

# CRAWLER DOZER

# CASE

CONSTRUCTION

SINCE 1842.

## 650M

### ENGINE

Brand	CASE/FPT
Model	F5HFL463D*G004
Type	Turbo charged, water cooled. 4-stroke cycle diesel engine. Electronic fuel injection with crank case shield. Tier 4 certified
Cylinders	4
Bore and stroke	4.3 x 3.9 in (110 x 99 mm)
Displacement	207.5 in <sup>3</sup> (3.4 L)
Direct injection	Common Rail
Fuel	Diesel
Fuel filter	Spin-on w/ in-line strainer
Cooling System	Liquid
Engine rotations - rpm	
High - neutral without load	2,340 +/- 50
Nominal - full load	2,200
Low idle	1,100 +/- 25
Power @ 2,200 rpm - ISO 14396	
Gross (SAE J1349)	73.8 hp (55.0 kW)
Net (SAE J1349)	68.0 hp (50.6 kW)
Torque @ 1,400 rpm	
Gross	235 lbf.ft (318 Nm)
Net	229 lbf.ft (310 Nm)
Engine lubrication	
Pump	Deep sump plate cooler w/ pressurized under-piston nozzles
Operating angle	
Sideways	35°
Longitudinal	45°
Oil filter	Replaceable, spin-on full-flow cartridge
Radiator	
Fins per inch	10
Fan propeller	Diameter 20 in (500 mm)

### POWER TRAIN

Dual path hydrostatic:	
Pump	Variable axial piston
Motor	Variable bent axis piston
Maximum traction force	39,086 lbf (173.9 kN)
Transmission	Commanded by a single electronically controlled lever
Oil filter	Replaceable cartridge with filtering up to 4 micron with a 100 mesh suction screen
Displacement speeds	
Forward	5.0 mph (8.0 km/h)
Reverse	5.0 mph (8.0 km/h)
Parking brake	SAHR (Applied through spring actuation, released hydraulically)
Steering brakes	Hydrostatic
Final command	2 helical gear reductions and a planetary reduction
Reduction ratio	62.4:1
Transmission cooling	
Type	Oil to air
Core area	216.9 in <sup>2</sup> (1 399.3 cm <sup>2</sup> )
NOTE:	Measured using standard track chain. Increases travel speeds by 4% and reduces drawbar pull by 4% with the optional Max Life track chain.

### ELECTRIC SYSTEM

Alternator	120 A
Batteries	12V in series, maintenance free 925 CCA @ 0° F (-18 C)
Voltage	12 V

### HYDRAULIC SYSTEM

Pump flow @ 2,200 rpm with 3,000 psi (206.8 bar)	20.3 gpm (78.8 l/min)
PAT lifting cylinders	2
Diameter of the cylinder	3.50 in (88.9 mm)
Diameter of the cylinder rod	1.75 in (44.4 mm)
Stroke	15.53 in (394.5 mm)
PAT angling cylinders	2
Diameter of the cylinder	3.50 in (88.9 mm)
Diameter of the cylinder rod	1.75 in (44.5 mm)
Stroke	13.46 in (342.0 mm)
PAT inclination cylinder	1
Diameter of the cylinder	3.50 in (88.9 mm)
Diameter of the cylinder rod	1.75 in (44.4 mm)
Stroke	5.39 in (137 mm)

## OPERATOR COMPARTMENT

### Cab

Optional ROPS cab  
Single lever control for speed, steering and direction  
Forward/reverse speed ratio selector  
Adjustable armrests  
Foot rests  
Retractable seat belt, 3 in (76,2mm)  
Rear view mirror  
Seat tilts for access

### Warning lights

Air filter  
Alternator  
Engine oil pressure  
Diagnostic fault indicator  
Engine coolant temperature  
Engine oil pressure  
Low fuel level  
Park brake engaged  
Service soon indicator  
Transmission temperature  
Hi range  
Hydraulic filter  
Transmission filter  
Transmission pressure

