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770-870 TRACTORS

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Section

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GENERAL SPECIFICATIONS 770-870 TRACTORS

SERIAL NUMBERS

The Model and Serial Numbers are stamped on a plate located on the outside and to the lower left hand side of the firewall assembly, Figure 1. The Engine Number is stamped on a plate located to the rear right hand side of the engine block, Figure 2. The Transmission Serial Number is stamped on a plate located on the right hand side of the transmission in front of the brake housing, Figure 3.

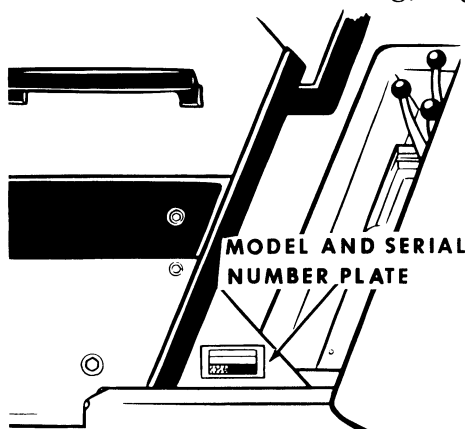


Figure 1

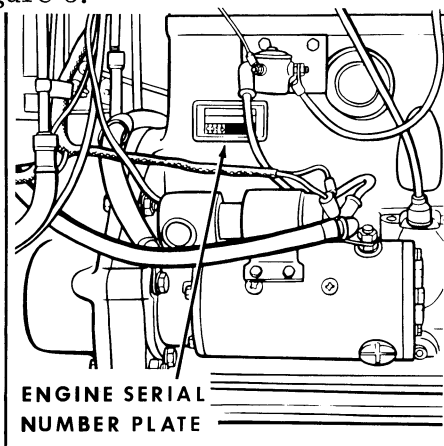


Figure 2

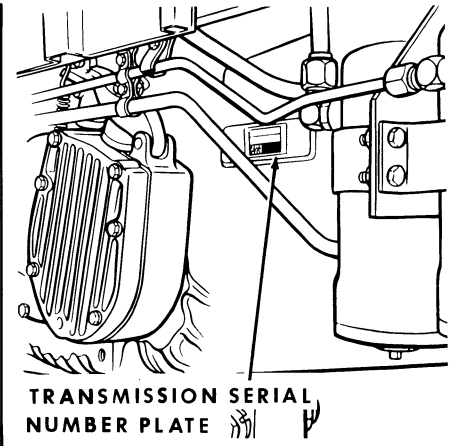


Figure 3

DIESEL ENGINES

General

Type	4 Cylinder, 4 Stroke Cycle, Valve-in-Head.
Firing Order	1-3-4-2
Bore (770 Series)	4-1/8 Inches
(870 Series)	4-5/8 Inches
Stroke	5 Inches
Piston Displacement (770 Series)	267 Cubic Inches
(870 Series)	336 Cubic Inches
Compression Ratio	16.5 to 1
Cylinder Sleeves	Removable Wet Type
No Load Governed Speed	2060 RPM
Rated Engine Speed	1900 RPM
Engine Idling Speed	725 RPM
*Valve Tappet Clearance (Exhaust)	(Hot) .020 Inch
(Cold)025 Inch
(Intake)	(Hot and Cold) .015 Inch

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

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Piston and Connecting Rods

Ri	
Nt	
Number of Oil Rings	
Type Pins	Full Floating Type
Type Bearing	Replaceable Precision, Steel Back, Copper-Lead Alloy Liners.

Main Bearings

Number of Bearings	5
Type Bearings	Replaceable Precision Steel Back, Copper-Lead Alloy Liners.

Engine Lubricating System

Oil Pressure	45 to 55 Pounds 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).
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
Fuel Level Gauge	Electric, Located on Instrument Panel.

