

**970 Tractor**  
**S/N 8693001 & Above**  
**Operators Manual**

9-4022

Reprinted





***This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about your safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.***

SB001

IF THIS MACHINE IS USED BY AN EMPLOYEE, IS LOANED, OR IS RENTED, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE TWO INSTRUCTIONS BELOW.

BEFORE THE OPERATOR STARTS THE ENGINE:

1. GIVE INSTRUCTIONS TO THE OPERATOR ON SAFE AND CORRECT USE OF THE MACHINE.
2. MAKE SURE THE OPERATOR READS AND UNDERSTANDS THE OPERATOR'S MANUAL FOR THIS MACHINE.



**IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH.**

BEFORE STARTING THE ENGINE, DO THE FOLLOWING:

1. READ THE OPERATOR'S MANUAL.
2. READ ALL SAFETY DECALS ON THE MACHINE.
3. CLEAR THE AREA OF OTHER PERSONS.

LEARN AND PRACTICE SAFE USE OF MACHINE CONTROLS IN A SAFE, CLEAR AREA BEFORE YOU OPERATE THIS MACHINE ON A JOB SITE.

It is your responsibility to observe pertinent laws and regulations and to follow manufacturer's instructions on machine operation and maintenance.

See your Authorized Case dealer for additional operator's manuals, parts catalogs, and service manuals.

## **TO THE PURCHASER OF A CASE TRACTOR**

The care you give your 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 skill 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.

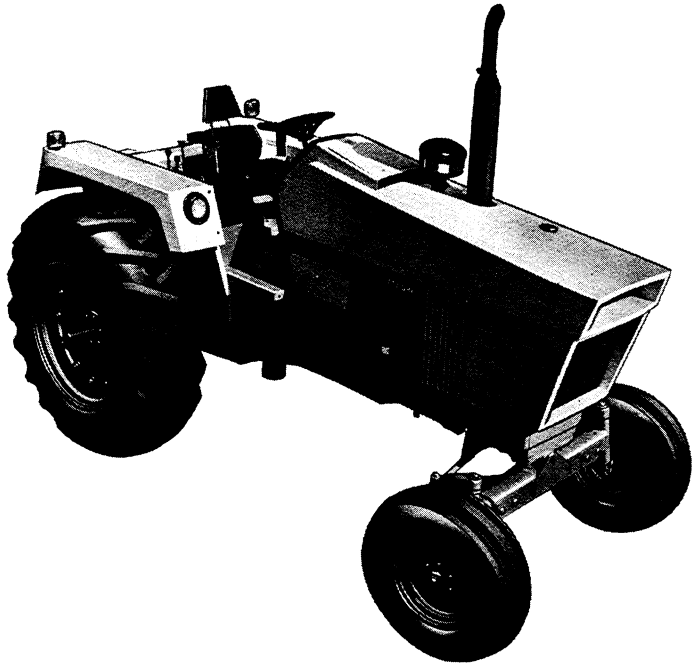
Should you require additional aid or information, contact us.

