Operator's Manual for Attachment

Mini digger 180

Product number: A445112

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

Keep this manual for later reference.

Manufacturer:

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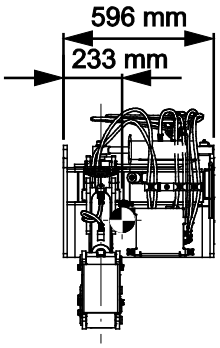
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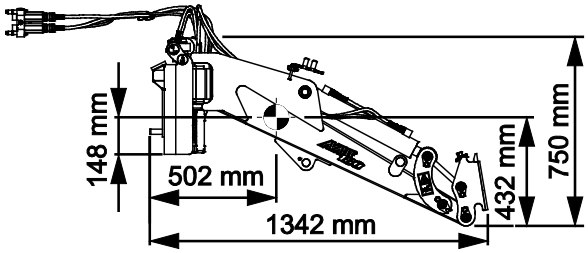
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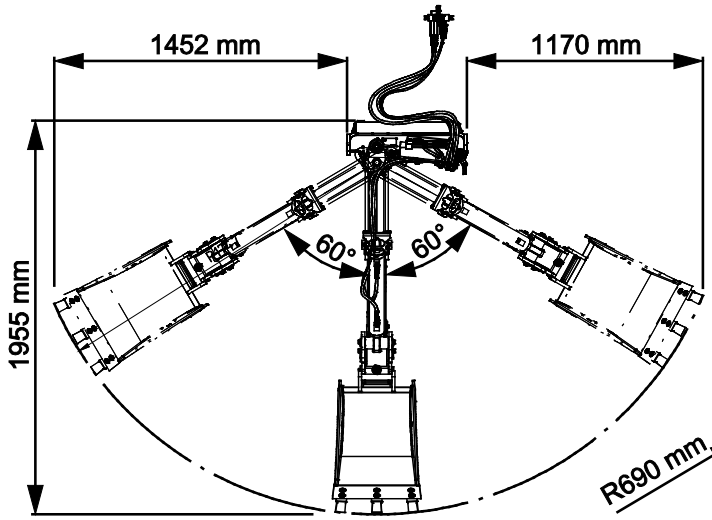
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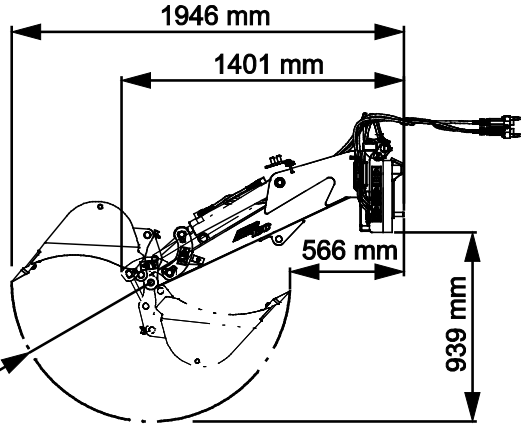
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CONTENTS

1. Foreword

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

The purpose of this manual is to help you to:

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

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

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

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

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

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 Mini digger 180 is an attachment that is suitable for use with AVANT compact loaders that are shown in Table 1. The digger is designed for occasional use as a quick and simple to use digging attachment, that is also easy to transport. It mounts directly on the quick coupling plate of the loader. The digger is controlled with the articulated boom, and the bucket of the digger is operated with the auxiliary hydraulics of the loader.

The robust digger can be used with several available bucket options in general excavation, and moving and loading of soil. Changing of bucket on the Mini digger 180 is fast and easy with the standard S30-150 type bucket quick coupling system. The bucket can also be mounted pointing forward if necessary. The mini digger can be equipped with either the bucket tilt adapter, or the hydraulic thumb, which are available as optional equipment. In this manual instructions to install these options are shown for experienced users.

To operate the bucket tilt adapter or the excavator thumb, the loader must be equipped with Opticontrol® attachment control system, or the wire harness A437338* must be retrofitted to the loader.

The digger is controlled from the operator's seat of the loader by using the controls of the boom and auxiliary hydraulics of the loader. Excavated soil is dumped to sides by taking use of the articulation of the digger and driving of the loader. Soil can be easily loaded high using the reach of the loader boom. The control patterns of a mini digger differ from conventional excavators and backhoes. However, also inexperienced operators and operators who are used with other types of excavators can easily assimilate with safe and efficient use of the controls. All operators of this attachment must get familiarised with typical hazards related to any excavation work. Before starting any digging operation the operator of the equipment must find out if there are objects in the ground that may cause hazards.

Recommended options for the most efficient use are telescopic boom on the loader and the optional Opticontrol® system.

Use the digger only for occasional excavations with original buckets, tools, and options. The digger must not be used for lifting of objects. Never use the attachment to lift objects or loads other than materials that are normally handled with a bucket. Never suspend any loads or attach other tools than a bucket. The Mini digger 180 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 - Mini digger 180 - Compatibility with Avant loaders

Avant	220 series 2 225	313S 320S 320S+	419 420 423	520 R20 523 525LPG R28 528	630 R35 635 640 645i 650i	735 745 750 755 760i	850 860i	e5 e6
A445112	-	-	-	•	•	•	•	•

3. Safety instructions for using the attachment

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

DANGER

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

Read all safety instructions carefully before handling the attachment

WARNING

- When attaching an attachment to the loader, **ensure that the locking pins of the loader's quick attach plate are in the lower position and that they have locked the attachment to the loader.** Never lift or move an unlocked attachment.
- This attachment is designed to be used by one operator at a time. Do not let others near the danger area of the equipment when it is in use.
- Always transport the attachment as low as possible to keep the centre of gravity low, and keep the telescopic boom retracted during driving.
- **Risk of electric shock - Plan all excavation tasks ahead before you dig!** Find out about the possibility of having any electric cable, gas pipe, water pipe, communications cable or similar buried in the ground. Consult local authorities, electric, water, telecommunications, 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 to dig.
- **Tipping over hazard - Note that the excavation or trench may suddenly cave in.** Exercise extreme caution when driving near ditches or embankments, and avoid driving along a ditch or trench, as the machine could suddenly tip over if an edge caves in. Avoid driving along trenches and keep at least a distance equal to width of a trench. Consider the risk and possibility of caving in. Do not dig excavation with vertical side walls, slope the excavation according to the type of soil, among other considerations.
- **Crushing hazard - Make sure that the bucket is securely fitted.** Loose or falling bucket can cause serious injuries.
- **Risk of crushing and falling objects - The attachment must not be used for any other purposes than intended.** Never use the attachment to lift objects or loads other than materials that are normally handled with a bucket. Never suspend any loads or attach any other tools than a bucket to the backhoe. Make sure that the loader is parked when operating the backhoe.
- **Risk of crushing - Keep in mind that the loader boom and the attachment can be lowered or tilted even if the engine has been shut down.** Never leave the driver’s seat when the bucket is lifted off from the ground. Keep hands and feet away from moving parts.

WARNING

- Operate only on well lit areas. If extra caution is required to avoid hitting dangerous or fragile materials in the ground, have another person nearby to spot possible buried items.
- Do not use the digger on horizontally tilted terrain. Ensure the stability of the loader and firmness of the ground also on even terrain.
- Pay attention to the surroundings and any other persons and machines moving in the vicinity. Other persons must keep safety distance of 2 meters. Pay attention to the contours of the terrain and other hazards, such as branches and trees that can reach to the driver's area, loose rocks, and slippery surfaces.
- Make sure not to tilt the digger too far up causing material to fall from the bucket on the loader or operator’s area.
- Make sure that overhead clearance is sufficient. Hitting an overhead obstacle may cause the loader to tip over. Keep a safe distance from electric cables, lamps, or other electric systems; hitting live parts may cause electric shock.
- Ensure that ventilation is sufficient when operating indoors. Do not operate the loader in closed spaces regardless of the engine or fuel type. Exhaust gases may concentrate to hazardous levels.
- Operate the controls of the loader in a slow and calm manner. Be careful when lifting load to high level or lifting load from high. Avoid sudden changes in speed or direction to maintain balance of the loader especially when handling heavy loads. Drive slowly and carefully especially on inclined terrain or slippery surfaces.
- Carrying heavy loads can shift the centre of gravity of the loader and lead to tipping over of the loader. Always transport the load as low and close to the machine as possible with the telescopic boom completely retracted to keep the centre of gravity low and for the best stability.
- The stability of the loader may change when leaving the driver’s seat, leading to tipping over of the machine. Always remember that the boom may lower unexpectedly due to loss of stability, mechanical fault, or if another person operates the controls of the loader, leading to crushing hazard. The attachment or the loader are not intended to be left to keep a load elevated for longer periods. Lower the attachment before leaving the driver's seat.
- Never use the attachment to lift or to transport persons or as any kind of work platform even temporarily.
- Keep the loader articulation in straight position when handling heavy loads. When turning the articulation, the loader may tilt forward.
- Shut down the loader and place the attachment to a safe position as shown in Safe stopping procedure before any cleaning, maintenance, or adjustments.
- Observe maximum load indicated in the operator’s manual of the loader. Be especially careful when the load sensor indicator is activated.
- Make sure that the surface can bear the total load. Also follow the correct tyre pressure settings.
- Make sure to use only an attachment that is in good condition. Check the attachment thoroughly in regular intervals. Do not modify the attachment in a manner that would affect its safety. It is prohibited to drill holes on the attachment, and welding or other means of fixing hooks or other objects on the attachment is strictly prohibited.
- Use the attachment only for its intended purpose. Other use may create unnecessary safety risks, and the equipment may get damaged.

