

# COUNTRY CLIPPER

## 1800M & 2200M Zero Turn Radius Mower



Congratulations for buying a **Country Clipper** product. Your **Country 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 **Country Clipper** product.



## **COUNTRY CLIPPER ZERO TURN RADIUS MOWER**

### **1 YEAR LIMITED WARRANTY**

For one (1) year from the date of the original purchaser's purchase of a **COUNTRY CLIPPER** zero turn radius mower, for commercial, residential or other residential 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.

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 **COUNTRY CLIPPER** PARTS MAY IMPAIR THE SAFETY OF **COUNTRY 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 **Country Clipper** Product Registration Card 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 owner's engine 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 then 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 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:

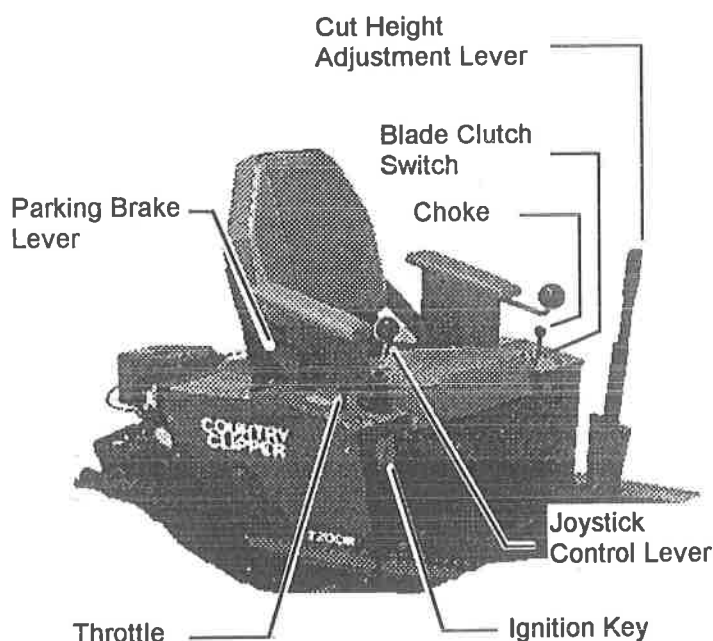
| Model         | Front tires | Rear tires |
|---------------|-------------|------------|
| 1800M & 2200M | 16 psi      | 16 psi     |

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



2. SET PARKING BRAKE. Pull rearward to set.
3. DISENGAGE MOWER BLADE CLUTCH by moving clutch switch to "OFF" position.
4. SET ENGINE CHOKE CONTROL for cold starts to full position.
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 forward 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.

**⚠ WARNING ⚠**

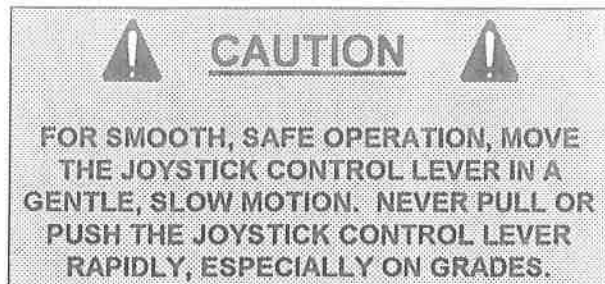
**AVOID INHALING EXHAUST FUMES -- CARBON MONOXIDE GAS IS COLORLESS AND ODORLESS, AND CAN CAUSE UNCONSCIOUSNESS, AND IS POTENTIALLY LETHAL. DO NOT RUN LAWN MOWER IN GARAGE OR OTHER CONFINED AREA.**

### OPERATION

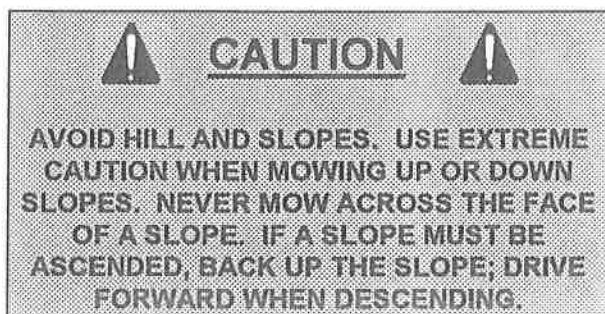
1. MOVE JOYSTICK CONTROL LEVER TO neutral "DOWN" position by centering it and pushing down.

9. 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 rearward at the same time.





