

## OPERATION

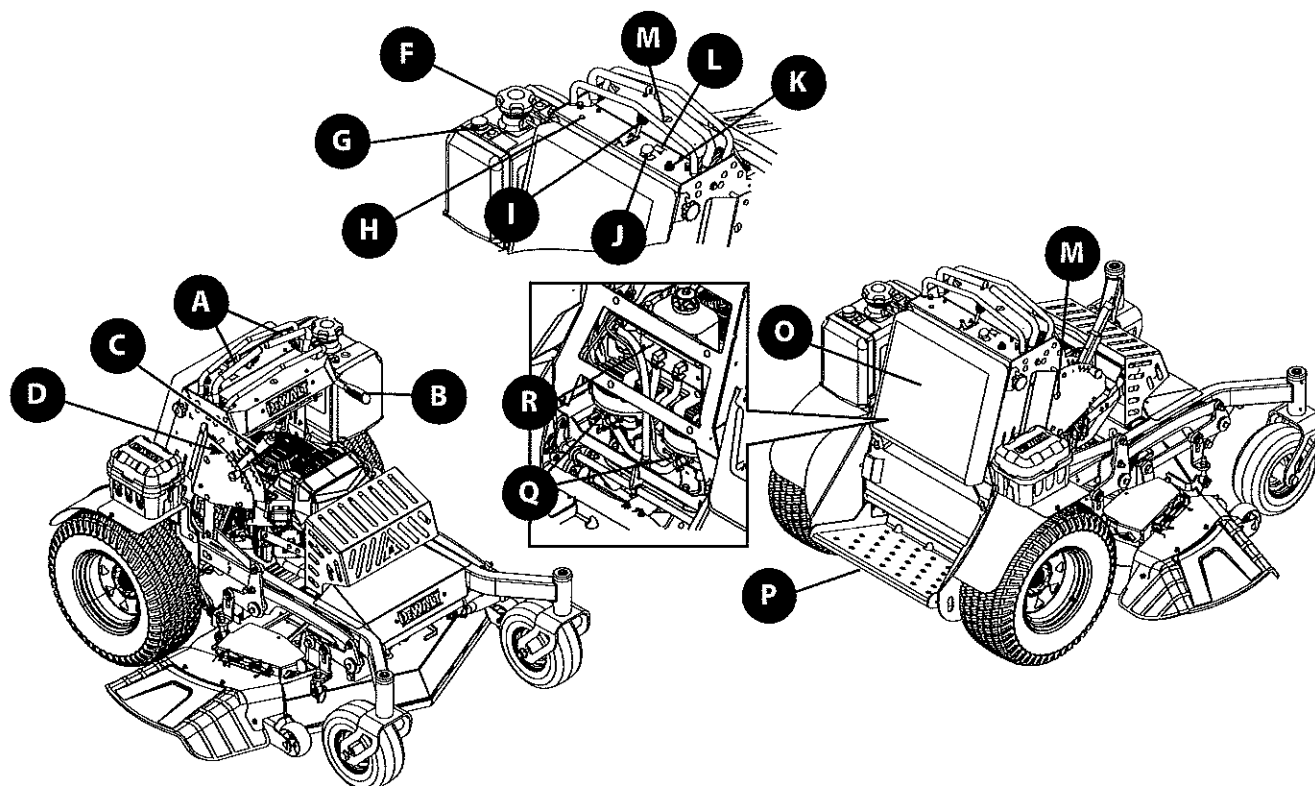


Figure 8

**NOTE:** This Operator's Manual covers several models. Mower features may vary by model. Not all features in this manual are applicable to all mower models and the mower depicted may differ from yours.

**NOTE:** References to LEFT, RIGHT, FRONT, and REAR indicate that position on the mower when facing forward while standing on the operator's platform.

### Features

#### A. DRIVE CONTROL LEVERS

The RH (Right Hand) and LH (Left Hand) drive control levers are located on each side of the control panel.

Each drive control lever controls the respective transmission. Consequently, these levers control all of the mowers movement. Driving and steering using these control levers is quite different from conventional mowers and will take practice to master. Refer to Practice Operation section for further instructions.

#### B. PARKING BRAKE LEVER

The parking brake lever is located to the left of the control panel. Pull the parking brake lever back to engage the brake (ON position "O") or push the parking brake lever forward to disengage the brake (OFF position "O").



#### C. DECK LIFT HANDLE

The deck lift handle is located on the right side of the mower, and is used to raise and lower the mower deck.

Depress the button on the end of the handle and push downward to lower the deck, or pull upward to raise the deck. When the desired height is attained, secure the pin in the desired index hole and release the button on the handle.

**NOTE:** Make certain the deck is secured and the pin is fully inserted into the deck height index. The pin is keyed to help keep it in place and fits into the slotted holes on the deck height index.

**NOTE:** The deck lift handle must always be above the pin, never hang the deck lift handle from the pin when mowing.

#### D. DECK HEIGHT INDEX

The deck height index consists of several holes located on the right of the mower. Each hole corresponds to a 1/4 inch (6.4 mm) change in the deck height position ranging from 1 1/2 inch (38.1 mm) at the lowest setting to 4 1/2 inch (114.3 mm) at the highest setting. Insert the connected pin to select the desired deck height.

#### E. TRANSPORT LOCK (NOT SHOWN)

The transport lock is the highest setting on the deck height index, and is used to lock the deck into the transport position. Use the deck lift handle to engage or disengage the transport lock.

**NOTE:** Do not mow with the deck in the transport position.

## OPERATION

### F. FUEL CAP

Turn the fuel cap counter clockwise and pull upward to remove. The fuel cap is tethered to the mower to prevent its loss. Do not attempt to remove the fuel cap from the mower. Fill tank to 1/2" (12.7 mm) below the bottom of the filler neck, allowing some space in the tank for fuel expansion. Do not overfill the tank.

Push the fuel cap downward on the fuel tank fill neck and turn clockwise until the cap clicks at least two times to tighten. Always re-install the fuel cap tightly onto the fuel tank after removing.

### ⚠ WARNING

Never fill the fuel tank when the engine is running. If the engine is hot from recently running, allow to cool for at least five minutes before refueling. Highly flammable gasoline could splash onto the engine and cause a fire.

### G. FUEL GAUGE (IF EQUIPPED)



There is a fuel gauge on top of the tank to the left of the operator's platform.

### H. MIL LIGHT (IF EQUIPPED)

The Multifunction Indicator Light (MIL) (if equipped) provides diagnostic information for the engine. If the MIL lights up and/or flashes see the service manual or contact your service center.

### I. THROTTLE CONTROL LEVER

**NOTE:** When set in a given position, a uniform engine speed will be maintained.

Throttle Control Lever - Push the throttle control lever forward to increase the engine speed. The mower is designed to operate with the throttle control lever at full throttle (FAST)  when the mower is being driven and the mower deck is engaged. Pull the throttle control lever rearward to decrease the engine speed (SLOW) .

### J. POWER TAKE-OFF (PTO) ELECTRIC PTO

The PTO switch operates the electric PTO clutch mounted on the bottom of the engine crankshaft. Pull the switch knob upward to engage the PTO clutch, or push the knob downward to disengage the clutch.

The PTO switch must be in the "OFF" position when starting the engine.





### K. IGNITION SWITCH


### ⚠ WARNING

Never leave a running machine unattended. Always disengage PTO, set parking brake, stop engine and remove key to prevent unintended starting.

The ignition switch has three positions:

STOP  — The engine and electrical system is turned off.

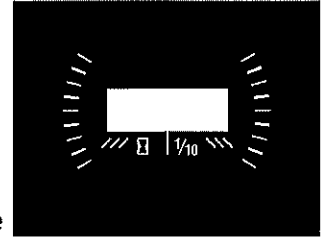
RUN  — The riding mower electrical system is energized.


START  — The starter motor will turn over the engine. Release the key immediately when the engine starts, the key will automatically return to "Run" position.

**Note:** To prevent accidental starting and/or battery discharge, remove key from the ignition switch when mower is not in use.

### L. HOUR METER & LCD SERVICE MINDER (IF EQUIPPED)

The LCD service minder will remind the operator of maintenance intervals for changing the engine oil, air filter service, low engine oil and low battery warnings. When the key is rotated out of the STOP position but is not in the START position, the LCD service minder & hour meter will briefly display the battery voltage, followed by the mower's accumulated hours.



**Note:** When the ignition key is out of the STOP position the hourglass  symbol is illuminated/blinks to indicate it is recording the hours of mower operation, regardless of whether the engine has been started.

- **Change Oil** - The LCD screen will alternate the letters "CHG", followed by "OIL", followed by "SOON", followed by the meter's accumulated time. "CHG/OIL/SOON/TIME" will alternate on the display for 7 minutes after the meter reaches 50 hours. This oil service minder interval will occur every 50 hours. Before the interval expires, change the engine oil as instructed in the Engine Operator's Manual
- **Low Oil** - The LCD screen will alternate the letters "LO" followed by "OIL", followed by the meter's accumulated time, which indicates the engine has low oil pressure. This is common when starting an engine. The indicator will remain active until the engine sufficiently builds pressure after starting. If it remains on with the engine at full speed and after a few minutes of operation, stop the mower immediately and check the engine oil level and add as instructed in the Engine Operator's Manual. If the oil level is correct and the indicator persists, contact an authorized service dealer.

**NOTE:** The low oil pressure function only works if the engine is equipped with an oil pressure switch.

- **Low Battery** - At startup, the battery voltage will briefly display, then changes to accumulated hours. The letters "LO" followed by the letters "BATT" will display, followed by the meter's accumulated time. "LO/BATT/TIME" is displayed on the LCD when the voltage drops below 11.5 volts. When this occurs, the battery is in need of a charge or the engine's charging system is not generating sufficient amperage. Charge the battery as instructed in the Product Care section of this manual or have the charging system checked by your local service dealer.
- **Air Filter Service** - The LCD screen will display the letters "CLN" followed by the letters "AIR", followed by "FILT", followed by the meter's accumulated time. "CLN/AIR/FILT/TIME" will alternate on the display for 7 minutes after the meter reaches 25 hours. This air filter service minder time interval will be every 25 hours. On intervals that are common with oil service, the oil message will be displayed first followed by the air filter message.

### M. ACCESSORY SWITCH/POWER BAGGER ASSIST/12 VOLT ACCESSORIES RECEPTACLES

The receptacles for optional accessories are on the control panel and right side of mower. The receptacles are for a 12 volt outlet and head light.

