

Section 4 - ADJUSTMENTS & REPAIR

WARNING

DO NOT attempt any adjustments, maintenance, service or repairs with the engine running. **STOP** engine. **STOP** blade. Engage parking brake. Remove key. Remove spark plug wire from spark plug and secure away from plug. Engine and components are **HOT**. Avoid serious burns, allow all parts to cool before working on machine. Fuel Filler Cap and vent must be closed securely to prevent fuel spillage.

4.2.4. MOWER DRIVE BELT ADJUSTMENT (FOR 28" & 30" DECKS ONLY)

1. Remove mower drive belt cover. Refer to Section "CHECK MOWER DRIVE BELT".
2. Move blade lever up and over to the "ON" position.
3. Place deck cutting height in the 3rd position. Measure the belt spacing between idler pulley and belt. The distance should measure 1-1/4" but no less than 1". See Figure 4.5.

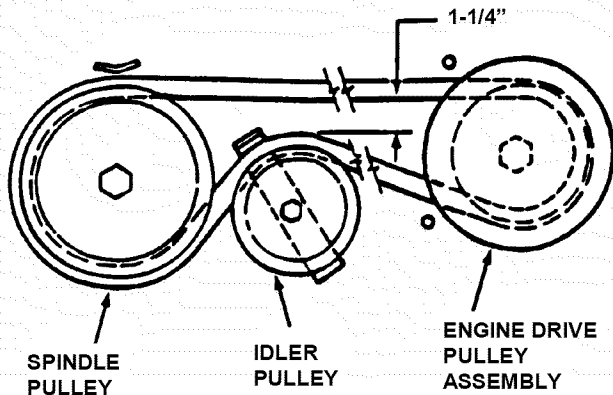


FIGURE 4.5

4. If the distance is less than 1", adjust belt tension.
5. Move blade lever to the "OFF" position.
6. Loosen hardware that secures the clamp that anchors the front frame assembly to the rear main case. See Figure 4.6.
7. Pull front frame forward until belt spacing, with blade lever "ON", measures 1-1/4".
8. Retighten hardware that secures clamp. Make sure hardware is tightened securely.

IMPORTANT: The SNAPPER Rear Engine Rider Models with 33" decks do not require belt tension adjustment. But, if front frame assembly clamp is loosened for any reason, recheck belt spacing between idler pulley and belt. With blade lever in the "ON" position, the distance should measure 1-3/4".

9. When belt adjustment is complete it will be necessary to check Clutch/Brake Cable slack.
10. Disengage parking brake and allow pedal to remain in the engaged wheel drive (Up) position. See Figure 4.7.
11. Clutch/Brake Cable should have approximately 3/16" of slack. If the cable does not have slack adjustment of cable must be performed.

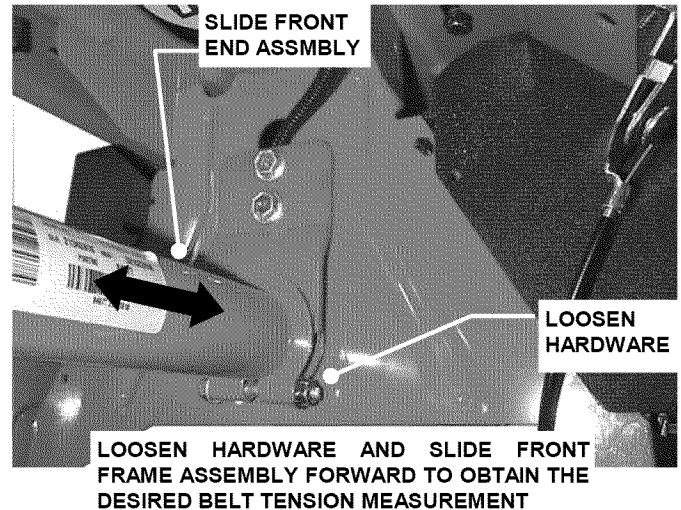


FIGURE 4.6

12. Peel back the rubber clutch/brake pedal pad and push one ferrule through hole in pedal to attain slack in cable. See Figure 4.7. Recheck cable for the approximate 3/16" of slack. Replace pedal pad when adjustment is complete.

