



M216KA / M216KASP

For Serial Nos.
440,000 & Higher



METRO™ 21

OPERATOR'S MANUAL

CONGRATULATIONS on the purchase of your new Exmark mower. This product has been carefully designed and manufactured to give you a maximum amount of dependability and years of trouble-free operation. If additional information is needed, or should you require trained mechanic service, contact your authorized Exmark equipment dealer or distributor. If you need to order replacement parts from your dealer, always give the model number and serial number of your mower as well as the part number, description and quantity of the part needed.

The Serial No. plate is located on the top of the mower deck on the right hand corner of the machine. For ease of ordering and reference, we suggest that you record the information requested in the following identification table.

Place Model No. and Serial No. Label Here
(Included in Literature Pack)
or Fill in Below

Model No. _____

Serial No. _____

Engine Model No. and Spec. No. (Code) _____

Engine Serial No (E/No) _____

Date Purchased _____

Part No. 3329-962

IMPORTANT

When the mower is used or operated on any California forest-, brush- or grass-covered land, a working spark arrester must be attached to the muffler. If not, the operator is violating state law, Section 4442 Public Resource Code. To acquire a spark arrester for your unit, see your Engine Service Dealer.



WARNING



POTENTIAL HAZARD

- This product is a piece of power equipment.

WHAT CAN HAPPEN

- Failure to follow safe operating practices can result in serious operator injury or even death.

HOW TO AVOID THE HAZARD

- Keep all shields, guards, and safety devices (especially the grass discharge system) in place and in proper working condition.
- Before adjusting, servicing, or performing maintenance, stop the engine and wait for all moving parts to stop, then remove the spark plug wire or remove the key.
- If the mower deck becomes clogged, stop the engine and wait for all moving parts to stop, then remove the spark plug wire or remove the key before cleaning the blockage.
- Keep hands, feet, and clothing away from power-driven parts.
- Keep off the mower unless the seat platform is provided.
- Keep others off the mower.



WARNING



POTENTIAL HAZARD

- Gasoline is harmful or fatal if swallowed. Long-term exposure to vapors has caused cancer in laboratory animals.

WHAT CAN HAPPEN

- Failure to use caution may cause serious injury or illness.

HOW TO AVOID THE HAZARD

- Avoid prolonged breathing of vapors.
- Keep face away from nozzle and gasoline tank/container opening.
- Keep gasoline away from eyes and skin.
- Never siphon gasoline by mouth.

Exmark reserves the right to make changes to add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously. Exmark, or its distributors and dealers, accept no responsibility for variations which may be evident in the actual specifications of its products and the statements and descriptions contained in this publication.

EXMARK PARTS PLUS[®] PROGRAM

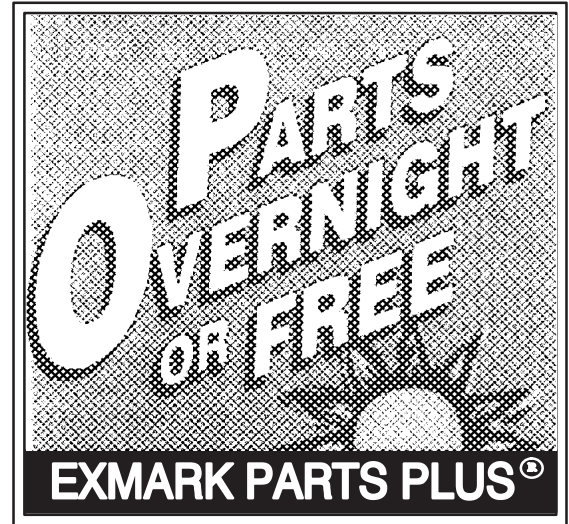
EFFECTIVE DATE: September 1, 1995

Program

If your Exmark dealer does not have the Exmark part in stock, Exmark will get the parts to the dealer the next business day or the part will be FREE* Guaranteed!!

How the Program Works

1. If dealer does not have part in stock for a "down" unit at the time of request by customer, the dealer contacts his distributor by 1:00 p.m. local time, and requests Exmark Parts Plus[®] shipment of six line items or less.
2. Distributor ships part(s) to dealer or customer, as requested by dealer, same day, overnight UPS. Distributor bills dealer for part and freight charges where applicable.
3. If distributor does not have the part(s) in stock to satisfy Exmark Parts Plus[®] order, he contacts Exmark by 3:00 p.m., central time, with an Exmark Parts Plus[®] order of six line items or less.
4. If order is received by 3:00 p.m. central time, Exmark ships part(s) direct to dealer or customer, as requested by distributor, same day, overnight UPS, Exmark bills the distributor for parts and shipping charges, where applicable.
5. The customer pays for the part and freight if it is shipped under the Exmark Parts Plus[®] and if it arrive in accordance to the program.
6. Who pays for the part and freight if it fails to arrive overnight in accordance to the program?
 - A. Under any circumstance the customer does not pay.
 - B. If the part does not arrive overnight due to:
 1. The dealer not submitting the Exmark Parts Plus[®] order to his Exmark distributor by 1:00 p.m., the dealer pays for the part and freight.
 2. The Distributor being unable to ship the part the same day or not submitting the Exmark Parts Plus[®] order to Exmark by 3:00 p.m. central time, the Distributor pays for the part and freight.
 3. Exmark being unable to ship the part and the Exmark parts order is received by 3:00 p.m. central time, Exmark pays for the part and freight.
 4. If the part does not arrive overnight due to the shipper (UPS), the shipper pays for the freight and Exmark pays for the part.



The following restrictions apply — The Exmark Parts Plus[®] Program is available only through participating Exmark Dealers and applies only to orders submitted on this program Monday through Thursday. Parts Plus service is available only in the 48 contiguous United States. UPS has initiated a Saturday delivery program to many areas of the continental United States and can be requested for an overnight shipment on Friday to be delivered Saturday. The next day air charge, plus the Saturday delivery fee will be the responsibility of the purchaser. Exmark Mfg. will assume no responsibility for Saturday delivery shipments. To qualify, all Exmark Parts Plus[®] orders must be received by Exmark by 3:00 p.m. central time. Orders must be six line items or less. Exclusions from the Exmark Parts Plus[®] Program are: Any wholegood or accessory in its entirety, engines and engine replacement parts, 5-speed Peerless transmissions and 5-speed transaxles, hydraulic or hydrostatic wheel motors, cutter decks and engine decks or any item exceeding United Parcel Service size and weight restrictions.

Due to UPS restrictions, aerosol spray paint is considered a hazardous material and cannot be shipped via UPS next day or Second Day Air.

Exmark Manufacturing stocks a limited supply of parts for transaxles, pumps and wheel motors. These parts can be ordered for Next Day Air shipment but will not be guaranteed per the Parts Plus Program.

CONGRATULATIONS on the purchase of your Exmark Mower. This product has been carefully designed and manufactured to give you a maximum amount of dependability and years of trouble-free operation.

OPERATOR'S MANUAL

This manual contains assembly, operating, maintenance, adjustment and safety instructions for your Exmark mower.

BEFORE OPERATING YOUR MOWER, CAREFULLY READ THIS MANUAL IN ITS ENTIRETY.

By following the operating, maintenance and safety instructions, you will prolong the life of your mower, maintain its maximum efficiency and promote safe operation.

If additional information is needed, or should you require trained mechanic service, contact your authorized Exmark equipment dealer or distributor.

All Exmark equipment dealers and distributors are kept informed of the latest methods of servicing and are equipped to provide prompt and efficient service in the field or at their service stations. They carry ample stock of service parts or can secure them for you from the factory.

All Exmark parts are thoroughly tested and inspected before leaving the factory; however, attention is required on your part if you are to obtain the fullest measure of satisfaction and performance.

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Warning

CALIFORNIA

Proposition 65 Warning

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

This spark ignition system complies with Canadian ICES-002.

Ce système d'allumage par étincelle de véhicule est conforme à la norme NMB-002 du Canada.

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

Keep this engine Owner's Manual with your unit. Should this engine Owner's Manual become damaged or illegible, replace immediately. Replacements may be ordered through the engine manufacturer.

Specifications

Model Number:	M216KA, M216KASP
Engine:	Kawasaki 6.0HP OHV 3300 RPM (No load)
Fuel System:	
Capacity:	4.0 qt. (3.8 L)
Fuel filter:	Non-replaceable, in tank
Transmission:	
3 speeds forward	
Speed range:	
First	1.8 mph (2.9 km/h)
Second	2.7 mph (4.3 km/h)
Third	3.8 mph (6.1 km/h)
Cutting Width:	21 in. (53 cm)
Cutting Height:	
Adjusts in 1/2 in. (1.3 cm) increments from	
.75 in. (1.9 cm) to 3.25 in. (8.3 cm)	
Grass Catcher Capacity	2.5 Bu. (88 L)
Weight (with bag):	
M216KA	95 lb. (43.1 kg)
M216KASP	107 lb. (48.5 kg)

Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Exmark designs and produces safe products, you are responsible for operating the product properly and safely.

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. **Danger**, **Warning**, and **Caution** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

Danger signals an extreme hazard that **will** cause serious injury or death if you do not follow the recommended precautions.

Warning signals a hazard that **may** cause serious injury or death if you do not follow the recommended precautions.

Caution signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.



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


Safety

This lawn mower meets or exceeds the CPSC blade safety requirements for walk-behind rotary lawn mowers and the B71.4 specifications of the American National Standards Institute in effect at the time of production.

Improperly using or maintaining this lawn mower can result in injury. To reduce the potential for injury, comply with these safety instructions.

Exmark designed and tested this lawn mower to offer reasonably safe service; however, **failure to comply with the following instructions may result in personal injury.**

	Warning	
<p>Engine exhaust contains carbon monoxide, an odorless, deadly poison that can kill you.</p> <p>Do not run the engine indoors or in an enclosed area.</p>		

To ensure maximum safety, best performance, and to gain knowledge of the product, it is essential that you and any other operator of the lawn mower read and understand the contents of this manual before the engine is ever started. Pay particular attention to the safety alert symbol  which means *caution, warning, or danger* — “personal safety instruction.” Read and understand the instruction because it has to do with safety. Failure to comply with the instruction may result in personal injury.

