ORIGINAL

0000141776

APPALOOSA WATER COMPANY
PO BOX 3150
CHINO VALLEY AZ 86323

Arizona Corporation Commission
Utilities Division
1200 W Washington Street
Phoenix, AZ 85007

Docket No. W-03443A-10-0143
Docket No. W-03443A-11-0040
Decision No - 73270

January 9, 2013

In Decision No. 73270 Appaloosa Water Company was authorized to obtain a WIFA loan not to exceed $160,000 for a 50,000 gallon storage tank (100,000) and two emergency generators with propane tanks(60,000). The application to WIFA for the tank and the generators was denied as WIFA deemed the storage tank as ineligible. Further investigation into the need for the storage tank by Appaloosa Water Company and the Chino Valley Fire Department has all concerned coming to the conclusion that the storage capacity and the current daily demand is being met. After the revision of the application to only the generators with propane tanks WIFA did an onsite inspection and concluded that the current request for the type of generators with propane tanks was inadequate. WIFA recommended that only one generator was needed and that the bigger size would accommodate the Water Company's needs.

Appaloosa Water Company therefore requests the Arizona Corporation Commission to revise its' original decision to allow for the following changes to the decision:

Keeping within the scope of the authorized loan of $160,000 Appaloosa Water Company requests the storage tank be omitted. The two generators requested be changed to one and the $60,000 allotted to cost of the generators be increased to $100,000.

Appaloosa Water Company has a General Contractor (Josal Inc) and a Sub-contractor (Pump Tech) who is well experienced and professional in doing this kind of work for Water Companies. Pump Tech has submitted a proposal for the work that is required. There are some areas in the proposal that are estimated. Appaloosa Water Company is asking for the $100,000 loan authorization increase so that there will be enough money to cover the proposed amount and/or any miscellaneous fees, change orders, or any other increases to original proposal that may appear.

Arizona Corporation Commission
DOCKETED
JAN 28 2013
DOCKETED BY

Contractor fee.....	7,500.00
Proposal.....	75,462.39
Miscellaneous.....	17,037.61
Loan amount	100,000.00

Sincerely,

Joe Cordovana
Appaloosa Water Company

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73270

Est. & Contract

PUMP TECH

Statewide Service

Bill Roberts
Pump Division
ROC183316
ROC183317

(928) 632-4594 - Office
(928) 636-8008 - Office
(928) 632-4593 - Fax

P.O. Box 1076 - Mayer, AZ 86333
10151 Hwy. 69 Mayer, AZ 86333

TO: Joe Cordovana @ Appaloosa Meadows DATE: 1-4-13

ADDRESS:

PHONE:

RE: **New Pumps and Back up Generator**

QTY	PART	DESCRIPTION	ITEM		TOTAL
1		80 KW Stand By Generator			$33,045.00
		Includes Automatic Transfer Switch			
1	20 HP	275 GPM Turbine Submersible	**Pump & Motor 480v 3 Phase**		$6,497.50
1	20 HP	Pumping Panel	**480v 3 Phase**		$1,263.00
320'	#12/4	Submersible Cable			$380.16
315'	3"	Black Pipe Threaded & Coupled			$2,598.75
1	3"	Ductile Iron Check Valve			$440.00
1	Misc.	Materials and Supplies			$125.00
2	15 HP	B2ZPLS 275 GPM	**Booster Pumps**		$6,664.00
2	15 HP	Pump Panels	**480v 3 Phase**		$2,314.00
1		(Conduit, Wire, Etc.) **Estimated**	**Misc. Electrical**		$7,837.50
1		(Pipe, Valves, Fittings Etc.) **Estimated**	**Misc. Plumbing**		$2,557.50
1	Misc.	Concrete **(Estimated)**			$495.00
TERMS: 1/2 down with balance due upon completion of job unless prior arrangements are made.					
				SUBTOTAL:	**$64,217.41**
				TAX:	**$4,719.98**
				SETTING GENERATOR LABOR:	**$425.00**
				SUBMERSIBLE PUMP LABOR:	**$1,200.00**
				BOOSTER PUMP LABOR:	**$4,500.00**
This estimate good for 30 days only.				**SPECIALTY EQUIP RENTAL:**	**$400.00**
				TOTAL:	**$75,462.39**

I _____ as property owner, and/or responsible party or agent, do hereby agree to pay the amount shown, according to the terms thereof, and have thus authorized Pump Tech to commence construction. NOTE: Pump Tech retains ownership of above materials until the bill is paid in full.

Interest will be charged to all accounts 30 days or more past due at 1.5% per month or 18% per year.

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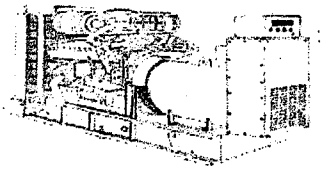

Gen-Tech

Arizona Generator Technology, Inc.

7901 N. 70th Avenue | Glendale, AZ 85303 | 623-937-1719 | (F) 623-937-040

QUOTATION v5

Project

Appaloosa Meadows Water
80kW Natural Gas Fueled Standby
Generator and 100A Automatic Transfer
Switch

Date: December 20, 2012

Gen-Tech Reference #: Q13890-R5

We appreciate the opportunity to provide this quotation to meet the needs of this project. Based on our understanding of the requirements, we propose the following equipment and services for your consideration:

One (1) Generac model SG080 packaged generator set rated 80kW standby, 3 Phase, 277/480V, 60Hz @ 1800 RPM and .8 Power Factor, equipped as follows:

- 9.0 Liter, EPA Certified, four cycle, water cooled gaseous fueled engine
- Fuel system configured for use with natural gas
- Flexible fuel line - shipped loose for field installation
- Electronic isochronous governor with +/- 1/4% frequency regulation
- Generac AC generator - with brushless excitation
  - Solid state automatic voltage regulator
  - **Upsized alternator to 100kW to meet motor starting requirements**
- Steel channel subbase
- Elastomeric vibration isolation between engine/generator and mounting rails
- Pad type vibration isolation pads for field installation under mounting rails
- Radiator with blower fan and guards
- Jacket water heater, 1000W, 120VAC, Single Phase
- 12V DC electric starting with battery charging alternator
- Lead acid battery set with unit mounted rack and cables
- Automatic battery charger, 10A, 120VAC, 1 Phase with:
  - DC Ammeter
  - DC Voltmeter
  - Automatic equalizer system
  - Fused AC input and DC output
  - Temperature compensated
- Model "H" programmable automatic start/stop engine control and monitoring system with:
  - Two 4 line x 20 displays to monitor and display:
    - Three phase AC voltage
    - Three phase AC amperage
    - Kilowatts
    - Power Factor
    - Reactive power (kVAR)

- Oil pressure
- Water temperature
- Water level
- Fuel pressure
- Engine speed
- Battery voltage
- Alternator frequency
- Current Time and Date
- Transfer switch status (requires HTS transfer switch)
- Runtime hours
- Service reminders
- Trending
- Fault history (alarm log)

Built in PLC for special applications
Audible alarm for fault condition
Emergency Stop Pushbutton
Programmable engine control and monitoring module including:
- Manual, off, auto switch
- Four LED's to indicate:
  1) Not in Auto
  2) Alarm Active
  3) Generator Running
  4) Generator Ready

Communications via RS232, RS485 or optional modem
Shutdowns with indications for:
- Overvoltage
- Over-speed
- Low oil pressure
- High coolant temperature
- Low coolant level

Weekly exerciser (programmable)
Digital voltage regulator with 3 phase sensing
Isochronous governor controller
Waterproof electrical connectors

Mainline circuit breaker, installed, 100A, 480V rated, 3 Pole
Level 1 Sound Attenuated Weatherprotective enclosure with generator set and exhaust system installed
Exhaust silencer with SS flex connector and rain cap - installed

One (1) Generac model GTS010W Automatic Transfer Switch rated and equipped as follows:
100A, 3 Pole, 3 Phase, 277/480V, 60Hz
NEMA 3R enclosure with hinged door and key-locking handle
Single coil design, electrically operated and mechanically held
Weekly exerciser - deluxe 7 day programmable
SPDT auxiliary contacts - one normal source, one emergency source
Silver plated or silver alloy main contacts
Conformal coating on all printed circuit boards
Switch position indicating lights - Normal, Emergency and Standby Operating

