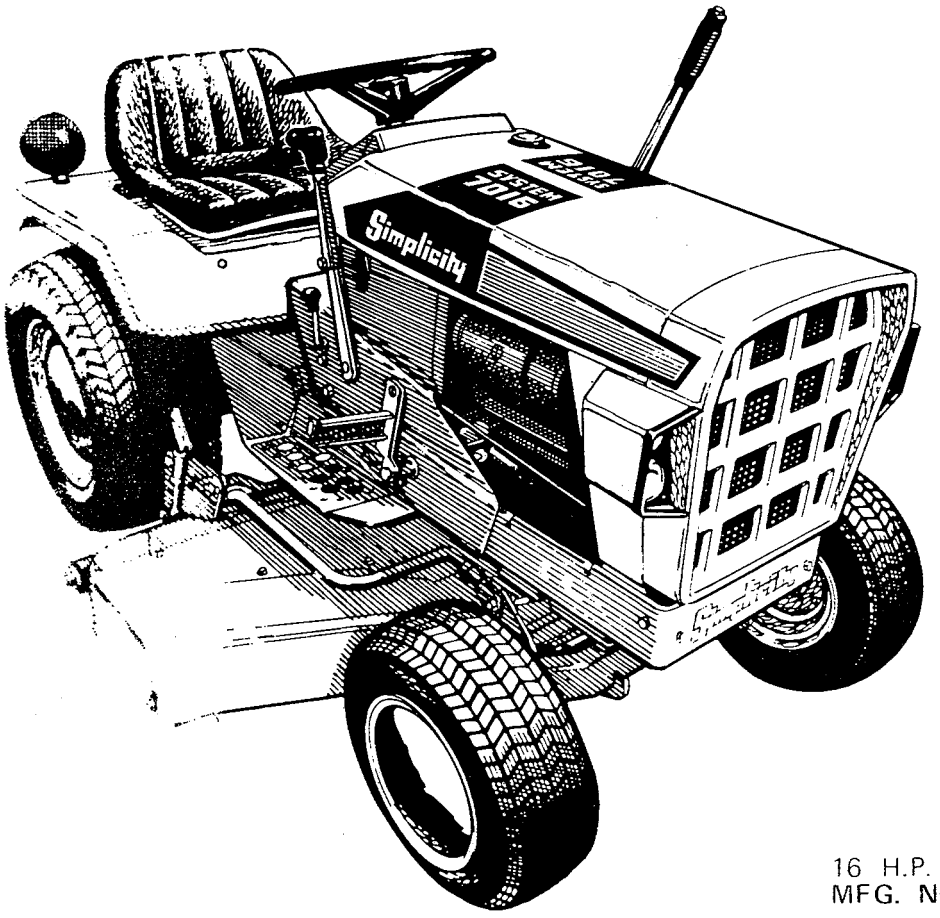
Simplicity®

OPERATOR'S MANUAL SYSTEM 7016H



16 H.P. TRACTOR
MFG. NO. 1690006

FORM – 1651654
PRINTED IN U.S.A.
757

7016H Tractor

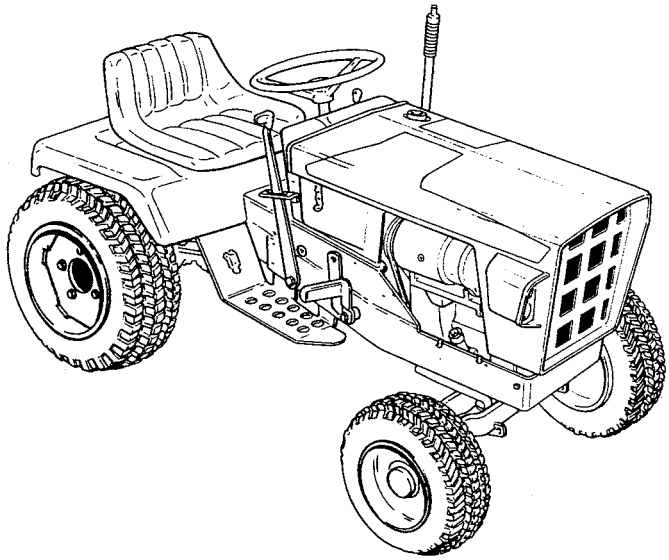


Table of Contents

Safety Rules ⚠

This notation preceding Cautions and Warnings in the text signifies important precautionary steps which, if not properly followed, could result in personal injury or damage to your equipment.

General

- Read the Operating and Service Instructions carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.
- Do not carry passengers.
- Keep the area of operation clear of all persons, particularly small children and pets.
- When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the vehicle while in operation.
- Make sure
  a. tractor and attachments are in good operating condition,
  b. all safety devices and shields are in place and in good working condition, and
  c. all adjustments, (cutting height, etc.), have been made.

Preparation

- Handle gasoline with care – it is highly flammable.
  a. Use approved gasoline container.
  b. Never remove the cap of the fuel tank or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.
- Do not run the engine indoors. Exhaust fumes are dangerous.
- Clear the work area of objects which might be picked up and thrown.
- Disengage all attachment clutches and shift into neutral before attempting to start the engine.
- Wear heavy footwear. Do not operate tractor when barefoot or when wearing open sandals or canvas shoes.

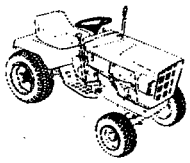
Operation

- Disengage power to attachments and stop engine before unclogging attachment chutes.
- Disengage power to attachment(s) and stop the engine before leaving the operator's position.
- Disengage power to attachment(s) and stop the engine before making any repairs or adjustments.
- 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 is running.
  c. Check the blade mounting bolts for proper tightness at frequent intervals.
- 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 on slopes and in sharp turns to prevent tipping or loss of control. Use extreme caution when changing direction on slopes.
- Stay alert for holes in the terrain and other hidden hazards. Be extra careful when operating on wet or slippery surfaces.
- 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.
- Watch out for traffic when crossing or near roadways.
- If equipment begins to vibrate abnormally – disengage power to attachments and stop engine at once. Inspect for damage and correct before starting up tractor.
- Use care when pulling loads or using heavy equipment.
  a. Use only drawbar hitch point.
  b. Limit loads to those you can safely control.
  c. Do not turn sharply. Use care when backing.
  d. Use weights when suggested in the owner's manual.
- Disengage power to attachment(s) when transporting or not in use.
- Take all possible precautions when leaving the vehicle unattended, such as disengaging the power take-off, lowering the attachment(s), shifting into neutral, setting the parking brake, stopping the engine, and removing the key.
- Keep the vehicle and attachments in good operating condition, and keep safety devices in place.

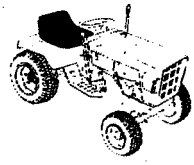
Maintenance and Storage

- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Do not change the engine governor settings or overspeed the engine.
- To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
- 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.

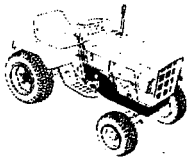
Owner Benefits



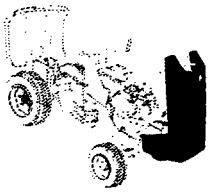
Easy steering – the all-gear steering system is designed to give reliable, fast steering for excellent maneuverability and trouble free long life. The short turning radius allows you to work around tight corners and in confined areas.



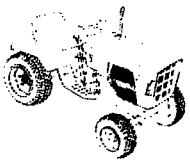
Adjustable 4-position leatherette bonded foam seat assures comfortable, smooth ride.



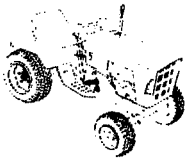
Heavy gauge electrically welded frame of sturdy channel construction takes on rugged jobs with dependable long life operation.



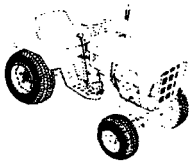
Forward tilting hood and grille makes engine compartment easily accessible for repairs and maintenance. Rearward tilting seats provides easy access to drive train.



Dependable, rugged 16 HP synchro balanced engine with mechanical governor assures smooth engine performance under varying load conditions.



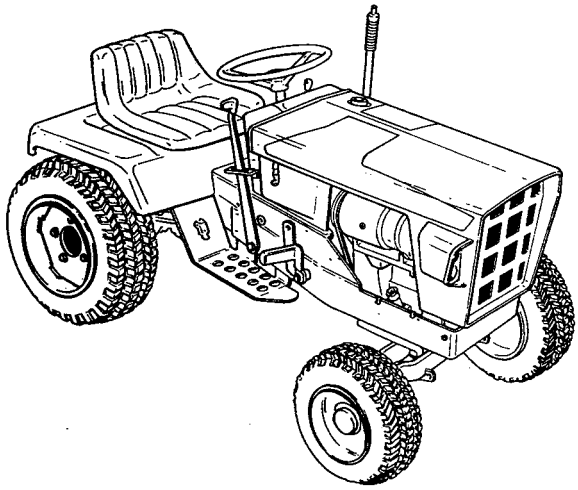
Combined clutch and brake pedal insures safe starting and stopping with easy rocker action.



Large wide tires give comfortable ride and protect most sensitive lawns.

Conveniently located parking brake keeps tractor still when tractor is unattended.

Dash-mounted operating controls are easily accessible and provide quick finger-tip operator response.



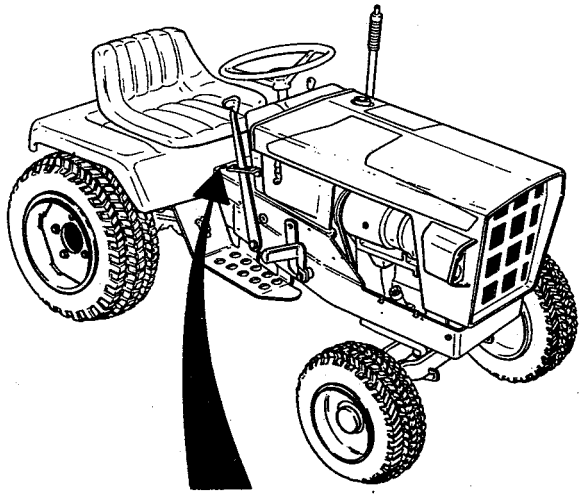
Fast starting under most extreme weather conditions assured with heavy duty 12-volt electric starter and generator with 45 ampere, automotive-rated battery. Ammeter included as standard equipment.

Hydrostatic transaxle permits selection of any speed from a slow crawl to the maximum in both forward and reverse directions.

Limited slip differential permits traction even when one of the wheels is on a slippery surface.

Tractor Identification

When ordering replacement parts for your Simplicity tractor, be prepared to give your dealer the identification numbers found on the tractor and engine identification plates shown below. The identification plate for the tractor is located on the frame in front of the tractor seat. The identification plate for the engine is located on the left side of the engine blower housing. We suggest that you locate the numbers and record them below for easy reference.

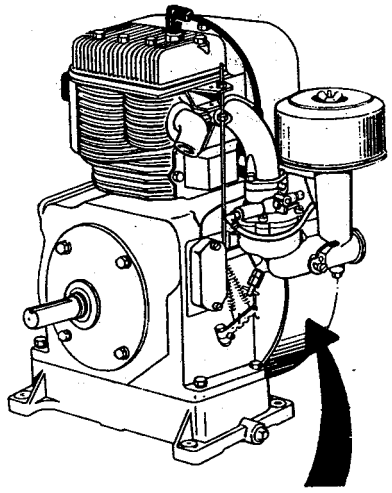


SIMPLICITY MANUFACTURING CO., INC.
PORT WASHINGTON, WIS., U.S.A.

Refer to i.d. no. when
writing or ordering parts.

I.D. No. _____

TRACTOR IDENTIFICATION PLATE



MODEL	TYPE	CODE

ENGINE IDENTIFICATION PLATE

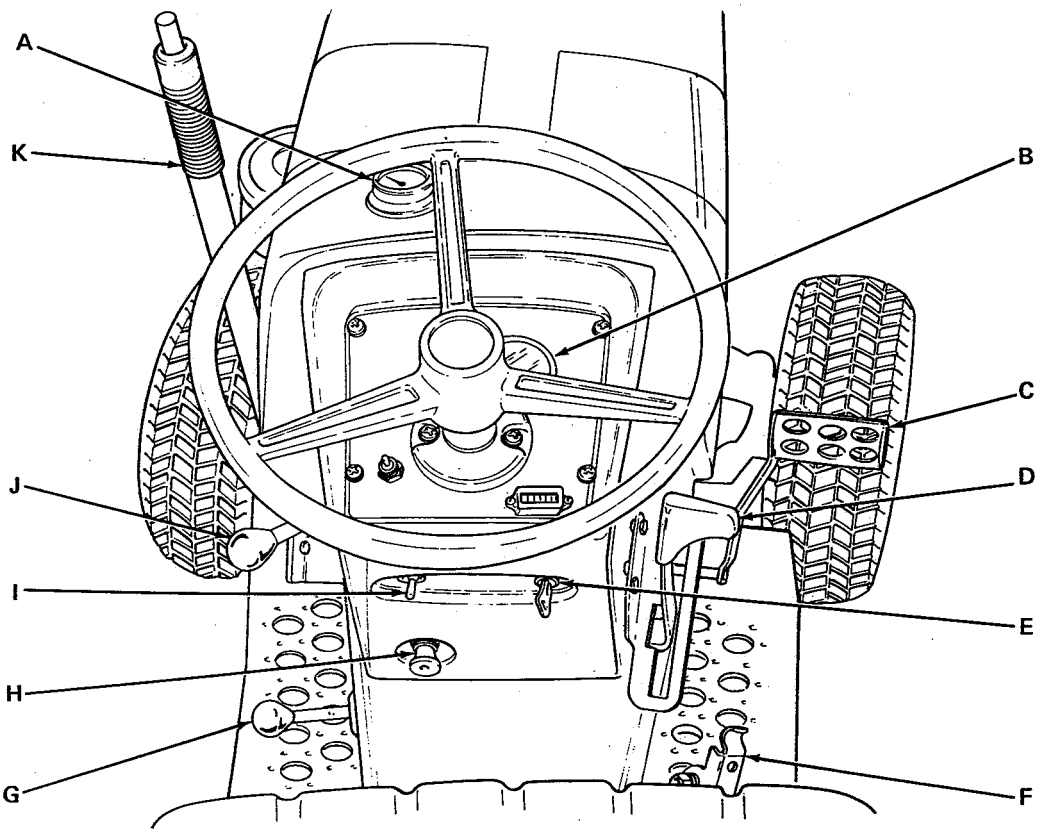
Operation

CONTENT OF SECTION

This section begins with a brief description of the tractor controls, followed by the basic tractor operating procedures.