General Lawn Mower Safety

This lawn mower is capable of amputating hands and feet and of throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

Training

- Read this operator’s manual carefully. Be thoroughly familiar with the controls and the proper use of the lawn mower before starting it.
- Never allow children to operate the lawn mower. Local regulations may restrict the age of the operator.

- Never allow adults unfamiliar with these instructions to operate the lawn mower.
- Never mow while people (especially children) or pets are nearby. Stop the lawn mower if anyone enters the area.
- Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the lawn mower and the mowing activity. Never assume that children will remain where you last saw them.
- Keep children out of the mowing area and under the watchful care of a responsible adult.
- Be alert and turn the lawn mower off if children enter the area.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
- See the manufacturer's instructions for proper operation and installation of accessories. Use only the accessories that are approved by the manufacturer.

Preparation

- Thoroughly inspect the area where you will use the lawn mower, and remove all stones, sticks, wires, bones, and other foreign objects.
- While mowing, always wear substantial footwear and long trousers.
- Do not operate the lawn mower when barefoot or wearing open sandals.
- Always wear safety goggles or safety glasses with side shields when operating the lawn mower.
- Warning: Gasoline is highly flammable. Take the following precautions:
 - Store fuel in containers specifically designed for this purpose.
 - Refuel outdoors only and do not smoke while refuelling.
 - Add fuel before starting the engine. Never remove the cap of the fuel tank or add gasoline while the engine is running or when the engine is hot.
 - If gasoline is spilled, do not attempt to start the engine. Move the lawn mower away from the area of spillage to avoid creating any source of ignition until the gasoline vapors have dissipated.
 - Replace all fuel tank and container caps securely.
- If you must drain the fuel from the fuel tank, do it outdoors.
- Replace faulty mufflers.
- Before using, always visually inspect the blades, blade bolts, and cutter assembly for wear or damage. Replace worn or damaged blades and bolts in sets to preserve balance.
- On multibladed lawn mowers, use care as rotating one blade can cause the other blades to rotate.

Operation

- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Mow only in daylight or in good artificial light.
- Always be sure of your footing on slopes.
- Walk; never run.
- Keep a firm hold on the handle.
- For wheeled rotary lawn mowers, mow across the face of slopes, never up and down.
- Exercise extreme caution when changing the direction on slopes.
- Do not mow excessively steep slopes.
- Use extreme caution when reversing or pulling the lawn mower toward you.
- Before and while moving backward, look behind and down for small children.
- Stop the blade(s) if you must tilt the lawn mower for transportation when crossing surfaces other than grass and when transporting the lawn mower to and from the area to be mowed.
- Never operate the lawn mower with damaged or missing guards or shields, or without safety devices (such as deflectors and grass catchers) in place.
- Do not change the speed settings on the engine.
- Disengage all blade and drive clutches before starting the engine.
- Start the engine carefully according to instructions and with feet well away from the blade(s).
- Do not start the engine when standing in front of the discharge chute.
- Do not put your hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Never pick up or carry a lawn mower while the engine is running.
- Stop the engine and disconnect the spark-plug wire:

- before clearing blockages or unclogging the chute;
- before checking, cleaning, or working on the lawn mower;
- after striking a foreign object. Inspect the lawn mower for damage and make repairs before starting and operating the lawn mower; and
- if the lawn mower starts to vibrate abnormally (check it immediately).
- Stop the engine:
 - whenever you leave the lawn mower; and
 - before refuelling.
- Reduce the throttle setting during engine run-out and, if the engine has a shutoff valve, turn the fuel off after mowing.
- Stop the blade(s) when crossing gravel drives, walks, or roads.
- Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher.
- Do not operate the lawn mower while under the influence of alcohol or drugs.
- If the lawn mower should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.

Slopes are a major factor related to slip and fall accidents which can result in a severe injury. If you feel uneasy on a slope, do not mow it.

- Watch for holes, ruts, or bumps. Tall grass can hide obstacles.
- Do not mow near drop-offs, ditches, or embankments. You could lose your footing or balance.
- Do not mow on wet grass. Reduced footing could cause slipping.

Maintenance and Storage

- Keep all nuts, bolts (especially blade attachment bolts), and screws tight to ensure that the lawn mower is in safe working condition.
- Never store the lawn mower with gasoline in the tank inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing the lawn mower in any enclosure.
- To reduce the fire hazard, keep the engine, muffler, battery compartment, and gasoline storage area free of grass, leaves, or excessive grease.
- Check the grass catcher frequently for wear or deterioration.

- Replace worn or damaged parts.
- Use extra care when handling gasoline; gasoline vapors are explosive.
- Never tamper with safety devices. Check their proper operation regularly.
- Keep the lawn mower free of grass, leaves, or other debris buildup. Clean up any oil or fuel spills.
- Stop and inspect the lawn mower if you strike an object. Repair the lawn mower, if necessary, before starting the engine.
- Never attempt to make wheel height adjustments while the engine is running.
- Grass catcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check the components and replace them with the manufacturer's recommended parts when necessary.
- Lawn mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Do not change the speed settings on the engine.
- If you must drain the fuel from the fuel tank, do it outdoors.
- To ensure the best performance and safety, purchase only genuine Exmark replacement parts and accessories.
- Maintain or replace safety and instruction decals when necessary.

Exmark Lawn Mower Safety

The following list contains safety information specific to Exmark products or other safety information that you must know that is not included in the ANSI/OPEI standard.

This product is designed for cutting and recycling grass or, when equipped with a grass bagger, for catching cut grass. Any use for purposes other than these could prove dangerous to the user and bystanders.

Note: This engine is not equipped with a spark arrester muffler. It is a violation of California Public Resource Code Section 4442 to use or operate this engine on any forest-, brush-, or grass-covered land. Other states or federal areas may have similar laws.

General Operation

- Ensure that the area is clear of other people before mowing. Stop the lawn mower if anyone enters the area.

- Do not mow in reverse unless it is absolutely necessary. Always look down and behind before and while backing up.
- Be aware of the lawn mower discharge direction and do not point it at anyone. Do not operate the lawn mower without either the grass catcher or the guard in place.
- Slow down before turning with the lawn mower. Sharp turns on any terrain may cause loss of control.
- Turn off the blades when you are not mowing.
- Keep hands, feet, hair and loose clothing away from the attachment discharge area, the underside of the lawn mower, and any moving parts while the engine is running.
- Stop the engine before removing the grass catcher or unclogging the chute.
- Watch for traffic when operating near or crossing roadways.
- Do not touch the lawn mower or attachment parts which may be hot from operation. Allow the lawn mower to cool down before attempting to maintain, adjust, or service it.

Safety and Instruction Decals



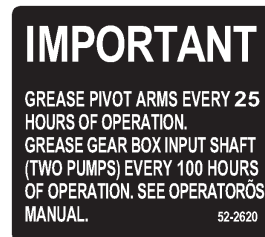
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.

TRACTION CONTROL 	OPERATING INSTRUCTIONS START: 1. MOVE GROUND SPEED CONTROL TO N 2. MOVE THROTTLE TO FAST. 3. LIFT CONTROL BAR TO HANDLE AND HOLD. 4. PULL ROPE. WHEN ENGINE STARTS REGULATE THROTTLE AS DESIRED. STOP: RELEASE CONTROL BAR.	 DRIVE RUN OFF	 WARNING	 READ YOUR OPERATOR'S MANUAL FOR OPERATING AND SAFETY INSTRUCTIONS. TO GET A REPLACEMENT MANUAL, SEND MODEL AND SERIAL NUMBERS TO: EXMARK MANUFACTURING CO. P.O. BOX 808 BEATRICE, NE 68310
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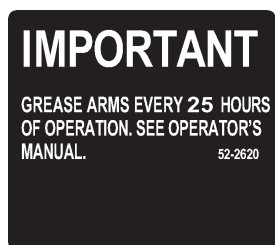
1-213242 (Self-propel model only)



39-5770



52-2620 (Self-propel model only)



52-2610 (Hand-push model only)



68-7410



74-1970 (Self-propel model only)

1. Transmission speeds 2. Neutral



▲ WARNING
 ROTATING BLADE OR THROWN OBJECTS CAN SERIOUSLY INJURE. DO NOT OPERATE WITHOUT PLUG OR OTHER ATTACHMENT LOCKED IN PLACE.



77-0500

▲ DANGER

- THROWN OBJECTS AND BLADE CONTACT MAY RESULT IF DOOR IS NOT COMPLETELY CLOSED.
- THROWN OBJECTS AND BLADE CONTACT CAN SERIOUSLY INJURE.
- OPERATE ONLY IF DOOR IS COMPLETELY CLOSED OR ATTACHMENT IS LOCKED IN PLACE.
- CLEAR DISCHARGE WITH ENGINE STOPPED BY MOVING DOOR HANDLE BACK AND FORTH. 99-7398

82-9152

▲ WARNING
 UNDER NORMAL USAGE, THIS BAG MATERIAL IS SUBJECT TO DETERIORATION AND WEAR, AND SHOULD THEREFORE BE FREQUENTLY CHECKED FOR BAG REPLACEMENT. CHECK ANY REPLACEMENT TO INSURE THAT IT IS A GENUINE EXMARK BAG WHICH BEARS THIS WARNING.

98-8017

HEARING PROTECTION RECOMMENDED

104-1329

▲ WARNING

AVOID SERIOUS INJURY or DEATH:

- GO ACROSS SLOPES, NOT UP AND DOWN.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- DONOT ALLOW OPERATION OF THIS MACHINE BY UNTRAINED PERSONNEL.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, ETC.) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.
- READ THE OPERATOR'S MANUAL.

