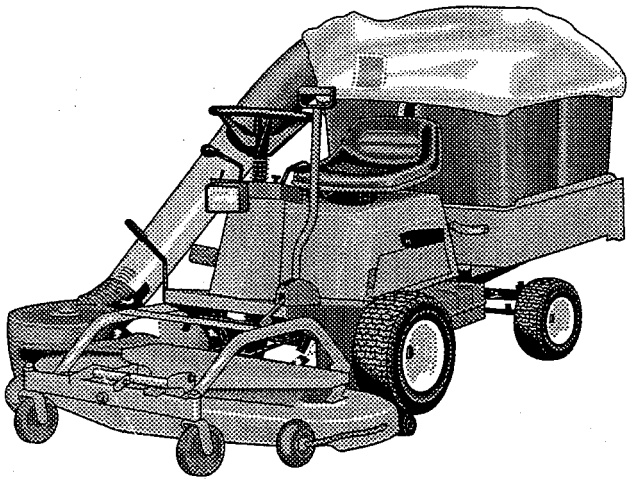
MASSEY FERGUSON
LAWN & GARDEN EQUIPMENT

OPERATOR'S MANUAL

2300 SERIES

16 HP Hydro	42" Mower Deck	48" Mower Deck
Mfg. No. 1692512	Mfg. No. 1692119	Mfg. No. 1692120



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

Tractor & Mower Identification

Record your model number, manufacturer number and engine serial number in the space provided for easy reference.

The models and manufacturer numbers covered in this manual are listed on the front cover.

The tractor I.D. tag is located on the right-side, below the fuel tank, as shown below. The mower deck I.D. tag is on the left side, top of the mower deck.

Refer to the engine Owner's Manual for location of engine serial number.

Be sure to fill out and return the Warranty Registration Card supplied with your tractor.

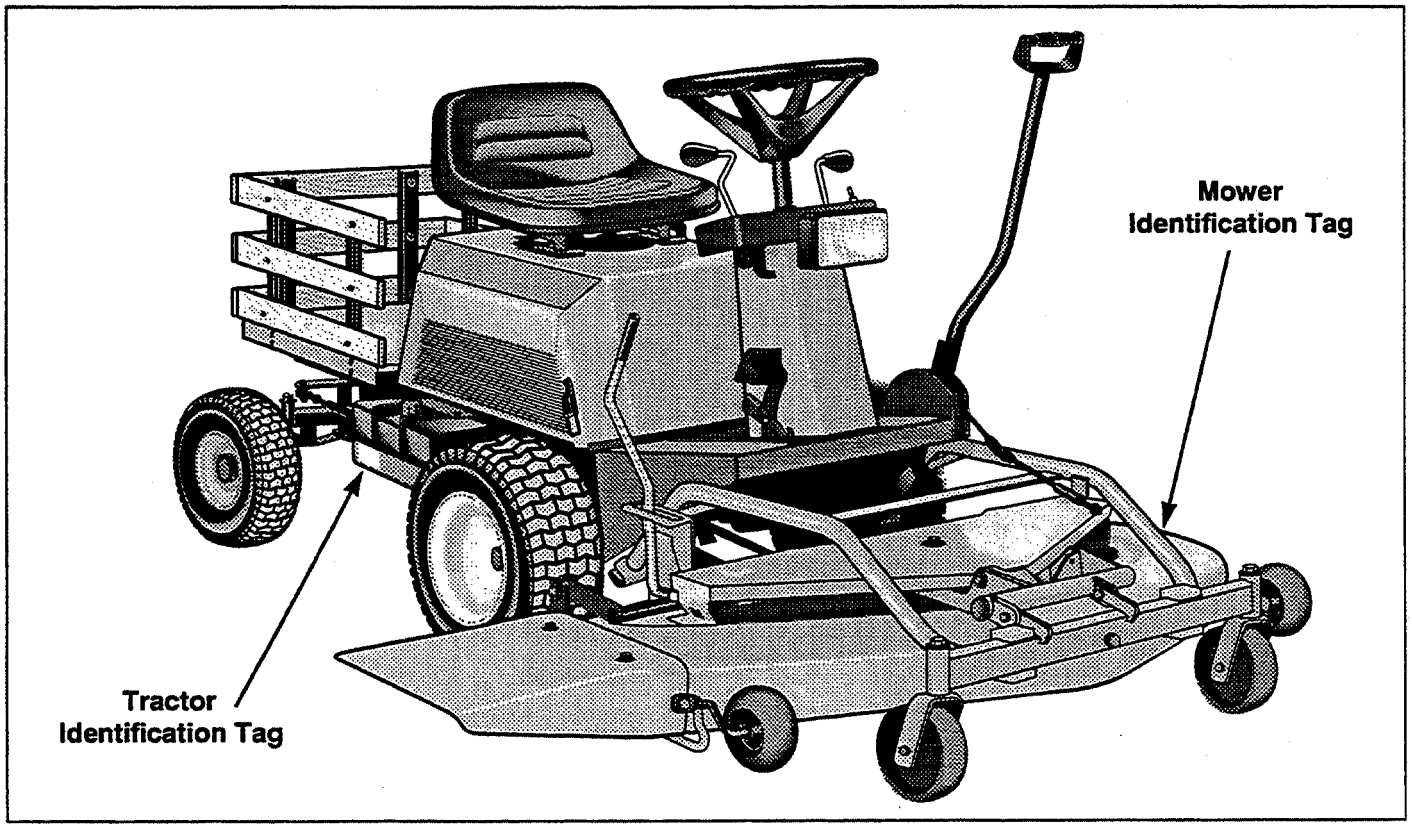
MODEL REFERENCE

Model Number: _____

Manufacturer Number: _____

Engine I.D. Number: _____

Dealer Name/Date Purchased:



Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of rider, severe personal injury or death to you, 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.

GENERAL OPERATION

- Read, understand, and follow all instructions in the manual and on the unit before starting.
- Only allow responsible adults, who are familiar with the instructions, to operate the unit.
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
- Be sure the area is clear of other people before mowing. Stop unit if anyone enters the area.
- Never carry passengers.
- Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
- 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 deflector in place.
- Slow down before turning.
- Never leave a running unit unattended. Always disengage the PTO, set parking brake, stop engine, and remove keys before dismounting.
- Turn off the PTO switch to disengage the blades when not mowing.
- Stop engine before removing grass catcher or unclogging chute.
- Mow only in daylight or good artificial light.
- Do not operate the unit while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.

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.

⚠ WARNING - SLOPE OPERATION
Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet vertically in 10 feet horizontally. Select slow ground speed before driving onto slope. Use extra caution when operating on slopes with rear-mounted grass catcher. Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

Do

- 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 unit. Tall grass can hide obstacles.
- Use slow speed.
- Use extra care with grass catchers or other attachments. These can change the stability of the unit.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.

Do Not

- *Do not* start or stop on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
- *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 unit by putting your foot on the ground.
- *Do not* use grass catcher on steep slopes.

CHILDREN

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

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

TRANSPORTING AND STORAGE

- Always observe safe refueling and fuel handling practices when refueling the tractor after transportation or storage.
- Always follow the engine manual instructions for storage preparations before storing the tractor for both short and long term periods.
- Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
- Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

SERVICE AND MAINTENANCE

- 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 unit indoors.
- Never run a unit inside a closed area.
- Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
- Never tamper with safety devices. Check their proper operation regularly.
- Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage.
- Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
- Never make adjustments or repairs with the engine running.
- 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.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Check brake operation frequently. Adjust and service as required.
- Use only factory authorized replacement parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.

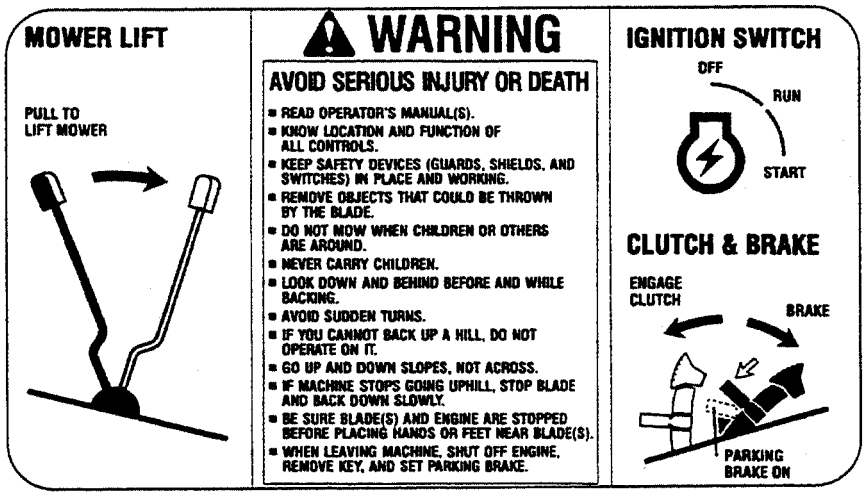
This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your tractor.

All WARNING, CAUTION and instructional messages on your tractor and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals shown below are on your tractor and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

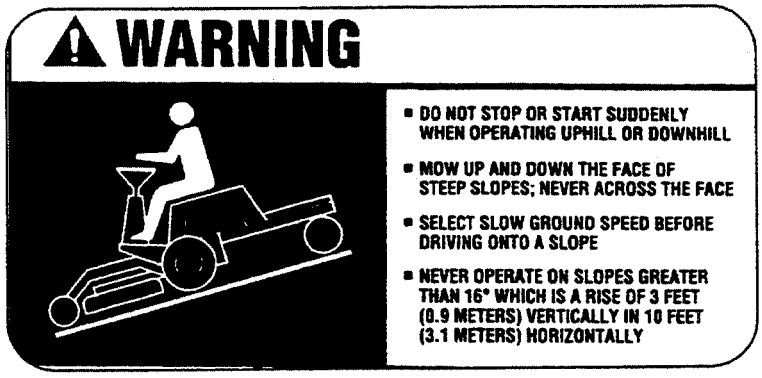
These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.



Decal - Operating Information
Part No. 1708280

Decal - Danger
Part No. 1704277

Decal - Danger
Part No. 1704276



Decal - Slope Operation
Part No. 1708280

CONTROLS

REF	NAME	FUNCTION
A	Engine Speed Control Lever	Controls engine speed.
B	Headlight Switch	Push forward to turn headlight on, pull back to turn headlight off.
C	Traction/Mower Transport Lever	Raises mower for transport. Pull back slightly to transfer weight of mower deck onto front drive wheels for additional traction.
D	Ground Speed Control Lever	Controls ground 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 gate.
E	PTO (Electric Clutch) Switch	Controls PTO for mowing. Pull up and push forward to engage mower, pull backwards to disenage. Activates PTO light (K)
F	Oil Pressure Light (Red)	Indicates low oil pressure when engine is running. Lights up with ignition key turned on and should go out immediately after engine starts.
G	Mower Height Adjustment Lever	Controls height of mower cut. Seven cutting height positions from 1-1/4" to 4". Place in forward slot for lowest cut.
H	Clutch/Brake Pedal	Press down to disenage drive and engage brake. Release to engage drive.
I	Parking Brake Lever	Locks brake. Depress pedal (H), then latch lever over edge of frame.
J	Neutral Light (Green)	Indicates when ground speed lever (D) is in neutral gate. Must be lit for engine to start.
K	PTO Light (Red)	Indicates PTO switch (E) is on. Must be off for engine to start.
L	Ignition Switch & Key	Starts and stops the engine.
M	Choke Knob	Pull out to close choke. Aids in starting a cold engine.

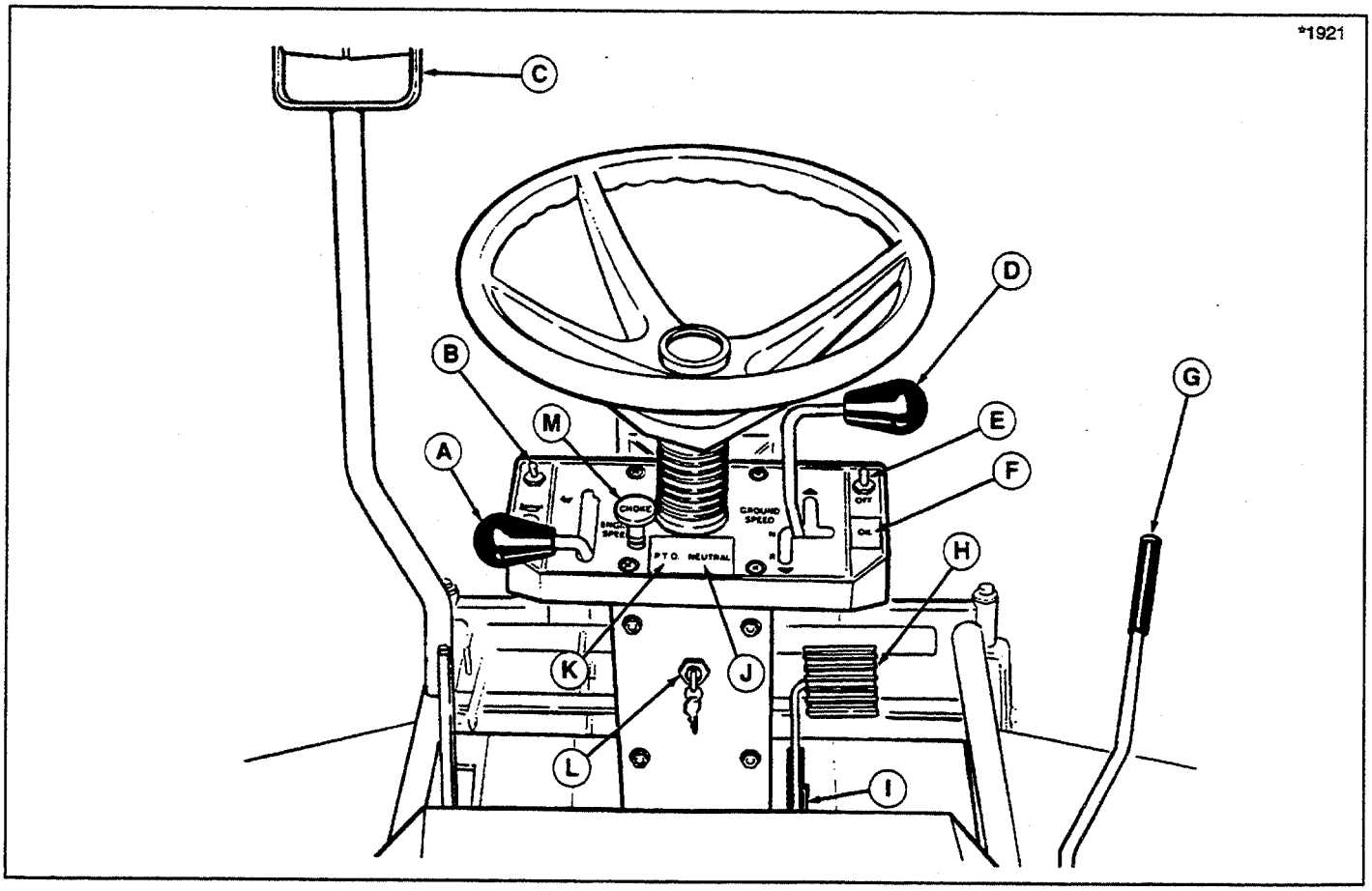


Figure 2. Controls

ENGINE

REF	NAME	FUNCTION
A	Fuel Tank (Right side shown)	One gallon fuel tank on each side of rider. Tanks drain evenly. Shut-off valve located underneath each tank.
B	Air Filter	See engine manual for maintenance instructions.
C	Oil Fill/Dipstick	Turn and remove to add oil. See engine manual for dipstick instruction.
D	Hydro Reservoir	Fill with fluid to "FULL COLD" mark.
E	Hydro Pump	Belt driven pump provides power through chain to front axle.
F	Hydro Release Lever	Engages/disengages hydro pump to drive or push rider. Refer to Pushing the Rider By Hand for more information.
G	Oil filter	Spin-on oil filter for easy maintenance. Refer to engine manual for recommended service intervals and procedures.
H	Throttle Cable	Controls engine speed and RPM level. See engine manual for adjustment.
I	Choke Cable	Controls choke position. See engine manual for adjustment.
	OPPOSITE SIDE - NOT ILLUSTRATED	
	Seat Deck Support Arm	Supports seat deck when raised for engine maintenance and service. Must be unlatched to lower seat deck.
	Oil Drain	Oil drain extension tube allows for engine oil to be drained from underneath rider frame.

