

# Assembly Instructions & Operator's Manual for

# **SNAPPER®**

## MODEL NUMBERS:

**W32080**

**W36120**

**W48120**

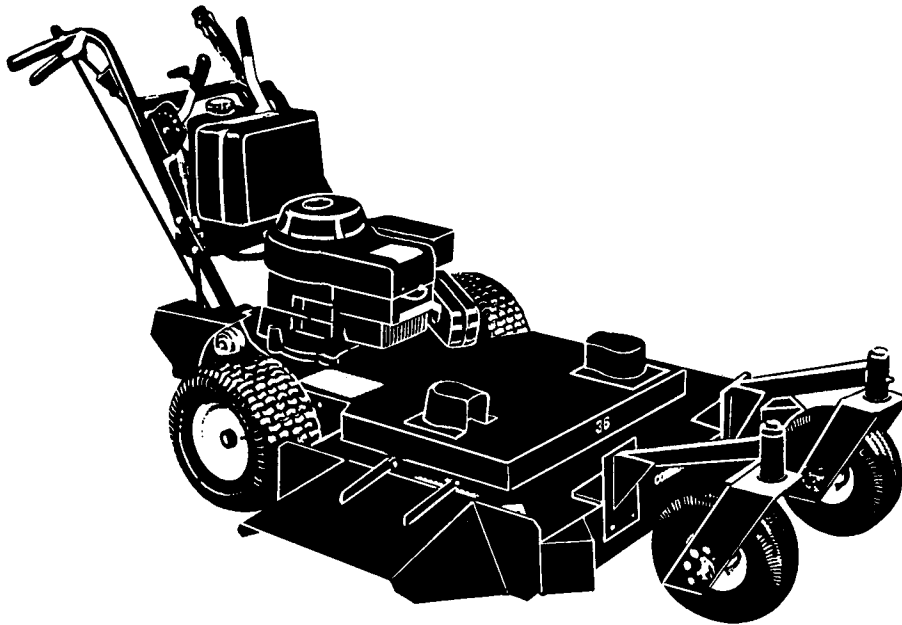
**W32120**

**W36120K**

**W48120K**

**W32120K**

**W48140S**



## **32", 36", & 48"**

# **COMMERCIAL MOWERS**

### **SNAPPER POWER EQUIPMENT**

McDonough, Georgia 30253

**A Division of Fuqua Industries**



# IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** Failure to comply with the following instructions may result in serious injury to the operator or other persons. The owner of the mower must understand these instructions and, furthermore, must allow only persons who understand these instructions to operate the mower. Each person operating the mower 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 mower which your dealer cannot answer to your satisfaction, call or write the Customer Service Department at SNAPPER POWER EQUIPMENT, McDonough Georgia, 30253 (Phone 404-957-9141).

## TRAINING

1. Read this Manual carefully and question your dealer if something is not clear. Should the dealer be unavailable or unable to answer to your satisfaction, write or call our Customer Service Department at the factory. Be thorough familiar with the controls and proper use of the equipment.
2. DO NOT allow children in yard when mower is operated.
3. DO NOT allow pre-teenage children to operate mower.
4. Allow only responsible teenagers with mature judgment to operate mower and only under close supervision.
5. Keep the area clear of all persons, particularly small children, and pets.

## PREPARATION

1. Never operate mower without proper guards, plates, safety switches, or other safety protective devices in place and properly connected. Inspect to determine that these safety devices are installed properly, are in good repair, and operate properly. If the condition or operation of these devices are questionable, they must be repaired or replaced before using the mower.
2. Thoroughly inspect the area where the mower is to be used and remove all stones, sticks, wire, bones and other foreign objects. Also note the location of holes, stumps, and other possible hazards.
3. Do not operate mower when barefoot or wearing open sandals. Always wear substantial footwear and long pants.
4. Fill gasoline tank before starting engine. Use approved gasoline container. Do not smoke near open gasoline container. Do not fill gasoline tank indoors or when engine is running. Allow engine to cool for at least ten minutes before refilling. Wipe off any spilled gasoline before starting engine. Do not run engine indoors.
5. Lock both drive levers into NEUTRAL LOCK position before starting engine.
6. Never attempt to make a wheel height adjustment while engine is running.
7. When mowing over rough ground or in tall grass, mower must be set in highest cutting position.
8. Mow only in daylight or in good artificial light.
9. Never operate mower in wet grass. Always be sure of your footing; keep a firm hold on the handle and walk, never run.

## OPERATION

1. Do not change engine governor settings or over-speed engine.
2. Do not put hands or feet near or under rotating parts. Keep clear of discharge area while engine is running.
3. Disengage blade drive when crossing gravel drives, walks, or roads, and under any conditions where thrown objects might be a hazard.
4. After striking a foreign object or if mower vibrates abnormally, stop the engine, disconnect and secure spark plug wire. Inspect the mower for any damage and repair the damage.
5. Stop engine whenever you leave the operating position behind the handle for any reason, including emptying grass catcher and making any adjustments, repairs, or inspections.
6. Before cleaning, repairing or inspecting, make certain blade and all moving parts have stopped. Disconnect and secure spark plug wire away from plug to prevent accidental starting.
7. Stop engine and wait until the blade comes to complete stop before removing grass catcher and/or unclogging adapter.
8. Mow across slopes, never up-and-down. Exercise caution when changing directions on slopes. Do not mow steep slopes.
9. When parking mower, stop engine and leave drive levers in DRIVE position.
10. Do not use sulky on slopes.

## MAINTENANCE AND STORAGE

1. Keep all nuts, bolts, and screws tight to be sure mower is in safe operating condition.
2. Never store mower with gasoline in the tank inside of a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
3. To reduce fire hazard, keep mower free of grass, leaves, or excessive grease.
4. Check grass catcher assembly frequently for wear or deterioration. Replace with new bag if loose seams or tears are evident.
5. Have your mower inspected and serviced each year by an authorized Snapper dealer. Determine if any additional devices are available which might upgrade the safety of your mower.
6. Factory specified Snapper replacement parts must be used to assure adequate protection against injury.



Symbols like the one shown at left are used to call your attention to specific safety information in the text. This information deserves your careful attention and understanding. Failure to understand or comply with safety related information may result in injury to you or others.

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Warning or operating decals that become damaged or illegible should be replaced immediately.

### Decal Kits:

32" mowers .....	Part No. 77191	48" mowers .....	Part No. 77367
36" mowers .....	Part No. 77273	48" mower (14 H.P.) .....	Part No. 77375

## MOWER ASSEMBLY

This section describes recommended assembly procedures for mowers as shipped from the factory. Once initial assembly is complete, refer to pages 11-19 for final adjustments.

**Note:** If your mower has already been assembled and adjusted by your authorized Snapper Dealer, move directly to "Pre-operation Service" (Pg. 7).

Inspect mower mainframe and all loose parts for signs of damage before proceeding with assembly. Contact your Snapper dealer if damage is noted.

Mowers already removed from the shipping pallet must be propped up from the floor to allow clearance for front wheel attachment. Use the 2" x 4" x 7" blocks attached to the pallet for this purpose.

Refer to the Torque Specifications on Page 23 for correct hardware installation figures.

**Note:** Use of a pneumatic wrench is not recommended for Nyloc nuts. High speed installation can damage locking capability.

### Step #1 Front Wheel Attachment

- Use four  $\frac{3}{8}$ " x  $1\frac{1}{4}$ " bolts,  $\frac{3}{8}$ " washers and  $\frac{3}{8}$ " Nyloc nuts to attach the wheel assemblies to the front edge of the deck.
- Use one  $\frac{3}{8}$ " x 1" bolt and  $\frac{3}{8}$ " Nyloc nut, inserted through the bracket and deck from the top, to complete attachment of the left wheel assembly.

- Use one  $\frac{3}{8}$ " x  $1\frac{1}{4}$ " bolt, inserted through the deck and mounting bracket from beneath, and one  $\frac{3}{8}$ " Nyloc nut to complete the mounting of the right wheel assembly.
- Check to ensure that the clamp collars are securely tightened, and that the front swivels turn freely.

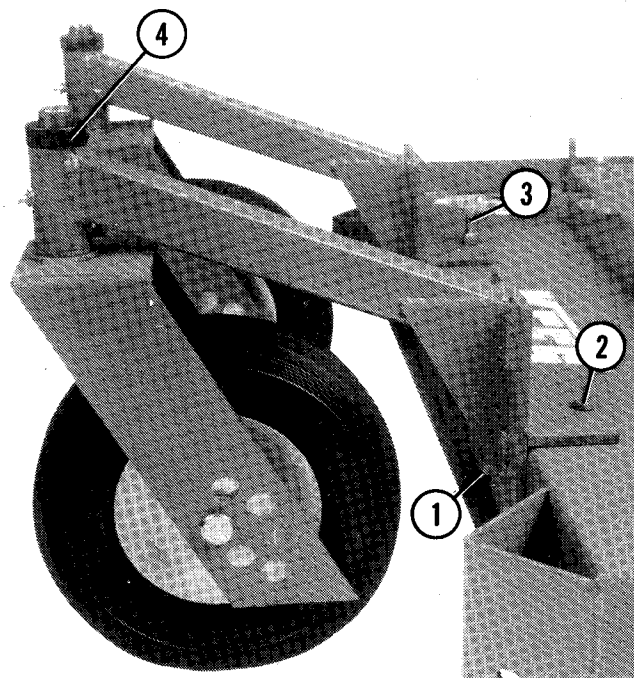


Figure 1 Front Wheel Assembly (caster) Attachment

- |  |  |
|--|--|
| 1. $\frac{3}{8}$ " x $1\frac{1}{4}$ " Bolt | 3. $\frac{3}{8}$ " x $1\frac{1}{4}$ " Bolt |
| 2. $\frac{3}{8}$ " x 1" Bolt               | 4. $\frac{3}{8}$ " Clamp Collar            |

## Step #2 Fuel Tank Attachment

- A. Position tank onto mounting bracket.
- B. Position the short tank band across the rear of the tank, over the tank pads at the level of the mounting slots. Thread the end of the band through both slots until the end can be inserted into the screw portion of the band, centered at the back of the tank. Snug the band down, but do not tighten it until the other band has been attached.

**Note:** For Model W48140S, omit Step C.

- C. Position the long tank band across the top of the tank, over the tank pads. Run it through both mounting slots and insert the end into the screw portion of the band, centered on top of the tank. Tighten both bands to secure the tank.

**Note:** Do not overtighten. Excessive tightening may distort tank.

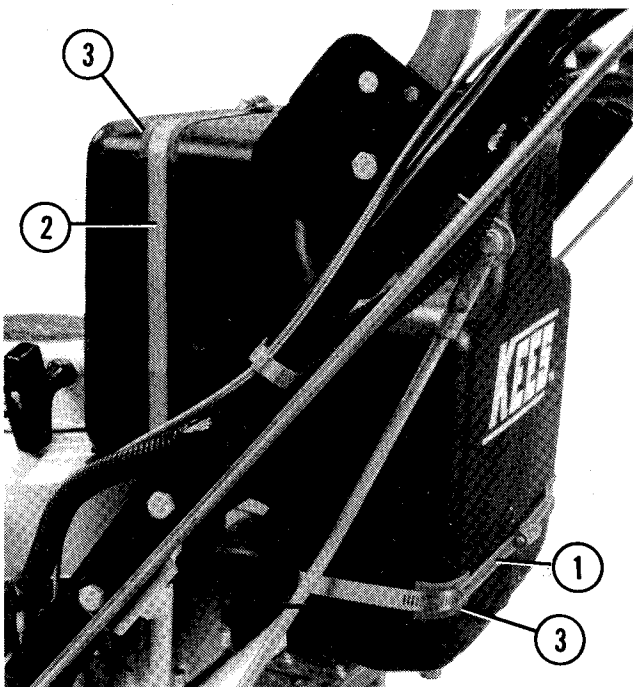


Figure 2 Fuel Tank Attachment

1. Short Tank Band 2. Long Tank Band 3. Gas Tank Pads

## Step #3 Fuel Line Connection

- A. Route fuel line from gas tank through nylon tie on lower handle and connect it to fuel filter, using gas line hose clamp provided. Tighten nylon tie to prevent gas line from contacting worm gear reduction box.

