# RG
# Protector® Series

GENERAC®

## Protector® Series
### Standby Generators
### Liquid-Cooled Gaseous Engine

## STANDARD FEATURES

- Power Zone® 410 controller
- Cellular Connectivity for Mobile Link and Fleet[1]
- Quiet Operation
- Corrosion Resistant Aluminum Enclosure
- 5 Year/2,000 Hour Limited Warranty
- High Motor-Starting & Surge Capacity
- <5% Total Harmonic Distortion Power Quality
- Model-Specific Fuel - Propane or Natural Gas
- EPA Emissions Certified
- CA & MA Exhaust Emission Compliant
- UL 2200 Listed

1 - Cellular service for the US, Canada, and other supported countries

## OPTIONAL FIELD-INSTALLABLE FEATURES

Available as field-installable kits

- Push Button Emergency Stop
- NFPA 110 System Control & Remote Annunciation
- Cold Weather Operation Aids

## STANDBY POWER RATING

Model RG13090 - 130 kW, 60 Hz Emergency Standby Generator
Model RG15090 - 150 kW, 60 Hz, Emergency Standby Generator


Product may vary from above image.

QUIET TEST Mobile Link™

EPA Emissions Certified; CA & MA Exhaust Emissions Compliant

# 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.
- **MOBILE LINK® CONNECTIVITY:** Standard Wi-Fi & Ethernet connectivity included with every 22-100 kW RG generator and Cellular connectivity included with every 130-150 kW RG generator, Mobile Link allows users to monitor generator status from anywhere in the world using a smart phone, tablet, or PC. Easily access information such as the current operating status and maintenance alerts. Users can connect an account to an authorized service provider for fast, and proactive service. With Mobile Link, users are taken care of before the next power outage.
- **TRUE POWER™ ELECTRICAL TECHNOLOGY:** Superior harmonics and sine wave form produce less than 5% Total Harmonic Distortion for utility quality power. This allows confident operation of sensitive electronic equipment and micro-chip based appliances, such as variable speed HVAC systems.
- **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.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive service 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 the GENERAC product line is offered with its own transfer systems and controls for total system compatibility.

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# GENERATOR SPECIFICATIONS

## GENERATOR OUTPUT

PROPANE

| Voltage | RG13090 | | RG15090 | |
|---|---|---|---|---|
| | Power (kW) | Current (A) | Power (kW) | Current (A) |
| 120/240 V 1-Phase | 130 | 542 | 134 | 558 |
| 208/120 V 3-Phase | 130 | 451 | 140 | 486 |
| 240/120 V 3-Phase | 130 | 391 | 140 | 421 |
| 480/277 V 3-Phase | 130 | 195 | 140 | 210 |

NATURAL GAS

| Voltage | RG13090 | | RG15090 | |
|---|---|---|---|---|
| | Power (kW) | Current (A) | Power (kW) | Current (A) |
| 120/240 V 1-Phase | 130 | 542 | 144 | 600 |
| 208/120 V 3-Phase | 130 | 451 | 150 | 520 |
| 240/120 V 3-Phase | 130 | 391 | 150 | 451 |
| 480/277 V 3-Phase | 130 | 195 | 150 | 226 |

Emergency Standby Power (ESP) Rating: Standby ratings apply to installations served by a reliable utility source. The ESP rating is applicable to varying loads for the duration of a power outage. The average power output over 24 hours shall not exceed 70% of the ESP rating.

## VOLTAGE REGULATION

| | |
|---|---|
| Type | Digital |
| Sensing | 1–Phase |
| Regulation | ±1% |

## ALTERNATOR SYSTEM

| | | RG13090 | RG15090 |
|---|---|---|---|
| Circuit Breaker (CB) Size (A) | 120/240 V 1-Phase | 600 | 700 |
| | 208/120 V 3-Phase | 500 | 600 |
| | 240/120 V 3-Phase | 400 | 500 |
| | 480/277 V 3-Phase | 225 | 250 |
| Alternator Type | | Synchronous | Synchronous |
| Stator Insulation Class | | H | H |
| Stator Insulation Class | | H | H |
| Telephone Interference Factor (TIF) | | <50 | <50 |
| Bearings | | Sealed Ball | Sealed Ball |
| Coupling | | Flexible Disc | Flexible Disc |
| Excitation System | | Synchronous Brushless | Synchronous Brushless |
| Total Harmonic Distortion | | <5% | <5% |

