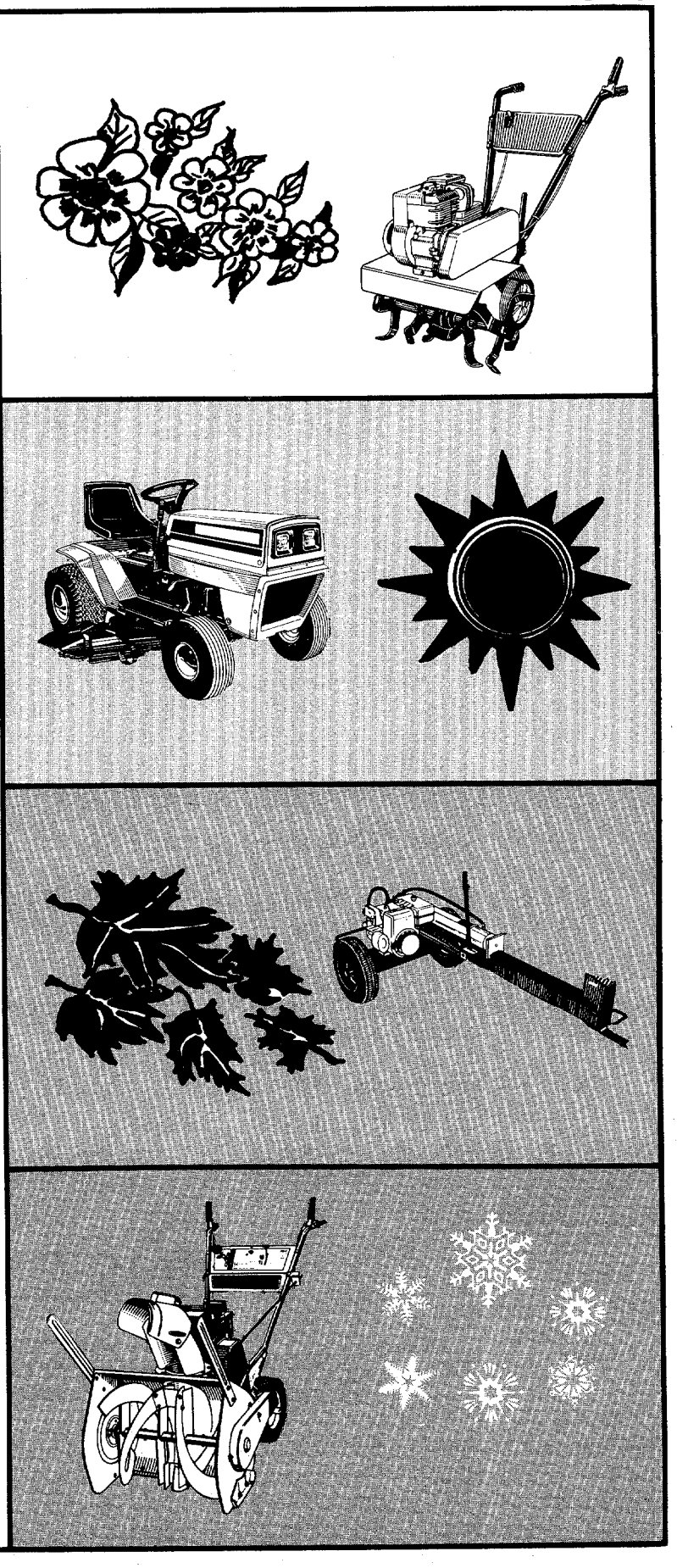
OWNER'S MANUAL

30″ RIDING MOWER

Model Number 132-412A



Important:

Read Safety Rules and Instructions Carefully

Thank you for purchasing an American built product.

PRINTED IN U.S.A.

FORM NO. 770-1765

INDEX

LIMITED WARRANTY

For one year from the date of original retail purchase, MTD PRODUCTS INC will either repair or replace, at its option, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser. Transportation charges for any parts submitted for replacement under this warranty must be paid by the purchaser unless such return is requested by MTD PRODUCTS INC.

This warranty will not apply to any part which has become inoperative due to misuse, excessive use, accident, neglect, improper maintenance, alterations, or unless the unit has been operated and maintained in accordance with the instructions furnished. This warranty does not apply to the engine, motor, battery, battery charger or component parts thereof. Please refer to the applicable manufacturer's warranty on these items.

This warranty will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor. If you do not know the dealer or distributor in your area, please write to the Customer Service Department of MTD.

The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by MTD.

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

WARNING

TO PURCHASERS
OF INTERNAL COMBUSTION ENGINE EQUIPPED
MACHINERY OR DEVICES IN THE STATE OF CALIFORNIA

The equipment which you have just purchased does not have a spark arrester. If this equipment is used on any forest covered land, brush covered land, or grass covered unimproved land in the State of California, before using on such land, the California law requires that a spark arrester be provided. In addition, spark arrester is required by law to be in effective working order. The spark arrester must be attached to the exhaust system and comply with Section 4442 of the California Public Resources Code.

To reduce the potential for any injury, comply with the following safety instructions. Failure to comply with the instructions may result in personal injury.

SAFE OPERATION PRACTICES FOR RIDING VEHICLES

1. It is suggested that this manual be read in its entirety before attempting to assemble or operate this unit. Keep this manual in a safe place for future reference and for ordering replacement parts.
2. This unit is a precision piece of power equipment, not a plaything. Therefore exercise extreme caution at all times.
3. Know the controls and how to stop quickly—READ THIS OWNER'S MANUAL.
4. Do not allow children to operate vehicle. Do not allow adults to operate it without proper instruction. Only persons well acquainted with these rules of safe operation should be allowed to use your mower.
5. No one should operate this unit while intoxicated or while taking medication that impairs the senses or reactions.
6. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts to avoid entanglement in the moving parts. Never operate a unit in bare feet, sandals, or sneakers.
7. To prevent injury, do not carry passengers or give rides. Keep children, pets and bystanders out of the area while mowing. Only the operator should ride on the unit and only ride in the seat.
8. Check overhead clearance carefully before driving under power lines, guy wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
9. To maintain control of the unit and reduce the possibility of upset or collision, operate the tractor smoothly. Avoid erratic operation and excessive speed.
10. Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower. Although the area of operation should be completely cleared of foreign objects, a small object may have been overlooked and could be accidently thrown by the mower in any direction and cause injury.
11. Clear work area of objects which might be picked up and thrown by the mower in any direction and cause injury.
12. Stop the blade(s) when crossing gravel drives, walks or roads.
13. Disengage all attachment clutches and shift into neutral before attempting to start engine.
14. Disengage power to attachment(s) and stop engine before leaving operating position.
15. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times as the rotating blade(s) can cause injury.
16. Disengage power to attachment(s) and stop engine before making any repairs or adjustments. Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.
17. Before attempting to unclog the mower or discharge chute, stop the engine. The mower blade(s) may continue to rotate for a few seconds after the engine is shut off. Therefore, be sure the blade(s) have stopped completely. Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.
18. Disengage power to attachment(s) when transporting or not in use.
19. Take all possible precautions when leaving vehicle unattended such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
20. Do not stop or start suddenly when going uphill or downhill. Mow up and down face of steep slopes; never across the face.
21. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Always keep the tractor in gear when going down steep hills to take advantage of engine braking action.
22. Stay alert for holes in terrain and other hidden hazards.
23. Use care when pulling loads or using heavy equipment.
    A. Use only approved drawbar hitch points.
    B. Limit loads to those you can safely control.
    C. Do not turn sharply. Use care when backing.
    D. Use counterweight(s) or wheel weights when suggested in owner's manual.
24. Watch out for traffic when crossing or near roadways.
25. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near vehicle while in operation.
26. Handle gasoline with care. It is highly flammable.
    A. Use approved gasoline container.
    B. Never remove cap or add gasoline to a running or hot engine or fill fuel tank indoors. Wipe up spilled gasoline.
    C. Open doors if engine is run in garage. Exhaust fumes are dangerous. Do not run engine indoors.
27. Keep the vehicle and attachments in good operating condition, and keep safety devices in place. Use guards as instructed in owner's manual.
28. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

29. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
30. To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
31. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object. The damage should be repaired before restarting and operating the equipment.
32. Do not change the engine governor settings or overspeed the engine.
33. When using the vehicle with mower, proceed as follows:
    (1) Mow only in daylight or in good artificial light.
    (2) Never make a cutting height adjustment while engine is running if operator must dismount to do so.
    (3) Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher.
    (4) Check blade mounting bolts for proper tightness at frequent intervals.
34. Check grass catcher bags frequently for wear or deterioration. For safety protection, replace only with new bag meeting original equipment specifications.
35. Look behind to make sure the area is clear before placing the transmission in reverse and continue looking behind while backing up.

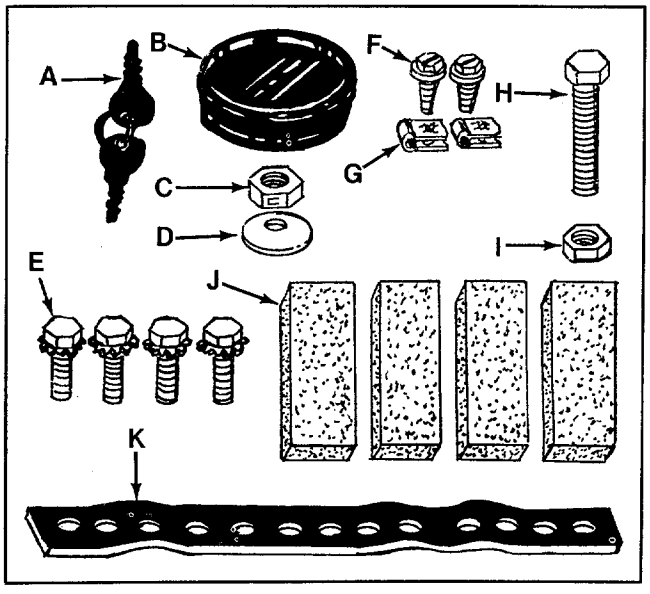


FIGURE 1.

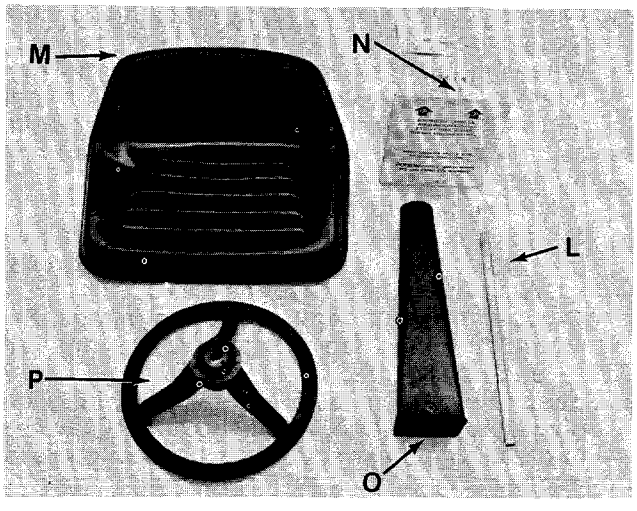


FIGURE 2.

ASSEMBLY INSTRUCTIONS

NOTE

This unit is shipped WITHOUT GASOLINE or OIL. After assembly, see separate engine manual for proper fuel and engine oil recommendations.

NOTE

Reference to right hand or left hand side of machine is from the driver's seat facing forward.

Contents of Hardware Pack:

A (2) Ignition Keys
B (1) Steering Wheel Cap
C (1) Hex Lock Nut
D (1) Belleville Washer
E (4) Hex Sems Bolts 5/16-18 x 5/8" Long
F (2) Hex Self-Tapping Screws
G (2) Speed Nuts
H (1) Hex Bolt ¼-20 x 1.25" Long
I (1) Hex Lock Nut ¼-20 Thread
J (4) Foam Strips
K (1) Battery Strap

Loose Parts in Carton:

L (1) Steering Tube Assembly
M (1) Seat
N (1) Battery Pack
O (1) Steering Cover
P (1) Steering Wheel

FIGURE 3.

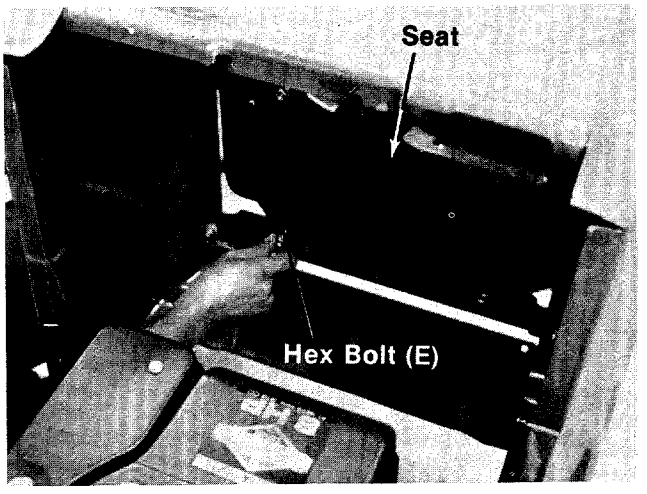


FIGURE 4.

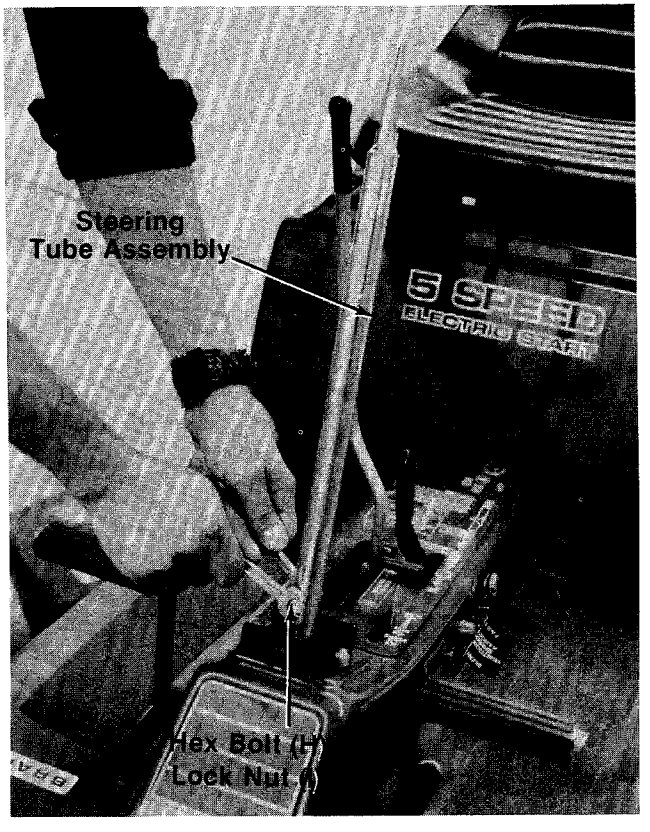


FIGURE 5.

SEAT ASSEMBLY

1. Release the rear cover latch and raise the rear cover. See figure 3.

2. Place the seat over cover and fasten with four hex bolts (E). See figure 4.

STEERING WHEEL ASSEMBLY
(See Figures 5, 6, 7 and 8)

NOTE

Due to vibration during shipment, it is possible that the steering shaft on your unit may have dropped to a position where alignment of parts is difficult. This must be kept in mind during assembly.

1. Check the upper and lower hex bearings. Be sure they are seated and in position.
2. Place your hand under the front of the unit and push up on the steering shaft assembly.
3. Hold up the shaft assembly. Place the steering tube assembly (L) on the shaft and start the hex bolt (H) through the hole. See figure 5.
4. Fasten the tubing assembly to the steering shaft assembly with hex bolt (H) and hex lock nut (I) provided.

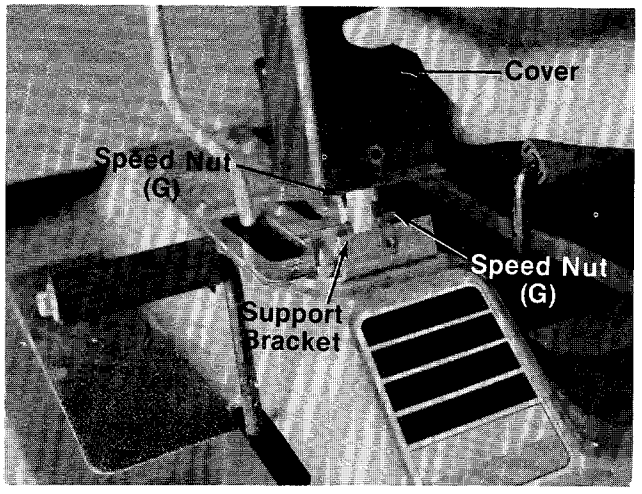


FIGURE 6.

5. Place two speed nuts (G) on support bracket as shown in figure 6.
6. Place the cover (O) over the steering tube assembly. Line up holes in cover with speed nuts. See figure 6.

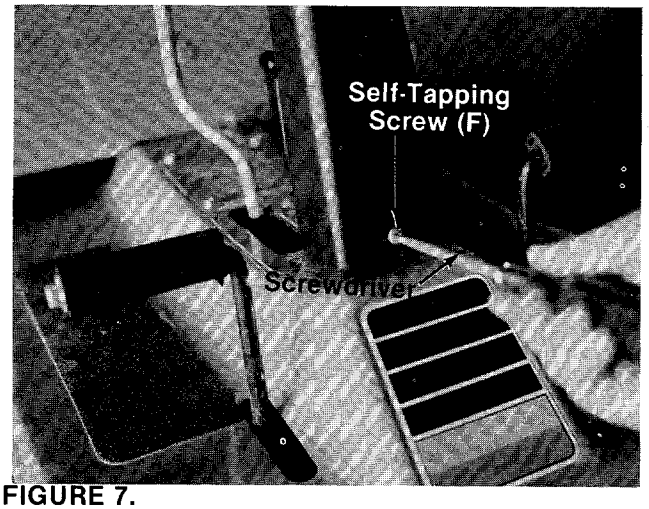


FIGURE 7.

