



3-Pt. PTO Finish Mower

Owner's Manual



⚠ WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #51486, #51487, #51488

SAVE THESE INSTRUCTIONS

Thank you very much for choosing a NorTrac™ product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This 3-Pt. PTO Finish Mower is designed for certain applications only. Northern Tool & Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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Intended Use

The NorTrac 3-Pt. PTO Finish Mower includes a quick coupler PTO driveline shaft and a rear discharge design, which is an economical choice for use on large homesteads. These NorTrac finish mowers have widths ranging from 48" to 71^{1/2}" for tractors ranging from 20 to 50 HP.

Technical Specifications

Item	#51486	#51487	#51488
Product Type	Mower		
Mower Type	Finish		
Hitch Type	3-point		
Category Type	1		
Working Width (in.)	48	60	71 ^{1/2}
Required HP	20–50		
Gearbox (RPM)	540		
Cutting Height (in.)	1 ^{3/8} – 4 ^{1/2}		
Dimensions W x D x H (in.)	48 ^{1/2} x 51 ^{1/8} x 28 ^{7/8}	59 ^{1/2} x 55 ^{1/8} x 28 ^{7/8}	73 ^{1/4} x 37 ^{7/16} x 22 ^{7/16}

Important Safety Information

⚠ WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the mower is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the mower until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this mower in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the mower. There are specific applications for which the mower was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. It will be safer and do a better job at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

⚠ WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well lit. Cluttered, wet, or dark work areas can result in injury. Using the mower in confined work areas may put you dangerously close to other cutting tools and rotating parts.
- Do not allow the mower to come into contact with an electrical source. The mower is not insulated and contact will cause electrical shock.

- Keep children and bystanders away from the work area while operating the mower. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

⚠ WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the mower. Do not use the mower while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool may result in serious personal injury.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Remove keys or wrenches before connecting the tool to an air supply, power supply, or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may cause personal injury.
- Secure the work with clamps or a vise instead of your hand when practical. This safety precaution allows for proper tool operation using both hands.

⚠ CAUTION

PRODUCT USE AND CARE

- Do not force the mower. Products do a better and safer job when used in the manner for which they are designed. Plan your work, and use the correct product for the job.
- Check for damaged parts before each use. Carefully check that the mower will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the product with a damaged part.
- Store the mower when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the tool for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with your product. Accessories that may be suitable for one product may create a risk of injury when used with another tool. Never use an accessory that has a lower operating speed or operating pressure than the tool itself.
- Keep guards in place and in working order. Never operate the product without the guards in place.

Specific Operation Warnings

⚠ WARNING

ENTANGLEMENT HAZARD

To prevent serious injury or death from the rotating driveline:

- DO NOT operate without guards in place.
- DO NOT operate higher than 540 RPM.
- Keep hands, feet, clothing, and hair away from moving parts.
- DO NOT operate without the driveline securely attached at both ends.
- DO NOT operate without the driveline shields that turn freely on the driveline.

ROTATING BLADE HAZARD

To prevent serious injury or death when the engine is running and the blades are rotating:

- Never allow riders on the tractor or mower.
- Keep hands and feet clear from under the deck while operating.
- DO NOT operate without deflector/guards in place.
- DO NOT stand on or near the implement at any time.
- DO NOT stand between the tractor and the implement.
- DO NOT operate with bystanders in the mowing area.
- Turn the engine off and detach the implement before servicing.

THROWN OBJECT HAZARD

To prevent serious injury or death:

- DO NOT operate without all guards in place and in good operating condition.
- Stop the blade rotation if bystanders come within 50 feet.

To prevent serious injury or death:

- Read and understand the Owner's Manual before operating, servicing, or repairing equipment.
- Stop the engine, remove the key, and set the brake before dismounting the tractor.
- Operate from the tractor seat only.
- DO NOT operate without guards in place and in good condition.
- Never allow riders on equipment.
- DO NOT operate or transport on steep inclines.
- DO NOT operate with the blade in the raised position.
- DO NOT exceed this implement's maximum speed of 5 MPH. Exceeding this speed may result in loss of control during transport or braking.
- Before mowing, clear debris from the mowing area.
- Keep bystanders at least 50 feet away while operating.
- DO NOT use if the implement is damaged. Repair before continuing use.
- Park and store on a hard, level surface.
- Store out of reach of children. Not for use by or around children.

MOVING PARTS HAZARD

To prevent serious injury or death from moving parts:

- Close and secure all guards and shields before starting.
- Keep hands, feet, hair, and clothing away from moving parts.

- Disconnect and lockout the power source before adjusting or servicing.
- DO NOT stand or climb on the machine when operating.

To prevent property damage, check the following before operating this machine, having first stopped the tractor engine and disengaged the PTO:

1. Check oil levels (if needed, add SAE 90 EP oil).
2. Grease the driveline spiders.
3. Grease all marked points on the machine.
4. Check that all nuts/bolts are snug on the parts which are under the most stress (lines, blades, front linkage bolts, gear box bolts, etc.).

Safety Label 7: Notice

Oil is NOT included. Before using, add oil to the central gear box. Consult this Manual for lubricating and operating instructions.

FALLING OFF CAN RESULT IN IMPALEMENT OR BEING RUN OVER.

- The tractor must be equipped with a Roll Over Protection Structure (or ROPS CAB) and seat belt. Keep the foldable ROPS system in “locked up” position at all times.
- Keep the seat belt securely fastened.
- Never allow riders on equipment.

RAISED EQUIPMENT CAN DROP AND CRUSH.

- Before servicing, follow all instructions and safety rules in this Owner’s Manual and securely block all corners of equipment with jack stands.
- Securely blocking prevents equipment dropping due to mechanical component failures.

FALLING OFF OR FAILING TO BLOCK SECURELY CAN RESULT IN SERIOUS INJURY OR DEATH.

Equipment Safety Guidelines

Operator safety is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

Review the safety instructions with all users annually. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment’s operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**

Safety Training

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 a single careless act of an operator.

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

It is the operator's responsibility to read and understand ALL safety and operating instructions in the manual and to follow them. Accidents CAN be avoided.