TRACTOR CONTROLS

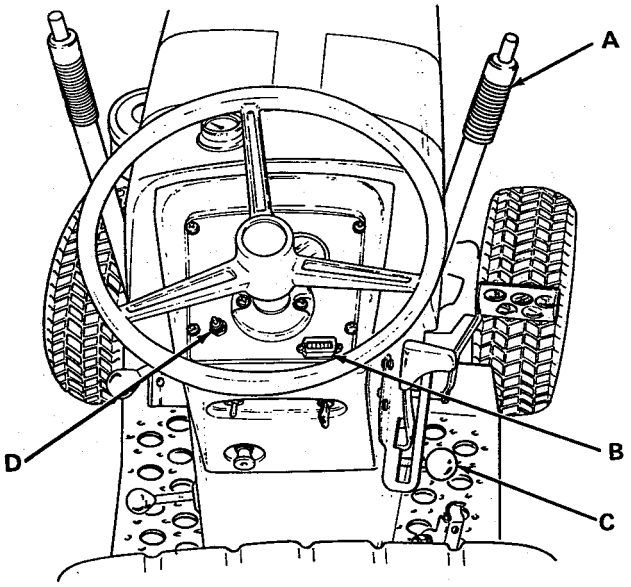
Figure 1 shows the location, name, and function of each of the standard tractor controls. Figure 2 gives the same information for optional controls.



Item	Name	Function
A	Fuel Gauge	Shows fuel level and serves as cap for fuel tank fill pipe.
B	Ammeter	Shows when battery is being charged or discharged.
C	Clutch-Brake Pedal	Controls both main clutch and brake. Disengages clutch when pressed down at least halfway. Applies brake when fully depressed.
D	Transmission Control Lever	Varies amount and direction of fluid flow in hydrostatic transmission to control speed and direction of tractor motion.
E	Ignition Switch	Operates with key to start, run, or turn off engine.
F	Parking Brake Lever	Locks brake to hold tractor in parked position.

Item	Name	Function
G	PTO (Power Take Off) Clutch Lever	Operates clutch for power driven attachments. Used to turn center and rear mounted attachments on and off.
H	Choke Control	When pulled out, closes engine choke for starting and warmup in cold weather.
I	Light Switch	Switches tractor headlights on or off.
J	Engine Speed Control	Operates engine throttle to adjust engine speed.
K	Lift Lever	Lifts and locks attachments such as the rotary mower in transport position. Pushbutton atop lever opens lock to lower attachment to work position.

Figure 1. Location and Function of Standard Tractor Controls



Item	Name	Function
A	Dual Lift Lever	Provides lift control for front-mounted attachments. Used with standard lift lever (item K, figure 1) to provide separate control for two attachments at same time.
B	Hourmeter	Provides easy method of keeping record of tractor operating hours to insure regular care.
C	Front PTO (Power Take Off) Lever	Operates clutch for snow thrower attachment. Used to turn this front mounted attachment on and off.
D	Power Lift Switch	Controls optional electrically operated power lift. When this control is present, the lift lever (item K, figure 1) is removed. The ratchet portion of the lift lever, however, will still be present and can be used as a height indicator.

Figure 2. Location and Function of Optional Tractor Controls

OPERATING PROCEDURES

The remainder of this section contains tractor operating procedures. The procedures assume that the tractor is working properly. If the tractor fails to perform satisfactorily during operation, refer to the troubleshooting procedures in the Troubleshooting Section of this manual.

The procedures in this section have been arranged in the normal sequence of operations commencing with "Checks before Starting" through "Operating with Attachments". The arrangement of these procedures is intended primarily to acquaint you as the operator with the fundamental operating procedures to insure the safe, efficient operation of your tractor. It is recommended that when operating the tractor for the first time that you proceed through the following operational checks in sequence:

- Location and Function of Controls
- Checks Before Starting
- Stopping the Tractor
- Starting the Engine
- Starting Tractor into Motion
- Before Leaving the Tractor

NOTE

When driving the tractor for the first time, start off slowly and drive only on level ground. Get the feel of starting, stopping, and starting again. Then increase speed by adjusting transmission control lever and the engine speed control.

Before commencing any operations it is essential that you review and become completely familiar with the Safety Rules on page 2.

After you have become familiar with all of the above procedures you should be ready to operate the attachments. Refer to the paragraph in this section titled "Operating with Attachments", the attachment operation chart (figure 26), and the appropriate manual for the attachment.

Checks Before Starting

The checks below should be performed before starting the engine for the first time. Repeat these checks each time you use the tractor to insure that it is ready for use.

1. Refer to Normal Care Section of this manual to determine and perform needed care.
2. Seat yourself on the tractor. Try operating some of the controls to see if the seat position

fits you. If not, see the seat adjustment procedure in the Adjustments Section of this manual.

3. Check the fuel gauge. Be sure there is enough fuel in the tank to complete task. If you need more fuel, fill the tank as follows:

⚠ 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 overfilling and wipe up any spills.

a. Remove fuel gauge cap as shown in figure 3.

b. Fill fuel tank completely with clean, fresh, leaded or nonleaded regular grade gasoline.

c. Install and hand tighten fuel gauge cap.

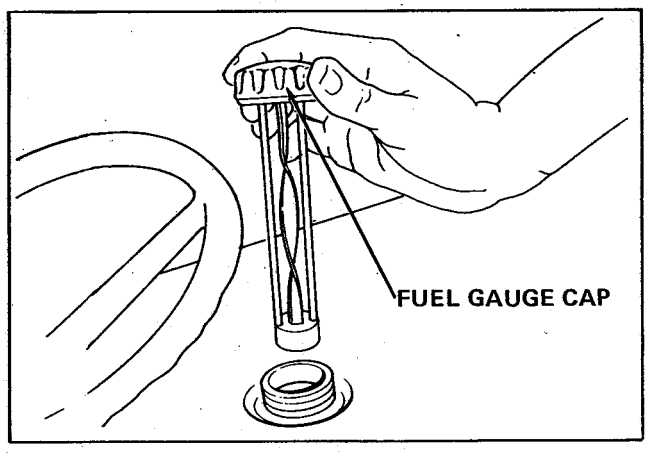


Figure 3. Remove Fuel Gauge Cap

Stopping the Tractor

In most cases, the tractor can be stopped by simply returning the transmission control lever to the neutral notch position. The clutch-brake pedal can also be used to stop the tractor. For a gradual stop on level ground, press the pedal down only far enough to disengage the clutch. For a more rapid stop, press the pedal down further to also apply the brake.

Try to avoid sudden stops on hills. Also avoid using the brake to control downhill speed. Select a low transmission control lever setting and a slow engine speed before starting downhill.

Moving the Tractor without Engine Power

Normally, the hydrostatic transmission will prevent tractor movement by pushing. To push the tractor, it is necessary to push the free wheeling latch down. (See figure 4.) To again engage the transmission, the free wheeling latch must be pulled up and locked.

⚠ CAUTION

Towing the tractor at speeds faster than a normal walking speed or for all but the shortest distances will cause transmission damage. To avoid these problems, never use another vehicle to push or pull the tractor.

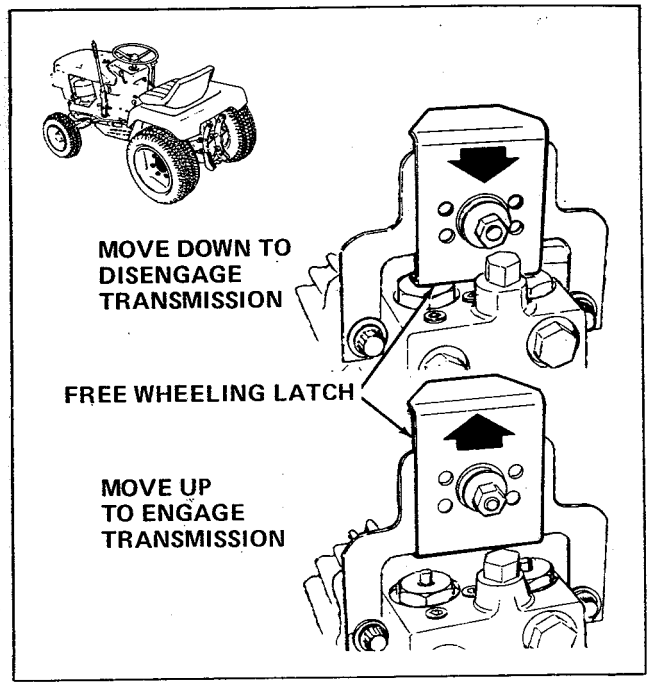


Figure 4. Free Wheeling Latch

Starting the Engine

Complete the "Checks Before Starting" procedures. Then proceed as follows:

⚠ WARNING

Do not start or run engine in an enclosed area. Open doors if in garage — exhaust fumes are dangerous.

1. Seat yourself on the tractor.
2. Set parking brake by lifting parking brake lever up and back until it rests against fender.
3. Pull choke control out fully. When engine is warm, it may not be necessary to choke engine.
4. Set engine speed control midway between SLOW and FAST. For cold weather starting, set engine speed control to SLOW for easier starting.

5. Pull PTO clutch lever up and fully back to disengage PTO clutch.
6. Put transmission control lever in neutral notch position.
7. Press clutch-brake pedal down to disengage clutch. Keep clutch disengaged until engine starts.

⚠ WARNING

Transmission control lever must be in neutral and PTO lever in fully disengaged position before the engine will start.

8. Insert key in ignition switch and turn it to START. The electric starter motor should run. If not, repeat steps 5 and 6.
9. When the engine starts, release the key. It will return to the ON position for normal running.
10. Move engine speed control to SLOW position.
11. As engine warms up, push in choke control.
12. Warm up engine by running it for at least one minute before engaging PTO clutch or driving tractor.

Starting Tractor into Motion

This procedure describes how to safely start the tractor into motion after starting the engine.

1. Rotate steering wheel to straighten front wheels. Whenever possible, the first motion should be straight forward or backward.
2. Set engine control for 1/3 to 1/2 speed.
3. Release parking brake.
4. Verify that path in desired direction of movement is clear.
5. Slowly release clutch-brake pedal to engage clutch.
6. Move transmission control lever from neutral notch position. Push it slowly forward to move forward or pull it slowly backward to move in reverse.
7. Adjust transmission control lever and engine speed control for desired speed.

Operating with Attachments

This paragraph describes a general procedure for tractor operation with attachments.

1. Insure that attachment is properly installed and ready for use. Refer to attachment manual for details.
2. Start engine.
3. Pull lift lever back to raise attachment.
4. Start tractor into motion and proceed to work site.
5. At work site, move transmission control lever to neutral notch to bring tractor to complete stop.
6. Unlock lift lever and lower attachment. To unlock lift lever, pull lever back slightly before pressing lock release pushbutton on top of lever.
7. Clear work site of any objects that might be thrown by or get caught in attachment.
8. Set engine speed control for 3/4 speed.
9. Verify that attachment discharge is not directed toward people or pets.
10. If PTO is being used, push PTO clutch lever completely forward and down to engage attachment.
11. Adjust engine speed control to setting best suited to attachment operation. Refer to attachment operation chart (figure 26).
12. Start tractor into motion.
13. Adjust transmission control lever to produce best tractor speed for operation of attachment.

NOTE

Complete remaining steps to return machine to storage.

14. Disengage PTO, and stop tractor motion by moving transmission control lever to neutral position.
15. Raise attachment to travel position.
16. Resume tractor motion to return to storage site.

Before Leaving Tractor

To prevent accidents, perform steps below before leaving tractor seat.

1. Disengage PTO and stop tractor motion by moving transmission control lever to neutral notch.
2. Set engine control to SLOW.

⚠ CAUTION

Stopping a hot engine too suddenly can cause engine damage. Move engine control to SLOW and idle engine for about one minute before stopping engine.