10. **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.
11. **CUTTING HEIGHT ADJUSTMENT:** Move the Cut Height Lever to the left to clear the peg holes. Adjust "HIGHER" by moving the lever rearwards. Adjust "LOWER" by pushing the lever forward. Reset the Cut Height Lever in the peg hole.
12. **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.

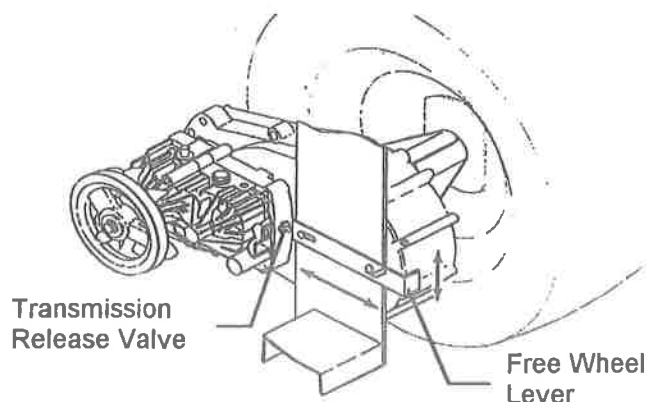


13. **TO STOP:**
  - A. Move Joystick Control Lever to neutral position and then to the "DOWN" position.
  - B. Set the parking brake.
  - C. Disengage the mower blade clutch by moving the clutch to the "OFF" position.
  - D. Slow engine speed with throttle to slowest position.
  - E. Turn ignition key to "OFF" (left) position.

F. Remove the key and wait for all movement and all sound to cease before dismounting.

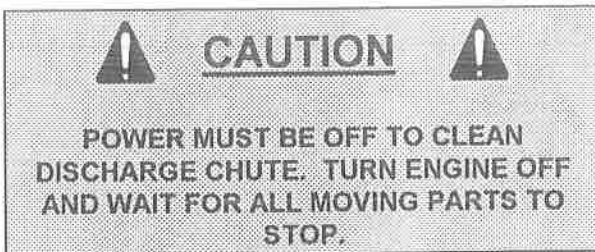


14. **TO FREE WHEEL MACHINE: UNLOCK TRANSMISSION:** The transmission release levers are located on each side of the mower behind the seat in front of the engine and below the engine mounting plate. Lift the levers slightly, push them to the rear and down to release the transmissions for free wheeling.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



## MOWING RECOMMENDATIONS

1. Keep mower blades sharp.
2. Make sure deck and discharge are clean.



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                     | 1800M                        | 2200M                        |
| Engine                    | 18 H.P.<br>Kohler<br>Command | 22 H.P.<br>Kohler<br>Command |
| Hydrostats                | (2) HydroGear BDU-10L        |                              |
| Length                    | 74"                          |                              |
| Height (to seat back)     | 48"                          |                              |
| (to seat cushion)         | 28"                          |                              |
| Width                     | 46"                          |                              |
| Weight (tractor), approx. | 640 lbs.                     |                              |
| Fuel Tank                 | 5 gallons                    |                              |
| Belt: Engine - Hydrostats | P/N D-3590                   |                              |
| Tires, Rear               | 20-10.00 x 10                |                              |
| , Front                   | 13-6.00 x 5                  |                              |

| DECKS                   |                  |          |
|-------------------------|------------------|----------|
| Model                   | 4800M            | 6000M    |
| Cutting Width           | 48"              | 60"      |
| Overall Width (w/chute) | 57 1/2"          | 69 1/2"  |
| Weight (deck), approx.  | 170 lbs.         | 240 lbs. |
| Blades                  | (3) 17"          | (3) 21"  |
| Cutting Height          | 1 3/4" to 3 3/4" |          |
| Material Thickness      | 12 GA.           |          |
| Reinforcement Thickness | 3/16"            |          |
| Spindle Bearings        | 25 mm            |          |
| Fits Tractor Models     | 1800m & 2200M    |          |

**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

| <b>SERVICE</b>   | <b>WHEN</b>  |
|--|--|
| 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 element .....                         | every 10 hours   |
| Check Hydrostatic transmission fluid .....             | every 25 hours   |
| Change Hydrostat oil and oil filter .....              | every 500 hours<br>(100 hours break-in)  |
| Check adjustment of P.T.O. clutch .....                | every 50 hours<br>(or if blades do not stop within 7<br>seconds from switch disengagement) |
| Check drive belts .....<br>3 on 1800M, 2200M           | every 50 hours<br>(20 hours break-in)  |
| Change engine crankcase oil and filter .....           | see engine owners<br>manual  |
| 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.

