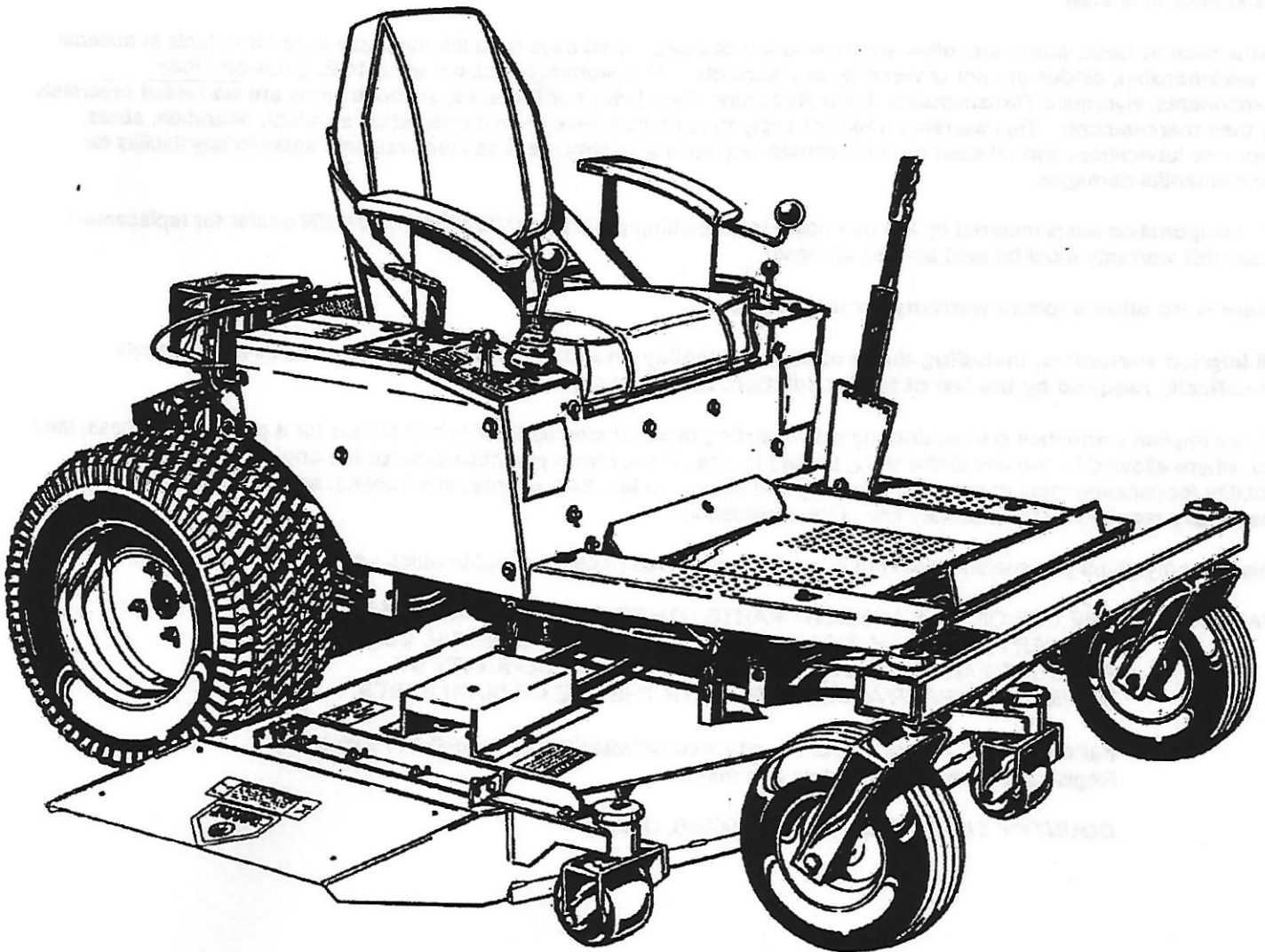


# Safety Instructions & Operators Manual

## **COMMERCIAL CLIPPER**

### **2203M & 2503M** **Zero Turn Radius Mower**



Congratulations for buying a *Commercial Clipper* product. Your *Commercial Clipper* Zero Turning Radius Riding Mower was designed and built to provide long and trouble free service. Keep in mind that it, like any other mechanical device, can be potentially dangerous if used improperly, and hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the equipment. Study this manual and pay special attention to the important Safety Precautions on pages 4-6. Following these instructions will help you continue to enjoy the trouble-free performance expected of the *Commercial Clipper* product.

## **COUNTRY CLIPPER LIMITED WARRANTY**

### **COMMERCIAL CLIPPER MODEL**

For one (1) year from the date of the original purchaser's purchase of a **COMMERCIAL CLIPPER** zero turn radius mower, for commercial, or non-residential use (or for 90 days if used for rental purposes), **COUNTRY CLIPPER**, through any **COUNTRY CLIPPER** dealer, will replace, free of charge, any parts, found upon examination by the factory at Corydon, Iowa, to be defective in material or workmanship or both.

For two (2) years from the date of the original purchaser's purchase of a **COMMERCIAL CLIPPER** zero turn radius mower, for residential or other non-commercial use **COUNTRY CLIPPER**, through any **COUNTRY CLIPPER** dealer, will replace, free of charge, any parts, found upon examination by the factory at Corydon, Iowa, to be defective in material or workmanship or both.

Items such as belts, hoses and other wear items are covered for 60 days from the purchase date for defects in material or workmanship; blades are not covered by any warranty. This warranty does not apply to Engines and their components, Hydraulic Transmissions, Gear Reduction Final Drives or Batteries, as these items are warranted separately by their manufacturer. This warranty does not apply to parts that have been damaged by accident, alteration, abuse, improper lubrication, normal wear or other causes beyond our control, nor does this warranty apply to any liability for consequential damages.

All transportation costs incurred by the purchaser in submitting parts to a **COUNTRY CLIPPER** dealer for replacement under this warranty must be paid by the purchaser.

**There is no other express warranty for this product.**

**All implied warranties, including those of merchantability and fitness for a particular purpose are, unless specifically required by the law of the jurisdiction, hereby excluded.**

Where implied warranties are required by law, including those of merchantability and fitness for a particular purpose, they are, where allowed by the law of the state, limited to one (1) year from purchase date for the original purchaser's use. Liability for consequential damages, under any and all warranties, both express and implied, are hereby excluded unless specifically required by the statutory law of the jurisdiction.

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

**WARNING:** THE USE OF REPLACEMENT PARTS OTHER THAN GENUINE **COMMERCIAL CLIPPER** PARTS MAY IMPAIR THE SAFETY OF **COMMERCIAL CLIPPER** PRODUCTS AND WILL VOID ANY LIABILITY AND WARRANTY BY **COUNTRY CLIPPER** ASSOCIATED WITH THE USE OF SUCH PARTS.