**YOUR AUTHORIZED CASE DEALER**



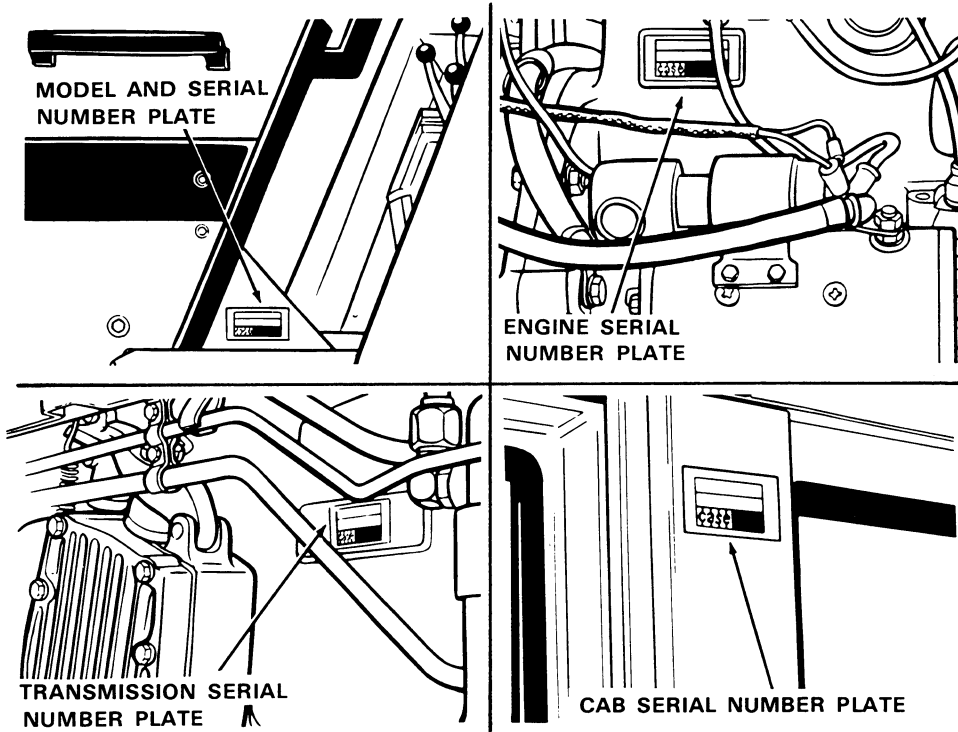
**LOOK FOR THIS SYMBOL TO POINT  
OUT IMPORTANT SAFETY PRECAUTIONS.  
IT MEANS - ATTENTION! BECOME ALERT!  
YOUR SAFETY IS INVOLVED.**

**TO INSURE EFFICIENT AND PROMPT SERVICE, PLEASE  
FURNISH US WITH THE MODEL, SERIAL, ENGINE, TRANS-  
MISSION AND CAB SERIAL NUMBERS OF YOUR TRACTOR  
IN ALL CORRESPONDENCE OR CONTACTS.**



## SERIAL NUMBERS

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



For convenient reference, fill in the Serial Numbers of your tractor in the spaces provided below.

MODEL DESIGNATION \_\_\_\_\_  
TRACTOR SERIAL NUMBER \_\_\_\_\_  
ENGINE SERIAL NUMBER \_\_\_\_\_  
TRANSMISSION SERIAL NUMBER \_\_\_\_\_  
CAB SERIAL NUMBER \_\_\_\_\_

**NOTE:** The terms "Right Hand" and "Left Hand" whenever used in this manual, apply to the tractor as viewed when seated in the operator's seat facing the forward direction of travel.

# Diesel Engine

## SPECIFICATIONS

### General

Type .....	6 Cylinder, 4 Stroke Cycle, Valve-in-Head.
Firing Order .....	1-5-3-6-2-4
Bore .....	4-1/8 Inches (104.7mm)
Stroke .....	5 Inches (127mm)
Piston Displacement .....	401 Cubic Inches (6 571.2cm <sup>3</sup> )
Compression Ratio .....	16.5 to 1
Cylinder Sleeve .....	Removable Wet Type
No Load Governed Speed .....	2160 RPM
Rated Engine Speed .....	2000 RPM
Engine Idling Speed .....	725 RPM
*Valve Tappet Clearance (Exhaust) .....	(Hot) .020 Inch (0.508mm) (Cold) .025 Inch (0.635mm)
	(Intake) - (Hot and Cold) .015 Inch (0.381mm)

\*Hot Settings Are Made After The Engine Has Operated At Thermostat Controlled Temperature For At Least Fifteen Minutes.

### Piston and Connecting Rods

Rings per piston .....	3
Number of Compression Rings .....	2
Number of Oil Rings .....	1
Type Pins .....	Full Floating Type
Type Bearing .....	Replaceable Precision, Steel Back, Copper-Lead or Aluminum Alloy Liners

### Main Bearings

Number of Bearings .....	7
Type Bearings .....	Replaceable Precision Steel Back, Copper-Lead or Aluminum Alloy Liners.

## Engine Lubricating System

Oil Pressure ----- 45 to 55 PSI (3.2 to 3.9 kg/cm<sup>2</sup>) with Engine Warm and Operating at Rated Engine Speed

Type System ----- Pressure and Spray Circulation

Oil Pump ----- Gear Type

Oil Filter ----- Full Flow Spin on Type

## Fuel System

Fuel Injection Pump ----- Robert Bosch, Type PES  
(Multiple Plunger).

Pump Timing ----- 30 Degrees Before Top Dead  
Center (Port Closing).

