KODIAK BY PALADIN

OPERATOR'S MANUAL

ROTARY TILLERS

SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: KDK06-0194

Rev. 4

800-433-6404 I www.paladinattachments.com 8822 Apison Pike, Ooltewah, TN 37363, United States of America Copyright ©
7/9/18

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PREFACE

GENERAL COMMENTS

Congratulations on the purchase of your new attachment! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

WARNING! Never let anyone operate this unit without reading the "Safety Precautions" and "Operating Instructions" sections of this manual.
Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.

Unless noted otherwise, right and left sides are determined from the operator's control position when facing forward.

NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operators.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters: some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime mover, operator, and job site, it is not possible to get precise machine and operator sound pressure levels or vibration levels for this attachment.

NOTE: A list of all Paladin Patents can be found at http://www.paladinattachments.com/patents.asp.

SAFETY STATEMENTS

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

DANGER **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.**

WARNING **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.**

CAUTION **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.**

NOTICE **NOTICE IS USED TO ADDRESS PRACTICES NOT RELATED TO PHYSICAL INJURY.**

GENERAL SAFETY PRECAUTIONS

WARNING! **READ MANUAL PRIOR TO INSTALLATION**

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.

KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn and hard to read.

GENERAL SAFETY PRECAUTIONS

WARNING! PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

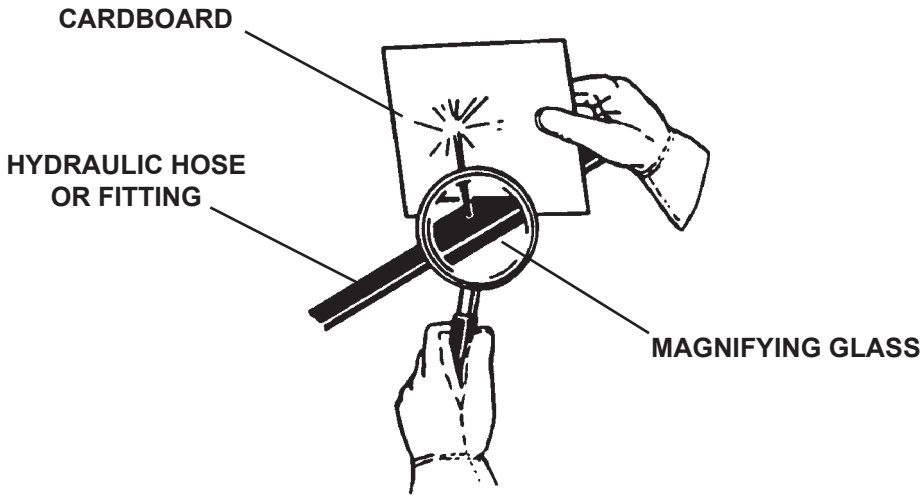
WARNING! LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or onto blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

WARNING! USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime movers operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



GENERAL SAFETY PRECAUTIONS

WARNING! DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

WARNING! SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing, or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tool for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.

WARNING! SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operators position.
- Never leave equipment unattended with the engine running or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

WARNING! CALIFORNIA PROPOSITION 65 WARNING

This product may contain a chemical known to the state of California to cause cancer, or birth defects or other reproductive harm. www.P65Warnings.ca.gov

EQUIPMENT SAFETY PRECAUTIONS

WARNING!

KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

WARNING!

EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

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

WARNING!

REMOVE PAINT BEFORE WELDING OR HEATING

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

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

WARNING!

END OF LIFE DISPOSAL

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

OPERATING THE TILLER

- PTO Operated Attachment: Rotating driveline contact can cause death. Do not operate without all driveline, tractor and equipment shields in place.
- Check driveline shields turn freely on driveline.
- Never allow anyone to ride on or approach the tiller when in operation.
- Check driveline connections before operation. Be sure quick connect locks are operating and locked.
- Do not stand between prime mover and tiller during installation.
- Never allow anyone to reach into, kick into or otherwise come in contact with the rotating tines. Do not attempt to clear clogged tines while engine is running. Tines can crush and/or dismember. Keep everyone clear of the tiller until proper shutdown has been followed and PTO disengaged.
- To prevent serious injury or death from thrown objects, stay away from discharge area during operation.
- Do not raise the attachment when the tines are rotating.
- Set tractor lift control stop at a position that will prevent the drive shaft from contacting the front edge of the tiller when at full lift (if required). Disconnect from tractor if angle of PTO is 40° or greater.
- Operate only from the operator's station.

EQUIPMENT SAFETY PRECAUTIONS

OPERATING THE ATTACHMENT

- Do not exceed specified RPM of your tiller.
- Be sure all guards, shields and covers are properly installed before operating unit.
- Never try to board or exit equipment while it is running.
- Test all controls before you begin operation.
- Extended use of the tiller may cause excessive heat buildup of the driveline. Do not touch immediately after use.
- Always keep the tine bolts tight.
- When operating on slopes, drive at an angle, not across. Avoid steep hillside operation, which could cause the prime mover to overturn and increases the chance for thrown objects.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Never leave the attachment unattended when in the raised position. Always make sure all rotation has stopped, tiller is resting on the ground, PTO is disengaged, parking brake is engaged, engine is turned off and the keys are removed before exiting the prime mover.

TRANSPORTING THE ATTACHMENT

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- Fix side lift links with chains during transporting.
- Set control lever of the hydraulic lift to the locked position during road transport with the tiller raised.
- Disengage PTO before transporting.
- When transporting on a trailer: Secure attachment using tie down accessories that are capable of maintaining attachment stability.
- Use extra care when loading or unloading the attachment onto a truck or trailer.
- When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs etc., to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

