

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
- Integrated Base Tank Provides Up to 40 Hours of Run Time
- 5 Year Limited Warranty*
- UL 2200 / UL142 / ULC S601 Listed
- Meets code requirements for External Vent and Fill

Standby Power Rating

- Model RD015 - 15 kW 60 Hz
- Model RD020 - 20 kW 60 Hz
- Model RD030 - 30 kW 60 Hz
- Model RD048 - 48 kW 60 Hz (single phase only)
- Model RD050 - 50 kW 60 Hz (three phase only)



QUIET-TEST™



*Built in the USA using domestic and foreign parts

Meets EPA Emission Regulations
CA/MA Emissions Compliant

* 5 year warranty applicable to U.S. and Territories/Canada. International warranty is 3 year limited.

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.
- **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%.
- **TEST CRITERIA:**
 - ✓ PROTOTYPE TESTED
 - ✓ SYSTEM TORSIONAL TESTED
 - ✓ NEMA MG1-22 EVALUATION
 - ✓ MOTOR STARTING ABILITY
- **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.

15 • 20 • 30 • 48 • 50 kW**application & engineering data****GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H (15 & 20 kW) or F (30, 48 & 50 kW)
Stator Insulation Class	H
Telephone Interference Factor (TIF)	<50
Alternator Output Leads 1-Phase	3 wire
Alternator Output Leads 3-Phase	6 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 (15 & 20 kW) or 70 Amp (30, 48 & 50 kW)
Smart Battery Charger	2 Amp
Recommended Battery (battery not included)	Group 27F, 700 CCA
System Voltage	12 Volts

GENERATOR FEATURES

<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>

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.

(All ratings in accordance with BS5514, ISO3046, ISO8528, SAE J1349 and DIN6271)

15 • 20 • 30 • 48 • 50 kW

application & engineering data

ENGINE SPECIFICATIONS: 15 & 20 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.28
Bore (in./mm)	3.46/88
Stroke (in./mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Naturally Aspirated
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

ENGINE SPECIFICATIONS: 30 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.4
Bore (in./mm)	3.54/90
Stroke (in./mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Turbocharged
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

ENGINE SPECIFICATIONS: 48/50 kW

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

WEIGHTS AND DIMENSIONS

	15 kW	20 kW	30 kW	48 kW	50 kW
Weight (lb/kg)	1380/626		1927/874	2197/997	
Dimensions (LxWxH) (in/cm)	81 x 31 x 50/205 x 78 x 128		95 x 35 x 57/242 x 89 x 145		

ENGINE LUBRICATION SYSTEM

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on canister
Crankcase Capacity (quarts/liters)	6.87/6.5 - 15 & 20 kW
	6.8/6.4 - 30 kW
	7.4/7 - 48 & 50 kW

ENGINE COOLING SYSTEM

Type	Pressurized radiator - 15 & 20 kW Closed recovery - 30, 48 & 50 kW
Water Pump	Pre-lubed, self-sealing
Fan Speed (rpm)	1800 - 15 & 20 kW
	2061 - 30 kW
	2029 - 48 & 50 kW
Fan Diameter (in./mm)	18.11/460 (15 & 20 kW) 22/559 (30, 48 & 50 kW)
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)	7.94/0.31 (ID)
Fuel Specification	ASTM
Fuel Filtering (microns)	5 - 15, 20 & 30 kW
	10 - 48 & 50 kW

TANK SPECIFICATIONS

Total Size (gallons/liters)	34/128.7 - 15 & 20 kW
	62/234.7 - 30, 48 & 50 kW
Usable Size (gallons/liters)	32/121.1 - 15 & 20 kW
	57/215.8 - 30, 48 & 50 kW
Run Time @ 1/2 Load (hrs)	41 - 15 kW
	31 - 20 kW
	38 - 30 kW
	25 - 48 & 50 kW
Listings	UL142
	ULC-S601

15 • 20 • 30 • 48 • 50 kW

operating data

GENERATOR OUTPUT VOLTAGE/kW - 60 Hz

		kW (Standby)	Amp (Standby)	CB Size
RD015	120/240 V, 1Ø, 1.0 pf	15	62	70
	120/208 V, 3Ø, 0.8 pf	15	52	60
	120/240 V, 3Ø, 0.8 pf	15	45	50
RD020	120/240 V, 1Ø, 1.0 pf	20	83	100
	120/208 V, 3Ø, 0.8 pf	20	69	80
	120/240 V, 3Ø, 0.8 pf	20	60	70
RD030	120/240 V, 1Ø, 1.0 pf	30	125	150
	120/208 V, 3Ø, 0.8 pf	30	104	125
	120/240 V, 3Ø, 0.8 pf	30	90	100
	277/480 V, 3Ø, 0.8 pf	30	45	50
RD048/ RD050	120/240 V, 1Ø, 1.0 pf	48	200	200
	120/208 V, 3Ø, 0.8 pf	50	173	200
	120/240 V, 3Ø, 0.8 pf	50	150	175
	277/480 V, 3Ø, 0.8 pf	50	75	90

