



INSTRUCTION MANUAL

AGRISON SOUND PROOF DIESEL GENERATOR SET

GFS 15KVA-1000KVA



For more information please call

1300 651 830

www.agrison.com.au

IMPORTANT!

You must ensure all operators of this machine read and understand these instructions and any additional instructions provided prior to operation.



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1. IMPORTANT SAFETY INSTRUCTION

WARNING:

- *Read and understand all safety precautions and warnings before operating the generator.
- *Failure to follow the instructions, procedures and safety precautions in this manual may increase the possibility of accidents and injuries.
- * You must not alter/adjust/modify any part of the generator set assembled and supplied by Agrison without our approval, as we cannot be held responsible for faults or accidents caused as a result.
- *It is very important to regularly carry out the periodic checks suggested in this manual to maximize the generator set's working life and prevent accidents.
- *Never start the generator set unless the generator set and its components are safe.
- *Do not attempt to operate the generator set when conditions are unsafe.
- *If the generator set is unsafe, prominently label the generator as unsafe and disconnect the battery negative (-) lead so that it cannot be started until the condition is corrected.
- *Make sure to disconnect the negative lead of the battery from the generator set prior to attempting any repair work or cleaning of the inside of the sound-proof or trailer type generator set enclosure structure.
- *Install and operate this generator set only in full compliance with relevant National, Local, or Federal Codes, Standards or other requirement.
- *Read and understand your obligations under the warranty, and you must carry out all servicing requirements and keep proof of servicing in the event of a claim.

Installation and Handling

This manual covers procedures for installation and handling of generator sets.

This chapter should be read before installing the generator set or moving/lifting the generator set. The following safety precautions should be noted.

WARNING:

*Electrical work, including grounding and installation should be carried out in compliance with local regulations related to such electrical work.

*The fuel storage facility should be built in compliance with relevant local regulations if fuel is supplied from separate fuel storage.

*Exhaust fumes from all indoor generator sets must be piped out of the building via leak-free and heat-resistant piping work and any installation of equipment related to local exhaust regulations, standards and other requirements. The exhaust pipes and silencer should not use inflammable materials, nor should any inflammable material be placed near the exhaust pipes or silencer. Protection equipment capable of meeting safety standards should be installed to prevent accidents in advance. Also ensure that the exhaust gas emitted from the exhaust pipe is within the legal limit.

*Never lift the generator set using the engine or alternator lifting lugs. Connect lifting equipment to the hole on the bed frame of the generator set. Refer to the Installation section in this manual for further details including lifting of sound-proof generator set.

Installation:

- 1) If the generator is fixed indoor, the vent must be placed in an area where it connects to the outside air.
- 2) The ground for the generator should be concrete and flat. Fix the bridge of generator on the ground with bolts.
- 3) The control screen should be grounded to ensure safety.
- 4) Connect the wires of the battery and the diesel engine.

*Ensure the lifting rigging and supporting structure is in good condition and has a capacity suitable for the load.

*Keep all personnel away from the generator set when it is suspended.

*Make sure all personnel are clear of the generator set, if the type is a sound-proof or a weather-proof one, before closing or latching enclosure doors.

*Ensure that the floor that the generator set will be installed on is flat and without a slope. When the floor slopes, the generator set should be arranged horizontally using packing material that is sufficiently strong to support the weight of the generator set.

*For trailer type generator sets, install the set on a flat floor if possible and fix all the wheels with chocks on the both sides of all wheels. Do not move the generator set while it is running.

*Do not install or use the generator set in any hazardous.

Environment

*Ensure that the generator set is not exposed to rain or snow while running outdoors. Running a set in such exposed conditions is very dangerous. Also, the load line connection parts and the loading equipment should not be exposed to rain or snow.

Fire and Explosion

*Fuels and fumes associated with generator sets can be flammable and potentially explosive. Proper care in handling these materials can dramatically limit the risk of fire or explosion. However safety dictates that fully charged class BC and class ABC fire extinguishers should be kept on hand. Personnel must know how to operate the extinguishers. Facilities complying with laws relevant to fire and explosion should be constructed where the generator set is installed.

WARNING:

*Ensure the generator set room is properly ventilated.

