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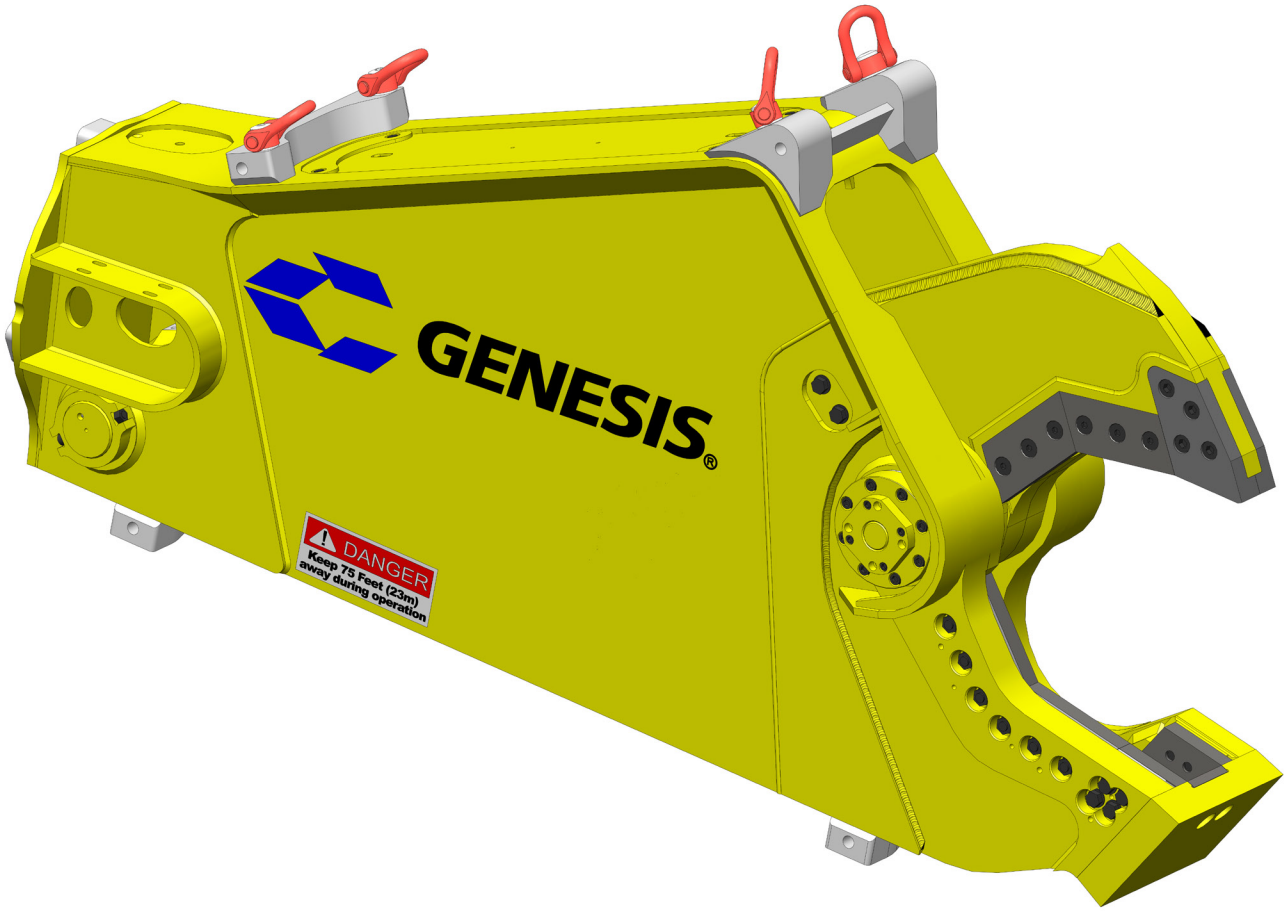
Subsea Shear (GSS)

SAFETY & OPERATOR'S MANUAL



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PREFACE

To ensure years of safe, dependable service, only trained and authorized persons should operate and service your Genesis attachment. It is the responsibility of the product's owner to ensure the operator is trained in the safe operation of the product and has available this manual for review. It is the responsibility of the operator and maintenance personnel to read, fully understand and follow all operational and safety-related instructions in this manual. The attachment should not be operated until you have read and fully understand these instructions. Always use good safety practices to protect yourself and those around you.

Important

This operator's manual must accompany the attachment at all times and be readily available to the operator.

Manual Replacement

Should this manual become damaged or lost or if additional copies are required, immediately contact any authorized Genesis dealer or the Genesis Service Department at 888-743-2748 or 715-395-5252 for a replacement.

Registration Form

The Warranty Registration Form must be filled out by the dealer or customer and returned to Genesis indicating the date the attachment went into service.

Possible Variations

Genesis cannot anticipate every possible circumstance that might involve a potential hazard as the owner's requirements and equipment may vary. Therefore, the warnings in this publication and on the product may not be all-inclusive, and you must satisfy yourself that the procedure, application, work method or operating technique is safe for you and others before operating.

Public Notice

Genesis reserves the right to make changes and improvements to its products and technical literature at any time without public notice or obligation. Genesis also reserves the right to discontinue manufacturing any product at its discretion at any time.

Warranty

All work or repairs to be considered for warranty reimbursement must be pre-authorized by the Genesis Service Department. Any alterations, modifications or repairs performed before authorization by the Genesis Service Department will render all warranty reimbursement consideration null and void without exception. See page 49 for Warranty Claim Procedures.

Improper operation or improperly performed maintenance may render any warranty null and void.

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SAFETY STATEMENTS

This symbol by itself or used with a safety signal word throughout this manual is used to call attention to instructions involving your personal safety or the safety of others. Failure to follow these instructions can result in injury or death.

DANGER This statement is used where serious injury or death will result if the instructions are not followed properly.

WARNING This statement is used where serious injury or death could result if the instructions are not followed properly.

CAUTION This statement is used where minor or moderate injury could result if the instructions are not followed properly.

NOTICE This statement is used where property damage could result if the instructions are not followed properly.

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OPERATIONAL SAFETY

Read Manual Before Operating or Maintaining the Attachment

Read this manual before attempting to operate the attachment. This operator's manual should be regarded as part of the attachment. For proper installation, operation and maintenance of the attachment, operators and maintenance personnel must read this manual.

WARNING Serious injury or death could result if appropriate protective clothing and safety devices are not used.

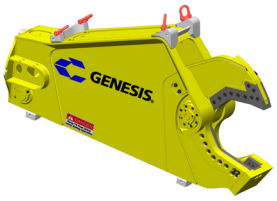
Personal Protection

Use protective clothing and safety devices appropriate for the working conditions. These may include but are not limited to:

- ✓ Hard hat
- ✓ Safety glasses, goggles or face shield
- ✓ Hearing protection
- ✓ Safety shoes
- ✓ Heavy gloves
- ✓ Reflective clothing
- ✓ Respirator or filter mask

Safety matters

Know Your Equipment



Know your attachment's capabilities, dimensions and functions before operating. Inspect your attachment before operating and never operate an attachment that is not in proper working order. Remove and replace any damaged or worn parts.

Before Operating

- ✓ Warn all others in the area that you are about to start operation.
- ✓ Perform the "Check the Equipment" steps outlined in this manual.
- ✓ Check underneath and around the machine. Make sure all personnel and equipment are clear from the area of operation and equipment movement. Check clearances in all directions, including overhead.
- ✓ Be properly seated in the operator's seat.
- ✓ Do not attempt to operate until you have read and fully understand this manual and the OEM manual for the carrier.

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OPERATIONAL SAFETY

Check the Equipment

Before use, check the equipment to ensure it is in good operating condition.

Check the following:

- ✓ Grease fittings. Pump grease at all fitting locations, see page 23.
- ✓ Hydraulic fluid level. Add hydraulic fluid as required.
- ✓ Hydraulic hoses and hose connections for wear or leaks. Repair or replace any damaged hoses or connections.
- ✓ All control levers for proper operation.
- ✓ Rotation bearing. Visually check for loose or damaged bolts If repair is required, refer to qualified personnel.
- ✓ Check for loose or missing pin retaining bolts.

GOOD CONDITION

WARNING Serious injury or death could result if warnings or instructions regarding carrier stability and the work area are not followed properly.

Stability

Your Genesis attachment is sized for carrier stability. However, improper operation, faulty maintenance or unauthorized modifications may cause instability.

- ✓ Know the working ranges and capacities of the carrier to avoid tipping.
- ✓ Use the recommended carrier counter weight.

The following conditions affect stability:

- Ground conditions
- Grade
- Weight of attachment
- Contents of attachment
- Operator judgement

For greater stability, knuckle the attachment to bring the load closer to the center of rotation (center of gravity) while lifting. Use extra caution during reaching to avoid tipping.

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OPERATIONAL SAFETY

Know the Work Area

Check clearances in the work area. Keep all bystanders at a safe distance. Do not work under obstacles. Always check your location for overhead and buried power lines or other utilities before operation.

Check ground conditions. Avoid unstable or slippery areas. Position the carrier on firm level ground. If level ground is not possible, position the carrier to use the attachment to the front or back of the carrier. Avoid working over the side of the carrier.

To reduce the risk of tipping and slipping, never park on a grade exceeding 10% (one-foot rise over the span of a ten-foot run).

Starting Procedure

Before operating, walk completely around the equipment to make certain no one is under it, on it or close to it. Keep all bystanders at least 75 feet away from the area of operation and equipment movement. Let all other workers and bystanders know you are preparing to start. DO NOT operate until everyone is clear.

Always be properly seated in the operator's seat before operating any carrier controls.

To start:

- ✓ Make sure all controls are in the center (neutral) position.
- ✓ Be properly seated.
- ✓ Slowly operate all functions to check for proper operation and to bleed air from the hydraulic system.

To shut down:

- ✓ Return your Genesis attachment to a rest position on the ground.
- ✓ Shut off the carrier engine.
- ✓ Work controls in all directions to relieve hydraulic pressure, per excavator manufacturer's instructions.

⚠WARNING Serious injury or death could result if warnings or instructions regarding safe operation are not followed properly.

Place the Load Safely

Do not move the attachment, or anything held in the jaws, over people, equipment or buildings. Do not throw or drop the contents. Operate the controls smoothly and gradually.

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OPERATIONAL SAFETY

Safely Operate Equipment

Do not operate equipment until you are trained by a qualified operator in its use and capabilities.

See your carrier's manual for these instructions.

- ✓ Operate only from the operator's seat. Check the seat belt daily and replace if frayed or damaged.
- ✓ Do not operate this or any other equipment under the influence of drugs or alcohol. If you are taking prescription medication or over-the-counter drugs ask your medical provider whether you can safely operate equipment.
- ✓ Never leave equipment unattended with the engine running or with the attachment in a raised position. Apply the brakes before exiting the equipment.
- ✓ Do not exceed the lifting capacity of your carrier.
- ✓ Avoid conditions that can lead to tipping. The carrier can tip when operated on hills, ridges, banks and slopes. Avoid operating across a slope which could cause the carrier to overturn.
- ✓ Reduce speed when driving over rough terrain, on a slope, or when turning to avoid overturning the carrier.
- ✓ Never use the attachment as a work platform or personnel carrier.
- ✓ Keep all step plates, grab bars, pedals and controls free of dirt, grease, debris and oil.

- ✓ Never allow anyone to be around the equipment when it is operating.
- ✓ Do not operate poorly maintained or otherwise faulty equipment. Inform the proper authority and DO NOT resume operation until the problem has been fixed.
- ✓ Do not alter or remove any safety features.
- ✓ Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

- ✓ A heavy load can cause equipment instability. Use extreme care during travel. Slow down on turns and watch out for bumps. The equipment may need additional counter-weights to counterbalance the weight of the attachment.

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OPERATIONAL SAFETY

Transporting the Attachment

- ✓ Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- ✓ When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs, etc., to prevent accidents. Check local government regulations that may affect you.
- ✓ Do not drive close to ditches, excavations, etc., as cave-in could result.
- ✓ Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

Equipment Condition

Never operate poorly maintained equipment. When maintenance is required, repair or replace parts immediately.

