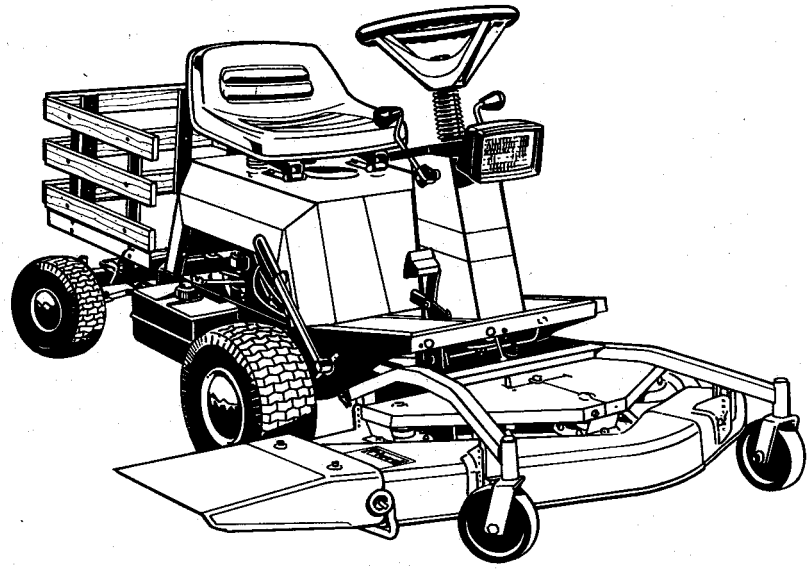
VANGUARD RIDING MOWER

OPERATOR'S MANUAL

DEUTZ ALLIS



Model FC1242H

1691336

Mowers

36" 1691334

42" 1691333

Part No. 1701134

3/87

Specifications

ENGINE

Make: Briggs & Stratton (See Engine Manual for specifications. See engine I.D. plate for model number.)

Fuel Capacity: Two gallons

GROUND SPEED

Forward: 0 to 5.3 mph
Reverse: 0 to 2.6 mph

CONTROLS

Clutch: Combination clutch brake pedal, on right side.
Brake: 7" dia. type on drive axle.
Parking Brake: Lever type, located on brake pedal. Releases when pedal is pressed.
Ground Speed Selector: Located on RH console.
Mower Drive: Lever to left of seat.
Mower Height: 5 pin positions on mower deck.
Throttle Control: Combination engine speed and choke control located on LH console.
Starter: Key switch electric start.
Steering: Stainless steel control cable for each rear wheel
Turning Radius: 6"

DIMENSIONS

Height at Steering Wheel: 42"
Height at Top of Steering Column: 30-1/2"
Height at Top of Engine Cover: 24-1/2"
Height at Top of Seat: 34-3/4"
Length Overall: 82" w/42" Mower
Length Overall: 83 3/4" w/36" Mower
Length Overall of Rider: 64"
Width Overall: 57 1/2" w/42" Mower
Width Overall: 45 1/2" w 36" Mower
Width Over Front Tires: 36"
Width Over Rear Tires: 28"
Weight w /42" Mower: 529 lbs.
Weight w /36" Mower: 503 lbs.
Fuel Tank Capacity: 2 gallons
Rear Wheels: 4.1/3.5-4 Pneumatic, 20 psi
Front Wheels: 15 x 6-6.00 Pneumatic, 10 psi

DEALER'S PRE-DELIVERY SERVICE GUIDE

DETAILS OF ITEMS LISTED BELOW ARE COVERED IN THIS MANUAL

CHECK BEFORE OPERATING UNIT

- ☐ Shipping Damage Corrected
- ☐ Fill Battery with Electrolyte & Fully Charge
- ☐ Engine Oil Level Checked (Add When Needed)
- ☐ Hydrostatic Oil Level Checked
- ☐ Transmission Oil Level Checked
- ☐ Check & Tighten Steering Wheel

OIL LEAKS

- ☐ Tractor Operated
- ☐ Check for Oil Leaks After Engine Warms Up
- ☐ Check for Transmission Oil Leaks
- ☐ Check for Hydraulic Oil Leaks

ENGINE

- ☐ Check Timing
- ☐ Check High & Low Idle Speeds
- ☐ Check Governor Response
- ☐ Air Cleaner Properly Installed

COOLING SYSTEM

- ☐ Check Cooling Fins for Damage or Obstruction
- ☐ Check Engine Shrouds for Obstruction

POWER TRAIN

- ☐ Brake & Clutch Adjusted Properly
- ☐ All Belts Adjusted Properly
- ☐ Safety Switches Adjusted Properly
- ☐ P.T.O. Clutch Adjusted Properly
- ☐ Hydrostat Adjusted Properly
- ☐ Unit Operated Properly in all Gears

GENERAL

- ☐ All Grease Fittings Lubricated
- ☐ Front & Rear Tire Pressure Set
- ☐ Traction Operation Checked
- ☐ Appearance of Tractor Checked
- ☐ All Safety & Operational Decals in Place
- ☐ Operator's Manual with Tractors

DEALER'S DELIVERY SERVICE GUIDE

EXPLAIN TO YOUR CUSTOMER THE CARE, SAFE OPERATION AND ADJUSTMENT OF ITEMS LISTED BELOW:

- ☐ **CONTROLS**

OPERATION

- ☐ Starting Engine
- ☐ Stopping Engine
- ☐ Starting Tractor
- ☐ Stopping Tractor
- ☐ Operating with Mower and Other Implements

- ☐ **OPERATOR'S SAFETY PRECAUTIONS**

LUBRICATION & SERVICE

- ☐ Engine Oil
- ☐ Engine Fuel
- ☐ Transmission
- ☐ Grease Fittings
- ☐ Air Cleaner
- ☐ Engine Cooling Fins
- ☐ Battery Care
- ☐ Tire Pressure
- ☐ Service Parts
- ☐ Off-Season Storage

ADJUSTMENTS

- ☐ Seat
- ☐ P.T.O. Clutch
- ☐ Clutch & Brake
- ☐ Belts
- ☐ Mower
- ☐ Other Implements

TO OUR CUSTOMER

The following pages and illustrations are printed to help supply you with the knowledge to better operate and service your new **DEUTZ-ALLIS** equipment.

We are proud to have you as a customer and feel you will be proud to be a **DEUTZ-ALLIS** owner.

Any piece of equipment needs, and must have a certain amount of service and maintenance to keep it in top running condition. We have attempted to cover all the adjustments required to fit most conditions; however, there may be times when special care must be taken to fit a condition.

Study this operator's manual carefully and become acquainted with all the adjustments and operating procedures before attempting to operate your new equipment. Remember, it is a machine and has been designed and tested to do an efficient job in most operating conditions and will perform in relation to the service it receives.

If special attention is required for some conditions, ask your **DEUTZ-ALLIS** Dealer; his Parts and Service Organization will be glad to help and answer any questions on operation and service of your new machine.

ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

USER'S RESPONSIBILITY

It is the responsibility of the user to read the Operator's Manual and understand the safe and correct operating procedures as pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Operator's Manual.

The user is responsible for inspecting his machine and for having parts repaired or replaced when continued use of the product would cause damage of excessive wear to other parts. It is the user's responsibility to deliver his machine to a Deutz-Allis dealer, for service or replacement of defective parts which are covered by the standard warranty. When requesting warranty service, you must present your copy of delivery record.

If the Dealer is requested by the Customer to travel to another location, or haul the machine to his shop for the purpose of performing a warranty obligation or free inspection, it would be for the Customer's convenience, and the cost for such trips is to be paid for by the Customer. Any arrangement whereby the Dealer agrees to absorb all or a part of the cost of these trips is to be made between the Dealer and the Customer and is to be considered a courtesy to the Customer.

Deutz-Allis does not allow credit for the cost of travel time, mileage, or hauling as a warranty allowance.

WARRANTY. . . . Your Deutz-Allis warranty for any new equipment listed appears on your copy of the Purchase Order signed by you and your selling dealer. You will be required to pay any premium for overtime labor requested by you, any charge for making service calls and for transporting the equipment to and from the place where warranty work is performed. Normal maintenance service and repair work not covered by the warranty during the warranty period and all service after the warranty period will be charged for at the dealer's regular rates and prices. 6/85

THE DEUTZ-ALLIS NEW EQUIPMENT BATTERY SERVICE ADJUSTMENT POLICY FOR LAWN AND GARDEN EQUIPMENT

LIMITED WARRANTY

1. If within a period of 90 DAYS after day of sale to the original user, a Deutz-Allis new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, the Deutz-Allis Corporation will replace it with an equivalent new Deutz-Allis battery, without charge, to the original user.

2. If after the expiration of such 90 DAYS but before the expiration of 24 months from date of sale to the original user (each such month being designated herein as a unit of service) a Deutz Allis new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, it will be replaced for the original user, in exchange for the unserviceable battery, with an equivalent new Deutz-Allis battery at an adjusted price. This adjusted price shall be determined by applying to the then current retail price of the new battery, the percentage of the maximum (24) units of service which was received from the unserviceable battery.

