

WIND TURBINE
FLAMINGO AERO-3.1

Manual and service instruction



NOTICE!

Pay your attention and scrutinize the service instruction, and keep it for the next use. Nonobservance of the installation and maintenance rules may cause the lifetime reduction or equipment failure.

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Congratulations!

You've become a successful owner of reliable and high-technology wind-driven generator **FLAMINGO AERO-3.1!**

In spite of wind turbine's installation and usage simplicity, please read this manual through carefully before maintenance.

Please keep this instruction book!

Before buying, installation and operation pay your attention to the following recommendations of our engineers, managers and mounters:

- **choice of wind turbine rated capacity at the purchase;**
- **correct, professional selection of the accompanying equipment – the tower, the inverter, storage batteries, automatics, consumables, etc.**
- **right choice of a place for installation;**
- **conditions of the correct operation of all equipment established in system;**
- **observance of necessary safety precautions during wind turbine and the accompanying equipment operation.**

If you will have any questions or remarks on the subject of our wind-driven generator operation, please contact us and we will give you all the necessary information.

DESIGNATION

Wind-driven generator **FLAMINGO AERO-3.1** is intended for energy production through the kinetic wind energy transformation.

Produced energy could be used for service load supply or accumulated in battery pack for latter utilizing.

There are two **FLAMINGO AERO-3.1** modifications with nominal voltages 24 V and 48 V, for usage in combination with various invertors and batteries.

DELIVERY SET:

The standard **FLAMINGO AERO-3.1** delivery set (fig. 1) includes:

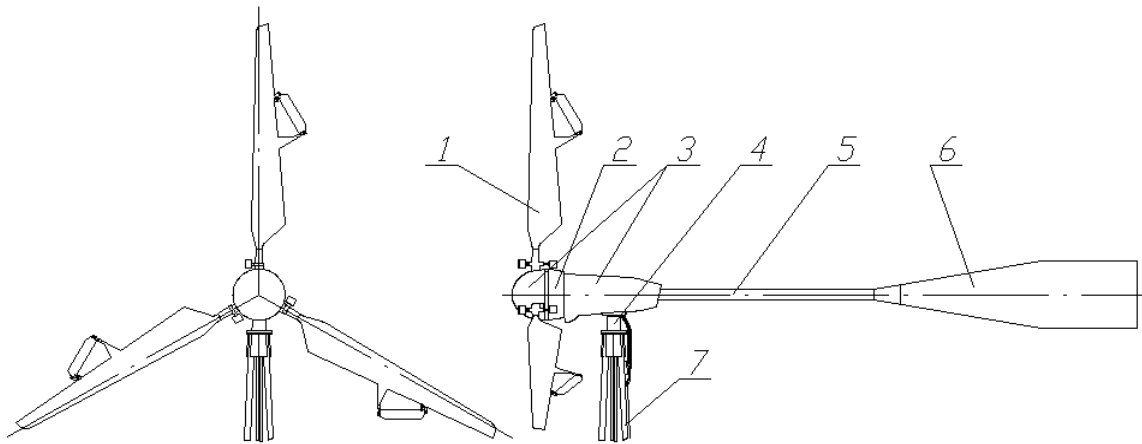


Fig. 1

1. Blades	3 pieces
2. Generator with hub on the central frame with rectifier	1 piece
3. Covers	2 pieces
4. Rotary support	1 piece
5. Tail boom	1 piece
6. Tail unit	1 piece
7. Charge controller K-08/24-WG/FM	1 piece
8. Wooden box (packaging)	2 pieces

Optional could be added:

1. Truss tower, height 17.2 m;
2. Battery pack;
3. Charging batteries controller;
4. Transducer (inverter, uninterruptable power supply);

other automatics and expendable materials for exploitation and installation.

TECHNICAL SPECIFICATION

Key specifications (features)

Rated capacity	W	800
Diameter	m	3.1
Nominal rotation rate	rot/min	310
Number of blades	pieces	3
Blades' material	fiberglass plastic	
Location relative to the tower	windward	
Wind orientation method	by the use of fin	
Rotation rate regulation	aeromechanical	
Generator type – multipole three-phase launched by permanent magnets.		
Rated voltage of generator	V	24, 48
Recommended tower's height	m	11-17