FOR REPLACEMENT MANUAL, SEND MODEL & SERIAL NUMBER TO:
 EXMARK MFG. CO., P.O. BOX 808, BEATRICE, NEBRASKA 68310

104-8585

104-8585

Assembly

Note: Determine the left and right sides of the machine from the normal operating position.

Installing the Handle

1. Mount the handle to the outside of the lawn mower housing (using the bottom hole) with 2 5/16-18 x 1-1/4 in. cap screws, washers, and thin nylon insert locknuts.
2. Secure the handle latches to the handle with 2 cap screws (5/16-18 x 1-1/2 in.), washers, and nylon insert locknuts (Fig. 1).

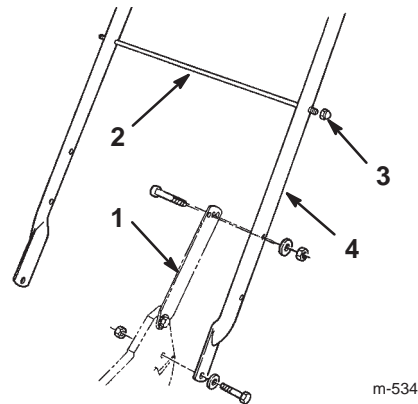


Figure 1

- | | |
|--------------------|--------------------|
| 1. Handle latch | 3. Cap locknut (2) |
| 2. Bag support rod | 4. Handle |

Note: You can adjust the handle height for comfortable operation. Stand behind the handle to determine the height. To adjust the handle height, position the cap screws and the locknuts that secure the handle latches to the handle into the other mounting holes in the latches.

3. Slide the bag support rod through the second from the top mounting holes in the handle and secure each end with a cap locknut (Fig. 1).
4. Use a cable tie to secure the control cables to the left handle below the bag support rod.

Installing the Starter Rope

Pull the starter rope through the rope guide on the handle (Fig. 2).

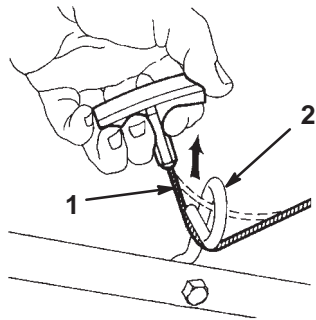


Figure 2

1. Starter rope
2. Rope guide

m-210

Note: To make the rope easier to install, squeeze the control bar on the handle.

Installing the Fuel Tank and the Fuel Line

1. Start the two self-tapping screws into the bottom of the fuel tank and then remove the screws (Fig. 3).

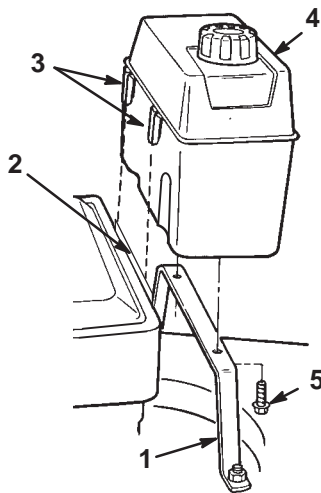


Figure 3

1. Tank base
2. Fuel tank bracket
3. Plastic clips
4. Fuel tank
5. Self-tapping screw (2)

530

2. Hook the plastic clips on the front of the fuel tank onto the fuel tank bracket (Fig. 3).
3. Secure the fuel tank to the tank base with the two self-tapping screws (Fig. 3). **Do not overtighten the screws.**
4. Remove the red cap from the end of the fuel line and from the end of the elbow fitting on the fuel tank (Fig. 4).

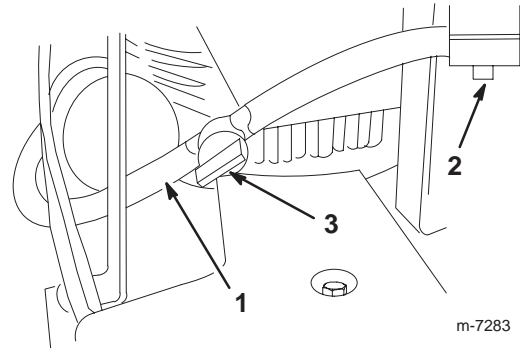


Figure 4

1. Fuel line
2. Elbow fitting
3. Fuel valve

m-7283

5. Slide the end of the fuel line onto the elbow fitting (Fig. 4).
6. Secure the fuel line in place with the fuel line clamp (Fig. 4).

Installing the Discharge Tunnel Plug

1. Open the discharge door by pulling forward on the handle and moving it rearward (Fig. 5). Hold the discharge door handle to prevent the spring-loaded door from closing while you insert the plug.

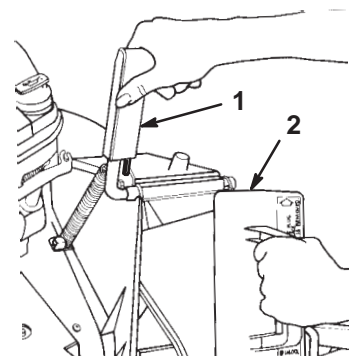


Figure 5

1. Discharge door handle
2. Plug rotated clockwise

m-1914

- Since the plug is slightly wider than the discharge tunnel opening, rotate the plug clockwise slightly while inserting it (Fig. 5).

Note: Ensure that the arrow on the plug decal points upward.

- Push the plug all the way in until the spring clip on the bottom of the plug clicks into place, locking the plug securely into the discharge tunnel (Fig. 6).

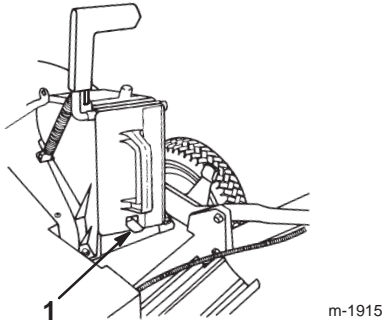


Figure 6

- Spring clip

- Release the discharge door handle to lock the top of the plug.

Before Starting

Filling the Crankcase with Oil

Initially, fill the crankcase with 30 ounces (0.88 liters) of oil. Use only high-quality SAE 30 or SAE 10W30 weight detergent oil that has the American Petroleum Institute (API) service classification SF, SG, SH, or SJ.

Oil Capacity	
With Oil Filter	30 ounces (0.88 L)
Without Oil Filter	24 ounces (0.70 L)

Before each use, ensure that the oil level is between the Add and Full marks on the dipstick (Fig. 7).

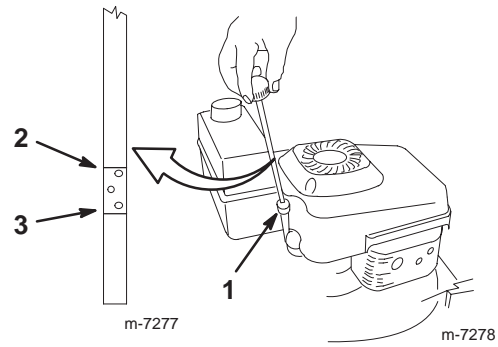


Figure 7

- Dipstick
- Full
- Add

Note: When the crankcase is empty, pour about 3/4 of the crankcase capacity of oil in the crankcase, then follow the procedure in this section.

To add oil:

- Move the lawn mower to a level surface.
- Clean around the dipstick (Fig. 7).
- Remove the dipstick by rotating the cap counterclockwise and pulling it out.
- Wipe the dipstick clean with a clean cloth.
- Insert the dipstick into the filler neck, then remove it.

Note: To ensure an accurate oil level reading, you must fully install the dipstick.

- Read the oil level on the dipstick (Fig. 7).
- If the oil level reading is below the Add mark on the dipstick, **slowly** pour only enough oil into the filler hole to raise the oil level to the Full mark on the dipstick.

Important Do not overfill the crankcase with oil and run the engine; engine damage will result. Drain the excess oil until the oil level on the dipstick reads Full.

- Insert the dipstick into the filler neck and rotate the cap clockwise until it is tight.

Filling the Fuel Tank with Gasoline

For best results, use clean, fresh, lead-free gasoline with an octane rating of 87 or higher. To ensure freshness, purchase only the quantity of gasoline that you expect to use in 30 days. Using unleaded gasoline results in fewer combustion deposits and longer engine life.

Important Do not add oil to the gasoline.

Important Do not use methanol, gasoline containing methanol, gasohol containing more than 10% ethanol, premium gasoline, or white gas. Using these fuels can damage the engine's fuel system.

Important Do not use gasoline that has been stored since the last mowing season or longer.



Danger



In certain conditions, gasoline is extremely flammable and highly explosive. A fire or explosion from gasoline can burn you and others and can damage property.

- Fill the fuel tank outdoors, in an open area, and when the engine is cold. Wipe up any gasoline that spills.
- Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is 1/4 to 1/2 in. (6 to 13 mm) below the bottom of the filler neck. This empty space in the tank allows the gasoline to expand.
- Never smoke when handling gasoline, and stay away from an open flame or where a spark may ignite the gasoline fumes.
- Store gasoline in an approved fuel container and keep it out of the reach of children.
- Never buy more than a 30-day supply of gasoline.



Danger



When fueling, under certain circumstances, a static charge can develop, igniting the gasoline. A fire or explosion from gasoline can burn you and others and damage property.

- Always place gasoline containers on the ground and away from your vehicle before filling.
- Do not fill gasoline containers inside a vehicle or on a truck or trailer bed because interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge.
- When practical, remove gasoline-powered equipment from the truck or trailer and refuel the equipment with its wheels on the ground.
- If this is not possible, then refuel such equipment on a truck or trailer from a portable container, not from a gasoline dispenser nozzle.
- If you must use a gasoline dispenser nozzle, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

Use a fuel stabilizer/conditioner regularly during operation and storage. A stabilizer/conditioner cleans the engine during operation and prevents gum-like varnish deposits from forming in the engine during periods of storage.

