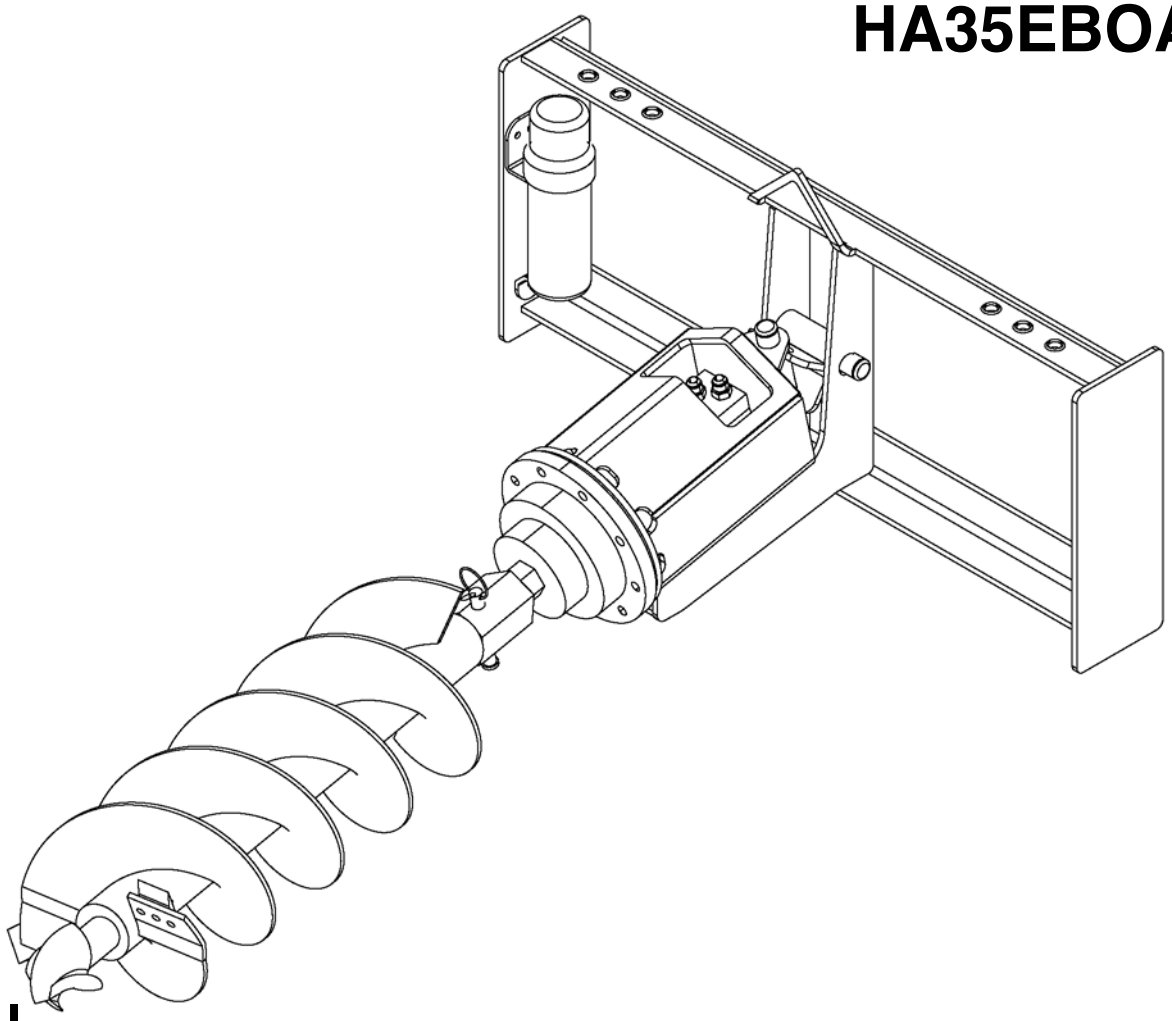
ALITEC™

HYDRAULIC AUGER

HA15E, HA20E, HA30E, HA35E
HA15EBOA, HA20EBOA, HA30EBOA
HA35EBOA



OPERATOR'S MANUAL

MAN0532

(Rev. 6/1/2017)

WOODS®

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Woods® dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the online Product Registration form at the Woods Dealer Website which certifies that all Dealer Check List items have been completed. Dealers can register all Woods product at dealer.WoodsConstruction.net under Product Registration.

Failure to register the product does not diminish customer's warranty rights.

TO THE OWNER:

Read this manual before operating your Woods equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-848-3447.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Woods dealer has trained mechanics, genuine Woods service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Woods service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ **Date of Purchase:** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **NOTICE** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION, WARNING,** and **DANGER** are used in conjunction with the Safety-Alert Symbol (a triangle with an exclamation mark) to indicate the degree of hazard for items of personal safety.

⚠	This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ **DANGER**	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
⚠ **WARNING**	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
⚠ **CAUTION**	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
IMPORTANT or ***NOTICE***	Is used to address practices not related to physical injury.
NOTE	Indicates helpful information.

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WOODS®

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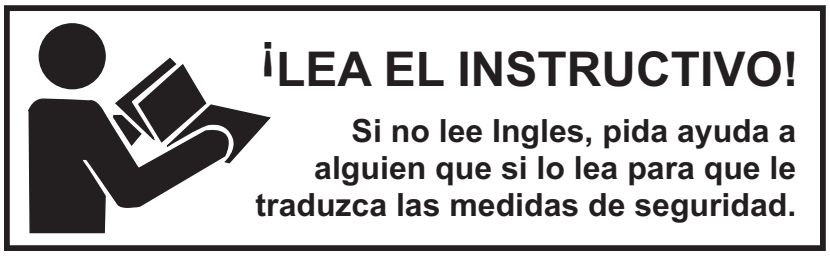
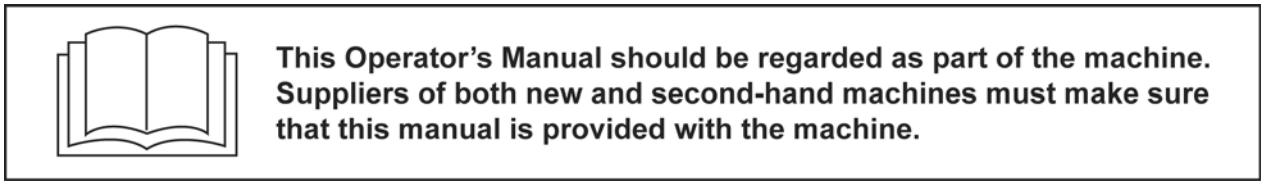




SPECIFICATIONS

Specifications	HA15E HA15EBOA	HA20E HA20EBOA	HA30E HA30EBOA	HA35E HA35EBOA
Drive	2" Hex	2" Hex	2" Hex	2" Hex
RPM @ 15 gpm (56.8 lpm)	76 rpm	49 rpm	N/A	N/A
RPM @ 20 gpm (75.7 lpm)	102 rpm	66 rpm	N/A	N/A
RPM @ 25 gpm (94.6 lpm)	126 rpm	85 rpm	N/A	N/A
RPM @ 30 gpm (114 lpm)	N/A	99 rpm	92 rpm	N/A
RPM @ 35 gpm (132.5 lpm)	N/A	N/A	109 rpm	107 rpm
RPM @ 40 gpm (151.4 lpm)	N/A	N/A	123 rpm	124 rpm
RPM @ 45 gpm (170.3 lpm)	N/A	N/A	N/A	138 rpm
Pressure	1000 - 3500 psi 69 - 241 bar	1000 - 3500 psi 69 - 241 bar	1000 - 5000 psi 69 - 345 bar	1000 - 5000 psi 69 - 345 bar
Torque	7300 - 25500 lbs-in 825 - 2880 N-m	11200 - 39000 lbs-in 1265 - 4406 N-M	11995 - 59975 lbs-in 1355 - 6776 N-M	14854 - 74268 lbs-in 1678 - 8391 N-M
Bit Length	54 in. (137.2 cm)			
Bit Diameter	6, 9, 12, 18, 24, 30 in 15, 23, 31, 46, 61, 76, 91 cm			

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your auger. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing but, due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

Throughout this manual, references are made to right and left directions. These are determined by standing behind the equipment facing the direction of forward travel. Bit rotation is clockwise as viewed from the top of the auger towards the bit.

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

It has been said, "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

INSTALLATION

■ **Hydraulics must be connected as instructed in this manual. Do not substitute parts, modify, or connect in any other way.**

■ **After connecting hoses, check that all control lever positions function as instructed in the Operator's Manual. Do not put into service until control lever and equipment movements are correct.**

TRAINING

■ **Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from your dealer.) Failure to follow instructions or safety rules can result in serious injury or death.**

■ **If you do not understand any part of this manual and need assistance, see your dealer.**

■ **Know your controls and how to stop engine and attachment quickly in an emergency.**

■ **Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.**

■ **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**

■ **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

■ **Never allow children or untrained persons to operate equipment.**

PREPARATION

■ **Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.**

■ **Counterweight ballast may be required for machine stability. Check your power unit manual or contact your dealer.**

■ **Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

■ **After connecting hoses, check that all control lever positions function as instructed in the Operator's Manual. Do not put into service until control lever and equipment movements are correct.**

■ **Protective hose sleeves must cover all hydraulic hoses within 20 inches of the operator and be secured onto metal hose fittings. Replace hoses or sleeves if damaged or if protective sleeve cannot be properly positioned or secured.**

■ **Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**

■ **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

(Safety Rules continued on next page)

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

■ **Be sure attachment is properly secured, adjusted, and in good operating condition. Coupler lockpins must be fully extended and properly engaged into attachment retaining slots.**

■ **Power unit must be equipped with ROPS and seat belt/operator restraint. Keep seat belt/operator restraint securely fastened/engaged. Falling off power unit can result in death from being run over or crushed. Keep ROPS systems in place at all times.**

■ **Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

■ **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**

■ **Before drilling, check to make sure that you will not drill into wires or other objects.**

OPERATION

■ **Improper operation can cause the machine to tip or roll over and cause injury or death.**

- **Keep power unit lift arms and attachment as low as possible.**
- **Do not travel or turn with power unit lift arms and attachment raised.**
- **Turn only on level ground.**
- **Go up and down slopes, not across them.**
- **Keep the heavy end of the machine uphill.**
- **Do not overload the machine.**

■ **Never use attachment to carry loads that exceed the rated operating capacity or other specifications of the power unit. Check your power unit manual or see your dealer for rated operating capacity. Exceeding this capacity can cause machine to tip, roll over, or present other hazards that can cause injury or death.**

■ **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**

■ **Consult local utilities before digging. Know location and depth of all underground cables, pipelines, and other hazards in working area and avoid contact.**

■ **Contact with high voltage, overhead power lines, underground cables, gas lines, and other hazards can cause serious injury or death from electrocution, explosion, or fire.**

■ **Keep bystanders away from equipment.**

■ **Do not operate or transport equipment while under the influence of alcohol or drugs.**

■ **Operate only in daylight or good artificial light.**

■ **Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.**

■ **Always comply with all state and local lighting and marking requirements.**

■ **Do not allow riders. Do not lift or carry anybody on the power unit or attachments.**

■ **Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt/operator restraint, place transmission in park or neutral, engage brake and ensure all other controls are disengaged before starting power unit engine.**

■ **When digging holes, always sit in operator seat.**

■ **Keep digger under control by running drive motor at slowest speed possible (no faster than half-throttle).**

■ **Look down and to the rear and make sure area is clear before operating in reverse.**

