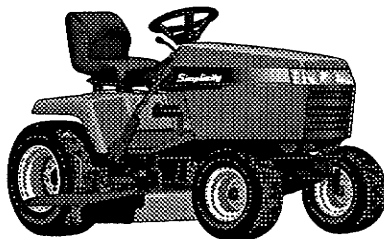


***Simplicity*** **AGCO ALLIS**

# LANDLORD & 1700 SERIES



## 14 HP Gear Models

| Mfg No. | Description        |
|---------|--------------------|
| 1692024 | Landlord 14HP Gear |
| 1692033 | 1714G, 14HP Gear   |

## 16 HP Hydro Models

|         |                     |
|---------|---------------------|
| 1692042 | Landlord 16HP Hydro |
| 1692044 | 1718H, 18HP Hydro   |

## 18 HP Hydro Models

|         |                     |
|---------|---------------------|
| 1692006 | Landlord 18HP Hydro |
| 1692036 | 1718H, 18HP Hydro   |

## Mower Decks

| Mfg No. | Description    |
|---------|----------------|
| 1691996 | 50" Mower Deck |
| 1692026 | 44" Mower Deck |
| 1692035 | 44" Mower Deck |
| 1692038 | 50" Mower Deck |

# OPERATOR'S MANUAL

1707352  
1707365

TP 100-1502-00-LL-SA



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## NOTE

In this manual, "left" and "right" are referred to as seen from the operating position.

## Safety Rules



Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of tractor, severe personal injury or death to you, yourself or bystanders, or damage to property or equipment. This mowing deck is capable of amputating hands and feet and throwing objects. The triangle  in text signifies important cautions or warnings which must be followed.

### IMPORTANT - Safe operation practices for riding mowers.

#### I. General operation

1. Read, understand, and follow all instructions in the manual and on the tractor before starting.
2. Only allow responsible adults, who are familiar with the instructions, to operate the tractor.
3. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade.
4. Be sure the area is clear of other people before mowing. Stop tractor if anyone enters the area.
5. Never carry passengers.
6. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
7. Be aware of the mower discharge direction and do not point it at anyone. **Do not operate the mower** without either the entire grass catcher or the guard in place.
8. Slow down before turning.
9. Never leave a running tractor unattended. Always turn off blades, set parking brake, stop engine, and remove keys before dismounting.
10. Turn off blades when not mowing.
11. Stop engine before removing grass catcher or unclogging chute.
12. Mow only in daylight or good artificial light.
13. Do not operate the tractor while under the influence of alcohol or drugs.

14. Watch for traffic when operating near or crossing roadways.

15. Use extra care when loading or unloading the tractor into a trailer or truck.

#### II. Slope operation

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

#### DO

- Refer to page 13 for recommendations for wheel weights or counterweights to improve stability.
- Mow up and down slopes, not across.
- Remove obstacles such as rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the tractor. *Tall grass can hide obstacles.*
- Use slow speed. Choose a low gear so that you will not have to stop or shift while on the slope.
- Use extra care with grass catchers or other attachments. These can change the stability of the tractor.
- Keep all movement on the slopes *slow* and *gradual*. Do not make sudden changes in speed or direction.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly *straight* down the slope.

### DO NOT

- *Do not* turn on slopes unless necessary, and then, turn slowly and gradually downhill, if possible.
- *Do not* mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- *Do not* mow on wet grass. Reduced traction could cause sliding.
- *Do not* try to stabilize the tractor by putting your foot on the ground.
- *Do not* use grass catcher on steep slopes.

### III. Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the tractor and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn tractor off if children enter the area.
3. Before and when backing, look behind and *down* for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with safe tractor operation.
5. Never allow children to operate the tractor.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

### IV. Service

1. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
  - a) Use only an approved container.
  - b) Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling. Do not smoke.
  - c) Never refuel the tractor indoors.
  - d) Never store the tractor or fuel container inside where there is an open flame, such as in a water heater.
2. Never run a tractor inside a closed area.
3. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
4. Never tamper with safety devices. Check their proper operation regularly.
5. Keep tractor free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow tractor to cool before storing.
6. Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
7. Never make adjustments or repairs with the engine running.
8. Grass catcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
9. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
10. Check brake operation frequently. Adjust and service as required.

## ⚠ DANGER



**ROTATING BLADES  
CUT OFF ARMS  
AND LEGS**

**STOP MOWER WHEN  
CHILDREN ARE NEAR  
NO RIDERS, THEY FALL OFF**

## ⚠ DANGER



**OPERATING  
ON SLOPES  
CAN BE DANGEROUS**

**SEE OPERATOR'S MANUAL  
IF YOU CANNOT BACK UP A HILL,  
DO NOT DRIVE ON IT**

## ⚠ WARNING

**AVOID SERIOUS INJURY OR DEATH**

- READ OPERATOR'S MANUAL(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- AVOID SUDDEN TURNS.
- IF YOU CANNOT BACK UP A HILL, DO NOT OPERATE ON IT.
- GO UP AND DOWN SLOPES, NOT ACROSS.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK DOWN SLOWLY.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND SET PARKING BRAKE.

## OPERATION

### TO START ENGINE

SEAT MUST BE OCCUPIED, GROUND SPEED CONTROL LEVER IN NEUTRAL, PTO SWITCH OFF AND CLUTCH PEDAL DEPRESSED.

### WHEN OPERATOR LEAVES SEAT:

ENGINE WILL SHUT OFF WITH GROUND SPEED CONTROL LEVER IN FORWARD OR REVERSE, OR WITH PTO SWITCH ON.

### TRACTION CONTROL

- TO STOP TRACTOR MOTION, FULLY DEPRESS BRAKE & CLUTCH PEDALS.

### TO OPERATE PTO CLUTCH

- THE OPERATOR MUST BE IN THE SEAT.
- TO ENGAGE PTO, SLIDE PTO SWITCH TOWARD OPERATOR & LIFT UP.
- TO DISENGAGE PTO, PUSH PTO SWITCH DOWN.

CHOKE



PTO SWITCH



IGNITION SWITCH



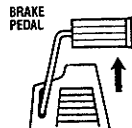
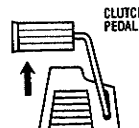
### TO SET PARKING BRAKE

- PULL KNOB OUT WHILE BRAKE PEDAL IS DEPRESSED
- RELEASE BRAKE PEDAL WHILE HOLDING KNOB



### TO RELEASE PARKING BRAKE

- DEPRESS BRAKE PEDAL
- PUSH KNOB IN WHILE BRAKE PEDAL IS DEPRESSED





### TRANSMISSION RELEASE VALVE LEVER

PUSH LEVER DOWN  
TO RELEASE POSITION

TRACTOR MAY NOW BE MOVED  
BY MANUALLY PUSHING OR PULLING.



## ⚠ DANGER



**ROTATING BLADES  
CUT OFF ARMS  
AND LEGS**

**STOP MOWER WHEN  
CHILDREN ARE NEAR  
NO RIDERS, THEY FALL OFF**

## ⚠ DANGER



**OPERATING  
ON SLOPES  
CAN BE DANGEROUS**

**SEE OPERATOR'S MANUAL  
IF YOU CANNOT BACK UP A HILL,  
DO NOT DRIVE ON IT**

## ⚠ WARNING

**AVOID SERIOUS INJURY OR DEATH**

- READ OPERATOR'S MANUAL(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- AVOID SUDDEN TURNS.
- IF YOU CANNOT BACK UP A HILL, DO NOT OPERATE ON IT.
- GO UP AND DOWN SLOPES, NOT ACROSS.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK DOWN SLOWLY.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND SET PARKING BRAKE.

## ⚠ CAUTION DO NOT TOW TRACTOR

DAMAGE WILL RESULT TO HYDROSTATIC TRANSMISSION

## OPERATION

### TO START ENGINE

SEAT MUST BE OCCUPIED, GROUND SPEED CONTROL LEVER IN NEUTRAL AND PTO SWITCH OFF.

### WHEN OPERATOR LEAVES SEAT:

ENGINE WILL SHUT OFF WITH GROUND SPEED CONTROL LEVER IN FORWARD OR REVERSE, OR WITH PTO SWITCH ON.

### TRACTION CONTROL

- MOVEMENT OF TRACTION LEVER AWAY FROM NEUTRAL INCREASES GROUND SPEED IN BOTH DIRECTIONS.
- TO STOP TRACTOR MOTION, FULLY DEPRESS BRAKE PEDAL.

### TO OPERATE PTO CLUTCH

- THE OPERATOR MUST BE IN THE SEAT.
- TO ENGAGE PTO, SLIDE PTO SWITCH TOWARD OPERATOR & LIFT UP.
- TO DISENGAGE PTO, PUSH PTO SWITCH DOWN.

CHOKE



PTO SWITCH



IGNITION SWITCH



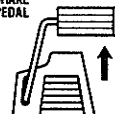
### TO SET PARKING BRAKE

- PULL KNOB OUT WHILE BRAKE PEDAL IS DEPRESSED (P)
- RELEASE BRAKE PEDAL WHILE HOLDING KNOB

### TO RELEASE PARKING BRAKE

- DEPRESS BRAKE PEDAL
- PUSH KNOB IN WHILE BRAKE PEDAL IS DEPRESSED

BRAKE  
PEDAL



POWER LIFT  
SWITCH



DOWN

UP

## Operation

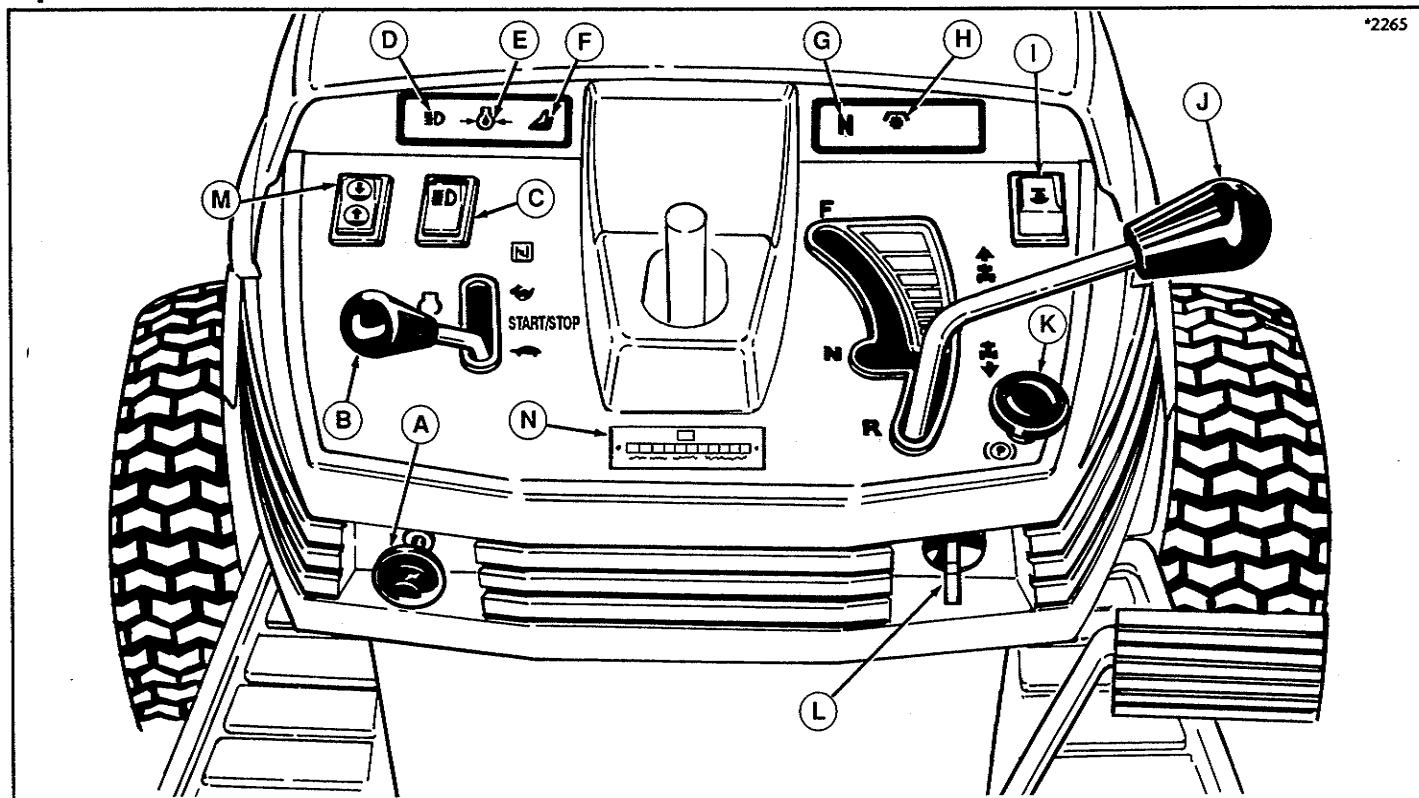
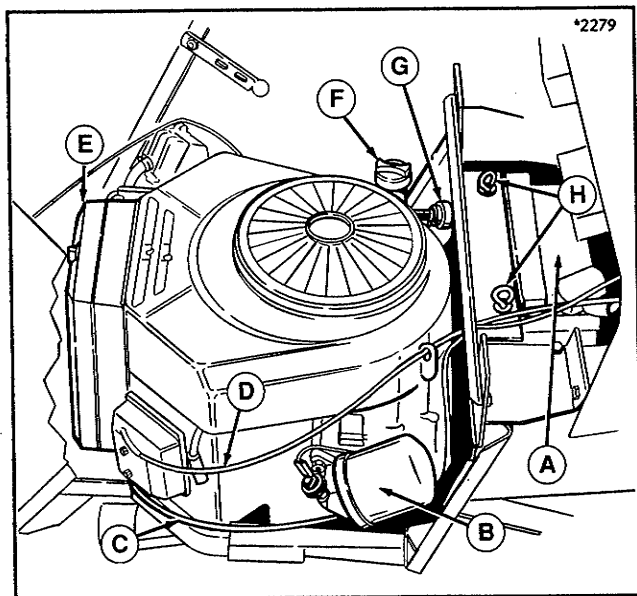