**IMPORTANT:** Please fill out the attached **COMMERCIAL CLIPPER** Product Registration sheet immediately and mail to:

**COUNTRY CLIPPER**, Corydon, IA 50060, USA

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## SAFETY

## ACCIDENT PATTERNS TO AVOID

- I. **CONTACT WITH THE ROTATING BLADE** -- This accident usually happens when the operator is clearing the discharge chute of grass, (especially when the grass is wet), or when the operator adjusts the machine without turning it off and waiting for the blades to completely stop.
- II. **PROPELLED OBJECTS** -- Sticks, rocks, wires, and other objects can be propelled out through the discharge chute or from under the mower housing. Bystanders are particularly vulnerable.
- III. **GRASS CATCHER OR GUARD** -- The mower shall not be operated without either the entire grass catcher or guard in place.
- IV. **OVERTURNING** -- This happens when riding mowers are used on steep slopes, embankments or hills. The operator in these cases can come in contact with the blades or sustain injuries during a fall.
- V. **MOWER RUNNING OVER THE VICTIM** -- This usually happens when a riding mower is driven in reverse. The accident victims are most often young children whom, unseen by the operator of the mower, were in the area being mowed.

AT **COUNTRY CLIPPER**, WE SHARE YOUR DESIRE TO PROTECT YOURSELF, YOUR FAMILY, YOUR FRIENDS AND YOUR NEIGHBORS FROM ACCIDENTAL INJURY. OBSERVING AND ENFORCING THE FOLLOWING GUIDELINES WILL HELP TO INSURE THE SAFETY OF EVERYONE.

**PLEASE BE CAREFUL!**

## SAFETY INSTRUCTIONS AND RECOMMENDATIONS

1. **PEOPLE WHO OPERATE, SERVICE, OR ARE OTHERWISE ASSOCIATED** with the **Country Clipper** Zero Turning Radius Mower should be trained in its proper use and warned of its dangers. Before operating, adjusting, or servicing the **Country Clipper** Zero Turning Radius Mower they should read and understand this entire manual and the engine owner's manual.
2. **AVOID CONTACT WITH MOVING PARTS.** Keep hands and feet from under mowing deck and away from blades at all times. Turn engine (motor) off if you must unclog the chute.
3. **AVOID HILLS AND SLOPES.** Use extreme caution when mowing up or down slopes. NEVER mow across the face of a slope. If a slope must be ascended, back up the slope; drive forward when descending. Reduce speed and use caution to start, stop and maneuver. To prevent loss of control on a slope avoid sharp turns, sudden changes in direction, and sudden stops and starts.
4. **DISENGAGE POWER TO MOWER BEFORE BACKING UP.** Do not mow in reverse unless ABSOLUTELY necessary and then only after turning around and observing the entire area behind the mower. Go slowly. Most "running over victim" accidents occur in reverse.
5. **BEGINNING OPERATORS SHOULD LEARN HOW TO STEER** the **Country Clipper** Zero Turning Radius Mower before attempting to mow. Start with slow engine speed and drive without the blades engaged in an open area until comfortable with the machine.
6. **KNOW HOW TO STOP QUICKLY.** Know the location and operation of every control, especially how to brake and how to disengage the mower blades.
7. **DO NOT MOVE JOYSTICK CONTROL LEVER** from forward position to reverse position rapidly. The speed and/or

direction of travel is affected instantly by movement of the Joystick Control Lever.

8. **DO NOT ALLOW CHILDREN TO OPERATE MOWER.** Do not allow others who have not had instruction to operate mower.
9. **ALWAYS TURN ENGINE OFF AND REMOVE KEY** before leaving the mower to prevent children and inexperienced operators from starting the engine. Never leave the mower unattended with engine running. Always wait for all moving parts and all sounds to stop before leaving operator's seat.
10. **WEAR STURDY, ROUGH-SOLED WORK SHOES AND CLOSE-FITTING SLACKS AND SHIRTS.** Never operate mower in bare feet, sandals or sneakers.
11. **NEVER CARRY PASSENGERS.**
12. **KNOW THE AREA YOU ARE TO MOW.** Watch for hidden danger such as rocks, roots, sticks, holes, bumps, and drop-offs, etc. Before mowing, pick up all debris in area to be mowed. Sharp and hard objects can be propelled at a high speed and can act like shrapnel. Walk through tall grass **BEFORE MOWING** to make sure there are no hidden dangers. Mow higher than desired in tall grass to expose any hidden objects and/or obstacles, clean the area, and then mow to the desired height.
13. **NEVER REFUEL A MOWER INDOORS.** Allow the engine time to cool before refueling. Unseen vapors may be ignited by a spark. Always clean up spilled gasoline. Never run the engine indoors in a garage or any other closed building. Allow engine to cool before storing in any enclosure. The engine exhaust and gasoline fumes are dangerous.
14. **NEVER REMOVE THE FUEL CAP** or add gasoline to a running or hot engine that has not been allowed to cool for several minutes after running. Always make sure the gas cap is in place.
15. **DO NOT SMOKE AROUND THE MOWER** or the gasoline storage container. Gasoline fumes can easily ignite.
16. **KEEP GASOLINE IN A WELL-VENTILATED AREA** away from your living quarters and in tightly-capped safety cans. Never store mower with gasoline in the tank inside a building where fumes may reach open flame or spark.
17. **DISENGAGE BLADES, STOP ENGINE AND REMOVE IGNITION KEY** before any servicing. Be sure all moving parts and all sounds have stopped. Let engine cool and disconnect the spark plugs so the engine cannot start by accident. A SLIGHT ROTATION OF THE BLADES COULD START THE ENGINE.
18. **KEEP ALL NUTS, BOLTS, AND SCREWS TIGHT** to be sure equipment is in safe working condition, especially blade mounting bolts.
19. **VEHICLE SHOULD BE STOPPED AND INSPECTED FOR DAMAGE** after striking a foreign object and the damage should be repaired before restarting and operating the equipment. Stop immediately and check for damage or loose parts if mower should start vibrating.
20. **DISENGAGE BLADES BEFORE DRIVING ACROSS WALKS** or projecting objects.
21. **KEEP SAFETY DEVICES AND GUARDS IN PLACE.** If any of the safety switches become inoperable, have them repaired immediately.
22. **DO NOT STEP OR STAND ON THE MOWER HOUSING.** Step or stand only on the foot deck.
23. **WATCH OUT FOR TRAFFIC** near roadways and when crossing roads.
24. **DO NOT USE MOWER WHEN GRASS IS WET OR SLIPPERY.**



25. MOW ONLY DURING DAYLIGHT.
26. THIS MACHINE IS NOT MEANT FOR HIGHWAY OR STREET USE. It is not a recreational vehicle and it should not be operated as such.
27. ALWAYS DISENGAGE THE MOWER BLADE CLUTCH when transporting.

### SAFETY INTERLOCK SYSTEM

Your *Country Clipper* Zero Turning Radius Mower is equipped with switches interlocked for your safety.