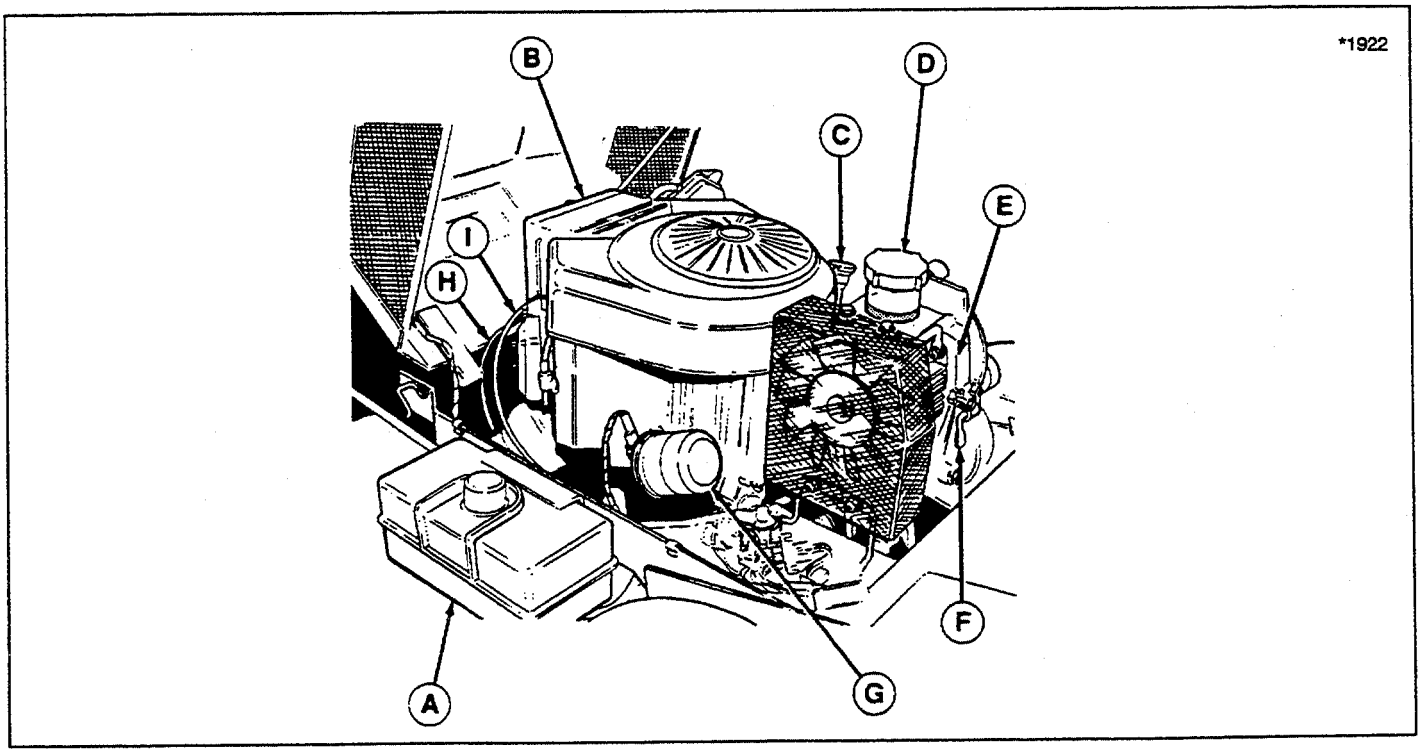


Figure 2. 16 HP Engine Compartment

SAFETY INTERLOCK SYSTEM

Your rider is equipped with a seat switch safety system that will automatically shut the engine off when the operator leaves the seat with the transmission control lever in gear or PTO engaged. Once the engine has stopped, the electric PTO switch must be turned off (after operator returns to the 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):

A. Neutral Indicator Light (J, figure 1) should go on with transmission lever in neutral gate and should go out when lever is moved to either the forward or reverse gate.

B. PTO Light (K, figure 1) should go on and off with operation of PTO switch.

C. Oil Pressure Light (F, figure 1) should be on and should go out immediately after engine starts.

Check the seat switch (A, figure 3) every fall and spring with the following four tests:

Test 1 - Engine should NOT crank if:

A. seat is not occupied or

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 is in neutral and

C. PTO switch is disengaged.

Test 3 - Engine should shut off if:

A. operator rises off seat with transmission lever in gear or

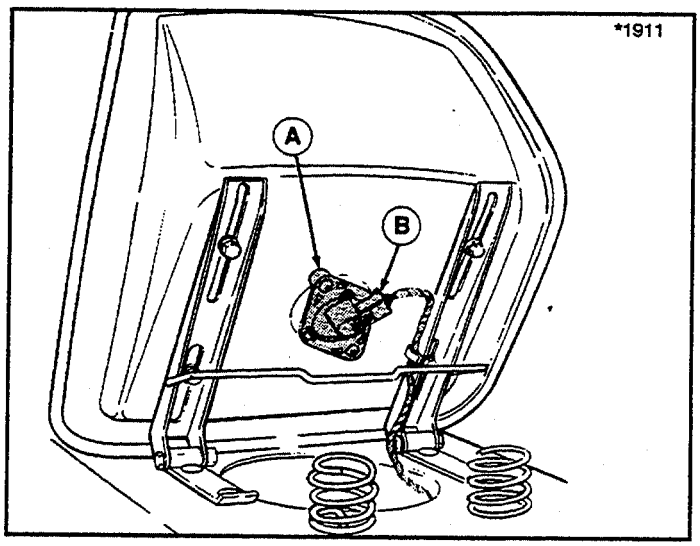


Figure 3. Seat Switch
A. Switch **B. Wiring Harness**

B. operator rises off seat with PTO engaged.

NOTE: If operator returns to seat before engine stops, the engine will re-start and electric PTO clutch will re-engage.

Test 4 - PTO will disengage if:

A. operator rises off seat with engine running.

NOTE: If operator returns to seat before engine stops, the engine will resume speed and electric PTO clutch will re-engage.

⚠ 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.

GENERAL

Before operating this rider 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. Be sure to read all information in the Safety and Operation sections before attempting to operate this rider and mower.

⚠ WARNING - SLOPE OPERATION
Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet vertically in 10 feet horizontally. Select slow ground speed before driving onto slope. Use extra caution when operating on slopes with rear-mounted grass catcher. Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

⚠ WARNING
Never allow passengers to ride on the unit.

⚠ WARNING
Towing the rider will cause transmission damage. Do not use another vehicle to push or pull tractor.

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

⚠ WARNING
The interlock safety switches are for your safety. Do not attempt to bypass them.

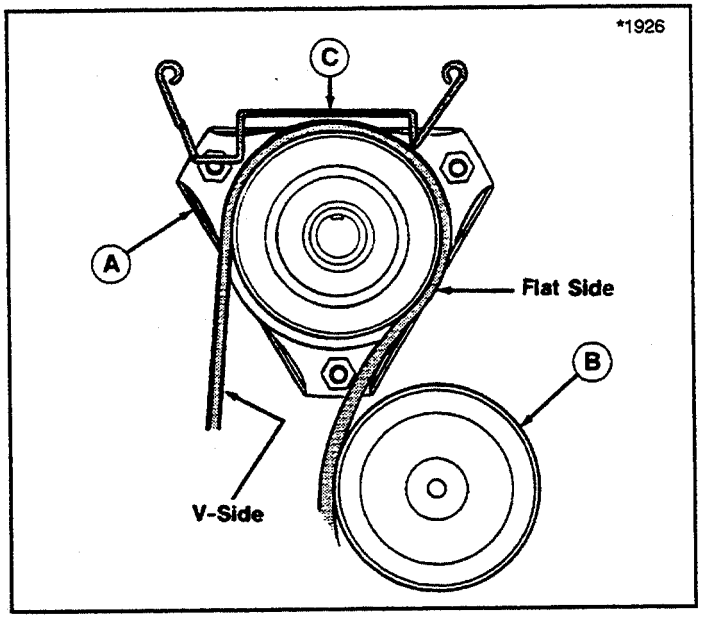


Figure 4. Belt Installation
A. PTO (Electric Clutch) **C. Belt Stop**
B. Idler Pulley

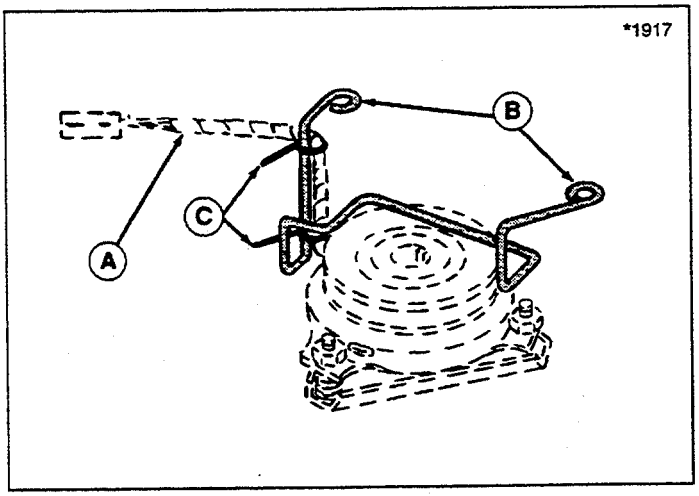


Figure 5. PTO Wire Harness
A. Harness Plug **C. Ties**
B. Belt Stop

MOWER INSTALLATION

⚠ WARNING
Stop engine and remove key. Do not engage PTO until mower is completely installed and operator is seated.

NOTE: Perform mower installation on a hard, level surface such as a concrete floor.

1. Position mower deck directly in front of rider.
2. Route belt underneath rider and **over the drive axle.** Install mower belt around bottom pulley (V-side) of PTO. Refer to figure 4.
3. Connect wire harness for PTO as shown in figure 5. Secure wire to belt stop with reusable ties. If ties are damaged, tape wire securely at top and bottom of belt stop.
4. Install rod to PTO as shown in figure 6. Insert other end through frame and secure with spring clip.

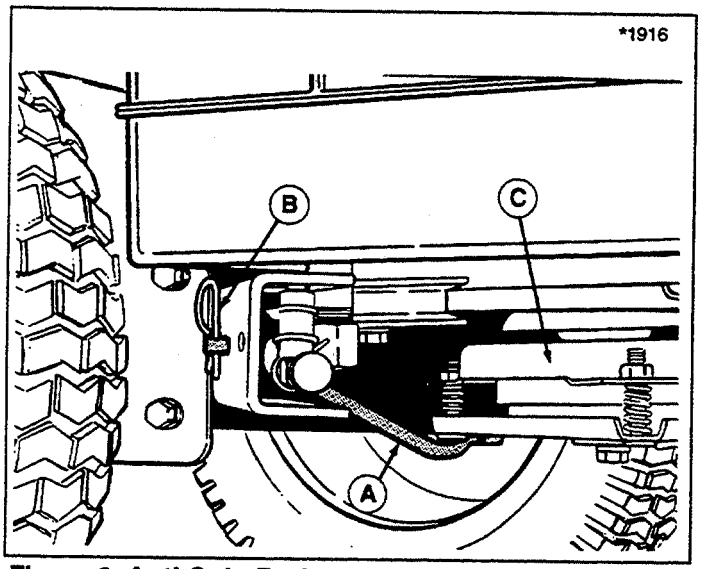


Figure 6. Anti-Spin Rod
A. Anti-Spin Rod **C. PTO**
B. Spring Clip

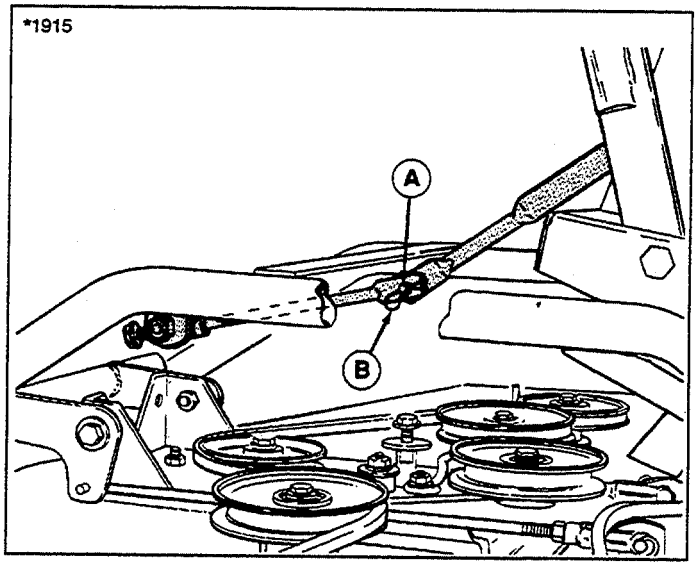


Figure 7. Lift Arm Halves
A. Weld Stud **B. Spring Clip**

5. Connect top and bottom halves of mower lift arms. See figure 7.

> **⚠ CAUTION**
>
> **Anti-spin rod must be installed for operation. PTO will be immediately damaged if operated without anti-spin rod.**

6. Install mower hitch arms to rider hitch arms. See figure 8. Make sure large washer (D) is placed on rider hitch arms. Secure with clevis pins and spring clips.
7. See figure 9. Connect top link of chains (E) to weld studs and secure with washers and cotter pins.
8. Install belt on right-hand and left-hand idler pulley by pulling on spring-loaded idler pulley (A, figure 9).
9. Check mower belt routing carefully. Belt should be positioned as shown in figure 10.

> **⚠ WARNING**
>
> **To avoid personal injury, use caution when moving spring-loaded pulley (A, figure 9). Spring tension is strong. Do not remove belt (B) from spring-loaded idler pulley (A). Remove belt from left and right idler pulleys (C & D).**

10. Make sure deflector is properly installed.

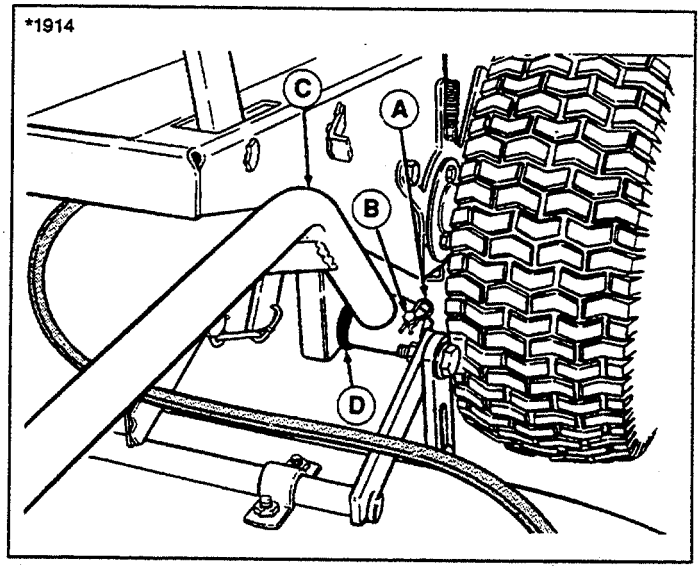


Figure 8. Hitch Arms
A. Spring Clip **C. Mower Hitch Arm**
B. Clevis Pin **D. Washer**

MOWER REMOVAL

> **⚠ WARNING**
>
> **Stop engine and remove key. Do not engage PTO until mower is completely removed and operator is seated.**

1. Mower can be easily removed and installed for lubrication, service and year-end storage.
2. Remove hardware securing belt covers to mower deck. Refer to figure 12. Remove belt covers. Diagram is located on underside of belt cover.

