

***BigDog[®] Mowers
T Series
Operator's Manual***

EXCEL
INDUSTRIES

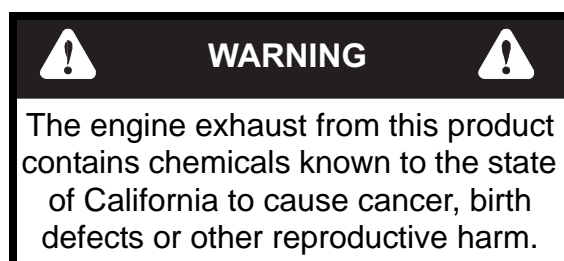
P.O. Box 7000

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Hesston, Kansas

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67062-2097



NOTICE OF REQUIREMENT OF SPARK ARRESTER MUFFLER

This equipment may create sparks that can start fires around dry vegetation. California Public Resources Code Section 4442.6 provides that it is unlawful to use or operate an internal combustion engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrester maintained in effective working order. A spark arrester is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles over 0.0232 of an inch in size from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or which is qualified and rated by the United States Forest Service. Other states or federal areas may have similar laws. The Operator Should Contact Local Fire Agencies For Laws or Regulations Relating to Fire Prevention Requirements. THIS EQUIPMENT DOES NOT HAVE A SPARK ARRESTER AND YOU SHOULD CONTACT YOUR AUTHORIZED DEALER FOR THE PURCHASE OF A SPARK ARRESTER.

Inspect spark arrester daily; replace every 500 hours or as needed.

The Engine Owner's Manual provides information regarding the U.S. Environmental Protection Agency (EPA) and the California Emission Control Regulation of emission systems, maintenance and warranty.

Keep Engine Owner's Manual with your unit. Should the Engine Owner's Manual become damaged or illegible, replace immediately. Replacements may be ordered per the information found in the Product Information section of the owner's manual.

Federal law and California State law prohibit the following acts or the causing thereof:

1. The removal or rendering inoperative by any person other than for purposes of maintenance, repair, replacement, of any device or element of design incorporated into any equipment for the purposes of emissions control prior to or after its sales or delivery to the ultimate purchaser or while it is in use, or
2. The use of the equipment after such device or element of design has been removed or rendered inoperative by any person.

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GENERAL INFORMATION

This manual applies to the following BigDog® Mower equipment lines:

BigDog® T Series WalkBehinds

To the new owner

The purpose of this manual is to assist owners and operators in maintaining and operating the BigDog® Mower T Series mower. Please read it carefully; information and instructions furnished can help you achieve years of dependable service.

A separate Engine Owner's Manual is included with your owner's packet which contains additional engine information that will not be repeated in this manual. You are urged to read it before attempting any operation or repair of the engine.

The decals are designed to give the operator brief information needed in the daily operation and service of the machine. These decals are not intended to be used in place of this manual but instead are to be used as an extension of this manual. These decals should not be removed or obliterated. Replace these decals if they become unreadable.

It is the **owner's responsibility** to make certain that the operators and mechanics read and understand this manual and all decals before operating this machine. It is also the **owner's responsibility** to make certain that the operators and mechanics are qualified and physically able individuals, properly trained in the operation of this equipment. All operators and mechanics must become familiar with the safe operation of the equipment, operator controls and safety signs.

Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.

IMPORTANT: For more detailed maintenance and adjustment information refer to the proper parts manual for your machine. Refer to the "*Product Literature*" section of this manual for ordering information.

The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people or property.

Using this manual

General operation, adjustment and maintenance guidance is outlined for both the experienced and novice BigDog® Mower user. Operating conditions vary considerably and cannot all be addressed individually. Through experience, however, operators should find no difficulty in developing good operating skills suitable to most conditions.

Directions used in this manual, for example RIGHT or LEFT, refer to directions when in operator position and facing forward,

unless otherwise stated.

Photographs and illustrations used were current at the time of printing, but subsequent production changes may cause your machine to vary slightly in detail. BigDog® Mower reserves the right to redesign and change the machine as deemed necessary, without notification. If a change has been made to your machine which is not reflected in this owner's manual, or the parts manual, see your BigDog® Mower dealer for current information and parts.

Warranty registration

Your BigDog® Mower Dealer must register the unit on-line within **ten (10) days** following date of purchase to validate your warranty protection. As the new equipment owner, you should confirm that your BigDog® Mower Dealer has registered your mower with BigDog® Mower.

Be sure to register the mower plus each attachment that displays a model and serial identification number plate with BigDog® Mower.

IMPORTANT: Any unauthorized modification, alteration, or use of non-approved attachments voids the warranty and releases BigDog® Mower from any liability arising from subsequent use of this equipment. Do not use or operate any attachment not approved by BigDog® Mower.

Model and serial number

Mower model and serial numbers are found on the serial identification plate, located on the left side of the frame directly below the console support and behind the tire.

These numbers are required when the unit is registered with BigDog® Mower. They will also assure you of the correct service parts when replacement becomes necessary.

Parts and service

Use original BigDog® Mower replacement parts only. These parts are available through your local BigDog® Mower dealer. To obtain prompt, efficient service, always provide the following information when ordering parts:

1. Correct part description.
2. Correct part number.
3. Correct model number.
4. Correct serial number.

All warranty repair and service must be handled through an authorized BigDog® Mower dealer. Arrangements should be made through your local service center.

SAFETY PRECAUTIONS



This safety alert symbol is used to call attention to a message intended to provide a reasonable degree of **PERSONAL SAFETY** for operators and other persons during the normal operation and servicing of this equipment.

DANGER – denotes immediate hazards which **WILL** result in severe personal injury or death.

WARNING – denotes a hazard or unsafe practice which **COULD** result in severe personal injury or death.

This manual uses two other words to highlight information. **IMPORTANT** calls attention to special mechanical information and **NOTE**: emphasizes general information worthy of special attention.

All operators and mechanics should read this manual, and be instructed about safe operating and maintenance procedures. If the operators or mechanics cannot read and understand English, it is the owner's responsibility to explain this material to them.

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert ▲ symbol, which means DANGER or WARNING - "personal safety instructions." Failure to comply with the instructions may result in personal injury or death.

Incorrect usage of this machine may result in severe injury. Personnel operating and maintaining it should be trained in the proper use and should read the manuals

Safety and Instruction Decals

▲ Specific safety warning decals are located on the equipment near the immediate areas of potential hazards. These decals should not be removed or obliterated. Replace them if they become non-readable.

The following illustrations show the various **safety decals** that are located on the machine. A brief explanation is shown to help the operator understand the meanings of these decals.

completely and thoroughly before attempting to set-up, operate, adjust, or service this machine.

The decals are designed to give the operator brief information needed in the daily operation and service of the machine. These decals are not intended to be used in place of this manual but instead are to be used as an extension of this manual. These decals should not be removed or obliterated. Replace these decals if they become unreadable.

- It is the **owner's responsibility** to make certain that the operators and mechanics read and understand this manual and all decals before operating this machine.
- It is also the **owner's responsibility** to make certain that the all operators and mechanics are qualified and physically able individuals, properly trained in the operation of this equipment.
- All operators and mechanics must become familiar with the safe operation of the equipment, operator controls and safety signs.
- Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people or property.
- The owner should also ensure that the operator/mechanic know that they are responsible for their own safety as well as the safety of other persons within the vicinity. **Remember**, the operator is responsible for accidents or hazards occurring to other people or their property.

Part Number 601931



WARNING:
Thrown objects!

- Always maintain a safe distance from people and pets when mowing.
- Always stop machine if someone enters the area.
- Inspect area to be mowed for hazards such as rocks, metal objects and other debris which may be thrown or entangled by mower blades. Remove these objects before mowing.



Read Owner's Manual and decals before attempting to operate this machine.



Part Number
779280

WARNING:
Hot surface!

- •Avoid skin contact with hot surface



**Part Number
601967**

**WARNING:
Fire!**

- Clean flammable material from machine. Prevent fires by keeping engine compartment, top of deck, exhaust area, battery, fuel line, fuel tank and operator's station clean of accumulated trash, grass clippings, and other debris. Always clean up spilled fuel and oil.



Part Number 601787

**DANGER:
Rotating blades, pulleys &
belts!**

- Keep shields and covers in place while machine is in operation
- Keep hands, feet and clothing away from rotating pulleys, belts and blades.

**Part Number
601787**



- Do not smoke while refueling.
- Do not remove the fuel tank cap or fill fuel tank with engine running or while the engine is hot.
- Allow engine to cool before storing machine inside a building.
- Store away from open flame or spark if there is fuel in tank.
- Clean up any gasoline spills.
- Do not refuel while in enclosed trailer or other enclosed areas.
- Maximum of 10% ethanol (E10) in fuel. Fuels with greater than 10% ethanol, (such as E15, E20 and E85) voids warranty. Fuels with greater than 10% ethanol are not approved for use and such illegal use could cause equipment failure and pose a fire hazard.



**WARNING:
Thrown objects**

Part Number 601796

- Never operate the mower deck with side deflector damaged, altered, removed or in raised position, except when the entire grass catcher attachment or mulching system is being used.

Part Number 602041



WARNING: Hot surface!

- Keep a safe distance from the machine.

DANGER: Battery Hazards!

Part Number
601815



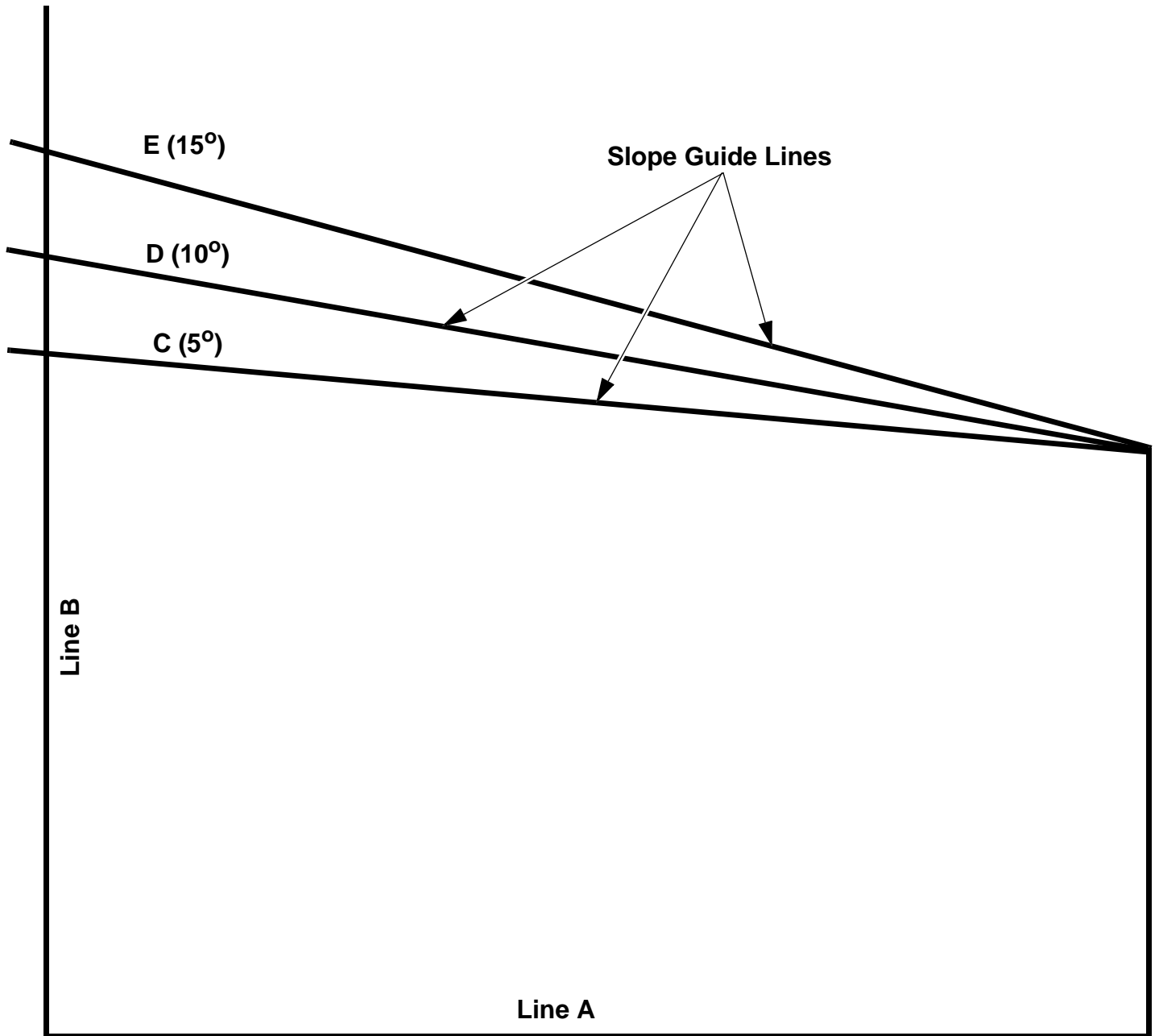
- Avoid skin contact with battery acid.