1. The mower blades must be disengaged before engine will start.
2. The Joystick Control Lever must be in the neutral "DOWN" position before the engine will start.
3. The engine will stop if the mower blade clutch is engaged when the operator leaves the driver's seat.
4. The engine will stop if the Joystick Control Lever is not in the neutral "DOWN" position when the operator leaves the driver's seat.
5. The engine will stop if the brake is "SET" and the Joystick Control Lever is moved to the "UP" position.
6. The engine will stop if the brake is "SET" and the mower blade clutch is engaged.

**DO NOT OPERATE MOWER IF SAFETY SWITCHES ARE NOT OPERATING PROPERLY**

## START UP AND OPERATION

### CHECKLIST BEFORE OPERATION

1. Make sure fuel tank is full. Use regular unleaded gasoline (see engine owner's manual for more details).



### WARNING



**HANDLE GASOLINE WITH CARE -- IT IS HIGHLY FLAMMABLE. DO NOT SMOKE. ENGINE SHOULD BE OFF AND COOL. USE APPROVED GAS CONTAINER. NEVER FILL TANK INDOORS. WIPE UP ANY SPILLS. REPLACE CAP TIGHTLY.**

2. Make sure dirt and foreign matter is kept out of gas tank. Use a clean funnel and gas can.
3. Do not mix oil with gasoline.
4. Do not use white, high test or premium gasoline. Do not use de-icers, carburetor cleaners, or other such additives.
5. Check the crankcase oil level. Make sure the engine is off. The mower should be parked on a level area. Do not overfill. (See your engine manual for more detailed instruction.)
6. Check the hydrostatic transmission oil level. (See "Maintenance" section of this manual.)
7. Check battery fluid level.
8. Inspect V-belts.
9. Check tire pressure:

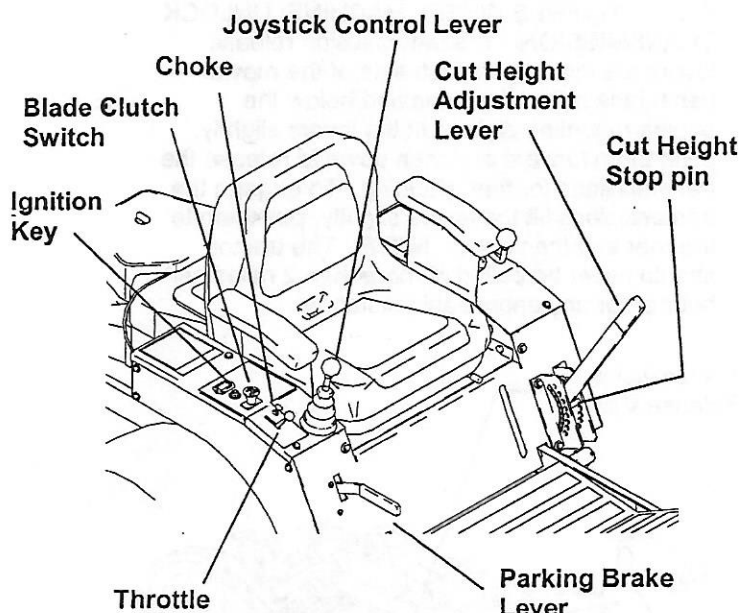
Model	Front tires	Rear tires
All Models	12 psi	12 psi

10. Make sure underside of mower deck is free of grass.
11. Make sure mower blades are sharp and secured tightly.

12. Clean the air intake screen on the engine if necessary.
13. Perform any other maintenance as it becomes necessary. (See the "Maintenance" section of this manual.)

**IMPORTANT:** Before cutting grass, clutch must be broken-in as follows: With engine at full RPM engage deck until blades come to full speed and then disengage until blades come to a complete stop. Repeat 10 times to seat clutch properly.

### CONTROL LOCATIONS



### WARNING



**AVOID INHALING EXHAUST FUMES -- CARBON MONOXIDE GAS IS COLORLESS AND ODORLESS, AND CAN CAUSE UNCONSCIOUSNESS, AND IS POTENTIALLY LETHAL. DO NOT RUN LAWN MOWER IN GARAGE OR OTHER CONFINED AREA.**

### OPERATION

1. MOVE JOYSTICK CONTROL LEVER TO neutral "DOWN" position.
2. SET PARKING BRAKE. Pull up to set.
3. DISENGAGE MOWER BLADE CLUTCH by moving clutch switch to "OFF" position.
4. PULL ENGINE CHOKE CONTROL to full position for cold starts.

5. SET ENGINE THROTTLE TO 1/2 THROTTLE.
6. TURN IGNITION KEY to "START" position and release to "RUN" as soon as engine starts. NOTE: Prolonged cranking will damage starter motor and shorten the battery life.
7. ADJUST ENGINE THROTTLE AND CHOKE for desired engine smoothness and speed.  
NOTE: When mowing, always run engine at full throttle.
8. RELEASE PARKING BRAKE. Push brake lever down to release.

**IMPORTANT:** Until the operator is familiar with the *Country Clipper* Zero Turning Radius Mower, he/she should follow these recommendations: Disengage the mower blades. Go very slowly until thoroughly familiar with the machine. Keep away from fences, buildings, and other obstructions. Move the Joystick Control Lever smoothly and slowly. Practice until operation is smooth and efficient.

10. TO DRIVE: Move the Joystick Control Lever to the "UP" position. Move the Joystick Control Lever forward to move forward. Increasing forward movement of the Joystick Control Lever will increase the speed of travel. To reverse the direction, pull the Joystick Control Lever slightly back. To turn, move the Joystick Control Lever toward the direction you want to turn.. To turn on a zero radius axis, go slowly and move the Joystick Control Lever to the side you wish to turn and slightly to the rear at the same time.



### CAUTION



**FOR SMOOTH, SAFE OPERATION, MOVE THE JOYSTICK CONTROL LEVER IN A GENTLE, SLOW MOTION. NEVER PULL OR PUSH THE JOYSTICK CONTROL LEVER RAPIDLY, ESPECIALLY ON GRADES.**

11. **BRAKING:** To brake mower, gently move the Joystick Control Lever in the direction opposite to travel. If the parking brake is engaged with the Joystick Control Lever in the "UP" position the engine will stop.
12. **CUTTING HEIGHT ADJUSTMENT:** With the Cut Height Adjustment Lever latched into the top cut height latch. Insert Cut Height Stop Pin to desired cutting height. Pull Cut Height Adjustment Lever rearward and then to the left to clear top cut height latch. Lower Cut Height Adjustment Lever until it rests on Cut Height Stop Pin.
13. **ENGAGE MOWER BLADE CLUTCH:** Set the Blade Clutch Switch to the "ON" position. The engine will not start if the blade clutch is engaged. If the operator is not in the seat, the engine will stop if the clutch is engaged.