*Keep the room, the floor and the generator set clean.

*When spills of fuel, oil, battery electrolyte or coolant occur, they should be cleaned up immediately.

*Never store flammable liquids near the engine.

* Store oily rags in metal covered containers.

*Do not smoke or allow sparks, flames or other sources of ignition around fuel or batteries. Fuel vapors are explosive ...Hydrogen gas generated by charging batteries is also explosive.

*Turn off or disconnect the power to the battery charger before making or breaking connections with the battery.

*Keep ground conductive objects, such as tools, away from exposed live electrical parts, such as terminals, to avoid arcing .Sparks and arcing might ignite fuel or vapors.

* Avoid refilling the fuel tank while the engine is running.

*Do not attempt to operate the generator set with any known leaks in the fuel system.

*The excessive build-up of unburned fuel gases in the exhaust system can create a potentially explosive condition. This - build - up can occur after repeated failed start attempts, valve testing, or hot engine shutdown. Open exhaust system drain plugs, if equipped, and allow the gases to dissipate before attempting to restart the generator set.

*Use fuel, oil and cooling water that are appropriate.

We can mix coolant to prevent frostbite of the generator in winter under the close cooling water circle system. There are two methods as follows:

Freezing point	glycerin-water		glycol-water	
	Accrue glycerin%	ratio	Accrue glycol%	ratio
-5	21	1.0495	-----	-----
-10	32	1.078	28.4	1.0340
-15	43	1.1074	32.4	1.0420
-20	51	1.1290	38.5	1.0506
-25	58	1.1483	45.3	1.0586
-30	64	1.1647	47.8	1.0627
-35	69	1.1785	50.9	1.0671

Note:

- 1) Make sure to drain the cooling water after stopping the generator.
- 2) No use well and rigidity exceed water.

Mechanical Safety Considerations

The generator set is designed with guards for protection from moving parts. Care must still be taken to protect personnel and equipment from other mechanical hazards when working around the generating set.

WARNING:

- *Do not attempt to operate the generator set with the safety guards removed. While the generator set is running do not attempt to reach or around the guards to do maintenance or for any other reason.
- *Keep hands, arms, long hair, loose clothing and jewelry away from pulleys, belts and other moving parts.
- * Some moving parts cannot be seen clearly when the set is running.
- *Keep access doors on enclosures, if equipped, closed and locked when not required to be open.
- * Avoid contact with hot oil, hot coolant, hot exhaust gases, hot surfaces and sharp edges and corners.
- * Wear protective clothing including gloves and hat when working around the generator set.
- *Do not remove the radiator filler cap until the coolant has cooled. Then loosen the cap slowly to relieve any excess pressure before removing the cap completely.

Chemical Safety Considerations

- * Fuels, oils, coolants, lubricants and battery electrolyte used in this generator set are typical of the industry. However, they can be hazardous to personnel if not treated properly.

*Do not swallow or allow skin contact with fuel, oil, coolant, lubricants or battery electrolyte. If swallowed, seek medical treatment immediately. Do not induce vomiting if fuel is swallowed. For skin contact, wash with soap and water.

*Do not wear clothing that has been contaminated by fuel or lube oil.

*Wear an acid resistant apron and face shield or goggles when servicing the battery. If electrolyte is spilled on skin or clothing, flush immediately with large quantities of water.

Noise Safety Considerations

*Generator sets that are not equipped exposure to noise levels above 85dBA are hazardous to hearing.

*Ear protection must be worn when operating or working around an operating generator set.

Electrical Safety Considerations

*Safe and efficient operation of electrical equipment can be achieved only if the equipment is correctly installed, operated and maintained.

*The generator set must be connected to the load only by trained and qualified electricians who are authorized to do so, and in compliance with relevant Electrical Codes, Standards and other regulations. Where required, their work should be inspected and accepted by the inspection agency prior to operating the generator set.

*Ensure the generator set is effectively grounded in accordance with all relevant regulations prior to operation.

*The generator set should be shutdown with the battery negative (-) terminal disconnected prior to attempting to connect or disconnected load connections.

WARNING:

*Do not attempt to connect or disconnect load connections while standing in water or on wet or soggy ground.

