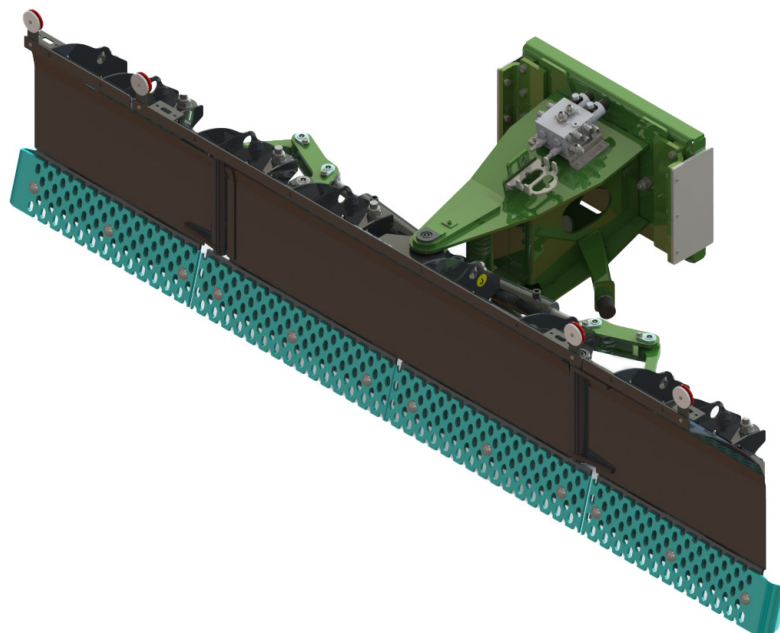


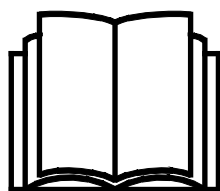
AVANT[®]

Operator's Manual for Attachment



U-Plow

Product number: A438439



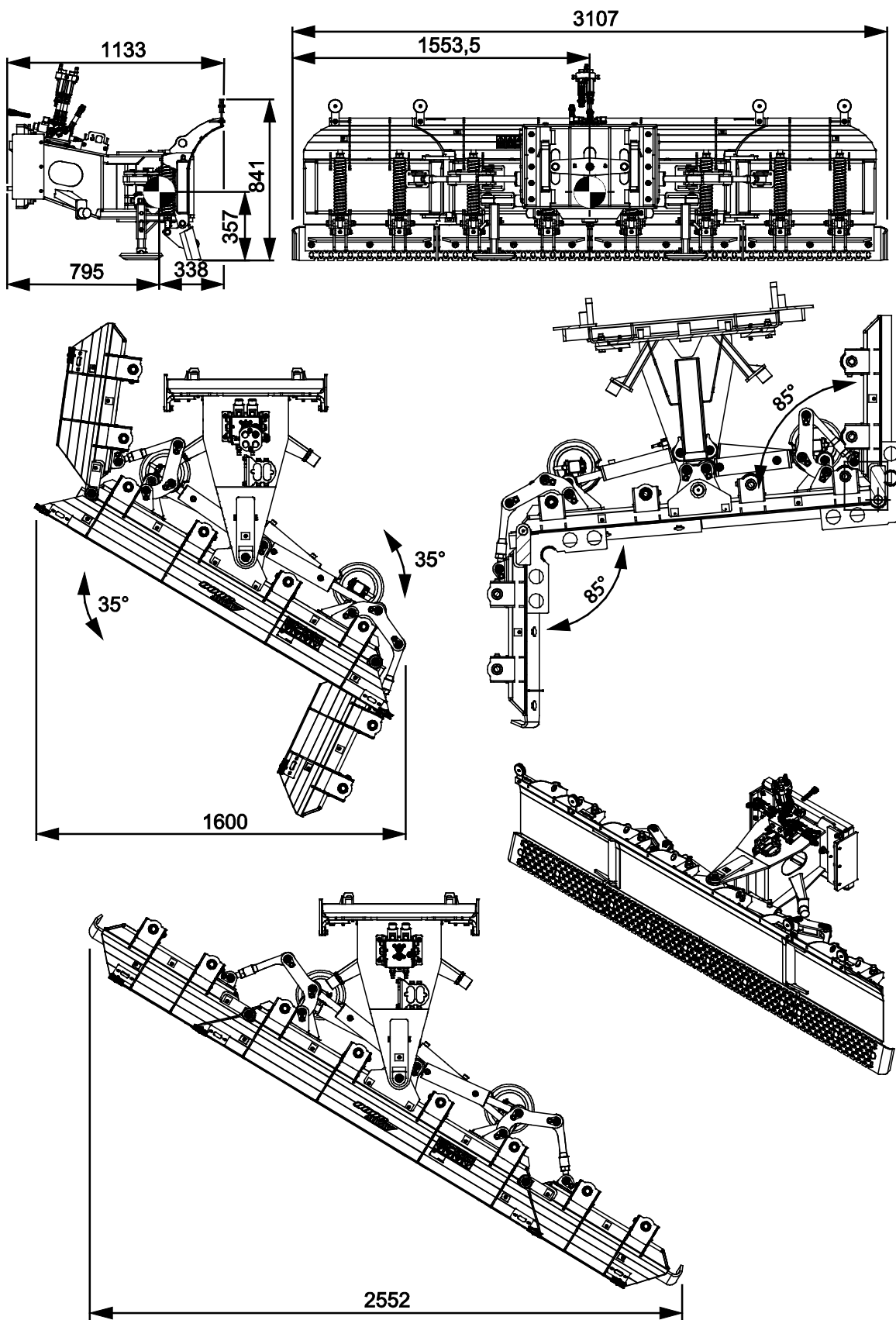
Please read this manual carefully before using the equipment,
and follow all instructions.

Keep this manual for later reference.

Manufacturer:

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

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



CONTENTS

1. FOREWORD	4
Warning symbols used in this manual	5
2. DESIGNED PURPOSE OF USE	6
3. SAFETY INSTRUCTIONS FOR USING THE SNOW PLOW	7
3.1 Personal protective equipment.....	8
3.2 Safe shutdown procedure	9
4. TECHNICAL SPECIFICATIONS	10
4.1 Safety labels and main components of the attachment	11
5. ASSEMBLING THE ATTACHMENT	13
5.1 Connecting and disconnecting hydraulic hoses	14
5.2 Electric connection	16
6. OPERATING THE ATTACHMENT	17
6.1 Checks before use	18
6.2 Operator qualification.....	18
6.3 Operating position	19
6.4 Controlling the plow - different functions of the plow	20
6.5 Hinged lower blade sections	22
6.6 Blade edges	22
6.7 Marker light kit (Optional extra)	23
6.8 Transport position	23
6.9 Storing the attachment	24
7. MAINTENANCE AND SERVICE	25
7.1 Inspection of hydraulic components	25
7.2 Cleaning the attachment.....	26
7.3 Inspection of metal structures.....	26
7.4 Lubrication	26
7.5 Blade edges	27
7.6 Spring release mechanism	27
7.7 Side wing angle.....	28
7.8 End of life disposal.....	28
8. WARRANTY TERMS	29

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 U-Plow is an attachment that is suitable for use with AVANT compact loaders that are shown in Table 1. The U-Plow is a versatile, articulated snow plow with adjustable width. It is intended for clearing and pushing snow on street areas and other level surfaces. This type of snow plow is especially suitable for removing snow from places where there are both narrow places and large open areas.

