

# 1300 SERIES

Front-Cut  
Riding Mowers



**AGCO ALLIS**

This manual covers the following Manufacturer's Numbers

- |                 |  |
|-----------------|--|
| <b>1312G42:</b> | 12 HP GEAR<br><b>Mfg. No. 1691658</b><br>42" MOWER<br><b>Mfg. No. 1691665</b>    |
| <b>1312H42:</b> | 12 HP HYDRO<br><b>Mfg. No. 1691659</b><br>42" MOWER<br><b>Mfg. No. 1691666</b>   |
| <b>1313H42:</b> | 12.5 HP HYDRO<br><b>Mfg. No. 1692021</b><br>42" MOWER<br><b>Mfg. No. 1691665</b> |
| <b>1318H48:</b> | 18 HP HYDRO<br><b>Mfg. No. 1691660</b><br>48" MOWER<br><b>Mfg. No. 1691666</b>   |

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### NOTE


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

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## Safety Rules

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Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of vehicle, severe personal injury to yourself or bystanders, or damage to property or equipment. The triangle  in text signifies important cautions or warnings which must be followed.

\* Know the controls and how to stop quickly. **READ THIS OPERATOR'S MANUAL** and instructions furnished with attachments.

\* Do not allow children to operate the machine. Do not allow adults to operate it without proper instruction.

\* Do not carry passengers. Do not mow when children and others are around.

\* Clear the work area of objects (wire, socks, etc.) that might be picked up and thrown.

\* Operator must be in seat with transmission in neutral and PTO disengaged before attempting to start rider engine.

\* Disengage power to attachments and stop the engine (motor) before leaving the operator's position.

\* Disengage power to attachments and stop the engine (motor) before making any repairs or adjustments.

\* Disengage power to attachments when transporting or not in use.

\* Take all possible precautions when leaving the vehicle unattended, such as disengaging the power-take-off,

towing the attachments, setting the parking brake, stopping the engine, and removing the key.

\* Do not stop or start suddenly when going uphill or downhill. Slow up and down the face of steep slopes; never across the face.

\* Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.

\* Stay alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from drop-offs.

\* Do not use machine to pull loads; loss of steering could occur.

\* Use care when carrying loads.

a. Limit loads to those you can safely control.

b. Do not turn sharply. Use care when backing.

c. Use counterweights or wheel weights when suggested in this Operator's Manual or Attachment Operator's Manual.

\* Watch out for traffic when crossing or near roadways.

- When using any attachments, never direct discharge of material toward bystanders or allow anyone near the vehicle while in operation.
- Handle gasoline with care - It is highly flammable.
  - a. Use approved gasoline container.
  - b. Never remove the fuel cap of, or add gasoline to, a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gasoline.
  - c. Open doors if the engine is run in the garage -- exhaust fumes are dangerous. Do not run the engine indoors.
- Keep the vehicle and attachments in good operating condition, and keep safety devices in place and in working condition.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
- To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
- The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.
- Do not change the engine governor settings or overspeed the engine.
- Follow these guidelines for safe operation:
  - a. Mow only in daylight or in good artificial light.
  - b. Never make a cutting height adjustment while the engine (motor) is running if the operator must dismount to do so.
  - c. Shut the engine (motor) off when removing the grass catcher or unclogging chute.
  - d. Check the blade mounting bolts for proper tightness at frequent intervals.
- Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.
- Disengage sliding PTO clutch before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.

 **WARNING**

Do not stop or start suddenly when operating uphill or downhill. Mow up and down the face of steep slopes; never across the face. Select slow ground speed before driving onto a slope. Never operate on slopes greater than 16° which is a rise of 3 feet (0.91 meters) vertically in 20 feet (2.1 meters) horizontally.

**Decals**

**MOWER LIFT**

PULL TO  
LIFT MOWER



**WARNING**

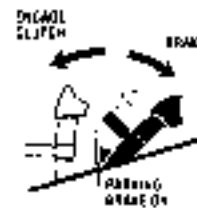
**AVOID SERIOUS INJURY OR DEATH**

- READ OPERATORS MANUAL(S)
- KNOW LOCATIONS AND FUNCTION OF ALL CONTROLS
- KEEP SAFETY DEVICES (STOPPE, SHIELDS, AND SWITCHES) IN PLACE AND WORKING
- REMOVE BULLETS THAT COULD BE THROWN BY THE BLADE
- DO NOT WORK WHEN CHILDREN OR OTHERS ARE NEARBY
- NEVER CARRY CHILDREN
- LEAD DOWN AND BEND BEFORE AND WHILE BACKING
- AVOID SWEEP TURN
- IF YOU CANNOT BACK UP A HILL, DO NOT OPERATE ON IT
- GO UP AND DOWN SLOPES WITH CARE
- IF MACHINE SLIPS GOING UPHILL STOP BLADE AND HOLD REINS TIGHTLY
- BE SURE BLADES ARE LOWER AND STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADES
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND GET FROM REAR

**IGNITION SWITCH**




**CLUTCH & BRAKE**



**NO RIDERS**

**⚠ WARNING**



- DO NOT STOP OR START SUDDENLY WHEN OPERATING UPHILL OR DOWNHILL
- MOW UP AND DOWN THE FACE OF STEEP SLOPES. NEVER ACROSS THE FACE
- SELECT SLOW GROUND SPEED BEFORE ENTERING DOWN A SLOPE
- NEVER OPERATE ON SLOPES GREATER THAN 16° WHICH IS A RISE OF 3 FEET (0.9 METERS) VERTICALLY IN 10 FEET (3.1 METERS) HORIZONTALLY

**⚠ DANGER**



ROTATING CUTTING BLADE  
DO NOT PUT HANDS  
OR FEET UNDER  
MOWER DECK WHILE  
BLADE IS ROTATING

**⚠ DANGER**



ROTATING CUTTING BLADE  
DO NOT OPERATE MOWER  
WITHOUT DEFLECTOR  
OR ENTIRE GRASS  
CATCHER IN PLACE.

## Operallon

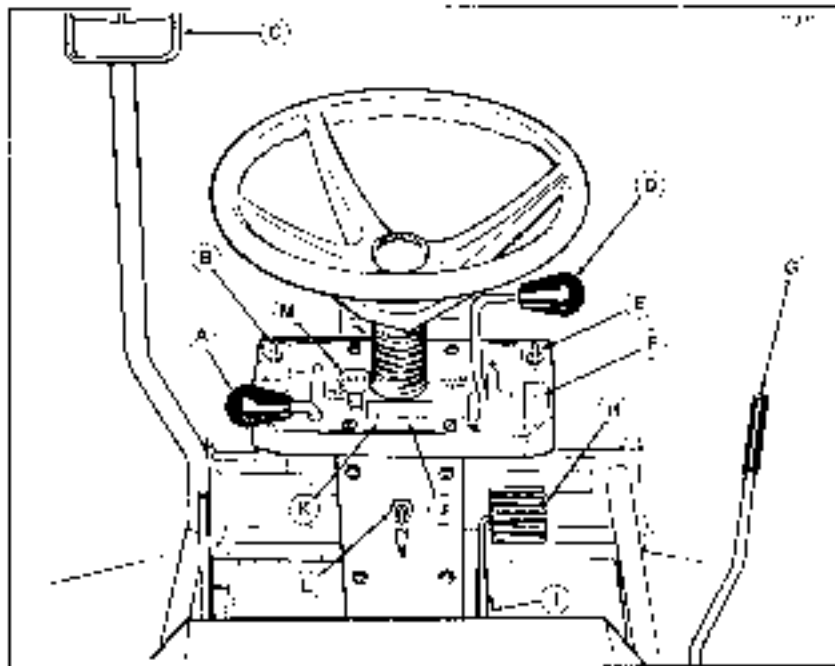


Figure 1. Controls - Hydrostatic Drive

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ITEM	NAME	FUNCTION
A	Engine Speed Control Lever	Controls engine speed. (In 12 HP) push fully forward to cross choke
B	Headlight Switch	Push forward to turn headlights on, pull back to turn headlights off
C	Tractor/Power Transmission Lever	Raises mower for transport. Pull back slightly to transfer weight of mower deck onto front drive wheels for additional traction
D	Transmission Control Lever	Controls gear speed and forward/reverse motion. Push forward to go forward. Pull back to go in reverse. Ground speed is controlled by how far lever is in forward or reverse gear
E	Electric PTO Switch	Overrides PTO clutch for mowing. Pull up and push forward to engage mower, pull backwards to disengage. Activates PTO light (see K)
F	Oil Pressure Low (ILO), 12 HP Only	The oil pressure warning light (wings) is lit when engine is lighted up with ignition key (I). Turned on. This light goes out immediately after wings start
G	Mower Height Adjustment Lever	Controls height of mower deck. Given cutting heights from 1.5" to 4". Place in forward slot for lowest cut
H	Clutch/Brake Pedal	Press down to disengage drive and to gain brake. Push up to engage drive
I	Parking Brake Lever	Locks brake. (See also page 10) Must latch lever over edge of frame
J	Neutral Light (Green)	Indicates transmission lever (D) is in neutral gear. Must be off for engine to start
K	PTO Light (Red)	Indicates electric PTO switch (E) is on. Must be off for wings to start
L	Ignition Switch	Starts and stops engine
M	Choke (12 HP Only)	Push and to slow idling. Adds in starting a cold engine

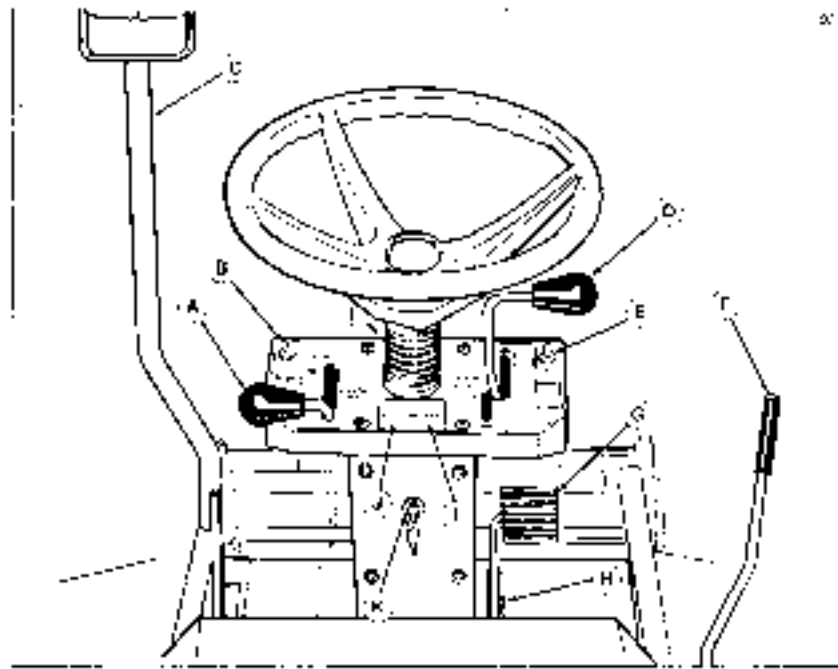


FIGURE 2. Controls - Gear Drive

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ITEM	NAME	FUNCTION
A	Engine Speed Control Lever	Controls engine speed. If an idle levered to close throttle.
B	Headlight Switch	Push forward to turn headlight on. Pull back to turn headlight off.
C	Tractor Blade Forward Lever	Raises mower for transport. Pull back slightly to transfer weight of mower deck onto front tires, which lifts additional front end.
D	Transmission Lever	Give lever enough ground speed and forward engine rotation. Depress clutch pedal (G) & shift forward/back to select gear. For forward operation, only use reverse speed.
E	Electric PTO Switch	Control PTO clutch for mowing. Pull up and push forward to engage mower and backward to disengage. Activates PTO speed control.
F	Mower Height Adjustment Lever	Control height of mower cut. Give to cutting height 100mm (4 in) to 400mm (16 inches) for lowest cut.
G	Clutch Brake Pedal	Press down to disengage drive shaft gears and engage brake. Release to engage drive.
H	Mowing Brake Lever	Locks drive. Release pedal (H) when high speed or large amount of turning.
I	Running Light (Green)	Indicates to others on lawn that you are using gas. Must be on for engine to start.
J	PTO Light (Red)	Indicates when PTO switch (E) is on. Must be off for transport.
K	Ignition Switch	Starts and stops engine.

