



GENSET-MANUAL



SAFETY INFORMATION

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you and other persons.

An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs.

The hazards are identified in a variety of forms, including;

- Safety labels – on the gen-set.
- Safety messages – preceded by a safety alert symbol ! and followed by a "signal word" such as "WARNING" as shown below;

! WARNING

This signal word means;

ATTENTION! YOU CAN BE KILLED OR HURT IF YOU DO NOT FOLLOW INSTRUCTIONS OR IT MAY CAUSE PRODUCT DAMAGE.

It is not practical or possible to warn you about all the hazards associated with operating or maintaining a gen-set. If a tool, procedure, work method or operating technique not specifically recommended by EURO ENERGY is used, you must use your own judgment if it is safe for you and others.

SAFETY LABELS AND SIGNS

These labels and signs warn you of potential hazards that can cause serious injury. Please familiarize yourself with all warning signs.

Make sure that you can read all warning signs. If a label comes off or becomes hard to read, contact your ALIMAR gen-set dealer for a replacement.



Congratulations on your selection of ALIMAR gen-sets.

We are certain you will be pleased with your purchase of one of the finest generators on the market.

We want to help you get the best results from your new generator and to operate it safely. This manual contains the operation and maintenance procedures of ALIMAR gen-sets. Please read the operation and maintenance procedures before usage of the gen-set and comply with the instructions.

Serious hazards may occur, unless the customer complies with instructions of this manual.

We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership.

The failures of the gen-set will not be under warranty, in case of not to comply the instructions, also the damages and accidents will be the responsibility of the ownership, in this case.

PLEASE READ AND CARE ABOUT THIS MANUAL!!!



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1.INTRODUCTION

This gen-set will work with a high performance and without problem, if the user operates according to instructions. Please call our authorized servicing dealers or educated personal for first start-up of your gen-set.

Also when your gen-set needs scheduled maintenance, keep in mind that ALIMAR servicing dealers are specially trained in servicing ALIMAR gen-sets. ALIMAR servicing dealers are dedicated to your satisfaction and will be pleased to answer your questions and concerns.

The serial number, production year and other technical details of the gen-set is written on the label of the gen-set. Please request the spare parts specifying that they are under warranty or not, with the informations on the label.



2.SAFETY

General Informations

Gen-sets are designed to give safe and dependable service if operated according to instructions. The operation of the gen-set is completely the responsibility of the customer. Read and understand this operation and maintenance manual before operating your gen-set. The installation, operation and periodic maintenance of the gen-set have to be made by the authorized and educated personnel. It is completely the under responsibility of the operator to use the gen-set without complying the safety rules.



Please care about the following items during the operation of the gen-set

- Read the operation and maintenance manual of the gen-set carefully to get the best results from your gen-set and to operate it safely. Keep this manual handy, so you can refer to it any time.
- Inform all the failures of the gen-set to our authorized servicing dealers or sales department and do not act without our recommendations.
- Do not start engine, in case of an insecure case about the gen-set failure is realized.
- If the gen-set needs to be repaired, break the connection between the battery (-) negative pole and battery, before maintenance of the gen-set.
- Diesel fuel is explosive under certain conditions. Combustible materials should be far away from the gen-set. Refuel in a well-ventilated area with the engine stopped.. Stop the gen-set immediately if a leakage from fuel tank or fuel system of the diesel engine is realized.
- The extinguishers should be presented near the gen-set. The ABC type extinguishers are recommended.
- The cabling of the gen-set have to be made by the authorized and educated electrician with the recommended cable cross-sections
- The electrical cables and connections of the gen-set have to be isolated.
- The gen-set have to be first started, after checking the earth connection of the gen-set.
- Use the lifting lugs in the chassis to remove the gen-set.
- Using a gen-set in wet conditions could result in electrocution. Do not expose the gen-set to moisture, rain or snow and do not operate the gen-set with wet hands.
- The capacity of the gen-set have to be suitable with the rating of the electrical load.
 - The exhaust pipes and silencer become very hot during operation and remains hot for a while after stopping the engine. Do not touch the exhaust pipes and silencer while they are hot.

3.THE GENERAL INFORMATIONS OF DIESEL ENGINE

- The diesel engine of the gen-set is air or liquid cooled, 4 cycle and heavy duty. The speed of the diesel engines are 3000 rpm or 1500 rpm and the start system is electrical with 12 Volts or 24 Volts batteries.
- The fuel tank of the gen-set is with the capacity min. 8 hours full load operation with fuel gauge, filling and drain plugs and fuel pipes. The diesel engine is protected against the high water temperature and low oil pressure failures.



