

# Wheel Loader

140 net horsepower (104.4 kW)  
Buckets up to 3.25 yd<sup>3</sup> (2.5 m<sup>3</sup>)  
SAE breakout force 32,061 lbf (142 614 N)

# 721



**Case**

**721**

# 721 Basic Tractor

## ENGINE

Make and model . . . . Case 6T-830 diesel  
 Type of fuel . . . . . No. 2 diesel  
 No. of cylinders . . . . . 6  
 Bore and stroke . . . . . 4.48" x 5.32"  
 (114 mm x 135 mm)  
 Displacement . . . . . 504 in<sup>3</sup> (8269 cm<sup>3</sup>)  
 Compression ratio . . . . . 17.3 to 1  
 Fuel pump . . . . . Bosch A  
 Fuel supply . . . . . Injection pump  
 Air cleaner . . . . . Dry type elements  
 with warning restriction indicator  
 Oil filter . . . . . Replaceable, spin-on full  
 flow cartridge  
 Lubrication . . . . . Positive pressure  
 Cooling system . . . . . Air, water w/lube  
 oil cooler

Horsepower<sup>1</sup>

(1) Gross . . . . .	157 @ 2100 rpm
	(117.1 kW @ 2100 r/min)
(2) SAE Net . . . . .	140 @ 2100 rpm
	(104.4 kW @ 2100 r/min)

Governed Speed . . . . . 2200 rpm  
 Max. torque ft-lb

(1) Gross . . . . .	479 @ 1500 rpm
	(649 Nm @ 1500 r/min)
(2) SAE Net . . . . .	458 @ 1500 rpm
	(621 Nm @ 1500 r/min)

(1) Gross engine horsepower or torque at flywheel per SAE Standard J1349  
 (2) Net engine horsepower or torque at flywheel per SAE Standard J1349

## ELECTRICAL

System voltage . . . . . 24 volts,  
 negative ground  
 Batteries (2) . . . . . 12 volt, low maintenance  
 600 cold cranking amps  
 0°F (-18°C)  
 Alternator . . . . . 45 amp

## TRAVEL SPEEDS — MPH (km/h)

Engine at full throttle—20.5 x 25 tires

	1st	2nd	3rd	4th
<b>Forward</b>	4.4 (7.08)	7.3 (11.7)	14.0 (22.5)	22.3 (35.9)
<b>Reverse</b>	4.4 (7.08)	7.3 (11.7)	14.0 (22.5)	—

## POWER TRAIN

**Transmission:** 4 speeds forward, 3 reverse powershift. Forward/reverse modulated clutching in 1st and 2nd gears.  
**Torque converter:** Single stage integral with transmission. 2.86 to 1 stall ratio.

## BRAKES

Air-over-hydraulic, 4-wheel disc. Two brake pedals, left pedal applies brakes and electrically neutralizes power flow to drive wheels. Right pedal applies brakes only. Two master cylinders for split front and rear system. Manually applied drum parking brake on transmission output shaft neutralizes power flow to drive wheels when engaged.

## AXLES

Outboard planetary. Torque-proportioning differentials. Front axle fixed. Rear axle oscillates 24° total or 16.2" (411 mm) in each direction.

## STEERING

Center pivot articulated design with hydrostatic power steering. Front and rear wheels always track. Two hydraulic cylinders controlled by a hydrostatic steering gear with relief and flow control valve.

### Steering angle —

each direction from center . . . . . 40°

**Pump** . . . . . Transmission mounted, positive displacement, tandem gear-type

**Pump capacity** . . . . . 30.9 gpm @ 2200 rpm @ 2500 psi  
 (117.0 L/min @ 2200 r/min @ 17 237 kPa)

**System relief** . . . . . 2500 psi (17 237 kPa)

**Steering cylinders**, double acting . . . . . (2) 3" dia x 17.43" stroke, 1.75" rod  
 (76 mm dia x 443 mm stroke, 44 mm rod)

**Turning ratio** (stop to stop) . . . . . 4 turns

**Turning radius**  
 outside tires . . . . . 17'2.5" (5.25 m)

## LOADER HYDRAULIC SYSTEM

**Cylinders:** Double-acting, bolted gland, with hardened and chrome-plated rods.

Lift (2) . . . . . 5" dia x 32.8" stroke, 3" rod  
 (127 mm dia x 833 mm stroke, 76 mm rod)