WARNING

- 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.

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.

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.

- When working at construction sites, a safety helmet is recommended and may be mandatory in addition to the falling objects protective structure (FOPS) on the loader. Find out about other necessary safety equipment at your specific work site.

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:

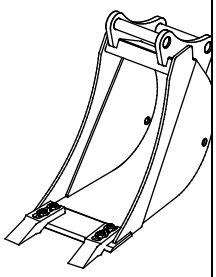
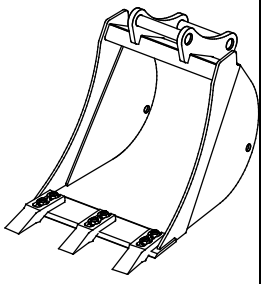
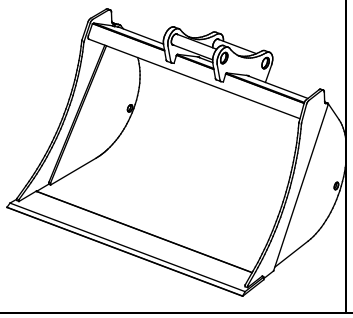
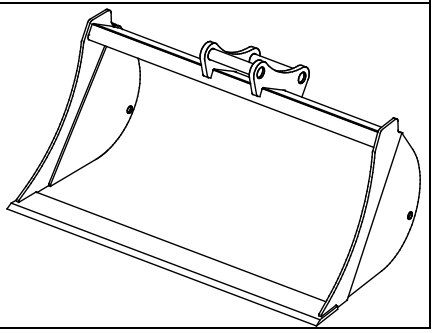
- Lower the boom and the attachment on the ground.
- Shut down the loader engine and lock the parking brake.
- Release residual pressure from the hydraulic system; move all hydraulic control levers to their extreme positions a couple of times.
- Prevent starting of the machine, remove ignition key.

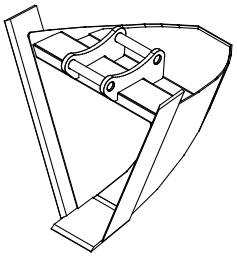
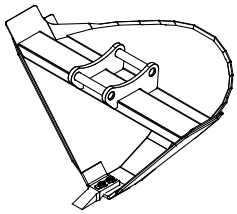
4. Technical specifications

Table 2 - Mini digger 180 - Specifications

Product number:	***A445221***
Maximum reach:	1800 mm without using telescopic boom of a loader
Weight:	170 kg (without bucket)
Bucket:	No standard bucket. See available bucket options in table 3 on the following page.
Bucket coupling:	Quick coupling S30-150 Tilting bucket adapter available as an option
Recommended input of hydraulic energy:	20 - 30 l/min
Maximum input of hydraulic energy:	40 l/min, 22.5 MPa (225 bar)
Compatible Avant loaders:	See Table 1
Options:	Contact your AVANT dealer for availability and for more information.
Buckets	Several available bucket options are listed in Table 3 on the following page
Bucket tilt adapter	A446187 (Assembly weight: 35 kg)
Excavator thumb	A446167 (Assembly weight: 40 kg)

Table 3 - Mini digger 180 - Bucket options

	A414301	***A414304***	***A35230***	***A35383***
Width:	250 mm	400 mm	750 mm	1000 mm
Edge:	2 teeth	3 teeth	straight	straight
Weight:	30 kg	35 kg	45 kg	61 kg
				

	A21638	***A36374***
Width:	650 mm	912 mm
Edge:	1 teeth	1 teeth
Weight:	45 kg	48 kg
		

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.

WARNING

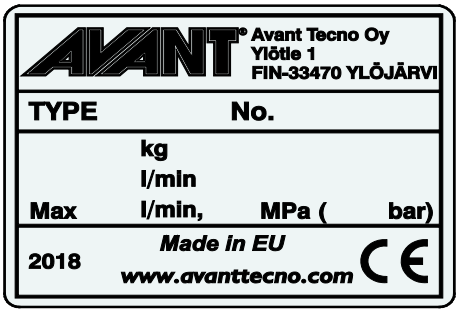
Make sure all warning decals are readable. The warning labels contain important safety information and they help to identify and remember the hazards related to the equipment. Replace damaged or missing warning labels with new ones.

A46771

A46803

A46772

A46797



Attachment identification plate

A446261

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 4 - Decal locations and warning messages

	Decal	Explanation
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 backhoe, 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. Keep the control of the loader's boom locked until you are ready to operate the machine.
5	A446261	Attachment identification plate

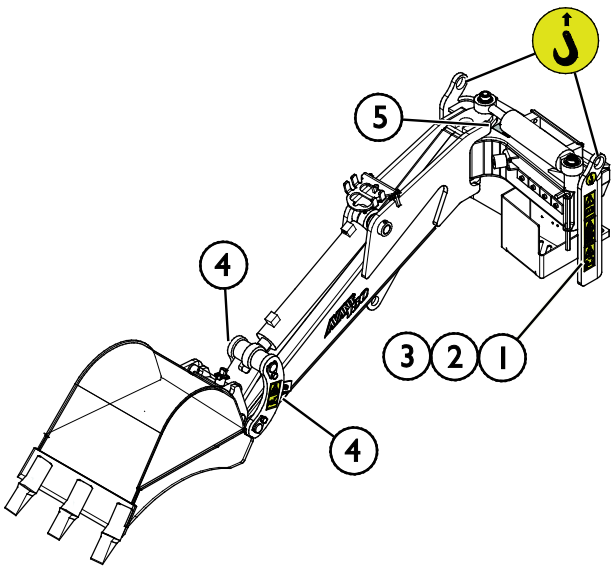
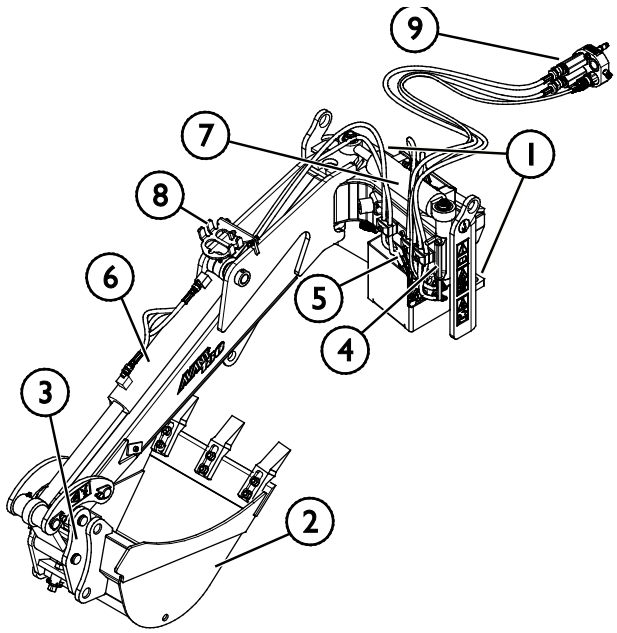


Table 5 - Main components of the Mini digger 180

1	Frame with Avant quick coupling brackets
2	Interchangeable bucket *(not included)*
3	Bucket quick coupling S30-150, coupling release/locking screw Possibility to fit bucket tilt adapter / excavator thumb
4	Bucket quick coupling tool
5	Selector valve
6	Tilt cylinder
7	Slewing cylinder side shift
8	Multi connector holder
9	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 coupling plate on the loader boom and the counterpart on the attachment.

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

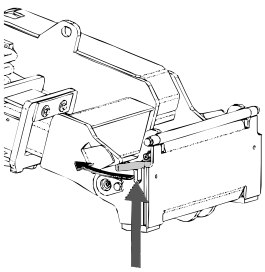
WARNING

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

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

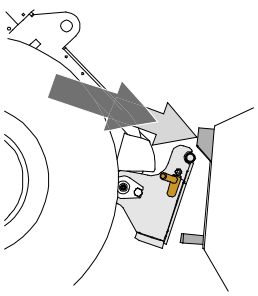
Never move or lift an attachment that has not been locked.

Avant quick coupling system:



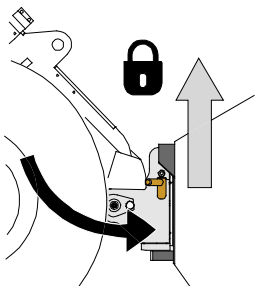
Step 1:

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



Step 2:

- Turn the quick coupling plate hydraulically to an obliquely forward position.
- Drive the loader onto the attachment. If your loader is equipped with a telescopic boom, you can 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:

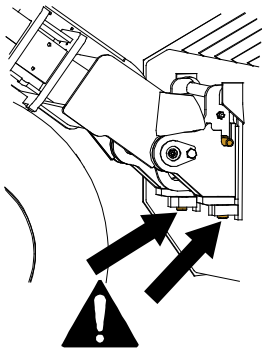
- Lift the boom slightly – pull the boom control lever backward to lift the attachment just off the ground.
- Turn the boom control lever left to turn the bottom section of the quick coupling plate of the loader onto the attachment.
- Lock the locking pins manually or lock the hydraulic locking.
- **Always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

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 older model Avant 300-700 series loader with the conventional quick couplers, and you want to change to the multi connector system, contact your Avant dealer or service point for instructions or installation services.

