

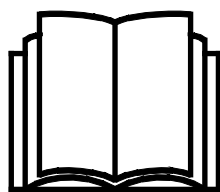


Operator's Manual for Attachment



Multi function drive unit

Product number A37190



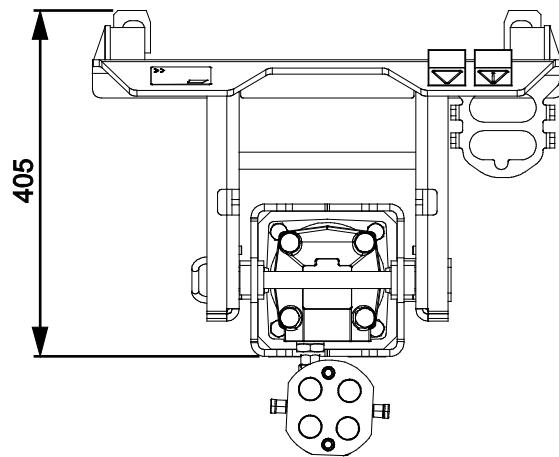
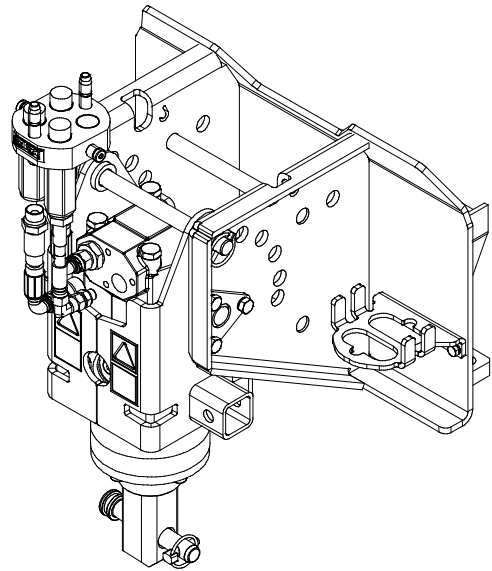
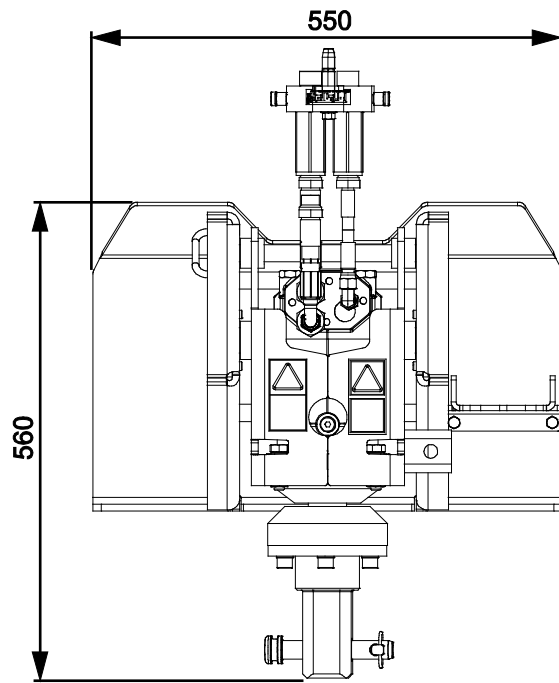
Please read this manual carefully before using the equipment, and follow all instructions.

Keep this manual for later reference.

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CONTENTS

1. FOREWORD	5
Warning symbols used in this manual	6
2. DESIGNED PURPOSE OF USE.....	7
3. SAFETY INSTRUCTIONS FOR USING THE MULTI FUNCTION DRIVE UNIT	8
4. TECHNICAL SPECIFICATIONS	12
4.1 Rotating speed	12
4.2 Work tools for the drive unit.....	13
4.3 Safety labels and main components of the attachment	14
5. ASSEMBLING THE ATTACHMENT	16
5.1 Connecting and disconnecting hydraulic hoses	17
6. OPERATING THE ATTACHMENT	19
6.1 Checks before use	20
6.2 Adjustments.....	21
6.2.1 Orientation.....	21
6.2.2 Side shift - Angle adapter 90°	22
6.2.3 Working on uneven ground.....	23
6.3 Transport position	23
6.4 Storage	24
7. USING THE WORK TOOLS.....	25
7.1 Changing of work tools	25
7.2 Auger tools	26
7.2.1 Using the auger.....	27
7.3 Concrete mixer	31
7.3.1 Assembling the concrete mixer	32
7.3.2 Using the concrete mixer	32
7.3.3 To operate the concrete mixer	34
7.3.4 Storage of the concrete mixer	35
7.3.5 Cleaning of concrete mixer.....	36
7.4 Carousel broom	37
7.4.1 Using the carousel broom	38
7.4.2 Broom side shift	39
7.4.3 Storage of the carousel broom	39
7.5 Rotary hoe	40
7.6 Screw pile adapter	42
7.6.1 Using the screw pile adapter	43
7.7 Log splitter	44
7.7.1 Using the log splitter	46
7.8 Cable/hose reel.....	47
7.8.1 Attaching the cable/hose reel	49

7.9	Screening drum.....	51
7.9.1	Using the screening drum.....	52
7.10	XL weed brush	54
7.10.1	Using the XL weed brush	55
7.10.2	Storage of the weed brush	55
7.11	Wire rope brush	56
7.11.1	Using the wire rope brush.....	57
8.	MAINTENANCE AND SERVICE	58
8.1	Inspection of hydraulic components	58
8.2	Cleaning the attachment	59
8.3	Inspection of metal structures.....	59
8.4	Lubrication.....	59
8.5	Maintenance of the work tools	59
8.5.1	Carousel broom	59
8.5.2	XL weed brush.....	60
8.5.3	Wire rope brush.....	61
8.5.4	Auger	62
8.5.5	Rotary hoe	64
8.5.6	Log splitter	64
9.	WARRANTY TERMS	65

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 © 2021 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 Multi function drive unit is an attachment that is suitable for use with AVANT compact loaders that are shown in Table 1. The strong and robust hydraulically rotated multi purpose drive unit is equipped with square shaft and pin locking system, which enables to use different work tools. The pin locking system makes it possible to use different tools on the drive unit, and to change them quickly.

The drive unit can be fitted with the following work tools: augers, screw pile adapter, concrete mixing drum, screw cone log splitter, screening drum, cable/hose reel, carousel broom and rotary hoe. The available tools for the drive unit are shown in more detail in this manual.

The Multi function drive unit and its tools are 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 - Multi function drive unit - Compatibility with Avant loaders

Model	220 225 225LPG	313S 320S	420 423 520 523 R20	525LPG R28 528 530	630 R35 635 640	735 745 750 755i 760i	850 860i	e5 e6
A37190	•	•	•	•	•	•	•	(•)

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 multi function drive unit

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.
- **Risk of crushing - Make sure that attachment is locked properly.** An unlocked attachment may move or fall over causing serious injuries. When attaching the 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. Also make sure that the drive unit tools are securely locked to the drive unit.
- **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, except when using tools that specifically need to be rotated while staying near the attachment. 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.
- **Hazard of entanglement - Never wear or allow any assisting persons to wear loose clothes, such as loose shoelaces, or long scarves when working with or near the attachment.** Always stop the attachment before anyone gets near it. Keep hands and feet away from moving components. To eliminate the risk of entanglement at the work site pay attention to proper clothing.
- **Risk of tipping over - Survey the operating area and plan work ahead.** Make sure in advance that it is safe to work at the operating area. Ensure the stability of the loader and firmness of ground also on even terrain.
- **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.



WARNING

- **Risk of tipping over - Always transport the attachment as low and close to the machine as possible to keep the centre of gravity low.** On slippery surfaces drive slowly and deliberately. Operate the controls of the loader slowly and calmly especially on inclined terrain.
- Note that the drive unit is hinged and moves freely. When transporting, the drive unit must be tilted forward and locked with locking pin. Do not tilt the drive unit up excessively, as it could tip over. Keep the axle pointed towards the ground in a position where the axle will not swing or hit the loader, ground, or any obstacle.
- The loader can move slightly caused by the oscillating motion of rotating tool, make sure that moving will not cause hazards. Do not press the loader boom down too hard, and keep front tyres in contact with the ground.
- Make sure that the attachment is properly supported for maintenance and inspections. Store the tool properly and make sure that the drive unit is supported before removing the locking pin of the angle adjustment of the drive unit. Never perform any maintenance or adjustments, or change drive unit tools, while the loader engine is running.
- Use the attachment only for its intended use and only with original tools on the attachment.
- 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 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 serious injuries from rotating parts - Keep safe distance. Entanglement around the rotating tools or getting crushed under the loader boom can cause serious injuries or death. Do not leave the driver's seat while the attachment is in operation, or when it is lifted off from the ground, unless using tools that are specifically intended to be used while staying near them. Also, keep others at a safe distance from the equipment and stop the attachment immediately latest when there are others closer than 1 meter from the attachment. Follow safe stopping procedure when going near the attachment or when changing tools.





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.



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.



- Handling some types of materials materials can 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 - Multi function drive unit - Specifications

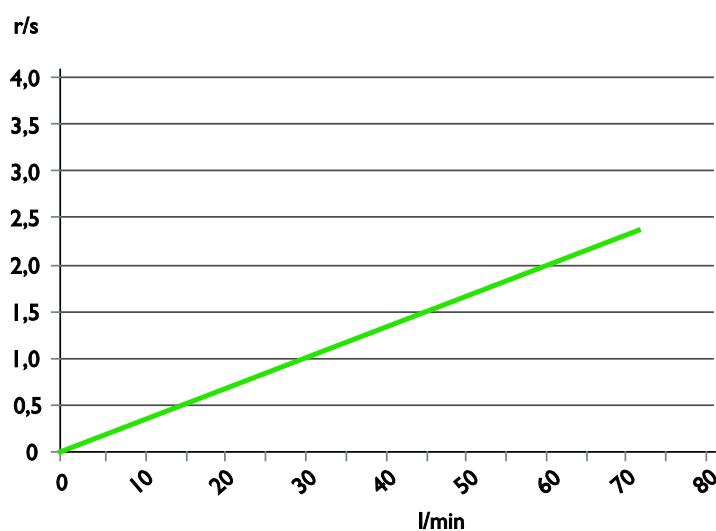
Product number	A37190
Width:	550 mm
Height:	560 mm
Length:	405 mm
Maximum torque:	1355 Nm
Weight:	80 kg
Tool fixing:	57 mm, square
Hydraulic energy input:	30-60 l/min 20 MPa (200 bar)
Suitable AVANT loaders:	See table 1
Angle adapter, 90°:	A37323 See page 21
Available drive tools:	See table 3

4.1 Rotating speed

Different work tools are operated at different speeds. Use the Graph below to estimate the rotating speed, with the help of the operator's manual of the loader.

- Horizontal axis: Hydraulic oil flow, in litres per minute
- Vertical axis: Rotating speed of the Multi function drive unit, in revolutions per second

Graph 1 - Rotating speed of the Multi function drive unit, in revolutions per second



4.2 Work tools for the drive unit

Shown below in Table 3 are the work tools for the Multi function drive unit. Changes to availability are possible, ask your Avant dealer for latest information or see Avant website.

For detailed information about each tool, see the related page in this manual.

Table 3 - Multi function drive unit - Specifications of available drive tools

Product:	Auger	Cable/hose reel	Carousel broom	Concrete mixing drum	XL weed brush
Product number	<i>Multiple auger models available</i>	A37311	A37317	A37395	A429932
See page	26	46	36	31	53

Product:	Screening drum	Screw cone log splitter	Screw pile adapter	Rotary hoe	Wire rope brush
Product number	A37207	A37500	A418530	A37491	A431157
See page	50	43	42	39	55

4.3 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.



WARNING

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

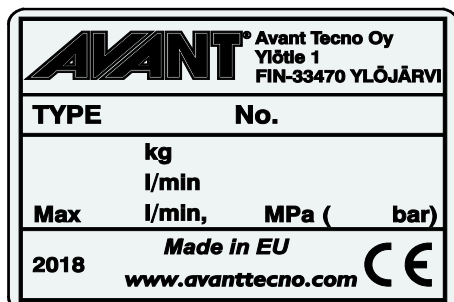


A46803



A46805

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.



Attachment identification plate A420014

Table 4 - 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 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.
4 A46805	Beware of entanglement around the rotating tool; do not go near the equipment while it is rotating. Watch out also entanglement of loose clothes, hair, jewellery or similar. Keep a safe distance and follow safe stopping procedure.
5 A420014	Attachment identification plate

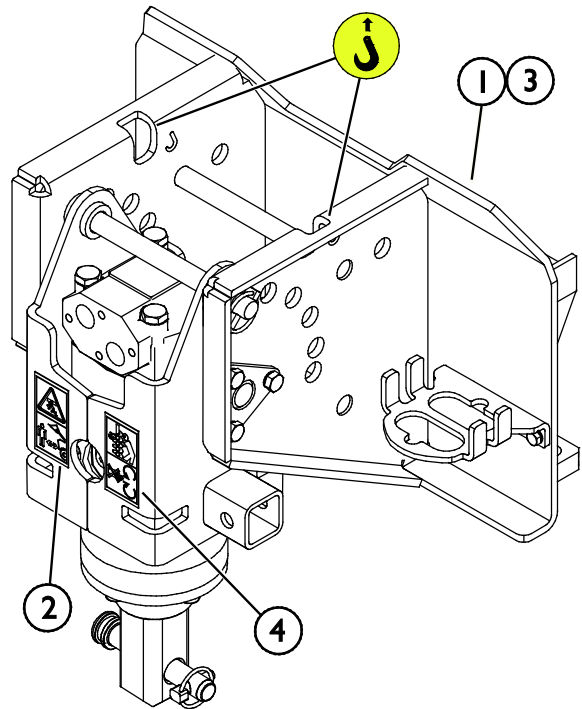
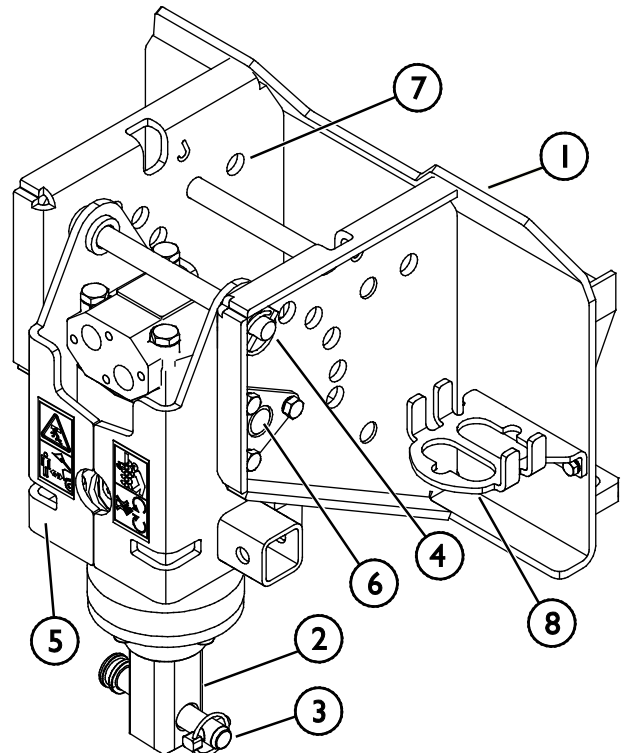


Table 5 - Multi function drive unit - Main components

1	Frame with Avant quick coupling brackets
2	Tool shaft, square
3	Tool locking pin
4	Locking pin
5	Drive motor cover
6	Swinging joint
7	Locking pin holder
8	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 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.



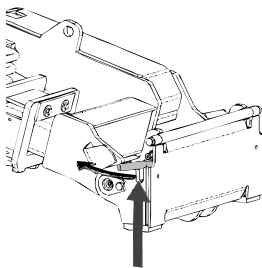
Crushing risk - Make sure that an unlocked attachment will not move or fall over.

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.