SURGE CAPACITY IN AMPS

		Voltage Dip @ < .4 pf	
		15%	30%
RD015	120/240 V, 1Ø	53	129
	120/208 V, 3Ø	37	90
	120/240 V, 3Ø	32	78
RD020	120/240 V, 1Ø	87	211
	120/208 V, 3Ø	59	143
	120/240 V, 3Ø	51	124
RD030	120/240 V, 1Ø	66	168
	120/208 V, 3Ø	59	144
	120/240 V, 3Ø	51	125
RD048/ RD050	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

		gal/hr	L/hr
RD015	25% of rated load	0.51	1.93
	50% of rated load	0.79	2.99
	75% of rated load	1.14	4.31
	100% of rated load	1.48	5.58
RD020	25% of rated load	0.67	2.6
	50% of rated load	1.05	3.97
	75% of rated load	1.52	5.32
	100% of rated load	1.98	7.48
RD030	25% of rated load	0.92	3.5
	50% of rated load	1.45	5.5
	75% of rated load	1.96	7.4
	100% of rated load	2.74	10.4
RD048/ RD050	25% of rated load	1.35	5.11
	50% of rated load	2.15	8.14
	75% of rated load	3.06	11.58
	100% of rated load	3.98	15.07

STANDBY RATING: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046-1. Design and specifications are subject to change without notice.

15 • 20 • 30 • 48 • 50 kW

operating data

ENGINE COOLING

	15 kW	20 kW	30 kW	48/50 kW
Air flow (inlet air including alternator and combustion air in cfm/cmm)	2824/80	2824/80	3038/86	2824/80
System coolant capacity (gal/liters)	2.8/10.6	2.8/10.6	2.8/10.6	2.8/10.6
Heat rejection to coolant (BTU per hr/MJ per hr)	63,535/67	63,535/67	111,000/117.1	135,900/143.4
Maximum operation air temperature on radiator (°C/°F)	50/122			
Maximum ambient temperature (°C/°F)	50/122			

COMBUSTION REQUIREMENTS

Flow at rated power (cfm/cmm)	84.76/2.4	84.76/2.4	90/2.55	190/5.38
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SOUND EMISSIONS

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

*Sound levels are taken from the front of the generator. Sound levels taken from other sides of the generator may be higher depending on installation parameters.

EXHAUST

Exhaust flow at rated output (cfm/cmm)	98.88/2.8	98.88/2.8	230/6.51	448/12.7
Exhaust temperature at rated output (°C/°F)	604.4/1120	604.4/1120	454.4/850	604.4/1120