IMPORTANT: Too much slack may cause improper clutching and braking could be affected. Too little slack may cause improper clutch function. Recheck service brake/park brake and readjust if necessary. Refer to Section "SERVICE BRAKE/PARK BRAKE ADJUSTMENT".

PEEL BACK PEDAL PAD. PUSH ONE FERRULE THROUGH PEDAL. RECHECK CABLE SLACK

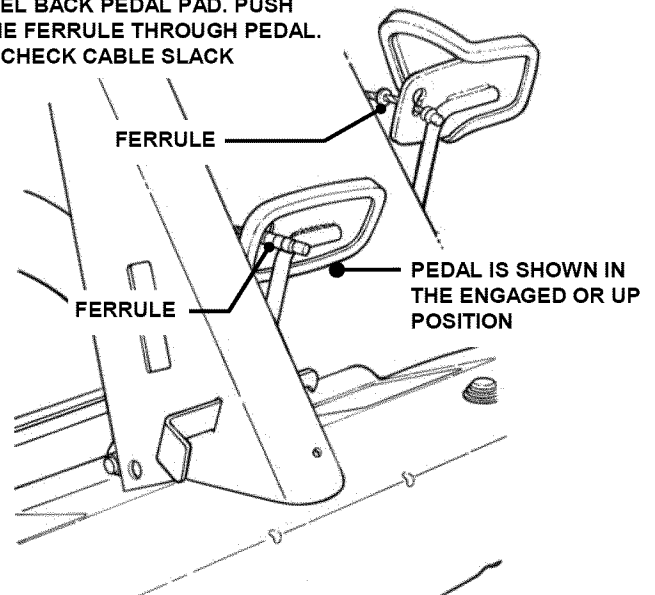


FIGURE 4.7

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WARNING

DO NOT attempt any adjustments, maintenance, service or repairs with the engine running. **STOP** engine. **STOP** blade. **Engage** parking brake. **Remove** key. **Remove** spark plug wire from spark plug and **secure** away from plug. **Engine** and components are **HOT**. **Avoid** serious burns, **allow** all parts to **cool** before working on machine. **Fuel Filler Cap** and vent **must** be closed **securely** to prevent fuel spillage.

4.3 REAR ENGINE RIDER DRIVE COMPONENTS

Your Snapper rider is equipped with a patented smooth start clutch. The clutch should operate smoothly and provide ample traction. If problems are experienced, contact your Snapper dealer for repair.

4.3.1 SERVICE BRAKE/PARK BRAKE ADJUSTMENT

Test the wheel brake on a dry concrete surface. When properly adjusted, the Rear Engine Rider will stop within 5 feet from fastest speed. If stopping distance is more than 5 feet, the wheel brake should be adjusted as follows:

1. Follow **WARNING** statement found on this page. Check fuel level in tank. Refer to Section "REMOVING FUEL TANK". If over $3/4$ full, remove tank.
2. If $3/4$ or less, proceed to next step.
3. Carefully stand Rear Engine Rider on rear bumper.
4. Depress clutch/brake pedal all the way down. Move and hold the park brake lever in the "ON" position and release the clutch/brake pedal to lock the park brake. See Figure 4.8.

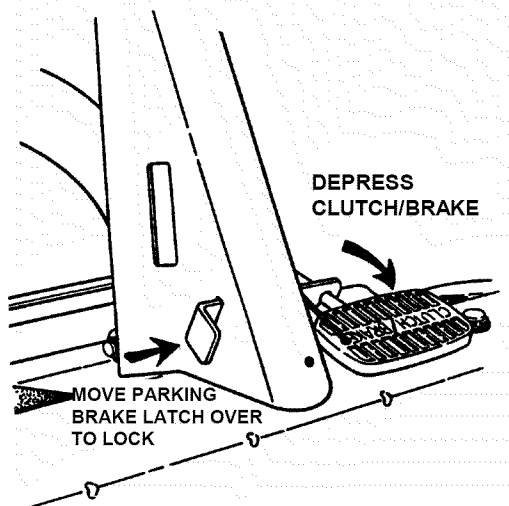


FIGURE 4.8

5. Measure the distance between end of clutch/brake cable and bottom of housing. Measurement should be $3/4$ ". See inset of Figure 4.9.