## SURGE CAPACITY

| Surge Amps at <0.4 Power Factor | RG13090 | RG15090 |
|---|---|---|
| | 30% Voltage Dip (A) | 30% Voltage Dip (A) |
| 120/240 V 1-Phase | 900 | 900 |
| 208/120 V 3-Phase | 816 | 816 |
| 240/120 V 3-Phase | 707 | 707 |
| 480/277 V 3-Phase | 351 | 351 |

# GENERATOR SPECIFICATIONS

## ENGINE SYSTEM

| | | RG13090 | RG15090 |
|---|---|---|---|
| Make | | Generac | |
| Model | | 9 L, V-type 8-Cylinder, Tubrocharged & Aftercooled | |
| Compression Ratio | | 9.1:1 | |
| Lifter Type | | Hydraulic | |
| Oil Pump Type | | Gear | |
| Oil Filter Type | | Full Flow Spin-on Cartridge | |
| Crankcase Capacity (qt (L)) | | 10.5 (9.9) | |
| Temperature Derate | LP Fuel | 3.3% per 10 °F above 77 °F (3% per 5 °C above 25 °C) | 22% per 10 °F above 77 °F (19.8% per 5 °C above 25 °C) |
| | NG Fuel | | 16% per 10 °F above 77 °F (14.4% per 5 °C above 25 °C) |
| Altitude Derate | | 3% per 1,000 ft above 600 ft (1% per 100 m above 183 m) | 2.1% per 1,000 ft above 600 ft (0.7% per 100 m above 183 m) |
| Exercise Speed (rpm) | | 1,500 | |
| Operating Speed (rpm) | | 1,800 | |

## GOVERNOR

| | |
|---|---|
| Type | Electronic |
| Frequency Regulation | Isochronous |
| Steady State Regulation | ±0.25% |

## COOLING SYSTEM

| | |
|---|---|
| Coolant | 50/50 (50% Ethylene Glycol) |
| Coolant System Capacity (US gal (L)) | 6.3 (24) |
| Water Pump Type | Belt Driven |
| Fan Type | Belt Driven |
| Fan Quantity | 1 |
| Exhaust Flow at Rated Output (CFM ($m^3$/min)) | 1,200 (34.0) |
| Maximum Ambient Air Temperature (°F (°C)) | 122 (50) |

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# GENERATOR SPECIFICATIONS

## FUEL SYSTEM

| | |
|---|---|
| Usable Fuels | Liquid Propane (LP) Vapor or Natural Gas (NG) |
| Fuel Type Configuration | Model-Specific, Not Selectable |
| LP Vapor Pressure (in $H_2O$ (kPa)) | 7-11 (1.74-2.74) |
| NG Pressure (in $H_2O$ (kPa)) | 7-11 (1.74-2.74) |
| Fuel Shutoff Solenoid | Standard |

## FUEL CONSUMPTION

LIQUID PROPANE

| Rated Load | RG13090 | | RG15090 | |
|---|---|---|---|---|
| | (US gph) | (L/h) | (US gph) | (L/h) |
| 25% | 4.7 | 17.9 | 5.1 | 19.4 |
| 50% | 7.6 | 28.9 | 8.4 | 31.8 |
| 75% | 10.6 | 40.0 | 11.9 | 44.9 |
| 100% | 13.5 | 51.1 | 15.3 | 58.1 |

Propane - 91,452 BTU/US gal (25.5 MJ/L); 36 $ft^3$/US gal (0.27 $m^3$/L); 2,516 BTU/$ft^3$ (93.7 MJ/$m^3$); 4.24 lb/US gal (0.508 kg/L).

NATURAL GAS

| Rated Load | RG13090 | | RG15090 | |
|---|---|---|---|---|
| | (CFH) | ($m^3$/h) | (CFH) | ($m^3$/h) |
| 25% | 509 | 14.4 | 562 | 15.9 |
| 50% | 858 | 24.3 | 964 | 27.3 |
| 75% | 1,204 | 34.1 | 1,353 | 38.3 |
| 100% | 1,554 | 44.0 | 1,769 | 50.1 |

Natural Gas - 1,036 BTU/$ft^3$ (37.3 MJ/$m^3$).
See Emissions Data Sheets for maximum fuel flow for EPA and SCAQMD permitting purposes.

