



220, 222, 224 and 444  
COMPACT TRACTORS  
Operator's Manual 9-7074

casecoltingersoll.com

**JI Case**  
A Tenneco Company





**This Safety Alert Symbol Indicates Important Safety Messages In This Manual When You See This Symbol Carefully Read The Message That Follows and Be Alert To The Possibility Of Personal Injury Or Death**

IF THIS MACHINE IS USED BY AN EMPLOYEE OR IS LOANED OR RENTED, MAKE ABSOLUTELY CERTAIN THAT THE OPERATOR(S), PRIOR TO OPERATING:

1. IS INSTRUCTED IN SAFE AND PROPER USE.
2. REVIEWS AND UNDERSTANDS THE MANUAL(S) PERTAINING TO THE MACHINE.

751253



## **WARNING**

### **BEFORE STARTING ENGINE**

**STUDY OPERATOR'S MANUAL SAFETY MESSAGES  
READ ALL SAFETY SIGNS ON MACHINE  
CLEAR THE AREA OF OTHER PERSONS**

**LEARN & PRACTICE SAFE USE OF  
CONTROLS BEFORE OPERATING**

IT IS YOUR RESPONSIBILITY TO UNDERSTAND AND FOLLOW MANUFACTURER'S INSTRUCTIONS ON MACHINE OPERATION, SERVICE, AND TO OBSERVE PERTINENT LAWS AND REGULATIONS. OPERATOR AND SERVICE MANUALS MAY BE OBTAINED FROM YOUR EQUIPMENT DEALER.



## TABLE OF CONTENTS

SAFETY MESSAGES .....	I - X
INTRODUCTION .....	2
SERIAL NUMBERS .....	3
OPERATING INSTRUCTIONS .....	4 - 19
Operating Controls & Instruments .....	4 - 9
Prestarting Check List .....	10 - 11
Starting Procedure .....	12 - 13
Stopping Procedure .....	14
Operating Procedure .....	15 - 19
ATTACHMENTS .....	20
PREVENTIVE MAINTENANCE .....	21 - 61
Maintenance Chart .....	22 - 23
Specifications .....	24 - 25
Capacities .....	26
Overall Measurements .....	27
Brake .....	28 - 29
Electrical System .....	30 - 35
Wiring Diagram .....	30
Storage Battery .....	31
Jump Start With Booster Battery .....	33
Fuse .....	34
Headlights .....	35
Spark Plug .....	36
Breaker Points and Condensor .....	37
Engine .....	38 - 48
Air Cleaner .....	38 - 39
Precleaner for Air Cleaner .....	39
Carburetor .....	40 - 41
Fuel .....	42 - 43
Oil .....	44 - 45
Cooling System .....	46
Cylinder Head Service .....	47
Valve Service .....	47
Throttle & Choke Cables .....	48
Hydraulic System .....	49 - 52
Oil Cooler .....	49
Hydraulic Oil .....	50 - 51
Travel Valve Adjustment .....	52
Manual Lift Lever .....	53
Steering Adjustment .....	54
Toe-In Adjustment .....	55
Seat .....	56
Transaxle .....	57
Chassis Lubrication .....	58 - 59
Attachment Drive Clutch .....	60 - 61
MANUAL ORDERING PROCEDURE .....	62 - 63
Order Form .....	63
AFTER DELIVERY CHECK .....	64

## SAFETY MESSAGES

The first twenty-three safety messages which follow are provided by the American National Standards Institute \* (ANSI). Safety rules to supplement those provided by ANSI also appear on the following pages.

Study these rules carefully before starting and operating your Case Lawn and Garden Tractor.

\* Rule Number 24, which does not apply to this product, has been omitted.



Separate Operator's Manuals are provided with the attachments purchased with your tractor. Refer to the appropriate attachment operators manual for specific operating instructions and safety messages that apply to the attachment.



**CAUTION:** Know the controls and how to stop quickly. READ THE OWNER'S MANUAL.



**CAUTION:** Do not allow children to operate the vehicle. Do not allow adults to operate it without proper instruction.



**CAUTION:** Do not carry passengers. Keep children and pets a safe distance away.



**CAUTION:** Clear the work area of objects which might be picked up and thrown.



**CAUTION:** Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).



**CAUTION:** Disengage power to attachment(s) and stop the engine (motor) before leaving the operator's position.





**CAUTION:** Disengage power to attachment(s) and stop the engine (motor) before making any repairs or adjustments.



**CAUTION:** Disengage power to attachment(s) when transporting or not in use.



**CAUTION:** 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.



**CAUTION:** Do not stop or start suddenly when going uphill or downhill. Mow down the face of steep slopes; never across or up the face. (This ANSI rule modified)



**CAUTION:** Reduce speed on the slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.



**CAUTION:** Stay alert for holes in the terrain and other hidden hazards.



**CAUTION:** Use care when pulling loads or using heavy equipment.

- a. Use only approved drawbar hitch point.
- b. Limit loads to those you can safely control.
- c. Do not turn sharply. Use care when backing.
- d. Use counterweight(s) or wheel weights when suggested in the owner's manual.



**CAUTION:** Watch out for traffic when crossing or near roadways.



**CAUTION:** When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the vehicle while in operation.



**CAUTION:** 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.
- c. Open doors if the engine is run in the garage — exhaust fumes are dangerous. Do not run the engine (motor) indoors.



**CAUTION:** Keep the vehicle and attachments in good operating condition, and keep safety devices in place.



**CAUTION:** Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.



**CAUTION:** 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.



**CAUTION:** To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.





**CAUTION:** 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.



**CAUTION:** Do not change the engine governor settings or over-speed the engine.

**CAUTION:** When using the vehicle with mower, proceed as follows:



- (1) Mow only in daylight or in good artificial light.
- (2) Never make a cutting height adjustment while the engine (motor) is running if the operator must dismount to do so.
- (3) Shut the engine (motor) off when removing the grass catcher or unclogging chute.
- (4) Check the blade mounting bolts for proper tightness at frequent intervals.



Remember, a careful operator is always the best insurance against an accident. Give complete and undivided attention to the job at hand.



**CAUTION:** Always shut off engine, remove key, set parking brake, and wait until all engine and attachment motion has stopped before dismounting from the operator's seat.



**CAUTION:** Only operate controls from the operator's seat to prevent injury.



**CAUTION:** Do not wear loose clothing which may catch in moving parts.



**CAUTION:** Do not smoke when working near fuel.



**CAUTION:** Drive at a speed slow enough to insure safety and complete control at all times.



**CAUTION:** Highway travel should be avoided. If necessary, use SMV safety emblem and lights for adequate warning to the operators of other vehicles. Check local government regulations.



**CAUTION:** Keep all shields in place.

Before starting engine: Disengage attachment drive and place travel control lever into neutral.

To park tractor: Place travel control lever into neutral, set parking brake, disengage attachment drive, shut off engine and remove ignition key.

When operating on incline, place transmission in low range.

Stop engine and wait for all movement to stop before dismounting tractor, before servicing or making adjustments to tractor and/or attachments.

Keep people and pets a safe distance away from the machine.



**CAUTION:** Place the transmission in neutral, set the parking brake and stop the engine before standing between the tractor and attachment when hitching.



**CAUTION:** If necessary to move tractor on a trailer, always back up onto the trailer and drive off of trailer.





Become thoroughly familiar with all tractor and attachment controls before operating.



**WARNING:** Improper operation of your tractor on hillsides and slopes can be dangerous. Avoid improper operation! Read and follow the instructions given in the section titled "Hillside Operation" in this manual before operating your tractor.



**CAUTION:** Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues causing serious injury. Use a piece of wood or cardboard when looking for leaks - never use the hands or other parts of the body.

Relieve hydraulic pressure before disconnecting circuits. When re-assembling, make absolutely certain that all connections are tight.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious complications may arise if medical attention is not given at once.



**CAUTION:** When adjusting steering wheel free play make certain that some free play remains between the sector gear and pinion gear, since a tight fit, with no clearance between the two gears may cause binding and tooth failure.



**CAUTION:** When removing a battery, always disconnect the (-) negative ground cable first. When installing the battery, always connect the (-) negative ground cable last.



**CAUTION:** Storage areas for batteries must be well ventilated to prevent accumulation of hydrogen gas from newly recharged batteries.



**DANGER:** Batteries produce explosive charges. Keep sparks, flame and cigarettes away. Ventilate when charging or using in enclosed space. Always shield eyes when working near batteries.



**CAUTION:** Never wear rings or metal watch bands when working with the tractor electrical system or battery as you may ground a live circuit.



**CAUTION:** When working around storage batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals as a spark or short circuit may result. Sparks, lighted matches and exposed flames must be kept away from the battery due to the presence of explosive gas in the battery. The liquid in the batteries is acid. Use care not to spill it on hands or clothing.



**POISON:** Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing. Antidote: **EXTERNAL**, flush with water; **INTERNAL**, drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call physician immediately; **EYES**, flush with water for 15 minutes and get prompt medical attention. Keep out of reach of children.



**WARNING:** To jump start this machine, connect positive jumper cable to battery terminal on starter solenoid and connect negative jumper cable to good engine ground. Start engine only when seated in operator's seat. Stop engine before leaving machine. Disconnect jumper cables. Any other method could result in uncontrolled machine movement.



**CAUTION:** Too much air pressure in the tires can cause tire or rim failure. Never put more air pressure in a tire than specified in the operator's manual or on the sidewall of the tire. If the tire or rim explode because of too much pressure, injury can result.

**IMPORTANT:** Always install new decals whenever the old decals are destroyed, lost, painted over or illegible. When individual parts are replaced that have decals attached, be sure to install a new decal with the new part. Replacement decals are available from your Case dealer.



## HILLSIDE (SLOPE) OPERATION



**WARNING:** Improper operation of your tractor on hillsides and slopes can be dangerous. Avoid improper operation! Read and follow the instructions given in the section titled "Hillside Operation" in this manual before operating your tractor.

Avoid operating tractor on hillsides and slopes. To minimize the possibility of accidents while operating on hills and/or rough terrain, obey a combination of rules, practices and good common sense.

These include:

1. Reading, understanding, and obeying all written safety messages appearing on decals on the machine and in operator's manuals.
2. Learning from your operator's manual and carefully from EXPERIENCE how to operate your tractor correctly. Know your tractor's limitations.
3. Knowing the terrain on which you are operating your tractor. There are terrain conditions on which your tractor cannot be operated!
4. Learning to expect changes in operating conditions. Adding or removing attachments or weight to your tractor will make your tractor perform differently. Rain, snow, loose gravel, wet grass, etc., change the tractive conditions of the terrain requiring changes in your operating technique or not to operate on that terrain.

The following paragraphs will cover these practices one at a time. Read and study them. The examples provided are not all inclusive but will give you a firm understanding of the requirements for avoiding accidents while operating your tractor.

Case Lawn and Garden Tractors are designed and built to comply with the Voluntary Standard ANSI B71.1 - 1972 and B71.1a - 1974 (American National Standards Institute).

THE OPERATOR IS THE SOLE JUDGE AS TO THE DEGREE OF SLOPE ON WHICH THIS TRACTOR CAN BE SAFELY OPERATED. IF IN DOUBT THAT THIS TRACTOR CAN BE SAFELY OPERATED ON A PARTICULAR SLOPE, DO NOT OPERATE ON THAT SLOPE! COMMON SENSE MUST PREVAIL.

### **Read, Understand, Obey:**

Safety messages are found on the tractor and in the operator's manuals. These must be understood by the tractor operator to be of value. Be sure that these messages are studied before starting and/or operating the tractor by an operator not familiar with this particular tractor.

### **Learn to Operate:**

Learn your tractors controls from decals on the tractor and from instructions in the operator's manual. Practice how to properly manipulate these controls. Practice must be done in a flat area, clear of obstacles and bystanders. Learn your tractors operating characteristics and limitations. These include:

- a. amount of engine power available
- b. engine governor response
- c. tractive ability
- d. steering characteristics
- e. braking characteristics
- f. movement of travel lever
- g. forward and reverse ground speeds
- h. speed of attachment lift
- i. and others

Attempting any operation which approaches or exceeds the tractor's limitation is risking an accident.

### **Know the Terrain:**

Know the terrain on which you are working. Find hidden obstacles by walking through and inspecting the area prior to operating your tractor on it. Mark obstacles, such as, rocks, ruts or holes with a 6 ft long pole and red flag and stay well clear of these obstacles when operating.

Operate your tractor at a ground speed slow enough to insure complete control at all times.

Place the transmission in low range and regulate the travel control lever slowly and smoothly to maintain this safe speed.

Always drive in a forward direction when proceeding downhill. Never drive up a hill. If necessary, back up a hill to the desired position. Always back up loading ramps and tilt bed trailers. If necessary to turn while on a hill, always turn downward.



Your judgement, based on operating experience is the final word in deciding if you should negotiate any given hill or slope. If you are in doubt about safety - STAY OFF THE SLOPE.

Under no circumstances should an inexperienced operator attempt to use your tractor on slopes or hillsides.

You may encounter some terrain on which your tractor cannot be operated even if a different piece of equipment has operated there in the past.

**Learn to Compensate for Changes in Operating Conditions:**

Adding or removing attachments or ballast (such as wheel weights or fluid) change the weight and weight distribution of your tractor and, therefore, change your tractors operating characteristics.

Be alert to these changes. Practice, operating the tractor after each change has been made.

Adding an attachment (weight) to the rear of the tractor reduces the weight on the front axle. Adding an attachment (weight) to the front of the tractor reduces weight on the rear of the tractor. You must add counterweight to the front if a rear mounted attachment is installed. You must add counterweight to the rear if a front mounted attachment is installed.

Tractive conditions will vary with weather and terrain and equipment.

Areas wet with dew, rain or snow will be more slippery than when dry. Areas covered with loose gravel are more slippery than firm dry ground. Greater stopping distances are required in these slippery areas.

Spinning rear wheels tend to move the tractor sideways. The addition of tire chains will provide more traction to the rear wheels in the forward-reverse direction but less stability in the sideways direction. Chains will cause more abrupt starting and stopping.

The final word in safe tractor operation rests on your judgement.

If in doubt of your safety - STAY OFF THE SLOPE



FIGURE 1 Right Hand View of Case 220 Compact Tractor



FIGURE 2 Left Hand View of Case 222 Compact Tractor



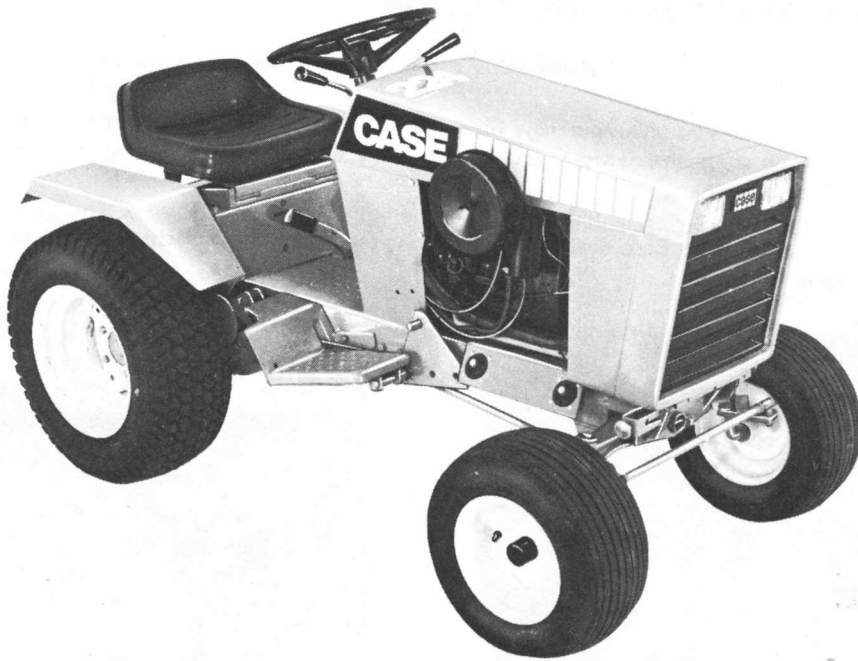


FIGURE 3 Right Hand View of Case 224 Compact Tractor



FIGURE 4 Right Hand View of Case 444 Compact Tractor

## TO THE OWNER OF A CASE TRACTOR

The Maintenance you give your new Case tractor is important. Use this manual as your guide. Follow these instructions and tips to make sure your Case tractor operates efficiently for many years.

We are an authorized Case dealer. We have Case replacement parts which are the same as the original equipment.

If you need additional aid or information, contact us.

*Your Authorized Case Dealer*

### NOTICE

A spark arrester or spark arrester muffler must be used on some machines. Check the laws in your area.

Some states have regulations for the use of this machine in agriculture, forestry and construction. These laws control the maintenance of spark arrester equipment. These laws also control the installation of spark arrester equipment on the exhaust system of naturally aspirated engines (engines without a turbocharger).

### RADIO INTERFERENCE REGULATIONS OF CANADA

Case tractors taken into Canada after September 1, 1978 must have resistor spark plugs.

Resistor spark plugs and resistor wires for the spark plug must be used for replacement.