SPARK IGNITION ENGINES

General

Type	4 Cylinder, 4 Stroke Cycle, Valve-in-Head
Firing Order	1-3-4-2
Bore (770 Series)	4 Inches
(870 Series)	4-3/8 Inches
Stroke	5 Inches
Compression Ratio	7.5 to 1
Piston Displacement (770 Series)	251 Cubic Inches
(870 Series)	301 Cubic Inches
No Load Governed Speed	2060 RPM
Rated Engine Speed	1900 RPM
Engine Idling Speed	600 RPM
*Valve Tappet Clearance (Intake)	(Hot and Cold) .015 Inches
(Exhaust)	(Hot) .020 Inches (Cold) .025 Inches
Exhaust Valve Rotators	Positive Type
* 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 (870 Series)	3
Rings per Piston (770 Series)	4
Number of Compression Rings (770 Series)	3
Number of Compression Rings (870 Series)	2
Number of Oil Rings	1
Type Pin	Full Floating Type
Type Bearings	Replaceable, Precision Steel Back, Copper Lead Alloy Liners.

Main Bearings

Number of Bearings	5
Type Bearings	Replaceable, Precision Steel Back, Copper Lead Alloy Liners.

Engine Lubricating System

Oil Pressure	45 to 55 Pounds with 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
Carburetor	Zenith (w/solenoid shut-off) 1-13/32 Inch SAE Flange
Fuel Pump and Screen	A.C. Vacuum Type, Camshaft Actuated.

Distributor Ignition

Contact Point Gap020 Inch
Dwell Angle	70°
Spark Plugs	Prestolite 18 8
Plug Gap025 Inches
Thread	18 MM
Shank Length	1/2 Inch

Engine Timing

Static Timing	5° ATDC
Running Timing	28° BTDC at Rated Engine Speed

GENERAL SPECIFICATIONS

Cooling System

Capacity	28 U. S. Quarts
Type of System	Pressurized Thermostat Controlled Impeller Type Pump.
Thermostat	Starts to Open at Approximately 195°F. Fully Open at 202°F.
Pressure Cap Required	(w/o cab) 7 PSI
Pressure Cap Required	(w/cab) 14 PSI
When using a proper operating pressure cap, the engine temperature can safely rise to 230°F.	

Electrical System

Type of System-Diesel and 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 minutes.

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 Light 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 Gear Section.