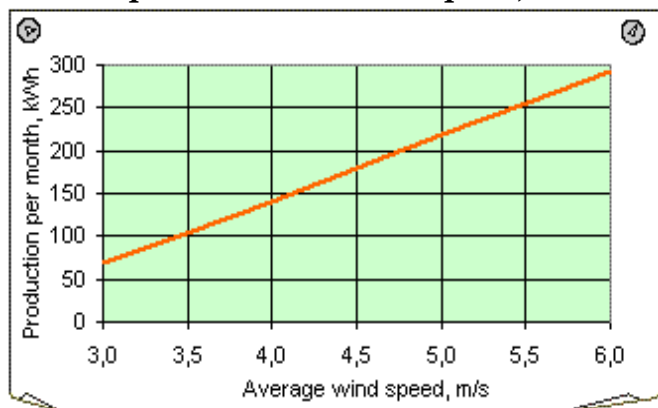
Wind speeds operating range, m/s

Start (cut-in)	2.5
Rated (generator's power is 800W)	8
Maximal operating	50

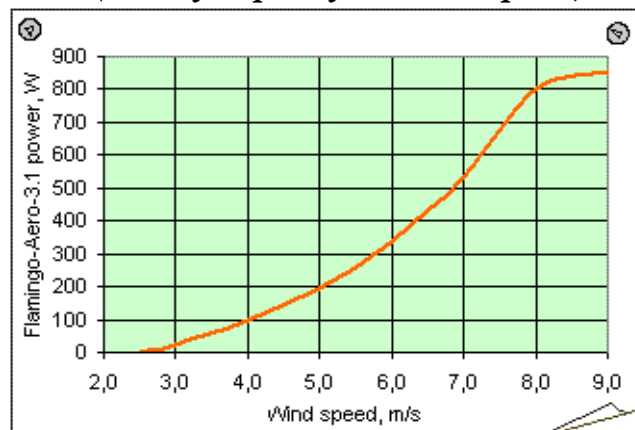
Power (energy) production per month (at full use) with respect to average wind speed

Average wind speed, m/s	Production, kWh
3	70
4	140
5	220
6	300

*Graphical dependence (power production per month on wind speed)**



Graphical dependence (battery capacity on wind speed)



* the dependence is approximate. The real significance of power production depends on wind speed distribution and compatibility of energy production and supply graphs.

SAFETY ENGINEERING DIRECTIONS

Wind turbine FLAMINGO AERO- 3.1 was manufactured in consideration of all the safety requirements. Not depending on that fact, when you are planning location, installation and exploitation of wind-driven generator, you have to attend about safety guaranteeing. It is not necessary to forget about dangers, which are connected with mechanical and electrical devices and blades.

CAUTION: DO NOT INSTALL THE WIND TURBINE IF ANYONE IS IN THE AREA OF BLADES ROTATION! OCCURRENCE OF ANY OBJECTS (CABLES, CONSTRUCTION ELEMENTS, TREES, AND ETC.) IS PROHIBITED!

Mechanical harmful sources:

Rotating blades is the most serious mechanical harmful source. The ends of the blades develop high speed and can inflict serious traumas! Do not install the wind turbine in the places where contact of human (or objects) with moving rotor blades is possible.

IMPORTANT!

Any kind of works which are related to lifting on tower should be done under shut down wind turbine.

Electrical harmful sources:

Wind turbine is equipped by electrical devices, which were manufactured with a glance to all protective qualities from electric harmful sources, concerning extreme currents. REMEMBER, that some risks still exist when you work with electricity.

Heat liberation in electro technical installation systems is the result of extreme currents flowing through small wire section or through the bad contacts.

Batteries can emit currents of dangerous magnitudes. In the case of short circuit, in the wires going from battery, fire may occur.

Changing the connection scheme, additional elements installation (starters, fuses, etc.) are prohibited! You must come to agreement with assembly organization which did the installation.

CAUTION: COMMUTATION (CONNECTION/DISCONNECTION) OF MAIN LEADS UNDER THE ROTATING WIND TURBINE MAY CAUSE THE ARCING WHICH DRAWS THE SKIN BURNS AND ORGANS OF VISION INJURY.

The wind turbine generator is engineered and manufactured according to normative documents of safety measures standard system.

During wind turbine preparation period and in the process of exploitation it is necessary to keep the following construction-and-use **laws**:

NOTICE!

Firstly, you must close study of safety engineering directions and only after that you are allowed to start the installation!

1. **All the installation works, concerning tower and wind turbine, should be done by qualified (ready, trained) personnel with admission on altitude activity and with safety equipment;**
2. It is desirable to do installation works in windless weather, if installation in windless weather is impossible, all the works should be done under the wind speed ≤ 4 m/s and temperature $-5\text{ }^{\circ}\text{C} \leq t \leq 30\text{ }^{\circ}\text{C}$;
3. It is PROHIBITED: to stand under the wind generator during lifting/lowering, and to be in the surface of rotor blades rotation during operation;
4. Standing near wind turbine generator during thunderstorm, lightning, etc. is not allowed;
5. Works, concerning with power -of/-on, lifting on tower, are allowed only with stopped wind turbine;

6. In occurrence of vibrations or oscillations, cracks on wind turbine units, unfastening, screw locking device disturbances, the system should be stopped immediately for emergency maintenance.

Operation of such wind turbine is strictly prohibited till the fault repair.

EXHORTATION!
Don't do the installation works without assistance!

DESIGN AND OPERATION PRINCIPLE

The basic principle of wind turbine generator consists in kinetic wind energy transformation into mechanical one, with further transformation into electric power by generator. Incoming flow acts on the rotor blades, creating torque which is passed on electric generator rotor. Generated electricity is rectified and passed on batteries charge controller or other load.

