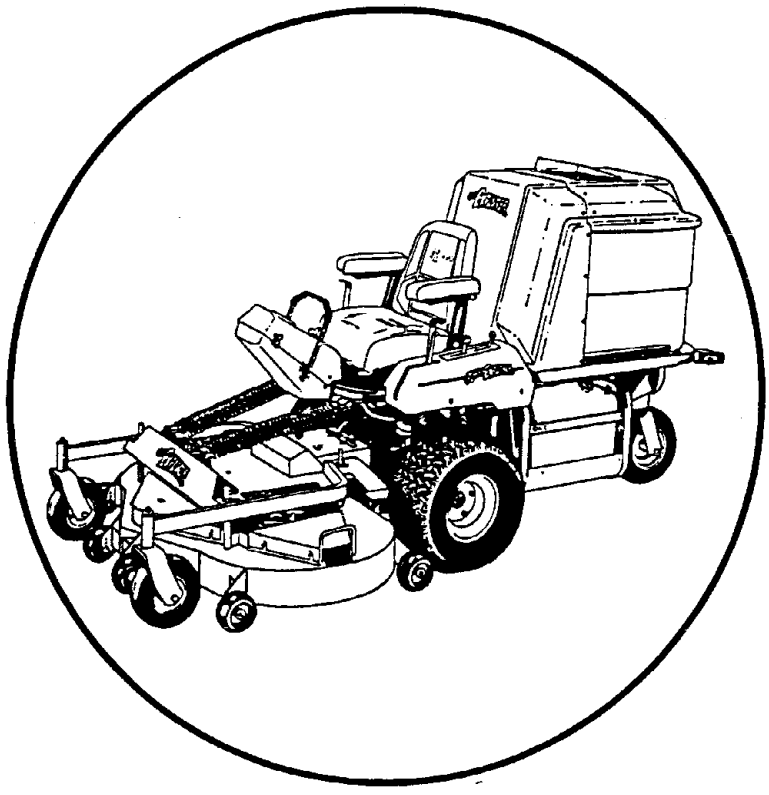
eXmark MFG. CO. INC.

For Serial Nos. 130,000 & Higher

EXPLORER



Operator's Manual

Part No. 850433

⚠ WARNING

FAILURE TO FOLLOW CAUTIOUS OPERATING PRACTICES CAN RESULT IN SERIOUS OPERATOR INJURY.

⚠ CAUTION

1. Keep all shields, guards and safety devices (especially grass discharge system) in place and in proper working condition.
2. Stop engine and remove spark plug wire(s) or remove key before adjusting, servicing, or preforming maintenance.
3. When mower deck becomes clogged, stop engine and remove spark plug wire(s) or remove key before cleaning blockage.
4. Keep hands, feet, and clothing away from power-driven parts.
5. Keep off mower unless seat or platform is provided.
6. Keep others off mower.

⚠ WARNING

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

⚠ HEALTH WARNING

GASOLINE

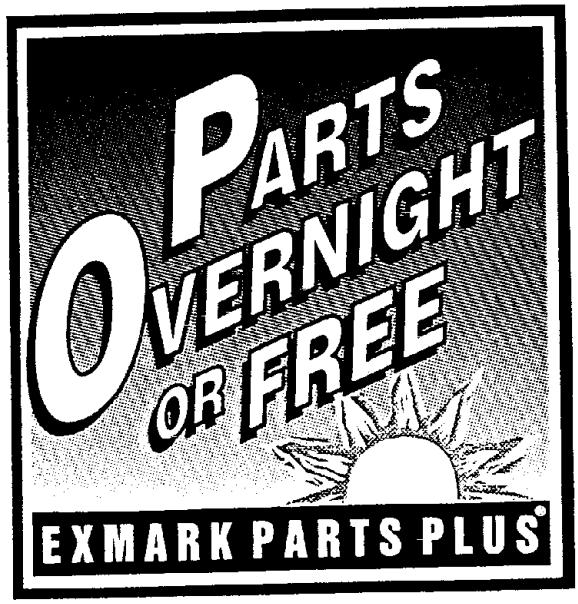
Harmful or fatal if swallowed.
Long-term exposure to vapors has caused cancer in laboratory animals.

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

Failure to use caution may cause serious injury or illness.

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

EXMARK PARTS PLUS® PROGRAM



EFFECTIVE DATE: September 1, 1995

Program

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

How the Program Works

1. If dealer does not have part in stock for a "down" unit at the time of request by customer, the dealer contacts his distributor by 1:00 p.m., local time, and requests Exmark Parts Plus® shipment of six (6) line items or less.

2. Distributor ships part(s) to dealer or customer, as requested by dealer, same day, overnight UPS Distributor bills dealer for part and freight charges where applicable.

3. If distributor does not have the part(s) in stock to satisfy Exmark Parts Plus® order, he contacts Exmark by 3:00 p.m., central time, with an Exmark Parts Plus® order of six (6) line items or less.

4. If order is received by 3:00 p.m. central time, Exmark ships part(s) direct to dealer or customer, as requested by distributor, same day, overnight UPS Exmark bills the distributor for parts and shipping charges, where applicable.

5. The customer pays for the part and freight if it is shipped under the Exmark Parts Plus® and if it arrive in accordance to the program.

6. Who pays for the part and freight if it fails to arrive overnight in accordance to the program?

   A. Under any circumstance the customer does not pay.

   B. If the part does not arrive overnight due to:

      1. The dealer not submitting the Exmark Parts Plus® order to his Exmark distributor by 1:00 p.m., the dealer pays for the part and freight.

      2. The Distributor being unable to ship the part the same day or not submitting the Exmark Parts Plus® order to Exmark by 3:00 p.m., central time, the Distributor pays for the part and freight.

      3. Exmark being unable to ship the part and the Exmark parts order is received by 3:00 p.m., central time, Exmark pays for the part and freight.

      4. If the part does not arrive overnight due to the shipper (UPS), the shipper pays for the freight and Exmark pays for the part.

The following restrictions apply -- The Exmark Parts Plus® Program is available only through participating Exmark Dealers and applies only to orders submitted on this program Monday through Thursday. UPS has initiated a Saturday delivery program to many areas of the continental United States and can be requested for an overnight shipment on Friday to be delivered Saturday. The next day air charge, plus the Saturday delivery fee will be the responsibility of the purchaser. Exmark Mfg. will assume no responsibility for Saturday delivery shipments. To qualify, all Exmark Parts Plus® orders must be received by Exmark by 3:00 p.m., central time. Orders must be six (6) line items or less. Exclusions from the Exmark Parts Plus® Program are: Any wholegood or accessory in its entirety, engines and engine replacement parts, 5-speed Peerless transmissions and 5-speed transaxles, hydraulic or hydrostatic wheel motors, cutter decks and engine decks or any item exceeding United Parcel Service size and weight restrictions.

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

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

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

OPERATOR'S MANUAL

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

BEFORE OPERATING YOUR MOWER, CAREFULLY READ THIS MANUAL IN ITS ENTIRETY. By following the operating, maintenance and safety instructions, you will prolong the life of your mower, maintain its maximum efficiency and promote safe operation.

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

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

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

If you need to order replacement parts from your dealer, always give the model number and serial number of your mower as well as the quantity, part number and description of the part needed.

The Serial No. plate of the tractor is located on the rear frame gusset on the right hand side of the machine. The Serial No. plate for the deck is located on the front support pin gusset on the right hand side of the deck or just to the inside of the rear edge of the right belt guard. We suggest you record the numbers below for ready reference.

Tractor Model No._____

Tractor Serial No._____

Deck Model No._____

Deck Serial No._____

Date Purchased_____

Purchased From_____

OR

PASTE LABEL FROM LITERATURE PACKET HERE

TABLE OF CONTENTS

1. SAFETY

1.1 SAFETY ALERT SYMBOL

THIS SAFETY ALERT SYMBOL  IS USED BOTH IN THIS MANUAL AND ON THE MACHINE TO IDENTIFY IMPORTANT SAFETY MESSAGES WHICH MUST BE FOLLOWED TO AVOID ACCIDENTS. THIS ALERT SYMBOL MEANS:

ATTENTION! BECOME ALERT!

YOUR SAFETY IS INVOLVED!

The safety alert symbol appears above information which alerts you of unsafe actions or situations and will be followed by the word DANGER, WARNING, or CAUTION.

When used with the word DANGER: IT DENOTES THAT AN EXTREME HAZARD EXISTS WHICH WOULD RESULT IN HIGH PROBABILITY OF DEATH OR IRREPARABLE INJURY IF PROPER PRECAUTIONS ARE NOT TAKEN.

When used with the word WARNING: IT DENOTES THAT A HAZARD EXISTS WHICH CAN RESULT IN INJURY OR DEATH IF PROPER PRECAUTIONS ARE NOT TAKEN.

When used with the word CAUTION: IT DENOTES A REMINDER OF SAFETY PRACTICES OR DIRECTS ATTENTION TO UNSAFE PRACTICES WHICH COULD RESULT IN PERSONAL INJURY IF PROPER PRECAUTIONS ARE NOT TAKEN.

1.2 TRAINING

1.2.1 Regard the Exmark mower as a piece of power equipment and teach this regard to all who operate this unit.

1.2.2 Read the instructions carefully. Familiarize yourself with the controls and the proper use of the equipment.

1.2.3 Never allow children, teenagers, or people unfamiliar with these instructions to use the mower.

1.2.4 Avoid mowing while people, especially children or pets, are nearby. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

1.3 PREPARATION

1.3.1 The use of personal protective equipment, such as (but not limited to) protection for the eyes, ears, feet and head is recommended.

1.3.2 While mowing, always wear substantial footwear and long trousers. Do not operate equipment when barefoot or when wearing open sandals.

1.3.3 Thoroughly inspect the area where the equipment is to be used and remove all stones, sticks, wires, bones and other foreign objects which may damage the equipment or cause personal injury to the operator or bystanders.

⚠ DANGER

- *DO NOT* operate the engine in a small confined area where dangerous carbon monoxide fumes can collect.

⚠ WARNING

- Fuel is *Highly Flammable*. *DO NOT* smoke while refueling. Refuel only in a well ventilated area, or refuel outdoors.
- Store fuel in containers specifically designed for this purpose.
- Add fuel before starting the engine. *Never* remove the cap of the fuel tank or add fuel when engine is running or when the engine is hot.
- If fuel is spilled, *DO NOT* attempt to start the engine. Move away from the area of the spill and avoid creating any source of ignition until fuel vapors have dissipated.

