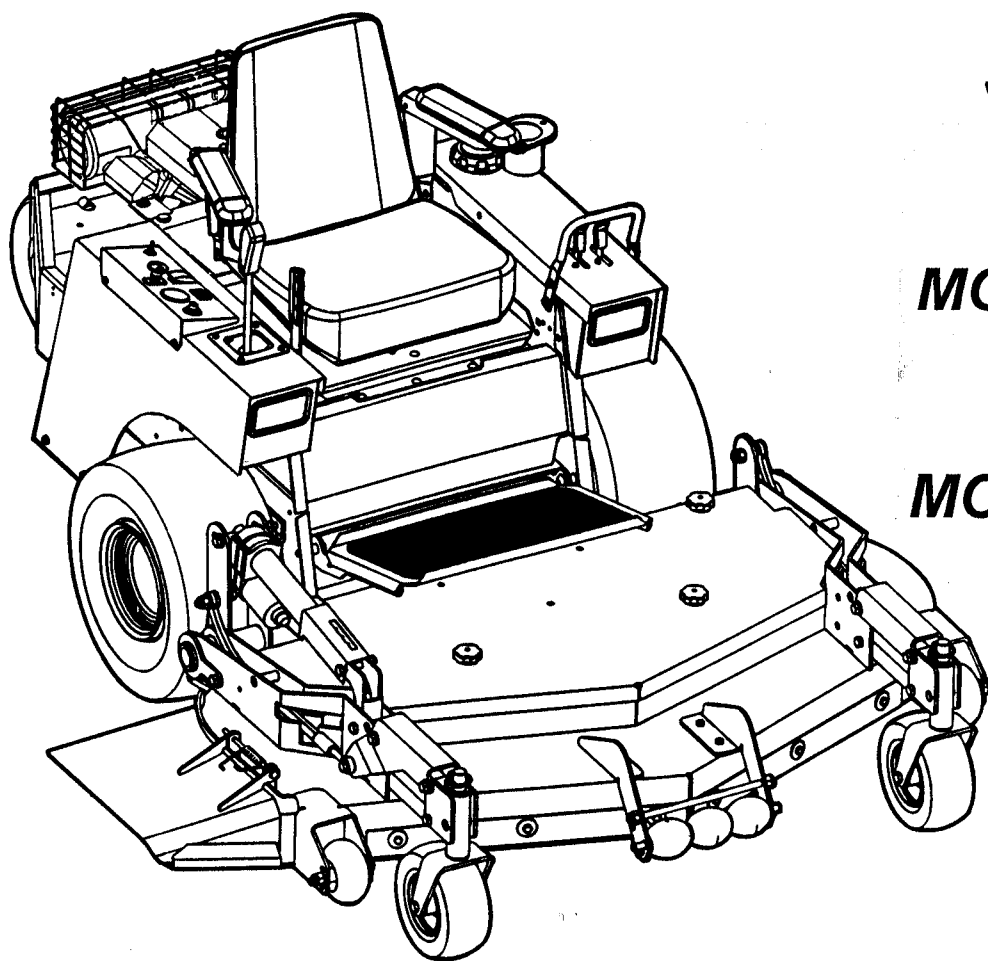


*Safety Instructions & Operator's Manual for*

# **SNAPPER®**

## **OUT FRONT Z-RIDER ZERO TURNING HYDRO DRIVE SERIES 0**



**POWER UNIT  
MODEL: ZF2200K**

**MOWER UNIT  
MODEL: ZF6100M**

**Thank you for buying a SNAPPER Product!** Before operating your **Out Front Z-Rider**, read this manual carefully and pay particular attention to the **"IMPORTANT SAFETY INSTRUCTIONS"** on Page 2 & 3. Remember that all power equipment can be dangerous if used improperly. Also keep in mind that **SAFETY** requires careful use in accordance with the operating instructions and common sense!

**SNAPPER®** McDonough, GA., 30253 U.S.A.

INSTRUCTION No. 3-5899 (I.R. 3/96)

# IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** This powerful cutting machine is capable of amputating hands and feet and can throw objects that can cause injury and damage! Failure to comply with the following SAFETY instructions could result in serious injury or death to the operator or other persons. The owner of the machine must understand these instructions and, furthermore, must allow only persons who understand these instructions to operate machine. Each person operating the machine must be of sound mind and body and must not be under the influence of any substance which might impair vision, dexterity, or judgment. If you have any questions pertaining to your machine which your dealer cannot answer to your satisfaction, call or write the Customer Service Department at SNAPPER, McDonough, Georgia 30253. Phone: (770) 954-2500.

## PROTECTION FOR CHILDREN

1. DO NOT allow children in yard when machine is operated (even with the blade OFF).
2. DO NOT allow children to ride on machine or on attachments (even with the blade OFF).
3. DO NOT allow pre-teenage children to operate machine.
4. Only adults or responsible teenagers with mature judgement, under close supervision, shall be allowed to operate machine!

## PROTECTION AGAINST TIPOVERS

1. DO NOT operate machine on slopes exceeding 15 degrees (27% grade).
2. On slopes above 10 degrees (18% grade), exercise extreme CAUTION. Turn blade OFF when traveling uphill, also reduce speed and avoid sharp turns.
3. Avoid uphill starts. If machine is stopped going uphill, turn blade OFF and back slowly down the slope.
4. DO NOT mow under any condition where traction or stability is doubtful without first test driving over the terrain with blade OFF.
5. Stay alert for holes and other hidden hazards. Keep away from ditches, washouts, culverts, fences and protruding objects.
6. DO NOT mow back and forth across face of slopes.
7. KEEP A SAFE DISTANCE (at least three feet) away from edge of ditches and other drop offs.

## PREPARATION

1. Read this manual, get to know where all controls are located and practice how to use them before starting for the first time, and at the beginning of each season. Pay attention to Warning and Instructional Decals on engine and machine. Read and follow operator's manuals and instructions furnished with attachments.
2. Handle fuel with care! Never remove fuel cap while engine is running. Fill fuel tank outdoors only with engine STOPPED and cool. Clean spilled fuel from machine. Store fuel in approved container, out of the reach of children, in well ventilated, unoccupied building.
3. Know how to STOP blade and engine quickly in preparation for emergencies.
4. Only mature, responsible persons shall operate the machine and only after proper instruction.

## PREPARATION

5. Mount and dismount the machine from left side.
6. Wear appropriate protective clothing when mowing, such as, long pants and substantial footwear, not barefoot or with open sandals.
7. Practice operation of machine with blade OFF to learn controls and develop skill.
8. Persons under the influence of alcohol or drugs must NOT operate machine.
9. Check the area to be mowed and remove all objects such as doormats, sticks, toys, wire, rocks, and other objects that could cause injury if thrown by blade.
10. Keep people and pets a safe distance from machine.
11. Shields, deflectors, switches, blade controls and other safety devices must be in proper position and functional.
12. Make sure all safety decals are clearly legible. Replace if damaged.

## OPERATIONAL PRECAUTIONS

1. STOP blade, STOP engine, set parking brake and remove key when leaving seat of machine.
2. DO NOT operate machine unless properly seated with feet on foot rests.
3. Keep hands and feet away from rotating blade underneath deck. Never place foot on ground while blade is ON or when machine is in motion.
4. Turn blade OFF, STOP engine and wait for blade to STOP before attempting to unclog grass or leaves to prevent loss of fingers or hand.
5. Blade must be switched OFF except when cutting grass. Set cutter in highest position when mowing over rough ground.
6. Deflector or grass catcher must be in position. Never point discharge at people, passing cars, windows or doors. Watch out for traffic when on or near roadways.
7. Operate in reverse only with careful observation of entire area behind the machine. DO NOT mow in reverse unless absolutely necessary.
8. Never carry passengers.
9. Service machine and make adjustments only when engine is stopped. Remove spark plug wire(s) from spark plug(s) and secure wire(s) away from spark plug(s).

# IMPORTANT SAFETY INSTRUCTIONS

## OPERATIONAL PRECAUTIONS

10. Have machine serviced by an authorized SNAPPER dealer at least once a year and have the dealer install any new safety devices.
11. Use only genuine SNAPPER replacement parts to assure that original standards are maintained.
12. Lubricate machine at intervals specified in manual to prevent controls from binding.
13. Mow only in daylight or with good artificial light.
14. DO NOT change engine governor speed settings or overspeed engine.
15. Check grass catcher components frequently for signs of wear or deterioration and replace as needed to prevent injury from thrown objects going through weak or worn spots.
16. DO NOT pull loads. This machine is not equipped with a draw bar.
17. Start engine from operator's seat. Make sure blade is OFF and parking brake is set.
18. Move joystick slowly to maintain control during speed and direction changes.
19. Stop engine immediately after striking an obstruction. Inspect machine and repair damage before resuming operation.

## MAINTENANCE

1. Disconnect negative (black) cable from battery before performing maintenance or service; if cranking engine could result in injury.
2. Never work under machine without safety blocks.
3. Keep engine free of grass, leaves, or excess grease to reduce fire hazard and engine overheating.
4. Check brakes frequently; adjust, repair or replace as needed.
5. Make sure bolts, nuts, and screws are tight. Check that all cotter pins are properly installed.
6. Never store machine with gasoline in the tank inside a building where fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, or other gas appliance. Allow engine to cool before storing in an enclosure.
7. If draining fuel tank, drain fuel into an approved container outdoors and away from open flame.
8. Always provide adequate ventilation when running engine indoors. Exhaust gases contain carbon monoxide, an odorless and deadly poison.

