

ATTACHMENT 3

P65-17-XLH-RR**Dual Broadband Antennas**

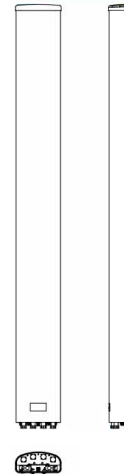
POLARIZATION: Dual linear $\pm 45^\circ$
 FREQUENCY (MHz): 698-894, 1710-2170
 HORIZONTAL BEAM WIDTH ($^\circ$): 65, 65
 GAIN (dBi/dBd): 17.2/15.1 17.5/15.4
 TILT: 0-6, 0-10
 LENGTH: 96"

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894		1710-2170		
	698-806	806-894	1710-1880	1850-1990	1900-2170
Frequency band (MHz)	698-806	806-894	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	16.4/14.3	17.2/15.1	16.9/14.8	17.2/15.1	17.5/15.4
Polarization	Dual Linear +/- 45		Dual Linear +/- 45		
Nominal Impedance (Ω)	50		50		
VSWR	< 1.5:1		< 1.5:1		
Horizontal beam width, -3 dB ($^\circ$)	70	63	60	63	60
Vertical beam width, -3 dB ($^\circ$)	8.4		6.5		
Electrical down tilt ($^\circ$)	0 to 6		0 to 10		
Side lobe suppression, vertical 1st upper (dB)	> 16		> 16		
Isolation between inputs (dB)	> 30		> 30		
Inter band Isolation (dB)	> 40		> 40		
Tracking, horizontal plane $\pm 60^\circ$ (dB)	< 2		< 2		
Vertical beam squint ($^\circ$)	< 0.5		< 0.5		
Front to back ratio (dB) $180^\circ \pm 30^\circ$ copolar	25		> 30		
Front to back ratio (dB) $180^\circ \pm 30^\circ$ total power	22		> 25		
Cross polar discrimination (XPD) 0° (dB)	> 15		> 15		
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	10		10		
IM3, 2xTx@43dBm (dBc)	-153		-153		
Power handling, average per input (W)	500		300		
Power handling, average total (W)	1000		600		

MECHANICAL SPECIFICATIONS*

Connector	4 X 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, in (mm)	96" x 12" x 6" (2438 x 305 x 152)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, lbs (kg)	70 (32)
Weight, without brackets, lbs (kg)	59 (27)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.0 (N)	1840
Maximum operational wind speed, mph (m/s)	100 (45)
Survival wind speed, mph (m/s)	150 (67)
Lightning protection	DC Ground
Operating Temperature	
Radome material	PVC
Packet size, HxWxD, in (mm)	107" x 16" x 10" (2725 x 400 x 255)
Radome colour	Light Grey
Shipping weight, lbs (kg)	81 (37)
RET	iRET AISGv1.1, MET and AISGv2.0 Available
Brackets	7256.00, 7454.00, 2210.00



*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit <http://www.powerwave.com/rpa/>.

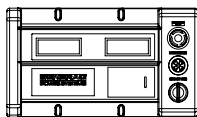
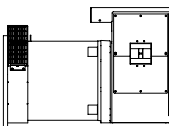
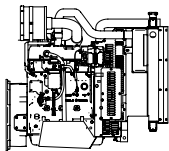
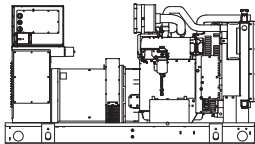
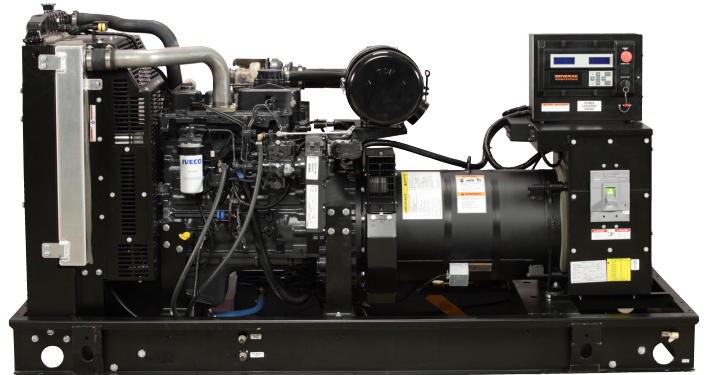
SD050