7. Secure cover to support bracket with two hex self-tapping screws (F) provided. See figure 7.

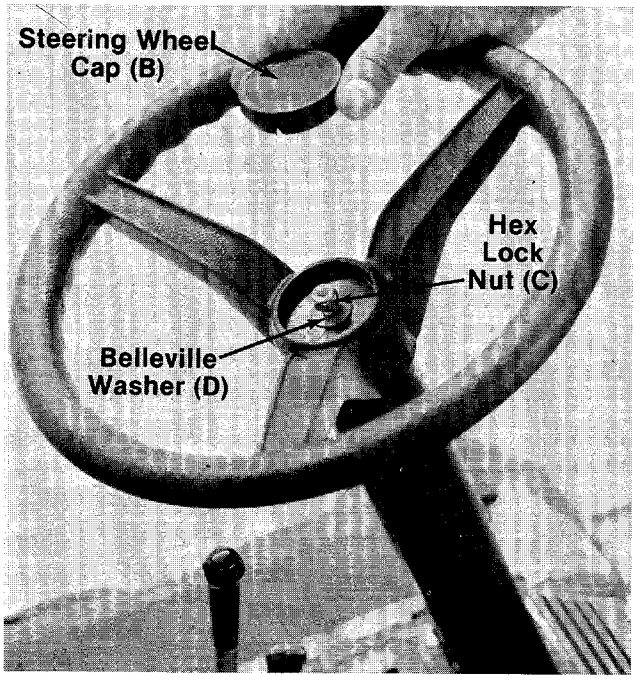


FIGURE 8.

8. Place the steering wheel on the tubing assembly and fasten with belleville washer (D) and hex lock nut (C). See figure 8.

   Again, it may be necessary to raise the steering shaft assembly in order to put the hex lock nut on.
9. Place the steering wheel cap (B) on by hand. See figure 8.

BATTERY INFORMATION

WARNING

A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.*

B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.

C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.

E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.

F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.

G. As a further precaution, only charge the battery in a well-ventilated area.

***Always shield eyes, protect skin and clothing when working near batteries.**

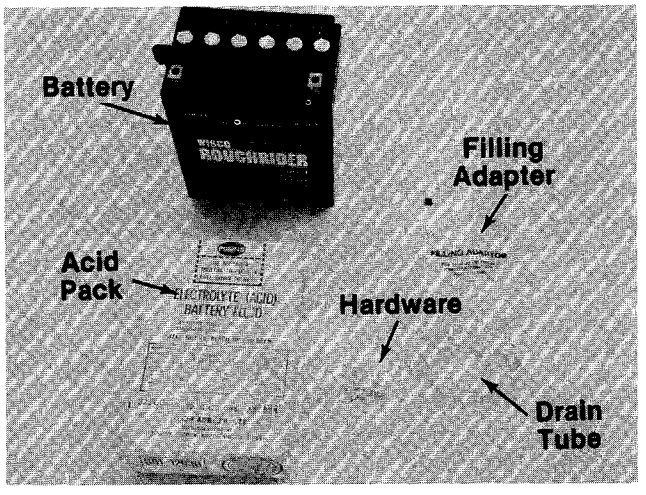


FIGURE 9.

ACTIVATING AND INSTALLING THE BATTERY

1. Upon opening the battery pack, you should receive acid pack, battery, drain tube, filling adapter and hardware. See figure 9.

DANGER

BATTERIES CONTAIN SULFURIC ACID AND MAY CONTAIN EXPLOSIVE GASES (when electrolyte has been added).

FIGURE 10.

2. Place the battery on table or workbench to be filled.
3. Place one end of clear plastic drain tube on manifold of battery. See figure 10.

NOTE

Some batteries may already have the drain tube installed, in which case it may be necessary to snip off the sealed end.

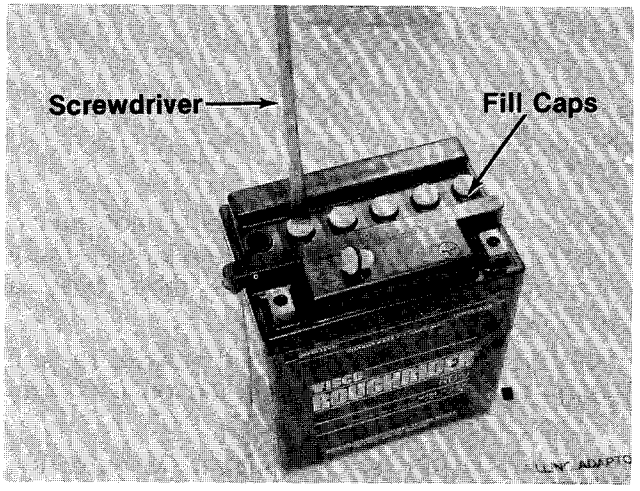


FIGURE 11.

4. Remove the six fill caps from the top of the battery with a screwdriver. Care should be taken not to damage the fill caps. See figure 11.

5. Lay acid package down, with "push in" facing up. Using thumb, push in small perforated tab at dot on front of package. Tear down large tab to solid line, exposing hose. **Do not** use any sharp object to open acid package.

6. Pull out hose from package and hold upright. Squeeze hose forcing all acid back into package. Cut off tip of hose and insert filling adapter. See figure 12.

7. Fill each cell to upper level marked on front of battery. Replace fill caps on battery. See figure 12.

8. Allow battery to sit for 20 to 30 minutes. Add additional acid, if necessary, to bring it up to the proper level.

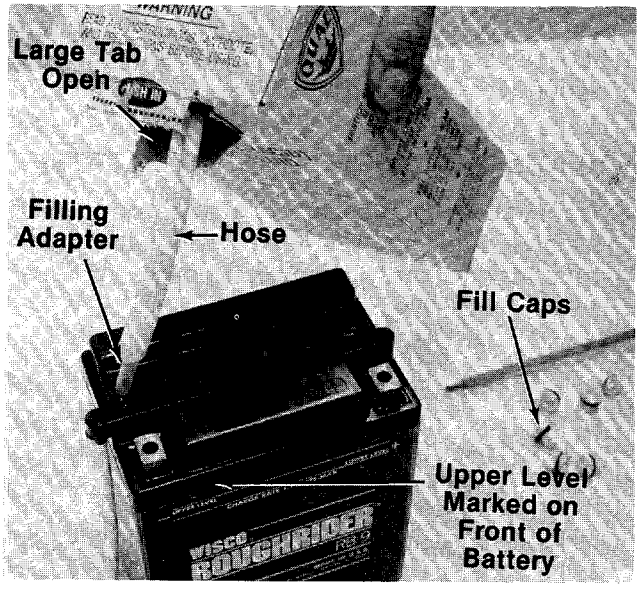


FIGURE 12.

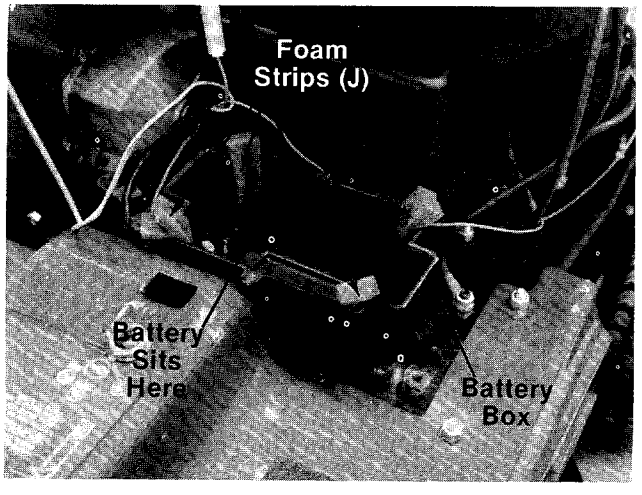


FIGURE 13.

WARNING

Battery contains sulfuric acid. Refer to warning on page 7. Antidote: EXTERNAL—Flush with water. INTERNAL—Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Seek prompt medical attention. EYES: Flush with cool water for at least 15 minutes, then seek immediate medical attention.

Since batteries produce explosive gases, keep all lighted materials (cigarettes, lighters, matches, etc.) away. Be sure to charge battery only in well-ventilated areas.

KEEP BATTERIES
OUT OF THE REACH OF CHILDREN!

Open the hood of the lawn tractor. Figure 13 shows the battery box in which the battery will be mounted.

9. Install the four foam strips (J) into the battery box as follows.
   A. Using a cloth, clean the inside of the battery box with a thinner or solvent.
   B. Peel the paper off the foam strips to expose the adhesive backing. Press foam strips firmly into the corners of the battery box. See figure 13.

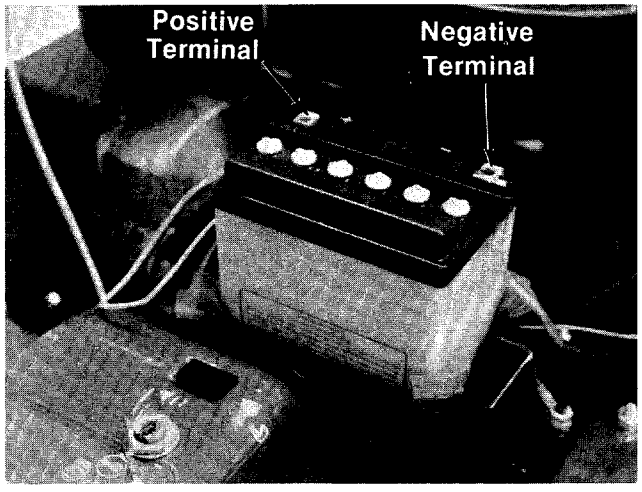


FIGURE 14.

10. Place the battery in the rider so that positive terminal is towards the right side of the unit. See figure 14.

NOTE

Right and left hand side of the unit is determined by sitting on the seat in the operating position, facing forward.

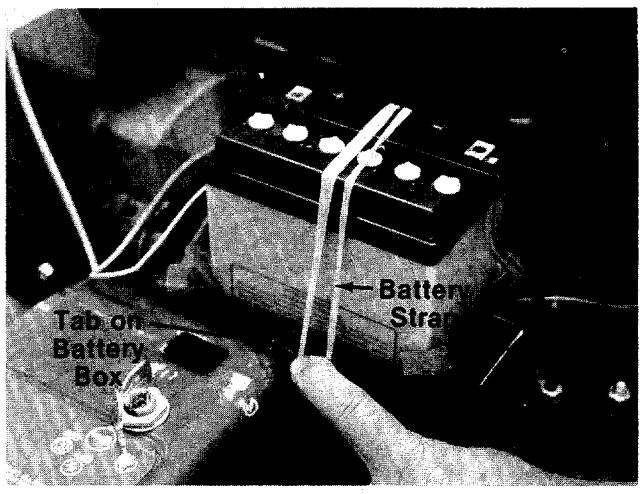


FIGURE 15.

11. Secure the battery to the battery box by stretching the battery strap (K) across the battery. Loop each end around the tap on the sides of the battery box. See figure 15.

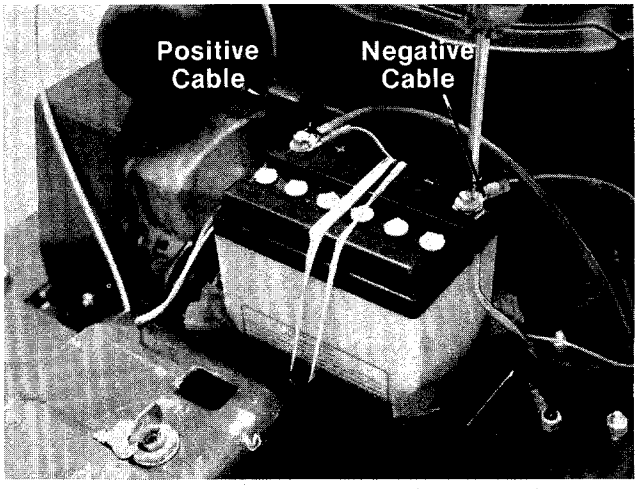


FIGURE 16.

12. Slide the square nut (provided with battery hardware) into the positive (+) terminal. Place the positive (heavy red wire) cable on the positive terminal. Secure with screw and lock washer provided. See figure 16.
13. Slide the square nut (provided with battery hardware) into the negative (−) terminal. Place the negative (heavy red wire) cable on the negative terminal. Secure with screw and lock washer provided. See figure 16.

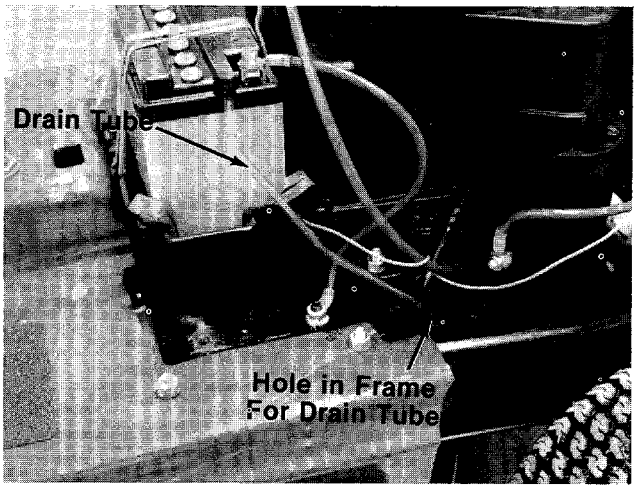


FIGURE 17.

14. Feed the end of the battery drain tube into the hole provided in the frame, located in front of the starter on the engine. See figure 17.

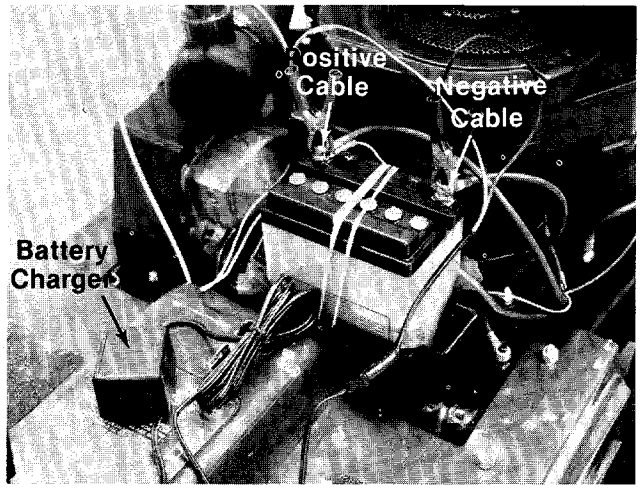


FIGURE 18.

15. The battery can be slow charged (do not fast charge) at a maximum bench rate of 1.4 amperes until the specific gravity reading is 1.260-1.280. Charge for a minimum of 2 hours and a maximum of 8 hours. See figure 18.

WARNING

The battery charger provided is specially designed for the battery in this unit. **Do not use any other charger.** A charging rate in excess of the above specifications will buckle and warp the positive plates and/or perforate the separators.

To Attach the Battery Charger:

1. Attach the red clip on the charger to the positive terminal.
2. Attach the black clip on the charger to the negative terminal.
3. Plug the other end of the battery charger into a standard household 110 A.C. outlet.

To Remove the Battery Charger:

1. Unplug the charger from the 110 A.C. outlet.
2. Remove the black clip from the negative terminal.
3. Remove the red clip from the positive terminal.

CAUTION

After battery has been in service, add only distilled water. DO NOT ADD ACID.

WARNING

Failure to follow the above procedure when charging the battery can cause the gases in the battery to explode.

NOTE

Charging rate after battery has been put into operation: The battery is to be charged with the charger provided, for a period of 14-16 hours. NO LONGER THAN 30 HOURS.

TIRE PRESSURE

FOR SHIPPING PURPOSES, THE TIRES ON YOUR UNIT MAY BE OVER-INFLATED. TIRE PRESSURE SHOULD BE REDUCED BEFORE UNIT IS PUT INTO OPERATION. PRESSURE SHOULD BE APPROXIMATELY 15 P.S.I. EQUAL TIRE PRESSURE SHOULD BE MAINTAINED ON ALL TIRES. MAXIMUM TIRE PRESSURE IS 30 P.S.I.

CAUTION

Installation of tire to rim:

1. Lubricate tire beads and rim flanges.
2. Do not exceed 30 P.S.I. when seating beads.
3. Adjust to recommended pressure after beads are sealed.

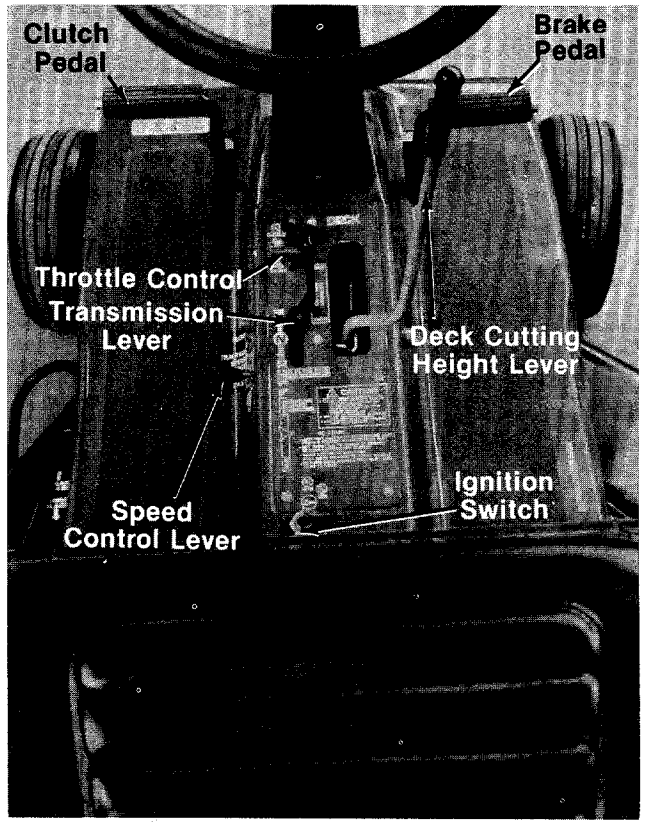


FIGURE 19. CONTROLS

CONTROLS (See Figure 19)

This manual should be read in its entirety before operating the riding mower. The more you know and understand about the machine and its operation, the better job it will do for you. While reading the manual, compare the illustrations with your mower to familiarize yourself with the locations of various controls, lubrication points, attachments and adjustment features.

