PUBLIC DESIGN BUREAU

The aircraft, which are easier PILOT

Ultralight aircraft Dmitriev Series X-14 a few years ago caused an increased interest from aviation enthusiasts, as well as from professionals, attracting its originality. They were exhibited at the international air shows, they are reported in domestic and foreign press. Held information about these devices and in our magazine, though short.
Having decided to eliminate the gap, we used the letters, where the designer talked about himself, how came the idea of creating such aircraft.

From childhood I dreamed to go in the footsteps of his father - in aviation. Repeatedly trying to enter the various aviation school or flying club in Kyrgyzstan, but for reasons beyond me the reasons this has not happened.

It was then decided to make their own planes and fly them. In the process faced many challenges, including a lack of knowledge of special subjects, so we had to take on books - learn how to build and conduct the tests.

The history of my aircraft is long, but if short, built around 30 aircraft and their modifications. For the most part they are poor quality, but some of them have unique features.

Testing aircraft also had to be myself. To do so, has developed a training aircraft, which continued working out and steering technique.

Because of limited financial means materials collected by aviasvalkah, motors took from decommissioned sport motorcycles. Because of these pseudo-motors more than 20 times to be in the air without a "thrust". And as a pilot I have a low grade, then had to build aircraft with a very good takeoff and landing characteristics. Therefore, my "Iksah" people can fly, even with the average level of training.

Main technical characteristics of the plane X-14d
Length, m 3.13
Height, m. 1.22
Wing span, m 5
Wing area, m ².... ..... 1.76
Dry weight, kg 54
Take-off speed, km / h 55
Maximum speed, km / h 130
Engine firm Chezet: ... ... 380 cm ³, 6400 rpm, 42 hp

Notable features of my aircraft are their small size, lightness and disassembled. In no small measure contributed to this "production area", and the granting my reach. Thus, the wing X-14d free fit in a box 1 meter

For example, talk about design cars that X-14d. It embodies almost all of my ideas. She, like all previous ones, modular, and consists of scooters, consoles wing and tail surfaces.

The basis of the aircraft - a truck. Its frame consists of longitudinal beams and the stretcher motor (mounted on racks), welded from thin chromium mansilevyh pipe 0 12 ... 35 mm. To fasten it: the main landing gear beams and struts, wing console, expand the front trunnion chassis, steering wheel and engine.

Beams of the pillars and struts are connected to the frame by bolts and an additional fixed rods.Wheels supplied from lyzherollerov (200x60 mm), two of them - the main - are equipped with disc brakes. Although better would suit "Dutikow, calculated under the required load.

When hitch their consoles wing spars fit in with the engine subframe, and then fixed braces.

The front part of the aircraft combined with a tail farm, which represents the four beams of duralumin pipes with a diameter of 30 mm and wall thickness of 1 ... 1.5 mm. The rear ends of the lower beams are fastened to each other bracket, which is installed from the top bracket hinges tail. The front ends of the beams (upper and lower) have nozzles for docking with the sample sites on the root ribs of the wing and strut carts. The upper beams are connected to the lower bracket in pairs, too.

Fixing the tail assembly is carried out in assembled form with three nodes located at the bottom of the back wall of the keel and on the toes planes stabilizer.
Being engaged for many years to improve stability at low speeds and landing characteristics of their aircraft, came to the conclusion that the wing must do the reverse sweep and a well mechanized.

The basis of the power set of wings are the two I-beam spar with walls of glass thickness of 1.5 mm and shelves made of pine slats section of 18x12 mm of the root section, cross section 18x18 mm - in place of mount and strut cross-section 18x6 mm - in the end part. Sock console sewn glass textolite sheet thickness of 0,25 mm. The rest of the

surface (including the tail) are covered with a nylon cloth, on which day stretch caused enamel. The relative thickness of the airfoil-14%.

The leading edge of the wing is equipped with slats, occupying 1 m of its length, and 15% MAC (mean aerodynamic chord). Slat and flap are connected through rocking two ropes, which provide them with simultaneous release and cleaning.

Trehschelevoy flap (34% MAC) rejected down to 60 °, and shank - 22 ° 30 '.

Two-slit aileron (35% MAC) deviates up to 23 °, and down - at 16 ° (shank at 16 ° and 11 ° respectively). It is associated with interceptors, which, after raising the aileron on the angle of 10 ° was called up at 45 °.

