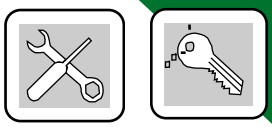
RYAN®
By Jacobsen

524583-GB (rev.3)



Safety, Operation, Parts, Maintenance & service Manual

RYAN® *Mataway Overseeder*

Model: 544873B

WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.

GB
English

RJ 100 / 032003

IMPORTANT MESSAGE

Thank you for purchasing this Ryan product. You have purchased a world class product, one of the best designed and built anywhere.

This machine comes with a Technical Manual containing safety, operation, parts, maintenance and service information. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand this manual. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Ryan product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manual thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a Ryan dealer for any service or parts needed. Ryan service ensures that you continue to receive the best results possible from Ryan's products. You can trust Ryan replacement parts because they are manufactured with the same high precision and quality as the original parts.

Ryan designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manual, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Jacobsen, a Textron Company
One Bob Cat Lane
Johnson Creek, WI 53038-0469

TABLE OF CONTENTS **FIGURES** **PAGE**

NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Jacobsen, a Textron Company strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Jacobsen Engineering Department. Any Jacobsen product that is altered, modified or changed in any manner not specifically authorized after original manufacture–including the addition of "after-market" accessories or component parts not specifically approved by Jacobsen–will result in the Jacobsen Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Jacobsen will be considered the responsibility of the individual(s) or company designing and/or making such changes. Jacobsen will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.

This symbol means:
ATTENTION!
BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Jacobsen machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

⚠ CAUTION

CAUTION 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 or property damage.

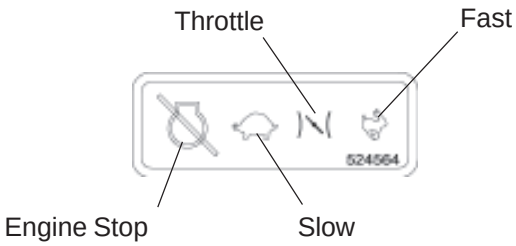
CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage.

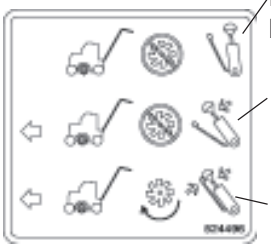
MODEL NUMBER: This number appears on sales literature, technical manuals and price lists.

SERIAL NUMBER: This number appears only on your mower. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

Throttle Control



Clutch Control



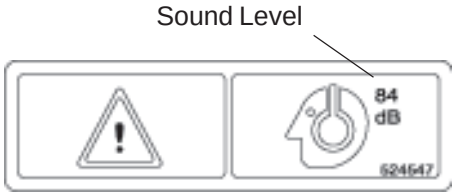
Both drive and reel clutches DISENGAGED (control is pulled back)

Drive clutch ONLY engaged (control is pushed forward)

Both drive and reel clutches engaged (lever is pulled back to knob, then control is pushed forward)

Sound Level

Operator should wear hearing protection if operating the machinery for extended periods of time (longer than 4 hours).



Cutting Height Adjustment

Turn the adjustment screw clockwise to raise the cutting height.

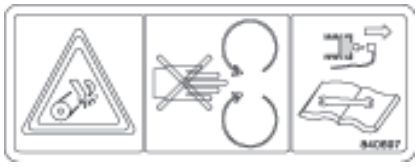
Turn the adjustment screw counterclockwise to lower the cutting height.

Safety Warnings

Hands or feet may be severely injured or severed if placed beneath the unit while running.

Bystanders should keep a safe distance from the machine while it is running.

Keep hands away from moving parts.



Safety shields should remain in place while running the machine. Hands may become entangled in belts.

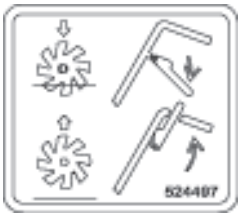
Disconnect the spark plug wire and read the manual before performing any service or maintenance on the unit.

Operating Instructions

To prevent injury, the operator must be familiar with the operation of this machinery and fully aware of safe operating procedures.

Read and understand the operator's manual

Lift Control



Push down on the handle to lower the reel

Pull the handle up to raise the reel

⚠ CAUTION

Do not operate this equipment until you have read the CONTROLS and OPERATION sections of this manual thoroughly.

To prevent injury, use an adequate lifting device (i.e., hoist, or fork lift) to remove unit from pallet.

1. Remove and discard banding attaching the Mataway Overseeder to the pallet, and remove unit from pallet.

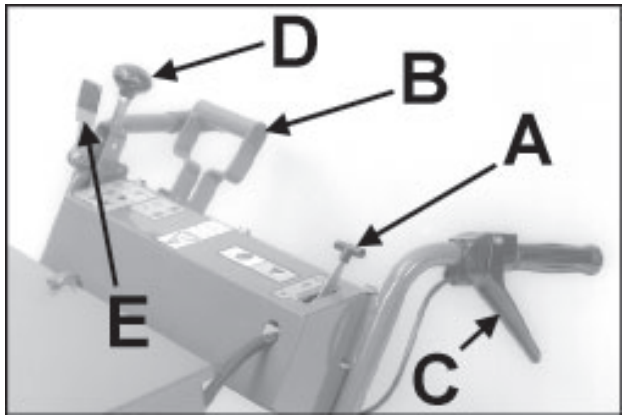
⚠ WARNING

Banding is under tension and may snap back when cut. Wear eye protection and stay clear when cutting the band.

2. Check the oil level in the transmission. Level should be up to the plug opening in the side of the case. Add EP 80-90 gear lube if required. Case capacity is 1/2 pint (.4L).

3. Check engine oil level. Refer to the engine manual for the appropriate amount and weight of oil.

4. Inspect the chassis for proper lubrication. When lubricating, be sure to wipe the lubrication fittings before and after lubrication.



THROTTLE (A)

Move throttle lever forward to increase engine speed. Move the lever all the way back to stop the engine.

LIFT LEVER (B)

Raises and lowers the frame mounted reel. Pull the lever back and down to lower the reel and to start seed flow from the hopper. Pull the lever up and forward until it locks over center to raise the reel and stop seed flow.

OPERATOR PRESENCE LEVER (C)

Must be held against the handle bar whenever the clutch control is engaged or the engine will stall (the engine can be started without holding the operator presence lever, if the clutch control is disengaged).

CLUTCH CONTROL (D)

Engages the clutch for both the drive transmission and reel rotation.

REEL CONTROL LEVER (E)

Must be pulled back against the clutch control handle for the reel clutch to be engaged.

Pull the Reel Control Lever back against the clutch control and push the clutch control forward to engage both the drive clutch and the reel clutch. Push the clutch control forward without pulling back the reel control lever to engage the drive clutch ONLY. Pull the clutch control all the way back until it locks over center to disengage both clutches.

⚠ WARNING

Gasoline is extremely flammable and highly explosive under certain conditions. Always stop the engine and do not smoke or allow open flames or sparks when refueling. BE SURE to install fuel cap after refueling.

Remove fuel cap slowly. Fuel tank may be under pressure and could cause personal injury from spraying.

NEVER start or run the engine inside where exhaust fumes can collect. Carbon monoxide present in the exhaust is an odorless and deadly gas.

DO NOT operate equipment without shields in place. DO NOT make adjustments or perform any maintenance while the engine is running.

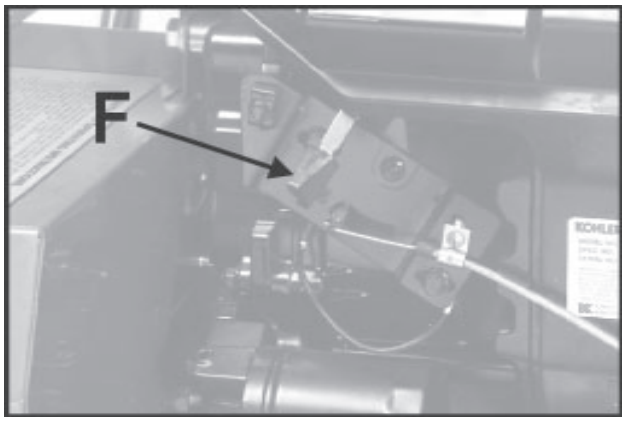
Immediately replace any warning decal which becomes illegible.

STARTING THE ENGINE

Before starting engine, check engine oil level. Fill if necessary following the engine manufacturer's recommendation for the type and amount of oil required.

Fill fuel tank with appropriate fuel recommended by the engines manufacturer.

1. Make sure the lift lever is in the raised position.
2. Make sure the clutch control is disengaged (engine will not start if the clutch control is engaged).
3. Move the throttle lever midway between fast and slow.
4. Use the choke as required to start a cold engine. Choke control **F** is located on the front of the engine.
5. Stand at side of unit placing left foot on top of housing and slowly pull the recoil starter until just past compression. Return starter handle, pull firmly with a smooth, steady motion to start.



DEPTH ADJUSTMENT

Loosen the locking nut. Turn the adjusting screw **G** clockwise (down) to raise reel from the turf, and turn the adjusting screw counterclockwise (up) to lower reel into the turf. Tighten locking nut **H** after each reel adjustment.

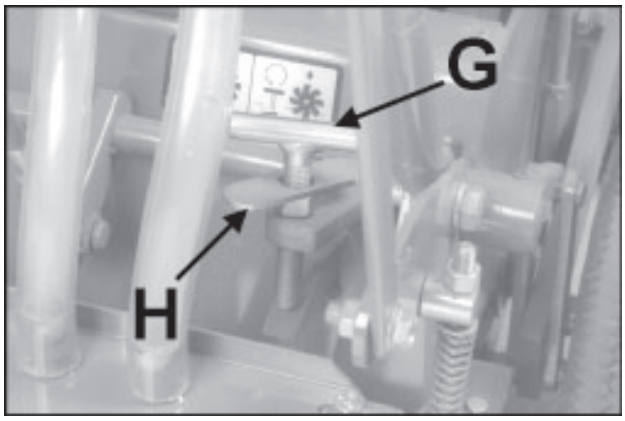
Low tire pressure may cause uneven reel penetration. Correct tire pressure should be maintained to eliminate this possibility (refer to the Tire Pressure section of this manual, for recommended tire pressure).

NOTE: The factory reel depth setting gives a maximum of 1/4" (6 mm) turf penetration on level terrain, and a reel to ground clearance of 1-1/2" (38 mm) when reel lift lever is in the transport (raised) position. Do not operate at turf depths exceeding 1/4" (6 mm).

Never cross hard surfaces or objects (sidewalks, driveways, stepping stones etc.) with reel blades down and/or engaged.

Increasing the depth of the reel blades will decrease ground clearance when the reel is in the raised position.

After adjusting to desired cutting depth, test run the unit to check for desired blade penetration.



OVERSEEDER OPERATION

1. Adjust reel to desired cutting depth, not to exceed 1/4" (6mm) maximum.

NOTE: Cutting depth exceeding 1/4" (6 mm) may be too deep for most seed and may prevent germination.

2. Make a test run to check for desired blade penetration.

3. Set the feed control cam **A** on the hopper according to the "Seed Feed Chart" located inside the hopper cover. Fill the hopper with seed.

4. Start the engine. Compress and hold the operator presence lever.

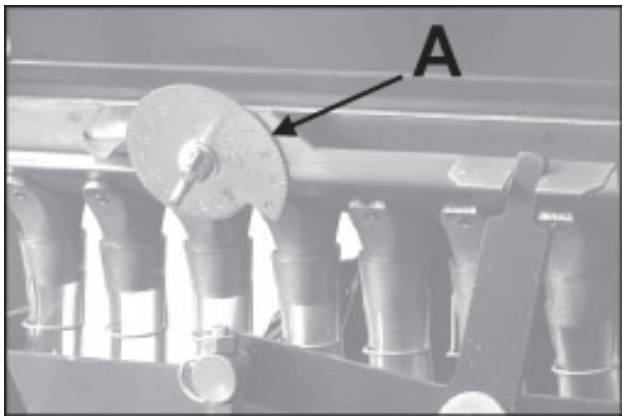
5. Pull back on the reel control lever and push the clutch control forward to engage both the reel and drive clutches. Adjust the throttle to the operator's desired walking speed.

6. Lower the reel **after** the unit is in motion, the seed gate opens automatically as the reel is lowered.

NOTE: To prevent damage to the turf, the unit should be in motion and the clutch control engaged **before** lowering reel onto the turf.

Never cross hard surfaces or objects (sidewalks, driveways, stepping stones, etc.) while the reel is down and/or engaged.

7. After each pass across the turf, raise the reel, disengage the clutch control and position the unit manually for the next pass (this will help prevent damage to the turf). Make all passes across the turf at uniform speed. Slightly overlap the area previously seeded to ensure complete coverage.



⚠CAUTION

Before operating, check area to be worked and remove any object(s) which may present a safety hazard and/or damage the equipment.

To prevent injury due to rotating blades, never place hands or feet beneath the equipment at any time.

To prevent injury from thrown blades, never operate equipment with reel blades that are cracked, badly bent, missing, or in any abnormal condition.

CROSSHATCH OVERSEEDING

Making two passes over the same area with the feed cam set at half the desired seed flow rate will provide faster fill in.

Make the first set of passes (parallel to each other) over the area in the normal manner but at half the seed feed rate.

Cover the same area again, but make the second set of passes at a 45° angle across the first set of passes, again at half the seed rate.

This will lay down the seed in a diamond pattern, resulting in better distribution and faster cover after germination.

DETHATCHING

For the de-thatching operation, make sure there is no seed in the hopper, **seed gate will still open during use.**

Whenever possible, a few test runs should be made on turf similar to where the unit will be used. This will allow preliminary adjustments to be made before entering greens (etc.) and help eliminate the possibility of turf damage due to misadjustments. Low tire pressure may cause uneven reel penetration. Correct tire pressures should be maintained to eliminate this possibility (refer to the Tire Pressure section of this manual, for recommended tire pressure).

1. Start the engine. Compress and hold the operator presence lever.

2. Pull back on the reel control lever and push the clutch control forward to engage both the reel and drive clutches. Adjust the throttle to the operator's desired walking speed.

3. Lower the reel **after** the unit is in motion, the seed gate opens automatically as the reel is lowered.

NOTE: To prevent damage to the turf, the unit should be in motion and the clutch control engaged **before** lowering reel onto the turf.

Never cross hard surfaces or objects (sidewalks, driveways, stepping stones, etc.) while the reel is down and/or engaged.

4. After each pass across the turf, raise the reel, disengage the clutch control and position the unit manually for the next pass (this will help prevent damage to the turf). Make all passes across the turf at uniform speed.

⚠CAUTION

Before operating, check area to be worked and remove any object(s) which may present a safety hazard and/or damage the equipment.

To prevent injury due to rotating blades, never place hands or feet beneath the equipment at any time.

To prevent injury from thrown blades, never operate equipment with reel blades that are cracked, badly bent, missing, or in any abnormal condition.

To keep the Mataway Overseeder in good operating condition, proper maintenance and immediate repair of any damaged part is necessary. Perform the following services, and follow procedures for proper storage.

⚠ WARNING

When replacement parts are required, use genuine RYAN parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or bystanders.

Any warning decal that becomes illegible should be replaced immediately.

Wear protective eye equipment when using hammer, chisels, punches and drills.

Carbon monoxide present in the exhaust is an odorless and deadly gas. Provide enough ventilation. Never start or run the engine inside where exhaust fumes can collect.