1.4 OPERATION

1.4.1 Give complete, undivided attention to the job at hand.

1.4.2 Mow only in daylight or good artificial light.

1.4.3 When feasible, avoid operating the equipment in wet grass.

1.4.4 Use **EXTREME** caution when mowing and/or turning on slopes as loss of control and/or tip over could occur. Drive slower on slopes. *Do Not* operate on slopes greater than 15 degrees. Watch for ditches, holes, rocks, dips, and rises which change the operating angle. Keep away from drop-offs and steep banks. Mow up and down slopes - not across. Mower tips more easily to the side than to the front of the rear. Avoid sudden starts and turns. Loss of control may occur going downhill - weight transfer may cause rear wheel/wheels to lift off and cause loss of steering. *Do Not* mow slopes when grass is wet - slippery conditions affect steering and reduce traction and braking. The operator is responsible for safe operation on slopes.

1.4.5 Use **EXTREME** caution when backing up. **LOOK BEHIND YOU!!**

1.4.6 Stop the blades when crossing surfaces other than grass; and when transporting the mower to and from the area to be mowed.

1.4.7 Never operate the mower with defective guards, shields, or covers. Always have safety shields, guards, switches, and other devices in place and in proper working condition.

1.4.8 *Do Not* change the engine governor settings or over speed. the engine. Operating an engine at excessive speed may increase the hazard of personal injury.

1.4.9 Disengage blade drive before starting engine.

1.4.10 Start the engine carefully with feet well away from the blades.

1.4.11 Keep hands, feet and clothing away from rotating parts while the mower is being operated.

1.4.12 Stop the engine and remove ignition key:

- Before checking, cleaning or working on the mower.
- After striking a foreign object (inspect the mower for damage and make repairs before restarting and operating the mower).
- Before clearing blockages.
- Whenever you leave the mower.

Stop the engine:

- Before making height adjustments.
- Before refueling.
- Before dumping the grass catcher.

1.4.13 Before stopping the engine, return the throttle control to the idle position for 30 seconds to allow the engine to cool down.

1.4.14 The fuel system is provided with a shut-off valve. The fuel shut-off valve is used to shut off the fuel when:

- The machine will not be used for a few days.
- During transport to and from the job.
- When parked inside a building.

1.4.15 This mower was designed for one operator only. Keep all others away from mower during operation.

1.4.16 *Do Not* mow without the grass deflector or entire grass collection system in place and in proper working condition.

⚠ CAUTION

- **Failure to follow safety instructions and cautious operating practices can result in serious injury.**

1.4.17 If jump starting is required:

a) connect the positive (+) power cable from the booster battery to the positive terminal post on the starter solenoid switch (this post has the positive battery cable attached to it).

b) connect the negative or ground cable (-) to the negative post from the booster battery to any engine deck ground, preferably the engine block as far away from the battery as possible.

c) disconnect battery cables in the reverse order after starting.

⚠ CAUTION

- Although hazard control and accident prevention partially are dependent upon the design and configuration of the equipment, these factors are also dependent upon the awareness, concern, prudence and proper training of the personnel involved in the operation, transport, maintenance and storage of the equipment. It is essential that all Operator Safety Mechanisms be connected and in operating condition prior to use for mowing.

1.5 MAINTENANCE AND STORAGE

1.5.1 For engine maintenance, follow the engine manufacture's recommendations precisely as stated in the engine manual.

1.5.2 If carburetor adjustment is necessary, stand to one side and keep feet and hands clear while making adjustments.

1.5.3 Keep engine and engine area free from accumulation of grass, leaves, excessive grease or oil and other debris which can accumulate in these areas. These materials can become combustible and may result in a fire.

1.5.4 Store fuel in a container specifically designed for this purpose in a cool, dry place.

1.5.5 Keep the mower and fuel container in locked storage to prevent children from playing or tampering with them.

1.5.6 Gasoline powered equipment or fuel containers should not be stored in a basement or any enclosed area, where open pilot lights or heat appliances are present.

1.5.7 Maximum mowing results and safety can only be achieved if the mower is properly maintained and operated correctly.

1.5.8. Check all bolts frequently to maintain proper tightness.

1.5.9. Keep all guards, shields and all safety devices in place and in safe working condition.

1.5.10 Frequently check for worn or deteriorating components that could create a hazard.

1.5.11 All replacement parts must be the same as or equivalent to the parts supplied as original equipment.

⚠ CAUTION

- Make sure all hydraulic fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to hydraulic system.

⚠ CAUTION

- Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.

⚠ CAUTION

- Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, *NOT HANDS* to search for leaks.

⚠ CAUTION

- Safely relieve all pressure in the hydraulic system before disconnecting lines or before performing any work on the hydraulic system.

1.6 SAFETY SIGNS

1.6.1 Keep all safety signs legible. Remove all grease, dirt and debris from safety signs and instructional labels.

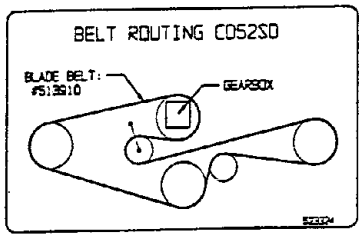
1.6.2 Safety signs must be replaced if they are missing or illegible.

1.6.3 When new components are installed, be sure that current safety signs are affixed to the replaced components.

1.6.4 New safety signs may be obtained from your authorized Exmark equipment dealer or distributor or from Exmark Mfg. Co. Inc.

1.6.5 Safety signs may be affixed by peeling off the backing to expose the adhesive surface. Apply only to a clean, dry surface. Smooth to remove any air bubbles

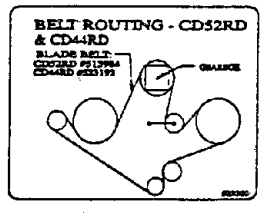
1.6.6 Familiarize yourself with the following safety signs and instruction labels. They are critical to the safe operation of your Exmark commercial mower.



PART NO. 523324

LOCATION:
On Mower Deck Under Left Belt Shield

Model: CD523SD



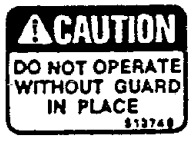
PART NO. 523322

LOCATION:
Center of Mower Deck

Model: CD443RD
CD523RD

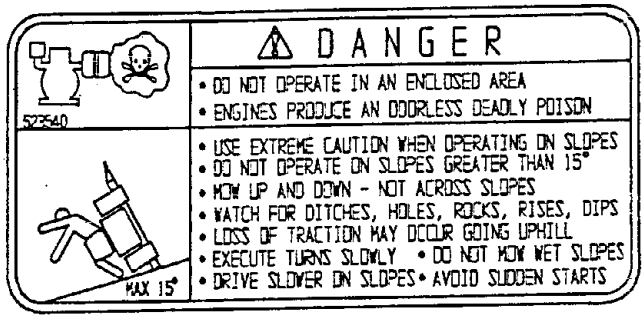
PART NO.
303293

LOCATION: LH Frame Rail Above Fuel Tank Fill Neck, and Grass Catcher Lift Frame Rail



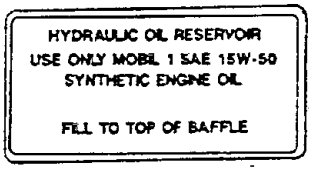
PART NO.
513748

LOCATION: Top of Gearbox Guard and PTO Guard and PTO Gearbox Mount on Mower Deck



LOCATION: Lower Center of Steering Console

PART NO.
523540

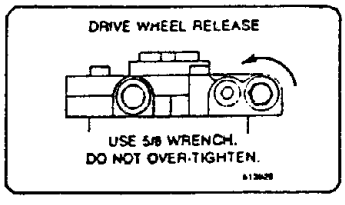


LOCATION: On Top of Hydraulic Tank

PART NO.
513890

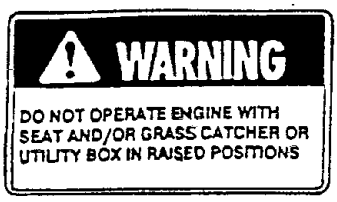
LOCATION: LH Frame Rail Above Muffler Shield, and Grass Catcher Lift Frame Rail Above Muffler Shield

PART NO.
513746



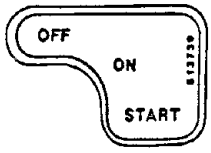
LOCATION: On Pump Belt Shield

PART NO.
513929



LOCATION: Centered on Top of Hyd. Steering Pump Belt Shield and on Top of RH Side of Engine Compartment Cover

PART NO.
513745

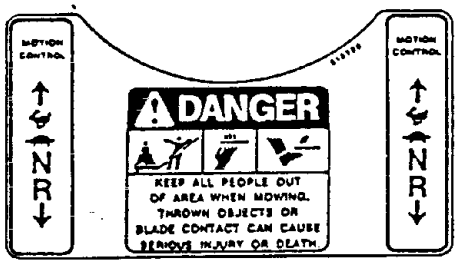


LOCATION: On Console Beside Key Switch

PART NO.
513739

LOCATION: Behind Operator's Seat

PART NO.
513744

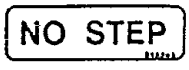


LOCATION: Top Center of Steering Console

PART NO.
513738

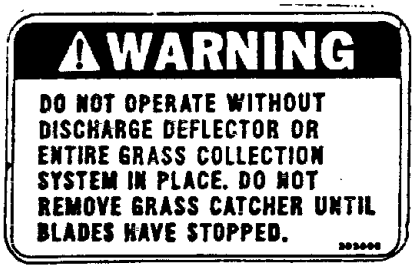
LOCATION: LH and RH Front Top of Mower Deck

PART NO.
403005



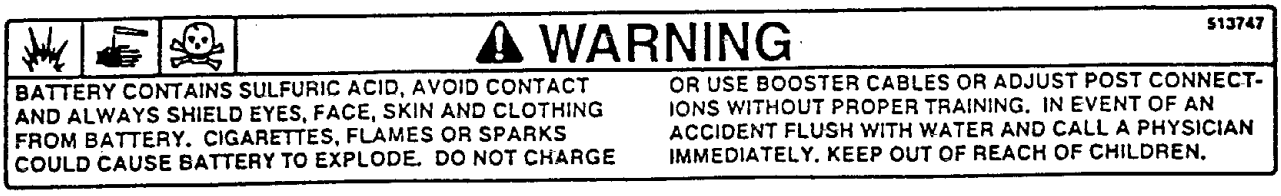
LOCATION: LH and RH Side Top of Mower Deck