- Do not overfill battery.
- Electrolyte may overflow and damage paint, wiring or structure. When cleaning the battery, use soap and water into the battery. Use soda mixed in water to clean corrosion off the terminals.
- Always wear eye protection when checking the battery, acid can cause serious injury to skin and eyes. If contact occurs, flush area with clean water and call physician immediately. Acid will also damage clothing.

- Do not allow open flame near the battery when charging.
- Hydrogen gas forms inside the battery. This gas is both toxic and flammable and may cause an explosion if exposed to flame. Always remove the negative ground first and replace it last.

SLOPE GUIDE

Use this diagram when determining the degree of slope to be mowed.



1. Hold this sheet of paper in front of you. Make sure that Line A is horizontal.
2. Align Line B with a vertical surface such as pole, tree or building.
3. Fold the paper along the slope guide lines (C, D or E).
4. Align the closest slope guide line with the ground slope. This will give you a close estimation of the ground slope to be mowed.

OPERATION

Safe operating practices

This product is capable of amputating hands and feet and throwing objects. Always follow all safety instructions to avoid serious injury or death.

Operation

- ▲ Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- ▲ Never leave a running machine unattended. Park the machine on level ground. Always disengage deck clutch, place PowerBar steering in neutral, move neutral lock/park brake lever to the park brake position, stop engine, and remove ignition key when leaving the unit. Wait for engine and all moving parts to come to a complete stop before leaving the machine for any reason including emptying the catcher or unclogging the discharge chute.
- ▲ **If you lose steering control while operating the machine, place the neutral lock/park brake lever in the park brake position immediately. Inspect the machine and involve your BigDog® Mower dealer to resolve the problem before continuing to operate.**
- ▲ Do not change the engine governor setting or overspeed the engine. Operating the engine at excessive speed may increase the hazard of personal injury.
- ▲ Always keep safety shields and covers in place, except for servicing.
- ▲ Always maintain a safe distance from people and pets when mowing. Always stop machine if someone enters the area.
- ▲ Always operate machine in daylight or with adequate working lights.
- ▲ Follow daily and weekly checklists, making sure hoses are tightly secured and bolts are tightened.
- ▲ Always observe traffic laws while driving machine from one location to another. Watch for traffic when operating near or crossing roadways.
- ▲ Always keep engine and machine clean, removing accumulated dirt, trash and other material from machine. Clean up oil or fuel spillage. Allow machine to cool before storing.
- ▲ Inspect area to be mowed for hazards such as rocks, metal objects and other debris which may be thrown or entangled by mower blades. Remove these objects before mowing.
- ▲ Always be alert for hazards such as rocks, metal objects and other debris which may be thrown or entangled by mower blades. Watch out for holes or deep depressions.
- ▲ Always wear adequate ear protection, such as earplugs, when operating this equipment as prolonged exposure to uncomfortable or loud noises can cause impairment or loss of hearing. Do not wear radios or music headphones while operating the machinery. Safe operation requires your full attention.
- ▲ Do not operate the equipment while wearing sandals, tennis shoes, sneakers, shorts or any type of loose fitting clothing. Do not use a towel as a headband or neck wrap and do not hang towel from the waist. Long hair, loose clothing or jewelry may get tangled in moving parts. Always wear long pants, safety glasses, ear protection and safety shoes when operating this machine.
- ▲ Always wear safety goggles or safety glasses with side shields when operating the mower.
- ▲ Always inspect machine for damage after striking a foreign object. If damage is found, repair machine immediately. Be sure to stop on level ground, disengage deck clutch, place PowerBar steering in neutral, place the neutral lock/park brake lever in the park brake position, stop engine, and remove ignition key when leaving the unit. Wait for engine and all moving parts to come to a complete stop before leaving the machine for any reason.
- ▲ Always be aware of what is behind the machine before backing up.
- ▲ Never rotate forward suddenly on PowerBar handle while the machine is in rearward motion.
- ▲ When traveling in reverse, rotate handle forward gently and avoid sudden movement. Rapid movement of the handle in either direction could result in a reaction of the mower that can cause serious injury.
- ▲ Never operate a poorly maintained machine.
- ▲ Never attempt high speed maneuvering, especially in crowded or congested areas.
- ▲ Never allow persons to operate this machine without proper instruction or allow children to operate machine. Allow only responsible adults who are familiar with these instructions to operate this machine.
- ▲ Never put hands or feet under any part of the machine while it is running.
- ▲ Never carry passengers. They can be stuck by foreign objects or fall off machine and be seriously injured. They can interfere with the safe operation of the machine.
- ▲ Never direct discharged material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Always disengage the blades and wait for them to stop before crossing gravel drives, walks or roads. Do not operate the mower without either the entire mulching system or the entire grass collection system in place.
- ▲ Always disengage the blades and wait for them to stop before crossing gravel drives, walks or roads.
- ▲ Always keep clear of the mower blades during their operation.
- ▲ Slow down before turning.
- ▲ Stop the engine before removing the grass catcher or unclogging the discharge chute. Never clear the discharge chute with the engine running. Turn off the engine and be sure the blades have stopped before cleaning. Disconnect the spark plug wires from the spark plugs before cleaning, being careful not to touch the hot engine or muffler. Use a stick to clear a plugged discharge area. **Never use your hand!**

- ▲ Do not operate the machine if you are fatigued, sick or while under the influence of alcohol or drugs, you are pregnant or under 18 years old. Local regulations may restrict the age of the operator.
- ▲ Exercise caution when loading or unloading the machine onto a trailer or truck.
- ▲ Data indicates that operators, age 60 years and above, are involved in a large percentage of riding mower-related injuries. These operators should evaluate their ability to operate the mower safely enough to protect themselves and others from serious injury.
- ▲ If any attachment or additional weight is mounted on the rear of the unit, any sudden movement of the PowerBar handle could cause the front of mower to come off of the ground resulting in possible loss of control and serious injury.
- ▲ The use of any other manufacturer's attachments, including stand-up sulkies, increases the risk of operator injury, therefore, extreme caution must be exercised when using these devices.
- ▲ Never cover the machine with a tarp or cover of some type until the engine and muffler have cooled.
- ▲ **Clean flammable material from machine. Prevent fires by keeping engine compartment, exhaust area, battery (if applicable), fuel line and fuel tank clean of accumulated trash, grass clippings, and other debris. Always clean up spilled fuel and oil.**

Slope operation

Slopes are a major factor in loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it; do not mow it.

- ▲ Use extreme caution when operating on slopes.
 - Be extremely careful changing directions on a slope. Slow down.
 - Do not operate where the machine could slip or tip.
 - Do not operate the BigDog® T Series mower on slopes when using a stand-up sulky.
- ▲ Always be sure of your footing. Keep a firm hold on the PowerBar handle and walk - never run.
- ▲ Block or chock the machine when parked on a slope or when trailering.
- ▲ Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- ▲ Remove obstacles such as rocks, tree limbs, etc.
- ▲ Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction.
- ▲ Avoid starting and stopping on a slope. If tires lose traction, disengage the blades and proceed slowly straight down the slope.
- ▲ Never operate the machine on a slope from a position below the mower.
- ▲ Do not mow on wet grass. Reduced traction could cause sliding which can cause the operator to slip and fall.
- ▲ The BigDog® Mower mower is capable of operating horizontally (traverse) on moderately steep slopes. When operating on slopes up to 15 degrees, be aware of any conditions that may cause the mower drive tires to lose

traction resulting in a possible loss of control of the machine. An operator should not operate on a slope until he is thoroughly familiar with the equipment.

Do not operate on slopes greater than 15 degrees. Refer to Slope Guide, page 3-5, when determining the degree of slope to be mowed.

It is strongly recommended that the operator drive the machine off of the slope, using extreme caution, if any sign of loss of traction is detected. Wait until the condition that caused the problem is resolved before attempting to operate on the slope again.

Terrain conditions can affect traction resulting in possible loss of control of the machine. Some of the conditions to be aware of are:

1. Wet terrain
2. Depressions in the ground; i.e. holes, ruts, washouts
3. Mounds of dirt
4. Soil type; i.e. sand, loose dirt, gravel, clay
5. Grass type, density, and height
6. Extremely dry conditions of grass
7. Tire pressure

The attachments mounted to the mower will also affect the way it handles on a slope. Be aware that each attachment's characteristics vary.

Another consideration to safe mowing on slopes is to be aware of what is located at the bottom of the slope. Extreme caution should be used when there is a hazard located at the bottom of the slope. Some examples are:

1. Water; i.e. lake, river
2. Cliffs, retaining walls
3. Roads, highways
4. Buildings
5. Rocks

These are just a few examples of situations when caution must be used when operating on a slope. There are many other possibilities too numerous to mention. Just remember to always exercise extreme caution when operating on any slope.

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.

- ▲ Never leave machine unattended with ignition key in switch, especially with children present.
- ▲ Children or bystanders may be injured if they move or attempt to operate the mower while it is unattended. Always disengage deck clutch, place PowerBar steering in neutral, move neutral lock/park brake lever to the park brake position, stop engine, and remove ignition key when leaving the unit.
- ▲ Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- ▲ Be alert and turn the machine off if children enter the area.
- ▲ Before and while backing, look behind and down for small children.

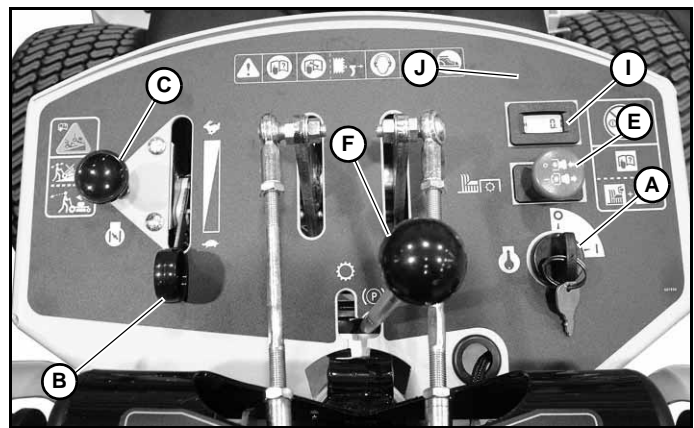
- ▲ Never carry children, even with the blades off. They may fall off and be seriously injured or interfere with safe machine operation.
- ▲ Never allow children to operate the machine.
- ▲ Use care when approaching blind corners, shrubs, trees, the end of a fence or other objects that may obscure vision.

Controls

- A. Ignition switch (Figure 3-1) — (Recoil start)** a two position switch: off and run. With key inserted, rotate it clockwise to RUN position.
(**Electric start**) a three position switch: off, run, and start. With key inserted, rotate it clockwise to START position; release key when engine starts, and switch will automatically return to the RUN position.
- B. Throttle control (Figure 3-1)** — a cable is linked to engine throttle for controlling engine speed. Move lever forward to increase engine rpm, move lever rearward to decrease engine rpm.
- C. Choke control (Figure 3-1)** — a cable is linked to manually operate the engine choke. When the knob is in the down position, the choke is in the off (run) position. When the knob is pulled up, the choke is in the on (start) position. Do not operate the machine in the on (start) position.
- D. PowerBar handle (Figure 3-2)** — this handle controls the unit's acceleration, speed, steering direction and dynamic braking.
- E. Deck clutch switch (Figure 3-1)** — this switch engages the deck. Pull the switch up to engage and push switch down to disengage the clutch.
IMPORTANT: Never engage clutch with engine running at high rpm or when the deck is under load. Clutch, belts or deck could be damaged.
- F. Neutral lock/park brake lever (Figure 3-1)** — when this lever is in the neutral lock/park brake position, the transaxles are in neutral and the unit will not move. Moving the lever out of the neutral lock/park brake position and forward engages the transaxles and allows the PowerBar handle to be rotated.
- G. Operator presence control levers (Figure 3-2)** — engages the operator presence switches. If the switch is not engaged the unit will not operate. Refer to the Safety Interlock system for more information.
- H. Deck lift lever (Figure 3-3)** — the deck lift lever is used to raise or lower the deck. Pull rearward on the lever to raise the deck and then place the deck height locking pin into the desired cutting height hole.
Pull the deck lift lever to raise the deck when going over obstructions.