6. If measurement is not $3/4$ ", loosen the two jam-nuts. See Figure 4.10. Hold the clutch/brake cable to the chain case bracket.
7. Adjust cable up or down using the jam-nuts to obtain a distance of $3/4$ " between end of clutch/brake cable (adjustment shown in inset of Figure 4.9) and bottom of housing. See Figure 4.9.
8. After adjustment is complete, securely tighten cable jam-nuts.
9. Retest wheel brake.

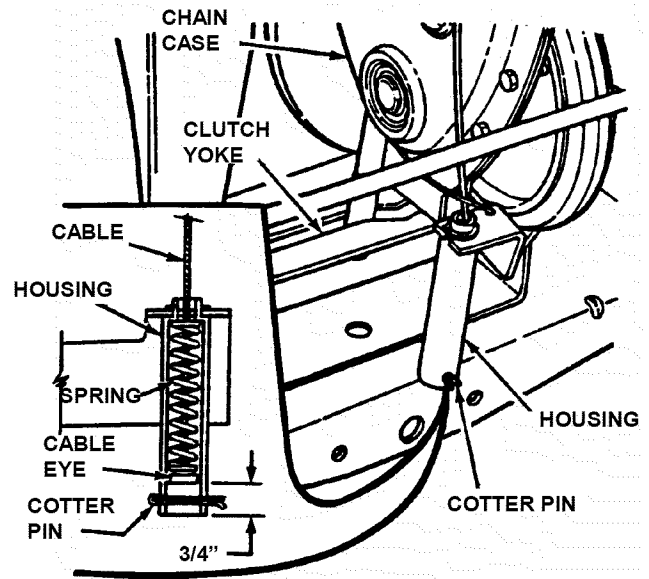


FIGURE 4.9

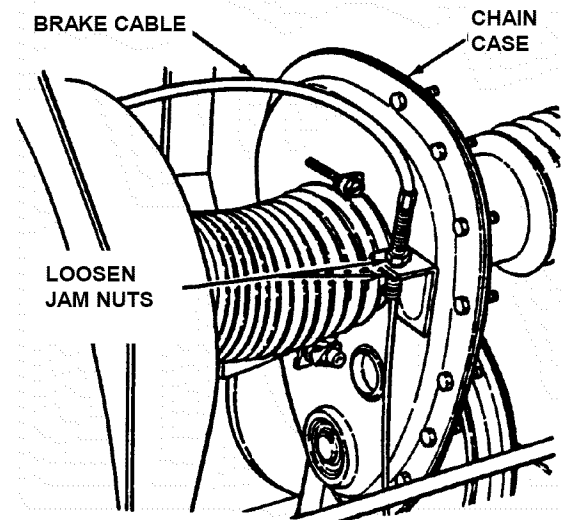


FIGURE 4.10

Section 4 - ADJUSTMENTS & REPAIR

WARNING

DO NOT attempt any adjustments, maintenance, service or repairs with the engine running. Stop engine. Stop blade. Engage parking brake. Remove key. Remove spark plug wire from spark plug and secure away from plug. Engine and components are HOT. Avoid serious burns, allow all parts to cool before working on machine. Fuel Filler Cap and Vent must be closed securely to prevent fuel spillage. DO NOT use a cutting blade that shows signs of excessive wear or damage. On Rear Engine Riders equipped with a grass catcher attachment, the air lifts should be replaced when the blade is replaced.

4.4 MOWER BLADE REPLACEMENT

4.4.1. BLADE WEAR LIMITS

1. Inspect blade frequently for signs of excessive wear or damage. See Figure 4.11.

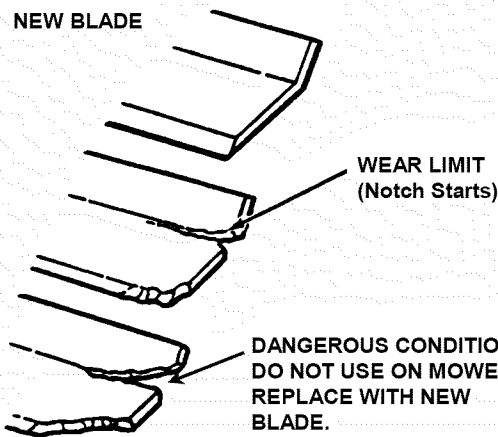


FIGURE 4.11

WARNING

Wear heavy leather gloves when handling or working around cutting blades. Blades are extremely sharp and can cause severe injury. DO NOT use a cutting blade that shows signs of excessive wear or damage.

