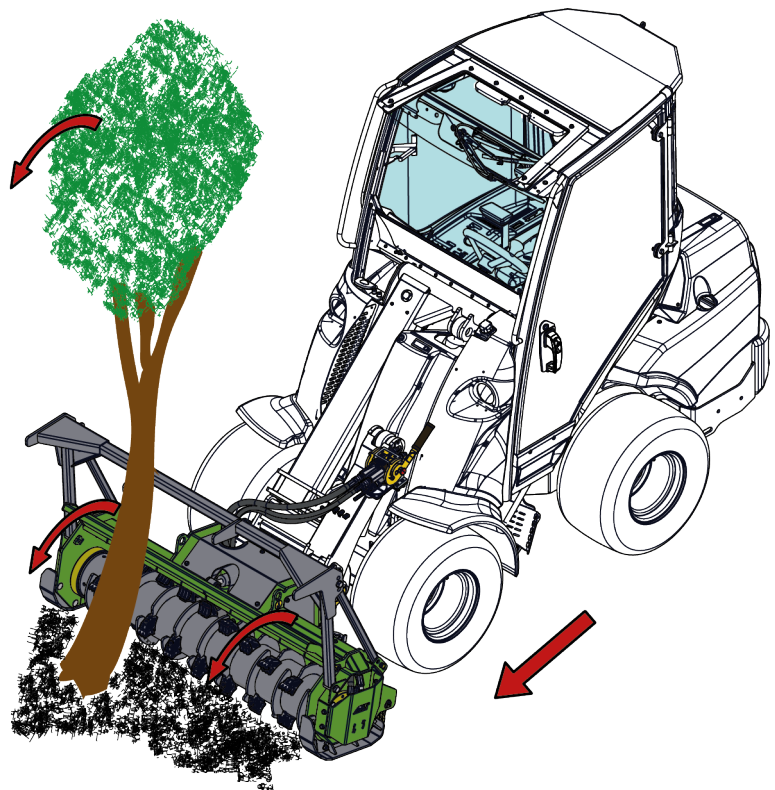
1. Close the hatch.
2. Lift the mulcher up and turn it slightly back.
3. Start the mulcher.
4. Push the mulcher down against the tree until it breaks.
5. Crush the tree from top to bottom by lowering the mulcher little by little towards the ground.



Base cut

Use this mode for tree removal.

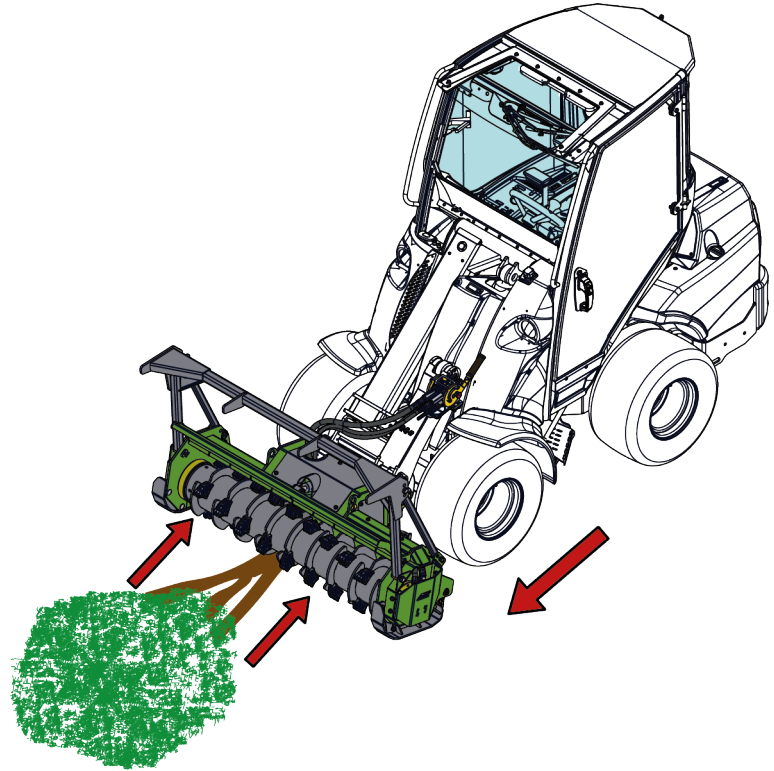
1. Open the hatch.
2. Set the mulcher in horizontal position on the ground.
3. Start the mulcher.
4. Use the push bar to guide the falling tree to the forward direction.
5. Tilt the mulcher forwards in order to strengthen the guiding effect of the falling tree.



Ground mulch

Use this mode, for example, for processing of fallen tree. Drive back and forth over the material being processed.