■ **Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.**

■ **Do not operate or transport on steep slopes.**

■ **Do not stop, start, or change directions suddenly on slopes.**

■ **Use extreme care and reduce ground speed on slopes and rough terrain.**

■ **Watch for hidden hazards on the terrain during operation.**

■ **Stop power unit and implement immediately upon striking an obstruction. Dismount power unit, using proper procedure. Inspect and repair any damage before resuming operation.**

■ **Never aim auger point with hands on auger, gearbox, or boom. To place auger point use skid steer arms.**

TRANSPORTATION

■ **Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.**

(Safety Rules continued on next page)

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

■ **Reduce transport speed to avoid bouncing and brief loss of steering control.**

■ **Always comply with all state and local lighting and marking requirements.**

■ **Never allow riders on power unit or attachment.**

■ **Turn off power to unit before transporting.**

■ **Do not operate or transport on steep slopes.**

■ **Do not operate or transport equipment while under the influence of alcohol or drugs.**

MAINTENANCE

■ **Before leaving operator's seat, lower lift arms and put attachment on the ground. Engage brake, stop engine, remove key, and remove seat belt.**

■ **Before performing any service or maintenance, lower digger to ground or block securely, turn off skid steer engine, remove key, and disconnect hydraulic lines from skid steer.**

■ **NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**

- **Service work does not require going underneath.**
- **Read Operator's Manual for service instructions or have service performed by a qualified dealer.**

■ **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**

■ **Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.**

■ **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

■ **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**

■ **Be sure attachment is properly secured, adjusted, and in good operating condition. Coupler lockpins must be fully extended and properly engaged into attachment retaining slots.**

■ **Never perform service or maintenance with engine running.**

■ **Keep all persons away from operator control area while performing adjustments, service, or maintenance.**

■ **Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.**

■ **Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

■ **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**

■ **Do not disconnect hydraulic lines until all system pressure is relieved. Lower unit to ground, stop engine, and operate all hydraulic control levers.**

STORAGE

■ **Follow manual instructions for storage.**

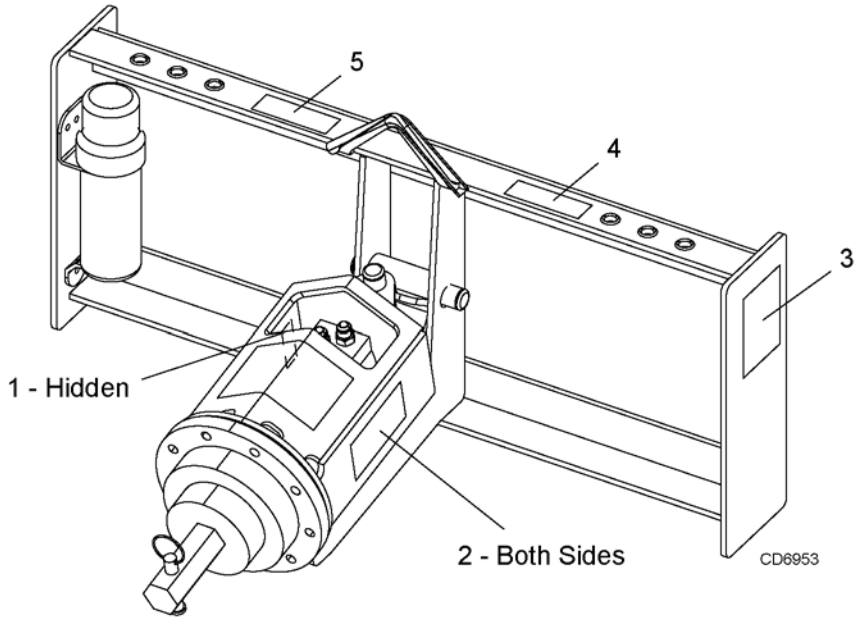
■ **Keep children and bystanders away from storage area.**

SAFETY & INSTRUCTIONAL DECALS

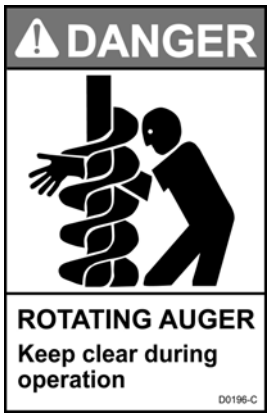
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

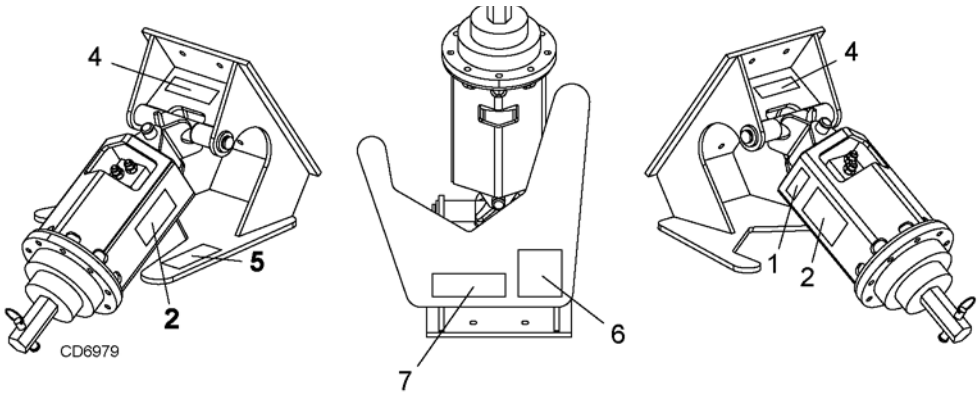
Replace Immediately If Damaged!

1 - Serial Number Plate



2 - PN D0196





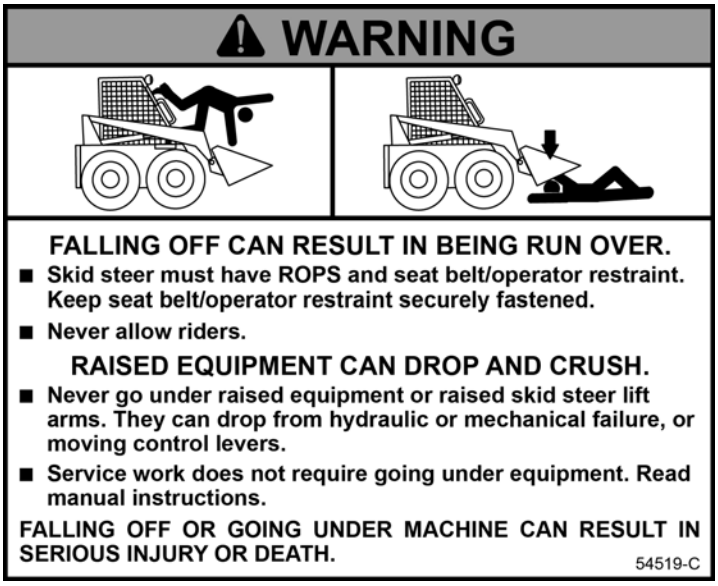
3 - PN 54519

BE CAREFUL!

Use a clean, damp cloth to clean safety decals.

Avoid spraying too close to decals when using a pressure washer; high-pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.

Replacement safety decals can be ordered free from your Woods dealer, or in the United States and Canada call 1-800-319-6637.



SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

4 - D0404

WARNING

D0404-D

TO AVOID SERIOUS INJURY OR DEATH:

- Read attachment and power unit manuals before you use, service, or repair machine. Follow all safety rules and instructions. (Manuals can be obtained from your dealer, or in the United States and Canada call 1-800-319-6637.)
- Use only when sitting in operator's seat with seat belt/ operator restraint fastened.
- Before leaving operator's seat, follow power unit manual instructions, lower lift arms and attachment to ground, stop engine, remove key, engage brake, and remove seat belt/ operator restraint.
- Never let children or untrained persons run equipment.

5 - PN 19924

19924-C

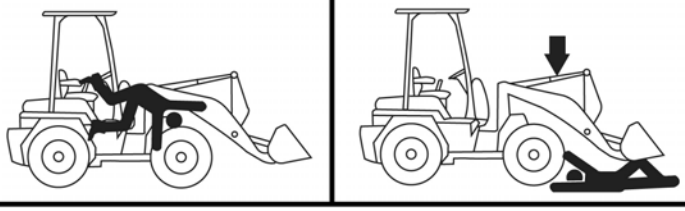
WARNING

HIGH-PRESSURE HYDRAULIC OIL LEAKS CAN PENETRATE SKIN RESULTING IN SERIOUS INJURY, GANGRENE OR DEATH.

- Check for leaks with cardboard; never use hand.
- Before loosening fittings: lower load, release pressure, and be sure oil is cool.
- Consult physician immediately if skin penetration occurs.

6 - PN 46424

WARNING



FALLING OFF CAN RESULT IN BEING RUN OVER.

- Prime mover must have ROPS and seat belt/operator restraint. Keep seat belt/operator restraint securely fastened.
- Never allow riders.

RAISED EQUIPMENT CAN DROP AND CRUSH.

- Never go under raised equipment or raised prime mover lift arms, which can drop from hydraulic leak down, hydraulic system failures, movement of control levers, or mechanical linkage failures.
- Service work does not require going under equipment. Read manual instructions.

FALLING OFF OR GOING UNDER EQUIPMENT CAN RESULT IN SERIOUS INJURY OR DEATH.

46424-A

7 - PN D0440

NOTICE

DO NOT OVERCURL ATTACHMENT. OVERCURLING MAY CAUSE DAMAGE TO HOST MACHINE OR ATTACHMENT.

D0440-C

OPERATION

The operator is responsible for the safe operation of the equipment. The operator must be properly trained. Operators should be familiar with the equipment, the tractor, and all safety practices before starting operation. Read the safety rules and safety decal instructions on page 5 through page 9.

Augers are designed for one-man operation. You must always dig holes while sitting in the operator's seat. **It is the responsibility of the operator to see that no one else is within twenty-five feet (25') of the digger when it is operating.** Accidents have occurred when more than one person is in the immediate area of the operating equipment. Be sure no one else is near you when you operate this product.

⚠ DANGER

■ **Do not put digger into service unless all shields and guards are in place and in good condition. Replace if damaged.**

⚠ WARNING

■ **Never aim auger point with hands on auger, gearbox, or boom. To place auger point use skid steer arms.**

■ **Do not shovel dirt away from a running auger. The shovel could be caught and thrown by auger.**

■ **Consult local utilities before working. Know location of all underground cables, pipelines, overhead wires, and other hazards in working area and avoid contact.**

■ **Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.**

■ **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**

■ **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

■ **Do not put digger into service unless auger point and all cutting edges are intact and in good repair.**

■ **Keep bystanders away from equipment.**

⚠ CAUTION

■ **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

■ **Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.**

■ **When digging holes, always sit in operator seat.**

PREPARATION

Thoroughly read and understand your Operator's Manuals.

Before beginning operation, clear area of objects that wrap around the auger or might be thrown.

Contact local utility companies to make certain there are no buried gas lines, electrical cables, etc., in the work area.

Check for ditches, stumps, holes, or other obstacles that could cause the power unit to roll.

ATTACHING AUGER TO SKID STEER

1. Place the coupler latch handles in the unlocked position (Figure 1). The latch handles must be pulled to the UP position and the pins retracted.

Figure 1. Coupler Latches - Unlocked Position

2. Rotate the skid steer attach slightly forward.
3. Fully lower the lift arms.

4. Pull forward to the auger. Be sure the outside of the skid steer attachment coupler (1) is aligned with the inside of the auger mounting adapter plate (2) as shown in Figure 2.

