ENGINE

Model: FPT F5H FL463 A’F001
Emissions Certification: Tier 4 Final
Type: 4-stroke
Cylinders: 4
Bore/Stroke: 3.9 x 4.3 in (99 x 110 mm)
Displacement: 207 in³ (3.4 L)
Fuel injection: High pressure, common rail injection
Fuel: Diesel
Fuel filter: Spin on, Beta (4) = 20
Air filter: Dry type element w/ warning restriction indicator
Exhaust aftertreatment: Particulate Matter Catalyst – PM Catalyst
Radiator: Core type All aluminum
Fan: Style Direct drive
Lubrication/cooling oil pump: Style Integral
Engine oil:
- Pump: Deep sump plate cooler w/ pressurized under-piston nozzles
Pump operating angle ratings:
  - Side-to-side: Rated 35°
  - Fore and aft: Rated 35°
  - Oil filtration: Spin on, full flow
Engine speeds RPM:
- Rated – full load: 2500
- Low idle: 950
- High idle – no load: 2500
Horsepower @ 2500 RPM:
- Gross: 74 hp (55 kW)
- Net: 70 hp (52 kW)
Peak torque @ 1400 RPM:
- Gross: 233 lb·ft (316 N·m)
- Net: 227 lb·ft (308 N·m)
NOTE: Gross horsepower and torque per SAE J1349.
Net horsepower and torque per SAE J1349.

DRIVETRAIN

Transmission: Hydrostatic transmission
Pump relief: 6,092 psi (42 000 kPa)
Pump flow @ 2500 RPM: 37.0 gpm (140 L/min)
Differential:
- Open standard/limited slip or 100% lock opt.
Front axles:
  - Differential ratio: 3.67
  - Planetary ratio: 6.00
  - Final axle ratio: 22.00
Gear box: 1st ratio 2.46
Gear box HS:
  - 1st ratio: 2.75
  - 2nd ratio: 1.16
Planetarys: Outboard
Service brakes:
Master cylinder hydraulically actuated, wet disc on front axle
Parking brake:
Mechanical, caliper on front axle
Travel speeds – Forward mph (kph)
- 1st Low: 3.7 (6.0)
- 2nd High: 12.4 (20.0)
- 3rd High: 20.6 (33.1)
Travel speeds – HS Forward mph (kph)
- 1st Low: 3.3 (5.3)
- 2nd High: 8.9 (14.4)
- 3rd High: 20.6 (33.1)
NOTE: Travel speeds at full engine throttle w/ 365/80 R29 tires.

ELECTRICAL

Voltage: 12 Volts
Alternator: 120 amp
Batteries: 95 AHR, 900 CCA

OPERATOR ENVIRONMENT

Base and Deluxe Cab w/ heater; Key start;
Articulated power steering w/ tilt column;
Full adjustable, cloth suspension seat;
Foot throttle; Single joystick w/ electronic speed shift control F/N/R switch and proportional loader control; Cup holder;
Retractable seat belt; Storage tray on Deluxe Cab; Sun screen – front; Opening side window;
Dome light; Wipers – front and rear; 12-volt auxiliary power; Lighter cigar and ashtray; Pocket cellular phone; Coat hook; External rearview mirrors; Loader control lockout.
Electronic information center
Displays/Gauges:
- Vehicle speed
- Hourmeter
- Floating functionality on
- High flow functionality on
- Clock
- Vehicle directions
- Gear number engaged
- PM Catalyst icons

HYDRAULICS

Pump – steering/implement:
Open-centered pressure/flow compensated
Fixed gear type:
- Standard flow: Max. 22.5 gpm @ 2500 RPM @ 3,626 psi (Max. 85 L/min @ 2500 RPM @ 25 000 kPa)
- Optional high flow: Max. 34.3 gpm @ 2500 RPM @ 2,901 psi (Max. 130 L/min @ 2500 RPM @ 20 000 kPa)
Loader control valve:
- Loader auxiliary steering
- Hydraulic Loader Control w/ single lever includes: Forward/Neutral/Reverse switch, Floating switch, Low/High Travel mode switch, Auxiliary Function Roller
- Load control

OPERATING WEIGHT

Z-Bar: Unit equipped w/ ROPS/FOPS cab w/ heater, standard counterweight, 365/80 R20 Dunlop tires, front and rear fenders, 1.3 yd³ (1.0 m³) general purpose bucket w/ edge, full fuel, 165 lb (75 kg) operator:
13,303 lb (6 034 kg)
Including optional counterweight:
13,633 lb (6 184 kg)

SERVICE CAPACITIES

Hydraulic system:
- Reservoir: 10.6 gal (40.0 L)
- Total: 14.0 gal (53.0 L)

Front and rear axle:
- Front axle: 2.3 gal (8.7 L)
- Rear axle: 2.6 gal (10.0 L)
- Rear axle HS: 2.5 gal (9.5 L)

Engine oil w/ filter:
- 1.8 gal (7.0 L)

Cooling*
- 3.4 gal (13.0 L)
NOTE: *1.72 gal (6.5 L) antifreeze + 1.72 gal (6.5 L) water.