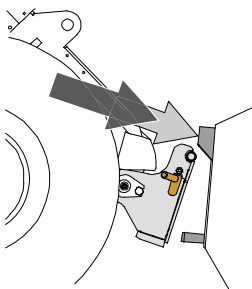
Avant quick coupling system:

Step 1:



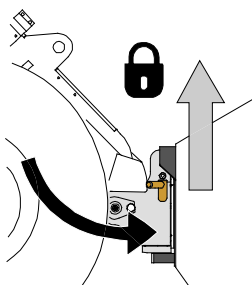
- Lift the quick attach plate locking pins up and turn them backwards into the slot so that they are locked in the upper position.
- If your loader is equipped with a hydraulic attachment locking system, see additional instructions about the use of the locking system from the relevant manuals.
- Make 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 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 use it to reach to the coupling brackets of the attachment.
- Align the upper pins of the loader's quick coupling plate so that they are under the corresponding brackets of the attachment.

Step 3:

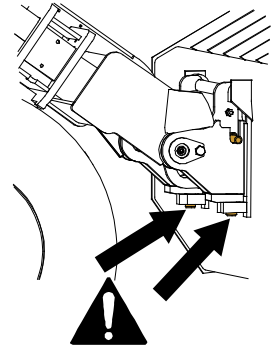


- Lift the boom slightly – pull the boom control lever backward to lift the attachment just off the ground.
- Turn the boom control lever left to turn the bottom section of the quick coupling plate of the loader onto the attachment.
- Lock the locking pins manually or lock the hydraulic locking.
- **Always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



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.



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.

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.



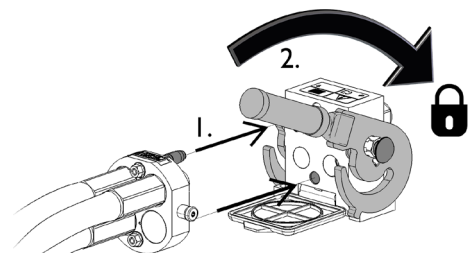
Risk of movement of the attachment and ejection of hydraulic oil - Never connect or disconnect quick couplings or other hydraulic components while the control lever of the auxiliary hydraulics control lever is locked on or if the system is pressurized. Connecting or disconnecting the hydraulic couplings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

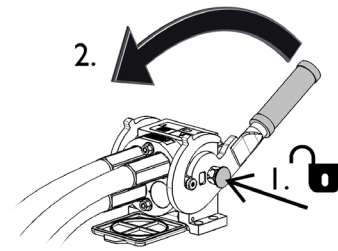


The lever should move easily all the way to its locking position. If the lever does not slide smoothly, check the alignment and position of the connector and clean the connectors. Also shut down the loader and release the residual hydraulic pressure.

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.



Conventional quick couplings

(alternative couplings for some loader models):

Before connecting or disconnecting the standard quick couplings, the residual pressure must be released as shown below. The conventional quick couplings will not connect, if there is pressure in the hydraulic system.



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.

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.



Risk of serious injuries from rotating parts - Keep safe distance. Entanglement around the rotating tools or getting crushed under the loader boom can cause serious injuries or death. Do not leave the driver's seat while the attachment is in operation, or when it is lifted off from the ground, unless using tools that are specifically intended to be used while staying near them. Also, keep others at a safe distance from the equipment and stop the attachment immediately latest when there are others closer than 1 meter from the attachment. Follow safe stopping procedure when going near the attachment or when changing tools.



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 crushing or entanglement from contact with moving parts - Never leave the equipment unattended while the engine is running. Follow safe stopping procedure.



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.



**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.

**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.

6.1 Checks before use

- Check that the drive unit and its tool are intact, they can rotate freely to correct operating direction and that there is no string or other foreign material coiled around the auger, broom or other tool in use.
- Use only when all pins are locked and secured in place .Make sure the tool locking pin and the drive unit angle lock pin, and their safety pins are in good condition and that you can securely lock the tool with the pin.
- Check each work tool according to their specific instructions shown in this manual before you operate the Drive unit.
- 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 8 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. 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 practice its use without any attachments.

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.

6.2 Adjustments

Because the multi function drive unit can be adjusted in different angles, it can be fitted with various work tools. The correct operating position depends on the purpose of use. See the information of each work tool in this manual for recommended settings.

6.2.1 Orientation

The multi function drive unit can be locked on different angles according to the purpose of use. The locking pin can be set to one of the 6 positions, or it can be placed to storage holes, when the drive unit is left unlocked.

1. When using the Concrete mixer and the Screening drum, the drive unit should be locked to horizontal position. Also the Cable reel is usually locked in the horizontal position, see Figure 1 below.
2. When using auger drills or the screw pile adapter, the unlocked position is recommended (locking pin removed and placed to its holder), see Figure 2 below

Figure 1 - Drive unit in locked position

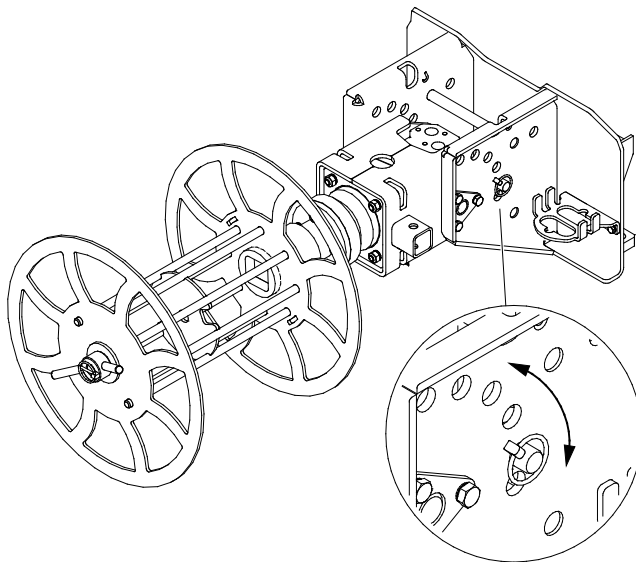
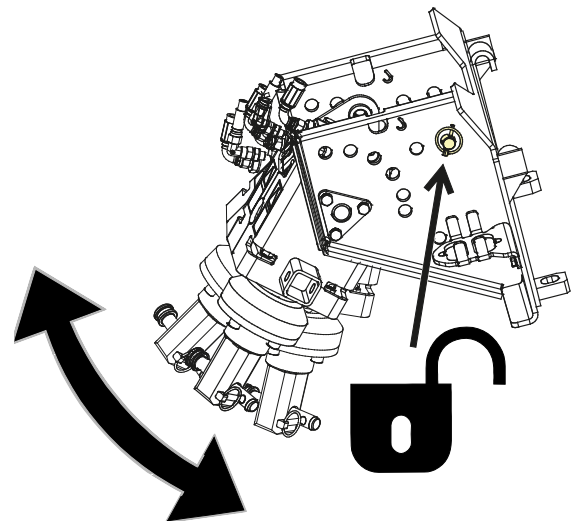


Figure 2 - Drive unit in unlocked position, locking pin stored in its holder

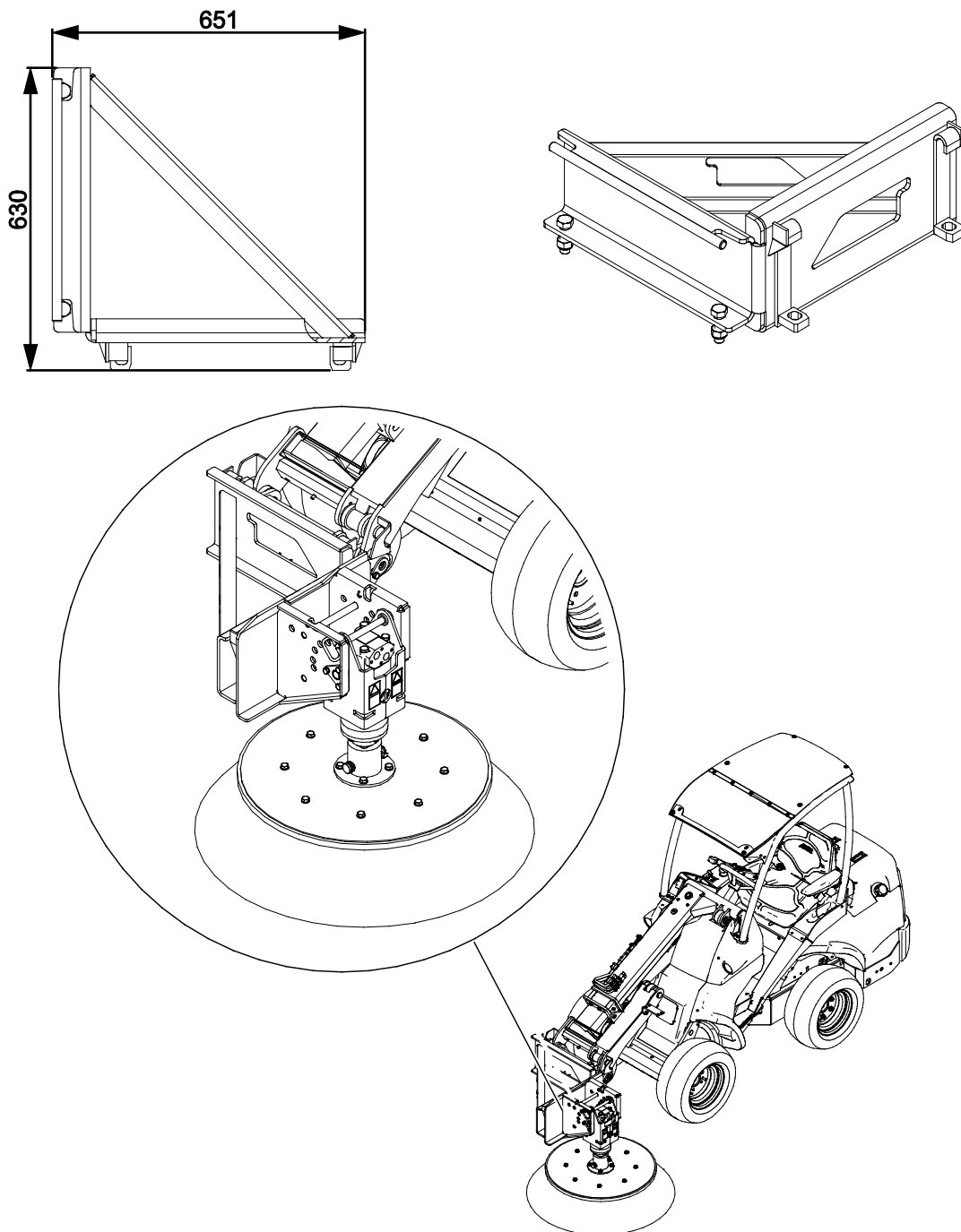


6.2.2 Side shift - Angle adapter 90°

The angle adapter A37323 makes it possible to mount the Multi function drive unit so that it is turned 90 degrees to the left. With the angle adapter the carousel broom sweeps on the left side of the loader, for instance, and the cable/hose reel is crosswise to the loader and winds the cable longitudinally (in parallel to the loader).

The angle adapter is bolted on to the Multi function drive unit, and this assembly can then be mounted to the quick coupling plate of the loader. Make sure that both of the bolts are tightened before using the drive unit with the side shift adapter.

The angle adapter A37323 is intended to be used only with the Multi function drive unit. Never use it with any other attachment.



6.2.3 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 Transport position

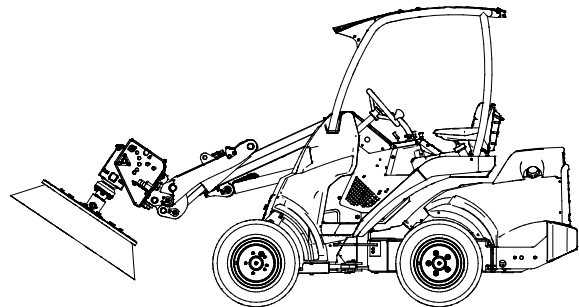
When driving with the loader, keep the drive unit low and close to the loader for the best stability and visibility.

Always transport the attachment and its work tool as low and close to the loader as possible for the best stability and visibility. Drive cautiously and avoid swinging of the drive unit, or hitting the ground.

Before transport:

- Make sure all locking pins are securely locked.
- Always stop the drive unit before driving with the loader.
- After stopping the loader, always lower the drive unit or its tool on the ground.
- The drive unit should be locked and point to forward direction
 - If using with the angle locking pin removed, tilt the attachment up so that it rests on the quick coupling frame of the attachment to avoid swinging of the drive unit. If the drive unit begins to swing, use the controls of the loader to tilt the attachment more up.

In the adjacent figure is a suggested position for transporting the carousel broom. Correct position depends on the work tool that is fitted on the drive unit (if any), and the angle setting of the drive unit.



6.4 Storage

See storage instructions of each work tool shown separately in this manual. Usually the work tools should be removed from the Drive unit and stored separately.

To store the Drive unit without any work tool fitted:

Place the locking pin to lock the drive unit to a forward pointing position for the best stability during storage.

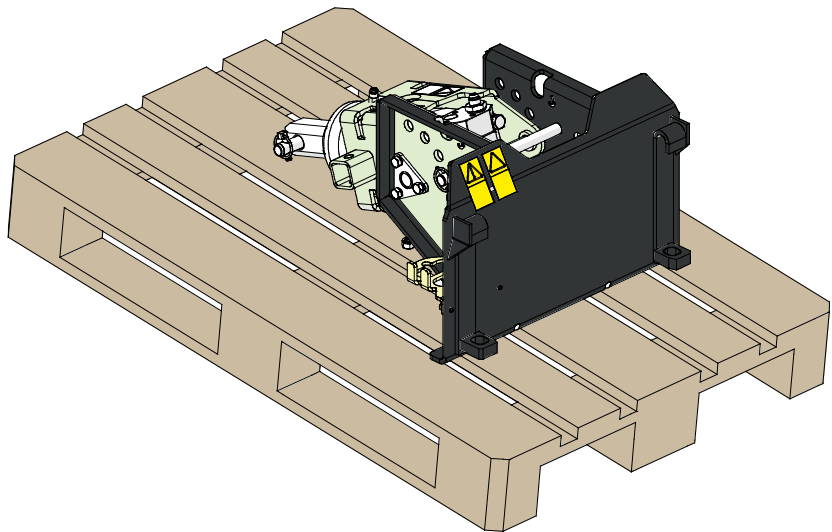
Uncouple and store the attachment on level ground. The best way to store the attachment is a place where it is protected from direct sunlight, rain, and extreme temperatures.

- 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.

Correct storage position:

To ensure the stability of the attachment during storage, lay it down on a pallet so that the quick coupling plate is easily accessible with the loader, as shown in the adjacent picture.

- Make sure that hydraulic hoses will not be left under the attachment.
- Place the multiconnector to its holder.



7. Using the work tools

After you have checked that the drive unit is ready for use, install and use the work tools as shown in this chapter. Each work tool is used in a different way. Therefore it is important that you read carefully all instructions related to each work tool and its adjustments, and also about the hazards related to each work task.

The work tools that are available at the time of production of this manual are shown in the following pages, and they are listed in Table 3 on page 12.

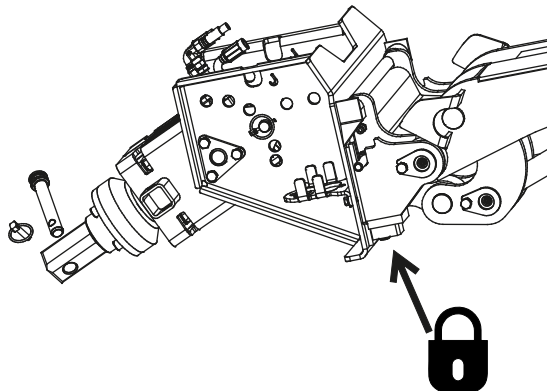


Risk of wrong use - Always read the instructions related to each tool. Each work tool is used in a different way and may introduce risks that you need to take into account when using the Multi function drive unit with a work tool. Use only Avant work tools.

7.1 Changing of work tools

To attach any work tool to the drive unit, follow the following procedure:

1. Lock the attachment to the quick coupling of the loader, see instructions in this manual
2. Set the locking of the drive unit angle to needed position. Secure the locking pin with the cotter pin.
3. Clean the contact surfaces of the work tool and the drive unit before connecting the tool to the drive unit.
4. Remove the tool locking pin from the drive unit.
5. Slide the work tool to the drive unit so that the holes are aligned.
6. Place the locking pin and secure it with its cotter pin.



