ANGLE TILT BUCKET

OPERATION & MAINTENANCE MANUAL

www.geith.com

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CONTENTS

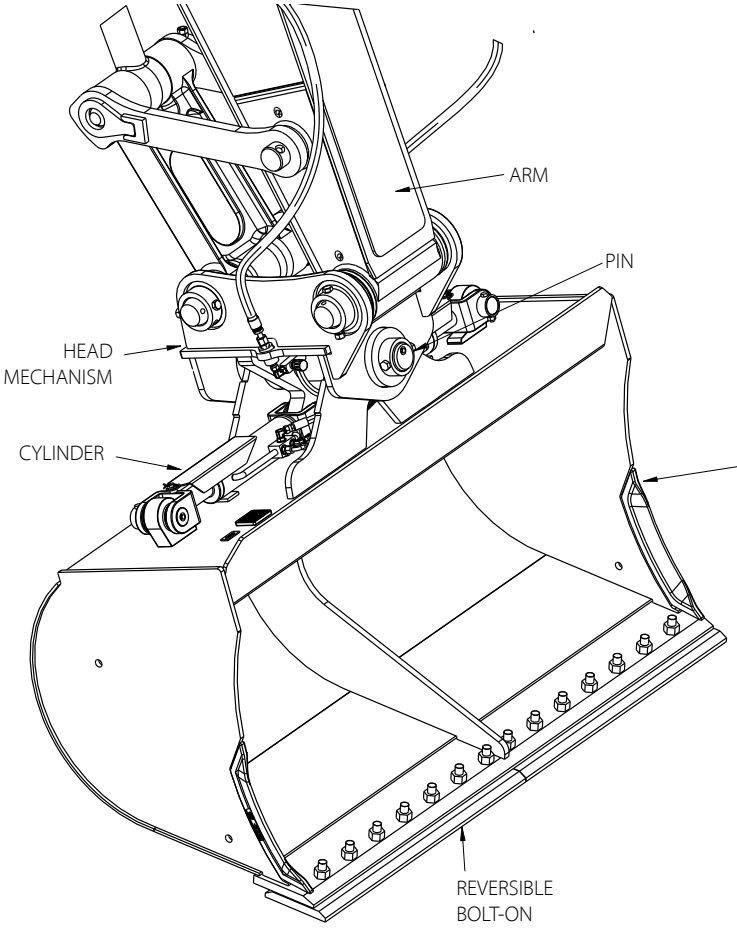
INTRODUCTION

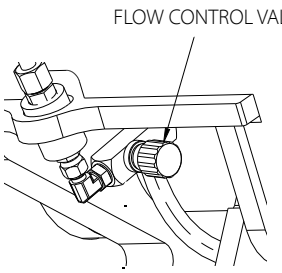
Thank you for purchasing a Geith Angle Tilt Bucket. Geith attachments are designed and manufactured to the highest quality standards and backed up by the Geith commitment to service and parts support. Learn more at www.geith.com

⚠ WARNING

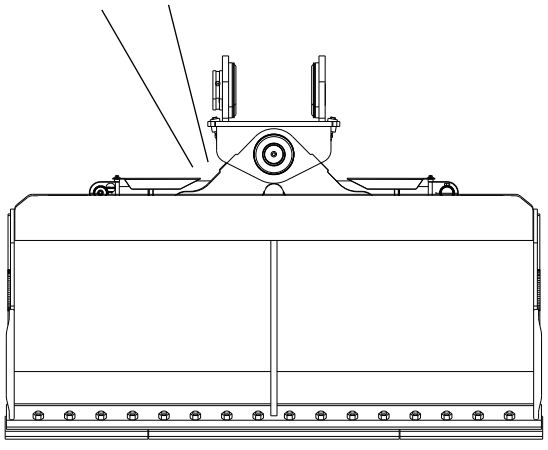
Instructions are necessary before operating or servicing the equipment. All personnel must read and understand the Operation & Maintenance Manual. Follow warnings and instructions in the manual when making adjustments, repairs or servicing. Check for correct function after making adjustments, repairs or servicing. Failure to follow instructions can cause injury or death.

IDENTIFICATION

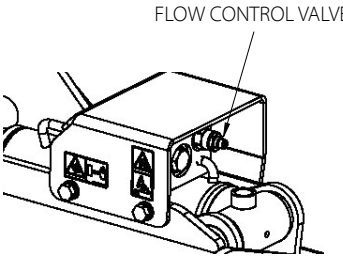




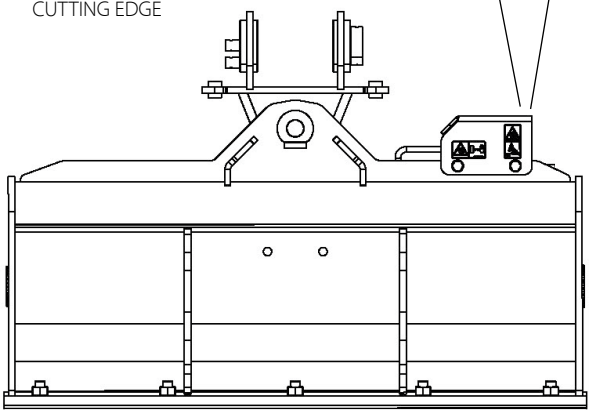
DUAL RAM FLOW CONTROL VALVE (IF EQUIPPED)



Dual Ram Angle Tilt Bucket



SINGLE RAM FLOW CONTROL VALVE (AT02 AT03)



Single Ram Angle Tilt Bucket

SAFETY

⚠ SAFETY ALERT SYMBOL ⚠

Be Prepared - Get to Know All Operating and Safety Instructions.

This is the Safety Alert Symbol. Wherever it appears in this manual or on safety signs on the machine you should be alert to the potential for personal injury or accidents. Always observe safety precautions and follow recommended procedures.

⚠ DANGER

DANGER - This signal word is used on safety messages and safety labels and indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING - This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION - This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

IMPORTANT

This signal word identifies procedures which must be followed to avoid damage to machine.

GENERAL

Safe Operation is Operator's Responsibility

Only trained and authorized personnel should operate and maintain the attachment.

Follow all safety rules, regulations, and instructions when operating or performing maintenance on attachment.

- Do not operate attachment and machine if you are under the influence of drugs or alcohol. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.
- When working with other personnel on a work site, be sure that all personnel know the nature of the work and understand all hand signals that are to be used.
- Be sure that all guards and shields are installed in their proper location. Have guards and shields repaired or replaced immediately if damaged.
- Never remove, modify or disable any safety features. Always keep them in good operating condition.
- Always check for and know the location of underground and overhead utility lines before using an attachment and machine.
- Failure to use and maintain safety features according to instructions in this manual, Safety Manual, and Shop Manual can result in death or serious injury.

Proper Work Tools and Attachments

When installing and using optional attachments, read the instruction manual for attachment, and general information related to the attachments in this manual.

Attachments and attachment control systems that are compatible with the machine are required for safe and reliable machine operation. Do not exceed maximum operating weight (machine weight plus attachment) that is listed on the machine's certification plate and reference lift capacity per the load chart in the machine.

Make sure that all guards and shields are in place on machine and on work tool. Depending on type or combination of work equipment, there is a potential that work equipment could interfere with the cabin or other parts of machine. Before using unfamiliar work equipment, check if there is any potential of interference, and operate with caution.

While you are performing any maintenance, testing, or adjustments to attachments, stay clear of the following areas: cutting edges, pinch points, and crushing surfaces.

Never use attachment as a work platform or man-lift.

Pressurized Fluids

Pressurized air or fluids can cause debris and/or fluids to be blown out. This could result in death or serious injury.

Immediately after operations are stopped, coolant, engine oil, and hydraulic oil are at their highest temperatures and the radiator and hydraulic tank are still under pressure. Always wait for temperature to cool down and follow specified procedures when performing the following operations. Follow specified procedures when attempting to remove caps, drain oil or coolant, or replacing filters. Failure to do so can result in death or serious injury.

When pressurized air and/or pressurized water is used for cleaning, wear protective clothing, protective shoes, and eye protection. Eye protection includes goggles or a protective face shield.

Pressure can be trapped in a hydraulic system and should be relieved before maintenance is started.

Releasing trapped pressure can cause sudden machine movement or attachment movement. Use caution if you disconnect hydraulic lines or fittings.

High-pressure oil that is released can cause a hose to whip or oil to spray. Fluid penetration can result in death or serious injury. If fluid enters skin or eyes, get immediate medical attention from a physician familiar with this injury.

Personal Protective Equipment (PPE)

Do not wear loose clothing and accessories. Secure long hair. These items can snag on controls or on other parts of equipment.

Do not wear oily clothes. They are highly flammable.

Do not forget that some risks to your health may not be immediately apparent. Exhaust gases and noise pollution may not be visible, but these hazards can cause disabling or permanent injuries. Breathing masks and/or ear protection may be required.

Wear a hard hat, safety shoes, safety goggles, mask, leather gloves, earplugs and other protective equipment, as required.

Proper Tools and Clothing

Only use tools that are intended for the type of service to be done and never use inadequate tools. Metal pieces from low quality or damaged tools, such as chisels or hammers, can break off and hit a service person in the eyes or face causing serious injury.

Hydraulic System

Check hydraulic tubes, hoses and fittings for damage, wear or for leaks. Hydraulic lines and hoses must be properly routed and have adequate support and secure clamps. Leaks can cause fires. Never use a flame or bare skin to check for leaks.

Tighten or replace any parts that show leakage.

Check that all hose and tube clamps, guards, and cushions are securely attached. If they are loose, they can vibrate during operation and rub against other parts. This can cause damage to hoses and cause high-pressure oil to spray on hot surfaces, causing a fire and death or serious injury.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

OPERATION

Attachment

Never let anyone ride on any work attachment. This creates a falling and crushing hazard and can result in death or serious injury.

Move work levers (joysticks) in a continuous motion. Making sudden movements with the work levers (joysticks) can cause attachment to swing into cabin or into a person in work area. This can result in death or serious injury.

Do not use work equipment or swing mechanism to pull load in any direction. This could cause the work equipment to move suddenly if the load releases and can result in death or serious injury.