Indicator lights:
- Diff. lock; Main hydraulic enabled; Turn light – left and right; Rear work lamps; Work lamps;
- Main high beam; Side lights; Stop; Warning signal; Rabbit; Hand brake; Brake fluid level; Quick coupler on; Ride Control on; Creep speed; PM Catalyst; Low fuel level; Clogging air filter; Engine oil pressure; Glow plug; Alternator changing.

Audible alarms:
- Caution alarm; Critical alarm; Backup alarm;

Horn

NOTE: If equipped w/ option.
**OTHER SPECIFICATIONS**

Lift cylinders: Two (2)
- Bore diameter: 3.3 in (82.5 mm)
- Rod diameter: 2.0 in (50.0 mm)
- Stroke: 29.6 in (751.0 mm)

Dump cylinder:
- Bore diameter: 3.5 in (88.7 mm)
- Rod diameter: 2.3 in (57.1 mm)
- Stroke: 20.0 in (507.0 mm)

Z-Bar:
- Z-Bar loader linkage
- Single control for lift and tilt
- Positive hold float
- Hydraulic attachment coupler:
  - Skid steer compatible/horizontal pin compatible

**Cycle time:**
- Raise w/ rated bucket load: 5.8 sec
- Dump w/ rated bucket load: 1.7 sec
- Lower – empty: 3.8 sec

**DIMENSIONS**

A. Height to top of ROPS cab: 105.5 in (2680 mm)

B. Wheelbase: 87.6 in (2225 mm)

C. Ground clearance under shaft: 19.4 in (493 mm)

Ground clearance under axles: 14.6 in (370 mm)

D. Angle of departure: 32°

Width:
E. Overall without bucket: 73.2 in (1860 mm)
F. Centerline tread: 59.1 in (1500 mm)

Turning radius – outside: 157.0 in (3987 mm)

Turning angle:
- From center: 40°
- Total angle: 80°

Rear axle oscillation – total: 20°
### PERFORMANCE SPECS

<table>
<thead>
<tr>
<th>321F Z-Bar</th>
<th>1.3 yd³ GP (1.0 m³) GP Bucket with Bolt-on Edge</th>
<th>1.7 yd³ GP (1.3 m³) LM Bucket with Bolt-on Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO bucket capacity – struck Heaped</td>
<td>1.05 yd³ (0.8 m³)</td>
<td>1.44 yd³ (1.1 m³)</td>
</tr>
<tr>
<td>Bucket width – outside</td>
<td>82.7 in (2100 mm)</td>
<td>82.7 in (2100 mm)</td>
</tr>
<tr>
<td>Bucket weight – includes coupler and added components</td>
<td>1,045 lb (474 kg)</td>
<td>1,142 lb (518 kg)</td>
</tr>
<tr>
<td>G. Operating height – fully raised with spillguard</td>
<td>176.0 in (4471 mm)</td>
<td>182.1 in (4626 mm)</td>
</tr>
<tr>
<td>H. Hinge pin height – fully raised</td>
<td>133.7 in (3395 mm)</td>
<td>133.7 in (3395 mm)</td>
</tr>
<tr>
<td>I. Overall length – bucket level on ground</td>
<td>234.3 in (5952 mm)</td>
<td>237.6 in (6036 mm)</td>
</tr>
<tr>
<td>Dump angle – fully raised</td>
<td>45°</td>
<td>47°</td>
</tr>
<tr>
<td>J. Dump height – fully raised, 45° dump</td>
<td>98.1 in (2493 mm)</td>
<td>96.0 in (2438 mm)</td>
</tr>
<tr>
<td>K. Bucket reach – fully raised, 45° dump</td>
<td>39.5 in (1003 mm)</td>
<td>43.1 in (1095 mm)</td>
</tr>
<tr>
<td>L. Bucket reach – 7 ft 0 in (2.13 m) height, 45° dump</td>
<td>53.0 in (1347 mm)</td>
<td>55.0 in (1396 mm)</td>
</tr>
<tr>
<td>M. Dig depth</td>
<td>3.3 in (84 mm)</td>
<td>3.2 in (83 mm)</td>
</tr>
<tr>
<td>Operating load – ISO with optional counterweight</td>
<td>4,096 lb (1858 kg)</td>
<td>4,145 lb (1880 kg)</td>
</tr>
<tr>
<td>Maximum material density – ISO with optional counterweight</td>
<td>3,131 lb/yd³ (1858 kg/m³)</td>
<td>2,437 lb/yd³ (1446 kg/m³)</td>
</tr>
<tr>
<td>Tipping load – ISO:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight</td>
<td>9,740 lb (4418 kg)</td>
<td>9,877 lb (4480 kg)</td>
</tr>
<tr>
<td>Straight with optional counterweight</td>
<td>10,301 lb (4672 kg)</td>
<td>10,255 lb (4652 kg)</td>
</tr>
<tr>
<td>40° turn</td>
<td>8,192 lb (3716 kg)</td>
<td>8,289 lb (3760 kg)</td>
</tr>
<tr>
<td>40° turn with optional counterweight</td>
<td>8,530 lb (3869 kg)</td>
<td>8,632 lb (3916 kg)</td>
</tr>
<tr>
<td>Lift capacity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full height</td>
<td>8,345 lb (3785 kg)</td>
<td>8,249 lb (3742 kg)</td>
</tr>
<tr>
<td>Full height with optional counterweight</td>
<td>8,354 lb (3789 kg)</td>
<td>8,253 lb (3744 kg)</td>
</tr>
<tr>
<td>Maximum reach</td>
<td>10,503 lb (4764 kg)</td>
<td>10,406 lb (4720 kg)</td>
</tr>
<tr>
<td>Ground</td>
<td>13,164 lb (5971 kg)</td>
<td>12,975 lb (5885 kg)</td>
</tr>
<tr>
<td>Ground with optional counterweight</td>
<td>13,163 lb (5970 kg)</td>
<td>12,975 lb (5885 kg)</td>
</tr>
<tr>
<td>Breakout force with tilt cylinder</td>
<td>10,076 lb (4570 kg)</td>
<td>9,021 lb (4092 kg)</td>
</tr>
<tr>
<td>Maximum rollback:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@ Ground</td>
<td>37°</td>
<td>37°</td>
</tr>
<tr>
<td>@ Carry position</td>
<td>44°</td>
<td>44°</td>
</tr>
<tr>
<td>@ Maximum reach</td>
<td>53°</td>
<td>53°</td>
</tr>
<tr>
<td>@ Full height</td>
<td>53°</td>
<td>53°</td>
</tr>
<tr>
<td>Maximum grading angle with bucket – back dragging</td>
<td>65°</td>
<td>66°</td>
</tr>
<tr>
<td>Loader clearance circle with bucket</td>
<td>373.9 in (9496 mm)</td>
<td>376.1 in (9554 mm)</td>
</tr>
</tbody>
</table>