Tilt (1) . . . . . 6.5" dia x 21.4" stroke, 3" rod  
 (165 mm dia x 544 mm stroke, 76 mm rod)

**Pump:** Tandem, gear-type, engine-driven  
 56.4 gpm @ 2200 rpm @ 2525 psi  
 (213.4 L/min @ 2200 r/min @ 17 409 kPa)

**Control valve:** Sectional, open-center, series parallel circuit with low pressure regeneration for bucket dump.

**Hydraulic lines:** steel tubing with SAE fittings and wire-braid, high-pressure hose with swaged fittings.

**Reservoir:** Positive pressurized, inlet filtered hydraulic oil system sealed for dirt exclusion. All hydraulic oil passes through a 100 mesh screen.

**System relief pressure** . . . . . 2525 psi  
 (17 409 kPa)

**Filtration:** Two 10 micron, full flow spin-on elements on return line.

**Hydraulic cycle time:**

(Rated load in bucket)	Seconds
Raise . . . . .	5.9
Dump . . . . .	1.8
Lower (float down) . . . . .	4.6
<b>Total</b> . . . . .	<b>12.3</b>

## SERVICE CAPACITIES

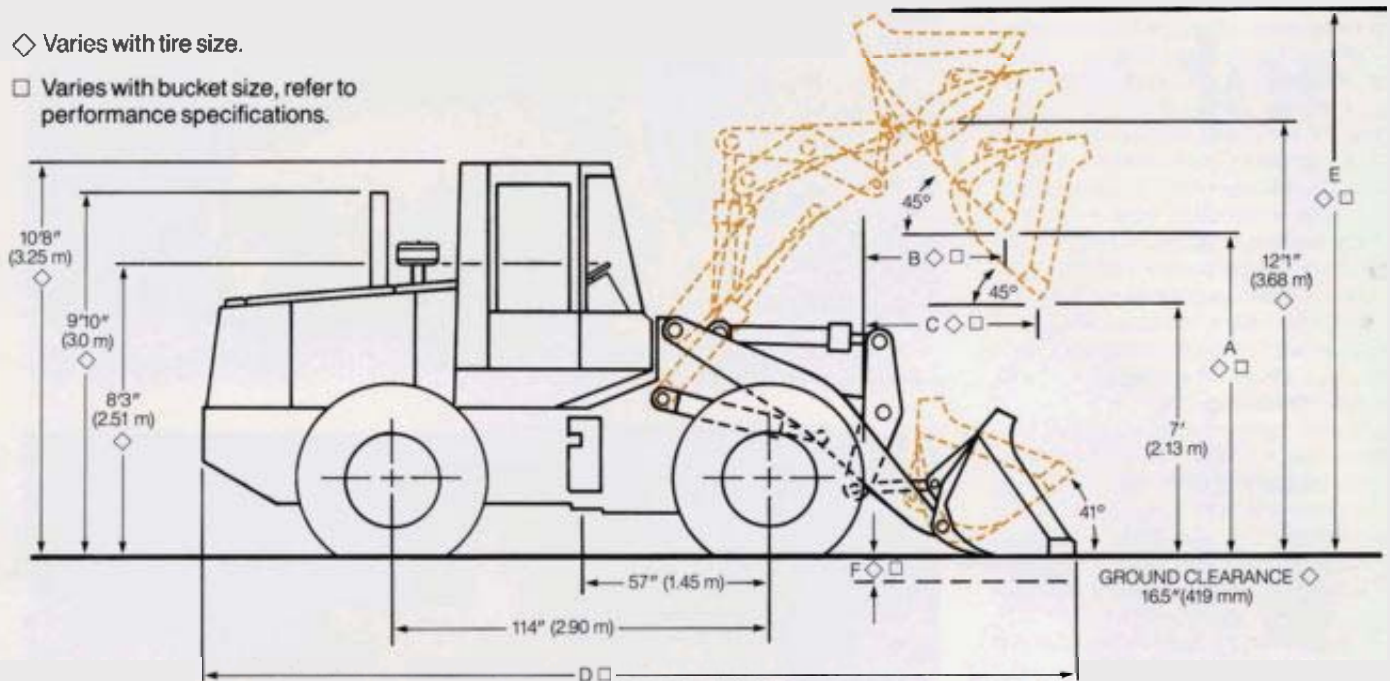
	U.S. Gals	Litres
Fuel tank . . . . .	62	234.7
Hydraulic system - total . . . . .	40.5	153.1
- reservoir . . . . .	23.8	90.1
Transmission and torque converter . . . . .	6.0	22.7
Engine crankcase (with filter) . . . . .	5.9	22.4
<b>Axles</b>		
<b>Front and rear</b>		
Differential . . . . .	3.6	13.6
Planetaries . . . . .	0.9	3.4
Cooling system . . . . .	8.5	32.1