Stop engine and let cool before servicing or making adjustments around the engine area.

Use adequate lifting device to raise unit. Use appropriate jack stands to support unit.

PREVENTIVE MAINTENANCE

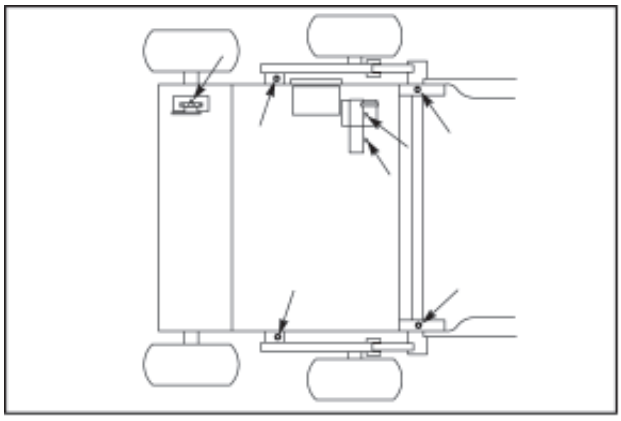
After each days use:

1. Wash unit with water after engine has cooled.
2. Check blades for damage (cracks, broken blades, etc.) replace if necessary. Make sure blades are free of debris and apply a light coat of oil to the blades to help prevent rust (any motor oil will work effectively).
3. Check engine oil level and air cleaner for dirt and/or obstructions. Service according to engine manual recommendations.
4. Check transmission case for proper oil level. The case holds 1/2 pint (.4L) when full. Use EP90w Oil.
5. Keep all belts free from dirt and oil.

LUBRICATION

The Mataway Overseeder has 7 lubrication fittings.

1. Wipe off each fitting before and after lubrication.
2. Use a good quality Lithium based lubricant.
3. Lubricate equipment after every 8 hours of use and before long storage periods.



TIRE PRESSURE

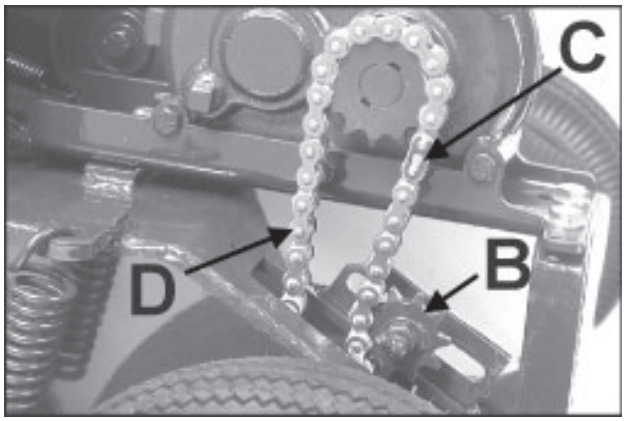
Keep the tires to the recommended pressure. Improper inflation will shorten the life of the tires and cause unsatisfactory operation.

Tires.....4.10 / 3.50 - 4, 2-ply
Tire Pressure.....24 to 26 PSI (165 to 179 kPa)

⚠CAUTION

Due to low air volume of tires, over-inflation can be reached in a matter of seconds. To prevent explosion, check air pressure with air gauge before filling the tire. Fill to recommended air pressure, and Do Not exceed the recommended pressure.

CHAIN REPLACEMENT

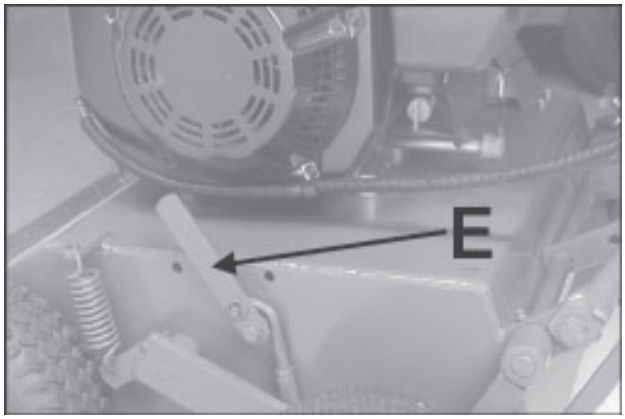


1. Remove the belt guards and the hopper drive belt.
2. Loosen the drive chain idler sprocket **B**.
3. Remove connecting link **C** and chain **D**.
4. Install new chain and connecting link.
5. Adjust the idler sprocket to allow approximately 1/8" (3 mm) to 1/4" (6 mm) of play in the chain (check for play on the straight section of chain opposite the sprocket). Tighten the idler sprocket hardware.

NOTE: Proper chain tension is essential. A tight chain will impose excessive bearing loads. A loose chain will cause noisy operation and chain pulsations, which may result in irregular sprocket speed and abnormal chain and sprocket wear.

6. Lubricate the fitting on the idler sprocket.
7. Reinstall the hopper drive belt and make sure all guards and covers are in place before using the unit.

REEL REMOVAL AND INSTALLATION



1. Tilt the unit forward and support the rear of the chassis with jack stands.

⚠CAUTION

Use adequate jack stands when supporting the unit. Failure to do so may result in personal injury.

2. Remove the lower belt guard from under the chassis by removing the screw at the front of the guard and swinging the guard down.

3. Release the reel clamps **E** on both sides of the unit by pulling the clamp levers back.

4. Lower the left end of the reel and remove the three belts from the pulley at the right end. Remove the reel. If the blades need to be replaced, refer to the section on reel blade replacement.

5. Reinstall the reel in the reverse order of removal.

⚠CAUTION

When reinstalling the reel, make sure the reel clamps lock "over-center". Failure to do so may allow the reel to work loose causing injury to the operator and/or bystanders.

REEL BLADE REPLACEMENT

NOTE: Note how the blades and spacers are arranged on the reel and the direction of the blades **before** disassembly so that it can be reassembled in the same manner.

1. On the end of the shaft opposite the pulley, loosen the set screw in the locking collar **A** on the reel shaft. Insert a punch in the small hole on the collar and use a hammer to tap the collar clockwise until it's loose (approx. 1/4 turn). Remove the collar and remove the pillow block and bearing **B**.

2. Loosen the socket head screw **C** in the reel nut **D** and remove the reel nut from the shaft.

3. Slide the blades and spacers off of the shaft.

4. Reassemble the reel with new blades.

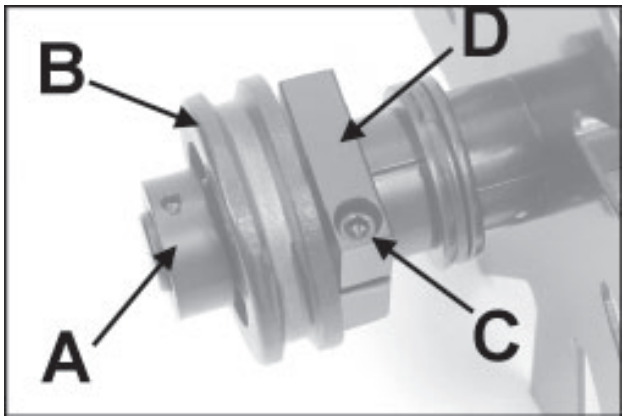
NOTE: When reassembling the reel, it is important to start and end with a spacer. DO NOT assemble with a blade next to the shaft nut.

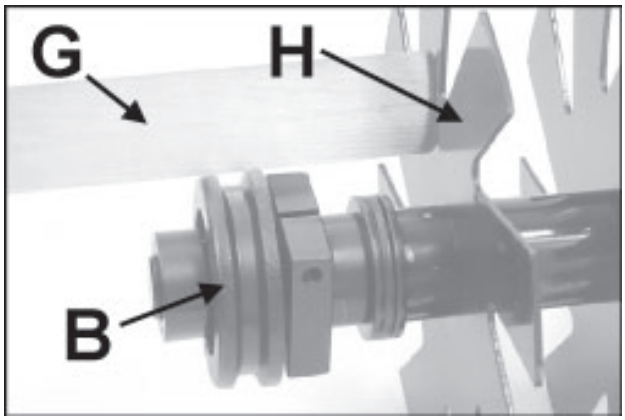
5. Make sure the socket head screw **C** in the reel nut **D** is just "snug" or about 1 to 2 ft.-lb. (1.5 - 3 N·m). Screw the nut onto the reel shaft and torque to 80 + 10 ft.-lb. (108 + 13 N·m). Make sure enough spacers are used to prevent the reel nut from contacting the shoulder of the hexagonal section of the shaft. Tighten the socket head screw to 10 to 12 ft.-lb. (13-16 N·m).

6. Install the pillow block with bearing **B** on the shaft. Slide the pillow block on until the outside edge of the block is 5/8" (16mm) from the end of the shaft.

7. The pillow block **B** must also be perpendicular to the shaft. To check this, hold a ruler **G** against the first blade **H** and across the edge of the pillow block. Rotate the pillow block by hand. If the edge of the pillow block does not appear to wobble (move back and forth) the pillow block is perpendicular.

8. Install the locking collar against the bearing by tapping it counterclockwise approx. 1/4 turn and tightening the set screw.





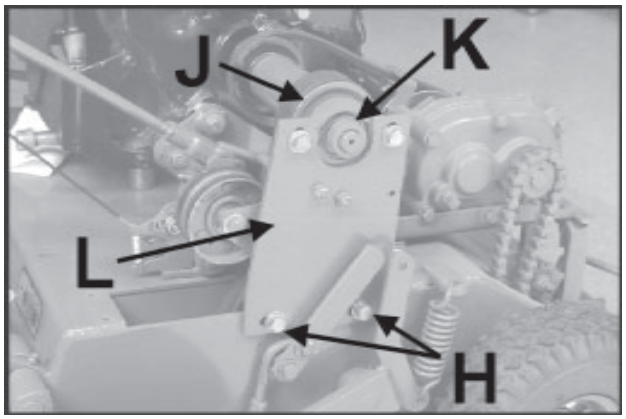
9. After the reel has been reinstalled (refer to the section on Reel Removal And Installation) readjust the blade height.

10. With the unit on a level surface, lower the reel, loosen the locking nut and turn the depth adjusting screw until the blades just touch the ground.

11. Raise the reel and turn the adjustment screw counterclockwise 3-1/2 turns to achieve 1/4" (6 mm) blade penetration.

NOTE: This unit is designed for a maximum of 1/4" (6 mm) turf penetration. Some seeds will not germinate at depths exceeding 1/4", and turf penetration exceeding 1/4" will shorten belt life.

After 4 hours of use, check reel nut for proper torque. The torque value for the reel nut is 80 ft.-lbs. + 10 ft.-lbs. (108 + 13 N·m).



REEL-BELT AND DRIVE-BELT REPLACEMENT

NOTE: Reel belts are serviced in matched sets of three belts. When replacement is required, always replace all three belts. It is a good idea to replace all belts (drive and reel) on the unit at the same time.

1. Remove the belt guards and the hopper drive belt.

2. Tilt the unit forward and support the rear of the chassis with jack stands.

⚠ CAUTION

Use adequate jack stands when supporting the unit. Failure to do so may result in personal injury.

3. Remove the lower belt guard from under the chassis and take out the reel. Remove the jack stands and lower the unit.

4. Loosen the set screw in the locking collar **K** on the drive shaft. Insert a punch in the small hole in the collar and use hammer to tap the collar clockwise (opposite direction of engine rotation) until it's loose (approx. 1/4 turn). Remove the collar.

5. Remove the bolts **H** securing the mounting plate **L**. Remove plate and the pillow block **J** (leave the pillow block attached to the mounting plate).

6. Remove all three reel belts.

NOTE: Inspect the drive belt to the transmission after the reel belts have been removed. Replacing the drive belt now will save work and down time at a later date.

7. Install new belts (matched set of three).

8. Before reinstalling the mounting plate **L**, loosen but do not remove the pillow block **J**.

9. Slide the pillow block bearing onto the shaft and loosely mount the plate to the chassis. Adjust the mounting plate **L** side-to-side so that there is no side load on the drive shaft. Tighten the mounting plate hardware **H**.

10. Reinstall the locking collar against the bearing. Tighten locking collar by rotating counterclockwise on pillow block shoulder. Using punch and hammer, lock collar into position. Tighten set screw.

11 Adjust the pillow block up and down until it is centered on the shaft. Tighten the pillow block hardware.

12. Rotate the drive shaft by hand to make sure there is no side load.

NOTE: Excessive side load on the shaft may cause engine crankshaft failure.

13. Check the reel belt pulley alignment. The measurement **A** should be 5/8" (16mm). If adjustment is required, loosen the set screw in the pulley and move the pulley in or out on the shaft.

NOTE: The pulley is secured to the shaft by set screw and key. It may need to be tapped with a hammer for adjustment. Use a plastic, rubber, lead or leather head hammer to avoid damaging the pulley.

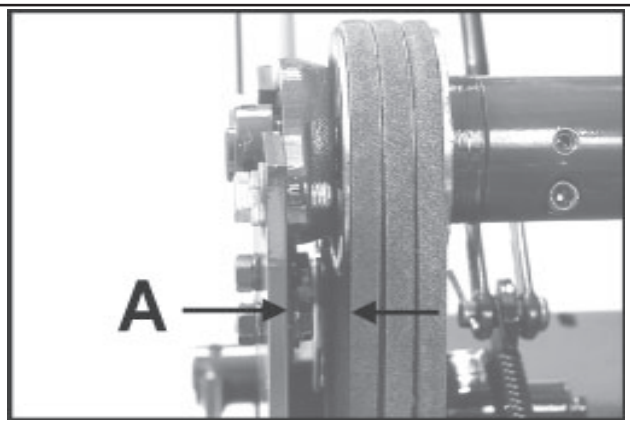
14. Support the unit on jack stands and reinstall the reel and belt guard beneath the chassis.

⚠CAUTION

Use adequate jack stands when supporting the unit. Failure to do so may result in personal injury.

15. Install the hopper belt and belt guards before operating the unit.

NOTE: Belts should be tight when the reel and drive are engaged and loose enough to slip when they are disengaged.

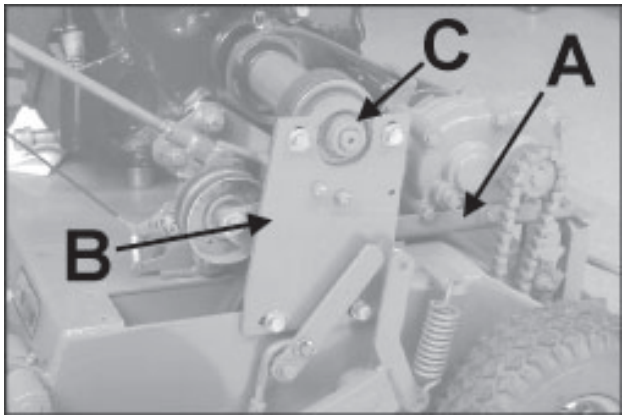


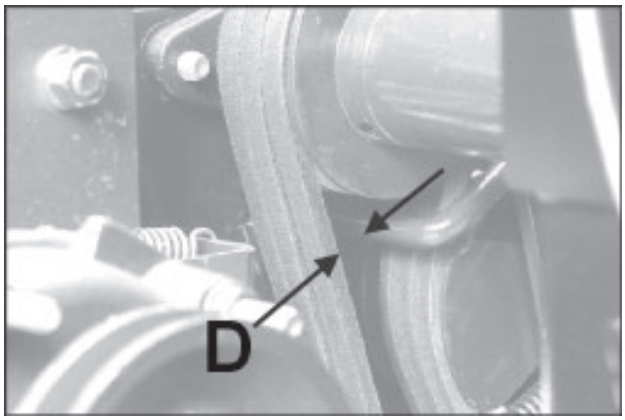
ADJUSTMENT FOR REEL AND DRIVE BELTS

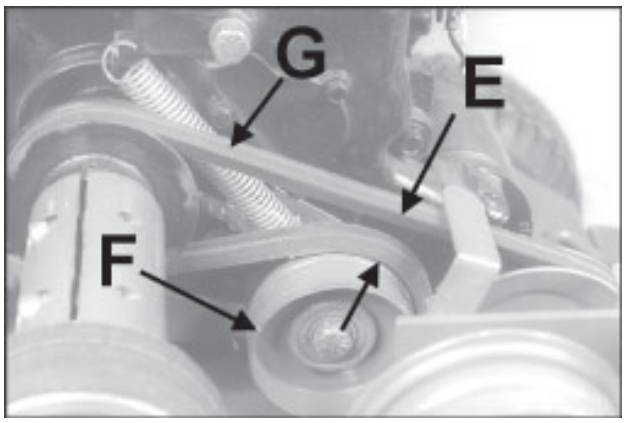
Over time, the belts will naturally need adjusting due to the use of the equipment. Inspect belts daily to ensure proper operation of the unit.

