



# SENTRY-PRO POWER SYSTEMS

By Gillette Generators, Inc.

MODEL

**SPJD-1650**

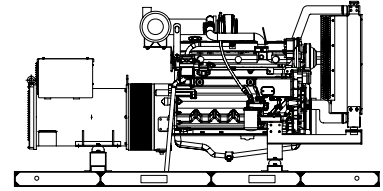
**LIQUID COOLED DIESEL ENGINE GENERATOR SET**

**KW POWER RATINGS RANGE**

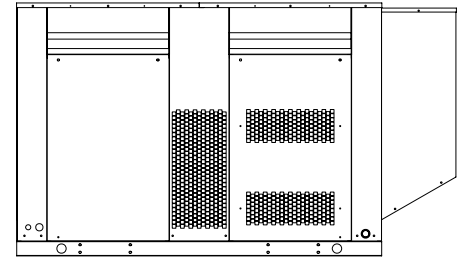
Model	HZ	MAXIMUM	STANDBY	PRIME
		150°C RISE	125°C RISE	105°C RISE
SPJD-1650	60	165	155/165	145/155
	50	132	124/132	116/124

**STANDARD FEATURES**

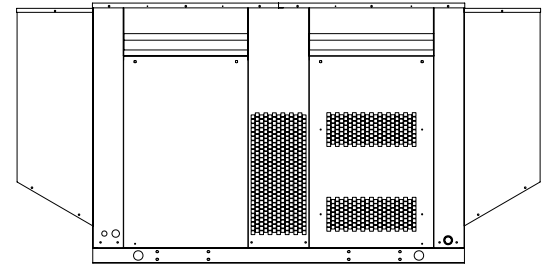
- All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.
- All generator sets will accept 100% rated load in one step, per NFPA-110.
- All generators are UL-1446 certified. Certain generators are ul-2200 certified.
- Solid state, frequency compensated voltage regulation is standard on all gen-sets.
- Electronic engine governor for precise isochronous frequency regulation.
- SENTINEL "SCOUT" digital controller allows programming to basic engine functions in the field. Controller has stop-manual-auto mode and (8) basic protectors and the functions monitored by LED indicators, plus LCD hour meter.
- All generator set control systems components and accessories provide a 1-year limited warranty at time of initial start-up. Generators and engines are governed by separate warranties.
- "OPEN" Generator Sets: There is no enclosure, so gen-set must be placed within a weather protected area, un-inhabited by humans or animals, with proper ventilation. Muffler and flexible exhaust hose are supplied loose for final exhaust installation by others.
- "STANDARD" Housing: Full weather protection and above average sound attenuation for normal applications. Dual residential grade mufflers are standard.
- "SUPER-SILENT" Housing: Full weather protection and superior sound attenuation for specific low noise applications. Dual critical grade mufflers are standard.



"OPEN" GEN-SET



"STANDARD" HOUSED GEN- SET



"SUPER-SILENT" HOUSED GEN-SET

**GENERATOR RATINGS**

GENERATOR MODEL	VOLTAGE		PH	HZ	150°C RISE MAXIMUM RATING		125°C RISE STANDBY RATING		105°C RISE PRIME RATING		POWER LEAD CONNECTIONS
	L-N	L-L			KW/KVA	AMP	KW/KVA	AMP	KW/KVA	AMP	
	SPJD-1650-1-1	120			240	1	60	165/165	687	160/160	
SPJD-1650-3-2	120	208	3	60	165/206	573	160/200	556	155/193.8	538	12 LEAD LOW WYE
SPJD-1650-3-3	120	240	3	60	165/206	497	160/200	482	155/193.8	467	12 LEAD HIGH DELTA
SPJD-1650-3-4	277	480	3	60	165/206	248	160/200	241	155/193.8	233	12 LEAD HIGH WYE
SPJD-1650-3-5	127	220	3	60	165/206	542	160/200	525	155/193.8	509	12 LEAD LOW WYE
SPJD-1650-1-6-5	110	220	1	50	132/132	600	124/124	564	116/116	527	4 LEAD DEDICATED 1 PH
SPJD-1650-3-7-5	110	220	3	50	132/165	433	132/165	433	124/155	407	12 LEAD HIGH DELTA
SPJD-1650-3-8-5	219	380	3	50	132/165	251	132/165	251	124/155	263	12 LEAD HIGH WYE
SPJD-1650-3-9-5	240	415	3	50	132/165	229	132/165	229	124/155	215	12 LEAD HIGH WYE
SPJD-1650-3-10-5	231	400	3	50	132/165	238	132/165	238	124/155	224	12 LEAD HIGH WYE

RATINGS: All single phase gen-sets are rated at unity (1.0) power factor. All three phase gen-sets are rated at .8 power factor. "MAXIMUM RATINGS" are for short period running, not exceeding 1 hour, out of every 24 hour period. "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. "PRIME RATINGS" are strictly for gen-sets that provide the prime source of electric power, where normal utility power is unavailable or unreliable. A 10% overload is allowed for a total of 1 hour, within every 12 hours of operation. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based on 150°C (maximum), 125°C (standby), and 105°C (prime) R/R winding temperature, within a maximum 35°C ambient condition. Generators operated at maximum power ratings will not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.