Operation

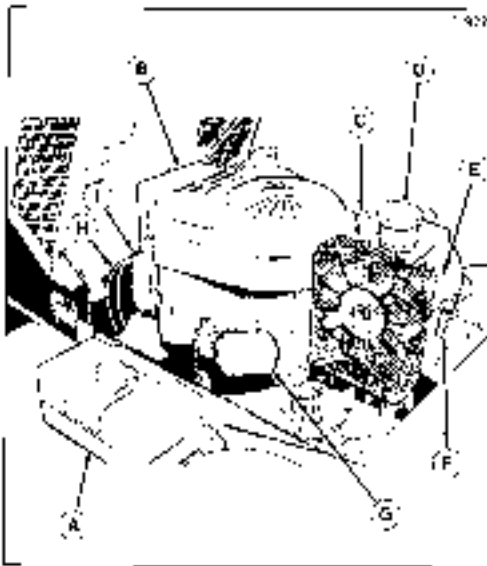


Figure 3. 10 HP Engine Components (Hydro Drive System)

ITEM	NAME	DESCRIPTION
A	Fuel Tank (with Fuel Gauge)	One spike fuel tank and a float on roller. Tanks are on right & fuel gauge located under each tank tank.
E	Air Filter	See Engine Manual for maintenance instructions.
C	Oil Filter Caplock	Turn and remove to make for Engine Manual for maintenance instructions.
D	Hydro Reservoir	Hydro fluid only. Fill with fluid to 1/2 in. CO. 17 mark.
E	Hydro Pump	Get driver pump provides power. Pressure down to 100 psi max.
F	Hydro Release Valve Lock	Engaged disengages hydro pump to reduce pressure. Refer to page 10 for more information.
G	Oil Filter	50 in. oil filter. Also use more than 1 filter for Engine Manual for recommended service intervals and procedures.
H	Throttle Cable	Controls engine speed and RPM level. See Engine Manual for adjustment.
I	Clutch Cable	Controls choke position. See Engine Manual for adjustment.
<b>OPPOSITE SIDE - NOT ILLUSTRATED</b>		
	Swirl Check Support Arm	Supports swirl check when raised for engine maintenance and service. Must be attached to lower swirl check.
	Oil Drain	Oil drain extension tube allows for engine oil to be drained from underneath engine.

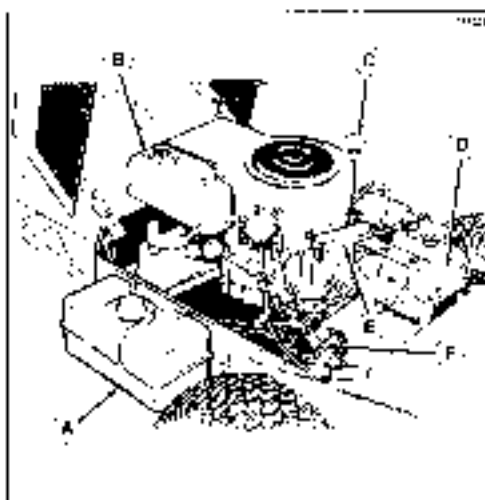


Figure 4. 12 HP Engine Compartment  
(Gear Drive Shown)

ITEM	NAME	DESCRIPTION
A	Fuel Tank (RH Side Shown)	One gallon fuel tank on each side of cabin. Tanks drain evenly. Shut oil cocks located underneath each tank.
B	Air Filter	See Engine Manual for main service instruction.
C	Oil Fill	Turn zinc cap over to add oil. See Engine Manual for specific instruction.
D	Gear Box	5 speed gear transmission provides power to front drive axle.
E	Gear Shift Linkage	Connects gear box to dash-mounted ground speed control lever.
F	Throttle Choke	Controls engine speed. RPM lever and choke adjustment. See Engine Manual for adjustment.
<b>OPPOSITE SIDE - NOT ILLUSTRATED</b>		
	Seat Deck Support Arm	Supports seat deck when raised for engine maintenance and service. Must be unclipped to lower seat deck.
	Oil Drain	Oil drain maintenance tube allows for engine oil to be drained from underneath fuel tank.

## Operation

### SAFETY INTERLOCK SYSTEM

Your riding equipment will have a seat switch safety system that will automatically shut the engine off when the operator leaves the seat with the foot and/or hand in gear or PTO engaged. Once the engine has stopped, the electric PTO must be reset after operator returns to seat in order to engage clutch again.

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

1. Neutral light should go on with transmission lever in neutral gear and should go out when lever is moved to either forward or reverse gear.
2. PTO light should go on and off with operation of PTO switch.
3. Oil pressure light should be on and should go out immediately after engine starts (BHP only).

#### Seat Switch Tests

Check the seat switch (A) (Figure 5) every 100 hours and spring with the following four tests:

#### WARNING

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

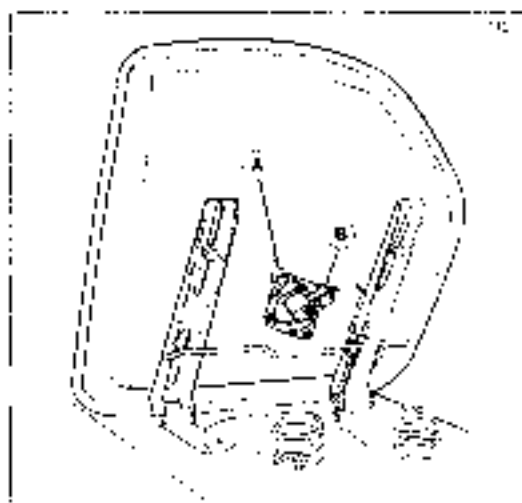


Figure 5. Seat Switch  
A. Seat Switch  
B. Wiring Harness

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

- A. Seat not locked in
- B. Transmission lever out of neutral or
- C. PTO switch engaged

**Test 2 — Engine should crank if:**

- A. Seat is occupied and,
- B. Transmission lever in neutral, and
- C. PTO switch disengaged

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

- A. Operator uses off seat with transmission lever in gear or
- B. Operator uses off seat with PTO engaged
- C. If operator returns to seat before engine stops, the engine will restart and after 100 PTO clutch will disengage

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

- A. Operator uses off seat with engine running
- B. If operator returns to seat before engine stops, the engine will restart and electric PTO clutch will disengage

**CHECKS BEFORE STARTING****⚠ WARNING**

**Never add gasoline when engine is hot or running.**

1. Check that gas tanks (one on each side) are 3/4 full. If one tank is empty, fill or add gasol. to or shut off the valve on bottom of empty tank.
2. Check engine oil level and add, if necessary. Refer to engine Owner's Manual for recommendations.
3. Make sure wheel loader deflation or inflat. control system is in place.
4. Check for loose nuts, screws, bolts, oil leaks, gasol. leaks, etc.
5. Make sure the mower is in desired cutting position.
6. For operator, hybrid models, release valve must be disengaged. See "Pushing Back By Hand."

## Operation

### STARTING AND STOPPING



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 flowers, to become accustomed to the unit. The unit is steered with the rear wheels, which are very quiet. Tight turns. The left side of the mower can be used to turn close to objects at the lawn.
2. Make sure PTO is disengaged and transmission control lever is in neutral.
3. For cold starts, pull choke knob out (10 hpi) or push engine speed control into choke position (12 hpi). 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. Before initial operation, turn on the electric clutch. Refer to PTO Clutch Adjustment.
7. Release the parking brake.

9. Move the transmission control lever out of Neutral to Drive. Push forward to go forward or pull back to gear reverse. For gear models, depress clutch pedal and set appropriate gear for ground conditions and length of grass to be cut.
10. Place engine speed control lever to full throttle especially if mowing thick grass. Ground speed can be controlled by placement of transmission lever (3, Figure 1 or 2).
11. For hydro units, use the control lever to slow down for turns or to turn around objects, then increase speed. To stop, make the control lever in NEUTRAL position. You can also stop by depressing the clutch/brake pedal. If you stop by depressing the pedal, move control lever to NEUTRAL before releasing pedal.
12. For gear units, use a down gear to slow down for turns or to turn around objects. To stop, depress the clutch/brake pedal and shift into neutral.
13. Before leaving operator's position, put the parking brake on and disengage the mower PTO. (The parking brake is shown in Figure 1.) 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. Clear all debris and grass from the mower and rider. Do not touch the engine and transmission compartment. Allow engine to cool before touching engine parts.

**WARNING**

To reduce fire hazard, keep the engine, rider, and mower free of grass, leaves, and excess grease.

**WARNING**

Do not stop or start suddenly when operating uphill or downhill. Mow up and down the face of steep slopes; never across the face. Select slow ground speed before driving onto a slope. Never operate on slopes greater than 45° which is a rise of 3 feet (0.91 meters) vertically in 10 feet (3.1 meters) horizontally.

**CLUTCH/BRAKE PEDAL OPERATION**

Refer to Figure 6. Depressing pedal from position A to B disengages the clutch drive. Depressing pedal further from position B to C will also apply master brake. Parking brake is applied at position C when pedal is latched over footrest as shown in figure 6.

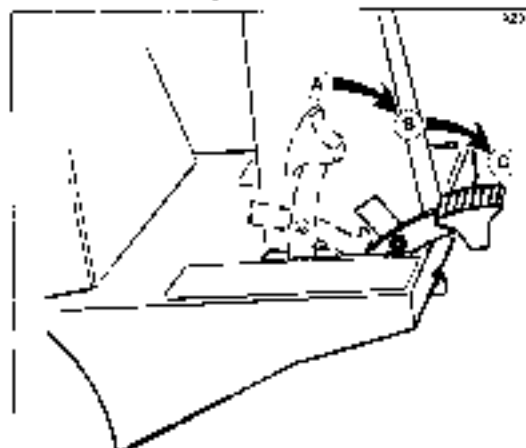


Figure 6. Clutch/Brake Pedal

## Operation

### MOWING PATTERN & TIPS

For the best result the mower should be pushed over a smooth level area cutting 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 mow one or two passes in a clockwise direction around the outside of the area to keep the grass off fences and walks. The remaining part of the mowing should be done in a counter-clockwise 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 75 mm) tall. Best results are obtained by cutting when the grass has grown to full height. Keep a green lawn never more than one third of the height of the grass. Cut a maximum of one inch (25 mm) in one mowing. For newly laid grass, set the cutting height at six centimeters for the first pass, and then reset to the lower height and mow again.