Design of **FLAMINGO AERO-3.1** wind turbine is shown on the figure 2:

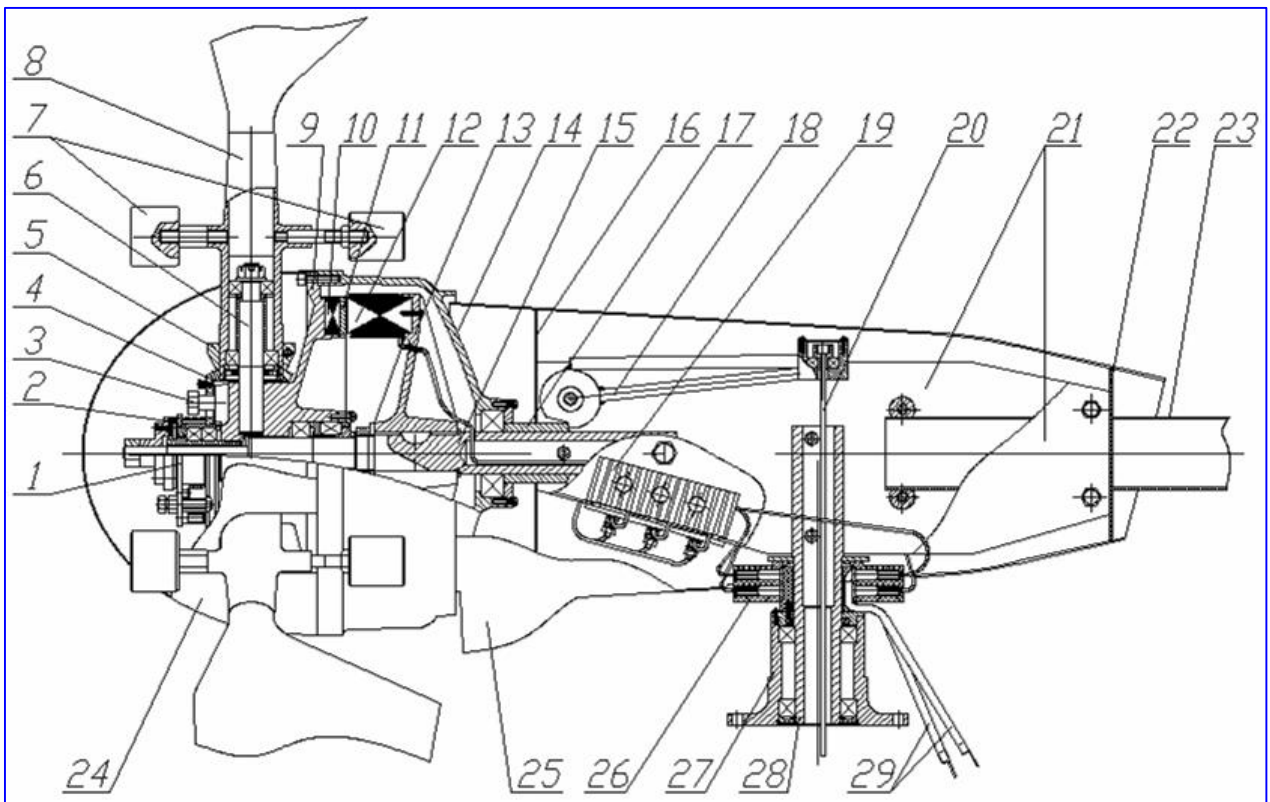


Fig. 2

The basic units of wind turbine Flamingo Aero-3.1

<i>1 – section</i>	<i>16 – diaphragm</i>
<i>2 – brake plate</i>	<i>17 – deflects the lever</i>
<i>3 – latching devices</i>	<i>18 – brake lever</i>
<i>4 – gearwheels</i>	<i>19 – and rectifier</i>
<i>5 – sectors</i>	<i>20 – rope</i>
<i>6 – axles</i>	<i>21 – central frame (which consists of plates)</i>
<i>7 – flaps and weights</i>	<i>22 – diaphragm back</i>
<i>8 – turbine consists of blades</i>	<i>23 – tail boom</i>
<i>9 – generator rotor’s body</i>	<i>24 – front case</i>
<i>10 – magnet wire</i>	<i>25 – back case</i>
<i>11 – magnets</i>	<i>26 – remove electricity</i>
<i>12 – stator (magnetic conductor with winding)</i>	<i>27 – body</i>
<i>13,14 – body</i>	<i>28 – tilting unit axle</i>
<i>15 – generator axle</i>	<i>29 – electric output</i>

The basic units are connected by the central frame, which consists of plates (21). Tilting unit axle (28), generator axle (15), tail boom (23), brake lever (18) and rectifier (19) are straightly secured on the frame.

Generator is represented by butt three-phase multipolar electric machine on permanent magnets. Stator consists of magnetic conductor with winding (12) and body (13) and is rigid on the axle (15). Rotor consists of magnetic conductor (10), magnets (11), and body (9) (14). It rotates around the axle (15) on bearings and may be shifted together with bearings along the axle under brake lever (18) and returned into initial position under magnetic forces.

Turbine of **FLAMINGO AERO-3.1** is three-blades high-speed with aeromechanical rotation frequency stabilization system and with wind vane system.

Turbine consists of blades (8), hub integrated with generator rotor’s body (9) and synchronizer.

Turbine is controlled through the pitch change. For this purpose, blades are rotated around axles (6), and fixed in a hub with the help of latching devices (3).

Controlling forces are created by the flaps and weights (7). The blades turn

synchronization is occurred with the help of sectors (5) and gearwheels (4) with backlash selection system in toothing.

For the turbine shut-down it is necessary to create a force on the rope (20), which deflects the lever (17). The lever through the bush (15) shifts generator's rotor with hub and synchronizer.