**Note:** A fuel shut-off is provided at the tank outlet and at the carburetor inlet. Check to be sure both are open for operation.

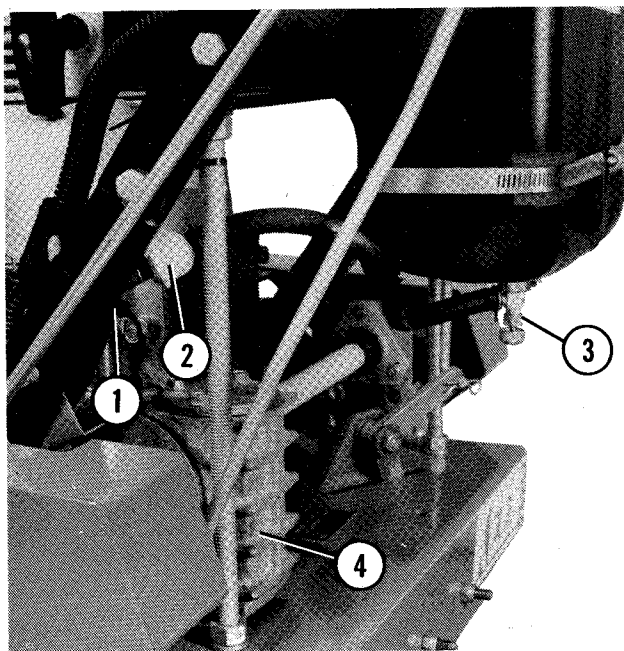


Figure 3 Fuel Line

1. Nylon Tie 2. Fuel Filter 3. Tank Shut-off 4. Worm Gear Reduction Box

## Step #4 Muffler Installation

**Note:** For Model W48140S, omit all of Step #4.

### ● Briggs & Stratton 12 h.p. Engines:

- A. Loosely preassemble the bracket and clamp to the muffler as shown in Figure 4. The bracket should move freely on the muffler.

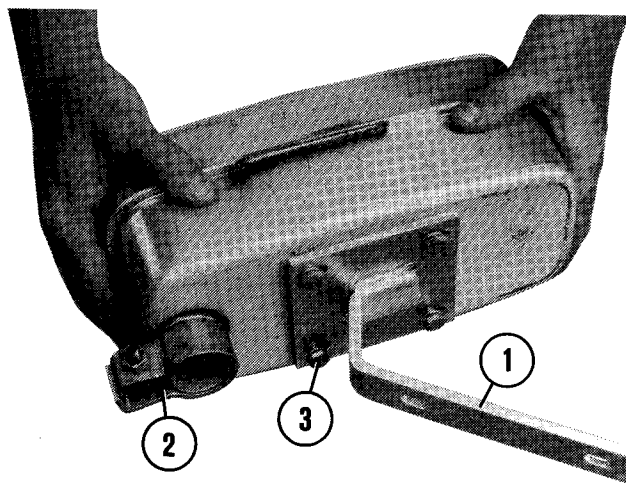


Figure 4 Muffler Preassembly

1. Muffler Bracket 2. Clamp 3. 1/4" x 5/8" Bolt and 1/4" Lockwasher

- B. Slip the muffler over the engine outlet pipe, then connect the bracket to the engine using two  $\frac{1}{4}$ " x 1" grade 5 bolts and two  $\frac{1}{4}$ " lock washers. See Fig. 5.

- C. Tighten remaining hardware.

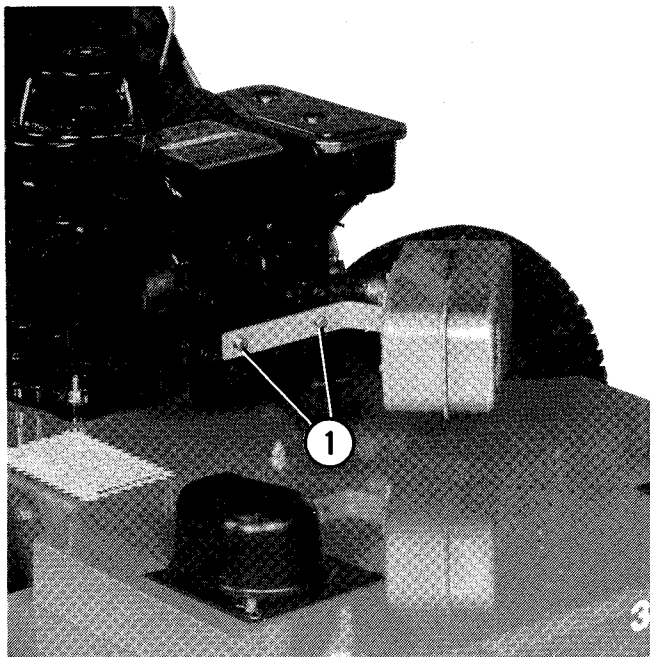


Figure 5 Muffler Installed

1.  $\frac{1}{4}$ " x 1" Grade 5 Bolt and  $\frac{1}{4}$ " Lockwasher

● *Briggs & Stratton 8 h.p. Engines:*

- Screw locking ring on muffler with teeth of locking ring pointing toward muffler.
- Screw muffler into engine exhaust port as far as possible by hand. Then unscrew until one of the side out deflector holes in the end of the muffler is pointing forward.
- Unscrew locking ring only, until tight against engine block.
- Tighten by lightly tapping on lugs of locking ring with a screwdriver or blunt punch with a small hammer until snug. **CAUTION--DO NOT OVERTIGHTEN!!** Engine block damage may occur.
- Assemble side out deflector, with opening forward, to end of muffler with (3) screws.

## Step #5 Upper Handle and Drive Linkage Installation

- Use the  $\frac{3}{8}$ " x 1" bolts and the  $\frac{3}{8}$ " Nyloc nuts provided to fasten the upper handle to the lower handle. See Fig. 7, Pg. 4.
- Locate the drive linkages in the shipping box. Install them by turning the threaded ends into the long adjusting swivels on the brake/propel mechanism (item #3, Fig. 20, Pg. 14).
- Connect the top ends to the drive levers and thumb latches (using hairpin cotters and washers supplied) as shown in Fig. 21, Pg. 14.

**Note:** Final adjustment should not be made until machine has been fully assembled.

## Step #6 Control Lever Installation

- Connect the cutter blade and ground speed control levers to the brackets on the upper handle using the hardware and sequence shown in Fig. 6.
- Tighten the  $\frac{3}{8}$ " x 2" bolt so that there is  $\frac{1}{8}$ " working clearance between the end of the engaging pin and the bracket, when the pin is being moved between holes.

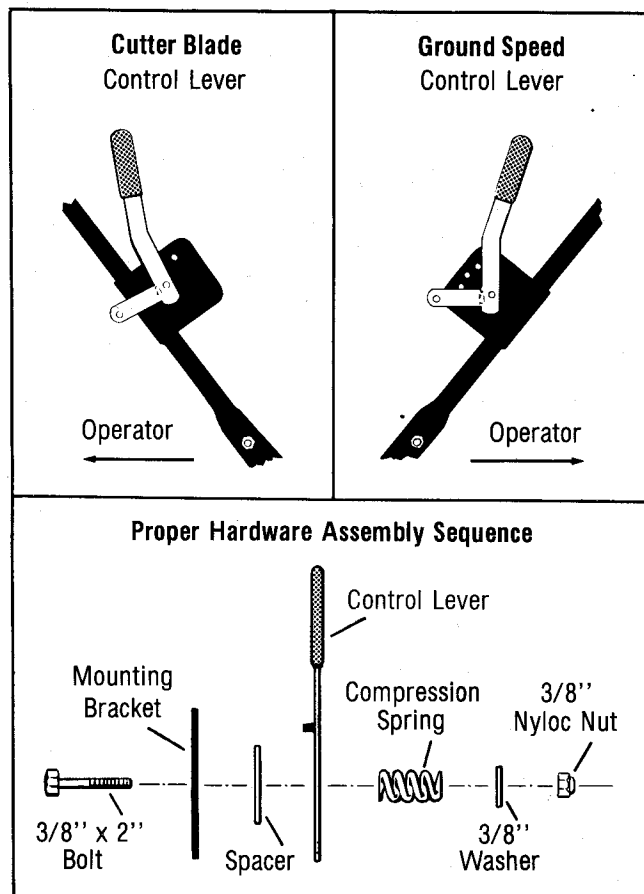
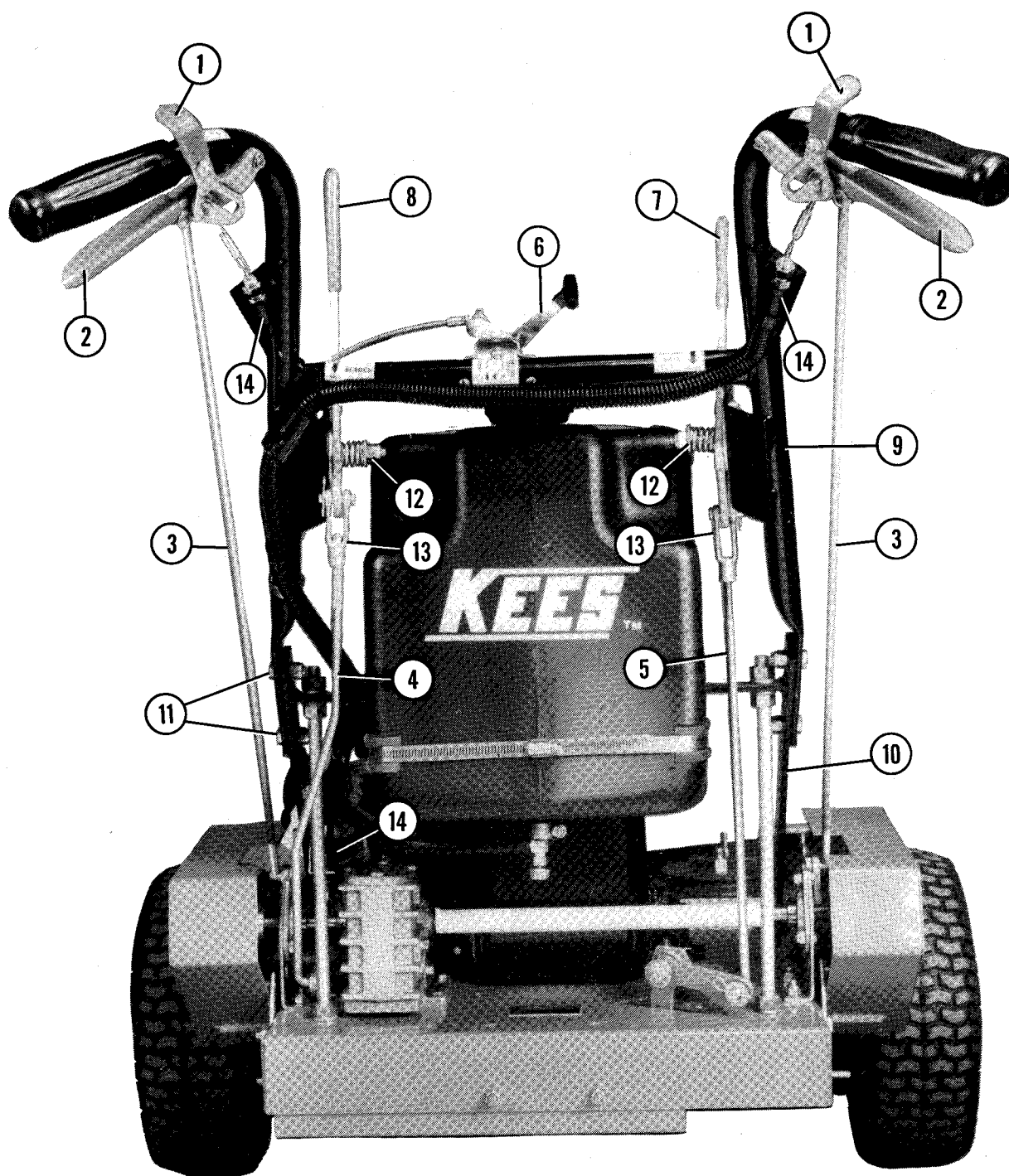