Before adjusting belts, make sure to:

1. Loosen the transmission mounting plate **A** and chain idler sprocket hardware.
2. Clean the underside of chassis to allow movement of the engine and loosen the engine mounting hardware.
3. Loosen the hardware securing the mounting plate **B** (supporting the reel drive pulley) and the pillow block.
4. Loosen the set screw in the locking collar **C** on the drive shaft. Insert a punch in the small hole in the collar and use a hammer to tap the collar clockwise (opposite direction of engine rotation) until it's loose (approx. 1/4 turn).
5. Make sure the springs are in place on the drive belt idler arm and the reel belt idler arm.
6. Slide transmission and mounting plate toward the rear of unit as far as possible. Tighten transmission mounting hardware.
7. Position engine so it is square with the chassis and tighten either the two front or the two rear mounting screws.
8. Engage the reel drive clutch. Measure the distance between the reel drive belts and the forward edge of the idler assembly belt stop. Measurement **D** should be 3/4" (19 mm). If necessary, reposition engine to obtain proper dimension.
9. Engage the drive clutch. Measure the distance from the top edge of the idler pulley **F**, to the top edge of the drive belt **G**. The measurement **E** should be 1-3/4" to 2" (44 to 51 mm).
10. If measurement is less than 1-3/4" (44 mm) slide transmission forward until proper dimension is obtained.







11. If the measurement is over 2" (51 mm) slide the engine forward to obtain correct measurement. If the engine has to be moved, check the reel belt measurement again for proper dimension.

NOTE: Reel and drive belt adjustments are guidelines only. The reel drive belts should engage without slipping and disengage completely. The drive belt should engage without slipping and disengage so that the unit will not creep.

12. Tighten engine and transmission mounting hardware securely. Slide chain idler sprocket against the drive chain until there is 1/8" to 1/4" (3 to 6 mm) play in the chain opposite the sprocket and secure hardware.

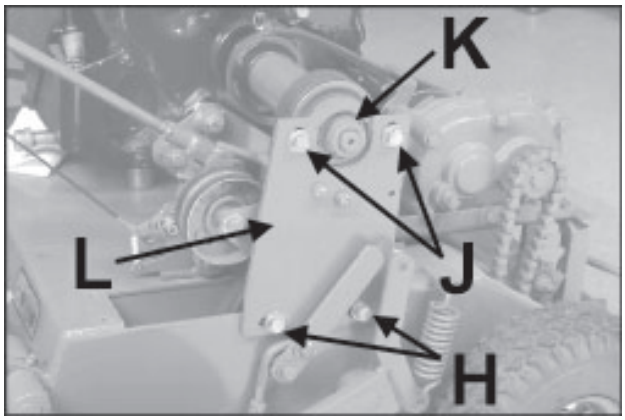
13. Using a straight edge, align the belt drive pulley on the transmission with the drive pulley on the engine. Loosen the set screw on the transmission pulley and slide it in or out to achieve proper alignment.

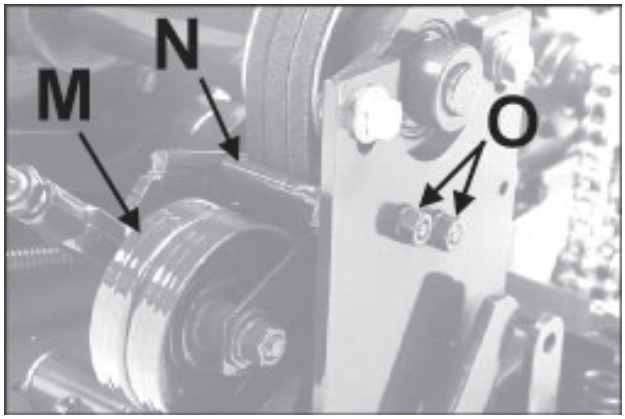
14. Align the mounting plate **L** so that it is perpendicular to the chassis and the pillow block bearing is centered on the coupler shaft. Tighten the two plate mounting screws **H** at the bottom of the plate.

15. Align the pillow block bearing with the coupler shaft so that there is no vertical or side load on the shaft and tighten the pillow block mounting hardware. Torque the pillow block screws to 25 ft.-lbs. (34 N·m).

16. Tighten locking collar **K** on engine coupler shaft. Rotate collar counterclockwise on pillow block shoulder. Using hammer and punch, lock collar into position. Tighten set screw in collar **K**.

17. Engage reel drive clutch. Check the clearance from the idler pulley **M** to the belt stop **N** bolted to the mounting plate, clearance should be a minimum of 1/16" (2 mm). If necessary, loosen the belt stop hardware **O** and reposition it. Tighten hardware.

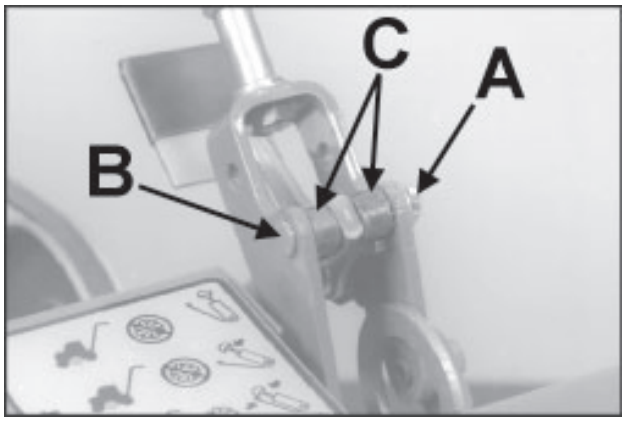




18. Check clutch control for positive over-center action in disengaged position. Adjust rod length if necessary.

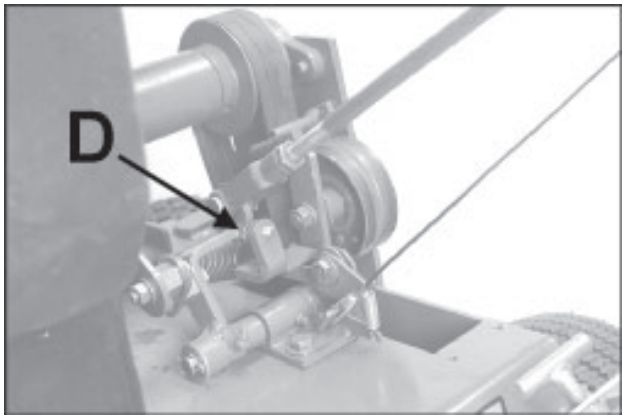
19. To adjust rod length to achieve positive over-center locking, loosen the jam nut on top of the clevis at the bottom of the clutch lever.

20. Remove the cotter pin **A** and clevis pin **B**, and the two bushings **C** on the control handle. Turn the rod to shorten or lengthen the rod as required and reattach the rod to the handle with the clevis pin.



21. Double check to ensure over-center locking action. When proper locking action is obtained, completely assemble control handle and tighten jam nut.

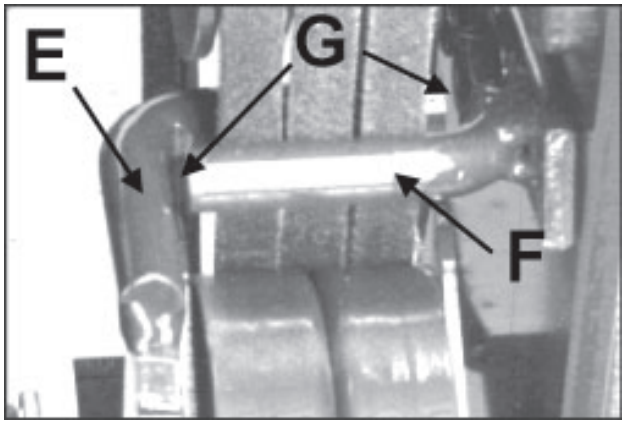
22. Engage and disengage clutch control lever several times and check to see that belt stops work properly. The belts should be held firmly, but not pinched severely, with reel drive lever disengaged.



NOTE: Overtight belt stops will cause undo wear on reel drive belts.

23. Belt stop tension on the reel belts can be adjusted by loosening the screw **D** in the reel belt idler assembly and screwing it in or out to adjust the tension on the idler arm when it is in the disengaged position.

24. Disengage the clutch lever. Check the tips of the two belt stops **E** & **F**. The gap **G** should be a minimum of 1/32" (1 mm) between the tips of the stops. If necessary, loosen reel idler pivot plate and adjust accordingly.

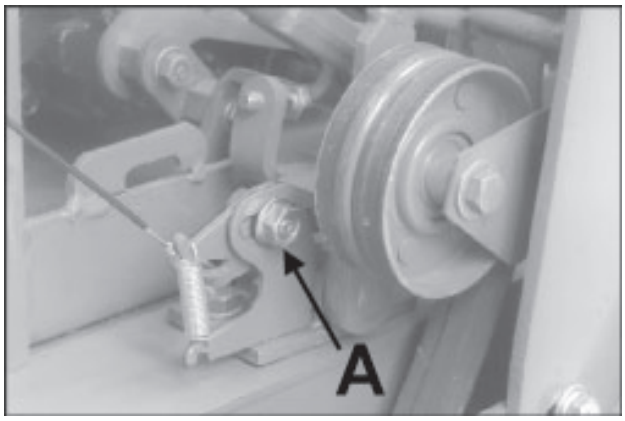


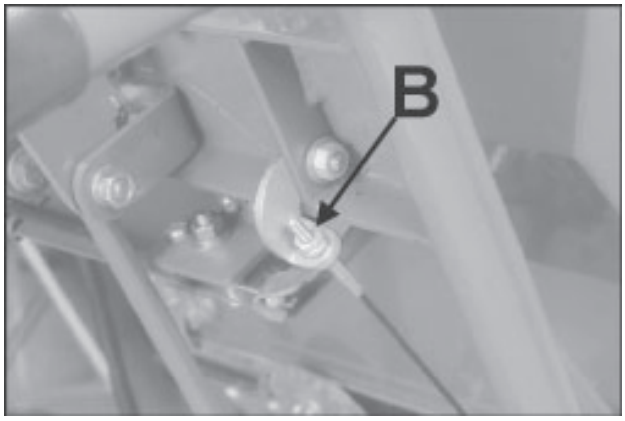
25. The belt stops should be perpendicular to the reel belts and parallel to each other. Make sure reel drive idler pulley is centered and aligned over reel drive belts.

HOOK AND CABLE ADJUSTMENT

1. Loosen the hardware securing the hook **A**. Slide the hook in the slot so that it captures the reel idler assembly when the clutch control is disengaged. When only the drive clutch is engaged, the hook should hold the reel idler assembly back far enough that the reel belts will not engage. Retighten the hook mounting hardware.

2. After the hook has been adjusted. Loosen the two jam nuts **B** at the top of the cable. Adjust the bottom nut to take up any slack in the cable. Be careful not to overtighten the cable or the hook may not hold the reel idler assembly. Use the top nut to lock the lower nut into place.





HOPPER DRIVE PULLEY SPROCKET ADJUSTMENT

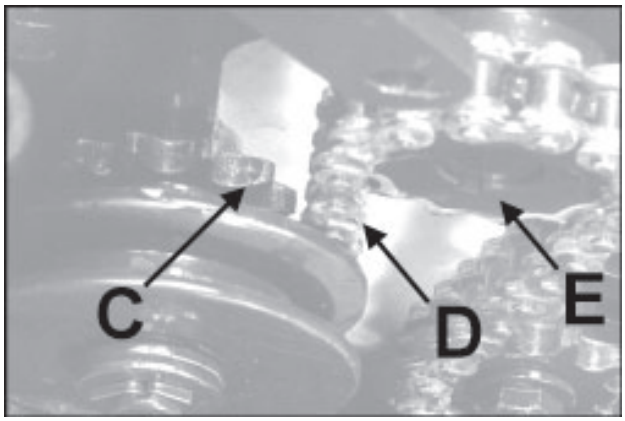
With the belt covers removed, raise and lower the reel using the Reel Lift Lever, and check to make sure the sprocket **C** on the inside of the hopper drive pulley properly engages the drive chain **D** from the transmission.

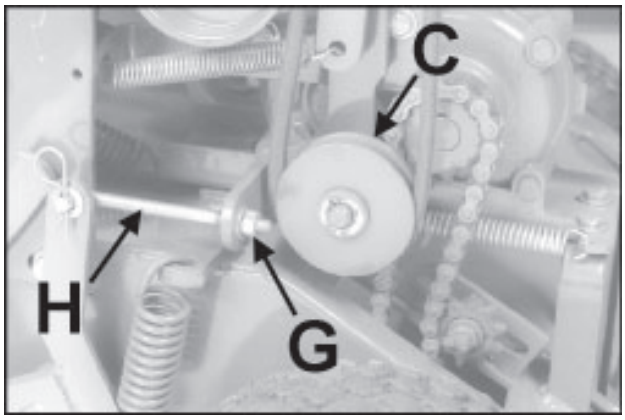
1. If the pulley sprocket **C** does not align with the chain **D**, the set screw in the drive sprocket **E** on the transmission can be loosened, and the sprocket moved in or out on its shaft to align the chain with the pulley sprocket.

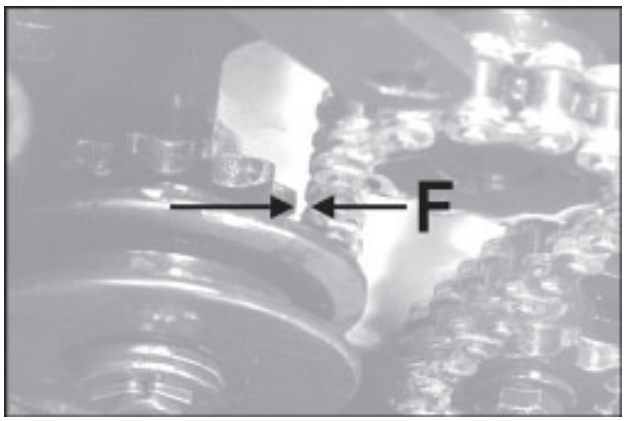
2. If the pulley sprocket is aligned with the chain but does not engage the chain fully, raise the reel and check the chain tension for the proper 1/8" to 1/4" (3 to 6mm) play.