LIMITATIONS

No-charge replacements or adjustments under this policy may be made by any authorized Deutz-Allis Lawn and Garden Equipment dealer.

This policy does not cover the following:

1. Unserviceability due to abuse or neglect, failure to maintain recommended electrolyte level, fire wreckage, explosion, freezing, the addition to the battery of any chemical or solution other than approved water or battery grade sulfuric acid of proper gravity, the use of a group size smaller than the group size of the original equipment battery, or continued operation of the battery in an undercharged condition (below half charge - 1.190 sp. gr.).

2. Breakage of containers, covers or posts.

3. The cost of transportation, service calls, recharges or the use of rental batteries.

PROOF OF DATE OF PURCHASE IS REQUIRED FOR ALL CLAIMS. DEUTZ-ALLIS CORPORATION WILL HAVE NO OBLIGATIONS UNDER THIS POLICY IF THE DATE CODING ON THE BATTERY IS REMOVED OR DESTROYED. IN NO EVENT WILL DEUTZ-ALLIS CORPORATION BE LIABLE FOR CONSEQUENTIAL DAMAGES.

L & G 7/85

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Safety Rules

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 your 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, rocks, etc.) that might be picked up and thrown.
- Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).
- 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, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
- Do not stop or start suddenly when going uphill or downhill. Mow 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 control 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. (See page 8.)

- 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.

- When using the vehicle with mower, proceed as follows:
  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.

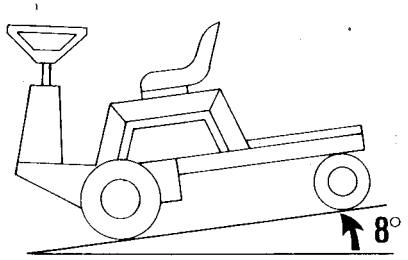
- Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.

- Disengage power to mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.

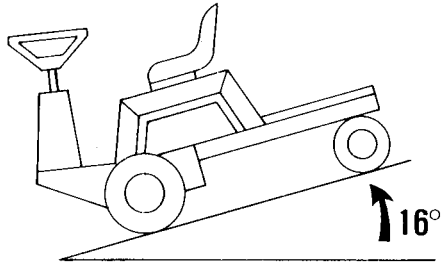
Decals

⚠ 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 10 FEET (3.1 METERS) HORIZONTALLY.
- USE A REAR WEIGHT KIT ON SLOPES GREATER THAN 8° WHICH IS A RISE OF 1.5 FEET (0.45 METERS) VERTICALLY IN 10 FEET (3.1 METERS) HORIZONTALLY.



USE REAR WEIGHT KIT



DO NOT OPERATE!

P.T.O. NEUTRAL

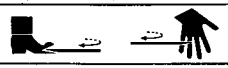
NO RIDERS

⚠ DANGER

ROTATING CUTTING BLADE

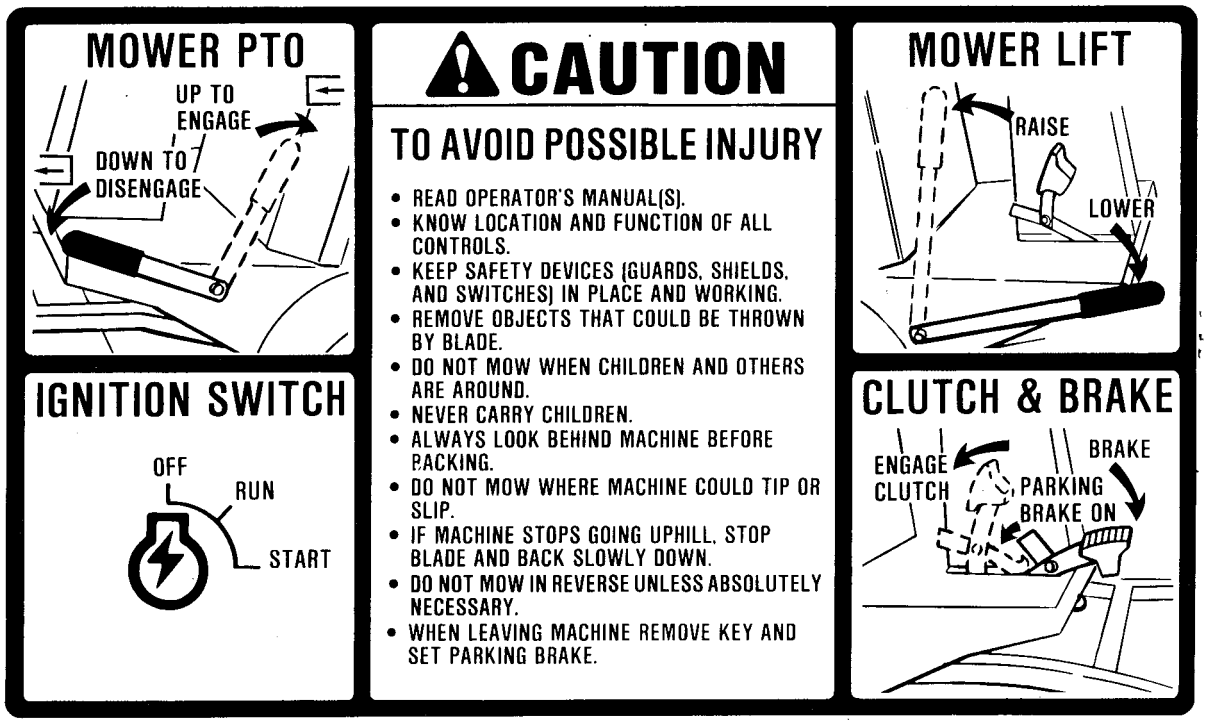
- DO NOT PUT HANDS OR FEET UNDER MOWER DECK WHILE BLADE IS ROTATING.

⚠ DANGER



ROTATING CUTTING BLADE

- DO NOT OPERATE MOWER WITHOUT DEFLECTOR OR ENTIRE GRASS CATCHER IN PLACE.


MOWER PTO
UP TO ENGAGE
DOWN TO DISENGAGE
CAUTION
TO AVOID POSSIBLE INJURY
• READ OPERATOR'S MANUAL(S).
• KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
• KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES) IN PLACE AND WORKING.
• REMOVE OBJECTS THAT COULD BE THROWN BY BLADE.
• DO NOT MOW WHEN CHILDREN AND OTHERS ARE AROUND.
• NEVER CARRY CHILDREN.
• ALWAYS LOOK BEHIND MACHINE BEFORE BACKING.
• DO NOT MOW WHERE MACHINE COULD TIP OR SLIP.
• IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK SLOWLY DOWN.
• DO NOT MOW IN REVERSE UNLESS ABSOLUTELY NECESSARY.
• WHEN LEAVING MACHINE REMOVE KEY AND SET PARKING BRAKE.
MOWER LIFT
RAISE
LOWER
IGNITION SWITCH
OFF
RUN
START
CLUTCH & BRAKE
ENGAGE CLUTCH
BRAKE
PARKING BRAKE ON

Operation

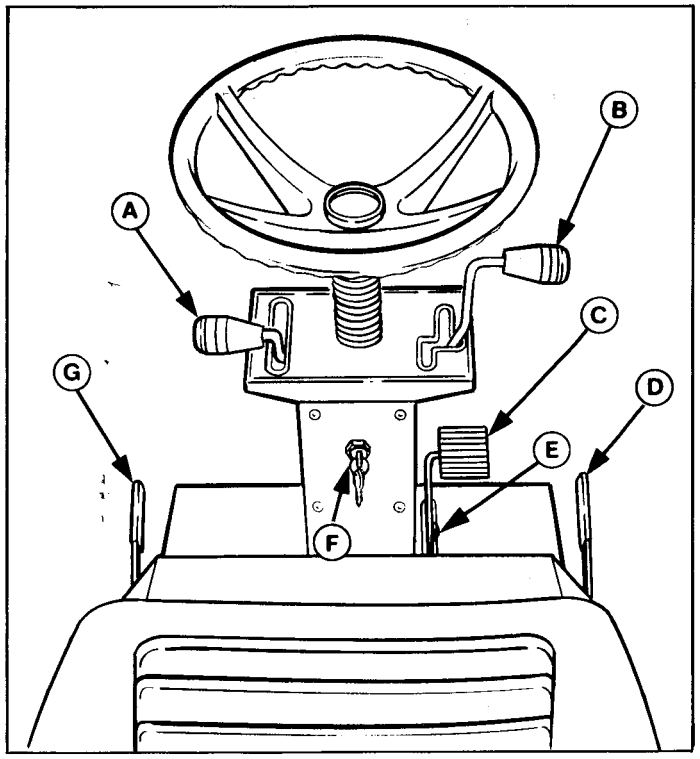


Figure 1. Controls

ITEM	NAME	FUNCTION
A	Engine Speed Control Lever	Controls engine speed. Push fully forward to activate choke.
B	Transmission Control Lever	Controls ground speed and forward/reverse motion. Push forward to go forward. Pull back to go in reverse.
C	Clutch-Brake Pedal	Press down to disengage drive and engage brake. Release to engage drive.
D	Mower Lift Lever	Raises mower for transport. Pull up and hold to raise mower.
E	Parking Brake Lever	Locks brake. Depress pedal, then latch lever over edge.
F	Ignition Switch	Starts and stops engine.
G	Mower PTO Lever	Engages mower. Pull up to begin mowing. Push down to disengage mower.