3. Set parking brake.
4. Lower attachments.
5. Turn ignition key to OFF and remove key.

Normal Care

CONTENT OF SECTION

Your tractor was designed and built to provide years of service with only minor care. Certain tasks however, must be performed to keep the tractor in good operating condition and to avoid costly repairs. This section describes and provides procedures for the necessary care of the tractor. To service an attachment, refer to the separate manual for that attachment.

SCHEDULED CARE

A schedule for routine care is provided in figure 5. We suggest that you check these items to insure that the tractor is ready for use. Performing the checks will also help you to become familiar with the care of the tractor.

All other scheduled care is performed after operating the tractor for a specific amount of time. See figures 6 through 14. Remember to perform the "every 25-hour check" when you perform the "every 100-hour check."

Because the schedule is based on operating time, it will be necessary to determine or estimate the actual operating time. This is easily accomplished if your tractor is equipped with an optional hour meter. If not, you can determine normal times for regular jobs such as cutting your lawn. Multiply these normal times by the number of times you perform the jobs to estimate total operating time.

A Maintenance Record (figure 28) is provided to help you document all operating hours and maintenance repair actions.

NORMAL STORAGE

To protect your tractor, store it in an enclosed dry area. Do not store it in an enclosure where fumes from the fuel tank could reach an open flame without first draining the fuel tank.

To store your tractor in a cold area between winter snow removal jobs, we suggest that you fill the fuel tank at the completion of each job to prevent water condensation in the fuel tank.

If you do not intend to use your tractor during the winter months, follow the off-season storage instructions given in the paragraph below.

OFF-SEASON STORAGE

When the tractor is to be stored for two months or longer, take precautions as follows:

NOTE

Fuel may be stored in the tank or in a container for longer periods if a gasoline stabilizer is used. This additive, available from your dealer, prevents formations of gum and varnish for up to one year.

1. Drain fuel tank if stabilizer is not used. This can be done by removing the fuel hose at the engine and draining the hose into a container.

Care Required	See Figure	Schedule				
		Before First Use	Every 5 Hours	** Every 25 Hours	Every 100 Hours or Annually	*** Spring and Fall
Check Tractor and Engine	6	•	•			
Clean Engine and Air Filter	7			•		
Change Engine Oil*	8			•		•
Lubricate Tractor	9	•		•		
Check Fluid Levels and Tire Pressure	10	•		•		
Check Transmission Fluid	11	•			•	
Clean Battery and Cables	12				•	
Clean or Replace Spark Plug and Fuel Filter	13				•	
Repack Front Wheel Bearings	14				•	

* *Change original engine oil after first 5 hours of operation.
** *More often in hot (over 70° F) weather or dusty operating conditions.
*** *Only if tractor is used in both summer (over 40° F) and winter (under 40° F).

Figure 5. Summary of Scheduled Care

2. After reconnecting fuel hose, run engine until it stops.
3. Change engine oil while the engine is still warm. (See figure 8.)
4. Remove spark plug. Pour one ounce of 10W-30 oil into engine through spark plug hole. Crank engine a few times to distribute oil and then reinstall the spark plug.
5. Lubricate tractor. (See figure 9.)

⚠ WARNING

Batteries contain a strong acid. Use care to prevent accidental spills of the acid.

6. Check battery fluid level. (See figure 10.) Battery life will be increased if it is removed and stored in a cold, dry place and fully charged about once a month.
7. Block machine up off the wheels to remove weight and keep tires off a damp floor. Protect tires from prolonged exposure to sunlight.
8. At end of storage period, follow instructions in the "Starting after Storage" paragraph which follows.

STARTING AFTER STORAGE

Before starting the tractor after a period of off-season storage, perform the following:

1. Remove tractor from blocks.
2. Remove spark plug and wipe dry. Crank engine a few times to blow excess oil out of plug hole. Then reinstall the plug.
3. Fill fuel tank with fresh gasoline (unless a fuel stabilizer was used).
4. Clean engine fins and air filter. (See figure 7.)
5. Check fluid levels and tire pressure. (See figures 10 and 11.)
6. If it was removed, install battery. (See figure 12.)
7. Start the engine outdoors or in a well ventilated area. Do not run engine at high speeds immediately after starting.

1. Check tractor and engine for loose bolts, oil leaks, etc.
2. Check/add engine crankcase oil.

NOTE

Tractor should be level.

A. Remove oil dipstick.

B. Wipe dipstick dry.

C. Reinstall dipstick finger tight.

D. Remove dipstick and check oil level. Add oil until full. **Do not overfill.** Use same weight and grade of oil used at last change. If changing oil see figure 8 for proper grade and weight of oil recommended.

E. Install and tighten oil dipstick.

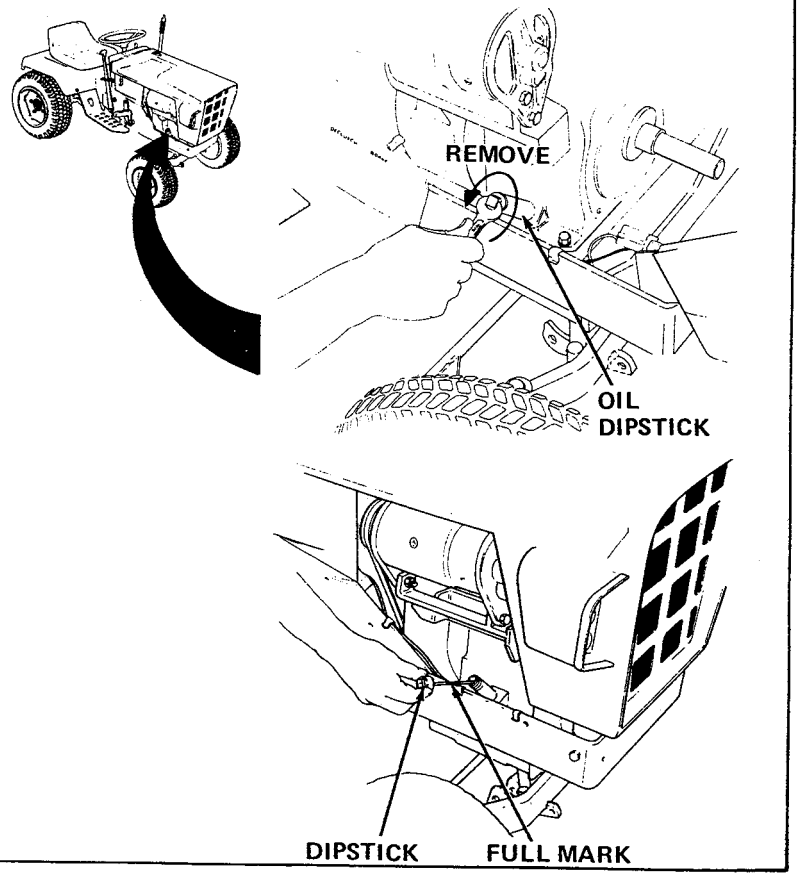
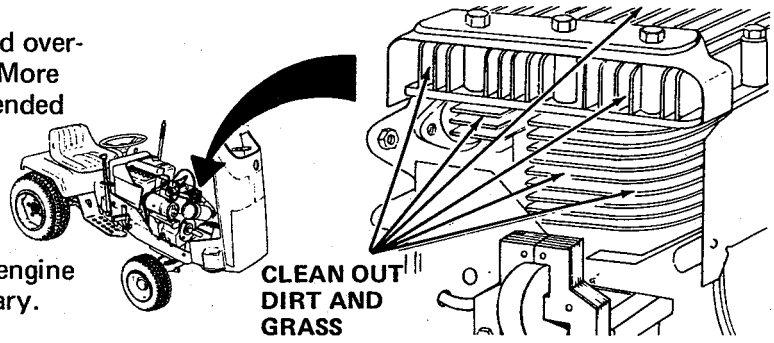


Figure 6. Check Tractor and Engine (5-Hour Care)

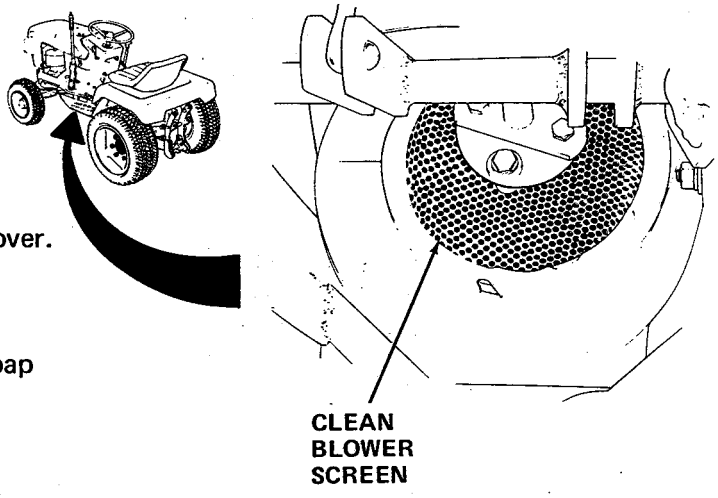
⚠ CAUTION

Cleaning is important to avoid overheating and engine damage. More frequent cleaning is recommended after operation in dusty or muddy conditions or after cutting dry grass.



1. Clean all dirt and grass from engine fins. Remove cover as necessary.

2. Clean engine blower screen.



3. Clean engine air filter.

   A. Remove upper wing nut and cover.

   B. Remove foam sleeve.

   C. Wash foam with kerosene or soap and water.

   D. Dry foam.

   E. Soak foam with lightweight oil; squeeze several times to spread oil evenly and to remove excess.

   F. Yearly or every 100 operating hours, whichever occurs first, remove and clean paper cartridge. Clean by tapping gently on flat surface. If very dirty, replace cartridge, or wash in liquid detergent and water. Rinse until water remains clear. Cartridge must be air dried thoroughly before using.

   G. Install foam, cover, and upper wing nut.

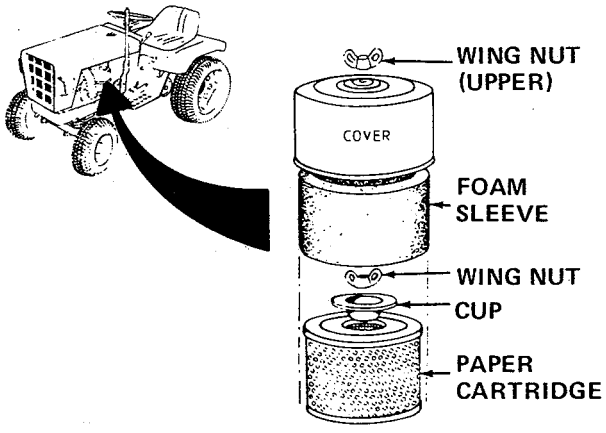
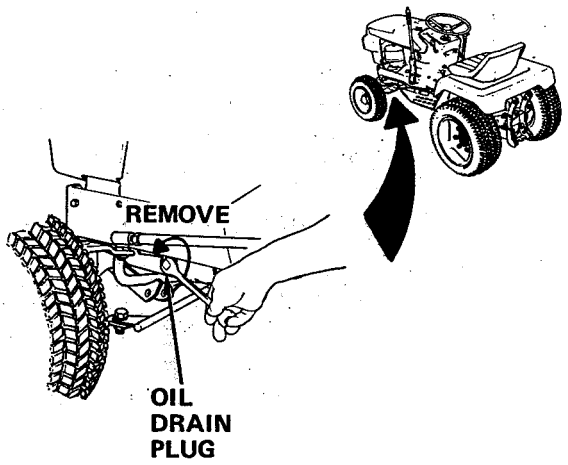


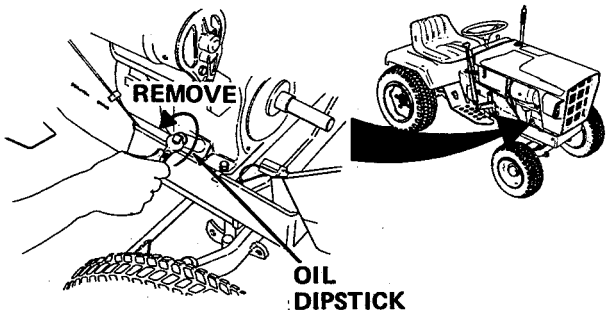
Figure 7. Clean Engine and Air Filter (25-Hour Care); or as required.

NOTE

Change oil while engine is still warm from operation.



1. Remove drain plug.
2. Drain old oil.
3. Install and tighten drain plug.

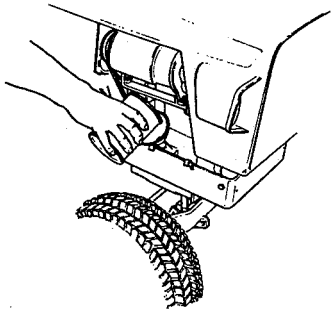


4. Remove oil dipstick.

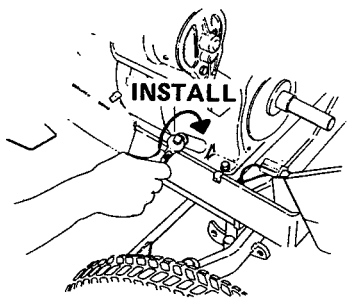
⚠ CAUTION

To avoid engine damage, use only high quality detergent oil of the correct grade and weight. The grade (service) marking on the can may be MS, SE, SC, or SD. The correct weight varies with the season as follows:

Summer	Winter
(Above 40° F) Use SAE 30, or SAE 10W-30.	(Between 0 & 40° F) Use SAE 5W-20 or SAE 5W-30.
	(Below 0° F) Use SAE 10W or SAE 10W-30 diluted 10% with kerosene.