Section (1) of synchronizer is pressed to brake plate (2). Sectors (5) are rolled on the gearwheel (4) and put the blades into the wind vane position (downwind). Till the rope (20) is tensioned, this position will be stable.

After the rope releasing, the generator's body together with the hub go back to initial position under the influence of magnetic forces. Synchronizer is out pressed, and the blades are transferred into initial position by the anti wind vane spring.

Rotary support is serving for fixing of wind turbine on the tower, wind vane (downwind) orientation, and electricity transmission from rotating wind generator to fixed tower. It consists of body (27), axel (28) built-in the body on the bearings, and current collector (26). The brake cable is passed through the hollow axle (27).

Rectifier (19) is serving for rectification of generated current. It is manufactured according to Larionov's scheme and consists of isolated plate, 3 terminals (the wires from generator, 6 diodes, 2 heaters, which have clips for current collector wires connection, are cut in to these terminals). The wind generator with nominal voltage of 48 V has another structure. Assembly rectifiers are installed on the same heater.

Fin is serving for wind turbine rotation according to wind direction around vertical axle. It consists of tail boom (23) fixed by 4 screws on the central frame, and plastic "feather".

Cases (shrouds) hide the wind turbine connection joints from direct precipitation, dust and sunbeams. The front case (24) hides the turbine hub. It is rested on generator's body (9). The back case (25) hides the central frame, brake lever, rectifier and current collector. It is rested on diaphragms (masks) (16) (23).

In transportation condition **FLAMINGO AERO-3.1** has the following separate units:

- fin is separated from tail boom;
- tail boom is separated from central frame;
- blades and axles are taken out from hub.

If the wind turbine was disassembled on finer components, it should be aggregated according to structure description.

INSTALLATION OF WIND TURBINE

The installation process should be carried out ONLY by SKILLED (TRAINED) personnel. USE THE SAFETY EQUIPMENT during installation process.

The installation process is **PROHIBITED**:

- when the wind speed is more than 4 m/sec;
- there are precipitation;
- (thunder) storm appears;
- when the temperature of ambient air is less than -5°C or more than $+30^{\circ}\text{C}$.

Exclude the presence of people under the wind generator and in the zone of possible tools drop during installation process. **USE the protective hat, safety shoes, safety strap, etc.**

The installation proceeds in the following way:

1. Take off the cases;
2. Put in the fin feather between tail boom plates and fix it by screws and nuts;
3. Put in the tail boom with feather between central frame plates and fix it by screws and nuts;
4. To install the assembled units on tower, overlap the tower flanges with body flanges of rotary support. During installation procedure the wind vane cable is passed through the tower flange hole. To fix the flanges by screws or nuts (depend on tower flange construction);se

5. To connect the lower end of wind vane cable with the lever in the bottom of the tower, which provides the cable tension with force 40 – 50 kg. Pulling the lever make sure that section (1) is securely pressed to brake plate (2).
6. To connect the wires' terminals from the current collector with the terminal block on the top of the tower, following the connection polarity. The lowering from terminal block should be well fixed on the tower, to exclude hitting of the wind turbine by cables.
7. To insert the blades' axels into the hub, and fix them by latching devices (3) (fig. 3).

NOTICE!!!

Labeled cog on the blade sector should be located in the gash between labeled cogs of synchronized gearwheel.

The groove (non cylindrical) on the blade axel (6) should be oriented so, that latching device (3) will enter into it.

8. Make sure that current collector's brushes are in a free state and could be pressed to slip ring (not pulled-out by the connection wires)
9. To put the cases on.

During installation, the regular technical service works proceed excluding points 2, 7 and 9 for the new items.

