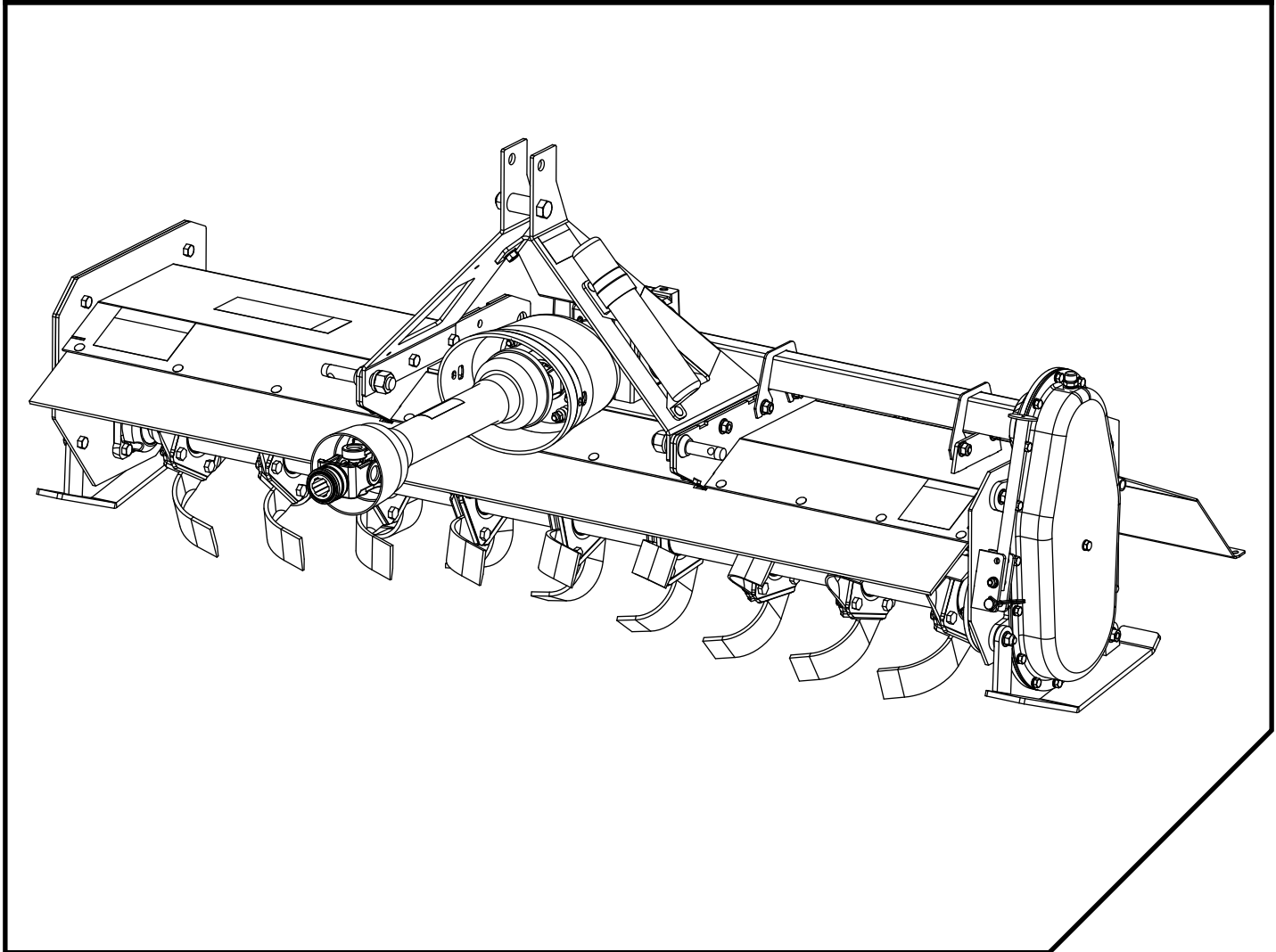




Original Instruction Manual

ROTARY TILLER

Models 480RT, 600RT and 720RT



Introduction



Read this manual before operating your Oregon 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 OregonProducts.com, or in the United States and Canada call 1-800-525-8322.



¡LEA EL INSTRUCTIVO! SI NO LEE INGLÉS PIDA AYUDA A ALGUIEN QUE SI LO LEE PARA QUE LE TRADUSCA LAS MEDIDAS DE SEGURIDAD.

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.

This Operator's Manual should be regarded as part of the machine. Suppliers of both new and second-hand machines must make sure this manual is provided with the machine.

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

Use only genuine Oregon 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:

Serial Number Label Location: See Safety Decal Section

Record the information below for future reference.

Model No _____

Date of Purchase _____

Serial No. _____

Place of Purchase _____

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

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Explanation of Signal Words

This section contains safety information for the Oregon Rotary Tiller. Throughout this manual, the terms **DANGER**, **WARNING**, and **CAUTION** 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. The term **NOTICE** is used to indicate that failure to observe can cause damage to equipment.



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.



Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a potential situation exists which, if not avoided, may result in damage to your equipment or property.

NOTE

Indicates helpful information.

Specifications

	Oregon 480RT Rotary Tiller	Oregon 600RT Rotary Tiller	Oregon 720RT Rotary Tiller
Manufacturer material number	OR48RT-1	OR60RT-1	OR72RT-1
Tilling Width	47"	59"	71"
Maximum Tilling Depth	7"	7"	7"
Operating Weight	502 lbs/507 lbs	570 lbs/578 lbs	628 lbs/636 lbs
Rotor Swing Diameter	15"	15"	15"
Number of Blade Flanges	6	7	9
Number of Blades	24	28	36
Drive Type	Gear	Gear	Gear
Tractor PTO Speed	540 RPM	540 RPM	540 RPM
Rotor Speed	210 RPM	210 RPM	210 RPM
Tractor Hitch	Limited Category 1 & Category 1	Category 1	Category 1
Tractor PTO Horsepower	15 - 35 HP	18 - 40 HP	20 - 50 HP
Skid Shoe Adjustments	5 x 1"	5 x 1"	5 x 1"
Offset	3"	2.3"	2.3"
Gearbox Oil Capacity	1.2 Qt SAE 80W-90	1.2 Qt SAE 80W-90	1.2 Qt SAE 80W-90
Side Drive Oil Capacity	3 QT SAE 80W-90	3 QT SAE 80W-90	3 QT SAE 80W-90

General Information

WARNING

Some illustrations in this manual show the equipment with safety shields removed to provide a better view. This equipment should never be operated with any necessary safety shielding removed.

The purpose of this manual is to assist you in operating and maintaining your 3-point equipment. 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 the forward travel.

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, judgment, 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.

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. To locate your nearest dealer, check the Dealer Locator at OregonProducts.com, or in the United States and Canada call 1-800-525-8322.) 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.**
- **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.**
- **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.**
- **Make sure attachment is properly secured, adjusted, and in good operating condition.**
- **Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.**
- **Before putting equipment into service, check and adjust driveline length as instructed in Operator's Manual. Driveline must not bottom out or pull apart throughout the full range of the tractor hitch. Do not operate until driveline length is correct.**
- **Before starting power unit, check all equipment driveline guards for damage. Replace any damaged guards. Make sure all guards rotate freely on all drivelines. If guards do not rotate freely on drivelines, repair and replace bearings before putting equipment into service.**
- **Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.**
- **Remove accumulated debris from this equipment, power unit, and engine to avoid fire hazard.**
- **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.**

- **A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up resulting in loss of steering. The weight may be attained with front wheel weights, ballast in tires, front tractor weights or front loader. Weigh the tractor and equipment. Do not estimate.**
- **Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.**

Operation

- **Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.**
- **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Keep bystanders away from equipment.**
- **Never direct discharge toward people, animals, or property.**
- **Do not operate 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.**
- **Never allow riders on power unit or attachment.**
- **Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in “locked up” position at all times.**
- **Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.**
- **Operate tractor PTO at 540 RPM. Do not exceed.**
- **Do not operate PTO during transport.**
- **Connect PTO driveline directly to power unit PTO shaft. Never use adapter sleeves or adapter shafts. Adapters can cause driveline failures due to incorrect spline or incorrect operating length and can result in personal injury or death.**
- **Look down and to the rear and make sure area is clear before traveling 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 equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.**
- **Before performing any service or maintenance, disconnect driveline from tractor PTO.**
- **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**

- **Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. 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. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.**

Maintenance

- **Service and maintenance work not covered in OWNER SERVICE must be done by a qualified dealership. Special skills, tools, and safety procedures may be required. Failure to follow these instructions can result in serious injury or death.**
- **Before performing any service or maintenance, disconnect driveline from tractor PTO.**
- **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**
- **Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. 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. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done 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 entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head.**
- **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Make sure attachment is properly secured, adjusted, and in good operating condition.**
- **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.**
- **Use a suitable lifting device of sufficient capacity. Use adequate personnel to handle heavy components.**

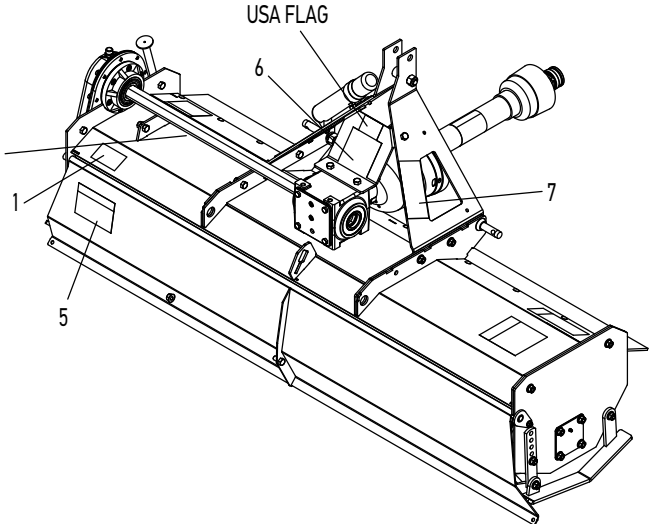
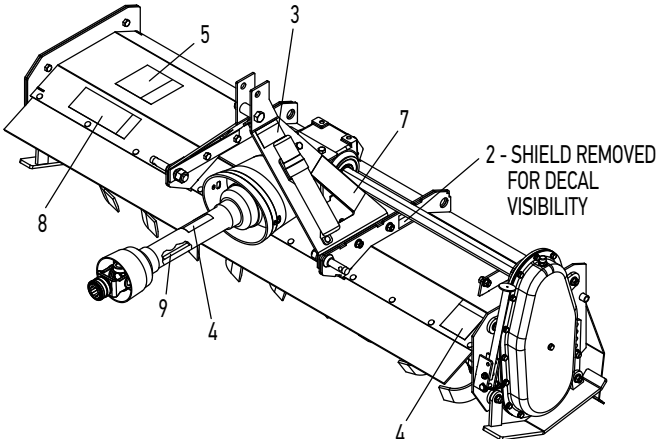
Storage

- **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!



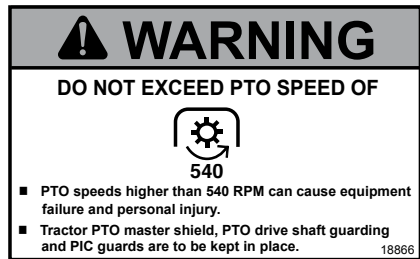
1 - Serial Number Plate



2 - PN 18868



3 - PN 18866



4 - PN 18864



5 - PN P0021



6 - PN 55122

⚠ WARNING

TO AVOID SERIOUS INJURY OR DEATH:


- Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from dealer or call 1-800-319-6637.)
- Operate from tractor seat only.
- Lower equipment to ground, stop engine, remove key and set brake before dismounting tractor.
- Never allow children or untrained persons to operate equipment.
- Never allow riders.
- Keep bystanders away from equipment during operation.
- Keep all shields in place and in good condition.
- Do not transport towed or semi-mounted units over 20 mph.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

55122-D

7 - PN 1002941

⚠ WARNING



CRUSHING AND PINCHING HAZARD

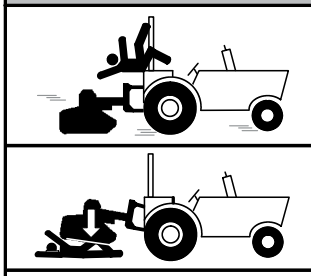
- Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

1002941-A

8 - PN 1004299

⚠ WARNING



FALLING OFF CAN RESULT IN BEING RUN OVER.

- Tractor must be equipped with ROPS (or ROPS CAB) and seat belt. Keep foldable ROPS systems in "locked up" position at all times.
- Buckle Up! Keep seat belt securely fastened.
- Allow no riders.

RAISED IMPLEMENT CAN DROP AND CRUSH.

- Never go underneath raised implement which can drop from equipment or tractor 3-point hitch hydraulic leak down, hydraulic system failures, movement of control levers, or mechanical linkage failures.
- Service work does not require going underneath implement. Read manual instructions.