MAINTENANCE & INSTALLATION

Improper operation and maintenance can result in death or serious injury. Read manual before operating or maintaining the attachment. Follow all instructions and safety messages.

⚠ WARNING

AVOID DEATH OR SERIOUS INJURY

Follow instructions before operating or servicing the attachment. Read and understand the Operation & Maintenance Manual for the attachment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can result in death or serious injury.

- Never service Geith attachments without instructions.
- Cleaning and maintenance are required daily.
- Welding or grinding painted parts should be done in well ventilated areas.
- Wear a respirator mask when grinding painted parts. Toxic dust and gas can be produced.
- Never service or adjust attachment with the machine's engine running unless instructed to do so in this manual.
- Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.
- Keep body, jewelry and clothing away from moving parts, electrical contact, and hot parts.
- Wear eye protection to guard from compressed springs, fluids under pressure and flying debris when engines are running or tools are used.
- Use eye protection approved for welding.
- Wear protective clothing. If acid contacts body, flush well with water. For eye contact, flush well and get immediate medical attention from a physician familiar with this injury.
- The maintenance procedures which are given in this manual can be performed by the owner or operator without any specific technical training. Maintenance procedures which are not in this manual must be performed ONLY BY QUALIFIED SERVICE PERSONNEL. Use genuine Geith replacement parts.
- Only authorized personnel should service and repair the attachment. Do not allow unauthorized personnel into work area.
- Park machine on firm, level ground.
- Lower work equipment to the ground, stop engine and relieve hydraulic pressure before performing maintenance.
- To prevent injury, do not perform maintenance with engine running. If maintenance must be done with engine running, perform maintenance with at least two workers and do the following:
- One worker must always sit in the operator's seat and be ready to stop engine at any time. All workers must maintain contact with other workers, be sure that all personnel know and understand all hand signals that are to be used.
- When maintenance operations are near moving or rotating parts, there is a potential hazard of being caught in moving or rotating parts. Keep hands and tools away.
- Contain and dispose of any fluid leakage in an environmentally safe manner.

Cleaning

- Clean the attachment before performing inspection and maintenance.
- If inspection and maintenance are done when the attachment is dirty, it will become more difficult to locate problems**.**

High-pressure Lines, Tubes and Hoses

When inspecting or replacing high-pressure piping or hoses, check to verify that pressure has been released from circuit. Failure to release pressure can result in death or serious injury. Always do the following:

- Wear eye protection and leather gloves.
- Fluid leaks from hydraulic hoses or pressurized components can be difficult to see but has enough force to pierce skin and can result in death or serious injury. Always use a piece of wood or cardboard to check for suspected hydraulic leaks. Never use your hands or expose your fingers. Wear safety goggles.
- Do not bend high-pressure lines. Do not strike high-pressure lines. Do not install lines, tubes or hoses that are bent or damaged.
- Make sure that all clamps, guards and heat shields are correctly installed to prevent vibration, rubbing against other parts, and excessive heat during operation.
- Replace hose or components if any of the following problems are found:

  Damage or leakage from hose end fitting.

  Wear, damage, cutting of hose covering, or wire braiding is exposed on any hose.

  Cover portion is swollen in any section. The hose is twisted or crushed.

  The hose is twisted or crushed.

  Foreign material is embedded in hose covering.

  Hose end is deformed.

  Connection fittings are damaged or leaking

Oil or fuel leaks from high-pressure hoses can cause fire or improper operation, which can result in death or serious injury. If any damaged hoses are found, stop operations immediately and contact your Geith distributor for replacement parts.

ENVIRONMENT AND CIRCUMSTANCES

Exhaust Ventilation

Engine exhaust gases can cause unconsciousness, loss of alertness, judgment and motor control. This can result in death or serious injury.

Make sure there is adequate ventilation before starting engine in any enclosed area.

Check for and be aware of any open windows, doors or ductwork where exhaust may be carried, or blown by wind, exposing others to hazardous exhaust gases.

Ventilation for Enclosed Area

If it is necessary to start engine within an enclosed area, or when handling fuel, flushing oil, or paint; open doors and windows to ensure that adequate ventilation is provided to prevent gas poisoning.

Diesel engine exhaust contains products of combustion which can be harmful to your health.

Always run engine in a well ventilated area. If you are in an enclosed area, vent exhaust to outside.

⚠ WARNING

CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects and other reproductive harm.

Disposal of Hazardous Materials

Physical contact with used motor oil or gear oil could create a health risk. Wipe oil from your hands promptly and wash off any remaining residue.

Used motor oil or gear oil is an environmental contaminant and should only be disposed of at approved collection facilities. To prevent pollution of environment, always do the following:

- Never dump waste oil in a sewer system, rivers, etc.
- Always put drained oil from your machine in approved, leak proof containers. Never drain oil directly onto ground.

- Obey appropriate laws and regulations when disposing of harmful materials such as oil, fuel, solvent, filters, and batteries.

Improperly disposing of waste can threaten environment. Potentially harmful fluids should be disposed of according to local regulations.

Use all cleaning solutions with care. Report all necessary repairs.

SAFETY DECALS

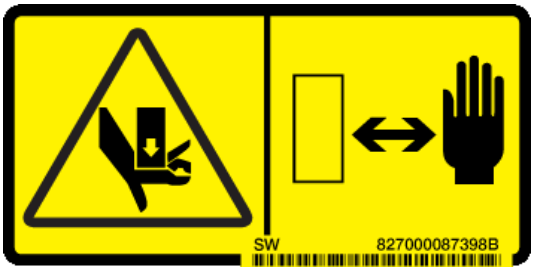
Safety decals are attached to the attachment to alert the operator or maintenance person about potential hazards, the consequences of potential injury, and instructions and/or actions required to avoid the hazard. The location of the safety decals and the description of the decals are reviewed in the following section. Please become familiarized with all safety decals and their messages.

Make sure that all the safety decals are in their correct location and legible. Clean or replace the safety decals if they are damaged, missing, or the texts and pictorials are not legible. When you clean the safety decals, use a soft cloth, water, and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety decals because this could loosen the adhesive that secures the decals to the attachment. Remember, if a safety decal is attached to a part that is replaced, install a new safety decal on the replacement part.

Pinch Hazard decal

WARNING MOVING PARTS CAN CAUSE SERIOUS INJURY

The decal below will be located on the Angle Tilt Bucket. Keep hands and fingers away from moving parts.



[Figure 1]

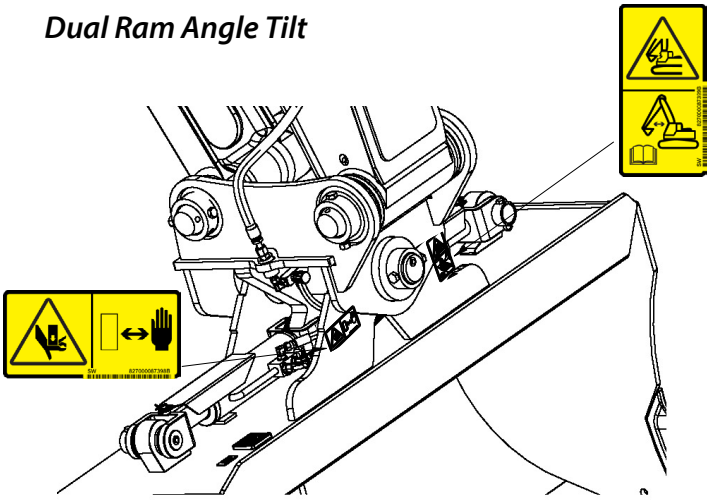
Interference with Machine Decal

Operate Geith Angle Tilt Bucket through its full range of motion to check interference between attachment and machine that could damage the machine, coupler or attachment. Install decal inside of the cab window. The Geith Angle Tilt Bucket increases the swing radius of buckets and tools.

[Figure 2]

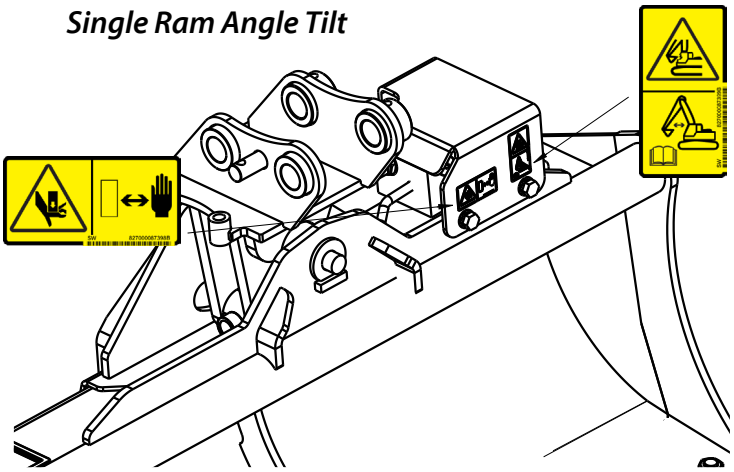
DECAL IDENTIFICATION

Dual Ram Angle Tilt



[Figure 3]

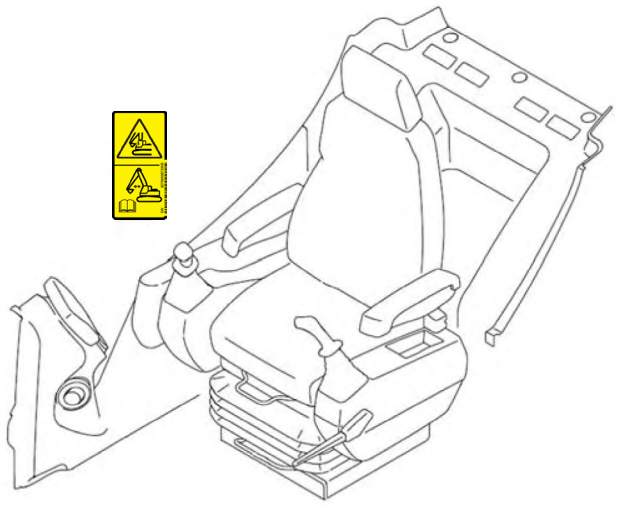
Single Ram Angle Tilt



[Figure 4]

DECAL INSTALLATION

Warning decal [Figure 2] IS supplied with this Angle Tilt Bucket. It must be fitted onto the inside of the cab window where it can easily be seen from the operators position [Figure 5].