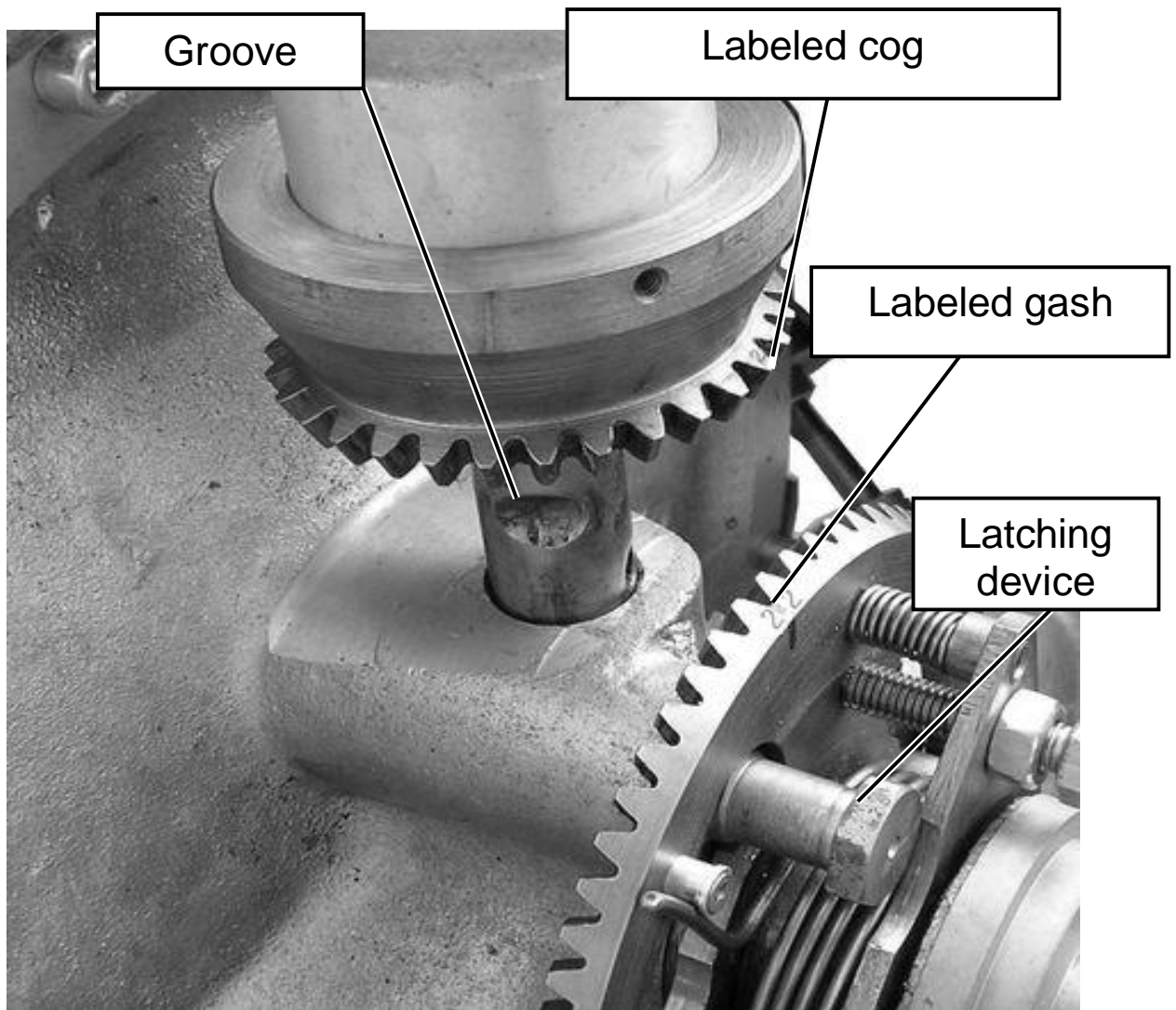


Fig. 3

PERIODICITY AND ENGINEERING SERVICE LOAD

Regular technical service is carried out two times per year, every 6 months (spring and autumn are recommended). Extra maintenance is carried out in the case of wind turbine operation disturbances. The service procedure of extra maintenance is the same as during regular. The next regular technical service could be done in 5 - 7 months after previous one.

Regular technical service

1. Check the absence of cyclical oscillations and vibrations of the system during operation.

NOTICE!!!

The cyclical oscillations indicate the wind turbine aerodynamic or mass balancing disturbance.

Such wind turbine exploitation is strictly prohibited!!!

The system needs to be demounted and sent to manufacturing plant for repair.

The short-time oscillations are allowed in transient states, when the rotation rate is less than operation one with amplitude **2 – 3 cm** at the end of the fin. Cyclic oscillations may be caused by blades fouling, and in some cases they could be eliminated after flaps and blades cleaning with wipe and special detergent solution.

Vibrations could be caused by:

- rectifier bridge diodes' breakdown;
- short circuit in one of generator's phase;
- bearings destruction.

2. Stop the wind turbine and do the wind turbine cleaning. Blades and cases should be cleaned with detergent solution.

3. Do the external examination of wind turbine simultaneously with cleaning. Pay attention to absence of splits, worn spots, places oiling materials outflow, sparking in electrical connections (contacts)'.

4. Check the bolted connections. They should have the following limits:

- blades fixing devices – **23-25 N*m**;
- connection nuts of generator and frame rotation device axle – **30-35 N*m**;

- connection nuts of rotation device flange, tail boom, tower braces – **20-23 N*m** (it is allowed the spot check of braces nuts tightening at the rate of **7-12** pieces through all the tower's height);

- check-nuts of forced wind vane system brake plate – **40-45 N*m**;

- nuts that connect fin with tail boom, screws of flaps torsion connection – **5-7 N*m**.

NOTICE!
The wind turbine exploitation with clenched connection holes is prohibited.

5. Check the synchronizer coupling engagement. The clearance gap between stop bolt butt and synchronizer surface should be in the limits 0.05 – 0.2 mm. The blades should be turned free at any range of angles installation and come out the wind vane position with the help of spring.

The reasons of difficulties during turns:

- small clearance or tension between stop bolt and synchronizer surface;
- foul coupling engagement by foreign objects;
- spring biting and deformation;
- destruction of synchronizer or blade bearings;
- absence of the clearance gap between synchronizer and brake plate;
- strong coupling engagement tear of sectors and synchronizer.

When strong tear or bearings destruction occurs, the repair at manufacturing plant is required.

For the clearance gap regulation it is necessary to loosen check-nut, and turning the screw, set the desired clearance. Set it less, if it is possible. Torque the check-nut to **15-20 N*m** and control clearance again. After checking the quality of blades turns do the abundant oiling of the coupling engagement by lubricant. Put some

lubricant on the internal parts of synchronizer under cogs for the refilling under the influence of centrifugal force.