EQUIPMENT SAFETY PRECAUTIONS

MAINTAINING THE ATTACHMENT

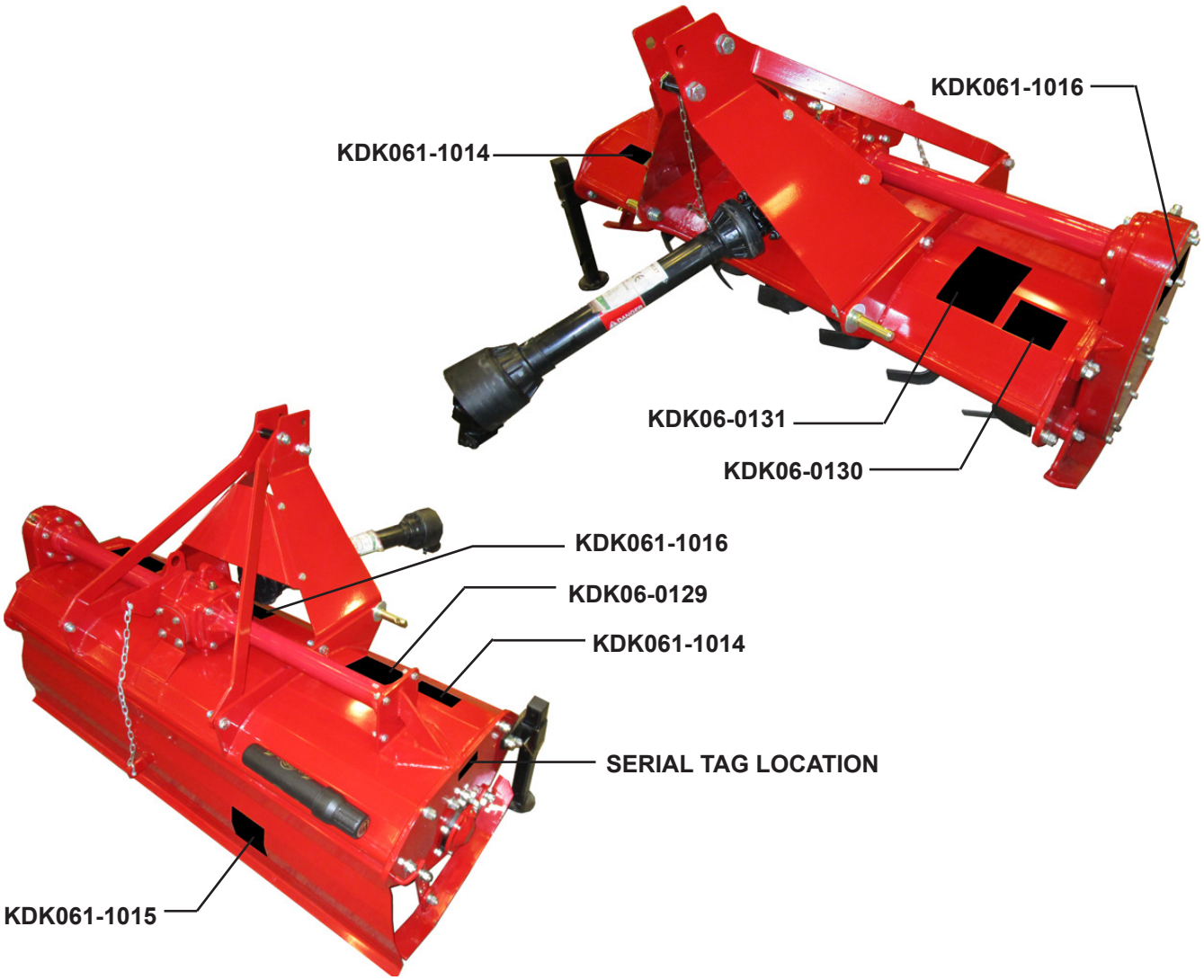
- Before performing maintenance, lower the attachment to the ground, disengage the PTO, apply the brakes, turn off the engine and remove the key. Be sure all rotation has stopped before approaching the tiller. Disengage the PTO shaft before making any adjustments or repairs.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator manual's before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag "DO NOT OPERATE" until all problems are corrected.
- If attachment must be left raised for maintenance or any other reason, block the unit securely to prevent accidental release of the lifting mechanism. Serious damage or personal injury could result.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from Paladin.
- Never work under a raised attachment unless PTO has been disengaged and tiller is securely blocked.

DECALS

DECAL PLACEMENT

GENERAL INFORMATION

The diagram on this page shows the location of all the decals used on your attachment. The decals are identified by their part numbers, with reductions of the actual decals located on the following page. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the attachment. They contain information you need to know for both safety and attachment longevity.



IMPORTANT: Keep all safety decals clean and legible. Replace all missing, illegible, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced. Safety decals are available, free of charge, from your local dealer or Paladin.

REPLACING SAFETY DECALS: Clean the area of application with nonflammable solvent, then wash the same area with soap and water. Allow the surface to fully dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram above and smooth out any bubbles.

DECALS

California Proposition 65 Warning

Warning: This product may contain one or more substances or chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

PART #KDK061-1014
WARNING! CA PROP 65

⚠ WARNING

To prevent serious injury or death:
si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad

- Read and understand Operator's Manual betore using. Review annually.
- Do not permit riders on the tractor or tiller. including children
- Do not allow children to operate tiller.
- Oper ate only with guards installed and in good working condition
- Keep away trom moving parts
- Operate only with tractor equipped with ROPS and seatbelts.
- Use extra care when operating on rough terrain or when rocks or debris are present.
- Do not operate in the raised position.
- Stop engine, lower tiller, set brake and wait for all moving parts to stop before dismounting.
- Support tiller securely before working beneath ourt.
- Transport with clean reflectors. SMV and working lights as required by federal. State.and local laws.
- Keep yourself. others.and clothing away from the rotating PTO
- Operate only at a safe distance from bystanders
- Do not stand between tractor and tiller.
- Be carefull on uneven terrain. Decrease speed when turning.
- Locate underground utility lines before tinng.
- Do not exceed a sate transport speed.

PART #KDK06-0131
WARNING! GENERAL INFORMATION

⚠ DANGER

ROTATING TINES HAZARD

- Keep away from rotating tines.
- Rotating tines may cause serious injury or death.

PART #KDK061-1015
DANGER! ROTATING TINES

⚠ DANGER

ROTATING DRIVELINE HAZARD
KEEP AWAY

To prevent serious injury or death from rotating driveline:

- Keep all guards in place when operating.
- Operate only at 540 RPM
- Keep hands, feet, clothing and hair away from moving parts.
- Do not operate without driveline securely attached at both ends.
- Do not operate without driveline shields that turn freely on driveline.

PART #KDK06-0129
DANGER! ROTATING DRIVELINE

⚠ WARNING

TO PREVENT SERIOUS INJURY OR DEATH

- Keep hands and body out of hitch area when attaching tiller to tractor.
- Keep body clear of crush point between tractor and tiller.

PART #KDK06-0130
WARNING! PINCH/CRUSH HAZARD

SHIPPED WITH GREASE IN GEAR BOX AND WITHOUT GREASE IN GREASE FITTINGS. "CONSULT OWNERS MANUAL FOR LUBRICATING AND OPERATING INSTRUCTIONS."

PART #KDK061-1016
LUBRICATION DECAL

PREOPERATION

TRACTOR REQUIREMENTS

Tractors outside the horsepower (HP) range listed below must not be used on these tillers.

TILLER	TRACTOR HP	HITCH CATEGORY
4’ ROTARY TILLER	25-28	CAT I
5’ ROTARY TILLER	28-40	CAT I
6’ ROTARY TILLER	40-50	CAT I

WARNING!  **Ballast weights may need to be added to your tractor to maintain 20% weight on front axle. Refer to your tractor operator’s manual to determine proper ballast requirements.**

Always refer to the tractor operator’s manual to ensure compatibility and maximum safety.

ADDITIONAL TRACTOR REQUIREMENTS

Tractor must be equipped with:

- Approved Roll-Over Protective Structure (ROPS) or ROPS cab. Keep ROPS locked in the UP position.
- Seatbelt.
- Slow Moving Vehicle (SMV) emblem
- PTO master shield.

WARNING!  **Do not use a PTO drive adapter to attach your tiller driveline to a non-matching tractor PTO. Serious personal injury and/or equipment failure can result. Consult an authorized dealer for assistance if the tiller PTO does not match the tractor PTO.**

INSTALLATION

GENERAL INFORMATION

The following instructions will help you set-up and install the tiller onto your tractor. Read all safety warnings, decals and operating instructions before operating the tiller. If there is any portion of this manual that you do not understand, contact your dealer.

The tiller should be shipped completely assembled other than the PTO driveline. If your unit was not, refer to the parts manual at www.paladinattachments.com for part locations and required hardware. Torque all hardware to specifications. (See Bolt Torque Specifications)

WARNING! Keep hands and feet from under the tiller and stand back while placing the tiller flat on the ground.

