SUNBELT RENTALS

Datasheet

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OPERATION

GENERAL INFORMATION

This manual has been prepared to acquaint you with the operation and maintenance of this product. Study the information provided carefully to avoid problems associated with improper application or maintenance. Upon receipt of your generator, verify that it is complete and in good condition.

The generator is comprised of a 4 stroke, air-cooled engine directly coupled to a 2 pole alternator producing either 125VAC or 125/250VAC depending on model. The no-load speed is approximately 3750rpm with the speed under load going to approximately 3600rpm thus producing a frequency of 60Hz.

INITIAL INSPECTION

Upon receiving your generator set, inspect the product to make sure it is complete and in good condition. Handle with care and place in a suitable site for storage or operation.

GROUND CONNECTION

The generator can be grounded to earth to reduce the chance of electrical shock. To do this you will need a grounding rod and an appropriately sized copper ground wire. Drive the ground rod into the earth, connect one end of the copper wire to the rod and connect the other end to the external ground connection on the generator set. This is a general explanation, consult National and Local electrical codes to ensure compliance.

BEFORE START-UP

ENGINE FUEL

Use Unleaded Gasoline with minimum Octane 86. Check the fuel gauge beside the fuel fill and add as necessary.

ENGINE OIL

The engine manual or other information provided by the engine manufacturer supersedes data provided here. Proper oil grade varies with climate. The grade listed in the table is typically a good grade but consult the engine manual to verify proper grade. The oil fill ports are located on both sides of the engine. The gray filler cap has an integral dipstick. Add the proper amount of oil and check the level using the dipstick. NOTE: The dipstick should be placed into the filler opening but not screwed in to check the level.

ENGINE	HP	Capacity	Grade
Honda GX160	**5.5**	**0.63 qt**	**API SJ SAE 10W-30**
Honda GX270	**9**	**1.16 qt**	**API SJ SAE 10W-30**
Honda GX390	**13**	**1.16 qt**	**API SJ SAE 10W-30**
Honda GX610	**18**	**1.58 qt**	**API SJ SAE 10W-30**
Honda GX620	**20**	**1.58 qt**	**API SJ SAE 10W-30**

STARTING BATTERY (Electric Start Models Only)

It is rated at 12V-18AH (35AH for S10000/12000). The battery is fully charged if a voltage of 13.7VDC is measured across the terminals using a DC Voltmeter.

POSITIONING

- Place the generator set on a flat and solid surface to prevent it from sinking.
- The surface should not be more than 17° from horizontal in any direction for the engine to lubricate properly.
- Keep fuel, oil or other explosives at a safe distance from the generator set.
- Select a site that is well ventilated and protected from the weather.
- When indoor use cannot be avoided, provide excellent ventilation for exhaust, cooling, and combustion requirements.
- Place the generator set safely away from people and animals.

OPERATION

Check the engine oil before each use. Never operate the generator set with insufficient oil.

GENERATOR SET OVERLOAD

Do not exceed the rated load of the generator set when operating continuously. Before connecting items to the generator set, determine the total electrical requirements of the products to be connected. The requirement of each item is generally given on the manufacturer's nameplate. Below is a list of commonly used items and typical requirements. Use this list as a guideline only if no other data is available.

GENERAL WATTAGE GUIDE	
Item	**Running Watts**
Air Conditioner (12000 Btu) (*)	1750
Air Compressor (1/2 hp) (*)	1400
Air Compressor (3/4 hp) (*)	1800
Air Compressor (1 hp) (*)	2000
Battery Charger (25A)	600
Belt Sander (3" belt)	1000
Circular Saw (7 1/4")	825-1050
Coffee Maker	900-1100
Edger (lawn)	550
Furnace Fan (1/3 hp) (*)	1200
Hot Plate (single)	1500
Impact wrench	600
Light Bulb	Bulb rating
Nail Gun	1200
Microwave	750
Paint Sprayer (1/3 hp) (*)	650
Paint Sprayer, hand-airless	175
Radio	50-200
Refrigerator (*)	600
Table Saw (10") (*)	2000
Television	250-550
Weed Trimmer	500
Note: (*) Items allow at least 3 times the listed wattage for starting.	