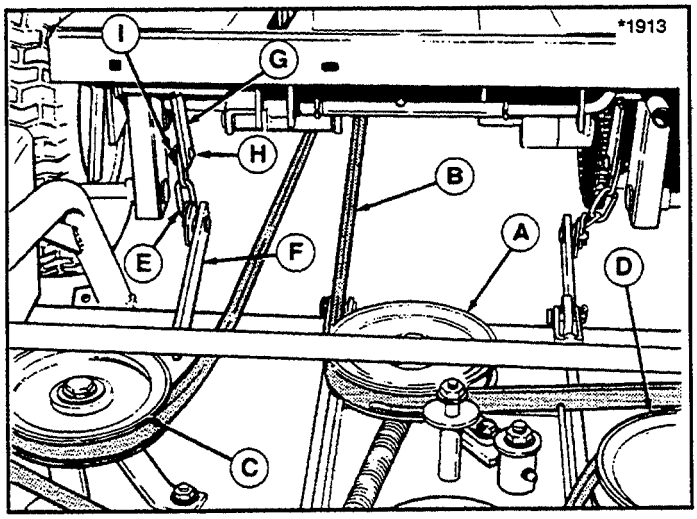


Figure 9. Removing Belt Tension

A. Spring-Loaded Idler Pulley	**E. Chain**
B. Belt	**F. Mower Lift Arm**
C. R.H. Idler Pulley	**G. Rider Lift Arm**
D. L.H. Idler Pulley	**H. Weld Stud**
	I. Cotter Pin

3. Place mower in lowest cutting position. To provide slack, pull spring-loaded idler pulley away from belt and remove belt from around left and right hand idler pulleys.

> **⚠ CAUTION**
>
> **Use caution when moving spring-loaded pulley (A, figure 9). Spring tension is strong. Do not remove belt (B) from spring-loaded idler pulley (A). Remove belt from left and right idler pulleys (C & D).**

4. See figure 9. To remove chains from rider lift arms, remove cotter pins (I) and washers from weld studs (H). Replace washers and pins on weld studs.
5. See figure 8. Remove the spring clips (A) and clevis pins (B) from mower hitch arms (C). Drop mower hitch arms and remove large washer (D) from rider hitch arm. For storage, install clevis pin (B) and spring clip (A) onto mower hitch arm with large washer (D) in between hardware.
6. See figure 7. Disconnect the top and bottom halves of the mower lift arm. Install spring clip onto weld stud.
7. See figure 6. Remove the spring clip from anti-spin rod outside rider frame. Push rod through frame and disengage other end from PTO.

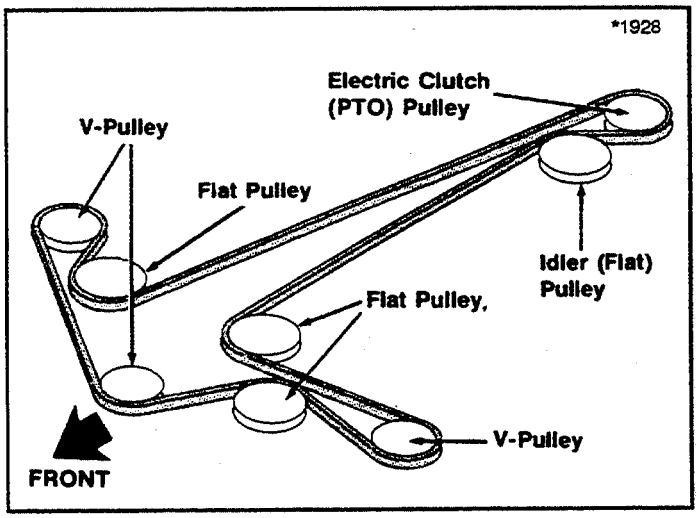


Figure 10. Mower Belt Routing

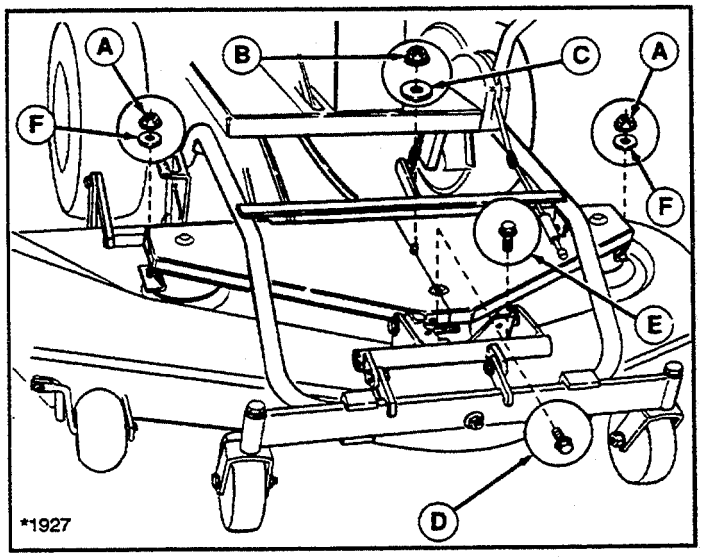


Figure 11. Belt Cover Removal

A. Flange Whiz Nut, 1/2	**D. Taptite Screw, 3/8**
B. Flange Whiz Nut, 9/16	**E. Taptite Screw, 1/2**
C. Large Washer	**F. Flat Washer**

8. See figure 5. Disconnect wiring harness from PTO harness plug. Remove the ties securing harness to belt stop.
9. See figure 4. Remove mower belt from bottom pulley (V side) and idler pulley (flat side). Hardware securing belt stop may need to be loosened to remove belt.
10. Mower deck can now be rolled forward from underneath rider.

OPERATING THE MOWER

1. When traveling to or from the work site, fully raise the mower using the mower transport lever (C, figure 13). At the work site, lower mower using the lift lever.
2. Use the mower height adjustment lever (G, figure 13) to set the proper mowing height. See Mowing Patterns & Tips section for cutting height recommendations.

CHECKS BEFORE STARTING

1. See SLOPE OPERATION in the Safety Rules section. Make sure any slopes are within required limits.
2. Check that crankcase is filled to full mark on dipstick. See the engine manual for instructions and oil recommendations.
3. Make sure all nuts, bolts, screws and pins are in place and tight.
4. Make sure you can reach all controls from operator's positions. If not, see SEAT ADJUSTMENT.
5. Fill the gasoline tanks with fresh gasoline. Fill to bottom of filler neck to avoid spillage and overflow. **DO NOT** mix oil with gasoline. Refer to engine manual for gasoline recommendations.

CLUTCH/BRAKE PEDAL OPERATION

⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

1. See figure 12. Depressing the pedal from position A to B disengages the transmission. Fully depressing the pedal to position C applies the tractor brake.
2. Parking brake is applied at pedal position C when pedal is latched over footrest as shown in figure 12.

STARTING THE ENGINE

Refer to figure 13.

1. Seat yourself on the rider seat in the operating position.
2. Pull back on the switch (E) to disengage the PTO and place the ground speed control lever (D) in neutral.
3. For cold starts, pull choke knob (M) out to the choke position. For warm starts, leave choke knob pushed in.

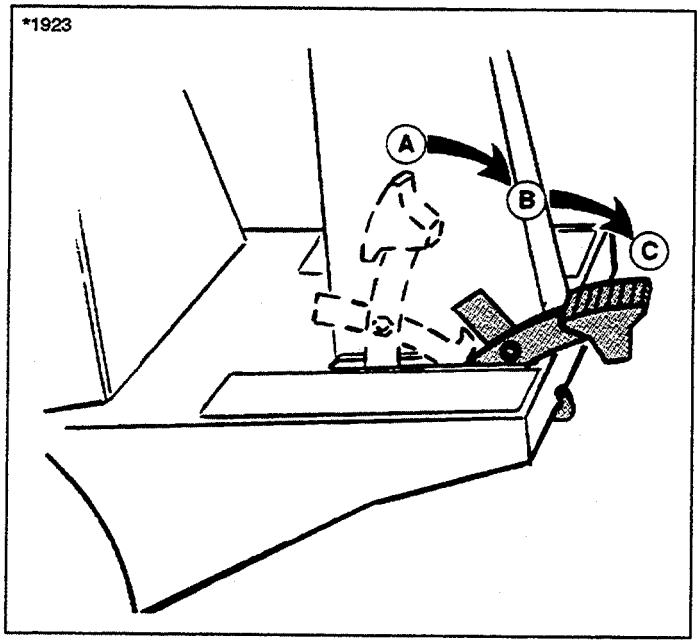


Figure 12. Clutch/Brake Pedal

4. Turn the ignition key (L) to start and release when engine has started.
5. Move the engine speed control lever (A) to the slow position. Warm up the engine by running it for at least a minute before engaging the PTO or driving the rider.

SELECTING GROUND & ENGINE SPEED

⚠ WARNING

Make sure desired direction of travel is clear of objects, people and animals.

Ground speed is infinitely variable according to how far the control lever (D, figure 13) is moved in the forward or reverse position.

1. If you are ready to mow, lower the mower from the transport position using lever (C, figure 13) and set the mowing height using the mowing height adjuster (G, figure 13).
2. Set the engine speed control lever (A, figure 13) for full speed.
3. Use the PTO switch (E, figure 13) to engage the PTO.
4. Release the parking brake by depressing clutch/brake pedal (H, figure 13).

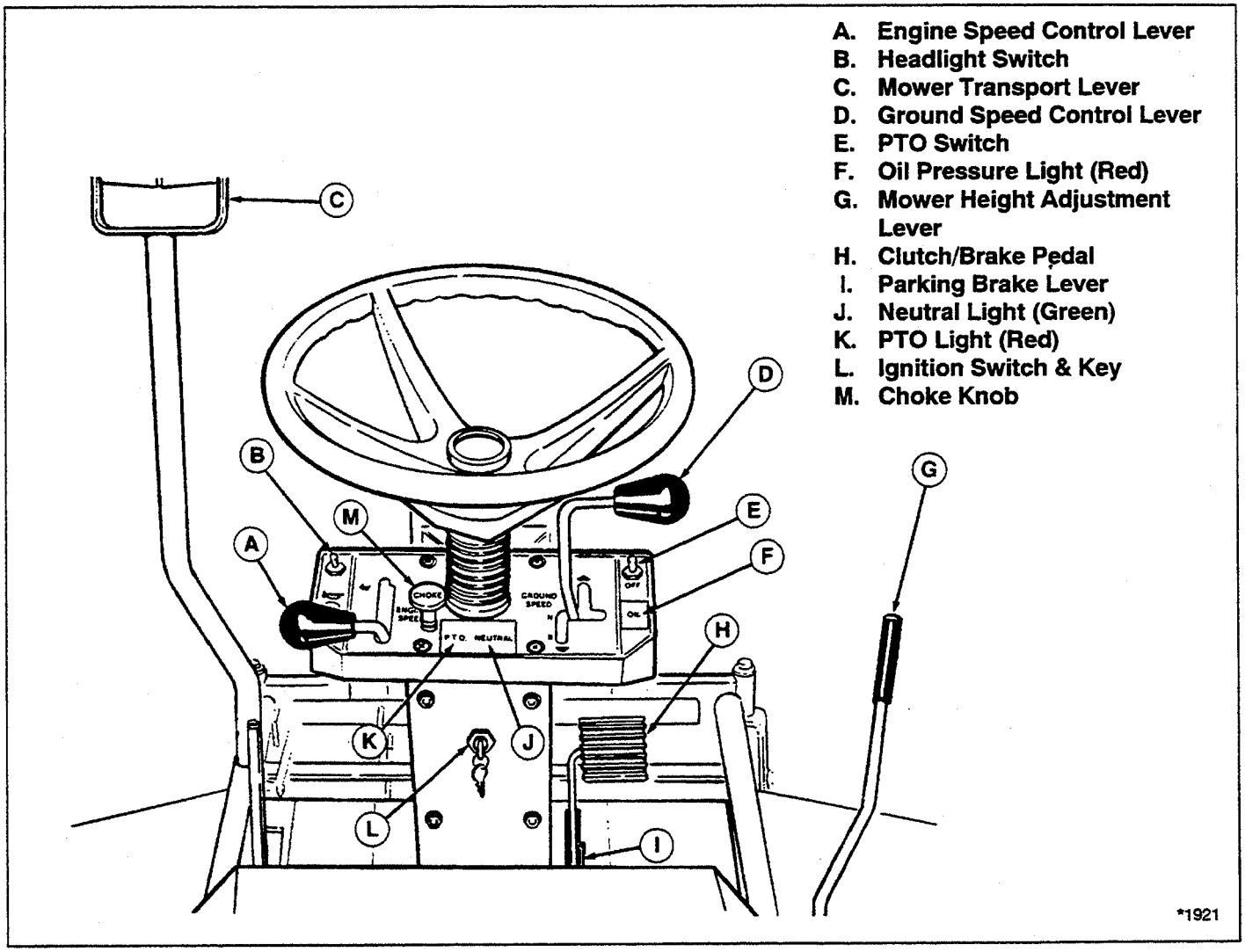


Figure 13. Controls

5. Move the ground speed control lever (D, figure 13) to the desired direction and speed of travel to set the rider in motion.
6. Adjust engine speed control lever (A, figure 13) to the desired speed. Between 3/4 and full speed is recommended for mowing.

STOPPING THE RIDER

1. Move the ground speed control lever (D, figure 13) into the NEUTRAL position to make a gradual stop. To make a more rapid stop, depress the clutch/brake pedal (H, figure 13).
2. Engage the parking brake by fully depressing clutch/brake pedal and locking it over the footrest.
3. Use the PTO switch (E, figure 13) to disengage the PTO.
4. Set the engine speed control lever (A, figure 13) to 1/2 throttle setting and allow the engine to idle for 20 seconds. Stopping a hot engine too fast may cause engine damage.
5. Turn key (L, figure 13) to OFF and remove it.

⚠ WARNING

Before leaving the operator's position for any reason, engage the parking brake, disengage the PTO, stop the engine and remove the key.

⚠ WARNING

To reduce fire hazard, keep the engine, rider and mower free of grass, leaves and excess grease. Do not stop or park rider over dry leaves, grass or combustible materials.

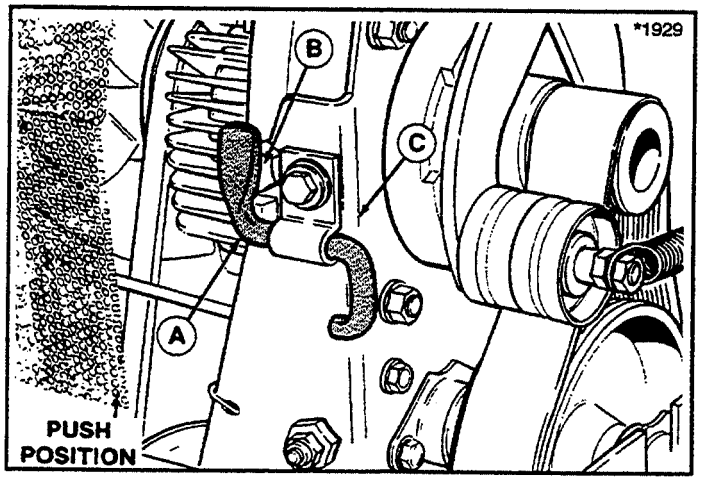


Figure 14. Transaxle Release Lever Engaged
A. Release Lever
B. Plunger
C. Bracket

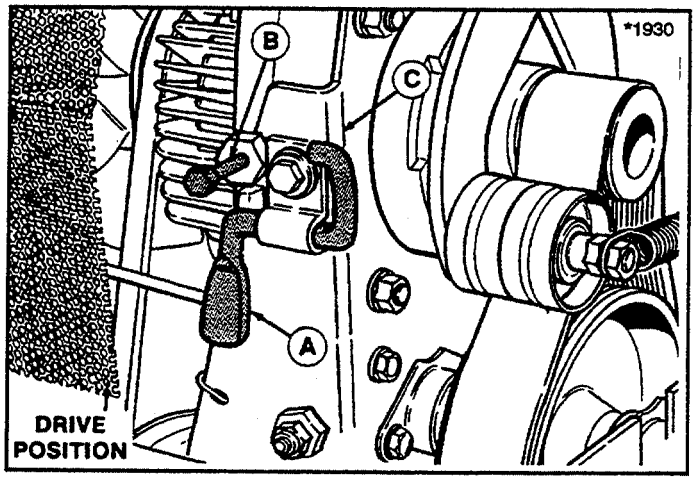


Figure 15. Transaxle Release Lever Disengaged
A. Release Lever
B. Plunger
C. Bracket

PUSHING THE RIDER BY HAND

To push the rider by hand, the hydro release valve must be engaged so that the plunger on front of the transmission is depressed (figure 14). To drive the rider, the release valve must be disengaged (figure 15).