### N. HEADLIGHTS (NOT SHOWN/IF EQUIPPED)

The headlight located in front of the control panel. The headlights are ON whenever the ignition key is rotated out of the STOP position and OFF when the ignition key is moved to the STOP position.

## OPERATION

### O. LEG PAD

The leg pad is located in front of the operator's position to provide a cushion between the operator and the mower. Refer to the Adjustments section for instructions on adjusting the leg pad position.

### P. OPERATOR'S PLATFORM

The operator's platform is at the rear of the mower.

### Q. TRANSMISSION BYPASS VALVES

The transmission bypass valves are located on the RH and LH Transmission (one for each transmission). When in use, the two valves open a bypass within the hydrostatic transmissions, which allows the mower to be pushed short distances by hand. Refer to the Assembly section for additional instructions.

### ⚠ CAUTION

Never tow the mower. Towing the mower with the rear wheels on the ground may cause severe damage to the hydrostatic transmissions.

### R. HYDROSTATIC TRANSMISSION OIL RESERVOIR

The hydrostatic transmission oil reservoir is connected by hoses to the RH and LH transmission assemblies, and is located behind the access panel in front of the operator's platform.

**NOTE:** Prior to the initial operation of the mower, check the hydrostatic transmission oil level. Refer to **Checking the Hydrostatic Transmission Oil Level** on page 20.

## Before Operating Your Machine

- Before you operate the mower, study this manual carefully to familiarize yourself with the operation of all the instruments and controls. It has been prepared to help you operate and maintain your machine efficiently.
- Fill the fuel tank with only clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher. When the fuel reaches 1/2" (12.7 mm) below the bottom of the fill neck, stop. DO NOT OVERFILL. Space must be left for expansion.
  - This engine is certified to operate only on clean, fresh, unleaded gasoline. Fill only with clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher.
  - Do not use gasoline left over from the previous season, to minimize gum deposits in the fuel system.
  - Gasohol (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) is an approved fuel. Other gasoline/alcohol blends are not approved.
  - Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blends (up to a maximum of 15% MTBE by volume) are approved fuels. Other gasoline/ether blends are not approved.
- Check the engine oil level as instructed in the Engine Operator's manual.
- Check the hydrostatic transmission oil level. Refer to Checking The Hydrostatic Transmission Oil Level in the Product Care Section.
- Check the rear tire inflation pressure is 10-12 psi (69-82.7 kPa).

**NOTE:** New tires are over-inflated in order to properly seat the bead to the rim.
- Check that all nuts, bolts and screws are tight.

- Check the tension of the deck drive belts.
  - Remove the deck cover
  - The tension of the deck drive belts are maintained by a spring mechanism that adjusts for wear and stretch.
  - Examine the belts for cuts, fraying, and excessive wear. Replace if any of these are detected.
  - Replace the deck cover.
- Check if deck is level. When correctly adjusted the mower deck should be level side to side, and the front of the deck should be approximately 1/4" (6.4 mm) lower than the rear of deck. If deck needs to be leveled, refer to the Service section.
- Lubricate all pivot points listed in the Service section.

## Safety Interlock System

### ⚠ WARNING

Do not operate the mower if the safety interlock system is malfunctioning. This system was designed for your safety and protection.

This mower is equipped with a safety interlock system for the protection of the operator. If the interlock system should ever malfunction, do not operate the mower. Contact an authorized service dealer.

- The safety interlock system prevents the engine from cranking or starting unless the parking brake is engaged, and the PTO lever is in the DISENGAGED (OFF) position.
- The engine will automatically shut OFF if the operator leaves the operator's platform before engaging the parking brake.
- The PTO will automatically shut OFF if the operator leaves the operator's platform with the PTO switch in the ENGAGED (ON) position, regardless of whether the parking brake is engaged.

**NOTE:** The PTO must be disengaged to restart the engine.

## Standing on The Operator's Platform

### ⚠ WARNING

Only one person at a time may occupy the operator's platform - Otherwise injury may occur.

**NOTE:** Stepping off of the operator's platform without engaging the parking brake will cause the safety interlock system to stop the engine.

When standing on the operator's platform:

- Do not turnaround or face away from the controls.
- When operating the mower, lean forward into the leg pad.

**NOTE:** The operator's platform is equipped with an adjustable leg pad. If necessary, adjust the leg pad height. Refer to Adjustments, Leg Pad Height in the Assembly & Set-Up section.

## OPERATION



### Starting the Engine

#### ⚠ WARNING

This machine is equipped with a safety interlock system designed for protection of the operator. Do not operate the machine if any part of the interlock system is malfunctioning. Periodically check the functions of the interlock system for proper operation.

#### ⚠ WARNING

For personal safety, the operator must be standing on the operator's platform when starting the engine.

1. Operator must be standing on the operator's platform with both drive control levers in the neutral/start position.
2. Engage the parking brake.
3. Make certain the PTO is in the disengaged (down) position.
4. Lift the choke knob (if equipped) into the ON position.  
**NOTE:** If the engine is warmed up, it may not be necessary to choke the engine.
5. Move the throttle control to midway between the SLOW  and FAST  positions.
6. Turn the ignition key clockwise to the START position and release it as soon as the engine starts; however, do not crank the engine continuously for more than 5 seconds at a time. If the engine does not start within this time, turn the key to OFF and wait at least 30 seconds to allow the engine's starter motor to cool. Try again after waiting. If after a few attempts the engine fails to start, do not keep trying to start it with the choke closed as this will cause flooding and make starting more difficult.
7. Once the engine starts, push the choke (if equipped) halfway down and as the engine warms, push the choke all the way down.

### COLD WEATHER STARTING

When starting the engine at temperatures near or below freezing, ensure the correct viscosity motor oil is used in the engine and the battery is fully charged. Start the engine as follows:

1. Be sure the battery is in good condition. A warm battery has much more starting capacity than a cold battery.
2. Use fresh winter grade fuel. Winter grade gasoline has higher volatility to improve starting. Do not use gasoline left over from summer.
3. Follow the previous instruction for Starting the Engine.

### USING JUMPER CABLES TO START ENGINE


#### ⚠ WARNING

Batteries contain sulfuric acid and produce explosive gasses. Make certain the area is well ventilated, wear gloves and eye protection, and avoid sparks or flames near the battery.

If the battery charge is not sufficient to crank the engine, recharge the battery. If a battery charger is unavailable and the mower must be started, the aid of a booster battery will be necessary. Connect the booster battery as follows:

1. Connect the end of one cable to the disabled mower battery's positive terminal; then connect the other end of that cable to the booster battery's positive terminal.
2. Connect one end of the other cable to the booster battery's negative terminal; then connect the other end of that cable to the frame of the disabled mower, as far from the battery as possible.
3. Start the disabled mower following the normal starting instructions previously provided; then disconnect the jumper cables in the exact reverse order of their connection.
4. Have the mower's electrical system checked and repaired as soon as possible to eliminate the need for jump starting.

### STOPPING THE ENGINE

1. Move the RH and LH drive control levers neutral position.
2. Engage the parking brake.
3. Disengage the PTO.
4. Move the throttle control to the SLOW position.
5. Allow the engine to run for one minute then turn the key to STOP  and remove the key from the ignition module.

**NOTE:** Always remove the key from the ignition module to prevent accidental starting or battery discharge if the equipment is left unattended.

### Practice Operation (Initial Use)

Operating a zero-turn mower is not like operating a conventional type riding mower. Although and because a zero turn mower is more maneuverable, getting used to operating the drive control levers takes some practice.

It is strongly recommended that you locate a reasonably large, level and open "practice area" where there are no obstructions, pedestrians, or animals. You should practice operating the mower for a minimum of 30 minutes.

Carefully move (or have moved) the mower to the practice area. When performing the practice session, the PTO should not be engaged. While practicing, operate the mower at approximately 1/2-3/4 throttle and at less than full speed in both forward and reverse.

Carefully practice maneuvering the mower using the instructions in the following procedure Driving the Mower. Practice until you are confident that you can safely operate the mower.

## OPERATION

### Driving the Mower

#### ⚠ WARNING

Keep all movement of the drive control levers slow and smooth. Abrupt movement of the control levers can affect the stability of the mower and could cause the mower to flip over, which may result in serious injury or death to the operator.

1. Ensure the RH and LH drive control levers are in the neutral position and the parking brake is disengaged. See Figure 9.
2. Move the throttle to the full throttle position.

**NOTE:** If the drive control levers are not even in the neutral position, refer to Product Care for instructions to adjust the drive control levers so that they are even.

#### ⚠ WARNING

Always maintain a firm grip on the control levers. DO NOT release the control levers to slow or stop the mower; move levers to neutral position using your hands.

3. To drive the mower, firmly grasp the respective drive control levers with your right and left hands.

### DRIVING THE MOWER FORWARD

1. Slowly and evenly move both drive control levers forward. The mower will start to move forward. See Figure 9.
2. As the drive control levers are pushed farther forward the speed of the mower will increase.
3. To slow the mower move the drive controls lever rearward to attain the desired speed, or move the drive control levers to the neutral position to stop the mower.

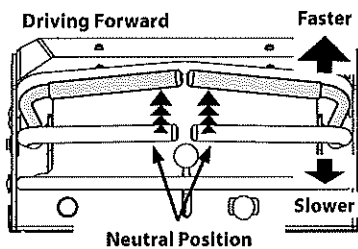


Figure 9

### TURNING THE MOWER WHILE DRIVING FORWARD

#### ⚠ WARNING

Sharp turns can affect control of the mower. ALWAYS slow the mower before making sharp turns.

To turn the mower while driving forward, move the drive control levers as necessary so that one drive control lever is rearward of the other. The mower will turn in the direction of the rearward drive control lever.

1. To turn to the right, move the right drive control lever rearward of the left lever. See Figure 10.
2. To turn to the left, move the left drive control lever rearward of the right drive control lever. See Figure 10.

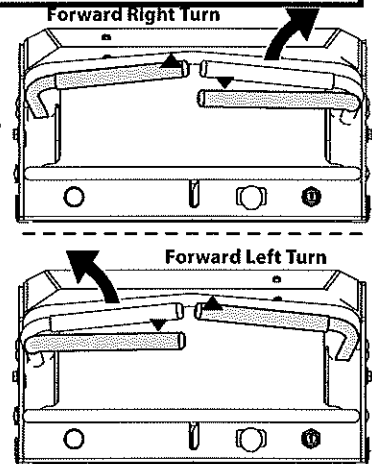


Figure 10

3. The greater the distance between the two levers, the sharper the mower will turn.
4. To execute a "pivot turn," move the turn side drive control lever to the neutral position, while moving the other control lever forward.