PART NO.
513742

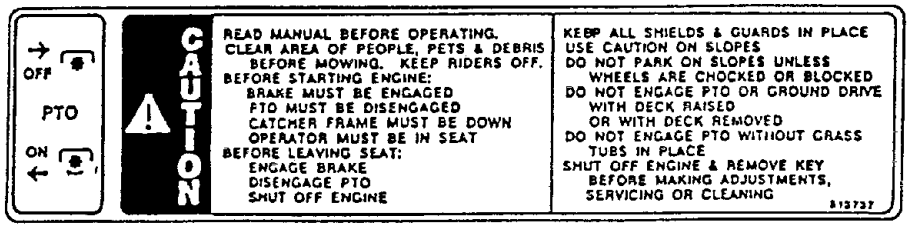


LOCATION: On Top Rear RH Surface of 52" Side Discharge Deck

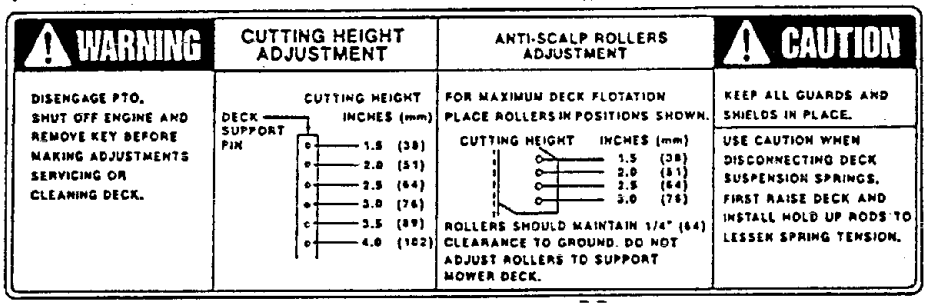
PART NO.
303508



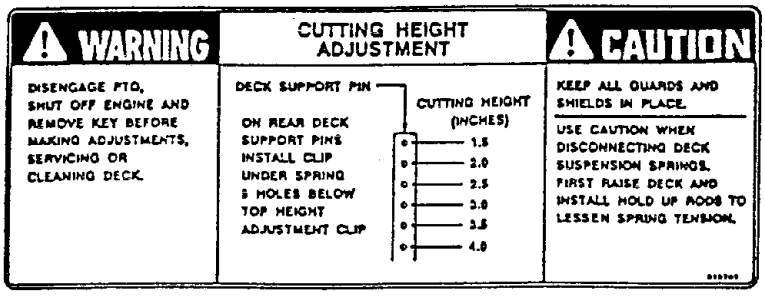
PART NO. 513747 LOCATION: On Top of LH Frame Rail Beside Battery at LH Rear of Tractor Unit



PART NO. 513737 LOCATION: RH Fender



PART NO. 513900 LOCATION: Centered on Mower Deck Floor Pan - 52" Decks



PART NO. 513741 LOCATION: Centered on Mower Deck Floor Pan - 44" Deck

2. SPECIFICATIONS

2.1 MODEL NUMBER: EX20KC

2.2 ENGINE:

2.2.1 Manufacturer: Kohler

2.2.2 Model Number: CH20S

2.2.3 Power: 20 HP (14.9 kw) @ 3600 RPM

2.2.4 Cooling: Air

2.2.5 Cylinders: Two

2.2.6 Strokes/Cycle: Four

2.2.7 Crankshaft Alignment: Horizontal

2.2.8 Bore: 3.03 in. (77 mm)

2.2.9 Stroke: 2.64 in. (67 mm)

2.2.10 Displacement: 38.1 cu. in. (624 cc)

2.2.11 Compression Ratio: 8.5:1

2.2.12 Oil Capacity: 2.0 qt.(1.9 L.) with filter;
1 3/4 qt.(1.7 L.)without filter.

2.2.13 Oil Type: SAE 10W-30 or 10W-40 API service class SF or SG for temperatures above 0° F (-18° C).

2.2.14 Oil Filter: Replaceable cartridge type.

2.2.15 Air Filter: Dry cartridge type with foam precleaner.

2.2.16 RPM: 3600 (No Load)

2.2.17 Idle RPM: 1500

2.3 FUEL SYSTEM

2.3.1 Capacity: 3.8 gal. (14.4 L.)

2.3.2 Type of Fuel: Regular ***unleaded*** gasoline, 87 octane or higher

2.3.3 Fuel Filter: Replaceable in-line.

2.3.4 Fuel Shut-Off Valve: 1/4 turn.

2.4 ELECTRICAL SYSTEM

2.4.1 Charging System: Flywheel Alternator

2.4.2 Charging Capacity: 15 amp

2.4.3 Battery Type: BCI Group U1

2.4.4 Battery Voltage: 12 Volt

2.4.5 Polarity: Negative Ground

2.4.6 Fuses: Two 20 amp blade type

2.4.7 Safety Interlock System: Operator must be in seat with PTO disengaged and brake engaged to start engine. Operator must be in seat when PTO is engaged or brake is disengaged or engine will stop. Engine will stop when grass catcher is tipped up.

2.5 OPERATOR CONTROLS

2.5.1 Steering and Motion Control:

Separate levers on each side of the steering column control speed and direction of travel of the respective drive wheels. Steering is controlled by varying the position of the levers relative to each other. Levers are positioned for either one-hand or two-hand operation. Height of levers can be adjusted for operator comfort.

2.5.2 PTO Engagement Lever: Engages deck drive on all models and engages the blower on grass catcher models.

2.5.3 Parking Brake Lever: Sets brake and locks drive system in neutral.

2.6 SEAT

2.6.1 Type: durable, padded vinyl.

2.6.2 Mounting: Hinged to tilt up for access to hydraulic pumps and other components. Held in tilted position with prop rod. Adjustable fore and aft seat track.

2.6.3 Armrests: Standard

2.6.4 Time delay seat switch eliminates rough ground cut-outs.

2.7 HYDROSTATIC GROUND DRIVE SYSTEM

2.7.1 Hydrostatic Pumps: Two Sundstrand/Hydro Gear BDP-10L variable displacement piston pumps

2.7.2 Wheel Motors: Two Parker/Ross with 1 1/4" tapered shafts.

2.7.3 Hydraulic Oil Type: Synthetic Mobil 1 15W-50

2.7.4 Hydraulic Oil Capacity: 2.1 qt.(2.0 L.)

2.7.5 Filter: Replaceable cartridge type

2.7.6 Speeds: 0 - 6.6 mph(10.6 km/hr) forward.
0 - 3.3 mph(5.3 km/hr) reverse.

2.7.7 Drive wheel release valves allow machine to be moved when the engine is not running.

2.8 TIRES AND WHEELS

2.8.1 Tires

	Rear Caster	Drive	Front Caster
Size:	13 x 6.50-6	20 x 10.0-8	9 x 3.50-4
Qty:	1	2	2
Tread:	Smooth	"Turfmate"	Smooth
Ply:	4	4	4
Infl:	13 psi (90 kPa)	13 psi (90 kPa)	22 psi (152 kPa)

2.9 CUTTING DECK

2.9.1 Cutting Width: 44 in.(111.8 cm)
52 in.(132.1 cm)

2.9.2 Discharge : Rear 44"; Rear 52"; and Side 52".

2.9.3 Blade Size:
44" RD - (2 ea.) 22 in.(55.9 cm); (1 ea.) 10 in.(25.4 cm)
52" RD - (2 ea.) 26 in.(66.0 cm); (1 ea.) 10 in.(25.4 cm)
52" SD - (3 ea.) 18 in.(45.7 cm)

2.9.4 Blade Spindles: 1-3/16 in.(30.2 mm) diameter spindles with 25 mm I.D. bearings.

2.9.5 Type of Drive: PTO Shaft to right angle gearbox on deck. Blades driven by one belt with self tensioning idler.

2.9.6 Gearbox: Peerless 1000-026

2.9.7 Gearbox Oil: SAE 90 weight extreme pressure.

2.9.8 Gearbox Oil Capacity: 6 oz.(177 cc).

2.9.9 Deck Mounting: Full floating deck is attached to out-front support frame (removable for servicing). Can be manually lifted and held up with support rods for servicing and cleaning. Counter-balance springs transfer weight from casters and also aid in lifting.

2.9.10 Cutting Height Adjustment: cutting height adjusts from 1.5 in.(3.8 cm) to 4 in.(10.2 cm.) in .5 inch(1.3 cm.) increments.

2.9.11 Mulching Kits: Optional for side discharge deck.

2.10 GRASS CATCHING SYSTEM

2.10.1 Fill System: Center discharge deck, 10 in.(25.4cm) dia. blower.

2.10.2 Grass Containers: Two high strength, molded three bushel polyethylene tubs which slide out for dumping.

2.10.3 Grass catcher system tips up for access to engine and drive belt compartments.

2.10.4 Fill Indicator: Clear polycarbonate window in top of grass catcher.

2.11 DIMENSIONS

2.12.1 Overall Width:
Without deck - 42.25 in. (107.3 cm),
w/44" Rear Discharge Deck - 45.0 in. (114.3 cm)
w/52" Rear Discharge Deck - 53.0 in. (134.6 cm)
w/52" Side Discharge Deck;
with deflector up: 53.0" (134.6 cm)
with deflector down: 62.7" (159.3 cm)

2.12.2 Overall Length (with rear caster wheels pivoted forward):

Without deck - 76.5 in. (194.3 cm)

w/44" deck - 93.75 in. (238.0 cm)

w/52" decks - 97.75 in. (248.1 cm)

2.12.3 Overall Height:

52 7/8" (134.3 cm)

2.12.4 Wheel Base:

48.5 in. (123.2 cm)

2.12.5 Tread Width:

Drive wheels - 32.25 in. (81.9 cm), center of tire to center of tire.

2.12.6 Curb Weight:

Tractor unit - 685 lb. (311 kg)

44" Rear Discharge Deck - 245 lb. (111.4 kg)

52" Rear Discharge Deck - 320 lb. (145.5 kg)

52" Side Discharge Deck - 305 lb. (138.7 kg)

3. ASSEMBLY INSTRUCTIONS

3.1 UNCRATE TRACTOR AND CUTTER DECK.

3.2 INSTALL DRIVE WHEELS.

Mount drive wheels with the valve stem to the outside of the unit. Secure using four (4) 1/2-20 wheel nuts for each wheel. Inflate tires to 13 psi (90 kPa).

3.3 INSTALL REAR CASTER WHEEL.

Use the 1/2-13 x 9 bolt, lockwasher and nut to mount the single caster wheel.

Inflate single wheel tire to 13 psi (90 kPa).

3.4 INSTALL GRASS CATCHER WINDOW.

3.4.1 Lay a bead of clear silicone sealant on top side of catcher, around the edges of the 10" x 12" hole.

3.4.2 Install window to top side of catcher top using eight (8) 3/16 x 3/8 pop rivets with backup washers (head of rivet to *top* and washer backups to *bottom*).