Figure 1. Controls (See page 45 for chart of International Symbols.)



| ITEM | NAME                                    | FUNCTION  |
|------|---|---|
| A    | Choke (Twin Cylinder Only)              | Pull out to close choke. Aids in starting a cold engine.  |
| B    | Engine Speed Control Lever              | Controls engine speed. On Single cylinder models, push fully forward to close choke. For warm starts and stopping, move control lever to START/STOP position.   |
| C    | Headlight Switch                        | Push front down to turn headlight on, push back to turn headlight off.  |
| D    | Headlight Indicator Light (Blue)        | Indicates headlights on when lit.   |
| E    | Oil Pressure Indicator Light (Red)      | Indicates low oil pressure (when engine is running). Lights up with ignition key (L) turned on. Should go out immediately after engine starts.  |
| F    | Operator Seated Indicator Light (Green) | Indicates operator present/seat switch engaged. Must be lit for engine to start. For more details, refer to "Safety Interlock System".  |
| G    | Neutral Indicator Light (Green)         | Indicates transmission lever (J) is in neutral gate. Must be lit for engine to start.   |
| H    | Electric Clutch Indicator Light (Red)   | Indicates electric clutch switch (I) is on. Must be off for engine to start.  |
| I    | Electric Clutch Switch                  | Controls electric clutch (PTO) for attachments. Slide back and pull up to engage clutch, push down to disengage. Activates electric clutch light, item H.   |
| J    | Transmission Control Lever              | Controls ground speed and forward/reverse motion. On hydro models, push forward to go forward; pull back to go in reverse. Ground speed is controlled by how far lever is in forward or reverse gate. On gear models, depress clutch pedal and select gear range. |
| K    | Parking Brake Control Knob              | Engages parking brake. Depress clutch/brake pedal (hydro models) or brake pedal (gear models) fully and pull up knob. To disengage brake, depress pedal and push knob down.   |
| L    | Ignition Switch                         | Starts and stops engine.  |
| M    | Electric Lift Switch (16 HP Only)       | Raises and lowers tractor attachments. Push top of switch to lower attachments and push bottom of switch to raise attachments. Optional kit for 14 HP tractors.   |
| N    | Hourmeter                               | Records hours of engine operation.  |

Figure 1. Controls (See page 45 for chart of International Symbols.)



**Figure 2. 16 HP Briggs & Stratton Twin Cylinder Engine Compartment**

| ITEM | NAME                     | DESCRIPTION   |
|------|--------------------------|---|
| A    | Battery                  | 12 volt, 340 amp battery recharged by engine alternator.  |
| B    | Oil Filter               | Spin-on filter for easy maintenance. Refer to Engine Manual for recommended service intervals and procedures. |
| C    | Throttle Cable           | Controls engine speed and RPM level. See Engine Manual for adjustment.  |
| D    | Choke Cable              | Controls choke position. See Engine Manual for adjustment.  |
| E    | Air Filter               | See Engine Manual for maintenance instruction.  |
| F    | Oil Fill/<br>Dipstick    | Turn and remove to check or add oil. See Engine Manual for dipstick instruction.                              |
| G    | Fuel Filter              | In-line filter for straining particles in fuel lines and fuel tank.   |
| H    | Battery Holddown<br>Rods | Spin-off rods retain battery clamp and battery.   |

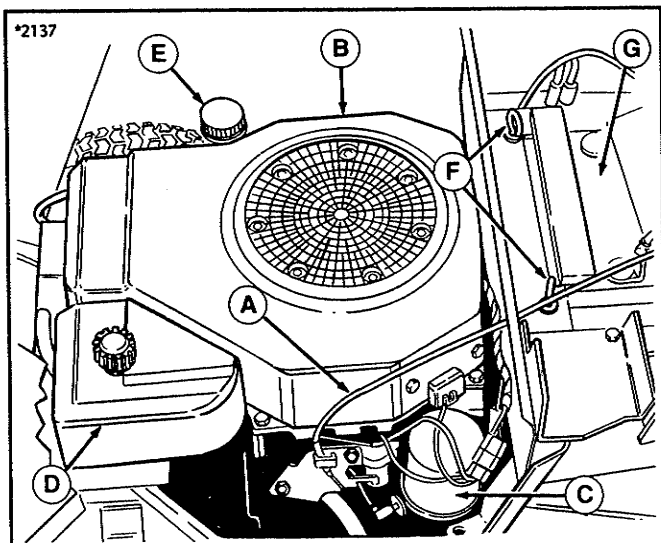


Figure 3. 14 HP Kohler Single Cylinder Engine Compartment

| ITEM | NAME                  | DESCRIPTION   |
|------|-----------------------|---|
| A    | Throttle/Choke Cable  | Controls engine speed, RPM level and choke position. See Engine Manual for adjustment.                            |
| B    | Fuel Filter           | In-line filter for straining particles in fuel lines and fuel tank.   |
| C    | Oil Filter            | Spin-on oil filter for easy maintenance. Refer to Engine Manual for recommended service intervals and procedures. |
| D    | Air Filter            | See Engine Manual for maintenance instruction.  |
| E    | Oil Fill/Dipstick     | Turn and remove to check or add oil. See Engine Manual for dipstick instruction.                                  |
| F    | Battery Holddown Rods | Spin-off rods retain battery clamp and battery.   |
| G    | Battery               | 12 volt, 340 amp battery recharged by engine alternator.  |

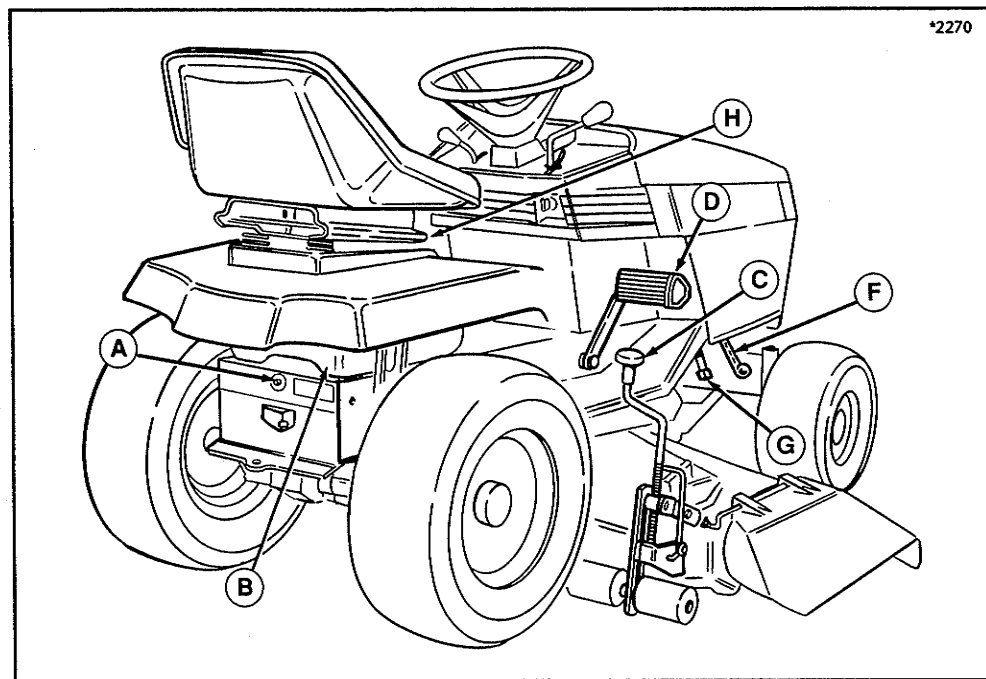


Figure 4. Tractor Controls

| ITEM | NAME  | FUNCTION  |
|------|---|---|
| A    | Transmission Release Lever (Hydro Only)   | Engages/disengages transaxle to drive or push tractor. Refer to page 17 for more information.   |
| B    | Fuel Tank with Gauge  | 4-gallon (15.1 L) fuel tank with built-in gauge in filler cap. (located under seat.)  |
| C    | Mower Height Adjuster   | Controls height of mower cut. Infinitely adjustable from 1" to 3-5/8" cutting heights.  |
| D    | Brake/Clutch Pedal (Hydro Models)<br>Brake Pedal (Gear Models)<br>Parking Brake Pedal | On hydro models, depressing pedal disengages drive belt and applies tractor brake. Depressing the brake pedal returns the transmission control lever (J, figure 1) to neutral. On gear models, depressing pedal applies tractor brake (see item E, Clutch Pedal). For parking brake, depress pedal fully and lift control knob (K, figure 1). |
| E    | Clutch Pedal (Gear Models)<br>(Not Shown-Located at LH footrest)                      | On gear models, depressing clutch disengages drive belt and engages shift lock out so that gear lever can be shifted. Clutch pedal must be depressed with brake pedal to stop tractor.  |
| F    | Hood Latch  | Rubber strap secures hood to frame. Release strap on each side to raise engine hood.  |
| G    | Oil Drain   | Oil drain extension tube allows for engine oil to be drained from underneath tractor frame. (Briggs & Stratton model shown-drain located on opposite side on Kohler engines.)   |
| H    | Seat Lever  | Releases seat for forward/back seat position.   |

Figure 4. Tractor Controls

### SAFETY INTERLOCK SYSTEM

Your tractor is equipped with a seat switch safety system that will automatically shut the engine off when the operator leaves the seat with the transmission lever in gear or electric clutch engaged. Once the engine has stopped, the electric clutch switch must be turned off after operator returns to seat in order to start the engine.

Check operation of dash safety lights. With operator in seat and ignition switch turned to ON (engine not running):

- Neutral light should go on with transmission lever in neutral gate and should go out when lever is moved to either forward/reverse gate.
- Electric clutch light should go on and off with operation of electric clutch switch.
- Oil pressure light should be on and should go out immediately after engine starts.
- Operator present light should go on and off as operator lifts off seat.

### Seat Switch Tests

Check the seat switch (A, figure 5) every fall and spring with the following four tests.



### WARNING

If the tractor does not pass the test, do not operate tractor. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety system.

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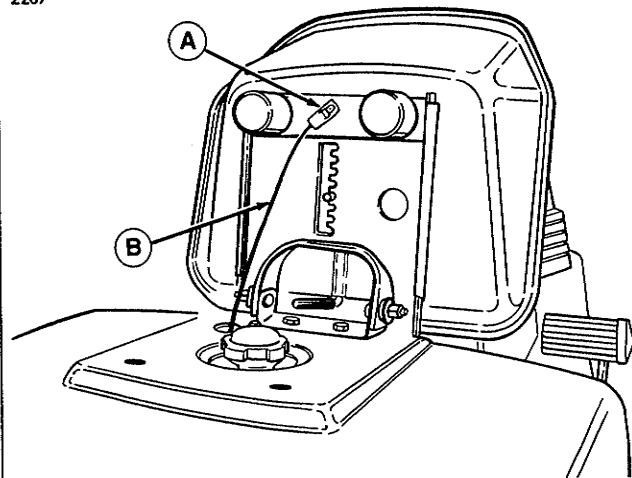


Figure 5. Seat Switch

A. Seat Switch

B. Wiring Harness

**Test 1 — Engine should NOT crank if:**

- A. Seat not occupied or;
- B. Transmission lever out of neutral, or;
- C. Electric clutch switch engaged, or;
- D. Clutch pedal not depressed (gear model only).

**Test 2 — Engine should crank if:**

- A. Seat is occupied, and;
- B. Transmission lever in neutral, and;
- C. Electric clutch switch disengaged, and;
- D. Clutch pedal depressed (gear model only).

**Test 3 — Engine should shut off if:**

- A. Operator rises off seat with transmission lever in gear, or;
- B. Operator rises off seat with electric clutch engaged.
- C. If operator returns to seat before engine stops, the engine will restart and electric clutch will re-engage.

**Test 4 — Electric clutch will disengage if:**

- A. Operator rises off seat with engine running.
- B. If operator returns to seat before engine stops, the engine will resume speed and electric clutch will re-engage.

**OPERATION ON SLOPES**

Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet in a travel distance of ten feet. When operating on slopes that are greater than 15 percent (8.5°) but less than 30 percent, use front counterweights and rear wheel weights. In addition to front and rear weights, use extra caution when operating on slopes with rear-mounted grass catcher.

To safely mow on slopes, perform the following common-sense test to determine if slope is too steep for tractor use:

1. Try to back directly up the slope. If tractor easily climbs slope in reverse, tractor can safely be used to mow slope by going directly up and down the face of the slope. **DO NOT MOW ACROSS THE FACE OF SLOPES OVER 15%, ONLY MOW UP AND DOWN.**
2. If tractor fails to climb slope in reverse, do not use tractor to mow slope. Use push mower and follow safety guidelines in Operator's Manual for push mower.
3. Do not start or stop on slopes when mowing up and down the face of slopes.

### CHECKS BEFORE STARTING



#### WARNING

Never add gasoline when engine is running.



#### CAUTION

Never use gasoline containing METHANOL, gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.

1. Check that gas tank is at least 3/4 full to avoid refueling.
2. Check engine oil level and add if necessary. Refer to engine Owner's Manual for recommendations.
3. Make sure either mower deflector or grass collection system is in place.
4. Check for loose nuts, screws, bolts, oil leaks, gasoline leaks, etc.
5. Make sure the mower is in desired cutting height.
6. On hydro models, check the transmission release lever is in the disengaged position. See "Pushing Tractor By Hand."