FALLING OFF OR GOING UNDERNEATH IMPLEMENT CAN RESULT IN SERIOUS INJURY OR DEATH.

1004299

9 - PN 33347

⚠ DANGER



GUARD MISSING. DO NOT OPERATE.

⚠ DANGER



GUARD MISSING. DO NOT OPERATE.

33347

⚠ DANGER

Be Careful!

- Keep safety decals clean and visible. 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.
- Replace safety decals if they are missing or illegible. Replacement safety decals can be ordered free from your Oregon dealer. To locate your nearest dealer, check the Dealer Locator at OregonProducts.com, or in the United States and Canada call 1-800-525-8322.
- Apply replacement decals to clean dry surface. See page 9 for decals location. Use even pressure to remove any bubbles from beneath the decal.

Operation

The RT rotary tiller is designed for completion of plowing operations and seedbed preparation. It breaks up clods, levels the soil surface, destroys weeds, and mixes in fertilizer. Refer to the information in this manual for the specifications, parts, assemblies, and adjustments.

The operator is responsible for the safe operation of this rotary tiller. The operator must be properly trained. Operators should be familiar with the tractor, tiller, and all safety practices before starting operation. Read the safety rules and safety decals on page 6 through page 10.

⚠ WARNING

- **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. To locate your nearest dealer, check the Dealer Locator at OregonProducts.com, or in the United States and Canada call 1-800-525-8322.) Failure to follow instructions or safety rules can result in serious injury or death.**
- **Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in “locked up” position at all times.**
- **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Never allow children or untrained persons to operate equipment.**
- **Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. 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. Follow Operator’s Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.**

- **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**
- **Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.**
- **Operate tractor PTO at 540 RPM. Do not exceed.**
- **Make sure attachment is properly secured, adjusted, and in good operating condition.**
- **A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up resulting in loss of steering. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.**

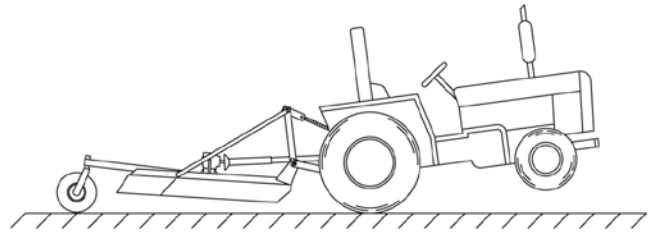


Figure 1. Tractor Stability (Typical)

Attaching Rotary Tiller To Tractor

1. Move the tractor into position in front of the tiller. Move back slowly and carefully, not allowing anyone to be between the tractor and the tiller.
2. Turn off tractor engine.
3. Place the two lower arms of the 3-point hitch over outer hitch pins. Secure with klik pin (not provided).
4. Attach the tractor center link to the upper hitch point of the rotary tiller. Adjust the length of the center link until the tops of the frame ends are parallel to the ground.
5. Adjust the tractor lower 3-point arm anti-sway devices to prevent tiller from swinging side to side during transport.
6. Attach the front PTO driveline from the rotary tiller to the tractor. (Slide the front section of the PTO driveline into the back section. Slide the PTO shaft onto the rear PTO output of the tractor).

NOTICE

If the PTO driveline is too long, severe driveline and gearbox damage is possible when hooking up the PTO driveline from the rotary tiller to the tractor. The front PTO driveline is long enough to fit a variety of tractors. It is possible that the front PTO driveline will need to be cut. There will be NO benefit by cutting only one telescoping section. Both sections of the driveline must be cut. **DO NOT FORCE THE PTO TO FIT.**

WARRANTY IS VOID IF THE PTO DRIVELINE IS TOO LONG, resulting in gearbox, PTO, yoke or cross bearing damage.

NOTICE

The PTO driveline, when attached to the tractor and gearbox, must not extend so there is less than four inches of overlap within the PTO driveline.

7. Raise park stand and secure in operating position.



Figure 2. Park Stand - Operating Position



Figure 3. Park Stand - Storage Position

Driveline Attachment

Attach the rotary tiller to the tractor 3-point hitch (or quick hitch if available). Do not attach driveline. Raise and lower the tiller to determine maximum and minimum distance between the tractor PTO shaft and the gearbox input shaft. If the distance is too large, the driveline will be too short for proper engagement. If the distance is too small, the driveline may bottom out in operation and damage the tiller or tractor.

If the driveline is too short, please call your Oregon dealer for a longer driveline.

If the driveline is too long, please follow the instructions for shortening the driveline.

Shortening Driveline

1. Move the tiller up and down to get the shortest possible distance between tractor PTO shaft and gearbox input shaft. Leave the tiller in the minimum distance position. Install jack stands under the tiller for support.
2. Separate the driveline into two halves and connect them to the tractor and the gearbox.
3. Place driveline halves parallel to one another to determine how much to shorten the driveline.

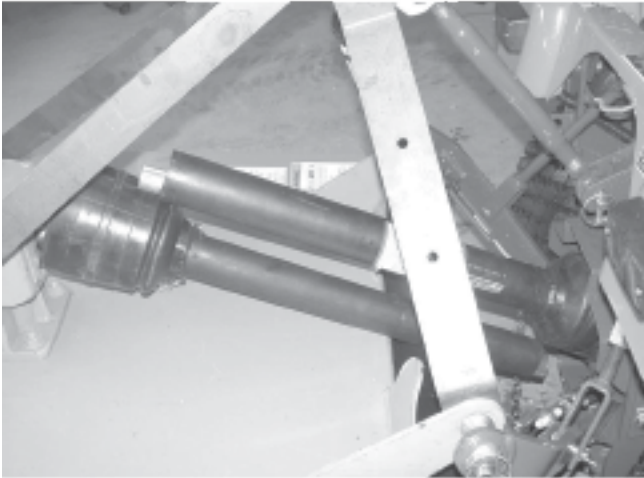


Figure 4. Drive Halves Placed Parallel

4. Measure from end of the upper shield to the base of the bell on the lower shield (A). Add 1-1/2" to dimension (A).

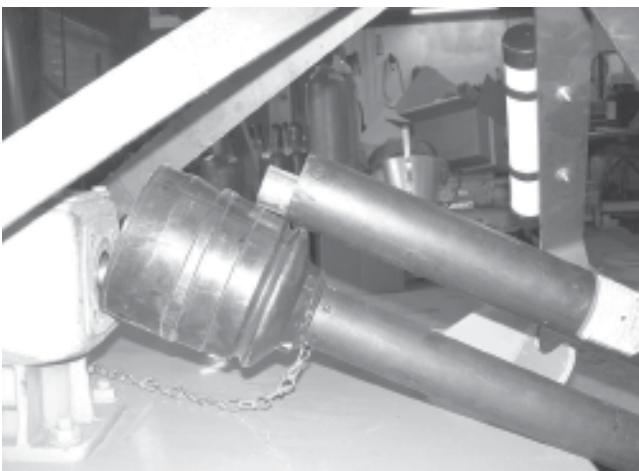


Figure 5. Determine Shield Length

5. Cut the upper shield to this overall dimension

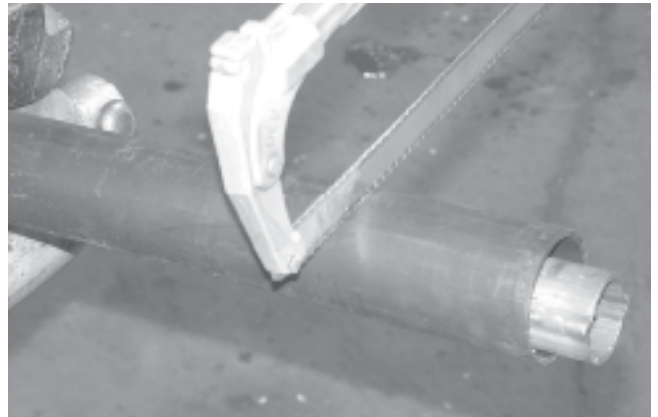


Figure 6. Cut Shield

6. Place the cut portion of the shield against the end of the shaft and use as a guide. Mark and cut the shaft.

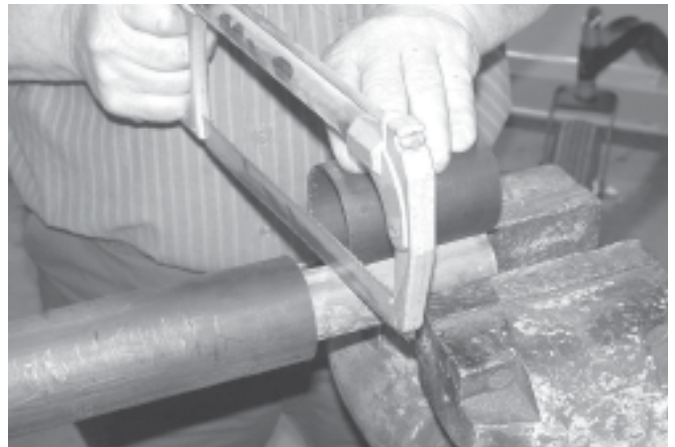


Figure 7. Cut Shaft to Length

7. Repeat step 6 for the other half of the drive.
8. File and clean the cut ends of both drive halves. Ensure the drive halves slide smoothly together.

Do not run the tractor if proper driveline engagement cannot be obtained through these methods.

Connect the driveline to tractor PTO shaft, making sure the spring-activated locking collar slides freely and locks driveline to PTO shaft.

NOTICE

If attaching with quick hitch, the distance between the tractor PTO and gearbox input shaft will increase. Please follow the steps as you would for a 3-point hitch to insure proper engagement.

Working Depth Adjustment

⚠ WARNING

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

1. Raise the tiller off the ground.
2. Level tiller side to side. Check by measuring from the forward skid shoe pivot to the ground on each side. (Figure 8)
3. Adjust, using tractor 3-point arm leveling device.

NOTICE

Keep the front of the tiller parallel to the ground.

4. Place two jack-stands under the tiller rotor shaft.

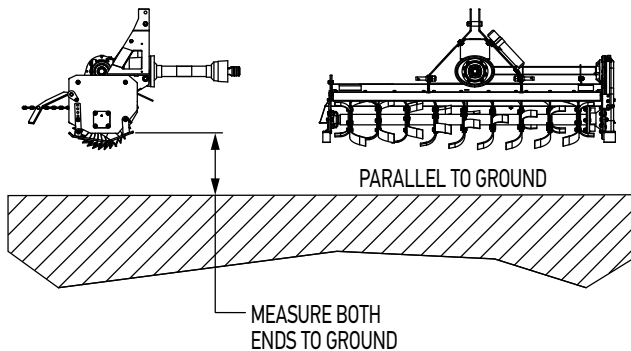
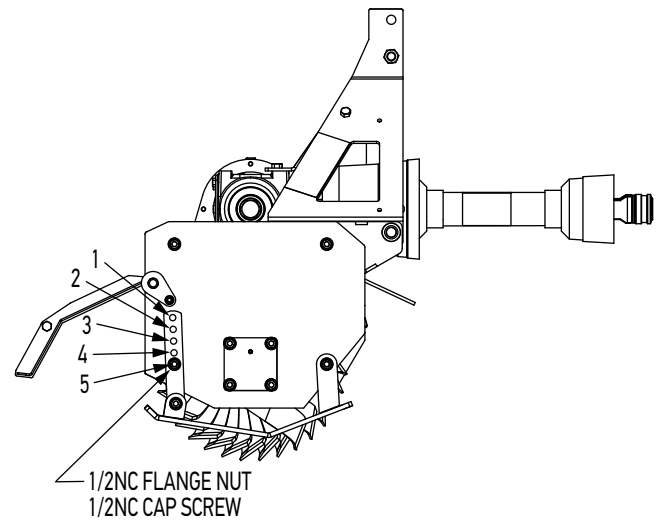


Figure 8. Leveling the Tiller

5. Loosen the 1/2" cap screws that act as the front pivots to the skid shoes. Remove the 1/2" cap screws (46) that hold the rear of the skid shoes to the tiller frame.

6. Adjust the skid shoe to the desired tilling depth (Figure 9). Reinstall the cap screws in the rear of the skid shoe and tighten all cap screws.



Hole	First Pass Depth
1	0"
2	1"
3	2"
4	3"
5	4"

Figure 9. Tiller Depth Adjustment

NOTE: Tillage depth is dependent on ground hardness, tractor speed, skid shoe setting, and tractor hitch adjustment. Multiple passes may be necessary to achieve tillage depth.

Tiller Offset

The RT tillers come with a fixed gearbox offset, so that the tiller can cover a tractor width larger than its width. The offset is to the right as sitting in the tractor seat. By tilling in a clockwise rotation, tire tracks can be reduced or eliminated. Below is a chart which outlines the tractor width that can be paired with a tiller.