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Three position switch - Fast Test, Auto, Normal Test
CPU microprocessor logic control with In-phase Monitor:
- Adjustable utility voltage dropout, pickup and line interrupt
- Engine minimum run - adjustable
- Engine warm-up - adjustable
- Return to utility - adjustable
- Engine cool-down - adjustable
- Standby voltage - adjustable
- Standby frequency - adjustable
- Time delay neutral - adjustable
- Transfer on exercise - On/Off Switch
- Warm-up timer bypass - On/Off Switch
- Time delay neutral bypass - On/Off Switch
- In-phase Monitor - On/Off Switch

Door mounted control switches
UL 1008 listed and CSA certified
ATS Physical Size: 36" H x 24.75" W x 10" D
ATS Weight: 180 Lbs
Lugged For:
- Switch Terminal = 1 x #14 to 2/0
- Neutral Bar = 4 x #14 to 2/0
- Ground Lug = 1 x #14 to 2/0

WC Rating: 14 Kaic, circuit breaker rated 150 Amps Max
200 Kaic, Class J or T current limiting fuses, rated 200 Amps Max

Three (3) sets operation and maintenance manuals
UL2200 Certification on Generator Set
Startup services and testing after installation
Two (2) year / 2000 hour (two years parts and one year labor) standard factory warranty

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Notes and Clarifications: Unless otherwise stated

1.) Pricing shown does not include any applicable sales taxes
2.) Unloading, rigging and installation is assumed to be by others
3.) Terms: Net 30 from factory ship date with credit approval
4.) This quotation expires 60 days from date of issuance
5.) Availability: After release for production (submittal approval)
    - Generator Set - approx 6 weeks plus shipping time
    - Transfer Switch - approx 6 weeks plus shipping time

Transmitted Electronically

Don Leher \ Patrick Curry

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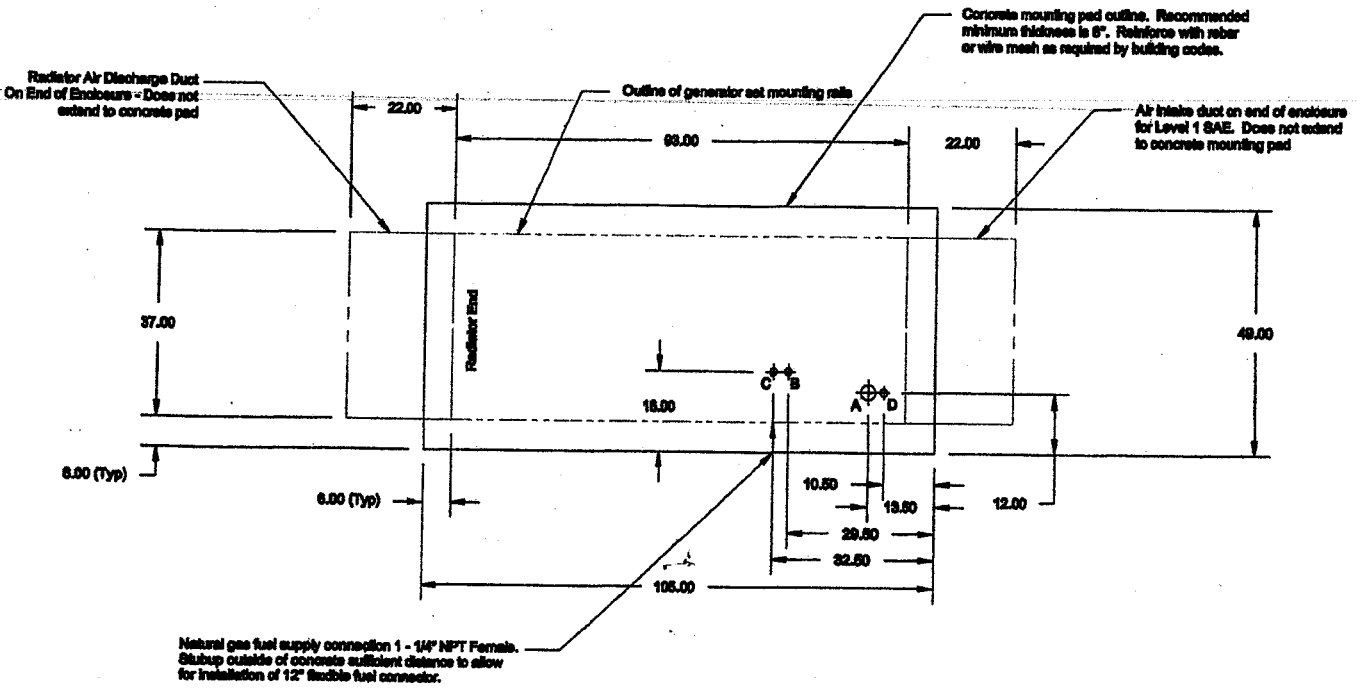
Stubup Legend:

A = AC power leads to automatic transfer switch
B = DC control wiring to automatic transfer switch
C = DC control wires to remote annunciator panel (optional)
D = AC utility power supply for jacket water heater and automatic battery charger



REV	Revision	Date

Drawn By: D. Carder
Date: CCI update 4/26/12
Project No.:
Drawing No.:

Appaloosa Meadows Water
80kW Gaseous Fueled Stubup

Scale: 1/2" = 1'
Sheet: 1 of 1

GEN-TECH
Power Generation Specialists
7901 N. 70th Avenue
Glendale, AZ 85303
Phone: (623) 937-1719
Fax: (623) 937-0408

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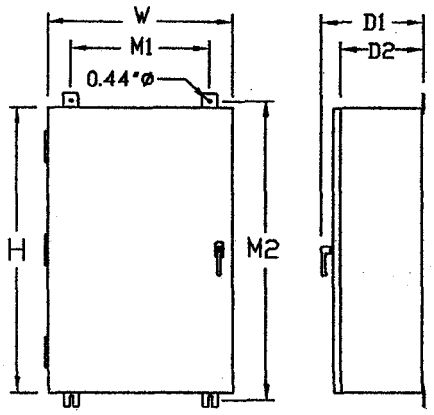
GTS Control Systems

LOGIC CONTROL w / Inphase Monitor	
Utility Voltage	
Dropout	75-95% (Adj.)
Pickup	85-95% (Adj.)
Line Interrupt	0.1-10 Sec. (Adj.)
Engine Minimum Run	5-30 Min. (Adj.)
Engine Warmup	5 Sec.-3 Min. (Adj.)
Return to Utility	1-30 Min. (Adj.)
Engine Cooldown	1-30 Min. (Adj.)
Standby Voltage	85-95% (Adj.)
Standby Frequency	80-90% (Adj.)
Time Delay Neutral	0.1-10 Sec. (Adj.)
Transfer on Exercise	On/Off Switch
Warmup Timer Bypass	On/Off Switch
Time Delay Neutral Bypass	On/Off Switch
Inphase Monitor	On/Off Switch

Withstand Current - 600 Volt GTS Series

GTS Rated Amps	100	150	200	300	400
FUSE PROTECTED					
Maximum RMS Symmetrical Fault Current – Amps	200,000	200,000	200,000	200,000	200,000
Maximum Fuse Size – Amps	200	400	400	600	600
Fuse Class	J,T	J,T	J,T	J,T	J,T
CIRCUIT BREAKER PROTECTED (See separate sheet for specific circuit breakers)					
Maximum RMS Symmetrical Fault Current – Amps	14,000	25,000	25,000	35,000	35,000
Protective Device Continuous Rating (Max) – Amps	150	300	300	600	600

- Tested in accordance with the withstand and closing requirements of UL 1008 and CSA Standards
- Current ratings are listed @ 480 VAC



Unit Dimensions

GTS Rated Amps	Voltage	Enclosure Height H	Enclosure Width W	Wall Mount Bolt Pattern M1	Wall Mount Bolt Pattern M2	Enclsoure Depth D1	Enclsoure Depth D2	Weight (lbs.)
100	All	36	24	18	37.5	12.7	10	180
150-200	120/240	36	24	18	37.5	12.7	10	185
150-200	120/208	36	24	18	37.5	12.7	10	185
150-200	277/480	48*	30*	24	49.5	14.8	12	265
150-200	600	48*	30*	24	49.5	14.8	12	265
300-400	120/240	36	24	18	37.5	12.7	10	245
300-400	120/208	36	24	18	37.5	12.7	10	245
300-400	277/480	48*	30*	24	49.5	14.8	12	325
300-400	600	48*	30*	24	49.5	14.8	12	325

* Note: On NEMA 1 enclosures only, door overlaps enclosure – door dimensions are 48.8 H X 30.8 W. All dimensions in inches.