## STANDARD EQUIPMENT

Air cleaner, two element dry type • Alternator with voltage regulator • Antifreeze to -34°F (-36°C) • Articulation lock • Axles, four wheel drive with torque proportioning • Backup alarm • Batteries, two 12 volt • Brake, parking • Brakes, four wheel disc • Bucket position indicator • Systems Monitor, four level warning • Differentials, torque proportioning • Engine side doors • Engine, industrial diesel • Fan guard • Fan, pusher • Fuel filter, dual • Fuse and circuit breaker (automatic) protected 24 volt electrical circuits • Gauges, (LCD type): engine coolant temperature, fuel level • Grab handles • Horn • Hour meter • Hydraulic oil cooler • Hydraulics, two spool • Lights, 2 front & 2 rear halogen floods, 2 rear stop • Loader controls, hydraulic servo type with detent activation switch • Loader linkage, sealed • ROPS canopy • Rear fenders • Return to dig, automatic • Seat, bucket type • Seatbelt, 2" (51 mm) anticreep • Starter, electric • Steering column, tilting • Transmission disconnect switch • Transmission oil cooler • Transmission, electric powershift • Warning lights (LED type): alternator, engine oil pressure, air pressure, work lights, air filter restriction, hydraulic filter restriction, hydraulic temperature, transmission temperature, parking brake function.

# Performance Data

- ◇ Varies with tire size.
- Varies with bucket size, refer to performance specifications.



## PERFORMANCE SPECIFICATIONS — Loader ratings are measured in accordance with SAE J732c and J742b except where noted.

Bucket type Bucket configuration	General Purpose						Loose Material		4-In-1 <sup>a</sup>	
	Bucket only	Bucket w/ teeth	Bucket w/ 3-pc. edge	Bucket only	Bucket w/ teeth	Bucket w/ 3-pc. edge	Bucket only	Bucket w/ 3-pc. edge	Bucket only	
SAE heaped capacity	yd <sup>3</sup> (m <sup>3</sup> )	2.50 (1.91)	2.50 (1.91)	2.60 (1.99)	2.75 (2.10)	2.75 (2.10)	2.80 (2.14)	3.25 (2.48)	3.30 (2.52)	2.50 (1.91)
SAE struck capacity	yd <sup>3</sup> (m <sup>3</sup> )	2.15 (1.64)	2.15 (1.64)	2.21 (1.69)	2.35 (1.80)	2.35 (1.80)	2.38 (1.82)	2.80 (2.14)	2.86 (2.19)	2.06 (1.57)
Bucket width	in (m)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)	102 (2.59)
Bucket weight	lb (kg)	2155 (977)	2441 (1107)	2779 (1261)	2215 (1005)	2501 (1134)	2839 (1288)	2340 (1061)	2964 (1344)	2950 (1338)
A - Dump clearance @ 45° full height	ft, in (m)	9'5" (2.87)	9' (2.74)	9'3" (2.82)	9'4" (2.84)	8'10" (2.69)	9'2" (2.79)	9' (2.74)	8'10" (2.69)	9'4" (2.84)
B - Bucket reach @ 45° dump, full height	ft, in (m)	3'2" (0.98)	3'2" (0.98)	3'3" (0.99)	3'4" (1.02)	3'4" (1.02)	3'5" (1.04)	3'8" (1.12)	3'9" (1.14)	3' (0.91)
C - Bucket reach @ 45° dump, 7' (2.13 m) height	ft, in (m)	4'10" (1.47)	4'10" (1.47)	4'9" (1.45)	4'11" (1.50)	4'11" (1.50)	4'10" (1.47)	5'1" (1.55)	5' (1.52)	4'7" (1.40)
D - Overall length	ft, in (m)	22'5" (6.83)	23'2" (7.06)	22'7" (6.88)	22'7" (6.88)	23'4" (7.11)	22'9" (6.93)	23'1" (7.04)	23'3" (7.09)	22'5" (6.83)
E - Overall height	ft, in (m)	16'2" (4.93)	16'2" (4.93)	16'2" (4.93)	16'3" (4.95)	16'3" (4.95)	16'3" (4.95)	16'8" (5.08)	16'8" (5.08)	15'9" (4.8)
F - Digging depth	in (mm)	2.8 (71)	2.8 (71)	4.1 (104)	2.8 (71)	2.8 (71)	4.1 (104)	2.8 (71)	4.1 (104)	5.7 (145)
Loader clearance circle, bucket at carry	ft, in (m)	37'5" (11.40)	37'9" (11.51)	37'6" (11.43)	37'6" (11.43)	37'10" (11.53)	37'7" (11.46)	37'9" (11.51)	37'10" (11.53)	37'6" (11.43)
SAE breakout force	lbf (N)	32,061 (142,614)	31,743 (141,200)	30,024 (133,553)	30,239 (134,510)	29,932 (133,144)	28,357 (126,138)	25,976 (115,547)	24,421 (108,630)	31,920 (141,987)
SAE tipping load, straight*	lb (kg)	25,172 (11,418)	24,800 (11,249)	23,944 (10,861)	24,718 (11,212)	24,348 (11,044)	23,756 (10,776)	24,155 (10,957)	23,203 (10,525)	23,731 (10,764)
40° turn*	lb (kg)	20,155 (9,142)	19,788 (8,976)	19,002 (8,619)	19,840 (8,999)	19,385 (8,793)	18,829 (8,541)	19,336 (8,771)	18,331 (8,315)	18,812 (8,533)
Operating load*	lb (kg)	10,078 (4,571)	9,894 (4,488)	9,501 (4,310)	9,920 (4,500)	9,692 (4,396)	9,414 (4,270)	9,668 (4,385)	9,165 (4,157)	9,406 (4,266)
SAE operating weight	lb (kg)	28,829 (13,077)	29,115 (13,206)	29,453 (13,360)	28,889 (13,104)	29,175 (13,234)	29,513 (13,387)	29,014 (13,161)	29,638 (13,444)	29,624 (13,437)

