BALDOR GENERATORS

PRESENTS YOUR

STANDBY PERMANENT MOUNT SERIES GENERATOR

OPERATORS MANUAL

DLC

BALDOR GENERATORS
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FORWARD

This manual contains the information you need to safely and efficiently operate your generator set. During the preparation of this manual every effort was made to ensure the accuracy of its contents.

Never operate this generator set without first carefully reading this manual and observing all the safety warnings it presents. While safety is built into every Baldor generator set, careless or improper operation could possibly result in mechanical failure, property damage, severe injury or death.

Note that this manual covers only very basic information in regards to the engine. A separate owner's manual for the engine is supplied with this unit for your use. Please refer to this manual for information relative to engine operation, maintenance, recommendations and additional safety warnings.

As soon as you receive your generator set, inspect it closely for shipping damage. If you find some damage, notify the transportation company immediately and file a freight damage claim.

Think of this manual as a tool to help you get the most out of your generator set. We strongly suggest that you keep this manual with your generator set and refer to it when questions arise in regards to its operation.

Baldor Generators has been in business since 1965. The generator sets we manufacture have earned the reputation of being of high quality and a dependable product. We take pride in this fact and continue to keep our quality standards high on our list of priorities. We are also constantly researching new technological ideas to determine if they could be used to make our generator sets even better.

Thank you for purchasing your Baldor Generator Set.

Improper Maintenance or Repair Can Result in Property Damage, Mechanical Failure, Severe Injury or Death!

- Place protective covers and guards over the rotating parts, if rotating parts such as the drive shaft, pulley, belt, etc. are left exposed, they are potentially hazardous.
- When cleaning, repairing or inspecting, make sure all moving parts have stopped.
- Prior to working on the generator set, disconnect the spark plug and battery to prevent accidental starting.
- Use only original equipment or authorized replacement parts. Use of correct parts will assure the operator of the safety integrity that was designed into the unit.
- Unauthorized modifications to the generator set may impair the function and/or safety of the unit.
- Do not operate the generator set without a muffler. Inspect periodically and replace if necessary.
- Do not touch the hot exhaust components or the high voltage spark plug and coil terminals. While Spark Plug Voltages are not normally lethal, an involuntary jerk of the hand caused by a hot surface or by an electrical shock can result in injury.
- Repair of electrical generating equipment requires specialized skills. Repair personnel must have a thorough understanding of generator and small engine repair procedures.

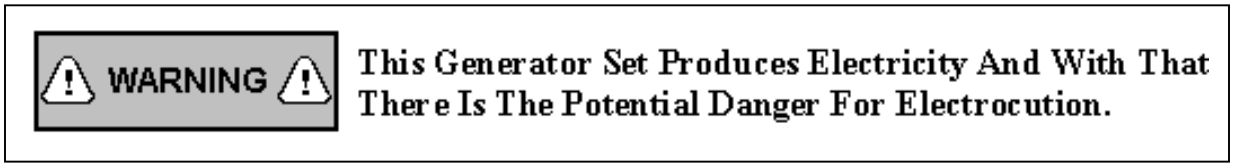
Exhaust Fumes/Gases Are Extremely Dangerous And Can Cause Illness Or Death.

- Never inhale exhaust gases. They contain carbon monoxide; a colorless, odorless and extremely dangerous gas that can cause unconsciousness or death. Symptoms of carbon monoxide poisoning can include: dizziness, nausea, headaches, sleepiness, vomiting or incoherency. If you or anyone else experiences any of these symptoms, get out into the fresh air immediately. Shut the unit down and do not operate it until it has been inspected and, if necessary, repaired.
- Never Operate the generator set indoors or in a poorly ventilated area such as a tunnel or cave.
- CALIFORNIA PROPOSITION 65 WARNING: engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Improper Operation Can Result In Property Damage, Mechanical Failure, Severe Injury Or Death.

- Know how to stop the engine quickly and understand the operation of all controls.

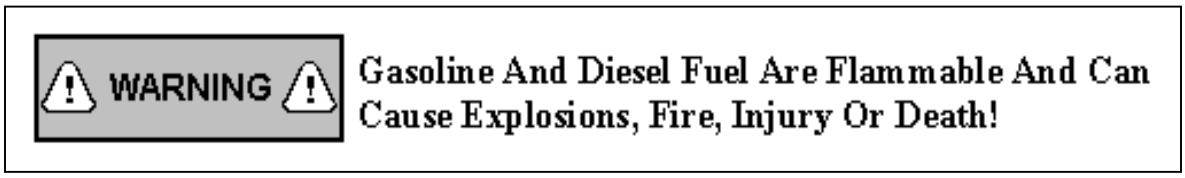
- Never permit anyone to operate the generator set without proper instructions.
- Never allow children to operate the generator set.
- Children and pets must be kept away from the area of operation due to the possibility of burns from hot engine components or injury from any equipment the generator set is powering.
- Always wear eye protection and Hearing protection when working near the generator set.
- Operate the generator set only with the guards, shields and other safety items in place and working properly.
- Do not put hands, feet, tools or other objects near rotating parts.
- Use reasonable care when moving or lifting the unit. The generator set may move around inside the wrap frame creating "Pinch Points".
- Do not run the generator set while it is being moved.
- Do not support the generator set from the top of the wrap frame.
- Do not operate the generator set while under the influence of alcohol, drugs or medication.
- When transporting or using a generator set with the wheel option, secure the unit to prevent it from moving around.
- Do not tamper with or change the engine speed as it has been preset at the factory for proper operation.
- Keep hands and face away from the carburetor when the air cleaner is being moved. A sudden backfire can cause serious burns.
- Be careful of hot parts. The muffler and other generator parts become very hot while the engine is running.
- Do not "jump start" the generator set.
- Sulfuric acid can cause severe injury and can give off gases, which are corrosive and potentially explosive. Avoid contact with skin, eyes, and clothing. In case of contact, flush area immediately with water.
- When transporting a generator set, secure it to prevent it from moving or shifting.



- Know how to stop the engine quickly and understand the operation of all controls.
- Do not operate electrical equipment while standing in water, on wet ground or with wet hands or shoes.
- Use extreme caution when working on electrical components. Potentially dangerous voltage is present when the engine is running.

- ♦ Always treat the electrical circuits as if they were energized.
- ♦ Disconnect all leads plugged into the unit Prior to working on it.
- ♦ Have the electrical circuits serviced only by qualified technicians.
- ♦ Inspect wiring frequently and replace frayed, broken or poor leads.
- ♦ Do not connect this unit to any building's electrical system unless you utilize an approved transfer switch or the main service entrance switch has been disconnected and locked open.
- ♦ Circuit overload protection must be provided in accordance with national electrical codes and local regulations.
- ♦ Check GFCI Receptacles monthly by using the "Test" and "Reset" buttons designed into them.
- ♦ Depending on your application it may be mandatory to ground or not ground this unit to earth ground. Comply with local electrical codes.

○ ○ ○ ○ FOR GASOLINE OR DIESEL POWERED GENERATOR SETS ○ ○ ○ ○



- ♦ Operate the generator set on a level surface. If the generator set is tilted, fuel spillage may result.
- ♦ Handle fuel with care. It is highly flammable. Use only clean, properly marked and approved safety containers for refueling and storing fuel.
- ♦ Stop the engine and allow it to cool before refueling.
- ♦ Do not overfill the fuel tank. Only fill the tank to within 1/2" of the top of the tank to allow space for fuel expansion.
- ♦ If fuel is spilled, wipe it up carefully and wait until the fuel has dried before starting the engine.
- ♦ Make sure the fuel cap is properly closed after refueling.
- ♦ Never operate the generator set while smoking.
- ♦ Never operate the generator set near an open flame.
- ♦ Never store the generator set with fuel in the tank indoors or in an enclosed, poorly ventilated enclosure where fuel fumes may reach an open flame, electrical spark or pilot light as on a furnace, water heater, clothes dryer, etc.
- ♦ When transporting over long distances or rough roads, drain the fuel tank to prevent leakage and spillage.

Gaseous Fuels are Highly Combustible and can Cause Explosions, Fire, Injury or Death!

○ ○ ○ ○ FOR GASOLINE OR DIESEL POWERED GENERATOR SETS ○ ○ ○ ○

- Check all fuel supply piping and their connections on a monthly basis for fuel leaks.
- Use only approved piping and componentry in your fuel supply system.
- A professional, experienced technician should only install the fuel supply system.
- Do not run the fuel line up against any sharp objects.
- Comply with NFPA regulations and your local codes in regard to shut-off valves, regulators, etc. and any other recommendations or requirements they may have.