7.2 Auger tools

The Multi function drive unit can be used for making upright or nearly upright holes into the soil by using suitable earth augers, extension shafts and accessories. When used with small augers, the Multi function drive unit is an excellent auger model for fence pole boring. The auger can be easily transported at the working site with the loader to make multiple holes on the ground without leaving the driver's seat.

The pin auger locking system makes it possible to use different sized augers and to change them quickly. List of recommended auger tools is shown in Table 6 below. The Multi function drive unit is best suitable for using smaller auger sizes up to 100 mm to 300 mm range depending on the type of soil. The larger augers work best when operated on area where there are no larger stones. For more demanding conditions or larger auger sizes, consider using the Avant HD Auger drive units that are equipped with a planetary gearbox, which can provide more torque.



Rotating auger - Keep distance.

Keep a safe distance to a rotating auger and stay back if other person operates the controls of the loader. Do not grasp the auger or try to control or guide it manually or in other ways other than the movements of the loader and its boom. Beware of entanglement hazard; wear only tight fitting clothing.



Table 6 - Auger information

Diameter	75 mm	100 mm	150 mm	200 mm	225 mm	250 mm	300 mm
Product number:	A34225	A33601	A33608	A33609	A33610	A33611	A33612
Drilling depth:	1500 mm	1500 mm	1500 mm	1500 mm	1500 mm	1500 mm	1500 mm

Table 7 - Auger wear parts

Auger pilot, tungsten*	A32561	Auger pilot, earth-type	A32536
Blade teeth, tungsten*	A32560	Blade teeth, earth-type	A42535

Up-to-date list of augers is available from your dealer or from Avant website at www.avanttecno.com

*As standard, all augers are equipped with tungsten wear parts.

Table 8 - Extension shafts

Length	500 mm	800 mm	1000 mm
Product number:	A33546	A32532	A33554

7.2.1 Using the auger

Before starting to use the auger:

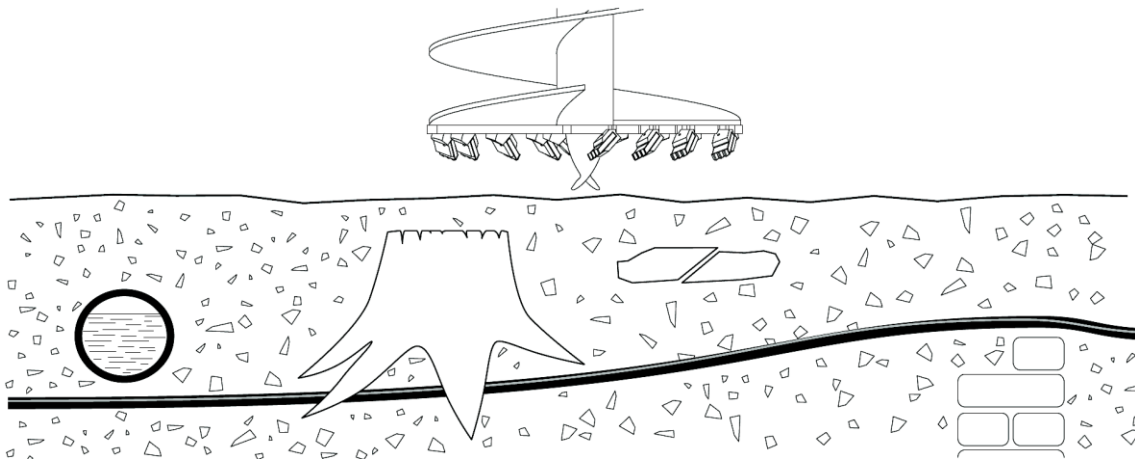
Plan the drilling operation in advance. Make sure that it is safe to dig at the area. Explore the operating area and find out about the possibility of having any electric cables, water mains, gas pipes, communications cable or similar buried in the ground before starting to drill.

Consult local authorities, electric, water, and gas companies, and other relevant sources before starting to use the equipment. Your area may also have a specific hotline or helpdesk available, or a special permit may be required. If uncertain in any way, seek for more information before starting digging.

Operate the auger only on well lit areas. If extra caution is required to avoid hitting known dangerous or fragile materials in the ground, have another person nearby to spot possible buried items.



Hitting an obstacle may cause a serious accident - Make sure it is safe to dig into the ground. If in doubt about possible obstacles, seek professional advice and also consider using specialized detection equipment. You may be required by law to contact your local authorities before using an auger to make sure that there are no hidden and potentially dangerous obstacles in the ground. Never use the auger if you are unsure about possible hazardous obstacles.



7.2.1.1 Transportation of the auger unit

Make sure the locking pin of the angle adjustment of the Drive unit is in place to prevent swinging of the drive unit during transport. If the drive unit is left to swing freely, the auger can hit the ground or swing up.

NOTICE

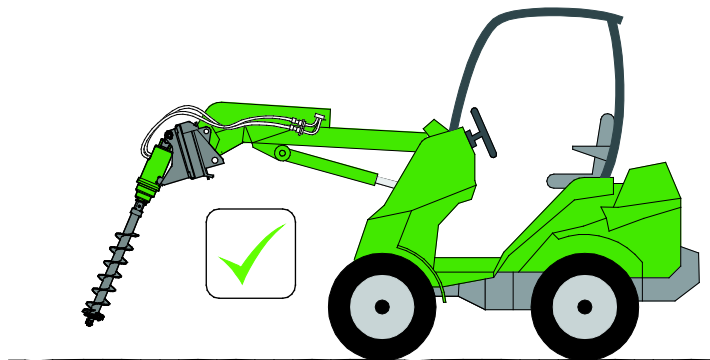
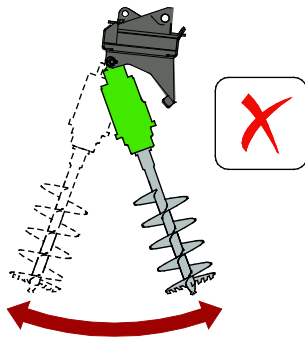
If the auger hits the ground, the blade bits may crack or other damage may result. Handle the augers with care, so that the blades remain in the best possible condition.

Transportation on public highways

- Make sure that the locking pin of the angle adjustment of the Drive unit is fitted to prevent swinging of the drive unit during transport.
- Always remove the auger before driving or transporting the loader on public highways.

Transportation on the site

- For transport over short distances (within the work area), tilt the Drive unit up by using the controls of the loader, as shown in the figure below, so that the Drive unit does not swing freely.
- Make sure the auger will not hit the ground or anything else during transport.
- Keep the Drive unit and the auger in a position where you have good visibility also to the tip of the auger while driving.
- Always operate the loader slowly when on site taking great care to avoid the auger swinging.



7.2.1.2 Fitting an auger tool and using extension shafts

The auger tools can be fitted when the drive unit is locked to the loader so that the position of the auger can be controlled with the loader. The auger tools should be fitted after arriving at the operating area, to decrease the possibility of uncontrolled swinging of the drive unit while driving.

To fit an auger tool:

The augers can be fitted when the drive unit is in vertical or horizontal position. Some of the large auger tools that remain upright without external support should be placed in vertical position due to their weight.

1. Clean the contact surfaces of the auger and the drive unit before connecting the auger tool to the drive unit.
2. Align the holes for the locking early enough. Rotate the auger or the drive unit as needed.

Slide the auger tool to the drive unit, or vice versa. The easiest way to fit the auger depends on the size and

Smaller and lighter augers can be fitted manually when the drive unit is in a tilted position.

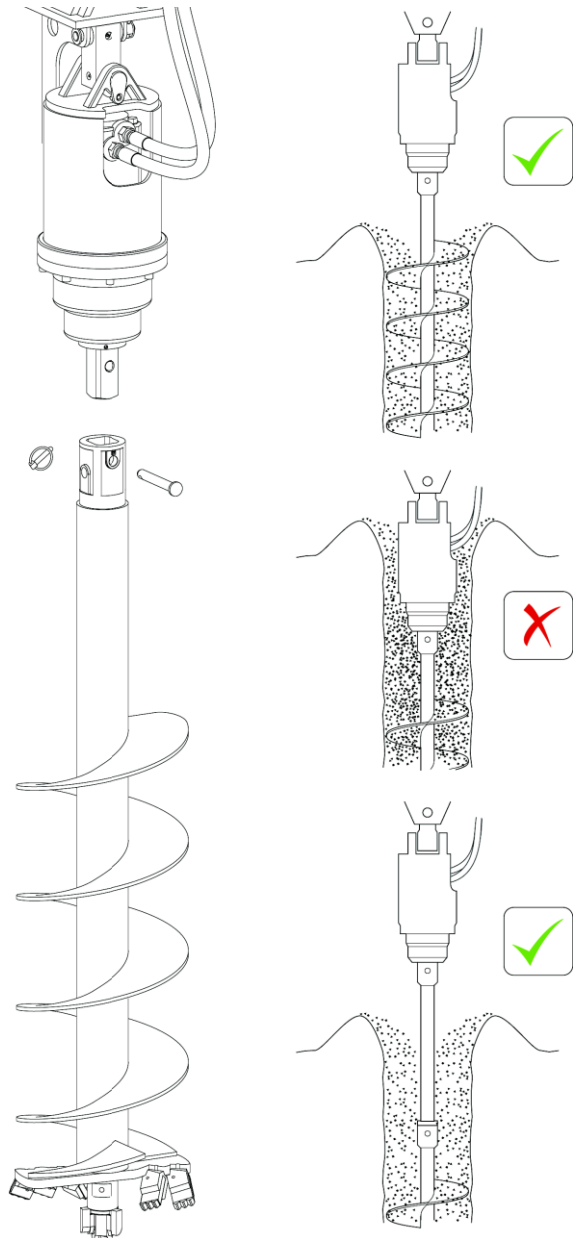
3. Always fit and secure the locking pin.

Using extension shafts:

Do not drill deeper than the reach of the auger. Drilling beyond the reach of the auger can lead to difficulties, if the auger becomes stuck or gets damaged. Using extensions allows drilling deeper holes, but maximum depth of 2,5 metres must be observed. Extension shafts must be fitted only when needed at the work site.

Fit the extension sufficiently in advance for easier handling, and so that the fixing point remains above ground surface.

When fitting the extensions after reaching previous maximum depth, care must be taken so that the auger will not fall deeper into the hole.



7.2.1.3 Operating the auger

The auger drive unit is started by turning the auxiliary hydraulics control lever of the auger to its locking position. Start the auger at a safe area to see the rotating direction; make sure that the auger rotates clockwise. Set the engine rotating speed according to operating conditions. Operating at full rotating speed may be possible, but generally modest speed will give the best results.



Risk of entanglement - Never leave the equipment running unattended. Start the auger only when beginning to use it. Do not go near the equipment when another person operates the controls of the loader. Always follow the safe stopping procedure before going near the auger.

NOTICE

Remember to unlock the angle adjustment of the Drive unit before using the auger. Also, make sure that the quick coupling plate or the frame of the Drive unit are not in contact with the Drive unit, so that the hinge will allow the auger to move

To operate the auger:

Position the auger against the ground in upright position. Gradually lower the boom to apply force on the auger. The needed force to push the auger down depends on the operating conditions and type of soil. Also, the bigger the auger, the more time should be allowed for the auger to lift soil before operating the loader controls.

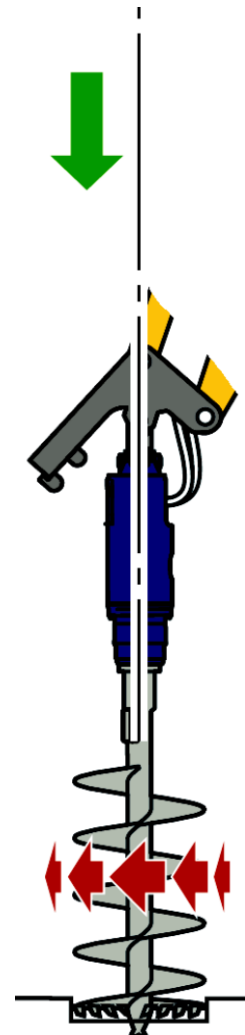
Do not push down too hard, so that the front wheels of the loader remain in contact with the ground to avoid stalling the auger and to avoid applying excessive load on the auger and the drive unit.

Note that in addition to controlling the loader boom, the position of the auger must also be corrected by using the drive pedals or the telescopic boom of the loader.

Lift the auger out of the ground regularly to clear material from the auger and to maintain drilling effectiveness. Smaller augers may need manual cleaning especially when working on moist soil. Frequent clearing of the hole will also make it easier to pull the auger out from the hole. Keep the auger rotating the same direction when pulling out, so that material will also be pulled.

Do not try to clean the auger by swinging it with force or by hitting it, it may bend or its teeth may get damaged from impact.

Augers can't pull or break large stones from the ground. The augers are not intended for other purposes than making holes on various types of soil. If penetration speed decreases clearly, lift the auger from the hole and check for stones.



NOTICE

Adjust the drilling position during use of the auger. Keep the auger aligned with the intended direction of drilling, so that the auger will pull itself efficiently into the ground. If the position is not corrected during drilling, the auger can get damaged because of bending of the auger.

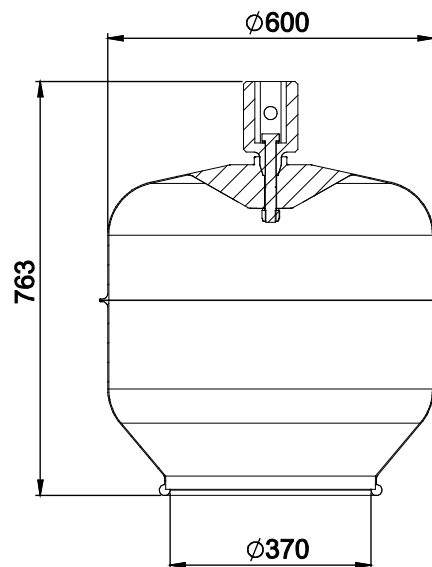
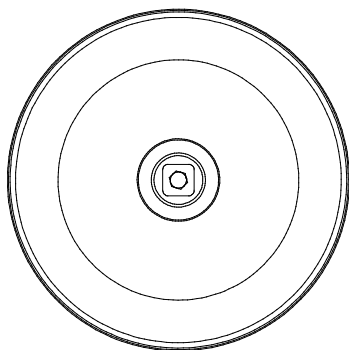
7.3 Concrete mixer

The Concrete mixer tool is intended for mixing and transporting of concrete, mortar, plaster, or similar materials even at difficult locations. Pouring concrete to desired location is possible by simply tilting the drum with the loader boom. The drum type concrete mixer is an ideal attachment for concrete mixing at locations where there is no electricity available.

Use the concrete mixer for its intended use only. Check the mixing tools and the inside of the drum regularly. Read the instructions on maintenance and servicing and only use original spare parts.

Concrete mixing drum - Specifications

Product number	A37395
Volume:	140 l water, 90 l ready concrete
Maximum rotating speed:	MAX 1 rev / s (60 rpm, 30 l/min)
Recommended rotating speed:	0,3 – 0,6 rev / s (20 – 40 rpm, 9 – 21 l/min)
Total length:	760 mm
Diameter:	600 mm
Weight:	50 kg



7.3.1 Assembling the concrete mixer

The concrete mixer drum and its adapter are delivered separately, and need to be assembled before use.

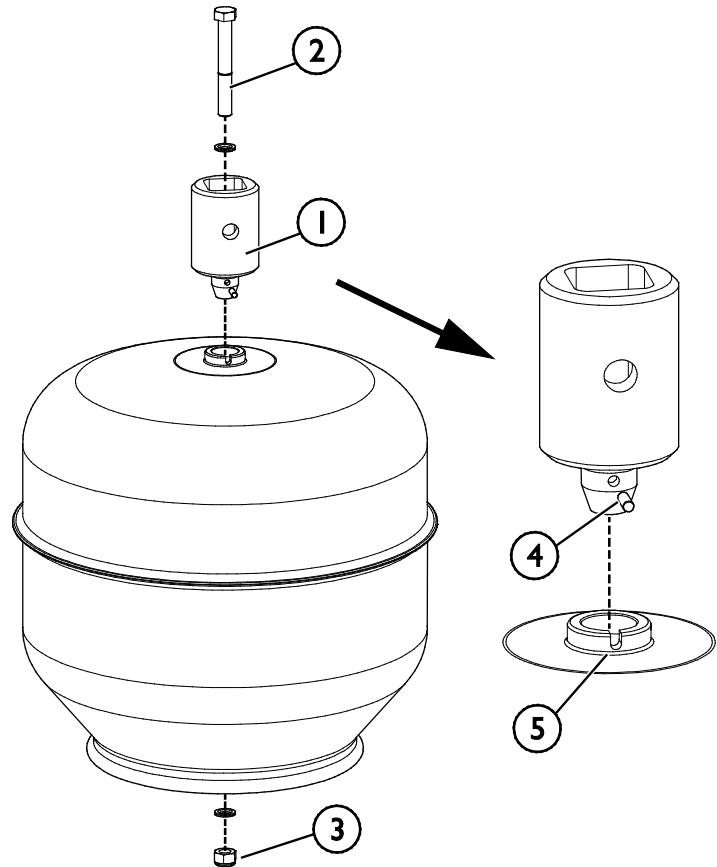
Necessary tools

30 mm hex socket and wrench

Installation work

Assemble the concrete mixer as follows:

1. Align the adapter (1) with the mixer drum. Make sure that the wedge (4) of the adapter is positioned correctly with the groove (5) of the drum.
2. Fasten the adapter (1) with tightening bolt (2) and nut (3). Use tightening torque of 400 Nm.