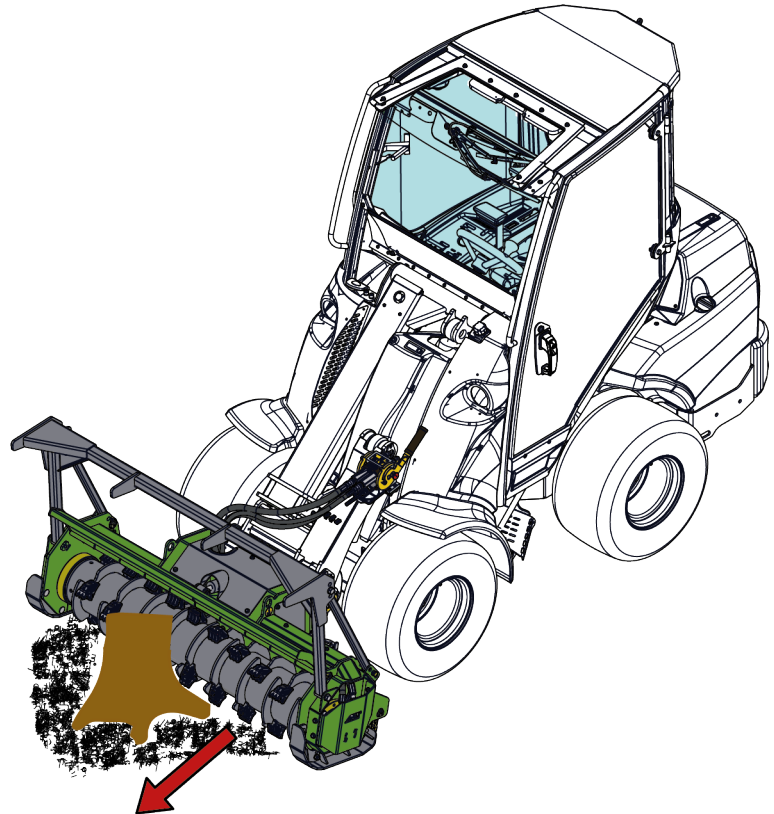
1. Set the mulcher in horizontal position on the ground.
2. Start the mulcher.
3. Open the hatch when driving forwards so that the vegetation reaches the blades and will not be folded down.
4. Close the hatch during reverse so that the material is processed efficiently and does not fly all over the site.



Stump cut

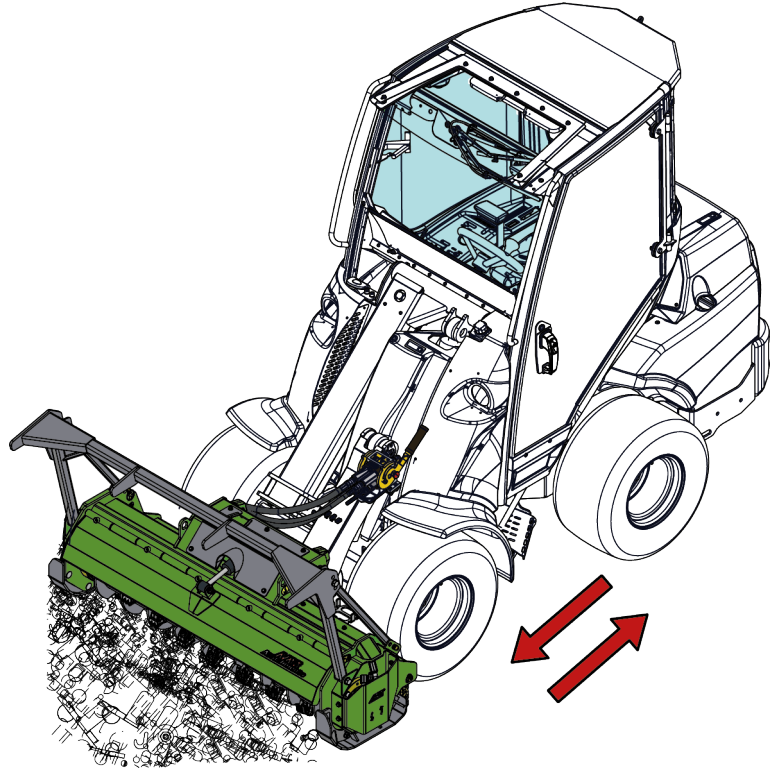
There are two ways for cutting a tree stump.

1. Set the mulcher in horizontal position on the ground and open the hatch.
 2. Start the mulcher.
 3. Drive back and forth over the stump.
- or
1. Lower the mulcher above the stump and close the hatch.
 2. Start the mulcher.
 3. Crush the stump from top to bottom.



Cleaning & reprocessing

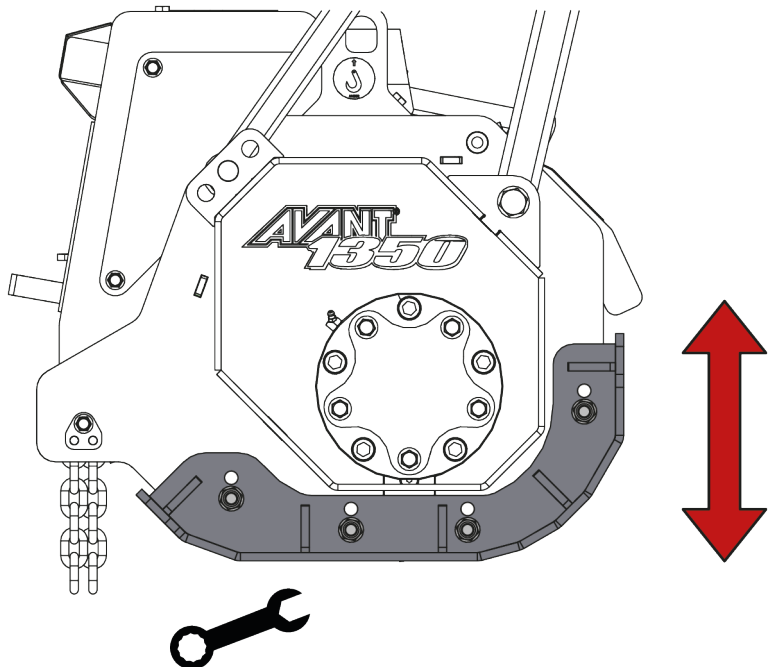
1. Close the hatch so that the material is processed efficiently and does not fly all over the site.
2. Set the mulcher in horizontal position on the ground.
3. Start the mulcher.
4. Drive back and forth over the material being crushed.