Instrumentation

- I. Electronic hour meter (Figure 3-1)** — registers 1/10 hour increments up to 9,999.9 total hours. Connected to the ignition switch, the meter records the accumulative time while the ignition key is switched to the RUN position.
- J. Oil pressure light (electric start units only) (Figure 3-1)** — this light comes on when the ignition switch is



A. Ignition switch	F. Neutral lock/park brake lever
B. Throttle	I. Hour meter
C. Choke	J. Oil pressure light (electric start only)
E. Deck clutch switch	

Figure 3-1

placed in the RUN position and stays lit until the engine is running and a safe oil pressure is developed. If light comes on during operation, shut engine off immediately and locate and correct the problem.

Safety start interlock system

The unit is equipped with a safety interlock system consisting of the neutral lock switch, operator presence control lever switches and deck clutch switch. Figure 3-2

Check the safety interlock system daily, prior to operation. This system is an important safety feature. It should be repaired immediately if it malfunctions. The machine incorporates two operator presence control switches which will stop the mower engine when the operator releases both of the operator presence control levers for any reason while the mower is operating. However, if only one operator presence control lever is released, the unit will continue to operate. This is a safety feature designed to prevent runaway or accidental entanglement. To inspect the system:

1. Place the PowerBar lever in the neutral position, move neutral lock/park brake lever to the park brake position (Figure 3-4), and move deck clutch switch to the disengaged (down) position.
2. Start the engine and allow it to warm up to operating temperature.
3. With the neutral lock/park brake lever in the unlocked position (Figure 3-5) and/or the deck clutch switch engaged (up position), slowly release both operator presence control levers. **The engine should stop within a few seconds.**
4. Place the neutral lock/park brake lever in the park brake position and the deck clutch switch disengaged (down) position. **The engine should continue to run without the operator presence control switches engaged.**
5. **If the engine fails to stop** when the deck clutch switch is engaged or the neutral lock/park brake lever is unlocked and both operator presence control levers are released, check the function of the operator presence control

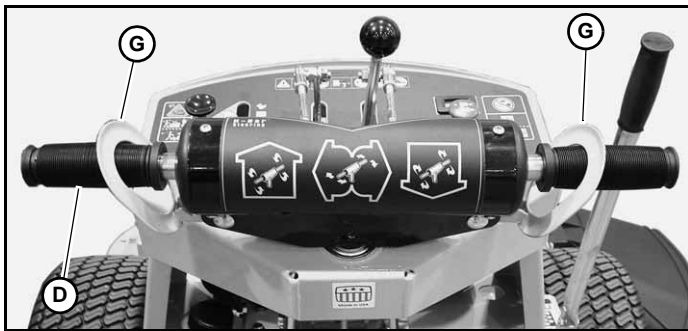




Figure 3-2



Figure 3-3

switches. If these switches are not operating properly (not opening or closing) contact your Authorized BigDog® Mowers Dealer.


WARNING


The safety interlock system should always function per steps 4 and 5. If it does not function properly, it should be corrected immediately. Do not operate machine without properly functioning operator presence control switches.

Engine starting

The BigDog® Mowers T Series safety interlock system is also designed to protect the operator and others from accidental injury due to unintentional engine starting. The engine will not start until:



Figure 3-4

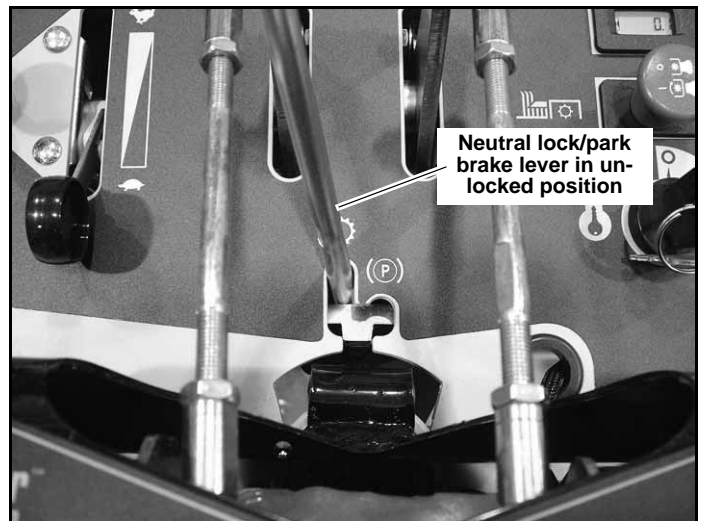






Figure 3-5

- A. Neutral lock/park brake lever is in the park brake position. Figure 3-4
- B. Deck clutch switch is in the disengaged (down) position.


WARNING


The safety interlock system must not be disconnected or bypassed.

NOTE: The machine is equipped with operator presence control switches. If for any reason the operator should release both of the operator presence control levers when the neutral lock lever is unlocked (Figure 3-5) or the deck clutch switch is engaged (up position), the engine will stop.


WARNING


On recoil start units only, the operator presence lever/switches should never be engaged when starting the unit. When the operator presence switches are engaged, they override the neutral lock lever and the deck clutch interlock system. Severe personal injury could result when starting the unit if the operator presence switches are engaged.

The following steps are the correct procedures for starting the engine. If difficulty is encountered, contact the Authorized BigDog® Mowers Dealer in your area.

1. Before starting mower each day, perform daily pre-operation checking.
2. Make sure the neutral lock lever is in the locked position and deck clutch switch is disengaged (down position).
3. Use choke when engine is cold, or if warm engine fails to start within 5 seconds of cranking. Avoid flooding and operate engine without choking as soon as possible. Set throttle at approximately 1/2 open position.

NOTE: If the ambient temperature is below 50°F (10°C), disengage the cold weather pump clutch before attempting to start the engine. Refer to the *Cold weather pump clutch* section for more information.

4. **Recoil start mowers only** - Insert key in ignition switch and rotate full clockwise. Pull engine recoil start rope.
Electric start mowers only - Insert key in ignition switch and rotate full clockwise to engage starting motor. Release key when engine starts.

IMPORTANT: The engine starter should not be operated for periods longer than 30 seconds at a time. An interval of at least two minutes should be allowed between such cranking periods to protect the starter from overheating and burn-out.

5. Perform test to make sure safety interlock system is operating properly. Refer to *Safety Interlock System* section.
6. Allow the engine to idle a few minutes before advancing the throttle and engaging the clutch. Press operator's presence control levers and rotate the PowerBar slowly forward.
7. Before stopping the engine, place the PowerBar handle in the neutral position, set neutral lock lever in the locked position, disengage the deck clutch, and throttle back to 1/2 throttle for a couple of minutes; then rotate ignition key counter-clockwise to the OFF position. Remove the key from switch before leaving the mower.

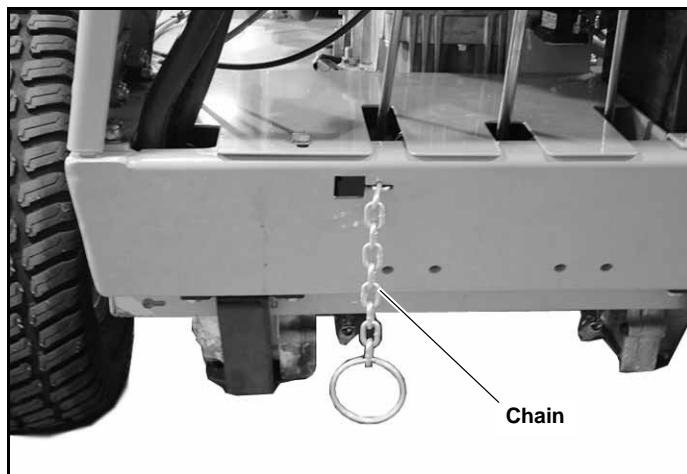


Figure 3-6

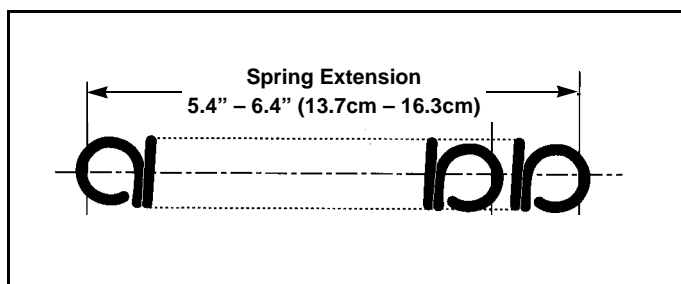


Figure 3-7

Moving mower with stalled engine

If it becomes necessary to move the unit when the engine is inoperative, the transaxles are equipped with bypass valves. Before moving the unit, pull out on the bypass valve rods and slide them into the slot to lock in position. Figure 3-9

Do not tow the machine. Move it by hand or use a winch to load on a trailer for transporting.

When transporting on another vehicle, the unit must be tied down to the transporting vehicle.

IMPORTANT: Always make certain the two bypass valves are returned to their operating position before running the unit following repairs.

WARNING

Never leave the machine unattended with key in ignition switch.

Cold weather pump clutch

The BigDog® T Series mower is equipped with a pump clutch that disengages the pump clutch belt. When the belt is disengaged, the engine will start easier in colder temperatures.

To disengage the pump clutch, **pull the chain** (Figure 3-6) until the tension is released from the pump drive belt and latch in the slot. Figure 3-6

To engage the pump clutch, with PowerBar locked in neutral, release the chain from the latching slot. **NOTE:** When engaged the spring should be extended to a dimension of 5.4" – 6.4" (13.7cm – 16.3cm). Figure 3-7

Never operate the unit with the pump clutch partially engaged. Make sure the clutch is completely released and the chain has slack.

PowerBar Steering

FRONT OF UNIT FACES THIS DIRECTION

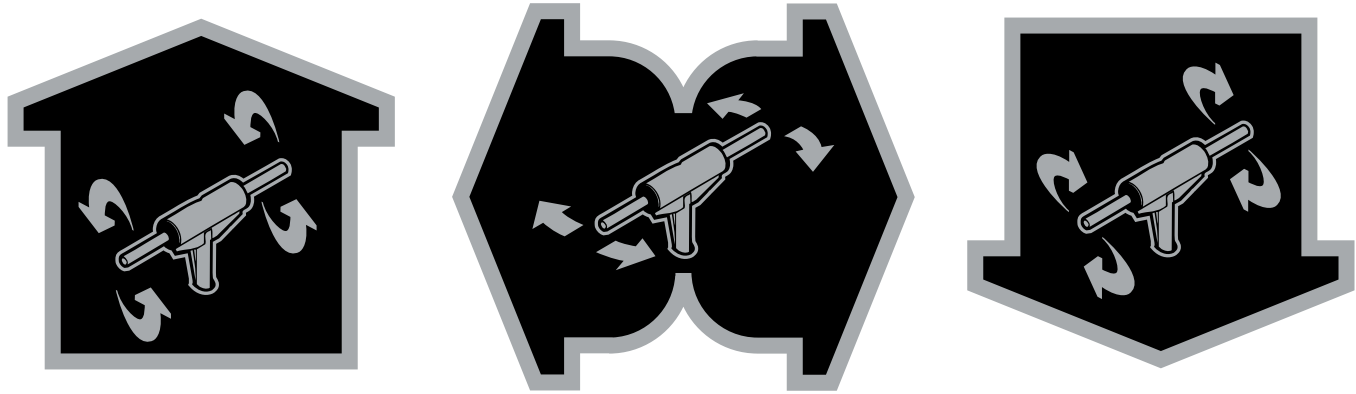


Figure 3-8

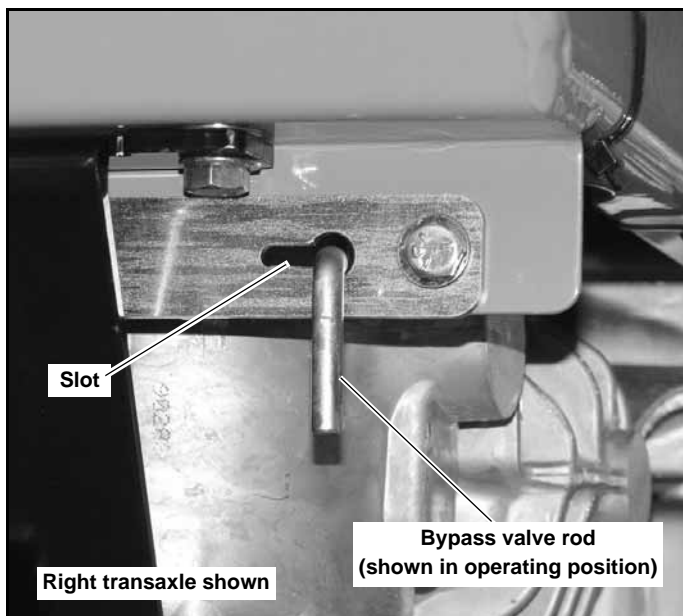


Figure 3-9

Steering the unit



WARNING



Never make sudden stops or reverse direction, especially when operating on a slope. The steering is designed for sensitive response. Rapid rotation of the PowerBar handle in either direction could result in a reaction of the mower that can cause serious injury.