**CAUTION**

**AVOID HILL AND SLOPES. USE EXTREME CAUTION WHEN MOWING UP OR DOWN SLOPES. NEVER MOW ACROSS THE FACE OF A SLOPE. IF A SLOPE MUST BE ASCENDED, BACK UP THE SLOPE; DRIVE FORWARD WHEN DESCENDING.**

14. **TO STOP:**
  - A. Move Joystick Control Lever to neutral position and then to the "DOWN" position.
  - B. Disengage the mower blade clutch by moving the clutch to the "OFF" position.
  - C. Set the parking brake.
  - D. Slow engine speed with throttle to slowest position.
  - E. Turn ignition key to "OFF" (left) position.
  - F. Remove the key and wait for all movement and all sound to cease before dismounting.



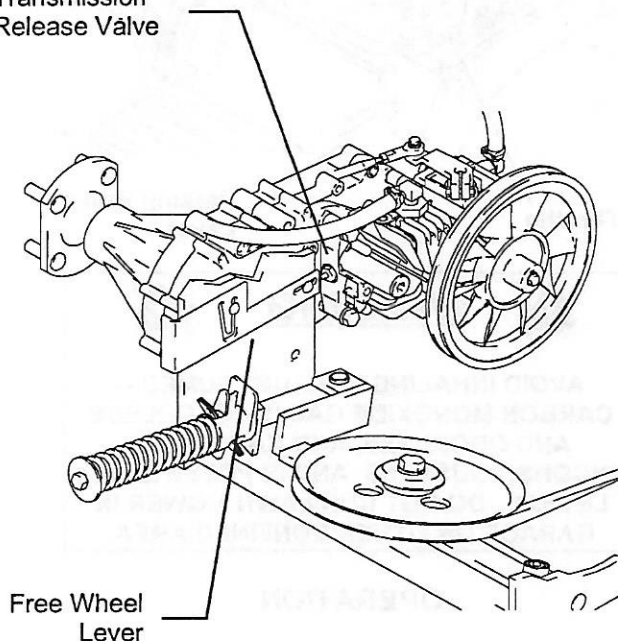
## CAUTION



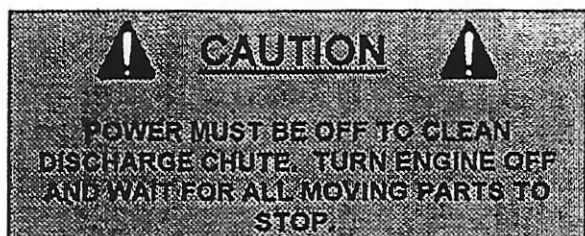
**WHEN LEAVING THE MOWER UNATTENDED, ALWAYS REMOVE THE KEY AND SET THE PARKING BRAKE, EVEN IF JUST FOR A FEW MOMENTS. HELP PROTECT CHILDREN AND OTHER UNAUTHORIZED PERSONS FROM ACCIDENTS.**

15. **TO FREE WHEEL MACHINE: UNLOCK TRANSMISSION:** The transmission release levers are located on each side of the mower behind the rear drive axles and below the engine mounting plate. Lift the levers slightly, push them forward and then down to release the transmissions for free wheeling. To engage the transmissions lift the levers slightly, pull them to the rear and then down. **NOTE:** The tractor should never be pulled at more than 2 miles per hour or for any appreciable distance.

Transmission Release Valve







3. When mowing tall grass, make two passes, mowing off 1/2 of the desired cut on the first pass, and then the desired height the second pass. Check for hidden dangers first.
4. Go slowly for trimming.
5. Always cut grass with the engine at full throttle speed. This "ENGINE" speed allows the cutting blades to operate at optimum cutting speed. Control "GROUND" speed with the Joystick Control Lever.
6. Vary ground speed to suit conditions (i.e. go slower in tall thick grass, on hills, wet conditions, etc.).

SPECIFICATIONS			
TRACTORS			
Model		2203M	2503M
Engine		22 H.P. Kohler Command	25 H.P. Kohler Command
Hydrostats	(2) HydroGear BDU-10L		
Length	74"		
Height (to seat back) (to seat cushion)	49-1/2" 29-1/2"		
Width	46"		
Weight (tractor), approx.	815 lbs.		
Fuel Tank	5 gallons		
Belt: Engine - Hydrostats	P/N D-3632		
Tires, Rear	23-10.00 x 10		
Front	13.5-6.00 x 5		

DECKS		
Model	4803M	6003M
Cutting Width	48"	60"
Overall Width (w/chute)	57 1/2"	69 1/2"
Weight (deck), approx.	190 lbs.	240 lbs.
Blades	(3) 17"	(3) 21"
Cutting Height	1-1/4" to 5"	
Material Thickness	10 ga.	
Reinforcement Thickness	10 ga.	
Spindle Bearings	25 mm	
Fits Tractor Models	2203M, & 2503M	

**NOTE:** Tractors should be matched to deck to insure sufficient power is available for the intended usage.

## MAINTENANCE



### CAUTION



BEFORE PERFORMING ANY MAINTENANCE, TURN OFF ENGINE  
REMOVE KEY AND DISCONNECT SPARK PLUGS. USE EXTREME CARE WHEN WORKING ON  
MACHINERY. DO NOT WEAR WATCHES OR JEWELRY. DO NOT WEAR LOOSE FITTING  
CLOTHES, AND OBSERVE ALL COMMON SAFETY PRACTICES WITH TOOLS.

## MAINTENANCE SCHEDULE

SERVICE	WHEN
Check crankcase oil level	before each use
Clean grass from Hydrostat fans and cooling fans	before each use
Check air intake screen	after each use
Clean grass under deck	after each use
Check tire pressure	every 10 hours
Check battery fluid	every 10 hours
Sharpen mower blades	every 10 hours
Clean air filter pre-cleaner element	every 25 hours
Check Hydrostatic transmission fluid	every 25 hours
Check adjustment of P.T.O. clutch	every 50 hours (or if blades do not stop within 7 seconds from switch disengagement)
Check drive belts 3 on 2203M, 2503M	every 50 hours (20 hours break-in)
Service Air Cleaner Filter Element	every 100 hours
Change engine crankcase oil	100 hours
oil filter	200 hours
Change Hydrostat oil and oil filter	every 500 hours (100 hours break-in)
Replace air filter element	annually or 500 hours
Check spark plugs	annually or 500 hours
Service battery	annually or 500 hours

Replace decals when illegible. Write factory for free replacement.

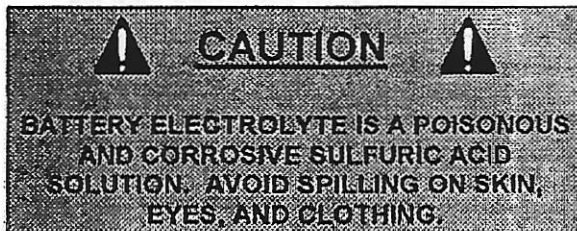
## MAINTENANCE INSTRUCTIONS

### 1. ENGINE:

For complete maintenance and operating information for your engine, please refer to your engine operating and maintenance instructions furnished by the engine manufacturer and included in your *Commercial Clipper Zero Turning Radius Mower* information packet.