Working with unfamiliar equipment can lead to careless injuries. Read this manual and the manual for your tractor before assembling or operating your mower, to acquaint yourself with the machines. It is the rotary mower owner's responsibility if this machine is used by any person other than yourself, to make certain that the operator, prior to operating:

1. Reads and understands the Owner's manuals.
2. Is instructed in safe and proper use.

Know the controls and how to stop the tractor, the engine, and the mower quickly in an emergency. Read this manual and the one provided with your tractor.

Train all new personnel and review instructions frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

Do not allow children to operate this machine.

Transport Safety

Comply with state and local laws governing highway safety and movement of farm machinery on public roads.

The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.

When driving the tractor and equipment on the road or highway under 20 mph at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.

Always be sure the implement is in the proper raised position for transport.

Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.

Plan your route to avoid heavy traffic.

Do not drink and drive!

Watch for traffic when operating near or crossing roadways.

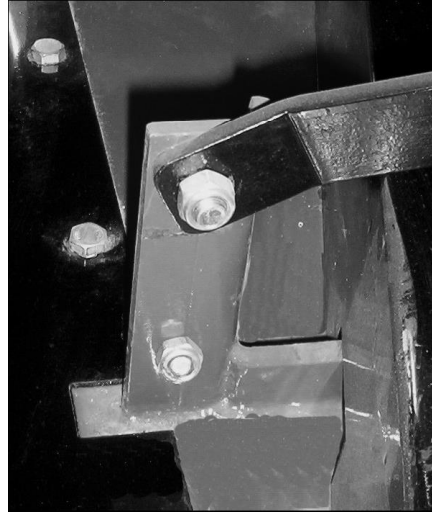
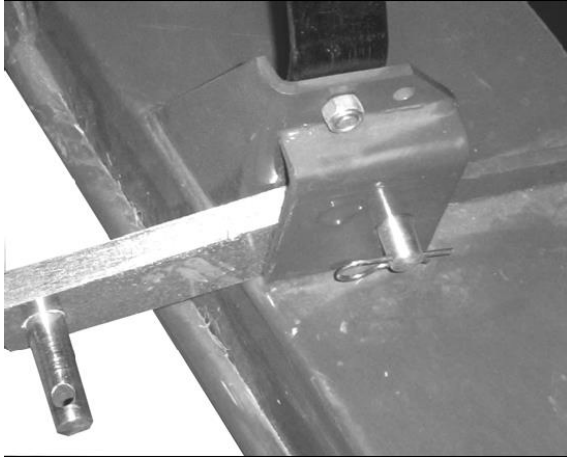
Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground, and when operating close to ditches or fences. Be careful when turning sharp corners. Turn curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steering. Slow down on rough or uneven surfaces, and loose gravel.

Never allow riders on either tractor or mower.

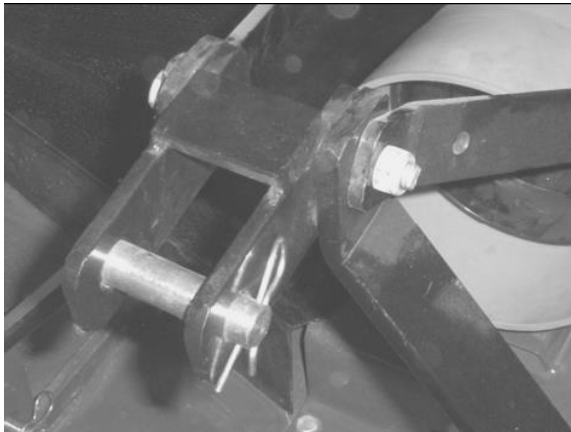
Be a safe and courteous driver. Always yield to oncoming traffic in all situations like narrow bridges and intersections.

Assembly Instructions

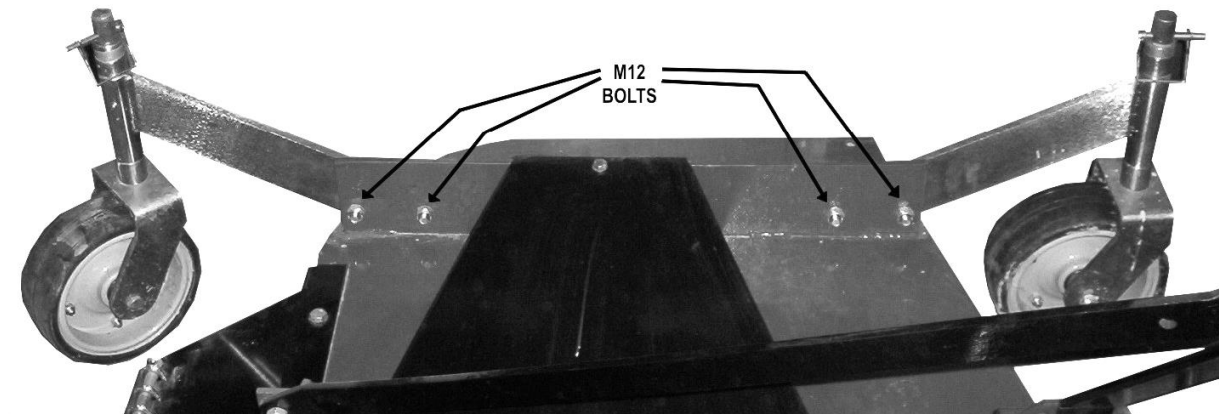
1. Attach the rear brace bars to the lugs on the rear of the deck with an M12 bolt and locking nut. Attach the A-frame bars to the lugs on the front of the mower deck with M12 bolts and locking nuts. See the following image.