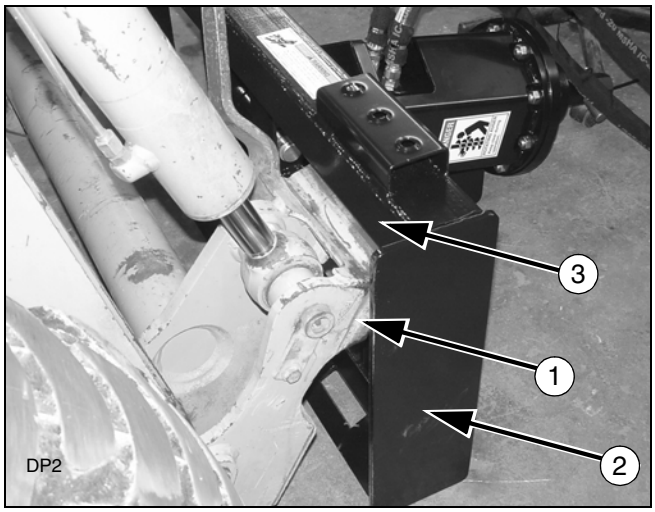


Figure 2. Skid Steer to Auger Connection

5. Continue to pull forward until the skid steer attachment coupler makes contact with the auger.
6. Raise the skid steer arms until the top of the skid steer attachment coupler contacts the top latch bar (3) on the auger mounting adapter plate.
7. Roll the skid steer arms back until the auger is completely off the ground.
8. Engage the parking brake on the skid steer.
9. Stop the engine.
10. Relieve the back pressure in the hydraulic system.
11. Exit the skid steer.
12. Move the coupler pins to the engaged position.

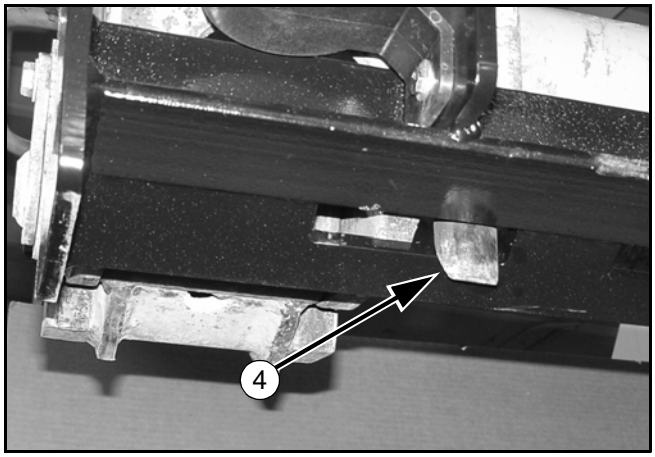


Figure 3. Coupler Pin Fully Engaged

13. Make sure the coupler pins (4) are fully engaged into the auger mounting adapter plate as shown in Figure 3.
14. Hook up the auxiliary hydraulic hoses. Be sure the hoses are routed to prevent hose interference.

ATTACH AUGER TO BACKHOE

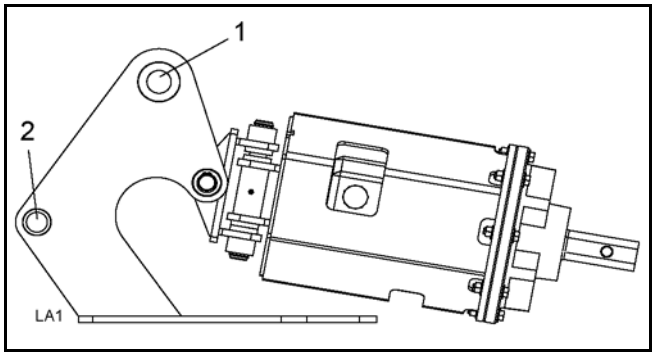


Figure 4. Attach Auger

1. Position the auger as shown in Figure 4.
2. Move the dipper stick of the backhoe so the primary pin bore on the dipper stick is aligned with the primary pin bore (1) on the auger.
3. Insert and secure the primary pin.
4. Activate the curl function until the curl pin bore is aligned with the curl pin bore (2) on the auger.
5. Insert and secure the curl pin.

NOTICE

■ **Do not over curl attachment. Over curling may cause damage to host machine or attachment.**

OPERATING TECHNIQUE

The auger is a hydraulically powered attachment intended to drill in soil. The performance of the auger can vary greatly depending on the skid steer, the soil conditions, and the bit size. The following operating procedure will help to ensure the best results.

NOTICE

■ **If the auger should become stuck, stop the auxiliary hydraulic flow. Reverse the flow and slowly lift the auger out of the hole and continue digging.**

■ **It may be necessary to adjust the position of the power unit while operating auger to maintain a vertical digging position.**

1. **Skid Steer:** Raise the skid steer arms and roll the attach frame forward. For proper operation the attach frame should be rolled far enough forward so the auger head does not rest against the cradle. **Backhoe:** Extend the dipper arms and curl the backplate outward. For proper operation the attach frame should be rolled far enough forward so the auger head does not rest against the cradle.

2. Position the auger bit over the desired hole location.

3. Lower the auger to the ground so the tip of the auger just penetrates the ground.

4. Bring the skid steer to high idle and activate the auxiliary hydraulics.

5. Be sure the auger is operating in a clockwise direction.

6. Lower the skid steer arms to apply downward pressure to the auger.

7. If the auger stalls or slows down excessively, reduce the downward pressure by raising the skid steer arms.

8. Continue to lower the auger until a depth of approximately 24 inches is reached.

9. Raise the auger to clean the hole of debris and lower the auger again.

10. Continue digging, repeating step 9 as needed until the desired depth is reached.

11. Once the desired depth is reached, allow the auger to run a few seconds to clean the hole of debris.

12. Shut off the auxiliary hydraulics and raise the auger out of the hole.

13. **Skid Steer:** Lower the skid steer arms while rotating the backplate backward.
Backhoe: Retract the dipper and curl the backplate inward.

TRANSPORT

The post hole digger auger is free-swinging, and care should be taken while transporting the machine.

Be sure auger is completely retracted from the hole before attempting to move the skid steer.

Pay close attention to the Safety Messages regarding transport. Avoid unnecessary injuries and equipment damage by exercising cautious, conscientious travel procedures.

1. Roll the skid steer arms or backhoe dipper completely back and be sure the auger is resting in the cradle.

2. Lower the auger so the bit is 10 to 15 inches from the ground.

3. Avoid excessive ground speed and sudden maneuvers.

STORAGE

1. Store the auger inside when possible. If this is not possible, store the auger on a pallet. Make sure the auger is stored off the ground to protect the couplers and hoses.

2. Cap the quick disconnects to prevent contamination.

PRE-OPERATION CHECKLIST

(OWNER RESPONSIBILITY)

___ Review and follow all safety rules and safety decal instructions on page 5 through page 9.

___ Check that all safety decals are installed and in good condition. Replace if damaged.

___ Check that all shields and guards are properly installed and in good condition. Replace if damaged.

___ Check that equipment is properly and securely attached to skid steer.

___ Check that all hardware and cotter pins are properly installed and secured.

___ Check and keep all bystanders away from equipment working area.

___ Check all lubrication points and grease as instructed in Lubrication Information on page 13.

___ Check that all hydraulic hoses and fittings are in good condition and not leaking before starting tractor. Check that hoses are not twisted, bent sharply, kinked, frayed or pulled tight. Replace any damaged hoses immediately.

___ Consult local utilities before digging. Know location of and avoid contacting all underground cables, pipelines, overhead wires and other hazards in digging area.

___ Check that auger point and all cutting edges are intact and in good repair.

OWNER SERVICE

The information in this section is written for operators who possess basic mechanical skills. If you need help, your dealer has trained service technicians available. For your protection, read and follow all safety information in this manual.

⚠ WARNING

■ **NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**

- **Service work does not require going underneath.**
- **Read Operator's Manual for service instructions or have service performed by a qualified dealer.**

■ **Keep all persons away from operator control area while performing adjustments, service, or maintenance.**

■ **Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.**

■ **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**

■ **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result. CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.**

ROUTINE MAINTENANCE

1. Check that all bolts, nuts, and screws are tight. Checking the bolts and nuts on the cutting blades is particularly important in rocky soil.
2. Check the level of the gearbox oil daily and top-off at the correct level. Check for gearbox oil leaks. It should be noted that no warranty claim can be submitted on a gearbox that has run dry. It is essential that the gearbox is kept correctly filled with gearbox oil.
3. Check the wear on the cutting blades. Sharpen them routinely with an angle grinder or replace when worn down too far. Keep at least two sets of cutting blades, bolts, and nuts as spares.

LUBRICATION INFORMATION

Replace the gearbox oil after the first 50 hours of operation. Thereafter, change the gearbox oil every year or 1000 hours of operation, whichever comes first. Use only API 80W90 GL5 gear oil.

1. Position the auger so the head is oriented in a vertical position with the auger shaft pointing downward.
2. Remove the lower drain plug from the gearbox with a 3/16" allen wrench as shown in Figure 5.

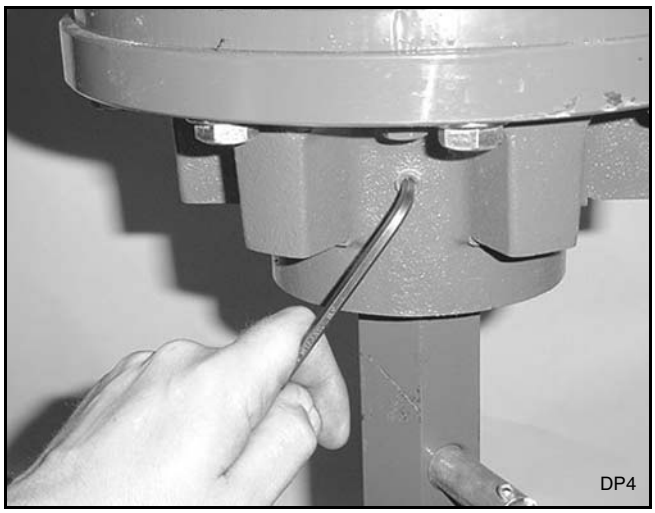


Figure 5. Remove Drain Plug

3. Drain the oil from the gearbox into a suitable receptacle.
4. Replace the drain plug.
5. Insert a 3/8" drive socket into the access hole in the back of the chassis and remove the top filler plug as shown in Figure 6.

Figure 6. Fill Plug Access

6. Add the required amount (31 oz) of oil to the gearbox for HA15E/HA20E or (47 oz) of oil to the gearbox for HA30E/HA35E.
7. Replace the oil fill plug.

CUTTING EDGE REPLACEMENT

Replacing Auger Teeth

Check the auger teeth daily for wear or damage. Replace any worn or damaged teeth immediately to prevent damage to the mounting bolts, nuts or auger flighting. To increase the life of the cutting teeth, rotate the outer tooth on one side with the inner tooth on the other side.

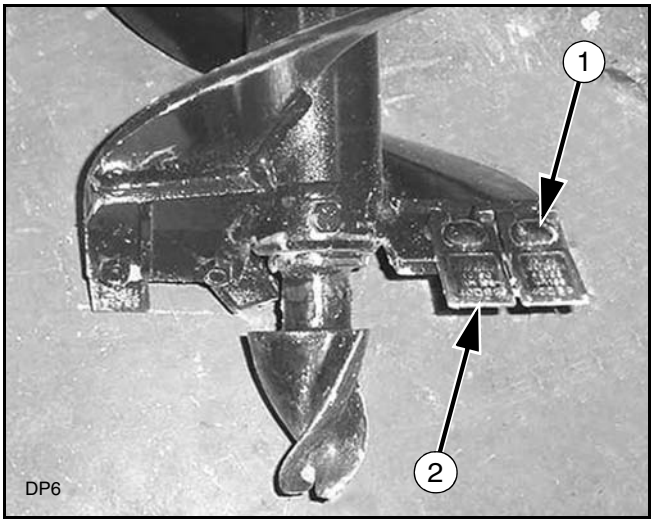


Figure 7. Cutting Edge Replacement

To replace or rotate a tooth:

1. Remove the mounting bolt (1), Figure 7.
2. Replace tooth (2) while maintaining the same cutting angle.
3. Replace the mounting bolt (1) and torque to 85 lbs-ft. (115 N-m).