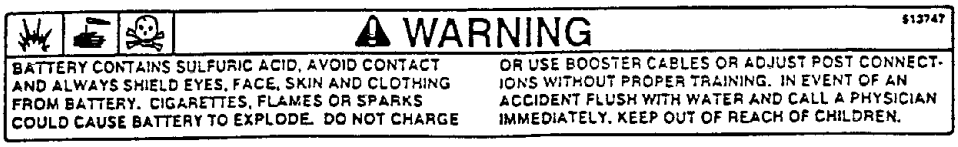
3.5 PREPARE DECK FOR INSTALLATION (rear discharge decks).

Install discharge tube assembly to deck with four (4) #10-24 x 1/2 carriage bolts and nylock nuts provided in bolt bag. ***Install with nut to top.***

3.6 SERVICE ENGINE.

If engine is shipped without oil, fill to the appropriate level with SAE 10W-30 or 10W40, API service class SF or SG for operating in temperatures above 0° F (-18° C). See Engine Operator's Manual.

3.7 SERVICE BATTERY. Machine is shipped with battery dry.



3.7.1 Remove battery from machine. Tilt grass catcher frame up to gain access to battery. ***Disconnect*** battery cables - ***negative(black) cable first***. Remove hold-down plate and lift battery out.

3.7.2 Place battery on a level surface and remove vent caps.

3.7.3 Fill cells with battery grade sulfuric acid (1.625 specific gravity) to halfway between top of separators and bottom of vent well.

⚠ DANGER

- **Flames or sparks could cause the battery to explode. Always shield eyes and face from battery.**

3.7.4 Check acid temperature and state of charge:

a) Acid temperature must be at least 80° F (26.7° C). (Put battery thermometer in center cell.)

b) State of charge must be good.

1) Check with electrical battery tester according to instructions on the tester,

OR

2) Use a battery hydrometer - specific gravity must be at least 1.250.

3.7.5 If acid temperature is not 80° F (26.7° C) or state of charge is not good, charge at 15 amps(20 amp maximum). Slow charging is permissible. ***ACID TEMPERATURE MUST NEVER EXCEED 125° F (51.7° C) WHILE CHARGING.***

3.7.6 After charging, add battery acid up to the bottom of vent wells and install vent caps. Prior to installation, check battery with a hi-rate load tester following the printed instructions on the tester ***"State of Charge"*** and ***"Condition"*** must be indicated as ***"GOOD"*** or ***"OK"***.

3.7.7 Install battery in machine and secure hold-down.

⚠ CAUTION

- **Be sure ignition switch is "OFF" and key is removed from ignition. Sparks could cause an explosion or moving parts could accidentally engage causing personal injury.**

Connect battery cables - ***positive (red) cable first***, then the negative (black) cable. Slip insulator boots over terminals.

3.8 INSTALL PTO SHAFT

Install the PTO shaft to tractor and secure with two (2) 3/8" setscrews (apply Loctite "Threadlocker 242" or equivalent to threads of setscrews). Make sure the woodruff key is in place.

3.9 INSTALL DECK TO TRACTOR

3.9.1 Align sleeves on rear of deck support with pivot pins on front of tractor and begin to slide in place.

NOTE: An easy way to do this is to support the deck and the discharge chute with 4" x 4" blocks (or equivalent). Release the drive wheel release valves on the hydro-static pumps (See Section 4.1.10) and roll tractor to deck.

Chute must be aligned with ring on blower panel (rear discharge decks) and the rectangular PTO shaft halves must be aligned to slide together. Install two (2) hair pins (provided in deck bolt bag) into pivot points to secure deck.

3.9.2 Install deck support springs. With deck still on the blocks, place a chain link onto one of the hooks located on the underside of the front tractor frame. Slide the spring cover over the spring and attach one end of the spring to the chain link. Using one of the deck support rods, stretch the spring and secure it over the appropriate hook on the deck support. Snap together the ends of the spring covers so they cannot slide off the springs. Repeat procedure on remaining springs.

3.9.3 Adjust cutting height of deck (See Section 5.2.1).

4. OPERATION INSTRUCTIONS

4.1 CONTROLS

4.1.1 Familiarize yourself with all controls before operating the mower.

4.1.2 Motion Control Levers: Located on each side of the steering console. The left lever controls the flow of hydraulic oil from the left hydrostatic pump to the left drive wheel motor. The right lever controls the flow of hydraulic oil from the right hydrostatic pump to the right drive wheel motor.

Movement of the ***left lever forward*** will cause the ***left drive wheel*** to rotate in a forward direction. Movement of the ***right lever forward*** will cause the ***right drive wheel*** to rotate in a forward direction. To ***stop*** forward travel, pull the levers back until a resistance is felt, this is the neutral position.

Pulling the ***levers back*** from the neutral position will cause the respective drive wheels to rotate in a ***reverse*** direction.

By moving both levers an equal amount forward or back from the neutral position the machine can be caused to move forward or backward in a straight line.

To ***turn left*** while moving forward, move the ***left lever*** back toward neutral to slow the left drive wheel.

To ***turn right*** while moving forward, move the ***right lever***

back toward neutral.

To make a ***zero turn*** to the ***left***, pull the left lever back beyond neutral while holding the right lever slightly ahead of neutral.

To make a ***zero turn*** to the ***right***, pull the right lever back beyond the neutral position while holding the left lever slightly ahead of the neutral position.

To turn to the left while backing, move the left lever forward toward neutral. To turn to the right while backing, move the right lever forward toward neutral.

When parking brake is engaged, motion control levers can be moved but will not function.

⚠ CAUTION

- **Use caution when making turns. Slow the machine down before making sharp turns. Unit can be caused to spin very rapidly by positioning one lever to much ahead of the other.**

4.1.3 PTO Engagement Lever: Located on front of right fender. ***Lever engages both the cutting blades and the grass catcher blower.*** Moving the lever ahead will engage the PTO and moving to the rear will disengage the PTO. ***Operator must be in the seat*** when PTO is engaged or engine will stop.

4.1.4 Choke Control: Located at rear of left fender. Choke is used to aid in starting a cold engine. "Off" position is to the rear and "ON" position to the front. ***DO NOT*** run a warm engine with choke in the "ON" position.

4.1.5 Throttle Control: Located on left fender just ahead of the choke control. Throttle is used to control engine speed. Moving throttle ahead will increase engine speed and moving to the rear will decrease engine speed.

4.1.6 Brake Lever: Located on the front of the left fender. Brake lever engages a parking brake on the drive wheels and also locks the hydro-static drive system in neutral.
Moving the lever ***rearward*** will ***engage*** the brake. To ***disengage*** brake, ***pull back on lever, lift finger latch*** and ***move brake ahead.*** ***Operator must be in the seat*** when brake is disengaged or engine will stop.

When parking on a steep slope, the wheels must be chocked or blocked in addition to the brake being engaged. The unit must be tied down and brake engaged when transporting.

4.1.7 Ignition Switch: Located on the steering console just below the steering levers. The ignition switch is used to start and stop the engine. The ignition switch has three positions "OFF", "ON" and "START". Insert key into switch and rotate to the right to the "ON" position.

Rotate to the right to the next position to engage the starter (key must be held against spring pressure in this position). ***Operator must be in seat with brake engaged and PTO disengaged to start engine.***

4.1.8 Hour Meter: Located on the steering console just below the steering levers. The hour meter records the number of hours the engine has run. If the ignition switch is left on without the engine running, the hour meter will not run.

4.1.9 Fuel Shut-Off Valve: Located on left side of machine, directly to the rear of the fuel tank. The fuel shut-off valve is used to shut off the fuel when the machine will not be used for a few days; when parking inside a building, or during transport to and from the job.

Rotate valve 1/4 turn clockwise to shut fuel off.
Rotate valve 1/4 turn counterclockwise to turn fuel on.

Valve is off when valve handle is horizontal (perpendicular to fuel line).
Valve is on when handle is vertical(parallel to fuel line).

4.1.10 Drive Wheel Release Valves: Located on top right front corner of hydrostatic pumps. Tilt seat up to gain access to levers. Drive wheel release valves are used to release the hydrostatic drive system to allow the machine to be pushed without the engine running. With a 5/8 wrench, turn both valves one turn counter-clockwise to release drive system. Turn clockwise to reset system. ***DO NOT over tighten.***

DO NOT tow machine.

4.2 PRE-START

4.2.1 Fill fuel tank. For best results use only clean, fresh regular grade ***unleaded*** gasoline with an octane rating of 87 or higher. Regular grade leaded gasoline may also be used; however, combustion chamber and cylinder head will require more frequent service. See Engine Owner's Manual.

NOTE: Fuel tank may appear loose at setup, however, once fuel is added in tank, tank will slowly expand to fit tank straps.

DO NOT add oil to gasoline.

DO NOT overfill fuel tank. Leave room for fuel to expand.

4.2.2 Make sure you understand the controls, their locations, their functions, and their safety requirements.

4.2.3 Refer to Maintenance Section and perform all the necessary inspection and maintenance steps.

4.3 MOWING

4.3.1 Open fuel shut-off valve.

4.3.2 Starting Engine: ***Operator must be in seat*** with the ***brake engaged***, the ***PTO disengaged,*** and the ***grass catcher frame down*** to start machine.

On a ***cold*** engine, place the ***throttle midway*** between the "SLOW" and "FAST" positions and move ***choke*** to the "ON" position. Turn ignition switch to the "start" position. Release the switch as soon as the engine starts.

After starting a cold engine, gradually return choke to the "OFF" position as the engine warms up.

On a *warm* engine, place the *throttle midway* between the "SLOW" and "FAST" positions and place the *choke* in the "OFF" position.

IMPORTANT: *DO NOT* crank the engine continuously for more than ten (10) seconds at a time. If the engine does not start, allow a 60 second cool-down period between starting attempts.

Failure to follow these guide lines can burn out the starter motor.

4.3.3 Engaging PTO: The PTO lever engages the cutting blades and the grass catcher blower (on grass catcher models). Be sure that *all* persons are *clear* of these areas *before engaging* PTO lever.

Set throttle to "fast" position. Move PTO lever forward with a quick positive motion. *DO NOT* slip belts. If belts do slip, it may indicate that either the deck or blower is plugged. Shut off engine, remove key and set brake before unplugging.

4.3.4 Stopping PTO: Move *PTO lever* to the *rear* to stop PTO.

4.3.5 Stopping Engine: Bring unit to a *full stop*. *Disengage PTO* and *set parking brake*. Move throttle to "SLOW" position. Allow engine to run at idle for 30 seconds. Rotate ignition switch to "OFF" position. Remove the key to prevent children or other unauthorized persons from starting engine. Close fuel shut-off valve when machine will not be used for a few days, when parking inside a building, or when transporting the unit.

4.3.6 Dumping Grass Catcher:
When grass catcher becomes full, disengage PTO and move to the dumping area. Shut off engine and set brake. Lift the grass catcher hood and slide out the filled tubs; dump into truck, dumpsters or other dumping location.

