

31720X11

12/30

HERITAGE TRACTOR

CODE143S

INSTRUCTION BOOK

TABLE OF CONTENTS

LIMITED WARRANTY	3	HOW TO START THE ENGINE	21
INTERNATIONAL SYMBOLS	4	HOW TO START WITH A WEAK BATTERY	21
SAFE OPERATION PRACTICES	5	OPERATING TIPS	22
RESPONSIBILITY OF THE OWNER	6	MOWING AND BAGGING TIPS	22
SAFETY RULES	6	MAINTENANCE	23
ASSEMBLY	12	MAINTENANCE CHART	23
PARTS BAG – CONTENTS	12	HOW TO CHECK THE MUFFLER	23
HOW TO INSTALL THE FRONT WHEELS	13	HOW TO REMOVE AND INSTALL THE BLADE	24
HOW TO ASSEMBLE THE LIFT LEVER	13	HOW TO SHARPEN THE BLADE	24
MAINTENANCE FREE BATTERY	14	HOW TO ADJUST THE BLADE ROTATION CONTROL	25
HOW TO INSTALL THE SEAT	15	HOW TO CHECK AND ADJUST THE DRIVE BRAKE	26
HOW TO ASSEMBLE THE STEERING WHEEL	15	HOW TO CHECK AND ADJUST THE CLUTCH	26
HOW TO PREPARE THE ENGINE	16	MAINTENANCE FREE BATTERY	27
CHECK THE TYRES	16	HOW TO CHARGE THE BATTERY	27
CHECK THE LEVEL OF THE MOWER HOUSING	16	WHERE TO LUBRICATE	28
IMPORTANT! BEFORE YOU START MOWING	16	HOW TO CHECK THE FUEL FILTER	28
OPERATION	17	CHECK THE TYRES	28
LOCATION OF CONTROLS	17	HOW TO REMOVE THE MOWER HOUSING	29
ATTACHMENTS	18	HOW TO INSTALL THE MOWER HOUSING	29
HOW TO USE THE THROTTLE CONTROL	18	HOW TO LEVEL THE MOWER HOUSING	30
HOW TO USE THE BLADE ROTATION CONTROL	18	HOW TO REPLACE THE MOTION DRIVE BELT	31
HOW TO USE THE SHIFT LEVER	18	HOW TO REPLACE THE MOWER DRIVE BELT	32
HOW TO SET THE PARKING BRAKE	19	HOW TO REPLACE THE FUSE	33
HOW TO CHANGE THE CUTTING HEIGHT	19	HOW TO REPLACE THE LIGHT BULB	33
HOW TO STOP THE UNIT	19	HOW TO CLEAN THE MOWER HOUSING	33
HOW TO TRANSPORT THE UNIT	19	STORAGE (OVER 30 DAYS)	33
HOW TO OPERATE WITH THE MOWER HOUSING	20	TROUBLE SHOOTING CHART	34
HOW TO OPERATE THE UNIT ON HILLS	20	INDEX	35
BEFORE STARTING THE ENGINE	21	SLOPE GUIDE	36
		REPAIR PARTS	37

LIMITED WARRANTY

Hayter Limited warrants to the original user / purchaser that this unit shall be free from defects in material and workmanship under normal use and service for a period of **three years** from the date of purchase. The manufacturers of the engine and battery pack system (where applicable) furnish their own warranty and services are provided through their authorised network (Refer to "Engine/Battery Pack Warranty Statement"). To qualify for the full benefit of the warranty, the warranty registration card must be returned within 60 days of purchase. Subject to the conditions and exclusions noted in this limited warranty, we shall at our option, repair or replace any warranted part during the applicable period. If you are in doubt or experience any difficulty, please consult a **Hayter** Authorised Service Dealer for clarification..

To qualify for the extended warranty (second and third year) of the three year limited warranty, the machine must have annual services carried out by an Authorised Hayter Service Dealer. These chargeable services should be carried out within 12 and 24 months of the date of purchase.

Excluded from the extended warranty period are those items which are subject to normal wear and tear e.g. tyres, wheels, cutterbars, cables, batteries and other consumable wearing parts.

All consumer machines which are fitted with a **genuine** Hayter friction disc as original equipment, before use, are covered by a **Lifetime Warranty** against the engine crankshaft bending. **Note:** friction washers, blade brake units and other such devices are not applicable. Only machines fitted with a **genuine** Hayter friction disc, which are used in accordance with the recommended operating and maintenance procedures, are covered.

This warranty does not apply to any unit that has been tampered with, altered, misused, abused or used for hire, and will become invalid if non genuine Hayter parts are fitted. This warranty does not cover minor mechanical adjustments unless they are due to defective materials or workmanship. Consult the Owner's Handbook or a Hayter Authorised Service Dealer for assistance when making these adjustments.

A warranty period of 90 days applies to machines used for commercial purposes.

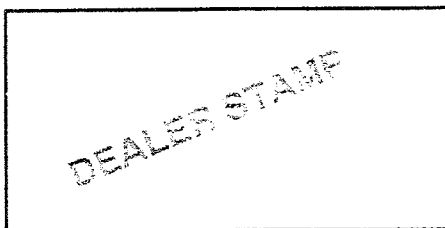
To make a warranty claim, return the unit to a **Hayter** authorised dealer along with proof of purchase stating the machine serial number and date of purchase. The service receipt(s) or this Owner's Handbook with the 1st/2nd year service boxes fully completed, must be produced as proof of entitlement to the extended warranty period. Subject to the conditions and exclusions in this limited warranty, the authorised dealer will, at our option, repair or replace any warranted part within the duration of the warranty period.

This limited warranty gives you specific legal rights and is in addition to any statutory rights to which you may be entitled and your statutory rights are not affected by this warranty. If you need additional information concerning this written warranty, or assistance in obtaining services, please write to:

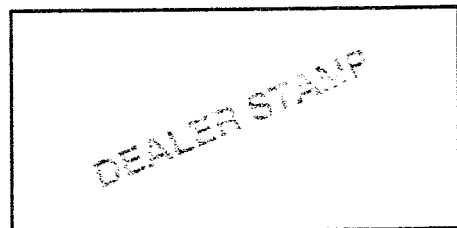
HAYTER LIMITED, Service Department, Spellbrook, Bishop's Stortford, Hertfordshire. CM23 4BU.

UK ONLY: Details of your local Hayter authorised dealer are contained in Yellow Pages or contact: Freephone 0800 616298.

1st Year
Service
Record



2nd Year
Service
Record



Date

Signed

Date

Signed

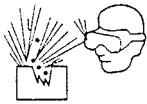
INTERNATIONAL SYMBOLS

IMPORTANT: The following symbols are located on your unit or on literature supplied with the product. Before you operate the unit, learn and understand the purpose for each symbol.

Safety Warning Symbols



WARNING



Shield Eyes.
Explosive Gases Can
Cause Blindness Or Injury.



**No Sparks, Flames
Or Smoking**



**Sulphuric Acid Can
Cause Blindness
Or Severe Burns.**



**Flush Eyes Immediately
With Water. Get Medical
Help Fast.**

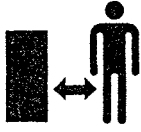


IMPORTANT
Read Owner's Manual
Before Operating This
Machine.



WARNING

Thrown Objects. Keep Bystanders Away.
Read User Instructions Before Operating
This Machine.



WARNING

**Do Not Use This Machine
On Slopes Greater Than
10 Degrees.**



DANGER

**Keep People, Especially
Children, Away From
Unit.**



DANGER
No Step



WARNING
Crushed Fingers



DANGER

**Keep Feet And Hands
Away From Rotating Blade.**



DANGER

**Keep Hands Away
From Rotating Blade.**



DANGER

**Disconnect Spark Plug
Before Servicing Unit.**



WARNING
Hot Surface



MAX ± 90N MAX ± 150N

WARNING
Use Caution
When Connecting Or
Disconnecting Accessories.

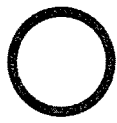
Control And Operating Symbols



Engine Start



Lights



Engine Stop



Engine Stop



Engine Run



Brake



Parking Brake



Clutch



Slow



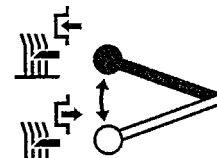
Fast



Choke



Oil



STOP
Blade Rotation Control



Raise



Fuel

MADE IN USA BY MURRAY INC.,
LAWRENCEBURG, TENNESSEE,
FOR **HAYTER**

TYPE: CODE143S

MODEL: 12/30 TRACTOR
76CM DECK

kW	RPM 3000
kg 154	1998

CE

SERIAL NO: 143S999999

100

Declared vibration emission values in accordance with Directive 89/392/EEC.

Vibration Emission according to BS EN 1032: Seat < 0.50 m/s²,

Right Running Board 0.54 m/s², Left Running Board 0.68 m/s²

Vibration Emission according to BS EN 1033: Steering Wheel 4.02 m/s²

Values determined with operator in operating position when the machine
was operated stationary on a grass covered surface at 3000 min⁻¹.

Declared airborne noise emissions in accordance with Directive 84/538/EEC.

Sound Power Level 100 dB(A)

Sound Pressure Levels

at operator ears 88.3 dB(A) left; 88.1 dB(A) right.

Values determined at ear according to the specifications of 81/1051/EEC.

IMPORTANT

SAFE OPERATION PRACTICES FOR RIDE-ON (RIDING) ROTARY MOWER MACHINES

Training

1. Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.
2. Never allow children or people unfamiliar with these instructions to use the mower. Local regulations may restrict the age of the operator.
3. Never mow while people, especially children, or pets are nearby.
4. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
5. Do not carry passengers.
6. All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:
 - a. the need for care and concentration when working with ride-on machines;
 - b. control of a ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are:
 - insufficient wheel grip;
 - being driven too fast;
 - inadequate braking
 - the type of machine is unsuitable for its task;
 - lack of awareness of the effect of ground conditions, especially slopes;
 - incorrect hitching and load distribution.
- b. engage clutch slowly, always keep machine in gear, especially when travelling downhill;
- c. machine speeds should be kept low on slopes and during tight turns;
- d. stay alert for humps and hollows and other hidden hazards;
- e. never mow across the face of the slope, unless the mower is designed for this purpose.
7. Use care when pulling loads or using heavy equipment.
 - a. Use only approved drawbar hitch points.
 - b. Limit loads to those you can safely control.
 - c. Do not turn sharply. Use care when reversing.
 - d. Use counterweight(s) or wheel weights when suggested in the Instruction Book.
8. Watch out for traffic when crossing or near roadways.
9. Stop the blades rotating before crossing surfaces other than grass.
10. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
11. Never operate the mower with defective guards or shields, or without safety protective devices in place.
12. Do not change the engine governor settings or overspeed the engine. Operating an engine at excessive speed may increase the hazard of personal injury.
13. Before leaving the operator's position
 - a. disengage the power take-off and lower the attachments;
 - b. change into neutral and set the parking brake;
 - c. stop the engine and remove the key.
14. Disengage drive to attachments, stop the engine, and disconnect the spark plug wire(s) or remove the ignition key
 - a. before cleaning blockages or unclogging chute;
 - b. before checking, cleaning or working on the mower;
 - c. after striking a foreign object. Inspect the mower for damage and make repairs before restarting and operating the equipment;
 - d. if the machine starts to vibrate abnormally (check immediately).
15. Disengage drive to attachments when transporting or not in use.
16. Stop the engine and disengage drive to attachment
 - a. before refuelling;
 - b. before removing the grass catcher;
 - c. before making height adjustment unless adjustment can be made from the operator's position.
17. Reduce the throttle setting during engine run-out and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of mowing.

Preparation

1. While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.
3. **WARNING – Petrol is highly flammable.**
 - a. Store fuel in containers specifically designed for this purpose.
 - b. Refuel outdoors only and do not smoke while refuelling.
 - c. Add fuel before starting the engine. Never remove the cap of the fuel tank or add petrol while the engine is running or when the engine is hot.
 - d. If petrol 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 petrol vapors have dissipated.
 - e. Replace all fuel tanks and container caps securely.
4. Replace faulty silencers.
5. Before using, always visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged blades and bolts in sets to preserve balance.
6. On multi-blade machines, take care as rotating one blade can cause other blades to rotate.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Mow only in daylight or in good artificial light.
3. Before attempting to start the engine, disengage all blade attachment clutches and shift into neutral.
4. Do not use on slopes of more than 10 degrees.
5. Do not use on slopes of more than 10 degrees unless a roll over protective structure is fitted.
6. Remember there is no such thing as a "safe" slope. Travel on grass slopes requires particular care. To guard against over-turning:
 - a. do not stop or start suddenly when going up or downhill;

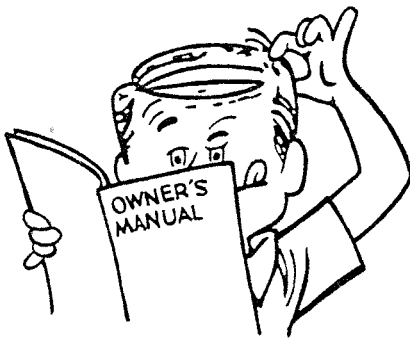
Maintenance and Storage

1. On multi-blade machines, take care as rotating one blade can cause other blades to rotate.
2. When machine is to be parked, stored or left unattended, lower the cutting means unless a positive mechanical lock is used.
3. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
4. Never store the equipment with petrol in the tank inside a building where fumes may reach an open flame or spark.
5. Allow the engine to cool before storing in any enclosure.
6. To reduce the fire hazard, keep the engine, silencer, battery compartment and petrol storage area free of grass, leaves, or excessive grease.
7. Check the grass catcher frequently for wear or deterioration.
8. Replace worn or damaged parts for safety.
9. If the fuel tank has to be drained, this should be done outdoors.

SAFE MOWING GUIDE

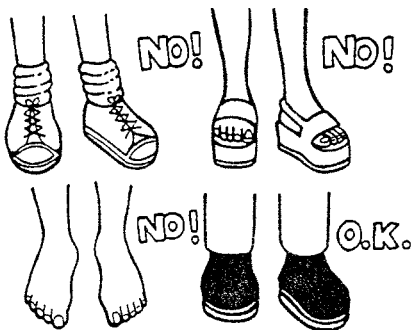
Each person that operates power equipment must learn to use correct and safe mowing procedures. **To help you learn, carefully read the following pages.** Most of the time the operator was not correctly shown or did not read the instructions on the unit or in the Instruction Book before using the unit. Also, some operators do not have enough experience. The result is unsafe use, endangering the operator, bystanders and the equipment. Another result can be a poor appearance of the area mowed.

Read this book. Read the instructions on the unit. Operate the mower according to the Safe Mowing Guide. Follow all safety rules, cautions or warnings in this book and on the unit. Make sure anyone that uses the unit reads the instructions and is told how to safely operate the mower.



The mower will give you good service and durability, if operated in normal conditions. If the mower is not correctly serviced or is used where the terrain is rough or unsuitable, product performance and safety will be decreased.

Correct clothing is an important part of safe mowing. Safety glasses will protect the eyes from objects discharged by the mower. Safety shoes with steel plates can protect a foot from injury by the blade. For protection from objects discharged from the mower, wear clothing that will cover the arms and legs.



Before you start cutting the grass, practice using the mower in a large open and level area. Learn the location of the controls on the mower. Know the purpose

of the controls and how they work. In an emergency, how fast you can stop the blade is important. Learn how to control the mower at all times.

Many engines are started by hand. When you use a pull start or rope start, place your feet apart and away from the blade(s). Hold the rope handle tight. Never wrap the rope around your arm or fingers for a "better grip". To start the engine, follow the instructions on the mower, in this book and in the engine operating instructions.

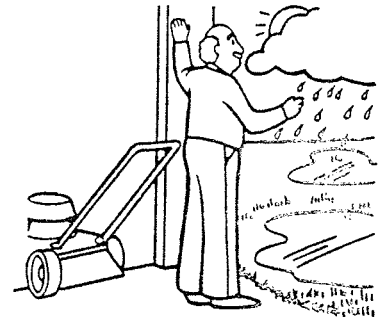
For electric start engines, sit in the seat to start the engine. The battery can be dangerous. Follow the instructions on the battery, the acid container, and in this book when working with the battery. Even small batteries have enough voltage to cause an injury. Always be careful.

The mower is designed to be operated by one person. Never let another person ride with you on the unit or on any accessories. A passenger will make the unit harder to control, block the visibility or distract the operator and is dangerous to the operator, the passenger and the equipment. Without a passenger seat, the passenger can fall from the mower or contact dangerous parts. A mower is not a toy for showing off or for giving rides.



Never cut a wet lawn. Wet grass can cause an accident, affect mower performance and can cause problems with future lawn growth and appearance. Wet grass is slippery and can cause the mower to slip. Someone can get injured by touching the blade(s). Wet grass tends to clog the mower, causing poor discharge. Cut wet grass will collect on the lawn, retarding the growth of the grass. Also, getting the mower wet will cause parts to rust and decrease the life of the unit.

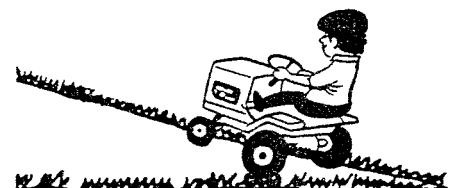
When you look over the lawn, remember obstacles that cannot be removed, like pipes, stumps or stones. Keep away from these obstacles that can cause damage to the mower or injury to the operator or a person near the mower. Clear the area of stones, toys, wire or other loose objects.



These items can damage the mower or can be discharged by the mower blade. The blade of a power mower rotates very fast. It can discharge stones and other objects over a long distance which can be dangerous. The force of the objects can break windows, cause injuries or even put an eye out. Most of the time the injury is to a person, like a child. Keep every person completely away from the area to be mowed. Make sure the grass is not discharged toward anyone. Planning your mowing pattern has a double advantage. It can decrease the possibility of an injury and make the clean up after mowing easier.



