

Protector™ Series

Diesel Generator Set

INCLUDES:

- Two Line LCD Multilingual Digital Evolution™ Controller (English/Spanish/French/Portuguese) with external viewing window for easy indication of generator status and breaker position.
- Isochronous Electronic Governor
- Sound Attenuated Aluminum Enclosure
- Smart Battery Charger
- UV / Ozone Resistant Hoses
- $\pm 1\%$ Voltage Regulation
- Five Year Limited Warranty

Not for sale in US/CA

Standby Power Rating

Model RD012 - 12 kVA 50 Hz
Model RD016 - 16 kVA 50 Hz
Model RD024 - 30 kVA 50 Hz
Model RD040 - 50 kVA 50 Hz



QUIET-TEST™



*Assembled in the USA using domestic and foreign parts

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
 - ✓ PROTOTYPE TESTED
 - ✓ SYSTEM TORSIONAL TESTED
 - ✓ NEMA MG1-22 EVALUATION
 - ✓ MOTOR STARTING ABILITY
- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION:** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine. Digital voltage regulation at $\pm 1\%$.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component.
- **GENERAC TRANSFER SWITCHES:** Long life and reliability are synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems and controls for total system compatibility.

12 • 16 • 30 • 50 kVA**GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H (12 & 16 kVA) or F (30 & 50 kVA)
Stator Insulation Class	H
Telephone Interference Factor (TIF)	< 50
Alternator Output Leads 1-Phase	Three wire
Alternator Output Leads 3-Phase	Six wire
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Excitation System	Direct

VOLTAGE REGULATION

Type	Electronic
Sensing	Single Phase
Regulation	± 1%
Features	Adjustable Voltage & Gain

GOVERNOR SPECIFICATIONS

Type	Electronic Isochronous
Steady State Regulation	± 0.25%

ELECTRICAL SYSTEM

Battery Charge Alternator	50 Amp (12 & 16 kVA), 65 Amp (30 kVA), 70 Amp (50 kVA)
Static Battery Charger	2 Amp
Recommended Battery (battery not included)	Group 27F, 700 CCA Group 31, 925 CCA batteries can also be used with 30kVA units
System Voltage	12 Volts

ALTERNATOR SPECIFICATIONS

Revolving field heavy duty generator Directly connected to the engine Operating temperature rise 120 °C (248 °F) above a 40 °C (104 °F) ambient Class H insulation is NEMA rated Class F insulation is NEMA rated All models fully prototype tested	
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ENCLOSURE FEATURES

Aluminum weather protective enclosure	Ensures protection against mother nature. Electrostatically applied textured epoxy paint for added durability.
Enclosed critical grade muffler	Quiet, critical grade muffler is mounted inside the unit to prevent injuries and maximize sound dampening.
Small, compact, attractive	Makes for an easy, eye appealing installation.
SAE	Sound attenuated enclosure ensures quiet operation.

ENGINE SPECIFICATIONS: 12 & 16 kVA

Make	Mitsubishi
Model	In-line
Cylinders	4
Displacement (Liters)	2.505
Bore (mm / in)	88 / 3.46
Stroke (mm / in)	103 / 4.06
Compression Ratio	22:1
Intake Air System	Naturally Aspirated
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum

ENGINE SPECIFICATIONS: 30 kVA

Make	Perkins
Model	In-line
Cylinders	4
Displacement (Liters)	2.216
Bore (mm / in)	84 / 3.30
Stroke (mm / in)	100 / 3.94
Compression Ratio	23.3:1
Intake Air System	Turbocharged / Aftercooled
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum

ENGINE SPECIFICATIONS: 50 kVA

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	3.4
Bore (mm / in)	98 / 3.86
Stroke (mm / in)	113 / 4.45
Compression Ratio	18.5:1
Intake Air System	Turbocharged / Aftercooled
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum

ENGINE LUBRICATION SYSTEM

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on canister
Crankcase Capacity (liters / quarts)	6.5 / 6.87 – 12 & 16 kVA 10.6 / 11.2 – 30 kVA 7 / 7.4 – 50 kVA

ENGINE COOLING SYSTEM

Water Pump	Pre-lubed, self-seating
Fan Speed (rpm)	1980 – 12 & 16 kVA 1650 – 30 kVA 1700 – 50 kVA
Fan Diameter (mm / in)	460 / 18.11 (12 & 16 kVA) 457.2 / 18 (30 kVA) 559 / 22 (50 kVA)
Fan Mode	Pusher

FUEL SYSTEM

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Pump Type	Mechanical Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line (mm / in)	7.94 / 0.31 (ID)
Fuel Return Line (mm / in)	N/A – 12 & 16 kVA 4.76 / 0.19 (ID) – 30 kVA 7.94 / 0.31 (ID) – 50 kVA
Fuel Specification	ASTM
Fuel Filtering (microns)	6 – 12 & 16 kVA 25 – 30 kVA 10 – 50 kVA