CUSTOM MODEL

Industrial Diesel Generator Set

EPA Emissions Certification: Tier III

Standby Power Rating
50KW 60 Hz



features

benefits

Generator Set

- PROTOTYPE & TORSIONALLY TESTED
 - UL2200 TESTED
 - RHINOCOAT PAINT SYSTEM
 - SOUND LEVEL 2 ENCLOSURE
- ▶ PROVIDES A PROVEN UNIT
 - ▶ ENSURES A QUALITY PRODUCT
 - ▶ IMPROVES RESISTANCE TO ELEMENTS
 - ▶ 71dba @ 7 METERS (23FT)

Engine

- EPA TIER CERTIFIED
 - INDUSTRIAL TESTED, GENERAC APPROVED
 - POWER-MATCHED OUTPUT
 - INDUSTRIAL GRADE
- ▶ ENVIRONMENTALLY FRIENDLY
 - ▶ ENSURES INDUSTRIAL STANDARDS
 - ▶ ENGINEERED FOR PERFORMANCE
 - ▶ IMPROVES LONGEVITY AND RELIABILITY

Alternator

- TWO-THIRDS PITCH
 - LAYER WOUND ROTOR & STATOR
 - CLASS H MATERIALS
 - DIGITAL 3-PHASE VOLTAGE CONTROL
- ▶ ELIMINATES HARMFUL 3RD HARMONIC
 - ▶ IMPROVES COOLING
 - ▶ HEAT TOLERANT DESIGN
 - ▶ FAST AND ACCURATE RESPONSE

Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
 - 4-20mA VOLTAGE-TO-CURRENT SENSORS
 - SURFACE-MOUNT TECHNOLOGY
 - ADVANCED DIAGNOSTICS & COMMUNICATIONS
- ▶ EASY, AFFORDABLE REPLACEMENT
 - ▶ NOISE RESISTANT 24/7 MONITORING
 - ▶ PROVIDES VIBRATION RESISTANCE
 - ▶ HARDENED RELIABILITY

primary codes and standards



SD050

application and engineering data

ENGINE SPECIFICATIONS

General

Make	Iveco / FPT
EPA Emissions Compliance	Tier III
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Type	Diesel
Displacement - L (cu. in.)	4.5 (274)
Bore - mm (in.)	105 (4.1)
Stroke - mm (in.)	132 (5.2)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron / Wet Sleeve

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	+/- 0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (gal)(qts)	13.6 (3.6) (14.4)

Cooling System

Cooling System Type	Closed
Water Pump	Belt Driven Centrifugal
Fan Type	Pusher
Fan Blade Number	2538 (10)
Fan Diameter (in.)	26
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Inject Pump Make	Standyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Engine Type	Direct Injection
Fuel Supply Line - mm (in.)	1/4 inch Npt
Fuel Return Line - mm (in.)	1/4 inch Npt

Engine Electrical System

System Voltage	12VDC
Battery Charging Alternator	90 Amp
Battery Size (at 0 oC)	Optima Redtop
Battery Group	34
Battery Voltage	12VC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	< 3.5%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	PMG
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Load Capacity - Prime	100%
Prototype Short Circuit Test	Y

Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	+/- 0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

- NFPA 99
- NFPA 110
- ISO 8528-5
- ISO 1708A.5
- ISO 3046
- BS5514
- SAE J1349
- DIN6271
- IEEE C62.41 TESTING
- NEMA ICS 1

Rating Definitions:

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

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operating data (60Hz)

POWER RATINGS (kW)

Single-Phase 120/240VAC @1.0pf
 Three-Phase 120/208VAC @0.8pf
 Three-Phase 120/240VAC @0.8pf
 Three-Phase 277/480VAC @0.8pf
 Three-Phase 346/600VAC @0.8pf

STANDBY		
50	Amps:	208
-	Amps:	-
-	Amps:	-
-	Amps:	-
-	Amps:	-

NOTE: Generator output limited to 200A.