*Do not touch electrically energized parts of the generator set and/or interconnecting cables or conductors with any part of the body or with any non -insulated conductive object.

*Replace the generator set terminal box cover as soon as connection or disconnection of the load cables is complete or when it is worn or damaged. Do not operate the generator set without the cover securely in place.

*Make sure the bolt securing the load line to the terminal is not loosened or released. Keep the bolt tight at all times.

*Connect the generator set only to load and/or electrical systems that are compatible with its electrical characteristics and that are within its rated capacity.

*Be sure all electrical power is disconnected from electrical equipment being serviced.

*Keep all electrical equipment clean and dry. Replace any wiring where the insulation is cranked, cut, abraded or otherwise degrade Replace terminals that are worn, discolored or corroded. Keep terminals clean and tight.

*Insulate all connections and disconnected wires.

*Use only Class BC or Class ABC extinguishers on electrical fires.

First Aid for Electric Shock

WARNING:

*Do not touch the victim's skin with bare hands until the source of electricity has been turned off.

*Switch off power, if possible.

*Otherwise pull the plug or pull the cable away from the victim.

*If this is not possible, stand on dry insulating material and pull the victim clear.

*File a work place injury report as required by your Work Place Policies.

Immediately contact a hospital or a doctor to treat patients who have been injured by the generator set.

2. INSTRUCTIONS FOR OPERATION

1. Preparations Before Starting

Check that the generator set is located on a flat surface.

Check each of the following items:

A.The Generator and the Control Box

(1) See if there are any little articles such as cloth in and on the generator or the control box.

(2) Blow off the dust in and on the control box by using dry compressed air (air pressure $< 1.96 \times 10^5$ pa= or by mouth . For STC generators, it is still necessary to find if the surface of the slip rings are clean and to make sure that the brushes make good contact with the slip rings.

(3) Check if the wire connection is correct and the junctions are firm, and make sure the automatic load switch (Air switch) is in the cut-off state.

(4) If the insulation resistance of the electric equipment (AVR) is lower than $0.5M\Omega$. After being measured with a 500V mega-ohmmeter, dry measures have to be taken. (5) What the letters on the output posts of the control box stand for are as follows:

U phase substitutes for former A phase

V phase substitutes for former B phase

W phase substitutes for former C phase

N phase substitutes for former O phase

B.The Diesel Engine and Its Accessories

(1) Check if the parts of the engine are firmly connected together and the engine is fixed steadily on the base.

(2) Check if the fan and the V-belt are in an appropriately tense state and the mounting bolts and the coupling are secure.

(3) Take out the dipstick which is marked on the engine, and ensure that there is enough oil in the crank case. Add oil if needed.

(4) Measure the amount of the fuel in the tank, slacken the fuel outlet bolt to release air bubbles from the fuel system. Find if the high-pressure fuel pump and the injector work normally. The fuel level in the pipe must be at least 0.5m higher than the fuel pump while the entrance of the fuel supply pipe must be located at least 50mm higher than the bottom of the tank in order to prevent the fuel dregs from entering into the pipe and blocking it.

Note: The users of the sets whose output powers are above 75kw have to provide fuel tanks, fuel supply pipes and fuel return pipes (10mm-outer diameter plastic pipes).

(5) Check if the radiator is full of water. If the surroundings temperature drops below 5℃, water must be heated up to 70℃~90℃ before poured into the water hopper, and the engine oil must be heated up to 70℃~80℃, too. After stopping the engine, the water and the engine oil must be drained out completely to avoid being frozen.

(6) Check the dipstick on the fuel injection pump to ensure that the oil level is correct. Add SAE30 weight oil if needed.

2. Starting the Engine

(1) If the engine has not been run for an extended period, it may be necessary to prime the fuel system.

(2) Turn the ignition key to the "ON" position. Wait a moment for the electronic controller to come on line, then and press the starting button on the control panel. The engine will then start automatically after a few seconds. If the engine does not start at the first time, try another time. But if it still fails to start after several tries, the engine must be examined carefully to locate the issue.

(3) After starting, if the oil pressure goes beyond the range of 200~600 Kpa, or the cooling system fails or there are abnormal noises, stop the engine immediately.

