XP Mobile Shears

Safety & Operator’s Manual
All Models: XP 200 - 2500

May 2010
PREFACE

To ensure years of safe, dependable service, only trained and authorized persons should operate and service the shear. It is the responsibility of the operator to read, fully understand and follow all operational and safety-related instructions in this manual. DO NOT OPERATE THE SHEAR UNTIL YOU HAVE READ AND FULLY UNDERSTAND THESE INSTRUCTIONS. Always use good safety practices to protect yourself and those around you.

REGISTRATION

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

IMPORTANT

THIS OPERATOR’S MANUAL MUST REMAIN WITH THE SHEAR AT ALL TIMES!

Should it become damaged or lost, immediately contact any authorized Genesis dealer or contact the Genesis Service Department at 888-743-2748 or 715-395-5252 for replacement.

Genesis has made every effort to provide information as complete and accurate as possible for its shears. However, because of owner requirements, equipment and control, variations may exist. In addition, due to Genesis policy of continually striving to improve its products, occasional discrepancies may exist between individual shears and the descriptions and information contained herein.

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

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SAFETY STATEMENTS

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 INJURY OR PROPERTY DAMAGE COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

THIS SYMBOL BY ITSELF OR USED WITH A SAFETY SIGNAL WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.
GENERAL SAFETY

NEVER OPERATE AN EXCAVATOR WITHOUT SAFETY GUARDS INSTALLED.

Safety glass and wire mesh cab guarding must be installed to protect the operator from flying debris that may be created during processing. Falling Object Protection Structures, or FOPS, are required for any application where material is to be handled overhead. AVOID HANDLING MATERIAL OVERHEAD WHenever POSSIBLE.

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.

All local, state/provincial and federal regulations must be met before approaching power lines, overhead or underground cables, or power sources with any part of the excavator. DO NOT OPERATE THE MACHINE NEAR ENERGIZED POWER LINES. Always contact the electrical power company when operating near power lines. The lines should be moved, insulated, disconnected or de-energized and grounded before operating in the area.

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.

DO NOT OPERATE IF AN UNSAFE CONDITION EXISTS. Stop operation immediately, shut down the machine and report the unsafe condition to the proper authority.

EXCAVATORS IN OVERHEAD DEMOLITION OR HIGH REACH APPLICATIONS MUST HAVE PRIORITIZED OIL FLOW TO THEIR MAIN VALVES.

Shears require high volumes of oil at lower pressures to open and close the jaw in the non-cutting mode. In the event of a building or structure collapse, if the excavator does not have prioritized flow, opening the jaw will render other functions, such as stick, boom and tracking, slow or inoperable because oil will go to the path of least resistance, which is the shear jaw function. Although this is not a common situation, it must be addressed with your excavator dealer prior to shear installation.
GENERAL SAFETY

DO NOT OPERATE POORLY MAINTAINED OR OTHERWISE FAULTY EQUIPMENT. INFORM THE PROPER AUTHORITY AND DO NOT RESUME OPERATION UNTIL THE PROBLEM HAS BEEN FIXED.

OPERATOR QUALIFICATIONS

ONLY TRAINED AND AUTHORIZED PERSONS SHOULD OPERATE THE MACHINE. To be qualified, you must understand the written instructions in this manual, receive training including actual operation of this machine, and know all safety rules and regulations of the job site.

DO NOT OPERATE THE MACHINE UNTIL YOU FULLY UNDERSTAND THE FUNCTION OF ALL CONTROLS, INDICATORS AND INSTRUMENTS.

PERSONAL SAFETY

Use all protective clothing and safety devices dictated by 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

AVOID ENTANGLEMENT HAZARDS. DO NOT WEAR CLOTHING OR JEWELRY THAT COULD GET CAUGHT IN MACHINERY AND CAUSE INJURY.

KEEP HANDS, FEET, HAIR AND CLOTHING AWAY FROM MOVING PARTS. KEEP HANDS AND FEET WITHIN THE OPERATOR PLATFORM.

KNOW THE PINCH POINTS, CRUSHING POINTS AND ROTATING PART OF THE EQUIPMENT AND AVOID THEM. ALL SAFETY GUARDS MUST BE IN PLACE.

Always know where to get assistance in case of an emergency. Know where to locate and how to use safety equipment such as a first aid kit and fire extinguisher.

Report all injuries to your supervisor or as directed.
GENERAL SAFETY
MACHINE STABILITY

Your Genesis shear is sized for excavator stability when properly operated. However, improper operation, faulty maintenance or unauthorized modifications may cause instability.

KNOW THE WORKING RANGES AND CAPACITIES OF THE EXCAVATOR TO AVOID TIPPING.

USE THE RECOMMENDED EXCAVATOR COUNTERWEIGHT.

The following conditions affect stability:
• Ground conditions
• Grade
• Weight of attachment
• Contents of attachment
• Operator judgment

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 the controls until you have read and fully understand the safety statements in this manual and the manual for your excavator. Determine the control for each function before operating the excavator.

Familiarize yourself with the excavator and shear before attempting to process material. Have the excavator moved to a wide open area. The area should be solid, level, and free of obstacles such as people, equipment, buildings and power lines. With the excavator engine running at a reduced speed, operate one control at a time. Continue this practice until you have learned and become comfortable with the function of each control.
GENERAL SAFETY
BEFORE OPERATING

Check the Equipment

Before beginning each shift, take the time to check the equipment and have all systems in good operational condition.

Check the following:

• Warning decals, special instructions and operator’s manuals. Make sure they are legible and in the proper location.
• Grease fittings. Pump grease at all fitting locations.
• Blades and wear surfaces for wear or damage.
• 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.
• Grease rotation bearing and pinion gear.

Know the Work Area

Check clearances in the work area. Keep all bystanders at a safe distance. Do not work under obstacles within the working range of the shear. Check the location for overhead and buried power lines or other utilities before operation.

Check ground conditions. Be aware of unstable or slippery areas and avoid them.

Know the Rules

Most employers have rules governing proper operation and maintenance of equipment. Before starting work at a new location, ask your supervisor or safety coordinator about rules you are expected to obey.

Understand traffic rules at your job site. You must recognize and understand all signs, flags and markings; hand, flag, whistle, siren and bell signals.

Position the Shear

Position the excavator on firm, level ground. Do not operate on slippery ground conditions.

If level ground is not possible, position the excavator to use the shear to the front or back of the excavator. Avoid working over the side of the excavator.

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).
GENERAL SAFETY

OPERATION SAFETY

Safe operation is the responsibility of the operator. Improper use of the machine can lead to dangerous situations for yourself, those around you, the machine and the work area. Practice safe working habits and be aware of hazardous conditions.

Thoroughly read and understand this entire manual. Follow all safety rules and practices explained in this manual.

Be seated in the operator’s seat at all times while operating the shear. Always return the shear to a rest position on the ground before leaving the operator’s seat, regardless of the reason or length of time away.

Do not operate without lights if conditions require them. If lights are required and your excavator is not so equipped, contact your excavator dealer for a lighting package.

Do not operate under the influence of drugs or alcohol, which can affect your alertness and coordination. If you use prescription or over-the-counter medication, get medical approval to operate the equipment.

Do not allow riders on the shear. Do not use the shear as a personnel lift or work platform.

Report all accidents to your supervisor or as directed.

Rotation systems are designed to position the shear during operation, not as a locking or supporting system during maintenance. Always use proper blocking procedures during maintenance for operator safety. Always practice lockout/tagout procedures before performing maintenance.
GENERAL SAFETY
OPERATION SAFETY
Starting Procedure

Before operating, walk completely around the machine 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 excavator 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 the shear to a rest position on the ground.
• Shut off the excavator engine.
• Work controls in all directions to relieve hydraulic pressure.

IF SHEAR MAINTENANCE OR SERVICE IS TO BE PERFORMED, MAKE SURE THE SHEAR BODY IS PROPERLY BLOCKED TO PREVENT ACCIDENTAL ROTATION OF THE SHEAR ONTO OPERATOR OR MECHANIC. DO NOT RELY ON ROTATION MOTOR OR OTHER ROTATION COMPONENTS TO INHIBIT MOVEMENT OF THE SHEAR DURING MAINTENANCE OR SERVICING. ALWAYS PRACTICE LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING MAINTENANCE.