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

Alternator*	kW	480VAC						208/240VAC					
		10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	50	-	-	-	-	-	-	26	39	52	65	77	90
Upsize 1		-	-	-	-	-	-	-	-	-	-	-	-
Upsize 2		-	-	-	-	-	-	-	-	-	-	-	-

*All Generac industrial alternators utilize Class H insulation materials. Standard alternator provides less than or equal to Class B temperature rise. Upsize 1 provides less than or equal to Class B temperature rise. Upsize 2 provides less than or equal

FUEL

Fuel Consumption Rates

Fuel Pump Lift - in (m)
36(.9)

STANDBY		
Percent Load	gph	lph
25%	1.52	5.75
50%	2.33	8.82
75%	3.08	11.65
100%	4.15	15.71

COOLING

Coolant System Capacity - Gal (L)
4.5 (17.44)

Maximum Radiator Backpressure
1.5" H₂O Column

STANDBY		
Coolant Flow per Minute	gpm (lpm)	32.7(123.8)
Heat rejection to Coolant	BTU/min	123,000
Inlet Air	cfm (m3/min)	6,360 (180.0)
Max. Operating Radiator Air Temp	F° (C°)	122(50)
Max. Operating Ambient Temperature	F° (C°)	122(50)

COMBUSTION AIR REQUIREMENTS

Intake Flow at Rated Power
 cfm (m3/min) 247 (7.00)

EXHAUST

Exhaust Outlet Size (Open Set)
3.0"
 Maximum Backpressure (Post-Silencer)
1.5" Hg

STANDBY		
Exhaust Flow (Rated Output)	cfm (m3/hr)	534(906.7)
Maximum Backpressure	inHg (Kpa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	930(498.8)

ENGINE

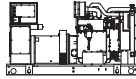
STANDBY		
Rated Engine Speed	rpm	1800
Horsepower at Rated kW	hp	93
Temperature Deration		Consult Factory
Altitude Deration		Consult Factory

* CA units include aftertreatment

SD050

standard features and options

GENERATOR SET



- Genset Vibration Isolation Std
- Factory Testing Std
- Extended warranty Std
- Padlockable Doors Std
- Steel Enclosure (Enclosed Models) Std
- Remote Emergency Shutdown Opt

ENGINE SYSTEM



General

- Oil Drain Extension Std
- Air Cleaner Std
- Industrial Exhaust Silencer (Open Sets, ship loose) Std
- Critical Exhaust Silencer (Enclosed Sets) Std
- Stainless steel flexible exhaust connection Std

Fuel System

- Primary Fuel Filter with Water Separator Std
- Flexible Fuel Lines Std
- UL142 Fuel Tank, 48 Hr Runtime Std
- 2 Gal Overflow Containment with Alarm Std

Cooling System

- 120VAC Coolant Heater (3-wire connection cord) Std
- 50%/50% Coolant Std
- Level 1 Guarding (Open Sets) Std
- Closed Coolant Recovery System Std
- UV/Ozone resistant hoses Std
- Factory-Installed Radiator Std
- Radiator Drain Extension Std
- Fan guard Std
- Radiator duct adapter (Open Sets) Std
- Std

Engine Electrical System

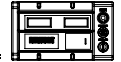
- Battery charging alternator Std
- Battery cables Std
- Battery tray Std
- 75W 120VAC Battery heater Std
- Solenoid activated starter motor Std
- 10A UL float/equalize battery charger Std
- Weather Resistant electrical connections Std
- Duplex GFCI Convenience Outlet Std

ALTERNATOR SYSTEM



- UL2200 GENprotect™ Std
- 100% Rated 200A Main Line Circuit Breaker Std

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display Std
- Programmable Crank Limiter Std
- 7-Day Programmable Exerciser (requires H-Transfer Switch) Std
- Special Applications Programmable PLC Std
- RS-232 Std
- RS-485 Std
- All-Phase Sensing DVR Std
- Full System Status Std
- Utility Monitoring (Req. H-Transfer Switch) Std
- 2-Wire Start Compatible Std
- Power Output (kW) Std
- Power Factor Std
- Reactive Power Std
- All phase AC Voltage Std
- All phase Currents Std
- Oil Pressure Std
- Coolant Temperature Std
- Coolant Level Std
- Low Fuel Pressure Indication Std
- Engine Speed Std
- Battery Voltage Std
- Frequency Std
- Date/Time Fault History (Event Log) Std
- UL2200 GENprotect™ Std
- Low-Speed Exercise Opt
- Isochronous Governor Control Std
- 40deg C - 70deg C Operation Std
- Weather Resistant Electrical Connections Std
- Audible Alarms and Shutdowns Std
- Not in Auto (Flashing Light) Std
- On/Off/Manual Switch Std
- E-Stop (Red Mushroom-Type) Std
- Remote E-Stop (Break Glass-Type, Surface Mount) -
- Remote E-Stop (Red Mushroom-Type, Surface Mount) -
- Remote E-Stop (Red Mushroom-Type, Flush Mount) -
- NFPA 110 Level I and II (Programmable) Std
- Remote Communication - RS232 Std