Replacing Pilot Bit

Check the pilot bit daily for wear or damage. Replace a worn or damaged pilot bit immediately to prevent damage to the auger flighting.

To replace a pilot bit:

1. Remove bolt (1) as shown in Figure 8.
2. Remove and replace the pilot bit (2).
3. Replace bolt (1) and torque to 85 lbs-ft (115 N-m).

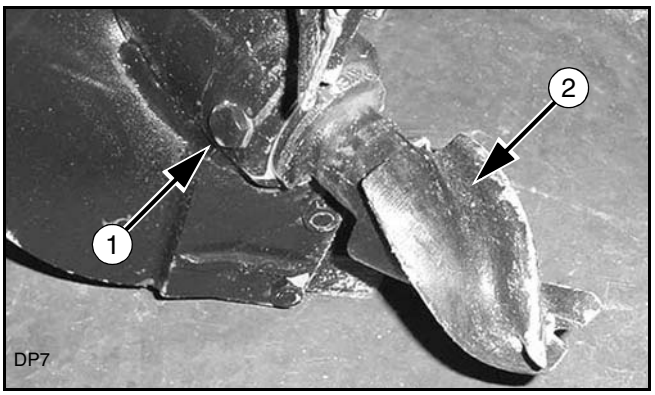


Figure 8. Pilot Bit Replacement

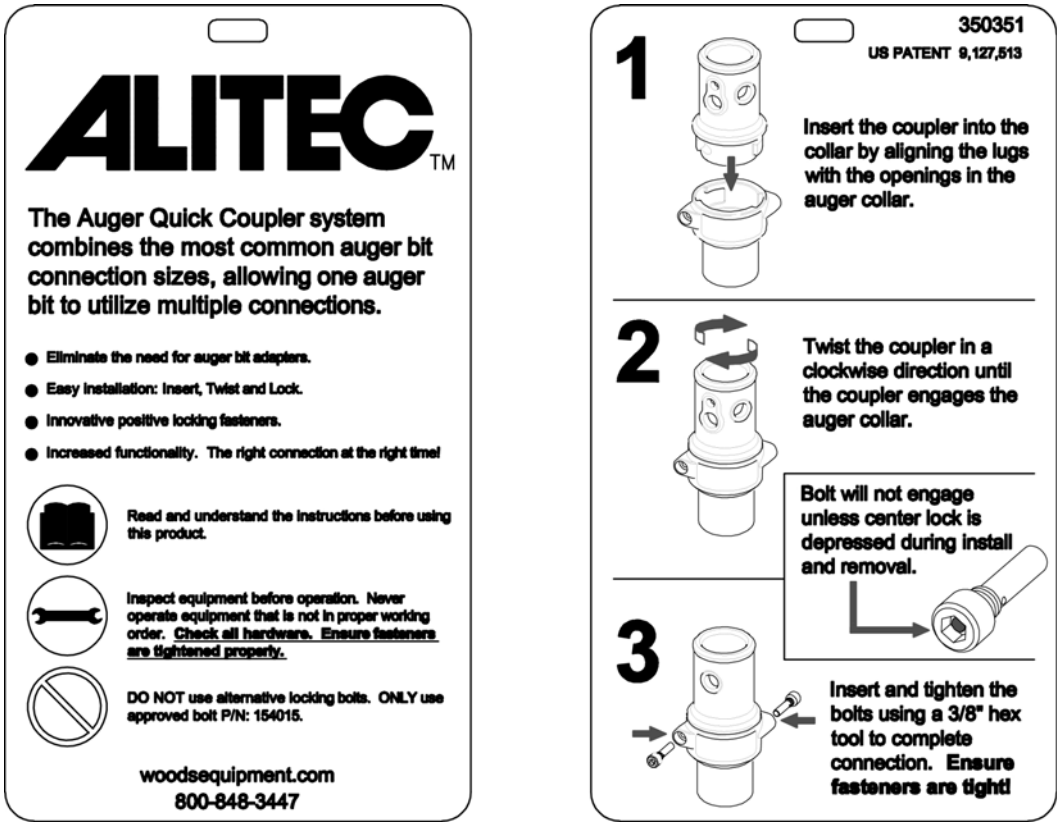


Figure 9. Quick Coupler Instruction

FLIGHTING REMOVAL

Removing Flighting

1. Remove the circle cotter (1) from the clevis pin as shown in Figure 10.
2. Remove the clevis pin (2).
3. Slide the flighting from the shaft.

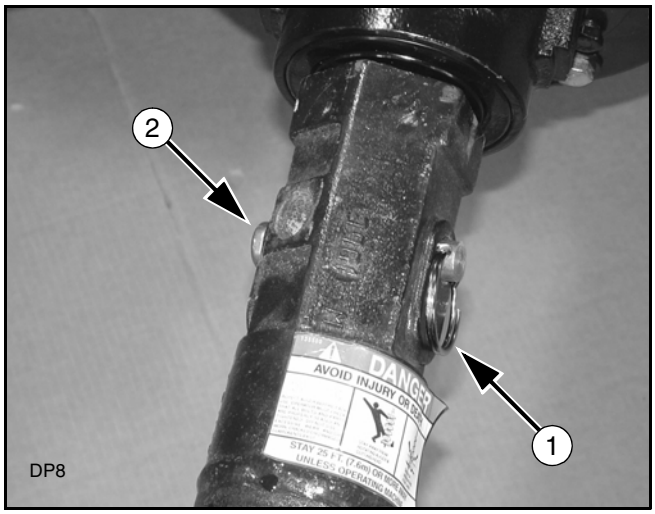


Figure 10. Clevis Pin and Circle Cotter Location

Installing Flighting

1. Rotate the flighting so the 3/4" cross hole on the flighting is oriented to the cross hole on the auger shaft.
2. Slide the flighting onto the shaft.
3. Insert the clevis pin (2) and secure with the circle cotter (1).

MOTOR/PLANETARY REMOVAL

1. Remove the flighting. (See “Flighting Removal” on page 15.)
2. Remove the hoses from motor, plug the hoses and cap the motor ports.

   NOTE: A 1-7/16" crows foot wrench (supplied with each unit) is needed to remove or install the hydraulic hoses at the motor ports on HA30E, HA30EBOA, HA35E and HA35EBOA models.
3. Position the auger on the backplate with the auger head pointing up as shown in Figure 11 for skid steer. For backhoe, position as shown in Figure 12.
4. Use a hoist to support the auger head (3).

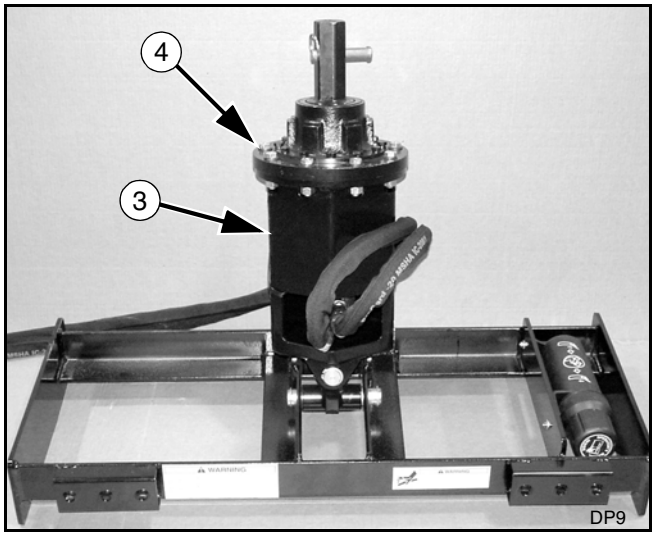


Figure 11. Skid Steer

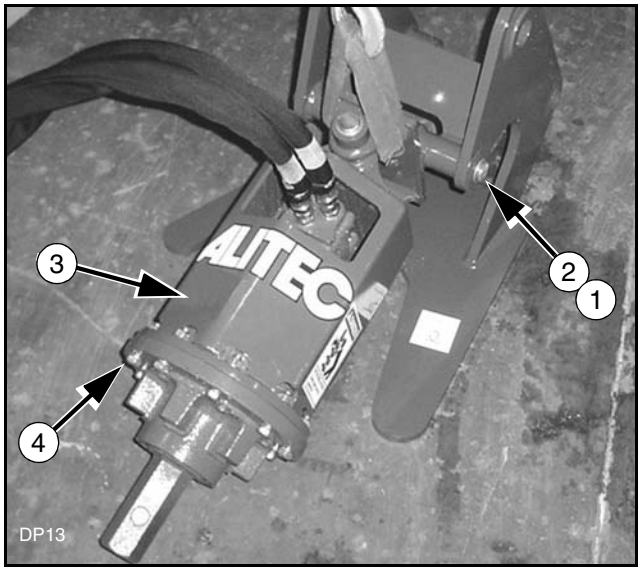


Figure 12. Backhoe

5. **Skid Steer:** Remove the planetary bolts (4).
   Backhoe: Remove the snap ring (1) from one side of the clevis pivot pin (2).
   - Remove the clevis pivot pin.
   - Remove the auger head assembly (3).
   - Remove the planetary bolts (4).
6. Use a hoist to remove the chassis from the motor/planetary assembly.
7. Place the motor/planetary assembly in a vice as shown in Figure 13.
8. Remove the two motor bolts (6).
9. Remove the motor (7) from the planetary (8).

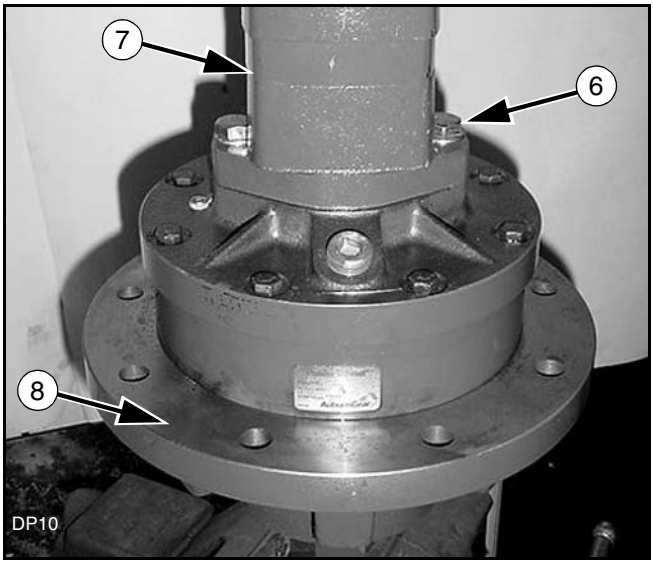


Figure 13.