ENGINE PARAMETERS

Rated Synchronous RPM	1800			
HP at rated kW	26.4	33.5	49	85

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

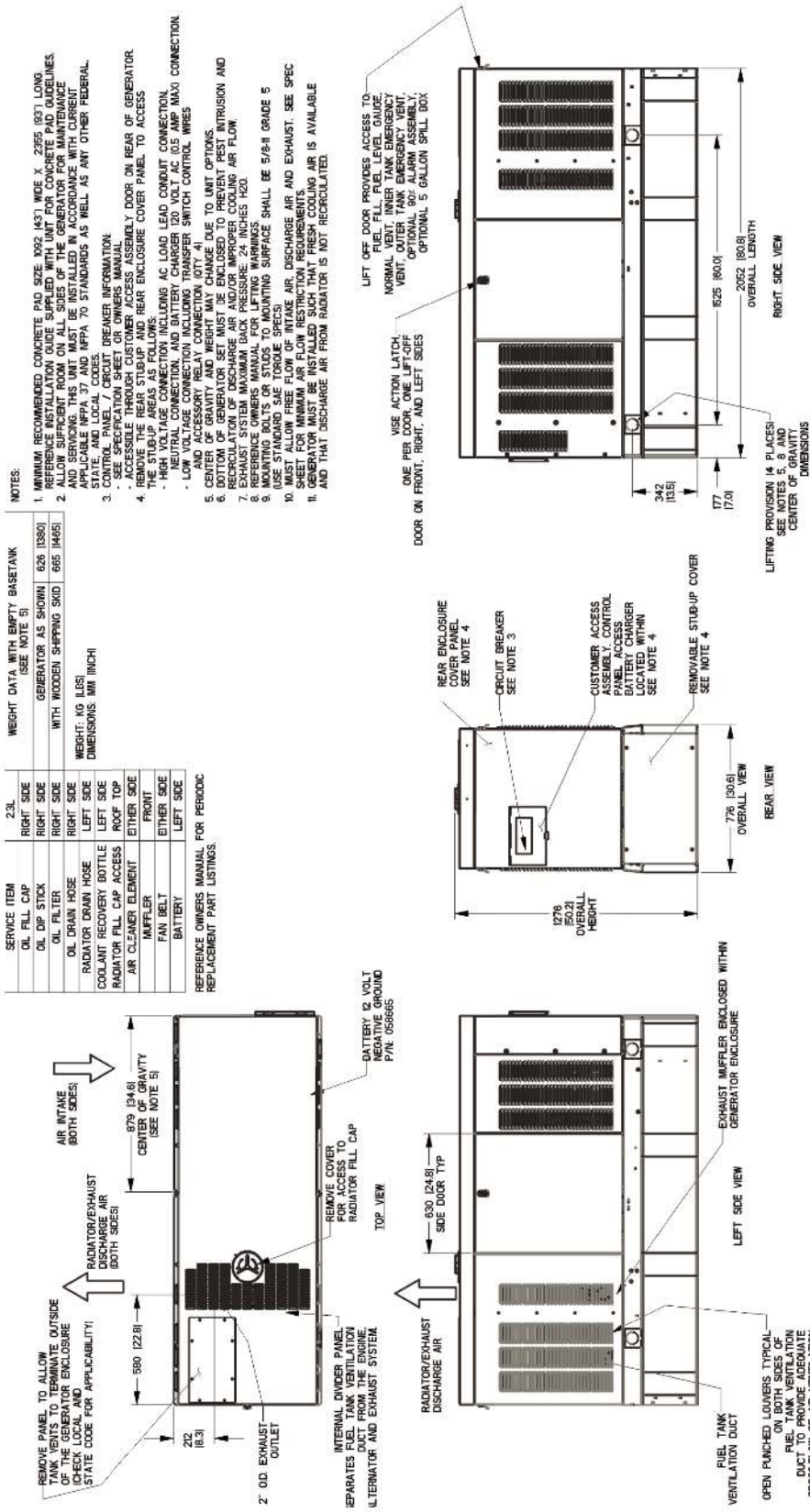
Temperature Deration	.....3% for every 5 °C above 25 °C or 1.7% for every 5 °F above 77 °F
Altitude Deration (15, 30, 48 & 50 kW)	.....1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft
Altitude Deration (20 kW)	.....1% for every 100 m above 305 m or 3% for every 1000 ft above 1000 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 Messages	..... 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 sec 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 Upgradable Firmware	..... Standard

15 & 20 kW

Drawing #0K7025-C (1 of 2)



WEIGHT DATA WITH EMPTY BASETANK (SEE NOTE 5)

SERVICE ITEM	23L	23R
OIL FILL CAP	RIGHT SIDE	RIGHT SIDE
OIL DIP STICK	RIGHT SIDE	RIGHT SIDE
OIL FILTER	RIGHT SIDE	RIGHT SIDE
OIL DRAIN HOSE	RIGHT SIDE	RIGHT SIDE
RADIATOR DRAIN HOSE	LEFT SIDE	LEFT SIDE
COOLANT RECOVERY BOTTLE	LEFT SIDE	LEFT SIDE
RADIATOR FILL CAP ACCESS	ROOF TOP	ROOF TOP
AIR CLEANER ELEMENT	ROOF TOP	ROOF TOP
MUFFLER	FRONT	FRONT
FAN BELT	FRONT	FRONT
BATTERY	FRONT	FRONT
	RIGHT SIDE	LEFT SIDE

GENERATOR AS SHOWN 625 (24.6)

WITH WOODEN SHIPPING SKID 665 (26.2)

WEIGHT: KG (LBS)

DIMENSIONS: MM (INCH)

NOTES:

- MINIMUM RECOMMENDED CONCRETE PAD SIZE 3052 (143") WIDE X 2265 (89") LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
- ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT STATE AND LOCAL CODES, NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
- CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
 - SEE SPECIFICATION SHEET OR OWNERS MANUAL.
 - ACCESSIBLE FROM BOTH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR AND SERVICE DOOR ON FRONT OF GENERATOR ENCLOSURE COVER PANEL TO ACCESS.
- REMOVABLE STUB-UP COVER INFORMATION:
 - THE STUB-UP AREAS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION.
 - NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
 - LOAD CONNECTIONS TO THE GENERATOR, SWITCH CONTROL WIRES AND ACCESSORY RELAY CONNECTION (OTA).
- CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
- BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND SEVERE WEATHER.
- SELECTION OF DISCHARGE AIR RADIOS AND FAN COOLING AIR FLOW. REFER TO THE GENERATOR OWNERS MANUAL FOR LIFTING WARNINGS.
- REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
- MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8"-11 GRADE 5 (USE STANDARD SAE TORQUE SPECS).
- DO NOT DISCHARGE FRESH AIR FROM RADATOR. DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW RESTRICTION REQUIREMENTS.
- GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADATOR IS NOT RECIRCULATED.