Important Do not use fuel additives other than a fuel stabilizer/conditioner. Do not use fuel stabilizers with an alcohol base such as ethanol, methanol, or isopropanol.

1. Clean around the fuel tank cap (Fig. 8).

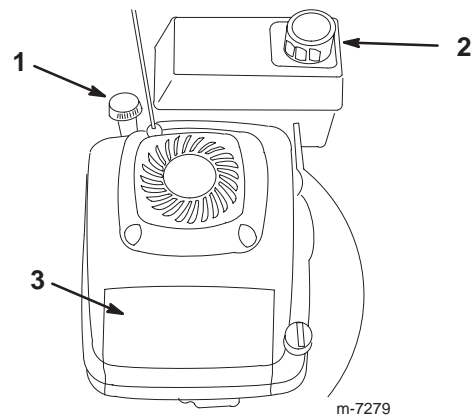


Figure 8

1. Oil fill/Dipstick
2. Fuel tank cap
3. Air cleaner

2. Remove the cap from the tank.

- Fill the fuel tank with unleaded gasoline to within 1/4 to 1/2 inch (6 to 13 mm) from the top of the tank. **Do not fill into the filler neck.**

Important Do not fill the tank more than 1/4 inch (6 mm) from the top of the tank because the gasoline must have room to expand.

- Install the fuel tank cap and wipe up any spilled gasoline.

Operation

Note: Determine the left and right sides of the machine from the normal operating position.

Each time before you mow, make sure that the self-propel drive and the blade control bail operate properly. When you release the blade control bail, the blade and self-propel drive should stop. If they do not, contact an Authorized Service Dealer.

!
Caution
!

This machine produces sound levels in excess of 85dBA at the operator's ear and can cause hearing loss through extended periods of exposure.

Wear hearing protection when operating this machine.

Controls

The blade control bail, starter handle, and throttle control are on the upper handle as shown in Figure 9.

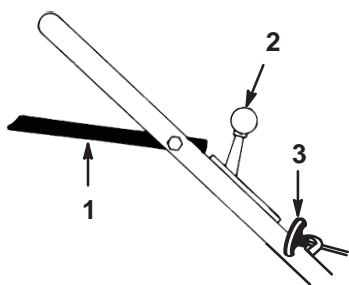


Figure 9

- Blade control bail
- Starter handle
- Throttle control

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Starting the Engine

- Connect the wire to the spark plug (Fig. 10).

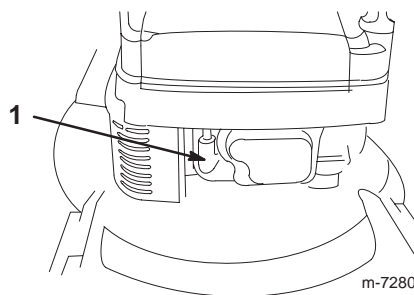


Figure 10

- Spark-plug wire

- Open the fuel valve (Fig. 8).
- Move the throttle control to the (**Choke**) position (Fig. 9).
- Move the ground speed control to the (**Neutral**) position (Fig. 11).

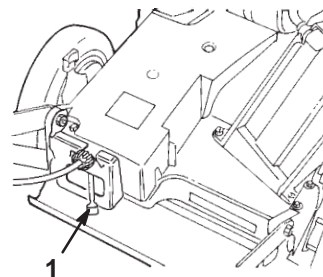


Figure 11

- Ground speed control

- Pull the starter handle (Fig. 8) lightly until you feel resistance, then pull it sharply.
- Regulate the throttle and the ground speed control as desired when the engine starts.

Note: If the engine fails to start after 3 pulls, repeat steps 3 through 6.

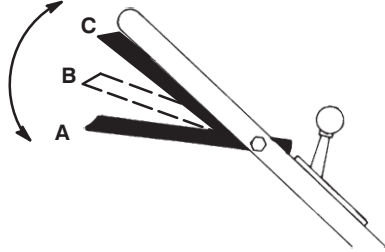
Stopping the Engine

- Release the blade control bail and move the throttle control to the (**Off**) position.
- Disconnect the wire from the spark plug if you do not use the lawn mower or if you leave it unattended.

Operating the Blade and the Self-Propel Drive

Note: The self-propel features are for the self-propel model only.

1. Have the blade control bail in the **A** position (Fig. 12).



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Figure 12

2. Slide the blade control bail to the right and raise it to the **B** position to engage the blade (Fig. 12).
3. Squeeze the blade control bail against the handle to the **C** position to drive (Fig. 12).

Note: To disengage the traction drive but keep the blade engaged, gradually release the blade control bail to the **B** position. To self-propel with the blade disengaged, squeeze the blade control bail against handle to the **C** position without sliding the blade control bail to the right.

The lawn mower has 3 ground speeds. **1** is slow, **2** is medium, and **3** is fast. The ground speed control is located at the rear of the belt cover (Fig. 11).

Note: You can vary the ground speed by increasing or decreasing the distance between the control bar and the handle. Lower the control bar to slow the lawn mower when making a turn or if the lawn mower is moving too fast for you. If you lower the control bar too far, the lawn mower stops self-propelling. Squeeze the control bar closer to the handle to increase the ground speed. When you hold the control bar tight against the handle, the lawn mower self-propels at the maximum ground speed. Move

the ground speed control to the **N** (Neutral) position when you use the lawn mower for trimming and whenever you leave the lawn mower.

Using the Discharge Tunnel Plug

1. Stop the engine and wait for all moving parts to stop.
2. Insert the plug; refer to Installing the Discharge Tunnel Plug on page 7.
3. To remove the plug, move the discharge door handle rearward and lift up the spring clip on the bottom of the plug. When the plug is unlocked, pull it out of the discharge tunnel.

Note: When grass is thick and lush, clippings may collect on and around the discharge tunnel plug. This may make removing the plug difficult. Clean the plug thoroughly after each use.

Adjusting the Cutting Height

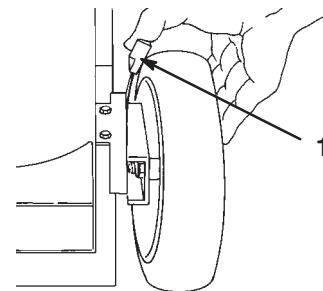
Each wheel is adjusted individually with a wheel height adjustment lever. Cutting heights are 1 inch (25 mm), 1-1/2 inches (38 mm), 2 inches (51 mm), 2-1/2 inches (64 mm), 3 inches (76 mm), and 3-1/2 inches (89 mm).

Danger

Adjusting the cutting height levers could bring your hands into contact with a moving blade and result in serious injury.

- Stop the engine and wait for all movement to stop before adjusting the cutting height.
- Do not put your fingers under the housing when adjusting the cutting height.

1. Pull the wheel height adjustment lever toward the wheel (Fig. 13) and move it to the desired setting.



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Figure 13

1. Wheel height adjustment lever
2. Release the wheel height adjustment lever and seat it securely in the notch.
3. Adjust all the wheels to the same cutting height setting.

Using the Grass Bag

Occasionally, you may wish to use the grass bag for bagging extra long grass, lush grass, or leaves.

Installing the Grass Bag

1. Stop the engine and wait for all moving parts to stop.
2. Ensure that the discharge door handle is fully forward and that the pin is engaged in the catch (Fig. 14).

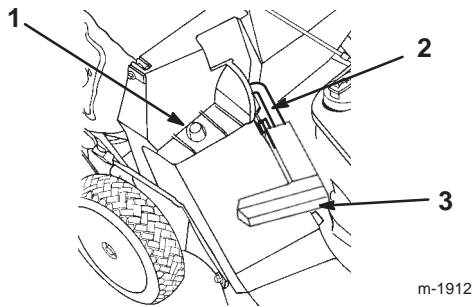


Figure 14

1. Bag frame on retaining post
2. Pin engaged in catch
3. Handle fully forward. Discharge door closed.
3. Slide the hole in the bag frame onto the retaining post on the discharge tunnel (Fig. 14).
4. Set the rear of the bag frame onto the bag support rod.
5. Pull the discharge door handle forward until the pin clears the catch, and move the handle rearward until the pin locks in the bag notch (Fig. 15).

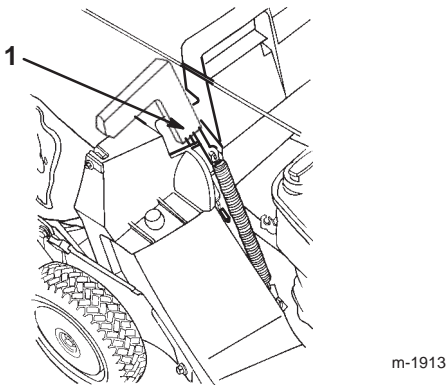


Figure 15

1. Pin locked in bag notch

Note: The discharge door in the lawn mower housing is now open.

Mowing with the Grass Bag



Warning



A worn grass bag could allow small stones and other similar debris to be thrown in the operator's or bystander's direction and result in serious personal injury or death to the operator or bystanders.

Check the grass bag frequently. If it is damaged, install a new Exmark replacement bag.

Cut the grass until the bag is full.

Important Do not overfill the bag.

Removing the Grass Bag

1. Stop the engine and wait for all moving parts to stop.
2. Raise the discharge door handle and move it forward to engage the pin with the catch (Fig. 14).
3. Grasp the handles at the front and the rear of the bag and lift the bag off the lawn mower.
4. Gradually tip the bag forward to empty the clippings.
5. To install the bag, refer to Installing the Grass Bag on page 12.



Danger



If the discharge door does not close completely, the lawn mower could throw objects, causing serious personal injury or death.

If you cannot close the door because the grass clippings clog the discharge area, stop the engine and gently move the discharge door handle back and forth until you can close the door completely. If you still cannot close the door, remove the obstruction with a stick, not your hand.



Danger



The lawn mower can throw grass clippings and other objects through an open discharge tunnel. Objects thrown with enough force could cause serious personal injury or death to the operator or bystander.

Never open the door on the discharge tunnel when the engine is running.