Study the operating instructions and safety precautions thoroughly to insure proper functioning of your mower and to prevent injury to yourself and others. Be sure to save this manual for future reference.

THROTTLE CONTROL

The throttle control is used to regulate the engine speed and to activate the choke on the engine. To get maximum efficiency from cutting, the throttle should be in the "FAST" position when operating the mower. Pushing the throttle all the way forward past "FAST" will choke the engine. See figure 19.

IGNITION SWITCH

The ignition switch is located on the console. Remove the key when the mower is not in use. See figure 19.

DECK CUTTING HEIGHT LEVER

The deck cutting height lever is used to raise and lower the cutting deck which sets the cutting height.

Move the lever to the right, select desired cutting height and release lever. The lever may be set in any one of the four cutting height positions. See figure 20. Refer to adjustment section for additional cutting height adjustment.

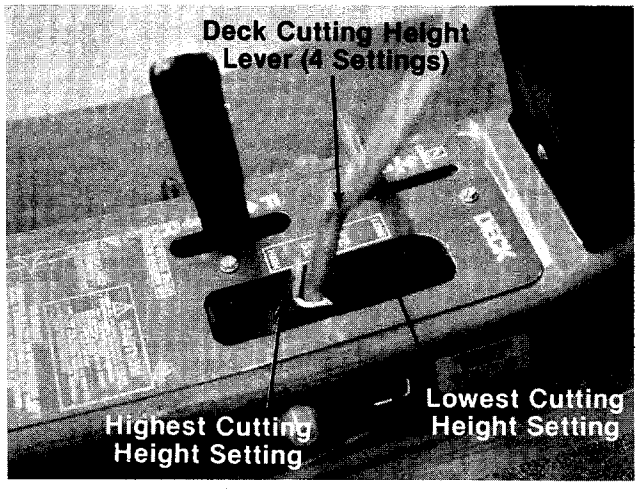


FIGURE 20.

BLADE ENGAGEMENT LEVER

The blade engagement lever is located on the left hand side of the deck. Figure 21 shows the blade engagement lever in the disengaged position.

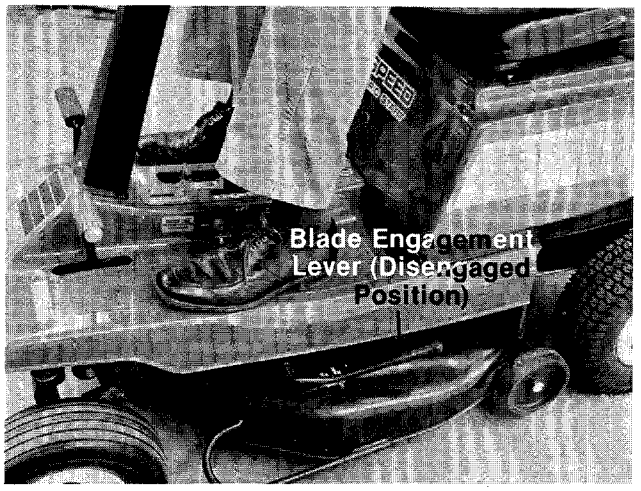


FIGURE 21.

To engage the blade, move the blade toward the front of the unit as shown in figure 22. Move the lever toward the rear to disengage the blade.

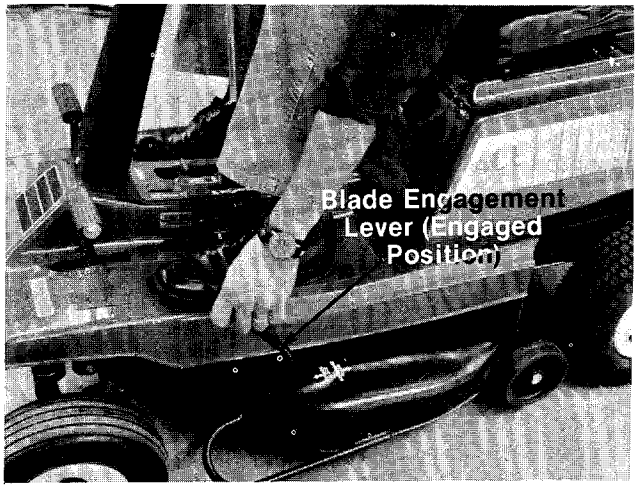


FIGURE 22.

INTERLOCKS (Not Shown)

An interlock safety switch is located at the clutch pedal, at the blade engagement lever and at the chute.

The clutch pedal must be pressed down and locked. The blade engagement lever must be in the "DISENGAGED" position (all the way back). The chute must be in operating position or a grass catcher must be in place before the engine can be started. Failure to follow these instructions will prevent starting.

TRANSMISSION LEVER

The transmission lever is located on the left hand side of the console and has three positions, "FORWARD," "NEUTRAL" and "REVERSE." See figure 23. The clutch and brake pedals must be depressed and the riding mower must not be moving when shifting gears. Do not force the transmission lever. Release the clutch pedal slightly to line up the shifting collar in the transmission. Then try to shift gears.

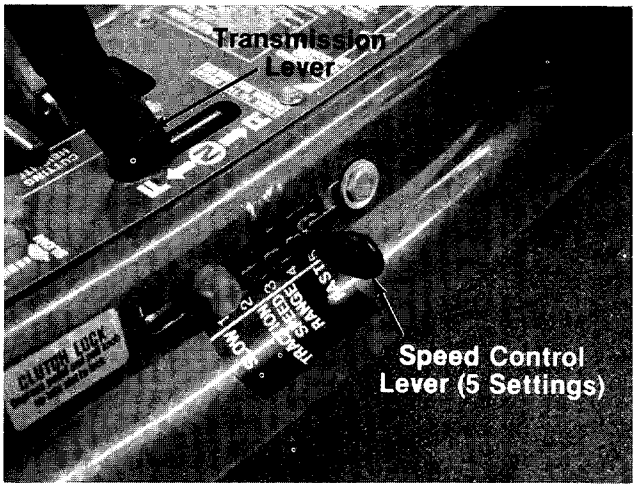


FIGURE 23.

SPEED CONTROL LEVER

The speed control lever allows you to regulate the ground speed of the riding mower. See figure 23. It may be set in any one of five positions. To set, depress clutch pedal. Raise speed control lever and move forward to slow rider, move backward to increase speed. When desired speed has been obtained, place lever in that position. Whenever clutch is engaged, rider will automatically go to the pre-set speed.

NOTE

The further forward the speed control lever is set, the slower the ground speed.

BRAKE

To operate the brake, depress the right pedal all the way. To lock the brake in park position, depress the right pedal all the way and lift the brake lock. Pedal will stay in the depressed position. To release the parking brake, depress the pedal. See figure 24.

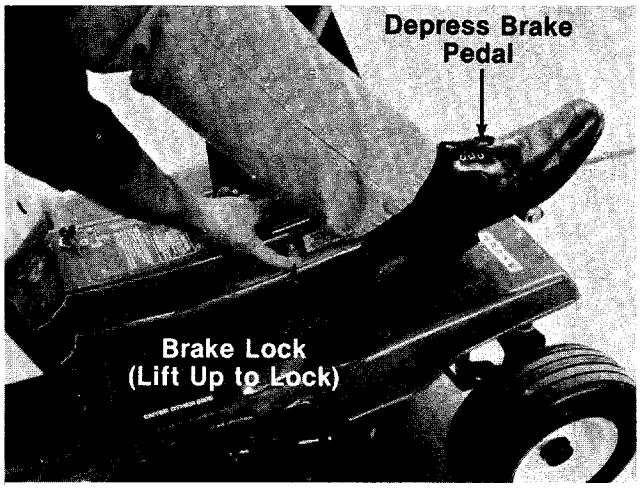


FIGURE 24. BRAKE PEDAL LOCK

CLUTCH PEDAL

The clutch pedal is located on the left side. When depressed, it disengages the engine from the transmission. It can be held in the disengaged position by lifting the clutch lock. To stop the mower, depress the clutch and brake pedals. See figures 24 and 25.

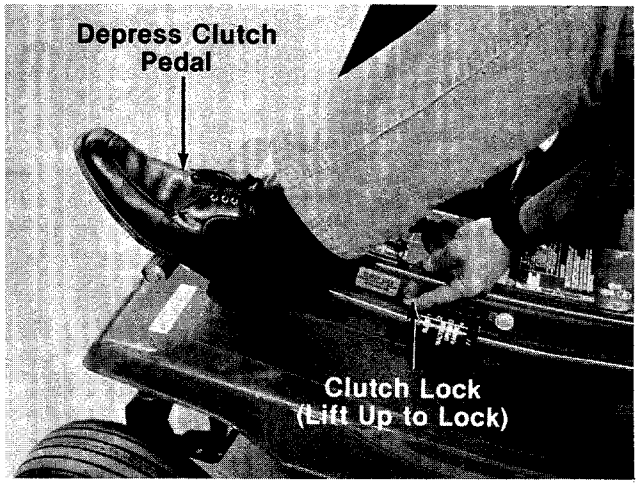


FIGURE 25. CLUTCH PEDAL LOCK

OPERATION

CAUTION

1. Keep all shields in place.
2. Before leaving operator's position:
   a. Shift transmission to neutral
   b. Set parking brake
   c. Disengage attachment clutch
   d. Shut off engine
   e. Remove ignition key
3. Wait for all movement to stop before servicing machine.
4. Keep people and pets a safe distance away from machine.
5. Look to the rear before backing up.

CAUTION

DO NOT OPERATE MOWER UNLESS GUARD OR ENTIRE GRASS CATCHER IS IN ITS PROPER PLACE.

STARTING THE ENGINE

CAUTION

Get on and off the unit from the right hand side to avoid possible contact with the blade engagement lever.

1. Be sure the crankcase is filled with oil as recommended in the engine manual. Fill fuel tank with **regular** gasoline.
2. Attach the wire to the spark plug.
3. Depress the clutch pedal and lock it down.
4. Move the blade engagement lever back to the disengaged position.

NOTE

This unit is equipped with a safety interlock system for your protection. The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the clutch pedal is depressed and the blade engagement lever is in the disengaged position.

WARNING

Do not operate the rider if the interlock system is malfunctioning because it is a safety device, designed for protection.

5. Set the throttle control lever in the "CHOKE" position.
6. Turn the ignition key to the "START" position. When the engine is running, let the key return to the "ON" position. See figure 19.
7. Slowly return the throttle to the running position as soon as the engine starts.
8. To stop, turn the ignition key to the "OFF" position. Remove the key when the rider is not in use.

PUTTING THE RIDING MOWER IN MOTION

CAUTION

Parking brake **must** be disengaged before unit is put into motion.

1. Advance the throttle control from ¾ to full throttle to prevent strain on the engine and to operate the cutting blades.
2. Place the transmission lever in either the "FORWARD" or "REVERSE" position.

CAUTION

Look to the rear before backing up.

3. Slowly release the clutch pedal.
4. To stop, depress the clutch and the brake pedals.
5. The blades can be engaged either while moving or while standing still. Move the blade engagement lever forward slowly until the blade is running.

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. For best results and to insure more even grass distribution, do not mow when lawn is excessively wet.

NOTE

If the riding mower should stall or run out of gas with the clutch engaged (clutch pedal released), you **must** proceed as follows.

1. Rock the unit, and at the same time pull the transmission lever back into neutral (N) position. **Do not force** transmission lever at any time.
2. Pump the clutch pedal gently until the clutch pedal is depressed all the way and can be locked down.

IMPORTANT

If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower.

STOPPING

NOTE

Unit is equipped with separate brake and clutch pedals. It is necessary to disengage the clutch when applying the brakes to stop efficiently.

Engine—Turn the ignition key to the left to the "OFF" position.

Rider—Depress the clutch and brake pedals.

Blades—Pull the blade engagement lever all the way back.

GRASS CATCHER Model 041 is available as optional equipment for the mower shown in this manual.

WARNING

The mower should not be operated without the entire grass catcher or chute deflector in place.

NOTE

Under normal usage bag material is subject to wear, and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

For replacement bags, use only factory authorized replacement bag No. 764-0189.

ADJUSTMENTS

CAUTION

Do not at any time make any adjustment to lawn mower without first stopping engine and disconnecting spark plug wire.

THROTTLE CONTROL

To Check Operation:

1. Remove air cleaner.
2. Move throttle control lever to "CHOKE" position. The carburetor choke should be closed.
3. Move throttle control lever to "STOP" position. Lever should make good contact with stop switch.

To Adjust: (See Figure 26)

Place remote control lever on equipment in "FAST" (high speed) position.

Lever C on carburetor should be just touching choke arm at D. To adjust, loosen casing clamp screw A on blower housing. Move control casing B forward or backward until correct position is obtained. Tighten screw A.

Recheck operation of controls after adjustment. Replace air cleaner.

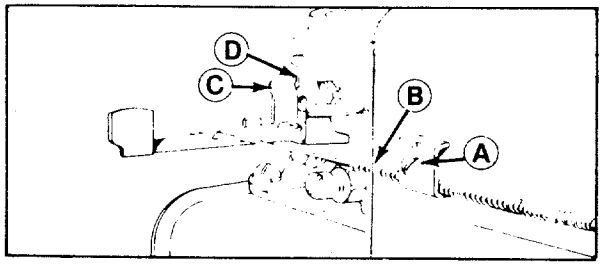


FIGURE 26. THROTTLE CONTROL ADJUSTMENT

WARNING

If any adjustments are made to the engine while the engine is running (e.g. carburetor), disengage all clutches and blades. Keep clear of all moving parts. Be careful of heated surfaces and muffler.

CUTTING HEIGHT ADJUSTMENT

In addition to the deck cutting height lever (see page 11), cutting height adjustment can be made by removing and moving shoulder bolts to desired position. Cutting heights will be raised as shoulder bolts are moved to a lower hole and lowered as shoulder bolts are moved to a higher hole in the deck. Both shoulder bolts must be mounted in the same relative position to the deck. See figure 27.

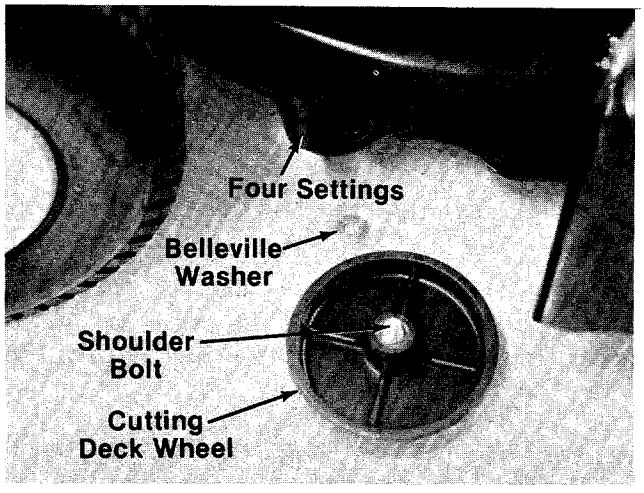


FIGURE 27.

DECK ADJUSTMENT HANGER ROD

(See Figure 28)

If an uneven cut is obtained, the deck may be adjusted. A deck adjustment hanger rod and ferrule is located on the left side of the unit.

To adjust the deck, remove the hairpin cotter which holds the ferrule into deck bracket. Thread ferrule upward on the deck adjustment hanger rod to raise left side of the deck. Thread ferrule downward to lower left side of deck. Replace the hairpin cotter after adjustment is made.

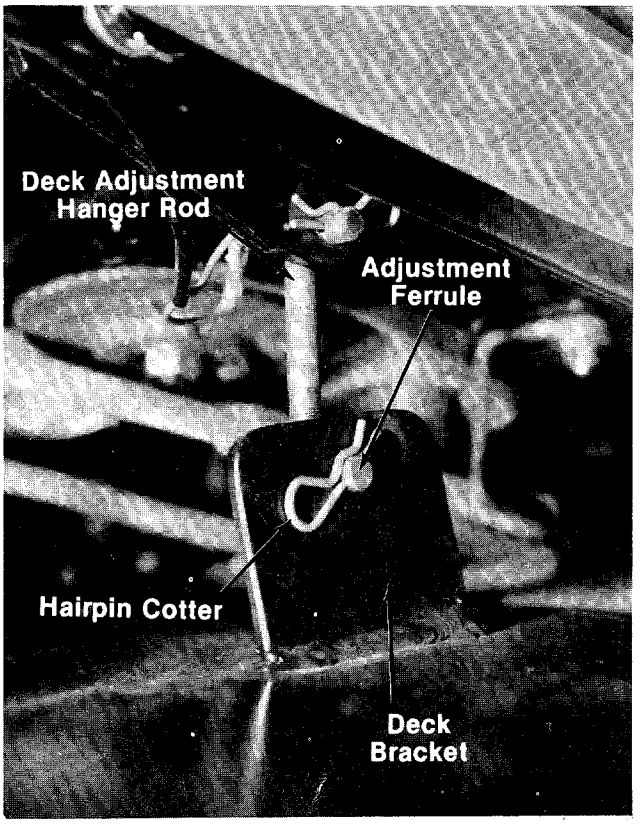


FIGURE 28.

CHAIN ADJUSTMENT (See Figure 29)

After the first five hours of operation, the initial slack should be removed from the chain. The chain should be tight enough so that it deflects approximately ½" when it is depressed with the thumb.

To Adjust:

The adjusting bolt is located under the frame, above the cutting deck on the right side of the mower. See figure 29.

