

# **Construction Equipment Machine Specifications Manual**

**8-67584**

***CASE***

# MACHINE SPECIFICATIONS MANUAL

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# MACHINE SPECIFICATIONS

## ARTICULATED LOADERS AND SKIDDERS

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**Thanks very much for your reading,  
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# W11 ARTICULATED LOADER

## ENGINE

Make and model .....	Case 207D
Rated horsepower, SAE Net.....	55 hp at 2100 rpm
Cylinders, number .....	4
Firing Order .....	1-3-4-2
Bore .....	4 inches
Stroke .....	4.125 inches
Piston displacement.....	207 cubic inches
Compression ratio.....	17 to 1
Engine speeds	
High idle, no load.....	2230 to 2270 rpm
Rated speed .....	2100 rpm
Low idle .....	700 to 750 rpm
Valve clearance (cold)	
Intake .....	0.012 inch
Exhaust .....	0.014 inch
Head torque	
Bolts.....	105 to 115 pound-feet
Stud nuts .....	95 to 105 pound-feet
Oil pressure.....	50 to 70 psi (warm oil at high rpm)
Compression test	
Cranking .....	400 psi at 200 rpm (25 psi difference between cyl.)
Running .....	480 psi at 800 rpm (20 psi difference between cyl.)
Engine oil capacity (see page 98 - use single viscosity oil)	
With filter change.....	7 quarts
Without filter change.....	6 quarts
Cooling system	
Coolant capacity.....	16 quarts
Radiator cap .....	7 psi
Thermostat	
Starts to open .....	175°F
Full open .....	202°F

# W11 ARTICULATED LOADER

## ENGINE (Continued)

### Fuel system

Type of fuel (see page 99).....	No. 2 diesel
Fuel tank capacity .....	28 gallons
Injection pump.....	Stanadyne A151671
Injection pump timing .....	0° BTDC
Injector number.....	A140829
Opening pressure new .....	3150 to 3250 psi
Opening pressure used.....	2950 to 3050 psi
Max. pressure difference .....	100 psi
Valve lift.....	1/2 turn
Number of orifices .....	4
Spray orifice size .....	0.011 inch

### Engine speeds

Low idle speed .....	700 to 750 rpm
Full throttle speed, no load .....	2230 to 2270 rpm
Torque converter stall speed	
Engine with more than 100 hours .....	2050 to 2150 rpm
Engine with less than 100 hours .....	1970 to 2150 rpm
Hydraulic stall speed (all engines).....	2100 rpm
Combined stall speed	
Engine with more than 100 hours .....	1430 to 1630 rpm
Engine with less than 100 hours .....	1300 to 1630 rpm



# W11 ARTICULATED LOADER

## HYDRAULICS

Hydraulic cycle time (rated load in bucket)	
Raise .....	5.2 seconds
Dump .....	1.9 seconds
Lower with power .....	5.4 seconds
Lower in float .....	5.3 seconds
Hydraulic pump output	
Steering/loader pump.....	14 gpm at 2100 rpm at 2500 ± 50 psi
Brake pump.....	10.25 gpm at 2100 rpm at 2500 ± 50 psi
Relief valves	
Loader main relief valve .....	2450 to 2550 psi at 2100 rpm
Steering relief valve (in flow control valve).....	2450 to 2550 psi at 2100 rpm
Sequence valve (in unloader valve) .....	1950 to 2050 psi at 2100 rpm
Relief valve (in unloader valve) .....	2150 to 2250 psi
Circuit (secondary - relief valves (hand pump))	
Bucket, A port.....	1500 ± 100 psi
Bucket, B port.....	2850 ± 100 psi
Clam, A and B ports.....	2850 ± 100 psi
Spool movement (from neutral)	
Neutral to pressure.....	0.44 inch
Neutral to float .....	0.75 inch
Port pressurized	
A port .....	spool in
B port .....	spool out
Steering angle (each direction from straight).....	40 degrees
Oil capacity	
Reservoir.....	10 gallons
System.....	14 gallons