This Generator Set Creates A Significant Amount Of Heat And If Not Handled Properly, Can Become A Substantial Fire Hazard.

- Keep the generator set at least three feet away from buildings or other structures.
- Keep the generator set away from flammable and other hazardous materials (trash, rags, lubricants, explosives, paints, etc.)
- Keep the generator set free of grass, leaves and excessive grease and oils.
- Allow the generator set to cool before transporting it or storing it indoors.
- Have fire extinguisher accessible and nearby while operating the generator set.
- This generator set must not be used on or near any forest covered brush covered or grass covered land unless the engine's exhaust system is equipped with a spark arrester and it must be maintained in effective working order by the operator.
- Operation inside an enclosed compartment or building is a potential fire hazard and should not be done unless approval is obtained from Baldor Generators. Engine/Generator overheating can cause severe damage due to restricted, obstructed or improper airflow that is necessary for the proper cooling of the unit.
- Hot exhaust gases being discharged by the engine must never be directed toward anything that could catch fire or explode.

STANDBY PERMANENT- MOUNT SERIES GENERATOR

Table of Contents

Other Manuals and accessories that should accompany your Standby Permanent - Mount Series Generator:

ENGINE OPERATOR'S MANUAL: This operator's manual includes information in regards to the operation and maintenance of the engine utilized in this generator set.

AC GENERATOR, ACCESSORIES, AND LOAD CONNECTION DIAGRAMS / ENGINE CONTROLS, ACCESSORIES, AND REMOTE CONNECTION DIAGRAMS: These diagrams contain information in regards to the internal wiring of the generator set, specifically the AC and Engine Control circuits. These diagrams will also include information for any optional AC or DC powered accessories that are included.

PARTS LIST: This is a listing of all parts used by Baldor Generators to build this specific generator set.

STANDBY PERMANENT - MOUNT SERIES GENERATOR

ELECTRICAL CONNECTION INFORMATION

⚠ WARNING ⚠

High voltage may be present at receptacles and load studs while engine is operating - DANGER of electrical shock is present. Use extreme care.

Voltage is present at the 120V/15 Amp convenience receptacle only when generator is operating.

⚠ CAUTION ⚠

When configured for 277/480 main output, these receptacles Will be delivering 139 VAC. Disconnection to avoid possible equipment damage is suggested.

HARD WIRE LOAD TERMINAL BLOCK

1. Voltage available at load block is outlined in a chart below.
2. Cables must be brought into load block cabinet.
3. Do not start engine with load turned "on". Allow engine to come up to speed and warm up first.

AVAILABLE VOLTAGE:

CONNECTION OF GENERATOR LEADS		STUD
120/240	4 LEAD	1-2 = 240 VAC, 1 Phase 1-N, 2-N = 120 VAC, 1 Phase
277/480	High Wye	1-2-3 = 480 VAC, 3 Phase 1-N, 2-N, 3-N = 277 VAC, 1 Phase
120/240	Delta	1-2-3 = 240 VAC, 3 Phase 2-3 = 240 VAC, 1 Phase 1-N, 2-N, 3-N = 120 VAC, 1 Phase
120/208	Low Wye	1-2-3 = 208 VAC, 3 phase 2-3 = 208 VAC, 1 Phase 1-N, 2-N, 3-N = 120 VAC, 1 Phase

CONNECTION INFORMATION

Your new Pow'R Gard Generator has all interconnecting wiring terminated at a junction box. All wiring will be clearly labeled as being load, remote start contacts and AC input terminals and are to be connected as described below.

LOAD - These connections are rated and sized according to the KW of the generator. Proper lead wire from these points to the automatic transfer switch (or load switching device) is mandatory. See enclosed transfer switch information for corresponding generator input terminals.

REMOTE START CONTACTS - This two wire connection, once connected to an appropriate switch, will start the generator and perform as described in the remote start/stop literature. These contacts are connected to the "Engine Start Contacts" of the automatic transfer switch.

A Two Pole connection switch - normally open, closed to operate switch may also be used to start the generator.

AC INPUT - These connections are for units with float type battery chargers or engine block heater combinations. A constant supply of 120 volts AC (or as specified) is needed at these terminals to power these devices.

NOTE Power is not required when the unit is in operation. Internal Battery charging and radiant heat during operation eliminate the need for these devices.

NOTE It is recommended that units utilizing an automatic transfer switch with adjustable time delays have the initial adjustments made prior to startup.

Factory recommendations are: allow 2 second delay on startup, 15 second delay on emergency to normal.

STANDBY PERMANENT MOUNT SERIES GENERATOR

GENERATOR MOUNTING REQUIREMENTS

The generator set must be secured to a solid surface, which is non-combustible. A concrete floor is typical of this application. Wood floors should be prepared in accordance with local and state requirements for the load, heat and fluids that will be encountered with operation of this generator set.

This generator base shall be anchored to the concrete floor with minimum 3/8" anchors. We do not suggest use of secondary isolators between the base and the floor surface, as durometers vary and may affect the isolation properties of the standard generator mounts. Please note that it is not recommended by the manufacturer that this generator be operated without being permanently mounted to a concrete slab or similar application in accordance with your local and state regulations. We also recommend that the generator be located 3 to 5 feet away from any permanent structure such as walls, bushes, etc. Check with your local city hall for official requirements in your area.

The generator should be level for proper operation. When mounted, the generator should be properly aligned and located in a well-ventilated place where the air temperature will not exceed 40^{O}C or 104^{O}F, and should be accessible for cleaning. An open type generator should not be located where there are abrasive or conductive dusts, corrosive gasses or fumes, or where excessive moisture, standing or dripping water may be encountered. Limit dust and dirt accumulation and assure a rodent-proof environment. A totally enclosed generator should be cleaned frequently to remove accumulated dust and dirt , which may cause overheating.

A dimensional diagram to aid in mounting this model is included in your Bill of Materials / Technical Diagrams Packet.

ENGINE COOLING REQUIREMENTS

A sufficient flow of clean, cool air is required to support combustion and to dissipate the heat produced in the combustion process of an internal combustion engine. Approximately 60% of the heat value of fuel consumed by an engine will be disbursed to the cooling air and to the exhaust.

All engines are either directly or indirectly cooled by air. The Air-Cooled Engine must transfer the excess heat directly to the air surrounding it. The heated air must then be directed away from the engine so it will not overheat.

If the engine is situated in an open installation there should not be a cooling problem, but when the engine is installed in a building it is essential to provide:

1. Adequate control and evacuation of the heated cooling air.
2. An adequate and constant supply of incoming cooling air.
3. Adequate control and discharge of the engine's hot exhaust gases.
4. Adequate ventilation of the building when the engine shuts down.

ENGINE COOLING AIR

The air, which will cool the engine, must be brought in from outside the building. A forced airflow of sufficient Cubic Feet per Minute (CFM) will prevent the incoming cooling air from mixing with the air inside the building and eventually overheating and damaging the engine. To do this requires that an exhaust fan of sufficient CFM be placed near the generator set to exhaust the heated cooling air and to also draw in cool external air.

The cooling air intake should be located so that the cooling air will be brought in through this intake opening, travel across the generator set, and then be evacuated from the building via the exhaust fan.

It is recommended that the cooling air intake have at least twice the cross-sectional opening area as the heating cooling air exhaust fan located near the generator set. It is also recommended that the air intake opening be located as close as possible to the same level as the top of the generator set.

The exhaust fan must NOT be located where it could easily become blocked by leaves, snow, water, debris, etc…

The cooling air intake opening of the building should be of sufficient size so as to not interfere with the cooling air intake airflow. It is recommended that the intake opening be no less than 3 times the cross sectional area of the exhaust fan opening. It is also recommended that this opening be located on a vertical plane so as to not easily become plugged with debris.

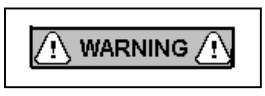
If utilizing some type of covering over the intake opening (louvers, expanded metal, screening, etc…) it is very important that the **combined total** of the cross-sectional area **openings** be no less than 3 times the cross-sectional area of the exhaust fan opening.

The heated cooling air coming off the engine **must** be directed, and evacuated out of the building. An exhaust fan of sufficient CFM will need to be used to achieve this end result. Regarding the exhaust fan size, remember that **no heated cooling air must be allowed to accumulate inside the building**. For air-cooled units of 8-12KW we recommend an exhaust fan of 2000 CFM.