INSTALLING MOTOR/PLANETARY

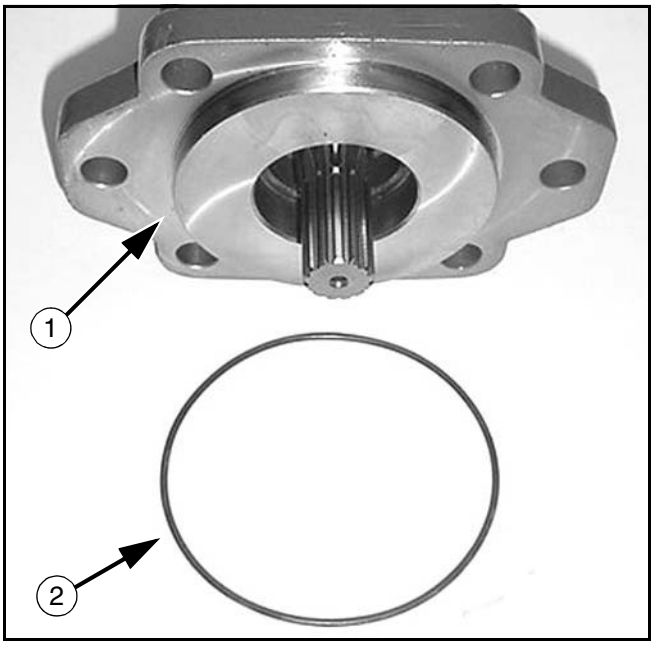


Figure 14. HA15, HA20 Motor

1. Before reinstalling the planetary, we recommend changing the planetary oil.
   - Remove the oil drain plug using a 3/16" allen wrench.
   - Drain the oil in a suitable container.
2. Replace the drain plug.
3. Install the O-ring (2) onto the motor pilot (1) as shown in Figure 14.

O-Ring Selection:

Model	O-Ring
HA15, HA20	HC516

4. If the planetary does not have oil, use a funnel to add oil through the motor input as shown in Figure 15. (For the type and amount of oil to be used see Lubrication Information on page 13).

Figure 15. Fill Planetary, Motor Removed

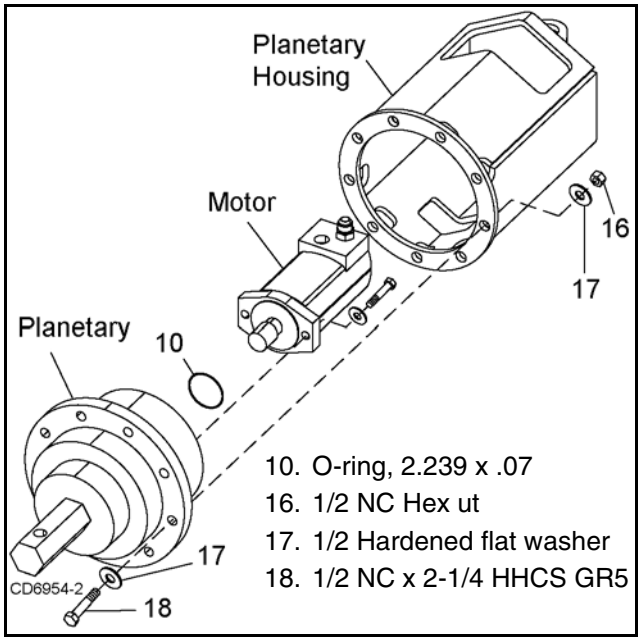


Figure 16. Planetary and Motor Assembly

5. Insert motor shaft into planetary. Make sure O-ring (10) is in position. Align mounting holes and secure into position using hardware previously removed.
6. Place planetary housing over motor and align mounting holes. Secure using cap screws (18), washers (17), and hex nuts (16). Torque to 77 lbs-ft (105 N-m). See Figure 16.

Skid Steer Assembly

1. Position the auger backplate flat on the ground with cradle pointing up.
2. Lower the head assembly (A) onto the backplate as shown in Figure 17.
3. Install the clevis pivot pin (13) and snap rings (12).
4. Install the motor fittings and hoses.

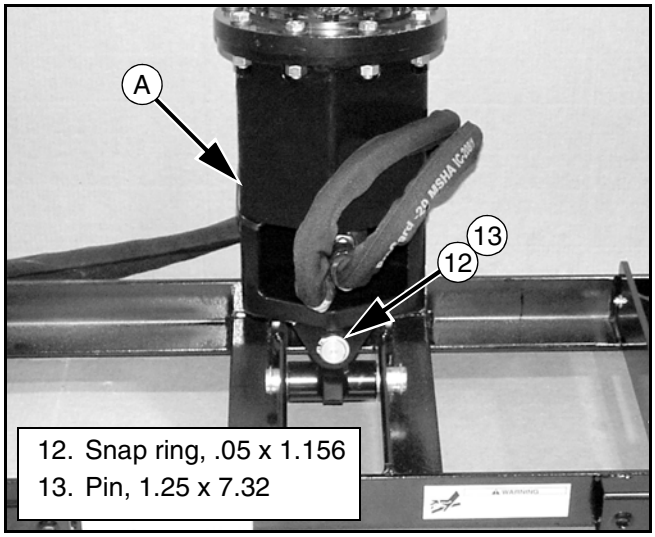


Figure 17. Skid Steer

Backhoe Assembly

1. Lower the head assembly (3) on to the backplate as shown in Figure 18.
2. Install the clevis pivot pin (1) and snap rings (2).
3. Install the motor fittings and hoses.

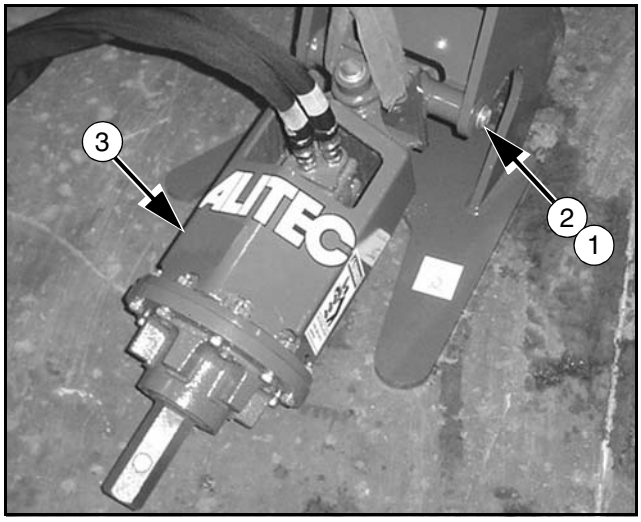


Figure 18. Backhoe

CLEANING POST HOLE DIGGER

After Each Use

- Remove large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Inspect machine and replace worn or damaged parts.
- Replace any safety decals that are missing or not readable.

Periodically or Before Extended Storage

- Clean large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Remove the remainder using a low-pressure water

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Motor on the auger will not operate.	Auxiliary hoses are not hooked up to the skid steer.	Inspect the connections visually (make sure the QDs are fully engaged).
	There is an obstruction in one or both of the auxiliary hoses.	Remove and inspect the hoses visually.
	One or more seals on the motor have failed.	Contact your dealer.
	Skid steer auxiliary hydraulics are not operating properly.	Refer to the skid steer owner's manual.
Auger bit rotates sluggishly.	Insufficient hydraulic flow from the skid steer.	Refer to the skid steer owner's manual.
	The hydraulic oil filter on the skid steer is dirty.	Refer to the skid steer owner's manual.
	One or more seals on the motor have failed.	Contact your dealer.
Oil is leaking from the motor area. O-rings on the fittings are damaged.	One or more seals on the motor have failed.	Contact your dealer.
	O-rings on the fittings are damaged.	Visually inspect the O-rings and replace as needed.
	Fittings are loose or damaged.	Replace or tighten as required.
	Hydraulic hoses are loose or damaged.	Replace or tighten as required.
Insufficient cutting power.	One or more seals on the motor have failed.	Contact your dealer.
	Oil filter on the skid steer is dirty.	Refer to the skid steer owner's manual.
	Insufficient auxiliary flow from the skid steer.	Refer to the skid steer owner's manual.
	Relief valve on the skid steer is not set properly.	Refer to the skid steer owner's manual.
	Cutting teeth are worn.	Inspect the teeth and replace as necessary.
	Excessive downward force on the auger.	Raise the skid steer arms slightly.
	Auger bit is too large for the auger.	Consult Dealer Services about the proper bit size.
Excessive oil temperature.	Obstruction in one or both auxiliary hydraulic hoses.	Remove, visually inspect, and replace the hoses as necessary.
	Hydraulic oil level on the skid steer is low.	Refer to the skid steer owner's manual.
	Hydraulic oil in the skid steer is dirty.	Refer to the skid steer owner's manual.
	Hydraulic oil filter on the skid steer is dirty.	Refer to the skid steer owner's manual.
	Relief valve on the skid steer is not set properly.	Refer to the skid steer owner's manual.

DEALER CHECK LISTS

PRE-DELIVERY CHECK LIST

(DEALER'S RESPONSIBILITY)

Inspect auger thoroughly after assembly to make sure it is set up properly before delivering it to the customer. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory, corrections are made, or services are performed.

___ Check and grease all lubrication points as identified in **Service,** LUBRICATION INFORMATION, page 13.

___ Check that flighting assembly has been properly installed

___ Check all bolts to be sure they are properly torqued.

___ Check that all cotter pins are properly installed and secured.

___ Check all hydraulic fittings to be sure they are properly tightened.

___ Check all hydraulic hoses to be sure they are properly tightened, routed, and secured.

___ Check that pressure, return, and case drain lines have the proper hydraulic couplers installed correctly.

DELIVERY CHECK LIST

(DEALER'S RESPONSIBILITY)

___ Show customer how to make adjustments. Describe the options available for this auger and explain their purpose.

___ Explain importance of lubrication to customer and point out lubrication points on auger.

___ Point out all guards and shielding. Explain their importance and the safety hazards that exist when not kept in place and in good condition.

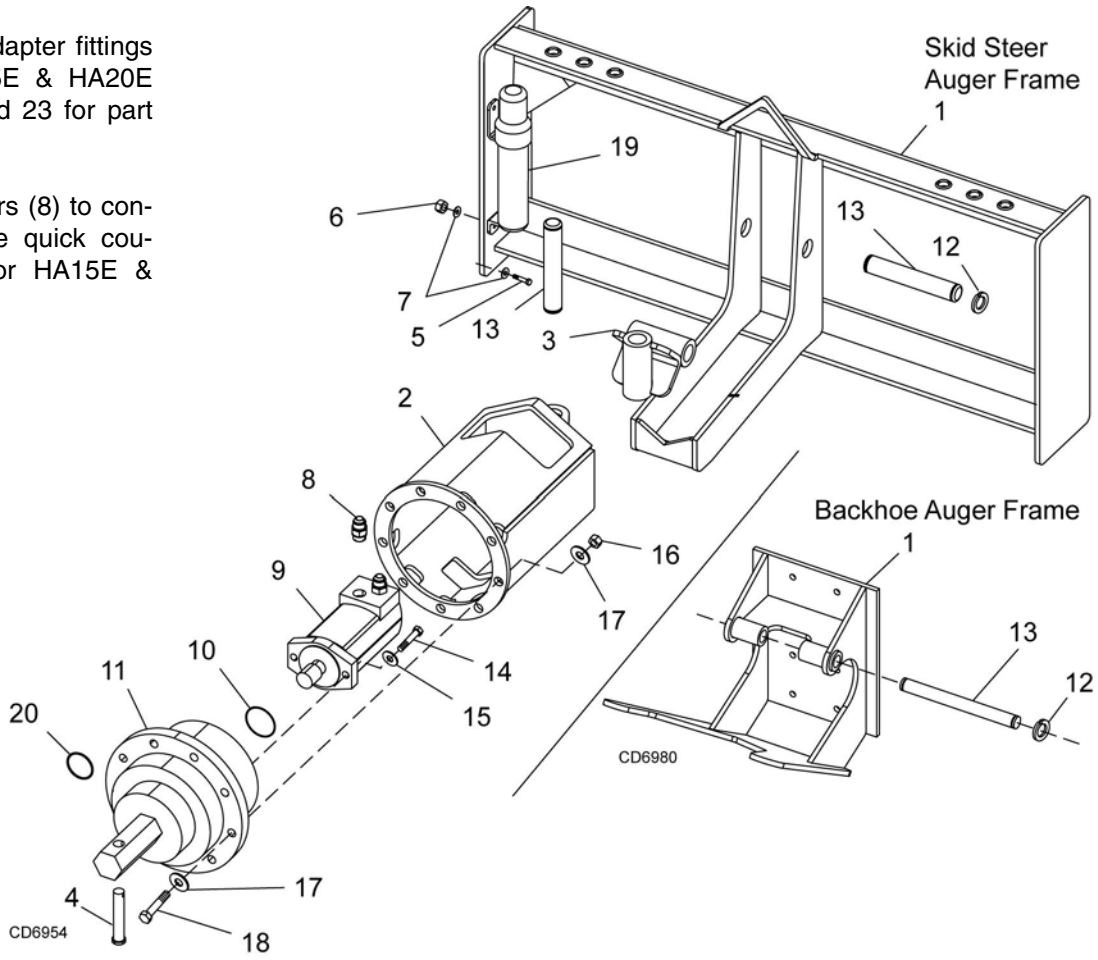
___ Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.