Figure 6 Control Lever Installation



**Figure 7 Controls and Linkages**

1. R.H. and L.H. Thumb Latches
2. Drive Lever
3. Drive Linkage
4. Upper Blade-drive Linkage
5. Ground Speed Linkage

6. Throttle Control Lever
7. Ground Speed Control Lever
8. Cutter Blade Control Lever
9. Upper Handle
10. Lower Handle

11.  $\frac{3}{8}$ " x 1" Handle Bolts and Nyloc Nuts
12. Spring/Bolt Assembly
13. Yoke
14. Interlock Switch

## Step #7 Control Linkage Installation

### Ground Speed Linkage:

- A. Connect the bottom end of the ground speed linkage to the bellcrank (see Fig. 7) using a #2 hairpin cotter.
- B. Turn the adjusting yoke onto the top end of the linkage until the tip of the threaded end comes flush with the inside of the yoke.
- C. Attach the yoke to the ground speed control lever with a 5/16" clevis pin and a #2 hairpin cotter.

**Note:** This setting should prove correct for initial operation. Overall ground speed may be varied slightly by making further adjustments as described under "Variable-speed Pulley Belt," Pg. 18.

**Caution:** Do not reposition ground speed control lever without engine running, or worm gear reduction box damage could occur.

### Upper Blade-drive Linkage:

- A. Connect the bottom end of the blade-drive linkage to the bellcrank (see Fig. 7) using a #2 hairpin cotter.
- B. Adjust the yoke at the top of the linkage rod so that when connected to the control handle (use a 5/16" clevis pin and #2 hairpin cotter), there is just enough movement to allow the engagement pin to reach both holes.

**Note:** This setting should prove correct for initial operation. If further adjustment is necessary, refer to "Blade-drive Belts," Pg. 18.

## W48140S Operator's/Assembly Instructions

**Note:** For models other than W48140S, go on to Step #8, Pg. 6.

**Note:** You may wish to fill and charge battery supplied per enclosed manufacturer's instructions at this time.

- A. Remove gas tank cap. Place control panel under upper handle cross bar and over gas tank fill spout. Attach with (2) #10-24 x 1½" Rd. Hd. Sl. Mach. screws and (2) #10-24 Nyloc Hex nuts as shown on Page 11 of the Snapper Parts Manual #06119. Replace gas tank cap.

- B. Pull control panel face plate out 7 to 8 inches and set between gas cap and cross bar.

**Note:** Be careful not to scratch paint on control panel base.

- C. Assemble the long tank band to the control panel and gas tank by slipping the band through the control panel slot at the bottom left side. Thread the band through the control panel (under all wires), out the right side, and through both slots in gas tank saddle. Insert and tighten strap end into worm bolt so that clamp is on the middle left side of gas tank.

**Note:** Do not over tighten, tank damage could occur.

## Throttle Cable Assembly

Pull throttle control to slowest position. Insert cable in hole on throttle linkage arm (behind intake manifold). With throttle in slowest position, push linkage arm toward center of engine and secure conduit with clip provided on engine intake manifold.

**Note:** The throttle control will not shut off engine. The engine can only be shut off with the key switch.


## Choke Cable Assembly

Route choke conduit down from control panel, through first gusset of battery stand, and up around to front of engine. With choke control pushed in, assemble inner cable into the lowest hole in linkage arm (located on side of carburetor). Push arm back toward center of engine and secure conduit with the clip provided on the engine.

## Wiring Connections (see Snapper Parts Manual #06119, Page 11)


Point  through  :

Connect wires with corresponding numbers 1 through 6 to interlock switches and insert into flex guard loom. Attach to upper handle by pulling loom tight against switch body and fasten with plastic tie above cross bar (see Snapper Parts Manual #06119, page 11).


Point  :

Remove nut and lock washer from starter motor terminal. Place starter cable on terminal and secure with lock washer and nut.

Route the long flex guard loom down from control panel, through first gusset of battery stand, around the front of the engine, and under air breather between carburetor and engine.



Point  and  :

Connect to spade terminal as shown.

Point  :

Snap D.C. wire connectors together.

**Note:** Tuck as much wire of 8, 9 & 10 as possible back into loom.

Point  &  :

Connect battery ground cable to negative post on battery with (1) 5/16"-18x3/4" bolt and 5/16"-18 Nyloc Hex nut. Use similar hardware for positive cable connection.

Continue through Operator's Manual starting with Step #9, excluding Step #11.

## Control Identification

Choke Control:

Pull — ON      Push — OFF

Key Switch:

Positions:

"OFF"

- Shuts engine off
- Activates afterfire solenoid (prevents engine backfire)
- Turns off hour meter

"RUN"

- Deactivates afterfire solenoid
- Activates hour meter

"START"

- (Spring loaded back to run)
- Starts engine

**Note:** Always turn to off position when not in use.

**Hour Meter:** Shows amount of time engine has been running.

**Note:** If key is left in the run position when engine is not running, hour meter will continue to run.

**Ammeter:** Shows amount of current being supplied by the engine to the battery. At full throttle, maximum reading should be approximately 3 amps.

**Fuse:** Protects engine charging system and instrumentation from possible electrical malfunction.

## Trouble Shooting:

Engine won't start

- Fuse blown
- Weak or dead battery
- Battery not grounded properly
- Choking may be required
- Battery cable disconnected.

**Note:** Disconnect positive battery cable from battery post before any service is done within the control panel.

**Note:** Continue with Step #9, Page 7.

## Step #8 Throttle Control Installation

**Note:** For Model 48140S, skip to Page 7.

A. Mount the throttle control assembly onto the cross-bar of the upper handle as shown in Fig. 8.

B. Loosen the clamp screw by the control lever to allow adjustment of the cable lever.

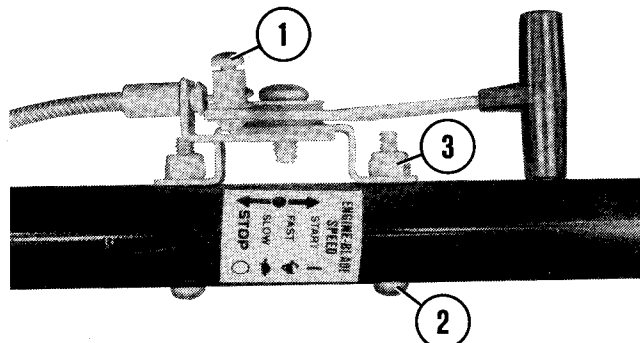


Figure 8 Throttle Control Lever

1. Clamp Screw    2. #10 x 1 1/2" Bolt    3. #10 Nyloc Nut

C. Connect the cable end to the throttle control mechanism on the engine as shown in Fig. 9. Do not secure the clip at this time.

**Note:** Be sure the mechanism is in the position shown (all the way down).

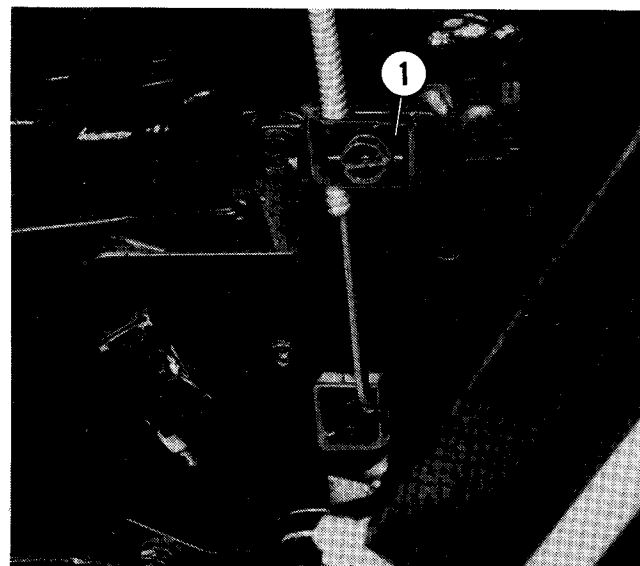


Figure 9 Throttle Control Mechanism (B&S Engines)

1. Cable Clip



- D. Once connection is made, move the throttle control lever to "Stop" position (B&S), "Slow" position (Kawasaki) and tighten the cable clip and clamp-screw.
- E. Move the control back and forth a few times, observing the engine throttle mechanism to insure proper action. Adjust if necessary.
- F. When operation is satisfactory, trim off excess cable wire (at throttle control end) if desired.

## Step #9 Belt Shield and Shaft Guard Installation

- A. Install and secure belt shield with three 5/16" washers and Nyloc nuts.

Shaft guards are designed to swing away, allowing convenient access to shafts. Nyloc nuts should be left loose enough to allow easy cover movement when hairpin cotter is removed from its retaining pin.

- B. Attach guards with a 5/16" washer and Nyloc nut on threaded stud. Secure in place with a #2 hairpin cotter.

**Note:** Position guards with open sides toward operator unless that position will allow exhaust discharge to enter the guard.

## Step #10 Discharge Chute Installation

**Note:** If Snapper grass catcher is to be used, refer to the instructions supplied with the catcher and install catcher back plate and braces at this time.

- A. Attach discharge chute with two 5/16" x 1" bolts and Nyloc nuts.



