

M10, M21, and M23 Walk-Behind Mowers

Serial No. (010,001 -)



OPERATOR'S MANUAL

**John Deere
Worldwide Commercial And
Consumer Products Division
OMGC00037 K7**

**North American Version
Litho in U.S.A.
English**

INTRODUCTION

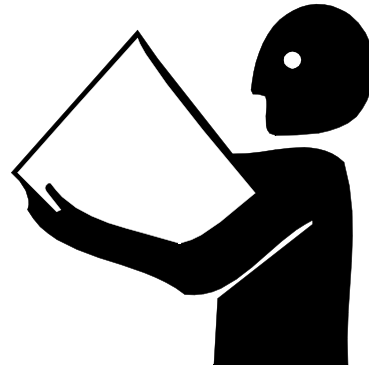
THANK YOU for purchasing a John Deere product.

Read this manual thoroughly. Failure to do so could result in personal injury or equipment damage.



WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

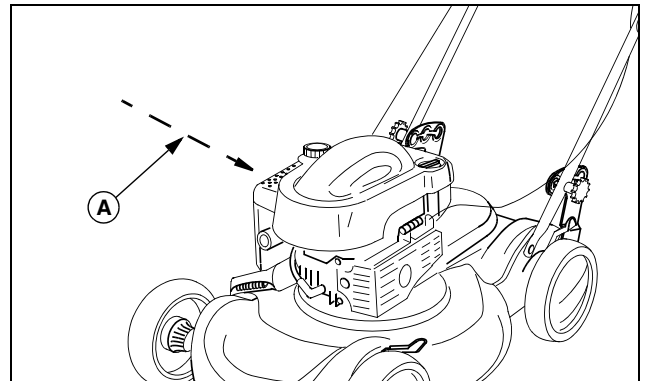
CALIFORNIA Proposition 65 Warning



This manual should be considered a permanent part of your machine and should remain with the machine when you sell it.

Measurements in this manual are metric units and their U.S. customary equivalents. RIGHT-HAND and LEFT-HAND sides are determined by facing in the direction the machine will travel when going forward. When you see a broken line arrow (A), it indicates the part it is pointing to is hidden.

Record identification numbers below. Be sure to record all the numbers to help in tracing the machine if it is stolen. You also need to give these numbers to your dealer when you order parts.



DATE OF PURCHASE: _____

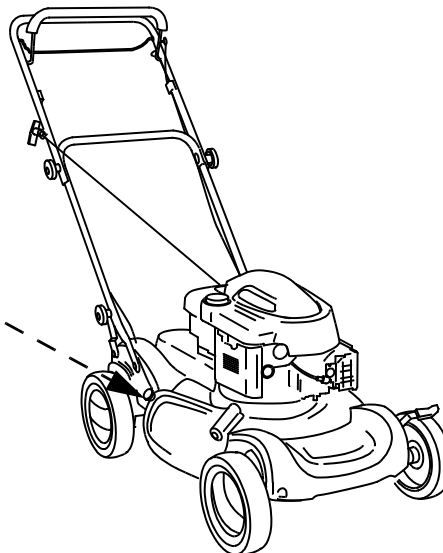
DEALER NAME: _____

DEALER PHONE: _____

Sabre® is a registered trademark of Deere & Company

Mower Serial Number:

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ASSEMBLY

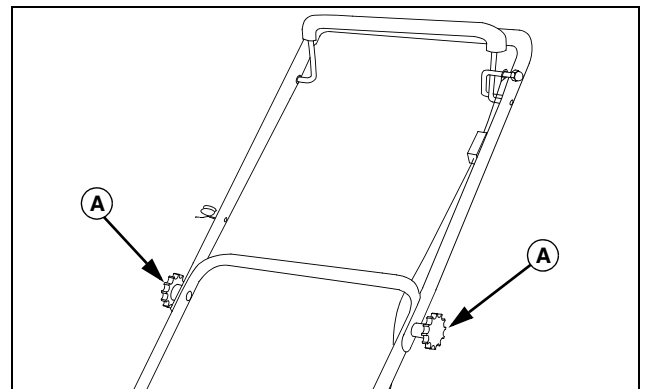
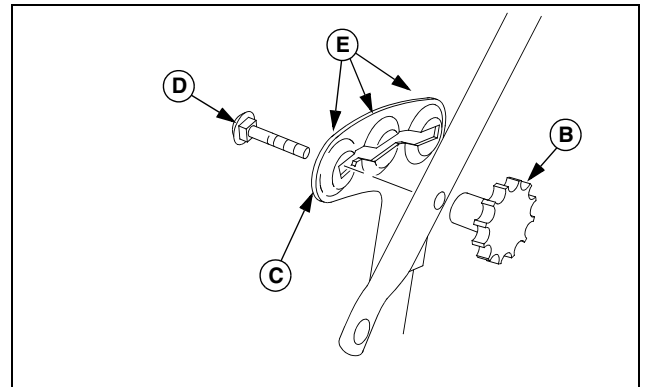
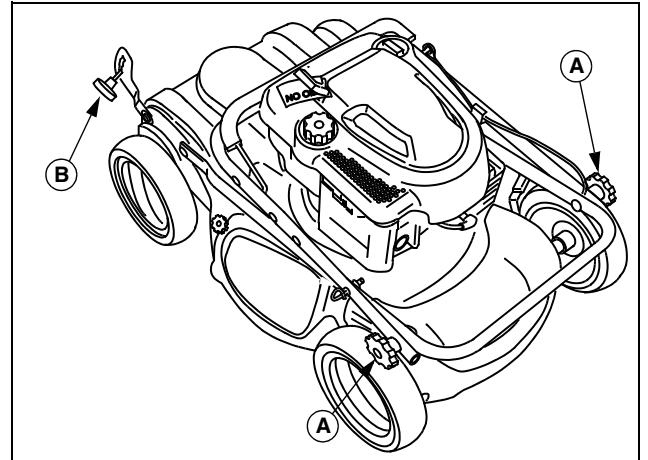
Unfold Handles

IMPORTANT: Prevent damage to mower control cables when installing handle assembly. **DO NOT** pinch or crimp the control cables. Control cables must be inside of handle and unrestricted before tightening hardware.

1. Carefully remove mower from shipping carton.
2. Loosen knob (A) approximately 25 mm (1 in.) on each side of upper handle.
3. Remove knob (B) and carriage bolt from each side.
4. Carefully pull folded handle assembly rearward.
5. Rotate slotted bracket (C) to match a desirable height setting with hole in handle.
6. Install carriage bolt (D) from the inside through hole in slotted bracket (C) and through handle on each side of handle. Use same hole on each side.
7. Install and tighten knob (B) on each bolt. Both handle knobs should be positioned on the outside of the handles.

NOTE: If handle height is not satisfactory, move handle to another hole and height position. Bolts must travel within slotted adjustment brackets and come to rest within one of the three height setting positions (E) before tightening.

8. Pivot upper portion of handle assembly to a straight and aligning position. Hold handle and tighten knob (A) on each side.

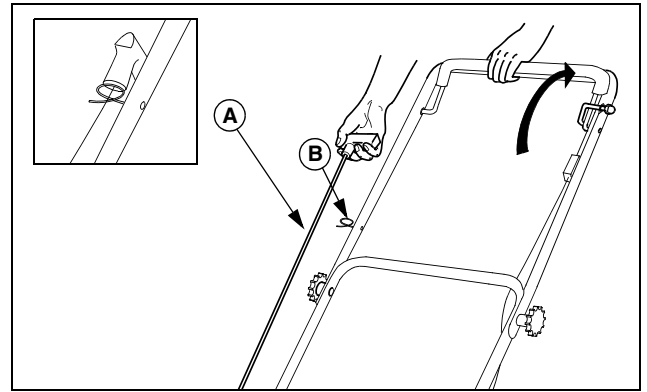


ASSEMBLY

Install Starter Rope

NOTE: To make installation of the starter rope onto the rope guide easier, hold the blade control lever against the handle while pulling the starter rope.

Pull and install starter rope (A) onto rope guide (B) mounted on the right side of the handle.

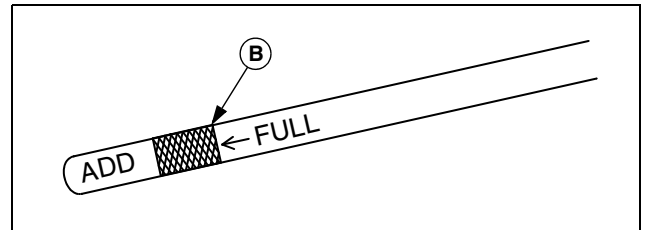
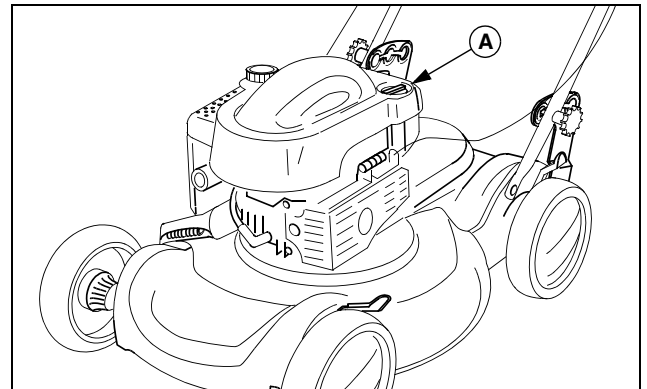


Add Engine Oil

IMPORTANT: ENGINE IS SHIPPED WITHOUT OIL.

You MUST add oil before running the engine. See Engine Operator's Manual for oil information.

1. Park mower on a level surface.
2. Turn oil dipstick (A) 1/4 turn to the left and remove it.
3. Add 0.6 L (20 oz) oil into dipstick tube.
4. Check oil level:
 - Install dipstick. Turn dipstick 1/4 turn to the right to tighten.
 - Remove dipstick.
 - Check oil level. Oil should be to the FULL mark (B). If not, add oil.
5. Install and tighten dipstick.
6. Remove "NO OIL" tag from top of engine.