Process Material Safely
Using the shear in unauthorized applications may create an unsafe situation and will void the warranty.

Do not operate any functions of the excavator while cutting with the shear, including boom and drive functions.

DO NOT PULL DOWN STRUCTURES WITH THE SHEAR. DOING SO MAY CAUSE FALLING DEBRIS, OR MATERIAL MAY BREAK FREE AND EXCEED THE CAPACITIES OF THE EXCAVATOR, CAUSING A TIPPING HAZARD.

The rotator should only be used for positioning the shear. Do not use the rotator to pry or break material. Rotating shears are not designed to stand up to excavator break-out forces.
GENERAL SAFETY

Process Material Safely

Do not shear high tensile steel such as railroad rail, spring steel, axles, tool steel or machine parts. Hardened material breaks, causing flying debris that could cause injury or death. Processing these materials also causes structural and hydraulic damage to the shear and excavator.

Do not cut pressure vessels or tanks without absolute certainty that they are no longer full or pressurized. Cutting into these may cause an explosion or flying objects, which may cause injury or death.

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.** Doing so will void warranty and may cause structural damage, accidents or tipping.

**MAKE SURE THE LOAD IS HELD SECURELY IN THE SHEAR JAWS. DO NOT MOVE A LOADED SHEAR IF LOAD IS LOOSE OR DANGLING.**

Make sure the load is pinched between the shear jaws – never cradle a load.

For greater stability, knuckle the shear 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 SHEAR, OR ANYTHING HELD IN THE SHEAR JAWS, OVER PEOPLE, EQUIPMENT OR BUILDINGS. KEEP A SAFE DISTANCE BETWEEN LOADED SHEAR AND EXCAVATOR CAB.**

Place the load gently. Do not throw or drop the contents of the shear.

Operate the controls smoothly and gradually. Jerky controls are hazardous and may cause excavator damage.

**USE THE SHEAR ONLY AS DESCRIBED IN THIS MANUAL. DO NOT USE THE SHEAR TO LIFT AND MOVE OTHER OBJECTS. DOING SO MAY CAUSE INSTABILITY AND TIPPING.**
ATTACHMENT MARKINGS

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

XP Shear Markings

Model Number (GXP 200-2500)
Logo
Serial Number
Viewing Distance
INSTALLATION

Shear Installation

Preparation prior to delivery will make installation of the shear safer and easier. Contact Genesis or your Genesis dealer for assistance.

Dual-Pump Flow

**Tips for achieving dual-pump flow:** Typically, an excavator has two hydraulic pumps supplying oil to the main valves of the excavator. The main valves usually are separated into two halves. Tying two circuits from opposite sides of the valve is called summating – basically achieving dual-pump flow to operate one system. This is the preferred method of achieving maximum speed to a shear. This may also be achieved by interchanging the stick and bucket circuits.

Usually a bucket circuit is single-pump flow and a stick circuit is dual-pump flow. At times, adding an auxiliary circuit spool to the stick circuit helps to reduce back-pressure in the system and speed up jaw open and close.

In certain cases, the bucket and auxiliary circuits can be summated to achieve dual-pump flow, depending on whether the bucket and auxiliary are on separate sides of the main valve and whether the auxiliary circuit can be proportionally controlled by teeing into the bucket pilot control circuit. The auxiliary circuit must also be capable of proportionally controlling pump initiation on the auxiliary side of the circuit. On many excavators, the auxiliary circuit is controlled by percentage of flow set in the computer. These may not control the speed that the pump’s compensator strokes up, but turn the circuit instantly on or off. Because shears take all the flow the pumps can give them, the computer signals the pump to instantly turn on or off, instead of gradually ramping up or down, which can cause sharp, damaging spikes in the hydraulic circuit.

**Installation Procedure**

Note: The shear is usually shipped in an upright position. Extreme care must be used when inverting the shear for installation.

**WARNING**

**REMOVING ANY CONNECTING PIN MAY BE HAZARDOUS. TO REMOVE A CONNECTING PIN, POSITION THE SHEAR ON THE GROUND AND PROPERLY SUPPORT.**

**PARTICLES MAY FLY WHEN A PIN IS STRUCK. USE A DRIFT PIN OR MALLET WHEN STRIKING PINS. KEEP ALL PERSONNEL AT A SAFE DISTANCE.**

Remove bucket or other stick attachments, following the excavator OEM’s removal and safety instructions.
Shear Installation (cont.)

Installation Procedure

Position the shear upside down on flat, solid ground. NOTE: Blocking may be required to raise the mounting bracket into proper position.

Track the excavator to the shear with the jaws facing the operator. Lift the excavator stick over the shear, carefully positioning the stick tip connection with the shear mounting main pivot bore. Pin the excavator stick to the shear.

Slowly raise the boom to lift the shear, allowing the shear cylinder pivot connection to come within range of the excavator cylinder stroke.

Extend the excavator cylinder until the power link bore lines up with the shear cylinder pivot connection. Pin excavator cylinder to the shear.

Crowd and extend shear, checking closely to make sure there is no interference between shear bracket and hard lines. Also check for interference between cylinder and boom/stick.

Install excavator hydraulic hoses, supply and return, from the stick tip to the shear manifold blocks.

The stick and bucket circuits are oriented as to rod and bore sides of their respective cylinders. When you connect a circuit to the shear, take care to connect rod-to-rod and bore-to-bore. When these are reversed, extra pressure is needed to open the jaw, which pulls down the engine, destrokes the pumps, increases jaw cycle time, creates high oil temperatures and burns more fuel.

Shear must be vertical before putting oil into it, or an air lock in the regen valve may prevent the jaw from opening.

**WARNING**

BE SURE HYDRAULIC PRESSURE IS RELIEVED BEFORE DISCONNECTING HYDRAULIC FITTINGS. REMOVE NECESSARY FITTINGS SLOWLY.
INSTALLATION

Rotator Installation

The rotator requires a case-drain line (1/2" for second-member mount, 3/4" for third-member mount) with a minimum working pressure rating of 250 PSI. Run the case-drain line from the rotation head of the shear to a dedicated filter on the excavator, plumbed directly into the tank. **DO NOT PLUMB CASE-DRAIN INTO MAIN RETURN SYSTEM.**

The maximum case-drain pressure measured at the motor while attempting to rotate with the shear stalled on the ground is 80 PSI for a gear motor and 40 PSI for an axial piston motor. Gerotor type motors require no case drain. If you are unsure of your motor type, contact the Genesis parts department with the serial number of your shear. Case-drain pressures will rise during cold weather operation.

Use the correct fittings. Secure the case-drain line to the excavator stick.

**Rotation Motor Options**

Gear motors are the standard motor for shear models GXP 400 and larger. This is the preferred motor for processing applications where the shear is usually working vertically, such as scrap yards and demolition sites with material on the ground. These motors may slowly drift or rotate in material handling applications.

Piston motors are used in overhead demolition and material handling applications that require fine control and solid load holding capabilities. These motors are more expensive and require additional plumbing, but are advantageous in load holding applications.

Gerotor motors are used in shear models designated as “direct drive” rotation systems, models GXP 200 and 300.

All styles of motor are plumbed with crossover relief valves in the rotation circuit to prevent damage to the rotation system components caused from overloading or external forces applied to the shear. Under these circumstances, the operator needs to be aware the shear will rotate until the load is decreased to the crossover relief valve settings.
The rotator requires an additional hydraulic circuit. One of the several available options has been supplied with the shear. These diagrams show the installation of the additional circuit. Refer to the Hydraulic/Rotation Maintenance section of this manual for valve descriptions, functions and settings.

**Foot Switch Installation**

Install the foot switch in the excavator and connect with electrical harness. Consult excavator dealer when using an alternate to the Genesis-supplied foot switch.