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

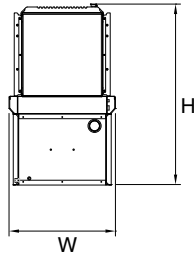
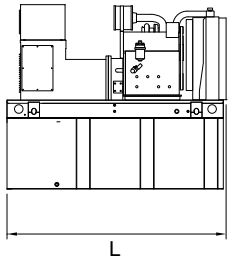
- Low Fuel Std
- Oil Pressure (Pre-programmed Low Pressure Shutdown) Std
- Coolant Temperature (Pre-programmed High Temp Shutdo) Std
- Coolant Level (Pre-programmed Low Level Shutdown) Std
- Engine Speed (Pre-programmed Overspeed Shutdown) Std
- Voltage (Pre-programmed Overvoltage Shutdown) Std
- Battery Voltage Std

Other Options

- Single Side Service
-
-

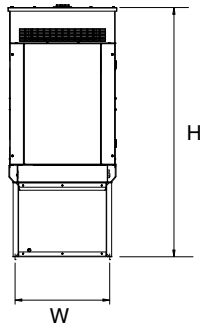
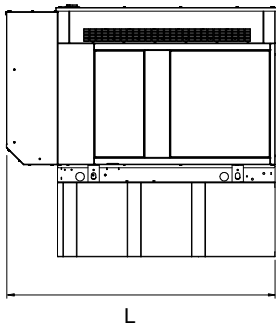
SD050

dimensions, weights and sound levels



OPEN SET

		TANK SIZE						dBA*
RUNTIME HOURS	CAPACITY (GAL)	TANK VOLUME	L	W	H	WT		
○	-	-	-	-	-	-	-	84
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
●	48	210	210	76	38	87	3400	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	



LEVEL 2 SOUND ENCLOSURE

		TANK SIZE						dBA*
RUNTIME HOURS	CAPACITY (GAL)	TANK VOLUME	L	W	H	WT		
○	-	-	-	-	-	-	-	71
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
●	48	210	210	94.8	38	99	3935	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	