**Safety Warning:** Never operate the mower unless discharge chute or grass catcher is securely in place.

**Note:** For Model W48140S, skip to Step #12.

## Step #11 Interlock Switch Connection

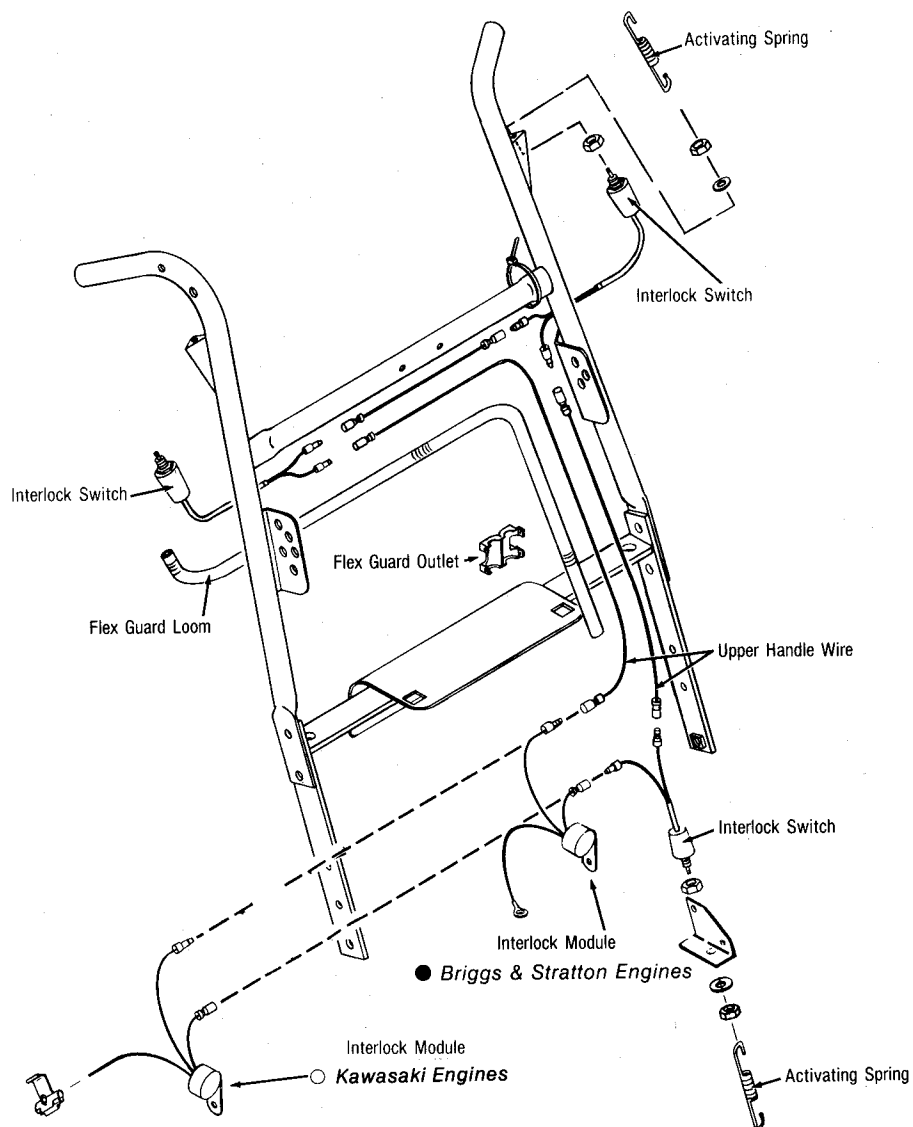
- A. Join the interlock switch wires at the bullet connectors provided (see Fig. 10, Pg. 8, for connector locations). Connect one of the wires from the upper handle with one wire from the interlock switch which is mounted on the lower handle and the other with the male connector from the interlock module (the wires cannot be hooked up wrong, since you are merely completing a circuit).
- B. Connect the remaining wire from the interlock switch on the lower handle to the remaining wire on the interlock module.
- C. Insert the connection into the flex guard loom and reattach the flex guard outlet to the loom.
- D. Hook the activating springs between the interlock switches and the drive levers, as shown in Fig. 21, Pg. 14.

## Step #12 Pre-operation Service

- A. Refer to "Adjustments," pages 11-19, for final linkage and cutting height adjustments.
  - B. Inspect all mower hardware and fasteners to insure they are properly secured.
  - C. Once all final adjustments are made and final cutting height has been set, fill engine crankcase with oil per manufacturer's instructions.
  - D. Check rear tire pressures. Fill to 14 PSI.
- Note:** Pressure in both tires must be equal to insure straight travel.
- E. Fill fuel tank with fresh gasoline. Consult engine owner's manual for recommended grade.
- Note:** Do not use gasoline with ethanol or methanol additives.
- F. Grease fittings on cutter housings, front and rear wheels, front castors, and sulky wheels if applicable.



**Safety Warning:** Handle gasoline with extreme care. Never allow sparks or flame nearby.



**Figure 10 Interlock Switch Wiring**

# OPERATION



**Safety Warning:** Be certain you know and understand all control locations and functions. Review Safety Instructions in the front of this manual before beginning mower operation.

## Control Identification

### Throttle Control (Fig. 8)

Move lever as directed to vary engine speed, shut off engine, or prepare engine for starting.

**Note:** On Kawasaki engines "Start" position automatically engages choke. Briggs & Stratton engines must be choked manually.

### Drive Levers (Fig. 11)

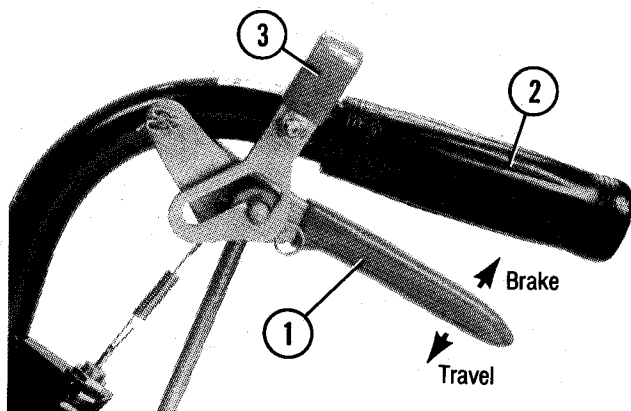


Figure 11 Drive Lever

- |   |                |
|---|----------------|
| 1. Drive Lever (shown in "Neutral Lock" position) | 2. Handle Grip |
|   | 3. Thumb Latch |

The drive levers serve four important functions:

- 1. Stopping forward motion**  
Pull both levers toward the handle grips and hold tightly in place.
- 2. Beginning forward motion**  
Release both levers simultaneously to engage drivewheels.
- 3. Selecting "neutral" position**  
Pull levers partially toward handle grips (drivewheels and brakes both disengaged).  
To lock drive levers in neutral position, pull back on the thumb latches, then release the levers so they catch as shown in Fig. 11.
- 4. Steering the mower**  
See "To steer mower," under Operating Procedures (Pg. 10).

### Cutter Blade Control (Fig. 12)

Move to start or stop blade rotation.

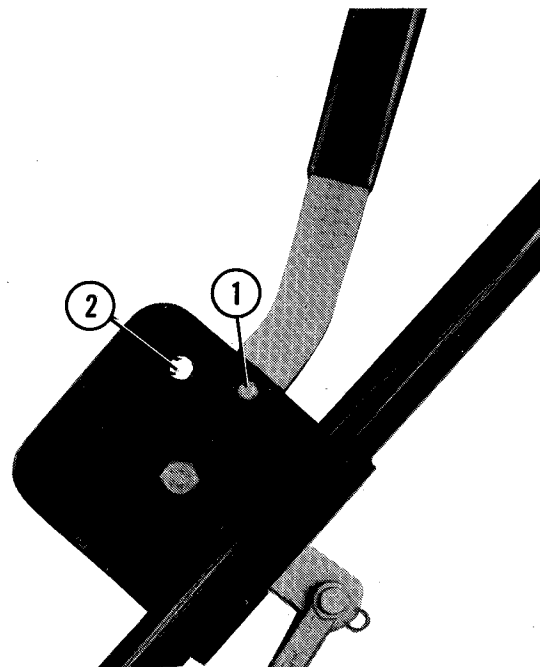


Figure 12 Cutter Blade Control

- |                                    |                                  |
|------------------------------------|----------------------------------|
| 1. Disengage (stop blade rotation) | 2. Engage (start blade rotation) |
|------------------------------------|----------------------------------|

### Ground Speed Control (Fig. 17)

Move as desired to change ground speed.

**Caution:** Change speed only while engine is running, to avoid damage to components.

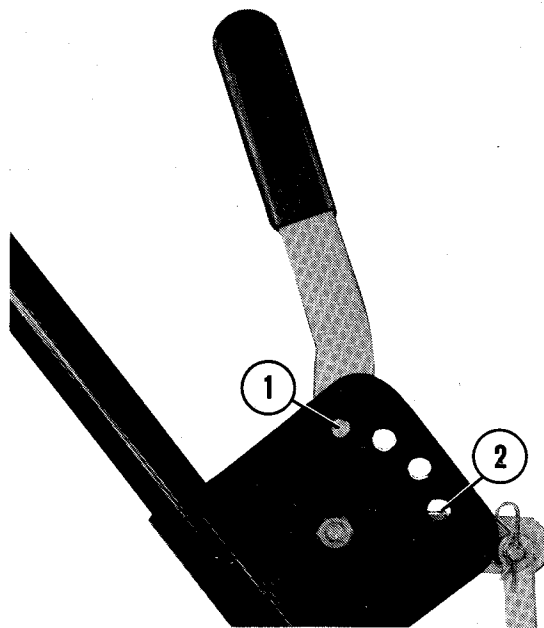


Figure 13 Ground Speed Control

- |            |            |
|------------|------------|
| 1. Slowest | 2. Fastest |
|------------|------------|

## Operating Procedures

### To Begin Operation:

#### Step #1

- A. Set cutter blade control in the "Stop" position.
- B. Lock both drive levers into "Neutral Lock" position.
- C. Move throttle control to "Start" position.

**Note:** Ground speed control should not be repositioned until engine is running. System damage may occur.

**Note:** Units with Kawasaki engine, turn "shut-off" switch to "on" position at this time.

#### Step #2

- A. Pull the recoil handle and start the engine (may require choking).
- B. Once engine has started, move the throttle control to "Slow" position.
- C. Move ground speed control to slowest setting.

#### Step #3

- A. Engage blades by moving cutter blade control to "Rotate" position.
- B. Move throttle control as necessary to provide desired blade speed.

#### Step #4

- A. Unlock the drive levers, then slowly release them to begin forward motion.
- B. Move ground speed control to desired setting.

### To Steer Mower:

If drive levers are correctly adjusted, mower will travel in a straight line when both levers are released.

To turn, simply squeeze the drive lever on the same side as the direction you wish to turn. This locks the wheel brake on that side and causes the machine to turn.

Continue holding the drive lever until the mower is headed in the desired direction. Release the drive lever and the mower will resume straight-ahead travel.

### To Stop Operation:

## Emergency Stop

**Pull both drive levers firmly toward the handle grips and hold them securely in place.**

**Use the thumb latches to lock the drive levers in "Neutral Lock" position (see Fig. 11), then move throttle control lever to "Stop" position. Units with Kawasaki engine turn "shut-off" switch to "off" position.**

### Normal Operating Stop

- A. Pull both drive levers firmly toward the handle grips to stop forward motion.
- B. Use thumb latches to lock the drive levers into "Neutral Lock" position (see Fig. 11).
- C. Move throttle control to "Slow" position.
- D. Move cutter blade control to "Stop" position.
- E. Move ground speed control to slowest setting.
- F. Move throttle control to "Stop" position (B & S only). Units with Kawasaki engine, turn "shut-off" switch to "off" position.

**Note:** Close shut-off valve at base of tank following operation.

# ADJUSTMENTS



**Safety Warning:** Shut off engine and disconnect spark plug wire before making any adjustments.

## Cutting Height

Your Snapper mower may be set to any of 10 different cutting heights, ranging from 1½" to 5".

It will be necessary to alter the deck height (distance from the bottom edge of the mower deck to the ground)

in order to achieve the desired final cut. This will involve relocation of the rear axle and the front wheels or front wheel assemblies.

**Note:** Whenever the rear axle has been relocated, you must adjust the brake/propel mechanism and the drivewheel scrapers.

It may also be necessary to relocate the drivewheel scrapers and/or the brake plate swivel.

All of these operations are described following the chart below.

## To Change Cutting Height:

STEP #1 Select desired ground clearance and cutting height		STEP #2 Position front and rear axles as noted below to correspond to cutting height selection.  Check listings below to see which mounting positions correspond to cutting height selection. Reposition if Necessary.		
Cutting Height	Ground Clearance	Front Axle (Fig. 18) and Rear Axle (Fig. 16) Setting	Drivewheel Scraper (Fig. 16)	Brake Plate Swivel (Fig. 17)
1½"	1"	#1	A	A
2"	1½"	#2	A	A
* 2½"	2"	#3	A	A
3"	2½"	#4	A	B
3½"	3"	#5	B	C
4"	3½"	#6	B	C

\*Shipped from factory in this position

**Note:** 4¼"-5" cutting height, see Fig. 19, Pg. 13.

Figure 14 Cutting Height Adjustments

### Repositioning the Rear Axle

- A. Use the chart in Fig. 14 to select the correct rear axle position.
- B. Secure the drive levers in "Neutral Lock" position and raise the rear of the mower to allow access to the axle assembly.



