

## 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
- ±1% Voltage Regulation
- Base Tank Provides Up to 50 Hours of Run Time
- Three 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



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 TORSIONALTESTED
  - ✓ 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 ±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 kVA****GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H (12 & 16 kVA) or F (30 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)
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**

<p>Revolving field heavy duty generator          Directly connected to the engine          Operating temperature rise 120°C above a 40°C ambient          Class H insulation is NEMA rated          Class F insulation is NEMA rated          All models fully prototype tested</p>
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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.

### 12 • 16 • 30 kVA

#### 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 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

#### ENGINE COOLING SYSTEM

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

#### FUEL SYSTEM—TANK SPECIFICATIONS

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
Fuel Specification	ASTM
Fuel Filtering (microns)	6 – 12 & 16 kVA 25 – 30 kVA

#### TANK SPECIFICATIONS

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

**12 • 16 • 30 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

**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

**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
RD024	100% of rated load	7.46	1.97
	25% of rated load	3.67	0.97
	50% of rated load	5.19	1.37
RD024	75% of rated load	7.46	1.97
	100% of rated load	10.49	2.77

### 12 • 16 • 30 kVA

#### ENGINE COOLING

	12 kVA	16 kVA	30 kVA
Air flow (inlet air including alternator and combustion air in cfm/cmm)	2353 / 67	2353 / 67	2530 / 72
System coolant capacity (liters/gal)	11.4 / 3.0	11.4 / 3.0	9.5 / 2.5
Heat rejection to coolant (BTU per hr/MJ per hr)	95,220 / 100.5	95,220 / 100.5	128,638 / 135.7
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
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#### SOUND EMISSIONS

Sound output in dB(A) at 7m (23 ft) with generator in exercise mode*	65		
Sound output in dB(A) at 7m (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
Exhaust temperature at rated output (°C/°F)	482 / 900	482 / 900	499 / 930