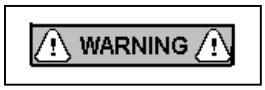
Location of the exhaust fan for the engine's heated cooling air is important. It **must** be located so that the heated cooling air evacuated from the building not be allowed to re-circulate back into the cooling air intake of the building or generator set. It is also important that it **not** be located where leaves, snow, water, debris, etc could easily block it…

The exhaust fan should be located near the generator set on it's right or left side. If the unit has a side mounted muffler it is preferable to put the exhaust fan on this side. You must not position the exhaust fan so as to pull the incoming cooling air away from the cool air intake of either the engine or the generator end.

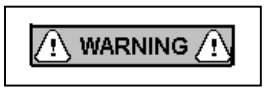
The exhaust fan must be connected to the AC power terminals of the generator set so that when the generator set starts it will immediately engage to provide immediate cooling air flow. The fan will then stay engaged until the generator set stops.



It is important to keep any and all flammable objects or materials away from this generator set, the remote muffler and it's attached piping, or any other potential hot component of the installation.



When discharging the heated cooling air or the hot exhaust gases out through the side of the building or compartment please contact your local building inspector to find out what is necessary for your application to prevent a fire from occurring.



You must clean and inspect both the exhaust fan and its louvers along with the building's cooling air intake on a regular basis to prevent reduction in the building's cooling air flow. This could lead to overheating and a potential fire or explosion.

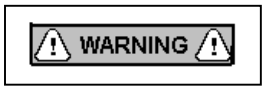
The direction of the discharged heating cooling air and the discharged hot exhaust gases is important as they have the potential to create brown spots on the lawn. In extreme cases this extremely hot air could cause dried grass or other debris to ignite.

Once the generator set is completely installed and fully operational, the following test should be performed to help determine if the cooling airflow system you installed is performing adequately.

1. Place a thermometer as close to the cooling air intake of the engine's blower housing as you can without allowing the thermometer to touch any material surface. Secure the thermometer so it can't be drawn into the engine when it is running.
2. Place another thermometer outside of the building or compartment in the open air (Keep the thermometer out of direct sunlight or any other heat sources).
3. Run the engine under maximum load for an extended period of time (at least one hour).
4. The temperature difference between the two should not exceed 15 degrees F.

Please note that opening any door, window or other opening in the building could upset the directed cooling airflow pattern and result in a significant reduction in the cooling airflow across the generator set. This could result in overheating, fire, or explosion. To find out if this is true with your specific application run the above-mentioned test with all doors and windows closed. Then repeat this test with different doors and windows open, and eventually with all the windows and doors open. If any of these tests produce results that do not meet the above-mentioned criteria, you must not run the generator set under the specific conditions that created these unappreciable results.

HOT EXHAUST GASES



Exhaust gases contain carbon monoxide, a poisonous and toxic Gas. Carbon Monoxide can cause illness or death. This generator set must Only be installed by qualified professionals.

While it is important to supply the proper amount of clean air to the cylinder, it is equally important to discharge the gases of combustion. If these gases remain in the cylinder, poor performance or eventual engine damage may result. This condition results from excessive back- pressure, which could be caused by any one or a combination of the following conditions:

1. Exhaust pipes too long or the diameter is too small.
2. Excessive number of sharp bends in the exhaust system.
3. Obstruction in the exhaust system.

Backpressure must not exceed 20" of water column.

Exhaust lines should be as short and straight as possible, since extended runs and elbows tend to clog with carbon and resist the flow of gases. Each pipe fitting and elbow will hinder the exhaust flow.

If you are using a remote muffler it should be mounted as close to the engine as possible, since it will clog with carbon if it's operating temperature is too low.

If you are using a remote muffler a flexible coupling of 12" or more **must** be installed between the exhaust line and the manifold to absorb the engine's vibration.
However, a short, solid section of pipe between 6" and 8" long should be placed between the connection of the manifold and the flexible coupling. This nipple will reduce the possibility of the hot gases burning up the flexible coupling.

Water is one of the by-products of combustion and will be present in the exhaust piping or muffler. This water must be kept from draining back into the engine. Slanting the horizontal section of the exhaust system piping downward slightly, away from the engine can do this.
A water trap consisting of a tee extension with a drain cock should also be provided. This water trap should be located between the flex coupling and the muffler, but as close to the engine as possible on a horizontal section of the exhaust piping.

It is also recommended that an exhaust rain cap be used whenever it is possible that rain could get into the system. This will help to prevent corrosion and damage to the exhaust system and engine.

The exhaust system is subject to the engine's vibration and it must therefore be solidly secured to prevent unnecessary stress and the potential for breakage.

The engine's exhaust system is the hottest component of the installation and **extreme** care and considerations must be given to it.

Whenever possible the remote muffler should be located outside of the building or compartment. As much of the exhaust piping as possible should be located within the engine's heated cooling are exhaust flow. This will help to prevent the accumulation of radiant exhaust heat inside the building.

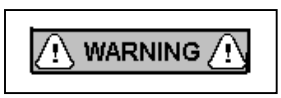
In some cases, the idea of mounting the muffler outside the building conflicts with the idea of mounting the muffler close to the engine to prevent carbon buildup. In these cases it is best to mount the muffler near the engine and provide an air flow around the muffler to evacuate the muffler's radiant heat out of the compartment or building. However, the exhaust outlet **must** be extended outside of the building.

Under no conditions shall the exhaust outlet be positioned so that the exhaust gases would be directed towards any openings or air entry routes (doors, windows, vents, etc...) of an occupied building.

When discharging the hot exhaust gases out of the building do not direct them towards anything that could catch fire or explode.

If the remote muffler cannot be located outside of the building or compartment, the next best option is to locate it in the engine's heated cooling air exhaust flow.

It is extremely important that you do not allow the hot exhaust gases to re- circulate back into the engine's cooling air intake.



It is important to keep any and all flammable objects or materials away from the generator set, the remote muffler and its attached piping, as well as any other potentially hot component of the installation.

When discharging the heated cooling air or the hot exhaust gases out through the side of the building please contact your local building inspector to find out what is necessary for your application to meet local building code requirements.

Keep all fuel and its associated piping away from all components of the engine exhaust system.

Once the exhaust system is installed it should be inspected on a regular basis to assure there are no toxic exhaust gas leaks. In some areas this inspection may be provided by your local public service.

BUILDING VENTILATION

As hot air rises you must provide some type of power ventilation at the highest possible point of the building to permit the accumulating hot air to escape. This will help to prevent engine damage and it will help to eliminate hot restart problems. An electric powered exhaust fan of sufficient size will satisfy this requirement. This fan must connect to the generator set in a manner similar to the building's main heated cooling air exhaust fan.

Generator End Cooling Requirements

The cooling air requirements for the generator end are very similar to the cooling air requirements for the engine. These requirements are:

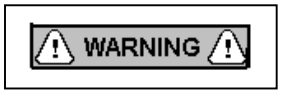
1. An adequate and constant supply of cooling air.
2. Adequate control and evacuation of the heated cooling air.

GENERATOR END COOLING AIR

If the above exhaust fan sizing recommendation is followed there will be an adequate supply of cooling air for the generator end. Please remember to not position the exhaust fan so it will pull the incoming cooling air away from the cooling air intake of either the engine or generator end.

It is important to keep any and <u>all</u> flammable objects or materials away from the generator set, the remote muffler and its attached piping, or any other potential hot component of the installation.

When discharging the heated cooling air or the hot exhaust gases out through the side of the building please contact your local building inspector to find out what is necessary for your application to meet local building code requirements and to prevent fire from occurring.



You must clean and inspect both the exhaust fan and its louvers along with the building's cooling air intake on a regular basis to prevent reduction in the building's cooling air flow. This could lead to overheating and a potential fire or explosion.

BUILDING VENTILATION

As hot air rises you must provide some type of power ventilation at the highest possible point of the building to permit the accumulating hot air to escape. This will help to prevent engine damage and it will help to eliminate hot restart problems. An electric powered exhaust fan of sufficient size will satisfy this requirement. This fan must connect to the generator set in a manner similar to the building's main heated cooling air exhaust fan.

EXHAUST REQUIREMENTS

While it is important to supply the proper amount of clean air to the cylinder, it is equally important to discharge the gases of combustion. If these gases remain in the cylinder, the next cycle cannot burn the fuel completely. This condition results from excessive backpressure that is caused by any one or combination of these conditions:

a. Exhaust pipe diameter too small.
b. Exhaust pipe too long.
c. Excessive number of sharp bends in exhaust system.
d. Inadequate muffler.
e. Incorrect construction of muffler resulting in high resistance.
f. Obstruction in exhaust system.

