SERVICE SECTION

SECTION 1: HYDROSTATIC SYSTEM

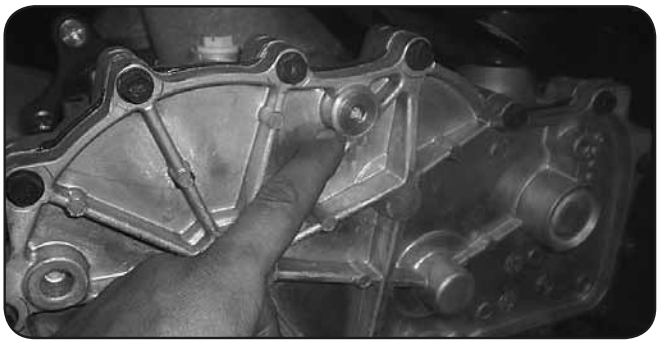
The hydro overflow tank on the Outlaw model is located on each side of rear cover. Notice the “full cold” line at the bottom of the tank. Use only 20w50 motor oil in this tank. Conventional or synthetic oil may be used.

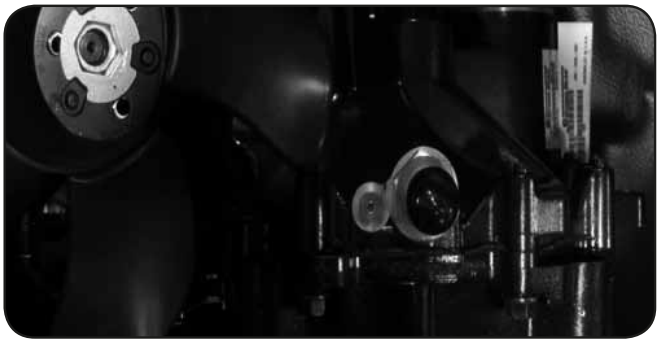
To change filter started by removing cover. The filter also serves as the oil drain. Each transaxle holds about 4 quarts of hydro oil. Reinstall new filters use only Hydro-gear brand filter. Using other brands could void the warranty. Transaxle service is recommended after the first 100 hours and then every 400 hours.

Shown right is the 5400 Outlaw transaxle. The large cap on the lower left is the filter housing cap.

5400 filter housing cap. (do not over tighten)

The check plug is located at the top center of the inside case of each transaxle (outlaw transaxles have this plug on the top). The transaxle can be filled with oil by removing these check plugs from both transaxles and pouring the oil in the hydro overflow tank, located behind the seat. Oil will begin to run out of the check plug holes when the transaxles are full. Use only 20w50 motor oil in the hydro system.