# TABLE OF CONTENTS

<b>IMPORTANT SAFETY INSTRUCTIONS.....</b>	<b>2-3</b>
<b>TABLE OF CONTENTS.....</b>	<b>4</b>
<b>OPERATING INSTRUCTIONS.....</b>	<b>5-8</b>
Pre-start Checklist .....	5
Starting & Stopping Engine.....	5-6
Starting & Stopping Mower Blades.....	7
Starting & Stopping Wheel Drive .....	7
Setting & Releasing Parking Brake .....	7
Adjusting Cutting Height .....	7
Propelling Mower.....	8
<b>MAINTENANCE INSTRUCTIONS .....</b>	<b>9-12</b>
Changing Engine Oil.....	9
Checking Mower Blade .....	9
Checking Mower Drive Belt.....	10
Checking Belt Tension.....	10
Mower Blade Spindle Lubrication.....	10
Front Wheel Bearings Lubrication.....	11
Transaxle Lubrication .....	11
Power Transfer Shaft Lubrication.....	11
Fuel Filter Replacement .....	12
Deck Removal.....	12
Power Transfer Shaft Removal.....	12
<b>ADJUSTMENTS AND REPAIR.....</b>	<b>13-15</b>
Neutral Position Adjustments.....	13
Mower Deck Adjustment (Levelness).....	13
Cutting Height Adjustment .....	14
Parking Brake Adjustment .....	14
Mower Blade.....	14-15
Mower Drive Belt .....	15
Battery Removal.....	16
Battery Installation.....	16
Battery Service & Charging .....	16
Battery Testing .....	16-17
New Battery Preparation.....	17
<b>TROUBLESHOOTING .....</b>	<b>18-19</b>
<b>SERVICE SCHEDULE.....</b>	<b>20</b>
Maintenance/Replacement Parts .....	20
<b>WARRANTY.....</b>	<b>21</b>

# Section 2 - OPERATING INSTRUCTIONS

## 2.1 PRE-START CHECK LIST

Make the following checks and perform the service required before each start-up.

2.1.1. Check tires and add or release air as needed to bring pressure to 22 psi in drive tires and 40 psi in rear caster tire. Pressure in front deck caster wheels should be 25 psi.

2.1.2. Check guards, deflectors and covers to make sure all are in place and securely tightened.

2.1.3. Check engine oil and add oil as needed to bring level up to the FULL mark. Refer to engine owner's manual for oil specifications. See Figure 2.1.

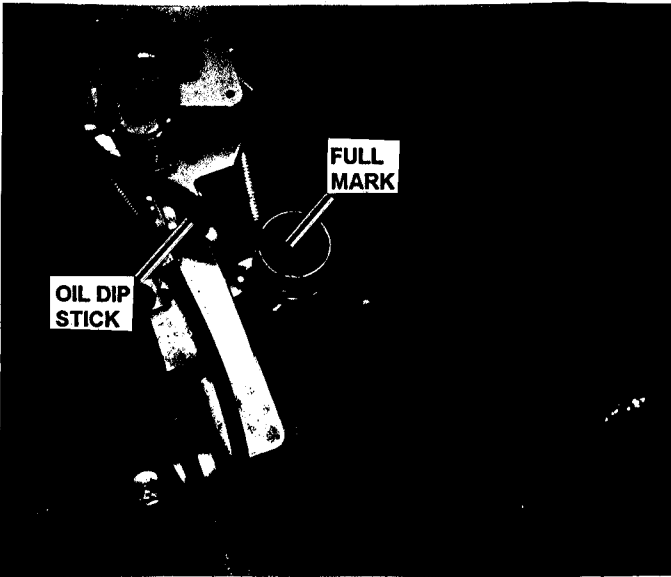


FIGURE 2.1

2.1.4. Check Blade switch to insure it works freely. Switch is pulled "OUT" for blade engagement or pushed back "IN" for blade disengagement. See Figure 2.2. IMPORTANT: Disengagement stops blades.

2.1.5. Clean exterior surfaces of cutting deck and engine of any accumulation of dirt, grass, oil, etc. Keep engine air intake screen and cooling fins clear at all times.

2.1.6. Add fuel to tank of the Out Front Z-Rider outside where fumes can safely dissipate. Make sure fuel filler cap is tight. Refer to engine owner's manual for fuel specifications.



FIGURE 2.2

**IMPORTANT:** This Out Front Z-Rider is equipped with hydrostatic drive. The forward and rearward movement of the mower is controlled by a joystick lever. Joystick operations should be performed only from the operator's position in the seat. A small movement of the joystick can cause the power unit to move instantly. Move joystick very carefully and slowly.

1. Always move the joystick to the center to "STOP" mower. IMPORTANT: To stop machine always return the joystick with hand assistance to the neutral position. Release the joystick and it will gradually return toward the neutral position. Always engage parking brake when leaving operator's seat.
2. Move the joystick forward to propel the mower forward.
3. Move the joystick rearward to propel the mower backward.
4. Move the joystick to the right to rotate the front of the mower in circular motion to the right, as in turning around to go in a different direction.
5. Move the joystick to the left to rotate the front of the mower in circular motion to the left, as in turning around to go in a different direction.

**IMPORTANT:** To roll the machine without the engine running, pressure within the hydraulic pumps must be released. There is one lever on the upper right side of each pump that is used to release the pressure. Rotate lever counter clockwise and secure in that position. See Figure 2.3

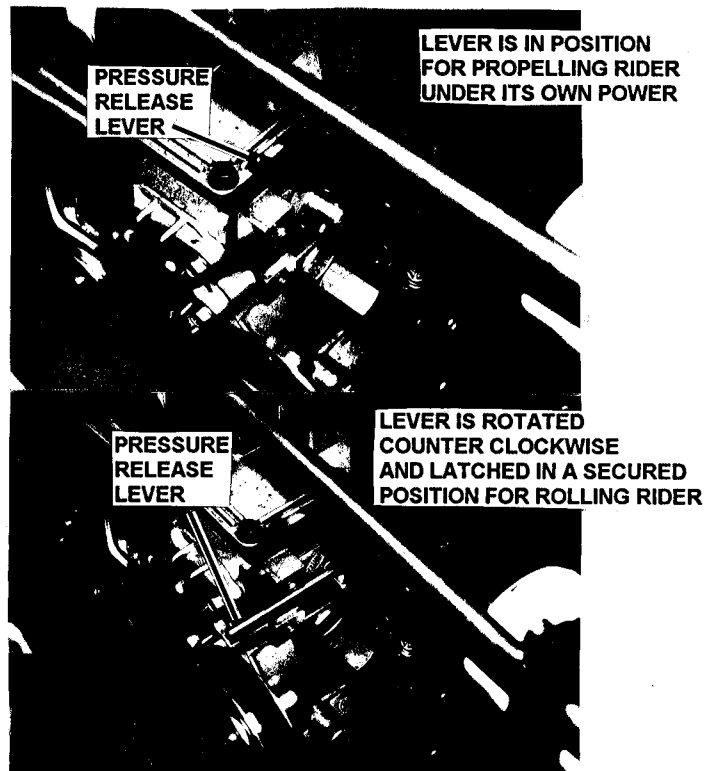


FIGURE 2.3

THIS PAGE NOT RECORDED

# Section 2 - OPERATING INSTRUCTIONS

## 2.3 STARTING & OPERATION

### 2.3.1. ENGINE (ELECTRIC START)

When the ignition key is turned to "START", the engine will not turn over unless the parking brake and the blade switch are in the "OFF" position!

### 2.3.2. OPERATION

Be seated on the Out Front Z-Rider before attempting to start the engine with the key switch.

1. Make certain the blade switch is in the "OFF" position.
2. The joystick lever is in the neutral (N) position as shown in Figure 2.4.

**IMPORTANT:** The joystick lever has to be manually moved to propel mower. Release the joystick and it will gradually return toward the neutral position. Always return the joystick with hand assistance to the neutral position to stop machine. When the parking brake is engaged, it will lock joystick lever in the neutral position. The mower will only crank or start if parking brake lever is engaged and the blade switch is in the "OFF" position.

3. The parking brake lever is engaged. See Figure 2.4.

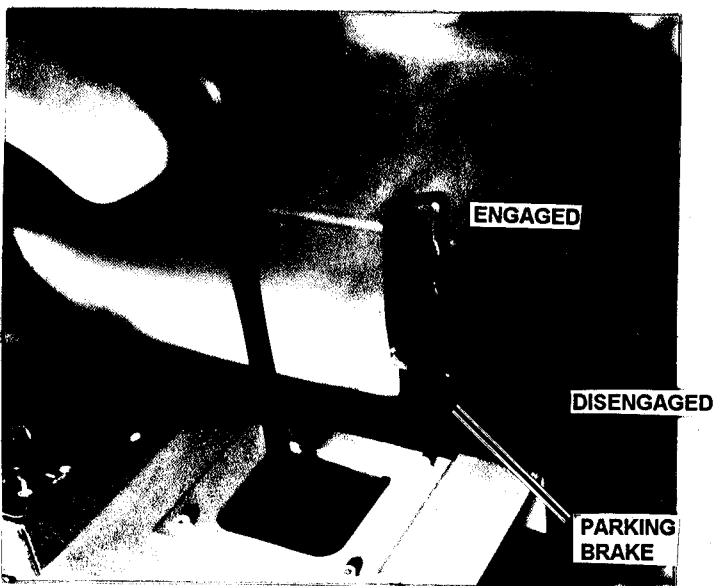


FIGURE 2.4

4. Move choke control to the choke position to start a cold engine. See Figure 2.5.
5. Move engine speed control to the Rabbit "Fast" position. See Figure 2.5.

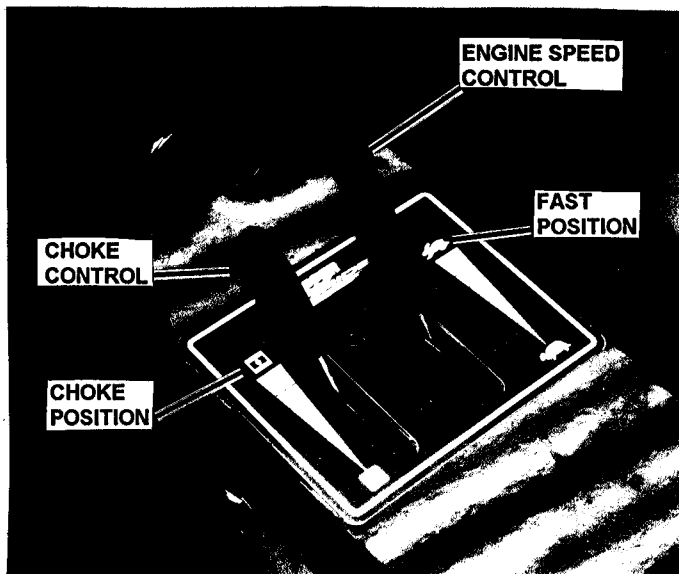


FIGURE 2.5

6. Turn key to the start position until engine starts. See Figure 2.6.

**NOTE:** If after 5 seconds of cranking the engine does not start, release the key and attempt starting again after waiting for approximately 20 seconds.