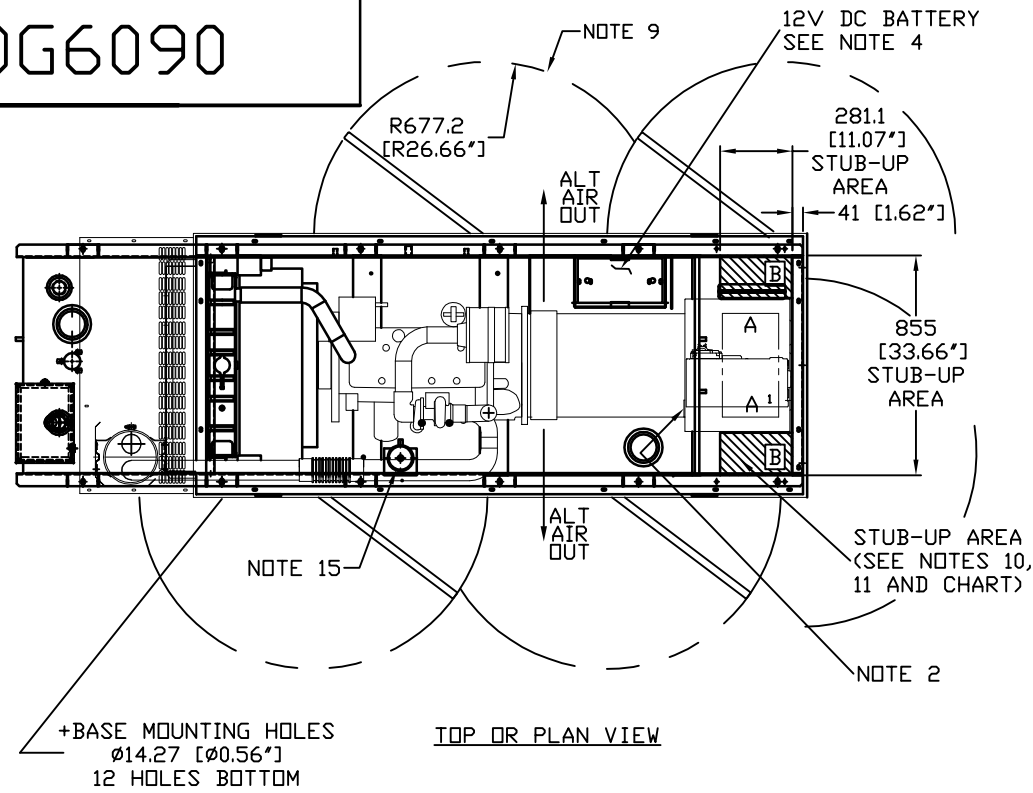
LxWxH= 7'11"x3'2"x8'3" Weight 3935lbs

*Required gallons based on 100% of standby rating. Weights consider steel enclosure and are without fuel in tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

OG6090



RECOMMENDED FUEL/ELECTRICAL STUB-UPS
(SEE TOP VIEW)

DESCRIPTION	INSIDE BASE
AC LOAD LEAD CONDUIT (RIGHT)	A
(LEFT)	A'
ADDITIONAL STUB UP AREA FOR 120VAC GFCI OUTLET, (STANDARD BLOCK HEATER, BATTERY CHARGER, AND OTHER 120 VAC OPTIONS).	B

NOTE:

FUEL SYSTEM SET UP WITH OUTSIDE STUB UPS (SEE RIGHT SIDE VIEW). UNITS SOLD WITH OPTIONAL BASE TANK HAVE FUEL SYSTEM PLUMBED TO TANK.