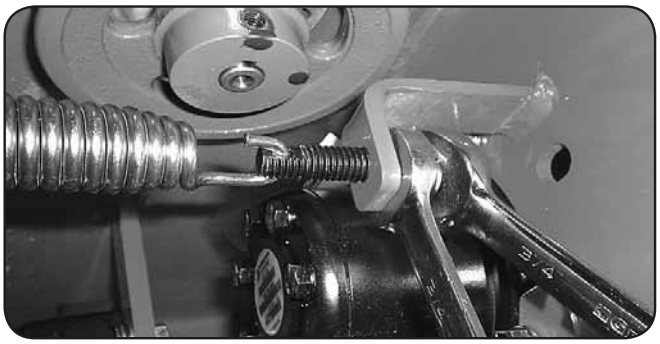




Fill plug on top of Outlaw 5400

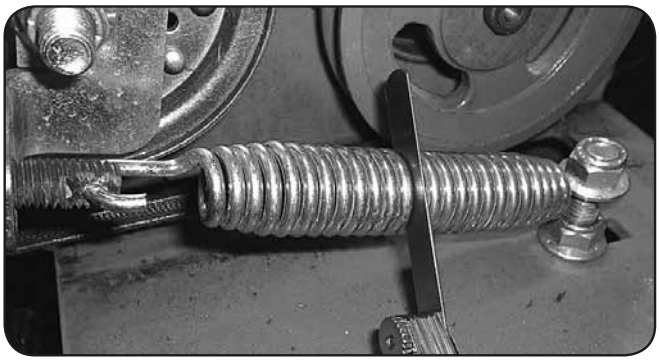
Once the system is filled with oil, lift rear of mower until rear tires are off the ground. Start engine, release parking brake, stay clear of moving rear tires. Next, pull the neutral bypass levers and move the drive arms forward and backward 4 to 6 times slowly. This relieves any air that may be trapped in the system. It may be necessary to add more oil to the hydro overflow tank after 10-15 minutes of running. These bypass levers also serve as a neutral for moving the mower without the engine running.

SECTION 2: DRIVE BELT



Shown on the right is a typical pump belt tensioner for your model mower.

Tightening the two ¾”jam nuts on the right side will increase the belt tension on all models. Factory setting is about .030” (about the thickness of a credit card) between coils as shown.



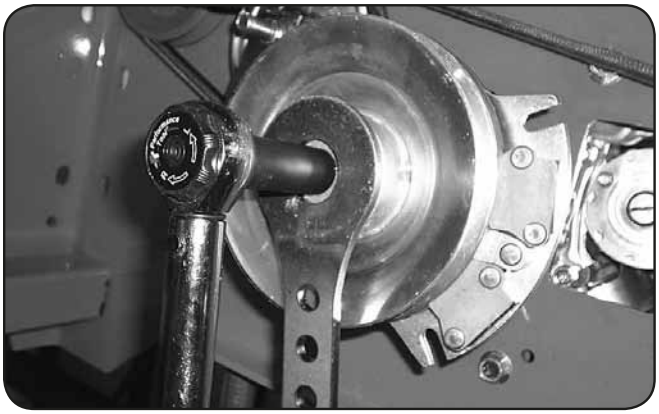
SECTION 3: ENGINE

Most models have a drain hose installed on the engine, for easier oil changes. All gas engines used by Bad Boy use 10w30 and have an oil capacity of 2 quarts. Bad Boy recommends that the oil and filter be changed every 50 hours of usage.

The fuel filter is located in the fuel line about 12” from the carburetor on the side of the engine. Note the direction of flow on the side of the filter. Replace once a year.

Remove and inspect air cleaner weekly. (More often in dusty conditions). Do not blow filter out with air pressure, this will cause the filter to be filled with tiny holes that will allow dirt to enter. Instead, tap filter on side to remove any debris. Replace at least once a year, more often in dusty conditions

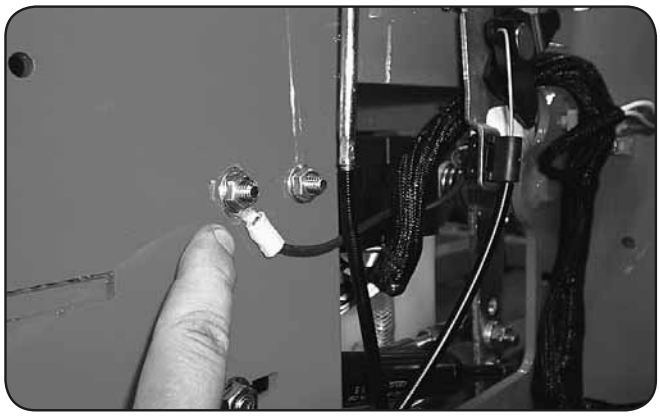
Torque the clutch bolt to 50 ft. Lbs. on all models.
Re-torque at every oil change.
(All Models)