### STARTING AND STOPPING



#### WARNING

Never allow passengers to ride on the unit.

1. Before using this mower for the first time, the owner should operate in an open area, without mowing, to become accustomed to the unit. The left side of the mower can be used to trim close to objects in the lawn. Read "Operation on Slopes", page 13.
2. Make sure electric clutch is disengaged and transmission control lever is in neutral. On gear models, depress the clutch pedal.
3. For cold starts, pull choke knob out (16 HP Briggs & Stratton engine models) or push engine speed control into choke position (14 HP Kohler engine models).  
  
For warm starts, set engine speed control between 1/2 and 3/4 throttle.
4. Turn the key to start and release when engine starts. Release choke or move lever out of choke position as engine warms.
5. Make sure desired direction is clear of objects, people and animals.
6. Release the parking brake.
7. On hydro models, move the transmission control lever out of Neutral to travel. Push forward to go forward, or pull



back to go in reverse. On gear models, depress the clutch pedal and select gear range to travel. Always depress clutch pedal to change gear selection.

8. Place engine speed control lever to full throttle, especially if mowing thick grass. Ground speed can be controlled by placement of transmission lever (J, figure 1). Using full throttle will also ensure that battery will be recharging.
9. Lower mower from transport position. Use the electric clutch switch to engage mower or attachment drive.
10. Select the appropriate ground speed for conditions. If the terrain is rough, hilly or sloping, drive slowly. You should also drive slowly to cut thick grass.
11. Use the transmission control lever to slow down for turns or to trim around objects, then increase speed. To stop, move the control lever into NEUTRAL position. On hydro models, you can also stop by depressing the clutch/brake pedal to return the transmission to neutral. On gear models, depress both the clutch and brake pedals and return the gear shift lever to neutral to stop.
12. Before leaving operator's position, set the parking brake and disengage the electric clutch. (The parking brake is shown set in figure 6.) Set the engine speed control to SLOW and allow the engine to idle for 20 seconds. Turn the key to OFF and remove it. Wait for moving parts to stop.
13. Clean all dirt and grass from the mower and tractor. Be sure to clean the engine and transmission compartment. Allow engine to cool before touching engine parts.

## CLUTCH/BRAKE PEDAL OPERATION - HYDRO MODELS

Refer to figure 6. Depressing pedal from position A to B disengages transmission drive belt, applies the tractor brake and returns the transmission control lever to neutral. Parking brake is applied at position B when parking brake control knob (C, figure 6) is pulled up with pedal fully depressed.

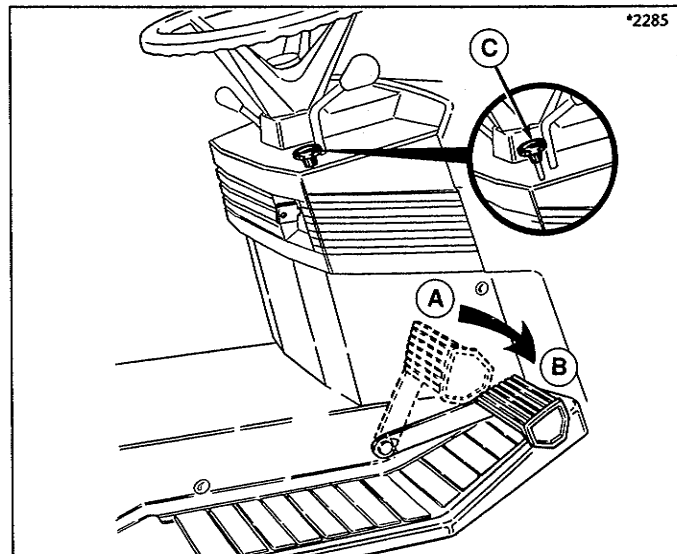


Figure 6. Clutch/Brake/Parking Brake Pedal - Hydro Models  
c. Parking Brake Knob

## Operation

### CLUTCH AND BRAKE PEDAL OPERATION - GEAR MODELS

Refer to figure 7. Depressing the clutch pedal from position A to B activates neutral start circuit and will disengage the transmission drive belt and allow the gear lever to be shifted. Clutch pedal must be used with the brake pedal (see figure 8) to stop the tractor.

Refer to figure 8. Depressing the brake pedal from position A to B will apply the tractor brake. Parking brake is applied at position B when parking brake control knob (C, figure 8) is pulled up with pedal fully depressed.

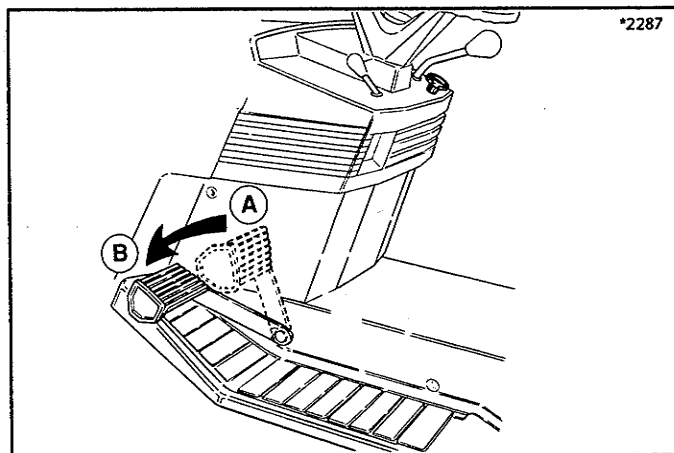


Figure 7. Clutch Pedal - Gear Models

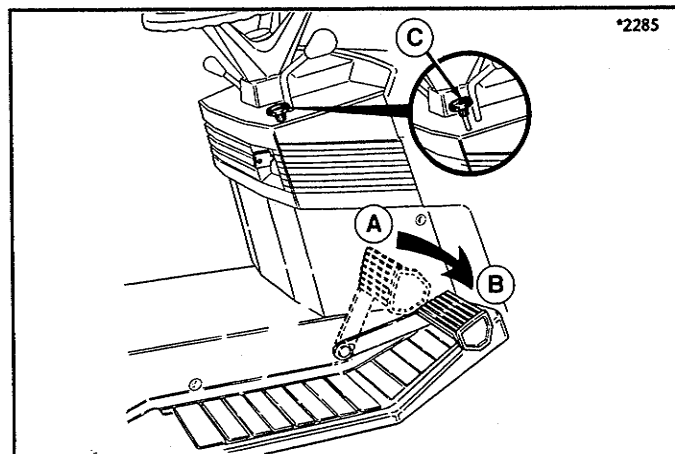


Figure 8. Brake/Parking Brake Pedal - Gear Models  
C. Control Knob

## MOWING PATTERN & TIPS

For the first use of the mower choose a smooth level area. Cut long straight strips overlapping slightly.

The size and type of area to be mowed determines the best mowing pattern to use. Obstructions such as trees, fences and buildings must also be considered. Where possible, make one or two passes in a clockwise direction around the outside of the area to keep the cut grass off fences and walks. The remainder of the mowing should be done in a counterclockwise direction so the clippings are dispersed on the cut area.

Most lawns should be mowed to keep the grass approximately two to three inches (50 to 76 mm) high. Best results are obtained by cutting often and not too short. To help keep a green lawn, never mow more than one third of the height of the grass, or a maximum of one inch (25 mm), in one mowing. For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.

Adjust the cutting height as necessary. For best appearance, grass should be cut in the afternoon or early evening (in daylight) when it is free of external moisture.

Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.

## PUSHING TRACTOR BY HAND - HYDRO MODELS

To push the tractor by hand, the transmission release lever (A, figure 9) must be engaged (bottom of slot).

To drive tractor, the release lever must be placed back in the "drive" position (top of slot). Refer to figure 9 or decal (C).

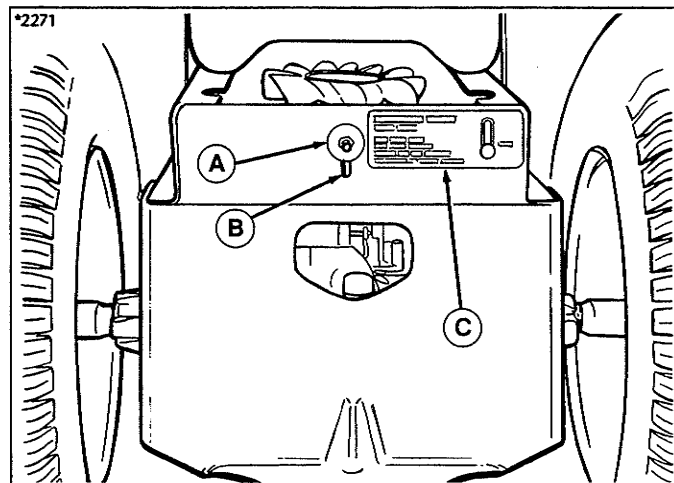


Figure 9.

- A. Drive Position
- B. Push Position
- C. Decal

## Normal Care

| Safety Items  | See       | Before First Use                                | Before Each Use | Every 5 Hours | Every 25 Hours  | Every 100 Hours | Spring & Fall |
|---|-----------|---|-----------------|---------------|-----------------|-----------------|---------------|
| Check safety interlock system.  | pg. 12    | •   |                 |               |                 |                 | •             |
| Check tractor brake operation.  | pg. 15-16 | •   |                 |               |                 |                 | •             |
| Check tractor brake adjustments.  | pg. 43    | •   |                 |               |                 |                 | •             |
| Check mower blade stopping time.  | pg. 41    | •   |                 |               |                 |                 | •             |
| <b>Normal Care Items</b>  |           |   |                 |               |                 |                 |               |
| Check rider & mower for loose hardware.   |           | •   | •               | •             |                 |                 |               |
| Check engine oil level.   | Eng. Mn.  | •   | •               | •             |                 |                 |               |
| Check engine air filter.  | " "       |   |                 |               | **•             |                 |               |
| Change engine oil and filter.*  | " "       |   |                 |               | **Every 50 hrs. |                 | •             |
| Lubricate rider & mower.  | pg. 19-22 |   |                 |               | **•             |                 |               |
| Check tire pressure.  | pg. 23    |   |                 |               | **•             |                 |               |
| Check battery fluid level.  | pg. 23    |   |                 |               | **•             |                 |               |
| Check transmission fluid.   | pg. 24    | •   |                 |               | •               |                 | •             |
| Change transmission fluid.  | Dealer    | Every 400 hrs. or for disassembly/service only. |                 |               |                 |                 |               |
| Check fuel filter.  | pg. 24    |   |                 |               |                 | •               |               |
| Clean battery & cables.   | pg. 23    |   |                 |               |                 | •               |               |
| Clean/sharpen blades.   | pg. 28    |   |                 |               | •               |                 |               |
| Inspect spark plug(s).  | Eng. Mn.  |   |                 |               |                 | •               |               |
| * Change original engine oil after first 5 hours of operation.<br>** More often in hot (over 85° F: 30° C) weather or dusty operating conditions. |           |   |                 |               |                 |                 |               |

### Normal Care Schedule

**STORAGE (30 Days or More)**

1. Run tractor engine until it stops from lack of fuel or, use a gasoline stabilizer. This additive, available from your dealer, prevents formation of gum and varnish for up to one year.

**WARNING**

Never store tractor where gasoline fumes may reach an open flame or sparks.

2. Change engine oil. Record the type and weight of oil put in crankcase. See the engine Owner's Manual for recommendations.
3. Remove the spark plug(s). Squirt approximately one ounce (30 ml) of engine oil into engine through spark plug hole. Crank engine a few times to distribute oil and then reinstall the spark plug.
4. Lubricate the tractor and mower.
5. Check battery fluid level. Battery life will be extended if it is removed and stored in a cool, dry place, fully charged.
6. Clean tractor thoroughly. Touch up exposed metal parts with a good quality paint (obtainable from your dealer) or a light film of grease or oil.

**LUBRICATION**

1. With an oil can, apply a few drops of oil to points indicated with oil can in figures 10 through 16.
2. With a grease gun, apply one or two shots of lithium based automotive grease to the grease fittings shown in the following illustrations.