Adjust the cutting height if necessary. For wet grass or mossy grass should be cut in the afternoon or early evening on dry grass when it is free of external moisture.

Where possible change the mowing direction to eliminate riddling, graining or a corrugated appearance.

### PUSHING MOWER BY HAND (Hydro Drive Only)

To push the mower by hand, the hydro release valve must be engaged so that the pump can be driven from the hand crank. To drive the mower, the flow valve must be disengaged if any fit.

1. To disengage, grasp lever (A) shown in Figure 7, pull toward left to lower section. When pump bracket (C) has moved down, lever must move right so it is secured in position shown in Figure 8.

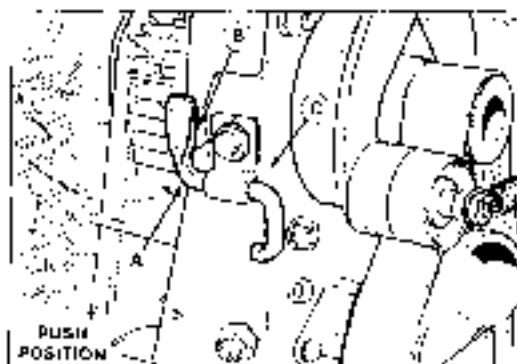


Figure 7. Hydro Release Valve Engaged  
A. Lever B. Plunger C. Pump Bracket

1. To engage, grasp the lever (A, figure 8), pull forward to clear pump bracket (C), and then flip up to depress plunger (B) forward right so it sticks in position shown in figure 7.

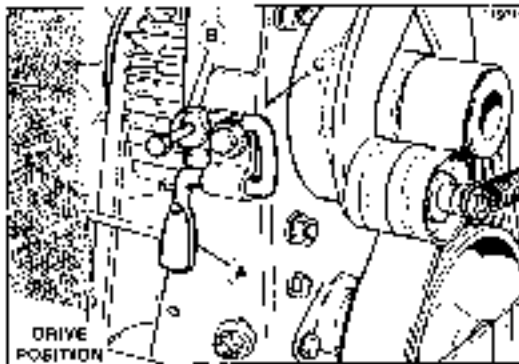


Figure 8. Hydro Release Valve Disengaged  
A. Lever B. Plunger C. Pump Bracket

## Normal Care

	See	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
<b>Safety</b>							
Check safety interlock system	pg. 12	*					*
Check user brakes	pg. 15	*					*
<b>Normal Care Items</b>							
Check water & power for hose retractor, hoses, tanks and leaks, etc.		*	*	*			
Check engine oil level	Eng. Oil	*	*	*			
Check engine & air filter					**		
Change engine oil and filter, 16 H-Pt.					**		*
Lubricate PTO & mower	pg. 18				**		
Lubricate disc ***	pg. 21		*		**		
Check tire pressure	pg. 24	*	*		**		
Check transmission fluid ****	pg. 16						
Clean battery & cables	pg. 25					*	
Clean mower blades	pg. 22					*	
Inspect spark plug	Eng. Oil					*	

\* Change engine oil and oil filter after first 5 hours of operation.

\*\* This is a minimum interval. Oil should be changed more frequently in hot weather or dusty operating conditions.

\*\*\* Disc should be used in heavy applications and during hot weather. Use multi-purpose lubrication for other uses.

### Normal Care Schedule

**STORAGE (30 Days or More)**

1. Run rider engine for 10 minutes from full oil level or use a gasoline stabilizer. This will help stabilize fuel from your dealer, prepare for storage of fuel and warm for cold start.

**WARNING**

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

2. Change engine oil. (Consult the type and weight of oil per manufacturer. See the engine Owner's Manual for recommendations.)
3. Remove the spark plug(s). Spray approximately one ounce (30 ml) of engine oil into engine through spark plug hole. Crank engine a few minutes to distribute oil and then reinstall the spark plug(s).
4. Inflate the rider and driver.
5. Check battery and fuel. Battery life will be extended if it is removed and stored in a cool dry place. Fuel tank should be empty.
6. Clean rider thoroughly. Wash any exposed metal parts with a good quality paint thinner to clean your rider and a light film of wax to seal.

**LUBRICATION**

1. With an oil can apply a few drops of oil to points indicated with circles in Figure 8 (except to oil the drive chain, Figure 16, and 17) with an approved chain lubricant.
2. With a grease gun apply one or two spots of lithium based grease to the grease fittings shown in the following illustrations.

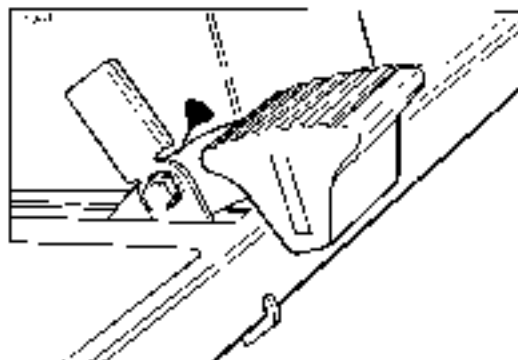
**Rider Lubrication**

Figure 8 Lubricate Brake Pedal Pivot Point

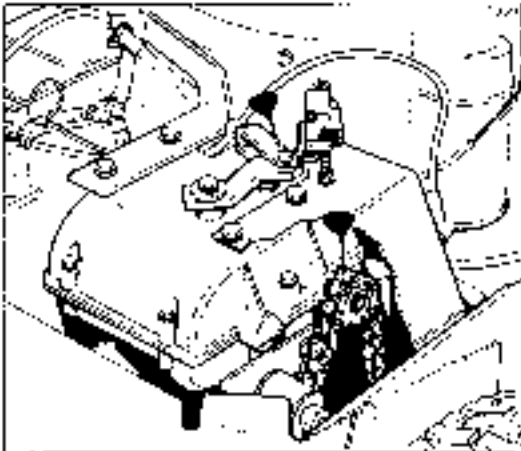


Figure 10. Lubricole Gear Shift Linkage and Chain (Gear Model Shown)

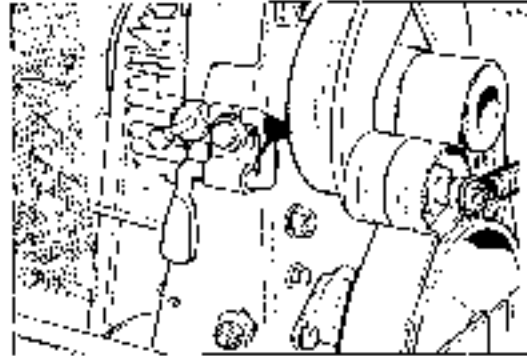


Figure 11. Lubricole Hydro Transmission Release Valve

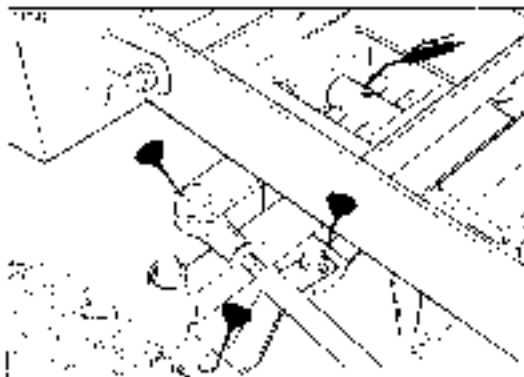


Figure 12. Lubricate Steering Arm and Axle Pivot

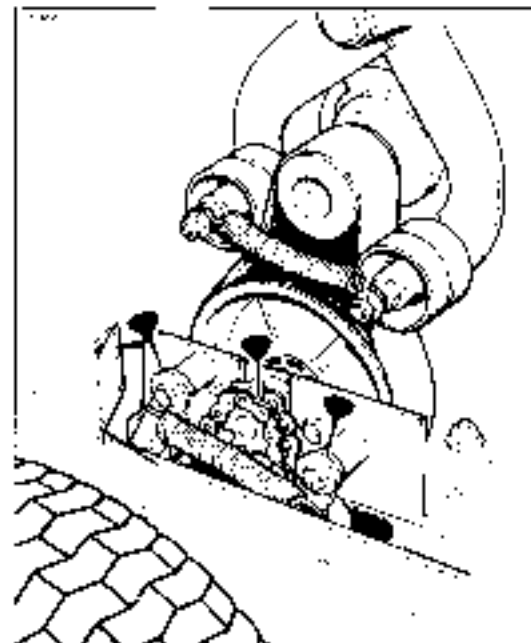


Figure 13. Lubricate Chain (Hydro Model Shown)

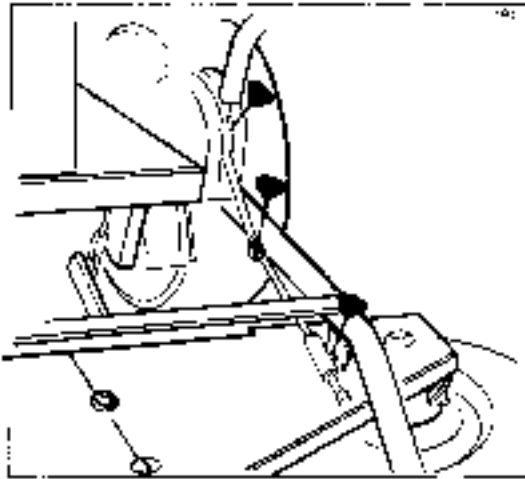


Figure 14. Lubricate Lull Lever

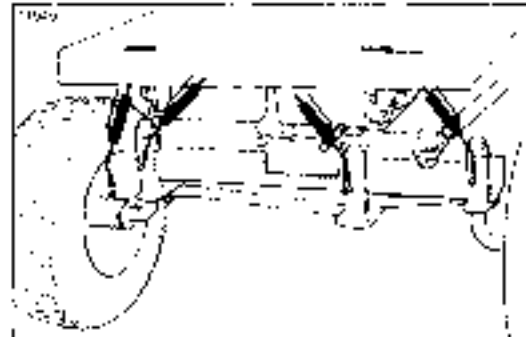


Figure 15. Lubricate Rear Axle and Splines



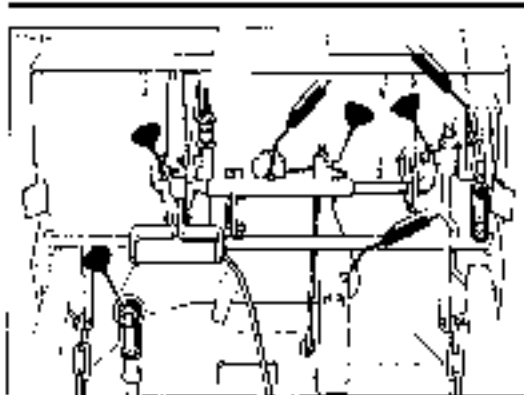


Figure 18. Lubricate Steering Gear and Brake/Clutch Rod Pivot Points (Hydro Model Shown)

Mower Lubrication

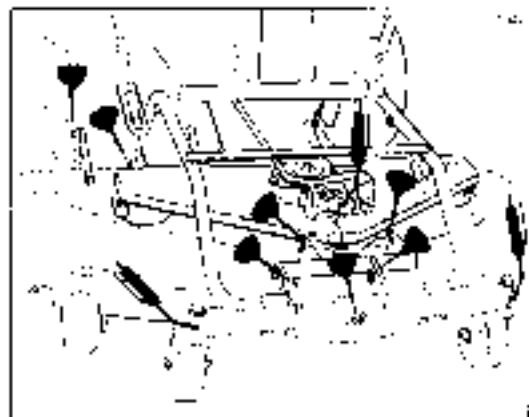


Figure 17. Lubricate Mower Pivot Points

(Cont'd.)