After starting engine, place the neutral lock lever in the unlocked position (Figure 3-5) and steer as follows:

To go forward, rotate PowerBar handle forward. (Figure 3-8)

To go in reverse, rotate the PowerBar handle to the neutral position. After achieving neutral, rotate lever rearward. (Figure 3-8)

To turn left, rotate the PowerBar handle to the left and out of

the neutral position. (Figure 3-8))

To turn right, rotate the PowerBar handle to the right and out of the neutral position. (Figure 3-8)

Zero radius turn, rotate PowerBar handle the direction desired with the handle in the neutral position. This will allow the drive wheels to counter-rotate. (Figure 3-8)

To stop or decrease speed, move PowerBar handle to neutral. When going forward rotate handle rearward gently. When going in reverse rotate handle forward. (Figure 3-8) When traveling in reverse rotate handle rearward gently and avoid sudden movement. Any sudden movement could cause the front of the mower to come off of the ground resulting in possible loss of control.

To increase speed, rotate the PowerBar handle's distance further from neutral. The farther the PowerBar handle is rotated forward from neutral, the faster the unit will travel forward. The farther the PowerBar handle is rotated rearward from neutral, the faster the unit will go in reverse.

Operating suggestions



WARNING



Prior to operating the unit the operator should be thoroughly familiar with the proper use and operation of the equipment, should have read the manual completely and thoroughly, and should have attempted slow moving maneuvers to become familiar with the operation of the equipment before attempting normal speed operation. An untrained and inexperienced operator should not mow on slopes or on uneven terrain.

Inexperienced operators may have a tendency to oversteer and lose control. Slow-moving practice maneuvers are recommended to become familiar with these characteristics before attempting normal speed operation.

The following list is not all inclusive.

When turning on soft wet turf, **keep both wheels rolling** either forward or backward. Pivoting on one stopped wheel can damage turf. This is especially important when mowing.



WARNING



Do not operate the equipment while wearing sandals, tennis shoes, sneakers, shorts or any type of loose fitting clothing. Always wear long pants, safety glasses and safety shoes when operating this machine.



WARNING



The unit's PowerBar handle is very responsive: Easy does it! For smooth operation, rotate handle slowly, avoid sudden movement. Skill and ease of operation come with practice and experience.



WARNING



Sharp depressions or raised obstacles (such as gutters or curbs) should not be directly approached at high speed in an attempt to "jump" them as the operator could lose control of the equipment. If the depression or obstacle can not be avoided, approach at a slow speed and angle one drive wheel at the obstruction. Continue at an angle until the wheel clears and then pivot the opposite wheel around.

Unit performance is maximum when the throttle is set at full rpm. This gives maximum power to the drive wheels and deck when needed. Use the PowerBar handle to control ground speed rather than engine rpm.

The safety interlock system is designed to shut the engine off if the operator releases the operator presence control levers when the neutral lock/park brake lever is unlocked or the deck clutch lever is engaged.

When operating the BigDog® T Series mower on **slopes**, the operator should mow traversing the slope. The operator should stay more on the uphill side of the unit when mowing.



WARNING



To check a slope, attempt to back up it. If the unit can back up the slope without the operator and drive wheels slipping, reduce ground speed and proceed with caution.

For additional safety issues regarding slope mowing refer to the *Safety* section of this manual.

Keep blades sharp. Many professional mowing companies have additional sets of blades and change blades twice a day: once in the morning and again at noon. **Many problems** with incorrect cutting patterns **are due to dull blades** or blades which have been **sharpened incorrectly**. Information on sharpening blades is listed in this manual's maintenance section. In addition, most communities have individuals or companies which specialize in sharpening mower blades. **Blade sharpness should be checked daily.**

Use high blade speed. Your BigDog® T Series mower is designed to operate at full throttle. The throttle setting directly controls blade speed. The highest blade speed generally gives best cut.

Direct grass discharge to right, away from unmown area. Select a mowing pattern that directs grass discharge towards the outside, not towards center, of mowing area. Generally, this means using a pattern utilizing **left turns** because side discharge (Figure 3-10) is to **right**. In any case, avoid throwing grass discharge onto unmowed area because grass is then mowed "twice". Mowing twice puts an unnecessary load on the unit and reduces mowing efficiency.



WARNING



Never direct discharged material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Always disengage the blades and wait for them to stop before crossing gravel drives, walks or roads. Do not operate the mower without either the entire mulching system or the entire grass collection system in place. Figure 3-10



WARNING



Never operate the mower deck with discharge chute removed or in raised position.

Avoid sudden turns on wet turf. This can damage turf unnecessarily.

Always check area to be mown for rocks and other debris before mowing.



Figure 3-10

Deck cutting height adjustment

Deck height is adjustable from 1-1/2" - 4-1/2" (3.81 cm - 11.43 cm) in 1/4" (.64 cm) increments. The holes in the height adjusting bar are spaced at 1/2" (1.27 cm) intervals. By turning the height adjusting stop around, 1/4" (.64 cm) increments can

be attained due to the 1/4" (.64 cm) plate that is part of the stop. Figure 3-11

EXAMPLE: When the height adjusting stop is placed in the 1-1/2" (3.81 cm) hole, **with the 1/4" (.64 cm) plate on the operator's side of the hole** the cutting height is at 1-1/2" (3.81 cm). When the height adjusting stop is placed in the 1-1/2" (3.81 cm) hole, **with the 1/4" (.64 cm) plate facing to the front of the unit**, the cutting height is at 1-3/4" (4.45 cm).

Move the deck lift lever to the transport position slot when the unit is in the transport mode. Figure 3-11.

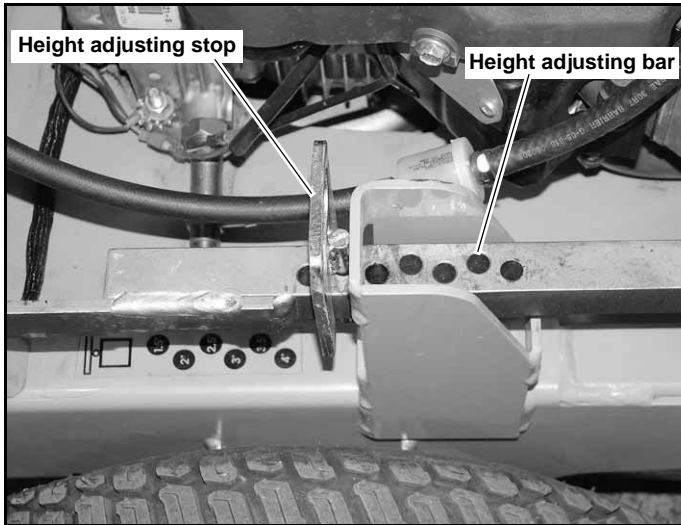




Figure 3-11

Mower deck operation

**DANGER**

Never attempt to make any adjustments to the mower deck while the engine is running or with the deck drive clutch engaged. Mower blades cannot be seen and are located very close to deck housing. Fingers and toes can be cut off instantly.

Deck clutch operation

Clutch life will be maximized if these procedures are followed.

1. **Engage the clutch** only when the throttle is set at approximately **2/3 throttle** and there is **no load** on the blades. After clutch engagement, advance the engine throttle to full rpm.

Engaging the deck clutch at high engine rpm or when under heavy load (in tall grass for example) can cause belts and/or electric clutch to slip, resulting in premature wear or possible damage.

2. **Disengage the clutch** only when the throttle is set at **less than 1/2 throttle**.

Never disengage the clutch with the engine running at high rpm. Setting the throttle to less than 1/2 throttle when disengaging the clutch will help extend clutch life.

Warranty will not be allowed for deck clutches that fail due to improper engagement and disengagement practices



Stand-up sulkies

BigDog® Mowers **does not warrant or accept liability for the use of any attachments not manufactured by BigDog® Mowers, including the use of stand-up sulkies.**

All manufacturer's safety instructions issued with any attachments including stand-up sulkies must be followed.

**WARNING**

Never operate the BigDog® T Series mower on slopes when using a stand-up sully.

**WARNING**

The use of any other manufacturer's attachments, including stand-up sulkies, increases the risk of operator injury, therefore, extreme caution must be exercised when using these devices.

Anti-scalp wheels

Anti-scalp wheel kits are standard on some BigDog® T Series mowers. These anti-scalp wheels are designed to minimize scalping when mowing on rough, uneven terrain.

After setting the cutting height, adjust the anti-scalp wheels so they extend below the deck but **do not contact the ground**. They should always be at least 1/4" to 3/4" (6.35mm to 19.05mm) below the deck. With the unit sitting on a flat level surface, the wheel position can be adjusted up or down as needed from 3/4" to 1-3/4" (19.05mm to 44.45mm) below the blade surface. Move the wheels up or down, in 1/2" (12.70mm) increments, using the different axle mount holes in the wheel mount bracket. Figure 3-13

When adjusting the rear anti-scalp wheels, the wheel should be in the same axle mount hole as the front anti-scalp wheels.

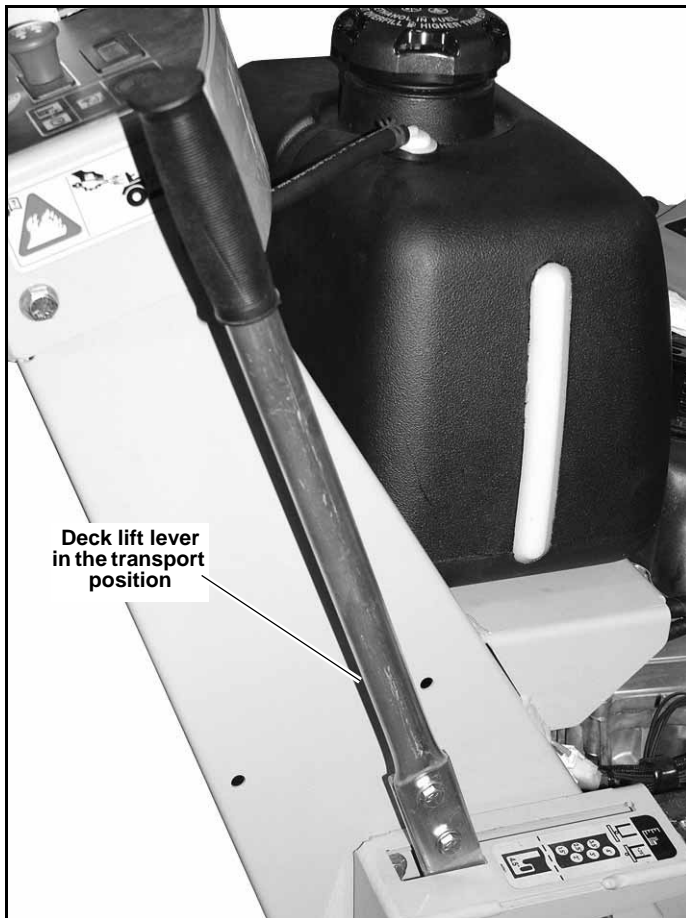


Figure 3-12

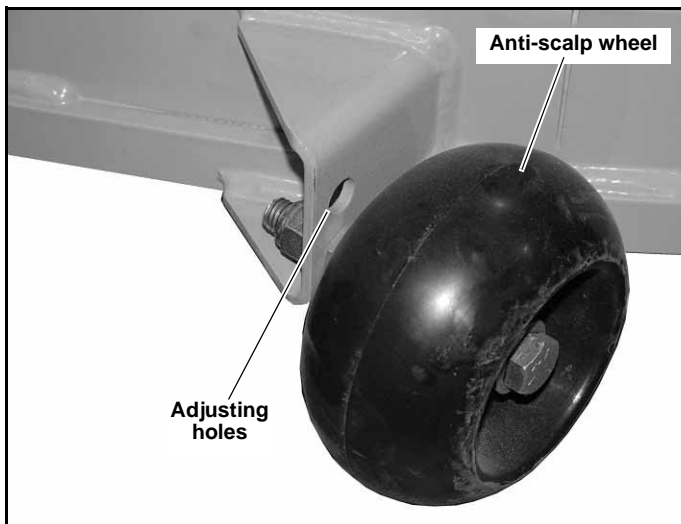


Figure 3-13

MAINTENANCE & ADJUSTMENTS

Safe Servicing Practices

This product is capable of amputating hands and feet and throwing objects. Always follow all safety instructions to avoid serious injury or death.