WARNING

Never allow passengers to ride on the unit.

CHECKS BEFORE STARTING

1. Check that gas tanks (one on each side) are 3/4 full. (If one tank is empty, either add gasoline, or shut off the valve on bottom of tank.)
2. Check engine oil level and add if necessary. Refer to engine Owner's Manual for recommendations.

> **⚠ WARNING**
> **Never add gasoline when engine is hot or running.**

3. Make sure either deflector or grass collection system is in place.
4. Check for loose nuts, screws, bolts, oil leaks, gasoline leaks, etc.
5. Make sure the mower is in desired cutting height.
6. To operate, the tow valve must be disengaged. See "Push Rider By Hand."

INTERLOCK SWITCHES

A switch under the seat will stop the engine if the operator leaves the seat when PTO is engaged and/or transmission is in gear. Also, to start engine, the operator must be in seat, the gear shift lever must be in neutral and the mower PTO disengaged.

STARTING AND STOPPING

1. Before using this mower for the first time, the owner should operate in an open area, without mowing, to become accustomed to the unit. The unit is steered with the rear wheels, which allows very quick, tight turns. The left side of the mower can be used to trim close to objects in the lawn.
2. Make sure mower is disengaged and transmission control lever is in neutral.
3. Place engine speed control into choke position unless engine is hot.
4. Turn the key to start and release when engine starts. Move lever out of choke position as engine warms.
5. Make sure desired direction is clear of objects, people and animals.
6. Release the parking brake.
7. Move the transmission control lever out of Neutral to travel. Push forward to go forward, or pull back to go in reverse. The farther the lever is moved, the faster the ground speed.
8. Place engine speed control lever between 3/4 and full speed. Full engine speed is recommended, especially if mowing thick grass.

9. Select the appropriate ground speed for conditions. If the terrain is rough, hilly or sloping, drive slowly. You should also drive slowly to cut thick grass. On level, smooth ground, with light grass, you can use full speed.
10. Use the transmission control lever to slow down for turns or to trim around objects, then increase speed.
11. **To stop,** move the transmission control lever into 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. **Before leaving operator's position,** set the parking brake and disengage the mower PTO. (The parking brake is shown set in figure 4.) Set the engine speed control to SLOW and allow the engine to idle for 20 seconds. Turn the key to OFF and remove it. Wait for moving parts to stop.
13. Clean all dirt and grass from the mower and rider. Be sure to clean 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 16° which is a rise of 3 feet (0.91 meters) vertically in 10 feet (3.1 meters) horizontally. Use a rear weight kit on slopes greater than 8° which is a rise of 1.5 feet (0.45 meters) vertically in 10 feet (3.1 meters) horizontally.

MOWING PATTERN & TIPS

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

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

Most lawns should be mowed to keep the grass approximately two to three inches (50 to 76 mm) high. Best

results are obtained by cutting often and not too short. To help keep a green lawn, never mow more than one third of the height of the grass, or a maximum of one inch (25 mm), in one mowing. For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.

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

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

PUSHING RIDER BY HAND

NOTE

Throughout this manual, "left" and "right" are referred to as seen from operating position on rider seat.

To push the rider by hand, the tow valve must be engaged, so that plunger on front of transmission (figure 2) is depressed. To drive the rider, the tow valve must be disengaged (figure 3).

1. To disengage, grasp lever (A, figure 2), pull toward left so lower section clears pump bracket (C). Flip down, then push toward right, so it is secured into position shown in figure 3.
2. To engage, grasp the lever (A, figure 3), pull toward left to clear pump bracket (C), and then flip up so it depresses plunger. Push toward right so it locks into position shown in figure 2.

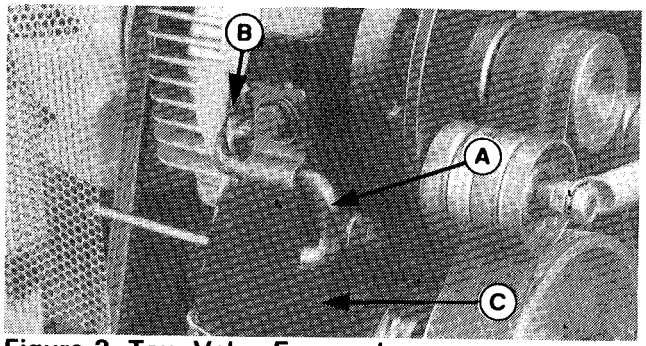


Figure 2. Tow Valve Engaged
A. Lever B. Plunger C. Pump Bracket

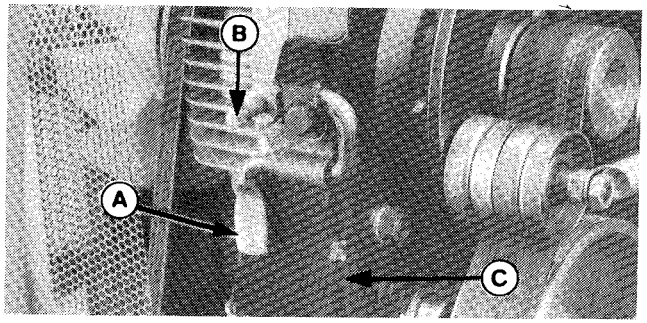


Figure 3. Tow Valve Disengaged
A. Lever B. Plunger C. Pump Bracket

Normal Care

Care Required	See Page	Before First Use	Every Five Hours	Every 25 Hours	Every 50 Hours Or Yearly
Check for loose hardware, oil leaks, etc.	—	•	•		
Lubricate rider and mower	11			•	
Check fluid level in battery**	14	•	•		
Check tire pressures	13	•		•	
Change oil*	Eng. Man.			•	
Service air cleaner	Eng. Man.			•	
Check engine oil level	Eng. Man	•	•		
Clean the cooling system**	Eng. Man				•
Clean battery	14				•
Service the blade	15				•
Service spark plug	Eng. Man.				•
Lubricate chain**	12			•	
Check transmission fluid	18	•		•	

***Change original engine oil after first 5 hours of operation.**
****More often in hot (over 85° F; 30° C) weather or dusty operating conditions.**

Normal Care Schedule

STORAGE (30 Days or More)

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

⚠ WARNING

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

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

LUBRICATION

1. With an oil can, apply a few drops of oil to points indicated with oil can in figures 4 through 11. Oil the drive chain (figure 8) with an approved chain lubricant.
2. With a grease gun, apply one or two shots of lithium based automotive grease to the grease fittings shown in figures 10 and 11.

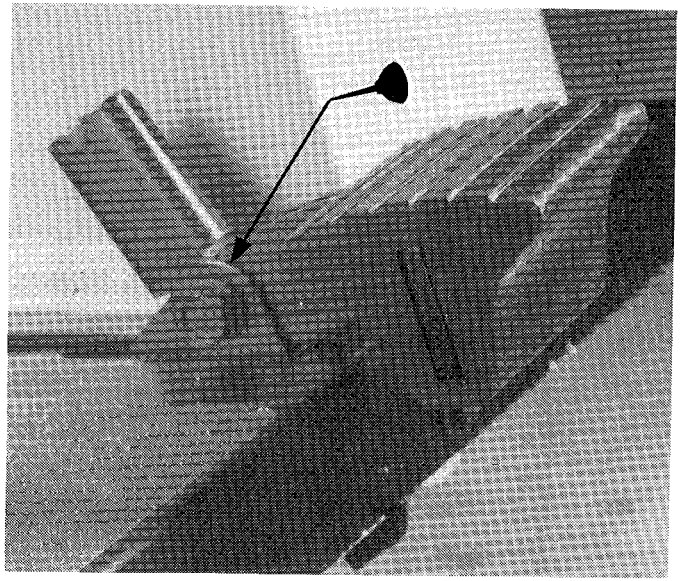


Figure 4. Lube Brake Pedal Pivot Points

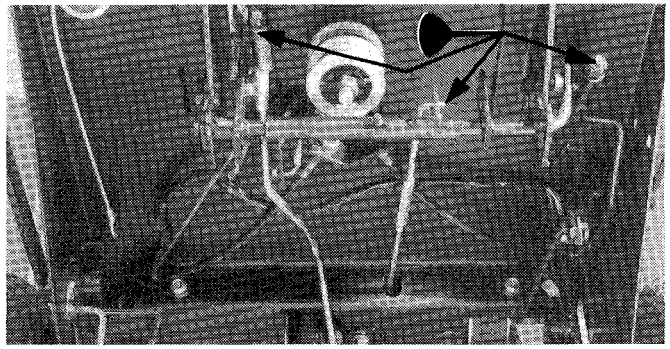


Figure 5. Lube Points Where Rods & Levers Contact Other Parts (Typical Pivot Points Shown Above)