⚠ CAUTION

- **Keep hands away from hinge area when opening or closing grass catcher lid. Use caution when closing lid to avoid pinching fingers between the lid and tubs. Hold lid open when cleaning grass from top of chute.**

Tip grass catcher frame and remove all grass clippings from grass catcher chute and blower discharge chute.

⚠ WARNING

- **Engine must be shut off and key removed before reaching hands into blower discharge chute.**

Replace tubs and close hood to hold them in place.

Use window in top of grass catcher to determine fullness of grass catcher. Dump grass catcher tubs before they become completely filled. If mowing is continued after catcher

is filled, plugging will occur. Grass clippings must then be cleaned from grass catcher chute, blower discharge chute and possibly deck discharge chute.

4.4 TRANSPORTING

Use a heavy duty trailer to transport the machine.

Lock brake and block wheels.

Securely fasten the machine to the trailer with straps, chains, cable, or ropes. Be sure that the trailer has all necessary lighting and marking as required by law.

Secure safety chain.

5. MAINTENANCE & ADJUSTMENTS

5.1 PERIODIC MAINTENANCE

⚠ CAUTION

- **Disengage blade clutch, shut off engine and remove key before servicing, cleaning or making adjustments.**
- **The engine can become very hot. Always allow the engine to cool before servicing or making repairs around the engine area.**

5.1.1 Check engine oil level:

Service Interval: Daily

a) Make sure engine is stopped and on a level surface.

b) Check with engine cold.

c) Raise grass catcher and engine compartment cover.

d) Clean area around dipstick. Remove dipstick and wipe oil off. Reinsert the dipstick and push it all the way down into the tube. Remove the dipstick and read the oil level.

e) If the oil level is low, wipe off the area around the oil fill cap, remove cap and fill to the "F" mark on the dipstick. Use oil as specified in Engine Owner's Manual.
DO NOT overfill.

IMPORTANT: *DO NOT* operate the engine with the oil level below the "L" mark on the dipstick, or over the "F" mark.

5.1.2 Clean engine air cooling system:

Service Interval: Daily

a) Stop engine and remove key.

b) Clean all debris from rotating engine air intake screen and from around engine shrouding.

c) Inspect rubber engine baffles for proper fit. Replace if necessary. Baffles are necessary to prevent cooling air circulation and prolong engine life.

5.1.3 Inspect belt compartment fan:

Service Interval: Daily

a) Stop engine and remove key.

b) Clean all debris from around belt compartment fan which is attached to engine pulley. Proper operation of this fan is necessary to insure maximum belt life.

5.1.4 Clean grass build-up under deck.

Service Interval: Daily

a) Stop engine and remove key.

b) Lift deck and secure in raised position with hold-up rods. First remove hold-up rods from storage position on gearbox cover. Hook one rod into one of the two slots in the top of the deck support frame crossmember. Raise that side of the deck by lifting on the support frame near the caster wheel. Hook other end of rod into slot on side of steering console. Repeat procedure for the other side of the deck.

c) Clean out any grass build-up from underside of deck and in deck discharge chute.

d) Lower deck to the ground one side at a time as in Step "b)"and store hold-up rods.

5.1.5 Clean grass build-up in blower.

Service Interval: Daily

a) Stop engine and remove key.

b) Lift grass catcher.

c) Inspect blower and remove any grass build-up.

5.1.6 Check mower blades.

Service Interval: Daily

a) Stop engine and remove key.

b) Lift deck and secure in raised position as in 5.1.4, Step "b".

c) Inspect blades and sharpen or replace as required.

d) Torque blade bolts to 75-80 ft.lbs. Be sure the spring disk washer cone is installed toward the bolt head (See Figure 1).

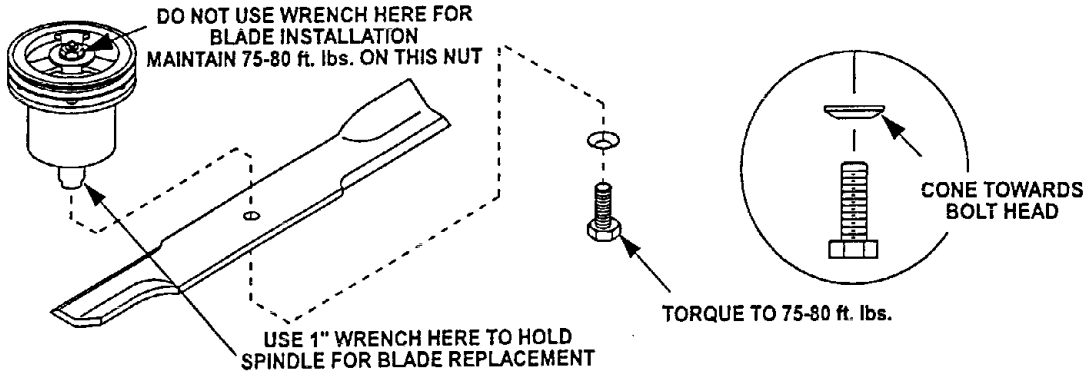


FIG. 1
BLADE BOLT INSTALLATION

5.1.7 Check safety interlock system.

Service Interval: Daily

a) Check starting circuit. Starter should crank with *operator in seat*, parking brake *engaged* and *PTO disengaged*.

Try to start with *operator out of seat*, parking brake *engaged* and *PTO disengaged* - starter *must not crank*.

Try to start with *operator in seat*, parking brake *disengaged* and *PTO disengaged* - starter *must not crank*.

Try to start with *operator in seat*, parking brake *engaged* and *PTO engaged* - starter *must not crank*.

b) Check kill circuits. Run engine at one-third throttle, then *disengage* parking brake and *raise off* of seat (but do not get off of machine) engine *must stop* after 1/2 second has elapsed (seat has time delay kill switch).

Run engine at one-third throttle then *engage PTO* and *raise off* of seat (but do not get off of machine) engine *must stop* after 1/2 second has elapsed.

Again, run engine and tip grass catcher, engine *must stop* whether operator is *on seat or not*.

NOTE: If machine *does not* pass any of these tests, do not operate. Contact your authorized EXMARK SERVICE DEALER.

⚠ CAUTION

- **It is essential that operator safety mechanisms be connected and in proper operating condition prior to use for mowing.**

5.1.8 Check for loose hardware

Service Interval: Daily

a) Stop engine and remove key.

b) Visually inspect machine for any loose hardware or any other possible problem. Tighten hardware or correct the problem before operating.

5.1.9 Service air cleaner

Service Interval: 25 hrs.
more often under severe conditions.

a) Stop engine and remove key.

b) Raise grass catcher and engine cover.

c) Loosen wing nut and remove air cleaner compartment cover.

d) Remove foam pre-cleaner element and wash in warm water with detergent, then rinse until all traces of detergent are eliminated. Squeeze out excess water *(DO NOT wring)*. Air dry. Saturate with engine oil and squeeze out excess oil.

e) Check paper element. *Gently* tap the flat side of the paper element to dislodge any dirt. *DO NOT* wash. Replace if dirty, bent or damaged.

f) Reinstall foam pre-cleaner to paper element, then reinstall paper element and cover.

5.1.10 Change engine oil:

Service Interval: 100 hrs.

NOTE: Change oil and filter after first five(5) hrs. of operation

a) Stop engine and remove key.

b) Raise grass catcher and engine compartment cover.

c) Drain oil while engine is warm from operation.

d) Remove the oil drain plug from the under- side of the engine. Allow oil to drain then replace drain plug.

e) Replace the oil filter every other oil change. Clean around oil filter and unscrew filter to remove. Before reinstalling new filter, apply a thin coating of oil on the surface of the rubber seal. Turn filter clockwise until rubber seal contacts the filter adapter then tighten filter an additional 2/3 to 3/4 turn.

f) Clean around oil fill cap and remove cap. Fill to specified capacity and replace cap. Use oil as specified in Engine Owners Manual. *DO NOT* overfill.

g) Start the engine and check for leaks.

5.1.11 Check hydraulic oil level:

Service Interval: 25 hr.

a) Stop engine.

b) Tilt seat up and secure with support rod.

c) Clean area around hydraulic reservoir cap and remove cap. Oil level should be to the top of the baffle inside the tank. If not, add oil.
Use only Mobil 1 15W-50 synthetic motor oil.

⚠ CAUTION

- **Safely relieve all pressure in the hydraulic system before disconnecting lines or before performing any work on the hydraulic system.**

⚠ CAUTION

- **Make sure all the hydraulic fluid connections are tight and all the hydraulic hoses and lines are in good condition before applying pressure to the system.**

⚠ CAUTION

- **Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, *NOT HANDS* to search for leaks.**

⚠ CAUTION

- **Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.**

5.1.12 Check tire pressures:

Service Interval: 25 hrs.

a) Stop engine and remove key. Check air pressure in tires; recommended tire pressure is: rear, 12 to 14 psi; casters, 22 psi.

b) Inflate tires to pressures stated above. Adjust tire pressures within above range to try to make tire circumferences match as closely as possible.

5.1.13 Check battery electrolyte level:

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Raise grass catcher.

c) Remove vent caps from battery. If needed, fill with water (distilled is recommended) to bottom of vent wells and replace vent caps.

d) See Assembly Section for servicing a new battery.

5.1.14 Check condition of belts:

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Raise grass catcher and engine compartment cover to inspect primary and secondary drive belts.

c) Tilt seat and secure with prop rod and lift rubber flap to inspect the positive drive belt (for pump shaft).

d) Disconnect deck support springs and lift up floor pan to inspect deck drive belt.

e) See Section 5.2.2 - 5.2.6 for belt adjustment.

5.1.15 Lubricate grease fittings:

Service Interval: Refer to chart.

a) Stop engine and remove key.

b) Lubricate fittings with one to two pumps of SAE No. 2 multi-purpose gun grease (see recommended lubricants following the lubrication chart).

Refer to the following chart for fitting locations and lubrication schedule.

LUBRICATION CHART

FITTING LOCATIONS	INITIAL PUMPS	NO. of PLACES	SERVICE INTERVAL
1. Front Casters	12	2	Daily
2. Front Caster Pivots	2	2	Daily
3. Deck Pivots	2	4	Weekly
4. Cutter Housing Spindles	10	3	†Weekly
5. Deck Drive Belt Idler	1	1	Weekly
6. PTO Shaft	2	3	Weekly
7. Brake Brackets	1	4	Weekly
8. Brake Handle	1	1	Weekly
9. Rear Caster	12	1	Weekly
10.Transfer Sheave Cntrl Arm	1	2	Weekly
11.Rear Caster Pivot	2	1	Weekly

† Under severe cutting conditions, two pumps of grease twice weekly may be more beneficial.