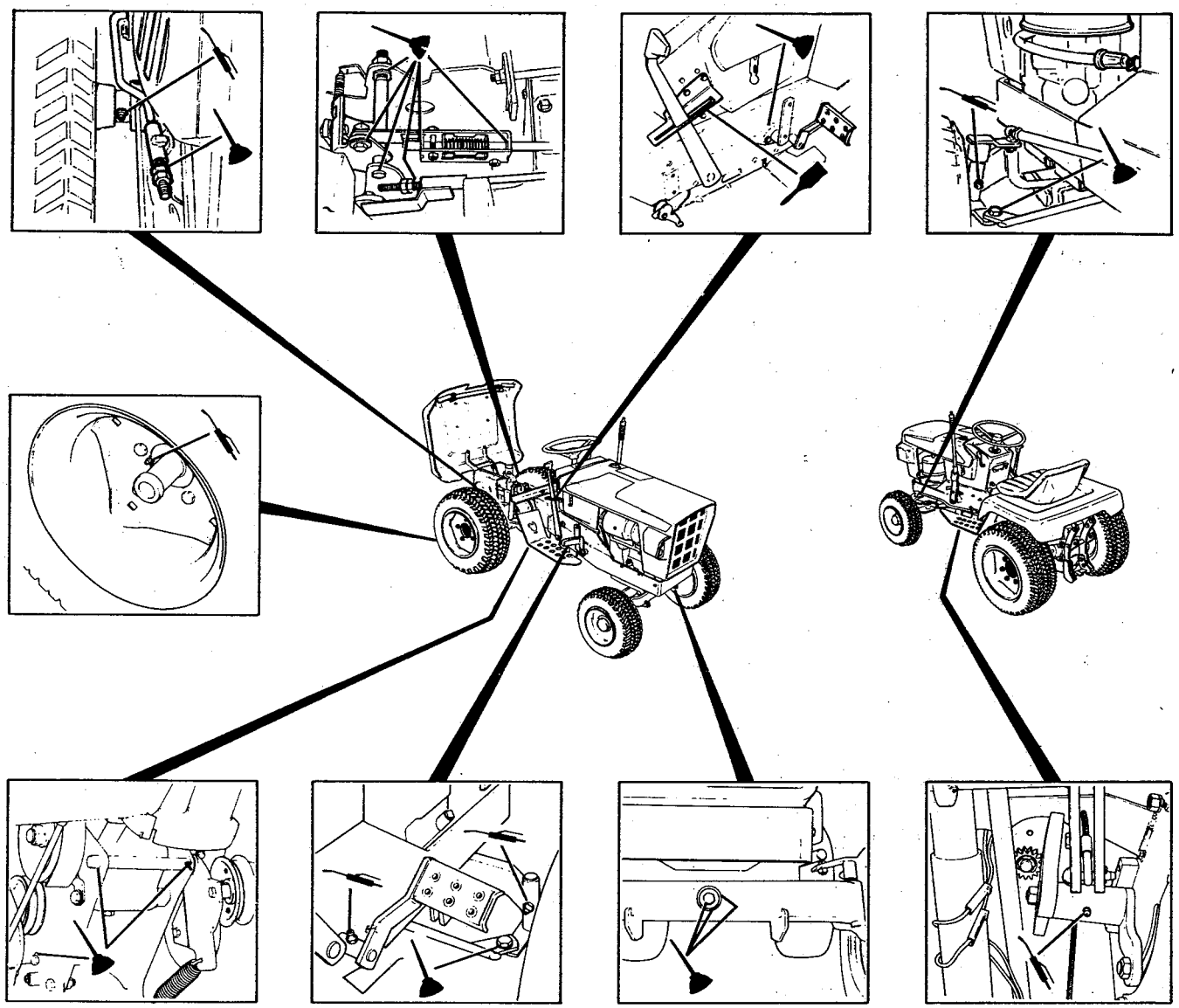


5. Add new oil until level reaches full mark on dipstick. Remember to install dipstick finger tight during checks. Pour slowly and check often with dipstick. Capacity is about 2 quarts.



6. Install and tighten oil dipstick.

Figure 8. Change Engine Oil (25-Hour Care)



NOTE

Keep grease and oil off belts and pulleys.

Symbol	Use	Apply With	Procedure
	Lithium base automotive grease	Grease gun	1. Wipe fitting clean with rag. 2. Apply 2 or 3 shots of grease. 3. Wipe up any excess grease.
	Medium weight (SAE 30) oil	Oil can	1. Brush and wipe dirt and grass from area. 2. Apply a few drops of oil. 3. Wipe up any drips or spills.
	Lithium base automotive grease	Brush	1. Wipe area clean of old grease and dirt. 2. Apply thin film of grease with hand or brush.

Figure 9. Lubricate Tractor (25-Hour Care)

NOTE

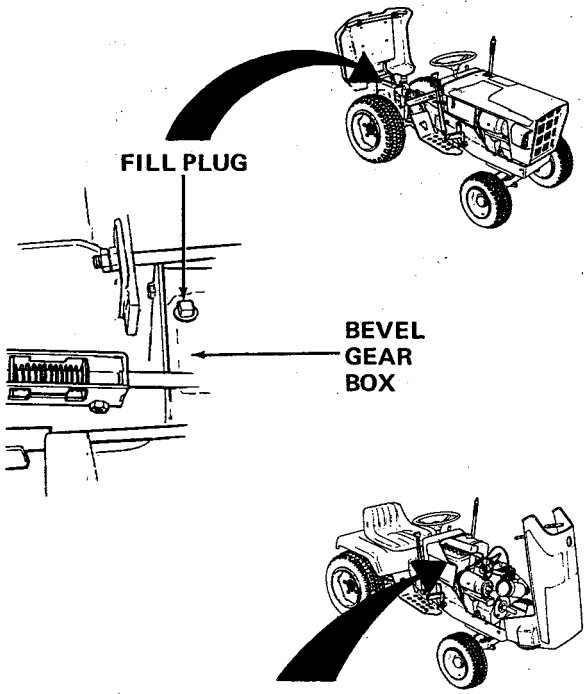
Allow 10 minutes after operation before checking bevel gear box fluid level.

1. Check bevel gear box fluid level.

   A. Remove fill plug.

   B. Fluid should touch tip of fill plug when plug is loosely installed in hole. If not, add SAE 90 weight transmission fluid.

   C. Install and tighten fill plug.

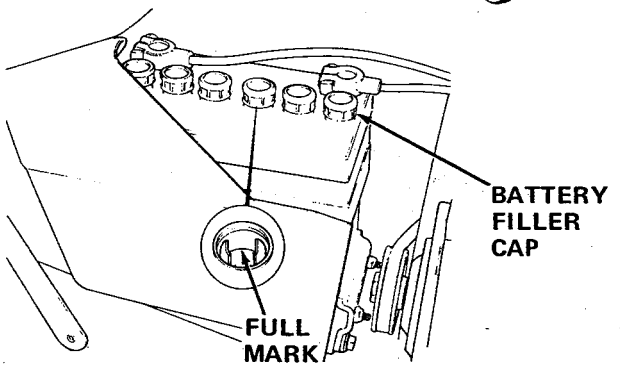


2. Check battery fluid level.

   A. Remove filler caps, one at a time.

   B. Fluid must be even with split ring full mark. If not, add distilled water to refill.

   C. Install filler caps.



3. Check air pressure of all four tires.

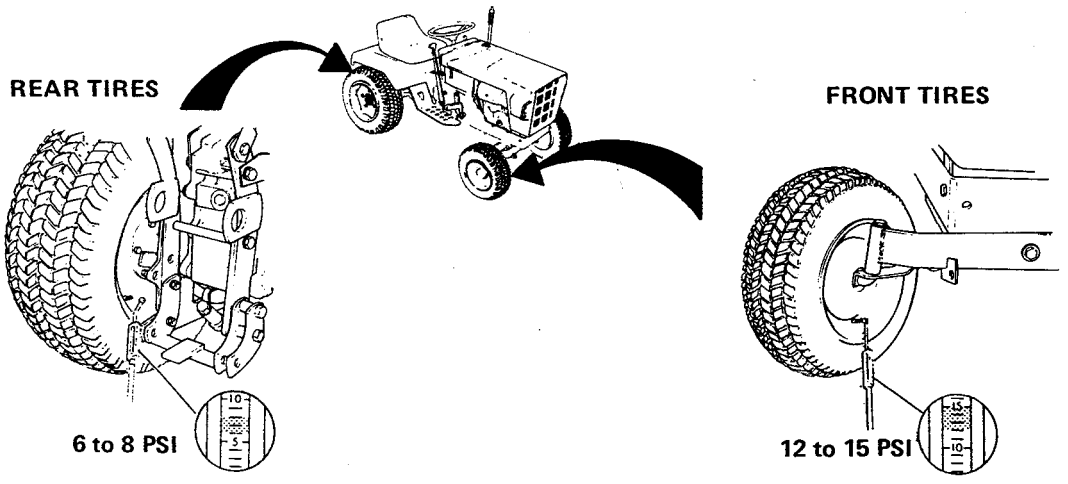


Figure 10. Check Fluid Levels and Tire Pressures (25-Hour Care)

1. Move free wheeling latch down.
2. Start the tractor engine.
3. Wipe transmission filler cap and pipe clean.
4. Remove transmission filler cap.
5. Lift and hold relief valve open.

NOTE

Fluid must be checked and added only when engine is running and relief valve is open. If installed, rear PTO belt must be removed to add fluid.

6. Fluid should be visible in filler cap pipe. If not, add Dexron II or Type F automatic transmission fluid.
7. Release relief valve.
8. Install and secure filler cap.
9. Stop engine.
10. Raise and lock free wheeling latch.

NOTE

A transmission fluid filter is visible from the bottom of the tractor. Replace this filter every 400 hours of operation or whenever changing transmission fluid. Be especially careful when changing the filter that no dirt or other contaminant is allowed to enter the system.

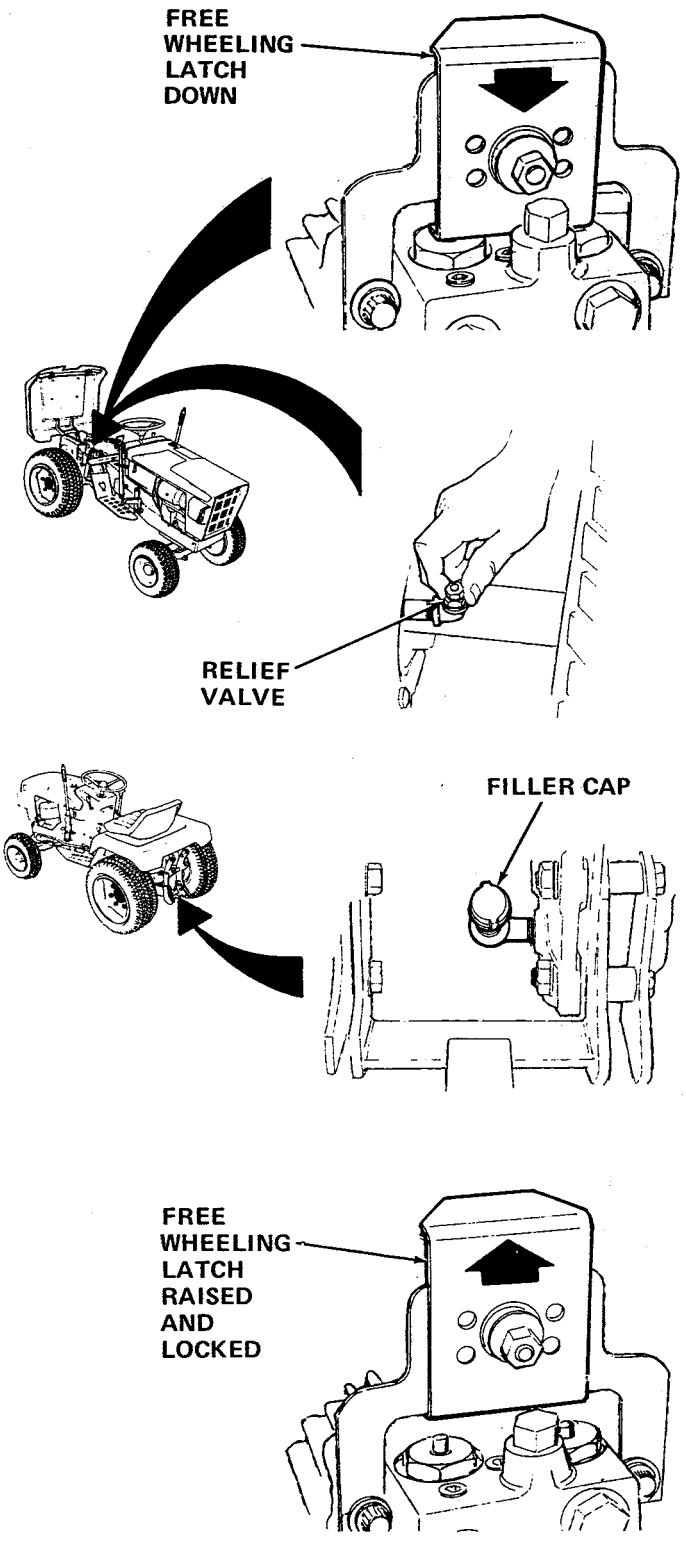


Figure 11. Check Transmission Fluid (100-Hour Care)

⚠ CAUTION

The positive battery terminal can be easily shorted to the tractor frame by a wrench or other tool. To avoid this problem, always disconnect the negative cable first and connect it last.

