

WHEEL LOADER

CASE

CONSTRUCTION

SINCE 1842.

W20F

ENGINE

Brand	FPT
Model	F4GE9684T*J601
Type	4 stroke, turbocharged, Mar-I/Tier 3
Cylinders	6
Bore x stroke	104 x 132 mm (4,09 x 5,19in)
Displacement	6,7 L (6.700 cm ³)
Fuel injection	Direct
Fuel	Diesel
Fuel filter	disposable cartridge full flow threadable
Air filter	Dry type elements with warning restriction indicator
Oil Filter	Replaceable cartridge
External radiators with independent assemble	
Radiator	
Core type	9 fins per inch
Rows of tubes	5
Fan – Hydraulic driven	
Type	suction with 8 wings
Diameter	711 mm (28 in)
Water pump	
Type	Integral
Horsepower	
Power @ 2,500 rpm	
Gross (ISO 14396)	152 hp (113 kW)
Net (SAE J1349)	142 hp (106 kW)
Torque	
Maximum torque @ 1,500 rpm	
Gross	556 N.m (56,7 kgf.m)

POWER TRAIN

Transmission	PowerShift type with four gears forward and reverse, controlled by two levers, one for gears and another for reversion. Disconnect the transmission by the brake pedal (DeClutch)	
Torque converter	Simple type, stage integrated into the transmission, with stall ratio 276 Nm at 2,604 rpm.	
Gears ratio	Forward	Reverse
1 st	4,835	4,835
2 nd	2,286	2,286
3 th	1,319	1,319
4 th	0,732	0,732
Axles (front and rear)	External reducers, planetary, with roller pins. Fixed front axle and rear axle with total oscillation of 24° (total)	
Axles	Front	Rear
Differential Ratio	3,22	3,10
Planetary Ratio	6,00	6,23
Final axle ratio	19,33	19,31
Ground speeds – km/h	Forward	Reverse
1 st	6,5	6,5
2 nd	13,4	13,3
3 th	22,6	22,0
4 th	36,7	37,1

ELECTRICAL SYSTEM

Voltage	24 volts
Alternator	70 A
Batteries	(2) 12 V

HYDRAULIC SYSTEM

Pump	Double gear, in tandem, driven by the torque converter
Displacement	181.7 l/min (48 gpm) at 2,550 rpm
Main relief pressure	190 bar (2,755 psi)
Control valve	Open center, parallel series circuit, with magnetic holders
Steering	Hydraulic gear pump, driven by the torque converter
Displacement	87 l/min (23 gpm) at 2,500 rpm
Steering relief pressure	200 bar (2,900 psi)
Filter	Two 10 micron filters with total flow type replaceable element on the return line.
Reservoir	Sealed, pressurized with positive pressure in pump inlet avoiding contamination of oil.

CYLINDERS

Cylinders

Double-acting, with chromed and tempered rods, to increase strength and prevent corrosion

Lifting cylinder [2]

Cylinder bore	127.0 mm (5.0 in)
Rod diameter	63.5 mm (2.5 in)
Stroke	764.7 mm (30.1 in)

Unload cylinder [2]

Cylinder bore	101.6 mm (4.0 in)
Rod diameter	50.8 mm (2.0 in)
Stroke	720.0 mm (28.3 in)

Steering cylinder [2]

Cylinder bore	76.2 mm (3 in)
Rod diameter	38.1 mm (1.5 in)
Stroke	381.0 mm (15 in)

INSTRUMENTS

Indicators/gauges

Tachometer

Selected steering F/N/R

Engine cooling temperature

Engine oil pressure

Fuel level

Transmission oil temperature

Battery charge indicator

Hourmeter

Rotating light*

Work lights

Brake pressure

Air conditioning

Restriction indicator for:

Hydraulic oil filter

Air filter

Audible alerts for vital functions

Rear alert

Horn

*Optional

OPERATOR COMPARTMENT

ROPS/FOPS Cab

In according with ISO 3471, 3449

Air conditioner

Auxiliary front headlights

Two-speed front windshield wiper

Timer and water jet

Height and load adjustable fabric seat, with mechanical suspension and reclining

Armrest

Seat belt

2 control levers

Hydraulic power steering

Steering column

Steering wheel spinner knob

External rearview mirrors

Gear key F/N/R

LOADER

Two control levers, one to raise and lower the arm and another to step back and unload the bucket