4.4.2. BLADE SHARPENING

1. Follow **WARNING** statement found on this page.
2. Check fuel level in tank. If over 3/4 full, remove tank. Refer to Section "REMOVING FUEL TANK". If 3/4 or less, proceed to next step.
3. Carefully stand Rear Engine Rider on rear bumper.
4. Remove blade. See Figure 4.12.

5. Inspect condition of blade. See Figure 4.11.
6. If blade is in good condition, sharpen at 22 to 28 degrees. DO NOT sharpen beyond existing cutting edge. See Figure 4.13.
7. Check blade balance after sharpening. If necessary, correct blade balance by grinding the heavy end of blade.
8. Reinstall blade. See Figure 4.12. Torque blade mounting bolts to recommended range of 30 to 40 ft. lbs.

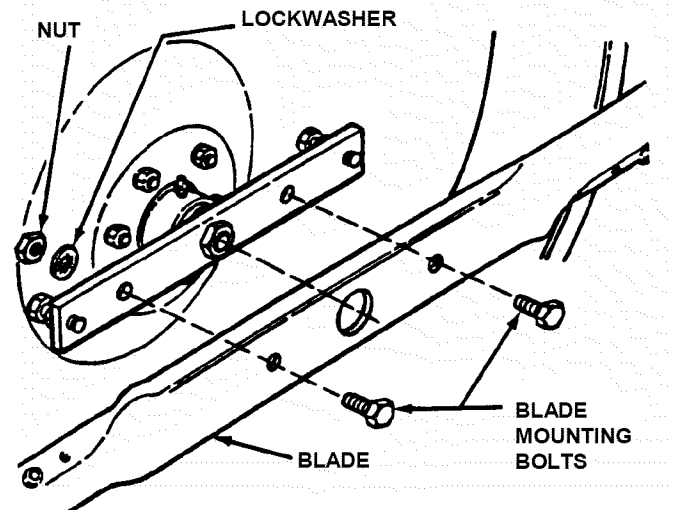


FIGURE 4.12

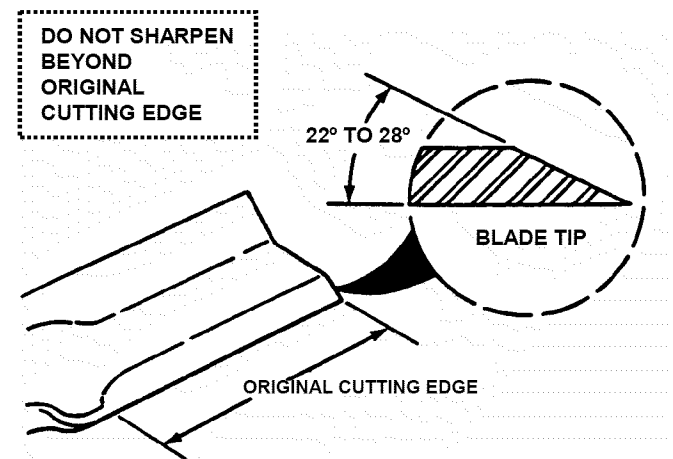


FIGURE 4.13

Section 4 - ADJUSTMENTS & REPAIR



WARNING



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. **DO NOT attempt to charge battery while installed on the RIDER. DO NOT use "BOOST" chargers on the battery.**

4.6.3. BATTERY SERVICE

1. Remove battery. Refer to Section "BATTERY REMOVAL".
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 visualized 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.
6. If battery will not accept charge or is partially charged after 10 hours of charging at 1 amp, replace with new battery.

4.6.4. BATTERY STORAGE

If mower is to be stored out of season on its rear bumper, it is recommended the battery be removed, charged and stored.