## TIRE PRESSURES

9.00 x 20.8 PR.....	55 psi
15.00 x 19.5, 8 PR .....	45 psi
Shipping pressure, all tires .....	55 psi

# W11 ARTICULATED LOADER

## TRANSMISSION

### Test specifications

Charge pump output.....12 gpm at full throttle at 200 psi

Charge pump (main) pressure.....240 to 280 psi at full throttle

Clutch pressure (all clutches) .....not less than 185 psi at low idle

Cooling circuit pressure .....not more than 75 psi at full throttle  
and oil at operating temperature

Oil temperature for testing .....180°F to 200°F

### Oil capacity

#### Refill

With filter change ..... 13 quarts

Without filter change ..... 14 quarts

# W11 ARTICULATED LOADER

## ELECTRICAL

System voltage.....	12
Battery (see battery section)	
Case part number .....	BHC30 (A38411)
Number of batteries .....	1
Voltage, each battery .....	12
Starter system	
Case part number .....	R39341
Vendor .....	Nippondenso
Vendor number.....	028000-5880
No load operating voltage .....	11
No load amperage draw	
Maximum .....	180
No load rpm	
Maximum .....	3500
Alternator charging system	
Case part number .....	D77810 (1102927)
	D78005 (1102920)
	L102693 (1103125)
	A47623 (1103133)
Vendor .....	Delco-Remy
Vendor number.....	see above
Operating voltage.....	13 volts
Rated output.....	42 amps at 5000 alternator rpm
Field circuit .....	4.0 to 4.5 amps at 12 volts
Voltage regulator	
Case part number.....	A45213
Vendor.....	Delco-Remy
Vendor number.....	1116387
Regulated setting.....	13.0 volts at 75°F

# W11B ARTICULATED LOADER

## ENGINE

### Engine

Make and model .....	Case 4-390 and Case 4T-390
Firing order .....	1-3-4-2
Cylinders, number .....	4
Bore .....	4.02 inch
Stroke.....	4.72 inch
Piston displacement.....	239 cubic inches
Compression ratio .....	turbo 17.1 to 1, NA 17 to 1
Rated horsepower SAE net.....	66 at 2100 rpm
Flywheel - number of teeth .....	159
Engine speeds - Full throttle, no load .....	2290 to 2390 rpm
Idle speed.....	725 to 775 rpm
Valve clearance - Intake valves (cold).....	0.010 inch
Exhaust valves (cold) .....	0.020 inch

### Compression test

Cranking .....	400 psi at 200 rpm (25 psi between cyl.)
Running .....	480 psi at 800 rpm (25 psi between cyl.)
Engine oil (see page 98)	
Engine oil pressure.....	42 to 54 psi (warm high rpm)
With filter change.....	11.6 quarts
Without filter change.....	10 quarts

### Cooling system

Coolant capacity (with heater) .....	5 gallons
Radiator cap .....	15 psi
Thermostat	
Start to open.....	181°F
Full open .....	203°F
Radiator cap .....	15 psi

### Fuel system diesel

Type of fuel (see page 99).....	No. 2 diesel fuel
Fuel tank capacity .....	28 gallons
Injection pump.....	CAV J903336
Injector number .....	J904197
Opening pressure (new).....	3550 psi
Opening pressure (used) .....	3400 psi
Maximum pressure difference.....	150 psi
Valve lift .....	1/2 turn
Number of orifice.....	4
Spray orifice size .....	0.28 mm