The regulation label is applied to the engine. Do not remove or destroy this label.



## SERIAL NUMBERS

When you need parts or information, or when you write to your authorized Case dealer, always give the:

1. Tractor Model Number
2. Product Identification Number (P.I.N.)
3. Engine Serial Number
4. Engine Model Number
5. Engine Specification Number

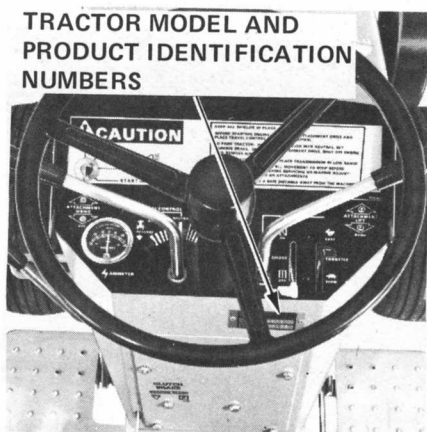


FIGURE 5

For reference, write the numbers on the lines below

Tractor Model Number

Tractor Product Identification Number (P.I.N.)

Engine Model Number

Engine Serial Number

Engine Specification Number



FIGURE 6

This Manual is for the following Tractors:

Model

P.I.N. and after

220  
222  
224  
444

9762275  
9763700  
9765195  
9766840

The words "Right, Left, Front and Rear" as used in this manual indicate directions when you are in the operator's seat in the normal operating position.

## OPERATING INSTRUCTIONS

### OPERATING CONTROLS AND INSTRUMENTS



**CAUTION:** Know the controls and how to stop quickly. **READ THE OWNER'S MANUAL.**



**CAUTION:** Only operate controls from the operator's seat to prevent injury.



Become thoroughly familiar with all tractor and attachment controls before operating.

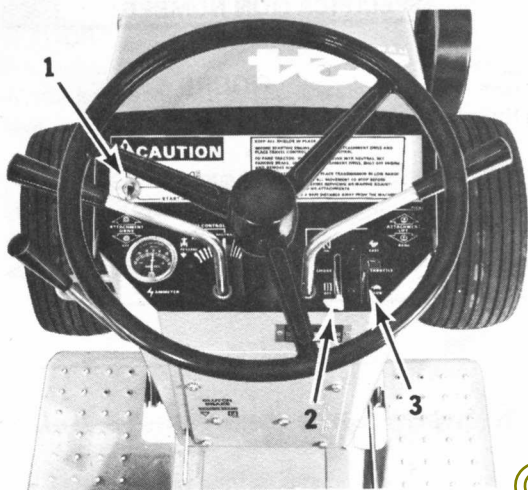


FIGURE 7



FIGURE 8

#### 1. IGNITION KEY AND STARTER SWITCH

**TO START:** Turn the key to the right and hold in the "START" position.

**TO RUN:** Release the key to the "RUN" position when the engine starts.

**TO STOP:** Turn the key to the left to the "OFF" position.



## 2. CHOKE

**TO CLOSE THE CHOKE:** Push the choke lever forward. Close the choke to start a cold engine.

**TO OPEN THE CHOKE:** Pull the choke lever rearward. Open the choke slowly after the engine starts.

The choke must be open during normal operation or when you start a warm engine.

## 3. THROTTLE

**ENGINE LOW IDLE:** Pull the throttle lever rearward. Put the throttle in the "SLOW" position when starting and when stopping the engine. This permits a warming and cooling period.

**TO INCREASE ENGINE SPEED:** Push the throttle lever forward until the needed engine speed is reached.

Decrease the engine speed during operation for maximum fuel efficiency. Do not cause engine lugging. Lugging will cause too much heat and damage to the engine.



**CAUTION:** Do not change the engine governor settings or over-speed the engine.

## 4. DUAL RANGE TRANSAXLE

**TO SELECT LOW RANGE:** Put the travel control lever in the "NEUTRAL" position.

Stop the tractor.

Pull the lever forward a small amount to go over the neutral locating pin.

Pull the lever up beyond the neutral locating pin and release.

**TO SELECT NEUTRAL:** Put the travel control lever in the "NEUTRAL" position.

Stop the tractor.

Pull the lever forward a small amount to go over the neutral locating pin.

Align the hole in the lever with the neutral locating pin and release the lever.

**TO SELECT HIGH RANGE:** Put the travel control lever in the "NEUTRAL" position.

Stop the tractor.

Pull the lever forward a small amount to go over the neutral locating pin.

Push the lever down beyond the neutral locating pin and release.

If the range shift does not move easily, rotate the gears.

To rotate the gears:

1. move the travel control lever a small amount into the "FORWARD" position.
2. return the travel control lever to the "NEUTRAL" position.

**IMPORTANT:** The range shift lever must be beyond the neutral locating pin while in "LOW" or "HIGH" range. If the lever is not in the correct position, damage to the gears will result.

## 5. TRAVEL CONTROL LEVER

**TO STOP TRAVEL:** Put the travel control lever in the "NEUTRAL" position.

**TO START FORWARD TRAVEL:** Slowly and in small amounts move the travel control lever forward.

Speed and power will increase as the lever is moved toward the full "FORWARD" position.

**TO START REVERSE TRAVEL:** Slowly and in small amounts move the travel control lever rearward.

Speed and power will increase as the lever is moved toward the full reverse position.

**DO NOT USE FULL SPEED IN REVERSE.**

**TO USE "RETARD" IN FORWARD OR REVERSE TRAVEL:** "RETARD" is the hydraulic braking position for the travel control lever.

Put the travel control lever in the "RETARD" position when you go down a hill or incline.

See the Operating Procedure Section of this manual for a more complete description of "RETARD" use.

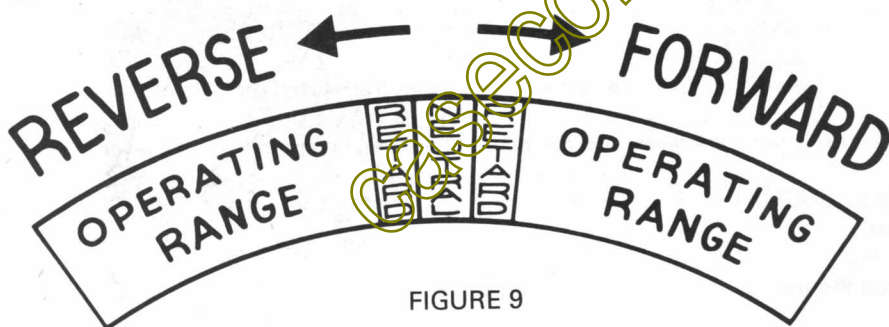


FIGURE 9



Push the travel control lever in as you change the lever position, this will give you smoother operation and control.

The travel control lever automatically returns to the "NEUTRAL" position when the brake is actuated. The travel control lever can be moved from the "NEUTRAL" position with the brake actuated.

A neutral start switch is actuated by the travel control lever. The lever must be in the "NEUTRAL" position before you can start the engine.

## 6. BRAKE PEDAL

**TO ACTUATE THE BRAKE:** Push the brake pedal fully down.

This action will return the travel control lever to the "NEUTRAL" position.

The tractor will come to a quick stop.

**NOTE:** Do not use the above method if possible.

Stop the tractor with the travel control lever.

The tractor can be stopped smoothly by slowly returning the travel control lever to "NEUTRAL" position.

Actuate the brake fully if you can not stop the tractor with the travel control lever.

See the Operating Procedure Section of this manual for a more complete description of stopping travel.

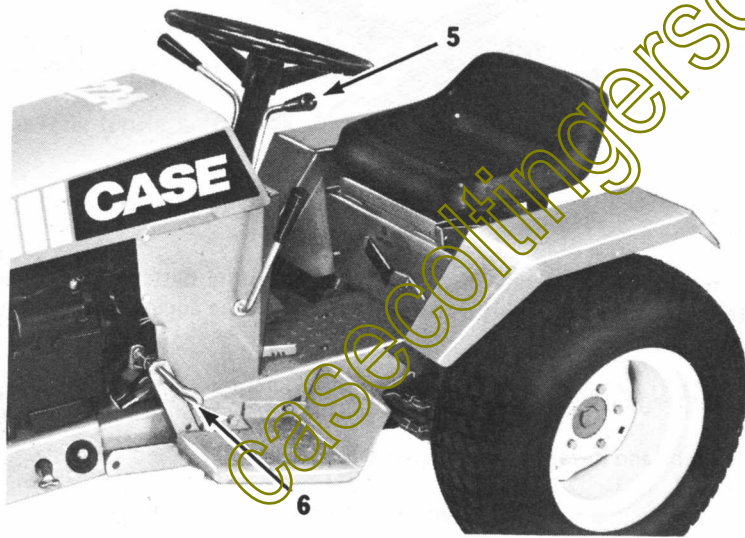


FIGURE 10

## 7. PARKING BRAKE LOCK

TO ENGAGE: Push the brake pedal fully down.

Push down on the parking brake lock. Engage one of the notches with the bottom of the slot.

TO DISENGAGE: Push the brake pedal a small amount and release.

A spring will disengage the parking brake lock.

## 8. HEADLIGHTS

TO ILLUMINATE: Turn the key to the "LIGHTS" position after the engine is started.

If you use the lights while the engine is off or at low idle, the battery will discharge.

TO TURN OFF: Turn the key from the "LIGHTS" position.

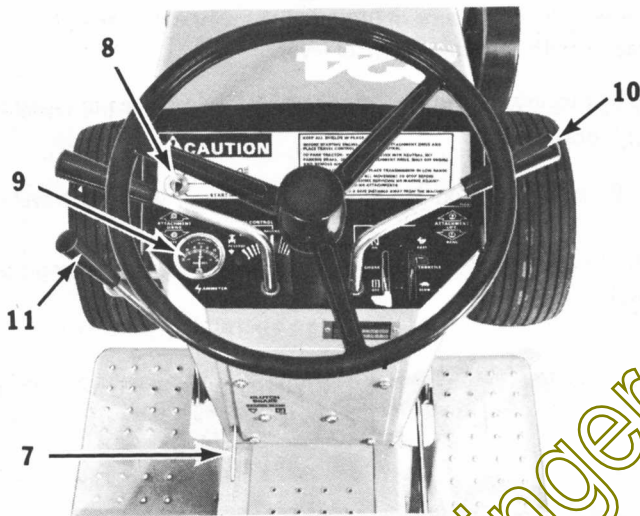


FIGURE 11

## 9. AMMETER

The ammeter indicates the rate of current flowing to the battery. The ammeter reading will be high when the battery voltage is low. When the engine is started the reading will also be high.

The ammeter reading will gradually go back to zero as the battery voltage increases.

Stop the tractor and have the cause corrected if:

- a. The ammeter remains at "0" when the battery voltage is low.
- b. If the ammeter continues to give a high reading.



## 10. HYDRAULIC ATTACHMENT LIFT LEVER

TO LIFT: Run the engine

Pull the lever rearward.

Release the lever when the needed height is reached.

TO LOWER: Run the engine.

Push the lever forward a small amount.

Release the lever when the needed height is reached.

When you release this lever, a spring will automatically return the lever to the "NEUTRAL" position.

THE "FLOAT" POSITION: Push the lever fully forward.

A detent holds the lever in the "FLOAT" position. The lever must be manually returned to the "NEUTRAL" position from the "FLOAT" position.

The "FLOAT" position prevents hydraulic down pressure on the attachment.

See the instructions included with each attachment for correct attachment lift lever use.

## MANUAL ATTACHMENT LIFT LEVER (NOT SHOWN)

TO LIFT: Pull the lever rearward until the lever engages the latch.

TO LOWER: Pull the lever rearward a small amount to decrease the tension on the latch. Push the button on top of the lever to disengage the latch.

Push the lever forward.

## 11. ATTACHMENT DRIVE LEVER

TO ENGAGE: Push the lever forward until it is fully engaged.

TO DISENGAGE: Pull the lever rearward.

A neutral start switch is actuated by the attachment drive lever. The lever must be in the rear position (disengaged) before you can start the engine.

## PRESTARTING CHECK LIST



**CAUTION:** Keep all shields in place.

Before starting engine: Disengage attachment drive and place travel control lever into neutral.

To park tractor: Place travel control lever into neutral, set parking brake, disengage attachment drive, shut off engine and remove ignition key.

When operating on incline, place transmission in low range.

Stop engine and wait for all movement to stop before dismounting tractor, before servicing or making adjustments to tractor and/or attachments.

Keep people and pets a safe distance away from the machine.



**CAUTION:** Do not wear loose clothing which may catch in moving parts.



**CAUTION:** Disengage power to attachment(s) and stop the engine (motor) before making any repairs or adjustments.

1. Use only clean fuel, oil, container and funnel.
2. Apply oil or grease to all the specified points shown in the Lubrication Chart.
3. Check the oil level in the engine and add oil as required.
4. Check the engine air cleaner and air intake screen for dirt or obstructions. Clean as required.
5. Fill the fuel tank with clean fuel. The requirements are listed in the Fuel Specifications Section of this manual.

Clean the area around the fuel cap before you remove the cap.

Check the ventilation hole in fuel tank cap and clean as required.



**CAUTION:** 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.
- c. Open doors if the engine is run in the garage — exhaust fumes are dangerous. Do not run the engine (motor) indoors.

6. Check all operating controls and instruments for correct function before using the tractor.



**CAUTION:** Do not smoke when working near fuel.

casecoltingersoll.com

## STARTING PROCEDURE (Operating the Tractor)

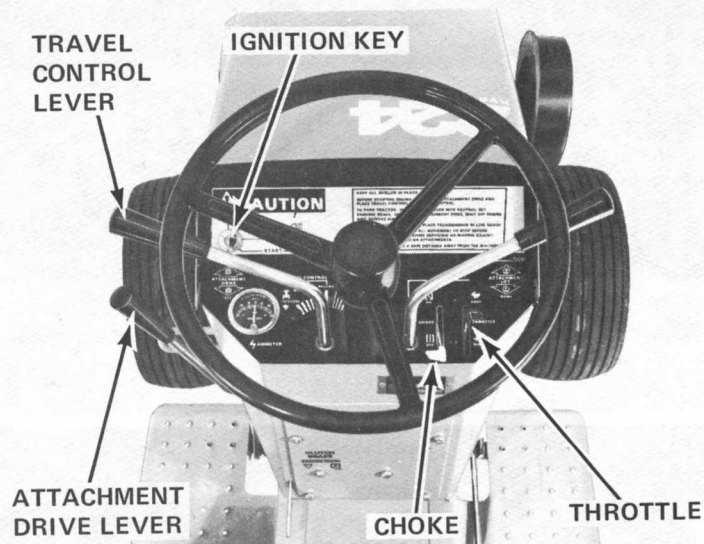


FIGURE 12



**CAUTION:** Only operate controls from the operator's seat to prevent injury.



**CAUTION:** Do not allow children to operate the vehicle. Do not allow adults to operate it without proper instruction.



**CAUTION:** Do not carry passengers. Keep children and pets a safe distance away.

1. Put the travel control lever in the "NEUTRAL" position.

**NOTE:** Do not actuate the brake. This can cause the travel lever to move down preventing contact with the neutral start switch. If this condition occurs, pull up on the travel lever handle. At the same time, turn the ignition key to the "START" position.

2. Pull the attachment drive lever rearward.





**CAUTION:** Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).

3. Push the choke lever forward to close the choke.

The choke setting will change according to the air temperature, engine temperature, and grade of fuel.

4. Push the throttle lever forward approximately 1/3 of the way between the "SLOW" and "FAST" positions.
5. Turn the ignition key to the right and hold in the "START" position. Release the key to the "RUN" position when the engine starts running.

**NOTE:** Release the key immediately when the engine starts. If you hold the key in the "START" position after the engine is running, damage can occur. Release the key after 30 seconds if the engine does not start running. Wait 3 minutes before you try again.

6. Pull the choke lever rearward slowly after the engine starts running.
7. Permit the engine to warm before applying a load.

**NOTE:** The hydraulic system must be warm before you use the tractor when all temperatures are less than 32°F (0°C). Use the following procedure:

- a. Set the throttle 1/3 of the way between the "SLOW" and "FAST" position.
  - b. Select the "NEUTRAL" position of the dual range transaxle.
  - c. Move the travel control lever to the full "FORWARD" position.
  - d. Run for several minutes before operating the tractor. A noise can occur when the hydraulic system is cold.
8. Set the throttle lever approximately 3/4 of the way between the "SLOW" and "FAST" positions for normal operation.

Decrease the engine speed during most operations for maximum fuel efficiency.

Do not permit engine lugging. Lugging will cause more than normal heat and damage to the engine.

**IMPORTANT:** DO NOT TRY TO START THE TRACTOR BY PUSHING OR TOWING. SERIOUS DAMAGE WILL HAPPEN TO THE DRIVE SYSTEM.

## STOPPING PROCEDURE (OPERATING THE TRACTOR)

1. Move the travel control lever to the "NEUTRAL" position.
2. Completely stop the tractor. Actuate the brake pedal if necessary.
3. Engage the parking brake lock.
4. Pull the throttle lever rearward to the "SLOW" position.
5. Permit the engine to cool. Run the engine at idle for several minutes if the work load was severe.
6. Turn the key to the left to the "OFF" position.
7. Remove the ignition key.