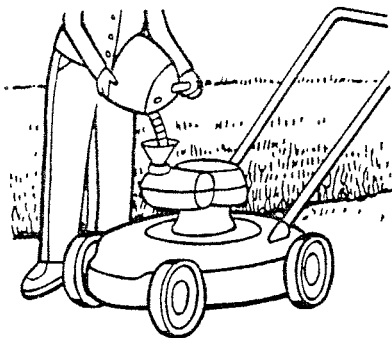
Check the terrain of the area to be mowed. Mow in a pattern that will keep you away from dangerous areas. Check the distance you need to stop and the distance available to turn. Slopes and rough terrain must be mowed carefully and some areas must not be mowed at all. With riding mowers, mow up and down the hill. When you must mow rough terrain or on slopes, never change directions or change gears and stop in these areas only in an emergency. Before you ride up or down a slope, try to back straight up the slope. Do not ride up or down a slope that is too steep to back straight up. See the "Guide" in the back of this Instruction Book to check any slopes.



SAFE MOWING GUIDE

Before you start cutting, make sure the mower was completely assembled according to the Instruction Book. If the mower was completely assembled by the retailer, you must still check the mower according to the assembly instructions. Make sure the mower is correctly assembled and that all fasteners are tight. Make sure the engine has the correct amount of oil. Check these items often during the life of the mower.

Your mower has a petrol engine. Petrol is a dangerous fuel. Keep petrol only in an approved safety petrol container. Do not keep large amounts of petrol. When you add petrol to the fuel tank, do not smoke. Store the petrol container and the mower in an area that has good ventilation. Also, keep the petrol away from any flames like the pilot light of a furnace or any other source of ignition. If the mower is to be stored for more than a few weeks, remove the petrol from the fuel tank. When inside an enclosure, do not add petrol to the fuel tank. Before you add petrol, move the mower outside and add petrol carefully. Before you start the engine, remove any petrol from the outside of the fuel tank or from the mower. Warm petrol will expand. Leave some space in the fuel tank for the petrol to expand. Also, the fuel cap has a vent hole for fuel vapors. Always use the correct fuel cap. Failure to follow safety rules about petrol will cause fires and explosions, injury to you and damage to the equipment and other property.



If you add petrol to an engine that is running or hot, the result can be an explosion. Before you add petrol, stop the engine and let the engine cool for several seconds. Remove dry grass and other debris from the mower. Keep the mower clean to improve the performance, help the engine and transmission run cooler, extend the life of moving parts, and decrease the danger of a fire.

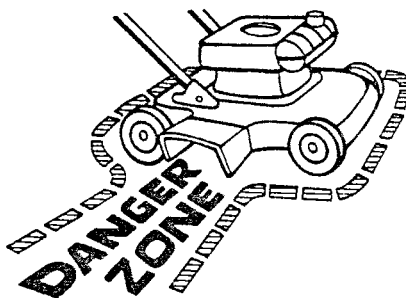
Fires and explosions are not the only dangers when working around a mower. The engine, transmission, and the muffler will get hot in several minutes when the

engine is running. Do not touch these parts of the mower. Stop the engine. Let the engine and transmission cool before servicing the mower. Remember, exhaust fumes are dangerous. Never operate the engine inside a building.

When you get a new mower, it can be a new experience for the family. Tell each person how a mower can be dangerous. Remember, a mower is not a toy. A mower is not to be used by children or anyone not old enough, strong enough or that does not have experience.

If the mower is not correctly assembled, not operated correctly, or not regularly serviced, the mower can be dangerous. The most important rule to follow is always use good judgement and common sense. Mow safely and carefully.

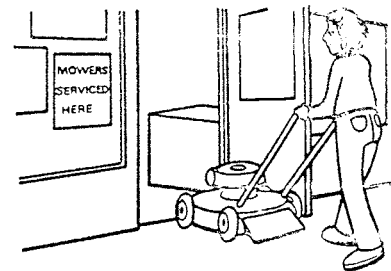
Your mower will easily cut thick grass. Fingers, feet and other parts can also be cut by the blade. Injuries occur when the operator does not think and reaches into the chute opening. Always operate the mower as if the blade is rotating. Do not service or make an adjustment, except to the carburettor, while the engine is running.



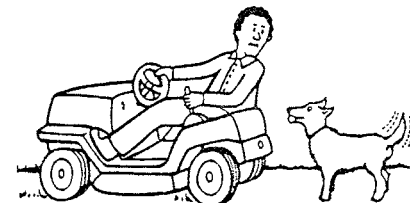
Use only accessories that are factory approved for your mower. The wrong accessory can decrease the safety of the mower and can even damage the unit. Read and follow the instructions included with the accessory and the mower.

Use only original equipment or replacement parts that are factory approved for service. If you need service, select an Authorized Service Center for your mower. If you do the work on the unit, follow the instructions in the Instruction Book.

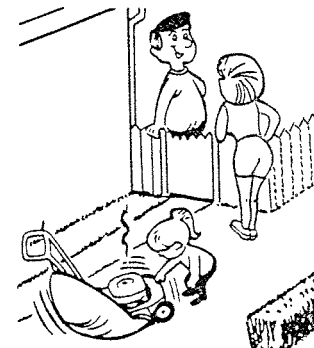
When you mow, remember that children are attracted to the mower. Always use caution when mowing around obstacles like trees or shrubs or when moving backward. Only mow in a forward direction if possible. Your visibility is decreased when you mow backward. Also, the blades are made to cut while the



unit is moving forward. If you mow backward, the cutting performance decreases.



Before you leave the mower, stop the engine. Remove the key. Disengage and lower any attachment. Set the parking brake. Never mount or dismount from the seat while the engine is running. An accident can occur if you touch the brake, shift lever, throttle, clutch or blade control while the engine is running. Mount and dismount from the seat on the side of the unit that is marked ENTER-EXIT.



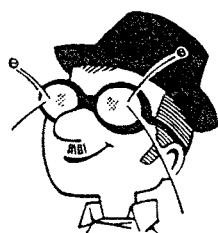
Make sure you are in good condition when you mow. When you mow for several hours your reflexes will decrease and your mind will not be as alert. Take a short break or an accident can occur. If the temperature is hot, use caution to prevent dehydration. If you are tired, angry or not completely alert, do not operate the mower. If you use alcohol, medication or drugs, do not use the mower or any type of power equipment. Engine speed is a key to safe mowing and to a good looking lawn. The maximum speed of the engine was set at the factory. Do not change the setting of the engine governor.

Select the maximum engine and ground speed that is right for the terrain and the height of the grass. The blade cuts best when the engine is operating at maximum

SAFE MOWING GUIDE

speed. The engine and transmission will also run cooler at maximum engine speed. Also, the grass bagger will function better when the engine is operating at maximum speed. On slopes, decrease the ground speed and use care making sure the mower feels safe to operate.

If the weather conditions are bad, do not mow. If weather conditions become bad, stop cutting and finish later. It is dangerous to cut grass in the rain. Always find protection in an electrical storm. If the weather conditions are extra dry, protect your eyes with safety glasses from the dust and from the objects discharged by the mower. Also, a dust or a pollen mask can help.

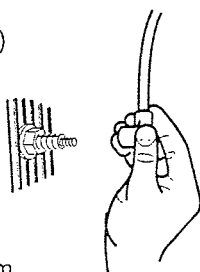


Your mower is equipped with a number of safety devices which are important to the safety of the operator and bystanders and must never be changed or removed from the mower. If a safety device is lost, damaged or no longer functions, repair or replace the device before you operate the mower.

It is best to mow during the day. If you must mow at night, make sure there is enough light for safe operation.

Your mower will require regular maintenance and service. The maintenance schedule depends on the hours of use. Also, mowing conditions can change the schedule. Check the instruction Book for more information. Correct maintenance will help the mower function safely.

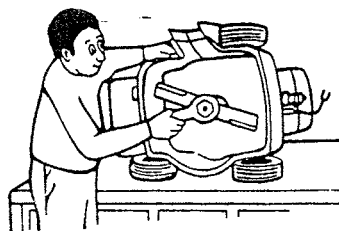
Do not service the mower (except for the carburettor adjustment) while the engine is running. Before you service the unit, even with the engine stopped, always disconnect the wire from the spark plug to prevent the engine from starting.



If you hit a large object during operation, stop the engine. Remove the wire from the spark plug. Carefully inspect the

mower for damage. Before you start the engine again, make the necessary repairs. If you feel new or excessive vibration, immediately stop the engine and check for the problem. Vibration can be a warning of a problem. Keep all nuts, bolts and screws tight.

The blade is the most dangerous part of the mower. Frequently check the blade and the blade mounting fasteners. Keep the fasteners tight. If the blade hits a solid object, stop the engine. Remove the wire from the spark plug. Check for a blade that is bent, cracked or for other damages. Before you start the engine, replace a damaged blade(s). For safety, replace the blade every two years.



A sharp blade decreases the workload on the engine and more evenly cuts grass. Frequently sharpen the blade for a better looking cut. Use the left side of the mower housing to trim near an object.

A grass bagger is a good accessory for your mower. For best performance and safety, make sure the grass bagger is approved for use with your mower. Follow the assembly and operation instructions included with the grass bagger.

Some grass baggers require a special blade for best performance. Before you attach, check, or empty the grass bagger, always stop the engine. Before each use of the grass bagger, check for cracks, wear or deterioration. Before you use the grass bagger, replace a damaged part with a replacement part approved by the factory.



For you to have a good green lawn, follow the mowing procedures below. Do not cut the grass too short. If you cut the grass too short you can cause the grass to become yellow or make the lawn look brown. Use a lower height of cut in cool months when the grass is thicker. Raise the height of cut in hot dry periods. If you

cut the grass with a blade that is not sharp or at a slow engine speed you can damage the grass. Move the throttle control to the FAST position when mowing and using the grass bagger. Also, use a slower ground speed when using the grass bagger.

If you change the direction or pattern of cut slightly every time you mow will make the grass grow stronger and thicker. Do not add oil or petrol to the mower while on the lawn. Spilled oil or petrol can kill the grass. In high or thick grass, do not try to cut all the grass the first time. Raise the height of cut on the first cutting and lower the height for the next cutting. Another way is to cut only part of the width of the mower and decrease your ground speed (not the engine) to move more slowly so that the mower can discharge the grass as it moves forward.

Understand the controls and how they work. Learn the ground speed(s) of your mower. Check the stopping distance required at different travel speeds. Check the turning radius of the mower. The controls on your riding mower are different from an automobile. The throttle is operated by hand and holds the engine speed constant until it is changed. The location of the shift lever and the shift pattern is different from that of an automobile. Also, the brake and clutch systems are different. Remember the procedures to follow in an emergency. Remember, turning off the engine ignition switch will stop the blade and the drive mechanism. If the traction of the wheels is lost or does not feel safe, disengage all systems and stop the engine. Dismount from the mower. Push the unit to a safe place before you begin mowing again.

Your unit has an electrical system that includes an operator presence switch in the seat. The operator presence switch detects if the operator is sitting on the seat. The engine will stop if the operator leaves the seat when the blade engagement control is engaged. This operator presence switch is a safety device only. It must not regularly be used to stop the engine or the blade. There are other control systems on the mower for this purpose. Always keep the operator presence switch and other safety devices and controls in place and operating for your protection.

Remember, your mower is a tool that can be dangerous if it is not correctly used. Follow the instructions in this Instruction Book. Safe and careful use of the mower will give you many safe hours of problem free use.

STEPS TO FOLLOW

BEFORE MOWING

- Be sure to dress correctly. Wear hard shoes, not sandals or tennis shoes.
- Examine the blade. A blade that is bent, cracked, or damaged must be replaced with a factory replacement blade.
- Fill the fuel tank outside. Clean off spilled fuel.
- Read and follow the Owner's Manual, the instructions with the engine, and the instructions with any attachments. Owner's Manual instructions are for your safety and the safety of others.
- Exhaust fumes are dangerous. Start the engine outside.
- Make sure all safety devices are in place and working correctly.
- Operation of the mower is only for a person that has experience.
- Wet grass can be dangerous. Let the grass dry.
- Instruct children and others to keep away from the work area.
- Never cut the grass without good light.
- Pick up loose objects. Remove them from the mowing area.
-

WHILE MOWING

- Watch for fixed objects and avoid them. They can damage the mower or cause injury.
- A hot engine, muffler, and transmission will cause a burn. Do not touch.
- Inclines and slopes must be carefully mowed. See the "Guide" in the back of this book to check a slope.
- Lack of daylight or good artificial light is cause to stop mowing.
- Examine the mower, the blade, and other parts for damage after hitting a foreign object or if the unit vibrates excessively.
- Do not make adjustments or repairs without stopping the engine. Disconnect the spark plug wire.
- On or near roads, watch out for traffic. Direct discharge away from roads.
- When mowing, avoid areas where traction is unsure. Look back before changing direction of travel.
- In heavy grass, raise the cutting height. Cut slower. Stop the engine to remove clogged grass from the mower.
- Never remove any safety related parts.
- Do not pour petrol into a engine that is hot or running.

AFTER MOWING

- Always let the mower cool before storing in an enclosed area.
- Foreign material on the mower is dangerous. Clean off grass, leaves, grease and oil before storing.
- Tighten all loose nuts, bolts and screws before you use the unit.
- Empty and clean any grass catcher or other accessory.
- Remove the key or disconnect the spark plug wire to prevent unauthorized use.
- Make sure the mower is not kept near a source of ignition. Gas fumes can cause an explosion.
- Only original parts or factory approved substitutes can be used to service the mower.
- When storing the mower for an extended period, remove the fuel from the fuel tank.
- Instruct children to leave the mower alone. It is not a toy.
- Never keep petrol near a source of ignition. Always use an approved container. Keep petrol away from children.
- Lubricate according to the Instruction Book. See "Lubrication".

IMPORTANT—Read the Instruction Book. Keep this book for future use and reference.



WARNING: Look for this symbol to point out important safety precautions. It means: "Attention! Become Alert! Your Safety Is Involved."

ASSEMBLY

ASSEMBLY

Read and follow the assembly and adjustment instructions for your mower. All fasteners are in the parts bag. Do not discard any parts or material until the unit is assembled.



WARNING: Before doing any assembly or maintenance to the mower, remove the wire from the spark plug.

NOTE: In this instruction book, left and right describe the location of a part with the operator on the seat.

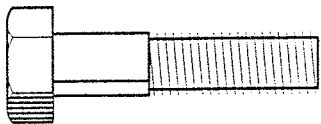
NOTE: Torque is measured in foot pounds (metric N.m). This measurement describes how tight a nut or bolt must be. The torque is measured with a torque wrench.

TOOLS REQUIRED

- Pliers (1)
- Adjustable open end wrenches (2)
- Blade type screwdriver (1)
- Phillips screwdriver (1)

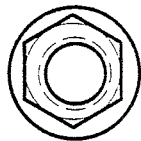
PARTS BAG – CONTENTS

The fasteners and other loose parts are shown below. The fasteners are shown full size. The quantity is shown in brackets ().



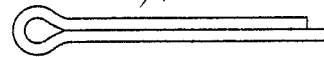
1x66
(1) Hex Bolt

x1



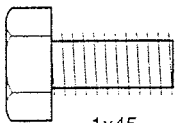
15x118
(1) Flange Nut

x1



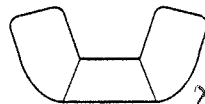
30x49
Hair Pin

x2



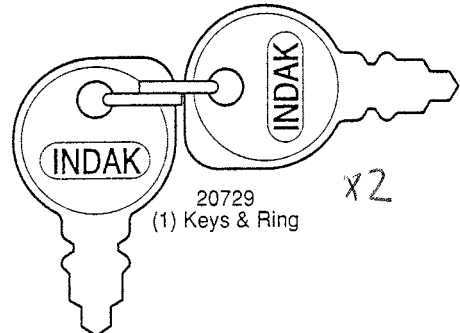
1x45
(2) Hex Bolt

x2



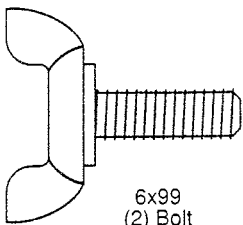
14x79
(2) Wingnut

x2



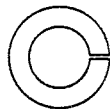
20729
(1) Keys & Ring

x2



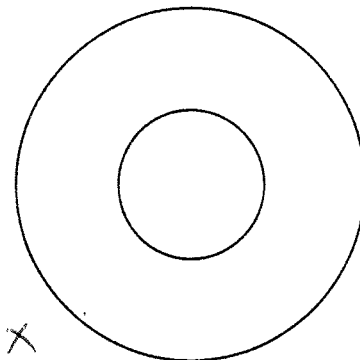
6x99
(2) Bolt

x2



18x16
(2) Lockwasher

x2



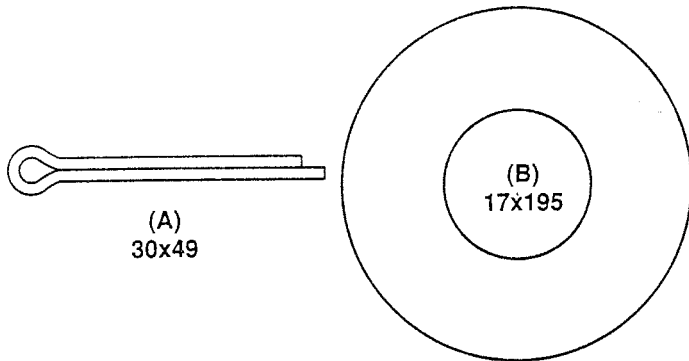
17x195
Washer

2x

ASSEMBLY

HOW TO INSTALL THE FRONT WHEELS

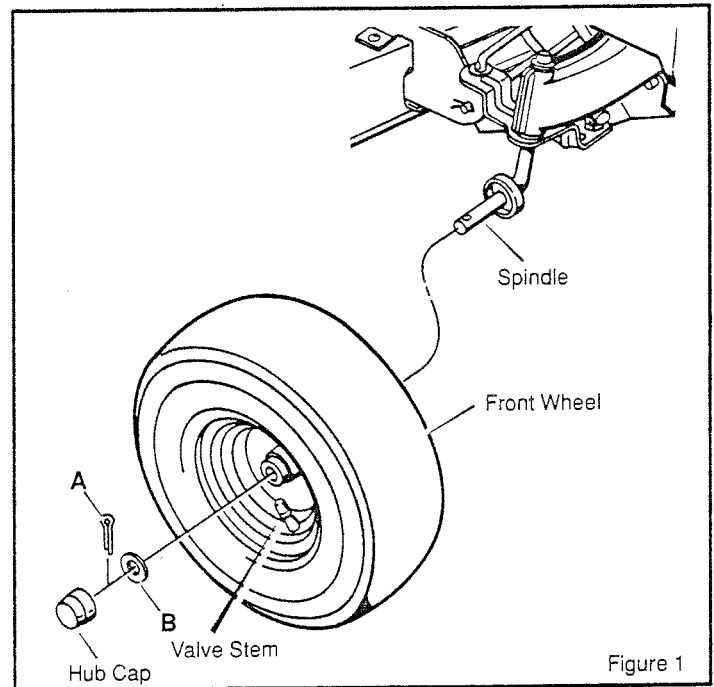
Use a knife and cut the four sides of the container. Install the **front wheels** in the container. Use the fasteners shown below to install the **front wheels**. The fasteners are shown at full size.