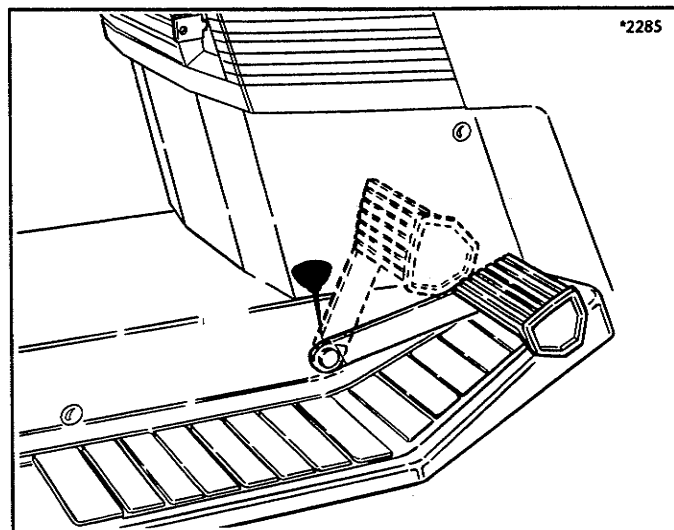


Figure 10. Lubricate Pedal Pivot Point - Hydro Models. (Lubricate clutch pedal on LH side on Gear Models)

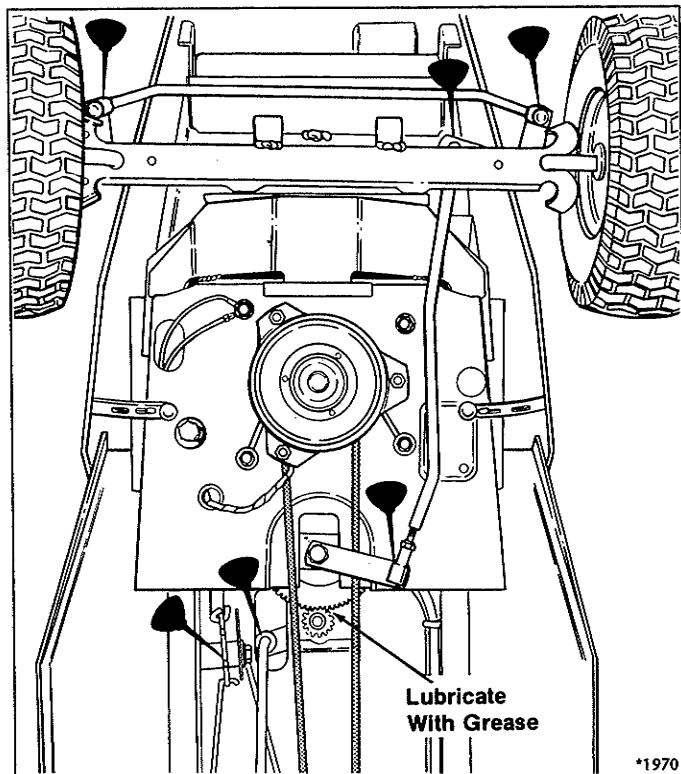


Figure 11. Tractor Lubrication Points - Front Half

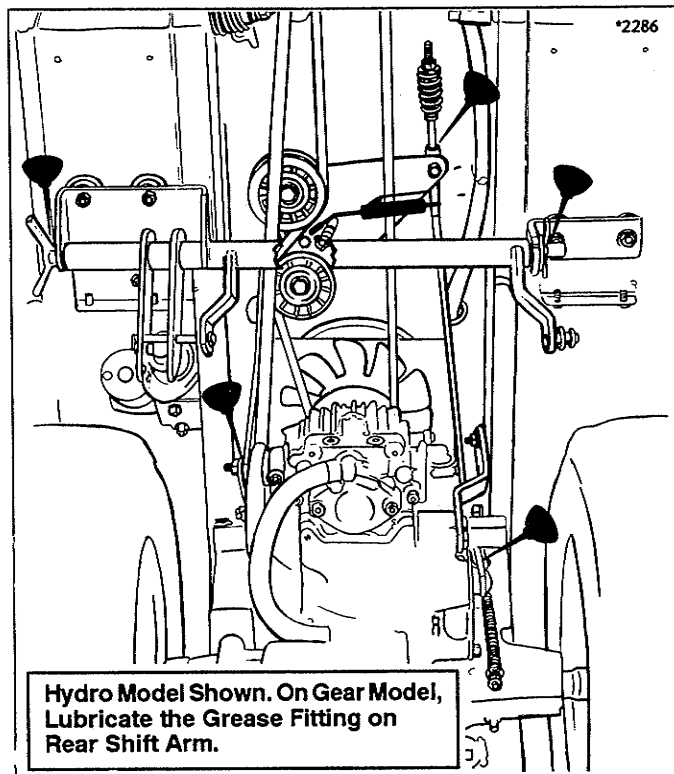


Figure 12. Tractor Lubrication Points - Rear Half

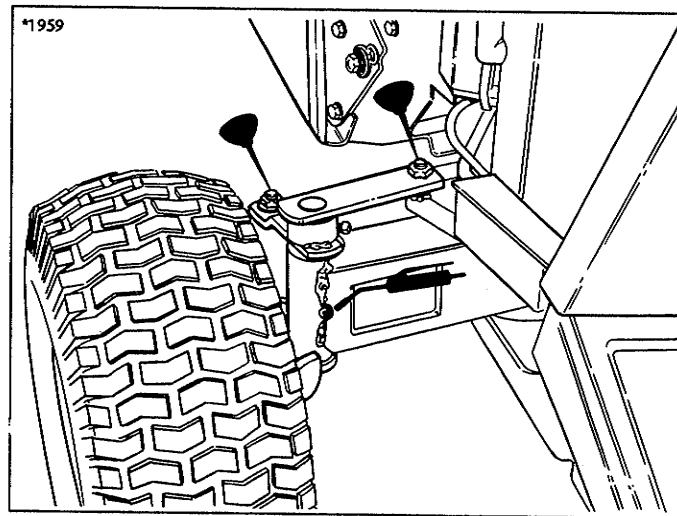


Figure 13. Front Axle Lubrication Points

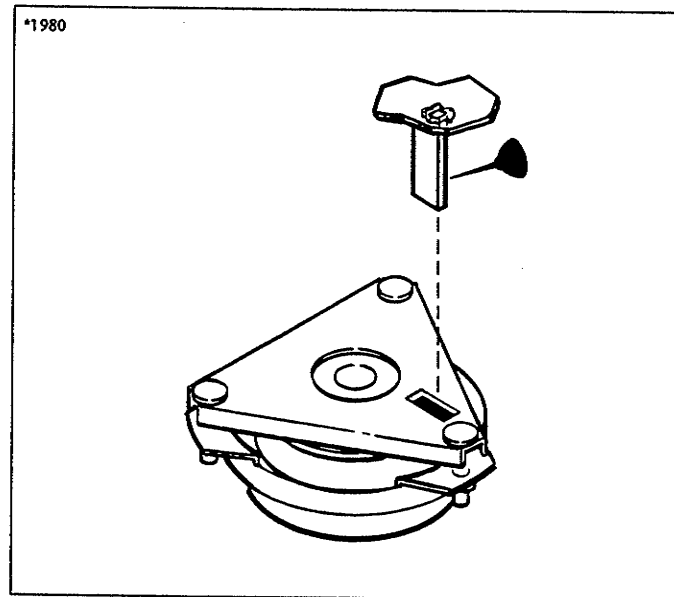


Figure 14. Electric Clutch

Lubricate tab (welded to underside of frame) whenever electric clutch is removed for service or drive belt replacement.

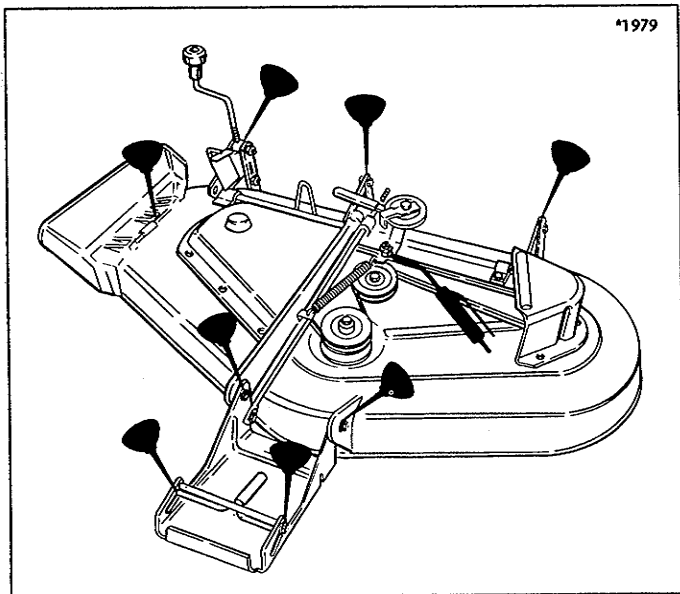


Figure 15. Mower Lubrication Points

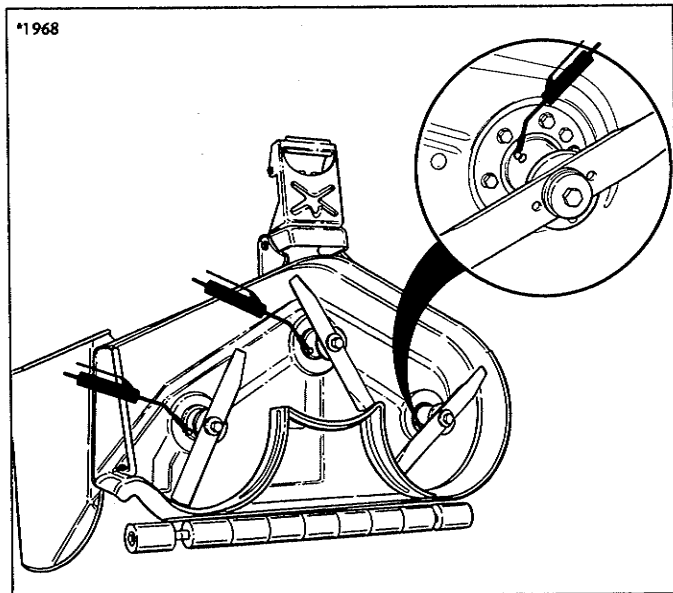


Figure 16. Arbor Lubrication Points



## CHECK TIRE PRESSURE

Make sure the air pressure in the front tires is 12 to 15 psi (82 to 100 kPa) and the air pressure in the rear tires is 6 to 8 psi (41 to 55 kPa). Use a gauge with one-pound markings.

## BATTERY MAINTENANCE



### WARNING

For your personal safety when removing or installing battery cables, always disconnect the negative cable **FIRST** and reconnect it **LAST**. The positive battery terminal can easily be shorted to the tractor frame by a wrench or other tool if this is not done.



### WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

## Check Fluid Level

Check the battery fluid level. Wipe dirt from around the cap then remove the cap. The fluid must be even with the bottom of the split ring. If not, add distilled water. Reinstall the cap. Be sure the cover is in place over positive terminal. Make sure vent tube from battery cap extends beyond battery platform.

## Cleaning Battery and Cables.

1. Open engine compartment to locate battery (figure 17). Disconnect the cables from the battery, negative cable first. A positive "+" sign is stamped on the battery next to the positive terminal.
2. Remove the battery holddown rods and battery clamp. Separate the battery cap from the vent tube (the vent tube should remain routed through the frame). Remove the battery.

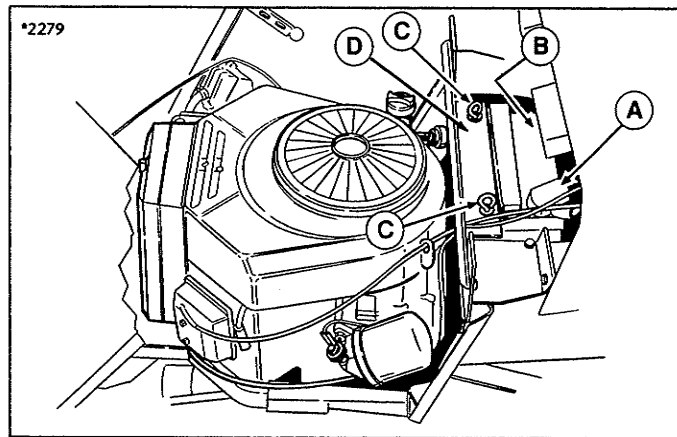


Figure 17. Battery

A. Positive Terminal  
B. Negative Terminal

C. Holddown Rod  
D. Battery Clamp

## Normal Care

---

3. Clean the battery terminals and cable clamps with a wire brush.
4. Scrub the battery, cable and battery compartment with baking soda and water.
5. Reinstall battery and clamps. Reinstall vent tube to battery cap. Secure the clamps with holddown rods.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with petroleum jelly or approved terminal spray coating. Be sure to slide cover over positive terminal.

### CHECK FUEL FILTER



Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. Do not spread hose clamps further than necessary. Make sure that clamps grip hose firmly over filter after installation.

The fuel filter is located in fuel line in engine compartment. Refer to item C, figure 2 or item B, figure 3. A dirty or clogged fuel filter will cause erratic engine operation or prevent engine from running. Replace as follows:

1. Place a container below fuel filter to catch gasoline.

2. Using a pliers, open and slide hose clamps from fuel filter.
3. Remove hoses from filter.
4. Install new filter in proper flow direction in hoses. Secure by reclamping with hose clamps.
5. If new filter is not available, remove old filter, drain gasoline, and allow to dry. Inspect screen for particles. Tap filter or blow air through filter to remove particles. Replace filter and check if engine operation improves.

### CHECK TRANSMISSION FLUID LEVEL

Park the tractor on a level surface. Remove all dirt and grass clippings from dipstick opening before removing dipstick. Remove the dipstick from the transmission through the opening in the rear frame.

Refer to figure 18. Oil should be even with the top line on the dipstick. Add premium grade 10W30 motor oil (both gear and hydro models) as required.

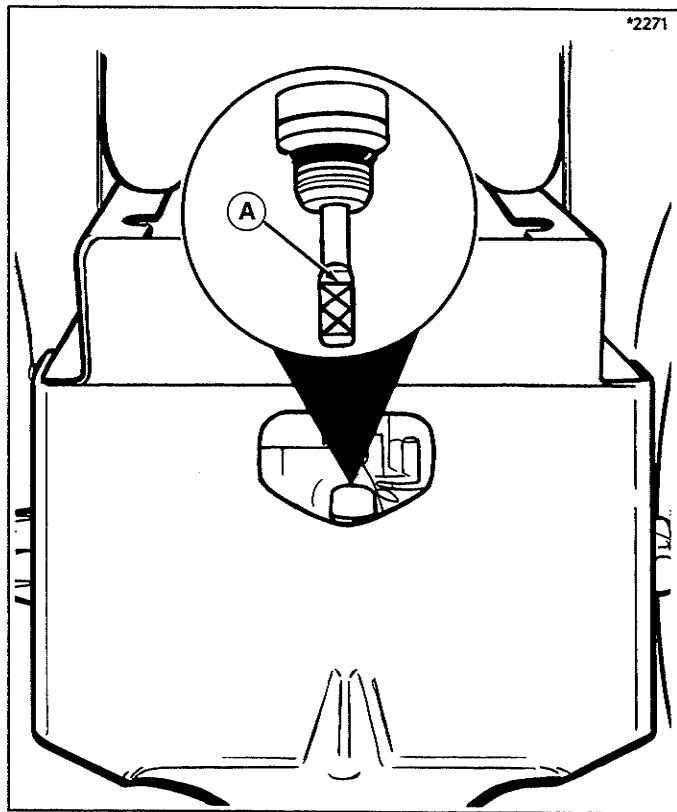


Figure 18. Transmission Fluid Level

A. Full Mark

**MOWER REMOVAL & INSTALLATION**

1. Park tractor on a level surface. Turn off electric clutch switch and engine. Apply parking brake and lower mower lift lever from transport position.
2. On left hand side of tractor, pull idler pulley arm (A, figure 19) to relieve belt tension.
3. With belt tension relieved, remove belt from electric clutch pulley (B). Removing belt relieves the tension on the front hitch assembly.