1. See figure 14. To engage the release lever (A), pull the lever toward the left to clear pump bracket (C), then flip it up so the lever depresses the plunger.
2. See figure 15. To disengage the release lever, pull the lever toward the left, then flip it down. Push the lever towards the right to secure it into postion.

⚠ WARNING

Do not tow the rider. Damage will result to the transmission/transaxle.

Mowing Patterns & 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 counterclockwise 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 clockwise direction so the clippings are dispersed on the cut area.

Keep in mind the following lawn care and mowing tips:

- Too much maintenance is as detrimental to your lawn as neglect.
- Mow when grass is 3-5 inches tall. Don't cut shorter than 2 to 2-1/2 inches. Cut only the top one-third of the grass blade. Cutting below this level can lead to thatch problems. Your mower has a cutting height adjustment that can help you maintain a proper length.
- For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.
- Mow often. Short clippings of an inch or less decompose more quickly than longer blades.
- Keep the blades on your mower sharp for finer clippings.
- Let grass grow a bit longer when it is hot to reduce heat build-up and protect grass from heat damage.
- Use slow-release fertilizer for slow, even growth.
- Don't cover grass surface with a heavy layer of clippings. Consider using a grass collection system and starting a compost pile.
- Aerate lawn in spring, consider renting an aerator which removes cores of soil from the lawn. This increases the speed of clipping decomposition and deep root growth by opening up the soil and permitting greater movement of water, fertilizer and air.
- Don't over-water. Too much water can encourage disease development.
- Mow when the grass is dry, preferably in the late afternoon when the temperatures are cooler.
- Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
- For wet grasses, grasses prone to wheel tracking and for collecting clippings:
  a. Use sharp blades.
  b. Raise deck 1/4" higher in front than in rear.
  c. Run at maximum engine speed but slow ground speed.
  d. Clean deck of built-up material/caked-on grass.
  e. Check for free movement of mower idler pulley.
- For dry conditions where grass blow-out is a problem:
  a. Use sharp blades.
  b. Raise deck so the front is even with, or 1/8" lower than, rear.
  c. Use 3/4 engine speed.
  d. Clean deck of built-up material/caked-on grass.

SCHEDULE

The following schedule should be followed for normal care of your rider and mower. You will need to keep a record of your operating time. Determining operating time is easily accomplished by multiplying the time it takes to do one job by the number of times you've done the job.

Safety Items	See Page	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
Check safety interlock system.	8	●					●
Check rider brakes.	27	●					●
Check mower blade stopping time.	28	● After adjustment or service of electric PTO clutch ●					
Normal Care Items							
Check rider & mower for loose hardware.	–	●	●	●			
Check engine oil level.	*	●	●	●			●
Check engine & air filter.	*				***●		
Change engine oil and filter.**	*				***●		
Lubricate rider & mower.	16-18				***●		
Lubricate chain.	17		●		***●		
Check tire pressure.	16	●	●		**●		
Change transmission fluid.****	–		Only if transaxle is serviced.				
Clean battery & cables.	18					●	
Clean/sharpen blades.	19					●	
Inspect spark plug(s).	*					●	

* See the engine manufacturer's owner's manual.
** Change original engine oil after first 5 hours of operation.
*** More often in hot (over 85° F: 30° C) weather or dusty operating conditions.
**** Transaxle is a sealed unit and requires no regular interval fluid changes.

CHECKING/ADDING GASOLINE

Check the gas tanks (located on each side of seat deck) to make sure there is enough gasoline to complete the job. To add gasoline, remove the gas cap from each tank. Do not overfill. Leave room in the tanks for fuel expansion. Refer to your engine manual for gasoline recommendations. Install and hand tighten the gas caps.

⚠ 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.

CHECKING TIRE PRESSURE

Front tire pressure should be 8 to 12 psi. Rear tire pressure should be 18 to 22 psi.

LUBRICATION

Lubricate the rider and mower as shown in figures 16 - 24. When a grease gun is shown, wipe the fitting clean, apply two or three shots of lithium base automotive grease, and wipe off excess grease. When an oil can is shown, wipe the area clean, apply a few drops of oil (SAE 30), then wipe up drips or spills.

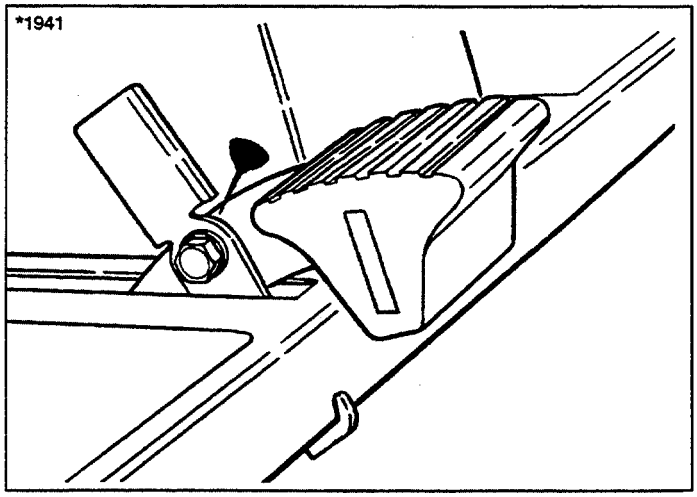


Figure 16. Lubricate Brake Pedal Pivot Point

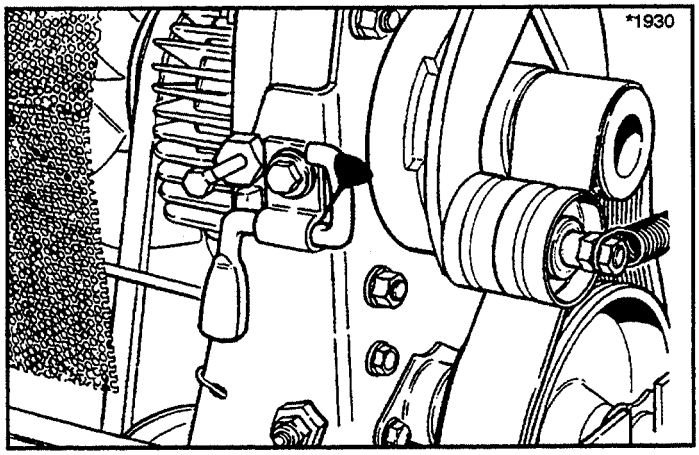


Figure 17. Lubricate Hydro Release Valve

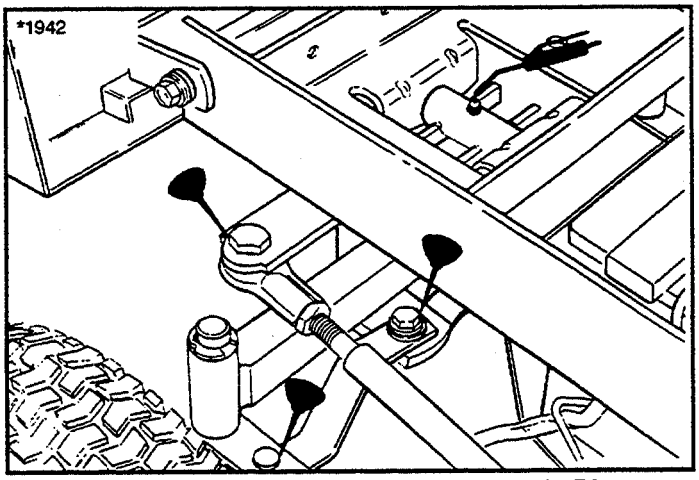


Figure 18. Lubricate Steering Arm and Axle Pivot

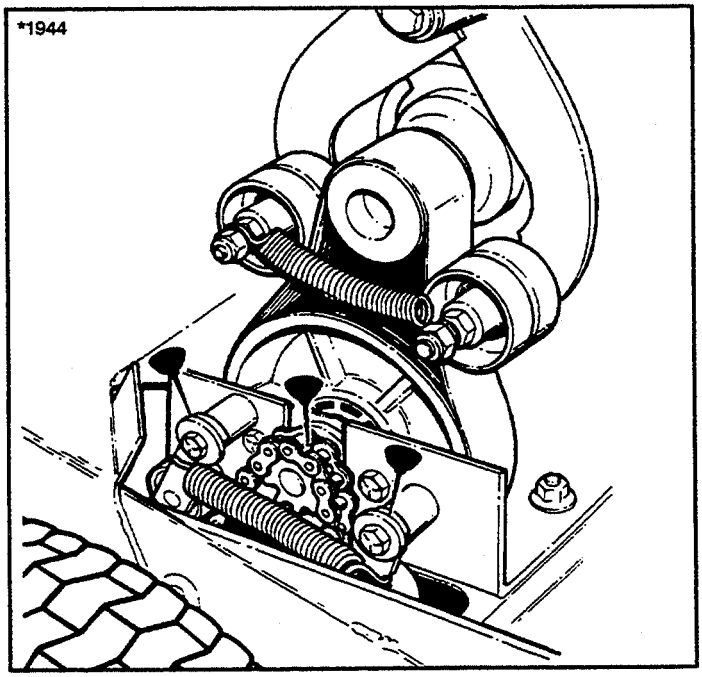


Figure 19. Lubricate Chain

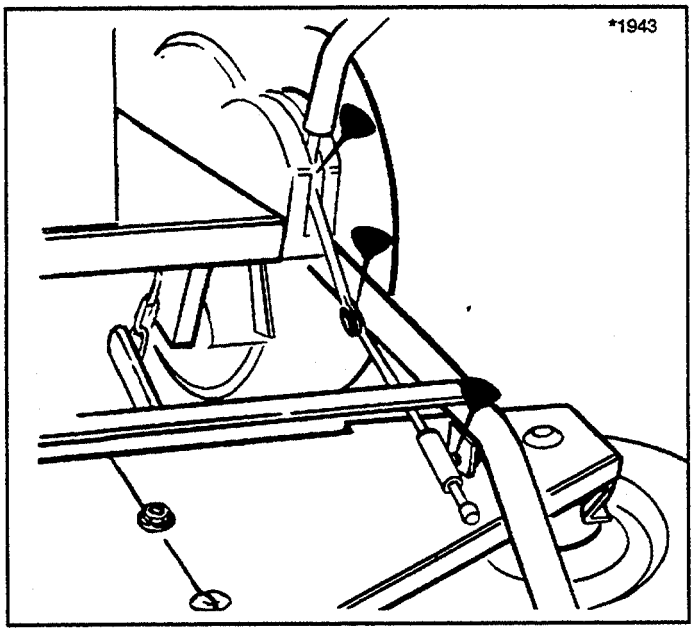


Figure 20. Lubricate Lift Lever

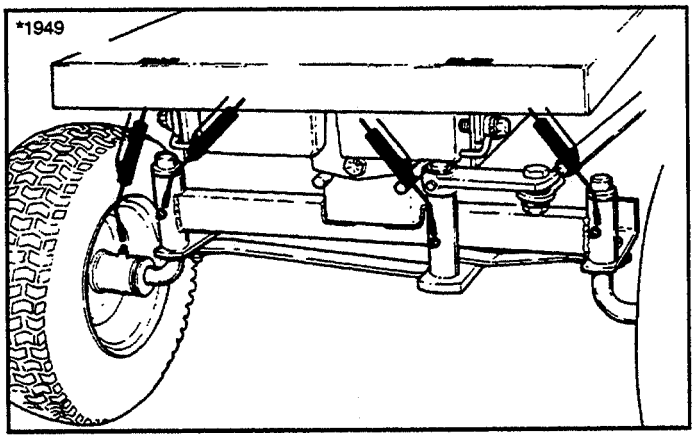


Figure 21. Lubricate Rear Axle and Spindles

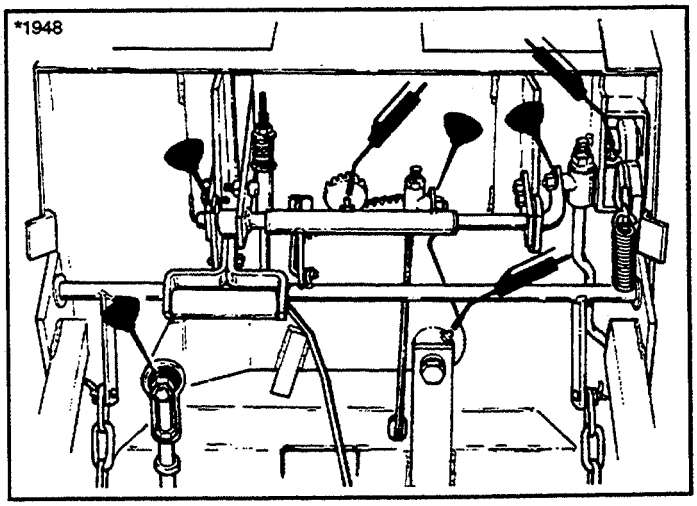


Figure 22. Lubricate Steering Gear and Brake/Clutch Rod Pivot Points

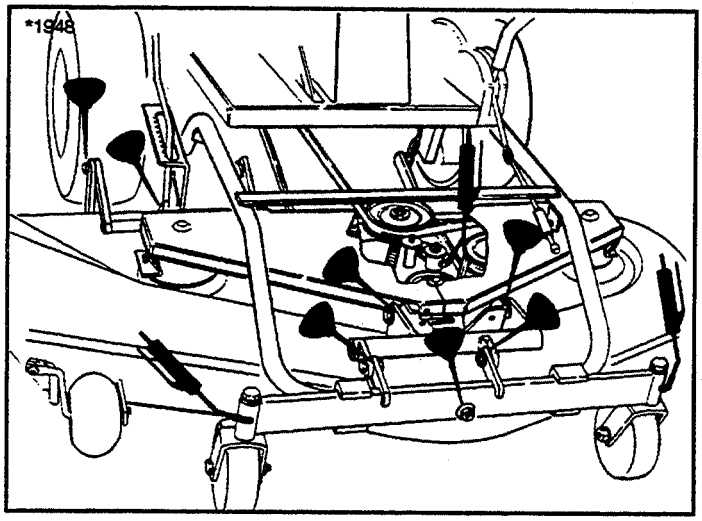


Figure 23. Lubricate Mower Pivot Points

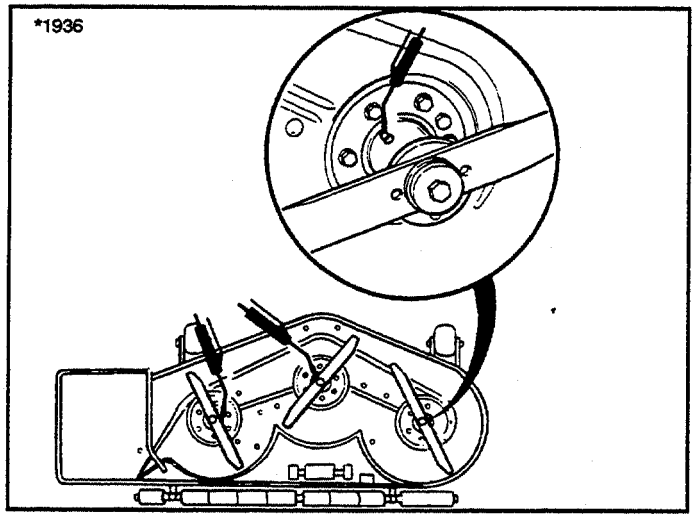


Figure 24. Arbor Grease Fittings

BATTERY MAINTENANCE

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

Checking the Battery Fluid

1. Raise the rear platform to locate the battery.
2. Remove battery filler cap. Fluid must be even with split ring full mark. If not, add distilled water.
3. Reinstall filler cap.

Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable first (B, figure 25).

> **⚠ WARNING**
>
> **When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.**

2. Slip the battery straps off, disconnect the vent tube, then remove the battery.
3. Scrub the battery, cables and battery compartment with baking soda and water.
4. Clean the battery terminals and cable clamps with a wire brush and battery post terminal cleaner.
5. Reinstall battery, vent tube and straps.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with grease or petroleum jelly.

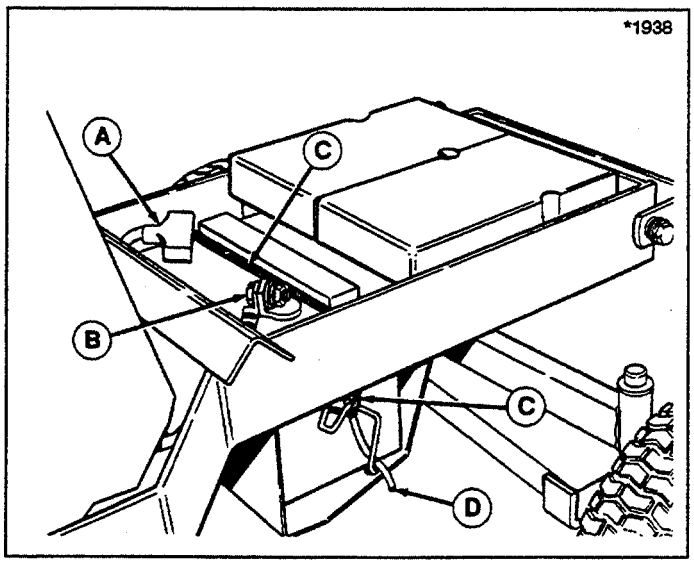


Figure 25. Battery
A. Positive Terminal
B. Negative Terminal
C. Strap
D. Vent Tube

CHECK TRANSMISSION FLUID LEVEL

Allow rider to cool after operation. Fluid must be cool for an accurate check.

1. Raise the seat deck.
2. The fluid level is visible in the reservoir (B, figure 26) without removing the cap. The level should be at FULL COLD mark. If not, go to step 3.
3. Clean the area around the reservoir and remove the cap. Add multi-purpose hydraulic/transmission oil as required. See your dealer for recommendation.

NOTE: In extemely hot weather, 30W oil may be used for hydro pump. Do not mix multi-purpose oil with 30W oil. Drain hydro system completely and refill with appropriate oil.

4. It will take awhile for the oil to seep through a filter

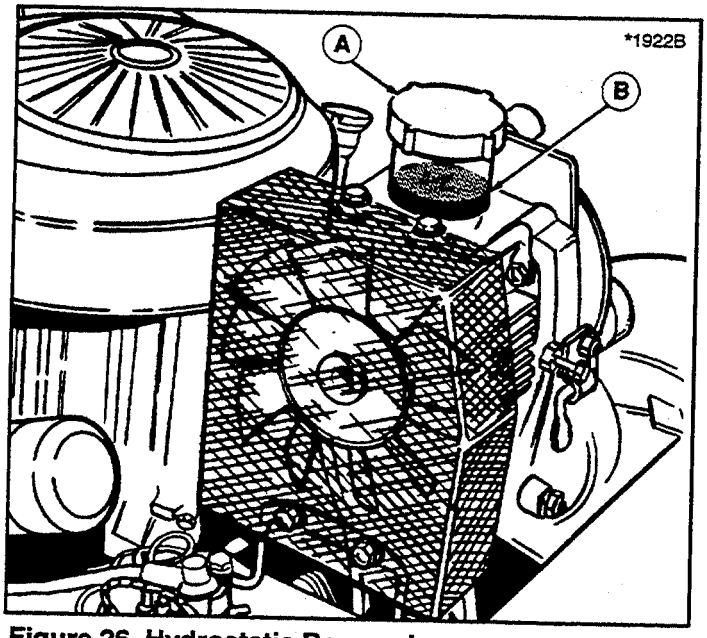


Figure 26. Hydrostatic Reservoir
A. Cap **B. Reservoir**

screen into the reservoir. Check the level again after operating the rider a few times. If level is consistently low, see your dealer to check for leaks.

5. Keep cooling fins and fan cover free of grass and dirt.

SERVICING THE MOWER BLADES

⚠WARNING

For your personal safety, do not handle the sharp mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

1. Remove mower from the tractor.
2. Blades should be sharp and free of nicks and dents. If not, sharpen blades as described in following steps.
3. To remove blade for sharpening, use wooden block to hold blade while removing the blade mounting capscrew (figure 27).
4. Use a file to sharpen blade to fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged, it should be replaced.
5. Balance the blade as shown in figure 28. Center the blade hole on a nail lubricated with a drop of oil. A balanced blade will remain level.
6. Reinstall each blade with the tabs pointing up toward deck as shown in figure 29. Secure with a capscrew (D), cup washer (C) and spline washer (B). Use a wooden block to prevent blade rotation and torque capscrews to 50-70 ft.lbs. (67-95 N.m.).

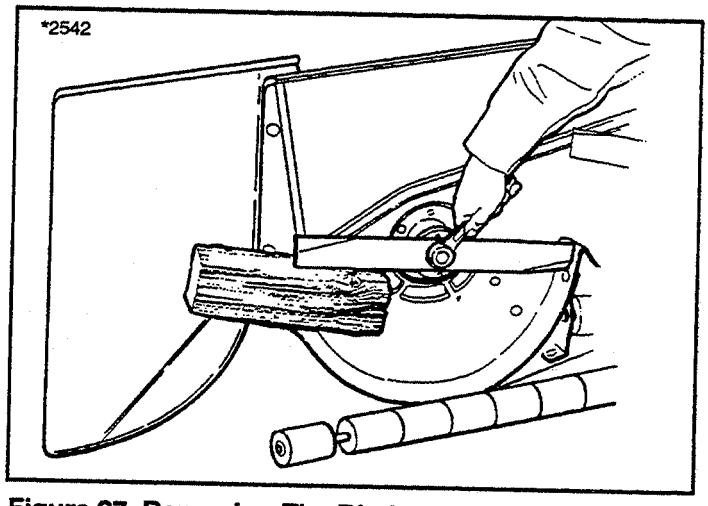


Figure 27. Removing The Blade

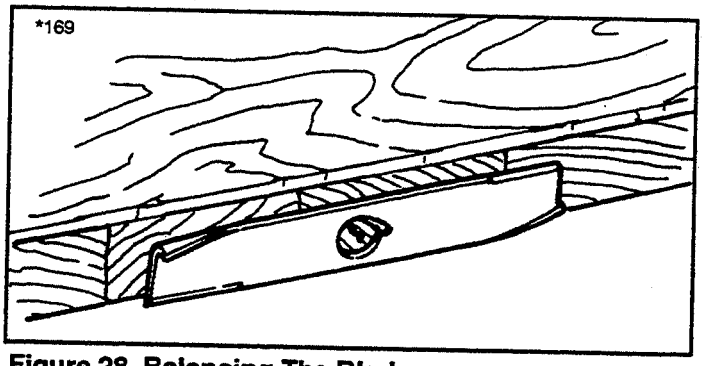


Figure 28. Balancing The Blade

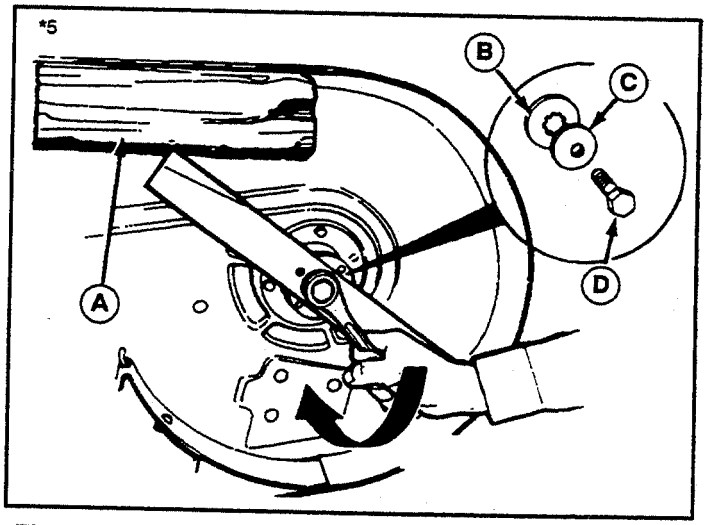


Figure 29. Installing The Blade
A. Wooden Block **C. Cup Washer**
B. Spline Washer **D. Capscrew**

⚠ WARNING

For your personal safety, blade mounting capscrews must each be installed with a cup washer and spline washer, then securely tightened. Torque blade mounting capscrew to 50-70 ft.lbs. (67-95 N.m.)

Storage

⚠WARNING

Never store the rider, with gasoline in engine or fuel tank, in a heated shelter or in enclosed, poorly ventilated enclosures. Gasoline fumes may reach an open flame, spark or pilot light (such as a furnace, water heater, clothes dryer, etc.) and cause an explosion.

Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to your person or property.

Drain fuel into an approved container outdoors away from open flame or sparks.

TEMPORARY STORAGE (30 Days Or Less)

Remember, the fuel tank will still contain some gasoline, so never store the rider indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the rider in any structure used for human or animal habitation.

Here is a checklist of things to do when storing your rider temporarily or in between uses:

- Keep the rider in an area away from where children may come into contact with it. If there's any chance of unauthorized use, remove the spark plug (s) and put in a safe place. Be sure the spark plug opening is protected from foreign objects with a suitable cover.
- If the rider can't be stored on a reasonable level surface, chock the wheels.
- Clean all grass and dirt from the mower.

LONG TERM STORAGE (Longer Than 30 Days)

Before you store your rider for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

1. Drain crankcase oil while engine is hot and refill with a grade of oil that will be required when rider is used again.
2. Prepare the mower deck for storage as follows:
   a. Remove mower deck from the rider.
   b. Clean underside of mower deck.
   c. Coat all bare metal surfaces with paint or light coat of oil to prevent rusting.
3. Clean external surfaces and engine.
4. Prepare engine for storage. See engine owner's manual.
5. Clean any dirt or grass from cylinder head cooling fins,engine housing and air cleaner element.
6. Cover air cleaner and exhaust outlet tightly with plastic or other waterproof material to keep out moisture, dirt and insects.
7. Completely grease and oil rider as outlined in the Normal Care section.
8. Clean up rider and apply paint or rust preventative to any areas where paint is chipped or damaged.
9. Be sure the battery is filled to the proper level with water and is fully charged. Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If battery is left in rider, disconnect the negative cable.
10. Drain fuel system completely or add a gasoline stabilizer to the fuel system. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions and storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing risk of explosion and fire.

NOTE: Gasoline, if permitted to stand unused for extended periods (30 days or more), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, add a gasoline stabilizer to the fuel tank or drain all fuel from the system before placing unit in storage.

11. Transport the rider to a suitable, dry, indoor location. If the rider is to be stored 6 months or longer, block the rider up off the wheels to relieve weight and also to keep the tires off a damp floor. Protect tires from prolonged exposure to direct sunlight.

STARTING AFTER LONG TERM STORAGE

Before starting the rider after it has been stored for a long period of time, perform the following steps.

1. Remove the blocks from under the rider.
2. Install the battery if it was removed.
3. Unplug the exhaust outlet and air cleaner.
4. Fill the fuel tank with fresh gasoline. See engine manual for recommendations.
5. Check crankcase oil level and add proper oil if necessary.
6. Inflate tires to proper pressure. Check fluid levels.
7. Start the engine and let it run slowly. DO NOT run at high speed immediately after starting. Be sure to run engine only outdoors or in well ventilated area.

GENERAL

⚠ WARNING

To avoid serious injury, perform maintenance on the rider or mower only when the engine is stopped and the parking brake engaged. Always remove the ignition key, disconnect spark plug wire and fasten away from the plug before beginning the maintenance, to prevent accidental starting of the engine.

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. Locate the problem that best describes the trouble that you have encountered. Check the possible causes one at a time, in the order that they are listed.

TROUBLESHOOTING THE RIDER

Engine will not turnover or start.

1. Ground speed control lever not in neutral-start position. Shift into neutral.
2. PTO (electric clutch) switch in ON position. Place in OFF position.
3. Out of fuel. If engine is hot, allow it to cool, then refill the fuel tank(s).
4. Engine flooded. Push choke knob in.
5. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer).
6. Battery terminals require cleaning. See Normal Care section.
7. Battery discharged or dead. Recharge or replace.
8. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
9. Solenoid or starter motor faulty. Repair or replace.
10. Safety interlock switch or module faulty. Replace if needed (see your dealer.)
11. Spark plugs faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual.
12. Water in fuel. Drain fuel & refill with fresh fuel.
13. Old stale gas. Drain fuel & replace with fresh fuel.
14. Foot pedal not depressed.

Engine starts hard or runs poorly.

1. Fuel mixture too rich. Clean air filter. Check choke adjustment. See engine manual.
2. Carburetor adjusted incorrectly. See engine manual.
3. Spark plugs faulty, fouled, or incorrectly gapped. Clean and gap or replace. See engine manual.

Engine knocks.

1. Low oil level. Check/add oil as required.
2. Using wrong grade oil. See engine manual.

Excessive oil consumption.

1. Engine running too hot. Clean engine fins, blower screen and air cleaner.
2. Using wrong weight oil. See engine manual.
3. Too much oil in crankcase. Drain excessive oil.

Engine exhaust is black.

1. Dirty air filter. Clean air filter. See engine manual.
2. Check engine speed control adjustment (choke). See engine manual.

Engine runs, but rider will not drive.

1. Ground speed control lever in neutral. Shift in forward or reverse.
2. Transmission release lever in "push" position. Move into drive position.
3. Belt is broken. See Rider Drive Belt Replacement.
4. Drive belt slips. See problem and cause below.
5. Brake is not fully released. See Clutch/Brake Adjustment.

Rider drive belt slips.

1. Clutch is out of adjustment. See your dealer.
2. Pulleys or belt greasy or oily. Clean as required.
3. Belt stretched or worn. Replace with correct belt.
4. Idler pulley pivot bracket "frozen" in declutched position. Remove idler pulley, clean and lubricate.

Brake will not hold.

1. Brake is incorrectly adjusted. See Clutch/Brake Adjustment.
2. Internal brake disc on transaxle worn. See your dealer.

Rider steers hard or handles poorly.

1. Steering linkage is loose. Check and tighten any loose connections.
2. Improper tire inflation. Check and correct.
3. Spindle bearings dry. Grease spindles.

Drive belt does not stop when clutch/brake pedal depressed.

1. Belt stops or belt tension out of adjustment. See Rider Drive Belt in Belt Replacement section.

TROUBLESHOOTING THE MOWER

Mower will not raise.

1. Lift arms or lift link damaged or not properly attached. Attach or repair.

Mower cut is uneven.