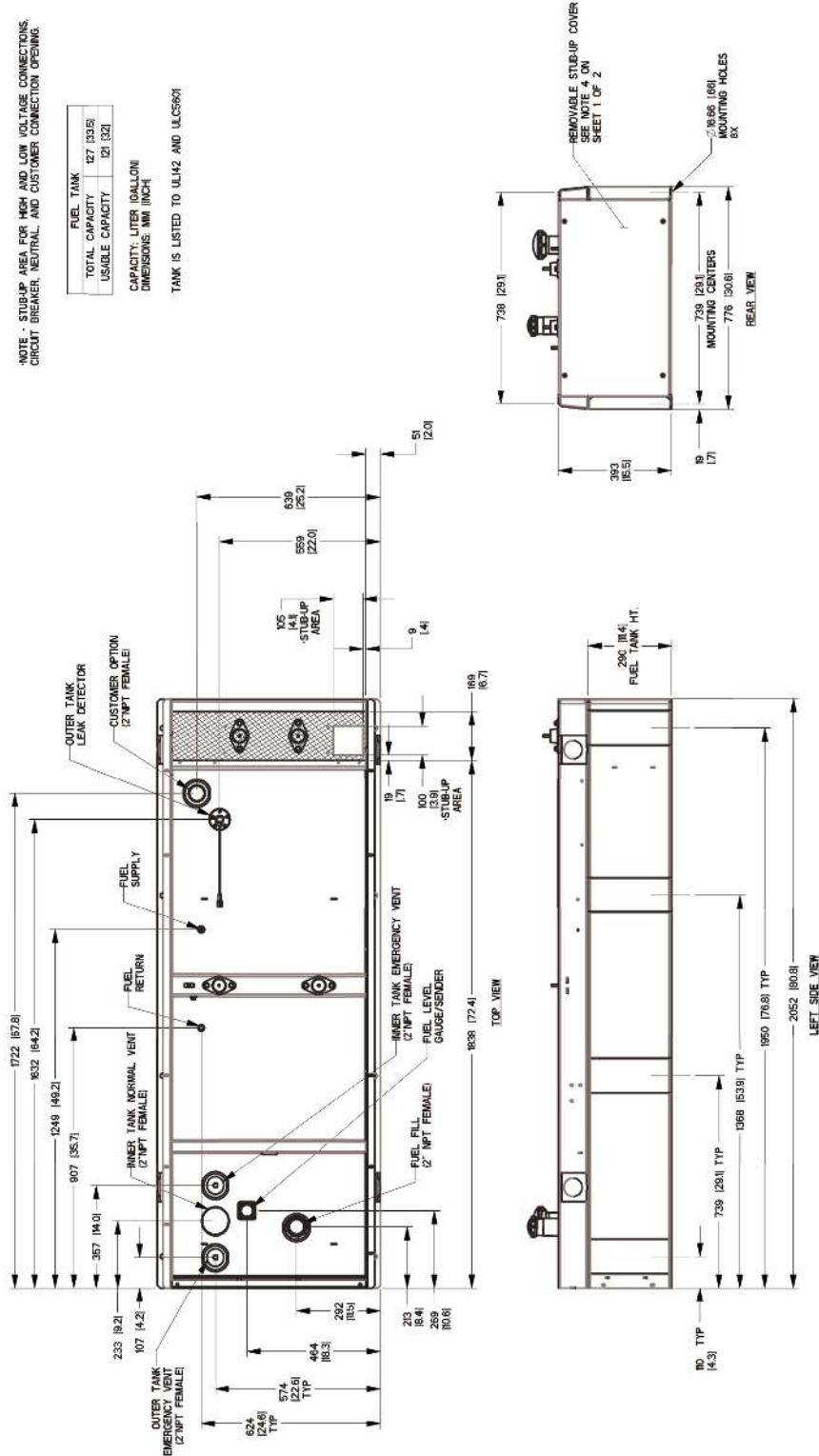
15 & 20 kW

NOTE - STUBUP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL, AND CUSTOMER CONNECTION OPENING.