Operating Tips

- Review the safety instructions and read this manual carefully before operating the lawn mower.
- Clear the area of sticks, stones, wire, branches, and other debris that the blade could hit and throw.
- Keep everyone, especially children and pets, away from the area of operation.
- Avoid striking trees, walls, curbs, or other solid objects. Never deliberately mow over any object.
- If the lawn mower strikes an object or starts to vibrate, immediately stop the engine, disconnect the wire from the spark plug, and examine the lawn mower for damage.
- Maintain a **sharp blade** throughout the cutting season. Periodically file down nicks on the blade.
- Replace the blade when necessary with an original Exmark replacement blade.
- Mow only dry grass or leaves. Wet grass and leaves tend to clump on the yard and can cause the lawn mower to plug or the engine to stall.



Warning



Wet grass or leaves can cause serious injury if you slip and contact the blade.

Mow only in dry conditions.

- Clean the underside of the lawn mower deck after each mowing. See Cleaning the Underside of the Lawn Mower Housing on page 15.
- Keep the engine in good running condition.
- Set the engine speed to the fastest position for the best cutting results.



Warning



Operating a lawn mower with its engine running at a speed greater than the factory setting can cause the lawn mower to throw a part of the blade or engine into the operator's or bystander's area and result in serious personal injury or death.

- **Do not change the engine speed setting.**
- **If you suspect the engine speed is faster than normal, contact an Authorized Service Dealer.**

- Clean the air filter frequently. Mulching stirs up more clippings and dust which clogs the air filter and reduces engine performance.

Cutting Grass

- Grass grows at different rates at different times of the year. In the summer heat, it is best to cut grass at the 2 inch (51 mm), 2-1/2 inch (64 mm), or 3 inch (76 mm) cutting height settings. Cut only about a third of the grass blade at a time. Do not cut below the 2 inch (51 mm) setting unless the grass is sparse or it is late fall when grass growth begins to slow down.
- When cutting grass over 6 inches (15 cm) tall, first mow at the highest cutting height setting and walk slower; then mow again at a lower setting for the best lawn appearance. If the grass is too long and the leaves clump on top of the lawn, the lawn mower may plug and cause the engine to stall.
- Alternate the mowing direction. This helps disperse the clippings over the lawn for even fertilization.

If the finished lawn appearance is unsatisfactory, try one or more of the following:

- Sharpen the blade.
- Walk at a slower pace while mowing.
- Raise the cutting height on your lawn mower.
- Cut the grass more frequently.
- Overlap cutting swaths instead of cutting a full swath with each pass.
- Set the cutting height on the front wheels one notch lower than the rear wheels. For example, set the front wheels at 2 inches (51 mm) and the rear wheels at 2-1/2 inches (64 mm).

Cutting Leaves

- After cutting the lawn, ensure that half of the lawn shows through the cut leaf cover. You may need to make more than one pass over the leaves.
- For light leaf coverage, set all the wheels at the same cutting height setting.
- If there are more than 5 inches (12.7 cm) of leaves on the lawn, set the front cutting height 1 or 2 notches higher than the rear cutting height. This makes it easier to feed the leaves under the lawn mower deck.
- Slow down your mowing speed if the lawn mower does not cut the leaves finely enough.
- If you mow over oak leaves, you can add lime to the grass in the spring to reduce the acidity of the oak leaves.

Maintenance

Note: Determine the left and right sides of the machine from the normal operating position.

Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
Each Use	<ul style="list-style-type: none"> • Check the engine oil level. • Check the stopping time of the blade brake. The blade must stop within 3 seconds of releasing the bail; if it does not, contact an Authorized Service Dealer for repair. • Remove grass clippings and dirt from under the housing. • Clean the discharge tunnel and the discharge tunnel plug.
5 Hours	<ul style="list-style-type: none"> • Check the blade and the engine mounting fasteners. Tighten them if they are loose.
25 Hours	<ul style="list-style-type: none"> • Clean the foam pre-cleaner of the air cleaner.
50 Hours	<ul style="list-style-type: none"> • Change the engine oil (without the oil filter).¹ • Sharpen or replace the blade; maintain it more frequently if the edge dulls quickly in rough or in sandy conditions. • Check for leaks in the fuel system and/or a deteriorating fuel hose. Replace parts if necessary. • Remove grass clippings and debris from under the belt cover. • Lubricate the pivot arms (self-propel model only).
75 Hours	<ul style="list-style-type: none"> • Adjust the self-propel drive system (self-propel model only).
100 Hours	<ul style="list-style-type: none"> • Change the oil filter. • Inspect the spark plug and replace it if necessary. • Clean the cooling system; remove grass clippings, debris, or dirt from the engine air cooling fins and starter. Clean the system more frequently in dirty or high-chaff conditions. • Clean the fuel filter. • Lubricate the gear case. • Adjust the blade brake cable. • Service the wheels.
300 Hours	<ul style="list-style-type: none"> • Replace the paper air filter. Replace it more frequently in dusty operating conditions.
Storage	<ul style="list-style-type: none"> • Empty the fuel tank before repairs as directed or before storage.

¹Change the engine oil after the first 8 operating hours.

Important Refer to your engine operator's manual for additional maintenance procedures.



Caution



If you leave the wire on the spark plug, someone could accidentally start the engine and seriously injure you or other bystanders.

Disconnect the wire from the spark plug before you do any maintenance. Set the wire aside so that it does not accidentally contact the spark plug.

Checking the Engine Oil Level

Before you use the lawn mower, make sure that the oil level is between the Add and the Full marks as shown on the dipstick (Fig. 7). If the oil level is below the Add mark, and oil. Refer to Filling the Crankcase with Oil on page 8.

Cleaning the Underside of the Lawn Mower Housing

To ensure the best performance, keep the underside of the lawn mower housing clean (Fig. 16).

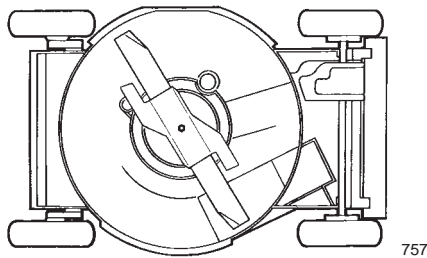


Figure 16

Washing Method

1. Position the lawn mower on a flat concrete or asphalt surface near a garden hose.
2. Start the engine.
3. Hold the running garden hose at handle level and direct the water to flow on the ground just in front of the right rear tire (Fig. 17).

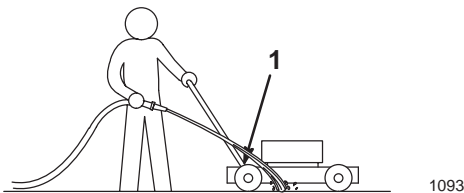


Figure 17

1. Rear right wheel

Note: The blade will draw in water and wash out clippings. Let the water run until you no longer see clippings being washed out from under the housing.

4. Stop the engine and wait for all moving parts to stop.
5. Turn off the garden hose.
6. Start the lawn mower and let it run for a few minutes to dry out the moisture on the lawn mower and its components.

Scraping Method

If washing does not remove all debris from under the lawn mower, scrape it clean.

1. Disconnect the wire from the spark plug (Fig. 10).
2. Drain the fuel from the fuel tank. Refer to Emptying the Fuel Tank and Cleaning the Fuel Filter on page 18.



Warning



Tipping the lawn mower may cause the fuel to leak from the carburetor or the fuel tank. Gasoline is extremely flammable, highly explosive, and, under certain conditions, can cause personal injury or property damage.

Avoid fuel spills by running the engine dry or by removing the gasoline with a hand pump; never siphon.

3. Tip the lawn mower onto its **right** side (Fig. 16).
4. Remove the dirt and grass clippings with a hardwood scraper. Avoid burrs and sharp edges.
5. Turn the lawn mower upright.
6. Fill the fuel tank.
7. Connect the wire to the spark plug.

Cleaning the Discharge Tunnel and Plug

Remove the plug from the discharge tunnel and clean it after each use.

Always be sure that the discharge tunnel door closes securely when you release the handle. If the debris prevents the discharge door from closing securely, clean the inside of the discharge tunnel and the door thoroughly.



Warning



Grass clippings and other objects can be thrown from an open discharge tunnel and cause serious injury or kill the operator or bystanders.

Never start or operate the lawn mower unless *one* of the following is true:

- The discharge tunnel plug is locked securely in the discharge tunnel.
- The grass bag is locked in place.
- The optional side discharge chute is locked in place.
- The discharge tunnel door is locked in place.

Servicing the Air Filter

Clean the foam pre-cleaner every 25 operating hours. Replace the paper air filter once every season or every 300 operating hours; replace it more frequently in dusty conditions.

Important Do not operate the engine without the air filter assembly; extreme engine damage will occur.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 10).
3. Remove the screw that secures the air cleaner cover (Fig. 18).

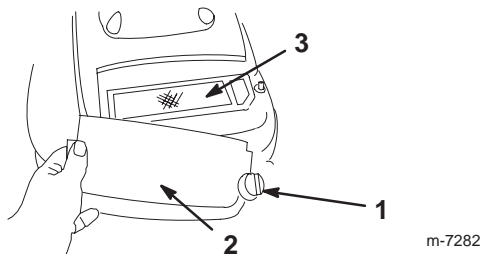


Figure 18

1. Screw
2. Cover
3. Paper air filter

4. Remove the cover and clean it thoroughly (Fig. 18).
5. Remove the paper air filter and discard it as required (Fig. 19).

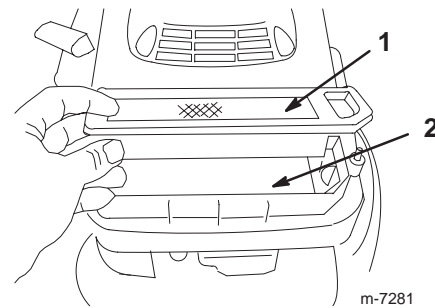


Figure 19

1. Paper air filter
2. Foam pre-cleaner

Important Do not try to clean a paper filter.