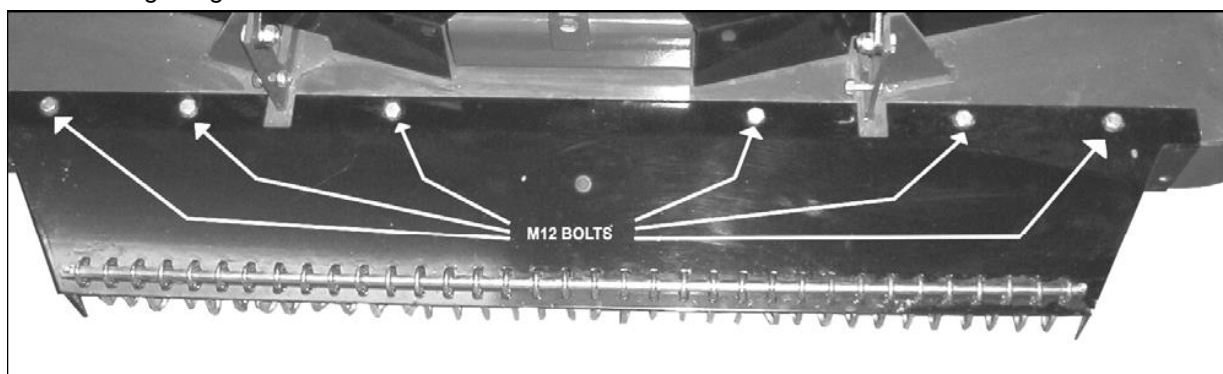
2. Connect all braces at the top of the A-frame with an M12 bolt, spacer, hitch connection, and locking nut. See the following picture.



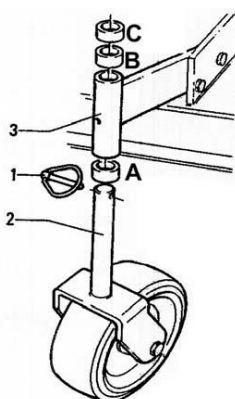
3. Install the wheel support braces with M12 bolts and locking nuts as shown below:



4. Install the rear discharge chute and safety chains using M12 bolts and locking nuts. See the following image.



5. Adjust the height of the mower deck by installing spacers (A, B, or C) on the bottom of the wheel assembly shaft (2) before inserting into the axle arm (3). See the figure below.



Before Each Use

⚠ CAUTION

Oil is NOT included. Before using, add oil to the central gear box. Consult owner's manual for lubricating and operating instructions.

- Never operate the tractor and the mower until you have read and completely understood this manual, the Tractor Owner's Manual, and each of the safety messages found on the safety signs on the tractor and mower.
- Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Wear a protective hair covering to contain long hair.

Prolonged Exposure to Loud Noise May Cause Permanent Hearing Loss!

Tractors with or without mowers attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the operator's position exceeds 65 dB. Noise over 65 dB on a long-term basis can cause severe hearing loss. Noise over 65 dB adjacent to the operator over a long-term basis may cause permanent, total

hearing loss. **Note:** Hearing loss from loud noise (tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

- Operate the mower only with a tractor equipped with an approved ROPS. Always wear your seat belt on tractors equipped with a ROPS. Serious injury or even death could result from falling off the tractor, particularly during a turnover when the operator could be pinned under the ROPS or the tractor.
- Clear area to be cut of stones, branches, or other debris that might be thrown, causing injury or damage.
- Operate only in daylight or good artificial light.
- Ensure that the mower is properly mounted, adjusted, and in good operating condition.
- Make sure the driveline spring-activated locking pin operates freely and is seated firmly in the tractor's PTO stub shaft groove.
- Ensure that all safety shielding and safety signs are properly installed and in good condition.

Operating Instructions

⚠ CAUTION

Oil is NOT included. Before using, add oil to the central gear box. Consult owner's manual for lubricating and operating instructions.

The use of this equipment is subject to certain hazards which cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you.

Most accidents occur because of neglect or carelessness. Keep all helpers and bystanders at least several hundred feet from an operating rotary mower. Only properly trained people should operate this machine.

When this machine is operated in populated areas or in other areas where thrown objects could injure persons or property, standard equipment safety chain shielding (which is designed to reduce the possibility of thrown objects) must be installed. **Operation must be stopped when anyone comes within 100 yards (300 feet).**

The majority of accidents involve entanglement on the driveline, injury of bystanders by objects thrown by the rotating blades, and operators being knocked off the tractor by low hanging limbs and then being run over by the mower. Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the Owner's Manual and is not familiar with a rotary mower.

Check the tractor master shield over the PTO shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new shield if the old shield is damaged or missing.

The safe operation of this mower is the responsibility of the operator. The operator should be familiar with the machine, tractor, and all safety practices before starting operation. This mower is designed for lawn and grass mowing. It is not designed for rough conditions or heavy mowing. The mower is equipped with suction type blades, which are best suited for lawn mowing.

Always operate the tractor's PTO at 540 RPM.

This section provides information for attaching the mower to the tractor and preparing it for field operation. Review this content prior to the tractor hook-up and operation.

Tractor Preparation

Do not install the mower on a tractor over 40 HP.

☐ WARNING

Do not operate tractor with less than 20% of its gross un-ballasted mass on the front wheels with the mower in the transport position.

Wheel Treads

The tractor's wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.

Stabilizer Bars and Sway Blocks

Use stabilizer bars or sway blocks to prevent any side swaying of the mower.

Drawbar

Shorten or remove the tractor drawbar so it will not interfere with the up and down movement of the mower.

☐ WARNING

Do not get between the tractor and the mower when the engine is running.

Attaching Mower to Tractor (Lift Type Only)

This mower is designed for tractors with 540 RPM and a category I hitch. Back the tractor up to the mower so that the lower draft arms are in alignment with the mower lift pins. Stop the engine, lock the brakes, or place the tractor in park. Connect the tractor and stabilizer bars to the lower lift pins. Adjust the top link so it will pin to the top holes in the A-Frame or into the holes in the floating top link.

☐ DANGER

Never allow children to operate, ride, or come close to the mower or tractor.

Driveline Attachment to the Tractor

1. Slide the yoke on to the tractor's PTO shaft.
2. Move the yoke back and forth until the locking pin has engaged on the PTO shaft groove.

☐ WARNING

When attaching the driveline yoke to the tractor PTO shaft, it is important that the spring activated locking pin seats properly in the tractor's PTO shaft groove.

Cutting Height Adjustment

WARNING

Avoid personal injury! Be sure the tractor's engine is off, the key is removed from the ignition, and the blades are allowed to completely stop turning before dismounting to make adjustments.

Important: Avoid very low cutting heights. Striking the ground with the blades gives the most damaging shock loads a mower can encounter and will cause damage to it and the driveline.

