



220, 222, 224 and 444

Tractors

Operator's Manual No. 9-3452

casecollectorsoll.com

19-3452
OWNERS MANUAL
20604



J I 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.

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SAFETY MESSAGES



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.



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



Remember, a careful operator is always the best insurance against an accident.



CAUTION: Stop and inspect the mower for damage immediately after striking a foreign object and repair damage before restarting and operating the machine.



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



CAUTION: Always have the attachment drive clutch disengaged and the brake pedal depressed and locked when parking or starting the tractor.



The angles depicted apply to favorable terrain only. In adverse terrain, the degree of slope is proportionately less.

WARNING: Use extreme care when negotiating inclines or side slopes. Operate this tractor on grades that do not exceed 30° forward or reverse or 20° side slope in favorable terrain. In adverse terrain, the degree of slope is proportionately less. Always drive in a forward motion while proceeding down hill. If necessary, back up a slope to the desired position. Operate the tractor in low range on hills or inclines. Do not leave tractor parked unattended on hills unless the wheels are adequately blocked. Always lock the brake and turn off the engine when parking and leaving the tractor.



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



CAUTION: Reduce ground speed when making a turn, going down hill or applying the brake.



CAUTION: Always shut off engine, remove key and set parking brake and wait until tractor and attachment motion has stopped before dismounting or leaving the tractor.



CAUTION: Never permit persons other than the operator to ride on the tractor.



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



CAUTION: Oil, grease and adjust the tractor only when the engine is shut off.



CAUTION: Never fill the fuel tank when the engine is running or when near an open flame. Do not smoke when working near fuel.



CAUTION: Never operate a tractor in a closed shed or garage. Exhaust gases are poisonous and may cause death if inhaled.



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



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



CAUTION: Stop engine and all drives when dismantling tractor or making adjustments to tractor and/or attachments.



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.



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



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.



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.



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

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.

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TO THE PURCHASER OF A CASE TRACTOR

The care you give your new Case Tractor will greatly determine the satisfaction and service life you will obtain from it. Use this manual as your guide. By observing the instructions and suggestions in this manual, your Case Tractor will serve you well for many years.

As an Authorized Case Dealer, we stock Genuine Case Parts, which are manufactured with the same precision and skills as the original equipment. Our factory trained staff is kept well informed on the best methods of servicing Case equipment and is ready and able to help you.

Should you require additional aid or information, contact us.

Your Authorized Case Dealer

—NOTICE—

Laws of some states or provinces may require that this unit be equipped with a SPARK ARRESTOR OR SPARK ARRESTING MUFFLER. The State of California, as an example, is one state which has such regulations for agricultural and forestry applications, plus a regulation for construction applications in forest-covered, brush-covered, or grass-covered lands.

Typically such laws and regulations require spark arresting devices to be maintained in good working order and typically to be attached to the exhaust system of naturally aspirated engines (engines without a turbo charger).

CANADIAN RADIO INTERFERENCE REGULATIONS

The Canadian Government, under authority granted by the Radio Act, has promulgated regulations covering this gasoline powered Case Compact Tractor if imported into Canada on or after September 1, 1976.

The spark plug(s) in this machine when replaced must have a resistor type spark plug installed.

The certification label applied to the engine must not be removed or obliterated.



FIGURE 1. Right Hand View of Case 220 Compact Tractor



FIGURE 2. Left Hand View of Case 222 Compact Tractor



FIGURE 3. Left Hand View of Case 224 Compact Tractor



FIGURE 4. Left Hand View of Case 444 Compact Tractor

SERIAL NUMBER

When ordering parts from your Authorized Case Dealer and in all contacts or correspondence with your dealer relative to the tractor always specify the Serial, Model and Engine Numbers of your tractor.

The Tractor Model and Serial Numbers are stamped on the number plate located on the instrument panel, Figure 5. The Engine, Model, Serial and Engine Specification Numbers are stamped on a plate fastened to the right or upper front side of the engine, Figure 6.

This Manual applies to the following tractors:

Model	Serial Number and After
220	9702946
222	9706651
224	9708665
444	9711027

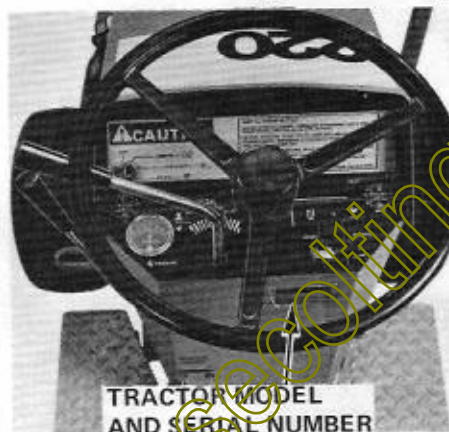


FIGURE 5.

NOTE: The terms "Right Hand", "Left Hand", "Front" and "Rear" whenever used in this manual apply to the tractor when facing in the direction the tractor will move in forward operation.



FIGURE 6.

For reference, fill in the Serial Number, Model Number and Engine Numbers of your tractor in the spaces provided below.

Tractor Model Number _____

Tractor Serial Number _____

Engine Model Number _____

Engine Serial Number _____

Engine Specification Number _____

OVERALL MEASUREMENTS

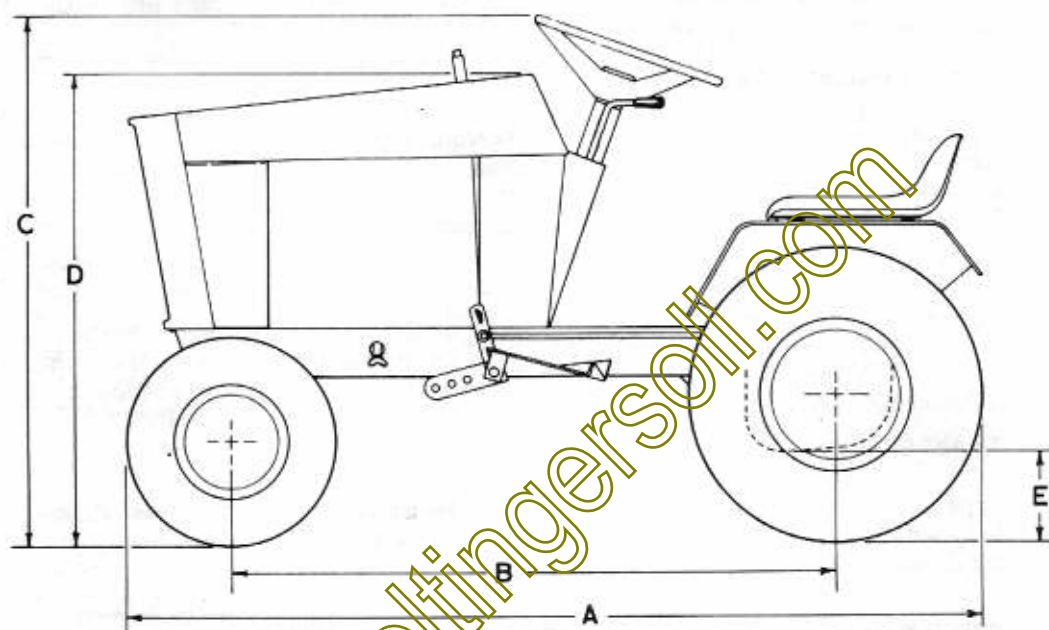


FIGURE 7.

	220, 222 & 224	444
A Overall Length	65" (1650 mm)	70" (1780 mm)
B Wheel Base	46" (1170 mm)	46" (1170 mm)
C Overall Height	40" (1020 mm)	43-1/2" (1100 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" (1040 mm)
Shipping Weight	715 lbs. (325 kg)	770 lbs. (350 kg.)

GENERAL SPECIFICATIONS

HYDRAULIC SYSTEM

Independent 5 quart reservoir, pump, control valve, hydraulic motor and heat exchanger. Pump delivers approximately 8 gallons per minute at 3600 RPM. Maximum drive system operating pressure (relief valve) setting: 2000 psi. Maximum attachment lift system operating pressure setting: 575 psi.

