

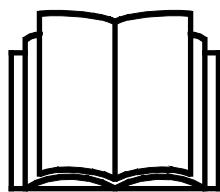
AVANT[®]

Operator's Manual for Attachment



Rotary hoe

Product number	1200 mm	A425119
	1500 mm	A37430



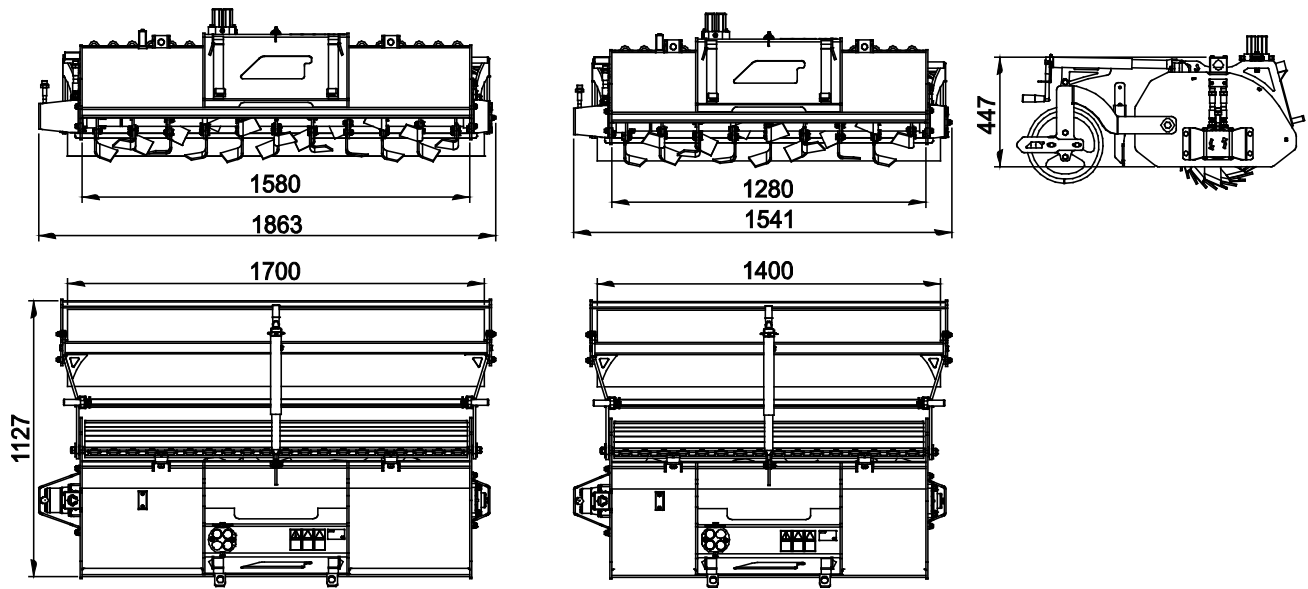
Please read this manual carefully before using the equipment, and follow all instructions.

Keep this manual for later reference.

Manufacturer:

AVANT[®]
AVANT TECNO OY
e-mail: sales@avanttecono.com

Ylötie I
33470 YLÖJÄRVI
FINLAND
Tel. +358 3 347 8800
Fax +358 3 348 5511



CONTENTS

1. FOREWORD	4
Warning symbols used in this manual	5
2. DESIGNED PURPOSE OF USE	6
3. SAFETY INSTRUCTIONS FOR USING THE ATTACHMENT	7
4. TECHNICAL SPECIFICATIONS	11
4.1 Safety labels and main components of the attachment	11
5. ASSEMBLING THE ATTACHMENT	13
5.1 Connecting and disconnecting hydraulic hoses	14
6. OPERATING THE ATTACHMENT	16
6.1 Checks before use	17
6.2 Operator qualification.....	17
6.3 Operation.....	18
6.4 Avoiding and clearing blockages	19
6.5 Direction of rotation.....	20
6.6 Adjusting cultivation depth and dozer blade height	20
6.7 Adjusting the scraper	20
6.8 Use on slopes.....	21
6.9 Transport position	21
6.10 Storing the attachment	21
7. MAINTENANCE AND SERVICE	22
7.1 Inspection of hydraulic components	22
7.2 Cleaning the attachment.....	23
7.3 Lubrication	23
7.4 Inspection of metal structures.....	23
7.5 Rotary hoe blades	24
8. WARRANTY TERMS	25

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 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 © 2020 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 Rotary hoe is an attachment that is suitable for use with AVANT multi purpose loaders that are shown in Table 1. The attachment is intended to be used for soil cultivating, rotovating, and seed bed finishing when renewing lawn areas, small fields, or similar.