Fuel Injectors ----- Pencil Type  
Opening Pressure 3200 PSI (225 kg/cm<sup>2</sup>)

Fuel Transfer Pump ----- Plunger Type, Integral Part of  
Injection Pump.

Governor ----- Variable Speed, Fly-Weight Centri-  
fugal Type; Integral Parts of  
Injection pump.

1st Stage fuel filter ----- Full Flow Spin on Type

2nd Stage fuel filter ----- Full Flow Spin on Type

Fuel Tank Water Trap and Drain ----- Located in Base of Fuel Tank

Fuel Tank Capacity ----- 50 U.S. Gallons (189.3 Liters)

Fuel Level Gauge ----- Electric, Located on Instrument  
Panel.

Hand Primer Pump ----- Located on Top of the Fuel  
Transfer Pump

Preliminary Fuel Filter ----- Located at the Bottom of the  
Fuel Transfer Pump.

Fuel Tank Filter ----- Located in Fuel Shut-off Valve  
in Base of Fuel Tank.

# *spark ignition engines*

## **SPECIFICATIONS**

### **General**

Type ----- 6 Cylinder, 4 Stroke Cycle,  
Valve-in-Head.  
Firing Order ----- 1-5-3-6-2-4  
Bore ----- 4 Inches (101.6mm)  
Stroke ----- 5 Inches (127mm)  
Compression Ratio ----- 7.5 to 1  
Piston Displacement ----- 377 Cubic Inches (6178cm<sup>3</sup>)  
Governed Speed  
    No Load Governed Speed ----- 2180 RPM  
    Rated Engine Speed ----- 2000 RPM  
    Engine Idling Speed ----- 600 RPM  
\*Valve Tappet Clearance (Intake) (Hot and Cold) .015 Inches (0.381mm)  
    (Exhaust) ----- (Hot) .020 Inches (0.508mm)  
    (Cold) .025 Inches (0.635mm)  
Exhaust Valve Rotators ----- Positive Type

\*Hot Settings Are Made After The Engine Has Operated At Ther-  
mostat Controlled Temperature For At Least Fifteen Minutes.

### **Piston and Connecting Rods**

Rings per Piston ----- 4  
Number of Compression Rings ----- 3  
Number of Oil Rings ----- 1  
Type Pin ----- Full Floating Type  
Type Bearings ----- Replaceable, Precision Steel  
Back, Copper-Lead or Aluminum Alloy Liners.

### **Main Bearings**

Number of Bearings ----- 7  
Type Bearings ----- Replaceable, Precision Steel  
Back, Copper-Lead or Aluminum Alloy Liners.



## **Engine Lubricating System**

Oil Pressure ----- 45 to 55 PSI (3.2 to 3.9 kg/cm<sup>2</sup>)  
Engine Warm and Operating at  
Full Governed RPM.

Type System ----- Pressure Spray Circulation

Oil Pump ----- Gear Type

Oil Filter ----- Full Flow, Spin on Type

## **Fuel System**

Fuel Tank Capacity ----- 50 U.S. Gallons (189.3 liters)

Carburetor (Zenith) (w/solenoid) ----- 1-1/2 Inch SAE Flange (38mm).

Fuel Pump and Screen ----- A.C. Vacuum Type, Camshaft  
Actuated.

## **Distributor Ignition**

Contact Point Gap ----- .020 Inches (0.508mm)

Dwell Angle ----- 39°

Spark Plugs ----- Prestolite 18 8

Plug Gap ----- .025 Inches (0.635mm)

Thread ----- 18 MM

Shank Length ----- 1/2 Inch (12.7mm)

## **Engine Timing**

Static Timing ----- TDC

Running Timing ----- Engine Running at Rated  
Engine Speed: 27° BTDC

# *general specifications*

## **Cooling System**

Capacity ----- 38 U.S. Quarts (36 liters)  
Type of System ----- Pressurized, Thermostat Controlled  
By-Pass Type: Forced Circulation, (Impeller Type Pump).  
Radiator ----- Heavy Duty Fin and Tube Type  
Thermostat ----- Starts to Open at Approximately 175°F. (79°C.)  
Full Open at 202°F. (94°C.)  
Pressure Cap Required ----- (w/o Cab) 7 PSI (0.492 kg/cm<sup>2</sup>)  
Pressure Cap Required ----- (w/Cab) 14 PSI (0.984 kg/cm<sup>2</sup>)  
When using a proper operating 7 PSI (0.492 kg/cm<sup>2</sup>) pressure cap, the engine temperature can safely rise to 230°F. (110°C). With a 14 PSI (0.984 kg/cm<sup>2</sup>) pressure cap, the engine temperature can safely rise to 250°F. (121°C.).

