770 - 870 Tractors

Operators Manual

9-2802

CASE

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.

WARNING

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 TRANSMISSION AND CAB SERIAL NUMBERS OF YOUR TRACTOR IN ALL CORRESPONDENCE OR CONTACTS.

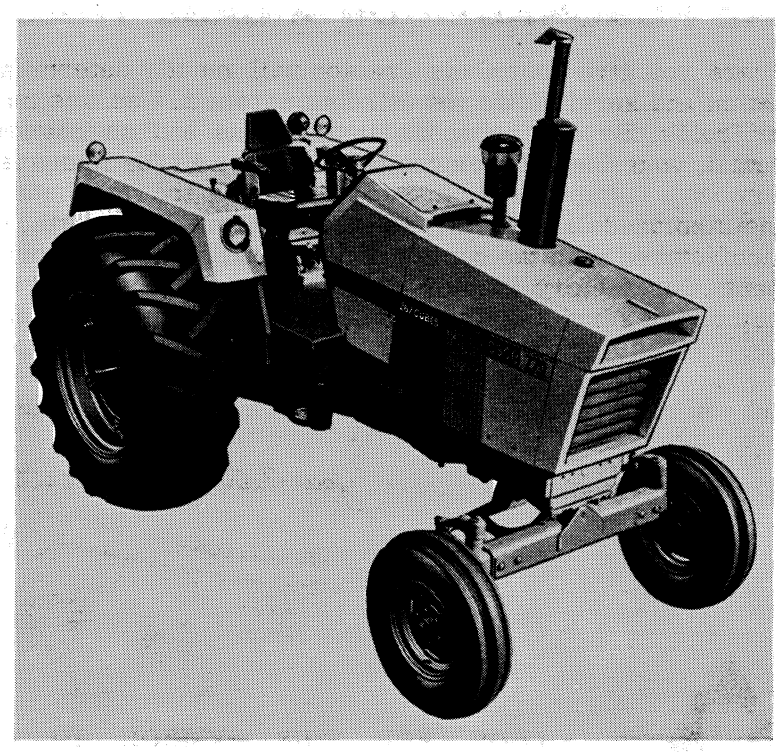

Figure 1 770 Tractor

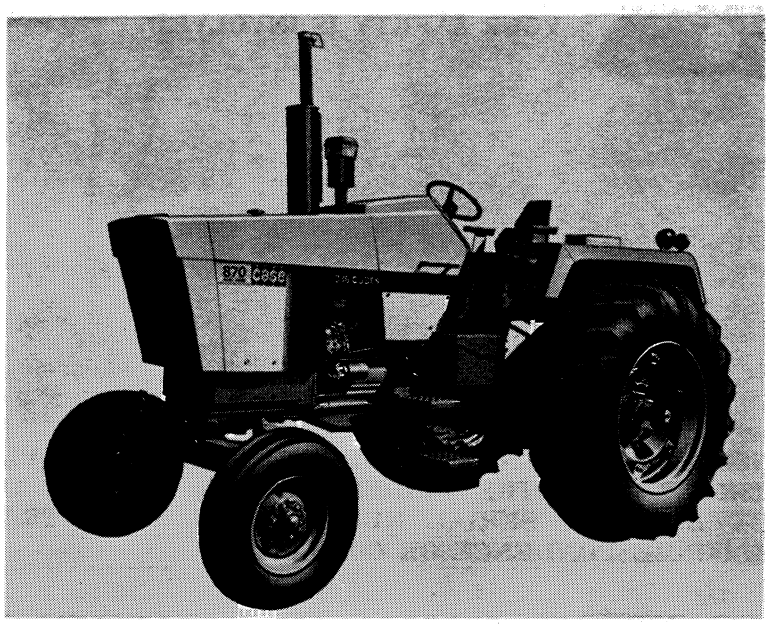

Figure 2 870 Tractor

SERIAL NUMBER

The Model and Serial Numbers are stamped on the number plate located on the outside and lower left hand side of the fire wall assembly, Figure 3. The Engine Serial Number is stamped on a plate fastened to the rear right hand side of the engine block, Figure 4. The transmission Serial Number is stamped on a plate and fastened to the right hand side and to the front of the axle on the transmission housing, Figure 5. The Cab Serial Number is stamped on a plate fastened to the inside right hand support, Figure 6.