ELECTRICAL SYSTEM

Type of System	12 Volt, Negative Ground
Battery	Case, 24 Ampere Hour at 20 Hour Rate
Headlights	12 Volt
Starter-Generator	12 Volt

BRAKE

Type	Double acting, self energizing, mechanical contracting band, with the drum shaft driven from transmission differential. Includes parking lock.
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TRANSAXLE

Type	Hydraulic Driven, Dual Gear Range
Differential	Automotive Type Bevel Gear
Oil Capacity	3 Quarts

SPEED RANGE		FORWARD	REVERSE
220, 222 and 224	Low	0 to 3.0 MPH (4.8 km/h)	0 to 3.0 MPH (4.8 km/h)
	High	0 to 7.3 MPH (11.75 km/h)	0 to 7.3 MPH (11.75 km/h)
444	Low	0 to 3.2 MPH (5.15 km/h)	0 to 3.2 MPH (5.15 km/h)
	High	0 to 7.8 MPH (12.55 km/h)	0 to 7.8 MPH (12.55 km/h)

WHEELS AND TIRES

Tire Size	PLY	TYPE	Recommended Pressure PSI (kilopascal)		Max. Pressure PSI (kilopascal)	
6.50-8	2	Front	8	(55)	14	(97)
		High Flotation				
8.50-12	2	Rear	8	(55)	10	(69)
		High Flotation				
8.00-16	2	Rear	8	(55)	14	(96)
		High Flotation				

GASOLINE ENGINE

SPECIFICATIONS

GENERAL	220	222	224 & 444
Type	Kohler	Kohler	Kohler
Model	K241A	K301A	K321A
Cycle	4	4	4
Cylinders	1	1	1
Cylinder Bore	3-1/4 in. (82.6 mm)	3-3/8 in. (85.7 mm)	3-1/2 in. (88.9 mm)
Stroke	2-7/8 in. (73.0 mm)	3-1/4 in. (82.6 mm)	3-1/4 in. (82.6 mm)
Piston Displacement	23.9 in. ³ (392 cm ³)	29.07 in. ³ (476 cm ³)	31.27 in. ³ (512 cm ³)
Horsepower	10 HP (7.46 kw)	12 HP (8.95 kw)	14 HP (10.44 kw)
Compression Ratio	6 to 1	6 to 1	6 to 1
Full Load Speed	3500 RPM	3500 RPM	3500 RPM
No Load Speed	3600 RPM	3600 RPM	3600 RPM
Idle Speed	1000 RPM	1000 RPM	1000 RPM
Valve Clearance Cold (Intake) ..	.010 in. (0.25 mm)	.010 in. (0.25 mm)	.010 in. (0.25 mm)
Valve Clearance Cold (Exhaust) ..	.020 in. (0.50 mm)	.020 in. (0.50 mm)	.020 in. (0.50 mm)

PISTON AND CONNECTING ROD

Piston	Aluminum
Compression Rings	2
Oil Rings	1
Connecting Rod	Aluminum

FUEL SYSTEM

Carburetor	1" SAE Flange (25.4 mm)
Filter Screen	In tank outlet fitting
Fuel Tank Capacity	3 Gallons (11.4 L.)

IGNITION SYSTEM

Breaker Point Gap020 in. (0.50 mm)
Ignition Timing	SP Mark
Spark Plug	Prestolite 14 L7 or equivalent (Prestolite 14RL7 or equivalent in Canada)
Thread	14MM
Gap025" (0.64 mm)

COOLING SYSTEM

Flywheel Blower	Forced air with baffles directing air around finned cylinder and head area.
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LUBRICATION

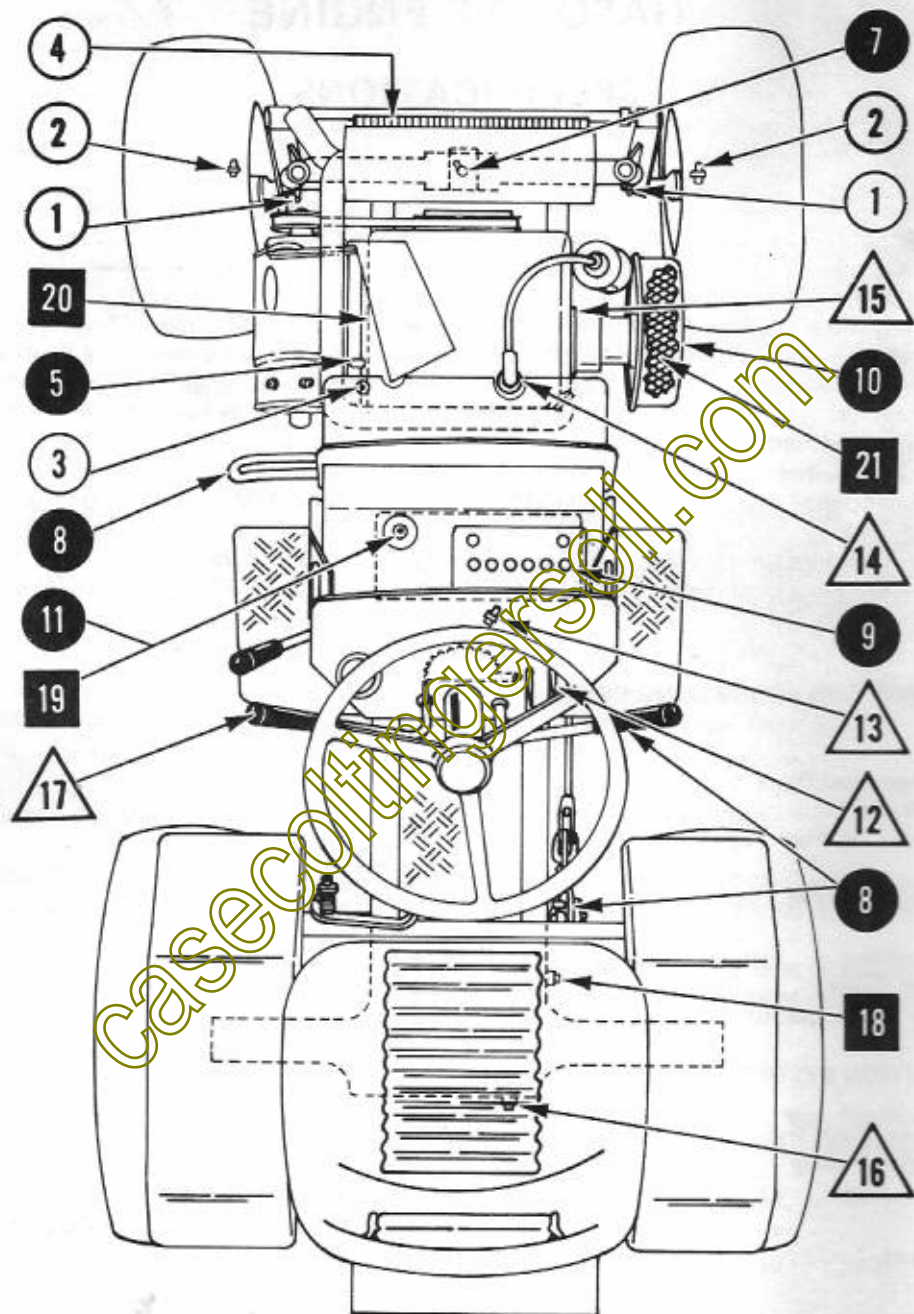


FIGURE 8.

REF. NO.	SERVICE POINTS	NO. OF POINTS	GREASE	DRAIN	CHECK	CLEAN	CHANGE	OIL (Few Drops)	FREQUENCY
1	Front Spindles (king pins)	2	■						5 HOURS OR DAILY
2	Front Wheel Bearings	2	■						
3	Engine Oil*	1		■					
4	Blower Air Intake Screen	1		■	■				
5	Engine Oil	2	■			■			25 HOURS OR WEEKLY
6	Air Leaks**	**							
7	Front Axle Pivot Pin	1	■						
8	Implement Lever & Brake Linkage	6					■		
9	Battery	1		■					50 HOURS OR MONTHLY
10	Air Cleaner***	1		■	■				
11	Hydraulic Oil +	1		■					
12	Throttle & Choke Controls	2					■		
13	Steering Gear	3	■						500 HOURS OR YEARLY
14	Spark Plug ^o	1		■					
15	Crankcase Breather ***	1					■		
16	Transmission Oil	1		■					
17	Travel and Lift Lever and Linkage	3					■		500 HOURS OR YEARLY
18	Transmission Oil	2				■			
19	Hydraulic Oil +	1				■			
20	Engine Cooling Fins ***	1			■				
21	Air Cleaner Element ***	1				■			

* Always check engine oil level before each use of tractor.

Keep oil level between marks on dipstick. See page 16 for engine lubrication recommendations. Capacity 3 pts. (1.4 l)

** Be sure there are no leaks between gaskets, joints at carburetor, air cleaner and cylinder block.

*** More often in dusty conditions.

^o Clean and regrease.

+ Hydraulic System: Use SAE 5W-20 Motor Oil in winter (below 32° F. - 0° C.) and SAE 20W-40 Motor Oil in summer. Use only oil which is rated as API engine service classification SE or CC. Prior service classifications for these oils were "MS" or "DM". Use SAE 20-W-40 Motor Oil or SAE No. 80 EP Gear Lube in transmission the year around.

Use number 1 gun grease (Lithium Base) for all pressure fittings (as many strokes as required).

The hydraulic reservoir filler cap is located just to the left of the battery. The oil level should be maintained **exactly** at the dip stick mark.

The drain plug is located on the bottom side of the travel valve.

VERY IMPORTANT – Add oil to the dip stick mark only. Overfilling, even a slight amount will result in oil leakage from the fill cap. Underfilling will result in erratic operation.