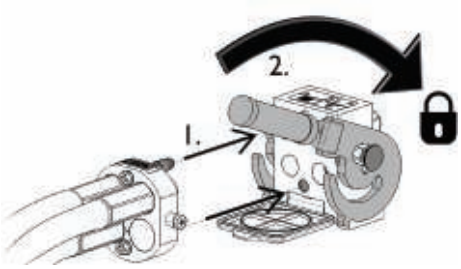
WARNING

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

NOTICE

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

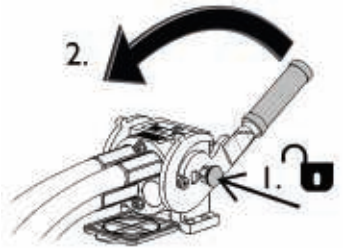
Connecting the multiconnector system:



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

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

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:

To control the hydraulic functions of a Mini digger 180, the loader must be equipped with the Opticontrol® system (optional equipment for loaders). With the Opticontrol® system all functions of the attachments can be controlled with the buttons on the joystick of the loader. When you push the switches on the joystick, Opticontrol activates the auxiliary hydraulics of the loader simultaneously and makes direct control of all functions possible.

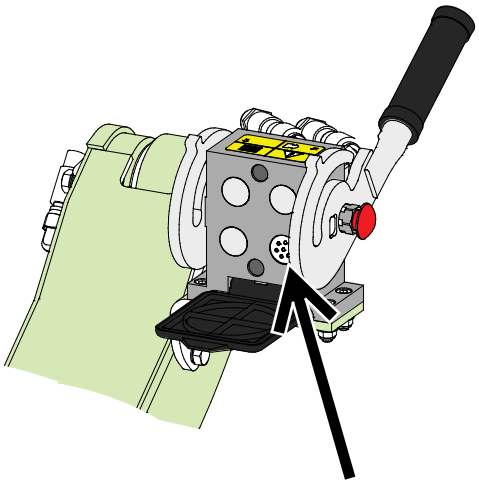
The functionality of the Opticontrol system is available as a retrofit kit A437338. See separate instructions about retrofitting of the wire harness from the instructions of the retrofit kit.

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

Opticontrol (R) is required to operate all functions of this attachment.

If your loader is equipped with the Opticontrol (R) system, the electric socket for attachments is integrated into the multiconnector. The electric harness of the attachment is connected when the multiconnector is coupled.

Clean both multiconnectors before connecting them.



Opticontrol®, Opticontrol (R) socket in multiconnector

If your loader is not equipped with the Opticontrol®:

All functions of the Mini digger 180 can't be used without the Opticontrol® system on the loader.

NOTICE

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

With the help of the opticontrol 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.

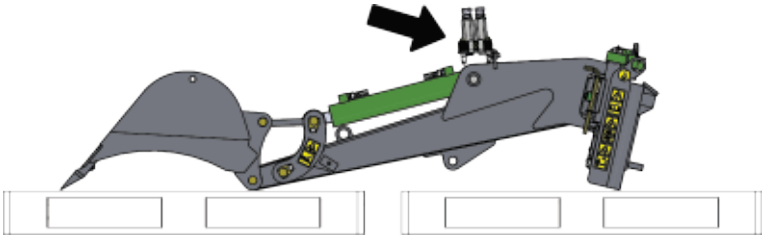
5.3 Uncoupling the digger and correct storage position

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:

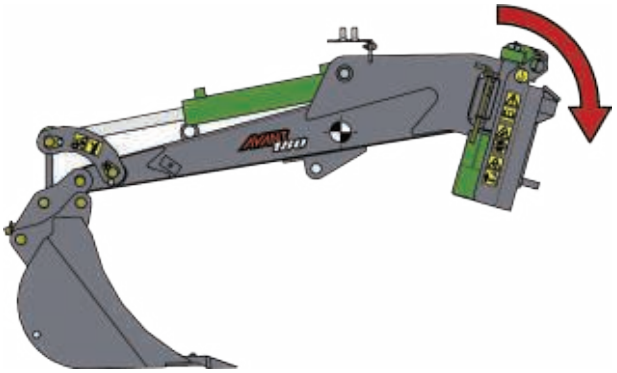
Before uncoupling the digger, turn the bucket so that it will be in level with the digger frame, or tilted slightly up, as shown in adjacent figure. In this way it will be easy to connect the digger to the loader.



Store the digger on level ground on a pallet, for example, so that it is easier to couple to the loader, and will not be in contact with ground.

WARNING

Risk of tipping over - Store the digger properly according to instructions. If the digger is left in a position shown in the adjacent figure, it's centre of gravity will be high from ground and the digger may tip over easily, causing hazards of crushing and impact to anyone near the attachment.



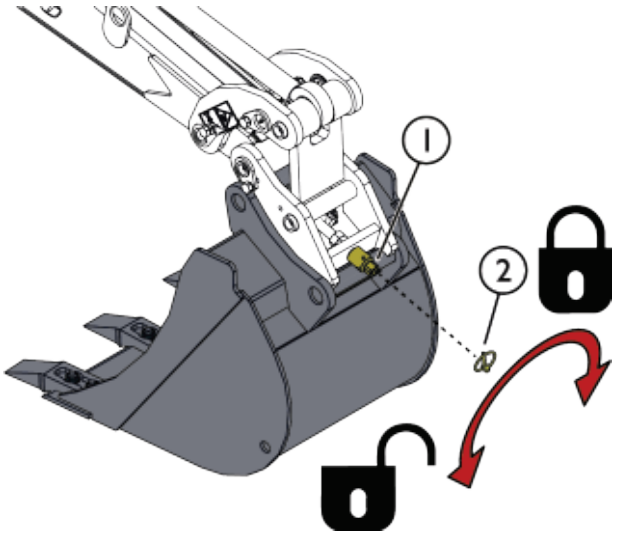
Storage in any other position than shown above will result in hazard of tipping over and is prohibited.

5.4 Changing the bucket on Mini digger 180

The bucket is connected by a standard S30-150 tool-operated quick coupling system. Available bucket options are shown in table 3.

NOTICE Keep the digger attached to the loader for better stability and to allow to utilise the movements of the digger.

Locking or releasing a bucket



1 Lower the bucket close to the ground on it's flat bottom as shown in adjacent figure.

2 Remove the locking pin (2). Use the provided 12 mm Allen key to rotate the bucket locking nut (1) counter-clockwise to release the bucket locking.

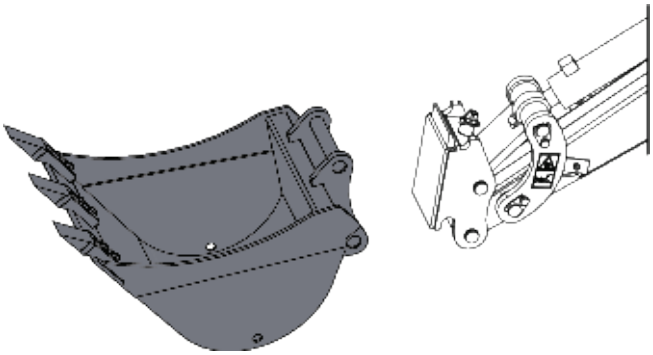
Watch out for moving of the bucket and prevent possible swinging.

3 Lower the bucket and couple another by utilizing the movements of the loader boom and digger bucket tilt cylinder.

Tighten the locking nut (1) securely and reinstall the locking pin (2).

Connecting the bucket the other way round

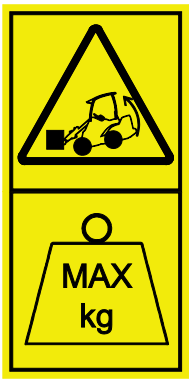
If necessary, it is also possible to connect the bucket in the opposite positon, pointing forwards, as shown in the adjacent figure.



6. Instructions for use

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

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



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

Collision risk - 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.
- **Always wear seat belt.**

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

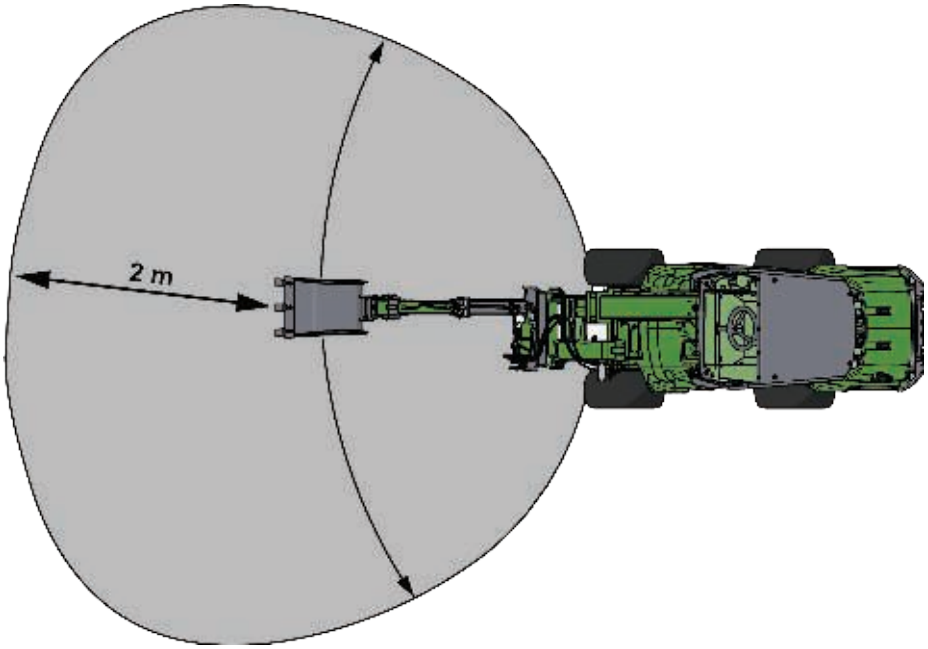
Cave-in hazard - Never drive along excavation. Caving in hazard at the excavation and around it. Do not drive along the edge of an excavation. Mark or fence the digging area and keep others away.