There are altogether four hydraulic cylinders for stepless hydraulic adjustment of the sections of the plow. By adjusting the hydraulically operated sections of the plow it can be set to different operating modes. When one or both side wings are folded back or the whole plow is folded, the plow will push snow to either side. The wings can be folded to the front for collecting operating mode. An electro-hydraulic control valve on the U-Plow makes it possible to control the blade and its sections electrically directly from the driver's seat. To operate all of these functions, the loader must be equipped with Opticontrol® attachment control system.

The operating height of the plow can be adjusted by means of the support skids. The blade leans slightly forward for better performance during snow clearing work. The blade edges are made from premium quality, wear resistant steel, and can be replaced if needed. The separate blade sections of the plow are held down with springs to reduce the possibility of a sudden stop in case the plow hits an obstacle. Regardless of this spring-release system, low drive speed must be used, and care must be taken to avoid hitting obstacles while driving.

The U-Plow is not designed for any other use than what is specified in this manual and it must not be used for any other purposes than what it 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 - U-Plow - 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
A438439	-	-	-	-	-	-	•	•	-

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 snow plow

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 impact from sudden stop - Never plow at high speed unless you can be sure that there are no obstacles at the working area.** The loader may stop suddenly if it hits an obstacle. Remember that there may be hidden obstructions or fragile surfaces under the snow. Always use seat belt and drive with caution.
- **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.
- 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.
- Operate only at well lit areas. Make sure that all lights of the loader are in good condition, clean, and adjusted correctly. Extra work lights are recommended for the loader when operating during dark. Mark any obstacle at the work area before plowing to avoid collisions.
- 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.
- Never use the attachment to lift or to transport persons or as any kind of work platform even temporarily.
- Shut down the loader and place the attachment to a safe position as shown in Safe stopping procedure before any cleaning, maintenance, or adjustments.



WARNING

- Use the attachment only for its intended purpose. Other use may create unnecessary safety risks, and the equipment may get damaged.
- Make sure that the loader is equipped with necessary safety components, and that they are in working condition. Seat belt must be used. If there are specific hazards related to the operating area, use appropriate safety equipment.
- Also read the safety instructions and correct use of the loader from the operator's manual of the loader.



DANGER

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

Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down (crushing hazard). The loader is not intended to be left to keep a load elevated for longer periods. Always lower the attachment to a safe position before leaving the driver's seat.

NOTICE

Observe the local regulations concerning the use of the equipment on public roads. The loader may need to be registered for road use. Contact your local Avant dealer or local authorities for more information.

3.1 Personal protective equipment

Remember to wear proper personal protective equipment:



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



- Wear protective gloves.



- Wear safety boots whenever working with the loader.



- Wear safety glasses e.g. when handling hydraulic components.

3.2 Safe shutdown procedure

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



WARNING

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

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

4. Technical specifications

Table 2 - U-Plow - Specifications

Product number	A438439
Working width:	1600...3000 mm
Total width:	3107 mm
Length:	1133 mm
Weight:	590 kg
Plow slewing angle:	35° either side
Side wing slewing angle:	85° both directions either side
Standard edges	A442736 (Ice cutting edges)
Recommended hydraulic oil flow:	25 l/min 22,5 MPa (225 Bar)
Maximum input of hydraulic energy:	30 l/min 22,5 MPa (225 Bar)
Compatible AVANT loader models:	See table 1 on page
Options	
Steel edges	A442738
Marker light kit	A442768

4.1 Safety labels and main components of the attachment

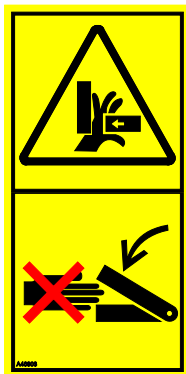
Listed below are the labels and markings on the attachment. They must be visible and readable on the equipment. Replace any unclear or missing label. New labels are available via your retailer or contact information provided on the cover.



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



A46771



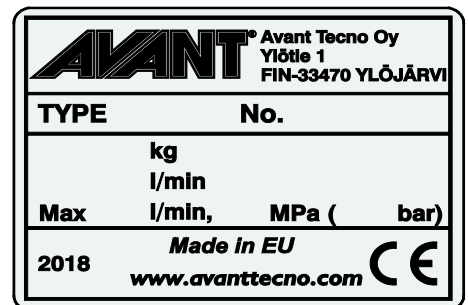
A46803



A46772



A46797



Attachment identification plate

A442757

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

Table 3 - Decal locations and warning messages

	Decal	Warning message
1	A46771	Misuse hazard - Read instructions before use.
2	A46772	Crushing hazard - Do not go under a raised attachment; stay away from raised equipment.
3	A46797	Crushing hazard in the reach and swing area of the attachment, keep bystanders away from danger area.
4	A46803	Pinching and cutting hazard, keep clear of moving parts, do not leave the equipment running. Operate the attachment only from the driver's seat.
5	A442757	Attachment identification plate