___ Explain to customer that when equipment is transported on a road or highway, safety devices should be used to give adequate warning to operators of other vehicles.

HA15E / HA15EBOA / HA20E / HA20EBOA BASE ASSEMBLY

Quick couplers and adapter fittings are included in HA15E & HA20E kits. See items 22 and 23 for part numbers.

Note: Use two adapters (8) to connect male and female quick couplers to hose (21) for HA15E & HA20E augers.

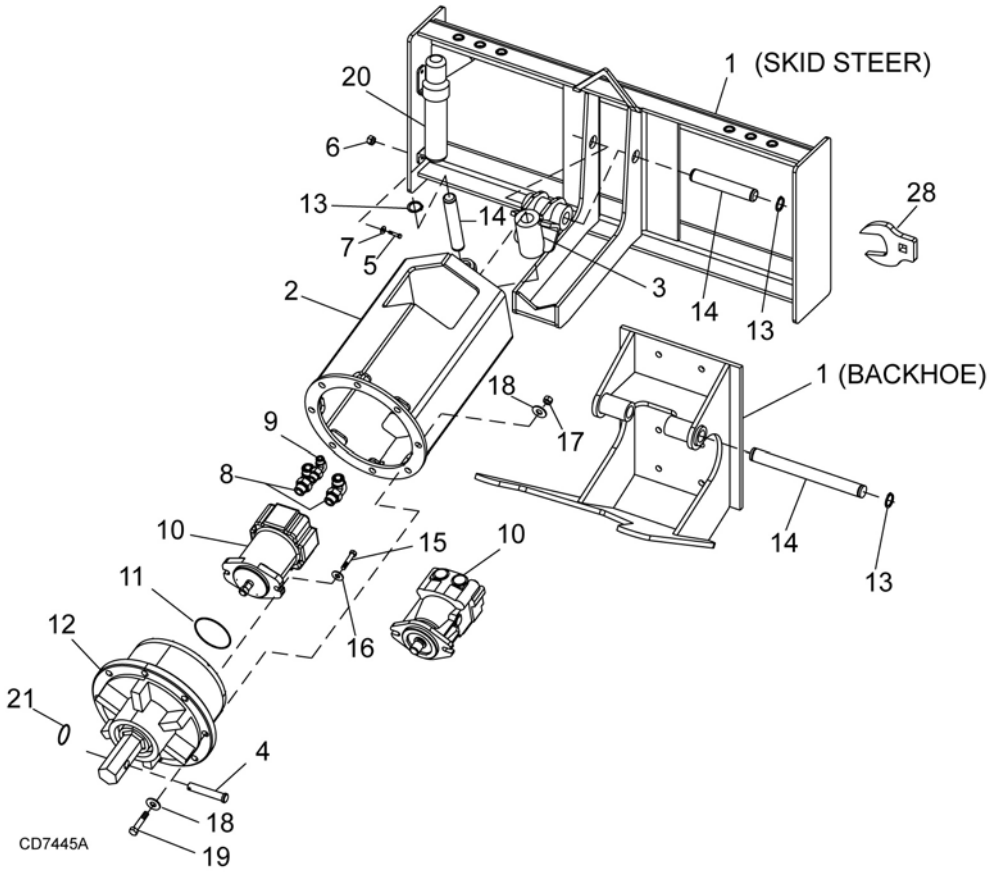


REF	PART		QTY	DESCRIPTION
1	1026701		1	Auger attach frame, (Skid Steer) **- or -**
1	1026696		1	Auger attach frame, (Backhoe)
2	1026697		1	Auger chassis
3	1020762		1	Auger clevis
4	104251		1	Pin, auger shaft 3/4 x 4
5	10378	*	2	1/4 NC x 1 Hex head cap screw GR5
6	5288	*	2	1/4 NC Hex nut
7	5336	*	4	1/4 Flat washer
8	F1087		4	Fitting, 7/8 ORBM x 7/8 JICM
9	HC421		1	Motor - HA15 **- or -**
9	1020763		1	Motor - HA20
9a	S0100111		1	Seal kit, for HA15, HA20 motor (NS)
10	HC516		1	O-Ring, 2.239 ID x .07 W
11	1020767		1	Planetary - HA15, HA20 hex
11a	S0100875		1	Seal and bearing kit, for 1020767 planetary (NS)
11b	HC054		1	Shaft seal for 1020767 planetary (NS)
12	63236		AR	Retaining ring, .05 x 1.156 ext. (Skid Steer) **- or -**

REF	PART		QTY	DESCRIPTION
12	M0030		AR	Retaining ring, 1.25" ext. (Backhoe)
13	1011884		AR	Pin, 1.25 x 7.32 (Skid Steer) **- or -**
13	T1118		AR	Pin, 1.25 x 12.89 (Backhoe)
14	70362		2	1/2 NC x 1-1/2 SHCS
15	855	*	2	1/2 Lock washer
16	1093	*	6	1/2 NC Hex nut
17	57816		18	1/2 Hardened flat washer
18	25474	*	9	1/2 NC x 2-1/4 HHCS GR5
19	1026530		1	Manual tube assembly
20	72449	*	1	.1 x 2 Circle cotter
21	H1128		2	Hose, 115" x 3/4 JICF x 3/4 JICF (NS)
22	HC546		1	QD 1/2 Flush face, female (NS)
23	HC547		1	QD 1/2 Flush face, male (NS)
NS	1026695		1	Decal set

AR As required
NS Not shown
* Standard hardware, obtain locally

HA30E / HA30EBOA / HA35E / HA35EBOA BASE ASSEMBLY

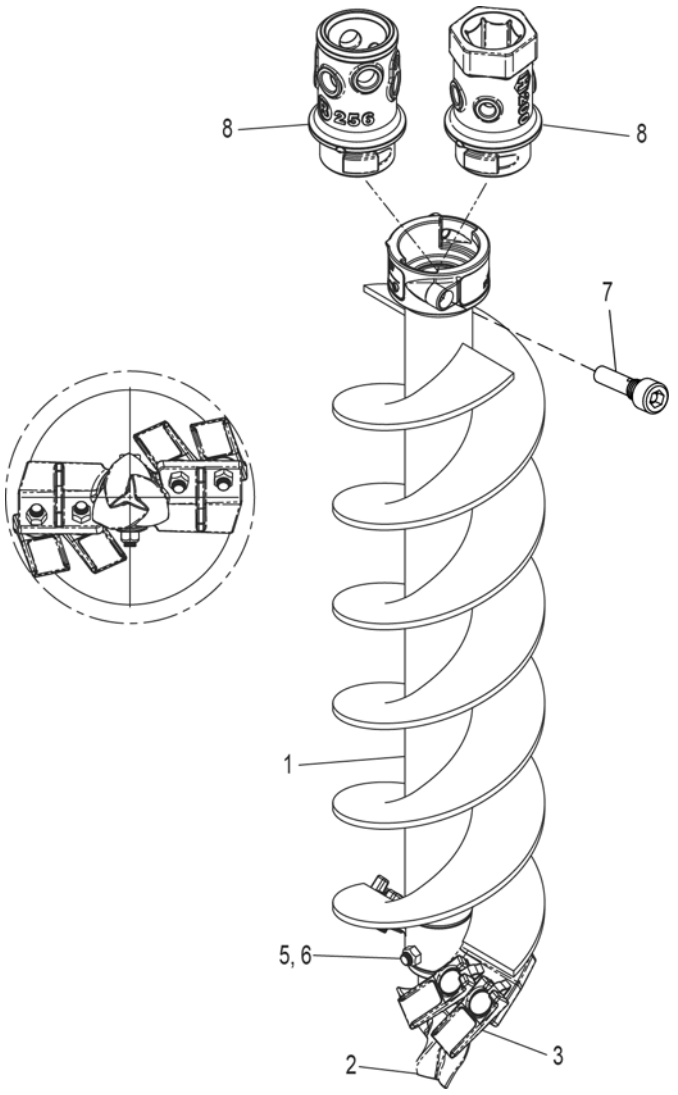


REF	PART		QTY	DESCRIPTION
1	1026703		1	Attach frame with decals (skid steer)
1	1026696		1	Attach cradle with decals (backhoe)
2	1026702		1	Auger chassis with decals
3	1021808		1	WA Clevis
4	104251		1	Pin, Auger shaft 3/4 x 4
5	10378	*	2	HHCS 1/4 NC x 1 GR5
6	70065	*	2	Nut whiz 1/4 NC
7	5336	*	2	Washer 1/4 flat ZP
8	F1293		2	Fitting, 12OM x 12SLM 90°
9	F1283		1	Fitting, 10OM x 8SLM 90°
10	HC321		1	Motor, Sunstrand M33-3004 (HA30E)
10	HC551		1	Motor, M44-12 Tooth Sauer-Dan (HA35E)
11	HC536		1	O-Ring, 2-155 SAE 4" OD
12	HC389		1	Planetary, Auburn HA30 hex
13	63236		4	Ring set, .050 x 1.156 (skid steer)
13	63236		2	Ring set, .050 x 1.156 (backhoe)
13	M0030		2	Retaining ring 1-1/4" ext (backhoe)
14	1011884		2	Pin, 1.25 x 7.32 (skid steer)
14	1011884		1	Pin, 1.25 x 7.32 (backhoe)

REF	PART		QTY	DESCRIPTION
14	T1118		1	Pin, 1.25 x 12.89 SR 12.25 (backhoe)
15	21660		2	HHCS 1/2 NC x 1-1/4 GR8
16	855	*	2	Washer, lock 1/2
17	765	*	8	Nut, lock 1/2 NC
18	57816		16	Washer 1/2 SAE flat hardened
19	25474	*	8	HHCS 1/2 NC x 2-1/4 GR5
20	1026530		1	Manual tube
21	72449	*	1	.1 x 2 Circle cotter
22	1025572		2	Hose 3/4 x 104 12SLF 12SLF 5000 (not shown)
23	1025573		1	Hose 1/4 x 104 8SLF 8SLF R1 (not shown)
24	1026695		1	Decal set (not shown)
25	S0100358		1	Seal, shaft Sundstrand M35 (HA30E) (not shown)
26	S0100009		1	Seal, oil Fairfield S2B (HA35E) (not shown)
27	1007655		1	Seal kit MMF035 for HC550/551 (HA35E) (not shown)
28	1022557		1	Wrench, offset 1.44" crows foot