3. If the chain tension is correct, lower the reel and loosen the nut **G** on the hopper pulley adjustment rod **H** until the sprocket **C** fully engages the chain.

4. To make sure the pulley sprocket fully disengages the chain, raise the reel, and check for clearance **F** of approximately 1/8" (3 mm) between the sprocket and chain.

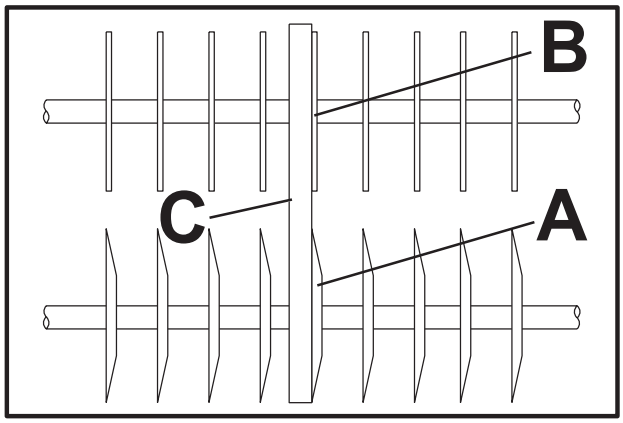






DISC ALIGNMENT

1. Tip unit forward and place on jack stands. Check the disc/blade alignment by placing a straight edge **C** against the concave side of the either the fifth or sixth disc **A** and the corresponding blade **B** on the reel. The straight edge should lie flat against both disc and blade.



⚠ CAUTION

Use adequate jack stands when supporting the unit. Failure to do so may result in personal injury.

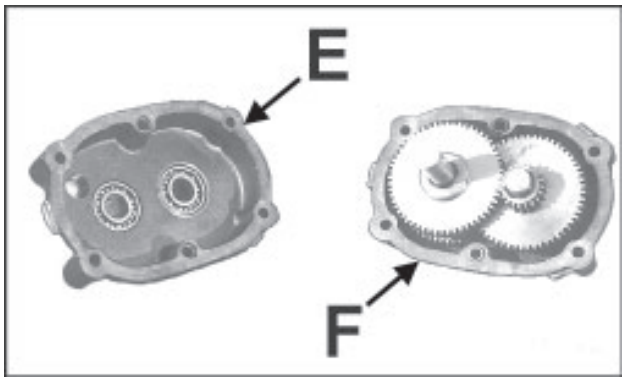
2. The discs can be aligned with the blades by loosening the two locking collars just inside the bearings at either end of the disc shaft. Loosen the set screws and tap the collar clockwise (with hammer and punch) to unlock, then move the entire shaft until the discs align with the blades. Lock the collars against the bearings and tighten the set screws.

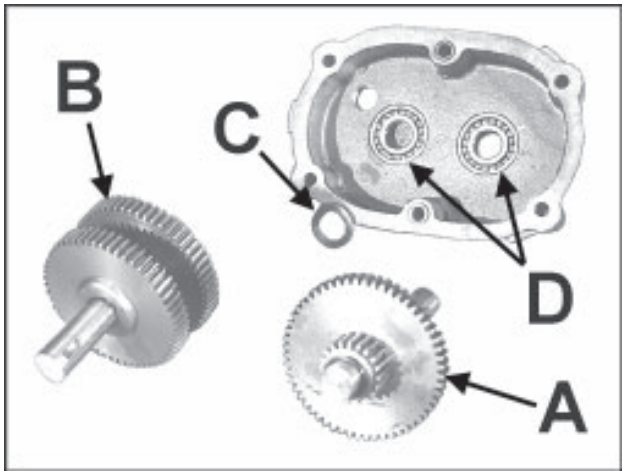
TRANSMISSION GEAR REPLACEMENT

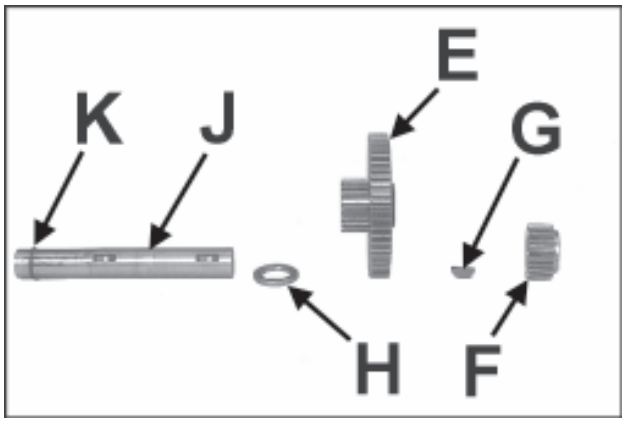
1. Remove the transmission from the unit.
2. Remove the sprocket, pulley and keys.
3. Remove the plug and drain the oil from the gear case.
4. Remove the the remaining hardware. Take note of which side is the input side and which is the output side so that they can be reassembled correctly. Using a soft hammer, tap case on the tabs to break the seal, and pull halves **E** & **F** apart.
5. Remove the input shaft **A**, output shaft **B** and spacer **C**. Also remove the bearings **D** and grease seals.
6. Install new bearings into both case halves. **DO NOT** install new grease seals at this time.

INPUT SHAFT

7. Remove large double gear **E**, small gear **F**, key **G**, and spacer **H** from input shaft **J**.
8. Check the input shaft for wear and replace if necessary (if shaft needs to be replaced, install the existing snap ring **K** on new shaft). If the shaft is NOT replaced, remove any burrs from keyways and/or shaft ends if necessary.
9. Replace bushings in the large double gear **E** (or replace gear if necessary). When replacing bushings, make sure they are flush with the edge of the gear and that the oil holes on gear are aligned.
10. Install the spacer **H** onto shaft against the snap ring **K**. Install the large double gear **E**, with the small gear side against the spacer.
11. Install key **G** into keyway and slide the small gear **F** (flat side toward the larger gear) onto the shaft.







OUTPUT SHAFT

12. Remove large gear **L** , large double gear **M** and key **N** from shaft **P**. Check the shaft for wear and replace if necessary (if shaft needs to be replaced, install the existing snap ring **O** on new shaft). If the shaft is NOT replaced, remove any burrs from keyways and/or shaft ends if necessary.

13. Replace bushings on large double gear **M** (or replace gear if necessary). When replacing bushings, keep the bushings flush with the edge of the gear. Be sure oil holes on gear are aligned.

14. Install key **N** and large single gear **L** onto shaft **P** (be sure the deep-step side of gear is toward snap ring **O**).

15. Slide the large double gear **M** onto shaft, with the small gear toward the large single gear.

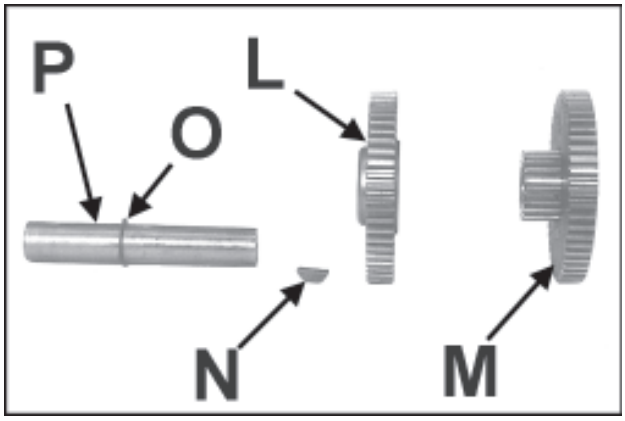
16. Install spacer onto output shaft.

17. Clean the old gasket material from the case halves.

18. Install the input and output shafts into the gear case half, making sure the spacer on the output shaft remains in place.

19. With shafts in gear case half, turn either shaft to make sure gears are turning. This will ensure the keys are properly set.

20. Apply Loctite 515 sealant (or equivalent) to case halves. Make sure the spacer bushings are in the center top and bottom holes of the case half.



21. Position transmission onto the mounting bracket with the drain plug facing to the outside of unit. Reinstall the six screws removed during disassembly. Secure all six screws and torque to 16 + 2 ft.- lbs. (21.5 N·m).

22. Apply 30w oil onto the lips of the new grease seals. Install the seals, drive pulley, and sprocket.

23. With the gear case resting level on the mounting bracket, fill transmission with EP90w oil until the oil reaches the bottom of the threads in the plug hole. Install plug (use a teflon based thread sealer on the threads). The transmission will hold 1/2 pint (.4L) of oil.

24. Check the alignment of the belt pulley and chain sprocket. If necessary, loosen the set screws securing the pulley and sprocket to the shaft and position each until properly aligned. If alignment cannot be reached refer to the previous instructions for adjustment of belts and chain.

STORAGE INSTRUCTIONS

⚠ WARNING

To prevent possible explosion or ignition of vaporized fuel, do not store equipment with fuel in tank or carburetor in enclosure with open flame (for example, a furnace or water heater pilot light).

Do not smoke, avoid sparks and open flames when draining or filling the fuel tank.

Before the equipment is put in to storage for any period exceeding 30 days, the following steps should be taken.

1. Drain all fuel from the fuel tank and fuel lines.
2. Start the engine and run until all the fuel is used from the carburetor float bowl.
3. While engine is warm, drain the crankcase oil and replace it with the proper weight oil corresponding to the season the unit will next be used. Refer to the engine manual for proper oil recommendations.

⚠ CAUTION

Do not attempt to service or make repairs near the engine area while the engine is still hot.

4. Remove the spark plug and squirt a small amount of clean motor oil into the cylinder. Turn the engine over a few times to distribute the oil and reinstall the sparkplug.
5. Lubricate all lubrication fittings.
6. Apply a light coat of oil to the blades and reel shaft to prevent rust.
7. Lubricate drive chain with Lubriplate #13563 or equivalent.

NOTE: Do not store unit with blades in the down position. Be sure all belts are free from tension (the clutch control lever in the disengaged position).

To put the equipment into service after an extended period of storage:

1. Move unit to a level, well ventilated area.
2. Check unit for loose hardware and broken parts. Tighten and replace as necessary.
3. Check for cracked or split fuel lines.
4. Make sure the air cleaner filter is clean.
5. Check that the air cleaner components and all shrouds and belt covers are in place.
6. Check spark plug and plug wire.
7. Note if any blades need replacing.
8. Determine if the transmission and engine oil need filling. Refill engine oil according to the manufacturers recommendations, and refer to the Preventive Maintenance section of this manual for correct oil weight and amount for the transmission.
9. Fill the tank with appropriate fuel as recommended by the engine manual.

⚠ WARNING

Do not smoke, avoid sparks and open flames when draining or filling the fuel tank.

10. Make sure controls are in the disengaged or neutral position.
11. Start engine and let run (at slow speed) until approximate operating temperature has been reached.
12. While engine is running (and has reached operating temperature) visually inspect fuel lines and carburetor for leaks. If a leak is found, make sure the engine has cooled sufficiently before attempting any repairs.

TRANSPORTING

The unit may be transported under it's own power. With the lift lever up and the clutch control disengaged, start the engine and compress and hold the operator presence lever. Engage only the drive transmission clutch by pushing the clutch control forward **without** pulling the reel control lever back. Set the throttle to the operator's desired walking speed.

The unit may be loaded into the back of a truck or trailer using a gradual sloped ramp and operating the unit in the same manner as stated previously.

⚠WARNING

Use adequate lifting device and/or assistance when loading and unloading unit. If loading by ramp, be sure ramp is properly supported.

Keep hands and feet from underneath the unit while operating or ramp loading the unit.

SPECIFICATIONS

Front axle..... ... 3/4" (19 mm) diameter mounted in self-aligning ball bearings
Rear axle..... 3/4" (19 mm) diameter welded to pivot arms

Blades.....High carbon steel (hardened)

Chassis.....3/16" (5 mm) formed and welded steel plate

Clutch.....Belt tightener type for reel and forward travel

Controls.....Throttle control, lift lever combined drive and reel clutch lever

Depth Adjustment.....Micrometer screw

Depth of Cut.....Up to 1/4" (6 mm)

Dimensions:
Width.....36" (91cm)
Height.....44" (112cm) including handle
Length.....53" (135cm) including handle
Wheelbase.....16 1/2" (42cm)
Width of cut.....19" (483 mm)

Net Weight.....425 lbs. (195 Kg) with 547553 Reel

Gear Case.....22 to 1 reduction

Speed...246 ft./min.(74m/min.) at 3200 engine r.p.m.

Drive....."A" section belt from engine to gear box
No. 40 sealed roller chain from gearbox to front axle
Matched set of 3, V section belts from engine to reel

Engine.....Model No. CH11T, 11 H.P. Kohler Kohler specification number PS - 1630. Governor set at 3200 r.p.m. (no load). Engine displacement is 24.3 cu. in. (398 cc) and develops 20.2 ft.-lbs. (27.4 N·m) of torque at 2000 r.p.m.

Hopper Capacity.....0.83 cu. ft. (0.0235 cu. m)

Reduction.....Engine to reel - 1:1
Engine to wheels - 36:1

Reel.....Quick change mounting
Rotation in opposite direction of forward motion

Seed Density.....Adjustable for seed type

Seed Flow Control.....seed dispensed automatically when unit is lowered, stops when reel is raised.

Seed Spacing.....seed rows 2" (50mm) apart

Reel Speed.....3200 r.p.m.

Wheels.....Front; 4.10/3.50 - 4, pneumatic tires chain driven
Rear; 4.10/3.50 - 4 pneumatic tires free wheeling on self-aligning ball bearings.

