



ENGINE

Model	FPT F5B FL413 E*B002
Emissions Certification	Tier 4 Final
Type	Diesel, Turbo – Direct Injection
Cylinders	4
Bore/Stroke	3.9 x 4.3 in (99 x 110 mm)
Displacement	207 in ³ (3.4 L)
Fuel injection	Direct
Fuel	#2 Diesel
Fuel filter:	
Pre-filter	Beta (30) = 200/spin-on
Main filter	Beta (4) = 20/spin-on
Air intake	Turbocharged w/ waste gate and external cooled EGR
Exhaust aftertreatment	Selective Catalytic Reduction – SCR
Cooling	Liquid
Engine speeds	RPM
High idle – no load	2500 +/- 25
Rated – full load	2500
Low idle	1150 +/- 25
Horsepower @ 2500 RPM – SAE J1349:	
Gross	90 hp (67 kW)
Net	84 hp (63 kW)
Peak torque @ 1400 RPM	282 lb-ft (383 N-m)
Radiator:	
Core type	Aluminum bar and plate
Core size area	2.21 ft ² (0.206 m ²)
Rows of tubes	21
Cap pressure	16 +/- 2 psi (1.10 +/- 0.14 bar)
Fan:	
Diameter	22 in (560 mm)
Ratio	1.1:1
Water pump:	
Style	Centrifugal
Flow	47.8 gpm (181 L/min)
Engine lubrication pump	Rotor pump w/ deep sump pan, plate cooler and pressurized under-piston nozzles
Pump operating angle ratings:	
Side to side	45°
Bucket up	35°
Bucket Down	45°

LIFT GEOMETRY

Vertical Lift

DRIVETRAIN

Drive pump controls	Servo-assist mechanical
Pump to engine ratio	1:1
Displacement	2.81 in ³ (46 cm ³)
Flow @ rated engine RPM:	
@ 97% efficiency	29.4 gpm (111 L/min)
Charge pressure	360 psi (24.5 bar)
System relief pressure	5,220 psi (360 bar)

Drive pump controls	Electro-hydraulic
Pump to engine ratio	1:1
Displacement	2.75 in ³ (45 cm ³)
Flow @ rated engine RPM:	
@ 97% efficiency	28.8 gpm (109 L/min)
Charge pressure	362 psi (25 bar)
System relief pressure	5,220 psi (360 bar)

Drive motors:	
Max. displacement	28.7 in ³ (470 cm ³)
Displacement – optional:	
High speed	17.2 in ³ (282 cm ³)
Motor RPM @ high idle and 97% efficiency:	
Standard 1-speed	237
Optional 2-speed	355
Motor torque @ max. displacement and relief pressure, calculated @ 5,220 psi (360 bar):	1,987 lb-ft (2 694 N-m)

Travel speed:	
Low range	7.7 mph (12.4 kph)
High range – optional	11.5 mph (18.5 kph)

Final drive Single-reduction chain drive

Drive chain:	
Size	ASA #100
Tensile strength	30,000 lb (133.4 kN)

Axles:	
Torque @ max. displacement and relief pressure	5,957 lb-ft (8 077 N-m)
Diameter	2.44 in (62 mm)
Length	15.6 in (396 mm)

Parking brake:	
Type	Spring-applied, hydraulic release multiple disc.
Engagement	Depress on/off brake button on handle or instrument panel, raise seat bar, get off seat or stop engine.

ELECTRICAL

Alternator	160 amp
Starter	4.29 hp (3.2 kW)
Battery	12-volt low-maintenance 1,000 cold-cranking amps @ 0° F (-18° C°)

OPERATOR ENVIRONMENT

Enclosed Cab w/ Heater and AC; Fully sealed and pressurized – FSP; Glass door w/ wiper and washer; Sliding side windows – removable; Heater and air conditioner; AM/FM radio w/ 2 speakers; Keyless start ignition; Tilt ROPS/FOPS;

Rear window w/ emergency escape; Deluxe cloth, air suspension seat, w/ 2 in (51 mm) retractable 3 point lap seat belt, w/ heater and lumbar support; Hand and foot throttle; Alarm package – back-up and horn; Headliner; Dome Light; Top window; Cup holder; 12V Power plug socket; Foot rest; Seat Pocket; Padded seat bar w/ integral armrests; Loader control lockout system; Electric parking brake control; Operator's compartment floor cleanout; Proportional auxiliary hydraulic control – on joystick; Advanced Instrument Cluster w/ digital hour meter, tachometer, fuel level LCD bar graph w/ alarm, DEF Level, diagnostic features and security lockout.

Warning lights with alarms:
Engine coolant temperature; Engine oil pressure; Engine malfunction; Hydraulic charge pressure; Hydraulic filter restriction; Hydraulic oil temperature; Critical system stop, Engine system, Hydraulic system, Electrical and diagnostic system.