Gear Selection 8 Speeds Forward - 2 Speeds Reverse

Shifting Mechanical With Plunger Type Locks and Tube Type Interlocks

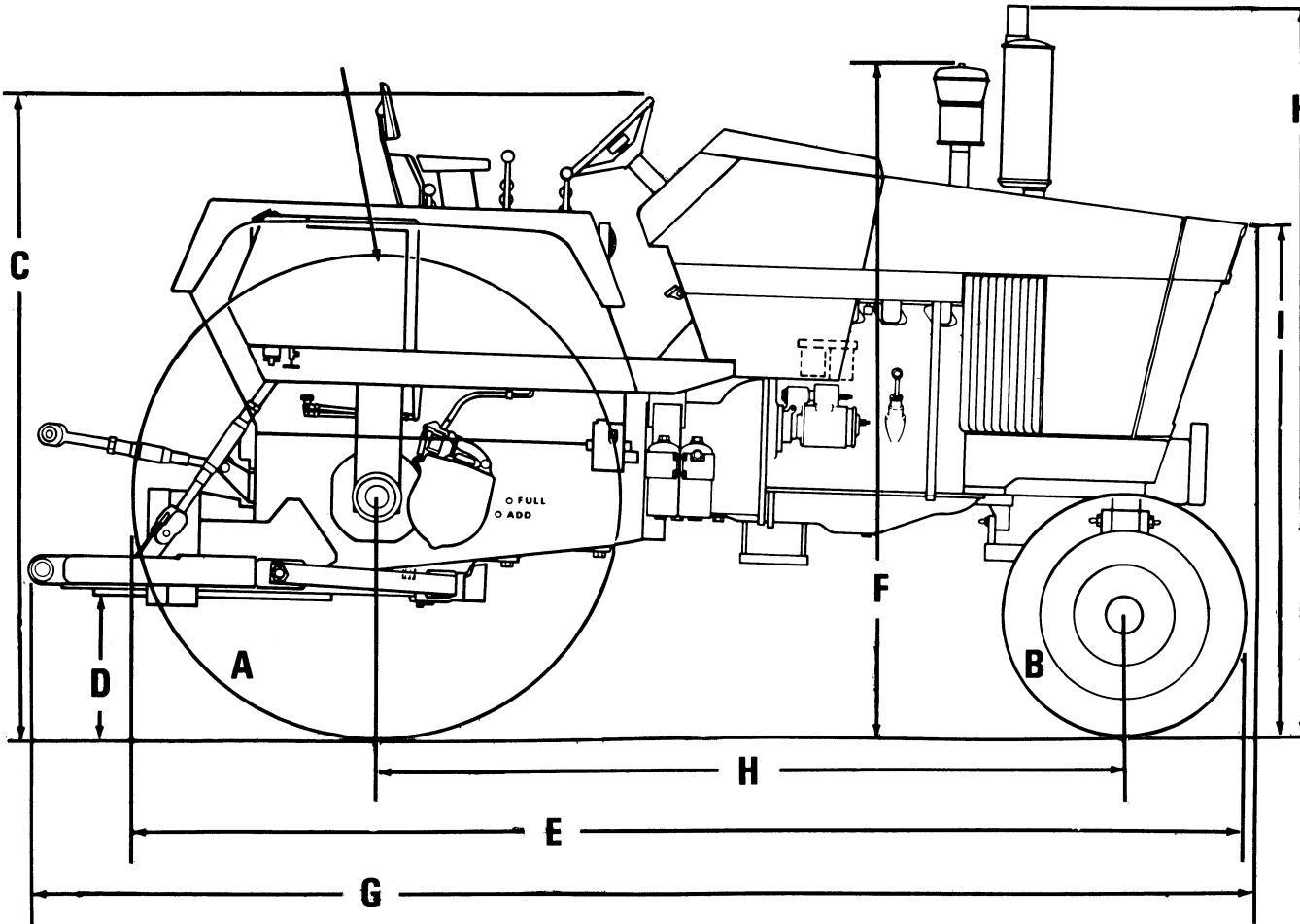
Power Shift Transmission

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 Operator's Console. 4 Speed Range Controlled by a Mechanical Shifter from a Lever on Operator's Console.

APPROXIMATE OVERALL MEASUREMENTS



Model	A	B	C	D	E	F	G	H	I	K
Adjustable	15.5-38R1	7.50-16 F2	81	15	148	87	153	101	67	100
Dual	18.4-34R1	7.50-15 F2	83	18	140	88	153	94	69	101

A and B Tire Sizes

C thru K Dimensions in Inches

APPROXIMATE WEIGHT

770 Tractor 7900 Pounds
 870 Tractor 8100 Pounds

TIRE AND WHEEL EQUIPMENT

Front

TIRE SIZE	TIRE PLY	RIM SIZE	TREAD TYPE	DUAL	ADJ.	TIRE PRESSURE
6.00-16	6	400E-16	F2	X	X	48
7.50L-15	6	6L-15	F2	X	X	36
7.50-16	6	550F-16	F2		X	36
9.50L-15	6	8LBH-15	F2		X	24
10.00-16	6	W8L-16	F2		X	28
11.00L-15	6	8LBH-15	F2		X	28

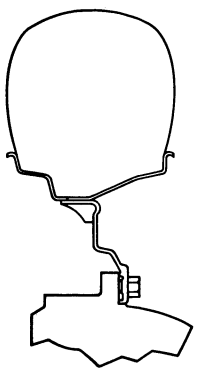
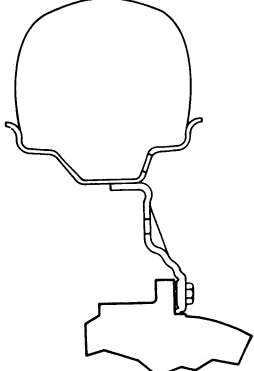
Rear