Tiller Model	Offset	Tractor Width
480RT	3"	54"
600RT	2.25"	64.5"
720RT	2.25"	76.5"

Figure 10. Tiller Offset Chart

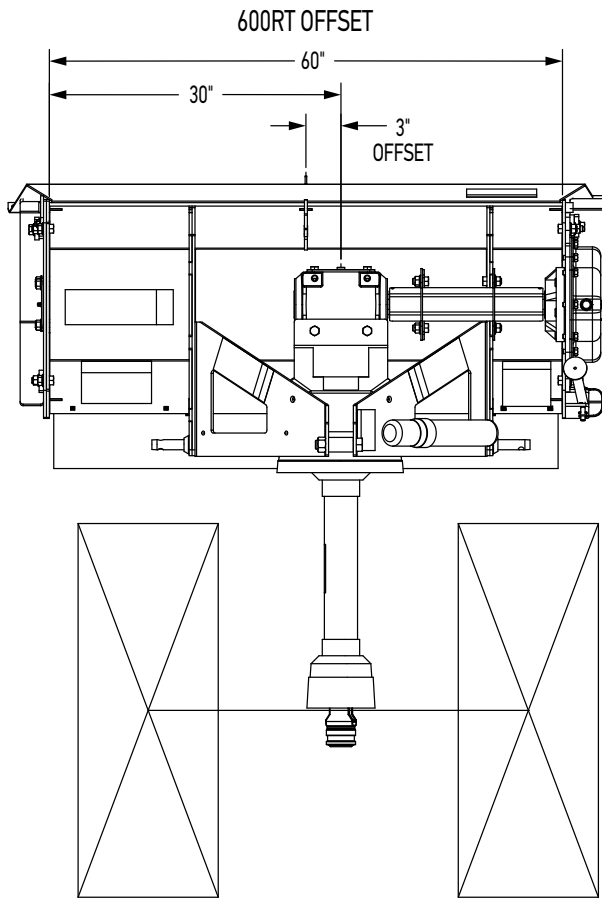


Figure 11. Tiller Offset

TILLING DIRECTION TO
COVER TRACTOR TIRE TRACKS

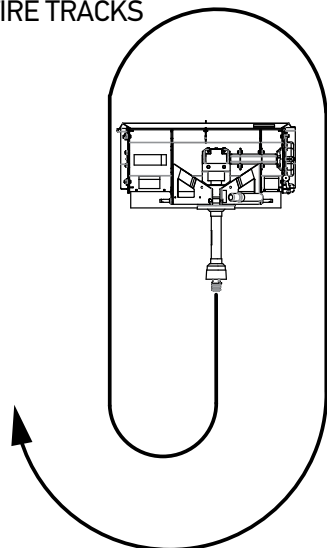


Figure 12. Clockwise Tilling Direction

Operating Procedure

⚠ WARNING

- **Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.**
- **Read and understand the rotary tiller and tractor operator's manuals before operating the tiller. Failure to do so may result in death, serious personal injury or property damage.**
- **Never raise the tiller more than a few inches off the ground when traveling from work area to work area.**
- **Shut off the engine, set brake, remove key and remove seat belt. Dismount the tractor.**
- **Refer to Tractor Manual for proper operation of the tractor PTO.**

Clutch Run-In

Clutch run-in must be done prior to initial use and before each season or whenever tiller has been setting idle for more than two months. See Slip Clutch Adjustment page 20 for the run-in procedure.

After you have completed the run-in of the clutch, return to the operating instructions and proceed with start-up. Failure to run the clutch in could result in premature driveline failure and warranty will be voided.

Start-Up Sequence

1. Start tractor engine.
2. Lower tiller slowly, nearly to the ground.
3. Engage tractor PTO.
4. Lower the tiller completely to the ground.
5. Increase engine rpm to normal operating speed of 540 RPM.
6. Move tractor forward. Select a slow tractor speed and increase slightly until operation is satisfactory.

Rear Shield Adjustment

The rotary tiller tailgate can be adjusted to control the tilth of the soil. The finest finish is achieved with the tailgate at the lowest adjustment. As the tailgate is raised, or adjusted up, the finish of the soil will become more coarse. Raising the tailgate reduces the amount of recirculation that occurs to the soil inside the tiller housing. If the soil conditions are very rocky, the tailgate should be run in a raised position so rocks may pass through the tiller more quickly.

NOTICE

Do not drop tiller to the ground with the rotor turning. Sudden high speed jolts multiply stress to the driveline and can cause extreme damage.

Operating Techniques

Tilling Sod and Untilled Ground

For tearing up untilled sod or conditioning compacted soils, several shallow passes will be most productive. Set the skid shoes to one of the two most shallow positions. A gear should be selected on the tractor for a slow travel speed. Progressive passes can be done at progressively faster speeds.

NOTICE

After tilling for the first half hour, check for loose blades and re-tighten any loose hardware. Follow the shutdown procedure and blocking method before checking blades.

Previously Tilled Ground

To pulverize the topsoil and prepare a good seedbed, set the skid shoes for a tilling depth equivalent to your deepest roots. Adjust the tailgate to the fully lowered position. A tractor gear should be selected such that the tiller does not lug the engine.

Transportation

WARNING

A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up resulting in loss of steering. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.

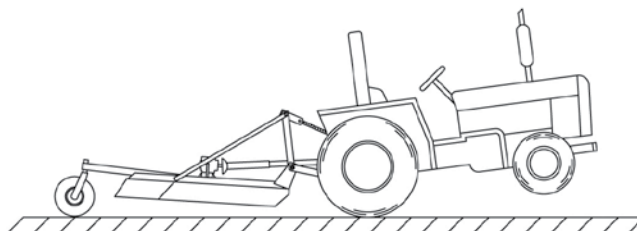


Figure 13. Tractor Stability (Typical)

1. Disengage the PTO and wait for all moving parts to come to a complete stop. Raise the tractor 3-point arms to bring the cutter into transport position.
2. With tiller adjusted to transport position, set upper stop on tractor lift quadrant to prevent cutter from contacting driveline while being raised.

Storage

WARNING

Keep children and bystanders away from storage area.

1. Disconnect cutter driveshaft and secure up off ground. Raise cutter with 3-point hitch.
2. Place blocks under cutter side skids.
3. Lower cutter onto blocks.
4. Disconnect cutter from tractor 3-point hitch and carefully drive tractor away from cutter.
5. Perform the Pre-Operation Check List, page 17 when returning to use.

Pre-Operation Check List

(Owner's Responsibility)

- Review and follow all safety rules and safety decal instructions on page 6 through page 10.
- 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 all hardware is properly installed and secured.
- Check that equipment is properly and securely attached to tractor.
- Before starting tractor, check all equipment driveline guards for damage and make sure they rotate freely on all drivelines. Replace any damaged guards. If guards do not rotate freely on drivelines, repair and replace bearings before operating.
- Do not allow riders.
- Make sure driveline spring-activated locking collar slides freely and is seated firmly in tractor PTO spline groove.
- Keep all bystanders away from equipment working area.
- Check all lubrication points and grease as instructed in the Lubrication Maintenance illustration, page 20.
- Make sure tractor ROPS or ROPS CAB and seat belt are in good condition. Keep seat belt securely fastened during operation.
- Check to be sure gear lube runs out of the small check plug on the side of each gearbox.
- Check the condition of the tiller blades. Replace any blades that are broken or excessively worn.
- Check for objects that may be wound around the tiller rotor shaft. Objects like wire, string, tall grass and weeds can build up on the rotor shaft and affect tiller operation.

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 the safety information in this manual.

WARNING

- **Keep all persons away from operator control area while performing adjustments, service, or maintenance.**
- **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**
- **Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**
- **Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. 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. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.**
- **Before performing any service or maintenance, disconnect driveline from tractor PTO.**
- **Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.**
- **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Never perform service or maintenance with engine running.**
- **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**

CAUTION

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

Blocking Method

To minimize the potential hazards of working underneath the tiller, follow these procedures.

1. Jack stands with a load rating of 500 lbs or more are the only approved blocking device for this tiller. Install a minimum of two jack stands under the tiller, while tiller is still attached to tractor 3-point hitch, before working underneath it.
2. Consider the overall stability of the blocked unit. Just placing jack stands underneath will not ensure your safety.

The working surface must be level and solid to support the weight on the jack stands. Make sure the jack stands are stable, both top and bottom. Make sure the tiller is approximately level.
3. With the full weight of the tiller on the jack stands, test blocking stability before working underneath.
4. Set the brakes and remove key before working underneath.
5. Securely block rear tractor wheels, in front and behind. Tighten tractor lower 3-point arm anti-sway devices to prevent side-to-side movement.

Regular preventive maintenance and immediate repair of broken or worn parts will ensure maximum efficiency and long life.

Because of the nature of the jobs the rotary tiller does, the tiller is constantly vibrating and shaking. Parts may become loose during use. One of the most important functions an operator can perform is observing and inspecting the equipment for loose or worn parts to prevent further damage or excessive downtime.

Lubrication Information

1. Do not let excess grease collect on or around parts, particularly when operating in sandy areas.
2. See Figure 14 for lubrication points and frequency of lubrication based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.
3. Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations unless otherwise noted. Be sure to clean fittings thoroughly before attaching grease gun. Two good pumps of most guns is sufficient when the lubrication schedule is followed.

PTO Drive Lines

Periodically check the yokes on front PTO. Make sure the bolts and nuts are tight and the yoke is not moving on the shaft. PTO shafts and U-joints should be sparingly lubricated monthly.

Qualified Technician Maintenance

Gearbox Lubrication

The gearboxes should be checked quarterly to be sure that the oil level is maintained at half full. Use plug located halfway up back face of gearbox to check/fill oil. A high quality gear oil with a viscosity index of 80W or 90W and an API service rating of GL-4 or -5 is recommended for use in the gearboxes. Oil should be changed after the first 30 hours or 30 days of operating; then checked regularly for leakage. In the case of seasonal usage, it is best to change the oil at the end of the season to remove moisture and corrosive contaminants.

Use a 5/16" Allen wrench to remove fill plug.

Bearing Lubrication

Lubrication of the bearings will vary considerably with conditions. As a rule, bearings should be underlubricated rather than over-lubricated. Over-lubrication can cause seals to blow out.

NOTICE

Replacement bearings should be only high quality original equipment bearings for longer life.

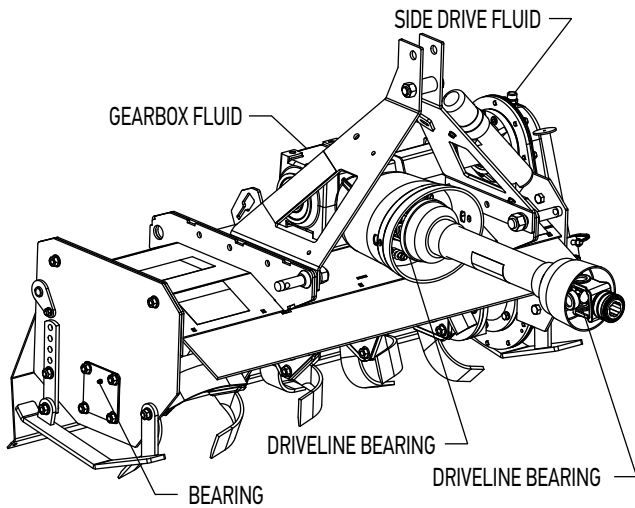
Install new complete bearing housing if needed or just replace the bearing insert. The shafts should be straight, free of burrs, and up to size. If shaft is worn, replace it prior to completing assembly.

Bearing And Shaft Service

1. Place tiller on level, dry surface and block tiller. (See Blocking Method).
2. Support rotor shaft with blocking or strap so that bearing assembly does not support weight of rotor.
3. Remove 1/2" flange lock nuts from bearing cover, gasket and external snap ring from shaft.
4. End plate may be removed from frame to repair or replace bearing assembly by removing top two 1/2" flange lock nuts and bolts.
5. Replace inside gasket, bearing assembly, bearing, internal snap ring, or double lip seal as needed.
6. Install bearing assembly on shaft locking into place with external snap ring.
7. Install inside gasket and end plate onto bearing and main frame with top two 1/2" bolts and nuts and bolts in bearing assembly.
8. Place outside gasket and bearing cover over end- plate and bolts with 1/2" flange lock nuts tightened into place.
9. Add grease into bearing cavity so that it is half filled. (Approximately 40 pumps)

Driveline Lubrication

1. Lubricate the driveline slip joint every 8 hours of operation. Failure to maintain proper lubrication could result in damage to u-joints, gearbox, and driveline.
2. Lower tiller to ground, disconnect driveline from tractor PTO shaft, and slide halves apart. Do not disconnect the halves from each other.
3. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.
4. Apply one pump of grease to each driveline u-joint grease fitting.
5. Apply one pump of grease to each of the plastic driveline shield bearings.