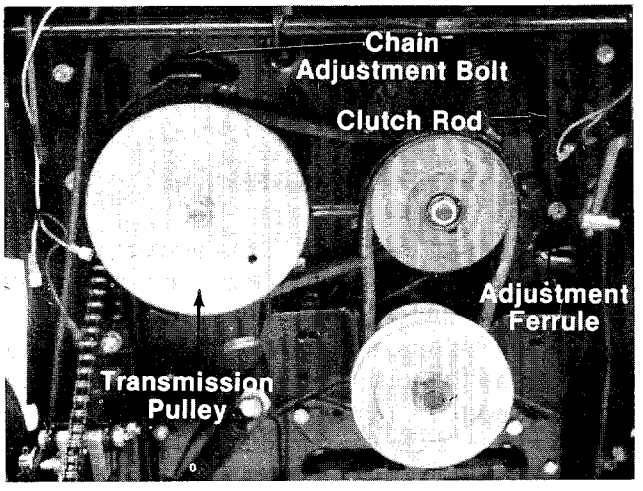


FIGURE 29. CHAIN ADJUSTMENT

Turn the adjusting bolt clockwise with an open end wrench until the chain reaches the proper tension.

NOTE

If the transmission mounting plate will not slide forward to adjust the chain tension, it may be necessary to loosen the four nuts mounting the transmission to the frame.

NOTE

Deck was removed for photographing.

CLUTCH ROD ADJUSTMENT

1. With the engine off, release the clutch lock.
2. There should be ½" of space between the end of slot and clutch lock button.
3. If there is not, remove the hairpin cotter from the clutch rod at the clutch pedal shaft. Pull the clutch rod out of the clutch pedal shaft. Screw the clutch rod in or out of the ferrule as necessary. Reassemble and check for correct adjustment.

BRAKE ADJUSTMENTS (See Figure 30)

During normal operation of this machine, the brakes are subject to wear and will require periodic examination and adjustment.

The brake is located by the right rear wheel inside the frame.

To adjust the brake, remove the cotter pin. Tighten the castle nut one-quarter turn. Replace the cotter pin and test the brake.

NOTE

Deck was removed for photographing.

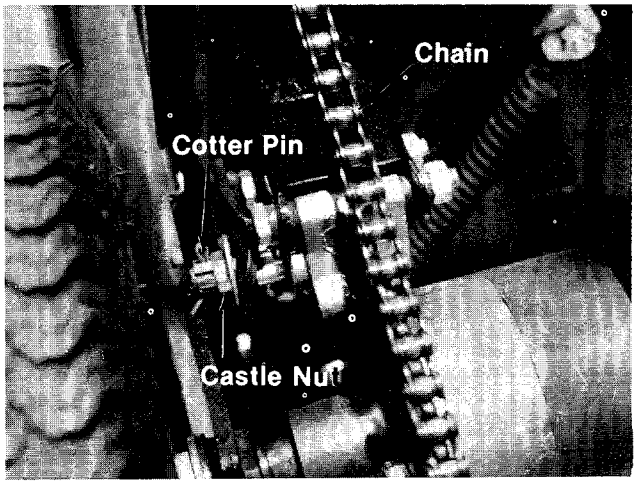


FIGURE 30.

LUBRICATION

IMPORTANT

Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on riding mower.

1. **Engine.** Maintain the engine oil according to the engine manual.
2. **Bearings.** The following bearings are oil impregnated and do not require lubrication. However, their normal life can be extended by lubricating them once a season with a light, non-detergent oil. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.
   a. King Pin Bearings (total 4 bearings)
   b. Rear Axle Bearings (total 3 bearings)
   c. Front Wheel Bearings (total 4 bearings)
3. **Throttle Control and Cable.** Wipe oiled rag along entire length of cable.
4. **Chain.** Periodically lubricate chain lightly with oil. Wipe off excess oil, especially on the sprocket. **Do not** get oil on the disc brake. See figure 30.

NOTE

Under extremely dusty conditions, do not oil the chain.

5. **Linkage.** Oil all deck linkage and height adjustment linkage.
6. **Transmission.** It is lubricated at the factory and does not require checking. Lubricate with 4 oz. of Lubriplate No. 310 if disassembled.
7. **Differential.** It is lubricated at the factory and does not require checking. Lubricate with 3 oz. of 450°F. High Temp. grease if disassembled. If ordered from the factory, use Part No. 737-0166.
8. **Variable Speed Pulley.** Apply dry lubricant between the variable speed bracket and the frame at least once a season.

MAINTENANCE

WARNING

Disconnect spark plug wire and ground it against the engine before performing any repairs or maintenance.

CUTTING BLADE

A. Removal for Sharpening or Replacement

WARNING

Be sure to disconnect and ground the spark plug wire before working on the cutting blade to prevent accidental engine starting.

1. Remove the large bolt and lock washer which holds the blade and adapter to the blade spindle. See figure 31.
2. Remove the blade and adapter from the spindle. Be careful not to lose the key on the spindle.
3. If the blade or blade adapter needs replacing, remove the two small bolts, lock washers and nuts which hold the blade to the adapter. See figure 31.

B. Sharpening

Remove the cutting blade by following the directions of the preceding section.

When sharpening the blade, follow the original angle of grind as a guide. It is **extremely important** that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

The blade can be tested for balance by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.

NOTE

It is recommended that the blade always be removed from the adapter for the best test of balance.

C. Reassembly

Before reassembling the blade and the blade adapter to the unit, lubricate the spindle and the inner surface of the blade adapter with light oil. Lubricating the bolt holes, bolts and inner surface of the nuts with light oil is also recommended. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position. Make certain key is in place on the blade spindle.

Blade Mounting Torque

3/8" Dia. Bolt 375 in. lb. min., 450 in. lb. max.
5/16" Dia. Bolt 150 in. lb. min., 250 in. lb. max.

NOTE

To insure safe operation, ALL nuts and bolts must be checked periodically for correct tightness.

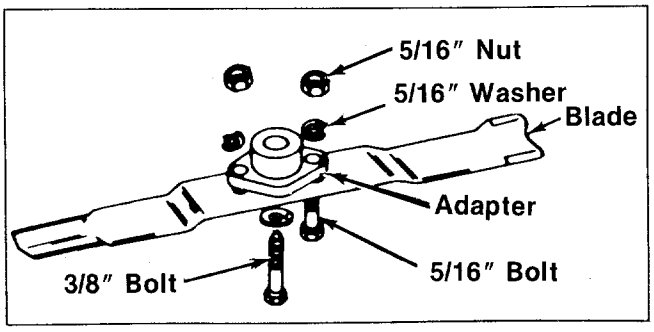


FIGURE 31. BLADE REMOVAL

CLEANING ENGINE AND BLADE HOUSING

Any fuel or oil spilled on the machine should be wiped off promptly. Grass, leaves, and other dirt must not be left to accumulate around the cooling fins of the engine or on any part of the machine.

Clean the underside of the blade housing after each mowing.

BELTS

Check that belts are free of oil or dirt. Wipe the belts periodically with a clean rag.

ENGINE OIL

Check oil level before starting engine and after every 5 hours of operation or each period of use. Refer to separate engine manual.

Change oil after first 5 hours of operation. Thereafter change every 25 hours. Change oil while engine is warm.

AIR CLEANER

Service air cleaner every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced. Refer to separate engine manual.

SPARK PLUG

The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specification.

BATTERY MAINTENANCE

1. Check periodically (every two weeks or before and after charging) to be sure electrolyte level is above the lowest line on battery. Add only distilled water or good quality drinking water. NEVER add additional acid or other chemicals to battery after initial activation.
2. The battery should be checked with a hydrometer after every 25 hours of operation. If the specific gravity is less that 1.225, remove battery and recharge.
3. Coat the terminals and exposed wiring with a thin coat of grease or petroleum jelly for longer service and protection against electrolyte corrosion.
4. The battery should be kept clean. Any deposits of acid should be neutralized with soda and water. Be careful not to get this solution in the cells.

BATTERY STORAGE

1. Charge battery using normal methods. NEVER store discharged battery as it will not recover.
2. When storing battery for extended periods, disconnect battery cables. Removing battery from unit is recommended.
3. Store in cold, dry place.
4. Recharge battery whenever the specific gravity is less than 1.225, before returning to service, or every two months, whichever occurs first.

COMMON CAUSES FOR BATTERY FAILURE ARE:

1. Overcharging
2. Undercharging
3. Lack of water
4. Loose hold downs and/or corroded connections
5. Excessive loads
6. Battery electrolyte substitutes
7. Freezing of electrolyte

NOTE

THESE FAILURES DO NOT CONSTITUTE WARRANTY.

BELT REMOVAL AND REPLACEMENT

NOTE

It is recommended that the entire instructions on belt removal and replacement be read before changing the belts.

Preparation

1. Remove the battery from the unit.
2. To prevent gasoline from leaking from the engine, remove the fuel tank cap, place a piece of thin plastic over the neck of the fuel tank and screw on the cap.
3. Disconnect the spark plug wire and ground it against the engine.
4. Tip the rider up on its back wheels. See figure 32. Tipping unit up against a wall is recommended.
5. Block unit to prevent tipping.

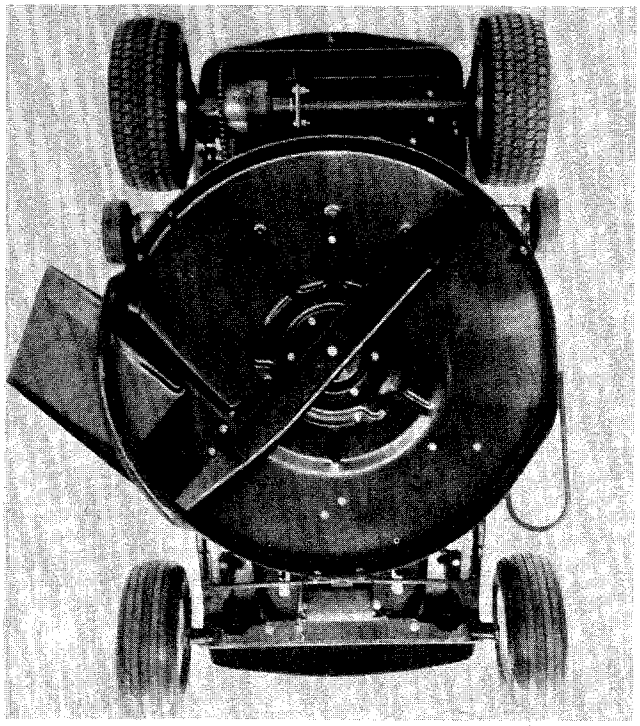


FIGURE 32.

Removing the Cutting Deck:

1. Remove hairpin cotter from deck stabilizer rod at the front pivot bar. See figure 33.

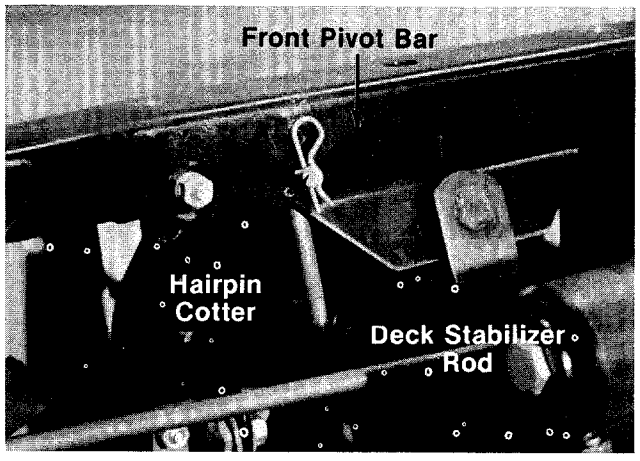


FIGURE 33.

2. Remove hairpin cotter from deck lift rod located at the front deck hanger bracket. See figure 34.

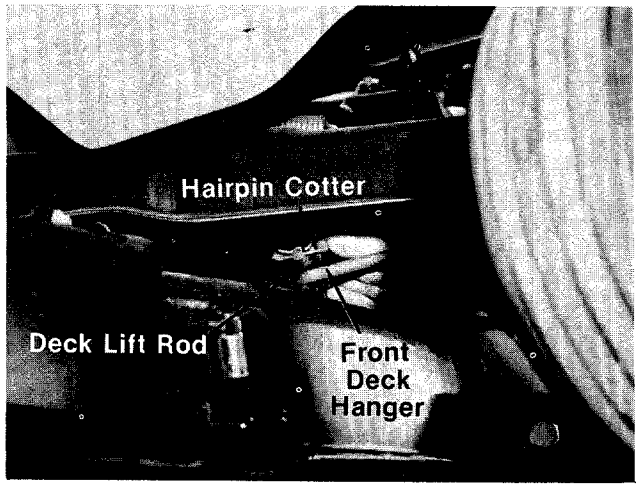


FIGURE 34.

3. Unplug the green and yellow wire at the safety switch on the chute side of deck. Remove the green ground wire using a 7/16" wrench. See figure 35.

NOTE

When reassembling the deck, plug the green wire into the top of the safety switch, and plug the yellow wire into the bottom of the safety switch.

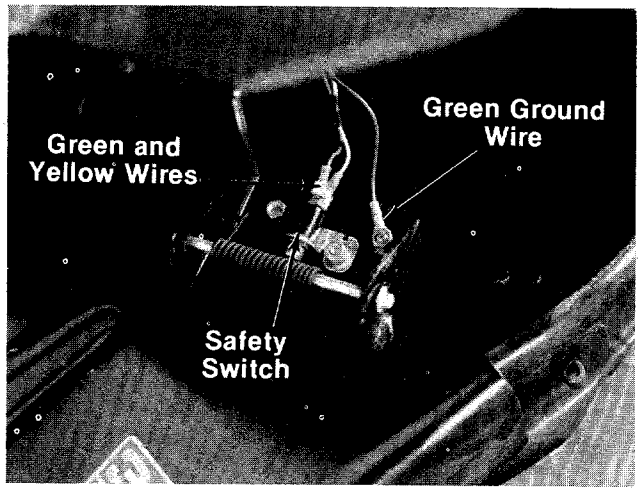


FIGURE 35.

4. Unplug the two red wires on the safety switch located on the left hand side of deck at the blade engagement lever. See figure 36.

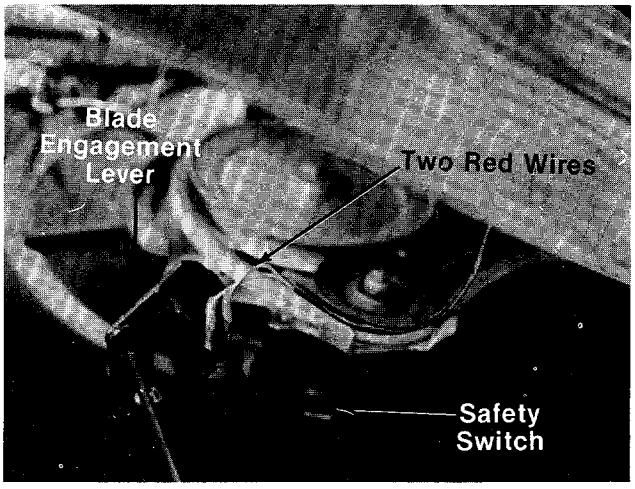


FIGURE 36.

5. Remove the belt keeper located at the right hand side of blade pulley on deck. A 1/2" wrench is required to remove the hex nut. See figure 37.

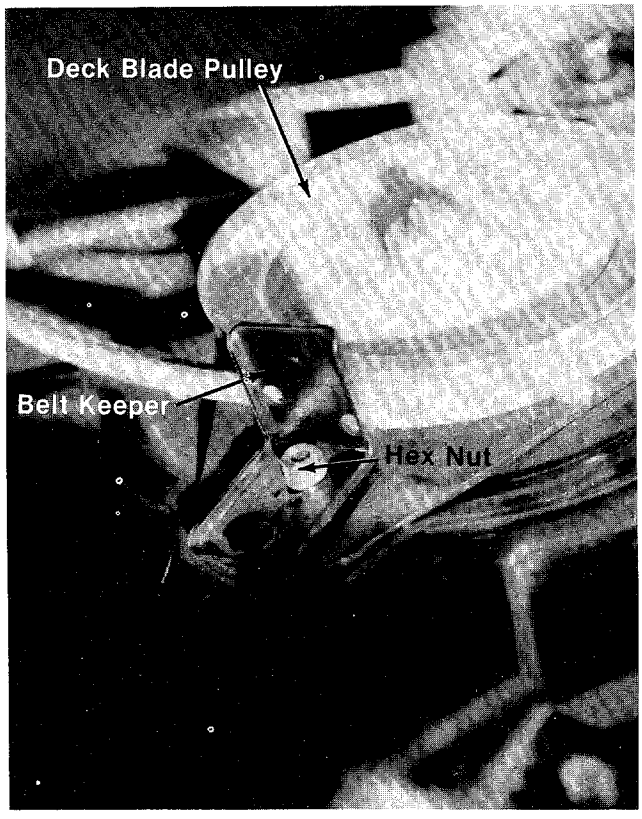


FIGURE 37.

6. Remove the hex lock nut from the idler pulley, located on the left hand side of the deck. A 9/16" wrench is required. See figure 38.

NOTE

When reassembling idler pulley, the hub side of idler pulley must go (down) towards the idler bracket.

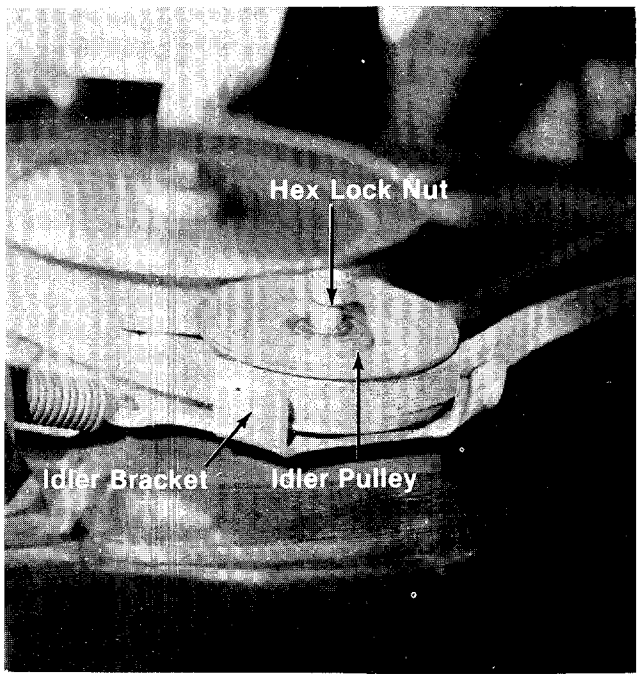


FIGURE 38.