**Safety Warning:** Secure the mower in place to prevent it from falling. Disconnect the spark plug wire.

- C. Loosen the axle retaining bolts on both sides of the frame. See Fig. 15.
- D. Remove the axle adjusting bolts (Fig. 15) and reposition them as directed on the chart in Fig. 14, and shown in Fig. 16.

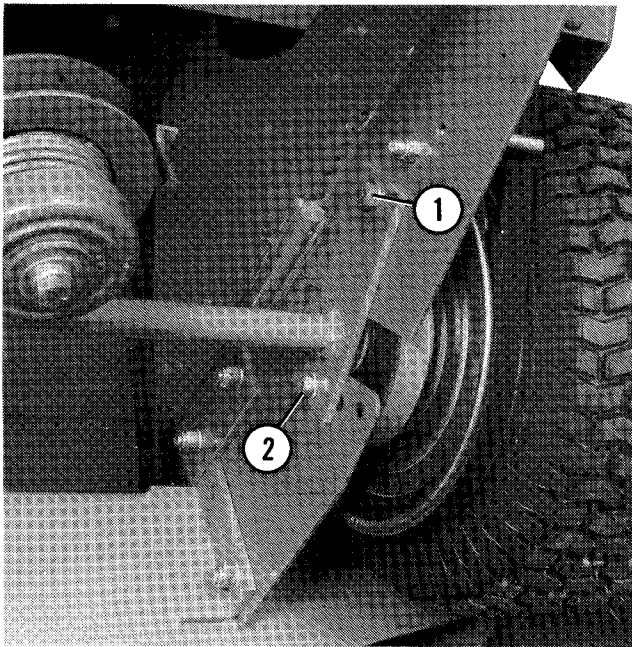


Figure 15 Rear Axle Adjustments

1. Axle Retaining Bolt 2. Axle Adjusting Bolt

**Note:** It may be necessary to disconnect the forward motion linkages (see Fig. 20) and reposition the rear wheel fenders to allow axle relocation. Linkages need not be reconnected until brake/propel mechanism is adjusted later in the procedure.

- E. Securely tighten axle retaining and adjusting bolts.
- F. If the chart in Fig. 14 indicates that repositioning the drivewheel scrapers is necessary, move to item G below. If not, make the correct adjustments as shown in Fig. 32, Pg. 19.
- G. Remove and relocate drivewheel scrapers to the position directed in the chart (Fig. 14) and shown in Fig. 16.

- H. Adjust the drivewheel scrapers and belt guides as shown in Fig. 32, Pg. 19.

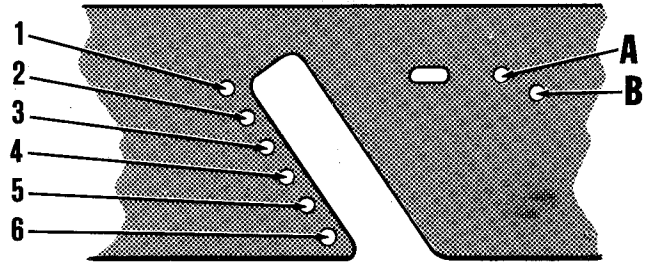


Figure 16 Axle and Drivewheel Scraper Positions

### Repositioning the Brake Plate Swivel

- A. Refer to the chart in Fig. 14 to see if repositioning is necessary. If repositioning is not needed, disregard steps B and C.

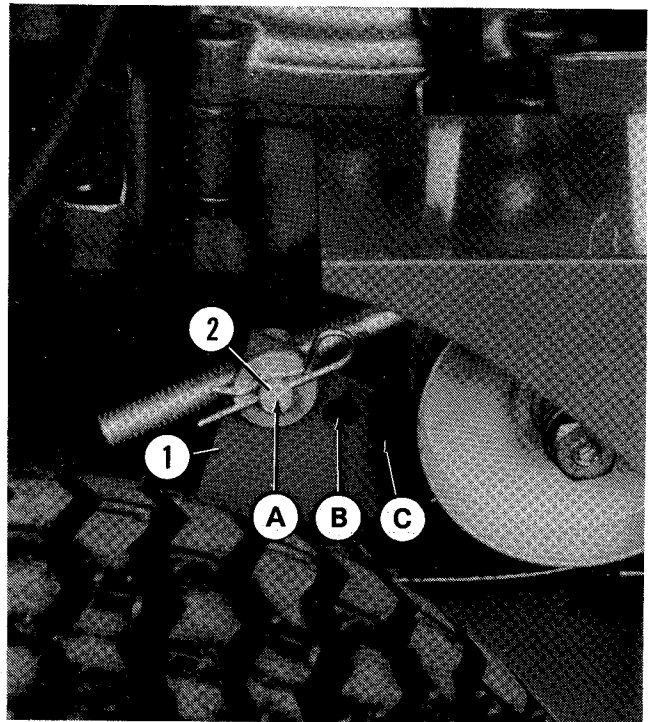


Figure 17 Brake Plate Swivel

1. Brake Adjustment Plate 2. Swivel

- B. Disconnect the swivel from the brake adjustment plate and position it as directed in Fig. 14 and shown in Fig. 17.
- C. Reconnect the brake plate swivel using the hairpin cotter and washers previously removed.

### Positioning the Front Wheels

- A. Use the chart in Fig. 14 to find the correct front axle setting for the rear axle setting you have selected.

**Note:** Rear axle and front axle positions must correspond to ensure level cutting.

- B. Remove the linchpin from each of the front axles and reposition the axles as required. See Fig. 18.

- C. Replace the linchpins to secure the axles.

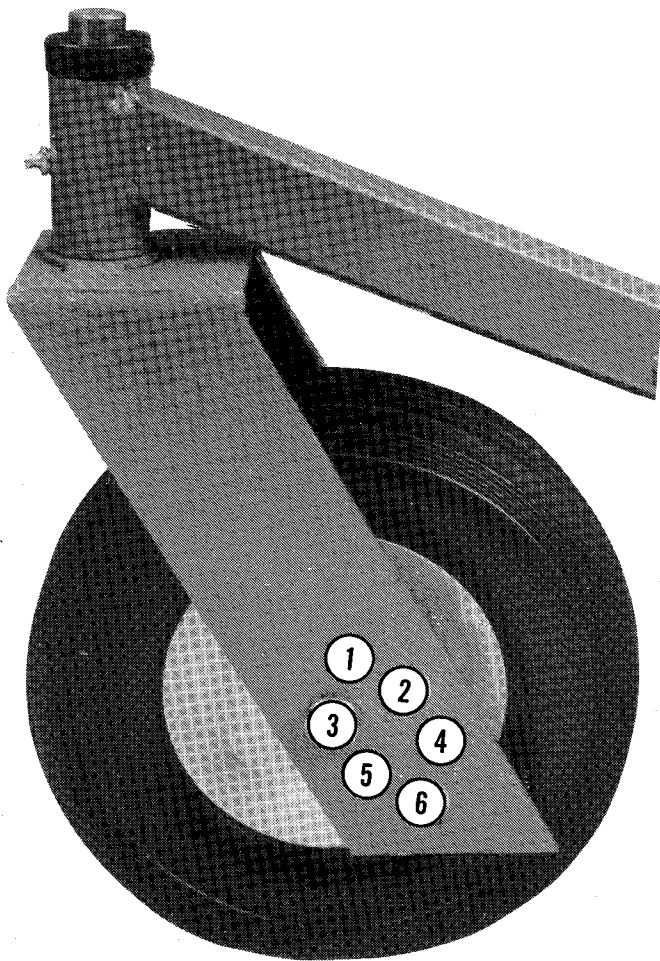


Figure 18 Front Wheel Positions

### Changing Blade Position

To achieve cutting heights of  $4\frac{1}{4}$ " to 5", move the spacers from under the cutter housing to above the cutter pulley. Move one additional spacer for each additional  $\frac{1}{4}$ " of cutting height.

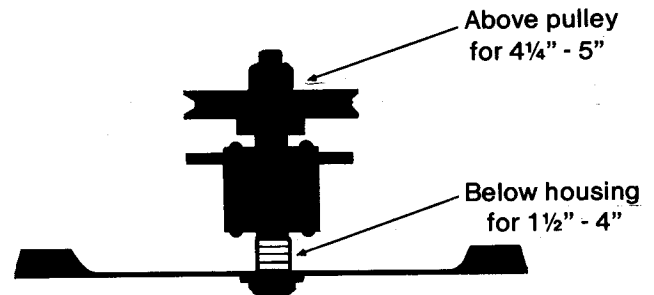


Figure 19 Spacer Placement

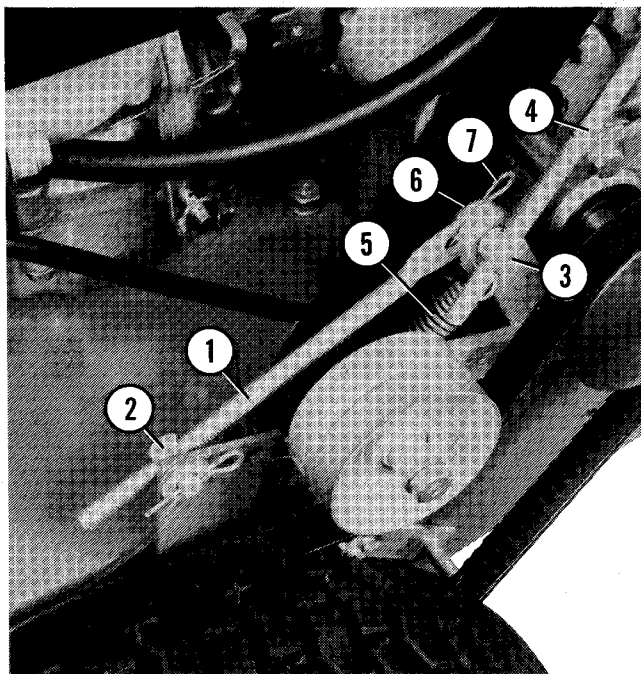
## Brake/Propel Mechanism

This mechanism allows a single lever (drive lever) to control braking, forward motion, and the selection of a "neutral" position (for each drivewheel.)

Mechanism actions are interdependent; that is, movement of any one portion affects all other parts of the system. For example: when you pull the drive lever to activate the wheel brake, the mechanism first lifts the tension idler from the wheel-drive belt. Then as you continue to pull the lever, it causes activation of the brake.