# W11B ARTICULATED LOADER

## HYDRAULICS

Hydraulic cycle time (rated load in bucket)	
Raise .....	5.0 seconds
Dump .....	2.0 seconds
Lower .....	4.7 seconds
Stall speeds	
High idle .....	2190 to 2270
Hydraulic .....	2130 to 2230
Converter stall .....	2100 to 2175
Hydraulic system	
Rated pump output .....	both pumps 26 gpm
Primary pump at 2500 psi at 2100 rpm .....	15 gpm
Secondary pump at 2500 psi at 2100 rpm .....	11 gpm
Main relief .....	2500 psi
Secondary reliefs	
Bucket dump, A port .....	1700 psi
Bucket rollback B port .....	3000 psi
Clam, A port .....	3000 psi
Clam, B port .....	3000 psi
Spool movement	
Tilt (in or out) .....	0.44 inch
Lift (in or out) .....	0.44 inch
Float (in or out) .....	0.75 inch
Port pressurized	
A port .....	spool in
B port .....	spool out
Steering angle .....	40 degrees
Oil capacity	
Reservoir .....	10 gallons
System .....	14 gallons
Reservoir air capacity (at 750 rpm) .....	10 ± 5 psi

## TIRE PRESSURES

Standard: 12.5R x 20 Michelin .....	50 psi max. front
	25 psi max. rear
Optional: 15.00 x 19.5 8PR .....	45 psi max. front and rear

# W11B ARTICULATED LOADER

## TRANSMISSION (Before PIN 9164337)

Make and model .....	Funk 4000
Test specification	
Charge pump output.....	12 gpm at full throttle at 200 psi
Charge pump (main) pressure.....	240 to 280 psi at full throttle
Clutch pressure (all clutches) .....	not less than 185 psi at low idle
Cooling circuit pressure .....	not more than 75 psi at full throttle and oil at operating temperature
Oil temperature for testing .....	185 to 200°F
Oil capacity	
Refill - with filter change .....	11 quarts
Engine stall speeds	
Idle speed.....	725 to 775 rpm
Full throttle, no load .....	2190 to 2270 rpm
Torque converter stall.....	2075 to 2200 rpm
Hydraulic stall .....	1970 to 2200 rpm
Hydraulic and converter stall.....	1480 to 1810 rpm

## TRANSMISSION (PIN 9164337 and After)

Manufacturer and model.....	Clark model 1800
Transmission pressure (system).....	180 to 220 psi
Clutch pressure .....	not less than 5 psi below system pressure
Oil temperature for test .....	150 to 210°F
Cooling system pressure	
Minimum .....	25 psi at 2000 rpm
Maximum .....	70 psi at 2000 rpm
Oil capacity.....	18 quarts
Engine stall speeds	
Idle speed.....	725 to 775 rpm
Full throttle, no load .....	2290 to 2390 rpm
Torque converter stall.....	2115 to 2265 rpm
Hydraulic stall .....	2060 to 2310 rpm
Hydraulic and converter stall.....	1613 to 1963 rpm



# W14 ARTICULATED LOADER

## ENGINE

Make and model .....	Case 336BD (diesel)
Rated horsepower, SAE net.....	82 at 2200 rpm
Cylinders, number .....	4
Firing order .....	1-3-4-2
Bore .....	4.625 inches
Stroke .....	5 inches
Piston displacement.....	336 cubic inches
Compression ratio.....	16.5 to 1
Flywheel-number of teeth.....	137
Engine speeds - High idle - no load .....	2330 to 2370 rpm
Rated speed.....	2200 rpm
Low idle .....	725 to 775 rpm
Valve clearance - Intake.....	0.015 inch hot or cold
Exhaust .....	0.020 hot, 0.025 inch cold
Head torque .....	200 to 210 pound-foot
Compression test - Cranking.....	400 psi at 2000 rpm (25 psi between cyl.)
Running.....	480 psi at 800 rpm (20 psi between cyl.)
Engine oil (see page 98 - use single viscosity oil)	
Oil pressure.....	45 to 60 psi (warm, high rpm)
Capacity - with filter change .....	11 quarts
without filter change.....	10 quarts
Cooling system - Coolant capacity .....	28 quarts
Radiator cap .....	7 psi
Thermostat - Starts to open .....	175 to 185°F
Full open.....	202° F
Fuel system diesel	
Type of fuel.....	No. 2 diesel fuel
Fuel tank capacity .....	38 gallons
Injection pump.....	Rober Bosch -A65046 or A138014
Injection pump timing .....	31° BTDC
Injector number.....	A59092   A64439, A140830
Opening pressure new .....	2950 to 3050 psi   3350 to 3450 psi
Opening pressure used.....	2750 to 2850 psi   3150 to 3250 psi
Max. pressure difference .....	100 psi           100 psi
Valve lift.....	3/4 turn           3/4 turn
Number of orifices .....	4                   4
Spray orifice size .....	0.013 inch        0.013 inch