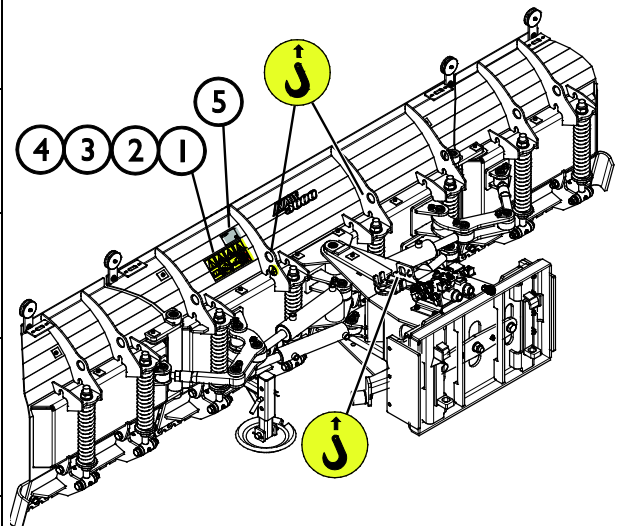
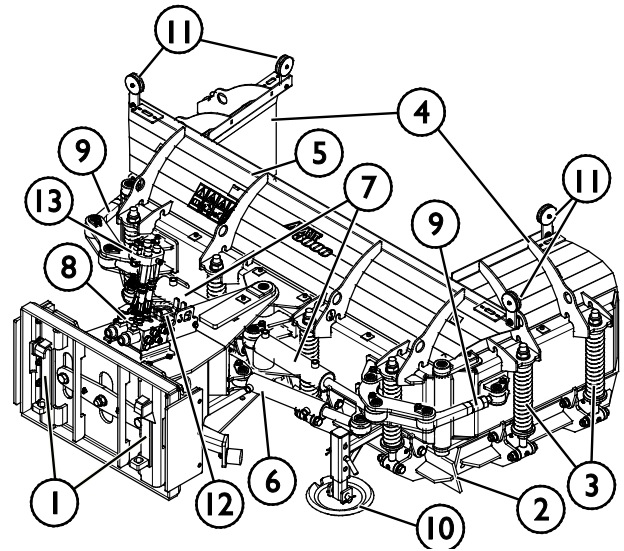


Table 4 - U-Plow - Main components

1	Frame with Avant quick coupling brackets
2	Blade edges
3	Springs for blade suspension (8 pcs)
4	Side wings, folded to the front
5	Middle section of the plow
6	Hydraulic cylinders for side slewing (side turn (2 pcs))
7	Hydraulic cylinders for side wings (2 pcs)
8	Electro-hydraulic control valve
9	Adjusting lever (2 pcs)
10	Support skid (2 pcs)
11	Reflector kit (as standard) / Marker light kit (optional extra)
12	Multi connector holder
13	Multi connector



5. Assembling the attachment

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

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



WARNING

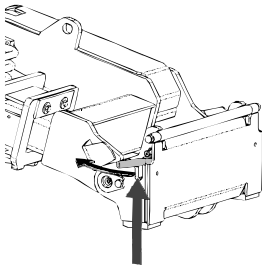
Crushing risk - Make sure that an unlocked attachment will not move or fall over.

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

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

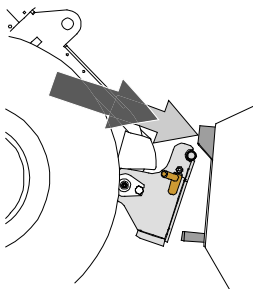
Avant quick coupling system:

Step 1:



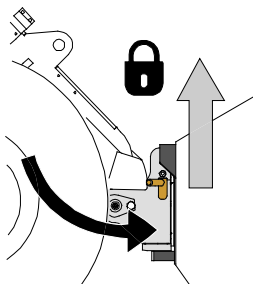
- Lift the quick attach plate locking pins up and turn them backwards into the slot so that they are locked in the upper position.
- If your loader is equipped with a hydraulic attachment locking system, see additional instructions about the use of the locking system from the relevant manuals.
- Make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

Step 2:



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

Step 3:



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



WARNING

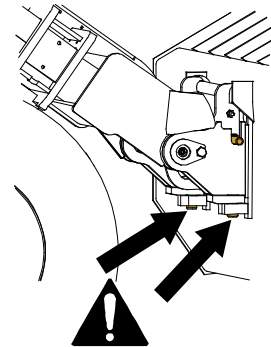
Risk of crushing - Avoid tipping over the attachment. Excessive tilting or lifting of an unlocked attachment increases the risk of tipping the attachment over. Do not use the automatic locking of the locking pins when the attachment is lifted more than one meter from the ground. If the locking pins do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



WARNING

Risk of falling objects - Prevent dropping of attachment.

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



WARNING

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

5.1 Connecting and disconnecting hydraulic hoses

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



WARNING

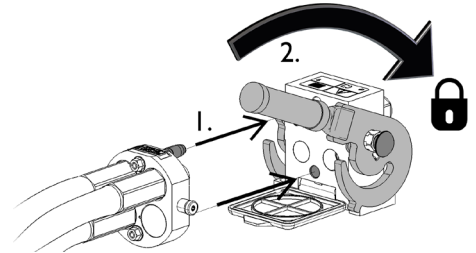
Risk of movement of the attachment and ejection of hydraulic oil - Never connect or disconnect quick couplings or other hydraulic components while the control lever of the auxiliary hydraulics control lever is locked on or if the system is pressurized. Connecting or disconnecting the hydraulic couplings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

NOTICE

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

Connecting the multiconnector system:

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

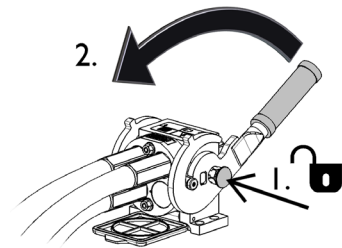


The lever should move easily all the way to its locking position. If the lever does not slide smoothly, check the alignment and position of the connector and clean the connectors. Also shut down the loader and release the residual hydraulic pressure.

To disconnect the multiconnector system:

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

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

**Disconnecting hydraulic hoses:**

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

NOTICE

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

Releasing residual hydraulic pressure:

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

5.2 Electric connection

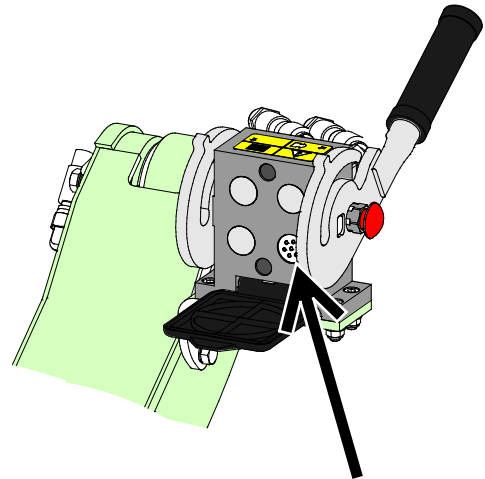
Electric functions of the attachment:

The plow has multiple functions, which makes it necessary to have the Opticontrol[®] system installed on the loader. See page 20 for more information.

NOTICE

The loader must be equipped with the Opticontrol[®] system in order to control all functions of the attachment.

On loaders that are equipped with the Opticontrol[®] the electric socket is integrated in the multiconnector, and the electric harness of the attachment is connected when the multiconnector is coupled. Clean both multiconnectors before connecting the multiconnector.