**NOTE:** Making a "pivot turn" on grass will greatly increase the potential for defacement of the turf.

### DRIVING THE MOWER IN REVERSE

#### ⚠ WARNING

Always look behind and down on both sides of the mower before backing up. Always look behind while traveling in the reverse direction. Mowing in reverse is not recommended.

1. Slowly and evenly move both drive control levers rearward. The mower will start to move in the reverse direction. See Figure 11.
2. As the drive control levers are pushed farther rearward the speed of the mower will increase.

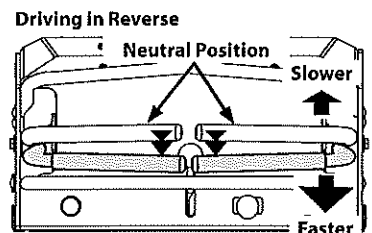


Figure 11

3. To slow the mower move the drive control levers forward to attain the desired speed, or move the drive control levers to the neutral position to stop the mower.

## OPERATION

### TURNING WHILE DRIVING REARWARD

To turn the mower while driving rearward, move the drive control levers as necessary so that one drive control lever is forward of the other. The mower will turn in the direction of the forward drive control lever.

1. To turn to the left while traveling in reverse, move the left drive control lever forward of the right drive control lever. See Figure 12.
2. To turn to the right while traveling in reverse, move the right drive control lever forward of the left drive control lever. See Figure 12.

The greater the distance between the two drive control levers, the sharper the mower will turn.

3. To execute a "pivot turn," move the turn side drive control lever to the neutral position, while moving the other drive control lever rearward.

**Note:** Making a "pivot turn" on grass will greatly increase the potential for defacement of the turf.

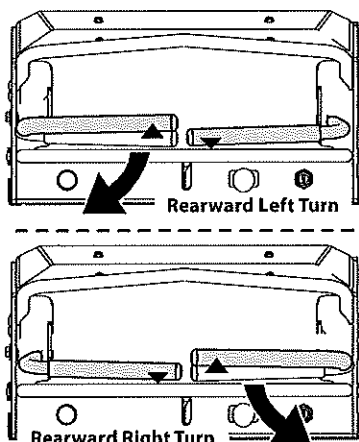


Figure 12

### EXECUTING A ZERO TURN

1. Stop the forward or reverse motion of the mower by moving the two drive control levers to neutral.
2. To turn clockwise, move the left drive control lever forward while simultaneously moving the right drive control lever rearward. See Figure 13.
3. To turn counterclockwise, move the right drive control lever forward while simultaneously moving the left drive control lever rearward. See Figure 13.

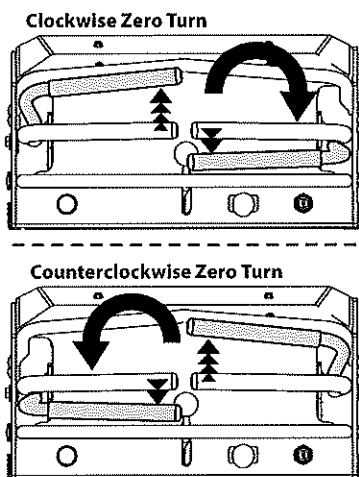


Figure 13

### EXECUTING A "Y" MANEUVER

For low traction conditions, follow these procedures for zero turns (the "Y" maneuver):

To turn clockwise (front of machine moves toward RIGHT) when traveling FORWARD:

1. Come to a stop.
2. Slowly move both drive control lever rearward (no more than  $\frac{1}{2}$  maximum reverse speed) to initiate REVERSE travel,
3. Slowly move the LEFT drive control lever forward while maintaining the RIGHT drive control lever in the rearward travel position.
4. To stop the turn and re-initiate FORWARD travel, slowly move the RIGHT drive control lever from the REVERSE travel position to a FORWARD travel position equal to that of the LEFT drive control lever.
5. For counter-clockwise turns, reverse the above procedure.

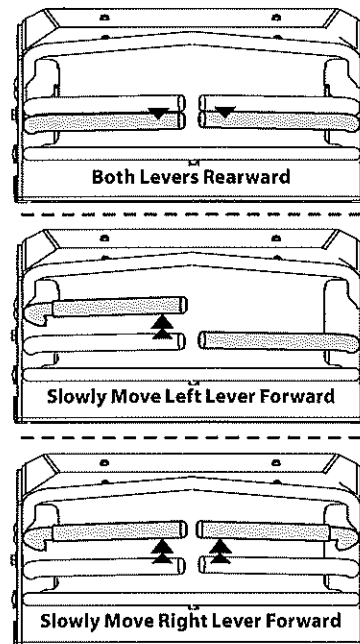


Figure 14

### STOPPING THE MOWER

1. Move both drive control levers to the neutral position to stop the motion of the mower.
2. Push the PTO downward to the OFF position.
3. Use the deck lift knob/handle to raise the deck to its highest position.
4. If dismounting the mower, ensure the drive control levers are in the neutral position, engage the parking brake, move the throttle to the SLOW position. Allow the engine to run for one minute then turn the key to STOP and remove the from the ignition module.

### ⚠ WARNING

Do not leave the operator's platform of the mower without disengaging the PTO and engaging the Parking Brake. If leaving the mower unattended, turn the ignition key to the STOP position and remove key.

## OPERATION

### DRIVING ON SLOPES

Refer to the slope gauge in the Safe Operation Section to help determine slopes where you may operate safely.


#### ▲ WARNING


Do not operate on inclines with a slope in excess of 15°/26% (a rise of approximately 4 feet every 10 feet). The machine could overturn and cause serious injury.

1. Always drive across slopes, never up and down. Control the speed and direction of the mower using primarily the control lever on the downhill side of the mower, with the uphill control lever remaining essentially in a fixed position.
2. Avoid turning downhill if possible. Start at the bottom of a slope and work upward. Always slow down before turning.
3. Use extra care and go slowly when turning downhill.

### ENGAGING THE PTO

Engaging the PTO transfers power to the cutting deck. To engage the PTO:

1. Move the throttle to the FAST  position.
2. Pull the PTO switch up/out into the ENGAGED (ON) position.

**NOTE:** When operating the mower be certain that the throttle is always in the FAST  position. Operating with the throttle at less than full throttle may lead to premature battery wear and a poor quality cut.

3. To disengage the PTO, push the PTO switch down/into the DISENGAGED (OFF) position.

### MOWING

#### ▲ WARNING

To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children and pets at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.

#### ▲ WARNING

Make certain the area to be mowed is free of debris, sticks, stones, wire or other objects that can be thrown by the rotating blades.

**NOTE:** Do not engage the mower deck when lowered in grass. Premature wear and possible failure of the 'V' belt and PTO clutch will result. Fully raise the deck or move to a non grassy area before engaging the mower deck.

- Mow across slopes, not up and down. If mowing a slope, start at bottom and work upward to ensure turns are made uphill.
- Do not mow at high ground speed, especially if a mulch kit or grass collector is installed.
- Do not cut the grass too short. Short grass is prone to weed growth and yellows quickly in dry weather.

- Always operate the mower with the throttle in the FAST position while mowing.
- On the first pass pick a point on the opposite side of the area to be mowed. Follow the point to maintain a straight line
- Move the throttle control or throttle control to the FAST position and engage the PTO.
- Lower the mower deck to the desired height setting.
- For best results it is recommended that the first two laps be cut with the discharge thrown towards the center. After the first two laps, reverse the direction to throw the discharge to the outside for the balance of cutting. This will give a better appearance to the lawn.
- Slowly and evenly push the RH and LH drive control levers forward to move the mower forward, and keep the mower headed directly toward the alignment point.

**NOTE:** The speed of the mower will affect the quality of the mower cut. Mowing at full speed will adversely affect the cut quality. Control the ground speed with the drive control levers.

- The mower is designed to cut normal residential grass of a height no more than 10" (25cm). Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the mower.
- Do NOT attempt to mow heavy brush and weeds or extremely tall grass. The mower is designed to mow lawns, NOT clear brush.
- Keep the blades sharp and replace the blades when worn.
- When approaching the other end of the strip, slow down or stop before turning. A Y-turn is recommended unless a pivot or zero turn is required.
- Align the mower with an edge of the mowed strip and overlap approximately 3" (7.6 cm).
- Direct the mower on each subsequent strip to align with a previously cut strip.
- To prevent rutting or grooving of the turf, if possible, change the direction that the strips are mowed by approximately 45° for the next and each subsequent mowing.

When stopping the mower for any reason while on a grass surface, always:

- Return the RH and LH drive control levers to the natural position and engage the park brake lever.
- Shut engine off and remove the key.
- Doing so will minimize the possibility of having your lawn "browned" by hot exhaust from the mower's running engine.

## PRODUCT CARE

### MAINTENANCE SCHEDULE

|  | Before Each Use | Every 25 Hours | Every 50 Hours | Every 500 Hours | After Each Use |
|--|-----------------|----------------|----------------|-----------------|----------------|
| Check gasoline level   | ✓               |                |                |                 |                |
| Check hydraulic hoses for leaks  | ✓               |                |                |                 |                |
| Check tires & tire pressure  | ✓               |                |                |                 |                |
| Check deck, mower and hydro drive belts  | ✓               |                |                |                 |                |
| Check blades and blade bolt tightness  | ✓               |                |                |                 |                |
| Check safety switches for proper operation   | ✓               |                |                |                 |                |
| Check fluid level in transmission oil expansion reservoir                          | ✓               |                |                |                 |                |
| Check/Clean Engine Intake Screens & Cooling Fans *                                 | ✓               |                |                |                 | ✓              |
| Check/Clean Exhaust Manifold, Muffler Pipe & Muffler Shields *                     | ✓               |                |                |                 | ✓              |
| Check/Clean Top & Underside of Deck, Under and Around Spindle Covers & Belt Area * | ✓               |                |                |                 | ✓              |
| Check/Clean Around Fuses, Wiring and Wiring Harnesses *                            | ✓               |                |                |                 | ✓              |
| Check/Clean Around Transmission, Axle and Fans *                                   | ✓               |                |                |                 | ✓              |
| Blow out/clean the engine/pump control   |                 |                |                |                 | ✓              |
| Blow out/clean the operator's platform area  |                 |                |                |                 | ✓              |
| Lubricate wear points (see chart)  |                 |                | ✓              |                 | ✓              |
| Clean engine cooling fins & external surfaces *                                    |                 |                | ✓              |                 |                |
| Change hydrostatic fluid & filter in transaxles **                                 |                 |                |                | ✓               |                |

\* — Perform more frequently under dusty conditions.