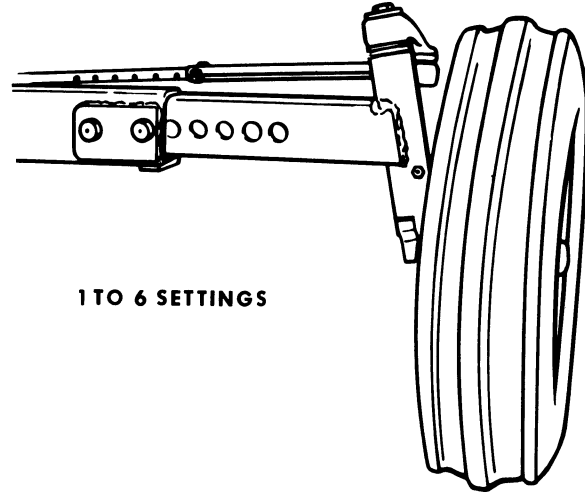
TIRE SIZE	TIRE PLY	RIM SIZE	TREAD TYPE	DUAL	ADJ.	TIRE PRESSURE
14.9-38	6	W14-38	R1 & R2	X	X	18
15.5-38	6	W14-38	R1 & R2	X	X	18
15.5-38	8	W14-38	R1 & R2	X	X	24
15.5-38	8	W14-38	R2	X	X	24
16.9-34	6	W15L-34	R1	X	X	16
16.9-34	8	W15L-34	R1	X	X	22
18.4-34	6	W15L-34	R1 & R2		X	16
13.6-38	6	W12-38	R1 & R2	X	X	20
18.4-34	8	W15L -34	R1		X	20
23.1-30	8	DW20-30	R1 & R2		X	16

NOTE Keep tires inflated to recommended pressures. Check pressures at least every 60 hours of operation or once a week, whichever occurs first. Do not reduce rear tire pressure to increase traction. When plowing, increase furrow wheel tire pressure 4 PSI.

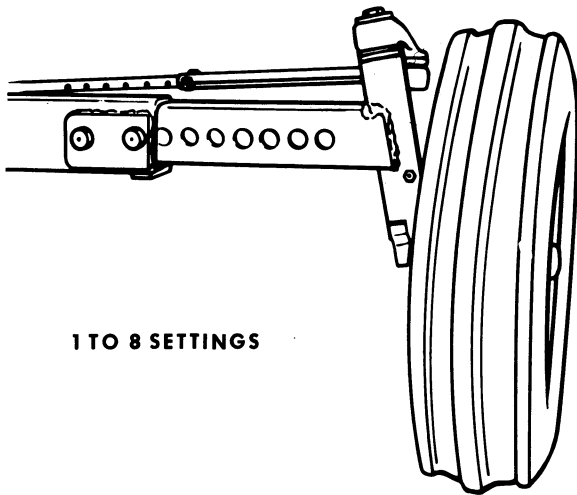
FRONT WHEEL TREAD SPACING (With Wheels Dished In Only)

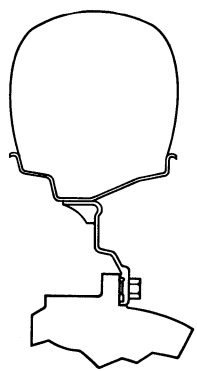
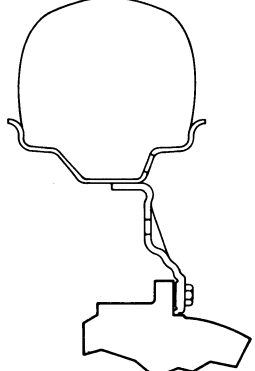
STANDARD ADJUSTABLE AXLE SPACING IN INCHES

1-1/8" OFFSET WHEEL	2-1/4" OFFSET WHEEL
	
55 - 75	53 - 73



WIDE ADJUSTABLE AXLE SPACING IN INCHES



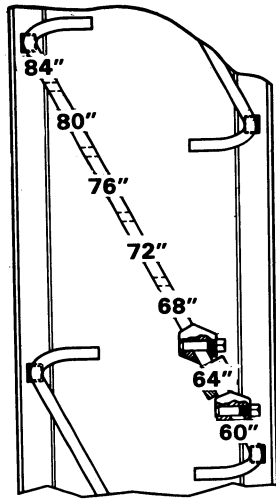
1-1/8" OFFSET WHEEL	2-1/4" OFFSET WHEEL
	
62 - 90	60 - 88

NOTE Axle spacing listings above are from the narrow setting, (with increments of 4 inches), to the wide setting.