FUEL TANK	
TOTAL CAPACITY	127 [33.6]
USABLE CAPACITY	121 [32]

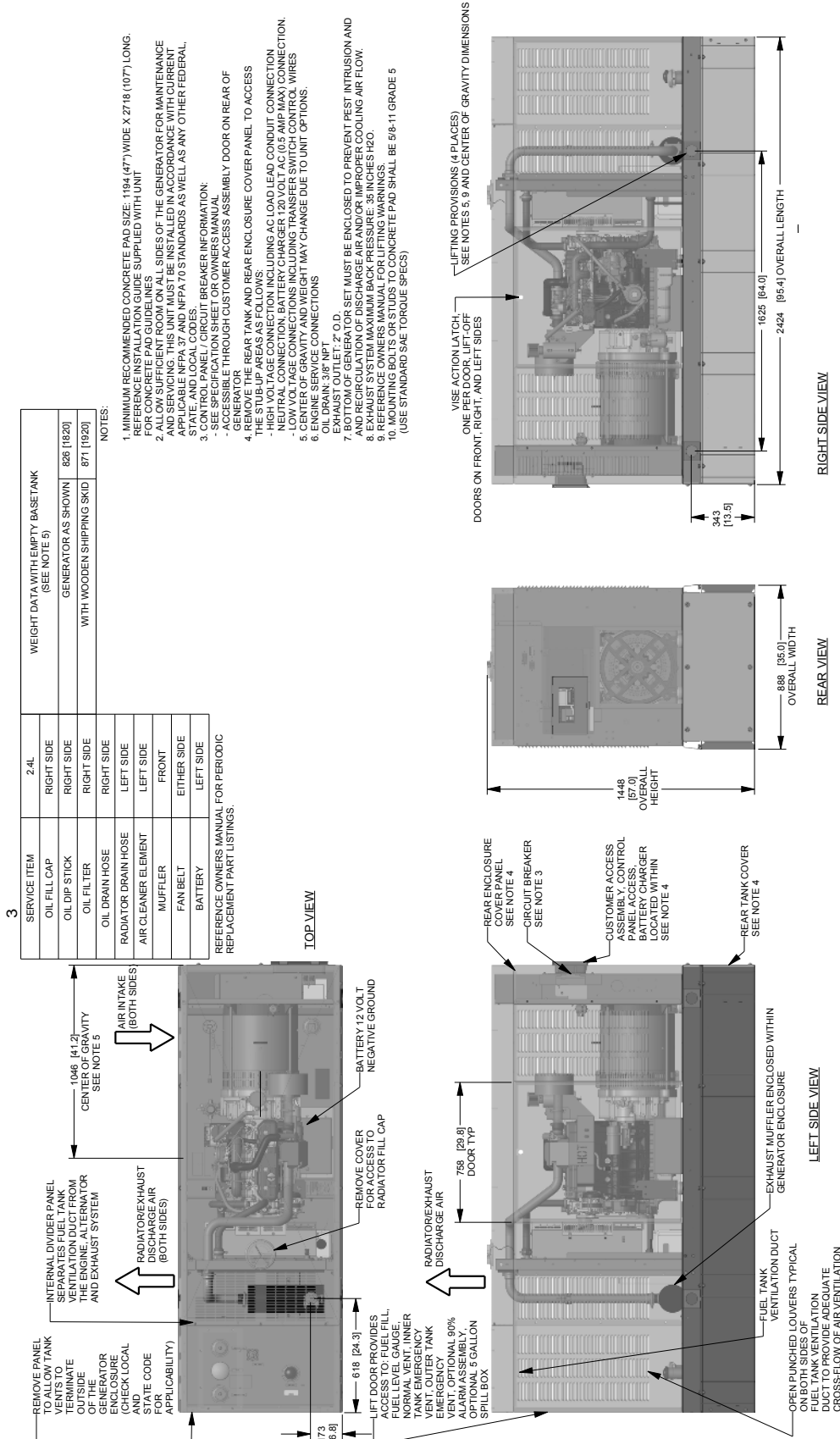
CAPACITY: LITER (GALLON)
DIMENSIONS: MM (INCH)