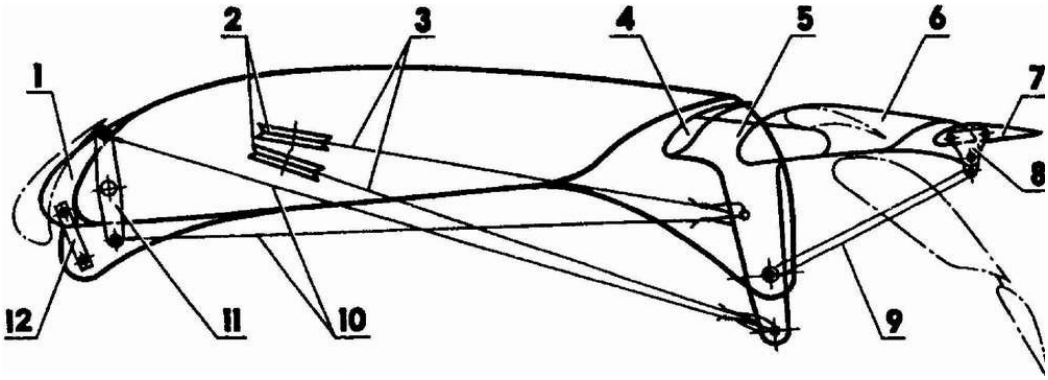
The stabilizer of the tail assembly is made by the adaptive scheme, under which two-slit rejecting an elevator up to 35 ° and down 23 ° (shank - 17 ° and 11 ° respectively) are the deflection and the middle part of the stabilizer on 6 ... 9 °, which leads to a change in the configuration of the profile and the angle of attack. Such a scheme allows, for example, the pilot quickly restore the regime of horizontal flight with the inevitable "peck" the aircraft at the time of release of mechanization of the wing.

Rudder control system and mechanical elements is practically the same - to the root rib her rope (diameter steel cable - 1,8 ... 2,0 mm), after them - hard, consisting of rods and rockers (D16T, sheet thickness 1,5. .. 3,0 mm).

Certainly, the shortcomings in short supply, but, based on the design of this device, you can build airplanes purpose.

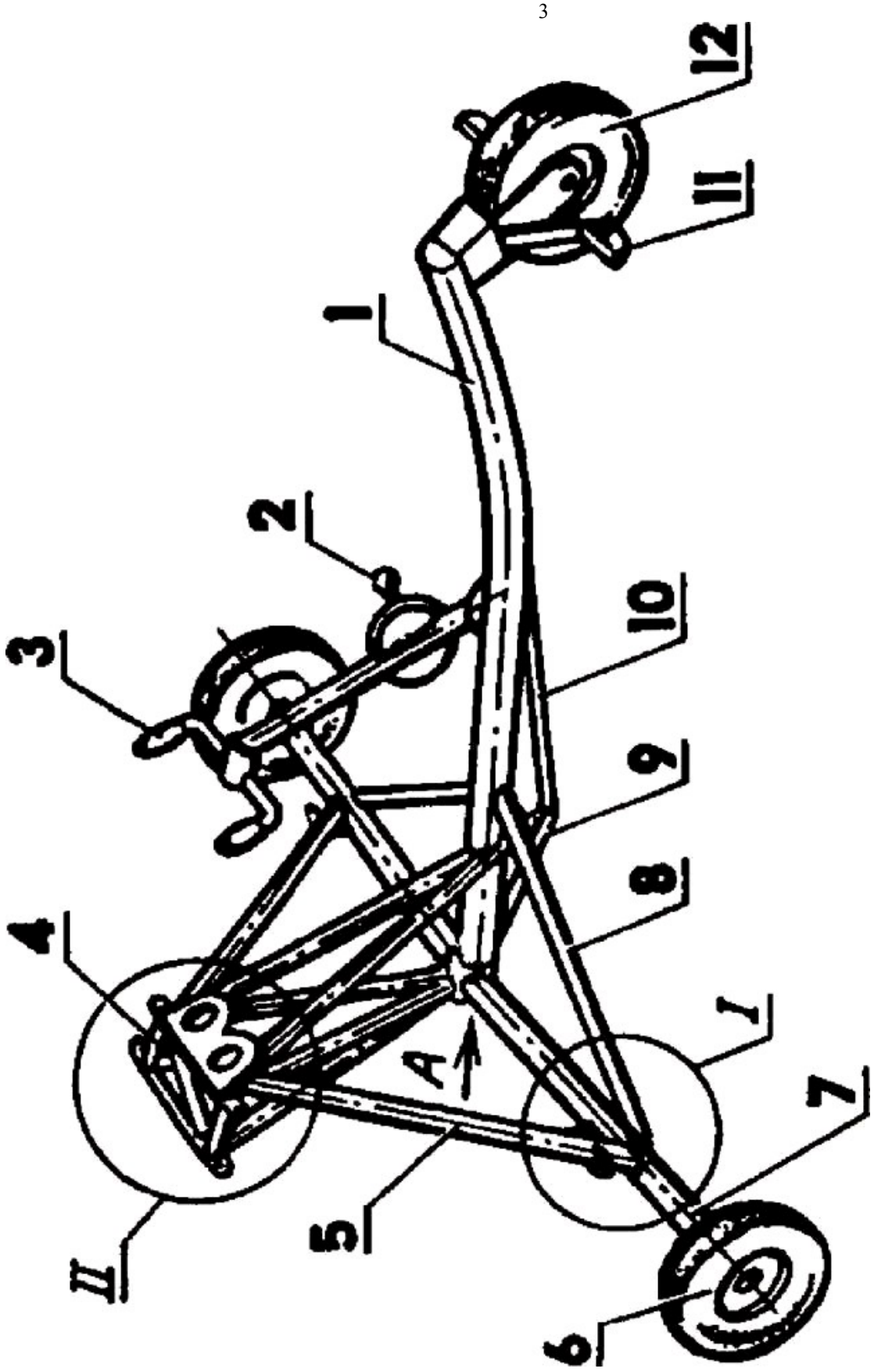
V. Dmitriev, g.Mihaylovka, Volgograd Region.