TILLER SET-UP:

1. Visually inspect the tiller to verify that the machine is in perfect order.
2. Check that the lubricants are at the correct levels. (See Maintenance Section)
3. Grease both universal joints of the PTO shaft along with the telescoping surfaces of the shaft.

HITCHING TO THE TRACTOR

Work on a flat surface when fitting the tiller to the tractor. Verify tractor and tiller compatibility before attaching this tiller onto your tractor.

1. Move the tractor into position in front of the tiller. Back up slowly and carefully with the lower 3-point hitch arms positioned at the same height as the lower hitch pins located on the tiller. Do not allow anyone between the tractor and the tiller during installation.
2. Turn off tractor engine.
3. Attach the two lower 3-point hitch lift arms on the tractor to the tiller at the lower link location. Secure in place.
4. Attach the top link to the upper link on the mounting frame. **NOTE: The correct tiller position is at such a distance from the tractor that the PTO remains 2”-4” (5-10cm) from maximum closing position.**
5. Adjust the lower link sway chains to prevent the tiller from swaying side to side and contacting the tractor tires.
6. Attach the PTO to the tiller and tractor: Slide the front section of the PTO into the back section and attach to the PTO shaft at the rear of the tractor. (Pull back on the driveline yoke collar and align the splines of the yoke with the PTO shaft. Push yoke onto the PTO shaft releasing the locking collar.) **NOTE: Push and pull the driveline back and forth until locked in place.**

WARNING! The locking collar must slide freely and the locking balls seated in the groove on the tractor PTO shaft before operating. A driveline not attached correctly could come loose from the tractor resulting in personal injury and damage to the attachment.

7. Check that the tiller is parallel with the ground. Make any necessary adjustments to the top link to achieve perfect alignment with the ground. This will limit stress and lengthen the life of the PTO and tiller.

INSTALLATION

8. Attach front and back driveline chains to the tiller and tractor to prevent shields from turning. **NOTE: If chains are damaged or missing replace before operating tiller.**
9. Lift the support (jackstand) into its operating position and secure in place.

NOTICE: The PTO may need to be customized for your specific application. If the PTO shaft is too long, severe PTO and gearbox damage is possible. DO NOT FORCE THE PTO TO FIT. Warranty is void if the PTO is not installed correctly. There should never be less than 5" of overlap within the PTO.

WARNING! Do not use a PTO adapter to attach your tiller to a non-matching tractor PTO. Serious personal injury and/or equipment failure can result. Consult an authorized dealer for assistance if the tiller PTO does not match the tractor PTO.

DISCONNECTING TILLER

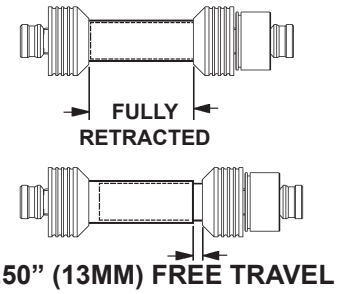
1. Park on a level surface. Lower the support (jackstand) to ensure that the tiller is stable.
2. Engage tractor parking brake, shut off engine and remove the key. **IMPORTANT: Stay on the tractor until all tine movement has stopped.**
3. Disconnect driveline from tractor and secure to tiller.
4. Unhook 3-point hitch from tractor.
5. Drive tractor slowly forward several feet.
6. Reinstall hitch pins in tiller hitch.

POWER (PTO) SHAFT ADJUSTMENT

Confirm the minimum and maximum working lengths of the driveshaft. The telescoping tubes must overlap by at least 1/3 of their length while in use. The (PTO) drive assembly may need to be shortened to fit up to your tractor correctly and to prevent the drive assembly from "bottoming out" and causing extensive damage to the tractor PTO drive assembly.

The shaft assembly is shortest when the shaft is straight in-line with the attachment.
There should be a minimum of .50" (13mm) of free travel before the shaft is fully retracted. To check:

a. Lower the attachment until the shaft is parallel to the ground and is straight inline with the attachment gearbox.
b. Check to see if there is a minimum of .50" free travel.



If there is not at least .50" (13mm) of free travel DO NOT OPERATE ATTACHMENT.

NOTICE: IF THE DRIVE SHAFT "BOTTOMS OUT" BEFORE IT IS STRAIGHT INLINE WITH THE ATTACHMENT, STOP AND CALL YOUR NEAREST DEALER OR THE ATTACHMENT MANUFACTURER BEFORE OPERATING.

When raising the attachment the two tubes of the driveline must not ever overlap. The angle of the driveline must not exceed 40°.

CAUTION FAILURE TO HAVE THE REQUIRED DISTANCE OF CLEARANCE WILL DAMAGE THE POWER TAKE OFF (PTO) OF YOUR TRACTOR. THE MINIMUM AND MAXIMUM LENGTH OF THE PTO MUST BE CHECKED WHENEVER THIS ATTACHMENT IS USED ON A DIFFERENT TRACTOR.

OPERATION

INTENDED USE: This unit is designed to cultivate soil for planting or landscaping. Use in any other way is considered contrary to the intended use.

The Kodiak tillers are perfect for home gardening, landscaping, and vegetable farming. It turns up hard packed ground, and leaves the perfect seedbed for gardens and lawns. Simplicity of operation is one of the key features of the tiller. It is important, however, to be familiar with and know the controls and adjustments on both the tiller and prime mover. Such knowledge is crucial for safe, efficient operation of the equipment. Take the time to learn how they operate.

THE TRACTOR

Your attachment mounts to the prime mover's 3-point hitch system. Due to this arrangement, thorough knowledge of the tractor and all of its controls is necessary for attachment operation. Read your tractor owner's manual for information regarding tractor operation before attempting to use the attachment.

NOTICE: Before initial operation of the tiller, verify oil level in gearboxes and grease all grease fittings. See Maintenance Section

BEFORE OPERATION

- Check oil level in gear boxes. Fill as required. See Maintenance
- Grease all grease fittings. (Outboard hub, PTO, PTO safety shield and inner surface of the PTO shaft.)
- Clear the work area of all bystanders, pets, and livestock.
- Know the job site. Take notice of any water or gas shut off, stumps, sidewalk edges etc., that the lowered tiller could come into contact with.
- Be sure all tines, bolts and nuts are tight and guards are in place.
- Clear the area of rocks, branches and other foreign objects.
- Tall grass and weeds may need to be mowed before tilling to avoid wrapping around the tines and rotor assembly, therefore reducing the tiller performance.
- Adjust the left and right skid shoes (is so equipped) to the correct location for the desired tilling depth.

DANGER! **ROTATING TINES HAZARD! To prevent serious injury or death from rotating tines: Stay clear of tiller when engine is running. Keep others away. Keep hands, feet and clothing away from moving parts. Follow Safety Shutdown Procedure whenever leaving operator's station.**

DANGER! **THROWN OBJECT HAZARD! To Prevent serious injury or death from thrown objects: Stay away from discharge area during operation. Keep others away.**

OPERATION

ADJUSTING TILLING DEPTH

The tilling depth is regulated by the skid shoes. To adjust the depth you must raise and support the tiller off the ground. Loosen the adjustment bolt on each side of the tiller and raise or lower the skid shoes to the desired tilling depth. The adjustment bolts for the left and right sides should be positioned in the same adjustment hole.Retighten the adjustment bolt. Skid shoe adjustment will vary according to the desired depth and type of soil.