- White Normal Open
- Black Normal Open
- (A) Black; (B) Green; (C) White
- Green To Ground
- Red
- 2 Amp Fuse
- 24 Volt

Motor Case Drain
WARNING: Do not exceed 80 PSI while operating Gear Type Motor (40 PSI for Piston Type Motor)

Rotate Return: to return filter, then to tank. Use minimum 1/2" 2000 PSI rated hose.

Case Drain to Filter*

Rotator Installation (cont.)

*Note: Do not connect filter to any other return circuits, only to hydraulic tank.
Rotator Installation (cont.)

Rotation Circuit - Control Valve in Shear

Motor Case Drain
- WARNING: Do not exceed 80 PSI while operating Gear Type Motor
- (40 PSI for Piston Type Motor)

Rotate Return: to return filter, then to tank. Use minimum 1/2” 2000 PSI rated hose.

*Note: Do not connect filter to any other return circuits, only to hydraulic tank.
Rotator Installation (cont.)

**Rotation Circuit - Gear Pump Type**

**Gear Type Motor**

- **Hydraulic Gear Motor**
- **Motion Control Valve**
- **Foot Switch (or Joystick)**
- **Rotation Valve**: 3-position, tandem-center, spring-centered, with anti-cavitation checks. Relief valve setting: 2000 PSI (mounted on excavator)
- **Rotate Return**: To return filter then to tank. Use min. 1/2” 2000 PSI rated hose
- **Case Drain**: to case filter then to tank.* Use min. 1/2” 200 PSI rated hose
- **Dedicated Filter to Tank**
- **Gear Pump required**

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**Rotation Circuit - Gear Pump Type**

**Piston Type Motor**

- **Hydraulic Piston Motor**
- **Motion Control Valve**
- **Rotation Valve**: 3-position, tandem-center, spring-centered, with anti-cavitation checks. Relief valve setting: 2000 PSI (mounted on excavator)
- **Rotate Return**: To return filter then to tank. Use min. 1/2” 2000 PSI rated hose
- **Case Drain**: to case filter then to tank.* Use min. 1/2” 200 PSI rated hose
- **Dedicated Filter to Tank**
- **Gear Pump required**

*Note on both Gear and Piston Type motors: Do not connect filter to any other return circuits, only to hydraulic tank.*
Rotator Installation (cont.)

Rotation Circuit - Auxiliary Valve on Machine

*Gear Type Motor*

**Motor Case Drain**
WARNING: Do not exceed 80 PSI while operating

**Motion Control Valve**

**Hydraulic Motor**

**INSIDE UPPER HEAD**

**Flow Control**

**Rotate Work Lines:** Use 1/2" 3000 PSI rated hose

**Rotate Valve:** Closed-center, 3-position, spring-center, with anti-cavitation checks. Relief valve setting: 2000 PSI (mounted on excavator)

**Case Drain:** to Case Filter then to tank.* Use min. 1/2" 200 PSI rated hose

---

**Rotation Circuit - Auxiliary Valve on Machine**

*Piston Type Motor*

**Motor Case Drain**
WARNING: Do not exceed 40 PSI while operating

**Motion Control Valve**

**Hydraulic Motor**

**INSIDE UPPER HEAD**

**Flow Control**

**Rotate Work Lines:** Use 1/2" 3000 PSI rated hose

**Rotate Valve:** Closed-center, 3-position, spring-center, with anti-cavitation checks. Relief valve setting: 2000 PSI (mounted on excavator)

*If valve is not equipped with anti-cavitation, please refer to Anti-cavitation Check Valve Kit diagram and requirements, page 22.*

**Case Drain:** to Case Filter then to tank.* Use min. 1/2" 200 PSI rated hose

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*Note on both Gear and Piston Type motors: Do not connect filter to any other return circuits, only to hydraulic tank.*
Rotation Circuit - Piston Type Motors

Anti-cavitation Check Valve Kit (Part #5410014)

Charge Line: Connect to swing motor charge line on machine

Flow out to motor

Flow in from machine

If located in rotator head, plumb to motion control valve

If located on base machine, plumb to rotate ports on shear rotator head

If located in rotator head, plumb to flow controls

If located on base machine, plumb to rotate valve
Genesis shears are designed to operate under full excavator pressure or up to 5000 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 warm-up of 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.

Slowly fill the rod end of the shear cylinder to open the jaws. **Note: Do not fully extend or retract shear cylinder with the first cycles.** 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.

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

General Operation instructions

FOLLOW ALL RULES AND PROCEDURES OUTLINED IN THE OPERATION SAFETY SECTION UNDER GENERAL SAFETY IN THIS MANUAL.

Use the shear only as intended, in approved applications, as set forth in this manual.

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

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

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 get material jammed between the blades.

When operating in temperatures below freezing, it is also important to process light materials first. This allows the shear’s structural material to “warm up,” preventing thermal cracking.

Efficient and Productive Operation

Operators should become accustomed to performing work in the most proficient manner possible.

When cutting, build up and cut out of small piles, keeping the surfaces of the shear chin plate and upper jaw out of the dirt as much as possible. Dirt is much more abrasive than steel and needlessly increases build-up and hardsurfacing time and intervals.

It also helps to give yourself enough room to keep out of the way of other personnel and machines. Material should be picked from a pile and swung to the side and cut in a new area. This prevents redundant cutting of the same pieces and allows for the newly prepared material to be loaded out with another material handling machine.

Material processing areas should be as close as safely possible to the location for loading materials for transportation. Less time spent processing, loading and transporting materials greatly affects operational costs and productivity and dramatically reduces man hours, fuel costs and wear on equipment.

Operators should develop the habit of assessing materials to be processed and visualizing a starting and finishing point to use the fewest cuts possible. Excessive moving, positioning and handling cost time and money. Bringing the jaws to full open, when only partial jaw open is needed for a cut, wastes time and fuel and slows other excavator functions as well as causing needless wear to hydraulic components, hoses and o-rings. More efficient processing will extend the life of the attachment.
OPERATION

Common Operational Concerns

When cutting larger materials, shear 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 is often the deciding factor when cutting larger materials.

The shear 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 tips and guide blades or between 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 tip 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 tips 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 tip moves into this space, as it will be wedged between the piercing tip 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 shear’s hydraulic cylinder piston, you only have half the force on jaw open compared to jaw close.
MAINTENANCE

Maintenance Safety

ONLY TRAINED AND AUTHORIZED PERSONS SHOULD PERFORM MAINTENANCE ON THE SHEAR. 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 SHEAR. 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 SHEAR 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 A SHEAR WITHOUT THE CASE-DRAIN LINE PROPERLY INSTALLED, IF THE SHEAR USES A ROTATION SYSTEM THAT REQUIRES CASE DRAIN. DOING SO WILL CAUSE IMMEDIATE FAILURE OF THE ROTATE MOTOR AND GEARBOX.

DO NOT WORK ON THE SHEAR 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.
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.

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.

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.

![Warning Symbol]

Grade 8
Class 10.9

DO NOT SUBSTITUTE
MAINTENANCE

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. Change gearbox lube after first 50 hours of operation.

Extreme operating conditions may require shortened maintenance intervals.

Scheduled Maintenance

- Replace slewing ring bolts every 2000 hours.
- Check gearbox lube every 250 hours. Change annually.
- Replace regeneration valve components every 4000 hours.
- Reseal cylinder every 4000 hours.
- Reseal swivel every 4000 hours.

See following page for daily maintenance.
Maintenance Schedule (cont.)

Four-Hour Checklist

Mid-shift, perform a brief visual check for hydraulic leaks, damage to blades, 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
- Rotation bearing (four locations)
- Rotation head (two locations)

(Grease all locations until grease extrusion is visible)

Jaws and blades:
- Check blade gap*
- Check blade edge radius*
- Check for loose or damaged bolts, retorquing loose bolts when cool
- Check AutoGuide and shim if needed
- Build-up and hardsurface as required

*See blade maintenance information in this manual regarding maximum gap and radius for your specific shear model.
MAINTENANCE

Grease Maintenance

![DANGER]

**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. Bracket pivot
2. Bracket cylinder
3. Shear cylinder butt
4. Shear cylinder rod
5. Main shaft/pivot (both sides)
6. Rotation bearing (four locations)
7. Rotation head (two locations)
8. AutoGuide
9. AutoGuide contact surface on upper jaw

Shear cylinder, AutoGuide and pivot should be greased at lunch time and at the end of a shift, while the shear is warm. Bracket and rotation should be greased at the end of a shift.
Genesis typically uses dry torque measurements, but there are exceptions, such as piercing tip bolts, which are lubricated. Such exceptions are indicated in this manual.