Automatic height control

Disconnecting the transmission on the brake pedal (DeClutch)

CYCLE TIMES

Hydraulic system cycles, bucket with nominal load:

Raise bucket with nominal load	6,2 s
Unload bucket with nominal load	1,9 s
Descent	
With power	4,9 s
Flotation	5,7 s
Total	13,0 s

SERVICE CAPACITY

Fuel tank	173 L
Engine crankcase	14,5 L
Engine crankcase and filter	15,3 L
Cooling system	25 L
Windshield washer reservoir	1,5 L
Transmission	28 L
Hydraulic reservoir	75 L
Total hydraulic system	131 L
Total/Axle	21,1 L

OPERATING WEIGHT

Unit equipped with ROPS / FOPS cab with heater and air conditioning, counterweight, 17.5 x 25 16 ply L3 tires, 1.9 m³ (2.5 yd³) multipurpose bucket with teeth, fuel tank full and 80 kg operator's weight. 10.050 kg (22.156 lb)

BRAKES

Hydraulic wet discs brakes, on the four wheels, providing greater braking efficiency and greater durability, even in highly corrosive and abrasive environments

Front brake circuit independent of rear brake

Mechanical parking brake on transmission output shaft

The warning light on the panel indicates when the parking brake is applied.

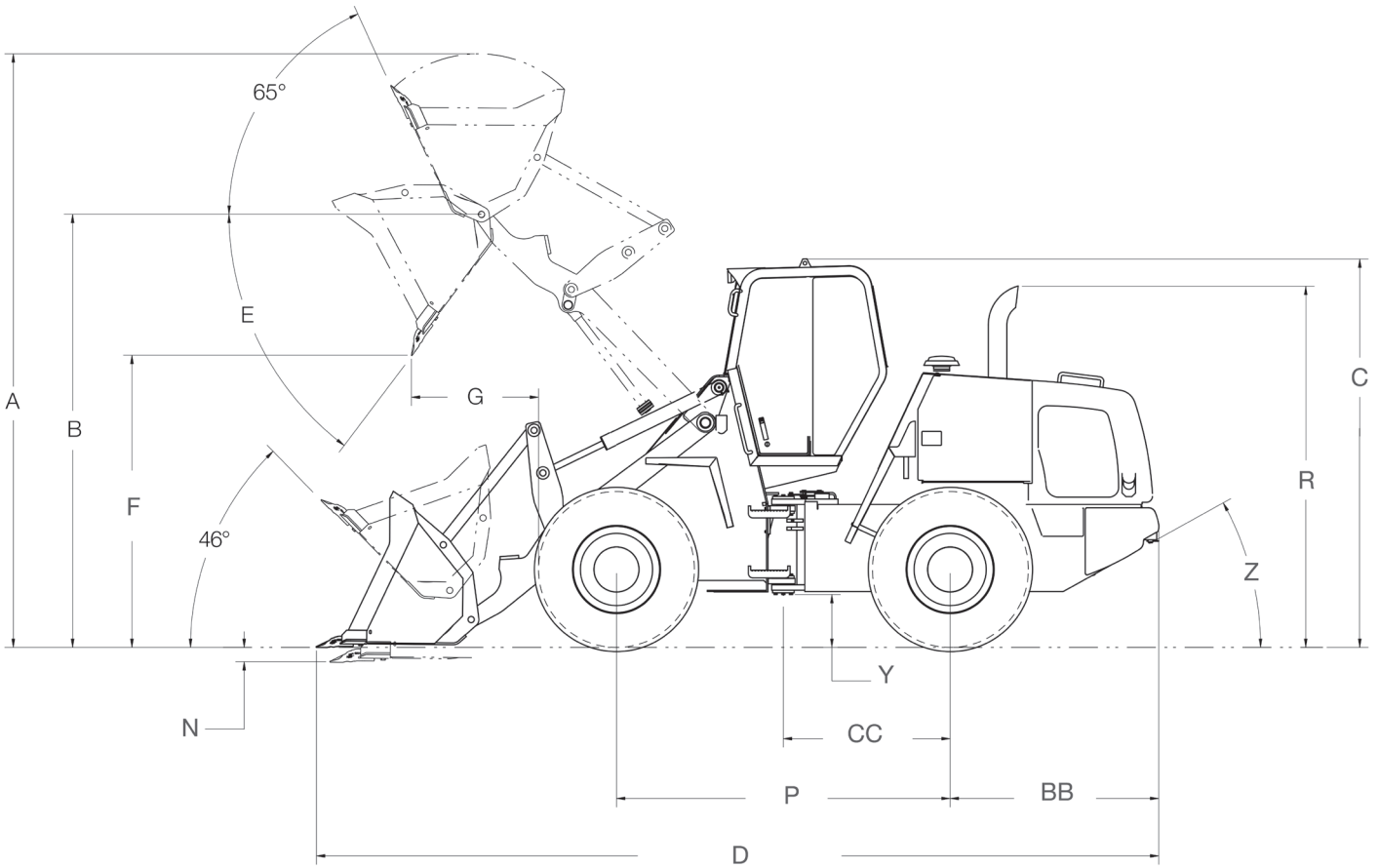
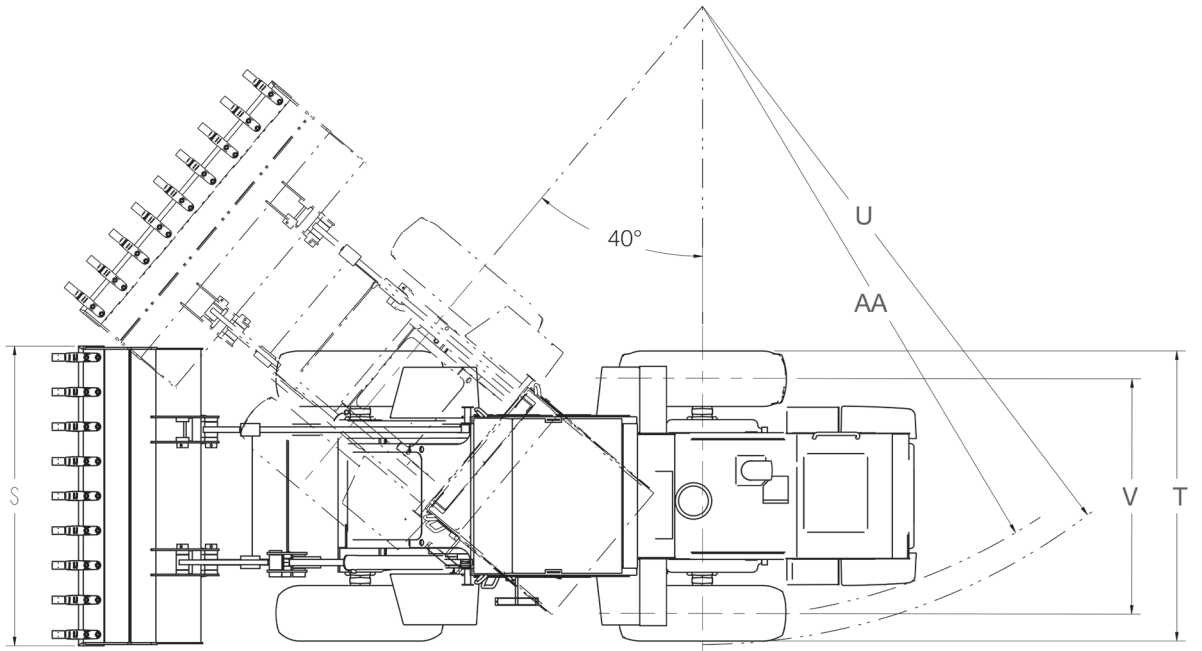
STEERING

Hydraulic power steering, center pivot articulated steering - front and rear wheels always track.

