



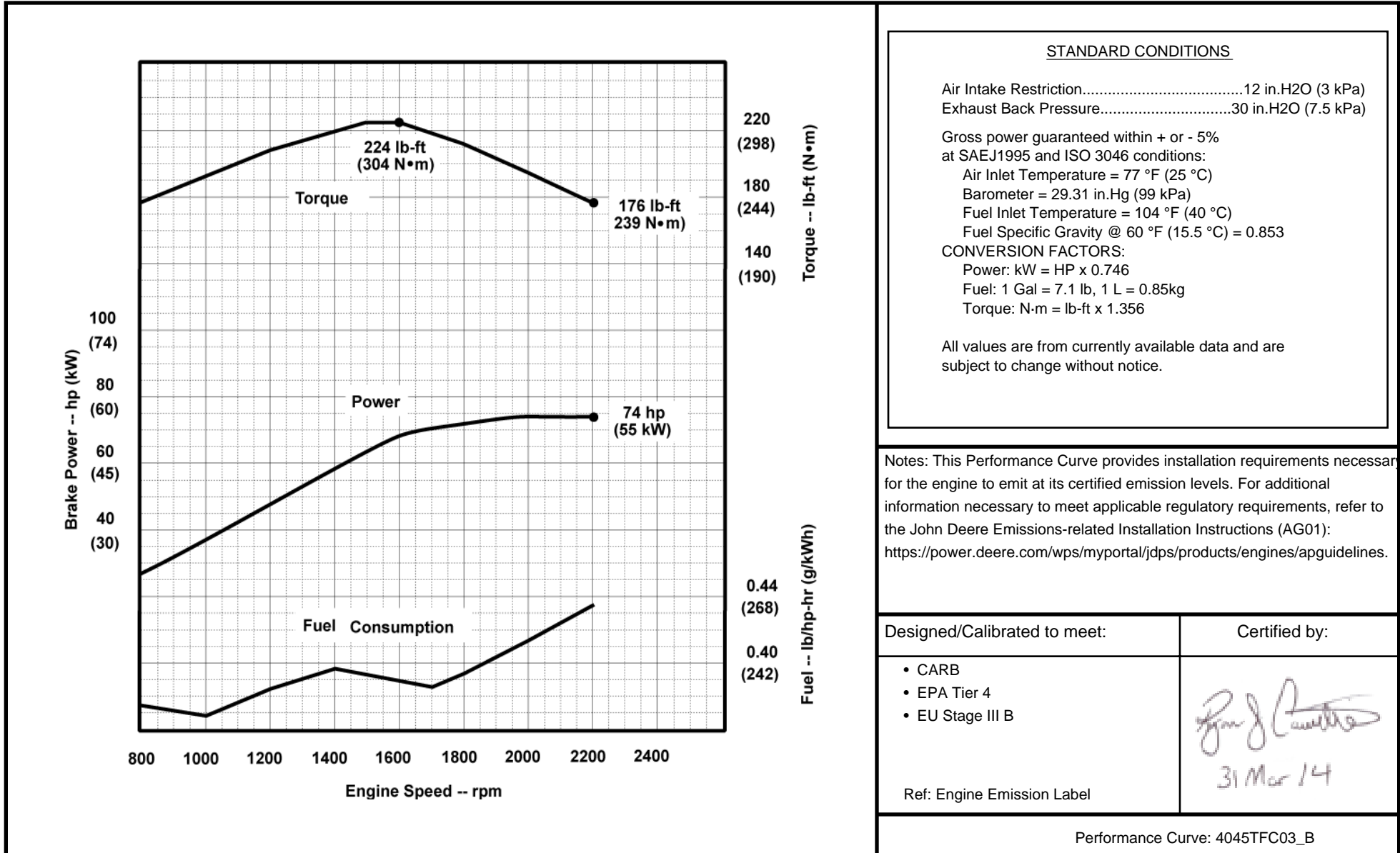
JOHN DEERE

# ENGINE PERFORMANCE CURVE

Rating: Gross Power  
Application: Continuous  
Power Bulge - 0%  
Torque Rise - 27%