Warning alarms:
Battery voltage – plus display; Diesel Exhaust Fluid (DEF); Oil service.

Indicator light:
Engine preheat; Parking brake;
Seat bar reminder.

OPERATING WEIGHT

Unit equipped w/ open cab; 165 lb operator; 78 in Heavy-Duty bucket; full of fuel; 14 x 17.5 tires:	9,100 lb (4 136 kg)
Shipping weight	8,557 lb (3 890 kg)

Add-on weights:	
Side cab glass	47 lb (21.3 kg)
Polycarbonate cab door	75 lb (34.0 kg)
Glass cab door w/ wiper	75 lb (34.0 kg)
Suspension seat	22 lb (10.0 kg)
Additional counterweight	300 lb (136.0 kg)

HYDRAULICS

Implement pump type	Gear
Displacement:	
Standard aux.	2.23 in ³ (36.6 cm ³)
High-flow aux.	1.42 in ³ (23.3 cm ³)

Standard flow @ rated engine RPM:
@ 100% efficiency 24.2 gpm (91.5 L/min)

Optional high-flow @ rated engine RPM:
@ 100% efficiency 38.7 gpm (146.5 L/min)

Enhanced high-flow @ rated engine RPM:
@ 100% efficiency 35.0 gpm (132.5 L/min)

Loader control valve:	
Type	3 spool/open center/series - series
Relief pressure	3,450 psi (238 bar)

Port relief pressures:	
Loader raise	3,625 psi (250 bar)
Bucket curl	3,916 psi (270 bar)
Bucket dump	3,625 psi (250 bar)

Hydraulic lines:	
Tubing	ORFS + 37° JIC Flare
Loop hoses	SAE 100 R19

HYDRAULICS CONT.

Hydraulic oil cooler:	
Number of fins	10 per inch (3.94 per cm)
Number of tube rows x columns	9 bar/plate
Area	138.7 in ² (890 cm ²)

Hydraulic filter	Beta (4) = 75/spin-on
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Lift cylinders:	
Bore diameter	2.75 in (69.85 mm)
Rod diameter	2.0 in (50.8 mm)
Stroke	34.9 in (886.5 mm)
Closed length	47.4 in (1 205 mm)

Bucket cylinders:	
Bore diameter	3.0 in (76.2 mm)
Rod diameter	1.5 in (38.1 mm)
Stroke	15.7 in (398 mm)
Closed length	24.0 in (610 mm)

SERVICE CAPACITIES

Fuel tank	25.5 gal (96.5 L)
Engine oil w/ filter	8.9 qt (8.5 L)

Hydraulic system:	
Reservoir	6.0 gal (22.7 L)
Total	12.0 gal (45.4 L)

Chain tanks – per side	5.9 gal (22.2 L)
Diesel Exhaust Fluid (DEF) Tank	2.8 gal (10.7 L)

PERFORMANCE SPECS

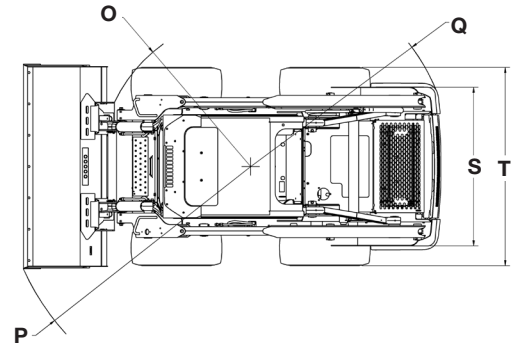
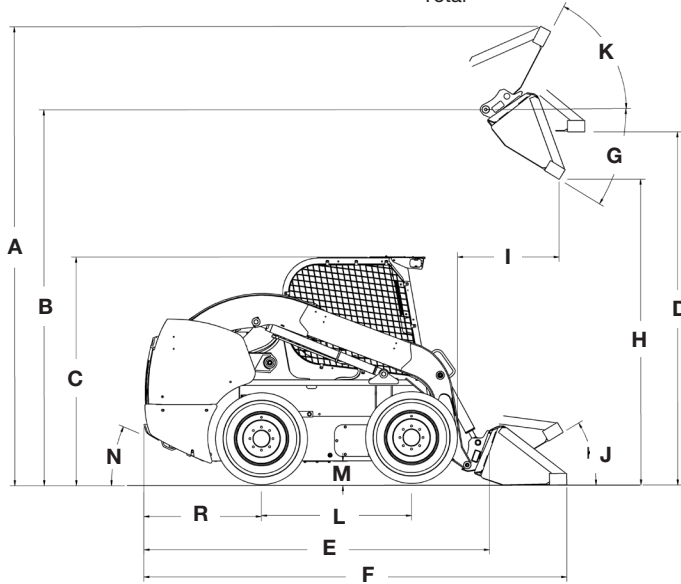
Rated operating capacity – ROC*:	
50% of tipping load	3,400 lb (1 545 kg)
w/ additional counterweight	3,650 lb (1 656 kg)