**NOTE:** Air intake screen must be kept clean. If plugged, engine may be seriously damaged by over heating.

### 2. BATTERY:



Keep the electrolyte level above the plates in each cell by adding distilled water as it becomes necessary. Add water just before operating the mower to mix the water with the solution. Be careful not to overfill the battery — the electrolyte solution is corrosive and can cause damage to surrounding metal parts if it should spill. When taking the battery out of the mower for servicing, make sure to connect the cables to the battery exactly as they were prior to removal. Always disconnect the ground (-) wire first and always reconnect the ground (-) wire last.

Keep the battery clean. Remove the corrosion around the battery terminals by applying a solution of one part baking soda to four parts water. Coat all exposed terminal surfaces with a light layer of grease or petroleum jelly to prevent corrosion.

**NOTE:** At temperatures below 32 degrees F (0 degrees C) the full charge state must be maintained to prevent cell electrolyte from freezing and causing permanent battery damage.

### 3. TIRES:

Correct tire pressure is essential for efficient operation of the mower. Check tire pressure as requested in the maintenance schedule. Inflate tires to the pressures listed below:

Model	Front tires	Rear tires
All Models	16 psi	16 psi

Lug nuts should be checked regularly for tightness.

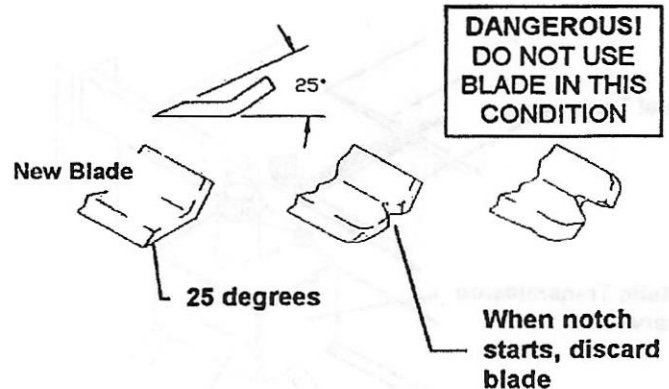
### 4. MOWER BLADES:

Check sharpness of mower blades after every 10 hours of operation. To sharpen blades proceed as follows:



A. Remove bolt, lockwasher, and cup washer mounting blade on shaft. Remove blade.

B. Blades should be discarded when worn excessively.



C. Sharpen blades with a hand file, electric grinder or blade sharpener. Wear gloves and eye protection when sharpening. Grind blade at original 25 degree bevel.

D. Check balance of blade by positioning the blade on a nail or blade balance pedestal. Grind the blade on the end that is heavier until both sides balance.

E. Install blade, cup washer, lockwasher, and bolt. Make sure to tighten bolt to 60 ft.lbs.

## 5. V-BELTS:

There are 3 V-belts on your **Commercial Clipper Zero Turning Radius Mower** models 2203M, 2503M. They should be checked every 50 hours. Replace any belts found to be in poor condition. All belts are equipped with spring loaded belt tighteners and do not require tightening adjustments.

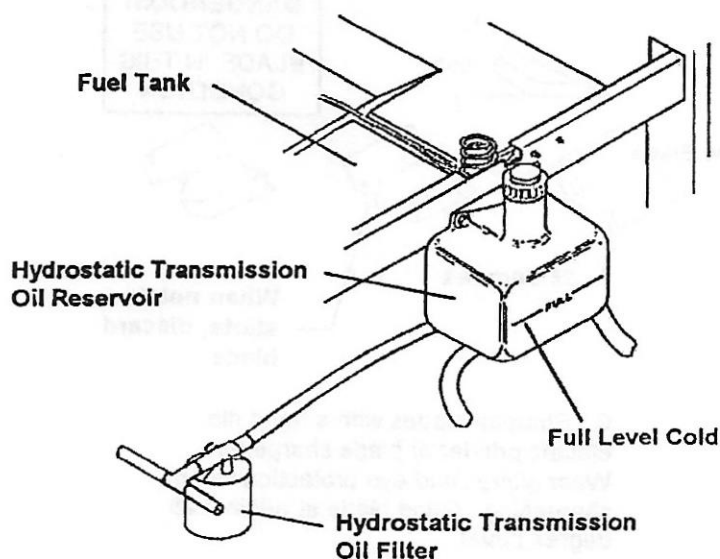
## 6. LUBRICATION:

A. Engine: Follow engine manufacturer's recommendation.

B. Deck Spindles: Lubricate with 3 "shots" only, every 100 hours.

C. Hydrostatic Transmission & Filter: Follow instructions listed below.

**DIRT OR WATER IN OIL CAN RUIN THE HYDROSTATIC TRANSMISSIONS**



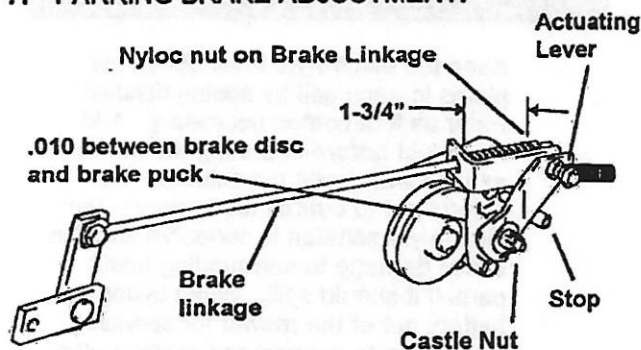
Check the oil level in hydrostatic transmission oil reservoir after every 25 hours of usage. Do not remove the reservoir cap to check the oil level as this allows dirt to enter the transmission. Replenish as needed with 20W-50 Motor Oil.

If oil is needed:

- Wipe area of oil reservoir cap clean of any dirt or debris.
- Remove oil reservoir cap.
- Fill to line marked on reservoir. **DO NOT OVER FILL.**
- When checking oil level, be very careful to keep the reservoir clean and to fill only with clean oil.

Change the oil in the reservoir and hydrostatic transmission filter after the first 100 hours of use, then every 500 hours after that. Remove the filter and be sure all oil has drained from the reservoir. Replace with new filter (P/N H-2026) and 20W-50 Motor Oil.

## 7. PARKING BRAKE ADJUSTMENT:



- With the brake handle in the "RELEASE" position and the actuating lever against the stop, remove the cotter pin from the castle nut. Insert a 0.010 feeler gauge between the brake disc and the brake puck. Tighten the castle nut with the feeler gauge inserted until the gauge fits snugly between the disc and puck. The gap should not be so tight that the feeler gauge cannot be reinserted after removal. Back the castle nut to the closest pin hole and reinsert the cotter pin.
- With the brake handle in the "SET" position adjust the spring tension on the actuating lever. Screw the nyloc nut on the end of the brake linkage until the 1-3/4" dimension is achieved. Repeat for other side.