PowerTech™ EWX 4.5L Engine  
Model: 4045TFC03

74 hp @ 2200 rpm  
55 kW @ 2200 rpm



## Engine Installation Criteria

### General Data

Model	4045TFC03	
Number of Cylinders	4	
Bore	106 mm	4.2 in.
Stroke	127 mm	5.0 in.
Displacement	4.5 L	275 in. <sup>3</sup>
Compression Ratio	19.0 : 1	
Valves per Cylinder, Intake/Exhaust	1 / 1	
Firing Order	1-3-4-2	
Combustion System	Direct Injection	
Engine Type	In-line, 4-cycle	
Aspiration	Turbocharged	
Engine Crankcase Vent System	Open	

### Physical Data

Length	870 mm	34.3 in.
Width	720 mm	28.3 in.
Height	960 mm	37.8 in.
Center of Gravity Location, X-axis From Rear Face of Block	265 mm	10.4 in.
Center of Gravity Location, Y-axis Right of Crankshaft	10 mm	0.4 in.
Center of Gravity Location, Z-axis Above Crankshaft	110 mm	4.3 in.
Max. Bending Moment about Main Bearings Front and Rear	480 N·m	354 lb-ft
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 N·m	600 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	4000 N	899 lb
Thrust Bearing Load Limit Forward, Continuous	2200 N	495 lb
Thrust Bearing Load Limit Rearward, Intermittent	2000 N	450 lb
Thrust Bearing Load Limit Rearward, Continuous	1000 N	225 lb
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	510 kg	1124 lb
Max. Continuous Damper Temp	NA	
Max. ECU Vibration, All Axis	9.00 gRMS	
Max. Torsional Vibration, Front of Crank	0.25 DDA	
Max. Engine Torsional Vibration in Overspeed	0.40 DDA	

### Electrical System

Min. Instantaneous Cranking	50 rpm	
Min. Steady State Cranking	120 rpm	
Starter Rolling Current, 12V @32 °F (0 °C)	450 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	250 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	700 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	400 amps	
Min. Voltage at ECU during Cranking, 12V	6 volts	
Min. Voltage at ECU during Cranking, 24V	10 volts	
Max. Voltage Drop, Battery to Starter	0.8 volts	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. ECU Temperature	105 °C	221 °F
Max. VTG Actuator Surface Temp	NA	
Max. Air Throttle Electrical Actuator Temperature	NA	
Max. Harness Temperature	125 °C	257 °F
Max. Alternator Temperature	105 °C	221 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

### Cooling System

Engine Heat Rejection	43 kW	2448 BTU/min
Coolant Flow @10 kPa External Restriction	207 L/min	55 gal/min
Coolant Flow @40 kPa External Restriction	NA	
Max. Auxiliary Coolant Flow	NA	
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	95 °C	203 °F
Engine Coolant Capacity	8.5 Liter	9.0 quart
Min. Coolant Fill Rate	11 L/min	2.9 gal/min
Max. Water Pump Inlet Pressure	NA	
Min. Pump Inlet Pressure @203°F (95°C) Coolant	103 kPaa	15 psia
Min. Pump Inlet Pressure @Max. Top Tank Temperature	165 kPaa	24 psia
Max. External Coolant Restriction	NA	
Max. Top Tank Temperature	113 °C	235 °F
Max. Top Tank Temperature 95% of Operating Hours	103 °C	217 °F