(4) Only after the engine has warmed up (when the temperature of the outlet water is higher than 40℃), should the electric load can be added.

3. Instruction For Running

(1) Note if there are abnormal noises or shaking.

(2) Attention must be paid to the working states of the running and moving parts of the engine.

(3) Ensure that the values shown on the meters of the control box remain within the allowable ranges. The unit will automatically shut off the engine if any engine parameter remains outside of the allowable ranges. (Note: Our units are not equipped with a voltage change over switch.)

(4) The generator must be placed in a dry and clean place with good ventilation and the surroundings temperature is within -10℃~40℃. If the temperature is above 40℃, the load must be reduced to prevent the engine from damage.

(5) Note the temperature and amount of the water. If the temperature exceeds 95 °C (when indoor temperature is 35 °C), stop the engine and cool the water gradually. But don't turn attempt to open the radiator.

(6) If the temperature of the set goes too high, it is strictly forbidden to cool the set by putting snow or wet cloth on it. The correct measures to take are; either stopping the engine to cool or reducing the load.

(7) Ensure that there are no lubrication system or cooling system leaks.

(8) If the generator set's circuit breaker trips due to overload or short circuit, the switch should not be turned on until the troubles have been found and removed. Wait at least one minute before resetting the circuit breaker.

4. Stopping

(1) Put on the " Stop " button on control panel. The generator will stop 30 seconds later.

(2) Stop the fuel injection pump. Be careful don't turn off the fuel tank cock. This may cause air to enter the fuel system and make it difficult to start the engine next time.

(3) After the engine has stopped, turn off the fuel tank cock.

(4) In winter, if the radiator is not filled with an antifreeze solution, drain out the cooling.

(5) Write down the issues found in running on the warranty booklet supplied to you.

3. POINTS FOR ATTENTION

1. Transportation

(1) If you want to move the set in a short distance, use a lever against the base of the set and move it.

(2) If you need long-distance transport, the set must be fixed steadily in the truck after putting some rubber pads under the set.

2. Storage and setting

(1) When the set is to be put out of service for a long time, store the set in a clean room in which there are no acid, gas, vapor or ash, and avoid abrupt change of temperature.

(2) When the set is placed outdoors, it should be put on a level and steady ground, and covered with a tarp or plastic sheet.

(3) When the set is placed indoor, the room must be clean and have good ventilation. When the set is planned to be put at one single place for a long period, it is recommended to attach the set to the floor using high-strength bolts.

3. Ordinary Check of the Set

(1) Don't dismantle the set when there is no need.

(2) Check the insulation resistance regularly. Dry the set if the insulation resistance is below 0.5MΩ.

(3) When the set is to be put out of service longer than ten days, put the set in a dry and clean place and cover it with canvas.

(4) After the service time of the set is over 1500h, the lubricating grease of the bearings must be replaced. (The type of the lubricating grease is 3 lithium lubricating grease.) When you replace the grease, clean the bearings of the alternator with petrol first, then fill half the gap of every bearing with the grease.

4. MAINTENANCE INSTRUCTIONS

To ensure the longevity of the diesel generators, minor maintenance is required after the set has run for over 50h and major maintenance after over 1000h. Please refer to your Warranty Agreement for full servicing requirements and intervals.

1. Daily Maintenance

- (1) Check if the set is clean and the junctions are firm.
- (2) Check the wear degree and tenseness of the radiator fan V-belt.
- (3) Find if there are blocks or leaks in the water hopper, fuel tank or fuel pipes.
- (4) Clean the surfaces of the generator, slip rings and silicon rectifier.
- (5) Remove all the bearing covers which are back bearing casing of alternator of the revolution system to see if the lubricating grease is clean.
- (6) Check the wear degree of the brush and replace the brush if it has been worn out. Re-adjust the pressure of the brush spring.