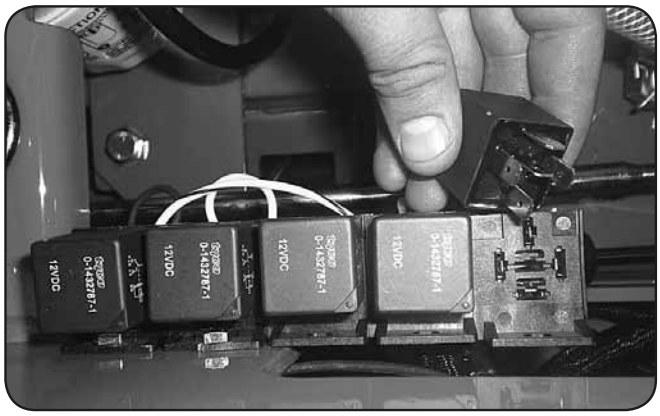
SECTION 4: ELECTRICAL SYSTEM

On most larger commercial engines (27 hp and up), the 25 amp main fuse is located about 3” from the starter on the engine. (shown in first image on right). On smaller commercial and light duty commercial mowers, the 25 amp main fuse is located just behind the battery connected to the starter solenoid. (Shown in second image on right).

Always check the condition of the wiring harness ground cable. The ground is located just inside of the right side fuel tank on most models. Ensure that the ground is connected, clean, and tight. On some models, this wire may be connected to the negative side of the battery.



Check the condition and connection of the relays located under the seat. Ensure that they are clean and connected. Make sure that wire terminal ends have not been pushed out of the relay block.



On most models, the red wire coming out of the engine is the charging wire from the alternator. Check for 13.6—14.2 volts DC at this wire with engine at full throttle.

SECTION 5: FRAME

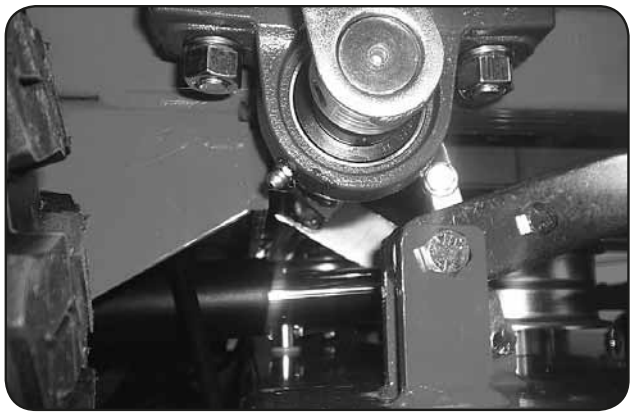
For non-suspension models, torque front fork castle nut to 40 ft.lbs. Be sure to spin the fork while torquing the nut to ensure that no bearing damage is done.

Be sure to reinstall the cotter pin into the castle nut. Always try to go tighter on the nut to find a castellation for the pin to fit in. Never back the bearing tension off after torquing the nut, this will “spring” the bearing cage.

Torque rear wheel lugs to 65-75 ft.lbs.
Re-torque at every oil change.

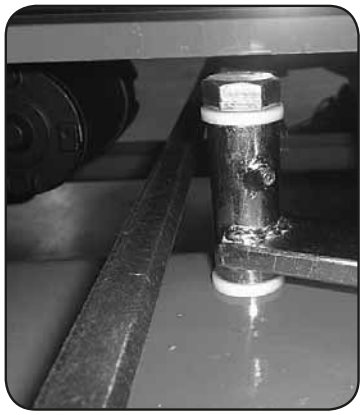
There is one grease fitting in each front wheel and one in each front caster bearing housing. Grease at every engine oil change.

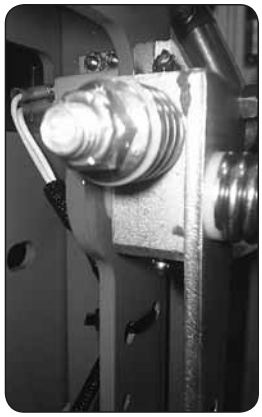
There is one grease fitting on each of the actuator bar pillow blocks located under the fuel tanks. Grease twice a season.



The pump belt tensioner is located under the engine and has a grease fitting at its pivot point. Grease at every engine oil change.

The deck belt tensioner is located at the rear of the deck and has a grease fitting on its pivot point. Grease at every engine oil change.