# W14 ARTICULATED LOADER

## ENGINE (Continued)

### Stall speeds

Converter stall.....	2150 to 2250 rpm
Hydraulic stall .....	2150 to 2250 rpm
Hydraulic and converter stall.....	1600 to 1750 rpm

## HYDRAULICS

### Hydraulic cycle time (seconds)

(Rated load in bucket)

Raise .....	5.5 seconds
Dump .....	1.7 seconds
Lower .....	4.0 seconds

### Stall speeds

High idle .....	2300 to 2375
Hydraulic.....	2150 to 2250 rpm
Converter .....	2150 to 2250 rpm
Combined.....	1600 to 1750 rpm

### Hydraulic system

Rated pump output .....	34 gpm
(at 2000 psi at 2200 rpm)	
Main relief valve (psi) .....	2200 ± 50
(at rated rpm)	

### Circuit reliefs (hand pump)

Bucket dump, A port (psi).....	1650 ± 100
Bucket rollback, B port (psi) .....	2500 ± 100
Clam, A port (psi) .....	2500 ± 100
Clam, B port (psi) .....	2500 ± 100

### Spool movement (from neutral)

Tilt (in or out) .....	0.34 inch
Lift (in or out) .....	0.44 inch
(float) .....	0.88 inch
Clam (in or out) .....	0.44 inch

### Port pressurized:

A port .....	spool in
B port .....	spool out
Reservoir air pressure .....	10 ± 5 psi
(at 750 rpm)	

# W14 ARTICULATED LOADER

## HYDRAULICS (Continued)

Steering system	
Rated pump output .....	21 gpm
(at 2000 psi at 2000 rpm)	
Main relief valve (psi) .....	2000 ± 100
(at rated rpm)	(non-adjustable)
Circuit reliefs .....	none
Flow control valve.....	1 gpm
Controlled flow to steering	
Steering angle .....	40°
Each direction from center	
Steering time .....	2.1 seconds
Stop to stop at high idle	
Oil capacity	
Reservoir.....	16 gallons
System.....	21 gallons

## TRANSMISSION

Engine speeds	
Low idle .....	725 to 775 rpm
Rated speed .....	2200 rpm
High idle (no load) .....	2330 to 2370 rpm
Stall speeds	
Converter .....	2150 to 2250 rpm
Hydraulic.....	2150 to 2250 rpm
Combined .....	1600 to 1750 rpm
Transmission pressures	
(at 1800 engine rpm)	
Main pressure.....	138 to 165 psi
Converter out (no load)	
Maximum .....	65 psi
Converter out (stall)	
Minimum .....	40 psi
Lubrication pressure.....	15 to 30 psi
Oil capacity - System.....	9 gallons
Refill.....	7-1/2 gallons

**NOTE:** Stabilize oil temperature to 150°F before conducting tests but never exceed 250°F.

# W14 ARTICULATED LOADER

## ELECTRICAL (MODELS WITHOUT INSTRUMENT CLUSTER)

System voltage.....	24
Battery (See battery section)	
Case part number .....	BHC30 (A38411)
Number of batteries .....	2
Voltage, each battery .....	12
Starter system	
Case part number .....	R26136
Vendor .....	Delco
Vendor number.....	1113949, 1113403
No load operating voltage .....	20.0
No load amperage draw	
Minimum .....	60
Maximum .....	80
No load rpm	
Minimum .....	5500 rpm
Maximum .....	7500 rpm
Alternator charging system	
Case part number .....	A41360
Vendor .....	Motorola
Vendor number.....	MH24N-901A
Operating voltage.....	28.8
Rated output.....	35 amps at 5000 alternator rpm
Field circuit .....	1.5 to 2.0 amps at 24 volts
Voltage regulator	
Case part number.....	A75072
Vendor.....	Motorola
Vendor number .....	8RB3014
Regulated setting.....	28.8 volts at 80°F