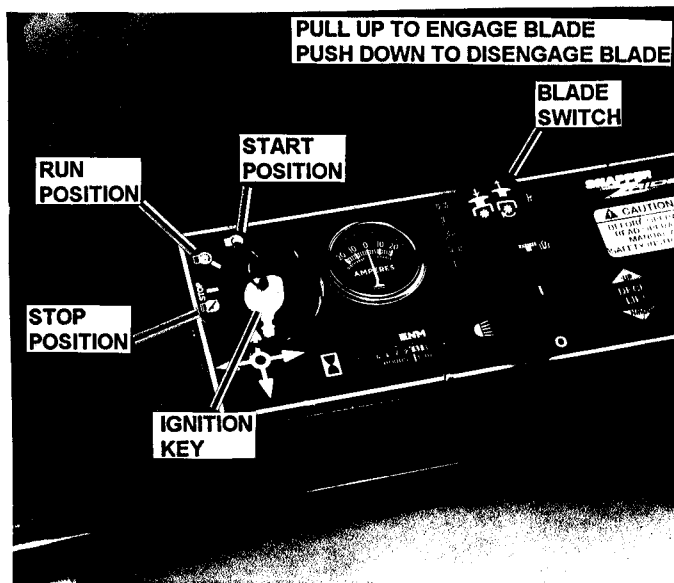


FIGURE 2.6

7. After engine starts, allow a brief warm-up until engine runs smooth. Move the choke control to the "OFF" or no choke position.

# Section 2 - OPERATING INSTRUCTIONS

## 2.3.4. MOWER BLADE

1. With engine running, move engine speed control to the Rabbit or "fast" position.
2. Pull the blade switch out or into the "ON" position to engage the mower blades.
3. Release the parking brake.
4. Move joystick carefully in the desired direction to propel the riding mower. A small movement of the joystick can cause the power unit to move instantly. Move joystick carefully and slowly.

## 2.4 STOPPING

### 2.4.1. ENGINE

1. Stop engine by turning key to the "OFF" position. Refer to Figure 2.6.

### CAUTION

Before leaving the Riding Mower with the engine running, push blade switch in to STOP blade, move joystick to neutral and engage the parking brake. Turn key switch to the OFF position.

### 2.4.2. WHEEL DRIVE

1. Stop motion of riding mower by moving joystick to neutral (N) position. See Figure 2.7.

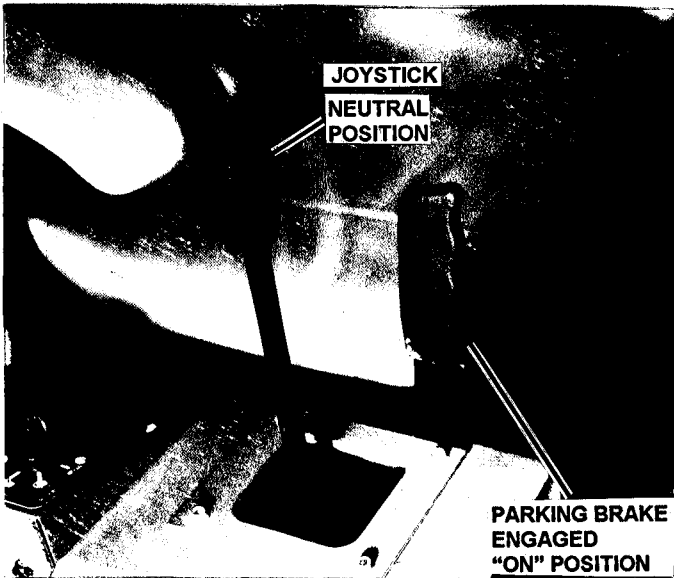


FIGURE 2.7

### 2.4.3. MOWER BLADE

1. Push the blade switch in or "OFF" position to disengage or stop the mower blades. Refer to Figure 2.6.

### CAUTION

Once blades are disengaged, they should come to a complete stop in 7 seconds. If the blades continue to rotate after 7 seconds, the electric clutch should be checked. Replacement of electric clutch may be necessary. DO NOT CONTINUE to operate mower if blades fail to stop in 7 seconds.

### 2.4.4. PARKING BRAKE

1. Engage parking brake by pulling the parking brake lever back to the "ON" position.
2. Release parking brake by moving brake lever down to the "OFF" position. See Figure. 2.8.



FIGURE 2.8

### 2.4.5. CUTTING HEIGHT ADJUSTMENT

1. Adjust cutting height as desired to any position, using deck lift switch. When in desired height of cut, release switch. See Figure 2.9. Observe the height of cut decal located on the upper right top side of the deck to place deck at the correct height of cut. See Figure 2.9. NOTE: The engine does not have to be running to adjust cutting height, but key switch must be in the "ON" position.

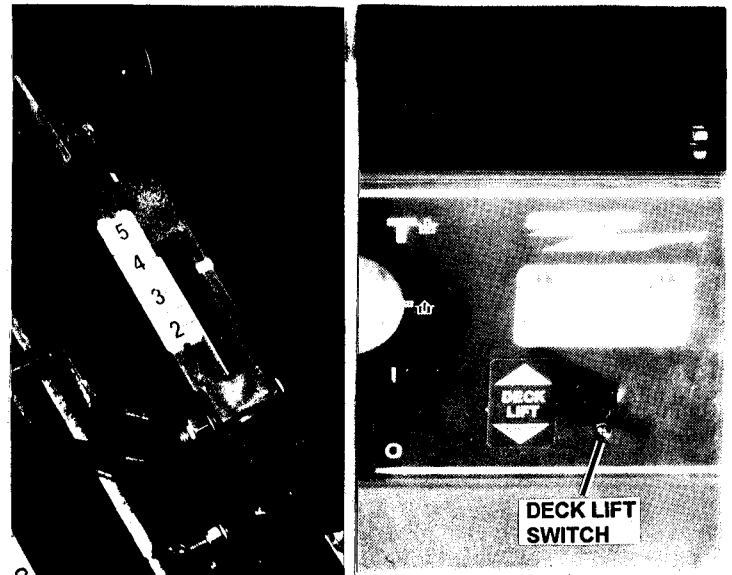


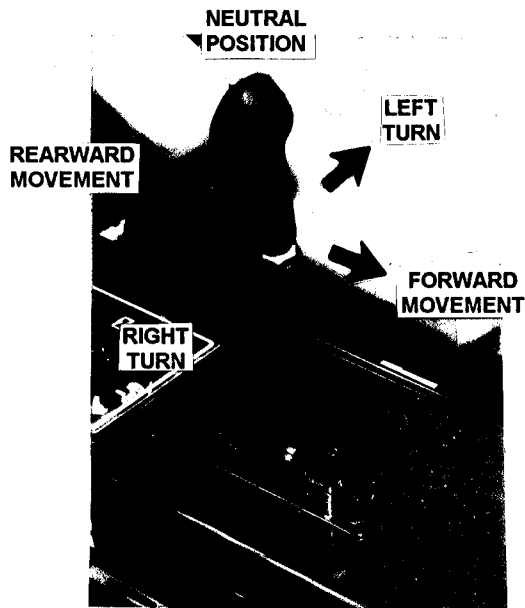
FIGURE 2.9

7 14  
7 SCREENED

## Section 2 - OPERATING INSTRUCTIONS

### 2.4.6. WHEEL DRIVE

1. With engine running, adjust engine speed control to Rabbit or "Fast" position.
2. Release parking brake.
3. Move joystick lever carefully and slowly into desired speed position. A small movement of the joystick can cause the power unit to move instantly. Move joystick carefully and slowly.
4. During mower motion, the joystick may be placed in any desired position to speed up or slow down forward or rearward motion. See Figure 2.10.



NOT  
SCHEMATIC

FIGURE 2.10

### CAUTION

Never park the SNAPPER Out Front Z-Rider on an incline or embankment.



# Section 3 - MAINTENANCE

## 3.1 INTRODUCTION

To retain the quality of the SNAPPER Out Front Z-Rider, use genuine SNAPPER replacement parts only. Contact a local SNAPPER dealer for parts and service assistance. For the correct part or information for a particular SNAPPER Out Front Z-Rider, always mention the model and serial number. SNAPPER recommends returning the Out Front Z-Rider to an authorized SNAPPER dealer annually for inspection and addition of any new devices which might upgrade the safety of the Out Front Z-Rider. For the nearest SNAPPER dealer in your area, check the yellow pages under the heading LAWN MOWERS. For engine parts and service, look for the engine manufacturer's dealers under the heading, ENGINES - gasoline.

## 3.2 SERVICE - AFTER FIRST 5 HOURS

### CAUTION

Before attempting any adjustments or repairs, STOP the engine, remove the key, remove the spark plug wire(s) from the spark plug(s) and secure wire(s) away from plug(s).

### 3.2.1. CHANGE ENGINE OIL

1. Change engine oil as follows:
  - a. Place a 4 quart minimum capacity container under the end of the oil drain.
  - b. Rotate counter clockwise and pull out to open the drain plug. See Figure 3.1.

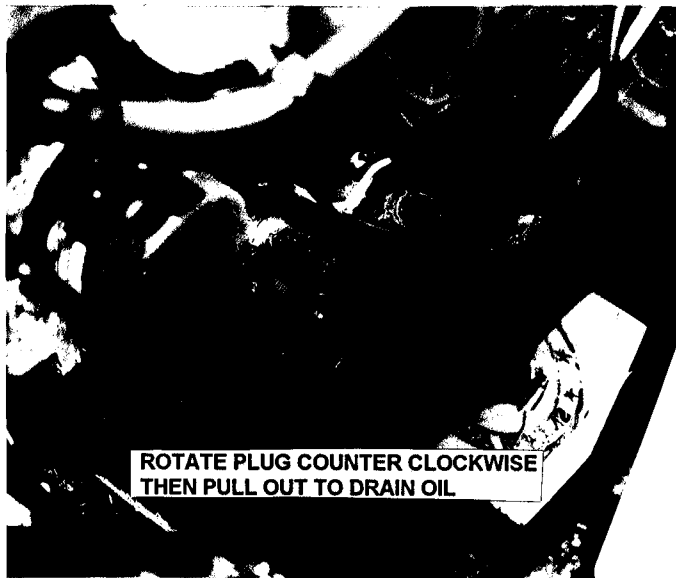


FIGURE 3.1

d. After all the oil has drained, close the drain by pushing in and rotating clockwise to close. Wipe up any oil that may have spilled. Dispose of drained oil properly. See Figure 3.1.