PARTS SECTION

FIGURE 1

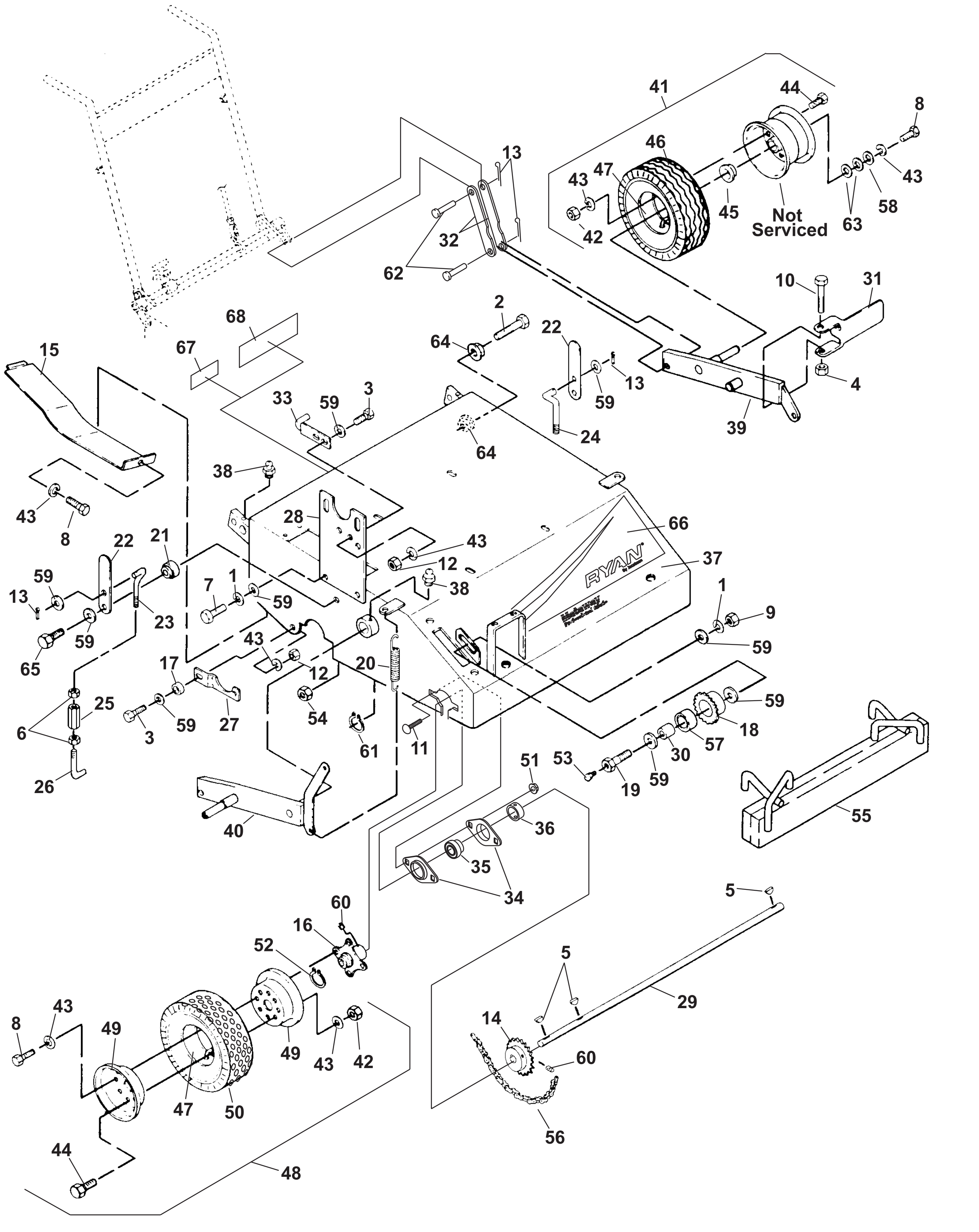


FIGURE 1

ITEM	PART NO.	DESCRIPTION	QTY
1-1	64006-03	WASHER, 3/8 HELICAL LCK	3
1-2	64123-82	BOLT-HEX 3/8-16X2-1/2	1
1-3	64123-107	BLT-HEX 5/16-18X7/8	4
1-4	64151-15	5/16-18 HEX NUT CNTRLCK	2
1-5	64164-19	KEY WOODRUFF.19X.75 #9	3
1-6	64001-2	NUT-JAM 3/8-24	4
1-7	64123-50	BOLT-HEX 3/8-16X1	2
1-8	306555	SCREW, 5/6-18 X 5/8	11
1-9	64025-05	NUT-3/8-16 HEX	1
1-10	64123-104	BLT-HEX 5/16-18X2-3/4	2
1-11	64018-9	BLT-CRG 5/16-18X3/4 G5	4
1-12	64025-02	NUT-HEX 5/16-18	2
1-13	306956	COTTER PIN	6
1-14	841261	SPROCKET, 16T 1/2P BLK	1
1-15	516825	GUARD	1
1-16	516944	HUB	2
1-17	517226	BRG,SLV .33 .50 .20 IRON	2
1-18	517348	SPROCKET	1
1-19	517641	SCRW,SPCL.38-16 1.75 HX	1
1-20	518506	SPRING	2
1-21	519038	BUSHING	2
1-22	519039	LEVER	2
1-23	519040	HOOK, UPPER RIGHT	1
1-24	519041	HOOK, UPPER LEFT	1
1-25	519042	NUT	2
1-26	519043	CLAMP, ROD LOWER	2
1-27	519045	CLAMP, REEL	2
1-28	519057	PLATE	1
1-29	519059	SHAFT,FRONT	1
1-30	519874	RACE,INNER	1
1-31	522714	SCRAPER, WHEEL	2
1-32	524508	LINK, LIFT	4
1-33	547743	STOP, BELT	1
1-34	548962	HOUSING,BEARING	4
1-35	521856	BEARING,BALL	2
1-36	521857	COLLAR,BRG LOCKING	2
1-37	540195	FRAME	1
	(INCLUDES ITEM 38)		
1-38	548224	FITTING,GREASE 1/4 SPC	4
1-39	540236	ARM, LEFT	1
1-40	540237	ARM, RIGHT	1
1-41	4124194	WHEEL, 4.10/3.50-4 2PLY	2
	INCLUDES ITEMS 42-47)		
1-42	306320	NUT-5/16-24	4
1-43	64006-02	LOCKWSHR-HELICAL 5/16	4
1-44	306861	SCRW,.31-24.625 YS HX	4
1-45	548123	BEARING, WHEEL	2
1-46	548543	TIRE-4.10/3.50-4, 2 PLY	1
1-47	548546	TUBE	1
1-48	4124197	WHEEL ASSY	2
	(INCLUDES ITEMS 42-44, 47, 49 & 50)		
1-49	517332	RIM	1
1-50	523264	TIRE	1
1-51	64141-6	NUT, 5/16-18	4
1-52	64144-02	SNAP RING 3/4	2
1-53	807443	FTG, GREASE 45D.25-28	1
1-54	64151-18	NUT, HEX	2
1-55	547634	WEIGHT AY	1
1-56	523477	CHAIN,SEALED ROLLER	1
	(INCLUDES 522122 LINK CONNECTOR)		
1-57	521845	BEARING,NEEDLE	1
1-58	64163-55	WASHER .328X.75X14 GA	2
1-59	64163-61	WSHR .81X.406X16GA	13
1-60	548201	SETSCREW, 5/16-18 X 5/16	6
1-61	64144-03	SNAP RING 7/8"	2
1-62	548456	PIN,CLEVIS.438 1.25 YS	4
1-63	548477	WASHER	4
1-64	64141-4	NUT-WLF 3/8-16	2
1-65	64123-87	BOLT-HEX 3/8-16X1-3/4	2
1-66	4124319	LABEL-FRONT, MATAWAY	1
1-67	524544	DECAL,REEL HEIGHT ADJ.	1
1-68	869081	DECAL,DANGER	1

FIGURE 2

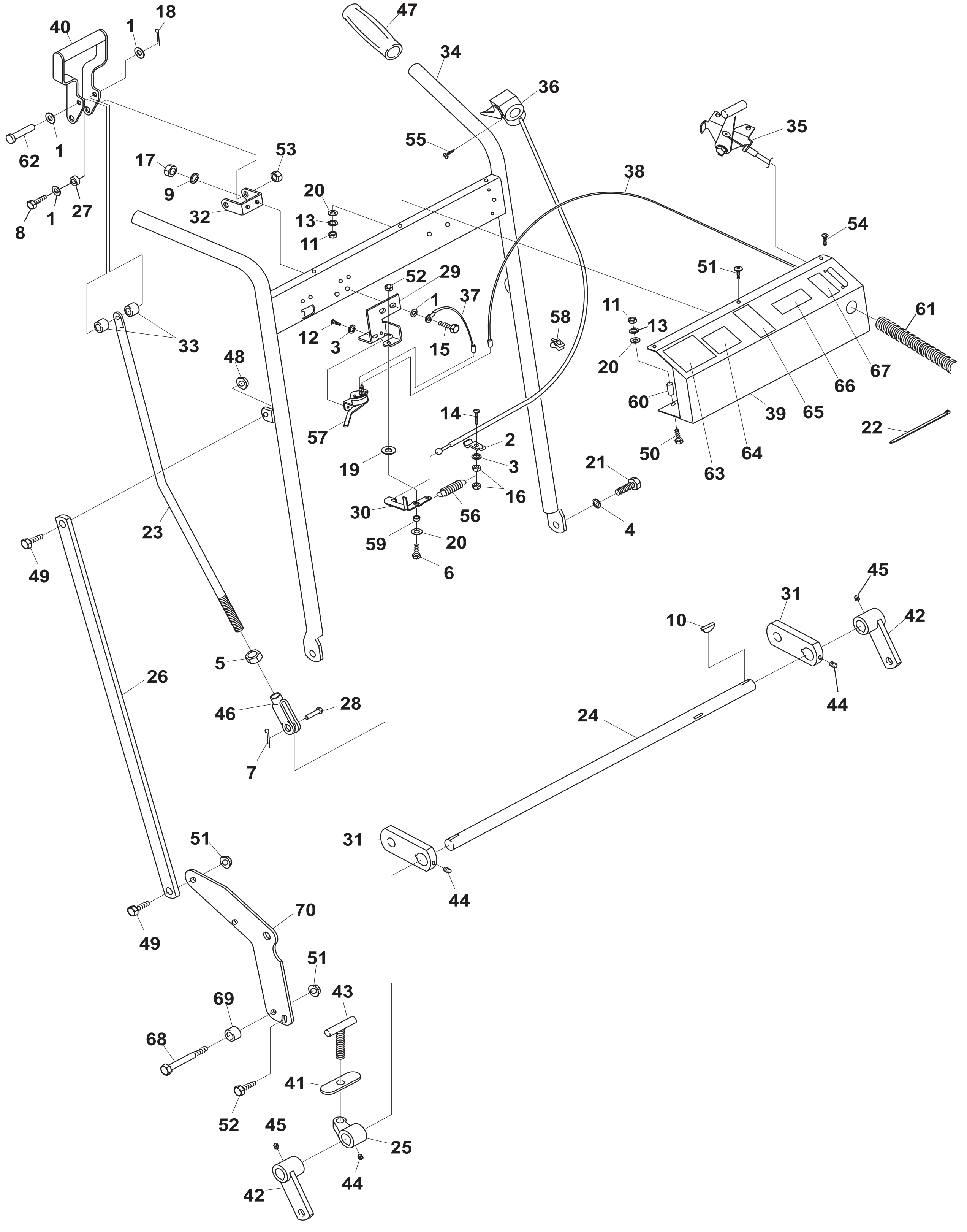

40
1
18
47
34
36
35
62
1
17
53
55
38
9
20
8
1
27
32
13
11
54
52
29
51
37
1
11
61
12
3
15
58
13
33
48
20
67
66
60
39
65
14
57
2
22
19
3
50
64
21
63
16
30
56
59
20
4
23
49
6
45
31
42
10
44
5
26
28
46
24
7
51
31
44
70
49
51
43
69
68
41
52
45
25
44
42

FIGURE 2

ITEM	PART NO.	DESCRIPTION	QTY
2-1	64163-55	WASHER .328X.75X14 GA	6
2-2	111898	CLAMP,CABLE	1
2-3	120052	LOCKWASHER	3
2-4	64006-05	LOCKWSHR-HELICAL 1/2	2
2-5	64001-10	NUT-HEX JAM 7/16-20	1
2-6	64123-89	BOLT-HEX 1/4-20X3/4	1
2-7	304636	COTTER PIN, 12 x 1.12 YS	1
2-8	64123-107	BLT-HEX 5/16-18X7/8	2
2-9	64006-02	LOCKWSHR-HELICAL 5/16	2
2-10	64164-19	KEY WOODRUFF.19X.75 #9	5
2-11	64025-01	NUT-1/4-20 HEX	6
2-12	306391	SCRW,#10-32.31 YS	2
2-13	64006-01	LOCKWSHR-1/4 HELICAL	6
2-14	306401	SCREW, MACHINE-RNDHD	1
2-15	64123-68	BOLT-HEX 5/16-18X1	2
2-16	306531	NUT, 10-24 YS HEX	2
2-17	64025-02	NUT-HEX 5/16-18	2
2-18	306956	COTTER PIN	1
2-19	64163-55	WASHER .328X.75X14 GA	1
2-20	64163-03	WSHR-.256X.62X18GA.	6
2-21	64123-73	BLT-HEX 1/2-13X1	2
2-22	65286-4A	TIE,CABLE 11-5/8 BLACK	2
2-23	515838	ROD, CONTROL	1
2-24	516855	SHAFT	1
2-25	516859	LEVER, ADJUSTING	1
2-26	516972	BRACE	2
2-27	521679	BUSHING	2
2-28	548456	PIN,CLEVIS.438 1.25 YS	1
2-29	524490	MOUNT,SWITCH (PLATED)	1
2-30	524493	ARM,PIVOT	1
2-31	524513	ARM, LIFT	2
2-32	524526	BRACKET, LIFT HANDLE	1
2-33	524578	BUSHING, .328X.63X.6	2
2-34	540242	HANDLE AY	1
2-35	540243	CONTROL AY,THROTTLE	1
2-36	540245	CONTROL AY,KILL SWITCH	1
2-37	540265	WIRE AY, 7.5"	1
2-38	540266	WIRE AY, 75"	1
2-39	540272	COVER, CNTRL W/DECALS	1
2-40	2702291.2	HANDLE AY	1
2-41	2702111	HANDLE AY,LOCKING PLTD	1
2-42	2702295.2	ARM AY,FRAME LIFT	2
2-43	546321	SCREW AY, ADJUST PLTD	1
2-44	548201	SETSCREW, 5/16-18 X 5/16	3
2-45	548204	SSCRW,.38-16.38 BS NH	2
2-46	548507	CLEVIS	1
2-47	548518	HAND GRIP	2
2-48	64141-4	NUT-WLF 3/8-16	2
2-49	548905	SCREW, .38-16 1.00 YS	4
2-50	800024	SCRW,.25-20 1.50 YS	1
2-51	800026	SCREW, .25-20.75 YS	4
2-52	64151-17	LOCKNUT, HEX	1
2-53	64151-15	5/16-18 HEX NUT CNTRLCK	2
2-54	819195	TSCRW,#8-18.50 YS	2
2-55	800896	TSCRW,.190-24.75 YS	1
2-56	805421	SPRING,EXTENSION	1
2-57	806800	SWITCH,STOP LIGHT	1
2-58	813840	CLIP	1
2-59	814585	BUSHING	1
2-60	820529	SPACER (PLATING)	1
2-61	826190	TUBING, CONVOLUT 50'	A/R
2-62	826633	PIN,CLEVIS.31 2.38 ZS	1
2-63	524496	DECAL,CONTROL DRIVE	1
2-64	524497	DECAL,CONTROL REEL	1
2-65	00903491	DECAL, OPERATING INSTR	1
2-66	524547	DECAL,WARN-HEARING	1
2-67	524564	DECAL,THROTTLE	1
2-68	64123-100	BOLT-3/8-16X2-1/4 HEX	2
2-69	522638	BUSHING, PIVOT	2
2-70	524517	PLATE, MOUNTING	2