2, 3 "Model Bridge Design" № 9'96



Scheme of mechanical wings:

1. - Slat;
2. - Guide Rollers cable wiring;
3. - Control cables flap;
4. - The first section of flap (rigidly connected to the second);
5. - Rocking flap;
6. - Second section flap;
7. - Tail flap;
8. - Rocker shaft;
9. - Pull the shank;
10. - Control cables slat;
11. - Slat rocker;
12. - Pull slat.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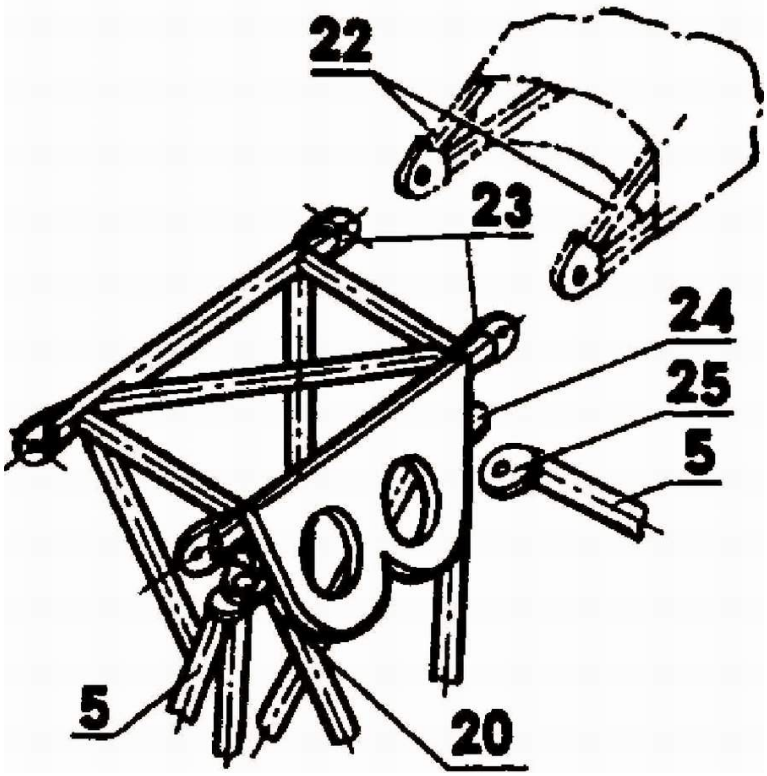
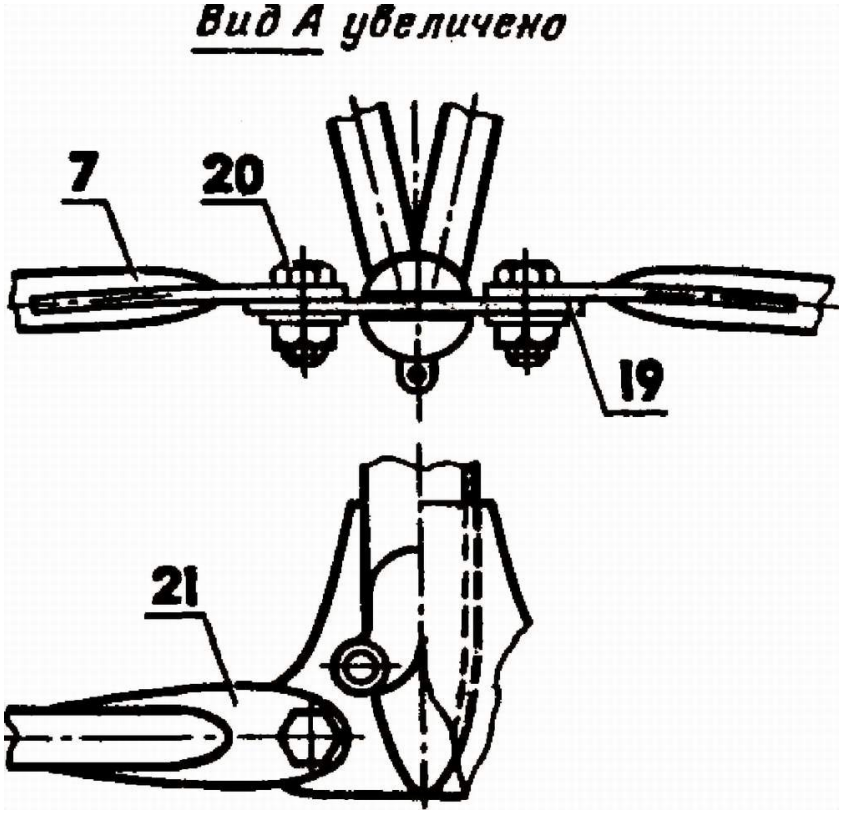
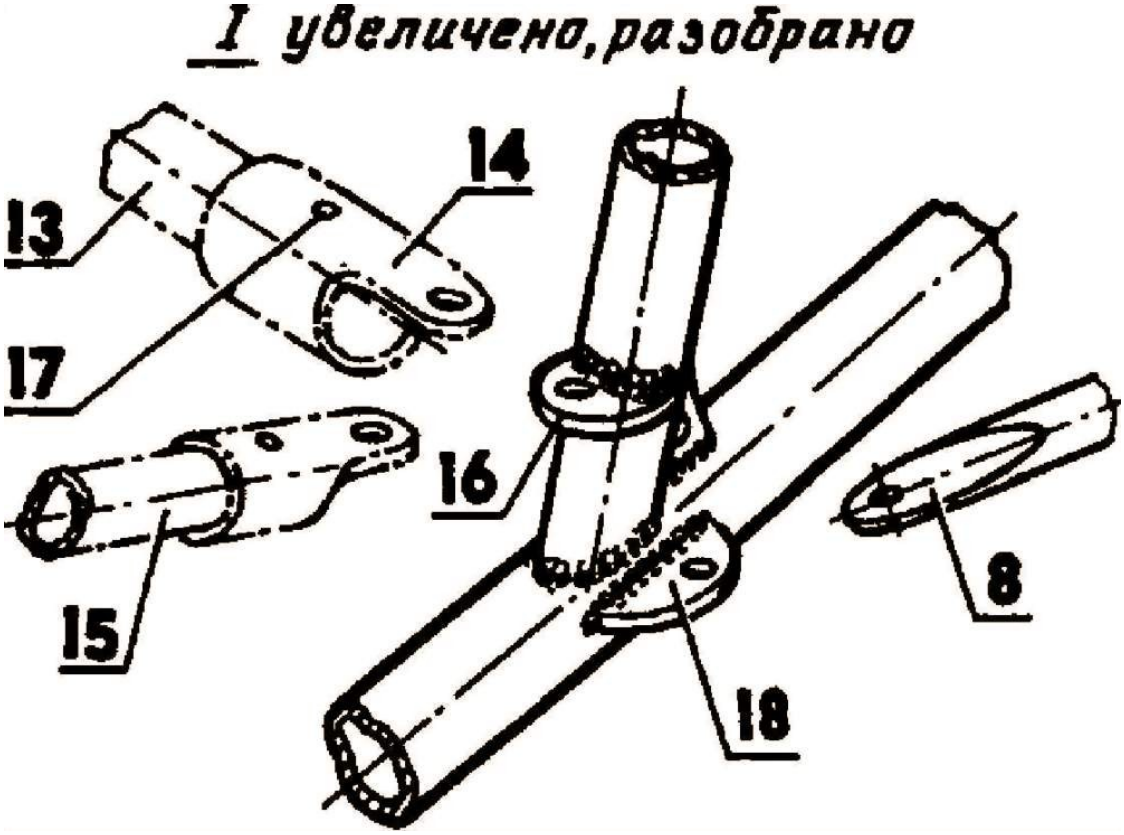
II увеличено