8. JOYSTICK CONTROL LEVER  
NEUTRAL ADJUSTMENT:

With the engine running, if the machine travels in either direction when the Joystick Control Lever is in the neutral "DOWN" position, stop the engine, elevate the rear wheels clear of the ground and adjust as follows:

A. Remove the right hand fender skirt exposing the Joystick Control Lever assembly.

B. Start the engine.

C. Run engine at fast idle with control lever in the "DOWN" position.

D. Loosen the nuts on the upper linkage assembly on the linkage that corresponds with the wheel that is turning. NOTE: One nut is left hand threaded.

E. Adjust by turning the upper linkage rod "IN" or "OUT" until the drive wheel stops turning.

F. Retighten the nut on upper linkage assembly and check to make sure the drive wheel is still not turning.

G. Repeat steps B thru F for other side.

H. Replace fender skirt. Shut off engine before removing from blocks.

9. JOYSTICK CONTROL LEVER  
DETENT ADJUSTMENT:

If the Joystick Control Lever does not lock in the "UP" position, turn the detent adjustment screw clockwise until a desirable locking action is obtained. If the Joystick Control Lever is hard to slide up and down, turn the detent adjustment screw counter-clockwise until a desirable sliding action is obtained.

10. JOYSTICK CONTROL LEVER  
SENSITIVITY ADJUSTMENT:

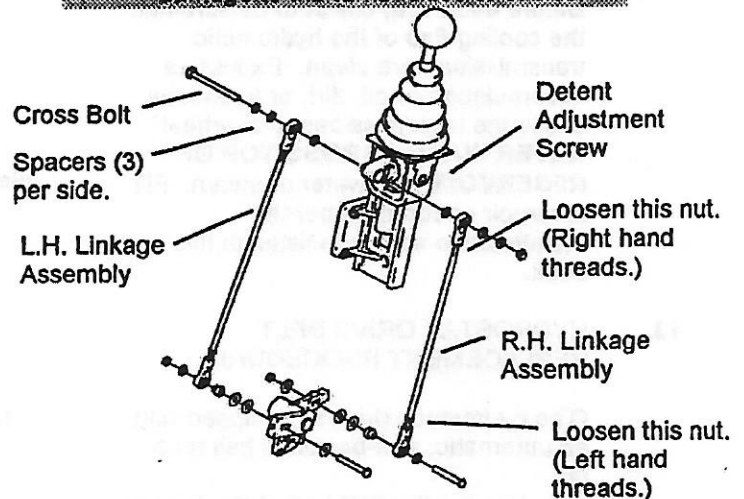
To change the sideways turning response adjust as follows:

A. Remove the right hand fender skirt exposing Joystick Control Lever assembly.

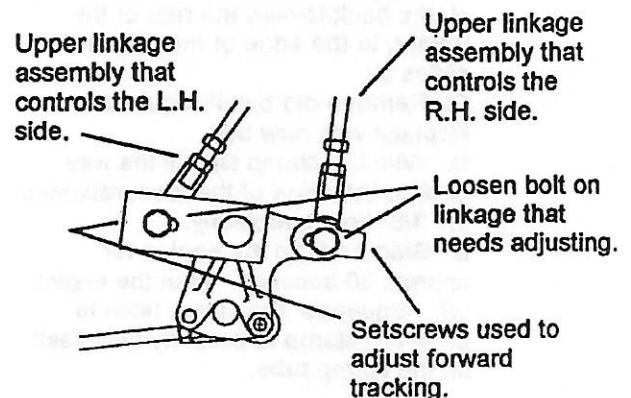
B. Remove the cross bolt, nut, and spacers.

C. Reassemble spacers as desired. (2) spacers between the turnbuckle and joystick pivot shaft quicken the response, (1) slows the response.

NOTE: It is important that there is a spacer on each side of the turnbuckles to prevent damage to the turnbuckles or cables.



11. JOYSTICK ADJUSTMENT FOR  
STRAIGHT FORWARD TRACKING:



In a large open area, actuate the joystick control lever into the full forward position. If the mower veers to the right, then the right hydrostat needs to be sped up. If it veers to the left, then the left hydrostat needs to be sped up. After determining which hydrostat needs to be sped up, stop the machine, shut off the engine. Slightly loosen the bolt at the lower end of the upper linkage assembly on the side that is slower, and

using a 1/8" allen wrench, turn the set screw 1/4 of a turn. It may take several test drives to get the joystick control lever exactly straight forward. Once the joystick control lever has been adjusted to your liking, completely tighten the bolt on the control linkage assembly that was loosened earlier. Recheck to make sure neutral adjust has not been affected, if it has see step #8.

## 12. HYDROSTATIC TRANSMISSIONS:

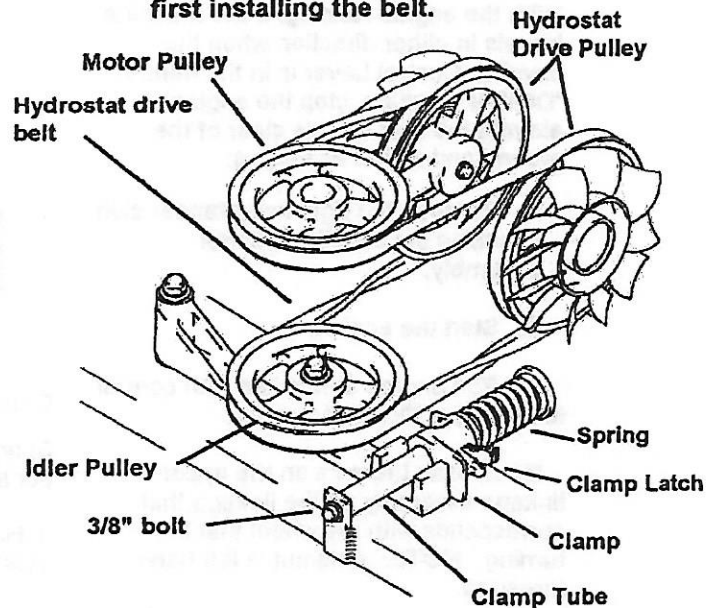
Before each use, check to be sure that the cooling fins of the hydrostatic transmissions are clean. Excessive accumulation of oil, dirt, or trash may cause the transmissions to overheat. **NEVER WASH ACROSS TOP OF RESERVOIR** with water or steam. Fill reservoir as required per the maintenance schedule listed in this book.