**CAUTION:** Always shut off engine, remove key, set parking brake, and wait until all engine and attachment motion has stopped before dismounting from the operator's seat.



**CAUTION:** 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.



**CAUTION:** Know the controls and how to stop quickly. READ THE OWNER'S MANUAL.

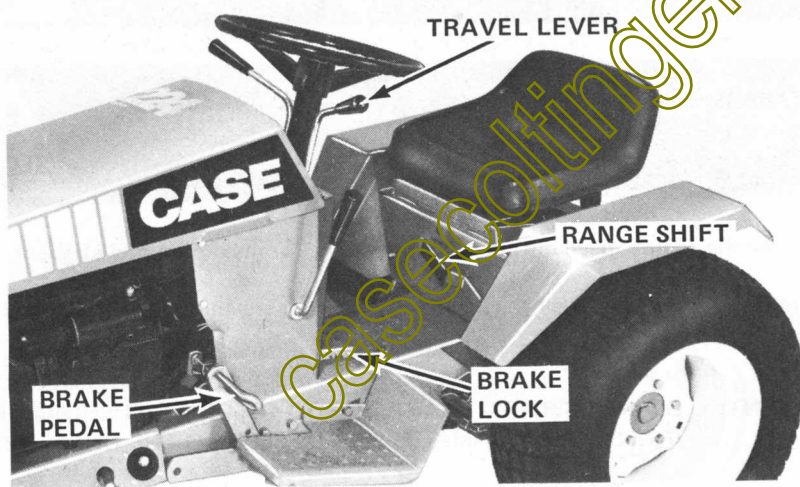


FIGURE 13



## OPERATING PROCEDURE (OPERATING THE TRACTOR)

Operate the tractor for the first time on a flat area clear of obstructions and persons. Learn the operating characteristics of your tractor before trying the first job.

1. Select the correct gear range for the job.
2. "LOW" range is for all working operations and hillside use. Only use "LOW" range on hillsides or inclines.

**CAUTION:** Use care when pulling loads or using heavy equipment.



- a. Use only approved drawbar hitch point.
- b. Limit loads to those you can safely control.
- c. Do not turn sharply. Use care when backing.
- d. Use counterweight(s) or wheel weights when suggested in the owner's manual.

3. "HIGH" range is for transport only. "HIGH" range must not be used for hillside operation.

4. If the range shift does not move easily, rotate the gears.

To rotate the gears:

- a. Move the travel control lever a small amount into the "FORWARD" position.
- b. Return the travel control lever to the "NEUTRAL" position.

**IMPORTANT:** Completely stop the tractor motion before changing the range. The range shift lever must be beyond the "NEUTRAL" locating pin when in the "LOW" or "HIGH" range. Gear damage will occur if the lever is not in the correct position.

5. Push the throttle lever forward until you get the needed engine speed.

Decrease engine speed during operation for maximum fuel efficiency. Do not cause engine lugging. Lugging will cause more than normal heat and damage to the engine.

## 6. TO USE FORWARD TRAVEL:

- Move the travel control lever slowly and in small amounts from the "NEUTRAL" position toward the full "FORWARD" position.
- When you reach the correct speed, release the lever.
- Return the travel control lever to the "NEUTRAL" position to stop.
- Actuate the brake pedal if the "NEUTRAL" position does not stop the tractor.

## 7. TO USE REVERSE TRAVEL:

- Move the travel control lever slowly and in small amounts from the "NEUTRAL" position toward the full "REVERSE" position. Do not travel at full speed in reverse.
- Always keep your hand on the travel control lever when moving in reverse.
- Return the travel control lever to the "NEUTRAL" position to stop.
- Actuate the brake pedal if the "NEUTRAL" position does not stop the tractor.

Always be careful and look behind when you drive in reverse.

Do not travel in reverse down a hill. Use reverse travel to move up a hill. Always use forward travel when you come down a hill.

- The travel control lever controls both speed and power available to the rear wheels of the tractor.

During operation, the load on the tractor will change. Adjust the position of the travel control lever as required.

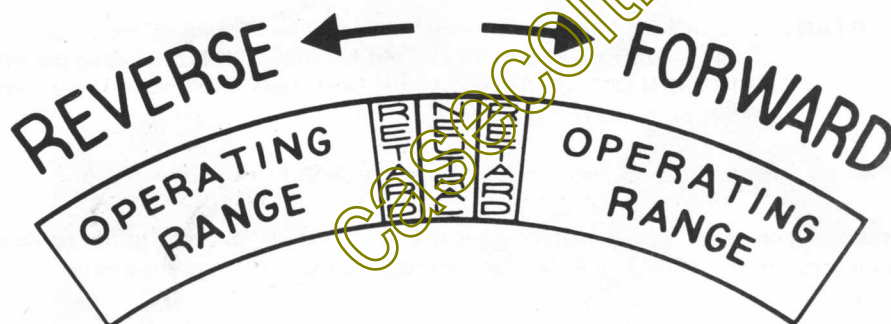


FIGURE 14

## 9. TO USE RETARD TRAVEL - Hillside Operation

The "RETARD" position on the travel control lever must be used when the tractor moves down a hill.

"Retard" is the hydraulic braking position for the travel control lever.

For correct retard action, follow the operation procedure below.

- a. Run the engine at full throttle (3600 RPM).
- b. Select the "LOW" range in the dual range transaxle.  
"LOW" range must be used for all hillside operation.
- c. Put the travel control lever in the "RETARD" position before the tractor moves down the hill.
- d. Select the full speed position in the optional flow control valve (if equipped).



**CAUTION:** Do not stop or start suddenly when going uphill or downhill. Mow down the face of steep slopes; never across or up the face. (This ANSI rule modified)



**WARNING:** Improper operation of your tractor on hillsides and slopes can be dangerous. Avoid improper operation! Read and follow the instructions given in the section titled "Hillside Operation" in this manual before operating your tractor.

## 10. TO ACTUATE BRAKES - Hillside Operation

Hold the travel control lever in the retard position then push on the brake pedal.

When you actuate the brake the travel control lever will return to the "NEUTRAL" position unless you hold the lever in the "RETARD" position.

The travel control lever can be moved (but the lever must be held) while the brake is actuated.

Keep the brakes in good repair and correctly adjusted at all times. See the preventive maintenance section of this manual or see your dealer for brake repair.



11. While you move in the forward direction, the "REVERSE" position of the travel control lever can be used for a brake. Use this procedure carefully to prevent an accident.
  - a. The tractor engine must be running.
  - b. You must be in forward travel.
  - c. Move the travel control lever a small amount into the "REVERSE" position. Do not move the lever too far or too fast. An accident can occur if the lever is moved too far or too fast.

This procedure can be of help for hillside travel.

12. Do not move the travel control lever from "REVERSE" to "FORWARD" while the tractor is moving. This can cause the front of the tractor to raise off the ground. Stop reverse travel completely before you start forward travel. This is especially important while on a hill or slope.
13. The rear wheels can slip or spin and an engine overload can occur while you go up a small slope. Turn the front wheels toward the bottom of the hill before the loss of all traction or power.

Do not permit the tractor to move rearward down any slope or hillside.

- a. A return to forward travel will cause too much torque at the rear wheels. The front wheels can raise off the ground and cause severe injury to the operator.
- b. Turning the front wheels toward the top of the hill can cause too much thrust to the side. The tractor can roll over and cause severe injury to the operator.

Always use reverse travel to move up a hill or slope. Always use forward travel to move down a hill or slope.

14. Decrease the travel speed before you turn the tractor.
  - a. Move the travel control lever nearer to the "NEUTRAL" position.
  - b. Decrease the throttle setting.
  - c. Select "LOW" range in the dual range transaxle.



**CAUTION:** Reduce speed on the slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.

15. Engage the attachment drive before you put a load on the attachment.
16. Actuate the lawnmower over an area of thin grass or an area that has been cut.



**CAUTION:** When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the vehicle while in operation.

17. Actuate the tiller while in the transport position. Then lower the tiller into the soil to the needed depth.
18. Actuate the snowcaster before you make contact with the snow.
19. Read your attachment manual for complete attachment operation information.



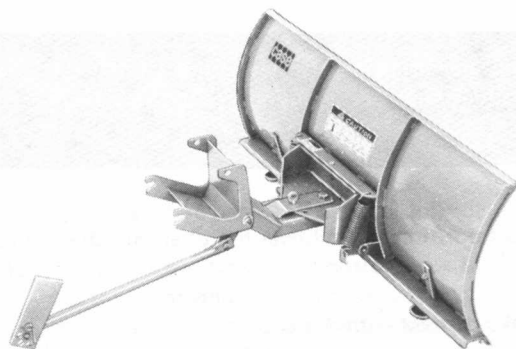
**CAUTION:** Clear the work area of objects which might be picked up and thrown.

**NOTICE:** A special holding valve kit is available for your tractor as an optional attachment. This valve gives positive brake action through the full range of operation of your tractor. If your dealer has not told you about this valve, see him immediately for information.

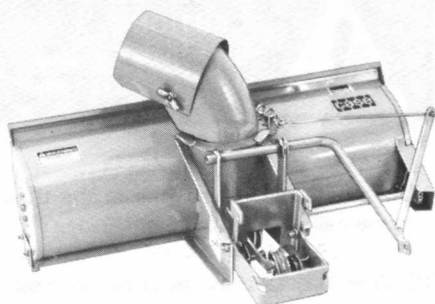
If you use your tractor for hillside operation or tilling, this holding valve will improve the performance of your machine.

casecoltingerson.com

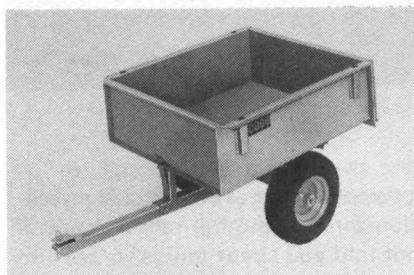
## AVAILABLE ATTACHMENTS



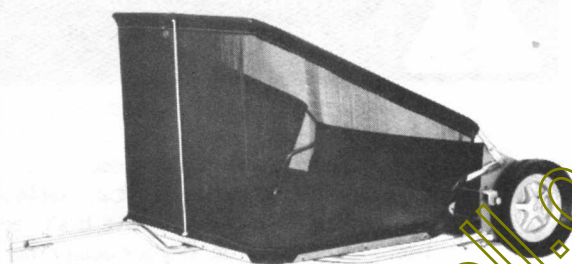
UTILITY AND SNOW BLADE  
WITH SPRING TRIP



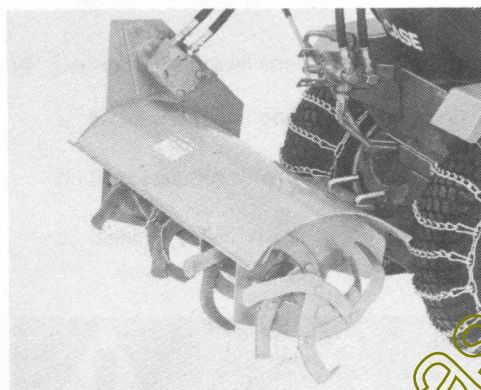
SNOWCASTER



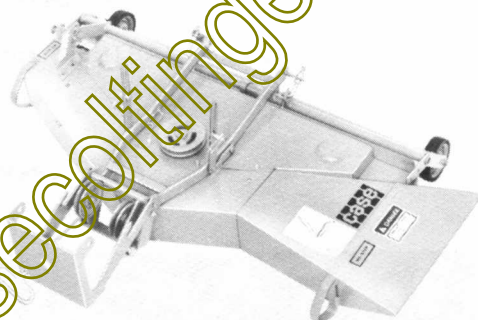
1000 POUND CAPACITY  
DUMP CART



LAWN SWEEPER



HYDRAULIC DRIVE TILLER



THREE SPINDLE  
ROTARY MOWER

MANY OTHER USEFUL ATTACHMENTS ARE  
AVAILABLE THROUGH YOUR J I CASE DEALER.





FIGURE 15

You are the owner of a Case tractor. You have a machine that is made to high standards.

Preventive maintenance is important to you.

Preventive maintenance is the easiest and most efficient way to keep your tractor working good for many hours of operation.

The first part of this manual covers instructions needed for daily operation. The following instructions will help you in maintenance and adjustment of your tractor.

## MAINTENANCE CHART

MAINTENANCE PROCEDURE	PAGE	FREQUENCY
Check and clean obstructions from air intake screen	46	Daily
Check and clean obstructions from oil cooler	49	Daily
Check engine oil level. Add if required	44	Daily
Wash air filter precleaner	39	25 Hours
Change engine oil.	44	25 Hours
Grease front spindles, axle pivot pin, front wheel bearings, steering gear	58	25 Hours
Check air cleaner filter - replace if necessary	38	50 Hours
Check and clean obstructions from cooling fins and external surfaces	46	50 Hours
Oil implement lift lever, travel lever, brake linkage	53, 28	50 Hours
Check and adjust (if necessary) attachment drive clutch	60	50 Hours
Check battery electrolyte level. Add if necessary	31	50 Hours
Check two speed transaxle oil	57	100 Hours
Check and clean or replace spark plug	36	100 Hours
*Have cylinder head removed and cleaned (loaded fuel)	47	100 Hours
*Have cylinder head removed and cleaned (unloaded fuel)	47	200 Hours
*Have breaker points checked	37	500 Hours
*Have ignition timing checked	37	500 Hours
*Have valves and tappet clearance checked	47	500 Hours
Change two speed transaxle oil	57	500 Hours
Change hydraulic system oil	50	500 Hours
*Have these services done by an authorized dealer		

## CY

rs

rs

rs

S

S

2

2

2



## SPECIFICATIONS

### ENGINE

	220	222	224 & 444
Make	Kohler	Kohler	Kohler
Model	K241AS	K301AS	K321AS
Cycle	4 cycle	4 cycle	4 cycle
Number of Cylinders	1	1	1
Horsepower	10 HP (7.46 kw)	12 HP (8.95kw)	14 HP (10.44 kw)
Cylinder Bore	3-1/4 in. (82.6 mm)	3-3/8 in. (85.7 mm)	3-1/2 in. (88.9 mm)
Piston Stroke	2-7/8 in. (73.0 mm)	3-1/4 in. (82.6 mm)	3-1/4 in. (82.6 mm)
Displacement	23.9 in. <sup>3</sup> (392 cm <sup>3</sup> )	29.07 in. <sup>3</sup> (476 cm <sup>3</sup> )	31.27 in. <sup>3</sup> (512 cm <sup>3</sup> )
Maximum No Load Speed	3600 RPM	3600 RPM	3600 RPM
Low Idle Speed	1200 RPM	1200 RPM	1200 RPM
Compression Ratio	6 to 1	6 to 1	6 to 1
Intake Valve Clearance (cold)	.010 in. (0.25 mm)	.010 in. (0.25 mm)	.010 in. (0.25 mm)
Exhaust Valve Clearance (cold)	.020 in. (0.50 mm)	.020 in. (0.50 mm)	.020 in. (0.50 mm)
Spark Plug Gap	.035" (0.90 mm)	.035" (0.90 mm)	.035" (0.90 mm)
Spark Plug Thread	14MM	14MM	14MM
Spark Plug Type	Champion RH10 or equivalent - All Models		
Breaker Point Gap	.020" (0.50 mm)	.020" (0.50 mm)	.020" (0.50 mm)
Ignition Timing	20° BTDC (at 'S' mark on flywheel) - All Models		
Cooling	Air Cooled with baffles that direct air around fins on the cylinder and cylinder head.		

### ELECTRICAL SYSTEM

Battery	24 Ampere Hour at 20 Hour Rate 12 Volt Negative Ground
Starter	12 Volt. Gear Drive
Headlights	12 Volt. 32 Candle Power
Fuse	SAE 20 AMP
Flywheel Alternator	12 Volt, 15 AMP with Rectifier/Regulator

### TRANSAXLE

Type - Hydraulically driven, two gear ranges

Differential - Standard Bevel Gear

## HYDRAULIC SYSTEM

Reservoir - Atmospheric with vented fill cap

Pump - Gear type positive displacement 8 GPM @ 3000 RPM

Valve - Two spool - Open center with relief (One spool on tractors with mechanical lift)

Travel Circuit Relief Valve - 2000 PSI (13 800 kPa)

Lift Circuit Relief Valve - 575 PSI (3 970 kPa)

## SPEED RANGE

MODEL		FORWARD AND REVERSE
220, 222, 224	Low Range	4.0 MPH (6.4 km/H)
	High Range	9.4 MPH (15 km/H)
444	Low Range	3.7 MPH (6 km/H)
	High Range	8.7 MPH (14 km/H)

## TIRES

TYPE	SIZE	PLY	PRESSURE
Front	6.50 - 8	2	* 8 PSI (55 kPa)
Rear	8.50 - 12	2	* 8 PSI (55 kPa)
Rear	8.00 - 16	2	* 8 PSI (55 kPa)

\*Inflate to 14 PSI (95 kPa) for certain attachments.