NOTE: Many appliances such as saws or drills draw more current than indicated on the manufacturer's nameplate when under severe load.

STARTING THE GENERATOR SET

Before attempting to start the generator set, ensure that all instructions given in previous sections have been followed completely.

- Check oil and fuel levels.
- Turn the fuel valve under the fuel tank on.
- Turn the fuel valve on the front of the engine on.
- Move the choke lever on the front of the engine on. Note: the choke may not be required when the engine is warm or in high ambient temperatures.
- Turn idle-control On/Off switch OFF.

RECOIL START

- Move engine On/Off switch to On position.
- Slowly pull recoil cord until resistance is felt and then pull firmly. Let the recoil rewind slowly to avoid damage.
- Return the choke to the original position.

ELECTRIC START

- Move engine On/Off switch to On position.
- Hold the On/Off switch in the Start position until the engine starts and release. Note: If the engine does not start after 5 seconds, stop and wait 10 seconds and repeat this step.
- Return the choke to the original position.

CAUTION: This generator is equipped with an oil protection system. When oil levels are too low for safe operation the engine will shut down and/or will not start until the oil level is corrected.

OPERATING THE GENERATOR SET

Once started, allow the engine to stabilize for approximately 3 minutes. Check that the circuit breakers and the GFCI receptacles are not tripped. Turn the idle-control switch to the On position if this feature is to be utilized (S5000 & S7500). Set the voltage selector switch to the appropriate mode, either 120V or 120/240V(S5000 & S7500). See the guides below for more information on the idle-control and voltage selector features.

IDLE CONTROL GUIDE (applicable models)

The automatic idle control system is available on some generators. This feature allows the engine to automatically idle down when there is no load drawn against the generator thus saving fuel, decreasing wear and lowering the noise level. There is an on-off switch located on the control panel that activates or deactivates this feature. In the on position the engine will idle down after detection of less than 40Watts. The engine will return to the correct running speed immediately when a load of 350Watts or more is applied. For applications with loads less than 50W or with near constant loads, such as home back up, it is best to turn the idle control feature off. The feature should be turned off before starting or stopping the generator and turned on when there will be extended periods of inactivity for the generator.

VOLTAGE SELECTOR GUIDE (applicable models)

The voltage selector switch allows the generator set to produce 120 volts only or to produce 120/240 volts simultaneously. With the switch in the 120V position only the 120V receptacles may be used. All of the power from the generator is available at 120 volts but the 240V output is not available. In the 120/240V position all receptacles are operable however only half of the generator output is available at any one 120V receptacle. Full power may be pulled from the generator from the 240V receptacle. The switch should always be left in the 120V position when 240 volts are not needed. This balances the load on the generator more effectively.

STOPPING THE GENERATOR SET

Unplug all appliances and let the engine run unloaded for a couple of minutes. Turn the fuel valve on the front of the engine to the Off position where installed. Turn the engine On/Off switch to the Off position. Turn the fuel valve on the fuel tank Off. CAUTION: Never use the choke to stop the engine.

GENERATOR APPLICATION

WHAT IS A GENERATOR

A generator is basically a prime mover, typically a gasoline or diesel engine, coupled to an alternator to produce electricity. It is very useful as a substitute power source during power outages or as the primary source in remote locations where power is not available. Generators are essential for people such as contractors or farmers who are always in need of portable power. They are also very convenient for recreational use.

SELECTING A GENERATOR

Selecting the proper generator is important. A generator that is too small for your application will not run all of the equipment needed. A generator that is too large will cost more and if never used to its potential the money is wasted. The correct size generator is determined by totaling the wattage requirements of the items to be used simultaneously, determine additional starting wattage requirements and total these numbers. Select a generator with a continuous rating that exceeds this by about 20% to allow for expansion. See the table in the section titled "Generator Set Overload" for some wattage guidelines of common equipment.