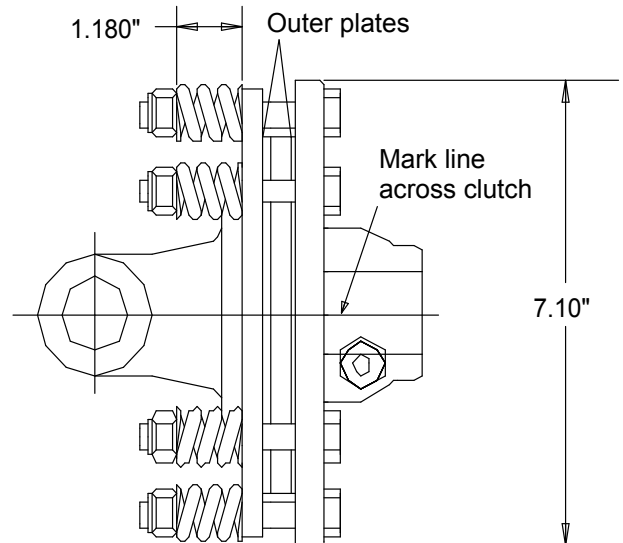


Location	Frequency
Driveline Bearings	8 hours
Rotor Bearing	8 hours
Input Gearbox	Check Daily
Side Drive Gearbox	Check Daily

Figure 14. Lubrication Points

Slip Clutch Adjustment

1. Turn off tractor engine and remove key.
2. Loosen nuts on springs until the springs can rotate freely, yet remain secure on the bolts.
3. Mark outer plates of slip-disc clutch as shown in Figure 15.
4. Securely attach implement to the tractor and start the tractor.
5. Engage PTO for several seconds then quickly disengage it.
6. Turn tractor off and remove key.
7. The friction lining plates should have "slipped", or moved. Check the marks placed on the outer plates of the slip-disc clutch in step 3 to make sure this is the case.
8. If clutch does not slip, check assembly for oil, grease and debris. Clean if necessary.
9. Reassemble clutch and tighten bolts no more than 1/8 of a turn at a time until desired compressed spring length.
10. If excessive slippage continues, check lining plates for excessive wear. They are .12" thick for the 480RT tiller and .14" thick for the 600RT and 720RT tillers. They should be replaced when there is only .05" thickness left to ensure proper operation.



Tiller Model	Dim. "A"	Dim. "B"
480RT	1.210"	6.3"
600RT & 720RT	1.180"	7.1"

Figure 15. Slip Clutch Adjustment

Cleaning

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 spray.
 1. Be careful when spraying near scratched or torn safety decals or near edges of decals as water spray can peel decal off surface.
 2. Be careful when spraying near chipped or scratched paint as water spray can lift paint.
 3. If a pressure washer is used, follow the advice of the pressure washer manufacturer.
- Inspect machine and replace worn or damaged parts.
- Sand down scratches and the edges of areas of missing paint and coat with Oregon spray paint of matching color (purchase from your Oregon dealer).
- Replace any safety decals that are missing or not readable (supplied free through your Oregon dealer). See Safety Decals section for location drawing.
- Lower skid shoes and park stand to the lowest position for stability during storage.

Blade Installation

Four Blade Installation

1. Remove any burrs on flanges generated from blades that have slipped.
2. Start blade assembly with first blade installed next to rotor shaft flange.

NOTICE

Blade cutting edges should face the direction of rotation.

3. Install blade inside flange pocket with blade hole closest to end matching holes in flanges.
4. Install bolt through flange, blade, flange, and nut but do not tighten completely.
5. Rotate blade backwards until blade profile is seated on flange embossments in the flange pockets.
6. Tighten bolted joint to 140 lbs-ft.
7. Proceed by installing next blade of the same part number in next flange.
8. Repeat steps 2-7 installing opposite hand blade in next flange hole until all four rows of blades are installed.

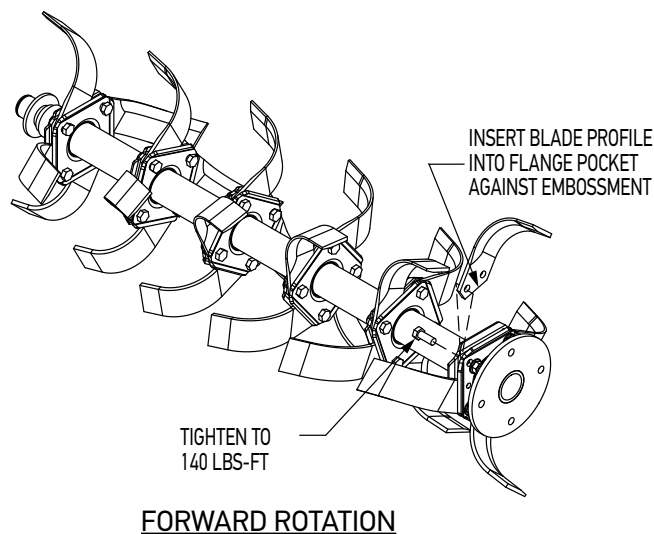


Figure 16. Four Blade Forward Rotation Blade Installation

Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Rotor will not turn.	Tractor PTO not engaged.	Check control lever or tractor manual for resetting PTO.
	Clutch friction discs worn.	Check and replace.
	Obstruction between rotor and frame.	Check and clear obstruction.
	Gearbox damaged.	Check that output shaft rotates.
Tiller won't cut.	Skid shoes set too shallow.	Raise skid shoes one hole.
	Blade orientation does not match tiller rotation.	Reverse all blades.
Tiller stalls when tilling.	Skid shoes set too deep.	Lower skid shoes one hole.
Tilled soil is too fine.	Too much regrinding.	Raise tailgate or increase travel speed.
Tilled soil is too coarse.	Too little regrinding.	Lower tailgate or decrease travel speed.
Grass and weeds wrapping rotor.	Grass too tall.	Mow grass before tilling.
	Tiller not level.	Adjust top link of 3-point hitch.
Oil leaks.	Worn or damaged seal.	Inspect and replace.
	Loose or damaged hoses or connections.	Check for leaks and repair or replace.
	Worn or damaged housing.	Inspect and replace if required.
	Breather leaking.	Turn breather hole, check oil level.
	Wrong type of oil installed.	Check specification chart for proper oil grade.
Excessive noise.	Rotor blade hardware is loose or missing.	Tighten loose blade hardware. Replace missing blade hardware.
	Hex shaft shield.	Check for axial clearance between gearboxes and hex shield ends.

Dealer Service

The information in this section is written for dealer service personnel. The repair described here requires special skills and tools. If your shop is not properly equipped or your mechanics are not properly trained in this type of repair, do not attempt this repair.

WARNING

- **Before working underneath, disconnect driveline, raise cutter, lock in transport position, and block cutter securely. Hydraulic system leak down and failure of mechanical or hydraulic system can cause equipment to drop.**
- **Keep all persons away from operator control area while performing adjustments, service, or maintenance.**

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.

Gearbox Maintenance

NOTE: Read this entire section before starting any repair. Many steps are dependent on each other.

1. Fill gearbox with SAE 80W or 90W gear lube until it runs out the side level plug.

NOTE: Repair to this gearbox is limited to replacing bearings, seals, and gaskets. Replacing gears, shafts, and a housing is not cost effective. Purchasing a complete gearbox is more economical.

2. Inspect gearbox for leakage and bad bearings. Leakage is a very serious problem and must be corrected immediately. Bearing failure is indicated by excessive noise and side-to-side or end-to-end-play in gear shafts.

Seal Replacement

Recommended sealant for gearbox repair is Permatex® Aviation 3D Form-A-Gasket or equivalent.

Leakage can occur at the vertical or horizontal gaskets and shaft seals.

Leakage at the horizontal gasket or seal can be repaired without removing the gearbox from the cutter.

Seal Installation

NOTE: Proper seal installation is important. An improperly installed seal will leak.

1. Clean area in housing where seal outer diameter (OD) seats. Apply a thin coat of Permatex.
2. Inspect area of shaft where seal seats. Remove any burrs or nicks with an emery cloth.
3. Lubricate gear shaft and seal lips.
4. Place seal squarely on housing, spring-loaded lip toward housing. Select a piece of pipe or tubing with an OD that will sit on the outside edge of the seal but will clear the housing. Tubing with an OD that is too small will bow seal cage and ruin seal.
5. Carefully press seal into housing, avoiding distortion to the metal seal cage..

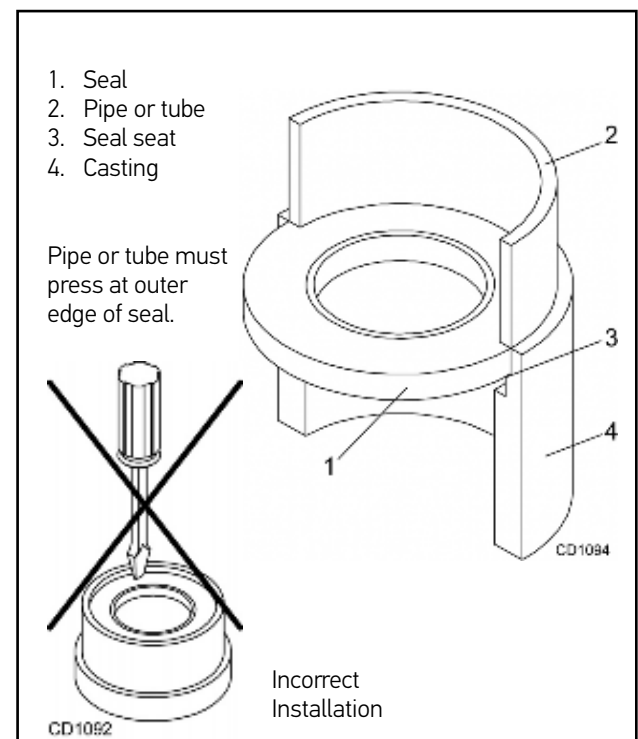


Figure 17. Seal Installation

Input Shaft Repair

1. Disconnect and remove the driveline and driveline shield from the gearbox.
2. Remove drain plug and drain gear lube from the gearbox.
3. Remove mast plates from the tiller frame.
4. Remove shaft seal. Replace with new seal (see Seal Installation, page 23).

NOTICE

Distortion to seal cage or damage to seal lip will cause seal to leak.

5. Reinstall drain plug and remove fill plug. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.
6. Follow the instructions 1-3 in reverse order for assembly.

Output (Hollow) Shaft Repair

1. Disconnect and remove the driveline from the gearbox.
2. Remove drain plug and drain gear lube from the gearbox.
3. Remove the gearbox hex drive shield.
4. Remove internal snap ring and washer from gearbox end.
5. With the snap ring removed, the hex drive shaft can be removed through the side of the tiller gearbox.
6. The faulty shaft seal can be removed and replaced with a new seal (refer to Seal Installation, page 23).
7. Follow the instructions 1 through 5 in reverse order for reassembly.

Side Drive Repair

1. Place tiller on jack stands and turn off tractor.
2. Remove top 1/2" breather.
3. Place oil catch basin underneath side drive and remove 16 - 3/8" bolts and washers.
4. Remove cover pan and retain gasket, inspecting it for cracks or tears.
5. Repair and replace as needed.
6. Follow the instructions 1 through 4 in reverse order for reassembly.

Universal Joint Repair

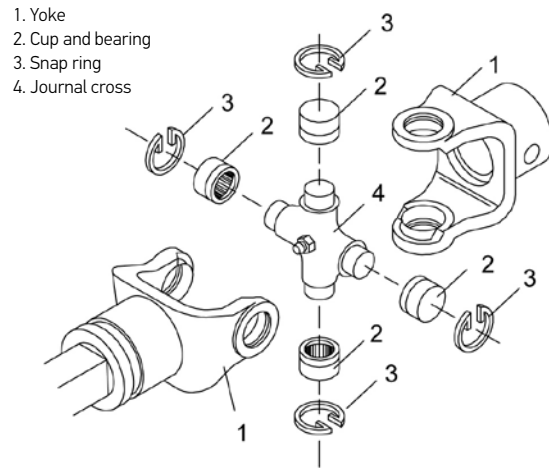


Figure 18. Universal Joint Parts Breakdown

U-Joint Disassembly

1. Remove external snap rings from yokes in four locations as shown in Figure 19.

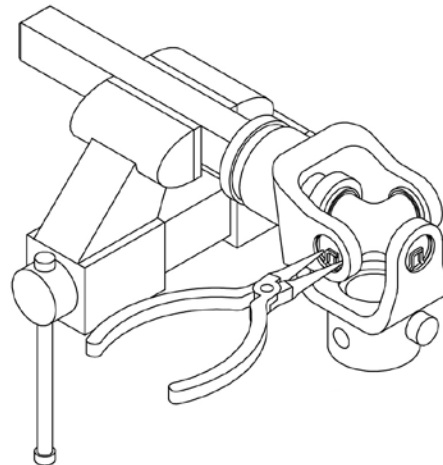


Figure 19. Remove Snap Ring

2. With snap rings removed, support drive in vise, hold yoke in hand and tap on yoke to drive cup up out of yoke. See Figure 20.