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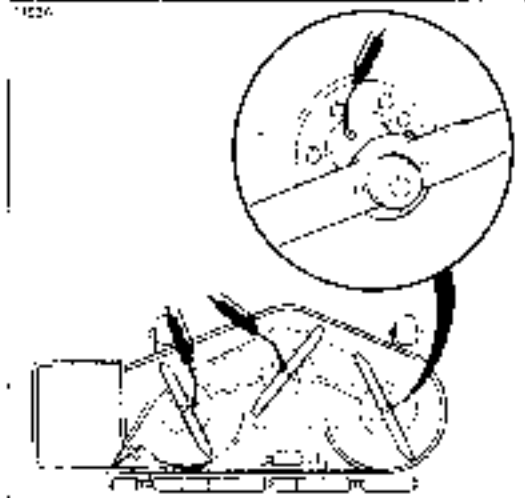


Figure 18. Arbor Grease Fittings

#### CHECK TIRE PRESSURE

Make sure the air pressure in the front tires is 20 to 22 psi/138 to 150 kPa, and the air pressure in the rear tires is 19 to 22 psi/133 to 150 kPa. Use a gauge with one-pound markings.

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#### 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**

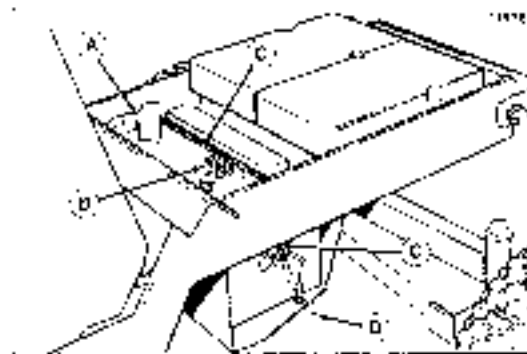
Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

#### Check Fluid Level

Check the battery fluid level. Wipe the fluid from around the cap then remove the cap. The fluid must be even with the bottom of the spring. If not, add distilled water. Reinstall the caps. Be sure the covers are placed over positive terminal. Make sure you do not let the battery cap extend beyond battery's outline.

**Cleaning Battery and Cables.**

1. Lift rear platform to locate battery (Figure 19). Disconnect the cables from the battery, negative cable first. A positive (+) sign is stamped on the battery next to the positive terminal.
2. Slip the battery straps off, disconnect the vent tube, and remove the battery.
3. Clean the battery terminals and cable clamps with wire brush.
4. Scrub the battery, cable and battery compartment with baking soda and water.
5. Reinstall battery and straps. Reinstall vent tube so that it extends beyond battery compartment. The straps should be on each side of the top.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with petroleum jelly or grease from the spray can (4-54) and slide cover over positive terminal.



**Figure 19 Battery**  
**A. Positive Terminal**  
**B. Negative Terminal**  
**C. Strip**  
**D. Vent Tube**

## Normal Care

### CHECK TRANSMISSION FLUID LEVEL - Hydro Models

Allow 15-20 minutes after operation. Fluid must be conditioned normally check.

1. Run the unit 1-2 hrs.
2. The fluid level is visible in the reservoir (Figure 20) without removing cap. If level should be at FULL/LOUL mark. If not, go to step 3.
3. Clean the area around the reservoir by use 200mm minimum the operation cap. Add mineral based hydraulic transmission oil as required and when 68°C (150°F minimum) in a strongly hot weather, 30W oil may be used for hydro pump. Do not use multi grade oil with 30W oil. Use hydraulic oil manufacturer's grade with appropriate oil.

If reservoir is visible. Clean area around vent plug (B), top of 200mm minimum plug. Get oil level in reservoir not 100% equal to vent plug opening. With clean tools push down, rotate top of bell to remove trapped air. Reinstall vent plug. Fill reservoir to Full/LOUL mark. If the unit blank or empty, use guard to refer to tolerance table.

4. If will take a while for the unit to reach a full temperature observe. Check the level again after operation. If needed a few times. If level is constant with the unit, use a device to check for leaks.
5. Keep checking for a while for a short time of press and it will multiply.

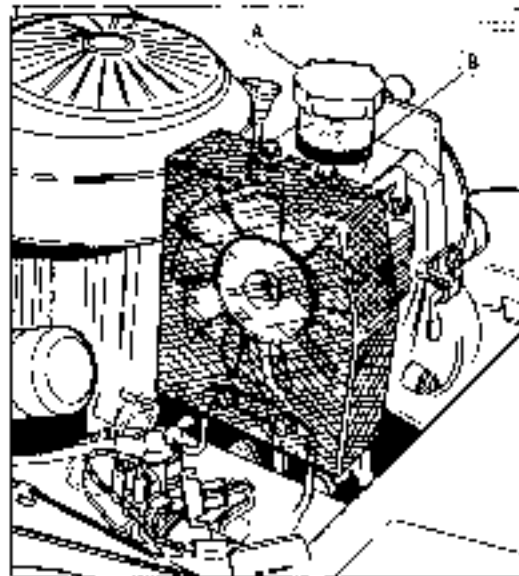


Figure 20. Hydrostatic Reservoir  
A. Reservoir B. Vent Plug

**MOWER REMOVAL & INSTALLATION****Removal**

1. Mower can be easily removed and handled for lubrication, service and year-end storage.

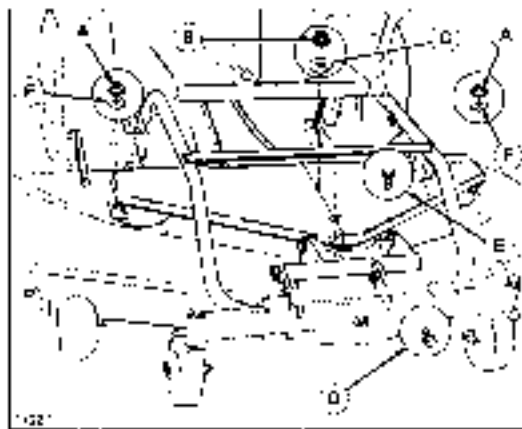


Figure 21. Bell Cover Removal

- |                      |                        |
|----------------------|------------------------|
| A. Flange Nut, 1/2"  | D. Tapillo Screw, 3/8" |
| B. Flange Nut, 9/16" | E. Tapillo Screw, 1/2" |
| C. Large Washer      | F. Flat Washer         |

2. Remove hardware securing bell covers to mower deck. Refer to figure 21. Remove bell covers (bell diagram is located on underside of bell covers).

**WARNING**

Use caution when moving spring-loaded idler pulley (A, figure 22). Spring tension is strong. Do not remove bell (B) from spring-loaded idler pulley (A). Remove belt from left and right idler pulleys (C & D).

3. Place mower in lowest cutting position. To provide slack for spring-loaded idler pulley away from bell and remove belt from around left hand and right hand idler pulley.
4. To remove chains from idler link arms, remove cotter pin (I) and washer from axle stud (H). Replace washer and pin on weld stud.

(Cont'd.)

Normal Care

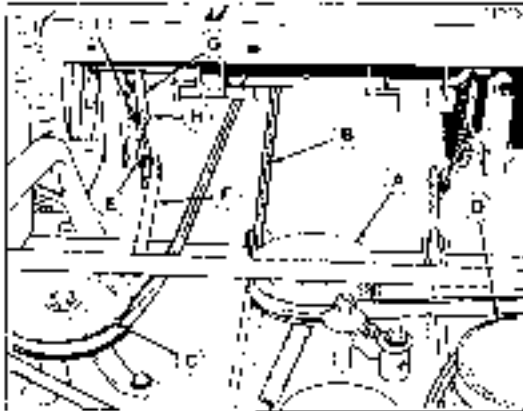


Figure 22 Removing Belt Tension  
 A. Spring-Loaded Idler Pulley  
 B. Bell  
 C. Right Hand Idler Pulley  
 D. Left Hand Idler Pulley  
 E. Chain  
 F. Mower Lift Arm  
 G. Rider Lift Arm  
 H. Weld Stud  
 I. Cotter Pin

5. Remove the spring clip (A) and clevis pins (B) from mower lift arm (C). Refer to figure 23. Flip mower lift arm down. Remove large washer (D) from rider lift arm. For storage, install clevis pin (B) and spring clip (A) onto mower lift arm with large washer in between hardware.

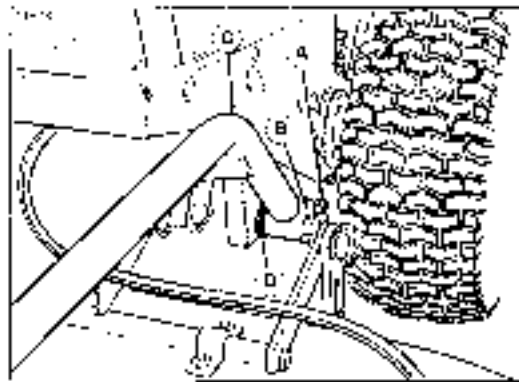


Figure 23. Hitch Arms  
 A. Spring Clip  
 B. Clevis Pin  
 C. Mower Hitch Arm  
 D. Washer

5. Disconnect the top and bottom halves of the mower lift arm as shown in figure 24. Reinstall spring clip (B) onto weld stud (A).

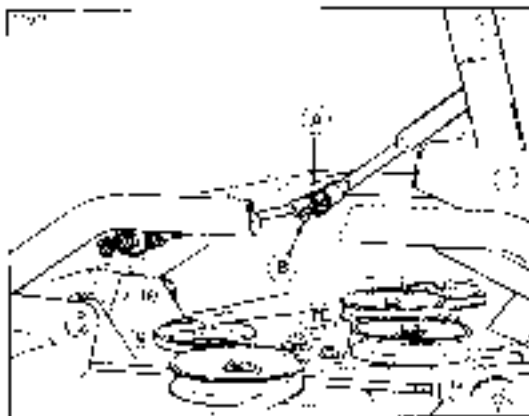


Figure 24. Lift Arm Halves

- A. Weld Stud
- B. Spring Clip.

6. To remove mower drive belt from electric clutch (PTO) pulley, the anti-spin rod (A) must be removed. Refer to figure 25.

- a. Remove spring clip (B) from anti-spin rod outside rider frame.
- b. Push rod through frame and engage other end from electric clutch.

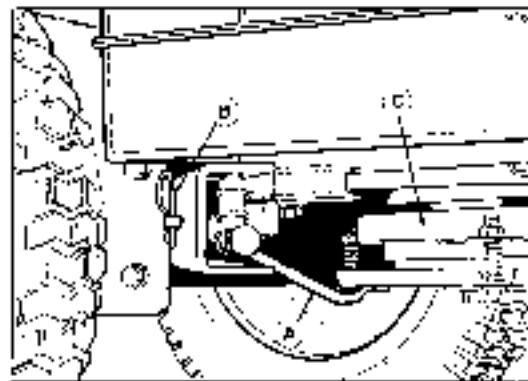


Figure 25. Anti-Spin Rod

- A. Anti-Spin Rod
- B. Spring Clip
- C. Electric Clutch

## Normal Care

3. Disconnect wire harness to electric clutch from the plug (A, figure 26). Remove the (C) securing wire harness (A) to belt stop (B).