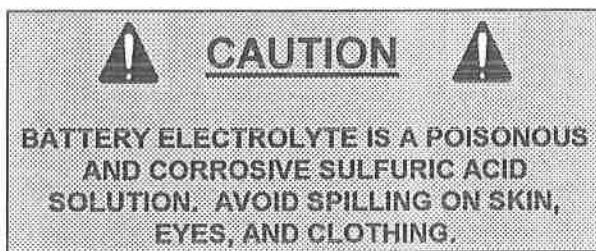
## MAINTENANCE INSTRUCTIONS

### 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 **Country 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 |
|---------------|-------------|------------|
| 1800M & 2200M | 16 psi      | 16 psi     |

Lug nuts should be checked regularly for tightness.

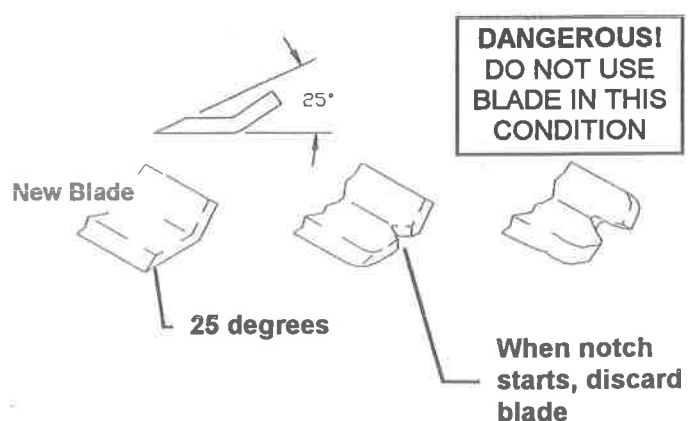
### 4. MOWER BLADES:

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 **Country Clipper** Zero Turning Radius Mower models 1800M, 2200M. 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.

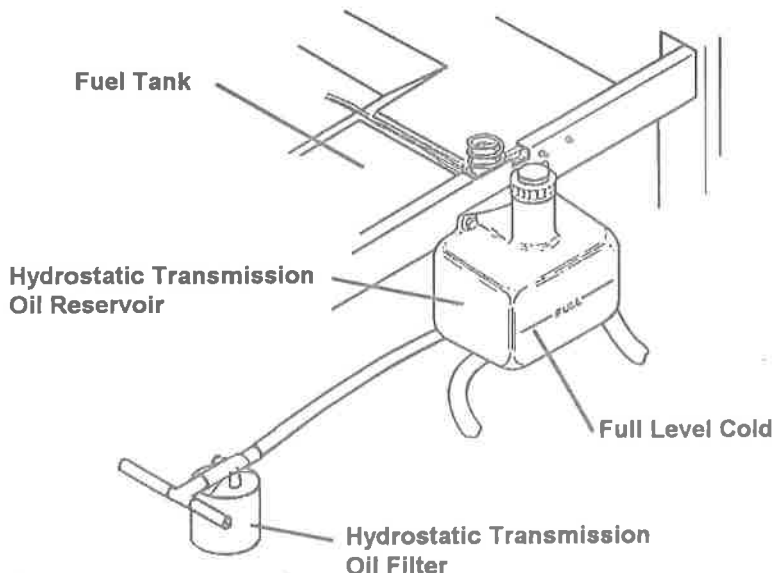
## 6. LUBRICATION:

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**



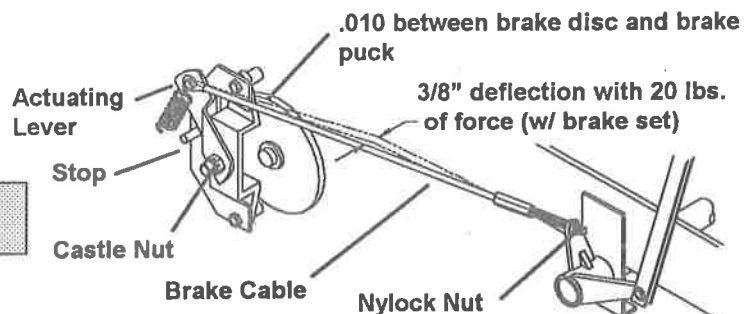
Check the oil level in hydrostatic transmission oil reservoir after every 25 hours of usage. Do not remove the reservoir cap to check the oil level as this allows dirt to enter the transmission. Replenish as needed with 20W-50 Motor Oil.

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:



If 3/8" deflection at 20 lbs. of force was not achieved with above procedure the Nylock Nut may be adjusted with the brake handle set.

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. 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.