Opticontrol[®]

NOTICE

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

With the help of the Opticontrol[®] system available for the loader, the attachment control switches are easily accessible at the end of the boom control lever.

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

Retrofit kit:

The functionality of the Opticontrol[®] system is available as retrofit kit A437338. See separate instructions about retrofitting of the wire harness from the instructions of the retrofit kit.

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.

Practise the use of the attachment and its controls in an open and safe area. If you are unfamiliar with the loader in use, it is recommended to practise its use without any attachments.



WARNING

Collision risk - Check the operating area before using the equipment. If the plow hits an obstacle the loader can stop suddenly and unexpectedly, causing injuries from impact to head and body, regardless of the blade spring release system or other safety systems.

- Drive slowly and pay attention to operating area at all times.
- Make sure that there are no hidden obstacles under the snow, for example.
- Do not let bystanders stay near the machine. Stop the attachment if others get closer than 2 metres from the attachment.
- Mark visibly any potential obstructions beforehand as far as practical so that collisions can be avoided.
- Operate equipment only at well lit areas or make sure the loader is equipped with sufficient lights.
- The spring loaded blade sections improve safety only when driving forward - when reversing, drive extremely slow.
- **Always wear seat belt.**



WARNING

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



WARNING

Risk of collisions - Ensure good visibility. Never lift this attachment to a height where visibility from the driver's position is obstructed. Ensure unobstructed visibility to all directions. Keep all windows clean and free of dirt, ice, snow etc.

6.1 Checks before use

- Check that all obstacles, including any possibly hidden ones, have been removed from the working area or marked visibly before operation.
- 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 that the spring release of the blades is in normal working condition, and not blocked by e.g. ice.
- Check the general condition of the attachment and the loader, and check for possible hydraulic oil leaks. Do the daily checks of the loader, see the operator's manual of the loader. The attachment must not be used, if there is a fault in the hydraulic system of the loader or the attachment. Refer to Chapter 7 for maintenance instructions.
- Operate the attachment and the controls of the loader only when seated on the driver's seat. Ensure that the loader and the attachment are used in a safe manner and as intended. Do not allow children to operate the equipment.
- Never operate the loader or attachments while under the influence of alcohol, drugs, medication that may impair judgement or cause drowsiness, or if not otherwise medically fit to operate the equipment.
- Remember correct working methods and avoid leaving the driver's seat unnecessarily.



WARNING

Risk of injuries related to sudden stop - Drive slow and always stay alert for possible obstacles. For the safety of the operator, the blade is equipped with safety mechanisms to reduce the risk of sudden stopping of the machine and the possibility of injuries that could follow. However, the existence of the safety features will not replace operator's responsibility. Careful and cautious operating are essential for safety. Any safety feature by itself will not guarantee safe operating of the plow. The performance of the safety features may be hindered in certain conditions, such as packed snow or ice, or when reversing with the loader.

6.2 Operator qualification

Anyone who intends to use the attachment must:

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

6.3 Operating position

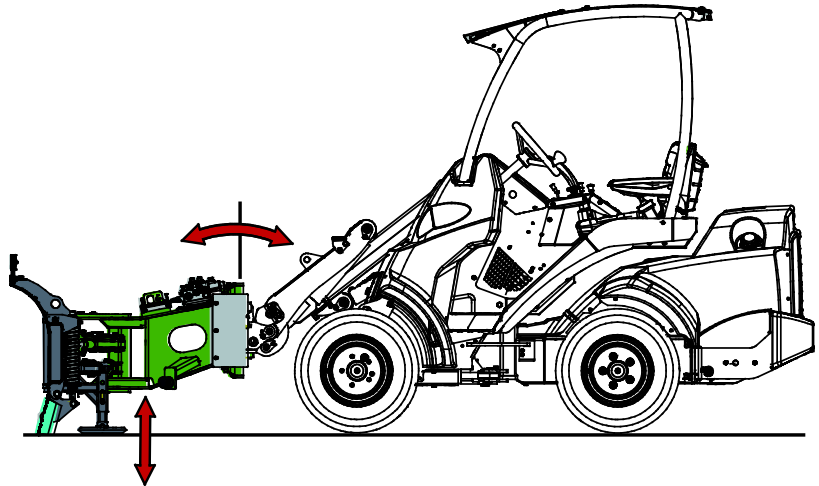
For the best performance of the plow, there are important rules for the operating position:

1. The plow must be in upright position
2. The loader boom must be set to position which allows the plow to float

Set the attachment to upright position:

1. Lower the plow near the ground surface
2. Tilt the attachment so that it is in upright position.
3. Lower the plow on the ground in upright position onto the blade edge and support skids.

If necessary, adjust the support skids as shown in this manual to maintain vertical position when lowered on the ground.

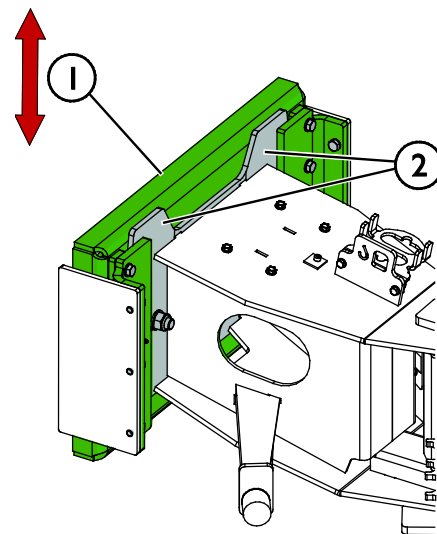


As a general rule, adjust the attachment so that the quick coupling plate of the loader is in upright position. Depending on specific circumstances at your work area, you may try to tilt the blade a little to front or back. The vertical position of the attachment will affect the outcome and accuracy of plowing

The plow should not be pressed hard against the ground as this will affect the handling of the loader, as the front wheels of the loader begin to lift from ground surface. Avoid pressing the plow hard against the ground also to prevent excessive wear of the plow.

Adjust the initial position of floating as follows:

1. Place the attachment on the ground in upright position.
2. Lower or lift the loader boom (reference 1 in picture) so that the upper edge of the coupling bracket of the attachment is aligned with the top of the plow frame (2).



The floating system of the U-Plow allows the entire blade to float vertically, which makes working on uneven surfaces considerably easier and more efficient. The blade can also float sideways $\pm 7,5^\circ$ in the middle position of the floating. In extreme vertical positions of the floating the maximum sideways floating angle is reduced.

