

## REPORT

on a scientific and technical trip to China from 10 to 20 April 2018.

The purpose of the trip was to obtain the necessary technical information on unmanned aerial vehicles (UAVs), control systems, UAV production technologies and to achieve mutual understanding with Chinese manufacturers in the field of creating cargo and passenger UAVs.

The People's Republic of China (PRC) is an industrial giant not only of Asia, but of the whole world. The southern region of China - Guangdong province is one of the world centers of industrial electronics and unmanned aerial vehicles. Therefore, after two years of detailed study and preliminary correspondence, two major cities of Guangdong Province were chosen as the objects of the trip: Shenzhen and Dongguan.



11/04/2018. Acquainted with the layout of the workshops and the working process of the workshops for the production of electronic components and gadgets in Shenzhen City.

On April 12 and 18, Dongguan visited the office and production halls of Dongguan Freerchobby CO., LTD.

MEMORANDUM OF INTENT

Shenzhen city 17.04.2018y

Dongguan Freerchobby Model Co., Ltd., No66, 2ndFloor, Dongshen Road, Tangli Village, Fenggang District, Dongguan City, Guangdong Province, 523692, China, represented by the Director of Harlan Tan, on the one hand, and Manarbek Industries Ltd, (Director Miras Amangaliyev) headquartered at: Republic of Kazakhstan, Astana, Korgalzhin street 11, 010000, represented by CEO/Founder Miras Amangaliyev acting under the charter, on the other hand (hereafter, the Parties), concluded this Memorandum the following:

Article 1  
The aim of the Memorandum

The aim of this Memorandum is to combine efforts, resources and other opportunities of the Parties for mutually beneficial cooperation at joint implementation of the results of research and development work on the project "Vehicle of vertical take-off and landing" (VTOL).

Project author: team of special design and technological Bureau "Aerospace and special mechanical engineering" (SDTB ASME), Astana, Kazakhstan.  
Head of SDTB ASME: Kassymov Umirzak, professor of the Department "Space technique and technology" of the Eurasian national University named after Gumilyev, Astana, Kazakhstan.

Article 2  
The main areas of cooperation

For the full realization of this Memorandum, the main areas of cooperation of the Parties are:  
- collaborative design work of "Vehicle of vertical take-off and landing" (VTOL);  
- development and implementation in production of the results of research and development work at aircraft design field;  
- enhanced technical education of team employment of the project on mutually agreed programmes.

Article 3  
Joint activities

The joint activities of this Memorandum are determined by the Parties as follows:  
- exchange of experience in development and production of vertical takeoff and landing aircrafts;  
- mutual support of perspective scientific and technical achievements;  
- exchange of information materials;  
- conducting online conferences to discuss the activities.

Article 4  
Realization

To note that this Memorandum determines the principal provisions for the mutual relations of the Parties and implies conclusion on its basis of commercial contracts and agreements in aeronautics in the following areas:  
- Formation of the social environment for aeronautics development, as scientific, innovative and social-economic development factors of the People's Republic of China (PRC) and the Republic of Kazakhstan (RK);

- Formation of the industrial cooperation for aeronautics development, creation of new models of aeronautical engineering for transport structure's development;  
- consolidation of the sectoral direction financing, investments attraction for implementation of projects and new aircraft models development;  
- organization of scientific and technical cooperation by establishing closer contacts between scientific, educational, production organizations and enterprises;  
- realization of young people's creative potential, specialist in the field of modern aeronautics technologies;  
- creating of a unified information structure to provide information exchange.  
To note that cooperation between the Parties will be carried out on the basis of contracts and agreements concluded in accordance with the current legislation of the PRC and the Republic of Kazakhstan.  
This Memorandum is not intended to create any advantages for one of the Parties and restrict competition on the commodity markets of the People's Republic of China and the Republic of Kazakhstan.

Article 5  
Rights and obligations of the Parties

The parties are obliged to assist each other in carrying out joint activities, as well as to carry out all possible protection and support of the other Party, which will be necessary in the implementation of joint activities.

Each Party has the right to see the documentation related to the implementation of joint activities

The parties also have other rights and bear other obligations stipulated by this Memorandum or arising from decisions taken by the Parties in the joint effort, in the manner established by this Memorandum.

None of the Parties has the right to transfer rights and obligations under this Memorandum to third parties without obtaining the written consent of the other Party.

Article 6  
Duration

This Memorandum shall enter into force upon signature of the Parties (the last of the Parties) and is valid for 5 years.

This Memorandum can be extended for the next 5 years or terminated at any time by mutual written consent of the Parties.

Article 7  
Other conditions

Parties under this Memorandum do not bear financial responsibility.

The goal of this Memorandum is possible in various forms, including through meetings of representatives of the Parties, joint investment of projects, creation of one or several enterprises in the territory of Russia and the Republic of Kazakhstan.

The parties may, by general agreement, make any changes and additions to this Memorandum for more effective implementation of its purpose.

The parties guarantee each other that the persons signing this Memorandum have the authority to sign this Memorandum and comply with the conditions specified therein.

This Memorandum is made on 3 pages, in two copies in English, one copy for each Party.

Dongguan Freerchobby Model Co., Ltd.  
Director 

Manarbek Industries Ltd.  
CEO/Founder 

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mobile: +7 778 341 32 37

This company produces structurally lightweight valve electric motors (VED) with a capacity of 5 to 100 kW for aircraft (LA).

In the whole world, as far as we know, only two Chinese enterprises produce mass-facilitated medium-heavy and high-capacity light vehicles for aircraft: one, the state company, provides only domestic needs of the PRC and another, private - Dongguan Freerchobby CO., LTD works on the international market. The services of this company are used by a lot of firms and aircraft designers from other countries.