NOTE: Use a piece of wood about 4 feet (1.25 meters) long to roll the front of the tractor. If a piece of wood cannot be found, get another person to help lift the tractor. Be careful, do not let the tractor fall.

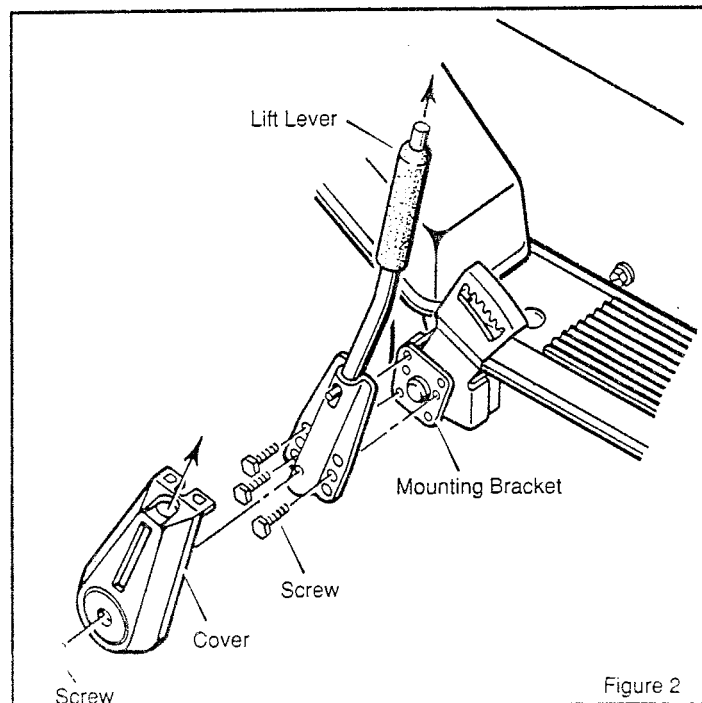
1. Raise the front of the tractor. Set a support (block of wood) under the tractor.
2. Make sure the **valve stem** is to the outside of the tractor. Slide the **front wheel** on the **spindle**.
3. Fasten each **front wheel** with the fasteners (Figure 1). Bend the ends of the cotter pin apart to keep the **front wheel** on the **spindle**.

4. After the **front wheels** are installed, lift the tractor from the support. Roll the tractor off of the container.
5. If your tractor has hub caps, install the hub caps. Make sure the washers hold the hub caps in place.

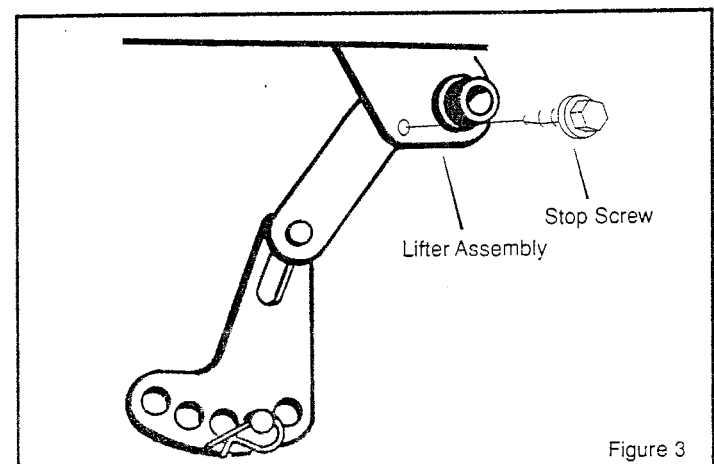


HOW TO ASSEMBLE THE LIFT LEVER

1. If the lift lever has the **cover** (Figure 2), remove the **screw** from the **cover**. Slide the **cover** up the lift lever.



2. Remove the three **screws** from the **mounting bracket**.
3. Align the holes in the **lift lever** with the same holes the **screws** were removed from in the **mounting bracket**.
4. Fasten the **lift lever** with the three **screws**.
5. Assemble the **cover** to the **lift lever**.
6. For shipment, some models have a stop screw in the lifter assembly (Figure 3). The stop screw stops the mower housing from moving to the lowest position. For a low cut, remove and discard the stop screw.



ASSEMBLY

MAINTENANCE FREE BATTERY

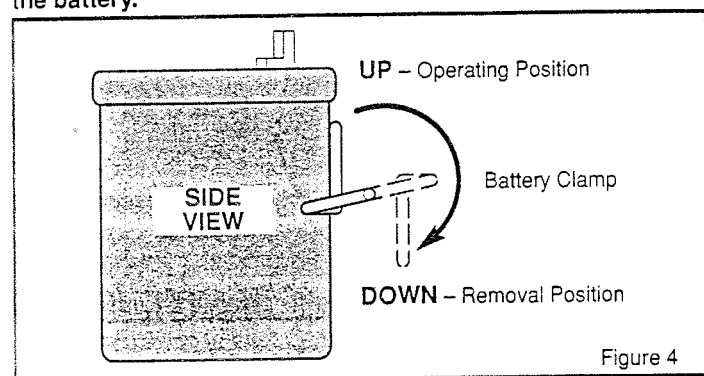
IMPORTANT: Before you attach the battery cables to the battery, check the battery date. The battery date tells if the battery must be charged.

1. Check the **battery date** on top of the **battery** (Figure 5).
2. If the **battery** is put into service *before* the **battery date**, the **battery cables** can be attached without charging the **battery**. See "How To Install The Battery Cables".
3. If the **battery** is put into service *after* the **battery date**, the **battery** must be charged. See "How To Charge The Maintenance Free Battery".

HOW TO REMOVE THE BATTERY

1. Rotate the battery clamp to the DOWN position (Figure 4 and Figure 5).
2. To remove the battery, tilt the battery forward and then lift the battery.

CAUTION: Do not tilt the battery more than 45 degrees. If the battery tilts more than 45 degrees, battery acid can leak from the battery.



HOW TO INSTALL THE BATTERY

1. Install the **battery tray** (Figure 6). Make sure the **drain** on the bottom of the **battery tray** goes through the hole in the frame as shown in Figure 6.
2. Turn the **battery** so that the **positive (+) terminal** is on the right side of the unit. Set the **battery** in the **battery tray**.

IMPORTANT: Make sure the battery fits under the tabs at the back of the unit.

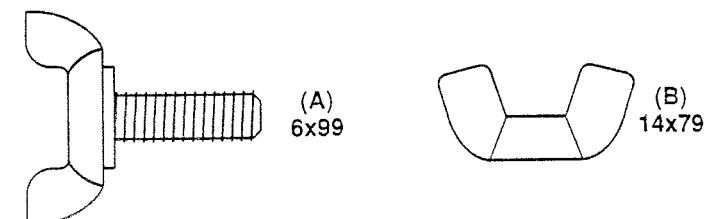
3. Rotate the battery clamp to the UP position (Figure 4 and Figure 6).

HOW TO INSTALL THE BATTERY CABLES

WARNING: To prevent sparks, fasten the red cable to the positive (+) terminal before you connect the black cable.

NOTE: Before you attach the battery cables, make sure the battery is fully charged. This will extend the life of the battery and provide the necessary power to start the engine.

Use the fasteners shown below to install the **battery cables**. The fasteners are shown at full size.



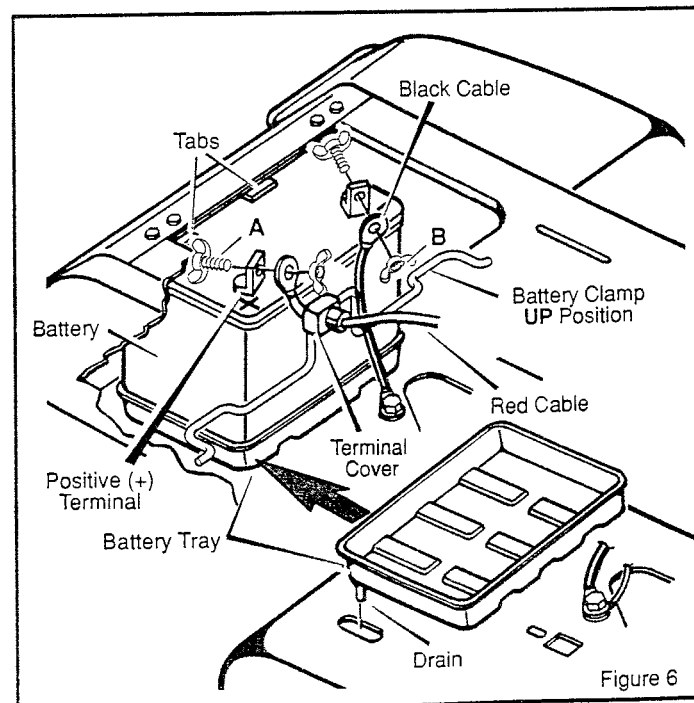
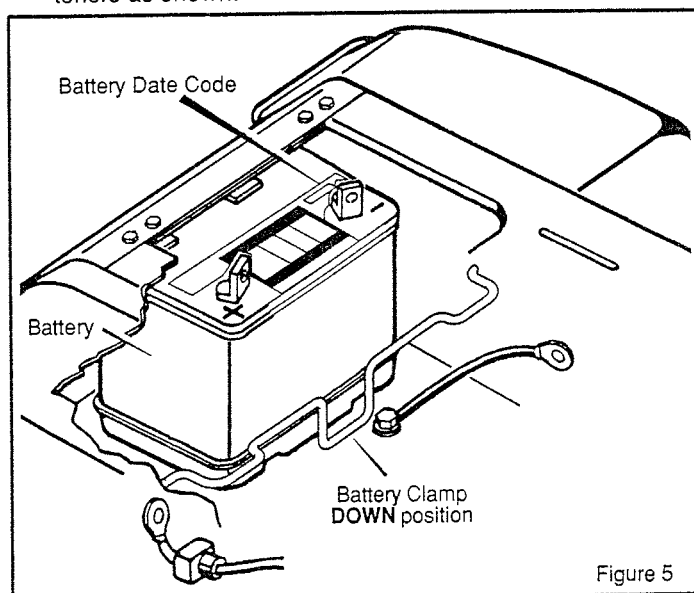
1. Remove the protective caps from the **battery terminals**.

HOW TO CHARGE THE MAINTENANCE FREE BATTERY



WARNING: When you charge the battery, do not smoke. Keep the battery away from any sparks. The fumes from the battery acid can cause an explosion.

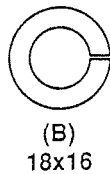
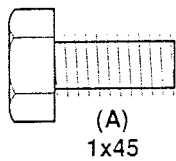
1. Remove the **battery**. See "How To Remove The Battery".
 2. Remove the protective caps from the **battery terminals**.
 3. Use a 12 volt battery charger to charge the **battery**. Charge at a rate of 6 amperes for one hour. If you do not have a battery charger, have an authorized service center charge the battery.
 4. Install the **battery**. See "How To Install The Battery".
2. If equipped, slide the **terminal cover** onto the **red cable** (Figure 6). Fasten the **red cable** to the **positive (+) terminal** with the fasteners as shown. Push the **terminal cover** onto the battery terminal.
 3. Fasten the **black cable** to the **negative (-) terminal** with the fasteners as shown.



ASSEMBLY

HOW TO INSTALL THE SEAT

Use the fasteners shown below to install the **seat**. The fasteners are shown at full size.



1. Carefully remove the protective sleeve and the plastic bag from the **seat**. Do not damage the **wire** attached to the bottom of the **seat**.
2. Align the holes in the **seat hinge** to the holes in the **seat** (Figure 7). Fasten the **seat** to the **seat hinge** with the fasteners as shown. Tighten the fasteners.
3. Check the operating position of the **seat**. If the **seat** needs to be adjusted, loosen the **hex nuts** on the **seat hinge**. Slide the **seat** forward or backward along the **seat adjusting holes** as shown. To keep the **seat** straight, align the rear edge of the **seat hinge** with the marks on the top of the console. Tighten the **hex nuts**.
4. Fasten the **connector** to the **wire harness**. Make sure the **tab** on the connector locks into the **wire harness**.



WARNING: For correct and safe operation of the unit, fasten the connector to the wire harness. If the connector is not attached, the engine will not start.

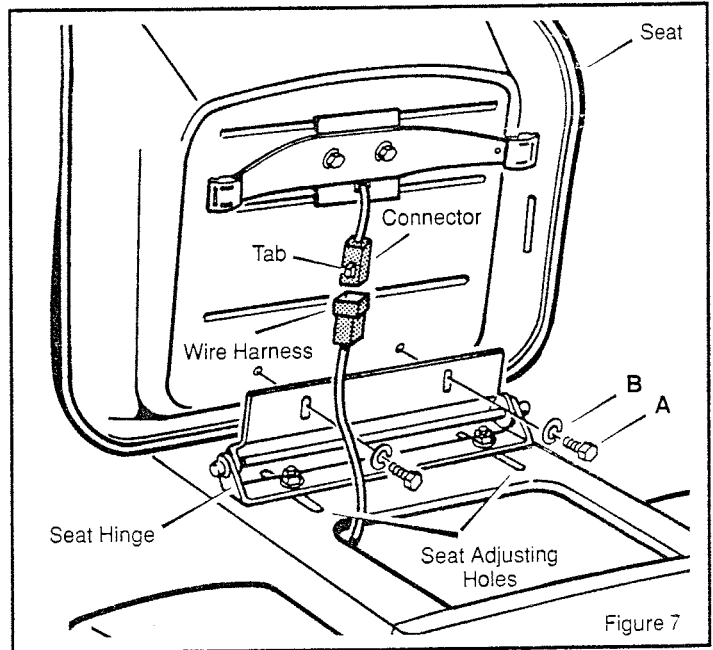
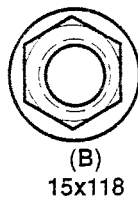
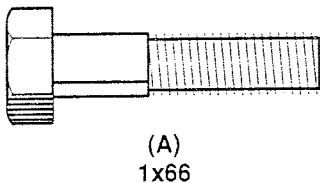


Figure 7

HOW TO ASSEMBLE THE STEERING WHEEL

Use the fasteners shown below to install the **steering wheel**. The fasteners are shown at full size.



1. Make sure the front wheels point forward.
2. Some models have an *optional bellows*. Slide the **bellows** over the **steering post**. Make sure the **collar** of the **bellows** is on top (Figure 8).
3. Attach the **steering wheel** to the **steering post** with the fasteners. Tighten the fasteners.
4. Some models have an *optional decal* in the parts bag. Attach the **decal** to the center of the **steering wheel** as shown.

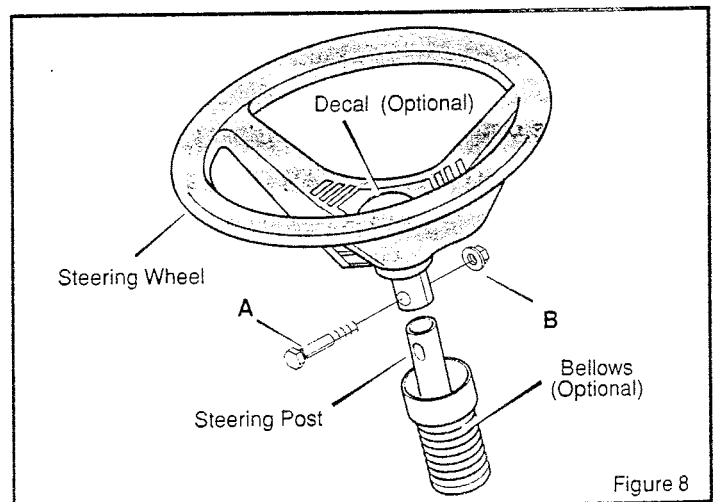


Figure 8

ASSEMBLY

HOW TO PREPARE THE ENGINE

NOTE: The engine was shipped from the factory filled with oil. Check the level of the oil. Add oil as needed.

See the engine manufacturer's instructions for the type of fuel and oil to use. Before you use the unit, read the information on safety, operation, maintenance, and storage.