Backpressure must not exceed 20" (water column) on naturally aspirated engines or 27" (water column) on turbo-charged models.

EXHAUST PIPING

Exhaust lines should be as short and straight as possible, since extended runs and elbows tend to clog with carbon and resist the flow of gases. Each pipefitting and elbow will hinder the exhaust flow.

The muffler should be as close to the engine as possible, since it will clog up with carbon if operating temperature is too low.

NOTE: Never mount the muffler on the manifold.

A flexible coupling must be provided between the exhaust line and the manifold. However, a short, solid section of pipe between 6" or 8" long should be placed between the connection of the manifold and the flexible coupling,.

Water, one of the by-products of combustion, will be present in the exhaust piping or muffler. This water must be kept from draining back into the engine. This can be done by slanting the horizontal section of the exhaust pipe downward slightly, away from the engine. A water trap consisting of a tee extension with a drain cock should be provided.

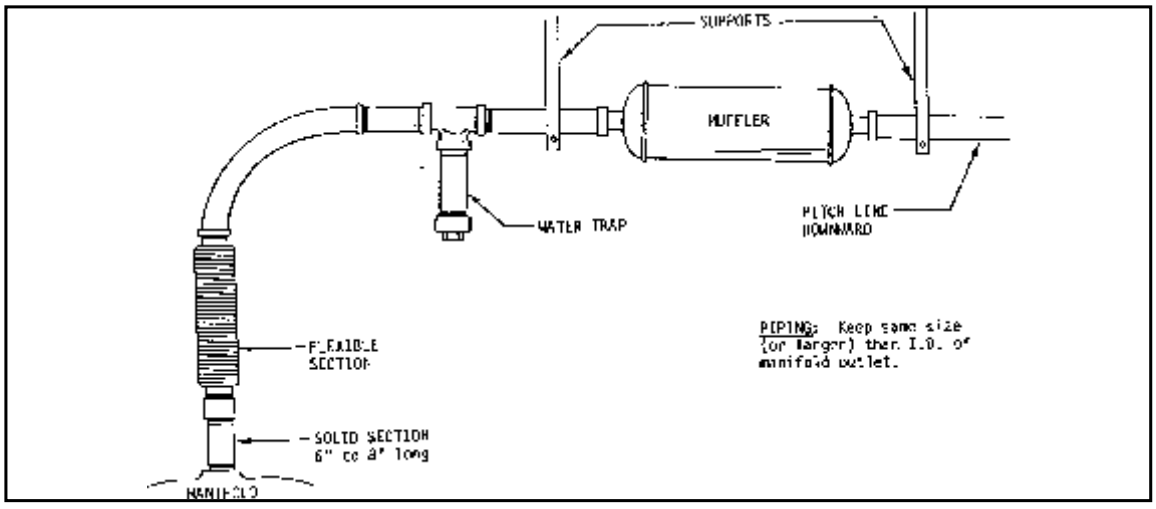


FIGURE 6-1: SCHEMATIC OF EXHAUST SYSTEM

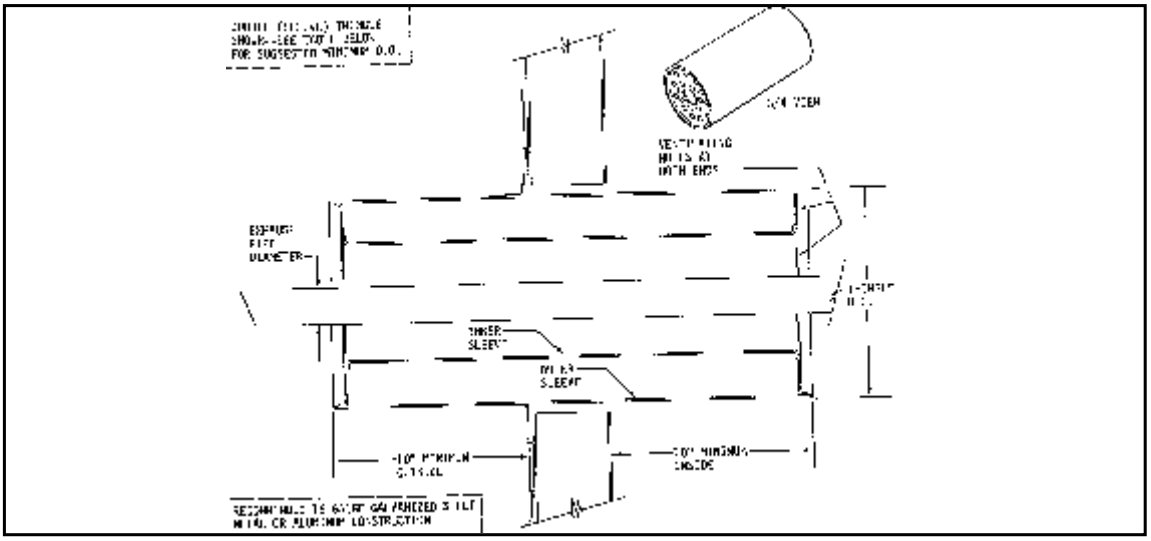


FIGURE 6-2: DOUBLE THIMBLE - WALL OUTLET DETAILS

EXHAUST PIPING THRU WALLS AND ROOFS

Always check local and state laws pertaining to hot gas pipes before making plans for running exhaust piping thru walls or roofs. If the exhaust pipe must pass thru combustible walls or roofs, use an exhaust thimble to prevent exhaust pipe heat from being transmitted to the combustible material. Construction details of a typical thru wall double sleeve thimble is shown above — thimbles are not available. They are usually fabricated at local sheet metal shops to the specifications furnished by the installation engineer. The minimum outside diameter of a double thimble (inner and outer sleeves) should be at least six inches greater than the diameter of the exhaust pipe — with single sleeve thimbles, the O.D. should be at least 12 inches greater than the diameter of exhaust pipe. The minimum thimble diameters for some common exhaust pipe sizes are listed in the table below. The minimum thimble diameter for some common exhaust pipe sizes are listed in the table below. The thimbles should be constructed so that they extend at least 10" both ways from the surface of the wall or roof. Holes are provided at both ends to allow cooling air to circulate thru the thimble. If screening is used on the outer end to keep birds, rodents, etc., from entering the thimble, make sure the mesh is large enough so it doesn't impair air circulation through the thimble. If the exhaust pipe must exit thru a roof,

EXHAUST THIMBLE - MINIMUM O.D.

EXHAUST PIPE DIAMETER	MINIMUM OUTSIDE DIAMETER		EXHAUST PIPE DIAMETER	MINIMUM OUTSIDE DIAMETER	
	SINGLE SLEEVE THIMBLE*	DOUBLE SLEEVE THIMBLE**		SINGLE SLEEVE THIMBLE*	DOUBLE SLEEVE THIMBLE**
0.5"	12.5"	6.5"			
0.75"	12.75"	6.75"			
1.0"	13.0"	7.0"	2.5"	14.5"	8.5"
1.25"	13.25"	7.25"	3.0"	15.0"	9.0"
1.5"	13.5"	7.50"	3.5"	15.5"	9.5"
2.0"	14.0"	8.0"	4.0"	16.0"	10.0"
			5.0"	17.0"	11.0"

*DIAMETER OF PIPE PLUS 12". **DIAMETER OF PIPE PLUS 6"

