Tractor Finishing Mower

Operation and Maintenance Manual

403510, 403515, 403520, 403525

SATISFACTION
BLUE DIAMOND®
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Register your WARRANTY within 30 days of purchase

BD-092

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Introduction: *Owner Information*

Thank you for your decision to purchase a Blue Diamond® Tractor Finishing Mower. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator's Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and/or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator's Manual and thoroughly understand safe and correct operating, installation, and maintenance procedures.

Blue Diamond® is continually working to improve its products. Blue Diamond® reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Blue Diamond® makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Blue Diamond® assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Blue Diamond® Attachments Dealer for assistance, information, or additional copies of the manual. Contact www.bluediamondattachments.com or call 888-376-7027 for a complete list of dealers in your area.

Serial Number Location:

Please record attachment information in the space provided for future reference.

Model Number:_____

Serial Number: _____

Dealer Name: _____

Dealer Number:_____

Date of Purchase:_____

The serial number plate is located on the front of the deck as shown above.

Always use your serial number when requesting information or when ordering parts.

NOTE: The directions left, right, front, and rear, as mentioned throughout this manual, are as viewed from the operator's position.

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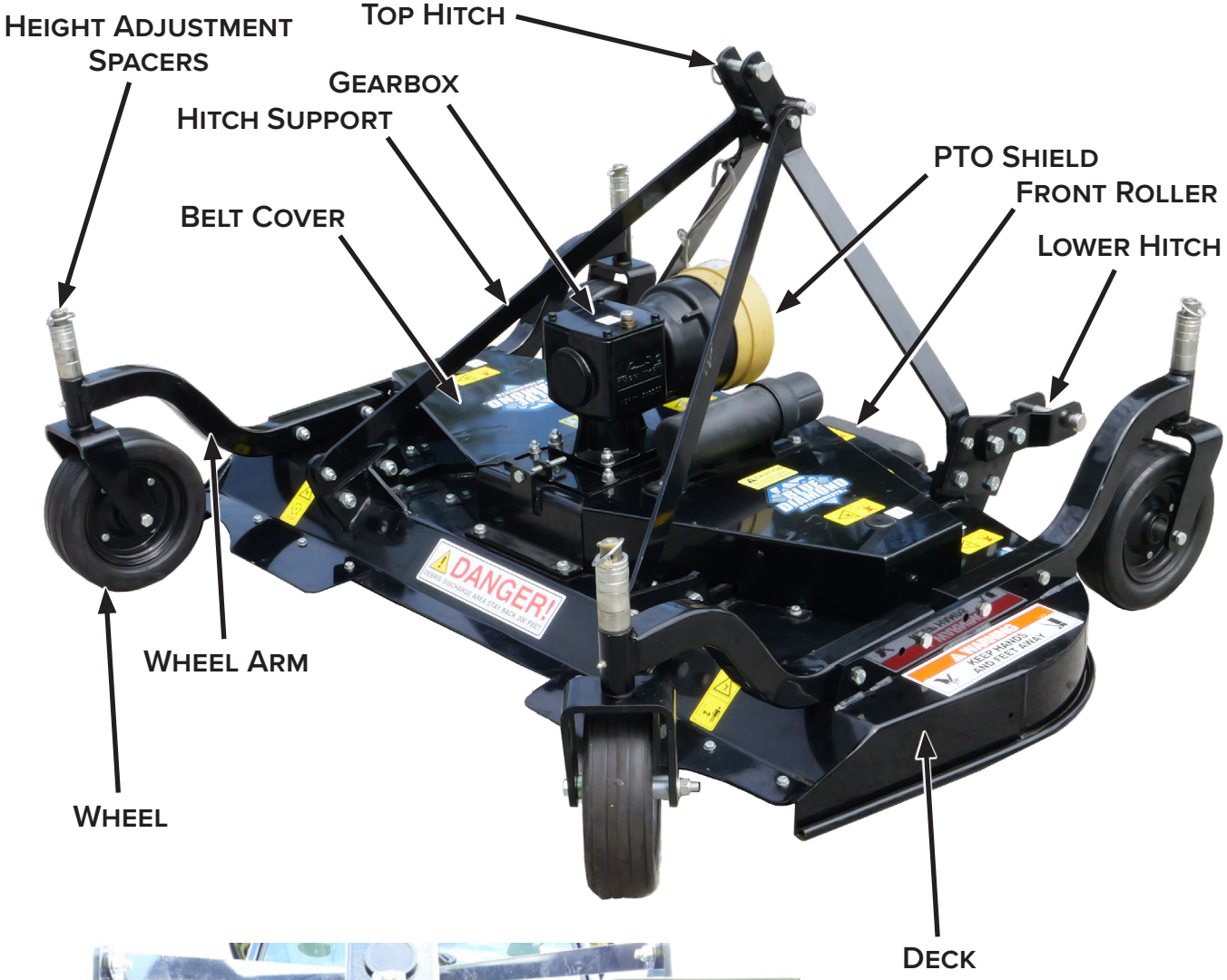
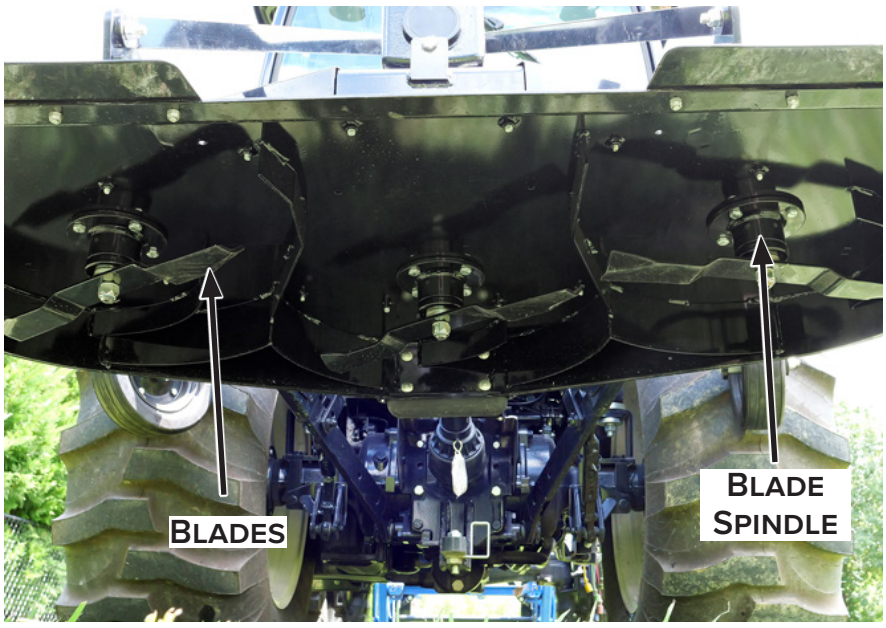
1. Introduction

1.1 *Attachment Identification*





1. Introduction

1.2 *About this Attachment*

The Blue Diamond® Finishing Mowers are specifically designed for lawn and grass professional mowing and maintenance of areas like private lawns, parks, airports, hospital grounds, schools, highways, golf courses, etc.

Our Finishing Mowers are not designed for rough conditions or heavy weed mowing.

The Finishing Mower can be mounted on the front or rear of a tractor as long as it is compatible with a universal three–point hitch and can be powered by a PTO driveshaft connected to a speed multiplier gearbox. The power is transmitted by means of two belts from a pulley coupled to the gearbox shaft to three pulleys coupled to individual spindle shafts. Each shaft is equipped with a suction–type blade turning at a high tip speed for best results in mowing.

The Finishing Mowers are equipped with four (4) swivel wheels that follow the contour of the ground, giving precise and level cut even in undulating conditions.

1.3 *Attachment Model Numbers*

Model Number	Working Width	Horsepower
403510	48”	20 – 25
403515	60”	25 – 35
403520	72”	35 – 45
403525	84”	40 – 50

2. Safety

2.1 *General Safety Information*

SAFETY ALERT SYMBOL

This **SAFETY ALERT SYMBOL** identifies important safety messages on the equipment and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

IMPORTANT

The signal word **IMPORTANT** identifies procedures which must be followed to avoid damage to the machine.

DANGER

The signal word **DANGER** on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

The signal word **WARNING** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

The signal word **CAUTION** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: Notes are used to indicate important information. This information may be repeated in other areas of the manual.

Terminology

Host Machine, Machine, Prime Mover:

- The Tractor Finishing Mower can be attached to many different pieces of equipment; therefore, the terms "host machine", "machine", and "prime mover" will be used. Host machine, machine, and prime mover mean any vehicle, tractor, or skid steer providing power to the attachment.

Attachment, Implement, Equipment:

- The Tractor Finishing Mower is the tool that is being attached to the host machine; therefore, the terms "attachment", "implement", and "equipment" will be used. The attachment, implement, and equipment mean any tool that is being used on any vehicle, tractor, or skid steer being used for different applications.

Operating Safety

- Read and follow instructions in this manual and the machine's Operator's Manual before operating.
- The manual must always remain with the machine. In case of loss or damage, request a new copy from your dealer or from Blue Diamond®.
- Strictly follow all rules prescribed by the safety pictograms/decals applied to the machine. Ensure that all safety pictograms/decals are legible. If pictograms/decals are worn, they must be replaced with new ones obtained from Blue Diamond® and placed in the position indicated by this manual.
- Before using the machine, make sure that all safety devices are installed and in good working condition. In case of damaged or missing shields, replace them immediately.
- It is absolutely forbidden to remove or alter safety devices and/or safety precautions.
- Pay maximum attention to avoid any accidental contact with rotating parts of the machine.
- If the use of the machine is required at night or in conditions of reduced visibility, use the lighting system of the prime mover and an auxiliary lighting system if required.

2.2 *Operators*

Qualified Operators

The operator is a person suited to the work and who is physically and psychologically able to withstand the demands connected with operating the equipment for its intended use. The operator must not allow anyone to approach the machine while it is working and must not allow external personnel to operate the machine or attachment.

The operator is to follow the given instructions in this manual and the machine operator's manual in order to obtain maximum performance, minimal fuel consumption, and maximum safety for himself and for others.

The operator is responsible for scrupulously observing all the instructions given in this manual.

DANGER

AVOID SERIOUS INJURY OR DEATH

Operators must receive instructions before operating the machine. Untrained operators can cause serious injury or death.
For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.
For an operator to be qualified, he or she must have read and understood the instructions of this manual, he or she must make adequate preparation for the proper use of the machine, and he or she must hold a driving license.
In case of doubt regarding the use of the machine and/or the interpretation of this manual, the operator must contact either their dealer or Blue Diamond®.

Operator Training

- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area.

Operator Safety

- Any use of the machine other than the intended use is a non–intended use and is considered to be unauthorized and dangerous. Blue Diamond® is not liable for any damage or injury resulting from non–intended use.
- Before starting, and during operation of the attachment, make sure there are no people or animals in the operation area; the machine can project material from the back with risks of serious injury or death.
- Do not leave the host machine's engine running in enclosed areas without a ventilation capable of disposing the harmful exhaust gases produced by the host machine.
- Pay maximum attention to avoid any accidental contact with rotating parts of the machine.
- During operation, adjustment, maintenance, repairing, or transportation of the machine, the operator must always use appropriate Personal Protective Equipment (PPE) including but not limited to safety glasses, working gloves, dust-mask, safety helmet, and hearing protection.
- Do not operate the attachment or machine while wearing loose fitting clothing that can be entangled or caught in parts of the machine.
- Do not operate the implement when tired, not in good condition, or under the influence of alcohol or drugs.

2.3 *Safety Guidelines*

Operating Safety

- Read and follow instructions in this manual and the machine's Operator's Manual before operating.
- Use the attachment for its intended purpose only. Improper use can damage the attachment or machine and cause serious injury or death.
- Only one person should be in the operator's position at a time.
- Do not leave the operator's position when the tractor is in operation. Before leaving, lower the attachment to the ground, disengage the PTO, engage the parking brake, stop the engine, and remove the key from the ignition.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to persons unfamiliar with its operation.
- Check for overhead and/or underground lines before operating equipment.
- 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.
- Check that the attachment is securely fastened to the machine.
- Make sure all the machine controls are in the NEUTRAL before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator's Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders.
- Do not permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved machines.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Do not make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- Do not operate equipment in poor visibility conditions such as fog, darkness, or any conditions that limit clear visibility less than 300 feet (100 m) in front of and to the sides of the equipment.
- When conditions make it necessary to slow ground speed, shift to a lower gear rather than reducing engine speed. The engine will maintain rated speed and keep the attachment running at optimum cutting speed.
- Do not operate in a work area that has not been inspected for foreign debris and obstacles.
- Remove any foreign objects and clearly mark any objects that cannot be removed.
- Wear safety glasses, gloves, hearing protection, and other protective clothing when required.
- Do not engage the tractor's PTO if people are close to the driveshaft. The body, hair, and/or clothing of a person can get caught in rotating parts, possibly causing serious injury or death.
- Before engaging the PTO and during all operations, make sure that no person or animal is in the immediate area of action of the machine. Never use the attachment if people are working in the operating area.
- Do not stand near the attachment or machine when in operation.
- Slightly lift the attachment from the ground before changing direction.

2.3 *Safety Guidelines Cont'd*

Operating Safety Cont'd

- The attachment can only be lifted or lowered from the operator's position. Do not perform lifting maneuvers on the side or behind the host machine.
- Always disengage the PTO before raising the machine, and never engage the PTO with the machine in a raised position. The machine might throw objects at high speed, causing serious injury or death.
- The PTO shields of the tractor and of the attachment, the driveshaft shielding, and the driveshaft retaining chains must be properly installed and in good condition to avoid risk of entanglement, potentially causing serious injury or death.
- Always disengage the tractor PTO when the driveshaft exceeds an angle of 10° up or down while operating. An excessive angle while the driveshaft is rotating can cause it to break. This can result in flying debris.
- All adjustment operations on the attachment must be performed by a qualified and trained technician with the tractor engine off, the PTO disengaged, and the attachment set on a flat, level surface, ignition key removed, and the parking brake set.
- Immediately stop operating the attachment if the blade strikes a foreign object. Repair all damage and make certain that the blade and blade spline are in good condition before resuming operation.
- Do not use the attachment with missing bolts, screws, pins, or other hardware.

Machine Requirements and Capabilities

- Keep bystanders clear of moving parts and the work area. Keep children away.
- See "6.1 Attachment Specifications" on page 54 for more information regarding host machine requirements.
- Do not operate the machine on too muddy, sandy, or rocky soils.
- Use caution on slopes and near banks and ditches to prevent overturn.
- Keep the machine and attachment clean from debris and foreign objects.
- Do not use the attachment if its mount does not match that of the host machine.
- Make certain, by adding the front ballast that is at least 20% of the total weight (tractor, implement, and ballast) is on the front axle of the tractor to ensure stability.
- Before engaging the tractor's PTO, make sure the tractor PTO speed is set as required for the attachment (540 rpm). Overspeeding the PTO shaft will result in damage to the attachment.
- Before engaging the tractor's PTO, always make sure that the driveshaft is mounted in the correct direction, and that its clamping elements are properly connected both to the tractor side and to the implement side.
- Do not operate if the driveshaft is damaged. The driveshaft could be subjected to breakage during operation, causing serious injury or death. Remove or replace the driveshaft.
- Avoid overheating the clutch, which can be caused by too long or frequent slipping of the clutch.
- Avoid prolonged use of the attachment, which can cause overheating of the gearbox. Do not touch the gearbox during use and immediately after as it will extremely hot and will result in serious injury.

2.3 *Safety Guidelines Cont'd*

Fire Prevention Safety

- Flammable debris (leaves, grass, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation.
- The equipment's belt compartments must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.
- All fuels, most lubricants, and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Transporting Safety

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- Check local laws for all highway lighting and marking requirements.
- Always yield to oncoming traffic and move to the side of the road so any following traffic may pass.
- Never allow riders on either machine or equipment.
- Do not transport people, animals, or objects using either the host machine or implement.
- If transporting the equipment on a truck or trailer, make sure the equipment is properly secured to the transport vehicle.
- Before transporting, determine the stopping characteristics of the tractor and attachment.
- Transport only at speeds where control of the machine and attachment can be maintained.
- When driving on roads, the attachment must be in transport position where it is adequately raised with the lifting hydraulics locked.
- The implement may be wider than the host machine. During transport, pay attention to potential obstacles, such as people, animals, objects, etc.
- Do not operate the tractor with weak or faulty brakes or worn tires.
- When turning, use extreme care and reduce tractor speed.
- Always use the tractor's lighting system and auxiliary lighting system for adequate warning to operators of other vehicles, especially when transporting at night or in conditions of reduced visibility.
- If lifting of the implement is required, make sure that the lifting device chosen is suitable to safely perform the operation. Only use the lift points that are properly identified.

Maintenance Safety

- All maintenance and repairing operations must be performed by qualified and trained operators with the tractor engine off, the PTO disengaged, and machine lowered to the ground or on security stands, the ignition key removed, and the parking brake set.
- Perform the repairs and replacement necessary to the machine using only original spare parts provided by Blue Diamond®.
- Always wear the appropriate personal protective equipment (PPE) when performing maintenance operations.
- During any cleaning and maintenance operations, make sure that there is adequate ventilation to prevent accumulations of toxic vapors in the air.
- Before any maintenance operation, make sure the parts (gearbox, friction clutch, etc.) that may become hot have cooled.
- Always follow the manual instructions, and contact Blue Diamond® Product Support when in need for further assistance.