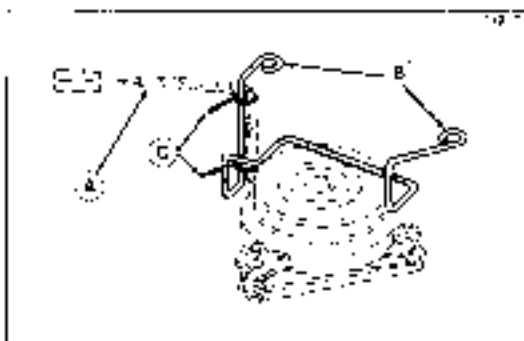


Figure 26. Electric Clutch Wire Harness

- A. Harness Plug
- B. Belt Stop
- C. Nut

4. Remove mower belt around bottom pulley (V-Side) and around idler pulley (Flat Side). Hardware securing belt stop may need to be loosened to remove belt. Belt diagram is shown in figure 27.

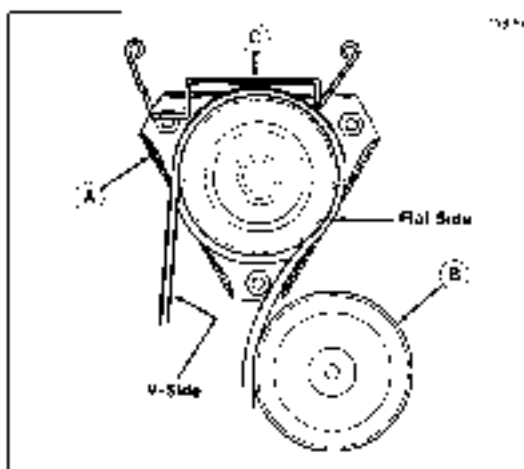


Figure 27. Belt Installation

- A. Electric Clutch
- B. Idler Pulley
- C. Belt Stop

5. Mower deck can now be rolled forward from underneath rotor.



**Installation**

Install all mower deck blades. Follow these steps. Refer to illustrations 21 - 27 on previous page.

1. Fasten mower deck drive pulley to shaft of axle.
2. Route belt under both roller over the drive pulley. Insert mower belt around bottom pulley (center of electric clutch). Refer to figure 27.
3. Connect wire harness to electric clutch. Refer to figure 28. Secure wire to belt stop with retainer ties. If ties are damaged, tape wire securely at top and bottom of belt stop.
4. Anti-siphon rod must be reinstalled for operation. Electric clutch will be immediately damaged if operated without anti-siphon rod. Refer to figure 25. Install rod to electric clutch. Insert other end through frame and secure with spring clip.
5. Connect top and bottom rollers of mower deck. Refer to figure 24.
6. Install mower deck arm to roller hitch arm. Refer to figure 23. Make sure large washer (figure 23) is placed on roller hitch arm. Secure with cotter pins and spring clips.
7. Connect chain (top link) to axle shaft and secure with washers and cotter pins. Refer to figure 22.

8. The belt will be tight to the end of hand lever pulley by pulling on spring-actuated roller pulley. Read warning on page 27. Refer to figure 22.

9. Check mower belt tension by hand. Belt should be positioned as shown in figure 20.

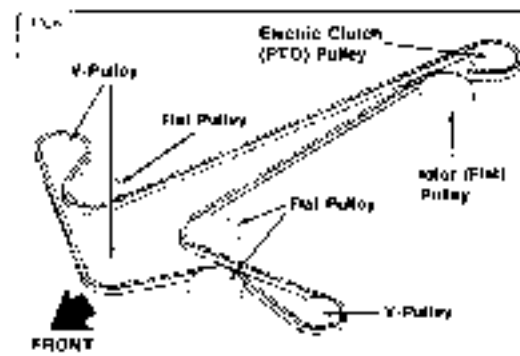


Figure 28. Mower Belt Routing

10. Make sure deflector is properly installed as shown in figure 24.

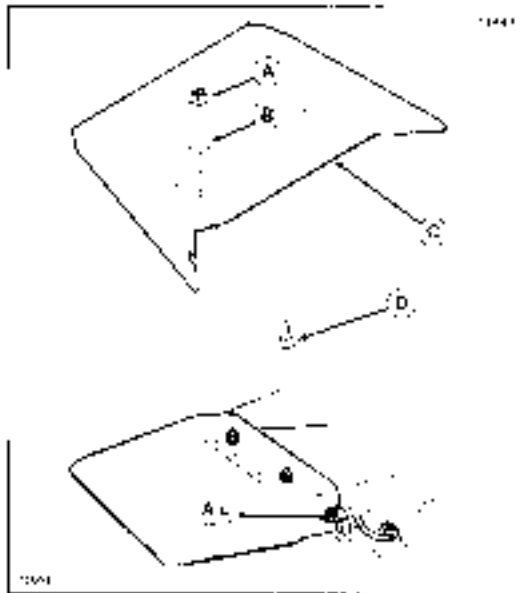


Figure 29 Deflector Installation

A. Whetlock Nut  
B. Washer

C. Deflector  
D. Carriage Bolt

## 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. Turn turn cap screw counterclockwise to remove.
2. Use a file to sharpen front to 4 inch edge. Remove all nicks and dents in blade edge. If blade is severely damaged it must be replaced.
3. To balance the blade, use a balancing machine or the following procedure. Draw a 2" diameter circle on a workbench or other vertical surface. Lay blade flat and with a drop of oil. Center the blade center hole on the oil. A balanced blade will remain flat. File minor nicks between end of blade until it is balanced.

**Blade Installation**

1. Reinstall the blades with the face pointing upward. Install a spine washer, cup washer and capscrew (see figure 30). Be sure the spines on the spine washer are engaged with the shaft spines. 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. Turn the capscrew to 30 to 70 ft. lbs. (40 to 70 Nm).

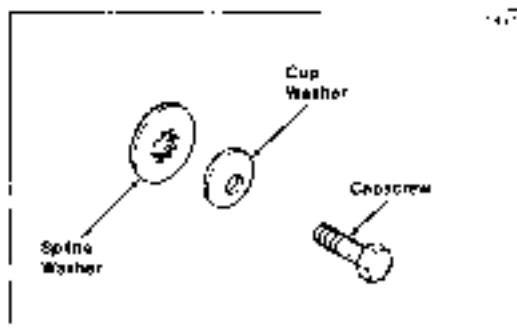


Figure 30 Blade Hardware

## Troubleshooting

### CONTENT OF SECTION

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

### WARNING

Perform maintenance on the rider 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
I. Engine will not turnover or start.	A. Transmission lever not in neutral/start position. Shift into neutral.
	B. Electric PTO switch in ON position. Place in OFF position.
	C. Out of fuel. Allow engine to cool then refill the fuel tanks. Both tanks must be filled or the empty tank shut off at valve.
	D. Engine flooded. Push choke knob in (15 HP) or choke control out of CHOKED position (12 HP).
	E. Circuit breaker tripped. Wait and reset the 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 & top deck broken or frayed wires. Tighten loose connections.
	I. Solenoid or starter motor faulty. Repair or replace.
	J. Safety interlock switch 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 <u>fresh fuel</u> .

Problem	Cause/Remedy
2. Engine starts hard or runs poorly	<p>A. Fuel mixture too rich. Clean air filter. Check choke adjustment and spark control. See engine manual.</p> <p>B. Carburetor adjusted incorrectly. See engine manual.</p> <p>C. Spark plugs faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual.</p>
3. Engine knocks.	<p>A. Low oil level. Check and oil as required.</p> <p>B. Using wrong grade oil. See engine manual.</p>
4. Excessive oil consumption.	<p>A. Engine running too hot. Clean engine fins, blower screen and air filter(s).</p> <p>B. Using wrong weight oil. See engine manual.</p> <p>C. Too much oil in crankcase. Drain excess oil.</p>
5. Engine exhaust is black.	<p>A. Dirty air filter. Clean air filter. See engine manual.</p> <p>B. Check engine spark control adjustment (choke). See engine manual.</p>
6. Engine runs, but does not drive	<p>A. Transmission not in gear. Shift into gear.</p> <p>B. Hydro release valve engaged (hydro models). Disengage valve (see Operation section).</p> <p>C. Belt or chain is broken. Replace. Check chain adjustment (See Adjustments section).</p> <p>D. Drive belt slips. (See problem and cause below.)</p>
7. Pades drive belt slips.	<p>A. Clutch is out of adjustment. See your dealer.</p> <p>B. Pads on belt greasy or oily. Clean as required.</p> <p>C. Belt stretched or worn. Replace with correct belt.</p> <p>D. Clutch rod binding in guide. Oil clutch rod.</p>

## Troubleshooting

Problem	Cause/Remedy
8. Brake will not hold.	<p>A. Brake is incorrectly adjusted. See your dealer.</p> <p>B. Brake band worn and requires replacement. See your dealer.</p> <p>C. Oil on brake drum or overlaps brake band. See your dealer.</p>
9. Rider steers hard.	<p>A. Steering linkage is loose. Check and tighten the knee connections.</p> <p>B. Improper tire inflation. Check and correct.</p> <p>C. Spindle bearings dry. Grease spindles. See Normal Care - Lubrication section.</p>
10. Rider drive belt does not stop when clutch-brake depressed.	<p>A. Belt gross out of adjustment. See Adjustment section.</p> <p>B. Clutch out of adjustment. See your dealer.</p>

## TROUBLESHOOTING (MOWER)

1. Mower will not raise.	A. Lift arms or lift chains not properly attached or damaged. Attach or repair.
2. Mower cut is uneven.	A. Mower not leveled properly. See Mower Leveling.
3. Mower cut is rough/janking.	<p>A. Engine speed too slow. Set for three-fourths to full speed.</p> <p>B. Ground speed too fast. Use transmission lever in our hot ground speed.</p> <p>C. Blades dull and need resharpening. See Normal Care section.</p> <p>D. Mower drive belt slipping. See belt or worn. Clean or replace belt as necessary.</p> <p>E. Check PTO Clutch Adjustment. Clutch may need to be tightened.</p> <p>F. Blades not properly fastened to arms. See Normal Care section.</p>

## Troubleshooting

Problem	Cause/Remedy
4. Engine stalls usually with mower engaged	<ul style="list-style-type: none"> <li>A. Ground speed too fast. Use lower gear.</li> <li>B. Cutting rate not adjusted properly.</li> <li>C. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height cutting first pass.</li> <li>D. Cutting deck clogged with cut grass. Cut grass will discharge (cutting) ahead probably cut area.</li> </ul>
5. Excessive mower vibration.	<ul style="list-style-type: none"> <li>A. Mower blades, rollers or pulleys are bent. Check and replace as necessary.</li> <li>B. Mower blades are out of balance. Balance, sharpen and balance blades per Normal Care program.</li> </ul>
6. Excessive belt breakage.	<ul style="list-style-type: none"> <li>A. Belt tension too tight. Readjust belt tension. See your dealer.</li> <li>B. Bent or rough pulleys. Repair or replace.</li> <li>C. Jump or worn belt. See your dealer.</li> </ul>
7. Mower drive belt slips or fails to drive.	<ul style="list-style-type: none"> <li>A. Mower drive belt out of adjustment. See your dealer.</li> <li>B. Belt slips out of adjustment. Check.</li> <li>C. Mower drive belt worn. Replace.</li> </ul>

## Troubleshooting

### 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. If this is why you are about the signal 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 you are being run by another, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow exactly the procedure outlined below, being careful not to create sparks. Refer to figure 31.