## ELECTRICAL SYSTEM

| | |
|---|---|
| System Voltage (V) | 12 |
| Charge Alternator (A) | 40 |
| Battery Charger (A) | 5 |
| Recommended Battery (included) | Group 31, 925 CCA Minimum |

## ENCLOSURE

| | RG13090 | RG15090 |
|---|---|---|
| Sound Level at Operating Speed & No Load (dB(A) @23 ft (7 m)) | 75 | 80 |

## POWER ZONE 410 CONTROLLER


016030

Standard Features

- 128 x 64 Graphical Display with Heater
- Multi-Lingual
  - English
  - French
  - Spanish
  - Portuguese
- Three Phase Sensing Digital Voltage Regulator
- Full Range Standby Operation
- Full System Status
  - Three Phase AC Voltage
  - Three Phase Current
  - Power
  - Power Factor
  - Oil Pressure
  - Engine Coolant Temperature
  - Oil Temperature (check for oil temp sensor)
  - Fuel Pressure
  - Engine Speed
  - Battery Voltage
  - Output Frequency
  - Time
  - Date
  - Load On Line Power and Gen Power
  - Hourmeter
  - Service Reminders
  - Fault History (Alarm Log)
- Remote Communications
- Programmable Auto Crank
- Emergency Stop
- Not in Auto Flashing Light
- Selectable Low Speed Exercise
- NFPA 110 System Control Capable
- 5A Integrated Battery Charger

Standard Protections

- Low Oil Pressure
- Low Coolant Level
- High/Low Coolant Temperature
- Oil Temperature
- Over/Under Speed
- Over/Under Voltage
- Over/Under Frequency
- Over/Under Current
- Overload
- Battery Voltage
- Battery Charger Current
- Phase-to-Phase and Phase-to-Neutral Short Circuits ($I^2T$ Algorithm)
- Ground Fault

Display

- Easy Menu Structure
- Multi-Lingual (English, Spanish, French, and Portuguese)
- On Screen Editable Parameters
- Key Function Monitoring
  - Three Phase Voltage, Amperage, Power, Apparent Power, Reactive Power
  - Selectable Average or Line-to-Neutral Voltage Measurements
  - Frequency
  - Engine Speed
  - Engine Coolant Temperature
  - Oil Pressure
  - Battery Voltage
  - Warning and Alarm Indication
  - Diagnostics
  - Maintenance Events/Information
  - Hourmeter

Control Panel

- AUTO/OFF/MANUAL
  - Operation Through Onboard Buttons or Optional Key Switch
  - Indication Through Display Screen and LEDs
- Audible Alarm and Silence
- Auxiliary Shutdown Rocker Switch (on controller)
- Not-in-Auto Indication

Voltage Regulation

- Digital Control
- Three-Phase Sensing
- Variable V/F Slope Settings
- Negative Power Limit
- Loss of Sensing Protection
- Fault Protection ($I^2T$ Function)
- High Voltage Limit
- Low Voltage Limit
- Maximum Power Limit

Governor Functionality

- Speed Control through ECM Integration

Communications Ports

- 1 CANbus Port
- 1 USB Port (for Configuration Transfer and Firmware Upgrades)
- 1 RS-485 Modbus Master Port (for External RAP/RRP/External I/O Modules)
- 1 RS-485 Modbus Slave Port (for other uses, e.g. Building Management)
- 2 RS-232 Communication Ports (for connectivity device or other uses)