1. Mower not leveled properly. See Mower Adjustments.
2. Tires not inflated equally or properly. See Normal Care.

Mower cut is rough looking.

1. Engine speed too slow. Set for 3/4 to full speed.
2. Ground speed too fast. Set ground speed control lever at a slower ground speed.
3. Blades dull and require sharpening. See Servicing the Mower Blades.
4. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary.
5. Check PTO (Electric Clutch) Adjustment. Clutch may need to be adjusted.
6. Blades not properly fastened to arbors. See Servicing the Mower Blades.

Engine stalls easily with mower engaged.

1. Engine speed too slow. Set for 3/4 to full throttle.
2. Ground speed too fast.
3. Carburetor not adjusted properly.
4. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.
5. Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.

Excessive mower vibration.

1. Blade mounting screws are loose. Tighten to 50-70 ft.lbs. (74 N.m.).
2. Mower blades, arbors, or pulleys are bent. Check and replace as necessary.
3. Mower blades are out of balance. Remove, sharpen and balance blades. See Servicing the Mower Blades.
4. Belt installed incorrectly. See Belt Replacement.

Excessive belt breakage.

1. Belt tension too tight. Adjust belt tension.
2. Bent or rough pulleys. Repair or replace.
3. Using incorrect belt. See your dealer.

Mower drive belt slips or fails to drive.

1. Idler pulley spring broken or not properly attached. See your dealer.
2. Belt stops out of adjustment. Check.
3. Mower drive belt broken. Replace.

CHECKING THE BATTERY

The voltmeter can be used to determine condition of battery. When engine is off, the voltmeter shows battery voltage, which should be 12 volts. When engine is running, the voltmeter shows voltage of charging circuit which normally is 13 to 14 volts.

A dead battery or one too weak to start the engine may not mean the battery needs to be replaced. It may, as an example, mean that the alternator is not charging the battery properly. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Normal Care Section.

CHARGING A COMPLETELY DISCHARGED BATTERY

⚠ WARNING

Do not attempt to charge a frozen battery. Allow the battery to warm to 60° F (15.5° C) before placing on charge.

1. Be aware of all the safety precautions you should observe during the charging operation. If you are unfamiliar with the use of a battery charger and hydrometer, have the battery serviced by your dealer.
2. Add water sufficient to cover the plate (fill to the proper level near the end of the charge). If the battery is extremely cold, allow it to warm before adding water because the water level will rise as it warms. Also, an extremely cold battery will not accept a normal charge until it becomes warm.
3. Always unplug or turn the charger off before attaching or removing the clamp connections.
4. Carefully attach the clamps to the battery in proper

⚠ WARNING

Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.

polarity (usually red to [+] positive and black to [-] negative).

5. While charging, periodically measure the temperature of the electrolyte. If the temperature exceeds 125° F (51.6° C), or if violent gassing or spewing of electrolyte occurs, the charging rate must be reduced or temporarily halted to prevent battery damage.
6. Charge the battery until fully charged (i.e. until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). The best method of making certain a battery is fully charged, but not over charged, is to measure the specific gravity of a cell once per hour. The battery is fully charged when the cells are gassing freely at low charging rate and less than 0.003 change in specific gravity occurs over a three hour period.

JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

⚠ WARNING

For your personal safety, use extreme care when jump starting. 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.

Jump starting is not recommended. However, if it must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow the steps below EXACTLY, being careful not to cause sparks. Refer to figure 30.

1. Both batteries must be of the same voltage (6, 12, etc.).
2. Position the vehicle with the booster battery adjacent to the vehicle with the discharged battery so that booster cables can be connected easily to the batteries in both vehicles. Make certain vehicles do not touch each other.
3. Wear safety glasses and shield eyes and face from batteries at all times. Be sure vent caps are tight. Place damp cloth over vent caps on both batteries.
4. Connect positive (+) cable to positive post of discharged battery (wired to starter or solenoid).
5. Connect the other end of same cable to same post marked positive (+) on booster battery.
6. Connect the second cable negative (-) to other post of booster battery.
7. Make final connection on engine block of stalled vehicle away from battery. Do not lean over batteries.
8. Start the engine of the vehicle with the booster battery. Wait a few minutes, then attempt to start the engine of the vehicle with the discharged battery.
9. If the vehicle does not start after cranking for thirty seconds, STOP PROCEDURE. More than thirty seconds seldom starts the engine unless some mechanical adjustment is made.
10. After starting, allow the engine to return to idle speed. Remove the cable connection at the engine or frame. Then remove the other end of the same cable from the booster battery.
11. Remove the other cable by disconnecting at the discharged battery first and then disconnect the opposite end from the booster battery.
12. Discard the damp cloths that were placed over the battery vent caps.

⚠ CAUTION

To avoid engine damage, do not disconnect battery while engine is running. Be sure terminal connections are tight before starting.

⚠ WARNING

Any procedure other than the preceding could result in: (1) personal injury caused by electrolyte squirting out the battery vents, (2) personal injury or property damage due to battery explosion, (3) damage to the charging system of the booster vehicle or of the 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 on the battery. If ice can be seen or if the electrolyte fluid cannot be seen, do not attempt to start with jumper cables as long as the battery remains frozen.

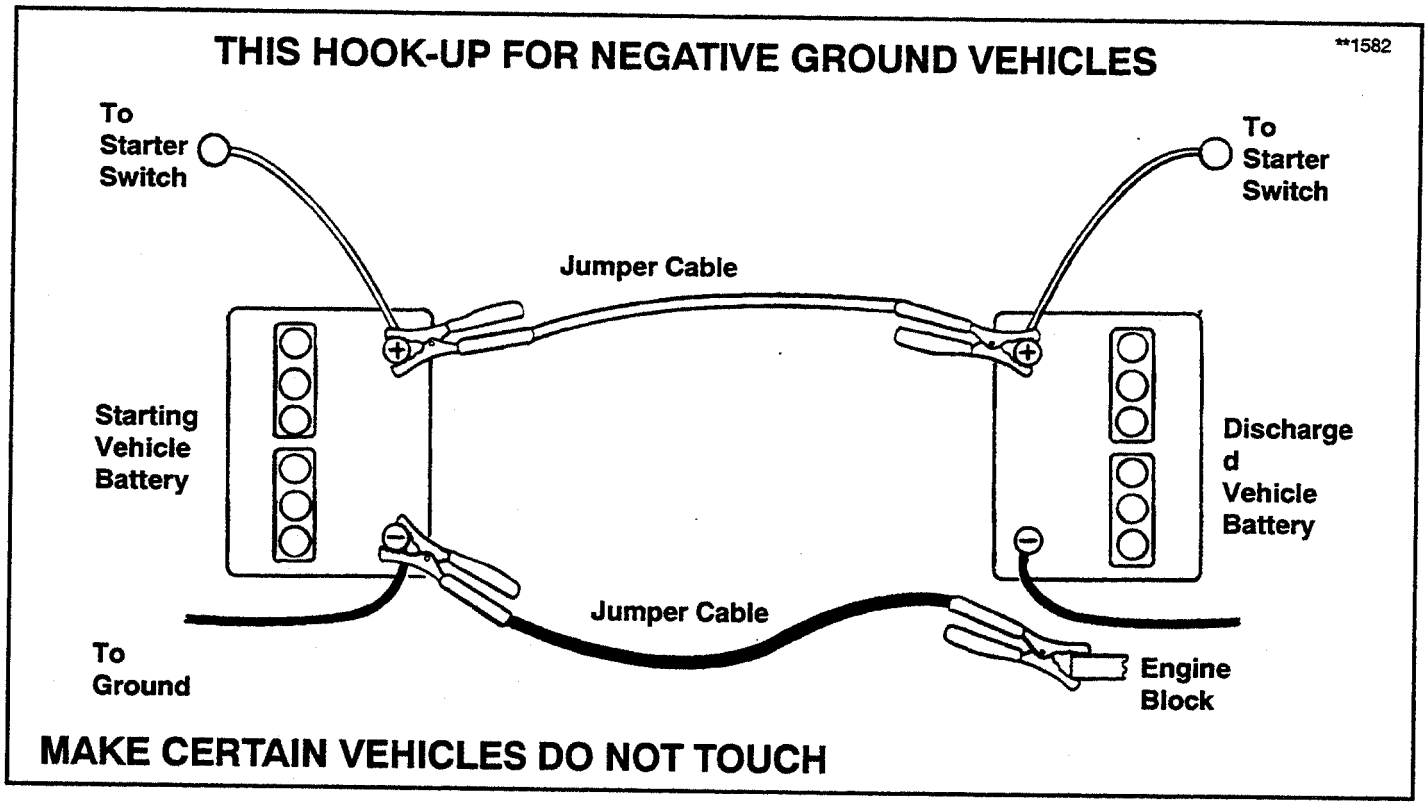


Figure 30. Battery Jump Starting Diagram

⚠ WARNING

To avoid serious injury, perform adjustments only with engine stopped, key removed and tractor on level ground.

SEAT ADJUSTMENT

1. Unlatch seat by pushing down on seat back and unhooking latch bar (A, figure 31).
2. The seat can be moved forward or back for operator comfort. Loosen the four screws, move the seat to the desired position then tighten screws.
3. Make sure there is enough slack in the wiring harness to accommodate seat adjustment.
4. The springs (C, figure 31) can be moved to forward holes for lighter operator. Pull up on springs to relocate.
5. Lower seat and make sure latch bar locks in place after adjustment.

NEUTRAL ADJUSTMENT

⚠ WARNING

It is necessary to have the engine running while performing certain steps in this adjustment procedure. To avoid serious injury, keep away from moving parts.

If the tractor moves forward or backward with the ground speed control lever positioned in the neutral gate, perform the following adjustment. Adjustment can be performed with the mower installed.

1. See figure 32. Loosen the nuts (B) on either side of guide (C). Leave 1/4" clearance on each side.
2. Loosen the two capscrews (A, figure 33).
3. Raise front tires off the ground by placing jack stands under each side of frame. Do not support rider at axle, as the axle will rotate during this adjustment.
4. Start the engine and raise the seat deck. For an accurate neutral adjustment, keep engine RPM level high during adjustment.
5. See figure 33. Loosen the jam nut (B). Turn the inner nut (D) either left or right until the output pulley (C) stops turning.
6. Tighten the two capscrews (A, figure 33). Tighten the jam nut (B) against the inner nut (D).
7. Shut off the engine.
8. Make sure ground speed control lever is in neutral.

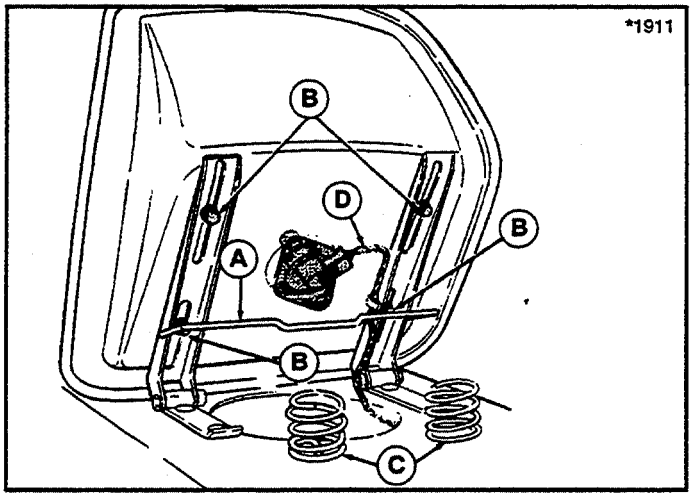


Figure 31. Seat Adjustment

A. Latch Bar **C. Springs**
B. Capscrews **D. Wiring Harness**

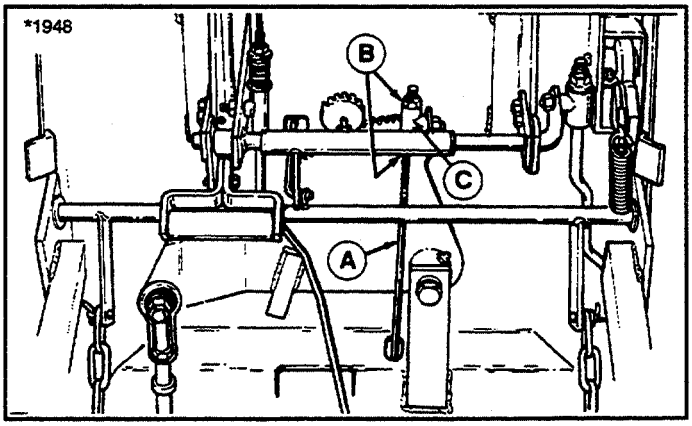


Figure 32. Hydro Control Rod

A. Control Rod **C. Guide**
B. Nuts

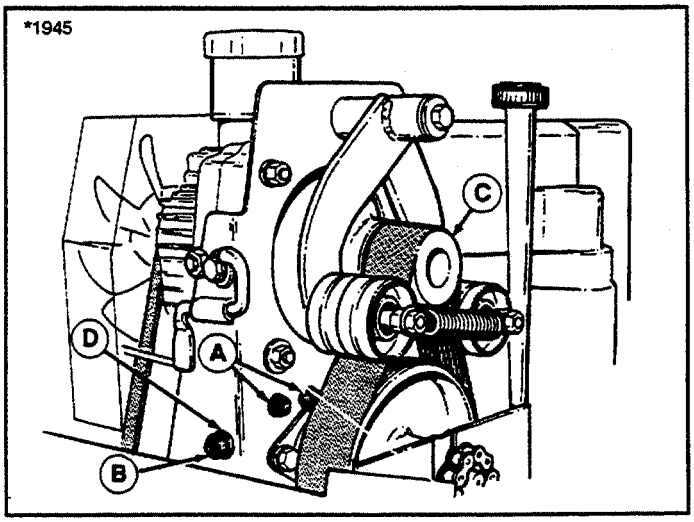


Figure 33. Neutral Adjustment

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

9. See figure 32. Hold guide (C) to keep it from rotating and tighten nuts (B)
10. Remove the rider from the jack stands.

CLUTCH/BRAKE ADJUSTMENT

1. Release the parking brake.
2. The clutch rod spring (A, figure 34) should measure 1-3/16" to 1-5/16" along the long side, between insides of washers. Tighten or loosen nut (B, figure 34) to adjust.
3. Pull the brake rod (C, figure 34) toward front as far as possible. Tighten or loosen nut (D, figure 34) to achieve a gap of 3/8" between rear surface of nut and the guide (E).

PTO (ELECTRIC CLUTCH) ADJUSTMENT

1. Make sure engine is off and key removed.
2. Use a 0.010 - 0.012 feeler gauge to check the PTO at three places. See figure 35. Insert the gauge between the drive spring rivets. There should be a slight resistance as gauge is moved in and out of slot. If adjustment is required, proceed to step 3.
3. Loosen or tighten one of the nuts as required to obtain the specified clearance. Loosen the nuts to increase the gap, tighten the nuts to decrease the gap.
4. After adjusting one nut, check the other two with a feeler gauge. Adjustment at one location will change the measurement at the other two locations. Make sure all three locations have proper adjustment.
5. See Blade Brake Check on page 28.

MOWER ADJUSTMENTS

⚠WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wires and fasten away from the spark plugs.

Leveling The Mower

If the cut is uneven, the mower may need leveling. Unequal or improper tire pressure may also cause an uneven cut. Make sure tire pressure is correct as specified in Checking Tire Pressure.

1. With the mower installed, place the rider on a smooth, level surface such as a concrete floor. Turn the front wheels straight forward.