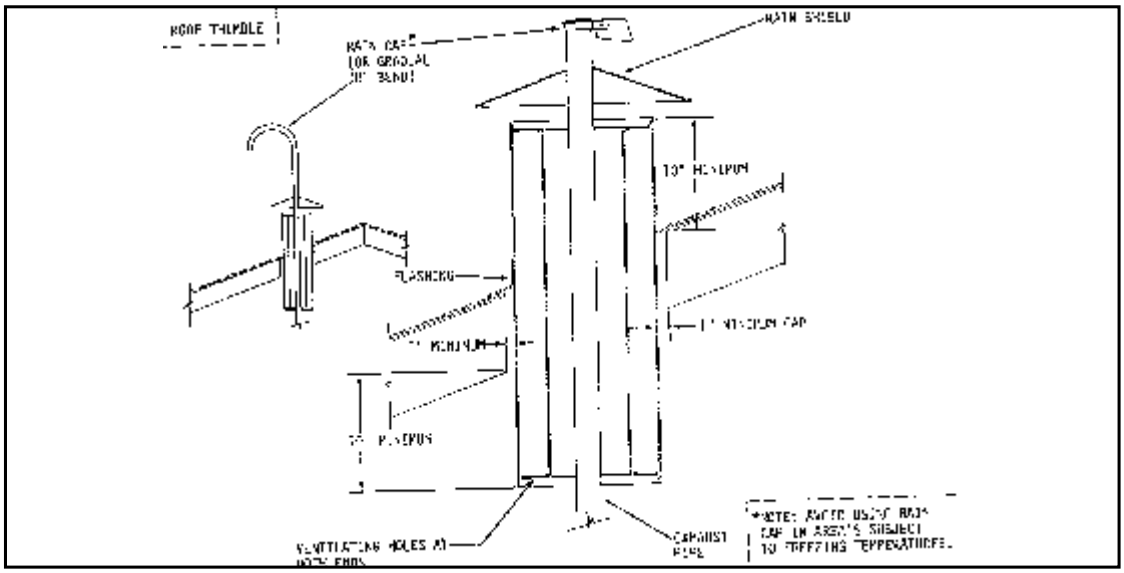


FIGURE 6-3 — DOUBLE THIMBLE - ROOF OUTLET DETAILS

a rain shield must be included above the thimble as shown in Figure 6-3. The rain cap as shown on the end of the exhaust pipe is recommended only in areas not subject to freezing temperatures. In an area where freezing is common, extend the exhaust piping well beyond the roof and use a gradual “U” bend at the end to direct the exhaust outlet downward which will keep rain, snow, etc., out of the pipe. Some other important points relating to exhaust outlets are as follows:

- Keep exhaust outlet well away from windows, doors, passageways, air intake vents or areas where gases could accumulate.

- Keep exhaust piping well away from fuel lines, fuel tank filler caps and combustible materials.

CONTROL PANEL OPERATION AND FUNCTION

A. MASTER CONTROL SWITCH - This switch controls the starting and stopping of the engine via the engine control logic circuitry.

With this switch in the "Manual" mode, the engine will start and run immediately after a 10 - 20 second time delay.

CAUTION: Please note that once the engine has been told to start, the gen set should be treated as though it is operational, even though the start delay has not yet allowed the engine to crank.

With this switch in the "Automatic" mode, the engine can be started and stopped from a remote contact. (Standard switch, transfer switch, etc.) There is a time delay, to cool down, of 60-90 seconds when the unit is shut down from the remote contacts while the Master Control Switch is in the "Automatic Mode.

With this switch in the "Off" position, the engine will immediately stop. The position must also be utilized to clear fault shut-down conditions.

B. PANEL LIGHTS - By turning on the panel light switch, the panel lights will be energized and will illuminate the control panel. The fuse next to the switch is to protect this circuit from damage due to excessive current.

C. FIELD AND CONTROLLER FUSES - These fuses protect the internal workings of the generator set.

D. GAUGES - These gauges monitor some of the more critical operating parameters of the engine as well as the run time of the generator set.

The Voltmeter displays the charging rate that is currently being produced by the engine's alternator to facilitate the charging of the battery. This gauge should normally be above 12.5V whenever the unit is running. If you ever notice the gauge is reading below 12V while the engine is running please contact the service department at Pow'R Gard Generator Corporation.

The Temperature Gauge monitors and displays the operating temperature of the engines coolant. The point at which a fault shut-down will occur is 230^{O}F.

The Oil Pressure Gauge displays and monitors the current operating pressure of the engine's oil system. The trip point at which a fault shutdown will occur is 15 PSI or below.

Fuel level is checked at the tank fill, inside the generator.

The Hour Meter accumulates and displays the total running time of the generator set.

E. VOLTAGE ADJUST - The rheostat allows the user to "fine tune" the generator set's voltage output. It is normally used to adjust output voltage after switching the output of the generator set to a different voltage.

F. METERS - These meters monitor and display the current operating parameters of the generator set.

The Voltmeter monitors and displays the current operating AC output of the generator set.

The Hertz Meter monitors and displays the current operating frequency of the generator set.

The Ammeter monitors and displays the amount of current that is being delivered by the generator set. This meter works in conjunction with the Ammeter Switch (Item G) in determining which output leg to monitor.

G. AMMETER SWITCH - The switch allows the user to switch between L1, L2 and L3 to monitor the current in each output leg to monitor.

H. PANEL LIGHT - By turning on the panel light switch, the panel lights (Not pictured on diagram) will be energized and will illuminate the control panel. They will also illuminate when a fault condition or a warning condition develops.

I - SYSTEM FAULT INDICATORS - These lights will come on when a fault condition or a warning condition develops.

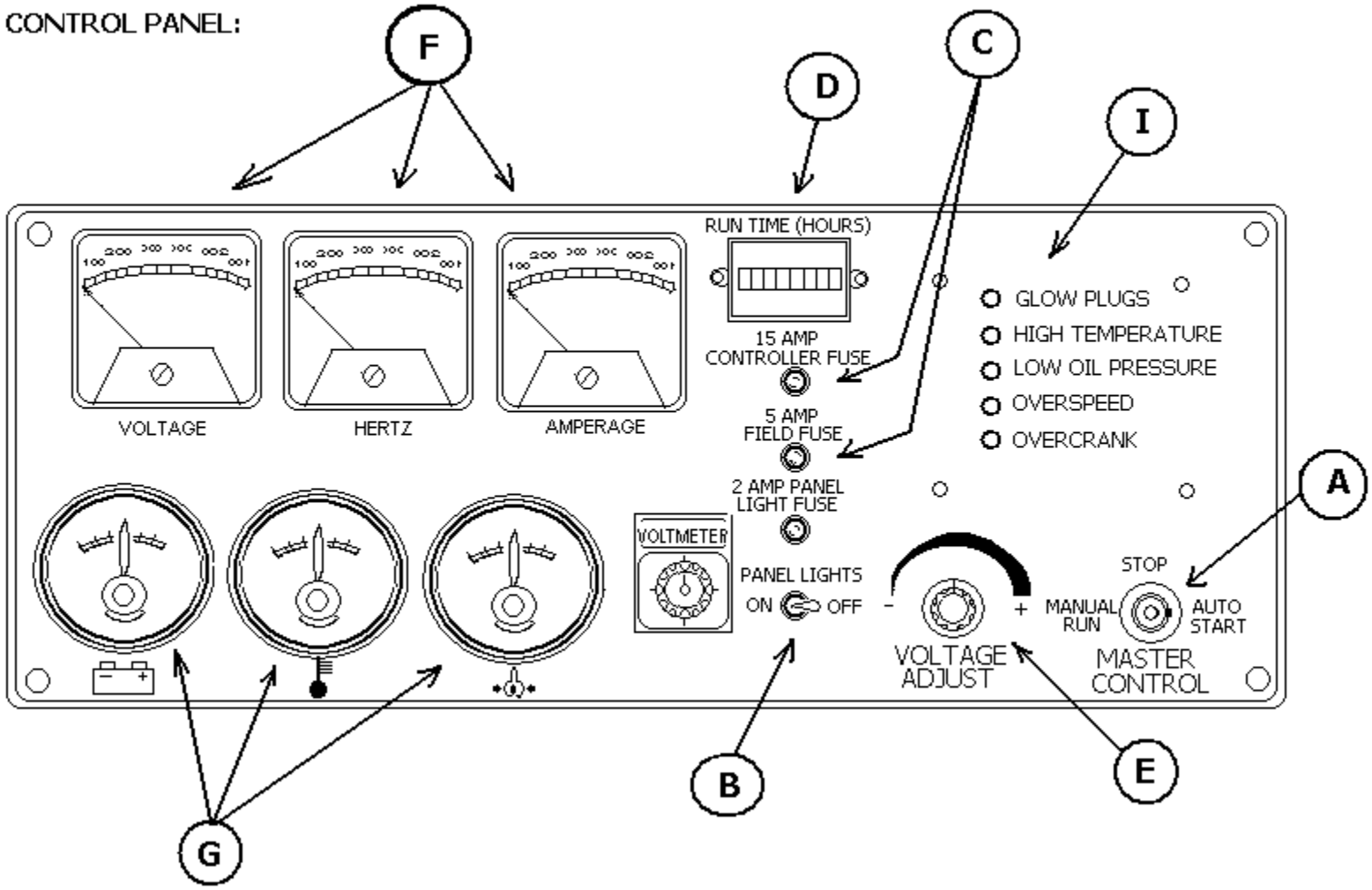
The "Low Oil Pressure" light will come on when the engine's oil pressure drops below 15 PSI. This condition will trigger a fault shut-down and the unit will stop.