### Gauges

Battery voltage  
Fuel level  
Digital hour meter  
Tachometer  
Diagnosis  
Service reminder  
Transmission oil temperature  
Transmission speed indicator  
Cooling fluid temperature

### Audible warnings

Engine oil pressure  
Transmission pressure  
Engine coolant temperature  
Low fuel level  
Transmission charge pressure  
Temperature/hydraulic temperature

## CAPACITIES

Fuel Tank	40.8 gal (154.4 L)
Engine oil with filter	8.45 qt (8.0 L)
Engine oil without filter	6.87 qt (6.5 L)
Engine cooling system	23.9 qt (22.6 L)
Hydraulic tank	22.0 gal (83.3 L)
Final drive – per side	16 qt (15.1 L)
Track rollers – each	0.16 qt (0.150 L)
Front idlers – each	0.34 qt (0.326 L)
Carrier rollers – each	0.13 qt (0.136 L)

## OPERATING WEIGHT

Unit equipped w/ cab, full fuel and hydraulic tanks, 170 lb (77 kg) operator, SALT chain, front pull hook, rear retrieval hitch, track guides, backup alarm, horn, lights, track shoe and blade.

Long track	15,803 lb (7 168 kg)
Wide track	16,389 lb (7 434 kg)
Add-on weights:	
Drawbar	128 lb (58 kg)
Ripper 3 Shank	1,400 lb (635 kg)
Winch	1,861 lb (844 kg)
Front Counterweight	838 lb (380 kg)

## OTHER SPECIFICATIONS

### UNDERCARRIAGE

Adjustment of tracks	Hydraulic
Frame	Pivot shaft and oscillating equalizer beam suspension
Length of the tracks on the ground	8' 6" (2 600 mm)
Track pitch	
Distance between the shoes	6.91" (175,5 mm)
Grouser height	2.17" (55,00 mm)
Pin diameter	1.44" (36,58 mm)
Bushing diameter	
SALT	62.2 mm (2.45")
Number of shoes	43
Rollers	
Lower (each side)	7
Upper (each side)	2
Diameter of the lower rollers	7.99 in (203 mm)
Diameter of the upper rollers	5.51 in (140 mm)

### TRACK

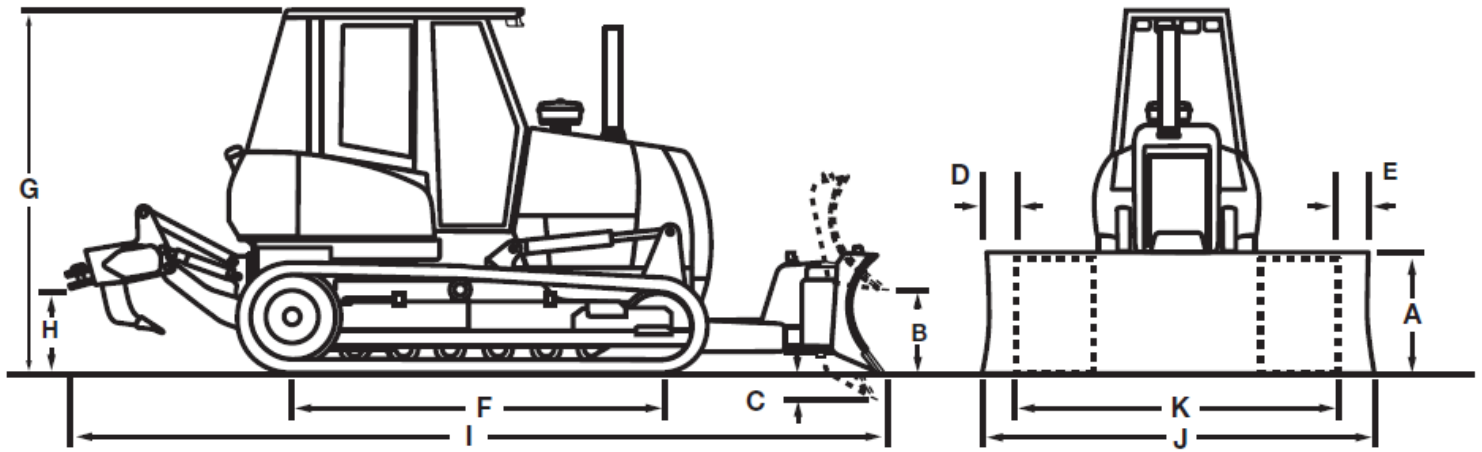
Shoe area:	
15.6 in (395 mm)	2,644 in <sup>2</sup> (17 056 cm <sup>2</sup> )
20 in (508 mm)	3,400 in <sup>2</sup> (21 935 cm <sup>2</sup> )
24 in (610 mm)	4,083 in <sup>2</sup> (26 340 cm <sup>2</sup> )