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.

6.1 Safety distance

The minimum safety distance of the attachment is 2 metres from the machine. Do not let bystanders get any closer than 2 metres from the attachment. Stop the attachment if others get within the safety distance. **The Mini digger can throw e.g. small stones distances of up to 5 metres.**



6.2 Checks before use

- Check that all obstacles, including any possibly hidden ones, have been removed from the working area or marked visibly before operation.
- Make sure that it safe to dig at the location. Find out if there are electric cables, water lines or similar at a depth that can be reached with the equipment. Find out about local regulations concerning digging safety. It may be mandatory to contact local authorities before starting digging operations.
- Check the bucket is positively locked and the bucket pins are secured.
- Operate the digger only at well lit areas.
- 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.

6.2.1 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 the Mini digger

Planning and efficient use of the digging equipment

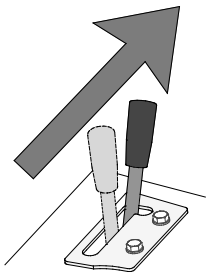
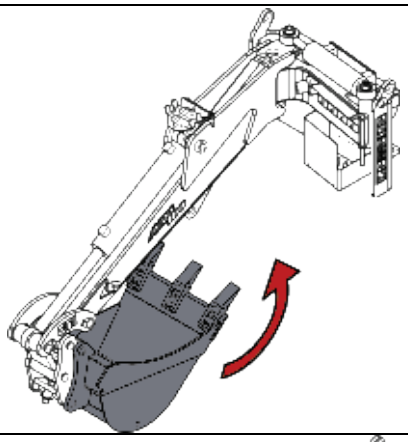
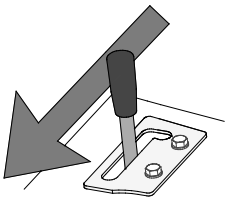
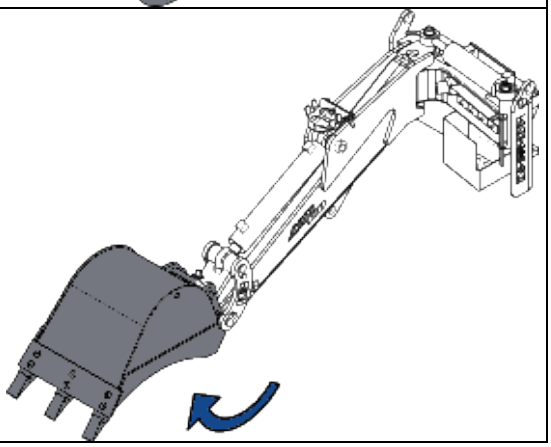
Digging work is always started with thorough inspection of the site and planning the work in advance. Things to consider include at least the following:

- Inclinations and loader capabilities
- Digging movements and reach of the equipment
- Where to dump or transport soil
- Need to enter the excavation or trench and protection from cave-ins
- Maintaining the stability of the loader at all times
- Possible hazards exposed during excavation

Controlling the bucket:

To use the different functions of the Mini digger 180, the loader must be equipped with Opticontrol® attachment control system. The opening and closing function of the bucket is controlled with the auxiliary hydraulics control lever or pushbuttons of the loader. The boom side tilt and hydraulic options are controlled with the rocker switches of the joystick.

The table below shows the control of the bucket of a standard Mini digger.

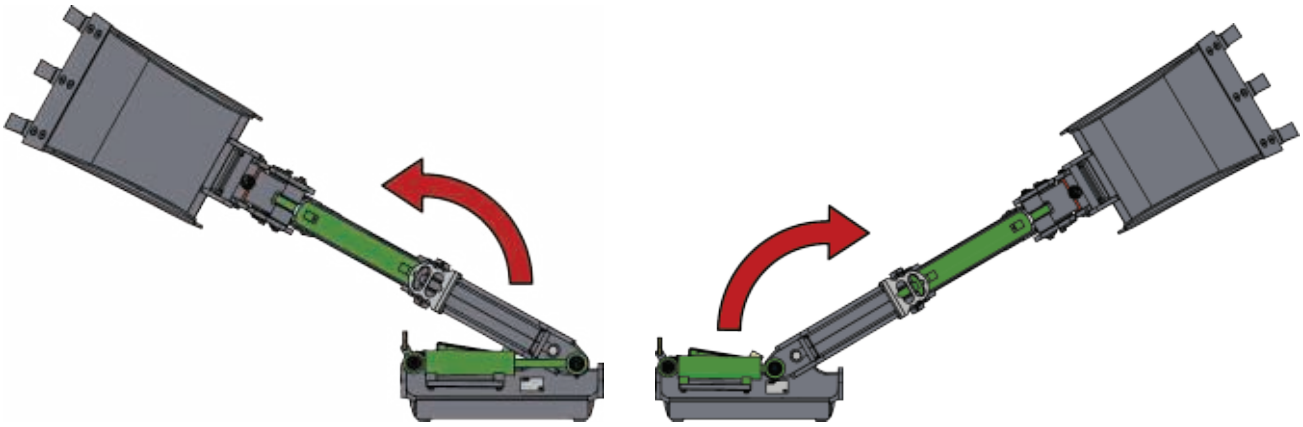
	Move the auxiliary hydraulics control lever towards its locking position (or use the electric buttons of the optional electric joystick) to close the bucket. The lever should not be left to the locking position.	
	Move the lever away from the locking position to open the bucket.	

Using the hydraulic functions of the Mini digger 180

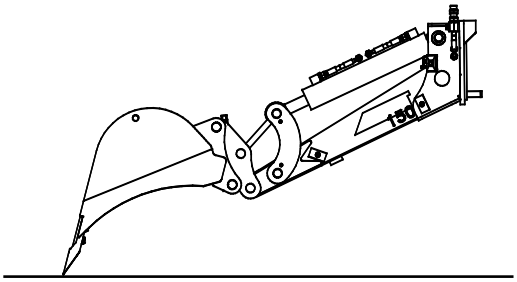
	**1.** Switch on the Opticontrol® mode with the separate selection switch on the loader. See the adjacent figure. **2.** Use the switches on the joystick to control the different functions of the attachments. Opticontrol® will control the auxiliary hydraulics output of the loader, so that switches 1 and 2 can be used directly without using the auxiliary hydraulics control lever. Use the auxiliary hydraulics control pushbuttons on the joystick or the control lever to control the bucket.
	***Switches on the joystick with Opticontrol®*** **1.** 2-way selection switch: Use to turn the boom to the left or to the right. **2.** 2-way selection switch: Use to control the optional tilt adapter / thumb. **3.** Use the red and blue pushbuttons or the auxiliary hydraulics control lever for opening and closing the bucket. **4.** Keep the on-off switch at position OFF.

Boom side shift control

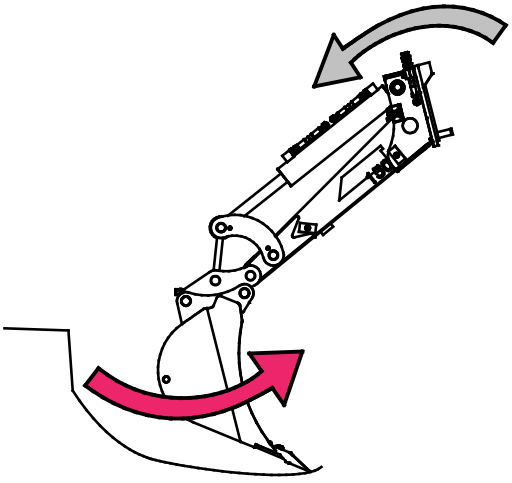
Use the left rocker switch to control the boom. See page for instructions about controls.



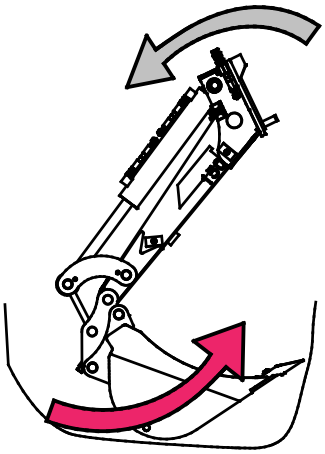
Filling the bucket:



- Depending on soil type and operating conditions, the most effective position and movements may differ from the pictures shown. The pictures represent typical recommended operating practise.
- The bucket should never be pressed hard directly downwards, as this would result only in lifting the front tyres of the loader, and moving of the loader.
- When digging, the loader frame should be kept in straight position to maintain balance of the loader when using the digger at the greatest load.
- Once the tip of the bucket is on the ground, pull the edge of the bucket towards the loader with the boom control lever and begin closing the bucket early to fill it.
- Digging with the digger is the most efficient when the bucket is pulled towards the loader, while keeping the edge of the bucket at an angle that allows the edge to cut the soil in the most effective way.
- Use only boom and bucket movements for digging. Pulling with loader drive motion will overstrain the attachment and may result in damaging it or the loader.



- When the bucket has been filled by either closing it or pulling, move the material to the side by turning or driving with the loader.