*Large Adjustments:*

- C. Remove the cross bolt, nut and spacers.
- D. Loosen the turnbuckle nut and adjust turnbuckle until the cross bolt and spacer can be reinstalled without the wheels turning.

NOTE: The outside cable controls the right wheel and the inside cable controls the left wheel.

*Fine Adjustments:*

- E. Adjust the cable mounting nuts up or down on the cable until the wheels stop turning.
- F. Stop the engine and reassemble the fender skirt.

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.

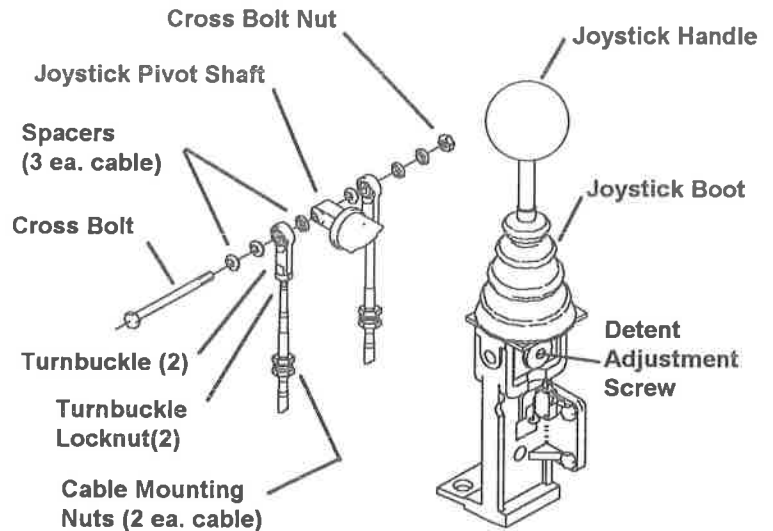
10. JOYSTICK CONTROL LEVER  
SENSITIVITY ADJUSTMENT:

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.



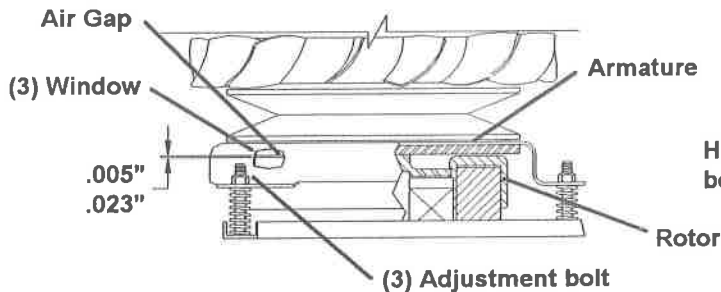
11. ELECTRIC P.T.O. CLUTCH  
ADJUSTMENT:

Readjustment of the air gap between the friction surfaces to compensate for the wear that has taken place.

- A. Elevate rear of tractor and locate electric clutch on motor shaft.
- B. Locate the three windows in the brake plate, one near each adjustment nut.
- C. Insert a 0.012 inch (.305mm) feeler gauge into one of the three windows. Be careful to position the feeler gauge between the rotor and armature faces. (See illustration.)
- D. Tighten the adjusting nut adjacent to the window with the feeler gauge inserted until the gauge fits snugly between the rotor and armature. The air gap should not be so tight that the feeler gauge cannot be reinserted after removal. Repeat steps C and D at the other two windows.
- E. Recheck the air gap at each window and make minor adjustments as necessary to achieve a consistent 0.012 inch (.305mm) air gap.

F. Remove the feeler gauge and rotate the rotor by hand, checking for rotor/armature drag. The rotor should rotate freely with no sound of drag. If rotor/armature drag is present, repeat steps B through E.

G. After rotating the rotor, verify the air gap by rechecking it with feeler gauges. The air gap should fall between 0.005 and 0.023. This change in air gap after rotating the rotor is normal. If the air gap does not fall with tolerance, repeat procedure.