2.3 *Safety Guidelines Cont'd*

Storage Safety

- Never leave the host machine unattended with the attachment in the lifted position. Accidental operation of the lifting lever or hydraulic failure may cause a sudden drop of the unit, which can result in serious injury or death.
- Following operation or before removing the attachment from the host machine, stop the tractor, set the brakes, disengage the PTO, lower the attachment to the ground, shut off the engine, remove the ignition key, and wait for all moving parts to stop.
- Make sure all parked attachments are on a hard, level surface and all safety devices are engaged.
- Place support blocks under the attachment as needed to prevent tipping, which could result in serious death or injury.
- Store in an area away from human activity. See "4.9 Storage" on page 32 for more information.

Personal Protective Equipment

Proper Work Clothes: To help ensure your safety as a designated operator wear proper work clothes including tight fitting clothes, protective gloves, and shoes.

Hand Protection: To help ensure your safety as a designated operator wear protective gloves.

Protective Shoes: To help ensure your safety as a designated operator wear protective shoes.

Safety Helmet: To help ensure your safety as a designated operator wear a safety helmet.

Safety Helmet and Eye/Ear Protection: To help ensure your safety as a designated operator wear a safety helmet and eye/ear protection.

3. Operation

3.1 *Pre–Operation Inspection*

Before operating the Tractor Finishing Mower for the first time and each time thereafter, use the following list as a guideline during equipment inspection.

WARNING

AVOID SERIOUS INJURY OR DEATH

- **Disengage machine's auxiliary hydraulics, engage the machine's parking brake, stop the engine, and make sure all moving parts are completely stopped before connecting, disconnecting, adjusting, or cleaning equipment.**
- **Always keep shields and guards in place when using the equipment.**
- **Disengage machine's auxiliary hydraulics for road travel.**
- **Keep hands, feet, and clothing away from rotating parts.**

- Lubricate the attachment per the schedule outlined in the Maintenance section. See "4.1 Service Schedule" on page 24.
- Check the attachment mounting frame for damage or cracks.
- Check that all shields and guards are in place.
- Check for loose bolts and tighten them if necessary.
- Check all welds on the attachment for wear and damage each time the attachment is removed from the machine.
- Check for damaged or missing safety decals. Replace if necessary.
- Inspect the machine's mounting frame. (See the machine's Operator's Manual for inspecting the mounting frame.) Replace any parts that are damaged, bent, or missing. Keep all fasteners tight. Look for cracked welds.
- Verify that the attachment is properly connected to the machine.

WARNING

Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required.
Wear goggles. Use cardboard to check for leaks.

- Check the condition of all hydraulic components for leaks. Repair as required.

NOTE: Do not operate with hydraulic leaks.

- Check that the attachment itself is in good condition. Repair or replace damaged parts if necessary.
- Check that the attachment has no missing parts. Replace if necessary.
- Verify that the PTO driveshaft is properly installed (see ""Installing the Driveline" on page 14).
- Check for oil leaks from the gearbox. Repair if necessary.
- Check the gearbox for the correct oil level. See "4.3 Gearbox Lubrication" on page 27.
- Check belts for proper tension. See "4.6 Belt Tension & Replacement" on page 29.
- Check that the wheels are all the same height. See "Cutting Height" on page 19.
- Check that the blades are not excessively worn and the hardware is properly torqued. See "6.2 Torque Specifications – Metric" on page 55.
- Check that there are no constraints that may prevent the movement of the attachment. Remove any constraint if necessary.
- Clear the work area of foreign objects (rocks, branches, debris, etc.). Remove any obstacle, and flag each obstacle that cannot be removed.
- Make sure no people or animals are in the work area.

3.2 *Entering & Exiting the Prime Mover*

IMPORTANT

See the machine's Operator's Manual for detailed information on operating the loader.

Entering the Operator's Position

Use the safety treads, handles, and steps on the attachment and machine to enter the operator's position. Always maintain three (3) points of contact.

When in the operator's position, secure the seatbelt, lower safety seat bar, start the engine, and release the parking brake.

Leaving the Operator's Position

WARNING

AVOID SERIOUS INJURY OR DEATH

- Always park on a flat, level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the parking brake.
- Stop the engine, and remove the key.
- Wait for all moving parts to stop.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Park the machine/attachment on a flat, level surface.

Place all controls in neutral, engage the parking brake, stop the engine, and wait for all moving parts to stop. Leave the operator's position.

3.3 *Attachment Installation*

Connecting Attachment to the Machine

WARNING

CRUSH HAZARD

- Before moving the machine, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the machine and attachment when approaching the attachment for connecting.
- Keep fingers and hands out of pinch points when connecting and disconnecting the attachment.

Before connecting to the attachment, inspect the machine's mounting plate. (See the machine's Operator's Manual for inspecting the mounting frame.)

Enter the operator's position. See "Entering the Operator's Position" on page 13.

Drive the tractor in reverse, aligning the rear lifting arms to the lower hitches of the attachment. See Figure 1.

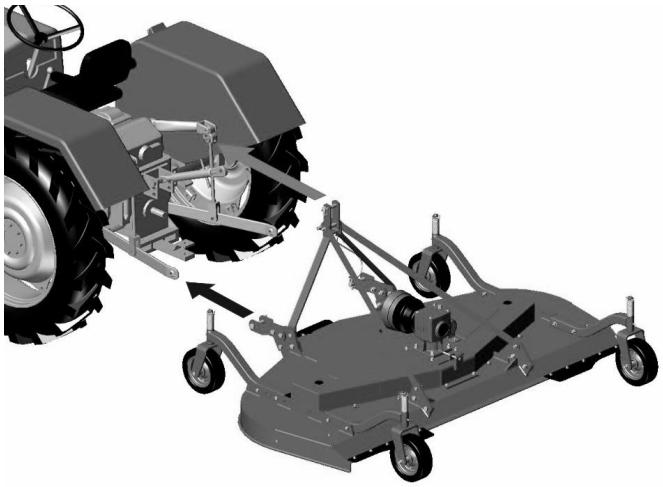


Figure 1

See the parking brake, turn off the engine, remove the ignition key, and leave the operator's position. See "Leaving the Operator's Position" on page 13.

3.3 *Attachment Installation Cont'd*

Connecting Attachment to the Machine Cont'd

Connect the lifting arms of the host machine to the lower hitches of the attachment. Install pins and the relative safety split pins.

Adjust the tractor sway blocks or chains to remove all side movement.

Connect the tractor top link to the attachment top link plate by installing the pin and safety split pin.

The attachment's three–point hitch system is designed to have limited front to back flotation when mowing on uneven terrain. Adjust the tractor's top link until the top link plate of the mower is in a vertical position (see Figure 2). This will allow the Finishing Mower to follow the ground's contour while in operation.

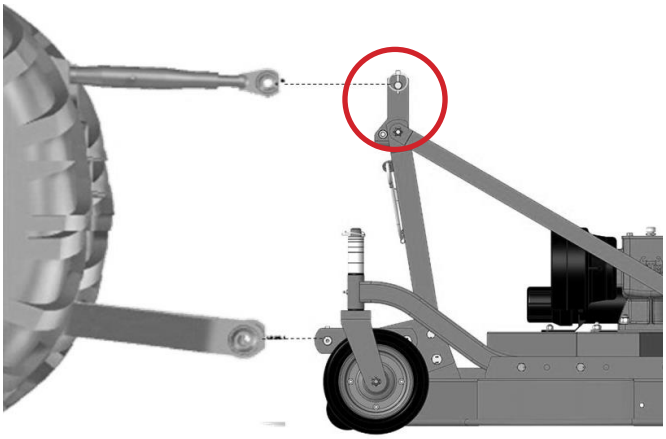


Figure 2

Check the interference between the Finishing Mower's front wheel arms and tractor wheels. If there is interference, adjust of position of the attachment's front wheel arms. See "Wheel Arm" on page 20 for more information.

Install the driveline.

Installing the Driveline

IMPORTANT

Prior to install the driveline, the operator must read both the manual for the driveline and the manual for the tractor to ensure that the rotations per minute (rpm) and direction of rotation of the PTO tractor match that of the Finishing Mower. If the direction of rotation of the PTO tractor does not match that of the Finishing Mower, contact your local dealer or Blue Diamond® Product Support.

To connect the driveshaft to the tractor and attachment, perform the following:

1. Park the tractor and attachment on a firm, level surface with the parking brake set, engine off, and the ignition key removed. Exit the tractor (see "Leaving the Operator's Position" on page 13).
2. Check the safety devices of the driveshaft, Finishing Mower, and tractor are in good condition. Repair or replace if necessary.
3. Remove the attachment's PTO shield by removing its bolts.
4. Insert the driveline yoke on the attachment's PTO by first lining up the splines. Tighten it onto the shaft by using its fastener.
5. Place the PTO shield back onto the Finishing Mower by securing it with its previously removed bolts.
6. Insert the driveline yoke on the tractor's PTO, then tighten it onto the shaft using its fastener.
7. Hook the two (2) retaining chain of the driveline shielding to the tractor and the attachment. This is to prevent shielding rotation during operation of the attachment.

3.3 *Attachment Installation Cont'd*

Installing the Driveline Cont'd

WARNING

AVOID SERIOUS INJURY OR DEATH

The driveline must not exceed more than a 10° angle either up or down while operating. Exceeding this angle will result in flying debris. Always work with the driveline as straight as possible. This will prolong the life of the driveline and its components, avoiding premature breakdowns.

Checking Driveline Length

Before operating the attachment, ensure that the size of the driveshaft is accurate. The driveshaft supplied with the attachment has a standard length, but it does not apply to all host machines. To fit your machine/attachment, the length may need adjusted.

How to know if the driveline is the correct length:

- Avoids bottom out of the transmission tubes when the driveshaft is in the compressed position (when the attachment is raised).
- Ensure an overlapping of the transmission tubes enough to transmit the torque required when the driveshaft is fully extended (when the attachment is lowered)
- When the driveshaft is at its minimum length (maximum compressed position), there must be at least 3/4" (20 mm) of distance between the ends of each transmission tube and the yokes side.
- When the driveshaft is at its maximum operational extension, there must be an overlap between the tube's profiles of at least 6" (150 mm). See Figure 3.

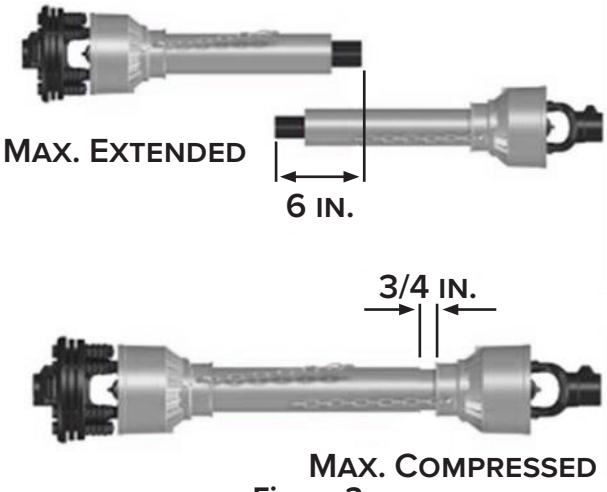


Figure 3

A driveshaft that is too long may cause structural damage to the tractor and attachment. If the driveshaft is too long, remove it and shorten the tubes according to the instructions provided by its operation and maintenance manual.

A driveshaft that is too short can case the tubes to disengage during operation. This is a huge hazard for the operator and can cause structural damage to the tractor and attachment. If the driveshaft is too short, it must be replaced with a longer driveshaft. If this is the case, contact your local dealer or Blue Diamond® Product Support.

IMPORTANT

- **Before operating the Finishing Mower for the first time and after long periods of inactivity, make sure that the driveshaft is lubricated in accordance to the manufacturer's manual.**
- **Always engage the tractor PTO at low rpm to minimize the effect of the peak torque on the driveline and on the attachment.**

3.3 *Attachment Installation Cont'd*

Disconnecting the Attachment

Never leave the tractor unattended with the attachment in the lifted position.

To disconnect the Finishing Mower from the tractor, perform the following:

- Park the tractor on a firm, level, and dry surface.
- Reduce engine speed.
- Disengage the PTO.
- Wait for all rotating parts to stop moving.
- Set the parking brake.
- Turn off the engine, and remove the key before leaving the operator's position (see "Leaving the Operator's Position" on page 13).
- Disconnect the driveline from the tractor PTO.
- Disconnect the tractor from the attachment's top link and the tractor from the lower hitches.
- Check the Finishing Mower's stability. If needed, place safety blocks.
- Enter the operator's position (see "Entering the Operator's Position" on page 13), start the engine, and slowly drive forward to move away from the Finishing Mower.
- See "4.9 Storage" on page 32 for how to properly store the attachment for long periods of inactivity.

3.4 *Tractor–Attachment Stability*

The weight of the machine modifies the stability of the tractor, which could result in loss of control and braking.

CAUTION

Check the lifting capacity and stability of the tractor. If necessary, apply a front ballast. To determine the appropriate characteristics of the ballast, refer to the tractor's manual.

The front axle of the tractor should always load with at least 20% of the overall weight of the tractor and attachment.

Check the lifting capacity and stability of the tractor, making sure the following relations are complied with (see the key on page 17 for definition). See Figure 4.

- $M \times (S1 + S2) \leq 0.2 \times T \times i + Z \times (d + i)$
- $M \leq 0.3T$

Consequently, the minimum ballast required is:

- $Zmin = (M \times (S1 + S2) - 0.2 \times T \times i) / (d + i)$

To determine the appropriate characteristics of the ballast, refer to the tractor's operator's manual.

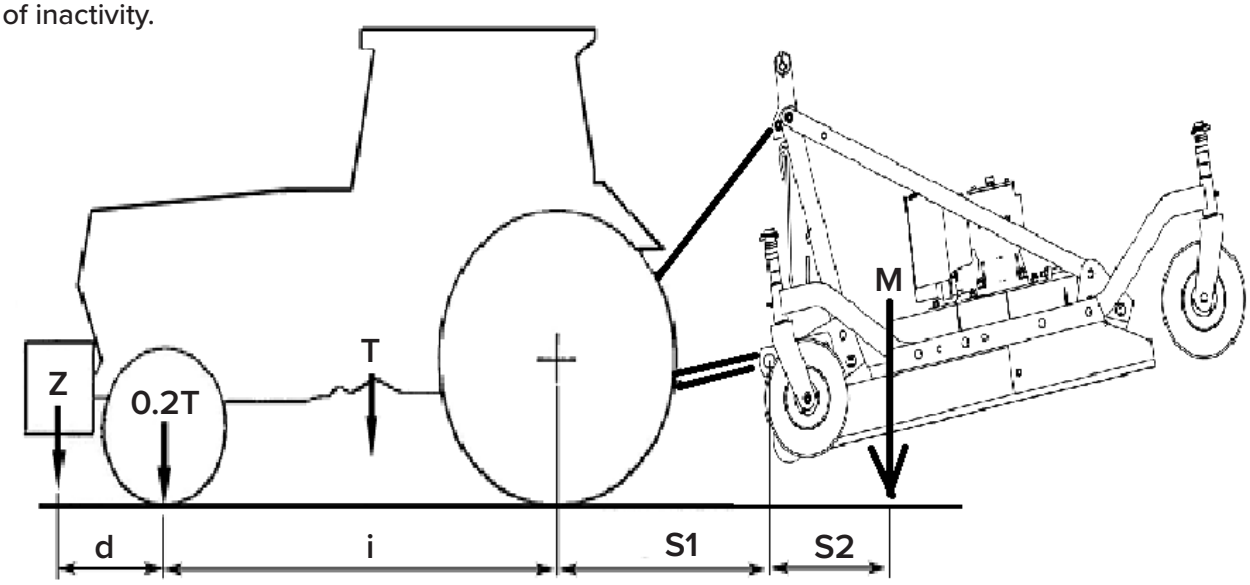


Figure 4

3.4 *Tractor–Attachment Stability Cont'd*

Key for Figure 4

- i = tractor wheel base (cm)
- d = distance between front axle and ballast center of mass (cm)
- T = weight of tractor + operator (kg)
- Z = ballast weight (kg)
- M = attachment weight (kg)
- S1 = distance between rear axle and lower hitch points (cm)
- S2 = distance between lower hitch points and implement center of mass

3.5 *Operating the Attachment*

DANGER

- **Before operating the attachment, the operator should have read and understood the operator's manuals for the attachment, tractor, and PTO shaft.**
- **During operation, adjustment, maintenance, repairing, or transportation of the attachment, the operator must always wear appropriate personal protective equipment (PPE).**
- **Before operator, ensure that all machine/ attachment guards are in good condition and fully functional. Repair or replace if necessary.**
- **During operation, the machine can throw material from the back. Be sure the work area is clear prior to beginning operation.**

Our Finishing Mowers are designed to cut grass with heights up to 8" (200 mm). It is recommended to avoid cutting grass taller than 8" (200 mm).

Always operate the tractor PTO at 540 rpm to maintain proper blade speed and obtain a clean cut.

Starting the Attachment

1. Start the tractors and engage the PTO at a low rpm, making sure that the Finishing Mower is in the down position and resting on the ground. Then increase the engine speed until it reaches 540 rpm.
2. Start driving the tractor at a low speed. Slowly increase ground speed until the desired speed is achieved, depending on the ground conditions.
3. Drive the tractor forward with the PTO running. Be sure to intermittently check the quality of the work performed.