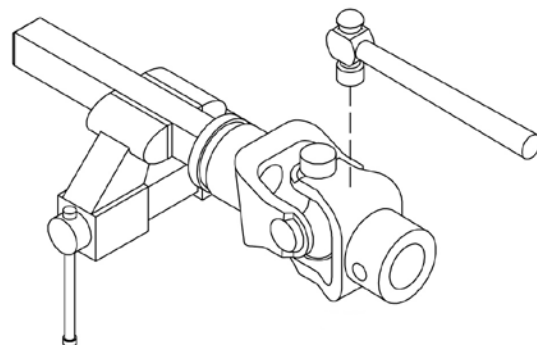


Figure 20. Remove Cups

3. Clamp cup in vise as shown in Figure 21 and tap on yoke to completely remove cup from yoke. Repeat Step 2 and Step 3 for opposite cup.

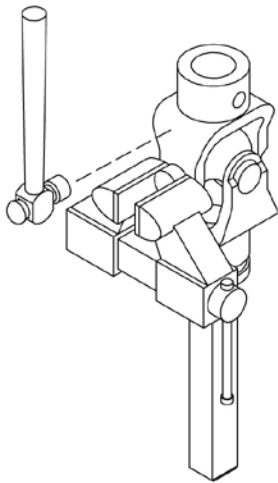


Figure 21. Remove Cups

4. Place universal cross in vise as shown in Figure 22 and tap on yoke to remove cup. Repeat Step 3 for final removal. Drive remaining cup out with a drift and hammer.

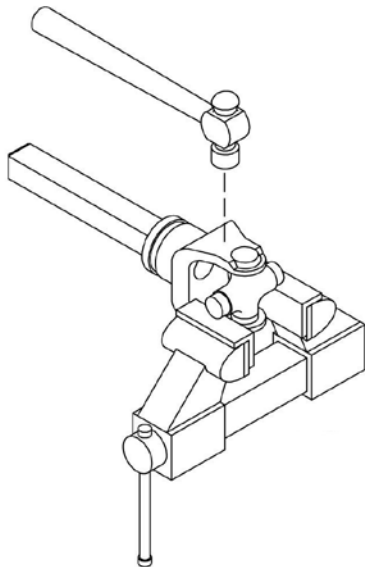


Figure 22. Remove Cups

U-Joint Assembly

1. Place seals securely on bearing cups. Insert cup into yoke from outside and press in with hand pressure as far as possible. Insert journal cross into bearing cup with grease fitting away from shaft. Be careful not to disturb needle bearings. Insert another bearing cup directly across from first cup and press in as far as possible with hand pressure.
2. Trap cups in vise and apply pressure. Be sure journal cross is started into bearings and continue pressure with vise, squeezing in as far as possible. Tapping the yoke will help.
3. Seat cups by placing a drift or socket (slightly smaller than the cup) on cup and rap with a hammer. See Figure 23. Install snap ring and repeat on opposite cup
4. Repeat Step 1 and Step 2 to install remaining cups in remaining yoke.
5. Move both yokes in all directions to check for free movement. If movement is restricted, rap on yokes sharply with a hammer to relieve any tension. Repeat until both yokes move in all directions without restriction.

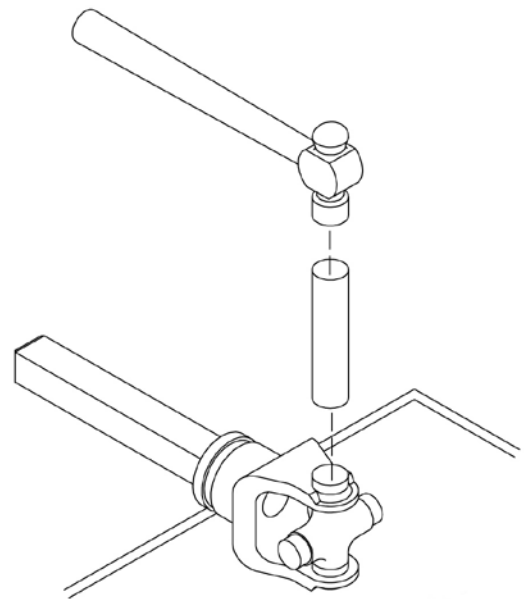


Figure 23. Install Cups

Assembly

It is important to follow all of the instructions below related to assembly. Please read the entire section and ensure you understand all of the required steps. If you need any help, or if parts are missing, please contact your Oregon dealer at 1-800-525-8322.

⚠ WARNING

- **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**
- **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**

⚠ 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.

Set-Up Instructions

The rotary tiller is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware. See "Bolt Torque Chart" on page 36 for recommended torque values.

Select a suitable working area. Refer to illustrations, accompanying text, parts lists, and exploded view drawings. For reference, front, back, left, and right directions are determined by sitting in the tractor operator's seat.

Disassemble Shipping Unit

It is advisable to have a mechanical lifting device to facilitate uncrating. Be careful of nails in boards when uncrating.

1. Remove all parts that are wired and strapped to tiller and/or crate.
2. Remove top, sides, and ends of crate.
3. Remove front rubber shield from the bottom of the crate (reverse rotation models only).
4. Remove lag screws from L-shaped shipping brackets. Remove L-brackets from the tiller.
5. Remove tiller assembly from crate base.
6. Remove loose nails from boards and dispose of crate according to local codes.

Assembly Procedures

Required tools: 1/2", 9/16", 3/4", 1-1/8", and 13 mm combination wrenches, sockets, torque wrench, and jack stands.

1. Lower skid shoes to lowest position and stand tiller upright.
2. Lower park stand to support the front of the tiller with tiller sitting on the ground.
3. Install driveline shield (18) to gearbox input shaft using 8 mm bolts (38), 5/16 flat washers (39) and lock washers (40).
4. Install driveline (19) to gearbox input shaft. (Refer to page 12 for driveline attachment to tractor).
5. Attach mast plates (6 & 7) to tiller frame using 1/2" x 1-1/4" and 1/2" x 1-1/2" cap screws (45 & 46), and flange lock nuts (48). Attach gearbox mount (22) to gearbox with 1/2" x 1" cap screws (47). Secure to mast plates with 1/2" x 1" cap screws and 1/2" flange lock nuts.
6. Assemble Cat 1 quick hitch sleeve (56) between mast plates in lower hole in the top of mast plates. Secure with 3/4" x 3-1/2" cap screw (55) and lock nut (57).
7. Attach tailgate chain to tailgate using 1/2" x 1" cap screw (47) and flange lock nut (48). Thread the chain through the keyhole slot on the top of tiller frame. Secure the chain by sliding the desired link into the narrow portion of the keyhole slot.

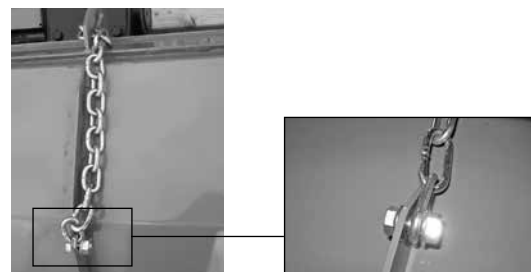
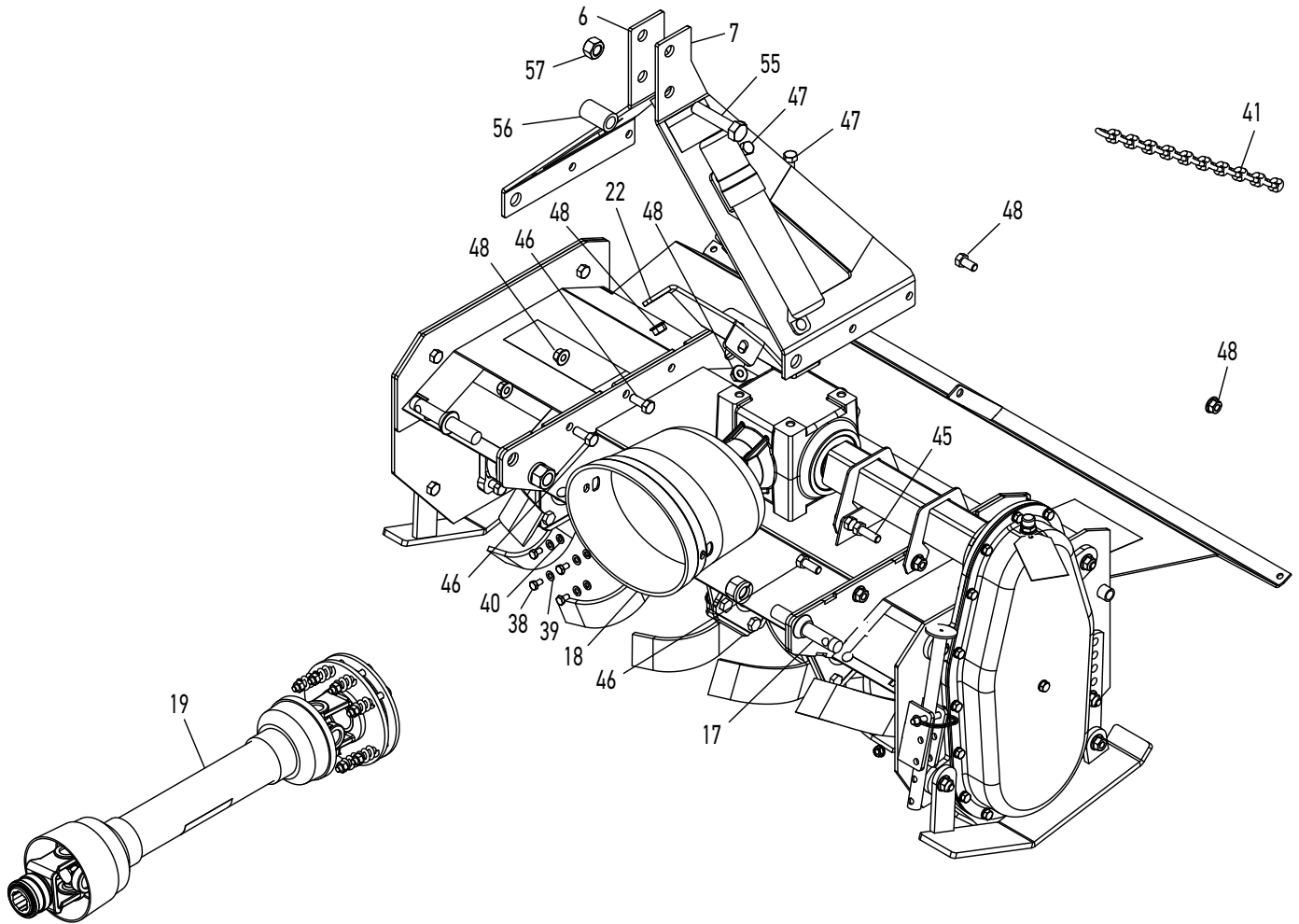


Figure 24. Attaching Tailgate Chain

8. Fill both gearboxes with SAE 80W or 90W gear lube until it runs out the side level plug.
9. Use a 5/16" Allen wrench to remove the fill plug.