TANK SPECIFICATIONS

Total Size (liters/gallons)	170.3 / 45 – 12 & 16 kVA 257.4 / 68 – 30 & 50 kVA
Usable Size (liters/gallons)	151.4 / 40 – 12 & 16 kVA 230.9 / 61 – 30 & 50 kVA
Run Time @ 1/2 Load (hrs)	38.1 – 12 kVA 38.8 – 16 kVA 44.5 – 30 kVA 26.5 – 50 kVA

WEIGHTS AND DIMENSIONS

Model	Weight (kg / lb)	Dimensions (L x W x H) (cm / in)
12 kVA	622 / 1372	158 x 78 x 124 / 62 x 31 x 49
16 kVA	622 / 1372	158 x 78 x 124 / 62 x 31 x 49
30 kVA	783 / 1726	195 x 89 x 147 / 77 x 35 x 57
50 kVA	886 / 1953	195 x 89 x 141 / 77 x 35 x 55

12 • 16 • 30 • 50 kVA**application and engineering data****GENERATOR OUTPUT VOLTAGE / KVA - 50 HZ**

		kVA (standby)	Amp (standby)	kVA (Prime)	Amp (Prime)	CB Size
RD012	110/220 V, 1Ø, 1.0 pf	12	55	9.6	44	60
RD016	110/220 V, 1Ø, 1.0 pf	16	73	12.8	58	80
RD024	110/220 V, 1Ø, 1.0 pf	24	109	19.2	87	125
	231/400 V, 3Ø, 0.8 pf	30	43	19.2	35	50
RD040	110/220 V, 1Ø, 1.0 pf	40	182	32	146	200
	231/400 V, 3Ø, 0.8 pf	50	72	32	58	80

SURGE CAPACITY IN AMPS

		Voltage Dip @ < 0.4 pf	
		15%	30%
RD012	120/240 V, 1Ø	53	129
	120/208 V, 3Ø	37	90
	120/240 V, 3Ø	32	78
RD016	120/240 V, 1Ø	87	211
	120/208 V, 3Ø	59	143
	120/240 V, 3Ø	51	124
RD024	120/240 V, 1Ø	66	168
	120/208 V, 3Ø	59	144
	120/240 V, 3Ø	51	125
	277/480 V, 3Ø	26	64
RD040	120/240 V, 1Ø	69	189
	120/208 V, 3Ø	90	218
	120/240 V, 3Ø	78	189
	277/480 V, 3Ø	36	87

ENGINE FUEL CONSUMPTION

		L/hr	gal/hr
RD012	25% of rated load	2.27	0.60
	50% of rated load	3.22	0.85
	75% of rated load	4.16	1.10
	100% of rated load	5.53	1.46
RD016	25% of rated load	2.9	0.77
	50% of rated load	3.90	1.03
	75% of rated load	5.53	1.46
	100% of rated load	7.46	1.97
RD024	25% of rated load	3.67	0.97
	50% of rated load	5.19	1.37
	75% of rated load	7.46	1.97
	100% of rated load	10.49	2.77
RD040	25% of rated load	4.6	1.22
	50% of rated load	7.33	1.94
	75% of rated load	10.42	2.75
	100% of rated load	13.56	3.58

ENGINE COOLING

	12 kVA	16 kVA	30 kVA	50 kVA
Air flow (inlet air including alternator and combustion air in cfm/cmm)	2353 / 67	2353 / 67	2530 / 72	2353 / 67
System coolant capacity (liters/gal)	11.4 / 3.0	11.4 / 3.0	9.5 / 2.5	10.6 / 2.8
Heat rejection to coolant (BTU per hr/MJ per hr)	95,220 / 100.5	95,220 / 100.5	128,638 / 135.7	109,000 / 115
Maximum operation air temperature on radiator (°C / °F)	50 / 122			
Maximum ambient temperature (°C / °F)	50 / 122			

COMBUSTION REQUIREMENTS

Flow at rated power (cmm / cfm)	2.4 / 86.3	2.4 / 86.3	2.5 / 88	3.53 / 124
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SOUND EMISSIONS

Sound output in dB(A) at 7 m (23 ft) with generator in exercise mode*	65
Sound output in dB(A) at 7 m (23 ft) with generator operating at normal load*	70

EXHAUST

Exhaust flow at rated output (cmm/cfm)	2.8 / 98.88	2.8 / 98.88	8.4 / 296.6	7.36 / 260
Exhaust temperature at rated output (°C / °F)	482 / 900	482 / 900	499 / 930	554 / 1030