Codes And Standards

- UL 6200
- CE
- NFPA 110

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# AVAILABLE ACCESSORIES

| PRODUCT | PART NUMBER | DESCRIPTION |
|---|---|---|
| **Control System Kits** | | |
| Generac Generator Connectivity Accessory Cellular | G0072150 | The GGCAC provides a reliable cellular connection for the generator. Monitoring of the generator is possible for the owner using Mobile Link and for the servicer using Fleet. Generator owners will have peace-of-mind knowing the generator status at any time and be able to get support when needed. RG13090 and RG15090 generators which do not already have the GGCAC require the A0005792571 Wire Harness to install it; NEW RG13090 and RG15090 generators INCLUDE the GGCAC as standard. |
| RG13090–RG15090 GGCAC Wire Harness | A0005792571 | Wire harness required to connect the G0072150 Generac Generator Connectivity Accessory Cellular to the Power Zone 410 controller in the RG13090 and RG15090. |
| Enclosure Mounted Emergency Stop Kit | G0065100 | Emergency Stop consists of a red push button switch; mounts to the exterior of the generator enclosure; replaces the Generator Emergency Shutdown rocker switch in the same location. |
| Remote Emergency Stop Kit, Surface Mount | G0099250 | Emergency Stop consists of a red push button switch with a twist release; switch has an aluminum enclosure which can be mounted extending out from a surface; mounts remote from generator such as near an electrical panel. |
| Remote Emergency Stop Kit, Flush Mount | G0099260 | Emergency Stop consists of a red push button switch with twist release; switch has an aluminum enclosure which can be mounted flush; mounts remote from generator such as near an electrical panel. |
| Remote Emergency Stop Kit, Break Glass | G0099270 | Emergency Stop consists of a spring-loaded switch; switch is behind breakable glass in an aluminum enclosure; glass can be broken with a tethered hammer; mounts remote from generator such as near an electrical panel. |
| Generac Load Manager, 50 A | G0070001 | 50 A Load Manager helps optimize the performance of the standby generator by managing large electrical loads upon startup and shed them to aid in recovery when overloaded. |
| Generac Load Manager, 100 A | G0070061 | 100 A Load Manager helps optimize the performance of the standby generator by managing large electrical loads upon startup and shed them to aid in recovery when overloaded. |
| Generac LTE Propane Tank Fuel Level Monitor | G0070090 | The Propane Tank Fuel Level Monitor connects to 4G LTE cellular service to measure and report the amount of LP fuel remaining in the tank. The app alerts the user of both remaining LP fuel levels and usage reports, offering the ultimate peace of mind. |
| 400 A CB Kit | G0098850 | 400 A Circuit Breaker Kit designed for three-phase products built with a factory installed circuit breaker greater than 400 A. |
| **Power Zone Kits** | | |
| NFPA 110 Controller Kit | A0003134325 | Includes module with Key Switch, Alarm Horn, and E-stop Switch which connects to power Zone 410 controller; also includes 10 A battery charger; requires G0098511, G0098521, or G0098531 Panel to be considered for NFPA 110 system control and remote annunciation. |
| Remote Annunciator Panel with 8 Relays | G0098511 | Remote annunciator panel with relays; mounts in the structure which is connected to backup power. |
| Remote Relay Panel | G0098521 | Remote relay panel without LED's or keypad; mounts in the structure which is connected to backup power. |
| Remote Annunciator Panel without Relays | G0098531 | Remote annunciator panel without relays; mounts in the structure which is connected to backup power. |
| Power Zone 410I/O Extender Kit | G0098370 | Expands I/O for the Power Zone 410 controller to provide connections for additional accessories; plugs directly into controller. |
| Power Zone Gateway Kit | G0089370 | Provides an Ethernet connection port for the generator for a Building Management System (BMS); NOT intended for or able to be used with Mobile Link or Fleet. |
| **Operating Environment Kits** | | |
| Battery Heater Kit | G0098830 | Recommended for operating environments where the temperature drops below 32 °F (0 °C) ; externally powered by 120 VAC, 60 Hz. |
| Engine Block Heater Kit | G0098840 | Recommended for operating environments where the temperature drops below 0 °F (-18 °C) ; externally powered by 120 VAC, 60 Hz. |