⚠ 1. Remove cables, negative cable first.

2. Loosen battery clamp.

3. Remove battery.

4. Scrub battery, cables, and battery compartment. Use baking soda and water.

5. Clean terminals and cable clamps with wire brush.

6. Install battery and tighten battery clamp.

⚠ 7. Install cables, positive cable first.

8. Coat cable clamps and terminals with grease or vaseline.

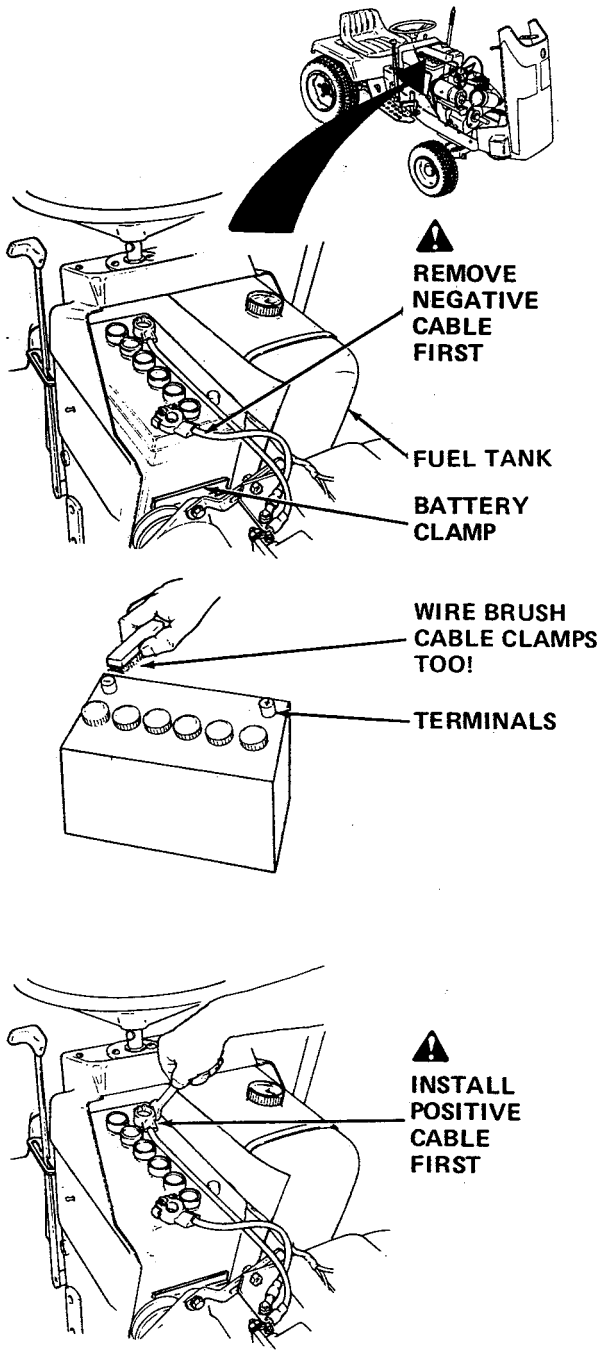


Figure 12. Clean Battery and Cables (100-Hour Care)

1. Clean or replace spark plug.

   A. Remove spark plug.

   ⚠ CAUTION

   Do not clean spark plug by sand-blasting; sand or grit that remains on plug may damage engine.

   B. Clean spark plug. If plug shows signs of defects, it should be replaced with a new plug.

   C. Set gap at .030 inch.

   D. Install spark plug in engine and reconnect wire.

2. Clean or replace fuel filter.

   ⚠ WARNING

   Do not remove fuel filter while engine is hot. Gasoline spills will occur. For your safety, review safety rules for handling of gasoline. Do not spread hose clamps further than necessary. Insure clamps grip hoses firmly over filter during installation.

   A. Using pliers, open and slide hose clamps from fuel filter.

   B. Remove hoses from fuel filter.

   C. To clean old filter, wash in solvent. Blow out any residue with air hose in opposite direction of fuel flow.

   D. Install new or cleaned filter in hoses. Secure by reclamping with hose clamps.

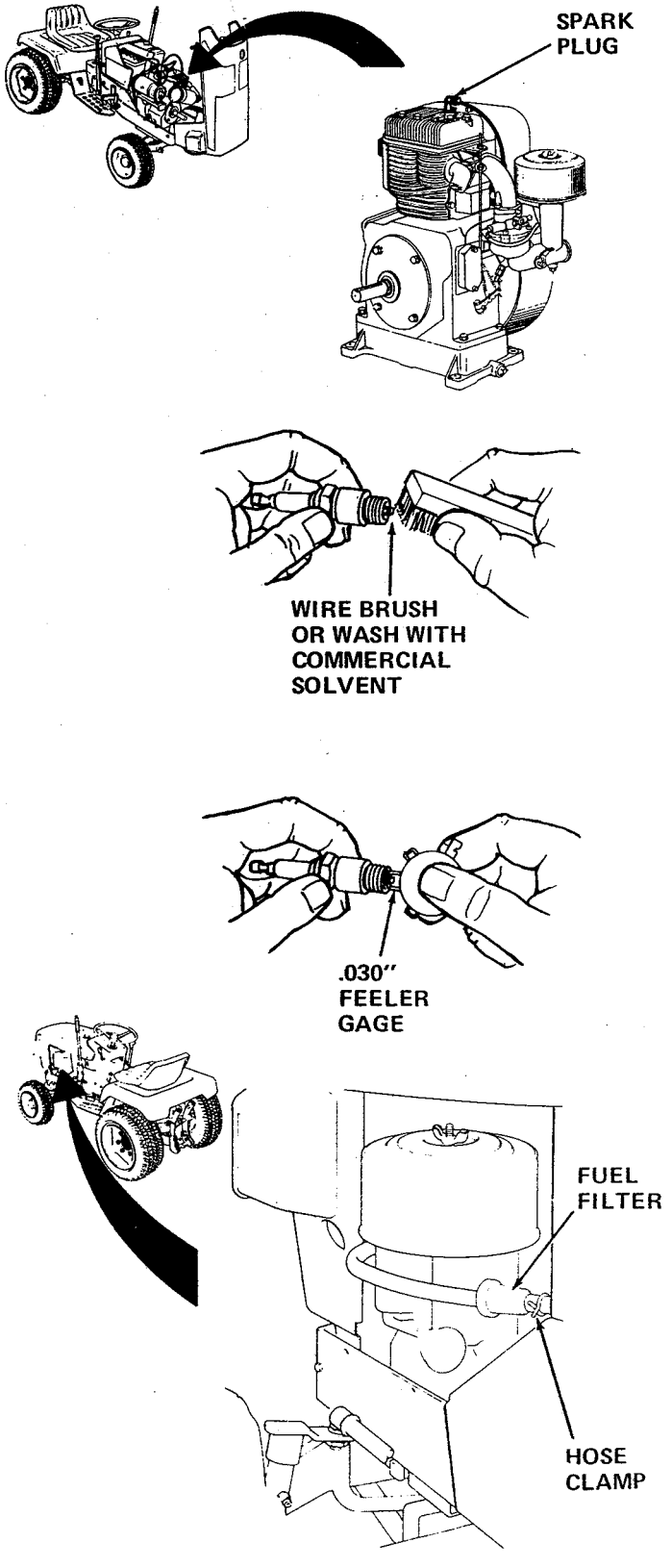


Figure 13. Clean or Replace Spark Plug and Fuel Filter (100-Hour Care)

1. Block or jack up front of tractor for wheel removal.

2. Pry off grease cup with a screwdriver or a claw hammer.

3. Loosen collar setscrew using an Allen wrench.

4. Remove collar, washer and outer bearing.

NOTE

Keep the two bearings separated. Each should be put back in its original place.

5. Remove wheel and inner bearing.

6. Wash wheel shaft, bearings and internal part of wheel. Use a solvent and remove all old grease. Wipe dry.

7. Inspect seal. If seal is damaged, replace it.

NOTE

Use only a prime quality wheel bearing grease. Keep grease clean and free of dirt.

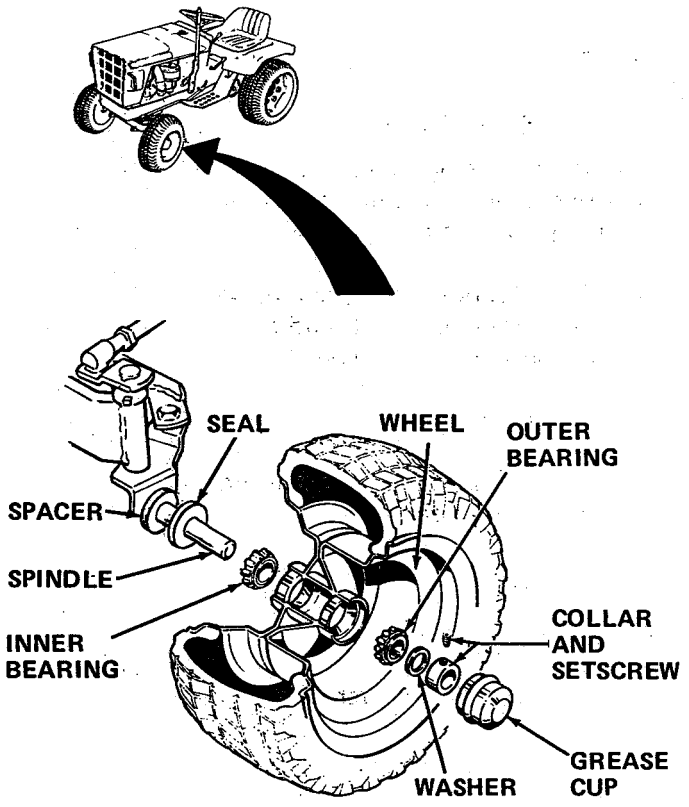
8. Coat seal and spindle with grease.

9. Lubricate bearings completely with grease. Use hand to force grease and fill spaces between bearing rollers.

10. Install inner bearing and wheel on axle.

11. Install outer bearing, washer and collar.

12. Press collar towards tractor and spin wheel slowly to seat bearings.



13. When wheel and bearings are seated and against seal, hold collar and tighten setscrew securely.

14. Test seating by attempting to wobble wheel. If wobble is more than just evident, loosen setscrew and repeat steps 13 and 14.

15. Replace grease cup and wipe up any excess grease.

16. Repeat entire procedure for other wheel.

Figure 14. Repack Front Wheel Bearings (100-Hour Care)

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

To avoid serious injury, perform maintenance on the tractor only when the engine is stopped. Always remove the ignition key before beginning the maintenance to prevent accidental starting of the engine.

TROUBLESHOOTING PROCEDURES

Troubleshooting procedures are provided in figure 15. To use these procedures, first locate the problem description that best describes the trouble that you have encountered. Check the possible causes one at a time in the order that they are listed. Correct any problems that are found and operate the tractor again to verify that you have eliminated the trouble.

Problem	Cause
1. Starter motor does not run.	A. Transmission control lever not in neutral position.
	B. PTO clutch lever(s) not in disengaged position.
	C. Circuit breaker tripped. Wait one minute for automatic reset. Replace, if defective.
	D. Wiring loose or broken. Visually check wiring and replace broken or frayed wires; tighten loose connections.
	E. Battery terminals are corroded and require cleaning.
	F. Battery discharged or dead. Charge or replace as necessary.
	G. Starter motor generator defective.
2. Starter runs, but engine will not start.	A. Out of fuel. Refill fuel tank.
	B. Engine flooded. Push in choke and attempt to start.
	C. Crankcase oil too heavy. If so, replace oil per specifications in figure 8.
	D. Spark plug faulty, fouled, or poorly gapped.
	E. Water in fuel. Drain fuel and refill with fresh fuel.
	F. Old stale gas. Drain fuel and replace with fresh fuel.
	G. Starter-generator belt loose and requires adjustment.
	H. Points worn or out of adjustment.
3. Engine starts hard or runs poorly.	A. Fuel mixture too rich. Push in choke all the way. Clean air filter.
	B. Carburetor adjusted incorrectly.
	C. Spark plug or points faulty, fouled, or poorly gapped.
	D. Water in fuel. Tank, lines and filter must be drained and dried.