6.3.3 Adjusting mulching depth

The mulching depth of the Forestry mulcher can be adjusted by changing the settings of the the skids, as highlighted in the adjacent figure.

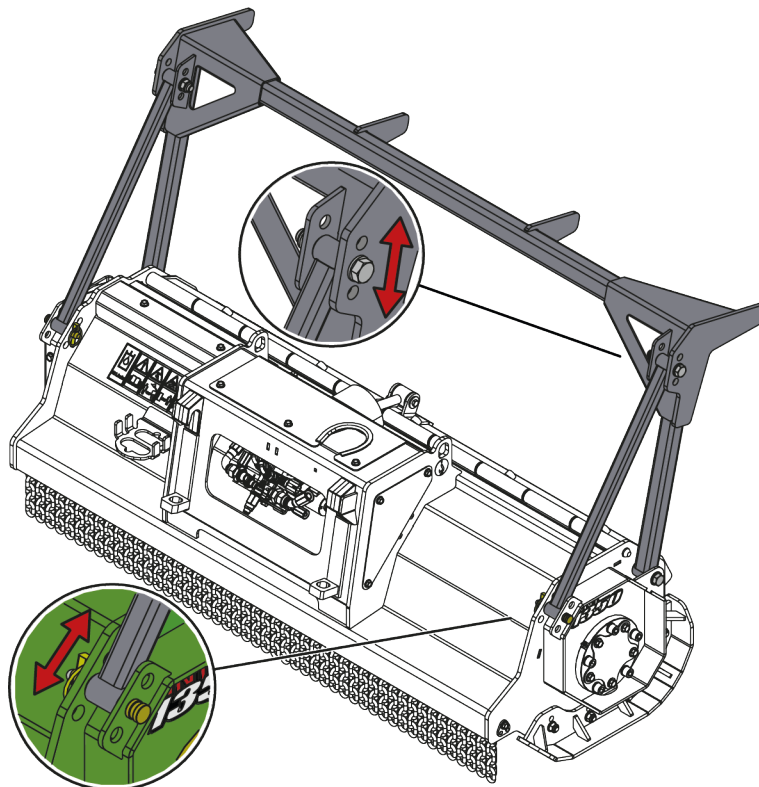
- Undo the nuts with a single 19 mm wrench
 - Reposition the skids to other fixing points and tighten the nuts.
 - There are two possible options for adjusting the height of the skids. If the blades need to be lifted slightly more off the ground, set the skids to the 20 mm lower position.
- Ensure the stability of the Forestry mulcher during adjustments; use blocks of wood for example. The attachment should be kept attached to loader for performing the adjustments.
- Set all fasteners to the same level on both sides of the attachment.



6.3.4 Push bar

The adjustable push bar helps to control the overturning of trees. The push bar can be adjusted to 9 different positions as shown in the adjacent figure.

- Adjust the lower lugs with locking pins and the upper lugs with bolts.
- Set the push bar on the same level on both sides of the attachment.
- The weight of the push bar is approximately 30 kg. Use assistant during adjustment, if necessary.

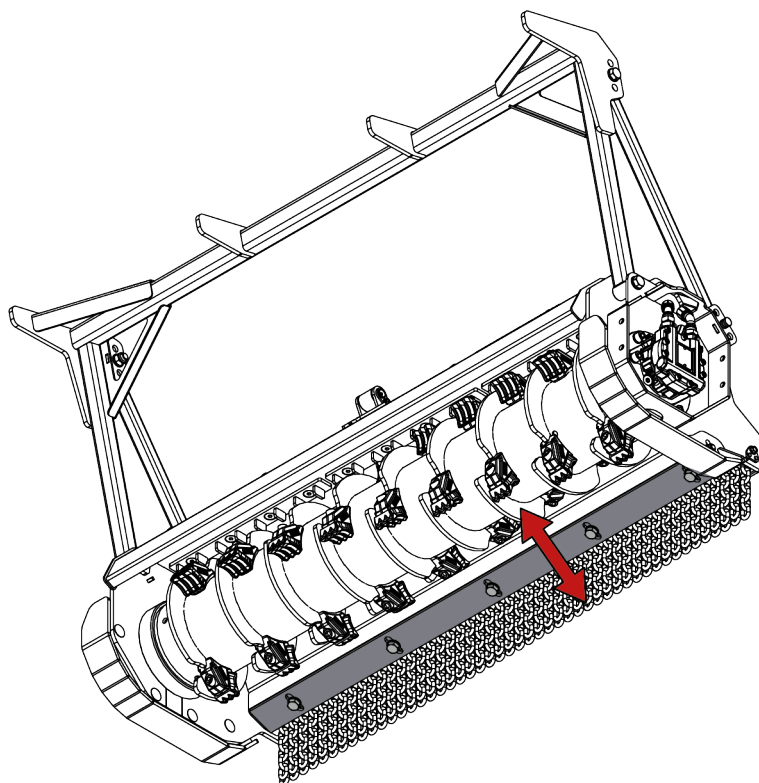


6.3.5 Adjustable counter blade

The adjustable counter blade helps to control the size of material flowing through the mulcher. The smaller the clearance is between the counter blade and rotating blades, the smaller are crushed items.