 **WARNING:** Follow the engine manufacturer's instructions for the type of fuel and oil to use. Always use a safety petrol container. Do not smoke when adding petrol to the engine. When inside an enclosure, do not fill with petrol. Before you add petrol, stop the engine. Let the engine cool for several minutes.

IMPORTANT: This unit is equipped with an internal combustion engine and must not be used on or near any unimproved, ~~pre-st-covered~~, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local laws (if any). If a spark arrester is used, it must be maintained in effective working order by the operator.

CHECK THE TYRES

Check the air pressure in the tyres. Tyres with too much air pressure will cause the unit to ride rough. Also, the wrong air pressure will keep the mower housing from cutting level. The correct air pressure (PSI) is 14 PSI (1 BAR). The tyres were over inflated for shipment.

CHECK THE LEVEL OF THE MOWER HOUSING

Make sure the level of cut is still correct. After you mow a short distance, look at the area that was cut. If the mower housing does not cut level, see the instructions on "How To Level The Mower Housing" in the Maintenance section of this instruction book.

IMPORTANT! BEFORE YOU START MOWING

- Check the engine oil.
- Fill the fuel tank with petrol.
- Check the level of the mower housing.
- Check the air pressure of the tyres.
- Attach the battery cables.

OPERATION

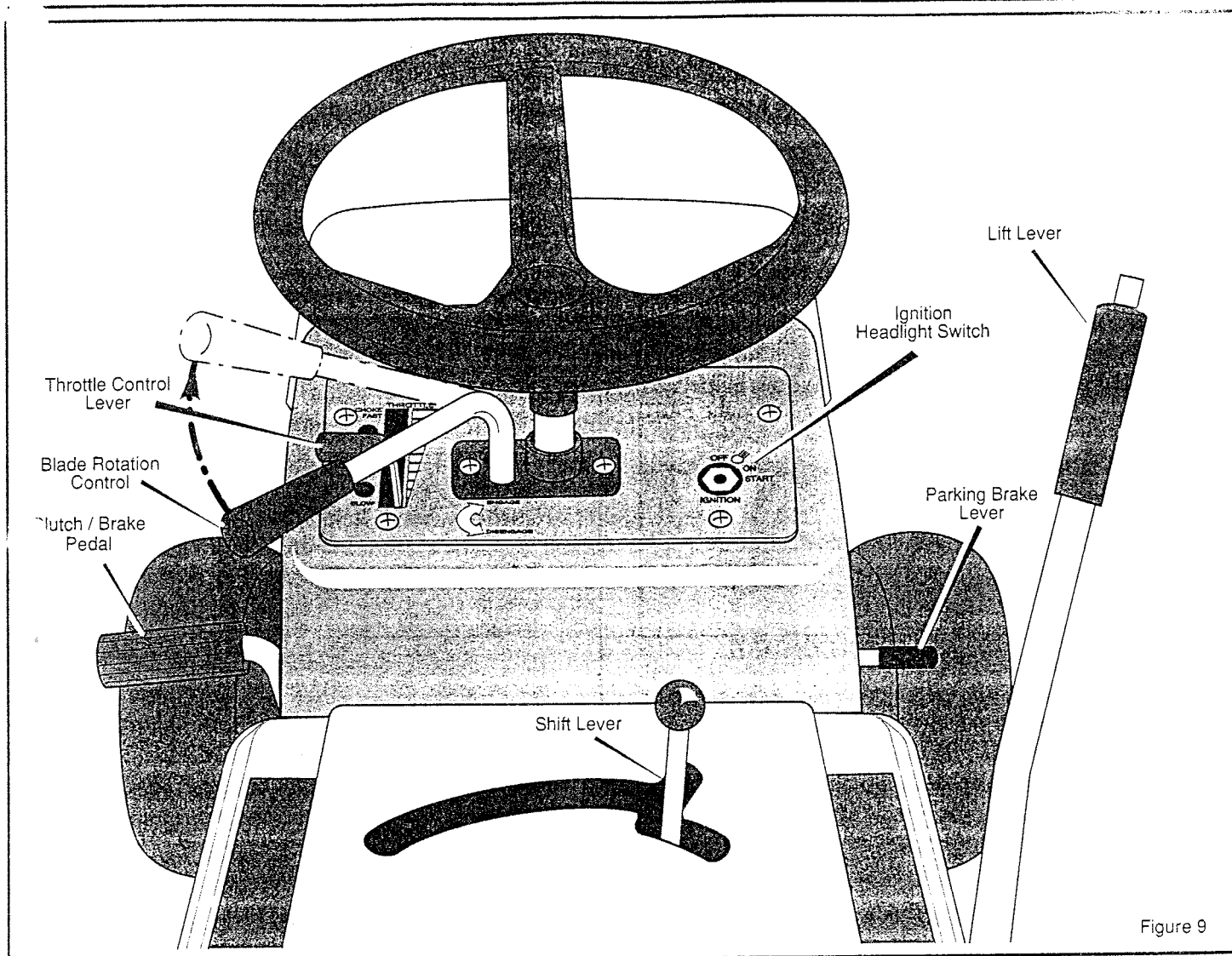


Figure 9

LOCATION OF CONTROLS

BLADE ROTATION CONTROL: Use the blade rotation control to start and stop the rotation of the blade.

CLUTCH / BRAKE PEDAL: The pedal has two functions. The first function is a clutch. The second function is a brake.

HEADLIGHT SWITCH: The headlight switch is the first part of the ignition switch. To use the lights with the engine running, turn the key to the position for the lights.

IGNITION SWITCH: Use the ignition switch to start and stop the engine.

SHIFT LEVER: Use the shift lever to change the speed of the unit.

LIFT LEVER: Use the lift lever to change the height of cut.

PARKING BRAKE LEVER: Use the parking brake lever to engage the brake when you leave the unit.

THROTTLE CONTROL LEVER: Use the throttle control lever to increase or decrease the speed of the engine.

OPERATION

ATTACHMENTS

This unit can use many different attachments. See the attachment page in this book. This unit can pull attachments like a lawn weeper, a lawn aerator, or a hopper spreader. This unit can not use attachments that engage the ground like a plow, a disk harrow, or cultivator.

HOW TO USE THE THROTTLE CONTROL

Use the **throttle control** to increase or decrease the speed of the engine (Figure 10).

- The **FAST** position is marked with a detent. For normal operation and when using a grass bagger, move the **throttle control** to the **FAST** position. For maximum charging of the battery and for a cooler running engine, operate the engine in the **FAST** position.
- For transport and to tow pull behind attachments, move the **throttle control** to the **SLOW** position.
- The engine governor is set at the factory for maximum performance. Do not adjust the governor to increase the speed of the engine.

HOW TO USE THE BLADE ROTATION CONTROL

The **blade rotation control** is next to the steering wheel (Figure 10). Use the **blade rotation control** to engage the blade(s) or to operate a snow thrower attachment.

- Before you start the engine, make sure the blade rotation control is in the **DISENGAGE** position.
- Move the **blade rotation control** to the **ENGAGE** position to rotate the blade(s).
- Move the **blade rotation control** to the **DISENGAGE** position to stop the blade(s). Before you leave the operator's position, make sure the blade(s) has stopped rotating.
- Before you ride the unit across a sidewalk or a road, move the **blade rotation control** to the **DISENGAGE** position.



WARNING: Always keep your hands and feet away from the blade, deflector opening, and the mower housing when the engine runs.

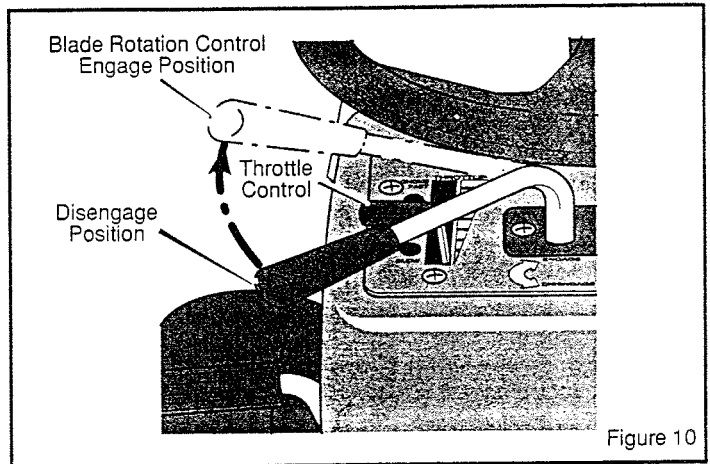


Figure 10

HOW TO USE THE SHIFT LEVER

To change the forward speed or the direction of the unit, follow the steps below.

CAUTION: Before you move the shift lever, completely push the clutch/brake pedal forward to stop the unit. If the unit is not stopped, the gearbox can be damaged.

- Completely push the clutch/brake pedal forward to stop the unit. Keep your foot on the pedal.
- Move the throttle control lever to the **SLOW** position.
- To go forward, move the shift lever to a forward speed setting. To go backward, move the shift lever to reverse.
- Slowly release the clutch/brake pedal. Do not keep your foot on the pedal.
- Move the throttle control to the **FAST** position.

FUNCTION	SHIFT LEVER 5 Speeds	THROTTLE
Trimming Snow Thrower	1	FAST
Bagging Grass	1 or 2	
Mulching Grass	1 or 2	
Normal Mowing	2 or 3	
Easy Mowing Snow Blade	3 or 4	SLOW
Transport	5	
Pull Behind Attachments	1 or 2	FAST

OPERATION

HOW TO SET THE PARKING BRAKE

1. Completely push the clutch/brake pedal forward.
2. Lift the **parking brake lever** (Figure 11).
3. Remove your foot from the clutch/brake pedal and then release the **parking brake lever**. Make sure the parking brake will hold the unit.
4. To release the parking brake, completely push the clutch/brake pedal forward. The parking brake will automatically release.



WARNING: Before you leave the operator's position, move the shift lever to the neutral (N) position. Set the parking brake. Move the blade rotation control to the DISENGAGE position. Stop the engine and remove the ignition key.

HOW TO CHANGE THE CUTTING HEIGHT

To change the cutting height, raise or lower the **lift lever** as follows.

1. To release the **lift lever**, push the **button** on top of the **lift lever** (Figure 11).
2. Move the **lift lever** forward to lower the mower housing and back to raise the mower housing.
3. When you ride on a sidewalk or road, move the **lift lever** to the highest position and move the blade rotation control to the DISENGAGE position.

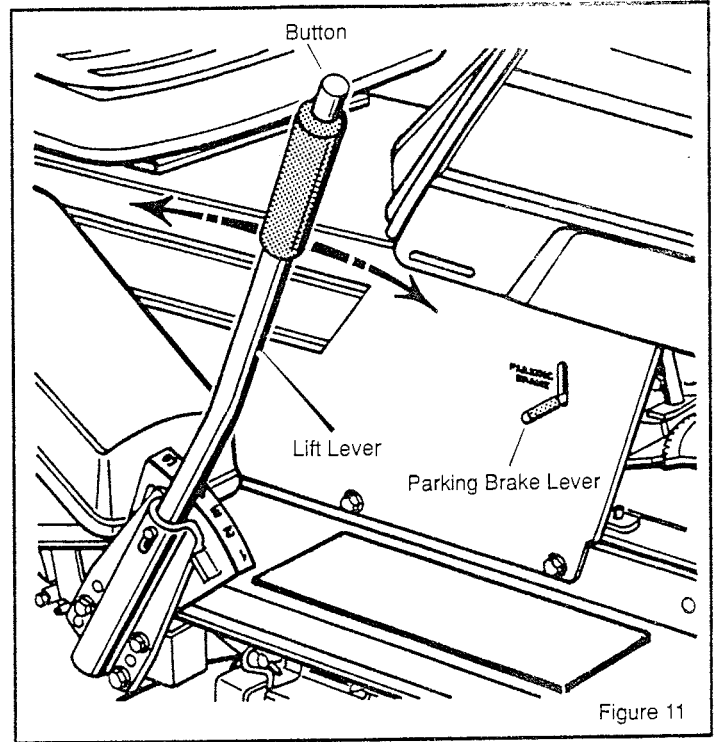


Figure 11

HOW TO STOP THE UNIT

1. Completely push the **clutch/brake pedal** forward to stop the unit. Keep your foot on the pedal.
2. Move the blade rotation control to the DISENGAGE position.
3. Move the shift lever to the NEUTRAL position.
4. Set the parking brake.



WARNING: Make sure the parking brake will hold the unit.

5. Move the throttle control to the SLOW position.
6. To stop the engine, turn the ignition key to the OFF position. Remove the key.

HOW TO TRANSPORT THE UNIT

To transport the unit, follow the steps below.

1. Move the blade rotation control to the DISENGAGE position.
2. Raise the lift lever to the highest position.
3. Move the throttle control to a position between SLOW and FAST.
4. To go faster, move the shift lever to a faster speed.

OPERATION

HOW TO OPERATE WITH THE MOWER HOUSING



WARNING: The deflector is a safety device. Do not remove the deflector. The deflector forces the discharged material toward the ground. Always keep the deflector in the down position. If the deflector is damaged, replace the deflector with an original equipment part from an authorized service center.

1. Start the engine.
2. Move the lift lever to a height of cut position. In high or thick grass, cut the grass in the highest position first and then lower the mower housing to a lower position.
3. Move the throttle control to the SLOW position.
4. Move the blade rotation control to the ENGAGE position.
5. Push the clutch/brake pedal completely forward.

6. Move the shift lever to one of the speed settings.

NOTE: When you mow in heavy grass or mow with a bagger, put the shift lever in the slowest speed.

7. Slowly release the clutch/brake pedal.
8. Move the throttle control to the FAST position. If you need to go faster or slower, stop the unit and move the shift lever to another speed setting.
9. Make sure the level of cut is still correct. After you mow a short distance, look at the area that was cut. If the mower housing does not cut level, see the instructions on "How To Level The Mower Housing" in the Maintenance section.



WARNING: For better control of the unit, always select a safe speed.

HOW TO OPERATE THE UNIT ON HILLS



WARNING: Do not ride up or down slopes that are too steep to back straight up. Never ride the unit across a slope. See the "Slope Guide" in the back of this book for information on how to check slopes.

1. Before you ride up or down a hill, move the shift lever to the slowest speed.
2. Do not stop or change speed settings on a hill. If you must stop, quickly push the clutch/brake pedal forward and set the parking brake.

3. To start again, make sure the shift lever is in the slowest speed. Move the throttle control to the SLOW position. Slowly release the pedal.
4. If you must stop or start on a hill, always have enough space for the unit to roll when you release the brake and engage the clutch.
5. Be very careful when you change directions on a hill. When on a slope or in a turn on a hill, move the throttle control to the SLOW position to help prevent an accident.

OPERATION

BEFORE STARTING THE ENGINE

CHECK THE OIL

NOTE: The engine was shipped from the factory filled with SAE 30 weight oil. Check the level of the oil. Add oil as needed.

1. Make sure the unit is level.

NOTE: Do not check the level of the oil while the engine runs.

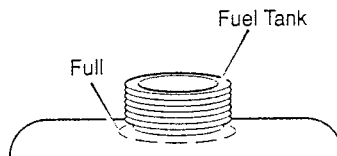
2. Clean the area around the dipstick. Remove the dipstick. Wipe the oil from the dipstick.
3. Insert the dipstick into the oil fill tube. Turn the dipstick clockwise until it is tight. Remove the dipstick. Check the oil level on the dipstick. The oil level must reach the FULL mark on the dipstick.
4. If necessary, add oil until the oil reaches the FULL mark on the dipstick. The quantity of oil needed from ADD to FULL is shown on the dipstick. Do not add too much oil.

ADD FUEL



WARNING: Always use a safety petrol container. Do not smoke when adding petrol to the fuel tank. Do not add petrol when you are inside an enclosure. Before you add petrol, stop the engine and let the engine cool for several minutes.

Fill the fuel tank with regular unleaded petrol. Do not use premium unleaded petrol. Make sure the petrol is fresh and clean. Leaded petrol will increase deposits and shorten the life of the valves.



HOW TO START THE ENGINE



WARNING: The electrical system has an operator presence system that includes a sensor switch mounted in the seat. These components tell the electrical system if the operator is sitting on the seat. This system will stop the engine when the operator leaves the seat. For your protection, always make sure this system operates correctly.

NOTE: The engine will not start unless you depress the clutch/brake pedal, move the shift lever to the neutral (N) position, and move the blade rotation control to the DISENGAGE position.

1. Sit in the middle of the seat. Push the clutch/brake pedal completely forward. Keep your foot on the pedal.
2. Move the shift lever to the neutral (N) position.

HOW TO START WITH A WEAK BATTERY

If the battery is too weak to start the engine, the battery needs to be charged. If "Jumper Cables" are used to start the engine in an emergency, follow the procedure below.

NOTE: The unit is equipped with a 12 volt negative to ground system. Also, the other vehicle must have a 12 volt negative to ground system.



WARNING: Do not smoke. The fumes from the battery acid can cause an explosion. Keep the battery away from any flames or sparks. To prevent sparks, fasten the red "Jumper cable" to the positive (+) terminal before connecting the black "Jumper cable".

CAUTION: A mixture of alcohol (ethanol or methanol) and petrol (called gasohol), will attract moisture and cause acid deposits during storage. While the unit is in storage, the acids in the fuel can damage the fuel system.

To prevent engine problems with the fuel system, empty the fuel system before storage of 30 days or longer as follows.

1. Drain the fuel tank.
2. Start the engine. Let the engine run until the fuel lines and the carburettor are empty.
3. After storage, make sure you use fresh fuel. See the storage instructions for additional information.
4. Never use engine cleaner or carburettor cleaner in the fuel tank or permanent damage can occur.