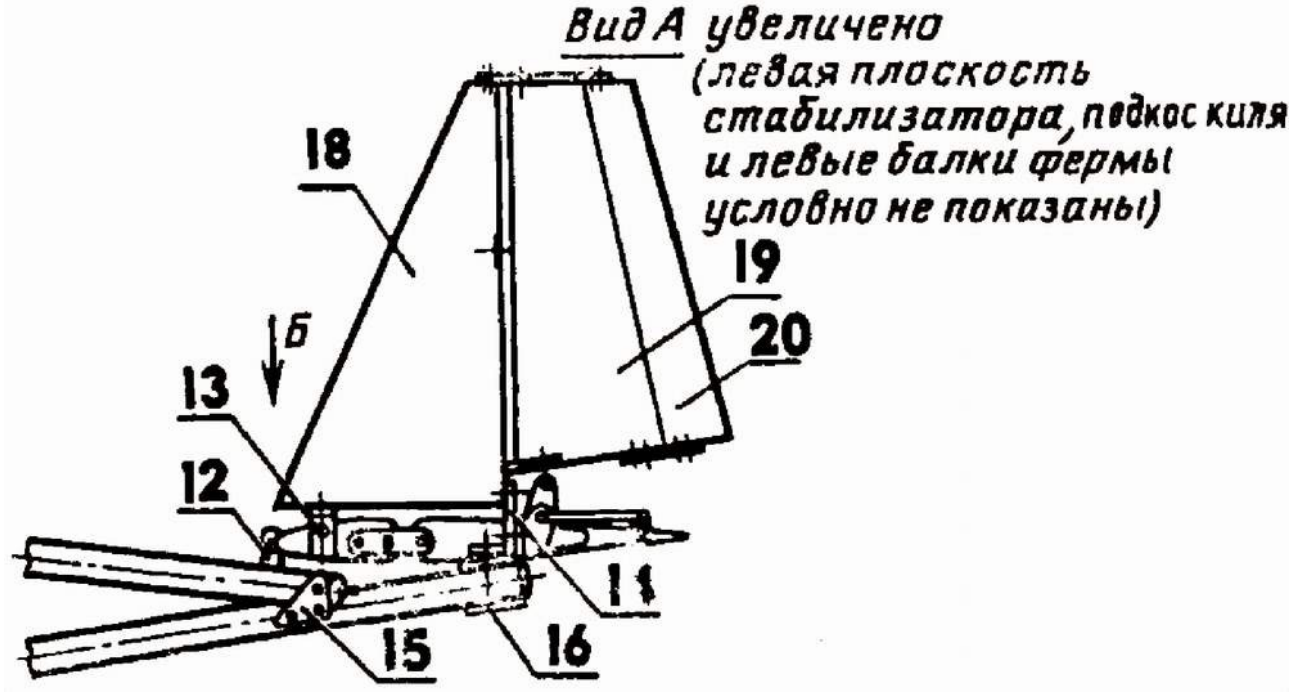
Вид А увеличено





Trolley (seats conditionally not shown):