#### ENGINE PARAMETERS

Rated Synchronous RPM	1500		
HP at rated kVA	29.5	29.5	40.9

#### POWER ADJUSTMENT FOR AMBIENT CONDITIONS

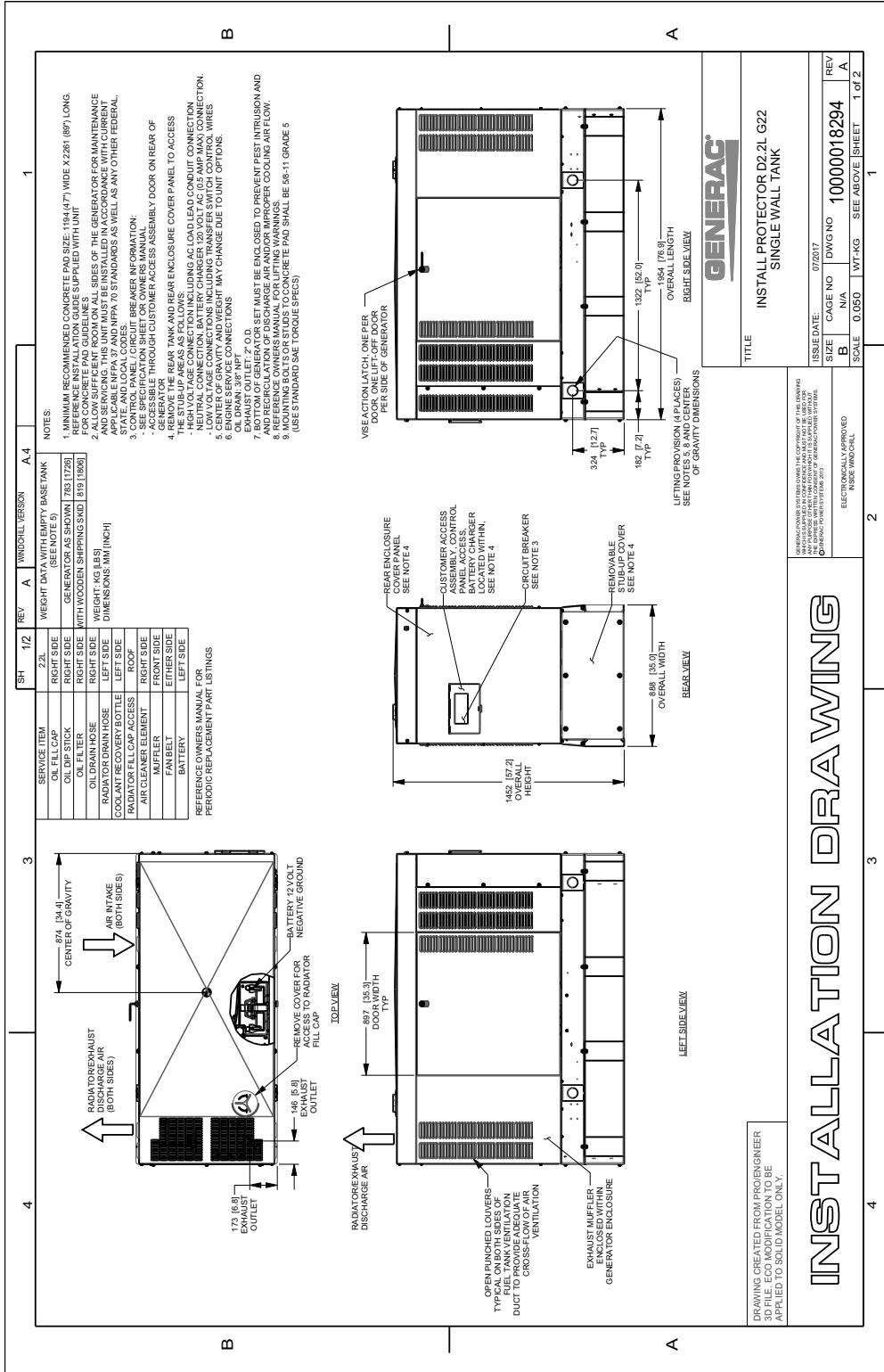
Temperature Deration .....	3% for every 5 °C above 25 °C or 1.7% for every 5 °F above 77 °F
Altitude Deration (12, 30 kVA) .....	1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft
Altitude Deration (16 kVA) .....	1% for every 100 m above 305 m or 3% for every 1000 ft above 1000 ft