ENGINE LUBRICATION

SELECTION OF OIL

It is extremely important that you select and use a detergent type, high quality, SE or CC, API Service Classification Oil.

OIL SAE VISCOSITY RATING

SAE 30 or 20W-40 Air Temperatures 30° F (-1° C) and Above
SAE 10W-30 Air Temperatures 0° F (-18° C) to 30° F (-1° C)
SAE 5W-20 Air Temperatures 0° F (-18° C) or Below

OIL CHANGE

Drain and refill the crankcase at least every 25 hours of operation.

If possible, run engine just prior to changing oil—the oil will flow more freely and carry away a greater amount of contaminant when hot.

If the engine service is severe - (frequent stopping and starting, high or low operating temperature) - the crankcase should be drained more often to prevent the formation of sludge or harmful deposits in the engine.

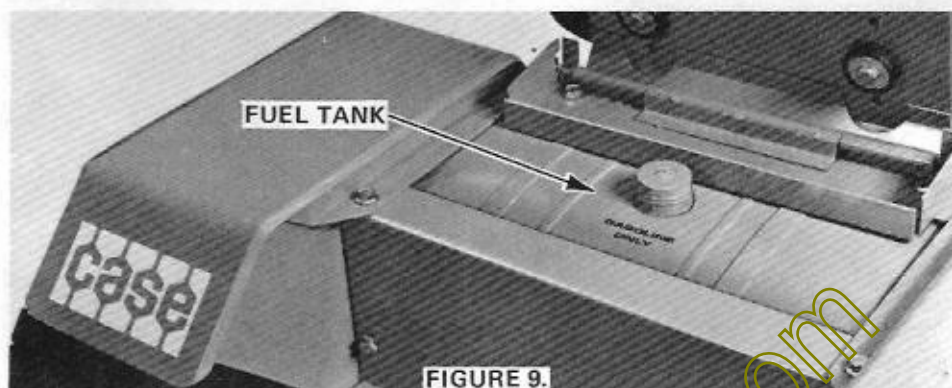


CAUTION: Oil, grease and adjust the tractor only when the engine is shut off.

IMPORTANT

1. When the crankcase is drained, refill with 3 measured pints (1.4 Liters) of oil.
2. Operate the engine for a few minutes, allow sufficient time for the oil to run down off the engine parts, then check the oil level with the dipstick.
3. This will prevent overfilling or underfilling the crankcase, either of which can be detrimental to the engine service life and will give you false oil consumption records.

FUEL SPECIFICATIONS



CAUTION: Never fill the fuel tank when the engine is running or when near an open flame. Do not smoke when working near fuel.

CARBURETION ON SMALL GASOLINE ENGINES IS ALWAYS CRITICAL OF DIRT. IT IS RECOMMENDED THAT A FILTERING FUEL FUNNEL ALWAYS BE USED ALONG WITH CLEAN GASOLINE.

AT ANY EVIDENCE OF FUEL STARVATION, CLEAN THE FILTER IN THE TANK OUTLET FITTING.

DO NOT MIX OIL WITH GASOLINE FOR THIS ENGINE.

GASOLINE

Engines used in Case Tractors are designed to operate on REGULAR GRADE gasoline having a minimum research method rating of 90.7 Octane. This will give full power and economy together with long engine life and low maintenance cost.

The typical Octane number ratings for regular grade gasoline (March 1967).

Motor Method	86.2 Octane Number
Research Method	<u>94.2</u> Octane Number
Average Method	90.2 Octane Number

These two Octane ratings are used to define the anti-knock quality of gasoline. It has become common practice in the Petroleum Industry to refer only to the RESEARCH METHOD RATING although in the United States the average of the two figures is posted on gasoline pumps.

When only one Octane rating is given for gasoline and the rating method is not specified, it can be assumed to be the average rating in the United States or the Research Method Rating elsewhere in the World.

Non-leaded gas is a suitable alternative for use in all 4-cycle air cooled engines used on Case Compact Tractors and Loaders provided the Average Octane Rating in the United States and the Research Method Octane Rating elsewhere in the World is 90 or higher.

OPERATING CONTROLS AND INSTRUMENTS

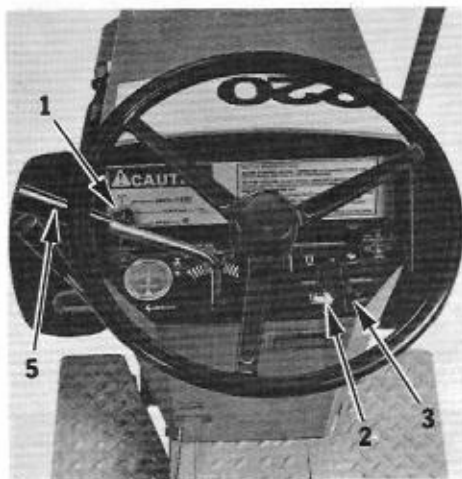


FIGURE 10.

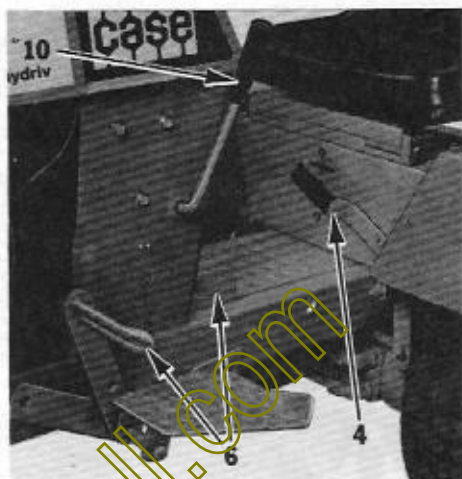


FIGURE 11.



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



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



CAUTION: Always have the attachment drive clutch disengaged and the clutch brake pedal depressed and locked when parking or starting the tractor.

1. **IGNITION KEY AND STARTER SWITCH**--Turn the key to the right (Start) position to start the engine. When shutting the engine off, turn the key to the left (Off) position.
2. **CHOKE**--To start a cold engine, push the choke lever forward. Pull the lever slowly rearward when engine is started. Little or no choking is required if starting a warm engine.
3. **THROTTLE**--When the throttle lever is all the way rearward, the engine should be idling. To increase the engine RPM, push the lever forward until the desired throttle setting is obtained. As a general rule, set the throttle as low as possible to obtain maximum fuel economy but high enough to prevent engine lug-down or labor which will cause overheating.



CAUTION: Never operate a tractor in a closed shed or garage. Exhaust gases are poisonous and may cause death if inhaled.

NOTE: When starting a cold engine in temperatures below 32° F (0° C), do not set the throttle more than 1/3 open and let it run for a few minutes at this setting to allow the hydraulic system to warm up. When cold, the hydraulic system is noisier at higher engine RPM. The quickest way to warm up a cold hydraulic system is to position the High-Low Range Shift Lever in neutral and place the Travel Control Lever in Forward or Reverse to circulate the oil through the hydraulic motor.

4. **HIGH - LOW RANGE SHIFT LEVER** - When shifting into Low or High Range, make certain the lever is located past the neutral locking pin. Likewise, when shifting to neutral, the lever must be locked to the pin. Gear damage can result if the tractor is operated while the shift lever is not fully engaged beyond the locking pin.
5. **TRAVEL "CUSHION" CONTROL LEVER** - This single lever provides control of speed and travel direction. Move the lever forward as desired to obtain either full speed ahead or to "creep" through heavy grass or deep snow. For reverse, simply move the lever rearward. Thus the tractor ground travel speed may be regulated independently of engine RPM. Depress the lever slightly when moving to either direction for smoother motion and control.

NOTE: The travel control lever quadrant has a retard detent on each side of the neutral detent. See figure 12. Put the lever in these positions when a very slow speed is desired or when operating on an incline to prevent the tractor from overriding the oil flow, and running free. Keep engine at maximum RPM for most effective retard.

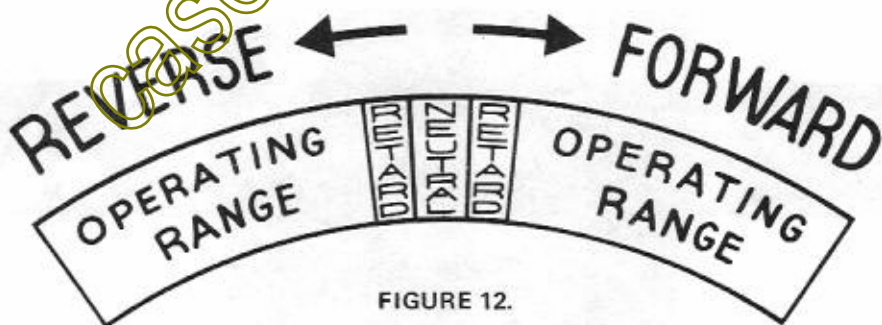


FIGURE 12.

The tractor is equipped with "Neutral Start" and cannot be started unless the Travel Control Lever is in the NEUTRAL position.