Consult your attachment Operator's Manual



**CAUTION:** Too much air pressure in the tires can cause tire or rim failure. Never put more air pressure in a tire than specified in the operator's manual or on the sidewall of the tire. If the tire or rim explode because of too much pressure, injury can result.

## CAPACITIES

### HYDRAULIC SYSTEM

REFILL - 6 qts. (5.6 l)

TOTAL SYSTEM - 6.5 qts. (6 l)

### FUEL TANK

3 gallons (11.4 l)

### ENGINE CRANKCASE

3 pints (1.4 l)

### TRANSAXLE

1 pint (.5 l)

220 PIN 14005237 and after

222 PIN 14006717 and after

224 PIN 14007819 and after

444 PIN 14009274 and after

3 quarts (2.8 l) prior to the PIN's  
listed above

casecoltingersoll.com



# OVERALL MEASUREMENTS

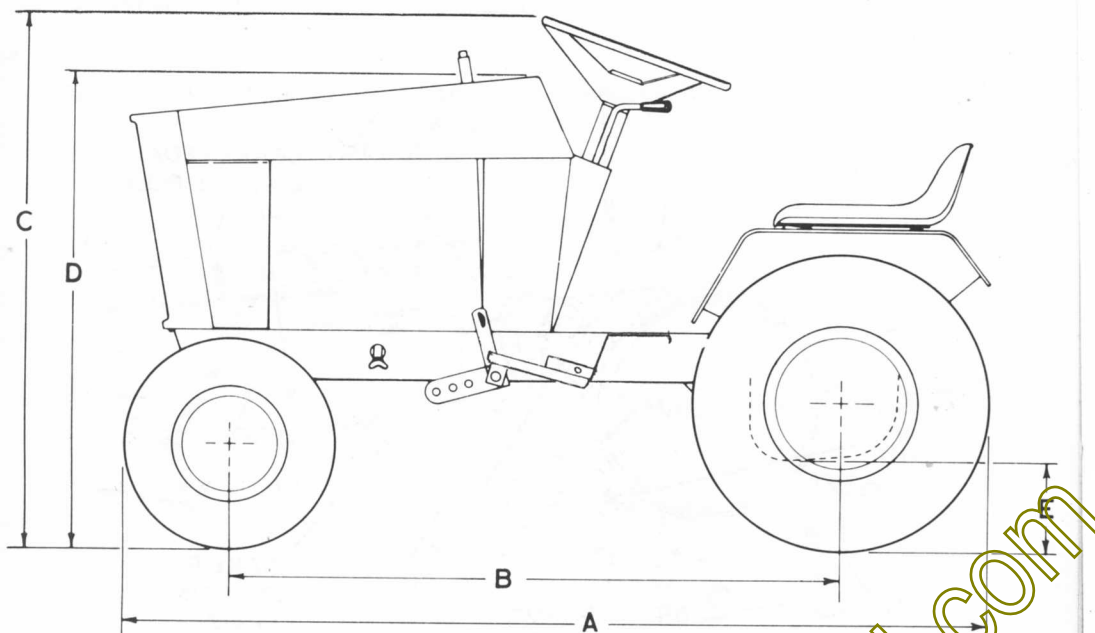


FIGURE 16

	220, 222 & 224	444
A Overall Length	65" (1650 mm)	72" (1830 mm)
B Wheel Base	46" (1170 mm)	48" (1220 mm)
C Overall Height	40" (1020 mm)	43-1/2" (1110 mm)
D Hood Height - Rear	35-1/2" (900 mm)	38-1/2" (980 mm)
E Minimum Ground Clearance at Gear Case	7-1/8" (180 mm)	11" (280 mm)
Rear Wheel Tread	27-3/4" (700 mm)	31-1/2" (800 mm)
Front Wheel Tread	28-3/4" (730 mm)	33-1/2" (850 mm)
Overall Width	37" (940 mm)	41" (1050 mm)
Shipping Weight	15 lbs. (325 kg)	770 lbs. (350 kg.)

## BRAKE

### LUBRICATION

Apply several drops of oil to each pivot point on the brake linkage. Make sure no oil gets on the brake lining or the brake drum.

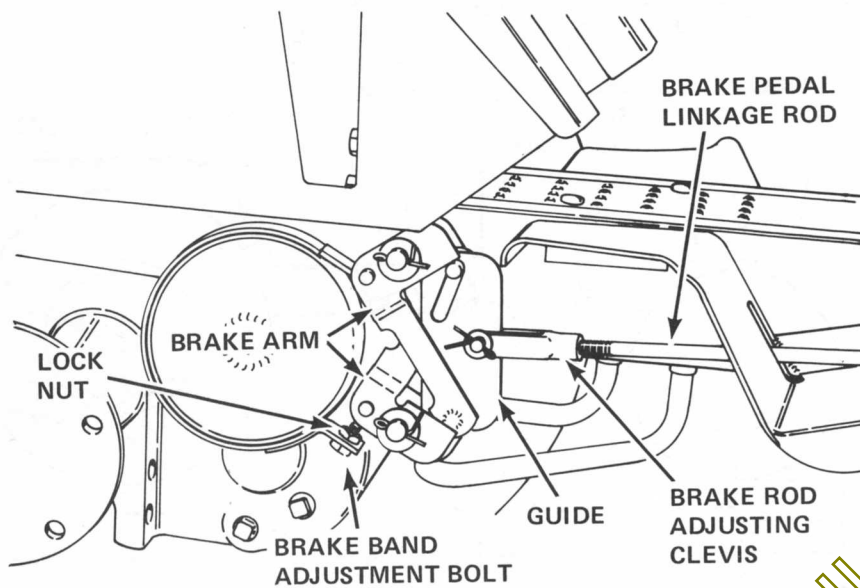


FIGURE 17 (Tire and Wheel Removed for a Clear View)

### ADJUSTMENT

The brake is correctly adjusted when:

- a push of the pedal brings the tractor to a quick stop
- the travel control lever returns automatically to the "NEUTRAL" position from both "FORWARD" and "REVERSE".

Adjust the brakes if needed. Use the procedure below:

1. Put the tractor on a hard, level surface, a concrete floor for example.
2. Put the dual range lever in the "NEUTRAL" position.
3. Release the brakes.
4. Remove the cotter pin, clevis pin and clevis from the guide.

5. Loosen the lock nut.
6. Push the guide rearward. Make contact between the dowel pins and arms.
7. Tighten the adjusting bolt one half turn at a time. Push the tractor with medium force after each adjustment.
8. When the tractor can not be pushed with medium force, loosen the adjusting bolt one turn. Make sure the brake drum moves freely.

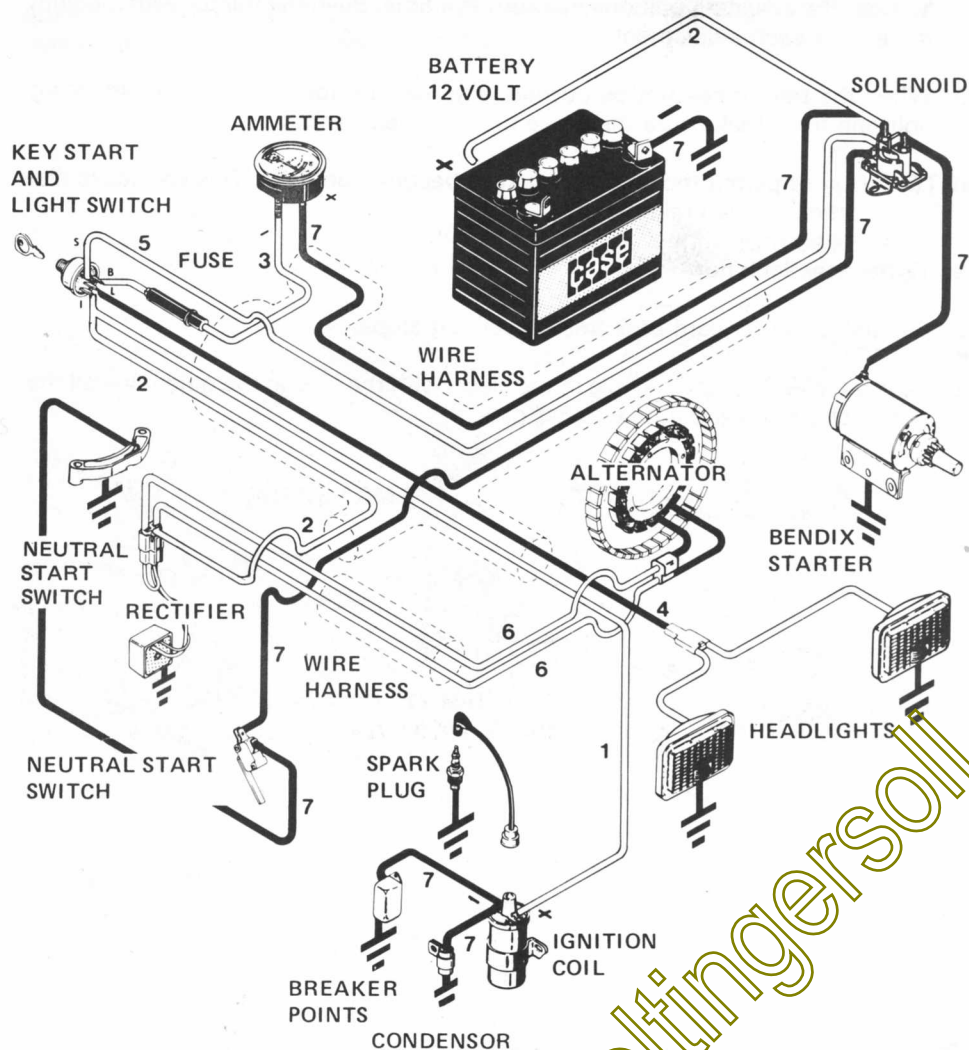
**NOTE:** Do not permit the adjusting bolt to become too tight. This will cause distortion of the brake band.

9. Tighten the lock nut.
10. Pull the guide forward until free movement stops.
11. Turn the clevis. Align the hole in the clevis with the hole in the guide. Install the clevis, clevis pin and a new cotter pin.

casecoltingersoll.com



# WIRING DIAGRAM



## COLOR CODE

1. Black and white
2. Red
3. Orange
4. Pink or Black
5. Yellow
6. White
7. Black

FIGURE 18

## STORAGE BATTERY

### BATTERY MAINTENANCE



**DANGER:** Batteries produce explosive charges. Keep sparks, flame and cigarettes away. Ventilate when charging or using in enclosed space. Always shield eyes when working near batteries.



**CAUTION:** Never wear rings or metal watch bands when working with the tractor electrical system or battery as you may ground a live circuit.



**CAUTION:** When working around storage batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals as a spark or short circuit may result. Sparks, lighted matches and exposed flames must be kept away from the battery due to the presence of explosive gas in the battery. The liquid in the batteries is acid. Use care not to spill it on hands or clothing.



**POISON:** Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing. Antidote: **EXTERNAL**, flush with water; **INTERNAL**, drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call physician immediately; **EYES**, flush with water for 15 minutes and get prompt medical attention. Keep out of reach of children.

1. Add distilled water, as required, to keep the water level above the cell separators. Check at 25 HOUR intervals of operation or every week. Normal water consumption is 1 ounce (30 ml) every 25 HOURS of operation. More than normal water consumption indicates:
  - a. a battery with a leak
  - b. a regulator rectifier that is charging too much
2. Make sure the battery is fastened in position. The battery cables must not contact the battery surface except at the connection.
3. Keep the battery in a clean and dry condition.
4. Use a hydrometer to check the specific gravity of the battery. If your battery will not keep the correct specific gravity, replace it. For the correct replacement battery see the specification section of this manual.

**IMPORTANT:** A battery having a specific gravity reading of 1.175 will become frozen at approximately 0°F (-18°C).

## ADDING WATER

Always use mineral free or distilled water in your battery. When the temperature is 32°F (0°C) or less, immediately charge the battery after adding water. This will mix the water and electrolyte. If the water is not mixed, it will stay on top and become frozen.

Make a weekly check of the electrolyte level.

1. Remove the battery caps.
2. Visually check each cell.
3. Add water before you see the separators.

**NOTE:** Do not fill too much. Keep the electrolyte level below the base of the filler tubes.

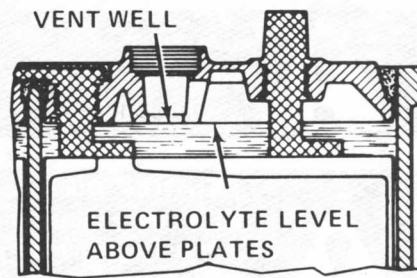


FIGURE 19

## BATTERY CAPS

Always keep the battery caps in place and tight. Make sure the hole in the caps are open. Ventilation must occur to prevent pressure in the cells.

## CABLE TERMINALS AND BATTERY POSTS

Keep the battery terminals clean and tight.

1. Remove all corrosion with a wire brush.
2. Wash with a neutral solution.
3. Apply a thin layer of light grease to prevent corrosion.



**CAUTION:** When removing a battery, always disconnect the (-) negative ground cable first. When installing the battery, always connect the (-) negative ground cable last.

## IDLE BATTERY

When the tractor is not used regularly, the storage battery will slowly lose voltage. Charge the battery at regular intervals to keep the hydrometer reading at 1.250 or more.



## HOW TO USE JUMPER CABLES AND A BOOSTER BATTERY

Always wear protective goggles and clothing when you work near batteries. Prevent acid from coming in contact with your skin or clothing.

Connect the jumper cables as shown below. Follow the numbers for the correct sequence of installation.

To remove the jumper cables, reverse the sequence.

To prevent any possible sparks near the battery:

1. Make sure the last connection is as far as possible from the battery.
2. Do not let the ends of the cables make contact with each other.
3. If the booster battery is on another machine, make sure machines do not make contact.



**WARNING:** To jump start this machine, connect positive jumper cable to battery terminal on starter solenoid and connect negative jumper cable to good engine ground. Start engine only when seated in operator's seat. Stop engine before leaving machine. Disconnect jumper cables. Any other method could result in uncontrolled machine movement.

BATTERY TERMINAL  
ON THE SOLENOID

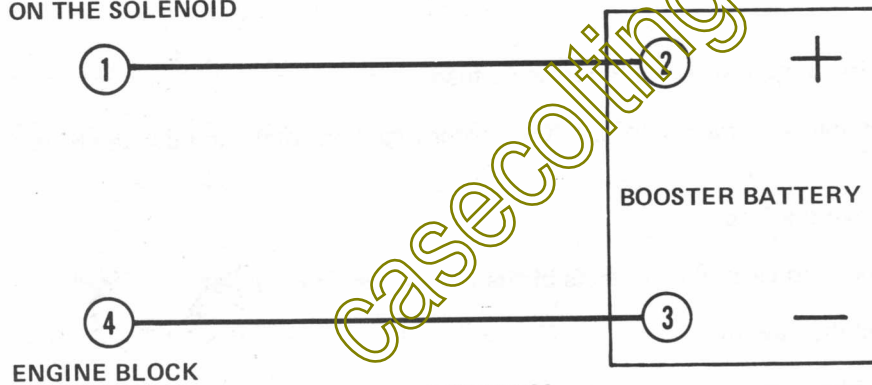


FIGURE 20

## FUSE

The SAE 20 amp fuse is located next to the hydraulic oil reservoir. This fuse protects all circuits except the starter motor.

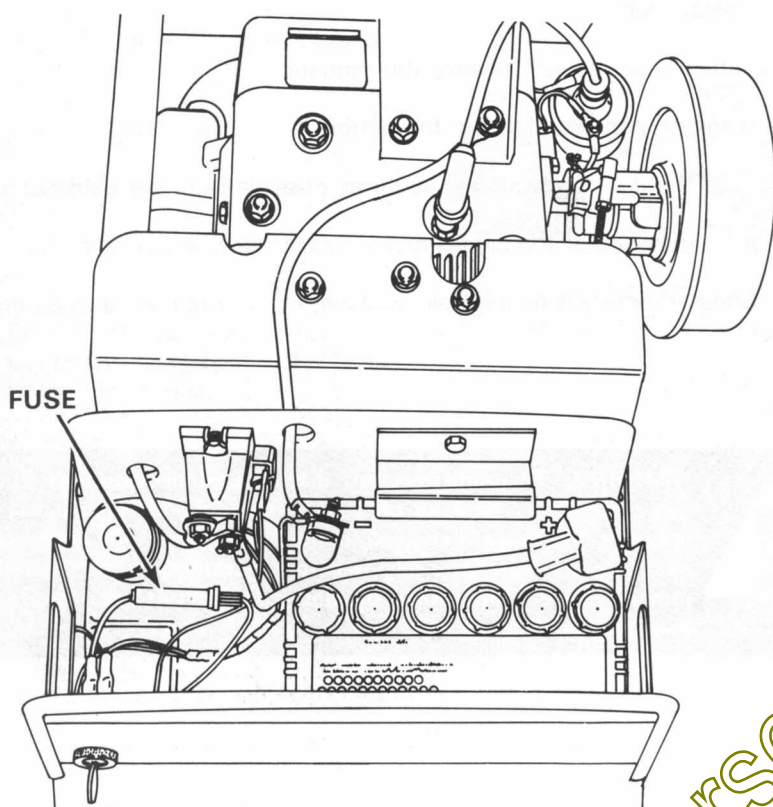


FIGURE 21

Use the following procedure to replace a fuse:

- Press the two "halves" of the fuse holder together, rotate and pull the halves apart.
- Remove the fuse.
- Inspect and clean the contacts of the fuse holder (if required).
- Install the new fuse.
- Align the notches, press the two "halves" together, rotate and release.