2. Major Maintenance

- (1) If you find the insulation resistance of the electrical equipment or the wires in the control box falls below 0.5MΩ, dry the electrical equipment or replace the wires.
- (2) Check the surface of the slip rings and the wear degree of the brush.
- (3) Dismantle the ball bearing and clean with petrol.
- (4) Blow off the dust on the parts with compressed air whose pressure is lower than $1.96 \times 10^5 \text{ Pa}$.
- (5) Check and ensure good contact and electric conduction in all connections. Find if the pressure of the silicon rectifier and rectifier have become lower.
- (6) Check if there are damaged components in the control box, and check the accuracy of the meters on the faceplate of the control box.
- (7) See if there are blocks or leaks in the radiator, water pipes, fuel tank or fuel pipes.

3. Dismantling and Reassembly

- (1) Completely drain the water and fuel.
- (2) Disconnect every wire connection after marking the wires respectively.
- (3) Dismount the control box and put it in a clean place.
- (4) Slacken the V belt, remove the radiator, then remove the fan.

(5) Remove the bolts which attach the generator to the base, dismantle the generator and pull out the coupling. Then dismantle the engine. When reassembling the generator, reverse the procedures of dismantling.

There are two demands of reassembly:

(a) After reassembly, the alignment of the engine and Alternator on a same axis should be less than 0.05mm.

(b) The error of making the axes of the alternator and the engine on a same level should be less than 0.2mm per meter.

4. Precaution for Maintenance

(1) Drain out the water and fuel completely and clear off the dust on the set before dismantling.

(2) Mark every wire clearly when it is detached in order to ensure correct reconnection.

(3) When dismantling the set, attention must be paid to protect the surface of the axis and the slip rings. Cover the coils with clean paper.

(4) After you remove the bearing cover, be careful to cover the bearing with clean paper to keep it away from dust. If dust has landed on the bearing, the lubricating grease has to be replaced totally.

(5) Don't touch the stator when the rotor is being dismantled.

(6) Be careful not to damage the meters when dismount the control box.

(7) Put the parts together in a reliable place after they are taken down. Little parts must be put in a clean container, to prevent being lost.

1. Maintenance

A. The generator should be stored in a dry place if it is put on the surface of the earth or cement ground, it should be raised using **inmbrin** and covered with oilcloth to protect the damp.

B. To prevent the entering of moisture including rust, water drops and metal scraps.

C. Cannot be covered with any other coverage in order to have good ventilation.

D. Cannot overload.

E. Cannot be used in an environment where there is steam, rust and flammable gases.

F. The bearing grease shall be renewed at intervals of about 1500 operating hours, clean the used grease from the bearing, wash the chamber using kerosene and fill with new grease every year.

The bearing chamber should be filled up to $\frac{1}{2}$ volume. Grease mixed with different grade shall not be used #ZL-3 lithium grease shall be used. The temperature of bearing cannot exceed 95°C.

2. Repair

The generator must be serviced by a Qualified Diesel Mechanic according to the Warranty Agreement, which is supplied at the point of sale.

- A. Open the cover and switchbox, if you find rust inside the generator; please clean it with dry compressed air. The pressure cannot exceed 0.4 Mpa.
- B. Check if fire grease is clean or not. If it becomes discoloured, it should be renewed.

5. SURROUNDING CONDITIONS

(1) On the following conditions the set can run continuously for 12h (if over 12h, the output will be 90% of the rated output.)

- (a) Air temperature is 5℃~40℃.
- (b) Relative humidity is less than 95%.
- (c) Height is below 1000m above sea level.

(2) When the height and temperature exceed the upper limits, the output will alter as follows:

- (a) The output will be reduced by 0.15kw for per 100m higher than 1000m above sea level.
- (b) When the height is over 1000m above sea level, the output will be reduced by 0.2kw for per 5℃ higher than 20℃ in temperature. The total reduction of the output will be the sum of (a) and (b).