TANK IS LISTED TO UL142 AND ULCS601



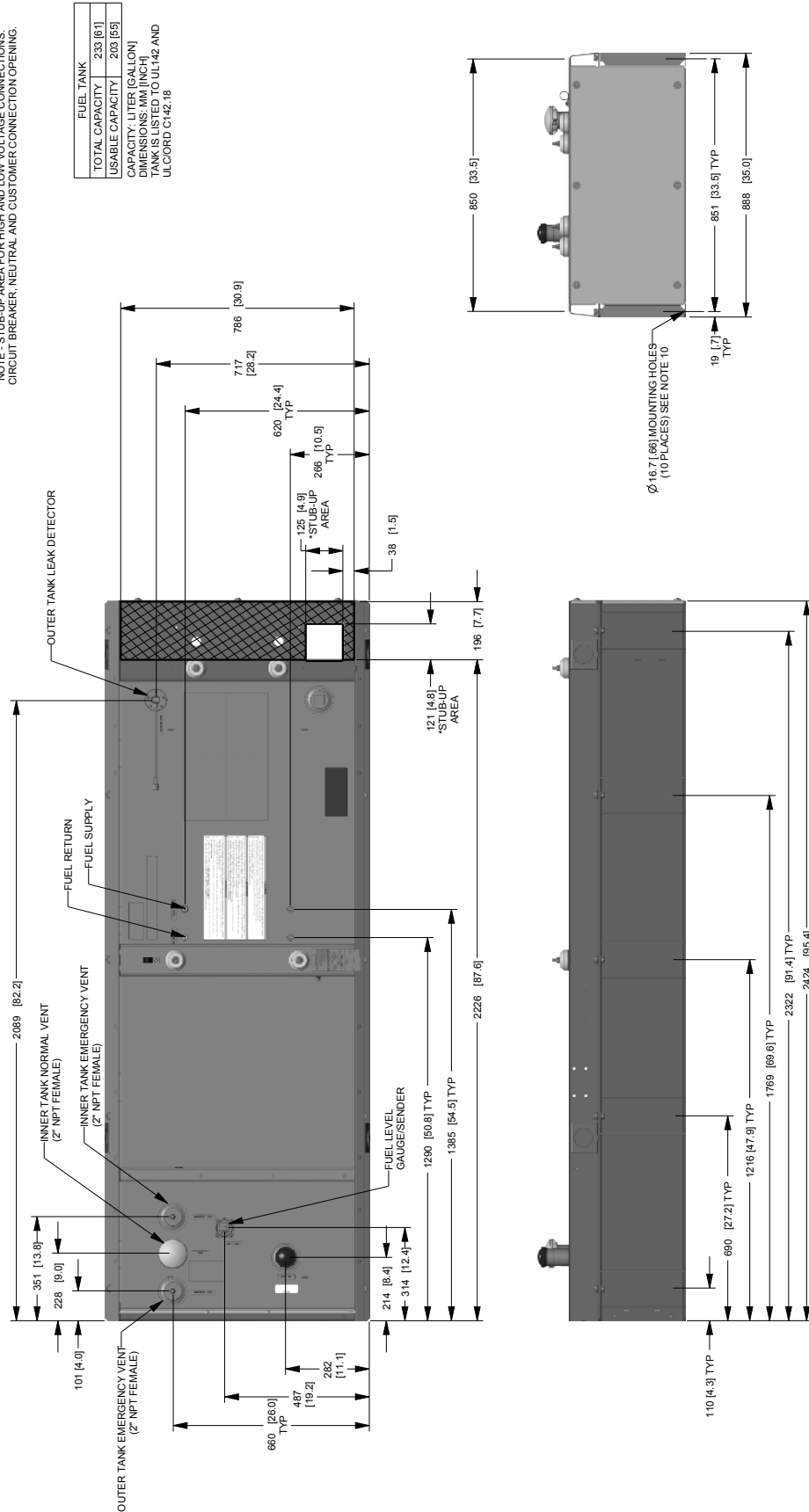
30 kW

Drawing #0K7002-C (1 of 2)



*NOTE - STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.