## **Electrical System**

Type of System ----- 12 Volt Negative Ground  
Batteries ----- (2) 12 Volt Batteries Connected  
in parallel.  
(Spark Ignition) - Group Size 27H, Rated at 1.255 to 1.265  
Specific Gravity, Discharge Rate 300 Amps  
at 0° F., Voltage drops to 8.7 after 10 seconds,  
Voltage drops to 1.0 volts per cell after  
3-1/2 minutes.  
(Diesel) - Group Size 30H, Rated at 1.255 to 1.265  
Specific Gravity. Discharge Rate 300 Amps  
at 0° F. Voltage drops to 9.2 after 10 seconds.  
Voltage drops 1.0 Volts per cell after 4 min.  
Alternator ----- 12 Volt 55 Amp Output  
Voltage Regulator ----- 12 Volt, Solid State,  
Mounted on Alternator.  
Starter Motor ----- 12 Volt with Solenoid Switch  
Head Lights (2) ----- 12 Volt, 40/40 Watt Sealed High-Low Beam  
Flood Lights ----- 12 Volt, 35 Watt, Sealed Beam  
Amber Warning Lights (2)----- 12 Volt, Double Face, Flasher Type  
Rear Tail Light ----- 12 Volt, 60 Watt Sealed Beam  
Combination Tail and Flood Lamp.  
Circuit Breaker System over load check - 12 Volt Twin 40 AMP  
Breakers connected in parallel, 80 AMP rating -  
60 AMP. Min. Continuous capacity.  
Lights Circuit Breaker ----- 40 Amp., Located on Light Switch  
Parking Brake Warning Light ----- 12 Volt, Red Flasher Type

## **Parking Brake**

Type ----- Cable Actuated by Orchlin Type Handle - Adjustable from Operator's Seat.

## **Hydraulic Brakes**

Type ----- Hydraulic Actuated, Self-Adjusting Disc Type Differential Brakes.

## **Hydraulic Power Assist Brakes**

Type ----- Hydraulic, Power Assisted, Self-Adjusting Disc Type Differential Brakes.

## **Mechanical Transmission**

Type ----- 2 Speed Gear Range With a 4 Speed Gear Section.

Gear Selection ----- 8 Speeds Forward - 2 Speeds Reverse.

Shifting ----- Mechanical With Plunger Type Locks and Tube Type Interlocks.

## **Power Shift Transmission**

Type ----- 3 Speed Compound Planetary With Hydraulically Actuated Clutches and a 4 Speed Gear Range Section.

Gear Selection ----- 12 Speeds Forward and 3 Speeds Reverse

Shifting ----- Hydraulic Power Shifting Controlled By a Lever On Operators Console. 4 Speed Range Controlled By a Mechanical Shifter From a Lever On Operator's Console.

## Power Take-Off

Type Clutch----- Hydraulically Operated  
Rotation ----- Clockwise  
Spline Size ----- 540 RPM ---- 6 Splines -- 1-3/8 in. (34.9mm)  
1000 RPM --- 21 Splines -- 1-3/8 in. (34.9mm)  
Engine Speed 1900 RPM----- 540 or 1000 RPM Shaft Speed

## Belt Pulley

Method of Engagement ----- PTO Control Lever  
Pulley Diameter ----- 10.5 in. (266.7mm)  
Pulley Face Width ----- 7.25 in. (184.2mm)  
Ratio Engine RPM:  
(540 PTO) ----- 1.716 to 1  
(1000 PTO) ----- 1.722 to 1  
1 RPM of Belt Pulley ----- 2.75 feet (8.4m) Per Minute  
Belt Travel.

## Drawbars

Standard or Yoke Type ---- Full Swinging Roller Mounted. Will  
Accommodate a 1-1/4 Inch (31.8mm) Dia. Pin

## Draft-O-Matic System

Type of Sensing ----- Lower Link  
Type Control ----- Hand Lever  
Type Valve ----- 3 Positions - Raise - Hold - Lower  
Type Draft Arms ----- Swinging, with Manual Float Adjustment  
Type Hitch ----- 3 Point Category II

## **Hydrostatic Power Steering**

Pump Type ----- Large Volume, Spur Gear, Continuous Running.