1. - Longitudinal beam frame (30ХГСА, pipe 35x2 mm);
2. - Throttle flap;
3. - Wheel (30ХГСА, pipe 25x1 mm);
4. - Engine sub-frame (30ХГСА, pipes 14x1 mm);
5. - Strut stretcher (30ХГСА, pipe 25x1 mm);
6. - The main wheel;
7. - Beam pillars of the chassis (30ХГСА, pipe 30x2 mm);
8. - Rod (titanium, pipe 15x1 mm);
9. - Rear strut frame (30ХГСА, trumpet 12x 1 mm);
10. - The front strut frame (30ХГСА, tube 8x1 mm);
11. Pedal;
12. - Front wheel;
13. - Lower beam trusses;
14. - Tip (titanium, sheet thickness 1,5 ... 2 mm);
15 - strut console wing;
16. - Ear attachment strut (30ХГСА, sheet thickness 2 mm);
17. - Rivet (3 mm);
18. - Ear pull (30ХГСА, sheet thickness 2 mm);
19. - Lower ear frame (30ХГСА, sheet thickness 2 mm);
20 - bolt M8;
21.-tip beam chassis (30ХГСА, sheet thickness 2 mm);
22. - Spar;
23. - Mounting lugs console wings (30ХГСА, sheet thickness 2 mm);
24. - Ear mounting strut stretcher engine (30ХГСА, sheet thickness 2 mm);
25. - Tip strut (30ХГСА, sheet thickness 2 mm).