ENGINE PARAMETERS

Rated Synchronous RPM	1500			
HP at rated kVA	29.5	29.5	40.9	63

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

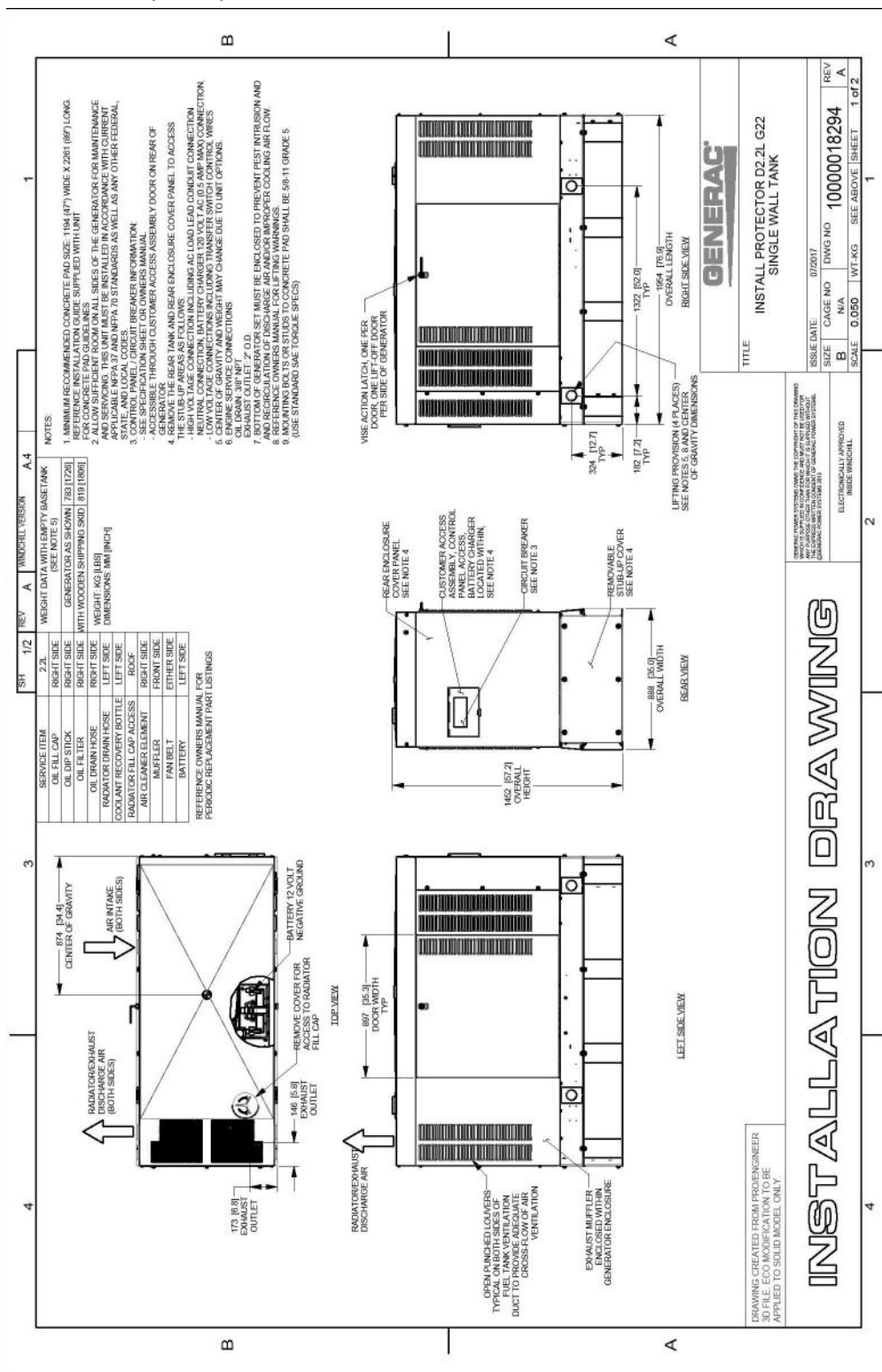
Temperature Deration	3% for every 5 °C above 25 °C or 1.7% for every 5 °F above 77 °F
Altitude Deration (12, 30, and 50 kVA)	1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft
Altitude Deration (16 kVA)	1% for every 100 m above 305 m or 3% for every 1000 ft above 1000 ft