1. Remove battery. Refer to Section "BATTERY REMOVAL".
2. Perform battery service.
3. Bring battery to full charge, if required.
4. Store battery in an area away from the RIDER on a wood surface. **DO NOT STORE BATTERY ON A CONCRETE SURFACE.**

4.6.5. 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. **DO NOT** place anything in battery other than specified electrolyte.



WARNING



DO NOT attempt to charge battery while installed on the Riding Mower. DO NOT use "BOOST" chargers on the battery. DO NOT OVERFILL!

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. Remove the hair pin and swivel from the deck support to allow clearance for battery installation.
9. Slide battery partially into battery housing.
10. 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.
11. Insert battery completely into battery housing.
12. Reinstall battery cover. See Figure 4.17.
13. Reinstall swivel and hair pin for deck support.

4.6.6. 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. The chart on the next page shows the charge level as measured by syringe float hydrometer, digital voltmeter and five ball hydrometer.



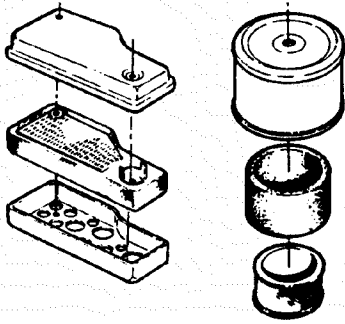
WARNING



Shield the positive terminal with terminal cover located on battery harness. This prevents metal from touching the positive terminal, which could cause sparks.

(Battery Testing Chart on Next Page)

PRIMARY MAINTENANCE



Generally, wash foam-type filters in a dishwashing detergent and water solution. Rinse and wring dry, then saturate with oil and squeeze out excess. *Failure to re-oil this type filter will ruin the engine.*

Clean paper elements by tapping lightly. Blowing with air will rupture paper elements.

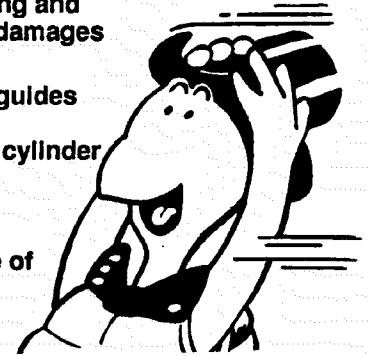
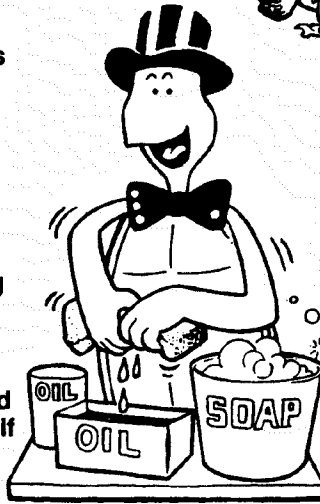
Use a flashlight to detect clogged or torn paper elements - replace if damaged in any way.



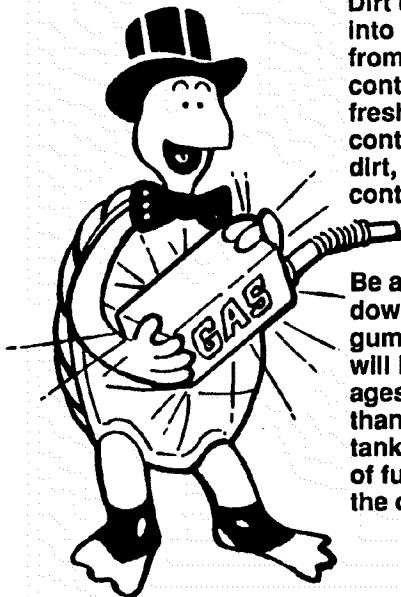
Air is also needed to keep your engine cool. Dirt, dust & debris build up to restrict and clog cooling air intake screens and fins. Clean screens and fins at frequent intervals. The engine blower housing and shrouds should be removed at least once each season or more often under dry, dusty conditions for a thorough cleaning of fins.