7.3.2 Using the concrete mixer



Risk of entanglement and crushing between moving components - Always stop the attachment by following the safe stopping procedure before reaching into the mixing drum. Using the concrete mixer makes it necessary to work near a rotating tool.

- 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.



Risk of crushing - Ensure that the parking brake of the loader is engaged when working near the attachment. Use additional blocks if needed. Whenever possible, lower the attachment firmly on the ground.



**WARNING**

Risk of injuries to other persons - Stop the concrete mixer drum if others get too close of the rotating mixer.

- The mixer is intended to be used by one adult operator at a time. Prevent others from entering the work area or getting near the loader when the mixer is in use.
- To avoid accidents caused by movements of the loader, never allow anyone to stay in the driver's seat of the loader while filling the concrete mixer. Always engage the parking brake.
- Always make sure that it is safe to move with the machine. Pay attention to the surroundings and other persons and machines moving in the vicinity. Keep a minimum safety distance of at least two metres from other persons. Stop the loader and rotation of the drum if other persons are in risk of getting too close to the concrete mixer.

**WARNING**

Risk of inhaled dust - Use respirator mask as needed. Handling of cement, sand, and other materials related to the typical use of the concrete mixer can cause spreading of dust. Wear respirator mask when handling loose materials to avoid inhaling dust.

**CAUTION**

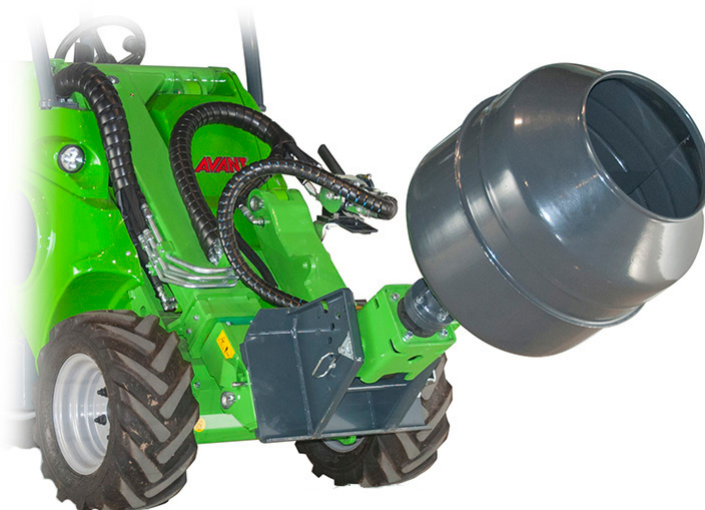
Risk of thrown parts - Avoid running the attachment at very high speed. Operating the attachment at too high speed may cause high vibrations, noise, or thrown parts from the attachment, or damage that could lead to personal injury. See recommended input flow in this manual.

**CAUTION**

Operate the equipment only on a level working site, which can carry the load of the equipment when fully loaded. The operating area must be sufficiently flat and it should be cleared from any obstacles that could cause a tripping hazard for the operators. Make sure the area is lit well enough.

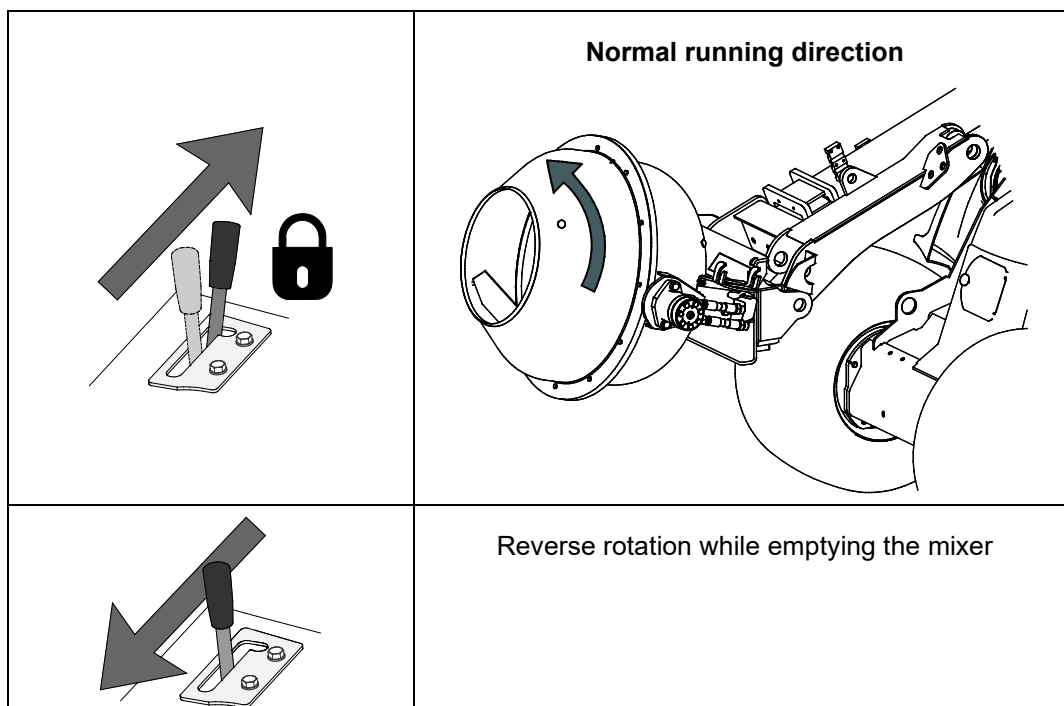
7.3.3 To operate the concrete mixer

Keep the telescopic boom retracted for the best stability during operation. The concrete mixer is intended to be used in approximately the position shown below.



Rotate the concrete mixer slowly during initial filling. The correct final rotating speed for mixing varies depending of the mixed material. **The rotating speed should never exceed about one revolution per second.**

Empty the drum by tilting it with the loader boom while rotating the mixer slowly simultaneously. During emptying, the rotating direction of the mixer can be varied as needed.



NOTICE

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

NOTICE

The concrete mixer is intended to be filled manually, e.g. with shovels. Never lift materials from the ground with the concrete mixer itself to avoid damaging the drum.



Risk of flying debris - Keep rotation speed low and check the drum for foreign materials. Before starting the concrete mixer, make sure that there are no foreign objects in the drum that could be ejected from the attachment or that could damage the mixer. Always follow the recommended operating speed.

NOTICE

Always use low loader engine rpm and only the 1-pump setting of the auxiliary hydraulics. Keep the rotating speed of the mixer low, as shown in technical specifications. The mixer will not mix material efficiently, and the hydraulic motor of the mixer may get damaged or material may be thrown from the mixer if it is rotated too fast.

NOTICE

To avoid material from getting stuck, do not fill the mixer unless it is rotated simultaneously. Also, do not throw material in, but instead pour material in controlled way. Do not stop filled mixer.

7.3.4 Storage of the concrete mixer

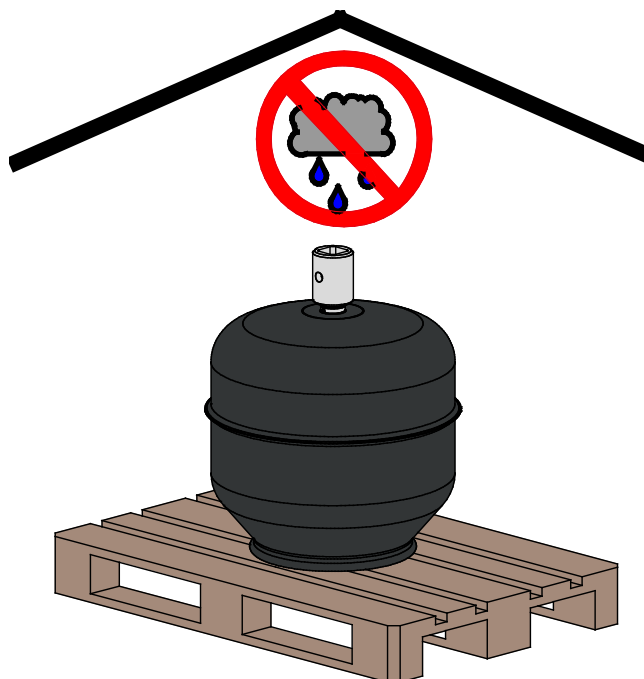
After thorough cleaning of the mixer, place it on a level surface where the mixer cannot move or tip over by accident.

Secure the mixer manually against accidental movements. Do not store the attachment directly against the ground; place it on blocks of wood or on a pallet, for example.

Before long storage periods touch up the paint where needed, or oil unpainted metal parts lightly to prevent rust damage.

NOTICE

Protect the mixer from rain. Store the concrete mixer so that water will not stay in the mixer drum. Prevent water from getting in the mixer by storing the attachment upside down, for example. Do not allow water to stay in the coupling shaft to prevent rust damage.



**CAUTION**

Risk of impact and crushing by uncoupled concrete mixer - Ensure the concrete mixer is stored in a stable way. When taking the concrete mixer off from the loader, ensure that it is secured against accidental movement. To prevent the attachment from tipping over, lower it on even surface and use blocks of wood as necessary.

7.3.5 Cleaning of concrete mixer

Clean the concrete mixer immediately after use. Use a water hose to clean the inside drum. Unload any remaining material from the mixer to a suitable place, any material left in the drum will dry and build up even more material.

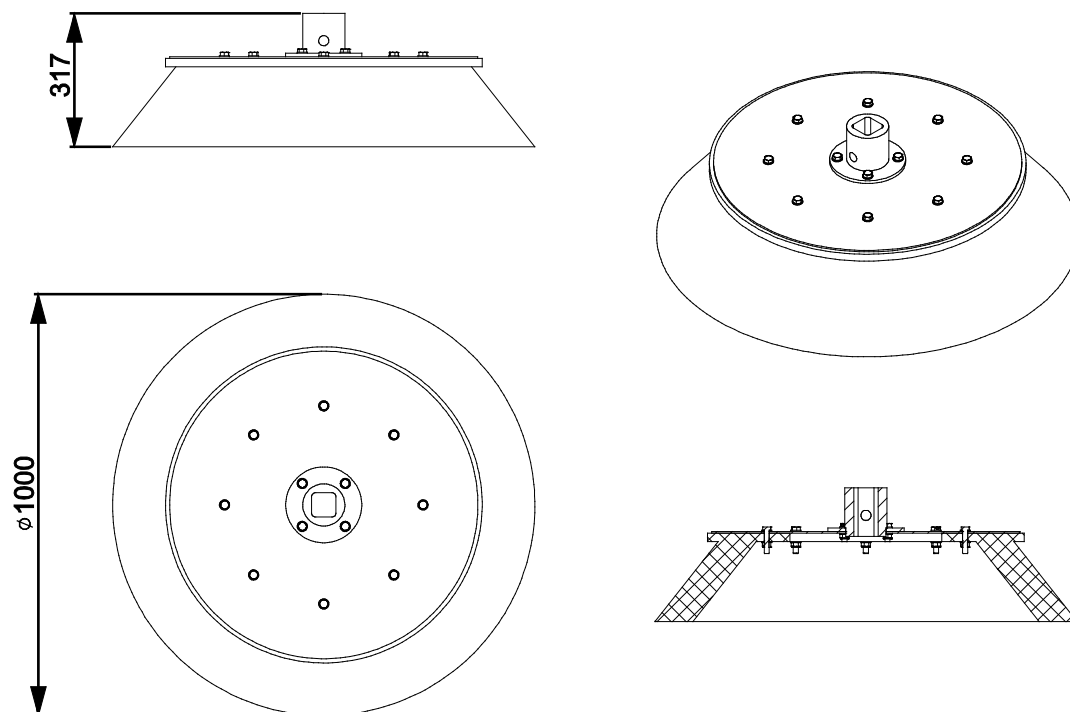
You may also use a pressure washer and mild detergent, but generally spraying inside the drum at high pressure should be avoided. Do not use solvents. Never spray directly at the hydraulic components, or at the labels on the attachment either. Scrape any remaining material from the drum to prevent the accumulation of material. Small fragmented gravel may also be used for cleaning the drum, rotate with plenty of water for a couple of minutes and empty the drum to a suitable location.

7.4 Carousel broom

The carousel broom sweeps the material efficiently aside without the need to sweep the same location many times. The working width of the broom is one meter. The direction of rotation can be selected freely.

Carousel broom - Specifications

Product number	A37317
Reel/Brush diameter:	1000 mm
Replaceable brush:	A32698
Height:	317 mm
Weight:	67 kg
Note:	Can also be used with angle adapter



7.4.1 Using the carousel broom

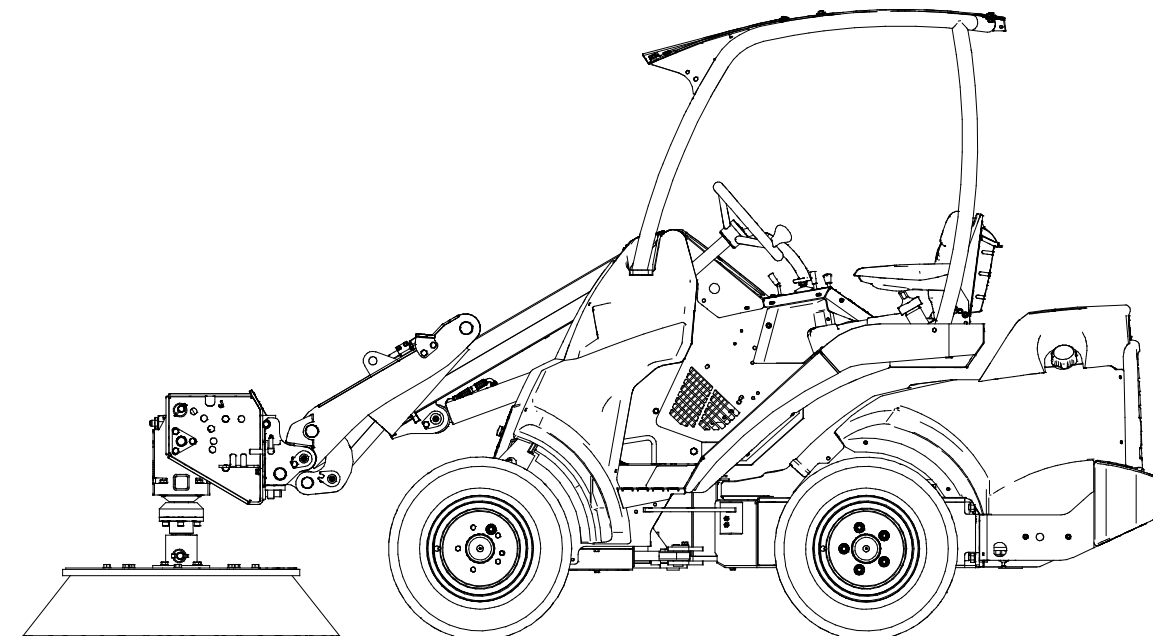


WARNING

Hazard of thrown objects - Keep bystanders away. Note that the broom may eject sand, stones, pieces of wood or other material far from the broom. Stop using the broom, if there are others closer than 5 meters from the broom.

The broom is started by turning the auxiliary hydraulics control lever to its locking position. Start the broom at a safe area to see the rotating direction of the broom. Also check that there are no obstacles near the broom. Practise the use of the broom and its controls in a safe area. If you are unfamiliar with the loader model, it is recommended to practice its use without any attachments.