The "Over-crank" light will come on when the engine has failed to start after four attempted crank cycles. Each crank cycle consists of a 12 second time period followed by a 12 second rest time period.

The "Over-speed" light will come on when the engine's operating speed rises above it's normal operating parameters. This condition will trigger a fault shut-down and the engine will stop.

High Temperature light will come on when the engine's operating temperature exceeds the safety set-point.

CONTROL PANEL:



OPERATION - PRE-START PROCEDURE

1. Fill system fuel tank with clean, fresh diesel fuel.

Wipe up any and all fuel spillage

2. Fill Engine crankcase to full mark with clean, fresh lubricating oil per attached engine operating guide.

3. Radiator Coolant should be checked at the beginning of each day and filled in compliance with the engine manufacturer's guidelines.

4. Secure the generator for operation.

Skid mounted - the power generating system should be mounted to a smooth, hard surface suitable for supporting the system under all stress conditions.

Adequate clearance must be provided for access doors to fully open.

OPERATION - STARTING

1. Conduct 'Pre-start Procedures.

2. Switch the generator set to the applicable voltage setting.

3. Connect the load(s) to the circuit breaker.

WARNING: High voltage is present when the generator set is running.

4. Move the 'Master Control Switch" to the appropriate position.

5. Adjust the voltage if necessary by turning the voltage adjustment knob located on the control panel.

OPERATION

The Prime mover utilized in this power generating system is controlled via an engine control module.
Starting is accomplished by commanding the control to "start" the engine. This command can be given by a number of controls;

The operator control mounted on the front panel.
The remote controls via the transfer switch or remote start terminal.

Initially, the system may be started and operated by placing the operation control in the "manual" position. To cease operation, return the switch to the "off" position.

Clear unit of all loose objects and perform all "pre- start" procedures before operating generator system.

ENGINE CONTROL MODULE

The Engine Control Module (E.C.M.) is a microprocessor based module that monitors the control and safety inputs and provides all the required START and STOP functions automatically.

The following front panel controls and instruments are wired into the microprocessor through the E.C.M. terminal blocks:

1. RUN / OFF / AUTO SWITCH

   A. "RUN" - run position causes the generator set to start and run immediately.

   B. "AUTO" - auto position allows unit to be controlled via any remote single-pole "dry" contact (transfer switch, etc.). Contact closure causes the unit to start and run, while contact opening causes unit to shut down after a preset cool down period.

   C. "OFF" - unit operation is terminated.

2. LAMP TEST

   A. Push button energizes all alarm lights simultaneously. This feature is disabled with the Run / stop / auto switch in the "stop" position and has no other effect on unit operation.

SAFETY INPUTS

1. Low Oil Pressure Shut-down- (LOP)

   Monitoring of oil pressure begins for a preset time after unit starts and remains in effect until unit is shut down (except as noted in "loss of frequency input". The LOP signal is derived from an oil pressure switch gauge mounted on the control panel.

2. High Temperature Shutdown (HT)

   The engine temperature monitoring begins immediately with the start signal. However, if engine temperature is excessive prior to start (i.e. heat soak after shutdown), the unit is permitted to start. The High temperature condition is permitted to exist for up to 60 seconds after the unit is running before shutdown when alarm occurs. If the excessive temperature condition is corrected within that time period, the HT circuit reverts to normal monitoring. The HT signal is derived from a monitoring device located on the prime mover.

3. Overspeed Adjustment (OS) - Over Frequency

Overspeed protection is provided by a frequency sensing network within the controller. The trip point of the frequency network is adjustable via a rheostat located on the top of the controller at the right hand side. Clockwise (CW) rotation increases the trip frequency and, thereby, raises the shutdown speed.

CRANKING CONTROL

1. Overcrank Protection

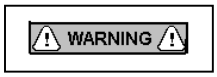
This feature provides a preset second crank cycle. Failure of the engine to start by the end of the crank period results in an "overcrank" shutdown and alarm indication.

2. Cranking Disconnect Adjustment (CDS Adjustment)

The cranking disconnect signal is obtained by a frequency network within the controller. The trip point of the frequency network is not adjustable.

LOSS OF FREQUENCY

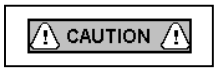
Internal protection against loss of frequency input to the cranking disconnect circuit is programmed in after the unit has started normally. In the event the frequency goes to zero (engine runs out of fuel, frequency signal source fails, etc.) the LOP shutdown circuit is bypassed and a 12-second wait period is initiated. If frequency returns within this time period, LOP monitoring resumes and operation continues normally. If frequency has not returned at the end of this time period, the engine oil pressure status is observed to determine whether the engine is actually running or stopped. If the engine has stopped (i.e. air in fuel, etc.) the cranking cycle will begin in an effort to restart the engine. If the engine has not stopped (loss of input signal, etc.) the unit is shut down with an "overcrank" indication and alarm.



"Overcrank" indication can mean a loss of crank-disconnect signal during the previous run period. Attempting to restart the engine with no crank-disconnect can destroy the starter motor, which can cause serious personal injury.

This is of particular note since the tendency is to pursue only cranking and start related faults. The cranking disconnect signal source is a key component in this system and must be checked out thoroughly whenever an "overcrank" shutdown occurs.

The controller does not provide protection against loss of signal during startup. A shutdown with alarm, due to any of the above conditions, will prevent any subsequent operation of the generator set. The run-stop-auto selector switch on the control panel must be momentarily placed in the "stop" position to reset these functions.



If a dead battery is suspected, remove controller fuse, Replace with new battery and attempt starting. Damage to engine control may result from jump-starting.

TROUBLESHOOTING - GENERATOR

As with any machine, trouble may develop in electrical generators. It may be due to long service or neglect of regular maintenance. Servicing, and checking. Should trouble develop, the following instructions will be helpful in tracing the cause and making repairs.

SPEED DEVITIONS:

The generator speed should be maintained at rated nameplate speed. The frequency and voltage of the generator output depends on speed. If the generator runs slower than rated speed, the voltage will drop off.

NO VOLTAGE

CAUSE	CHECK AND REMEDY
Loss of residual magnetism in exciter field poles.	Flash Field.
Open in stator windings	Check for continuity in windings. Return to factory for repair if open
Open or short in rotating rectifiers.	Check rectifiers.
Short Circuited.	Clear lead to restore voltage build-up.
Open in alternator field	Check for continuity and return rotor to factory for repair if field coils are open.
Shorted exciter armature	Check for short and replace if faulty.
Shorted leads between exciter armature and generator field.	Test and repair

LOW VOLTAGE

CAUSE	CHECK AND REMEDY
Excessive load.	Reduce load. With 3 phase generators, the load on each leg should be as evenly balanced as possible and should not exceed the rated current on any leg.
Low Speed.	Check engine for malfunction or system for overload.
Line loss.	Increase size of line lead wire.

LOW VOLTAGE (Continued)

CAUSE	CHECK AND REMEDY
High resistance connections- Connections will be warm or hot	Make better connection electrically and mechanically.
Shorted field.	Test field coils for possible short by checking resistance with an ohmmeter or resistance bridge. Return rotor assembly to factory for repair if alternator field coils are shorted.
Low power factor	Reduce inductive (motor) load. Some AC motors Draw approximately the same current regardless of load. Do not use motors of larger horsepower rating than is necessary to carry the mechanical load.

FLUCTUATING VOLTAGE
(May be indicated by flickering lights.)

CAUSE	CHECK AND REMEDY
Irregular speed of engine.	Check engine for malfunction or load for fluctuation.
Fluctuating speed.	Stabilize load. The addition of a lamp load (resistance load) may compensate partially for load changes caused by intermittent motor operation. Do not overload.
Loose terminal or load connections.	Make better connection mechanically and electrically.
Defective bearing causing uneven air gap.	Replace worn bearing.

HIGH VOLTAGE

CAUSE	CHECK AND REMEDY
Excessive speed.	Check engine for malfunction.

OVERHEATING

CAUSE	CHECK AND REMEDY
Generator overloaded.	Reduce load. (Check with ammeter and compare with nameplate rating.)
Clogged ventilating screens.	Clean air passages.

OVERHEATING (continued)

CAUSE	CHECK AND REMEDY
High room temperature.	Improve ventilation.
Insufficient circulation.	Provide cross-ventilation.
Low power factory.	Reduce inductive loads or install power factor improvement capacitors.
Unbalanced load	The load on each leg should be as evenly balanced as possible and should not exceed the rated current on any leg.
Dry bearing.	Replace bearing.