WARNING Serious injury or death could result if warnings or instructions regarding working overhead are not followed properly.

Working Overhead

Avoid handling material overhead whenever possible. Safety glass and wire mesh cab guarding must be installed to protect the operator from flying debris that may be created during handling. Falling Object Protection Structures, or FOPS, are necessary for any application where material is to be handled overhead.

DANGER Serious injury or death will result if warnings or instructions regarding power lines are not followed properly.

Power Lines

Do not operate the machine near energized power lines. All local, state/provincial and federal regulations must be met before approaching power lines, overhead or underground cables, or power sources of any kind with any part of the carrier or attachment. Always contact the appropriate utility when operating near power lines. The lines should be moved, insulated, disconnected or de-energized and grounded before operating in the area.

Current in high voltage lines may arc some distance from the wire to a nearby ground. Keep all parts of the machine at least 50 feet (16m) away from power lines.

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WARNING Serious injury or death could result if warnings or instructions regarding hydraulic fluid pressure are not followed properly.

Use Care with Hydraulic Fluid Pressure

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible.

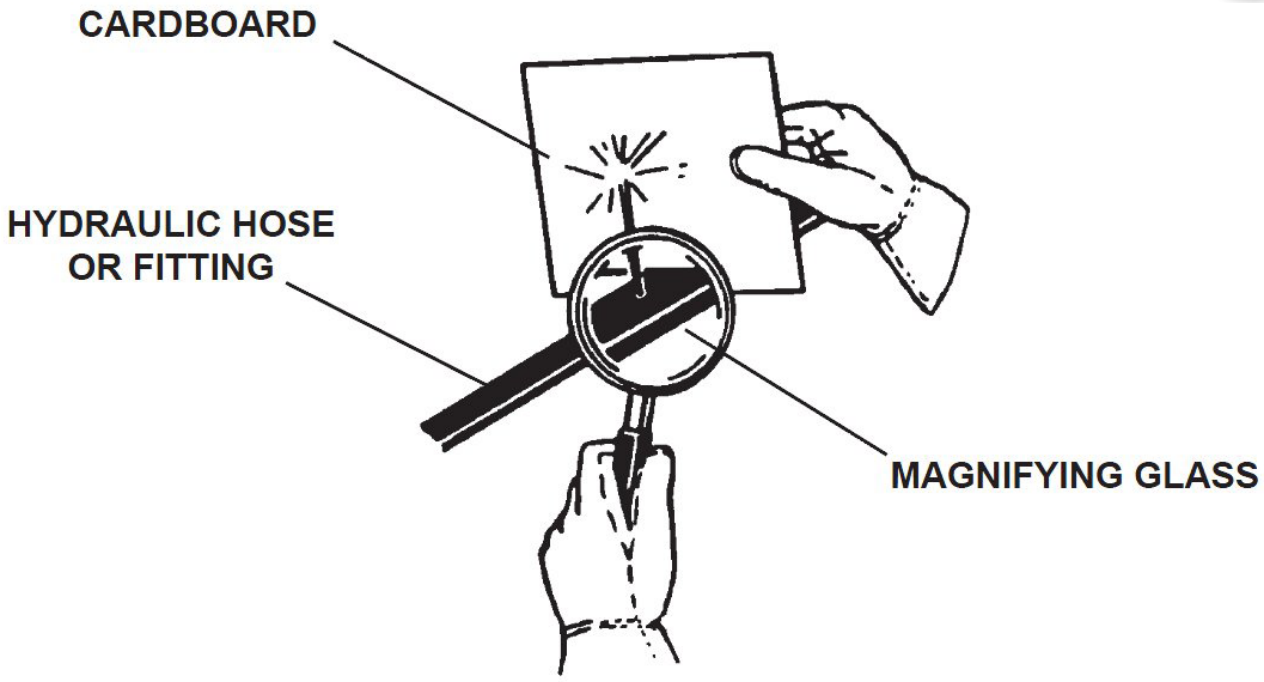
- ✓ Keep unprotected body parts, such as face, eyes and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent injuries.

- ✓ If injured by injected fluid see a doctor immediately.

- ✓ Wear safety glasses and protective clothing and use a piece of cardboard or wood when searching for hydraulic leaks.

Do Not Use Your Hands!
See illustration below.

- ✓ Hydraulic oil becomes hot during operation. Do not let hydraulic oil or components contact skin, as it could cause severe burns. Allow hydraulic components to cool before working on them. Use appropriate protective clothing and safety equipment. If burned, seek immediate medical attention.



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OPERATIONAL SAFETY

Prioritized Oil Flow

Equipment operators must ensure there is prioritized oil flow to the main valves in overhead operations or high reach conditions.

Emergency Situations

Always be prepared for emergencies. Make sure a fire extinguisher is available. Be familiar with its operation. Make sure to inspect and service the fire extinguisher regularly. Make sure a first aid kit is readily available.

Unsafe Conditions

Do not operate if an unsafe condition exists. Stop operation immediately, shut down the machine and report the unsafe condition to the proper authority. Equipment operation and maintenance practices directly affect your safety and the safety of those around you. Always use common sense while operating and be alert to unsafe conditions.

Crystalline Silica Dust

It is recommended to use dust suppression, dust collection and if necessary, personal protective equipment during the operation of any attachment that may cause high levels of dust.

DANGER Exposure to respirable crystalline silica dust along with other hazardous dusts may cause serious or fatal respiratory disease.

IMPORTANT: Concrete and masonry products contain silica sand. Quartz, which is a form of silica and the most common mineral in the Earth's crust, is associated with many types of rock.

Some activities that may have silica dust present in the air include demolition, sweeping, loading, sawing, hammering, drilling or planing of rock, concrete or masonry.

It is recommended to use dust suppression (such as water) or dust collection (such as a vacuum) along with personal protective equipment if necessary during the operation of any attachment that may cause high levels of silica dust.

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OPERATIONAL SAFETY

WARNING Using your Genesis attachment in unauthorized applications may create an unsafe situation and will void the warranty.

Process Material Safely

- Do not process hardened steel material such as tool steel, railroad rail, axles or machined parts. Hardened material breaks, rather than shears, which may cause flying debris. It will also cause damaging decompression spikes to your Genesis attachment and base carrier hydraulic systems.
- Do not operate any functions of the carrier while cutting or crushing with your Genesis attachment, including boom and drive functions.
- Do not pull down structures with your Genesis attachment. Doing so may cause falling debris or material may break free and exceed the capacities of the carrier, causing a tipping hazard.
- The rotator should only be used for positioning your Genesis attachment. Do not use the rotator to pry or break material.

Lift the Load Safely

- The hydraulic system has been preset and tested by your dealer. Do not alter hydraulic settings without consulting an authorized Genesis dealer or the Genesis Service Department. Doing so will void the warranty and may cause structural damage, accidents or tipping.
- Make sure the load is held securely in the jaws. Do not move a loaded attachment if load is loose or dangling. Make sure the load is pinched between the jaws – never cradle a load.
- For greater stability, knuckle the attachment to bring the load closer to the center of rotation (center of gravity) while lifting. Use extra caution during reaching to avoid tipping.

Place the Load Safely

- Do not move the attachment, or anything held in the jaws, over people, equipment or buildings. Place the load gently. Do not throw or drop the contents.
- Operate the controls smoothly and gradually. Jerky controls are hazardous and may cause damage to the carrier.
- Avoid fire hazards. Keep the area clean. Remove all flammable materials from the area during any welding or heating process. Have a fire extinguisher nearby and know how to use it.
- Never substitute pins or bolts. Use factory supplied pins. Replace all bolts with the same size and grade. Failure to do so may cause serious injury or death.
- Use your Genesis attachment only as directed in this manual. Do not use the attachment to lift and move other objects. Doing so may cause instability and tipping.

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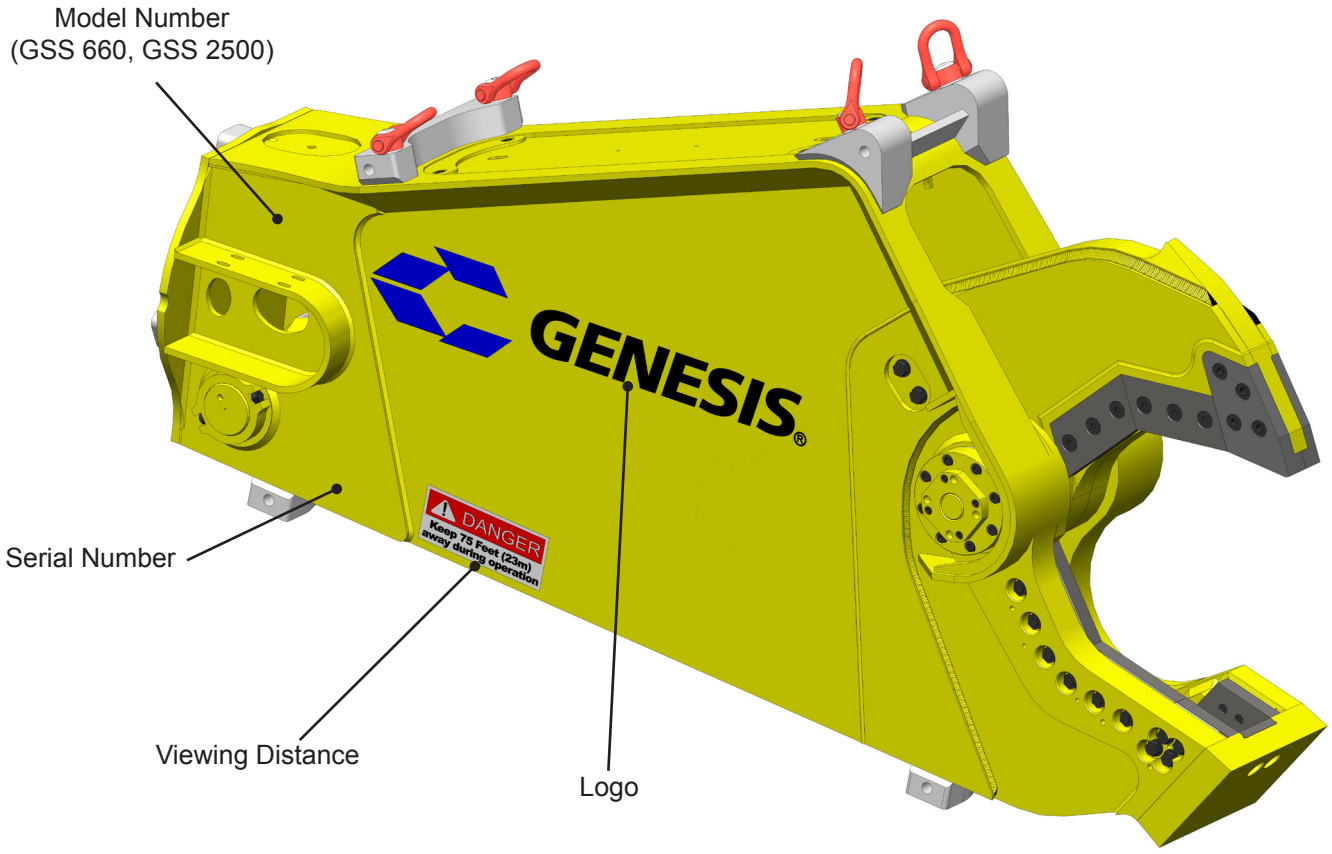
ATTACHMENT MARKINGS

Decals are necessary for safe operation and maintenance. To reorder, contact your Genesis dealer or call 715-395-5252.



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HYDRAULIC START-UP

Genesis shears are designed to operate under full excavator pressure or up to 5500 PSI. Due to these high pressures, it is important that air is bled from the shear cylinder after installation. Failure to follow these procedures could result in cylinder seal damage and/or excavator hydraulic system damage.