FIGURE 3

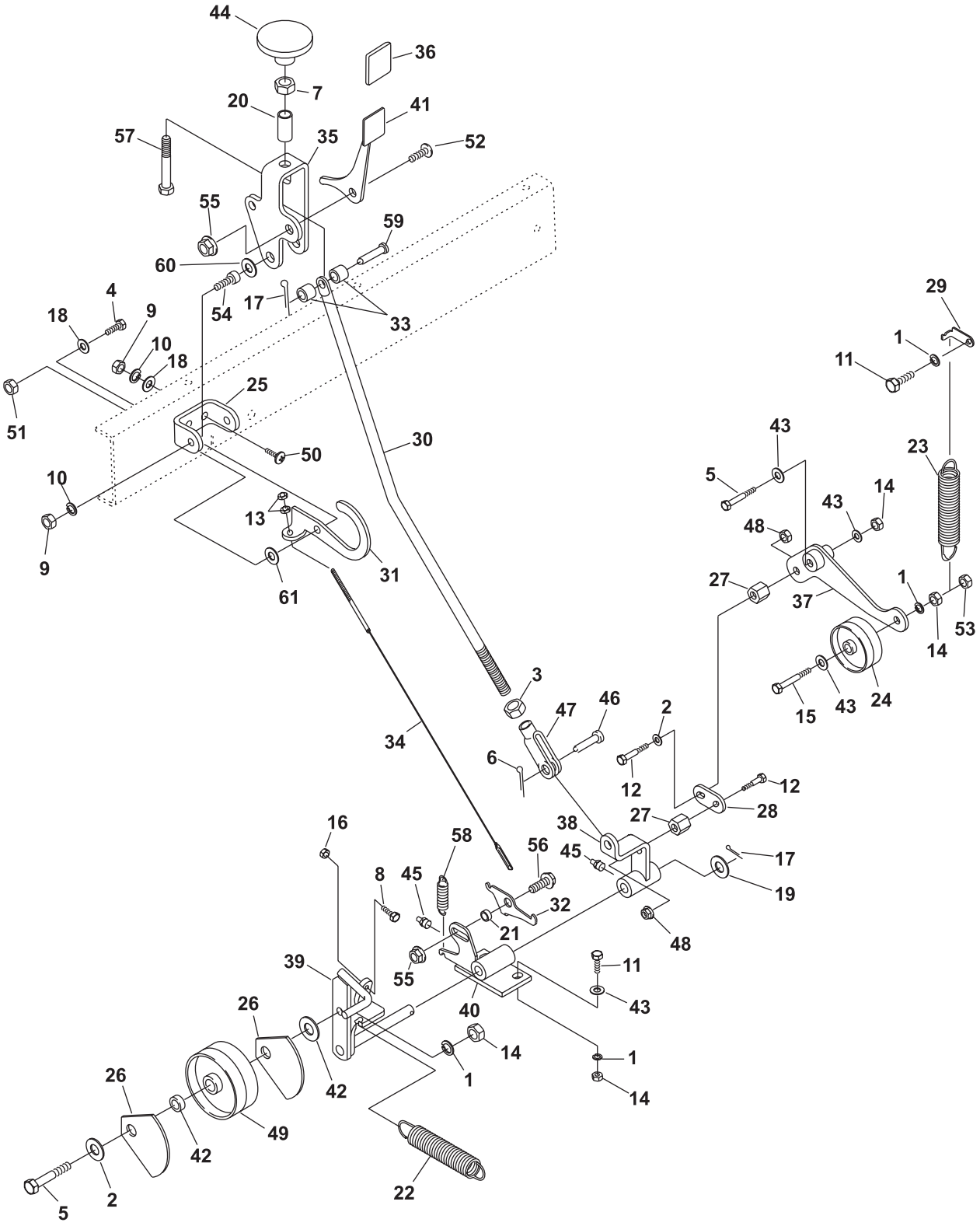

44
36
7
20
41
57
35
52
55
59
60
54
17
33
4
18
9
10
18
25
51
50
30
10
9
13
31
61
34
3
47
46
6
2
12
12
27
28
38
16
58
56
45
17
19
8
45
32
21
48
39
55
11
43
26
40
14
1
42
1
14
26
49
42
5
2
22
29
1
11
43
23
5
14
43
48
27
37
1
53
14
15
43
24

FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY
3-1	64006-03	WASHER, 3/8 HELICAL LCK	5
3-2	64163-55	WASHER .328X.75X14 GA	3
3-3	64001-10	NUT-HEX JAM 7/16-20	1
3-4	64123-89	BOLT-HEX 1/4-20X3/4	1
3-5	64123-82	BOLT-HEX 3/8-16X2-1/2	2
3-6	304363	PIN, COTTER 1/8X1-1/8	1
3-7	64025-04	NUT-3/8-24 HEX	1
3-8	64123-107	BLT-HEX 5/16-18X7/8	1
3-9	64025-01	NUT-1/4-20 HEX	3
3-10	64006-01	LCKWSHER-1/4 HELICAL	3
3-11	64123-50	BOLT-HEX 3/8-16X1	3
3-12	64123-69	BOLT-5/16-18X1-1/2 HEX	2
3-13	306531	NUT, 10-24 YS HEX	2
3-14	64025-05	NUT-3/8-16 HEX	4
3-15	64123-100	BOLT-3/8-16X2-1/4 HEX	1
3-16	64025-02	NUT-HEX 5/16-18	1
3-17	306956	COTTER PIN	2
3-18	64163-03	WSHR-.256X.62X18GA.	3
3-19	64163-67	WASHER-.516X1X12GA	1
3-20	516544	BUSHING (PLATING)	1
3-21	517226	BRG,SLV .33 .50 .20 IRON	1
3-22	2701258	SPRING, TSN 1.0X3.62X14	1
3-23	518487	SPRING	1
3-24	522882	PULLEY,IDLER	1
3-25	522604	BRACKET, HANDLE	1
3-26	523508	GUIDE, BELT	2
3-27	524507	NUT,SSPCL.312-18 Z HX	2
3-28	524509	LINK (PLATING)	1
3-29	524560	RETAINER,SPRING	1
3-30	524561	ROD, CONTROL	1
3-31	524565	CAM,CONTROL (PLATED)	1
3-32	524576	TRIGGER,LOCKING PLTD	1
3-33	524577	BUSHING,.328X.63X.41	2
3-34	524579	CABLE,CONTROL	1
3-35	524585	HANDLE, CONTROL	1
3-36	524591	COVER,VINYL	1
3-37	540241	ARM AY	1
3-38	540246	PIVOT	1
3-39	540247	IDLER ARM	1
3-40	540270	BRACKET	1
3-41	540271	LEVER AY,CONTROL PLTD	1
3-42	822474	SPACER	1
3-43	64163-61	WSHR .81X.406X16GA	5
3-44	548171	KNOB	1
3-45	548224	FITTING,GREASE 1/4 SPCL	2
3-46	548456	PIN,CLEVIS.438 1.25 YS	1
3-47	548507	CLEVIS	1
3-48	64141-6	NUT, 5/16-18	2
3-49	548942	PULLEY, PLAIN FLAT 3.25	1
3-50	800026	SCREW, .25-20.75 YS PR	2
3-51	64151-15	5/16-18 HEX NUT CNTRLCK	1
3-52	800177	SCRW,.31-18.75 YS PR	1
3-53	64151-18	NUT, HEX	1
3-54	800492	CAPSCREW,HEX	2
3-55	64268-02	NUT-FL NYLN LCK 5/16-18	2
3-56	64262-006	BLT-FLG HD 5/16-18 X 3/4	1
3-57	800883	SCRW,.38-24 2.25 YS HX	1
3-58	805421	SPRING,EXTENSION	1
3-59	830005	PIN,CLEVIS.308 1.69 PS	1
3-60	809183	WSHR,.25.75.10 YS FLAT	2
3-61	64163-34	WSHR.256/.267X1X11GA	1

FIGURE 4

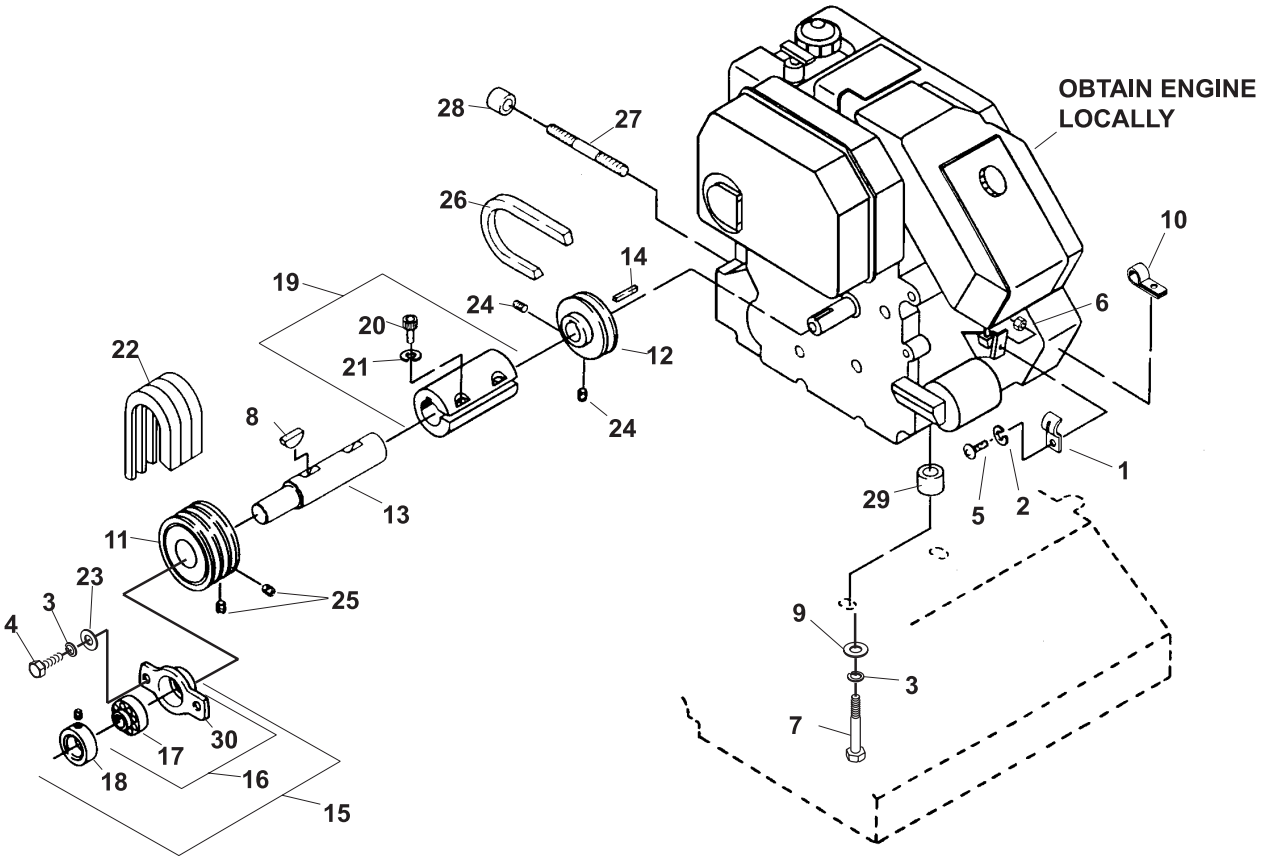

OBTAIN ENGINE LOCALLY
28
27
26
14
19
24
20
21
12
24
22
8
13
11
25
23
3
4
30
17
18
16
15
10
6
1
29
5
2
9
3
7

FIGURE 4

ITEM	PART NO.	DESCRIPTION	QTY
4-1	111898	CLAMP,CABLE	1
4-2	120052	LOCKWASHER	1
4-3	64006-03	WASHER, 3/8 HELICAL LCK	6
4-4	64123-50	BOLT-HEX 3/8-16X1	2
4-5	64152-06	10-24X1/2 MACH SCREW	1
4-6	306531	NUT, 10-24 YS HEX	1
4-7	64123-100	BOLT-3/8-16X2-1/4 HEX	4
4-8	64164-25	KEY-1/4X7/8 #807	2
4-9	515390	WASHR,.39 1.25.19 FLAT	4
4-10	515755	CLIP	1
4-11	516892	PULLEY, REEL BELT	1
4-12	517101	PULLEY,3 IN. DIA BLK	1
4-13	517123	SHAFT	1
4-14	520574	KEY,.25 X.25 X 2.50 PS	1
4-15	544068	PILLOW BLOCK COMPLETE (INCLUDES ITEMS 16, 17, 18 & 30)	1
4-16	547835	PILLOW BLOCK AY (INCLUDES ITEMS 17 & 30)	1
4-17	521856	BEARING,BALL	1
4-18	521857	COLLAR,BRG LOCKING	1
4-19	547755	COUPLING (INCLUDES ITEMS 20 & 21)	1
4-20	330748	SCRW,.31-18 1.00 BS HS	2
4-21	548183	LWSHR,.31.09 HI-COLLAR	2
4-22	547759	BELT,DRIVE, SET OF 3	1
4-23	64163-61	WSHR .81X.406X16GA	2
4-24	548201	SETSCREW, 5/16-18 X 5/16	6
4-25	548204	SSCRW,.38-16.38 BS NH	2
4-26	548403	V-BELT	1
4-27	800400	NIPPLE,.38-18NPT 5.0 GS	1
4-28	800401	CAP,.38-18NPT GS PIPE	1
4-29	838790	SPACER, ENG MNT PLTD	4
4-30	519809	PILLOW BLOCK	1

FIGURE 5

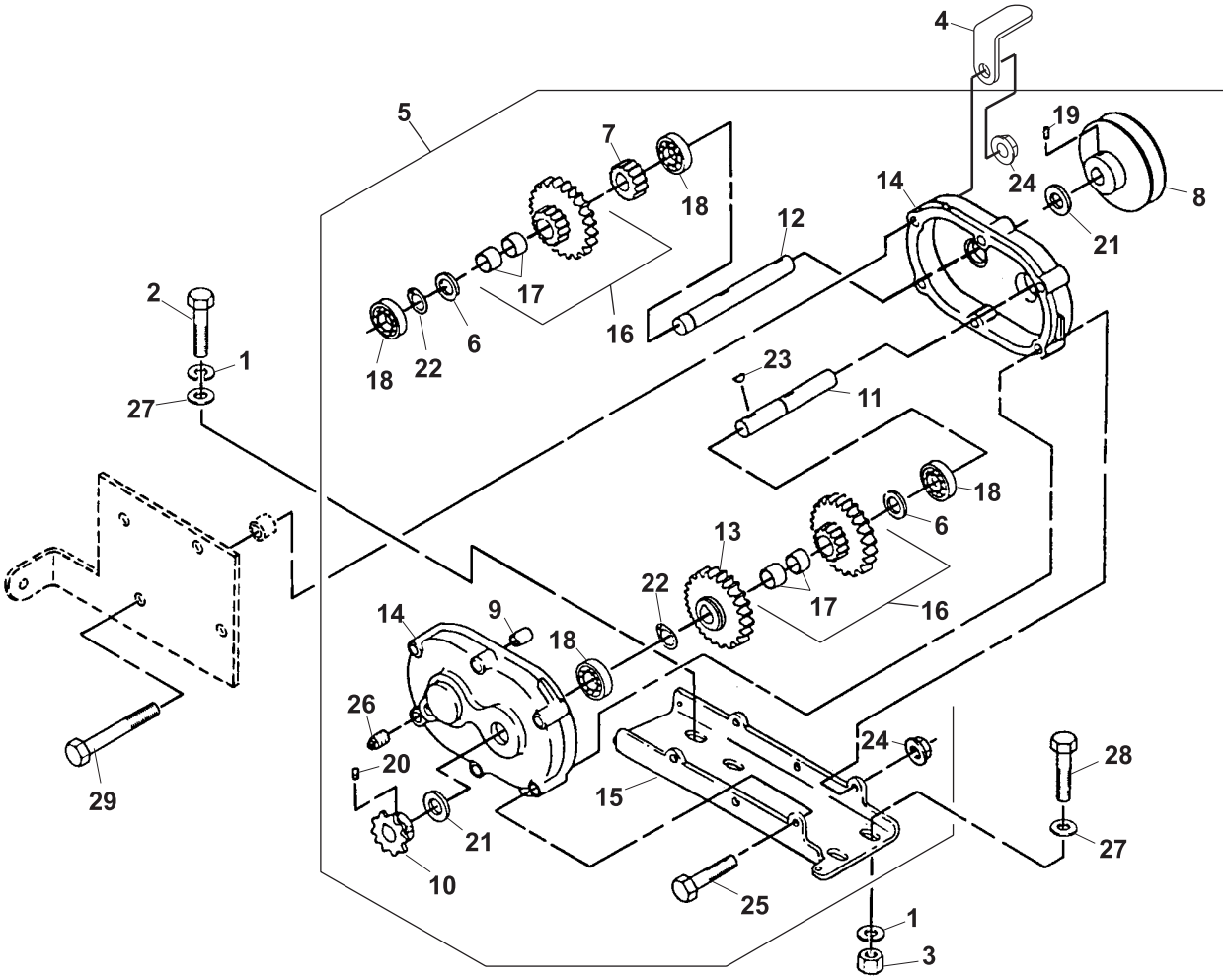

4
5
7
18
19
24
8
14
12
21
2
17
16
6
18
22
1
27
23
11
18
6
13
22
17
16
14
9
18
26
20
24
28
15
21
10
25
27
29
1
3