ASSEMBLY

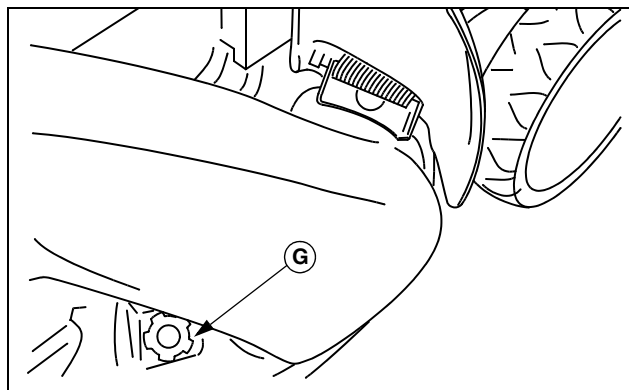
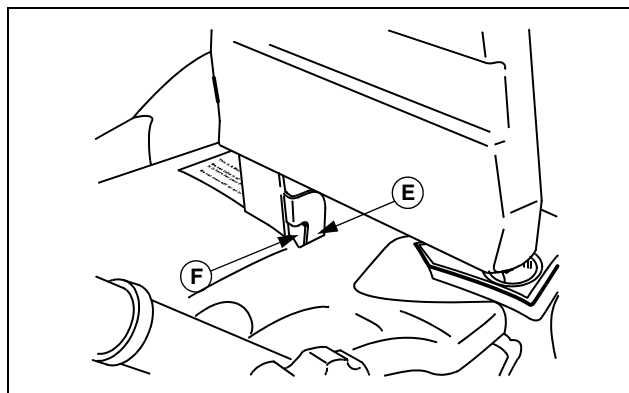
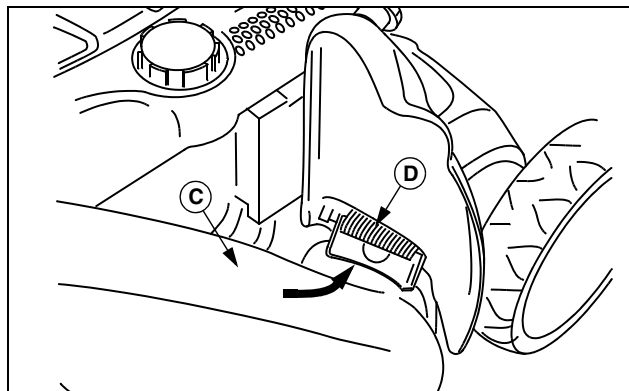
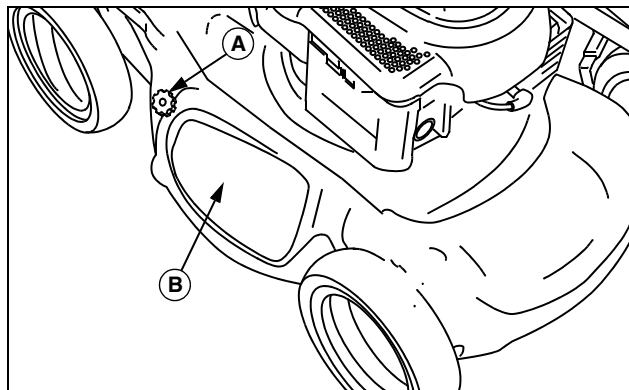
Install Grass Bag



CAUTION: DO NOT operate mower unless mulch cover or grass bag and bagging chute are in place.

Bagging chute MUST be removed and mulch cover secured in place when grass bag is not being used.

1. Loosen mulch cover knob (A).
2. Lift and hold spring loaded mulch cover (B) up.
3. Install bagging chute:
 - Slide bagging chute (C) into position under the mulch cover mounting bracket (D).
 - Insert bagging chute tab (E) into rear mower shield slot (F).
 - Align hole in bagging chute over threaded hole in deck.
 - Install and tighten knob (G).



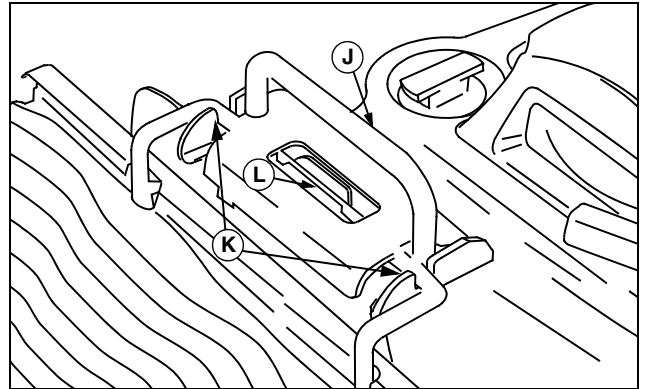
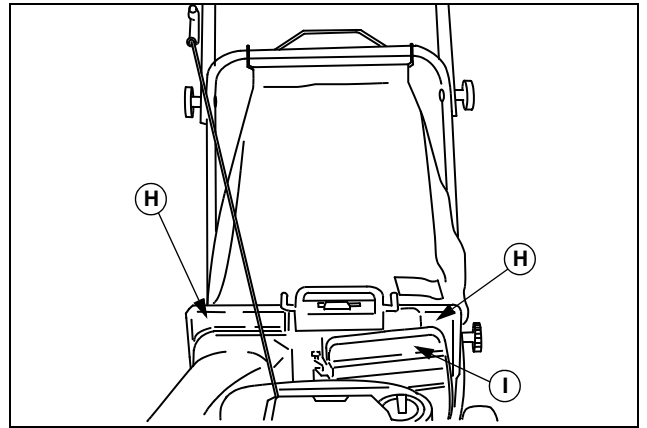
ASSEMBLY

4. Hang grass bag on lower handlebar.

NOTE: Doors (H) on grass bag must be closed prior to installation onto the bagging chute.

5. Open spring loaded bagging chute safety door (I).

6. Install grass bag onto bagging chute by inserting grass bag handle (J) into slots (K) and clasp (L) on top of bagging chute.



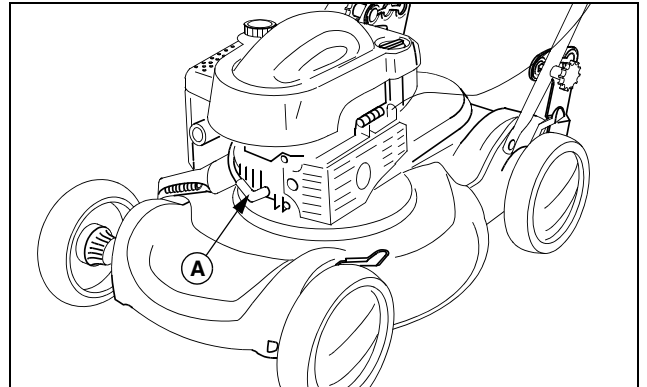
Test Mower

1. Connect spark plug wire (A) to spark plug.

IMPORTANT: See Engine Operator's Manual for fuel information.

2. Put enough fuel in fuel tank to test mower operation.

3. Start engine and check mower operation. (See Operating section).

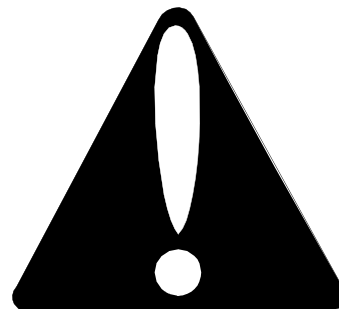


SAFETY SIGNS

Safety-Alert Symbol

Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.

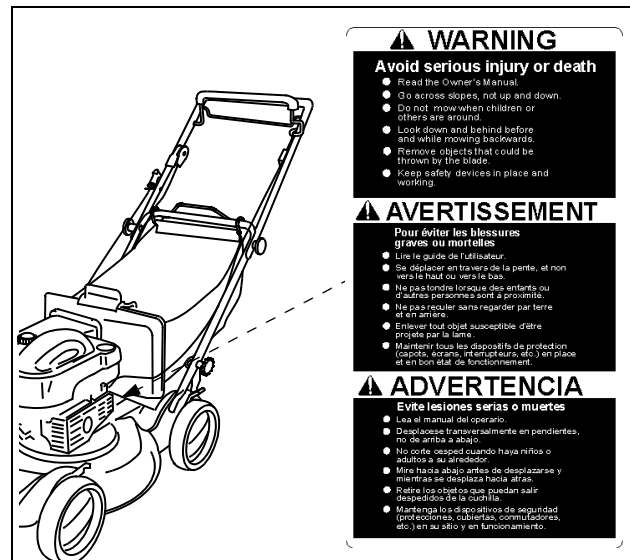
On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards. In this manual, the word CAUTION and this symbol call attention to safety messages.



Machine Safety Labels

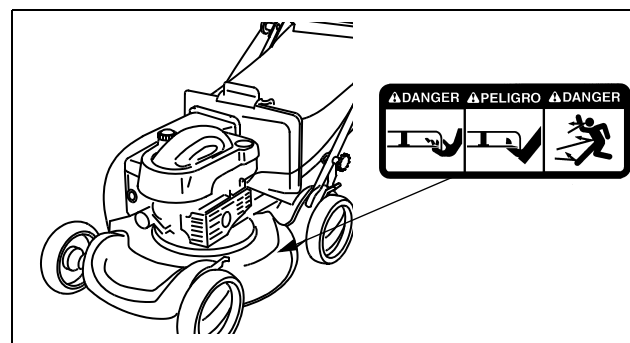
Avoid serious injury or death:

- Read the Owner's Manual.
- Go across slopes, not up and down.
- Do not mow when children or others are around.
- Look down and behind before and while mowing backwards.
- Remove objects that could be thrown by the blade.
- Keep safety devices in place and working



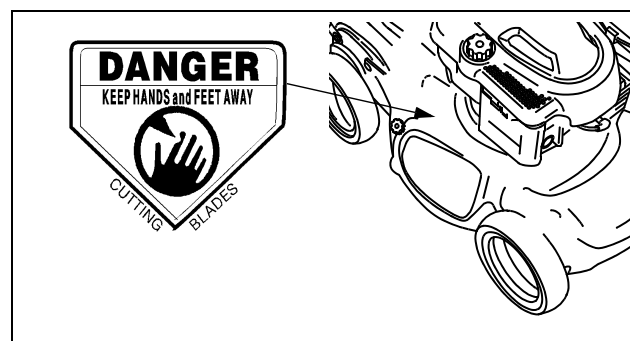
Rotating blade and thrown objects:

- Do not put hands or feet under or into mower when engine is running.
- Before mowing, clear area of objects that may be thrown by blade.