Start-up Procedure

- ✓ Check the excavator hydraulic tank for proper fluid level.
- ✓ Excavator oil should be warmed up before hooking up shear lines in cold weather. If oil is cold, air from the cylinder will be pushed into the oil tank, causing oil to foam. This problem takes hours to correct, and it may cause pump cavitation.
- ✓ Follow the OEM procedures for starting and warming the excavator hydraulic system. Do not operate the shear circuit during the warm-up period.
- ✓ After the excavator has reached normal operating temperature, set the engine to idle speed.
- ✓ Shear must be vertical. Do not allow the tank to run low - have someone watch the oil gauge.
- ✓ Slowly fill the bore end of the shear cylinder to partially close the jaws.

NOTICE Do not fully extend or retract shear cylinder with the first cycles.

Slowly fill the rod end of the shear cylinder to open the jaws. Use partial strokes extending and retracting, slowly working to full strokes.

Stop and check the excavator hydraulic fluid level again to be sure there is still sufficient fluid. Service as required. Note: hydraulic fluid level should be checked with the shear jaws open (cylinder retracted).

Cycle the shear jaws five or six strokes before increasing to full operating pressure.

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GENERAL OPERATION INSTRUCTIONS

Follow all rules and procedures outlined in the Operational Safety section of this manual. Use the attachment only as intended, in approved applications, as set forth in this manual.

Do not allow attachment, exposed cylinder rod or hoses to come into contact with any obstacles, buildings or the excavator.

The attachment is not intended to crush or break objects or structures by swinging or dropping the attachment.

Start-up

During initial operation and any time jaw maintenance has been performed, process thin and lighter material first to work-harden wear areas, developing a harder, more durable edge. This is also the most effective time to process materials such as sheet metal or wire. The new or repaired edges will cut more efficiently and be less likely to jam material between the blades.

Cutting Larger Materials

When cutting larger materials the attachment jaw stalls just before cutting.

Suspend the material on the prepared pile, open the jaw and position the material as close to the throat as possible. Without pushing down on the material with excavator force, rapidly close the jaw on the material. Using the speed of regeneration can improve performance when cutting larger materials.

Chatter While Cutting

If the attachment starts to chatter while cutting, back out of the cut and reposition at a different spot.

Chattering is an indication that material is jamming between the piercing blades and guide blades or between the upper and lower cutting blades. This indicates that blade maintenance needs to be performed immediately. Worn blades and improper blade gaps are usually the cause.

Insufficient piercing blade gaps will also cause this, as the blades and parent material of the jaws are subject to thermal expansion from cutting friction. The tighter the blades run, the hotter they get and the more they expand. Piercing blades and guide blades are the most susceptible to this and will show blue streaking on their corresponding faces. In some cases, they will get so hot that surface cracks and spidering occur. As this happens, it will spread the lower jaw and increase gaps between the primary and secondary blades, causing thin material to jam between them.

Another key area to watch is the opening between the guide blades. Be aware of material that may get into this opening before the piercing blade moves into this space, as it will be wedged between the piercing blades and guide blades.

Most jamming conditions can be prevented if the operator pays attention to the sound and vibration that is associated with a jam. Remember that because of the rod-to-bore ratios of displacement on the attachment's hydraulic cylinder piston, the attachment has half the force on jaw open compared to jaw close.

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MAINTENANCE SAFETY

Only trained and authorized persons should perform maintenance on the attachment. To be qualified, you must understand the instructions in this manual, have training, and know the safety rules and regulations of the job site.

Do not alter the physical, mechanical or hydraulic operation of the attachment. Doing so may cause a dangerous situation for yourself and those around you and will void the warranty.

Do not attempt repairs you do not understand. If any questions arise regarding a safety or maintenance procedure, contact Genesis or your Genesis dealer.

Read this entire manual. All personnel must understand the maintenance and safety procedures.

Use factory authorized parts. The use of unauthorized parts may compromise safety, performance and durability of the attachment and may void the warranty.

Follow the daily checklist and maintenance schedules in this manual. Extreme conditions may dictate shorter maintenance intervals.

Do not exceed bolt torque specifications.

Do not weld on structural components without consulting Genesis. Doing so may cause structural failure and void the warranty.

Do not operate an attachment without the case-drain line properly installed if the attachment uses a rotation system that requires a case drain. Doing so will cause immediate failure of the rotate motor and gearbox.

Do not work on the attachment before ensuring it will not move. Completely lower the boom to the ground or a rest position and relieve hydraulic pressure.

Never operate poorly maintained equipment. When maintenance is required, repair or replace parts immediately.

Do not operate under unsafe conditions. If an unsafe condition arises during operation, immediately shut down the equipment and report the situation to the proper authority.

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MAINTENANCE SAFETY

Do not work on any hydraulic lines or components while they are pressurized. Escaping hydraulic fluid can penetrate the skin, causing serious injury or death. Relieve pressure before performing maintenance. Keep hands and body parts away from pin holes and nozzles, which eject fluids under high pressure. Use a piece of cardboard to search for leaks.

If fluid is injected into the skin, seek medical assistance immediately from a doctor familiar with this type of injury.

NOTICE

See “Use Care with Hydraulic Fluid Pressure”, page 13.

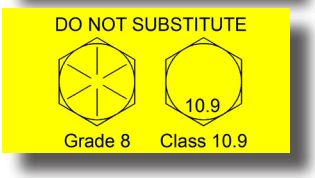
Hydraulic oil becomes hot during operation. Do not let hydraulic oil or components contact skin, as it could cause severe burns. Allow hydraulic components to cool before working on them. Use protective clothing and safety equipment.

Remove paint before welding or heating. Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable materials from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Avoid fire hazards. Keep the area clean. Remove all flammable materials from the area during any welding or heating process. Have a fire extinguisher nearby and know how to use it.

Never substitute pins or bolts. Use factory supplied pins. Replace all bolts with the same size and grade. Failure to do so may cause serious injury or death.



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MAINTENANCE SCHEDULE

Performing scheduled maintenance will promote safe, reliable operation of your shear. Inspect and grease components every eight hours of operation, as indicated on the following checklist. Use maintenance procedures described in this manual. If you are not able to safely and competently perform these procedures, have a Genesis dealer perform them.

After the first **80 hours** of operation, check all bolts, including slewing ring bolts.

NOTICE

Extreme operating conditions may require shortened maintenance intervals.

Operating the shear with excessively worn blades, blade gaps or main bearings could lead to premature cylinder failure. Excessive deflection of the upper jaw from these conditions will transfer side loading forces to the cylinder piston and barrel, which causes undue pressure on the wear bands of the piston, potentially resulting in cylinder failure.

Pounding the upper jaw lever arm or cylinder clevis on the ground or a hard object to clear a material jam can cause high pressure hydraulic spikes to the shear and excavator which can damage the hydraulic system components. These spikes can damage the cylinder piston seals, which will allow oil to bypass and wash out the piston wear bands, resulting in premature and possibly catastrophic system failures.

Scheduled Maintenance

- ✓ Reseal cylinder every 2 years or between 3000 and 4000 hours.*
- ✓ Reseal swivel every 2 years or at the time of cylinder resealing.

* **Note:** If used more than (1) 8 hour shift per day, reseal at 3000 hours. If the cylinder has been previously resealed, reseal at 1500 - 2000 hours.

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MAINTENANCE SCHEDULE

Four-Hour Checklist

Mid-shift, perform a brief visual check for hydraulic leaks, blade damage, and loose or missing bolts. A more thorough inspection, to be performed at the end of each shift, is described below on the eight-hour checklist.

Grease:

- Shear cylinder butt
- Shear cylinder rod
- AutoGuide at fitting and smear grease on contact surface of upper jaw
- Main shaft/pivot, both sides

Grease all locations until grease extrusion is visible with jaw open and closed.

Eight-Hour Checklist

Inspect:

- Bolts - check for loose bolts, replace if damaged
- Fittings and hoses for damage or leaks
- Bracket pivot for wear and pin retainers
- Cylinder pivot for wear and pin retainers
- Entire shear for cracks (visual check)

Grease:

- Bracket pivot
- Bracket cylinder

Grease all locations until grease extrusion is visible.

Jaws and Blades:

- Check blade gaps*
- Check blade edge radiuses*
- Check for loose or damaged bolts, re-torquing loose bolts when cool
- Check AutoGuide and shim if needed
- Build-up and hard-surface as required
- Grind off any rolled-over or mushroomed blade edges
- Jaw Armor™ - build-up and hard-surface as needed

* See Blade Maintenance information in this manual regarding maximum gap and radius for your specific shear model. Blade gaps should be checked and maintenance performed when the shear has cooled to ambient temperature.

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LUBRICATION POINTS

DANGER Shut off excavator and disable hydraulics per OEM instructions before greasing.

Use a lithium-based premium EP #2 in normal conditions above 32° F (0° C). Use Grade 0 in temperatures below freezing.

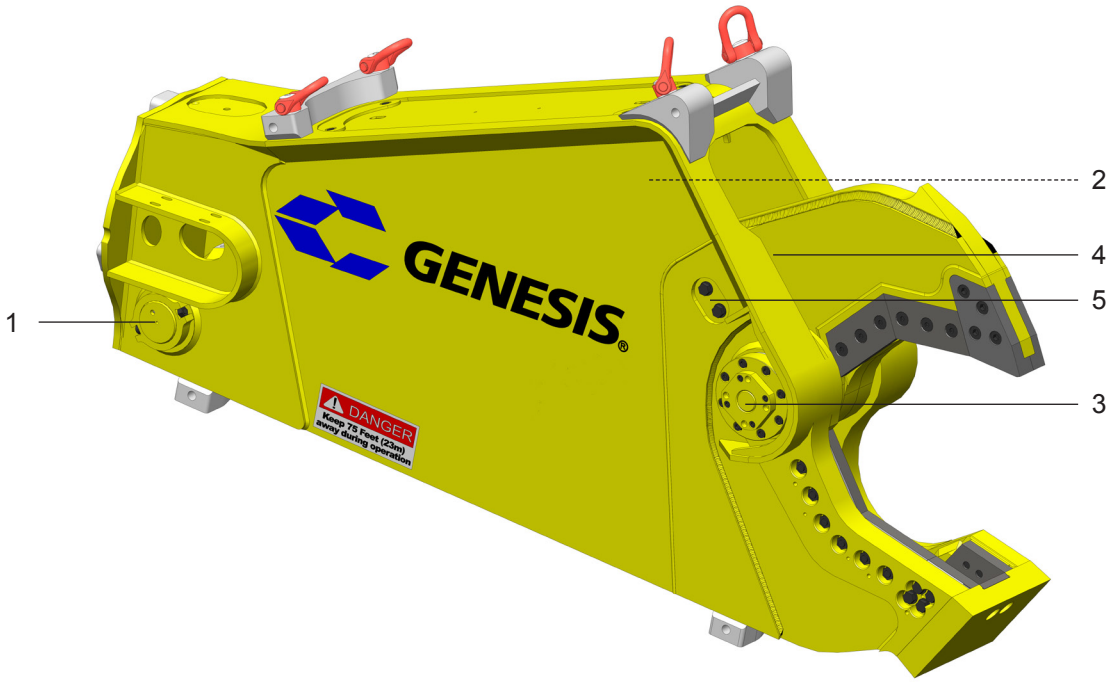
The shear jaws must be closed for access to all grease fittings. Grease all fittings every four to eight hours of operation (see Maintenance Schedule).

After greasing the rotation bearing, rotate the shear through two full rotations.

Grease locations:

1. Shear cylinder butt
2. Shear cylinder rod
3. Main shaft/pivot (both sides)
4. Auto-Guide
5. Auto-Guide contact surface on upper jaw

Shear cylinder, Auto-Guide and pivot should be greased every four hours while the shear is warm. Bracket should be greased at the end of a shift.



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BOLT TORQUE SPECIFICATIONS

Genesis typically uses dry torque measurements.

Prior to using the chart below, clean all bolt holes, bolts and nuts to remove dirt, grease and oil. See the Visual Reference below or Parts Manual to identify bolt type.