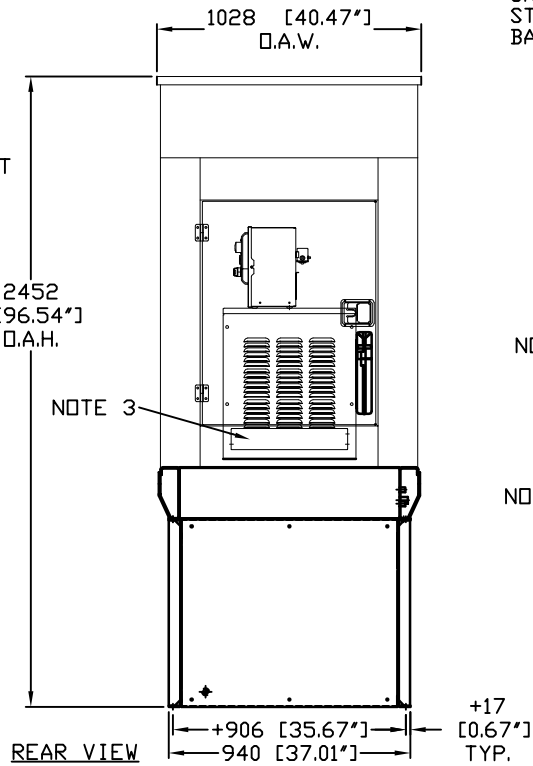
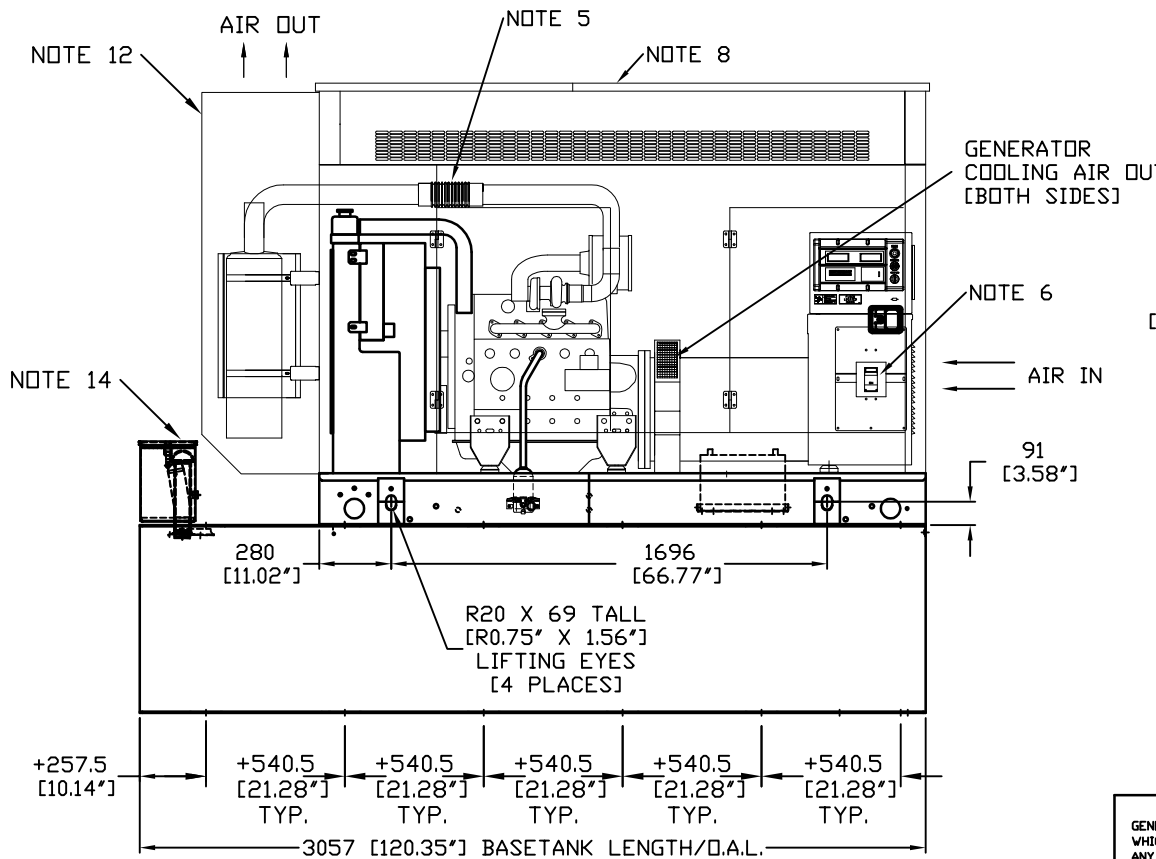
ENGINE SERVICE CONNECTIONS

FUEL INLET = 1/4" NPT COUPLING
 FUEL RETURN = 1/4" NPT COUPLING
 RADIATOR DRAIN = 1/4" NPT COUPLING
 OIL DRAIN = 1/2" NPT COUPLING

NOTES:

- CONTROL PANEL MAY BE ROTATED 180° IN EITHER DIRECTION.
- STANDARD 20A GFCI DUPLEX OUTLET - 120VAC REQUIRED
- CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN AC CONNECTION PANEL.
- 12 VOLT NEGATIVE GROUND SYSTEM.
- 2.5" I. D. FLEX EXHAUST, STANDARD WITH COMPARTMENT UNITS, OPTIONAL WITHOUT.
- MAIN LINE CIRCUIT BREAKER (MLCB) AND AC LOAD LEAD CONNECTION.
- MANUAL BOX.
- LEVEL 2A ACOUSTIC COMPARTMENT.
- DOORS MUST BE OPENED 90 DEGREES TO BE REMOVED.
- STUB-UPS:
STANDARD BASE TANK REQUIRES ALL STUB-UPS TO BE OUTSIDE OR IN THE REAR TANK STUB-UP AREA.
- 'A' OR 'A1' IS THE STUB UP AREA UNDER THE MLCB, DEPENDING ON CIRCUIT BREAKER LOCATION. AREA B IS STUB UP AVAILABLE FOR UNITS WITH A BASE TANK.
- SEE DRAWING OF 0755 FOR DUCT REMOVAL. REMOVAL OF FRONT DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.
- AT&T SPECIAL OUTPUTS TERMINAL BLOCK LOCATION BEHIND COVER.
- FUEL FILL W/ 5 GALLON SPILL FILL.
- STANDARD 120VAC ENGINE BLOCK HEATER.

+ NOTE: DIMENSIONS ARE FOR BASE MOUNTING HOLE LOCATIONS.