Cutting blade:

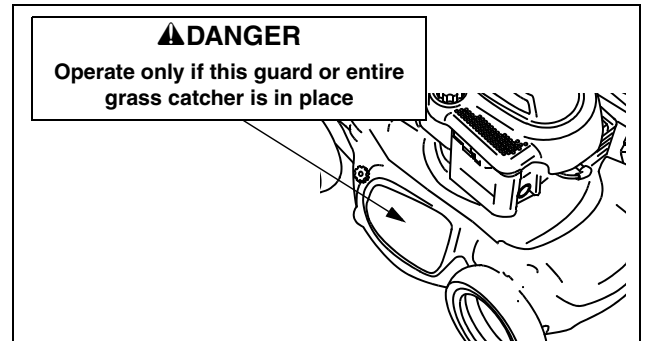
Keep hands and feet away.



SAFETY SIGNS

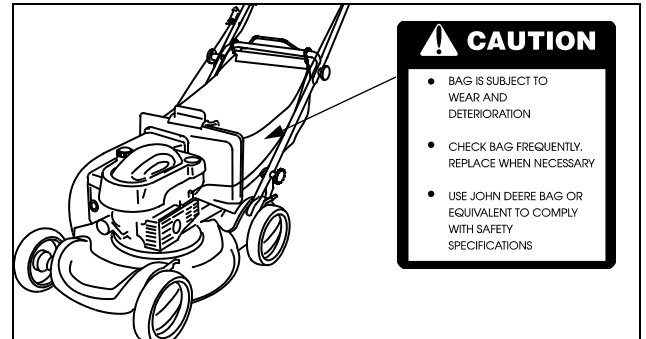
Guard and grass catcher:

Operate only if this guard or entire grass catcher is in place.



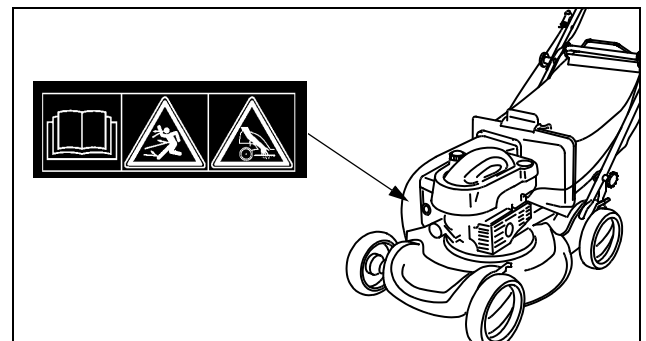
Grass bag:

- Bag is subject to wear and deterioration.
- Check bag frequently. Replace when necessary.
- Use Sabre bag or equivalent to comply with safety specifications.



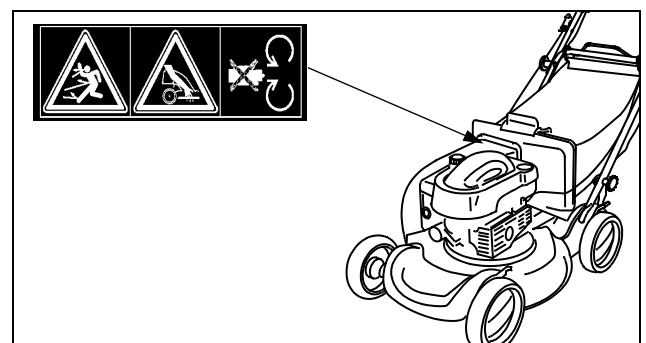
Bagging chute:

- Read Operator's Manual for proper installation and operation.
- Thrown objects, do not mow without bagging chute or guard door in place.
- Rotating blade, stop engine before lifting door and clearing bagging chute.



Bagging chute safety door:

- Thrown objects, do not mow without bagger or bagging chute safety door in place.
- Rotating blade, stop engine before opening safety door and clearing bagging chute.
- Do not open or remove safety shields while engine is running.



SAFETY SIGNS

Certification Label

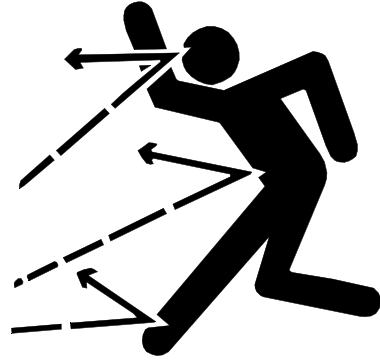
This OPEI label on your mower indicates that this model has been certified by an independent laboratory for compliance with American National Standard B-71.1-1996, "Safety Specifications" for Power Lawn Mowers, Lawn and Garden Tractors, and Lawn Tractors.



OPERATING MACHINE

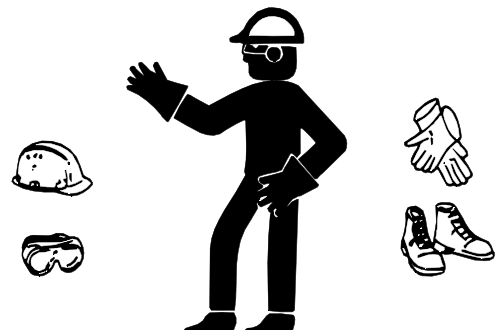
Operate Safely

- Inspect machine before you operate. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure proper guards, plates, grass catcher, or other safety protective devices are in good condition and fastened in place. Make any necessary adjustments before you operate.
- Clear work area of objects that might be thrown. Keep people and pets out of the work area. Stop machine if anyone enters the area.
- If you hit an object, stop the machine and inspect it. Make repairs before you operate. Keep machine properly maintained and in good working order.
- DO NOT leave machine unattended when it is running.
- Only operate during daylight or with good artificial light.
- Be sure of footing. Be especially careful when you pull machine backwards with the engine running.
- Mow across a hill - not up and down. Be careful when you change direction on a slope. DO NOT mow excessively steep slopes.
- DO NOT mow wet grass. Reduced traction could cause you to slip.
- Keep a firm hold on the machine handle.
- DO NOT wear radio or music headphones while operating the machine. Safe operation requires your full attention.
- DO NOT operate mower if you are under the influence of drugs or alcohol.



Wear Appropriate Clothing

- Wear close fitting clothing and safety equipment appropriate for the job.
- DO NOT operate the equipment when barefoot or wearing open sandals. Always wear substantial footwear.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.



OPERATING MACHINE

Rotating Blades are Dangerous - Protect Children and Prevent Accidents

PROTECT CHILDREN:

- Never assume that children will remain where you last saw them. Children are attracted to mowing activity, stay alert to the presence of children.
- Keep children in the house when you are operating the machine.
- Turn machine off if a child enters the area.
- Use extra care when you come to blind corners, shrubs, trees, or other objects that may block your vision.
- DO NOT let children or an untrained person operate the machine.



HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

- Be alert at all times, people especially children can move quickly into the area before you know it.
- Stop the blade when crossing gravel drives, walks, or roads.
- Shut off blade when you are not mowing.
- Keep hands, feet, and clothing away from rotating blade.

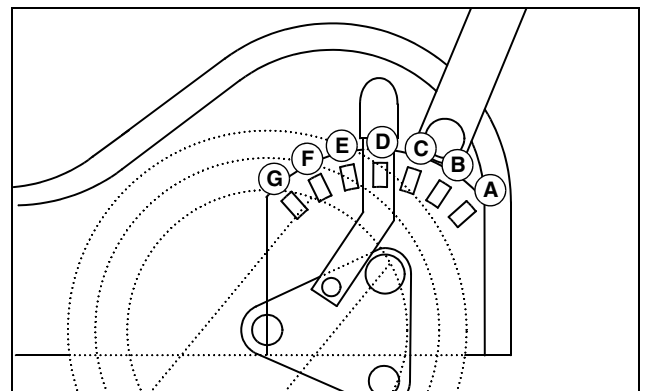
Adjusting Cutting Height



CAUTION: To avoid injury, before you adjust cutting height, STOP ENGINE. Let it cool.

IMPORTANT: Adjust both front and rear levers to same height except for **LOWEST** cutting height (A). When using lowest cutting height:

- Put front wheel levers in 25 mm (1-in.) notch (A).
- Put rear wheel levers in 38 mm (1-1/2-in.) notch (B).

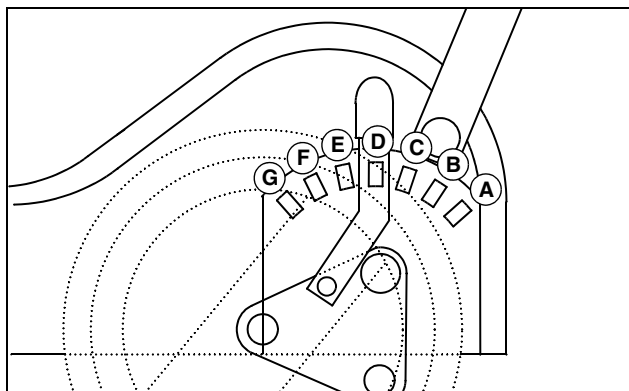
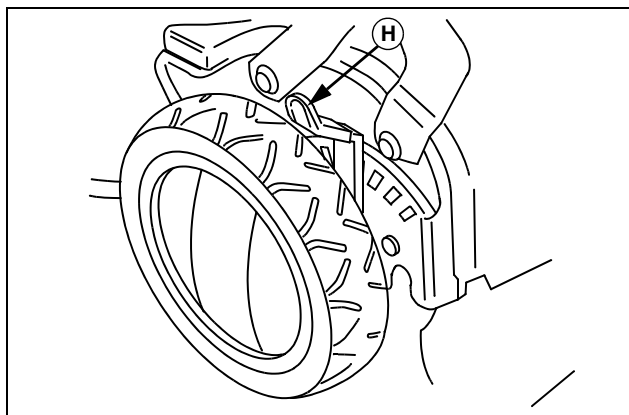


1. To help move rear wheel lever, using lower handlebar, lift mower slightly with one hand to take some weight off wheel.