CARBURETTOR

The factory settings for the carburettor are for most conditions. If the engine is operated under the following conditions, you can adjust the carburettor mixture. To adjust the carburettor, see the engine manufacturer's instructions.

1. The engine has a loss of power or does not run smooth.
 2. A change from summer to winter operation.
 3. A 40 degree change in the operation temperature. The carburettor was adjusted at 80 degrees at the factory.
 4. The engine is operated above 4,000 feet.
3. Make sure the blade rotation control is in the DISENGAGE position.
 4. Move the throttle control completely forward to the CHOKE or FAST position. Some models have a separate choke knob. Pull the choke knob to the full CHOKE position.
 5. Turn the ignition key to the START position. Release the key when the engine starts.
- NOTE:** If the engine does not start after four or five tries, move the throttle control to the FAST position. Again try to start the engine. If the engine will not start, see the TROUBLE SHOOTING CHART.
6. Slowly move the throttle control to the SLOW position.
 7. Let a cold engine run for several minutes. Begin work when the engine is warm. To start a hot engine, move the throttle control to a position between FAST and SLOW.

NOTE: If the seat is raised when starting the engine, move the blade rotation control to the DISENGAGED position and engage the parking brake.

1. Put a wet cloth over the vent caps of each battery.
2. Connect each end of the RED "Jumper Cable" to the positive (+) terminals of each battery. Make sure you do not touch the chassis with the cables.
3. Connect one end of the BLACK "Jumper Cable" to the negative (-) terminal of the charged battery.
4. Connect the other end of the BLACK "Jumper Cable" to the mower's engine block.
5. Start the engine that has the weak battery last. Allow the engine to run.
6. To disconnect the "Jumper Cables", reverse the above steps.

OPERATION

OPERATING TIPS

1. Check the blade rotation control for correct adjustment. For the blade(s) to disengage correctly, the adjustment must be correct.
2. Before you use the unit, check the oil in the engine and add oil if necessary.
3. If the engine will not start, first make sure the wire is attached to the spark plug.
4. Make sure all the belts are inside all the belt guides. See the instructions on how to remove and install the motion drive and mower drive belts.
5. Before you make an inspection, adjustment (except for the carburettor) or repair, make sure the wire from the spark plug is disconnected.
6. Make sure the seat switch wire is connected. If the wire is not connected, the engine will not start.
7. For longer life of the battery on electric start models, charge the battery every three months.
8. Use the shift lever to change the ground speed, not the throttle control.
9. Belt noise can occur when the blade or clutch is engaged. This noise is normal and does not affect the operation of the unit.

MOWING AND BAGGING TIPS

1. For a lawn to look better, check the cutting level of the mower housing. See "How To Level The Mower Housing" in the Maintenance section.
2. For the mower housing to cut level, make sure the tyres have the correct amount of air pressure (PSI).
3. Every time you use the unit, check the blade. If the blade is bent or damaged, immediately replace the blade. Also, make sure the nut for the blade is tight.
4. Keep the blade(s) sharpened. Worn blades will cause the ends of the grass to turn brown.
5. Do not cut or bag grass that is wet. Wet grass will not discharge correctly. Let the grass dry before cutting.
6. Use the left side of the mower housing to trim near an object.
7. Discharge the cut grass onto the mowed area. The result is a more even discharge of cut grass.
8. When you mow large areas, start by turning to the right so that the cut grass will discharge away from shrubs, fences, driveways, etc. After one or two rounds, mow in the opposite direction making left turns until finished (Figure 12).
9. If the grass is very high, cut two times to decrease the load on the engine. First cut with the mower housing in the highest position and then lower the mower housing for the second cut.
10. For better engine performance and an even discharge of the cut grass, always operate the engine with the throttle in FAST position.
11. When you use a bagger, operate the engine with the throttle in FAST position and the shift lever in first or second gear.
12. For better cutting performance and a quality cut, mow with the shift lever in one of the slower speeds.
13. After each use, clean the bottom and top of the mower housing for better performance. Also, a clean mower housing will help prevent a fire.

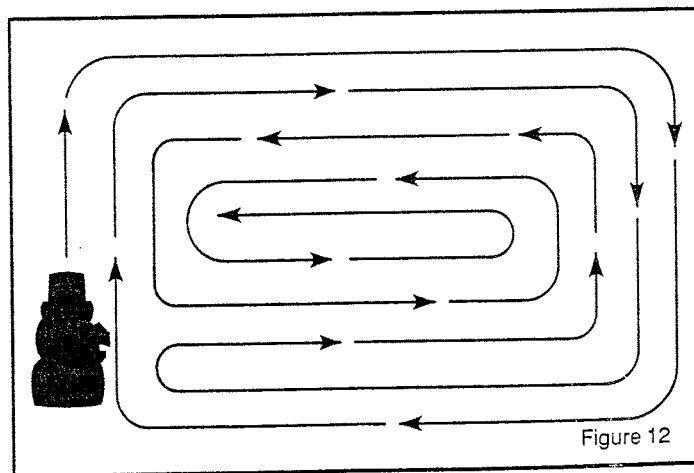


Figure 12

MAINTENANCE

MAINTENANCE CHART							
PROCEDURE		EACH USE	FIRST 2 HOURS	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	BEFORE STORAGE
M O W E R	Blade, Inspect and Sharpen			✓			
	Blade Rotation Control, Check			✓			
	Brake, Check			✓			
	Clutch, Check			✓			
	Tyres, Check			✓			✓
	Battery, Check and Charge			✓			✓
	Battery, Clean				✓		✓
	Lubrication				✓		✓

GENERAL RECOMMENDATIONS

1. The owner's responsibility is to maintain this product. This will extend the life of the product and is also necessary to maintain warranty coverage.
2. Check the spark plug, drive brake, lubricate the unit, and clean the air filter once a year.
3. Check the fasteners. Make sure all fasteners are tight.
4. Follow the Maintenance section to keep the unit in good operating condition.



WARNING: Before you make an inspection, adjustment, or repair to the unit, disconnect the wire to the spark plug. Remove the wire from the spark plug to prevent the engine from starting by accident.

NOTE: Torque is measured in foot pounds (metric Nm). This measurement describes how tight a nut or bolt must be. The torque is measured with a torque wrench.

HOW TO CHECK THE MUFFLER

Check the muffler every 50 hours. Make sure the muffler is correctly mounted and is not loose. If the muffler is worn or burnt, replace with a new muffler. A worn muffler is a fire hazard and can also damage the engine.

If you mount a spark arrester to the muffler, also check the spark arrester when you check the muffler. If the spark arrester is worn or damaged, replace it with a new spark arrester. See your nearest authorized service center for a spark arrester.

MAINTENANCE

INSPECT BLADE

WARNING: Before you inspect or remove the blade, disconnect the wire to the spark plug. If the blade hits an object, stop the engine. Check the unit for damage. The blade has sharp edges. When you hold the blade, use gloves or cloth material to protect your hands.

If you keep the blade sharp and inspect the blade for damage, the blade will cut better and be more safe to operate. Frequently check the blade for excessive wear, cracks, or other damage. Frequently check the nut that holds the blade. Keep the nut tight. If the blade hits an object, stop the engine. Disconnect the wire to the spark plug. See if the blade is bent or damaged. Check the blade adapter for damage. Before you operate the unit, replace damaged parts with original equipment parts. See the authorized service center in your area. Every three years, have an authorized service person inspect the blade or replace the old blade with an original equipment part.

HOW TO REMOVE AND INSTALL THE BLADE

1. Remove the mower housing. See the instructions on "How To Remove The Mower Housing".
2. Use a piece of wood to keep the blade from rotating.
3. Remove the nut that holds the blade (Figure 13).

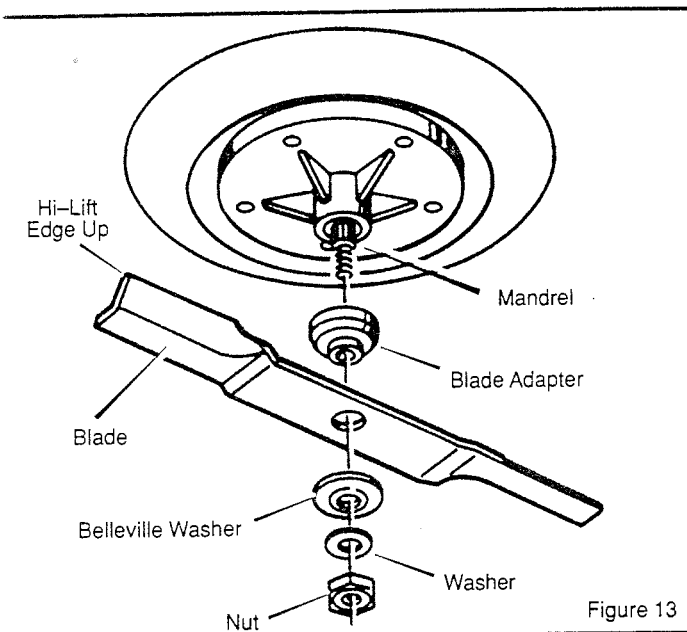


Figure 13

4. Check the blade and the blade adapter according to the instructions for "Inspect Blade". Replace a badly worn or damaged blade with an original equipment blade. See an authorized service center in your area.
5. Clean the top and bottom of the mower housing. Remove all the grass and debris.
6. Mount the blade and blade adapter on the mandrel (Figure 13).
7. Mount the blade so that the hi-lift edges are up. If the blade is upside down, the blade will not cut correctly and can cause an accident.
8. Fasten the blade with the original washers and nut. Make sure the outside rim of the Belleville washer is against the blade (Figure 14).

WARNING: Always keep the nut tight that holds the blade. A loose nut or blade can cause an accident.

9. Tighten the nut that holds the blade to a torque of 30 foot pounds (41,5 N-m).
10. Install the mower housing. See "How To Install The Mower Housing".

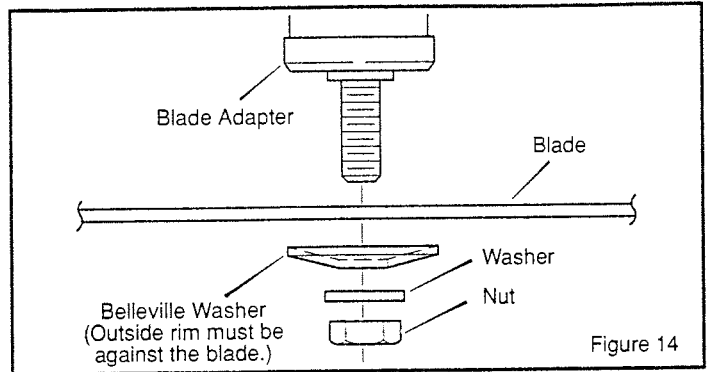


Figure 14

HOW TO SHARPEN THE BLADE

WARNING: Vibration can be caused if the blade is not correctly balanced or if the blade is damaged. A blade that is damaged with cracks can break and cause an accident.

Keep a sharp edge on the blade. A blade that is not sharp will cause the tips of the grass to become brown.

1. Sharpen the blade two times a year or every 25 hours.
2. Remove the blade according to the instructions in "How To Remove And Install The Blade".
3. Clean the blade with a brush, soap and water. Check the blade. Look for cracks, nicks, or other damage. Replace a badly worn or damaged blade with an original equipment blade. See an authorized service center in your area.
4. Sharpen the blade with a file (Figure 15). Make sure you keep the original bevel angle.
5. Make sure the blade is balanced. Use a screwdriver and hold the blade parallel to the ground (Figure 15). A blade that is balanced will stay parallel to the ground. If the blade is not balanced, the heavy end will rotate toward the ground. Sharpen the heavy end until the blade is balanced.
6. A new blade will cut better than a badly worn blade. Every three years, have an authorized service person inspect the blade or replace the old blade with an original equipment blade.
7. Assemble the blade according to the instructions "How To Remove And Install The Blade".

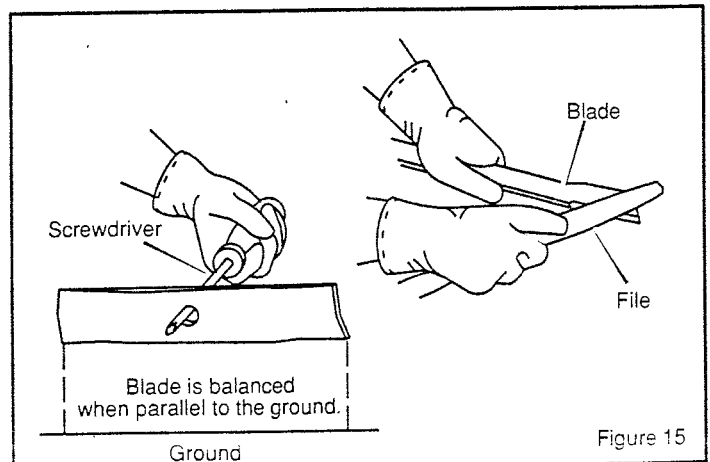


Figure 15

MAINTENANCE

F / TO ADJUST THE BLADE ROTATION CONTROL



WARNING: To prevent an injury, the blade rotation control must operate correctly.

1. Stop the engine. Disconnect the wire from the spark plug.
2. Before you adjust the **blade rotation control**, check and level the mower housing. See "How To Level The Mower Housing." Make sure the mower housing is level before go to the next step.
3. Set the height of the mower housing in the lowest position.
4. Move the **blade rotation control** to the **ENGAGE** position (Figure 16). Check the **plastic indicator** inside the **blade drive spring** (Figure 17). The end of the **plastic indicator** must be aligned (+ or - 1/8 inch / 3 mm) with the last coil of the **blade drive spring**.
5. If the **plastic indicator** is more than 1/8 inch (3 mm) from the last spring coil, an adjustment is needed. Move the **blade rotation control** to the **DISENGAGE** position. Disconnect the **adjustable nut** on the **blade control rod** from the **blade rotation control**. Turn the **adjustable nut** clockwise to increase the length of the coils. Turn the **adjustable nut** counterclockwise to decrease the length of the coils.
6. Connect the **adjustable nut** to the **blade rotation control**. Move the **blade rotation control** to the **ENGAGE** position. Check the adjustment of the **blade drive spring**.
7. Move the **blade rotation control** to the **DISENGAGE** position. Check the operation of the blade brake. Rotate the pulley with your hand. Make sure the pads for the blade brake are pressed tightly against the pulleys.

IMPORTANT: Check the operation of the blade brake by repeating step 7. If the brake pads do not press tightly against the pulleys, replace the mower drive belt and repeat steps 1-7. Then, complete the remaining steps. Correct replacement parts and assistance are available from an authorized service center.

8. Move the **blade rotation control** to the **ENGAGE** position. Check the pads for the blade brake. If the pads are excessively

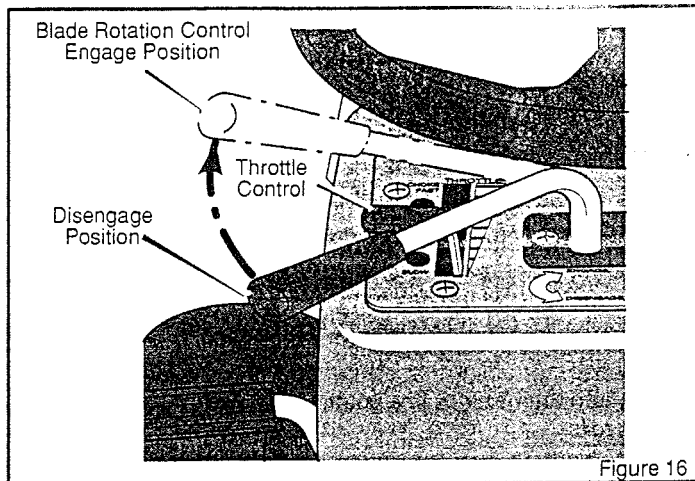


Figure 16

worn or damaged, the **brake pad** assemblies must be replaced. Correct replacement parts and assistance are available from an authorized service center.

9. Attach the wire to the spark plug. Mow for a short distance and again check the operation of the **blade rotation control**.
10. When you move the **blade rotation control** to the **DISENGAGE** position, all movement will stop within five seconds if the adjustment is correct. If there is movement of the belt or the blades continue to rotate, engage and disengage the **blade rotation control** five times to remove any excess rubber from a new **mower drive belt**. If there is still blade rotation from the **DISENGAGED** position, adjust the **blade drive spring** until more of the **plastic indicator** extends beyond the end of the last coil. This adjustment will decrease the spring tension. If you need assistance, take the unit to an authorized service center.
11. After you operate with a new **mower drive belt** for several hours, check the tension of the **blade drive spring**.
12. If you replace the **mower drive belt**, adjust the **blade rotation control**.