FIGURE 5

ITEM	PART NO.	DESCRIPTION	QTY
5-1	64006-03	WASHER, 3/8 HELICAL LCK	4
5-2	64123-50	BOLT-HEX 3/8-16X1	2
5-3	64025-05	NUT-3/8-16 HEX	2
5-4	524536	GUIDE,BELT (PLATING)	1
5-5	2702128.2	TRANSMISSION AY (INCLUDES ITEMS 6-26)	1
5-6	516700	SPACER	2
5-7	516724	GEAR	1
5-8	517137	PULLEY,4" DIA "A" SIZE	1
5-9	517226	BRG,SLV .33 .50 .20 IRON	2
5-10	517342	SPROCKET	1
5-11	518820	SHAFT, OUTPUT	1
5-12	518826	SHAFT, INPUT	1
5-13	518827	GEAR	1
5-14	522638	CASE, GEAR	2
5-15	523515	BRACKET, MOUNTING	1
5-16	546708	GEAR AY,IDLER 56T/20T (INCLUDES ITEM 17)	2
5-17	515511	BUSHING	2
5-18	548119	BRG,BALL.75 1.62.31 "OP"	4
5-19	548201	SETSCREW, 5/16-18 X 5/16	2
5-20	548204	SSCRW,.38-16.38 BS	1
5-21	548274	OIL SEAL	2
5-22	548324	RING,EXT RET.691ID.042T	2
5-23	548369	KEY, WOODRUFF.19 X.62	4
5-24	548911	NUT,.31-18 YS HSF	6
5-25	548958	SCREW, .31-18 3.50 YS HX	6
5-26	800120	PLUG,.38-18NPT PS SQ HD	2
5-27	64163-61	WSHR .81X.406X16GA	4
5-28	551094	SCREW, 3/8X1-3/4	2
5-29	316909	SCREW, 5/16-18X4-1/2	2

(ITEM 5 INCLUDES A QUANTITY OF (6)
ITEM 25 (2) OF THESE SCREWS WILL
BE REPLACED BY ITEM 29)

FIGURE 6

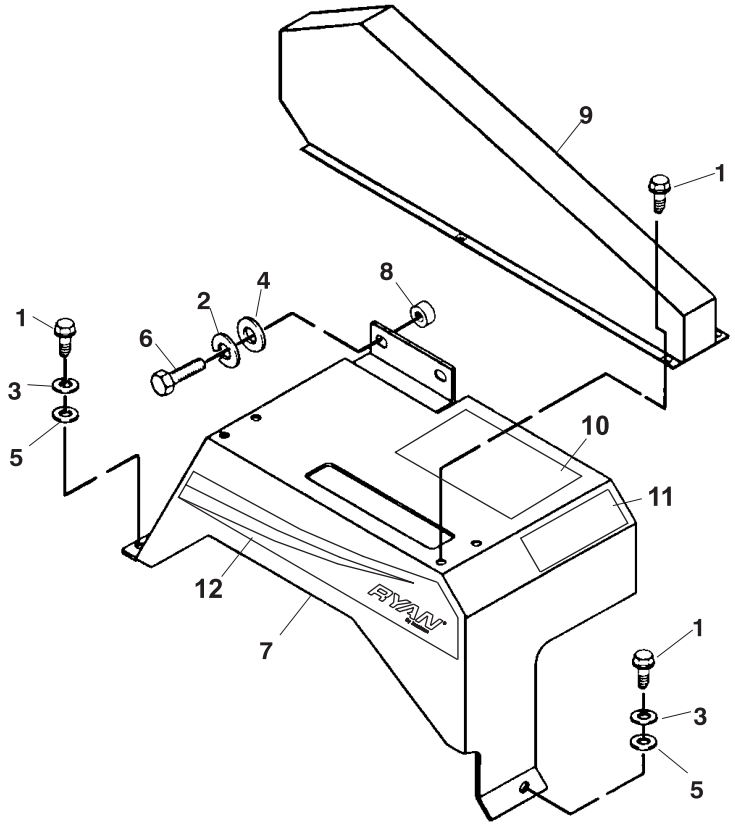


FIGURE 6

ITEM	PART NO.	DESCRIPTION	QTY
6-1	112050	TSCRW,.25-20.62 YS HW	7
6-2	64006-06	LCKWSHER-HELICAL 7/16	2
6-3	64006-01	LCKWSHER-1/4 HELICAL	3
6-4	64163-55	WASHER .328X.75X14 GA	2
6-5	64163-03	WSHR-.256X.62X18GA.	3
6-6	64123-84	BLT-HEX 7/16-14X1-1/2	2
6-7	540279	GUARD, OVERSEEDER	1
6-8	522982	SPACER (PLATING)	1
6-9	540278	GUARD, W/DECALS	1
6-10	524568	DECAL,OP INST	1
6-11	840697	DECAL,WARNING HANDS	1
6-12	4124320	LABEL-SIDE, MATAWAY RH	1

ITEM	PART NO.	DESCRIPTION	QTY

FIGURE 7

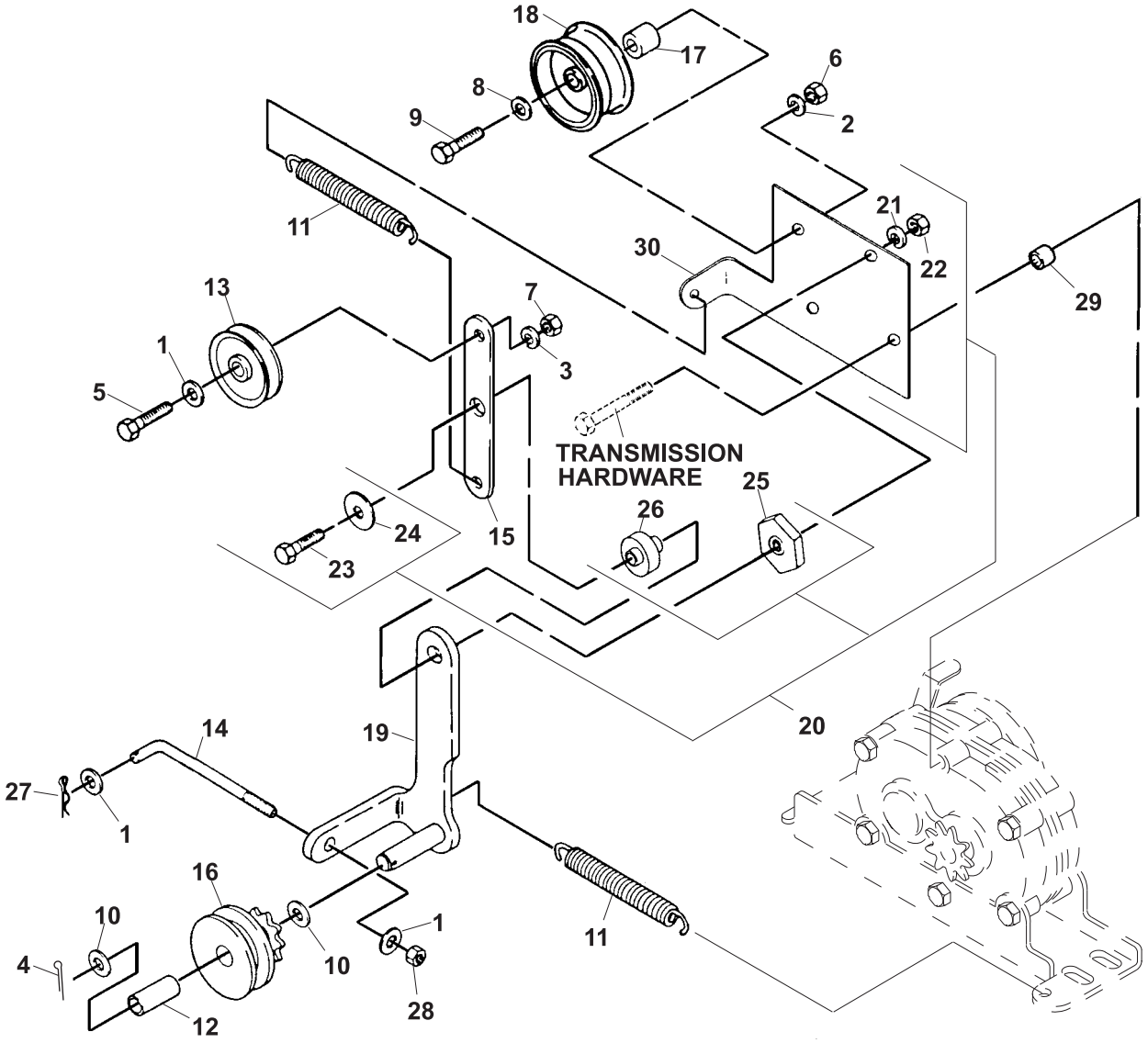

18
17
6
8
2
9
11
21
22
30
29
13
7
1
3
5
TRANSMISSION HARDWARE
25
26
24
15
23
20
14
19
27
1
16
10
1
4
10
11
12
28

FIGURE 7

ITEM	PART NO.	DESCRIPTION	QTY
7-1	64163-55	WASHER .328X.75X14 GA	3
7-2	64006-03	WASHER, 3/8 HELICAL LCK	1
7-3	64006-02	LCKWSHER-HELICAL 5/16	1
7-4	64140-3	COTTER PIN-3/32X3/4	1
7-5	64123-69	BOLT-5/16-18X1-1/2 HEX	1
7-6	64025-05	NUT-3/8-16 HEX	1
7-7	64025-02	NUT-HEX 5/16-18	1
7-8	64163-61	WSHR .81X.406X16GA	1
7-9	64123-88	BOLT, 3/8-16X2-3/4 HEX	1
7-10	64163-67	WASHER-.516X1X12GA	2
7-11	518487	SPRING	2
7-12	521031	BUSHING	1
7-13	521032	IDLER	1
7-14	522606	ROD - CONTROL (PLATING)	1
7-15	522613	ARM, IDLER	1
7-16	522614	PULLEY, SPROCKET	1
7-17	522653	BUSHING	1
7-18	522882	PULLEY,IDLER	1
7-19	547746	BRACKET, SPROCKET	1
7-20	547754	BRACKET, MOUNTING	1
	(INCLUDES ITEMS 21-26)		
7-21	64006-03	WASHER, 3/8 HELICAL LCK	1
7-22	64025-05	NUT-3/8-16 HEX	1
7-23	64123-100	BOLT-3/8-16X2-1/4 HEX	1
7-24	515390	WASHR,.39 1.25.19 YS FLAT	1
7-25	523516	NUT,SPECIAL	1
7-26	523517	BUSHING	1
7-27	548190	PIN,HAIR.69 1.88.09 YS	1
7-28	64151-15	5/16-18 HEX NUT CNTRLCK	1
7-29	822474	SPACER	2
7-30	522902	BRACKET	1