6. Remove the foam pre-cleaner and wash it with a mild detergent and water, then blot it dry (Fig. 18).
7. Saturate the pre-cleaner with clean engine oil, then squeeze it (do not twist) to remove the excess oil.
8. Install the foam pre-cleaner.
9. Install the new paper air filter.
10. Install the cover and secure it with the screw.

Changing the Engine Oil

Change the oil after the first 8 operating hours and then after every 50 operating hours or every season (more frequently in dusty or dirty conditions).

1. Run the engine to warm the engine oil.

Note: Warm oil flows better and carries more contaminants.



Warning



Oil may be hot after engine has been run, and contact with hot oil can cause severe personal injury.

Avoid contacting the hot engine oil when you drain it.

2. Stop the engine and wait for all moving parts to stop.
3. Disconnect the wire from the spark plug (Fig. 10).
4. Place a suitable drain pan beside the right side of the lawn mower.
5. Remove the dipstick by rotating the cap counterclockwise and pulling it out (Fig. 7).

6. Raise the left side of the lawn mower to drain the oil into the drain pan.
Note: You can also remove the oil from the crankcase using an oil extractor.
7. Lower the left side of the lawn mower.
8. Insert the dipstick into the filler neck and rotate the cap clockwise until it is tight.
9. Recycle the used oil according to local codes.
10. Fill the crankcase to the Full line on the dipstick with fresh oil. Refer to the Filling the Crankcase with Oil on page 8.
11. Wipe up any spilled oil.
12. Connect the wire to the spark plug.

Maintaining the Cutting Blade

Always mow with a sharp blade. A sharp blade cuts cleanly and without tearing or shredding the grass blades.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 10).
3. Drain the gasoline from the fuel tank; refer to Emptying the Fuel Tank and Cleaning the Fuel Filter on page 18.
4. Tip the lawn mower onto its **right** side (Fig. 20).

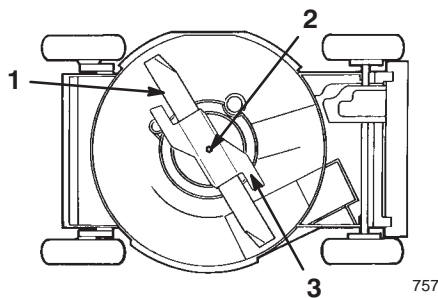


Figure 20

1. Blade
2. Blade bolt and lock washer
3. Accelerator

Inspecting the Blade

Carefully examine the blade for sharpness and wear, especially where the flat and the curved parts meet (Fig. 21A). Because sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the lawn mower. If you notice a slot or wear (Figs. 21B and 21C), replace the blade; refer to Removing the Blade on page 17.

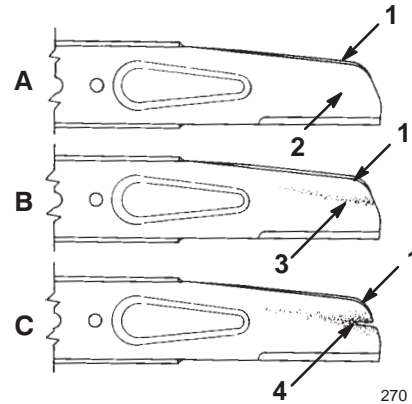


Figure 21

1. Sail
2. Flat part of blade
3. Wear
4. Slot formed

Note: For the best performance, install a new blade before the cutting season begins. During the year, file down any small nicks to maintain the cutting edge.

! **Danger** !

A worn or damaged blade can break, and a piece of the blade could be thrown into the operator's or bystander's area, resulting in serious personal injury or death.

- **Inspect the blade periodically for wear or damage.**
- **Replace a worn or damaged blade.**

Removing the Blade

1. Grasp the end of the blade using a rag or a thickly padded glove.
2. Remove the blade bolt, the lock washer, the accelerator, and the blade (Fig. 20).

Sharpening the Blade

File the top side of the blade to maintain its original cutting angle (Fig. 22A) and inner cutting edge radius (Fig. 22B). The blade will remain balanced if you remove the same amount of material from both cutting edges.

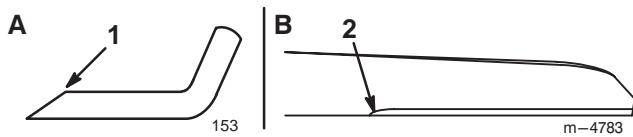


Figure 22

1. Sharpen at this angle only
2. Maintain the original radius here

Balancing the Blade

1. Check the balance of the blade by placing the center hole of the blade over a nail or screwdriver shank clamped horizontally in a vise (Fig. 23).

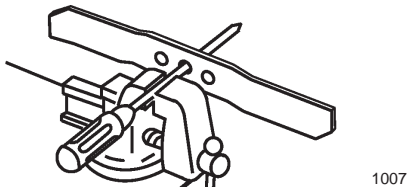


Figure 23

Note: You can also check the balance using a commercially manufactured blade balancer.

2. If either end of the blade rotates downward, file that end (not the cutting edge or the end near the cutting edge). The blade is properly balanced when neither end drops.

Installing the Blade

1. Install a sharp, balanced Exmark blade, the accelerator, the lock washer, and the blade bolt. The sail of the blade must point toward the top of the lawn mower housing for proper installation. Torque the blade bolt to 50 ft-lb (68 N·m).



Warning



Operating the lawn mower without the accelerator in place can cause the blade to flex, bend, or break, resulting in serious injury or death to the operator or bystanders.

Do not operate the lawn mower without the accelerator.

2. Return the lawn mower to its upright position.

3. Connect the wire to the spark plug.

Emptying the Fuel Tank and Cleaning the Fuel Filter

The fuel filter (screen) element is located inside the fuel tank. Clean the fuel filter element every 100 operating hours.

1. Stop the engine and wait for it to cool down.

Important Drain gasoline from a cold engine only.

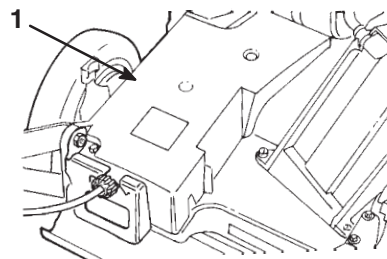
2. Disconnect the wire from the spark plug (Fig. 10).
3. Close the fuel valve (Fig. 4).
4. Disconnect the fuel line (Fig. 29) by loosening the tube clamp at the carburetor.
5. Open the fuel valve by turning the lever to the open position (Fig. 8).
6. Drain the gasoline completely from the tank and fuel line into an approved fuel container.
7. Remove the fuel tank from the mower.
8. Close the fuel valve.
9. Pour a small amount of fuel in the fuel tank, move the fuel around in the tank, and pour it out into an approved fuel container.
10. Install the fuel tank and fuel line; refer to Installing the Fuel Tank and the Fuel Line on page 7.

Cleaning under the Belt Cover

Self-propel Model only

Keep the area under the belt cover free of debris.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 10).
3. Remove the bolts that secure the belt cover (Fig. 24) to the lawn mower housing.



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Figure 24

1. Belt cover

4. Lift off the cover and brush out all the debris around the belt area.
5. Install the belt cover.
6. Connect the wire to the spark plug.

Lubricating the Pivot Arms

Self-propel Model only

After every 50 operating hours or when the season ends, lubricate the pivot arms.

1. Move the rear wheel cutting height levers to the center setting.
2. Wipe the grease fittings with a clean rag (Fig. 25).

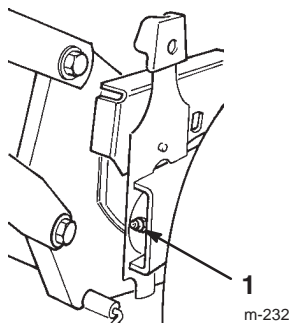


Figure 25

1. Grease fitting

3. Install a grease gun onto the fitting and gently apply 2 or 3 pumps of #2 multi-purpose lithium base grease (Fig. 25).

Note: Excessive grease pressure may damage the seals.

Adjusting the Self-propel Drive

Self-propel Model only

If the lawn mower does not self-propel or has a tendency to creep forward when the control bar is **more** than 1-1/2 inches (3.8 cm) from the handle, adjust the wheel drive control knob on the rear of the gear box.

1. Close the door in the lawn mower housing and remove the grass bag.

2. Rotate the control knob clockwise 1/2 turn if the lawn mower does not self-propel. If the lawn mower creeps forward, rotate the knob 1/2 turn counterclockwise to loosen the belt (Fig. 26).

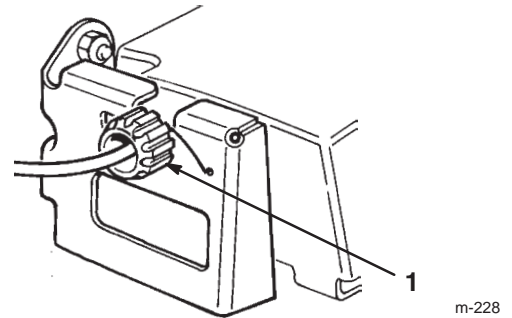


Figure 26

1. Control knob

3. Slowly pull the lawn mower backward while you gradually move the control bar toward the handle.

Note: The adjustment is correct when the rear wheels stop turning and the control bar is about one inch (2.5 cm) from the handle (Fig. 27).

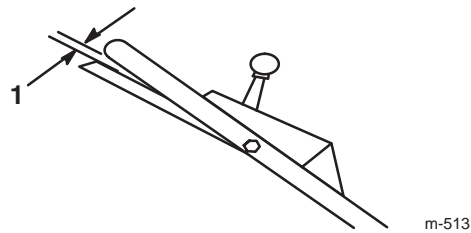


Figure 27

1. One inch (2.5 cm)

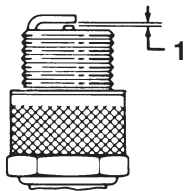
Servicing the Spark Plug

Check the spark plug after every 100 operating hours. Use an **NGK BPR5ES** spark plug or equivalent.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 10).
3. Clean around the spark plug.
4. Remove the spark plug from the cylinder head.