6.4 Controlling the plow - different functions of the plow

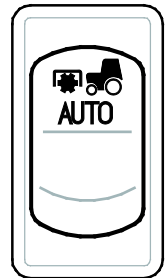
The different functions of the plow are controlled with the Opticontrol® system of the loader. The Opticontrol® mode is switched on with a separate selection switch on the loader. When pushing the attachment control switches installed to the joystick of the loader, Opticontrol® will activate the auxiliary hydraulics of the loader simultaneously as necessary.

NOTICE

The loader must be equipped with the Opticontrol® system in order to control all functions of the attachment.

Basic principle of using the plow:

- 1 Switch on the Opticontrol® mode with the separate selection switch on the loader. See the adjacent figure, and the operator's manual of the loader.
- 2 Control the desired function with the switches of the Opticontrol® system or use the auxiliary hydraulics control lever on the loader to control the selected function (or use buttons of electric joystick).



Operating the plow

Switches of the Opticontrol® system



1. ON/OFF switch:

- Switch to **ON (I)** to select both side wings
- 0 to select the slewing function of the plow

Use the red and blue pushbuttons to control the selected functions.

2. 2-way control switch:

- Control the left side wing directly, Opticontrol activates auxiliary hydraulics when switch is pressed

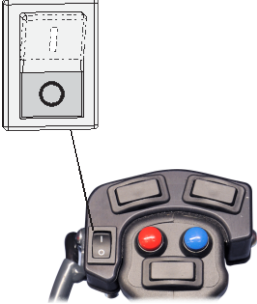

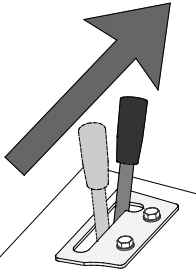
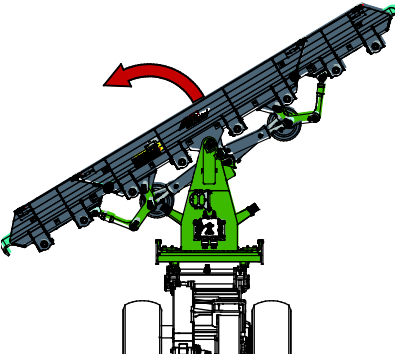
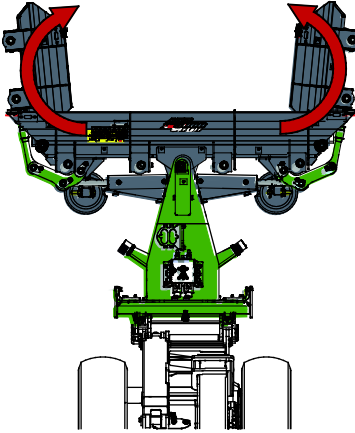
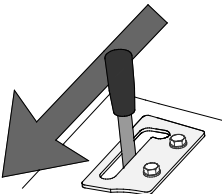
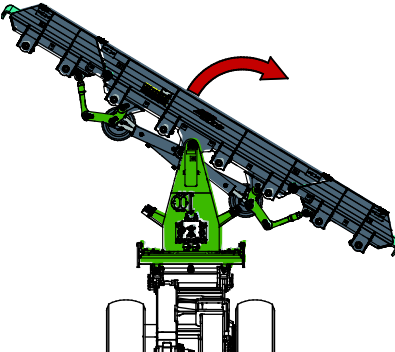
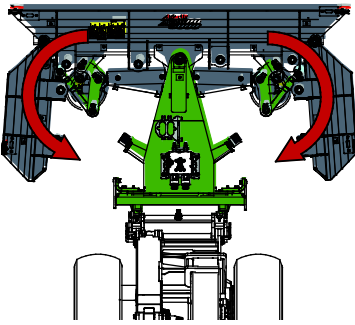
3. 2-way control switch:

- Right side wing

NOTICE

When the loader is equipped with the attachment control switch pack but not the Opticontrol® system, the side wings can be selected but not controlled with switches 2 and 3. For controlling the wings it is necessary to use the auxiliary hydraulics control lever or the red and blue pushbuttons, in addition to the switches. It is not intended to control the attachment this way, instead the full opticontrol system must be used.

Operating the plow with control lever

	<p>Select the desired function with the ON/OFF switch.</p>		
	<p>Move the auxiliary hydraulics control lever towards its locking position (or use the electric buttons of the optional electric joystick) to</p> <ul style="list-style-type: none"> ■ Turn the blade towards left <p>or</p> <ul style="list-style-type: none"> ■ Turn both wings to the front. <p>The lever should not be left to the locking position.</p>		
	<p>Move the lever away from the locking position to</p> <ul style="list-style-type: none"> ■ Turn the blade towards right <p>or</p> <ul style="list-style-type: none"> ■ Turn both wings back. 		



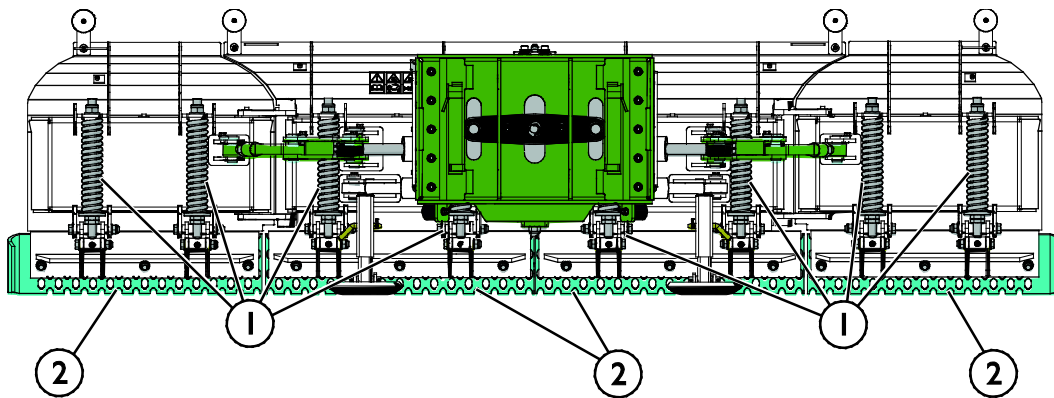
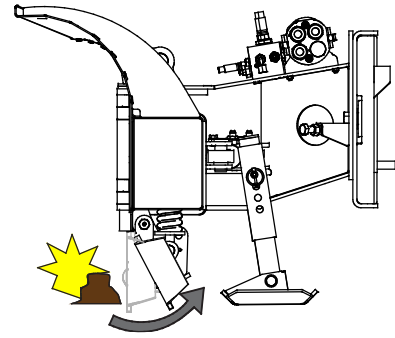
Risk of injuries related to sudden stop - Drive slow and always stay alert when operating the plow in extreme positions. If the articulated frame of the loader is turned and boom retracted at the same time when the side wing of the plow is folded back in extreme position, there is a possibility of hitting the front tire with the plow edge. Careful and cautious operating are essential for safety. The existence of the safety features, like the floating system, will not replace operator's responsibility. Always drive slowly, avoid abrupt movements and stay alert when operating the plow in its extreme positions.