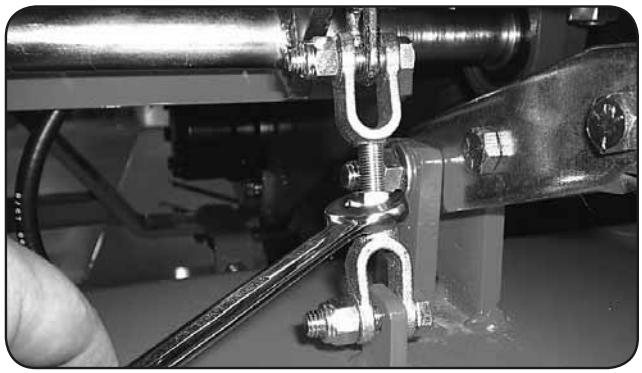
The control arm blocks have grease fittings located on the top and bottom of each block. Grease one time a year.

SECTION 6: CUTTING DECK

To remove the deck belt, lift up on the belt while rotating the pulley to roll the belt up and off of the pulley. (be sure not to get your fingers between belt and pulley).

To check the level of the deck, start on a flat surface and set the air pressure in all four tires. Raise the deck up, and measure all four corners of the deck to see if it is level from left to right and front to back. All decks should be level from left to right and have a 1/8” pitch down in the front.

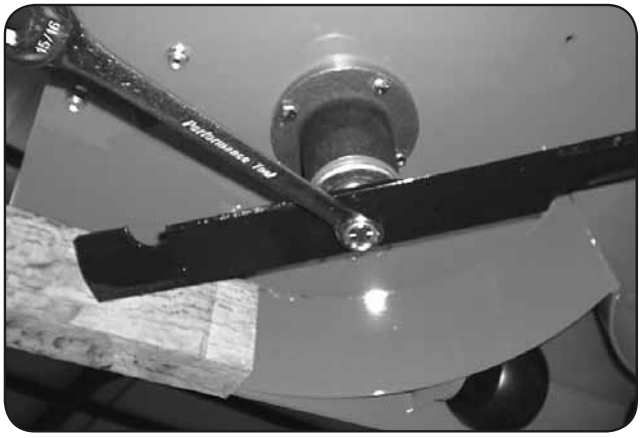
If deck adjustments are necessary, start with the chain length adjusters. These adjusters affect the overall height of the deck and the level from left to right.

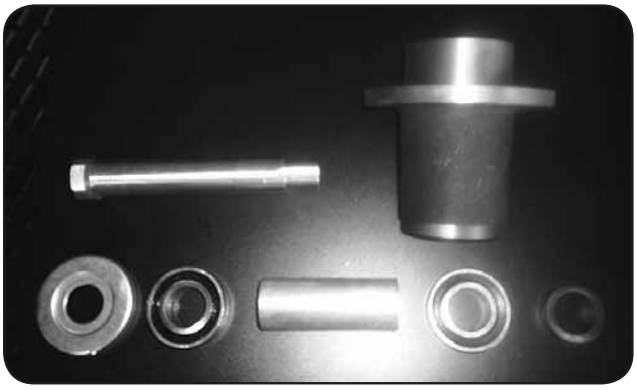


The deck spring tension is critical. If the tension is too much, it will cause the spring to break. If too loose, the belt can jump off or slip on the pulleys and cause a cut quality issue. With the deck up, the spring coil gap should be about .025” - .030” (about the thickness of a credit card). Spring tension adjustments can be made by sliding the bolt shown above forward or backward in the slot of the deck.

The condition of the blades can drastically affect the cut quality of the mower deck. Replace as necessary. These blades were used considerably too long. Resharpening is recommended by professionals only to determine when the blade needs to be replaced and because of the need for rebalancing.