\*\* — After first 300 hours, change hydrostatic fluid and filter in transaxles

### OIL CHART

Apply a few drops of SAE engine oil, grease, or use a spray lubricant. Apply the oil to both sides of pivot points. Wipe off any excess. Start engine and operate mower briefly to insure that oil spreads evenly.

| Number of Oil Points | Description   |
|----------------------|---|
| <b>DAILY</b>         |   |
| 4                    | Deck Suspension Pivots                                |
| 2                    | Rear Deck Stabilizer Pivots                           |
| 4                    | Height Adjustment Turnbuckle Clevis Pin               |
| 2                    | Height Adjustment Handle Pivots                       |
| 6                    | Deck Lift Linkage Pivots                              |
| 2                    | Deck Lift Handle Pivots                               |
| 1                    | Deck Lift Handle Pin                                  |
| 2                    | Deck Frame Up-and-Down Pivots                         |
| <b>WEEKLY</b>        |   |
| 4                    | Operator's Platform Linkage Pivot Points              |
| 4                    | Speed Control Linkage Rod End Bearings                |
| 2                    | Pump Control Lever Pivots                             |
| 1                    | Operator's Platform Suspension Adjustment Lever Pivot |
| 1                    | Brake Lever Pivot                                     |
| 1                    | Brake Lever Pivot Clevis Pin                          |
| 1                    | Brake Lever Control Rod Pivot                         |

#### HYDRAULIC FLUID

- Shell TT-SB

#### GENERAL PURPOSE LUBRICATION:

Use any NLGI grade 2 multi-purpose grease. Shell Albida EP2 is recommended. Shell Albida EP 2 is a red-colored multi-purpose grease designed for heavy-duty bearing applications. It has high base oil viscosity for mechanical stability, has been formulated for high load, low-speed applications, and has excellent lubrication and corrosion protection.

**NOTE:** This Operator's Manual covers several models. Mower features may vary by model. Not all features in this manual are applicable to all mower models and the mower depicted may differ from yours.



## PRODUCT CARE

### Maintenance

#### ⚠ WARNING

Before performing any maintenance or repairs, disengage the PTO, move the drive control levers in the neutral position and engage the parking brake. Stop the engine and remove the key to prevent unintended starting.

### Post-Operation Mower Care

After each operation of the mower, the following procedures should be implemented to extend the life of your mower and ensure safe operating conditions.

#### ⚠ DANGER

Failure to follow these recommendations may result in serious injury to yourself or others and may cause damage to the mower.

#### CLEANING THE UNDERSIDE OF THE DECK

Rinse grass clippings from the deck's underside and prevent the buildup of corrosive chemicals.

#### ⚠ WARNING

Make certain the mower's discharge chute is directed **AWAY** from people, your house, garage, parked cars, etc.

1. Disengage the PTO, set the parking brake and stop the engine.
2. Use a hose to spray the underside of the deck.  
**NOTE:** Make sure that the hose is not routed under the deck and is clear of all moving parts.
3. After cleaning your deck, return to the operator's platform and engage the PTO. Keep the deck running for a minimum of two minutes, allowing the underside of the deck to thoroughly dry.

#### CLEANING THE MOWER

#### ⚠ WARNING

If the mower has been recently run, the engine, muffler and surrounding metal surfaces will be hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

Your mower should be cleaned after each use and under certain conditions, i.e. dry conditions and/or mulching situations, additional cleaning may be necessary.

One of the best ways to keep your mower running efficiently and to reduce fire risk is to regularly remove debris buildup from the mower. Follow the recommendations below and contact your authorized dealer with any questions.

- Allow the machine to cool in an open area before cleaning.
- Do not use water on any part of the mower except the underside of the cutting deck. Doing so can cause damage to the mower's spindle bearings, electrical system and engine, leading to premature failures. The use of compressed air and/or leaf blower will help keep the mower clean.
- Clean around the exhaust manifold, fuses, all wiring and harnesses, muffler pipe, muffler shield, engine intake screens and cooling fins, etc. See Figure 15.

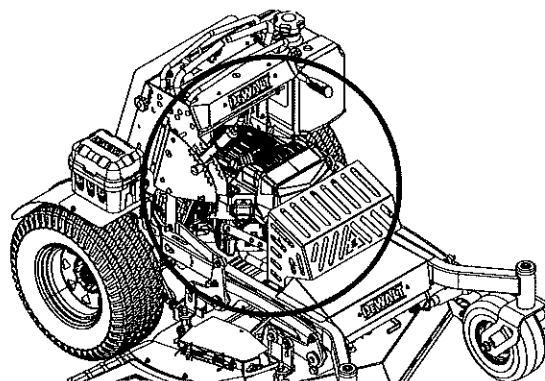


Figure 15

- Clean the top of the mower deck, under the spindle covers and belt area. See Figure 16.

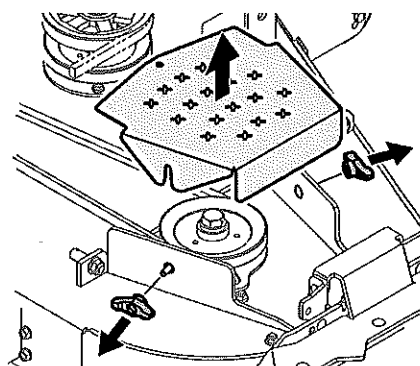


Figure 16

- Clean around and near the transmission, axle and the fan area. See Figure 17.

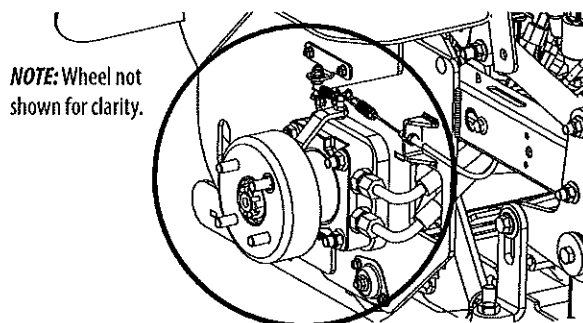


Figure 17

- Debris can accumulate anywhere on the mower, especially on horizontal surfaces. Additional cleaning may be necessary when mowing in dry conditions or when mulching.
- Fuel leaks/spills, oil leaks/spills and excess lubrication can also become collections sites for debris. Immediate repair and cleaning up oil or fuel spills can help reduce fire hazards.
- In addition to cleaning the mower before operating and storing, do not attempt to mow unusually tall grass (10" or higher), dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the mower deck presenting a potential fire hazard.

## PRODUCT CARE

### LUBRICATION

Periodically lubricate all pivot points with a quality lubricating oil.

### STORING THE MOWER

- Allow the machine to cool in an open area before storing.
- Do not park the mower near any flammable materials (wood, cloth or chemicals) or any open flames or other potential source of ignition (furnace, water heater or any other type of heater).
- Remove all combustible materials from the mower before storing. Empty cargo boxes, grass catchers or containers.
- Check the fuel system (lines, tank, cap and fittings) frequently for cracks or leaks. Repair and clean as necessary.

### Engine Care

Refer to the Engine Operator's Manual for all engine maintenance intervals, procedures, specifications and instructions.

### CHANGING THE ENGINE OIL

#### ⚠ WARNING

If the engine has been recently run, the engine, muffler and surrounding metal surfaces will be hot and can cause burns to the skin. Exercise caution to avoid burns.

Maintain oil level as instructed in Engine Operator's Manual. Be careful not to spill oil on any of the belts.

To complete an oil change, proceed as follows:

1. Run the engine for a short time to warm the engine oil. The oil will flow more freely and carry away more impurities. Use care to avoid burns from hot oil.
2. Locate the oil drain hose on the engine. See Figure 18.

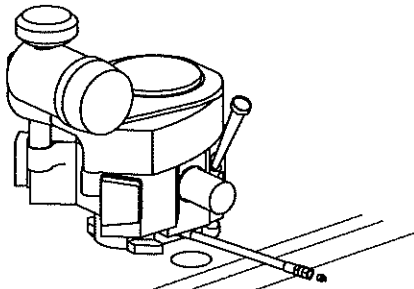


Figure 18

3. Route the free end of the oil drain hose through the hole in the mower frame toward an appropriate oil collection container with at least a 2.5 quart (2.65 Liter) capacity, to collect the used oil.

**NOTE:** Avoid getting oil on the muffler when draining.

4. While holding the free end of the oil drain hose over the oil collection container, unscrew the square-head hose plug from the end of the hose. See Figure 18. Drain the engine oil into the collection container.
5. Remove the oil filter to make sure all the oil is drained.

6. After draining the oil, wipe any residual oil from the oil drain hose. Thread the square head plug into the drain hose fitting and fully tighten the plug.
7. Replace the oil filter and refill the engine with new oil as instructed in the engine operator's manual. Refer to the Engine Operator's Manual for information regarding the volume and weight of engine oil.
8. Place the oil drain hose back in original position.

### Battery

#### ⚠ WARNING

**CALIFORNIA PROPOSITION 65:** Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

#### ⚠ CAUTION

If removing the battery for cleaning, disconnect the **NEGATIVE (Black)** wire from its terminal first, followed by the **POSITIVE (Red)** wire. When re-installing the battery, always connect the **POSITIVE (Red)** wire to its terminal first, followed by the **NEGATIVE (Black)** wire. Be certain that the wires are connected to the correct terminals; reversing them could result in serious damage to your engine's alternating system.

### BATTERY FAILURES

Some common causes for battery failure are:

- Incorrect initial activation
- Overcharging
- Freezing
- Undercharging
- Corroded connections

These failures are NOT covered by your riding mower's warranty.

### JUMP STARTING

#### ⚠ WARNING

Never jump start a damaged or frozen battery. Be certain the vehicles do not touch and ignitions are off. Do not allow cable clamps to touch.

1. Connect positive (+) cable to positive post (+) of your riding mower's discharged battery.
2. Connect the other end of the cable to the (positive +) post of the jumper battery.
3. Connect the second cable (negative -) to the other post of the jumper battery.
4. Make the final connection on the engine block of the riding mower, away from the battery. Attach to an unpainted part to assure a good connection.

#### ⚠ CAUTION

If the jumper battery is installed on a vehicle (i.e. car, truck), do NOT start the vehicle's engine when jump starting your riding mower.

5. Start the riding mower as instructed in the Operation section of this manual.
6. Set the riding mower's parking brake before removing the jumper cables, in reverse order of connection.