# APPLICATION AND ENGINEERING DATA FOR MODEL SPJD-1650

## COOLING SYSTEM

Type of System ..... Air to Air, Charged Air Cooler  
 Coolant Pump .....Pre-lubricated, self-sealing  
 Cooling Fan Type (no. of blades) .....Pusher (7)  
 Fan Diameter inches (cm)..... 22" (55.9)  
 Ambient Capacity of Radiator °F (°C)..... 125 (51.6)  
 Engine Jacket Coolant Capacity Qt. (L) ..... 13 (11.9)  
 Radiator Coolant Capacity Qt. (L).....8.78 (8.31)  
 Engine Heat Reject. Btu/min (kw) ..... 5324 (93.5)  
**Speed.....1800 rpm..... 1500 rpm**  
**Frequency .....60 HZ .....50 HZ**  
 Water Pump Capacity gpm (L/min)..... 48 (180)..... 43 (162)  
 Heat Reject Coolant: Btu/min (kw) .....5324 (93.5).....4792 (84)  
 Air to Air Heat Reject(kw) .....1821 (32) .....1639 (28.8)  
 Note: Coolant temp. shut-down switch setting at 212°F (100°C) with 50/50 (water/antifreeze) mix.

## AIR REQUIREMENTS

**Speed.....1800 rpm..... 1500 rpm**  
**Frequency .....60 HZ .....50 HZ**  
 Engine Air Flow cfm (m<sup>3</sup>/min) ..... 480 (13.6)..... 432 (12)  
 Max Air Intake Restrictions:  
 Clean Air Cleaner, H<sub>2</sub>O ..... 15 (3.75)..... 15 (3.75)  
 Intake Manifold Pressure, Psi (kpa).....27 (187) ..... 24 (168)  
 Max. Allowable Temp. Rise, Amb.  
 Air to Eng. Inlet, °F (°C).....15 (8) .....13 (7)  
 Max. Temp. out of Charger Air Cooler  
 @ 77° F (25°C), Amb. Air °F (°C)....140 (60) .....126 (54)

## EXHAUST SYSTEM

Muffler Inlet – Outlet Size Dual Mufflers .....3.0"  
 Max. Back Pressure in H<sub>2</sub>O (kpa)..... 30 (7.5)  
**Speed.....1800 rpm..... 1500 rpm**  
**Frequency .....60 HZ .....50 HZ**  
 Exhaust Flow, cfm (m<sup>3</sup>/min)..... 1201 (34) .....1081 (30.6)  
 Exhaust Temp, °F (°C)..... 941 (505) .....847 (455)

## SOUND LEVELS

	Open Set	Std. Encl.	Super-Silent Encl.
dB(A), Residential Muffler, no load	94	90	n/a
dB(A), Residential Muffler, full load	96	92	n/a
dB(A), Critical Muffler, no load	90	87	86
dB(A), Critical Muffler, full load	94	89	89

Note: Open sets (no enclosure) has loose flexible exhaust hose and loose residential muffler, ready for installation by others. Standard enclosure has installed residential muffler. Super-Silent enclosure has installed critical muffler. "OPEN" sets can be upgraded to critical muffler. Standard enclosure sets can be upgraded to critical muffler Reduce all sound levels by 5% for 50 HZ, 1500-RPM operation. Sound tests are taken at 23 ft. (7 m) from source of noise.

## DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft.(305 meters) above 3000 ft. (914 meters) from sea level.

## DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (12°C) above 85°F (30°C)

## DIMENSIONS AND WEIGHTS

	Open Set	Standard Enclosure	Super-Silent Enclosure
Length in (cm).....	98 (249)	118 (300)	138 (350)
Width in (cm).....	48 (122)	48 (122)	48 (122)
Height in (cm).....	53 (135)	68 (173)	68 (173)
Net Weight lbs (kg).....	3250 (1474)	3700 (1678)	3875 (1758)
Ship Weight lbs (kg).....	3450 (1565)	3900 (1769)	4075 (1848)

# SENTINEL SCOUT DIGITAL MICROPROCESSOR CONTROLLER



### SENTINEL SCOUT

This flexible controller allows programming to 8 basic engine functions in the field, and is standard equipment on all 4-pole gen-sets.

Controller has STOP-MANUAL-AUTO mode and (8) basic engine LED indicators: Low oil pressure • High engine temp • Over speed • Under speed • Fail to start • Battery charge fail • and two auxiliary LED outputs.