ADJUSTING REAR LEVELING PLATE

The rear leveling plate can be adjusted according to how finely cultivated you need the finished soil. Lift the rear leveling plate for a rougher result. The sod will not be broken up and leveled. For a finer finish the rear leveling plate should be lowered and therefore it will break up the sod and level it for a more finished result.

Tilling should not be done in wet conditions, as soil will stick to the tines. There is also several conditions that will cause the tiller to “walk up” onto the top of the ground and either push or pull the prime mover. The most common of these conditions is traveling too fast and low engine RPM (tines moving too slowly for ground conditions). If you have increased the engine RPM and decreased travel speed and the tiller continues to “walk up” check the tines to make sure the cutting edge is still sharp and all tines are intact.

OPERATING THE TILLER

The main purpose of the tiller is to cultivate soil. The tines are sharpened on one side only and therefore the tiller can only be operated when traveling in a forward direction.

Before operating your attachment, ensure that driveline is properly attached and locked onto the PTO shaft by pushing and pulling the yoke several times.

DANGER! **All safety guards, shields and devices must be installed and inspected daily for missing or broken components. Replace broken, missing or worn items at once to reduce personal injury or death from thrown objects, entanglement, or tine contact.**

WARNING! **Exceeding the rated PTO speed for your attachment (540 RPM) can result in serious injury or death along with driveline and attachment damage.**

When deciding how to set up the tiller for your desired outcome (how much to “break up” the soil) you must take into consideration the soil type (mixed, sandy, clay dry, etc.) and depth. Then adjust the skid shoes and rear leveling plate to obtain your desired results.

After preparing the work area you are ready to begin. Although the performance of the tiller can vary significantly depending upon the way it is used, we recommend a maximum ground speed of 5 mph (8k/h) and adhering to the following operating procedure for maximum productivity.

OPERATION

1. Following the prime mover manual's operating and safety procedures, start the prime mover and position the tiller at the starting location with the skid shoes parallel to the ground.
2. Engage PTO to begin tiller rotation. Start with PTO at running rate and gradually lower the tiller into the soil while traveling slowly in a forward direction.

CAUTION! Be prepared for sudden prime mover movement when lowering the tiller into the ground. Rotating tines are capable of pushing the prime mover.

NOTE: It is recommended after the first 50 feet to stop and check tiller depth and your finished results. Make any necessary adjustments.

3. Do not turn or reverse tractor with tiller in the ground or with PTO engaged. To prevent damage to the tiller, disengage PTO before raising the tiller for turning or backing up.

NOTICE: To prevent damage to tiller components: NEVER raise the unit with tiller running. Disengage PTO before lifting.

NOTE: Tilling should not be done in wet conditions, as soil will stick to the tines.

TROUBLESHOOTING OPERATING CONDITIONS

INSUFFICIENT DEPTH: Re-adjust skid shoes. Reduce travel speed. If soil is too hard make a second pass. If tines are rotating on top of soil, reduce travel speed or check tines for replacement.
SOIL TOO FINELY BROKEN UP: Raise rear leveling plate. Increase travel speed.
SOIL NOT BROKEN UP ENOUGH: Lower the rear leveling plate. Reduce travel speed. Soil too wet.
ROTOR CLOGGING: Soil too wet. Raise rear leveling plate. Reduce travel speed. Grass is too long, mow area before cultivating.
MACHINE BOUNCING OVER THE GROUND OR VIBRATING: Obstruction between the tines. Tines installed with blunt edge contacting the soil. Tines worn or damaged. Rotor deformed.

TILLER "WALK UP"

There are several conditions that will cause the tiller to "walk up" onto the top of the ground and push the prime mover. The most common of these conditions is traveling too fast for the rotor RPM (tines moving too slowly for ground conditions). If you have increased the rotor RPM and decreased travel speed and the tiller continues to "walk up" check the tines to make sure the cutting edge is still sharp and all tines are intact.

Another common cause for tiller to "walk up" onto the top of the ground and push the prime mover is when the clutch is only partial engaged This will stop forward travel but not PTO rotation. During tilling operation make sure the tractor clutch is always fully engaged which will stop the PTO along with forward travel.

OPERATION

STORAGE

The following storage procedure will help you to keep your attachment in top condition. It will also help you get off to a good start the next time your tiller is needed. We therefore strongly recommend that you take the extra time to follow these procedures whenever your unit will not be used for an extended period of time.

IMPORTANT: When detaching your tiller for short or long term storage be sure to follow the Detaching instructions in the Installation Section of this manual.

- Clean the unit thoroughly, removing all entangled vegetation, mud, dirt, and grease.
- Sharpen or replace tines.
- Inspect for visible signs of wear, breakage, or damage. Order any parts required, and make the necessary repairs to avoid delays when starting next season. **NOTE: Purchase only approved replacement parts.**
- Tighten all loose capscrews and nuts.
- Check the gearbox for proper lubricant level.
- Replace decals if damaged, or in unreadable condition.
- Apply a rust-preventive spray to all moving parts.
- Place the driveline / yoke off the ground and away from water, dirt or other contaminants.
- Store the unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

Additional Precautions for Long Term Storage:

- Touch up all unpainted and exposed areas with paint, to prevent rust.

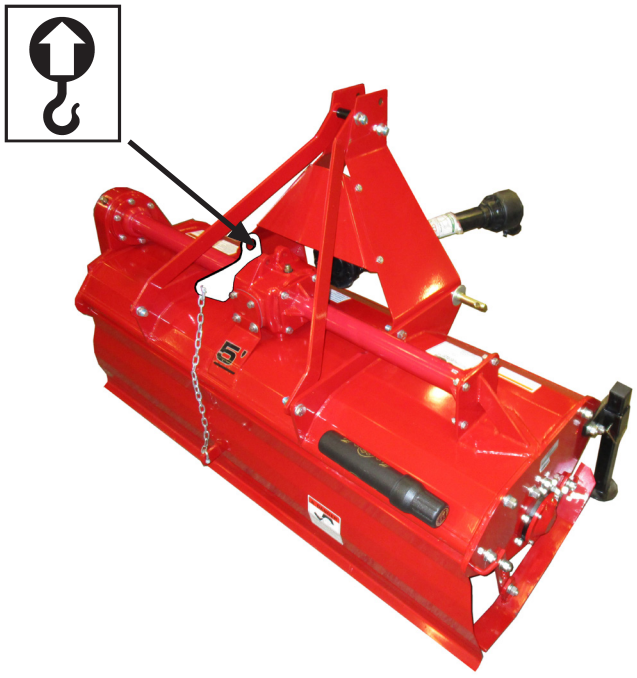
REMOVING FROM STORAGE

- Remove all protective coverings.
- Check all belts, nuts and bolts for proper tightness, especially those securing the gearbox and tines.

LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components.

- Attach lifting accessories to unit at recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.



OPERATION

WARNING! Use lifting accessories (chains, slings, ropes, shackles and etc.) that are capable of supporting the size and weight of your attachment. Secure all lifting accessories in such a way to prevent unintended disengagement. Failure to do so could result in the attachment falling and causing serious personal injury or death.

TIE DOWN POINTS

Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components.

- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.

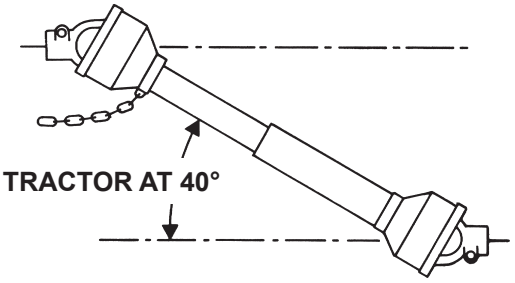
WARNING! Verify that all tie down accessories (chains, slings, ropes, shackles and etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit. Failure to do so could result in serious personal injury or death.

TRANSPORTING

Follow all local government regulations that may apply along with recommended tie down points and any equipment safety precautions at the front of this manual when transporting your attachment.

Only transport with tractor ROPS in the raised position, seatbelt on and PTO disengaged. Lift the tiller when transporting between sites taking extra care that you do not obscure tractor SMV emblem.

Set the hydraulic lift to the locked position during road transport with the implement raised. Always detach the PTO from the tractor if the angle is greater than 40° when lifted.



DO NOT OPERATE OVER 10° - DISCONNECT FROM TRACTOR AT 40°

MAINTENANCE AND SERVICE

GENERAL INFORMATION

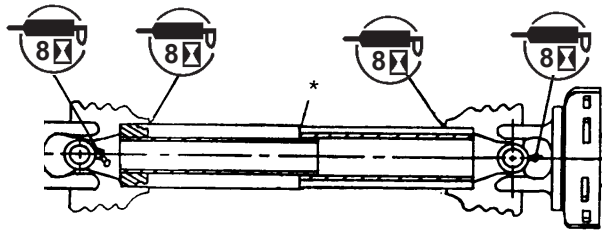
Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to an absolute minimum. However, it is very important that these maintenance functions be performed as described.

WARNING! Before leaving the operator's seat: Lower the attachment to the ground. Make sure all rotation has stopped, PTO is disengaged, parking brake is engaged, engine is turned off and the keys are removed.

PROCEDURE	DAILY	EVERY 40 HOURS
Check mounting hardware on tines and tighten to specification.	✔	
Check all other hardware and tighten, if necessary. See Bolt Torque Specifications.	✔	
Check tines for damage and replace or sharpen as required.	✔	
Check all Safety Guards and Devices are installed correctly.	✔	
Replace any missing or damaged bolts or nuts with approved replacement parts.	✔	
Inspect attachment for any worn parts or cracked welds. Repair as required.	✔	
Check for missing or illegible Safety / Warning Decals.	✔	
Grease all grease fittings on outboard hub and PTO. (Wipe fitting before adding to prevent contaminants from diminishing the effect of the grease.)		✔
Check oil level in gearbox and add if necessary. (Before initial operation)		✔

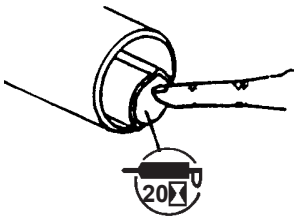
LUBRICATION

- Lubricate the outboard hub and the PTO every (40) forty hours.
- Grease PTO Driveline inner tube before putting attachment into operation and every (20) twenty hours thereafter.
- Check oil level in gearbox before initial operation and every (40) forty hours thereafter.



(Swing joint sideways for greasing.)

*** When used in winter the outer tube must be greased to prevent it freezing solid!**



GREASE INSIDE OF OUTER TELESCOPING TUBE (EVERY 20 HOURS)

LUBRICANTS

- **IT IS RECOMMENDED TO USE EP-0 OR EQUIVALENT GREASE IN GEARBOX.**
- **IT IS RECOMMENDED TO USE TYPE 2 GREASE OR EQUIVALENT FOR ALL GREASE POINTS.**

MAINTENANCE AND SERVICE

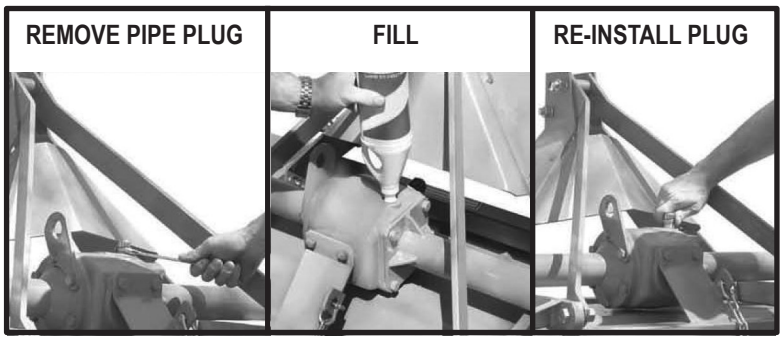
INSPECT TINES FOR DAMAGE:

Inspect tines for abnormal wear. Check for notches or chipped areas, bent or deformed tines or if the cutting edge has been excessively worn. Always replace a tine in the same position and orientation as the one removed with the capscrew positioned on the tine side and the nut against the rotor flange.

CHECKING TOP GEARBOX OIL LEVEL

Check gearbox oil level with the tiller deck level. The oil level in the gear box should be checked before putting the tiller into operation and once a week thereafter.

- Remove pipe plug from top of top gearbox.
- Fill gearbox using recommended gear lubricant (EP-0) until it is approximately 1/2 full.
- Reinstall plug and clean any excess oil.

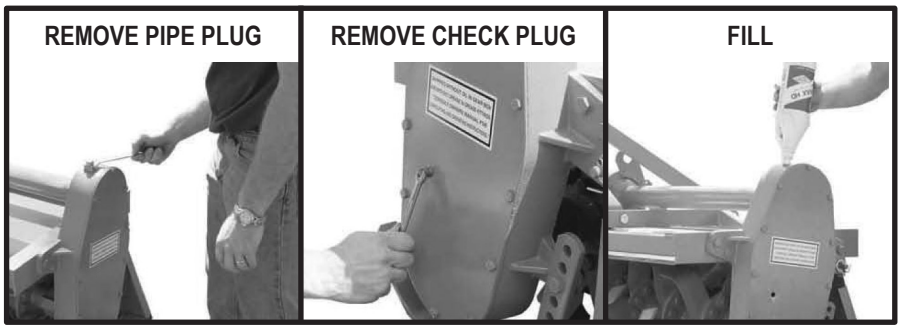


NOTICE: Over filling gearbox will void warranty and could damage the oil seals and cause permanent damage to the gearbox.

CHECKING SIDE GEARBOX OIL LEVEL

Check gearbox oil level with the tiller deck level. The oil level in the gear box should be checked before putting the tiller into operation and once a week thereafter.

- Remove .50" pipe plug from top of side gearbox.
- Remove .12" check plug from side of the side gearbox.
- Fill gearbox using recommended gear lubricant (EP-0) until it overflows from the check plug location.
- Replace plugs and clean any excess oil.



NOTICE: Over filling gearbox will void warranty and could damage the oil seals and cause permanent damage to the gearbox.

MAINTENANCE AND SERVICE

SLIP CLUTCH OPERATIONAL CHECK AND ADJUSTMENT

The slip clutch serves as overall protection for the tractor, driveline, and gearbox. Even though new clutch assemblies are “run-in” and checked for proper torque before shipment, re-adjustment may be advisable if the clutch has been exposed to weather for an extended period of time. The clutch facing and plates should be inspected for rust and/or corrosion. After attachment has been stored for 30 days or more, perform an operational check.