When using the Rotary hoe, the loader is driven in reverse, so that the loader wheels do not interfere with newly cultivated soil. A vertical grading rake with strong tines in front of the blades traps stones and debris, effectively allowing soil to bury them. This gives a finished seeding bed in a single pass. The cultivating depth of the hydraulically operated Rotary hoe can be adjusted to be 150 mm.

The attachment is equipped with a field roller, which compacts the ground after cultivating. Before compacting, there is an adjustable dozer blade between the hoe and roller for levelling the soil before the field roller finalizes it.

The Rotary hoe is intended for typical soft soil material in gardens. It is not intended for grading of, for example, pathways, or other areas that consist mainly of gravel or rock. The Rotary hoe 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 - Rotary hoe - Compatibility with Avant loaders

Model		220	313S	420	520	R35	Stage V	735	850	e5
		225	320S	423	523	635	R35	745	860i	e6
		225LPG			528	640	635	750		
					630		640	755i		
					R20			760i		
					R28					
A425119	1200 mm	•	•	(•)	•	•	(•)	•	(•)	(•)
A37430	1500 mm	-	-	-	(•)	•	(•)	•	•	-

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.

NOTICE

When using loader models 635, 640, or R35, which are equipped with Stage V Kubota V1505 engine, full performance may not be achieved with this attachment. These Stage V models have lower hydraulic output which may affect performance of the attachment.

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.



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



- 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.
- **Risk of crushing - Never go or allow anyone else to go under the loader boom or attachment.** The stability of the loader may change when leaving the driver's seat, leading to tipping over of the machine. Always remember that the boom may lower unexpectedly due to loss of stability, mechanical fault, or if another person operates the controls of the loader, leading to crushing hazard. The loader is not intended to be left to keep a load elevated for longer periods. Lower the attachment firmly on the ground before leaving the driver's seat and never allow anyone to be under the boom or attachment.
- **Hazard of entanglement - Rotating parts. Never leave the driver's seat when the attachment is running or if the auxiliary hydraulics control is locked on.** Always keep a safe distance between persons and machinery that may start or move. Stop the equipment following the safe stopping procedure and lower the attachment firmly on the ground before leaving the driver's seat, or when other persons are present at the working area.
- **Impact hazard - thrown objects.** Do not let bystanders stay near the machine. Stop the attachment if others get closer than 5 metres from the attachment. Use only if all covers in place.
- **Risk of electric shock - Plan all rotovating tasks before operation!** Find out if there are buried electric cables, water lines, or other similar obstacles laid less than one meter deep from the ground surface. Hitting such obstacle may lead to electric shock, fire, gas explosion or other serious hazards.
- **Risk of cutting and severing - Never leave the driver's seat when the attachment is running or if the auxiliary hydraulics control lever is locked on.** The blades move for a short period after the hydraulic supply has been shut off. Wait until the blades have stopped completely before going near the attachment.



WARNING

- Pay attention to the surroundings and any other persons and machines moving in the vicinity. Other persons must keep safety distance of 5 meters. 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.
- The attachment is to be used by one operator at a time. Do not approach or allow others to approach the operating area when another person is operating the controls of the loader.
- When detaching the Rotary hoe, ensure that it is secured against accidental movement. To prevent the attachment from moving, lower it onto blocks of wood, for example, not on its blades, which reach below the frame of the equipment.
- Never use the attachment to lift or to transport persons or as any kind of work platform even temporarily.
- Make sure to use only an attachment that is in good condition. Check the attachment thoroughly in regular intervals. Do not modify the attachment in a manner that would affect its safety. It is prohibited to drill holes on the attachment, and welding or other means of fixing hooks or other objects on the attachment is strictly prohibited.
- Shut down the loader and place the attachment to a safe position as shown in Safe stopping procedure before any cleaning, maintenance, or adjustments.
- Use the attachment 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.
- Also read the safety instructions and correct use of the loader from the operator's manual of the loader.



DANGER

Risk of crushing - Going under the loader boom or an attachment can cause serious injury or death. Never go under the loader boom and prevent others from getting near lifted boom or attachment. Going under a raised attachment or loader boom is dangerous, as the boom may lower due to loss of stability, mechanical fault or when other person operates the controls of the loader. Lower the attachment firmly on the ground to a safe position before leaving the driver's seat.

Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down (crushing hazard). 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.





Entanglement and severing hazard - Never go near a running attachment. The powerful rotating shaft can cause serious injuries to anyone too close to it. Always stop the attachment following the safe stopping procedure before going near the attachment. If being near a running attachment is absolutely necessary to determine the condition of the attachment watching from a distance, or fault finding operation, never wear loose clothing, long scarves, jewellery, or other items that might become entangled with rotating parts. If needed, also wear a hat to prevent long hair from coming into contact with the rotating parts. Before maintenance and service stop the attachment following the safe stopping procedure.



