

650H LT/WT/LGP Crawler Dozer



ENGINE

Model Case 4T-390 diesel
 Cylinders 4
 Bore/Stroke 4.02" x 4.72"
 (102 x 120 mm)
 Displacement 239 in³ (3.9 L)
 Fuel injection Direct
 Fuel #2 Diesel
 Fuel filter Spin-on with
 in-line strainer
 Air intake Cross-flow
 Cooling Liquid
 Engine speeds (rpm)
 High idle - no load 2420±50
 Rated - full load 2200
 Low idle 800-1050
 Horsepower per SAE J1349
 Net 74.8 (55.8 kW) @ 2200 rpm
 Gross 80 (59.7 kW) @ 2200 rpm
 Peak torque @ 1400 rpm
 Net 224 lb-ft (304 N·m)
 Gross 229 lb-ft (310 N·m)
 Engine lubrication -
 Pump Deep sump plate cooler
 with pressurized
 under-piston nozzles
 Pump operating angle ratings -
 Side-to-side 45°
 Fore and aft 45°
 Oil filtration ... Replaceable, spin-on
 full-flow cartridge

ENGINE COOLING

Radiator -
 Core size area 486 in² (0.31 m²)
 Rows of tubes 6
 Fan -
 Diameter 21.6" (550 mm)
 Ratio 1.1:1

ELECTRICAL SYSTEM

Alternator 65 amp
 95 amp w/ A/C
 Battery 12-volt low-maintenance
 700 cold-cranking amps
 @ 0° F (-18 C)

POWERTRAIN

Torque converter Single-stage
 Diameter 11.5" (292 mm)
 Stall ratio 2.63
 Drawbar pull* -
 1st 27,208 lb (121 kN)
 2nd 18,018 lb (80.1 kN)
 3rd 15,563 lb (69.2 kN)
 4th 10,219 lb (45.5 kN)
 Transmission ... Case constant-mesh
 modulated transmission
 Oil filter 10 micron, spin-on
 replaceable
 Gear ratios (fwd/rev) -
 1st 76.3/69.5
 2nd 51.1/46.5
 3rd 44.4/40.4
 4th 29.7/27.1
 Travel speeds* -
 Forward mph (km/h)
 1st 2.16 (3.5)
 2nd 3.23 (5.2)
 3rd 3.72 (6.0)
 4th 5.6 (9.0)
 Reverse mph (km/h)
 1st 2.42 (3.9)
 2nd 3.55 (5.7)
 3rd 4.09 (6.6)
 4th 6.16 (9.9)
 * Measured using standard track chain. Increase
 travel speeds by 4% and reduce drawbar pull
 by 4% with the optional CELT track chain.
 Parking brakes Heavy-duty,
 spring-applied,
 hydraulic pressure release
 Brakes Foot-operated,
 low-effort power
 Final drive Spur and bull gear
 single reduction

HYDRAULIC SYSTEM

Standard equipment pump
 Pump flow @ 2200 rpm
 @ 2200 psi (152 kPA) 23.9 gpm
 (90.5 L/min)

CYLINDERS

Lift cylinder (2)
 Bore diameter 3.50" (89 mm)
 Rod diameter 1.75" (44.5 mm)
 Stroke 17.40" (442 mm)
 Angle cylinder (2)
 Bore diameter 3.50" (89 mm)
 Rod diameter 1.75" (44.5 mm)
 Stroke 15.60" (396 mm)
 Tilt cylinder (1)
 Bore diameter 3.50" (89 mm)
 Rod diameter 1.75" (44.5 mm)
 Stroke 5.80" (147 mm)

UNDERCARRIAGE

Track adjustment Hydraulic
 Frame Rigid suspension
 Length of track on ground 83" (2.1 m)
 Track link pitch 6.73" (171 mm)
 Track shoe height 2.06" (52 mm)
 Pin diameter 1.32" (33 mm)
 Bushing diameter -
 CLT track 2.24" (57 mm)
 CELT track 3.0" (76 mm)
 Bolt diameter 0.625" (16 mm)
 Track shoes per side 36
 Track rollers per side 6
 Carrier rollers per side 1
 Track roller rail dia. ... 6.1" (155 mm)

OPERATOR ENVIRONMENT

ROPS canopy
"U" pattern forward/reverse lever
Adjustable armrests
Foot rests
Retractable seat belt, 2" (51 mm)
Vinyl suspension seat
w/back adjustment
Tool storage area

BLADE

Blade pitch 55° forward
60° rearward
Lift speed (per second) 18" (457 mm)
Cutting edge Reversible and
replaceable
Width..... 8.0" (203 mm)
Thickness 0.75" (19 mm)

SERVICE CAPACITIES

Fuel tank..... 47 gal (177.9 L)
Engine oil w/filter 11 qt (10.4 L)
Engine oil w/o filter 10 qt (9.5 L)
Engine cooling system 20 qt (18.9 L)
Hydraulic reservoir .. 55.5 qt (52.5 L)
Final drive (per side).... 7.5 qt (7.1 L)
Track rollers (ea.)..... 0.19 qt (0.18 L)
Front idlers (ea.)..... 0.42 qt (0.40 L)
Carrier rollers (ea.).... 0.25 qt (0.24 L)