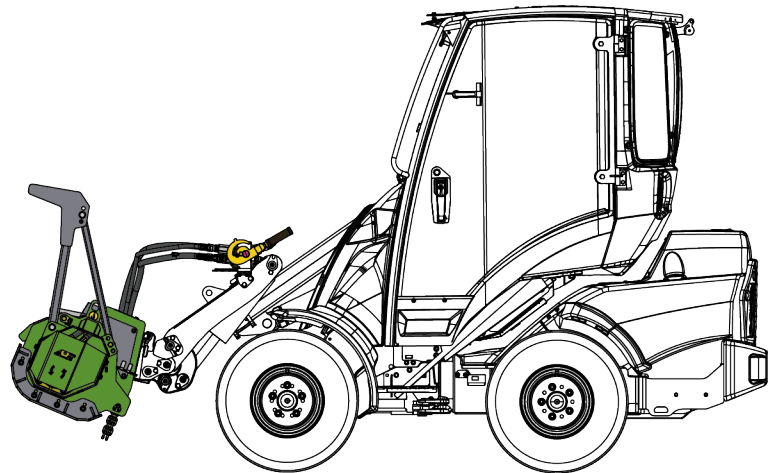
- Adjust the counter blade on vertical direction as shown in the adjacent figure.
- Set the counter blade straight and tighten all fasteners so that they are in same position in relation to the blade.

The counter blade also functions as a wear plate of the rear end of the attachment.



6.3.6 Transport position

When driving with the loader, keep the attachment lifted off the ground and tilted back slightly, as shown in the adjacent figure.



Risk of tipping over - Keep the loader stable. Always transport the attachment as low and close to the ground as possible. Keep the telescopic boom retracted during transport drive.



Risk of tipping over - Avoid overload and keep heavy load close to the loader. Keep load close to the ground whenever driving, especially during turns and uneven terrain. Pay attention that a heavy load or long distance between the loader and the centre of gravity of the load will affect the balance and handling of the loader. The use of additional counterweights is recommended especially when operating smaller loader models. With heavy loads, the telescopic boom must be kept retracted while moving with the loader. Always wear seat belt.

6.3.7 Working on uneven ground

Extra caution is needed when using the equipment on inclined terrains and slopes. Drive slowly especially on inclined, uneven, or slippery surfaces, and avoid sudden changes in speed or direction. Operate the controls of the loader with careful and smooth movements. Watch out for ditches, holes on the ground, and other obstacles, as hitting an obstacle may cause the loader to tip over.

Maximum lifting capacity can not be achieved on inclined terrain. On horizontally tilted terrain the load must not be lifted high. The loader frame articulation should be kept straight when lifting heavy loads; turning the load during lifting operation will affect the stability of the loader and may lead to overturning of the machine.

6.3.8 Preventing and clearing blockages

Keeping the rotating speed sufficiently high and drive speed low on demanding conditions are essential to avoid blockages. Keep the equipment clean, so that material will not stick on it.

Wet, thick and log grass can get coiled around the cutter drum if drive speed is too high. Also, more than one run may be needed for even results. Adjusting the mulching depth to higher setting will help avoiding blockages.

If blockage occurs, first try to rotate the drum to the opposite direction using the auxiliary hydraulics of the loader. If operating in reverse direction does not work, disconnect hydraulics, lower the attachment on the ground, and drive backwards forcing the cutter drum to revolve. Lowering the middle part of the cutter drum on a stump, for example, might help the drum to revolve. Sometimes the forestry mulcher needs to be cleared manually using suitable tools. Follow safe stopping procedure before going near the mulcher.



DANGER

Cutting and entanglement hazards - Unexpected starting. Clearing a blockage can start the attachment unexpectedly immediately after clearing the blockage, if the auxiliary hydraulics of the loader is left on.

Always stop the loader by following the safe stopping procedure before going near the attachment. Never reach to the mulcher if the cutter drum can move.

To prevent accidents, turn the auxiliary hydraulics control lever of the loader to its neutral position, shut down the loader engine and release the residual pressure always before going near the attachment.



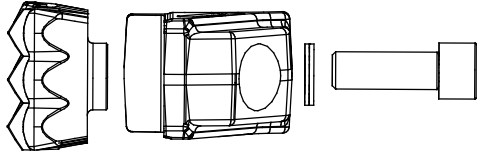
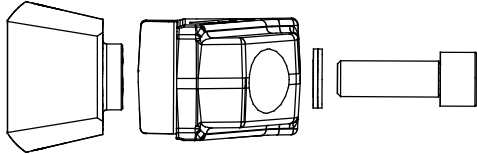
DANGER

Risk of serious personal injuries - Unexpected starting. To make sure that the attachment will not rotate, disconnect the multiconnector (or hydraulic quick couplings) before going near it.

6.3.9 Blade options

As standard, the Forestry mulcher 1350 is equipped with 27 embedded tungsten carbide teeth. These blades are equipped with hard metal bit, and they are designed to withstand abrasion and contact with ground. In some operating areas or conditions different blade type can be used. Contact your Avant dealer for new blades.