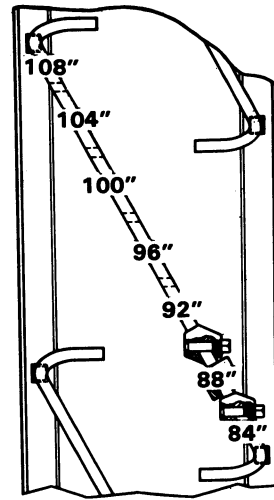
NOTE When tightening the front wheel bolts, torque 70 to 80 ft. lbs.

POWER SHIFT REAR WHEEL TREAD SPACING

86" Rear Axle

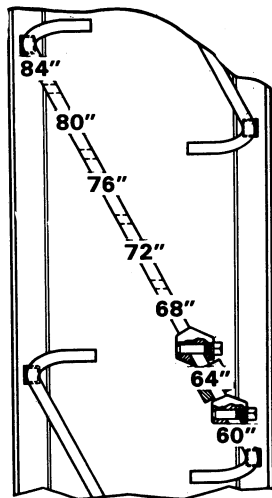


HUB OR WHEEL MOVED IN ON AXLE

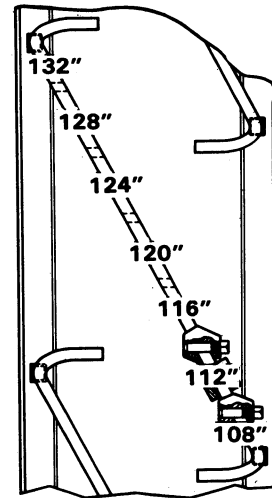


HUB OR WHEEL MOVED OUT ON AXLE

109" Rear Axle



HUB OR WHEEL MOVED IN ON AXLE



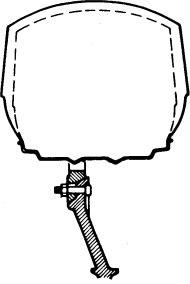
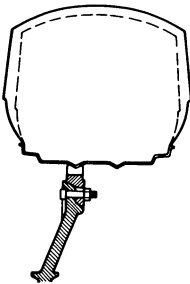
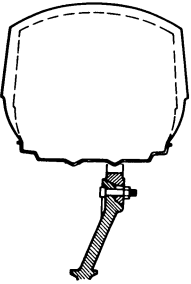
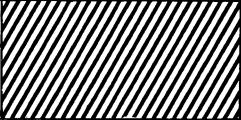
HUB OR WHEEL MOVED OUT ON AXLE

NOTE Each shifting position hole allows a 2 inch individual wheel adjustment.

Dimensions given when using 15.5 - 38 tire. When using 18.4-34, 16.9-34 and 18.4-38 tires, the 60 inch dimension does not apply.

MANUAL ADJ. REAR WHEEL TREAD SPACING

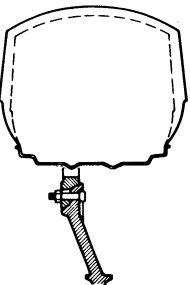
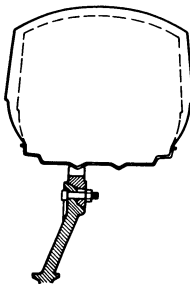
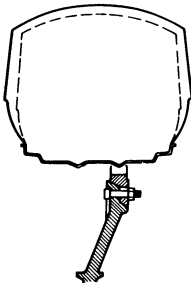
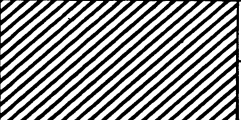
86" Rear Axle

	WHEELS DISHED IN	WHEELS DISHED OUT		
	 INSIDE BEAD	 INSIDE BEAD	 OUTSIDE BEAD	
34" and 38" Wheels	60 - 76	70 - 88	62 - 80	
30" Wheels		76 - 90	68 - 82	SOLID HUB
		76 - 92	68 - 84	UNIV. HUB

DIMENSIONS GIVEN IN INCHES

NOTE With the 34" rim and 16.9 and 18.4-34 tire, the 60" does not apply.