Performance Curve: 4045TFC03\_B

## Engine Installation Criteria

### Exhaust System

Exhaust Flow	15.0 m <sup>3</sup> /min	530 ft. <sup>3</sup> /min
Exhaust Temperature	580 °C	1076 °F
Max. Allowable Exhaust Restriction	17 kPa	68 in. H <sub>2</sub> O
Max. Bending Moment on Turbo Outlet	7.4 N-m	5.5 lb-ft
Max. Shear on Turbine Outlet	2.5 kg	6 lb
Exhaust Filter Size	2; Gen 1.0	
Exhaust Filter Pressure Drop (Clean)	6.4 kPa	26 in. H <sub>2</sub> O
Min. Mixing Length, Outlet to Exhaust Filter	NA	
Max. Bending Moment on Exhaust Filter Inlet	25 N-m	18 lb-ft
Max. Bending Moment on Exhaust Filter Outlet	25 N-m	18 lb-ft
Max. Exhaust Leakage Rate, Engine to Exhaust Filter @30kPa	5 L/min	1.3 gal/min
Max. Temperature Drop, Engine to Exhaust Filter	30 Δ°C	54 Δ°F

### Fuel System

ECU Description	L23 Controller	
Fuel Injection Pump	Denso HP3	
Governor Type	Electronic	
Total Fuel Flow	35.2 kg/hr	78 lb/hr
Fuel Consumption	14.6 kg/hr	32.2 lb/hr
Fuel Temperature Rise, Inlet to Return	47 Δ°C	85 Δ°F
Min. Fuel Inlet Pressure	-30 kPa	-120 in. H <sub>2</sub> O
Max. Fuel Return Pressure	20 kPa	80 in. H <sub>2</sub> O
Min. Fuel Return Pressure	0 kPa	0 in. H <sub>2</sub> O
Max. Fuel Inlet Temperature	75 °C	167 °F
Fuel Filter @98% Efficiency	4 mic	

### Lubrication System

Oil Pressure at Rated Speed	340 kPa	49 psi
Oil Pressure at Low Idle	230 kPa	33 psi
Max. In-Pan Oil Temperature	138 °C	280 °F
Max. Crankcase Pressure	0.5 kPa	2 in. H <sub>2</sub> O

### Air Intake System

Engine Air Flow	6.5 m <sup>3</sup> /min	230 ft. <sup>3</sup> /min
Air Mass Flow	387 kg/hr	853 lb/hr
Intake Manifold Pressure	42 kPa	6.1 psi
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.75 kPa	15.0 in. H <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H <sub>2</sub> O
Air Cleaner Efficiency	99.9 %	

### Performance Data

Rated Power	55 kW	74 HP
Rated Speed	2200 rpm	
Max. Fast Idle Speed	2400 rpm	
Breakaway Speed	2250 rpm	
Power Bulge Speed	NA	
Peak Torque Speed	1600 rpm	
Low Idle Speed	800 rpm	
Rated Torque	239 N-m	176 lb-ft
Peak Torque	304 N-m	224 lb-ft
Torque Rise	27 %	
BMEP, Rated	668 kPa	97 psi
BMEP, Peak Torque	853 kPa	124 psi
Altitude Capability	1676 m	5500 ft
Friction Power @Rated Speed	19 kW	25 HP
Air:Fuel Ratio	25.5 : 1	
Noise @1 m	89.9 dB(A)	
Power Bulge	0 %	

Performance Curve: 4045TFC03\_B

## Engine Installation Criteria

Engine Speed	Power		Torque		BSFC	
	rpm	kW	hp	N-M	lb-ft	g/kWh
2200	55	74	239	176	265	0.435
2100	55	74	250	184	258	0.423
2000	55	74	263	194	252	0.413
1900	55	74	276	204	248	0.407
1800	54	72	288	212	240	0.394
1700	53	71	298	220	236	0.387
1600	51	68	304	224	238	0.390
1500	48	64	304	224	239	0.392
1400	44	59	299	221	242	0.397
1300	40	54	292	215	235	0.385
1200	36	48	283	209	235	0.385
1100	31	42	272	201	233	0.382
1000	27	36	262	193	225	0.369
900	24	32	252	186	228	0.374
800	20	27	240	177	228	0.374

Performance Curve: 4045TFC03\_B