## 13. HYDROSTAT DRIVE BELT REPLACEMENT PROCEDURE:

(The hydrostatic drive is equipped with an automatic, anti-backlash belt take-up)

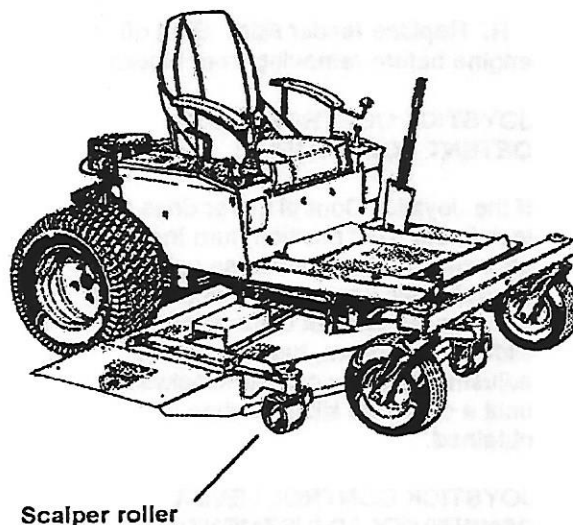
- A. Loosen the 3/8" bolt at the front of the assembly until the tension is off the spring.
- B. Squeeze clamp latch and slide the clamp back toward the rear of the tractor, to the edge of the tube it slides on.
- C. Remove old belt if required. Replace with new belt.
- D. With the clamp slid all the way back to the edge of the tube, retighten the 3/8" bolt completely.
- E. Start and run the engine for approx. 30 seconds. Shut the engine off. "Squeeze" the clamp latch to allow the clamp to properly seat itself on the clamp tube.

**NOTE:** Over tensioning and damage to the belt will occur if the clamp is not slid to the back of the clamp tube when first installing the belt.



## 14. ANTI-SCALPER ROLLER BOLTS:

Scalper roller bolts should be tightened until the spacer bushing will not turn relative to the scalper bracket to prevent undue wear on the end of the spacer bushing and the scalper bracket. The proper torque is 20 ft.lbs.



## TROUBLE SHOOTING CHECK LIST

### 1. ENGINE WON'T TURN OVER:

Mower blades engaged ----- disengage blades  
 Drive not in neutral --- move Joystick Control Lever to neutral "DOWN" position  
 Blown fuse ----- replace fuse  
 Dead battery ----- charge or replace  
 Solenoid ----- consult dealer  
 Ignition switch ----- consult dealer  
 Starter ----- consult dealer

### 2. ENGINE WILL TURN OVER BUT WON'T START:

No gas ----- refuel  
 ----- clean or replace fuel filters  
 Over or under choked ----- adjust choke  
 Spark plug not firing ----- check spark plug  
 ----- condition and reset gap\*  
 Carburetor maladjustment ----- reset carburetor adjustment\*  
 Ignition switch ----- consult dealer

### 3. HARD TO START ENGINE:

Fuel line clogged ----- clean fuel line and check fuel filter  
 Faulty fuel pump ----- consult dealer  
 Spark plug wire loose or grounded ----- check spark plug wires  
 Spark plug(s) faulty or improperly gapped ----- check spark plug  
 ----- condition and reset gap\*  
 Electronic ignition defective ----- consult dealer  
 Dirty or maladjusted carburetor ----- readjust carburetor\*  
 ----- consult dealer for carburetor service

### 4. ENGINE STARTS BUT CUTS OUT:

Water in gasoline ----- drain old gasoline and replace with new gasoline  
 ----- clean carburetor bowl  
 Clogged fuel line ----- check fuel filter  
 ----- clean fuel line  
 Vent in fuel cap plugged ----- check vent  
 Faulty fuel pump ----- consult dealer  
 Maladjusted carburetor ----- readjust carburetor\*  
 Engine dies when raising Joystick Control Lever ----- parking brake set  
 ----- release brake

### 5. ENGINE KNOCKS:

Low oil level ----- check and add oil  
 Ignition timing off ----- consult dealer  
 fuel octane too low ----- drain and replace with  
 ----- higher octane gasoline  
 Over heated engine ----- shut off engine and allow to cool