[Figure 5]

Install the decal inside of the cab window [Figure 5].

NOTE: Replace any damaged instruction and warning decals. Replacement decals are available from your dealer.

⚠ WARNING

WARNING
PINCH POINT CAN CAUSE
SERIOUS INJURY OR DEATH

Keep hands away

⚠ WARNING

WARNING
ATTACHMENT INTERFERENCE CAN CAUSE
SERIOUS INJURY OR DEATH

Check attachment to machine clearance through full working cycle prior to operation.

OPERATION INSTRUCTIONS

Installing The Angle Tilt Bucket

NOTE: Refer to machine's Operation & Maintenance Manual for information on correct operation of machine, including how to properly enter and exit machine.
For installation on a coupler, See Coupler Installation on this page.

For installation on a direct mount, See Direct Mount Installation on Page 11.

Coupler Mount Installation

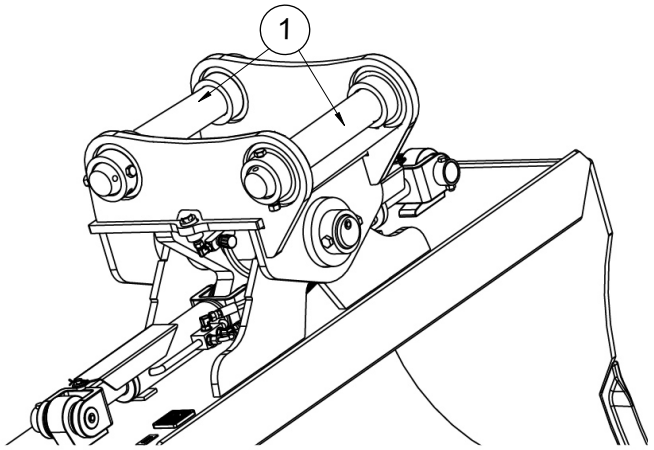
⚠ WARNING

WARNING
AVOID SERIOUS INJURY OR DEATH

Stop the machine on a firm flat surface. When removing or installing attachments (such as a Angle Tilt Bucket), always have a second person in the operator's seat, give clear hand signals and work carefully.

NOTE: Refer to coupler's Operation & Maintenance Manual for information on correct operation of the coupler. Park the machine on a flat level surface.

Set the Angle Tilt Bucket on a flat level surface.



[Figure 6]

Install pins (1) [Figure 6] and retaining hardware.
NOTE: See coupler manufacturer for correct pins.

Install Angle Tilt Bucket on the coupler. See the coupler's Operation and Maintenance manual.
Grease all joints and cylinder pins using an EP type Heavy Duty Grease.
Install decals. See DECAL INSTALLATION on Page 9
Install hydraulic hoses. See Hydraulic Hose Installation on Page 11.

Complete the operational check of the Angle Tilt Bucket. See Operational Check Angle Tilt Bucket on Page 12

Ground grade and terrain can significantly impact on the excavator stability and lift capacity. Ensure that excavator and attachment operation is carried out within the limits of the excavator capabilities and recommended grades. See capacities see Page 24

Direct Mount Installation

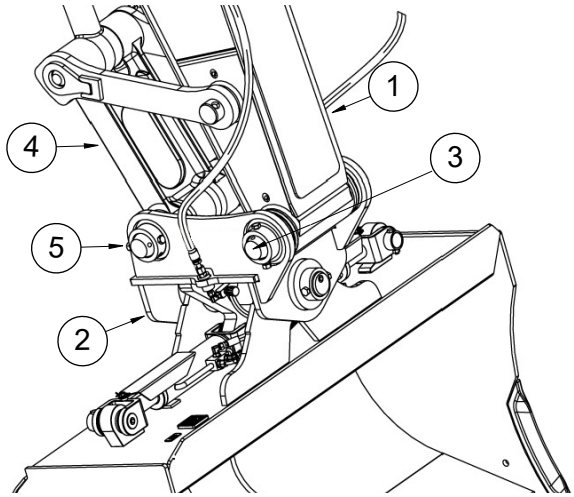
⚠ WARNING

WARNING
AVOID SERIOUS INJURY OR DEATH

Stop the machine on a firm flat surface. When removing or installing attachments (such as a Angle Tilt Bucket), always have a second person in the operator's seat, give clear hand signals and work carefully

Park the machine on a flat level surface.

Set the Angle Tilt Bucket on a flat level surface.
[Figure 7]



[Figure 7]

Position the arm (1) into the Angle Tilt Bucket (2) [Figure 7], aligning the mounting holes. Stop the engine and exit the machine.
Install pin (3) [Figure 7], dust seals (O-ring) (if equipped) and retaining hardware.
Install the link (4) into the Angle Tilt Bucket (2) [Figure 7], aligning the mounting holes.
Install pin (5) [Figure 7], dust seals (O-ring) and retaining hardware.
Grease all joints and cylinder pins using an EP type Heavy Duty Grease.
Install decals. See DECAL INSTALLATION on Page 9.
Install hydraulic hoses. See Hydraulic Hose Installation on Page 11

Complete the operational check of the Angle Tilt Bucket. See Operational Check Angle Tilt Bucket on Page 12

Hydraulic Hose Installation

⚠ WARNING

WARNING
HIGH PRESSURE OIL CAN CAUSE DEATH OR SERIOUS INJURY

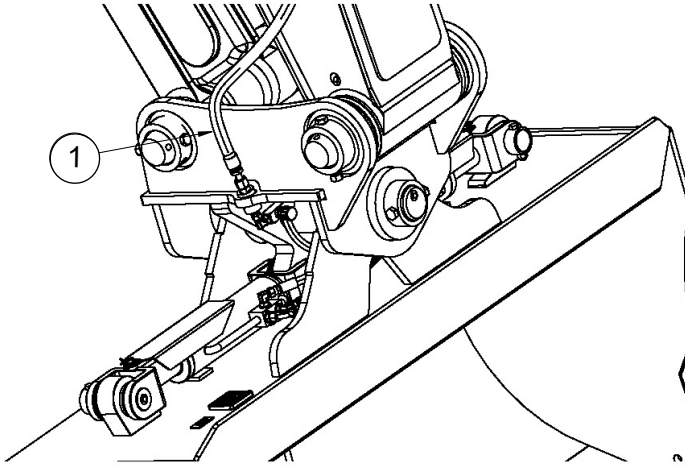
Machine auxiliary lines can be under high pressure. Verify auxiliary hydraulic pressure has been relieved before connecting hydraulic hoses.

Connection of hoses to the incorrect ports may result in unexpected tilt direction

IMPORTANT

- **When working with hydraulic systems, clean the work area before disassembly and keep all parts clean. ALWAYS use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.**
- **Contain and dispose of any oil leakage in an environmentally safe manner.**
- **DO NOT EXCEED MAXIMUM OPERATING PRESSURE OF 207 bar (3000 psi).**

Flush auxiliary hydraulic system. See the machine's Operation and Maintenance Manual for correct procedure.
NOTE: It is recommended to flush for 10 - 15 minutes, intermittently reversing flow during the process.
Close the auxiliary hydraulic valves (if equipped).



[Figure 8]

Remove the hydraulic plugs.
Install the hydraulic hoses (1) [Figure 8] to the machine auxiliary hydraulics and Angle Tilt Bucket.
Open machine auxiliary hydraulic valves (if equipped).

OPERATIONAL CHECK ANGLE TILT BUCKET

Enter the machine, fasten seat belt and start the engine

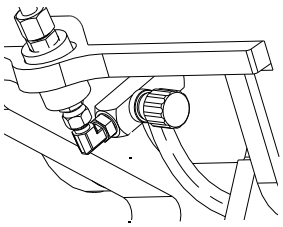
⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

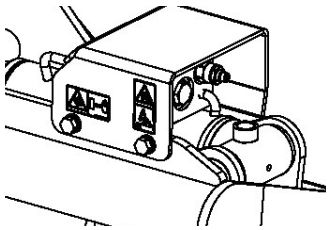
- **Always keep bystanders away when operating the machine and Angle Tilt Bucket.**
- **Check attachment to machine clearance through full working cycle prior to operation.**
- **Connection of hoses to the incorrect ports may result in unexpected tilt direction**

IMPORTANT

- **Machines may be equipped to electronically adjust hydraulic pressure from the cab.**
- **Electronic pressure adjustments must be verified using a gauge as pressure displayed may vary from actual output.**
- **DO NOT EXCEED MAXIMUM OPERATING PRESSURE OF 207 bar (3000 psi).**



Dual Ram Flow Control Valve (if Equipped)



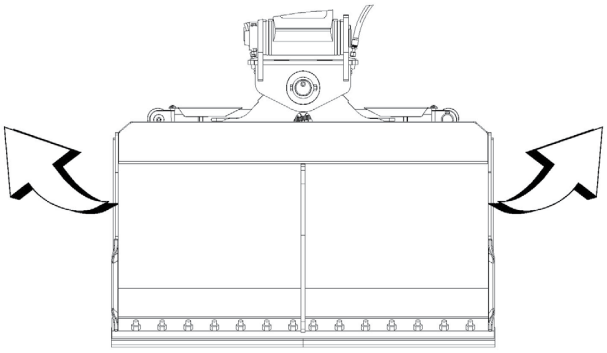
Single Ram Flow Control Valve (AT02 AT03)

[Figure 9]

Set the desired cycle time (4-7 seconds) using the following in this priority order:

1. Machine's Flow Control: Confirm the flow control valve (1) [Figure 9] (If equipped) is fully opened. Adjust the machine's flow. See machine's Operation and Maintenance manual for procedure.

2. Flow Control Valve: Adjust the flow control valve (1) [Figure 9] (If equipped).



[Figure 10]

Cycle the Angle Tilt Bucket left and right [Figure 10]. Fully extend and retract bucket cylinder.

- With a second person standing outside the swing radius of the angle tilt bucket, check hydraulic hoses are properly secured and do not become caught, tight, pinched or rub against arm or attachment and are free of leaks.