Articulation angle (each side) 40°

The steering orbitrol provides 3.5 turns lock to lock steering

OPERATING DIMENSIONS - WITH TIRES



PERFORMANCE DATA

W20F	Bucket 1,7 m ³ (2,25 yd ³) XT Lift Arm Pin-On with Teeth	Bucket 1,91 m ³ (2,5 yd ³) XT Lift Arm Pin-On with Teeth	Bucket 2,3 m ³ (3,0 yd ³) Pin-On with Teeth
C. Overall height - Top of cab	3.204 mm (126.1 in)	3.204 mm (126.1 in)	3.204 mm (126.1 in)
R. Overall height - Top of exhaust	2.974 mm (117.1 in)	2.974 mm (117.1 in)	2.974 mm (117.1 in)
P. Wheelbase	2.743 mm (108.0 in)	2.743 mm (108.0 in)	2.743 mm (108.0 in)
Y. Ground clearance	439 mm (17.3 in)	439 mm (17.3 in)	439 mm (17.3 in)
Z. Rear departure angle	30°	30°	30°
T. Overall width - Exclusive of buckets	2.360 mm (92.9 in)	2.360 mm (92.9 in)	2.360 mm (92.9 in)
V. Tread width	1.880 mm (74.0 in)	1.880 mm (74.0 in)	1.880 mm (74.0 in)
AA. Turning radius (outside of counterweight)	4.453 mm (175.3 in)	4.453 mm (175.3 in)	4.453 mm (175.3 in)
Rear Axle Oscillation	24°	24°	24°
Bucket capacity - struck (SAE)	1,42 m ³ (1,85 yd ³)	1,60 m ³ (2,09 yd ³)	1,90 m ³ (2,48 yd ³)
Heaped	1,72 m ³ (2,25 yd ³)	1,91 m ³ (2,50 yd ³)	2,30 m ³ (3,00 yd ³)
S. Bucket width	2.472 mm (97.3 in)	2.403 mm (94.6 in)	2.403 mm (94.6 in)
Weight of bucket	727 kg	818 kg	901 kg
A. Operating height	4.676 mm (184.1 in)	4.795 mm (188.8 in)	4.879 mm (192.1 in)
B. Height to hinge pin totally raised	3.561 mm (140.2 in)	3.561 mm (140.2 in)	3.561 mm (140.2 in)
D. Total length	6.938 mm (273.1 in)	6.928 mm (272.8 in)	7.025 mm (276.6 in)
E. Dump angle - fully raised	59°	54°	54°
F. Dump Height at max. dump Angle - Full height	2.384 mm (93.9 in)	2.392 mm (94.2 in)	2.314 mm (91.1 in)
G. Bucket reach at max. dump angle - Full height	994 mm (39.1 in)	988 mm (38.9 in)	1.045 mm (41.1 in)
Operating Load	3.008 kg	3.054 kg	2.992 kg
Maximum material density	1.749 kg/m ³	1.599 kg/m ³	1.301 kg/m ³
Tipping Load - Straight	7.422 kg	7.551 kg	7.420 kg
Tipping Load - Articulated at 40°	6.016 kg	6.108 kg	5.984 kg
Tipping Load - Articulated at 35°	6.202 kg	6.291 kg	6.169 kg
Hydraulic lift capacity at full height	5.468 kg	5.468 kg	5.392 kg
Breakout force w/ tilt cylinder	8.064 kg	8.126 kg	7.309 kg
L. Maximum rollback at carry position	46°	46°	46°
M. Maximum rollback at full height	65°	65°	65°
N. Digging Depth	97 mm (3.8 in)	97 mm (3.8 in)	97 mm (3.8 in)
U. Turning radius (outside of tires)	4.948 mm (194.8 in)	4.948 mm (194.8 in)	4.948 mm (194.8 in)
BB. Rear axle to counterweight	1.713 mm (67.4 in)	1.713 mm (67.4 in)	1.713 mm (67.4 in)
CC. Articulation chassis to rear axle	1.371,5 mm (54.0 in)	1.371,5 mm (54.0 in)	1.371,5 mm (54.0 in)
Breakout force	6.950 kg	6.922 kg	6.544 kg
Unit operating mass	9.959 kg	10.050 kg	10.133 kg

NOTE: Performance data from unit equipped with 17.5 x 25 16PR L3 tires, ROPS/FOPS cab with air conditioning, full fuel tank and 80 kg (175 lb) operator.