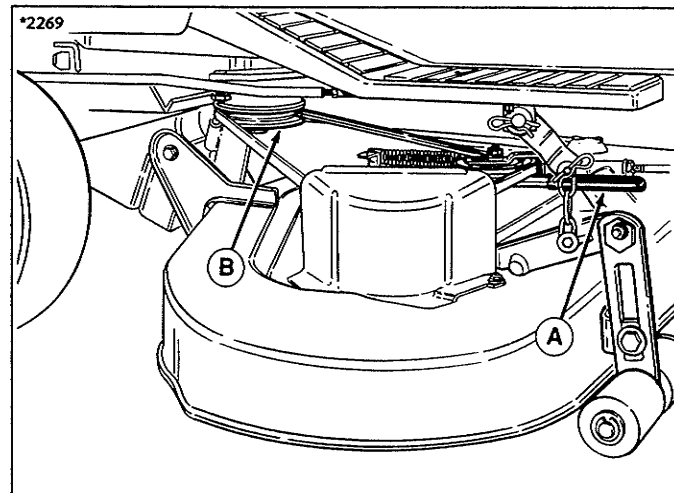


Figure 19. Mower Belt Removal

A. Idler Pulley Arm

B. Electric Clutch Pulley

## Normal Care

4. Remove mower from tractor hitch brackets (A, figure 20) by pulling spring-loaded lever (B) forward and lifting up on hitch. Place mower hitch on ground.
5. On 44" mower, disconnect mower lift chain from tractor lift arm by removing safety clip and washer from weld stud. Reinstall hardware on tractor lift arm for storage. On 50" mower, remove mower lift chain (A, figure 21) from tractor lift (B) by removing safety clip (C) and clevis pin (D) on right-hand side. On left-hand side, remove lift chain from

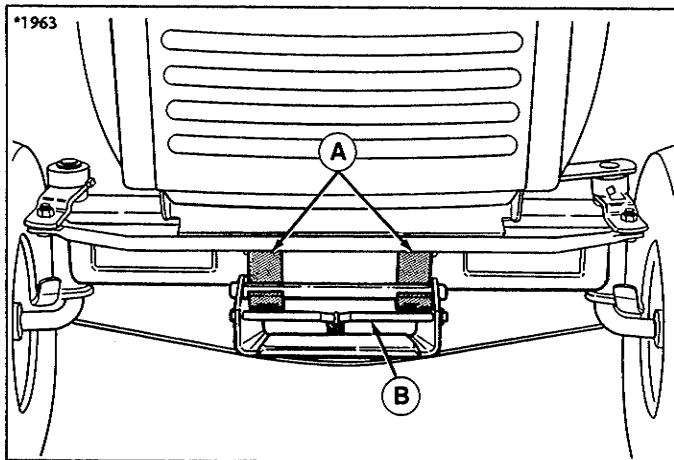


Figure 20.

- A. Tractor Hitch Brackets  
B. Lever

lift arm by removing spring clip and washer. Reinstall hardware for storage.

6. Turn wheels fully left and remove mower from underneath right hand side of tractor.
7. To install mower, reverse above steps. Check mower belt pattern as shown in figure 22.

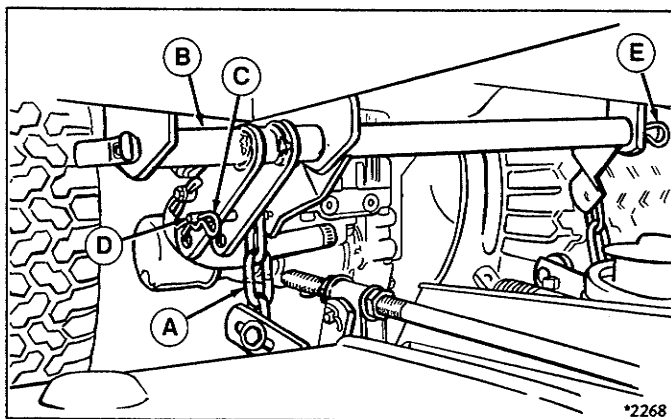


Figure 21. 50" Mower Shown

- A. Mower Lift Chain  
B. Tractor Lift Arm  
C. Safety Clip

- D. Clevis Pin  
E. Spring Clip

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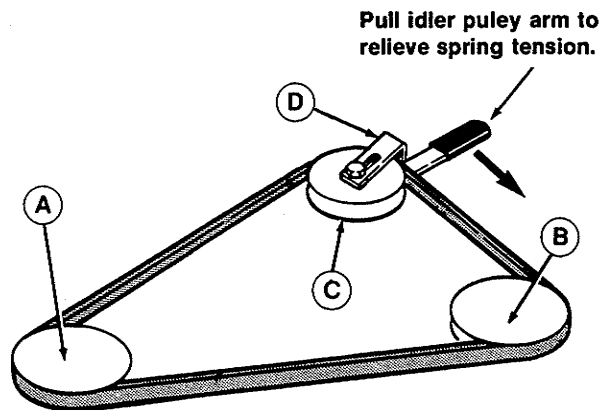


Figure 22. Mower Drive Belt Pattern

A. Electric Clutch Pulley

C. Idler Pulley

B. Arbor Pulley(s)

D. Bracket Belt Stop

## SERVICING THE MOWER BLADES



### WARNING

Do not handle the blade with bare hands. Do not touch the cutting edge.

### Sharpening & Balancing

1. To remove a blade, wedge a wood block between blade and housing to prevent rotation. Then, turn capscrew counterclockwise to remove.
2. Use a file to sharpen blade to a fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged it should be replaced.
3. To balance the blade, use a balancing machine or the following procedure. Drive a small nail into the side of a workbench or other vertical surface. Lubricate the nail with a drop of oil. Center the blade center hole on the nail. A balanced blade will remain level. File material off heavier end of blade until it is balanced.

### Blade Installation

1. Reinstall the blade(s) with the tabs pointing upward. Install the spline washer, cup washer, and capscrew (see figure 23). Be sure the splines on the spline washer are engaged with the shaft splines. Be sure cup washer is installed with the concave side up.
2. To tighten the capscrew, wedge a wood block between blade and housing to prevent blade from turning. Torque the capscrew to 50 to 70 ft. lbs. (68-76 Nm).

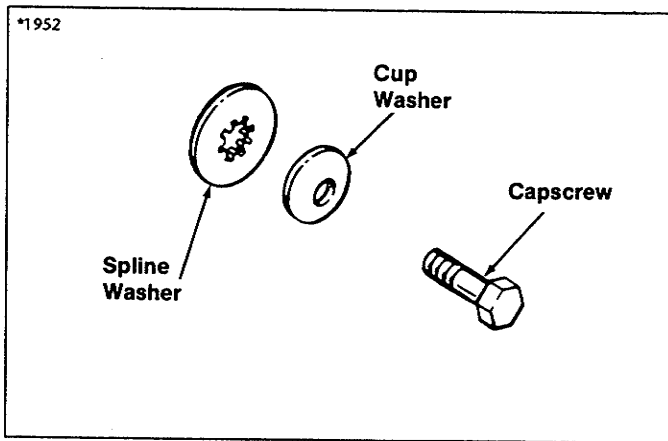


Figure 23. Blade Hardware

## CONTENT OF SECTION

This section of the manual provides troubleshooting and repair instructions for the more common and easily corrected problems. For other problems, it is recommended that you contact your dealer.



### WARNING

Perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged. Always remove the ignition key before beginning the maintenance to prevent accidental starting.

## Problem

## Cause/Remedy

### 1. Engine will not turnover or start.

- A. Transmission lever not in neutral-start position. Shift into neutral.
- B. Electric clutch switch in ON position. Place in OFF position.
- C. Out of fuel. Allow engine to cool then refill the fuel tank.
- D. Engine flooded. Push choke knob in (twin cylinder models) or move throttle control out of CHOKE position (single cylinder models).
- E. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer).
- F. Battery terminals require cleaning. See Normal Care section.
- G. Battery discharged or dead. Recharge or replace.
- H. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
- I. Solenoid or starter motor faulty. Repair or replace.
- J. Safety interlock switch or module faulty. Replace if needed (see your dealer.)
- K. Spark plug(s) faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual.
- L. Water in fuel. Drain fuel & refill with fresh fuel.
- M. Old stale gas. Drain fuel & replace with fresh fuel.

## Troubleshooting

| Problem                                     | Cause/Remedy   |
|---|--|
| 2. Engine starts hard or runs poorly.       | <ul style="list-style-type: none"><li>A. Fuel mixture too rich. Clean air filter. Check choke adjustment (engine speed control). See engine manual.</li><li>B. Carburetor adjusted incorrectly. See engine manual.</li><li>C. Spark plug(s) faulty, fouled, or incorrectly gapped. Clean and gap or replace. See engine manual.</li><li>D. Make sure parking brake is OFF.</li></ul> |
| 3. Engine knocks.                           | <ul style="list-style-type: none"><li>A. Low oil level. Check/add oil as required.</li><li>B. Using wrong grade oil. See engine manual.</li></ul>  |
| 4. Excessive oil consumption.               | <ul style="list-style-type: none"><li>A. Engine running too hot. Clean engine fins, blower screen and air cleaner.</li><li>B. Using wrong weight oil. See engine manual.</li><li>C. Too much oil in crankcase. Drain excessive oil.</li></ul>  |
| 5. Engine exhaust is black.                 | <ul style="list-style-type: none"><li>A. Dirty air filter. Clean air filter. See engine manual.</li><li>B. Check engine speed control adjustment (choke). See engine manual.</li></ul>   |
| 6. Engine runs, but tractor will not drive. | <ul style="list-style-type: none"><li>A. Transmission control lever in neutral. Shift in forward or reverse.</li><li>B. Transmission release lever in "push" position (hydro models): Move into drive position.</li><li>C. Belt is broken. See "Drive Belt Replacement" section.</li></ul>   |
| 7. Tractor drive belt slips.                | <ul style="list-style-type: none"><li>A. Pulleys or belt greasy or oily. Clean as required.</li><li>B. Belt stretched or worn. Replace with correct belt.</li><li>C. Idler pulley spring stretched or broken. Replace spring.</li></ul>  |



| <b>Problem</b>               | <b>Cause/Remedy</b>  |
|------------------------------|--|
| 8. Brake will not hold.      | A. Brake rod is incorrectly adjusted. Refer to "Adjustments" section.<br>B. Internal brake disc on transaxle worn. See your dealer.  |
| 9. Tractor steers hard.      | A. Steering linkage is loose. Check and tighten any loose connections. See "Steering Gear Adjustment".<br>B. Improper tire inflation. Check and correct.<br>C. Spindle bearings dry. Grease spindles. See Normal Care - Lubrication section. |
| 10. Drive belt does not stop | A. Belt stops out of adjustment. See "Drive Belt Replacement" section. when clutch-brake depressed.  |

**TROUBLESHOOTING (MOWER)**

|                                |   |
|--------------------------------|---|
| 1. Mower will not raise.       | A. Lift arms or lift chain not properly attached or damaged. Attach or repair.  |
| 2. Mower cut is uneven.        | A. Mower not leveled properly. See Mower Leveling.<br>B. Tractor tires not inflated equally or properly. See Normal Care section.   |
| 3. Mower cut is rough looking. | A. Engine speed too slow. Set for three-fourths to full speed.<br>B. Ground speed too fast. Use transmission lever to control ground speed.<br>C. Blades dull and require sharpening. See Normal Care section.<br>D. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary.<br>E. Check Electric Clutch Adjustment. Clutch may need to be adjusted.<br>F. Blades not properly fastened to arbors. See Normal Care section. |

## Troubleshooting

| Problem                                      | Cause/Remedy  |
|--|---|
| 4. Engine stalls easily with mower engaged.  | <ul style="list-style-type: none"><li>A. Engine speed too slow. Set for 3/4 to full throttle.</li><li>B. Ground speed too fast. Use lower gear.</li><li>C. Carburetor not adjusted properly.</li><li>D. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.</li><li>E. Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.</li></ul> |
| 5. Excessive mower vibration.                | <ul style="list-style-type: none"><li>A. Mower blades, arbors, or pulleys are bent. Check and replace as necessary.</li><li>B. Mower blades are out of balance. Remove, sharpen and balance blades (see Normal Care section).</li><li>C. Belt installed incorrectly. See "Mower Belt Replacement".</li></ul>  |
| 6. Excessive belt breakage.                  | <ul style="list-style-type: none"><li>A. Bent or rough pulleys. Repair or replace.</li><li>B. Using incorrect belt. See your dealer.</li></ul>  |
| 7. Mower drive belt slips or fails to drive. | <ul style="list-style-type: none"><li>A. Idler pulley spring broken or not properly attached. See your dealer.</li><li>B. Belt stops out of adjustment. Check.</li><li>C. Mower drive belt broken. Replace.</li></ul>   |

## BATTERY REPLACEMENT

A battery too weak to start the engine may not need to be replaced. It may, as an example, mean that the charging system is not working properly or that the battery has lost its charge during storage. First check the fluid level and clean the battery. Have the battery recharged if necessary. To ensure full charging, make sure tractor is operated at full throttle. If there is any doubt about the cause of the problem, see your dealer. If you must replace the battery, remove and install the battery as described in "Clean Battery and Cables."

## JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

Jump starting is not recommended. First check the battery in "Battery Replacement" above. If jump starting must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cable. Follow exactly the procedure outlined below, being careful not to cause sparks. Refer to figure 24 (page 35).

### WARNING

Never expose battery to open flame or electric spark — battery action generates hydrogen gas which is flammable and explosive. Do not allow battery acid to contact skin, eyes, fabrics, or painted surfaces. Batteries contain a sulfuric acid solution which can cause serious personal injury or property damage.

### WARNING

Any procedure other than the above could result in: (1) personal injury caused by electrolyte squirting out of the battery vents, (2) personal injury or property damage due to the battery explosion, (3) damage to the charging system of the booster vehicle or the other immobilized vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents of the battery. If ice can be seen, do not attempt to start with jumper cables.

### NOTE

The positive terminal has a cover. Slide cover away to perform this procedure. Slide cover back over positive terminal for normal operation.

1. Set parking brake.
2. Remove vent cap from both the booster and the discharged batteries. Lay a cloth over the open vent wells on each battery. These two actions help reduce the explosion hazard always present in either battery when connecting a "live" battery to a "dead" battery.
3. Attach one end on one jumper cable to the positive terminal of the booster battery (identified by a red color, "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal of discharged battery.
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the discharged battery, and the other end to a bare metal surface on the frame of your tractor **AWAY FROM** the battery compartment (do not

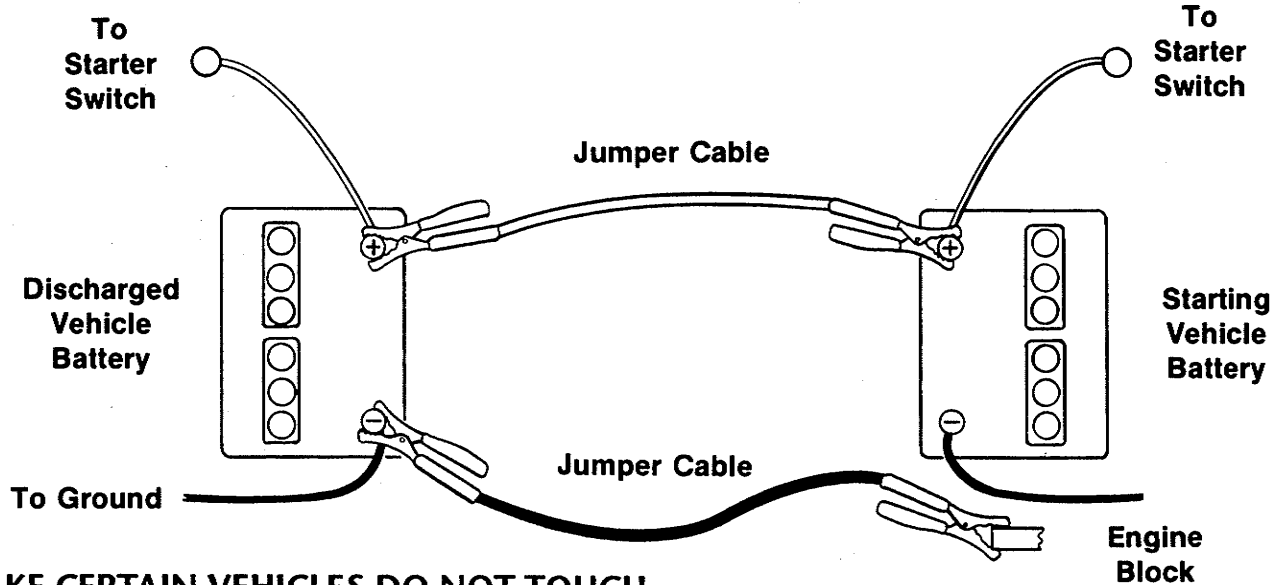
connect directly to negative post of booster battery). Take care that clamps from one cable do not inadvertently touch the clamps on the other cable. Do not lean over the battery when making the connection.

5. The tractor with discharged battery should now start.

Reverse the jump starting procedure exactly to remove the jumper cables. Then reinstall the vent caps and throw the cloths away as they may have corrosive acid on them.

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# THIS HOOK-UP FOR NEGATIVE GROUND VEHICLES



**MAKE CERTAIN VEHICLES DO NOT TOUCH**

Figure 24. Jump Starting

### DRIVE BELT REPLACEMENT

1. Park the tractor on a level surface. Turn off electric clutch and engine and remove key. Remove mower as described under "Mower Removal".
2. On hydro models, lock parking brake to relieve belt tension at idler pulley. On gear models, depress (or clamp) clutch pedal fully forward to relieve belt tension.
3. Remove belt from between belt stops (A, figure 25) and idler pulleys (B).

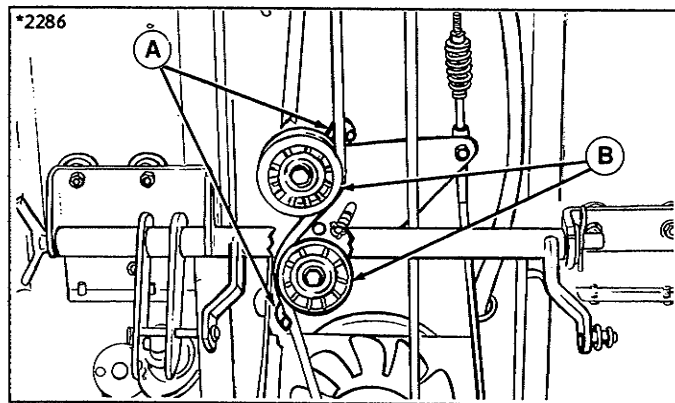


Figure 25.

- A. Belt Stops  
B. Idler Pulleys

4. To remove belt from engine pulley:
  - a. Loosen belt stops.
  - b. Remove nut and flat washer securing rear of drag link (B, figure 26). Remove drag link from steering arm (C).
  - c. Unplug electric clutch harness in engine compartment.
  - d. Remove capscrew (A), lockwasher and large flat washer securing electric clutch and drop electric clutch.
  - e. Remove belt (D).

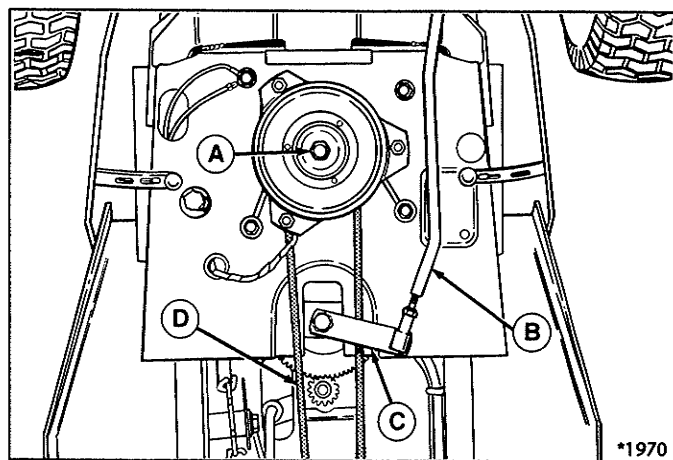


Figure 26.

- A. Capscrew  
B. Drag Link

- C. Steering Arm  
D. Drive Belt

5. On hydro models, spin transaxle cooling fan counter-clockwise to slip belt through fan blade. Remove belt from transaxle pulley. On gear models, remove belt from drive pulley.
6. Install new belt on engine pulley before reinstalling electric clutch. Reinstall washer, lockwasher, and capscrew. Lubricate weld tab on underside of tractor (refer to figure 14). Make sure weld tab is aligned with hole in top of electric clutch. To tighten capscrew, hold the bottom hub of the top pulley (above electric clutch) with large channel-lock pliers and tighten capscrew to 55 ft. lbs.
7. Install new belt over transmission drive pulley.
8. Lock parking brake (hydro models) or clutch pedal (gear models) to position idler pulley bracket. Install new belt to idler pulleys. Make sure belt is properly routed on flat and V-sided pulleys. Refer to figure 27. Adjust belt stops to 1/8" clearance from pulleys.
9. Check belt routing around engine pulley, idler pulleys, and transmission drive pulley. Check that the drag link, electric clutch, and harness plug are all correctly reinstalled. Make sure belt stops are correctly positioned and tightened securely.
10. Start tractor engine and check operation of belt by placing transmission lever in gear and engaging/ disengaging brake/clutch pedal (hydro models) or clutch pedal (gear models).

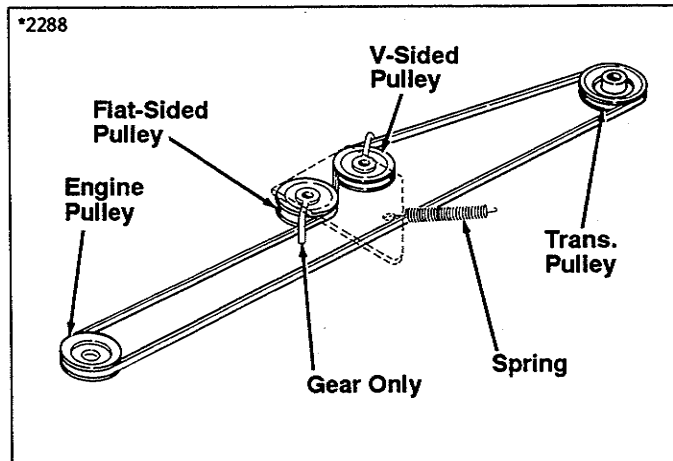


Figure 27. Drive Belt

### MOWER BELT REPLACEMENT

#### Mower Drive Belt

1. Mower does not need to be removed to install a new belt. However, for easier access, mower can be removed following steps in "Mower Removal and Installation".
2. If mower is not removed, pull idler pulley arm (A, figure 28) towards you to relieve belt tension. Drop belt from electric clutch pulley (B).
3. Loosen nut, lockwasher and flat washer securing bracket belt stop (C).

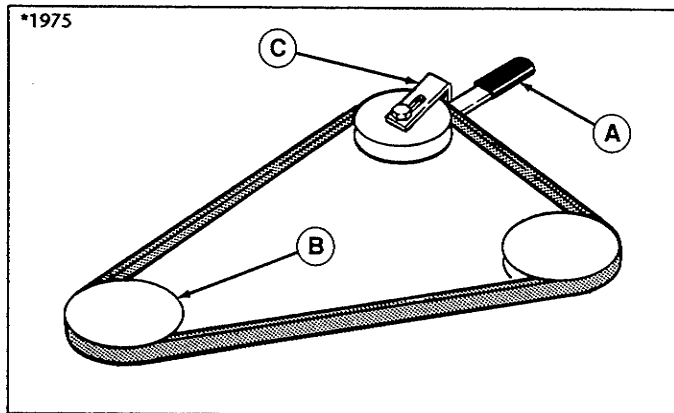


Figure 28.

A. Idler Pulley Arm  
B. Electric Clutch Pulley

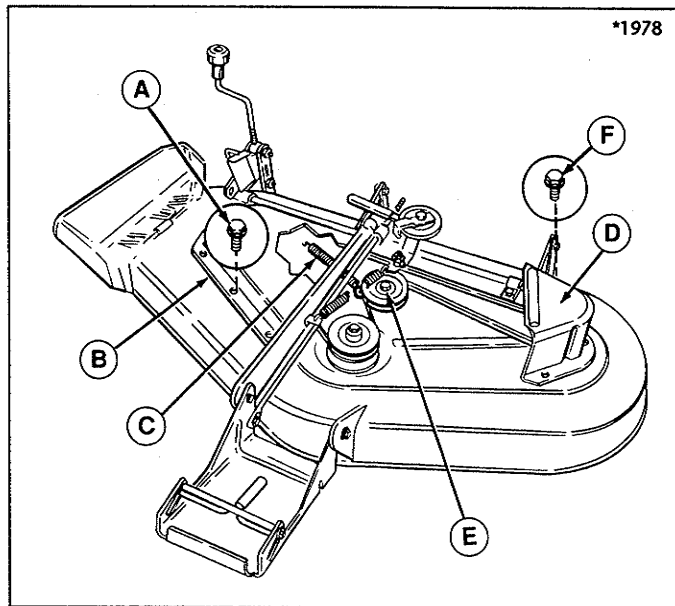
C. Bracket Belt Stop

4. Remove three capscrews securing left hand arbor cover (D, figure 29).
5. Remove old belt and replace with new belt. Make sure V-side of belt runs in all arbor pulley grooves.
6. Reinstall arbor cover.
7. Index the bracket belt stop (C, figure 28) up against idler pulley arm (A) as shown in figure 29. Make sure there is a 1/8" gap between belt stop and pulley.
8. Reinstall mower if removed, or reinstall belt to electric clutch pulley.

#### Deck Drive Belt

1. Remove mower from tractor following steps in "Mower Removal and Installation".
2. Remove six self-tapping screws (A) securing right-hand arbor cover (B).
3. Remove three self-tapping screws securing left hand arbor cover (D).
4. Using a vise-grip or pliers, remove idler pulley spring (C) from slot in deck.
5. Loosen capscrew (E) securing idler pulley to bracket. Belt can be slipped between pulley and idler bracket hub.