6. Check the clearance gap between friction lining of brake plate and synchronizer butt. The clearance should be **0.5-1 mm**. For the regulation it is necessary to loosen check-nut, and turning the plate, set the desired clearance. Tighten the check-nut. Check the enforcement wind vane system functioning. Under the force 40-50 kg on brake cable the generator should be shifted along the axle and synchronizer pressed on friction lining of brake plate. The brake torque of the blades around their axles should be 5-10 N*m. Check the wind vane cable. Rust and slight tears are not allowed.

7. Add 3-4 cm through the oilcan on the front shield cubed of lubricant to generator thrust bearing.

Check the easiness of generator rotation, absence of extraneous noises and jams, absence of cyclic “cogs” torque.

The reasons of difficulties during rotation may be caused by:

- tear or destruction of bearings
- short circuit in generator coil or transmission line.

Cyclic or “cogs” torque may be caused by:

- short circuit in one of generator phases;
- failure of rectifier bridge diodes.

8. Check the reliability (safety) of electrical connections. If it is necessary, do the tightening of bolted and clamp connections.

9. Take off insulators of current collector brushes. Clean the hoops and brushes with the help of wipe and special solution (petrol). In the case of severe contamination, use the sand paper with the further cleaning by wipe and special solution (petrol). Assemble the unit; check the easiness of brushes shift in guide and reliability of pressing to the hoops.

NOTICE!

Points 8 and 9 must be executed under disconnected battery!!!
During installation of brushes and insulators on appropriate place

10. Lubricate the flap slider bearings (1 drop of any transmission oil to each bearing). Check the easiness of flaps rotation. Under twisted torsion bar on 10-15 degrees and sharp lower action, it should perform no less then 3 oscillations with respect to neutral position.

11. Check the rest wind turbine equipment, according to enclosed instruction.

12. Check the functionality of a complex, charging current, its correspondence with airstream value.

13. Complete the form of exploitation and technical service.

14. Send the report to the manufacturing plant.

MAINTENANCE RECOMMENDATIONS

1. Wind turbine operation in icing condition may cause its failure. **During icing weather or close to it, STOP the wind turbine for better conditions (in such weather conditions the wind turbine operation is prohibited).**

2. Do the technical service in accordance with part “periodicity and engineering service load”.

*The Owner of wind power plant and installed auxiliary equipment **can insure** this property from the risks of damage or destruction by fire, natural disasters, accidents, and illegal acts of third parties, as well as its responsibility before the third parties during its operation against the risks of harm to their property, life and health:*

WIND TURBINE
FLAMINGO AERO-3.1

Service instruction



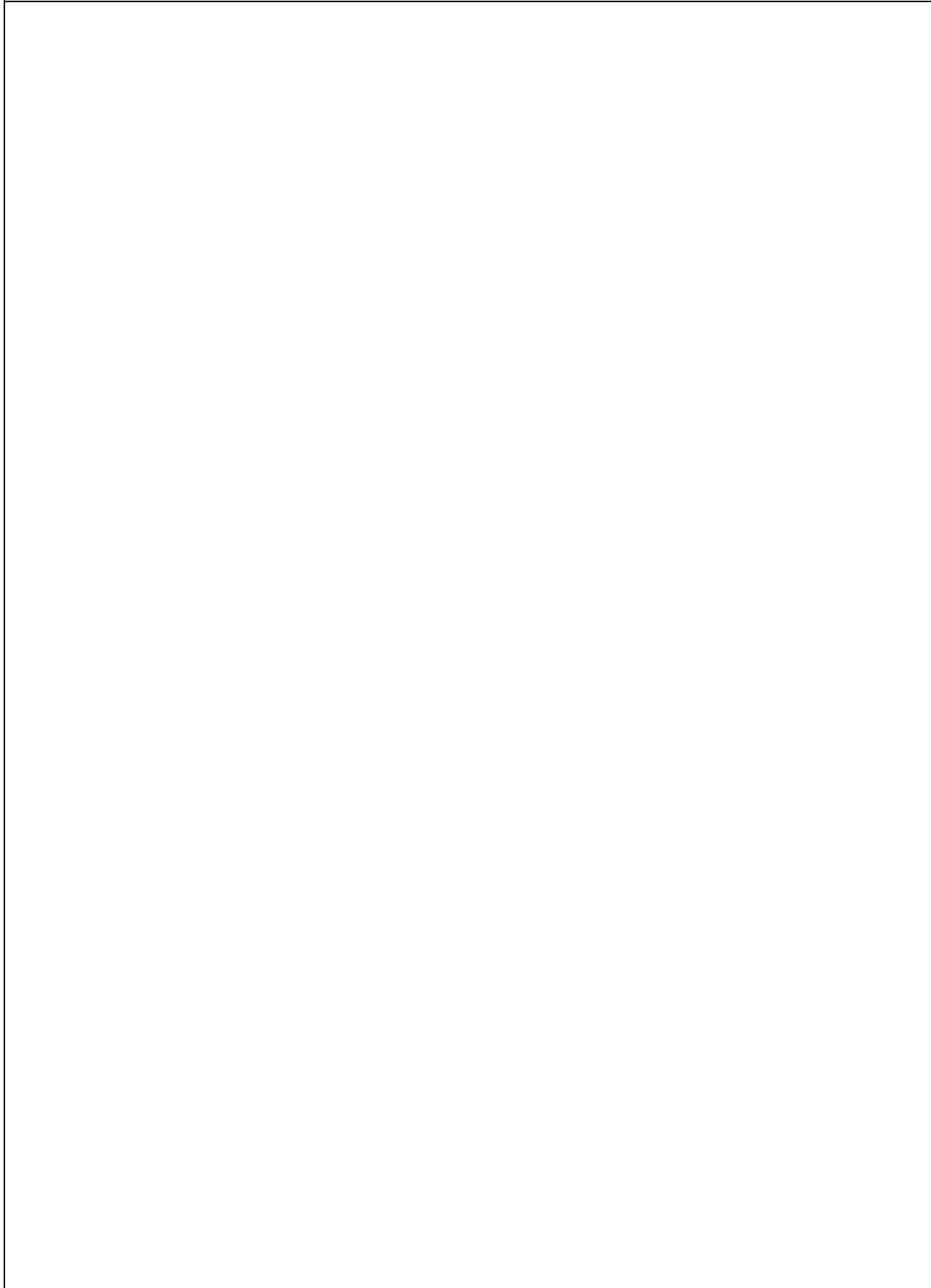
THE MAIN RULES OF FILLING AND LOGBOOK CONDUCTING:

- THE DATA CARD IS FILLED WITH THE AUTHORIZED ASSEMBLY ORGANIZATION – LEGAL OR THE PHYSICAL PERSON HAVING LICENSES FOR INSTALLATION, WARRANTEE (POSTWARRANTY) SERVICE;
- SAMPLES OF LICENSES ARE RESULTED IN APPENDICES 1 AND 2;
- THE CUSTOMER (CLIENT) SUBSCRIBES (PUT THE SIGNATURE) ABOUT ACCEPTANCE OF WORKS.

Logbook should be completed for each object. During wind turbine transportation to another object, the other logbook has to be opened. The note about transportation is put into the column “Additional Information” to the both logbooks. The completed insert is sent to the manufacturing plant

Object information	
Wind generator works number	
Sale date	
Installation date	
Installation place address	
The name of installation organization	
Contact information of installation organization	
Height of tower	
Battery’s (accumulator) capacity	
Inverter’s power	
System type (off-line, reserve)	
Additional components (inverters, stabilizers, diesel-generator set)	
Additional information	
Client signature	Works are accepted, acquainted with service conditions _____ Initials _____ Date
The work is done by (initials)	

The scheme of wind generator switching on
be filled up by the representative of authorized assembly organization)



The work is done by (initials)

Dispatch list	The notes about work execution <small>(should be filled up by the representative of authorized assembly organization)</small>				
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Additional comments and works					
Client signature					
The work is done by (initials)					

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Client signature					
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GENERAL PROVISIONS

The warranty is a technical support of wind turbine working capacity by manufacturing plant throughout the warranty period. The warranty is a free replacement of parts and knots which have the defects arisen because of manufacturing plant under condition of regular wind turbine operation.

Warranty package doesn't extend on the malfunctions (failures) caused by infringement of operating rules, maintenance and wind turbine service, influence of extraneous subjects or factors, or corrective actions which change the wind turbine design unapproved by manufacturing plant.

Maintenance service, installation and putting into operation, - procedure paid, according to the prices of the Authorized Service Center (ASC).

Installation, putting into operation, repair and service should be carried out only by the experts trained and certified in the enterprise «Svit Vitru».

In order to avoid misunderstanding, we ask you convincingly to study attentively the maintenance instruction on the given product.

WARRANTY PERIOD

The Manufacturing plant gives a warranty period of 3 years on the «FLAMINGO AERO» wind turbine under condition of the contract conclusion on maintenance service with the assembly organization, regular performance of maintenance service regulations; or 12 months without the contract conclusion.

The user of the equipment should every 6 months of operation provide the admission of ASC representatives for carrying out wind turbine maintenance service*. If the wind turbine has not been passed maintenance service in time, the warranty period makes 12 months from the date of putting wind turbine into operation.

The warranty period starts from the date of wind turbine sale to the Buyer which is brought in the passport and logbook, and is assured by a stamp of the seller who has released the wind turbine to the Buyer. Without this data, as well as

in case of passport and logbook absence, the claims on the warranty are not accepted and are not considered.

Warranty package for the failed parts replaced in a wind turbine warranty period expires at the moment of wind turbine warranty package termination.

Also, we offer you after wind turbine warranty period termination – the ASC post warranty support. The ASC post warranty support gives possibility for clients to reduce the size of expenses connected with «FLAMINGO AERO» wind turbine repair by timely, qualitative maintenance service, and also diagnostics and preventive maintenance of malfunctions. The Manufacturing plant extends also post warranty support to spare parts which have been installed or replaced by official ASC during the warranty period.

Owing to post warranty service in ASC, our clients remain happy, understanding that the manufacturing plant cares of long and qualitative product operation even in post warranty period.

For reception of post warranty supports it is necessary to conclude the contract on post warranty maintenance with ASC.