RATED vs. SURGE WATTS

Rated, or continuous, watts are the watts an item needs as it is running.
Surge, or maximum, watts are the watts an item needs to start. This is typically 2-4 times the rated watts.
This information is typically provided on the manufacturer's nameplate. If watts are not provided, it can be calculated using the formula: Watts=Amps x Volts.

EXTENSION CORDS

An extension cord should always be in good condition with no damage to the wires or sheathing. Never run an extension cord through water. The correct wire size for an extension cord can be determined from the table that follows.

Continuous Load	Minimum Cord Gauge (AWG)		
Amps	0-50 Feet	50-100 Feet	100-150 Feet
20	12	10	8
25	12	10	6
30	10	8	6
35	10	8	4
40	8	6	2
50	6	4	2

LOADING YOUR GENERATOR SET

With reference to the Receptacle details section, please review the power receptacles fitted to your generator. The circuit breaker rating and the generator rating drive the actual load that may be pulled from each receptacle. The ratings shown in the table are the maximum available from each receptacle. DO NOT EXCEED THE INDIVIDUAL RECEPTACLE RATINGS AS SHOWN IN THE TABLE BELOW. DO NOT EXCEED THE TOTAL GENERATOR RATING SHOWN IN TABLE 2 PERFORMANCE SPECIFICATIONS. All generator units are equipped with a thermal-magnetic main circuit breaker as well as a **"PUSH TO RESET"** breaker on branch circuits.

AMPERAGE RATE TABLE

Model	NEMA 5-20R 125V GFCI	NEMA L5-30R 125V Twistlock	NEMA L14-30R 125/250V Twistlock	NEMA 14-50R 125/250V
S3100	20Amps	25Amps	NA	NA
S5000	20Amps	30Amps*	20Amps	NA
S7500	20Amps	30Amps*	30Amps	NA
S10000	20Amps	NA	30Amps	35Amps
S12000	20Amps	NA	30Amps	45Amps

*With voltage selector in 120V mode.

ENGINE LIMITATIONS ON GENERATOR PERFORMANCE

Generator ratings assume 60°F (20C) and Sea Level. Operation of your generator at temperatures above 60°F (20C) or above Sea Level will result in lower electrical output. Electrical output must be derated 1% for each 10°F above 60°F and 3 ½ % for each 1000 feet above mean sea level.

GENERATOR CLEANING

CAUTION: ALWAYS SHUT DOWN THE GENERATOR AND ALLOW IT TO COOL COMPLETELY BEFORE PERFORMING CLEANING OPERATIONS.

WARNING: DO NOT USE HIGH PRESSURE WATER OR A GARDEN HOSE TO CLEAN YOUR GENERATOR. WATER INTRODUCED INTO THE GENERATOR CAN CAUSE ELECTRICAL SHORTS, GENERATOR DAMAGE OR PERSONAL INJURY.

- Compressed air (max. 25 psi) may be used to blow loose dirt and dust from your generator. DO NOT DIRECT COMPRESSED AIR DIRECTLY INTO ANY OPENING IN THE GENERATOR OR ENGINE.
- Use a dampened cloth to wipe clean exterior surfaces.
- Use a soft bristle brush to clean/ loosen heavy dirt, oil or grease deposits.
- NEVER insert rags, tools or any device into the generator or engine openings.

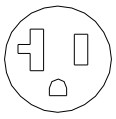
GENERAL STORAGE GUIDELINES

WARNING: GASOLINE FUMES ARE FLAMMABLE. DO NOT STORE YOUR GENSET IN ANY AREA THAT IS INDOOR OR IN POORLY VENTILATED AREAS. GASOLINE FUMES CAN IGNITE IN THE PRESENCE OF ANY OPEN FLAME, PILOT LIGHT, CLOTHES DRYER, WATER HEATER, ETC.

- Your generator should be started and operated for several minutes at least every 30 days.
- If the generator cannot be operated every 30 days, follow the storage recommendations within the engine documentation.
- NOTE: A fuel shut-off valve is positioned at the base of the fuel tank. The valve should be closed during storage periods.