#### 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. Put parking brake and place transmission in "NEUTRAL".
2. Remove vent caps from both the booster and the discharged batteries. Lay a cloth over the open vent caps on each battery. These two actions reduce the explosion hazard always present in either battery when connecting a live battery to a dead battery.



3. Attach one end of one jumper cable to the positive terminal of the booster battery, (denoted 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 rider 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 connections.

5. The rider 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 now have corrosive acid on them.

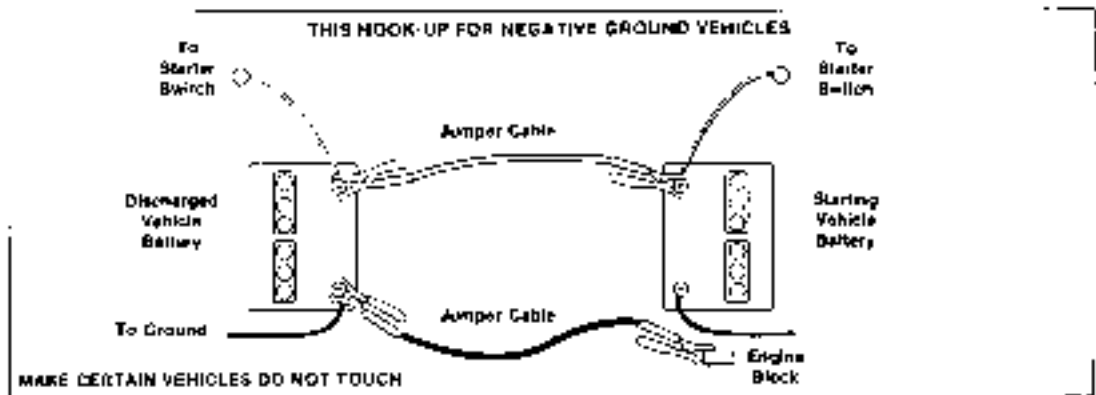


Figure 31 Jump Starting

## Troubleshooting

### MOWER BELT REPLACEMENT

1. Park the mower on a flat surface.
2. Belt can be replaced with mower deck removed or installed on mower. Follow these steps to replace belt with mower deck installed or refer first to steps and illustrations provided under "Mower Removal & Installation".
  - a. Remove as follows. Refer to figure 21.

#### **WARNING**

Use caution when moving spring-loaded idler pulley (A, figure 22). Spring tension is strong. Do not remove belt (B) from spring-loaded idler pulley. Remove belt from left and right idler pulleys (C and D).

- b. Remove belt from idler pulleys by pulling spring loaded idler pulley to gun deck as per Reference figure 22.
- c. Remove ties securing electric clutch wire harness to belt stop and disconnect harness. Refer to figure 26.
- d. Remove anti-spin rod from frame and electric clutch. Refer to figure 25.
- e. Remove belt from electric clutch pulley. Refer to figure 27. Hardware securing belt stops may need to be removed to remove belt.

1. Remove belt from mower deck and replace with new belt.
2. Check belt pattern as shown in figure 32. Make sure mower belt goes under both rollers over the drive axle.

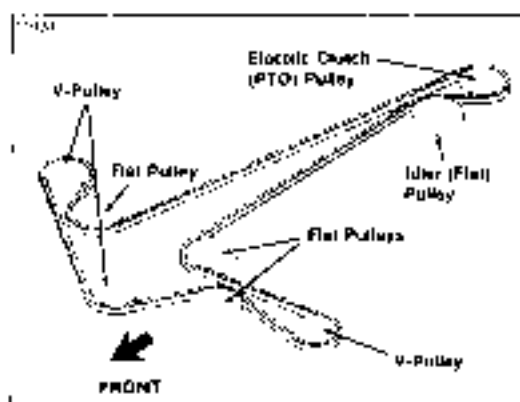


Figure 32. Mower Belt Pattern

- 3 Reverse above steps to install removed parts. Anti-siphon rod must be reinstalled before operation or electric clutch will be damaged immediately. Refer to figure 24.
- 4 Make sure belt covers and pulleys are properly secured before operating mower. Refer to figure 25.

**POWER UNIT BELTS**

**"V" Belt Replacement - Hydro Models**

- 1 Set the parking brake to provide slack in the belt.
- 2 Remove the screen (A, figure 31) by removing four screws (D), two at top and two at bottom.
- 3 Remove the fan (C) by removing three screws (B) at center. Keep washers (E) in order for correct reassembly.
- 4 Slip the belt (F) from the transmission pulley.

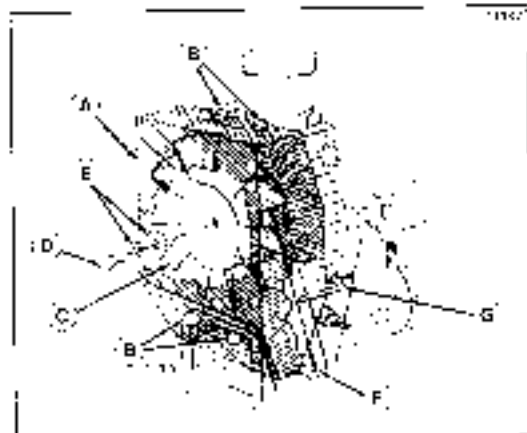
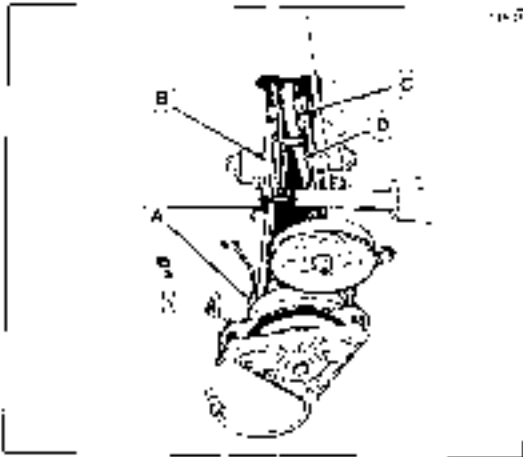


Figure 31. Hydro Pump

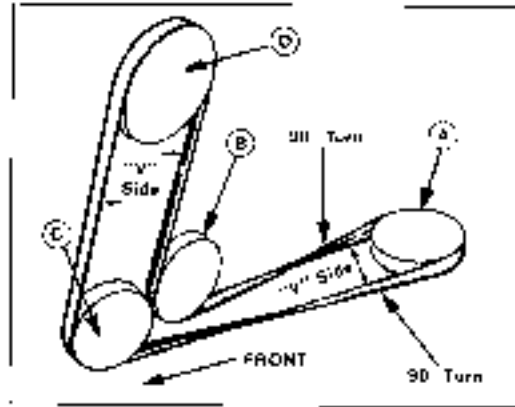
- A. Screen
- B. Capscrew
- C. Fan
- D. Capscrews
- E. Washer
- F. Belt
- G. Belt Stop

(Cont'd.)



**Figure 34. "V" Belt**  
**A. Engine Pulley**      **C. Idler Pulley**  
**B. Fixed Pulley**      **D. Belt**

1. Remove belt (D, figure 34) from idler pulley (C), fixed pulley (B) and engine pulley (A). Loosen belt stops as necessary.
2. Remove mower belt from the clutch pulley by following steps outlined in "Mower Belt Reattachment".



**Figure 35. Belt Pattern (Seen From Left-Hand Side)**

- A. Engine Pulley**  
**B. Fixed Pulley**  
**C. Idler Pulley**  
**D. Transmission Pulley**

3. Place the new belt on the engine pulley (A, figure 34), fixed pulley (B) and idler pulley (C). Note that "V" side of belt goes in the pulleys, and flat side goes against frame pulley (B). The belt must 90° between engine pulley and the fixed pulley (B) and between engine pulley and idler pulley (C).

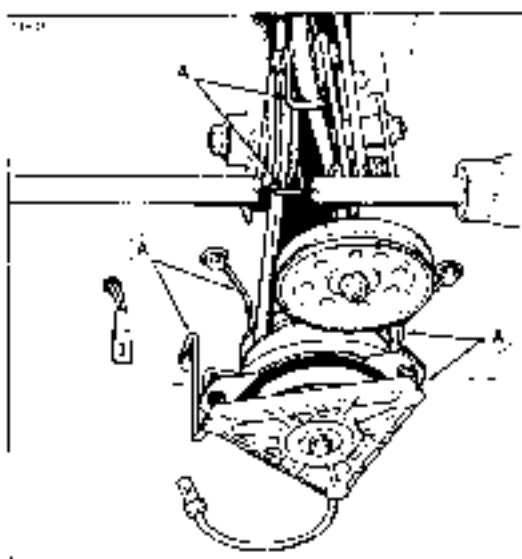


Figure 38. Ben Stop Locations  
A Ben Stops

8. Pull belt up from fly and place onto the transfer stop pulley (D, figure 32)
9. Reinstall power ball from clutch pulley. Follow steps under "Power Ball Replacement" to install electric clutch wiring harness and air splined
10. Remove a tab on the side of fan (E, figure 32) if cutting a hole when fan is installed. Install fan with original hardware
11. Install cones (A, figure 32) with two screws at top and two screws at bottom
12. Release parking brake to check belt stop adjustment. There should be 1/16 to 1/8 inch clearance between belt and belt stops. Two belt stops are shown in figure 30. Also check belt stop (A, figure 32) if it is missed on pulley. To adjust, loosen mounting hardware, position belt stop, and then tighten hardware
13. Perform Clutch Brake Adjustment as described in Adjustment section

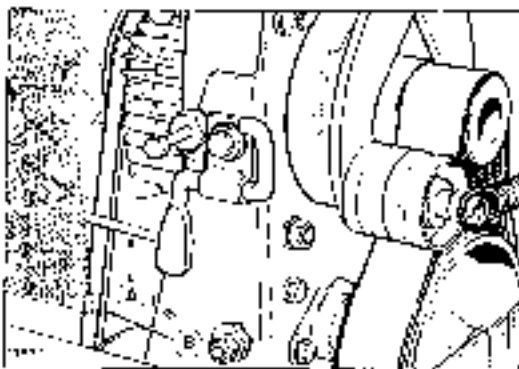


Figure 37. Bell Stop Location  
A. Bell Stop  
B. V-Belt

#### V-Belt Replacement - Gear Models

1. To provide slack in the belt, set the parking brake.
2. Remove the mower belt from electric clutch pulley by following steps outlined in "Mower Belt Replacement".
3. Slip the belt off the pulleys (figure 38); loosen the belt guides as necessary.
4. Install the new belt as shown in figure 35, making sure there are no twists in the belt.
5. Release the parking brake to provide belt tension. Then position the belt guides (1-16) to the belt from step 4 and tighten.
6. Reinstall mower belt to electric clutch pulley as described in "Mower Belt Replacement".
7. Perform "Clutch Brake Adjustment" as described in adjustment section.