#### CONTROLLER FEATURES

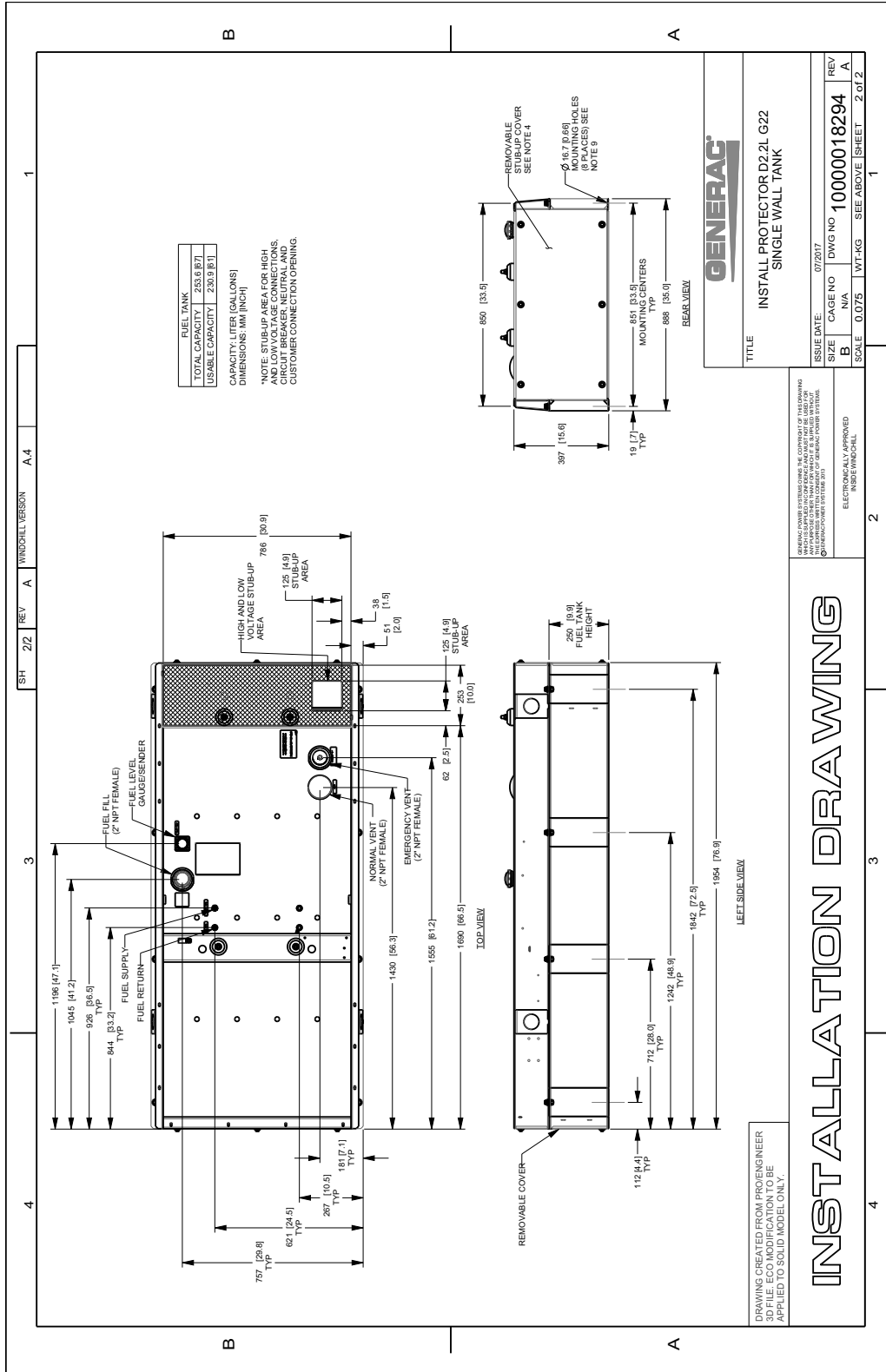
2-Line Plain Text Multilingual LCD Display .....	Simple user interface for ease of operation.
Mode Buttons: Auto .....	Automatic Start on Utility failure. Programmable 7 day exerciser.
Manual .....	Start with starter control, unit stays on. If utility fails, transfer to load takes place.
Off .....	Stops 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 kVA

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



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



12 • 16 • 30 kVA

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

SH	1/2	REV	A	WIRCH/ELVEKSON	A.4	1

**NOTES:**

- MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1092 (85") WIDE X 1887 (74.3") LONG. REFER TO THE CONCRETE PAD SPECIFICATIONS ON THE SUPPLEMENTARY DRAWING SHEETS AND SERVING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 77 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL REGULATIONS.
- ALLOW SUFFICIENT ROOM AROUND ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICE.
- CONTROL PANEL, CIRCUIT BREAKER INFORMATION: SEE SPECIFICATION SHEET FOR OWNERS MANUAL.
- REMOVE THE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS: LUDING (LOAD) LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 20 VOLT AC (9.5 AMP MAX) CONNECTION.
- LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES.
- BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND TO PREVENT AIR FROM ENTERING THE UNIT THROUGH THE BOTTOM.
- REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
- MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE S6-11 GRADE 5.
- SEE SPECIFICATION SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPECIFICATION SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED.

**REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS**

SERVICE ITEM	Z.O.D.	RIGHT SIDE	LEFT SIDE	ROOF	FRONT	ETHER SIDE	LEFT SIDE
OIL DRAIN HOSE							
COOLANT RECOVERY BOTTLE							
RADIATOR FILL CAP ACCESS							
AIR CLEANER ELEMENT							
MUFFLER							
FAN BELT							
BATTERY							

**GENERAC®**

**INSTALL PROTECTOR D2.5L G22 SINGLE WALL TANK**

TITLE

ISSUE DATE: 05/07/17

SIZE: B

CAGE NO: N/A

DWG NO: 10000022175

SCALE: 0.050

WT-KG: SEE ABOVE

REV: A

SHEET: 1 of 2

INDUSTRIALLY APPROVED

DATE: 05/07/17

BY: [Signature]

INSTALLATION DRAWING

DRAWING CREATED FROM PROGENENGINEER 30 FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.