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

Never retorque bolts that use Loctite. After initial use, when Loctite was applied and bolt was torqued, if the bolt becomes loose or damaged, it 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

<table>
<thead>
<tr>
<th>Fastener Grade</th>
<th>Size x Pitch</th>
<th>Nm</th>
<th>Ft-lb</th>
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<tbody>
<tr>
<td><strong>CL 10.9</strong></td>
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<tr>
<td>M8 x 1.25</td>
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<td>27</td>
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<td>M10 x 1.50</td>
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<td>M20 x 2.50</td>
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<td>M24 x 3.00</td>
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<td>1545</td>
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<td><strong>8</strong></td>
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<tr>
<td>1/2-13</td>
<td>145</td>
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</tr>
<tr>
<td>7/8-9</td>
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<td>1.50-6</td>
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<td>1.00-8</td>
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<tr>
<td><strong>9</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1.25-7</td>
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### Wet Torque Values

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<th>Fastener Grade</th>
<th>Size x Pitch</th>
<th>Nm</th>
<th>Ft-lb</th>
</tr>
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<tbody>
<tr>
<td><strong>CL 10.9</strong></td>
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</tr>
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</tr>
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<td>M27 x 3.00</td>
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<td>850</td>
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<tr>
<td>3/4-10</td>
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<td>7/8-9</td>
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<td>455</td>
<td></td>
</tr>
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<td>1.00-8</td>
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<td>675</td>
<td></td>
</tr>
<tr>
<td>1.25-7</td>
<td>1847</td>
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</tr>
<tr>
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<tr>
<td>1.50-12</td>
<td>4067</td>
<td>3000</td>
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Grease or anti-seize on threads and under bolt threads.
### Bolt Torque Specifications

Visual Reference for Blade Bolt Torque

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>200</th>
<th>300-400</th>
<th>500-1500</th>
<th>2500</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Tip blade bolts, lubricated</td>
<td>282 Ft-lbs (383 Nm)</td>
<td>675 Ft-lbs (916 Nm)</td>
<td>1362 Ft-lbs (1847 Nm)</td>
<td>1362 Ft-lbs (1847 Nm)</td>
</tr>
<tr>
<td>B</td>
<td>Cutting blade bolts</td>
<td>376 Ft-lbs (510 Nm)</td>
<td>606 Ft-lbs (822 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
<td>3160 Ft-lbs (4280 Nm)</td>
</tr>
<tr>
<td>C</td>
<td>Guide blade bolts</td>
<td>376 Ft-lbs (510 Nm)</td>
<td>606 Ft-lbs (822 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
<td>3160 Ft-lbs (4280 Nm)</td>
</tr>
<tr>
<td>D</td>
<td>Razor blade bolts</td>
<td>376 Ft-lbs (510 Nm)</td>
<td>606 Ft-lbs (822 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
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</tbody>
</table>
## MAINTENANCE

### Bolt Torque Specifications
Visual Reference for Rotation and Pivot Bolt Torque

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>200</th>
<th>300</th>
<th>400-660</th>
<th>700-1000</th>
<th>1200-1500</th>
<th>2500</th>
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<tbody>
<tr>
<td>A</td>
<td>AutoGuide/Puck</td>
<td>N/A</td>
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<td>900 Ft-lbs (1220 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
<td>900 Ft-lbs (1220 Nm)</td>
<td>3160 Ft-lbs (4280 Nm)</td>
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<tr>
<td>B</td>
<td>Tie Rod</td>
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<td>92 Ft-lbs (125 Nm)</td>
<td>92 Ft-lbs (125 Nm)</td>
<td>92 Ft-lbs (125 Nm)</td>
<td>230 Ft-lbs (313 Nm)</td>
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<tr>
<td>C</td>
<td>End Cap</td>
<td>1545 Ft-lbs (2095 Nm)</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>778 Ft-lbs (1055 Nm)</td>
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<tr>
<td>D</td>
<td>Rotation Bearing</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>450 Ft-lbs (610 Nm)</td>
<td>1138 Ft-lbs (1543 Nm)</td>
<td>1545 Ft-lbs (2095 Nm)</td>
<td>1817 Ft-lbs (2464 Nm)</td>
<td>3160 Ft-lbs (4280 Nm)</td>
</tr>
</tbody>
</table>
BLADE MAINTENANCE

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

1. AutoGuide - shim to tolerance and replace when shims exceed .100”.

2. Piercing Blades - replace when edges are worn.

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

4. Upper and Lower 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 Hardfacing - build up and hardsurface as needed.

Blade Bolts

Torque blade bolts every eight hours, to the specifications listed in this manual. **CHECK FOR BROKEN BOLTS DAILY AND REPLACE THEM IMMEDIATELY.**

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 .005” to .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.

Note: The GXP 200 does not have a puck, as this model is designed to maintain jaw alignment and resist side-loads without this feature.
**BLADE MAINTENANCE**

**AutoGuide**

**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.

**Piercing Blades**

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

Use the following procedure to check for wear.

Slowly close jaws until the piercing blades are flush with the top edge of the razor blade.

Check gap with a tape measure. Acceptable gap is 5/8”.

Check the condition of the piercing blades with a straight edge or square.

Check the profile along the blades.

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.

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 based on hours of operation.

Width of blades, top to bottom, may taper .060” (2mm) total. Bottom edges may be worn to a maximum radius of 3/16”.

---

Width of blades, top to bottom, may taper .060” (2mm) total. Bottom edges may be worn to a maximum radius of 3/16”.

---
SHEAR JAW SET MAINTENANCE

PIERCING BLADES

Piercing tips must fit tightly in some areas while having clearance in others. Piercing tips 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 (clearance). Piercing tip contact with the clearance areas (red)
will cause abnormal stresses to the blade and will cause the piercing tips and/or guide blades to
shatter.

It is critical that the piercing tip pocket and tang surfaces are straight and true, without dings,
deformations, high or low spots or areas that are worn away. 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. Red areas of piercing tip blades may occasionally need to be ground down to provide clearance.

Piercing tip 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 tip bolt holes and the bolt holes in the tang
can cause the piercing tips to break through the bolt holes. When
installing the piercing tips, 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 tips. This can cause the tips to break
as it tries 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 Genesis Parts or Service
Departments for further instructions.
Piercing Blades (cont.)

Replacement Procedure

1. Remove blades using an air-impact 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.

5. Snug lubricated blade bolts by hand to hold them in place; push blades up-and-in to 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 .002” to .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 .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.

PIERCING TIP BOLTS MUST BE LUBRICATED AND TORQUED AS SPECIFIED BELOW. CORRECT CLAMPING FORCE IS REQUIRED TO KEEP TIPS FROM MOVING ON THEIR SEATS. OVER-TIGHTENING CAN CAUSE BOLT SHANKS TO STRETCH, THUS LOSING THEIR CLAMPING FORCE. LOOSE BOLTS WILL CAUSE THE SEATING AREAS TO ERODE.

<table>
<thead>
<tr>
<th>Model</th>
<th>Wet Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>282 Ft-lbs (383 Nm)</td>
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<tr>
<td>300/400</td>
<td>675 Ft-lbs (916 Nm)</td>
</tr>
<tr>
<td>500-2500</td>
<td>1362 Ft-lbs (1847 Nm)</td>
</tr>
</tbody>
</table>
BLADE MAINTENANCE

Guide Blades

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

Rotate the guide blades when worn to a 1/8" (3 mm) radius. Replace the guide blade when more than .075" (2 mm) of shims are required to keep blade gap within the tolerances listed on the following table.