6.5 Hinged lower blade sections

To reduce the possibility of a sudden stop in case of hitting an obstacle, the plow is equipped with a spring release mechanism. The lower blade sections (2) are held down in operating position with springs (1) in picture below.

The lower sections may move slightly during normal use. If the movement is too easy, tighten or replace the springs. The operation of the blade spring release system must not be blocked, and the springs must not be tensioned excessively. See page 27 for information about how to adjust the springs.

The blades tilt only while driving forward. When reversing with the loader the blade sections are rigid, and therefore hitting an obstacle while reversing may lead to a sudden stop.

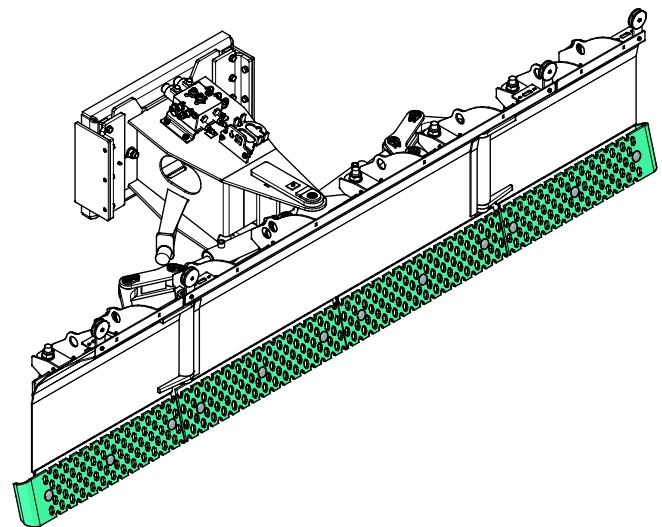


6.6 Blade edges

As standard, the plow is equipped with Ice cutting edge. It is intended to break packed snow and ice from hard surfaces. The ice cutting edge leaves coarse and non-slip surface.

All blade edge sections can be replaced, as they wear during use.

Other blade materials may be available - contact your Avant dealer or visit www.avantecno.com for more information.



NOTICE

Avoid damaging fragile surfaces - The ice cutting edge scratch or otherwise damage some surfaces. Use other blade types as necessary.

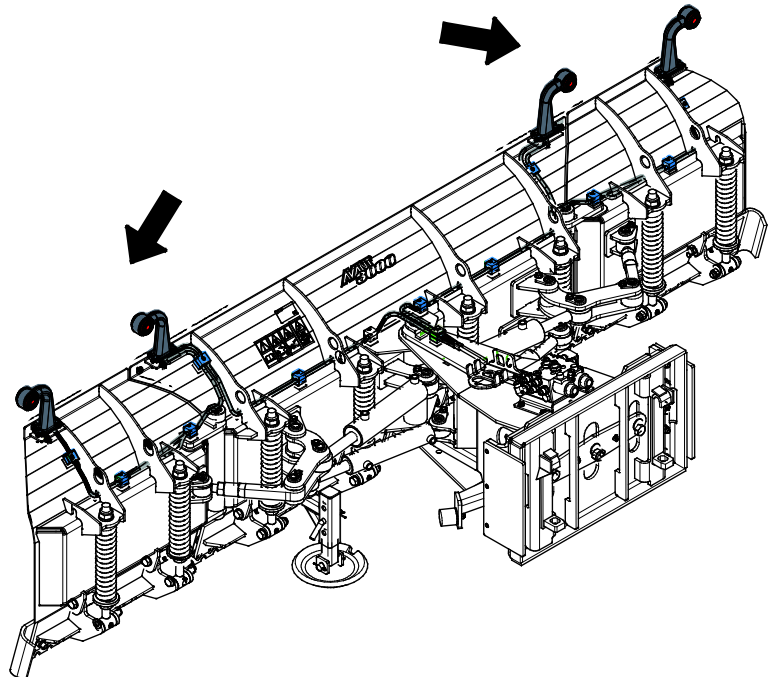
NOTICE

Never operate the snow plow without any blade edge fitted, or if the blade edge is too worn. The snow plow will get damaged if it is used with worn blade edges or completely without blade edges.

6.7 Marker light kit (Optional extra)

As standard, the plow is equipped with reflector kit. The marker light kit is available as an option.

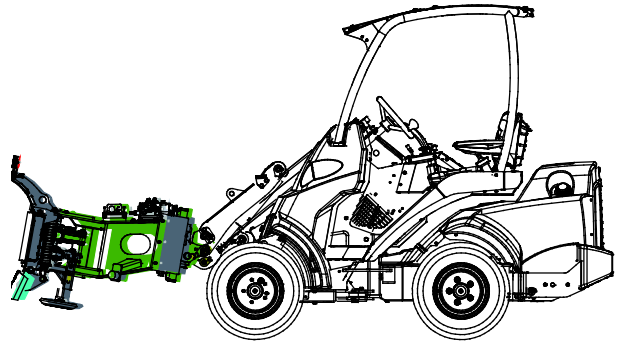
The marker lights are lit, when the ignition key is switched on.



6.8 Transport position



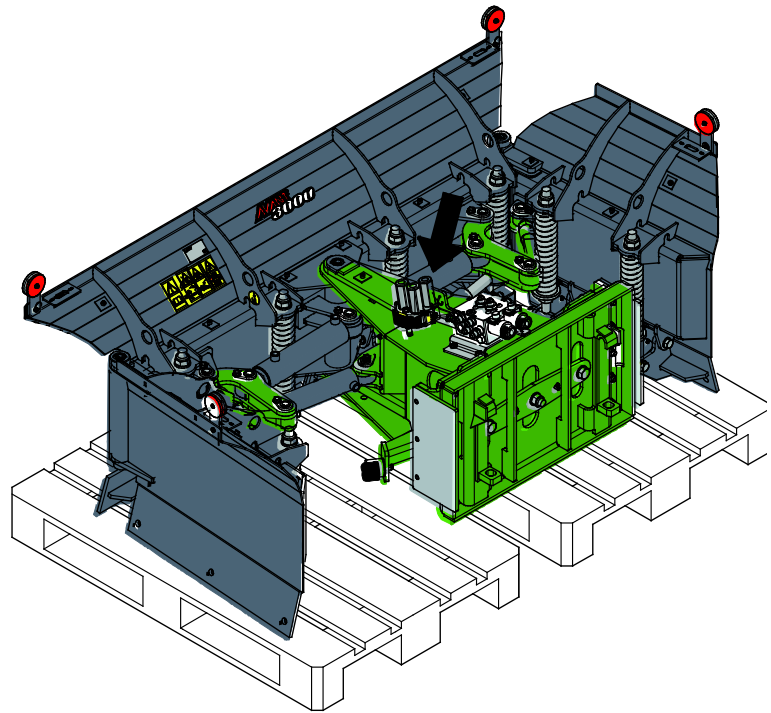
Keep the loader stable. Always transport the attachment as low and close to the ground as possible. Keep the telescopic boom retracted during transport driving.