6. TECHNICAL DATA

Generator	Model	GFS –S30
	Frequency	50HZ
	Rated AC Voltage	230V /400V
	Max.AC Output	33KW
	Rated AC Output	30KW
	Runtime	8 hour
	Phase number	Three
	Pole number	2
	Excitation Transistorized	Self-excitation Constant Voltage (AVR)
	Power Factor cosΦ	0.8
Engine	Model	F4L912T
	Type	Water cooled, 4-Cylinder, 4-Stroke, Diesel Engine

	Displacement	3260 cc
	Output	41KW/ 1500 rpm
	Fuel	Direct Light Fuel
	Fuel Tank Capacity	18.5 Gallon
	Decibel	<75dBA
	Starter System	Electric Starter
Standard Features	Oil Alert	Standard
	Panel Type	Digital control panel
	Battery	12V100Ah
	Air Cleaner	Standard
	Fuel Gauge	Standard
	Silencer	Standard
	AC Terminal	Standard
Dimensions	Length	80"
	Width	36"
	Height	46"
	Gross Weight	810 KG

**Please download Product Catalogue for each Generator Model which is available for download at www.agrison.com.au to view the full specifications

Connection Diagram

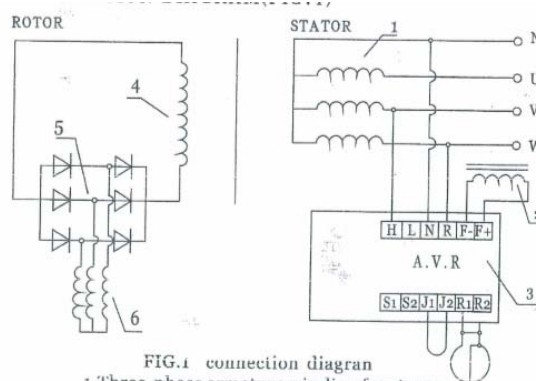


FIG.1 connection diagram

1. Three-phase armature winding for stator
2. Excitation winding
3. Automatic voltage regulation
4. the winding for magnetic field of rotor
5. Revolving rectifier
6. Excitation magnetic armature winding

7. BATTERIES

Resistance in the starting circuit has a significant effect on the starting ability of the engine. Therefore, the batteries should be located as close as possible to the generator set. Batteries should be in perfect condition to start the diesel engine.

Maintenance procedures should be carried out rigorously since the batteries have to be in perfect condition to start the diesel engine. Ensure that there are no flames adjacent to batteries.

8. ELECTRICAL CONNECTION

All connections should be carefully checked for integrity. Phase rotation must be checked for compatibility with the installation. This is vital.

WARNING:

The cables connecting the generator set with the distribution system should be protected by means of a circuit breaker, fuses or other means to disconnect the generator set in case of overload or short circuit.

Loading

When planning your distribution system it is important to ensure that a balanced load is presented to your generator set. If loading on one phase is excessive in comparison to the other one (or two phases if using a 3-phase unit) this will cause overheating in the alternator windings, imbalance in the phase to phase voltage output and possible damage to sensitive 3 phase equipment connected to the system. Ensure that no phase current exceeds that of the current rating of the generator set.

It may be necessary to reorganize the electrical distribution system if a generator set is to be connected to an existing installation.

Power Factor

The power factor ($\cos \phi$) of connected load should be determined.

Factors below 0.8 will overload the generator. The generator set will provide its kilowatt rating and will operate satisfactorily from 0.8 to unit power factor.

Particular attention must be given to installation with automatic or manual power factor correction equipment to ensure that a leading power factor is not present under any conditions. This will lead to voltage instability on the generator output and may result in damaging over voltages.

WARNING:

The load power factor compensator, for use with a commercial electrical power source, should be

automatically isolated while the generator set is in operation.

Grounding Requirements

Regulations vary. Advice should be sought from the local supply utility as to their requirements. The factory connects the frame of the alternator to the frame of the generator set therefore the complete mass of the generator set is at the same potential. The connection if required of the generator winding star point/neutral to earth is the responsibility of the installation technicians.

Note: The ground wires are clearly marked. Please do not make a mistake!

Parallel Running

When two or more generator are operating in parallel, depending on the type of generator, circulation currents may occur if all neutrals are grounded or otherwise connected together. Refer to the Technical Bulletin for more detailed information.

WARNING:

Never work while the generator set is running. Stop the generator set and opens the circuit breaker on the power cables before working on the alternator or it's connections.

9. STARTING THE ENGINE / STOPPING THE ENGINE

Starting the Engine

Before starting the generator set, please see the relative chapter of the engine manual; ensure the engine is under normal condition.