Service

- ▲ Unless specifically required, **DO NOT** have engine running when servicing or making adjustments to mower. Park the machine on level ground. Always disengage deck clutch, place PowerBar steering in neutral, place neutral lock/park brake lever in park brake position, stop engine, and remove ignition key when leaving the unit. Remove the spark plug wires from the spark plugs, or, if applicable, disconnect the negative battery cable. Wait for engine and all moving parts to come to a complete stop before doing any maintenance, adjusting, cleaning or repairing. Repairs or maintenance requiring engine power should be performed by trained maintenance personnel only. To prevent carbon monoxide poisoning, be sure proper ventilation is available when engine must be operated in an enclosed area. Read and observe safety warnings in front of manual.
- ▲ Before working on or under the deck, make certain engine cannot be accidentally started. Shut engine off and disconnect spark plug wires from the spark plugs for maximum safety. If machine has a battery, disconnect negative battery cable. Repairs or maintenance requiring engine power should be performed by trained personnel only.
- ▲ Except when changing or checking belt, always keep belt covers on mower deck for safety as well as cleanliness.
- ▲ Use a stick or similar instrument to clean under the mower making sure that no part of the body, especially arms and hands are under mower.
- ▲ Keep your machine clean and remove any deposits of trash and clippings, which can cause engine fires and hydraulic overheating as well as excessive belt wear. Clean up oil or fuel spillage. Allow machine to cool before storing.
- ▲ **Clean flammable material from machine. Prevent fires by keeping engine compartment, exhaust area, battery (if applicable), fuel line and fuel tank clean of accumulated trash, grass clippings, and other debris. Always clean up spilled fuel and oil.**
- ▲ Always wear adequate eye protection when servicing the hydraulic system and battery (if applicable), or when grinding mower blades and removing accumulated debris.
- ▲ Use extra caution when handling gasoline and other fuels. They are flammable and vapors are explosive.
- ▲ Never attempt to start engine when there is a strong odor of gasoline fumes present. Locate and correct cause.
- ▲ **Do not remove the fuel tank cap or fill fuel tank with engine running or while the engine is hot.** Never refuel near an open flame or near devices which can create a

spark. Refuel outdoors. Never refuel or drain the fuel from the machine indoors.

- ▲ Never run the engine in an enclosed area unless exhaust is vented to the outside. Exhaust gases contain carbon monoxide which is odorless and deadly poison.
- ▲ Never attempt to make any adjustments or repairs to the traction drive system, mower deck or any attachment while the engine is running or deck clutch is engaged. Mower blades cannot be seen and are located very close to the deck housing. Fingers and toes can be cut off instantly. Repairs or maintenance requiring engine power should be performed by trained maintenance personnel only.
- ▲ Never work under the machine or attachment unless it is safely supported with jack stands. Make certain machine is secure when it is raised and placed on the jack stands. The jack stands should not allow the machine to move when the engine is running and the drive wheels are rotating. **Use only certified jack stands.** Use only appropriate jack stands, with a minimum weight rating of 2000 pounds (907 kg) to block the unit up. Use in pairs only. Follow the instructions supplied with the vehicle stands.
- ▲ Do not touch hot parts of machine. Be careful of hot muffler. Allow engine to cool before servicing.
- ▲ Keep nuts and bolts tight, especially the blade attaching bolts. Keep equipment in good working condition.
- ▲ Never tamper with safety devices. Check their proper operation regularly.
- ▲ Stop the engine before removing the grass catcher or unclogging the discharge chute. Never clear the discharge chute with the engine running. Turn off the engine and be sure the blades have stopped before cleaning. Disconnect the spark plug wires from the spark plugs before cleaning, being careful to not touch the hot engine or muffler. Use a stick to clear a plugged discharge area. **Never use your hand!**
- ▲ Grass collection system components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
- ▲ Exercise caution when working under the deck as the mower blades are extremely sharp. Wrap the blade(s) or wear gloves and use extra caution when servicing them.
- ▲ Use only genuine BigDog® Mower replacement parts to ensure that original standards are maintained

Introduction

Regular maintenance is the best prevention for costly downtime or expensive, premature repair. The following pages contain suggested maintenance information and schedules which the operator should follow on a routine basis. For more detailed information order the correct parts manual for your unit. Refer to the Product Literature section of this manual.

Remain alert for unusual noises, they could be signaling a problem. Visually inspect the machine for any abnormal wear or

damage. A good time to detect potential problems is while performing scheduled maintenance service. Correcting the problem as quickly as possible is the best insurance.



Clear away heavy build-up of grease, oil and dirt, especially in the engine and hydraulic reservoir areas; minute dust particles are abrasive to close-tolerance engine and hydraulic assemblies.

Daily inspect mower for grass clippings and wire and string tangles. The underside of the mower deck will collect a build-up of grass clippings and dirt, especially when grass is wet or has high moisture content. This build-up will harden, restricting blade and air movement and will probably show a poorer quality of cutting. Therefore it should be removed routinely.

To do this it will be necessary to raise and block the deck, using jack stands or blocks, in the full up position and scrape the build-up from underneath.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Consult your BigDog® Mower service center when assistance is needed.

Torque values

**WARNING**

Particular attention must be given to tightening the drive wheel lug nuts and blade spindle bolts. Failure to correctly torque these items may result in the loss of a wheel or blade, which can cause serious damage or personal injury.

Torque values are given below:

	Ft.-lbs.	Nm
Wheel (lug) nuts	65-75	88.14-101.7
Blade spindle bolt top	118	160.01
Blade spindle bolt bottom	118	160.01

Lug nuts only - It is recommended that these be checked after the first 2 hours of operation, initially, every 50 hours and following removal for repair or replacement.

For all other torques refer to the mower’s *General Service Manual* for standard torque chart. See *Product Literature* section for ordering information.

For engine torque values, see engine owner’s manual.

Tires

It is important for level mowing that the tires have the same amount of air pressure. The recommended pressure are:

Drive wheels	8-12 psi (55-83 KPa)
Front wheels	8-12 psi (55-83 KPa)

Solid fill tires are not recommended for BigDog® Mower turf equipment. On any machine, with solid filled tires, the warranty claim will be denied.

Hour meter

To recognize when your machine needs servicing, check the

hour meter and the maintenance schedule. The hour meter shows the number of hours the engine has run and the maintenance schedule lists the service intervals.

Lubrication

Use no more than one or two ounces (30–60 cc) of SAE multi-purpose grease, (1 to 2 pumps on an average grease gun). Do not force lubricant in to grease zerks. Bearings are sealed and do not require much lubricant.

After every 50 hours of normal operation, apply a SAE multi-purpose grease to the other lubrication points shown on the *Maintenance Locator Chart* found elsewhere in this manual. When operating under extremely dirty conditions, lubricate more frequently than every 50 hours.

To lubricate these points:

- 1. Wipe away all old grease and dirt from the lubrication fittings to prevent dirt or foreign material from entering as new grease is applied.
- 2. Use a high pressure grease gun to force in the new grease. Apply pressure until clean grease oozes from each lubrication point.
- 3. Wipe away any excess grease.

Electrical system

BigDog® T Series mowers have a master in-line fuse in the electrical system. This is the main fuse to protect the complete electrical system. It is located below the right front of the fuel tank. Figure 4-1

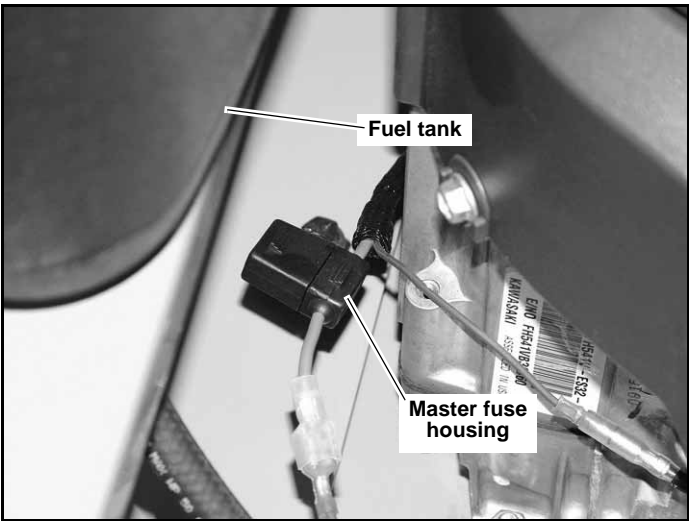


Figure 4-1

Electric start units only

The electrical system is a 12 volt, negative ground. Recommended battery size is a garden mower BCI group U1R with 225 or better cranking AMP rating. A maintenance-free battery is recommended. Otherwise, follow battery manufacturer’s maintenance, safety, storing and charging specifications.

The battery is located on the right rear corner of the deck

platform.



WARNING



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



WARNING



Charge batteries in an open well ventilated area, away from sparks and flames. Unplug charger before connecting or disconnecting from battery. Wear protective clothing and use insulated tools.



WARNING



Avoid skin and clothing contact with battery acid. Always wear eye protection when checking the battery, acid can cause serious injury to skin and eyes. If contact occurs, flush area with clean water and call physician immediately. Acid will also damage clothing.

Do not drink the battery electrolyte.

Do not allow open flame near the battery when charging. Hydrogen gas forms inside the battery. This gas is both toxic and flammable and may cause an explosion if exposed to flame. Always remove the negative ground first and replace it last.

Do not overfill battery.

Electrolyte may overflow and damage paint, wiring or structure. When cleaning the battery, use soap and water. Be careful not to get soap and water into the battery. Clean the battery terminals with a solution of four parts water and one part baking soda when they become corroded.



WARNING



Shorts caused by battery terminals or metal tools touching metal mower components can cause sparks. Sparks can cause a battery gas explosion which will result in personal injury.

- Prevent the battery terminals from touching any metal mower parts when removing or installing the battery.
- Do not allow metal tools to short between the battery terminals and metal mower parts.



WARNING



Incorrect battery cable routing could cause damage to the mower and battery cables. This can cause sparks which can cause a battery gas explosion which will result in personal injury.

- Always **disconnect** the negative (black) battery cable(s) before disconnecting the positive (red) cable(s).
- Always **connect** the positive (red) battery cable(s) before connecting the negative (black) cable(s).

Hydraulic system

The BigDog® T Series mower is equipped with two transaxles.

IMPORTANT: Never use hydraulic or automatic transmission fluid in this system; use only motor oil as specified. Remember, dirt is the primary enemy of any hydraulic system.

The hydraulic expansion tank is located behind the left rear corner of the engine. Figure 4-2

Check oil level in hydraulic system after every 50 hours of operation or weekly, whichever occurs first. Check more often if system appears to be leaking or otherwise malfunctioning.

Fluid level should be at the “Full Cold” line on the expansion tank. Use only SAE 20W50 SL service motor oil.

Initial system oil and filter change **must** be after the first 75 hours of use or 1 year whichever comes first. Thereafter, replace filter and oil in each transaxle every 2 years or 200 hours, whichever comes first. **NOTE:** The filter guard must be removed to access filter.

Each transaxle’s filter is located per Figure 4-3. A standard oil filter wrench is used to change filter, threads are right handed.