   If the operator needs to exit the machine, lift the attachment so that it is slightly above the ground, reduce engine speed, disengage the PTO, set the parking brake, stop the engine, and remove the key from the ignition. See "Leaving the Operator's Position" on page 13.

   If the quality of work desired is not achieved, some adjustments may need to be made to the Finishing Mower. See "3.7 Adjustments" on page 19 for additional information.

Stopping the Attachment

1. Bring the tractor to a complete stop on a dry, level surface.
2. Place the transmission in park or neutral.
3. Reduce the engine speed.
4. Disengage the PTO.
5. Wait for all rotating parts to stop.
6. Set the parking brake.
7. Turn off the tractor's engine, and remove the key from the ignition before leaving the operator's position (see "Leaving the Operator's Position" on page 13).
8. Disconnect the driveline from the tractor PTO, and store in an appropriate place.
9. Disconnect the top link and rear lifting arms of the tractor from the attachment's hitches.
10. Check the Finishing Mower's stability. Place safety blocks if necessary.

3.5 *Operating the Attachment Cont'd*

Stopping the Attachment Cont'd

11. Enter the tractor (see "Entering the Operator's Position" on page 13), start the engine, and slowly drive forward, moving away from the attachment.
12. Perform the cleaning and maintenance required to make the attachment ready for later use (see "4.9 Storage" on page 32).

3.6 *Operating Tips*

- Always operate the tractor PTO at 540 rpm to maintain proper blade speed and obtain a clean cut.
- The proper tractor ground speed should be selected considering height, type and density of grass, grass condition (wet or dry), and ground condition (hilly, level, or rough). Generally, a ground speed from 2 to 5 mph (2 to 8 kph) applies to most conditions. A test run is suggested to define the optimal working speed for proper ground conditions.
- Tall, dense grass should be cut at a low speed while thin, medium height grass can be cut at a faster ground speed. Generally, the grass dispersion is increased by higher ground speeds.
- Extremely tall grass should be cut in two (2) passes. Set the Finishing Mower to a high cutting height on the first pass, and then position the attachment at the desired height on the second pass. If possible, mow at a 90° angle to travel in the first pass.
- Under certain conditions, the tractor's tires may roll some grass down and prevent it from being cut at the same height as the surrounding area. When this occurs, reduce the tractor ground speed but maintain a 540 rpm engine speed. The lower ground speed will allow the grass to partially rebound due to the suction effect of the blades. If the grass does not rebound enough to be evenly cut, cut the area twice.
- Generally, a low cutting height gives a more even cut with less tendency to leave tire tracks. However, it is better to cut grass more often rather than too short. Short grass deteriorates quickly in hot weather and invites weed growth during growing season.
- Very low cutting heights should be avoided. Damaging shock loads occur when the blades strike the ground repeatedly. This can cause damage to the Finishing Mower.
- For cleaner cuts and more efficient mowing, the blades must be kept sharp. Sharp blades produce cleaner cuts and require less power.
- When increasing or decreasing mowing ground speed, use gear selection (not engine speed). This will maintain the constant maximum blade speed necessary for a clean cut.
- Choose a driving pattern that provides the maximum pass length and minimizes turning. Plan your pattern to travel straight forward whenever possible.
- When working on hills, "climb" the slope, meaning do not work parallel to hills if possible. Instead, move from the bottom of the hill to the top in one pass, moving perpendicular to the hillside. If possible, always try to work up the slope.
- Enter new areas carefully. Cut high grass first with the Finishing Mower lifted, revealing potentially hidden objects.
- Periodically check for foreign objects wrapped around the blades or blade spindles and remove them after disengaging the PTO, turning off the tractor engine, and removing the ignition key
- If the blades strike a foreign object, stop operation immediately, idle the engine speed, and disengage the PTO. Wait for all rotating parts to stop before raising the attachment. Stop the tractor, set the parking brake, stop the engine, and remove the ignition key. Proceed with removing possible objects or debris. Make sure the blade and blade spindles are in good condition before restarting operation. Repair any damages immediately.

3.6 Operating Tips Cont'd

- If at any time the Finishing Mower should jam and cause belt slippage for more than two (2) seconds, perform the following steps:
  1. Drive the Finishing Mower to a previously cut area, which will allow accumulated material to clear from the attachment.
  2. Continue running the attachment for 2 – 3 minutes, allowing the pulleys to cool.

IMPORTANT

Stopping the Finishing Mower when a pulley is hot will cause it to bake and ruin the belt.

DANGER

AVOID SERIOUS INJURY OR DEATH

During operation, the machine can project material at a very high speed from the back, which could result in property damage, serious injury, or death.

Be sure to pick up all rocks and other debris before mowing, and stop people or animals from entering the work area.

- When working on uneven terrain, observe the following precautions:
  - Use extreme care and reduce ground speed on slopes and rough terrain.
  - Use rear wheel weights, front tractor weights, and/or tire ballast to improve stability in extremely uneven terrain.
  - Develop a safe working pattern suitable for the ground profile.
  - Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up the tractor and implement.
  - Operate the attachment up and down steep slopes. DO NOT operate across steeps slopes to prevent tipping.
  - Do not suddenly start, stop, or change directions on slopes.
  - Watch for hidden hazards on the terrain during operation.
  - The roller is incredibly helpful when it comes to uneven terrains. The roller allows the front of the Finishing Mower to ride over mounds, which helps keep the attachment from scratching the ground and the blades from scalping the terrain.

3.7 Adjustments

WARNING

AVOID SERIOUS INJURY OR DEATH

The following must always be performed prior to any adjustment being made:

- Always park on a flat, level surface.
- Lower lift arms, and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the parking brake.
- Stop the engine, and remove the key.
- Wait for all moving parts to stop.
- Set the parking stand.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Cutting Height

The cutting height of the Finishing Mowers are adjustable from 1 – 5" (25 – 127 mm). To adjust the cutting height, perform the following:

1. Using the tractor, raise the Finishing Mower off the ground and safely secure it with blocks to prevent it from lowering while adjusting.
2. While holding the wheel and yoke assembly up, remove the lynch pin [Figure 5, Item B] from the top of the gauge wheel spindle [Item C].
3. Position the spacers [Item A] as desired. The spacers are assorted heights of 1/4" (6 mm), 1/2" (12 mm), and 1" (25 mm). This is to allow adjustment at multiple levels of cutting heights ranging from 1 – 5" (25 – 127 mm).
4. Replace the lynch pin on top of the gauge wheel spindle.

3.7 *Adjustments Cont'd*

Cutting Height Cont'd

5. Repeat the same for the other three (3) wheels. Verify that the same number of spacers are under all four (4) wheel arms. All four wheels must have the same adjustment to ensure a completely uniform cut.
6. Remove the safety blocks, and then lower the implement to the ground.

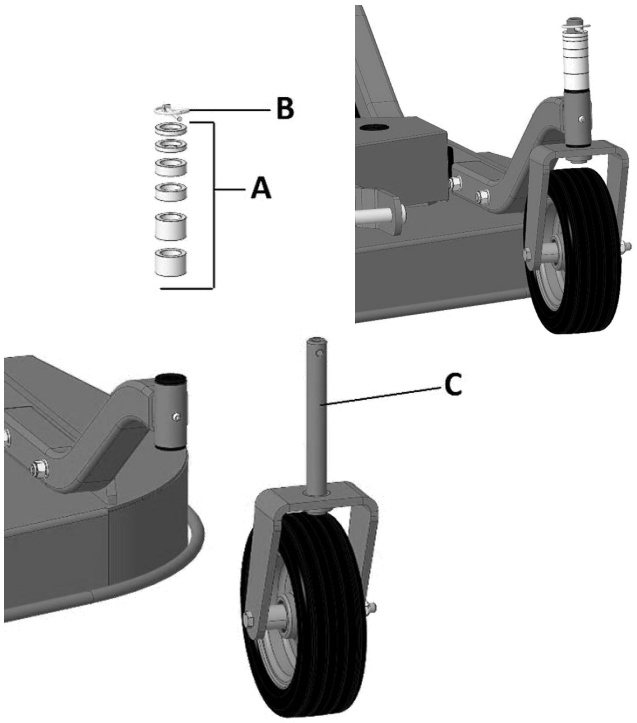


Figure 5

IMPORTANT

Very low cutting heights should be avoided. Damaging shock loads occur when the blades strike the ground. This can cause damage to the Finishing Mower and the driveshaft.

Wheel Arm

NOTE: The 48" model (403510) cannot be adjusted as its front wheel arms are fixed.

The front wheel arms of the 60", 72", and 84" models (403515, 403520, and 403525) are adjustable and can be set in two (2) different configurations.

1. Inner Position – allows the outside edge of the Finishing Mower to be used for trimming under shrubs and fences [Figure 6, top image]
2. Outer Position – provides most clearance to avoid interference with tractor tires [Figure 6, bottom image]

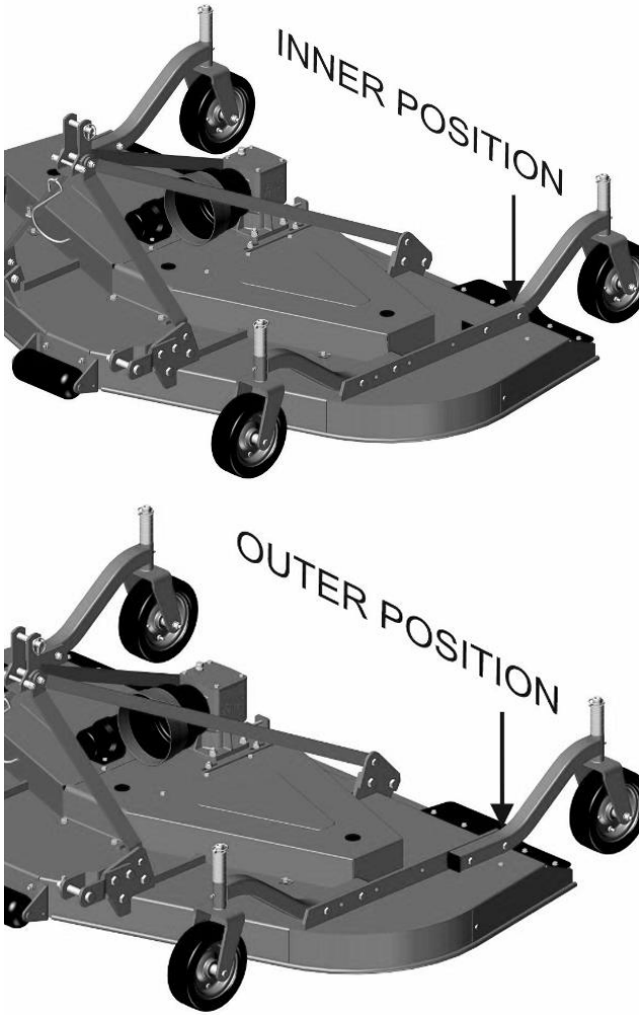


Figure 6

3.7 *Adjustments Cont'd*

Wheel Arm Cont'd

Perform the following to adjust the wheels:

1. Remove the bolts [Figure 7, Item A], washer [Item B], and nuts [Item C] connect the front wheel arm to the rail [Item D] welded to the frame.

   NOTE: The belt cover [Item E] may need removed to from the frame to make the adjustment easier.

2. Move the arm [Item F] from one side of the rail to the other.
3. Position the arm according to the proper requirement, then secure the arm to the wheel rail using the original hardware that was removed in step 1. If the belt cover was removed, replace it.
4. Repeat the above steps for the other front wheel arm.

NOTE: The rear wheel arms do not usually need to be moved and should remain mounted in their original position.

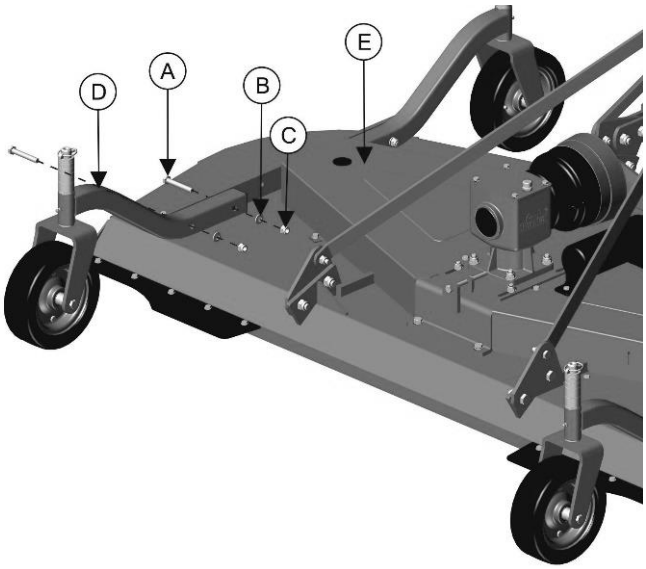


Figure 7

Lower Hitches

The lower hitches on all Finishing Mowers can be adjusted in two (2) different configurations.

1. Fixed Position [Figure 8, top image]
2. Floating Position – allows the attachment to float and follow the contour of hilly or uneven terrain [Figure 8, bottom image]

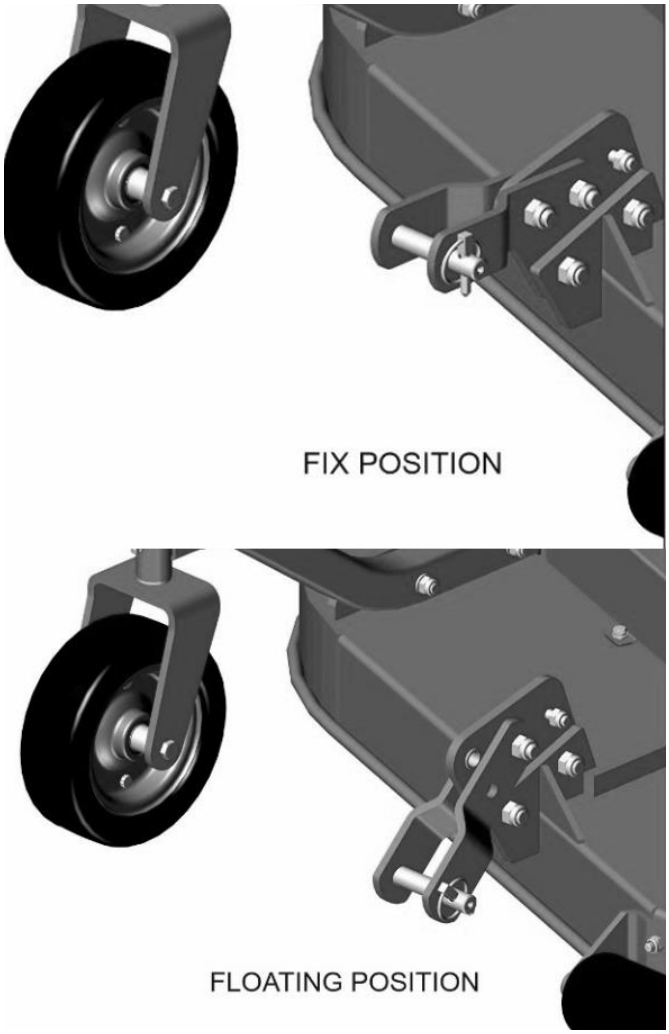


Figure 8

3.7 *Adjustments Cont'd*

Lower Hitches Cont'd

Perform the following to change the lower hitches from fixed to the floating position:

1. Remove the bolt [Figure 9, Item A], nut [Item B], and bushing [Item C] that clamp on the two (2) bent plates [Item D] to the front plate [Item E] that is welded to the frame.

   NOTE: Only remove the hardware from outermost bolt hole to engage the float function.

2. To change back to the fixed position, reinsert the hardware through the clamps.

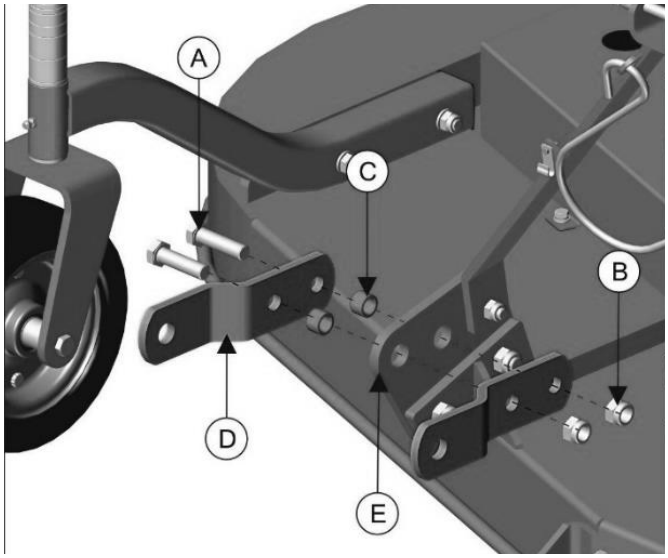


Figure 9

Top Hitch

The upper hitch on all Finishing Mowers can be adjusted to two (2) different configurations.