### BLADE

Variable blade inclination	52° – 60°
Lifting speed	500 mm/sec (19,7 in/sec)
Reversible and replaceable cutting edge	
Width	8.0 in (203 mm)
Thickness	0.625 in (16 mm)

### RIPPER

Maximum penetration	15.3 in (389 mm)
Width	73.1 in (1 856 mm)
Cutting width	70.1 in (1 781 mm)
Maximum free space over the ground	15.4 in (392 mm)
Number of teeth	3
Double action hydraulic piston	
Diameter	3.9 in (99.02 mm)
Stroke	8.4 in (213 mm)
Diameter of the rod	1.75 in (44.5 mm)



Line drawings are for illustrative purpose only and may not be exact representation of unit.

## DIMENSIONS

	Long Track (LT)	Long Track (LT,WT)	Wide Track (WT)
Blade width	90 in (2 286 mm)	96 in (2 438 mm)	108 in (2 731 mm)
SAE blade capacity	1.58 yd <sup>3</sup> (1.21 m <sup>3</sup> )	1.69 yd <sup>3</sup> (1.29 m <sup>3</sup> )	1.89 yd <sup>3</sup> (1.44 m <sup>3</sup> )
<b>A.</b> Blade height	33.1 in (842 mm)	33.1 in (842 mm)	33.1 in (842 mm)
<b>B.</b> Blade lift above ground	35.1 in (892 mm)	35.1 in (892 mm)	35.1 in (892 mm)
<b>C.</b> Blade depth below ground	21.0 in (533 mm)	21.0 in (533 mm)	21.0 in (533 mm)
Blade angle both directions	22.0°	22.7°	22.3°
<b>D.</b> Cast reach	11.4 in (288.4 mm)	14.1 in (358.7 mm)	11.4 in (290.5 mm)
<b>E.</b> Cut reach	-0.37 in (-9.5 mm)	2.39 in (60.8 mm)	-0.3 in (7.4 mm)
Blade tilt, each end – up to 9.7°	7.17 in (182 mm)	7.64 in (194 mm)	8.54 in (217 mm)
Track gauge	56.47 in (1.43 m)	56.47 in (1.43 m)	68 in (1.73 m)
Maximum shoe width	15.6 in (395 mm)	15.6 in (395 mm)	20 in (508 mm)
<b>F.</b> Length of track on ground	85 in (2.16 m)	85 in (2.16 m)	85 in (2.16 m)
Area of track on ground	2,644 in <sup>2</sup> (1.71 m <sup>2</sup> )	2,644 in <sup>2</sup> (1.71 m <sup>2</sup> )	3,400 in <sup>2</sup> (2.19 m <sup>2</sup> )
Ground pressure	5.98 psi (41.2 kPa)	5.98 psi (41.2 kPa)	6.07 psi (41.9 kPa)
<b>G.</b> Height to top of cab	8 ft 8 in (2 648 mm)	8 ft 8 in (2 648 mm)	8 ft 8 in (2 648 mm)
Height to top of cab w/air conditioning	8 ft 9 in (2 653 mm)	8 ft 9 in (2 653 mm)	8 ft 9 in (2 653 mm)
<b>H.</b> Ground clearance	13.07 in (332 mm)	13.07 in (332 mm)	13.07 in (332 mm)
Length:			
Blade straight with drawbar	13 ft 8 in (4 180 mm)	13 ft 8 in (4 180 mm)	13 ft 8 in (4 180 mm)
<b>I.</b> Blade straight with ripper	16 ft 3 in (4 951 mm)	16 ft 3 in (4 951 mm)	16 ft 3 in (4 951 mm)
Width:			
<b>J.</b> Blade straight	7 ft 6 in (2 286 mm)	8 ft 0 in (2 438 mm)	9 ft 0 in (2 731 mm)
Blade angled	7 ft 1 in (2 159 mm)	7 ft 7 in (2 299 mm)	8 ft 5 in (2 568 mm)
<b>K.</b> Over track	6 ft 0 in (1 820 mm)	6 ft 0 in (1 829 mm)	7 ft 4 in (2 228 mm)