CONDITIONS OF WARRANTY PACKAGE PERFORMANCE

At revealing of infringements during wind turbine operation or suspicion on wind turbine disoperation it is necessary to address immediately with ASC or manufacturing plant for consultation and elimination of malfunctions (emergency maintenance).

The right to warranty repair of wind turbine can be given only on passport and logbook presentation with the marks confirming timely passage of obligatory maintenance service at ASC.

Warranty package includes repair or replacement (at impossibility of repair) faulty parts, knots, having manufacturing defects, and also free performance of the disassembling/installation works connected with it, except for cases when repair

and works have been caused by abuse (irregular running), influence of extraneous subjects or factors and unauthorized (self-willed) changes in wind turbine design.

Any indirect damage (for example, expenses on work of benzine-diesel generators, straight lines or indirect losses, etc.), connected with wind turbine malfunction aren't compensated.

REFUSAL CONDITIONS IN WARRANTY PACKAGE PERFORMANCE

Refusal in warranty package performance can come in following cases:

- If wind turbine irregularly passed (or didn't pass at all) obligatory maintenance service at ASC;

- If wind turbine was served or under repair not at ASC:

- If changes have been made in wind turbine design and tower, not authorized by ASC or manufacturing plant, including, change of structure connected to wind turbine electric and other equipment, which were not provided by the complete delivery set and had no ASC permissions for application.

- Non-observance or infringement of wind turbine service instructions (rules), maintenance and operation activity.

Terms of warranty don't provide indemnification of expenses on the lost benefit, delivery, installation, consultations.

* - service paid, payment is carried out under the price-list of the authorized service center (ASC).

Exclusive representative in Latino America: “XOCHITL” SRL.

01033 Kiev, Ukraine, Zhylianska St. 26, tel.: 380674648270

Exclusive representative: "GRESA-GROUP" Ltd. Kiev, Ukraine.

Manufacturing plant: Private Enterprise “Svit Vitru”

61108 Kharkov, Ukraine, Kurchatova Ave.

Authorized service center (ASC): Private Enterprise “Admiral Service”

04060 Kiev, Ukraine, Petropavlovskaya St.

REMARK: SAMPLES OF CERTIFICATES TO LEGAL OR THE PHYSICAL PERSON FOR INSTALLATION AND WARRANTEE SERVICE ARE RESULTED IN APPENDICES 1 AND 2.

RIGHT TO ISSUE SUCH KIND OF CERTIFICATES HAS “GRESA-GROUP” LTD.

ACCEPTANCE CERTIFICATE

Producer: Private Enterprise “Svit Vitru”
61108 Kharkov, Ukraine, Kurchatova Ave.

The wind turbine FLAMINGO AERO-3.1 corresponds to engineer documentation and available for exploitation.

Works number _____ Manufacturing date _____

Inspector’s signature and initials _____

Exclusive representative: “GRESA-GROUP” Ltd.
03058 Kiev, Ukraine, Nezhinskaya St.

Exclusive representative in Latino America: “XOCHITL” SRL.

01033 Kiev, Ukraine, Zhylianska St. 26, tel.: 0038067 4648270

The wind turbine FLAMINGO AERO-3.1 is accepted on balance as the complete set.

Works number _____ Manufacturing date _____

Inspector’s signature and initials _____

MARKS ABOUT PERFORMANCE OF THE ASSEMBLY (DISMANTLING) WORKS

Filled up by the executor of installation works

Wind turbine FLAMINGO AERO-3.1 is mounted and placed for operation:

(Name and address of the enterprise executed installation works)

Date of installation works (putting into operation): « _____ » _____ 201__ year.

The license number for installation of the legal or physical persons who were carrying out installation works (putting into operation): _____

Responsible person: _____
(Signature and initials)

Filled up by Customer (Client)

Acquainted with conditions of warranty and safety precautions during wind turbine operation:

(Signature and initials)

Available licenses for installation and warranty service of the legal (physical) persons who carried out the installation procedure (convinced): _____
(Signature and initials)

The wind turbine FLAMINGO AERO-3.1 is mounted and placed in operation; I have no claims to the executed works: _____
(Signature and initials)

Date « _____ » _____ 201__ year.

Filled up by the executor of assembly (dismantling) works:

SPECIAL MARKS (dismantling, features, etc. – filled necessarily):

Responsible person: _____
(Signature and initials)

Date « _____ » _____ 201__ year.

Is valid at filling

WARRANTY SERVICE COUPON

Filled by seller (vendor)

Wind turbine FLAMINGO AERO-3.1

Works number: _____

Trading organization:

(The name and address)

Sale date: « _____ » _____ 201__ year.

Checked up by seller:

(Signature and initials)

Filled by the executor of warranty (post warranty) service

Wind turbine FLAMINGO AERO-3.1 is accepted on warranty (post warranty) service:

(Name and address of the enterprise responsible for warranty service)

Service acceptance date « _____ » _____ 201__ year.

Service contract number: _____

The license number for installation and warranty service of the legal or physical persons who is responsible for service procedure:

The responsible person:

(Signature and initials)

Filled by Customer (Client)

Acquainted with conditions of warranty and safety precautions during wind turbine operation:

(Signature and initials)

Available licenses for installation and warranty service of the legal (physical) persons who carried out the warranty service procedure (convinced):

(Signature and initials)