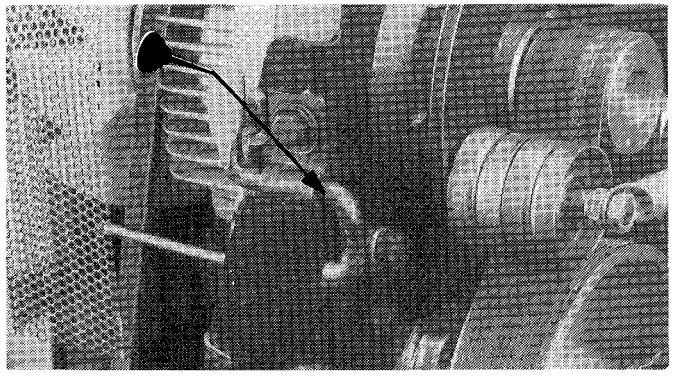


Figure 6. Lube Transmission Control Pivot Points

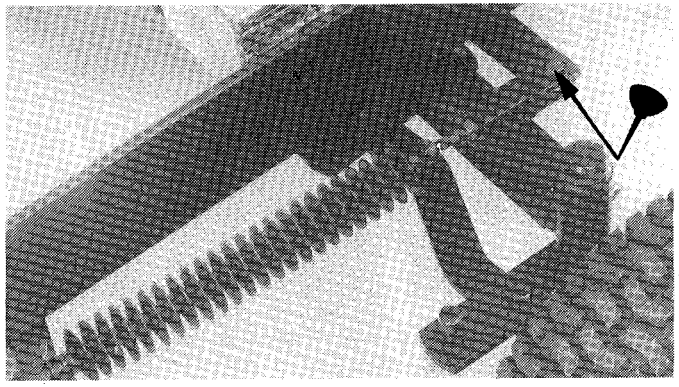


Figure 7. Lube Rear Axle Clevis and Pivot Points

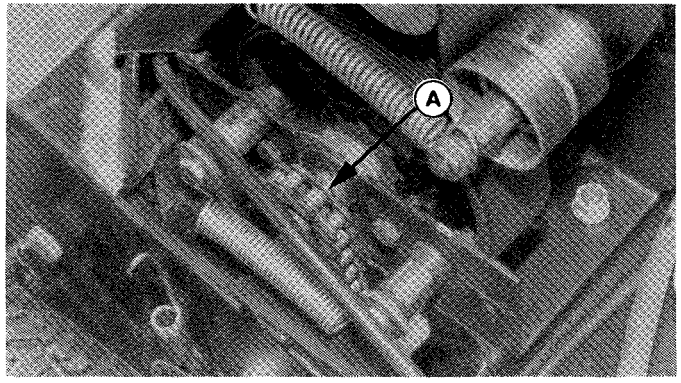


Figure 8. Chain

A. Chain (Use an approved chain lubricant.)

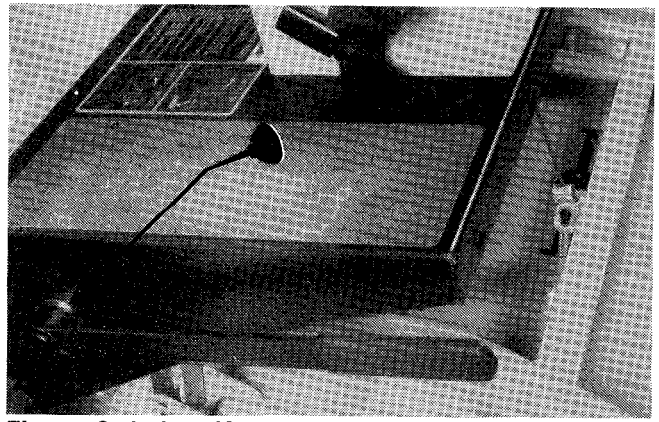


Figure 9. Lube Lift Lever

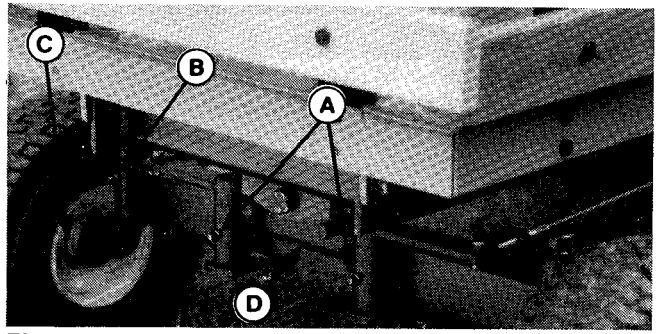


Figure 10. Grease Fittings
A. Axle Pivot
B. Spindles (One fitting on each side)
C. Wheels (One fitting on each side)
D. Axle Pivot (Under Weight)

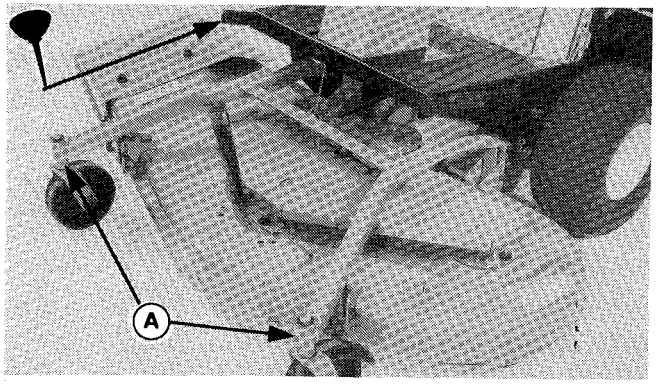


Figure 11. Grease Fittings
A. Mower Arms

CHECK TIRE PRESSURE

Make sure the air pressure in the front tires is 8 to 12 psi and the air pressure in the rear tires is 18 to 22 psi. Use a gauge with one-pound markings. Unequal or improper tire pressure can cause an uneven cut.

BATTERY MAINTENANCE

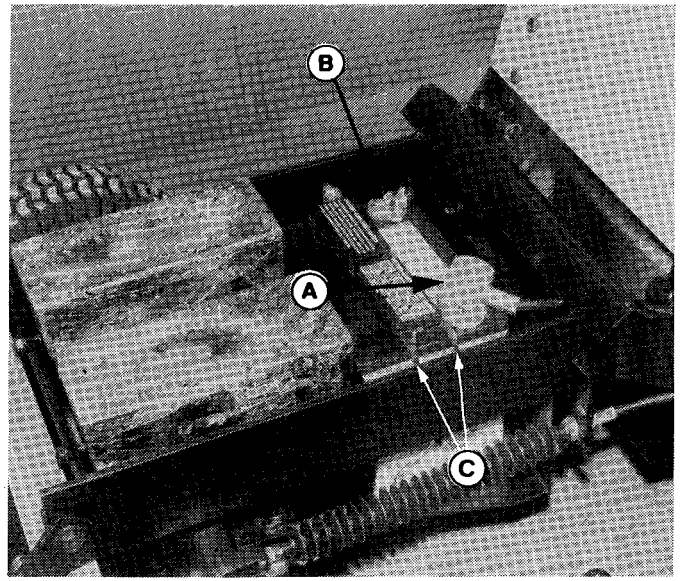


Figure 12. Battery
A. Positive Terminal
B. Negative Terminal
C. Straps

WARNING

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

WARNING

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

Check Fluid Level

Check the battery fluid level. Wipe dirt from around the caps then remove the caps one at a time. The fluid must be even with the bottom of the split ring. If not, add distilled water. Reinstall the caps. Be sure the cover is in place over positive terminal.

Cleaning Battery and Cables.

1. Disconnect the cables from the battery, negative cable first. A positive "+" sign is stamped on the battery next to the positive terminal. See figure 12.

2. Slip the battery straps off, then remove the battery.
3. Clean the battery terminals and cable clamps with a wire brush.
4. Scrub the battery, cable and battery compartment with baking soda and water.
5. Reinstall battery and straps. The straps should be on each side of the caps.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with grease or petroleum jelly. Be sure to slide cover over positive terminal.

SERVICING THE MOWER BLADES

Mower Removal

WARNING

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

1. Remove the mower for blade maintenance as follows.
2. Remove the two pins (A, figure 13) and clips (B). Slip a 2″ x 4″ board under rear edge of mower to make pin removal easier.