1. Fixed Position [Figure 10, left image]
2. Floating Position – allows the attachment to float and follow the contour of hilly or uneven terrain [Figure 10, right image]

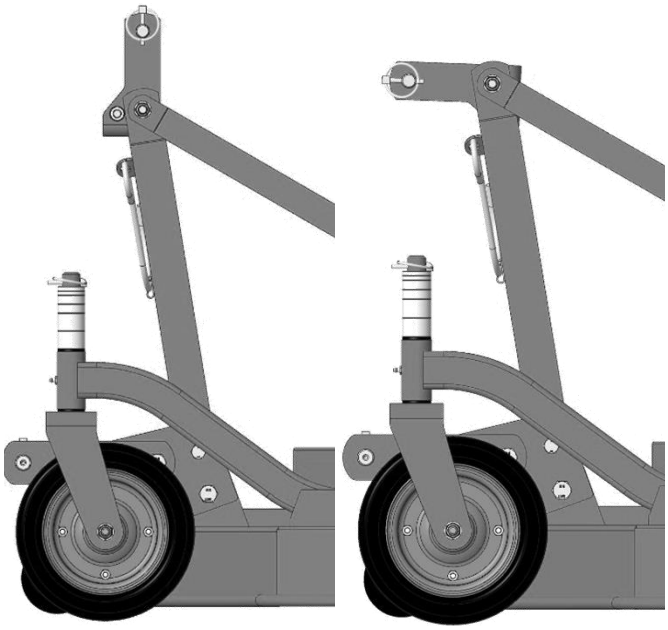


Figure 10

Perform the following to change the top hitch from fixed to the floating position:

1. Remove the hex bolt [Figure 11, Item A], the two (2) bushings [Item B], and nut [Item C] from the bracket.
2. To change back to the fixed position, reinsert the hardware through the bracket.

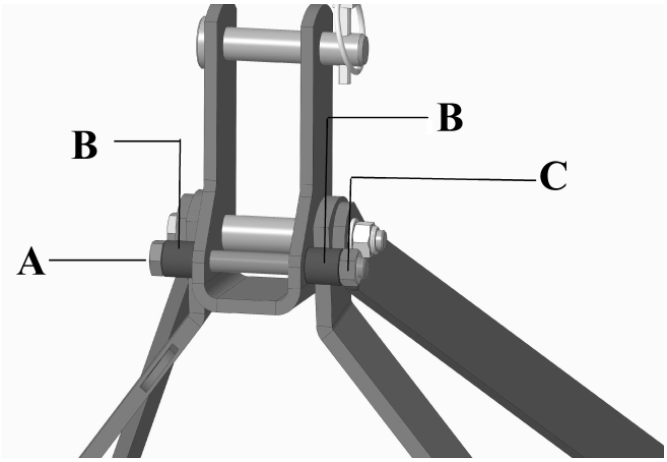


Figure 11

3.8 *Transporting the Attachment*

To prepare the Finishing Mower for transportation, perform the following steps:

1. Idle the tractor engine, disengage the tractor PTO, and waiting for all rotating parts to come to a complete stop.
2. Adjust the tractor top link so that when lifted, the rear of the attachment is higher than that of the front.

   To do this, shorten the tractor top link until the top hitch plate is locked forward and no longer able to pivot. This will keep the attachment locked and will minimize shaking and bouncing during transport, avoiding potential damage to the hitch frame.
3. Lift the Finishing Mower into the transportation position, making sure the driveline transmission tubes do not come in contact with the tractor and attachment (see “Installing the Driveline” on page 14).
4. Lock the tractor’s lifting hydraulics, turn off the engine, set the parking brake, remove the key from the ignition, and exit the tractor (see “Leaving the Operator’s Position” on page 13).

WARNING

When driving on public roads, reduce speed, be aware of surrounding traffic, and allow vehicles moving faster than the tractor to safely pass.

CAUTION

Make sure the PTO is disengaged and the blades have stopped rotating before raising the Finishing Mower into the transport position.

WARNING

Never leave the tractor unattended with the implement in the lifted position.

4. Maintenance

4.1 *Service Schedule*

DESCRIPTION	SERVICE PROCEDURES					
	Check	Clean	Lube	Change	Adjust	Drain
Daily Maintenance (or every 8 hours)						
Blades (wear, damage, and loosening)	•					
Blade Spindles	•					
Belt Tension	•					
Wheel Yokes			•			
Wheel Bearings (if present)			•			
All Hardware	•					
Deck	•	•				
Driveshaft			•			
Every 25 Hours						
Blade Spindle Shafts			•			
Deck (cracks, bends, or damage)	•					
Every 100 Hours						
Gearbox Oil (after 1st change)	•					
All Hardware	•					
500 Hour Maintenance						
Gearbox Oil*				•		

*Gearbox oil must be changed after the first 50 hours and then every 500 hours after if using EP00 Liquid Grease or equivalent. See “4.3 Gearbox Lubrication” on page 27 for more information.

4. Maintenance

Proper and regular maintenance ensures a long life of the attachment, avoids failures, and saves times and repair costs.

Periodic inspections and maintenance operations described in this section must be performed by an operator in times and terms prescribed. Failure to comply with maintenance prescriptions can compromise the function and lifetime of the attachment, which will result in the warranty becoming void.

Repairs, maintenance, and modifications other than those mentioned in this manual should NOT be performed without consulting Blue Diamond® Product Support.

Wrong or inappropriate repairs or maintenance may generate abnormal operating conditions, equipment damage, and generate risks for the operator.

WARNING

AVOID SERIOUS INJURY OR DEATH

The following must always be performed prior to any adjustment being made:

- **Always park on a flat, level surface.**
- **Lower lift arms, and place attachment flat on the ground.**
- **Place all controls in NEUTRAL.**
- **Engage the parking brake.**
- **Stop the engine, and remove the key.**
- **Wait for all moving parts to stop.**
- **Set the parking stand.**

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

4.2 *Blades*

Proper blade maintenance is crucial in allowing the Finishing Mower to operate properly and providing an optimal cut with lower horsepower requirements and reduce tractor fuel consumption.

Visually inspect the blades every eight (8) hours of operation to see if they are bent, deformed, or split. Blades must be kept sharp and at their original length and shape. A blade must be replaced if its original shape is deformed due to wear or damage.

Operating the Finishing Mower with bad blades will compromise the quality of cutting.

Replacement

Perform the following steps to replace the blade:

1. With the Finishing Mower safely lifted, fit a wrench onto the special spacer [Figure 12, Item D] and remove the nylock nut [Item A].
2. Remove the bevel washer [Item C] and the used blade [Item B].
3. Clean the bevel washer, nylock nut, and mounting surface, removing debris. Properly dispose of the used blade.
4. Slide the new blade onto the mounting surface, making sure the cutting edge is towards the direction of rotation.

   NOTE: The blade turns in a counterclockwise direction when viewed from the bottom of the Finishing Mower.
5. Reinstall the bevel washer [Item C] and nylock nut [Item A]. Tighten the nylock nut with a wrench fitted on the special spacer [Item D] to prevent the spindle from spinning.
6. Repeat the steps above until all three (3) blades have been replaced.

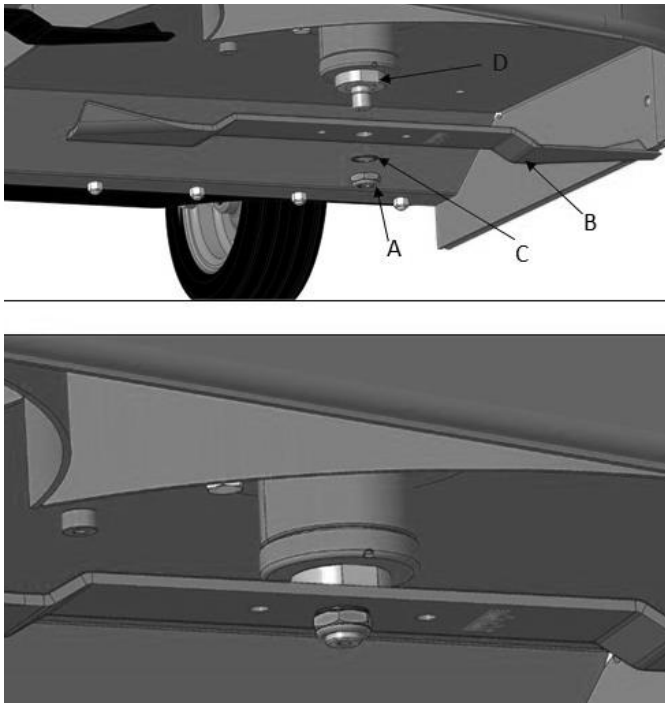


Figure 12

4.2 *Blades Cont'd*

Replacement Cont'd

WARNING

DO NOT attempt to straighten or weld damaged blades for reuse. Remove and replace with new blades.

CAUTION

Worn blades still may be sharp. Handle with caution.

IMPORTANT

- After replacement, always make sure that the blade installed has the cutting edge facing the direction of rotating.
- Replace worn blades only with original parts.

Sharpening

Worn or chipped blades, if not damaged, can be sharpened to restore the high quality of cutting. This will lower horsepower requirements and reduce tractor fuel consumption.

To sharpen the blades, perform the following:

1. Remove the blade from the attachment following instructions under "Replacement" on page 25.
2. Clean the blade, bevel washer, nylock nut, and mounting surface, removing all debris.
3. Place the blade in a vise and use a hand grinder to sharpen the blade. Be sure to grind the cutting edge as the same angle as the original blade. Sharpen only the top of the cutting edge. Do not sharpen the blades to a razor edge. The cutting edge should be approximately 0.04" (1 mm).
4. Equally sharpen each end of the blade and maintain corners. Check the blade balance by positioning the blade horizontally on a shaft through the center hole. The balance of the blade can be maintained by removing an equal amount of material from each end of the blade when sharpening.
5. Once the blade is sufficiently sharpened, place the blade back onto the spindle following instructions under "Replacement" on page 25.
6. Repeat until all blades are sharpened.

CAUTION

Unbalanced blades cause excessive vibration that can result in damage to the blade spindle bearings, other attachment components, and personal injury. Always equally sharpen both ends of the blade or until the blade is balanced. Always keep all three (3) blades sharpened equally to maintain balance.

WARNING

Always wear eye protection, gloves, and other appropriate personal protective equipment (PPE) when sharpening a blade.

IMPORTANT

Blade performance will decrease as the blades are resharpened.

4.3 *Gearbox Lubrication*

CAUTION

Wait until the gearbox has sufficiently cooled before touching the gearbox.

IMPORTANT

Frequently check for possible oil leaks from the attachment.

WARNING

Do not overfill the gearbox with oil. Oil will expand when hot. Make sure the attachment is cool before checking oil level. Overfilling the gearbox will cause the excess oil to blow out the vent plug and ruin the belt.

The Finishing Mower's gearbox can use two (2) different lubricants. Be sure to pay attention as to which lubrication is being used as the maintenance rules vary depending on the lubricants.

If you wish to change the lubricant used, completely remove the original lubricant and fill with the one desired to be used.

EP00 Liquid Grease or Equivalent

How to Check the Grease

When using EP00 Liquid Grease, visually check the quality of grease every 100 hours of operation.

The dipstick is only used for the oil lubricant. It does not apply to EP00 Liquid Grease.

To check the grease, perform the following:

1. Open the gearbox by removing the bolts and washers from the top of gearbox (see Figure 13).
2. Remove the top plate.
3. Look inside to gearbox to see if the lubricant appears normal or abnormal. If found abnormal, the grease will need to be replaced.

How to Change the Grease

The grease must be changed after the first 50 hours of operation, and thereafter, every 500 hours.

To replace the grease, perform the following:

1. Open the gearbox by removing the bolts and washers from the top of the gearbox (see Figure 13).
2. Remove the top plate.
3. Remove the old grease completely. A putty knife, scraper, or rag can be used to manually remove as much old grease as possible. Be sure to pay attention to corners and crevices. A suction gun or a pump may need to be used to remove stubborn grease.

   NOTE: Avoid using abrasive tools or excessive force, which could cause damage.
4. A solvent or degreaser may be used to dissolve any remaining grease, ensuring all old grease have been removed from the gearbox. Be sure to remove the solvent or degreaser from the gearbox before adding new lubricant.
5. Once all old grease has been removed, wash and dry the gearbox.
6. Once the gearbox is completely dry, fill the gearbox with new lubricant.

   The gearbox takes 900 grams of EP00 Liquid Grease or equivalent.

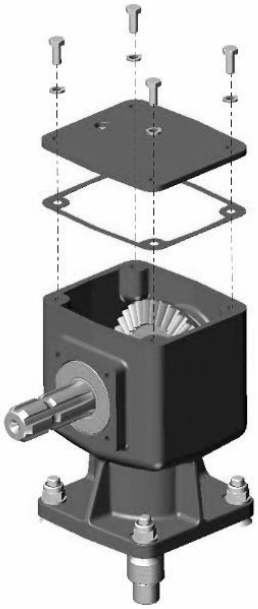


Figure 13

4.3 *Gearbox Lubrication Cont'd*

80W90 Multigrade Oil or Equivalent

How to Check the Oil

When using 80W90 Multigrade Oil or equivalent, check the oil level every 50 hours of operation.

To check the oil, perform the following:

1. Remove the dipstick of the breather plug [Figure 14, Item A].
2. Check the dipstick, making sure the oil mark is present. The oil mark should sit between the minimum and maximum marks as indicated on the dipstick.

   If the oil level is below the minimum line as indicated in Figure 14, fill the gearbox with the correct lubricant until it is at the correct level.

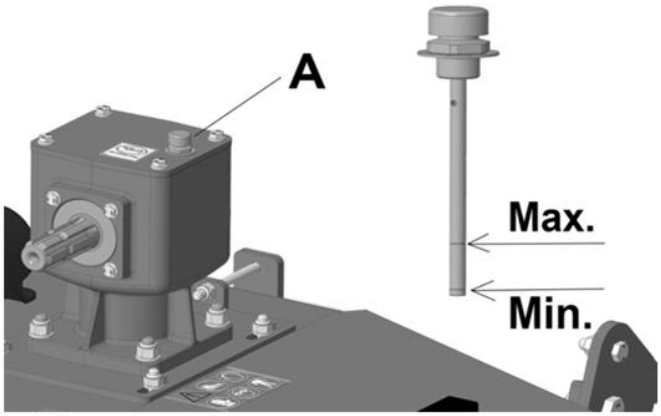


Figure 14

How to Change the Oil

The oil must be changed after the first 50 hours of operation, and thereafter, every 250 hours.

1. Open the gearbox by removing the bolts and washers from the top of the gearbox (see Figure 13).
2. Remove the top plate.
3. Complete remove the old oil. A suction gun or a pump may need to be used to remove the old oil.

   NOTE: Avoid using abrasive tools or excessive force, which could cause damage.
4. Once all old oil has been removed, wash and dry the gearbox.
5. Once the gearbox is completely dry, fill the gearbox with new lubricant.

   The gearbox takes one liter 80W90 Multigrade Oil or equivalent.

4.4 *Spindle Shaft Lubrication*

The blade spindle shafts are supported by two (2) bearings that require regular lubrication. Grease fitting points [Figure 15, Item A] are placed on the top of the three spindle shafts, protected by special rubber caps.

Greasing can be performed by use of a grease gun from the top of the deck without having to remove belt covers or plastic caps.

The spindle shaft should be greased every 25 hours of operation with SAE Multi–Purpose Lithium–Type Grease or equivalent.

IMPORTANT

- **Make sure to clean the grease zerk before using the grease gun.**
- **Do not let excess grease collect on or around parts, particularly when operating in sandy areas.**

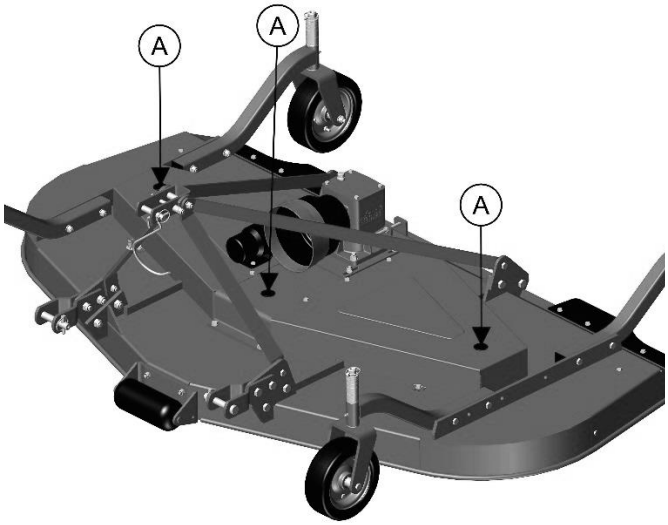


Figure 15

4.5 *Wheel & Wheel Support Lubrication*

Lubricate the swivel wheel yokes every eight (8) hours of operation with SAE Multi–Purpose Lithium–Type Grease or equivalent. Be sure to use the grease zerks that are located on the wheel supports [Figure 16].

The wheels themselves may have a grease zerk for lubrication of the wheel bearings. If present, grease the wheels every eight (8) hours of operation with SAE Multi–Purpose Lithium–Type Grease or equivalent.

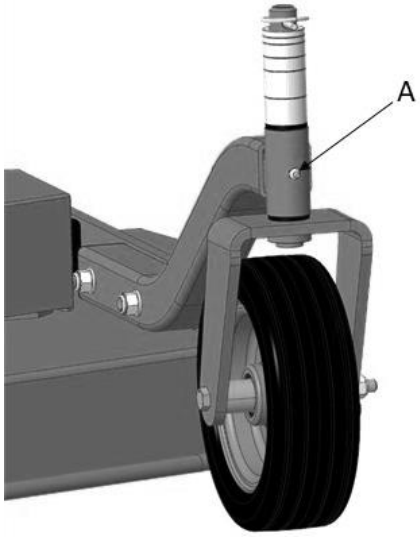


Figure 16

4.6 *Belt Tension & Replacement*

Applying the right tension on the belts' drive system is crucial to have the Finishing Mower functioning correctly. Excessive tension on the belts may lead to premature failure of belts and the drive components. Belt failure may also lead to a potentially hazardous situation for the operator and bystanders. Lack of belt tension may lead to premature failure due to excessive slipping.