## HEADLIGHTS

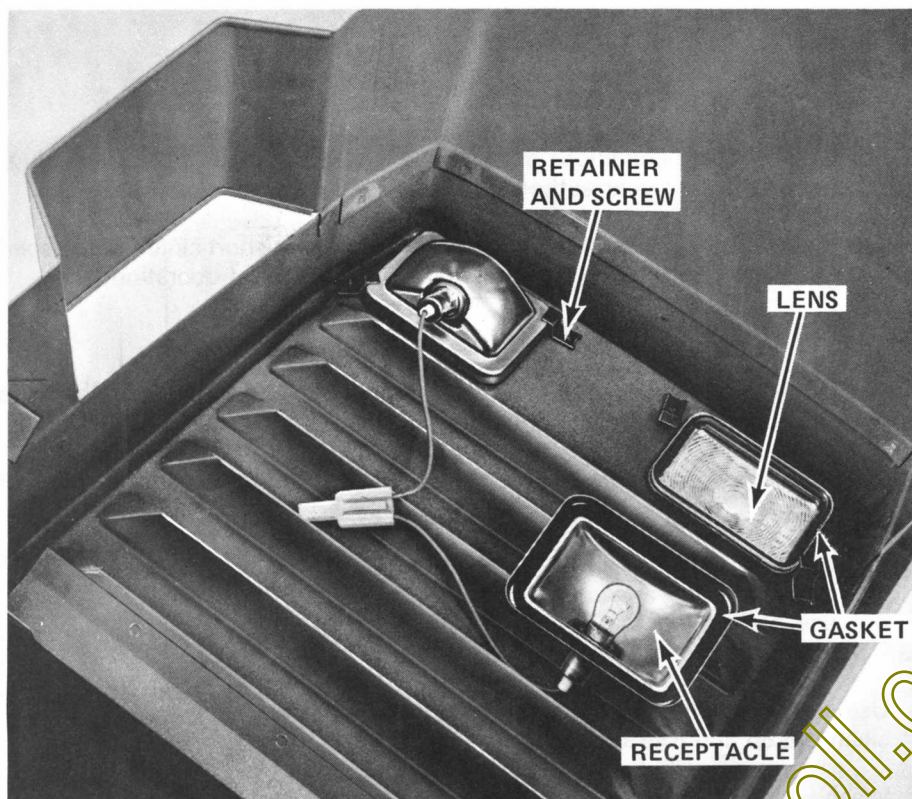


FIGURE 22

To replace the headlight bulb:

1. Remove the two screws and retainers.
2. Remove the headlight receptacle.
3. Push in and turn counterclockwise to remove the bulb.
4. Push in and turn clockwise to install the new bulb.
5. Install the receptacle. Put one gasket between the lens and grille. Put the other gasket in the groove between the lens and the receptacle.
6. Install the retainers with the mounting screws.

**NOTE:** The new bulb will not illuminate until the receptacle has a ground connection.



## SPARK PLUG

The original spark plug in your engine has a medium heat range. For replacement, use a Champion H-10 or equivalent (Champion RH10 or equivalent in Canada).

Tip length	7/16" (11.1 mm)
Thread size	14 mm
Gap setting	.035" (0.90 mm)

**NOTE:** During severe conditions of operation, the heat range of the spark plug is important. See your authorized dealer for the correct spark plug.

Frequently clean the outside of the spark plug to prevent a short circuit of the spark. Check, clean and gap the spark plug at 100 hour intervals of operation.

### REMOVING THE SPARK PLUG

It is important to use the exact size wrench. The wrong size or type of wrench can cause distortion or break the spark plug.

Use a spark plug wrench or deep socket wrench with a thin wall. Make sure it is the correct size.

### CLEANING AND SETTING THE GAP

Do not use a machine that cleans the spark plugs with grit.

1. Use a small knife or wire brush to clean the tip and threads.
2. Wash with a solvent to remove loose carbon and oil.
3. Dry with a clean cloth.
4. Set the gap. You will feel a small amount of pressure on the feeler gauge when the gap is correct.

**IMPORTANT:** Do not bend the center tip.

### INSTALLING THE SPARK PLUG

1. Put a new gasket on the spark plug.
2. Turn the spark plug into the engine.
3. After the spark plug is seated, tighten 3/4 of a turn with a wrench. Use a torque specification of 27 foot pounds (36.6 newton metre) with a torque wrench. This will make sure that the spark plug seats and seals correctly.

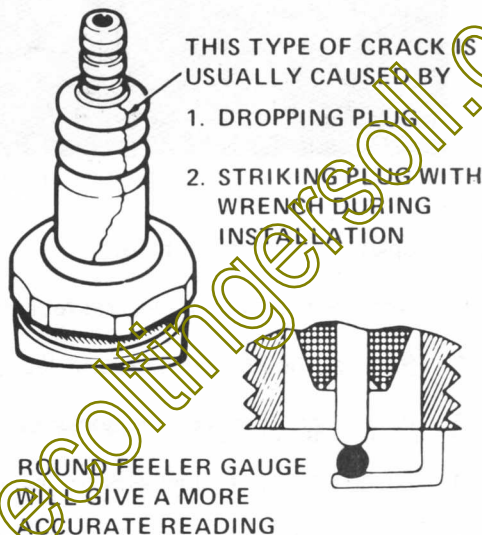


FIGURE 23

## BREAKER POINTS AND CONDENSER

Remove the breaker point cover and inspect the breaker points for wear, burning or pitting. Perform this service at 500 HOUR intervals of operation.

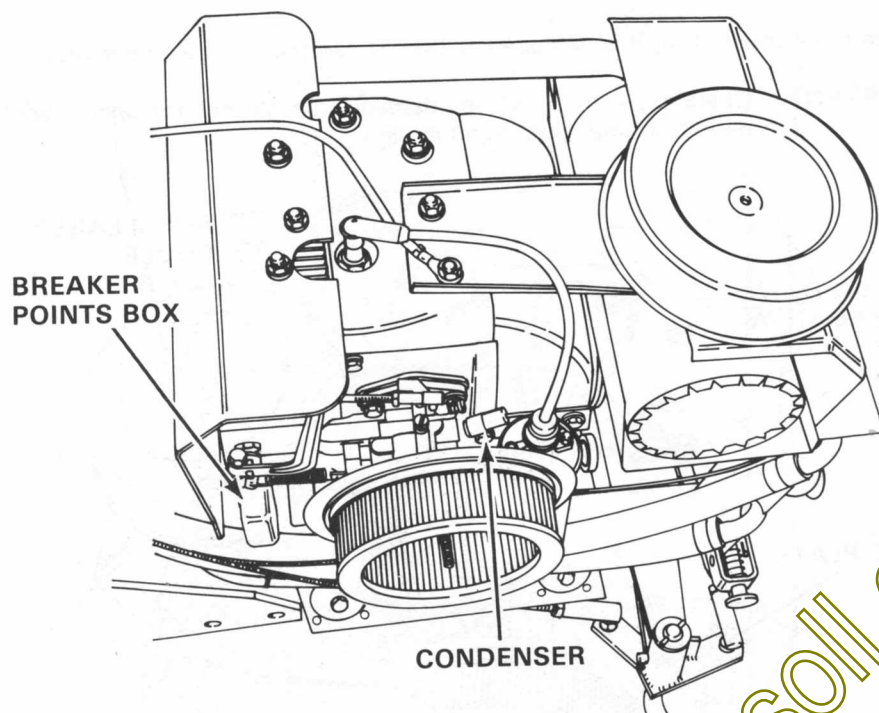


FIGURE 24

The breaker points and condenser should be replaced and the ignition timing adjusted if burning or pitting is evident. The breaker point gap must be adjusted to .020" (.50 mm) when fully open.

See your authorized Case dealer for this service.

## AIR CLEANER

Your tractor is equipped with a dry type air cleaner.

Remove and clean the element after each 25 HOURS of operation.

Remove and clean the element more frequently under extremely dirty, dusty conditions.

Replace the element if (a) it is damaged or (b) dirt can not be easily removed.

**IMPORTANT:** Operating with a dirty or damaged air cleaner for only a brief period of time can ruin an engine.

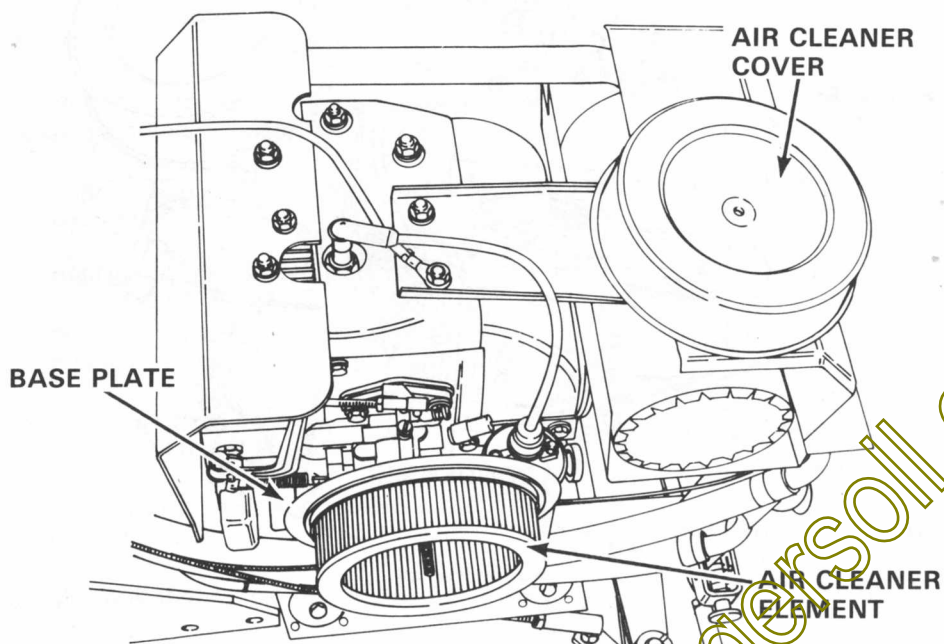


FIGURE 25

Clean the element by tapping it lightly on a flat surface until the dirt falls off. Handle the element carefully to prevent damage.

Do not wash the element in any liquid or blow dirt off with compressed air. Both of these procedures will destroy the element's ability to filter.

With the air cleaner disassembled, check the base plate to make sure it is secure and not bent or damaged. Also check other air cleaner and carburetor components such as the cover and gaskets for air leaks. Damaged or loose components could allow unfiltered air into the engine causing premature wear and failure.



The air cleaner wing nut with its sealing gasket/washer must be finger tightened one-half to one full turn after the nut contacts the cover. Do not overtighten.

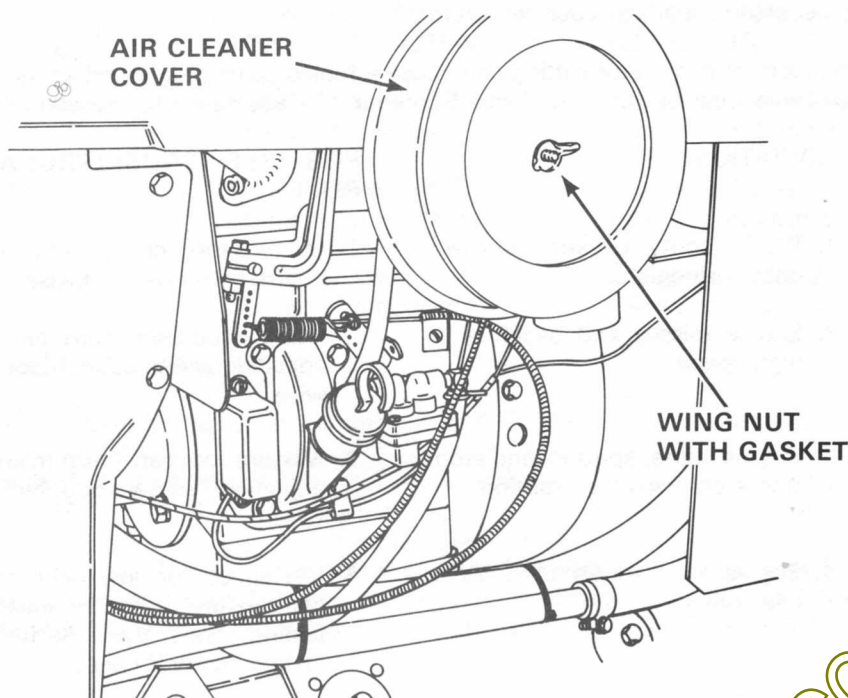


FIGURE 26 Air Cleaner Cover Correctly Installed

### AIR CLEANER PRECLEANER

An optional precleaner is available from your J I Case dealer. This precleaner will extend the life of the paper air cleaner element by removing coarse particles.

Remove and wash the precleaner after each 25 HOURS of operation. Remove and wash the precleaner more frequently under extremely dirty, dusty conditions.

Use the following procedure:

1. Remove precleaner from air filter element and wash in warm water with detergent.
2. Rinse thoroughly until all traces of detergent are eliminated and squeeze away excess water. Air dry. (Do not wring precleaner.)
3. Soak in fresh, clean engine oil and squeeze out excess oil.
4. Reinstall precleaner over air filter element.

## CARBURETOR

Carburetors are set at the factory and normally should not have to be adjusted. If your engine exhibits conditions similar to those found in the following table, it may be necessary to adjust your carburetor.

An incorrect carburetor setting can cause a fouled spark plug, overheating, excessive valve wear or other problems. See your J I Case dealer for assistance.

CONDITION	POSSIBLE CAUSE/PROBABLE REMEDY
1. Black, sooty exhaust smoke*, engine sluggish.	1. Mixture too rich - turn main fuel adjusting screw clockwise.
2. Engine misses and backfires at high speed.	2. Mixture too lean - turn main fuel adjusting screw counterclockwise.
3. Engine starts, sputters and stops under cold weather starting.	3. Mixture too lean - turn main fuel adjusting screw counterclockwise.
4. Engine runs rough or stalls at idle speed.	4. Idle speed too low or improper idle mixture - turn idle speed adjusting screw, then idle fuel adjusting screw if needed.

\*If black exhaust smoke is noted, check the air filter first - an apparent "over-rich" mixture can actually be a clogged air filter element. If, after element is replaced, black smoke or other problems continue, adjust carburetor immediately.

### TO ADJUST CARBURETOR

Stop engine, turn main fuel and idle fuel adjusting screws clockwise, until they bottom lightly.

**IMPORTANT:** Damage to main fuel and idle fuel adjusting screws will result if they are turned in forcefully. Adjusting screws are screw-type needle valves which taper to critical dimensions.

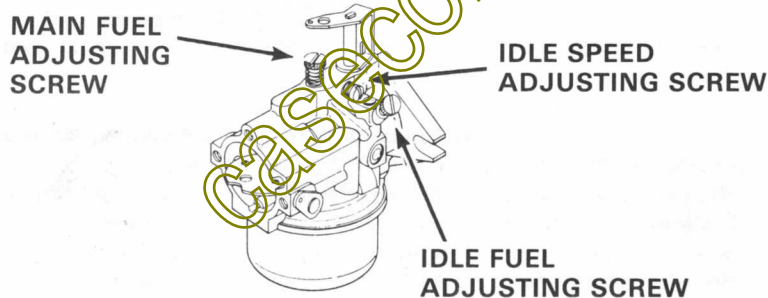


FIGURE 27

## PRELIMINARY SETTING

HORSEPOWER	MAIN FUEL ADJUSTING SCREW	IDLE FUEL ADJUSTING SCREW
10	Counterclockwise 1-1/2 turns from bottom	Counterclockwise 2-1/2 turns from bottom
12	Counterclockwise 1-1/2 turns from bottom	Counterclockwise 2-1/2 turns from bottom
14	Counterclockwise 2-1/2 turns from bottom	Counterclockwise 2-1/2 turns from bottom

### FINAL SETTING - MAIN FUEL

1. START ENGINE and run at full throttle for 5 to 10 minutes to warm engine.
2. Turn main fuel adjusting screw clockwise until speed decreases. NOTE POSITION OF THE ADJUSTING SCREW.
3. Now turn main fuel adjusting screw counterclockwise - the engine speed will first increase and then decrease as the screw is turned. NOTE POSITION OF THE ADJUSTING SCREW WHEN THE ENGINE SPEED STARTS TO DECREASE.
4. Set the main fuel adjusting screw midway between the two points noted.