Important Replace a cracked, fouled, or dirty spark plug. Do not clean the electrodes because grit entering the cylinder can damage the engine.

5. Set the gap on the plug to 0.030 in. (0.76 mm) (Fig. 28).



m-110

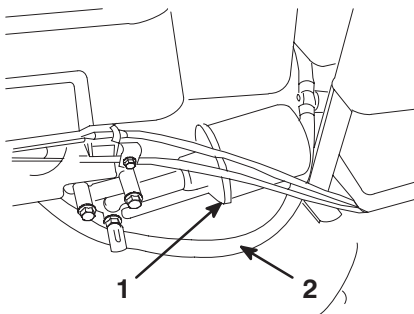
Figure 28

1. 0.030 in. (0.76 mm)

6. Install the spark plug and the gasket seal.
7. Torque the plug to 17 ft-lb (23 N·m).
8. Connect the wire to the spark plug.

Changing the Oil Filter

Replace the oil filter (Fig. 29) after every 100 operating hours or yearly, whichever comes first.



m-7284

Figure 29

1. Oil filter
2. Fuel line

1. Run the engine to warm the oil.



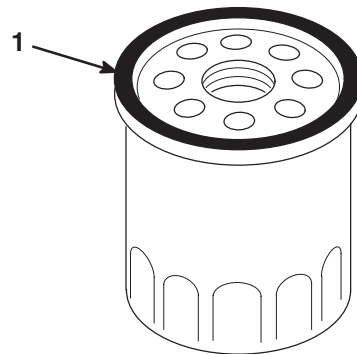
Warning



Oil may be hot after the engine has been run, and contact with hot oil can cause severe personal injury.

Avoid contacting the hot engine oil when you drain it.

2. Stop the engine and wait for all moving parts to stop.
3. Disconnect the wire from the spark plug (Fig. 10).
4. Drain the engine oil; refer to Changing the Engine Oil on page 16.
5. Place a rag under the oil filter to catch any oil that may leak out as you remove the filter.
6. Remove the oil filter.
7. Use your finger to coat the gasket on the new filter with clean engine oil (Fig. 30).



m-3862

Figure 30

1. Gasket
8. Install the new filter and hand tighten it 2/3 turn only.
9. Fill the crankcase to the Full line on the dipstick with fresh oil. Refer to Filling the Crankcase with Oil on page 8.
10. Connect the wire to the spark plug.
11. Run the engine for about 3 minutes.
12. Stop the engine, wait for all moving parts to stop, and check for oil leakage around the filter.
13. Add oil to compensate for the oil in the oil filter. Refer to Checking the Engine Oil Level on page 15.
14. Recycle the used oil filter according to local codes.

Lubricating the Gear Case

After every 100 operating hours, grease the gear case.

1. Remove the grass bag.
2. Install a grease gun onto the fitting through the belt cover opening (Fig. 31).

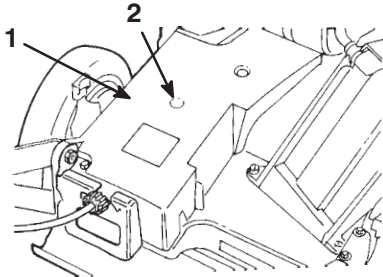


Figure 31

1. Belt cover
2. Grease fitting

3. Gently apply one to 2 pumps of #2 multi-purpose lithium-base grease.
4. Install the grass bag.

Adjusting the Blade Brake Cable

Whenever you install a new blade brake cable assembly, adjust it.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 8).
3. Check the adjustment of the cable by moving the control bar toward the handle until you remove the slack in the cable.

Note: The gap between the brake lever and the handle must be between 3/16 and 1/4 in. (5 and 6 mm). To adjust the cable, go to step 4.

4. To adjust the cable, do the following:

Hand-push Model only

- A. Loosen the jam nut on the blade brake cable (Fig. 32).

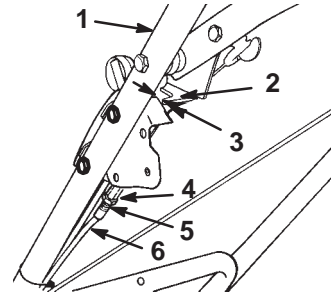


Figure 32

1. Handle
2. Brake lever
3. 3/16 to 1/4 in. (5 to 6 mm)
4. Cable adjuster
5. Jam nut
6. cable conduit

- B. Insert a 3/16 to 1/4 in. (5 to 6 mm) object between the brake lever and the handle.
- C. Turn the cable adjuster on the brake cable until you remove the slack.
- D. Tighten the jam nut.

Self-propel Model only

- A. Loosen the nut on the cable bracket (Fig. 33).

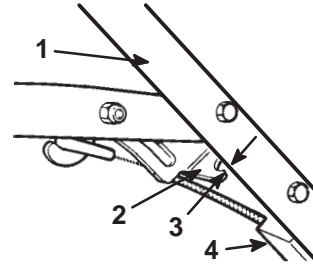


Figure 33

1. Handle
2. Brake lever
3. 3/16 to 1/4 in. (5 to 6 mm)
4. cable bracket

- B. Insert a 3/16 to 1/4 in. (5 to 6 mm) object between the brake lever and the handle.
- C. Pull down on the cable conduit until you remove the slack from the wire.
- D. Tighten the nut.

Servicing the Wheels

Removing the Wheels

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Fig. 10).
3. Remove the cap screw, the wheel spacer, and the locknut mounting the wheel to the pivot arm (Fig. 34).

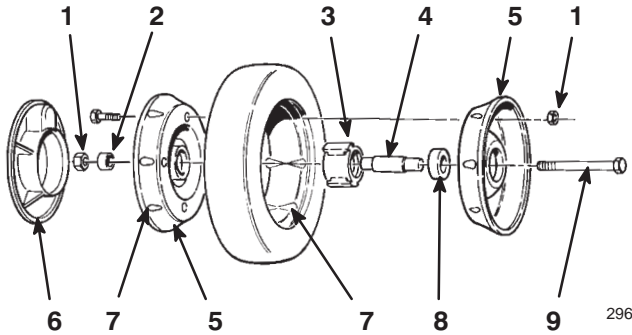


Figure 34

- | | |
|-------------------------|-------------------------------------|
| 1. Locknuts | 6. Plastic cover (rear wheels only) |
| 2. Wheel spacer | 7. Lug |
| 3. Bearing/hub assembly | 8. Bearing (2) |
| 4. Bearing spacer | 9. Cap screw |
| 5. Wheel half | |

4. Separate the wheel halves from the tire by removing 4 cap screws and 4 locknuts (Fig. 34).

Note: If you remove the bearings from the bearing/hub assembly, remove them by pressing on the bearing spacer (Fig. 34).

Assembling the Wheels

1. Position the tire onto one wheel half, aligning the lugs on each (Fig. 34).
2. Place the bearing/hub assembly into the center hole of the wheel half. Ensure that the legs of the hub are positioned over the flange of the hole (Fig. 34).
3. Place the other wheel half onto the bearing/hub assembly, aligning the wheel and the tire lugs and the mounting holes (Fig. 34).
4. Using 2 fully threaded screws or bolts (1/4–20 x 1.50 in.) and non-locking nuts, loosely secure the wheel halves together. Mount the screws or bolts in the opposing holes (Fig. 34).
5. Check the alignment of all parts and tighten the screws, alternating from side to side for a uniform fit, until the wheel halves are drawn together (Fig. 34).

6. Install the 2 cap screws and 2 locknuts previously removed in the remaining holes in the wheel halves and tighten. Remove the 2 long screws or bolts and replace them with 2 cap screws and 2 locknuts (Fig. 34).
7. Install the wheel to the pivot arm with the cap screws, a spacer, and a locknut. Ensure that the spacer is positioned between the wheel hub and the pivot arm (Fig. 34).

Storage

To prepare the lawn mower for off-season storage, perform the recommended maintenance procedures. Refer to Maintenance on page 14.

Store the lawn mower in a cool, clean, dry place. Cover the lawn mower to keep it clean and protected.

Preparing the Fuel System



Warning



Gasoline can vaporize if you store it over long periods of time and explode if it comes into contact with an open flame.

- Do not store gasoline over long periods of time.
- Do not store the lawn mower with gasoline in the fuel tank or the carburetor in an enclosure with an open flame. (For example, a furnace or a water heater pilot light.)
- Allow the engine to cool before storing it in any enclosure.

Empty the fuel tank when mowing the last time before storing the lawn mower.

1. Run the lawn mower until the engine stops from running out of fuel.
2. Prime the engine and start it again.
3. Allow the engine to run until it stops. When you can no longer start the engine, it is sufficiently dry.

Preparing the Engine

1. While the engine is still warm, change the oil from the crankcase. Refer to Changing the Engine Oil on page 16.
2. Remove the spark plug (Fig. 10).
3. Using an oil can, add about one tablespoon of oil to the crankcase through the spark plug hole.
4. Slowly rotate the engine several times, using the starter rope, to distribute the oil.
5. Install the spark plug but **do not** connect the wire to the spark plug.

General Information

1. Clean the lawn mower housing. Refer to Cleaning the Underside of the Lawn Mower Housing on page 15.
2. Clean any dirt and chaff from the cylinder, cylinder head fins, and blower housing.
3. Remove grass clippings, dirt, and grime from the external parts of the engine, the shrouding, and the top of the lawn mower housing.
4. Check the condition of the blade. Refer to Maintaining the Cutting Blade on page 17.
5. Service the air filter; refer to Servicing the Air Filter on page 16.
6. Lubricate the pivot arms; refer to Lubricating the Pivot Arms on page 16.
7. Tighten all nuts, bolts, and screws.
8. Touch up all rusted or chipped paint surfaces with paint available from an Authorized Service Dealer.