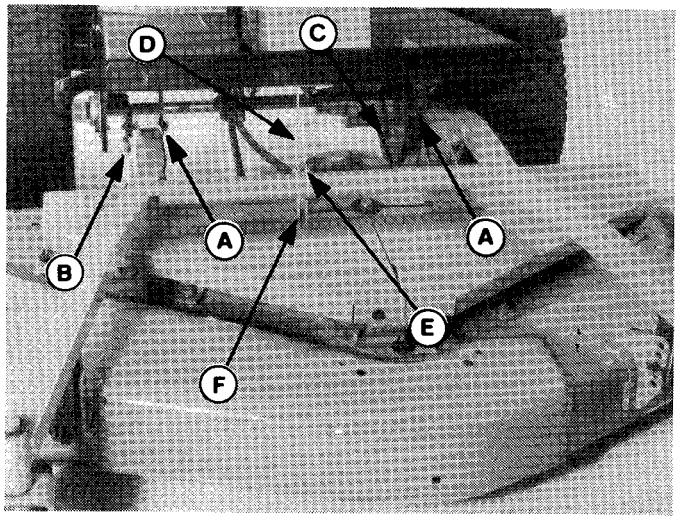


Figure 13.
A. Pin
B. Clip
C. PTO Rod
D. Lift Clevis
E. Bracket
F. Lift Chain

3. Remove pin and washer to disconnect the PTO rod (C). Remove the clip and pin that secures the lift clevis (D).
4. To slip belt off the engine pulley (C, figure 14 or 15), loosen the idler pulley belt guide (A).

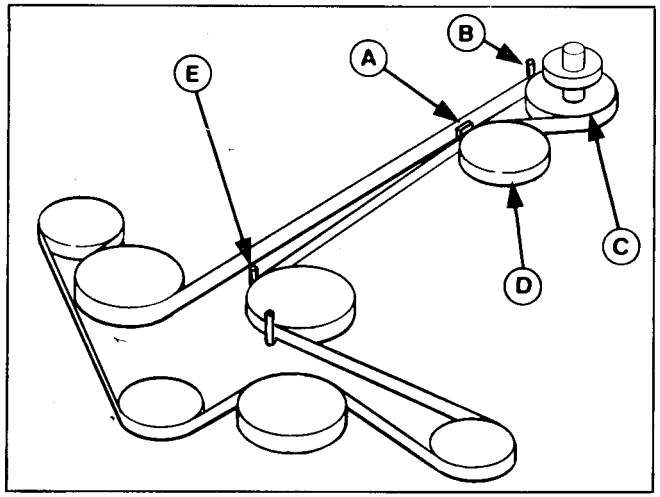


Figure 14. 42" Mower Belt Pattern

A. Belt Guide
B. Belt Stop
C. Engine Pulley
D. Idler Pulley
E. Belt Stop

Sharpening & Balancing

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

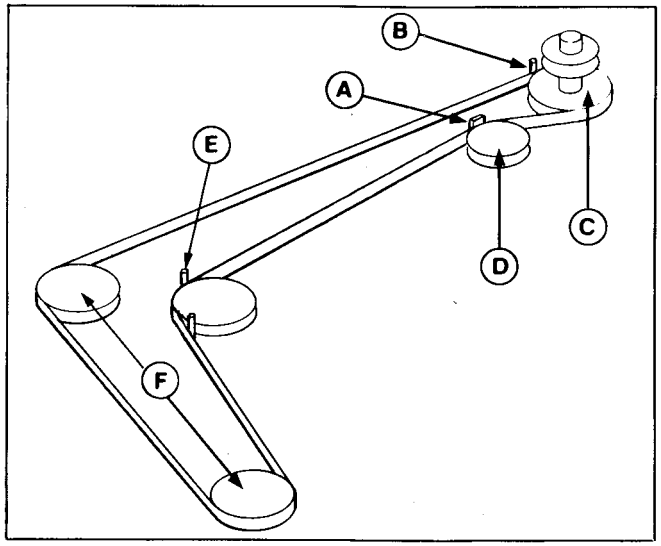


Figure 15. 36" Mower Belt Pattern

A. Belt Guide
B. Belt Stop
C. Engine Pulley
D. Idler Pulley
E. Belt Stop
F. Arbor Pulleys

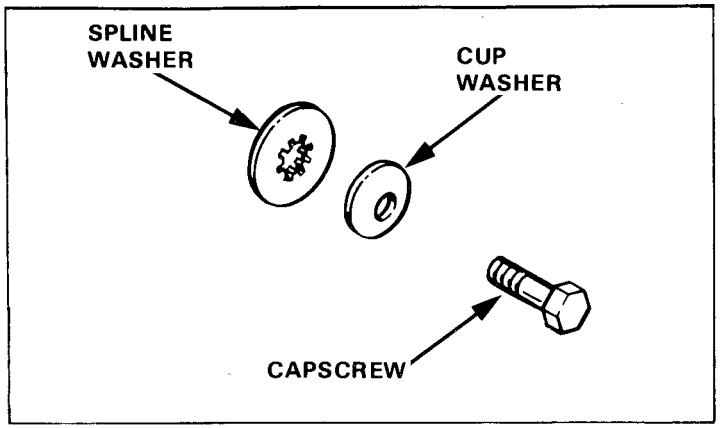


Figure 16. Blade Hardware

Blade Installation

1. Reinstall the blade(s) with the tabs pointing upward. Install the spline washer, cup washer, and capscrew (see figure 16). Be sure the splines on the spline washer are engaged with the shaft splines. Be sure cup washer is installed with the concave side up.
2. To tighten the capscrew, wedge a wood block between blade and housing to prevent blade from turning. Torque the capscrew to 60 to 70 ft. lbs.

MOWER INSTALLATION

1. After servicing blade, re-install mower as follows.
2. Slip belt onto the engine pulley. Refer to figure 14 or 15 for pattern. Be sure there are no twists in belt.
3. Connect mower to rider with two pins (A, figure 13) and clips (B). Slip a 2″ x 4″ board under rear edge of deck to make pin installation easier.
4. Insert PTO rod (A, figure 17) through PTO arm (E) and brake rod (D) and install washer (C) and pin (B).
5. Place the lift chain (F, figure 13) and lift cable clevis into the bracket (E). Insert pin through bracket, clevis and chain. Then, secure with the clip.
6. Position the belt guide (A, figure 14 or 15) and belt stops (B and E) 1/16 to 1/8 inch from belt with belt engaged. Tighten securely.

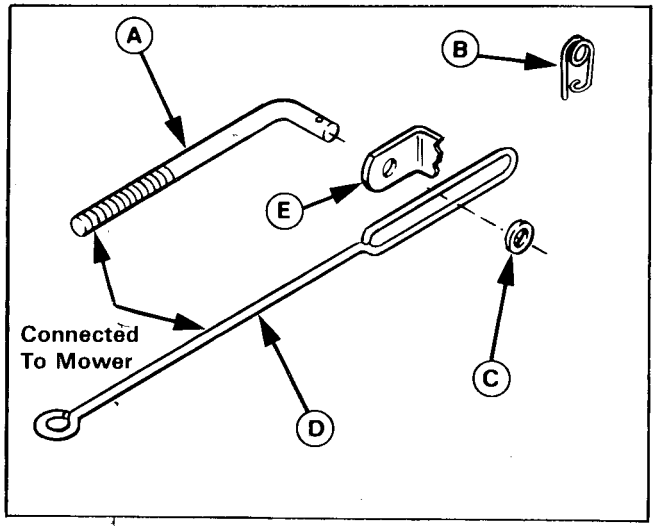


Figure 17.
A. PTO Rod from Mower
B. Spring Pin
C. Washer
D. Brake Rod
E. PTO Arm (Under Rider)

CHECK TRANSMISSION FLUID LEVEL

1. Allow rider to cool after operation. Fluid must be cool for an accurate check.
2. Raise the seat deck.
3. The fluid level is visible in the reservoir (figure 18) without removing cap. The level should be at COLD level mark. If not, go to step 4.
4. Remove the reservoir cap. Add *Simplicity* Multipurpose Hydraulic/Transmission Oil or Deutz Allis Power Fluid 821. If reservoir is empty, remove plug (B, figure 18) to add oil. The plug may be a socket head screw as shown or a capscrew. If the oil is black or milky, see your dealer to determine cause.
5. It will take a while for the oil to seep thru a filter screen into the reservoir. Check the level again after operating the tractor a few times. If level is consistently low, see your dealer to check for leaks.

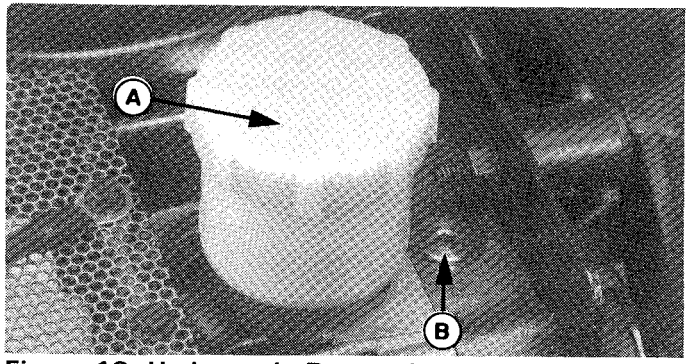


Figure 18. Hydrostatic Reservoir
A. Reservoir B. Plug (Socket Head or Capscrew)

Troubleshooting

CONTENT OF SECTION

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

⚠ WARNING

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

Problem	Cause/Remedy
1. Engine will not start.	**A.** Transmission control lever not in neutral-start position. Shift into neutral.
	B. Mower engagement lever not disengaged. Disengage fully.
	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. Move control out of CHOKE.
	E. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer).
	F. Battery terminals require cleaning. See Normal Care section.
	G. Battery discharged or dead. Recharge or replace.
	H. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	I. Solenoid or starter motor faulty. Repair or replace.
	J. Safety interlock switch faulty. Replace if needed (see your dealer.)
	K. Spark plug faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual.
	L. Water in fuel. Drain fuel & refill with fresh fuel.
	M. Old stale gas. Drain fuel & replace with fresh fuel.