Terminal Lug Wire Ranges

GTS RATED AMPS	CONTACTOR TERMINALS (1 LUG PER POLE) LUG WIRE RANGE	NEUTRAL BAR* # LUGS	NEUTRAL BAR* LUG WIRE RANGE	GROUND LUG (1 PROVIDED) LUG WIRE RANGE
100	2/0 – 14 AWG	4	2/0 – 14 AWG	2/0 – 14 AWG
150	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
200	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
300	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG 350MCM – 6 AWG
400	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG

* Not included in GTS with switched neutral. ** Allowable wire range in brackets is for 2 wires per lug.

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73270

Project Summary

Contact Information

Project:	Appaloosa Water
Contact:	
Spec Ref:	
Email:	

Prepared By

Name:	Patrick Curry
Company:	Az Generator Technology
Phone:	623-937-1719
Email	pcurry@gentechus.com

Environment

Ambient Temp:	120 F / 49 C
Elevation:	5000 ft / 1524 m

Engine

Duty:	Standby
Fuel:	Natural Gas
U.S. EPA Required:	Yes

Electrical Configuration

Phase:	Three Phase
Frequency (Hz):	60 Hz
Voltage (Nominal):	480
Voltage (Specific):	480 volts

Generator Configuration

Application:	NEC 700 Emergency
Enclosure Type:	Sound Level 1
Sound (desired):	75 dBA
Fuel Tank:	No Requirement
Run Time (desired):	0 hr

Electrical Performance

Max Running Load: 85%

Maximum Allowable Transients

Voltage Dip:	35.00%
Frequency Dip:	15 hertz

Maximum Allowable Voltage Distortion (%THVD)

Continuous:	12%
Momentary:	13%

Load Sequence Configuration

Cyclic #1:	75% After Largest
Cyclic #2:	50% After Largest

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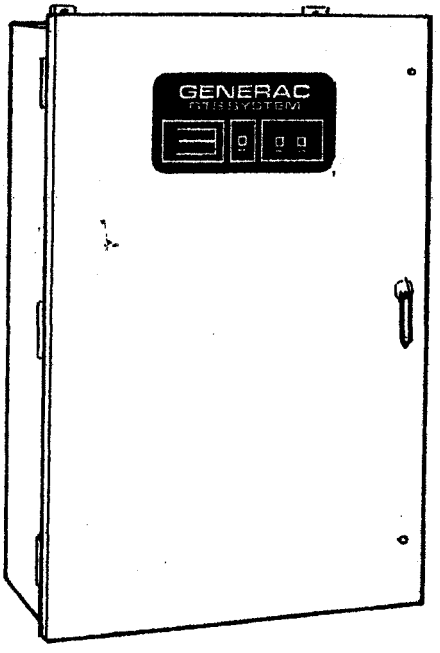
GENERAC® | INDUSTRIAL

100 - 400 Amps, 600 VAC

Automatic Transfer Switches



- **Standard time delay neutral will reduce switchover problems.**
- **Logic control with inphase monitor regulates switch functions and allows adjustable switch settings with LED indicators.**
- **Control switches located on the front of the door for ease of operation.**
- **All switches are UL 1008 listed and CSA certified.**
- **Electrically-operated, mechanically-held and interlocked main contacts with break before make design for fast, positive connections.**
- **Rated for all classes of load, 100% equipment rated, both inductive and resistive with no derations.**
- **2, 3, and 4 Pole 600 VAC contactors.**
- **160 millisecond transfer time.**

Standard Features

- Single coil design, electrically operated and mechanically held
- Programmable exerciser
- SPDT auxiliary contacts
- Main contacts are silver alloy to resist welding and sticking
- Conformal coating protects all printed circuit boards
- Indicating LED's for switch position—Normal, Emergency, and Standby Operating
- NEMA 1 enclosure with hinged door and key-locking handle
- Three-position switch—Fast Test, Auto, Normal Test
- Arc chutes on main contacts

Optional Accessories

- NEMA 12 enclosure
- NEMA 3R enclosure
- NEMA 4 & 4X enclosure
- Exterior AC meter package
- Controls accessible through door in door design on NEMA type 3R and 4 enclosures – key lock provided on access door
- 4-pole design for neutral isolation
- Two (2) sets of auxiliary contacts
- Preferred source selector switch
- Manual 3 position selector switch
- Remote automatic control circuit
- Signal before transfer contacts
- Return to normal timer bypass

Generator and Load Summary

Selected Generator & Alternator

Product Family Method:	Auto Select
Product Family:	SG Spark (single)
Module Size:	NA
Sizing Method:	Manual
Generator:	80 kW, 9.0L Module
Alternator:	100 kW

80 kW Natural Gas Genset -- Site rated 74 kw
9.0 L Engine with Upsized (100 kW) Alternator

Load Level		Transients		Harmonics	
Running:	70%	Fdip (Hz):	4.6	THVD Cont:	0.0%
Peak:	73%	Vdip (%):	19.1%	THVD Peak:	0.0%
Project Limits		Fdip (Hz):	15.0	THVD Cont:	12.0%
Max Loading:	85%	Vdip (%):	35.00 %	THVD Peak:	13.0%

Load Summary -- Connected Load of 52 kW

Running		Transients		Harmonics	
kW:	52	kW (Step):	55.5	kVA:	0.0
kVA:	60	kW (Peak):	68.7	THID Cont:	0.0%
PF:	0.87	kVA (Step):	150.0	THID Peak:	0.0%

Load List Sequence	Description	Starting kW	Starting kVA	Running kW	Running kVA	Harmonic Current Distortion Peak	Cont.	kVA	Limits Vdip	Fdip
Step 1	Motor: Motor #1 1 x 20 HP, Code J (7.5 kVA/Hp) Across the Line Rated torque at start running at 100%	55.5	150.0	18.5	21.5	0.0%	0.0%	0.0	35.0%	15.0 hertz
Step 1 Summary	**All loads on (concurrent starting)**	**kW**	**kVA**	**kW**	**kVA**	**Peak THID**	**Cont. THID**	**Base KVA**	**Vdip**	**Fdip**
	55.5 kW Sequence Peak **55.5 kW Application Peak**	55.5	150.0	18.5	21.5	0.0%	0.0%	0.0	35.0% 168.0 volts	25.0% 15.0 hertz
Step 2	Motor: Motor #2 1 x 15 HP, Code G (6 kVA/Hp) Across the Line Rated torque at start running at 100%	36.0	90.0	14.2	16.7	0.0%	0.0%	0.0	35.0%	15.0 hertz
Step 2 Summary	**All loads on (concurrent starting)**	**kW**	**kVA**	**kW**	**kVA**	**Peak THID**	**Cont. THID**	**Base KVA**	**Vdip**	**Fdip**
	36.0 kW Sequence Peak **54.5 kW Application Peak**	36.0	90.0	14.2	16.7	0.0%	0.0%	0.0	35.0% 168.0 volts	25.0% 15.0 hertz
Step 3	Motor: Motor #3 1 x 15 HP, Code G (6 kVA/Hp) Across the Line Rated torque at start running at 100%	36.0	90.0	14.2	16.7	0.0%	0.0%	0.0	35.0%	15.0 hertz
Step 3	**All loads on (concurrent starting)**	**kW**	**kVA**	**kW**	**kVA**	**Peak THID**	**Cont. THID**	**Base KVA**	**Vdip**	**Fdip**