## PRODUCT CARE

### CHARGING

#### ⚠ WARNING

Batteries give off an explosive gas while charging. Charge the battery in a well-ventilated area and keep away from an open flame or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.

#### ⚠ CAUTION

Only use the approved charger for your battery type. Reference your battery charger's Owner's Manual prior to charging your riding mower's battery. Always follow its instructions and heed its warnings.

If your riding mower has not been put into use for an extended period of time, charge the battery as follows:

1. An AGM battery charger should be used. Recommended charge rate is 1.1A to 14.8V.
  - If your battery charger is automatic, charge the battery until the charger indicates that charging is complete.
  - If the charger is not automatic, charge for no fewer than eight (8) hours.

### FUSE

One 5A fuse is installed in your riding mower's wiring harness located just above the battery, under the left fender, to protect the riding mower's electrical system from damage caused by excessive amperage.

If the electrical system does not function or your riding mower's engine will not crank, first check to be certain that the fuse has not blown. It can be found at the rear of the riding mower, underneath the fender located by the battery.

#### ⚠ CAUTION

Always use a replacement fuse with the same amperage capacity as the blown fuse.

### REMOVING/INSTALLING THE BATTERY

1. Release the two latches (a) securing the battery cover (b) to the battery box (c) and remove the battery box lid. See Figure 19.

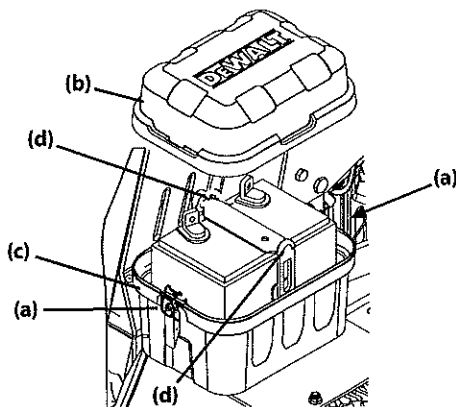


Figure 19

2. Unhook the two rubber straps (d) securing the battery in place.

**NOTE:** The positive battery terminal (e) is marked POS. (+). The negative battery terminal (f) is marked NEG. (-). See Figure 20.

3. Remove the hex cap screw (g) and sems nut (h) securing the black negative battery lead (i) to the negative battery post (f) (marked NEG). Move the cable away from the negative battery post.
4. Remove the red boot (j), hex cap screw (k) and sems nut (l) securing the red positive battery lead (m) to the positive battery post (e) (marked POS).
5. Carefully lift the battery out of the battery box.
6. To install the battery reverse STEPS 1-5.

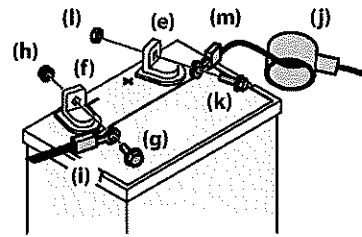


Figure 20

### Tires

#### ⚠ WARNING

For proper traction and deck leveling the maximum recommended tire pressure is 12 psi. Equal tire pressure should be maintained at all times. NEVER exceed the Maximum PSI noted on the tire side wall.

Check the tire air pressure after every 50 hours of operation or weekly. Keep the tires inflated to the recommended pressures. Improper inflation will shorten the tire service life and produce an uneven cut. Observe the following guidelines:

Rear Tires — 10-12 psi (69-82.7 kPa) max recommended operating pressure.

Front Tires — N/A - Front tires are semi pneumatic and do not require inflation.

- Do not inflate a tire above the operational pressure of 12 psi (82.7 kPa).
- Do not reinflate a tire that has been run flat or seriously under inflated. Have it inspected and serviced by a qualified tire mechanic.

### Using the Transmission Bypass Valves

If for any reason the mower will not drive or you wish to move the mower, the two hydrostatic transmissions are equipped with a bypass valve that will allow you to manually move the mower short distances.

#### ⚠ WARNING

Do not tow the mower, even with the bypass valve open. Serious transmission damage will result from doing so.

**IMPORTANT:** The mower is equipped with two hydrostatic transmissions. Each transmission is equipped with a bypass valve that **MUST** be opened before manually moving the mower.

**IMPORTANT:** Unless purging air from the hydrostatic transmission oil system, the bypass valves **MUST** be closed before operating the mower.

1. Loosen the two star knobs (a) securing the leg pad (b) to the mower. See Figure 21.
2. Remove the leg pad from the mower.

## PRODUCT CARE

3. Remove the two star knobs (c) securing the rear panel (d) to the mower.

**IMPORTANT:** DO NOT open the bypass valves more than a maximum of two turns.

4. Locate the hydrostatic transmissions and open the two bypass valves (e) a maximum of two turns.
5. Using the two star knobs, reinstall the rear panel.
6. Using the two star knobs, reinstall the leg pad.
7. Reverse STEPS 1-7 to close the two bypass valves.

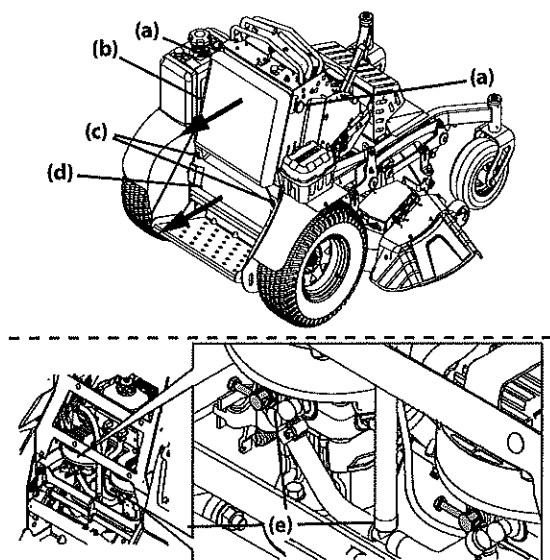


Figure 21

### Hydrostatic Transmission Oil

#### ⚠ WARNING

If the mower has been recently run, the engine, muffler and surrounding metal surfaces will be hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

**NOTE:** This procedure contains the following instructions for checking, changing and adding hydrostatic transmission oil:

- Checking The Hydrostatic Transmission Oil Level
- Changing The Hydrostatic Transmission Oil
- Adding Hydrostatic Transmission Oil
- Purging Air From The Hydrostatic Transmission

#### CHECKING THE HYDROSTATIC TRANSMISSION OIL LEVEL

1. Locate the hydrostatic transmission oil reservoir (a) behind the engine under the control panel.
2. Ensure the hydrostatic transmission oil reservoir level is just above the upper reservoir mounting bolts (b) as shown in Figure 22.

**NOTE:** The hydrostatic transmission oil level must always stay above the hose fittings on the rear of the tank, otherwise air may be introduced into the system.

3. If necessary, add hydrostatic transmission oil. Refer to Adding Hydrostatic Transmission Oil in this procedure.

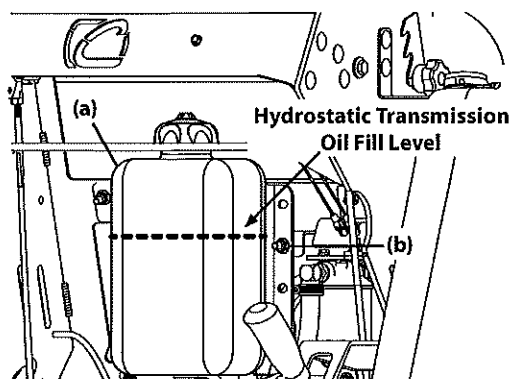


Figure 22

#### CHANGING THE HYDROSTATIC TRANSMISSION OIL/OIL FILTER

#### ⚠ WARNING

If the mower has been recently run, the engine, muffler and surrounding metal surfaces will be hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

**NOTE:** Use care when changing the hydrostatic transmission oil and oil filter. Do not allow oil to drip onto the hydrostatic transmission oil pumps.

1. Place a suitable container on the left side of the mower deck as close as possible to the oil filter.
2. Loosen the hose clamp (a) securing the transmission oil hose (b) to the transmission oil filter assembly (c). See Figure 23.
3. Positioning a funnel under the transmission oil filter assembly so that the funnel will empty into the container positioned in STEP 1.
4. Disconnect the transmission oil hose from the transmission oil filter assembly and allow the hydrostatic transmission oil to drain into funnel.
5. If necessary, perform the following to replace the oil filter:
  - a. Remove the existing oil filter (d) from the transmission oil filter assembly (c).
  - b. Apply a light amount of oil to the filter gasket.
  - c. Install the new oil filter and tighten 3/4 to 1 turn after gasket contacts transmission oil filter assembly base.
6. Reconnect the transmission oil hose to the transmission oil filter assembly and secure hose using the hose clamp loosened in STEP 2.
7. Tighten the hose clamp (a) securing the transmission oil hose (b) to the transmission oil filter assembly (c).

## PRODUCT CARE

8. Add new hydrostatic transmission oil. Refer to Adding Hydrostatic Transmission Oil in this procedure.

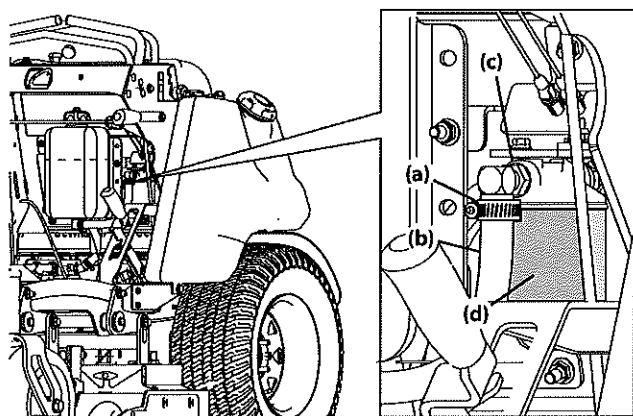


Figure 23

### ADDING HYDROSTATIC TRANSMISSION OIL

1. Loosen the two star knobs securing the leg pad to the mower.
2. Remove the leg pad from the mower.
3. Remove the two star knobs securing the rear panel to the mower.
4. Remove the rear panel from the mower.
5. Remove the hydrostatic transmission oil reservoir cap (a)
6. Insert a funnel into the reservoir (b). See Figure 24.
7. Add hydrostatic transmission oil until the level is even with the upper reservoir mounting bolts. See Figure 22.
8. Replace the hydrostatic transmission oil reservoir cap.
9. Purge air from the hydrostatic transmission. Refer to Purging Air From The Hydrostatic Transmission in this procedure.
10. Using the two star knobs, reinstall the rear panel.
11. Using the two star knobs, reinstall the leg pad.