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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>200/300/400</td>
<td>.010&quot;</td>
<td>.020&quot;</td>
</tr>
<tr>
<td>500/660/700/1000</td>
<td>.015&quot;</td>
<td>.025&quot;</td>
</tr>
<tr>
<td>990/1200/1500</td>
<td>.020&quot;</td>
<td>.030&quot;</td>
</tr>
<tr>
<td>2500</td>
<td>.030&quot;</td>
<td>.040&quot;</td>
</tr>
</tbody>
</table>

Guide Blade Shimming

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

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

To install shims, loosen blade bolts and slide shims between the guide blade and guide blade seat. Retorque bolts and recheck the gap.
Guide Blades (cont.)

Guide Blade 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.

Guide Blade Replacement

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

Guide Blade Adjustment Plates

Do not remove the guide blade adjustment plate 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 up adjustment plate 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 are aligned with the corresponding holes in the blade seat.

Do not grind on blade seat areas.
BLADE MAINTENANCE

Cutting Edges

Proper maintenance of the cutting edges is required for optimal performance of the shear. 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. Retorque 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.

Blade 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.
Cutting Edges (cont.)

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

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

Do not grind on blade seat areas.

Blade Rotation

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

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

<table>
<thead>
<tr>
<th>40-80 Hours</th>
<th>Date</th>
<th>Hour Meter</th>
<th>Performed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotation 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotation 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotation 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cutting Edges (cont.)

Blade Gap

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>200/300</td>
<td>.005&quot;</td>
<td>.015&quot;</td>
</tr>
<tr>
<td>400/500/660/700/1000</td>
<td>.010&quot;</td>
<td>.020&quot;</td>
</tr>
<tr>
<td>990/1200/1500</td>
<td>.015&quot;</td>
<td>.025&quot;</td>
</tr>
<tr>
<td>2500</td>
<td>.020&quot;</td>
<td>.030&quot;</td>
</tr>
</tbody>
</table>

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

Shimming Procedure

Loosen blade bolts.

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

Torque bolts to spec and recheck tolerances.

Do not use more than 0.060" of shims.
BLADE MAINTENANCE

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 gap between razor blade and piercing blades. If gap exceeds 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 damage to threads and holes. Replace set screws when lost or damaged.
**SHEAR JAW MAINTENANCE**

**General Welding Guidelines**

Build-up and hardsurfacing 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. Hardsurfacing 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 hardsurfacing 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 onboard 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, cylinder, swivel, motor, gearbox or slewing ring.

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 hardsurfacing.
- Preheat area to 350°F (177°C). Maintain this temperature throughout the procedure. Do not exceed 450° 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.
**SHEAR JAW MAINTENANCE**

**Build-Up**

Procedure:

Follow the General Welding Guidelines and Rules.

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 .010" lower than blade height. These areas protect the bottom unused edges of the blades as well as reducing 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 faces of blades 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.
SHEAR JAW MAINTENANCE

Hardsurfacing

Do not apply hardsurfacing directly to the parent material, as this could cause toe cracking and the hardsurfacing 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 hardsurface. Do not apply more than two layers of hardsurfacing. Peen each pass.

Grind the ends of all stringer welds, with the grain to taper 1” to 1-1/2” (31-38mm) to the parent material.

See following page for hardsurfacing illustrations and instructions specific to each area of the jaws.
SHEAR JAW MAINTENANCE
Hardsurfacing 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 model of the shear.

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 model of the shear.

Lower Jaw Chin
Crosshatch the chin plate with stringer beads at 45˚ angles to form 1” squares.
HYDRAULIC/ROTATION MAINTENANCE

Hydraulic Requirements

Operating the shear below the recommended flow and/or pressure range will adversely affect performance and may cause damage to rotate motor.

Operating the shear above the recommended flow and/or pressure range may cause damage to the shear and its hydraulic components.

OPERATING ABOVE RECOMMENDED FLOW AND/OR PRESSURE MAY CREATE A DANGEROUS SITUATION.

Rotation Valve

Rotation Valve Input

For cooler and more efficient hydraulic system operation, set the input pressure as indicated on the chart. However, a rotation circuit rated for 2000-2500 PSI would be fine.

The maximum case drain measured at the shear while rotating and cycling the jaws must never exceed 80 PSI, or 40 PSI for axial piston motors (part number 6300549). Pressure increases during cold-weather operation.

Rotation Valve Settings

When checking the cross-over relief valve settings, put pressure gauges on both diagnostic ports. Stall shear rotation in clockwise direction. Increase supply pressure until pressure at gauge on crossover stops rising. This is the crossover relief setting. Increase supply pressure to achieve approved crossover relief value. Repeat procedure in counter-clockwise direction. Then lower supply pressure back to approved value.
Your regeneration valve features a GenFlow adjustment cartridge to control the timing of the shift between speed and power modes. When the cartridge is properly set, the shear closes rapidly until it begins to cut. The valve shifts, slowing jaw close and increasing power. You may hear a squeal or hiss as this happens. The valve shifts back into speed mode after the cut is complete.

The cartridge is factory-set, turned out approximately seven turns. This setting is appropriate for most applications. However, the cartridge may be custom-set if necessary.

**Regeneration Valve Adjustment**

Check the cycle time when the hydraulic fluid is warmed up, timing from full open to full closed and back to full open.

To shift into power mode sooner, turn adjustment cartridge out (counter-clockwise). To shift into power mode later, turn in (clockwise).

Genesis uses regeneration valves from two sources, IFP and Fauver, to ensure constant availability for production. The adjustment cartridge on IFP valve is on the side of the block next to the hose connections; on the Fauver valve, the adjustment cartridge is on the side opposite the hoses.

**SHUT OFF EXCAVATOR AND DISABLE HYDRAULICS PER OEM INSTRUCTIONS BEFORE ADJUSTING THE CARTRIDGE.**

There are two methods of setting the regeneration adjustment cartridge; both procedures follow.
Regeneration Valve Adjustment Procedure #1

The first method requires a hydraulic gauge with a range up to 6000 PSI or higher, with the capability to record the maximum pressure achieved.

1. With excavator at idle speed, open shear jaw to full open then start closing jaw slowly, about 12 inches from full open.
2. Shut down excavator, bleed down all excavator circuits, and remove cap on hydraulic tank.
3. Remove cylinder access cover carefully as it is heavy.
4. On Fauver valves, slowly remove the plug marked GR from the top of the block and install the gauge. (On IFP valves, slowly remove the plug marked GB from the front of the clock and install the gauge.)
5. Install fill cap on excavator hydraulic tank.
6. Start excavator and run at idle speed.
7. Zero out gauge.
8. Insert material in the jaws to test cut. This must be heavy enough for the shear to shift into the 'power mode.'
9. If you are not operating the shear, maintain a safe distance of at least 75 ft. from the operating shear.
10. Close jaw all the way and record the gauge reading. This reading should be approximately 1200 - 1500 PSI.

If reading is low, gradually turn adjustment cartridge in (clockwise) with a 5mm allen wrench.

If reading is high, back out adjustment cartridge gradually (turning counter-clockwise). Open jaw 3/4 of the way open. Close jaw half-way. Repeat steps 7 - 10 (above) in order. Repeat until reading is between 1200 - 1500 PSI. Tighten jam nut on adjustment cartridge and repeat procedure several times to assure setting hasn’t changed.

Regeneration Valve Adjustment Procedure #2

The second method requires two people.

THE GROUND CREW MUST BE IN FULL VIEW OF THE OPERATOR AT ALL TIMES AND MUST STAND CLEAR OF THE SHEAR JAWS WHEN CYCLING.

- Shut down excavator, bleed down all excavator circuits, and remove cap on hydraulic tank.
- Remove cylinder access cover carefully as it is heavy.
- Loosen the lock nut with a 17mm socket.
- Turn cartridge 180° (half-turn) with a 5mm allenhead socket.
- Tighten lock nut.
- Check the cycle time.

Repeat until the preferred balance of speed and power is met. Final adjustment may require less than half-turn.

GenFlow Regeneration Valve (cont.)

WARNING

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- Check the cycle time.