\* For selected items, add to or deduct from the machine operating weight and tipping loads as given on the following page. Spec Loader is a fully serviced unit that includes all standard equipment, 20.5 x 25, L2, 12PR tires, ROPS cab with heater, auxiliary counterweight and a 175 lb (79 kg) operator.

## OPERATING DIMENSIONS

Tire Options	17.5 x 25	20.5 x 25
Tread	78.1" (1.98 m)	78.1" (1.98 m)
Width over tires	97" (2.46 m)	99.8" (2.53 m)
Change in vertical dimensions	-2.38" (60 mm)	None
Change in horizontal dimensions (B and C)	+2.9" (74 mm)	None

# Performance Data

Selected Items	Operating Weight Adjustments		Tipping load Adjustments			
			Straight		40° Turn	
	lbs	kg	lbs	kg	lbs	kg
17.5 x 25, L2, 12PR	-748	-339	-725	-329	-830	-376
▲ 17.5 x 25, L2, 12PR w/75% CaCl <sub>2</sub>	-454	-206	-610	-277	-266	-121
17.5 x 25, L3, 12PR	-616	-279	-276	-125	-174	-79
▲ 17.5 x 25, L3, 12PR w/75% CaCl <sub>2</sub>	-322	-146	-396	-167	-162	-73
17.5 x R25, XRAT 1*	-452	-205	-124	-56	-7	-3
▲ 17.5 x R25, XRAT 1* w/75% CaCl <sub>2</sub>	+2	+1	+14	+6	+163	+74
17.5 x R25, XGLAT 1*	-580	-263	-212	-96	-79	-36
▲ 17.5 x R25, XGLAT 1* w/75% CaCl <sub>2</sub>	-126	-57	-73	-33	+151	+68
20.5 x 25, L2, 12PR	0	0	0	0	0	0
▲ 20.5 x 25, L2, 12PR w/75% CaCl <sub>2</sub>	+934	+424	+779	+353	+712	+323
20.5 x 25, L3, 12PR	+372	+169	+393	+178	+357	+162
▲ 20.5 x 25, L3, 12PR w/75% CaCl <sub>2</sub>	+934	+424	+667	+303	+654	+297
20.5 x R25, XRAT 1*	+356	+161	+382	+173	+348	+158
▲ 20.5 x R25, XRAT 1* w/75% CaCl <sub>2</sub>	+1088	+494	+893	+405	+840	+381
20.5 x R25, XGLAT 1*	+66	+30	+180	+82	+181	+82
▲ 20.5 x R25, XGLAT 1* w/75% CaCl <sub>2</sub>	+1088	+494	+1098	+498	+1010	+458
20.5 x 25, L2, 16PR	+336	+152	+276	+125	+266	+121
▲ 20.5 x 25, L2, 16PR w/75% CaCl <sub>2</sub>	+1101	+499	+1071	+486	+993	+450
Without auxiliary counterweight	-1000	-454	-1918	-870	-1507	-684
Without front fenders	-92	-42	-27	-12	-24	-11
ROPS canopy	-295	-134	-266	-121	-234	-106