Never re-torque bolts that use Loctite. If a bolt becomes loose or damaged after the initial use when Locite was applied and the bolt was torqued, the bolt must be replaced.

Never break tightened bolts loose with a torque wrench. Doing so may break the torque wrench or take it out of calibration.

Torque wrenches should be calibrated on an annual basis.

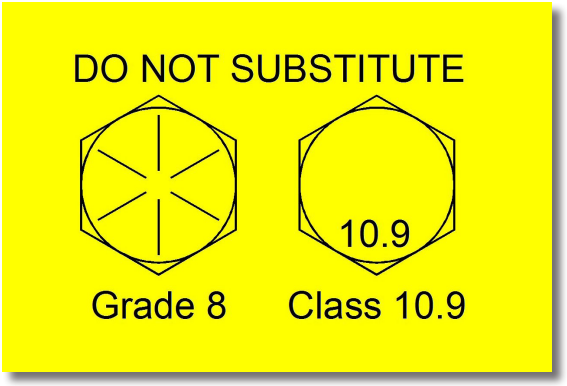
When using a torque multiplier with a torque wrench, incorrect settings will be multiplied by the ratio of the torque wrench.

Never use an air wrench on a torque multiplier.

Dry Torque Values					
		Hex Head		Flat Head	
Fastener Grade	Size x Pitch	Nm	Ft-lb	Nm	Ft-lb
CL 10.9	M8 x 1.25	36	27	29	22
	M10 x 1.50	72	53	58	42
	M12 x 1.75	125	92	100	74
	M14 x 1.50	210	154	168	123
	M14 x 2.00	200	148	160	118
	M16 x 2.00	313	230	250	184
	M20 x 1.50	640	472	512	378
	M20 x 2.50	610	450	488	360
	M24 x 3.00	1055	778	844	622
	M27 x 3.00	1543	1138	1234	910
	M30 x 3.50	2095	1545	1676	1236
8	1/2-13	145	107	116	86
	1/2-20	163	120	130	96
	5/8-11	286	211	229	169
	3/4-10	510	376	408	301
	7/8-9	822	606	658	485
	1.00-8	1220	900	976	720
	1.00-14	1345	992	1076	794
	1.50-6	4280	3160	3424	2528
L9	1.00-8	1152	850	922	680
9	1.25-7	2464	1817	1971	1454

Wet Torque Values					
		Hex Head		Flat Head	
Fastener Grade	Size x Pitch	Nm	Ft-lb	Nm	Ft-lb
CL 10.9	M20 x 2.50	458	338	366	270
	M24 x 3.00	790	583	632	466
	M27 x 3.00	1157	850	926	680
	M30 x 3.50	1572	1160	1258	928
8	3/4-10	383	282	306	226
	7/8-9	617	455	494	364
	1.00-8	916	675	733	540
	1.25-7	1847	1362	1478	1090
9	1.50-12	4067	3000	3254	2400
Apply grease or anti-seize on threads and under bolt heads					

Visual Reference



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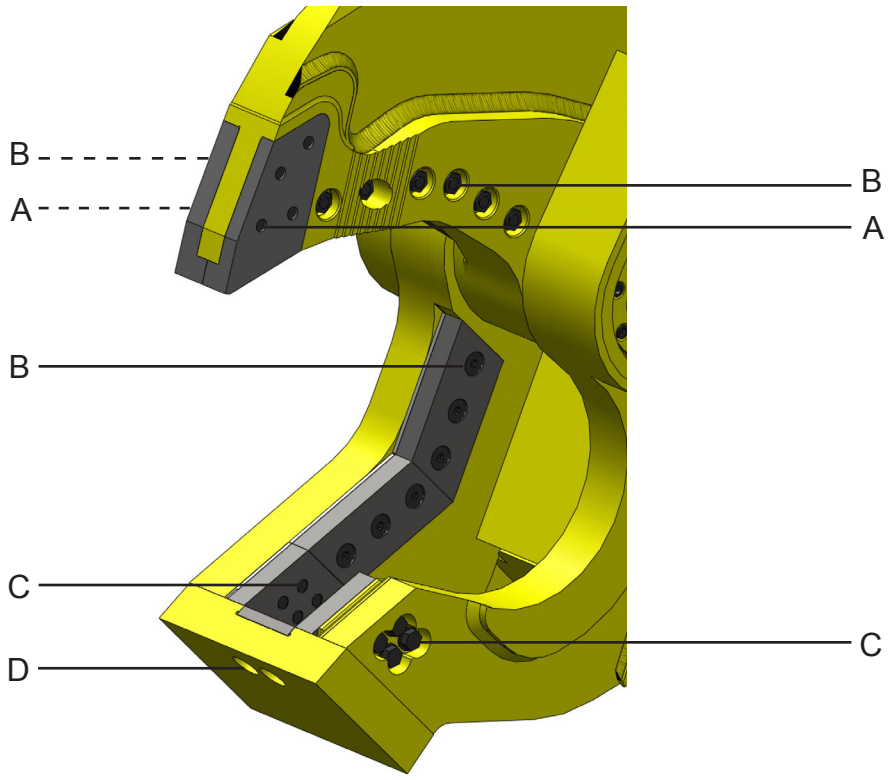
BOLT TORQUE SPECIFICATIONS

Visual Reference for Blade Bolt Torque



Item	Description	GSS 660	GSS 2500
A	Tip blade bolts, lubricated	1362 Ft-lbs (1847 Nm)	1362 Ft-lbs (1847 Nm)
B	Cutting blade bolts	900 Ft-lbs (1220 Nm)	3160 Ft-lbs (4280 Nm)
C	Guide blade bolts		3160 Ft-lbs (4280 Nm)
D	Razor blade bolts		900 Ft-lbs (1220 Nm)

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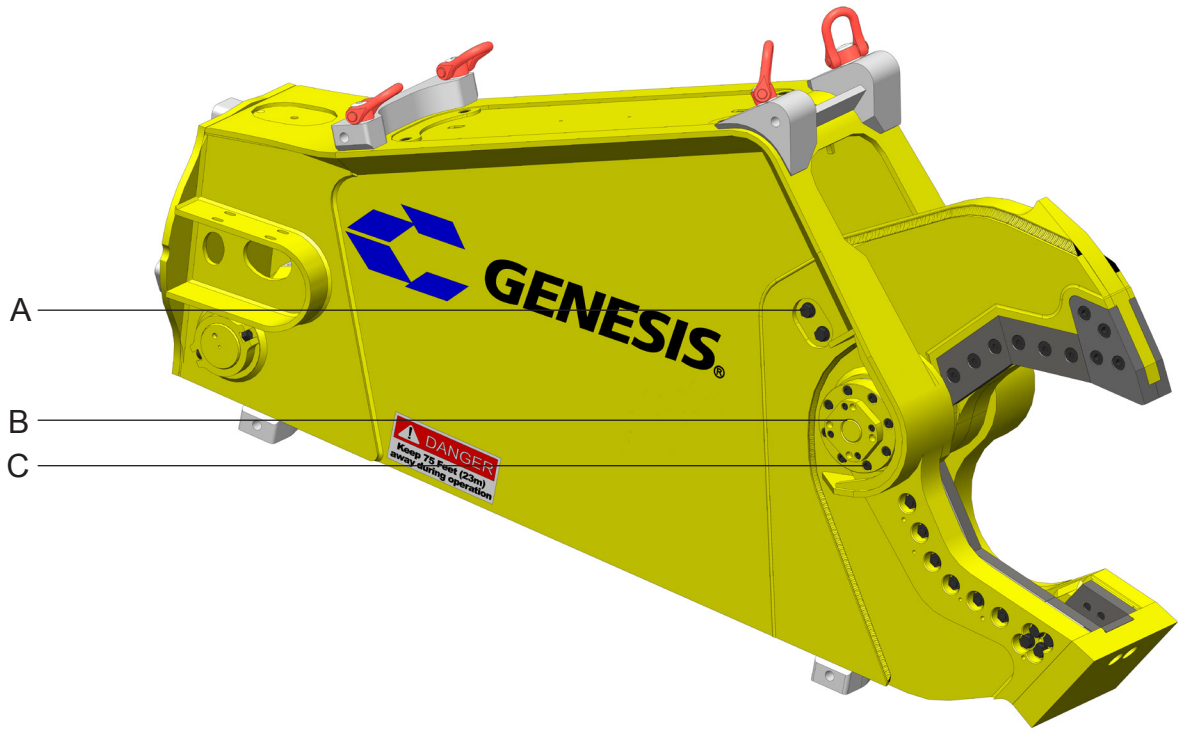
BOLT TORQUE SPECIFICATIONS

Visual Reference for Rotation and Pivot Bolt Torque



Item	Description	GSS 660	GSS 2500
A	Auto-Guide / Puck	900 Ft-lbs (1220 Nm)	3160 Ft-lbs (4280 Nm)
B	Tie Rod	92 Ft-lbs (125 Nm)	230 Ft-lbs (313 Nm)
C	End Cap	450 Ft-lbs (610 Nm)	230 Ft-lbs (313 Nm)

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BLADE MAINTENANCE

Blade and blade seat maintenance greatly affects performance. To maximize cutting performance and optimize replaceable part life, follow this specific sequence of checks, adjustments and maintenance.

1. AutoGuide - shim to tolerance and replace when shims exceed 0.100”.

2. Piercing Blades - replace when edges are worn.

3. Guide Blades - rotate, shim to tolerance and replace when worn.

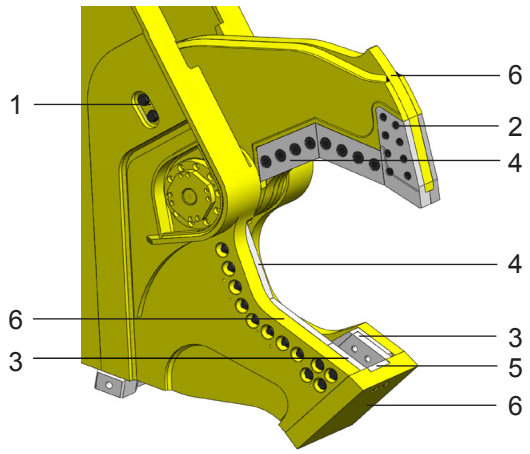
4. Primary and Secondary Blades - rotate, shim to tolerance and replace when all edges are worn. All four blades are identical on shears featuring dual guide blades.

5. Razor Blade - rotate and replace when worn.

6. Jaw Hard-surfacing - build-up and hard-surface as needed.

Blade Bolts

Torque blade bolts every eight hours to the specifications listed in this manual. Check for broken bolts daily and replace immediately.



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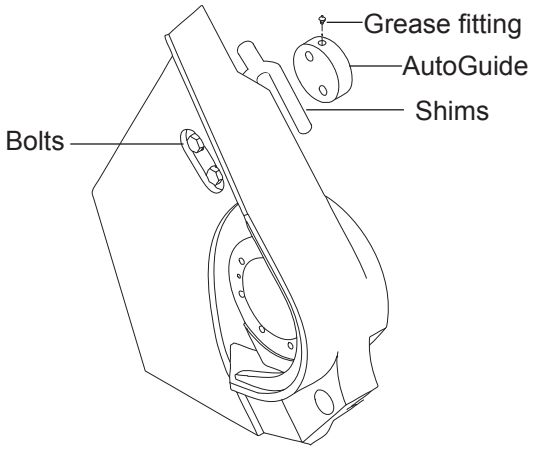
AUTOGUIDE

The AutoGuide (or puck) makes light contact with the wear surface of the upper jaw to maintain proper jaw alignment. Check the puck daily for wear or damage, replacing when grease grooves are no longer visible.