Repeat until the preferred balance of speed and power is met. Final adjustment may require less than half-turn.
How Regeneration Works

Jaw Close in Regeneration: Oil that would normally leave the rod end of the cylinder and return to tank is diverted back to the bore end of the cylinder, increasing flow by approximately 50 percent and speeding up jaw close. During this process, oil pressure on both rod and bore sides of the cylinder piston are basically equal and, although this speeds up the cylinder extent speed, it also makes the cylinder fight itself. If left in this mode, cylinder power is greatly reduced.

Jaw Close in Power Mode: To counteract this, when the upper jaw hits the material, the pressure rises. Once pressure exceeds adjustment cartridge settings, it then shifts the rod oil back to excavator hydraulic tank instead of the bore end of cylinder. Pressure in the rod also drops, allowing full force from the bore pressure to be applied to the upper jaw for full cutting.

Jaw Open: Oil goes to rod end of cylinder and bore oil goes back to tank.
GenFlow Regeneration Valve (cont.)

Valve 6300830 (IFP)

Check valve 6380011
External seal kit SK00023
Torque to 454-486 ft-lbs
Directs oil into rod from excavator while retracting; blocks oil path between rod and tank at all times.

Logic valve 6300623
External seal kit 6300624
Torque to 454-486 ft-lbs
Directs oil from rod to tank in power mode; blocks oil path from rod to tank in speed mode.

Pilot check valve 6300061
External seal kit SK00024
Torque to 454-486 ft-lbs
Directs oil from rod to bore in speed mode; blocks oil path from rod and bore in power mode.

Pressure reducing valve 6300625
External seal kit 6300622
Torque to 31-35 ft-lbs
Shifts between speed and power modes.

Caterpillar D ring 6300638

Bleed down orifice
If plugged, jaw will drift closed.
HYDRAULIC/ROTATION
MAINTENANCE

Slewing Ring

Visually check slewing ring (rotation bearing) bolts every eight hours of operation and replace every 2000 hours. Do not reuse or retorque these bolts. **IMMEDIATELY REPLACE A LOOSE OR BROKEN BOLTS, AND REPLACE THE BOLTS ON EITHER SIDE OF IT.** Apply Loctite to the bolt threads and under the bolt head per Loctite instructions. **IF YOU HAVE QUESTIONS, PLEASE CONTACT THE FACTORY.**

**DANGER**

THE BOLTS THAT SECURE THE SLEWING RING ARE CRITICAL TO SAFE OPERATION OF THE SHEAR. IMPROPER BOLT TORQUES MAY CAUSE THE BOLTS TO FAIL AND ALLOW THE SHEAR TO BREAK FREE. THIS MAY RESULT IN SERIOUS PERSONAL INJURY AND DAMAGE TO EQUIPMENT. IMPROPER TORQUES WILL ALSO CAUSE UNEVEN WEAR ON THE SLEWING RING.

Rotating components must be greased daily. Grease fittings are located on the outside of the slewing ring and on the inside of the rotating head assembly. Grease locations are marked with decals.

**DANGER**

**STAND CLEAR WHEN THE SHEAR IS BEING ROTATED. ALWAYS STAY IN CLEAR VIEW OF THE OPERATOR.**

Grease each fitting. Rotate the shear two full rotations after greasing each fitting.

For normal conditions above 32°F (0°C), use a lithium-based, premium grade 2 extreme pressure grease. For temperatures below 32°F, a grade 0 grease is recommended.
Proper lubrication is critical to ensure performance and long life of the gearbox. Change gearbox lubricant after the initial 50 hours of operation. Check gearbox lubricant every 250 hours. See table for recommended grades and lubricant change-out schedule based on climate.

### Gearbox Lube Change-out Procedure

Position shear so gearbox is level (horizontal) at a convenient working height.

Remove rotator access cover and place an oil drain pan under gearbox drain plug.

Remove bottom drain plug and top fill plug.

Once drained, replace bottom drain plug.

Add appropriate amount of gearbox lubricant through fill plug. See table for fill capacities. Do not overfill.

Replace fill and inspection plugs. Reinstall access cover.

Properly dispose of used lubricant.

Gearbox oil level should be 1 1/4” to 1 1/2” below fill plug with gearbox positioned vertically.

<table>
<thead>
<tr>
<th>Low Temp.</th>
<th>Grade</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>5˚F (-15˚C)</td>
<td>SAE 80W-90W</td>
<td>500 hours or annually</td>
</tr>
<tr>
<td>-50˚F (-45˚C)</td>
<td>Synthetic ISO 150</td>
<td>1000 hours or two years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Ounces</th>
<th>Milliliters</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-660</td>
<td>32</td>
<td>950</td>
</tr>
<tr>
<td>700-2500</td>
<td>68</td>
<td>2010</td>
</tr>
</tbody>
</table>
HYDRAULIC/ROTATION MAINTENANCE

Rotation Circuit

To meet diverse customer needs, Genesis offers several rotation valve options. They vary in mounting, function, factory-supplied and customer-supplied parts, and operating advantages. For information on each type of rotation circuit, see the chart below and information on the following pages.

Valves are factory-set and should not need adjustment. If you believe adjustment is necessary, contact the Genesis Service Department. Unauthorized valve adjustment may void warranty.

All rotation circuits use the same procedure for setting flow:

Rotate shear, timing one complete revolution.

Adjust corresponding flow control until revolution time is 14-16 seconds.

Repeat in opposite direction.

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Auxiliary Valve</th>
<th>Gear Pump</th>
<th>Accumulator Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td>Crossover relief on shear; valve on excavator or shear</td>
<td>Crossover relief on shear; valve on excavator</td>
<td>On shear</td>
</tr>
<tr>
<td>Function</td>
<td>Mounted on excavator, directional control valve gets oil from excavator hydraulic system to control rotation. Mounted on shear, it gets oil from port blocks.</td>
<td>Dedicated oil from gear pump supplies rotation directional control valve on excavator.</td>
<td>Oil from jaw open/close circuit charges accumulator; shear rotates when accumulator is electrically actuated</td>
</tr>
<tr>
<td>Factory Supplied</td>
<td>Crossover relief protection; rotation speed control *Note: Input flow &amp; pressure should not exceed 12 GPM and 2500 PSI</td>
<td>Crossover relief protection; rotation speed control; foot switch and wire harness</td>
<td>Accumulator; crossover relief protection; rotation speed control; directional control valve; foot switch and wire harness</td>
</tr>
<tr>
<td>Customer Supplied</td>
<td>Rotation circuit with directional control from excavator; case drain</td>
<td>Gear pump; case drain; must install wiring</td>
<td>Case drain; return line; must install wiring</td>
</tr>
<tr>
<td>Advantage</td>
<td>Allows shear to open/close and rotate simultaneously when mounted on excavator</td>
<td>Allows shear to open/close and rotate simultaneously</td>
<td>Lower installation cost; easier move to other excavators</td>
</tr>
<tr>
<td>Disadvantage</td>
<td>If directional valve is mounted on shear, it receives flow only from shear ports</td>
<td></td>
<td>Limited rotation due to accumulator capacity</td>
</tr>
</tbody>
</table>

Note: Genesis does not recommend using the excavator bucket circuit for rotation circuit directional control.
Rotation with Crossover Relief Valve

Setting the crossover reliefs:

1. Increase supply pressure to the rotation valve to 2500 PSI.
2. Install pressure gauges on relief test ports.
3. Plug hoses at motor or secure the shear from rotating.
4. Pressurize the valve to rotate.
5. Adjust the corresponding relief valve to the pressure specified in the table for rotation valve settings on page 45.
6. Repeat for the other direction.
7. Reduce supply pressure to the pressure-reducer valve setting specified on the table for rotation valve settings.

Rotation with Motion Control Valve

Follow steps 1-6 above to set the crossover reliefs.

If you cannot reach the pressure specified in the rotation valve settings table, adjust the counterbalance valves using the following procedure:

Turn crossover relief valve adjustment screws clockwise to their maximum setting, recording the number of turns so that they can later be returned to their original setting.

Adjust the counterbalance valves by turning the adjustment screws counter-clockwise until the correct setting of 2500 PSI is reached.

Repeat steps 6 and 7 for setting the crossover reliefs.
Rotation Circuit (cont.)