OPERATING MACHINE

2. Move height adjustment lever (H) to desired position with other hand.

Key	Cutting Height Adjustments
(A)	25 mm (1-in.)
(B)	38 mm (1-1/2-in.)
(C)	50 mm (2-in.)
(D)	64 mm (2-1/2-in.)
(E)	75 mm (3-in.)
(F)	90 mm (3-1/2-in.)
(G)	102 mm (4-in.)

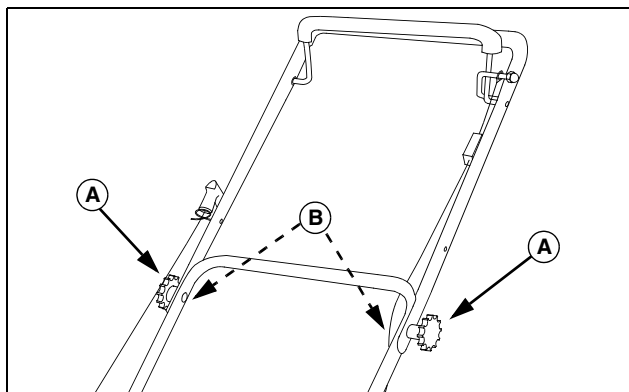


Adjusting Handle Height

NOTE: Upper handle has two height positions. Lower handle has three height positions.

Upper Handle:

1. Remove knobs (A) and bolts (B) from each side of upper handle.
2. Move handle to desired height.
3. Install bolt through matching holes in upper and lower handles on each side.
4. Install bolts and tighten knobs.

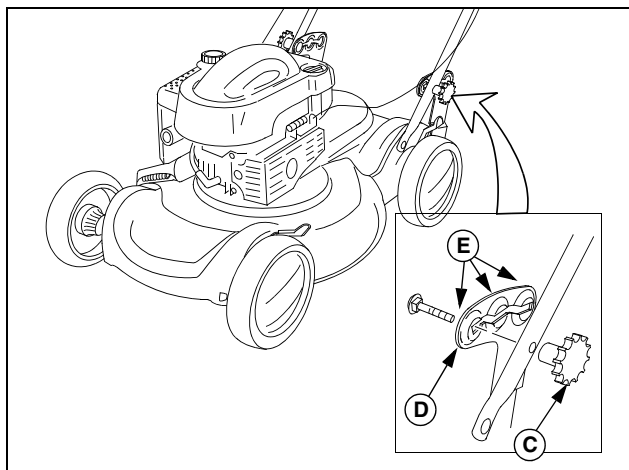


Lower Handle:

1. Loosen knob (C) approximately 25 mm (1 in.) on each side of handle.
2. Pivot handle to a desired height within slotted adjustment bracket (D).

NOTE: Carriage bolts must come to rest within one of the three height setting positions (E) before tightening knob.

3. Tighten knob (C) on each side of handle.



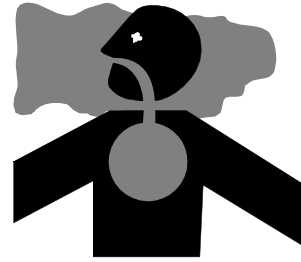
OPERATING MACHINE

Starting Engine

CAUTION: Engine exhaust fumes can cause sickness or death.

Run engine only in a ventilated area.

If engine is run in an enclosed area, open doors to bring in outside air.

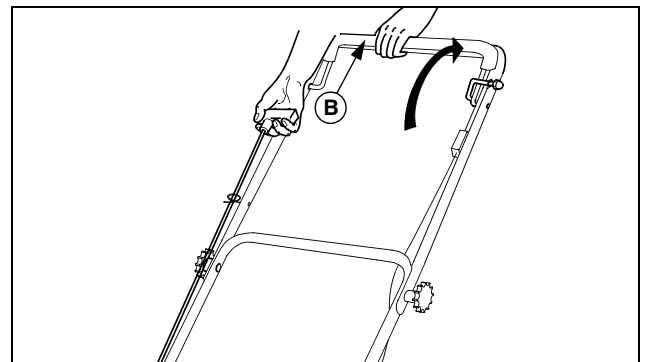
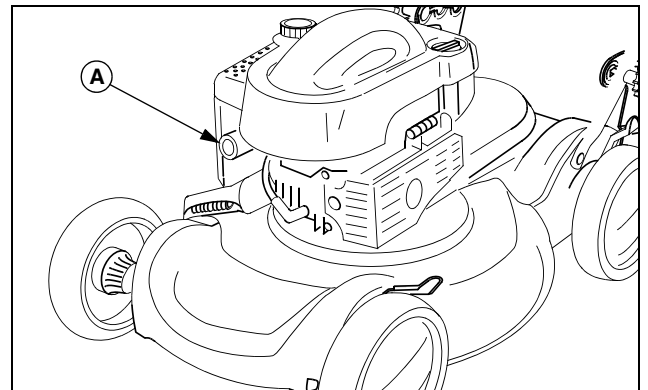


IMPORTANT: To help prevent damage to recoil starter and band brake, do not start engine when blade is under load, such as, in heavy grass or when blade control lever is released.

1. Prime engine by pressing primer bulb (A) three times.
2. Hold blade control lever (B) against handle.

CAUTION: When engine is running, blade is turning - Keep hands, feet and clothing away from the blade.

3. Pull starter handle until you feel resistance. Then pull fast and steady.
4. When engine starts, return rope slowly.



Forward Travel (M21 and M23)

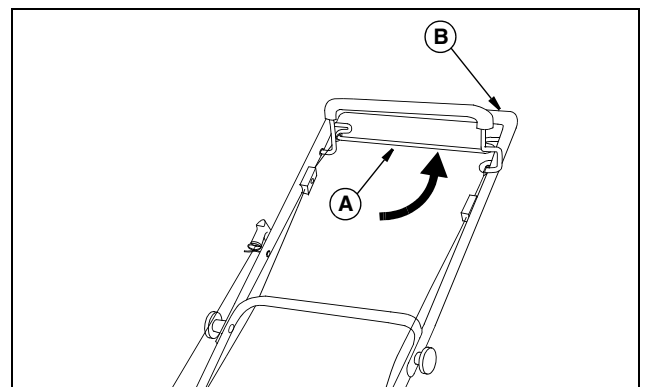
Pull and hold traction clutch lever (A) against handle (B) to start forward travel.

Picture Note: Model M21 shown.

To stop forward travel release traction clutch lever.

Release lever before turning the mower.

NOTE: Rear wheels will make a clicking noise if mower is pushed forward. This indicates that the drive train is operating correctly.



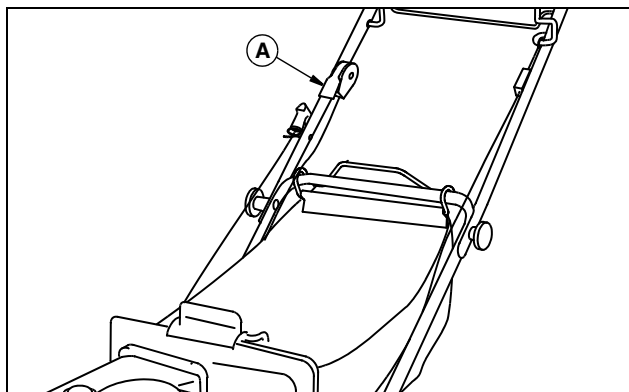
OPERATING MACHINE

Changing Travel Speeds (M23)

NOTE: Travel speed can be changed while the traction clutch lever is engaged and the mower is moving forward.

To change travel speeds, move gear shift lever (A) to desired speed.

Picture Note: Lever shown in the third speed position.



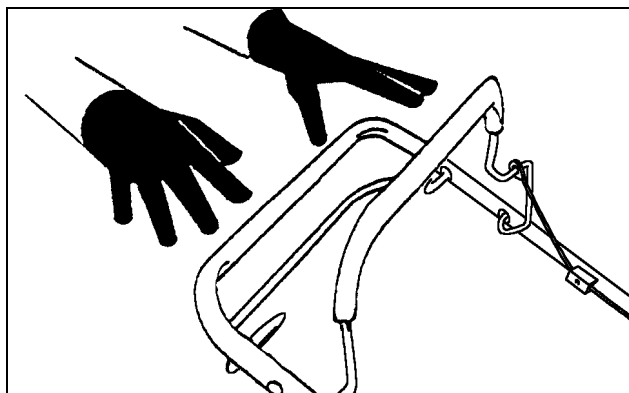
Stopping Engine

IMPORTANT: If blade does not stop within 3 seconds after you release blade stop lever, see your authorized Sabre dealer

Picture Note: Model M21 shown.

Release blade control lever and traction clutch lever:

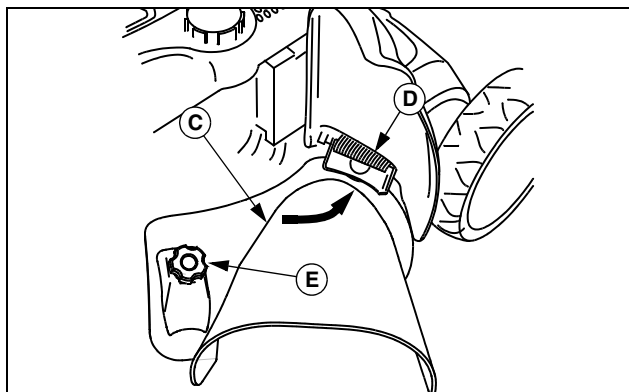
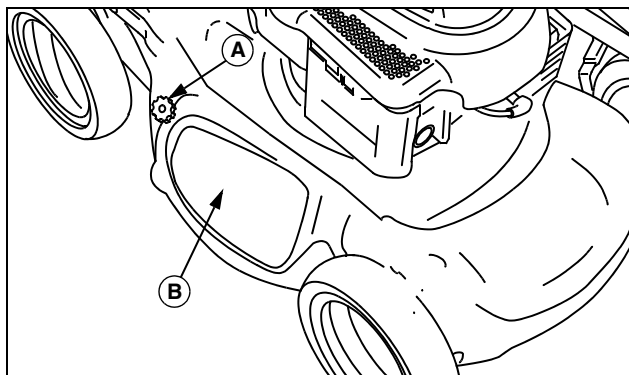
- Mower will stop.
- Blade will stop.
- Engine will stop.



Using Optional Side Discharge Chute

CAUTION: To avoid injury, do not operate mower unless grass bag, discharge chute, or mulch cover is in place.