# AVAILABLE ACCESSORIES

| | | |
|---|---|---|
| **Installation Kits** | | |
| Base Plug Kit | G0056510 | Base plugs to fit in the lifting holes of the baseframe to keep debris out. |
| **Maintenance Kits** | | |
| 9 L Gaseous Engine Regular Maintenance Kit | G0098820 | Regular maintenance kit includes oil filter, oil funnel, air filter, and spark plugs. |
| Bisque Paint Kit | G0057030 | 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 correctly maintain or touch-up a generator enclosure. |
| **Transfer Switch Kits** | | |
| 3-Phase Voltage Sensing Kit for 208/120 & 240/120V RTS Transfer Switch | G0074110 | 3-Phase Voltage Sensing Kit required for RTS Transfer Switches when used with the Power Zone 410 controller for 'G' 208/120 or 'J' 240/120 V 3-phase voltage; applies to three-phase RG13090 and RG15090 models with 'G' or 'J' voltage. |
| 3-Phase Voltage Sensing Kit for 480/277 V RTS Transfer Switch | G0074120 | 3-Phase Voltage Sensing Kit required for RTS Transfer Switches when used with the Power Zone 410 controller for 'K' 480/277 V 3-phase voltage; applies to three-phase RG13090 and RG15090 models with 'K' voltage. |

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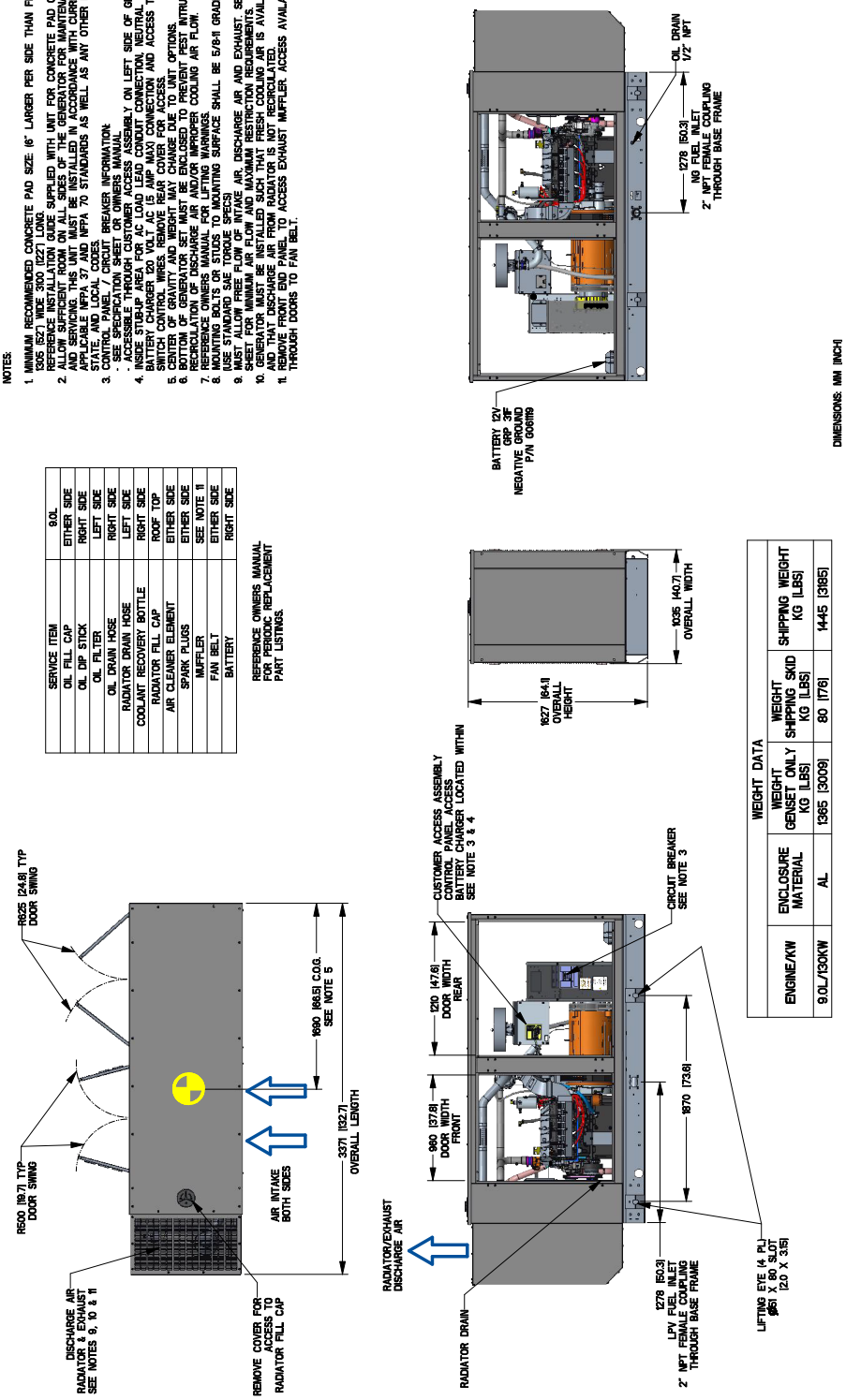
# INSTALLATION LAYOUT