The Travel Control Lever automatically returns to neutral when the brake is applied.



The angles depicted apply to favorable terrain only. In adverse terrain, the degree of slope is proportionately less.

WARNING: Use extreme care when negotiating inclines or side slopes. Operate this tractor on grades that do not exceed 30° forward or reverse or 20° side slope in favorable terrain. In adverse terrain, the degree of slope is proportionately less. Always drive in a forward motion while proceeding down hill. If necessary, back up a slope to the desired position. Operate the tractor in low range on hills or inclines. Do not leave tractor parked unattended on hills unless the wheels are adequately blocked. Always lock the brake and turn off the engine when parking and leaving the tractor.

6. **BRAKING AND PARKING** ---- The travel control lever can also be used as a brake by returning it to the neutral position. On a level surface the tractor will come to a normal stop by returning the Travel Control Lever to neutral. If on a hill or if a fast stop is necessary, depress the brake pedal or move the travel control lever part way into the opposite direction. When getting off the tractor, always depress and lock the brake to prevent tractor movement.

The travel control lever can be used in lieu of the brake pedal to control the tractor ground speed on hillside operation by placing it in the Retard position. Remember, however, that if the brake is applied, the speed control lever will automatically return to neutral. The travel lever can be moved into forward or reverse while your foot is still on the brake.

7. **HEADLIGHTS**--The headlights are turned on when the ignition key is turned to the "Light" position after the engine is started. Do not operate the headlights unless the engine is running and the ammeter indicates no discharge.

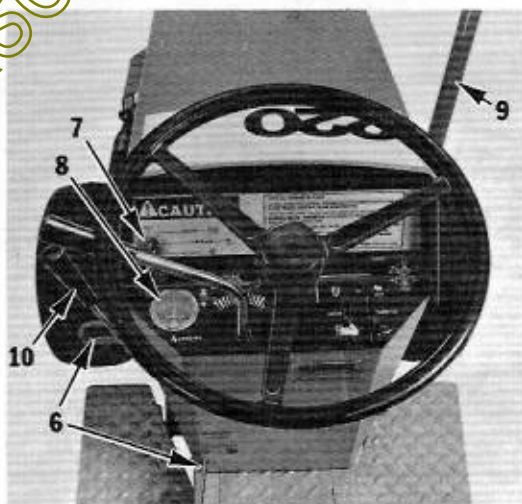


FIGURE 13.

8. **AMMETER**--When the engine is started and running above idle speed, the ammeter should show charge and gradually fall back as the battery becomes charged. If a no charge or discharge rate is indicated with a freshly started engine above half throttle, stop the engine immediately and have the cause corrected.

9. ATTACHMENT LIFT LEVER

MECHANICAL (Standard Equipment on Models 220 and 222) - Pull this lever to the rear until the catch engages to raise the attachment into transport position. Depress the button at the top of the lever to release and lower the attachment to operating position. A slight pulling pressure on the lever will permit the release button to be more easily depressed.

HYDRAULIC LIFT (Optional on Models 220 and 222, Standard on Models 224 and 444) - The hydraulic lift lever has three operating positions. Pull the lever to the rear to raise the attachment into transport position. Push the lever ahead to operating position or to apply "down pressure." Moving the lever further ahead will keep the lever in a "hold" position allowing the attachment to "float". The "float" position is recommended for snow removal and tilling operations. "Down-pressure" can be used to advantage for dozing and ground leveling operations.

NOTE: Refer to instructions furnished with each attachment for specific information covering lift lever operation and recommended depth or height settings.

10. **ATTACHMENT DRIVE LEVER** - As a Neutral Start feature, this lever must be in the OFF position in order to start the tractor. Push the lever all the way forward to engage the attachment drive. To disengage the drive, pull the lever rearward.



CAUTION: Stop and inspect the mower for damage immediately after striking a foreign object and repair damage before restarting and operating the machine.

OPERATING INSTRUCTIONS

RUN-IN PROCEDURE

Your new tractor should be subjected to a run-in period before it is operated at full load. Drive the tractor for approximately an hour to get the feel of operation. Actuate the travel control through its full range during the run in period.

PRE-STARTING CHECK LIST

Before starting your new Case Tractor for the first time and before each operating period thereafter, check the following.

1. Make sure everyone responsible for the tractor's operation and maintenance understands the importance of clean fuel, oils, containers and funnels.
2. Check that all lubricating fittings are serviced as directed in the Lubrication Chart.
3. Check engine oil level and add as necessary.
4. Be sure that air cleaner and blower air intake screen on engine are free of obstructions and excessive dirt.
5. Check that tractor fuel tank is filled with clean fuel that meets requirements listed under Fuel Specifications. Always wipe fuel tank cap clean before removing it. Be sure vent hole in fuel tank cap is open.
6. This tractor is equipped with a "neutral start" feature. The Travel Control Lever must be in NEUTRAL and the Attachment Drive Lever must be OFF to start the engine.
7. Check all operating controls for proper function.

IMPORTANT: Do Not Attempt To Start Tractor By Pushing Or Towing As Serious Damage To The Drive System May Result.

STARTING PROCEDURE

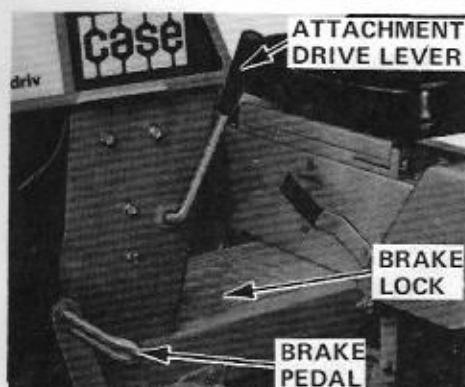


FIGURE 14.

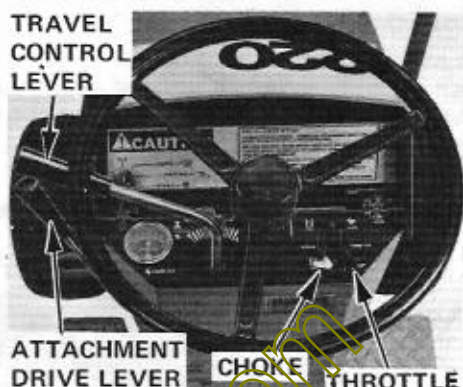


FIGURE 15.

1. Place the travel control lever in the NEUTRAL position. The "Neutral-Start" feature prevents the engine from starting unless the travel control lever is in neutral and the Attachment Drive Lever is OFF.
2. Pull the attachment drive lever rearward to the OFF position.
3. Engage and lock the brake pedal.
4. Close the choke by pushing the choke lever forward. More or less choking may be necessary due to variations in temperature, grade of fuel, etc. Little or no choking will be needed when engine is warm. In cold weather, it is advisable to position the throttle lever about one-third open.
5. Turn the starter key all the way to the right to start engine.

IMPORTANT: Do not use the starter longer than 30 seconds without interruption. Wait at least 3 minutes so the starter can cool down between periods of usage.

6. After the engine starts and runs, pull the choke control lever all the way rearward. Always allow engine to warm up before applying a load. Release the brake pedal slowly after engine starts.

NOTE: Under normal operating conditions it is recommended the throttle be set approximately 3/4 open. If operating under light load, the throttle can be set 1/2 open or less. For maximum economy, operate at a throttle setting which will perform the job without lugging or laboring and subsequent overheating of the engine.

STOPPING THE ENGINE

1. An engine that has been working under load should idle for a few minutes so the engine parts can cool evenly before it is shut off.
2. Turn starter key to "OFF" position.

PREVENTIVE MAINTENANCE

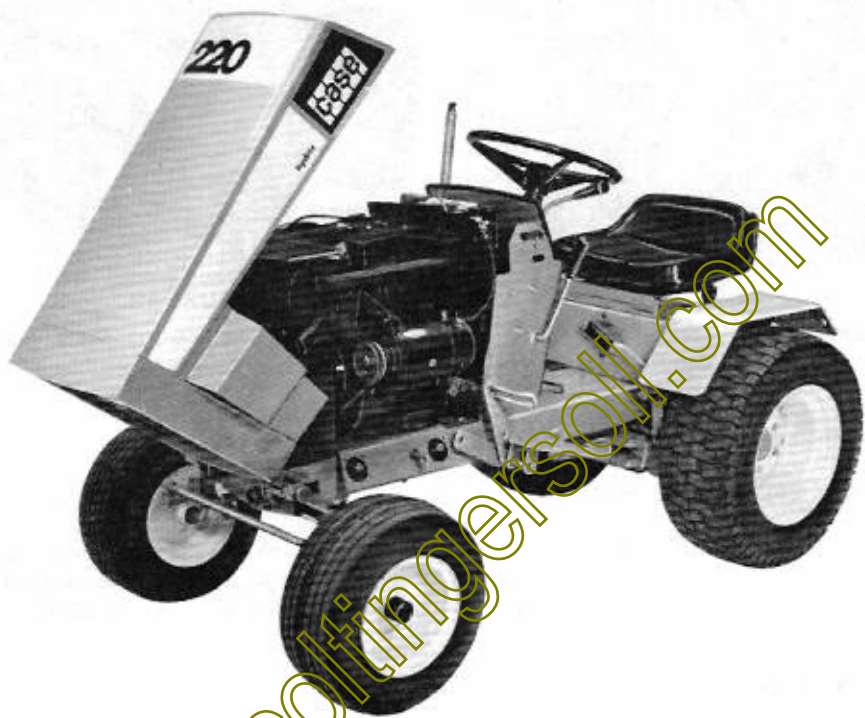


FIGURE 16.