Choose the rotating speed of the broom according to operating environment and limits shown in technical specification of the Multi function drive unit. Moderate engine revolutions are usually enough to rotate the broom adequately so that the broom sweeps the material neatly to its side. On 600- and 700-series loaders one or two working hydraulic pumps may be used according to operating conditions. High rotating speed will wear down the brush more quickly and usually it is not necessary to use high rotating speeds.

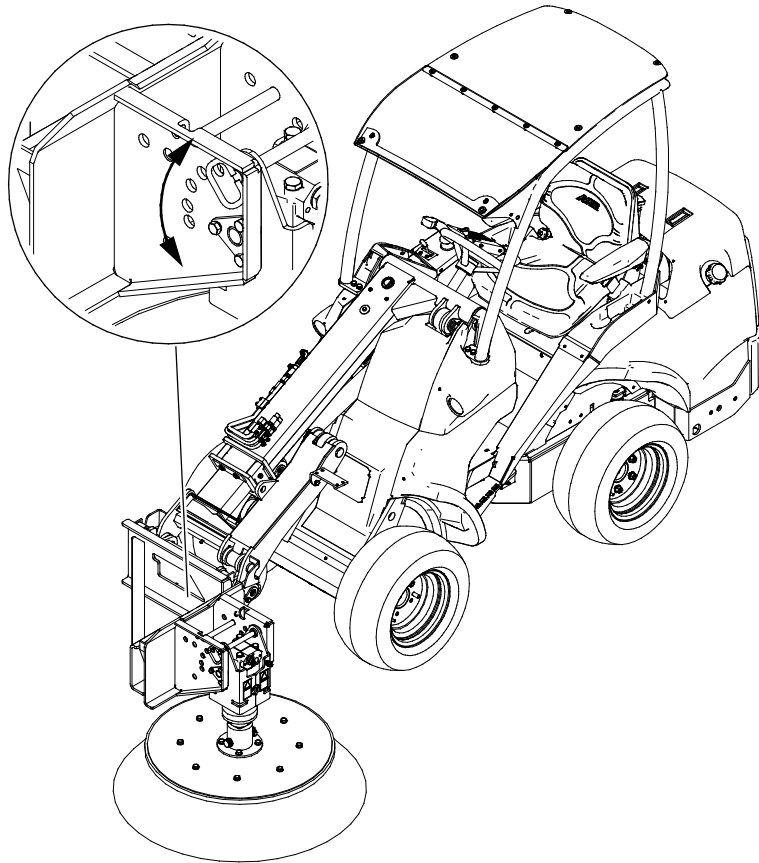


NOTICE

In order to prevent the brush from getting damaged or worn unevenly, do not use the broom for pushing purposes, without rotating it simultaneously.

7.4.2 Broom side shift

The carousel broom may be turned 90 degrees to left in order to make it easy to brush near the walls. To make this possible, the 90 degree angle adapter is installed between the drive unit and loader.



NOTICE

Before operating the broom, ensure that the angle adapter has been correctly locked with the pin, and that the hydraulic hoses are not in contact with the brush.

7.4.3 Storage of the carousel broom

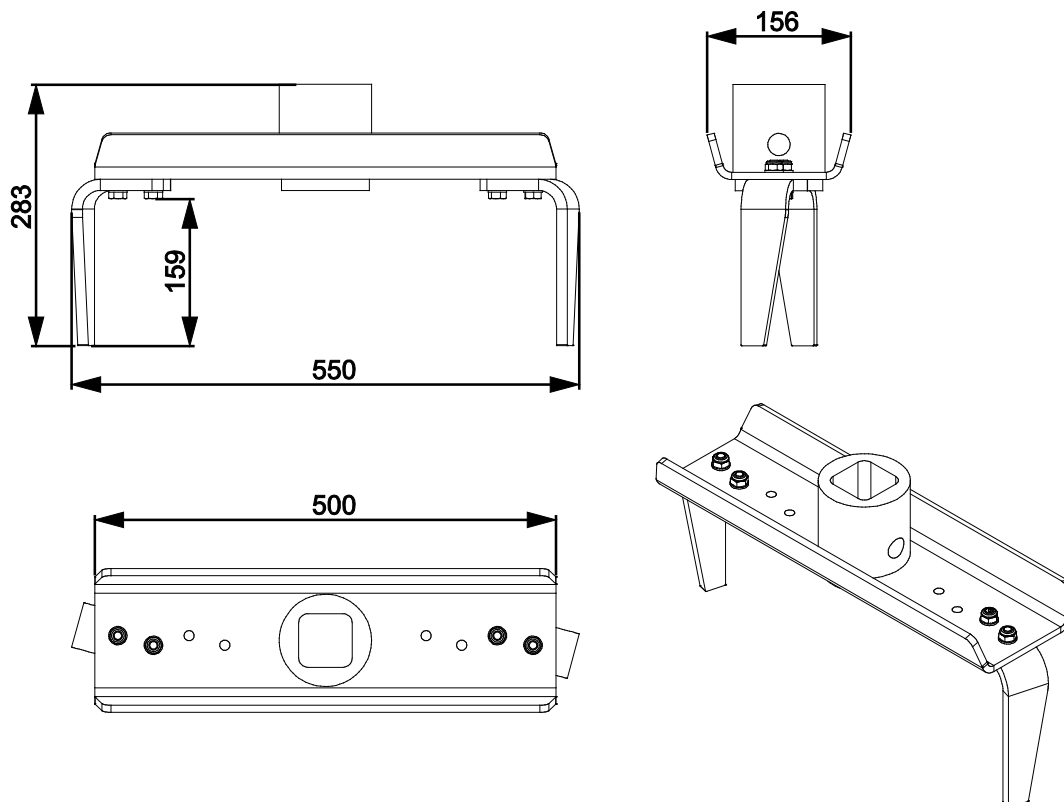
To prevent the bristles from bending, it is important to ensure that the broom is stored correctly. If the broom is left in a way that all the weight of the broom is applied on the brush, the bristles may bend permanently and the performance of the broom will decrease.

7.5 Rotary hoe

The rotary hoe is intended for small scale soil cultivating and mixing of top soil. The hoe is a simple and robust tool, and it is equipped with two knife type blades.

Rotary hoe - Specifications

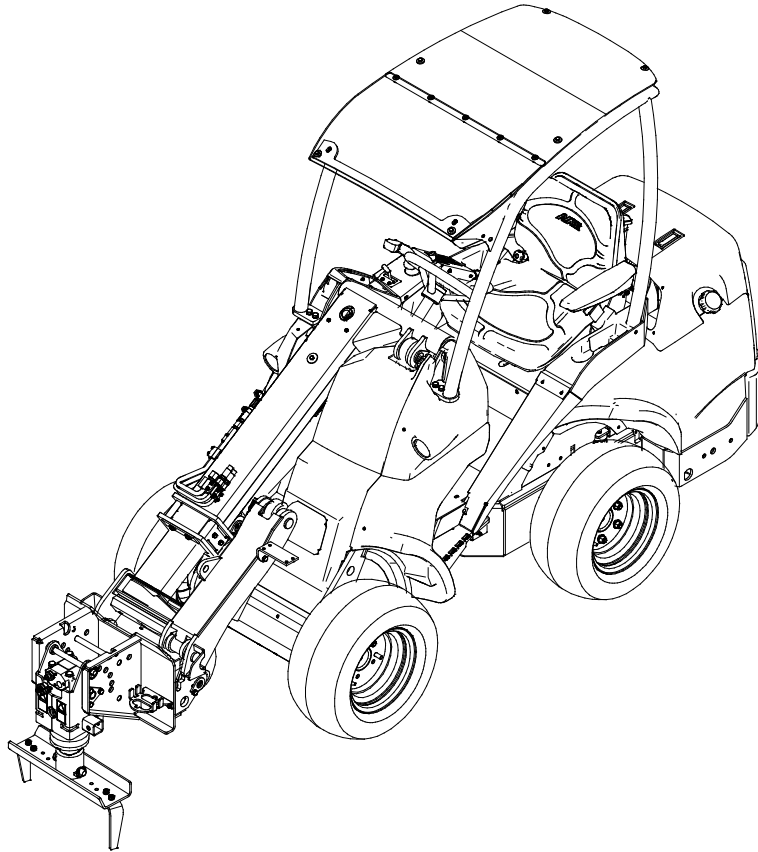
Product number	A37491
Width:	531 mm
Total height:	283 mm
Cultivating depth:	max. 160 mm
Weight	15 kg
Note	Can also be used with angle adapter



Before starting to use the rotary hoe:

- 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.
- Also make sure 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.

- Use the rotary hoe only for mixing of soft top layers of the ground.

***Adjustments:***

The blades can be fitted to the outer holes on the frame of the rotary hoe (standard configuration), or to the inner holes. If only a smaller area needs to be tilled, bolt the blades to inner holes.

Operating the rotary hoe:**CAUTION**

Risk of impact and entanglement - Start the rotary hoe only when beginning to use it. Do not leave the equipment running unattended. Do not go near the equipment when another person operates the controls of the loader.

To start the rotary hoe, turn the auxiliary hydraulics control lever of the loader to its locked position. The rotary hoe should be used with high engine rpm, and depending on the model of the loader, one or two auxiliary hydraulic pumps are used (where applicable).

The more dense 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 engine rpm must be used and the driving speed must be relatively low. In some cases, it may be useful 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 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.

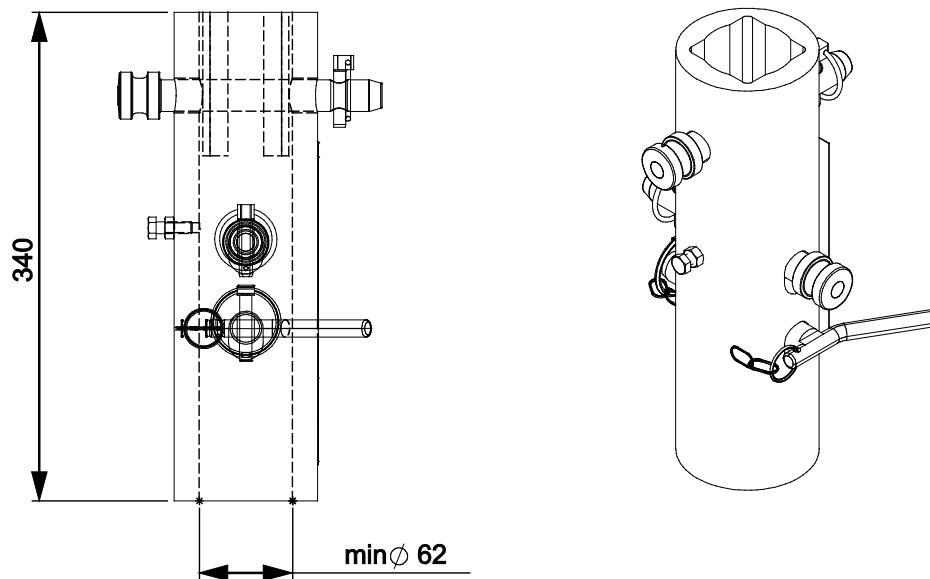
7.6 Screw pile adapter

With the Screw pile adapter it is possible to install screw piles in the ground quickly and easily. With the use of the drive unit, screw piles are driven into the ground, until the screw pile reaches the desired depth

The screw pile adapter mounts on the multi function drive unit and fits on Ø 60 mm screw piles. The actual capacity of the Multi function drive unit in screw pile drive use depends on torque required: how hard the ground is, and dimensions of the screw pile. The same adapter can be mounted on all Avant auger drives.

Screw pile adapter - Specifications

Product number	A418530
Inner diameter:	62 mm, round
Total height:	340 mm
Weight:	13 kg



7.6.1 Using the screw pile adapter

Before starting to use the screw pile adapter

Plan the drilling operation in advance. Make sure that it is safe to dig at the area. Explore the operating area and find out about possible electricity cables, water mains or other possible obstacles before starting to work. Hitting an obstacle may cause a serious accident. If in doubt about possible obstacles, seek professional advice and consider using detection equipment. You may be required by law to contact your local authorities before using an auger to make sure that there are no hidden and potentially dangerous obstacles in the ground.

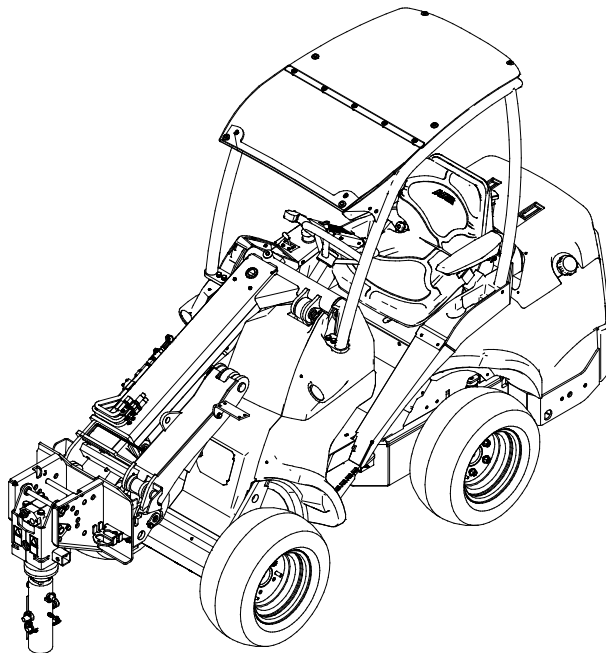
Operating the screw pile adapter:



Risk of entanglement - Always stop the attachment by following the safe stopping procedure before leaving the driver's seat. Never allow anyone to be near the work area when the Multi function drive unit is in use. Remember to follow the safe shutdown procedure also if the screw pile gets stuck in the ground. When removing a blockage, the attachment may rotate unexpectedly immediately after the blockage has been cleared. Keep a safe distance to a rotating auger and stay back if other person operates the controls of the loader. Never grasp the auger or try to control or guide it manually.



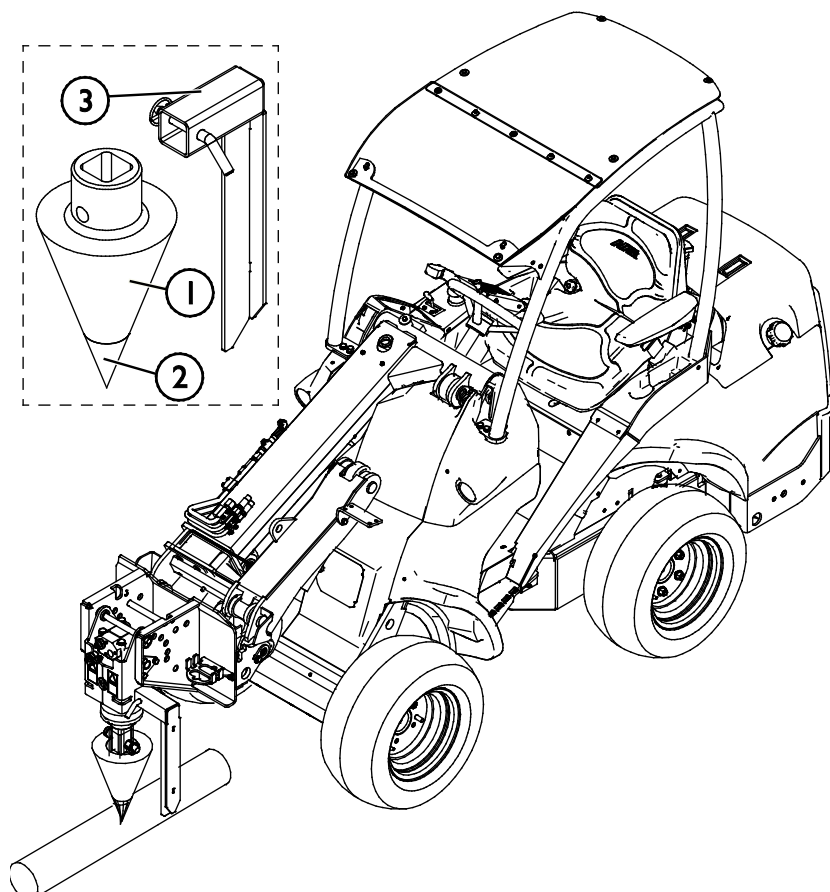
The screw pile adapter is intended to be rotated slowly (used with low engine rpm).