Recommended SAE No. 2 Greases:

Pennzoil #705; Pennzoil #707L; Pennzoil #TTM 302

Mobil Grease CM-P; Mobilith SHC220;
Mobil Grease Special; Mobilith SHC460
(Available at Mobil Stations)

Ronex MP - (Available at Exxon Stations)

Shell Alvania #2 - (Available at Shell Stations)

Super Lube M EP #2 or Super Stay M #2 (Available at Conoco Stations)

5.1.16 Lubricate seat switch actuator:

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Tilt seat up and secure with prop rod.

c) Apply light oil to seat switch actuator rod.

5.1.17 Lubricate grass catcher lid hinges (grass catcher models):

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Lift grass catcher lid and remove tubs.

c) Lubricate hinge links and bushings with a spray type lubricant or light oil.

⚠ CAUTION

- **Use caution when lubricating hinges to avoid pinching fingers. Hold lid open with one hand when reaching into hinge area.**

5.1.18 Lubricate brake handle trigger:

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Lubricate sliding surfaces of brake handle with a spray type lubricant or light oil.

5.1.19 Lubricate neutral lockout rod bushings:

Service Interval: 25 hrs.

a) Stop engine and remove key.

b) Tilt seat up and secure with prop rod.

c) Lubricate bronze bushings on each end of neutral lockout rod with a spray type lubricant or light oil.

5.1.20 Remove engine shrouds and clean cooling fins:

Service Interval: 50 hrs.

a) Stop engine and remove key.

b) Raise grass catcher and engine compartment cover.

c) Remove cooling shrouds from engine and clean cooling fins. Also clean dust, dirt and oil from external surfaces of engine which can cause improper cooling.

d) Make sure cooling shrouds are reinstalled. Operating the engine without cooling shrouds will cause engine damage due to overheating.

5.1.21 Check deck gearbox lubricant:

Service Interval: 50 hrs.

Peerless Gearbox: Remove plug in upper corner of front cover plate of gearbox. Check level of oil with a bent piece of wire. Oil level should be .5 in. (13 mm) below bottom edge of hole. Fill as required with SAE 90 weight extreme pressure gear oil. Do not overfill. Do not over tighten plug.

5.1.22 Check spark plugs:

Service Interval: 100 hrs.

a) Remove spark plugs, check condition and reset gaps, or replace with new plugs. See Engine Owners Manual.

5.1.23 Change fuel filter:

Service Interval: As Required

a) A fuel filter is installed in the fuel line between the fuel tank and the engine. Replace when necessary.

5.1.24 Change hydraulic system filter:

Service Interval: After First 250 hrs. Then yearly thereafter

a) Place unit on a level surface, stop engine and remove key. Tilt seat up and secure with prop rod.

b) Carefully clean area around filter. It is important that no dirt or contamination enters the hydraulic system.

c) Unscrew filter to remove and allow oil to drain from reservoir. Before re-installing new filter, fill it completely with Mobil 1 15W-50 and apply a thin coat of oil on the surface of the rubber seal. Turn filter clockwise until rubber seal contacts the filter adapter. Do not tighten yet. Use only Exmark filter element Part No. 513211.

d) Fill reservoir as stated in Section 5.1.11.

e) Loosen filter 1/2 turn and allow a small amount of oil to leak from the oil filter (this allows air to be purged from the oil filter and supply hose from the hydraulic reservoir). Turn filter clockwise until rubber seal contacts the filter adapter. Then tighten the filter an additional 2/3 to 3/4 turn. Run machine to allow any other air to be purged from the hydraulic system and recheck the oil level.

f) ***DO NOT*** change hydraulic system oil (*except what can be drained when changing filter*) unless it is felt that oil has been contaminated. **Changing oil unnecessarily could damage the hydraulic system by introducing contaminates into the system.**

5.2 ADJUSTMENTS

⚠ CAUTION

- **Disengage blade clutch, shut off engine and remove key before servicing, cleaning or making adjustments.**

⚠ CAUTION

- **The engine can become very hot. Always allow the engine to cool before servicing or making repairs around the engine area.**

5.2.1 Cutting height adjustment.

a) Stop engine and remove key.

b) Place the correct spacer onto each of the support pins (See table below).

Deck	Rear Pin Spacer Part No.	Rear Pin Spacer Thickness	Front Pin Spacer Part No.	Front Pin Spacer Thickness
44" Rear Discharge	805267	3/32"(2.4 mm)	513338	3/16"(4.8 mm)
52" Rear Discharge	805267	3/32"(2.4 mm)	513338	3/16"(4.8 mm)
52" Side Discharge	513916	5/8"(15.5 mm)	303314	1/2"(12.7 mm)

c) Raise deck and insert hairpin clip into the correct support pin holes to give the desired cutting height (See Figure 2).

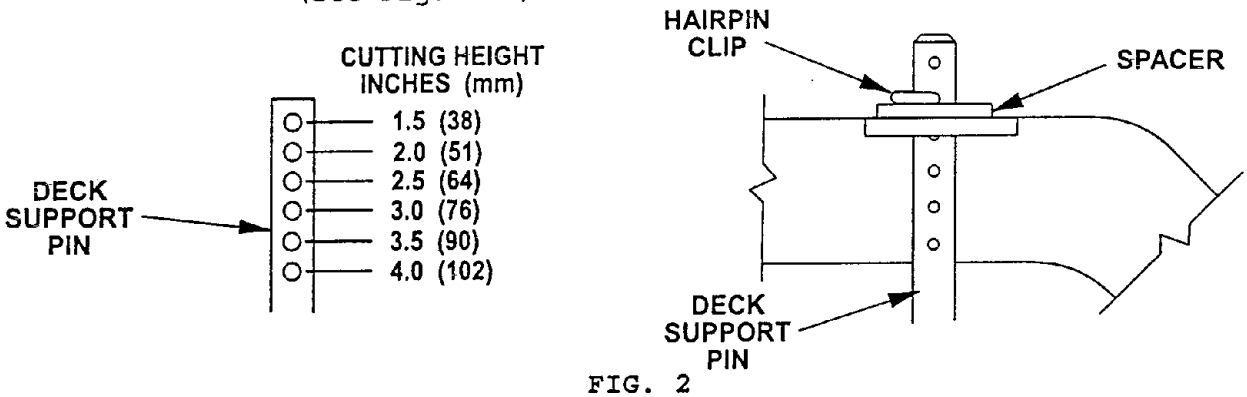


FIG. 2
CUTTER HEIGHT ADJUSTMENT

d) The 52" decks use anti-scalp rollers. For maximum deck flotation, place rollers in one of the positions shown in Figure 3. Roller should maintain 1/4 in.(6.4 mm) clearance to ground.

DO NOT adjust rollers to support deck.

Be sure ***bolt is tightened properly*** or loss of anti-scalp roller may result.

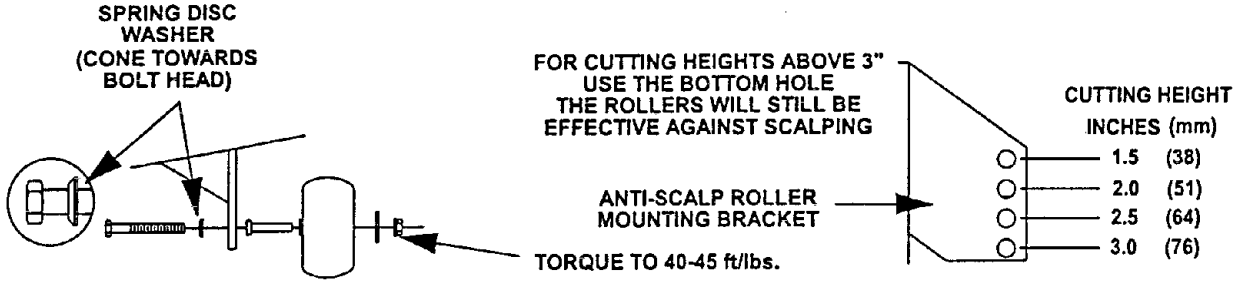


FIG. 3
ANTI-SCALP ROLLER ADJUSTMENT

5.2.2 Primary drive belt tension adjustment.

a) Stop engine and remove key.

b) Disengage PTO lever.

c) The primary drive belt is the belt that runs from the engine pulley to the transfer pulley to the pump drive shaft pulley. Adjustment is by the 3/8 bolt on the left

side of the frame just forward of the top fuel tank attaching strap. Begin with the bolt just tight enough to take the slack out of the spring and linkage (spring should not be extending yet). Tighten bolt 7-1/4 turns to obtain proper primary belt tension.

5.2.3 Secondary drive belt tension adjustment.

a) Stop engine and remove key.

b) The secondary drive belt is the belt that runs from the transfer pulley to the PTO drive shaft pulley to the blower pulley. It is just to the front of the primary drive belt.

Adjustment is made by the turnbuckle on the linkage underneath the belt. First loosen the locknut. With PTO disengaged, measure length of spring connecting the link from the PTO handle to the top bellcrank. (This spring is located under the right fender.) Adjust the turnbuckle until spring extension is 1-1/8" to 1-1/4" longer than previous measurement with the PTO engaged. Tighten locknut.

5.2.4 Positive drive belt tension.

a) Stop engine and remove key.

b) Tilt seat and secure with prop rod.

c) Remove the cover over the positive pump drive belt.

d) Adjust belt tension by loosening the two 3/8 bolts and nuts securing the left pump to panel. Slide pump in slots to obtain proper belt tension and retighten bolts. When tensioned properly, belt should deflect 1/8 inch when a two pound force is applied at the midspan of the belt. ***DO NOT*** over-tension belt.

e) Replace cover.

5.2.5 Belt guide adjustment.

a) Stop engine and remove key.

b) Raise grass catcher and engine compartment cover.

c) Engage PTO lever.

d) Four belt guides are used on the secondary drive belt. Adjust belt guides with the PTO lever ***engaged***. Adjust the belt guides so pins are 1/4" (.6 mm) away from the belt (See Figure 4).