PREVENTIVE MAINTENANCE IS IMPORTANT TO YOU!

AS THE OWNER OF A CASE TRACTOR, YOU POSSESS A MACHINE THAT IS MADE TO HIGH STANDARDS.

PREVENTIVE MAINTENANCE BY YOU OR YOUR OPERATOR IS THE EASIEST AND MOST ECONOMICAL MEANS OF ASSURING MANY SATISFACTORY PRODUCTIVE HOURS OF OPERATION.

The preceding sections of this operator's manual have dealt with instructions necessary for daily operation of your Tractor. The following subjects present detailed instructions concerning the care and adjustments of the Tractor.

BRAKE

The brake is properly adjusted when depressing the pedal brings the tractor to a prompt stop and when there is sufficient pedal travel to allow the spring to return the speed control lever from both the forward and reverse travel positions. Check and adjust brakes as required according to the procedure below.

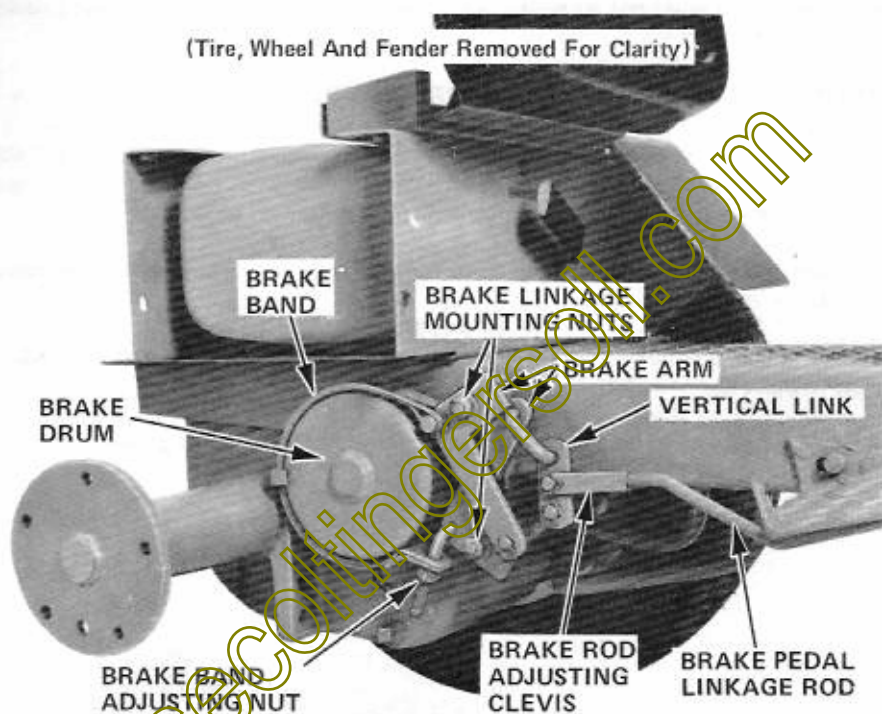


FIGURE 17.

BRAKE ADJUSTMENT

1. Tighten brake linkage mounting nuts to .010" to .015" clearance between washers and brake arm.
2. Disconnect brake pedal linkage rod at vertical link.
3. Tighten brake band adjusting nut to the point where the tractor can not be pushed with the transaxle in neutral, then back it off 1-1/2 turns.
4. Hold brake vertical link in the vertical position and push to rear until all slack is taken out of linkage. Then with brake pedal in full release position, turn clevis in or out on brake pedal linkage rod until holes in clevis line up with hole in brake vertical link and pin slips through freely.
5. Oil all pivot points.

TRAVEL VALVE SPOOL ADJUSTMENT

The travel spool is in proper adjustment when the tractor is stationary with the travel lever in neutral position and retards properly when going downhill with the travel lever in retard position.

If the spool becomes out of adjustment, the tractor should be taken to your dealer to be adjusted.

RETURN TO NEUTRAL ADJUSTMENT PROCEDURE

1. Be sure travel spool linkage is adjusted according to procedure above.
2. Be sure brake linkage is adjusted according to procedure on page 23.
3. If travel lever returns all the way from forward but not from reverse, turn adjusting nuts to move spring to right.
4. If the travel lever returns all the way from reverse, but not from forward, turn adjusting nuts to move spring to left.
5. Be sure tab points forward as shown when nuts are tightened to prevent spring from dropping out.

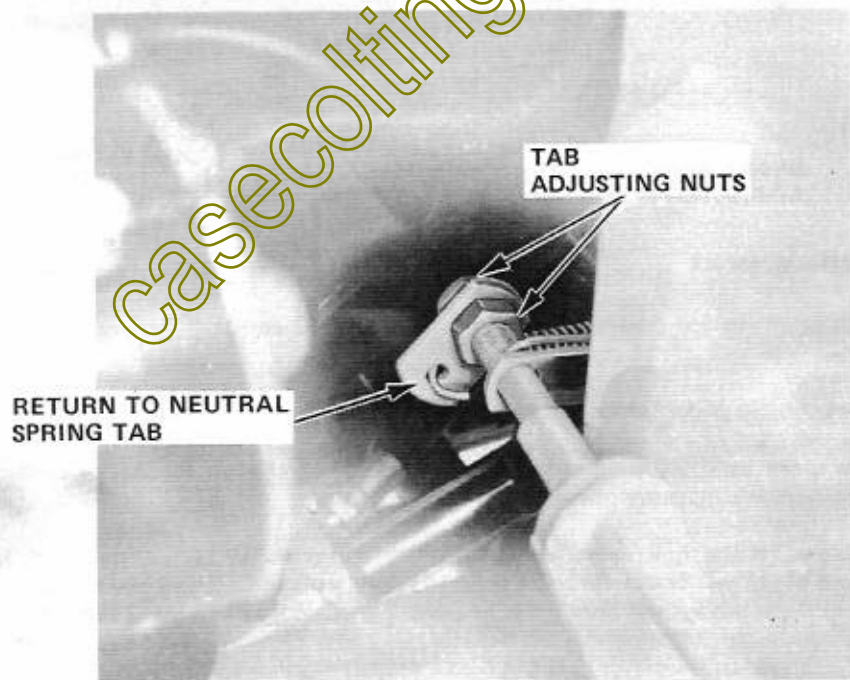


FIGURE 18.

AIR CLEANER

Remove and clean element after each 25 hours or weekly. Install a new element every 500 hours or yearly or when loss of power is noticeable.

Tap element lightly on a flat surface to cause the loose dirt to fall off. Handle the element with care to avoid damage.

Replace the element with a new one if dirt does not drop off easily or if it is damaged. When replacing the element, be sure it fits snugly around the inside edge of the air cleaner base. Then replace the cover and tighten the wing nut finger tight.

An optional, washable, precleaner is available from your J I Case dealer and will extend the life of the air cleaner element.

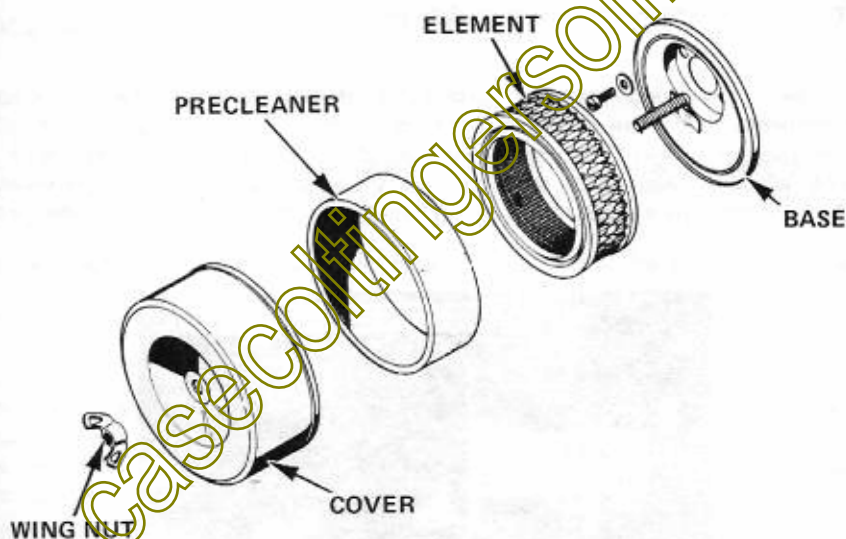


FIGURE 19.