1. Using the tractor, raise the mower off the ground and place supports underneath it, so that it will not drift downward while making adjustments or maintenance.
2. While supporting the wheel and yoke assembly off the ground, remove the lock pin from the top of the gauge wheel spindle. Position the supplied spacers as required for achieving the desired cutting height.

Tractor Requirements and Preparation

This mower is designed for light duty cutting such as lawn maintenance with a Category I, 3-point hitch and with a 540 RPM PTO. This mower is not designed for tractors over 40 HP. The PTO must be in good working condition.

It is recommended that only tractors with wide front axles be used with this cutter. Tricycle front wheel arrangements are inherently unstable and tractor rollover accidents are more likely to occur.

Tractor wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.

The tractor also needs lift arm stabilizer bars or sway blocks to control side movement of the cutter.

Check the tractor's 3-point hydraulic lift system. Refer to your tractor's Owner's Manual or dealer for any adjustments necessary to put the hydraulic system in good working order.

Be sure tires and rims are in good condition. Inflate tires to the proper recommended air pressure.

Check the tractor master shield over the PTO shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new shield if the old shield is damaged or missing.

It is recommended that a ROPS and a seat belt be installed on all tractors. Contact your local dealer for a ROPS for your tractor.

CAUTION

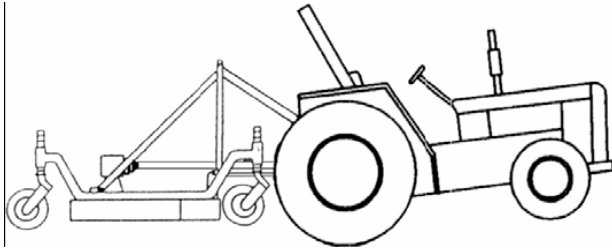
Be sure your tractor is in good condition. Read all the safety precautions and make sure all tractor operators are familiar with the safety rules of operation.

The operator is responsible for the safe operation of this mower. The operator must be properly trained. Operators should be familiar with the mower and tractor and all safety practices before operating. Read the safety rules and safety signs before using.

Recommended mowing speed for most conditions is from two to five MPH.

☐WARNING

When using the unit, a minimum 20% of tractor and equipment weight must be on tractor front wheels. Without this weight, the tractor could tip up, causing possible loss of control and possible personal injury or death. The weight may be attained with a front end loader, front wheel weights, ballast in tires or front tractor weights. When attaining a minimum 20% of tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. **DO NOT GUESS OR ESTIMATE!**



☐WARNING

A heavy load can cause instability when driving a tractor. Make sure the front of the tractor is properly counterbalanced with weights. Always drive slowly - especially around turns. An unstable tractor could steer badly and possibly tip over, causing injury or death.

☐DANGER

For non-agricultural applications, OSHA, ASAE, SAE, and ANSI standards require the use of chain guards, deflectors, or solid skirts at all times. The mower manufacturer strongly recommends the use of chain guards, rubber belting, or solid skirts for agricultural applications as well, to reduce the risk of property damage, serious bodily injury or even death from objects thrown or from contact with the cutting blades.

Front, rear, left, and right are determined by the normal direction of travel, the same as when driving an automobile.

Starting and Stopping the Mower

The power required for operating the mower is supplied via the tractor's PTO. Refer to your tractor's Owner's Manual for instructions on engaging and disengaging the PTO.

1. Always engage the PTO at a low engine RPM.
2. Operate the mower at 540 RPM PTO speed. Do not exceed 540 RPM PTO speed.
3. In case of emergency, you must learn how stop the tractor and mower quickly.

Important: Stop the mower and tractor immediately upon striking an obstruction. Inspect the mower and repair any damage before resuming operation. Do not disengage the PTO when the engine is at full PTO RPM. Always bring the tractor engine to idle speed before disengaging the PTO.

WARNING

Avoid personal injury! When attempting to stop a tractor which does not have a live PTO, the momentum created by the blades of a mower can cause the tractor to be pushed forward. Do not operate this mower unless the tractor has a live or independent PTO.

To start operating, reduce the engine speed and engage the tractor's PTO. Before starting to cut, gradually increase the engine speed to develop full PTO speed. Enter the area to be cut with the cutter operating at PTO speed and, if it becomes necessary to temporarily regulate engine speed during operation, increase or decrease the speed gradually. To transport the mower, disengage the PTO and raise to full transport height.

Cutting Speed

Proper ground speed for cutting will depend upon the height, type, and density of the grass to be cut.

Normally, ground speed will range from 1.5 to 3 MPH. Tall dense grass should be cut at low speeds, while thin medium height grass can be cut at faster ground speeds.

Cutting Tips

Always operate the PTO at the recommended RPM when cutting. This is necessary for correct blade speed, which creates a clean and even grass cut. Under certain conditions the tractor tires may roll some grass blades down and prevent them from being cut at the same height as the surrounding area. If this occurs, reduce the tractor ground speed, but maintain 540 RPM PTO speed. The lower ground speed will allow grasses to be at least partially rebound and cut. Taking a partial cut and/or reversing the direction of travel may also produce a cleaner cut. When people are passing by the area you are cutting, stop the cutting until the area has been cleared.

Although the mower is shielded to prevent objects from being thrown by the blades, no shielding device is 100% effective. The mower operator has greater knowledge of the hazards created by the machine than people on the street. Therefore, take every precaution possible when other people are around.

DANGER

Avoid personal injury! Pick up all rocks and other debris before cutting. Enter new cutting areas carefully. Cut material higher the first time to allow the mower to clear unseen or hidden objects. Never assume that a cutting area is clear. Always check carefully.

Extremely tall grass should be cut in two stages. First, raise the mower above the desired cutting height and cut the grass in one direction. Second, adjust the mower to the desired cutting height and cut in a perpendicular (90 degree) direction from the first cut.

Before cutting, analyze the area to determine the best cutting procedure. One must consider the grass height, its type, and the terrain relief.

Grass is best cut when it is dry. Mowing wet grass can cause plugging, which results in grass clumps behind the mower.