**SPECIAL FEATURES :** Micro-processor design • Auto engine stop-start with (3) start attempts before final shutdown • Auto shutdown on fault condition • Push button operation • Adjustable start or stop delay timer • Energize to stop timer • Pre-heat timer • LED alarm indication • External remote start input • Load switch output capability • Solid state fuel and engine crank outputs • Tamper-proof engine hours LCD counter



### SENTINEL III UPGRADE :

Digital controller with (47) different reporting functions programmable by means of graphic LCD display.



### SENTINEL IV UPGRADE :

This controller is the same as the SENTINEL III, plus: monitors utility power • Communication via optional RS-232 port. Use this controller with remote annunciators.

# STANDARD AND OPTIONAL FEATURES FOR MODEL SPJD-1650

## STANDARD FEATURES

### CONTROL PANEL:

- SENTINEL "SCOUT" digital microprocessor with logic allows programming in the field. Controller has:
  - STOP-MANUAL-AUTO modes and (8) basic engine LED indicators
  - Low oil pressure                      • Engine fail to start
  - High engine temp                      • Battery charge fail
  - Engine over speed                      • Two auxiliary LED outputs
  - Engine under speed
- Also included is tamper-proof engine hour meter

### ENGINE:

- Fuel filter • Full flow Oil filter • Air filter • Fuel pump • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump • Thermostat • Pusher fan and guard • Exhaust manifold • Residential Silencer • Electronic Governor • 12 VDC battery charging alternator • Flexible fuel and exhaust connectors • Vibration isolators • Open coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator hose

### GENERATOR:

- AC generator • Shunt excited • Brushless design • Single bearing • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction

### VOLTAGE REGULATOR:

- 1% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • Total encapsulation

### ELECTRICAL:

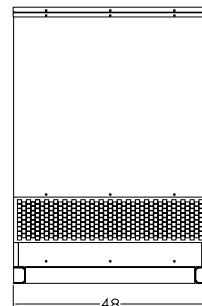
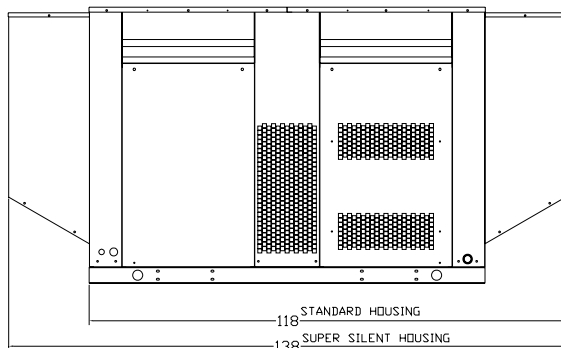
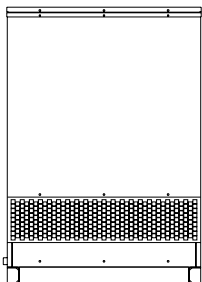
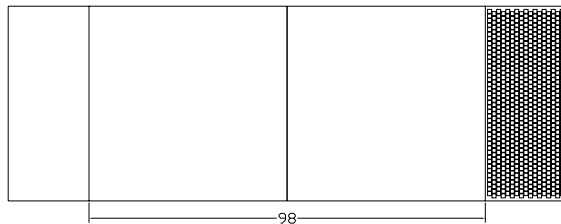
- Battery tray • Battery cables • Battery hold down straps • 2-stage battery float charger

### SUPPORT:

- Operation, maintenance, and installation literature. Call 1-800-777-9639 or Fax 1-574-262-1840
- E-mail : [engineering@gillettegenerators.com](mailto:engineering@gillettegenerators.com)
- Web : [www.gillettegenerators.com](http://www.gillettegenerators.com)

## ACCESSORY ITEMS

- Engine Coolant Heater with automatic 60°F on, 80°F off, thermostat
- Starting Battery Heater Blanket with automatic 60°F on, 80°F off, thermostat
- Battery Charger, float type, 12 VDC at max. charge, with ammeter.
- Radiator for dirty environment
- External Permanent Magnet Generator (PMG) for increased induction motor starting capacity, on 1Ø or 3Ø sets, and to meet NFPA-110 requirements.
- Exhaust Silencer (Critical Grade) installed on "OPEN" sets, or standard housing.
- Circuit Breaker, installed and wired on gen-set.
- Circuit Breaker with NEMA-3R Enclosure. Note: These breakers are shipped loose for installation in remote outside area by others.
- Single or Three Phase Windings, 50 or 60 Hertz.
- SENTINEL III digital programmable controller with up to (47) different reporting functions.
- SENTINEL IV Controller with all features of Sentinel III, plus allowing full telemetry remote control annunciation, and utility power monitoring.
- Remote annunciator for up to (10) reporting functions. An additional relay expansion module, plus a second annunciator adds another (10) reporting functions. Note: SENTINEL IV must be selected, to achieve remote annunciation.
- All aluminum weather and sound deadening housing for coastal areas. (allow 8-10 weeks for special order)
- Double-wall Sub-Base Diesel Fuel Tanks with UL-142 certification.



Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings.  
DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.