Figure 15. Troubleshooting Procedures (Sheet 1 of 2)

Problem	Cause
4. Engine knocks.	A. Low oil level. Check/add oil as required. B. Using wrong grade of oil. C. Engine worn, needs maintenance.
5. Excessive oil consumption.	A. Engine running too hot. Clean engine fins and blower screen. B. Using wrong weight of oil. C. Too much oil in crankcase.
6. Engine exhaust is black or smoky.	A. Dirty air filter. Clean air filter. B. Choke not fully open. Push in choke completely and be sure it opens fully; check carburetor adjustment.
7. Tractor creeps forward or backward with transmission control in neutral notch position.	A. Transmission neutral setting requires adjustment.
8. Engine runs, but tractor will not drive or lacks power.	A. Free wheeling latch pushed down. Pull latch up. B. Parking brake is engaged. C. Transmission oil cold. Allow 3 minutes for warmup. D. Transmission oil low. E. Drive belt slips. (See problem and causes below.)
9. Drive belt slips.	A. Clutch free-travel or belt tension is incorrectly adjusted. B. Pulleys or belt greasy or oily and require cleaning. C. Clutch rod binding in guide; oil clutch rod. D. Belt stretched or worn. Replace with correct belt.
10. Brake will not hold.	A. Brake (foot pedal or parking) is incorrectly adjusted. B. Brake lining is worn and requires replacement.
11. Tractor handles poorly.	A. Steering linkage is loose. Tighten any loose connections. B. Improper tire inflation. Check and correct. C. Wheels are spinning or slipping. Use weights to provide additional stability and traction. D. Moving too fast on slopes. Reduce speed. E. Steering requires lubrication.

Figure 15. Troubleshooting Procedures (Sheet 2 of 2)

Battery Replacement

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 generator 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, proceed as shown in the battery cleaning procedure (figure 12).

Adjustments

CONTENT OF SECTION

This section contains adjustment procedures for the tractor and engine. The adjustments are normally performed only to correct specific problems. Because of the need for access to perform the adjustments, procedures for raising the seat deck and hood are also included in this section.

⚠ WARNING

To avoid serious injury, perform adjustment procedures on the tractor only when the engine is stopped. Always remove the ignition key before beginning the adjustment procedures to prevent accidental starting of the engine.

Raising the Hood

The hood may be raised to the position shown in figure 16. With the hood raised, parts in the engine area are easily reached. Raise the hood as follows:

1. Pull the rubber straps (figure 16) down and away from the holddown pins.
2. Raise the hood to the position shown in figure 16.
3. When your tasks in the engine area are completed, lower the hood to its normal position. Then pull the rubber straps over the holddown pins to lock the hood in place.

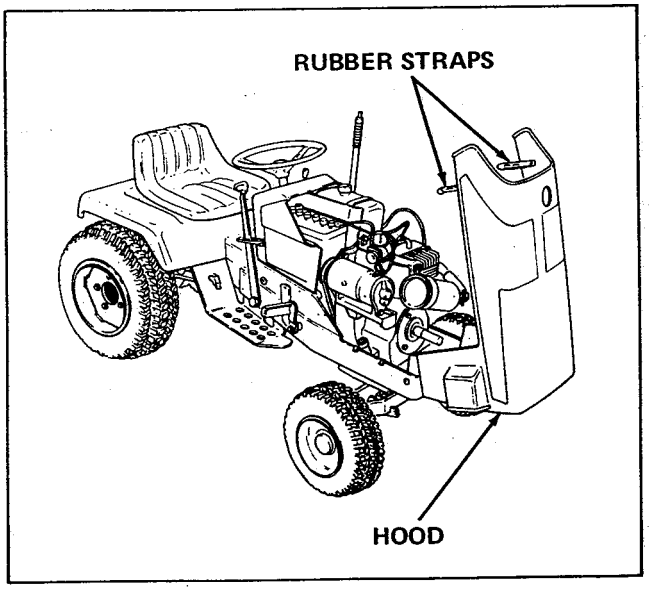


Figure 16. Raising the Hood

Raising the Seat Deck

The seat deck may be raised to the position shown in figure 17. This will expose many of the transmission and clutch-brake adjustment points. To raise the seat deck, proceed as follows:

1. Reach under the seat deck and locate the locking levers (figure 17).
2. Press upward at the tips of both locking levers and raise the seat to the upright position.
3. When you have completed your tasks, push the seat deck down again until it locks in place.

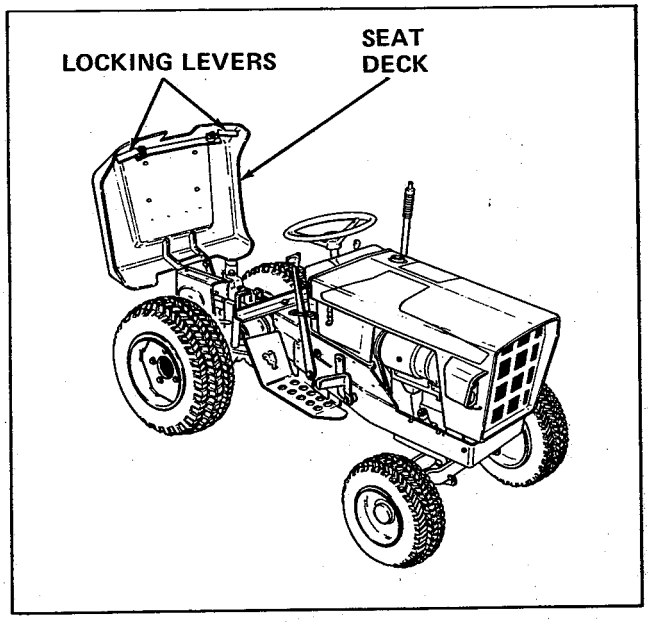


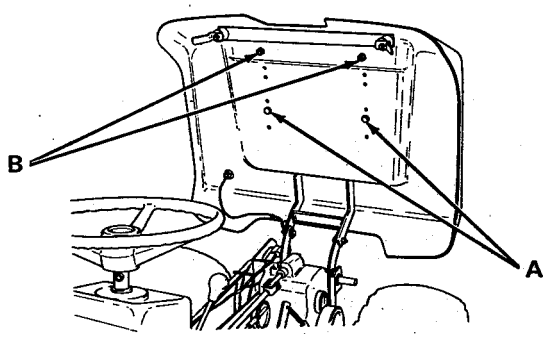
Figure 17. Raising the Seat Deck

ADJUSTMENT PROCEDURES

Seat Adjustment

The seat may be moved forward or backward to any of four different positions to suit different sized operators. To move the seat, proceed as follows:

1. Raise the seat deck.
2. Remove the two capscrews and lockwashers (item A, figure 18).
3. Remove the two nuts and lockwashers (item B).



A. Capscrew and Lockwasher (two places)
B. Nut and Lockwasher (two places)

Figure 18. Seat Adjustment

NOTE

Rubber spacers are installed over the studs held by the nuts. These spacers must be between the seat and the seat deck when using the two front sets of mounting holes. When using one of the two rear sets of mounting holes, the spacers must be under the seat deck.

4. Move the seat to the desired set of mounting holes.
5. Install and tighten the lockwashers and nuts (item B).
6. Install and tighten the lockwashers and capscrews (item A).
7. Lower and lock the seat deck in place.

Clutch Free Travel

If the main drive belt does not engage or disengage properly, the clutch free travel may be incorrectly adjusted. To check the clutch free travel, raise the seat deck. Then pull the clutch-brake pedal fully up and back and measure the gap between the nut (item D, figure 19) and the rod guide (item C). If this gap is not 3/8 inch, adjust the clutch free travel as follows:

1. Using two wrenches, turn the two nuts (items E and D) in opposite directions to separate them.
2. While holding clutch-brake pedal fully up and back, turn forward nut (item D) until gap between it and rod guide (item C) is 3/8 inch.
3. Hold forward nut (item D) still while turning rear nut (item E) until the two nuts are firmly together.
4. Lower and lock seat deck in place.

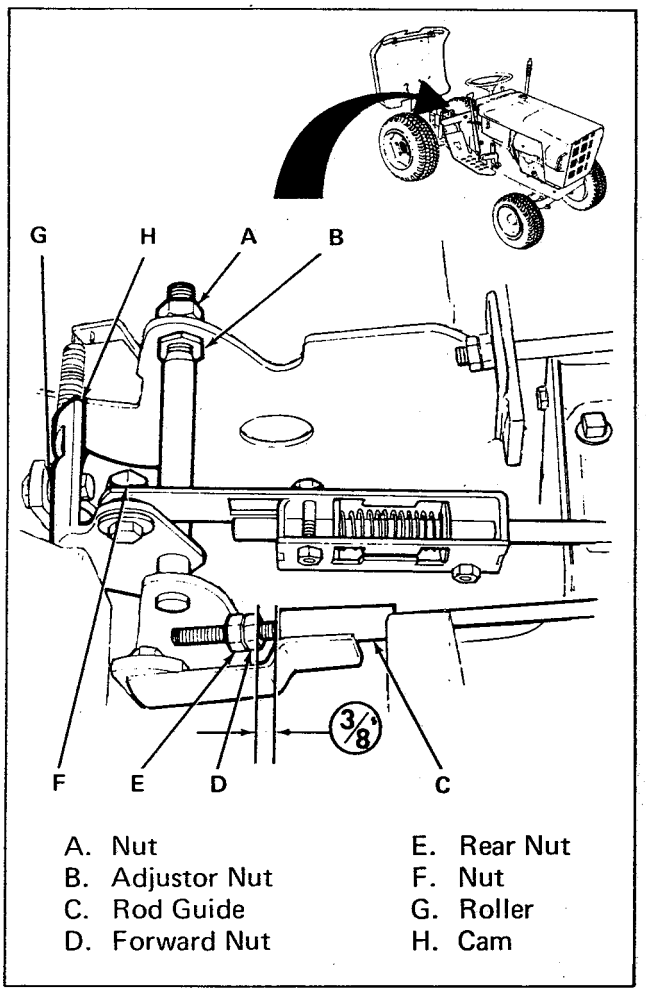
Transmission Neutral Adjustment

When the transmission control lever is in its neutral notch, the tractor should not creep (drive slowly forward or backward). If it does creep, adjust the transmission neutral as follows:

1. Shut off tractor and place transmission control lever in its neutral notch.
2. Raise seat deck.
3. Check roller (item G, figure 19). The roller should be centered on the neutral mark of the cam (item H). If it is, proceed directly to step 7. If it is not centered, continue to step 4.
4. Loosen, but do not remove, nut (item F).
5. Adjust cam (item H) to center neutral mark on roller. Then hold cam while retightening nut (item F).
6. Lower seat and start up tractor. If tractor does not creep, omit remainder of this procedure. If creep is still present, continue on to step 7.
7. Block up tractor so both rear wheels are free of ground.

⚠WARNING

Belts, pulleys and rear wheels will be in motion during remainder of the adjustment. Use care to keep hands, clothing and hair away from moving parts.



A. Nut
B. Adjustor Nut
C. Rod Guide
D. Forward Nut
E. Rear Nut
F. Nut
G. Roller
H. Cam

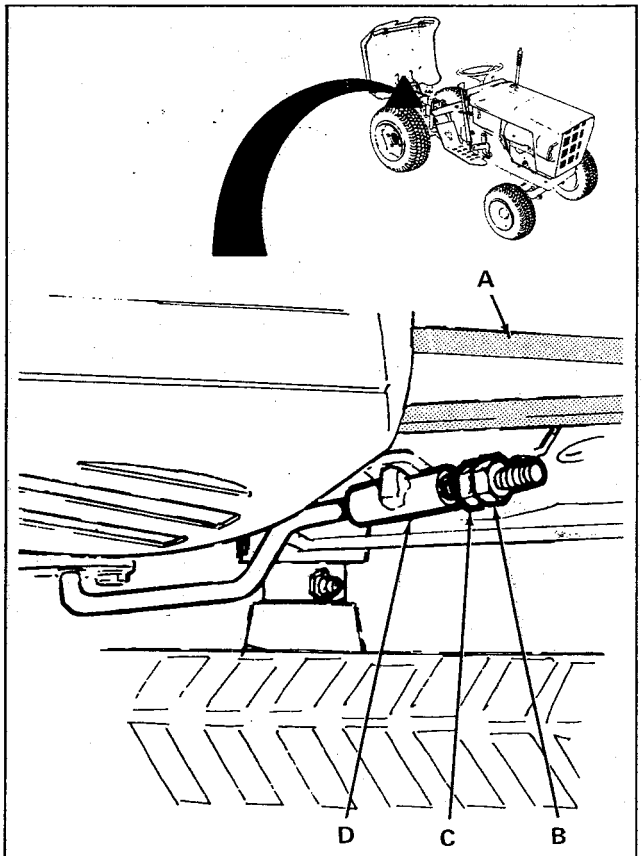
Figure 19. Clutch Free Travel and Transmission Neutral Adjustments

8. Start tractor.
9. Raise seat deck.
10. Loosen nut (item A, figure 19).
11. Turn adjuster nut (item B) in direction opposite wheel movement until creep stops.
12. Hold adjustor nut steady and tighten nut (item A) to secure adjustment.
13. Stop engine, lower tractor, and lower and lock seat deck.