Blades

Blade type	Purpose	Installation	Number of blades Forestry mulcher 1350
Carbide teeth (standard) A450267 Maintenance free	Good for General use Rocky terrain Fire-danger areas	 <p>235 Nm</p>	27 pcs
Knife type cutting blade A450266 Turnable, to be sharpened	Good for Intermittent ground contact Softer and rockless soils More efficient and faster to use Fine-grained mulching result	 <p>235 Nm</p>	27 pcs

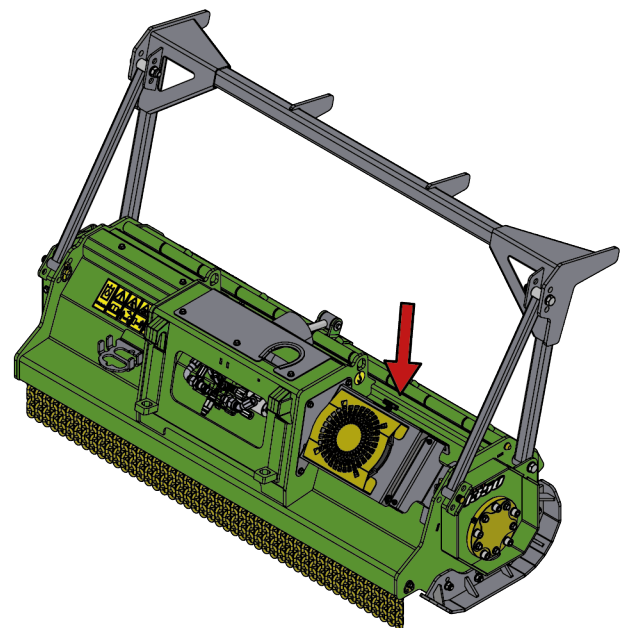
- When replacing blades, also the fastening bolt and the washers must be replaced (M14*40*1.5 bolt with a pair of M14 lock washers).

6.3.10 Auxiliary cooler (Option)

The Forestry mulcher 1350 can be equipped with an auxiliary hydraulic oil cooler. The cooler is available as an option and can also be retrofitted. The location of the auxiliary cooler is indicated with an arrow in the adjacent figure.

The auxiliary cooler protects the hydraulic system from overheating. Prolonged heavy use of the attachment can overheat hydraulic oil of the loader, shortening the service life of hydraulic oil, pumps and motors. Use the auxiliary hydraulic oil cooler in professional use.

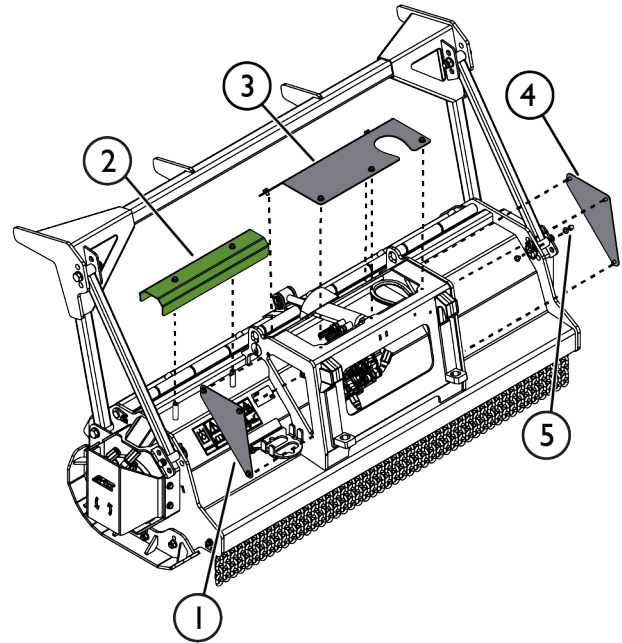
Contact your Avant dealer or service for more information, if necessary. Before installation refer to Installation instructions below.



To install the auxiliary cooler:

1. Remove covers (1, 2, 3 and 4).

Remove nut (5) and two washers.



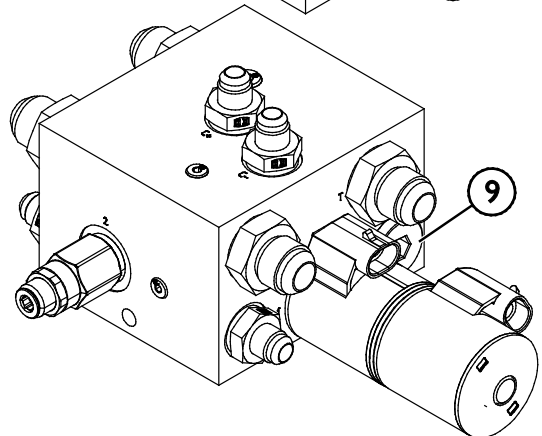
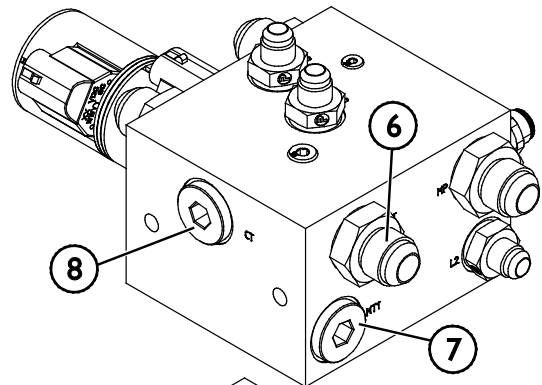
2. Remove the original return line from the hydraulic motor.