MECHANICAL NOISE

CAUSE	CHECK AND REMEDY
Defective bearing.	Replace bearing.
Rotor scrubbing on stator.	Bad bearing; replace. Bent shaft, return to factory. Loosen end bell, tighten; loose drive discs, tighten.
Loose laminations.	Return to factory.
Loose or misaligned coupling.	Tighten or align.

GENERATOR FRAME PRODUCES SHOCK WHEN TOUCHED

CAUSE	CHECK AND REMEDY
Static charge.	Ground generator frame.
Grounded armature or field coil.	Return to factory for repair.

TROUBLESHOOTING - ENGINE

FAULT DIAGNOSIS CHART:

PROBLEM	POSSIBLE CAUSES
Starter motor turns engine too slowly.	1,2,3,4
Will not start	5,6,7,8,9,10,12,13,14,15,16,17,18,19,20,22, 31,32,33
Difficult to start.	5, 7,8,9,10,11,12,13,14,15,16,18,19,20,21,22,24,29,31,32,33
Not enough power.	8,9,10,11,12,13,14,18,19,20,21,22,23,24,25,26,27,31,32,33,61, 63
Misfire.	8,9,10,12,13,14,16, 18,19,20,25,26, 28,29,30, 32
High Fuel consumption.	11, 13,14, 16, 19,20, 22,23,24,25, 27,28,29, 31,32,33, 63
Black exhaust.	11, 13,14,16,17,18,19,20, 22, 24,25, 27,28,29, 31,32,33, 61, 63
Blue/white exhaust.	4, 16, 18,19,20, 25, 27, 31, 33,34,35, 45, 56, 62
Low lubricating oil pressure.	4, 36,37,38,39,40, 42,43,44, 58.
Engine knocks.	9,10,11,12,13,14,15,16,17,18,19,22,26,28,29,31,33,35,36,45,46,59
Runs erratically.	7,8,9,10,11,12,13,14, 16, 20,21, 23, 26, 28,29,30, 33, 35, 45, 59
Vibration.	13,14,20,23,25,26,29,30,33,45, 47,48,49
High lubricating oil pressure.	4,38,41
Engine temperature too high.	11, 13,14,16,18,19,24,25, 45,47,50,51,52,53,54, 57
Crankcase pressure.	25, 31, 33,34, 45, 55, 60
Bad compression.	11,19, 25, 28,29, 31,32,33,34, 46,59
Starts and stops.	10,11,12

CODE LIST OF POSSIBLE CAUSES

1. Battery capacity low.
2. Bad electrical connections.
3. Fault in starter motor.
4. Fault in starter motor.
5. Wrong grade of lubricating oil.
6. Low engine speed from starter motor.
7. Stop control fault.
8. Restriction in fuel lift pipe.
9. Fault in fuel lift pump.
10. Dirty fuel filter element.
11. Restriction in air filter or induction system.
12. Air in fuel system.
13. Fault in fuel injection pump.
14. Fault in atomizers or not correct type.
15. Cold start equipment not used correctly.
16. Fault in cold start equipment.
17. Broken fuel injection pump drive.
18. Fuel injection pump timing not correct.
19. Valve timing not correct.
20. Bad compression.
21. restriction in fuel tank vent.
22. Type or grade of fuel not correct.
23. Restriction of engine speed control movement.
24. Restriction in exhaust pipe.
25. Cylinder head gasket leaks.
26. Engine temperature too high.
27. Engine temperature too low.
28. Valve tip clearances not correct.
29. Valves not free.
30. Wrong high pressure pipes.
31. Worn cylinder bores.
32. Valves and seats do not seal correctly.
33. Piston rings not free or are worn or broken.
34. Valve stems and/or guide worn.
35. West type air cleaner too full or wrong oil used.
36. Crankshaft bearings worn or damaged..
37. Not enough lubricating oil in the pump.
38. Gauge not correct.
39. Lubricating oil pump worn.
40. Relief valve not free to close.
41. Relief valve not free to open.
42. Relief valve spring broken.
43. Fault in suction pipe of lubricating oil pump.
44. Dirty lubricating oil filter element.
45. Piston damaged.
46. Piston height not correct.
47. Fan damaged.
48. Fault in engine mounting (housing).
49. Flywheel housing or flywheel not aligned correctly.
50. Fault in thermostat or wrong type.
51. Restriction in coolant passages.
52. Water pump drive belt loose.
53. Restriction in radiator.
54. Fault in water pump.
55. Restriction in breather pipe.
56. Damaged valve stem oil seals (where used).
57. Not enough coolant in system.
58. Restriction in sump strainer.
59. Valve spring broken.
60. Fault in exhaust or vacuum pipe leakage.
61. Turbo charger impeller damage, or dirty impeller.
62. Turbo charger lubricating oil seal leaks.
63. Induction system leaks (turbo charged engines.)

BALDOR GENERATORS

LIMITED WARRANTY

Effective August 1, 2003

Unless otherwise provided, Baldor generators are warranted against defects in Baldor workmanship and materials for a period of time as set forth in the Warranty Period chart below. If a Baldor product is defective due to Baldor workmanship or materials and the defect occurs during the warranty period, then Baldor will either repair the product or replace it with a new one, whichever Baldor believes to be appropriate under the circumstances. Service for warranty issues regarding any Baldor Generators Products Warranty is available by contacting Baldor Generators' Customer Service Department in Oshkosh, Wisconsin. A list of Baldor's generator repair facilities may be obtained by contacting Baldor Generators at: Customer Service, Baldor Generators, 3815 Oregon Street, Oshkosh, Wisconsin 54902, 920-236-4200 (telephone), 920-236-4219 (facsimile). All Baldor products requiring warranty service shall be transported or shipped freight pre-paid, at the risk of the party requiring warranty service, to a Baldor Generator repair facility, or to Baldor Generators' Customer Service Department in Oshkosh, Wisconsin. Written notification of the alleged defect in addition to a description of the manner in which the Baldor generator is used, and the name, address and telephone number of the party requiring warranty service must be included. Baldor is not responsible for removal and shipment of the Baldor product to the service center or for the reinstallation of the Baldor product upon its return to the party requiring warranty service. Customers who are unable to take or ship the Baldor product to a Baldor Generator repair facility, or who desire a repair to be made by other than a Baldor Generator repair facility, should contact Baldor Generators' Customer Service Department at 920-236-4200. Baldor, in advance of such service, must approve a repair by anyone other than a Baldor Generator repair facility in writing. Problems with Baldor products can be due to improper maintenance, faulty installation, non-Baldor additions or modifications, or other problems not due to defects in Baldor workmanship or materials. If a Baldor Generator repair facility determines that the problem with a Baldor product is not due to defects in Baldor workmanship or materials, then the party requesting warranty service will be responsible for the cost of any necessary repairs. Parties requiring warranty service not satisfied with a determination that a problem is outside of warranty coverage should contact Baldor Generators' Customer Service Department at 920-236-4200 for further consideration. EXCEPT FOR THE EXPRESSED WARRANTY SET FORTH ABOVE, BALDOR GENERATORS DISCLAIMS ALL OTHER EXPRESSED AND IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MECHANTABILITY. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WHETHER OR NOT SIMILAR IN NATURE TO ANY OTHER WARRANTY PROVIDED HEREIN, SHALL EXIST WITH RESPECT TO THE GOODS SOLD UNDER THE PROVISIONS OF THESE TERMS AND CONDITIONS. ALL OTHER SUCH WARRANTIES ARE HEREBY EXPRESSLY WAIVED BY THE BUYER. UNDER NO CIRCUMSTANCES SHALL BALDOR GENERATORS BE LIABLE OR RESPONSIBLE IN ANY MANNER WHATSOEVER FOR ANY INCIDENTAL, CONSEQUENTIAL OR PUNATIVE DAMAGES, OR ANTICIPATED PROFITS RESULTING FROM THE DEFECT, REMOVAL, REINSTALLATION, SHIPMENT OR OTHERWISE. This is the sole warranty of Baldor Generators and no other affirmations or promises made by Baldor Generators shall be deemed to create an expressed or implied warranty. Baldor Generators has not authorized anyone to make any representations or warranties other than the warranty contained herein.