CARBURETOR

The carburetor has three simple adjustments:

1. High Speed Mixture Adjustment
2. Idle Mixture Adjustment
3. Idle Speed Adjustment

HIGH SPEED ADJUSTMENT

Before starting the engine, turn the high speed adjusting screw counterclockwise approximately 2 turns from the closed position.

With engine running and throttle fully open, turn the adjusting screw clockwise (in) until the engine misfires or falls off; then turn the adjusting screw counterclockwise (out) until the engine runs smoothly, approximately two turns.

Place the tractor under load and observe how the engine handles the load. Loss of power, tendency to stall, or excessive backfiring all indicate a lean mixture. Turn adjusting screw counterclockwise not more than $\frac{1}{8}$ of a turn and again try the engine performance. When the high speed screw is correctly adjusted, it will not be necessary to reset the carburetor unless load conditions or fuel quality have been radically changed.

Operating an engine on too lean a mixture causes loss of power and high exhaust heat.

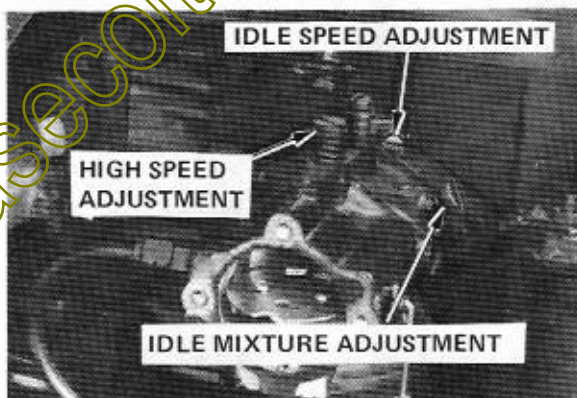


FIGURE 20.

IDLING SPEED AND IDLING MIXTURE ADJUSTMENT

Turn the idle mixture screw, Figure 20, counterclockwise approximately 1-1/4 turns from the closed position. Place the throttle in 1/2 open position and start engine. With the throttle all the way rearward, turn the idle speed adjusting screw, Figure 20, until 1000 RPM is obtained. The idle mixture screw can be adjusted in or out until the engine runs smoothly while maintaining 1000 RPM with the idle speed adjusting screw.

STEERING ADJUSTMENT

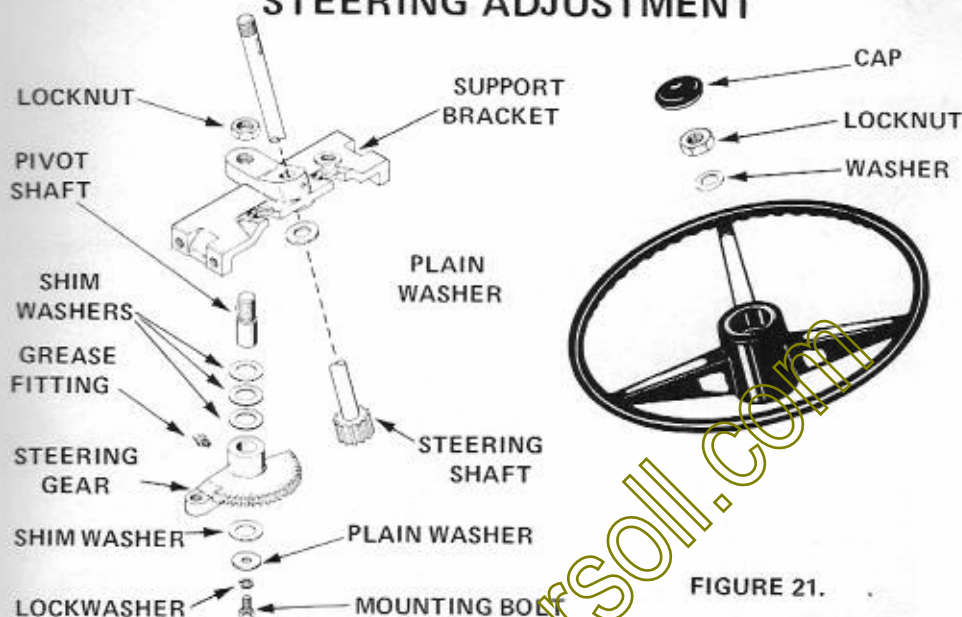


FIGURE 21.

IMPORTANT: Excessive steering wheel free play may not require gear adjustment as covered below. Excessive steering wheel free play may be the result of:

1. Ball joints, drag links and/or tie rods loose. If necessary, tighten.
2. Steering wheel locknut requires tightening. If necessary to tighten the steering wheel locknut, to remove excessive end play, be sure to tighten without causing binding.

The tractor is designed with two or more shim washers between the steering gear and support bracket as illustrated in Figure 21. As the gear teeth wear in, additional steering wheel free play may occur. If the free play becomes excessive, one (more if necessary) of the shims can be relocated to the bottom side of the steering gear.

Disconnect the drag link from the steering gear. Remove the mounting bolt, lockwasher and plain washer (shims also if present) from the base of the pivot shaft. Slip the steering gear and one of the shim washers off the pivot shaft. Place the gear back on the pivot shaft and secure with the original mounting bolt, lockwasher, plain washer, shim(s) plus the shim removed from the upper side. The total number of shim washers must remain the same.



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.

Always coat all gear teeth with grease each time the two steering fittings are lubricated or at least each 50 hours of operation.

TOE-IN ADJUSTMENT

1. Locate the tractor on a hard level surface preferably concrete. Place front wheels in a straight ahead position.
2. Make sure the front tire pressures are equal.
3. The front tires should show a mold part-line which coincides with the centerline of the tire. If the centerline of the tire is not readily visible, then the wheel can be raised off the ground, spun and marked at the approximate centerline location.
4. Measure the distance between the tire center lines or the chalk marks.

MEASUREMENT "A" MUST BE $1/8$ TO $3/8$ -INCH (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.

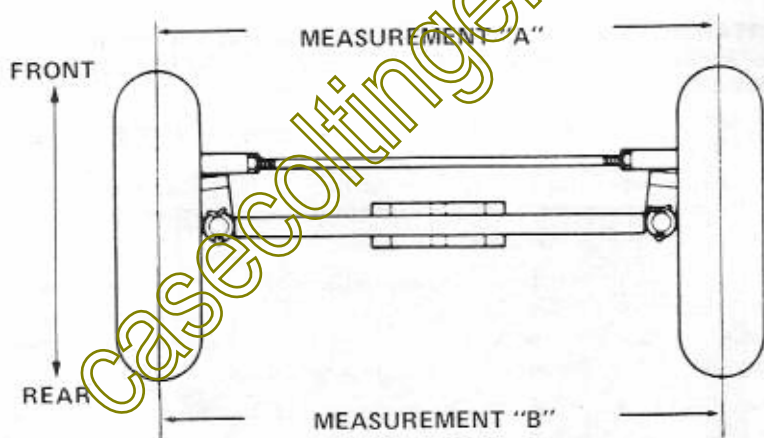


FIGURE 22.

1. Loosen both tie rod jam nuts.
2. Turn the tie rod in or out of the ball joints as required. Retighten the jam nuts when correct toe in is obtained. One ball joint has left hand threads and the other right hand so it is unnecessary to disconnect it from the king pin lugs. Turning the joints off the tie rod decreases the toe in. Turning the joints on the tie rod increases the toe in.

ELECTRICAL SYSTEM

Headlights

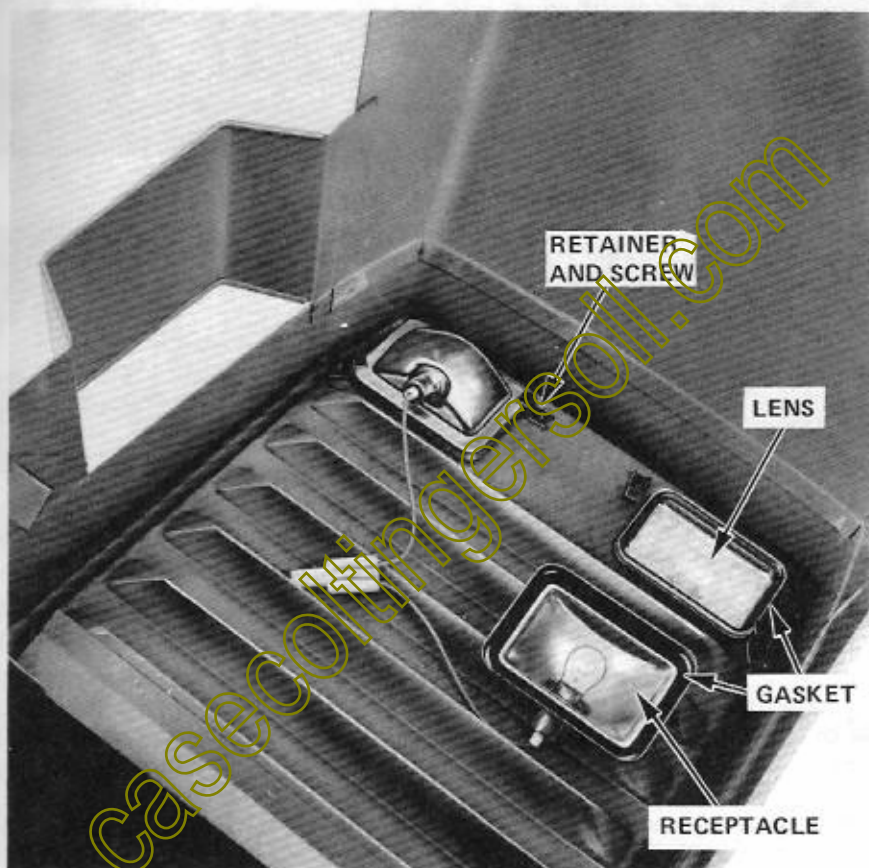


FIGURE 23

To install a new Case 12 volt replacement headlight bulb, remove the two screws and retainers which attach the headlight to the inside of the headlight panel. Lift out the headlight and disconnect the wire at the connector.