INSTRUMENTATION

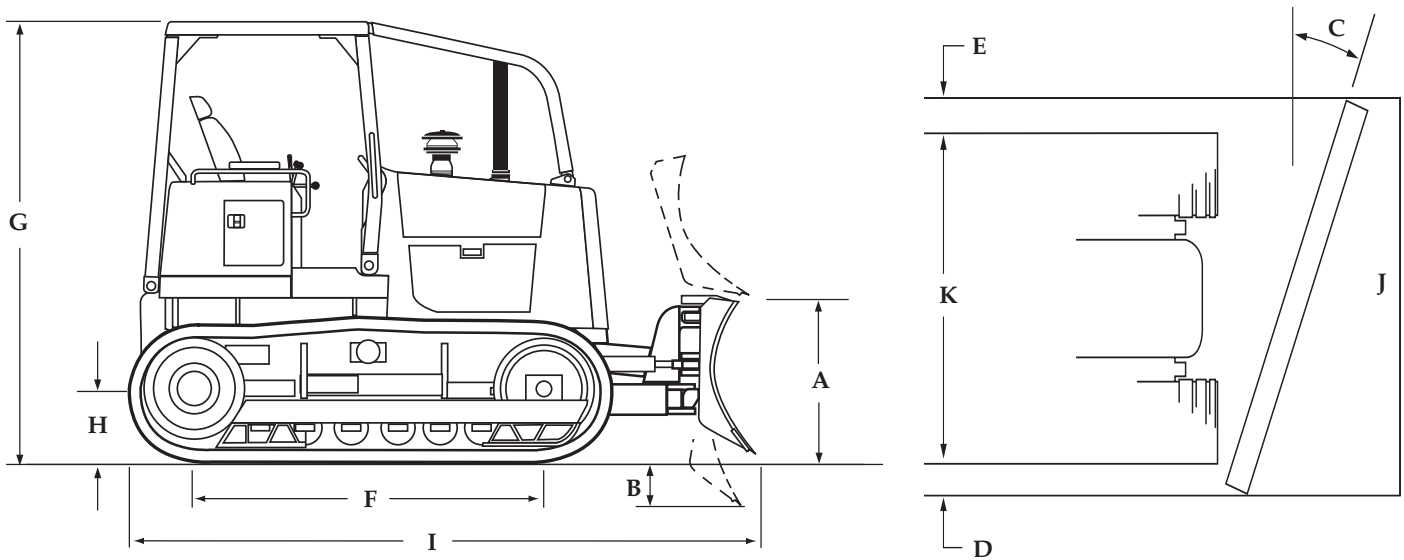
Warning lights:
Air filter
Alternator
Engine oil pressure
Hi range
Hydraulic filter
Transmission filter
Transmission pressure
Gauges:
Battery voltage
Fuel level
Hourmeter
Tachometer
Transmission oil temperature
Water temperature
Audible warnings:
Engine oil pressure
Transmission pressure

RIPPER

Max. penetration 14" (356 mm)
Width 72.4" (1839 mm)
Cut width 70.1" (1780 mm)
Ground clearance (at carry) 12.3"
(312 mm)
Points Replaceable
Max. number of shanks 5
Tooth spacing –
with 5 teeth..... 17.8" (452 mm)
with 3 teeth..... 34" (864 mm)
Hydraulic cylinder (double-acting)
Diameter 3.25" (82.6 mm)
Stroke 8.4" (213 mm)
Rod 1.75" (44.5 mm)

OPERATING WEIGHTS

Unit equipped with ROPS, full fuel tank, 170 lb (77 kg) operator, drawbar, side shield, track guides, backup alarm, horn and lights.
Long Track 16,091 lb (7298 kg)
Wide Track 16,800 lb (7260 kg)
LGP..... 17,440 lb (7909 kg)
Add-on weights –
Drawbar..... 95 lb (43 kg)
Ripper (3 shank)..... 1,400 lb (635 kg)
Winch 1,111 lb (504 kg)
Front counterweight ... 877 lb (398 kg)
Rear counterweight .. 900 lb (408 kg)
Cab 785 lb (356 kg)
Air conditioning..... 160 lb (73 kg)
ROPS heater 70 lb (32 kg)
CELT chain 115 lb (52 kg)