OPERATIONAL CHECK

1. Make a trial run in the heaviest operating conditions expected. If clutch slips noticeable, tighten the 8 adjusting bolts, no more than 1/2 turn, between trial runs until the clutch slippage is reduced.
2. Scribe a mark across the clutch facing. When subjected to shock loads, a separation of the marks will assure that the clutch setting is correct. **NOTE: Check the clutch periodically during the first hour of operation for excessive heat build-up.**

REBUILT CLUTCH

If the clutch is being rebuilt (new facing and/or plates), it is necessary to “run-in” these parts prior to final adjustment. The plates should be thoroughly cleaned and free of foreign material as well as being checked with a straight edge for warping. Warped plates cannot be adjusted properly and will not hold adjustment. Perform the following “run-in” for rebuilt clutch.

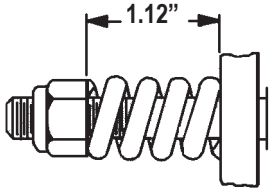
1. Tighten all adjusting bolts evenly until the clutch cannot be slipped by hand.
2. With the rotor locked in a stationary position, operate with the PTO at idling speed (approximately 100 RPM) until evidence of heating is noted. **IMPORTANT: DO NOT ALLOW OVERHEATING OF THE CLUTCH.**
3. Discontinue operation and it is very important to allow the clutch to cool completely.
4. After the clutch has cooled, tighten all the adjusting bolts down evenly and proceed with operational check and clutch adjustment.

SLIP CLUTCH ADJUSTMENT

The slip clutch is factory preset to the correct torque for protecting attachment and tractor. Periodic check and adjustment is recommended. If adjustment if needed:

1. Check to verify all spring lengths are the same.

NOTE: INITIAL SPRING LENGTH IS 1.12”



2. Adjust nut on any spring that is unequal.
3. Adjust all eight spring retaining nuts 1/3 of a turn (2 flats on a nut).
4. Check clutch slippage.
5. If further adjustment is required, do so in 1/3 turn increments. **IMPORTANT: Adjust only to provide sufficient torque to prevent slippage under normal conditions.** Occasional slippage for drive train protection is normal. If satisfactory results cannot be obtained, contact you nearest Kodiak dealer.

NOTICE: DO NOT OVERTIGHTEN NUT AND CAUSE SPRING TO BECOME “SOLID”. THIS WILL CAUSE SHAFT FAILURE.

MAINTENANCE AND SERVICE

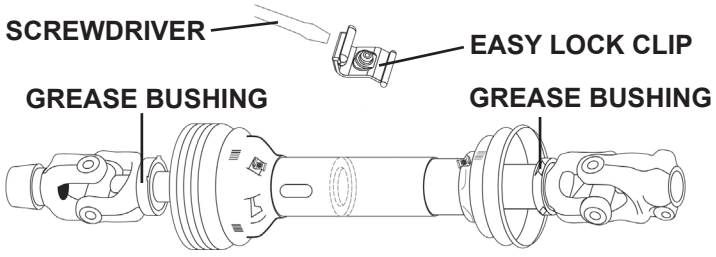
PTO DRIVE ASSEMBLY

The following instructions will assist in replacing the safety shields on your PTO drive assembly. Keep all PTO guards and shields in place at all times.

IMPORTANT: Tiller maintenance does not require you to go between the tractor and the trencher with the drive line installed. Before replacing, servicing or removing the trencher from the tractor, shut off the tractor, set the parking brake and remove the keys.

When replacing damaged or missing PTO shields, disconnect the tiller from the tractor and remove the drive line from the tiller.

1. To remove damaged guards, use a screwdriver to release the "*easy lock*" clip on the drive line. Turn the bushing to disengage and remove the guard.



IMPORTANT: Check that the "***Guard Missing***" decal on the steel tube under the inner guard and "***Rotating Driveline***" decal on the outer guard are both firmly affixed and legible. If not, replace them before re-connecting the driveline to the tiller.

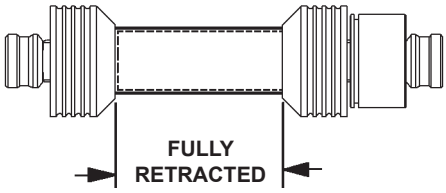
2. Clean and grease the bushing groove before installing the bushing. Grease any remaining bushings in the guard.
3. Slide the new guard half over the driveline and insert bushing tabs into the openings in the guard.

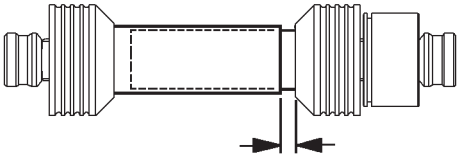
4. Turn the bushing until it engages into the guard.
5. Push the "*easy lock*" clip into position. The bushing and guard are now secure.

MAINTENANCE AND SERVICE

POWER (PTO) SHAFT ADJUSTMENT

Confirm the minimum and maximum working lengths of the driveshaft. The telescoping tubes must overlap by at least 1/3 of their length while in use. The (PTO) drive assembly may need to be shortened to fit up to your tractor correctly and to prevent the drive assembly from “bottoming out” and causing extensive damage to the tractor PTO drive assembly.





.50” (13MM) FREE TRAVEL

The shaft assembly is shortest when the shaft is straight inline with the attachment. There should be a minimum of .50" (13mm) of free travel before the shaft is fully retracted. To check:

a. Lower the attachment until the shaft is parallel to the ground and is straight inline with the attachment gearbox.
b. Check to see if there is a minimum of .50" free travel.

If there is not at least .50" (13mm) of free travel DO NOT OPERATE ATTACHMENT.

NOTICE: IF THE DRIVE SHAFT “BOTTOMS OUT” BEFORE IT IS STRAIGHT INLINE WITH THE ATTACHMENT, STOP AND CALL YOUR NEAREST DEALER OR THE ATTACHMENT MANUFACTURER BEFORE OPERATING.

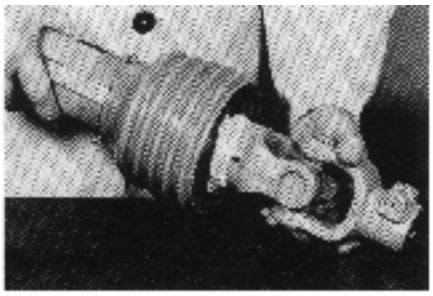
CAUTION FAILURE TO HAVE THE REQUIRED DISTANCE OF CLEARANCE WILL DAMAGE THE POWER TAKE OFF (PTO) OF YOUR TRACTOR.

Raise and lower the tiller to determine the greatest distance between the PTO shaft and the gearbox input shaft. Securely block the tiller in this position and check the overlap of the driveline. If the driveline has less than the minimum of overlap DO NOT OPERATE ATTACHMENT. Contact your nearest dealer or the attachment manufacturer.