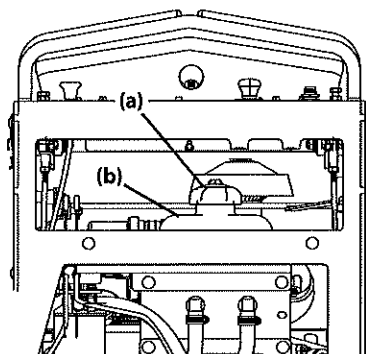


Figure 24

### PURGING AIR FROM THE HYDROSTATIC TRANSMISSION

Due to the effects air has on efficiency in hydrostatic drive applications, it is critical that air is removed or purged from the system.

**IMPORTANT:** These purge procedures must be performed any-time a hydrostatic system has been opened for maintenance or repair, or if any additional oil has been added to the system.

Air creates inefficiency because it has compression and expansion rates that are higher than that of oil.

Air trapped in the oil may cause the following symptoms:

1. Noisy operation.
2. Lack of power or drive after short-term operation.
3. High operation temperature and excessive expansion of oil.

Before starting, make sure the reservoir is at the proper oil level. Refer to Checking The Hydrostatic Transmission Oil Level in this Section.

**IMPORTANT:** The following procedures should be performed with the mower drive wheels off the ground, then repeated under normal operating conditions.

### ⚠ WARNING

Certain procedures require the mower engine to be operated and the vehicle to be raised off of the ground. To prevent possible injury to the servicing technician and/or bystanders, insure the vehicle is properly secured.

4. With the bypass valves open and the engine running, slowly move the drive control levers in both forward and reverse directions (5 to 6 times). As air is purged from the unit, the oil level in the reservoir will drop.
5. With the bypass valve closed and the engine running, slowly move the directional control in both forward and reverse directions (5 to 6 times). Check the oil level, and add oil as required after stopping engine.
6. It may be necessary to repeat STEPS 1 and 2 until all the air is completely purged from the system. When the wheels moves forward and reverse at normal speed and the reservoir oil remains at a constant level, purging is complete.

### Mower Storage

If your mower is not going to be operated for an extended period of time (30 days to approximately 6 months), the mower should be prepared for storage. Store the mower in a dry and protected location. If stored outside, cover the mower (including the tires) to protect it from the elements. The procedures outlined below should be performed whenever the mower is placed in storage.

1. Change the engine oil and filter following the instructions provided in the Engine Operator's Manual packed with this manual.

### ⚠ WARNING

Never store the mower with fuel in the tank indoors or in poorly ventilated enclosures, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, etc.

2. If storing the mower for 30 days or more:
  - a. To prevent gum deposits from forming inside the engine's carburetor and causing possible malfunction of the engine, the fuel system must be either completely emptied, or the gasoline must be treated with a stabilizer to prevent deterioration.

## PRODUCT CARE

### ⚠ WARNING

Fuel left in the fuel tank deteriorates and will cause serious starting problems.

- b. Use a fuel stabilizer *for storage between 30 and 90 days*:
  - Read the product manufacturer's instructions and recommendations.
  - Add to clean, fresh gasoline the correct amount of stabilizer for the capacity (approximately 3 gallons) of the fuel system.
  - Fill the fuel tank with treated fuel and run the engine for 2-3 minutes to get stabilized fuel into the carburetor.
- c. Emptying the fuel system for storage of more than 90 days:
  - Prior to putting the mower in storage, monitor fuel consumption with the goal of running the fuel tank empty.
  - Run the engine until it begins to stall. Use the choke to keep the engine running until all fuel in the carburetor has been exhausted.
  - Referring to the Engine Operator's Manual, drain the fuel from the carburetor bowl.
3. Clean the engine and the entire mower thoroughly.
4. Fully charge the battery, then disconnect the negative cable at the battery to prevent possible discharge. Recharge the battery periodically when in storage.
5. Lubricate all lubrication points.

**Note:** Remove the battery if exposed to prolonged periods of sub-freezing temperatures. Store in a cool, dry location where temperatures are above freezing.

**Note:** Using a pressure washer or garden hose is not recommended for cleaning your mower. It may cause damage to electrical components, spindles, pulleys, bearings or the engine. The use of water will result in shortened life and reduce serviceability.

### REMOVING THE MOWER FROM STORAGE

1. Check the engine oil.
2. Fully charge the battery and inflate the tires to the recommended pressure.
3. Fill the fuel tank with clean, fresh gasoline.
4. Start the engine and allow to idle for a few minutes to ensure engine is operating properly.
5. Drive the mower without a load to make certain all the mower systems are functioning properly.

## Adjustments

### ⚠ WARNING

Shut the engine off, remove the ignition key and engage the parking brake before making adjustments. Protect your hands by using heavy gloves when handling the blades.

### MOWER TRACKING

If your mower tracks to the left or right, a tracking adjustment is needed. See Figure 25. To adjust the tracking, use the tracking bolts on the control panel and follow these instructions.

#### Mower Tracks (Pulls) To The Left:

1. Locate the left tracking bolt (a) on the left side of the control panel.
2. Loosen the jam nut (b) and rotate the tracking bolt counterclockwise in ¼-turn increments until the mower tracks straight.
3. Securely tighten the jam nut.

**NOTE:** If the mower still tracks to the left after making the maximum tracking adjustment perform the following:

- a. Locate the right tracking bolt (c) on the right side of the control panel.
- b. Loosen the jam nut (d) and rotate the tracking bolt clockwise in ¼-turn increments until the mower tracks straight.
- c. Securely tighten the jam nut.

#### Mower Tracks (Pulls) To The Right:

1. Locate the right tracking bolt (c) on the right side of the control panel.
2. Loosen the jam nut (d) and rotate the tracking bolt counterclockwise in ¼-turn increments until the mower tracks straight.
3. Securely tighten the jam nut.

**NOTE:** If the mower still tracks to the right after making the maximum tracking adjustment perform the following:

- a. Locate the left tracking bolt (a) on the left side of the control panel.
- b. Loosen the jam nut (b) and rotate the tracking bolt clockwise in ¼-turn increments until the mower tracks straight.
- c. Securely tighten the jam nut.

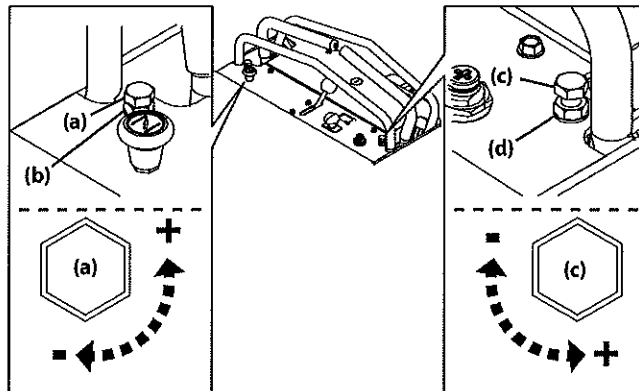


Figure 25

### MAXIMUM SPEED

The mowers maximum forward speed can be set by adjusting the front cruise bar to limit how far the drive control levers move. See Figure 26.

1. Locate the four carriage bolts and locknuts (a) securing the front cruise bar (b) to the mower.
2. Loosen but do not remove the four locknuts.
3. Tilt the front cruise bar forward to increase the maximum forward speed or towards the rear of the mower to decrease the maximum forward speed.
4. Securely tighten the four carriage bolts and locknuts.

**NOTE:** After adjusting the front cruise bar the mower may require tracking adjustment. If necessary refer to Mower Tracking in this section.

## PRODUCT CARE

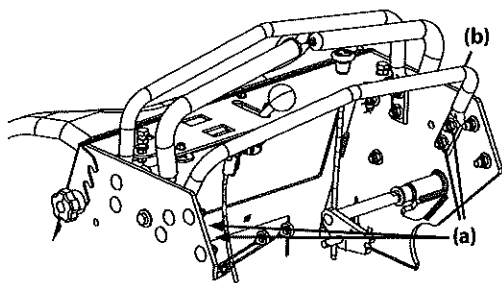


Figure 26

### DECK LEVELING

**Note:** Check the mower's tire pressure before performing any deck leveling adjustments. Refer to Tires for information regarding tire pressure. Always level the deck side-to-side before front to rear.

#### Side-to-Side Leveling

1. Park the mower on a flat paved surface, engage the parking brake, shut off the engine, remove the key from the ignition switch, disconnect the spark plug wires, using the deck height index position the mowing deck into the 4" (10.2 cm) height of cut position (the 4" height of cut position is recommended in order for one to see and obtain a measurement. Any height of cut position is acceptable as long as a proper measurement can be taken) and rotate both outside blades so that they are perpendicular with the mower.
2. Measure the distance from the outside of the left blade tip to the ground and the distance from the outside of the right blade tip to the ground. Both measurements taken should be equal. If they're not, proceed to the next step.
3. Adjust the eyebolt (a) at the left front of the deck so that the blade-to-ground height at the right outside blade tip matches that of the left outside blade tip. This is done by loosening the jam nuts (b) on the eyebolt (a) and tightening the upper jam nut (b) to raise the deck and loosening the jam nut (b) to lower the deck. The right outer blade tip height is fixed by the right, front eyebolt (a) so you must adjust the left outer tip to match it. See Figure 27.

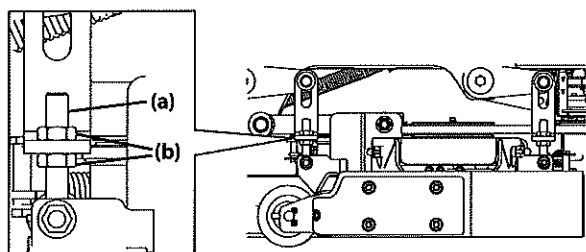


Figure 27

4. Once the proper adjustment is made, re-tighten the jam nuts (b).

#### Front-to-Back Leveling

1. Park the mower on a flat paved surface, engage the parking brake, shut off the engine, remove the key from the ignition switch, disconnect the spark plug wires, using the deck height index position the mowing deck into the 4" (10.2 cm) height of cut position (the 4" (10.2 cm) height of cut position is recommended in order for one to see and obtain a measurement. Any height of cut position is acceptable as long as a proper measurement can be taken) and rotate both outside blades so that they are parallel with the mower.