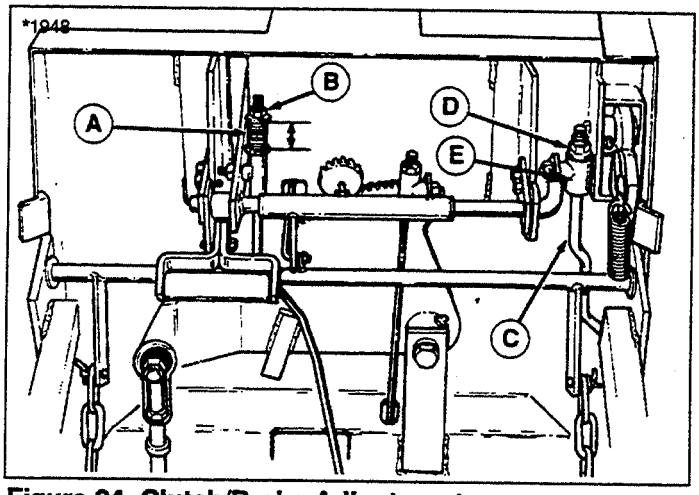


Figure 34. Clutch/Brake Adjustment

A. Spring **D. Nut**
B. Nut **E. Guide**
C. Brake Rod

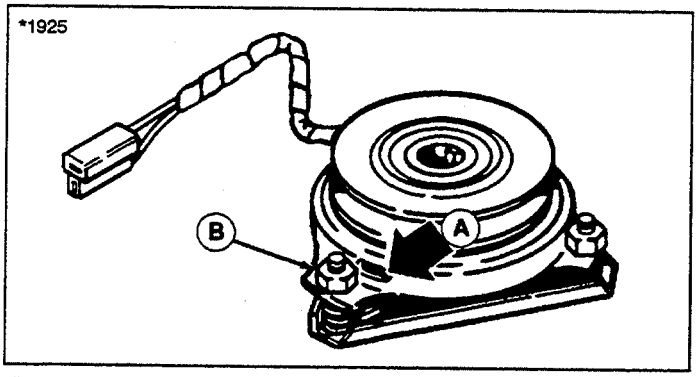


Figure 35. PTO Clutch Adjustment

A. Slot **B. Adjustment Nut**

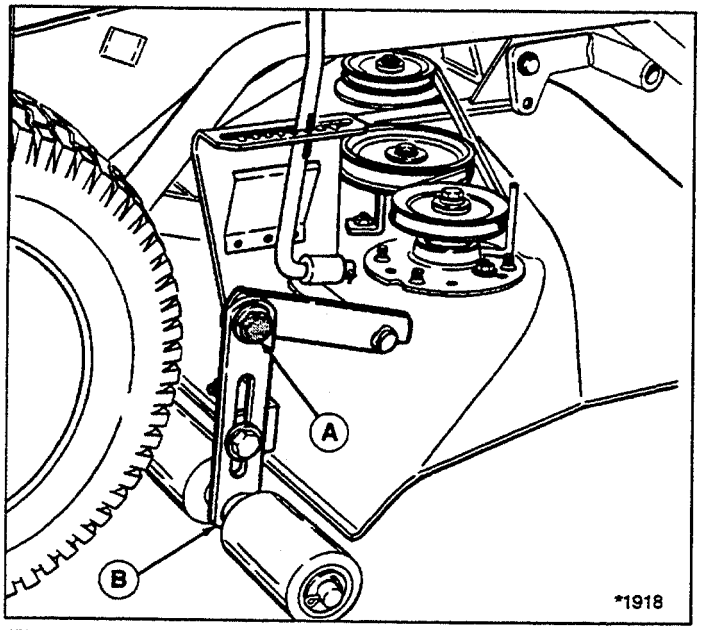


Figure 36. Leveling Mower Side-to-Side

A. Capscrew **B. Roller Bracket**

2. Check for bent blades and replace if necessary.
3. Disengage the PTO. Place the mower in high cut position. Arrange the mower blades so that they are pointing from side-to-side.
4. Measure the distance between the outside tips of each blade and the ground. If there is more than 1/8" (3 mm) difference between the mesurements on each side, proceed to step 5. If the difference is 1/8"(3 mm) or less, proceed to step 6.
5. See figure 36. Loosen the capscrew (A) on the right-hand side of mower roller bracket (B). Raise or lower right-hand side of mower as necessary, then tighten capscrew (A).

   NOTE: When using a turbo collection system, raise the discharge side of the mower approximately 1/4" to compensate for turbo assembly weight. Check the level of the cut grass and adjust the 1/4" measurement as necessary for a smooth, even cut.
6. Disengage the mower PTO. Arrange the blades so they face front-to-back, then engage the PTO.
7. Measure the distance from the ground to the front tip of the center blade, and from the ground to rear tips of the left-hand and right-hand blades.

   Center blade front tip should be 1/4" higher. If not proceed with adjustment procedure.
8. Remove belt covers. See figure 37.
9. See figure 38. Remove the spring clip (A) and clevis pin (B) from both adjustment rods (E).
10. Loosen the jam nut (D) in front of clevis (C).
11. Turn clevises an equal number of turns. Turn clevis towards front to raise front of mower.
12. Install clevis to mower rollers with clevis pin and spring clip. Check front-to-back measurements again. If adjustment is correct, tighten jam nut (D) snug against clevises.
13. Install belt covers.

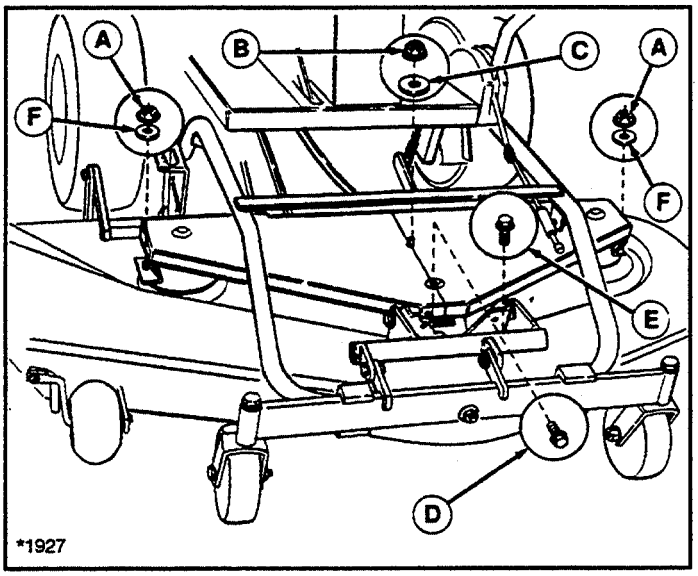


Figure 37. Belt Covers

A. Flange Whiz Nut, 1/3"
B. Flange Whiz Nut, 1/2"
C. Large Washer
D. Taptite Screw, 3/8"
E. Taptite Screw, 1/2"
F. Flat Washer

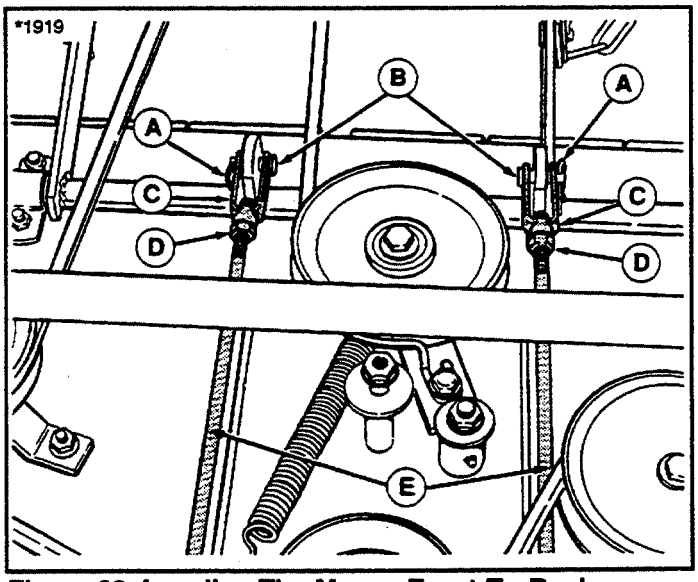


Figure 38. Leveling The Mower Front-To-Back

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

Blade Brake Check

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

1. With tractor in neutral, PTO disengaged and operator in seat, start the rider engine.
2. Look over the left-hand footrest at the mower drive belt. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If mower drive belt does not stop within five seconds, perform the steps described under PTO (Electric Clutch) Adjustment, then repeat steps 1 and 2. If belt still does not stop within 5 seconds, see your dealer.

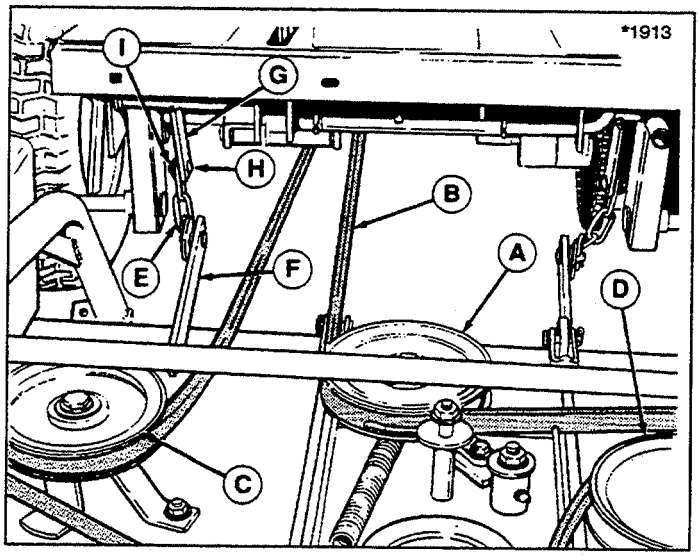


Figure 39. Removing Belt Tension

A. Spring-Loaded Idler Pulley	E. Chain
B. Belt	F. Mower Lift Arm
C. R.H. Idler Pulley	G. Rider Lift Arm
D. L.H. Idler Pulley	H. Weld Stud
	I. Cotter Pin

⚠ CAUTION

To avoid damaging belts, do not pry belts over pulleys.

MOWER BELT

NOTE: Mower belt can be replaced with mower deck removed or installed to rider. If you wish to perform the belt replacement with deck off the rider, follow the procedure under Mower Removal before performing the following steps.

1. Park the rider on a smooth, level surface such as a concrete floor. Disengage the PTO, turn off the engine and lock the parking brake. Remove the key.
2. Remove belt covers. See figure 37.
3. Remove belt from idler by pulling spring loaded idler pulley to gain slack in belt. See figure 39.

WARNING

To avoid personal injury, use caution when moving spring-loaded pulley (A, figure 39). Spring tension is strong. Do not remove belt (B) from spring-loaded idler pulley (A). Remove belt from left and right idler pulleys (C & D).

4. Remove ties securing PTO wiring harness to belt stop and disconnect harness. See figure 40.

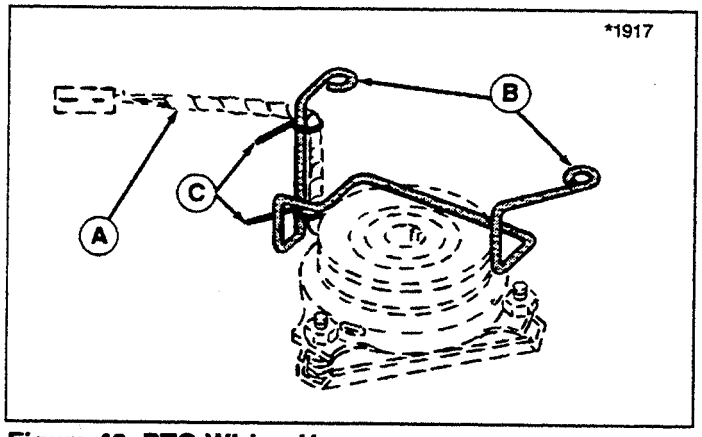


Figure 40. PTO Wiring Harness

A. Harness Plug	C. Ties
B. Belt Stop	

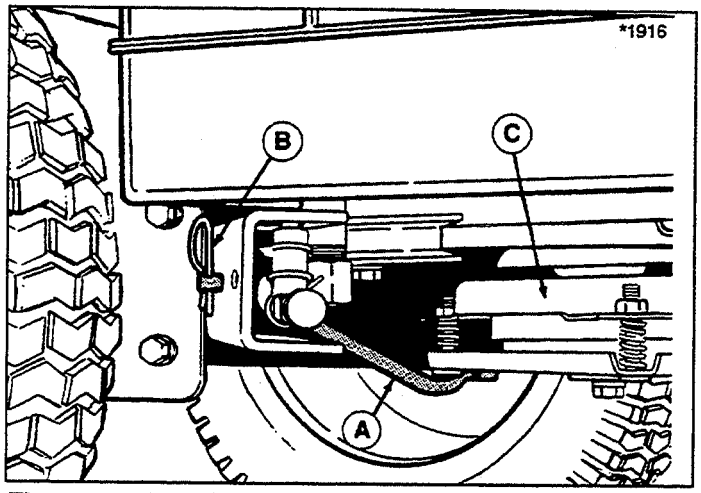


Figure 41. Anti-Spin Rod

A. Anti-Spin Rod	C. PTO
B. Spring Clip	

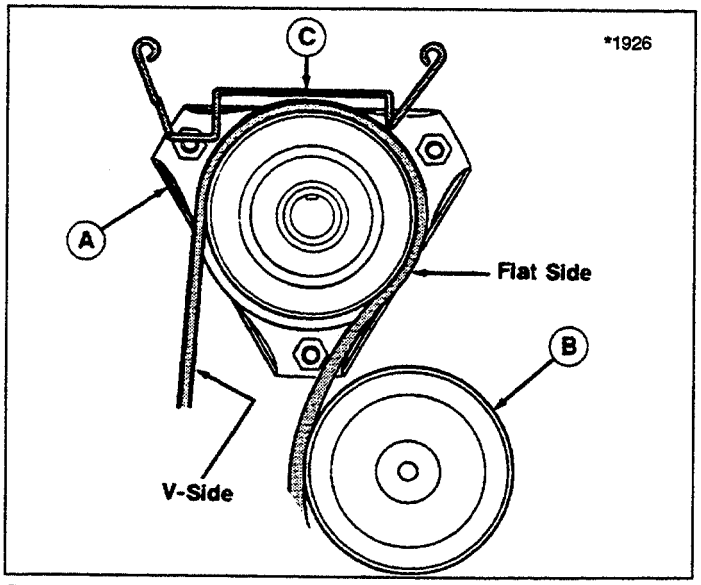


Figure 42. Belt Pulleys

A. PTO	C. Belt Stop
B. Idler Pulley	

5. Remove anti-spin rod from frame and PTO. See figure 41.
6. Remove belt from PTO pulley. See figure 42. Hardware securing belt stops may have to be loosened in order to remove belt.
7. Remove belt from mower deck and replace with a new belt. Check belt pattern as shown in figure 43.
8. See figure 42. Make sure mower belt goes underneath rider, and **over the drive axle.** Install belt around bottom pulley of PTO.

> **⚠ CAUTION**
>
> **Anti-spin rod must be reinstalled for operation. PTO will be immediately damaged if operated without anti-spin rod.**

9. See figure 42. Install anti-spin rod to PTO. Insert other end through frame and secure with spring clip.
10. Connect wiring harness to PTO and secure it to the belt stop with ties.
11. Pull spring-loaded idler pulley back to gain slack, and install belt on idler pulley. See figure 39.

> **⚠ WARNING**
>
> **To avoid personal injury, use caution when moving spring-loaded pulley (A, figure 40). Spring tension is strong. Do not remove belt (B) from spring-loaded idler pulley (A). Remove belt from left and right idler pulleys (C & D).**

12. Install belt covers. See figure 37. Make sure covers and deflector are properly installed before operation.

RIDER DRIVE BELT

1. Set the parking brake to provide slack in the belt.
2. See figure 44. Remove the screen (A) by removing four capscrews (B); two at top and two at bottom.
3. Remove the fan (C) by removing one screw (D) in center. Keep washers (E) in proper order for reassembly.
4. Slip the belt (F) from the transmission pulley.
5. See figure 45. Remove belt (D) from idler pulley (C), fixed pulley (B) and engine pulley (A). Loosen belt stops as necessary.
6. Remove mower belt from PTO pulley by following the procedure under Mower Belt.