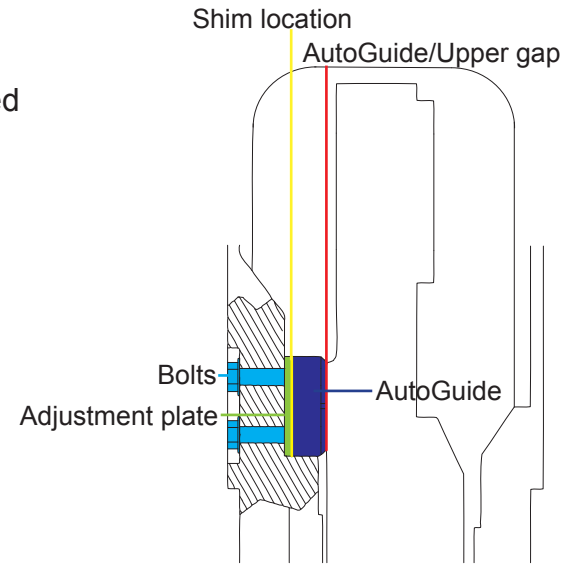
Tolerances between the puck and the wear surface should be 0.005” to 0.010”.

- ✓ Check tolerances every eight hours of operation and shim as needed.
- ✓ Never overtighten the puck against the wear surface.
- ✓ Perform puck maintenance and shimming before performing blade maintenance.

AutoGuide Adjustment Procedure

Use the following procedure to maintain the proper gap and shim the puck.

- Slowly close the upper jaw until the puck is centered on the wear area.
- Check the gap, using a feeler gauge or shims.
- Loosen the bolts on the outside of the stick.
- Insert shims and tighten bolts.
- Check gap with feeler gauge.



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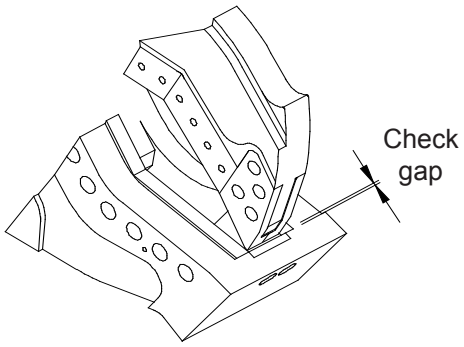
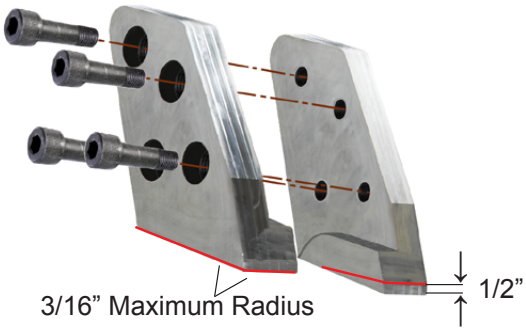
PIERCING BLADES

Piercing blade maintenance is crucial to productivity and safe shear operation. An improper blade gap may cause material jamming and/or blade breakage.

Use the following procedure to check for wear.



1. Slowly close jaws until the piercing blades are flush with the top edge of the razor blade.
2. Check gap with a tape measure. Acceptable gap is 5/8”.
3. Check the condition of the piercing blades with a straight edge or square.
4. Check the profile along the blades.
5. Badly worn blades must be replaced. However, slightly worn blades may be squared up with a grinder and a square. This may be repeated until a maximum of 1/2” of material is removed from the lower piercing edge.
6. Typical use requires blade replacement at approximately 200 hours; heavy piercing requires replacement at approximately 40 hours. These are general guidelines only. Replace blades based on wear not hours of operation.
7. Width of blades, top to bottom, may taper 0.060” (2 mm) total. Bottom edges may be worn to a maximum radius of 3/16”.



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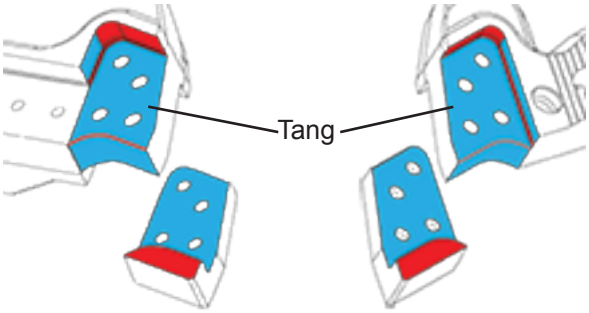
PIERCING BLADES

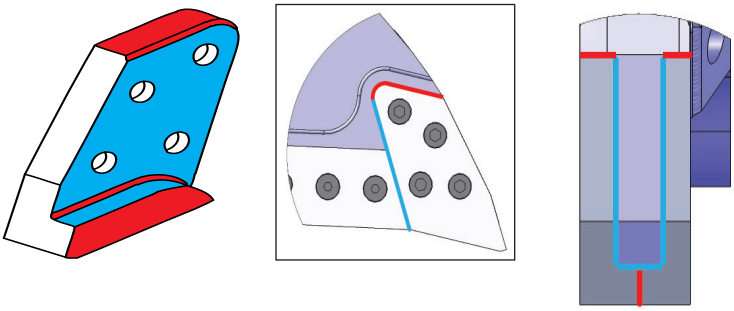
Piercing blades must fit tightly in some areas while having clearance in others. Piercing blades are made from the same material as the cutting blades to withstand the friction caused by piercing hard materials.

Areas Highlighted in Blue require contact fit to the upper jaw and tang to prevent shattering.

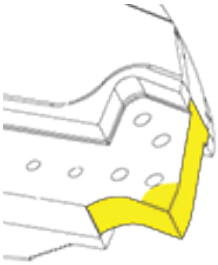
Areas Highlighted in Red require an air gap, and blades may occasionally need to be ground down to provide clearance.

Piercing blade contact with the clearance areas (red) will cause abnormal stresses to the blade and the piercing blades and/or guide blades to shatter.





When necessary, build up the front lower edge of the tang and the front vertical surface of the upper (areas highlighted in yellow), following the procedures given in this manual. After welding, surfaces should be squared with a grinder and finished with a file and a machinist's straight edge.



It is critical that the piercing blade pocket and tang surfaces are straight and true, without dings, deformations, high or low spots, or areas that are worn away.

Piercing blade bolts must not make hard contact with the bolt holes in the upper tang. In rare cases it has been noted that improper alignment of piercing blade bolt holes and the bolt holes in the tang can cause the piercing blades to break through the bolt holes.

When installing the piercing blades, the bolts must be freely installed by hand, not with an air impact wrench.

The bolts may start freely, but when the bolt shank, which is larger in diameter than the threads, enters the hole in the tang, the interference can cause side loading to the piercing blades. This can cause the tips to break as they try to force the holes apart, or it may force the tips to seat improperly on the tang which can also cause tip failure. This is not a common issue, but one that should be noted as part of routine tip maintenance to prevent unnecessary costs and downtime. If this situation is encountered, contact the Genesis Parts or Service Departments for further instructions.

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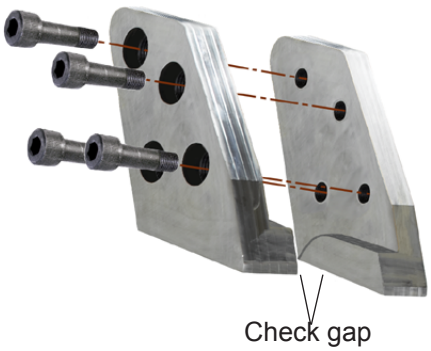
PIERCING BLADES



Replacement

1. Remove blades using an air-impact wrench or breaker bar and multiplier.

2. Remove dust and debris from blade seats; wipe down with a rag and solvent.

3. Lightly file deformities from blade seat edges. Do not sand or grind face of blade seats.

4. Install new, clean blades. Lubricate the threaded holes in the blade and on the bottom of the bolt head where it will contact the blade.

5. Snug lubricated blade bolts by hand to hold them in place; push blades up and into the upper and rear surfaces of the seats.

6. Torque bolts to 1/3 of the final torque value.

7. Check for firm contact against blade seats.

8. With a feeler gauge, confirm gap of 0.002” to 0.010” where blades meet at piercing surface. A very narrow gap may be confirmed by shining a flashlight from below the blades and seeing light pass through. If gap exceeds 0.010”, call the Genesis Service Department. If no gap exists, remove blades, lightly grind facing surfaces and repeat steps 5-8.

9. Torque bolts to 2/3 final value, and then to final value, using a cross bolt pattern.

NOTICE

Piercing blade bolts must be lubricated and torqued as specified below.

Description	Model Number
	660 & 2500
Blade Bolts, Lub.	1362 Ft-lbs (1847 Nm)

Correct clamping force is required to keep tips from moving on their seats. Over-tightening can cause bolt shanks to stretch, losing their clamping force. Loose bolts will cause the seating areas to erode.

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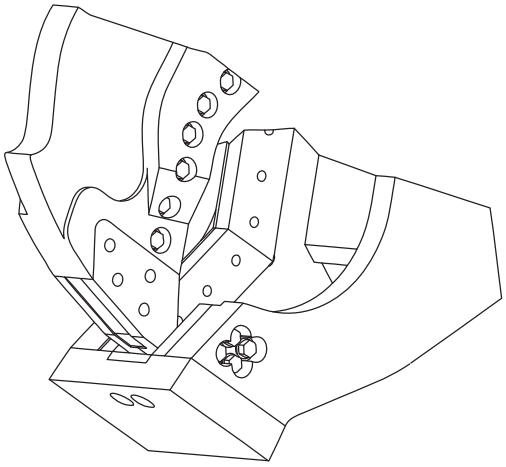
GUIDE BLADES

After adjusting the AutoGuide, check guide blade tolerances. When necessary, shim the guide blade to keep the gap within the specifications listed in the table below.



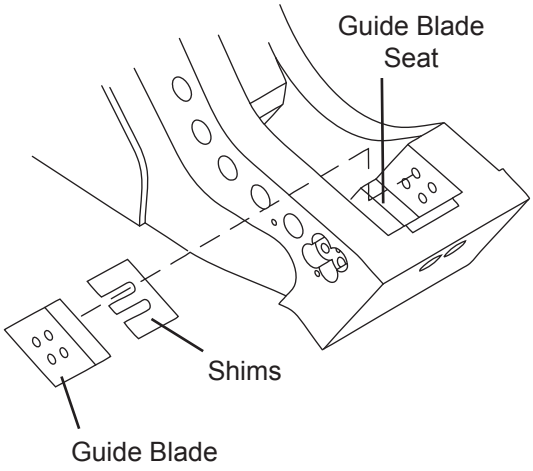
Rotate the guide blades when worn to a 1/8” (3 mm) radius. Replace a guide blade when more than 0.075” (2 mm) of shims are required to keep the blade gap within tolerance.

Dual guide blades, one on either side of the lower jaw, allow for a wider tip-to-guide blade gap than is used between the main cutting blades. Friction and heat buildup cause piercing blades to expand, reducing clearance, possibly to the point of blade interference. Therefore, in most applications, it is beneficial to maintain a wider gap at the guide blades.

Guide Blade to Piercing Blades Gap		
Model	**Minimum**	**Maximum**
660	0.015”	0.025”
2500	0.030”	0.040”

Shimming

Slowly close the jaw so the upper piercing blades begin to bypass the guide blades. Stop the jaw and check the gap between the guide blades and piercing blades. Cycle the jaws slowly, stopping at several points along the piercing blades to check the gap each time.



Shim the guide blades as needed to keep the gap within the tolerances listed in the table above.

To install shims, loosen blade bolts and slide shims between the guide blade and guide blade seat. Re-torque bolts and recheck the gap.

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GUIDE BLADES

Rotation

Remove the blade bolts, guide blade and shims. Rotate the blade end-for-end or side-to-side; reinstall and torque bolts. Check gap; shim if required.

If guide blade faces are worn excessively, the blades cannot be rotated to place the uneven surfaces against the mating surface of the guide blade seats. Uneven surfaces will not be supported and will break, possibly resulting in damage to the guide blade seat.

Replacement

Remove guide blade and shims. Install new guide blade with no shims. Check blade gap and shim as needed.

Adjustment Plates

Do not remove the guide blade adjustment plates from the lower jaw during routine blade rotation or replacement. These plates are custom-machined for each shear and need only be replaced when lost, damaged or extremely worn.