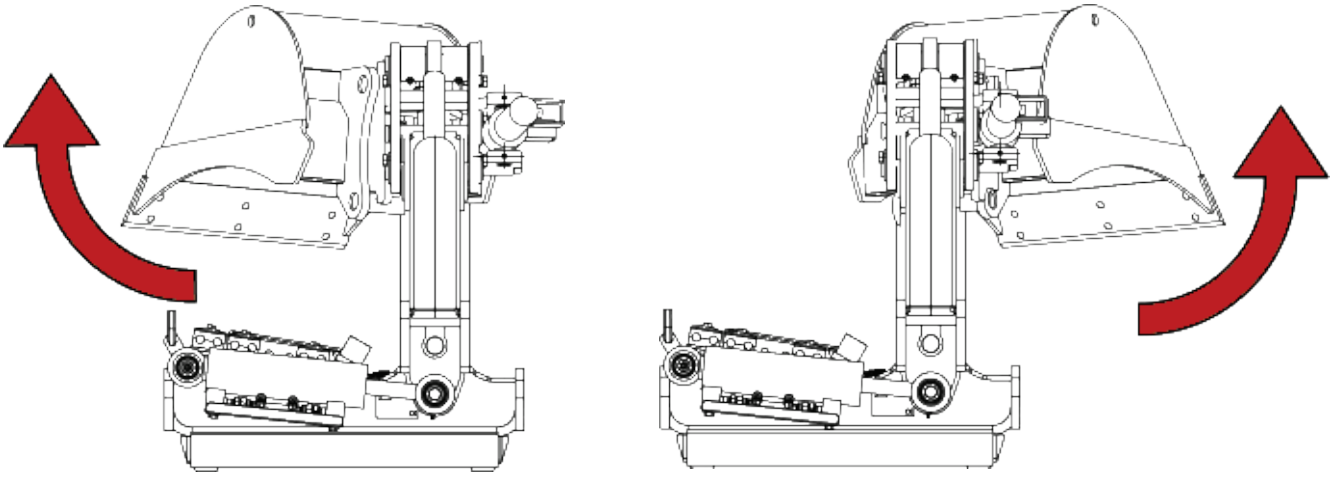
NOTICE Keep the loader's quick coupling plate in upright position during operation. Use the up and down movement of the boom to keep the bucket in correct position when you lift or lower the digger.

NOTICE Because of the reach capability of the digger, the bucket can be moved to a position in where it will hit the loader. In normal operation it is unlikely to hit the loader, but when working at extreme reach, or close to the loader, the possibility of reaching the frame of the loader must be kept in mind. Familiarise yourself with the movements of the digger before starting work.

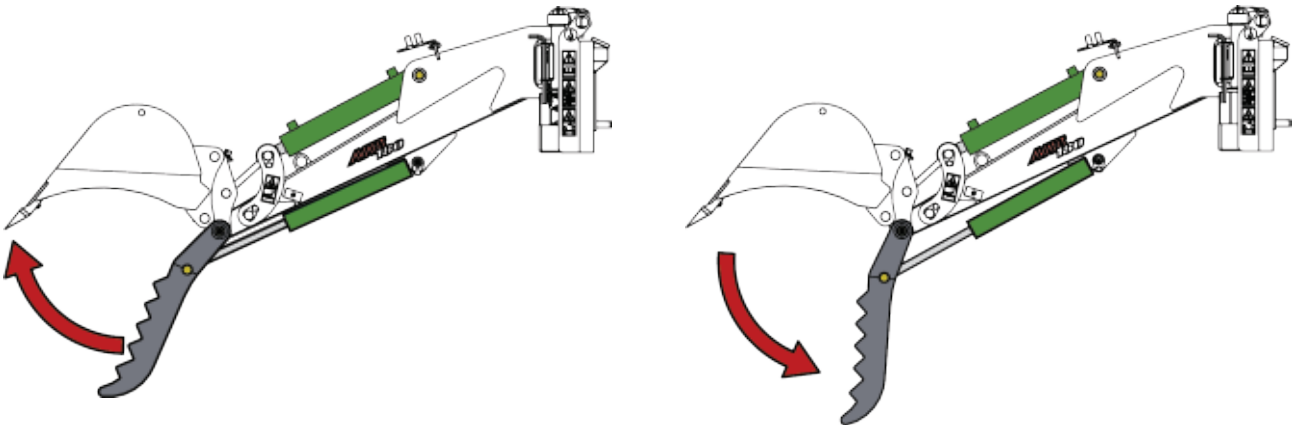
6.3.1 Hydraulic options

When the bucket tilt adapter, or the excavator thumb is fitted (optional equipment), the additional function is controlled with the same auxiliary hydraulics control of the loader as the bucket. See page for instructions about controls.

Tilt adapter



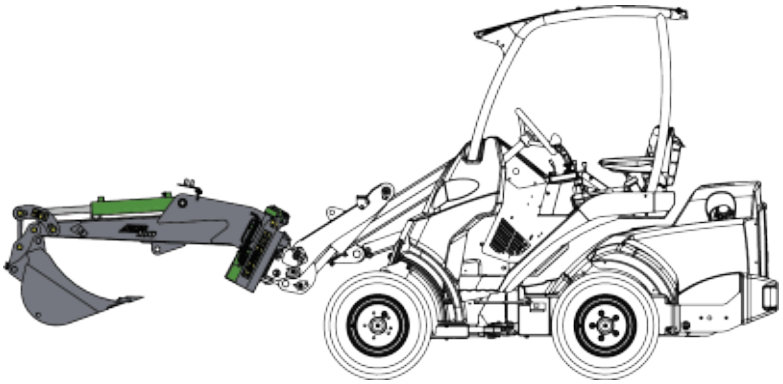
Excavator thumb



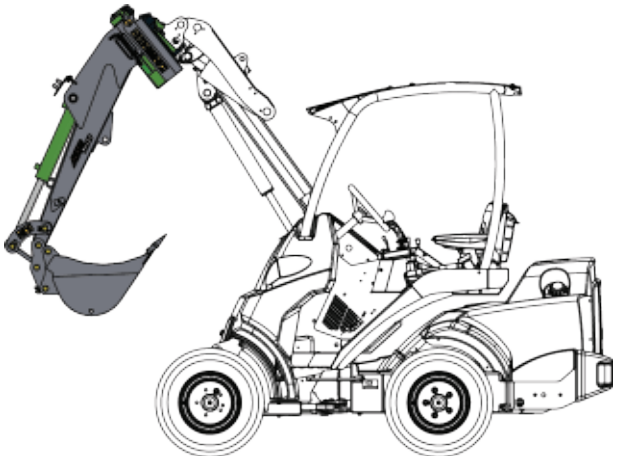
6.4 Transport position

Turn the Mini digger 180 to its middle position (straight forward) so that it will not affect the stability of the loader. The middle position will obstruct visibility from the driver's seat as little as possible.

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



Alternately, lift the loader's boom completely up and tilt the Mini digger 180 as shown in the adjacent figure. Keep the loader stable. Always transport the bucket as low and close to the ground as possible to obstruct the visibility from the driver's seat as little as possible. Keep the telescopic boom retracted during transport drive.



WARNING

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

6.5 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.

7. Installation of hydraulic options

Either a hydraulic thumb or a tilting adapter can be installed to the mini digger. Installation points for the hydraulic thumb are available on the frame on mini diggers manufactured since the beginning of 2021.

These instructions are intended for individuals with experience, skills, and equipment necessary for safe installation of parts and hydraulic components. Contact your Avant dealer or service for more information.

WARNING

Pinching and crushing hazard - Make sure any part of attachment cannot move.

- Make sure the attachment is securely lowered on the ground.
- Shut down the loader engine and set the moving components so that they will not cause hydraulic pressure to the system.
- Any part of the attachment must not be supported only by hydraulic pressure or hydraulic cylinders.
- Do not loosen any fitting if any part of the attachment might move as a result.
- Use additional supports as necessary.

CAUTION

Risk of falling objects - Make sure that the grabbing surfaces are intact and in good condition. Never use when there are visible cracks or other damages on the thumb. Never lift stones above people.

NOTICE

It is not possible to fit both options tilting bucket adapter and excavator thumb at the same time.

7.1 Qualification requirements for installation work:

Knowledge and skills about hydraulic assemblies are required for making the installation. It is recommended to leave the installation of hydraulic components to qualified service technicians. The manufacturer or it's representative are not responsible for damages, losses or injuries resulted from incorrect or incomplete installations. Contact your nearest Avant dealer or service point, if you have any additional questions or require installation services.

DANGER

Risk of high pressure fluid injection through skin. Installation includes assembling hydraulic components. Incorrect assembly or loose fittings may cause ejection of high pressure fluid. Follow carefully all safety procedures regarding hydraulic assemblies and all given instructions.

The instructions given in this chapter are intended for qualified service technicians or individuals with training and experience about hydraulic assemblies.

WARNING

Risk of serious personal injury. The safety procedures concerning hydraulic assemblies apply both when installing new components or when modifying existing hydraulic systems. The following installation instructions include the necessary information needed in installation, but installation or modification work are allowed only if the person doing them can perform them safely.

The following safety procedures and general safety principles regarding hydraulic systems must be followed. Contact your Avant dealer or service point for more information or installation services.

NOTICE

Protect the environment from leaking of hydraulic oil and prevent oil from draining on the ground. Keep any loosened hydraulic hose in an upright position or plugged, so that they will leak as little as possible.

NOTICE

Clean the equipment thoroughly before starting the installation and make sure that i.e. dirt, dust or water will not enter the hydraulic components or the hydraulic oil. Keep the protective covers in place until the components can be installed directly. Follow safety procedures and wear proper personal protective equipment.