**The Brake/Propel mechanism must be readjusted whenever the rear axle is relocated.**

**Note:** This procedure also serves as adjustment for correct brake tension.



**Figure 20 Brake/Propel Mechanism** (left side shown)

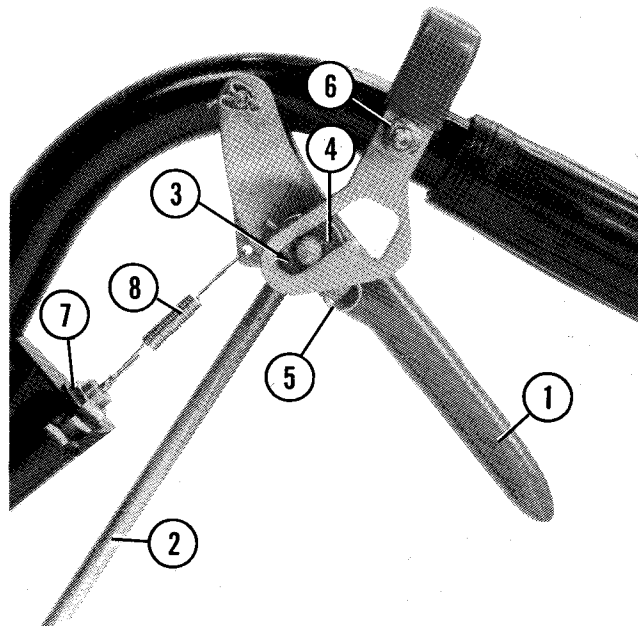
- |                           |                      |
|---------------------------|----------------------|
| 1. Forward Motion Linkage | 5. Extension Spring  |
| 2. Short Adjusting Swivel | 6. Washer            |
| 3. Long Adjusting Swivel  | 7. #2 Hairpin Cotter |
| 4. Drive Linkage          |                      |

### To Adjust the mechanism:

- A.** Release the drive lever from the "Neutral Lock" position (lever should appear as in Fig. 21).

**Note:** It is important to keep the thumb latch retaining bolts tight enough to prevent latch movement unless they are pushed or pulled by the operator.

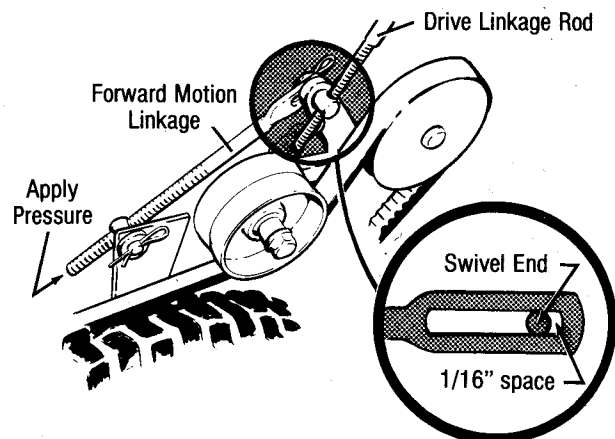
- B.** Check to see if the correct  $\frac{1}{4}$ " gap exists where shown in Fig. 21 (item #3). If not, proceed to item C. If spacing is correct, move to item E.



**Figure 21 Drive Lever Adjustment**

- |                                  |  |
|----------------------------------|--|
| 1. Drive Lever                   | 5. #2 Hairpin Cotter                   |
| 2. Drive Linkage                 | 6. Thumb Latch Retaining Bolt          |
| 3. Approx. $\frac{1}{4}$ " space | 7. Adjustment Nut, Interlock Switch    |
| 4. $\frac{5}{16}$ " Washer       | 8. Activating Spring, Interlock Switch |

- C.** Disconnect the drive linkage from the drive lever by removing the hairpin cotter (and washer).
- D.** Turn the drive linkage rod as necessary to establish the proper  $\frac{1}{4}$ " gap, then reconnect.
- E.** Place the drive lever in "Neutral Lock" position (Fig. 11, Pg. 9).
- F.** Locate the forward motion linkage (Fig. 20). Push on the threaded end until you feel resistance when the break begins to tighten inside the drivewheel.
- G.** Inspect the slotted end of the forward motion linkage for proper gap as shown in Fig. 22. If there is considerably more or less than the desired  $\frac{1}{16}$ " space, move on to item H.



**Figure 22 Forward Motion Linkage Adjustment**



- H. Remove the hairpin cotter (and washer) that retains the forward motion linkage to the long adjusting swivel (see Fig. 20).
- I. Turn the linkage as necessary to establish the proper 1/16" gap (checked while holding tension on the linkage).
- J. Reconnect the linkage to the long adjusting swivel.

## Brake Tension

Adjustment of the brake/propel mechanism includes correct brake tension adjustment. To adjust brake tension, follow the complete sequence (A thru J) under "Brake/Propel Mechanism," Pg. 14.

**Note:** Do not change location of the short swivel in the brake adjustment plate to adjust brake tension. Short swivel position is dictated by rear axle location only.

## Interlock Switch

Three interlock switches prevent the engine from starting if the drive levers are not in the neutral position or if the cutting-blade drive system is engaged.

### Drive-lever Interlock Switches

The drive-lever interlock switches should be mounted so that the stem begins to retract as the drive linkage in the drive lever falls below its "Neutral" position. The stem should be at its full extension when the drive lever is actually in neutral.

### Blade-drive Interlock Switch

The blade-drive interlock switch must be mounted so that the stem retracts before the drive belt becomes fully engaged. The stem must be fully extended when the lever is in the "Stop" position, to enable the engine to start.

If these interlock switches require adjustment, reposition them as needed (see Fig. 21 for adjustment nut location):

- A. Loosen the nut on one side of the hole in which the switch is mounted,
- B. Turn the nut on the other side far enough to bring the switch into the required position, and
- C. Tighten the first nut again to secure the switch.

## Blade and Wheel-Drive Belts

### Proper Belt Routing

Figures 23 through 26 show correct belt routing for all models.

### 32" and 36" Models

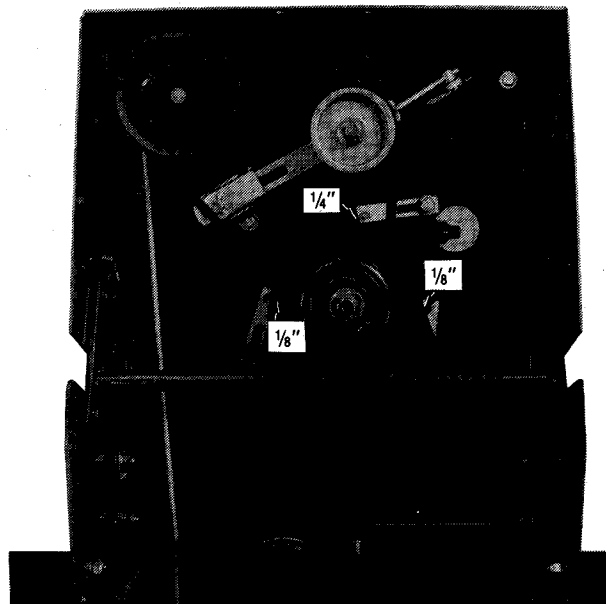


Figure 23 32" & 36" Belt Routing (Beneath frame)

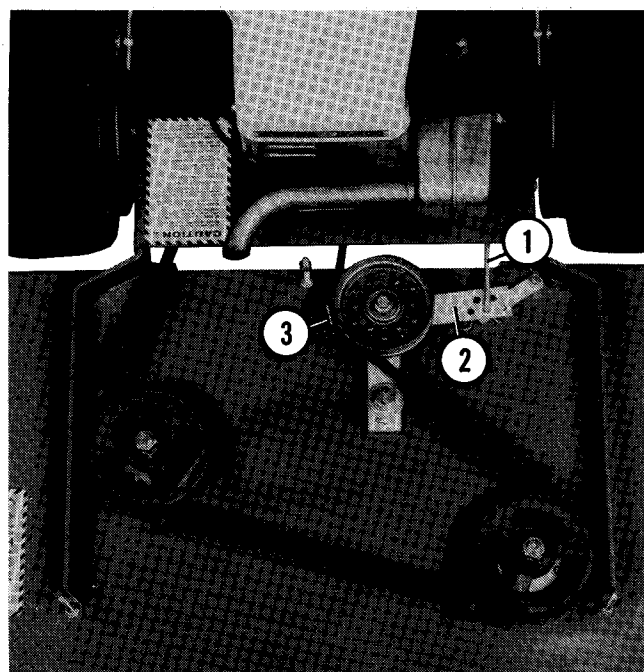
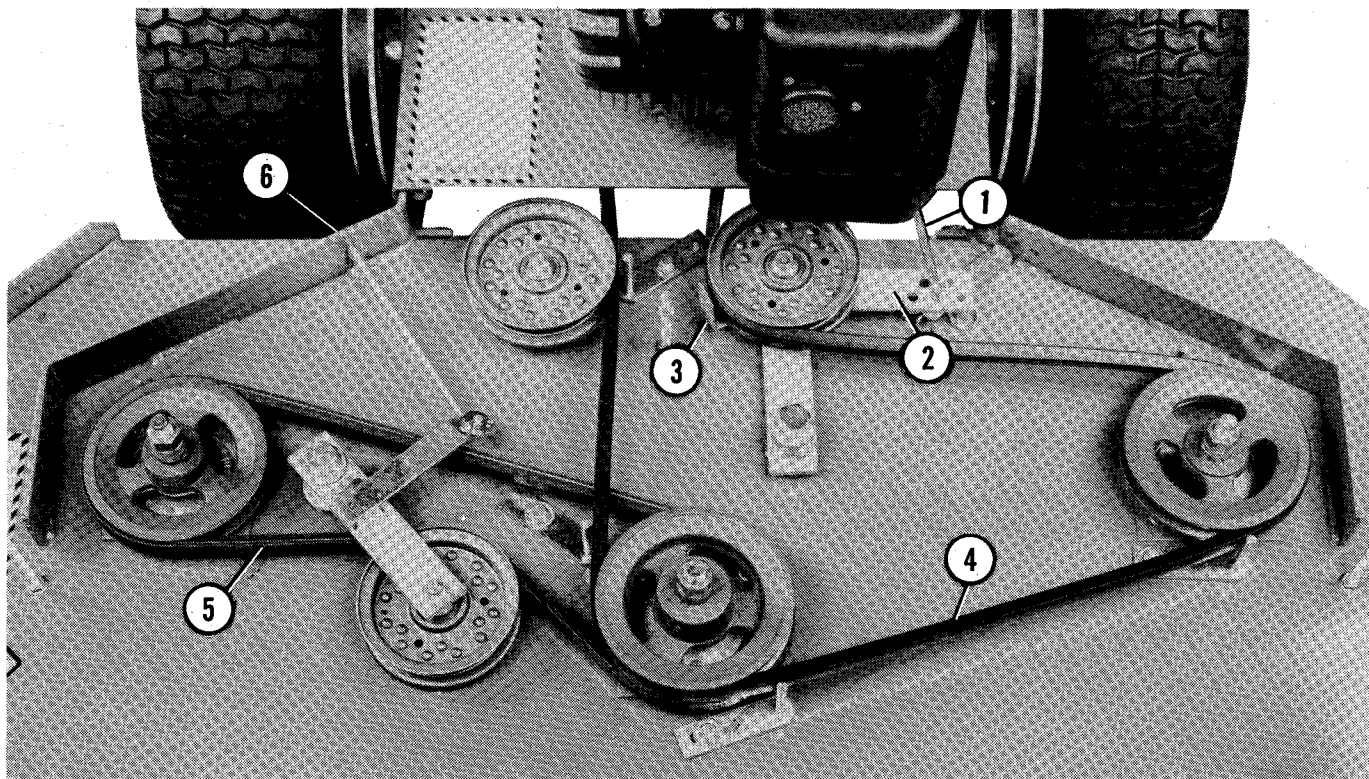