Use a BigDog® Mower approved filter element only.



WARNING



When washing the mower, direct the spray away (especially if using a power washer) from the transaxle’s seals to prevent water intrusion and to ensure component performance.

Fuel and evaporative emissions control system

The fuel system for the BigDog® T Series mower is EPA compliant. Use only BigDog® Mower approved replacement parts.

Your evaporative emission control system may include parts such as: fuel tanks, fuel lines, fuel line fittings, fuel caps, carbon canisters, canister mounting brackets, carburetor purge port connection, filters, vapor hoses, clamps, control valves, control solenoids, electronic controls, vacuum control diaphragms, purge valves, liquid/vapor separator and other associated components.

Modifying or Tampering with the evaporative emissions control system or the fuel system is prohibited. Federal law

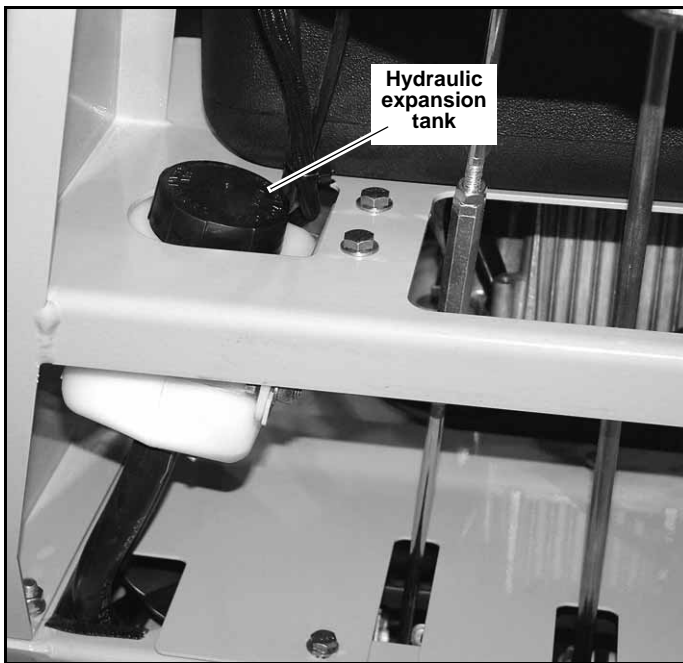


Figure 4-2

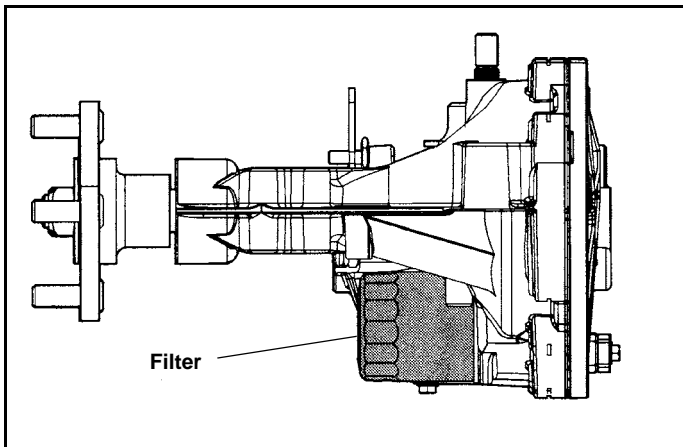


Figure 4-3

and California State law prohibit the following acts or the causing thereof:

1. The removal or rendering inoperative by any person other than for purposes of maintenance, repair, replacement, of any device or element of design incorporated into any equipment for the purposes of emissions control prior to or after its sales or delivery to the ultimate purchaser or while it is in use, or

The use of the equipment after such device or element of design has been removed or rendered inoperative by any person.

!
!

WARNING

Use of replacement parts not equivalent to the original parts may result in system failure and pose a safety hazard.

!
!

DANGER

To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.

!
!

WARNING

Observe usual fuel handling precautions

- Do not smoke while refueling. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- **Do not remove fuel tank cap or fill fuel tank with engine running or while engine is hot.** Clean up any fuel spills.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Allow engine to cool before storing machine inside a building.
- Keep fuel away from open flame or spark and store machine away from open flame or spark or pilot light such as on a water heater or appliances.
- Use extreme care when handling gasoline and other fuels. They are extremely flammable and vapors are explosive. A fire or explosion from fuel can burn you and others and can damage property.
- Refuel outdoors. Never refuel or drain the fuel from the machine indoors.
- Never attempt to start engine when there is a strong odor of gasoline fumes present. Locate and correct cause.
- Store fuel in an approved container and keep it out of the reach of children. Never buy more than a 30 day supply of fuel.
- Do not fill fuel containers inside a vehicle or on a truck or trailer bed with interior carpets or plastic truck bed liners. Always place fuel containers on the ground away from your vehicle before filling.
- When practical, remove gas powered equipment from the truck or trailer and refuel the equipment with its wheels on the ground. If this is not possible, then refuel such equipment on the truck or trailer using a portable container and not a fuel dispenser nozzle. If a fuel dispenser nozzle must be used, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
- Never use gasoline for cleaning parts.
- Read and observe safety precautions elsewhere in this manual.



WARNING



- Gasoline is harmful or fatal if swallowed.
- Long-term exposure to vapors can cause serious injury and illness.
- Avoid prolonged breathing of vapors.
- Keep face away from nozzle and gas tank or fuel container opening.
- Keep gas away from eyes and skin.
- If fuel is spilled on clothing, change clothing immediately

The 5.0 U.S. gallon (18.9 liter) fuel tank is located behind the engine. Figure 4-4

Remove the fuel cap slowly.

When threading the fuel cap onto the filler neck, tighten the cap until it begins to click, then, continue to turn it until at least three clicks are heard.

IMPORTANT: Do not overfill the fuel tank. The fuel tank should be filled no higher than to the top of the sight glass. The fuel system is designed to leave room for the fuel to expand with fuel temperature changes. Stop filling the tank after the fuel nozzle automatically clicks off.



WARNING



Overfilling fuel tank may cause the following:

- Engine damage
- Fire hazard!

Use regular unleaded gasoline with an octane rating of 87 or higher. Maximum of 10% ethanol (E10) in fuel. Fuels with greater than 10% ethanol, (such as E15, E20 and E85) voids warranty. Fuels with greater than 10% ethanol are not approved for use and such illegal use could cause equipment failure and pose a fire hazard.

The fuel filter is installed in the fuel line between fuel tank and engine fuel pump. Replace filter annually or after every 500 hours of operation, whichever occurs first. Figure 4-5

When replacing the fuel filter, check the fuel line hoses for any cracks or leaks. Replace as needed.

Engine oil and filter

Check engine oil daily and after every 4 hours of operation. mower must be setting level when checking oil. Refer to engine manual and maintenance schedule for oil recommendation and capacities.

Change the engine oil and filter after the first 5 hours of operation, per the engine manufacturer's recommendations after that. If mower is being operated in extremely dirty conditions, then it is recommended oil be changed more frequently.

IMPORTANT: When removing the oil filter take precautions to minimize oil spillage on the exhaust system.

Attach the oil drain hose, furnished with the unit, to the oil drain valve when draining the engine oil. Oil drain hose **must** be removed after oil is drained. **IMPORTANT:** All oil drips or spills **must** be cleaned off of the exhaust system before

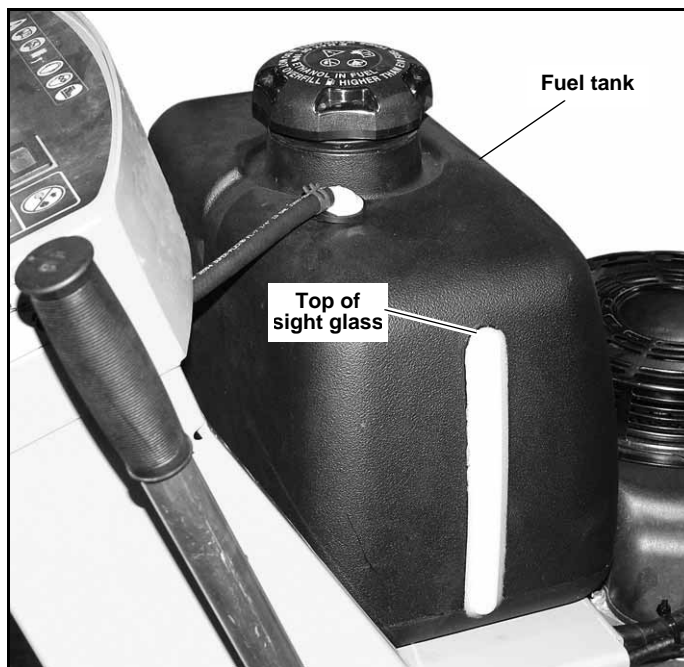


Figure 4-4

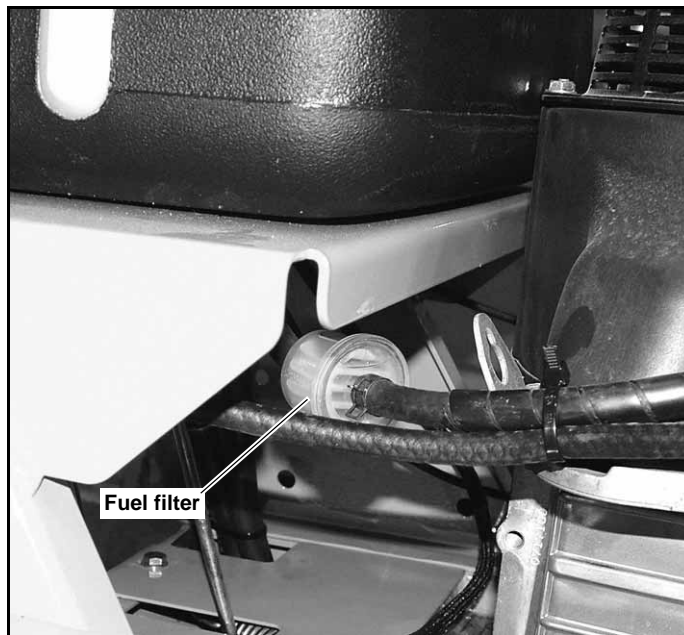


Figure 4-5

operating the machine. Figure 4-6

Engine air filter

Perform engine air filter maintenance per the engine's owner's manual. Figure 4-7

General engine maintenance

Detailed instructions and recommendations for break-in and regular maintenance are specified in the *Engine Owner's manual*. Please refer to this manual for engine servicing, lubricating oil levels with quality and viscosity recommendations, bolt torques, etc. The engine warranty is backed by the manufacturer. Special attention should be paid to applicable data which will not be duplicated here.