Remove the old bulb by pushing inward and turning it counterclockwise. Install the new Case bulb and replace the receptacle making certain one gasket is located between the lens and grille and the other is properly seated between the lens and receptacle.

The new bulb will not light unless the receptacle is reinstalled or manually grounded to a metal part on the tractor. After installing, make sure all the connections and mounting screws are tight.

SPARK PLUG

The type spark plug provided in your engine is listed as medium in the spark plug heat range chart - Prestolite 14 L7 or equivalent, (Prestolite 14RL7 or equivalent in Canada).

Shank Length	7/16" (11.11 mm)
Thread Size	14 MM
Gap Setting025 Inch (0.64 mm)

NOTE: It is possible that under unusual conditions, "colder" type spark plug may be required. Consult your Authorized Case Dealer regarding the proper type spark plug to use for your particular condition.

The spark plug plays a very important part in the power, fuel economy and general performance of your engine. The outside of the plug should be cleaned frequently to prevent shorting of the plug.

The spark plug should be removed, checked, cleaned and gapped at the end of every 100 hours of operation.

REMOVING

It is important to select the exact size spark plug wrench. The wrong size or type wrench may cause distortion and insulator breakage. Always use a spark plug wrench or a thin wall deep socket wrench of the recommended size.

Thoroughly clean the spark plug, including the threads, with a pen knife or wire brush and solvent. A very slight drag should be felt when the gauge wire passes between the electrodes.

Reset the gap by bending the side electrode only. Never bend the center electrode.

INSTALLING

Install the spark plug in the engine, with a new gasket, and seat the plug finger tight on the gasket. Tighten the plug about 3/4 of a turn after the plug is seated firmly on its gasket. If a torque wrench is available, tighten the plug to 27 foot-pounds (36.6 Newton-metre). This will assure proper seating and sealing of the spark plug.

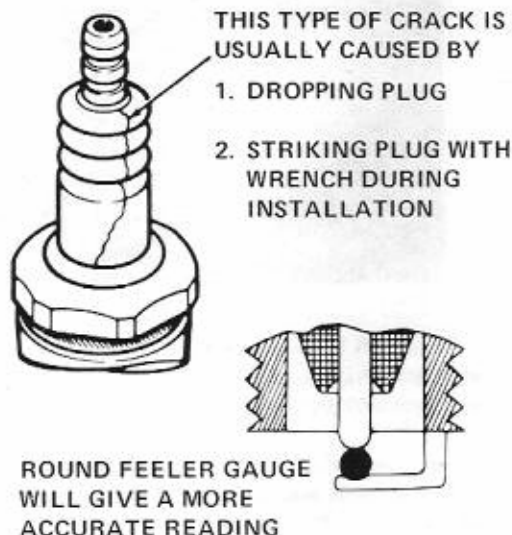


FIGURE 24.

Do not use abrasive cleaning machines.

STORAGE BATTERY



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.

RULES FOR BATTERY CARE

1. Add pure or distilled water, as needed, to keep the separators covered. Check every 25 hours or weekly depending on air temperature. Normal water consumption would be approximately 1 ounce (30 ml) every 25 hours of operation. If it is greater, either the case is leaking or the regulator is overcharging and must be adjusted.
2. Keep the battery in a healthy state of charge as shown by hydrometer readings.
3. Make sure the battery is securely fastened in position. Cable leading from the battery should not touch cell connectors or lay on the battery container.
4. Keep the battery clean and dry.

If a battery will not hold a charge, replace it with a new one meeting the specifications as listed in the specification section.

IMPORTANT: The full charge gravity reading will be 1.265 for original equipment battery. A battery having a reading of 1.175 will freeze at approximately 0° Fahrenheit (-18° C) temperature.

ADDING WATER

Unless the tap water in your area is "approved" (water free of scale-forming minerals), always add distilled water to the battery.

When water is added during freezing weather, the battery must receive a charge immediately to mix the water and electrolyte. If it is not mixed, the water will remain at the top and freeze.

Check the liquid level in each cell weekly by removing the vent plugs. Add water before the tops of the separators become exposed. **DO NOT OVERFILL.**

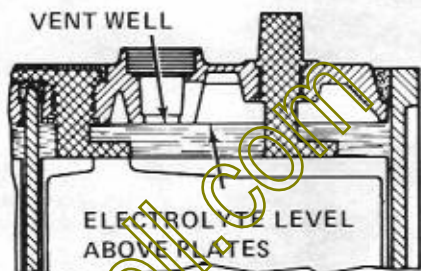


FIGURE 25.

VENT PLUGS

Always keep the vent plugs in place and tight. Be sure the vent holes are free of dirt to prevent gas pressure in cells from breaking the seal of the container.

CABLE TERMINALS AND BATTERY POSTS

The battery terminals must be kept clean and tight. A good method of cleaning terminals is to remove all excess corrosion with a wire brush, then wash with a weak baking soda solution or ammonia. After cleaning, a thin coating of vaseline or light cup grease will retard further 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 in active use, the battery will require a charge at sufficient intervals to keep the hydrometer reading at or above 1.250. An idle storage battery will slowly discharge.

HOW TO JUMP START WITH BOOSTER CABLES AND BOOSTER BATTERY

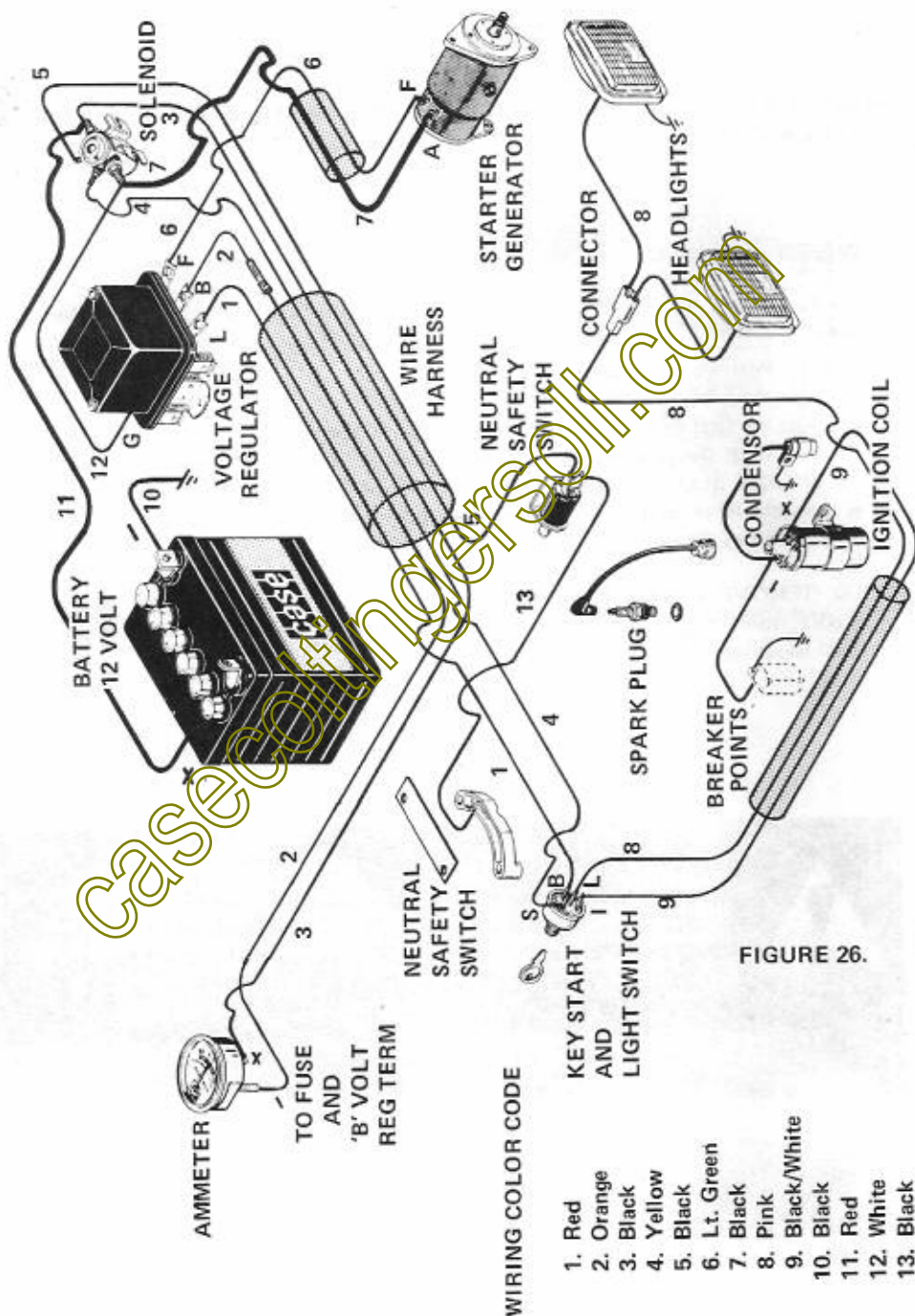
ALWAYS SHIELD EYES WITH GOGGLES, ETC. WHEN WORKING NEAR BATTERIES. PROTECT SKIN AND CLOTHING AGAINST ACID.