DIMENSIONS

	Long Track (LT)	Wide Track (WT)	Low Ground Pressure (LGP)
BLADES			
Blade width	98" (2.49 m)	114" (2.90 m)	120" (3.05 m)
SAE blade capacity	2.0 yd ³ (1.53 m ³)	2.4 yd ³ (1.84 m ³)	2.52 yd ³ (1.93 m ³)
A. Blade lift above ground.....	36" (914 mm)	36" (914 mm)	36" (914 mm)
B. Blade depth below ground	18" (457 mm)	18" (457 mm)	18" (457 mm)
C. Blade angle both directions.....	25°	25°	25°
Blade tilt, each end (up to 8.3°).....	14.2" (360 mm)	16.5" (418 mm)	17.3" (440 mm)
Blade height	36" (914 mm)	36" (914 mm)	36" (914 mm)
D. Cast reach	14.5" (368 mm)	15.7" (399 mm)	14.9" (378 mm)
E. Cut reach	1.4" (36 mm)	0.6" (15 mm)	1.9" (48 mm)
TRACKS			
Track gauge	57" (1.45 m)	67" (1.71 m)	67" (1.71 m)
Shoe width	16" (406 mm)	22" (558 mm)	25" (635 mm)
F. Track on ground	83" (2.11 m)	83" (2.11 m)	83" (2.11 m)
Area of track on ground	2648 in ² (1.71 m ²)	3641 in ² (2.35 m ²)	4138 in ² (2.67 m ²)
Ground pressure	6.1 psi (42 kPa)	4.7 psi (32 kPa)	4.21 psi (29 kPa)
DIMENSIONS			
G. Height to top of ROPS	8'11" (2.72 m)	8'11" (2.72 m)	8'11" (2.72 m)
Height to top of cab.....	9'6" (2.89 m)	9'6" (2.89 m)	9'6" (2.89 m)
with air conditioning	10'0" (3.05 m)	10'0" (3.05 m)	10'0" (3.05 m)
H. Ground clearance w/drawbar	15.9" (404 mm)	15.9" (404 mm)	15.9" (404 mm)
Turning clearance circle, brake turn	20'0" (6.1 m)	21'7" (6.6 m)	22'0" (6.7 m)
Length –			
I. Blade straight with drawbar	14'1" (4.29 m)	14'1" (4.29 m)	14'1" (4.29 m)
Blade straight with ripper	16'5" (5.00 m)	16'5" (5.00 m)	16'5" (5.00 m)
Width –			
J. Blade straight	8'2" (2.49 m)	9'6" (2.90 m)	10'0" (3.05 m)
Blade angled.....	7'7" (2.31 m)	8'9" (2.67 m)	9'3" (2.82 m)
K. Over track.....	73" (1.85 m)	89" (2.26 m)	93" (2.36 m)

STANDARD EQUIPMENT

OPERATOR'S COMPARTMENT

ROPS/FOPS canopy
Vinyl suspension seat w/back adjustment
Retractable seat belt, 2" (51 mm)
Adjustable armrests
Foot rests
Tool storage area

ENGINE

Case 4T-390 diesel
Automatic fan belt tensioner
Integral engine oil cooling
Fuel filter
Dual element radial seal air cleaner
65 amp alternator
700 CCA 12-volt battery
Anti-sandblast radiator
Engine side panels

POWERTRAIN

4F/4R modulated Powershift transmission
"U" pattern forward/reverse lever
Automatic spring applied parking brake
Oil cooled power disc brakes

BLADE

2 position mechanical pitch adjustment
Single lever control for blade lift, angle and tilt

UNDERCARRIAGE

Hydraulic track adjusters
Case Lubricated Track Chain
Permanently lubricated track and carrier rollers
Track adjuster guard
Track guides (front and rear)

OTHER

Backup alarm
Horn
Anti-vandalism package
Mirror
Pre-cleaner
Lights - 2 front, 2 rear

OPTIONAL EQUIPMENT

OPERATOR'S COMPARTMENT

Cab (w/heater, defroster, front windshield washer and lights)
Air conditioner (cab units only)
ROPS heater
3" (76 mm) seat belt
Deluxe air suspension seat
Decelerator
In-line shift pattern
ROPS headliner

HYDRAULICS

4 spool hydraulic valve for field-installed ripper

REAR MOUNTED EQUIPMENT

Ripper, 5 slot with 3 shanks

BLADES

98" (2.5 m) LT
104" (2.6 m) WT w/16" (406 mm) shoes
114" (2.9 m) WT w/22" (559 mm) shoes
120" (3.0 m) LGP w/26" (660 mm) shoes

GUARDS

Sweeps
Center rockguard
Final drive bottom
Final drive seal
Rear transmission
Heavy-duty bottom transmission

SCREENS

Rear ROPS and cab
Side ROPS
Radiator brush

OTHER

Counterweight, front
Counterweight, rear
Drawbar
Sprocket, relieved (LT w/ CLT only)
Special paint
Dual 12V battery
Front pull hook
Fan, reversible
Case Extended Life Track
Leg cushion pads
Cold start aid

TRACK

LONG TRACK

16" (406 mm) closed grousers and CLT
16" (406 mm) open grousers and CELT

WIDE TRACK

16" (406 mm) closed grousers and CLT
16" (406 mm) open grousers and CELT
22" (559 mm) closed grousers and CLT
22" (559 mm) open grousers and CELT

LGP

25" (635 mm) closed grousers and CLT
25" (635 mm) open grousers and CELT

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

Form No. CE 239-12-99
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