7.7 Log splitter

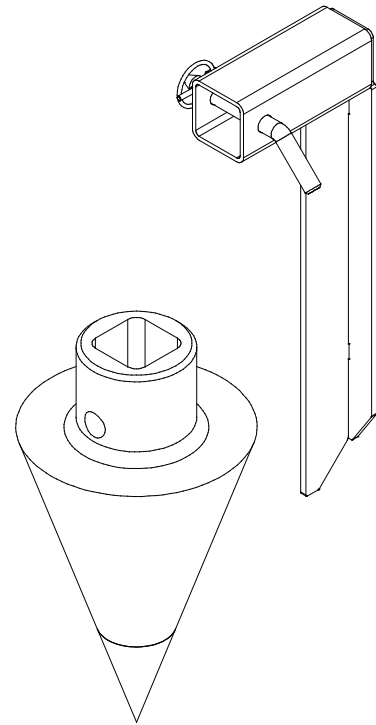
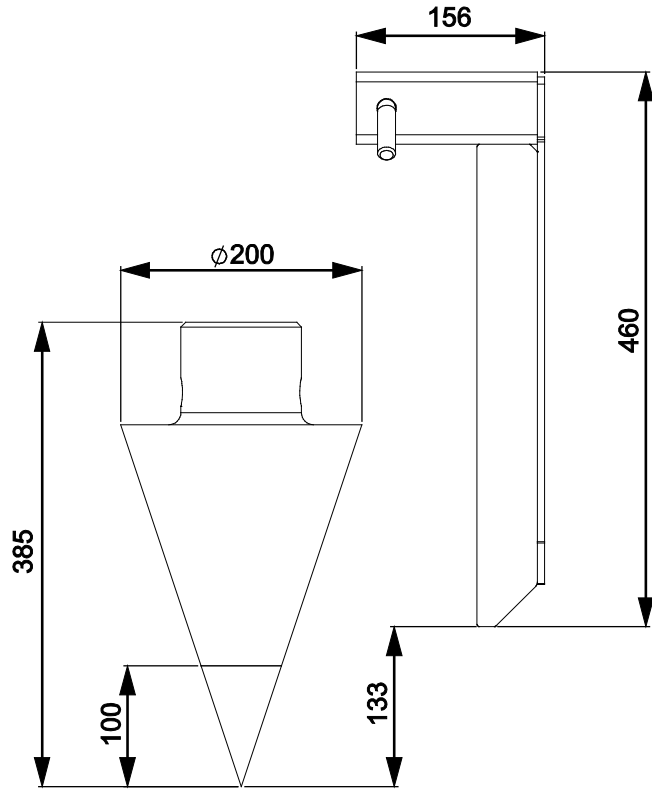
The screw cone log splitter is a conical splitting screw that has a replaceable tip. The splitter is equipped with a log holder bar which prevents the log from rotating during splitting. The tool is intended for splitting wood logs.

The screw cone log splitter is equipped with conical splitting screw (1) and replaceable tip (2). Logs should be laying down when being split. Log holder bar (3) prevents the rotation of the log, and a precision machined threaded screw penetrates into the log forcing it to split.



Screw cone log splitter - Specifications

Product number	A37500
Length:	593 mm
Total width:	356 mm
Weight:	30 kg



7.7.1 Using the log splitter

Before starting to use the screw cone log splitter:

Make sure that the splitting screw and its tip are intact and can rotate freely, and that there is no string or other foreign material coiled around the shaft of the drive unit.

Always install the Log holder bar (see picture below) before using the log splitter. If the Log holder bar is not installed, the log splitter cone will start to rotate logs instead of splitting them efficiently.

NOTICE

The log splitter cone and its replaceable tool tip are precision machined tools. Never lower the log splitter cone tip on a hard surface. Avoid dropping of the cone and hitting any obstacle or rocks with it.

Operating the screw cone log splitter:



WARNING

Risk of entanglement from sudden start of the attachment - Prevent the attachment from starting before clearing blockages. When removing a cone screw that has become stuck, the Drive unit may begin to rotate unexpectedly immediately after the blockage has been cleared. Always follow the safe stopping procedure before leaving the driver's seat.



WARNING

Risk of entanglement - Keep a safe distance to a rotating cone screw. Never feed wood manually to the splitter. Start the log splitter only when beginning to use it. Do not leave the equipment running unattended. Do not go near the equipment when another person operates the controls of the loader. Stay back if other person operates the controls of the loader. Never grasp the cone screw or try to control or guide it manually.

To start the attachment, turn the auxiliary hydraulics control lever of the loader to its locked position. The log splitter is usually used with low engine rpm, and depending on the model of the loader, one or two auxiliary hydraulic pumps are used (where applicable).

The logs should be laying down, so that the screw cone is pushed in from the side of the log. If the screw cone becomes stuck in a log, rotate the drive unit to the opposite direction and lift with the loader boom.

If the tip is blunt and the wood does not split before it is pulled to the end of the cone, it can cause the cone to get stuck or require a much higher force to be applied on the wood. When using properly designed Avant tip and thread profile, the cone and the thread will allow you to almost effortlessly pull the wood onto the cone.

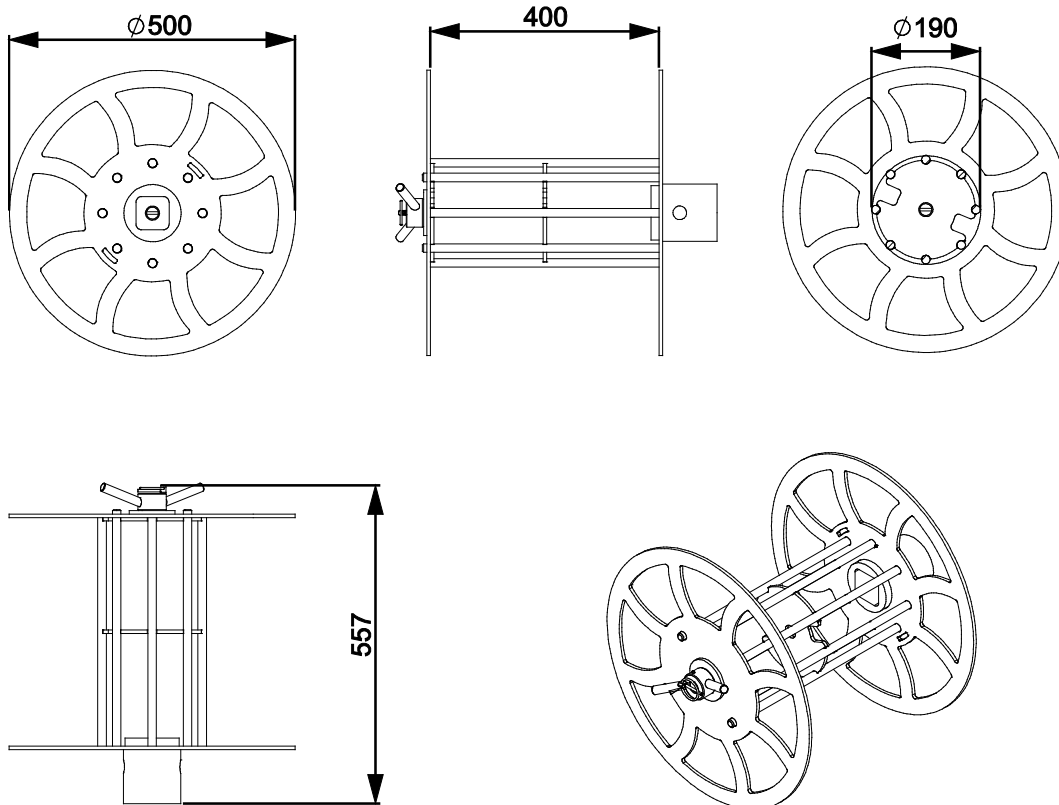
7.8 Cable/hose reel

The cable and hose reel is a simple accessory for coiling and storage of cables and hoses.

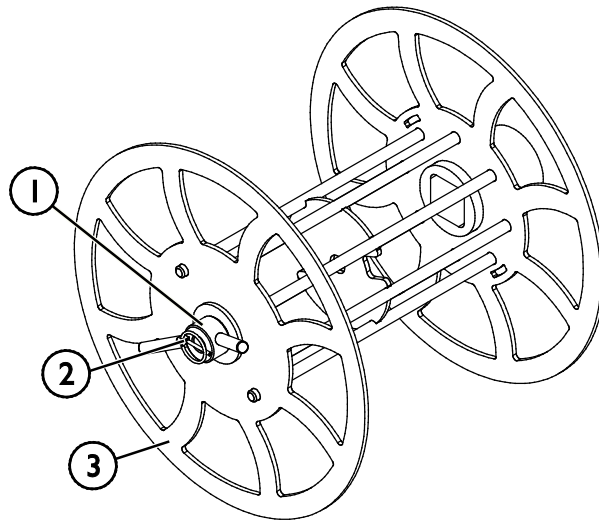
When using the cable/hose reel, the 90 degree angle adapter of the Multi function drive unit makes it possible to coil a cable or hose from the front direction. This makes it possible to drive with the loader and to collect a cable or hose at the same time.

Cable/hose reel - Specifications

Product number	A37311
Reel diameter:	190 mm
Diameter, outer:	558 mm
Width of the reel:	400 mm
Weight (empty):	25 kg
Note:	Can also be used with angle adapter



The reel frame is one-piece structure with a separate end plate. Its collector part is fixed to the rotating reel body. The end plate (3) is locked with adapter sleeve (1) and locking pin (2).

**DANGER**

Risk of entanglement and crushing between moving components - Always stop the attachment by following the safe stopping procedure before going near the cable or hose that is being reeled. Handling the cable or hose when the cable/hose reel rotates creates a hazard of entanglement. Always stop the loader following the safe stopping procedure before going near the attachment.



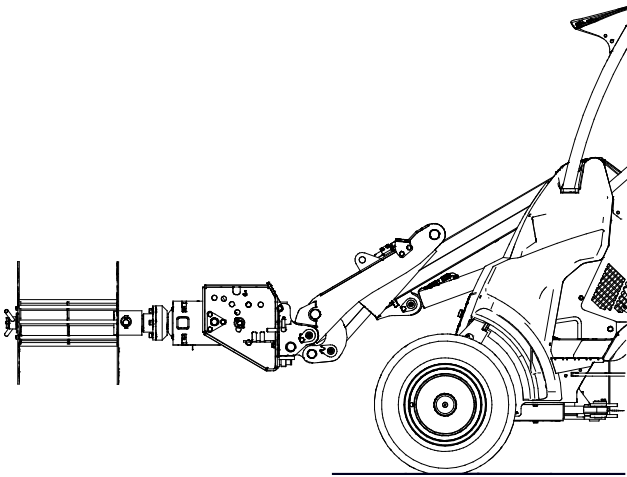
7.8.1 Attaching the cable/hose reel

Before starting to use the cable/hose reel

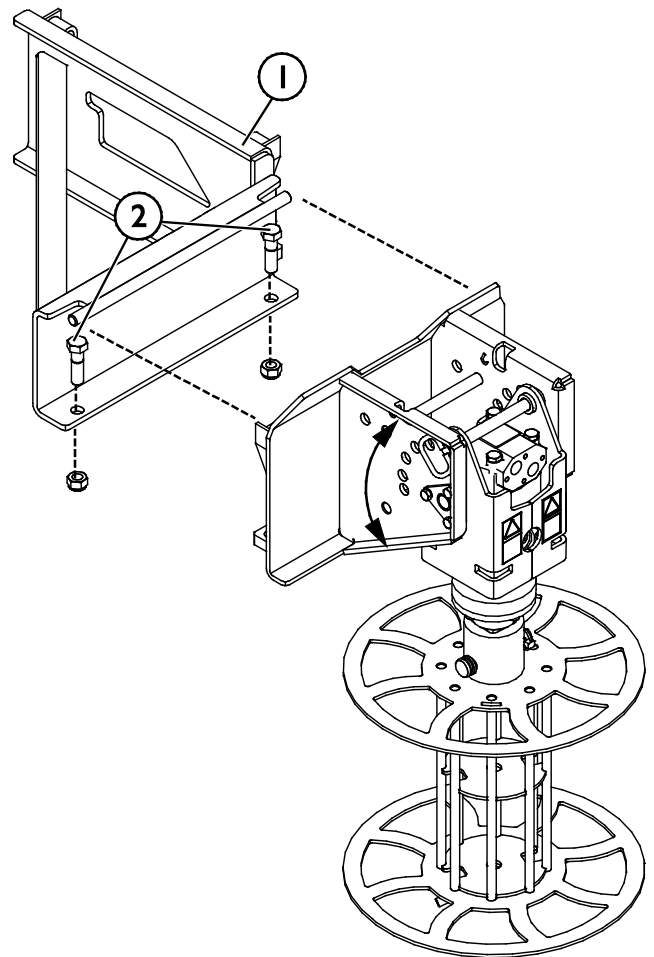
Always make sure the cable/hose reel is properly mounted before beginning to use it.

1. When using the cable reel, the multi function drive unit can be mounted to the loader without the angle adapter, in which case the cable is reeled in from the side
2. The cable/hose reel may be turned 90 degrees to left, when longitudinal reeling is necessary. To make this possible, the 90 degree angle adapter (1) is installed between the drive unit and loader. The drive unit is fixed to the angle adapter with bolts (2).

When the Drive unit mounted without angle adapter, the cable/hose will be reeled in from the side



Multi function drive unit mounted to the loader with the angle adapter



DANGER

Risk of entanglement and crushing between moving components - Always stop the attachment by following the safe stopping procedure before going near the cable or hose that is being reeled. Handling the cable or hose when the cable/hose reel rotates creates a hazard of entanglement. Always stop the loader following the safe stopping procedure before going near the attachment.





Risk of entanglement - Keep a safe distance to a rotating reel. If the reel for any reason stops rotating, the attachment may rotate unexpectedly immediately after the reason for stop has been cleared. Stay back if other person operates the controls of the loader. Do not grasp the reel or try to control or guide the hose/cable manually.



Risk of electric shock - Always ensure that all electric power is disconnected from the cable before reeling it. Always remove electric cable completely from the reel before you connect the cable to an electric socket.

NOTICE

Before operating the cable/hose reel, ensure that the angle adapter has been correctly locked with the pin, and that the hydraulic hoses are not in contact with the reel.

Direction of rotation:

To start the attachment and to reel in cable or hose, turn the auxiliary hydraulics control lever of the loader. Either direction of rotation can be used. The selection of the direction of rotation depends on preferred way of emptying the reel:

- If you use the locking position of the auxiliary hydraulics control lever of the loader to reel in cable or hose, unreeling is possible by holding the lever in the opposite direction, or by removing the reel from the drive unit.
- If you turn the auxiliary hydraulics control lever away from the locking position to reel in cable or hose, you can use the locking position to unreel it.

The cable/hose reel is should be used slowly, with low loader engine rpm, and only one auxiliary hydraulic pump of the loader should be used is used (where applicable).