1. Release blade control lever to stop engine.
2. Loosen mulch cover knob (A).
3. Lift and hold spring loaded mulch cover (B) up.
4. Slide side discharge chute (C) under mulch cover mounting bracket (D).
5. Tighten knob (E).



OPERATING MACHINE

Using Grass Bag

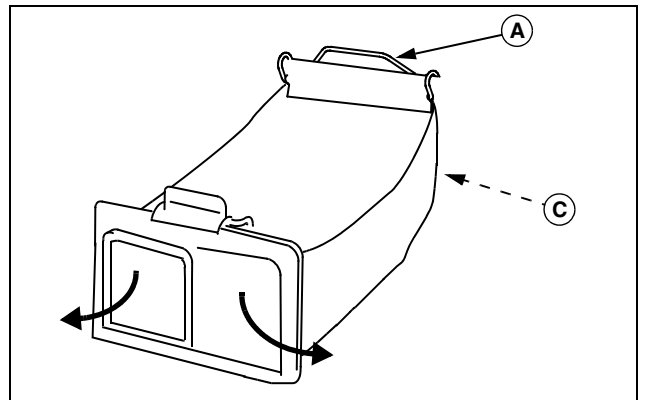
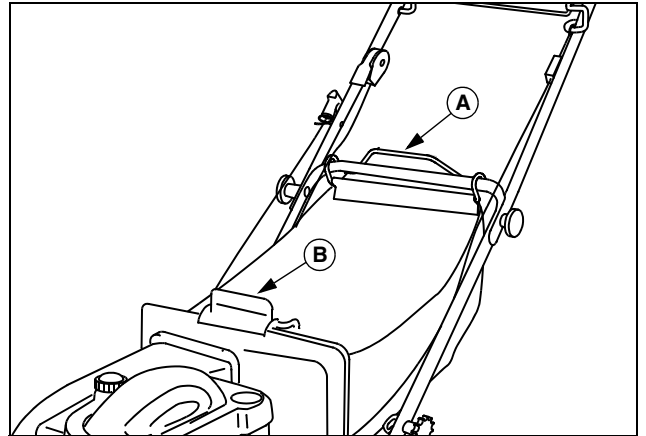
CAUTION: To avoid injury, do not operate mower unless grass bag, bagging chute, or mulch cover is in place.

Bagging chute **MUST** be removed and mulch cover secured in place when grass bag is not being used.

To remove and empty grass bag:

1. Release blade control lever to stop engine.
2. Grasp handle (A) and (B) from left side of mower. Lift bag off mower.
3. Using handles (A) and (C) tip bag forward allowing doors to swing open and bag to empty.

NOTE: Bag may wear and deteriorate. Check condition of bag often. Use a Sabre bag or equivalent to comply with safety specifications.

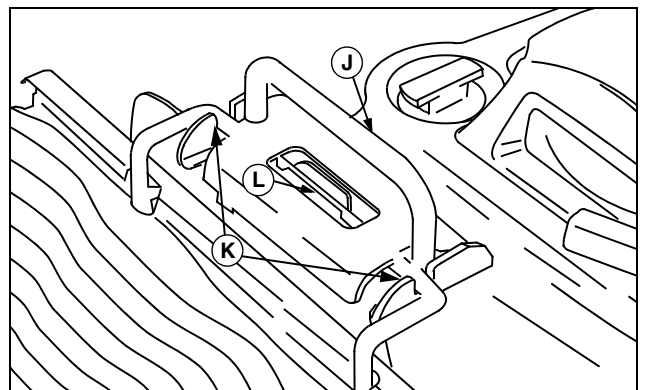
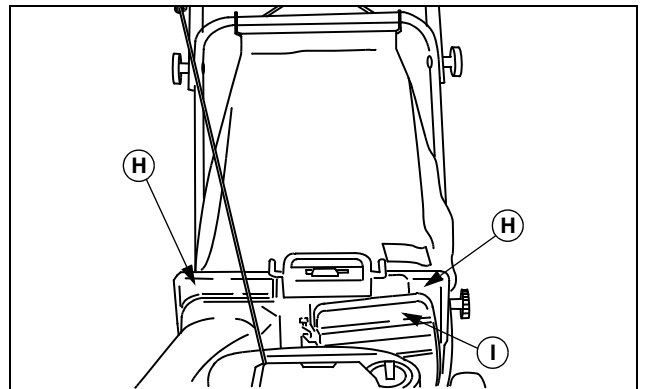


To install grass bag:

1. Hang grass bag on lower handlebar.

NOTE: Doors (H) on grass bag must be closed prior to installation onto the bagging chute.

2. Open spring loaded bagging chute safety door (I).
3. Install grass bag onto bagging chute by inserting grass bag handle (J) into slots (K) and clasp (L) on top of bagging chute.



REPLACEMENT PARTS

PART NUMBERS MAY CHANGE, use part numbers listed below when you order. If a number changes, your dealer will have the latest number.

WHEN YOU ORDER PARTS, your dealer needs your machine serial number. This is the number you have recorded in the INTRODUCTION section in the front of this manual.

ITEM	PART NUMBER
Air cleaner paper element	LG491588
Traction drive belt: M21 M23	GC00073 GC00081
Standard mulch blade	GC00032
Spark plug	Champion RJ19LM
Grass bag	GC00065
Blade adapter	GC00031
Drive belt engine pulley (M21 & M23)	M113895
Driven pulley: M21 M23	GC00074 GC00094
Fuel cap	LG397974
Blade control lever cable	GC00036
Traction cable: M21 M23	GC00070 GC00153
Shift cable (M23)	GC90045
Front wheel	GC90046
Front tire	GC00011
Rear wheel & tire: M10 M21 & M23	GC90046 GC90004
Wheel retaining nut	14M7400
Wheel cover	GC00010
Muffler	LG497838
Handlebar knob	M117057
Handlebar bolt (upper)	M82229
Handlebar bolt (lower)	M117057

(Part numbers are subject to change without notice. Part Numbers may be different outside the U.S.A.)

If you would like a copy of the Parts Catalog for this machine, please use the Order Form in the SERVICE LITERATURE section.

SERVICE

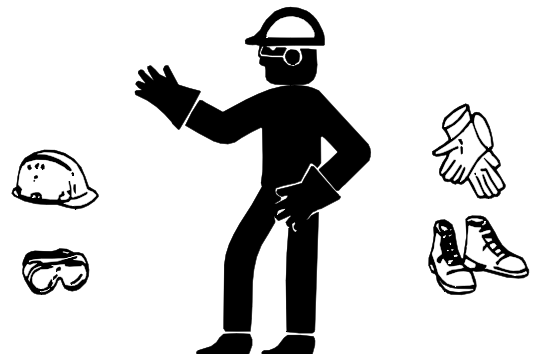
Practice Safe Maintenance

- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- To prevent them from getting caught, keep hands, feet, clothing, jewelry, and long hair away from any moving parts.
- Before servicing machine, disengage all power and stop the engine. Let engine cool.
- Securely support any machine elements that must be raised for service work.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Unauthorized modifications to the machine may impair its function and safety.



Wear Appropriate Clothing

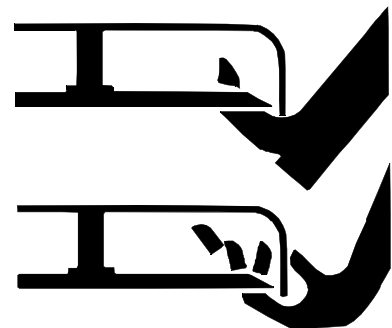
- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.



Avoid Injury From Contacting Blades

Before you unplug or adjust machine:

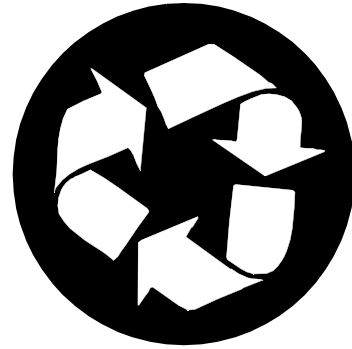
- STOP the engine.
- Wait for blades to STOP.
- Keep hands, feet and clothing away from blades when engine is running.



SERVICE

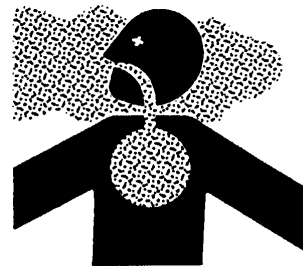
Handling Waste Product and Chemicals

- Waste products such as used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people.
- DO NOT use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or authorized Sabre dealer to learn how to recycle or get rid of waste products.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. See your authorized Sabre dealer for the MSDS on chemical products used with your machine.



Avoid Fumes

Always try to work in a well ventilated area, engine exhaust fumes can cause sickness or death.



Service Intervals

AFTER EACH USE	Clean the mower.
BEFORE EACH USE	Check oil level.
AFTER FIRST 5 HOURS	Change engine oil.
EVERY 25 HOURS OR MINIMUM ONCE A SEASON	Tighten blade bolt. Clean or replace air cleaner paper element. Clean and gap spark plug. Clean belt and transmission area. Change engine oil. Lubricate drive shaft hub bushings. Remove wheels - apply light coating of grease to mower axles.