CONTROLLER FEATURES

2-Line Plain Text Multilingual LCD Display	Simple user interface for ease of operation.
Mode Buttons: Auto	Automatic Start on Utility failure. Programmable 7 day exerciser.
Manual	Start with starter control, unit stays on. If utility fails, transfer to load takes place.
Off	Stops unit. Power is removed. Control and charger still operate.
Ready to Run/Maintenance Message	Standard
Engine Run Hours Indication	Standard
Programmable start delay between 2-1500 seconds	Standard (programmable by dealer only)
Utility Voltage Loss/Return to Utility Adjustable	From 140-171 V / 190-216 V
Future Set Capable Exerciser/Exercise Set Error Warning	Standard
Run/Alarm/Maintenance Logs	50 Events Each
Engine Start Sequence	Cyclic cranking: 16 sec on, 7 rest (90 sec maximum duration)
Starter Lock-out	Starter cannot re-engage until 5 seconds after engine has stopped.
Smart Battery Charger	Standard
Charger Fault/Missing AC Warning	Standard
Low Battery/Battery Problem Protection and Battery Condition Indication	Standard
Automatic Voltage Regulation with Over and Under Voltage Protection	Standard
Under-Frequency/Overload/Stepper Overcurrent Protection	Standard
Safety Fused/Fuse Problem Protection	Standard
Automatic Low Oil Pressure/High Oil Temperature Shutdown	Standard
Overcrank/Overspeed (@ 72 Hz)/RPM Sense Loss Shutdown	Standard
High Engine Temperature Shutdown	Standard
Internal Fault/Incorrect Wiring Protection	Standard
Common External Fault Capability	Standard
Field Upgradeable Firmware	Standard

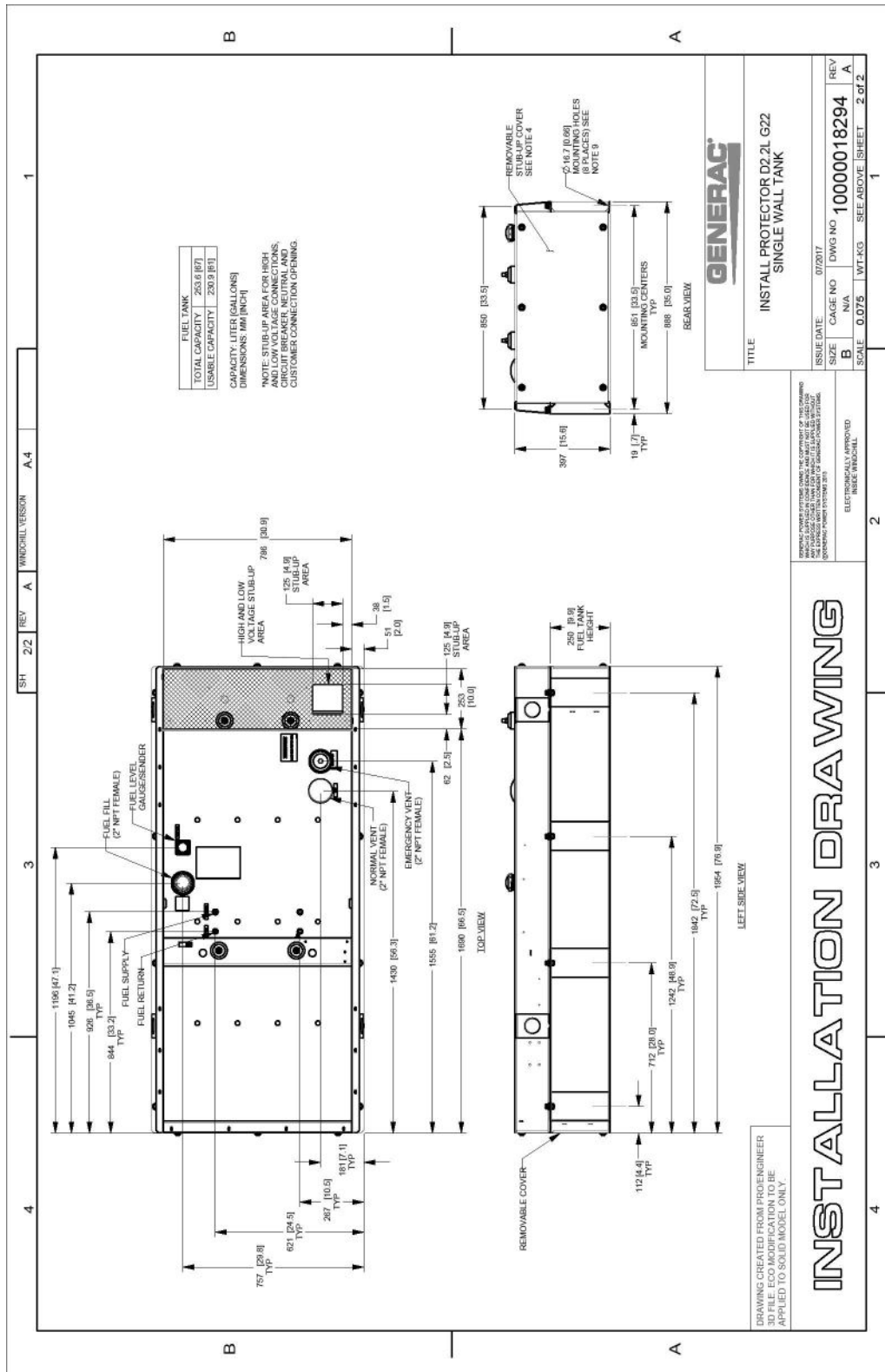
12 • 16 • 30 • 50 kVA

D2.2L G22 Single Wall (1 of 2)