- Check attachment to machine clearance through full working cycle prior to operation.

OPERATING THE ANGLE TILT BUCKET

The weight of Angle Tilt Bucket and optional accessories must be subtracted from the machines lift capacity. See the See SPECIFICATIONS on Page 5-2. Refer to the machine's Operation and Maintenance Manual for the rated lift capacity table.

Daily Inspection

If the Angle Tilt Bucket is not properly maintained, it may affect the life span and operation. Inspect the following items daily:

1. Hydraulic lines, cylinder, connections and fittings for hydraulic oil leaks. Repair or replace damaged parts if necessary.

2. Look for broken welds, damaged or excessively worn parts. Repair or replace damaged parts if necessary.

3. Inspect mounting/retaining hardware, pivot pins and mounts for wear or damage. Repair or replace damaged parts if necessary.

4. Lubricate as required. For additional inspection information and service schedule See SERVICE SCHEDULE on Page 4-3.

WARM UP PROCEDURE

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

Always keep bystanders away when operating the machine and Angle Tilt Bucket.

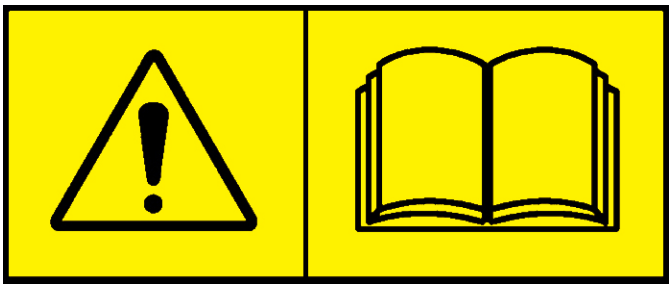
NOTE: DO NOT place a load on Angle Tilt Bucket during this procedure.

Before operating the Angle Tilt Bucket, start the machine and allow the hydraulic fluid to warm to operating temperature.

With the machine at low idle, operate the auxiliary hydraulics to warm up hydraulic oil and cylinder of the Angle Tilt Bucket.

When the temperature is below 0° C (32° F), the Angle Tilt Bucket should be operated with slight pressure for at least one minute.

SAFETY INSTRUCTIONS



Instructions are necessary before servicing the equipment. All personnel must read and understand the Operation Manual and signs (decals) on the equipment. Follow warnings and instructions in the manual when making adjustments, repairs or servicing. Check for correct function after making adjustments, repairs or servicing. Failure to follow instructions can cause injury or death.

WARNING

AVOID SERIOUS INJURY OR DEATH

Before servicing the Angle Tilt Bucket:

- **Lower the Angle Tilt Bucket to the ground.**
- **Relieve residual hydraulic pressure.**
- **Dispose of hydraulic fluid properly.**
- **Stop the engine and remove the key.**

WARNING

HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high pressure fluid:

- **Stop the engine and relieve system pressure before repairing or adjusting.**
- **Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.**
- **Keep all components in good repair.**

MAINTENANCE

Troubleshooting

PROBLEM	CAUSE	CORRECTION
Angle Tilt Bucket does not tilt.	No hydraulic flow at the Angle Tilt Bucket.	Check control function in operation mode. See the machine's Operation and Maintenance manual.
		Connect hydraulic lines to Angle Tilt Bucket.
		Check attachment flow control valve is open (if equipped).
		Check auxiliary hydraulic valves to be fully open.
	Angle Tilt Bucket is mechanically bound	Check pivot points for free movement.
		Repair or replace hydraulic cylinder.
Angle Tilt Bucket tilts in one direction.	Machine hydraulic system damaged.	See the machine's Operation and Maintenance manual.
	Auxiliary hydraulic function set incorrectly.	Confirm machine hydraulics in two-way operation mode. See the machine's Operation and Maintenance manual.
Angle Tilt Bucket slowly tilts.	Incorrect cycle time setting.	Set cycle time (4-7 seconds).
	Restricted hydraulic pressure at the Angle Tilt Bucket.	Check auxiliary hydraulic valves to be fully open.
	Hydraulic hose(s) damaged.	Check for leaks and damage. Repair or replace hydraulic hose(s).
	Hydraulic cylinder damaged.	Repair or replace hydraulic cylinder.
	Angle Tilt Bucket is mechanically bound	Check pivot points for free movement.
Angle Tilt Bucket quickly tilts.	Incorrect cycle time setting.	Set cycle time (4-7 seconds).

SERVICE SCHEDULE

8 - 10 Hour / Daily Service

Grease Pivot and Cylinder Pins

Grease pivot and cylinder pins, use an EP type Heavy Duty Grease.

NOTE: If the attachment is being used in dusty conditions or in water, the time between greasing intervals will need to be decreased.

NOTE: Dispose of purged grease according to local regulations.

Check Hydraulic Hoses

Check hydraulic hoses are properly secured and do not become caught, tight, pinched or rub against boom or attachment.

Inspect the hydraulic hoses for damage, excessive wear or appear defective in any way, replace them immediately. Repair or replace any damaged parts as necessary.

Check Hydraulic Connections and Fittings

Check all connections and fittings for evidence of oil leakage. Repair or replace any damaged parts as necessary.

Check Hydraulic Cylinders

Check hydraulic cylinders for evidence of oil leakage. Repair or replace any damaged parts as necessary.

40 - 50 Hour / Weekly Service

Check Angle Tilt Bucket Components

Check for fatigue cracks around fitting/mounting welds. Inspect all components for excessive wear, damage and cracked welds. Repair or replace any parts that are damaged, bent or missing.

Check for Loose or Missing Fasteners

Inspect all pins and hardware for any that are loose or missing. Tighten any loose hardware and replace any hardware that is missing.

Check Hydraulic Cylinder Rods

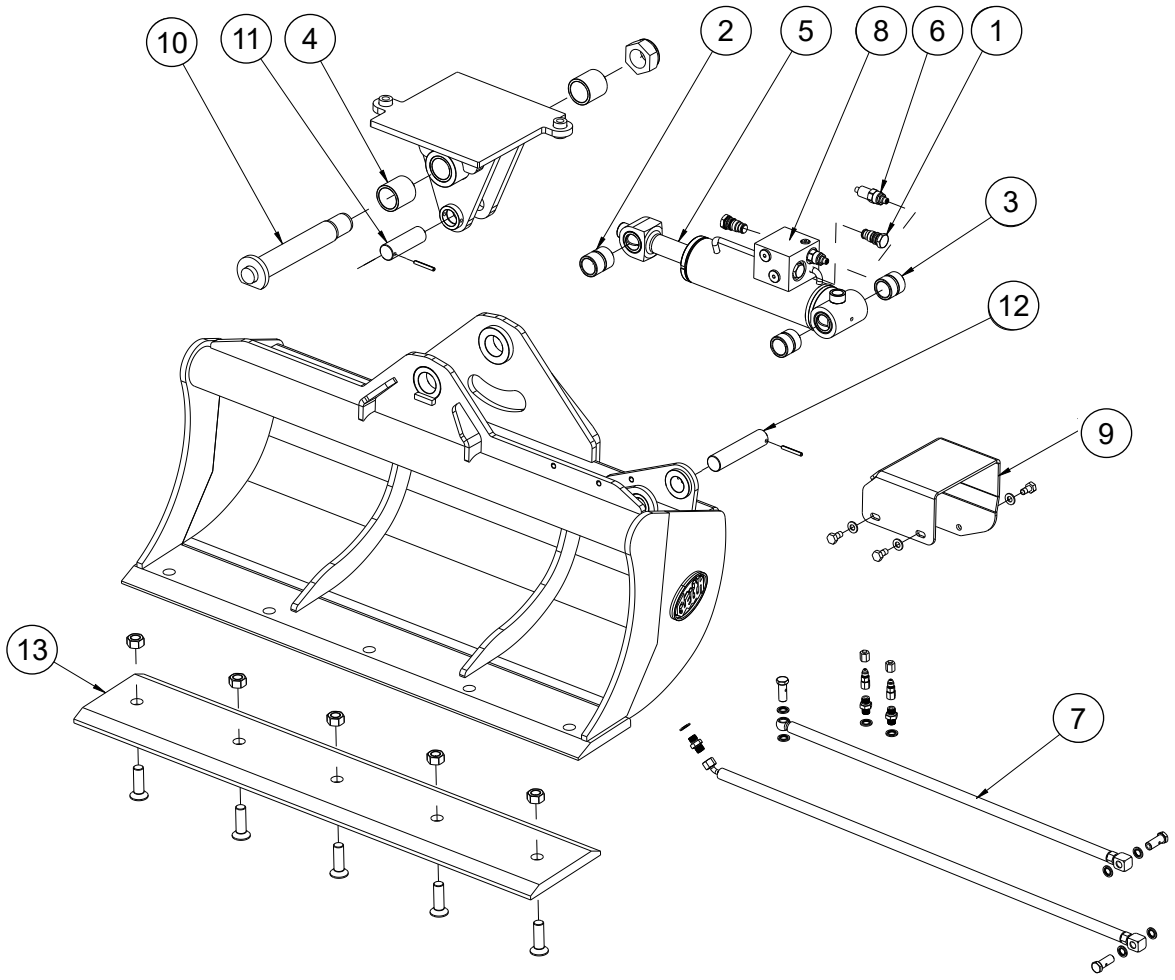
Check for damage/scoring on hydraulic cylinder rods. Repair or replace any damaged parts as necessary.

Check Reversible Bolt-on Cutting Edge

Inspect all bolts and nuts for any that are loose or missing. Tighten any loose bolts and nuts and replace any bolts and nuts that are missing.

Check for excessive wear on reversible bolt-on cutting edge. Reverse or replace the reversible bolt-on cutting edge. See Reversible Bolt-on Cutting Edge on Page 23.