Foot Pedal Brake Adjustment

The foot pedal brake may require adjustment if depressing it fully fails to stop the tractor. Perform this adjustment as follows:

1. Adjust parking brake as described in the next paragraph.
2. Set parking brake and open seat deck.
3. Turn nuts (items B and C, figure 20) in opposite directions to separate them.
4. Turn nut (item C) until gap between it and rod guide (item D) is 1/2 inch.
5. Hold rear nut (item C) while turning other nut (item B) until the two are firmly together.
6. Depress foot brake until rod guide (item D) just touches nut (item C). Drive belt (item A) should then be slack and free of idler pulley. If not, check clutch free travel adjustment. If clutch free travel is correct, brake lining is probably worn to point where it must be replaced.
7. Lower and lock seat deck.
8. Take tractor to open area and test brake. If brake does not stop tractor, return to step 2 and repeat adjustment to reduce gap in step 4 by 1/8 inch.



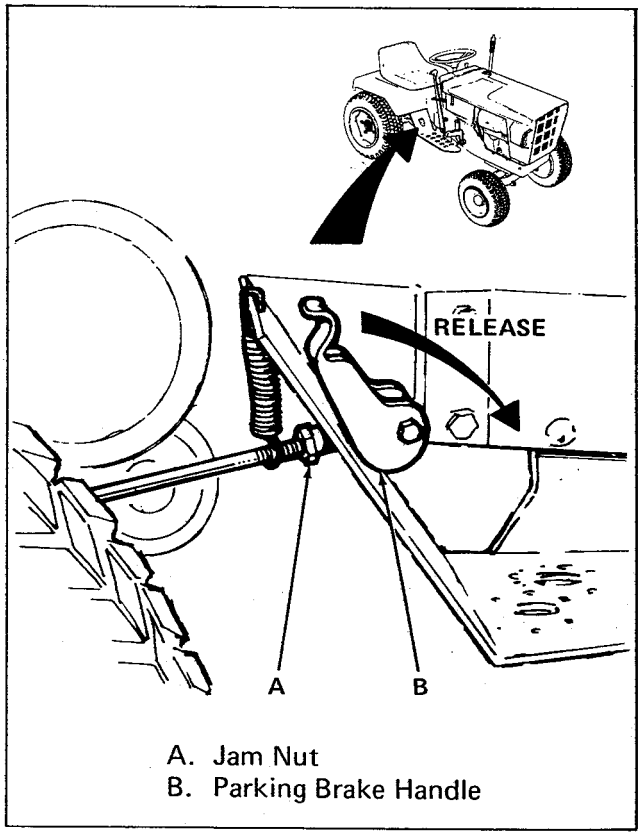
A. Drive Belt
B. Forward Nut
C. Rear Nut
D. Rod Guide

Figure 20. Foot Pedal Brake Adjustment

Parking Brake Adjustment

The parking brake should prevent the tractor from rolling when the engine is stopped. Adjust the parking brake as follows:

1. Loosen jam nut (item A, figure 21).
2. After insuring that tractor is on level ground or that wheels are blocked to prevent tractor movement, release parking brake by pushing handle (item B) down.
3. Rotate parking brake handle one complete turn in a clockwise direction to tighten brake.
4. Check adjustment by setting brake. If it is difficult to set, it is too tight. If it is too loose, return to step 2.
5. When proper adjustment has been obtained, tighten jam nut (item A).



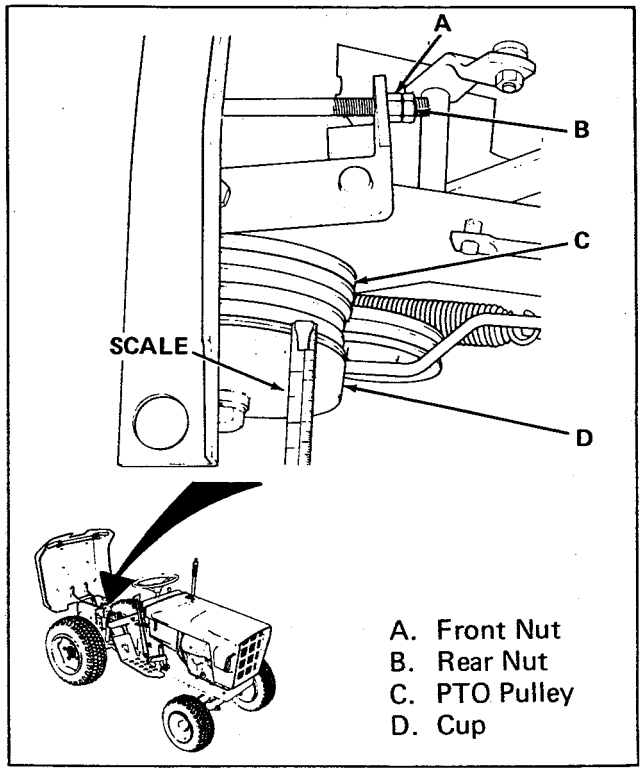
A. Jam Nut
B. Parking Brake Handle

Figure 21. Parking Brake Adjustment

PTO Clutch Adjustment

PTO clutch adjustment may be required if the clutch fails to engage or disengage a PTO driven attachment. To check the adjustment, raise the seat deck. Then observe the movement of the pulleys (item C, figure 22) in relation to the cup (item D) as the PTO clutch lever is moved from the engaged to the disengaged position. The pulley movement should be 1/8 inch. If not, adjust the PTO clutch as follows:

1. Set PTO clutch lever to engaged position.
2. Loosen the rear nut (item B).
3. Turn the front nut (item A) slightly clockwise to increase pulley travel or slightly counter-clockwise to decrease pulley travel.
4. Tighten the rear nut against the front nut and repeat the check.
5. Lower and lock the seat deck in place.



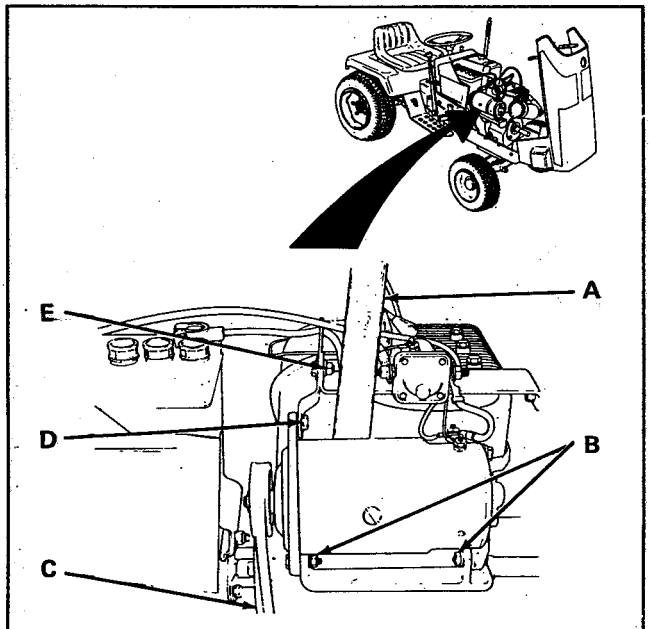
A. Front Nut
B. Rear Nut
C. PTO Pulley
D. Cup

Figure 22. PTO Clutch Adjustment

Starter-Generator Belt Adjustment

If the starter turns, but the engine does not rotate, the starter-generator belt may need tightening. Proceed as follows:

1. Raise the tractor hood.
2. Loosen, but do not remove, the two nuts (item B), the capscrew (item D) and the nut (item E).
3. Use a pry bar (item A) between the starter-generator and the engine block to apply pressure that will tighten the belt (item C). The belt should be tight enough so thumb pressure at the midpoint of the belt moves the belt about 1/4 inch.
4. While holding the pry bar to maintain belt tension, tighten the mounting nut (item E) securely.
5. Remove pry bar and try to start engine. If belt slips, loosen the nut (item E) and return to step 3 to tighten the belt further.
6. When belt is properly tightened, securely tighten the two nuts (item B) and the capscrew (item D).
7. Lower and lock hood in place.



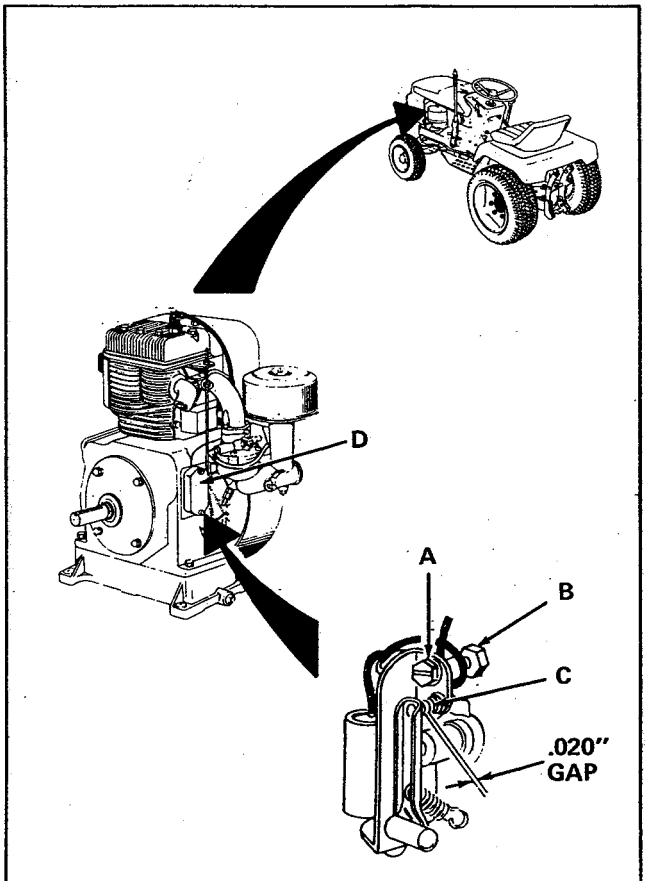
A. Pry Bar
B. Nuts (two)
C. V-Belt
D. Capscrew
E. Nut

Figure 23. Starter-Generator Belt Adjustment

Clean and Adjust Contact Points

Remove cover. Clean points (item C, figure 24) with a carborundum contact point stone. Then insert a hard finished card or piece of paper and close and open points. The paper will absorb any dirt or filings on the points. Adjust breaker points as follows:

1. Disconnect wire from spark plug.
2. Actuate starter until points open to widest gap.
3. Loosen locknut (item B).
4. Adjust screw (item A) until breaker point gap is 0.020 inch.
5. Tighten locknut (item B).
6. Reinstall cover on breaker point box. Apply sealant over wire entry point in cover (D).
7. Reconnect wire to spark plug.



A. Screw
B. Locknut
C. Points
D. Cover

Figure 24. Breaker Points (Cover Removed)

Carburetor Adjustment

The carburetor is adjusted at the factory. However, additional adjustment may be required to compensate for fuel, altitude and load changes. The adjustment procedure is given in two parts: initial adjustment and final adjustment. Perform the initial adjustment only if the engine fails to start.

Initial Adjustment. Perform the initial adjustment of the carburetor as follows:

⚠ CAUTION

Do not overtighten the needle valve (item C, figure 25). The needle valve is easily damaged when overtightened.

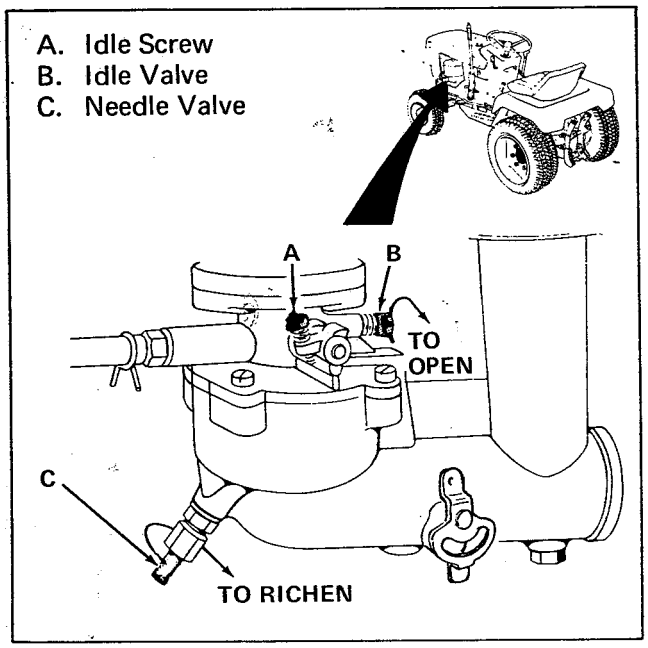


Figure 25. Carburetor Adjustment

1. Turn needle valve (item C) clockwise (in) until it just closes.
2. Open needle valve (item C) one and one-half turns counterclockwise.
3. Turn idle valve (item B) clockwise until it just closes.
4. Turn idle valve (item B) counterclockwise one-half to three-quarters of a turn.

Final Adjustment. To perform the final, fine adjustment of the carburetor, proceed as follows:

1. Start engine and allow it to warm up.
2. Set engine speed control to FAST position.
3. Turn needle valve (item C, figure 25) in (clockwise) until engine begins to miss to find lean mixture position.
4. Turn needle valve (item C) out (counterclockwise) past smooth operating point until engine runs unevenly to find rich mixture position.
5. Now turn needle valve (item C) to a point midway between the lean and rich mixture positions found in steps 3 and 4.
6. Set engine speed control to SLOW position.
7. Adjust idle screw (item A) for fast (1200 RPM) engine idle speed.
8. Turn idle valve (item B) in or out until engine idles smoothly.
9. Repeat adjustment of idle screw (item A) as described in step 7.
10. Operate engine speed control. Engine should accelerate without hesitation or sputtering. If not, readjust needle valve (item C) for slightly richer mixture.