7.2 Safety instructions for hydraulic assemblies

High-pressure ejection of fluid may penetrate skin and cause serious injuries:

DANGER

Risk of high pressure fluid injection through skin - High-pressure ejection of fluid may penetrate skin and cause serious injuries.

Before handling hydraulic components, make sure that the hydraulic system of the attachment and the loader are completely depressurized. Never handle pressurized fittings.

Never hold your hand tightly around or near a fitting when tightening or opening it, or when searching for leaks. Use a piece of cardboard to find leaks.

Seek medical attention immediately in case hydraulic fluid is injected through the skin. Also general skin contact with the oil can be harmful. Always wear protective gloves, safety goggles and protective clothing.

Before handling hydraulic assemblies:

1. Allow the hydraulic systems of the loader and of the attachment to cool down completely before any work on hydraulic systems.
2. Make sure that the loader boom or any other part of the attachment can't move causing crushing or pinching hazards:
   - Lower the loader boom to its lower position and lower the attachment firmly on the ground. For the best stability, keep the attachment locked on the loader.
   - Set all moving components to a position where they are not supported by hydraulic cylinders.
   - Use additional supports or lifting equipment as needed.
3. Shut down the loader engine.
4. Move the auxiliary hydraulics control lever to its extreme positions several times to release residual pressure.
5. Uncouple the multiconnector or quick couplings from the auxiliary hydraulics of the loader to prevent draining of hydraulic oil.

7.3 Excavator thumb (Optional extra)

The Mini digger 180 can be equipped with an excavator thumb. The hydraulic excavator thumb makes it possible to handle irregural material such as rocks, concrete, branches, and debris that does not otherwise fit into the bucket.

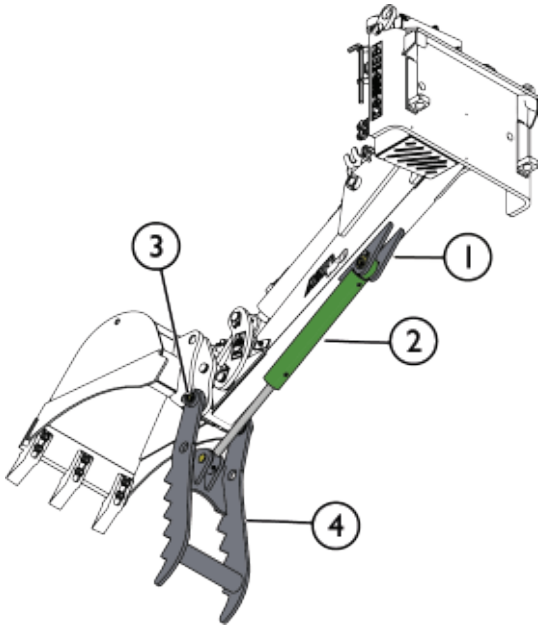
Overview

The frame of the mini digger is equipped with a thumb bracket (1) for a hydraulic thumb cylinder.

The one end of the hydraulic cylinder (2) is fixed to the thumb bracket (1), and the other end to the middle of the excavator thumb (4).

The mounting end of the thumb (4) is fixed on the bucket pivot pin (3), so the thumb rotates on the same pivot as the bucket preventing material to slip during lift.

See the following pages for detailed installation instructions.



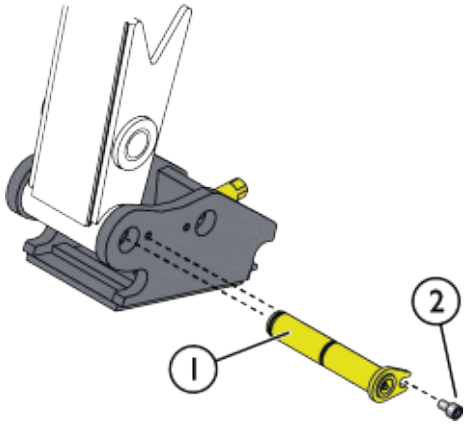
7.3.1 Installing excavator thumb

The excavator thumb kit A446167 includes all necessary components needed in installation. Install the excavator thumb as follows:

1 Uncouple the bucket as shown in this manual.

2 Lower the bucket coupling close to the ground so that it will not fall when uncoupled.

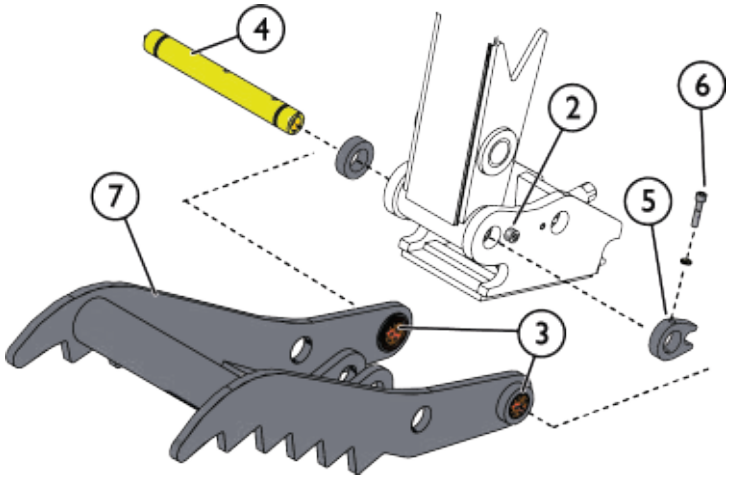
3 Remove the pivot pin (1) holding the S30 quick coupling. Reinstall the retaining screw (2) in the tapped hole of the quick coupling. Leave the pivot pin (1) holding the bucket cylinder in its place. The removed pin is not used for installing the thumb, store the pin for possible later use.



4 Make sure that the slide bearings (3) are fixed to the mounting ends of the thumb (7).

Slide the pivot pin (4) through the whole structure so that the boom, S30 quick coupling, and bushings are fitted between the mounting ends of the thumb (7) as shown in the adjacent figure. Use a soft hammer to help to slide the pivot pin (4), if necessary.

Lock the retainer bushing (5) on the pivot pin (4) with retaining screw (6). Ease the installation by aligning the holes of the pivot pin (4) and the retainer bushing (5) when fitting the pivot pin (4). Install the greasing nipples at the ends of the pivot pin (4), if not installed.



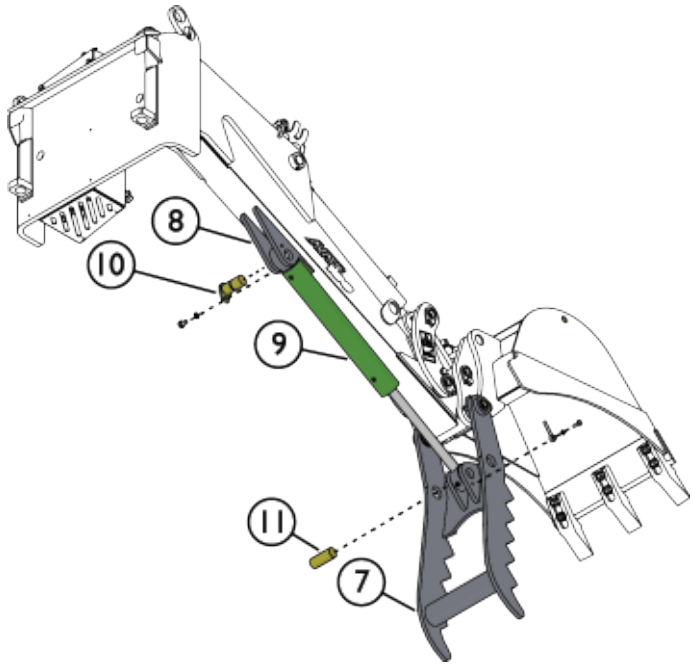
5 Fix the hydraulic thumb cylinder (9) between the lug (8) and thumb (7) with pins (10 & 11) as shown in the adjacent figure. Lock the pins with retaining screws.

Connect the hydraulic couplings as shown in the figure below.

6 Check the function of the excavator thumb.

Grease the lubrication points.

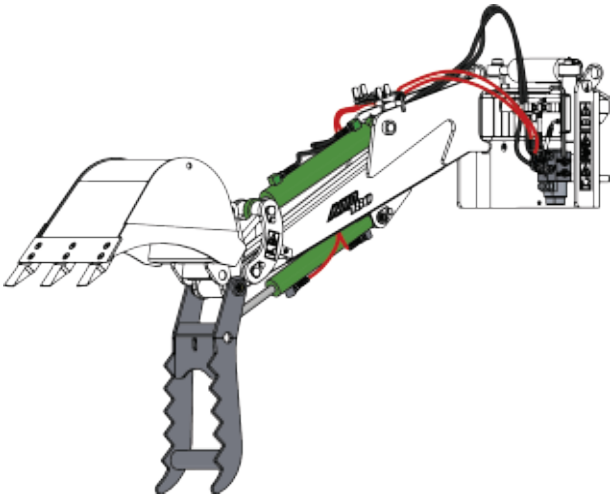
7 Reinstall the bucket as shown in this manual.



Hydraulic fittings:

The hydraulic assembly for the excavator thumb is similar with the installation of the hydraulic components of the tilt adapter.

See paragraph Fitting the hydraulic components on page 36.