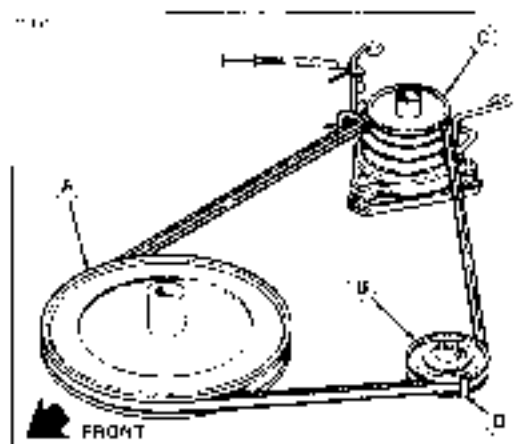


Figure 38. Bell Peller - Gear Drive

- A. Transmission Pulley
- B. Idler Pulley
- C. Engine Pulley
- D. BH1 Stop

## Adjustments

### SEAT ADJUSTMENT

1. Unlatch seat by pushing down on back of seat and unlatching latch bar (A, Fig. 39). Make sure latch bar latches in place after lowering seat.
2. The seat can be moved forward or back for operator comfort. Loosen the four screws (B) and move the seat to the desired position. Tighten the screws.
3. Make sure there is enough slack in wire (D) for seat to be adjusted fore, aft, and raised and lowered.
4. The springs (C) can be moved to the wide holes for light operator. Put up and adjust the seat springs.

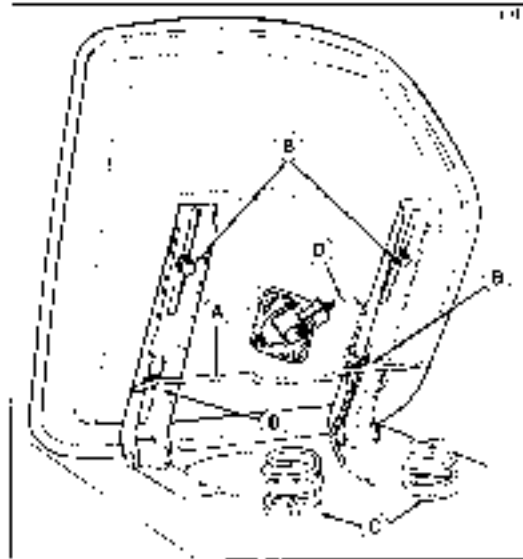


Figure 39. Seat Adjustment

- A. Latch Bar
- B. Screws
- C. Springs
- D. Wire



## NEUTRAL ADJUSTMENT - Hydro Models



**WARNING**  
Keep away from moving parts when engine is running.

1. Adjustment can be performed with mower rotated.
2. Loosen nuts (B, figure 40) on either side of guide (C).
- Leave 1/4" clearance on each side.

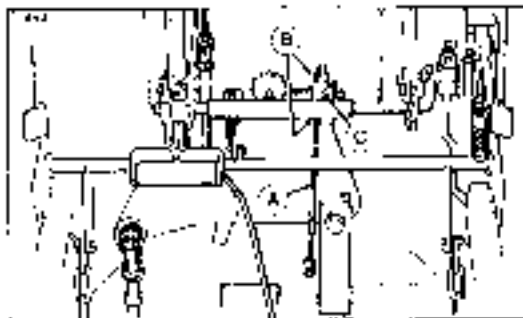


Figure 40. Hydro Control Rod  
A. Hydro Control Rod  
B. Nuts  
C. Guide

3. Loosen the two capscrews (A, figure 41).

4. Raise front tires off the ground by placing jack stands under each side of frame. Do not support center axle as axle will rotate during adjustment.

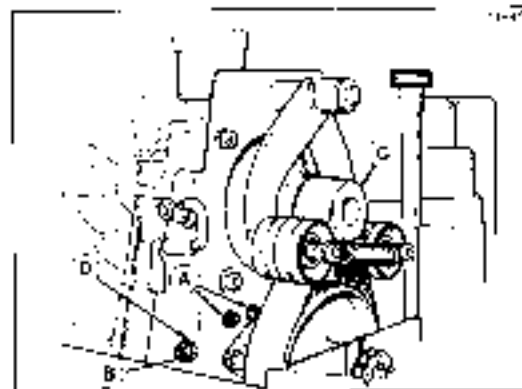


Figure 41. Neutral Adjustment

- A. Capscrews  
B. Jam Nut  
C. Pulley  
D. Adjustment Nut

## Adjustments

5. Start the engine and raise the seat deck 1 gram accurate neutral adjustment. Keep engine RPM level high during adjustment.
6. Loosen the pan nut (U). Turn the inner nut (O) either left or right until the output pin (C) stops turning.
7. Tighten the two cap screws (A).
8. Tighten the pan nut (B) against inner nut (O).
9. Shut off the engine.
10. Make sure transmission control lever is in neutral.
11. Tighten the top nuts (D, figure 40) against the guide. Make sure rod guide does not move when tightening top nuts.
12. The rod can be taken off its pack/wash.

## CLUTCH/BRAKE ADJUSTMENT - Hydro Models

1. Release parking brake.
2. The clutch rod spring (A, figure 42) should measure 1-3.15" (27.5-16.0) and the clearance between my disc of washers. To adjust, tighten or loosen the nut (B).
3. Pull the brake rod (C) toward front as far as possible. Tighten or loosen the nut (D) to achieve a gap of 3/8" inch between rear surface of nut and the guide that rod extends through.

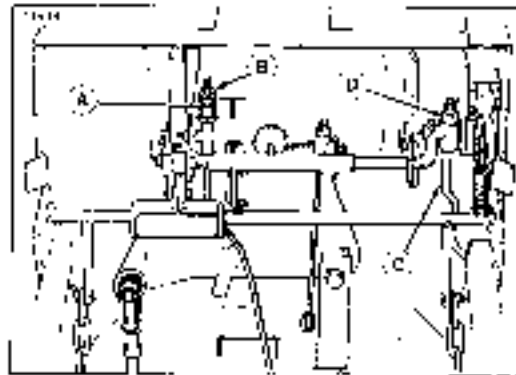


Figure 42 Hydro Models

- |                    |                   |
|--------------------|-------------------|
| A. Clutch Spring   | C. Brake Rod      |
| B. Nut, Clutch Rod | D. Nut, Brake Rod |

**CLUTCH/BRAKE ADJUSTMENT - Gear Models**

1. Reverse parking brake
2. The clutch rod spring (A, in fig. 43), should measure 2" to 2-1/2" along the long side between its fixed end and free end. To adjust, tighten or loosen the nut (B).
3. Pull the brake rod (C) toward home as far as possible. Tighten or loosen nut (D) to achieve 1/2" of clearance between rear surface of nut and the quick-throw rod extends through.

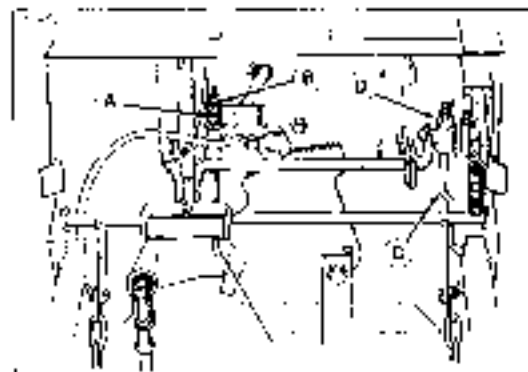


Figure 43 Gear Models

- A. Clutch Spring
- B. Nut, Clutch Rod
- C. Brake Rod
- D. Nut, Brake Rod

## Adjustments

### CHAIN ADJUSTMENT - Gear Models

On gear drive models, the chain can be adjusted to remove excess slack.

1. Remove the cover (B) (Figure 44) by removing the screws (A).
2. Loosen the locknut (C) which holds the spacer (D) in place.
3. Move the spacer toward the chain to tighten. If too tight, the cap screw and nut. Do not adjust too tight. Only remove excess slack.

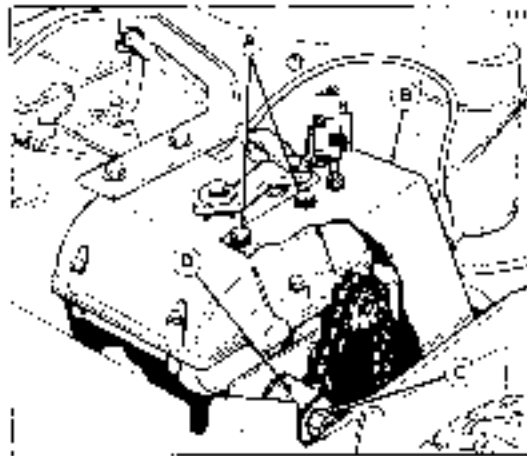


Figure 44. Chain Adjustment

- A. Screws
- B. Cover
- C. Locknut
- D. Spacer

**PTO CLUTCH ADJUSTMENT****Burnishing the Clutch**

Before the PTO clutch is used for the first time, it should be burnished as follows. Also, if power cut is rough during, the clutch may require burnishing or adjustment. To burnish, the power must be installed.

- 1 Start the engine and set shift to Neutral.
- 2 Turn the PTO switch to On position. Leave on for 15 seconds, then turn off.
- 3 Do this procedure six to burnish the clutch.

**Clutch Adjustment**

- 1 Use a 0.010 to 0.012 feeler gauge to check the electric system at three places (A, figure 45). Insert the gauge. The gauge should be a slight resistance as gauge is moved in and out of slot. If tight, or loose, go to step 2.
- 2 Loosen or tighten one of the nuts at (B) to adjust one of the three places. Loosen nut to increase gap; tighten to decrease gap.
- 3 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.

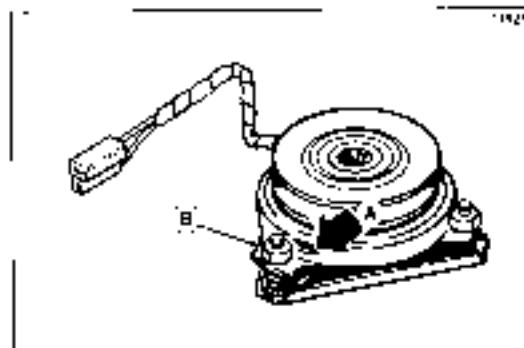


Figure 45. PTO Clutch Adjustment

- A. Slot  
B. Adjustment Nut

## ADJUSTMENTS

### MOWER LEVELING

#### WARNING

During leveling check, remove ignition key, then remove spark plug(s) wire(s) and loosen it away from the spark plug(s).

#### Side-To-Side

1. Park the miter on a level surface.
2. Place mower in high cut position.
3. Turn the blades side to side and measure distance from outside tips of blades to ground. Measurement should be equal. For adjustment, refer to Figure 46.
4. Loosen the capscrew (A) on the right hand side of mower roller bracket (B).
5. Roll mower toward right hand side of mower as shown by the green capscrew.
6. Recheck side-to-side measurement.