### FINAL SETTING - IDLE SPEED

1. Start engine and run at full throttle for 5 to 10 minutes to warm engine.
2. Put throttle in the low idle position.
3. Turn idle fuel adjusting screw clockwise until speed decreases.
4. Now turn idle fuel adjusting screw counterclockwise - the engine speed will first increase and then decrease as the screw is turned. NOTE POSITION OF THE ADJUSTING SCREW WHEN THE ENGINE SPEED STARTS TO DECREASE.
5. Set the idle fuel adjusting screw midway between the two points noted.

### IDLE SPEED SETTING

1. Start engine and run at full throttle for 5 to 10 minutes to warm engine.
2. Put throttle in the low idle position.
3. Turn the idle speed adjusting screw clockwise or counterclockwise until the engine speed is 1200 RPM ( $\pm 75$  RPM).



## FUEL

Always use clean fresh gasoline and a funnel with a filter. Use no-lead gasoline with minimum octane ratings as follows:

Research Method 90

Motor Method 82

Average 87

In the United States the average octane rating is shown on gasoline pumps. In other countries, if the method is not given, it is the Research Method. No-lead fuel leaves less combustion chamber deposits. Leaded gasoline may be used only if no-lead gasoline is not available.

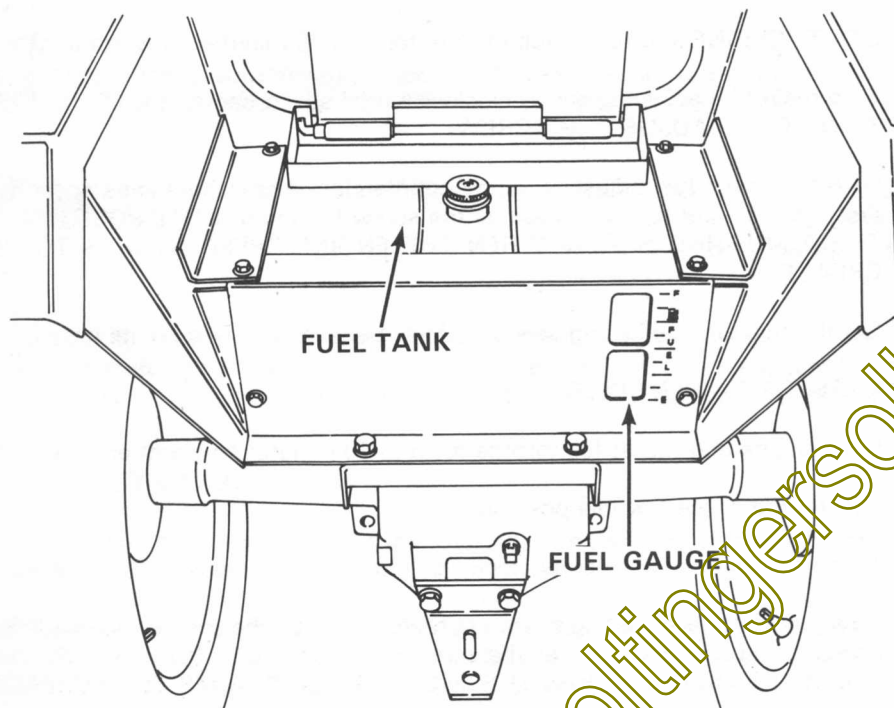


FIGURE 28



**CAUTION:** Do not smoke when working near fuel.

**CAUTION:** 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.
- c. Open doors if the engine is run in the garage — exhaust fumes are dangerous. Do not run the engine (motor) indoors.



**CAUTION:** 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.

Purchase gasoline in small quantities. Fresh gasoline reduces chance of gum deposits forming and clogging the fuel system and ensures a fuel blended for the season. Do not use gasoline left over from the previous season.

Do not add oil to the gasoline.

If a restriction of fuel occurs, clean the filter in the outlet of the fuel tank and the vent in the fill cap.

**NOTE:** The black tank is used prior to the listed Product Identification Numbers and the translucent tank is used beginning with the listed PIN's.

#### TRANSLUCENT TANK WITH GAUGE

MODEL	PIN AND AFTER
-------	---------------

220	14019750
-----	----------

222	14021557
-----	----------

224	14023216
-----	----------

444	14024630
-----	----------

## ENGINE OIL

The importance of checking and changing crankcase oil cannot be overemphasized.

**DIRTY OIL CAUSES PREMATURE ENGINE WEAR AND FAILURE.**

Oil level check:

Check the oil level in the engine crankcase **BEFORE EACH USE** when the engine is cool and the oil has drained back into pan.

- a. Position the tractor (engine) on a level surface when checking the oil. Stop the engine.
- b. Before checking the oil level wipe the area clean around the dipstick to prevent dirt from entering the engine.
- c. Pull the dipstick and wipe the oil off.

**IMPORTANT:** Always check the oil level when the engine is stopped. Do not remove the dipstick while the engine is running. Oil will be forced out the dipstick opening if the dipstick is removed while the engine is running.

- d. Reinsert the dipstick. Push it all the way down.
- e. Pull the dipstick and read the oil level.
- f. Add oil through the dipstick opening if necessary to bring the oil level up to, but not over, the "F" mark on the dipstick.

**IMPORTANT:** Do not operate engine with oil level below the "L" mark or over the "F" mark.

## OIL TYPE

Use oil meeting the requirements of API service class SC, SD, SE or SF. Select oil viscosity based on the air temperature at the time of operation, as shown.

### AIR TEMPERATURE

### OIL VISCOSITY

Above 32° F (0° C)

SAE-30

Below 32° F (0° C)

SAE 5W-20 or SAE 5W-30

Avoid using multi-viscosity oil above 32° F (0° C). The use of multi-viscosity oil above 32° F (0° C) causes increased oil consumption and combustion deposits.

**IMPORTANT:** Do not use oil additives or viscosity improvers. These products are not formulated for air cooled engines and will solidify, causing engine failure.



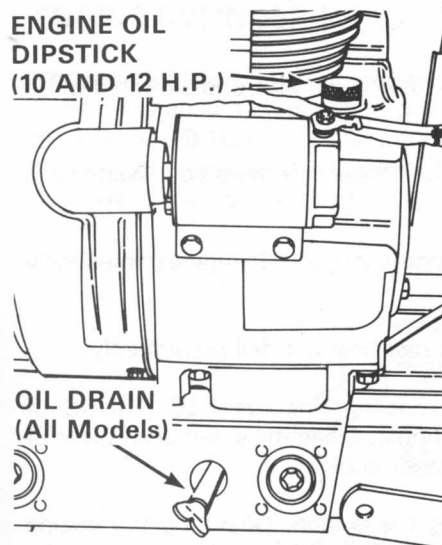


FIGURE 29

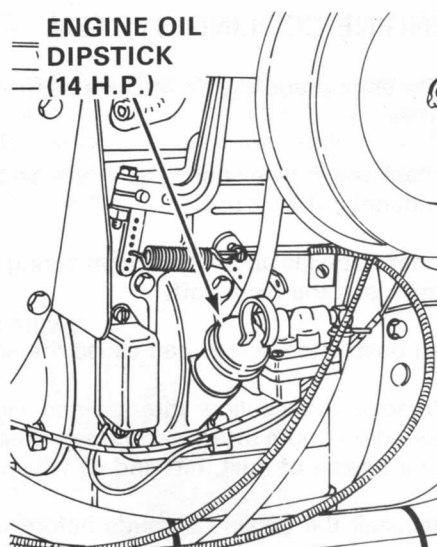


FIGURE 30

## OIL CHANGE

### FIRST CHANGE

Change the oil after the first 5 HOURS of operation when your engine is new.

### REGULAR CHANGE

Change the oil at every 25 HOUR interval of operation or sooner if the oil becomes discolored. CHANGE OIL MORE FREQUENTLY UNDER DIRTY, DUSTY CONDITIONS. (Most lawn and garden tractor working conditions are considered dirty and/or dusty.)

### OIL CHANGE PROCEDURE

1. Position tractor on a level surface.
2. Drain oil while engine is still warm from operation. Warm oil will flow more freely and carry away more impurities.
3. Install the drain plug.
4. Fill through the dipstick opening to the "F" mark on the dipstick with the proper oil. See the OIL TYPE section of this manual.

**NOTE:** Tractor (engine) **MUST** be level when checking or changing the oil.

**IMPORTANT:** Do not operate engine with oil level below "L" mark or over the "F" mark.

## ENGINE COOLING SYSTEM

The engine cooling air intake screen must be kept clean and unobstructed at all times.

Check the engine cooling air intake screen DAILY before operating your tractor and frequently during use.

If debris builds up on the screen during engine operation, STOP engine immediately and clean the debris off.

An obstructed screen can cause the engine to overheat and fail prematurely.

Remove the cooling shrouds and clean the cooling fins every 50 HOURS of operation (more often in extremely dusty conditions). Clean the external surfaces of your engine of dust, dirt and oil which can restrict cooling.

Reinstall the cooling shrouds before operating the engine. Operating the engine without the cooling shrouds in place can cause overheating and damage to the engine.

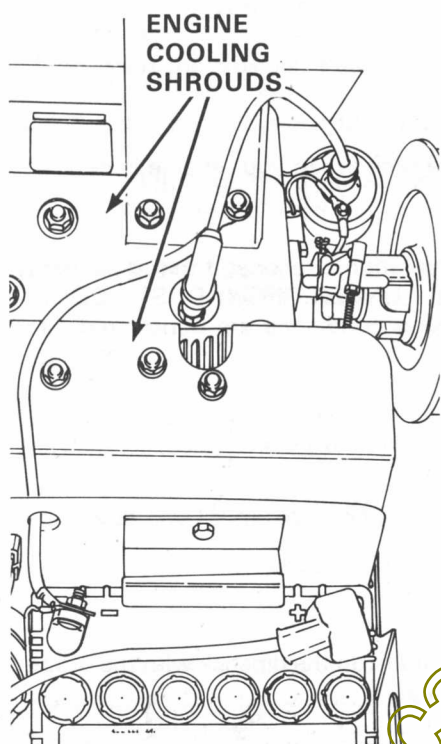


FIGURE 31

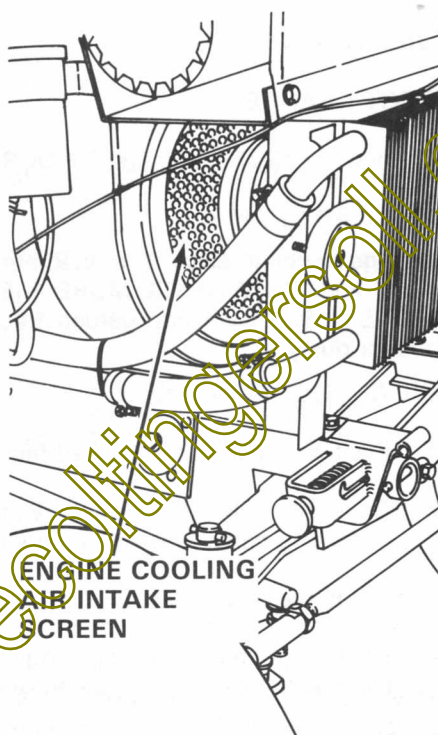


FIGURE 32

## ENGINE CYLINDER HEAD SERVICE

The cylinder head must be removed and the buildup of carbon and other deposits must be cleaned periodically to prevent premature engine wear. This must be done after each 100 HOURS of operation if leaded gasoline is used and after each 200 HOURS of operation if unleaded gasoline is used or once a year whichever comes first. Have this service done by an authorized dealer.

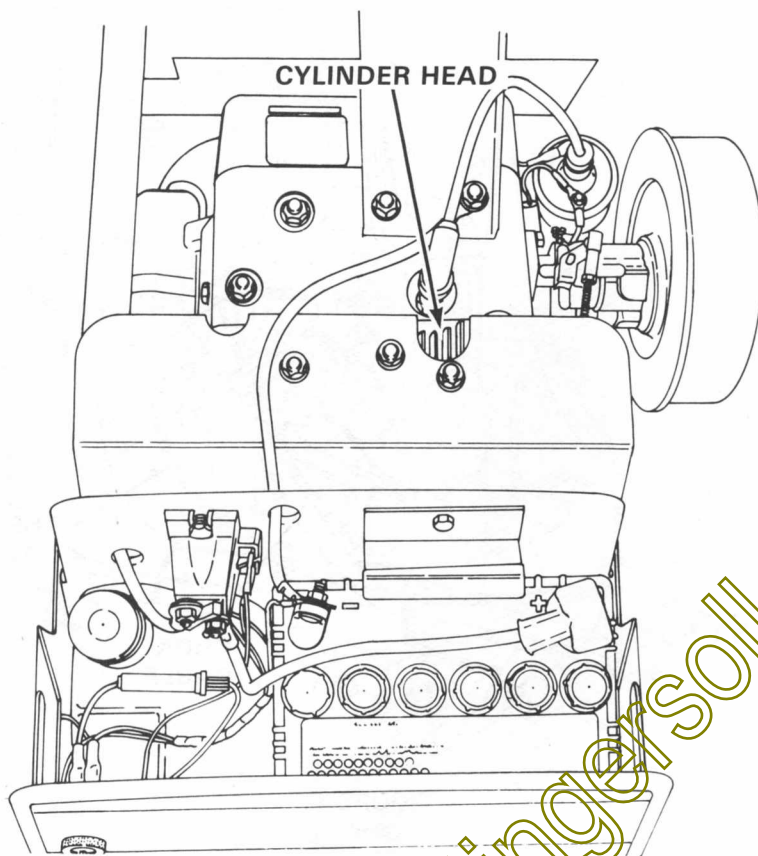


FIGURE 33

## ENGINE VALVE SERVICE

The valve tappet clearances must be checked and adjusted (if necessary) after each 500 HOURS of operation. The correct valve clearances are listed in the specification section of this manual. Have this service done by an authorized dealer. The crankcase breather in the valve cover must be cleaned at this time.



## THROTTLE AND CHOKE CABLES

Oil the cables with penetrating oil and/or light weight motor oil after each 50 HOURS of use. Do not oil the pivot at the handles as this will reduce the ability of the cable to hold its proper setting.

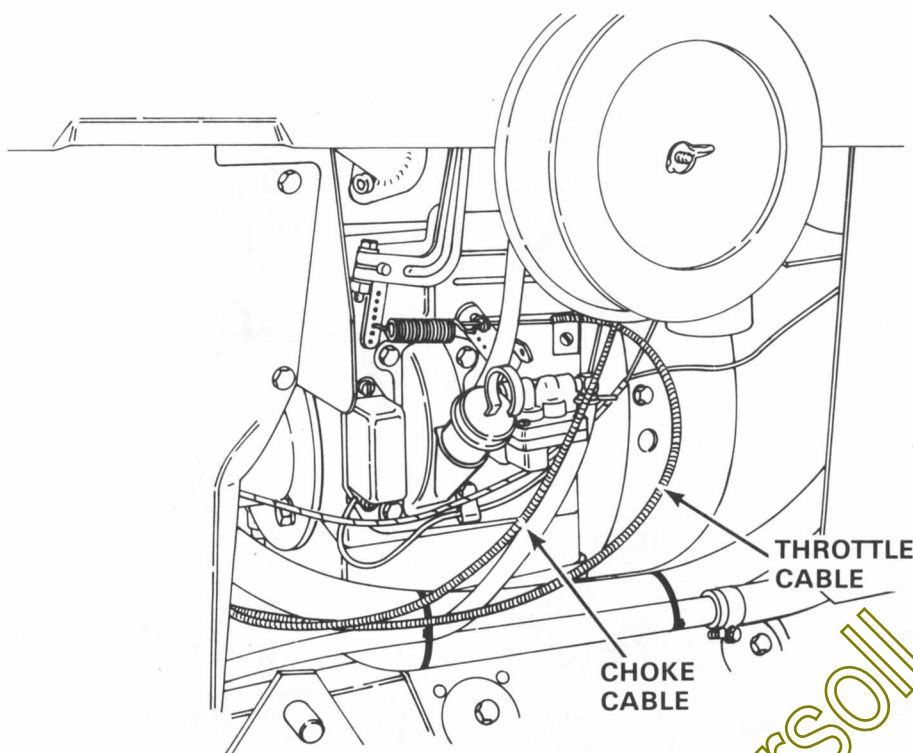


FIGURE 34

The following steps can be taken to prevent freezing of choke and throttle cables when the snowcaster attachment is used:

1. Always direct snowcaster discharge away from and down wind from the tractor.
2. Saturate cables with penetrating oil and/or light machine oil.
3. Keep cables dry and oil frequently.
4. Oil the cable only. Do not oil the friction device at the cable handle.

## HYDRAULIC OIL COOLER

The hydraulic oil cooler must be kept clean and unobstructed at all times.

Check the hydraulic oil cooler DAILY before operating your tractor and frequently during use.

If debris builds up on the screen during tractor operation, STOP the tractor engine immediately and clean the debris off.

An obstructed hydraulic oil cooler can cause the tractor hydraulic system and engine to overheat and fail prematurely.