- e. Fill engine crankcase with new oil. Refer to your engine owner's manual for oil specifications.
- f. Change oil filter at every oil change. Refer to your engine owner's manual for service instructions.

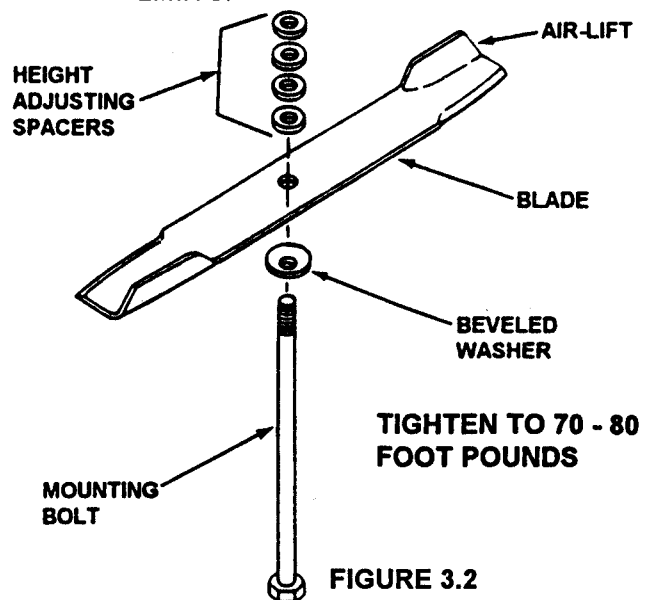
### 3.2.2. CHECK MOWER BLADE

1. Stop Engine.
2. Apply parking brake.
3. Turn key to "ON" position but DO NOT crank engine. Raise mower deck off the ground using deck lift switch located to the right of operator as viewed from the operator's position. Turn key to "OFF" position.
4. Use a hydraulic floor jack or hoist to raise deck high enough to gain access to the underside of deck. Secure deck with safety blocks.

### CAUTION

Wear heavy leather gloves when handling or working around cutting blades. Blades are extremely sharp and can cause severe injury.

5. Check torque of blade mounting bolts. As necessary, torque to 70 to 80 ft. lbs. See Figure 3.2.
6. Check blade for sharpness, wear and damage. See Section on BLADE WEAR LIMITS.



7. Check blade for straightness.

### WARNING

Never use a cutting blade that shows signs of excessive wear or damage. Refer to MOWER BLADE REPAIR/REPLACEMENT for proper blade inspection and service procedures. See Section 4.5, Figure 4.4.

# Section 3 - MAINTENANCE

## 3.2.3. CHECK MOWER DRIVE BELT

### 1. Drive Belt Cover Removal

- a. Lower deck to lowest setting.
- b. Remove four knobs that secure the deck cover. See Figure 3.3.
- c. Remove cover to gain access to deck belt.

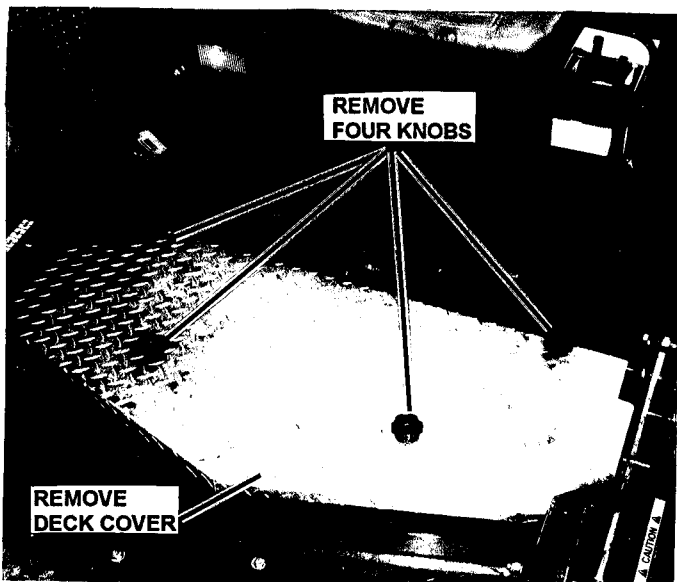


FIGURE 3.3

### 2. Checking Belt Tension

The idler and spring provide proper belt tension and require no adjustment. If belt is frayed, slit, severed or belt strands exposed, replace belt before operating mower.

## 3.3 AFTER EVERY 25 OPERATING HOURS

### 3.3.1. ENGINE

#### 1. Engine Oil

Change engine oil. See Section on CHANGE ENGINE OIL. Refer to engine owner's manual for oil specifications.

#### 2. Air Filter

Refer to engine owner's manual for service instructions.

### 3.3.2. MOWER COMPONENTS

#### 1. Mower Drive Belt

No adjustment required. Replace belt as needed.

#### 2. Mower Blade

Check blade for sharpness, wear, damage, and torque. See section on MOWER BLADE REPAIR/REPLACEMENT.

#### 3. Mower Deck Levelness

Check mower deck for proper levelness. Adjust as required. See section on MOWER DECK ADJUSTMENT - LEVELNESS.

#### 4. Cleaning Mower Deck

- a. Remove key from ignition switch.
- b. Remove spark plug wire(s) and secure away from spark plug(s).

- c. Raise mower deck to its highest setting. It may be necessary to raise mower deck higher using a hydraulic floor jack. Secure deck with safety blocks.
- d. Clean underside of mower deck, removing all accumulation of grass clippings and debris.
- e. Clean top of deck, removing all grass clippings and debris.

### 5. Mower Blade Spindle - Lubrication

- a. Remove four knobs that secure the deck cover.
- b. Remove cover to gain access to lubrication fitting located on the top of deck below deck pulleys. Lubricate with Kendall NLGI No. 2 lithium grease or equivalent, from a grease gun. See Figure 3.5.

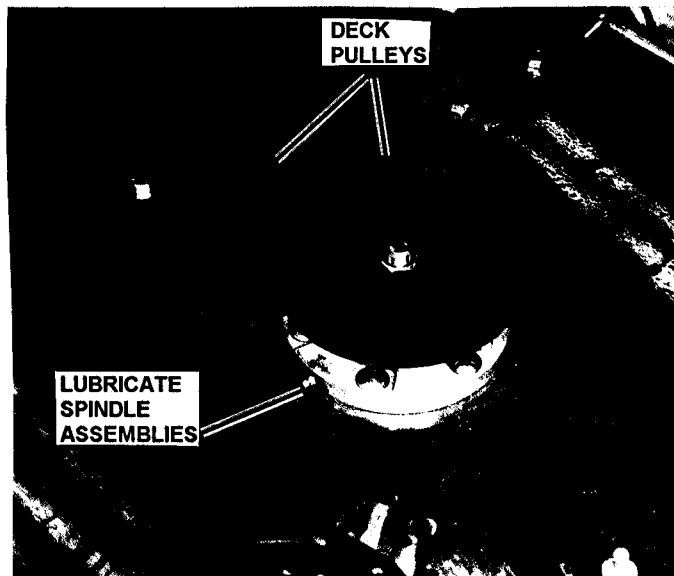


FIGURE 3.5

### 6. Mower Deck Linkage - Lubrication

Lubricate all mower deck linkage pivot points with a light coat of motor oil.

NOT RECORDED

## Section 3 - MAINTENANCE

### 3.3.3. RIDING MOWER - LUBRICATION

#### 1. Front & Rear Wheel Bearings

Lubricate with Kendall NLGI No. 2 lithium grease or equivalent, from a grease gun. See Figure 3.6.

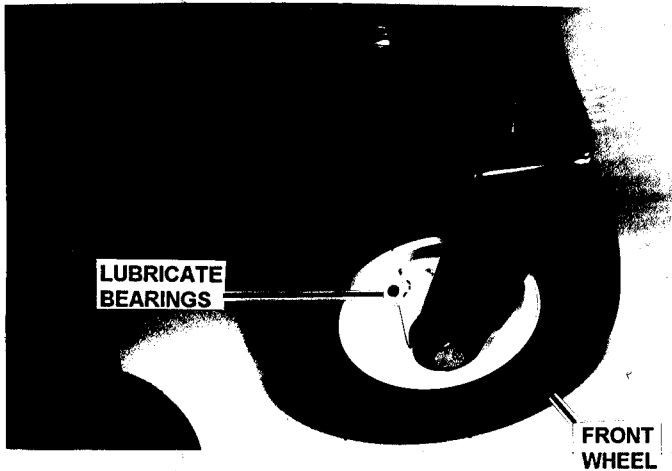


FIGURE 3.6

#### 2. Transaxle

Twice yearly, check the level of fluid in both of the fluid reservoirs. Wipe away all dirt and debris from around reservoir cap before removing. Oil must remain absolutely clean! Check with mower on a level surface with engine "OFF". Fill reservoir as needed to bring level up to 1-1/2 to 2 inches below the top of the filler neck. Use clean, fresh premium hydraulic oil having a viscosity equivalent to SAE 20w-20, SAE 30 or SAE 40. The fluid should be chemically stable, incorporating rust and oxidation inhibitors. Make sure funnels, pouring spouts and oil can are completely clean. Reinstall reservoir cap. See Figure 3.7. **IMPORTANT: DO NOT** remove or service the transaxle fluid filters.

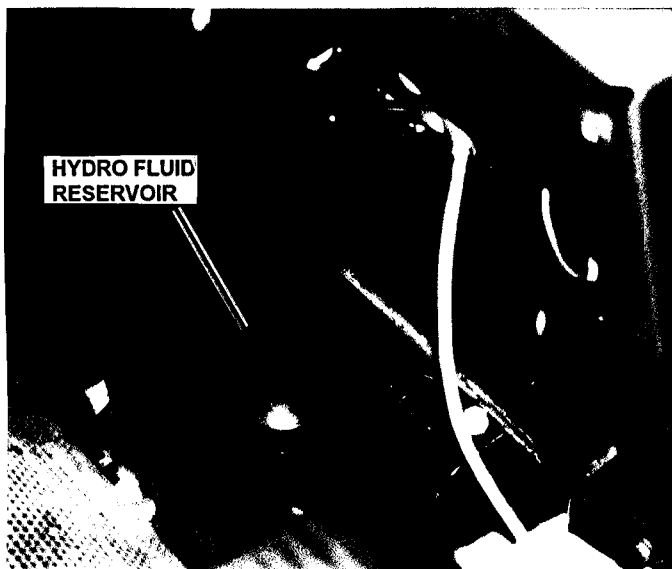


FIGURE 3.7

#### 2. Power Transfer Shaft

Lubricate power transfer shaft with Kendall NLGI No. 2 lithium grease or equivalent, from a grease gun. See Figure 3.8.