Inspect the top of the adjustment plate for burrs, nicks or other imperfections that may prevent proper seating of the guide blade and cause errant blade gap readings. Clean the adjustment plate as necessary. Inspect the blade seat for damage or imperfections and clean or repair as necessary.

Replacement plates can be ordered from your Genesis dealer or the Genesis Parts Department with the serial number of your shear.

Offset dowel or fastener holes are located in each adjustment plate. When replacing adjustment plates, make sure these holes are aligned with the corresponding holes in the blade seat. Chamfered adjustment plate edges go toward the back of the seat.

Do not grind blade seat areas.

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PRIMARY AND SECONDARY BLADES

Proper maintenance of the primary and secondary blades, or cutting blades, is required for optimal performance. Blade rotation extends blade life and improves cutting performance. Shimming to maintain blade tolerances helps prevent jamming. Dull blades make the excavator hydraulic system work harder and may cause structural damage to the shear.

Inspect blades every eight hours of operation. Re-torque loose bolts and replace broken bolts. Grind away dents or mushrooming of blade edges at the end of each day to prevent upper jaw deflection, excessive blade wear and undue stress to upper and lower jaws.

Rotate blades to use all four cutting edges. Always use Genesis-approved blades. Blades that do not meet Genesis specifications can cause major problems, and using them may void the warranty.

Before performing any blade maintenance, read, fully understand and follow these safety rules.

Wear personal safety equipment including gloves, safety glasses, safety boots and proper clothing.

Safe blade maintenance requires two people - one to steady the blade while the other loosens the bolts.

Blades are heavy and may fall out of the blade seat if not adequately supported. Bystanders must stand clear.

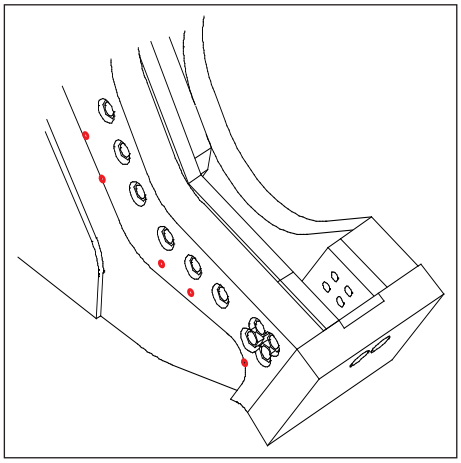
Never strike a blade with a hardened steel tool. The blade may fragment, creating sharp flying debris.

Removal

Loosen the bolts on one blade at a time, enough to loosen the blades.

If blades remain tight, insert a 7/16” brass drift pin into the through-hole on the lower jaw. Tap the drift pin with a hammer until the blade is loose.

Carefully remove bolts and blades.



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PRIMARY AND SECONDARY BLADES

Adjustment Plates

Do not remove the adjustment plates from the lower jaw during routine blade rotation or replacement. These plates are custom-machined for each shear and need only be replaced when lost, damaged or extremely worn.

Inspect the top of each adjustment plate and seat for burrs, nicks or other imperfections that may prevent proper seating of the blades and cause errant blade gap readings. Clean the adjustment plates as necessary.

Replacement plates can be ordered from your Genesis dealer or the Genesis Parts Department with the serial number of your shear.

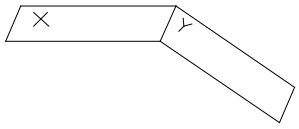
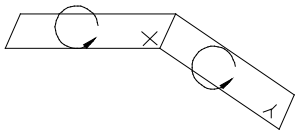
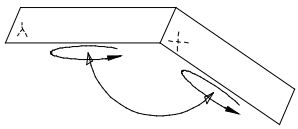
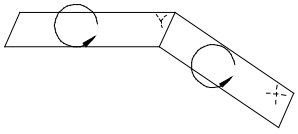
Offset dowel or fastener holes are located in each adjustment plate. When replacing adjustment plates, make sure these holes are aligned with the corresponding holes in the blade seat.

Do not grind blade seat areas.

Rotation

Rotate blades when the cutting edges are worn to a 1/8” (3 mm) radius.

Recommended rotation intervals are approximately 40-80 hours, depending on the material being processed. Thin materials may require shorter rotation intervals. Blades must be replaced when all four edges are worn to 1/8” (3 mm) radius.

Original Blade Configuration	First Rotation Rotate both blades end-for-end	Second Rotation Rotate both blades front-to-back and exchange seat positions	Third Rotation Rotate both blades end-for-end
			

The following chart may be copied and used to track blade rotation.

40 - 80 Hours	Date	Hour Meter	Performed By
Installed			
Rotation 1			
Rotation 2			
Rotation 3			

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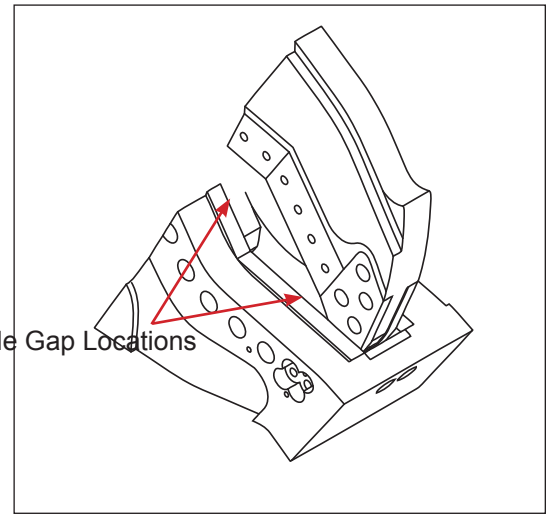
PRIMARY AND SECONDARY BLADES

Blade Gap

After each blade rotation, shim the lower blades to keep the gap within the specifications listed in the table below. Do not shim the upper blades. Use only Genesis shim kits.

Cutting Blade Gaps		
Model	**Minimum**	**Maximum**
660	0.010”	0.020”
2500	0.020”	0.030”



Blade Gap Measuring Procedure

Slowly close jaws until blades begin to bypass. Stop the jaw and check the gap with a feeler gauge.

Cycle the jaws slowly and continue checking the gap at several points along the entire length of the blades.

Note: The gap will be consistent along the entire length of the blades if they have been rotated and shimmed correctly.

If the blade gap exceeds the maximum listed on the table above, shim the lower blades. Blades must be replaced when shims exceed 0.060”.

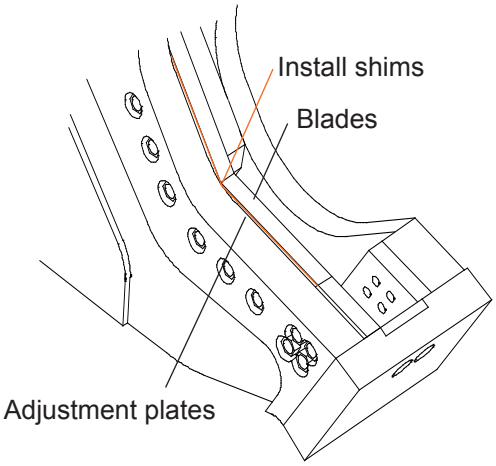
Shimming

Loosen blade bolts.

Install shims between the blades and adjustment plates as needed to bring into tolerance.

Torque bolts to spec and recheck the tolerances.

Do not use more than 0.060” of shims.



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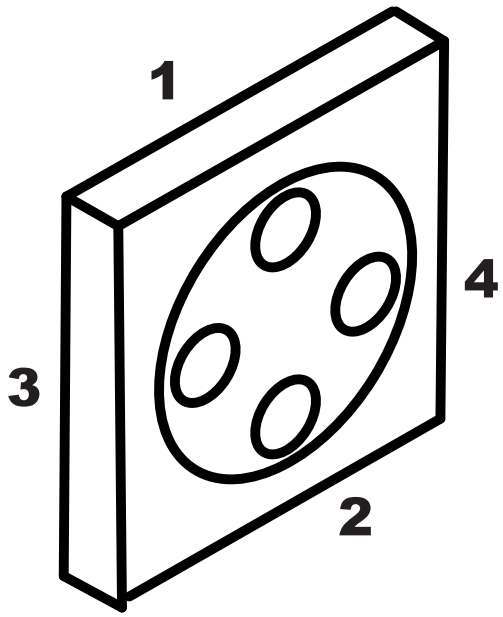
RAZOR BLADE

Check the razor blade for wear every eight hours of operation. Rotate when worn, using the edges in the sequence indicated by the illustration.

After rotation, check the gap between the razor blade and piercing blades. If the gap exceeds the maximum tolerance after new piercing blades have been installed, the razor blade must be replaced. Do not shim the razor blade.

Set-screws should be installed in unused bolt holes to prevent thread and hole damage. Replace set-screws when lost or damaged.



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GENERAL WELDING GUIDELINES

Build-up and hard-surfacing are welding procedures that protect the parent material of the jaws and keep the blades in good adjustment. Build-up is the welding procedure that restores the jaws to their original shape. Building up the jaws helps protect the blades and increases the life of the shear. Hard-surfacing is the welding material added over the parent material (or build-up material) to create a wear-resistant surface.

Welding should not be performed until the jaws are work-hardened. Work-hardening can take up to 80 hours. However, jaws must not wear lower than the height of a new blade. If either jaw wears down lower than blade height, immediately stop operating the shear and perform build-up and hard-surfacing as described in the following pages of this manual.

When welding around blade seats or the piercing tip tang area, maintain the factory machined seat radius. If the rounded grooves are welded up, use a die grinder with a carbide tool to recut these areas to their original profile. Leaving a squared edge will eventually cause structural cracking. The radius provides a broader area to absorb structural stress.

Welding Ground Clamp

Disconnect all battery ground cables or shut off master battery switch, if equipped. Failure to do so may cause excavator electrical problems, including permanent damage to on-board computer systems.

Connect ground clamp as close as possible to the area being welded without allowing current to pass through the pivot group, cylinder pin or cylinder.

If you are welding on the lower jaw, connect weld clamp to the lower. If you are welding on the upper jaw, connect to the upper but not to the cylinder clevis. If needed, weld a piece of steel to the area for the grounding clamp and cut the piece off when welding is completed.

Welding Rules

Before you begin:

- Remove adjacent blades, as preheating and welding may cause blade damage.
- Wearing an approved respirator, grind the area to clean it, removing all existing hard-surfacing.
- Preheat area to 350˚ F (177˚ C). Maintain this temperature throughout the procedure. Do not exceed 450˚ F (232˚ C) interpass temperature.

During welding:

- Always grind and weld with the grain of the material.
- Peen each weld pass to relieve stress and harden the welds.
- Do not undercut the ends of the welds.
- Do not start or stop welds directly above a bolt hole or in the apex of the jaw.

After welding maintenance is complete:

- Cover the area with a heat blanket and allow it to cool slowly, approximately eight hours.
- Do not put the shear into operation until the welds have been allowed to cool.

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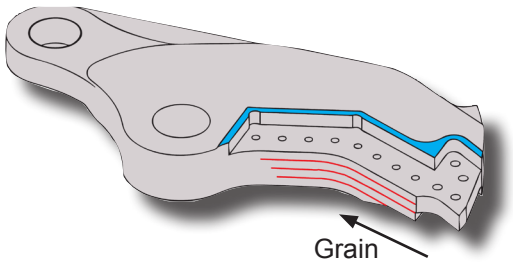
BUILD-UP

Procedure:

Follow the General Welding Guidelines and Rules.



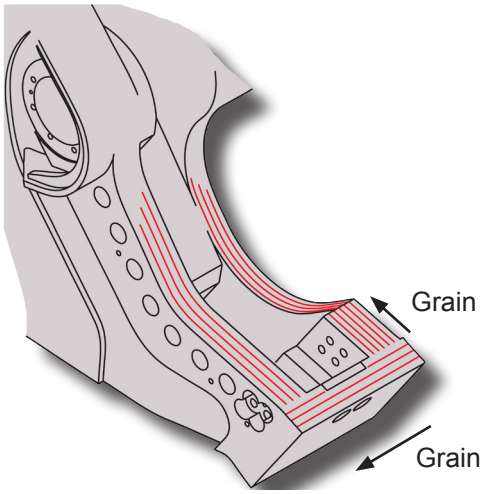
Area highlighted in blue illustrates protection strip.