2. Measure the blade-to-ground height at the right rear blade tip. Again be sure to measure at the blade tip at the rear of the right blade when aligned along the mower center line. The blade-to-ground height at the rear of the blade tip should be 1/8" to 1/4" (3.2 to 6.4 mm) higher than the front tip. This is referred to as blade pitch. The same height difference should be true for the left blade, measured front and back. The pitch should not exceed 1/16" (1.6 mm) if cut height is below 1-1/2" (3.8 cm).
3. Loosen the jam nuts (b) at the rear left and right of the deck eyebolts (a). Refer to Figure 27.
4. Start at the right rear to raise the rear of the deck, tighten the upper jam nut (b) to raise the deck or loosen the upper jam nut (b) to lower the deck.
5. Adjust the jam nut (b) at the left rear to take the "slack" out of the threaded rod.
6. Tighten both lower jam nuts (b) to secure the deck adjustment.
7. The final adjustment would be to take the "slack" out of the left rear linkage if the rear of the deck was raised by adjusting the jam nuts (b) on the eyebolt (a). Loosen the jam nuts (b) and tighten the upper jam nut (b) to remove "slack".
8. In many cases it will be necessary to adjust deck height using both eyebolt (a) adjustments and pitch adjustment to achieve the correct blade-to-ground heights. If you remember that the front right blade tip adjustment is fixed and you level to that height, adjusting the decks will be simplified.

## Service

### SERVICING ELECTRICAL SYSTEM

#### Fuse

The 25 amp fuse holder is located on the right side of the mower frame under the control panel. The fuse is a standard plug-in type automotive fuse. Always use the same capacity fuse for replacement. Check the 25 amp fuse for any electrical problems.

If you have a recurring problem with blown fuses, have the mower's electrical system checked by your Service Center or Dealer.

### SAFETY INTERLOCK SYSTEM & SWITCH OPERATION CHECKS

The following operational checks should be made daily with the mower on a flat surface and the wheels blocked to prevent unintentional movement of the mower:

#### PTO Switch

1. Stand on the operator's platform. With the drive control levers in the neutral position and the parking brake engaged, engage the PTO switch by pulling up on the knob and try to start the engine. The engine should not start. If it does, the PTO switch must be replaced. See your Service Center or Dealer.
2. If the engine does not start, disengage the PTO by pressing the knob down and start the engine. Now engage the PTO and the blades should rotate.
3. If the blades do not turn, the PTO switch must be replaced, the platform switch must be replaced or the electric PTO clutch must be repaired. See your Service Center or Dealer.

## PRODUCT CARE

### Parking Brake Switch

1. Stand on the operator's platform. With the drive control levers in the neutral position and the PTO disengaged, release the parking brake and try to start the engine. The engine should not start.
2. If it does, the parking brake switch must be repositioned or replaced. See your Service Center or Dealer. If the engine does not start, engage the parking brake and start the engine.

### Operator's Presence Control Switch

1. With the drive control levers in the neutral position, the parking brake engaged and the PTO disengaged, start the engine. Disengage the parking brake and step off of the operator's platform. The engine should stop.
2. If the engine does not stop, the operator's platform switch must be replaced. See your Service Center or Dealer.
3. With the drive control levers in the neutral position, the parking brake engaged and the PTO disengaged, stand on the operator's platform and start the engine. Engage the PTO and the blades should start to rotate. Step off of the operator's platform and the blades should stop.
4. If the blades do not stop when you step off of the operator's platform, the operator's platform switch must be replaced. See your Service Center or Dealer.

### Electric PTO Clutch

This clutch operates when the engine is running, the operator is on the operator's platform and the PTO is engaged. This electric clutch is a normally trouble free device. If a problem develops and the blades do not turn first check the 25 amp fuse, then investigate the wiring harness and the connections to the platform switch, the PTO switch and the electric blade clutch. Then check the operator's platform switch, the PTO switch and finally the electric blade clutch. If the PTO clutch is still not working properly, see an authorized service dealer.

### REAR TIRE REMOVAL

1. With the tires on the ground, loosen, but do not remove the four lug nuts (a). See Figure 28.
2. Elevate the mower so tire is off the ground.
3. Remove the four lug nuts to remove tire from mower.
4. With the mower elevated, use the four lug nuts to reinstall the tire onto the mower. Hand tighten lug nuts.
5. Lower the mower so tire is on the ground.
6. Torque the lug nuts (a) to 65-70 ft-lbs (88.13-94.91 N-m), in a crisscross pattern.

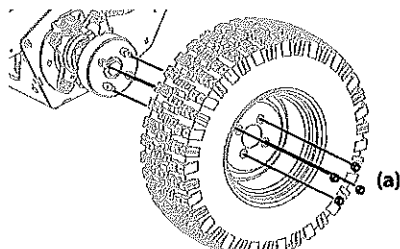


Figure 28

### REMOVING/INSTALLING THE DECK

#### ⚠ WARNING

The muffler and any surrounding parts at the rear of the mower may be extremely hot, and could cause serious burns. Use extreme caution when near the muffler. Allow the muffler to fully cool before removing the belt from the PTO pulley.

**NOTE:** Reverse this procedure to install the deck.

Remove the mower deck from the mower as follows:

1. Lower the deck to the ground. Capture the deck lift by placing the clevis pin behind the lowest position.
2. Apply the parking brake. Remove ignition key and the spark plug cap.
3. Using a 1/2" (12.7 mm) drive in the idler pulley bracket (a), turn the wrench towards the front of the mower and slide the PTO belt (b) off the deck pulleys (c) and the PTO clutch (d). See Figure 29.

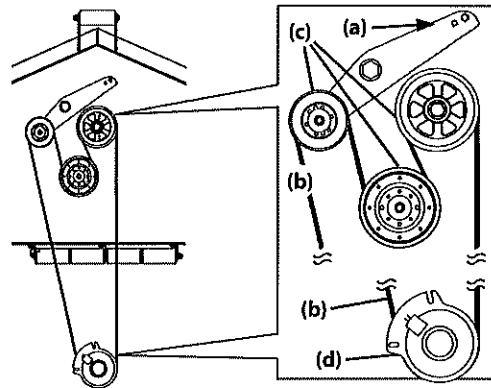


Figure 29

4. Remove the four lynch pins (e) that secure the deck to the deck lift assembly. See Figure 30.
5. Remove the lynch pin (f) securing the rear stabilizer bar to the rear, right side of the deck. See Figure 30.

**NOTE:** Right side of mower deck shown

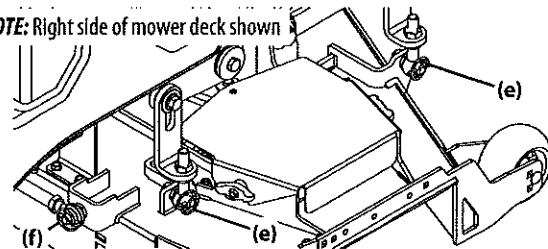


Figure 30

#### ⚠ CAUTION

The spring is under tension due to the weight of the deck. When removing the lift linkage from the deck the tension of the springs will go from the deck to the deck lift handle. Not capturing the deck height index by placing the clevis pin behind the lowest position while removing the lift linkage from the deck will cause it to snap back.



## PRODUCT CARE

- Remove the hex screws (g) flange lock nuts (h) securing the front deck control rods (i) to the deck. See Figure 31.

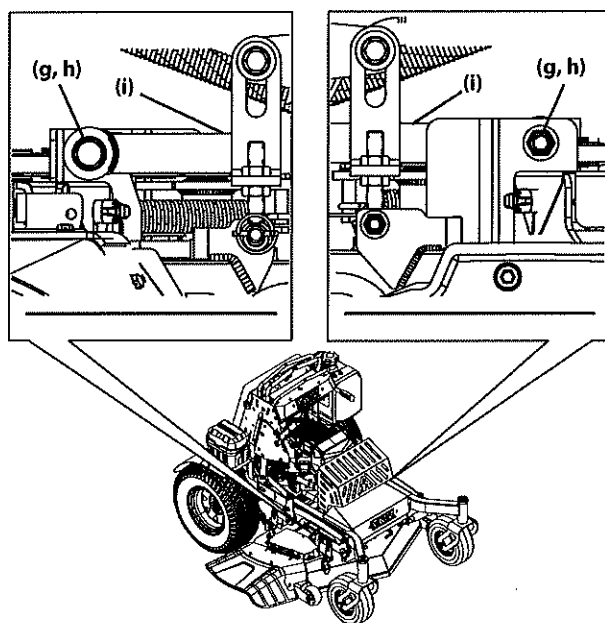


Figure 31

- Turn front wheels as if to make a pivot turn.
- Shift the deck toward the right side of the mower and remove.
- Reverse STEPS 1 - 8 to install the PTO belt and deck.

### REPLACING THE PTO BELT

- Remove the PTO belt (a) from the deck as instructed in STEPS 1 - 3 in Removing/Installing The Deck on page 25.

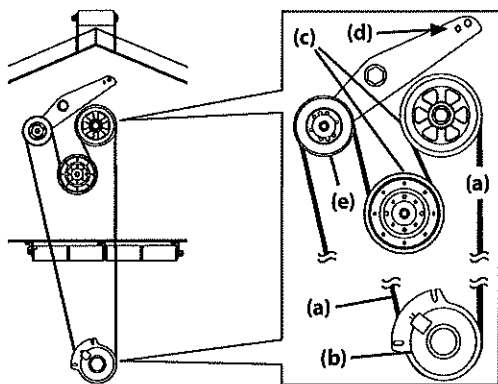


Figure 32

- Route the new PTO belt (a) around the PTO clutch (b) and PTO pulleys (c) as shown in Figure 32.
- After routing the belt around the PTO pulleys, use a 1/2" (12.7 mm) drive in the idler pulley bracket (d) and turn towards the right of the mower to finish routing the belt around the idler pulley (e).

### REPLACING THE DECK BELT -

- Set the parking brake. Remove ignition key and both spark plug caps.
- Remove the PTO belt from the deck as instructed in STEPS 1 - 3 in Removing/Installing The Deck on page 25.
- Remove the wing knobs (a) from the carriage screws (b) securing the belt covers (c) to the deck. Remove the deck covers. See Figure 33.