Remove the nipple (6) from port MT, and the plug (7) from port MT1.

Install the plug (7) to port MT, and the nipple (6) to port MT1.

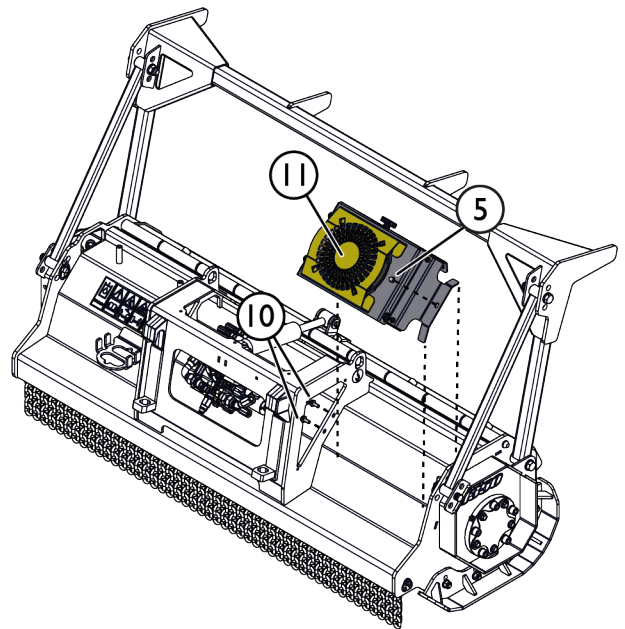
Install the return line to port MT1.

Remove plugs CT (8) and CP (9), and replace them with nipples which are included in the delivery of the hydraulic cooler.

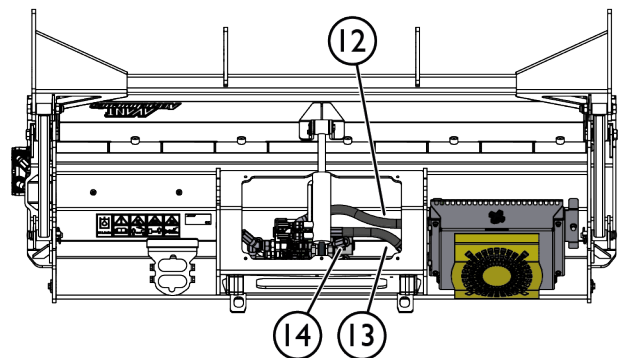


3. Fasten hydraulic oil cooler (11) with screws (10) and nut (5).

Remove another washer under the nut before installing the nut (5).





4. Fasten hose (12) to port CT and hose (13) to port CP.



5. Connect the electric plug (14) of the cooler.
6. Test run the cooler for leaks.
7. Reinstall covers (1, 2 and 3). Replace the cover (4) with a new cover included in the delivery.

Using the auxiliary cooler with Opticontrol[®] system:

<p>1.</p>	 <p style="text-align: center;">OFF</p>	<p>Switch the Opticontrol[®] Auto-PTO mode switch to position OFF on the loader (if equipped).</p>
<p>2.</p>		<p>The cooler is controlled as follows:</p> <ol style="list-style-type: none"> 1 Push the button to position 1 to start the cooler, and to position 0 to stop the cooler. 2 Push the button left to close the hatch, and right to open the hatch. 3 <i>Not in use with this attachment</i>

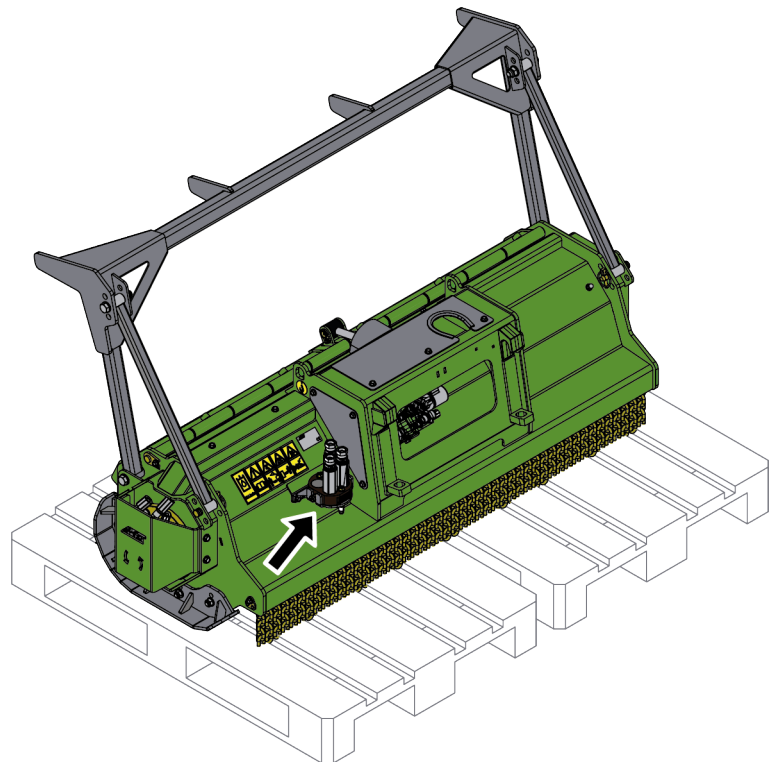
Cleaning the cooler

Clean the area between the frame and the cooler with a soft brush, for example. By opening the cooler cover, the cooler cell can be cleaned by using pressurized air. If necessary, the cell can be rinsed with water, but do not use a pressure washer.