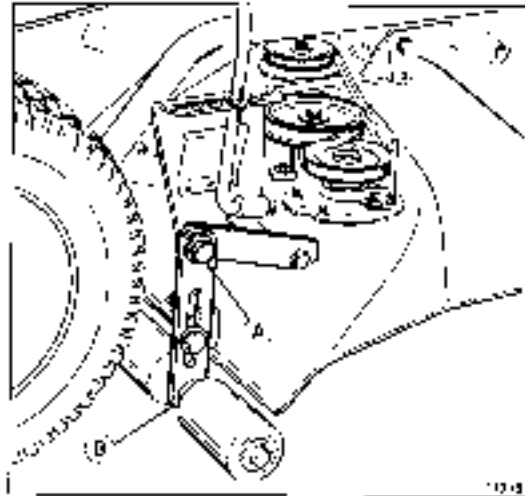


Figure 46. Side-to-Side Leveling  
A. Capscrew  
B. Roller Bracket

**Front-To-Back**

4. Turn the blades front to back. Measure the distance from the ground to the front tip of the center blade, and from the ground to the tips of the leading and trailing blades. Measurements should be equal. For adjustment, refer to figure 47.
5. Remove both covers as shown in figure 21.
6. Remove the spring clip (A) and clevis pin (B) from both adjustment rods (E).
7. Loosen jam nut (D) at front of clevis (C).
8. Turn clevises an equal amount of turns. Turn clevis towards front to raise height of mower.
9. Reinsert clevis to mower rollers with clevis pin and spring clip. Recheck front-to-back measurement.
10. If adjustment is correct, tighten jam nut (D) on front clevis.
11. Reinstall bolt covers (refer to figure 21) and check for clearance (refer to figure 23).

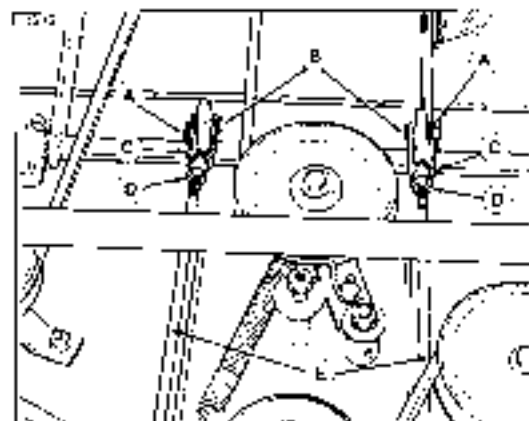


Figure 47. Front-to-Back Leveling

- A. Spring Clip
- B. Clevis Pin
- C. Clevis
- D. Jam Nut
- E. Adjustment Rod

## Specifications

### ENGINE: 12 HP & 15 HP

<b>Make</b>	Excell A Division
<b>Model</b>	Model 100 Series
<b>Horsepower</b>	12.5/15 HP @ 3600 RPM
<b>Cycles</b>	4
<b>Cylinder</b>	4
<b>Bore</b>	2.56 in (64.9 mm)
<b>Stroke</b>	2.80 in (71.1 mm)
<b>Displacement</b>	29.0 cu in (476 cc)
<b>Construction</b>	Cast Iron Block, Cast Iron Sump Aluminum Cylinder Head
<b>Electrical System</b>	12 Volt, 15 Amp Alternator, Regulated Brush, 12 Volt 200 Cold Cranking Amperes, 20 Amp Battery Charge Maintainer, Electronic Ignition
<b>Ignition</b>	Electronic
<b>Air Cleaner</b>	Oil and Paper Cartridge and Foam Pre-cleaner, 100 sq. in. Air Filtration System
<b>Lubrication</b>	Full Flow, Full Pressure Lubrication
<b>Oil Capacity</b>	5.5 Quarts with Filter (17.1 L)
<b>Fuel Tank Cap</b>	2 Gals. Total - 2 Tanks
<b>Muffler</b>	Cast Iron, Full Flow Back Pressure

### ENGINE: 17 HP

<b>Make</b>	Excell A Division
<b>Model</b>	Model 100 Series
<b>Horsepower</b>	17.0 HP @ 3600 RPM
<b>Cycles</b>	4
<b>Cylinders</b>	4
<b>Bore</b>	3.14 in (80.0 mm)
<b>Stroke</b>	3.00 in (76.2 mm)
<b>Displacement</b>	35.4 cu in (580 cc)
<b>Electrical System</b>	12 Volt, 15 Amp, Alternator, Regulated Brush, 12 Volt 200 Cold Cranking Amperes, 20 Amp Battery Charge Maintainer, Electronic Ignition
<b>Ignition</b>	Electronic
<b>Air Cleaner</b>	Oil and Paper Cartridge and Foam Pre-cleaner, 100 sq. in. Air Filtration System
<b>Oil Capacity</b>	7.25 Quarts (6.9 L)
<b>Fuel Tank Cap.</b>	2 Gals. Total - 2 Tanks
<b>Alternator</b>	15 Amp, 12.5 Amps
<b>Muffler</b>	Cast Iron



<b>TRANSMISSION</b>	<b>Over</b>	<b>Hydro</b>	<b>DIMENSIONS</b>	
<b>Type</b>	5 speed with 1st Shift 2nd Gear	Infinitely Variable with 12 Gears	<b>Height at:</b>	
<b>Final Drive</b>	Over Drive Type	Over Drive Type	<b>abering wheel</b>	40 1/2 in. (1029 mm)
<b>Differential</b>	1.5:1 Final Drive	1.5:1 Final Drive	<b>abering cutting</b>	41 1/2 in. (1054 mm)
<b>Speeds</b>	1-15 MPH Rev	0-27 MPH Rev	<b>seat back</b>	37 3/4 in. (958 mm)
			<b>engine cover</b>	36 1/2 in. (927 mm)
<b>CHASSIS</b>			<b>Length</b>	
<b>Frame</b>	1 1/2" Steel Tube, 12 Gauge Eng. Steel		<b>Overall</b>	48 3/4 in. (1238 mm)
<b>Front Axle</b>	1 1/2" Axle, 20" Spindle, 10" Hub		<b>Tractor</b>	44 3/4 in. (1137 mm)
<b>Rear Axle</b>	1 1/2" Axle, 20" Spindle, 10" Hub		<b>Width</b>	
<b>Body</b>	48 Sheet, Asbestos, 19, 20, 120" Min. at 1000 RPM, for 120" Width		<b>of Body</b>	36 1/2 in. (927 mm)
<b>Seat Deck</b>	17" High, 12" Back, 10" Long, 10" Wide		<b>at Front Wheels</b>	34 in. (863 mm)
<b>Seat Adjustment</b>	17" High, 12" Back, 10" Long, 10" Wide		<b>at Rear Wheels</b>	37 1/2 in. (952 mm)
<b>Front Wheel:</b>			<b>Overall</b>	37 1/2 in. (952 mm) to 41 1/2 in. (1054 mm)
<b>Tread</b>	14 1/2" (368 mm)		<b>Wheel Base</b>	40 1/2 in. (1029 mm)
<b>Size</b>	16 in. (406 mm)		<b>Weight (approx.)</b>	
<b>Inflation Press.</b>	5 PSI (3.5 bar)		<b>Net</b>	
<b>Rear Wheel:</b>			<b>12 HP Over</b>	407 lbs. (184 kg)
<b>Tread</b>	14 1/2" (368 mm)		<b>12 HP Hydro</b>	632 lbs. (286 kg)
<b>Size</b>	16 in. (406 mm)		<b>12.5 HP Hydro</b>	635 lbs. (288 kg)
<b>Inflation Press.</b>	5 PSI (3.5 bar)			
<b>Turning Radius</b>	16 in. (406 mm)		<b>POWER</b>	
<b>Inside Front Wheel</b>	16 in. (406 mm)		<b>Blade Cutting</b>	
			<b>Width</b>	
			<b>42" Blade</b>	42 in. (1067 mm)
			<b>50" Blade</b>	45 in. (1143 mm)
			<b>Overall Width</b>	
			<b>with Deflector</b>	
			<b>42" Blade</b>	42 1/2 in. (1080 mm)
			<b>50" Blade</b>	45 1/2 in. (1155 mm)
			<b>Weight</b>	
			<b>42" Blade</b>	117 lbs. (53 kg)
			<b>50" Blade</b>	136 lbs. (62 kg)
			<b>Variable Cutting HL</b>	114 lbs. (52 kg)
			<b>Blade Arrangement</b>	Three Suspended Blades
			<b>Mower Drive</b>	2-Stage Drive, 110" Pulley
			<b>Spindle Bearings</b>	Ball Bearings and Grease Ball Bearings

## Common Replacement Parts

Listed below are part numbers for the more common replacement parts. Only genuine Craftsman replacement parts will ensure optimum performance and safety. Do not attempt repairs or maintenance unless proper procedure and safety precautions are followed. For assistance in any area, see your dealer.

### REPLACEMENT PARTS

QTY. PER UNIT	DESCRIPTION	PART NUMBER
2	Blade, 48" Mower	1656116
3	Blade, 42" Mower	1630147
2	Washer, Mower LHI Chain	1919228
2	Pin, Mower LHI Chain	1918447
1	Belt, 42" Mower	1703371
1	Belt, 48" Mower	1703372

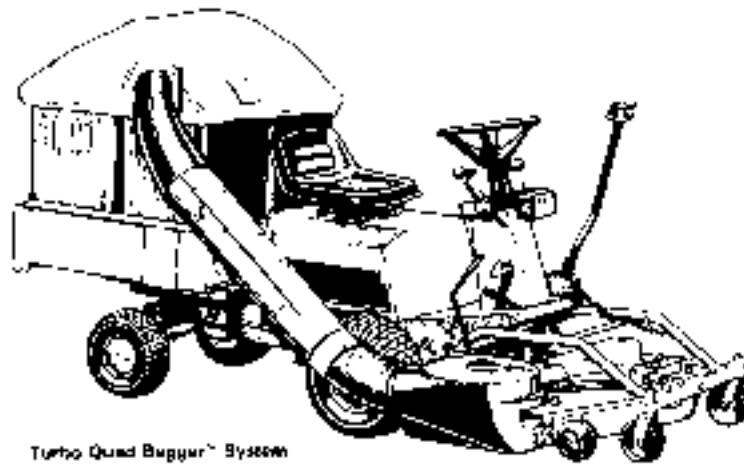
QTY. PER UNIT	DESCRIPTION	PART NUMBER
2	Straight Pin, Mower Hitch Arms	174719
2	Spring Clip, Mower Hitch Arms	1814185
1	"V" Belt, Engine (Hydro)	1704735
1	"V" Belt, Engine (Gear)	1674354
1	Belt, Intermediate (Flat, Hydro)	1700382
1	Keys (2 Keys w/Ring)	122203
2	Interlock Switch, PTO & Trans.	1704193
1	Interlock Switch, Seat	1703873
1	Battery	1685215
1	Solenoid	1685290
1	Switch, Electric Clutch	1675800
1	Switch, Oil Pressure (On Engine)	1703954
1	Headlamp	1679951

## Optional Attachments and Accessories

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See your dealer to purchase these items

Turbo Grass Collector  
Turbo Quad Bagger™  
Dump Cart  
Turbo Twin-Bag Collector  
Woodside Transcutter  
Edger  
Horn  
Hubcap



Turbo Quad Bagger™ System

**Turbo Grass Collection System** - Collect grass clippings, twigs, and leaves with powerful mower driven vacuum collection. Can be used with Quad Bagger™ or Dump Cart or Twin-Bag Collector.

Notes

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### Parts Manual Available

Deutz-Allis Lawn & Garden Equipment Parts Manuals are fully illustrated. All of the assemblies are shown in exploded views which show the relationship of the parts and how they go together. Important assembly notes and special torque values are included in the illustrations. Full standard hardware is included. Specification charts included.

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- I would like a Parts Manual (TP-1173) for my 1900 Series Riding Mower Attachments and Accessories. Enclosed is a check or money order for \$5.50.
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