Detaching and Storing

Lower the mower to the ground. Park the tractor with the transmission in the correct gear (automatic transmissions should be set on park; standard transmissions should be set on neutral). Set the parking brake, turn off the engine, and remove the keys from the ignition. Wait until the PTO stops rotating completely before dismounting the tractor. Disconnect the driveline from the tractor's PTO and store it to prevent contact from the ground and away from excessive moisture. Always reinstall or lower into position the tractor's PTO master shield. This shield should always remain in place except when connecting or disconnecting the driveline.

Before Operating or Transporting the Mower

Always display the Slow Moving Vehicle (SMV) symbol on the rear of the tractor that transports the mower. The SMV symbol should be clearly visible to vehicles overtaking the tractor transporting the mower. Prominent display of this symbol will help the operator avoid accidents which could cause injury or possibly death.

After Each Use

Mower operating power is supplied from tractor's PTO. Refer to your tractor's Owner's Manual for PTO engagement and disengagement instructions. Always operate the tractor's PTO in the 540 RPM speed selection. **DO NOT OVER SPEED!** Know how to stop the tractor and mower quickly in case of an emergency.

When engaging the PTO, the engine RPM should always be low. Once engaged and ready to start cutting, raise the PTO speed to approximately 540 RPM and maintain throughout the cutting operation.

Always stop the tractor, set the brake, shut off the tractor's engine, remove the ignition key, lower the implement to the ground, and allow the cutter blades to come to a complete stop before dismounting the tractor. Never leave the equipment unattended with the tractor running or with the implement in the raised position.

Storage Safety

- Following operation, or when unhooking, stop the tractor, set the brakes, disengage the PTO, shut off the engine, and remove the ignition keys.
- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Equipment damage and livestock injury could result.
- Do not permit children to play on or around the stored unit.
- Make sure all parked machines are on a hard, level surface and engage all safety devices.
- If blocking is used, make sure it is solid and secure before leaving area.

Maintenance

Safety Precautions

- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, drive to a level area, disengage the PTO, lower the implement (or if working underneath, raise and block securely), shut off the engine, set the brakes, and remove the ignition keys.
- Be certain all moving parts on the attachments have come to a complete stop before attempting to perform maintenance.
- Never work under the equipment unless it is blocked securely. Never depend on a hydraulic system to keep the implement in a raised position.
- Keep all persons away from the operator control area while performing adjustments, service, or maintenance.
- Always use personal protection devices such as eye, hand, and hearing protectors, when performing any service or maintenance.
- Frequently check the mower blades. They should be sharp, free of nicks and cracks, and securely fastened.
- Periodically tighten all bolts, nuts, and screws and check that all cotter pins are properly installed to ensure that the unit is in a safe condition.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing the unit in service.
- After servicing, be sure all tools, parts, and service equipment are removed.
- Check to ensure all safety signs are installed and in good condition.
- Do not allow grease or oil to build up on any deck or platform.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment

Maintenance Instructions

Before operating the mower, make sure that it is properly lubricated and thoroughly inspected. Only a minimum of time and effort is required to regularly lubricate and maintain it. Following a regular program will provide long life and trouble free operation

WARNING

Always disengage the tractor's PTO before raising the mower for transport or making adjustments.

Gearbox Lubrication

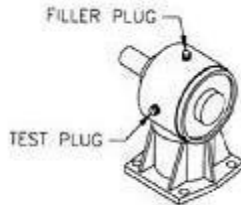
The gearbox must be filled with SAE 90 EP oil before operating.

To fill the gearbox to the correct operating level:

1. Place the mower on an even and leveled surface.

2. Remove the filler and test level plug. (See the figure for plug location.)
3. Add oil through the filler plug until it starts running out of the test plug. (Pour oil slowly to make sure that the lower portion of the gearbox housing has been filled.)
4. Screw the test and filler plugs back into their corresponding places.

It is recommended that the oil level plug be removed after every 8-10 hours of operation and oil added until it runs out of the test plug hole. The filler plug hole and test plug hole are both located on the back of side of the gearbox.

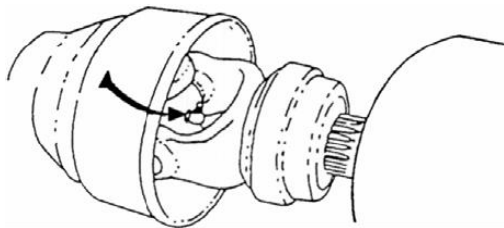


Note:

1. Do not overfill the gearbox with oil. This will result in pressure build-up inside the unit, which can cause the oil seals to leak.
2. If the gearbox suddenly begins making an unusual noise, stop at once, check for oil leaks, and refill it as required.

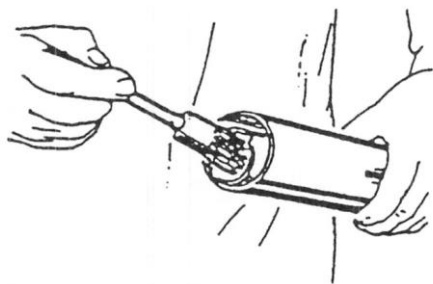
Driveline Lubrication

Grease fittings are located on the cross and bearing kit assemblies of both U-joints. U-joints should be greased after every 8 hours of operation. See the figure below for the location of the grease fittings. Do not force grease through the needle bearing cup assemblies.



The metal telescoping drive tubes inside the plastic shield tubes must be lubricated before each use. (See the figure on the following page.)

Disconnect the driveline from the tractor and pull the halves apart. (Do not disconnect the driveline that is attached to the mower gearbox.) Insert grease into the drive tube and spread it evenly. Reconnect the two driveline halves together. Reconnect the driveline to the tractor's PTO and raise and lower the mower several times so that the grease just applied spreads over the entire working area of the drive tubes.