Вид А увеличено
(левая плоскость стабилизатора, подкос киля и левые балки фермы условно не показаны)
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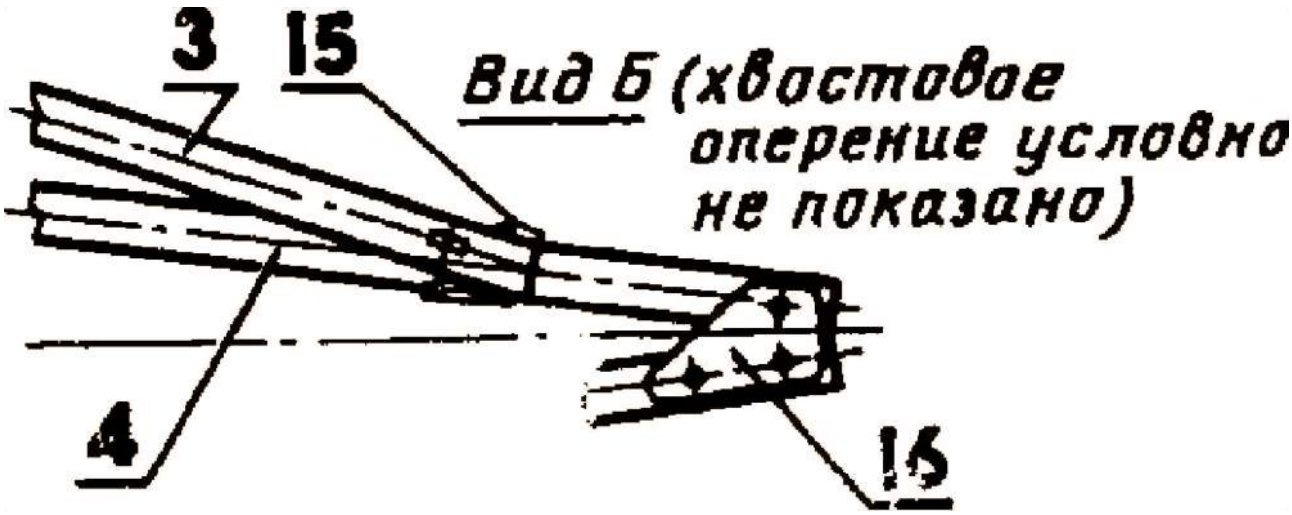
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Вид Б (хвостовое оперение условно не показано)