STANDARD EQUIPMENT

OPERATOR COMPARTMENT

Refer to page 2

Engine

FPT MAR-I (Tier 3)
Turbocharged, diesel
Automatic adjustment of the alternator belt
Integral engine oil cooling
Hydraulic driven fan
Fuel filter with water separator
Air filter with two elements
Alternator 70 A
(2) batteries 12 V

Loader

XT lifting arm
Two lever control for lifting and unloading
Automatic height control
Bucket position indicator

POWER TRAIN

4 wheel drive
Manual PowerShift 4F / 4R transmission
Torque converter
Front and rear Heavy Duty axles
Limited slip differential
Hydraulic disconnecting of the transmission (DeClutch)
External final reducers
Oil-immersed hydraulic brake discs
Manually operated parking brake (cable)
Transmission oil cooler

Hydraulic system

Orbitrol type steering
Full flow oil cooler
2 levers with:
 Height control
 Dig return
Quick diagnostic couplings

Others

2 headlights (high beam / low beam)
2 front and rear working headlights
2 reverse lights and brake lights
Counterweight
Horn
Reverse gear alarm
Muffler
Trailer pin
Front and rear fenders
Joint locking bar

Tires

17,5 x 25 16 lining L3 three pieces - 14 "Rim

Note: The configuration of standard equipment may vary according to the industry.

OPTIONAL EQUIPMENT

Special versions

Version for corrosive environments:

- Parts with chamfered corners and special paint to protect against corrosive environments
 - Application of special varnish to the entire machine surface for extra protection
 - Bucket designed for handling fertilizer (2.3 m³)
 - Special protection for electrical terminals
 - Tubes with extra surface treatment, for greater durability
- Automatic adjustment of the belt
70 A alternator
(2) 12V batteries
Double element air filter
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TIRES

17,5 x 25 12 lining L2 one piece - 14" Rim
17,5 x 25 16 lining L3 one piece - 14 "Rim