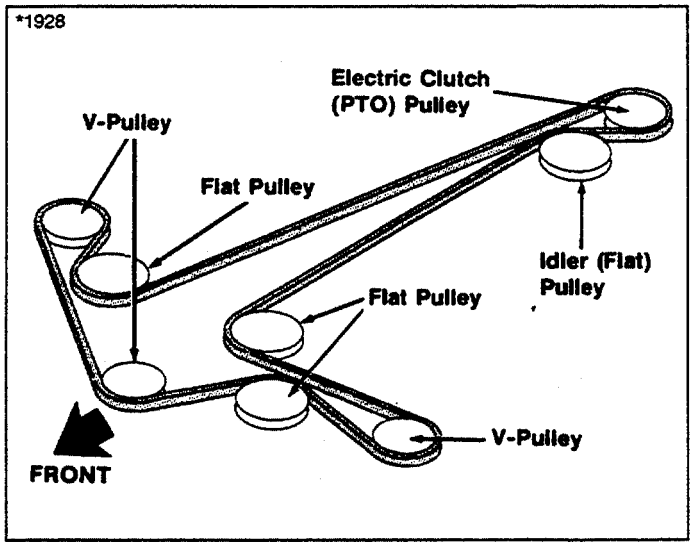


Figure 43. Mower Belt Routing

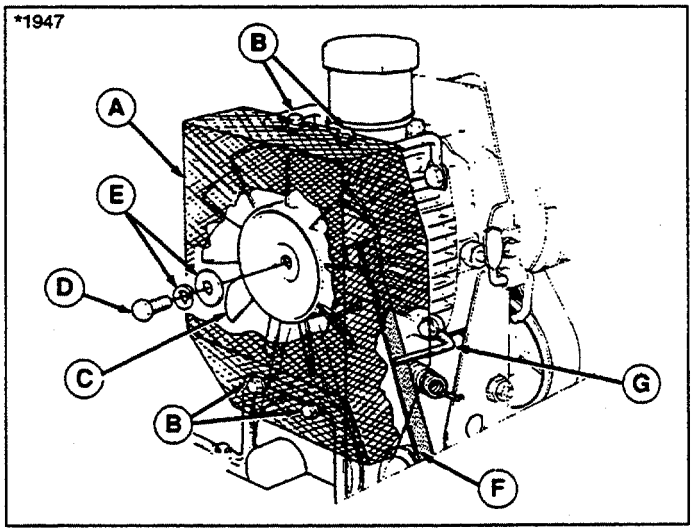


Figure 44 Hydro Pump

A. Screen
B. Capscrews
C. Fan
D. Capscrews
E. Washers
F. Belt
G. Belt Stop

7. See figure 46. Place the new belt onto the engine pulley (A), fixed pulley (B) and idler pulley (C). Note that the V side of belt rides in the pulley grooves and the flat side rides against the fixed pulley (B). The belt turns 90° between engine pulley and the fixed pulley (B), and between engine pulley and idler pulley (C).
8. Pull belt up from top and place onto the transmission pulley (D, figure 46)

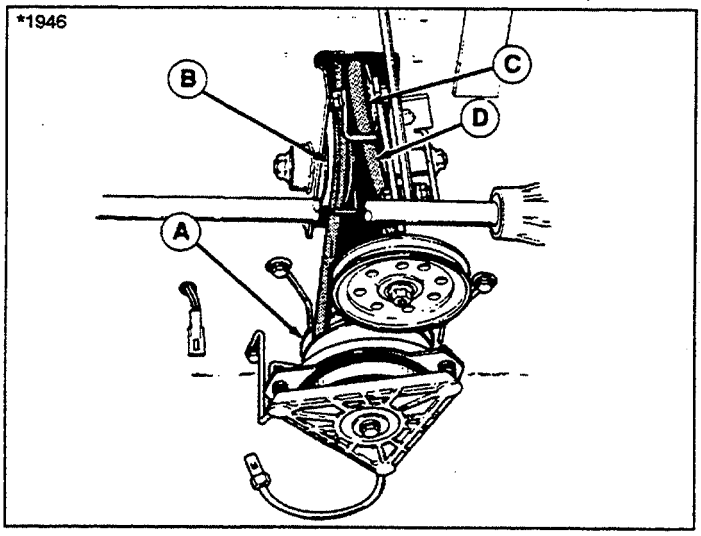


Figure 45. V Belt (Shown from Underside of Rider)
A. Engine Pulley **C. Idler Pulley**
B. Fixed Pulley **D. Belt**

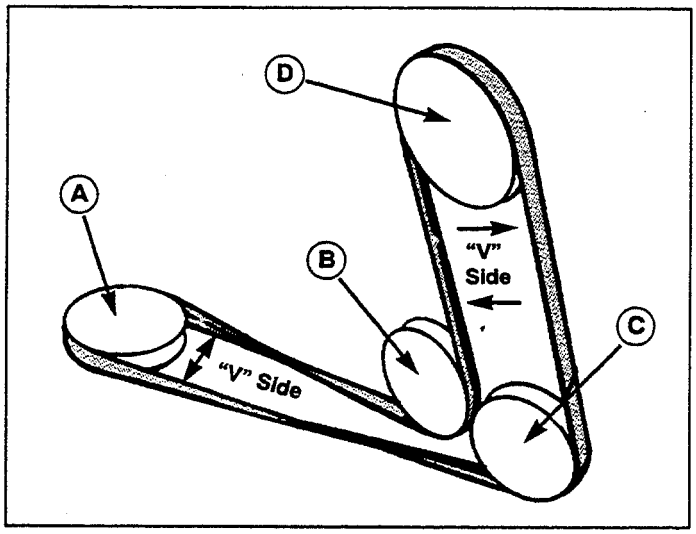


Figure 46. Belt Pattern (Seen from R.H. Side)
A. Engine Pulley **C. Idler Pulley**
B. Fixed Pulley **D. Transmission Pulley**

9. Install mower belt to PTO pulley. Follow the procedures under Mower Belt.
10. Install fan with original hardware. Note that a tab on the inner side of the fan fits into a hole when the fan is properly installed.
11. Install the screen (A, figure 44) with two capscrews at top and two capscrews at bottom.
12. Release parking brake to check belt stop adjustment. There should be 1/16" - 1/8" clearance between belt and belt stops. Five belt stops are shown in figure 47.
13. See figure 48. Check belt stop at transmission pulley. To adjust, loosen mounting hardware, position belt stop, then tighten hardware.
14. Perform Clutch/Brake Adjustment as described in the Adjustments section.

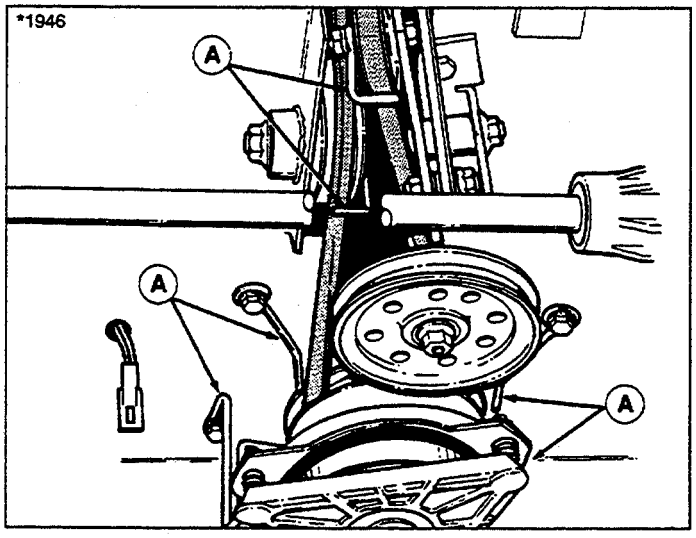


Figure 47. Belt Stop Locations
A. Belt Stops

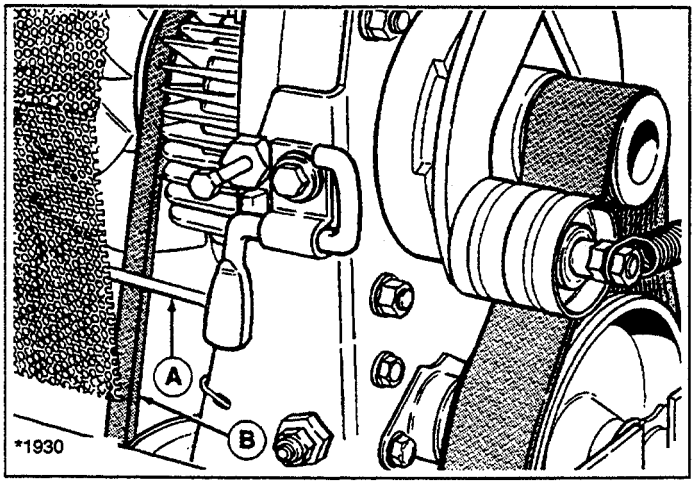


Figure 48. Transmission Pulley Belt Stop Location
A. Belt Stop **B. V Belt**

Specifications

NOTE: Specifications are correct at time of printing and are subject to change without notice.

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 Battery: 340 Cold Cranking Amps, 41 min. Reserve Capacity, Industrial Rated Starter Motor
Ignition	Magnetron Electronic Ignition
Air Cleaner	Ducted Paper Cartridge and Foam Precleaner 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 Fuel Tank Gauge Built Into Filler Cap Capacity: 4 Gallons (15.1 L)
Muffler	Quiet Compact, Low Back Pressure

TRANSMISSION

Type	Hydrostatic, Infinitely Variable
Final Drive	#40 Chain
Differential	Bevel Gear Type
Speeds @3400 RPM	Forward: 0 - 5.5 MPH Reverse: 0 - 2.6 MPH

CHASSIS

Frame	1/4" Steel Rails, 12 Gauge Engine Base
Rear Wheels	13 x 5.0-6, 18-22 psi
Front Wheels	16 x 6.5-8, 8-12 psi
Front Axle	3/4" Axle Shaft w/Differential
Seat Deck	12 Gauge, Hinged for Easy Access
Turning Radius (Inside Front Wheel)	6 In. (15.2 cm)

DIMENSIONS

Tractor

Overall Length	87.25 In. (221.6 cm)
Overall Width	
-w/42" Mower	57.5 In. (146.1 cm)
-w/48" Mower	63.5 In. (161.3 cm)
Height at	
- steering wheel	40.5 In. (102.9 cm)
- steering column	31.75 In. (80.6 cm)
- seat back	37.25 In. (94.6 cm)
- engine cover	26.5 In. (67.3 cm)
Wheel Base	40 In. (101.6 cm)
Weight (approx.)	Net: 633 lbs. (286.75 kg)

Mower - 42" Deck

Effective Cutting Width	42 In. (107 cm)
Overall Width with Deflector	57.5 In. (146.1 cm)
Weight	147 lbs. (66.59 kg)
Variable Cutting Ht.	1-1/4 to 1In. (3.2 to 10.2 cm)
Blade Arrangement	Three Staggered Blades
Mower Drive	V-Belt From Tractor PTO Pulley
Spindle Bearings	Lubricated and Sealed Ball Bearings

Mower - 48" Deck

Effective Cutting Width	48 In. (122 cm)
Overall Width with Deflector	63.5 In. (161.1 cm)
Weight	156 lbs. (70.67 kg)
Variable Cutting Ht.	1-1/4 to 1In. (3.2 to 10.2 cm)
Blade Arrangement	Three Staggered Blades
Mower Drive	V-Belt From Tractor PTO Pulley
Spindle Bearings	Lubricated and Sealed Ball Bearings

COMMON REPLACEMENT PARTS

Listed below are the more common replacement parts. Only genuine factory 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.

QTY.	DESCRIPTION	PART NO.
	Mower Blades	
3	- 42" Mower	1656147
3	- 48" Mower	1656146
	Mower Belts	
1	- 42" Mower Drive	1703371
1	- 48" Mower Drive	1703372
1	Drive Belt - Hydro Input	1704735
1	Drive Belt - Hydro Output	1713639
2	Straight Pin, Mower Hitch Arms	174215
2	Spring Clip, Mower Hitch Arms	1918196
1	Safety Clip - Mower Lift	176012
1	Key, Ignition	1704348
1	Interlock Switch, Seat	1703373
1	Battery	1685215
1	Solenoid	1685290
1	Switch, PTO (Electric Clutch)	1679932
1	Headlamp Bulb	1679954

MAINTENANCE ITEMS

- **Simplicity Engine Oils**
  - Case of 12 qts. (Your dealer has 1 qt. cans)
  - -SAE 5W-30 SF/CD (Cold Weather 30° & under) 1685576
  - -SAE 30 3G/CC (Warm weather 32° & up) 1685659
- **Touch-Up Paint**
  - Deep Orange Spray Paint, 13 oz. Can 1685611
  - Deep Orange Spray Paint (Case of 12 -13 oz. Cans) 1685614
  - Deep Orange Paint, 1 qt. 1685612
  - White Spray Paint, 13 oz. Can 103049
  - Red Spray Paint, 13 oz. Can 1685722
- **Touch-Up Daubers**
  - Deep Orange 1/2 oz. w/Brush Cap 1685615
- **Grease Gun Kit** w/8 oz. Grease Tube 1685510
  - Replacement 8 oz. Grease Tube for above 103077
- **Tire Sealant**-Stops Tire Leaks. Prevents Flats.
  - 11 oz. Tube 1685523
- **Gas Can**-No Tip Design. Durable Polyethylene.
  - 1 gallon 1685587
  - 2-1/2 gallon 1685555
  - 5-1/4 gallon 1685556
- **Cleaner, Polish, Sealant & Protectant**
  - 8 oz. Bottle 1685696
- **Degrimer/Degreaser**
  - 32 oz. Bottle w/Trigger Spray 1685619
  - 1 gallon 1685621

USE ONLY GENUINE
FACTORY REPLACEMENT PARTS
Available Through Your Local
Authorized Dealer.

OPTIONAL ACCESSORIES

See your dealer to purchase these items.

Woodside Transporter

Turbo Grass Catcher

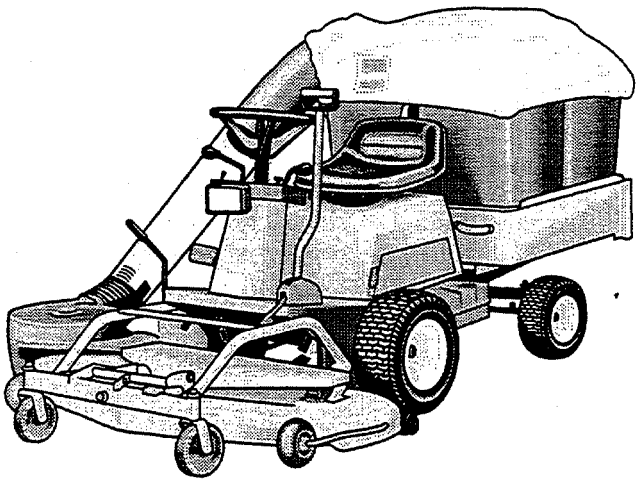
Turbo Quad Bagger™

Dethatcher

Dump Cart

Hubcaps

Horn



TECHNICAL LITERATURE

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. Standard hardware and torque specification charts are also included.

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

Model: _____

Mfg. No.: _____

Your Name: _____

Address: _____

City, State, Zip: _____

Visa/Mastercard No.: _____

Card Expiration Date: _____


Fast


Slow


Operator Present Switch (Seat)


PTO Engaged


Lights


Oil Pressure


Forward


Reverse


Parking Brake


Choke


Engine Running

Notes

MASSEY FERGUSON
LAWN & GARDEN EQUIPMENT

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