Beware of entanglement and crushing hazards especially when removing blockages. If a blockage is cleared without first turning off the auxiliary hydraulics of the loader, the rotating shaft will start immediately and potentially cause severe injuries. Always stop the attachment by turning the auxiliary hydraulics control lever to its neutral position before leaving the driver's seat, shut down the loader engine and release the residual pressure of the hydraulic system.



Risk of serious personal injuries - Improper or careless use of the attachment may cause hazardous situations. Use the attachment only for its intended use. Familiarise yourself with the loader controls in a safe area. Pay particular attention to the safe stopping of the attachment and the loader.

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 e.g. when handling hydraulic components.



- At some operating areas using the attachment may cause spreading of dust. Protect yourself from dust with a respirator mask.

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

Table 2 - Rotary hoe - Specifications

Product number	A425119	A37430
Working width:	1200 mm	1500 mm
Field roller width:	1400 mm	1700 mm
Total width:	1530 mm	1830 mm
Length:	1140 mm	1140 mm
Weight:	250 kg	295 kg
Number of blades:	32 pcs (16 + 16)	40 pcs (20 + 20)
Cultivating depth:	0-150 mm	0-150 mm
Recommended input of hydraulic energy:	30-40 l/min	50-60 l/min
Maximum input of hydraulic energy:	50 l/min 22,5 MPa (225 Bar)	70 l/min 22,5 MPa (225 Bar)
Compatible AVANT loader models:	See Table 1	

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.



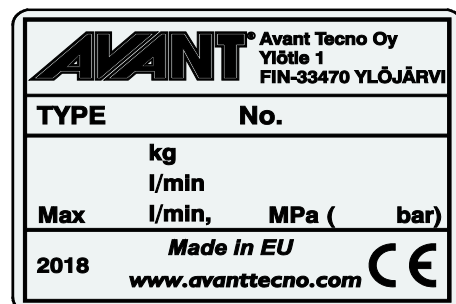
A46771



A46772



A46802



Attachment identification plate
A4256147 / A430646

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	A46802	Beware of sharp blades – never reach to the rotating components and do not use the equipment without all covers in place.
4	A4256147 / A430646	Attachment identification plate

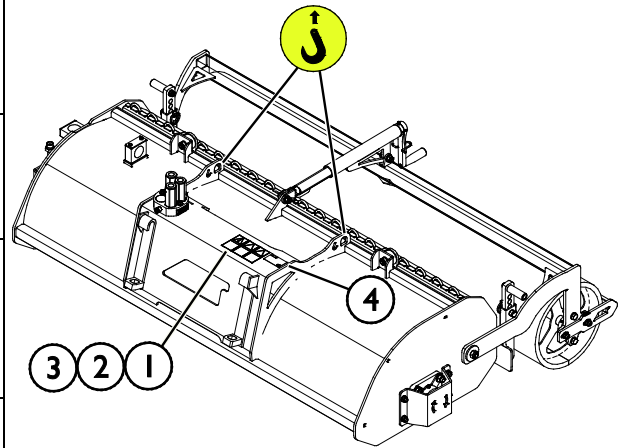
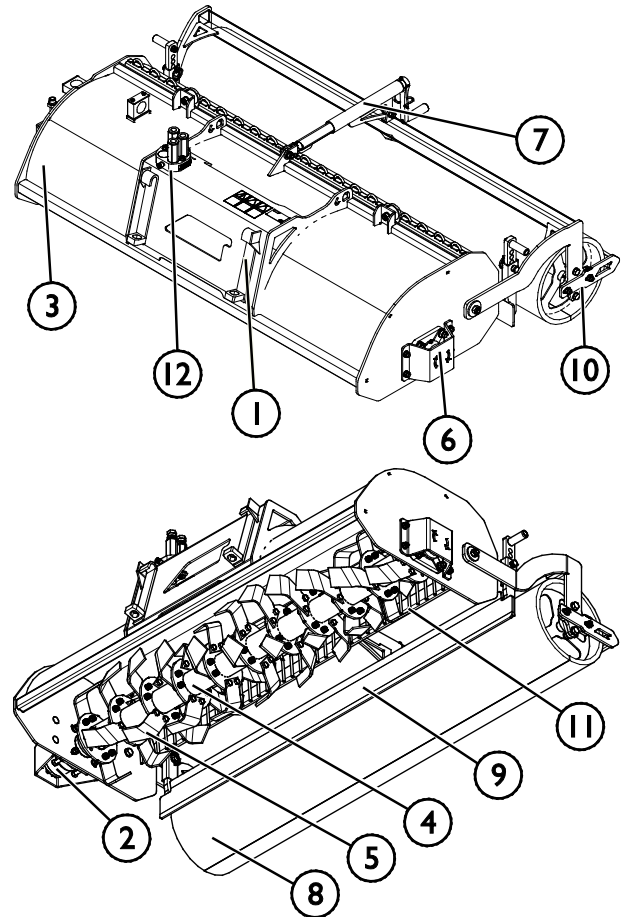