6.9 Storing the attachment

Uncouple and store the U-Plow on level surface so that it will stand firmly on its frame.

- Avoid storing the attachment directly against the ground, place a pallet or blocks of wood under it, for example. The best storage place for the attachment is an area that is protected from rain and direct sunlight.
- Place the multiconnector on to its holder as indicated with an arrow in the adjacent figure. Never leave the hydraulic connector on the ground.
- Remove most of the snow from the plow, so that melting and re-freezing snow will not cause the attachment to get stuck.
- Ensure the stability of the snow plow during its storage. Climbing on the snow plow is prohibited.



Clean the attachment before long storage periods, touch up the paint where needed, grease the lubrication points and oil the visible parts of the hydraulic cylinder shafts to prevent rust damage.

7. Maintenance and Service

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



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

7.1 Inspection of hydraulic components

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



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



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

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

7.2 Cleaning the attachment

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

7.3 Inspection of metal structures

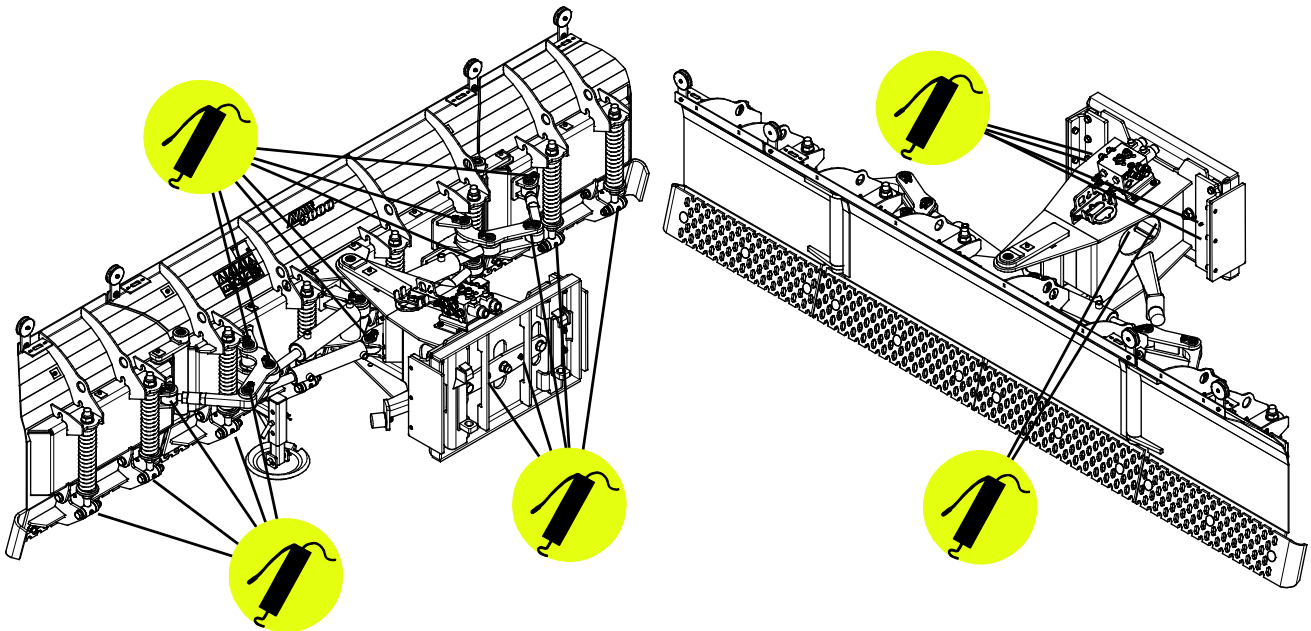
Also the metal structures of the attachment must be inspected regularly. Check visually for damages and inspect the quick attach brackets and their surrounding area carefully. The attachment must not be used if it is deformed, cracked, or torn.

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.

7.4 Lubrication

There are a total of 33 lubrication points at the joints of the attachment. A small amount of grease should be added regularly. Correct lubrication interval depends heavily on operating conditions but lubricant must be added at least after every 10 hours of use.

Clean the end of the nipple before greasing and add only a small amount of grease at a time. The lubrication nipples are standard M6 or R1/8" nipples. Replace it, if damaged.



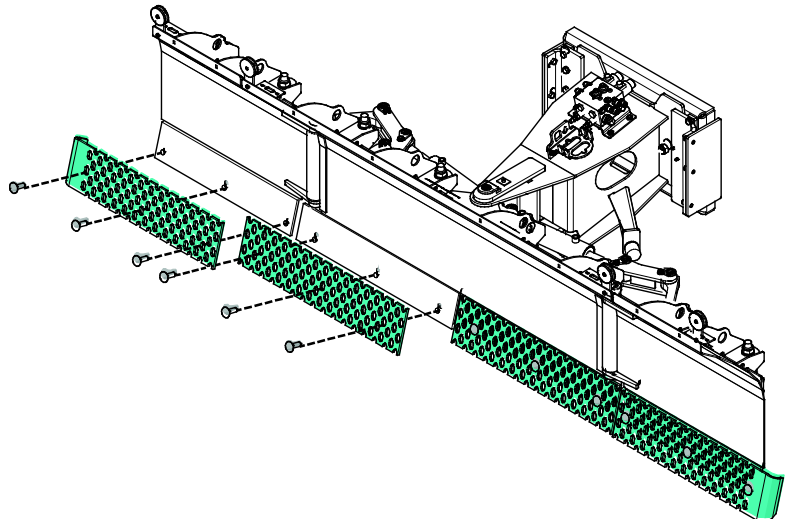
NOTICE

When the floating plate is in the lowest position, the lubrication nipples of the floating system can be lubricated even if the plow is coupled to the loader.

7.5 Blade edges

The condition of the blade edges should be checked after every few uses, as the edges wear during normal use.

All blade edge sections can be replaced separately, if necessary. See adjacent figure.



NOTICE

If the blade edge has worn down excessively, it must be replaced. Always use good protective gloves when handling the blade edge.