7. Remove the shoulder bolt and lock nut from the deck lift shaft assembly and deck bracket, located on right hand side of deck. See figure 39. A ½" wrench and 5/8" wrench are required.

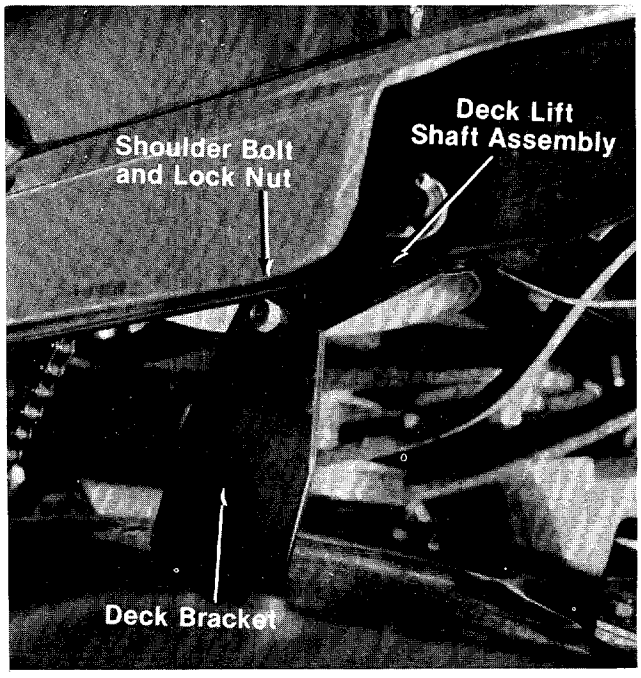


FIGURE 39.

8. Remove the hairpin cotter which holds the ferrule and deck hanger adjustment rod to the deck bracket, located on the left hand side of the deck. See figure 40.

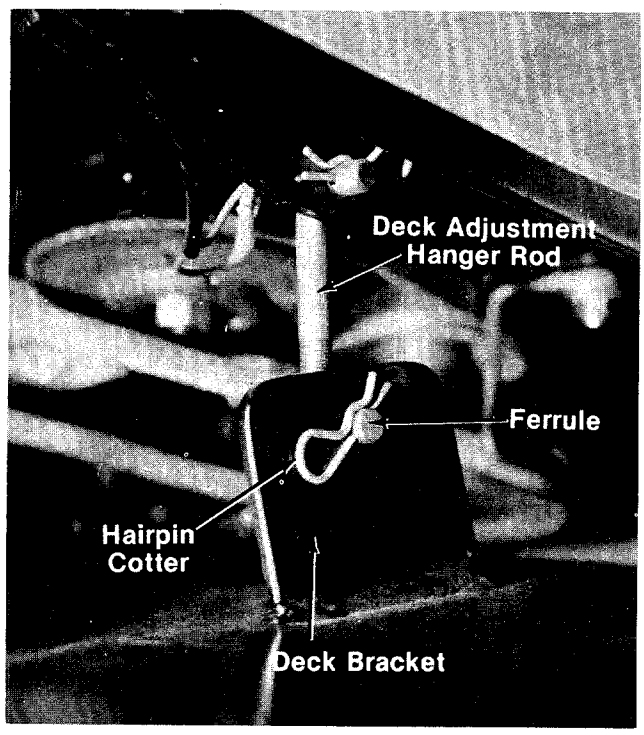


FIGURE 40.

9. Set the deck aside.

Removing the Cutting Deck Belt:

1. Follow preceding instructions on "Preparation" and "Removing the Cutting Deck."
2. Remove engine pulley belt guard assembly by removing two hex nuts, lock washers and flat washers as shown in figure 41. A 1/2" wrench is required.

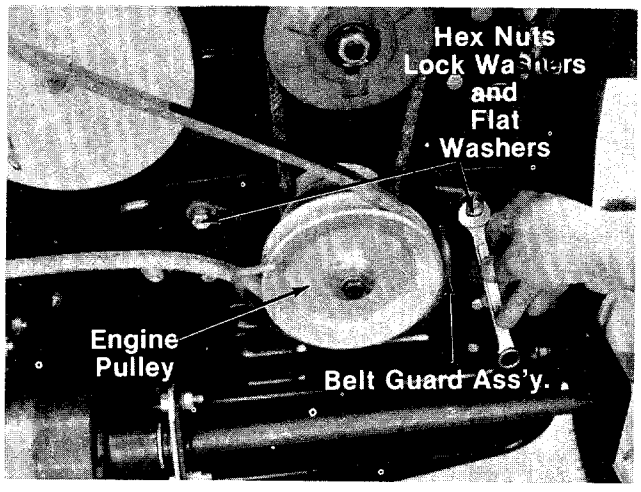


FIGURE 41.

3. Remove the deck belt from the engine pulley and replace with a new belt. Reverse the preceding steps to reassemble.

Removing the Drive Belts:

1. Follow the instructions outlined under "Preparation" and "Removing the Cutting Deck."
2. Depress the clutch pedal and lock it. Remove the engine pulley by removing the hex bolt, lock washer and step washer shown in figure 42. A 9/16" wrench is required.

NOTE

Lubricate engine crankshaft with light oil before reassembling engine pulley.

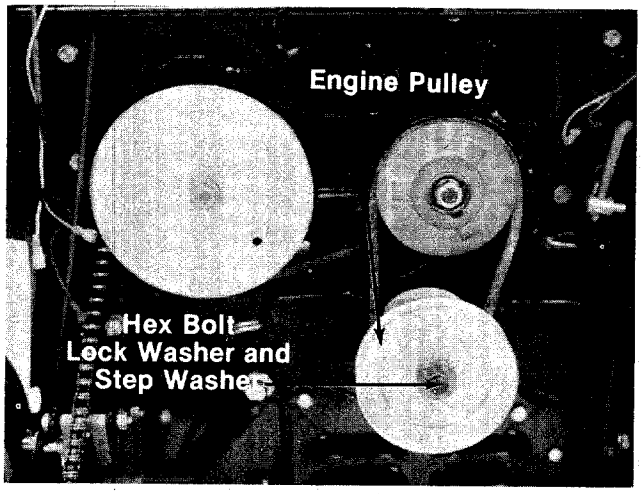


FIGURE 42.

3. Release the clutch pedal. Remove the transmission pulley by removing the hex nut and lock washer shown in figure 43. When sliding transmission pulley off shaft, be careful not to lose the key.

NOTE

When reassembling the transmission pulley, the hub side of pulley goes (up) toward the rider frame.

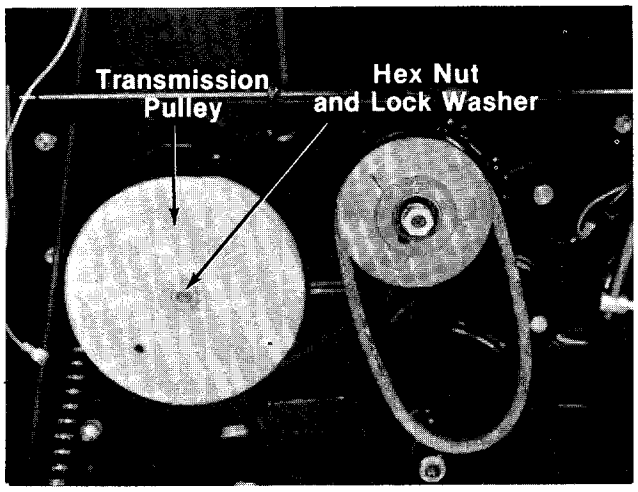


FIGURE 43.

4. Remove the variable speed pulley by removing the hex nut and lock washer shown in figure 44. A 3/4" wrench is required. Slip off variable speed pulley and both drive belts.

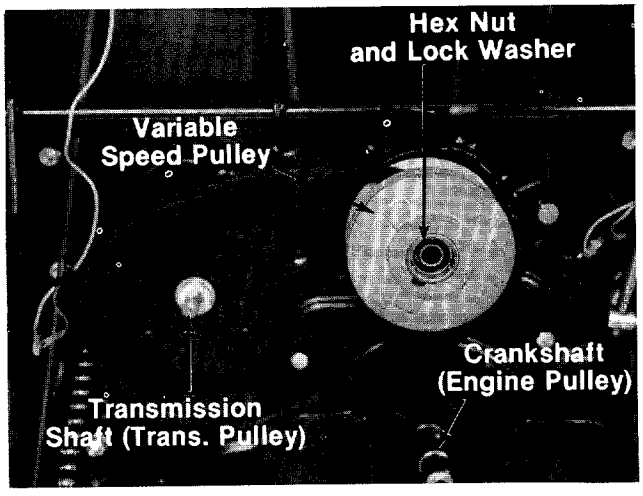


FIGURE 44.

5. Reverse the preceding steps to reassemble.

NOTE

Be certain all belts are inside belt guards and keepers. Also, be sure to reassemble the safety wires: Two red, two green and one yellow.

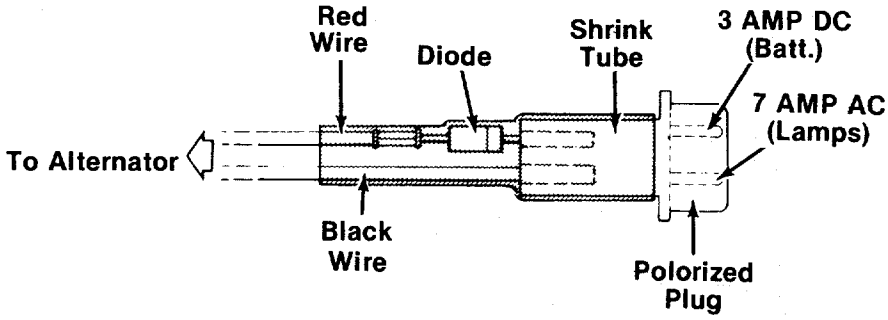
OFF-SEASON STORAGE

NOTE

Engines to be stored over 30 days should be completely drained of fuel to prevent gum deposits forming on essential carburetor parts, fuel filters, fuel lines and tank.

1. Remove all fuel from fuel tank. Run the engine until it stops from lack of fuel. The small amount of fuel that remains in the sump of the tank should then be removed by absorbing it with a clean, dry cloth.
2. While engine is still warm, drain oil from crankcase. Refill with fresh oil.
3. Remove spark plug, pour 1 ounce of SAE 30 oil into cylinder and crank slowly to distribute oil. To prevent accidental starting, DO NOT replace the spark plug.
4. Clean dirt and chaff from cylinder, cylinder head fins and blower housing.
5. Clean all grass from under side of deck.
6. Clean the air filter.
7. Place blocks under frame of mower so that the wheels are off the ground.
8. Cover all bare metal parts, such as the mowing edge of the blades, with grease to prevent rusting.
9. Cover the mower with a tarpaulin or other protective covering.

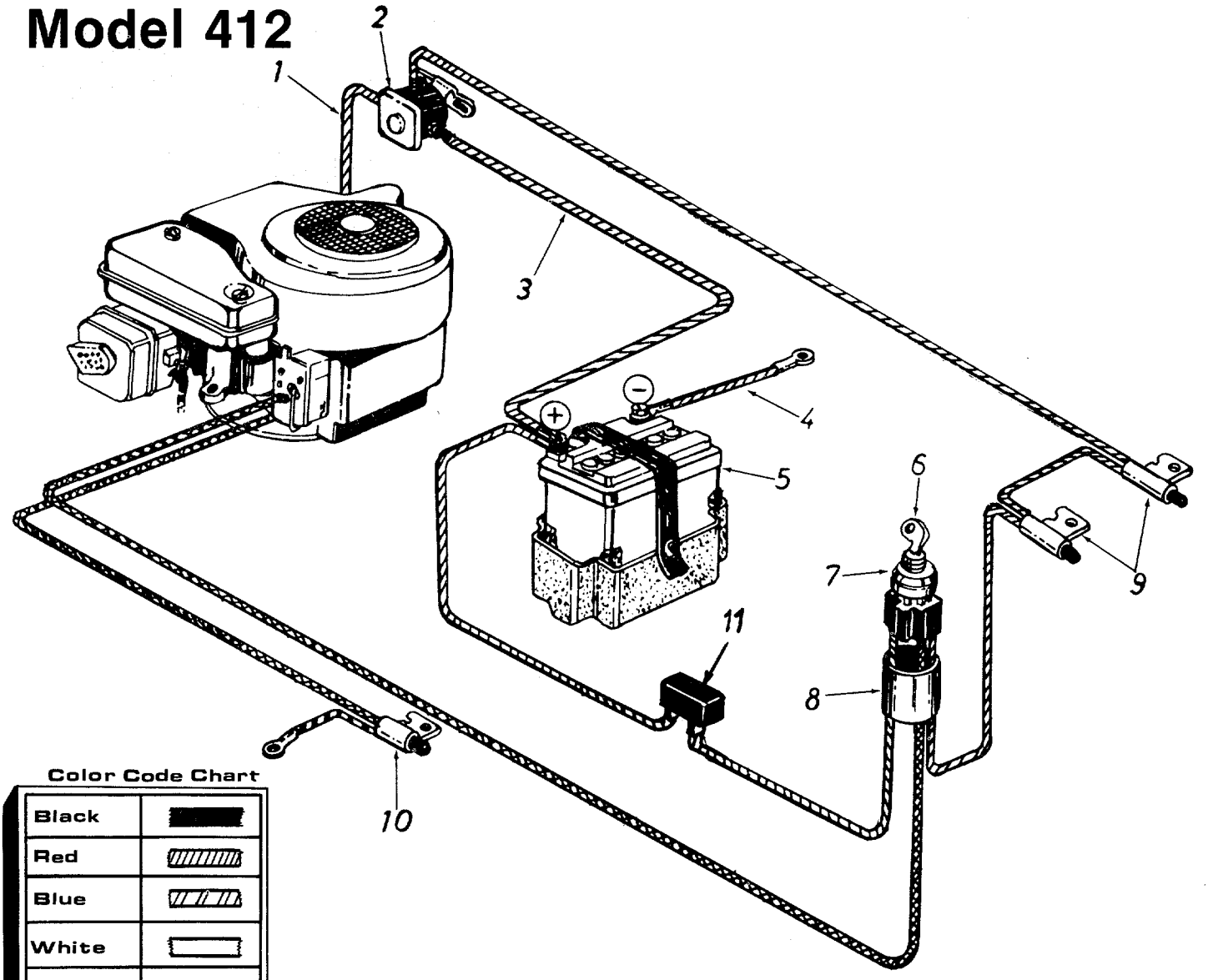
TROUBLE SHOOTING CHART FOR ELECTRIC START MODELS

TROUBLE	LOOK FOR	REMEDY
Engine will not crank	Battery installed incorrectly	The battery must be installed with the negative, identified at the terminal post by (Neg, N or -), grounded. The positive (Pos, P or +) attaches to the large cable from the solenoid. The small red wire from the fuse holder or circuit breaker is also attached to the positive terminal.
	Blow fuse or circuit breaker	Replace fuse with 7½ amp. fuse ¼ x 1¼" lg. Circuit breaker will reset itself when it cools off. Fuses or circuit breakers seldom open or fail without a reason. The problem must be corrected. Check for loose connections in the fuse holder. Replace fuse holder if necessary. A dead short may be in the cranking or charging circuit where the insulation may have rubbed through and exposed the bare wire. Replace the wire or repair with electrican's tape if the wire strands have not been damaged. Note: Look for a wire pinched between body panels, burned by the exhaust pipe or muffler or rubbed against a moving part.
	Battery is dead or weak	Use a hydrometer to check the condition of the battery. The Specific Gravity (s.g.) should be 1.265 at 80°F. (1.215 s.g. minimum needed for cranking engine). The reason for the battery failing must be determined. (1) Defective battery. Battery will not accept or hold a full charge. (2) Short circuit. Check for grounded wire. (3) Charging system not working, either engine alternator or trickle charger. **Trickle Charger.** Check with multimeter. Charger 725-0578—input 120 V A.C., no load output 13.5 V D.C., rated load current 1 amp. Charger 725-0507—input 120 V A.C., no load output 17.4 V D.C., rated load current 1/2 amp. **Alternator** (dual or single circuit) The charging system is an alternator located under the flywheel. It is unregulated and rated 3 amp. at 3600 r.p.m. A diode (rectifier) is located in the output lead just before the wire harness plug on the engine side.  The diode changes A.C. to D.C. to charge the battery. A bad diode can either fail to charge the battery or discharge the battery if the alternator is shorted as well as the diode. To test: (1) Disconnect charger lead from the battery (small red wire). (2) Connect 12 V small test lamp between the 3 amp. D.C. charge lead and the positive terminal of the battery. (3) With the engine off, the lamp should not light. If it does, the diode and possibly the alternator should be replaced. (4) Start the engine. The lamp should light. If it does not,the alternator (stator) or lead wire is bad and should be replaced.
	Mechanical failure. (Wires and switches)	The interlock system includes two mechanical activated switches which are wired in series in the circuit used to energize the starter solenoid. While testing the interlock system, you will make the mower temporarily unsafe by permitting the engine to be started with the blade and clutch engaged. WARNING: While testing, disengage the clutch, shut off the blade control, set the parking brake and place the gear shift lever in neutral. Attach a wire (minimum 18 gauge) to the positive terminal of the battery and touch the other end to the small terminal on the solenoid. **If the engine does not crank:** (1) There is a loose connection or poor ground. (2) The solenoid may be bad. The solenoid can be checked by using a heavy wire (#8 gauge minimum) and jumping between the two large terminals. If the engine cranks, the solenoid is bad. (3) If the engine does not crank when you jump the solenoid, have the starter motor tested by an authorized engine dealer. If the engine does crank, the problem is with one of the safety switches, ignition switch or the wire between the fuse holder (or circuit breaker) and the small terminal on the solenoid. Note: Look for a poor connection at the switches or a defective switch. Replace if necessary.
Engine cranks but will not start	Throttle or choke not in starting position	Check owner's guide for correct position for throttle control and choke (if separate control) for starting.