Table 4 - Rotary hoe - Main components

1	Coupling plate with Avant quick coupling brackets
2	Hydraulic motor
3	Frame
4	Blade shaft
5	Blade
6	Bearing
7	Adjustment gear for adjusting the cultivating depth
8	Field roller
9	Adjustable dozer blade
10	Adjustable scraper on front of the field roller
11	Grading rake
12	Multiconnector holder



5. Assembling 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 attach plate on the loader boom and the counterpart on the attachment.

If the attachment is not locked to the loader, it may detach from the loader and cause a hazardous situation. The loader must not be driven and the boom must never be lifted when the attachment has not been locked. To prevent hazardous situations, always follow the coupling procedure shown below. Also remember the safety instructions shown in this manual. The attachment is mounted to the loader as follows:



WARNING

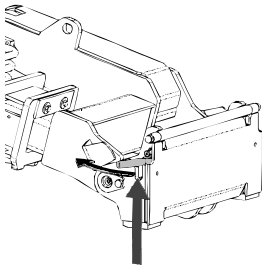
Crushing risk - Make sure that an unlocked attachment will not move or fall over.

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.

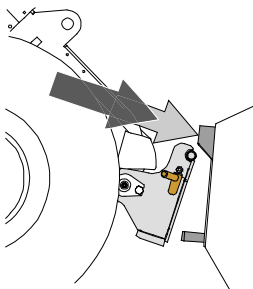
Avant quick coupling system:

Step 1:



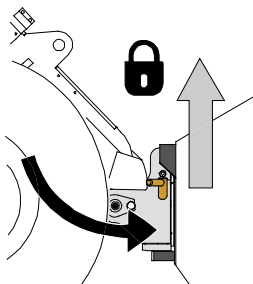
- Lift the quick attach plate locking pins up and turn them backwards into the slot so that they are locked in the upper position.
- If your loader is equipped with a hydraulic attachment locking system, see additional instructions about the use of the locking system from the relevant manuals.
- Make sure that the hydraulic hoses 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 attach 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 raise the attachment off the ground.
- Turn the boom control lever left to turn the bottom section of the quick attach plate onto the attachment.
- Lock the locking pins manually or lock the hydraulic locking.
- **Always check the locking of both locking pins.**



WARNING

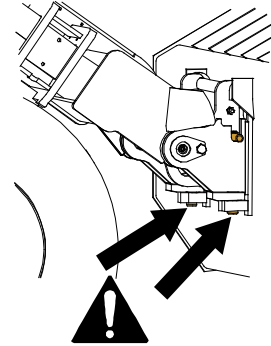
Risk of crushing - Avoid tipping over the attachment. Excessive tilting or lifting of an unlocked attachment increases the risk of tipping the attachment over. Do not use the automatic locking of the locking pins when the attachment is lifted more than one meter from the ground. If the locking pins do 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 Avant 300-700 series loader with the conventional quick couplers and wish to change to the multi connector system, contact your Avant dealer or service point for instructions or installation services.



WARNING

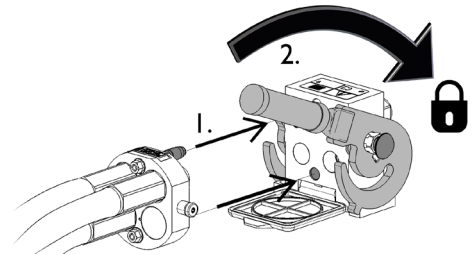
Risk of movement of the attachment and ejection of hydraulic oil - Never connect or disconnect quick couplings or other hydraulic components while the control lever of the auxiliary hydraulics control lever is locked on or if the system is pressurized. Connecting or disconnecting the hydraulic couplings 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.

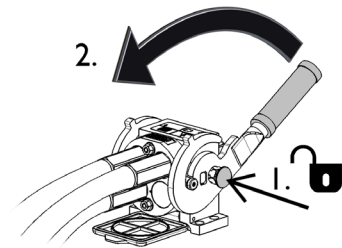


The lever should move easily all the way to its locking position. If the lever does not slide smoothly, check the alignment and position of the connector and clean the connectors. Also shut down the loader and release the residual hydraulic pressure.

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.

6. Operating the attachment

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

Risk of crushing - 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 (crushing hazard). 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

Thrown objects - impact hazard. Before using the equipment, check that the attachment and the loader are intact and that all protective covers are in place. Note that regardless of the protective housing of the Rotary hoe, rocks, pieces of wood, or other objects found at the operating area, may be ejected by the hoe. Stop the hoe if there are others at a distance of less than 5 meters from the work site.