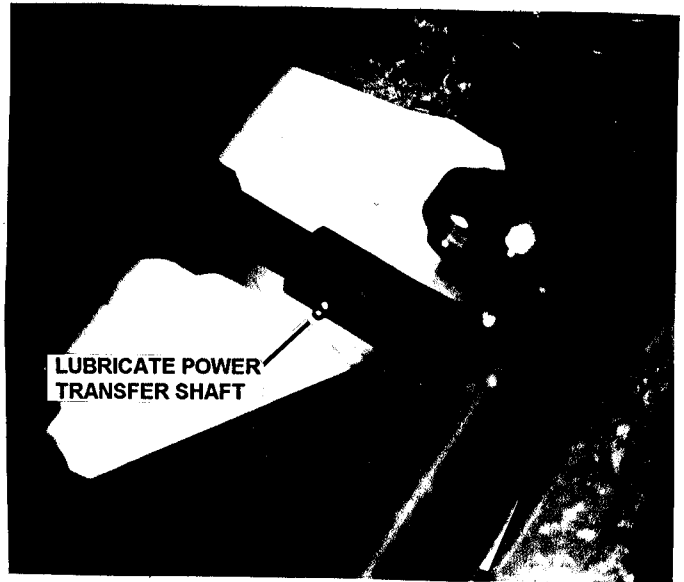


FIGURE 3.8

#### 3. OTHER LUBRICATION POINTS

Lubricate deck caster wheel shafts, rear caster wheel shaft, traction drive shaft and mower deck idler arm with Kendall NLGI No. 2 lithium grease or equivalent, from a grease gun.

#### 3.4 BEFORE OPERATING MOWER

1. Clean all dirt and debris from around the two hydraulic fluid reservoirs. Especially around the top and cap area.
2. Clean all dirt and debris from the air intake screen.
3. Clean all dirt and debris from the cooling fins on the engine and from both hydraulic pumps.

#### 3.5 ANNUALLY (END OF EACH SEASON)

Perform all maintenance as described in 3.3 on Page 9.

##### 3.5.1. ENGINE

Service engine according to engine owner's manual.

(Continued on next Page)

THIS  
PAGE  
NOT  
SCREENED

# Section 3 - MAINTENANCE

## 3.5 ANNUALLY (END OF EACH SEASON) (Continued from previous Page)

### 3.5.2. FUEL FILTER

Service fuel filter as instructed below. Turn key to "OFF" position. Engine MUST be stopped and MUST be cold before removing filter. Clamp fuel line to prevent fuel spillage or perform filter change when fuel tank and fuel line are empty.

1. Remove hose clamps from fuel filter.
2. Remove fuel lines from filter. Discard filter.
3. Install new fuel filter. Reinstall hose clamps. See Figure 3.9.

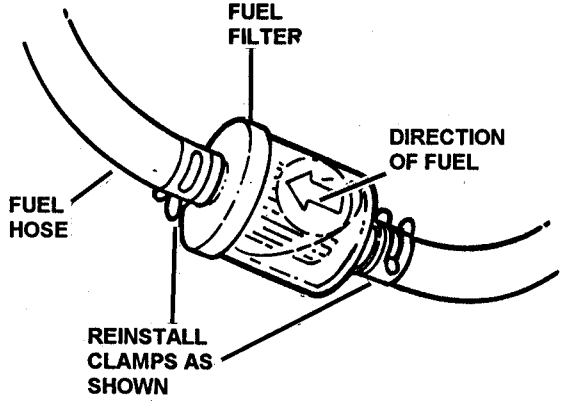


FIGURE 3.9

## 3.6 DECK REMOVAL

Move power unit/mower deck to an area where the mower deck is to be disconnected. Turn engine "OFF" but leave key switch in the "ON" position. Engage parking brake.

1. The rear of deck must be raised up and both jack shafts moved down to the lowest position and both locking pins inserted.
2. Using deck lift switch, lower deck down to rest on jack stands.
3. The hitch latch pins are shown in the latched position. The latched position locks the deck lift arm into position. See Figure 3.10.

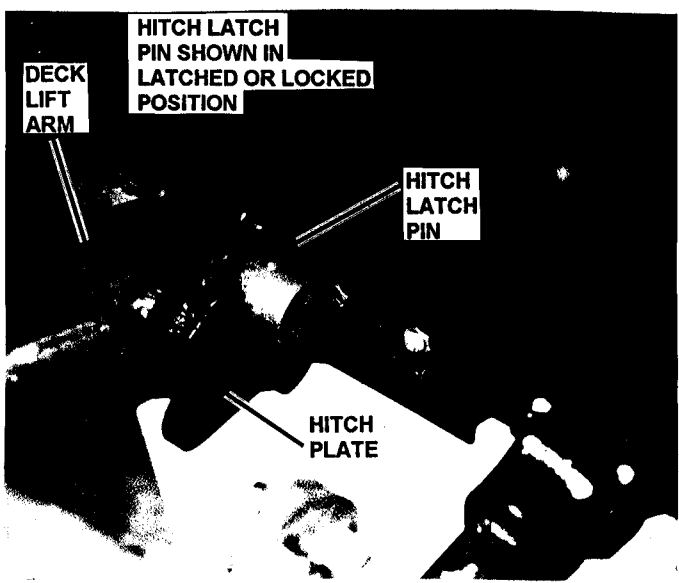


FIGURE 3.10

3. Rotate spring loaded hitch latch pins (Located on both hitch plates) to the unlatched position. See Figure 3.11.

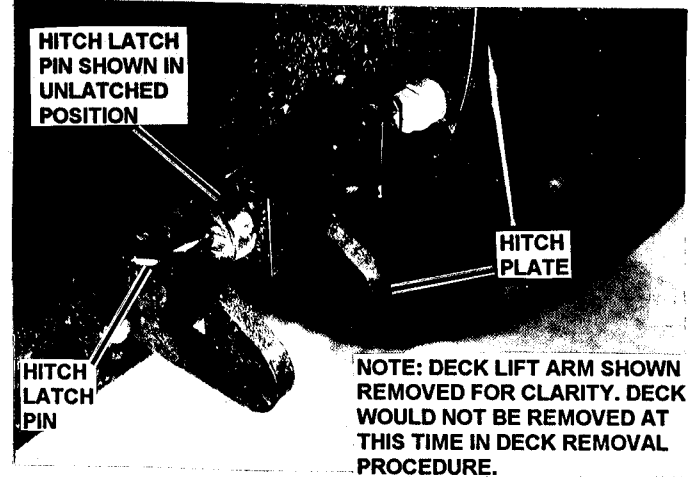


FIGURE 3.11

4. Move deck lift switch as if to lower deck and the lift arm will move up in the hitch plates. The lift arm needs to be high enough to clear the hitch plates when power unit is driven backward away from mower deck. Refer to Figure 3.10.

5. Pull lock collar back and slide power transfer shaft away from power take off (PTO) shaft. See Figure 3.12

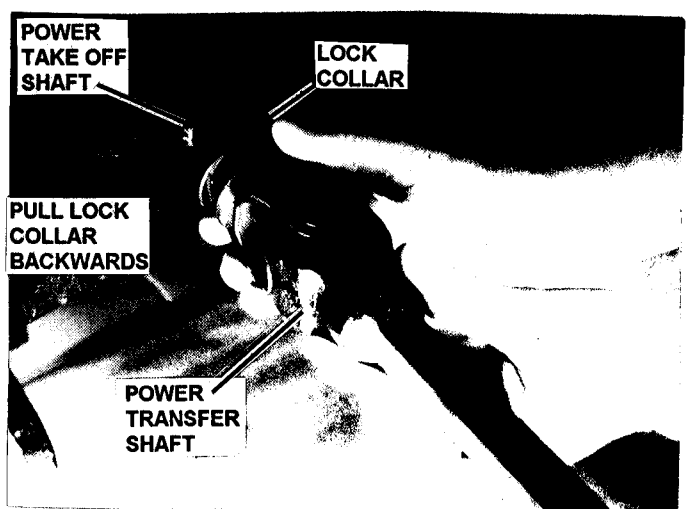


FIGURE 3.12

6. Disconnect wiring harness from mower deck.
7. Start power unit. Disengage parking brake. Carefully move power unit backward away from mower deck.

## 3.7 POWER TRANSFER SHAFT REMOVAL

Engage parking brake. Turn engine "OFF" and remove key. The power transfer shaft connects the power unit to the mower deck. The shaft is telescoping for easy removal. Slide locking collar back toward mower deck and shaft will slide off. Refer to Figure 3.12

## Section 4 - ADJUSTMENTS & REPAIR

### CAUTION

Before attempting any adjustments or repairs, STOP the engine, remove the key, remove the spark plug wire(s) from the spark plug(s) and secure wire(s) away from plug(s).

#### 4.1 NEUTRAL POSITION ADJUSTMENTS

The joystick controls the movement and stopping of the rider. Move the joystick to the center or neutral position to stop mower. **IMPORTANT:** Always return the joystick with hand assistance to the neutral position. If mower does not come to a complete stop or has any movement when joystick is moved to the neutral position, adjustment must be made.

1. Turn key to "OFF" position.
2. Raise both wheels off the ground. Wheels should be high enough to rotate freely. Secure with safety blocks.
3. Disconnect parking brake rod from parking brake.
4. Engage parking brake lever. NOTE: Engaging parking brake without brake rod connected will lock joystick in center or neutral position.
5. Turn key to start position and start unit.
6. Both wheels should be still, not rotating.
7. If wheel(s) are rotating, turn adjusting bolts located on pump(s) clockwise until wheel(s) stop rotating. See Figure 4.1

#### 4.2 MOWER DECK & COMPONENT ADJUSTMENTS

The following mower deck and component adjustments and repairs can be made by the owner. However, if there is difficulty in making these adjustments and repairs, it is recommended that these repairs be made by an authorized SNAPPER dealer.