## 130 KW

Drawing #A0001618959 (1 of 2)



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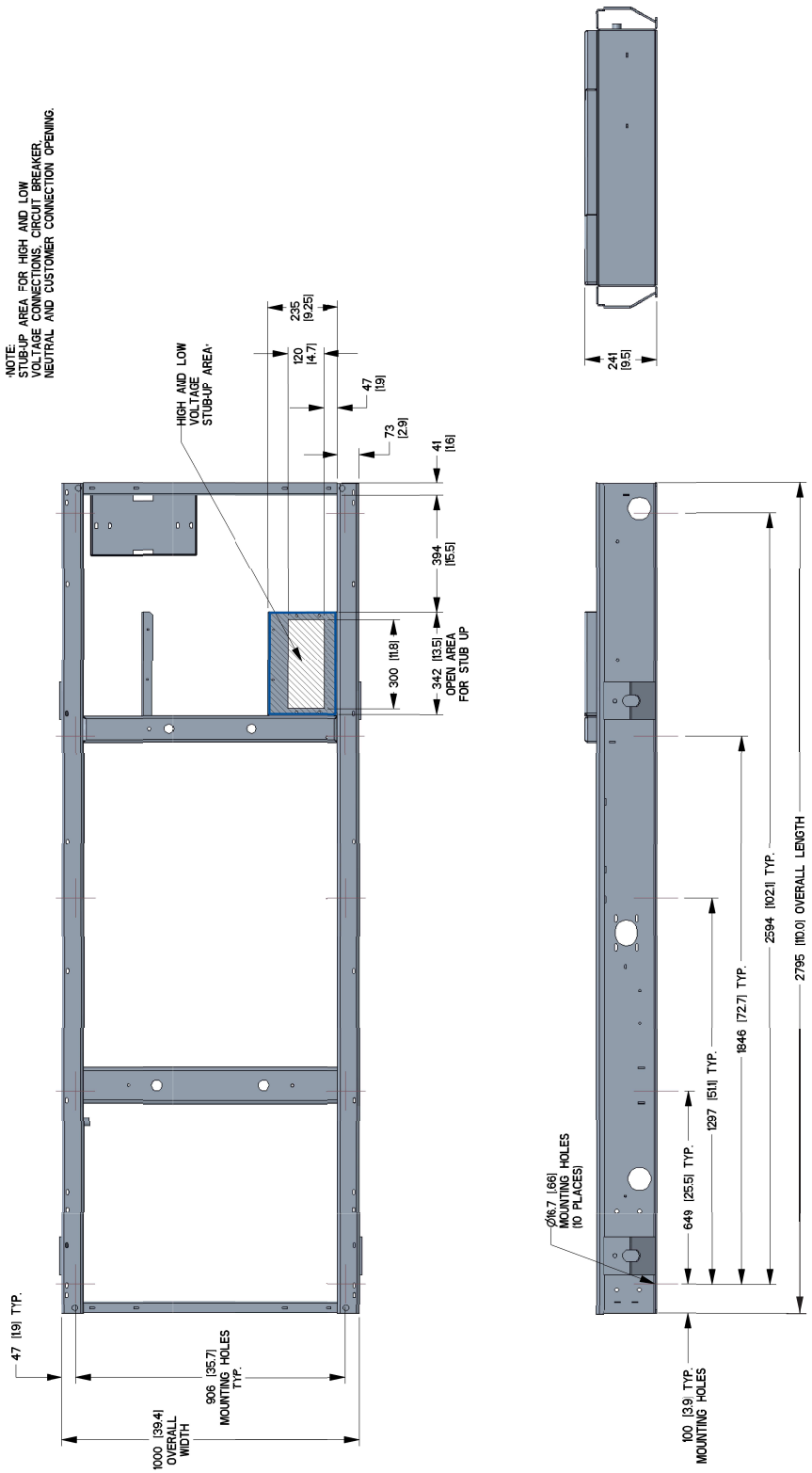