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Load List		Starting		Running		Harmonic Current Distortion			Limits	
Sequence	Description	kW	kVA	kW	kVA	Peak	Cont.	kVA	Vdip	Fdip
Summary	**36.0 kW Sequence Peak** **68.7 kW Application Peak**	36.0	90.0	14.2	16.7	0.0%	0.0%	0.0	35.0% 168.0 volts	25.0% 15.0 hertz
Step 4	Miscellaneous: Miscellaneous #1 1 x 5 KVA, @ 1.00 PF Harmonics: THID = 0.0%	5.0	5.0	5.0	5.0	0.0%	0.0%	0.0	35.0%	15.0 hertz
Step 4	**All loads on (concurrent starting)**	**kW**	**kVA**	**kW**	**kVA**	**Peak THID**	**Cont. THID**	**Base KVA**	**Vdip**	**Fdip**
Summary	**5.0 kW Sequence Peak** **51.9 kW Application Peak**	5.0	5.0	5.0	5.0	0.0%	0.0%	0.0	35.0% 168.0 volts	25.0% 15.0 hertz

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Transient Analysis

Most difficult alternator transient requirements (Vdip)

Sequence:	Step 1
Load:	Motor #1
Starting kVA	150.0
Vdip Tolerance:	35.0%
Vdip Expected:	19.1%

Most difficult engine transient requirements (Fdip)

Sequence:	Step 1
Load:	Motor #1
Starting kW:	55.5
Fdip Tolerance:	15.0
Fdip Expected:	4.6

Alternator Transient Analysis (Vdip)

Sequence	Allowable Vdip	Expected Vdip	Sequence Starting kVA	Largest Transient Load
Step 1	35.0%	19.1%	150.0	Motor #1
Step 2	35.0%	11.5%	90.0	Motor #2
Step 3	35.0%	11.5%	90.0	Motor #3
Step 4	35.0%	0.6%	5.0	Miscellaneous #1

Engine Transient Analysis (Fdip)

Sequence	Allowable Fdip	Expected Fdip	Sequence Starting kW	Largest Transient Load
Step 1	15.0	4.6	55.5	Motor #1
Step 2	15.0	3.2	36.0	Motor #2
Step 3	15.0	3.2	36.0	Motor #3
Step 4	15.0	0.5	5.0	Miscellaneous #1

Note: UPS that revert to battery on system transients do not establish a sequence frequency dip limit though they may impact the sizing. The sizing algorithm verifies the engine can accept the UPS within its frequency tolerance.

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GENERAC INDUSTRIAL POWER DESIGN PRO

Harmonic Analysis

Harmonic Profile: Application Total (running)

kVA Nonlinear Load: 0.0

kVA Base (all non-linear): 0.0

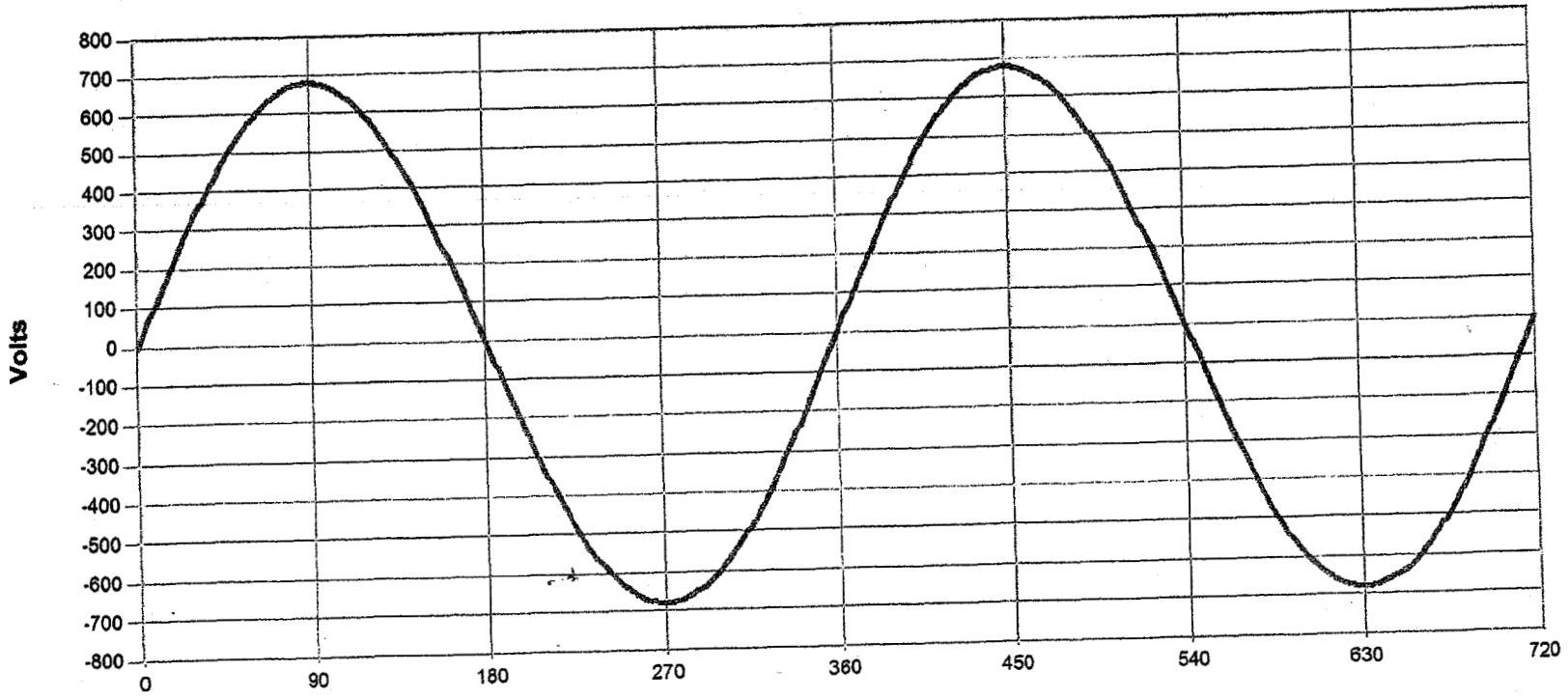
Sequence: (Total)

THID: 0.0% THVD: 0.0%

Selected sequence(s) harmonic alternator loading: 0.0%

Selected Harmonic Current and Voltage Profiles

Profile	3rd	5th	7th	9th	11th	13th	15th	17th	19th
Current	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Voltage:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



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Harmonic Analysis (cont)

Harmonic Profile: Application Total (peak)