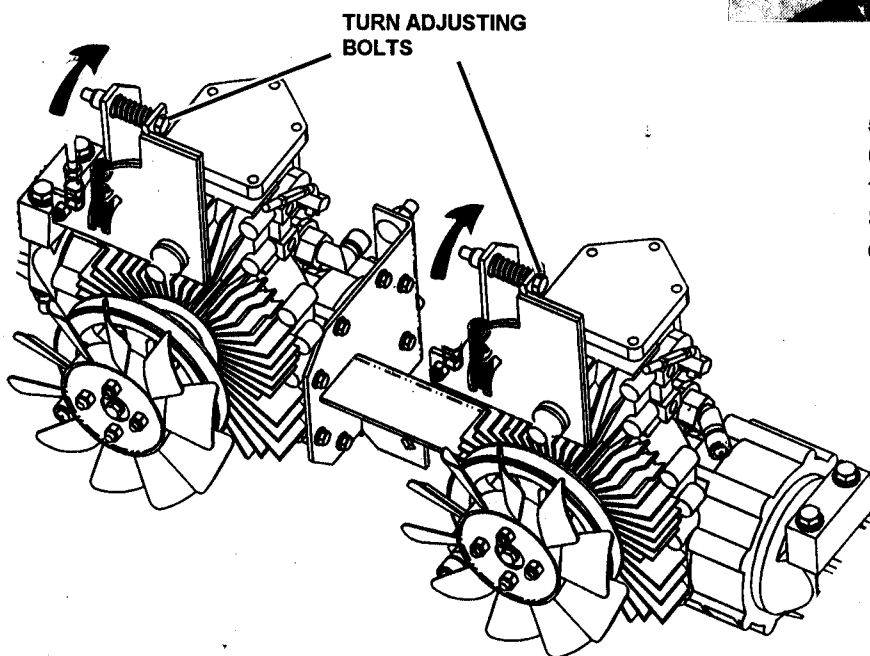


FIGURE 4.1

#### 4.2.1. MOWER DECK ADJUSTMENT (LEVELNESS) SIDE to SIDE and FRONT to REAR

Before making deck leveling adjustments, check tires and add or release air as needed to bring pressure to 22 psi in drive tires and 40 psi in rear caster tire. Pressure in front deck caster wheels should be 25 psi.

If tires are properly inflated and mowing is still uneven, adjust deck levelness as follows:

1. Place mower on a smooth level surface.
2. Raise deck to highest cutting position.
3. Place 2x4 blocks under front edge of deck beside caster wheels. Blocks should be on both sides of deck. Make deck relatively level by positioning blocks. Both caster wheels must be off the ground.
4. Loosen leveling bracket at center rear deck support. See Figure 4.2. This allows the lift arm to settle down into hitch brackets.

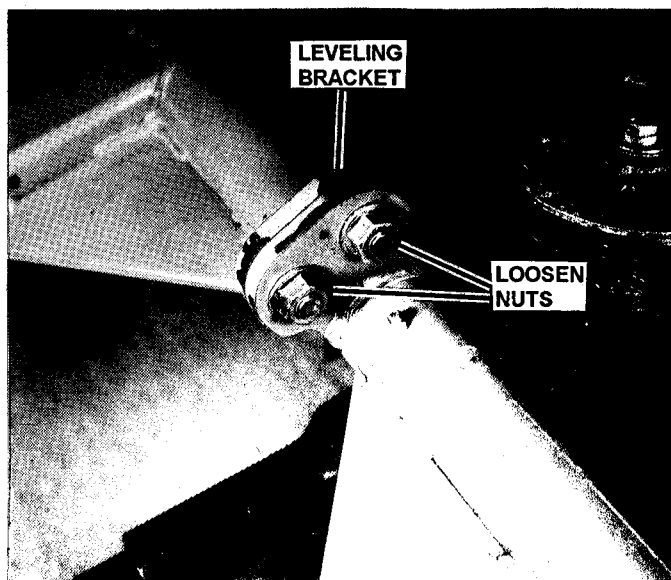


FIGURE 4.2

5. Retighten leveling bracket bolts.
6. Remove both bolts (one from each side) from the front portion of the link weldment. See Figure 4.3. The front caster wheel will drop to the ground.

# Section 4 - ADJUSTMENTS & REPAIR

## 4.2.1. MOWER DECK ADJUSTMENT (Continued)

7. Turn ball joint in or out until ball joint anchor hole aligns with mounting hole. Reinstall bolt and tighten securely. Use same procedure on other caster wheel. See Figure 4.3.

8. Reinstall bolts and tighten securely.

9. Remove blocks from under front of deck.

10. **Side to Side Level:** Check blade tips by rotating blades until tips are pointing to the side of the deck. Check the outside blade tip to the ground on both blades. The measurement of each outside blade tip should be within 1/8" of each other.

11. **Front to Rear Level:** Check blade tips by rotating blades until tips are pointing to the front and rear of deck. Check the blade tips of each blade. Front to rear measurement should be 1/4" to 3/8" higher in the rear.

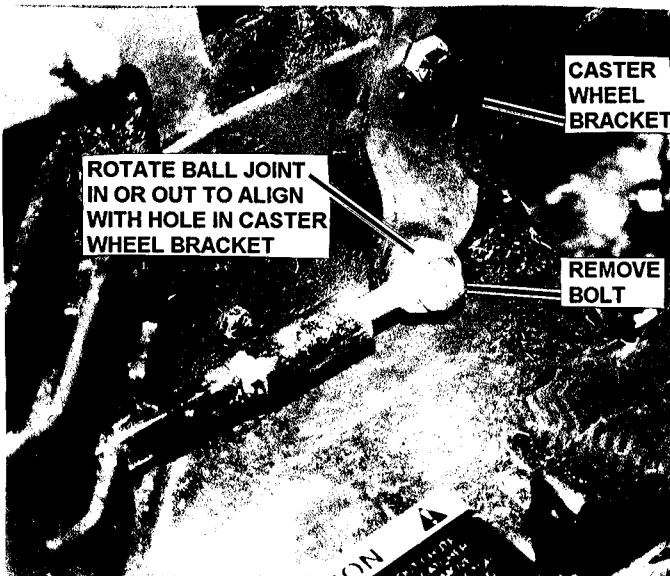


FIGURE 4.3

### CAUTION

Before attempting any adjustments or repairs, STOP the engine, remove the key, remove the spark plug wire(s) from the spark plug(s) and secure wire(s) away from plug(s).

## 4.2.2. CUTTING HEIGHT ADJUSTMENT

The cutting height can be adjusted with the switch located on the right side console. Move switch "up" to raise deck or move switch "down" to lower the deck. The cutting height range is 1" at the lowest cut and 5" for the highest cut. Any cutting height can be set between 1" and 5".

## 4.3 PARKING BRAKE ADJUSTMENT

1. The linkage connecting the parking brake lever with the transmission can be adjusted. Disconnect parking brake rod from park brake lever. Rotate rod clockwise to tighten brake.

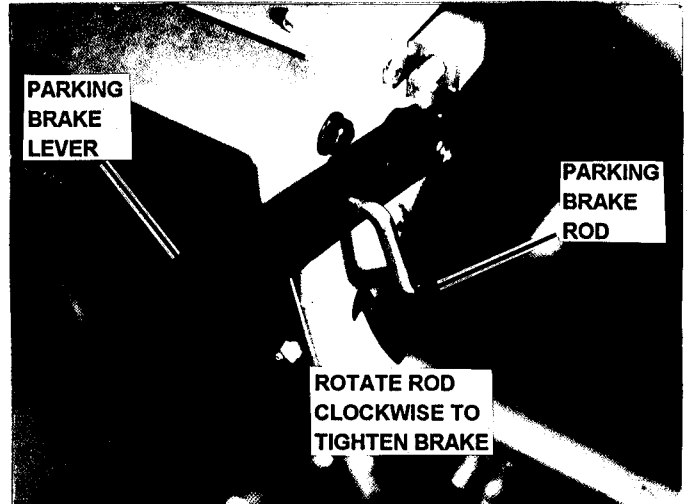


FIGURE 4.4

## 4.4 ENGINE ADJUSTMENTS & REPAIR

Refer to the engine owner's manual for engine adjustments and/or repairs.

## 4.5 MOWER BLADE REPAIR/REPLACEMENT

### 4.5.1. BLADE WEAR LIMITS

1. Inspect blade frequently for signs of excessive wear or damage. See Figure 4.5.

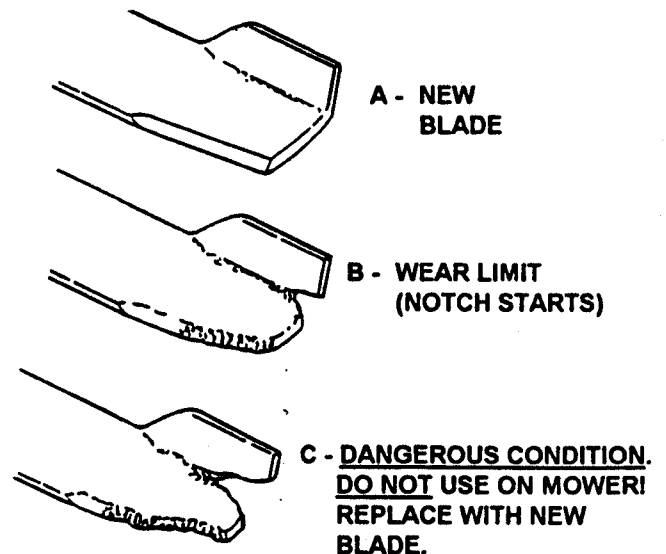


FIGURE 4.5

### WARNING

Never use a cutting blade that shows signs of excessive wear or damage. Refer to Figure 4.5.

SC-2011-00

NOT RECORDED

# Section 4 - ADJUSTMENTS & REPAIR

## CAUTION

Wear heavy leather gloves when handling or working around cutting blades. Blades are extremely sharp and can cause severe injury.