Problem		Cause/Remedy
2. Engine starts hard or runs poorly.	**A.**	Fuel mixture too rich. Clean air filter. Check choke adjustment (engine speed control). See engine manual.
	B.	Carburetor adjusted incorrectly. See engine manual.
	C.	Spark plug faulty, fouled, or incorrectly gapped. Clean and gap or replace. See engine manual.
3. Engine knocks.	**A.**	Low oil level. Check/add oil as required.
	B.	Using wrong grade oil. See engine manual
4. Excessive oil consumption.	**A.**	Engine running too hot. Clean engine fins, blower screen and air cleaner.
	B.	Using wrong weight oil. See engine manual.
	C.	Too much oil in crankcase. Drain excessive oil.
5. Engine exhaust is black.	**A.**	Dirty air filter. Clean air filter. See engine manual.
	B.	Check engine speed control adjustment (choke). See engine manual.
6. Engine runs, but rider will not drive.	**A.**	Tow valve engaged. Disengage.
	B.	Belt or chain is broken. Replace. Check chain adjustment. (See Adjustments section.)
	C.	Drive belt slips. (See problem and cause below.)
7. Rider drive belt slips.	**A.**	Clutch is out of adjustment. See your dealer.
	B.	Pulleys or belt greasy or oily. Clean as required.
	C.	Belt stretched or worn. Replace with correct belt.
	D.	Clutch rod binding in guide. Oil clutch rod.
8. Brake will not hold.	**A.**	Brake is incorrectly adjusted. See your dealer.
	B.	Brake band worn and requires replacement. See your dealer.
	C.	Oil on brakes. Clean or replace brake band. See your dealer.

Problem	Cause/Remedy
9. Rider steers hard.	**A.** Steering linkage is loose. Check and tighten any loose connections.
	B. Improper tire inflation. Check and correct.
	C. Spindle bearings dry. Grease spindles.
10. Rider drive belt does not stop when clutch-brake depressed.	**A.** Belt stops out of adjustment. See Adjustment section.
	B. Clutch out of adjustment. See your dealer.

TROUBLESHOOTING (MOWER)

1. Mower will not raise.	**A.** Lift cable not attached or damaged. Attach or repair.
2. Mower cut is uneven.	**A.** Mower not leveled properly. See Mower Leveling.
	B. Tires not inflated equally or properly.
3. Mower cut is rough looking.	**A.** Engine speed too slow. Set for three-fourths to full speed.
	B. Ground speed too fast. Use slower ground speed.
	C. Blades dull and require sharpening. See Normal Care section.
	D. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary.
	E. Check PTO Clutch Adjustment. See your dealer.

Problem	Cause/Remedy	
4. Engine stalls easily with mower engaged.	**A.**	Ground speed too fast. Use slower ground speed.
	B.	Carburetor not adjusted properly.
	C.	Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.
	D.	Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.
5. Excessive mower vibration.	**A.**	Mower blades, arbors, or pulleys are bent. Check and replace as necessary.
	B.	Mower blades are out of balance. Remove, sharpen and balance blades (see Normal Care section).
6. Excessive belt breakage.	**A.**	Belt tension too tight. Readjust belt tension. See your dealer.
	B.	Bent or rough pulleys. Repair or replace.
	C.	Using incorrect belt. See your dealer.
7. Mower drive belt slips or fails to drive.	**A.**	Mower drive belt out of adjustment. See your dealer.
	B.	Belt stops out of adjustment. Check.
	C.	Mower drive belt broken. Replace.

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 there is any doubt about the cause of the problem, see your dealer. If you must replace the battery, remove and install the battery as described in "Clean Battery and Cables."

JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

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

⚠ 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.

NOTE

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

1. Set parking brake and place transmission in "NEUTRAL".
2. Remove vent caps from both the booster and the discharged batteries. Lay a cloth over the open vent wells on each battery. These two actions help reduce the explosion hazard always present in either battery when connecting a "live" battery to a "dead" battery.
3. Attach one end on one jumper cable to the positive terminal of the booster battery (identified by a red color, "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal of discharged battery.
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the booster 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 dead battery). Take care that clamps from one cable do not inadvertently touch the clamps on the other cable. Do not lean over the battery when making the connection.

5. The 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 have corrosive acid on them.

⚠ 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.

BELT REPLACEMENT

⚠ WARNING

Before starting belt replacement, place the rider on a level surface. Stop the engine and remove the key to prevent startup.

MOWER BELT

1. Loosen the belt guide on the idler pulley, and slip the belt off the engine pulley.
2. For the 42" mower remove the two belt covers (A, figure 19) by removing nuts and washers at four locations (B) and one screw (C). For the 36" mower, remove the two screws at each end of belt cover (A, figure 20).

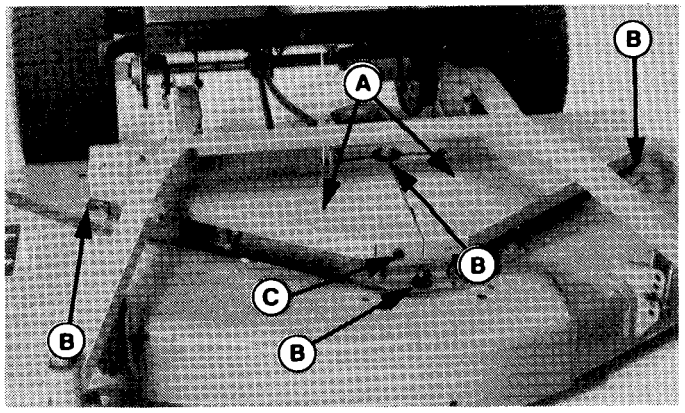


Figure 19. Belt Covers (42" Mower)

A. Belt Covers
B. Nuts and Washer
C. Screw

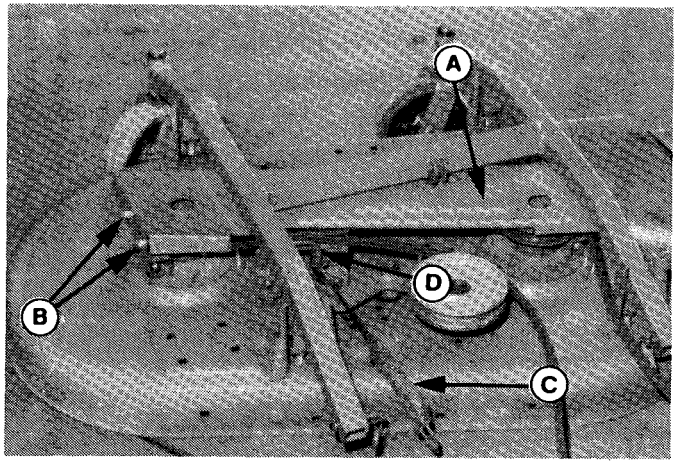


Figure 20. Belt Cover (36" Mower)

A. Belt Cover
B. Screw
C. Spring, Mower PTO
D. Belt Brake Rod

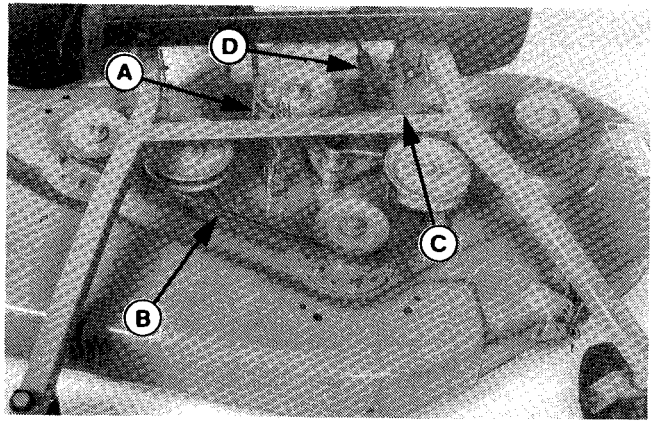


Figure 21. Mower Belt (42" Mower Shown)

A. Belt Stops
B. Belt
C. Belt Brake Rod
D. Spring, Mower PTO

3. Remove belt from pulleys and install new belt, routing as shown. See belt pattern in figure 14 or 15 on page 16.
4. Slip the new belt onto the idler pulley and engine pulley (figure 14 or 15).
5. Engage the PTO lever and adjust the mower belt stops and idler pulley belt guide (figure 14 or 15) 1/16 to 1/8 inch from belt and tighten.
6. Notice the brake location. For 36" mower see item D, figure 20. For 42" mower see item C, figure 21. Be sure the belt is located so that it is trapped between fixed bracket and the belt brake rod when PTO lever is placed in disengaged position.
7. Reinstall the belt covers (step 2). The covers act as belt guides. When installed, there should be clearance between covers and belt when engaged.