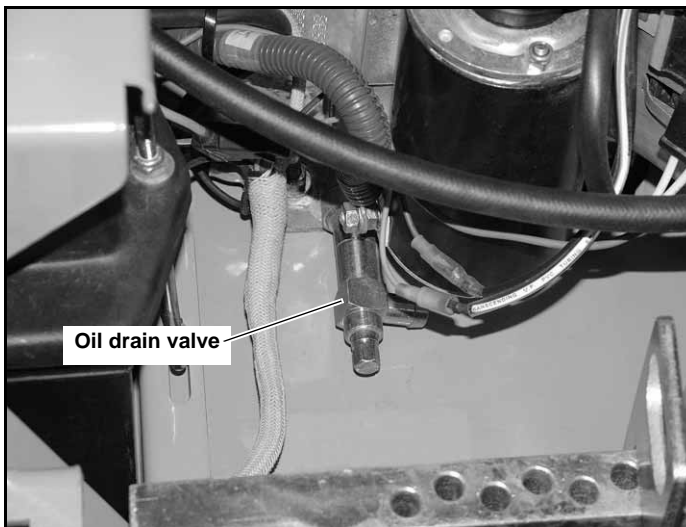


Figure 4-6

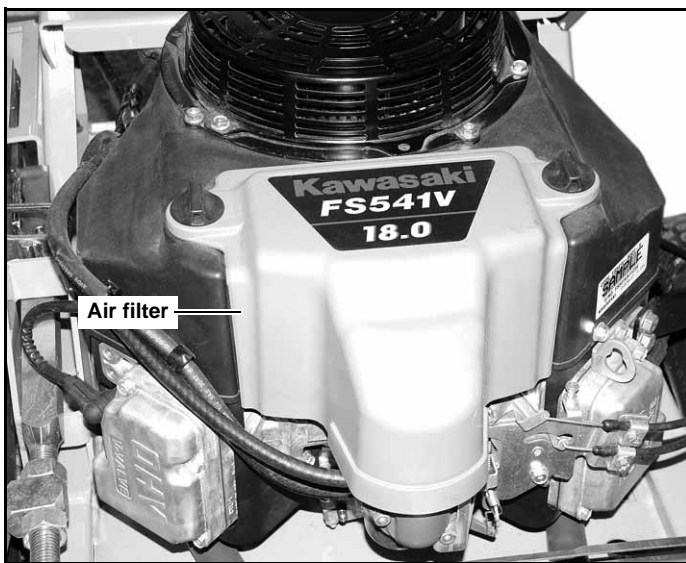


Figure 4-7

Fuel evaporation system filter

All BigDog® T Series mowers have a fuel evaporation system filter. This filter must be replaced every 300 hours or annually whichever comes first. Figure 4-8

Belts

Inspect belts frequently for wear and serviceability. Replace a belt that shows signs of severe cuts, tears, separation, weather checking and cracking, or burns caused by slipping. Slight raveling of belt covering does not indicate failure, trim ravelings

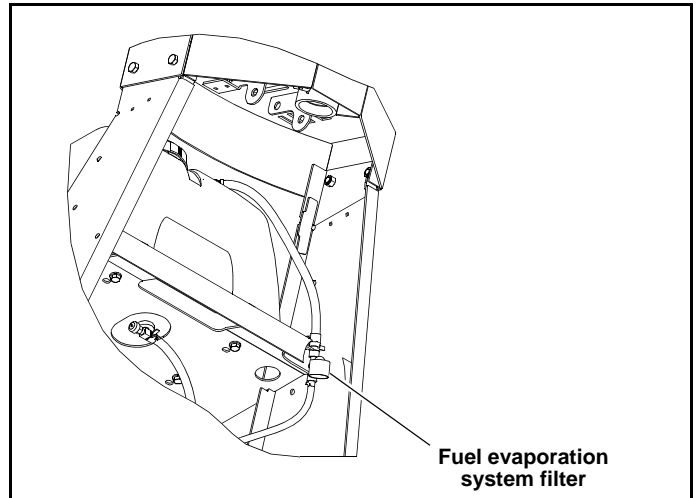


Figure 4-8

with a sharp knife.

!
WARNING
!

If the pump belt fails, loss of control will occur especially when operating on a slope.

If you lose steering control while operating the machine, place the PowerBar steering lever in the neutral position immediately and place the neutral lock/park brake lever in the park brake position. Inspect the machine and involve your BigDog® Mower dealer to resolve the problem before continuing to operate.

Inspect the belt pulley grooves and flanges for wear. A new belt, or one in good condition, should never run against the bottom of the groove. Replace the pulley when this is the case, otherwise belt will lose power and slip excessively.

Never pry a belt to get it on a pulley as this will cut or damage the fibers of the belt covering.

Keep oil and grease away from belts and never use belt dressings.

Mower blade maintenance

Check the mower blades daily, they are the key to power efficiency and well groomed turf. Keep them sharp, a dull blade will tear rather than cut the grass, leaving a brown ragged top on the grass within a few hours. A dull blade also requires more power from the engine.

Replace any blade which is bent, cracked or broken.

!
WARNING
!

Before working on or under the deck, make certain engine cannot be accidentally started. Shut engine off and remove ignition switch key for maximum safety. If applicable disconnect negative battery cable. Repairs or maintenance requiring engine power should be performed by trained personnel only.



WARNING



Never attempt to straighten a bent blade by heating, or weld a cracked or broken blade as the blade may break and cause serious injury. Replace worn or damaged blades.



WARNING



Never work with blades while engine is running or deck clutch switch is engaged (on). Always place deck clutch switch in the disengaged position, place the PowerBar steering lever in the neutral position, place the neutral lock/park brake lever in the park brake position. Turn engine off and either disconnect the spark plug wires from the spark plugs (recoil start units) or disconnect negative battery cable (electric start units). Block up mower when you **must** work under it. Wear gloves when handling blades. **Always check for blade damage** if mower strikes rock, branch or other foreign object during mowing!



WARNING



Always wear adequate eye protection when grinding mower blades.

Mower blade removal

Use a 15/16" wrench to remove the 5/8" cap screw holding the blade to the spindle shaft from underneath. **NOTE:** A blade holding tool (part number 381442) is available from BigDog® Mower. It is designed to prevent the blades from rotating when they are being removed or installed on the spindle. Contact your BigDog® Mower dealer for more information.

Sharpen the blades on a grinder following pattern as shown (Figure 4-9). Touch-up sharpening can be done with a file.

Check the blades for balance following grinding. A commercial balancing tool is available through most hardware supply stores, or balancing can be done by placing the blade on an inverted line punch or 5/8" bolt. Blade should not lean or tilt. Spin the blade slowly, blade should not wobble. If blade is out of balance, true it up before reinstalling.

Lay the blade on a flat surface and check for distortion (Figure 4-10 and Figure 4-11). Replace any distorted blade.

Do not re-use spindle bolts which have stripped, worn or undercut threads. Torque bolts on spindles to 118 foot-pounds (160.01Nm) when reinstalling blades.

IMPORTANT: The blade sail (curved part) must be pointing upward toward the inside of the deck to ensure proper cutting.

IMPORTANT: When mounting blades, rotate them after installation to ensure blade tips do not touch each other or sides of the mower.



WARNING



Failure to correctly torque the bolt may result in the loss of the blade which can cause serious injury.



WARNING



Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing them

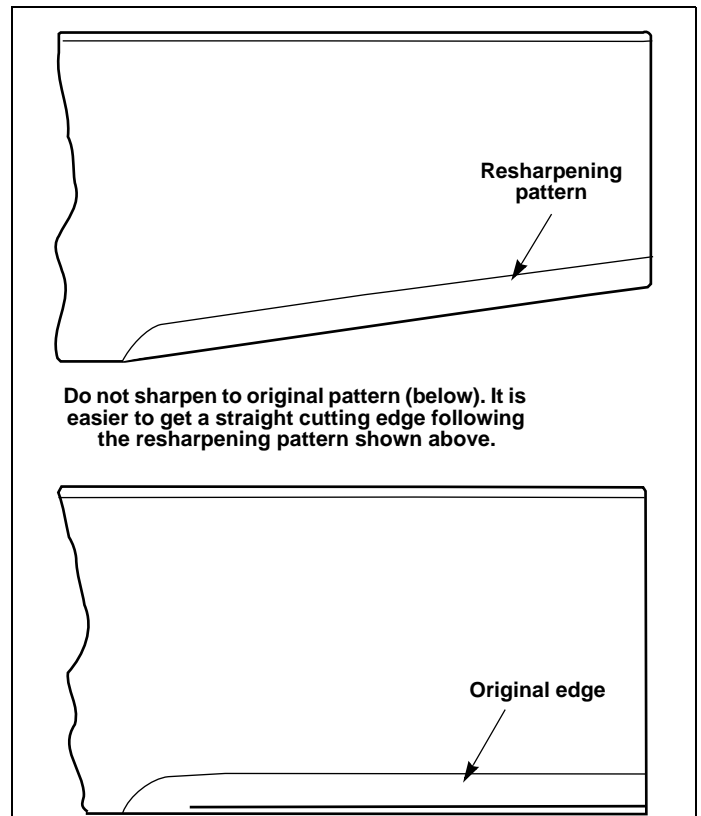


Figure 4-9

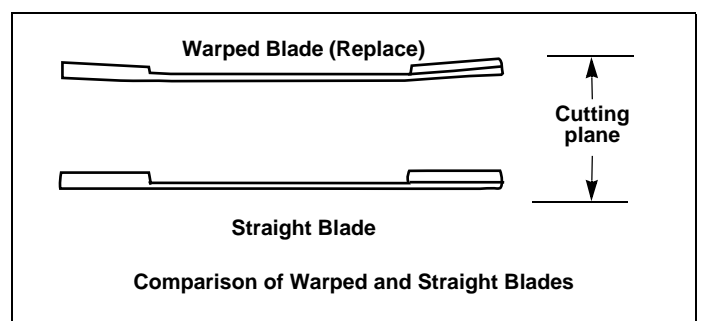


Figure 4-10

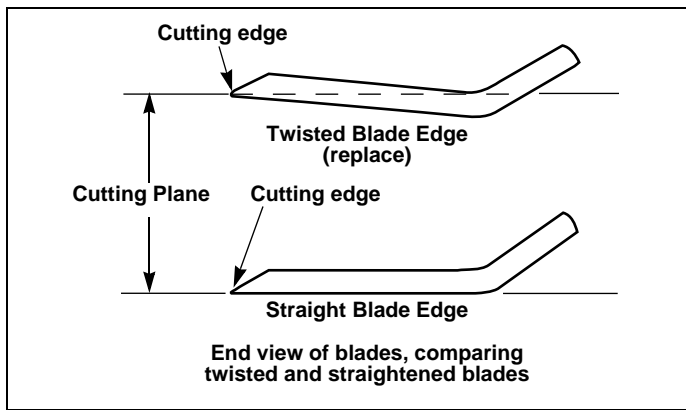


Figure 4-11

**BigDog® Mowers T Series
Maintenance Schedule**
Refer to Figure 4-12, Figure 4-13, Figure 4-14,
Figure 4-15, Figure 4-16, Figure 4-16

SERVICE AT INTERVALS INDICATED	WEEKLY OR 50 HOURS	MONTHLY OR 100 HOURS	ANNUALLY OR 300 HOURS
Verify safety start interlock system	Prior to each use		
Visually inspect unit for loose hardware and/or damaged parts	Prior to each use		
Visually inspect tires	Prior to each use		
Check oil level, engine (1)	Prior to each use or every 4 hours		
Clean air intake screen (4)	Prior to each use or every 4 hours		
Check fuel level	Prior to each use		
Blades - sharpen & securely fastened	Prior to each use		
Discharge chute - securely in place & in lowest position	Prior to each use		
Replace air cleaner paper element	As needed		
Clean engine & transaxle compartment	Daily		
Change transaxle oil & filter (7)	Every 200 hours or 2 years		
Grease deck height pivots	X		
Grease front wheel bearings	X		
Change engine oil & filter (1)(3)	X		
Clean cylinder & head fins (a)	X		
Check battery connections	X		
Check tire pressure with a gauge	X		
Check hydraulic oil level	X		
Clean engine exterior (a)	X		
Clean & regap spark plugs (a)		X	
Check pump & deck belt tension and condition (5)		X	
Check fuel system (6)		X	
Check fuel tank grommet (6)		X	
Check hydraulic lines		X	
Tighten lug nuts on wheels (2)		X	
Change fuel filter			X
Replace spark plugs			X
Replace fuel evaporation system filter (8)			X

NOTES:

- Initial oil change is after 5 hours of operation. Thereafter, change oil after every 50 hours operation. Change more often under dusty or dirty conditions and during hot weather periods.
- Torque initially and after first 2 hours of operation.
- Change engine oil filter per the engine manufacturer's recommendations. Refer to *Engine Owner's Manual* for recommendations and other maintenance items.
- Service more often under dusty or dirty conditions.
- Pump drive belt only - Inspect every 6 months or 100 hours** and replace if worn or cracking is noticed. Otherwise, **replace every 200 hours or 2 years** whichever comes first. Refer to *Cold weather pump clutch* section for tensioning information.
- Check fuel system for any crack or leaks including, but not limited to, fuel line hoses, fuel valve, vent line hoses, vent valve, vapor valve, carbon canister, and grommets.
- Initial system oil and filter change **must** be after the first 75 hours of use or 1 year whichever comes first. Thereafter, replace filter and oil in each transaxle every 2 years or 200 hours, whichever comes first.
- More often under dusty or dirty conditions and during hot weather.

REFERENCES:

a—Refer to Engine Owner's Manual

NOTE: After completing maintenance cycle (100 hours), repeat cycle.