Flow Divider Rotation

Setting the crossover reliefs:

1. Install a pressure gauge on the unloading valve, unplug the wires to the directional valve, and energize the valve on the unloading valve.

2. Adjust the unloading valve to 2500 PSI.

3. Reconnect the wires to the directional valve.

4. Plug hoses at motor or secure the shear from rotating.

5. Press the switch to rotate left or right.

6. Adjust the corresponding relief valve to the pressure specified in the table on page 45.

7. Repeat for the other direction.

8. Set the unloading valve before operating.

Setting the counterbalance valve (if equipped with a motion control valve): follow the procedure on page 54.

Setting the unloading valve:

1. Install a pressure gauge on the unloading valve, unplug the wires to the directional valve and press the switch to rotate left or right.

2. Adjust the unloading valve to the pressure specified in the table on page 45.

3. Plug the wires back into the directional valve.
Setting the crossover reliefs:

1. Install pressure gauges on the G1 and G2 ports of the control valve assembly.

2. Disconnect hoses from motor; plug ports A and B on the control valve.

3. Close jaws and hold full pressure to close.

4. Energize the circuit to rotate the shear.

5. Measure pressure at G1 and G2 ports; subtract low number from high number.

6. Release pressure and adjust the corresponding relief valve, if needed, to achieve correct relief pressure.

7. Repeat steps 3-6 to reach correct setting.

8. Repeat procedure in the other direction for the other relief valve.


Setting the counterbalance valve (if equipped with a motion control valve): follow the procedure on page 54.

Setting the pressure reducer:

1. Install a pressure gauge on the P3 port of the control valve assembly.

2. Close jaws and hold full pressure to close.

3. Measure the pressure at the P3 gauge.

4. Release pressure; if measured pressure is not 3000 PSI, adjust reducer and repeat procedure until 3000 PSI is achieved.
Gear Pump Rotation

Setting the crossover reliefs:

1. Increase supply pressure to the rotation valve to 2500 PSI.
2. Install pressure gauges on relief test ports.
3. Plug hoses at motor or secure the shear from rotating.
4. Pressurize the valve to rotate.
5. Adjust the corresponding relief valve to the pressure specified in the table for rotation valve settings on page 45.
6. Repeat for the other direction.
7. Reduce supply pressure to the pressure-reducer valve setting specified on the table for rotation valve settings.
## TROUBLE-SHOOTING GUIDE

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Causes/Solutions</th>
</tr>
</thead>
</table>
| Low power                 | Check pressures and back pressure at port blocks on shear  
Isolate shear from excavator and check excavator pressures at boom tip  
Shear may be partially stuck in regen mode; follow adjustment procedure in this manual  
If speed is good with low power, internal seals on logix cartridge may be need to be replaced  
Possible cylinder, swivel or regen bypass (contact Genesis service department for procedures) |
| Slow jaw open with low power | Pilot check valves may have worn or damaged seals  
Check flows from excavator  
Check regen relief valve adjustment if shear is new  
Adjustment cartridge may have damaged seals or may be stuck open  
Regen check valve or logix valve may have damaged seals or may be stuck open |
| Slow jaw close             | Good speed but shear stalls before cutting  
Regen adjustment cartridge is turned in too far, not shifting out of regen mode  
Jaw drifts closed or can be pushed closed  
Bleed down orifice may be plugged  
Pilot check valves may be leaking  
Directional valve on excavator may be leaking  
Jaw closes suddenly and will not open  
Ball valve may be closed on excavator  
Pilot check valves may be contaminated  
Excavator spool may be stuck  
If shear has quick-coupled hydraulics, they may be partially disconnected or damaged  
Hydraulics chatter while cutting  
Tighten regen adjustment cartridge in 1/4 turns and recheck speed  
Chattering may indicate a material jam  
Jaw bounces back after hitting excavator relief on jaw open  
Bleed down orifice plugged  
Logix cartridge needs to be replaced  
Loud bang when shifting to speed mode  
Broken spring or poppet in logix cartridge  
Hydraulic system overheating  
Check hydraulic system oil level for low or overfull condition  
Ensure clear path for hydraulic cooler-radiator and A/C condenser; clean coolers and radiator with compressed air and then pressure wash  
Check with excavator dealer on whether a hot weather package needs to be installed on the excavator. Note oil temperatures coming out of the shear can run as high as 230 to 240 degrees Fahrenheit.  

# TROUBLE-SHOOTING GUIDE

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Causes/Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Cutting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material is beyond shear appetite range</td>
</tr>
<tr>
<td></td>
<td>Material is harder than mild steel</td>
</tr>
<tr>
<td></td>
<td>Blades are worn beyond 1/8” radius - rotate or replace</td>
</tr>
<tr>
<td></td>
<td>Blade gaps are too wide for thin material</td>
</tr>
<tr>
<td></td>
<td>Blade protection strips are too high, causing jaw deflection and excessive blade gaps</td>
</tr>
<tr>
<td></td>
<td>Piercing tips are worn and need to be squared up or replaced</td>
</tr>
<tr>
<td></td>
<td>Too much end play in pivot group - shim to 0.002” to 0.005”</td>
</tr>
<tr>
<td></td>
<td>Wear in main bearings causing jaw deflection and inconsistent blade gaps</td>
</tr>
<tr>
<td></td>
<td>Pressures from excavator too low - check at shear port blocks</td>
</tr>
<tr>
<td></td>
<td>Shear not kicking out of regeneration or kicking out at too high a pressure range - see Regeneration Valve section of manual</td>
</tr>
<tr>
<td></td>
<td>Shear swivel or cylinder is bypassing - contact Genesis Service Department for procedures to check for bypass</td>
</tr>
<tr>
<td>Poor Piercing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piercing tips are worn and need to be squared up or replaced</td>
</tr>
<tr>
<td></td>
<td>Guide blades are worn - rotate or replace</td>
</tr>
<tr>
<td></td>
<td>Excessive or insufficient gaps at piercing tip and guide blades - shim to specs given in Guide Blade section of manual</td>
</tr>
<tr>
<td>Material Jamming</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excessive blade gaps - shim to specs given in Cutting Blade section of manual</td>
</tr>
<tr>
<td></td>
<td>Worn blades - rotate or replace</td>
</tr>
<tr>
<td></td>
<td>Excessive or insufficient gaps at piercing tip and guide blades - shim to specs given in Guide Blade section of manual</td>
</tr>
<tr>
<td></td>
<td>Thin material may be wrapping around blades - fold material or draw a larger amount of material into jaws</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Causes/Solutions</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Does not rotate</td>
<td>Blown fuse</td>
</tr>
<tr>
<td></td>
<td>Test for 24V at plugs on directional valve while depressing foot switch</td>
</tr>
<tr>
<td></td>
<td>Incorrect pressure settings; reset</td>
</tr>
<tr>
<td>Does not rotate in one direction</td>
<td>No electrical power to one side; test for 24V at plugs on directional valve while depressing foot switch</td>
</tr>
<tr>
<td></td>
<td>Check if directional control valve shifts both ways while actuating foot switch in both directions</td>
</tr>
<tr>
<td>Rotator chatters</td>
<td>Electrical short; back out flow controls</td>
</tr>
<tr>
<td></td>
<td>Pressure settings too high; reset</td>
</tr>
<tr>
<td></td>
<td>Power to both rotation solenoids at the same time; test for 24V at plugs on directional valve while depressing foot switch</td>
</tr>
<tr>
<td>Rotates faster in one direction</td>
<td>One flow control cartridge set higher than the other; reset</td>
</tr>
<tr>
<td>Rotates too fast or too slow</td>
<td>Flow control out of adjustment; reset</td>
</tr>
<tr>
<td>Rotation speed changed from original setting</td>
<td>Jam nut loosened on rotation valve</td>
</tr>
<tr>
<td></td>
<td>Faulty cartridge (contamination)</td>
</tr>
<tr>
<td></td>
<td>Faulty directional control valve</td>
</tr>
<tr>
<td></td>
<td>Pressure set too low; reset</td>
</tr>
</tbody>
</table>
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.