□ WARNING

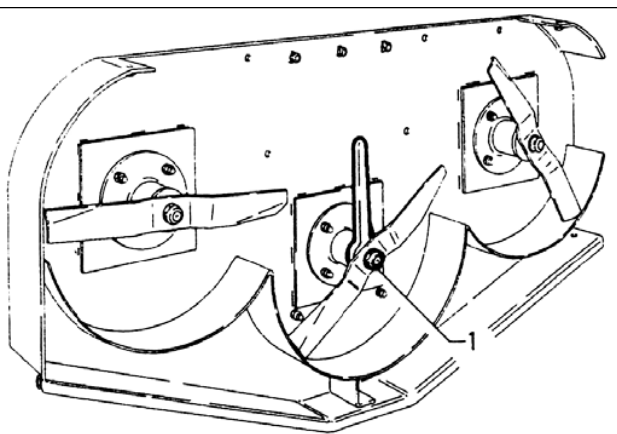
When attaching the driveline yoke to the tractor's PTO shaft, it is important that the spring activated locking pin is seated on the PTO shaft groove. A loose yoke could slip off and result in personal injury or damage to the mower.

Blade Spindle Lubrication

Blade spindles must be lubricated after every 8 hours of operation. Access the lubrication fittings through the holes in the belt guards. Each spindle is supplied with a grease fitting, and they must be lubricated sufficiently so that a small amount of grease escapes through the bleed hole on each underside. Do not force large amounts of grease on the spindles, as it may adhere to the drive belts. Grease fittings are on the front of the spindle housing, facing the front, and under the pulley. Both side belt shields need to be removed to lubricate.

Blade Servicing

Use only the specified blades on your mower. They are manufactured of special heat-treated, alloy steel. Substitute blades may not meet specifications and may fail in a hazardous manner, which could cause injury.



Blade Removal and Installation

1. Place the machine at a comfortable height and lock it into position with sufficient support to guarantee the operator's safety.
2. Prevent the blade rotating by locking the shaft with a wrench. (The shaft is designed for this with two flat areas immediately above the blade.)
3. Unscrew the nut (figure above) and remove the blade.
4. Check the state of wear of the shaft and the nut and, if necessary, replace them.

- To install the blade, place the blade and washer on the spindle shaft and screw the nut on fully and tighten securely, keeping the shaft locked at the same time as described above.

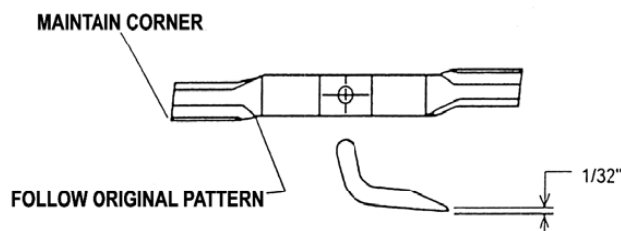
Note: Always wear heavy, leather gloves while tightening blade bolts.

Blade Sharpening

To maintain a proper blade balance, always sharpen both ends of the blade equally. Follow the sharpening pattern as shown in the figure below. Do not sharpen the blades to a razor edge, but leave a 1/32" blunt edge. Never sharpen the back side of the blades.

⚠ WARNING

Avoid personal injury! Always support or block the mower when servicing the blades, carrier, or any other component on the underside of the deck.

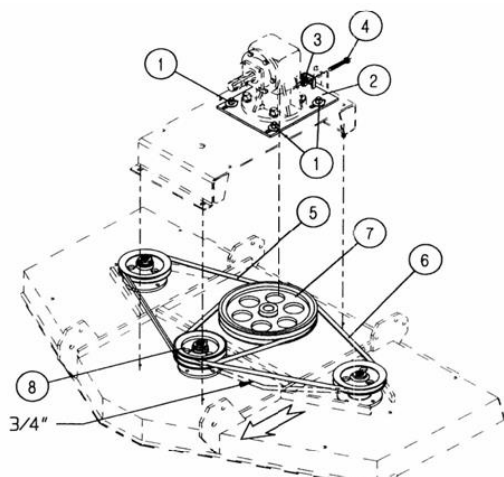


Hold the end of the blade using heavy leather gloves.

Drive Belt Adjustment

- Shut off the mower and tractor.
- Loosen all four nuts (Item 1) on the gearbox slide plate (Item 2). See the figure below.
- Loosen the jam nut (Item 3) on the tension adjustment bolt (Item 4).
- Tighten the adjustment bolt (Item 4) until the belt deflection along the front side of the belt (items 5 & 6) is 3/4" when approximately 10 pounds of pressure is applied to the center of the belt length.
- Do not overtighten belts!
- Tighten the jam nut (item 3) and the nuts (item 1) on the gearbox slide plate.

Obey All Safety Warnings!



Drive Belt Removal and Installation

1. Shut off the mower and tractor.
2. Remove drive belt shield fasteners and belt shields.
3. Loosen the gearbox slide plate bolts and the gearbox adjustment bolt.
4. Slide the gearbox to its forward most position.
5. Slide belts under the gearbox sheave (Item 7) and over the center spindle sheave (Item 8).
6. Make sure that the right hand belt (Item 5) is in the lower groove of the gearbox sheave and that the left hand belt (Item 6) is in the upper groove.
7. Slide the gearbox back to the full rear position and adjust according to the belt adjustment procedure described above.

Storage

Your mower represents an investment from which you should get the greatest possible benefit and use. Therefore, when the cutting season is over, the mower should be thoroughly checked and prepared for storage so that a minimum amount of work will be required to put it back into operation for the next season.