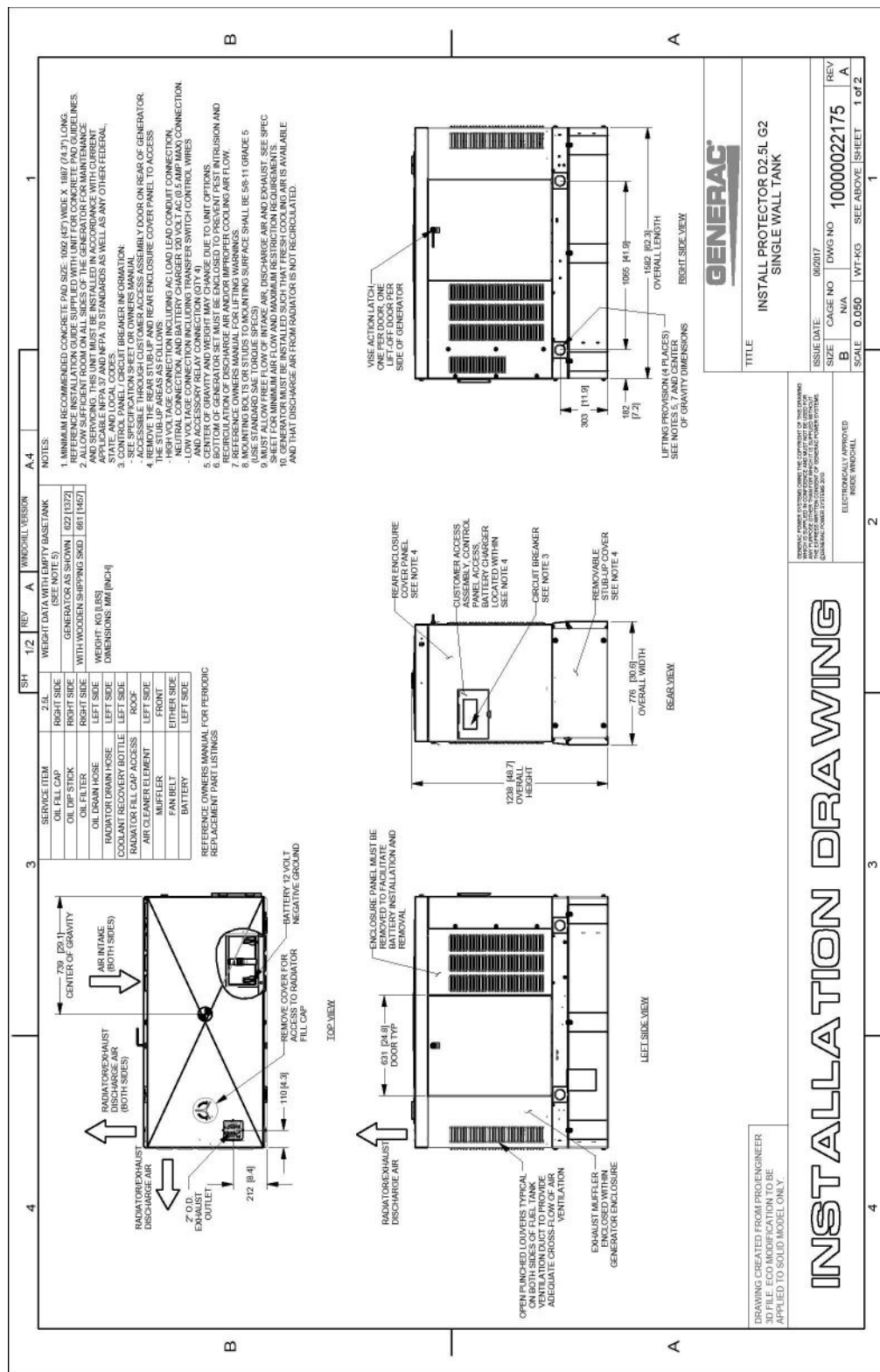
12 • 16 • 30 • 50 kVA

D2.2L G22 Single Wall (2 of 2)