- 1 For the first time start, verify battery fluid (electrolyte), cooling water lubricating oil and fuel oil has been added according to the instruction of the engine manual.
- 2 Connect the wires to the output terminals; ensure the circuit breaker is in off position
- 3 Turn the key on and press the start button on the control panel. After the voltage and frequency meter indicate a normal value, the generator set can begin to supply electric power.

Stopping the Engine

- 1 First turn off the circuit breaker, then push the red stop button on the DACT control panel. The engine will stop automatically after a few moments.
- 2 The controller stops the engine using a DC electro-magnetic servo. If the *battery* is dead, it is necessary to shut off the engine manually.

10. NOISE CONTROL

Your generator set can be supplied with accessories and components to reduce noise emissions. Typically available are residential and critical silencers, acoustic louvers and splitter vents, fan silencers and acoustically treated enclosures.

The requirements for each site vary enormously and for any critical installation we recommend you consult your dealer at an early stage. The information needed to select acoustic equipment is:

- 1 The model and capacity of generator set.
- 2 The location and overall site plan.
- 3 The desired noise level at a fixed distance (normally 1m or 7m).
- 4 Environmental conditions, ambient temperature etc.

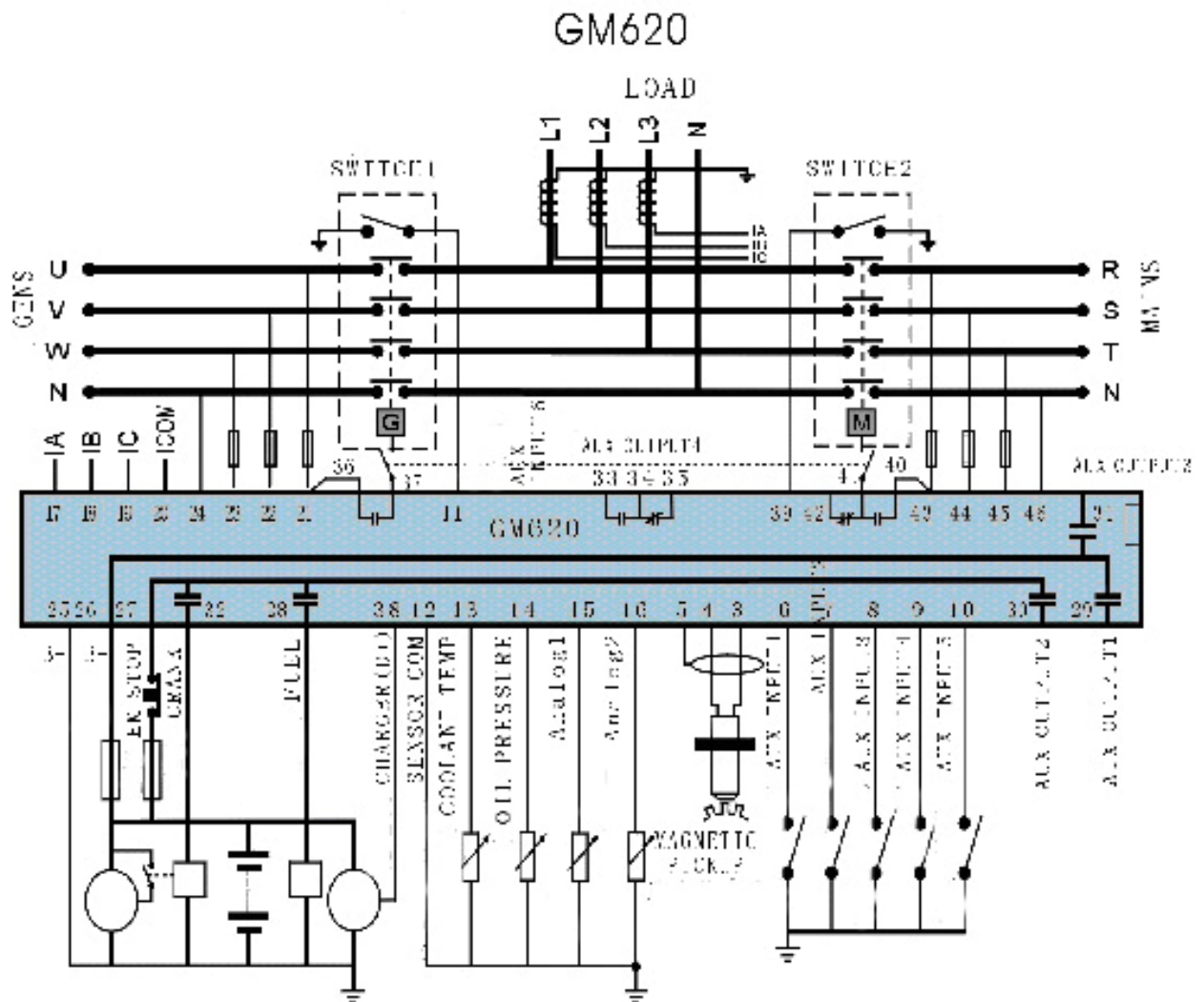
Noise emissions from diesel generator sets (without acoustic treatment) are at sound pressure levels of between 95dB (A) and 105dB (A) at 1m (3'). In case of the soundproof type, the attenuation level would be around 75dB (A) at 7m.