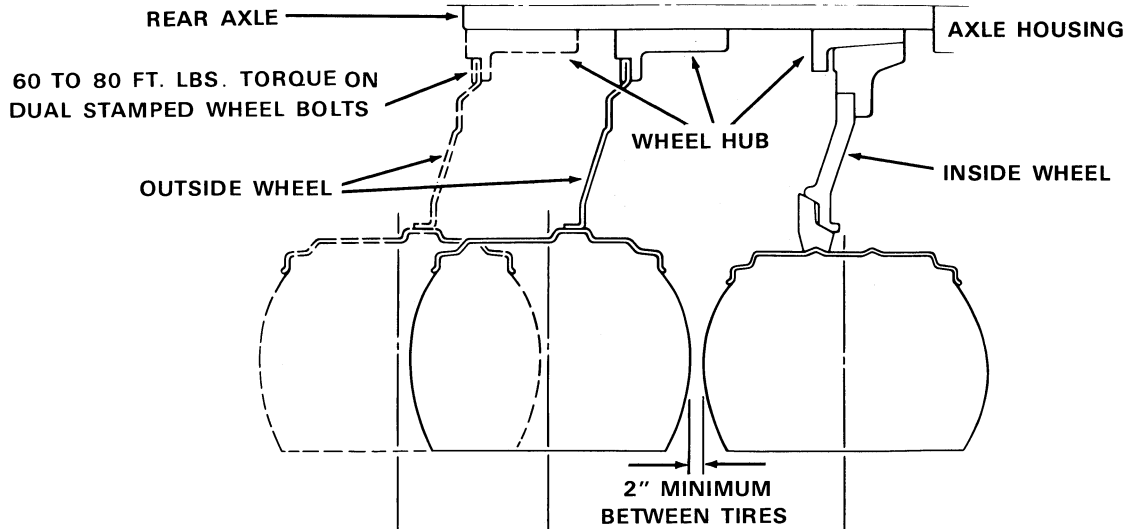
109" Rear Axle

	WHEELS DISHED IN	WHEELS DISHED OUT		
	 INSIDE BEAD	 INSIDE BEAD	 OUTSIDE BEAD	
34" and 38" Wheels	60 - 100	70 - 112	62 - 104	
30" Wheels		76 - 114	68 - 106	SOLID HUB
		76 - 116	68 - 108	UNIV. HUB

DIMENSIONS GIVEN IN INCHES

NOTE With the 34" rim and 16.9-34 and 18.4-34 tire, the 60" does not apply.

DUAL REAR WHEEL TREAD SPACING (With 109" Axle)



TIRES	MAXIMUM TREAD	MINIMUM TREAD	MINIMUM TREAD	WHEELS
15.5 - 38	121"	96"	60"	Outside Stamped and Inside Cast Iron Wheels
12.4 - 42	112"	90"	60"	Outside and Inside Cast Iron Wheels
18.4 - 34	112"	104"	64"	Outside and Inside Cast Iron Wheels

NOTE A minimum 2" clearance must be maintained between the inside wheel and rear fender.

APPROXIMATE TRAVEL SPEEDS IN MPH Power Shift Transmission

Power Shift	Transmission Range			
	1	2	3	4
1	1.8	3.0	4.6	10.2
2	2.5	4.0	6.2	13.7
3	3.1	5.0	7.7	17.0

Mechanical Shift Transmission

Mechanical Range	Transmission Gear			
	1	2	3	4
1	1.9	2.8	3.9	4.8
2	6.0	8.5	12.0	15.0

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 FLAMMABLE FUELS.

GASOLINE

Case Gasoline Engines 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 average Octane Number Ratings for Regular Grade gasoline are:

Motor Research86.2 Octane Number
Research Method	94.2 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 to only the Research Method Rating.