WARRANTY PERIOD

Generator Series	Labor*	Parts
Portable Products (Premier, Powerchief, DG Series, K Series)	1 Year	3 Years
Towable Products (TS)	1 Year or 3,000 Hours Whichever comes first	3 Years or 3,000 Hours Whichever comes first
3600 RPM Standby Systems (Some AE Models)	1 Year or 1,000 Hours Whichever comes first	3 Years or 1,000 Hours Whichever comes first
1800 RPM Standby Systems (Some AE Models, DLC, GLC)	1 Year or 3,000 Hours Whichever comes first	3 Years or 3,000 Hours Whichever comes first
Industrial Standby Systems	1 Year or 1,000 Hours Whichever comes first	2 Years or 1,000 Hours Whichever comes first
Industrial Prime Power Systems	1 Year or 1,000 Hours Whichever comes first	1 Year or 1,000 Hours Whichever comes first
International	1 Year or 1,000 Hours Whichever comes first	1 Year or 1,000 Hours Whichever comes first

*Labor coverage for warrantable repairs is provided for the applicable period not to exceed published rates as contained in the Baldor Generators Warranty Policy. Mileage is allowed only for permanent installations not to exceed published rates as contained in the Baldor Generators Warranty Policy.

Proof of purchase date is required for all Portable and Towable products to qualify for any warranty consideration. Serial number and model number will be required for all warranty work.

For all other products, a Start-up Inspection Form / Warranty Registration must be completed in its entirety and submitted to Baldor Generators within 30 days of start-up to qualify for any warranty consideration.

Owner's Responsibilities:

The owner is obligated to operate and maintain the generator in accordance with the recommendations published by Baldor Generators in the Operator's Manual for the generator. The owner is responsible for the costs associated with maintenance and any adjustments that may be required.

The owner is responsible for payment of any of the following expenses that might be incurred as a result of a failure under the terms of this warranty:

1. Rental equipment used to replace the equipment being repaired.
2. Telephone or other communication expenses.
3. Living and travel expenses of persons performing service, except as specifically included within the terms of specific warranty.
4. The premium costs for overtime labor requested by the owner.
5. All parts transportation costs.

All warranty claims must be submitted to a Baldor Generator repair facility prior to the expiration of the warranty period. Baldor Generators shall have no responsibility or liability for any defect, latent or otherwise, discovered after the expiration of the warranty period provided herein. Extended warranties are available for certain Baldor products. These warranties are described in Baldor's catalog and other sales literature. Extended warranties are subject to the terms and conditions of this Limited Warranty as modified by the additional terms of the extended warranty.

Limitations:

Baldor Generators is not responsible for the repair of generators required because of normal wear, accident, misuse, abuse, improper installation, lack of maintenance, unauthorized modifications or improper storage.

Normal Wear: This warranty will not cover repair where normal use has exhausted the life of a part or generator. It should be remembered that the service life of any generator is dependent on the care it receives and the conditions under which it has to operate. Some applications are very often used in dusty or dirty conditions, which can cause what appears to be excessive wear. Such wear, when caused by dirt, dust, grit or other abrasive material, which has entered the generator because of improper maintenance, is not covered by Warranty.

For all product lines, the engine manufacturer warrants engine systems. Contact Baldor Generators for current engine warranties.

BALDOR GENERATORS
3815 Oregon Street • Oshkosh, Wisconsin 54902
Phone: (920) 236-4200 • 800-872-7697 • Fax: (920) 236-4219
www.baldor.com

BALDOR
GENERATORS

START-UP INSPECTION FORM

For Standby, Automatic Emergency And Prime Power Generators

It is required that both sides of this form be filled out completely, signed where indicated and returned to Baldor Generators within 30 days of initial Start-up and test.

It is your responsibility to insure that copies are distributed to:

☑ **Factory** ☑ **Distributor** ☑ **Customer**

DISTRIBUTOR INFORMATION	**END USER / OWNER INFORMATION**
Name:	**Name:**
Address:	**Address:**
Phone:	**Phone:**

Model Number:	**Job Number:**
RPM HZ P.F.	**☐Standby or ☐Continuous**
KW Volts	**KVA Amps**
Engine Model#:	**Generator Model#:**
Engine Serial# :	**Generator Serial #:**

List Distributor Installed Items:	**List Items Installed by Others:**

Engine Hour Meter	Power Output	VOLTAGE			CURRENT				Oil Temp.	Oil Pressure	Water Temp.	Amb. Temp.
	KW	1-2	2-3	3-1	1	2	3	HZ				
	NO LOAD											

Start-Up Performed By:	**Date:**
Address:	**Technician:**
Phone:	**Customer Signature:**

☑ Pre Start-Up Check List		☑ Start-Up Procedure	
	No Freight Damage (Components Tight, Straight, Etc.).		Check That All Applicable Warning Decals Are In Their Proper Place And Are Legible.
	Proper Belt Alignment And Tensions.		The ATS Engine Start Wires and other DC Wires, if Any, Must be Properly Connected.
	Flex Fuel Lines Installed Between Engine And Tank.		All Wiring Connections are Tight.
	Fluid Levels (Oil, Antifreeze, Battery, Governor, Etc.) Check For Leaks, Tighten As Necessary.		The Equipment Room is Clean & All Unrelated Materials Removed.
	Correct Fuel And Exhaust Plumbing.		The Equipment is Protected from Possible Fire Damage by Fire Extinguisher System.
	Adequate Air Flow.		Earthquake Protection (when Applicable) is Adequate for the Equipment.
	Correct AC Wire Sizes And Connections.		Open Generator Mainline Breaker or Remove Fuses.
	Correct DC Wire Sizes And Connections (Route Separate From AC).		Turn Down Speed Potentiometer (Electronic Governor) or Speed Screw (Mechanical Governor).
	Block Heater Is Operational.		Move Switch to "Manual". let the Engine Start & Run.
	Bleed And Prime The Fuel System; Check For Leaks. Correct As Necessary.		After a Few Minutes, Check Oil Pressure & Check for Leaks.
	On Natural Gas Fueled Sets, Gas Pressure Of 4-6 Oz. Of Pressure With Adequate Volume Is Available.		Adjust the Speed to 60/50hz if Equipped with Electronic Governor or 63/53 Hz with Mechanical Governor.
	Gas Solenoid Valve Is Properly Functioning.		If Speed is Unstable, Adjust Per Engine or Governor Manual.
	Exhaust Line and Flexible Connections are Properly Installed Without Excessive Bends and Restrictions.		Adjust the AC Voltage to Match the Normal Source.
	Exhaust System Termination Properly Located to Prevent Entry of Exhaust Gas Into Building.		Let the Unit Run Until Engine Reaches Proper Water Temp.
	Batteries Properly Filled with Electrolyte & Properly Connected to the Engine.		Close Generator Mainline Breaker or Replace Fuses..
	Battery Charger Must Be Properly Installed & Connected to the Battery. Battery Must Be Fully Charged Prior to Start-up.		Manually Over-Speed the Unit Until Engine Shutdown (68-70 Hz or 60 Hz Generators ; 58-60 Hz on 50 Hz Generator Sets.
	Generator Load Connectors of Proper Ampacity are Connected to Either the Circuit Breaker or the Emergency Side of the Transfer Switch.		Test Automatic Shut-Downs (Low Oil Pressure, Low Coolant Level, High Coolant Temperature, Overspeed set to _____Hz Other_____)
	The Nameplate Voltage & Frequency of the Genset Matches that of ATS & Normal Source.		**INSTRUCT END USER ON FUNCTIONS OF UNIT***. Set Times to Customer's Request and Run a Simulated Power Outage.
			Instruct the Customer in Proper Operation & Maintenance of the System and Make Sure They Have Correct Manuals.

Comments:

RETURN THIS COMPLETED FORM TO:
Baldor Generators ▪ 3815 Oregon Street ▪ Oshkosh WI 54902

3518 Oregon Street Oshkosh WI 54902
Phone: 920-239-4200 Fax: 920-236-4219

Baldor Generators firmly believes proper installation along with proper maintenance are critical factors in assuring proper, dependable, safe and long term operation. The checklist was developed for making sure your installation is correct to help achieve these goals.

If you have any questions about this checklist, please contact
the Product Support Group at 920-236-4200.

Many measurements, adjustments and procedures mentioned in this checklist could cause damage, injury or even death if not performed properly. Only qualified, experienced individuals may perform these measurements, adjustments and procedures.

When completed, please mail this checklist to Baldor Generators.

!! WARNING !!

CALIFORNIA PROPOSITION 65 WARNING

Engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm.

!! WARNING !!

CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust and some constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

Service is just a phone call away:

800-872-7697

www.baldor.com/products/generators.asp

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