### 4.5.2. BLADE SHARPENING

1. Remove blade. See Figure 4.6.

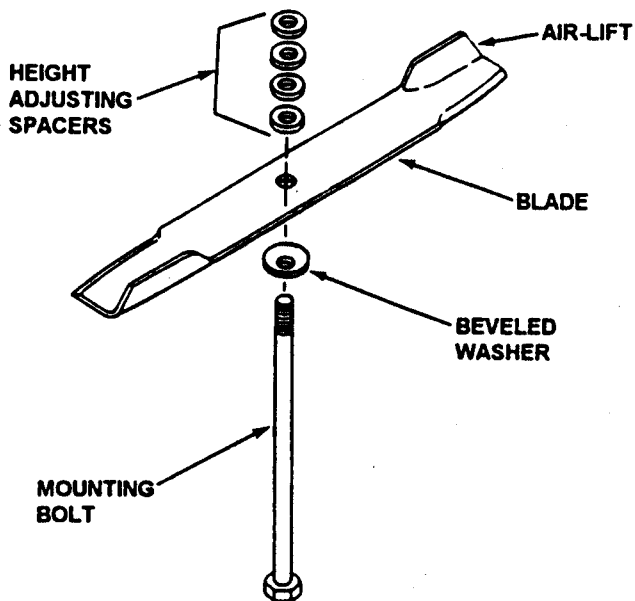


FIGURE 4.6

2. Inspect condition of blade. Refer to Figure 4.5.

## CAUTION

Wear heavy leather gloves when handling or working around cutting blades. Blades are extremely sharp and can cause severe injury.

### 4.5.2. BLADE SHARPENING (Continued)

3. If blade is in good condition, sharpen at 25 degrees. DO NOT sharpen beyond existing cutting edge. See Figure 4.7.

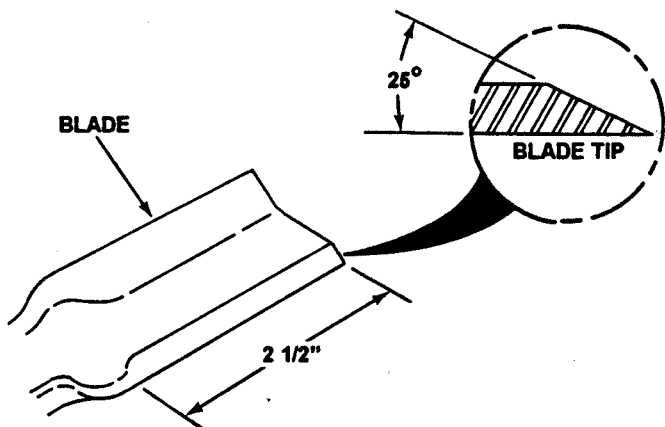


FIGURE 4.7

4. Check blade balance after sharpening. If necessary, correct blade balance by grinding the heavy end of blade.
5. Reinstall blade. Refer to Figure 4.5. Torque blade mounting bolts to recommended range of 70 to 80 ft. lbs.

### 4.5 MOWER DRIVE BELT REPLACEMENT

Inspect mower drive belt. Replace belt if it shows signs of excessive wear, damage and/or is broken.

## CAUTION

Before attempting any adjustments or repairs, STOP the engine, remove the key, remove the spark plug wire(s) from the spark plug(s) and secure wire(s) away from plug(s).

#### 4.5.1. BELT REMOVAL

1. Remove mower drive belt cover.
2. Remove old belt.

#### 4.6.2. BELT REPLACEMENT

1. Route belt around blade pulleys and idler pulley in same the position as old belt was removed. It may be necessary to use a pry bar to pull idler pulley back to install belt. See Figure 4.7.
2. Reinstall belt cover.

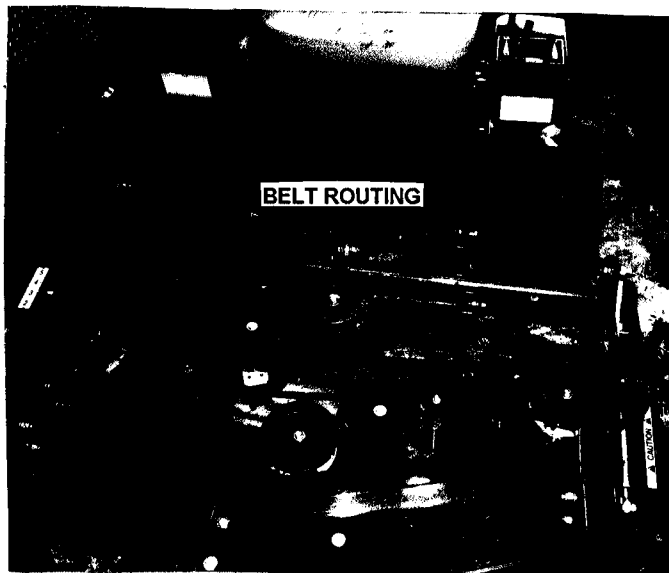


FIGURE 4.7

## CAUTION

Never attempt to charge battery while installed on the Zero Turning Radius Mower. Never use "BOOST" chargers on the battery.

# Section 4 - ADJUSTMENTS & REPAIR

## 4.7 BATTERY

### 4.7.1. BATTERY REMOVAL

1. Remove battery retainer.
2. Slide battery from battery box to gain access to terminal cables.
3. Observe and note cable positions on battery. See Figure 4.9.
4. Disconnect cables from battery terminals, disconnecting BLACK (Negative) cable first, then disconnect RED (Positive) last. Retain mounting bolts and nuts.

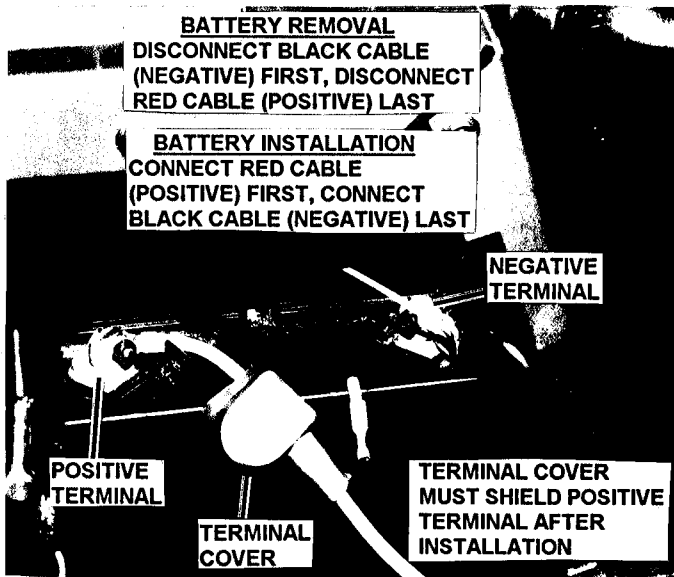


FIGURE 4.9

### CAUTION

Cables must be connected to battery terminals in the proper position. RED (Positive) cable must go to the ( + ) terminal. BLACK (Negative) cable must go to the ( - ) terminal.

### 4.7.2. BATTERY INSTALLATION

1. Slide battery partially into battery compartment.
2. Connect cables to battery terminals. Connect RED (Positive) cable first. Connect BLACK (Negative) cable last.
3. Reinstall battery retainer.

### CAUTION

The electrolyte (acid) produces a highly explosive gas. Keep all sparks, flame and fire away from area when charging battery or when handling electrolyte or battery. Electrolyte (acid) is a highly corrosive liquid. Wear eye protection. Wash affected areas immediately after having eye or skin contact with electrolyte (acid). Battery acid is corrosive. Rinse empty acid containers with water and mutilate before discarding. If acid is spilled on battery, bench, or clothing, etc., Flush with clear water and neutralize with baking soda.

### 4.7.3. BATTERY SERVICE

1. Remove battery.
2. Place battery in a well ventilated area on a level surface.
3. Using distilled water, refill cells as required to cover cell plates of which can also be seen through the plastic battery case.
4. With cell caps removed, connect battery charger to battery terminals. RED to positive (+) terminal and BLACK to negative (-) terminal.
5. Slow charge battery at 1 amp for 10 hours. An alternative fast charge should be no more than 2.5 for four hours.
6. If battery will not accept charge or is partially charged after 10 hours of charging at 1 amp, replace with new battery.

### 4.7.4. BATTERY TESTING

There are two types of battery tests: Unloaded and Loaded. The unloaded test is the procedure that will be discussed. It's the simplest and most commonly used. An unloaded test is made on a battery without discharging current. To perform unloaded testing, check charge condition using either a hydrometer or voltmeter.

1. Using a voltmeter, voltage readings appear instantly to show the state of charge. Remember to hook the positive lead to the battery's positive terminal, and the negative lead to the negative terminal.
2. A hydrometer measures the specific gravity of each cell. The specific gravity tells the degree of charge; generally, a specific gravity of about 1.265 to 1.280 indicates full charge. A reading of 1.230 to 1.260 indicates the battery should be charged before testing. The chart on the next page shows the charge level as measured by syringe float hydrometer, digital voltmeter and five ball hydrometer.



# Section 4 - ADJUSTMENTS & REPAIR

## 4.7.4. BATTERY TESTING (Continued from previous Page)

Methods of Checking Battery Condition			
State of Charge	Syringe Hydrometer	Digital Voltmeter	Five Ball Hydrometer
100% Charged w/ Sulfate Stop	1.280	12.80v	Five Balls Floating
100% Charged	1.265	12.60v	Four Balls Floating
75% Charged	1.210	12.40v	Three Balls Floating
50% Charged	1.160	12.10v	Two Balls Floating
25% Charged	1.120	11.90v	One Ball Floating
0% Charged	Less than 1.100	Less than 11.80v	Zero Balls Floating

## 4.7.5. NEW BATTERY PREPARATION

1. Remove battery from carton.
2. Place battery in a well ventilated area on a level non-concrete surface.
3. Remove battery cell caps. Fill cells as required with electrolyte (purchased separately) to proper level. Fill to 3/16" above cell plates. Filling battery with electrolyte will bring the battery to 80% charged state.
4. With cell caps removed, connect battery charger to battery terminals; RED to positive (+) and BLACK to negative (-) terminal.

**IMPORTANT:** 3/16" above cell plates is the recommended level. However do not try to measure this dimension. Never place anything in battery other than specified electrolyte.

**CAUTION  
DO NOT OVERFILL!**

**CAUTION**  
Never attempt to charge battery while installed on the Zero Turning Radius Mower. Never use "BOOST" chargers on the battery.