TROUBLE SHOOTING CHART FOR ELECTRIC START MODELS

TROUBLE	LOOK FOR	REMEDY
	No spark to spark plug	Spark plug lead disconnected. Connect lead. Hold spark plug lead away from engine block about 1/8". Crank engine. There should be a spark. If not, have engine repaired at authorized engine service dealer. Faulty spark plug. To test, remove spark plug. Attach spark plug lead to spark plug. Ground the spark plug body against the engine block. Crank the engine. The spark plug should fire at the electrode. Replace if it does not.
	No fuel to the carburetor	Gasoline tank empty. Fill. Fuel valve shut off. Open valve. Valve is located either at the bottom of the fuel tank or on the carburetor. Fuel line plugged. Remove and clean.
	Air filter dirty	If the air cleaner is dirty, the engine may not start. Clean or replace as recommended by the engine manufacturer.
Engine smokes	Engine loses crankcase vacuum	Dipstick not seated or broken. Replace defective part. Engine breather defective. Replace.
Excessive vibration	Bent or damaged blade spindle	**Stop engine immediately.** Check all pulleys, blade spindles, blade adpaters, keys and bolts for tightness and damage. Tighten or replace any damaged parts.
	Bent blade	**Stop engine immediately.** Replace damaged blade. Only use original equipment blades.
Mower will not discharge grass or leaves uncut strips	Engine speed low Transmission selection Blades short or dull	Throttle must be set between 3/4 and full throttle. Use lower transmission gear. The slower your ground speed, the better the quality of cut. Sharpen or replace blades (uncut strip problem only).

Model 412



Color Code Chart

Black	
Red	
Blue	
White	
Green	
Yellow	
Orange	

PARTS LIST FOR ELECTRICAL SYSTEM MODEL 412

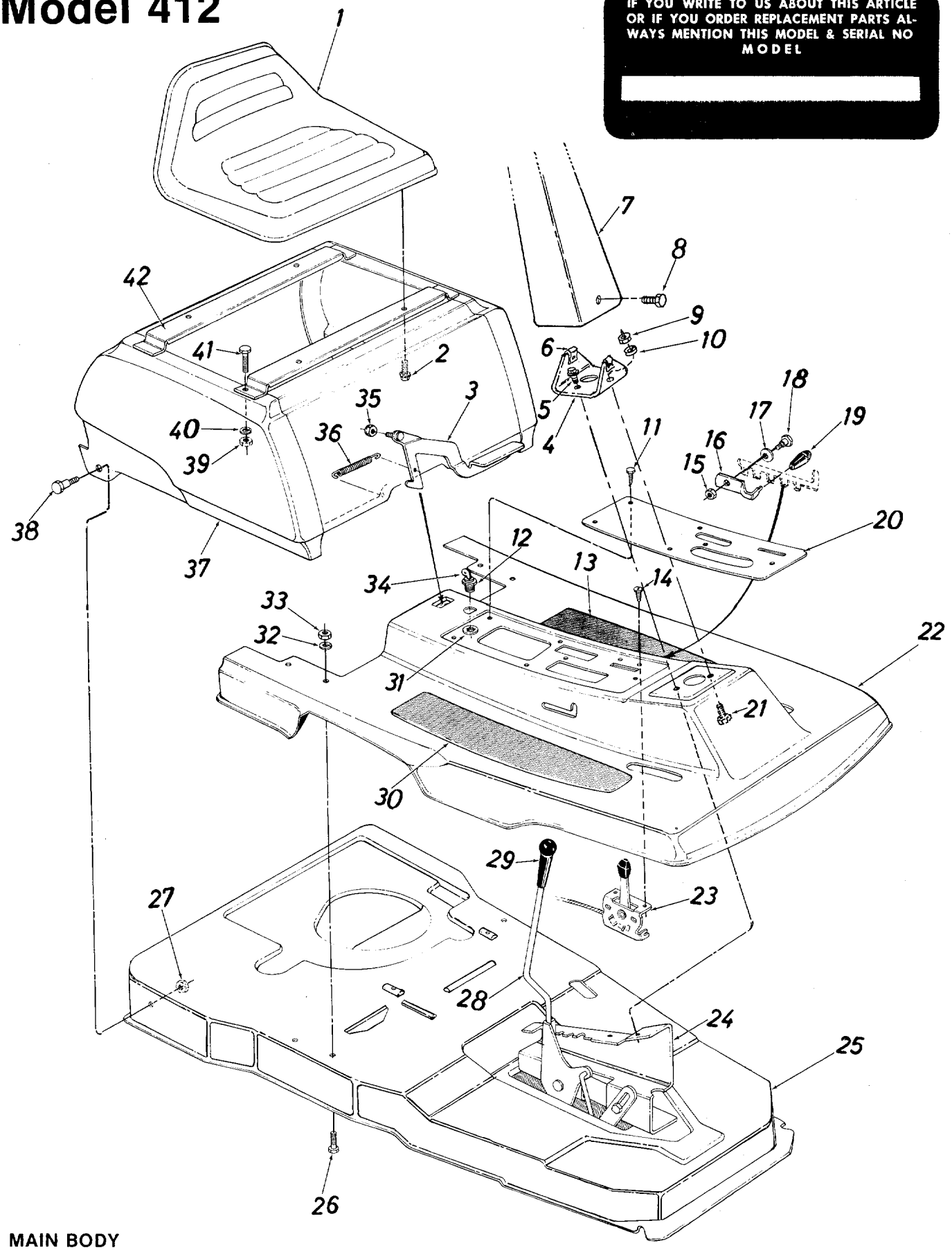
REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	725-0150		Electric Wire (Starter)	
2	725-0771		Solenoid	
3	725-0422		Electric Wire (Pos. Cable)	
4	725-0150		Electric Wire (Neg. Cable)	
5	725-0514		12V-Battery	
6	725-0201		Ignition Key	
7	725-0267		Ignition Switch	
8	725-0747		Wire Harness	
9	725-0268		Safety Switch—N.O.—Black	
10	725-0269		Safety Switch—N.C.—Red	
11	725-0459		Circuit Breaker	

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

Model 412

IF YOU WRITE TO US ABOUT THIS ARTICLE OR IF YOU ORDER REPLACEMENT PARTS ALWAYS MENTION THIS MODEL & SERIAL NO

MODEL



MAIN BODY

Model 412

PARTS LIST FOR MODEL 412 RIDING MOWER

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	757-0259		Seat—Complete	
2	710-0259		Hex Sems Bolt 5/16-18 x .62" Lg.*	
3	12144		Latch—Engine Cover	
4	13912		Support Bracket	
5	710-0456		Hex Drilling Scr. #10 x .50" Lg.	
6	712-0526		Speed Nut #10-24 Thd.	
7	731-0262		Steering Column Cover	
8	710-0224		AB-Tap Scr. #10 x .50" Lg.	
9	712-0287		Hex Nut ¼-20 Thd.*	
10	736-0329		L-Wash. ¼" I.D.*	
11	710-0456		Hex Drilling Scr. #10 x .50" Lg.	
12	725-0267		Ignition Switch	
13	725-0241		Foot Pad	
14	710-0227		Hex Wash. Hd. AB-Tap Scr. #8 x .50" Lg.	
15	712-0107		Hex Cent. L-Nut ¼-20 Thd.	
16	14361		Speed Control Stop Brkt.	
17	736-0105		Belleville Wash. 3/8" I.D.	
18	738-0255		Shoulder Bolt .375 Dia. x .36 (¼-20 Thd.)	
19	731-0189		Knob—Black	
20	12175	—462	Cover Plate	
21	710-0252		Hex Bolt ¼-20 x .75" Lg.*	
22	14403	—462	Floor Pan	
23	746-0399		Throttle Control Ass'y. Comp.	
24	12150	—462	Index and Support Brkt.	
25	14335	—462	Main Frame	
26	710-0198		Hex Sems Bolt 5/16-18 x .75" Lg.*	
27	712-0158		Hex Cent. L-Nut 5/16-18 Thd.	
28	14374		Deck Lift Handle Ass'y.	
29	720-0143		Grip—Black	
30	723-0241		Foot Pad	
31	736-0225		Int. L-Wash. 5/8" I.D.	
32	736-0119		L-Wash. 5/16" I.D.*	
33	712-0267		Hex Nut 5/16-18 Thd.*	
34	725-0201		Ignition Keys	
35	712-0429		Hex Ins. L-Nut 5/16-18 Thd.	
36	732-0118		Extension Spring	
37	12132	—462	Cover Ass'y.	
38	738-0155		Shoulder Bolt .437 Dia. x .162" Lg.	
39	712-0267		Hex Nut 5/16-18 Thd.*	
40	736-0119		L-Wash. 5/16" I.D.*	
41	710-0259		Hex Sems Bolt 5/16-18 x .62" Lg.*	
42	14400		Seat Brkt.	

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

(462—Red Flake) When ordering parts, if color or finish is important, use color code shown at left. (e.g. Red Flake Finish—12131 (462).)

NOTE: The engine is not under warranty by the mower manufacturer...If repairs or service is needed on the engine, please contact your nearest authorized engine service outlet. Check the "Yellow Pages" of your telephone book under "Engines—Gasoline."

NOTE

This instruction manual covers various models and all specifications shown do not necessarily apply to your model. Specifications subject to change without notice or obligation.

WHEEL CHART

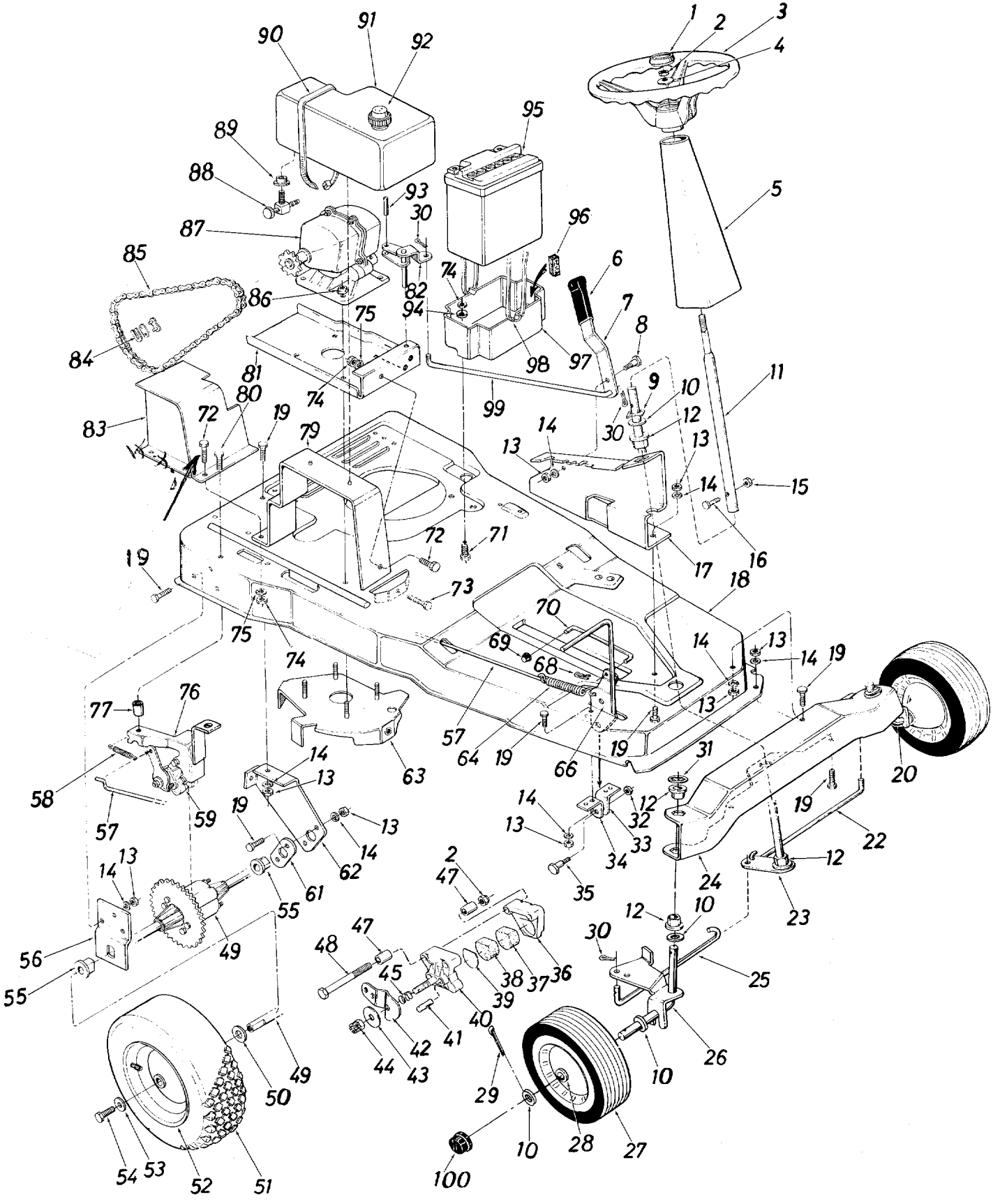
FRONT WHEEL

PART NO.	DESCRIPTION	NEW PART
734-1044	Wheel Ass'y. Complete	
734-1042	Rim Only with Hub	
734-0770	Tire Pneumatic 11 x 4	
741-0313	Bearing	

REAR WHEEL

PART NO.	DESCRIPTION	NEW PART
734-0523	Wheel Ass'y. Complete	
734-0517	Rim Only	
734-0298	Tire Tubeless 13 x 5.00-6	
734-0255	Air Valve	
734-0366	Inner Tube (Service Only)	
741-0199	Bearing	