Specifications

ENGINE	MAKE: BRIGGS AND STRATTON	MODEL NO: 326431 BORE: 3-9/16 Inches HORSEPOWER: 16 STROKE: 3-1/4 Inches CYCLES: 4 DISPLACEMENT: 32.4 Cu. In. CYLINDERS: 1 CRANKSHAFT: Horizontal
	Electrical System	Belt Driven Generator, Regulated DC Output
		12 Volt – 45 Amp. Hr. Automotive Battery
		Key Ignition Switch
		Ammeter on Instrument Panel
	Ignition	TYPE: Flywheel Magneto w/Key Switch
		Dust Proof Breaker Enclosure
	Governor	TYPE: Adjustable, Mechanical, Running in Oil
		RANGE: 1000 to 3700 R.P.M.
	Air Cleaner	Dual Dry and Oiled Foam Elements
		ELEMENTS: Reusable Polyurethane Foam and Paper
	Crankcase	BREATHER: Ventilated through Carburetor
		LUBRICATION: Gear Impeller System
		OIL CAPACITY: 2 Quarts
	Fuel Tank	MATERIAL: Non-Corrosive, Molded Synthetic Material
		Fuel Level Gauge Built into Filler Cap
		CAPACITY: 3 Gallons
	Muffler	Quiet Compact, Low Back Pressure
TRANSMISSION	Type	Hydrostatic Pump and Motor
		Air Cooled by Own Fan
	Pump	Variable Displacement Axial Type
	Motor	Fixed Displacement Reversible Axial Type
	Hydraulic Fluid	TYPE: Type F Automatic Transmission Fluid or Dexron II
		RESERVOIR: Final Drive Gear Case, 3 Quart Capacity
		FILTER: Cartridge Type with 25 Micron Rating
	Control	Spring Dampened Single Lever
		Neutral Detent with Safety Start Switch
		Free Wheeling Valve and Latch for Manual Tractor Movement
	Speed Range at 3600 R.P.M. Engine Speed	Continuously Variable, Forward or Reverse, without Clutching or Shifting
		FORWARD: 0 to 7 MPH
		REVERSE: 0 to 4 MPH
	Final Drive	Hardened Spur Gears
		Rolling Contact Bearings
	Differential	All Gear, Controlled Traction Type
CHASSIS	Frame	Channel, Electrically Welded, Heavy Gauge Steel
		POWER TAKE-OFF POINTS: Front, Center and Rear
		ENGINE MOUNTING: Above Front Axle
		PIVOT POINT LOCATION: At Front Axle
	Rear Wheels	PNEUMATIC INFLATION PRESSURE: 6 to 8 P.S.I.
		TIRE SIZE: 23 x 10.5-12 Terra-Tread (Tubeless)

CHASSIS (Cont'd.)	Front Wheels	PNEUMATIC INFLATION PRESSURE: 12 to 15 P.S.I.	
		TIRE SIZE: 16 x 6.50-8	
	Accessibility	Hood Tips Forward	
		Seat Deck Tips Rearward	
	Seat	TYPE: Molded – Foam	
		COVER: Black Vinyl	
		POSITIONS: 4	
	Turning Radius	INSIDE REAR TIRE: 30-1/2 Inches	
CONTROLS	Steering	Full Circle Steering Wheel	
		SYSTEM: 4.14-to-1 Ratio, Gear and Sector	
	Clutch-Brake Pedal	LOCATION: Right Front	
		CLUTCH: Soft Action, Touch-O-Matic V-Belt	
		BRAKE: External Band Type	
		Parking Brake Lock Standard Equipment	
	Location	IMPLEMENT LIFT LEVER: Left Side	
		POWER TAKE-OFF CLUTCH LEVER: Left Side	
		TRANSMISSION CONTROL LEVER: Right Side	
		Ignition Key Switch	On Instrument Panel
		Light Switch	
		Throttle Lever	
		Choke Control	
		Ammeter	
		PARKING BRAKE LOCK: Lower right of Seat	
DIMENSIONS	Overall Length	67 Inches	
	Overall Width	37-1/2 Inches	
	Height	TO TOP OF ENGINE COVER: 35-1/2 Inches	
		TO TOP OF STEERING WHEEL: 39-1/4 Inches	
	Wheel Base	48.1 Inches	
	Approximate Weight	775 Pounds	
TUNE-UP DATA	Spark Plug Type (*) indicates type for areas subject to radio noise limitations.	AC: CS-45 (short) or GC-46 (long)	
		Autolite: A7N (short) or A71 (long) or AR7N (*)	
		Champion: CJ-8 (short) or J-8 (long) or RCJ-8 (*)	
	Spark Plug Gap	.030 Inch	
	Ignition Point Gap	.020 Inch	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Accessories

There are many optional accessories available for your Simplicity tractor through your Simplicity dealer. They will make your tractor perform better, or easier to operate when using various attachments. See your Simplicity dealer if you wish to purchase any of the following:

WHEEL WEIGHTS – REAR

REAR LIGHT KIT

POWER LIFT KIT

DUAL LIFT LEVER

REAR LIFT KIT

ENGINE WINTERIZING KIT

TIRE CHAINS

HOUR METER

REAR BALL HITCH

HUB CAPS

Attachments

To make your Simplicity tractor most useful to you, a complete line of attachments is available through your Simplicity dealer. Contact him if you wish to purchase any of the following:

42" & 48" ROTARY MOWERS

P.T.O. VACUUM COLLECTOR

42" & 48" VACUUM COLLECTOR ADAPTERS

ROVING NOZZLE FOR VACUUM COLLECTOR

DUMP CART

DUMP CART COVER

38" LAWN REVITALIZER (Thatcher, aerator)

46" SICKLE BAR MOWER

ONE-POINT HITCH

31" & 38" TRAILING SWEEPERS

36" & 42" ROTARY SNOW THROWERS

42" & 46" SNOW PLOW AND DOZER BLADES

SNOW CAB

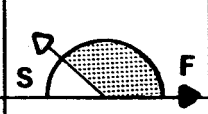
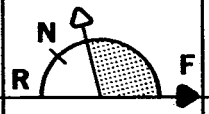
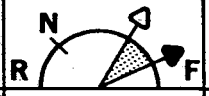
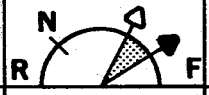
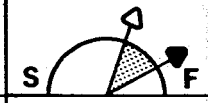
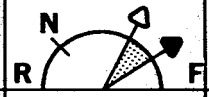
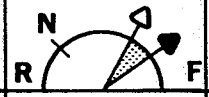
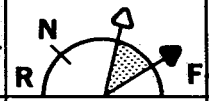
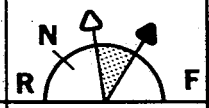
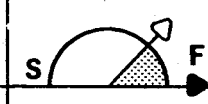
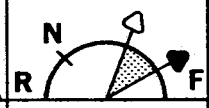
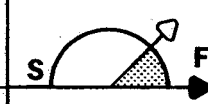
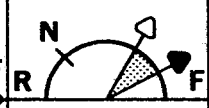
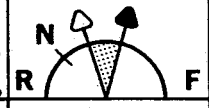
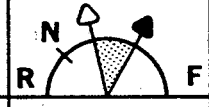
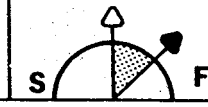
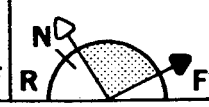
36" ROTARY TILLER

42" GRADER BLADE

SPRING TOOTH HARROW

CULTIVATOR

10" MOLDBOARD PLOW

Attachment	Engine Speed Control	Hydrostatic Lever Position	Approx. Ground Speed (MPH)	Required Accessories and Options	Recommended Accessories and Options
Transporting Tractor			3-7		
42" or 48" Rotary Mower (Smooth terrain - normal grass)			3-5		2 Rear wheel weights when mowing slopes 20-40% mowing slopes greater than 40% not recommended.
42" or 48" Rotary Mower (Rough terrain - heavy or wet grass)			2-4		2 Rear wheel weights when mowing slopes 20-40% mowing slopes greater than 40% not recommended.
46" Sickle Bar			3-5		2 Rear wheel weights when mowing slopes 20-40% mowing slopes greater than 40% not recommended.
38" Lawn Revitalizer			3-5	Rear lift kit.	Power lift kit.
36" or 42" Snow Thrower (Light Snow)			3-4		Power lift kit. Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
36" or 42" Snow Thrower (Heavy or wet snow)			1-2		Power lift kit. Tire chains. 4 Rear wheel weights. 2 Front wheel weights.
42" or 46" Snow Plow and Dozer Blade			3-5		Tire chains. 4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
42" Grader Blade			3-5		4 Rear wheel weights.
36" Rotary Tiller			1-2	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
10" Mounted Plow			2-3	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.
Cultivator			2-4	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift Kit.
Spring Tooth Harrow			3-5	Rear lift kit.	4 Rear wheel weights. 2 Front wheel weights. Power lift kit.

REFER TO YOUR ATTACHMENT OWNERS MANUALS FOR ADDITIONAL INFORMATION.

Figure 26. Operation Chart.

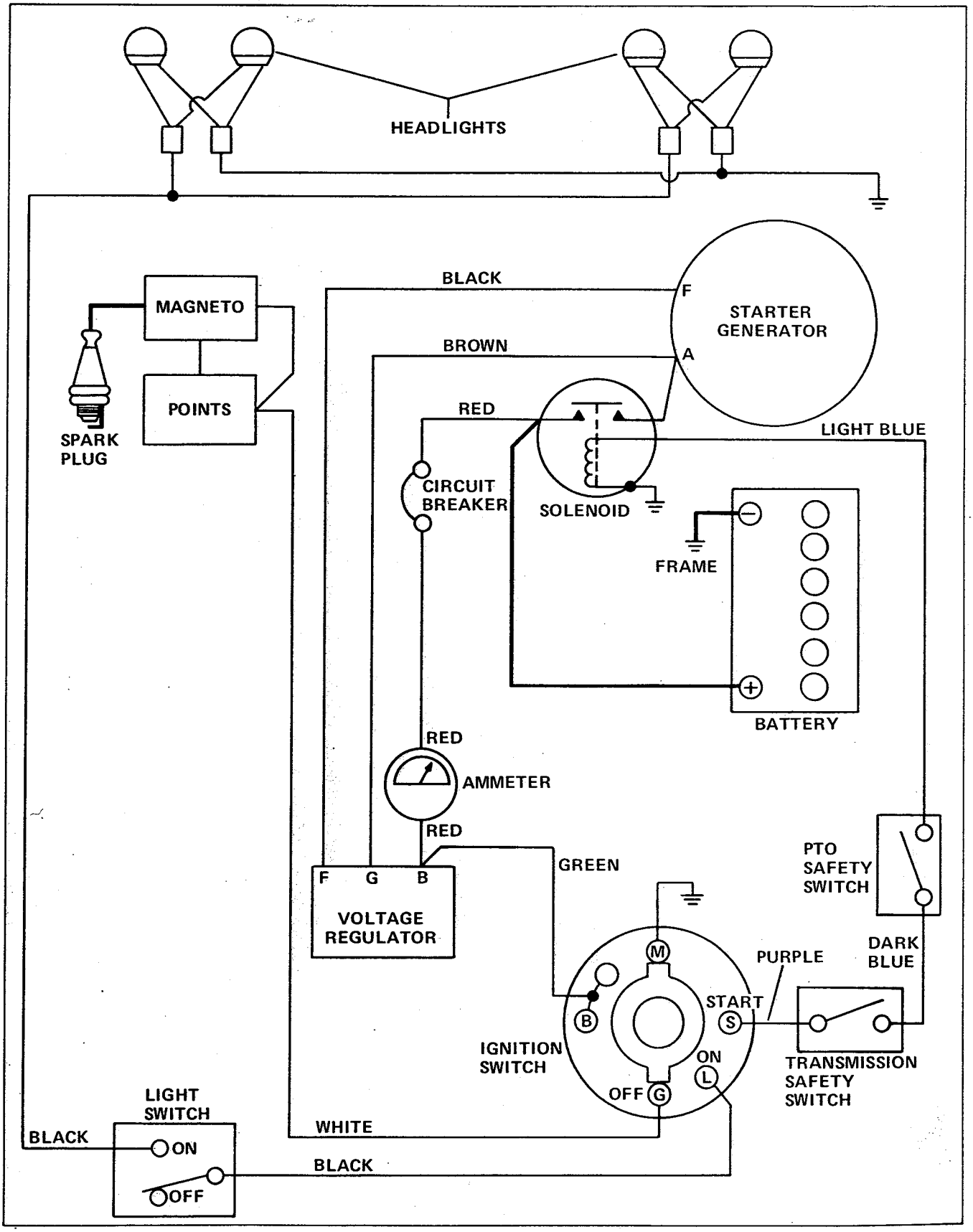


Figure 27. 7016H Electrical Schematic

Maintenance Record

Date	Hours Used	Oil Change	Air Cleaner Service	Lubrication	Maintenance/Repair

Figure 28. Maintenance Record