6.1 Checks before use

- Remove all obstacles from the operating area, such as large tree branches or rocks, before starting the operation. Remember correct working methods and avoid leaving the driver's seat unnecessarily. Remove or mark also all hidden obstacles that could cause damages or risks of injuries, and make sure that there are no electric cables, water or gas pipes at the reach depth of the equipment.
- Use only when all pins are locked and secured in place.
- Before each use, check the general condition of the Rotary hoe and the loader. Ensure that the blades are intact and can rotate freely, and that there is no string or other foreign material coiled around the shaft of the Rotary hoe.
- Check that there is no broken components in the Rotary hoe.
- Check regularly to ensure there are no hydraulic leaks. Refer to chapter 7 for maintenance instructions.
- 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.
- 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.
- 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.
- Remember correct working methods and avoid leaving the driver's seat unnecessarily. Practise the use of the attachment and the controls of the loader in a safe area. If you are unfamiliar with the particular loader model, it is recommended to practise its use without any attachments.

6.2 Operator qualification

Anyone who intends to use this attachment must:

- Know the intended use of this 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.

6.3 Operation

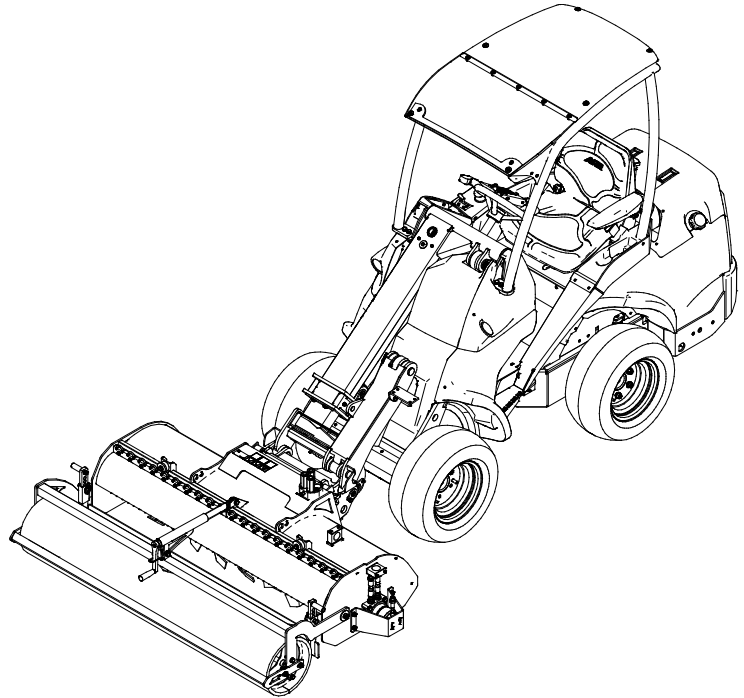
Using the Rotary hoe:

1. Set the attachment to working position parallel on the ground, as described in the adjacent figure.
2. Start the Rotary hoe by turning the auxiliary hydraulics control lever to its locking position, or by using the buttons of the joystick.
3. Set the rotating speed of the attachment and drive speed of the loader according to the operating conditions.

The Rotary hoe should be used with high loader engine rpm, and depending on the model of the loader and the hoe, one or two auxiliary hydraulic pumps are used (where applicable).

4. The Rotary hoe is operated by reversing the loader, so that the wheels of the loader will not press the cultivated soil.

If your loader is equipped with a telescopic boom, you can utilize it for a better view to the working area.



This attachment is operated with the auxiliary hydraulics of the loader.

Auxiliary hydraulics control lever:

(or electric 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. Alternatively, use the electric buttons of the joystick (if installed) when using the attachment intermittently.</p> <p>Stop the attachment by releasing the lever to neutral position.</p>
	<p>The reverse direction is not recommended. The reverse direction can be used, if necessary, to clear dirt that has stuck to the blades. The reverse direction should be used only when the attachment is lifted off the ground.</p>

The work is influenced by the following factors:

1. Driving speed
2. Loader engine revolutions, loader model, output power of auxiliary hydraulics
3. The type of soil being cultivated, its compactness and dampness
4. Cultivation depth

The denser the soil is, the more the Rotary hoe requires hydraulic power from the loader. If the soil is loose, slightly higher driving speed may be used, but on stiff and compact soil high loader engine rpm must be used (high hydraulic oil output) and the driving speed must be relatively low. In some cases it may be beneficial to use low operating depth to break the surface of the soil, and then till the soil more thoroughly with a second run.

If the Rotary hoe stops rotating,

- the driving speed has been too high or,
- the hoe has hit a rock.