kVA Nonlinear Load: 0.4

kVA Base (all non-linear): 0.0

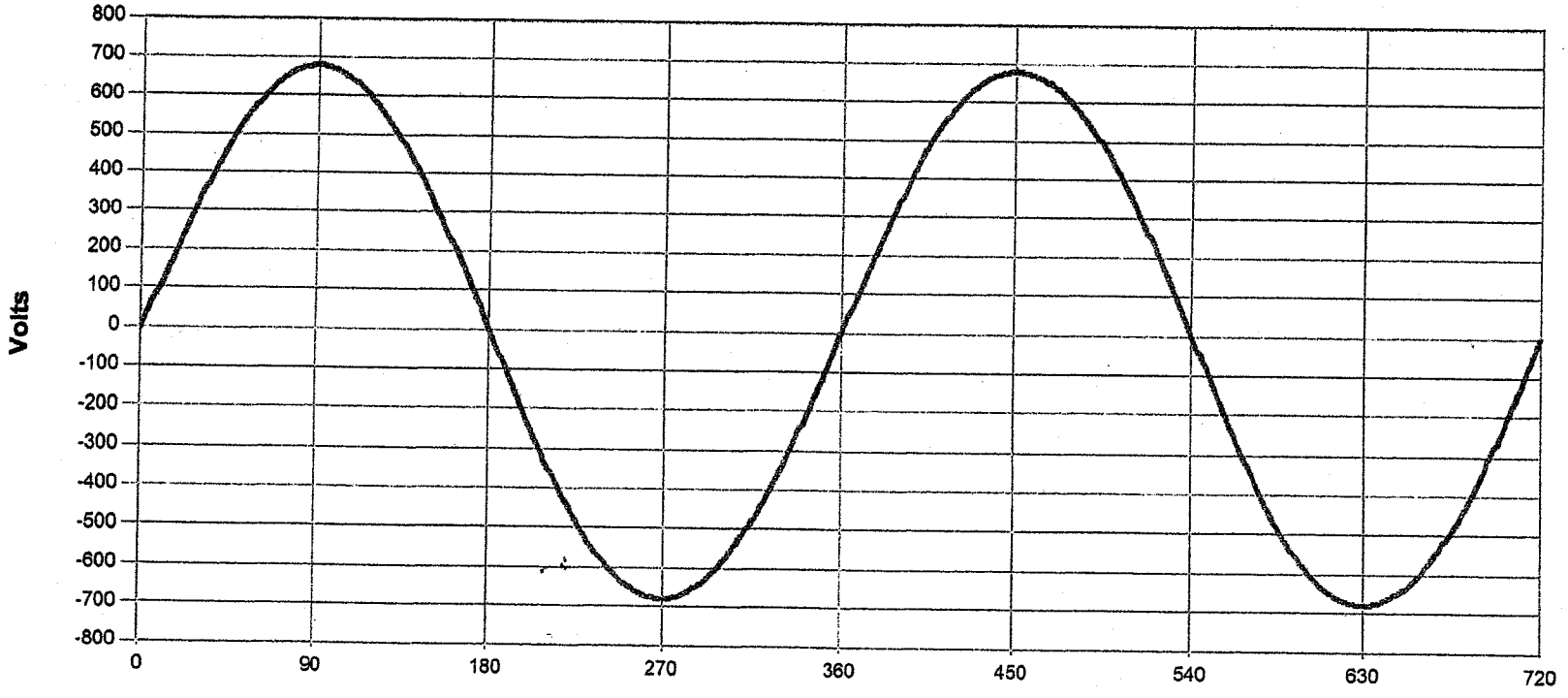
Sequence: (Total)

THID: 0.0% THVD: 0.0%

Selected sequence(s) harmonic alternator loading: 0.4%

Selected Harmonic Current and Voltage Profiles

Profile	3rd	5th	7th	9th	11th	13th	15th	17th	19th
Current	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Voltage:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



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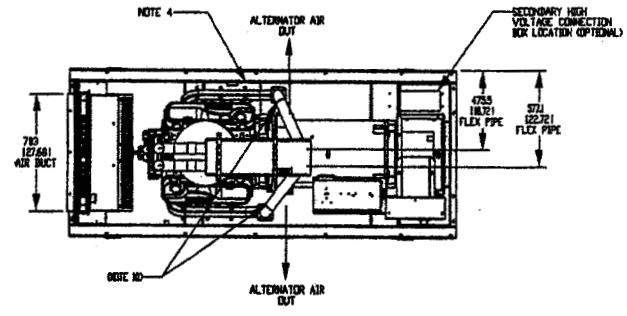
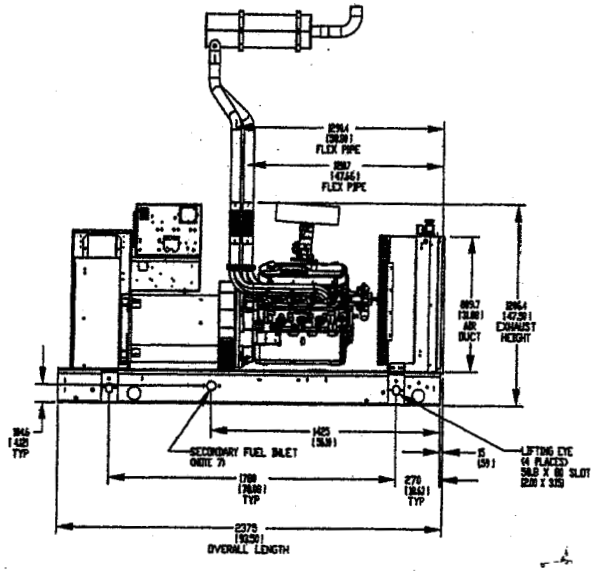
SH 1/2 REV B

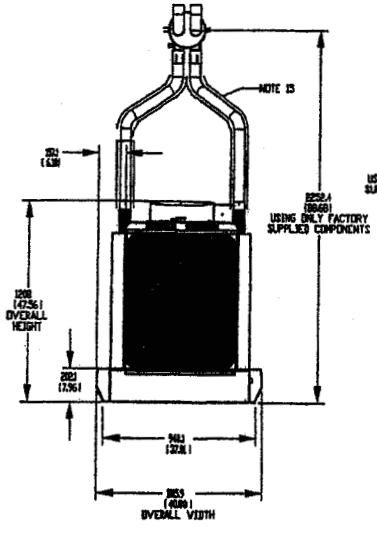
NOTES:
1. CONTROL PANEL. (OPTIONAL BATTERY CHARGER INSIDE).
2. 120V, 20A, GFCI & 250V, 15A OUTLET (OPTIONAL).
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE CONNECTION BOX (USE LOW VOLTAGE STUB-UP AREA).
4. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
5. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS.
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.

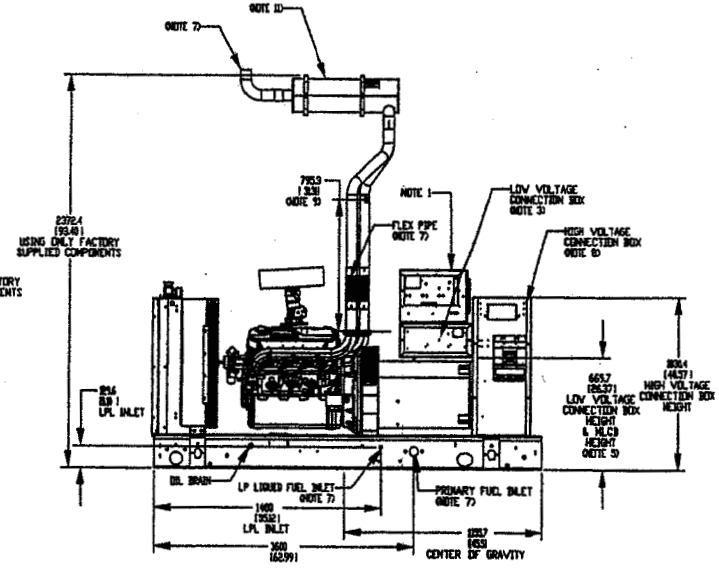
7. ENGINE SERVICE CONNECTIONS:
   INLET NATURAL GAS & LP VAPOR: 1-1/4" FEMALE NPT COUPLING
   INLET LP LIQUID: 1/4" NPT
   OIL DRAIN: 1/2" FEMALE NPT COUPLING
   FLEX PIPE OUTLET: 2.5" I.D.
   EXHAUST OUTLET: 2.5" O.D.
   ****** SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION ******

8. AUXILARY AC CONNECTION FOR UNIT OPTIONS ARE LOCATED IN HIGH VOLTAGE CONNECTION BOX. UNLESS AN OPTIONAL LOAD CENTER IS INSTALLED.
9. OXYGEN SENSOR (EQUIPPED) MUST BE MOUNTED BETWEEN ENGINE OUTLET AND CATALYST INLET AS SHOWN. IF ELBOW IS REQUIRED ONLY SINGLE ELBOW MY BE USED.
10. EXHAUST PIPES MAY BE ROTATED TO ALLOW MUFFLER TO POINT OUT TO THE RIGHT OR LEFT SIDE OF GENERATOR.
11. CATALYST MUST BE MOUNTED IN DESCRIBED POSITION. FAILING TO FOLLOW THESE INSTRUCTIONS WHEN INSTALLING A CERTIFIED ENGINE IN A PIECE OF STATIONARY EQUIPMENT VIOLATES FEDERAL LAW 40CFR 1068.105(b), SUBJECT TO FINES OR PENALTIES AS DESCRIBED IN THE CLEAN AIR ACT.
12. GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
13. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSTION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
14. EXHAUST SYSTEM MAXIMUM BACK PRESSURE: 37 INCHES H20.
15. INSTALL EXHAUST BLANKETS ALONG THIS LINE, BLANKETS SHOULD NOT COVER OXYGEN SENSOR









DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

WEIGHT DATA:
GENERATOR AS SHOWN: 936.2 KG (2064 LBS)
SHIPPING SKID HEIGHT: 170 MM (6.7")

INSTALLATION DRAWING

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ELECTRONICALLY APPROVED INSIDE WINDCHILL

GENERAC

TITLE
INSTALL OPENSET G9.0L 80-100KW

ISSUE DATE:

SIZE	CAGE NO	DWG NO	REV
B		0K0383	B
SCALE 0.035	WT-KG	SHEET 1 of 2	

W-03443A-10-0143 W-03443A-11-0040 73270

[redacted]

SG080

GENERAC® | INDUSTRIAL

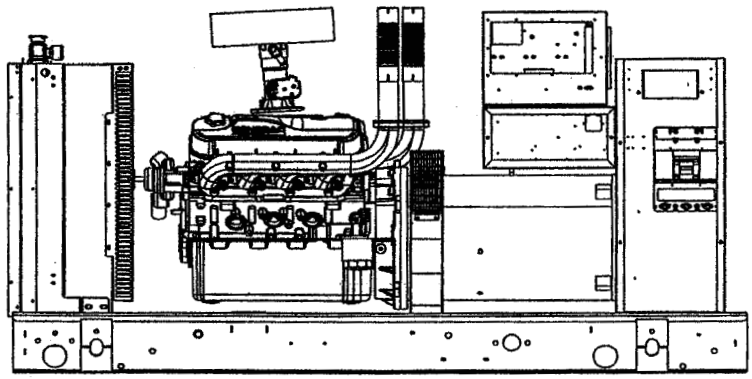
Industrial Gaseous Generator Set

EPA Certified Stationary Emergency

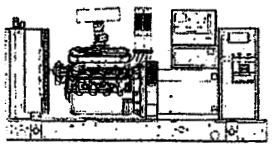
SG080 80kW

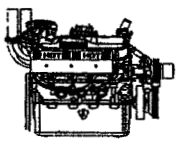
Standby Power Rating

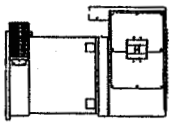
100kVA 80kW 60 Hz

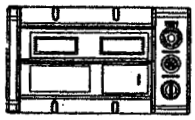


Generator image used for illustration purposes only









features	benefits
Generator Set	
• PROTOTYPE & TORSIONALLY TESTED	▸ PROVIDES A PROVEN UNIT
• UL2200 TESTED	▸ ENSURES A QUALITY PRODUCT
• RHINOCOAT PAINT SYSTEM	▸ IMPROVES RESISTANCE TO ELEMENTS
• WIDE RANGE OF ENCLOSURES	▸ PROVIDES A SINGLE SOURCE SOLUTION
Engine	
• EPA COMPLIANT	▸ ENVIRONMENTALLY FRIENDLY
• INDUSTRIAL TESTED, GENERAC DESIGNED	▸ ENSURES INDUSTRIAL STANDARDS
• POWER-MATCHED OUTPUT	▸ ENGINEERED FOR PERFORMANCE
• INDUSTRIAL GRADE	▸ IMPROVES LONGEVITY AND RELIABILITY
Alternator	
• TWO-THIRDS PITCH	▸ ELIMINATES HARMFUL 3RD HARMONIC
• LAYER WOUND ROTOR & STATOR	▸ IMPROVES COOLING
• CLASS H MATERIALS	▸ HEAT TOLERANT DESIGN
• DIGITAL 3-PHASE VOLTAGE CONTROL	▸ FAST AND ACCURATE RESPONSE
Controls	
• ENCAPSULATED BOARD W/ SEALED HARNESS	▸ EASY, AFFORDABLE REPLACEMENT
• 4-20mA VOLTAGE-TO-CURRENT SENSORS	▸ NOISE RESISTANT 24/7 MONITORING
• SURFACE-MOUNT TECHNOLOGY	▸ PROVIDES VIBRATION RESISTANCE
• ADVANCED DIAGNOSTICS & COMMUNICATIONS	▸ HARDENED RELIABILITY

primary codes and standards

NEMA ETL NFPA ASME ISO CE

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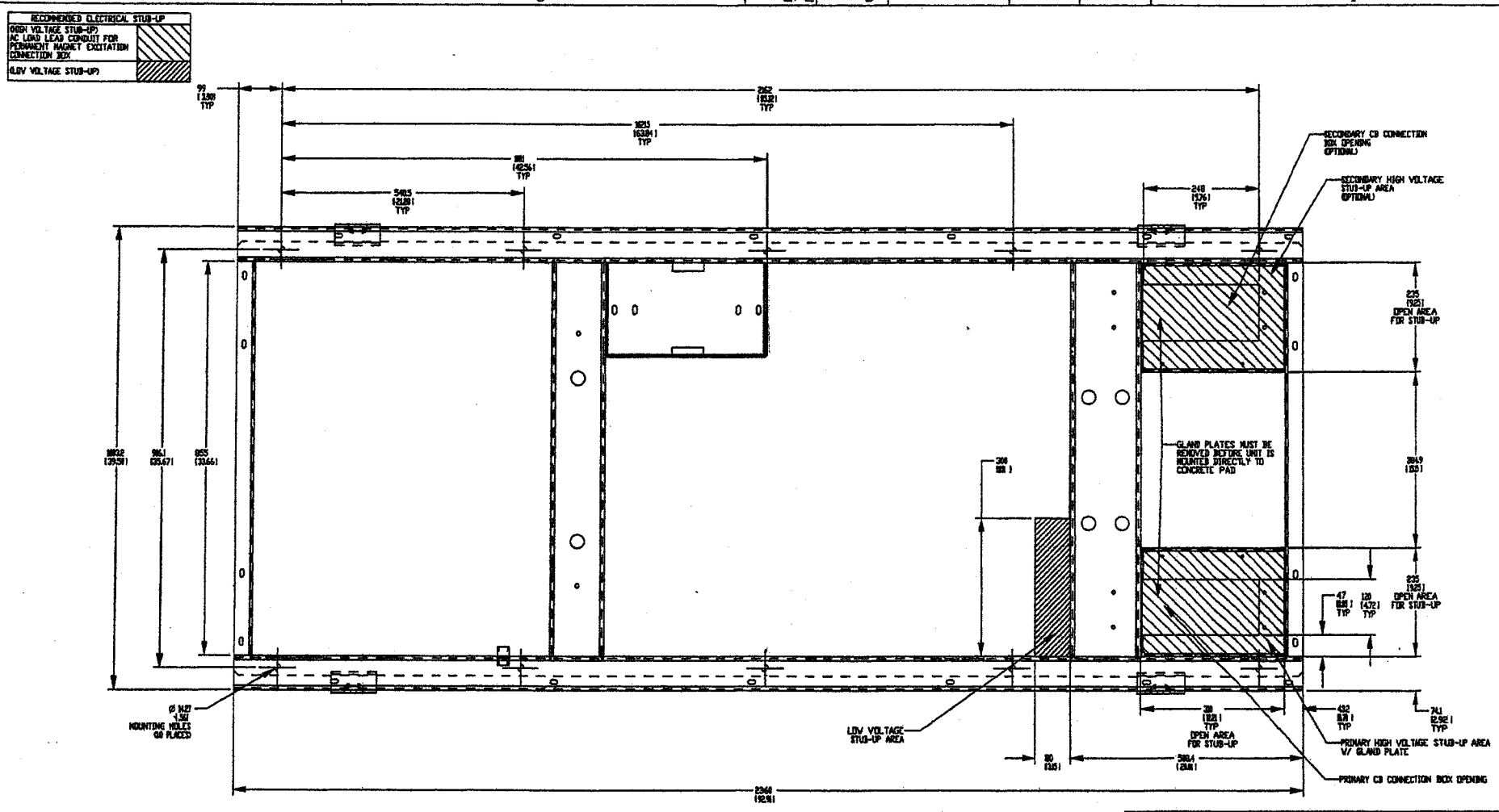
SH 2/2 REV B