How to Check Belt Tension

To check the belt tension, perform the following:

1. Remove the belt cover [Figure 17, Item A].
2. At the midpoint between the pulley [Item B], apply a force of 11 – 13 lbs (5 – 6 kg) by pushing against the belt. The belt deflection should be approximately 3/8" (9.5 mm). If bigger, the belt tension will need adjusted. See "Belt Tension Adjustment" on page 30.

   If the deflection of one (1) of the two (2) belts is significantly different than the other or the belts are stretched or damaged, the belts will need replaced. See "Belt Replacement" on page 30.
3. If the belt has adequate tension, place the belt cover [Item A] back onto the frame and secure it in place.
4. Repeat the steps above to check the tension of the other belt.

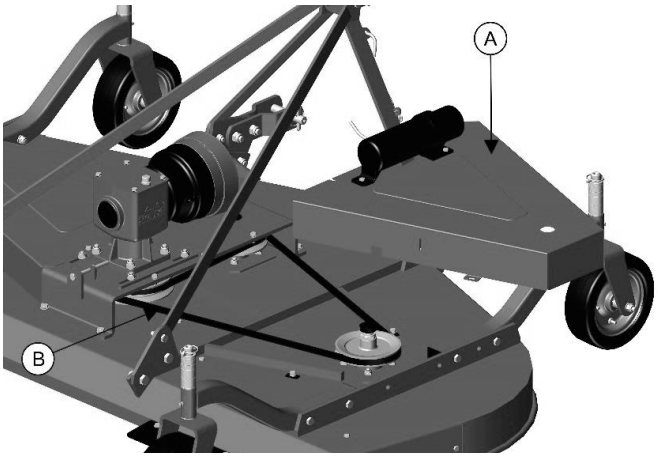


Figure 17

4.6 *Belt Tension & Replacement Cont'd*

Belt Tension Adjustment

To adjust the tension of the belt, perform the following:

1. Remove the belt cover [Figure 18, Item A].
2. Clean debris and foreign objects from the deck and the belt area.
3. Loosen the four (4) nuts [Item B] that hold the gearbox support plate [Item C] to the gearbox support [Item D].
4. Loosen the blocking nut [Item E] on the adjustment bolt [Item F].
5. Turn the adjustment bolt clockwise. This will cause the gearbox support plate to move backwards, tensioning the two (2) belts at the same time. Stop turning the bolt once the proper tension has been reached.

   NOTE: Turn the adjustment bolt counterclockwise to loosen the belts' tension.
6. Retighten the blocking nut [Item E] on the adjustment bolt [Item F].
7. Retighten the four (4) nuts that hold the gearbox support plate [Item C] to the gearbox support [Item D].
8. Reinstall the belt cover.

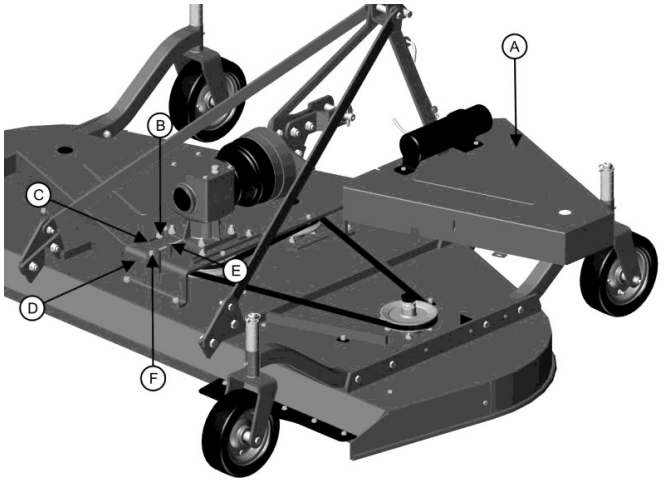


Figure 18

Belt Replacement

Belts will need replacement if they are stretched or damaged to the point that the proper tension cannot be obtained.

To replace the belts, perform the following:

1. Remove the belt covers [Figure 18, Item A].
2. Clean debris and foreign objects from the deck and the belt area.
3. Loosen the four (4) nuts [Item B] that hold the gearbox support plate [Item C] to the gearbox support [Item D].
4. Loosen the blocking nut [Item E] on the adjustment bolt [Item F].
5. Turn the adjustment bolt [Item F] counterclockwise, pushing the gearbox support plate forward until the belt tension is fully released.
6. Remove the old belts, and dispose of them properly.
7. Replace with the new belts. Be sure that the belts are correctly positioned in all pulley grooves. When correctly in the pulley grooves, the belts are arranged parallel to the deck.
8. Turn the adjustment bolt clockwise. This will bring the gearbox support plate to move backwards, tensioning the two (2) belts at the same time. Stop turning the bolt when the proper tension is achieved.
9. Retighten the four (4) nuts that hold the gearbox support plate [Item C] to the gearbox support [Item D].
10. Reinstall the belt cover.

4.6 *Belt & Tension Replacement Cont'd*

Belt Replacement Cont'd

WARNING

- The two (2) belts must always be replaced at the same time.
- Before installing new belts:
  - Check that the pulley shafts and bearings are in good condition, and make sure that the spindles turn freely and without wobble. Replace worn parts if necessary.
  - Check the pulley grooves for cleanliness. If grooves require cleaning, use a cloth moisturized with a nonflammable, non–toxic degreasing agent or commercial detergent and water.

IMPORTANT

Do not apply excessive force during belts installation. Do not use tools to pry the belts into the pulley groove. Do not roll the belts onto the pulley to install. This can cause hidden damage and premature belt failure.

4.7 *Driveshaft*

IMPORTANT

For details about maintenance and lubrication of the driveshaft, refer to the manufacturer's manual.

Grease the crosses, sliding parts of protective shielding, and driveshaft transmission tubes every eight (8) hours of operation using SAE Multi–Purpose Lithium–Type grease or equivalent. See Figure 19.

4.8 *Scrapping*

In the case of scrapping, the attachment must be disposed of in appropriate and authorized sites, according to local, state, and federal law.

Before scrapping, separate plastic parts from rubber parts, aluminum, steel, etc.

Recover and dispose of any used oil to authorized centers for used oil disposal.

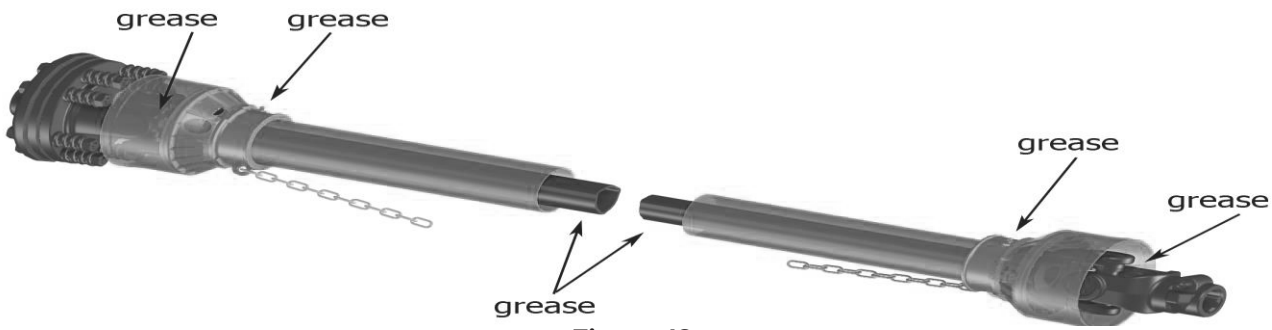


Figure 19

4. Maintenance

4.9 *Storage*

Storage

Sometimes it may be necessary to store your Tractor Finishing Mower for an extended period of time. Below is a list of items to perform before storage.

- Thoroughly wash the attachment before storing it for long periods.
- Lubricate all grease points of the attachment.
- Check for loose hardware, missing guards, or damaged parts.
- Check for damaged or missing decals. Replace if necessary.
- Replace worn or damaged parts.
- Place the attachment flat on the ground in a dry, protected shelter.

NOTE: In muddy conditions or to prevent the attachment from freezing to the ground, put the attachment on planks or blocks before removing the attachment from the machine.

Return to Service

After the Tractor Finishing Mower has been in storage, it is necessary to follow a list of items to return the attachment to service.

- Lubricate all grease points of the attachment.
- Connect and operate the attachment and check for correct function.
- Check for leaks. Repair as needed.

4. Maintenance

4.10 *Troubleshooting*

PROBLEM	CAUSE	SOLUTION
Excessive vibration	Breakage or excessive wear of blades	Replace the worn or cracked blades.
	Blades damaged	Replace blades.
	Belts damaged	Replace drive belt.
	Pulleys/bearings damaged	Replace pulleys/bearings.
	Object wrapped around belt area	Remove belt guard shields, clean debris from the belt area.
	Object wrapped around blade	Remove object.
	Spindle shaft bearings worn	Replace bearings.
Uneven cutting	Blades assembled incorrectly on spindle shafts	Check spindle assembly and restore correct position of the parts (blade, spacer, and washer).
	Height of Finishing Mower not level	Verify the same amount of spacers are under the four (4) wheel arms. Level the adjusting spacers.
	Not enough belt tension	Adjust for proper belt tension.
	Ground speed too fast	Shift to a lower gear.
	Blades need sharpening/balancing	Sharpen/balance blades or replace blades.
	Wheels uneven	Adjust wheel position.
	Loose blade	Check blade hardware's torque. Tighten if necessary.
Imperfect cut	Ground speed too low	Increase ground speed.
	Tractor rpm too slow	Increase tractor rpm; check engine and PTO speeds.
Blades scalping grass	Cutting height too low	Raise cutting height by adjusting wheels.
	Hilly ground	Change mowing pattern. Reduce speed turns.
Blades turning but not cutting	Direction of blades is wrong	Check the blades have their cutting edges facing direction of rotation.
Belts slipping	Debris clogging Finishing Mower	Clean deck before resuming operation.
	Debris clogging belt areas	Remove belt guard shields and clean both belt areas.
	Lack of tension	Tighten belts.
	Belts worn or damaged	Replace belts.
Belts squealing	Belts slipping	Tighten belts.
Gearbox overheating	Low grease/oil level	Add grease/oil.
Oil leaking from gearbox	Gearbox overfilled	Drain to proper level.
	Damaged breather plug	Replace breather plug.
	Damaged seals	Replace seals.
Rear discharge area plugged	Wet grass	Wait for grass to dry.
	Grass too high	Raise cutting height of Finishing Mower and cut grass in two (2) passes. Shift transmission to a lower gear.
	Tractor rpm too slow	Mow at full throttle (540 rpm); check PTO speed and tractor engine.
Belts overheating	Incorrect belts tension	Check tension.
	Transmission axis and rotor axis out of alignment	Check alignment.

4.10 *Troubleshooting Cont'd*

PROBLEM	CAUSE	SOLUTION
Blades worn/damaged frequently	Cutting height too low, blades touching ground	Raise cutting height.
Patches/streaks of uncut grass	Too wet to mow	Allow grass to dry.
	Blades unable to cut part of grass pressed down by wheels	Keep engine speed at full PTO but slow ground speed shifting to lower gear. Lower cutting height.
	Dull blades	Sharpen/replace blades.
	Tip of blades worn, preventing overlap	Replace blades.
	Loose blade	Check torque of blade hardware.
Tractor loaded down by Finishing Mower	Engine speed too low	Keep engine speed at full PTO. Shift to lower gear.
	Debris clogging attachment	Clean debris from Finishing Mower.

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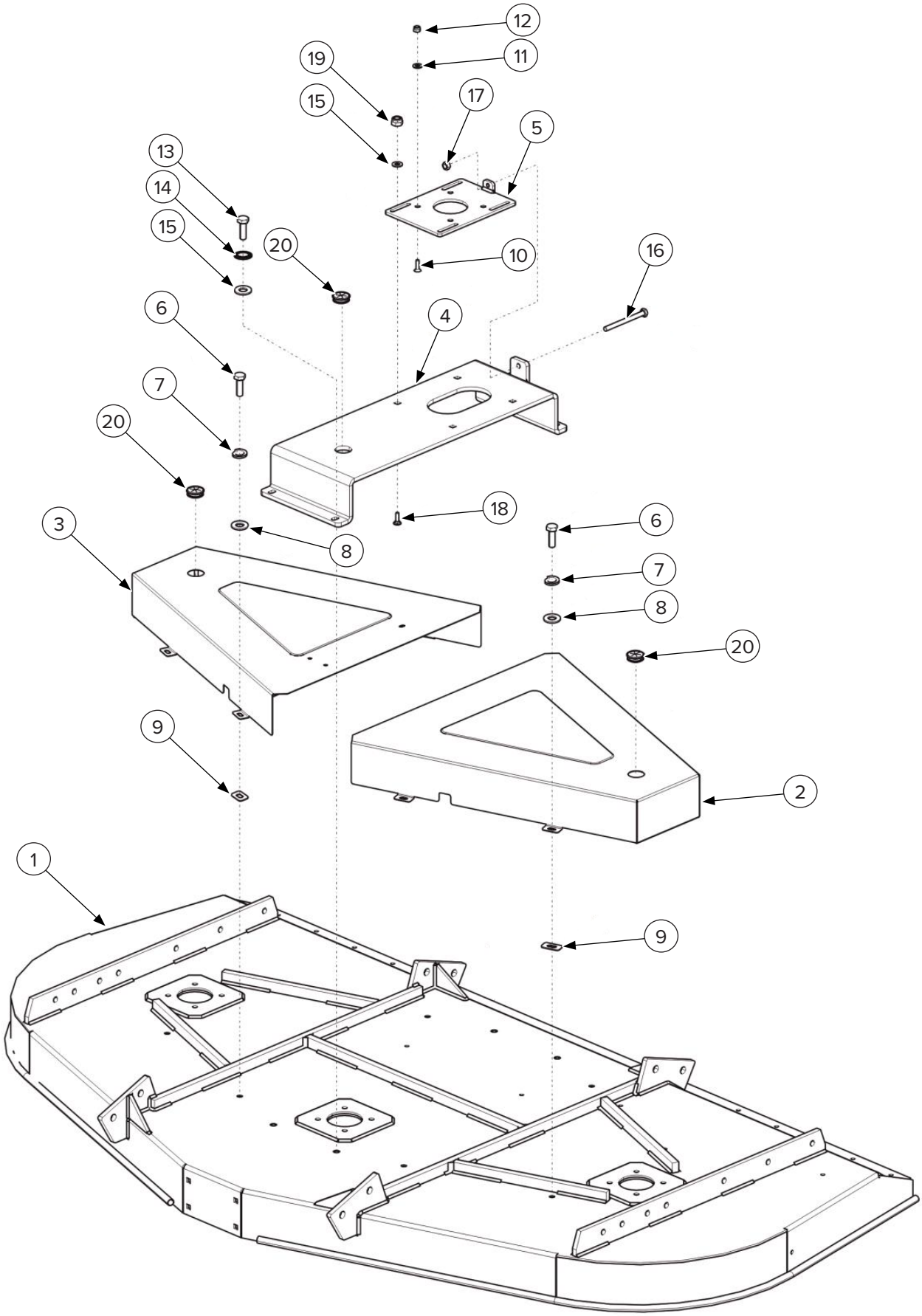
5. Parts