POWER UNIT BELTS

"V" Belt Replacement

1. Set the parking brake to provide slack in the belt.
2. Remove the screen (A, figure 22) by removing two screws at top and two screws at bottom.
3. Remove the fan (B, figure 22) by removing one screw in center. Keep washers in order for correct reassembly.

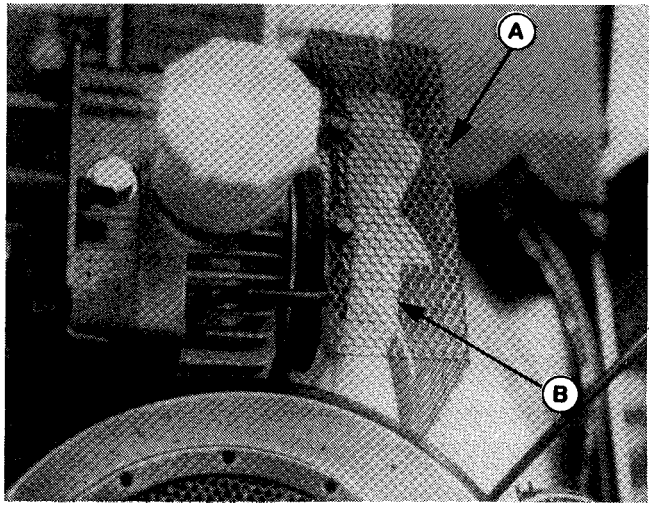


Figure 22.
A. Screen **B. Fan**

4. Slip the belt off the transmission pulley, then remove from idler pulley (C, figure 23), fixed pulley (B) and engine pulley (A). Loosen belt stops (E) as necessary.

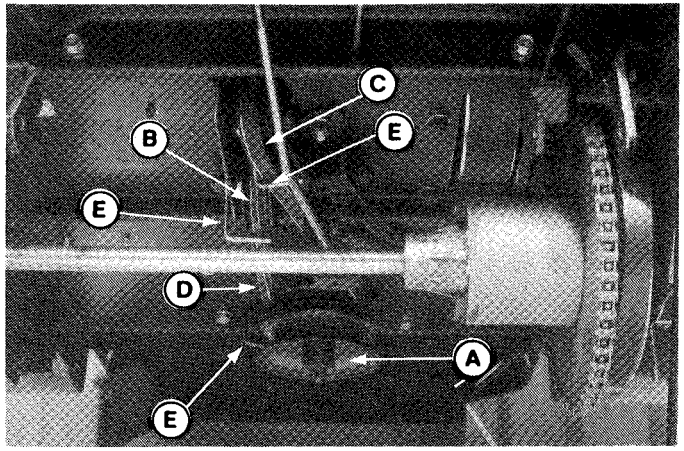


Figure 23. "V" Belt
A. Engine Pulley
B. Fixed Pulley **D. Belt**
C. Idler Pulley **E. Belt Stops**

5. Place the new belt onto the engine pulley (A, figure 24), fixed pulley (B) and idler pulley (C). Note that "V" side of belt rides in the pulleys, except flat side rides against fixed pulley (B). The belt turns 90° between engine pulley and the fixed pulley (B) and between engine pulley and idler pulley (C).

6. Pull belt up from top and place onto the transmission pulley (D, figure 24).

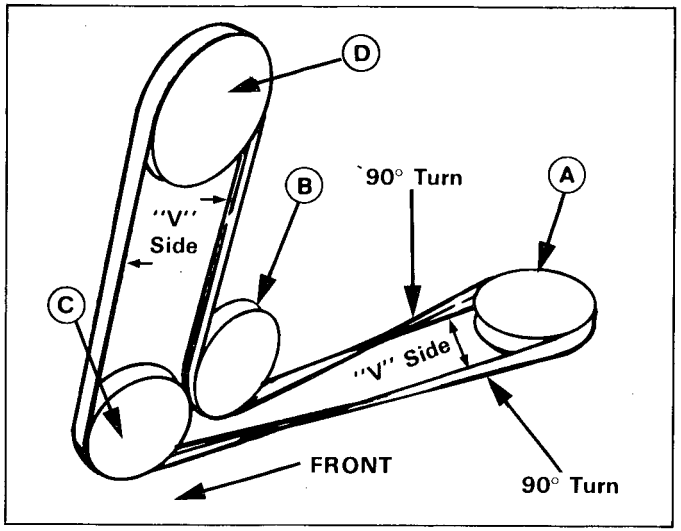


Figure 24. Belt Pattern (Seen From Left-Hand Side)

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

7. Note that a tab on inner side of fan (B, figure 22) fits into a hole when fan is installed. Install fan with original hardware.

8. Install screen (A, figure 22) with two screws at top and two screws at bottom.

9. Release parking brake to check belt stop adjustment. There should be 1/16 to 1/8 inch clearance between belt and belt stops. Three belt stops (E) are shown in figure 23. Also check belt stop (A, figure 25) at transmission pulley. To adjust, loosen mounting hardware, position belt stop, and then tighten hardware.

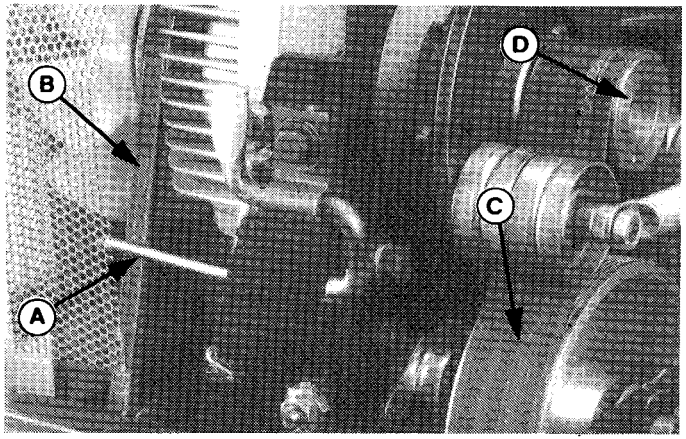


Figure 25. Intermediate Belt

A. Belt Stop
B. "V" Belt
C. Intermediate Belt
D. Pulley

Intermediate Belt Replacement

The intermediate belt (C, figure 25) is designed for the life of the unit. If replacement is necessary, see your dealer.

Adjustments

SEAT ADJUSTMENT

NOTE

Some models are equipped with a latch which must be released to raise seat as shown in figure 26. Push down on back of seat to release. Be sure the latch bar locks in place after lowering seat.

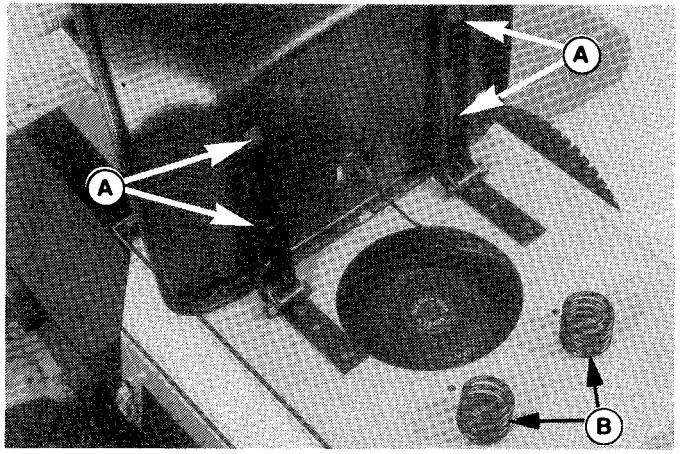


Figure 26. Seat Adjustment

A. Screws
B. Springs

1. The seat can be moved forward or back for operator comfort. Loosen the four screws (A, figure 26) and move the seat to the desired position. Tighten the screws.
2. The springs (B) can be moved to forward holes for lighter operator. Pull up out of holes to relocate springs.

MOWER LEVELING

WARNING

During leveling check, remove ignition key, then remove spark plug wire and fasten it away from the spark plug.

NOTE

If the cut is uneven, the mower may need leveling. Unequal or improper tire pressure may also cause an uneven cut.

1. Park the rider on a level surface. Check measurements with mower belt engaged.
2. Make sure that the mower does not rock from side-to-side. All four leveling bolts (A, figure 27) should bear weight from spacers (E).

3. Turn the blades side-to-side, and measure from outside tips of blade to ground. If there is more than 1/8 inch difference, raise or lower one side of the mower. To do this, turn in, or out, the leveling bolt at front (A, figure 27) and the leveling bolt at rear bracket (B). Be sure to turn both bolts the same number of turns. Recheck the measurement, then go to step 4 to check front-to-back leveling.