1. Connect one end of first booster cable to battery terminal on starter solenoid.
2. Connect other end of first booster cable to the positive terminal post of the booster battery.
That is: Positive to Positive.
3. Connect the first end of second booster cable to the negative terminal of the booster battery. With the last end of the second booster cable make the final connection to the ENGINE BLOCK of the machine with the discharged battery. Connect as far away as possible from battery to prevent any possible sparks near the battery. Make certain machines do not touch.
4. TO REMOVE BOOSTER CABLES: Remove last connection at the engine block FIRST, then remove all other connections in reverse order. Keep booster cable ends from touching to prevent sparks.

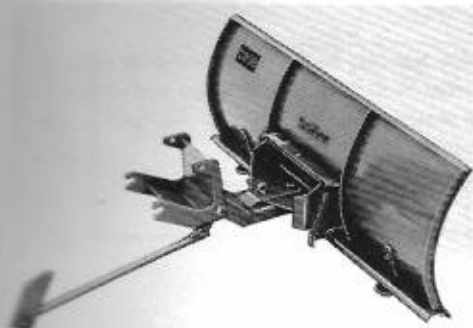


WARNING: When using jumper cables on negative ground system always connect positive jumper cable to battery terminal on starter solenoid, then use normal starting procedure from operator's seat. Any other method could result in tractor runaway.

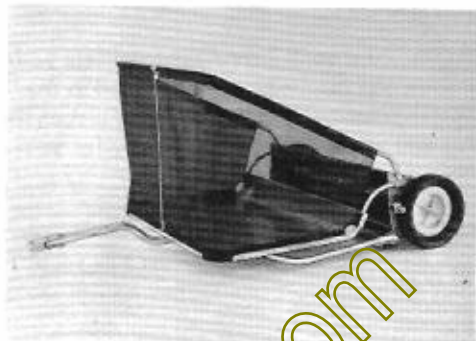
WIRING DIAGRAM



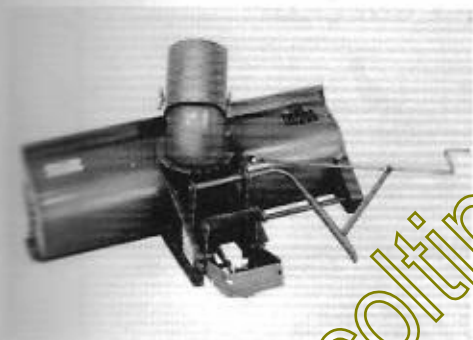
AVAILABLE ATTACHMENTS



UTILITY AND SNOW BLADE
WITH SPRING TRIP



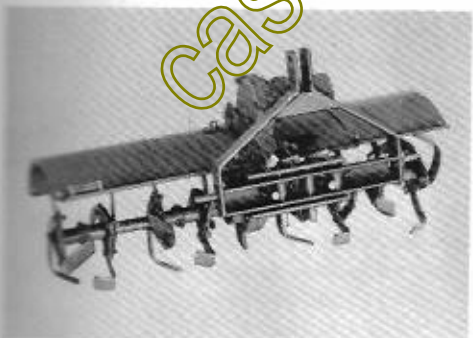
LAWN SWEEPER



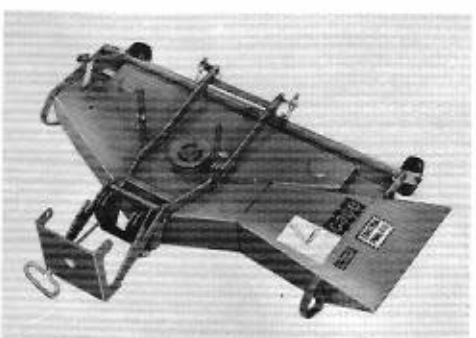
SNOWCASTER



1000 POUND
CAPACITY
DUMP CART



HYDRAULIC DRIVE TILLER



THREE SPINDLE
ROTARY MOWER

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

—NOTICE—

At the time your Case Dealer delivers your new tractor, he will acquaint you with its operation and maintenance as outlined in the "Owner Warranty Registration and Delivery Report". When your Dealer has completed these instructions, he will ask you to sign the report and will then hand you a copy for your records.

AFTER DELIVERY CHECKUP

The Authorized Case Dealer from whom you purchased your new tractor will perform the "After Delivery Checkup" outlined on the following page, if you will arrange to bring your tractor to his Service Shop within --

60 days after date of delivery or 100 hours of operation (whichever occurs first).

NOTE: The only charge your dealer will make for this inspection will be for oil, filter, or other accessories.

AFTER DELIVERY CHECKUP

Owner's Name _____	Date Checkup Performed: _____
Owner's Address: _____	
Dealership: _____	Town: _____
Tractor has been operated _____ days _____ (Tractor Model and Serial Number)	

TRACTOR

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

DEALER: Question purchaser carefully concerning his experience with tractor and answer any questions concerning maintenance or operation that are not clear to him.

Checkup _____
Performed by _____

Signed _____
Dealer

Original—Dealer
Duplicate—Leave in Operator's Manual
for Purchaser

Signed _____
Customer

AFTER DELIVERY CHECKUP

Owner's Name _____	Date Checkup Performed _____
Owner's Address _____	
Dealership _____	(Town) _____
Tractor has been operated _____ days _____ (Tractor Model and Serial Number)	

TRACTOR

- | | |
|--|---|
| <input type="checkbox"/> Operator's Manual supplied with machine.
<input type="checkbox"/> Check attachment drive clutch operation and adjustment.
<input type="checkbox"/> Check operation of brake.
<input type="checkbox"/> Check Travel Control linkage for proper adjustment and full valve spool travel.
<input type="checkbox"/> Check tire pressures.
<input type="checkbox"/> Tighten cylinder head and adjust tappets.
<input type="checkbox"/> Check spark plug(s).
<input type="checkbox"/> Check full governed and load engine speed and low idle speed.
<input type="checkbox"/> Tighten all hydraulic line connections.
<input type="checkbox"/> Tighten all bolts (including rims). | <input type="checkbox"/> Cooling system, engine and heat exchanger fins.
<input type="checkbox"/> Crankcase oil (change oil if necessary).
<input type="checkbox"/> Oil level in hydraulic system reservoir.
<input type="checkbox"/> Oil level in transmission.
<input checked="" type="checkbox"/> Lubricate all pressure fittings.
<input type="checkbox"/> Check air cleaner.
<input type="checkbox"/> Check tension of all belts.
<input type="checkbox"/> Lubricate steering gears. Check "free play". Adjust if necessary.
<input type="checkbox"/> Check front wheel toe-in.
<input type="checkbox"/> Battery, wiring and lights.
<input type="checkbox"/> Check operation of all instruments and controls. |
|--|---|

DEALER: Question purchaser carefully concerning his experience with tractor and answer any questions concerning maintenance or operation that are not clear to him.

Checkup _____
Performed by _____

Signed _____
Dealer

Original—Dealer

Duplicate—Leave in Operator's Manual
for Purchaser

Signed _____
Customer

**LUBRICATION AND PREVENTIVE MAINTENANCE
RECORDS**

DESCRIPTION

HOURS (DATE)

casecoltingersoll.com

LUBRICATION AND PREVENTIVE MAINTENANCE
RECORDS

DESCRIPTION

HOURS (DATE)

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LUBRICATION AND PREVENTIVE MAINTENANCE
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DESCRIPTION

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