RECEPTACLE DETAILS

The receptacles shown in this section are for reference only. Each receptacle is not available on all generators.

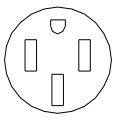


NEMA 5-20R
125V - 20A

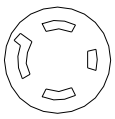
NEMA L5-30R
125V - 30A

NEMA L6-30R
250V - 30A

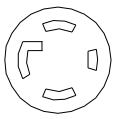
NEMA L6-20R
250V - 20A



NEMA 14-50R
125/250V - 50A



NEMA L14-20R
125/250V - 20A



NEMA L14-30R
125/250V - 30A

GENERAL MAINTENANCE

Proper maintenance and service are required to achieve maximum engine life and maintain warranty. The following tables provide engine specifications as well as maintenance schedules for the generator engines. Note that the generator models are referenced with the engine model. An engine owner's manual is provided with each machine that also provides basic maintenance and troubleshooting information. Defer to the engine manufacturers manual if any discrepancies appear between the data provided in this manual and the engine owner's manual. Full engine service manuals are available from American Honda Motor Co., 4900 Marconi Drive, Alpharetta, GA 30005-8847, (800) 910-1293.

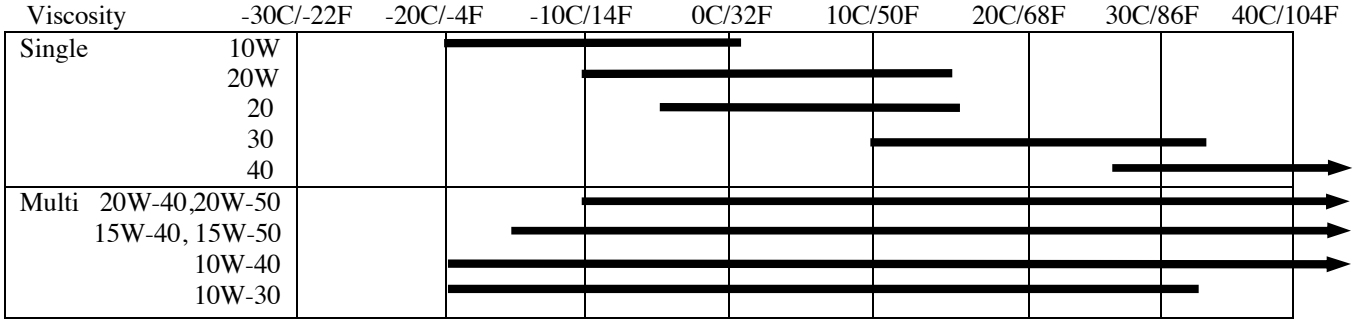
ENGINE SPECIFICATIONS AND CAPACITIES

Model	**GX160 (S3100)**	**GX270 (S5000)**	**GX390 (S7500)**	**GX610 (S10000)**	**GX620 (S12000)**
Type	4-stroke, overhead valve single cylinder, inclined 25°			4-stroke, overhead valve, V-Twin	
Displacement	163cc (9.9 cu in)	270cc (16.5 cu in)	389cc (23.7 cu in)	614cc (37.5 cu in)	614cc (37.5 cu in)
Bore and Stroke	68 x 45 mm (2.7 x 1.8 in)	77 x 58 mm (3.0 x 2.3 in)	88 x 64 mm (3.5 x 2.5 in)	77 x 66 mm (3.0 x 2.6 in)	77 x 66 mm (3.0 x 2.6 in)
Max. HP	5.5 hp	9.0 hp	13.0 hp	18.0 hp	20.0 hp