SERVICE

Engine Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following Sabre oils are preferred:

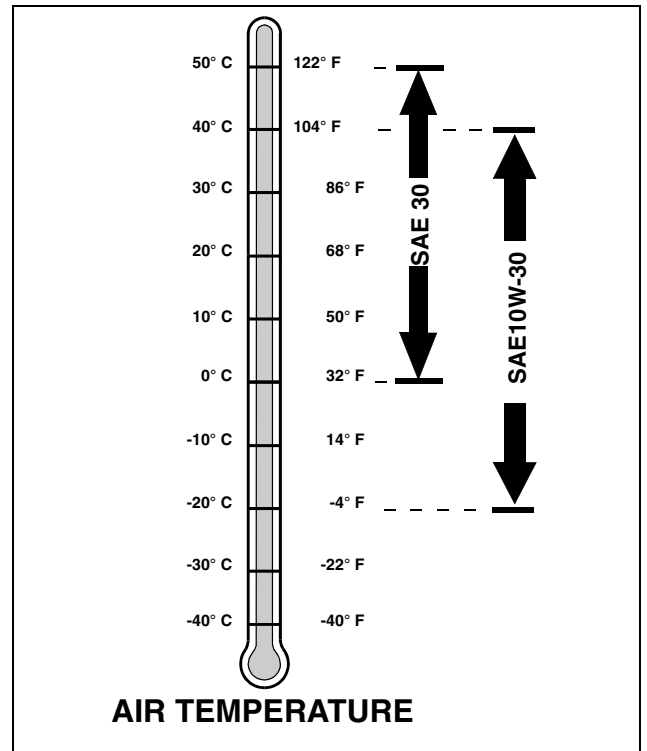
- TORQ-GARD SUPREME® (SAE 30)

The following Sabre oils are also recommended, based on their specified temperature range:

- TURF-GARD® (SAE 10W-30)
- PLUS-4® (SAE 10W-30)

Other oils may be used if above Sabre oils are not available, provided they meet one of the following specifications:

- SAE 10W-30—API Service Classification SG or higher
- SAE 30—API Service Classification SC or higher



Checking Engine Oil Level

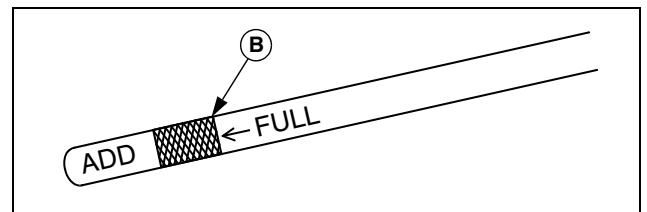
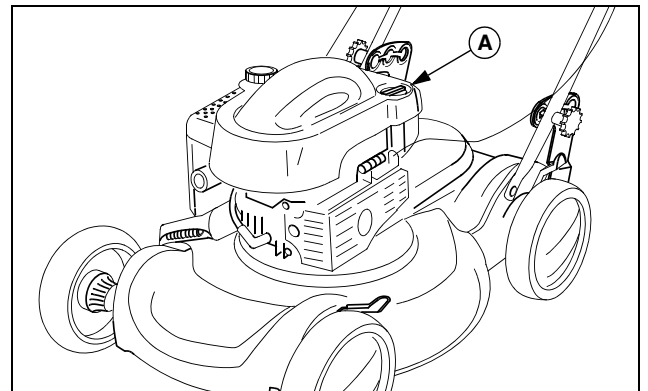


CAUTION: Before you check or add oil, STOP engine. Let it cool.

1. Stop engine. Put mower on a level surface.
2. Turn oil dipstick (A) 1/4 turn to the left. Remove dipstick and wipe it with a clean cloth.
3. Install dipstick. Turn dipstick 1/4 turn to the right and tighten.

IMPORTANT: If oil level is below the ADD mark, DO NOT run the engine.

4. Remove dipstick. Check oil level. Oil level MUST BE between ADD and FULL marks. If not, pour oil into dipstick tube to bring level to FULL mark (B).
5. Install and tighten dipstick.



SERVICE

Changing Engine Oil

CAUTION: Engine may be hot, use caution to avoid burns to the hands.

Fuel is highly flammable. To prevent fuel spillage from occurring, drain fuel from tank before tipping mower to drain oil.

IMPORTANT: Change oil while engine is warm.

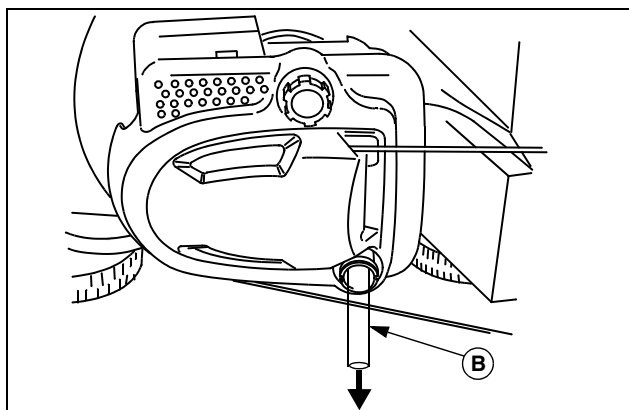
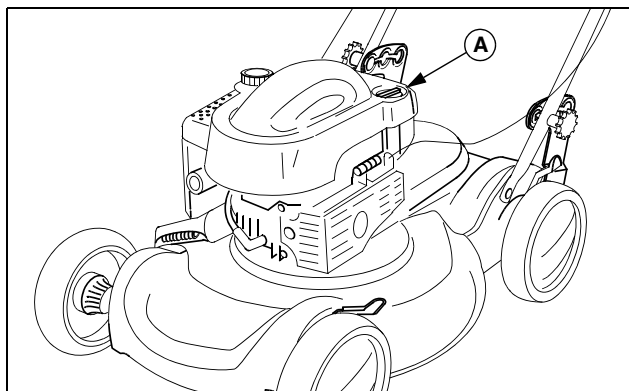
If mower is not operated 25 hours during the mowing season, change oil before storing mower.

Help prevent air cleaner damage and hard starting, turn mower onto the LEFT side when servicing.

NOTE: Two alternate methods can be used for changing the engine oil. Both options are acceptable service procedures based on customer preference.

TO CHANGE ENGINE OIL BY DRAINING OIL FROM FILLER TUBE:

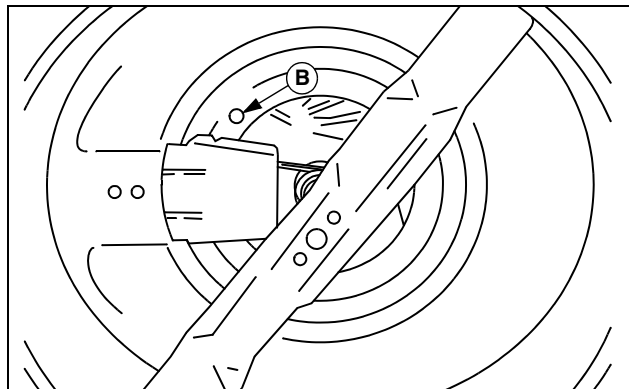
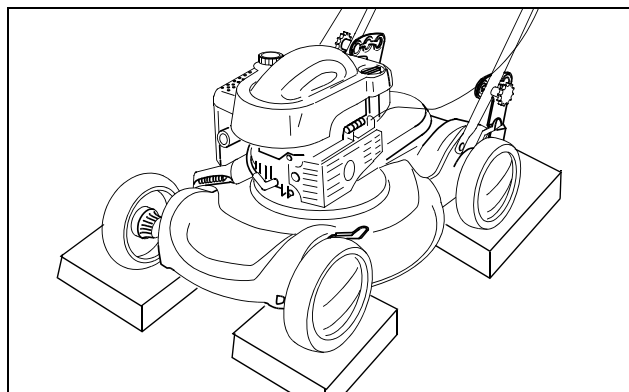
1. Park mower on a level surface. Drain fuel from tank or run engine until fuel tank is empty or near empty.
2. Stop engine and disconnect spark plug wire.
3. Turn oil dipstick (A) 1/4 turn to the left and remove it from the filler tube.
4. Place a drain pan on the left side of the mower.
5. Insert oil drain tube (B) into filler tube.
6. Turn mower onto its LEFT SIDE and allow engine oil to drain from the drain tube into the drain pan.
7. After oil has drained, return mower to an upright position. Remove drain tube and clean area around filler tube.
8. Add 0.5 L (20 oz) oil through dipstick filler tube.
9. Install dipstick. Turn dipstick 1/4 turn to the right to tighten.
10. Remove dipstick. Check oil level. Add oil to FULL mark if necessary. Install and tighten dipstick.



SERVICE

TO CHANGE ENGINE OIL BY DRAINING OIL FROM DRAIN PLUG UNDER DECK:

1. Stop engine and disconnect spark plug wire.
2. Raise mower to highest cutting position.
3. Place mower on blocks raising it at least 100 mm - 200 mm (4 - 8 in.) off the ground.
4. Place a drain pan under the mower.
5. Remove drain plug (B) from underside of mower using a 3/8 in. square drive.
6. After oil has drained, install drain plug.
7. Lower mower. Turn oil dipstick 1/4 turn to the left. Remove dipstick.
8. Add 0.6 L (20 oz) oil through the dipstick filler tube.
9. Install dipstick. Turn dipstick 1/4 turn to the right to tighten.
10. Remove dipstick. Check oil level. Add oil to FULL mark if necessary. Install and tighten dipstick.



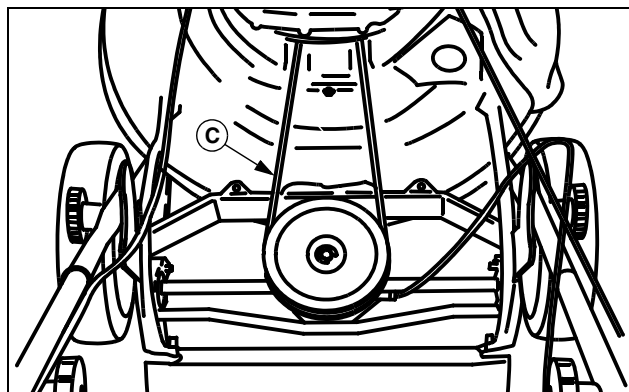
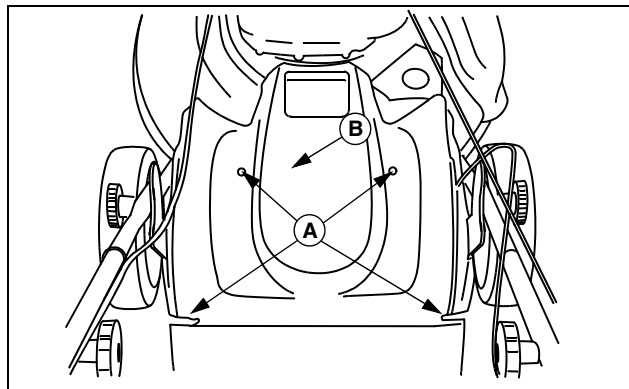
Replacing Drive Belt on Models M21 and M23



CAUTION: To avoid injury, before removing belt shield:

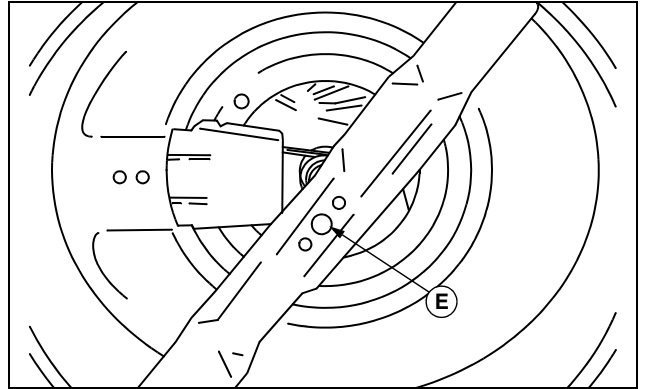
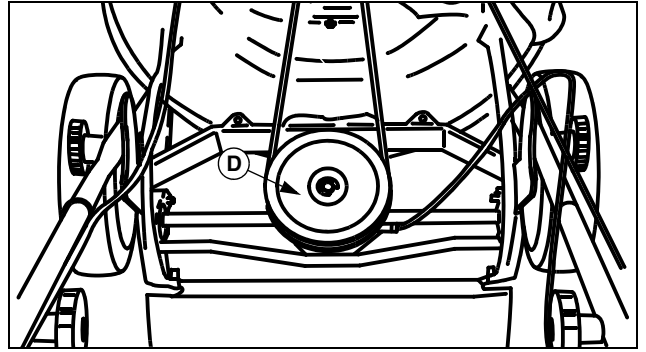
- Stop engine and wait for all moving parts to stop.
- Allow engine to cool.
- Disconnect spark plug wire.
- Wear gloves when working near blade.
- DO NOT operate mower without belt shield

1. Stop engine, let it cool, and disconnect spark plug wire.
2. Remove four screws (A), two nuts and washers to remove belt shield (B).
3. Inspect belt (C) for excessive wear or damage. If belt needs to be replaced continue with Step 4, if not install belt shield.



SERVICE

4. Push drive sheave (D) forward to relieve spring tension on belt.
5. Remove belt from drive sheave and thread belt through the deck to the underside of the mower.
6. Turn mower onto its LEFT SIDE.
7. Remove bolt (E), washer, and blade.
8. Pull belt through belt guard to remove belt.
9. Install new belt by reversing procedure.
10. Install blade and tighten bolt (E) to 75 N•m (55 ft-lb.).
11. Lower mower.
12. Install belt shield.



Check Blade



CAUTION: Service blade safely:

- **STOP engine. Let it cool.**
- **Disconnect spark plug wire.**
- **Wear gloves or wrap blade with a rag.**

IMPORTANT: To help prevent air cleaner damage and hard starting, turn mower on its LEFT SIDE.

NOTE: Sharpened edges on blade tips must face upward when installing blade.

CHECK BLADE:

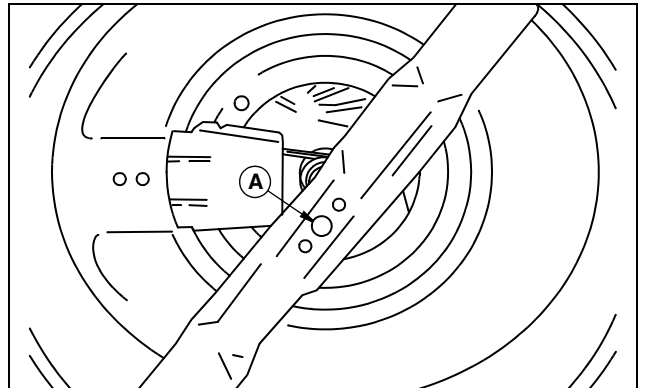
Replace damaged blade.

Tighten Bolt (A) to 75 N•m (55 lb-ft).

Sharpen dull blade. (See Sharpening Blade in this section.)

TO REMOVE BLADE:

Remove bolt (A), washer, and blade.



SERVICE

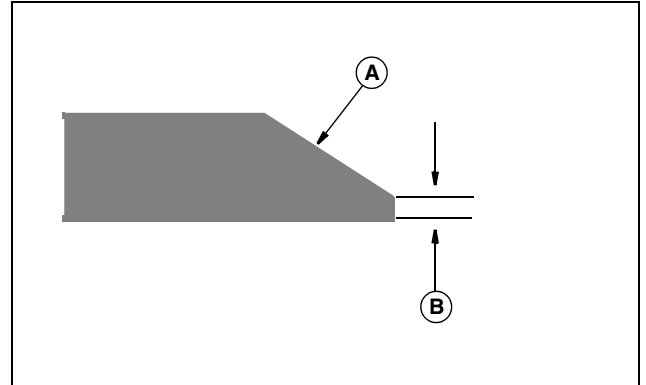
Sharpen Blade

CAUTION: To avoid injury, wear goggles and gloves when sharpening, balancing or installing blade.

1. Sharpen blade with grinder, hand file or electric blade sharpener
2. Keep original bevel (A) when you grind.
3. Blade should have 0.40 mm (1/64 in.) cutting edge (B).

IMPORTANT: Balance blade after you sharpen it.
An unbalanced blade may cause excessive vibration.

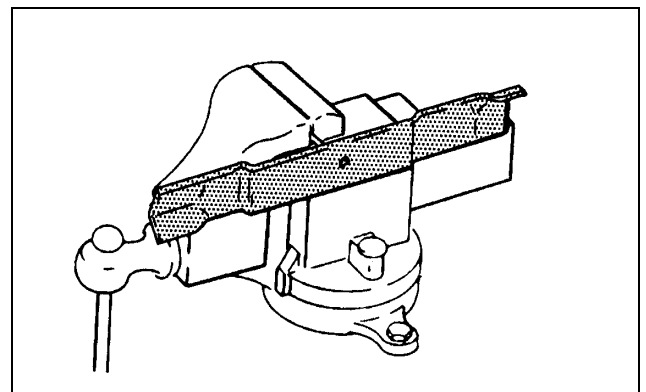
4. Balance blade.



Balance and Install Blade

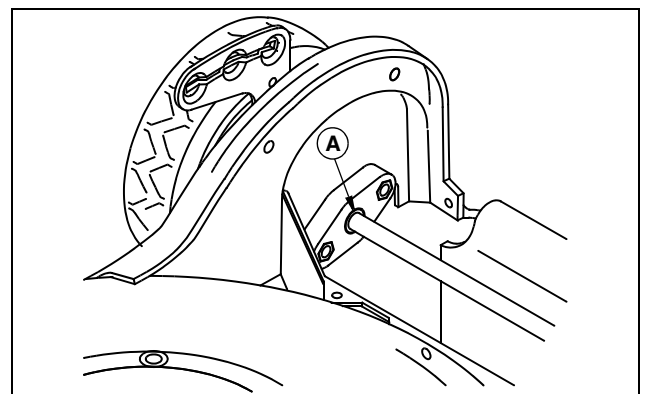
NOTE: Sharpened edges on blade tips must face upward when installing blade.

1. Clean blade. Put it on a nail in vise or on a wall. Heavy end of blade will drop. Grind bevel of heavy end. Do not change bevel.
2. Install blade, washer, and bolt.
3. Tighten bolts to 75 N•m (55 lb-ft).



Lubricate Drive Shaft Hub Bushings

1. Remove four screws, two nuts and washers to remove belt shield.
2. Tilt mower slightly to one side. Lubricate driveshaft hub bushing (A) with a few drops of light weight motor oil. Repeat procedure for other side.
3. Install belt shield.



TROUBLESHOOTING

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart or you have checked all the possible causes listed, see your authorized SABRE service center.

IF	CHECK
Engine Will Not Start	Engine not primed three times.
	Fuel tank is empty.
	Stale or dirty fuel.
	Disconnected or dirty spark plug.
Engine Starts Hard Or Loses Power	Dirty fuel tank cap vents.
	Stale or dirty fuel.
	Dirty air cleaner element.
	Disconnected or dirty spark plug.
Engine Runs Rough	Carburetor needs to be cleaned.
	Disconnected or dirty spark plug.
	Dirty air cleaner element.
	Dirty cooling fins.
Engine Overheats	Dirty blower housing and cooling fins.
	Oil level too low.
Engine Vibrates Too Much	Loose blade bolt.
	Blade dull.
	Blade improperly balanced.
	Bent crankshaft.
Mower Mows Unevenly	Pushing mower too fast.
	Mowing too fast around corners.
	Blade dull or not balanced.
	Insufficient overlapping of cuts when mowing.
Bagging Chute Plugs	Grass not dry.
	Cutting height not raised high enough.
	Dirty or full grass bag.
	Mowing too fast.
Mulched Grass Appearance Is Poor: Clumps, Excessive Clippings, Rough Cut, Etc.	Grass buildup under deck.
	Travel speed too fast.
	Blade dull or not balanced.
	Cutting height set too low.
	Tall grass conditions may dictate that more overlapping of cuts is required.

STORING MACHINE

Storing Mower

IMPORTANT: See engine Operator's Manual for engine storage instructions.



CAUTION: DO NOT store mower with fuel in the tank inside a building where fumes may reach an open flame or spark.

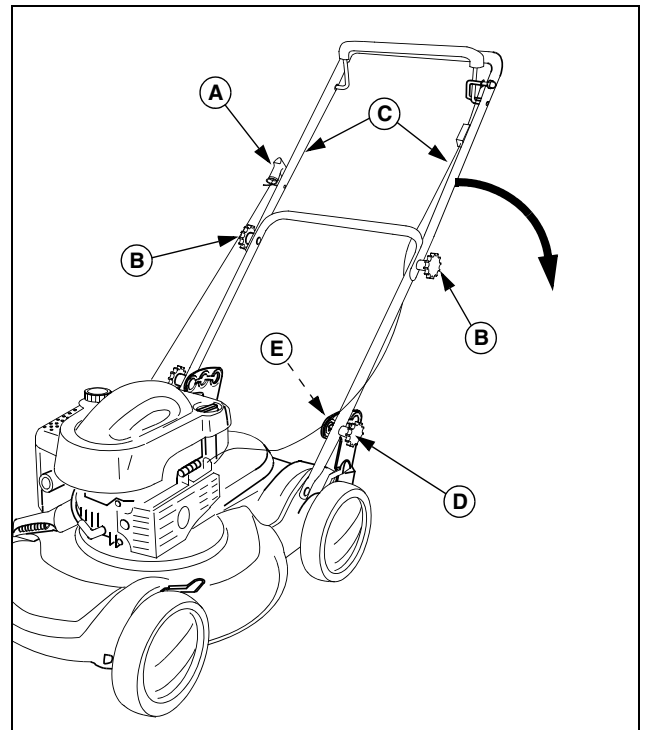
Allow engine to cool before storing in any enclosure.