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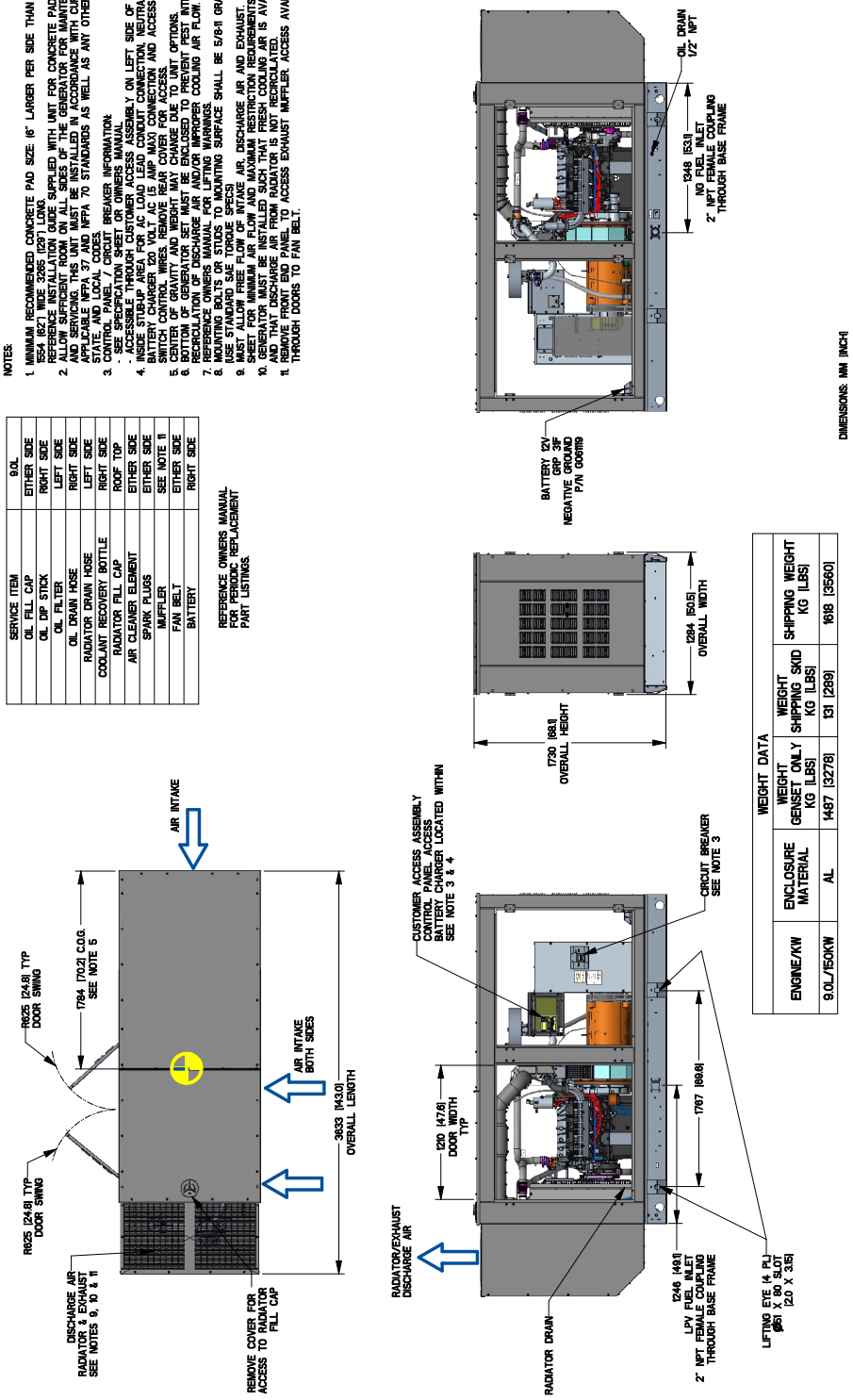
# INSTALLATION LAYOUT