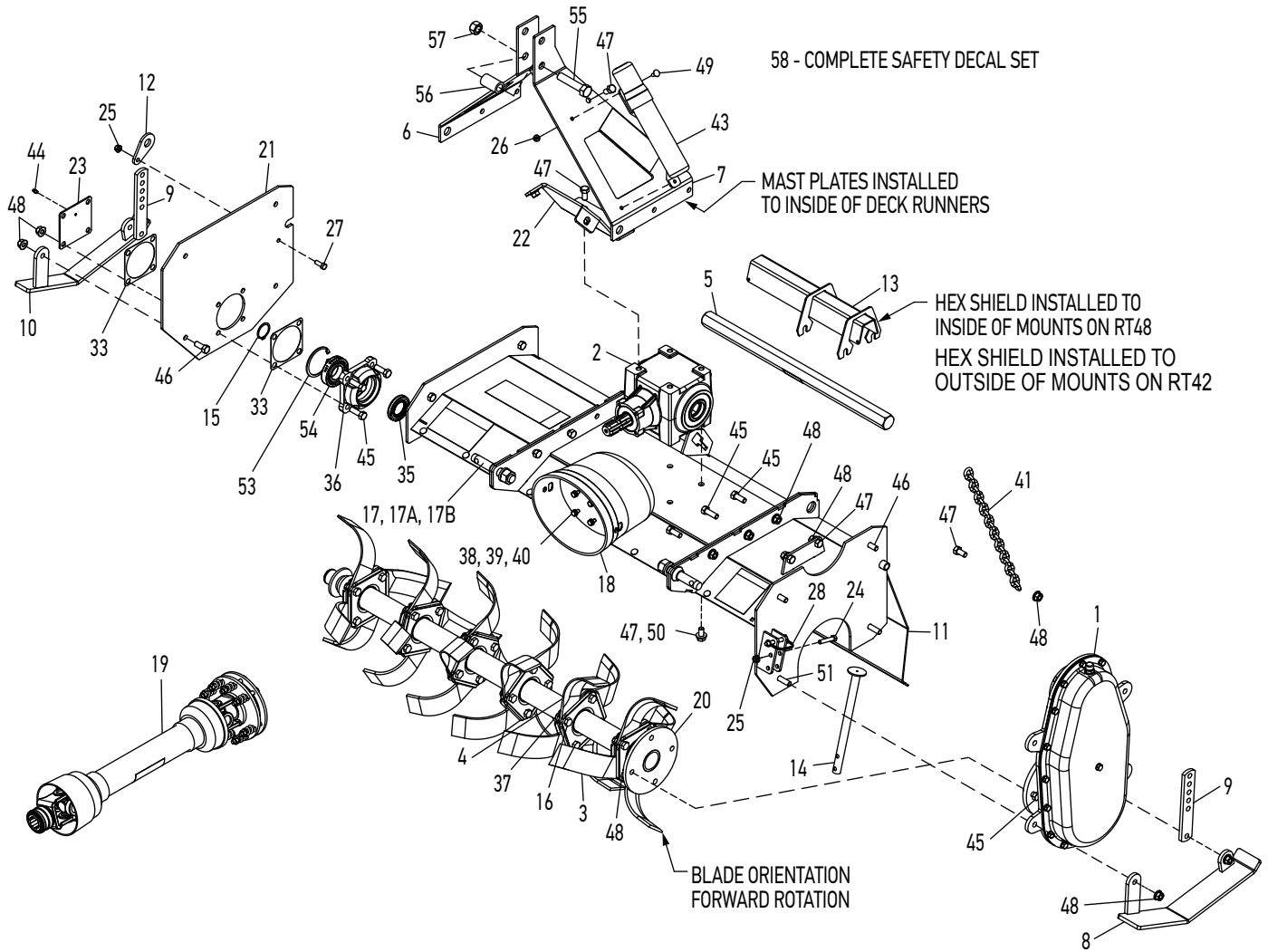
REF	PART	DESCRIPTION
6.	1043901	Right mast plate
7.	1043902	Left mast plate
17.	33661	Cat 1 mounting pin
18.	1002048	Clutch shield
19.	104236x	Drive assembly, complete
22.	1043920	Gearbox mount
38.	39254	M8-1.25P x 14 mm HHCS
39.	35155	5/16 SAE flat washer

40.	2472	5/16 Lock washer
41.	44638	1/4 Proof coil chain, 16 link
45.	3379	1/2 NC x 1-1/2 HHCS
46.	6100	1/2 NC x 1-1/4 HHCS
47.	25475	1/2 NC x 1 HHCS
48.	11900	1/2 NC Flange lock nut
55.	15007	3/4 NC x 3-1/2 HHCS
56.	1002018	Sleeve, .81 x 1.25 x 2.12
57.	2371	3/4 NC Lock nut

Figure 25 . Crate Assembly

Parts Index

Oregon 480RT Rotary Tiller Assembly



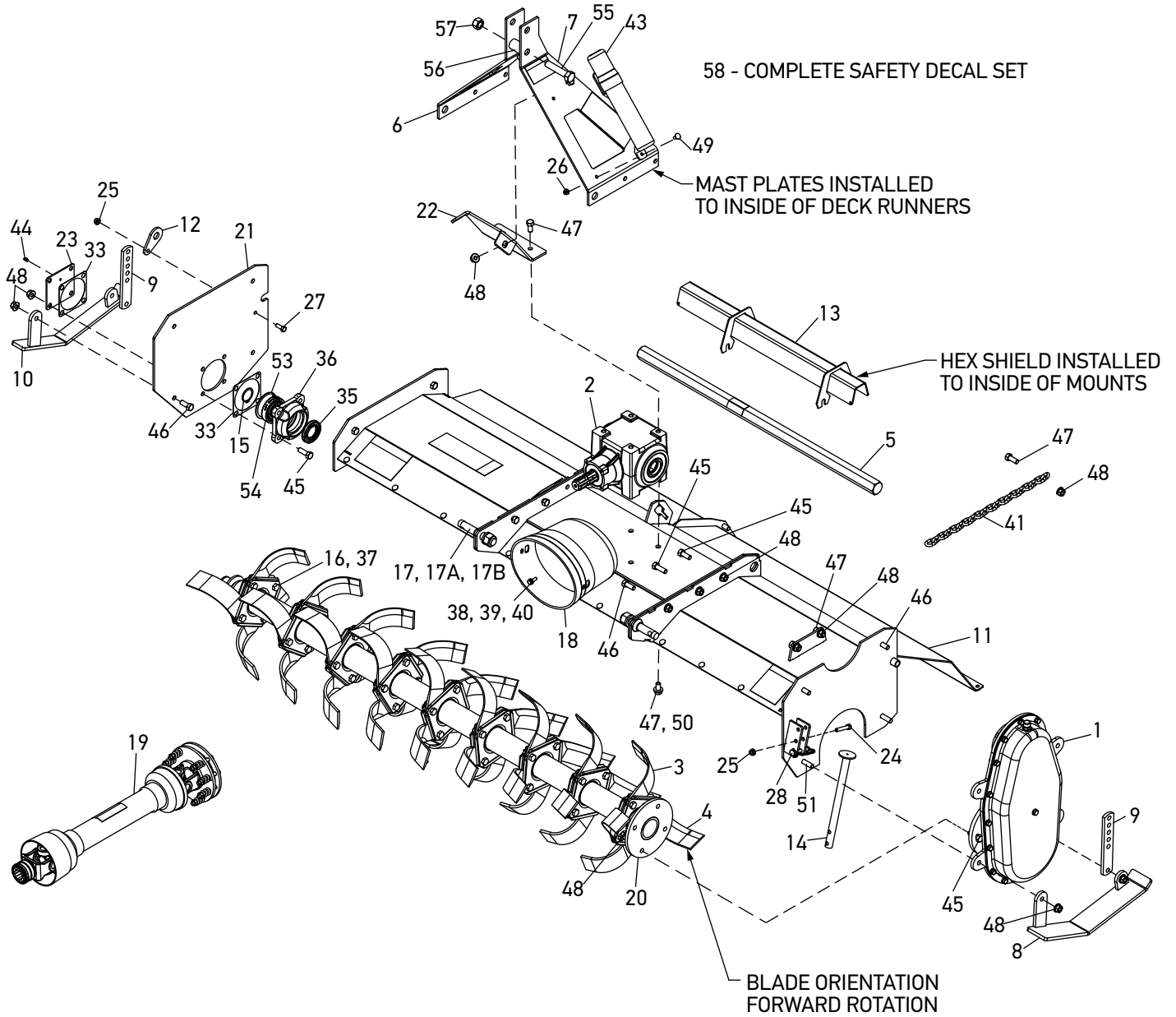
REF	QTY	PART	DESCRIPTION
1	1	1042319	Side drive assembly (See page 32)
2	1	1042304	Gearbox assembly, 1.46:1 1.50 hex (See page 35)
3		1031934 (12)	Speed blade, RH
4		1031935 (12)	Speed blade, LH
5	1	104391148	Hex shaft - 1.50
6	1	1043901	Mast plate, right
7	1	1043902	Mast plate, left
8	1	1043903	Skid shoe, left
9	2	1043904	Link, bolt on
10	1	1043905	Skid shoe, right
11	1	104390648	Tailgate
12	1	1043919	Link, tailgate mount
13	1	104390848	Shield, hex shaft
14	1	1043910	Parking stand
15	1	1034983	Snap ring, external, 40 mm
16		1031925 (24)	1/2 NC x 1-1/4 HHCS, GR8 w/ shank
17	2	33661RP	Category 1 mounting pin, w/ nut & lock washer
17A	2	30007RP *	Nut, hex 7/8 NF
17B	2	30008RP *	Washer, lock 7/8
18	1	1002048	Clutch shield
19	1	1042364	Drive assembly, complete (see page 34)
20	1	104391548	Rotor shaft
21	1	1043917	End plate
22	1	1043920	Gearbox mount
23	1	1043918	Bearing cover
24	1	3231 *	3/8 NC x 2 HHCS, GR5
25	2	14350 *	3/8 NC flange lock nut
26	2	W73163 *	5/16 NC flange whiz nut

REF	QTY	PART	DESCRIPTION
27	1	839 *	3/8 NC x 1 HHCS, GR5
28	1	H019	Lock pin, 3/8 x 2-1/4
33	2	1043088	Gasket
35	1	1042303	Seal, 40 x 70 x 10
36	1	1042352	Bearing asy, 6208 w/ seal
37		1031226 (24)	1/2 NC flange spirallock
38	4	39254*	M8-1.25P x 14 mm HHCS, CL8.8
39	4	35155 *	5/16 SAE flat washer
40	4	2472 *	5/16 lock washer
41	1	44638	Chain, 1/4 proof coil, 16 link
43	1	1026530	Manual storage tube
44	1	1972 *	1/4-28 tapered thread grease fitting
45	10	3379 *	1/2 NC x 1-1/2 HHCS, GR5
46	6	6100 *	1/2 NC x 1-1/4 HHCS, GR5
47	10	25475 *	1/2 NC x 1 HHCS, GR5, Full thread
48	22	11900 *	1/2 NC flange lock nut
49	2	16148 *	5/16 NC x 3/4 carriage bolt, GR5
50	4	57816	1/2 SAE flat washer, hardened
51	2	24576 *	1/2 NC x 1-3/4 HHCS, GR5
53	1	1034984	Snap ring, internal, 80 mm
54	1	20891	Ball bearing, 6208
55	1	15007 *	3/4 NC x 3-1/2 HHCS, GR5
56	1	1002018	Sleeve, .81 x 1.25 x 2.12
57	1	2371 *	3/4 NC Hex lock nut
58	1	1031976	RT Tiller safety decal set (not shown)
	1	630709	Decal, Model 480RT, OREGON

HHCS: Hex Head Cap Screw

* Standard Hardware, Obtain Locally

Oregon 600RT & 720RT Rotary Tiller Assembly



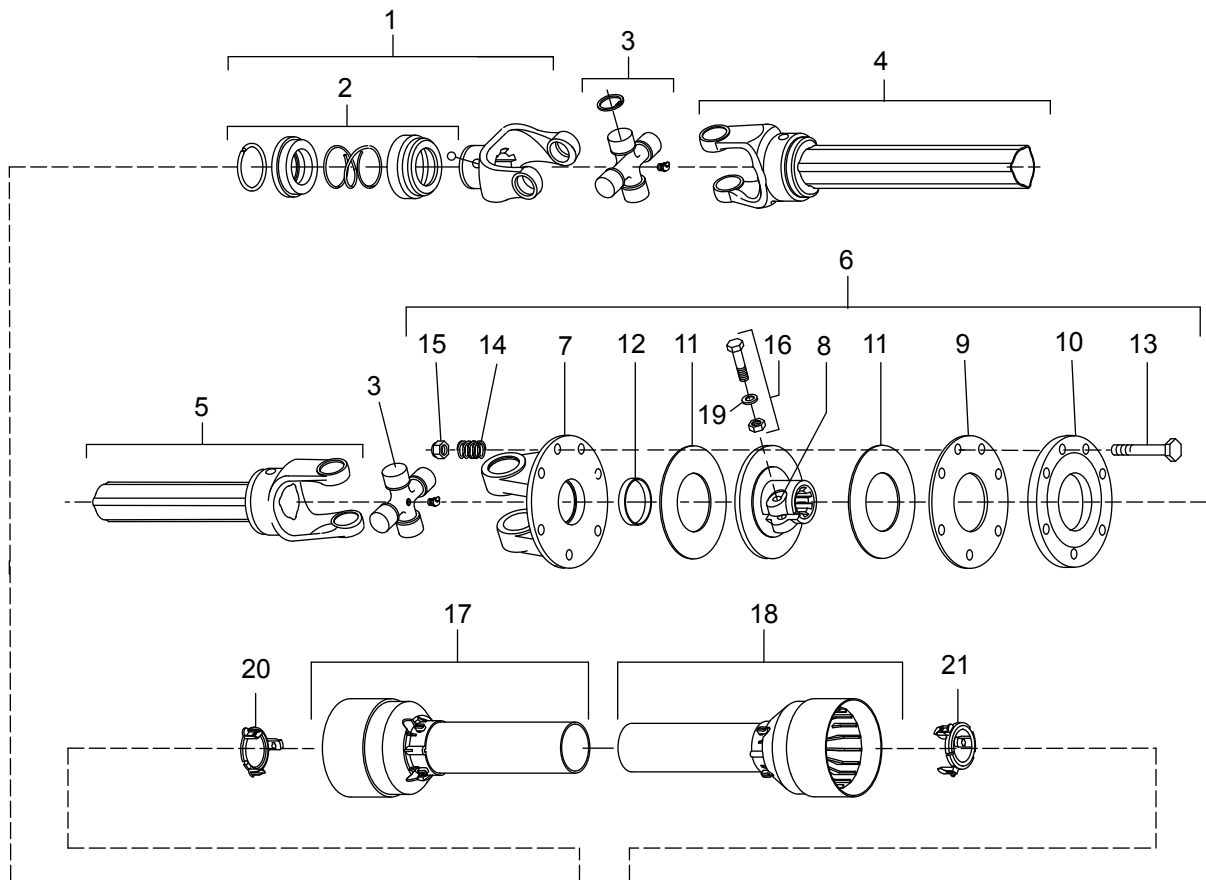
REF	QTY	600RT PART	720RT PART	DESCRIPTION
1	1	1042319	1042319	Side drive assembly (see page 34)
2	1	1042304	1042304	Gearbox assembly, 1.46:1 1.50 hex (see page 35)
3		1031934 (14)	1031934 (18)	Speed blade, RH
4		1031935 (14)	1031935 (18)	Speed blade, LH
5	1	104391160	104391172	Hex shaft - 1.50
6	1	1043901	1043901	Mast plate, right
7	1	1043902	1043902	Mast plate, left
8	1	1043903	1043903	Skid shoe, left
9	2	1043904	1043904	Link, bolt on
10	1	1043905	1043905	Skid shoe, right
11	1	104390660	104390672	Tailgate
12	1	1043919	1043919	Link, tailgate mount
13	1	104390860	104390872	Shield, hex shaft
14	1	1043910	1043910	Parking stand
15	1	1034983	1034983	Snap ring, external, 40 mm
16		1031925 (28)	1031925 (36)	1/2 NC x 1-1/4 HHCS, GR8 w/ shank
17	2	33661RP	33661RP	Category 1 mounting pin, w/ nut & lock washer
17A	2	30007RP *	30007RP *	Nut, hex 7/8 NF
17B	2	30008RP *	30008RP *	Washer, lock 7/8
18	1	1002048	1002048	Clutch shield
19	1	1042365	1042365	Drive assembly, complete (see page 33)
20	1	104391560	104391572	Rotor shaft
21	1	1043917	1043917	End plate
22	1	1043920	1043920	Gearbox mount
23	1	1043918	1043918	Bearing cover
24	1	3231*	3231 *	3/8 NC x 2 HHCS, GR5
25	2	14350*	14350 *	3/8 NC flange lock nut
26	2	W73163*	W73163 *	5/16 NC flange whiz nut