6.4 Storing the attachment

Uncouple and store the attachment on level surface so, that it will stand firmly on its skids. The best storage place for the attachment is a place where it is protected from rain and direct sunlight.

- Avoid storing the attachment directly against the ground, place a pallet or blocks of wood under it, for example.
- Place the multiconnector on to its holder as indicated with an arrow in the adjacent figure. Never leave the hydraulic connector on the ground.
- Ensure the stability of the attachment during its storage.
- Never climb on the attachment.



Before long storage period, carefully clean the attachment, removing all remaining clippings. Touch up the paint where needed and grease the lubrication points to prevent rust damage.

7. Maintenance and Service

The attachment has been designed to be as maintenance free as possible. Continuous maintenance includes regular cleaning and lubrication, and monitoring the condition of the attachment. Because of the crushing hazard caused by lowering machine parts, all maintenance work must be done when moving parts have been lowered down completely and the attachment is lowered flat against the ground. Before any maintenance or service work follow the safe shutdown procedure.



Risk of crushing - Never go under lifted attachment. Make sure the attachment is properly supported during all maintenance work. Never go under a lifted attachment. The loader boom may lower unexpectedly during maintenance causing serious injuries from crushing or impact even when the loader engine is not running. All maintenance and service must be performed when the attachment has been lowered down to a safe position.

7.1 Inspection of hydraulic components

Check the condition of the hydraulic hoses and components when the engine has been turned off, system has cooled down, and the pressure has been relieved. Do not use the equipment, if you have discovered a leak in the hydraulic system of the attachment or the loader. Leaking hydraulic fluid may penetrate skin and cause serious injuries. Seek medical attention immediately in case hydraulic fluid penetrates the skin. Wash any part of body that has been in contact with hydraulic oil carefully with water and soap. Hydraulic fluid is also harmful to the environment and any leak to the environment must be prevented. Repair all leaks immediately after detecting them; a small leak can quickly grow into a big one. Operate the attachment only with type of hydraulic oil that is accepted for use in Avant loaders.



Risk of high pressure fluid injection through skin - Release residual pressure before maintenance. Never handle hydraulic components when the hydraulic system is pressurised, since a fitting may break or become loose and the released oil may cause serious injuries. Do not use the equipment, if you have discovered a fault in the hydraulic system.



Check hoses visually for cracks or abrasions. If there are signs of leaks, to check a component, hold up a piece of cardboard in the area where a leak is suspected. Do not use hands to search for leaks. Monitor the wearing of the hoses and stop the use, if the surface layer of any hose has worn off. Check the routing of the hoses; adjust the hose clamps to avoid abrasion to the hoses. The hoses have limited service life. Depending on operating conditions all hoses must be inspected thoroughly no later than after 3 to 5 years of use, and if required, they must be replaced with new ones.

Finding any fault means that the hydraulic hose or component must be replaced and the equipment must not be used until it is repaired. Spare parts are available from your nearest AVANT retailer or authorised service point. Leave the repair work to professional service technicians, if you don't have adequate knowledge and experience about hydraulic assemblies and how to perform the repairing safely.

NOTICE

Regularly clean the loader oil cooler core; refer to the operator's manual of the loader for more instructions. Overheating oil decreases the power and affects the service life of the hydraulic components of both the attachment and the loader.

7.2 Cleaning the attachment

Clean the attachment regularly to prevent accumulation of dirt which is more difficult to remove. A pressure washer and mild detergent can be used for cleaning. Do not use strong solvents, and do not spray directly at the hydraulic components, bearings, or at the labels on the attachment.

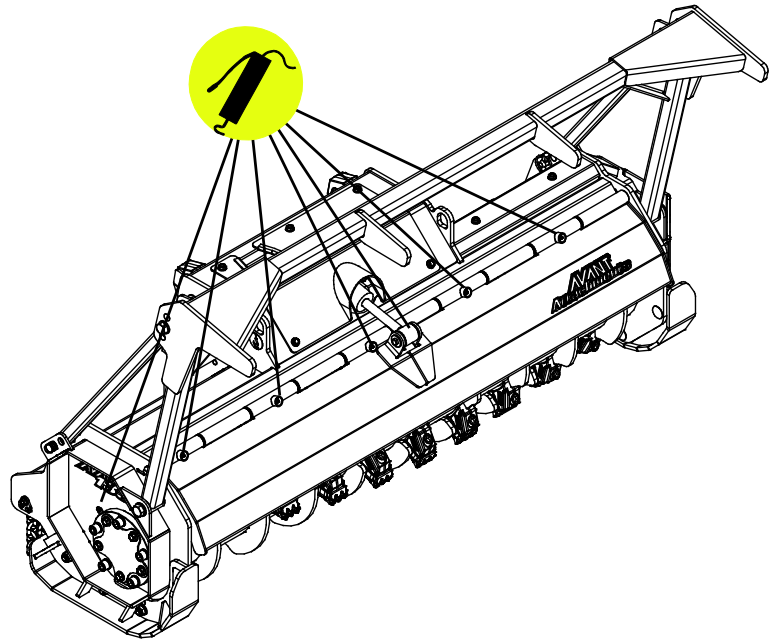
7.3 Lubrication

There are a total of 7 lubricating points on the attachment:

- one at the bearing of the cutter drum,
- five on the hatch axle, and
- one at the end of the hydraulic cylinder.