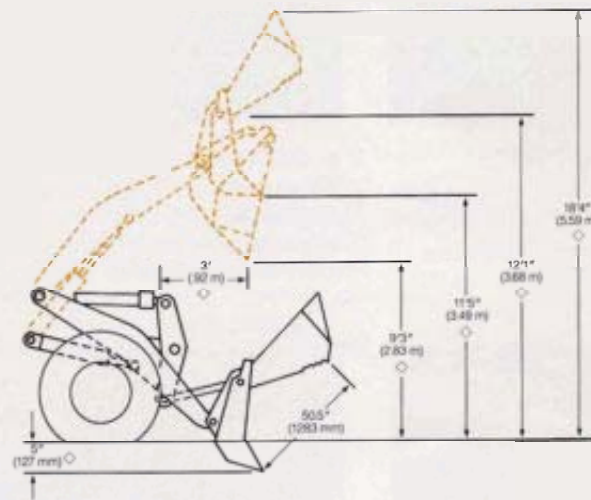
▲ Note: These tire adjustment values include rear tire ballast, but not the 1000-pound (454-kg) auxiliary counterweight. The use of rear tire ballast with the auxiliary counterweight option is neither recommended nor approved. Rear tire ballast involves filling the rear tires 75% full with a solution of 5 pounds (2.27 kg) of calcium chloride per 1 gallon (3.79 L) of water.

## 4-IN-1 BUCKET SPECIFICATIONS

Reach @ 45° dump angle, 7'0"  
(2.13 m) clearance, 4'7" (1.40 m)

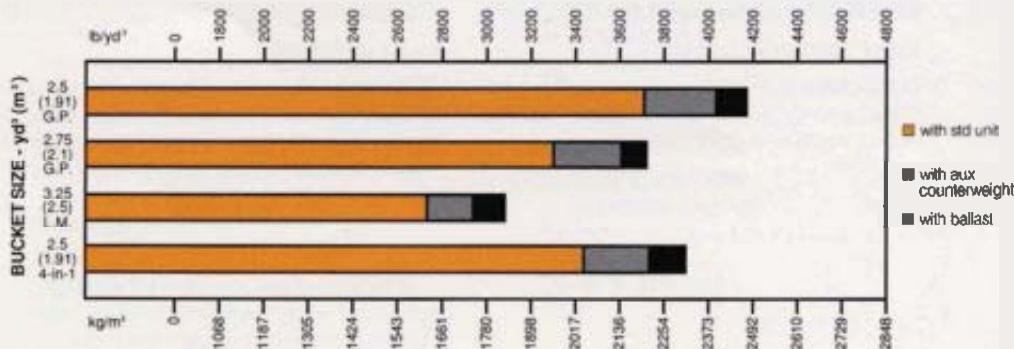
Tilt back @ ground level, 43.5°

Varies with tire size - refer to performance specifications.



## 721 BUCKET SELECTION CHART

Spec Loader is a fully serviced unit that includes all standard equipment, 20.5 x 25, L2 tires, ROPS cab, fenders, bucket as listed and a 175 lb (79 kg) operator.