Storage Procedures

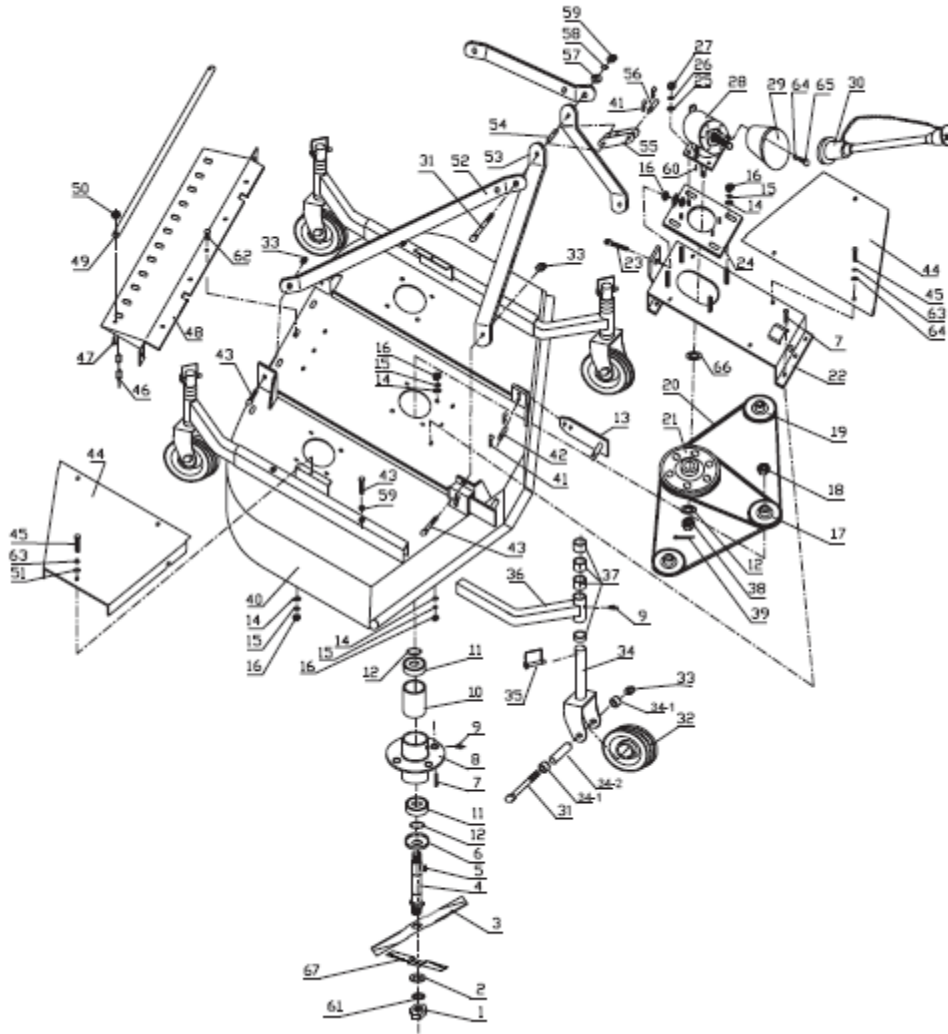
1. Thoroughly clean the mower.
2. Lubricate the mower as recommended in the maintenance section of this manual.
3. Tighten all bolts and pins to the recommended torque.
4. Check the mower for worn or damaged parts and replace them.
5. Store the mower in a clean, dry place with the deck resting on blocks.
6. Use spray touch-up enamel where necessary to prevent rust and maintain its appearance

Troubleshooting		
Problem	Possible Cause	Solution
Streaking	<ol style="list-style-type: none"> 1. Slow blade tip speed 2. Worn blade tips 3. Dull blades 4. Blades unable to cut the part of grass pressed down by tractor's tire path or mower's casters 5. Mowing too fast 6. Drive belt loose 7. Belt glazed/slipping 8. Blade loose on spindle 9. Conditions too wet for mowing 	<ol style="list-style-type: none"> 1. Operate PTO at 540 RPM 2. Replace with correct specified blades 3. Sharpen blades uniformly 4. Slow tractor's ground speed but maintain 540 RPM PTO speed 5. Slow down until cured 6. Tighten per instructions on maintenance chapter 7. Apply belt dressing or replace it with a correct specified belt 8. Tighten blade nut securely 9. Allow grass to dry before mowing
Grass discharges	<ol style="list-style-type: none"> 1. Grass is too high and too coarse 	<ol style="list-style-type: none"> 1. Slow tractor's ground speed but maintain

from mower unevenly or bunches along a swath	<ol style="list-style-type: none"> 2. Belt slipping 3. Grass is wet 	<p>540 RPM PTO speed. Raise the mower for the first pass and lower to the desired cutting height for the second and cut at 90 degrees to the first pass. Raise the rear of mower high enough to allow the grass to discharge, but not too high for streaking to occur.</p> <ol style="list-style-type: none"> 2. Tighten belt or replace with a correct specified belt. 3. Allow grass to dry before mowing. Slow tractor's ground speed but maintain 540 RPM PTO speed. Cut the grass at a lower height.
Heavy vibration	<ol style="list-style-type: none"> 1. Blade speed is too fast 2. Broken/bent blade 3. Worn/unbalanced blade 4. Bent/broken sheave 5. Debris caught on blade 	<ol style="list-style-type: none"> 1. Do not exceed 540 RPM PTO speed 2. Replace with correct specified blade 3. Grind blade uniformly or replace 4. Replace with correct specified part 5. Clean off blade
Belt slipping	<ol style="list-style-type: none"> 1. Belt loose 2. Belt glazed 3. Oil on belt 	<ol style="list-style-type: none"> 1. Tighten or replace with correct specified belt 2. Use belt dressing or replace it 3. Clean or replace
Belt slippage	<ol style="list-style-type: none"> 1. Mower is overloading, grass is too tall or heavy 2. Oil on belt from over lubrication 3. Belt hung or rubbing 	<ol style="list-style-type: none"> 1. Slow tractor's ground speed but maintain 540 RPM PTO speed. Cut the grass twice. Raise the mower for the first pass and lower to the desired cutting height for the second and cut at 90 degrees to the first pass. Cut a partial swath only. 2. Clean lubricant from belt and sheaves with a clean rag. Replace oil soaked belts. Be sure to follow the Owner's Manual recommendations. 3. Check belt for free travel in sheaves. Check under mower deck and spindles for debris or other foreign material and remove if any is present
Belt rollover	<ol style="list-style-type: none"> 1. Damaged belt 2. Foreign object in sheave groove 3. Worn sheave groove 	<ol style="list-style-type: none"> 1. Replace it with correct specified belt 2. Inspect all sheave grooves for rust, paint, or other foreign material. Remove these if present. 3. Replace with correct specified sheave
Damaged belt	Rollover, high shock loads or installation damage	Replace it with correct specified belt
Belt breakage	<ol style="list-style-type: none"> 1. High shock loads 2. Belt came off sheave 	<ol style="list-style-type: none"> 1. Avoid hitting ground and large obstructions with the mower. 2. Check sheave for proper alignment and foreign material. Ensure proper belt tension. Avoid hitting the ground and large