# W14 ARTICULATED LOADER

## ELECTRICAL (MODELS WITH INSTRUMENT CLUSTER) BEFORE SN 9119672

System voltage.....	24
Battery (see battery section)	
Case part number .....	BHC30 (A38411)
Number of batteries .....	2
Voltage, each battery .....	12
Starter system	
Case part number .....	R26136
Vendor .....	Delco
Vendor number.....	1113403
No load operating voltage .....	20.0
No load amperage draw	
Minimum .....	60
Maximum .....	80
No load rpm	
Minimum .....	5500 rpm
Maximum .....	7500 rpm
Alternator charging system	
Case part number .....	A44798
Vendor .....	Motorola
Vendor number.....	8HC3006F
Operating voltage.....	28.8
Rated output.....	29.5 amps at 5600 alternator rpm
Field circuit .....	2.0 amps at 24 volts
Voltage regulator	
Case part number.....	A44783
Vendor.....	Motorola
Vendor number .....	8RF3004
Regulated setting.....	27.9 to 28.8 volts at 80°F

# W14 ARTICULATED LOADER

## ELECTRICAL (MODELS WITH INSTRUMENT CLUSTER) SN 9119672 AND AFTER

System voltage.....	24
Battery (see battery section)	
Case part number .....	BHC30 (A38411)
Number of batteries .....	2
Voltage, each battery .....	12
Battery ampere hour rating .....	95
BCI group number.....	30H
Starter system	
Case part number .....	R26136
Vendor .....	Delco
Vendor number.....	1113403
No load operating voltage .....	20
No load amperage draw	
Minimum .....	60
Maximum .....	80
No load rpm	
Minimum .....	5500 rpm
Maximum .....	7500 rpm
Alternator charging system	
Case part number .....	L59901
Vendor .....	Delco
Vendor number.....	1102348
Operating voltage .....	24
Rated output.....	25-41 amps at full throttle
Field circuit .....	4.6 to 5.0 amps at 24 volts at 80°F
Voltage regulator (self contained)	
Case part number.....	A45372
Vendor.....	Delco
Vendor number .....	1116388
Regulated setting.....	NA

# W14B ARTICULATED LOADER

## ENGINE

Make and model .....	Case 6-590, 6T-590 diesel
Horsepower - SAE gross .....	101 at 2200 rpm
SAE Net, J1349 .....	93 at 2200 rpm
Number of cylinders.....	6
Firing order.....	1-5-3-6-2-4
Bore.....	4.02 inches
Stroke .....	4.72 inches
Piston displacement.....	359 cu. in.
Compression ratio.....	17 to 1
Flywheel - number of teeth .....	127
Engine speeds	
High idle - no load .....	2240 to 2330 rpm
Idle .....	725 to 775 rpm
Rated speed .....	2200 rpm
Engine oil, also see page 98	
Oil pressure, oil warm - 2200 rpm .....	40 to 55 psi
Capacity - with filter change .....	16 quarts
without filter change.....	15 quarts
Cooling system	
System capacity .....	6 gallons
Coolant reservoir .....	3.2 quarts
Radiator cap .....	15 psi
Thermostat	
Starts to open.....	181 to 187°F
Full open .....	203°F
Fuel system	
Type of fuel.....	No. 2 diesel
Fuel tank capacity .....	38 gallons
Injection pump.....	CAV
Part number.....	JR 908440
Timing.....	0° TDC
Injector part number .....	J909475
Opening pressure (new).....	3475 to 3675 psi
Opening pressure (used) .....	3200 to 3625 psi
Valve clearance (engine cold)	
Intake .....	0.010 inch
Exhaust .....	0.020 inch
Head torque in two steps, torque to 60 pound-feet then to 93 pound-feet	