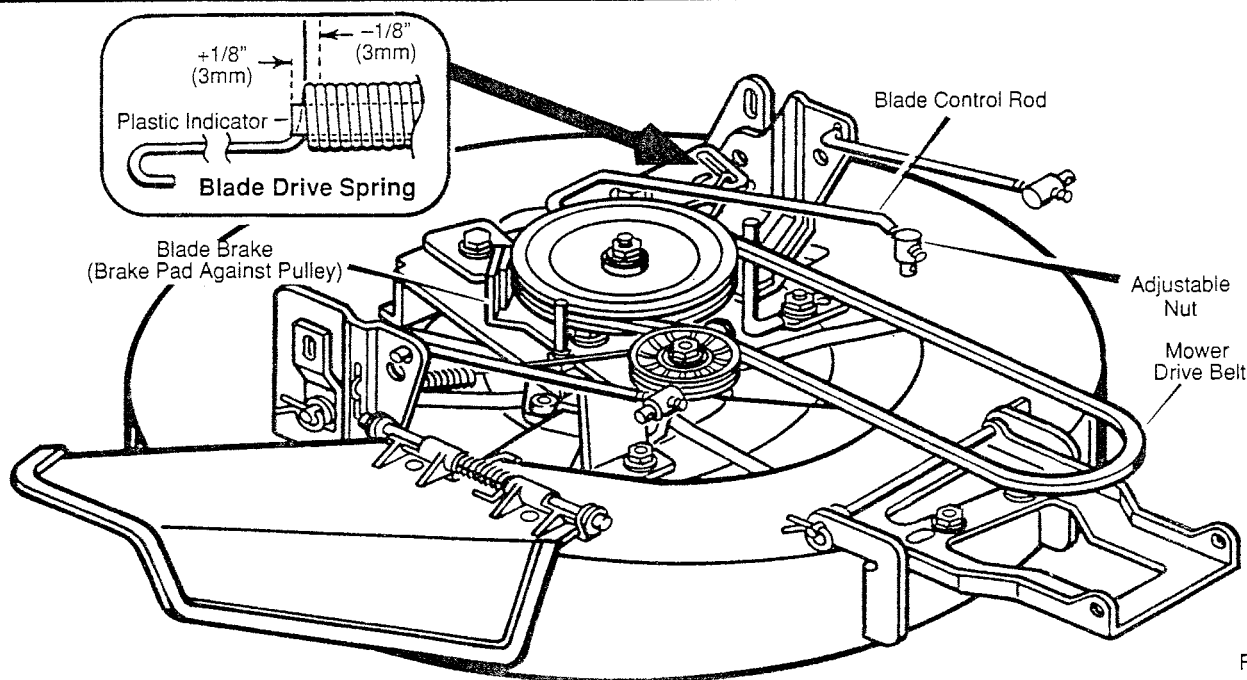


Figure 17

MAINTENANCE

HOW TO CHECK AND ADJUST THE DRIVE BRAKE

completely push the clutch/brake pedal forward. Set the parking brake. Move the shift lever to the neutral (N) position. Push the unit. If the rear wheels rotate, adjust or replace the brake pads. Adjust the drive brake as follows.

The location of the **drive brake** is on the right side of the **gearbox** (Figure 18).

Make sure the parking brake is set and the shift lever is in neutral (N). Turn the **hex nut** in a clockwise direction until the rear wheels do not turn when the unit is pushed forward.

Release the parking brake and push the unit. If the unit does not roll, turn the **hex nut** in a counterclockwise direction until the unit rolls.

Set the parking brake. Push the unit. If the rear wheels do not turn, the **drive brake** is correctly adjusted. Release the parking brake.

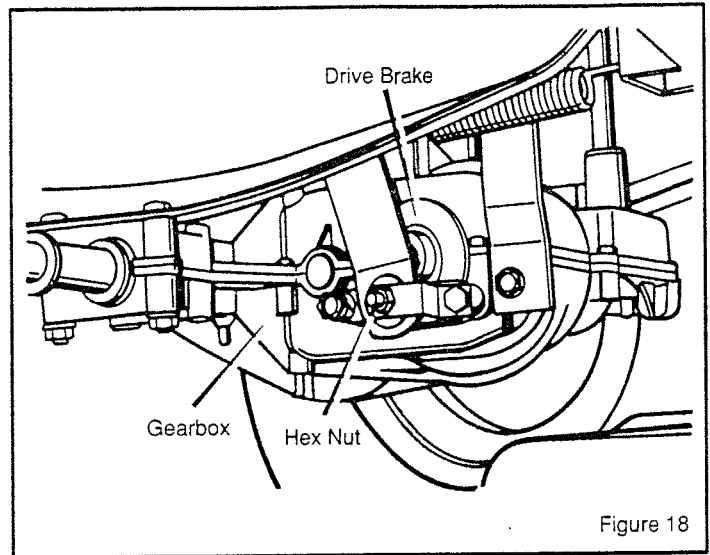


Figure 18

WARNING: If you cannot correctly adjust the drive brake, replace the brake pads. Correct replacement parts and assistance are available from an authorized service center.

HOW TO CHECK AND ADJUST THE CLUTCH

If the motion drive belt is loose, the clutch will slip when: (1) going up a hill, (2) pulling a heavy load, or (3) the unit will not move forward. Check the clearance at the rear of the **pedal** (Figure 19). If the motion drive belt is loose, the clearance will be less than $\frac{3}{16}$ inch and the clutch will slip. Adjust the clutch as follows.

WARNING: Before you make an inspection, adjustment, or repair to the unit, disconnect the wire to the spark plug. Remove the wire from the spark plug to prevent the engine from starting by accident.

Check the routing of the motion drive belt. Make sure the belt is installed correctly and is inside all the belt guides.

Disconnect the **adjustable nut** from the **lever assembly** (Figure 19).

Turn the **adjustable nut** counterclockwise to increase the length of the clutch rod. This adjustment will increase the clearance at the pedal and tighten the motion drive belt.

Assemble the **adjustable nut** to the **lever assembly**. Check the clearance at the **pedal**.

If the **pedal** cannot be set to $\frac{3}{16}$ inch clearance, the motion drive belt has stretched and must be replaced. See "How To Replace The Motion Drive Belt".

If the clutch still slips after the clutch has been adjusted, then the motion drive belt is damaged and must be replaced. See "How To Replace The Motion Drive Belt".

After making an adjustment to the **pedal**, check the drive brake. See "How To Check And Adjust The Drive Brake".

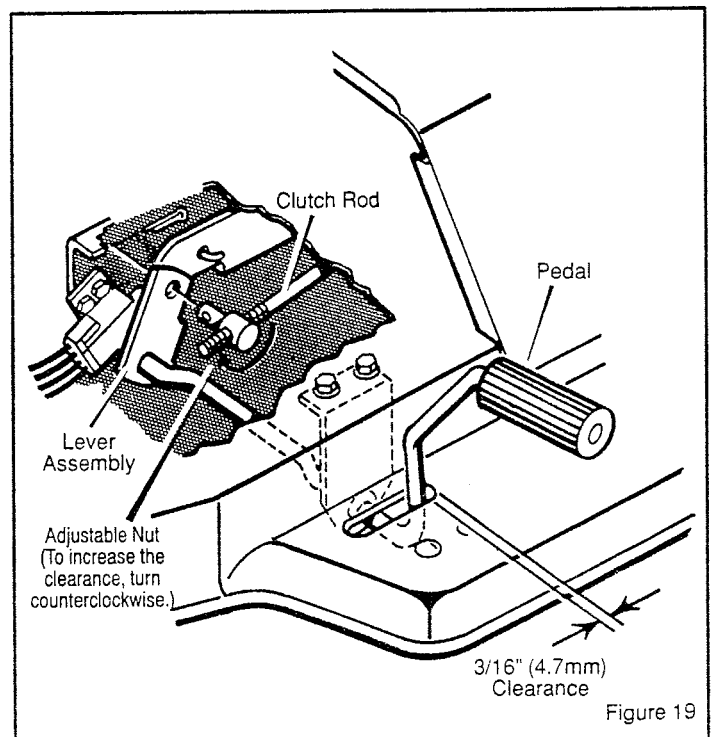


Figure 19

MAINTENANCE

MAINTENANCE FREE BATTERY

HOW TO REMOVE THE BATTERY

To charge or clean the battery, remove the battery from the unit as follows.



WARNING: To prevent sparks, disconnect the black battery cable from the negative (-) terminal before you disconnect the red cable.

WARNING: The battery contains sulphuric acid which is harmful to the skin, eyes and clothing. If the acid gets on the body or clothing, wash with water.

1. Remove the **black cable** from the negative (-) terminal (Figure 20).
2. Remove the **red cable** from the positive (+) terminal.
3. Rotate the battery clamp to the DOWN position.
4. To remove the battery, tilt the battery forward and then lift the battery.

CAUTION: Do not tilt the battery more than 45 degrees. If the battery tilts more than 45 degrees, battery acid can leak from the battery.

HOW TO CLEAN THE BATTERY

1. Remove the **battery**.
2. Wash the **battery** with a solution of one gallon of water and four tablespoons of baking soda (sodium bicarbonate). Make sure the solution does not get into the battery cells.
3. Clean the **terminals** and the ends of the **cables** with a wire brush.
4. Install the **battery**. See "How To Install The Battery" in the Assembly section.
5. To prevent corrosion, apply grease to the **battery terminals**.

HOW TO CHARGE THE BATTERY



WARNING: When you charge the battery, do not smoke. Keep the battery away from any sparks. The fumes from the battery acid can cause an explosion.

1. Before you charge the **battery**, remove the **battery**.
2. To charge the **battery**, use a 12 volt battery charger. Charge at a rate of 6 amperes for 1 hour.
3. Install the **battery**. See "How To Install The Battery" in the Assembly section.

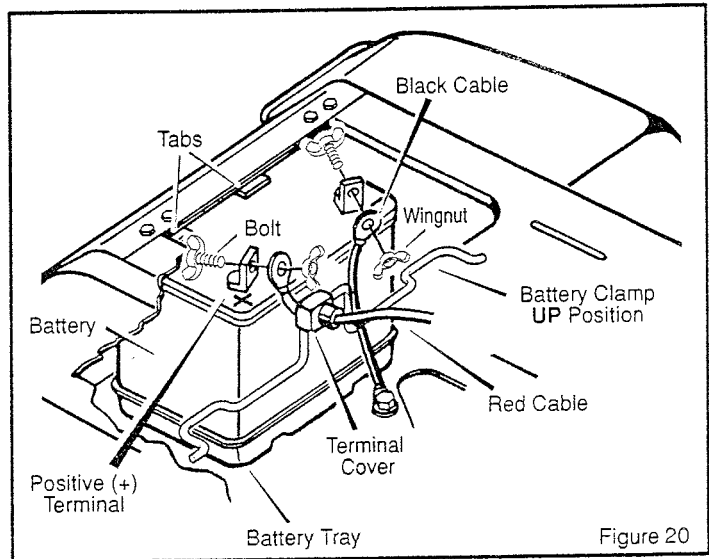


Figure 20

MAINTENANCE

WHERE TO LUBRICATE



Lubricate the areas shown with engine oil.



Apply grease with a brush to the areas shown.

NOTE: Apply grease to the steering gear assembly.

CAUTION: If the unit is operated in dry areas that have sand, use a dry graphite spray to lubricate the unit. Do not lubricate the nylon bearings for the front wheels. Oil or grease will damage the bearings.

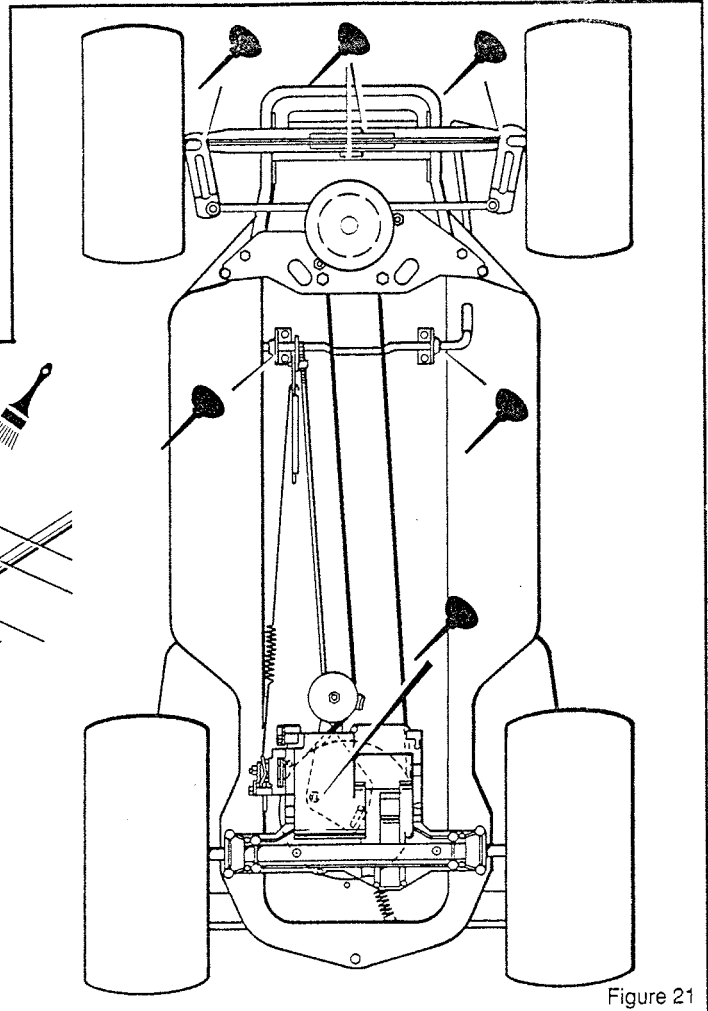
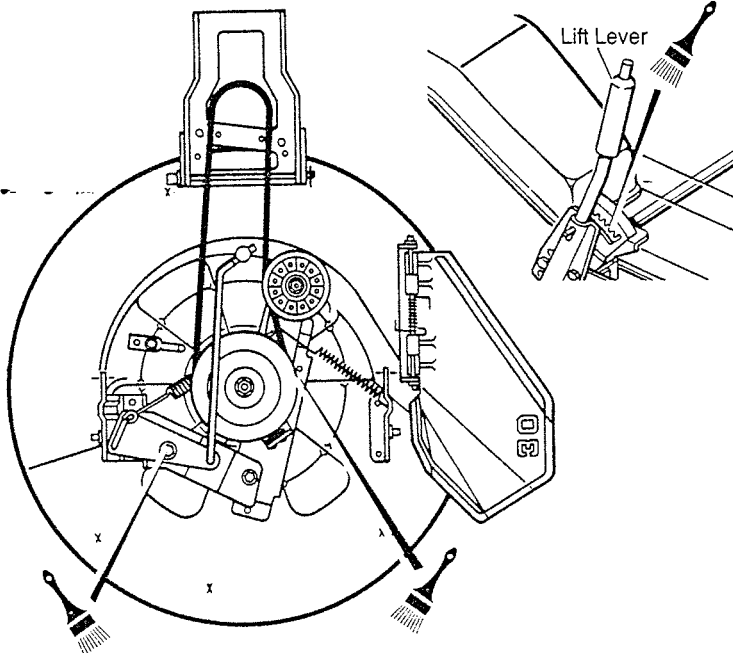


Figure 21



HOW TO CHECK THE FUEL FILTER

NOTE: Before you replace the fuel filter or the fuel line, the fuel tank must be empty.

If the fuel filter is dirty, the engine will run rough and have less performance. Remove the old filter (Figure 22). Replace the old filter with a new filter. Use an original equipment part. See an authorized service dealer in your area.

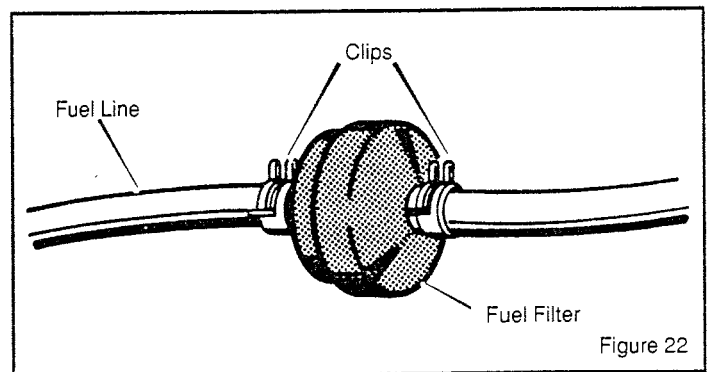


Figure 22

CHECK THE TYRES

Check the air pressure in the tyres. Tyres with too much air pressure will cause the unit to ride rough. Also, the wrong air pressure will keep the mower housing from cutting level. The correct air pressure (PSI) is 14 PSI (1 BAR).

MAINTENANCE

HOW TO REMOVE THE MOWER HOUSING

1. Move the **lift lever** to the lowest position.
2. Move the **blade rotation control** to the **DISENGAGE** position.
3. Remove the hair pins and the washers from the adjusting rods (Figure 23). See illustrations "C" and "D".
4. Remove the hair pins and the washers from the suspension link and the adjuster plate. See illustrations "A" and "B".
5. Remove the adjuster nut from the **blade rotation control**. See illustration "E".
6. Disconnect the **front hanger** from the axle support. See illustration "F".
7. If necessary, loosen the two **belt guides** at the **stack pulley**. See illustration "G". Remove the **mower drive belt** from the **stack pulley**.
8. Pull the mower housing away from the right side of the unit.

HOW TO INSTALL THE MOWER HOUSING

1. Push the mower housing under the right side of the unit.
2. Put the **mower drive belt** around the **stack pulley**. Make sure the "V" side of the **mower drive belt** is against the **stack pulley**. Also, make sure the **mower drive belt** is not twisted.
3. Attach the **front hanger** to the axle support with the **hanger rod**. Fasten with the fasteners as shown. See illustration "F".
4. Make sure the **mower drive belt** is between the **stack pulley** and the two **belt guides**. Tighten the two **belt guides**. See illustration "G".
5. Fasten the adjuster nut to the **blade rotation control** with the hair pin. See illustration "E".
6. Attach the suspension link and the adjuster plate to the **lifter assembly**. Fasten with the washers and hair pins. See illustrations "A" and "B".
7. Attach the right and the left adjusting rods to the suspension brackets. Fasten with the washers and hair pins. See illustrations "C" and "D".
8. Move the **blade rotation control** to the **ENGAGE** position. Make sure the **mower drive belt** is inside all the **belt guides**.
9. Make sure the mower housing is level. See the instructions on "How To Level The Mower Housing".
10. Check the operation of the **blade rotation control**. See the instructions on "How To Adjust The Blade Rotation Control".