Tipping load*	6,800 lb (3 090 kg)
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Breakout forces @ 3,150 psi (217 bar)*:	
Bucket cylinders	9,531 lb (42.4 kN)
Lift cylinders – tip limit	6,816 lb (30.3 kN)

Cycle times:	
Raise	4.6 sec
Lower	3.5 sec
Dump	2.6 sec
Roll back	2.0 sec

NOTE: *Measured using 72 in (1.83 m) dirt and foundry bucket.



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

DIMENSIONS

A. Overall operating height:		
with foundry/excavating bucket		160.4 in (4.07 m)
with low profile bucket		164.4 in (4.18 m)
with low profile extended bucket		169.5 in (4.30 m)
Height to:		
B. Bucket hinge pin		130.0 in (3.30 m)
C. Top of ROPS		78.8 in (2.00 m)
D. Bottom of level bucket, fully raised		124.8 in (3.17 m)
Overall length:		
E. without attachment with coupler		119.1 in (3.02 m)
F. with foundry/excavating bucket on ground		144.0 in (3.66 m)
with low profile bucket		148.0 in (3.76 m)
with low profile extended bucket		153.1 in (3.89 m)
G. Maximum dump angle		46.7°
H. Dump height:		
with foundry/excavating bucket		103.5 in (2.63 m) @ 45°
with low profile bucket		100.6 in (2.56 m) @ 45°
I. Dump reach at maximum height with low profile bucket		29.3 in (0.74 m) @ 45°
Maximum attachment rollback:		
J. Bucket on ground		35.0°
K. Bucket at full height		86.0°
L. Wheelbase		52.0 in (1.32 m)
M. Ground clearance – bottom of belly pan		8.0 in (0.20 m)
N. Angle of departure		23.5°
Clearance circle:		
O. without bucket		56.2 in (1.43 m)
P. with 72 in (1.83 m) foundry/excavating bucket in carry position		84.1 in (2.14 m)
with 72 in (1.83 m) low profile bucket on ground		87.8 in (2.23 m)
with 72 in (1.83 m) extended low profile on ground		71.2 in (2.35 m)
Q. Clearance circle rear		70.4 in (1.81 m)
R. Rear axle to bumper		42.4 in (1.08 m)
S. Tread over gauge with spec tires		56.9 in (1.45 m)
T. Over the tire width spec tires		69.6 in (1.77 m)

TIRE SELECTION

Type	Size	Tread Gauge	Over Tires Width	Each Tire Weight*
Heavy-Duty	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	110 lb (50 kg)
Premium	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	119 lb (54 kg)
Premium-Lined	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	119 lb (54 kg)
Severe-Duty	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	135 lb (61 kg)
Non-Pneumatic – Solid	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	280 lb (127 kg)
Mining	12 L x 16.5	56.9 in (1.45 m)	70.0 in (1.78 m)	380 lb (173 kg)
Flotation	33 L x 15.5 x 16.5	59.0 in (1.50 m)	76.0 in (1.93 m)	143 lb (65 kg)
Premium	14 L x 17.5	62.0 in (1.58 m)	76.0 in (1.93 m)	148 lb (67 kg)

NOTE: *Tire weight does not include the wheel weight.

OPTIONAL BUCKETS

Type	Width	Weight	Heaped Capacity
Dirt & Foundry	72 in (1.83 m)	420 lb (190 kg)	16.2 ft ³ (0.46 m ³)
	78 in (1.98 m)	440 lb (200 kg)	17.7 ft ³ (0.50 m ³)
Low Profile	72 in (1.83 m)	480 lb (218 kg)	14.8 ft ³ (0.42 m ³)
Low Profile Extended	72 in (1.83 m)	510 lb (232 kg)	17.7 ft ³ (0.50 m ³)
	78 in (1.98 m)	540 lb (245 kg)	19.1 ft ³ (0.54 m ³)
	84 in (2.13 m)	575 lb (262 kg)	20.5 ft ³ (0.58 m ³)
Light Material	72 in (1.83 m)	475 lb (216 kg)	23.3 ft ³ (0.66 m ³)
	84 in (2.13 m)	540 lb (245 kg)	27.5 ft ³ (0.78 m ³)
Manure & Slurry	72 in (1.83 m)	480 lb (218 kg)	19.1 ft ³ (0.54 m ³)
	84 in (2.13 m)	545 lb (248 kg)	22.6 ft ³ (0.64 m ³)
Heavy-Duty	72 in (1.83 m)	510 lb (230 kg)	14.1 ft ³ (0.40 m ³)
	78 in (1.98 m)	530 lb (240 kg)	15.5 ft ³ (0.44 m ³)
	84 in (2.13 m)	550 lb (250 kg)	17.0 ft ³ (0.48 m ³)
Heavy-Duty with spillguard	72 in (1.83 m)	585 lb (265 kg)	18.4 ft ³ (0.52 m ³)
	78 in (1.98 m)	605 lb (275 kg)	19.8 ft ³ (0.56 m ³)
	84 in (2.13 m)	640 lb (290 kg)	21.5 ft ³ (0.61 m ³)