## STANDARD EQUIPMENT

### Operator Compartment

See page 2

### Engine

CASE/FPT F5C F5HFL463D\*G003

Tier 4 Certified

Automatic fan belt tensioner

Integral engine oil cooling

Fuel filter

Dual element radial seal air cleaner

120 amp alternator

925 CCA 12-volt battery

Engine side panel

Anti-freeze to -34°F

Pusher fan

Radiator – Anti-sandblast

### Power Train

Dual path infinitely variable, single-lever controlled hydrostatic drive with electronic straight tracking & counter-rotation

Final drive: Triple reduction; helical gear/

planetary decelerator with hydrostatic drive retardation

Decelerator with hydrostatic drive retardation

Automatic spring-applied parking brake

10 incremental speed settings - Operator

preference settings for max speed, shuttle

sensitivity and steering sensitivity

### Blade

52° – 60° variable pitch

Single lever control for blade lift, angle and tilt

90 in (2.29 m) blade 650M LT

96 in (2.44 m) blade 650M LT/WT

109 in (2.8 m) blade 650M WT

### Undercarriage

Hydraulic track adjusters

Easy clean track covers

Case sealed and lubricated track chain

Permanently lubricated track and carrier rollers

H.D. track covers

Track adjuster guard

Track gauge – 56 in or 68 in

Track guides – front and rear

Length of track on ground – 85 in

High visibility track idler

Heavy duty track frame, sprocket and mounting pads

### Others

Anti-vandalism package

Backup alarm

Hinged grill

Decelerator

Final drive seal guard

Hand throttle

Horn

Work lights: 2 front 1 rear

Master disconnect switch

Mirror

Operator's manual enclosure

O-ring face seal hydraulic fittings

Pre-cleaner

Vertical spin-on hydraulic/filters

Hydraulics – 3 spool valve

Fuse circuit protection

Single key start switch

Pre-wired for work lights

Two additional power sources available for

heater, air seat or auxiliary 12 volt power port

Crankcase

Transmission bottom

## OPTIONAL EQUIPMENT

### Operator Compartment

Cab with heater, 22,700 BTU (6.65 kW)/hr air conditioner, defroster, front windshield washer and 2F-1R lights

Deluxe air suspension seat

### Hydraulics

4-spool hydraulic valve for field-installed ripper

### Rear mounted equipment

Ripper, parallelogram 5 slots with 3 shanks

### Blades

90 in (2.29 m)

96 in (2.44 m)

109 in (2.77 m)

120 in (3.05 m)

### Guards

Brush guards (Sweeps)

Center rockguard

### Screens

Rear ROPS and cab

Side ROPS

Radiator brush screen

### Others

Case Max-Life track

Cold start aid (Grid Heater)

Counterweight, front

Drawbar

Front pull hook

Lights – halogen, 2 front, 1 rear for cab or ROPS

Retrieval hitch

Special paint

Turbo precleaner

Winch drive PTO

Rear Wiper for cab

Lights without brush guard

Lights with brush guard

Diagnostics check fittings

Environmental drains

Lift/Tow decals (Export)



Fleet monitoring and management system by satellite or cel phone tracking.

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CASE Construction equipment and CASE / FPT engines are manufactured by the same company: CNH Industrial Ltda.

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