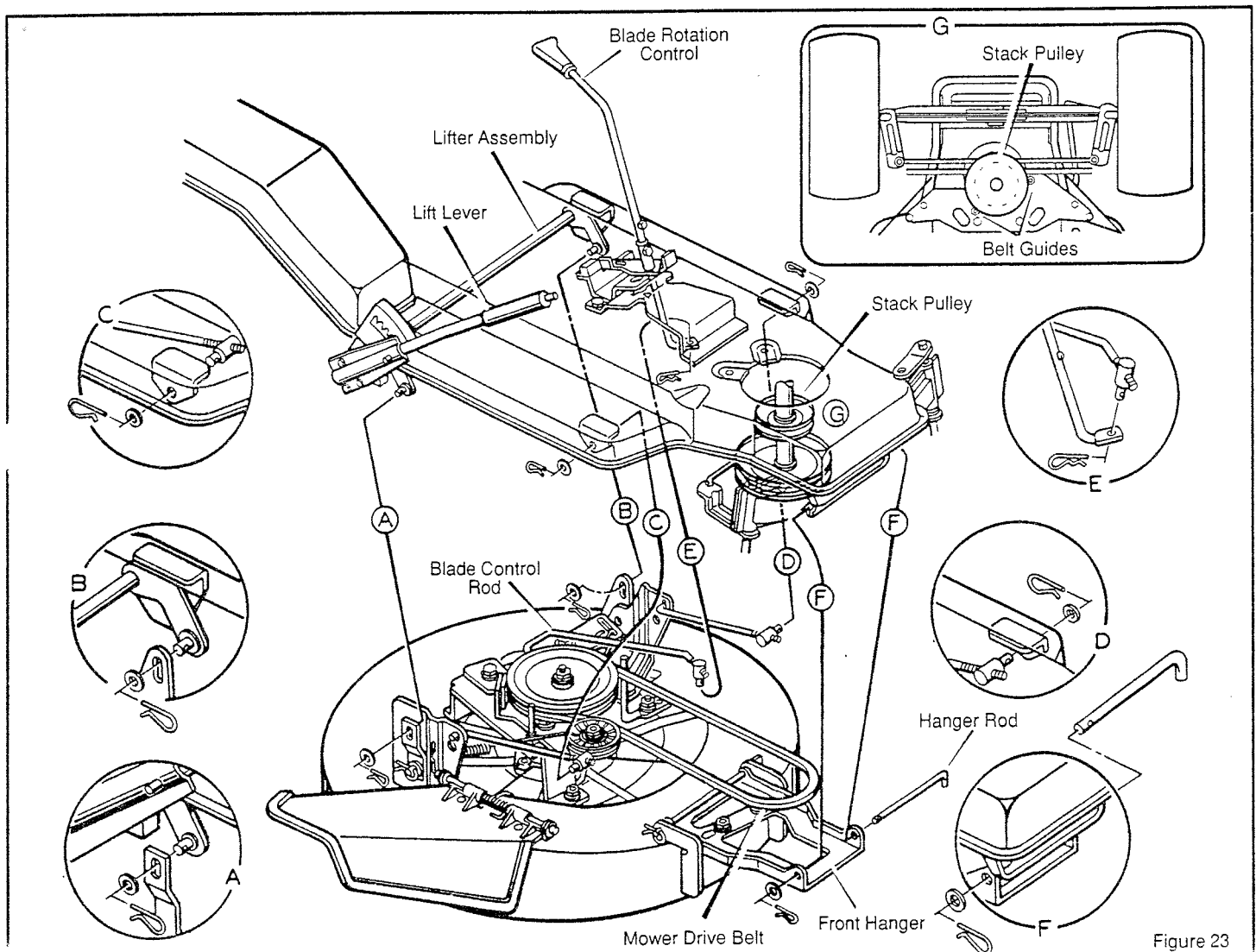


Figure 23

MAINTENANCE

HOW TO LEVEL THE MOWER HOUSING

If the mower housing is level, the blade will cut easier and the lawn will look better.

WARNING: Before you make an inspection, adjustment, or repair to the unit, disconnect the wire to the spark plug. Remove the spark plug wire to prevent the engine from starting by accident.

Make sure the unit is on a hard level surface.

Check the air pressure in the tyres. If the air pressure is incorrect, the mower housing will not cut level. Make sure the tyres are inflated to 14 PSI. (1 BAR).

Move the lever for the blade rotation control to the DISENGAGE position. Move the lift lever to the number "4" cutting height position.

There are two adjustment procedures below that will level the mower housing.

THE FRONT TO BACK ADJUSTMENT

Before the height of the mower housing is measured, understand that the position of the blades in the mower housing are not the same at the front as they are in the back.

There are measuring points on the mower housing indicated by small round dimples (or X marks) on the front and rear, left and right sides of the mower housing (Figure 24). To determine if an adjustment is needed, use a ruler and measure the distance from a level surface to the bottom of the mower housing. In correct adjustment, the front of the mower housing at point B will be from 1/2" (0 mm to 12 mm) lower than the back of the mower housing point D.

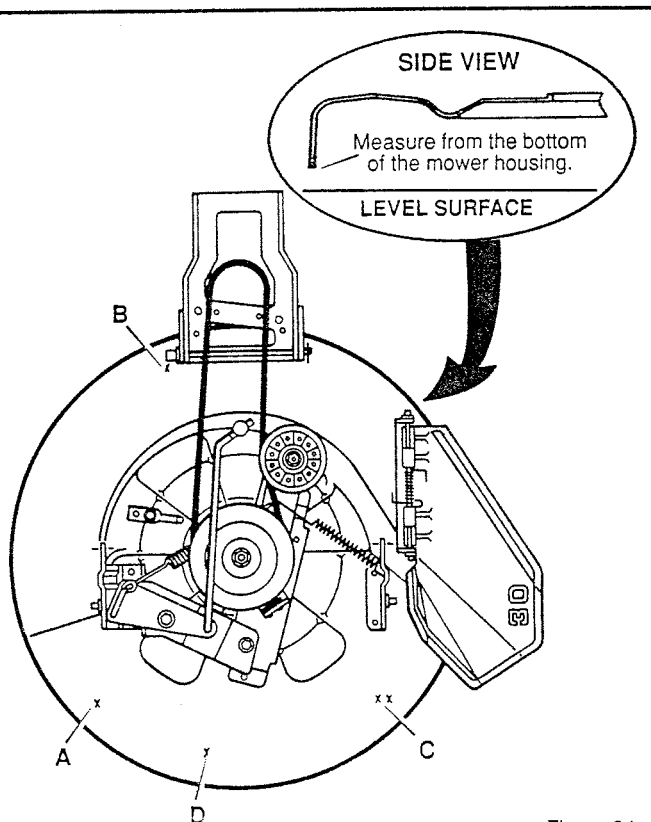


Figure 24

1. Disconnect both **adjuster rods** from the **adjuster rod brackets** (Figure 25).
2. Turn the adjustable nut clockwise to lower the front or counter-clockwise to raise the front of the mower housing.
3. Connect the left **adjuster rod** to the **adjuster rod bracket**. Check the housing for the correct adjustment. Fasten the adjustable nut with the washer and hair pin.
4. On the right side, turn the adjustable nut until the adjustable nut is aligned with the hole in the **adjuster rod bracket**. Fasten the adjustable nut with the washer and hair pin.

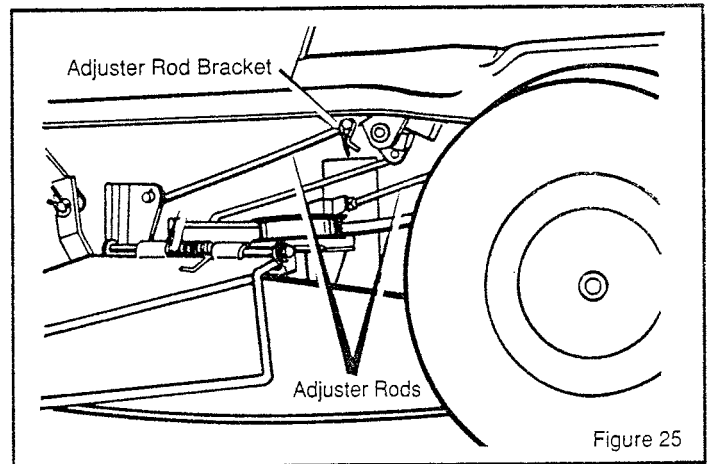


Figure 25

THE SIDE TO SIDE ADJUSTMENT

Use a ruler and measure the distance from the level surface to the bottom of the mower housing. Measure from the locations indicated by the small round dimples (or X marks) at points A and C. In correct adjustment, the mower housing at points A and C must be within 1/4" (6 mm) of the same height. If the difference in the measurement is more than 1/4" (6 mm), adjust as follows.

1. Disconnect the **adjuster plate** from the mower housing (Figure 26).
2. Move the **adjuster plate** to the front to raise or to the back to lower the side of the mower housing. On some **adjuster plates** the holes have numbers. To raise the mower housing, move to a higher number.
3. Connect the **adjuster plate**.
4. Check the housing for the correct adjustment. If necessary, repeat the adjustment.

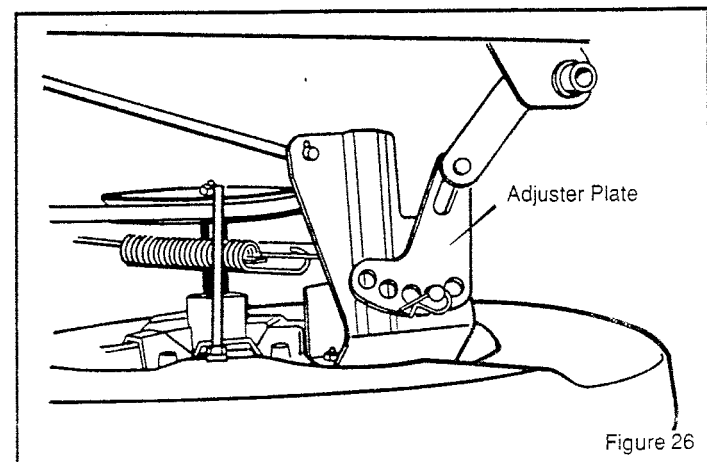


Figure 26

MAINTENANCE

HOW TO REPLACE THE MOTION DRIVE BELT

REMOVAL

1. Remove the mower housing. See the instructions on "How To Remove The Mower Housing".
2. Completely push the pedal forward and engage the parking brake.
3. Remove the **idler pulley** (Figure 27).
4. Loosen the belt guides that are around the **drive pulley**.
5. Remove the **motion drive belt** from the **drive pulley**.
6. To remove the **motion drive belt** from the **stack pulley**, pull the front end of the belt under the **stack pulley** and then back between the stack pulley and the **belt guide plate** (Figure 28).

Put the end of the **motion drive belt** from the drive pulley through the hole for the **shift lever** (Figure 29). Move the **shift lever** and push the belt under the **shift lever**.

8. Remove the **motion drive belt**. A correct replacement part or assistance is available from an Authorized Service Center in your area.

INSTALLATION

1. Slide the **motion drive belt** between the **stack pulley** and the **belt guide plate** (Figure 28). Install the **motion drive belt** on the top pulley of the **stack pulley**. Make sure the "V" side of the belt is against the pulley.
2. Push the **motion drive belt** through the hole in the frame for the **shift lever** (Figure 29). Lift the end of the belt over the **shift lever** and back down through the hole in the frame.
3. Install the end of the **motion drive belt** around the **drive pulley** (Figure 27).
4. Tighten the **belt guides** that are around the **drive pulley**.
5. Put the belt around the **idler pulley**. Assemble the **idler pulley**. Fasten the **idler pulley** with the hex nut. Make sure the flat side of the belt is against the **idler pulley** as shown. Also, make sure the belt is not twisted.
6. Make sure the **motion drive belt** is inside all the **belt guides** (Figure 27 and Figure 28).
7. Before you use the unit, check the adjustment of the clutch. See the instructions "How To Check And Adjust The Clutch".
8. Install the mower housing. See the instructions "How To Install The Mower Housing".

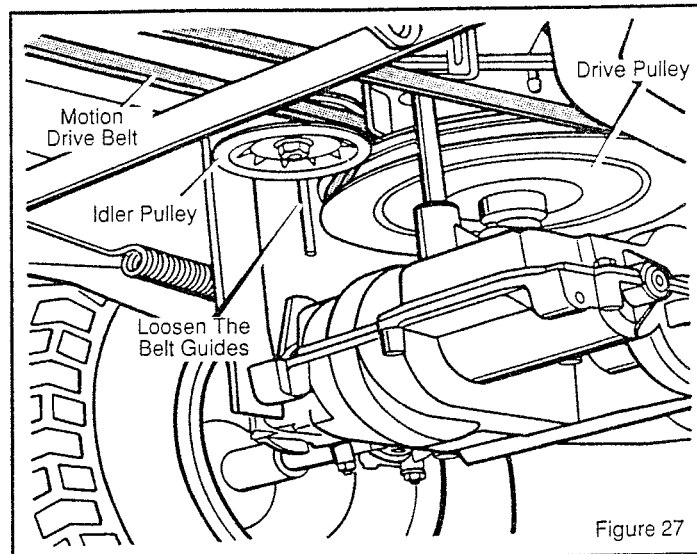


Figure 27

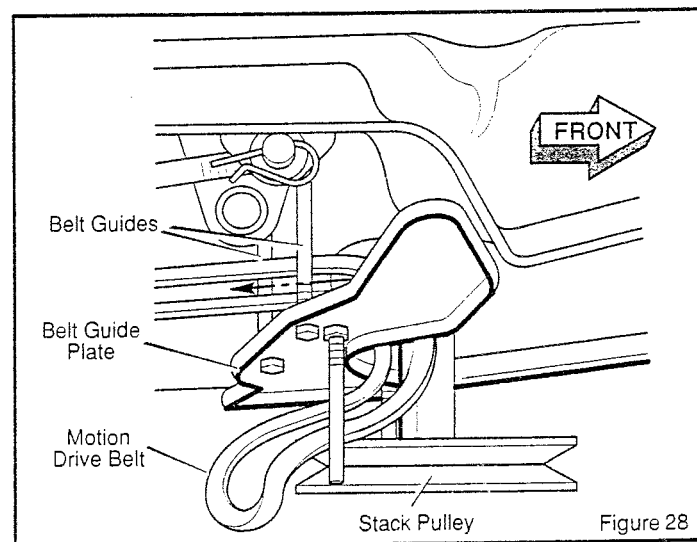


Figure 28

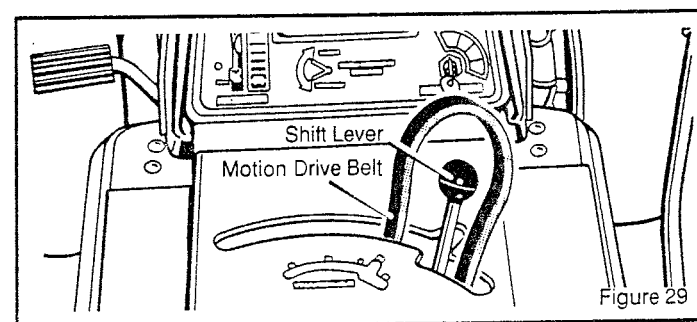


Figure 29

MAINTENANCE

HOW TO REPLACE THE MOWER DRIVE BELT

Remove the mower housing. See the instructions on "How To Remove The Mower Housing".

Pull the **belt retainer** away from the **idler pulley** and remove the **mower drive belt** (Figure 30).

Pull the **brake arm** away from the **mandrel pulley** and remove the **mower drive belt**.

NOTE: Replace the mower drive belt with an original equipment belt from an authorized service center.

Install the new **mower drive belt**. Pull the **brake arm** away from the **mandrel pulley**. Put the belt around the **mandrel pulley**.

5. Make sure the "V" side of the **mower drive belt** is against the **mandrel pulley** as shown.
6. Pull the **belt retainer** away from the **idler pulley**. Put the flat side of the **mower drive belt** around the **idler pulley**.
7. Make sure the **mower drive belt** is inside all the **belt guides**.
8. Install the mower housing. See the instructions on "How To Install The Mower Housing".
9. Before you mow, check the blade rotation control. See the instructions on "How To Adjust The Blade Rotation Control".