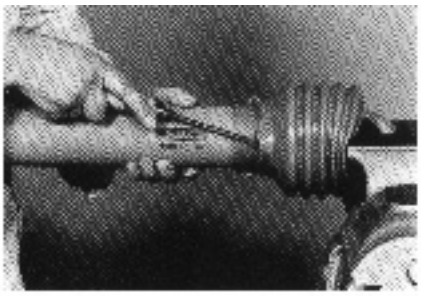
MAINTENANCE AND SERVICE

SAFETY SHIELD

DISASSEMBLY

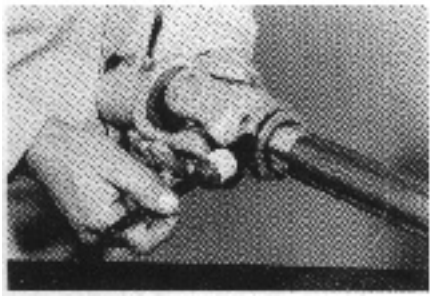


Use special tool SW21 to release bearing locking tabs and remove the shield from PTO drive shaft half.

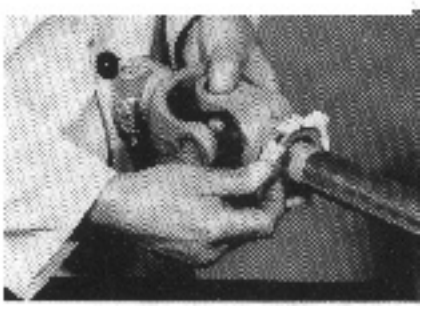


Or, clamp the PTO yoke in the vise as shown to create pressure on the locking tabs and use a flat bladed screw driver to release one tab at a time to remove shield.

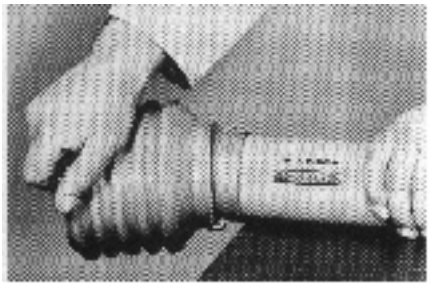
ASSEMBLY



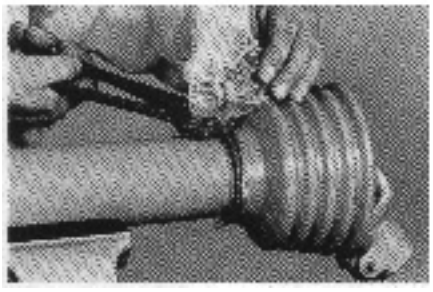
Grease the shield bearing groove on the yoke and the telescoping tube before assembly.

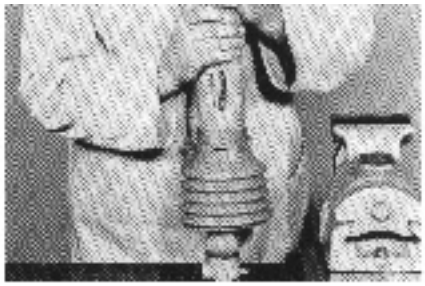


Place bearing ring in groove with the locking tabs nearest the telescoping tube side.

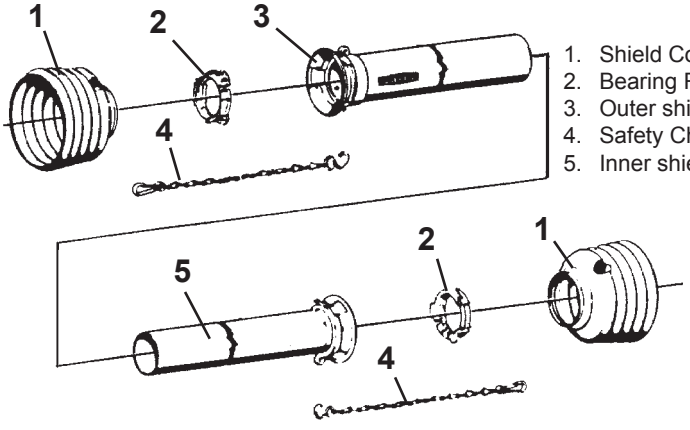


To remove the old shield cone, cut the cone near the bearing cap being careful not to damage the cap. Heat the new shield cone by placing the contact portion in water heated to approximately 180° F. until it is very flexible. Then, pull it over the tube and on to the bearing cap. As it cools, the cone will return to its natural size and become secure for normal function.





To mount the shield on to the half shaft, place it over the telescoping member, align the locking tabs on the bearing in the appropriate channels of the bearing cap and push the shield into place or apply light blows until all three locking tabs are visible in the openings.

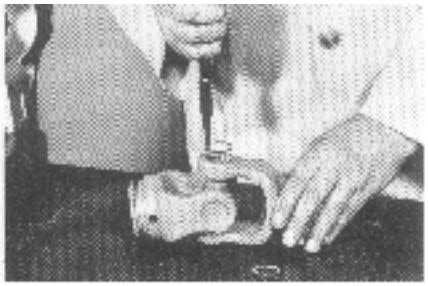


1. Shield Cone
2. Bearing Ring
3. Outer shield tube with bearing cap
4. Safety Chain
5. Inner shield tube with bearing cap

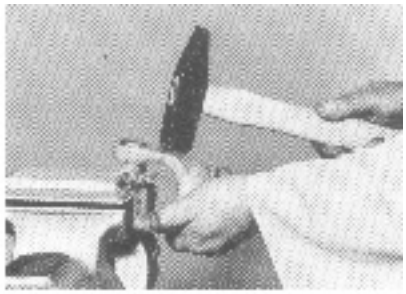
MAINTENANCE AND SERVICE

U-JOINT

DISASSEMBLY

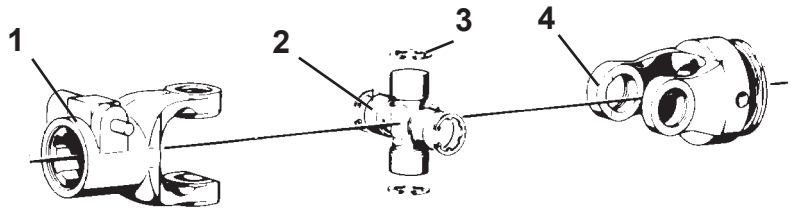


Remove retaining rings (3).



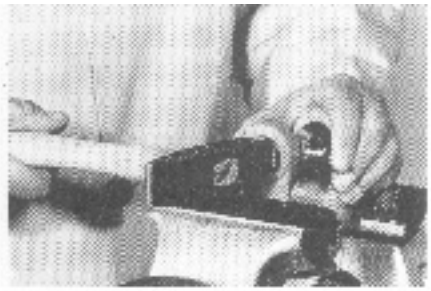
Place joint in the vise as illustrated (do not clamp tight) and with light hammer blows, drive up the bearing bushing.

Use special tool SW23 or SW27 to clamp the bearing bushing in the vise. Using either light hammer blows or by twisting the yoke, remove the bearing bushing.