5. Slow charge the battery at 1 amp for 2 hours to bring the battery to full charge.
6. After charging, check level of electrolyte and add as needed to bring level to 3/16" above cell plates.
7. Reinstall cell caps.
8. Install battery into power unit.
9. Connect positive (+) cable (red) first, from wiring harness to the positive terminal (+) on battery using bolt and nut provided in hardware bag. Connect negative (-) cable (black) last, to negative terminal (-) on battery using bolt and nut. Apply a small amount of grease over terminals to prevent corrosion.

**CAUTION**  
Shield the positive terminal with terminal cover located on battery harness. This prevents metal from touching the positive terminal which could over heat battery and/or battery cable and cause sparks.

# TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
<b>Starter Will Not Crank Engine</b>	1. Battery dead.	1. Service battery.
	2. Blown fuse.	2. Replace fuse.
	3. Electrical connections loose or corroded.	3. Clean and check connections for good contact.
	4. Defective ignition switch.	4. Contact authorized SNAPPER dealer.
<b>Engine Will Not Start</b>	1. Blade engagement switch in the "ON" position.	1. Move blade engagement switch to "OFF".
	2. Park brake not set.	2. Set park brake.
	3. Fuel tank empty.	3. Fill fuel tank with fresh fuel.
	4. Engine needs choking.	4. Move choke control to "CHOKE" position.
	5. Spark plug wire disconnected.	5. Place spark plug wire onto spark plug.
	6. Battery weak or dead.	6. Service battery.
	7. Faulty parking brake, blade or ignition switch.	7. Contact authorized SNAPPER dealer.
<b>Engine Stalls After Running</b>	1. Operator not in seat.	1. Sit in operator's seat.
	2. Choke control in the "CHOKE" position.	2. Move choke control to "OFF" position.
	3. Fuel tank empty.	3. Fill with engine oil to proper level.
	4. Engine air pre-cleaner and or air cleaner dirty.	4. Clean free of all debris.
	5. Spark plug defective or gap set improperly.	5. Service spark plug.
	6. Fuel filter stopped up.	6. Replace fuel filter.
	7. Water, debris or stale fuel in fuel system.	7. Drain and clean fuel system.
<b>Engine Loses Power</b>	1. Excessive load on engine.	1. Lessen load.
	2. Engine air pre-cleaner or air cleaner dirty	2. Clean or replace filters.
	3. Engine oil level low.	3. Fill with engine oil to proper level.
	4. Engine cooling fins & air intake screen excessively dirty.	4. Clean cooling fins, air intake screen of all debris.
	5. Spark plug faulty.	5. Service spark plug.
	6. Water, debris or stale fuel in fuel system.	6. Drain and clean fuel system.
<b>Engine Backfires When Turned To "STOP"</b>	1. Throttle control set too "FAST".	1. Set throttle control to "SLOW" and allow engine to idle. Then, turn key to "OFF".
<b>Excessive Vibration</b>	1. Damaged or bent mower blades.	1. Service mower blade(s).
	2. Loose blade components.	2. Service and tighten loose parts.
	3. Loose or missing air lift (if equipped).	3. Replace air lifts. Tighten to proper torque.

# TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
<b>Tractor Will Not Move Loss Of Traction</b>	1. Joystick in the neutral "N" position.	1. Place joystick in desired speed position.
	2. Roll release lever is in "ROLL" position.	2. Move roll release lever to the engaged position.
	3. Low transmission hydraulic oil level.	3. Bring hydraulic oil to proper level.
	4. Parking Brake engaged.	4. Move parking brake to disengaged position..
	5. Traction drive belt requires replacement	5. Replace traction drive belt.
<b>Blade(s) Not Cutting</b>	1. Blade engagement switch in the "OFF" position.	1. Move blade switch to the "ON" position.
	2. Clutch belt slipping.	2. Replace clutch belt.
	3. Mower belt slipping.	3. Replace mower belt.
	4. Electric clutch not functioning.	4. Contact authorized <b>SNAPPER</b> dealer.
	5. Check gearbox for damage.	5. Contact authorized <b>SNAPPER</b> dealer.
	6. Power transfer shaft disconnected or damaged.	6. Connect power transfer shaft or repair damage.
<b>Cutting Grass Improperly</b>	1. Uneven tire pressure.	1. Bring to proper pressure.
	2. Cutting height too low or high.	2. Adjust cutting height.
	3. Engine speed too slow.	3. Move throttle control to "FAST" position.
	4. Forward speed too fast.	4. Move joystick to a slower speed.
	5. Terraced cut, side to side.	5. Adjust side to side level
	6. Excessive deck pitch, front to rear.	6. Adjust front to rear level.
	7. Cutting blade(s) dull or damaged.	7. Sharpen cutting edges or replace blade(s).
	8. Blade belt slipping.	8. Replace blade belt.
	9. Check electric clutch.	9. Adjust to proper specifications.
	10. Check clutch belt.	10. Replace clutch belt.
	11. Check gearbox for damage.	11. Contact authorized <b>SNAPPER</b> dealer.
<b>Poor Grass Discharge</b>	1. Engine speed too slow.	1. Move throttle control to "FAST" position.
	2. Forward speed too fast.	2. Move joystick to a slower speed.
	3. Grass is wet.	3. Mow when grass is dry.
	4. Excessively worn or damaged blade(s).	4. Service mower blade(s)
	5. Build up of grass clippings and debris under deck.	5. Clean deck.
	6. Improper blade(s) installed on deck.	6. Install proper <b>SNAPPER</b> blades.
	7. Blade(s) installed improperly on deck.	7. Install blades properly.
<b>Battery Will Not Charge</b>	1. Poor cable connections.	1. Clean cables and battery terminals.
	2. Bad battery cell(s)	2. Replace with new battery.
	3. Faulty alternator.	3. Contact engine manufacturer's dealer.
<b>Oil Leaking</b>	1. Loose or missing hydraulic reservoir cap.	1. Check oil level and replace reservoir cap.
	2. Leaking hose fittings, clamps or reservoir.	2. Verify fittings and hose clamps are tight.
<b>Deck Will Not Lift Properly</b>	1. Loose or disconnected electrical harness.	1. Connect electrical harness.
	2. Electric screw jack malfunctioning.	2. Contact authorized <b>SNAPPER</b> dealer.
	3. Key switch is in "OFF" position.	3. Turn key switch to "ON" position.

# SERVICE SCHEDULE

ITEM	SERVICE PERFORMED	REF.	EACH USE	5 HRS	25 HRS	50 HRS	100 HRS	EACH SEASON
Engine Oil	Check Oil Level	Page 5	X					
	Initial Oil Change	Page 9		X				
	Periodic Oil Change	Page 15				X*		
Air Pre-Cleaner	Clean Sponge Element	Engine Manual & Page 10.			X**			
Air Cleaner	Clean or Replace	Engine Manual.			X**			
Spark Plug	Replace	Engine Manual.					X	
Fuel Filter	Replace	Page 12					X	
Engine Cooling System	Clean Shroud & Fins	Engine Manual & Page 11					X**	
Battery	Check Electrolyte	Page 17			X			X
	Charge Battery	Page 16						X
	Testing Battery	Pages 16-17						X
Tires	Check Pressures	Page 5	X			X		X
Drive Belts	Check For Wear And Tension	Page 10			X	X		X
Mower Blades	Check For Wear, Damage & Replacement	Pages 14-15	X					
Mower Deck	Clean Debris Accumulation	Page 10	X					
Mower Deck	Clean Outside and Underside	Page 10	X					
Lubrication Points	Grease or Oil	Pages 10-11			X			X
Hydrostatic Trans. Oil	Check Oil Level	Page 11				X		X

\* Change oil every 25 hours when operating under heavy load or high temperatures.

\*\*Clean more often under dusty conditions or when air debris is present

## MAINTENANCE PARTS

### 4.7.6. MAINTENANCE/REPLACEMENT PARTS

MAINTENANCE PARTS	
Mower Blades (61" Deck)	2-9251
Mower Deck Belt	3-5542
Upper Drive Shaft To Hydro Pump Belt	3-5544 (2)
Deck Drive Shaft To Electric Clutch -Belt	3-5543 (2)
Battery	3-5610

# **SNAPPER**

## **1 YEAR COMMERCIAL LIMITED WARRANTY**

For one (1) year from purchase date for the original purchaser's commercial or other non-residential use, and ninety (90) days for rental use, SNAPPER, through any SNAPPER dealer will replace, free of charge (except for taxes where applicable), any part or parts found upon examination by the factory at McDonough, Georgia, to be defective in material or workmanship or both.

All transportation costs incurred by the purchaser in submitting material to a SNAPPER dealer under this warranty must be paid by the purchaser.

This warranty does not apply to engines and their components, hydro transmissions, and batteries, as these items are warranted separately. Peerless transmissions will be covered for the first ninety (90) days through Peerless and from ninety-one (91) days and up to one (1) year through SNAPPER. Peerless transmissions on rental units will be covered for ninety (90) days through Peerless. There will be no extended warranty through SNAPPER.

This warranty does not cover any mower or component part that has been damaged as a result of accident, alteration, abuse, improper lubrication, normal wear, or any other cause beyond our control. This warranty does not cover any mower or component part that has been altered or modified changing safety, performance, or durability.

There is no other express warranty.

### **DISCLAIMER OF WARRANTY**

Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one (1) year from purchase date for the original purchaser's commercial or other non-residential use, and ninety (90) days rental use, and up to the extent permitted by law and all implied warranties are excluded. This is the exclusive remedy. Liabilities for consequential damages, under any and all warranties are excluded.

Some states do not allow limitations on how long an implied warranty lasts, or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**WARNING: THE USE OF REPLACEMENT PARTS OTHER THAN GENUINE SNAPPER PARTS MAY IMPAIR THE SAFETY OF SNAPPER PRODUCTS AND WILL VOID ANY LIABILITY AND WARRANTY BY SNAPPER ASSOCIATED WITH THE USE OF SUCH PARTS.**

**IMPORTANT:** Please fill out the attached SNAPPER Product Registration Card immediately and mail to:  
SNAPPER, P.O. Box 777, McDONOUGH, GEORGIA 30253.

*Safety Instructions & Operator's Manual for*

**SNAPPER®**

**OUT FRONT Z-RIDER**

**ZERO TURNING**

**HYDRO DRIVE**

**SERIES 0**

**POWER UNIT**

**MODEL: ZF2200K**

**MOWER UNIT**

**MODEL: ZF6100M**

**▲ WARNING:** The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**SNAPPER®** McDonough, GA., 30253 U.S.A.