Failure to keep external surfaces clean not only presents fire hazards, but causes overheating and resulting engine damages such as:

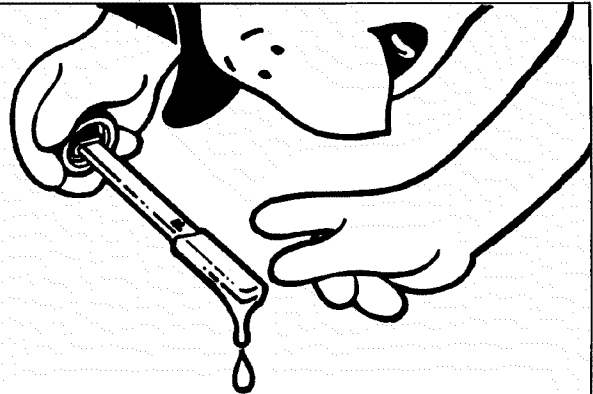
1. distorted valve guides
2. sticking valves
3. scuffed, scored cylinder walls
4. overspeeding
5. loss of power
6. complete failure of engine.



Dirt can also be introduced into an engine in dirty fuel from a contaminated container. Always use clean fresh fuel from a clean container to guard against dirt, sludge and water contamination.



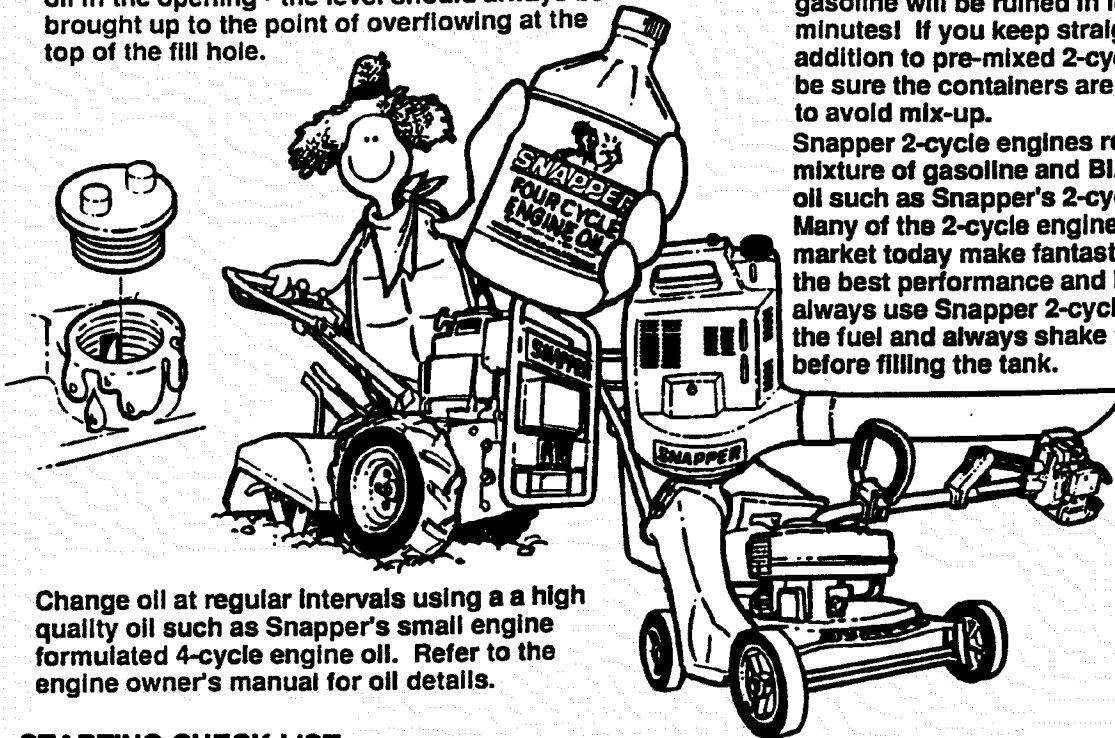
Be aware that fuel breaks down in storage and forms gummy compounds which will block carburetor passages. Never use fuel more than 3 months old. Drain tank then run the engine out of fuel before storing during the off-season.