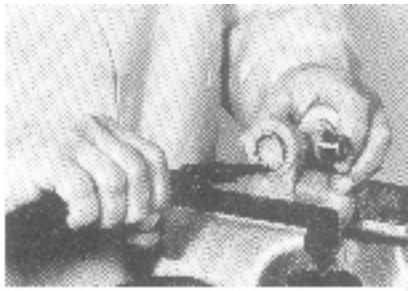
1. Quick-disconnect yoke coupling
2. Cross and bearing kit coupling
3. Retaining ring
4. Inboard yoke

ASSEMBLY

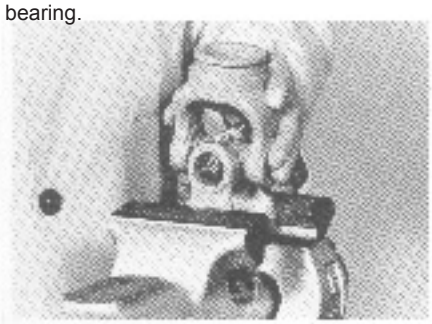


Clamp the yoke in the vise as illustrated. Remove the bearing bushing from the cross kit and place the cross into one of the yokes. Begin mounting the bearings by extending the cross journal out through the bearing bore. Place a bearing on it and holding the cross with one hand to position the bearing, tap with light hammer blows until you notice resistance. Do the same for the opposite bearing.

Using a flat surfaced drift punch or special tool SW28 drive the bearing in until the annular groove is visible.



Replace the retaining ring, make sure it is properly seated.



When installing the second yoke and bearings, make sure the grease zerk is positioned on the proper side for easy access when lubricating. Replace the bearings as described previously using the cross journal to help guide the bearings into the bore.

Relieve the stress from the bearings and yoke by applying several sharp hammer blows to the yoke ears.

Grease the joint. Note that all four bearings are properly purged and rotate to make sure the U-joint will move freely.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Tiller is not rotating.	PTO not engaged.	Engage PTO.
	Slip clutch is slipping.	Adjust Slip Clutch. See Slip Clutch Adjustment
Gearbox leaking.	Damaged oil seal.	Replace seal.
	Bent shaft.	Replace gearbox.
	Oil level too high.	Drain to proper level.
	Bolts loose.	Tighten bolts.
	Gasket damaged.	Replace gasket.
Uneven tilling.	Tiller not level side-to-side.	Adjust skid shoes to the same depth. Adjust tractor lift arms.
Tiller depth insufficient.	Tiller being carried by tractor.	Lower tractor lift arms.
	Tractor has insufficient power.	Increase engine RPM. Maintain 540 RPM PTO speed.
	Skid shoes not adjusted properly.	Adjust skid shoes.
	Tines worn or bent.	Replace any worn or damaged tines.
	Tines installed incorrectly.	Check tine orientation and correct.
	Material wrapped around rotor.	Disconnect PTO and remove entangled debris from rotor.
Tillage too coarse.	PTO RPM insufficient.	Maintain 540 RPM PTO speed.
	Excessive ground speed.	Reduce ground speed.
Unusual noise.	Tines are loose.	Tighten tines.
Driveline will not telescope.	Improper lubrication.	Grease driveline. See Maintenance Section
	Driveline bent.	Driveline too long. Replace and check for proper length.
	Shields damaged.	Replace shields.
Bogging.	Tractor engine speed too slow.	Maintain 540 RPM PTO speed.
	Excessive ground speed.	Reduce ground speed.
	Material wrapped around rotor.	Disconnect PTO and remove entangled debris from rotor.
Tiller skips.	Slip clutch slipping.	Adjust Slip Clutch. See Slip Clutch Adjustment
	Tines worn or bent.	Replace any worn or damaged tines.
	Excessive ground speed.	Reduce ground speed.
Gearbox noisy.	Low lubricant level.	Add oil. See Maintenance Section
	Worn bearing.	Replace bearing.
Excessive vibration.	Universal joint worn.	Replace universal joint.
	Tiller is lifted too high.	Lower tiller and readjust 3-point lift stop.
Driveline twisted.	Failure to maintain correct PTO speed.	Maintain 540 RPM PTO speed.
	Slip clutch siezed.	Adjust Slip Clutch. See Slip Clutch Adjustment

SPECIFICATIONS

DESCRIPTION	SPECIFICATIONS		
	4'	5'	6'
Overall Width	53.00"	65.00"	77.00"
Tilling Width	48.00"	60.00"	72.00"
Overall Height	46.50"	46.50"	46.50"
Overall Length	26.50"	26.50"	26.50"
Tilling Depth	3.00" - 8.00"	3.00" - 8.00"	3.00" - 8.00"
Hitch	CAT I	CAT I	CAT I
PTO RPM	540	540	540
Tractor HP (Horsepower)	25-28	28-40	40-50
Total Number of Tines	36	42	54
Ship Weight	600 lbs.	690 lbs.	780 lbs.

BOLT TORQUE

BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

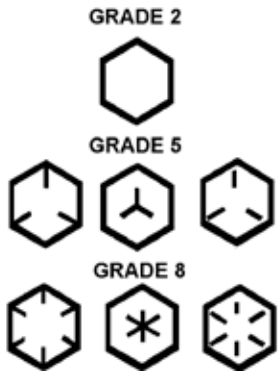
Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.

SAE BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE			
		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters	
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF
1/4	6.35	8	9	11	12	10	13	14	18
5/16	7.94	14	19	19	23	20	25	27	34
3/8	9.53	30	36	41	49	38	46	52	62
7/16	11.11	46	54	62	73	60	71	81	96
1/2	12.70	68	82	92	111	94	112	127	152
9/16	14.29	94	112	127	152	136	163	184	221
5/8	15.88	128	153	174	207	187	224	254	304
3/4	19.05	230	275	312	373	323	395	438	536
7/8	22.23	340	408	461	553	510	612	691	830
1	25.40	493	592	668	803	765	918	1037	1245
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103

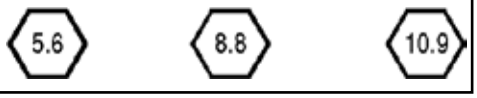
Bolt head identification marks as per grade.
NOTE: Manufacturing Marks Will Vary



METRIC BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.



Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-.4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3
	8.8		34-40	46.1-54.2		35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6
	8.8		51-59	69.1-79.9		56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7
	8.8		81-93	109.8-126		90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.5-112.5
	8.8		116-130	157.2-176.2		120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5
	8.8		150-168	203.3-227.6		177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3
	8.8		186-205	252-277.8		206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

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PARTS

In order to provide you with the most UP-TO-DATE part information, all parts for this attachment have been moved to our website at ***www.paladinattachments.com/Manuals***. Please use these diagrams and parts lists to locate replacement parts.

When servicing your attachment, remember to use only original manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering when contacting the factory, please have the product control number (PCN or C/N) or model and serial number of your product ready to ensure that you receive the correct parts for your specific attachment.

The product control number, model and serial number for your attachment should be recorded in the space provided on the cover of this manual. This information may be obtained from the serial number identification plate located on your attachment.

NOTE: Most daily and emergency parts orders (in stock) received by 10:30 A.M. (Eastern Standard Time) will be shipped UPS Ground the same day received. UPS Next Day orders must be received by 1:30 PM (Eastern Standard Time.)

SERVICE DEPARTMENT
(734) 996-9116
(800) 456-7100

For Fax and E-mail Orders
PLC_Sales@paladinattachments.com
(734) 996-9014

WARRANTY

In order to provide you with the most UP-TO-DATE Warranty information, Paladin Warranty Statement and Warranty Procedures along with Warranty Registration and Claim Forms have been moved to our website at ***www.paladinattachments.com***.