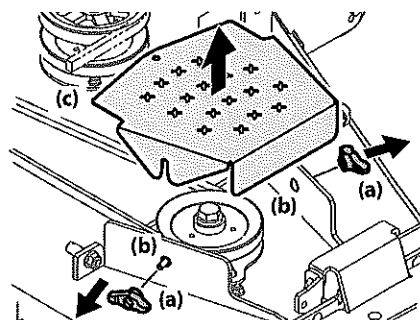


Figure 33

**NOTE:** Speed nuts should hold the carriage screws and tab bolt in place, if not re-install.

- Using a 1/2" (12.7 mm) drive insert the end into the 1/2" (12.7 mm) square opening in the deck idler assembly (d) and rotate the deck idler assembly clockwise. See Figure 34.
- While holding the deck idler assembly, loosen the deck belt from the idler pulley (e) and slide the belt away from the spindle pulleys (f).

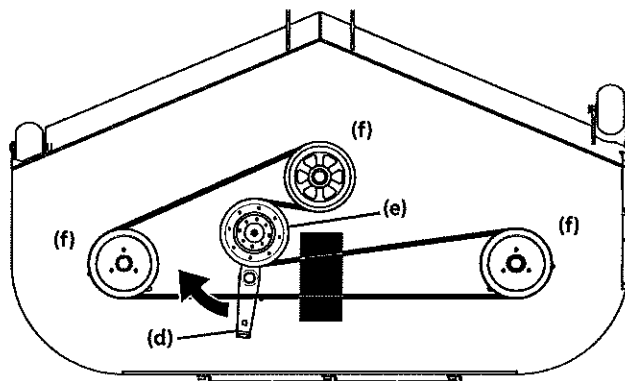


Figure 34

### ⚠ WARNING

Avoid pinching injuries. Never place your fingers on the idler spring or between the belt and a pulley while removing the belt.

- Route the new belt around the idler pulley and the spindle pulleys as shown in Figure 34.
- Using the wing knobs (a) and carriage screws (b), secure the belt covers (c) to the deck See Figure 33.
- Install the PTO belt from the deck as instructed in STEPS 1 - 3 in Removing/Installing The Deck on page 25.
- Remove the wing knobs (a) from the carriage screws (b) securing the belt covers (c) to the deck. Remove the deck covers. See Figure 33.
- Then reinstall the deck and PTO belt. Refer to Removing/Installing The Deck on page 25.

## PRODUCT CARE

### REPLACING THE BLADES

#### ⚠ WARNING

Before performing any maintenance, disengage the PTO, engage the parking brake lever, turn the ignition key to the "OFF" position and remove the key from the switch. Protect your hands by using heavy gloves when handling the blades. When servicing the mower deck, be careful not to cut yourself on the sharpened blades.

#### To Remove the Blades:

1. Remove the deck as instructed in the Deck Removal section on page 24.
2. Jack up the front of the mowing deck about one foot and block it in that position.
3. Wrap a rag around one end of the blade (a) and grasp it to prevent it from turning, or secure the blade (a) by placing a block of wood (b) between the blade (a) and the deck housing (c). See Figure 35.

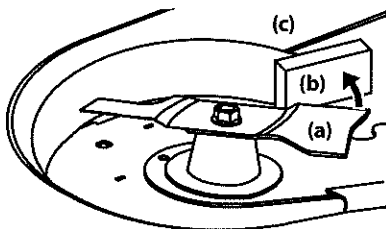


Figure 35

4. Remove the flange nut (d) and flat washer (e) securing the blade (a) to the mower (a) and remove the blade. See Figure 36.

**NOTE:** A cap (f) is present between the blade and the mower. Before assembly, ensure the cap is in place before installing the blade.

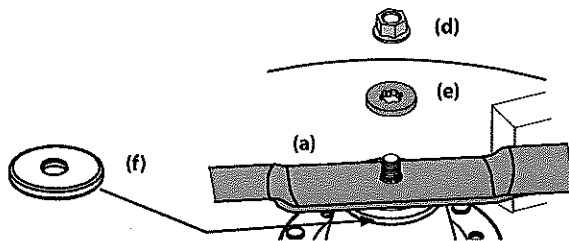


Figure 36

5. If necessary, sharpen the blade. See Sharpening The Blade in the Product Care Section.

#### To Reinstall the Blades

1. Place blade on the spindle shaft. Be sure to install the blade with the side marked "Bottom", "Grass Side" or with a part number stamped facing the ground when the deck is reinstalled on the tractor and in the operating position.
2. Carefully place the flat washer on the spindle shaft. Be sure that the splines at the base of the spindle shaft threads line up with the washer splines. See Figure 37.

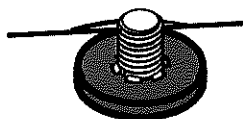


Figure 37

3. Secure the blade from turning clockwise when reinstalling the flange lock nut (the opposite direction of blade removal).
4. Install the flange lock nut onto the spindle shaft over the blade and flat washer. Torque to 110-130 ft-lbs (149.14-176.26 N-m).

#### Sharpening the Blades

1. Remove the blades. See Replacing The Blade in the Product Care Section.
2. Clean any debris from the blades. Keep blades sharp and free of build up at all times.
3. To properly sharpen the cutting blades, remove equal amounts of metal from both ends of the blades along the cutting edges, parallel to the trailing edge, at a 25°-30° angle. Always grind each cutting blade edge equally to maintain proper blade balance. See Figure 38.

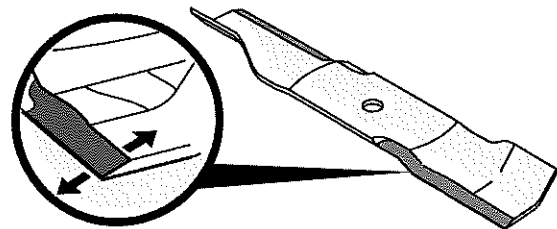


Figure 38

#### ⚠ WARNING

If a blade is bent or otherwise damaged, replace the blade with a new one. Use only original equipment blades.

#### ⚠ WARNING

A poorly balanced blade will cause excessive vibration, may damage the machine and/or result in personal injury.

4. Test the blade's balance using a blade balancer. Grind metal from the heavy side until it balances evenly.
5. Reinstall the blades. See Replacing The Blade in the Product Care Section.

#### REPLACING THE SPINDLE ASSEMBLIES

1. Remove the deck as instructed in the Deck Removal section on page 24.
2. Jack up the front of the mowing deck about one foot and block it in that position.
3. Remove the deck cover.
4. Remove the deck belt. See Replacing the Deck Belt on page 25.

**NOTE:** To remove the right or left side spindle assemblies go to STEP 5. To remove the front spindle assembly go to STEP 9.

5. Remove the blade from the side spindle assembly (a). See Replacing the Blades on page 26.
6. Remove the hex bolt (b), pulley (c) and spacer (d) spacer from the spindle assembly (a). See Figure 39.
7. Remove the four flange lock nuts securing the (e) upper support plate (f), lower support plate (g) and spindle assembly (a) to the deck. See Figure 39.
8. If necessary, repeat STEPS 6 and 7 to remove the remaining spindle from the opposite side of the deck.

## PRODUCT CARE

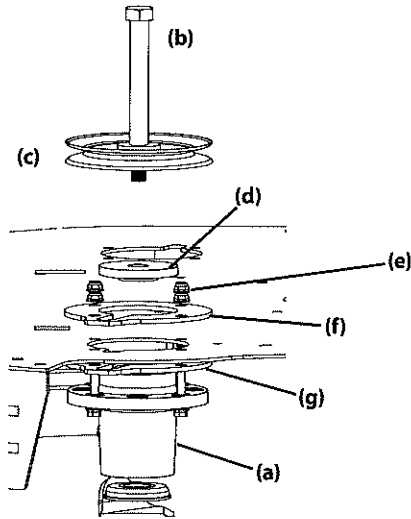


Figure 39

9. Remove the blade from the front spindle assembly (h). See Replacing the Blades on page 26.
10. Remove the hex bolt (i), drive pulley (j), washer (k), spindle pulley (l) and spacer (m) from the front spindle assembly (h). See Figure 40.
11. Remove the four flange lock nuts securing the (n) upper support plate (o), lower support plate (p) and front spindle assembly (h) to the deck. See Figure 40.

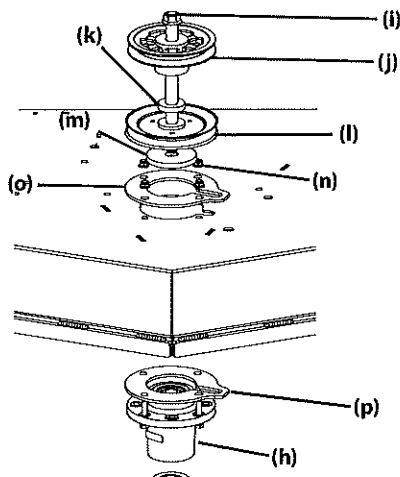


Figure 40

12. Reverse the process to install the spindle assembly. When installing the new spindle assembly be sure to install the hardware exactly as shown in Figure 39 and Figure 39.. Torque the hex flange bolts to 250 ft-lbs. (338.95 N-m) and the flange lock nuts to 21-32 ft-lbs (28.47-43.39 N-m).

### CHANGING THE TRANSMISSION DRIVE BELT

Several components must be removed and special tools used in order to change the mower's transmission drive belt. See your Service Center or Dealer to have the transmission drive belt replaced.

### MOWER CREEPING

Creeping is the slight forward or backward movement of the mower when the throttle is on and the drive levers are in the neutral position. If your mower creeps, see your Service Center or Dealer.

## Troubleshooting

### EXCESSIVE VIBRATION

1. Cutting blade loose or unbalanced.
  - a. Tighten blade and spindle.
2. Damaged or bent cutting blade.
  - a. Replace blade.

### UNEVEN CUT

1. Deck not properly leveled.
  - Perform side-to-side deck adjustment.
2. Cutting blade dull or damaged.
  - Sharpen or replace cutting blade.
3. Uneven tire pressure.
  - Check and correct tire pressure in all four tires.

### MOWER WILL NOT MULCH GRASS.

1. Engine speed too low.
  - Place throttle in FAST (rabbit) position.
2. Wet grass.
  - Do not mulch when grass is wet.
3. Excessively high grass.
  - Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath.
4. Dull blade.
  - Sharpen or replace blade.

### ENGINE FAILS TO START

1. PTO/Blade engaged.
  - Place blade engage lever in disengaged (OFF) position.
2. Blown fuse.
  - Replace fuse
3. Parking brake not engaged.
  - Engage parking brake.
4. See Engine Operator's Manual.

### ENGINE/MOWER DECK INTERMITTENT STOP/START

1. Engine or mower deck stops and starts when going over rough ground.
  - Operator's platform switch engages and disengages when driving over rough ground. Adjust suspension lower(softer) setting. If suspension is already in lowest setting see your Service Center or Dealer.