Model 412



FRAME VIEW

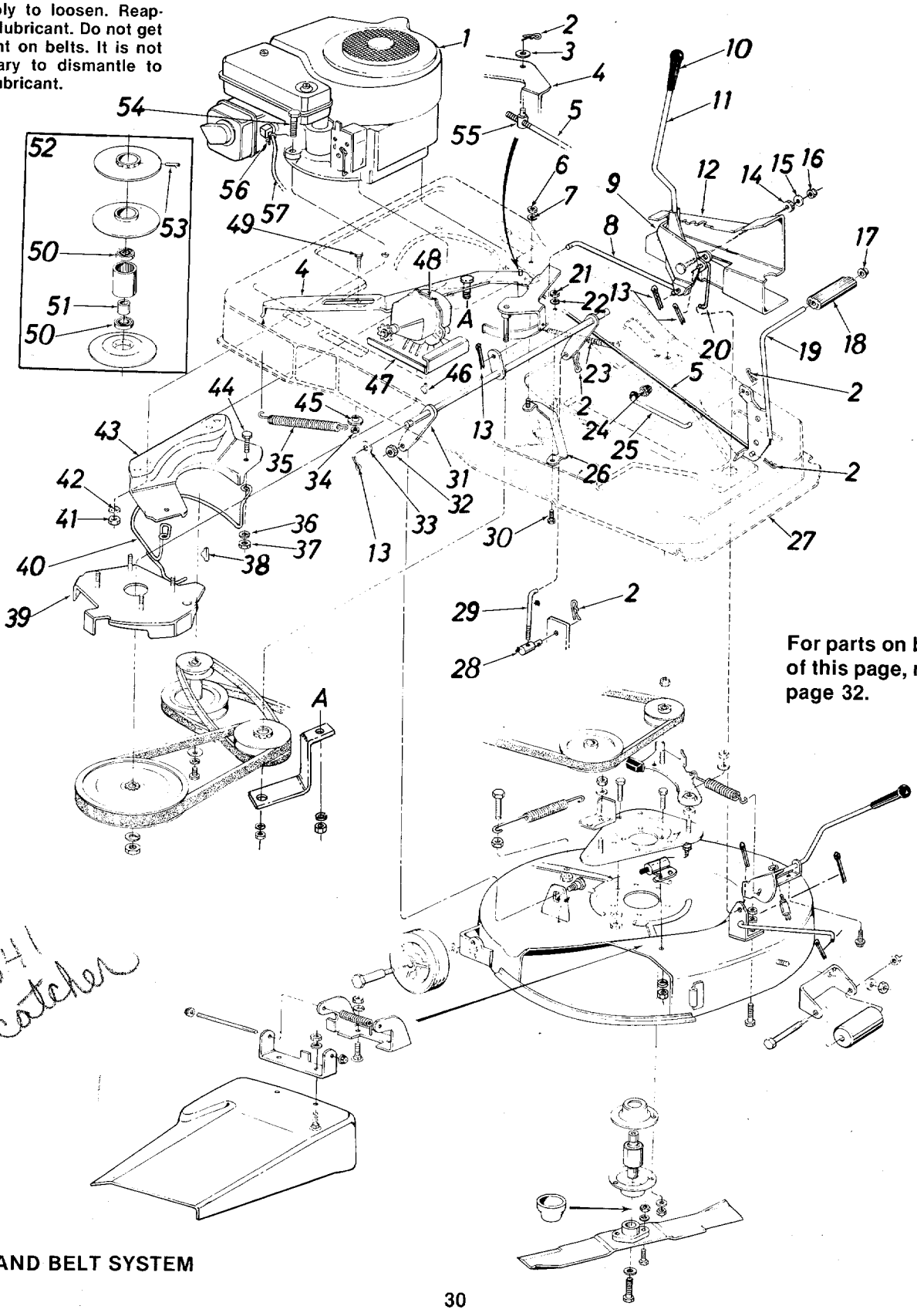
Model 412

PARTS LIST FOR MODEL 412 RIDING MOWER

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	731-0220		Steering Wheel Cap	
2	712-0158		Hex Cent. L-Nut 5/16-18 Thd.	
3	731-0219		Steering Wheel	
4	736-0242		Bell-Wash. .345" I.D.	
5	731-0262		Steering Column Cover	
6	720-0142		Flat Bar Grip—Black	
7	12169		Shift Lever	
8	738-0140		Shld. Bolt .437" Dia. x .180	
9	712-0222		Speed Nut	
10	736-0156		Fl-Wash. .635" I.D. x 1.12" O.D.	
11	750-0233		Steering Tube Ass'y.	
12	741-0225		Hex Flange Bearing—Plastic	
13	712-0267		Hex Nut 5/16-18 Thd.*	
14	736-0119		L-Wash. 5/16" I.D.*	
15	712-0117		Hex Cent. L-Nut ¼-28 Thd.	
16	710-0428		Hex Bolt ¼-28 x 1.25" Lg.	
17	12150		Index and Support Brkt.	
18	14335		Main Frame	
19	710-0198		Hex Sems Bolt 5/16-18 x .75" Lg.*	
20	14353		Front Axle Ass'y.—L.H.	
22	747-0147		Tie Rod—L.H.	
23	12138		Steering Shaft Ass'y.	
24	14401		Front Wheel Brkt.	
25	747-0146		Tie Rod—R.H.	
26	14352		Front Axle Ass'y.—R.H.	
27	734-1044		Front Wheel Ass'y.—Comp. 11.00 x 4.00	
28	741-0313		Flange Bearing	
29	714-0470		Cotter Pin 1/8" Dia. x 1.25" Lg.*	
30	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
31	726-0159		Push Nut .625" Shaft	
32	712-0375		Hex Cent. L-Nut 3/8-16 Thd.	
33	12156		Pedal Pivot Brkt.	
34	12155		Pedal Pivot Brkt.	
35	738-0234		Shoulder Bolt .500" Dia. x .295	
36	HH-12-03293		Casting—Carrier	
37	HH-15-03149		Friction Pad (D-Shaped) 1.110" Dia. x .245 Thk.	
38	HH-15-02124		Friction Pad (D-Shaped) 1.110" Dia. x .472 Thk.	
39	HH-03-03303		Back-Up Wash. 1.115" Dia. x .08 Thk. (D-Shaped)	
40	HH-12-03292		Casting—Cam	
41	HH-05-03034		Push Pin .309" Dia. x .857" Lg.	
42	HH-18-03493		Cam Lever 22°	
43	HH-03-03032		Wash. .349 I.D. x 1.004" O.D. x .066 Thk.	
44	712-0134		Hex Top L-Nut 5/16-24 Thd.	
45	HH-06-03031		Spring—Compress. .350" Dia. x 4 Coils	
47	761-0133		Spacer For Disc Brake	
48	710-0395		Hex Bolt 5/16-18 x 2.25" Lg.*	
49	717-0320		Differential Ass'y.—Comp.	
50	736-0134		Fl-Wash. .812" I.D. x 1.38" O.D. x .100	
51	734-0523		Rear Wheel Ass'y.—Comp. 13 x 5.00-6	
52	734-0517		Rear Wheel Rim Only	
53	736-0105		Bell-Wash. 3/8" I.D.	
54	710-0627		Hex Bolt 5/16-24 x .75" Lg. (Grade 5)	
55	741-0199		Flanged Brg. .751" I.D.	
56	14350		Axle Brkt.	
57	747-0128		Brake Rod ¼" Dia. x 25.25" Lg.	
58	732-0118		Extension Spring	
59	761-0130		Disc Brake Ass'y.	
61	10470		Bearing Plate	
62	14351		Rear Axle Support Brkt.	
63	09780		Trans. Belt Guard Ass'y.	
64	732-0245		Extension Spring .90" O.D. x 3.75" Lg.	
66	12136		Brake Pedal Ass'y.	
68	714-0104		Int. Cotter Pin 5/16" Dia.	
69	726-0109		Push Cap 5/16" Dia.	
70	12419		Clutch Pedal Lockout Rod Ass'y.	
71	710-0377		Hex Sems Bolt ¼-20 x .62" Lg.*	
72	710-0258		Hex Bolt ¼-20 x .62" Lg.*	
73	710-0117		Hex Bolt 5/16-24 x 1.00" Lg. (Grade 5)	
74	712-0287		Hex Nut ¼-20 Thd.*	
75	736-0329		L-Wash. ¼" I.D.*	
76	14356		Brake Brkt. Ass'y.	
77	750-0511		Spacer .62" O.D. x .38" I.D. x 1.50" Lg.	
79	14349		Gas Tank Support Brkt.	
80	710-0427		Hex Bolt 3/8-16 x 2.00" Lg.*	
81	10247		Transmission Plate	
82	12170		Shift Brkt. Ass'y.	
83	14358		Muffler Shield Ass'y.	
84	713-0723		#41 Master Link ½" Pitch	
85	713-0290		#41 Chain ½" Pitch x 77 Links	
86	712-0429		Hex Ins. L-Nut 5/16-18 Thd.	
87	717-0223		Transmission Comp.	
88	751-0171		Fuel Shut-Off Valve	
89	735-0149		Bushing Fuel Tank	
90	726-0153		Cable Tie 30" Lg.	
91	751-0293		Gas Tank	
92	723-0356		Gas Tank Cap	
93	715-0103		Spring Pin Roll 1/8" Dia. x .75" Lg.	
94	736-0142		Fl-Wash. .281" I.D. x .50" O.D. x .063	
95	725-0514		12V-Battery	
96	722-0135		P.V.C. Foam 1" x 2" x ½"	
97	731-0534		Battery Box	
98	735-0204		Battery Strap	
99	747-0136		Shift Rod	
100	731-0484		Hub Cap	

Model 412

NOTE: If mower fails to respond to speed control lever, it is possible that the variable speed pulley is seizing. Apply a few drops of light oil to each side of the assembly to loosen. Reapply dry lubricant. Do not get lubricant on belts. It is not necessary to dismantle to apply lubricant.



For parts on bottom of this page, refer to page 32.

DECK AND BELT SYSTEM

Model 412

PARTS LIST FOR MODEL 412 RIDING MOWER

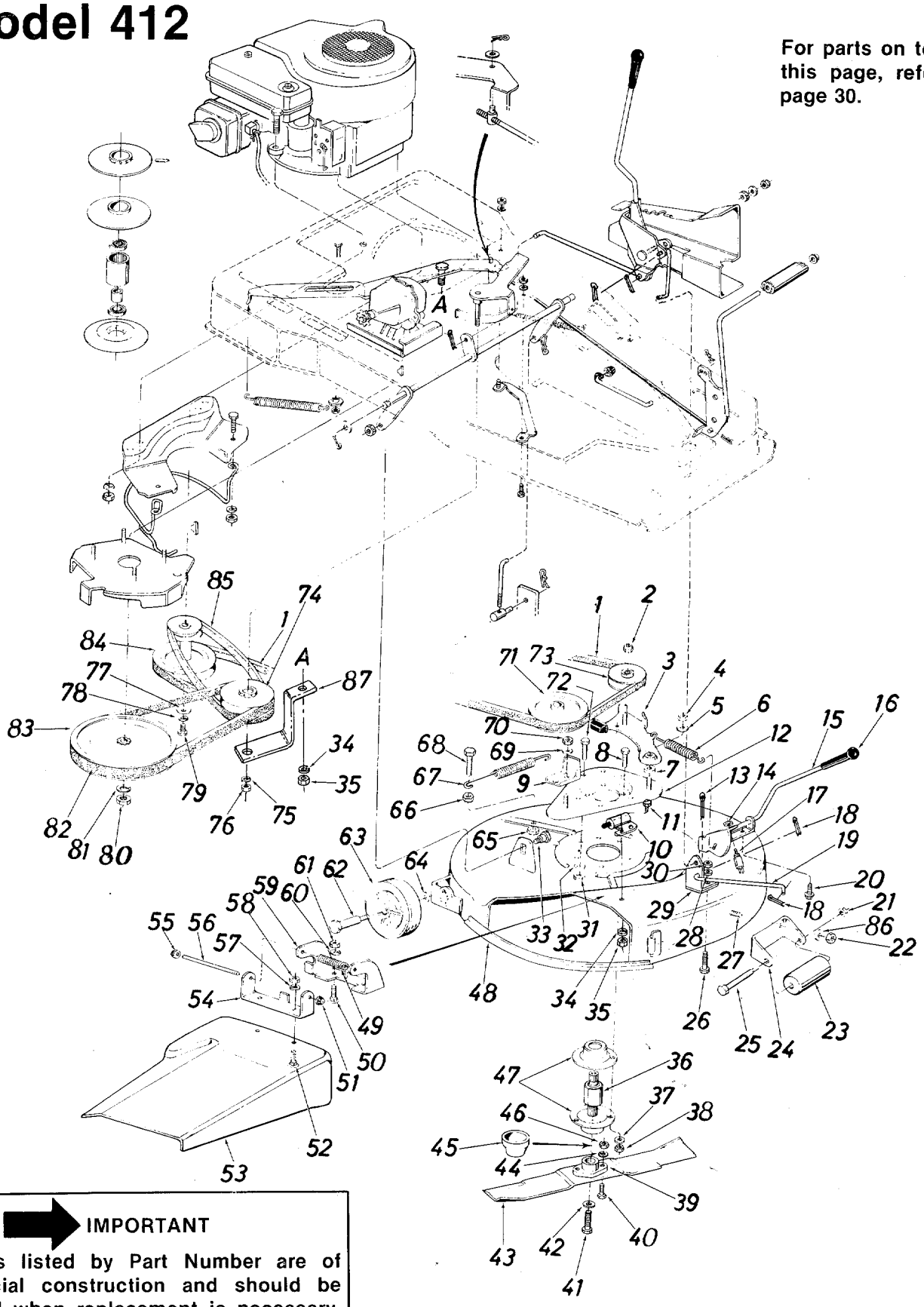
REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	—		Engine	
2	714-0104		Hairpin Cotter	
3	736-0264		Fl-Wash.	
4	14471		Variable Speed Brkt. Ass'y.	N
5	747-0316		Clutch Rod	
6	712-0798		Hex Nut 3/8-16 Thd.*	
7	736-0217		L-Wash. 3/8" I.D. (Heavy Duty)	
8	747-0125		Handle Lift Rod 3/8" Dia.	
9	14362		Deck Lift & Float Brkt. Ass'y.	
10	720-0143		Grip—Black	
11	14374		Deck Lift Handle Ass'y.	
12	12150	—462	Index and Support Brkt.	
13	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
14	735-0126		Rubber Wash. .33" I.D. x .87" O.D.	
15	736-0101		Fl-Wash. .406" I.D. x 1.0" O.D.	
16	712-0116		Hex Ins. L-Nut 3/8-24 Thd.	
17	726-0221		Push Cap ½" Dia.	
18	731-0142		Foot Pedal—Bar Grip	
19	12133		Clutch Pedal Ass'y.	
20	747-0368		Deck Lift Rod 3/8" Dia.	
21	712-0267		Hex Nut 5/16-18 Thd.*	
22	736-0119		L-Wash. 5/16" I.D.*	
23	732-0233		Tension Spring	
24	726-0109		Push Cap 5/16" Dia.	
25	12419		Clutch Pedal Lockout Rod	
26	10173		Variable Speed Guide Brkt. Ass'y.	
27	14335	—462	Main Frame	
28	711-0677		Adjustment Ferrule	
29	747-0364		Deck Adjustment Hanger Rod	
30	710-0198		Hex Sems Bolt 5/16-18 x .75" Lg.*	
31	12139	—462	Deck Lift Shaft Ass'y.	
32	712-0158		Hex Cent. L-Nut 5/16-18 Thd.	
33	736-0116		Fl-Wash. .635 I.D. x .93" O.D.	
34	712-0429		Hex Ins. L-Nut 5/16-18 Thd.	
35	732-0192		Spring .88" O.D. x 3.75" Lg. (Var. Drive)	
36	736-0119		L-Wash. 5/16" I.D.*	
37	712-0267		Hex Nut 5/16-18 Thd.*	
38	714-0365		#6 Hi-Pro Key 5/32" x 5/8" Dia.	
39	09780		Transmission Belt Guard Ass'y.	
40	747-0360		Belt Guard Ass'y.	
41	712-0267		Hex Nut 5/16-18 Thd.*	
42	736-0119		L-Wash. 5/16" I.D.*	
43	10423		Engine Belt Guard Ass'y.	
44	710-0198		Hex Sems Bolt 5/16-18 x .75" Lg.*	
45	711-0404		Shoulder Nut	
46	714-0129		#4 Hi-Pro Key 3/32" x 5/8" Dia.	
47	10247		Transmission Plate	
48	717-0223		Transmission Ass'y.—Comp.	
49	710-0322		Hex Sems Bolt 5/16-18 x 1.00" Lg.*	
50	741-0139		Ball Bearing .50" I.D. x 1.30" O.D.	
51	750-0516		Spacer .50" I.D. x .692" O.D. x 1.44" Lg.	N
52	717-0473		Variable Speed Pulley Ass'y.	N
53	715-0124		Spring Pin Spiral 5/32" Dia. x .62" Lg.	
54	710-0442		Hex Bolt 5/16-18 x 1.50" Lg.*	
55	711-0392		Adjustment Ferrule	
56	726-0199		Hose Clamp	
57	751-0173		Gas Line	

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

(462—Red Flake) When ordering parts if color or finish is important, use color code shown at left. (e.g. Red Flake Finish—12131 (462).)

Model 412

For parts on top of this page, refer to page 30.



IMPORTANT

Belts listed by Part Number are of special construction and should be used when replacement is necessary. The dimensions and description given are for general reference only and belts purchased by description and dimension generally will only provide temporary service.

DECK AND BELT SYSTEM

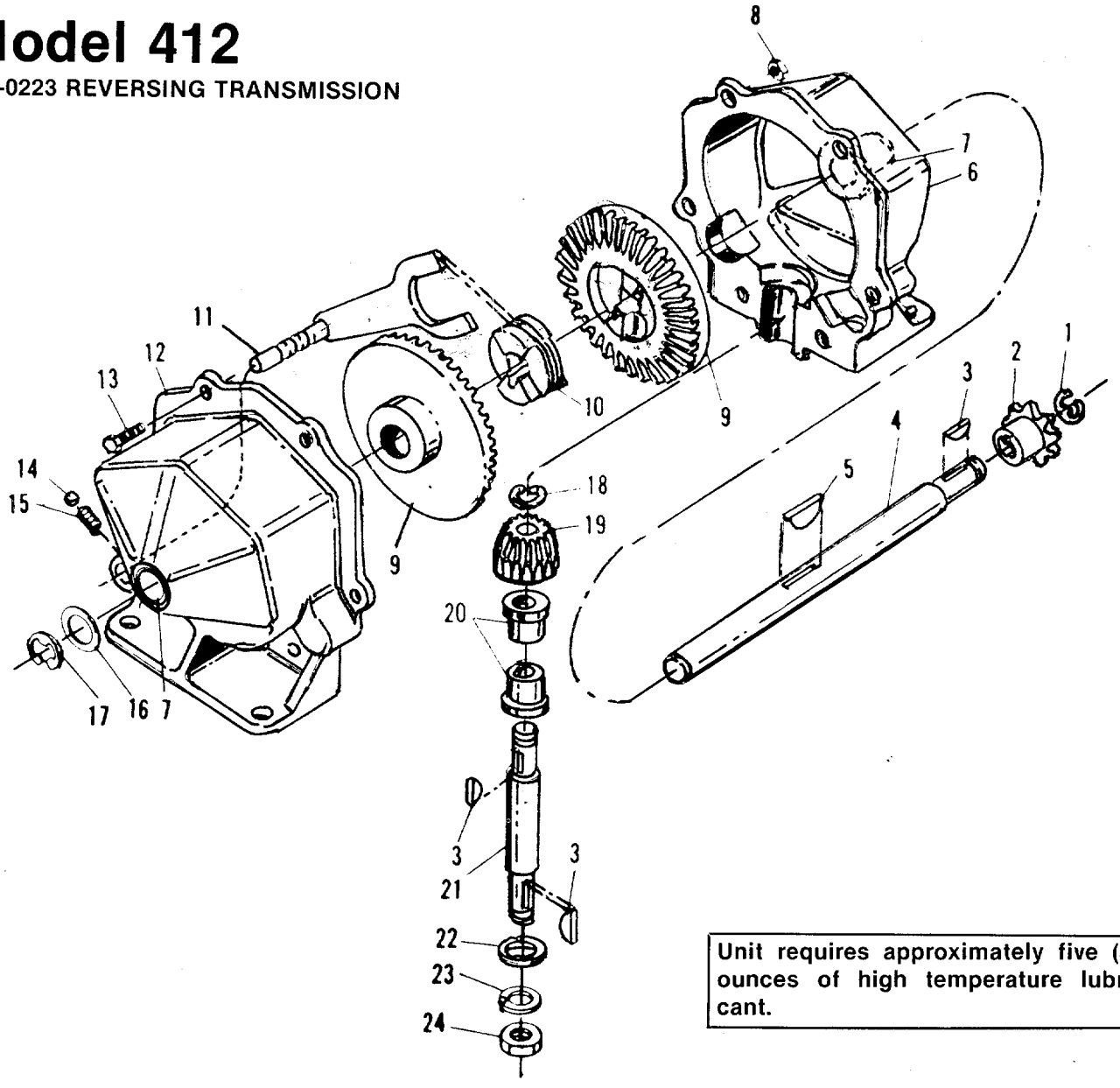
Model 412 PARTS LIST FOR MODEL 412 RIDING MOWER