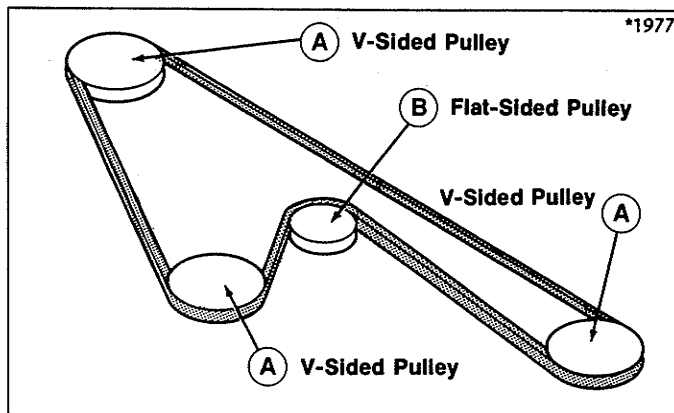




**Figure 29.**

- A. Self-Tapping Screw (RH)**
- B. Right Hand Arbor Cover**
- C. Spring**
- D. Left Hand Arbor**
- E. Capscrew**
- F. Self-Tapping Screw (LH)**

6. Replace old belt with new belt as shown in figure 30. Make sure that V-side of belt runs in arbor pulley grooves and flat side of belt runs against idler pulley.
7. Reinstall spring to slot in mower deck. Retighten capscrew securing idler pulley.
8. Reinstall left and right arbor cover using self-tapping screws removed.
9. Reinstall mower to tractor.



**Figure 30.**

- A. Arbor Drive Pulley (V-Sided)**
- B. Idler Pulley (Flat Sided)**

## Adjustments

### MOWER LEVELING



#### WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key.

#### Side-To-Side Leveling

1. Park the tractor on a level surface. Point tires straight ahead.
2. Make sure mower lift (manual lever or electric lift) is in down position. Place height adjuster in mid cut position.
3. Turn blades side-to-side and measure distance from outside tip of blades to ground. Measurement should be equal (within 1/8 inch). For adjustment, refer to figure 32.
  - a. Loosen outside nut (A, figure 32).
  - b. Turn eccentric hex nut (B) to raise or lower left hand side of mower.
  - c. Hold nut (B) and tighten nut (A) to 30 ft. lbs. Check measurement.

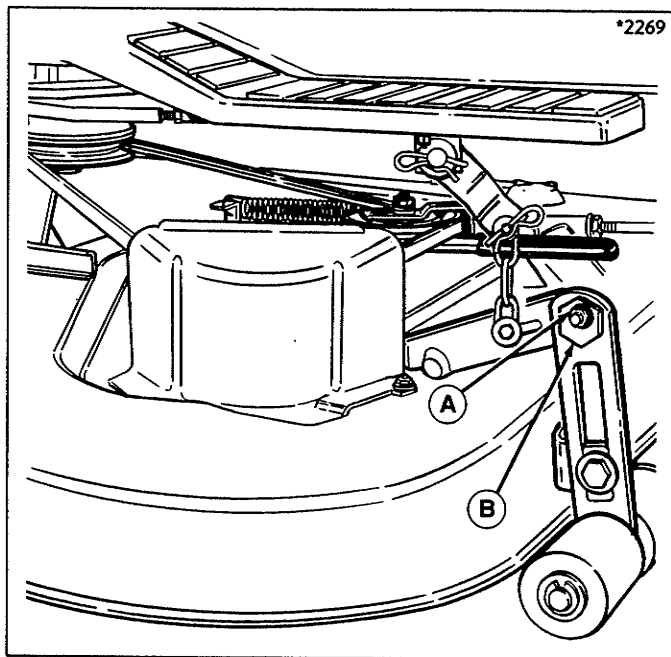


Figure 32. Side-To-Side Leveling

A. Outside Nut

B. Eccentric Nut

### Front-To-Back Leveling

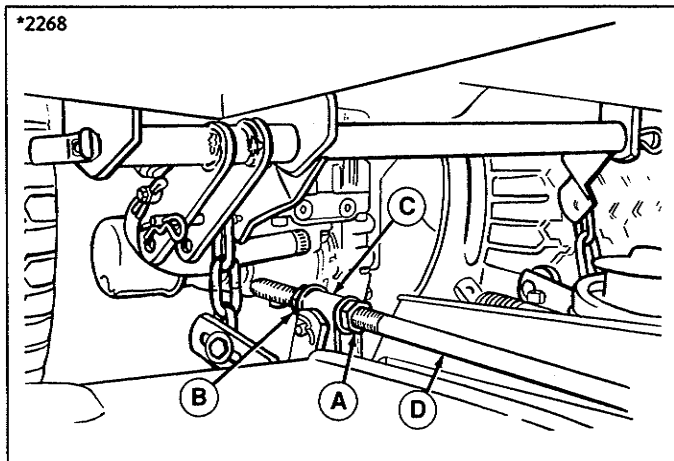
4. Turn the blades front-to-back. Measure the distance from the ground to front tip of center blade, and from ground to rear tips of left hand and right hand blades. Front tips should be  $1/4"$  (6 mm) higher than rear tips. For adjustment, refer to figure 33.
  - a. To raise front of mower deck, loosen front nut (A) and turn rear nut (B) against bracket (C) to shorten rod (D).
  - b. To lower front of mower deck, loosen rear nut (B) and bracket (C) will move backwards to lengthen rod (D).
  - c. Recheck measurement before tightening front nut (A) against bracket.

### MOWER BLADE STOPPING CHECK

Mower blades and mower drive belt should come to a complete stop within five seconds after electric clutch switch is turned off.

With tractor in neutral, electric clutch switch disengaged, and operator in seat, start tractor engine. Look over left hand footrest at mower drive belt. Engage electric clutch switch and wait several seconds. Disengage electric clutch switch and check time until mower drive belt stops.

If mower drive belt does not stop within five seconds, perform electric clutch adjustment, page 42. Repeat above test and note belt stopping time. If belt still does not stop within five seconds, see your dealer to service electric clutch.



**Figure 33. Front-To-Back Leveling**

- A. Front Nut**
- B. Rear Nut**
- C. Mower Bracket**
- D. Adjustment Rod**

## Adjustments

### ELECTRIC CLUTCH ADJUSTMENT

#### Burnishing the Clutch

Before the electric clutch is used for the first time, it should be burnished as follows.

1. Start the engine and set at full throttle.
2. Turn the front electric clutch switch to ON position, leave on for 15 seconds, then turn off.
3. Do this ten times to burnish the clutch.

#### Clutch Adjustment

1. Make sure ignition switch is off.
2. Use a .010 to .012 feeler gauge to check the electric clutch at three places (A, figure 34). Insert the gauge. There should be a slight resistance as gauge is moved in and out of slot. If tight, or loose, go to step 3.
3. Loosen or tighten one of the nuts (B) to adjust one of the three places. Loosen nut to increase gap; tighten to decrease gap.
4. After adjusting a nut, check the other two with feeler gauge. Adjustment at one location will change adjustment at other two locations. Make sure all three locations have proper adjustment.

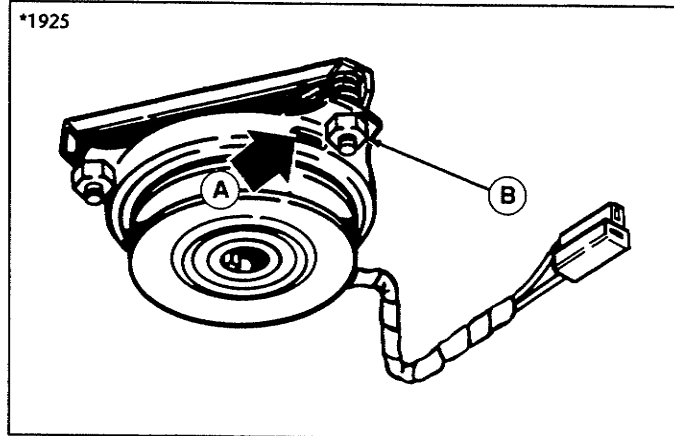


Figure 34. Electric Clutch Adjustment

A. Slot

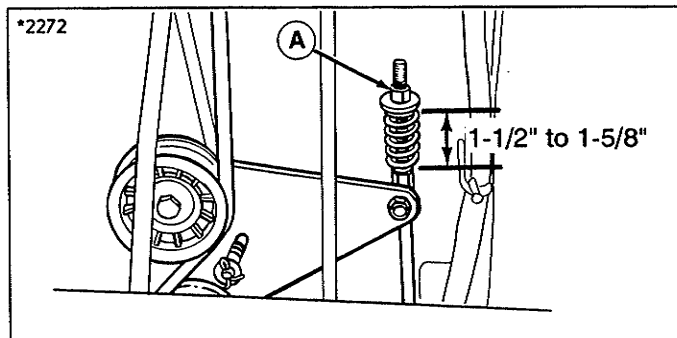
B. Adjustment Nut

5. Check Mower Blade Stopping: Mower blades and mower drive belt should come to a complete stop within five seconds after electric clutch switch is turned off.

With tractor in neutral, electric clutch switch disengaged, and operator in seat, start tractor engine. Look over left hand footrest at mower drive belt. Engage electric clutch switch and wait several seconds. Disengage electric clutch switch and check time until mower drive belt stops. If mower drive belt does not stop within five seconds, recheck electric clutch adjustment.

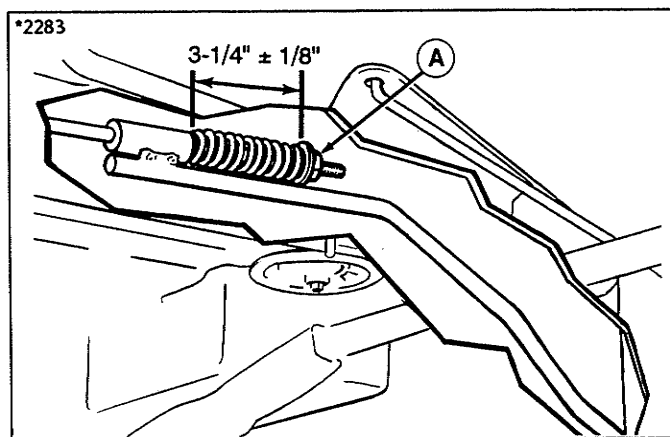
**CLUTCH/BRAKE ADJUSTMENT - HYDRO MODELS**

1. Engage parking brake.
2. The spring should be compressed to 1-1/2" to 1-5/8" long. Turn adjustment nut (A, figure 35) as necessary for correct spring length.

**Figure 35. Hydro Models****A. Nut****BRAKE ADJUSTMENT - GEAR MODELS**

1. Engage parking brake.
2. The spring should be compressed to 3-1/4" ( $\pm 1/8$ ") Turn adjustment nut (A, figure 36) as necessary for correct spring length.

There is no adjustment on the clutch linkage on the gear models.

**Figure 36. Gear Models****A. Nut**

### STEERING GEAR ADJUSTMENT

If there is excessive slack in the steering system, the steering gear can be reindexed to the steering shaft gear. Refer to figure 37. Loosen two capscrews (A, figure 37) and push bracket so that gear teeth are closely meshed. Retighten nuts after adjustment.

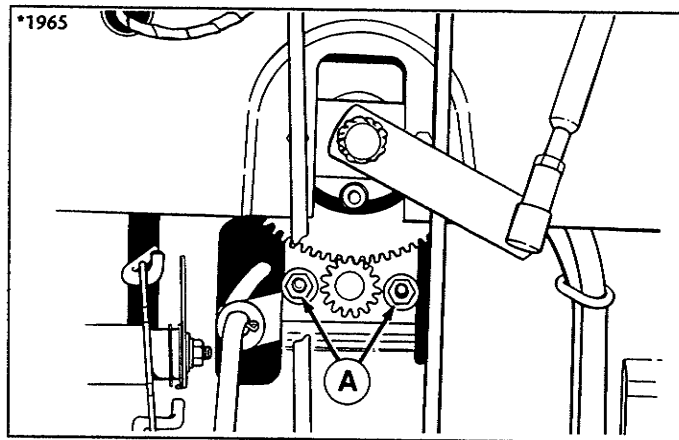


Figure 37. Steering Gear Adjustment

A. Capscrews



**Fast**



**Slow**



**Operator Present  
Switch (Seat)**



**PTO Disengaged**



**PTO Engaged**



**Hourmeter**



**Lights**



**Oil Pressure**



**Forward**



**Reverse**



**Parking Brake**



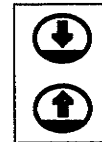
**Choke**



**Ignition On**



**Engine Running**



**Down**

**Electric Lift**

**Up**

## Specifications

---

### ENGINE:

#### 16 HP Briggs & Stratton

|                   |  |
|-------------------|--|
| Make              | Briggs & Stratton  |
| Model             | Vanguard V-Twin  |
| Horsepower        | 16 HP @ 3600 rpm   |
| Cylinders         | 2  |
| Bore              | 2.68 In. (68 mm)   |
| Stroke            | 2.60 In. (66 mm)   |
| Displacement      | 29.3 Cu. In. (480 cc)  |
| Construction      | Overhead Valve, Cast Iron Sleeves, Aluminum Crankcase  |
| Electrical System | 12 Volt, 16 Amp Alternator Regulated<br>Battery: 340 Cold Cranking Amps, 41 min.<br>Reserve Capacity, Industrial Rated Starter Motor |
| Ignition          | Magnetron Electronic Ignition  |
| Air Cleaner       | Ducted Paper Cartridge and Foam Precleaner<br>large 325 sq. in. Air Filtering System   |
| Lubrication       | Full Pressure Lube w/ Oil Filter   |
| Oil Capacity      | 3.5 Pints w/Filter (1.6 L)   |
| Fuel Tank         | Material: Non-Corrosive Polyethylene<br>Fuel Tank Gauge Built Into Filler Cap<br>Capacity: 4 Gallons (15.1 L)                        |
| Muffler           | Quiet Compact, Low Back Pressure   |