5.1 *Frame Components*



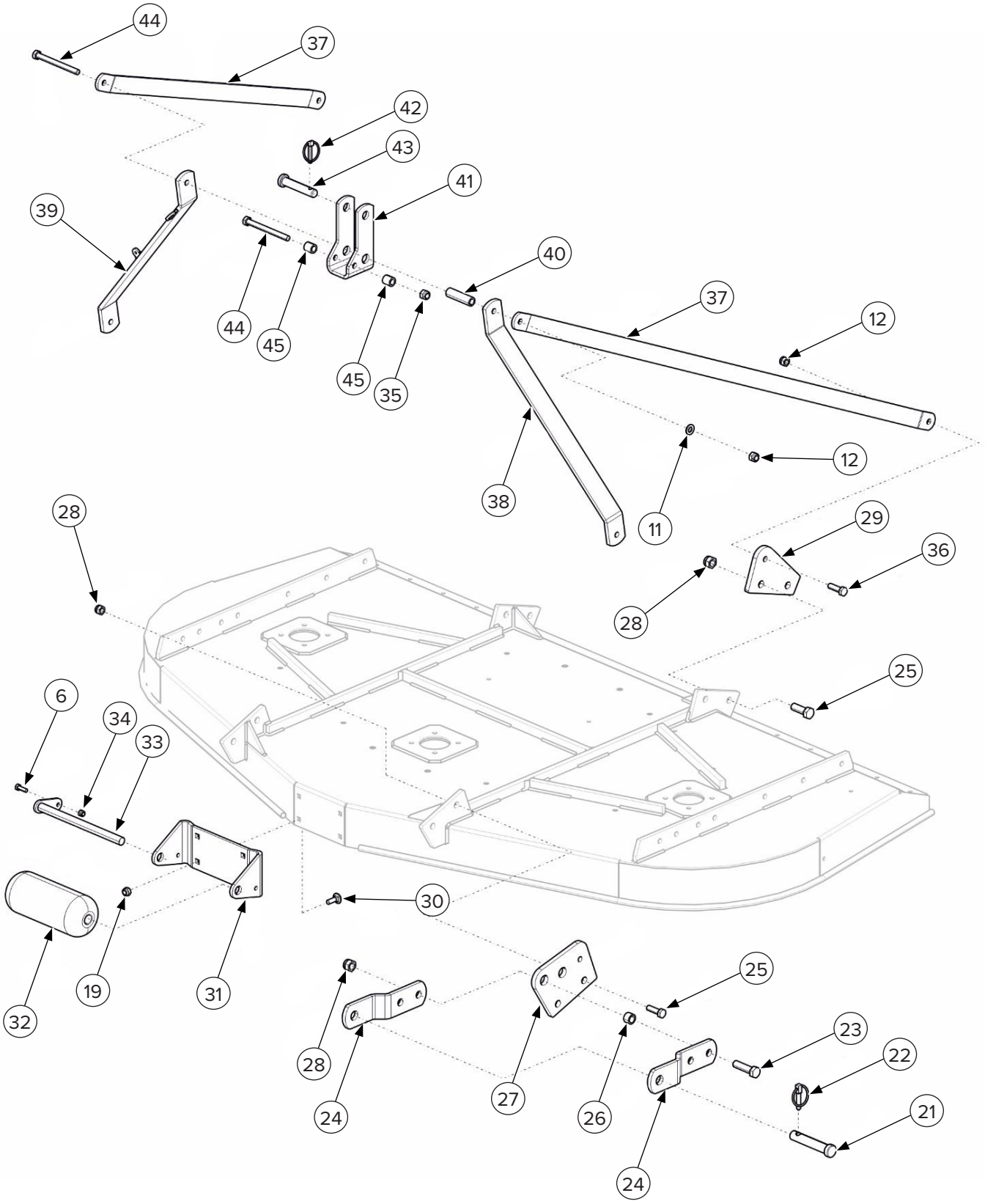
5. Parts

5.1 *Frame Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
1	—	Main Frame for 48" Model	1	—	—	—
	—	Main Frame for 60" Model	—	1	—	—
	—	Main Frame for 72" Model	—	—	1	—
	—	Main Frame for 84" Model	—	—	—	1
2	—	Left Belt Cover for 48" Model	1	—	—	—
	—	Left Belt Cover for 60" Model	—	1	—	—
	—	Left Belt Cover for 72" Model	—	—	1	—
	—	Left Belt Cover for 84" Model	—	—	—	1
3	—	Right Belt Cover for 48" Model	1	—	—	—
	—	Right Belt Cover for 60" Model	—	1	—	—
	—	Right Belt Cover for 72" Model	—	—	1	—
	—	Right Belt Cover for 84" Model	—	—	—	1
4	—	Gearbox Support for 48" Model	1	—	—	—
	—	Gearbox Support for 60" Model	—	1	—	—
	—	Gearbox Support for 72" Model	—	—	1	—
	—	Gearbox Support for 84" Model	—	—	—	1
5	—	Gearbox Support Plate	1	1	1	1
6	529400	M8 x 1.25 mm x 25 mm Hex Bolt Class 8.8 Zinc Plated	8	8	8	8
7	—	M8 Spring Washer Zinc Plated	8	8	8	8
8	—	8mm Plain Washer Zinc Plated	8	8	8	8
9	—	Gasket, Belt Cover	8	8	8	8
10	—	M12 x 1.75 mm x 45 mm Countersunk Bolt Class 10.9 Zinc Plated	4	4	4	4
11	529370	12 mm Plain Washer Zinc Plated	4	4	4	4
12	529214	M12 x 1.75 mm Nylock Nut Class 8 Zinc Plated	4	4	4	4
13	—	M0 x 1.5 mm x 30 mm Hex Bolt Class 8.8 Zinc Plated	4	4	4	4
14	—	M10 Schnorr Washer	4	4	4	4
15	—	10 mm Plain Washer	8	8	8	8
16	—	M10 x 1.5 mm x 75 mm Hex Bolt Class 8.8 Zinc Plated	1	—	—	—
16	—	M10 x 1.5 mm x 90 mm Hex Bolt Class 8.8 Zinc Plated	—	1	—	—
16	—	M10 x 1.5 mm x 120 mm Hex Bolt Class 8.8 Zinc Plated	—	—	1	1
17	—	M10 x 1.5 mm Hex Nut Class 8 Zinc Plated	1	1	1	1
18	—	M10 x 1.5 mm x 35 mm Round Head Square Neck Bolt	4	4	4	4
19	—	M10 x 1.5 mm Nylock Nut Class 8 Zinc Plated	4	4	4	4
20	—	Grease Zerk Cap	3	3	3	3

5. Parts

5.2 *Three–Point Hitch Components*



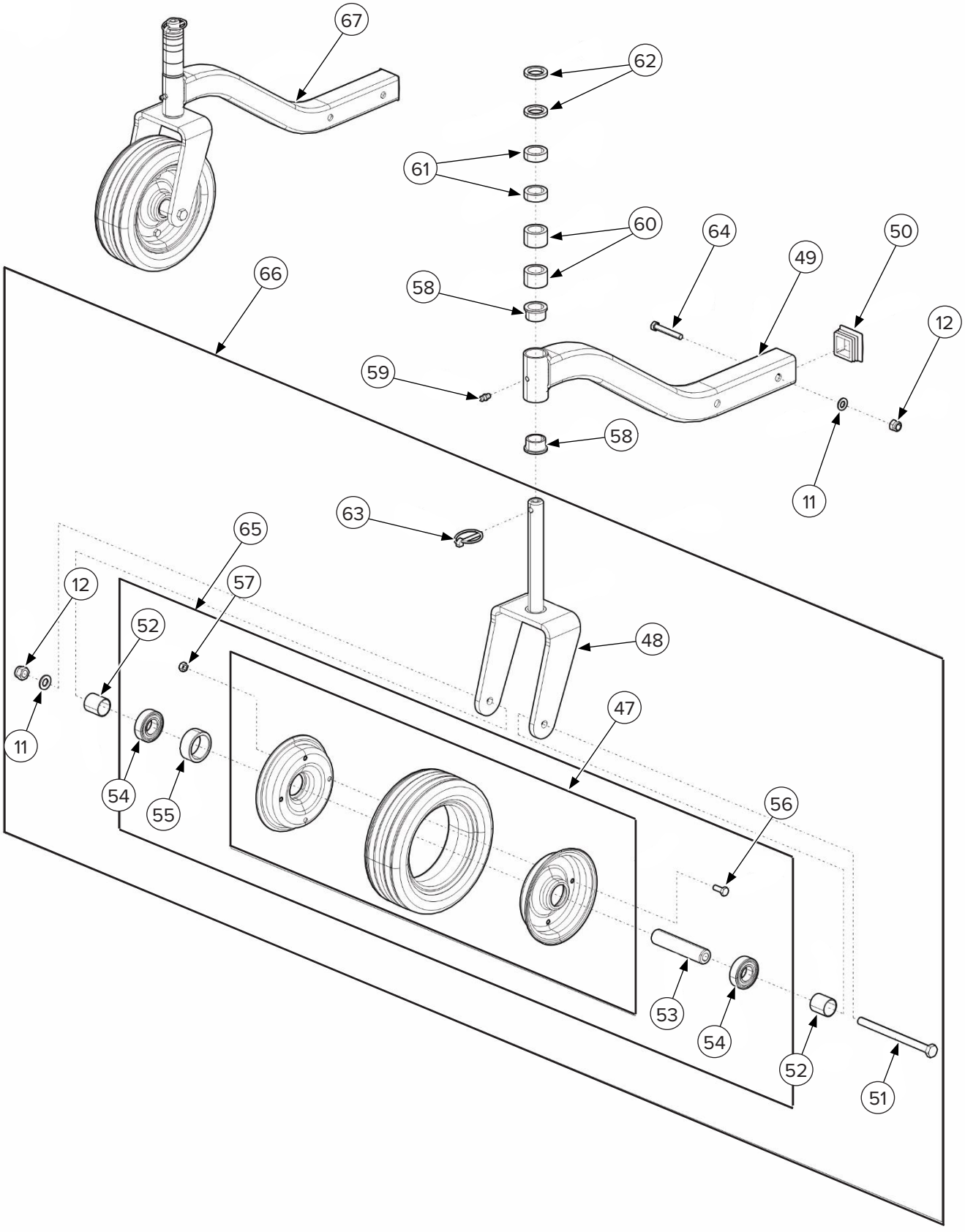
5. Parts

5.2 *Three–Point Hitch Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
6	529400	M8 x 1.25 mm x 25 mm Hex Bolt Class 8.8 Zinc Plated	1	1	1	1
11	529370	12 mm Plain Washer Zinc Plated	1	1	1	1
12	529214	M12 x 1.75 mm Nylock Nut Class 8 Zinc Plated	5	5	5	5
19	—	M10 x 1.5 mm Nylock Nut Class 8 Zinc Plated	4	4	4	4
21	529357	22 mm Diameter x 129 mm Long Bottom Hitch Pin Category I	2	2	2	2
22	—	10 mm Diameter x 45 mm Long Linch Pin	2	2	2	2
23	—	M16 x 2 mm x 60 mm Hex Bolt Class 8.8 Zinc Plated	4	4	4	4
24	—	Lower Hitch Bracket	4	4	4	4
25	—	M16 x 2 mm x 45 mm Hex Bolt Class 8.8 Zinc Plated	8	8	8	8
26	—	Lower Hitch Bushing	4	4	4	4
27	—	Front Connection Plate	2	2	2	2
28	299011	M16 x 2 mm Nylock Nut Class 8 Zinc Plated	12	12	12	12
29	—	Rear Connection Plate	2	2	2	2
30	—	10 mm x 1.5 mm x 30 mm Round Head Square Neck Bolt Fine Thread Class 8.8	4	4	4	4
31	—	Front Roller Bracket	1	1	1	1
32	503474	Front Roller	1	1	1	1
33	—	Front Roller Rod	1	1	1	1
34	—	M8 x 1.25 mm Nylock Nut Class 8 Zinc Plated	1	1	1	1
35	—	M12 x 1.75 mm Nylock Nut Class 8 Zinc Plated	1	1	1	1
36	—	M12 x 1.75 mm x 40 mm Hex Bolt Class 8.8 Zinc Plated	4	4	4	4
37	—	Top Hitch Arm for 48" Model	2	—	—	—
	—	Top Hitch Arm for 60" Model	—	2	—	—
	—	Top Hitch Arm for 72" Model	—	—	2	—
	—	Top Hitch Arm for 84" Model	—	—	—	2
38	—	Left Top Hitch Support	1	1	1	1
39	—	Right Top Hitch Support	1	1	1	1
40	—	Upper 3–Point Hitch Spacer	1	1	1	1
41	—	Upper 3–Point Hitch Coupling	1	1	1	1
42	—	Linch Pin	1	1	1	1
43	—	Top Hitch Pin Category I	1	1	1	1
44	—	M12 x 1.75 mm x 130 mm Hex Bolt Class 8.8 Zinc Plated	2	2	2	2
45	—	21 mm x 13 mm x 22 mm Bushing	2	2	2	2
46	503521	PTO Shaft (Not Shown)	1	1	1	1

5. Parts

5.3 *Wheel Components*



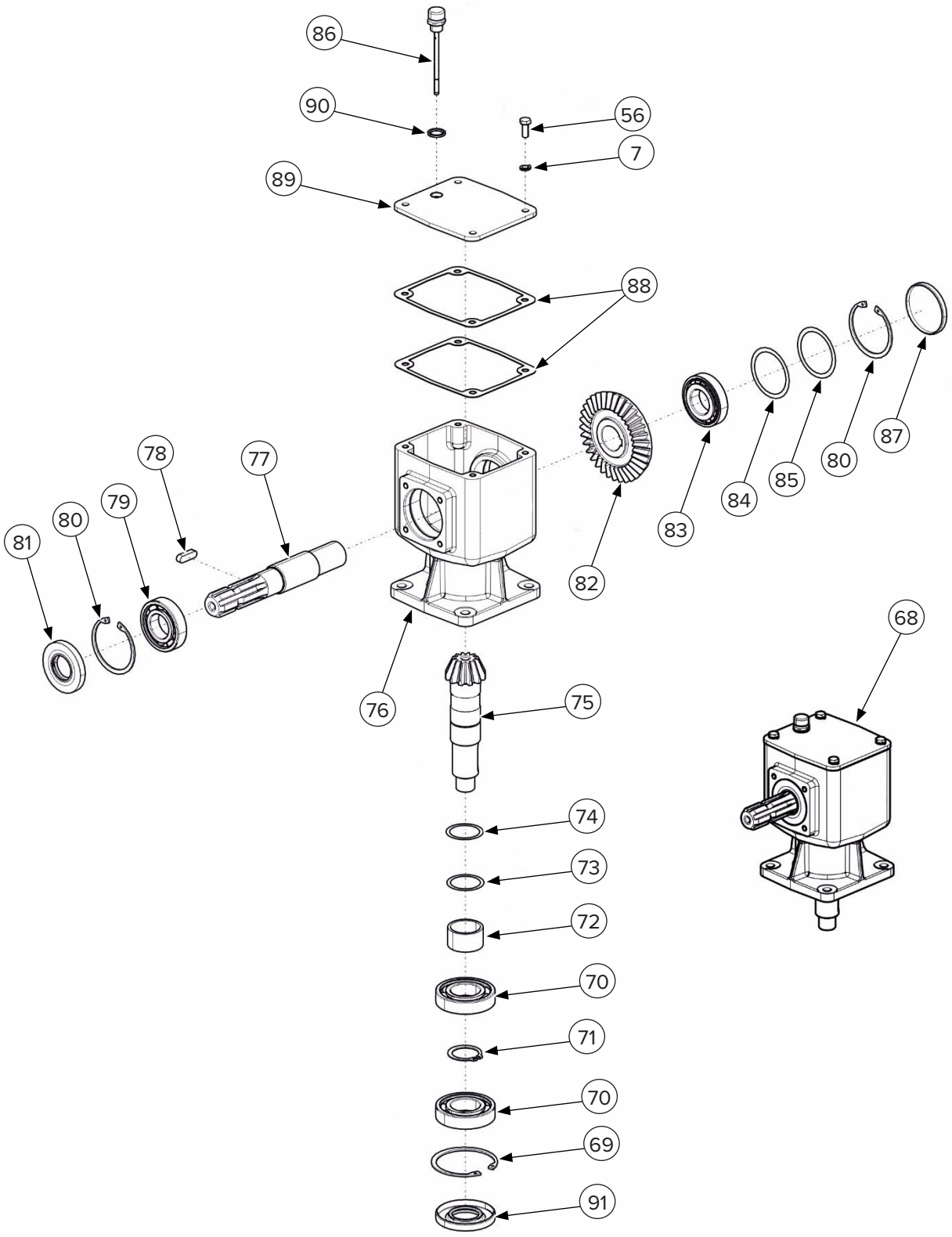
5. Parts

5.3 *Wheel Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
11	529370	12 mm Plain Washer Zinc Plated	AR	AR	AR	AR
12	529214	M12 x 1.75 mm Nylock Nut Class 8 Zinc Plated	AR	AR	AR	AR
47	503449	Solid Tire	1	1	1	1
48	503460	Wheel Yoke	1	1	1	1
49	503548	Wheel Half Arm	1	1	1	1
50	503461	50 mm Square Plastic Pipe Cap	1	1	1	1
51	—	M12 x 1.75 mm x 160 mm Hex Bolt Class 8.8 Zinc Plated	1	1	1	1
52	—	30 mm x 26 mm x 31 mm Spacer for Solid Tire	2	2	2	2
53	—	Wheel Mounting Pipe	1	1	1	1
54	503468	Bearing 6205	2	2	2	2
55	503467	52 mm x 40 mm x 17 mm Spacer	1	1	1	1
56	503466	M8 x 1.25 mm x 20 mm Hex Bolt Class 8.8 Zinc Plated	4	4	4	4
57	503469	M8 x 1.25 mm Hex Nut Class 8 Zinc Plated	4	4	4	4
58	503247	25 mm ID x 20 mm OD x 20 mm Long Flanged Plastic Bearing	2	2	2	2
59	503462	M8 x 1.25 mm Grease Zerk	1	1	1	1
60	503457	25.5 mm x 38 mm x 25 mm Spacer	2	2	2	2
61	503454	25.5 mm x 38 mm x 12.5 mm Spacer	2	2	2	2
62	503453	25.5 mm x 28 mm x 6 mm Spacer	2	2	2	2
63	503452	Small Linch Pin	1	1	1	1
64	—	M12 x 1.75 mm x 80 mm Hex Bolt Class 8.8 Zinc Plated	AR	AR	AR	AR
65	—	Wheel Assembly	1	1	1	1
66	—	Wheel Yoke Assembly	1	1	1	1
67	—	Solid Tire with Arm Assembly	4	4	4	4