If blades hit a rock, lift the hoe slightly off the ground to avoid wearing or damaging the blades. If an obstacle on the ground cannot be removed, try to go around it, as the Rotary hoe should not be used to chop obstacles on the ground.

6.4 Avoiding and clearing blockages



WARNING

Beware of entanglement and crushing hazards especially when removing blockages. If a blockage is cleared without first turning off the auxiliary hydraulics of the loader, the blade shaft of the hoe will start immediately and potentially cause severe injuries. Always stop the attachment by turning the auxiliary hydraulics control lever to its neutral position before leaving the driver's seat, shut down the loader engine and release the residual pressure of the hydraulic system.



Prevent blocking of the Rotary hoe by adjusting the driving speed according to the operating conditions. Keep the equipment clean, so that material will not stick on it.

Normally, a blockage can be cleared by rotating the blade shaft to the opposite direction. Slightly lift the rotary hoe up to ease cleaning of the attachment, if necessary. Avoid ejecting of material at high speed.

If necessary, clear the blockage manually using e.g. a broom, or broom handle, water spray, or other suitable means that will not damage the blades or other parts of the Rotary hoe. Follow safe stopping procedure before going near the attachment.

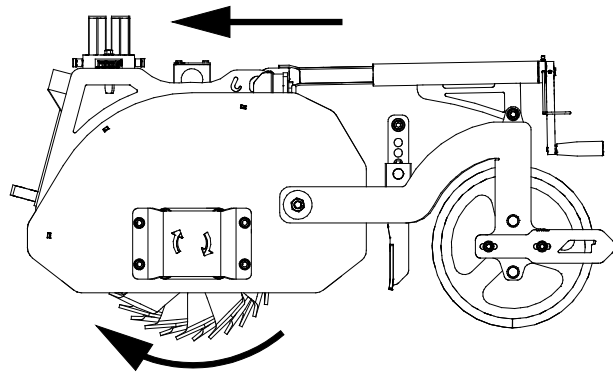


Risk of cutting and severing - Sharp edges and severing points on work tools. Beware of the sharp blades and risk of crushing especially during maintenance or when removing blockages. Always stop the attachment by following the safe stopping procedure. To make sure that the attachment will not rotate, 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.



6.5 Direction of rotation

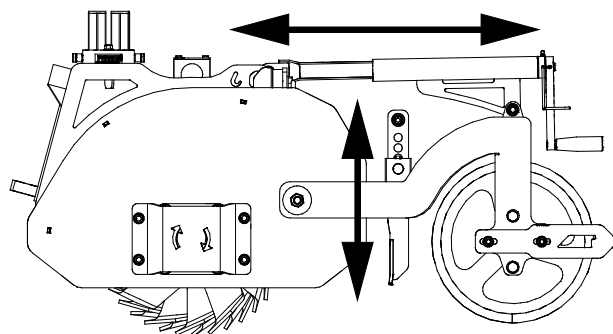
Check the rotating direction of the blades. The blades should rotate clockwise when seen from the right side of the machine, in other words, the hoe should rotate to the opposite direction as the wheels when reversing with the loader. If the hoe rotates the wrong way, contact Avant service, or interchange the hydraulic pressure hoses' places when using conventional quick couplings.



6.6 Adjusting cultivation depth and dozer blade height

The cultivation depth can be adjusted steplessly by setting the field roller height and by tilting the loader boom. After the tilting and height is set correctly, lift the hoe by using only the boom lifting movement, without tilting the attachment. This way the hoe can be lowered quickly to the correct operating position and cultivation depth.

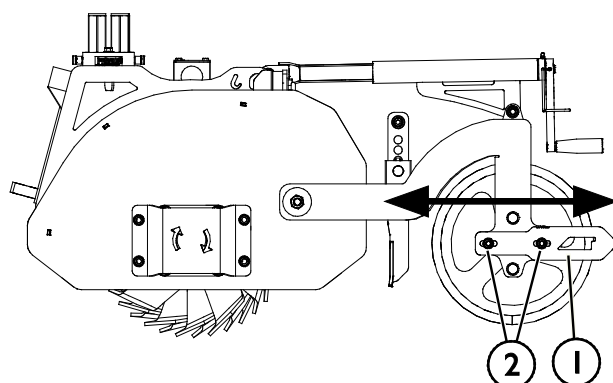
The dozer blade is adjusted vertically, and its height can be adjusted by setting the blade to one of the six possible options parallel on both sides.



6.7 Adjusting the scraper

The Rotary hoe is equipped with a scraper for keeping the field roller clean during operation.

The scraper (1) is adjusted by loosening the fixing screws (2) parallel on both sides and moving the scraper (1) horizontally.