7.6 Spring release mechanism

The operation of the spring release mechanism must be checked at the beginning of each work shift. All blade sections must be able to tilt back to reduce the possibility of a sudden stop.

Adjust the spring tension with nuts, that are indicated with arrows in the figure below. All blade edge sections can be adjusted separately. Adjust both springs in one blade section equally. Tension the springs if the spring release mechanism allows the blades to tilt back too easily. The springs must be kept at the lowest tension possible that allows normal use of the plow.

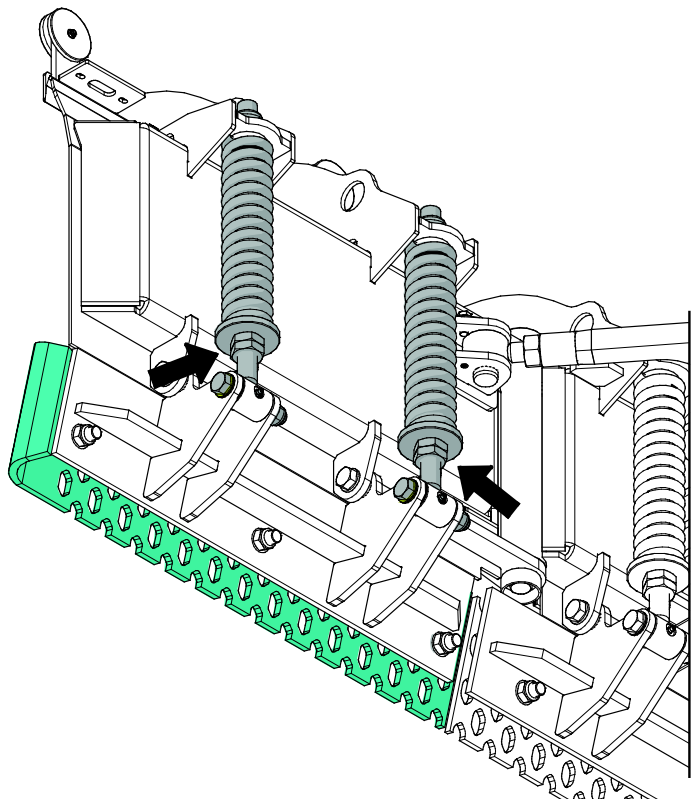
Tensioning

- Loosen the lower nut by turning it and holding the upper nut still simultaneously.
- Increase the tension of the spring by turning the upper nut. Adjust the tension a little at a time, by turning the nuts for two full turns, and by testing the operation of the plow after adjustment.
- Hold the upper nut still and tighten the lower nut until the nuts are locked.

Avoid tensioning the springs excessively.

Loosening

- Loosen the lower nut by turning it and holding the upper nut still simultaneously.
- Decrease the tension of the spring by turning the upper nut.
- Hold the upper nut still and tighten the lower nut until the nuts are locked.



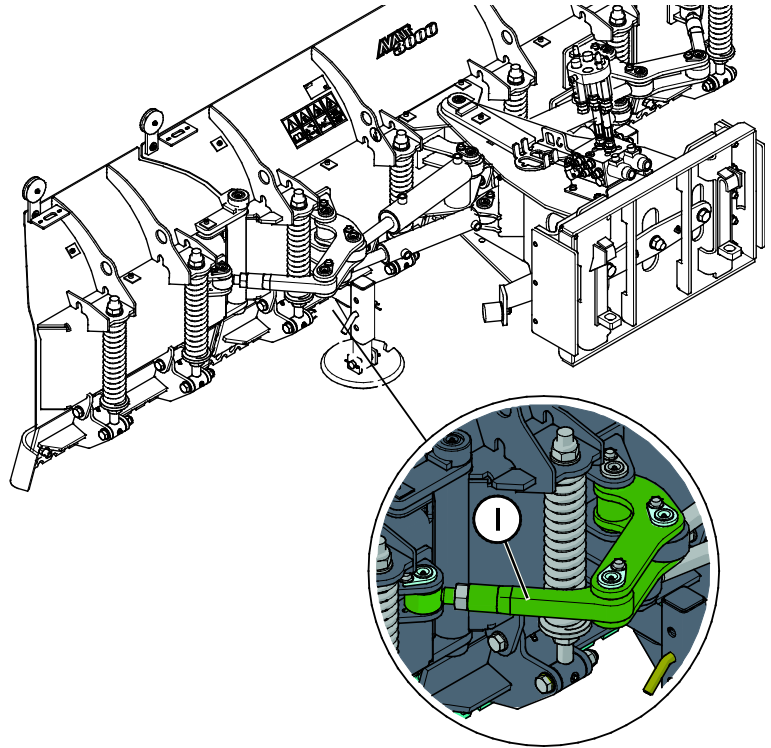
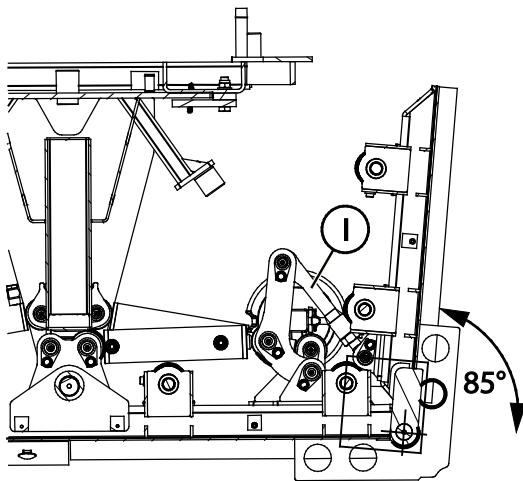


WARNING

Risk of serious injury - Do not disassemble tensioned springs. The springs are tensioned and careless maintenance could lead to serious injuries if the spring is released. Do not disassemble the tensioned springs of the attachment; leave the maintenance for service professionals.

7.7 Side wing angle

The wings can be folded back to 85 degree angle. If this angle differs from 85 degrees, the wings could contact the center section of the plow when wings are folded front. In this case the pivot link (1) must be shortened or lengthened manually to adjust the angle.



7.8 End of life disposal

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

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

8. Warranty terms

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

The warranty covers repair costs as follows:

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

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

The warranty does not cover:

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

FI EY-vaatimustenmukaisuusvakuutus
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 terveystaakumat (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 lumiaura; Avant-kuormaajan työlaite Hydraulisk snöplog; arbetsredskap för Avant lastare Hydraulic snow plow; attachment for Avant loaders	A438439



31.8.2020 Ylöjärvi, Finland

Risto Käkelä,
Toimitusjohtaja / Verkställande direktör /
Managing Director



AVANT[®]