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 necessary forms.

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

Please direct any questions to the Genesis Service Department: 715-395-5252.
PARTS ORDER POLICY, PROCEDURE, AND WARRANTY

ORDER PLACEMENT

Parts orders should include the following:

• 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

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

Part numbers are listed in the parts section of this manual. Contact the Genesis Parts Department with questions regarding part numbers, availability and pricing.

PARTS POLICY

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.

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.

Unused Genesis parts may be returned with proper documentation. Return shipping is the responsibility of the purchasing party. 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 return goods authorization number and form.

PARTS WARRANTY

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.

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 from broken blades such as blade seats, the piercing tip tang or adjustment plates.

You can contact the Genesis Parts Department if you have any questions:

Toll Free: 888-SHEAR-IT (743-2748)
Phone: 715-395-5252
Fax: 715-395-3411
Email: genesisparts@paladinbrands.com
PARTS ORDER FORM

Customer: ___________________________  Contact: ___________________________

Phone: ___________________________  Fax: ___________________________

Shipping Address: ___________________________

Billing Address: ___________________________

Purchase Order: ___________________________

Shipping Method: ___________________________

Model: ___________________________

Serial Number: ___________________________

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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</thead>
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</tbody>
</table>

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

The following pages contain illustrations and parts lists for GXP mobile shears. These photos and generalized drawings identify major components and may not be identical in fine detail to a particular shear.

The parts lists included here are intended to aid in shear operation and maintenance. Part numbers listed are those currently used. These may differ from the part numbers of the components originally installed in your shear. To ensure use of the correct internal components, always indicate your shear’s serial number when ordering parts.

If further information is required, contact the Genesis Parts Department for a breakdown and parts list specific to your shear model and serial number.
PARTS LISTS
Non-Rotating Bracket

Item | Description
--- | ---
1 | Bracket
2 | Cylinder Pin
3 | Spacer Sleeves
4 | Pin Keeper
5 | Strap
6 | Bolt (hex head capscrew)
7 | Lock Washer
8 | Boom Bearings
9 | Grease Fitting
10 | Bolt (hex head capscrew)
11 | Flat Washer
12 | Port Block Assembly

Custom parts. Call Genesis Parts Department for part numbers specific to your serial number, if needed.
### Rotating Bracket / Upper Head

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
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<td>1</td>
<td>Upper Head</td>
</tr>
<tr>
<td>2</td>
<td>Cylinder Pin</td>
</tr>
<tr>
<td>3</td>
<td>Spacer Sleeves</td>
</tr>
<tr>
<td>4</td>
<td>Pin Keeper</td>
</tr>
<tr>
<td>5</td>
<td>Strap</td>
</tr>
<tr>
<td>6</td>
<td>Bolt (hex head capscrew)</td>
</tr>
<tr>
<td>7</td>
<td>Lock Washer</td>
</tr>
<tr>
<td>8</td>
<td>Grease Fitting</td>
</tr>
<tr>
<td>9</td>
<td>Boom Bearings</td>
</tr>
<tr>
<td>10</td>
<td>Machine Bearings, where used</td>
</tr>
<tr>
<td>11</td>
<td>Inspection/Access Cover</td>
</tr>
<tr>
<td>12</td>
<td>Bolt (hex head capscrew)</td>
</tr>
<tr>
<td>13</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>14</td>
<td>Port Block Assembly</td>
</tr>
</tbody>
</table>

Custom parts. Call Genesis Parts Department for part numbers specific to your serial number, if needed.
### PARTS LISTS

**Third-Member Mount / Upper Head**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upper Head</td>
</tr>
<tr>
<td>2</td>
<td>Stick Pin</td>
</tr>
<tr>
<td>3</td>
<td>Spacer Sleeves, where used</td>
</tr>
<tr>
<td>4</td>
<td>Pin Keeper</td>
</tr>
<tr>
<td>5</td>
<td>Strap</td>
</tr>
<tr>
<td>6</td>
<td>Bolt (hex head capscrew)</td>
</tr>
<tr>
<td>7</td>
<td>Lock Washer</td>
</tr>
<tr>
<td>8</td>
<td>Port Block Assembly</td>
</tr>
<tr>
<td>9</td>
<td>Bearings and/or Spacer Sleeves, where used</td>
</tr>
<tr>
<td>10</td>
<td>Cylinder Link Pin</td>
</tr>
<tr>
<td>11</td>
<td>Inspection/Access Cover</td>
</tr>
<tr>
<td>12</td>
<td>Bolt (hex head capscrew)</td>
</tr>
<tr>
<td>13</td>
<td>Flat Washer</td>
</tr>
</tbody>
</table>

Custom parts. Call Genesis Parts Department for part numbers specific to your serial number, if needed.
### PARTS LISTS

**Blades and Wear Parts**

**Single Guide Blade Shears**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>200</th>
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<th>500</th>
<th>700</th>
<th>1000</th>
<th>1500</th>
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<td>1103536</td>
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<td>1103104</td>
<td>1103104</td>
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<tr>
<td>2</td>
<td>Lower Blades</td>
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<td>1103537</td>
<td>1103104</td>
<td>1103116</td>
<td>1103117</td>
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<tr>
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<td>RH Tip Blade</td>
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<td>1102832</td>
<td>1102832</td>
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<tr>
<td>4</td>
<td>LH Tip Blade</td>
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</table>

Replace adjustment plates when lost, damaged or extremely worn.
# PARTS LISTS

## Blades and Wear Parts

### Dual Guide Blade Shears

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<th>500/660</th>
<th>700</th>
<th>990</th>
<th>1000</th>
<th>1200/1500</th>
<th>2500</th>
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<tr>
<td>1</td>
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<td>RH Tip Blade</td>
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</table>

Replace adjustment plates when lost, damaged or extremely worn.

1 also on opposite side of upper jaw
## PARTS LISTS

**Pivot Group and AutoGuide**

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>200</th>
<th>300/400</th>
<th>500/660/700/1000</th>
<th>990</th>
<th>1200/1500</th>
<th>2500</th>
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70 Genesis GXP Mobile Shear
## PARTS LISTS
### Cylinder Assembly

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<th>Qty</th>
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<th>400</th>
<th>500</th>
<th>660/700</th>
<th>990/1000</th>
<th>1200</th>
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*Genesis uses regeneration valves from two sources, IFP and Fauver, to ensure constant availability for production. For more information on these interchangeable valves, see pages 46-50.*
## PARTS LISTS

### Rotation Drive System

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<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<th>400/500/660</th>
<th>700/990/1000</th>
<th>1200/1500</th>
<th>2500</th>
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<td>F0127130 (60)</td>
<td>F0130150 (71)</td>
<td>F0213700 (80)</td>
<td>F0215900 (76)</td>
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* Torque Arm, Sub-component of Swivel Assembly
** Torque Arm Stop, Sub-component of Swivel Assembly
**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, such as those that would also commonly be used for maintaining an excavator.

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<tr>
<th>Part Number</th>
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<tr>
<td>6900001</td>
<td>Service tool kit - includes part numbers 6900002 through 6900024</td>
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<td>1-1/2&quot; 12-point socket, 1&quot; drive</td>
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<td>6900003</td>
<td>1-5/16&quot; 12-point socket, 1&quot; drive</td>
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<td>6900004</td>
<td>5/8&quot; impact hex bit socket, 3/4&quot; drive</td>
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<td>6900005</td>
<td>3/4&quot; impact hex bit socket, 3/4&quot; drive</td>
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<tr>
<td>6900006</td>
<td>3/4&quot; drive female to 1&quot; drive male adapter</td>
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<tr>
<td>6900007</td>
<td>1-1/4&quot; combo wrench</td>
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<tr>
<td>6900008</td>
<td>Jet needle scaler</td>
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<tr>
<td>6900009</td>
<td>17mm socket, 3/4&quot; drive, metric impact</td>
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<td>Torque multiplier, 2000 ft/lb</td>
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<td>3/4&quot; drive torque wrench, 600 ft/lb</td>
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<td>26&quot; male/female ratchet, 1&quot; drive</td>
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<td>6900024</td>
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