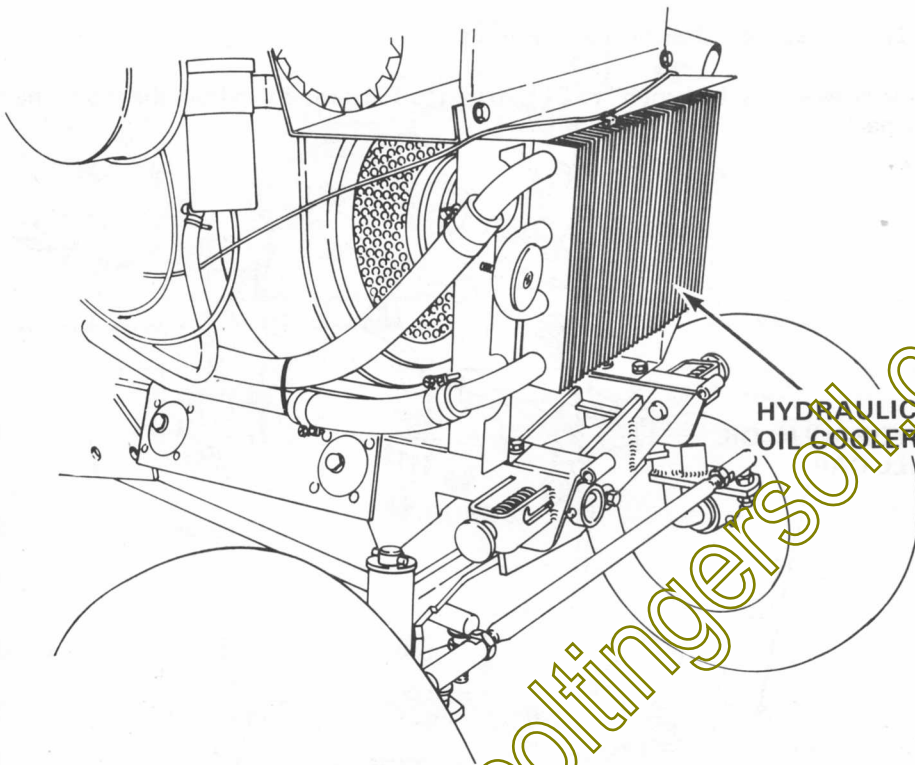


FIGURE 35

## HYDRAULIC OIL

Change the hydraulic oil after each 500 HOURS of use. Replace the hydraulic oil seasonally according to the chart below.

### AIR TEMPERATURE

Above 32° F (0° C)

Below 32° F (0° C)

### OIL VISCOSITY

SAE 20W40\*

SAE 5W20\*

\*Use API Service Classification SE or CC.

The oil level must be kept 5" to 6" (120 mm to 150 mm) down from the top of the filler neck.

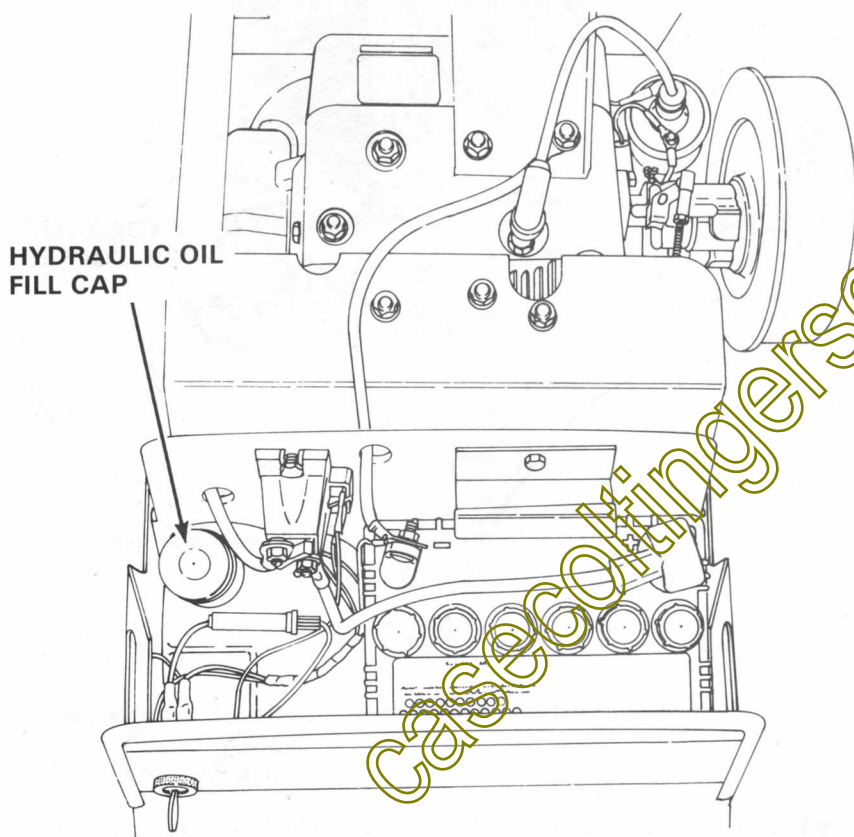


FIGURE 36



Use the following procedure to drain the hydraulic system:

1. Remove the spark plug(s) from the engine.
2. Ground the spark plug wire(s) to the engine block.
3. Place an oil drain pan with a capacity of two gallons under the travel control valve.

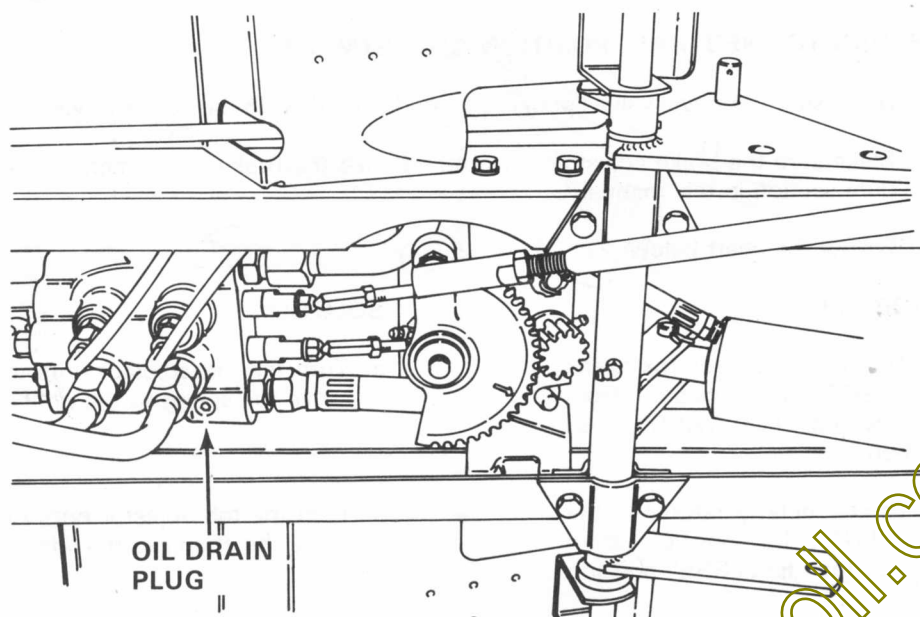


FIGURE 37

4. Remove the 1/4" hex socket plug.
5. Crank the engine to "pump" the oil out the drain hole.
6. Install the drain plug, spark plug(s) and wire(s).
7. Fill the reservoir to 5" to 6" (120 mm to 150 mm) from the top of the filler neck.
8. Run the engine and (a) drive forward and reverse a short distance and (b) raise and lower the hydraulic lift two times. Check the oil level again.

**IMPORTANT:** Make sure oil reservoir is filled to the proper level. Overfilling will cause oil leakage. Underfilling will cause cavitation and intermittent drive.

## TRAVEL VALVE SPOOL ADJUSTMENT

The travel valve spool is correctly adjusted when:

1. The tractor does not move while the travel lever is in the "NEUTRAL" position.
2. A restriction of motion occurs while the travel lever is in the "RETARD" position.

If the travel valve spool needs adjustment, take the tractor to your authorized dealer.

## RETURN TO "NEUTRAL" POSITION ADJUSTMENT

1. Make sure the travel valve spool is adjusted according to the above procedure.
2. Make sure the brake adjustment is correct. See the Brake Adjustment procedure section in this manual.
3. Follow the chart below:

### PROBLEM

- a. The travel lever returns to the "NEUTRAL" position from only the "FORWARD" position
- b. The travel lever returns to the "NEUTRAL" position from only the "REVERSE" position

### SOLUTION

- a. Turn the tab adjuster nuts to move the spring to the right
  - b. Turn the tab adjuster nuts to move the spring to the left
4. Make sure the tab points forward when the adjusting nuts are tightened. This will prevent the spring from falling out.

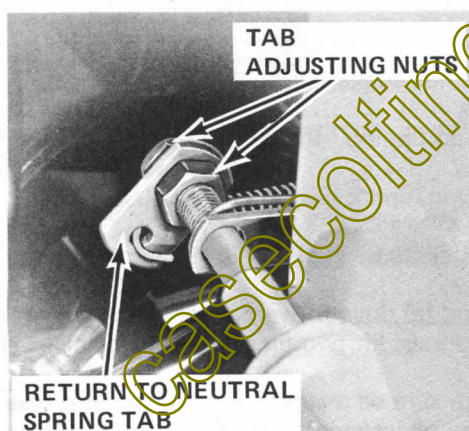


FIGURE 38

## MANUAL LIFT LEVER

Apply several drops of oil to the lift lever latch after each 25 HOURS of use.

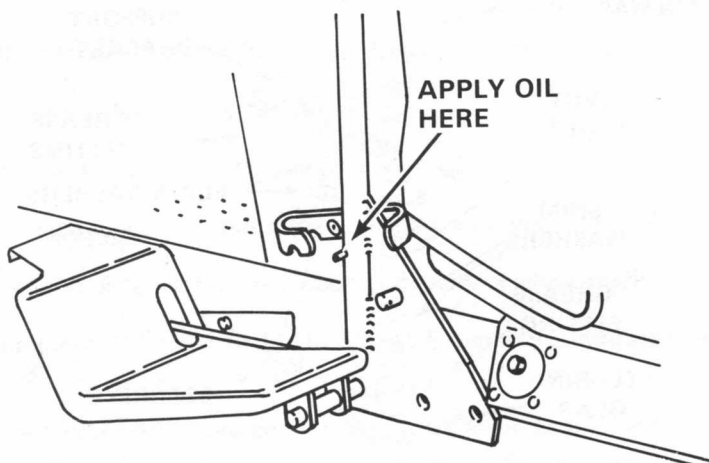


FIGURE 39

casecoltingersoll.com



## STEERING ADJUSTMENT

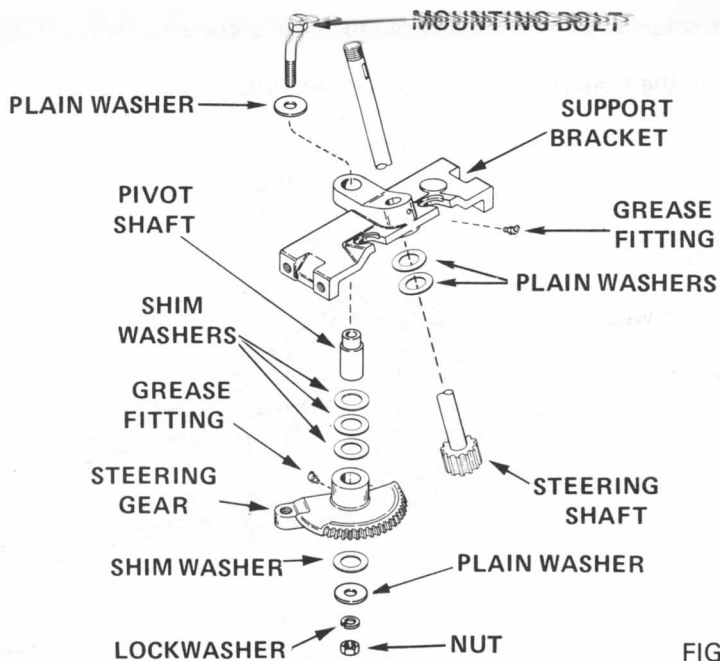


FIGURE 40



**CAUTION:** When adjusting steering wheel free play, make certain that some free play remains between the sector gear and pinion gear, since a tight fit with no clearance between the two gears may cause binding and tooth failure.

**IMPORTANT:** Check for the following before you adjust the steering gears.

1. Loose or worn ball joints, drag links and tie rods. Tighten or replace as required.

The tractor is assembled with shim washers between the steering gear and the support bracket. See the illustration. When the gear teeth wear, more free movement occurs. If too much free movement occurs adjust the steering gear.

1. Disconnect the drag link from the steering gear.
2. Remove the nut securing the steering gear.
3. Remove the steering gear.
4. Remove one or more shim washers from above the steering gear.
5. Put the steering gear in place on the pivot shaft.
6. Put the shim washers, washers and the nut on the steering gear bolt and tighten securely. The total number of the shim washers must always be the same.

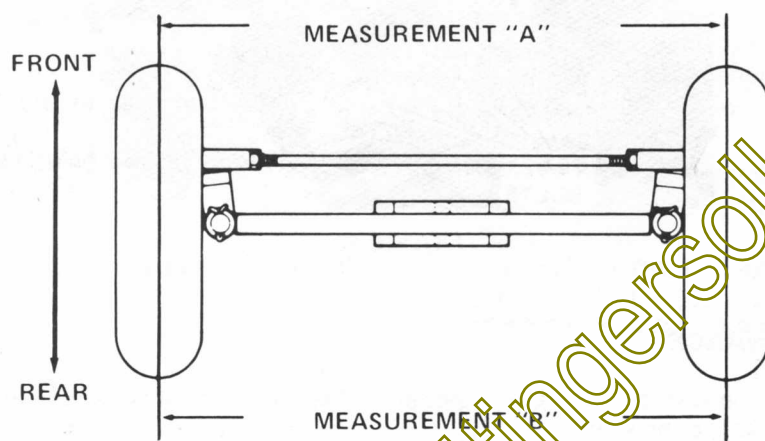
Apply grease to the teeth of the steering gear after each 50 hours of operation.

## TOE-IN ADJUSTMENT

1. Put the tractor on a hard and level surface like a concrete floor.
2. Make sure the front tires have equal air pressure.
3. Find the centerline of the front tires. See the figure below.
4. If you can not find the centerline:
  - a. raise the front wheels off the ground
  - b. spin each wheel and put a mark at the centerline with chalk
5. Measure the distance between each centerline or chalk mark.

Measurement "A" must be  $1/8$  to  $3/8$ " (3.2 mm to 9.5 mm) less than measurement "B".

Both measurements, front and rear, must be taken at spindle height above the floor.



6. Loosen both lock nuts on the tie rod.

**NOTE:** Do not remove the ball joints from the king pins. Turn the tie rod to change the toe-in.

7. Turn the ball joints off of the tie rod to decrease the toe-in.
8. Turn the ball joints onto the tie rod to increase the toe-in.

## SEAT

### ADJUSTMENT

1. Remove the four bolts that hold the seat to the seat hinge.
2. Move the seat either forward or reverse to get the correct position on the seat hinge.
3. Install the bolts.

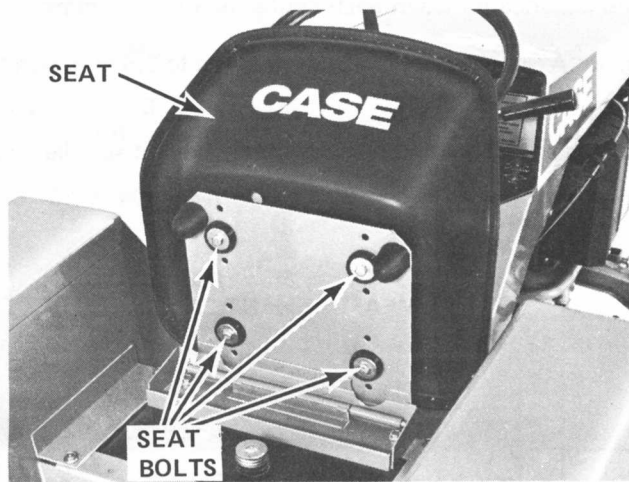


FIGURE 42

### MAINTENANCE

1. Clean the seat regularly. Use a special vinyl cleaner. Do not use a solvent as this will damage the seat.
2. Severe heat or cold can damage the seat. Protection from these conditions is important. Put a cover on the seat for protection against weather conditions and water. It is best to put the tractor in a building when not in use.
3. During operation in severe weather conditions, you can easily damage the seat. Be careful not to damage the seat while you get on and off the tractor.
4. If your seat gets a small tear, apply a vinyl repair tape over the damaged area. Black vinyl repair tape can be purchased locally.



## TRANSAXLE

Change the oil in the transmission after each 500 HOURS of operation.

### AIR TEMPERATURE

All Temperatures

### OIL TYPE & VISCOSITY

API Service Class SE or CC

SAE 20W40 or  
SAE 80 EP Gear Lube

Capacity One Pint (.5 l) for the following tractors:

220 PIN 14005237 and after

222 PIN 14006717 and after

224 PIN 14007819 and after

444 PIN 14009274 and after

Capacity is 3 quarts (2.8 l) for Models with PIN's prior to those listed above. The oil drain plug is located on the right hand side of the transaxle housing.