Removing the Lawn Mower from Storage

1. Check and tighten all fasteners.
2. Remove the spark plug and spin the engine rapidly using the starter to blow excess oil from the cylinder.
3. Clean the spark plug or replace it if it is cracked, broken, or if the electrodes are worn.
4. Install the spark plug and torque it to 17 ft-lb (23 N·m).
5. Perform any needed maintenance procedures; refer to Maintenance on page 14.
6. Fill the fuel in the fuel tank with fresh gasoline.
7. Check the engine oil level.
8. Connect the wire to the spark plug.

Accessories

You may purchase the following accessory from an Authorized Service Dealer:

Side Discharge Kit

You can install the side discharge kit in seconds. It is rear mounted in place of the grass bag. It disperses clippings while trimming on both sides (Fig. 35).

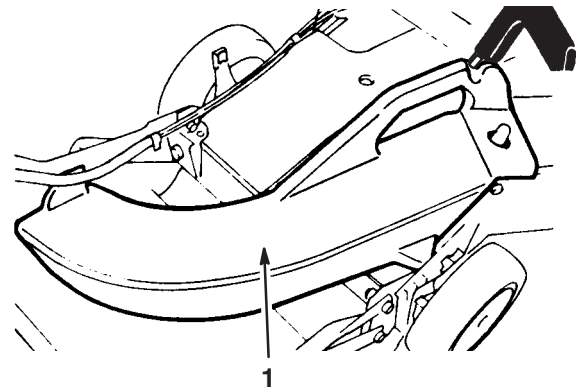


Figure 35

1. Side discharge chute

2047

Troubleshooting

Exmark designed and built your lawn mower for trouble-free operation. Check the following components and items carefully, and refer to Maintenance on page 14 for more information. If a problem continues, contact an Authorized Service Dealer.

Problem	Possible Causes	Corrective Action
Engine does not start	<ol style="list-style-type: none"> 1. The fuel tank is empty or the fuel system contains stale fuel. 2. The throttle lever is not in the Choke position. 3. The wire is not connected to the spark plug. 4. The spark plug is pitted, fouled, or the gap is incorrect. 	<ol style="list-style-type: none"> 1. Drain and/or fill the fuel tank with fresh gasoline. If the problem persists, contact an Authorized Service Dealer. 2. Move the throttle lever to the Choke position. 3. Connect the wire to the spark plug. 4. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.
Engine starts hard or loses power	<ol style="list-style-type: none"> 1. The fuel tank contains stale fuel. 2. The fuel cap vent hole is plugged. 3. The air filter element is dirty and is restricting the air flow. 4. The underside of the lawn mower deck contains clippings and debris. 5. The spark plug is pitted, fouled, or the gap is incorrect. 6. The engine oil level is low or the oil is dirty. 	<ol style="list-style-type: none"> 1. Drain and fill the fuel tank with fresh gasoline. 2. Clean the fuel cap vent hole or replace the fuel cap. 3. Clean the air filter pre-cleaner and/or replace the paper air filter. 4. Clean the underside of the lawn mower deck. 5. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 6. Check the engine oil. Change the oil if it is dirty or add oil if it is low.
Engine runs rough	<ol style="list-style-type: none"> 1. The wire is not connected to the spark plug. 2. The spark plug is pitted, fouled, or the gap is incorrect. 3. The throttle lever is not in the Fast position. 4. The air filter element is dirty and is restricting the air flow. 	<ol style="list-style-type: none"> 1. Connect the wire to the spark plug. 2. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 3. Move the throttle lever to the Fast position. 4. Clean the air filter pre-cleaner and/or replace the paper air filter.

Problem	Possible Causes	Corrective Action
Lawn mower or engine vibrates excessively	<ol style="list-style-type: none"> 1. The blade is bent or is out of balance. 2. The blade mounting bolt is loose. 3. The underside of the lawn mower deck contains clippings and debris. 4. The engine mounting bolts are loose. 	<ol style="list-style-type: none"> 1. Balance the blade. If the blade is bent, replace it. 2. Tighten the blade mounting bolt. 3. Clean the underside of the lawn mower deck. 4. Tighten the engine mounting bolts.
Uneven cutting pattern	<ol style="list-style-type: none"> 1. All four wheels are not at the same height. 2. The blade is dull. 3. You are mowing in the same pattern repeatedly. 4. The underside of the lawn mower deck contains clippings and debris. 	<ol style="list-style-type: none"> 1. Place all four wheels at the same height. 2. Sharpen and balance the blade. 3. Change the mowing pattern. 4. Clean the underside of the lawn mower deck.
Discharge chute plugs	<ol style="list-style-type: none"> 1. The throttle lever is not in the Fast position. 2. The cutting height is too low. 3. You are mowing too fast. 4. The grass is wet. 5. The underside of the lawn mower deck contains clippings and debris. 	<ol style="list-style-type: none"> 1. Move the throttle lever to the Fast position. 2. Raise the cutting height. 3. Slow down. 4. Allow the grass to dry before mowing. 5. Clean the underside of the lawn mower deck.
Lawn mower does not self-propel (Self-propel model only)	<ol style="list-style-type: none"> 1. The self-propel drive cable is out of adjustment or is damaged. 2. There is debris under the belt cover. 	<ol style="list-style-type: none"> 1. Adjust the self-propel drive cable. Replace the cable if necessary. 2. Clean the debris from under the belt cover.

Limited Warranty Exmark® Turf Equipment

Conditions and Products Covered

Exmark Mfg. Co. Inc. and its affiliate, Exmark Warranty Company, pursuant to an agreement between them, jointly warrant on the terms and conditions herein, that we will repair, replace or adjust any part manufactured by Exmark and found by us (in the exercise of our reasonable discretion) to be defective in factory materials or workmanship.

This warranty applies to Exmark turf equipment sold in the US or Canada. This warranty may only be assigned or transferred to a second (or third) owner by an authorized Exmark dealer. The warranty period commences upon the date of the original retail purchase.

<u>Products</u>	<u>Warranty Period</u>
• All Products (except as noted below)	1 year (90 days for rental use)
• Peerless 5-speed transmission (extended beyond manufacturer's warranty of 90 days)	1 year
• Frame, Hydrostatic Traction System, Electric Clutch and Exmark supplied Mufflers	2 years
• Blade Spindle Assy and Deck Jackshaft Assy (1 year parts and labor, with additional 2 years parts only)	3 years
• Belts and Tires	90 days
• Battery	Refer to the battery manufacturer's warranty in the literature packet
• Engine*	Warranty is covered by engine manufacturer

*Please refer to the engine manufacturer's warranty statement that is included in the literature packet. We are not authorized to handle warranty adjustments on engines.

This warranty only includes the cost of parts and labor.

Items and Conditions Not Covered

This warranty does not cover the following:

- Pickup and delivery charges to and from any authorized Exmark Service Dealer.
- Any damage or deterioration due to normal use, wear and tear, or exposure.
- Cost of regular maintenance service or parts, such as filters, fuel, lubricants, tune-up parts, and adjustments.
- Any product or part which has been altered or misused or required replacement or repair due to normal wear, accidents, or lack of proper maintenance.
- Any repairs necessary due to use of parts, accessories or supplies, including gasoline, oil or lubricants, incompatible with the turf equipment or other than as recommended in the operator's manual or other operational instructions provided by Exmark.

All warranty work must be performed by an authorized Exmark Service Dealer using Exmark approved replacement parts.

Instructions for Obtaining Warranty Service

1. Contact any Exmark Service Dealer to arrange service at their dealership. To locate a dealer convenient to you, access our website at www.exmark.com. U.S. Customers may also call 402-223-6375.
2. Bring the product and your proof of purchase (sales receipt) to the Exmark Service Dealer.

If for any reason you are dissatisfied with the Service Dealer's analysis or with the assistance provided, contact us at:

Exmark Customer Service Department
The Exmark Warranty Company
2101 Ashland Avenue
Beatrice, NE 68310
402-223-6375 or
service@exmark.com

Owner's Responsibilities

The Exmark turf equipment, including any defective part, must be returned to an authorized Exmark service dealer within the warranty period. This warranty extends only to turf equipment operated under normal conditions. You must properly service and maintain your Exmark product as described in the operator's manual. Such routine maintenance, whether performed by a dealer or by you, is at your expense.

As a condition to this warranty, customer shall have read the operator's manual and shall have completed and submitted to Exmark Warranty Company, within the prescribed time, the Exmark warranty registration.

General Conditions

The sole liability of Exmark and Exmark Warranty Company with respect to this warranty shall be repair and replacement as set forth herein. **Neither Exmark nor Exmark Warranty Company shall have any liability for any other cost, loss or damage, including but not limited to, any incidental or consequential loss or damage.**

In particular, we shall have no liability or responsibility for:

- Expenses related to gasoline, oil or lubricants.
- Travel time, overtime, after hours time or other extraordinary repair charges or charge relating to repairs or replacements outside of normal business hours at the place of business of the authorized Exmark service dealer.
- Rental of like or similar replacement equipment during the period of any warranty, repair or replacement work.
- Any telephone or telegram charges or travel charges.
- Loss or damage to person or property other than that covered by the terms of this warranty.
- Any claims for lost revenue, lost profit or additional cost as a result of a claim of breach of warranty.
- Attorney's fees.

No Claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Exmark mower.

There are no understandings, agreements, representations, or warranties, express or implied, including but not limited to any regarding the merchantability (that product is fit for ordinary use) or fitness for use (that product is fit for a particular purpose), not specified herein, respecting the equipment which is the subject of this warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Rev. 8/1/2003

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ULTRA VAC[™]

ULTRA VAC[™] QDS

GRASS CATCHER

SELF STEERING SULKY

MICRO-MULCH[™] ACCESSORY

	Warning	
CALIFORNIA		
Proposition 65 Warning		
<p>The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.</p>		

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