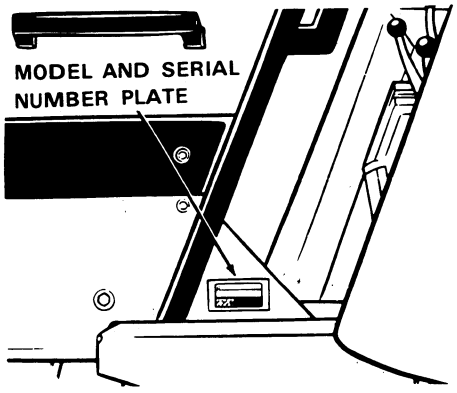

Figure 3

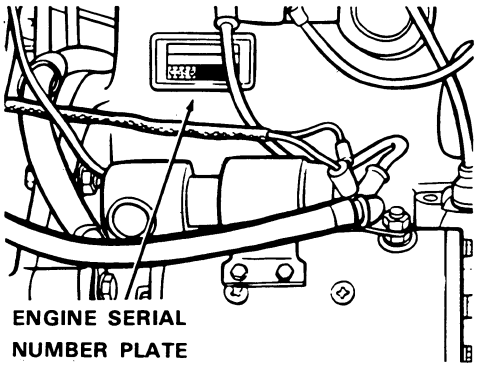

Figure 4

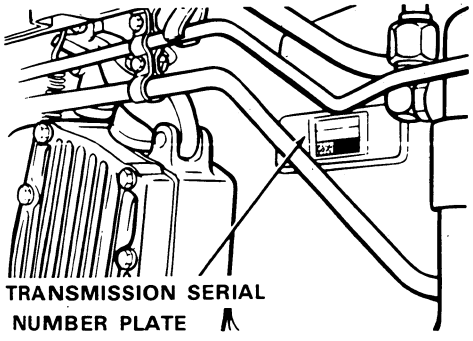

Figure 5

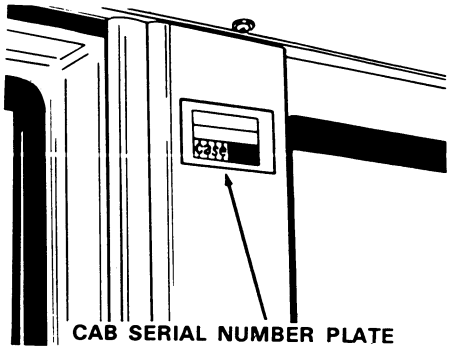

Figure 6

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

For 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 _____

Diesel Engine

SPECIFICATIONS

General

Type ---------- 4 Cylinder, 4 Stroke Cycle, Valve-in-Head.
Firing Order ---------- 1-3-4-2
Bore (770 Series) ---------- 4-1/8 Inches (104.7mm)
(870 Series) ---------- 4-5/8 Inches (122.5mm)
Stroke ---------- 5 Inches (127mm)
Piston Displacement (770 Series) ---------- 267 Cubic In. (4375.4cm³)
(870 Series) ---------- 336 Cubic In. (5 506.1cm³)
Compression Ratio ---------- 16.5 to 1
Cylinder Sleeves ---------- 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 ---------- 5
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/cm2) 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 ---------- 29 Degrees Before Top Dead Center (Port Closing).

Fuel Injectors ---------- Pencil Type (Opening Pressure 2800 PSI). (196.9 kg/cm2)

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

Governor ---------- Variable Speed, Fly-Weight Centrifugal Type; Integral Part 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 ---------- 4 Cylinder, 4 Stroke Cycle, Valve-in-Head.
Firing Order ---------- 1-3-4-2
Bore (770 Series) ---------- 4 Inches (101.6mm)
(870 Series) ---------- 4-3/8 Inches (111mm)
Stroke ---------- 5 Inches (127mm)
Compression Ratio ---------- 7.5 to 1
Piston Displacement (770 Series) ---------- 251 Cubic In. (4 113.2cm^3)
(870 Series) ---------- 301 Cubic In. (4932.5cm^3)
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 Thermostat Controlled Temperature For At Least Fifteeen 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 ---------- 5
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^2) Engine Warm and Operating at Rated Engine Speed.

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 ---------- Bendix-Zenith With Solenoid Shut-Off
Flange Size (770) ---------- 1-1/4" (31.7mm)
Flange Size (870) ---------- 1-1/2" (38.1mm)

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

Distributor Ignition

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

Dwell Angle ---------- 70^0

Spark Plugs ---------- Prestolite 18 8

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

Thread ---------- 18 mm

Shank Length ---------- 1/2 Inch

Engine Timing

Static Timing ---------- 5^0 ATDC

Running Timing ---------- Engine running at Rated Engine Speed: 29^0 BTDC

general specifications

Cooling System

Capacity ---------- 28 U.S. Quarts (15.1 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 195°F. (91°C.) Fully Open at 202°F. (94°C.).
Pressure Cap Required -- (w/o Air Conditioner) 7 PSI (0.492 kg/cm²)
Pressure Cap Required -- (w/Air Conditioner) 14 PSI (0.984 kg/cm²)
When using a proper operating pressure cap, the engine temperature can safely rise to 230°F. (110°C.).

Electrical System

Type of System (Diesel) ---------- 12 Volt Negative Ground
Type of System (Spark Ignition) ------ 12 Volt Negative Ground
Batteries (Diesel) ---------- (2) 12 Volt Batteries Connected in parallel.
(Spark Ignition) ---------- (1) 12 Volt Battery
(770 Series) 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 volt per cell after 3-1/2 minutes.
(870 Series) - 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 Volt 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 35 Watt, Sealed Beam
Flood Lights (2) ---------- 12 Volt, 35 Watt, Sealed Beam
Amber Warning Lignts (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 ------ 30 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 Spur 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 4 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.

Hydrostatic Power Steering

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

Pump Capacity at 2000 Engine RPM ---------- 8 GPM (30.3 l/mn)

Hand Pump Type ---------- Gerotor Bi-Directional, Driven 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 2000 Engine RPM ---------- 16 GPM (60.6 l/mn)

Relief Valve Pressure ---------- 1350 to 1550 PSI (94.9 to 109 kg/cm^2)

Portable Cylinders ---------- Available

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

Power Take-Off

Type Clutch ---------- Hydraulically Operated

Rotation ---------- Clockwise

Spline Size ----- 540 RPM ---- 6 Spline --- 1-3/8 in. (34.9mm) Dia.
1000 RPM --- 21 Spline --- 1-3/8 in. (34.9mm) Dia.

Engine Speed 1900 RPM ---------- 540 or 1000 RPM Shaft Speed

Belt Pulley

Method of Engagement ---------- PTO Control Lever

Pulley Diameter ---------- 10.5 Inches (266.7mm)

Pulley Face Width ---------- 7.25 Inches (184.1mm)

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

Drawbars

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

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