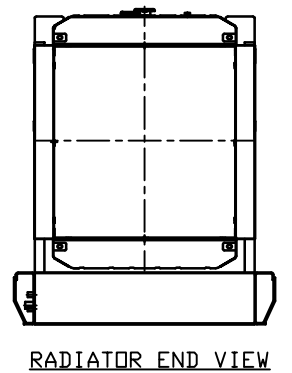
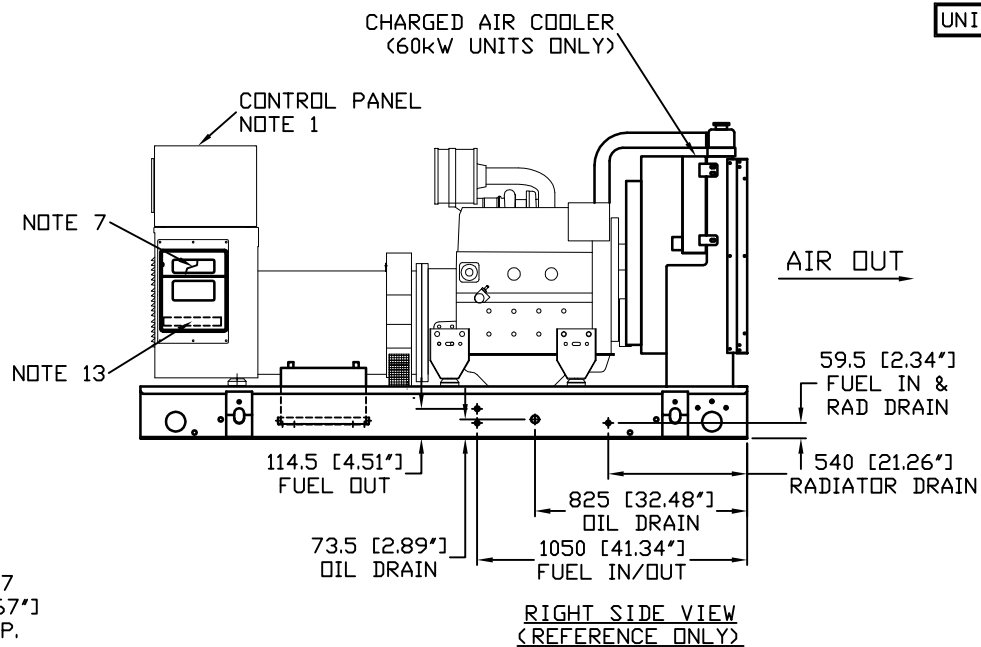
WEIGHT DATA

UNIT: 998 kg [2200 lbs]
 STEEL ENCLOSURE: 378 kg [835 lbs]
 BASETANK W/O FUEL (EST.): 640 kg [1411 lbs]

BASETANK DATA

TOTAL TANK CAPACITY: 794 L [210 GAL]
 USEABLE TANK CAPACITY: 757 L [200 GAL]
 UL #142 LISTED

UNITS: mm [INCHES]



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EST. WT.
 FINAL WT.

DO NOT SCALE

ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994

UNLESS OTHERWISE SPECIFIED:

ALL XX DIM. --- ±.4 MM
 ALL XX.X DIM. --- ±.4 MM
 ALL XX.XX DIM. --- ±.15 MM
 ALL ANGLES ---- ±1°

DRAWING TITLE

INSTALL AT&T 50/60kW
 W/LVL 2A & 210 GAL TANK

MATERIAL

DWN	WMF	DATE	6/13/07	MFG	DATE
CHKD	DATE	APPD	DATE	DATE	DATE
RELEASED FOR PRODUCTION	BY	DATE	DATE	DATE	DATE

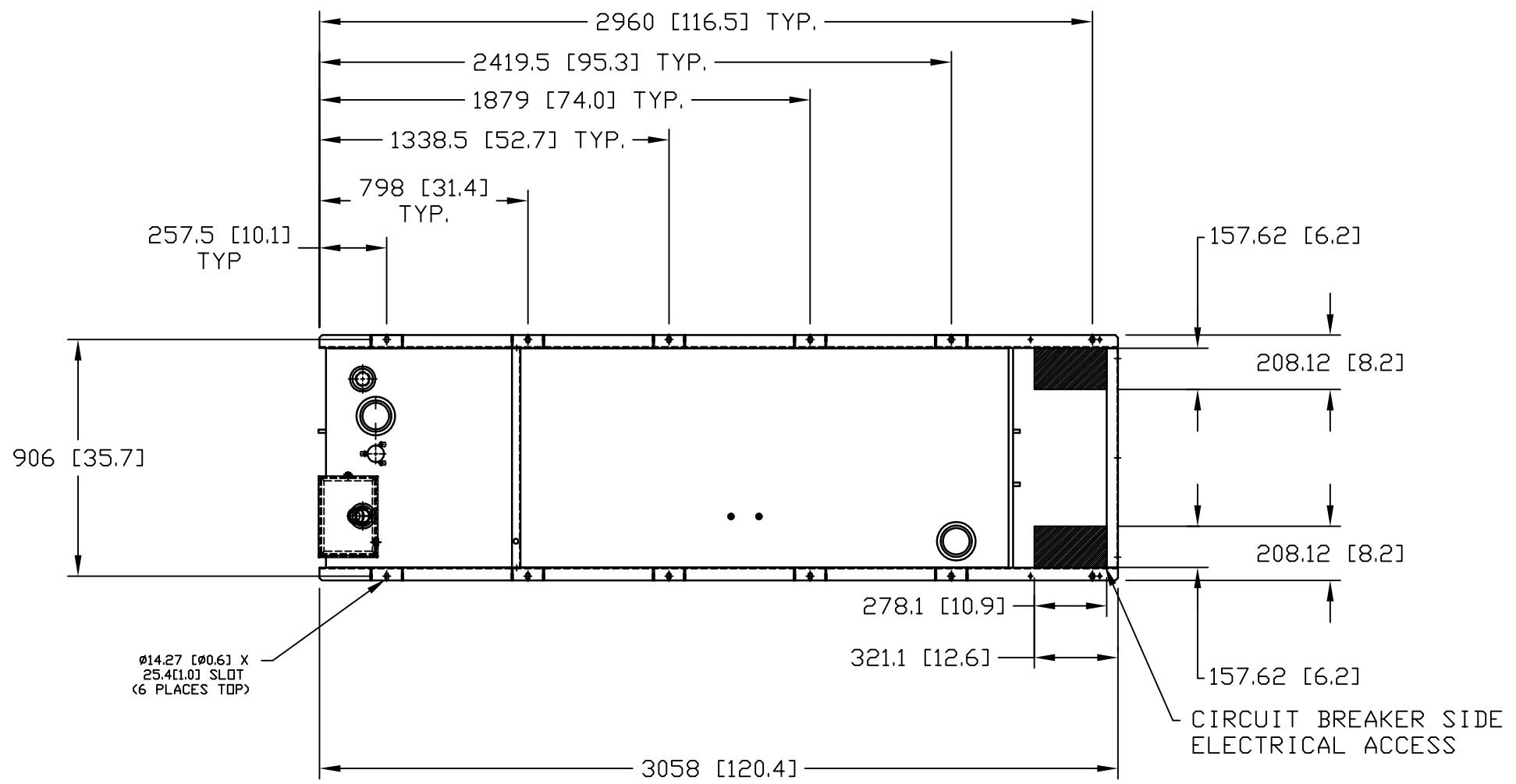
GENERAC POWER SYSTEMS
 Waukesha
 P.O. BOX 8
 WAUKESHA, WIS. 53187

FILE NAME: OG6090-A.DWG SIZE: B

SCALE: 1=40 FIRST USE: AT&T 50KW

DWG NO. 0G6090 REV: A

PAD LAYOUT



PLAN VIEW

210 GALLON U. L. 142
 FUEL TANK BASE
 WITH SECONDARY CONTAINMENT

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PAD LAYOUT	
D3.0L G4 50KW	
AT&T STATIONARY UNITS	
W/ 210 GALLON BASE TANK	

GENERAC POWER SYSTEMS Waukesha P.O. BOX 8 WAUKESHA, WIS. 53187	
FILE NAME	PAD LAYOUT.DWG
SCALE	NONE
DWG NO.	PAD LAYOUT
SIZE	B
FIRST USE	AT&T 50KW ST
REV	A

INSTALLATION DRAWING