When only one Octane Rating is given for gasoline and the rating method is not specified, it can be assumed to be the Research Method rating.

DIESEL

Case diesel engines are designed to operate most efficiently when using a Number 2 Diesel Fuel. Most well known refiners and distributors market a good grade of Diesel Fuel and there should be no difficulty in obtaining it.

Do not confuse number 2 Diesel Fuel with Number 2 Furnace Oil, as this does not always meet the fuel specifications for diesel engines.

Specifications for a Sultable Number 2 Diesel Fuel

A.P.I. Gravity (Minimum) 30
Pour Point (Maximum) 10° Fahrenheit below ambient operating temperature.

DISTILLATION

90% Point 540°-625° Fahrenheit
End Point 675° Fahrenheit

FLASH POINT (Minimum) 125° Fahrenheit or legal

Kinematic Viscosity,
centistokes @ 100° Fahrenheit 2.0-4.3 Seconds*
Cetane No. (Minimum). 40 (45-55 for winter or high altitude use)
Water and Sediment Vol. (Maximum)05%
Ash, wt. (Maximum)01%
Sulphur wt. (Maximum)5%
Carbon Residue on 10% (Maximum)2%
Corrosion, Copper Strip,
3 hrs. @ 212° Fahrenheit No. 3

(*32-40 Saybolt Universal Seconds)

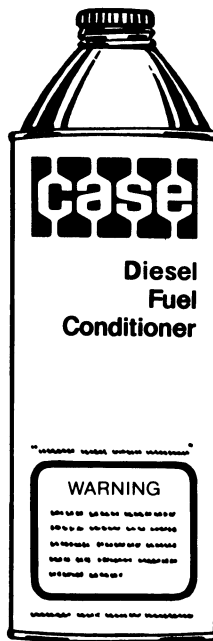
NOTE The use of Number 1 Diesel Fuel, which is a lighter fuel, may result in a loss of engine power and also increased fuel consumption because it has less heat content and a lower viscosity than Number 2 Diesel Fuel.

The life of the injection pump may also be affected because of the lack of lubricant in the lighter Number 1 Diesel Fuel.

FUEL CONDITIONER

Case Diesel Fuel Conditioner is recommended for use in all Case Diesel engine fuel system. Case Lubra - Gas Conditioner is recommended for use in all Case Gasoline engine fuel systems.

These fuel conditioners should be used as directed on the container.



CASE DIESEL FUEL CONDITIONER

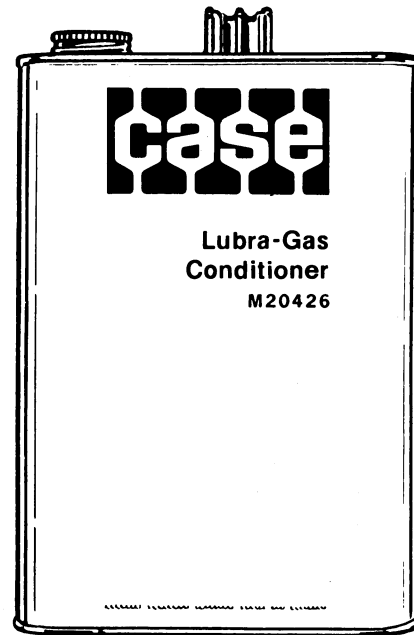
Prevents gummy deposits from forming in the fuel system.

Improved lubrication to the upper internal parts of the engine.

Eliminates fouling of injector nozzles, valves and manifolds.

Helps keep condensation suspended in the fuel, allowing it to be burned with the fuel.

Maintains a higher degree of fuel combustion and engine performance from fuel the engine burns.



CASE LUBRA-GAS CONDITIONER

Improved lubrication to upper internal parts of the engine.

Reduces cylinder and ring wear, improved compression, reduced corrosion of the internal engine parts.

Reduces crankcase oil dilution.

Helps keep condensation suspended in the fuel, allowing it to be burned with the fuel.

Maintains a higher engine performance from fuel the engine burns.



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Section

12

DETAILED SPECIFICATIONS

770-870-970 AND 1070 TRACTORS

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