1. Clean engine and top of deck.
2. Disconnect spark plug wire. Turn mower onto its LEFT SIDE.
3. Clean underside of deck with water pressure to remove grass buildup, lawn chemicals, and fertilizer.
4. Lower mower to the ground.
5. Fold handlebar assembly if necessary. DO NOT crimp or pinch cables. (See Folding Handles in this section.)

Folding Handles

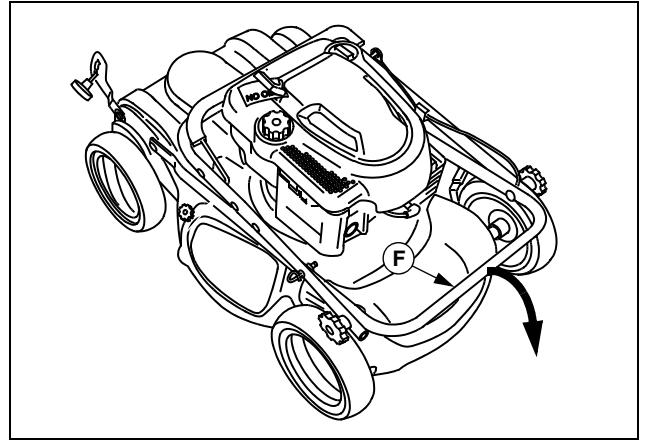
IMPORTANT: DO NOT CRIMP CABLES when folding handle bars.

1. Remove grass bag and discharge chute if installed.
2. Remove starter handle (A) from rope guide.
3. Loosen knobs (B) 25 mm (1 in.). Allow upper handle (C) to pivot down.
4. Remove knob (D) and carriage bolt (E) from each side.



STORING MACHINE

5. CAREFULLY fold lower handle (F) forward. Guide cables inside lower handle. DO NOT CRIMP CABLES.
6. Install bolts and knobs in back lower handle.



Remove Mower from Storage

1. Unfold handles. Tighten knobs. Do not crimp cables.
2. Fill fuel tank with fresh gasoline.
3. Check engine oil level.
4. Connect wire to spark plug.
5. Inspect shields, safety devices and hardware.

SPECIFICATIONS

Machine Specifications

Drive:	
M10	Push
M21	1 Speed Gear Transmission
M23	3 Speed Gear Transmission
Deck Material	Steel
Adjustable Handle	Standard
Rear Grass Bag:	
M10	Optional
M21 and M23	Standard
Side Discharge Cover	Optional
Mulching	Standard
Mower Blade Torque	75 N•m (55 lb-ft)
Safety System	Zone Start

Travel Speed Range

Model	M21	M23
First Gear	3.9 km/h (2.4 mph)	3.1 km/h (1.9 mph)
Second Gear	N/A	3.9 km/h (2.4 mph)
Third Gear	N/A	5.0 km/h (3.1 mph)

Capacities

Fuel Tank	1.5 L (1.6 qt)
Engine Oil	0.6 L (20 oz)
Rear Grass Bag	74 L (2.5 bu)

Dimensions

Wheel Size	8.75 x 2.25
Mower Weight:	
M10	34 kg (75 lb)
M21	37 kg (81 lb)
M23	38 kg (84 lb)
Cutting Height Range	2.5–10 cm (1–4 in.)
Cutting Width	53 cm (21 in.)

(Specifications and design subject to change without notice)

WARRANTY

LIMITED (NON-ENGINE)WARRANTY FOR NEW SABRE PRODUCTS (U.S. Only)

A. GENERAL PROVISIONS - The warranties described below are provided by John Deere Company ("John Deere") to the original purchasers or new Sabre Products. Under these warranties, John Deere will repair or replace, at its option any covered part which is found to be defective in material or workmanship during the applicable warranty term. Warranty service must be performed by a dealer authorized to service the Sabre product involved, which will use only new or remanufactured parts of components furnished by John Deere. Warranty service will be performed without charge to the purchaser for parts and labor. The purchaser will be responsible, however, for any service call and/or transportation of product to and from the dealer's or service center's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service and/or maintenance not directly related to any defect covered under the warranties below.

B. WHAT IS WARRANTED* - All parts of any new Sabre product, except tires and batteries, are warranted for the number of months / days specified below:

SABRE PRODUCTS	WARRANTY TERM
IN RESIDENTIAL (Private Homeowner) APPLICATION	24 Months
IN ANY OTHER APPLICATION	90 Days

Each warranty term begins on the day of purchase.

*Refer to Engine Owner's Manual (Packaged with SABRE product) for statement of engine warranty.

C. WHAT IS NOT WARRANTED - JOHN DEERE IS NOT RESPONSIBLE FOR THE FOLLOWING: (1) Used products; (2) Any product that has been altered or modified in ways not approved by John Deere; (3) Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, lack of proper protection during storage, or accident; (4) Normal maintenance parts and service including, but not limited to, general check-ups on electrical equipment, tune-ups on gasoline engines or replacement of non-defective parts (such as spark plugs, filters, starter ropes, belts, etc.) that may wear and need replacement with reasonable use within the warranty period or which may require replacement in connection with normal maintenance.

D. SECURING WARRANTY SERVICE - To secure warranty service, the purchaser must (1) report the product defect to an authorized service dealer and request repair within the applicable warranty term, (2) present evidence of proof of purchase, and (3) make the product available to the dealer or service center within a reasonable period of time.

E. LIMITATION OF IMPLIED WARRANTIES AND OTHER REMEDIED - SABRE PRODUCTS - To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations or promises as to the quality, performance or freedom from defect of the Sabre products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE PERIOD OF WARRANTY SET FORTH ON THIS PAGE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON THE SABRE PRODUCTS ARE THOSE SET FORTH ON THIS PAGE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above limitations and exclusions may not apply to you.) This warranty gives you specific rights, and you may also have other rights which vary from state to state.

F. NO DEALER WARRANTY - THE SELLING DEALER MAKES NO WARRANTY OF ITS OWN AND DEALER HAS NO AUTHORITY TO MAKE ANY REPRESENTATION OR PROMISE ON BEHALF OF JOHN DEERE TO MODIFY THE TERMS OR LIMITATIONS OF THIS WARRANTY IN ANY WAY.

G. If further information is desired, contact your servicing dealer, service center or JOHN DEERE COMPANY:

CONSUMER PRODUCTS GROUP
P.O. BOX 7047
Charlotte, NC 28241
Effective September 1996

SABRE SERVICE LITERATURE

Order Form

John Deere Distribution Center - Department S/P P.O. Box 186, Moline, IL 61266-0186

To order these publications, fill out this form and the payment information and mail it to the address above. Make checks payable to John Deere. Please allow three weeks for delivery. No COD orders, please. Do not send cash or stamps. To place credit card orders, call 1-800-522-7448. If you want manuals or catalogs for equipment not shown on this list, provide the model number, serial number, and name of the product.

Name _____

Address _____

City _____

State _____

Zip _____ Phone: () _____

Title	Order Number	Price Each	x Quantity	= Total	
Parts Catalog	PC2648	(Call 1-800-522-7448 for current prices.)	x	=	
Operator's Manual	OMGC00037		x	=	
Technical Manual	TM1722		x	=	
Sub-total					
Method of Payment		Illinois state residents add 6.25% and Iowa state resident add 4% for Retail Occupation Tax or show tax exemption number. Other states excluded.			
___ Check/Money Order Enclosed		Total Shipping & Handling (from table below) (Prices subject to change without notice - DEC 91) Amount Due in U.S. Dollars			
___ John Deere Credit Card					
___ MasterCard					
___ Visa					
___ American Express		Optional shipping available. Please check and add cost to normal shipping: ___ 1 day air.....\$15.00 ___ 2 day air.....\$10.00			
___ Discover					
Credit Card Acct. No.	Subtotal				Shipping/Handling
(13 or 16 digits)	\$.50 to 14.99				\$3.00
___ - ___ - ___ - ___	15.00 to 24.99	4.25			
Expiration Date:	25.00 to 49.99	5.50			
Signature:	50.00 to 99.99	7.50			
	100.00 and over	4% of sub total			

NOTES

QUALITY DOESN'T END WHEN YOU INVEST IN A SABRE BY JOHN DEERE

SABRE by John Deere equipment is more than just a purchase, it's an investment in quality. That quality goes beyond our equipment to your SABRE dealer's parts and service support. This support is needed to keep you a satisfied customer.

That's why John Deere has initiated a process to handle your questions or problems, should they arise. The following three steps will help guide you through the process.



Step 1

Refer to your operator's manual

- A. It has many illustrations and detailed information on the safe and proper operation of your equipment.
- B. It gives troubleshooting procedures, and specification information.
- C. It gives ordering information for parts catalogs, service and technical manuals.
- D. If your questions are not answered in the operator's manual, then go to Step 2.

Step 2

Contact your Authorized SABRE Service Center

- A. Your SABRE Service Center can answer your questions, resolve problems, and fulfill your parts and service needs.
- B. First, discuss your questions or problems with your service center's parts and service staff.
- C. If the parts and service people are unable to resolve your problem, see the service center manager or owner.
- D. If your questions or problems are not resolved by the service center, then go to Step 3.

Step 3

Call the John Deere Customer Communications Center

- A. Your SABRE Service Center is the most efficient source in addressing any concern, but if you are not able to resolve your problem after checking your operator's manual and contacting your service center, call the Customer Communications Center.
 - B. For prompt, effective service, please have the following ready before you call:
 - The name of the dealer or service center with whom you've been working.
 - Your equipment model number.
 - Number of hours on machine (if applicable).
 - Your 13-digit serial number which you recorded on the inside front cover of this manual.
 - If the problem is with an attachment, your attachment identification number.
 - C. Then call 1-800-537-8233 and our representative will work with your dealer or service center to investigate your concern.
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