5. Parts

5.4 *Gearbox Components*



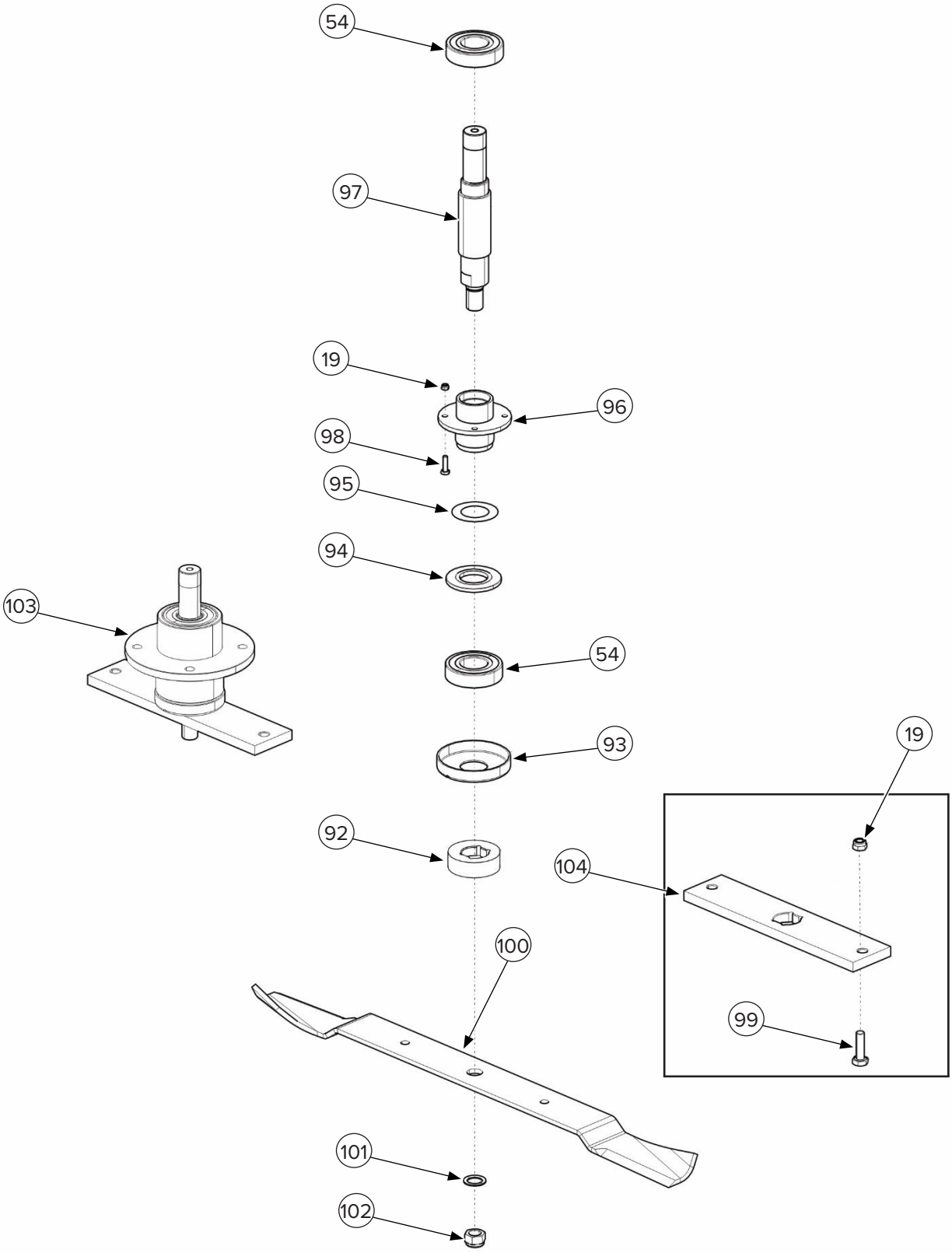
5. Parts

5.4 *Gearbox Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
7	—	M8 Spring Washer Zinc Plated	4	4	4	4
56	503466	M8 x 1.25 mm x 20 mm Hex Bolt Class 8.8 Zinc Plated	4	4	4	4
68	503975	Gearbox Assembly	1	1	1	1
69	503168	80 mm Circlip Internal	1	1	1	1
70	503232	Bearing 6208	2	2	2	2
71	529386	40 mm Circlip External	1	1	1	1
72	—	40 mm ID x 48 mm OD x 28 mm Thick Pinion Spacer	1	1	1	1
73	—	50 mm OD x 40.5 mm ID x 0.3 mm Thick Round Shim	AR	AR	AR	AR
74	—	50 mm OD x 40.5 mm ID x 0.2 mm Thick Round Shim	AR	AR	AR	AR
75	—	Bevel Pinion Shaft 12 Teeth	1	1	1	1
76	—	Gearbox Housing	1	1	1	1
77	—	Input Shaft	1	1	1	1
78	—	10 mm x 8 mm 32 mm Parallel Key	1	1	1	1
79	529385	Bearing 6207	1	1	1	1
80	529321	72 mm Circlip Internal	2	2	2	2
81	503209	35 mm x 72 mm x 10 mm Oil Seal	1	1	1	1
82	—	Bevel Gear 34 Teeth	1	1	1	1
83	529387	Bearing 30207	1	1	1	1
84	—	71.75 mm OD x 60.25 mm ID x 0.2 mm Thick Round Shim	AR	AR	AR	AR
85	—	71.75 mm OD x 60.25 mm ID x 0.3 mm Thick Round Shim	AR	AR	AR	AR
86	529391	106 mm Long Dipstick with M16 x 1.5 mm Threaded Fitting	1	1	1	1
87	529389	72 mm x 8 mm Oil Seal	1	1	1	1
88	—	0.5 mm Thick Gasket for Gearbox Cover	AR	AR	AR	AR
89	—	Gearbox Cover	1	1	1	1
90	—	3/8" BSP Dowty Seal	1	1	1	1
91	—	40 mm x 80 mm x 10 mm Oil Seal	1	1	1	1

5. Parts

5.5 *Blade Spindle Components*



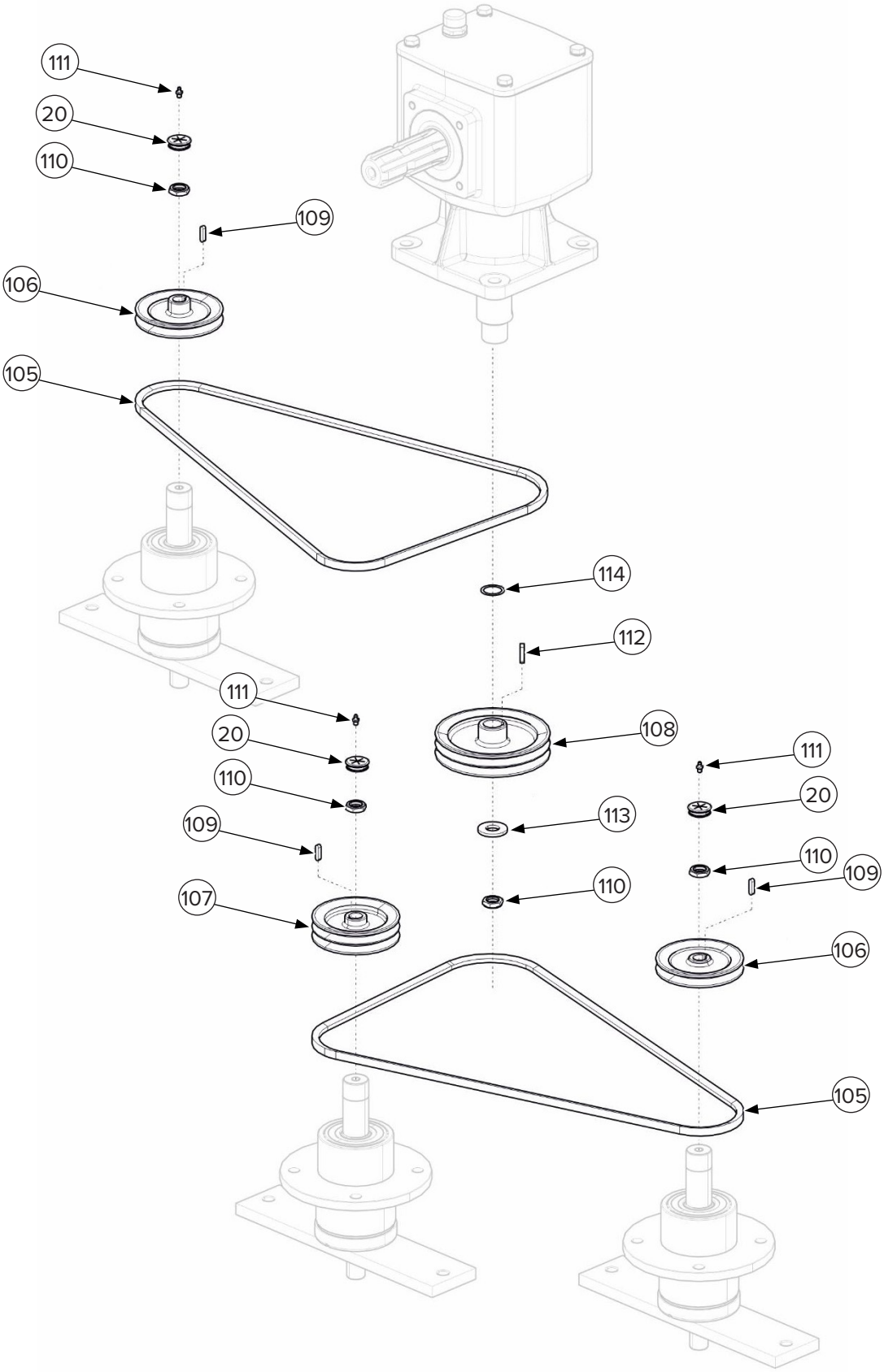
5. Parts

5.5 *Blade Spindle Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
19	—	M10 x 1.5 mm Nylock Nut Class 8 Zinc Plated	AR	AR	AR	AR
54	503468	Bearing 6205	2	2	2	2
	—	Bearing 6206	2	2	2	2
92	—	Blade Tightening Bushing (6205)	1	1	1	1
	—	Blade Tightening Bushing (6206)	1	1	1	1
93	—	Dust Protection Cover (6205)	1	1	1	1
	—	Dust Protection Cover (6206)	1	1	1	1
94	—	60 mm OD x 30 mm ID x 5 mm Thick Spacer Washer (6205)	1	1	1	1
	—	40 mm OD x 25 mm ID x 3 mm Thick Spacer Washer (6206)	1	1	1	1
95	—	50 mm OD x 30.5 mm ID x 0.5 mm Thick Round Shim	1	1	1	1
96	—	Spindle Bearings 6205	1	1	1	1
	—	Spindle Bearings 6206	1	1	1	1
97	—	Spindle Shaft 6205	1	1	1	1
	—	Spindle Shaft 6206	1	1	1	1
98	—	M10 x 1.5 mm x 35 mm Hex Bolt Class 8.8 Zinc Plated	AR	AR	AR	AR
99	—	M10 x 1.5 mm x 35 mm Hex Bolt Class 8.8 Zinc Plated for 84" Model	—	—	—	2
100	503242	424 mm x 60 mm x 6 mm Blade for 48" Model	1	—	—	—
	503244	516 mm x 60 mm x 6 mm Blade for 60" Model	—	1	—	—
	503246	618 mm x 60 mm x 6 mm Blade for 72" Model	—	—	1	—
	503240	730 mm x 60 mm x 6 mm Blade for 84" Model	—	—	—	1
101	503241	M18 Schnorr Washer	1	1	1	1
102	503451	M18 x 1.5 mm Nylock Nut Class 8 Zinc Plated	1	1	1	1
103	—	Spindle Assembly with 6205 Bearings	1	1	1	—
	503450	Spindle Assembly with 6206 Bearings	1	1	1	—
	—	Spindle Assembly for 84" Model	—	—	—	1
104	—	Blade Support Plate for 84" Model	—	—	—	1

5. Parts

5.6 *Belt & Pulley Components*



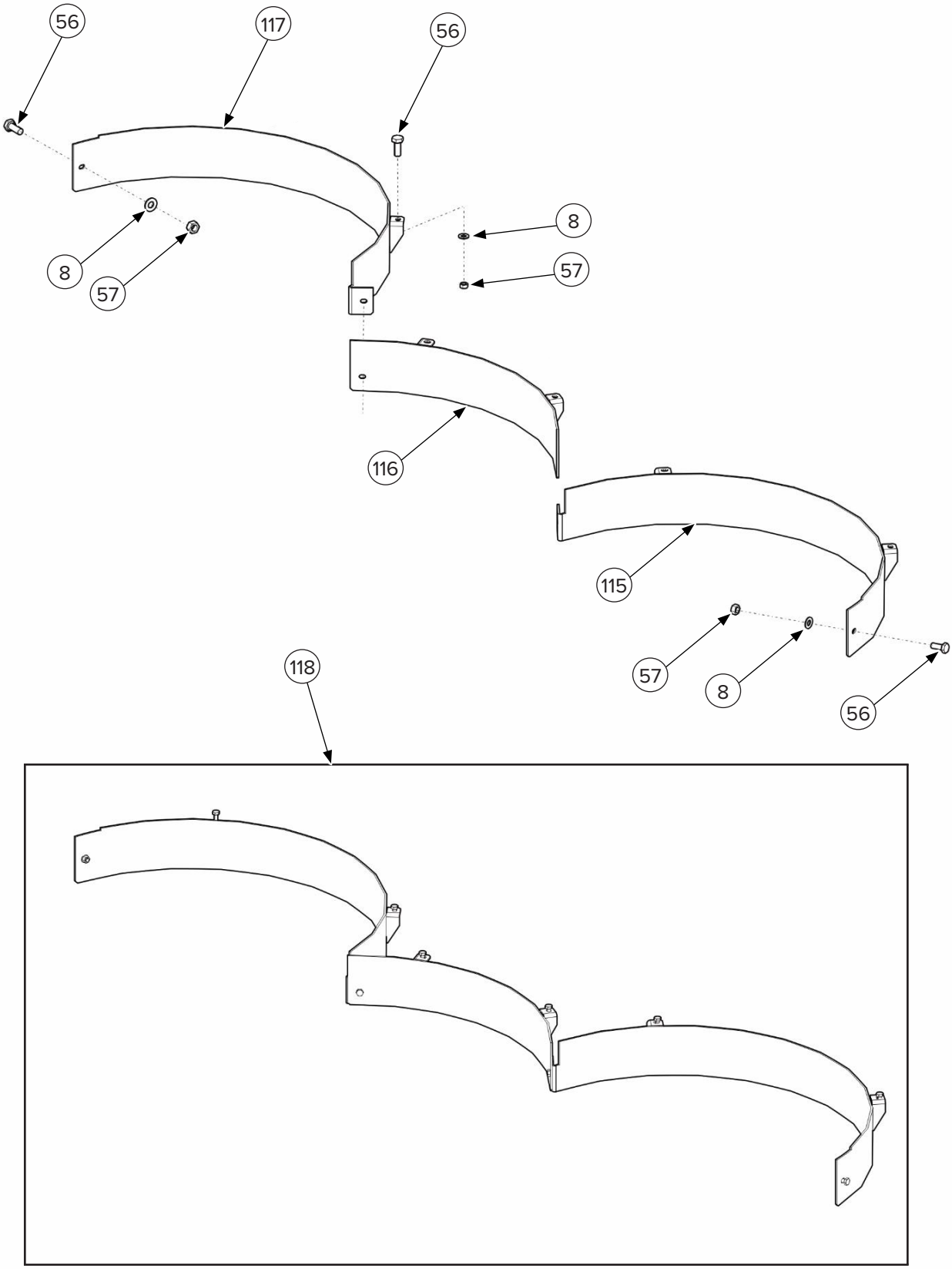
5. Parts

5.6 *Belt & Pulley Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
20	—	Grease Zerk Cap	3	3	3	3
105	—	Set of 2 SPB Belts for 48" Model (1500 mm Datum Length)	1	—	—	—
	503501	Set of 2 SPB Belts for 60" Model (1750 mm Datum Length)	—	1	—	—
	—	Set of 2 SPB Belts for 72" Model (1950 mm Datum Length)	—	—	1	—
	503502	Set of 2 SPB Belts for 84" Model (2340 mm Datum Length)	—	—	—	1
106	—	SPB Type Pulley for 48" Model (110 mm Pitch Circle Diameter, 1 Groove)	1	—	—	—
	—	SPB Type Pulley for 60" & 72" Models (130 mm Pitch Circle Diameter, 1 Groove)	—	1	1	—
	—	SPB Type Pulley for 84" Model (160 mm Pitch Circle Diameter, 2 Groove)	—	—	—	1
107	—	SPB Type Pulley for 48" Model (110 mm Pitch Circle Diameter, 2 Groove)	1	—	—	—
	—	SPB Type Pulley for 60" & 72" Models (130 mm Pitch Circle Diameter, 2 Groove)	—	1	1	—
	—	SPB Type Pulley for 84" Model (160 mm Pitch Circle Diameter, 2 Groove)	—	—	—	1
108	—	SPB Type Pulley for 48" & 60" Models (225 mm Pitch Circle Diameter, 2 Groove)	1	1	—	—
	—	SPB Type Pulley for 72" Model (190 mm Pitch Circle Diameter, 2 Groove)	—	—	1	—
	—	SPB Type Pulley for 84" Model (212 mm Pitch Circle Diameter, 2 Groove)	—	—	—	1
109	—	8 mm x 7 mm x 32 mm Key	3	3	3	3
110	—	M25 x 1.5 mm Nylock Nut	4	4	4	4
111	—	M8 x 1 mm Grease Zerk	3	3	3	3
112	—	10 mm x 8 mm x 40 mm Parallel Key	1	1	1	1
113	—	56 mm OD x 25 mm ID x 6 mm Thick Washer for Driving Pulley	1	1	1	1
114	—	44.5 mm OD x 35.5 mm ID x 1 mm Thick Round Shim	1	1	1	1