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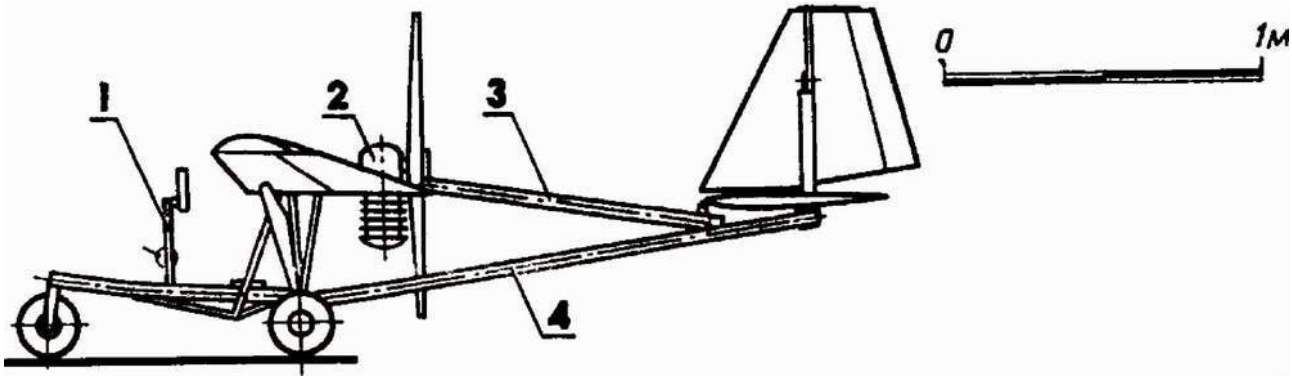
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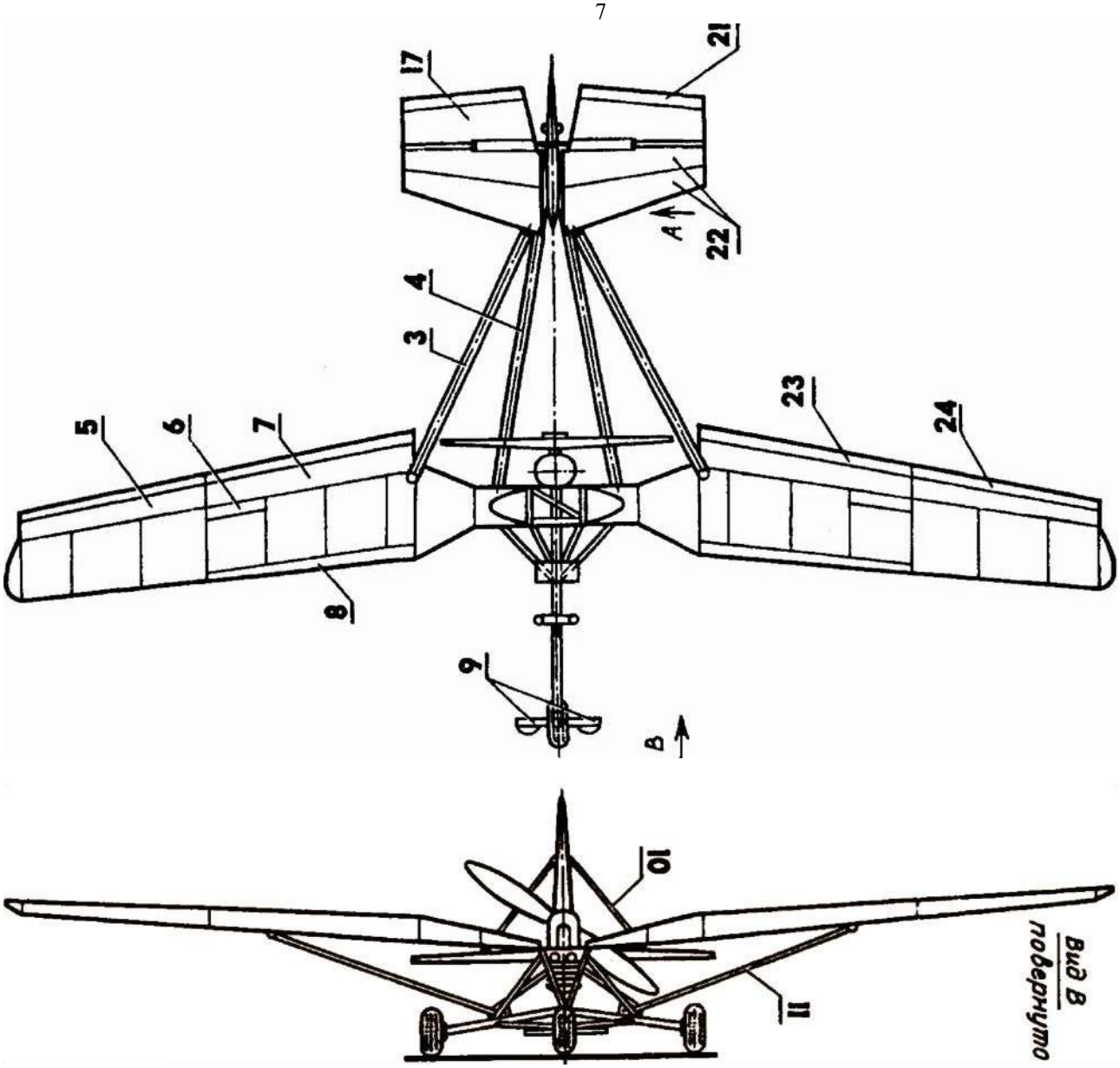
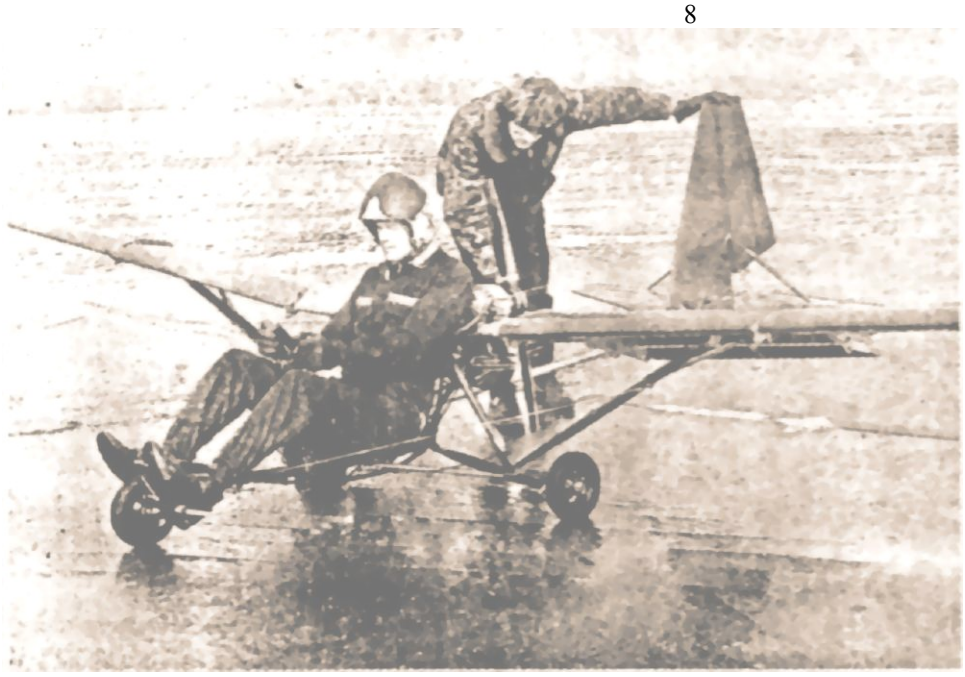