12 • 16 • 30 kVA

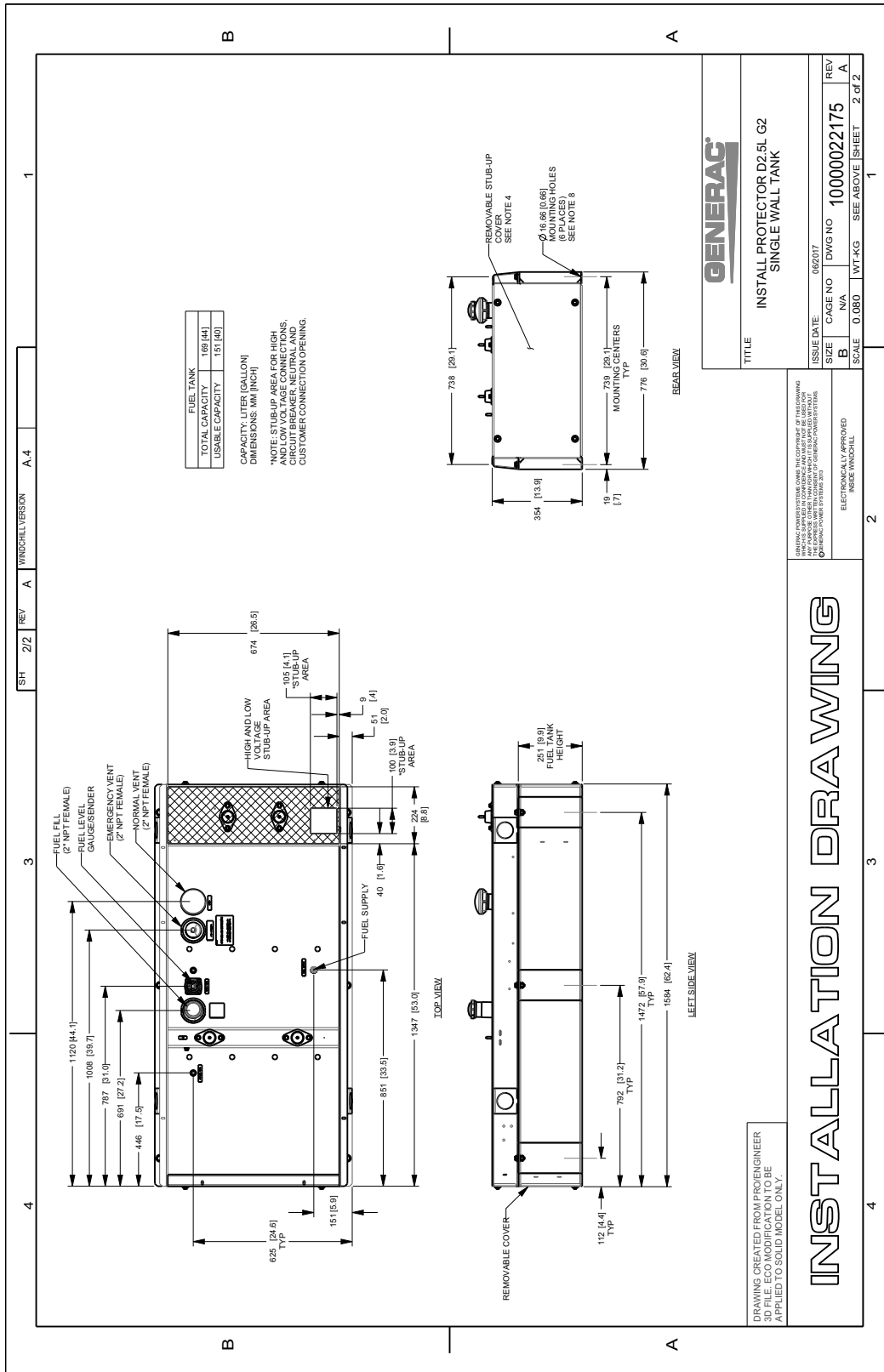
D2.5L G22 Single Wall (2 of 2)

**GENERAC**

operating data

Protector™

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12 • 16 • 30 kVA

**GENERAC**

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 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	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	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	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.