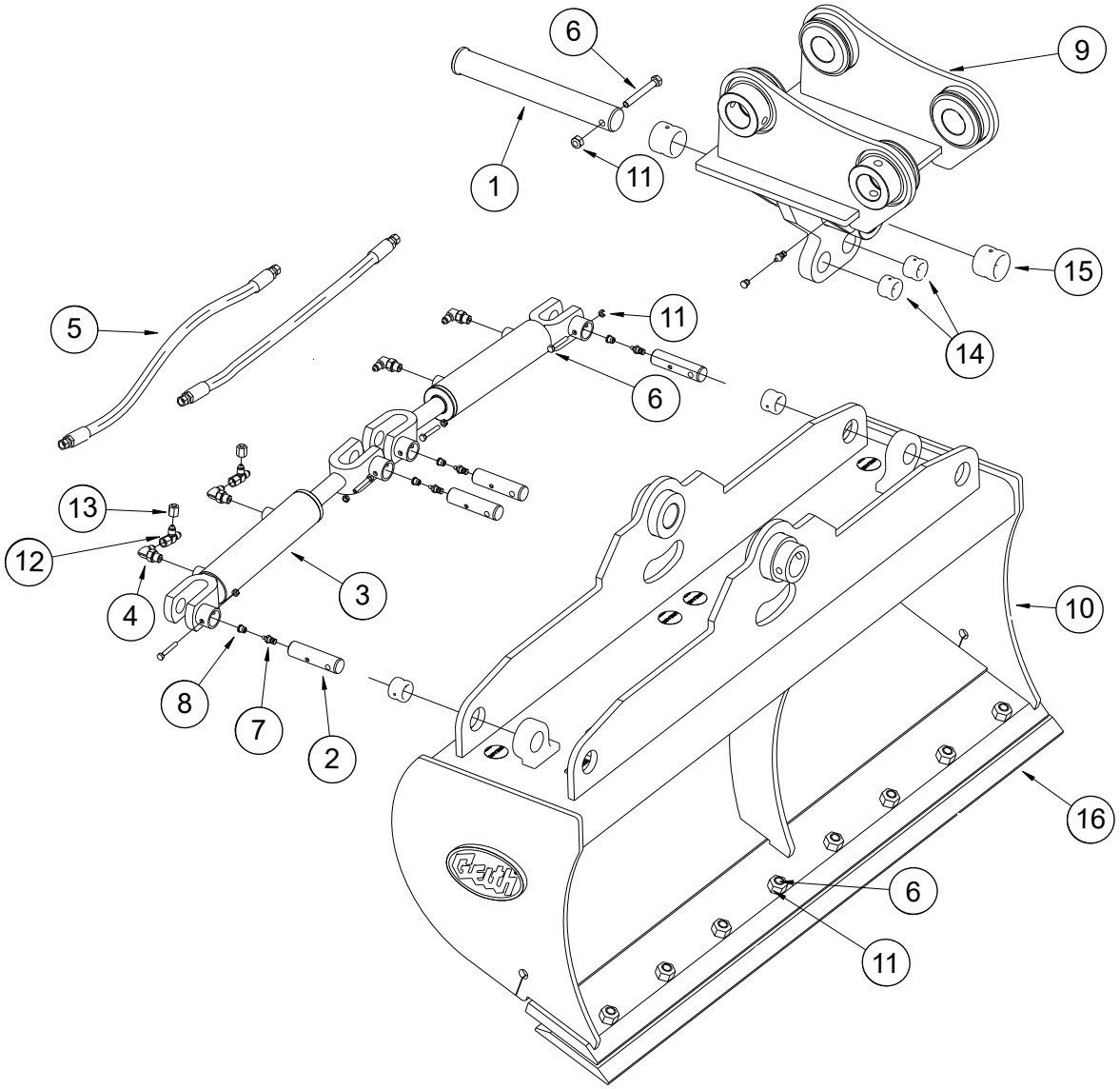
Component Identification
(AT02R & AT03R)



ITEM	DESCRIPTION
1	VALVE CHECK
2	ROD HARD INSERT BUSH
3	BORE HARD INSERT BUSH
4	HEAD HARD INSERT BUSH
5	HYDRAULIC CYLINDER
6	FLOW CONTROL VALVE
7	HOSE KIT

ITEM	DESCRIPTION
8	SEAL KIT
9	GUARD AND FASTNERS
10	MAIN PIN AND NUT
11	ROD PIN AND ROLL PIN
12	BORE PIN AND ROLL PIN
13	RBOCE KIT INC FASTNERS

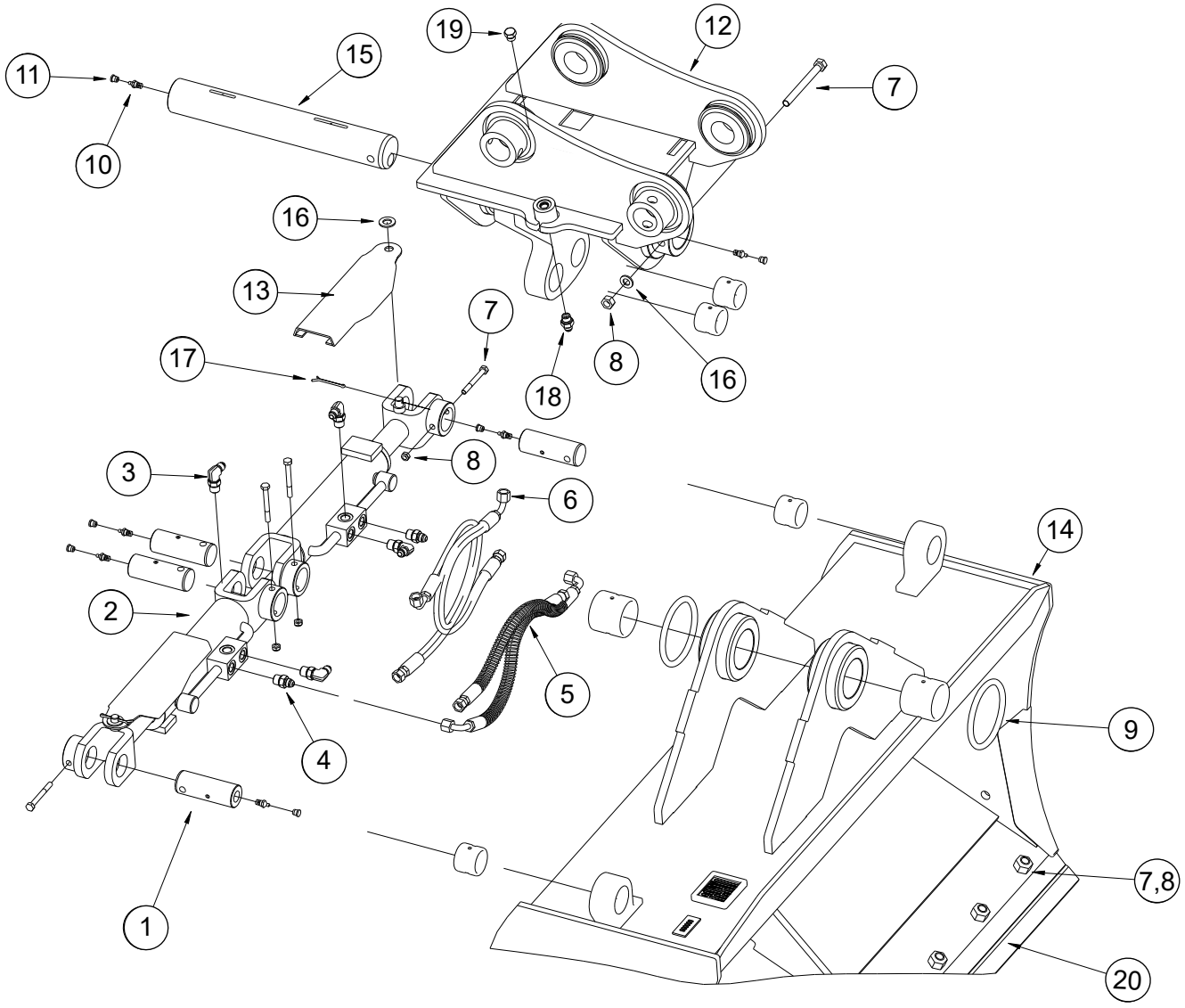
Component Identification
(AT04R & AT06R)



ITEM	DESCRIPTION
1	PIN, HEAD MECHANISM
2	PIN, CYLINDER, HYDRAULIC
3	CYLINDER, HYDRAULIC
4	FITTING, HYDRAULIC, ELBOW 90°
5	HOSE, HYDRAULIC
6	BOLT
7	GREASE FITTING
8	GREASE FITTING COVER

ITEM	DESCRIPTION
9	HEAD MECHANISM
10	BUCKET
11	NUT
12	SWIVEL, HYDRAULIC
13	CAP, HYDRAULIC
14	BUSHING, HYDRAULIC CYLINDER
15	BUSHING, HEAD MECHANISM
16	REVERSIBLE BOLT-ON CUTTING EDGE