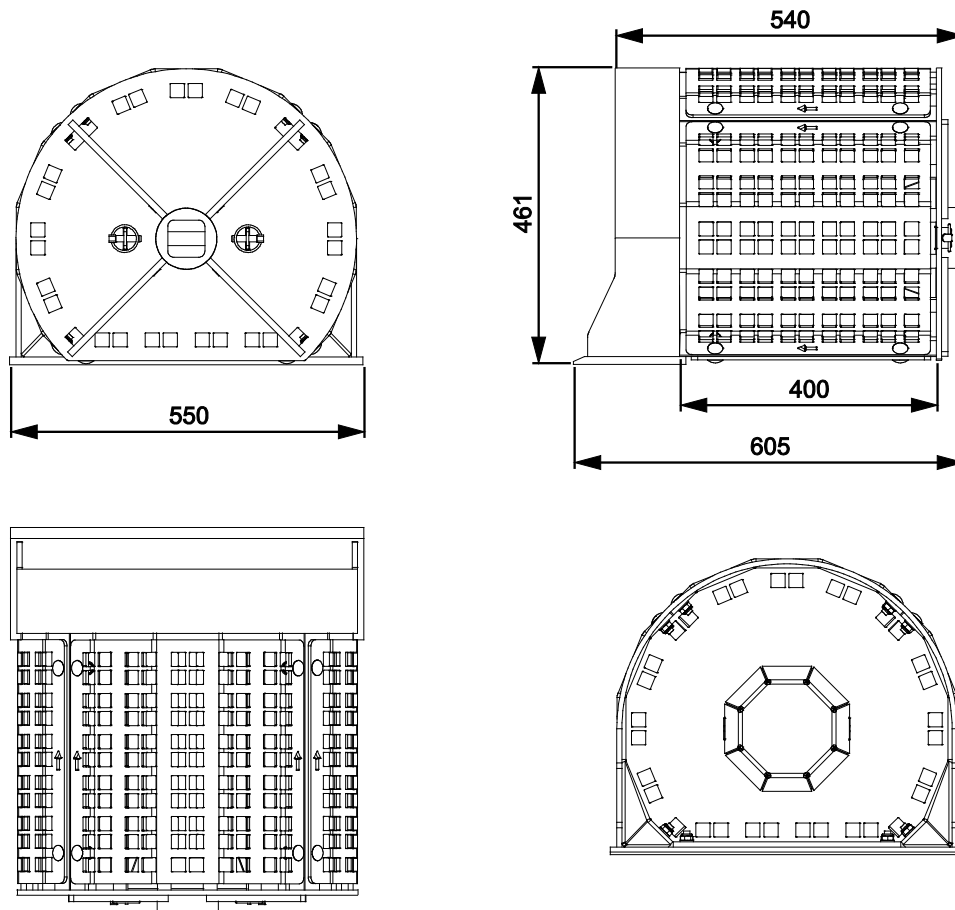
7.9 Screening drum

Avant screening drum is intended for screening of soil, gravel and sand into fractions of different sizes. Depending on wanted separation size, two separate sieves are available for optimizing the screening result: a sieve with 50x50 mm holes and a separate 22x22 mm sieve, which is bolted on the drum when finer screening is required.

The screening drum can be filled manually, or in a similar way as a bucket, when handling light materials. The screening drum is not intended for picking up hard packed soil. It should not be used with the full force of the tilt function of the loader to avoid excessive strain.

Screening drum - Specifications

Product number	A37207
Total volume:	90 l
Length:	605 mm
Width:	500 mm
Weight (empty):	75 kg



7.9.1 Using the screening drum

Before starting to use the screening drum

The screening drum mounts on the shaft of the multi function drive unit. Always make sure the screening drum is properly mounted before beginning to use it.

Operating the screening drum:



Risk of severing of fingers - Never put your fingers through the holes of the screening drum. The holes of the screening drum can easily cut fingers, if the screening drum rotates by means of hydraulic oil flow from the loader, when turned manually, or because of material shifting in the drum due to gravity. Never reach into the screening drum.



Risk of entanglement - Keep a safe distance to the screening drum. Start the attachment only when beginning to use it. Do not leave the equipment running unattended. Do not go near the equipment when another person operates the controls of the loader. Stay back if other person operates the controls of the loader. Never reach into the screening drum while it is in use. Follow the safe stopping procedure before going near the screening drum.

NOTICE

Avoid damaging the screening drum. Never use the full force of the loader boom, the screening bucket is not intended to withstand it.

The screening drum is not intended to pick up heavy or packed materials as a bucket. The drum will get bent or otherwise damaged if it is used to pick dense, packed, or heavy materials. Also, when handling light materials, lifting from a pile must never be done in a way that puts heavy load and strain on the attachment.

Never push the screening drum into or against a pile.

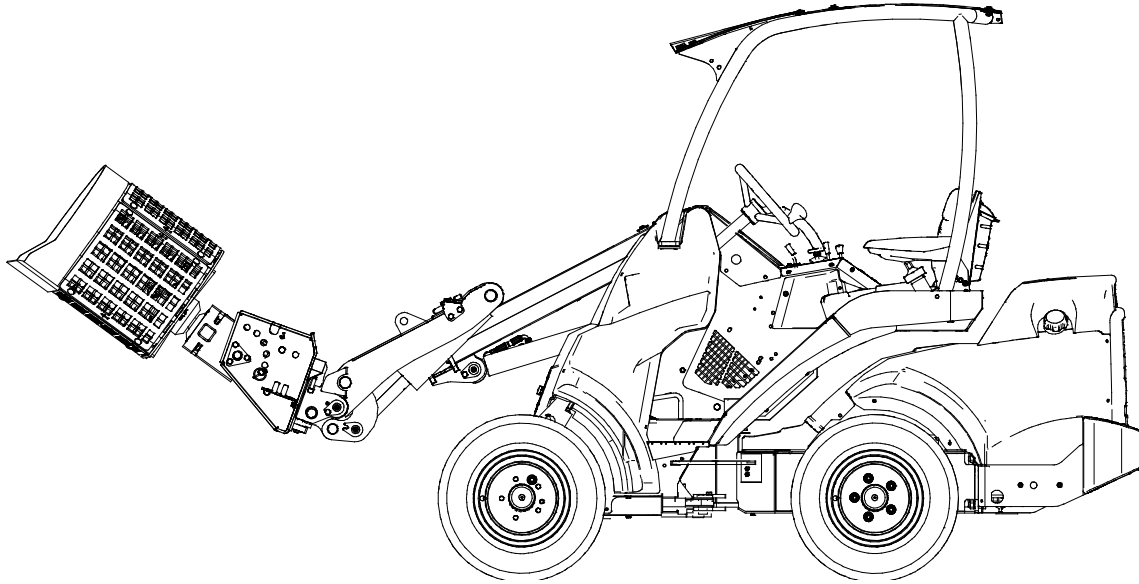
Fill the screening drum manually with a shovel, or carefully pick material from ground or a pile. Only loose and light materials can be picked in this way. Never use the loader boom in a way that puts the screening drum under high stress.

To avoid damaging the screening drum:

- Empty the screened material before filling the drum with the next batch
- Do not push the screening drum into a pile
- Do not tilt the attachment up towards the loader, if the edge of the drum is in a pile

To start the attachment, turn the auxiliary hydraulics control lever of the loader to its locked position. The screening drum should be rotated slowly (low loader engine rpm).

Typical position of the screening drum during use:

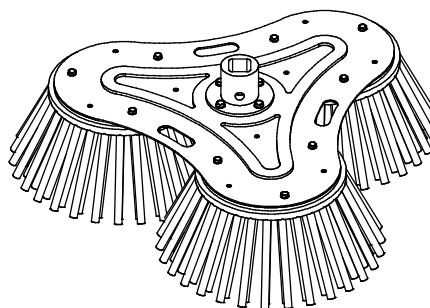
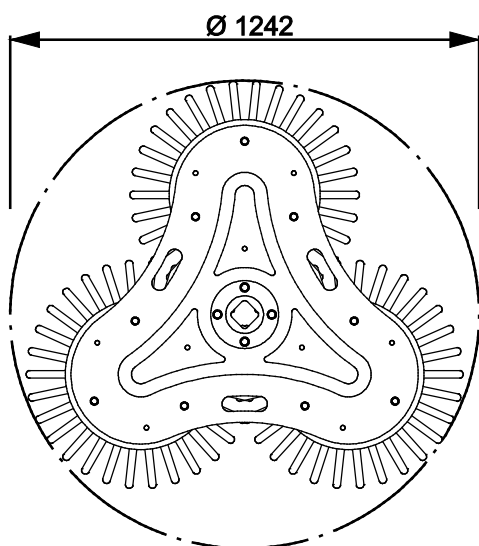
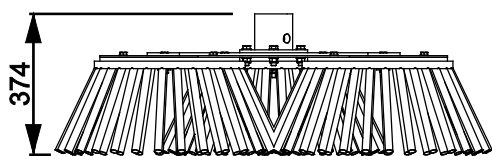


7.10XL weed brush

The XL weed brush is an useful attachment for sweeping material from pavements, for example. There are three rotating bristle units in the brush, and each bristle unit is equipped with heavy duty wire rope bundles. The width of one bristle unit is 600 mm and the total working width of the attachment is about 1240 mm. The direction of rotation can be selected freely.

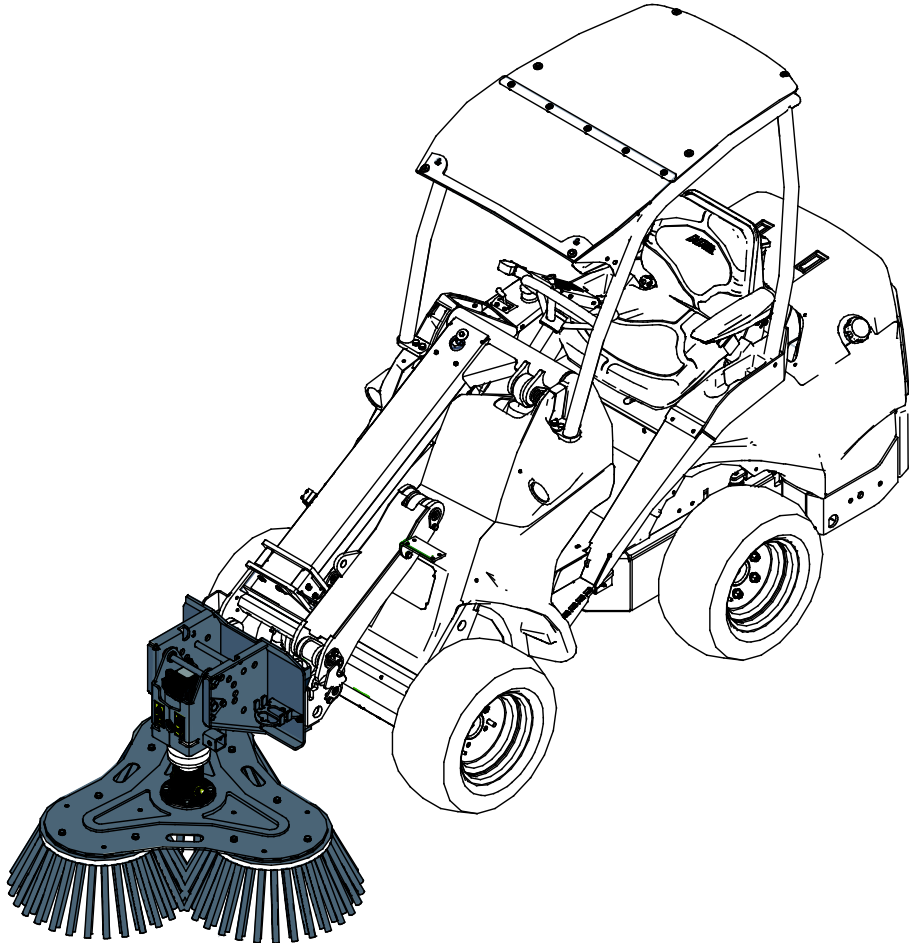
XL weed brush - Specifications

Product number	A37317
Reel/Brush diameter:	1000 mm
Brush material	Nylon
Replaceable brush:	A32698
Height:	317 mm



7.10.1 Using the XL weed brush

Adjust the rotating speed of the broom according to operating conditions, keeping it within the limits shown on page 12. Slow to moderate loader engine RPM level is usually enough to rotate the broom adequately so that the broom sweeps the material neatly to its side. On 600- and 700-series loaders one or two working hydraulic pumps may be used according to operating conditions. High rotating speed will wear down the brush more quickly and usually it is not necessary to use high rotating speeds.



WARNING

Hazard of thrown objects - Keep bystanders away. Note that the broom may eject sand, stones, pieces of wood or other material far from the broom. Stop using the broom, if there are others closer than 5 meters from the broom.

NOTICE

In order to prevent the brush from getting damaged or worn unevenly, do not use the broom for pushing purposes, without rotating it simultaneously.

7.10.2 Storage of the weed brush

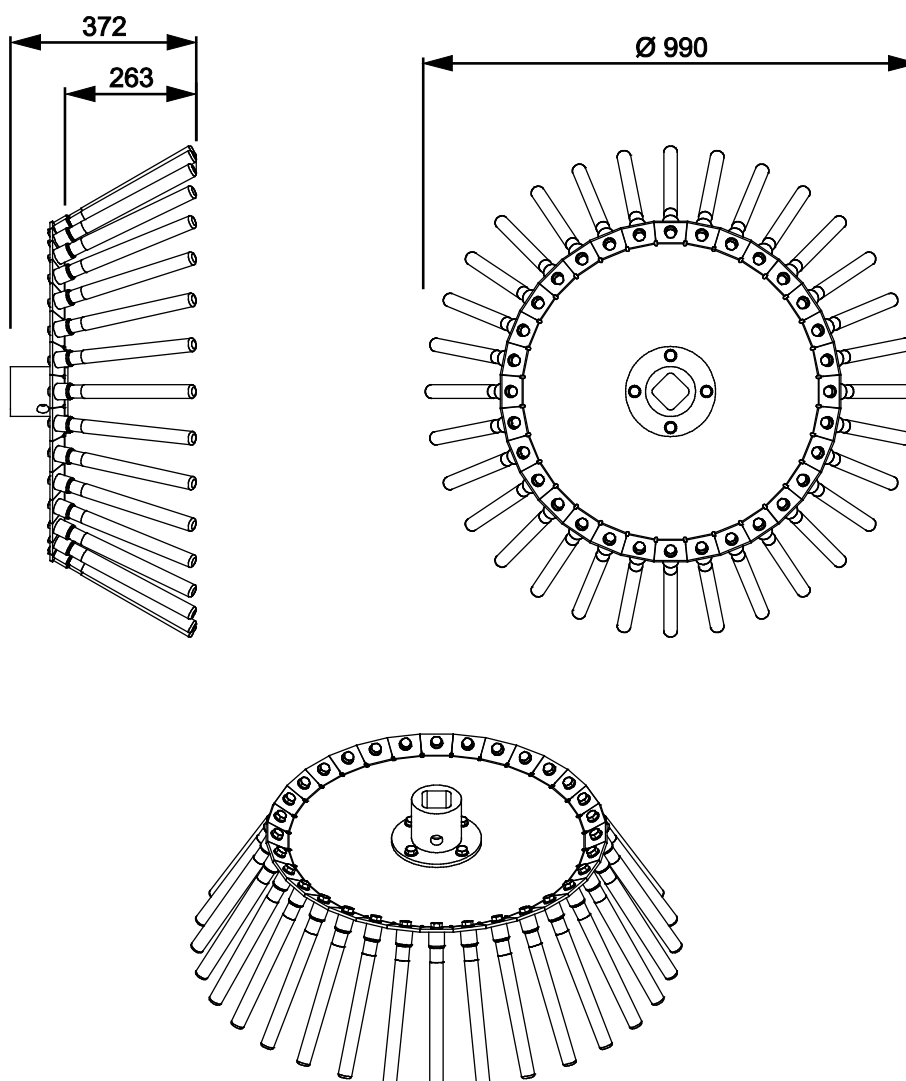
To prevent the bristles from bending, it is important to ensure that the weed brush is stored correctly. If the brush is left in a way that all the weight of the attachment is applied on the brush, the bristles may bend permanently and the performance of the brush will decrease.

7.1 | Wire rope brush

The wire rope brush is a tool that is intended for heavy duty sweeping. The brush is equipped with 32 robust wire ropes. The working width of the attachment is 990 mm. The direction of rotation can be selected freely.