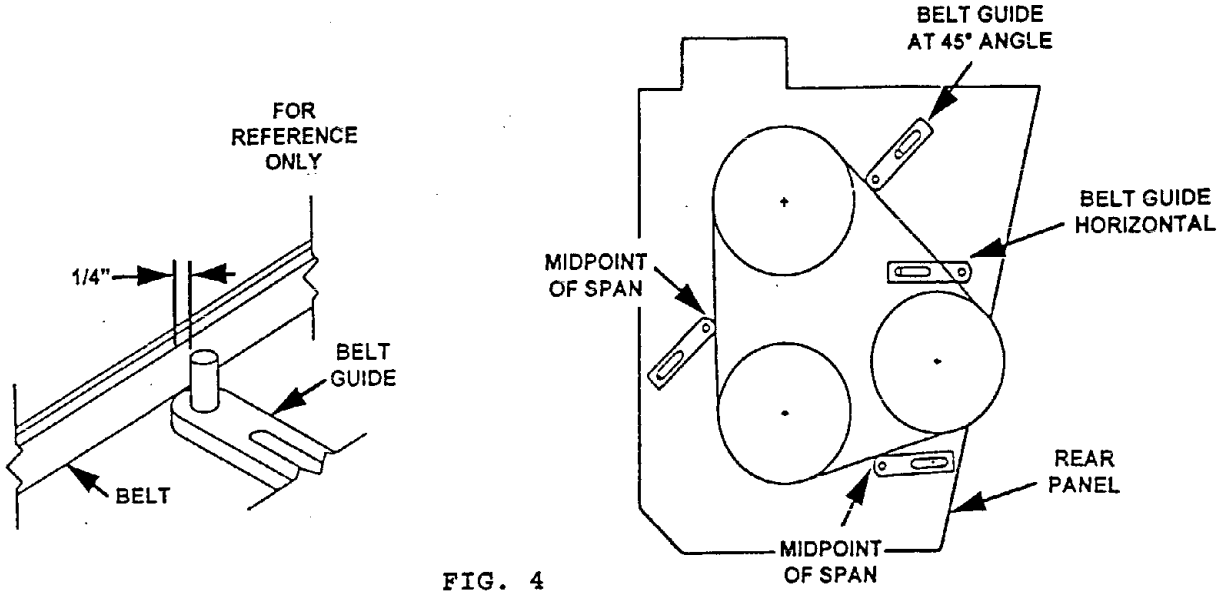


FIG. 4
BELT GUIDE POSITIONING

5.2.6 Deck belt tension.

a) The deck belt is tensioned by a self-tensioning idler. No adjustment is necessary.

5.2.7 Steering and motion control linkage and neutral lock adjustment.

a) This adjustment must be made with the drive wheels turning. First raise the frame and block up so that drive wheels can rotate freely.

⚠ CAUTION

- **When it is necessary to raise the deck or mower for service or maintenance, *DO NOT* rely solely on mechanical or hydraulic jacks for support. Use adequate jack stands or equivalent support.**

b) Tilt the seat and secure with prop rod.

c) Remove the electrical connection from the brake safety switch, located on the left frame rail just behind the pump mount panel. Temporarily install a jumper wire across the terminals in the connector of the wiring harness.

d) Release brake lever.

e) Loosen locknut from the two ball joints which connect the override assemblies to the pump control arms. Loosen the four lock nuts securing the 1/4 x 1 carriage bolts to pump control arms and screw the carriage bolts *in* several turns (See Figure 5).

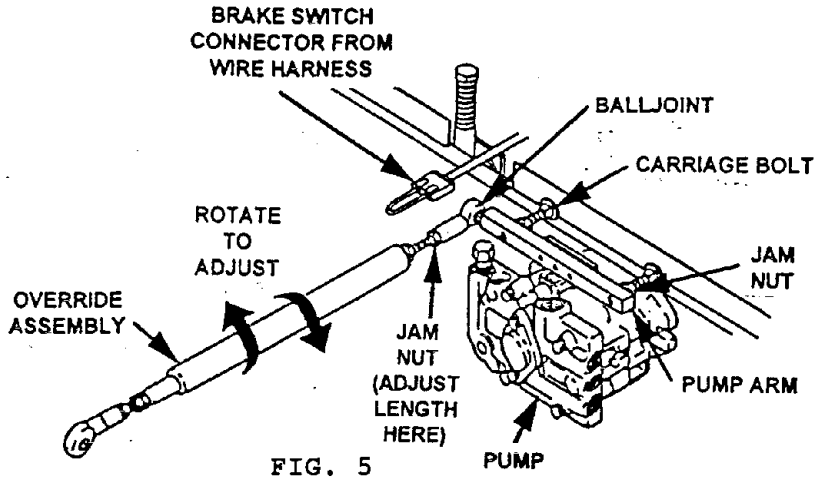


FIG. 5
MOTION CONTROL ADJUSTMENT

f) Start engine. Operator *must be in seat* to start engine. Open to 1/2 throttle.

g) Hold both motion control levers in neutral position (against neutral indicator spring). Adjust override assembly length by rotating the overrides until wheels stop turning.

Left override controls the left drive wheel and the right override controls the right drive wheel.

Open to full throttle and check that wheels remain stopped. Tighten lock nuts.

⚠ CAUTION

- **Keep clear of wheels and other moving parts when making these adjustments.**

h) Engage parking brake and adjust the four carriage bolts in the pump control arms until they contact the plates on the lockout rod. Rotate carriage bolts 1/4 a turn more and tighten lock nuts.

i) Restart engine, release brake and insure that wheels remain stopped. Readjust as required.

j) Reconnect electrical connection to brake safety switch.

5.2.8 Brake link adjustment.

a) Stop engine and remove key.

b) Adjust length of the adjustable link (connecting the brake lever to the arm on the lockout rod) until the left brake engagement arm depresses the brake safety switch by approximately 1/4 inch.

5.2.9 Adjust seat switch.

a) Adjust the seat actuator rod length to where the machine will shut off when the operator raises off the seat (with brake disengaged or PTO engaged) but will continue to run with operator in seat (a slight shift in weight should not shut machine off). Normal adjustment is when length of spring is 2.05" (52.1 mm) (with seat up).

NOTE: To prevent rough ground cut-outs the unit is equipped with a time delayed seat switch. When the operator raises off the seat the engine should stop after 1/2 second has elapsed.

b) To adjust seat switch, loosen locknut on bottom of the actuator rod (5/16 x 7" bolt) and adjust the nuts to move the actuator plate up or down on the rod.

⚠ CAUTION

- Be sure to shut engine off before making adjustments. Always allow engine time to cool before servicing or making repairs on or near the engine. Serious burns can be caused by hot metal.

5.2.10 Adjust throttle and choke lever tension.

a) Stop engine and remove key.

b) Tension in throttle and choke levers can be adjusted by adjusting the tightness of the lever pivot bolts.

6. TROUBLE SHOOTING

6.1 MOWER CUTS UNEVENLY.

a) Check drive tire pressures and tire circumferences. See 5.1.12. A more uniform cutting height may be obtained with higher tire pressure on rough terrain. A lower tire pressure provides more flotation.

b) Check deck support pins.

c) Hairpin clips must be in the same hole on each support pin.

d) Check blades tip to tip for straightness (they should be within 3/16" or one blade width from being in line.)

6.2 ENGINE WILL NOT START.

a) Be sure the throttle control is midway between the "SLOW" and "FAST" positions, and the choke is in the "ON" position for a cold engine or the "OFF" position for a warm engine.

b) Make sure there is fuel in the fuel tank and that the fuel valve is open.

c) Operator must be in the seat.
Be sure the seat switch is properly adjusted.
See Section 5.2.9.

d) Make sure the parking brake is set.

e) Check that the blades are disengaged.

f) Check that the spark plug wires are properly connected.

g) Check for loose or faulty wiring connections.

h) Check for corrosion at all wiring connections. Even minor corrosion may cause a faulty connection. Clean connector terminals thoroughly with electrical contact cleaner, apply dielectric grease and reconnect.

NOTE: When disconnecting electrical connectors *DO NOT* pull on the wires to separate the connectors.

i) Check parking brake for proper adjustment. See Section 5.2.8.

NOTE: After carefully checking the above steps, attempt to start the engine. If it does not start, contact your authorized Exmark service dealer.

⚠ CAUTION

- **It is essential that all operator safety mechanisms be connected and in proper operating condition prior to mower use.**

ENGINE TROUBLESHOOTING

When a problem occurs, do not overlook the simple causes. For example, starting problems could be caused by an empty fuel tank, spark plug wire not connected, fuel valve turned off, etc.

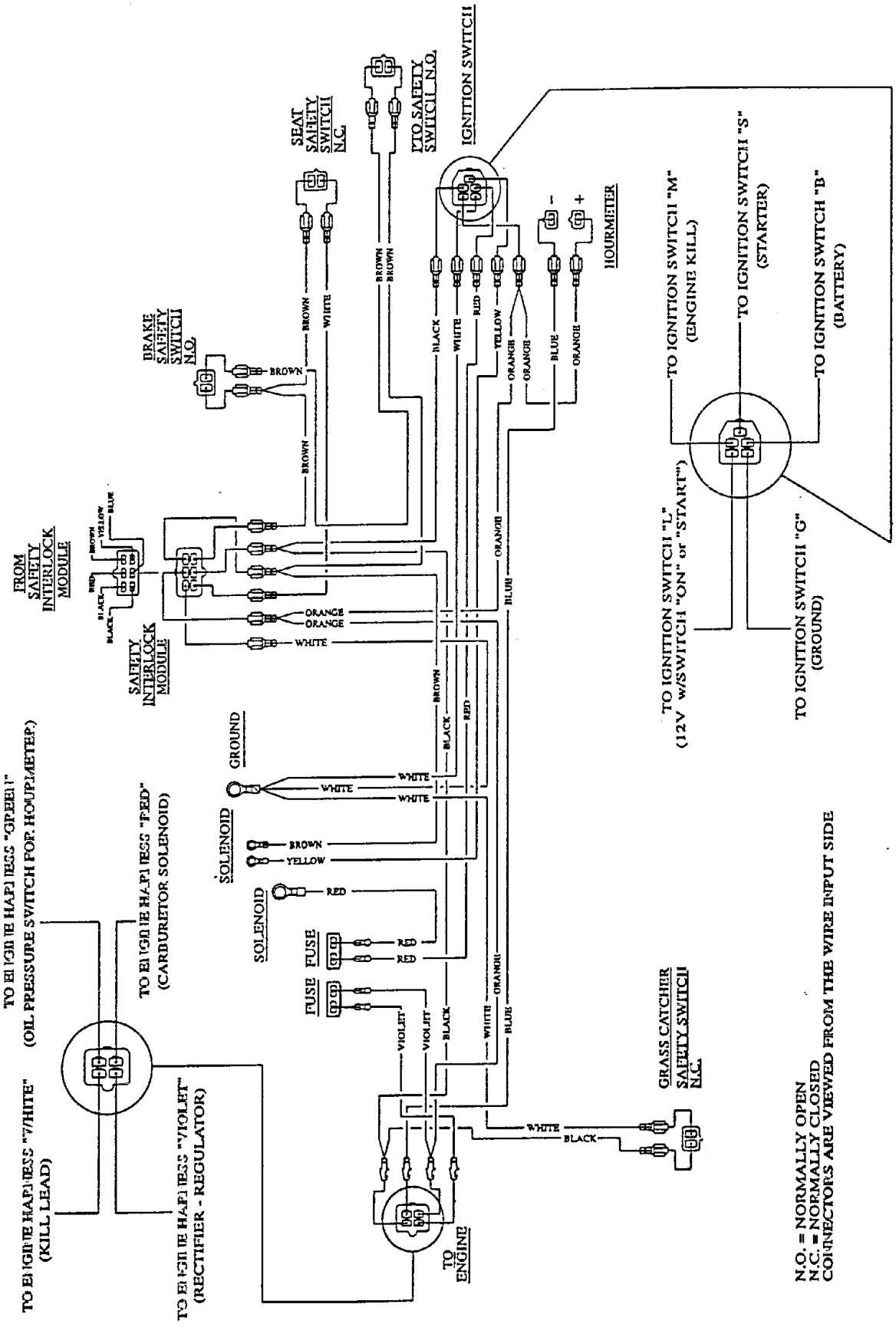
Do not attempt to service or replace major items or any items that call for special timing or adjustment procedures (governor, valves, etc.). Have this work done by your **Engine Servicing Dealer.**

The following table list some common causes of troubles.