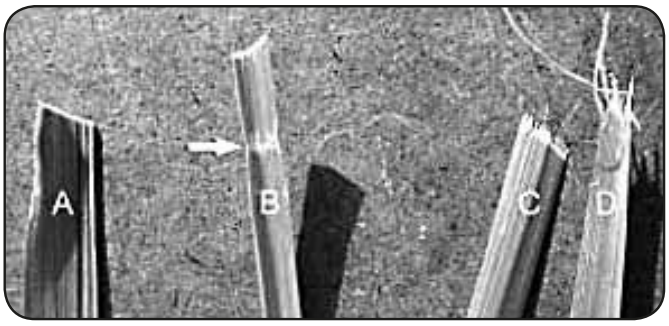
To change blades, it may be easier to use a piece of wood to keep the blade from turning so that the bolt can be loosened. Re-torque the blade bolts to 90-110 lbs.
The blade spindles contain a sealed ball bearing in the top and bottom of the spindle. The bearings are replaceable for a more cost effective repair.





MOWING TIPS:

- Mow header strips at the ends of the lawn and around flower beds first. Make them wide enough that you can turn the mower around in the already mown section. Then mow back and forth between these header strips overlapping each lap by about 1/8 the width of the mower's deck.
- Don't cut your grass too short, particular for cool season grasses. Higher heights usually provide for a deeper root system, looks better, and is less likely to have weeds invading, particularly crabgrass.
- Don't remove any more than one third of the grass leaf at any one cutting. If circumstances arise that a lawn gets too tall and you just have to lop off a bunch to get caught up, bite the bullet and break it down into several mowings to get caught up with 3 or so days between cuttings.
- **NEVER SCALP YOUR LAWN.** Scalping severely damages the root system to such a degree that it may die.
- Avoid mowing when the grass is wet or when it's dark
- Avoid throwing grass clippings into the street and driveway where they can be washed into the sewer system. After mowing, clean up driveway and walkways.
- When mowing remove only a third with each cutting (except for the first mowing of the season when it's ok to remove more). You can safely leave clippings that will quickly decompose and add nutrients back into the soil. Contrary to popular opinion, grass clippings do not add to thatch buildup. Grass blades are made up of about 75% water.
- Mow your lawn in a different direction with each mowing, especially with lawns of shorter grass types. Altering the direction ensures a more even cut since grass blades will grow more erect and less likely to develop into a set pattern.
- Keep your mower's blade sharp, which means having it sharpened several times during the mowing season. Keep several blades around so you'll always have a sharp one on hand. Sharp blades cut the grass cleanly and help mulch clippings into small pieces which break down quickly.
- Don't forget to change your mower's oil at least once during the mowing season. For brand new mowers, change the oil after about 5 hours of operation during the initial break-in period.
- At the end of the mowing season use a fuel stabilizer in the remaining gasoline
- In the spring, don't use that old gas unless you properly used a fuel stabilizer, it can cause a number of problems. Better to use fresh gasoline to begin the new mowing season.



- **Leaf blade A** demonstrates what a leaf blade should look like after mowing with a sharp blade.
- **Leaf blade B** demonstrates a leaf blade that was injured by a dull mower blade.
- **Leaf blade C** was cut by the mower but indicates that the mower blade is not sharp enough. The shredded white tissue protruding from the leaf blades C and D is the vascular tissue of the plant.
- **Leaf blade D** has been mown for quite some time with a dull mower blade.

To bag or mulch?

Grass clippings do not contribute to thatch buildup or increase the chances of disease. If you mow your lawn at the right height, without removing any more than 1/3 of it's total height, clippings will quickly breakdown without a trace. These clippings contribute additional nitrogen and other nutrients to the soil and supply it with additional organic materials. Clippings from a 1000 sq. ft. lawn can add as much as 1 - 2 pounds of nitrogen back into the soil.

If you have a compost pile, then you may want to bag your clippings occasionally to add much needed green-matter to the compost pile. Make sure it is mixed thoroughly with brown matter to avoid a strong ammonia odor. **DO NOT COMPOST CLIPPINGS** after applying any weed control or weed-feed type product. Before adding clippings to the compost pile wait at least 3 mowings after these products have been applied.