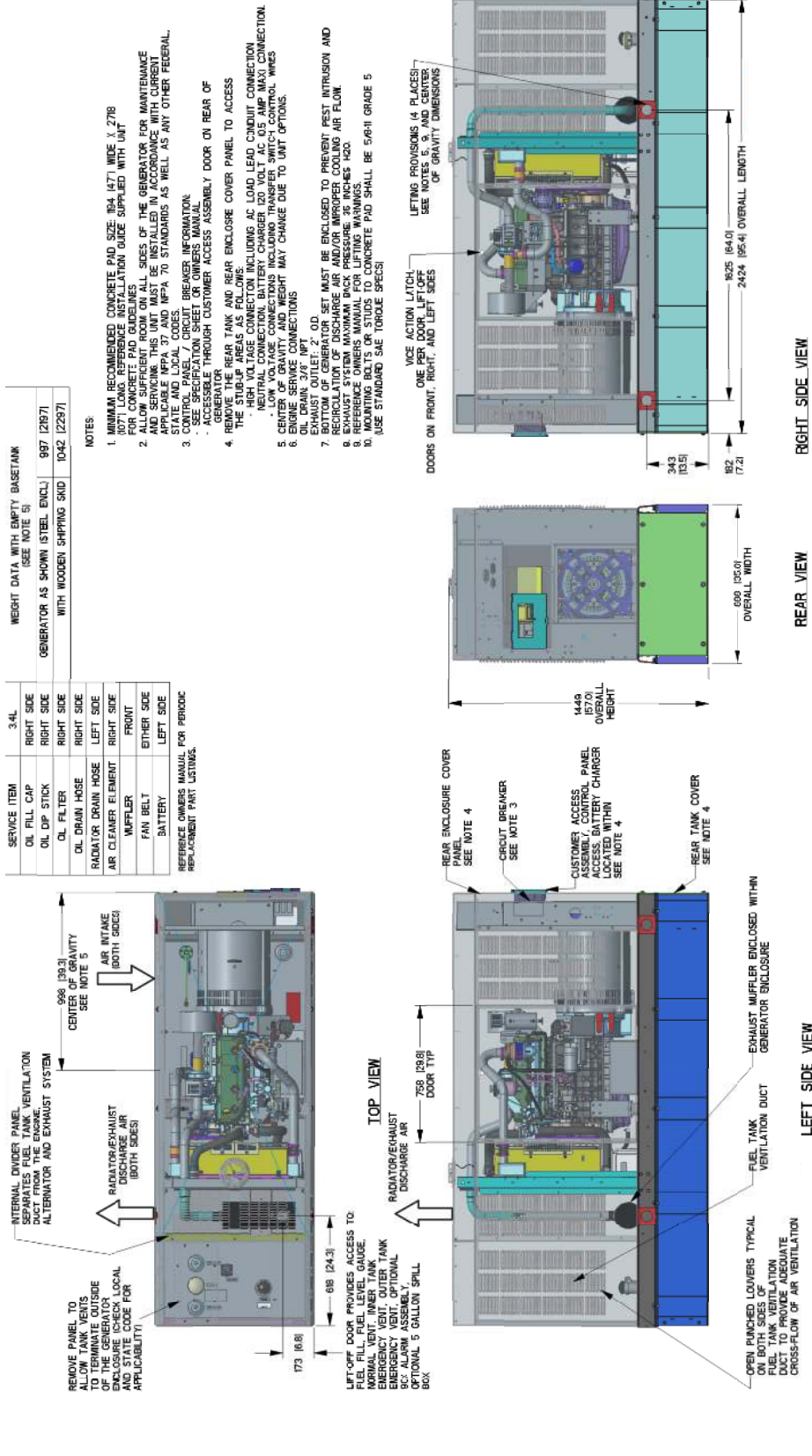
FUEL TANK	
TOTAL CAPACITY	233 [6.1]
USABLE CAPACITY	203 [5.5]
CAPACITY, LITER (GALLON)	
DIMENSIONS: MM (INCH)	
TANK IS LISTED TO UL142 AND UL508 C142.18	



48 & 50 kW

Drawing #0K6968-C (1 of 2)