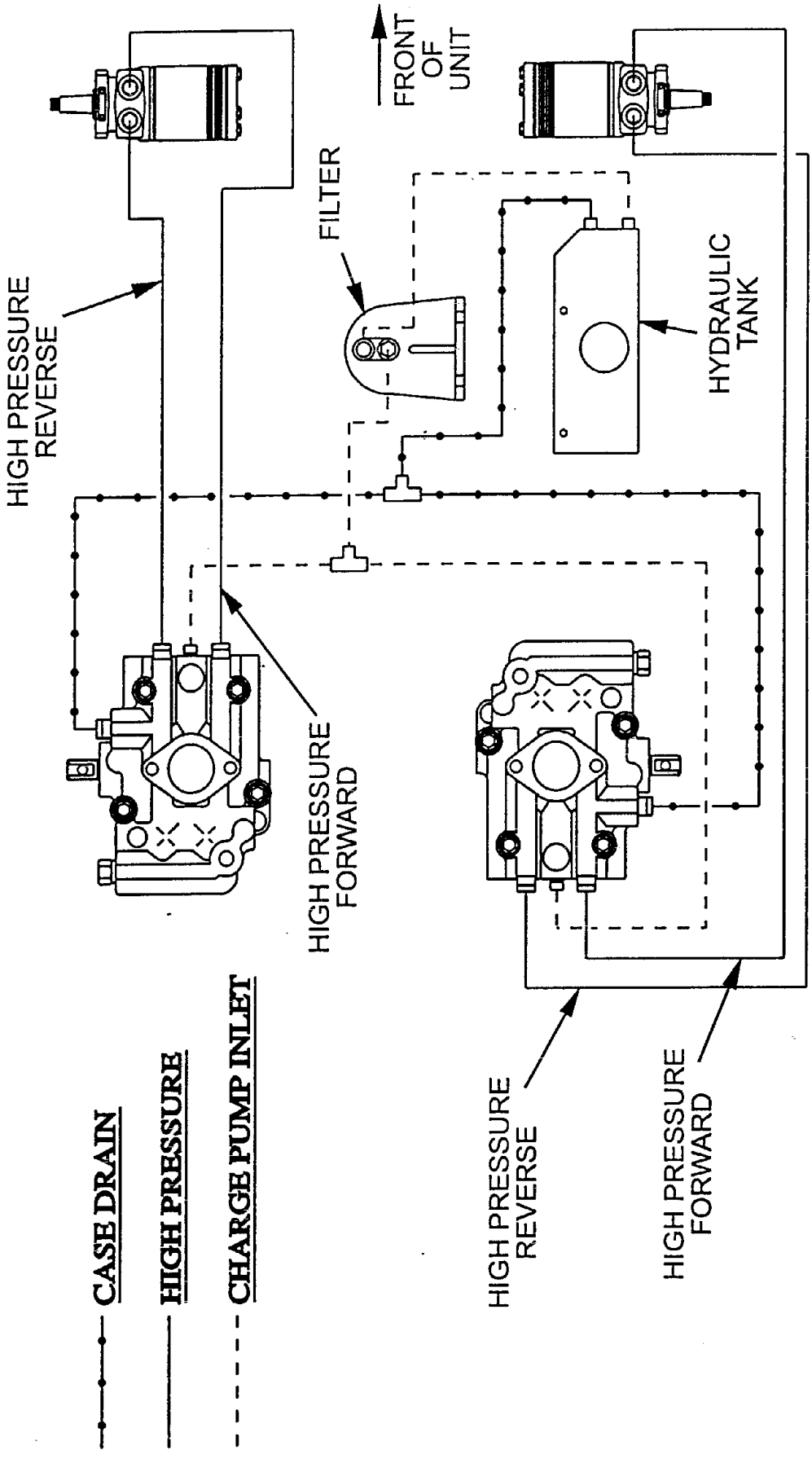
ENGINE TROUBLESHOOTING TABLE

PROBLEM	NO FUEL	IMPROPER FUEL	DIRT IN FUEL LINE	DIRTY AIR FILTER	FAULTY SPARK PLUG	ENGINE OVERLOADED	BLOCKED FUEL FILTER	INCORRECT OIL LEVEL	DIRTY AIR SCREEN
Will not start	X		X	X	X	X	X		
Hard starting	X	X	X	X	X	X	X		
Stops suddenly	X		X	X		X	X	X	X
Lacks power		X	X	X	X	X	X	X	X
Operates erratically		X	X	X	X	X	X		X
Knocks or pings		X				X			X
Skips or misfires		X	X	X	X				X
Backfires			X	X	X	X			X
Overheats			X	X		X		X	X
High fuel consumption				X	X	X			X

7. ELECTRICAL DIAGRAM



8. HYDRAULIC DIAGRAM



9. WARRANTY

Limited Warranty Exmark Commercial Turf Equipment Exmark Mfg. Co. Inc. ("Exmark") warrants on the terms and conditions herein, that it will repair, replace or adjust any part manufactured by Exmark and found by Exmark(in the exercise of its reasonable discretion)to be defective in factory material or workmanship.

This warranty is limited to one year from the date of original retail purchase (90 days for rental use) for any Exmark mower that is used for commercial or any other income producing purpose. The hydrostatic traction drive system will be warranted for two full years from date of original retail purchase against defects in materials or workmanship excluding hoses. Exmark Mfg will extend the Peerless 5-speed transmission manufacturer's warranty from 90 days to one year. Belts and tires are warranted for 90 days against defects in materials or workmanship.

The engine warranty is covered by its respective engine manufacturer. Please refer to the engine manufacturers warranty statement that is included in the literature packet. Exmark is not authorized to handle warranty adjustments on engines. Engine warranties should be referred to the nearest authorized service outlet of the engine manufacturer.

This warranty extends only to the original retail purchaser of the equipment. The warranty may not be assigned or transferred without the prior express written consent of Exmark. The warranty commences upon the date of the original retail purchase.

The Exmark turf equipment, including any defective part, must be returned to an authorized Exmark service dealer within the warranty period. The warranty shall extend to cost to repair or replace(as determined by Exmark) the defective part, including labor. The expense of delivering the mower to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. Exmark's responsibility in respect to claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Exmark mower. Proof of purchase may be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an authorized Exmark service dealer.

This warranty extends only to turf equipment operated under normal conditions and properly serviced and maintained. The warranty expressly does not cover: (i) any defects, damage or deterioration due to normal use, wear and tear, or exposure; (ii) normal maintenance services, such as oil change, cleaning, lubrication, adjustment; (iii) replacement of service items, such as oil, lubricants, spark plugs, belts, rubber hoses or other items subject to normal service replacement; (iv) damage or defects arising out of or relating to misuse, neglect, alteration, negligence or accident; (v) repair or replacement arising from operation of or use of the turf equipment which is not in accordance with operating instructions as specified in the operator's manual or other operational instructions provided by Exmark; (vi) repair or replacement arising as a result of any operation from turf equipment that has been altered or modified so as to, in the determination of Exmark, adversely affect the operation, performance or durability of the equipment or that has altered, modified or affected the turf equipment so as to change the intended use of the product; (vii) repair or replacement necessitated by use of parts, accessories

or supplies, including gasoline, oil or lubricants, incompatible with the turf equipment or other than as recommended in the operator's manual or other operational instructions provided by Exmark; (viii) repairs or replacements resulting from parts or accessories which have adversely affected the operation, performance or durability of the turf equipment; or (ix) damage or defects due to or arising out of repair of turf equipment by person or persons other than an authorized Exmark service dealer or the installation of parts other than genuine Exmark or Exmark recommended parts.

As a condition to this warranty, customer shall have read the operator's manual and shall have returned to Exmark, within the prescribed time, the enclosed warranty registration card.

The sole liability of Exmark with respect to this warranty shall be repair and replacement as set forth herein. Exmark shall have no liability for any other cost, loss or damage, including but not limited to, any incidental or consequential loss or damage. In particular, Exmark shall have no liability or responsibility for: (i) expenses relating to gasoline, oil or lubricants; (ii) loss, cost or expense relating to transportation or delivery of turf equipment from the location of owner or location where used by owner to or from any authorized Exmark service dealer; (iii) travel time, overtime, after hours time or other extraordinary repair charges or charge relating to repairs or replacements outside of normal business hours at the place of business of the authorized Exmark service dealer; (iv) rental of like or similar replacement equipment during the period of any warranty, repair or replacement work; (v) any telephone or telegram charges or travel charges; (vi) loss or damage to person or property other than that covered by the terms of this warranty; (vii) any claims for lost revenue, lost profit or additional cost as a result of a claim of breach of warranty; or (viii) attorney's fees.

There are no representations or warranties which have been authorized and provided to the buyer of the turf equipment, other than as set forth in this warranty. Any and all statements or representations made by any seller of this equipment, including those set forth in any sales literature or made orally by any sales representative, are superseded by the terms of this warranty. Any affirmation of fact or promise made by Exmark or any of its representatives to the buyer which relates to the goods that are the subject of this warranty shall not be regarded as part of the basis of the bargain and shall not be deemed to create any express warranty that such goods shall conform to the affirmation or promise.

THERE ARE NO UNDERSTANDINGS, AGREEMENTS, REPRESENTATIONS, OR WARRANTIES, EXPRESS OR IMPLIED (INCLUDING BUT NOT LIMITED TO ANY REGARDING THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), NOT SPECIFIED HEREIN, RESPECTING THE EQUIPMENT WHICH IS THE SUBJECT OF THIS WARRANTY.

This warranty applies to all Exmark turf equipment sold in the United States and Canada and intended to be used for commercial purposes.

SERVICE RECORD

Date	Description of Work Done	Service Done By

SERVICE RECORD

Date	Description of Work Done	Service Done By

NOTES

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