REF	QTY	600RT PART	720RT PART	DESCRIPTION
27	1	839*	839 *	3/8 NC x 1 HHCS, GR5
28	1	H019	H019	Lock pin, 3/8 x 2-1/4
33	2	1043088	1043088	Gasket
35	1	1042303	1042303	Seal, 40 x 70 x 10
36	1	1042352	1042352	Bearing asy, 6208 w/ seal
37		1031226 (28)	1031226 (36)	1/2 NC flange spirallock
38	4	39254*	39254*	M8-1.25P x 14 mm HHCS, CL8.8
39	4	35155*	35155 *	5/16 SAE flat washer
40	4	2472*	2472 *	5/16 lock washer
41	1	44638	44638	Chain, 1/4 proof coil, 16 link
43	1	1026530	1026530	Manual storage tube
44	1	1972*	1972 *	1/4-28 tapered thread grease fitting
45	10	3379*	3379 *	1/2 NC x 1-1/2 HHCS, GR5
46	6	6100*	6100 *	1/2 NC x 1-1/4 HHCS, GR5
47	10	25475*	25475 *	1/2 NC x 1 HHCS, GR5, full thread
48	22	11900*	11900 *	1/2 NC flange lock nut
49	2	16148*	16148 *	5/16 NC x 3/4 carriage bolt, GR5
50	4	57816	57816	1/2 SAE flat washer, hardened
51	2	24576*	24576 *	1/2 NC x 1-3/4 HHCS, GR5
53	1	1034984	1034984	Snap ring, internal, 80 mm
54	1	20891	20891	Ball bearing, 6208
55	1	15007*	15007 *	3/4 NC x 3-1/2 HHCS, GR5
56	1	1002018	1002018	Sleeve, .81 x 1.25 x 2.12
57	1	2371*	2371 *	3/4 NC hex lock nut
58	1	1031976	1031976	RT Tiller safety decal set (not shown)
	1	627819	627820	Decal, Model 600RT, OREGON / Decal, Model 720RT, OREGON

HHCS: Hex Head Cap Screw

* Standard Hardware, Obtain Locally

**1042364 Slip Clutch Drive Assembly
480RT Tiller**

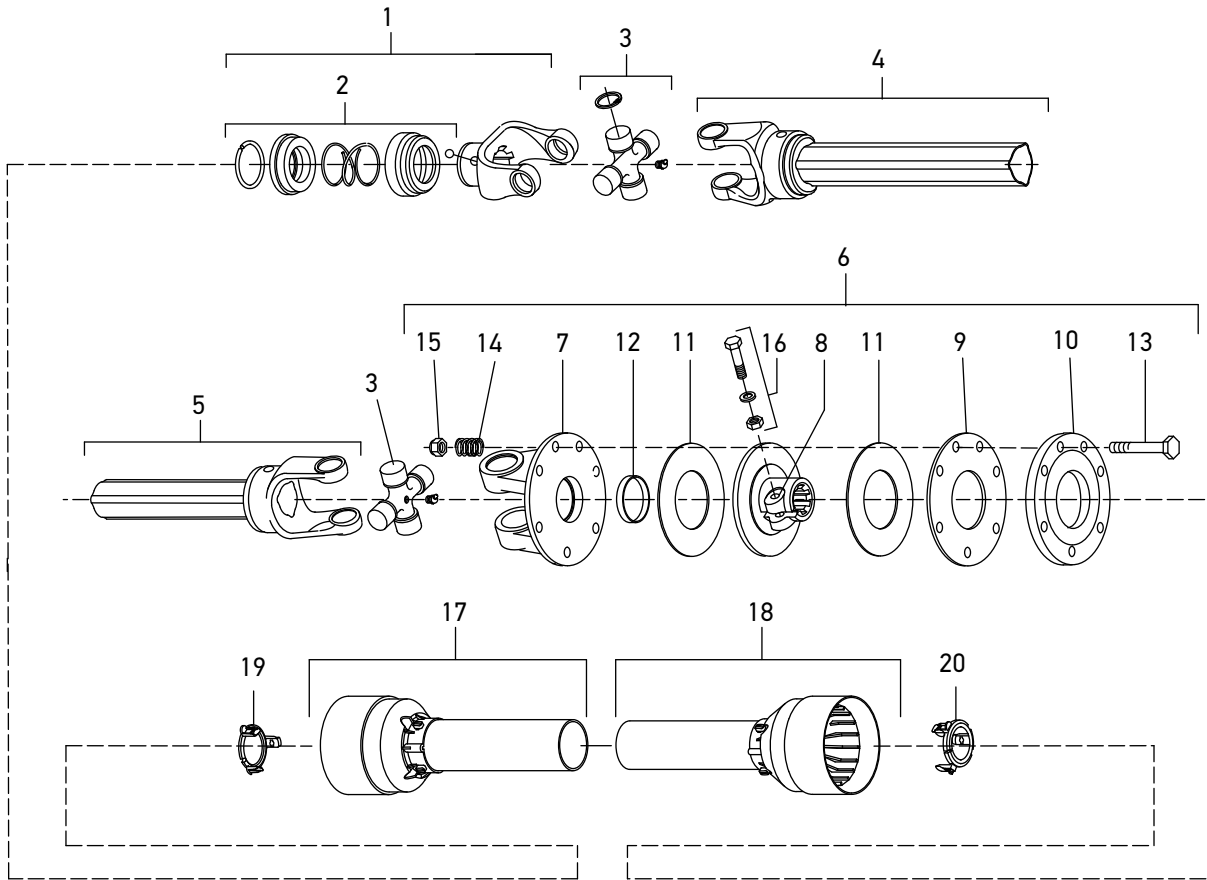


REF	QTY	PART	DESCRIPTION
A	1	1042364	Complete 540 driveline and clutch assembly
1	1	NSS	Complete collar yoke 1-3/8-6 spline
2	1	1044063	Lock collar repair kit
3	2	1044065	U-Joint cross & bearing kit
4	1	NSS	Outer profile tube & yoke
5	1	NSS	Inner profile tube & yoke
6	1	NSS	Friction clutch assembly
7	1	NSS	Flange yoke
8		NSS	Clutch hub
9	1	NSS	Internal disc
10	1	NSS	Pressure plate
11	2	1044055	Friction disc
12	1	NSS	Bushing
13	8	W307208*	M10 x 1.5P x 85, HHCS

REF	QTY	PART	DESCRIPTION
14	8	NSS	Clutch spring
15	8	57260*	M10 x 1.5P nylon lock nut
16	1	1001315*	Bolt & nut, M12 x 65
17	1	1043998	Outer shield kit, T2 (includes 20)
18	1	1043999	Inner shield kit, T2 (includes 21)
19	1	NSS	M12 spring washer
20	1	NSS	Bearing, outer
21	1	NSS	Bearing, inner

HHCS: Hex Head Cap Screw
 NSS: Not Sold Separately
 * Standard Hardware, Obtain Locally

1042365 Slip Clutch Drive Assembly
600RT & 720RT Tillers

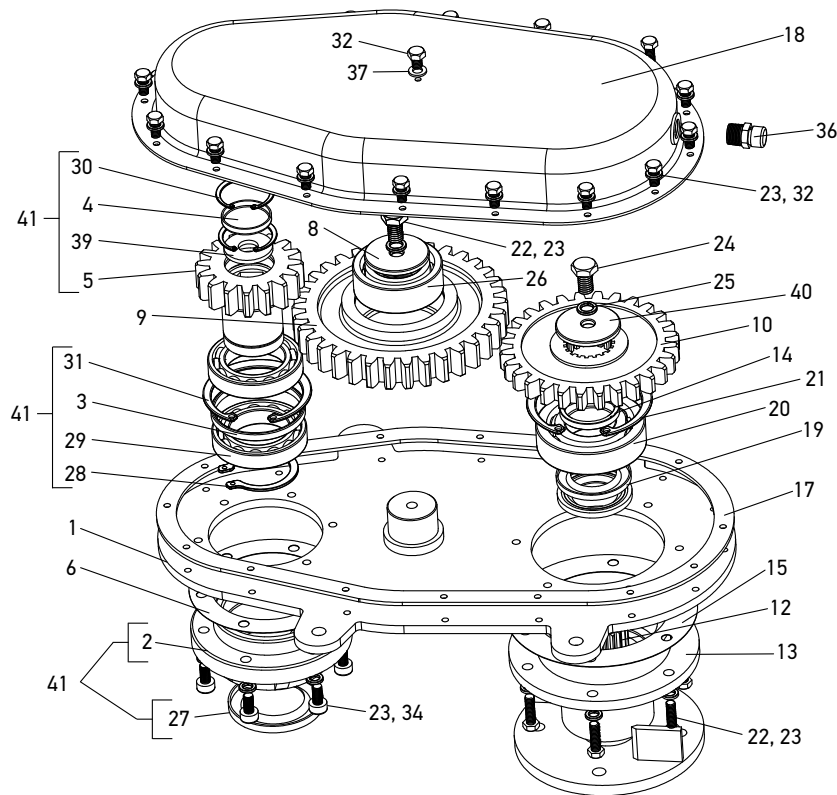


REF	QTY	PART	DESCRIPTION
A	1	1042365	Complete 540 driveline and clutch assembly
1	1	NSS	Complete collar yoke 1-3/8-6 spline
2	1	1044050	Lock collar repair kit
3	2	1044052	U-joint cross & bearing kit
4	1	NSS	Outer profile tube & yoke
5	1	NSS	Inner profile tube & yoke
6	1	NSS	Friction clutch assembly
7	1	NSS	Flanged yoke
8	1	NSS	Clutch hub
9	1	NSS	Internal disc
10	1	NSS	Pressure plate
11	2	1044083	Friction disc
12	1	NSS	Bushing

REF	QTY	PART	DESCRIPTION
13	8	W307208*	M10 x 1.5P x 85, HHCS
14	8	NSS	Clutch spring
15	8	57260*	M10 x 1.5P Nylon lock nut
16	1	1044091	Tapered pin & nut
17	1	1044061	Outer shield kit, T4 (includes item 19)
18	1	1044062	Inner shield kit, T4 (includes item 20)
19	1	NSS	Bearing, outer
20	1	NSS	Bearing, inner

HHCS: Hex Head Cap Screw
 NSS: Not Sold Separately
 * Standard Hardware, Obtain Locally