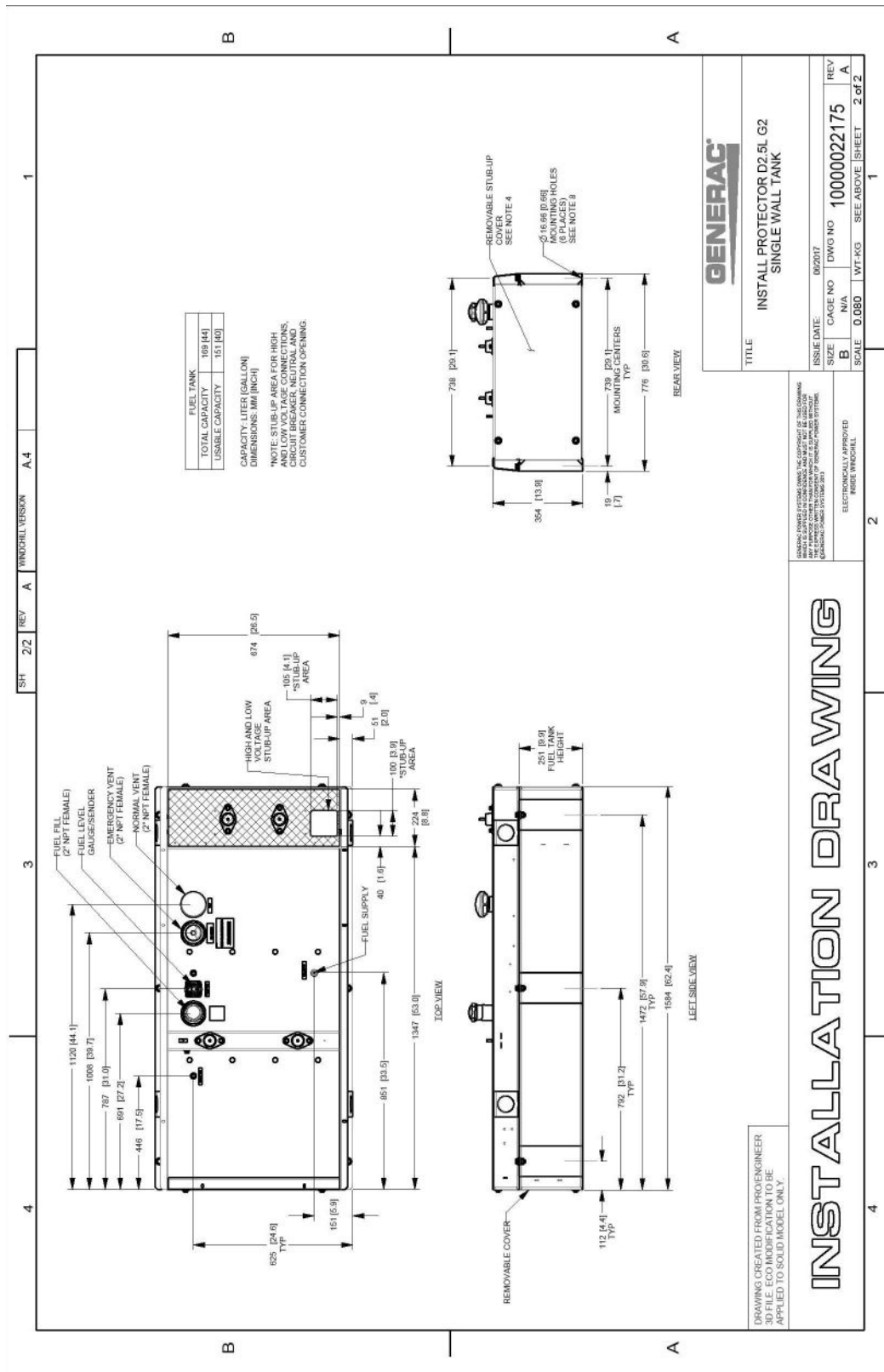
12 • 16 • 30 • 50 kVA

D2.5L G22 Single Wall (1 of 2)