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ELECTRONICALLY APPROVED INSIDE WINDCHILL

GENERAC

TITLE: INSTALL STUB-UP VIEW G9.0L 80-100KW

ISSUE DATE:

SIZE	CAGE NO	DWG NO	REV
B		0K0383	B

SCALE 0.120 | WT-KG | SHEET 2 of 2

W-03443A-10-0143 W-03443A-11-0040 73270

SG080 80kW

GENERAC | INDUSTRIAL

SG080

application and engineering data

ENGINE SPECIFICATIONS

General

Make	Generac
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Engine Reference	See Emissions Data Sheet
Cylinder #	8
Type	V
Displacement - L (Cu. In.)	8.9L (540)
Bore - mm (in.)	114.31 (4.5)
Stroke - mm (in.)	107.15 (4.25)
Compression Ratio	10.5:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged
Cylinder Head	Cast Iron
Cylinder Liners	No
Ignition	High Energy
Pistons	Aluminum Alloy
Crankshaft	Steel
Lifter Type	Hydraulic Roller
Intake Valve Material	Steel Alloy
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	Yes

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-flow spin-on cartridge
Crankcase Capacity - L (qts)	8.5 (8.0)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Flow	26 gal/min
Fan Type	Pusher
Fan Speed (rpm)	2330
Fan Diameter mm (in.)	558 (22)
Coolant Heater Wattage	1500W
Coolant Heater Standard Voltage	120V

Fuel System

Fuel Type	Natural Gas, Propane
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure	11" - 14" H2O

Engine Electrical System

System Voltage	12VDC
Battery Charging Alternator (Amps)	30
Battery Size	925CCA
Battery Group	31
Battery Voltage	12VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390mm
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Brushless
Bearings	Sealed Ball
Coupling	Direct Drive
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/- 1.0%

Engine Governing

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

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99
NFPA 110
ISO 8528-5
ISO 1708A.5
ISO 3046
UL2200
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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SG080 operating data (60Hz)

POWER RATINGS (kW)

	Natural Gas		Propane Vapor	
Single-Phase 120/240VAC @1.0pf	80	Amps: 333	80	Amps: 333
Three-Phase 120/208VAC @0.8pf	80	Amps: 278	80	Amps: 278
Three-Phase 120/240VAC @0.8pf	80	Amps: 241	80	Amps: 241
Three-Phase 277/480VAC @0.8pf	80	Amps: 120	80	Amps: 120
Three-Phase 346/600VAC @0.8pf	80	Amps: 96	80	Amps: 96

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

		480VAC						208/240VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	80	59	88	117	147	176	205	44	66	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	89	118	148	177	206
Upsize 2	130	116	174	232	290	348	406	87	131	174	218	261	305

FUEL

Fuel Consumption Rates*

Natural Gas			Propane Vapor			
Percent Load	ft³/hr	m³/hr	Percent Load	ft³/hr	gal/hr	m³/hr
25%	343	9.7	25%	147	4.0	4.1
50%	556	15.8	50%	246	6.8	7.0
75%	781	22.1	75%	343	9.4	9.7
100%	1008	28.5	100%	433	11.9	12.3

* Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

COOLING

		STANDBY
Air Flow (inlet air combustion and radiator)	ft³/min (m³/min)	5797 (164.2)
System Coolant Capacity	Gal (Liters)	6 (22.7)
Heat Rejection to Coolant	BTU/hr	159,996
Max. Operating Air Temp on Radiator	°F (°C)	122 (50)
Max. Ambient Temperature	°F (°C)	104 (40)
Maximum Radiator Backpressure	in H_2O	0.50

COMBUSTION AIR REQUIREMENTS

		STANDBY
Flow at Rated Power	cfm	282

ENGINE

		STANDBY
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	127
Piston Speed	ft/min	1275
BMEP	psi	103

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

EXHAUST

		STANDBY
Exhaust Flow (Rated Output)	cfm (m³/min)	866 (24.5)
Maximum Recommended Back Pressure	inHg	1.5
Exhaust Temp (Rated Output)	°F (°C)	1200 (649)
Exhaust Outlet Size (Open Set)	in	2 1/2 x 2

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

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GENERAC | INDUSTRIAL

SG080

standard features and options

GENERATOR SET

●	Genset Vibration Isolation	Std
○	IBC Seismic Certified/Seismic Rated Vibration Isolators	Opt
○	Extended warranty	Opt
○	Gen-Link Communications Software	Opt
○	Steel Enclosure	Opt
○	Aluminum Enclosure	Opt
○	Enclosure Lighting Kits	Opt

ENGINE SYSTEM

	General	
●	Oil Drain Extension	Std
○	Oil Make-Up System	n/a
○	Oil Heater	Opt
○	Critical Exhaust Silencer (Enclosed Sets)	n/a
●	Stainless steel flexible exhaust connection	Std
●	Air cleaner	Std
●	Fan guard	Std
●	Radiator duct adapter	Std

	Fuel System	
●	Fuel lockoff solenoid	Std
●	Secondary Fuel Regulator	Std
○	Flexible fuel lines	Opt
○	Automatic Gaseous Dual Fuel	Opt

	Cooling System	
●	120VAC Coolant Heater	Std
○	208VAC Coolant Heater	Opt
○	240VAC Coolant Heater	Opt
○	Other Coolant Heater	Opt
●	Closed Coolant Recovery System	Std
●	UV/Ozone resistant hoses	Std
●	Factory-Installed Radiator	Std

	Engine Electrical System	
●	Battery charging alternator	Std
●	Battery cables	Std
●	Battery tray	Std
○	Battery box	Opt
○	Battery heater	Opt
●	Solenoid activated starter motor	Std
○	2.5A UL battery charger	Opt
○	10A UL float/equalize battery charger	Opt
●	Rubber-booted engine electrical connections	Std

ALTERNATOR SYSTEM

●	UL2200 GENprotect™	Std
○	Main Line Circuit Breaker	Opt
○	2nd Circuit Breaker	Opt
○	3rd Circuit Breaker	n/a
○	Alternator Upsizing	Opt
○	Anti-Condensation Heater	Opt
○	Tropical coating	Opt
○	Permanent Magnet Generator	Opt

CONTROL SYSTEM

	Control Panel	
●	Digital H Control Panel - Dual 4x20 Display	Std
○	Digital G-100 Control Panel - Touchscreen	n/a
○	Digital G-200 Paralleling Control Panel - Touchscreen	n/a
●	Programmable Crank Limiter	Std
○	21-Light Remote Annunciator	Opt
○	Remote Relay Panel (8 or 16)	Opt
●	7-Day Programmable Exerciser	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
○	Oil Temperature	Opt
●	Low Fuel Pressure	Std
●	Engine Speed	Std
●	Battery Voltage	Std
●	Frequency	Std
●	Date/Time Fault History (Alarm Log)	Std
●	Low-Speed Exercise (Programmable)	Std
●	Isochronous Governor Control	Std
●	-40deg C - 70deg C Operation	Std
●	Waterproof Plug-In Connectors	Std
●	Audible Alarms and Shutdowns	Std
●	Not In Auto (Flashing Light)	Std
●	Auto/Off/Manual Switch	Std
●	E-Stop (Red Mushroom-Type)	Std
○	Remote E-Stop (Break Glass-Type, Surface Mount)	Opt
○	Remote E-Stop (Red Mushroom-Type, Surface Mount)	Opt
○	Remote E-Stop (Red Mushroom-Type, Flush Mount)	Opt
●	NFPA 110 Level I and II (Programmable)	Std
●	Remote Communication - RS232	Std
○	Remote Communication - Modem	Opt
○	Remote Communication - Ethernet	n/a
○	10A Run Relay	Opt

	Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)	
○	Low Fuel	Opt
●	Oil Pressure (Pre-programmed Low Pressure Shutdown)	Std
●	Coolant Temperature (Pre-programmed High Temp Shutdown)	Std
●	Coolant Level (Pre-programmed Low Level Shutdown)	Std
○	Oil Temperature	Opt
●	Engine Speed (Pre-programmed Overspeed Shutdown)	Std
●	Voltage (Pre-programmed Overvoltage Shutdown)	Std
●	Battery Voltage	Std

Other Options

○ _____

○ _____

○ _____

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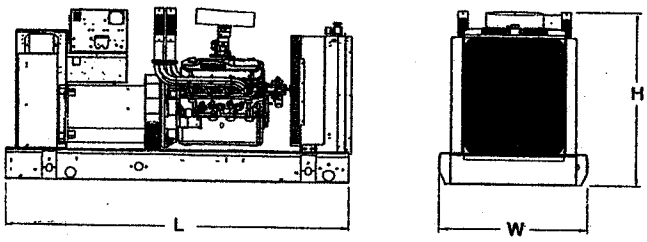
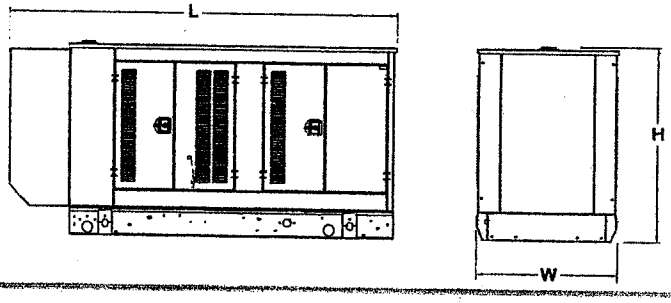
SG080 80kW

dimensions



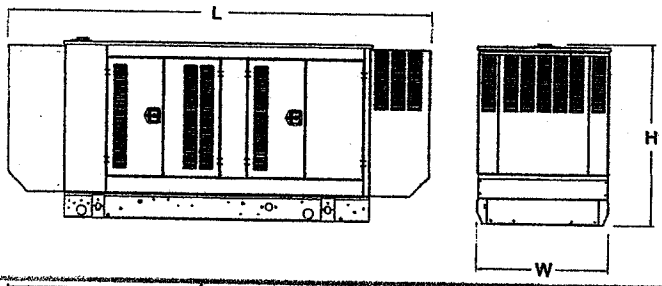
OPEN SET (Includes Exhaust Flex)

L	W	H
93	40	48



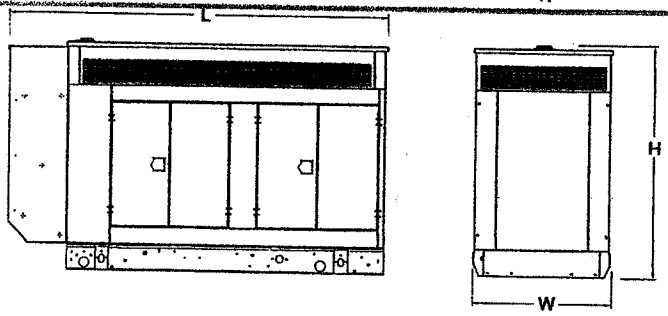
STANDARD ENCLOSURE

L	W	H
112	40	56



LEVEL 1 ACOUSTIC ENCLOSURE

L	W	H
129	40	56



LEVEL 2 ACOUSTIC ENCLOSURE

L	W	H
112	40	69

*All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

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

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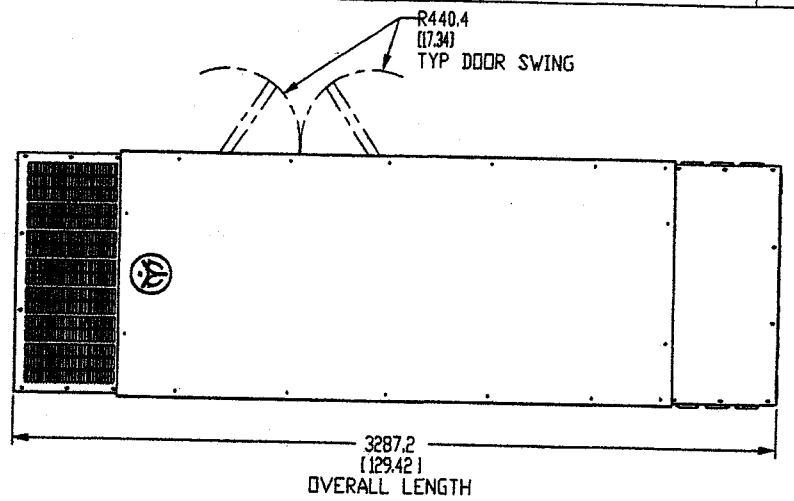
SH 1/1 REV B

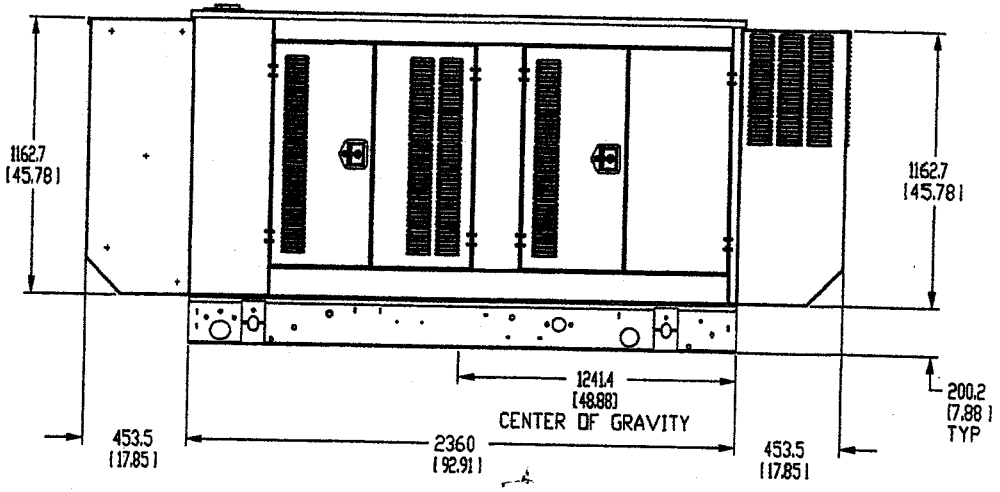


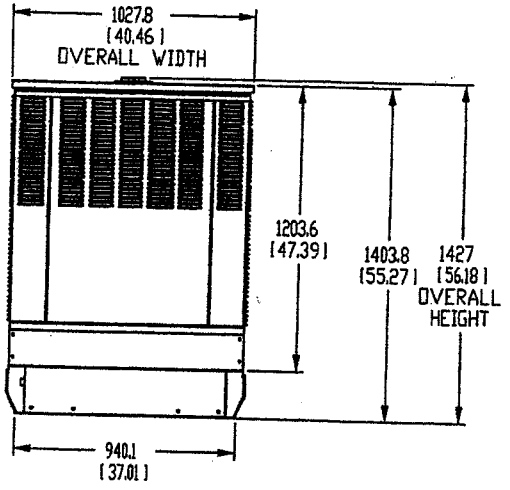
WEIGHT DATA:

STEEL ENCLOSURE:
GENERATOR AS SHOWN: 1269.2 KG [2798 LBS]

ALUMINUM ENCLOSURE:
GENERATOR AS SHOWN: 1068 KG [2355 LBS]

SHIPPING SKID HEIGHT: 170 MM [6.7"]





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FOR GENSET AND STUB-UP DETAILS REFER TO 0K0383

INSTALLATION DRAWING

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ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL L1A ENC G9.0L 80-100KW

ISSUE DATE:

SIZE	CAGE NO	DWG NO	REV
B		0K0383B	B
SCALE 0.050	WT-KG	SHEET 1 of 1	