Intermediate levels of treatment will prove more economic and are often satisfactory depending only on the nature and type of installation. Hospital Care Areas will require more attention than the normal commercial/industrial installation.

In addition, anti-vibration devices should be mounted between the generator set and foundations so that vibrations are not transmitted.

11. WIRING DIAGRAM

Typical Application Diagram for HGM620 Generator Automatic Controller



FOR GF-40

12. WARRANTY

1. The Agrison Generator is warranted against defects in workmanship and materials for a period stipulated in the Warranty Agreement supplied to customers. The warranty is expressly a parts only warranty.
2. The warranty is limited to faults and defects which occur in the product under normal working conditions and in accordance with the manufacturer's recommendations.
3. The replacement or repair of any defective parts, or correction of operating parts under this warranty is made only after Agrison or their authorised representative have had an opportunity to examine and inspect the unit. Evidence may be requested by the manufacturer which includes but is not limited to; photographs, expert report etc.
4. This warranty does not extend to cover parts subject to normal wear and tear.
5. This warranty is non transferrable and only applied to the original purchaser.
6. This warranty does not extend to cover damage whilst in transit, exceeding the limits as per manufacturers specifications, abuse, use of non genuine parts, unlawful claims, and improper or abnormal use by the purchaser, its servants, employees or agents. Further, faulty installation, improper maintenance, failure to maintain is not covered by this warranty.

13. TROUBLESHOOTING

A. Cannot generate with no-load, the reason and method to prevent are as follows:

1. May be caused by no residual magnetism or the residual magnetic is reversal in direction to the magnetic field of the rectified current. Charge it with 6V D.C. "+" connect F1 and "-" connects F2 or charge the magnetic field again till the spark appears.
2. The speed is lower than the value of excitation, measure the speed and raise the speed.
3. The static or revolving rectifier elements are broken, short circuit or break, please measure it with multimeter and replace the static or revolving rectifier elements and check it according to the connection diagram.

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4. The armature winding taps, reactor, bridge rectifier or excitation winding are short circuit or loose. Connect them again or solder or tighten loose connections well.

B. Under voltage when no-load working

1. The speed of the prime mover is low and speed up the above rated value.
2. Turn the A.V.R to big volume direction.

C. Over voltage when full-load working

1. Speed of prime mover is too high. Please lower the speed of prime mover (the frequency of rated load is 50Hz)
2. Turn the A.V.R to small volume direction.

D. High temperature or part high temperate.

1. Overload of **tile** generator. Please monitor instruments and keep the load current and voltage not exceeding retail value
2. The condition of ventilation is not good or surrounding temperature is too high. Please check the surrounding temperature and improve the condition of ventilation.

E. Considerable vibration

1. It is not good to connect with the prime mover. Please check it and realign with prime mover.
2. It is not good to install or not balance the base plate. Please check the base plate, keep it strong and make it balance.

F. The bearing is over heating

1. Bad quality of grease or use mixed grease or excessive filling. Please clean the bearing and renew grease.
2. In case of belt drive, belt tension force is too large; please adjust the tension force properly.

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