Determine the area to build up, using a straight-edge or square. Jaws must not wear lower than the height of a new blade. Use a new blade to help determine build-up height for the jaw.

Build up the jaw to slightly higher than the original parent material profile with E7018. Apply single passes in each line with the grain of the steel, peening after each pass.

Protection strips, or raised areas under or around blade seats, must be built up and maintained during build-up procedure using E7018 or equivalent.

These areas should be maintained between blade height and 0.010” lower than blade height. These areas protect the bottom unused edges of the blades as well as reduce the chance for material to catch on the bottom of the blade during jaw open functions, which causes blades to move in their seats.



Denting, deformation or build-up higher than blades in these areas may cause upper jaw deflection, excessive blade gaps, wear to blade faces and undue stress to upper and lower jaws.

After build-up is complete, grind material to be flush with a new blade.

Note: Closely monitor areas above guide blade bolt countersinks and below front two upper blade bolt countersinks. These are high-wear areas. If allowed to wear too far, parent material starts to fold into the countersinks, and it becomes time-consuming to clean out this area when access is needed for blade rotation and replacement.

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HARD-SURFACING

Do not apply hard-surfacing directly to the parent material as this could cause toe cracking, and the hard-surfacing will break away.

Procedure:

Follow the General Welding Guidelines and Rules.

Apply a single pass stringer bead pattern, with the grain, using E7018 electrode. Peen each pass.

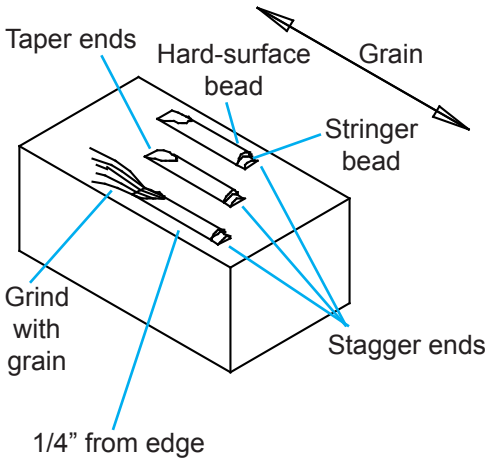
Do not apply a stringer directly on the edge. Start the first pass 1/4” from the edge.

Stagger the ends of the stringer welds so they do not end in a straight line.

Cap each stringer bead with one pass of GenWire or GenRod to hard-surface. Do not apply more than two layers of hard-surfacing. Peen each pass.

Grind the ends of all stringer welds, with the grain to taper 1” to 1-1/2” (25 - 38 mm) to the parent material.

See the following page for hard-surfacing illustrations and instructions specific to each area of the jaws.



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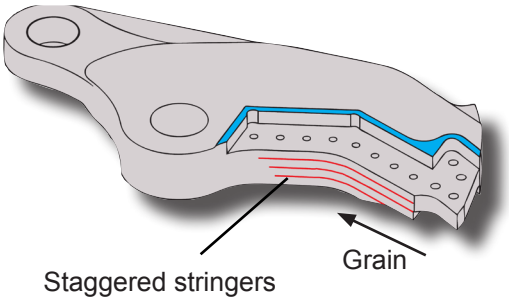
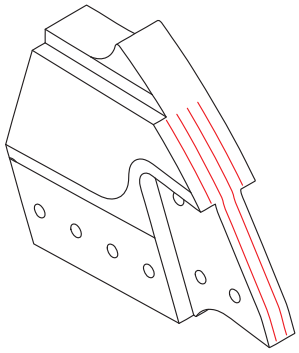
HARD-SURFACING PATTERNS



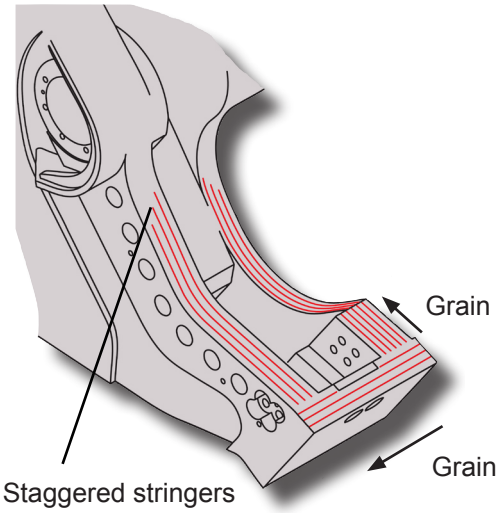
Upper Jaw

Single passes approximately 1” apart. Begin just behind the piercing blade seats and continue toward the throat. Use three to five stringers, depending on the shear model.



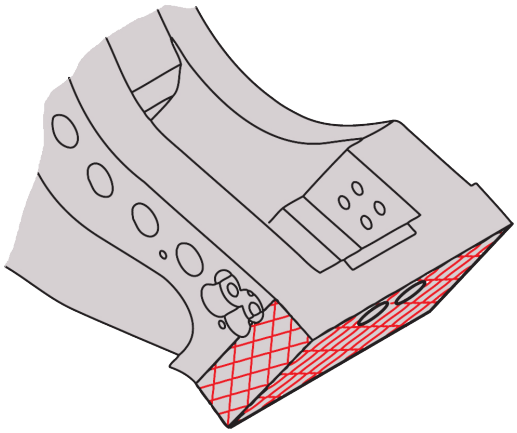
Upper Jaw Face

Single passes approximately 1” apart. Begin at the bottom of the upper face and continue approximately 2/3 up the front face.



Lower Jaw

Single passes approximately 1” apart. Work across the top of the chin plate and along the lower jaw toward the throat. Use two to three stringers, depending on the shear model.



Lower Jaw Chin

Crosshatch the chin plate with stringer beads at 45˚ angles to form 1” squares.

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CYLINDER MAINTENANCE

Preparation for Cylinder Removal

The following tools and equipment are recommended for cylinder removal.

- Crane or overhead hoist and choker sling rated to handle 5,000 lbs. (2300 kg)
- Smaller choker sling for handling the pins (rated for 500 lbs.)
- Large hammer and drift pin for pin removal.
- Set of hand wrenches from 12mm - 24mm sizes.
- Set of socket wrenches from 12mm - 24mm sizes.
- Air compressor with air tools would be helpful.

Work Area

If the cylinder is to be repaired on site, then the work bench must be capable of handling up to 5000 lbs. and be equipped with chain clamps to hold the cylinder in place during disassembly.

PPE

Always wear Personal Protective Equipment which includes the following:

- Steel toe safety shoes or boots
- Shatterproof safety glasses or goggles
- Protective head-wear if required
- Gloves
- Hearing protection

Lifting

Always use a lifting device whenever lifting loads greater than 30 lbs.

MSDS

Always be aware of the chemicals being handled. Have MSDS sheets on hand and proper treatment equipment available.

DANGER

Disassembly of any pin-connected component can be hazardous. Never remove any pins unless the cylinder is either supported by a crane, hoist or blocking, or serious injury or death could result.

Flying Debris

Metal chip or other flying debris may fly when removing or installing a pin with a hammer. Use a brass drift pin when striking pins and always wear protective clothing, shoes and eye protection.

Removing or Installing Pins

Pins may fly when struck with force to drive them out. Keep people clear when removing or installing pins.

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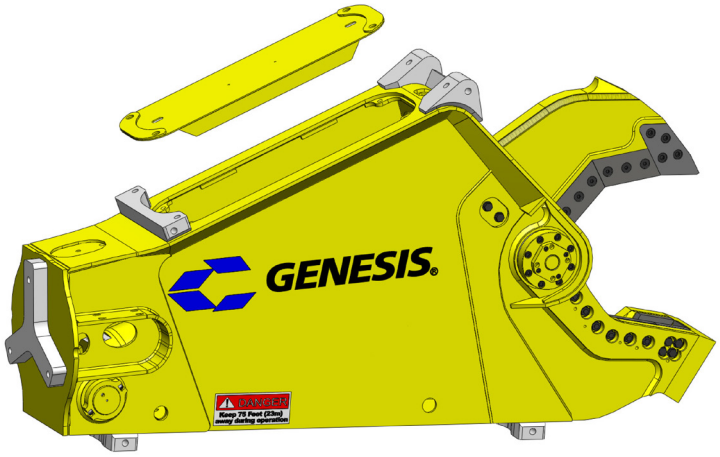
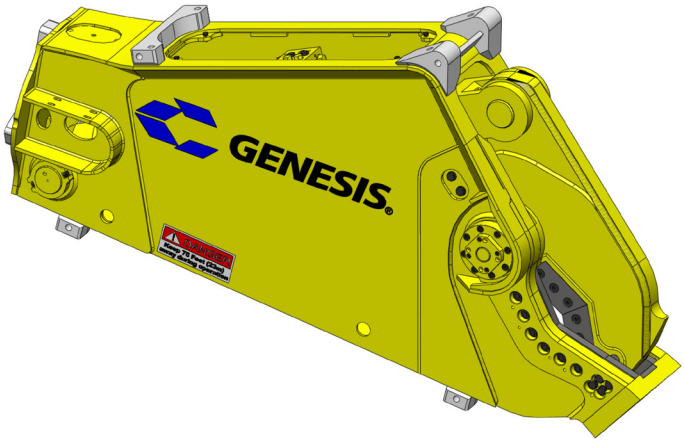
CYLINDER REMOVAL

Place the shear in a stable position with the top access cover facing up.
Remove top cover plate.



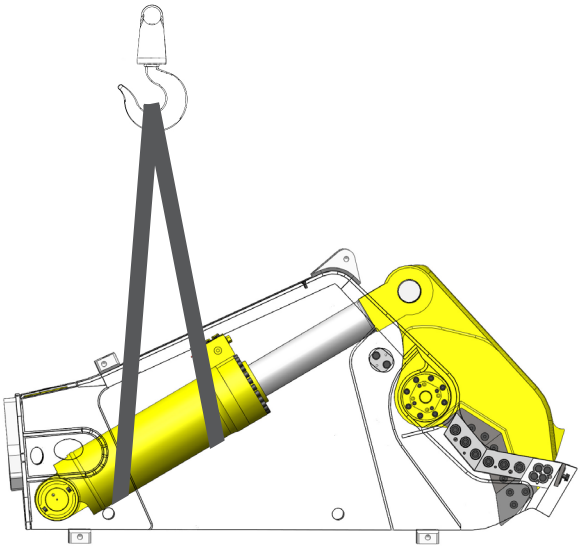
Fully extend the cylinder rod (closing the upper jaw).



Wrap a strap, basket style, around the cylinder.

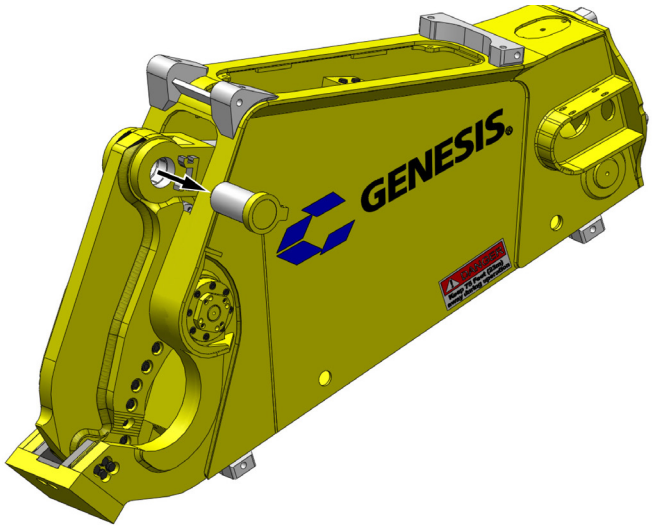
Due to the narrow clearance between the cylinder barrel and inner wall of the shear stick, it may be necessary to feed a piece of wire around the cylinder and use the wire to pull the strap through.