## 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.

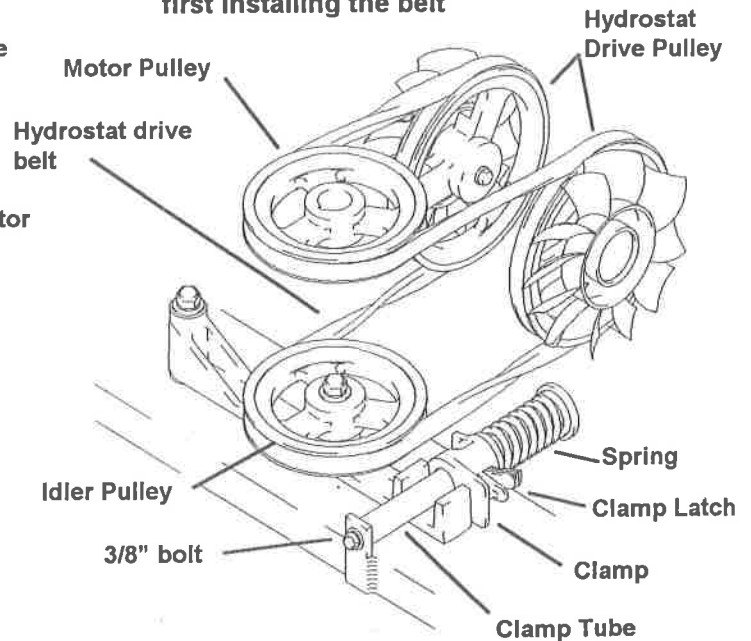
C. Remove old belt if required.

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

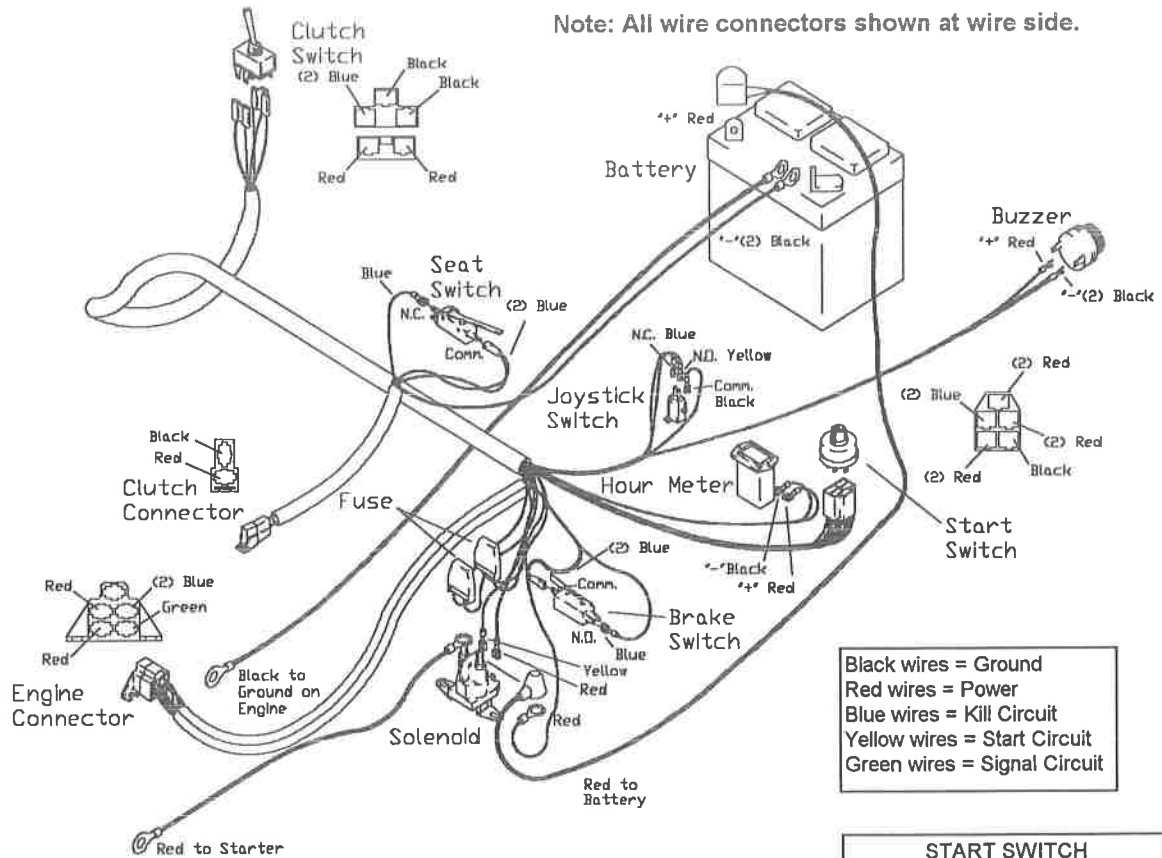
\* See engine manual for engine adjustments.



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 H.P. MODELS

Note: All wire connectors shown at wire side.



| START SWITCH POSITION | CIRCUIT "MAKE" |
|-----------------------|----------------|
| OFF                   | G+M            |
| ON                    | B+L            |
| START                 | B+L+S          |