MATERIAL	lb/yd³	kg/m³
Sand, wet	3500	2075
Sand & Gravel, wet	3375	2000
Gravel, wet 1/4" x 2"	3375	2000
Sand, slightly damp	3240	1920
Gravel, pit run (gravelized sand)	3240	1920
Clay & gravel, wet	3065	1830
Slag, broken	2970	1780
Trap rock, broken	2950	1750
Sand & gravel, dry	2916	1730
Earth, soft loose mud	2916	1730
Gravel, dry 1/4" x 2"	2835	1680
Gravels, broken or crushed	2778	1645
Stone, crushed	2700	1600
Sand, dry loose	2700	1600
Gypsum, crushed	2700	1600
Gravel, sand & clay, loose	2700	1600
Earth, wet excavated	2700	1600
Clay & gravel, dry	2700	1600
Clay, wet lumps	2700	1600
Limestone, broken or crushed	2625	1555
Gravel, loose dry	2565	1520
Sandstone, broken	2550	1510
Earth, moist excavated	2430	1440
Earth, loam, dry excavated	2100	1245
Coal, anthracite, broken	1875	1100
Clay, dry excavated	1847	1095
Clay, dry lumps	1822	1080
Coal, bituminous, broken	1413	840
Garbage, wet	1350	801
Ashes	1100	653
Silage	865	513
Snow, wet	400	237
Snow, dry	600	356
	150	89
	400	237

Bucket recommendations shown above are based on normal materials and average operating conditions. When selecting the proper bucket for a specific application other factors, such as loadability, material characteristics, terrain and other pertinent job conditions must also be considered.

## 721 Features



### Z-BAR LINKAGE

A single, 6.5" (165 mm) diameter bucket cylinder operates through a massive, ductile iron bellcrank to deliver 32,061 lbf (142.6 kN) breakout force at the bucket.



### BOLTED GLAND CYLINDERS

All loader cylinders are of bolted gland design for easy field serviceability. Sealed loader linkage pins and bushings increase lubrication intervals up to 100 hours.



### HYDRAULIC-ASSIST CONTROLS

Fingertip operation is provided through five control lever options which are available for the 2, 3 or 4 spool sectional valves. Height control and return to travel are also available.



### ELECTRIC POWER SHIFTING

A single lever, twist grip simplifies gear selection. This same lever also provides forward and reverse power shuttle.



### ELECTRONIC MONITORING

Instrumentation includes multi-level visual and audible warnings of vital machine functions as well as non-vital service requirements and information notification.



### COMFORT CAB

The optional ROPS cab features large areas of tinted safety glass for excellent visibility. A tilting steering column is standard. Brake pedals are suspended for easy operation.



### ARTICULATION JOINT

In the joint area, hose routings are clean and easily accessible. Cylinders are mounted for easy accessibility. Drive shaft 'U' joints are lubed for life.



### EASY SERVICEABILITY

Sight glasses show brake, hydraulics and transmission oil fluid levels. The sight glass allows warm and cold oil checks.



### FAST ACCESS

The rear, swing-open grille provides access to batteries, radiator, oil cooler, fuel fill and coolant level reservoir. The back-up alarm and cold-start system are also located in this compartment.

# Equipment Data

## OPTIONAL EQUIPMENT

AM/FM stereo radio • Air Conditioning • Air dryer • Alternator, 65 amp • Anti-vandalism kit • Batteries, heavy-duty • Beacon, rotating • Bolt-on cutting edge • Brackets, lift and tie down • Bucket teeth • Buckets, general purpose, loose material, multi-purpose • Cold weather start aid • Counterweight, auxiliary rear (1000 lb-454 kg) • FACT coupler system male master • Fenders, front • Gauges: voltmeter, engine oil pressure, air pressure, transmission temperature • Height control and return to travel, automatic • Hydraulics, two spool w/two levers, two spool w/one lever, three spool w/three levers, three spool w/two levers, four spool w/two levers • Lights, auxiliary (2 front driving, 2 front working, 2 front parking, turn signals/flashers front and rear) • Precleaner • ROPS cab with following features: inside mirror, full view tinted glass, heater, pressurization, defogger, 3 speed blower, full ventilation windows, dome light, front wiper, full frame lockable door • Radiator sand screen • Seat, deluxe suspension type • Secondary steering • Special paint • Tires, radials and bias ply • Washer, front; wiper, rear • West coast mirrors • Windshield and wiper for canopy • 3" (76 mm) seat belt.



**Sold and serviced by:**

**NOTE:** Specifications are stated in accordance with SAE Standards or Recommended Practices, where applicable.

### IMPORTANT

J I Case Company reserves the right to change these specifications without notice and without incurring any obligation relating to such changes. Unit illustrated is equipped with non-standard items.

**J I Case**  
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