10 of 12



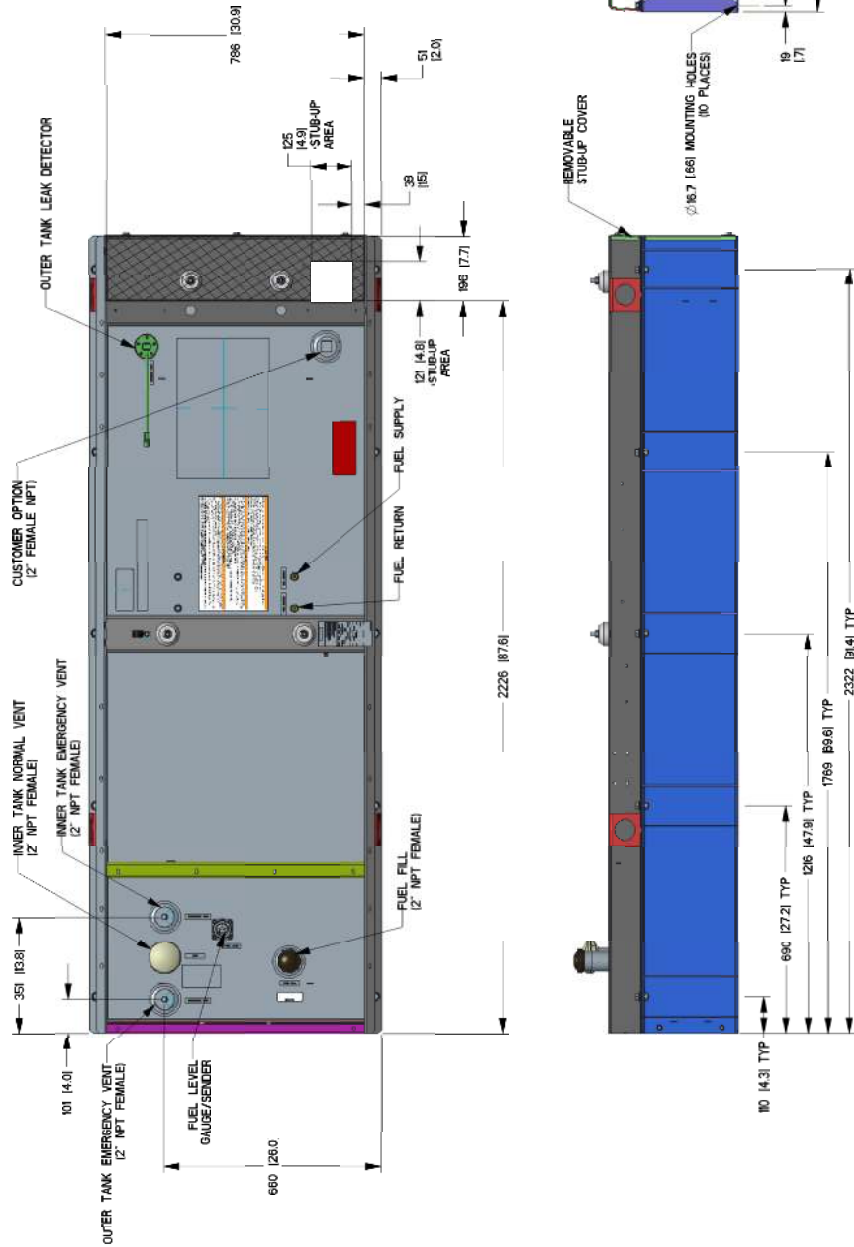
48 & 50 kW

installation layout

Drawing #0K6968-A (2 of 2)

FUEL TANK	
TOTAL CAPACITY	233 [61]
USABLE CAPACITY	209 [55]
CAPACITY: LITER (GALLONS)	
DIMENSIONS: MM (INCH)	
THIS TANK IS LISTED TO UL1974 AND UL125601	

NOTE - STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



15 • 20 • 30 • 48 • 50 kW**available accessories**

Model #	Product	Description
G006463-4	Mobile Link™	Generac's Mobile Link allows you to check the status of your generator from anywhere that you have access to an Internet connection from a PC or with any smart device. You will even be notified when a change in the generator's status occurs via e-mail or text message. Note: Harness Adapter Kit required. Available in the U.S. only.
G006478-0	Harness Adapter Kit	The Harness Adapter Kit is required to make liquid-cooled units compatible with Mobile Link™.
G006502-0	Spill Box	The 5-gallon spill box screws into the existing fuel fill port of the base tank. It captures and contains fuel if over fueling or spilling occurs during the fill process.
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 - 15 & 20 kW G006506-0 - 30, 48 & 50 kW	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.
G006513-0 - 15 & 20 kW G006517-0 - 30 kW G006516-0 - 48 & 50 kW	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.
006511-0	Spill Box Drainback Kit	The spill box drainback kit allows fuel that was captured in the 5-gallon spill box to be drained directly back into the fuel tank to avoid vapors.
G006588-1	Vent Extension Support Kit	The vent extension support kit consists of two aluminum plates with the appropriate pipe cutouts to secure the vent extension pipes coming through the top of the generator enclosure. It helps to minimize stress on the NPT fittings integrated on the tank and also helps protect against pests.
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.
G006572-0 - 15 & 20 kW G006571-0 - 30 kW G006570-0 - 48 & 50 kW	Maintenance Kits	The Protector Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac Protector generators.
G006560-0 - 15 & 20 kW G006559-0 - 30 kW G006558-0 - 48 & 50 kW	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.
G005704-0	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.
G006664-0	Local Wireless Remote	Completely wireless and battery powered, Generac's wireless remote monitor provides you with instant status information without ever leaving the house.
G006665-0	Wireless Remote Extension Harness	Recommended for use with the Wireless Remote on units up to 60 kW, required for use on units 70 kW or greater.
G006873-0	Smart Management Module (50 Amps)	Manage large loads by utilizing up to 8 individual Smart Management modules. These devices are installed directly in line with existing appliance wiring for easy installation.