We demonstrated a 25 kW external economic activity with a magnetic bearing and a body made of AMG6 alloy. The company also makes a selection of electronic speed controllers - ESC for VED engines.



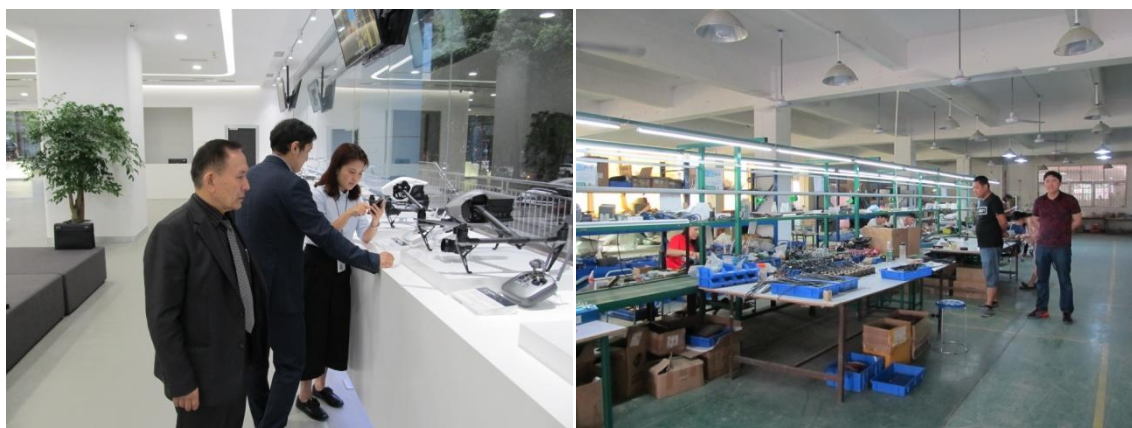
Kazakhstan) Memorandum of intentions and scientific and technical cooperation signed by Amangaliev Miras, marketer and member of the team

SKTB, director of the company "Manarbek Industries"

With the leadership of the Chinese company, an agreement was reached on the prospective supply of 25, 50, 100, 200 and 500 kW of foreign economic activity with ESC. They showed a keen interest in the projects of the SKTB and expressed a desire to participate in the implementation of these projects in the future.

On April 13, 14, 15 and 18, they visited the office and production halls of GERISE in Dongguan. The company produces various unmanned aerial vehicles, drones for its own development and for customer drawings. The hulls of aircrafts are made of composite materials: fiberglass and carbon fiber (carbon). Matrices for composite parts are made of metal with machining on CNC machines. A selection of the functional components of the control system and the power drive, as well as the test test of the aircraft, is carried out by the technical specialists of the company itself.

On April 19, 2013, the Memorandum of Intent and Cooperation was signed with GERISE. On behalf of SKTB "Aerospace and Special Engineering" Memorandum of Intent and Scientific and Technical Cooperation signed by Amangaliev Miras, marketing specialist and member of the SKTB team, director. company «Manarbek Industries».



With the leadership of the Chinese company "GERISE", a preliminary agreement was reached on manufacturing the main units and details of the prototype of the power platform of the vertical take-off and landing vehicle (TSVVP) with a carrying capacity of up to 600 kg at the production facilities of the company "GERISE" according to the drawings of the Customer - SKTB AKSM (Astana, Kazakhstan).

The work will be implemented after the signing of the Agreement on the manufacture of the TSVVP between the company "GERISE" and the Customer. Shipment of the components of the TSVVP to the Customer will be carried out after the joint test (the specialists of the company "GERISE" and the representatives of the Customer) of a comprehensive test check of the functional elements of the TSVVP and full payment for the work performed.

The cost estimate will be specified after receipt of the Technical Assignment by the Contractor and the signing of the Production Contract.

They showed a keen interest in the projects of the SKTB and expressed a desire to participate in the implementation of these and other projects in the future.

On April 14, 16 and 19, they visited the office of SHENZHEN GREPOW BATTERY CO., LTD. GREPOW RECHARGEABLE BATTERY.

We got acquainted with the profile and characteristics of the products of this company. There was an exchange of scientific and technical information in the field of production of power electronics and uninterruptible power supplies, in particular, various types of battery batteries for aircraft.

Issues of perspective cooperation in the field of application and creation of new types, in particular graphene batteries and other types, storage batteries were discussed. Representatives of the company presented certificates and showed several copies of the products.

With the signing of the Memorandum for this year decided to postpone due to the narrow specialization of the Chinese enterprise only in the field of creating lithium-ion and lithium-polymer batteries of small capacity.

With the managers of SHENZHEN GREPOW BATTERY CO., LTD, a preliminary agreement was reached on the delivery of lithium-polymer batteries for our aircrafts, the maximum for today, with a capacity of 30000 mA / h with a current recovery factor of 25C and a mass of about 4 kg. In this case, the scope of supply of these batteries will be determined by the needs of the Customer.

On April 17 and 20, they visited the central office and exhibition building of DJI. We got acquainted with the profile and characteristics of the products of this company. There was an exchange of scientific and technical information in the field of production of unmanned aerial vehicles (UAV). Issues of possible future cooperation in the field of application and creation of new types of UAV were discussed. Representatives of the company presented a catalog and gave a technical description of the products.

With the signing of the Memorandum for this year decided to postpone due to the narrow specialization of the Chinese enterprise only in the field of creating aircraft of very low carrying capacity and limited functionality.

#### SUMMARY:

1. Urgent financing is required to create a set of design and technological documentation (CD and TD) and the production of a prototype of the TSVVP;
2. Investor and Investment in the Program for the creation of modern production of light aircraft and UAVs of various functions are required.

Professor, Ph.D. Kasymov U.T.