Wire rope brush - Specifications

Product number	A431157
Working width:	990 mm
Replaceable wire rope:	A422669 (32 pcs)
Height:	372 mm
Weight:	36 kg

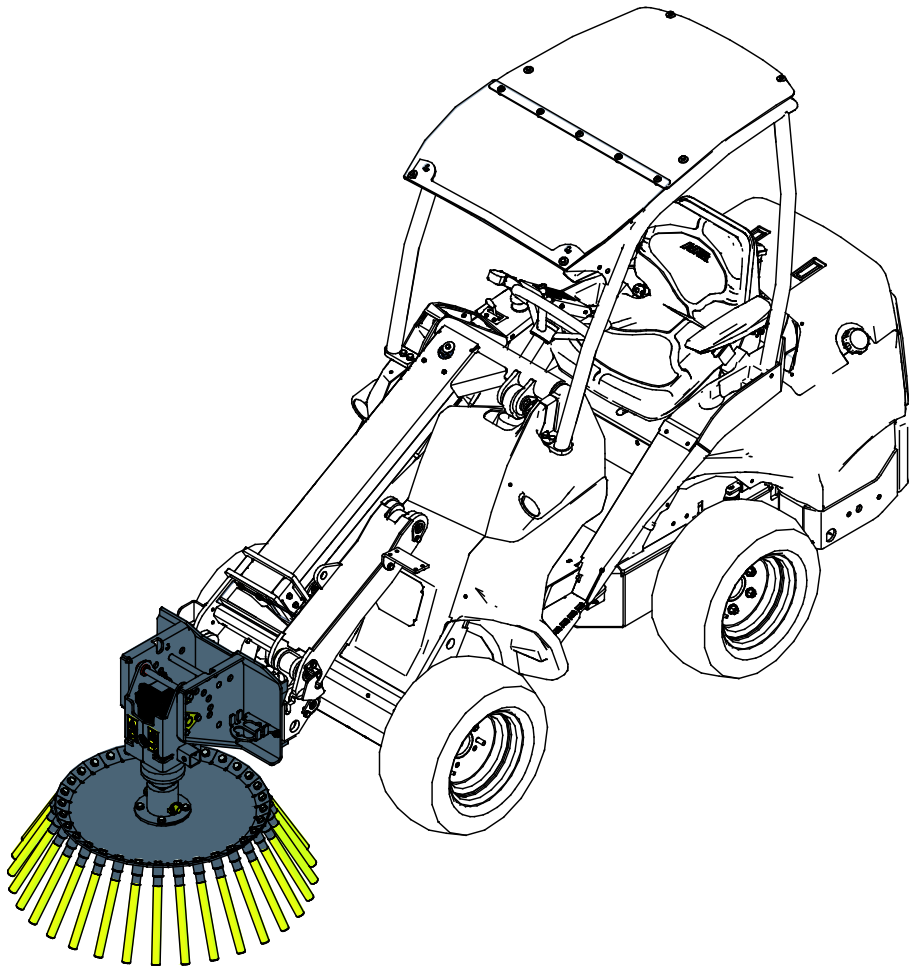


7.11.1 Using the wire rope brush

**WARNING**

Hazard of thrown objects - Keep bystanders away. Note that the broom may eject sand, stones, pieces of wood or other material far from the broom. Stop using the broom, if there are others closer than 5 meters from the broom.

Adjust the rotating speed of the broom according to operating conditions, keeping it within the limits shown on page 12. Slow to moderate loader engine RPM level is usually enough to rotate the broom adequately so that the broom sweeps the material neatly to its side. On 600- and 700-series loaders one or two working hydraulic pumps may be used according to operating conditions. High rotating speed will wear down the brush more quickly and usually it is not necessary to use high rotating speeds.

**NOTICE**

In order to prevent the brush from getting damaged or worn unevenly, do not use the broom for pushing purposes, without rotating it simultaneously.

8. 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.



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.

8.1 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.

8.2 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, or at the labels on the attachment.

8.3 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.

8.4 Lubrication

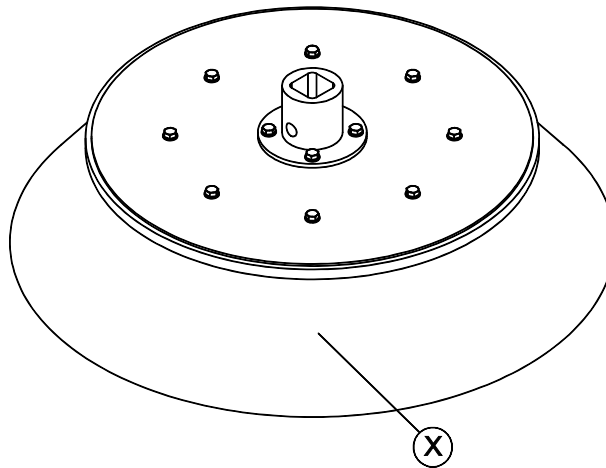
There are no specific lubrication points on the multi function drive unit or its work tools.

8.5 Maintenance of the work tools

8.5.1 Carousel broom

Checking the carousel broom brush:

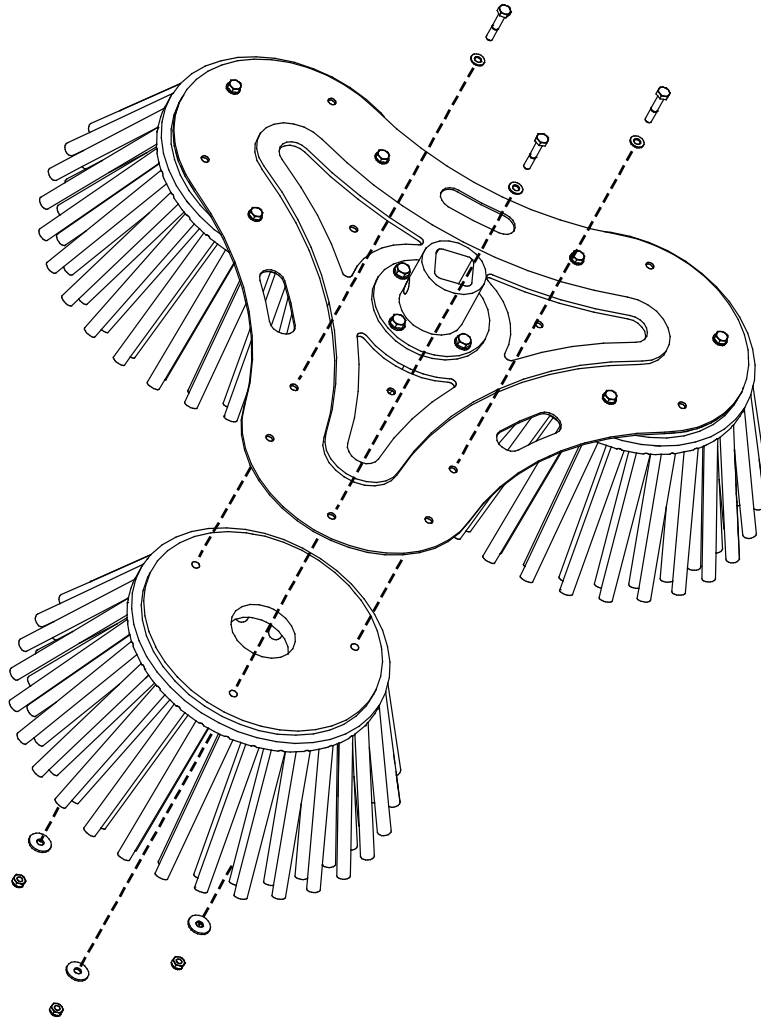
The material of the bristles is nylon/steel and in normal operating conditions the broom has a good wear resistance capability. As the brush (X) wears down it loses its effectiveness and an excessively worn brush may be replaced. If the broom vibrates or makes abnormal noise during use, clean the broom thoroughly and remove any trash stuck on the brush or the axle.



8.5.2 XL weed brush

Checking the bristles

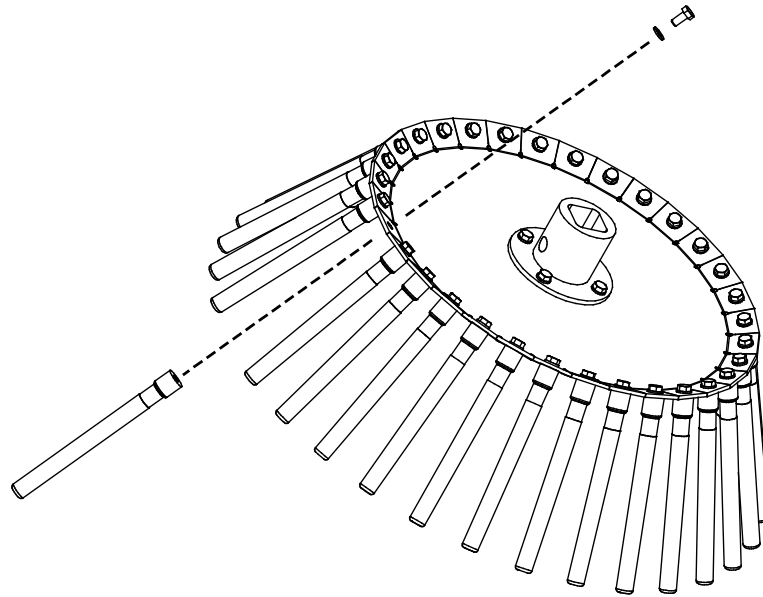
The condition of the bristles should be checked after every few uses. When the bristles are in good shape, they sweep the surface better and therefore the weed brush needs less power to operate. If the bristles are damaged, the bristle unit A419753 should be replaced with a new one.



8.5.3 Wire rope brush

Checking the wire ropes:

The material of the wire rope is steel and in normal operating conditions the brush has a good wear resistance capability. However, the condition of the wire ropes should be checked after every few uses. Any damaged wire ropes A422669 should be replaced with new ones.



8.5.4 Auger

Checking the auger blades

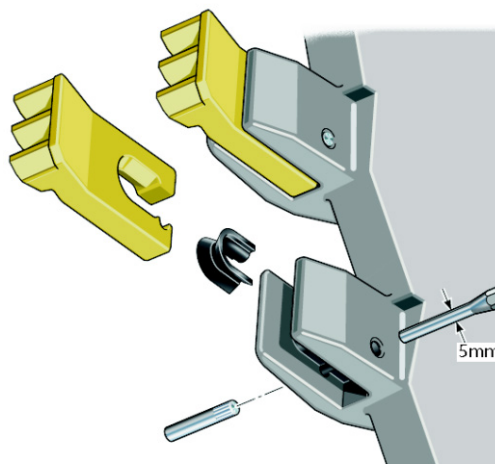
The hard-alloy tungsten tipped blades have good wear resistance capabilities. The performance of the auger decreases as the blades wear, or if the auger gets damaged. Worn teeth or pilot can drastically reduce auger penetration and reduce auger service life.

Check auger before each day of use for loose, worn or broken cutting teeth and pilot head. Hard operating conditions may require checking teeth and point at more frequent intervals. Replace the blade bits before the blade locking, fixing points or the auger get damaged. It is recommended to keep spare teeth and pilot head on hand. The hard-alloy blades can not be sharpened, they must be replaced when worn. New blades and other spare parts are available from your Avant dealer.

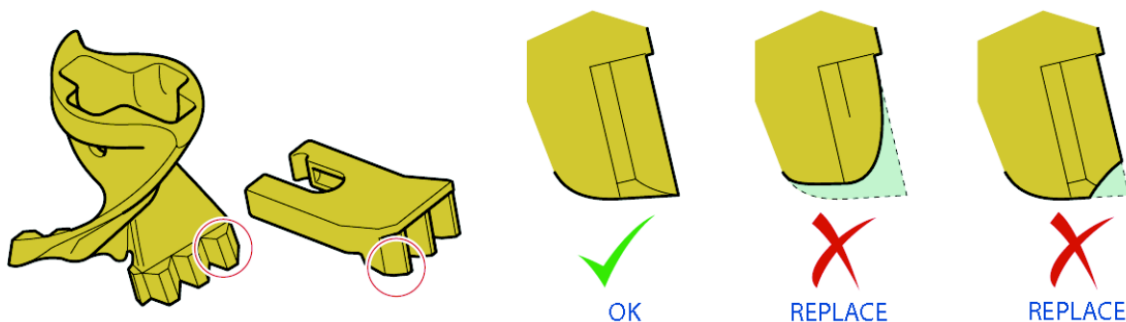
Shock lock teeth:

Use a 5 mm pin punch to drive the retaining pin out through the bottom of the tooth holder. The blade tooth and shock lock rubber can then be pulled out.

After setting a new rubber piece and a replacement shock lock tooth to the slot, insert a new retaining pin into the top of the tooth holder, plain end first. Drive the pin fully in, use a pin punch to make sure that the knurled end of the pin is fully engaged in the hole.

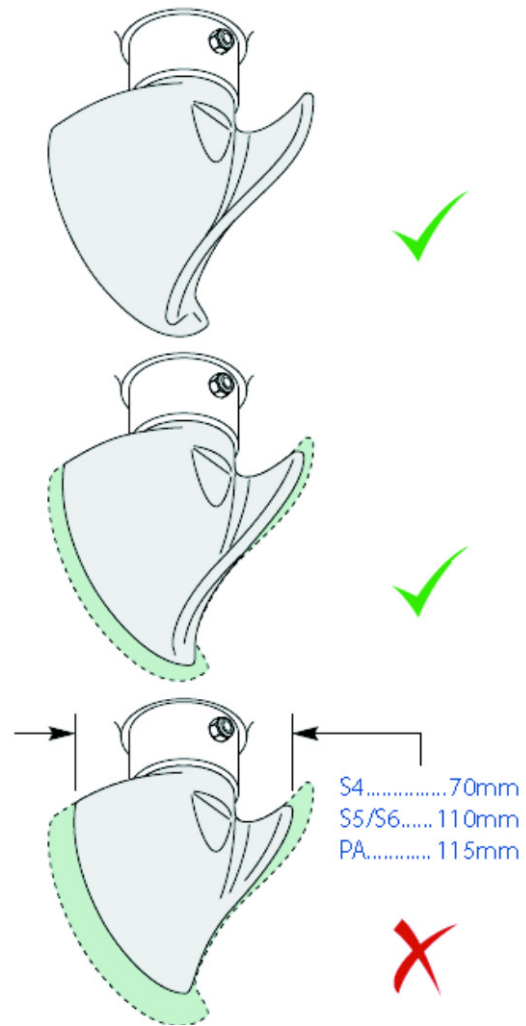


Shown below are the recommended replacing points for blade bits. Replace blades before the tooth holders or the auger gets damaged.



Pilot head:

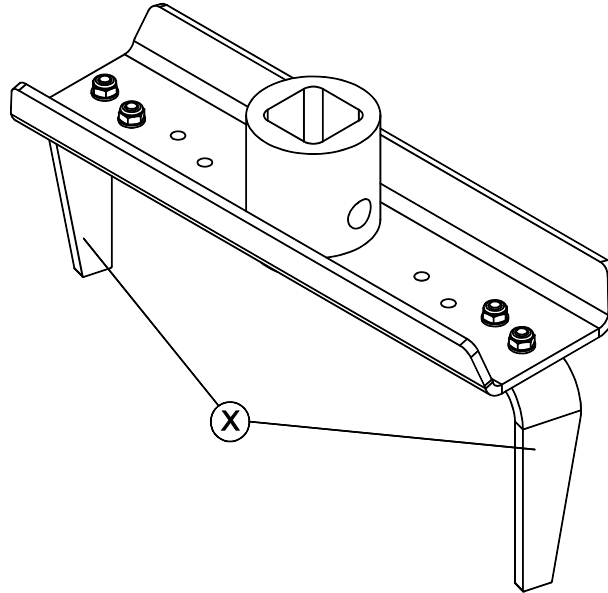
Check the pilot head by measuring its wear as shown in the adjacent figure. Handle the augers carefully and avoid damaging the pilot head by making sure to transport it so that the head will not hit the ground.



8.5.5 Rotary hoe

Checking the rotary hoe blades

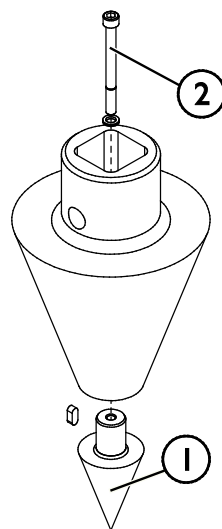
The condition of the blades (X) should be checked after every few uses. When the blades are in good shape, they penetrate to the ground surface better and therefore the hoe needs less power to operate. If the performance of the rotary hoe has weakened from the original, the blades have probably become very blunt or either of them has 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.



8.5.6 Log splitter

Checking the splitting screw of the log splitter

The condition of the splitting screw should be checked after every few uses. When the the splitting screw is in good shape, it penetrates to the wood better and therefore the tool needs less power to operate. If the performance of the log splitter has weakened from the original, the splitting screw or its tip is probably worn out or damaged. Replace worn tip (1) by loosening fastening screw (2).



9. 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



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 monitoimipyöritin; Avant-kuormaaajan työlaite Hydraulisk Multifunktionsaggregat; arbetsredskap för Avant lastare Hydraulic Drive unit; attachment for Avant loaders	A37190



18.8.2021 Ylöjärvi, Finland

Risto Käkelä,
Toimitusjohtaja / Verkställande direktör /
Managing Director



AVANT[®]