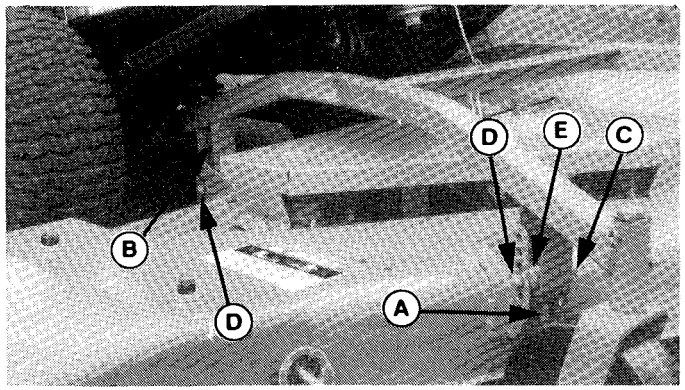


Figure 27. Mower Leveling
A. Leveling Bolt, Right Front
B. Bracket, Rear
C. Clips
D. Pins
E. Spacer

4. Turn the blades front-to-back. Measure the distance to the ground from the front tip of the left blade, and from the rear tip of the right blade. With the operator in seat, the measurements should be within 1/8 inch. With seat empty, the rear should be 1/8 inch higher. To adjust, turn both front leveling bolts or turn both rear leveling bolts. Turn bolts in to raise or out to lower. Be sure to turn both bolts equally.

CUTTING HEIGHT

To change the cutting height of the mower, remove four clips (C, figure 27) and move pins (D) to a different hole. The pins must be in corresponding holes at all four locations so the cut will be even.

NEUTRAL ADJUSTMENT

WARNING

Keep away from moving parts when engine is running.

1. Remove the mower from the rider as described on page 15.
2. Loosen nuts (B, figure 28) on either side of guide (C). Leave 1/4" clearance on each side.

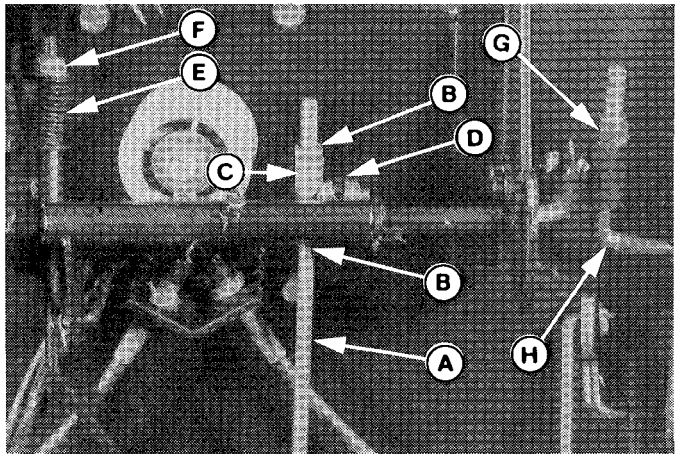


Figure 28.

A. Hydro Control Rod
B. Nuts
C. Guide
D. Bracket
E. Spring, Clutch
F. Nut, Clutch Rod
G. Nut, Brake Rod
H. Brake Rod

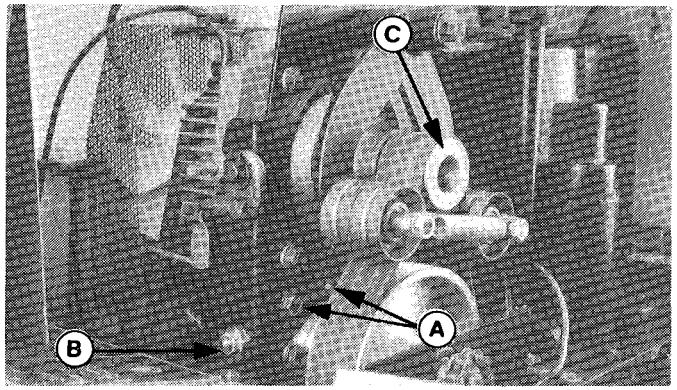


Figure 29.

A. Adjustment Screw
B. Jam Nut
C. Pulley

3. Loosen the two adjustment screws (A, figure 29).
4. Raise front tires off the ground by placing jack stands under each side of frame.
5. Start the engine. It will be necessary to place a weight in the seat.
6. Loosen the jam nut (B, figure 29). Turn the inner nut either left or right until the output pulley (C) stops turning.

7. Tighten the two adjustment screws (A, figure 29).
8. Tighten the jam nut (B, figure 29) against inner nut.
9. Shut off the engine.
10. Make sure transmission control lever is in neutral.
11. Tighten the two nuts (B, figure 28) against the guide.
12. The rider can be taken off the jackstands.

CLUTCH-BRAKE ADJUSTMENT

1. Release parking brake.
2. The clutch rod spring (E, figure 28) should measure 1-3/16″ to 1-5/16″ along the long side. To adjust, tighten or loosen the nut (F).
3. Pull the brake rod (H, figure 28) toward front as far as possible. Tighten or loosen the nut (G) to achieve a gap of 3/8 inch between rear surface of nut and the guide that rod extends through.

MOWER PTO ADJUSTMENT

1. Locate the mower PTO spring on the PTO rod. For 36″ mower, see item C, figure 20, on page 25. For 42″ mower, see item D, figure 21, on page 25. For the 42″ mower, remove left-hand belt cover, if desired, for ease of access.
2. When the mower PTO lever is engaged, the spring length should measure 4-3/4 inch as shown in figure 30 or 31, next page. To adjust the 36″ mower, go to step 3. To adjust 42″ mower, go to step 4.

36″ Mower

3. Disengage the mower PTO lever. Locate the two nuts on PTO rod in front of the spring. Loosen the outer nut so inner nut can be adjusted. Tighten nuts onto rod to increase measurement or back off rod to decrease. Engage PTO lever to re-check measurement. When 4-3/4″ measurement is attained with lever engaged, tighten the outer nut against the inner nut. This completes adjustment for the 36″ mower.

42″ Mower

4. Disengage the mower PTO lever. Disconnect the PTO rod by removing pin (D, figure 31). Push the PTO rod forward to expose the nuts which are inside the spring. Loosen outer nut so inner nut can be adjusted. Tighten nuts onto rod to increase measurement or back off rod to decrease. Engage PTO lever to re-check measurement. When 4-3/4″ measurement is attained with lever engaged, tighten the outer nut against the inner nut. Go to step 5.

42″ Mower

5. Reinstall the belt covers with nuts and washers at four locations (B, figure 19) and one screw (C). Notice that channels inside covers act as belt guides. There should be clearance between covers and belt when PTO is engaged.

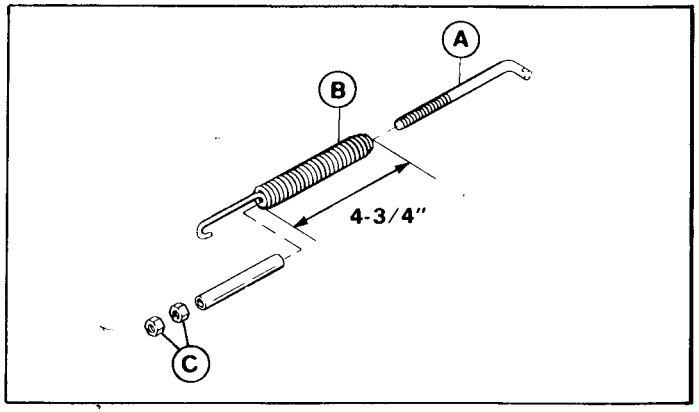


Figure 30. PTO, 36" Mower

A. PTO Rod
B. Spring
C. Nuts

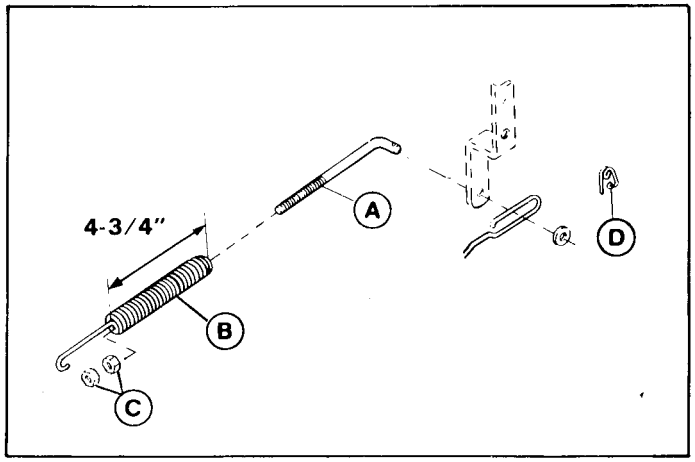


Figure 31. PTO, 42" Mower

A. PTO Rod
B. Spring
C. Nuts
D. Pin

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