Place light tension on the strap to support the cylinder using a crane or hoist.

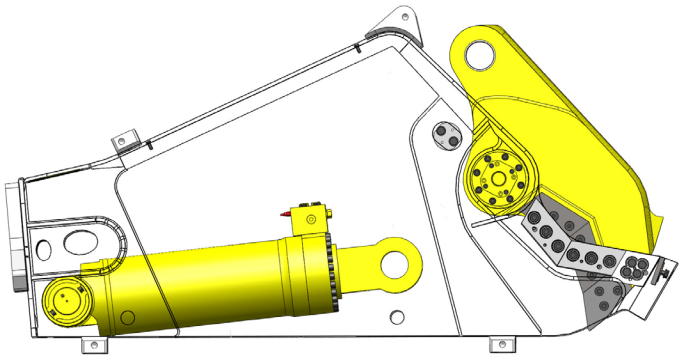


CYLINDER REMOVAL

Remove the rod-end cylinder pin keeper.
Remove the front cylinder pin.
The upper jaw will drop (close) slightly during pin removal.



Retract the cylinder rod.
Avoid damaging the AutoGuide assembly with the cylinder clevis while retracting the cylinder rod.



Relieve the pressure on the hydraulic system.
Remove the butt-end cylinder split flange.

CAUTION There may be some hydraulic pressure remaining in the lines. Slowly remove the hydraulic flange fittings, carefully checking for residual pressure.

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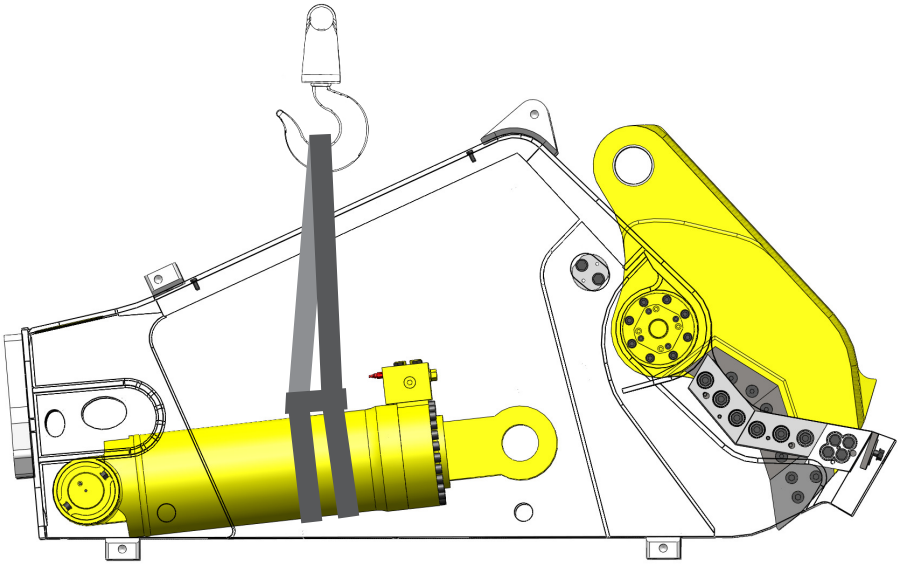
CYLINDER REMOVAL

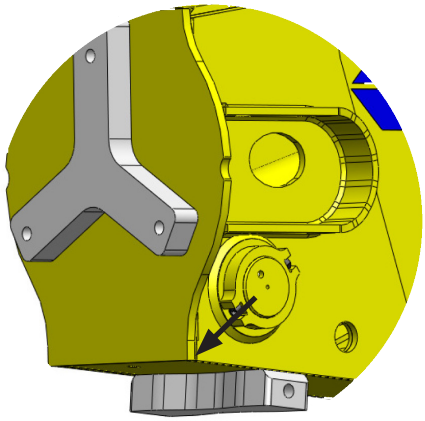
Put a strap, choker style around the two inch hose end at the manifold block. Remove the manifold mounting bolts and pull the manifold out of the shear stick. Be careful not to damage the hoses. Wrap the hose ends in clean rags of plastic; if available, use plastic caps. Set the manifold and hoses on a piece of clean cardboard.

Change the cylinder strap from basket style to choke style.

The cylinder can weigh as much as 9000 lbs. Make sure your strap is rated to handle this weight.



Remove the pin keeper from the rear cylinder pin and collar.



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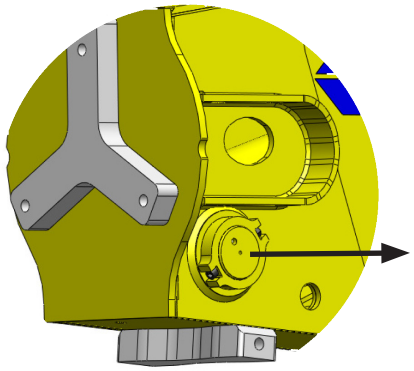
CYLINDER REMOVAL

Remove the rear cylinder pin.

The cylinder will shift, as it is no longer attached to the shear. This pin must be removed left to right, operator's view.



Push the cylinder to the back of the shear. Lift the cylinder, rod-end clevis first.

When installing the cylinder, use new O-rings coated with clean grease and follow correct torque specifications.

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TROUBLE-SHOOTING GUIDE

Symptom	Possible Causes/Solutions
Low power	Check operating pressures and back pressure at port blocks on shear
Slow jaw close	Check hydraulic flows
Jaw drifts closed or can be pushed closed	Directional valve may be leaking
Jaw closes suddenly and will not open	Valve spool may be stuck
	If shear has quick-coupled hydraulics, they may be partially disconnected or damaged
Hydraulics chatter while cutting	Chattering may indicate a material jam
Hydraulic system overheating	Check hydraulic system oil level for low or overfull condition
	Ensure clear path for hydraulic cooler-radiator; clean coolers with compressed air and then pressure wash (where applicable)
	Oil temperatures coming out of the shear can run as high as 230° to 240° F (110° to 115° C)
Poor piercing	Piercing tips are worn and need to be squared up or replaced
	Guide blades are worn - rotate or replace
	Excessive or insufficient gaps at piercing tip and guide blades - shim to specs given in Guide Blade section of manual
Material jamming	Excessive blade gaps - shim to specs given in Primary and Secondary Blade section of manual
	Worn blades - rotate or replace
	Excessive or insufficient gaps at piercing tip and guide blades - shim to specs given in Guide Blade section of manual
	Thin material may be wrapping around blades. Fold material or draw a larger amount of material into jaws.
	Thin material in opening between the guide blades before the piercing tips entered the lower jaw. Operators must be aware of this area at all times.

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TROUBLE-SHOOTING GUIDE

Symptom	Possible Causes/Solutions
Poor cutting	Material is beyond shear appetite range
	Material is harder than mild steel
	Blades are worn beyond 1/8” radius - rotate or replace
	Blade gaps are too wide for thin material
	Blade protection strips are too high, causing jaw deflection and excessive blade gaps
	Piercing tips are worn and need to be squared up or replaced
	Too much end play in pivot group - shim to 0.002” to 0.005”
	Wear in main bearings is causing jaw deflection and inconsistent blade gaps
	Pressures too low - check at shear port blocks
	Shear swivel or cylinder is bypassing - contact the Genesis Service Department for procedures to check for bypass

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WARRANTY

Claim Procedure

Notify the Genesis Service Department of the potential warranty claim prior to making the repair. Digital pictures are very helpful for diagnosing problems and recommending repairs.

Contact the Genesis Service Department before making alterations, changes or repairs to any component that is going to be considered for warranty. Not doing so will void all Genesis warranty consideration.

The Genesis Service Department will issue an authorization number to track the repair costs, outgoing parts, and/or defective parts returning to the factory.

Replacement parts must be ordered using a purchase order number. Shipping is standard ground. Overnight shipping is available by request, and Genesis will not cover the shipping charge.

When the repair is complete, submit an invoice to the Genesis Service Department within 30 days. Include itemized internal labor reporting, parts lists and invoices for outside contractors. Reference the authorization number on all invoices.

When returning parts for warranty consideration, include a copy of any related Genesis paperwork along with any other necessary documentation to ensure proper processing and credit. The Genesis Service Department will provide the necessary forms.

Your account will be credited when the warranty claim is accepted.

Blade Warranty

Standard warranty on blades will only be considered on the first edge, and wear on the edge must be 1/8” radius or less. Genesis does not warranty cutting blades that are cracked or broken from top to bottom (perpendicular to the long edge of the blade). Genesis also does not cover fasteners, the labor to replace wear components or collateral damage, such as blade seats, from broken blades, the piercing blade tang or adjustment plates.

Please direct any questions to the Genesis Service Department: 715-395-5252

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PARTS ORDER POLICY AND PROCEDURE

Parts Orders Should Include

- Purchase order number
- Model and serial number of attachment
- Part number and quantity needed
- Shipping and billing address
- Method of shipment or required delivery date

Placing Orders

Orders may be placed by phone, e-mail or fax. To fax an order, use the form on the following page. Contact information is located at the front of this manual.

Part Numbers

Part numbers are listed in a separate Parts Manual or, if included, the Parts section of this manual. Contact the Genesis Parts Department with questions regarding part numbers, availability and pricing.

Shipping

All orders will be shipped best way surface unless an alternate shipping method is requested. Shipping charges are not included in the purchase price of parts.

Invoices

All invoices are due upon receipt. Any accounts with invoices open beyond 60 days are subject to review and may be placed on C.O.D. status without further notice.

Returns

Unused Genesis parts may be returned with proper documentation. Return shipping is the responsibility of the purchaser. Credit will be issued upon return, less a 20% restocking fee. Documentation is required for credit of returned parts. Contact the Genesis Parts Department at 715-395-5252 for a RGA (Return Goods Authorization) number and form.

Return Goods Authorization

All parts returned to Genesis for warranty consideration must be returned with a completed RGA (Return Goods Authorization) provided by the Genesis Parts Department. The form needs to be completed in its entirety, including any additional information requested by the Parts or Service Department. Return freight is the responsibility of the shipper and will be credited upon claim approval. A determination to accept or deny the claim will be made based on the information available to Genesis. Warranty on purchased parts other than wear components is 6 months. There is no warranty period on wear parts or components.

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PARTS ORDER FORM

Customer: _____ Date: _____

Phone: _____ Contact: _____

Shipping Address: Fax: _____

_____ Billing Address:

_____ _____

_____ _____

Purchase Order: _____ Shipping Method: _____

Model: _____ Serial Number: _____

Quantity	Part Number	Description	Price

Fax to the Genesis Parts Department at 715-395-3411
For assistance, call 715-395-5252 or e-mail genesisparts@genesisattachments.com

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TOOL LIST

The following is a list of tools available for purchase from Genesis. This list may not include every tool used for this attachment.

Part Number	Description
6900001	Service tool kit - includes part numbers 6900002 through 6900024
6900002	1-1/2” 12-point socket, 1” drive
6900003	1-5/16” 12-point socket, 1” drive
6900004	5/8” impact hex bit socket, 3/4” drive
6900005	3/4” impact hex bit socket, 3/4” drive
6900006	3/4” drive female to 1” drive male adapter
6900007	1-1/4” combo wrench
6900008	Jet needle scaler
6900009	17mm socket, 3/4” drive, metric impact
6900010	Torque multiplier, 2000 ft/lb
6900011	3/4” drive torque wrench, 600 ft/lb
6900012	26” male/female ratchet, 1” drive
6900013	30” ratchet, 1” drive
6900014	5/16” LA hex key
6900015	1-5/16” combo wrench
6900016	7/8” combo wrench
6900017	1-1/8” combo wrench
6900018	40mm 6-point impact socket, 3/4” drive
6900019	46mm 6-point impact socket, 3/4” drive
6900020	Tool box
6900021	7/8” impact hex bit socket, 3/4” drive
6900022	1-1/2” 6-point socket, 1” drive
6900023	7/8” impact hex bit socket, 1” drive
6900024	36mm 6-point impact socket, 1” drive

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Rev. G - 7-10-17