#### 14 HP Kohler

|                   |  |
|-------------------|--|
| Make              | Kohler   |
| Model             | Command™   |
| Horsepower        | 14 HP @ 3600 rpm (10.4 kw)   |
| Cylinder          | 1  |
| Bore              | 3.43 In. (87 mm)   |
| Stroke            | 2.64 In. (73 mm)   |
| Displacement      | 24.3 Cu. In. (398 cc)  |
| Construction      | Overhead Valve, Cast Iron Sleeves,<br>Aluminum Crankcase   |
| Electrical System | 12 Volt, 15 Amp Alternator Regulated<br>Battery: 12 Volt, 340 Cold Cranking Amps,<br>41 min. Reserve Capacity  |
| Ignition          | High Energy Electronic Ignition  |
| Air Cleaner       | Ducted Paper Cartridge and Foam Precleaner   |
| Lubrication       | Full Pressure Lube w/Oil Filter  |
| Oil Capacity      | 4.0 Pints w/Filter (1.9 L)   |
| Fuel Tank         | Material: Non-Corrosive Polyethylene.<br>Fuel Tank Gauge Built Into Filler Cap<br>Capacity: 4 Gallons (15.1 L) |
| Muffler           | Quiet Compact, Low Back Pressure   |



**HYDRO TRANSMISSION:**

|                        |   |
|------------------------|---|
| <b>Make</b>            | Tuff Torq   |
| <b>Model</b>           | K215-A  |
| <b>Type</b>            | Hydrostatic Pump & Motor  |
| <b>Pump</b>            | Sunstrand BDU-21L-207<br>Variable Displacement Reversible Axial Piston  |
| <b>Motor</b>           | Fixed Displacement Reversible Axial Piston  |
| <b>Hydraulic Fluid</b> | 5.6 Pints (2.7 L) 10W30 Premium Grade<br>Engine Oil   |
| <b>Control</b>         | Single Lever w/Neutral Detent, Free-Wheeling<br>Lever for Manual Tractor Movement,<br>Continuously Variable, Forward & Reverse,<br>without Braking or Gear Changing |
| <b>Speeds</b>          | <b>@ 3400 RPM</b><br>Forward: 0 - 6 MPH (0 - 9.7 km/h)<br>Reverse: 0 - 2.6 MPH (0 - 4.2 km/h)   |
| <b>Differential</b>    | Bevel Gear Type   |

**GEAR TRANSMISSION:**

|                    |  |
|--------------------|--|
| <b>Make</b>        | Tuff Torq  |
| <b>Model</b>       | K210-A   |
| <b>Type</b>        | Spur Gear  |
| <b>Material</b>    | Gear: Heat Treated<br>Shaft: Hardened<br>Bearings: Needle Roller, Sealed Ball & Bushings |
| <b>Lubrication</b> | 7.75 Pints (3.7 L) 10W30 Premium Grade<br>Engine Oil                                     |

|                     |  |
|---------------------|--|
| <b>Speeds</b>       | Six Forward, One Reverse   |
| <b>Speeds</b>       | <b>1st:</b> .6 MPH (1.0km/h)<br><b>2nd:</b> 1.1 MPH (1.8km/h)<br><b>3rd:</b> 1.8 MPH (2.9km/h)<br><b>4th:</b> 2.7 MPH (4.3km/h)<br><b>5th:</b> 3.3 MPH (5.3km/h)<br><b>6th:</b> 5.5 MPH (8.8km/h)<br><b>Reverse:</b> 2.2 MPH (3.5km/h) |
| <b>Differential</b> | Bevel Gear Type  |

**CHASSIS:**

|                       |  |
|-----------------------|--|
| <b>Frame</b>          | Heavy Gauge Steel Channel.<br>Power Take-Off Point: Front<br>Engine Mounting: Above Front Axle<br>Pivot Point Location: Front Axle |
| <b>Rear Wheels</b>    | 23 x 10.50-12 Turf Type  |
| <b>Front Axle</b>     | 1-3/4" x 3" 12 Ga. Fabricated Tube   |
| <b>Front Wheels</b>   | Tire Size: 16 x 6.50 x 8<br>Pneumatic Inflation Pressure: 12-15 psi<br>(82-103 kPa)  |
| <b>Accessibility</b>  | Hood Tips Forward  |
| <b>Seat</b>           | Type: Bucket, High Back, Adjustable<br>w/Spring Suspension<br>Adjustable to Suit Different Size Operators                          |
| <b>Turning Radius</b> | Inside Rear Tire: 24 In. (61 cm)   |

## Specifications

### CONTROLS:

|                               |   |
|-------------------------------|---|
| Steering                      | Full Circle Steering Wheel<br>System: Gear and Sector   |
| Clutch/Brake<br>Pedal - Hydro | Location: Right Front<br>Combination Clutch/Brake/Parking Brake<br>Pedal Standard Equipment   |
| Clutch Pedal - Gear           | Location: Left Front  |
| Brake Pedal - Gear            | Location: Right Front   |
| Location                      | Mower Lift - Hydro:<br>Power Lift with switch on dash<br>Mower Lift - Gear:<br>Manual Lift Lever<br>PTO Clutch: Electric, Dash Mounted<br>Shift Lever: Dash Mounted<br>Ignition Key Switch: on dash panel<br>Throttle Lever and Choke Lever: on dash panel<br>Light Switch: on dash panel<br>Separate Indicator Lights for Safety<br>Interlock Switch: Operator Present,<br>Transmission Neutral, PTO Disengaged,<br>Low Oil Pressure Warning Light |

### DIMENSIONS:

|                                   |   |
|-----------------------------------|---|
| Overall Length                    | 72 In. (183 cm)   |
| Overall Width                     | 39 In. (99.1 cm)  |
| Height                            | To Top of Steering Wheel: 42.5 In. (108 cm)<br>To Top of Engine Cover: 36 In. (91.4 cm) |
| Wheel Base                        | 51.5 In. (131 cm)   |
| Weight (approx.)<br>without mower | Net: 670 lbs. (304.5 kg)<br>Shipping: 815 lbs. (370 kg)                                 |

### MOWER:

|                                 |  |
|---------------------------------|--|
| 50"                             |  |
| Effective Cutting<br>Width      | 50 In. (127 cm)  |
| Overall Width<br>with Deflector | 62 In. (157.5 cm)  |
| Weight                          | 135 lbs. (61.4 kg)   |
| Variable Cutting Ht.            | 1.0 - 3.6 In. (2.5 to 9.1 cm)                                  |
| Blade Arrangement               | Three Staggered Blades   |
| Mower Drive                     | V-Belt From Tractor PTO Pulley                                 |
| Spindle Bearings                | Lubricated and Sealed Ball Bearings -<br>Lube Fitting Provided |
| 44"                             |  |
| Effective Cutting<br>Width      | 44 In. (111.8 cm)  |
| Overall Width<br>with Deflector | 56 In. (142.2 cm)  |
| Weight                          | 115 lbs. (52 kg)   |
| Variable Cutting Ht.            | 1 - 3.6 In. (2.5 to 9.1 cm)                                    |
| Blade Arrangement               | Three Staggered Blades   |
| Mower Drive                     | V-Belt From Tractor PTO Pulley                                 |
| Spindle Bearings                | Lubricated and Sealed Ball Bearings -<br>Lube Fitting Provided |

## Common Replacement Parts

Listed below are part numbers for the more common replacement parts. Use the order form at the back of the manual to order a complete, illustrated parts manual. Only genuine *Deutz-Allis Lawn & Garden* replacement parts will assure optimum performance and safety. Do not attempt repairs or maintenance unless proper procedures and safety precautions are followed. For assistance in any area, see your dealer.

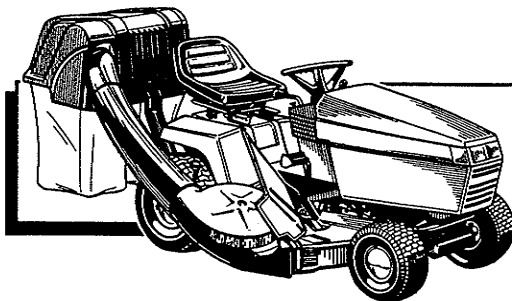
### REPLACEMENT PARTS

| <u>QTY. PER<br/>UNIT</u> | <u>DESCRIPTION</u>         | <u>PART<br/>NUMBER</u> | <u>QTY. PER<br/>UNIT</u> | <u>DESCRIPTION</u>                         | <u>PART<br/>NUMBER</u> |
|--------------------------|----------------------------|------------------------|--------------------------|--|------------------------|
|                          | Mower Blades               |                        | 1                        | Tractor Drive Belt - Gear                  | 1707381                |
|                          | Regular Lift Blades        |                        | 1                        | Safety Clip - Mower Lift                   | 176012                 |
| 3                        | 44" Deck                   | 1704100                | 1                        | Key  | 1704348                |
| 3                        | 50" Deck                   | 1708229                | 2                        | Interlock Switch, Neutral                  | 1701521                |
|                          | Optional High Lift Blades  |                        | 1                        | Interlock Switch, Seat                     | 1704379                |
| 3                        | 44" Deck                   | 1704856                | 1                        | Battery                                    | 1685215                |
| 3                        | 50" Deck                   | 1706094                | 1                        | Solenoid                                   | 1685290                |
|                          | Mower Belts                |                        | 1                        | Switch, Electric Clutch                    | 1703798                |
| 1                        | 50" Mower Drive            | 1707740                | 1                        | Switch, Headlight                          | 1703799                |
| 1                        | 50" Deck Drive             | 1703836                | 1                        | Switch, Electric Electric Lift (16HP Only) | 1707007                |
| 1                        | 44" Mower Drive            | 1601672                | 1                        | Switch, Oil Pressure (On Engine)           | 1703956                |
| 1                        | 44" Deck Drive             | 1607813                | 1                        | Hourmeter                                  | 1707063                |
| 1                        | Tractor Drive Belt - Hydro | 170164                 | 1                        | Headlamp Bulb                              | 1677371                |

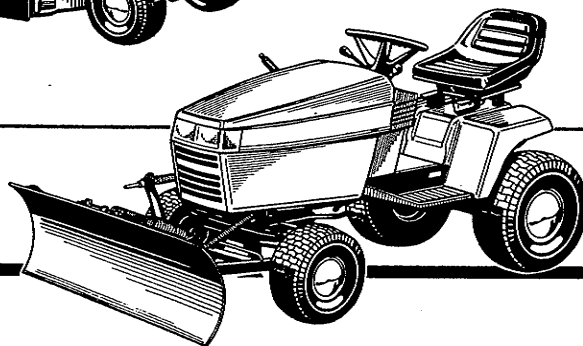
## Optional Attachments and Accessories

*See your dealer to purchase these items.*

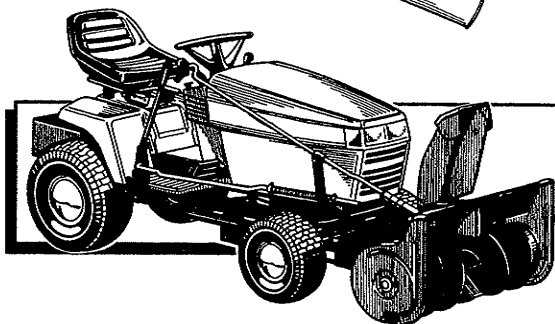
Turbo Clean Sweep Twin Catcher  
Turbo Quad Bagger™  
Grass Mulcher & Leaf Shredder Kit  
Dump Cart  
42" Snowthrower  
42" Dozer Blade  
36" Tiller  
Electric Lift Kit  
Snow Cab  
Front Counterweight  
Rear Wheel Weights  
Weight/Tote Box  
Hubcaps  
Tire Chains



**Turbo Clean Sweep Twin Bag Collector** - Collect grass clippings, thatch, and leaves with our blade-driven vacuum collector.



**42" Snow Plow/Dozer Blade** -  
For snow removal and light  
dozing of dirt, gravel, etc.  
Now with spring assisted lift.



**42" Snowthrower** -  
Efficient Single stage operation to  
handle the heaviest of snows.  
Now with spring assisted lift.

## Additional Technical Literature Available

### Operators Manuals

Additional copies of this manual are available, (and as part of our product support commitment, we maintain a stock of printed operators manuals going back over 25 years!)

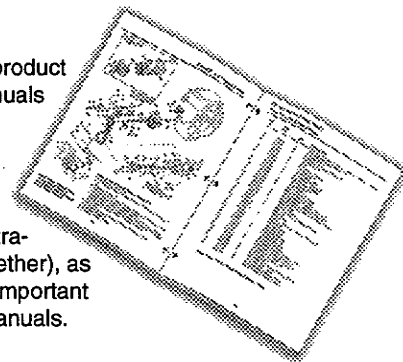
### Parts Manuals

Fully illustrated parts manuals are also available — these manuals show all of the product's components in exploded views ("3D" illustrations which show the relationship of the parts and how they go together), as well as giving the replacement part numbers and quantities used. Important assembly notes and special torque values are included in these manuals.

### Repair & Service Manuals

In addition, for many models, we have in-depth repair & Service Manuals available, which take you step-by-step through maintenance, tear-down, component replacement and re-assembly procedures.

*For the available manuals applicable for your model, contact the Customer Publications Department at 414-284-8519. Have the information listed in the box at the right available when phoning in your request.*



|                              |       |
|------------------------------|-------|
| <b>Model:</b>                | _____ |
| <b>Mfg. No.:</b>             | _____ |
| <b>Your Name:</b>            | _____ |
| <b>Address:</b>              | _____ |
| <b>City, State, Zip:</b>     | _____ |
| <b>Visa/Mastercard No.:</b>  | _____ |
| <b>Card Expiration Date:</b> | _____ |





***Simplicity***

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