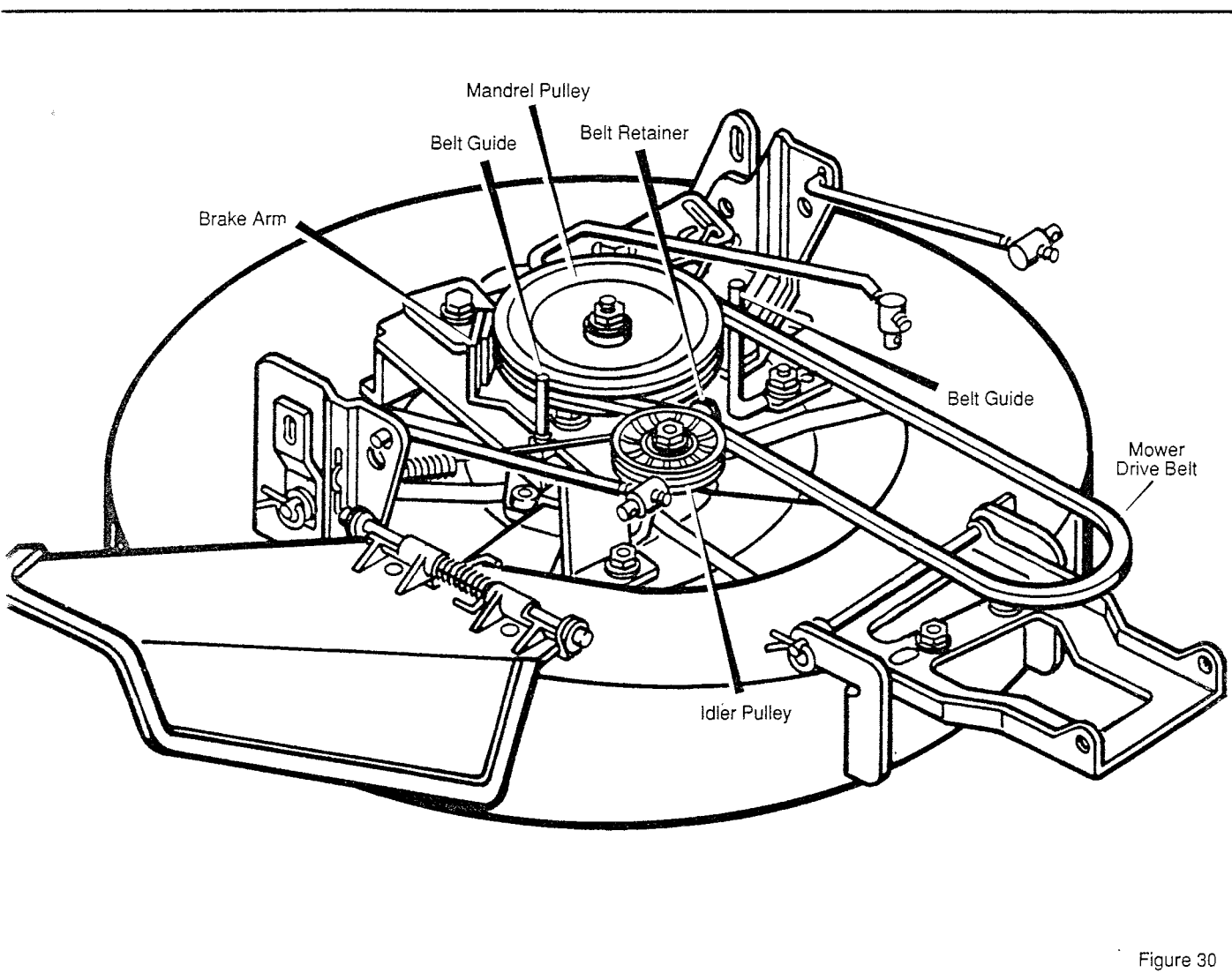
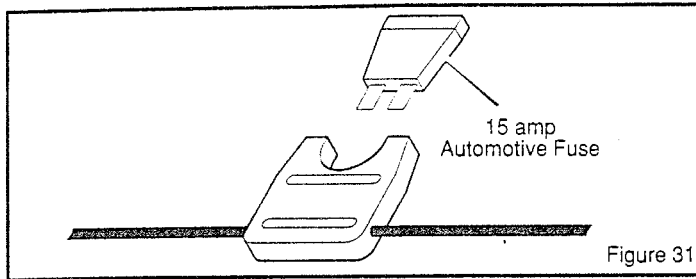


Figure 30

MAINTENANCE

HOW TO REPLACE THE FUSE

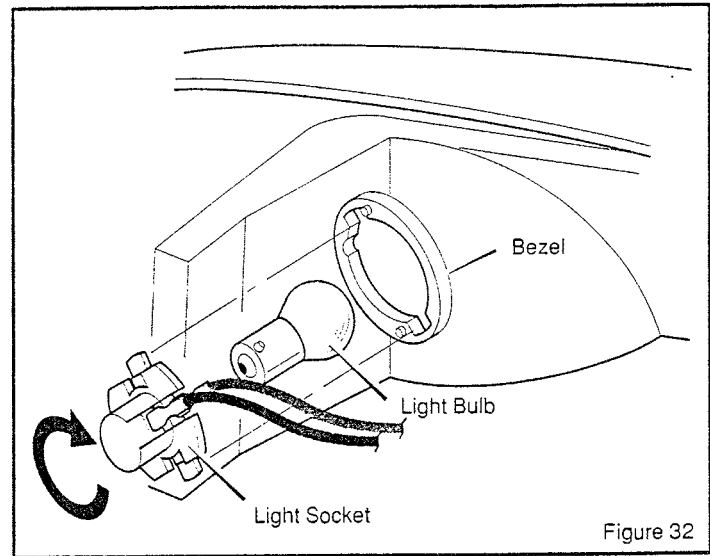
If the fuse is blown, the engine will not start. The location of the fuse is next to the battery. Remove the fuse and replace with a 15 amp. automotive fuse (Figure 31).



HOW TO REPLACE THE LIGHT BULB

1. Raise the tractor hood.
2. Turn the light socket until the tabs on the socket align with the notches in the bezel (Figure 32). Remove the light socket. Turn the light bulb and remove the bulb.

3. Install a new light bulb. Align the light socket with the notches in the bezel and turn the light socket to lock in position.



HOW TO CLEAN THE MOWER HOUSING



WARNING: Before you clean the mower housing, stop the engine and disconnect the wire to the spark plug.

Grass and other debris on top of the mower housing can keep the belt from working correctly. For safety and correct operation, frequently clean the top of the mower housing. Remove grass and debris from around the pulleys and other moving parts.

1. Move the lever for the blade rotation control to the ENGAGE position.
2. Clean the top of the mower housing.
3. Move the lever for the blade rotation control to the DISENGAGE position.
4. Again clean the top of the mower housing.
5. After you cut the grass, clean the bottom of the mower housing.

STORAGE (over 30 days)

At the end of each year, prepare the unit for storage as follows.

THE ENGINE

For storage information, see the the engine manufacturer's instructions.

THE BATTERY

1. Remove the battery.
2. Clean the battery terminals of any deposits.
3. Charge the battery. See the instructions on "How To Prepare And Charge The Battery".
4. Store the battery in a cool, dry place.

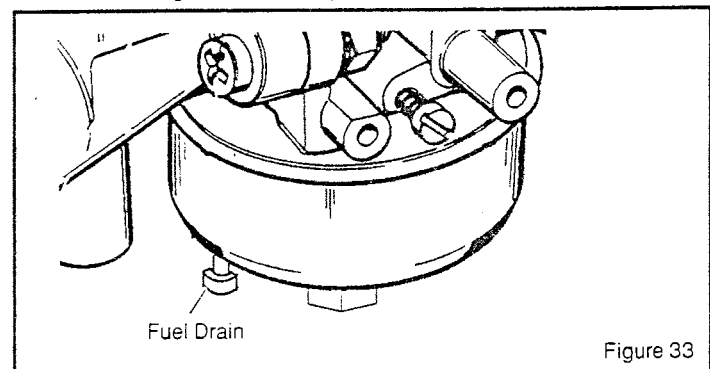
NOTE: After a long time in storage, charge the battery.

THE FUEL SYSTEM



WARNING: Do not drain the fuel inside a building or near a fire. Do not smoke because the fumes from the fuel can cause an explosion.

1. Start the engine.
2. Run the engine until the fuel tank and the carburettor are out of fuel and the engine stops.
3. Do not leave fuel in the fuel tank or the carburettor. The fuel can damage the function of the fuel system. Some models have a fuel drain (Figure 33). Hold a cloth under the fuel drain. Push the fuel drain until the carburettor is empty.
4. After storage, make sure you use fresh fuel.



CLEAN THE UNIT

1. Clean the dirt and grass from the engine.
2. Clean the mower housing.

LUBRICATE THE UNIT

See the "Lubrication" instructions in this book.

TROUBLE SHOOTING CHART

PROBLEM: The engine will not start.

- Follow the steps, "How To Start The Engine" in this book.
- Electric-Start Models: Clean the battery terminals. Tighten the cables.
- Drain the fuel tank. Clean the fuel line. Replace the fuel filter.
- Remove the spark plug(s). Move the throttle to the SLOW position. Turn the ignition key to the ON position. Try to start the engine several times. Install the spark plug.
- Replace the spark plug.
- Adjust the carburettor.

PROBLEM: The engine will not turn over.

- Follow the steps, "How To Start The Engine" in this book.
- Electric-Start Models: Check the level of the acid in the battery. If needed, add water. Charge the battery.
- Replace the fuse.
- Check the wiring harness for damage or a loose connection. Repair the damaged wire.
- Electric-Start Models: replace the solenoid. Recoil-Start Models: replace the module.

PROBLEM: The engine is difficult to start.

- Adjust the carburettor.
- Replace the spark plug.
- Replace the fuel filter.

PROBLEM: The engine does not run smooth or has a loss of power.

- Check the oil.
- Clean the air filter.
- Clean the air screen.
- Replace the spark plug.
- The engine is working too hard. Use a lower gear.
- Adjust the carburettor.
- Replace the fuel filter.

PROBLEM: The engine does not run smooth at fast speed.

- Replace the spark plug.
- Adjust the throttle control.
- Clean the air filter.
- Replace the fuel filter.

PROBLEM: The engine stops when the blades are engaged.

- To activate the seat sensor, always sit in the middle of the seat.
- Check the wiring harness for damage or a loose connection. Repair the damaged wire.

PROBLEM: On slopes, the engine stops.

- Mow up and down slopes. Never mow across a slope.
- To activate the seat sensor, always sit in the middle of the seat.

PROBLEM: The engine will not idle.

- Replace the spark plug.
- Clean the air filter.
- Adjust the carburettor.
- Adjust the throttle control.
- Drain the fuel tank. Clean the fuel line. Replace the fuel filter.

PROBLEM: A hot engine causes a decrease in power.

1. Clean the air screen.
2. Check the oil.
3. Adjust the carburettor.
4. Replace the fuel filter.

PROBLEM: Excessive vibration.

1. Replace the blade.
2. Check for loose engine bolts.
3. Decrease the air pressure in the tyres.
4. Adjust the carburettor.
5. Check for a damaged belt or damaged pulley. Replace the damaged parts.

PROBLEM: The grass does not discharge correctly.

1. Stop the engine. Clean the mower housing.
2. Raise the height of cut.
3. Replace or sharpen the blade(s).
4. Move the shift lever to a slower speed.
5. Move the throttle control to the FAST position.
6. Replace the spring for the blade idler.

PROBLEM: The mower housing does not cut level.

1. Check the air pressure in the tyres.
2. Adjust the level of the mower housing.
3. Check the front axle. If the front axle does not freely pivot, loosen the axle bolt(s).

PROBLEM: The mower blades will not rotate.

1. Check the mower drive belt. Make sure the belt is installed correctly.
2. Replace the mower drive belt.

PROBLEM: The unit will not move when the clutch is engaged.

1. Check the motion drive belt. Make sure the belt is installed correctly.
2. Adjust the clutch.
3. Replace the motion drive belt.

PROBLEM: The unit moves slower or stops when the clutch is engaged.

1. Adjust the clutch.
2. Replace the motion drive belt.

PROBLEM: When the clutch/brake pedal is released, belt noise can be heard.

1. Temporary belt noise does not change the operation of the unit. If belt noise is continuous, check the routing of the belt. Make sure the belt is inside all belt guides.
2. If the noise is continuous, adjust the clutch.

PROBLEM: The rear wheels spin over uneven terrain.

1. Check the front axle. If the front axle does not freely pivot, loosen the axle bolt(s).

PROBLEM: The transaxle is difficult to shift between gears with the engine running and the clutch depressed.

1. Check the clutch adjustment to make sure the belt stops when the clutch pedal is depressed with the transaxle in (N) neutral.
2. Check the belt guides around the transaxle drive pulley. Make sure the belt guides do not touch the pulley.

INDEX

A

- Adjustments
 - Blade Rotation Control, 24
 - Clutch, 25
 - Drive Brake, 25
 - Mower Housing, Level, 29
- Attachments, 17

B

- Battery
 - Charge, 26
 - Check, 13
 - Clean, 26
 - Emergency Start, 20
 - Install, 13
 - Removal, 26
 - Storage, 32
- Belt
 - Motion Drive
 - Adjust, 25
 - Replace, 30
 - Mower Drive
 - Adjust, 24
 - Replace, 31

- Blade
 - Inspect, 23
 - Remove And Install, 23
 - Sharpen, 23
- Blade Control Lever, Operation, 17
- Blade Rotation Control
 - Adjust, 24
 - Location, 16

C

- Clutch
 - Adjust, 25
 - Check, 25
- Clutch / Brake Pedal, Location, 16
- Controls
 - International Symbols, 3
 - Location, 16
- Cutting Height
 - Adjust, 29
 - Change, 18

D

- Drive Brake
 - Adjust, 25
 - Check, 25

E

- Engine
 - Fuel, 15, 20
 - Oil, 15, 20
 - Preparation, 15
 - Spark Arrester, 15, 22
 - Starting, 20
 - Storage, 32
 - Throttle Control, 17

F

- Filter, Fuel, 27
- Fuel, Type, 20
- Fuse, 32

H

- Headlight, Replace Light Bulb, 32
- Headlight Switch, Location, 16

I

- Ignition Switch, Location, 16
- International Symbols, 3

L

- Lift Lever
 - Assemble, 12
 - Location, 16
 - Operation, 18
- Lubrication, Mower, 27

M

- Maintenance
 - Battery
 - Charge, 26
 - Clean, 26
 - Belt
 - Motion Drive, 30
 - Mower Drive, 31
 - Blade, 23
 - Blade Rotation Control, 24
 - Clutch, 25
 - Drive Brake, 25
 - Filter, Fuel, 27
 - Fuse, 32
 - Headlight, 32
 - Lubrication, 27
 - Mower Housing
 - Clean, 32
 - Install, 28
 - Level, 29
 - Remove, 28
 - Muffler, 22
 - Storage, 32
- Maintenance Chart, 22
- Motion Drive Belt
 - Adjust, 25
 - Replace, 30
- Mower Drive Belt
 - Adjust, 24
 - Replace, 31
- Mower Housing
 - Clean, 32
 - Cutting Height, 18
 - Install, 28
 - Level Adjustment, 29
 - Operation, 19
 - Remove, 28
- Muffler, 22
- Spark Arrester, 22

O

- Oil
 - Check, 20
 - Type, 20
- Operation
 - Attachments, 17
 - Blade Control Lever, 17
 - Blade Rotation Control, 16
 - Clutch / Brake Pedal, 16
 - Emergency Start, 20
 - Headlight Switch, 16
 - Ignition Switch, 16
 - Lift Lever, 16, 18
 - Location Of Controls, 16
 - Mower Housing, 19
 - Mowing And Bagging, 21
 - Operate On Hills, 19
 - Parking Brake, 16, 18
 - Shift Lever, 16, 17
 - Start The Engine, 20
 - Stop The Unit, 18
 - Throttle Control, 16, 17
 - Transport, 18

P

- Parking Brake
 - Location, 16
 - Operation, 18
- Parts Bag, 11

S

- Safety Rules
 - Children, 6
 - Safe Mowing Guide, 7-9
 - Safe Operation Practices, 4
 - General Operation, 5
 - Service, 6
 - Slope Operation, 6
- Seat, Install, 14
- Seat Switch, Operation, 20
- Shift Lever
 - Location, 16
 - Operation, 17
- Slope Guide, 35
- Spark Arrester, 15, 22
- Steering Wheel, 14
- Storage, 32

T

- Throttle Control
 - Location, 16
 - Operation, 17
- Trouble Shooting Chart, 33
- Tyre Pressure, 15, 27

W

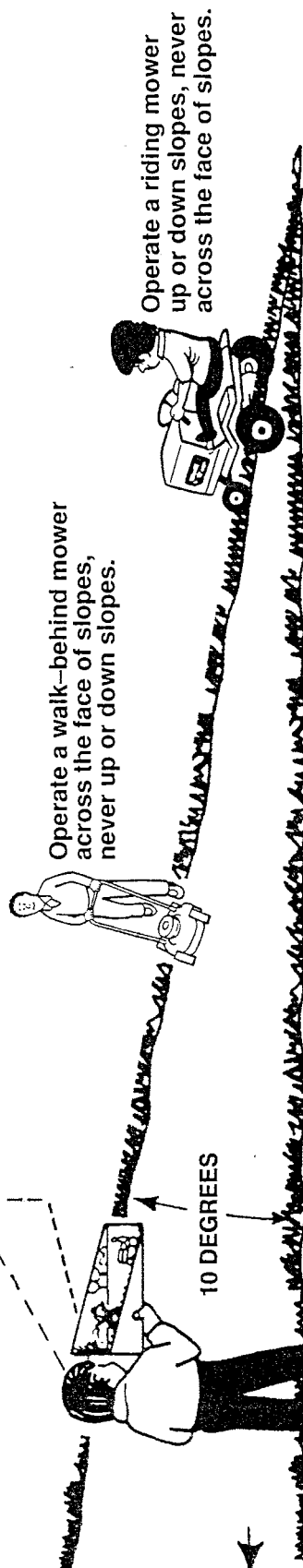
- Wheels, Front, Install, 12

SLOPE GUIDE

SIGHT AND HOLD THIS GUIDE LEVEL WITH A VERTICAL TREE, A CORNER OF A STRUCTURE, A POWER LINE POLE, OR A FENCE.

10 DEGREES

FOLD ALONG DOTTED LINE



riding mower to determine if a slope is safe to mow: (1) disengage the blade(s), (2) put the unit in reverse, and (3) try to back straight up the slope. If you can back up the slope, it is generally safe to mow. However, if you do not feel safe, or if you are not completely sure, use this guide to not mow a slope that is greater than 10 degrees. If the riding mower is used with a pull-behind or rear mounted attachment, do not operate the unit on a slope that is greater than 10 degrees.

degree slope is a hill that increases in height at approximately 1.7 feet in 10 feet.



Use extreme care at all times, and avoid sudden turns or maneuvers. Follow other instructions in this manual for safety in mowing on slopes. Operate a riding mower up or down slopes, never across the face of slopes. Operate a walk-behind mower across the face of slopes, never up or down slopes. Use extra care when operating on or near slopes and obstructions.

CUT HERE TO USE SLOPE GUIDE