### FORKS

<table>
<thead>
<tr>
<th>321F Z-Bar</th>
<th>321F Z-Bar With Optional Additional Counterweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fork length</td>
<td>47.2 in (1200 mm)</td>
</tr>
<tr>
<td>Fork weight – includes coupler</td>
<td>394 lb (869 kg)</td>
</tr>
<tr>
<td>Operating load – level ground</td>
<td>4,753 lb (2156 kg)</td>
</tr>
<tr>
<td>Tipping load – straight</td>
<td>6,989 lb (3170 kg)</td>
</tr>
<tr>
<td>Tipping load – 40° turn</td>
<td>5,942 lb (2695 kg)</td>
</tr>
<tr>
<td>Fork load center</td>
<td>19.7 in (500 mm)</td>
</tr>
</tbody>
</table>
STANDARD EQUIPMENT

OPERATOR ENVIRONMENT

See page 1

ENGINE

FPT F5H FL463 A*F004
Fuel filter with water trap
Dual element air cleaner

LOADER

See page 2

DRIVETRAIN

4-wheel drive
Open – front and rear axles
Hydrostatic transmission
Single joystick with electronic speed shift
control F/N/R switch and proportional
loader control
Outboard planetary axles
Hydraulic wet disc brakes
Mechanical parking brake

HYDRAULICS

Hydraulic remote control
3-spool loader control valve
3 Diagnostic quick couplers

OTHER

Front and rear fenders
Lights:
  2 Front driving headlights – high/low beam
  2 Rear flood lights
  2 Stop tail lights and backup light
  Front and rear turn signal/flash
  Drawbar pin
  Articulation locking pin
  Tie-down and Lift-up point – front and rear
  Backup alarm
  Wired for radio
  Bucket position indicator

OPTIONAL EQUIPMENT

OPERATOR ENVIRONMENT

Creep speed 0 – 3.1 mph (5 kph)
TeleScop adjustable steering column on Deluxe Cab
Rotating beacon
Limited slip – front and rear axles
100% lock – front and rear axles
Mechanical coupler
Horizontal pin coupler
Air conditioning
Radio ready antenna and speakers

LOADER

Additional auxiliary flow:
Max. 22.5 gpm @ 2500 RPM @ 3,626 psi
(Max. 85 L/min @ 2500 RPM @ 25 000 kPa)
Optional High flow:
Max. 34.3 gpm @ 2500 RPM @ 2,901 psi
(Max. 130 L/min @ 2500 RPM @ 20 000 kPa)

BUCKETS – see performance data:
  General purpose standard
  General purpose light material
  4-IN-1®
STD forks
Tiltable forks
Auto Ride Control
Return to dig

TIRES

405/70 R20 SPT9 L2 DUNL
14.5-20MPT-04 MITAS
365/80 R20 SPT L2(DL) – Standard
365/80 R20 EM MITAS
405/70 R20 EM MITAS

OTHER

Tool box
Counterweight:
  330 lb (150 kg)
  Mounts on rear chassis

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