STANDARD EQUIPMENT

OPERATOR ENVIRONMENT

See page 1

ENGINE

FPT F5B FL413 E*B002
207 CID (3.4 L) Turbo
Tier 4 Final Certified
Diesel Oxidation Catalyst (DOC) with
Selective Catalytic Reduction
(SCR) muffler
Charged Air Cooler (CAC)
High Pressure Common Rail (HPCR)
fuel injection
Horsepower:
Gross: 90 hp (67 kW)
Net: 84 hp (63 kW)
Peak torque 282 lb-ft (383 N-m)
160 amp alternator
Dual element air cleaner
Organic Acid Technology (OAT)
Anti-freeze solution to -34° F
Fuel tank - 25.5 gal (U.S.)
Over and under radiator and oil cooler
3-stack after cooler/radiator/oil
cooler configuration
Glow plugs

OPTIONAL EQUIPMENT

OPERATOR ENVIRONMENT

ROPS/FOPS Level 1 canopy
with side screens
Keyed start ignition
Ventilation system with integrated heater
Electro-hydraulic controls:
For drive/steering, loader functions
Switchable between H and ISO patterns
Adjustable sensitivity of controls
Mechanical hand controls
Hand and foot controls:
Hand controls the loader drive function
and foot controls the bucket and boom
Non suspension seat
Suspension seat, vinyl
Open cab interior trim package
Demolition cab door with polycarbonate
FOPS level 2

Integral engine oil cooler
Fuel filter with water trap
1,000 CCA 12V battery
Master electrical disconnect

DRIVETRAIN

2-speed hydrostatic four wheel drive
ASA #100HS drive chain
SAHR disc parking brake

HYDRAULICS

Auxiliary hydraulics:
@ 3,450 psi (238 bar) – 24.2 gpm
(91.5 L/min)
6 micron oil filtration system
3-spool loader control valve
Auxiliary hydraulic disconnects, ISO
flat-face – connect-under-pressure
with case drain
Hydraulic circuit pedal lock
Auxiliary function lockout override
Loader lift lockout override
Heavy-duty hydraulic oil cooler
Loader arm float position
Hydraulic one-way self-leveling
Ride control
Connect under pressure auxiliary
hydraulic disconnects

HYDRAULICS

High-flow auxiliary hydraulics – combined:
@ 3,450 psi (238 bar) – 38.7 gpm
(146.5 L/min)
Enhanced High-Flow auxiliary hydraulics – EHF:
@ 4,000 psi (276 bar) – 35.0 gpm
(132.5 L/min)
Second auxiliary hydraulics

LOADER

Auxiliary front electric control
Hydraulic attachment coupler

LOADER

Heavy duty hydraulic attachment coupler
Vertical lift geometry
Loader lift arm support strut
SAE operating load: 3,400 lbs
Tipping load: 6,800 lbs
In-cab loader lock

TIRES

14 X 17.5 Heavy duty

OTHER STANDARD FEATURES

Halogen lights - 2 front, 2 side, 2 rear flood
Heavy duty front lights
Pre-wired for rotating beacon
Lockable service access hood
Single-point daily service
Rear tail lights
Remote oil drain
Remote oil and fuel filters
Block heater
Debris ingress sealing
Mounting points for add-on counterweights
Heavy duty rear door
Deluxe cloth, air suspension seat

OTHER

Language decals
Factory-installed tires – see page 3
Buckets – see page 3
Bolt-on bucket cutting edges
Bolt-on heavy-duty bucket spill guard
Special paint
Offsite service arrangement
Telematics

FACTORY SUPPLIED ATTACHMENTS

Interior mirror
Add-on counterweights
Road lights
Rotating beacon
Four-corner LED strobe
Bolt-on heavy-duty bucket teeth
48 in (1.22 m) pallet forks

SERVICE PARTS

3 inch (76.2 mm) retractable seat belt

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CASE Construction Equipment is biodiesel-friendly. NOTE: All engines meet current EPA emissions regulations. All specifications are stated in accordance with SAE Standards or Recommended Practices, where applicable.



Always read the Operator's Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs and use any safety features provided.

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