6.8 Use on slopes

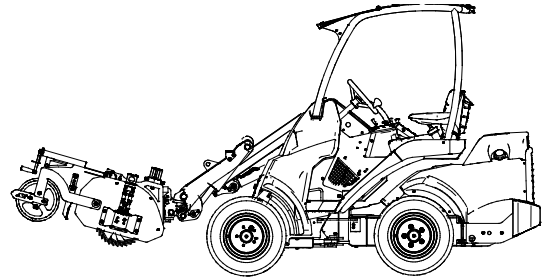
Using the equipment on inclined terrain and slopes requires extra caution. Watch for holes, bumps, rocks and other possible hidden obstacles. Uneven terrain could overturn the machine. Use low speed and do not make sudden changes in speed or direction. Try to use the Rotary hoe by driving straight up or down the hill, not across, to avoid excessive side tilting. If the loader stops while driving up a steep slope, first stop the attachment and then reverse slightly. Exercise extreme caution when moving near ditches or embankments as the machine could suddenly turn over in case an edge caves in. On 200-series loaders, it is recommended to use the optional wheel weights for the best stability on uneven terrain.

6.9 Transport position



CAUTION

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

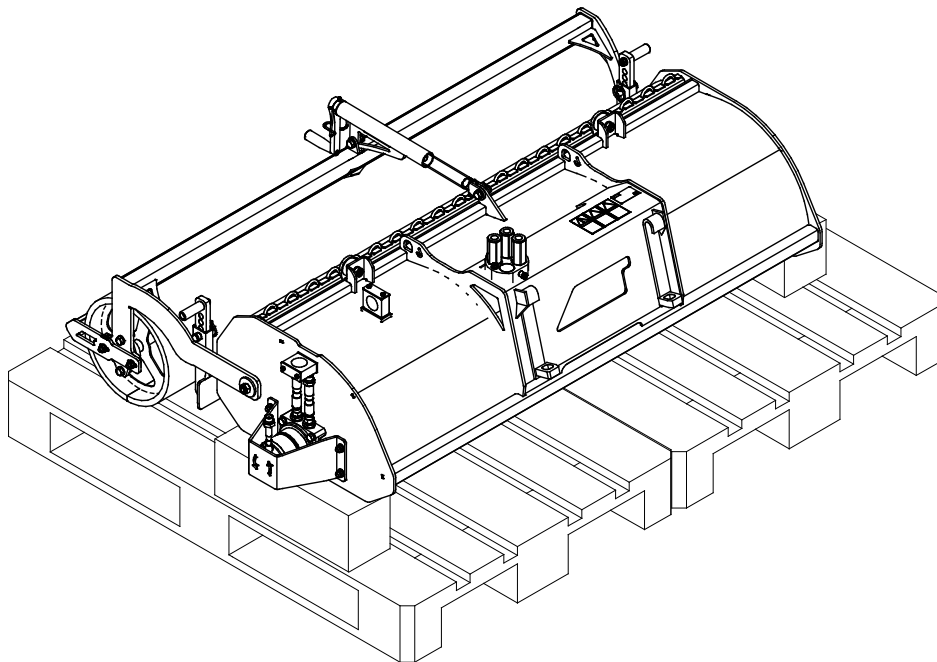


6.10 Storing the attachment

Uncouple and store the attachment on level ground. The best way to store the attachment is a place where it is protected from direct sunlight, rain, and extreme temperatures.

- Avoid leaving the attachment laying directly on the ground. Place it on blocks of wood or on a pallet, for example.
- Place the multiconnector on to its holder as indicated with an arrow in the figure below. Never leave the hydraulic connector on the ground.
- Make sure that the attachment is secured against all movements during storage.

Never climb on the attachment.



Store the Rotary hoe in a way that it is not left on its blades or on its roller. For longer storage periods clean the attachment thoroughly, touch up the paint where needed and grease the lubrication points in order 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.



DANGER

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.



DANGER

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

Always allow the hydraulic systems of the loader and the attachment to cool down properly before any maintenance operations.

7.2 Cleaning the attachment

Clean the rotary hoe as soon as possible after use, since this makes cleaning easier. Right after use, lift the rotary hoe off the ground and rotate it on the air, starting slowly, to remove the largest lumps of soil from the blades. Do not strike the hoe against the ground. 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, or at the labels on the attachment. After washing lubricate the lubrication points.

Clean the attachment regularly to prevent accumulation of dirt which is more difficult to remove.



Entanglement hazard - Risk of entanglement also persists during maintenance.