ITEM	PART NO.	DESCRIPTION	QTY

FIGURE 8

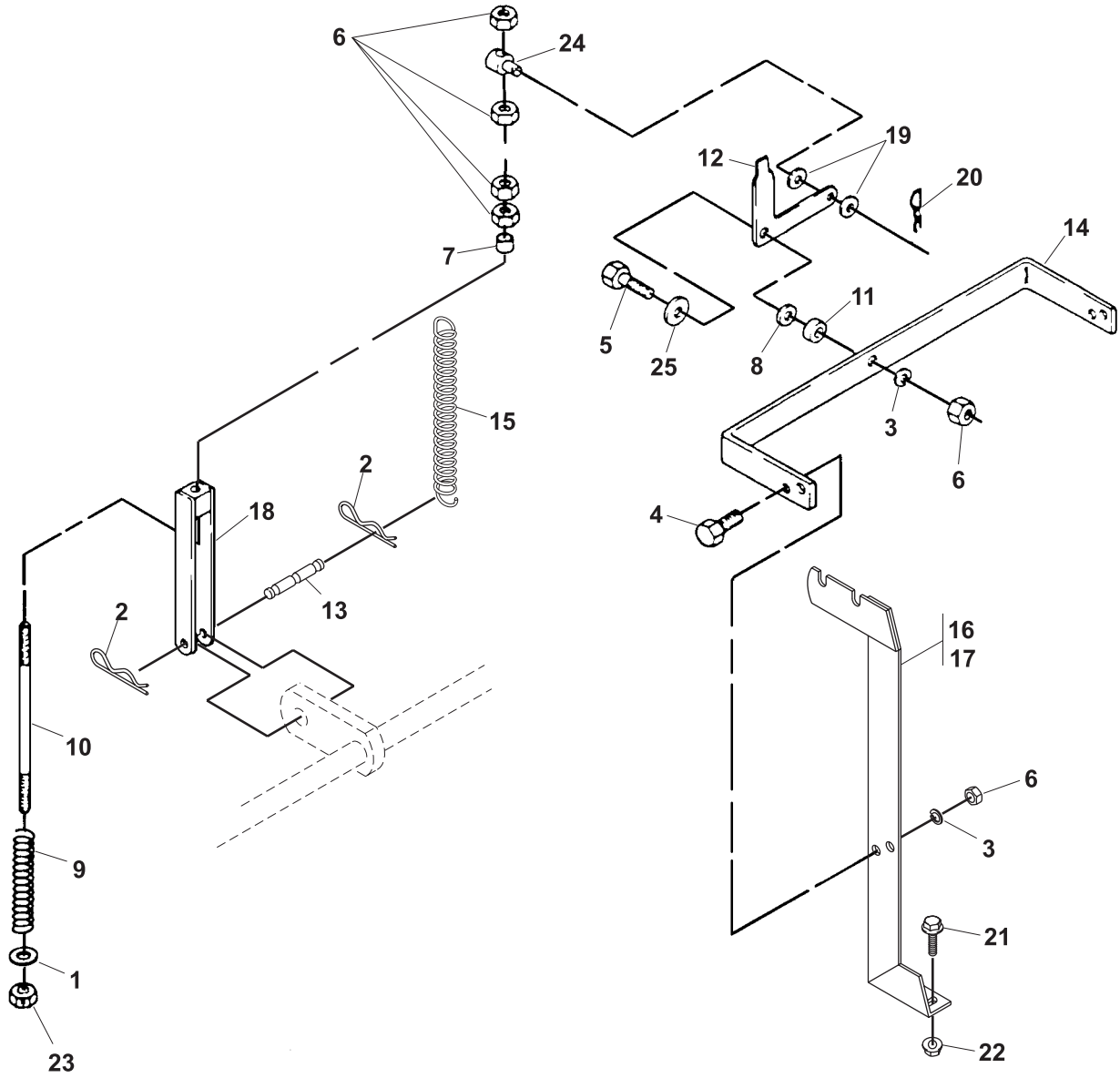
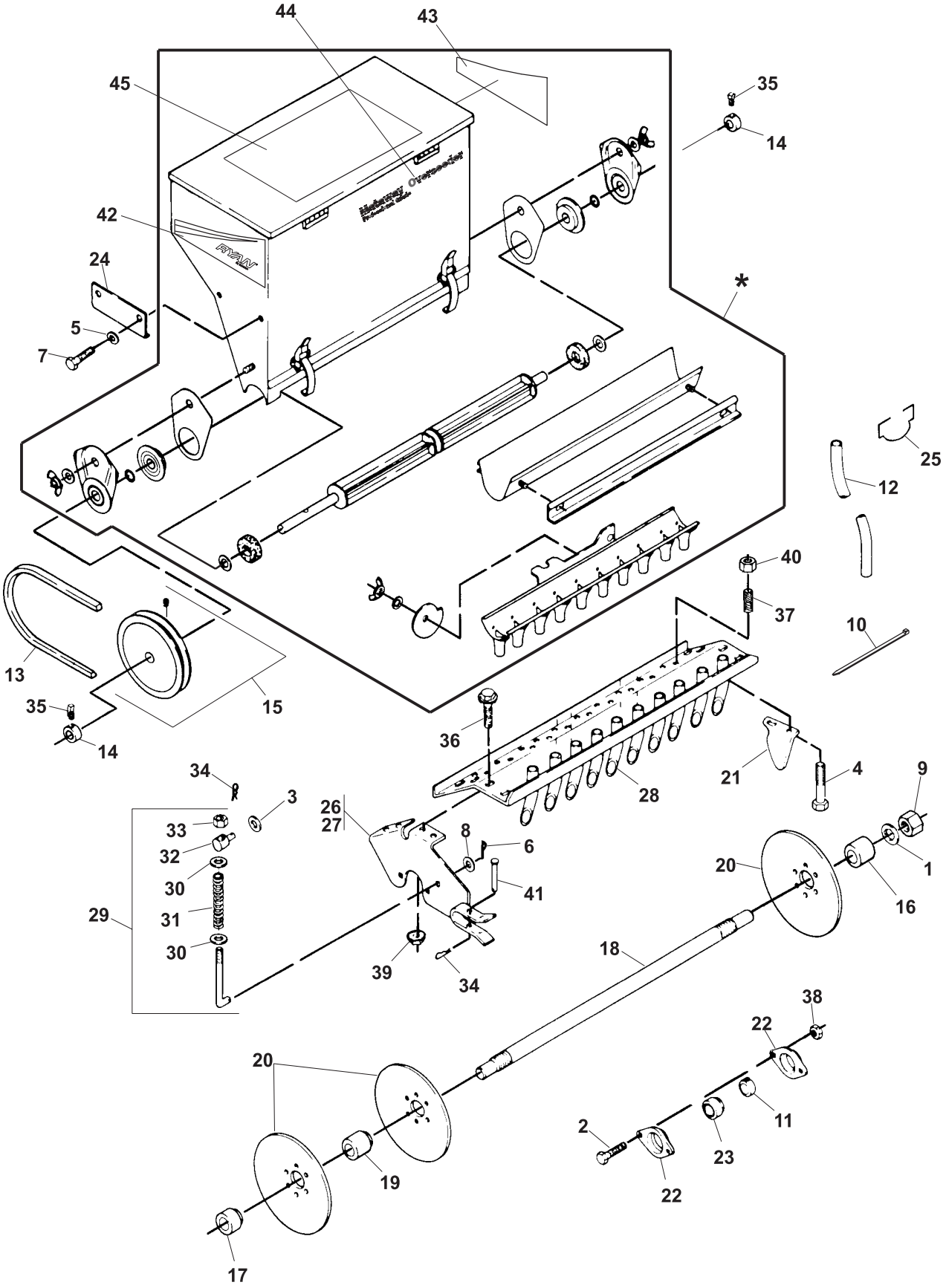


FIGURE 8

ITEM	PART NO.	DESCRIPTION	QTY
8-1	64163-55	WASHER .328X.75X14 GA	1
8-2	822529	PIN,HAIR.44 2.00.13 YS	1
8-3	64006-02	LCKWSHER-HELICAL 5/16	5
8-4	64123-68	BOLT-HEX 5/16-18X1	4
8-5	64123-61	BLT-HEX 5/16-18X1-3/4	1
8-6	64025-02	NUT-HEX 5/16-18	9
8-7	516544	BUSHING (PLATING)	1
8-8	517226	BRG,SLV .33 .50 .20 IRON	1
8-9	522634	SPRING	1
8-10	522656	STUD (PLATED)	1
8-11	522657	BUSHING (PLATING)	1
8-12	522659	LEVER,CONTROL	1
8-13	524569	PIN (PLATED)	1
8-14	522691	SUPPORT,ARM PIVOT	1
8-15	524514	SPRING, EX 1.14X6.64x21	1
8-16	524571	SUPPORT, HOPPER LH	1
8-17	524572	SUPPORT, HOPPER RH	1
8-18	545958	YOKE AY, CONTROL	1
8-19	64163-61	WSHR .81X.406X16GA	2
8-20	548190	PIN,HAIR.69 1.88.09 YS	1
8-21	548902	SCRW,.31-18 1.00 YS HSF	4
8-22	64141-6	NUT, 5/16-18	4
8-23	64151-15	5/16-18 HEX NUT CNTRLCK	1
8-24	806725	PIN,ROD CONNECTING	1
8-25	64163-29	WASHER-21/64 X 1 X 11GA	1

ITEM	PART NO.	DESCRIPTION	QTY

FIGURE 9


44
43
45
35
14
42
24
5
7
*
25
12
40
37
10
13
35
14
15
36
21
4
9
34
3
33
32
30
31
30
29
26
27
8
6
41
39
34
28
20
1
16
18
38
22
20
19
17
2
22
23
11

HOPPER AND DISC ASSEMBLY

FIGURE 9

ITEM	PART NO.	DESCRIPTION	QTY
9-1	103960	WASHER, .75 1.50.13 FLAT	2
9-2	112050	TSCRW,.25-20.62 YS HW	4
9-3	64163-55	WASHER .328X.75X14 GA	2
9-4	64123-07	BOLT, 1/4-20X1-1/2 HEX	20
9-5	64006-02	LCKWSHER-HELICAL 5/16	4
9-6	64140-3	COTTER PIN-3/32X3/4	2
9-7	64123-68	BOLT-HEX 5/16-18X1	4
9-8	64163-61	WSHR .81X.406X16GA	2
9-9	307665	NUT,.75-16 YS HX JAM	2
9-10	65286-4A	TIE,CABLE 11-5/8 BLACK	1
9-11	522607	COLLAR,LOCKING	2
9-12	522632	TUBE	10
9-13	522633	V-BELT	1
9-14	522652	COLLAR (PLATING)	2
9-15	522662	PULLEY,6.50 DIA.	1
9-16	522678	SPACER,DISC END, LEFT	1
9-17	522679	SPACER,DISC END, RIGHT	1
9-18	522680	SHAFT,DISC	1
9-19	522682	SPACER,DISC	9
9-20	522684	DISC,BLADE	10
9-21	522688	BLADE,SCRAPER PLATED	10
9-22	522689	FLANGETTE,TWO BOLT	4
9-23	522690	BEARING	2
9-24	522700	PLATE,RETAINER PLATED	2
9-25	523493	CLIP,HOSE	10
9-26	545938	SUPPORT AY	1
9-27	2702280.2	SUPPORT AY,END LH	1
9-28	545990	PANEL, TUBE HOLDER	1
9-29	547648	ROD AY,ADJUSTING (INCLUDES ITEMS 30-33)	1
9-30	306405	WASHER, 3/8"	2
9-31	518510	SPRING	1
9-32	523342	CONNECTOR,ROD PLATED	1
9-33	64151-18	NUT, HEX	1
9-34	548190	PIN,HAIR.69 1.88.09 YS	4
9-35	64044-1	SCREW-SET 1/4-20X1/4	2
9-36	64139-08	BOLT-5/16-18X3/4 WLF	8
9-37	548848	SPRING,COMPRESSION	20
9-38	64141-2	NUT-WLF 1/4-20	4
9-39	64141-6	NUT, 5/16-18	8
9-40	64151-17	LOCKNUT, HEX	20
9-41	826633	PIN,CLEVIS.31 2.38 ZS	2
9-42	4124321	LABEL-SIDE, OVERSDR RH	1
9-43	4124322	LABEL-SIDE, OVERSDR LH	1
9-44	4124323	LABEL-FRONT, OVERSDR	1
9-45	522834	DECAL,OP INST OVERSDR	1

*** FOR HOPPER PARTS OR DEALER INFORMATION CONTACT:**
GANDY CO.
528 GANDRUD ROAD
OWATONA, MN USA 550060
REFER TO THEIR MODEL NUMBER 09086877

FIGURE 10

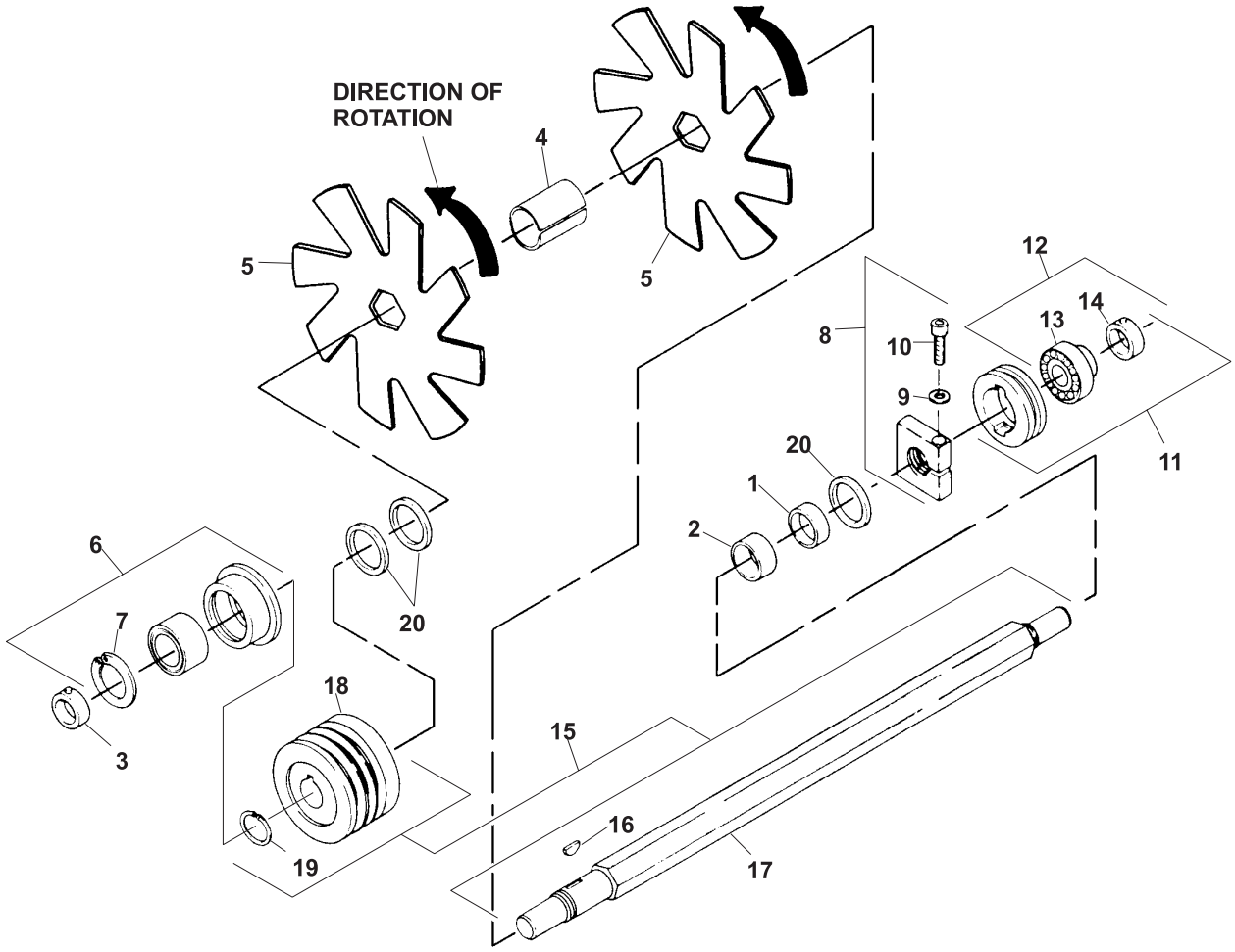

DIRECTION OF
ROTATION
4
5
5
12
14
13
8
10
9
11
20
1
2
6
7
20
18
3
15
16
19
17

FIGURE 10

ITEM	PART NO.	DESCRIPTION	QTY
10-1	516903	SPACER, .500 (12.7mm)	1
10-2	516904	SPACER, .700 (18mm)	1
10-3	521857	COLLAR,BRG LOCKING	1
10-4	522835	SPACER, 1.925 (50mm)	9
10-5	523293	BLADE	10
10-6	544287	BLOCK AY,PILLOW	1
		(INCLUDES ITEM 7)	
10-7	548354	RING, INTERNAL RETAIN	1
10-8	547778	NUT, REEL	1
		(INCLUDES ITEMS 9 & 10)	
10-9	548181	LOCKWASHER, 1/4"	1
10-10	800583	SCREW, 1/4-20X1	1
10-11	545640	PILLOW BLOCK AY	1
		(INCLUDES ITEM 12)	
10-12	548101	BEARING	1
		(INCLUDES ITEMS 13 & 14	
10-13	521856	BEARING,BALL	1
10-14	521857	COLLAR,BRG LOCKING	1
10-15	545967	SHAFT, COMPLETE	1
		(INCLUDES ITEMS 16-20)	
10-16	306367	KEY, WOODRUFF	1
10-17	522542	SHAFT	1
10-18	522543	PULLEY	1
10-19	522545	RING,RETAINING	1
10-20	820484	WASHER, FLAT	3
		(USE ITEM 20 AS REQUIRED SO ITEM 1 DOES NOT CONTACT THE HEX SHAFT WHEN TIGHTENED)	
10-21*	547553	REEL , COMPLETE	1
		(INCLUDES ITEMS 1-20)	

*** NOT ILLUSTRATED**

ITEM	PART NO.	DESCRIPTION	QTY

GB
English

World Class Quality, Performance and Support

Equipment from Ransomes Jacobsen Limited is built to exacting standards ensured by ISO 9001 registration at all our manufacturing locations. A worldwide dealer network and factory-trained technicians backed by Ransomes Jacobsen Parts Xpress provide reliable, high-quality product support.

CUSTOMER ONE™

RYAN® By Jacobsen

BOB-CAT BUNTON CUSHMAN JACOBSEN RANSOMES RYAN E-Z-GO

Ransomes Jacobsen Limited
Central Avenue, Ransomes Europark, Ipswich, England, IP3 9QG
English Company Registration No. 1070731
www.ransomesjacobsen.com