Tiller Side Drive Assembly

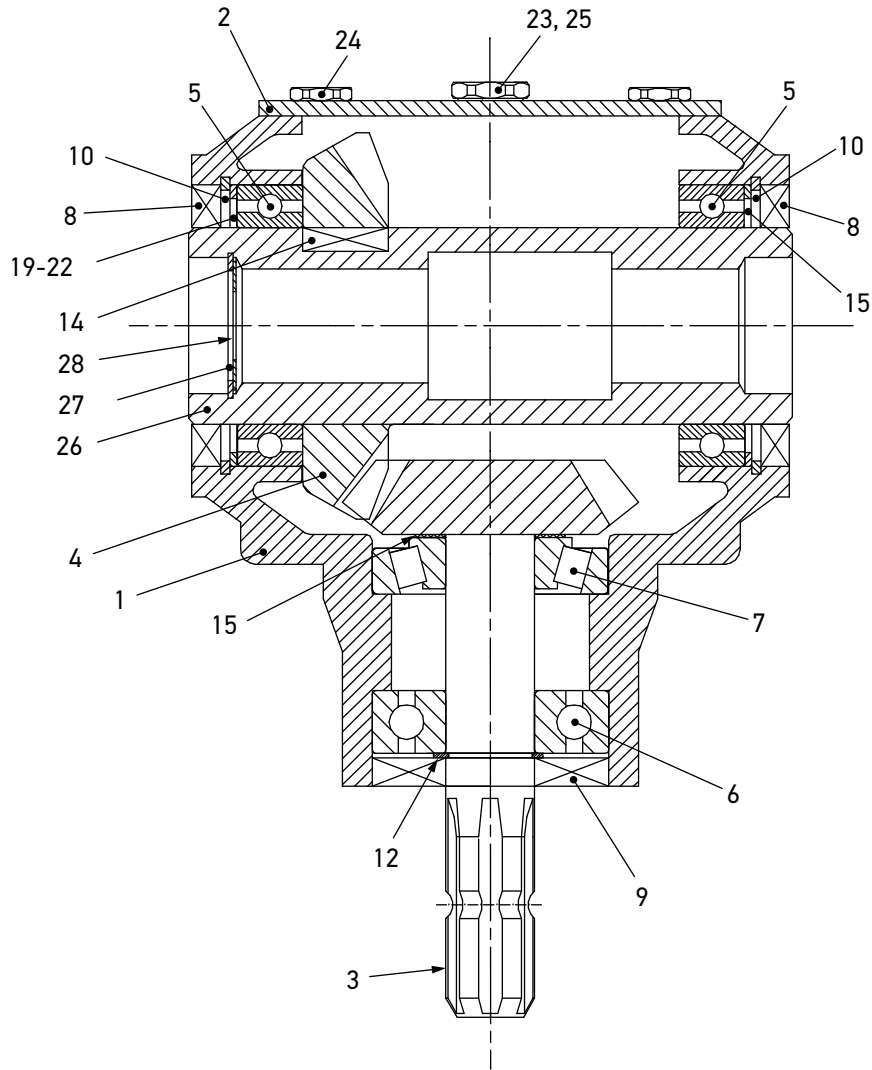


REF	QTY	PART	DESCRIPTION
1	1	NSS	Plate, side drive
2	1	NSS	Housing, bearing, input
3	1	NSS	Spacer, 88 x 94.5 x 9.2
4	1	—	Oil cover (included with 1043931)
5	1	NSS	Shaft, input gear, 16T (includes items 4, 5, 30 & 39)
6	A/R	NSS	Gasket, .5 mm, input
8	1	NSS	Washer, 10.5 x 60 x 6
9	1	NSS	Gear, middle, 34T
10	1	NSS	Gear, output, 28T
12	1	NSS	Weldment, shaft & flange output
13	1	NSS	Housing, bearing, output
14	1	NSS	Spacer, 51 x 60 x 7.5
15	A/R	NSS	Gasket, .5 mm, output
17	1	NSS	Seal ring
18	1	NSS	Cover
19	2	1043943	Seal, 55 x 75 x 12
20	1	1043944	Bearing, 6310, no shield
21	1	1043945	Retaining ring, internal, 3.2 x 110 mm
22	7	1263 *	3/8 NC x 1 HHCS, GR5

REF	QTY	PART	DESCRIPTION
23	29	838 *	3/8 lock washer
24	1	6100 *	1/2 NC x 1-1/4 HHCS, GR5
25	1	855 *	1/2 Lock washer
26	1	1043950	Bearing, 5210, no shield
27	1	1043951	Seal, 60 x 95 x 12
28	1	NSS	Retaining ring, external, 2 x 60 mm
29	2	1042445	Bearing, ball, 6012
30	2	1043954	Retaining ring, internal, 3 x 50 mm
31	1	1032408	Retaining ring, internal, 3 x 95 mm
32	17	1043956 *	3/8 NC x .67 HHCS
34	6	300176 *	3/8 NC x 1 SHCS
36	1	11975	1/2 NPT vent plug
37	1	NSS	Seal, M10
39	1	NSS	Washer, 20 x 49 mm
40	1	NSS	Washer, 13.5 x 60 x 6
41	1	NSS	Asy, top gear (Includes items 2, 3, 4, 5, 27, 28, 29, 30, 31 & 39)

HHCS: Hex Head Cap Screw
 SHCS: Socket Head Cap Screw
 NSS: Not Sold Separately
 * Standard hardware, obtain locally

1042304 Gearbox Assembly



REF	QTY	PART	DESCRIPTION
A	1	1042304	Gearbox assembly 1.46:1 1.50 hex
1	1	NSS	Gearbox housing
2	1	NSS	Cap
3	1	NSS	Input shaft & gear
4	1	NSS	Bevel gear
5	2	1032445	Ball bearing, 6012
6	1	20890	Ball bearing, 6207
7	1	1032448	Tapered roller bearing, 30207
8	2	1032437	Oil seal, 60 x 95 x 10
9	1	1032401	Oil seal, 35 x 72 x 10
10	2	1032408	Snap ring, 95 x 3 mm
12	1	1007859	Snap ring, 35 x 1.5 mm

REF	QTY	PART	DESCRIPTION
14	1	NSS	Key, 14 x 9 x 33 mm
15	A/R	1043976	Shim kit, 85.3 x 94.7; 35.5 x 48
23	1	39325	3/8 vent plug
24	4	63716*	M10-1.50P x 20 HHCS
25	2	27326*	Plug, pipe 3/8 NPT
26	1	NSS	Output shaft
27	1	1043986	Snap ring, 1.5 x 45 mm internal
28	1	1044758	7/8 SAE Flat washer

HHCS: Hex Head Cap Screw
 NSS: Not Sold Separately
 * Standard hardware, obtain locally

Bolt Torque Chart

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

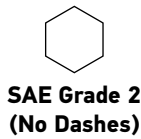
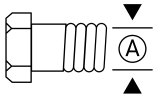
Fasteners must always be replaced with the same grade as specified in the manual parts list.

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

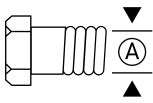
SAE Bolt Head Identification



Ⓐ	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 Bolt Head Identification



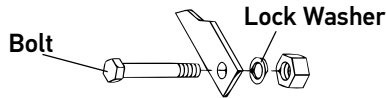
Metric Grade 8.8



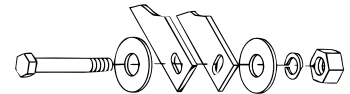
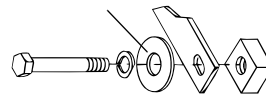
Metric Grade 10.9

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	Coarse Thread				Fine Thread				Ⓐ Diameter & Thread Pitch (Millimeters)
		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



Flat Washer

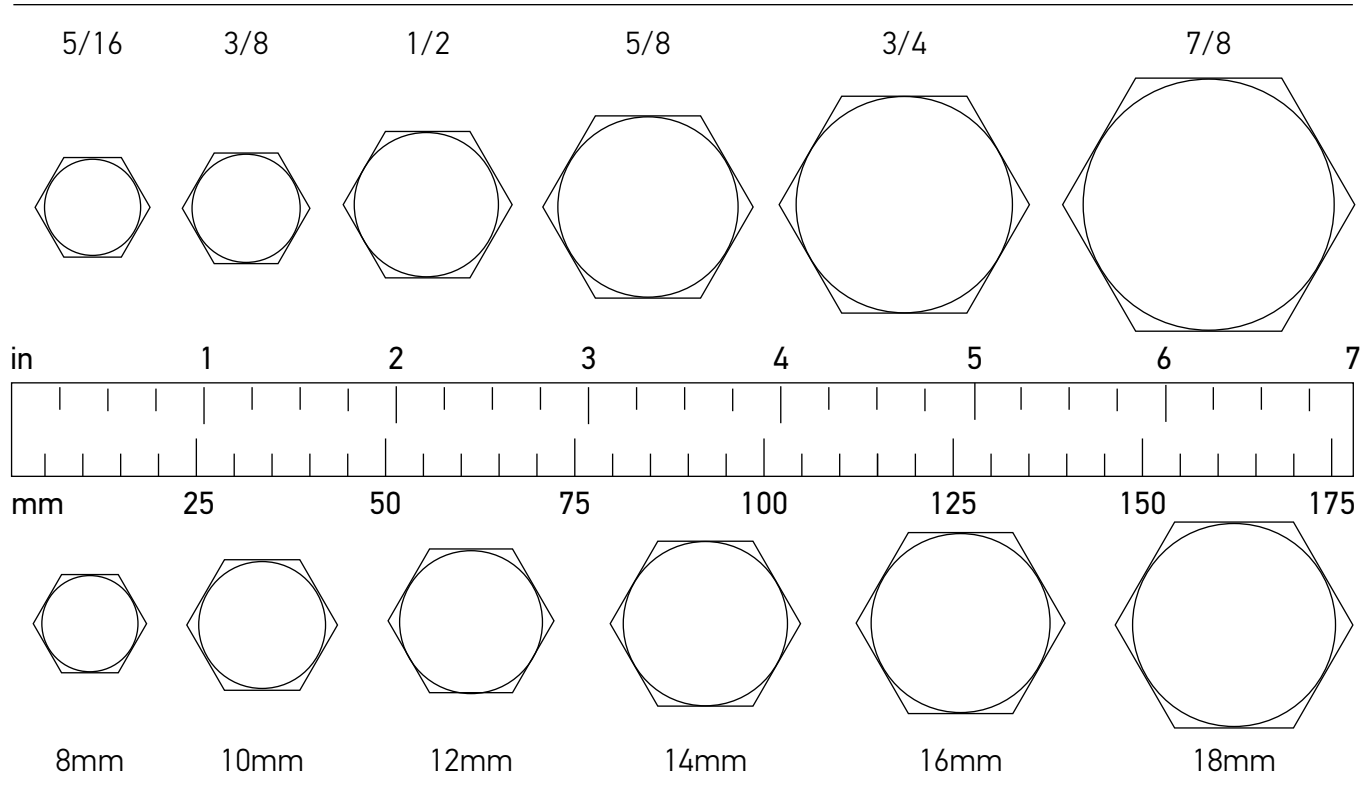


Bolt Size Chart

NOTICE

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

SAE Bolt Thread Sizes



Metric Bolt Thread Sizes

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

Limited Warranty

This 3-point implement is guaranteed to be free from defects in material and workmanship for the normal service life of the product not to exceed 12 consecutive months from the date of purchase.

- Oregon will repair or replace at Oregon's sole discretion, free of charge, any part or parts of the 3-point implement that are judged to be defective in material or workmanship during the limited warranty period stated above.

The limited warranty does not cover parts that in the judgement of the manufacturer have been subjected to negligent use, misuse, alteration, accident, disassembled in any way or if repairs have been made by anyone except an authorized Oregon service center. Warranty claims must include the product serial number, model number and proof of purchase. All claims must be submitted through an authorized Oregon service center and within thirty days of the date of failure. All costs associated with transporting the equipment, and or defective part, to the service center are to be paid by the purchaser. Costs resulting from a denied claim are the responsibility of the purchaser. This warranty is not transferable and applies to the original purchaser only.

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LIMITATIONS OF LIABILITY: MANUFACTURER ASSUMES NO LIABILITY FOR INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES IN CONNECTION WITH THE USE OF THIS PRODUCT, INCLUDING BUT NOT LIMITED TO LIABILITY FOR INJURY, LOSS OF LIFE, PROPERTY DAMAGE, LOSS OF USE, LOSS OF TIME, INCONVENIENCE OR COMMERCIAL LOSS. ANY AND ALL SUCH LIABILITY IS EXPRESSLY EXCLUDED. THESE LIMITATIONS OF LIABILITY APPLY TO ALL SUCH CLAIMS. IN NO EVENT SHALL OREGON BE RESPONSIBLE FOR ANY AMOUNT EXCEEDING THE PURCHASE PRICE OF THIS PRODUCT.



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