* Standard hardware, obtain locally

AUGER ASSEMBLY



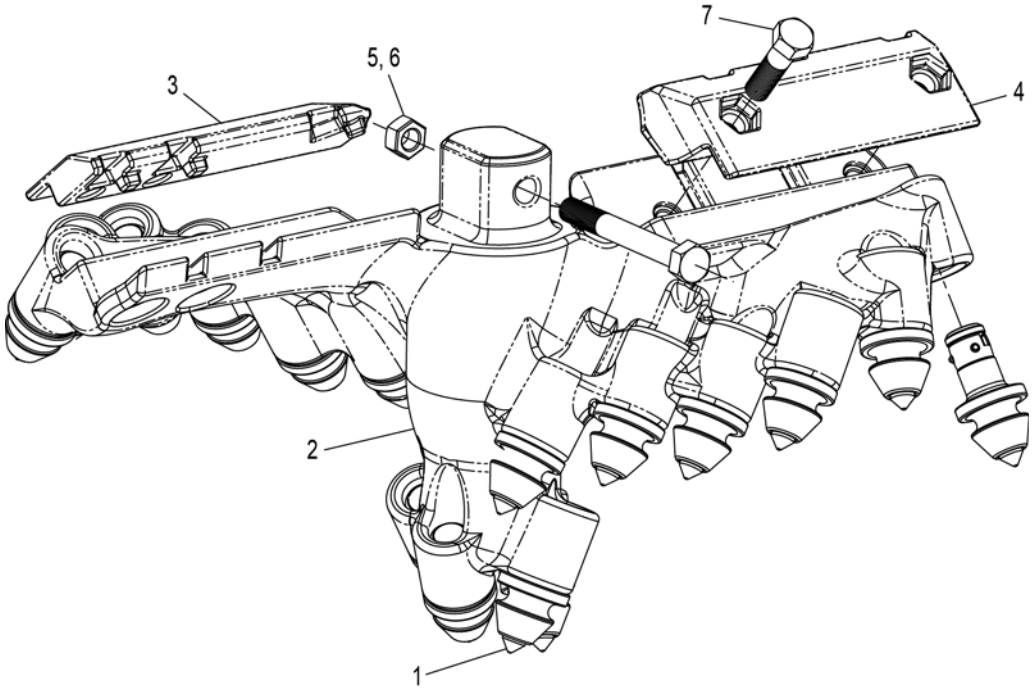
REF	PART Round		PART Hex		QTY	DESCRIPTION
1	FA6		FAH6		1	6" Auger
1	FA9		FAH9		1	9" Auger
1	FA12		FAH12		1	12" Auger
1	FA15		FAH15		1	15" Auger
1	FA18		FAH18		1	18" Auger
1	FA24		FAH24		1	24" Auger
1	FA30		FAH30		1	30" Auger
1	FA36		FAH36		1	36" Auger
1	FA18TR		NA		1	18" Tree auger
1	FA24TR		FAH24TR		1	24" Tree auger
1	FA30TR		FAH30TR		1	30" Tree auger
1	FA36TR		FAH36TR		1	36" Tree auger
2	102282		102282		1	Tri-flow bit
2	104066-1		104066-1		1	Tri-flow carbide bit
3	102281		102281			40/50 Tooth - standard
3	S0100560		S0100560			40/50 HFF - optional
3	104065-1		104065-1			40/50 Carbide tooth - optional
4	3034959		3034959			
4	B0842	*	B0842	*		1/2 NC x 1-1/2 Carriage bolt
5	3034960		3034960			
5	765	*	765	*		1/2 NC Lock nut
6	1637	*	1637	*		1/2 NC x 3-1/2 HHCS GR5
6	10380	*	10380	*		1/2 NC x 4 HHCS GR5
7	3035060		3035060			Hardware kit
8	R256		H200			Interchangeable collar

* Standard hardware, obtain locally

TOOTH REQUIREMENTS

40/50 Tooth	40/50 HFF Tooth	40/50 Carbide tooth	Auger
2	2	2	6" Auger
4	4	4	9" Auger
4	4	4	12" Auger
5	5	5	15" Auger
6	6	6	18" Auger
8	8	8	24" Auger
10	10	10	30"Auger
12	12	12	36" Auger
8	8	8	18" Tree auger
9	9	9	24" Tree auger
11	11	11	30" Tree auger
12	12	12	36" Tree Auger

BoRH HEAD



REF	PART	QTY	DESCRIPTION
1	3034961		BoRH Replacement tooth
2	3034962		6 - BoRH
2	3034963		9 - BoRH
2	3034964		12 - BoRH
3	3035170		6" BoRH Wear cap
3	3035171		9" BoRH Wear cap
3	3035172		12" BoRH Wear cap 1
4	3035173		12" BoRH Wear cap 2
5	765		1/2 NC Hex lock nut
5	3034960		1/2 NC Hex lock nut
6	1637		1/2 NC x 3-1/2 HHCS, GR5
7	C257595		1/2 NC x 1-3/4 HHCS, GR5

QUICK COUPLER KITS

		High-Flow with Auxiliary		High-Flow with No Auxiliary		Low-Flow	
Make		**QC Kit**	**Description**	**QC Kit**	**Description**	**QC Kit**	**Description**
Bobcat		HC356	Flush Face	HC355	Flush Face	HC357	Flush Face
	Vintage					HC243	Poppet
						HC211	Ag Ball Valve
Case		1013825	Flush Face	HC212	Flush Face	HC279	Flush Face
	Vintage	HC278	Flush Face			HC211	Ag Ball Valve
		HC209	Flush Face & Ag Ball Valve				
Cat		HC538	Flush Face	1014196	Flush Face	1014197	Flush Face
Daewoo		HC209	Flush Face	HC212	Flush Face	HC211	Ag Ball Valve
Gehl		HC398	Flush Face	1014195	Flush Face	HC400	Flush Face
	Vintage			HC305	Poppet & Ag Ball		
John Deere		1014198	Flush Face	1013826	Flush Face	HC310	Flush Face
Komatsu		1013834	Flush Face	1013833	Flush Face	1013835	Flush Face
New Holland		1014199	Flush Face	HC308	Flush Face	HC310	Flush Face
Scat Trak		HC537	Flush Face			HC243	Poppet

QUICK COUPLER KIT COMPONENTS

QC KIT	Includes	Style	Male/Female	Body Size	Hose End
HC209	HC193	Flush Face	Male	3/4	SAE #12 O-ring
	HC194	Flush Face	Female	3/4	SAE #12 O-ring
	HC195	Ag Ball	Female	1/2	1/2-14 NPT
	HC196	Ag Ball	Male	1/2	1/2-14 NPT
	HC197	Flush Face	Female	1/2	SAE #10 O-ring
HC211	HC195	Ag Ball	Female	1/2	1/2-14 NPT
	HC196	Ag Ball	Male	1/2	1/2-14 NPT
HC212	HC193	Flush Face	Male	3/4	SAE #12 O-ring
	HC194	Flush Face	Female	3/4	SAE #12 O-ring
	HC197	Flush Face	Female	1/2	SAE #10 O-ring
HC278	HC193	Flush Face	Male	3/4	SAE #12 O-ring
	HC194	Flush Face	Female	3/4	SAE #12 O-ring
	HC197	Flush Face	Female	1/2	SAE #10 O-ring
	HC201	Flush Face	Male	1/2	SAE #10 O-ring
HC279	HC197	Flush Face	Female	1/2	SAE #10 O-ring
	HC201	Flush Face	Male	1/2	SAE #10 O-ring

QUICK COUPLER KIT COMPONENTS

QC KIT	Includes	Style	Male/Female	Body Size	Hose End
HC308	HC416	Flush Face	Female	5/8	SAE #12 O-ring
	HC417	Flush Face	Male	5/8	SAE #12 O-ring
	HC418	Flush Face	Male	3/8	SAE #8 O-ring
HC310	HC414	Flush Face	Male	1/2	SAE #12 O-ring
	HC415	Flush Face	Female	1/2	SAE #12 O-ring
HC355	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
	HC346	Flush Face	Female	9 mm	SAE #8 O-ring
HC356	HC342	Flush Face	Female	7 mm	SAE #6 O-ring
	HC343	Flush Face	Male	7 mm	SAE #6 O-ring
	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
	HC346	Flush Face	Female	9 mm	SAE #8 O-ring
HC357	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
HC398	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
	HC346	Flush Face	Female	9 mm	SAE #8 O-ring
HC400	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
HC537	HC415	Flush Face	Female	1/2	SAE #12 O-ring
	HC416	Flush Face	Female	5/8	SAE #12 O-ring
	HC417	Flush Face	Male	5/8	SAE #12 O-ring
	HC418	Flush Face	Male	3/8	SAE #8 O-ring
HC538	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring
	1532994	Flush Face	Female	3/4	SAE #12 O-ring
	1532995	Flush Face	Male	3/4	SAE #12 O-ring
	1532997	Flush Face	Female	1/2	SAE #8 O-ring
1013825	HC417	Flush Face	Male	5/8	SAE #12 O-ring
	HC418	Flush Face	Male	3/8	SAE #8 O-ring
	HC545	Flush Face	Female	5/8	SAE #12 O-ring
	HC546	Flush Face	Female	1/2	SAE #10 O-ring
	HC547	Flush Face	Male	1/2	SAE #10 O-ring
1013826	HC343	Flush Face	Male	7 mm	SAE #6 O-ring
	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring
1013833	HC415	Flush Face	Female	1/2	SAE #12 O-ring
	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring

QUICK COUPLER KIT COMPONENTS

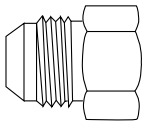
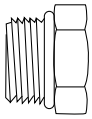
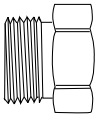
QC KIT	Includes	Style	Male/Female	Body Size	Hose End
1013834	HC414	Flush Face	Male	1/2	SAE #12 O-ring
	HC415	Flush Face	Female	1/2	SAE #12 O-ring
	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring
1013835	46058	Flush Face	M/F Set	3/4	SAE #12 O-ring
1014195	HC344	Flush Face	Male	12 mm	SAE #12 O-ring
	HC345	Flush Face	Female	12 mm	SAE #12 O-ring
	HC346	Flush Face	Female	9 mm	SAE #8 O-ring
1014196	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring
	1532997	Flush Face	Female	1/2	SAE #8 O-ring
1014197	1532994	Flush Face	Female	3/4	SAE #10 O-ring
	1532995	Flush Face	Male	3/4	SAE #10 O-ring
1014198	HC343	Flush Face	Male	7 mm	SAE #6 O-ring
	HC414	Flush Face	Male	1/2	SAE #12 O-ring
	HC415	Flush Face	Female	1/2	SAE #12 O-ring
	HC521	Flush Face	Female	16 mm	SAE #12 O-ring
	HC522	Flush Face	Male	16 mm	SAE #12 O-ring
1014199	HC414	Flush Face	Male	1/2	SAE #12 O-ring
	HC415	Flush Face	Female	1/2	SAE #12 O-ring
	HC416	Flush Face	Female	5/8	SAE #12 O-ring
	HC417	Flush Face	Male	5/8	SAE #12 O-ring
	HC418	Flush Face	Male	3/8	SAE #8 O-ring

FITTING TORQUE CHART

Always tighten fittings to these values unless a different torque value is listed for a specific service procedure.

Make sure fastener threads are clean and threads are engaged properly.

All torque values are adopted from SAE J514 and SAE J1453.