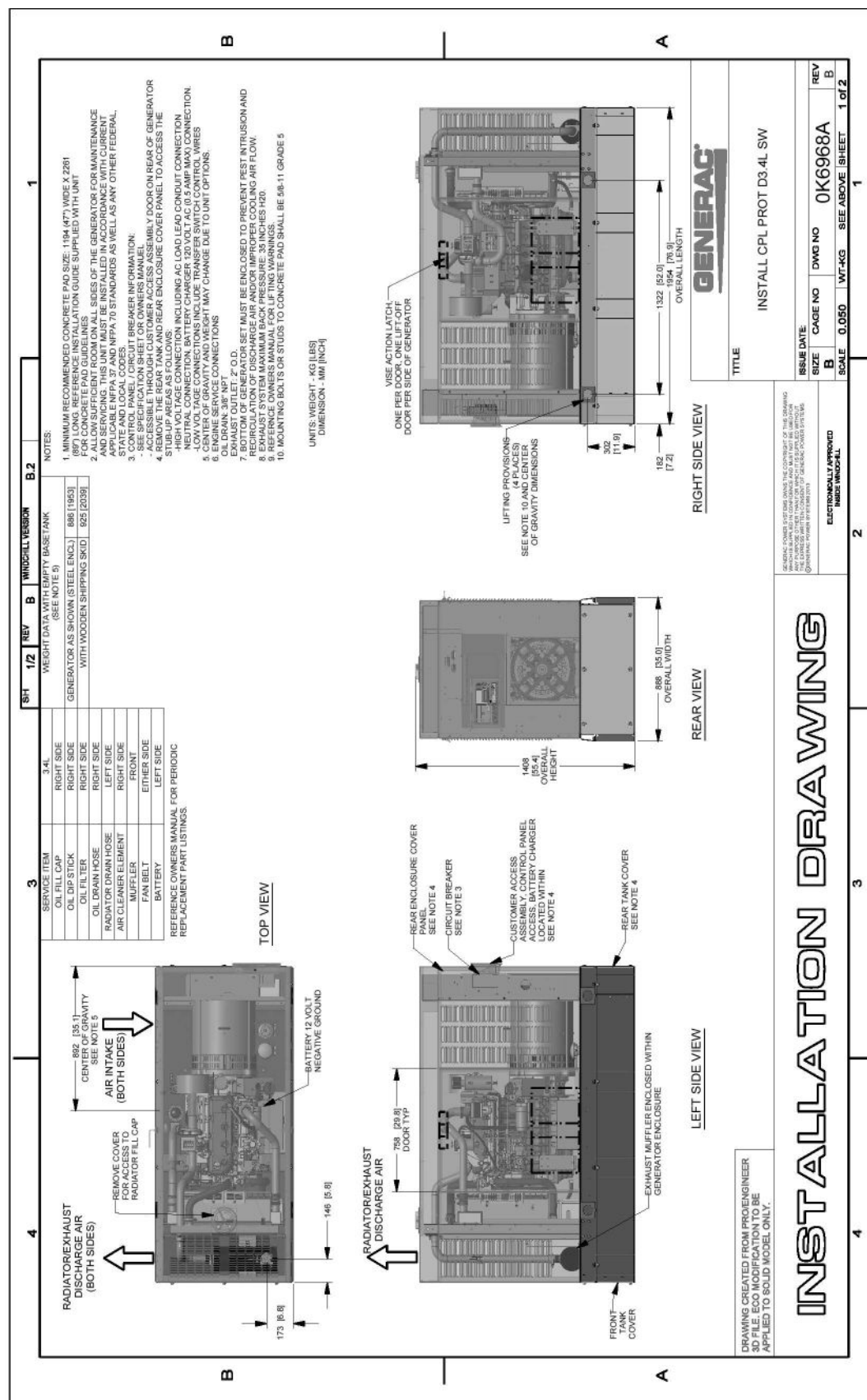
12 • 16 • 30 • 50 kVA

D2.5L G22 Single Wall (2 of 2)