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	754-0251		Deck "V"-Belt ½" x 51.24" Lg.	
2	712-0116		Hex Ins. L-Nut 3/8-24 Thd.	
3	15224		Deck Idler Brkt. Ass'y.	
4	712-0267		Hex Nut 5/16-18 Thd.*	
5	736-0231		Fl-Wash. .344" I.D. x 1.12" O.D.	
6	732-0400		Ext. Spring .62" O.D. x 3.06" Lg.	
7	750-0258		Spacer .315" I.D. x .75" O.D. x .37	
8	710-0118		Hex Bolt 5/16-18 x .75" Lg.*	
9	10426		Belt Keeper Ass'y.	
10	725-0269		Safety Switch—N.C.	
11	710-0258		Hex Bolt ¼-20 x .62" Lg.*	
12	15076		Spindle Mtg. Brkt. Ass'y.	
13	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
14	—		Part of Ref. No. 17	
15	14366		Deck Engagement Handle Ass'y.	
16	720-0143		Grip—Black	
17	725-0268		Safety Switch—N.O.	
18	714-0507		Cotter Pin 3/32" Dia. x .75" Lg.*	
19	747-0366		Deck Stabilizer Rod 3/8" Dia. x 8.8" Lg.	
20	710-0599		Hex Wash. Hd. Self-Tap Scr. ¼-20 x .50" Lg.	
21	712-0798		Hex Nut 3/8-16 Thd.*	
22	712-0267		Hex Nut 5/16-18 Thd.*	
23	731-0397		Roller	
24	15104		Roller Mounting Brkt.	
25	738-0114		Shoulder Bolt .50" Dia. x .475" Lg.	
26	710-0118		Hex Bolt 5/16-18 x .75" Lg.*	
27	710-0260		Carriage Bolt 5/16-18 x .62" Lg.*	
28	736-0119		L-Wash. 5/16" I.D.*	
29	12153		Front Deck Brkt.	
30	712-0267		Hex Nut 5/16-18 Thd.*	
31	712-0267		Hex Nut 5/16-18 Thd.*	
32	736-0119		L-Wash. 5/16" I.D.*	
33	738-0141		Shld. Bolt .437" Dia. x .350	
34	736-0329		L-Wash. ¼" I.D.*	
35	712-0287		Hex Nut ¼-20 Thd.*	
36	741-0211		Blade Spindle	
37	736-0119		L-Wash. 5/16" I.D.*	
38	712-0267		Hex Nut 5/16-18 Thd.*	
39	748-0235		Kit—Blade Adapter Ass'y.	
40	710-0117		Hex Bolt 5/16-24 x 1.00" Lg. (Grade 5)	
41	710-0180		Hex Bolt 3/8-24 x .75" Lg. (Grade 5)	
42	736-0217		L-Wash. 3/8" I.D. (Heavy Duty)	
43	742-0193		30" Blade	
44	736-0119		L-Wash. 5/16" I.D.*	
45	—		Order Ref. No. 39	
46	712-0123		Hex Nut 5/16-24 Thd.*	
47	12724		Bearing Housing	
48	14370		30" Deck Ass'y.	
49	732-0370		Torsion Spring	
50	710-0134		Carriage Bolt ¼-20 x .62" Lg.*	
51	726-0106		Push Nut ¼" Rod	
52	710-0134		Carriage Bolt ¼-20 x .62" Lg.*	
53	15198		Chute Deflector Ass'y. Comp.	
54	15192		Deflector Hinge Brkt.	
55	726-0106		Push Nut ¼" Rod	
56	747-0303		Hinge Pin	
57	736-0329		L-Wash. ¼" I.D.*	
58	712-0287		Hex Nut ¼-20 Thd.*	
59	15226		Deck Hinge Brkt.	
60	736-0329		L-Wash. ¼" I.D.*	
61	712-0287		Hex Nut ¼-20 Thd.*	
62	738-0373		Shld. Bolt .478" Dia. x 1.53" Lg.	
63	734-0973		Wheel Ass'y.—Deck 5"	
64	736-0105		Bell-Wash.	
65	712-0267		Hex Nut 5/16-18 Thd.*	
66	712-0267		Hex Nut 5/16-18 Thd.*	
67	732-0308		Ext. Spring .50" O.D. x 6.37" Lg.	
68	710-0376		Hex Bolt 5/16-18 x 1.0" Lg.*	
69	736-0119		L-Wash. 5/16" I.D.*	
70	712-0267		Hex Nut 5/16-18 Thd.*	
71	756-0291		Pulley 7.00" O.D.	
72	710-0118		Hex Bolt 5/16-18 x .75" Lg.*	
73	756-0116		Idler Pulley	
74	10438		Vari. Spd. Pulley Ass'y.	
	14471		Vari. Spd. Pulley and Brkt. Ass'y.—Comp.	
75	736-0921		L-Wash. ½" I.D.*	
76	712-0384		Hex Cent. L-Nut ½-13 Thd.	
77	711-0572		Step Wash. (For Engine Pulley)	
78	736-0217		L-Wash. 3/8" I.D. (Heavy Duty)	
79	710-0331		Hex Bolt 3/8-24 x 2.25" Lg.*	
80	712-0922		Hex Jam Nut ½-20 Thd.	
81	736-0921		L-Wash. ½" I.D.*	
82	754-0136		Transmission "V"-Belt 21/32" x 31" Lg.	
83	756-0174		Transmission Pulley .50" I.D.	
84	756-0378		Engine Two-Step Pulley	
85	754-0187		Engine Drive "V"-Belt 21/32 x 24" Lg.	
86	736-0119		L-Wash. 5/16" I.D.*	
87	14469		Variable Speed Brace	N

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

Model 412

717-0223 REVERSING TRANSMISSION



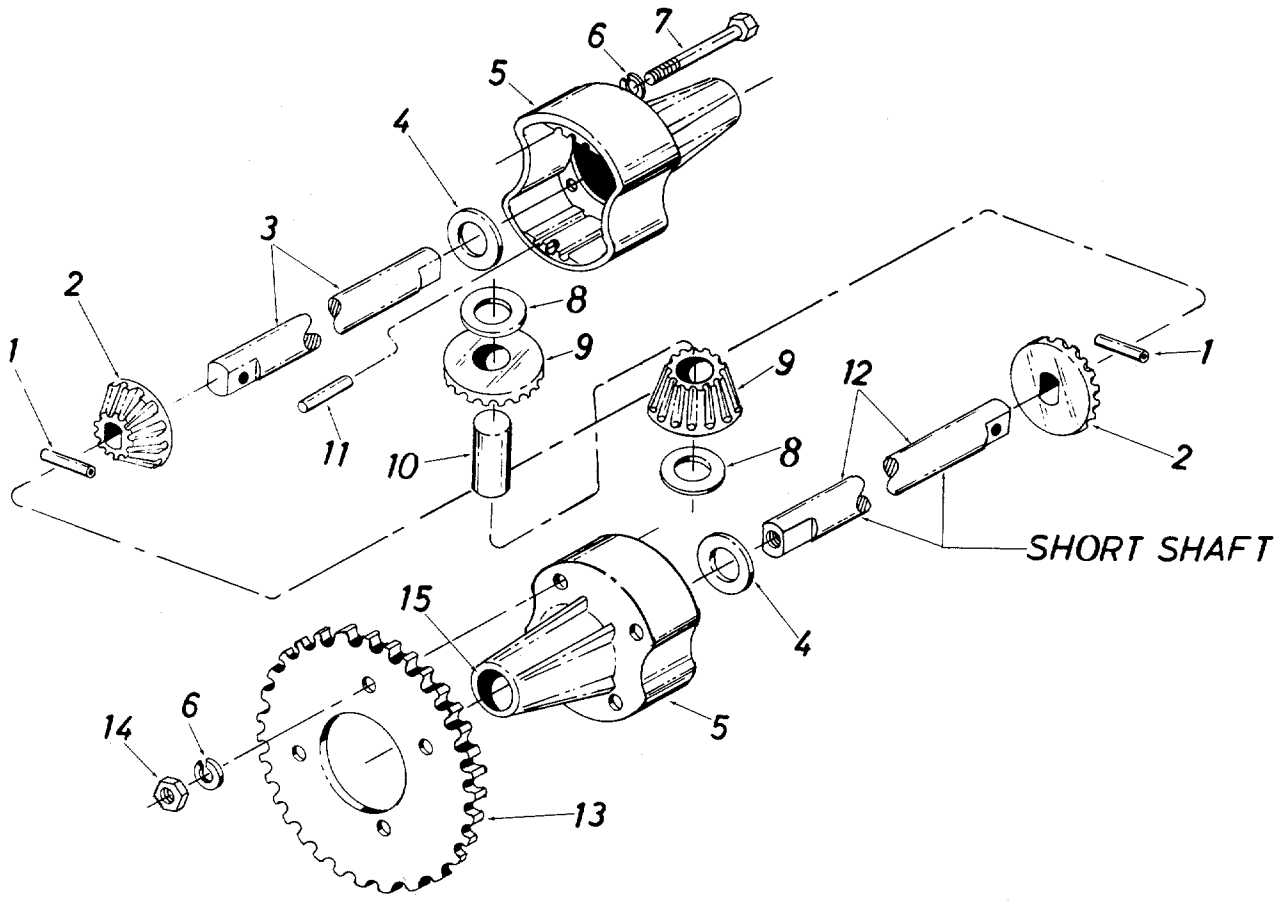
Unit requires approximately five (5) ounces of high temperature lubricant.

PARTS LIST FOR REVERSING TRANSMISSION 717-0223

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	716-0104		E-Ring for .500" Dia. Shaft		14	741-0862		Detent Ball	
2	748-0852		Sprocket 8 Tooth		15	732-0863		Detent Spring	
3	714-0129		#4 Hi-Pro Key 3/32 x 5/8" Dia.		16	736-0116		Fl-Wash. .635 I.D. x .93 O.D.	
					17	716-0106		E-Ring for .625" Dia. Shaft	
4	711-0854		Output Shaft		18	716-0865		Snap Ring for .500" Dia. Shaft	
5	714-0126		#9 Hi-Pro Key 3/16 x ¾" Dia.						
6	717-0123		Trans. Case—L.H. Comp.		19	748-0866		Pinion Gear	
7	748-0855		Flange Brg.		20	748-0867		Bearing .627 I.D.	
8	712-0117		Hex Centerlock ¼-28*		21	738-0159		Pinion Shaft	
9	748-0856		Bevel Gear		22	736-0192		Fl-Wash. .531 I.D. x .93 O.D.	
10	748-0857		Clutch Collar		23	736-0921		Spring L-Wash. ½" Scr.*	
11	08583		Shift Yoke Ass'y.		24	712-0922		Hex Jam Nut ½-20 Thd.*	
12	717-0124		Trans. Case—R.H.—Comp. (With Detent Hole)		—	737-0120		Grease—High Temp. 450°F. (5 oz.)	
13	710-0195		Hex Hd. Cap Scr. ¼-20 x .62" Lg.*		—	717-0223		Transmission Complete	

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

Model 412



Lubricate with 3 oz. of High Temp. Grease Plasti-lube #0. Order Part No. 737-0166.

PARTS LIST FOR DIFFERENTIAL ASSEMBLY 717-0320

REF. NO.	PART NO.	Qty. Req'd.	DESCRIPTION
1	715-0247	2	Spring Pin Spiral 3/16" Dia. x 1.00" Lg.
2	748-0156	2	Gear—Double "D" Hole
3	738-0300	1	Shaft (Long)—19.31" Lg.
4	736-0188	2	Fl-Wash. .760 I.D. x 1.49 O.D.
5	719-0150	2	Housing Half
6	736-0119	8	L-Wash. 5/16" I.D.*
7	710-0526	4	Hex Bolt 5/16-24 x 4.00" Lg.
8	736-0187	2	Fl-Wash. .640 I.D. x .24 O.D.
9	748-0158	2	Gear—Round Hole
10	711-0276	1	Drive Pin
11	715-0123	2	Dowel Pin 3/16" Dia. x .62" Lg.
12	738-0301	1	Shaft (Short)—7.07" Lg.
13	09054	1	Sprocket—40 Teeth
14	712-0237	4	Hex Cent. L-Nut 5/16-24 Thd.
15	748-0169	2	Flange Bearing

*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

PARTS INFORMATION

POWER EQUIPMENT PARTS AND SERVICE

Parts and service for all MTD manufactured power equipment are available through the authorized service firms listed below. All orders should specify the model number of your unit, part numbers, description of parts and the quantity of each part required.

BRIGGS AND STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing **Engines—Gasoline**, Briggs & Stratton or Tecumseh Lauson.

NOTE: If any parts are found to be missing or defective upon assembly of this unit, write to advise the factory so that immediate replacement can be made.

ALABAMA	**BIRMINGHAM**	
Auto Electric & Carburetor Co.	2625 4th Ave. S.	35233
ARKANSAS	**FORT SMITH**	
Mity Mite Motors, Inc.	4515 S. 16th St.	72901
	NORTH LITTLE ROCK	
Sutton's Lawn Mower Shop	Rt. 4, Box 368	72117
CALIFORNIA	**PORTERVILLE**	
Billious	75 North D Street	93257
COLORADO	**DENVER**	
Spitzer Industrial Products Co.	6601 N. Washington St., Box 29114	80229
FLORIDA	**JACKSONVILLE**	
Radco Distributors	4909 Victor St., Box 5459	32207
	OPA LOCKA	
Small Eng. Dist.	2351 N.W. 147th St.	33054
GEORGIA	**EAST POINT**	
East Point Cycle & Key	2834 Church St.	30344
ILLINOIS	**LYONS**	
Keen Edge Co.	8615 Ogden Ave.	60534
INDIANA	**ELKHART**	
Parts & Sales Inc.	2101 Industrial Pkwy.	46514
IOWA	**DUBUQUE**	
Power Lawn & Garden Equip.	2551 J.F. Kennedy	52001
LOUISIANA	**NEW ORLEANS**	
Suhren Engine Co.	8330 Earhart Blvd.	70118
MARYLAND	**TAKOMA PARK**	
Center Supply Co.	6867 New Hampshire Ave.	20012
MASSACHUSETTS	**SPRINGFIELD**	
Morton B. Collins Co.	300 Birnie Ave.	01107
MICHIGAN	**LANSING**	
Lorenz Service Co.	2500 S. Pennsylvania	48910
	MOUNT CLEMENS	
Power Equipment Dist.	340 Hubbard	48043
MINNESOTA	**HOPKINS**	
Hance Distributing Inc.	420 Excelsior Ave. W.	55343
MISSISSIPPI	**BILOXI**	
Biloxi Sales & Service, Inc.	506 Caillavet St.	39533
MISSOURI	**KANSAS CITY**	
Automotive Equip. Service	3117 Holmes St.	64109
	ST. JOSEPH	
Ross-Frazier Supply Co.	8th and Monterey	64503
	ST. LOUIS	
Henzler, Inc.	2015 Lemay Ferry Rd.	63125
NEW JERSEY	**BELLMAWR**	
Lawnmower Parts Inc.	717 Creek Rd.	08030
NEW MEXICO	**ALBUQUERQUE**	
Spitzer Eng. & Parts	1023 Third St. N.W.	87103
NEW YORK	**CARTHAGE**	
Gamble Dist., Inc.	West End Ave.	13619
NORTH CAROLINA	**GOLDSBORO**	
Smith Hardware Co.	515 N. George St.	27530
	GREENSBORO	
Dixie Sales Company	335 N. Green	27402
OHIO	**CARROLL**	
Stebe's Mid-State Mower Supply	71 High St., Box 366	43112
	CLEVELAND	
Bleckrie, Inc.	7900 Lorain Ave.	44102
	WADSWORTH	
National Central	687 Seville Rd.	44281
	YOUNGSTOWN	
Burton Supply Co.	1301 Logan Ave., Box 929	44501
OKLAHOMA	**MUSKOGEE**	
Victory Motors, Inc.	605 S. Cherokee	74401
OREGON	**PORTLAND**	
Kenton Supply Co.	8216 N. Denver Ave.	97217
PENNSYLVANIA	**HARRISBURG**	
EECO Inc.	4021 N. 6th St.	17110
	PHILADELPHIA	
Thompson Rubber Co.	5222-24 N. Fifth St.	19120
	PITTSBURGH	
Bluemont Co.	11125 Frankstown Rd.	15235
	PUNXSUTAWNEY	
Frank Roberts & Sons	R.D. 2	15767
TENNESSEE	**KNOXVILLE**	
Master Repair Service	2000 Western Ave.	37921
	MEMPHIS	
American Sales & Service, Inc.	3035-43 Bellbrook	38116
TEXAS	**DALLAS**	
Marr Brothers, Inc.	423 E. Jefferson	75203
	FORT WORTH	
Woodson Sales Corp.	1702 N. Sylvania	76111
	HOUSTON	
Bullard Supply Co.	2409 Commerce St.	77003
UTAH	**SALT LAKE CITY**	
A-1 Engine & Mower Co.	437 E. 9th St.	84111
VERMONT	**BURLINGTON**	
Vermont Hdwe. Co. Inc.	180 Flynn Ave.	05401
VIRGINIA	**ASHLAND**	
RBI Corp.	Lake Ridge Park, 101 Cedar Run Dr.	23005
WASHINGTON	**SEATTLE**	
Bailey's Inc.	1414 14th Ave.	98102
WEST VIRGINIA	**CHARLESTON**	
Young's, Inc.	233 Virginia St., E.	25301
WISCONSIN	**MARSHFIELD**	
Power Pac	301 E. 29th St.	54449

WARRANTY PARTS AND SERVICE POLICY

The purpose of warranty is to protect the customer from defects in workmanship and materials, defects which are NOT detected at the time of manufacture. It does not provide for the unlimited and unrestricted replacement of parts. Use and maintenance are the responsibility of the customer. The manufacturer cannot assume responsibility for conditions over which it has no control. Simply put, if it's the manufacturer's fault, it's the manufacturer's responsibility; if it's the customer's fault, it's the customer's responsibility.

CLAIMS AGAINST THE MANUFACTURER'S WARRANTY INCLUDES:

1. **Replacement of Missing Parts** on new equipment.
2. **Replacement of Defective Parts** within the warranty period.
3. **Repair of Defects** within the warranty period.

All claims MUST be substantiated with the following information:

1. **Model Number** of unit involved.
2. **Date** unit was purchased or first put into service.
3. **Date of failure.**
4. **Nature of failure.**

MTD PRODUCTS • P.O. BOX 36900 • CLEVELAND, OHIO 44136