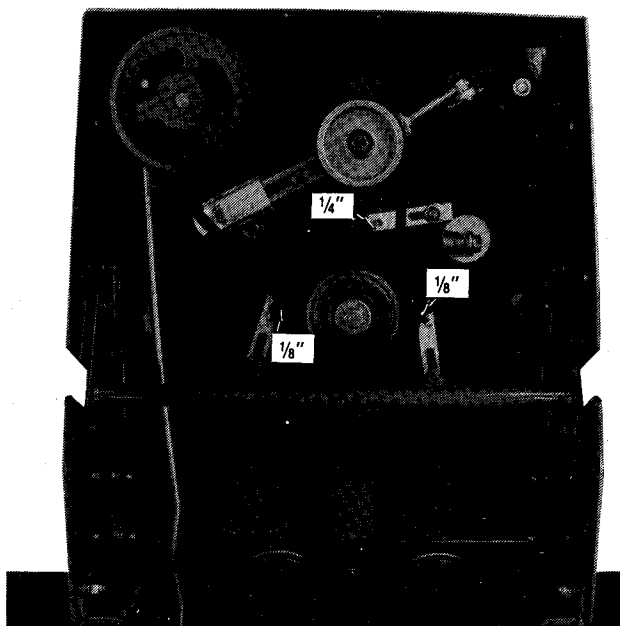
Figure 24 32" & 36" Belt Routing

- 1. Lower Blade-drive Linkage
- 2. Tightening Arm
- 3. Belt Snubber

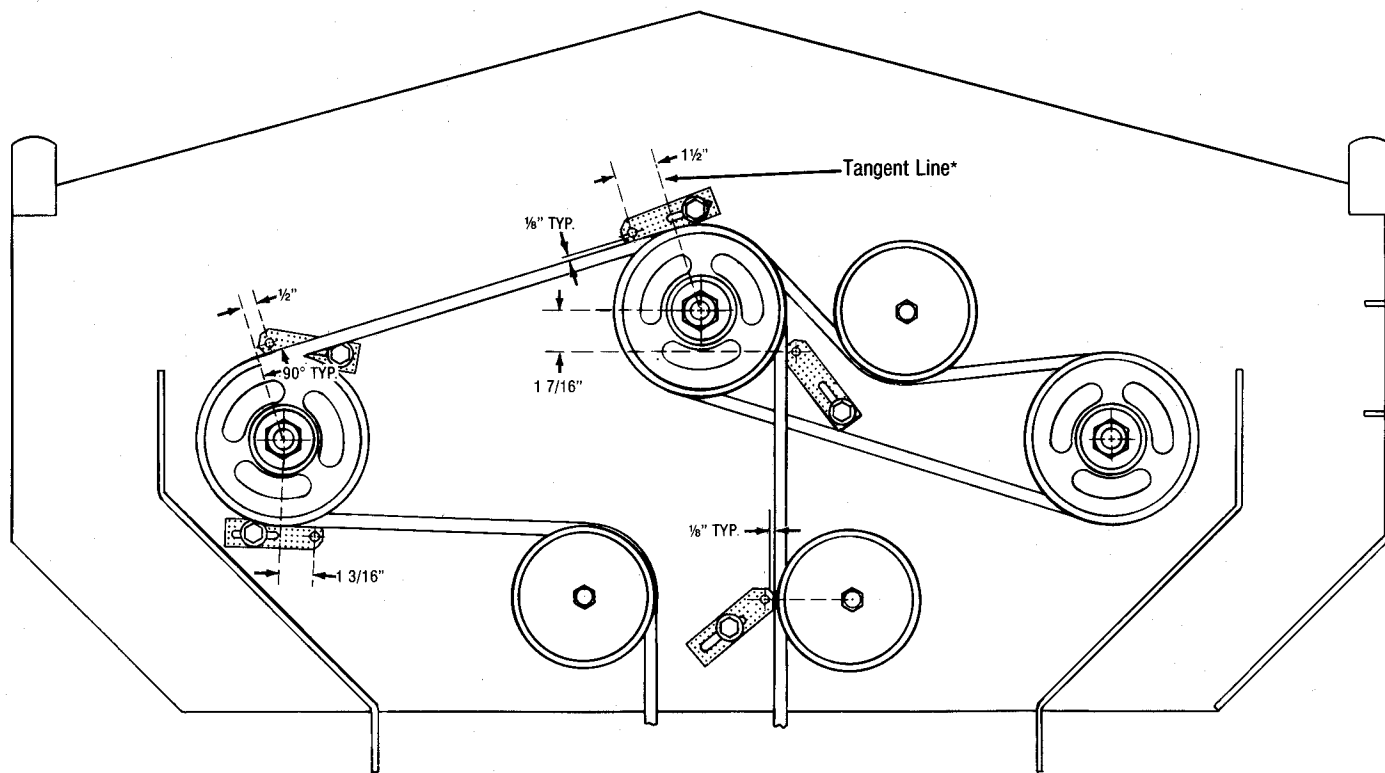


**Figure 25 48" Belt Routing**

- |                              |                               |
|------------------------------|-------------------------------|
| 1. Lower Blade-drive Linkage | 4. Blade-drive Belt           |
| 2. Tightening Arm            | 5. Auxiliary Blade-drive Belt |
| 3. Belt Snubber              | 6. Adjusting Nut              |



**Figure 26 48" Belt Routing (Beneath frame)**



\*The Tangent Line is a line from the center of the shaft through the point at which the outside of the belt enters or exits the pulley.

**Figure 27 Belt Guide Adjustment**

The 48" mower comes with five adjustable belt guides. Correct location of these guides is essential for proper blade disengagement. The blades should come to a stop from maximum speed within 7 seconds after disengaging. If they do not, please adjust each belt guide as shown.

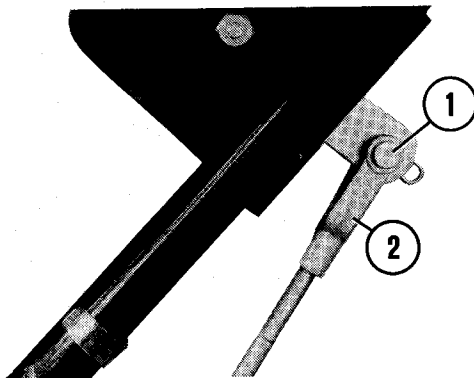
## Belt Tension Adjustment

Belt tension should be set so that belt vibration is minimized or eliminated when belts are moving during normal operation (6-9 lbs. tension at center of belt span between pulleys).

### Blade-drive Belts:

*Minor adjustments* (see Fig. 28)

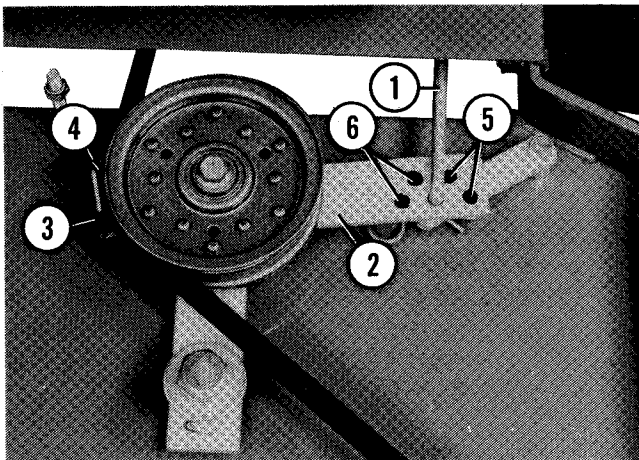
- Disconnect the yoke from the cutter blade control lever.
- Adjust the position of the yoke on the upper blade-drive linkage.
- Reconnect the yoke.



**Figure 28 Adjusting Yoke** (blade-drive belt)  
1. Clevis Pin      2. Yoke

*Major Adjustments* (see Fig. 29)

- Disconnect the lower blade-drive linkage from the tightening arm.
- Reposition the rod end in the tightening arm.
- Secure with hairpin cotter.



**Figure 29 Blade-drive Belt Adjustment**

- |                              |  |
|------------------------------|--|
| 1. Lower Blade-drive Linkage | 4. Approximately $\frac{1}{8}$ " space with belt under tension |
| 2. Tightening Arm            | 5. More Tension  |
| 3. Belt Snubber              | 6. Less Tension  |

### Auxiliary Blade-drive Belt: (48" models only)

Turn the adjusting nut shown in Fig. 25 to provide proper belt tension.

### Variable-speed Pulley Belt:

Although these adjustments affect belt tension, their primary effect will be to increase or decrease overall ground speed.

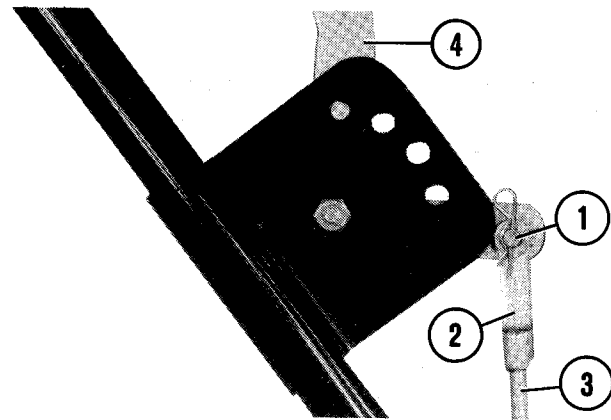
**Caution:** Do not reposition ground speed control lever without engine running or worm gear reduction box damage could occur.

*Upper Adjustments* (see Fig. 30)

- Remove the yoke from the ground speed control lever.
- Adjust the position of the yoke on the ground speed linkage as desired.

**Clockwise** rotation of the yoke will result in **less** overall ground speed. **Counter-clockwise** rotation of the yoke will result in **greater** overall ground speed.

- Reconnect the yoke to the control lever.

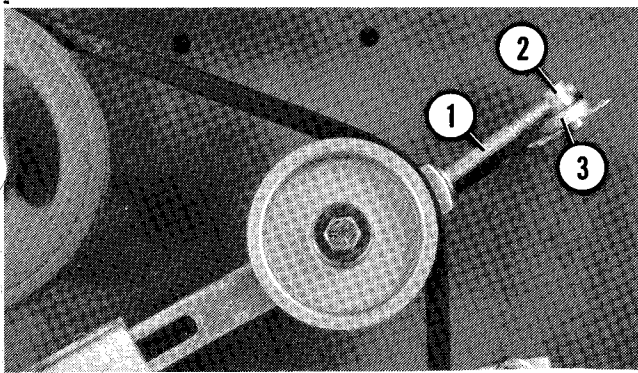


**Figure 30 Upper Adjustment**

- |                    |                                |
|--------------------|--------------------------------|
| 1. Disconnect here | 3. Ground Speed Linkage        |
| 2. Yoke            | 4. Ground Speed Control Lever. |

*Lower Adjustments* (see Fig. 31)

- Disconnect the variable adjustment rod from the bellcrank (beneath mower).
- Reposition the adjusting swivel.
- Reconnect to bellcrank.



**Figure 31 Lower Adjustment**

- |                            |              |
|----------------------------|--------------|
| 1. Variable Adjustment Rod | 3. Bellcrank |
| 2. Adjusting Swivel        |              |

#### **Wheel-drive Belt:**

The wheel-drive belts are held under spring tension during forward drive. If belt slippage occurs, simply reconnect the extension spring in the next forward hole (see Fig. 20, Pg. 14).

#### **Belt Guides and Snubbers:**

Belt guide pins or snubbers are located at various places on the mower. They should be adjusted so that they do not contact belts while under tension.

Contact is necessary, however, when belts are slack, to aid in belt disengagement.