An engine must also have proper lubrication. All engines use some oil. On 4-cycle engines, **CHECK OIL LEVEL BEFORE EACH START-UP.** Wipe area clean around the oil check plug or dipstick opening to keep dirt from falling into the engine when checking the oil. Always check with the machine on a level surface. On engines with dipstick, keep the level up to, but not over, the **FULL** mark. When adding oil, allow time for all of the oil to flow down the fill tube to prevent a false full reading when the level could actually be low and result in engine damage.

PRIMARY MAINTENANCE

On 4-cycle engines with an oil level plug, don't be fooled into thinking the engine has sufficient lubricating oil if you can see "some" oil in the opening - the level should always be brought up to the point of overflowing at the top of the fill hole.



On 2-cycle engines, lubrication must be provided by an exact mixture of gasoline and 2-cycle air-cooled engine oil. A 2-cycle engine that is mistakenly run on straight gasoline will be ruined in less than 5 minutes! If you keep straight gasoline in addition to pre-mixed 2-cycle engine fuel, be sure the containers are clearly marked to avoid mix-up.

Snapper 2-cycle engines require a 32 to 1 mixture of gasoline and BIA certified TC-W oil such as Snapper's 2-cycle engine oil. Many of the 2-cycle engine oils on the market today make fantastic claims, but for the best performance and long engine life, always use Snapper 2-cycle oil. Pre-mix the fuel and always shake the container before filling the tank.

Change oil at regular intervals using a high quality oil such as Snapper's small engine formulated 4-cycle engine oil. Refer to the engine owner's manual for oil details.

STARTING CHECK LIST

- | | |
|-------------------------------|--|
| 1. Engine Oil | <ul style="list-style-type: none"> • To full level (4-cycle) • Properly mixed with gas (2 cycle) |
| 2. Air Cleaner | <ul style="list-style-type: none"> • Clean and properly serviced • Full fresh clean gasoline |
| 3. Fuel Tank | <ul style="list-style-type: none"> • Fuel valve open • Cap vent open • Inline filter clean |
| 4. Choke | <ul style="list-style-type: none"> • Operating properly |
| 5. Primer (on some engines) | <ul style="list-style-type: none"> • Used properly |
| 6. Safety Inter-lock Switches | <ul style="list-style-type: none"> • In proper position • All wires properly connected |
| 7. Switch & Blade Control | <ul style="list-style-type: none"> • Switch On • Blade control properly positioned on walk mower |
| 8. Spark plug | <ul style="list-style-type: none"> • Wire connected • Good connection |
| 9. Throttle control | <ul style="list-style-type: none"> • Start position |
| 10. Blade | <ul style="list-style-type: none"> • Properly installed and torqued • Sharpened |
| 11. Muffler | <ul style="list-style-type: none"> • Good condition • Not clogged • Grass & leaves cleaned away |

Read and follow all safety instructions in safety booklets and manuals.

Keep in mind that dirt is your engine's *enemy #1* both internally and externally! Internally, dirt will quickly ruin an engine and externally it will cause overheating and resulting internal damages. Damage caused by improper lubrication, poor air cleaner service or overheating due to dirt cannot be covered under warranty.

It only takes a few moments to service the engine (and equipment) on a routine basis but the rewards will be a quick starting, responsive engine that will provide long satisfactory service with minimum maintenance cost. The prestart checklist in the next column and instructions in your Snapper Operator's Manual are designated to help you keep your Snapper in top operating condition with minimum effort!

SNAPPER PRODUCT REGISTRATION FORM

IMPORTANT: KEEP THIS INFORMATION FOR YOUR PERSONAL RECORDS
(Complete the following information on your Snapper purchase)

Model Number _____

Serial Number _____

Date of Purchase _____

Retailer _____

Retailer's Phone Number _____

It is very important that you register your purchase with Snapper to ensure warranty coverage. Please mail your product registration card to:

Snapper at P.O. Box 777, McDonough, Georgia 30253.

Or you may register on line at www.snapper.com.

You can contact us at our web site or if you would like to speak with a Customer Service Representative. Call us at the Snapper Customer Relations Center. For faster service please have your Serial Number and Model Number available.

Call the Snapper Customer Relations Center at 1-800-935-2967.

Eastern Standard Time

Monday through Friday from 8am to 6pm.

Saturday from 9am to 1pm.