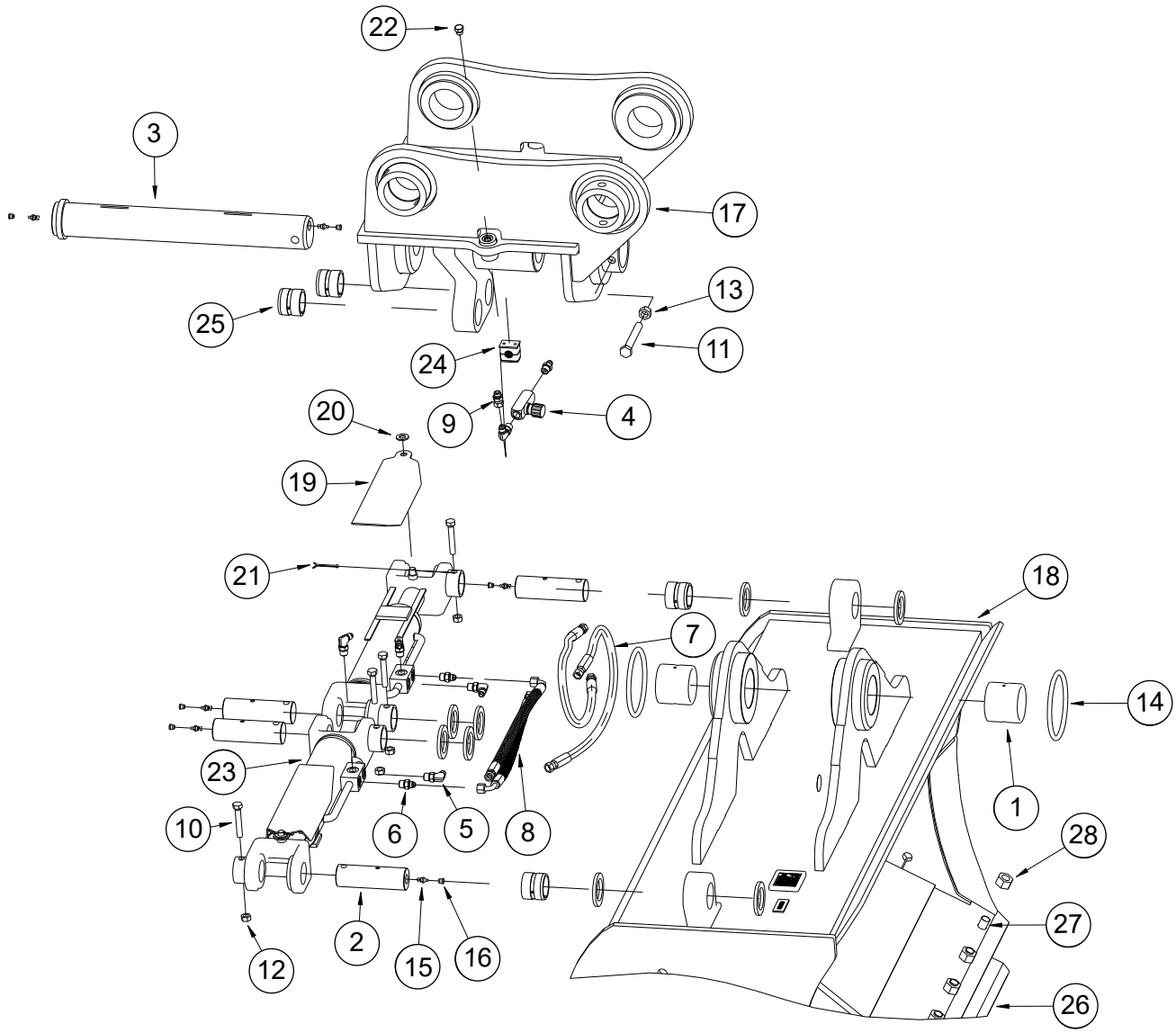
Component Identification
(AT011R)



ITEM	DESCRIPTION
1	PIN, CYLINDER, HYDRAULIC
2	CYLINDER, HYDRAULIC
3	FITTING, HYDRAULIC, ELBOW 90°
4	FITTING, HYDRAULIC, STRAIGHT
5	HOSE, HYDRAULIC
6	HOSE, HYDRAULIC
7	BOLT
8	NUT
9	O-RING
10	GREASE FITTING

ITEM	DESCRIPTION
11	GREASE FITTING COVER
12	HEAD MECHANISM
13	CYLINDER GUARD
14	BUCKET
15	PIN, HEAD MECHANISM
16	WASHER
17	SPLIT PIN
18	FITTING, HYDRAULIC STRAIGHT CONNECTOR
19	FITTING HYDRAULIC PLUG HEX
20	REVERSIBLE BOLT-ON CUTTING EDGE

Component Identification
(AT18R - AT29R)



ITEM	DESCRIPTION
1	BUSHING, HEAD MECHANISM
2	PIN, HYDRAULIC CYLINDER
3	PIN, HEAD MECHANISM
4	FLOW CONTROL VALVE
5	FITTING, HYDRAULIC ELBOW 90°
6	FITTING, HYDRAULIC S CONNECTOR
7	HOSE, HYDRAULIC
8	HOSE, HYDRAULIC
9	FITTING, HYDRAULIC SWIVEL
10	BOLT, PIN, HYDRAULIC CYLINDER
11	BOLT, PIN, HEAD MECHANISM
12	NUT, PIN, HYDRAULIC CYLINDER
13	NUT, PIN, HEAD MECHANISM
14	O-RING

ITEM	DESCRIPTION
15	GREASE FITTING
16	GREASE FITTING CAP
17	HEAD MECHANISM
18	BUCKET
19	GUARD
20	WASHER
21	PIN, SPLIT
22	FITTING, HYDRAULIC PLUG
23	CYLINDER, HYDRAULIC
24	CLAMP ASSEMBLY
25	BUSHING, PIN, HYDRAULIC CYLINDER
26	REVERSIBLE BOLT-ON CUTTING EDGE
27	BOLT, CUTTING EDGE
28	NUT, CUTTING EDGE

Hydraulic Cylinder

NOTE: Angle Tilt Bucket maintenance procedures vary per model. See Identification on Page 4 section to determine model and use procedure that correlates to your model.

⚠ WARNING

MACHINE OR ATTACHMENT MOVEMENT CAN CAUSE DEATH OR SERIOUS INJURY

- A crushing hazard may occur from air in the hydraulic system caused when servicing the hydraulic hose or cylinder.
- Place the angle tilt bucket flat on the ground during maintenance procedures.
- Keep all other bystanders away.

⚠ WARNING

HIGH PRESSURE OIL CAN CAUSE DEATH OR SERIOUS INJURY

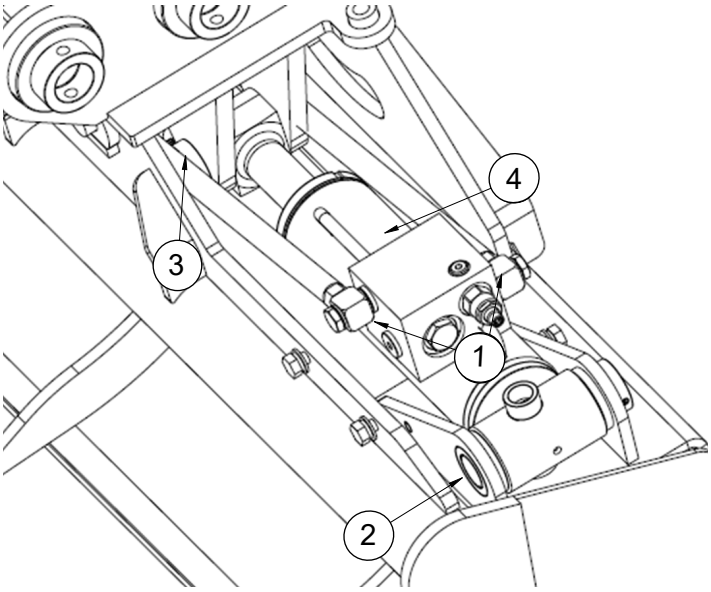
Machine auxiliary lines can be under high pressure. Verify auxiliary hydraulic pressure has been relieved before performing maintenance on hydraulic hoses

IMPORTANT

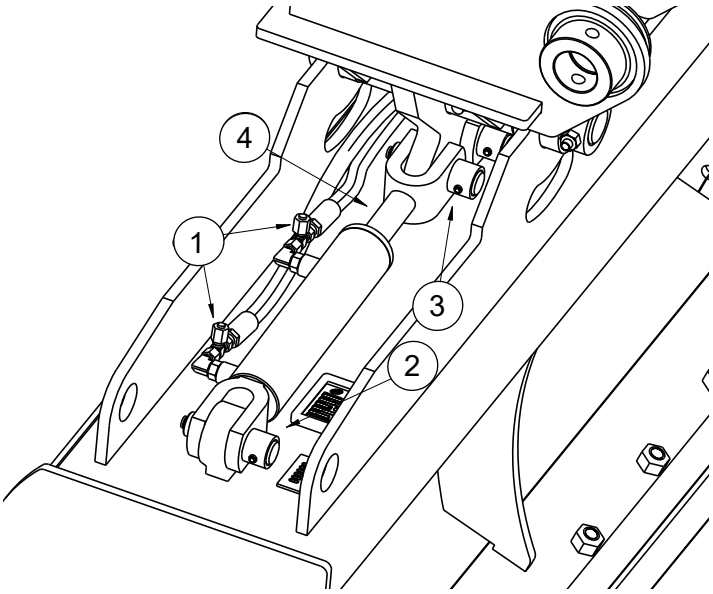
- When working with hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.
- Contain and dispose of any oil leakage in an environmentally safe manner.

1. Park machine on a flat level surface and position Angle Tilt Bucket on a flat level surface.

2. Stop the engine and exit the machine. See the machine's Operation and Maintenance manual



[Figure 11] Single Ram Angle Tilt



[Figure 12] Dual Ram Angle Tilt

3. Close auxiliary hydraulic valves and disconnect hydraulic hoses from hydraulic cylinder (1) [Figure 11] (Single Ram Angle Tilt), [Figure 12] (Dual Ram Angle Tilt)

4. Remove hardware (2) and pins (3) [Figure 11] (Single Ram Angle Tilt), [Figure 12] (Dual Ram Angle Tilt

5. Remove hydraulic cylinder (4) [Figure 11] (Single Ram Angle Tilt), [Figure 12] (Dual Ram Angle Tilt)
6. Clean all components prior to reassembly (pins, bolts, etc).

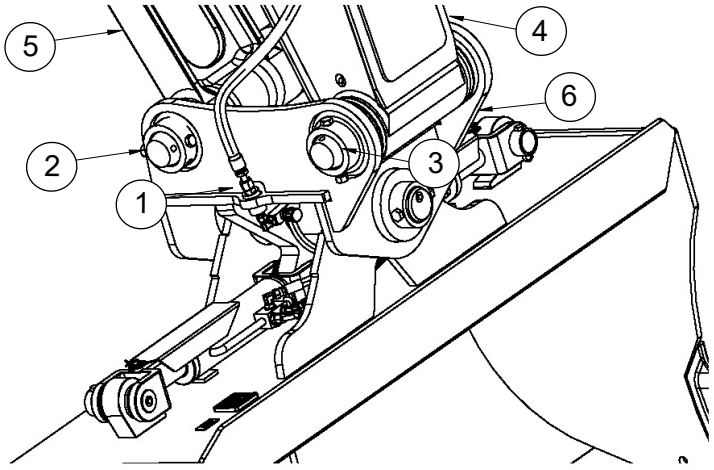
IMPORTANT

When removing the pins, place the bucket so it is in resting slightly on the ground. If down pressure is applied to the bucket, the resistance will be increased and it will be difficult to remove pins. After removing the pins, make sure they are clean and do not allow any mud, sand or other debris to get on them. Dust seals are fitted on both ends of the bushing. Be careful not to damage them.