5. Parts

5.7 *Mulching Components*



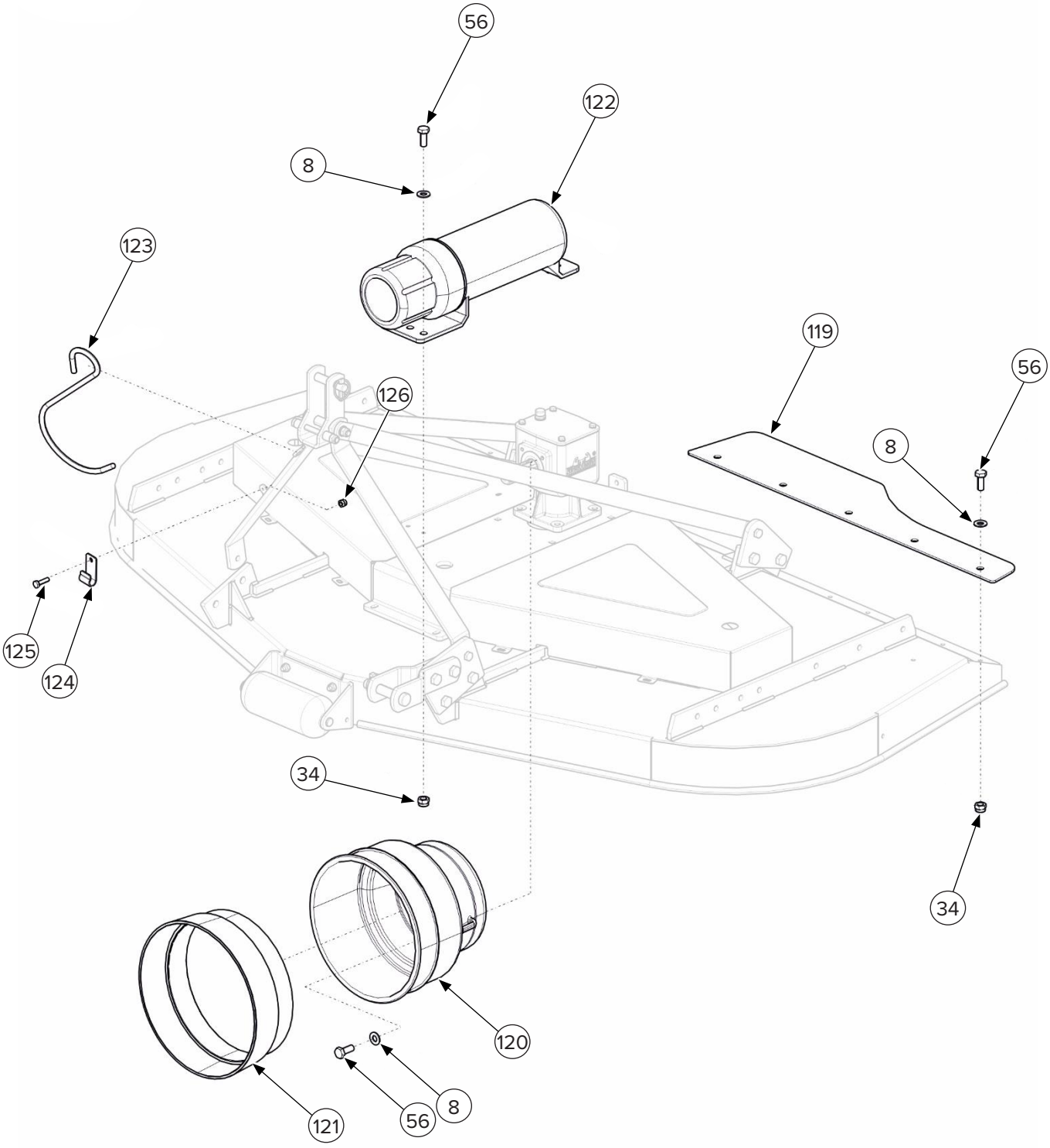
5. Parts

5.7 *Mulching Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
8	—	8 mm Plain Washer	AR	AR	AR	AR
56	503466	M8 x 1.25 mm x 20 mm Hex Bolt Class 8.8 Zinc Plated	AR	AR	AR	AR
57	503469	M8 x 1.25 mm Hex Nut Class 8 Zinc Plated	AR	AR	AR	AR
115	—	Right Containing Plate for 48" Model	1	—	—	—
	—	Right Containing Plate for 60" Model	—	1	—	—
	—	Right Containing Plate for 72" Model	—	—	1	—
	—	Right Containing Plate for 84" Model	—	—	—	1
116	—	Middle Containing Plate for 48" Model	1	—	—	—
	—	Middle Containing Plate for 60" Model	—	1	—	—
	—	Middle Containing Plate for 72" Model	—	—	1	—
	—	Middle Containing Plate for 84" Model	—	—	—	1
117	—	Left Containing Plate for 48" Model	1	—	—	—
	—	Left Containing Plate for 60" Model	—	1	—	—
	—	Left Containing Plate for 72" Model	—	—	1	—
	—	Left Containing Plate for 84" Model	—	—	—	1
118	—	Mulching Kit for 48" Model	1	—	—	—
	—	Mulching Kit for 60" Model	—	1	—	—
	—	Mulching Kit for 72" Model	—	—	1	—
	—	Mulching Kit for 84" Model	—	—	—	1

5. Parts

5.8 *Safety Shields Components*



5. Parts

5.8 *Safety Shields Components Cont'd*

ITEM	PART NUMBER	DESCRIPTION	48" QTY	60" QTY	72" QTY	84" QTY
8	—	8 mm Plain Washer	AR	AR	AR	AR
34	—	M8 x 1.25 mm Nylock Nut Class 8 Zinc Plated	AR	AR	AR	AR
56	503466	M8 x 1.25 mm x 20 mm Hex Bolt Class 8.8 Zinc Plated	AR	AR	AR	AR
119	—	Rear Safety Shield for 48" Model	2	—	—	—
	—	Rear Safety Shield for 60" Model	—	2	—	—
	—	Rear Safety Shield for 72" Model	—	—	2	—
	—	Rear Safety Shield for 84" Model	—	—	—	2
120	503504	Plastic PTO Shaft Shield	1	1	1	1
121	503503	PTO Shield Cone	1	1	1	1
122	503174	Manual Storage Tube	1	1	1	1
123	529429	250 mm Driveline Hook	1	1	1	1
124	529430	Hook Holding Plate	1	1	1	1
125	299003	M4 x 0.7 mm x 15 mm Hex Bolt Class 8.8 Zinc Plated	1	1	1	1
126	299004	M4 x 0.7 mm Nylock Nut Class 8 Zinc Plated	1	1	1	1

5.9 *Safety Decals*

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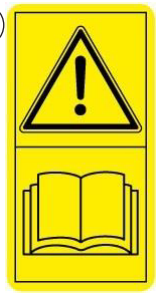

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5. Parts

5.9 *Safety Decals Cont'd*

ITEM	PART NUMBER	DESCRIPTION	ALL QTY
127	BD-111	7.75" x 6" Decal, Blue Diamond Diamond Shape	2
128	BD-060	2.4375" x 3.375" Decal, Blue Diamond Attachments	2
129	BD-081	3" x 12" Decal, Warning Keep Hands and Feet Away	2
130	BD-055	3.0" x 11.9062" Decal, Danger Debris Discharge Area	1
131	BD-092	1.5" x 2.0" Decal, Warranty Registration QR	1
132	529300	Warning, Always Read the Operator's Manual	1
133	529301	Turn Off Tractor & Remove Key	1
134	529302	Hazard, Thrown or Flying Objects	1
135	—	Hazard, Rotating Blades Keep Away	1
136	529304	Hazard, Injury to Hands	1
137	529305	Hazard, Rotating Gears Finger Entanglement Risk	2
138	529306	Crushing Hazard by Link Lifting	1
139	529307	Implement Input Driveline Entanglement Hazard	1
140	529308	Tractor PTO RPM & Rotation Direction	1
141	529310	Safety PPE	1
142	529311	Oil Filling Point	1
143	529312	Grease Point	7
144	529318	Rotating Driveline Cover	1
145	529319	Rotating Driveline Tube	1
146	—	Caution, Do Not Stand, Ride Or Climb On Mower	1

6. Specifications

6.1 *Attachment Specifications*

DESCRIPTION	403510	403515	403520	403525
Working Width	48 in. (1219 mm)	60 in. (1524 mm)	72 in. (1829 mm)	84 in. (2134 mm)
Overall Width	53 1/2 in. (1359 mm)	64 in. (1625 mm)	75 1/2 in. (1918 mm)	88 1/2 in. (2248 mm)
Length	52 3/4 in. (1340 mm)	58 in. (1473 mm)	60 in. (1524 mm)	68 in. (1727 mm)
Height	29.5 in. (749 mm)			
Recommended Horsepower	20 – 25 HP	25 – 35 HP	35 – 45 HP	40 – 50 HP
Hitch Type	Category I (ISO 730 Standard)			
Cutting Height	1/2 – 4 in. (14 mm – 101 mm)			
PTO Input Speed	540 rpm			
PTO Driveshaft	Single Push Pin Type PTO			
Deck Thickness	0.12” (4 mm)			0.2” (5 mm)
Wheels	Solid			
Belt (Number & Type)	2 Belts, SPB Type			
Number of Blades	3			
Blade Size (L x W x H)	16.7 x 2.4 x 0.24 in. (424 x 60 x 6 mm)	20.3 x 2.4 x 0.24 in. (515.5 x 60 x 6 mm)	24.3 x 2.4 x 0.24 in. (616 x 60 x 6 mm)	28.7 x 2.4 x 0.24 in. (730 x 60 x 6 mm)
Blade Overlap	0.8 in. (20 mm)			1.1 in. (27 mm)
Blade Shaft Speed	3130 rpm	2648 rpm	2236 rpm	2027 rpm
Blade Shaft Speed (feet per minute)	13,681 fpm	14,074 fpm	14,192 fpm	15,275 fpm
Spindle Type	Greaseable Ball Bearings			
Spindle Bearings	Bearing 6206			
Weight	452 lbs (205 kg)	502 lbs (228 kg)	558 lbs (253 kg)	666 lbs (302 kg)

6. Specifications

6.2 *Torque Specifications – Metric*

Standard Hardware and Lock Nuts

BOLT TYPE	CLASS 4.8		CLASS 8.8 OR 9.8		CLASS 10.9		CLASS 12.9	
Size	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry
M6	4.8 N•m	6 N•m	9 N•m	11 N•m	13 N•m	17 N•m	15 N•m	19 N•m
	3.5 lbf•ft	4.5 lbf•ft	6.5 lbf•ft	8.5 lbf•ft	9.5 lbf•ft	12 lbf•ft	11.5 lbf•ft	14.5 lbf•ft
M8	12 N•m	15 N•m	22 N•m	28 N•m	32 N•m	40 N•m	37 N•m	47 N•m
	8.5 lbf•ft	11 lbf•ft	16 lbf•ft	20 lbf•ft	24 lbf•ft	30 lbf•ft	28 lbf•ft	35 lbf•ft
M10	23 N•m	29 N•m	43 N•m	55 N•m	63 N•m	80 N•m	75 N•m	95 N•m
	17 lbf•ft	21 lbf•ft	32 lbf•ft	40 lbf•ft	47 lbf•ft	60 lbf•ft	55 lbf•ft	70 lbf•ft
M12	40 N•m	50 N•m	75 N•m	95 N•m	110 N•m	140 N•m	130 N•m	165 N•m
	29 lbf•ft	37 lbf•ft	55 lbf•ft	70 lbf•ft	80 lbf•ft	105 lbf•ft	95 lbf•ft	120 lbf•ft
M14	63 N•m	80 N•m	120 N•m	150 N•m	175 N•m	225 N•m	205 N•m	260 N•m
	47 lbf•ft	60 lbf•ft	88 lbf•ft	110 lbf•ft	130 lbf•ft	165 lbf•ft	150 lbf•ft	190 lbf•ft
M16	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 lbf•ft	125 lbf•ft	195 lbf•ft	250 lbf•ft	275 lbf•ft	350 lbf•ft	325 lbf•ft	410 lbf•ft
M18	135 N•m	175 N•m	260 N•m	330 N•m	375 N•m	475 N•m	440 N•m	560 N•m
	100 lbf•ft	125 lbf•ft	195 lbf•ft	250 lbf•ft	275 lbf•ft	350 lbf•ft	325 lbf•ft	410 lbf•ft
M20	190 N•m	240 N•m	375 N•m	475 N•m	530 N•m	675 N•m	625 N•m	800 N•m
	140 lbf•ft	180 lbf•ft	275 lbf•ft	350 lbf•ft	400 lbf•ft	500 lbf•ft	460 lbf•ft	580 lbf•ft
M22	260 N•m	330 N•m	510 N•m	650 N•m	725 N•m	925 N•m	850 N•m	1075 N•m
	190 lbf•ft	250 lbf•ft	375 lbf•ft	475 lbf•ft	540 lbf•ft	675 lbf•ft	625 lbf•ft	800 lbf•ft
M24	330 N•m	425 N•m	650 N•m	825 N•m	925 N•m	1150 N•m	1075 N•m	1350 N•m
	250 lbf•ft	310 lbf•ft	475 lbf•ft	600 lbf•ft	675 lbf•ft	850 lbf•ft	800 lbf•ft	1000 lbf•ft
M27	490 N•m	625 N•m	950 N•m	1200 N•m	1350 N•m	1700 N•m	1600 N•m	2000 N•m
	360 lbf•ft	450 lbf•ft	700 lbf•ft	875 lbf•ft	1000 lbf•ft	1250 lbf•ft	1150 lbf•ft	1500 lbf•ft
M30	675 N•m	850 N•m	1300 N•m	1650 N•m	1850 N•m	2300 N•m	2150 N•m	2700 N•m
	490 lbf•ft	625 lbf•ft	950 lbf•ft	1200 lbf•ft	1350 lbf•ft	1700 lbf•ft	1600 lbf•ft	2000 lbf•ft
M33	900 N•m	1150 N•m	1750 N•m	2200 N•m	2500 N•m	3150 N•m	2900 N•m	3700 N•m
	675 lbf•ft	850 lbf•ft	1300 lbf•ft	1650 lbf•ft	1850 lbf•ft	2350 lbf•ft	2150 lbf•ft	2750 lbf•ft
M36	1150 N•m	1450 N•m	2250 N•m	2850 N•m	3200 N•m	4050 N•m	3750 N•m	4750 N•m
	850 lbf•ft	1075 lbf•ft	1650 lbf•ft	2100 lbf•ft	2350 lbf•ft	3000 lbf•ft	2750 lbf•ft	3500 lbf•ft

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Warranty

MANUFACTURER'S LIMITED WARRANTY

BLUE DIAMOND® ATTACHMENTS, a manufacturer of quality attachments, warrants new BLUE DIAMOND® ATTACHMENTS products and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by BLUE DIAMOND® ATTACHMENTS, LLC.

BLUE DIAMOND® ATTACHMENTS liability for any defect with respect to accepted goods shall be limited to repairing the goods at a BLUE DIAMOND® ATTACHMENTS designated location or at an authorized dealer location, or replacing them, as BLUE DIAMOND® ATTACHMENTS shall elect. The above shall be in accordance with BLUE DIAMOND® ATTACHMENTS warranty adjustment policies. BLUE DIAMOND® ATTACHMENTS obligation shall terminate twelve (12) months for the Tractor Finishing Mower after the delivery of the goods to original purchaser.

This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the BLUE DIAMOND® ATTACHMENTS factory or authorized BLUE DIAMOND® ATTACHMENTS dealership or in any way so as in BLUE DIAMOND® ATTACHMENTS judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident beyond the company recommended machine rated capacity.

WARRANTY CLAIM

To submit a warranty claim, a claim must be filed with BLUE DIAMOND® ATTACHMENTS before work is performed. The BLUE DIAMOND® PRODUCT SUPPORT TEAM will advise repairs and applicable parts exchanges. Tampering with the failed part may void the warranty. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls, and pickup/delivery charges are the customers' responsibility.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, BLUE DIAMOND® ATTACHMENTS makes no representation or warranty of any kind, expressed or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. BLUE DIAMOND® ATTACHMENTS shall not be liable for incidental or consequential damages for any breach or warranty, including but not limited to inconvenience, rental of replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability for all personal injury and property resulting from the handling, possession, or use of the goods by the buyer.

No agent, employee, or representative of BLUE DIAMOND® ATTACHMENTS has any authority to bind BLUE DIAMOND® ATTACHMENTS to any affirmation, representation, or warranty concerning its machinery and/or attachments except as specifically set forth herein.

This warranty policy supersedes any previous documents. Please see bluediamondattachments.com/warranty-policies for the most up to date warranty information.

NOTE: Blue Diamond® Attachments is a trademark of BLUE DIAMOND® ATTACHMENTS

QUALITY | DEPENDABILITY | INTEGRITY

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