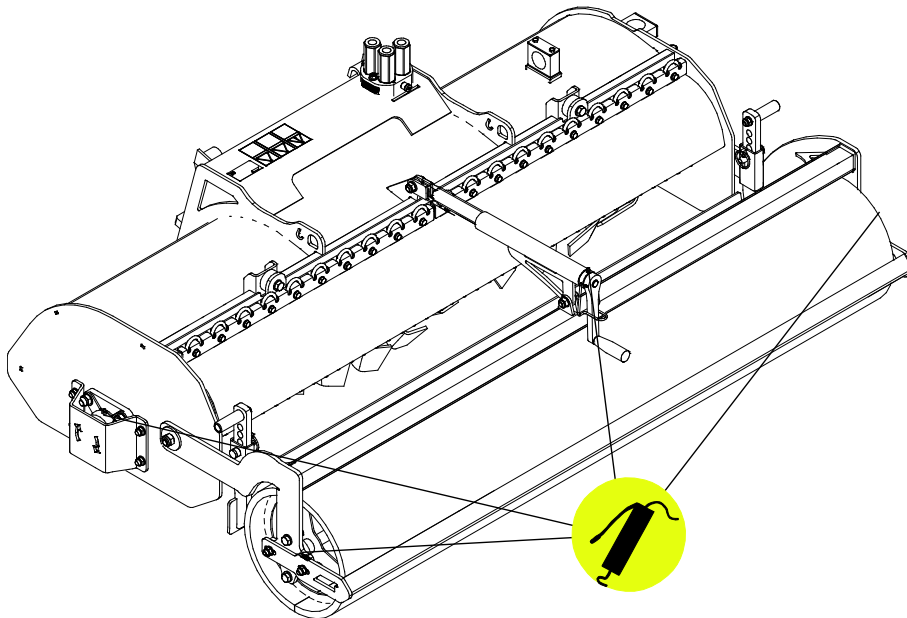
Always follow the safe stopping procedure before any cleaning, maintenance, or service operation.

7.3 Lubrication

The rotary hoe has four lubrication points, located at the ends of the flail roller, at the attachment gear and at end of the blade shaft.

A small amount of lubricant should be added to the lubrication points at the bearings regularly. Correct lubrication interval depends heavily on operating conditions but lubricant must be added at least after every 5-10 hours of use.

Clean the end of the nipple before greasing and add only a small amount of grease at a time. The lubrication nipple is a standard R1/8" nipple. Replace it, if damaged.



NOTICE

Lubricant must be added approximately every 5 to 10 operating hours. Clean the end of the nipple before greasing. Only add the grease amount of a couple of grease press pushes at a time.

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 attach brackets and their surrounding area carefully. The attachment must not be used if it is deformed, cracked, or torn.

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 Rotary hoe blades

The condition of the blades should be checked after every few uses. When the blades are in good shape, they penetrate to the ground surface better and therefore the hoe needs less power to operate. If the performance of the rotary hoe has weakened from the original, the blades have probably become very blunt or some of the blades have been damaged. The blades wear down during normal use and they may bend or crack as they hit rocks. If the blades are bent, they have deep notches, cracks or similar signs of damage, the blades should be replaced with new ones.

The blade shaft consists of pairs of left- and righthand blades, and they can be replaced independently as needed. Highlighted in the adjacent figure are left-hand blades A428806.

Evenly worn blades can be sharpened. Do not sharpen the blades razor-sharp, since this will make them wear down very quickly and over sharpness does not improve the performance of the hoe. Note that the blade temperature should remain as even as possible during sharpening. Excess heating will weaken the tensile strength and wear resistance of the steel. Only use blades similar to the original ones.



Abnormal vibration that remains after thorough cleaning of the equipment may be a sign of imbalance of the blade axle. Replace damaged blades as needed. Imbalance may lead to damage to the bearings. Contact service, if the vibration persists.

NOTICE

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

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
 SE EG-försäkran om överensstämmelse
 EN EC Declaration of Conformity

Alkuperäinen kieliversio
 Originalversion
 Original language

AVANT[®]
 www.avanttecno.com

Valmistaja / Tillverkare / Manufacturer
 Osoite / Adress / Address

AVANT TECNO OY
 Ylötie 1
 33470 YLÖJÄRVI, FINLAND

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 /

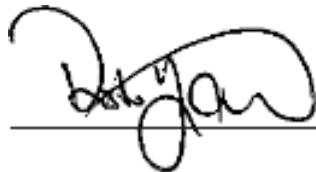
We hereby declare that the products listed below are in conformity with the provisions of the Machinery Directive (directive 2006/42/EC as amended). The following harmonized standards have been applied:

SFS-EN ISO 12100, SFS-EN ISO 4413

Mallit / Modeller / Models

Avant	
Hydraulitoiminen kelajyrsin; Avant-kuormaajan työlaite	
Hydraulisk jordfräs; arbetsredskap för Avant lastare	A425119
Hydraulic rotary hoe; attachment for Avant loaders	A37430

CE



25.6.2020 Ylöjärvi, Finland

Risto Käkelä,
 Toimitusjohtaja / Verkställande direktör /
 Managing Director



AVANT[®]