NOTE: The images shown may not be the exact model being worked on, the procedure is the same.

1. Park machine on a flat level surface and position Angle Tilt Bucket on a flat level surface.

2. Stop the engine and exit the machine. See the machine's Operation and Maintenance manual



[Figure 13]

3. Close auxiliary hydraulic valves (if equipped) and disconnect hydraulic hoses (1) [Figure 13] from machine arm.

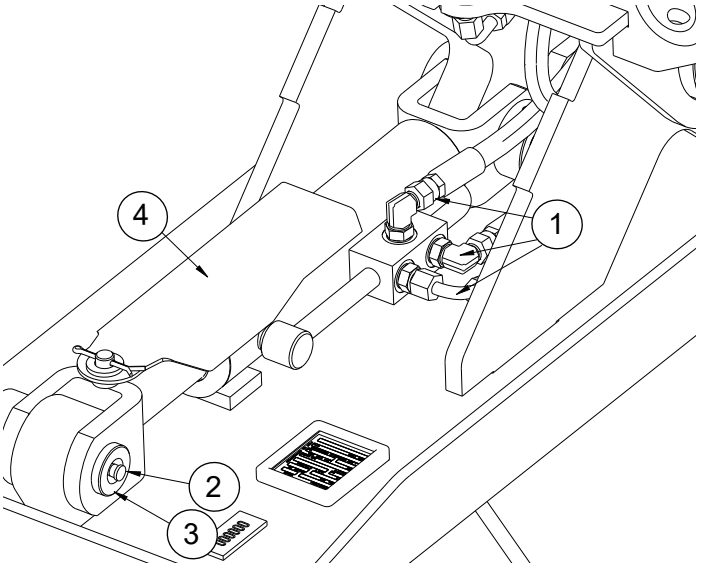
4. Remove pins (2) and (3) [Figure 13].

5. Enter the machine and start the engine. See the machine's Operation and Maintenance manual.

6. Move the machine arm (4) and link (5) [Figure 13] away from the Angle Tilt Bucket

7. Stop the engine and exit the machine. See the machine's Operation and Maintenance manual.

8. Properly support the head mechanism (6) [Figure 13] to prevent it from freely moving.

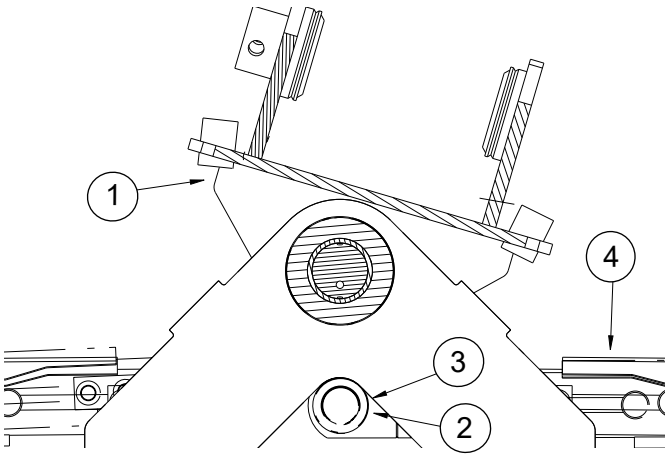


[Figure 14]

9. Disconnect hydraulic hoses (1) [Figure 14] from both cylinders.

NOTE: It is recommended to rotate the head side to side to purge most of the hydraulic fluid from the cylinders. Leave caps loose on cylinder fittings.

10. Remove hardware (2) and pins (3) [Figure 15] from rod end of both cylinders.



[Figure 15]

11. Tilt bucket head mechanism (1) to align cylinder base end pin (2) [Figure 15] with opening.

12. Remove hardware (2) and pin (3) [Figure 15].

13. Remove cylinder (4) [Figure 14].

14. Clean all components prior to reassembly (pins, bolts, etc).

⚠ WARNING

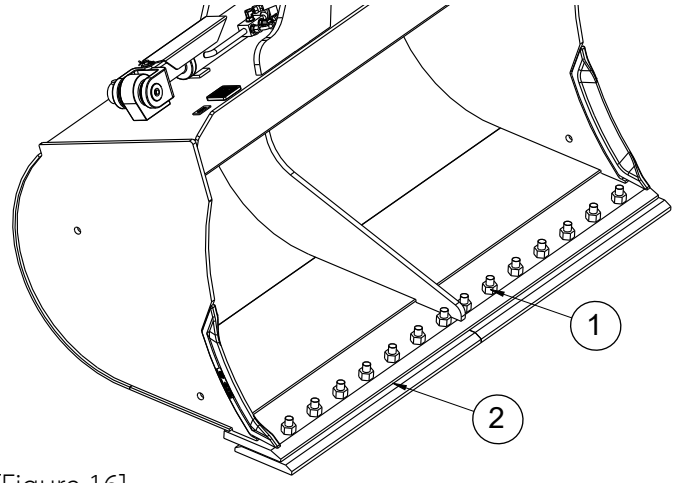
MACHINE OR ATTACHMENT MOVEMENT CAN CAUSE DEATH OR SERIOUS INJURY

Keep all other bystanders away when moving the Angle Tilt Bucket.

NOTE: The cutting edge is reversible. Confirm both edges are worn before replacing the reversible bolt-on cutting edge.

1. Partially curl in the Angle Tilt Bucket (laying bucket on it's back).

2. Stop the engine and exit the machine. (See the machine's Operation and Maintenance manual.)



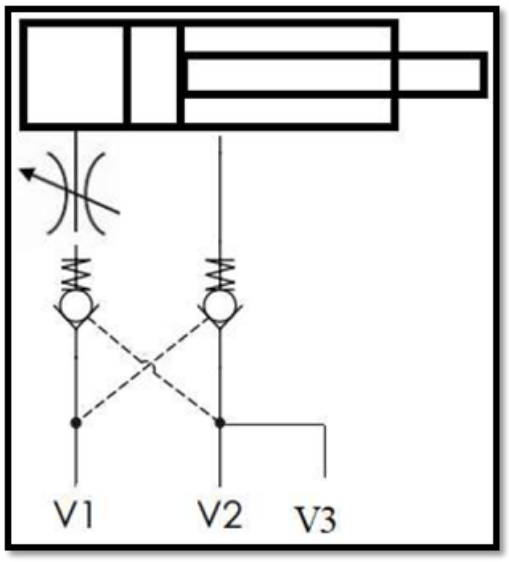
[Figure 16]

3. Remove the bolts and nuts (1) [Figure 16].

4. Remove the reversible bolt-on cutting edge (2) [Figure 16].

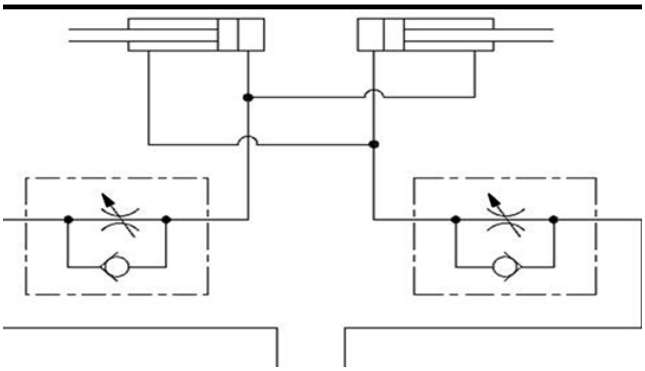
NOTE: For reversible bolt-on cutting edge installation, perform steps in reverse.

Angle Tilt Bucket Hydraulic Schematic (AT02 - AT03)



[Figure 17]

Angle Tilt Bucket Hydraulic Schematic (AT14 & Above)



[Figure 18]

* - See SPECIFICATIONS on Page 24 for models equipped with a flow control valve.

SPECIFICATIONS

A filled attachment weight can be calculated by adding the attachment weight + (filled capacity x material density). Ensure that the filled attachment weight does not exceed the excavator lift capacity throughout the working range. Excavator lift capacity is available from the manufacturers manual.

Ground grade and terrain can significantly impact on the excavator stability and lift capacity. Ensure that excavator and attachment operation is carried out within the limits of the excavator capabilities and recommended grades