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- The air filter has a vital function for the diesel engine. The air filters have to be cleaned or changed with recommended periods.
 - The gen-set have to be operated in well-ventilated areas. The temperature of gen-set room increases because of hot air from the radiator and exhaust pipes of diesel engine. The performance of the diesel engine decreases or high water temperature failure occurs, if hot air is not discharged from the gen-set room.
 - It is recommended that the total dimensions of fresh air intake windows and hot air outlet windows are at least twice of the dimensions of the radiator of diesel engine.
 - It is recommended that the air intake windows are manufactured as louvers.
 - The engine exhaust contains chemicals to cause cancer, birth defects or other reproductive harm. Breathing exhaust can cause loss of consciousness and may lead to death.
 - If the gen-set is operated in an area that is confined, or even partially enclosed, the air you breathe could contain a dangerous amount of exhaust gas. To keep exhaust gas from accumulating, provide adequate ventilation.
 - The oil filters and fuel filters have to be changed with the periods that are recommended in operation and maintenance manual. Unless the oil filters and fuel filters are changed in time, it is harmful to the diesel engine, and also its warranty conditions.

4. TROUBLESHOOTING

FAILURES OF AUTOMATIC GEN-SETS

a)The load can not be fed from the mains, although the mains is on.



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- The mains voltage is outside of the pre-adjusted upper and lower limits. Check the mains voltage from electronic control unit and change the limits if necessary.
 - The coil of mains contactor coil is not energized. Check the voltage of contactor coil if it is 220V AC or not. (See automatic panel- electronic control unit connection drwg)
 - The coil of mains contactor is burned. If the contactor is not energized although the voltage of contactor is 220V AC, the contactor coil is burned. Change it with a new coil.
 - The operation mode of gen-set is not automatic. Select the automatic mode from electronic control unit.

b)The diesel engine is not ignited when the mains is off.

- The battery is discharged, the voltage level is low.
 - ✓ The battery pole heads are loosed or oxidized. Tighten or clean if necessary.
 - ✓ Check the voltage of the battery with DC voltmeter and charge if the voltage level is low.
 - ✓ Check the level of battery acid and add if necessary.
- The operation mode of gen-set is not automatic. Select the automatic mode from electronic control unit.
- The starter motor is failed. Check the starter motor if it is energized or not. In case the starter motor is energized, but diesel engine can not be started, the starter motor is probably failed. Call our after sales servicing dealers.

c)The diesel engine is ignited, but can not be operated when the mains is off.

- The fuel is finished in fuel tank. Add fuel, if necessary. Discharge air from the fuel lines of diesel engine.
- Congestion or air appear in the fuel system of diesel engine. Clean the fuel system, then discharge the air from the fuel lines of diesel engine.
- The start magnet of the diesel engine is not energized. Check the magnet if it is energized or not. (See automatic panel-diesel engine connection drwg)
- The ignition(start) key is failed. Change the ignition key, if the start terminal(+) is not energized, although the battery terminal(+) is energized.

d)The gen-set is ignited when the mains is off, then stops after a while with crank failure warning.



- The alternator does not generate voltage. Check the voltage between phase and neutral of gen-set if it is 220 V AC or not. If it is not already energized, check the fuses of alternator.

e)The load can not be fed from gen-set, although the gen-set operates.

- The alternator voltage is outside of nominal ratings. Check the alternator voltage if it is 400 V AC between phases and if it is 231 V between phase and neutral.
- The coil of mains contactor is burned. If the contactor is not energized although the voltage of contactor is 220V AC, the contactor coil is burned. Change it with a new coil.

FAILURES OF MANUAL GEN-SET

a) The diesel engine is not ignited:

- The battery is discharged, the voltage level is low.
 - ✓ The battery pole heads are loosed or oxidized. Tighten or clean if necessary.
 - ✓ Check the voltage of the battery with DC voltmeter and charge if the voltage level is low.
 - ✓ Check the level of battery acid and add if necessary.
- The ignition(start) key is failed. Change the ignition key, if the start terminal(+) is not energized, although the battery terminal(+) is energized.
- The starter motor is failed. Check the starter motor if it is energized or not. In case the starter motor is energized, but diesel engine can not be started, the starter motor is probably failed. Call our after sales servicing dealers.

b) The diesel engine is ignited, but can not be operated.

- The fuel is finished in fuel tank. Add fuel, if necessary. Discharge air from the fuel lines of diesel engine.
- Congestion or air appear in the fuel system of diesel engine. Clean the fuel system, then discharge the air from the fuel lines of diesel engine.
- The start magnet of the diesel engine is not energized. Check the magnet if it is energized or not. (See manual panel-diesel engine connection drwg)
- The ignition(start) key is failed. Change the ignition key, if the start terminal(+) is not energized, although the battery terminal(+) is energized

c)The breaker opens during the operation of the gen-set

- The gen-set current is too high. Check the current ratings of gen-set if they are in nominal limits or not, with the amperimeters on control panel and shed some loads if current is high.