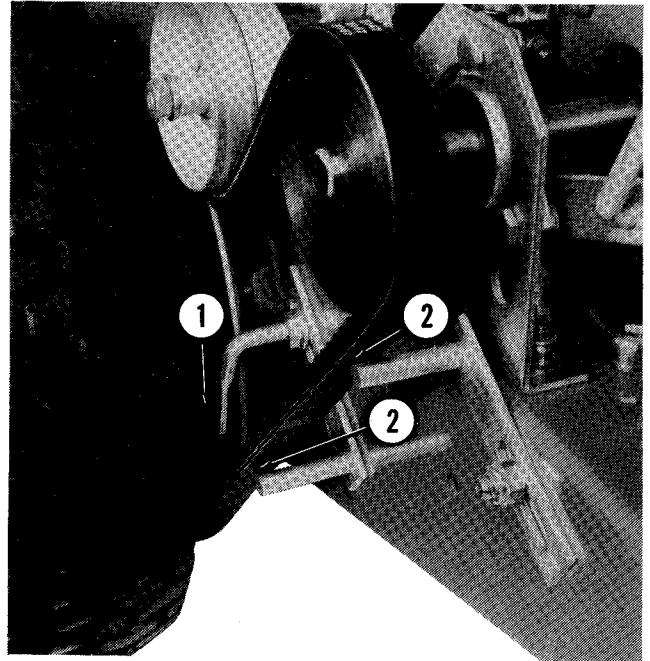
A setting of  $\frac{1}{8}$ " clearance usually provides the desired effect. Exceptions are the belt guide pins noted in Fig. 23 and 26. They should be adjusted to  $\frac{1}{4}$ ".

**Note:** All guide pins and snubbers should be adjusted while belts are under tension.

## **Drivewheel Scrapers**

**A.** Loosen and position so that there is approximately  $\frac{1}{16}$ " clearance between the center of the drive-wheel pulley and the tip of the scraper.

**B.** Secure in place.



**Figure 32 Drivewheel Scraper**

- |  |
|--|
| 1. $\frac{1}{16}$ " clearance to pulley center       |
| 2. $\frac{1}{8}$ " clearance to belt (under tension) |

**Note:** This adjustment can affect belt guide position. Be sure to position guide correctly before securing the scraper.

# SERVICE



**Safety Warning:** Shut off engine, allow it to cool, and disconnect spark plug wire before performing any service. If mower is raised, be sure to secure it in place to prevent falling.

## Cutting Blades

### Blade Removal:

- A. Raise the front of the mower to allow access to cutter shaft bolts.



**Safety Warning:** Secure mower in place to prevent falling.

- B. Use two 15/16" box-end wrenches to remove the blade bolts and blades.

### Blade Replacement:

- A. With mower secured in position, replace blade and blade bolt. Refer to Fig. 19 for correct replacement sequence.



**Safety Warning:** Be certain cutter shaft bolts are installed from beneath and that none of the 1/4" spacers is installed below the blade.

**Note:** Curved edges of blades (air lifts) must be facing upward (toward deck). See Fig. 19.

- B. Tighten the blade bolts to 100-120 ft. lbs.

### Blade Sharpening:

File or grind blades only along the area previously sharpened by the factory.



**Safety Warning:** Wear eye protection when filing or grinding.

### Blade Balancing:

- A. Check for blade balance by clamping a metal straightedge in a vise and laying the blade across it with the mounting hole centered.
- B. Remove metal from the heavy end as necessary until the blade balances on the straightedge.



**Safety Warning:** Wear eye protection when filing or grinding.

## Worm Gear Reduction Box

### To Check Oil Level:

- A. Park mower on level ground.
- B. Remove upper pipe plug. Correct fluid level is obtained when the fluid is level with the bottom of the upper pipe plug hole.
- C. Replace plug securely.

**Note:** Oil level should be checked while the gear box is "cold."

### To Add Oil:

- A. Park mower on level ground.
- B. Remove vent plug.
- C. Remove upper pipe plug.
- D. Add oil (EP90W) through vent hole until oil is level with the bottom of the upper pipe plug hole.
- E. Replace plug securely.

### To Drain Oil:

**Note:** To aid in complete oil drainage park mower on a slight slope, with the right side lower than the left.

- A. Remove the lower pipe plug.
- B. Allow fluid to drain thoroughly. Replace the plug securely.
- C. Refill to the correct level with EP90W oil.

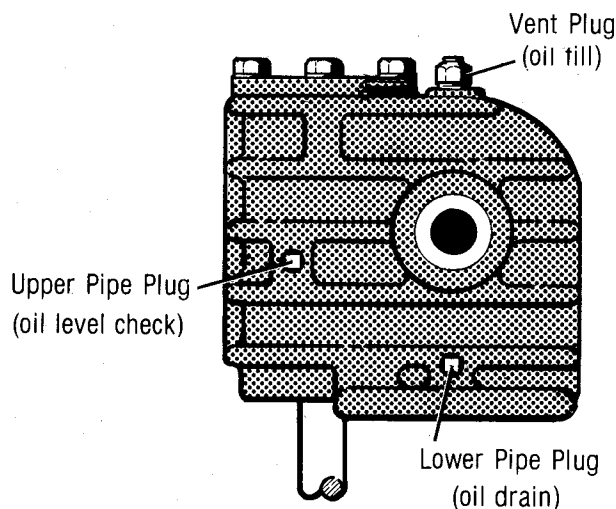


Figure 33 Worm Gear Reduction Box

# TROUBLESHOOTING

Symptom	Possible Problem	Remedy
Engine Won't Start	<p>Fuel tank empty</p> <p>Fuel tank shut-off valve closed</p> <p>Carburetor inlet shut-off closed (B&amp;S engines only)</p> <p>Spark plug wire disconnected</p> <p>Throttle control not in START position</p> <p>Keyswitch "OFF" (Kawasaki)</p> <p>Air cleaner clogged</p> <p>Throttle cable broken or needs adjustment</p> <p>Drive levers not in NEUTRAL position</p> <p>Cutting-blade drive system engaged</p> <p>Interlock switches need adjustment or replacement</p> <p>Interlock switches corroded.</p> <p>Interlock switch wiring connections loose or disconnected.</p>	<p>Fill with fresh regular grade gasoline</p> <p>Open shut-off valve</p> <p>Open shut-off valve</p> <p>Reconnect wire</p> <p>Move control to correct position (close manual choke on Briggs &amp; Stratton engines)</p> <p>Turn Keyswitch to "ON"</p> <p>Remove and service per engine manufacturer's instructions</p> <p>Visually inspect. Repair or adjust (see Pgs. 6-7).</p> <p>Move drive levers to NEUTRAL position</p> <p>Disengage system</p> <p>Check switches. Adjust or replace.</p> <p>Spray penetrating oil on plunger of switch, work in and out several times.</p> <p>Check and secure connections.</p>
Uneven cutting or poor discharge of clippings	<p>Blades dull</p> <p>Blades installed improperly (upside-down)</p> <p>Blade spacers not positioned uniformly on all blade shafts</p> <p>Blade-drive belts slipping</p> <p>Front wheel casters not in correct relationship with rear axle location</p> <p>Tire pressure uneven</p>	<p>Visually inspect. Sharpen per instructions on Pg. 20.</p> <p>Visually inspect. Install per instructions on Pg. 20.</p> <p>Visually inspect. Reposition spacers as necessary. See Fig. 19, Pg. 13.</p> <p>Visually inspect. Replace or adjust as necessary. See Pg. 15.</p> <p>Adjust as necessary. See chart on Pg. 11.</p> <p>Adjust to correct pressure (14 P.S.I.) Rear (30 P.S.I.) Front</p>

# TROUBLESHOOTING Cont.

Symptom	Possible Problem	Remedy
Mower will not self-propel correctly	<p>Drive levers need adjustment</p> <p>Drive belts worn or improperly adjusted</p> <p>Debris in drivewheel pulleys</p> <p>Worm gear reduction box worn or damaged</p> <p>Belt idler loose</p> <p>Drive tire pressure uneven</p>	<p>Visually inspect. Adjust per instructions on Pg. 14.</p> <p>Visually inspect. Replace or adjust as necessary. See Pg. 19.</p> <p>Visually inspect. Clean and adjust scrapers. See Pg. 19.</p> <p>Remove, disassemble and inspect. Repair or replace if necessary.</p> <p>See "Wheel-drive Belt," Pg. 19.</p> <p>Adjust to correct pressure. (14 P.S.I.)</p>
Blades spin more than 7 seconds after power is disengaged	<p>Blade belt snubber and/or guide(s) need adjustment</p> <p>Upper and/or lower Blade-drive linkage(s) need(s) adjustment</p> <p>Blade belt worn</p>	<p>Adjust correctly. See Pg. 17 or Pg. 19.</p> <p>Adjust correctly. See Pg. 18.</p> <p>Replace with new part.</p>
Blade will not rotate	<p>Upper and/or lower blade-drive linkage(s) need(s) adjustment</p> <p>Belt off of drive (engine) pulley</p>	<p>Adjust correctly. See Pg. 18.</p> <p>Replace on pulley</p>
Excessive Vibration	<p>Blade(s) out of balance</p> <p>Blade assembly incorrect</p> <p>Belt tension incorrect (too loose)</p> <p>Engine crankshaft damaged</p>	<p>See Pg. 20.</p> <p>Reassemble correctly. See Fig. 19, Pg. 13.</p> <p>See Pg. 18.</p> <p>See your Authorized Snapper Service Dealer.</p>
Mower will not drive straight	<p>Tire pressure uneven</p> <p>Brake/propel mechanism needs adjustment</p>	<p>Adjust to correct pressure (14 P.S.I.) Rear (30 P.S.I.) Front</p> <p>Adjust correctly. See Pg. 14.</p>



# MAINTENANCE CHART

Item	Frequency	Procedure
Pulleys: Blade Blade Drive Variable Speed Worm Gear Reduction Box	Whenever removed	Apply Loctite #RC609 to shaft before re-assembly
Linkages & Adjustments: Brake Drive Forward Motion Blade	100 hrs.	Inspect for worn or broken linkages or hairpin cotters. Re-adjust per specifications in "Adjustments" section.
Interlock Switches	100 hrs.	Apply light penetrating oil to plunger. Work in and out several times
Point between neutral lock and drive slot on thumb latch	Check every 250 hrs. Replace before each mowing season	Check if point is worn round. If so replace.
Underside of mowing deck and above rear safety shield	After each mowing period	Remove matted grass and debris
Engine Crankcase	Before each mowing period  End of mowing season	Fill per engine manufacturer's specifications  Drain and refill per engine manufacturer's specs.
Worm Gear Reduction Box	After initial 10-15 hour break-in  40 hrs.  200 hrs.	Drain and refill with EP90W oil  Check oil level (see "Worm Gear Reduction Box" Pg. 20)  Drain and refill with EP90W oil
Front & Rear Wheels	100 hrs.	Lubricate with "Moly" EP grease
Wheel Casters	100 hrs.	Lubricate with "Moly" EP grease
Rear Tires Front Tires Units equipped with dual rear wheels: Inside Outside	Before each mowing period	Inflate to 14 P.S.I.* Inflate to 30 P.S.I.*  Inflate to 14 P.S.I. Inflate to 13 P.S.I.
Cutter Shaft Spindles	100 hrs.	Lubricate with "Moly" EP grease

\*It is important that tire pressures be equal to insure straight travel.

**NOTE:** Service more frequently under extreme conditions (heat, dust, etc.)

## HARDWARE TORQUE SPECIFICATIONS

Bolt Size Torque (Ft.-Lbs.)	#10	1/4	5/16	3/8	7/16	1/2	5/8
	4-6	7-9	10-15	20-25	30-40	50-60	100-120

IT IS THE POLICY OF SNAPPER POWER EQUIPMENT TO IMPROVE ITS PRODUCTS WHENEVER IT IS POSSIBLE AND PRACTICAL TO DO SO. WE RESERVE THE RIGHT TO MAKE CHANGES OR ADD IMPROVEMENTS AT ANY TIME WITHOUT INCURRING ANY OBLIGATION TO MAKE SUCH CHANGES ON PRODUCTS MANUFACTURED PREVIOUSLY.