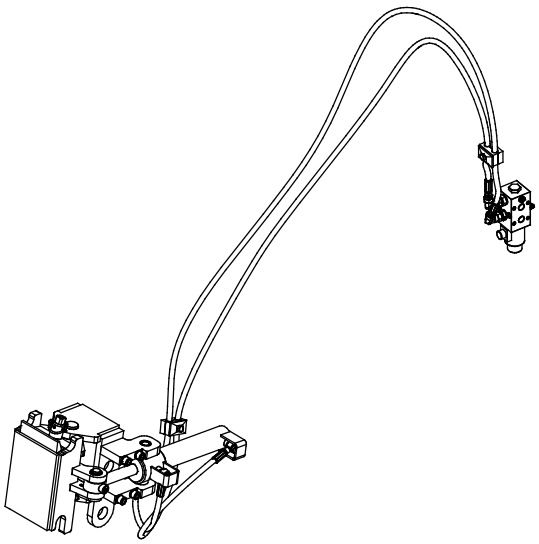


7.4 Bucket tilt adapter (Optional equipment)

The Mini digger 180 can be equipped with a tilting bucket adapter, and is equipped with necessary fastening points and holes for installation of hydraulic hoses.

With the tilting adapter, a grading bucket can be used to level the ground surface to desired slopes or, for example, to dig a ditch. The tilting adapter includes the same S30-150 quick release system for the bucket, so the same buckets can be used with the tilting system.

The tilting adapter kit A446187 includes all necessary components needed in installation.

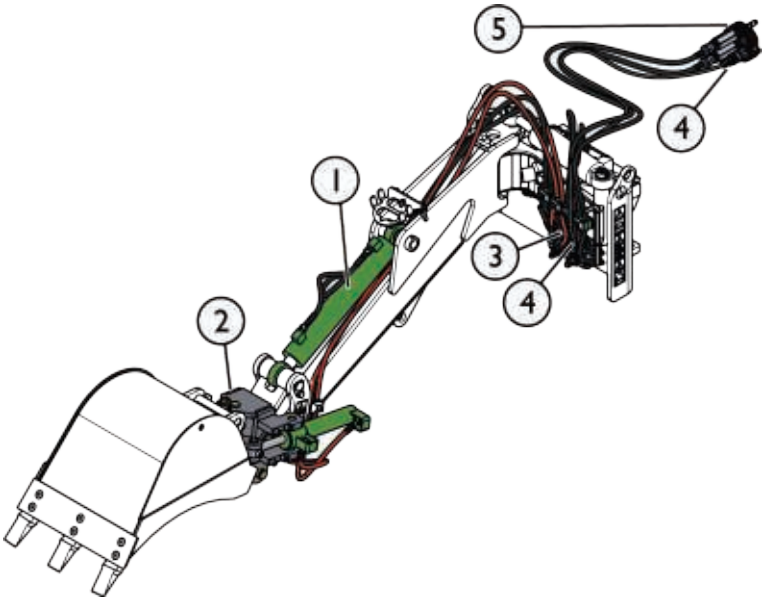


Tilting bucket adapter kit A446187 (optional equipment)

7.4.1 Tilt adapter - hydraulic components

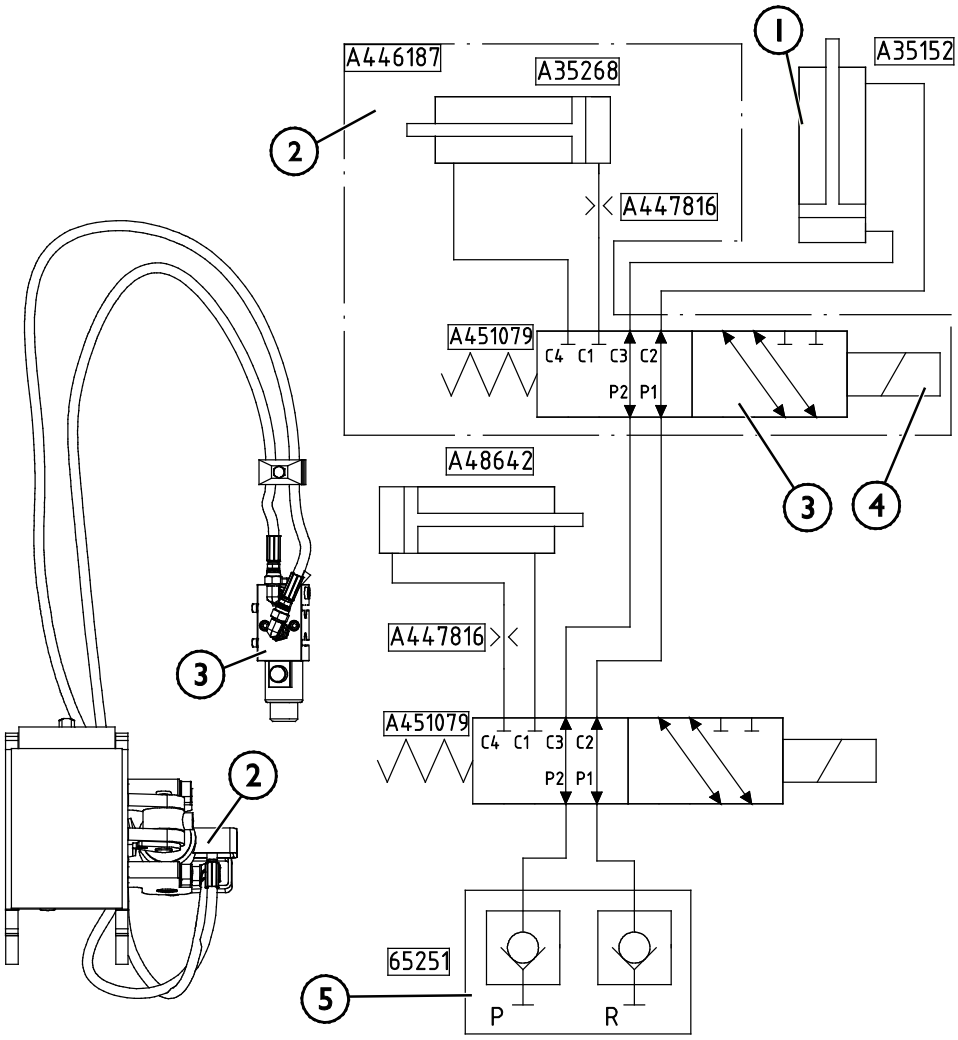
Table 6 – Tilt adapter components

1. Hydraulic cylinder
2. Tilt adapter
3. Selector valve
4. Electric connection
5. Multiconnector for hydraulic pressure / return



Hydraulic diagram

1. Hydraulic cylinder
2. Tilt adapter
3. Selector valve
4. Electric connection
5. Multiconnector for hydraulic pressure / return

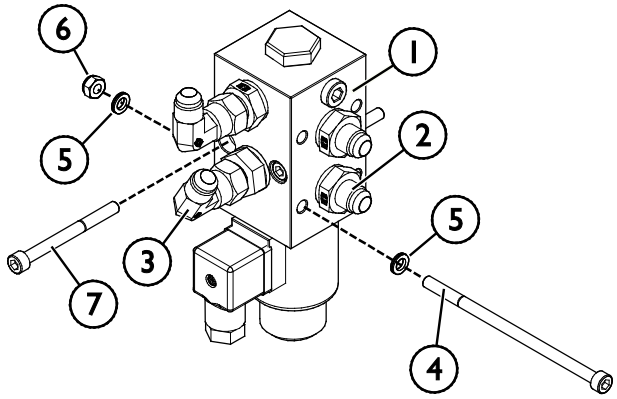


Fitting the hydraulic components:

1. Pre-assemble the selector valve at a clean location. The components are oily for storage. Leave the elbow fittings 3 loose and keep the screws ready for installation.

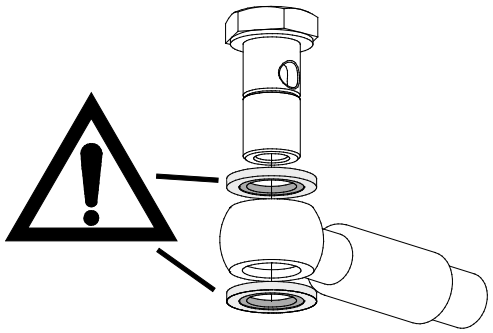
Table 7 - Component list - Selector valve assembly

Part	Name	Part number	pcs
1	Selection valve	A451079	1
2	Basic fitting	64041	6
3	Elbow fitting	64043	2
4	Hexagonal screw M6*65 / M6*120	A451732 / A428253	4
5	Washer	74530	8
6	Hexagonal nut M6	72318	4
7	Hexagonal screw M6*65	A451732	2



2. Disconnect the bucket cylinder hoses from near the hose clamp at the quick attach plate and loosen the clamps. Also remove the connector nipples from the hoses. See the hydraulic diagram on page 35.

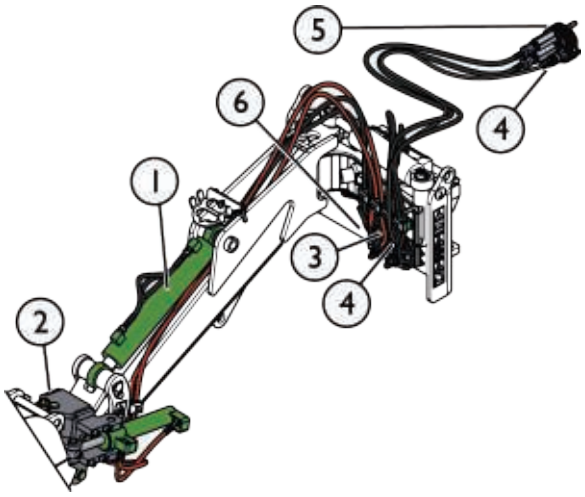
3. Fit the hydraulic hoses to the the cylinder of the tilting adapter; note the seals shown in the adjacent figure.