ANGLE TILT BUCKET MODEL	MIN / MAX OPERATING PRESSURE BAR (PSI)	MIN / MAX OPERATING FLOW RATE L/MIN (Gal/MIN)	PORT CONNECTIONS	FLOW CONTROL VALVE YES/NO	CYCLE TIME* SECONDS	CAPACITY	CUTTING EDGE WIDTH MM (IN)	TIP RADIUS**	WEIGHT
			BSPP (JIC)			M3 (YD3)		MM (IN)	KG (LB)
AT02R-1000	138 / 207	10/20	1/4" (7/16")	YES	4-7	0.07 (0.09)	1000 (39)	640 (25)	102 (225)
	(2000 / 3000)	(2.6/5.2)							
AT02R-1200	138 / 207	10/20	1/4" (7/16")	YES	4-7	0.08 (0.11)	1200 (47)	640 (25)	122 (270)
	(2000 / 3000)	(2.6/5.2)							
AT03R-1050	138 / 207	10/20	1/4" (7/16")	YES	4-7	0.09 (0.13)	1050 (41)	700 (28)	168 (370)
	(2000 / 3000)	(2.6/5.2)							
AT03R-1200	138 / 207	10/20	1/4" (7/16")	YES	4-7	0.11 (0.15)	1200 (48)	700 (28)	183 (403)
	(2000 / 3000)	(2.6/5.2)							
AT04R-1200	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.18 (0.23)	1200 (48)	824 (32)	230 (507)
	(2000 / 3000)	(2.6/5.2)							
AT04R-1350	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.2 (0.26)	1350 (53)	824 (32)	246 (542)
	(2000 / 3000)	(2.6/5.2)							
AT04R-1500	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.22 (0.29)	1500 (59)	824 (32)	265 (584)
	(2000 / 3000)	(2.6/5.2)							
AT06R-1200	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.22 (0.29)	1200 (48)	874 (34)	240 (529)
	(2000 / 3000)	(2.6/5.2)							
AT06R-1350	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.25 (0.33)	1350 (53)	874 (34)	256 (564)
	(2000 / 3000)	(2.6/5.2)							
AT06R-1500	138 / 207	10/20	1/4" (7/16")	NO	4-7	0.28 (0.37)	1500 (59)	874 (34)	276 (608)
	(2000 / 3000)	(2.6/5.2)							
AT11R-1200	138 / 207	10/20	1/2" (9/16")	NO	4-7	0.28 (0.37)	1200 (48)	972 (38)	384 (847)
	(2000 / 3000)	(2.6/5.2)							
AT11R-1500	138 / 207	10/20	1/2" (9/16")	NO	4-7	0.36 (0.47)	1500 (59)	973 (38)	438 (966)
	(2000 / 3000)	(2.6/5.2)							
AT11R-1700	138 / 207	10/21	1/2" (9/16")	NO	4-7	0.40 (0.52)	1700 (70)	974 (38)	464 (1023)
	(2000 / 3000)	(2.6/5.2)							
AT11R-1800	138 / 207	10/21	1/2" (9/16")	NO	4-7	0.44 (0.57)	1800 (71)	975 (38)	491 (1082)
	(2000 / 3000)	(2.6/5.2)							
AT14R-1500	138 / 207	10/21	1/2" (9/16")	YES	4-7	0.48 (0.63)	1500 (59)	1170 (46)	773 (1704)
	(2000 / 3000)	(2.6/5.2)							
AT14R-1800	138 / 207	10/21	1/2" (9/16")	YES	4-7	0.57 (0.75)	1800 (71)	1170 (46)	860 (1896)
	(2000 / 3000)	(2.6/5.2)							
AT14R-2000	138 / 207	10/21	1/2" (9/16")	YES	4-7	0.64 (0.84)	2000 (79)	1181 (46)	881 (1942)
	(2000 / 3000)	(2.6/5.2)							
AT18R-1500	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.63 (0.82)	1500 (59)	1296 (51)	842 (1856)
	(2000 / 3000)	(2.6/5.2)							
AT18R-1800	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.80 (1.05)	1800 (71)	1296 (51)	914 (2015)
	(2000 / 3000)	(2.6/5.2)							

ANGLE TILT BUCKET MODEL	MIN / MAX OPERATING PRESSURE BAR (PSI)	MIN / MAX OPERATING FLOW RATE L/ MIN (Gal/MIN)	PORT CONNECTIONS	FLOW CONTROL VALVE YES/NO	CYCLE TIME* SECONDS	CAPACITY	CUTTING EDGE WIDTH MM (IN)	TIP RADIUS**	WEIGHT
			BSPP (JIC)			M3 (YD3)		MM (IN)	KG (LB)
AT18R-2000	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.93 (1.22)	2000 (79)	1289 (51)	992 (2189)
	(2000 / 3000)	(2.6/5.2)							
AT25R-1500	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.85 (1.11)	1500 (59)	1397 (55)	902 (1990)
	(2000 / 3000)	(2.6/5.2)							
AT25R-1800	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.80 (1.05)	1800 (71)	1296 (51)	914 (2015)
	(2000 / 3000)	(2.6/5.2)							
AT25R-2000	138 / 207	10/20	1/2" (9/16")	YES	4-7	0.93 (1.22)	2000 (79)	1289 (51)	992 (2190)
	(2000 / 3000)	(2.6/5.2)							
AT29R-1800	138 / 207	10/20	1/2" (9/16")	YES	4-7	1.31 (1.71)	1800 (71)	1506 (59)	1080 (2380)
	(2000 / 3000)	(2.6/5.2)							
AT29R-2000	138 / 207	10/20	1/2" (9/16")	YES	4-7	1.05 (1.37)	2000 (79)	1401 (55)	1025 (2260)
	(2000 / 3000)	(2.6/5.2)							
AT29R-2100	138 / 207	10/20	1/2" (9/16")	YES	4-7	1.22 (1.60)	2100 (83)	1401 (55)	1041 (2295)
	(2000 / 3000)	(2.6/5.2)							

* Cycle Time: The time it takes to tilt bucket starting at a stop (approximately 45°) in one direction to a stop (approximately 45°) in the other direction.

** Approximate value, direct mount configuration dimension varies per machine.

WARRANTY TERMS & CONDITIONS

The Company warrants the Equipment (except for parts) sold by it to the Purchaser to be:
Free of defects in material and workmanship for a period of twelve (12) months from the date of shipment or 2000 hours of use, whichever first occurs unless formal documentation can be produced when the product has been put into use. A period of six (6) months shelf life will be accepted on all products. Any product not put into use before the six (6) months stocking and twelve(12) warranty period will forfeit any warranty given on the product. The Geith generic installation/hose assemblies will be covered for a period of six (6) months from the date of shipment (installation kit covered only in Europe).
The applicable warranty time period for parts shall be six (6) months from the date of shipment and for reconditioned parts or products shall be three (3) months from the date of shipment. At the discretion of the company a longer thirty six (36) month warranty period may be offered to selected customers. This warranty period only covers the frame/chassis of the product and excludes all other components attached to the frame/chassis. No warranty will be accepted for wear/damage on products or components thereof.
The Company will provide a new part or repaired part, at its election, in place of any part which is found upon its inspection to be defective in material or workmanship during the periods described above. Such part will be repaired or replaced without charge to the Purchaser providing the warranty cost does not exceed the standard cost which has been set out by the company in the standard cost table (this cost is available upon request).
The company will accept maximum warranty costs not exceeding the original sale value.
The replacement or repair must be carried out during normal working hours at the place of business of a distributor of the Company authorised to sell the type of Equipment involved or other establishment authorized by the Company. The purchaser must report failures within a maximum time of 30 days of occurrence and file a warranty claim within a maximum of 30 days thereafter. Warranty claims outside this period of time will forfeit the warranty cover.

The Company warrants the Equipment (except for parts) sold by it to the Purchaser to be:
Free of defects in material and workmanship for a period of twelve (12) months from the date of shipment or 2000 hours of use, whichever first occurs unless formal documentation can be produced when the product has been put into use. A period of six (6) months shelf life will be accepted on all products. Any product not put into use before the six (6) months stocking and twelve(12) warranty period will forfeit any warranty given on the product. The Geith generic installation/hose assemblies will be covered for a period of six (6) months from the date of shipment (installation kit covered only in Europe).
The applicable warranty time period for parts shall be six (6) months from the date of shipment and for reconditioned parts or products shall be three (3) months from the date of shipment. At the discretion of the company a longer thirty six (36) month warranty period may be offered to selected customers. This warranty period only covers the frame/chassis of the product and excludes all other components attached to the frame/chassis. No warranty will be accepted for wear/damage on products or components thereof.
The Company will provide a new part or repaired part, at its election, in place of any part which is found upon its inspection to be defective in material or workmanship during the periods described above. Such part will be repaired or replaced without charge to the Purchaser providing the warranty cost does not exceed the standard cost which has been set out by the company in the standard cost table (this cost is available upon request).
The company will accept maximum warranty costs not exceeding the original sale value.
The replacement or repair must be carried out during normal working hours at the place of business of a distributor of the Company authorised to sell the type of Equipment involved or other establishment authorized by the Company. The purchaser must report failures within a maximum time of 30 days of occurrence and file a warranty claim within a maximum of 30 days thereafter. Warranty

claims outside this period of time will forfeit the warranty cover.
WHICH SUCH LIABILITY IS BASED. THE COMPANY AND ITS SUPPLIERS SHALL IN NO EVENT BE LIABLE TO THE PURCHASER, ANY SUCCESSORS IN INTEREST OR ANY BENEFICIARY OR ASSIGNEE OF THE CONTRACT FOR ANY CONSEQUENTIAL INCIDENTAL, INDIRECT, SPECIAL OR PUNITIVE DAMAGES ARISING OUT OF THE CONTRACT, OR ANY BREACH HEREOF, OR ANY DEFECT IN, OR FAILURE OF, OR MALFUNCTION OF THE EQUIPMENT SUPPLIED HEREUNDER WHETHER BASED UPON LOSS OF USE, LOST PROFITS, REVENUE OR INTEREST, LOST GOODWILL, WORK STOPPAGE, IMPAIRMENT OF OTHER GOODS, LOSS BY REASON OF SHUTDOWN OR NON-OPERATION, INCREASED EXPENSES OF OPERATION, COST OF PURCHASE OF REPLACEMENT POWER OR CLAIMS OF THE PURCHASER OR CUSTOMERS OF THE PURCHASER FOR SERVICE INTERRUPTION, WHETHER OR NOT SUCH LOSS OR DAMAGE IS BASED ON CONTRACT, WARRANTY, TORT, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHERWISE.
VIOLATIONS OF LAW

The Company shall not be bound by or required to adhere to any term or provision of a purchase order, quotation, bid, letter of credit or like document or any provision of law, regulation or custom, which would cause the Company, its parent or any of its affiliates to be in violation of or fail to comply with the export laws, taxing statutes or regulations of the country wherein the Equipment is manufactured or from which it is exported or is otherwise subject to jurisdiction.
GOVERNING LAW

The rights and obligations of the Purchaser and the Company shall be governed and construed in accordance with the laws of the Republic of Ireland and the Purchaser submits to the exclusive jurisdiction of the Irish Courts.
MODIFICATIONS, SEVERABILITY AND ENTIRE AGREEMENT

The Company shall not be bound by any amendment or any modification to the Contract until approved in writing by an officer of the Company. The Contract when so approved, shall supersede all previous communications, either oral or written. If any clause of the Contract is held by any competent authority to be invalid or unenforceable in whole or in part, the other clauses of the Contract and the remainder of the clause in question shall not be affected thereby.

P/N 823000032403B