Maintenance Locator Chart

Figure 4-12

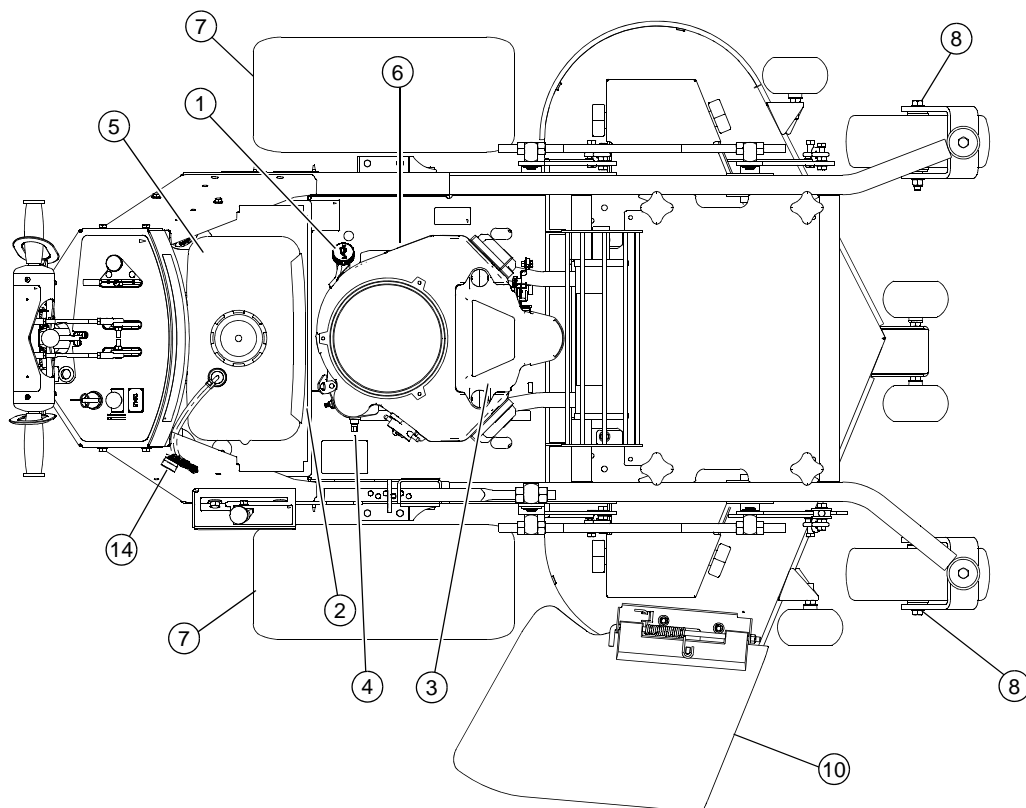


Figure 4-13

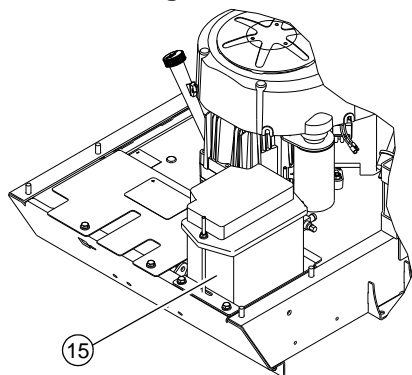
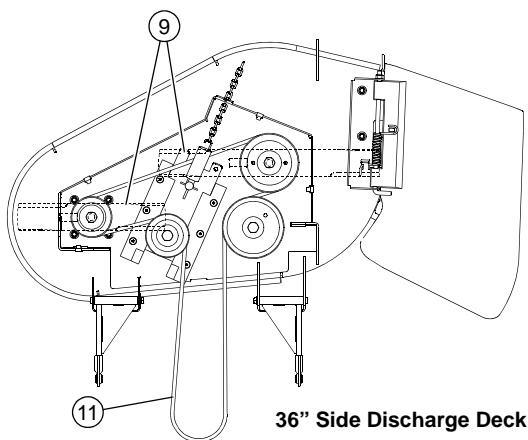


Figure 4-14



36" Side Discharge Deck

Figure 4-15

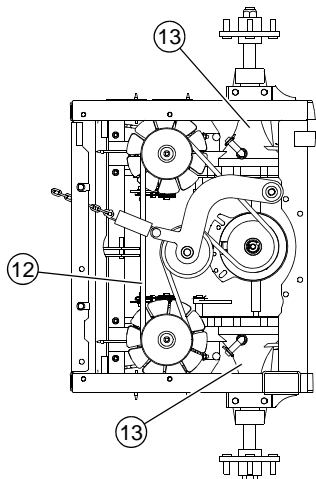
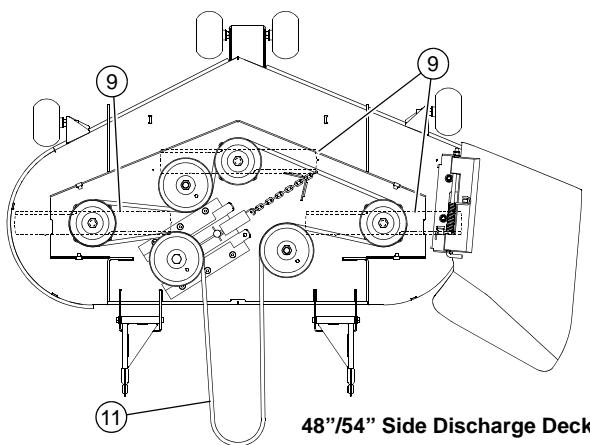


Figure 4-16



48"/54" Side Discharge Deck

1. Engine oil fill & dipstick
2. Fuel filter
3. Engine air cleaner
4. Engine oil drain
5. Fuel tank
6. Engine oil filter
7. Drive tire
8. Gauge wheel bearings
9. Blades
10. Discharge chute
11. Deck drive belt
12. Pump belt
13. Transaxle oil filter
14. Evaporative emission system filter
15. Battery

TROUBLESHOOTING

SYMPTOMS	PROBABLE CAUSES	SUGGESTED REMEDIES
The engine will not start, starts hard or fails to keep running	Deck clutch engaged	Disengage deck clutch
	No fuel or line plugged	Fill tank or replace line
	Fuel valve is turned off	Open the fuel valve
	There is incorrect fuel in the fuel system	Drain the tank and replace the fuel with the proper type
	There is dirt in the fuel filter	Replace the fuel filter
	Dirt, water or stale fuel in the fuel system	Contact your Dealer
	The choke is not on	Move the choke lever to ON
	Numerous	See engine manual
Engine: Runs with continuous misfiring or engine runs unevenly or erratically	Numerous	See engine manual
Loss of power or system will not operate in either direction	Restrictions in air cleaner	Service air cleaner
	Poor compression	Contact your Dealer
	Steering linkage needs adjustment	Adjust linkage
	Tow valve open	Close tow valve
	The traction drive belt is worn, loose or broken	Install a new traction drive belt
	The traction drive belt is off the pulley	Install the traction drive belt and check for a reason
	For additional causes	See engine manual
Overheating	Air intake screen or cleaning fins clogged	Clean screen and fins
	For additional causes	See engine manual
Low engine oil pressure	Low oil level	Add oil
	Oil diluted or too light	Change oil and check for source of contamination
High oil consumption	Numerous	Contact your Dealer
mower jerky when starting or operates in one direction only	Steering control linkage needs adjustment	Adjust linkage
	Transaxle component faulty	Contact your Dealer

SYMPTOMS	PROBABLE CAUSES	SUGGESTED REMEDIES
Mower creeps when PowerBar handle is in neutral	Steering linkage needs adjustment	Adjust linkage
Mower circles or veers in one direction	Steering linkage needs adjustment	Adjust linkage
	Tires improperly inflated	Adjust air pressure to 8 - 12 psi (55 - 83 KPa)
	Transxle component faulty	Contact your Dealer
There is abnormal vibration	The engine mounting bolts are loose	Tighten the engine mounting bolts
	The engine pulley, idler pulley or blade pulley is loose	Tighten the appropriate pulley
	The engine pulley is damaged	Contact your Dealer
	The cutting blade(s) is/are bent or unbalanced	Install new cutting blade(s)
	A blade mounting bolt is loose	Tighten the blade mounting bolt
	Spindle bearing is worn or loose	Replace or tighten spindle bearing
	A blade spindle is bent	Contact your Dealer
Uneven cutting height	The blade(s) are not sharp	Sharpen the blades
	A cutting blade(s) is/are bent	Install new cutting blade(s)
	The deck is not level	Level the deck per the Deck leveling and height adjustment section of the parts manual
	An anti-scalp wheel is not set correctly	Adjust the height of the anti-scalp wheel
	The underside of the deck is dirty	Clean the underside of the deck
	Tires improperly inflated	Adjust air pressure to 8 - 12 psi (55 - 83 KPa)
	A blade spindle is bent	Contact your Dealer
Blades do not rotate	The deck drive belt is worn, loose or broken	Install a new deck drive belt
	The deck drive belt is off the pulley	Install the deck drive belt and check for a reason
	Electric clutch is not engaging	Check and/or replace 10 amp fuse. Contact your dealer

STORAGE

When storing the unit at the end of the mowing season, the following steps should be taken to ensure readiness for the next mowing season.

1. Remove all grass, dirt, and trash from mower. Clean mower and touch up all scrapes with BigDog® Mowers spray paint.

IMPORTANT: Wash the machine with a mild detergent and water. Do not pressure wash the machine. Avoid excessive use of water, especially near the control panel, engine and the integrated pump/motor units.

2. Install new air filter per Engine Owner's Manual.
3. Check thoroughly for any worn or damaged parts that need replacing and order them from your dealer.
4. Thoroughly lubricate machine, according to lubrication instructions.
5. Block mower up so weight is off tires.
6. Do not deflate tires.
7. Remove the battery from machine (if applicable)
 - a. Clean battery
 - b. Check the electrolyte level
 - c. Charge the battery, if necessary
 - d. Store battery in a cool, dry place (do not expose to freezing temperatures)
 - e. Always keep the battery fully charged. (Especially important to prevent battery damage when the temperature is below 32°F (0°C).)
8. Perform separate engine preparation as listed below.
9. Store mower in a clean, dry place.

Preparation of engine for storage

When engine is to be unused for long periods, proceed as follows:

1. Run engine for a minimum of 15 minutes.
2. Drain oil from crankcase while engine is still warm.
3. Refill with fresh oil of proper viscosity.
4. Drain fuel tank and run the engine until it stops from lack of fuel. Gasoline evaporates if left in carburetor for long periods, forming gum and varnish deposits in carburetor. These deposits will cause engine flooding and loss of power.
5. Remove and replace fuel filter if not done in previous 100 hours.
6. Remove spark plugs and pour a tablespoon of engine oil into each spark plug hole, Install plugs, but do not reconnect plug leads.
7. Crank engine at least a dozen revolutions to distribute oil over cylinder walls and valve mechanism.

8. Clean exterior surface of engine. Spread a light film of oil over any exposed metal surfaces of engine that are subject to corrosion.
9. Clean dirt and chaff from cylinders and fins, blower housing and muffler.
10. Check oil filler cap and fuel tank cap to make certain they are securely in place.
11. Refer to engine manual for more information.

Preparation of battery for storage

When the machine is to be unused for long periods, it is best to disconnect the battery and remove it from the unit. At this time perform the following battery maintenance:

1. Remove the battery from machine
2. Clean battery, terminals and cable connectors
3. Charge the battery, if necessary
4. Store battery in a cool, dry place (do not expose to freezing temperatures)
5. Always keep the battery fully charged. (Especially important to prevent battery damage when the temperature is below 32°F (0°C).)

New season preparation

Before starting the mower following post season storage, the following servicing is required:

1. Clean mower, removing trash and dirt accumulation.
2. Check engine oil level.



WARNING



At start of new season always check that fresh oil has been added to machine. If oil is drained at season's end and not replaced, engine damage will result.

3. Fill fuel tank with fresh gasoline. Run machine at half speed for 5 minutes, checking operation of steering control lever. Stop engine and check for oil leaks, loose fittings and so forth.
4. Tighten any bolts that have loosened and make sure all hair pins, cotter pins and clevis pins are in place.
5. Install all safety shields and review safety precautions listed in this manual.
6. Check and inflate tires to 8-12 psi (55-83 KPa).
7. Install fully charged battery and attach the battery cables.
8. Refer to engine manual for more information.

PRODUCT LITERATURE

If you would like to view or print a copy of the BigDog® Mowers T Series product manuals (Operator's Manual, General Service Manual, or Parts Manual) go online to www.bigdogmowers.com and click on the *MANUALS* button.

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