	@3600rpm	@3600rpm	@3600rpm	@3600rpm	@3600rpm
Max. Torque	8ft-lb @2500rpm	14ft-lb @2500rpm	20ft-lb @2500rpm	31.8 ft-lb @2500rpm	32.5 ft-lb @2500rpm
Compression Ratio	8.5 : 1	8.2 : 1	8.0 : 1	8.3:1	8.3:1
Cooling System	Forced-air				
Ignition System	Transistorized magneto				
Ignition Timing	25° B.T.D.C. (fixed)	20° B.T.D.C. (fixed)	25° B.T.D.C. (fixed)		
Spark Plug	BPR6ES (NGK), W20EPR-U (Nippondenso)				
Carburetor	Horizontal type, butterfly valve				
Air Cleaner	Dual element type				
Lubricating System	Splash			Forced Oil	
Oil Capacity	0.6l (0.63 US qt)	1.1l (1.16 US qt)	1.1l (1.16 US qt)	1.5l (1.58 US qt)	1.5l (1.58 US qt)
Starting System	Recoil	Recoil	Recoil/Electric	Electric	Electric
Stopping System	Ignition primary circuit ground				
Fuel Type	Unleaded gasoline (86 pump octane)				
PTO Shaft Rotation	Counterclockwise (from PTO side)				
Dry Weight	??.?kg (??.? lb)	25.4kg (55.1 lb)	31.0kg (68.3 lb)	40.0kg (88.2 lb)	40.0kg (88.2 lb)

OIL SELECTION

Proper oil selection as well as proper oil level is critical to achieve maximum engine life. Use high detergent, premium quality motor oil certified for service class SJ that should be designated on the container. SAE 10W-30 is recommended for general, all temperature use. Use the table below to select the proper oil for the temperature in your area.



ENGINE MAINTENANCE SCHEDULE

ITEM		Each Use	First Month Or 20 Hrs	3 Months Or 50Hrs	6 Months Or 100Hrs	Every year Or 300Hrs
Oil	Check	X				
	Change		X		X	
Air Cleaner	Check	X				
	Clean			X(1)		

Sediment Cup	Clean				X	
Spark Plug	Check-Clean				X	
Spark Arrestor	Clean				X	
Valve Clearance	Check-Adjust					X(2)
Fuel Tank and Strainer	Clean					X(2)
Fuel Line	Check	Replace as necessary.				

Notes:

(1) Service more frequently in dusty areas.

(2) Should be serviced by authorized dealer unless owner has proper tools and is mechanically proficient. See engine Shop Manual for instructions.

DAILY INSPECTION

1. Recoil Starter Cord
2. Engine Oil Level
3. Check for Engine Oil or Fuel Leaks
4. Inspect Spark Plug Cables
5. Inspect Cooling System for Cleanliness
6. Listen for Abnormal Noise
7. Look for Abnormal Vibration

FAULT FINDING GUIDE

SYMPTOMS	PROBABLE CAUSES	CORRECTION
ENGINE WILL NOT START	1. Oil level too low. 2. No fuel or valve(s) turned off. 3. Start switch turned Off. 4. Blocked or leaking fuel system. 5. Clogged air filter. 6. Genset under load at start-up.	1. Add oil. 2. Add fuel and/or turn valve(s) on. 3. Turn switch On. 4. Repair fuel system. 5. Clean or replace air filter. 6. Disconnect load.
NO POWER OUTPUT	1. Circuit breaker tripped. 2. GFCI receptacle tripped. 3. Faulty circuit breaker. 4. Faulty receptacle. 5. Faulty capacitor in alternator. 6. Faulty diodes in alternator. 7. Failure in alternator windings.	1. Reset circuit breaker. 2. Reset GFCI receptacle. 3. Replace circuit breaker. 4. Replace receptacle. 5. Replace capacitor. 6. Replace diodes. 7. Repair or replace alternator.
NOISY MACHINE	1. Damaged bearing. 2. Damaged exhaust system. 3. Loose or rattling parts.	1. Replace bearing. 2. Repair or replace. 3. Repair loose or rattling parts.
OVERHEATING	1. Ventilation openings blocked. 2. Overload. 3. Ambient temperature too high.	1. Clear ventilation openings. 2. Verify load levels. 3. Provide better ventilation for cooling.
CIRCUIT BREAKER TRIPS	1. Overloaded circuit. 2. Faulty equipment or cable. 3. Faulty circuit breaker.	1. Reduce load. 2. Check, repair or replace. 3. Replace circuit breaker.

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LOCATIONS

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