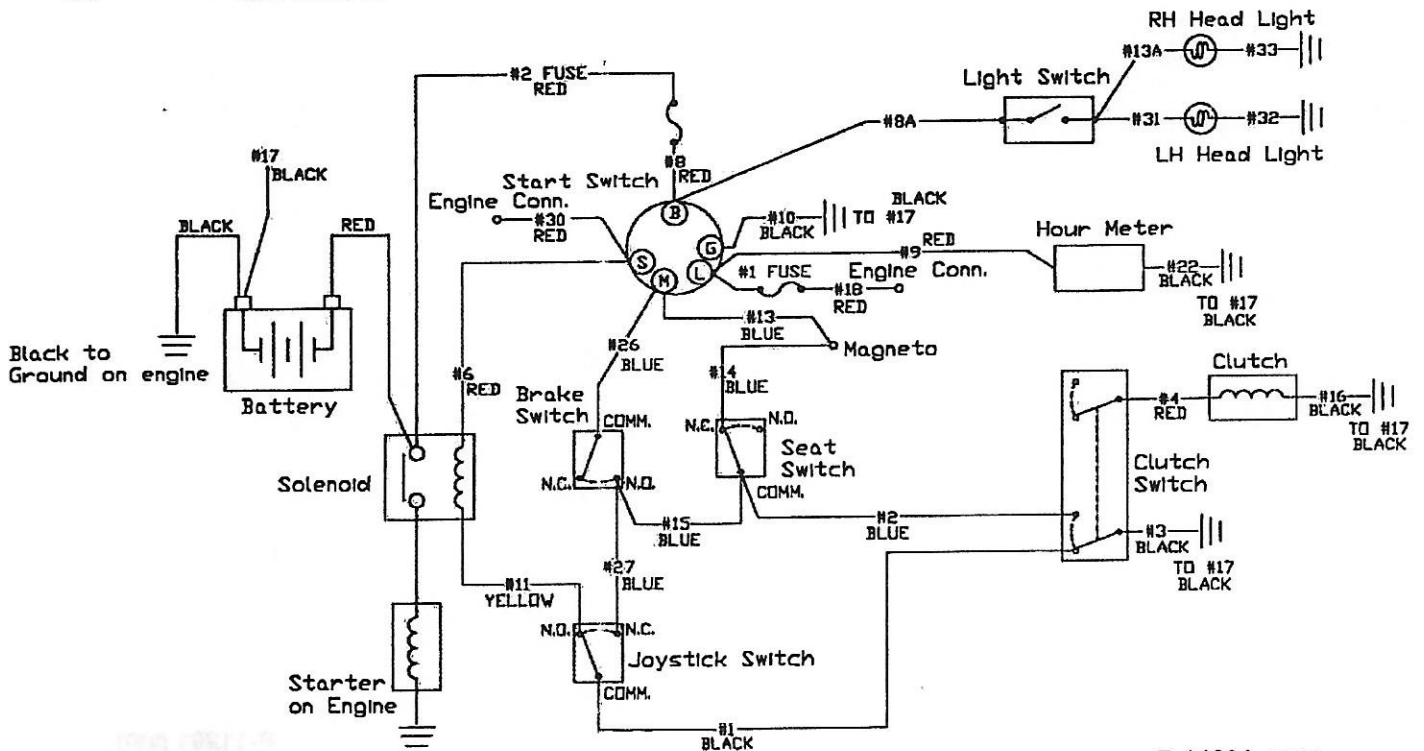
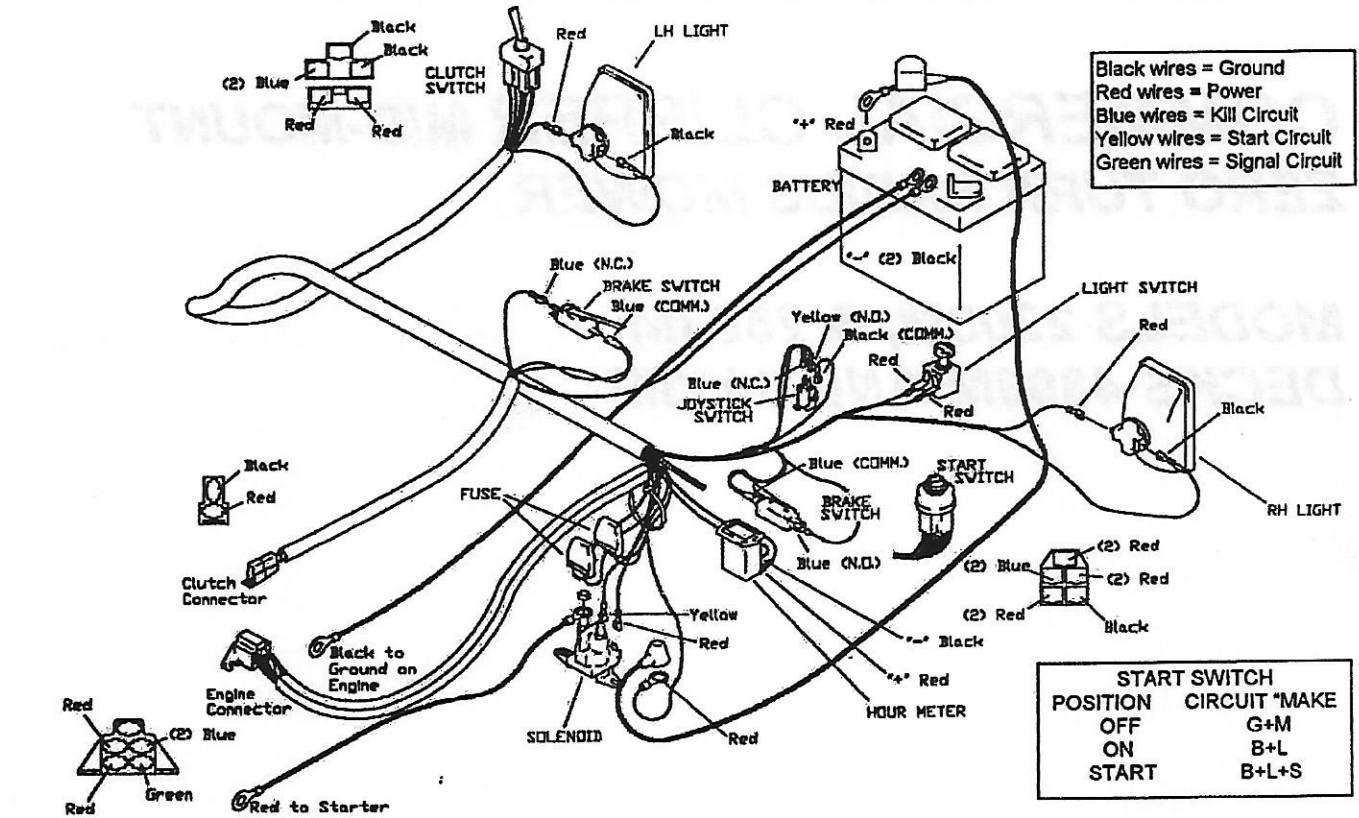
\* See engine manual for engine adjustments.

6. ENGINE SOMETIMES SKIPS AT HIGHER SPEEDS:
- Incorrect Ignition Timing \_\_\_\_\_ consult dealer
  - Carburetor maladjusted \_\_\_\_\_ readjust carburetor
  - Faulty spark plugs \_\_\_\_\_ check spark plug condition and reset gap\*
  - Bouncing off seat safety switch \_\_\_\_\_ slow down on rough terrain
7. ENGINE OVER HEATED:
- Air intake screen or fins clogged \_\_\_\_\_ clean intake screen and fins
  - Fuel mixture too lean \_\_\_\_\_ readjust carburetor\*
  - Oil level too low or too high \_\_\_\_\_ adjust oil level
  - Improper ignition timing \_\_\_\_\_ consult dealer
  - Running engine too slow \_\_\_\_\_ run engine faster
- (NOTE: Always mow at full throttle setting.)
8. ENGINE IDLES POORLY:
- Carburetor maladjustment \_\_\_\_\_ readjust carburetor
  - Improper spark plug gap \_\_\_\_\_ check and re-gap plug\*
9. ENGINE BACKFIRES:
- Carburetor maladjustment \_\_\_\_\_ readjust carburetor\*
10. ENGINE RUNS BUT MOWER WON'T MOVE FORWARD:
- Drive belt broken or slipping \_\_\_\_\_ replace drive belt
  - Shift linkage cable disconnected \_\_\_\_\_ reconnect
  - Transmission shift arm disconnected \_\_\_\_\_ reconnect
  - Transmission oil low \_\_\_\_\_ add oil
  - Transmission locks in free wheel position \_\_\_\_\_ put in lock position (see pg. 8)
  - Hydrostat oil filter plugged \_\_\_\_\_ replace filter
  - Bad transmission \_\_\_\_\_ consult dealer
  - Gear mating transmission/gearbox disconnected \_\_\_\_\_ consult dealer
11. MOWER LOSES POWER OR TRANSMISSIONS OVER HEATS:
- Hydrostat transmission oil too low or too high \_\_\_\_\_ add oil
  - OR drain oil as needed
  - Transmission damage \_\_\_\_\_ consult dealer
  - Transmission blowing oil out cap \_\_\_\_\_ overfilled or water contaminated
12. ENGINE STALLS WHEN BLADES ARE ENGAGED:
- Operator not on seat \_\_\_\_\_ sit on seat
  - Faulty interlock system \_\_\_\_\_ consult dealer
  - Bad blade spindle bearing \_\_\_\_\_ consult dealer
  - Deck drive belt not properly routed \_\_\_\_\_ reroute
  - Blades blocked by foreign material \_\_\_\_\_ clean under deck
- \* See engine manual for engine adjustments.



# **WIRING SCHEMATIC:** 18, 22 & 25 H.P. MODELS

Note: All wire connectors shown at wire side.



# **SAFETY INSTRUCTIONS & OPERATOR'S MANUAL FOR**

## **COMMERCIAL CLIPPER MID-MOUNT ZERO TURN RADIUS MOWER**

**MODELS 2203M, & 2503M  
DECKS 4803M AND 6003M**



DIMENSIONS	
MAX. HEIGHT	100"
WID.	70"
WID.	60"
WID.	100"