			
Size	**SAE (JIC) 37° Flare Thread Size**	**O-Ring Style Straight Thread Size**	**Seal-Lok Thread**
2	5/16 - 24	5/16 - 24	---
3	3/8 - 24	3/8 - 24	---
4	7/16 - 20	7/16 - 20	9/16 - 18
5	1/2 - 20	1/2 - 20	---
6	9/16 - 18	9/16 - 18	11/16 - 16
8	3/4 - 16	3/4 - 16	13/16 - 16
10	7/8 - 14	7/8 - 14	1 - 14
12	1-1/16 - 12	1-1/16 - 12	1-3/16 - 12
14	1-3/16 - 12	1-3/16 - 12	---
16	1-5/16 - 12	1-5/16 - 12	1-7/16 - 12
20	1-5/8 - 12	1-5/8 - 12	1-11/16 - 12
24	1-7/8 - 12	1-7/8 - 12	2 - 12
32	2-1/2 - 12	2-1/2 - 12	---

SAE Dash Size	**TORQUE**					
	SAE 37° Flare		**O-Ring Straight Thread**		**Seal-Lok**	
	Lbs-Ft	**N-m**	**Lbs-Ft**	**N-m**	**Lbs-Ft**	**N-m**
2	4	5	4	5	---	---
3	8	11	9	12	---	---
4	12	16	16	22	18	25
5	15	20	22	30	---	---
6	18	25	35	48	27	37
8	37	50	60	82	40	54
10	48	65	105	143	63	86
12	74	100	140	190	92	125
14	88	120	184	250	---	---
16	100	135	221	300	122	165
20	133	180	258	350	147	200
24	166	225	317	430	166	225
32	236	320	---	---	---	---

BOLT TORQUE CHART

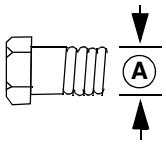
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

Fasteners must always be replaced with the same grade as specified in the manual parts list.

Always use the proper tool for tightening hardware: SAE for SAE hardware and Metric for metric hardware.

Make sure fastener threads are clean and you start thread engagement properly.

All torque values are given to specifications used on hardware defined by SAE J1701 MAR 99 & J1701M JUL 96.



SAE SERIES TORQUE CHART

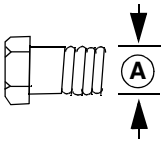
SAE Grade 2 (No Dashes)

SAE Bolt Head Identification

SAE Grade 5 (3 Radial Dashes)

SAE Grade 8 (6 Radial Dashes)

Ⓐ Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"	110	149	170	230	240	325
3/4"	1-1/8"	192	261	297	403	420	569
7/8"	1-5/16"	306	416	474	642	669	907
1"	1-1/2"	467	634	722	979	1020	1383



METRIC SERIES TORQUE CHART

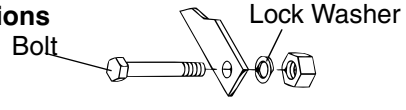
Metric Grade 8.8

Metric Bolt Head Identification

Metric Grade 10.9

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	COARSE THREAD				FINE THREAD				Ⓐ Diameter & Thread Pitch (Millimeters)
		MARKING ON HEAD				MARKING ON HEAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
		N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25
12 x 1.75	18 mm	68	50	94	70	75	55	103	76	12 x 1.25
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

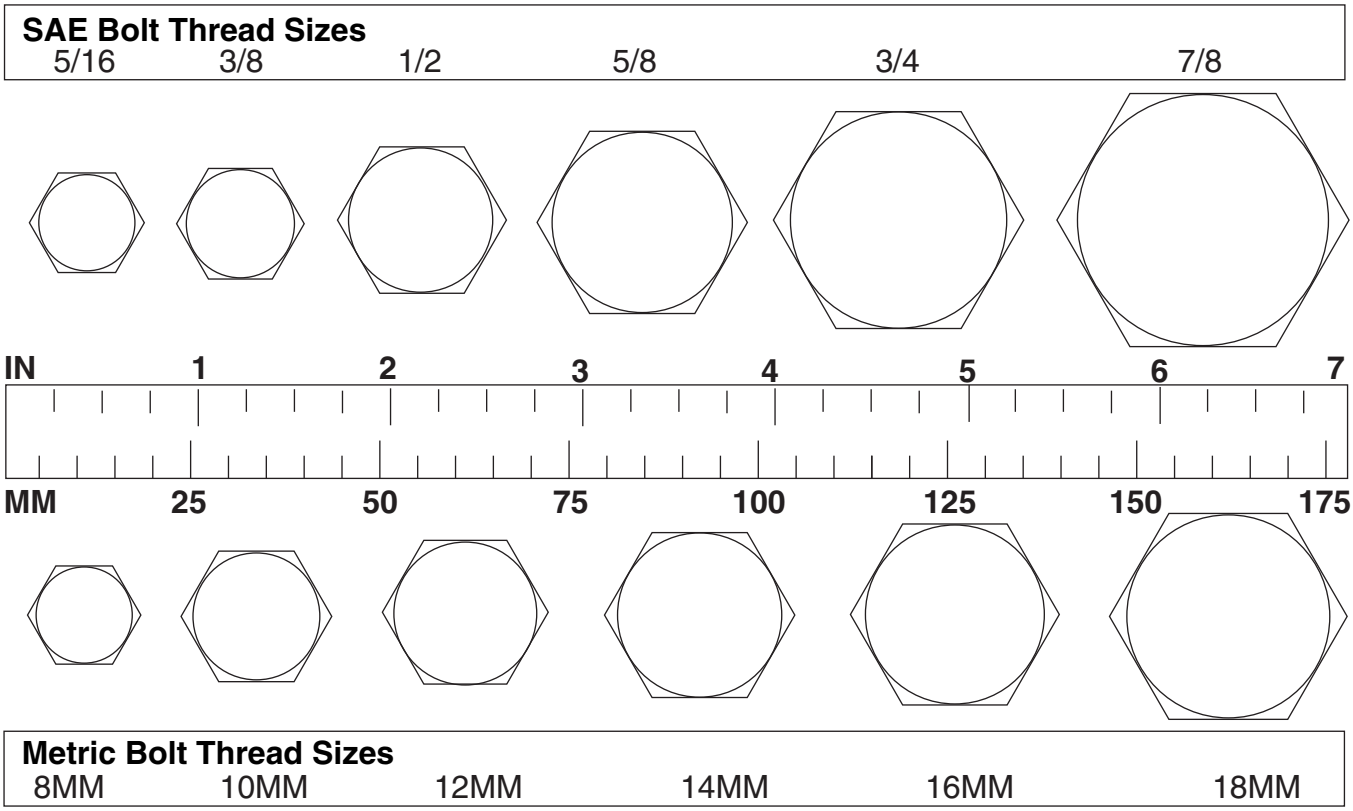
Typical Washer Installations



8/9/00

BOLT SIZE CHART

NOTE: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and metric bolts.



ABBREVIATIONS

AG ..... Agriculture
ASABE ..... American Society of Agricultural & Biological Engineers (formerly ASAE)
ASAE ..... American Society of Agricultural Engineers
ATF ..... Automatic Transmission Fluid
BSPP ..... British Standard Pipe Parallel
BSPTM ..... British Standard Pipe Tapered Male
CV ..... Constant Velocity
CCW ..... Counter-Clockwise
CW ..... Clockwise
F ..... Female
FT ..... Full Thread
GA ..... Gauge
GR (5, etc.) ..... Grade (5, etc.)
HHCS ..... Hex Head Cap Screw
HT ..... Heat-Treated
JIC ..... Joint Industry Council 37° Degree Flare
LH ..... Left Hand
LT ..... Left
m ..... Meter
mm ..... Millimeter
M ..... Male
MPa ..... Mega Pascal
N ..... Newton
NC ..... National Coarse
NF ..... National Fine
NPSM ..... National Pipe Straight Mechanical
NPT ..... National Pipe Tapered
NPT SWF ..... National Pipe Tapered Swivel Female
ORBM ..... O-Ring Boss - Male
P ..... Pitch
PBY ..... Power-Beyond
psi ..... Pounds per Square Inch
PTO ..... Power Take Off
QD ..... Quick Disconnect
RH ..... Right Hand
ROPS ..... Roll-Over Protective Structure
RPM ..... Revolutions Per Minute
RT ..... Right
SAE ..... Society of Automotive Engineers
UNC ..... Unified Coarse
UNF ..... Unified Fine
UNS ..... Unified Special

WARRANTY
Construction Equipment

Please Enter Information Below and Save for Future Reference.

Date of Purchase: _____ From (Dealer): _____

Model Number: _____ Serial Number: _____

Woods Equipment Company ("WOODS") warrants this product to be free from defects in material and workmanship. Except as otherwise set forth below, the duration of this Warranty shall be twelve (12) months commencing on the in-service date of the product or fifteen months after shipment from the factory or 2,000 hours of service, whichever occurs first. Proof of the in-service date must be provided for claims involving product that originally shipped more than twelve (12) months prior to the date of the claim.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, inappropriate application or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than WOODS, a WOODS authorized dealer or distributor, and/or a WOODS authorized service center. This Warranty does not cover normal wear and tear, or normal maintenance items, as more specifically described below. This Warranty also does not cover repairs made with parts other than those obtained through WOODS.

This Warranty is extended solely to the original purchaser of new and unused product, including, but not limited to, purchases made from authorized Woods dealers. Should such original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS' obligation under this Warranty is limited to, at WOODS' option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND WOODS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

WOODS shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, WOODS specifically disclaims any damages relating to (i) lost profits, business, revenue or goodwill; (ii) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (iii) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply, which may directly affect WOODS' ability to obtain materials or manufacturer replacement parts.

No agent, representative, dealer, distributor, serviceperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify or enlarge this Warranty.

Contact an authorized WOODS dealer or service center for warranty service. Common issues that would NOT be covered by this Warranty Policy include, but are not limited to, the examples listed below this Policy.

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2606 South Illinois Route 2
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Oregon, Illinois 61061 USA

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800-399-6637 fax
woodsequipment.com

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WOODS®

Examples of Common, Non-Covered Claims

1. The owner and operator are responsible for maintaining weld integrity on attachments subject to weld erosion from ongoing contact with soils, rocks, and other materials. Different materials have differing abrasive characteristics that will erode the structural welds of ground-engaging attachments at differing rates. Structural failures may occur as a result of excessive weld erosion. The owner and operator are responsible for maintaining necessary weld sizes and re-welding eroded welds with industry-approved procedures. Woods will not accept warranty claims for weld erosion or structural failures of the attachment as a result of weld erosion.
2. Attachments are used extensively in ground-engaging operations and, as a result, the teeth, tooth holders, cutting edges, bucket edges, ripper shanks, and other portions of the attachment are subject to abrasion and resulting wear. Woods will not accept warranty claims for wear of components or wear of areas of the attachment subject to ground-engaging wear.
3. The owner and operator are responsible for examining the attachment for any weld or structural cracking. Any such cracking caused by a defect in materials or workmanship by Woods will be covered under the Woods Warranty Policy. If the owner or operator continues to operate the attachment after weld cracking or structural cracking is visible or should have reasonably been visible, and as a result of continued operation, additional damage to the attachment results, Woods will not accept responsibility for the additional damage caused to other welds or to the attachment structure.
4. Materially modifying Woods attachments may result in premature failures of the attachment. Woods will not accept warranty claims on attachments that have been materially modified.
5. Misapplications of attachments may result in premature wear, breakage, or structural failures of the attachment. Woods will not accept warranty claims on attachments that have been misapplied. For instance, using a general purpose excavator bucket in an application requiring a heavy or severe duty bucket or using the excavator bucket as a "jack hammer" to break concrete are considered misapplications.

W-10023-V CE Manuals (Rev. 3/9/2016)

WARRANTY

(Replacement Parts For All Models Except Mow'n Machine™
Zero-Turn Mowers and Woods Boundary™ Utility Vehicles)

Woods Equipment Company ("WOODS") warrants this product to be free from defect in material and workmanship for a period of ninety (90) days from the date of delivery of the product to the original purchaser with the exception of V-belts, which will be free of defect in material and workmanship for a period of 12 months.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS' obligation under this Warranty is limited to, at WOODS' option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND WOODS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

WOODS shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, Woods specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect WOODS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

Answers to any questions regarding warranty service and locations may be obtained by contacting:

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