The oil level check plug for units with one pint capacity is located on the right hand side of the transaxle housing just above the drain plug.

The oil fill plug (and check plug for units with 3 quart capacity) is located on the rear of the transaxle housing.

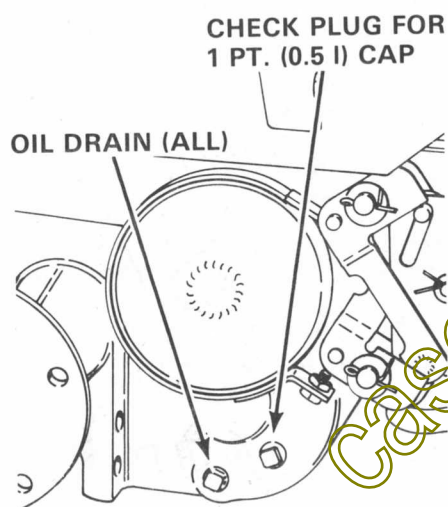


FIGURE 43

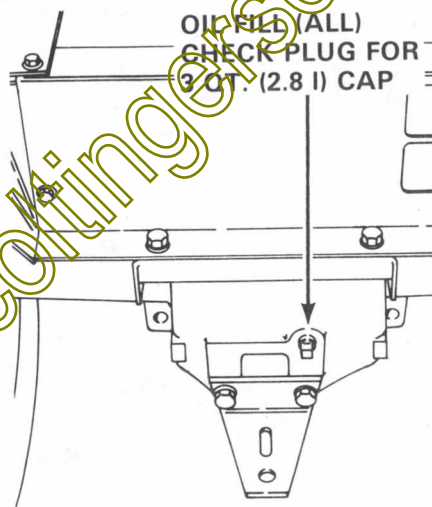


FIGURE 44

## CHASSIS LUBRICATION

Apply grease after every 25 HOURS of operation to the:

- a. front wheel spindles

**NOTE:** Lift front of tractor to permit grease to flow from top and bottom of spindle.

- b. front wheel bearings

**NOTE:** Remove dust caps from front wheel hubs before greasing front wheel bearings. The trapped air behind the dust caps can prevent the full lubrication of the bearings.

- c. axle pivot pin

- d. steering gear

- e. lift shaft

Use number 1 multi-purpose grease (Lithium Base) to all lubrication fittings. Use as many strokes as required, until you see grease pushing out of assembly.

Always wipe dirt from fitting before applying the grease gun.

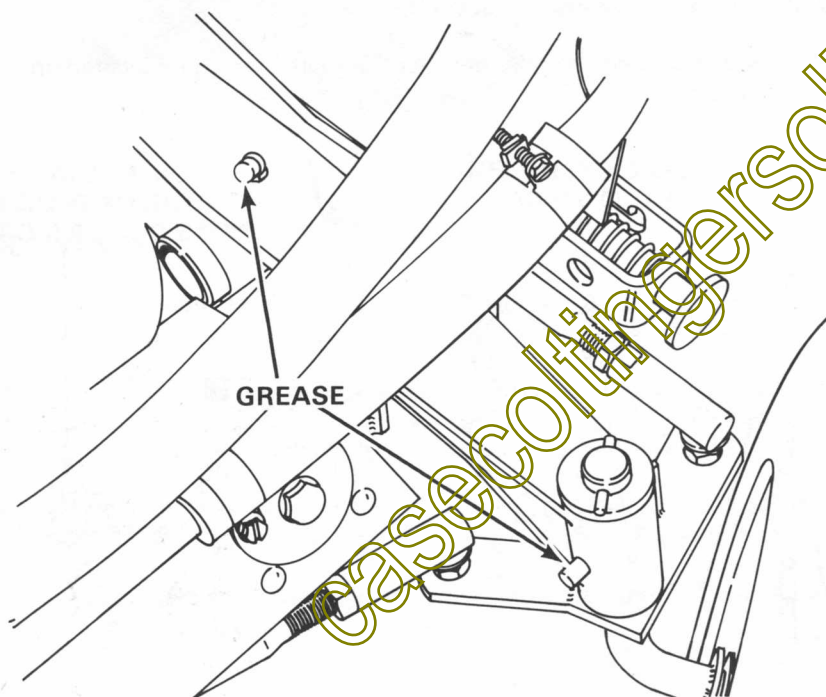


FIGURE 45 Front Wheel Spindles and Axle Pivot Pin

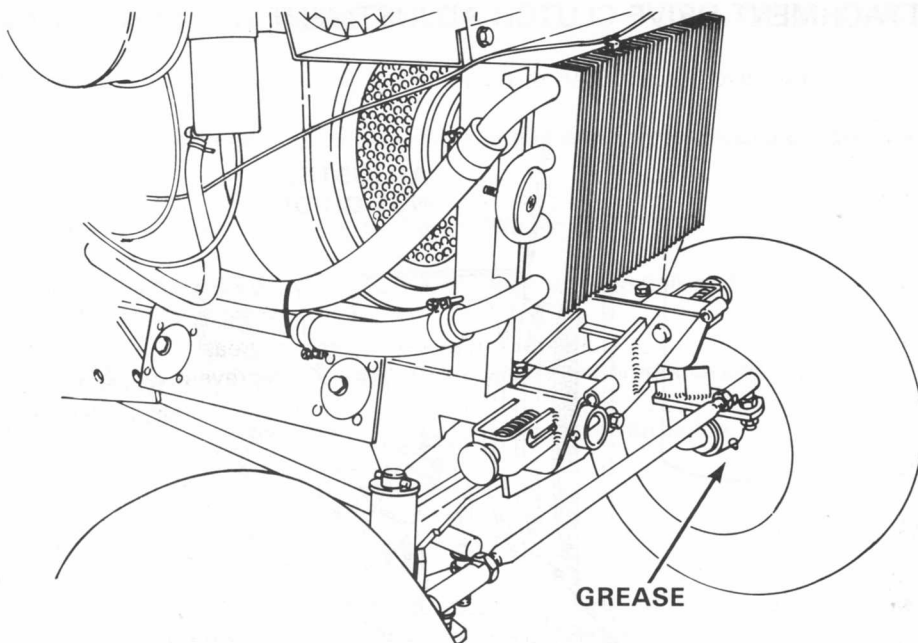


FIGURE 46 Front Wheel Bearings

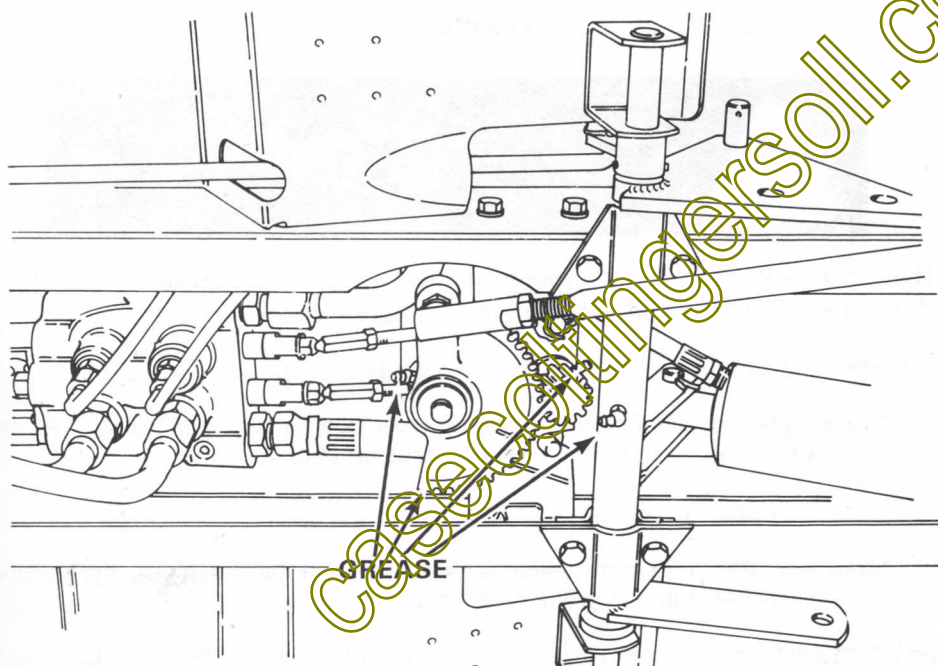


FIGURE 47 Steering Gear and Lift Shaft



## ATTACHMENT DRIVE CLUTCH ADJUSTMENT

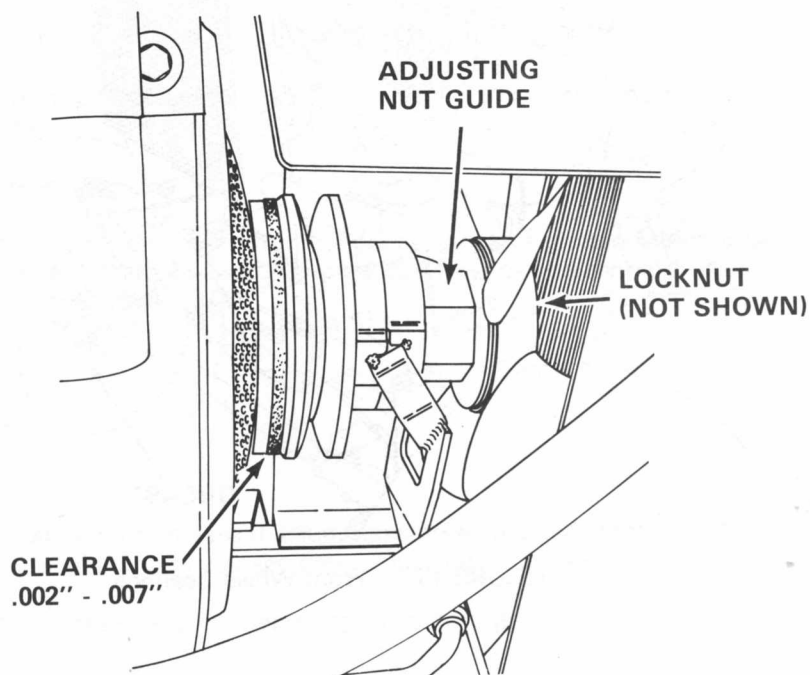


FIGURE 48



**CAUTION:** Before attempting to service the Attachment Drive Clutch, be sure to remove tractor key and spark plug wire(s).

The attachment drive clutch on your tractor requires periodic adjustment. Check the clutch every 50 HOURS of usage.

Adjustment is required if:

1. The attachment drive clutch engaging lever pushes forward "easily". A firm push is required to engage a properly adjusted clutch
- or
2. More than .030" (.75 mm) clearance exists between the clutch disc and backing plate when the clutch is in the disengaged position.

**IMPORTANT:** Adjust the clutch if required before operating an attachment. Operating an attachment when the clutch is in need of adjustment can result in slippage and damage to clutch parts.

## ADJUSTMENT PROCEDURE

1. Remove the hood.
2. Remove the three screws securing the oil cooler to front support and swing cooler out.

**NOTE:** It is not necessary to drain hydraulic oil.

3. Hold the adjusting nut with a 1-3/4" open end wrench and loosen the "Right Hand Thread" hex nut.

**NOTE:** A special 1-3/4" wrench is available from your dealer.

4. Use a 1-3/4" open end wrench to turn adjusting nut guide.
  - a. Turn nut in to decrease clearance.
  - b. Turn nut out to increase clearance.

There is not enough room for the wrench handle to turn the adjusting nut guide one complete flat. Use the following procedure:

- a. Insert a large screwdriver through the timing sight hole and engage one of the teeth on the flywheel ring gear.

The timing sight hole is located halfway up the right side of the blower housing.

- b. Turn the adjusting nut guide in the desired direction until the wrench handle touches an obstruction.
  - c. Remove the screwdriver from the flywheel ring gear.
  - d. Move the wrench handle to the opposite end of its travel while allowing the engine crankshaft to rotate.
  - e. Insert the screwdriver blade in the flywheel ring gear.
  - f. Repeat this procedure until the correct adjustment is achieved.
5. Adjust clearance to .002" to .007" (.05 to .17 mm). Measure clearance with two feeler gauges positioned 180° apart.
  6. Hold adjusting nut guide and tighten hex nut to 45 lb. ft. (60 Nm).
  7. Reassemble oil cooler and hood.

## MANUAL ORDERING PROCEDURE

1. Fill in your complete address (include street no.).
2. Fill in tractor serial number and model number (attachment model number also required for attachment manual orders).
3. Select manuals needed from manual list.
4. Fill in order form. Give:
  - a. equipment description (tractor, mower, etc.)
  - b. manual type (parts, service, operator's manual)
  - c. cost
  - d. quantity of each manual
5. Add up the total cost.
6. Include shipping and handling costs.
7. Send the order form and a check for the total cost to:

J I Case Co.  
Service Department  
119 South First Street  
Winneconne, WI 54986

These manuals are available from the J I Case Co.:

- a. Parts Manual (includes part numbers and exploded views of your equipment assemblies).
- b. Operator's Manual (includes specifications, operating procedures and maintenance procedures for your equipment).
- c. Service Manual (includes repair procedures for your tractor).

## MANUAL LIST

DESCRIPTION	MANUAL TYPE & COST		
	PARTS MANUAL	OPERATOR'S MANUAL	SERVICE MANUAL
Tractor	\$2.50	\$2.00	\$20.00
Mower	\$1.00	\$2.00	N/A
Snowcaster	included w/mower	\$1.00	N/A
Blade	included w/mower	\$1.00	N/A
Tiller	\$1.00	\$1.50	N/A
Other	Please contact us for information.		



# ORDER FORM

To order additional manuals for your tractor and attachments, fill in this order form and send to:

J I CASE  
Service Department  
119 South First Street  
Winneconne, WI 54986

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Tractor Model No. \_\_\_\_\_ Tractor Serial No. \_\_\_\_\_

CUT HERE

Qty.	Equipment Description	Manual Type	Cost

\_\_\_\_\_ Total

\_\_\_\_\_ Shipping & Handling\*

\_\_\_\_\_ Total Cost

\*Please include \$2.00 for orders under \$20.00. Please include \$3.00 for orders \$20.00 and over.

## NOTICE

With the delivery of your new tractor, your Case dealer will show you operation and maintenance instructions. The description of these instructions is in the "Owner Warranty Registration and Delivery Report". After these instructions you will sign this report and get a copy.

## AFTER DELIVERY CHECK

Your Authorized Case Dealer will make the "After Delivery Check" on your new Case tractor if:

1. He sold you the tractor.
2. It is 60 days or 100 hours of operation, after delivery (whichever comes first).
3. You make arrangements to bring your tractor to the dealer.

The "AFTER DELIVERY CHECK" is shown on the following page.

**NOTE:** Your dealer will only charge you for oil, air filter or other accessories.

casecoltingersoll.com

## AFTER DELIVERY CHECK

_____ (Owner's Name)	_____ (Date)
_____ (Owner's Address)	
_____ (Dealer)	_____ (City)
Tractor has been operated _____ days	
_____ (Tractor Model and Serial Number)	

### TRACTOR

- |   |  |
|---|--|
| <input type="checkbox"/> Operator's Manual included with machine.   | <input type="checkbox"/> Cooling system, engine and heat exchanger fins.                       |
| <input type="checkbox"/> Check attachment drive clutch operation and adjustment.                          | <input type="checkbox"/> Crankcase oil (change oil if necessary).                              |
| <input type="checkbox"/> Check operation of brake.  | <input type="checkbox"/> Oil level in hydraulic system reservoir.                              |
| <input type="checkbox"/> Check Travel Control linkage for correct adjustment and full valve spool travel. | <input type="checkbox"/> Oil level in transmission.  |
| <input type="checkbox"/> Check tire air pressures.  | <input type="checkbox"/> Lubricate all grease fittings.  |
| <input type="checkbox"/> Tighten cylinder head and adjust tappets.  | <input type="checkbox"/> Check air cleaner.  |
| <input type="checkbox"/> Check spark plug(s).   | <input type="checkbox"/> Check tension of all belts.   |
| <input type="checkbox"/> Check high governed speed with no load and low idle speed.                       | <input type="checkbox"/> Lubricate steering gears. Check "free" movement. Adjust if necessary. |
| <input type="checkbox"/> Tighten all hydraulic line connections.  | <input type="checkbox"/> Check front wheel toe in.   |
| <input type="checkbox"/> Tighten all bolts (including wheels)   | <input checked="" type="checkbox"/> Battery, wiring and lights.                                |
|   | <input type="checkbox"/> Check operation of all instruments and controls.                      |

DEALER: Check carefully with the owner to find what he knows about maintenance and operation. Give instructions on the procedures that are not clear to him.

\_\_\_\_\_  
Checked by

\_\_\_\_\_  
Dealer

\_\_\_\_\_  
Owner

First copy - Dealer  
Second copy - Owner



casecoltingersoll.com

Printed in U.S.A.