## 150 KW

Drawing #A0001618957 (1 of 2)



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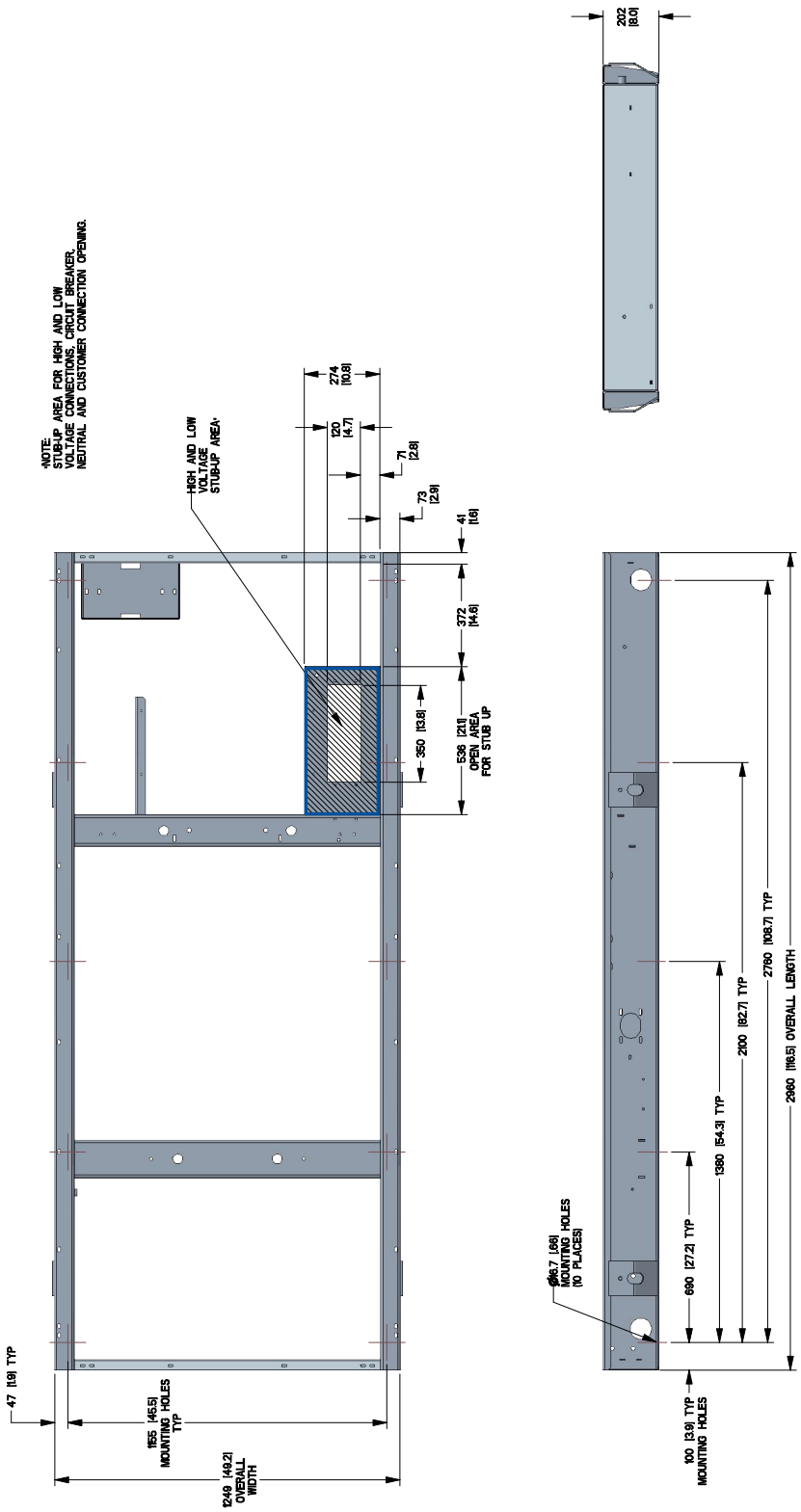
# INSTALLATION LAYOUT

Drawing #A0001618957 (2 of 2)



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