4. Bolt the selector valve to the holes of the quick attach plate (6), use tightening torque of 10 Nm. Fasten the selector valve to the existing selector valve, use tightening torque of 8 Nm.

5. Connect the hoses as shown in the figure in Table 7. Note the tightening instructions of hydraulic fittings shown below.

6. Connect the first part of the electric harness to the selector valve (3), and pass the cable within the protective plastic spiral of hydraulic hoses so that the connector will reach the multi connector of the loader (5), along with the hoses.



Also see the hydraulic diagram on page 35.

7.5 Tightening hydraulic fittings

Tighten the fittings carefully according to given instructions and safety procedures. Keep in mind that over tightening will break a fitting. Tighten basic fittings carefully with hand tools using moderate torque. The elbow fittings should be tightened at last, after hoses have been fitted to their clamps.

1. Allow the hydraulic systems of the loader and of the attachment to cool down completely before any work on hydraulic systems.
2. Make sure that the loader boom or any other part of the attachment can't move causing crushing or pinching hazards:
3. Lower the loader boom to its lower position and lower the broom firmly on the ground. For the best stability, keep the attachment locked on the loader.
4. Shut down the loader engine.
5. Move the auxiliary hydraulics control lever to its extreme positions several times to release residual pressure.
6. Uncouple the multi-connector or quick couplings from the loader to prevent draining of hydraulic oil.

Tapered JIC-type fittings:

- Lubricate the inner surfaces and threads of the fittings.
- A JIC type fitting is not tightened only by torque and it will not need a lot of force at any point when tightening. Overtightening or misalignment will break the fitting.

NOTICE

- Turn the manually as far as possible, and then lightly with tools ensuring that the fitting is threaded properly. When noticing clear increase in needed force, tighten fitting to its final tightness by turning only 1/3 to 1/2 turns using tools.
- After tightening, try to twist the hydraulic hose manually, the fitting should stay firm.

Test to find any leaks

DANGER

Before checking for leakages, or going near any hydraulic fitting, to avoid possible ejection of pressurized hydraulic oil:

- Shut down the loader engine
- Depressurize the hydraulic system completely
- Wipe the hydraulic components clean to find leaks more easily.
- Place pieces of cardboard around the fittings to detect leaks.
- Start the engine. While running on idle, operate the auxiliary hydraulics control lever briefly a couple of times. Shut down the engine, depressurize the hydraulics, and check for any sign of leak. Tighten if necessary.
- Repeat the test by gradually increasing engine rpm and operating time. Use both directions of the auxiliary hydraulics control lever.

DANGER

Risk of high pressure fluid injection through skin - Test the tightness of the hydraulic fittings carefully. Use idle rpm when starting the first time and keep a safe distance due to the risk of hydraulic fluid ejection. Shut down the loader and release the residual pressure before checking for leaks. Remember to use and wear protective equipment.

DANGER

Risk of high pressure fluid injection through skin - Never test the tightness of the hydraulic components by placing hands near the fittings. Never tighten a pressurized hydraulic fitting, since the fitting may break and the released oil may cause serious injuries.

Check the routing of hoses and movements of the attachment

After tightening the hydraulic components, test the movements of the attachment thoroughly. Check that the hydraulic hoses cannot get stretched or pinched in any position of the loader boom or the attachment, and check that the hoses are not in contact with sharp edges.

After thoroughly checking that the hoses are connected and fittings tightening, check the tightness of the fittings as described below. The hydraulic system will de-air itself when using the auxiliary hydraulics of the loader.

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.

DANGER

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

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.

DANGER

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

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

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

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.

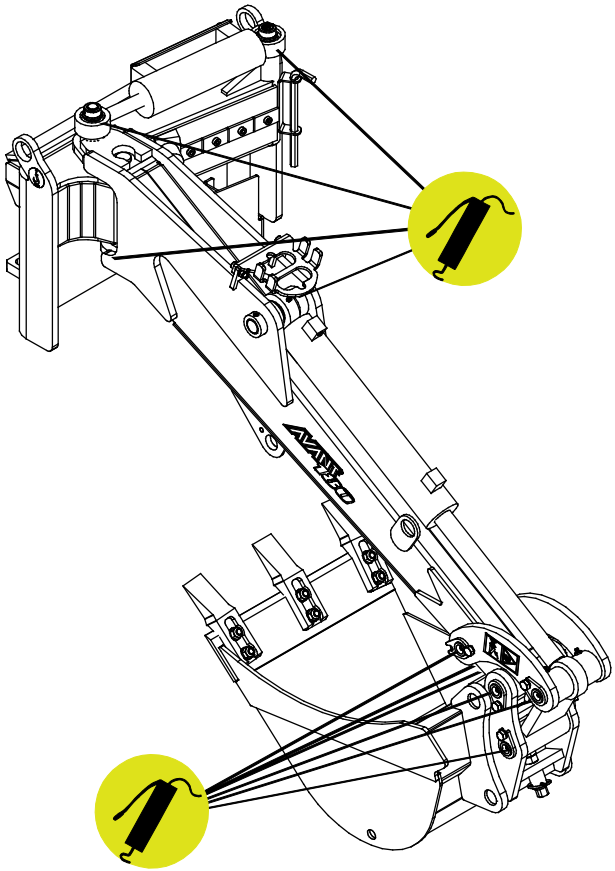
Welding repairs are only allowed to be carried out by professional welders. When welding, only methods and additives suited for steel used in attachment must be used. For more information about repairs contact your nearest service point.

8.4 Lubrication

There are a total of 10 lubrication points at the joints of the attachment. A small amount of grease should be added regularly.

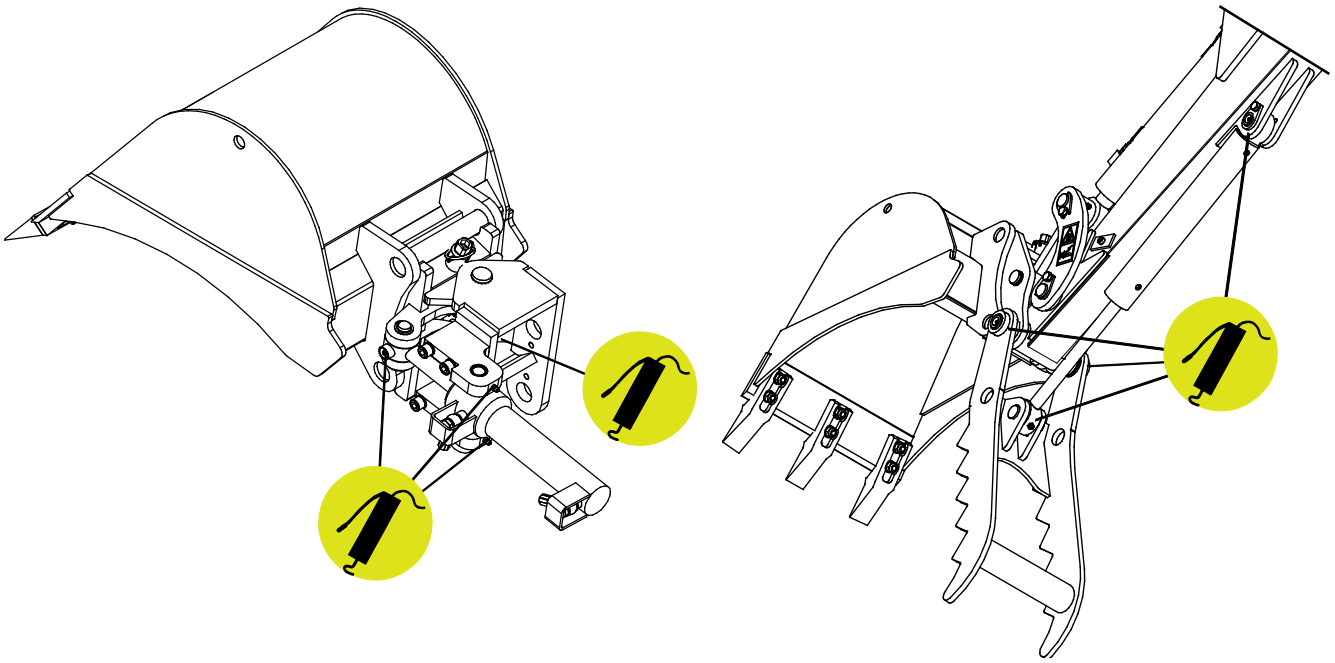
Correct lubrication interval depends heavily on operating conditions but lubricant must be added at least after every 10 hours of use. Sufficient lubrication of the joints must be ensured, and if the joints have become dirty, lubricant must be added; added lubricant will push out dirt from joints.

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



8.4.1 Lubrication of Mini digger 180 with hydraulic options

If the digger is fitted with a tilt adapter or thumb, there are 4 additional lubrication points as follows:



8.5 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.

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 Alkuperäinen kieliversio
SE EG-försäkran om överensstämmelse Originalversion
EN EC Declaration of Conformity Original language

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

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

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

SFS-EN ISO 12100, SFS-EN ISO 4413

Mallit / Modeller / Models

Avant		
Hydraulitoiminen kaivuulaite; Avant-kuormaajan työlaite Hydraulisk grävaggregat; arbetsredskap för Avant lastare Hydraulic Mini digger; attachment for Avant loaders	180	A445112

CE

2.8.2022 Ylöjärvi, Finland

Jani Käkelä,
Toimitusjohtaja / Verkställande direktör /
CEO

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