Appropriate lubrication interval depends heavily on operating conditions, but lubricant must be added at least after every 10 hours of use. Adequate lubrication must be ensured, and if the bearings are dirty, lubricant must be added; added lubricant will push out dirt. Use NLGI Grade 2 Lithium grease only.

Clean the end of the nipple before greasing and add only a small amount of grease at a time. All lubrication nipples are standard R1/8" nipples. Replace any damaged nipples.



7.4 Inspection of metal structures

Also the metal structures of the attachment must be inspected regularly. Check visually for damages and inspect the quick coupling brackets and their surrounding area carefully. The attachment must not be used if it is deformed, cracked, torn or damaged in any other way.

Welding repairs are only allowed to be carried out by professional welders. When welding, only methods and additives suited for steel used in attachment must be used. For more information about repairs contact your nearest service point.

7.5 Blade maintenance

The condition of the cutting blades should be checked at least after every few uses. The blades wear down in normal use and can get damaged if hitting a rock or other obstacle. Increased vibration is a sign of blunt or damaged blades.

If the cutting results have weakened from the original, the cutting blades have probably become blunt or some of the blades have been damaged. Uneven cutting results, increased power requirement and increased vibration level are signs of blunt or damaged blades.

The knife-type blades are sharpened from the both sides and they can be installed the other way round. When reinstalling the blades, make sure, that you fix them in the same manner as they were originally. Do not over tighten the blade screws.

NOTICE

The fastening bolts and nuts must be replaced with new ones when replacing blades.



WARNING

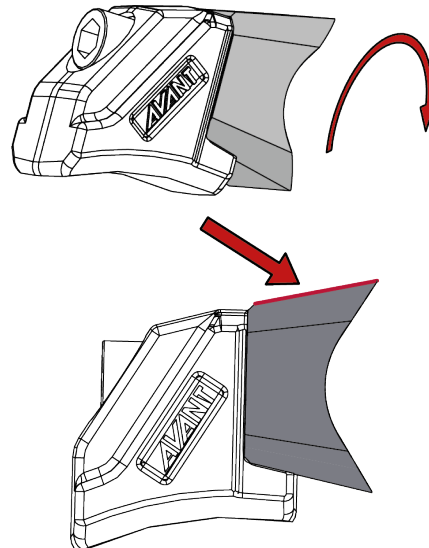
Hazard of thrown objects - Check all blades are connected securely. Check that all blades are connected securely and that none of the blades is missing. Loose, damaged, or missing blades can cause ejection of parts from the attachment. Only use original fixing parts for fastening the blades.

NOTICE

If the blades have large notches or cracks, or if they have worn down excessively, they must be replaced. Always use good protective gloves when handling the blades.

Knife blade maintenance

The turnable knife blade can be rotated once by 180 degrees as shown in the adjacent figure.



The knife blade can also be grinded on its flat side as shown in the adjacent figure.

7.6 End of life disposal

When the attachment is at the end of its useful life, recycle and dispose the attachment properly. Dismantle the attachment and separate the different materials, such as plastic, steel, rubber, and oils, for example. Drain and collect all oils and handle them by following the current local regulations. Never leave any oil or other material in the environment.

Recycle each material by delivering them to a proper collecting place. Let a waste management company do the recycling, if possible.

8. Warranty terms

Avant Tecno Oy grants a warranty of one year (12 months) from the date of purchase for the attachment it manufactures.

The warranty covers repair costs as follows:

- Work costs are covered, if the repair is not performed at the factory.
- The factory replaces any defective components or consumables.

The factory may reimburse the price of components purchased by the customer in special cases that have been agreed in advance.

The warranty does not cover:

- Normal maintenance work or parts and consumables required for it.
- Damages caused by unusual operating conditions or ways of use, negligence, structural changes made without the consent of Avant Tecno Oy, use of non-original parts or lack of maintenance.
- Consequences of a defect, such as interruption of work or other possible additional damages.
- Travel and/or freight costs caused by the repair.

FI EY-vaatimustenmukaisuusvakuutus Alkuperäinen kieliversio
SV EG-försäkran om överensstämmelse Originalversion
EN EC Declaration of Conformity Original language

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Osoite / Adress / Address

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Vakuutamme täten, että alla mainitut tuotteet täyttävät konedirektiivin turvallisuus- ja terveysvaatimukset (direktiivi 2006/42/EY muutoksineen). Seuraavia yhdenmukaistettuja standardeja on sovellettu /

Vi försäkrar härmed att nedan beskrivna produkter överensstämmer med hälso- och säkerhetskrav i EG-maskindirektiv (EG-direktiv 2006/42/EG som ändrat). Följande harmoniserade standarder har tillämpats /

We hereby declare that the products listed below are in conformity with the provisions of the Machinery Directive (directive 2006/42/EC as amended). The following harmonized standards have been applied:

SFS-EN ISO 12100, SFS-EN ISO 4413

Mallit / Modeller / Models

Avant	
Hydraulitoiminen metsämurskain; Avant-kuormaajan työlaite Hydraulisk mulcher; arbetsredskap för Avant lastare Hydraulic forestry mulcher; attachment for Avant loaders	A457772

CE



3.6.2024 Ylöjärvi, Finland

Jani Käkelä,
Toimitusjohtaja / Verkställande direktör /
CEO



AVANT[®]