Others

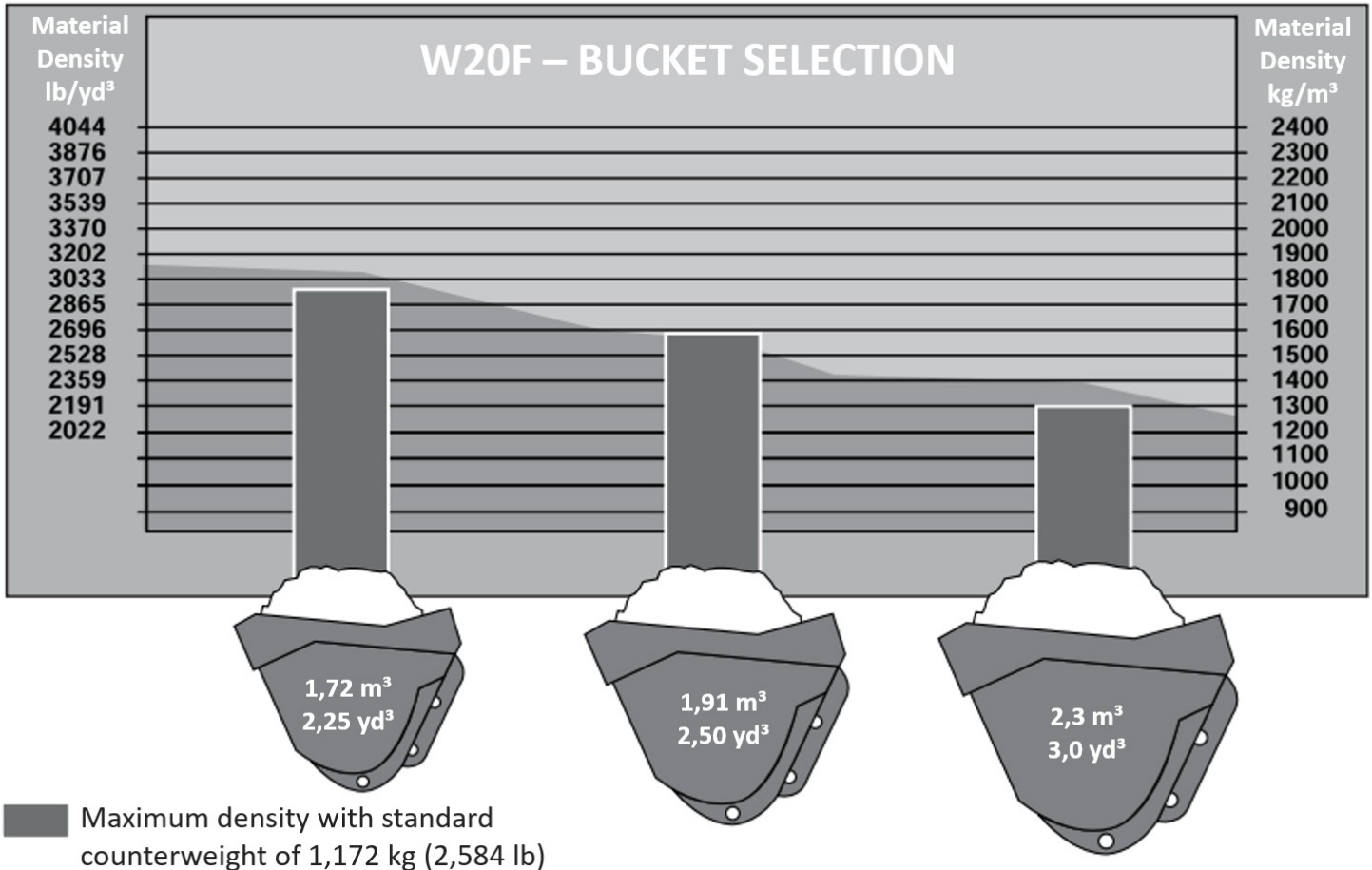
Joystick
Third hydraulic function (3 levers)
Air filter Heavy Duty
Tool box
Telemetry
Rotating beacon
Reversing hydraulic fan
Buckets (see Bucket Selection section)
Buckets with teeth and bolted edge
Satellite monitoring

SELECTION OF BUCKETS

The graph is oriented in terms of bucket sizing based on density of materials and average working conditions. Additional factors such as tires, counterweight, terrain, climate and options, must be considered when choosing the bucket.

To select the ideal bucket size:

- 1 - Determine the density of the material to handle using the Material Density Table below.
- 2 - Find the density in the column (American or metric system) near the illustration of Bucket Selection from corresponding model.
- 3 - Follow the density along your horizontal line to find which bucket(s) can be used for that material density.



MATERIALS DENSITY

Material	Density
Calcium carbonate	1.250 kg/m³
Clay	
Natural	1.600 kg/m³
Dry	1.480 kg/m³
Wet	1.660 kg/m³
With gravel, dry	1.420 kg/m³
With gravel, wet	1.540 kg/m³
Coal	
Anthracite, crushed	1.100 kg/m³
Bituminous, crushed	830 kg/m³
Granite, crushed	1.660 kg/m³
Schist	1.250 kg/m³
Slag, in pieces	1.750 kg/m³

Material	Density
Gravel	
Dry	1.510 kg/m³
Gravel	1.930 kg/m³
Dry, from ½" to 2"	1.690 kg/m³
Wet, from ½" to 2"	2.020 kg/m³
Crushed limestone	1.540 kg/m³
Sand	
Dry	1.420 kg/m³
Dry, from ½" to 2"	1.840 kg/m³
With gravel, dry	1.720 kg/m³
With gravel, wet	2.020 kg/m³
Sandstone, in pieces	1.250 kg/m³
Crushed stone	1.600 kg/m³



CASE reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold. The specifications, descriptions and illustrative material contained herein correctly reflect the data known at the time of publication, but may vary from region to region and are subject to change without notice. The illustrations may include optional equipment and accessories and may not include all standard equipment.

CCEIO130 – 03/2022 – Printed in Brazil

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