5.TABLE OF CABLE CROSS-SECTIONS

Power (kVA)	Current (A)	Power(kW)	NYY- Cable (mm²)**	Max. distance (m)*
10	14,4	8	4x2,5	52
16	23,04	12,8	4x2,5	35
20	28,8	16	4x4	42
25	36	20	4x6	51
30	43,2	24	4x10	67
36	51,84	28,8	4x10	60
45	64,8	36	4x16	75
50	72	40	4x16	66
63	90,72	50,4	3x25+16	82
71	102,24	56,8	3x25+16	74
90	129,6	72	3x35+16	80
100	144	80	3x50+25	93
110	158,4	88	3x50+25	85
125	180	100	3x70+35	103
132	190,08	105,6	3x70+35	103
150	216	120	3x95+50	110
167	240,48	133,6	3x95+50	104
200	288	160	3x150+70	124
225	324	180	3x150+70	130
250	360	200	2x(3x70+35)	103
275	396	220	2x(3x70+35)	94
310	446,4	248	2x(3x120+70)	129
350	504	280	2x(3x120+70)	127
385	554,4	308	3x(3x95+50)	135
400	576	320	3x(3x95+50)	130
425	612	340	3x(3x95+50)	126
450	648	360	3x(3x95+50)	110
475	684	380	3x(3x95+50)	106
500	720	400	3x(3x95+50)	104
525	756	420	3x(3x120+70)	115
560	806,4	448	3x(3x120+70)	112
600	864	480	4x(3x95+50)	106
650	936	520	4x(3x95+50)	100
700	1008	560	4x(3x120+70)	116
780	1123,2	624	4x(3x120+70)	112
880	1267,2	704	4x(3x150+70)	110
1000	1440	800	4x(3x185+95)	117
1250	1800	1000	5x(3x185+95)	96
1500	2160	1200	5x(1x240)/ Per Phase + 3x(1x240) / Notr	125
1600	2304	1280	5x(1x240)/ Per Phase + 3x(1x240) / Notr	125
1675	2412	1340	6x(1x240)/ Per Phase + 3x(1x240) / Notr	125
2000	2880	1600	6x(1x240)/ Per Phase + 3x(1x240) / Notr	115
2235	3218,4	1788	7x(1x240)/ Per Phase + 4x(1x240) / Notr	115
2290	3297,6	1832	7x(1x240)/ Per Phase + 4x(1x240) / Notr	106

*Cos phi= 0.9

alimar[®]

GENERATOR

**The cross sections and max. distance are prepared for reference. For actual values, please refer to installation place and type.

PERIODIC MAINTENANCE INSTRUCTIONS

Before you start any maintenance work, disconnect the battery with de-energizing switch.

A- DAILY CHECKS,

1. Inspect engine, alternator, control and transfer panels visually.
2. Inspect leakage from oil, water and fuel systems.
3. Inspect engine oil level and add if necessary.
4. Inspect fuel level in tank and add if necessary.
5. Inspect water level of radiator and expansion tank add if necessary.
6. Inspect the battery electrolyte level and add soft water if necessary. Ensure that the vapour holes are open.

B – AT THE FIRST 50 HOURS ,

1. Change engine oil , oil filters and bypass filter.
2. Inspect bolts and nuts for tightness, and retighten if necessary.
3. Inspect the air filter and change if necessary. Inspect the pipes and clamps of air filter.
4. Inspect the charge and electrolyte level of battery.
5. Drain water from fuel filter.

C –EVERY 250 HOURS or AT LEAST EVERY 6 MONTHS,

1. Repeat " B " procedures.
2. Inspect and adjust the V- belt tension.
3. Inspect the radiator and clean if necessary.
4. Inspect the engine auxiliary devices and connections and retighten if necessary.
5. Change coolant filter.

D –EVERY 500 HOURS or AT LEAST EVERY 1 YEAR,

1. Repeat " B " and "C" procedures.
2. Clean the fuel tank with opening discharge cap of the tank.
3. Inspect oil, fuel and water pipes and clamps and change if necessary.
4. Inspect and adjust the valve clearances.

E –EVERY 1000 HOURS or AT LEAST EVERY 2 YEARS,

1. Repeat " B " , " C " and "D" procedures.
2. Inspect the charging alternator.
3. Inspect the starting motor.
4. Change the coolant.
5. Inspect the fan blades.
6. Inspect and clean the turbocharger shaft thrust and blades.
7. Inspect and clean the contacts of transfer breakers and contactors.

NOTES:

*** Operate the generator set for at least 5 minutes in a week.

*** Do not change the oil before cooling the engine.

*** After changing the oil , ignite the engine for at least for 3 times for 10 sec, then check oil level after 10 minutes operation.

*** Do not add water to radiator before cooling the engine.



7.WARRANTY

For warranty conditions, the periodic maintenance of the gen-set must be made only with the original spare parts and also must be in time.

The damages and personnel injuries resulting from any modification of the gen-set without manufacturer's permission will not be the liability of the manufacturer.

The damages and production losses, caused by the use of poor quality fuel or engine oil that are not recommended by the manufacturer, will not be the liability of the manufacturer.