		obstructions with mower
Blade is scraping ground	<ol style="list-style-type: none"> 1. Mower is too low 2. Field is ridged 3. Field is too wet 	<ol style="list-style-type: none"> 1. Raise mower - reset wheels. 2. Cut field at a different angle 3. Stop and wait until is dried
Gearbox overheating	<ol style="list-style-type: none"> 1. Low on lubricant 2. Incorrect lubricant type 3. Excessive trash build-up around gearbox 	<ol style="list-style-type: none"> 1. Fill to proper level 2. Replace with proper lubricant 3. Remove trash
Gearbox leaking	<ol style="list-style-type: none"> 1. Damaged oil seal 2. Bent shaft 3. Shaft rough in oil seal area 4. Oil seal installed wrong 5. Oil seal not sealing in the housing 6. Oil level too high 7. Hole in gearbox 8. Gasket damaged 9. Bolts loose 	<ol style="list-style-type: none"> 1. Replace seal 2. Replace oil seal and shaft 3. Replace or repair shaft 4. Replace seal 5. Replace seal or use a sealant on outside diameter of seal 6. Drain oil to proper level 7. Replace gearbox 8. Replace gasket 9. Tighten bolts
<p>NOTE: Since the oil heats, the gearbox may reach a rather high temperature during work and its out surface may become very hot to touch. This is normal and will cause no damage. It is, however, important to always check that the oil is at the correct level and the correct type.</p>		
PTO contacts mower front frame when raised	Raising mower too high or incorrect adjustment of tractor top link	Adjust top link or tractor lift stops (See attachments instructions)
Gearbox noisy	<ol style="list-style-type: none"> 1. Worn bearings 2. Low oil in gearbox 	<ol style="list-style-type: none"> 1. Replace bearings 2. Check level and add oil
Blades wear too fast	<ol style="list-style-type: none"> 1. Cutting in sandy conditions 2. Cutting in rocky conditions 3. Blades hitting ground 	<ol style="list-style-type: none"> 1. Increase cutting height 2. Increase cutting height. Remove rocks 3. Increase cutting height
Mower seems to require excessive power	<ol style="list-style-type: none"> 1. Advancing into grass too rapidly 2. Hitting ground 3. Worn or dull blades 4. Tractor not large enough 5. Grass wet 6. Grass too tall and heavy 	<ol style="list-style-type: none"> 1. Reduce forward travel speed 2. Raise mower and reset wheels 3. Sharpen or replace blades 4. Use larger horsepower tractor 5. Allow grass to dry before mowing 6. Slow ground speed of tractor but keep engine running at full PTO RPM. Make two passes. Raise mower for first pass and lower for next pass.
Mower moves from side to side when cutting	Loose tractor sway chains or bars, or sway blocks improperly installed	Adjust sway chains, bars, or sway blocks

Parts Diagram



Parts List

Ref No.	Description	Specification	Q'TY	Ref No.	Description	Specification	Q'TY		
1	Nut	M18X1.5	3	23	Adjusting Bolt	M10x80	1		
2	Flat Washer	18	3	24	Sliding Plate		1		
3	Blade	4' 402x50x6	3	25	Flat Washer	16	4		
		5' 505x50x6	3	26	Lock Washer	16	4		
		6' 610x60x6	3	27	Nut	M16	4		
4	Blade Spindle Shaft		3	28	Gearbox		1		
5	Round End Key	8x7x30	3	29	Safety Guard		1		
6	Dust Cap		3	30	PTO	4'	1		
7	Bolt	M10x30	17			5'	1		
8	Bearing Holder		3			6'	1		
9	Grease Nipple		7	31	Bolt	M12X130	5		
10	Steel Sleeve		3	32	Wheel	208x79	4		
11	Bearing	6205RS	6	33	Lock Nut	M12	8		
12	Flat Washer	24	7	34	Wheel Yoke		4		
13	Joint Plate	4'	2	35	Lock Pin		4		
		5'	2			36	Formed Axle	4'	4
		6'	2					5'	4
14	Flat Washer	10	4': 27	37	Adjusting Brace			6'	4
			5': 28			4'	4		
			6': 29			5'	4		
15	Lock Washer	10	4': 27	38	Slotted Nut	6'	4		
			5': 28			5'	1		
			6': 29			39	Cotter Pin		1
16	Nut	M10	4': 27	40	Main Deck	4'	1		
			5': 28			5'	1		
			6': 29			6'	1		
17	Double Pulley	4'	1	41	Hair Pin		6		
		5'	1	42	Pin		2		
		6'	1	43	Bolt	M12x40	8		
18	Nut	M24x1.5	3	44	Belt Guard	4'	2		
19	Pulley	4'	2			5'	2		
		5'	2			6'	2		
		6'	2	45	Bolt	M18X15	6		
20	V-Belt	4' B1372	2	46	Chain	4'	17		
		5' B1575				5'	24		
		6' B1880				6'	35		
21	Main Input Pulley	4'	1	47	Bolt	M6X25	2		
		5'	1	48	Deflector	4'	1		
		6'	1			5'	1		
22	Gearbox Rest	4'	1					6'	1
		5'	1						
		6'	1						
49	Chain Rod	4'	1	58	Lock Washer	12	1		

		5'	1	59	Nut	M12	5
		6'	1	60	Gearbox key	10x8x38	1
50	Lock Nut	M6	2	61	Lock Washer	18	3
51	Flat Washer	8	6	62	Bolt	M10x25	4' :6
52	Rear Brace	4'	2				5': 7
		5'	2				6': 8
		6'	2	63	Lock Washer	8	6
53	Front Brace		2	64	Flat Washer	12	4
54	Brace		1	65	Bolt	M8x12	4
55	Upper Hitch		1	66	Flat Washer		1
56	Pin		1	34-1	Sleeve		8
57	Flat Washer	12	1	34-2	Wheel Axle		4

Replacement Parts

- For replacement parts and technical questions, please call Customer Service at **1-800-222-5381**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following information will be required: item description, item model number, item serial number/item lot date code, and the replacement part reference number.
- The distributor reserves the rights to make design changes and or improvements to product lines and manuals without notice.

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the NorTrac product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of one year from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.



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