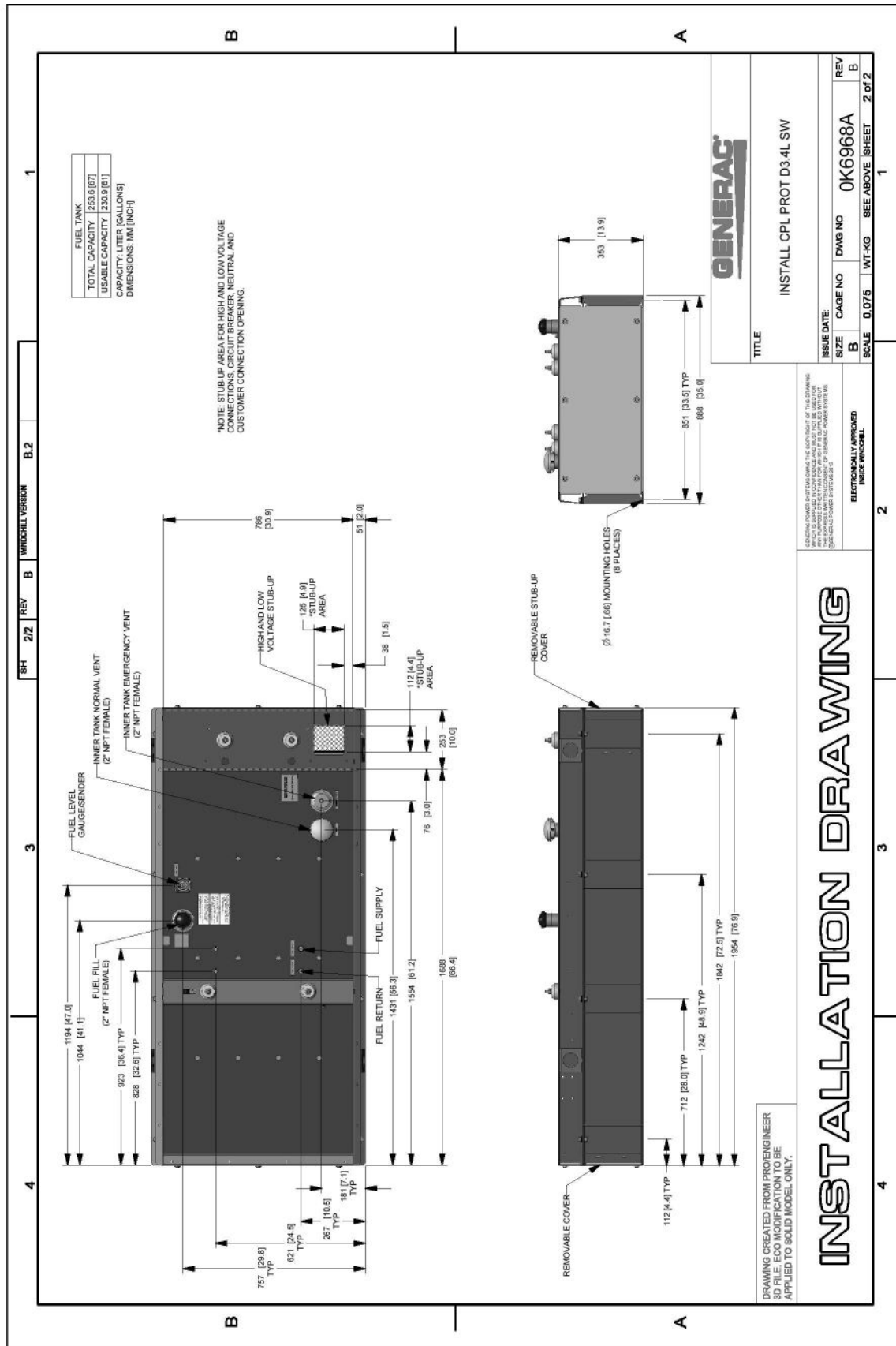
12 • 16 • 30 • 50 kVA

D3.4L Single Wall (1 of 2)



12 • 16 • 30 • 50 kVA

D3.4L Single Wall (2 of 2)



12 • 16 • 30 • 50 kVA**available accessories**

Model #	Product	Description
G006504-0	90% Fuel Level Alarm	The 90% fuel level alarm alerts the fuel fill operator when the tank reaches a 90% fill level by sounding an audible alarm and triggering an LED warning light.
G006505-0—12 & 16 kVA G006506-0—30 & 50 kVA	Tank Risers	Tank risers are required in some municipalities to help avoid potential base tank corrosion caused by mounting on rough surfaces.
G006507-0	Fuel Fill Drop Tube	A powder coat painted, steel fuel fill drop tube is required in some municipalities to prevent sparking due to static electricity buildup, which can be caused by the fuel dropping into the tank from the fill area. Using a drop tube also results in submerged filling, which increases the fuel delivery flow rate and reduces vapors, foam and potential tank evaporation.
G007660-0—12 & 16 kVA G007661-0—30 kVA G006516-0—50 kVA	Stainless Steel Fuel Lines	Some municipalities require the use of stainless steel fuel lines instead of the standard hoses provided with the diesel generator products. These stainless steel lines are fire resistant for additional safety.
G006510-0	E-Stop	E-stop allows for immediate fuel shutoff and generator shutdown in the event of an emergency.
G006512-0	Lockable Fuel Cap	The cast iron, lockable fuel cap provides the ability to lock the fuel system to prevent unwanted fuel tampering or fuel siphoning.
G007640-0—12 & 16 kVA G007641-0—30 kVA G006570-0—50 kVA	Maintenance Kits	The Protector Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac Protector generators.
G007653-0—12 & 16 kVA G007654-0—30 kVA G006558-0—50 kVA	Cold Weather Kits	Recommended for generators installed in regions where the temperature regularly falls below 32 °F (0 °C). The Cold Weather Kits consist of a block heater with all necessary mounting hardware and a battery warmer with a thermostat built into the battery wrap.
G005703-0	Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch up the paint to protect from future corrosion. The paint kit includes the necessary paint to properly maintain or touch up a generator enclosure.