Pump Capacity at 1900 Engine RPM ----- 7 GPM (26.5 l/mn)

HGA Hydrostatic Type ----- Integral and Bi-Directional Gerotor Metering Section, Actuated By the Steering Wheel.

Actuating Cylinders ----- 2 Way Cylinders Are Integral Part of Steering Gear Mechanism.

## **Remote Hydraulic System**

Pump ----- Large Volume, Spur Gear, Continuous Running.

Type Valve ----- Dual Valve - Individual Hand Lever Control.

Portable Cylinder Coupling ----- Case Quick Detachable Break-away Type.

Pump Capacity at 1900 Engine RPM ----- 16 GPM (60.6 l/mn)

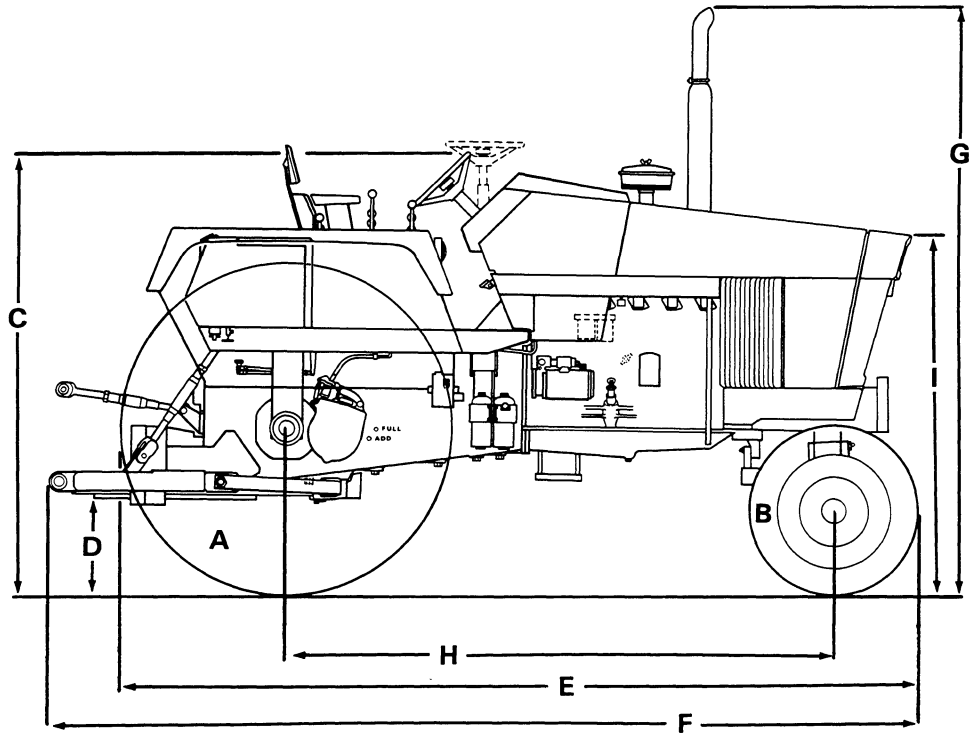
Relief Valve Pressure - 1700 to 1900 PSI (119.5 to 133.6 kg cm<sup>2</sup>)

Portable Cylinders ----- Available; 3-1/4 in. (82.6mm) or 4 in. (101.6mm) x 8 in. (203.2mm) cylinders.

## **OPERATOR'S CAB**

**THIS CASE OPERATOR'S CAB IS EQUIPPED WITH BUILT IN ROLLOVER PROTECTION AS SPECIFIED IN ASAE STANDARD S-336.**

## APPROXIMATE OVERALL MEASUREMENTS



MODEL	ADJUSTABLE
A	18.4-34R1
B	7.50-16F2
C	84 in. (2 134mm)
D	15 in. (381mm)
E	156 in. (3 962mm)

F	162 in. (4 115mm)
G	117 in. (2 972mm)
H	108 in. (2 743mm)
I	78 in. (1 981mm)

A and B Tire Sizes

## APPROXIMATE WEIGHT

970 Tractor ..... 9095 Pounds (4 125 kg).

**Buy Now**



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