Airplane X-14d:
I. - Steering column;
2. - Engine;
3. - Upper ball-ki farm;
4. - Lower beam trusses;
5. - Aileron;
6. - Spoiler;
7. - Flaps;
8. - Slat;
9. - Ne-distance;
10. - Strut keel (pine + fiberglass);
II. - Wing strut console (from Yak-12);
12. - Bracket toe stabilizer (D16T, sheet thickness 1,5 mm);
13. - Bracket Connection (D16T, sheet thickness 1,5 ... 2 mm),
14. - Bracket tail (D16T, sheet thickness 3mm);
15. - Front bracket (D16T, sheet thickness 2 mm);
16. - Rear knee (D 16T, sheet thickness 2 mm);
17. - The elevator;
18. - Kil
19. - Rudder;
20. - Tail rudder;
21. - The elevator shaft;
22. - Two-piece stabilizer;
23. - Tail flap;
24. - Tail aileron.



The work of designers Rostov on Don

"Blue Bird"

When taxi cab company in Rostov on Don Eugene Shevchenko (Kominterna, 64-a) organized youth aviaklub "Blue Bird", which was built ten aircraft - five gliders, Trikes and mikrosamolet with flexible wing.

Construction of one of the trikes' Blue Bird, which lasted for 2,5 years, was completed in 1978 The machine is good and a lot of flying. In flight weight 167 kg biplane broke away from the earth at a speed of 40 km / h and had a climb of 2 m / sec.

In 1980 he built double mikrosamolet with engine capacity of 44 liters. pp. (32,3 kW). For the creation of its Rostov aviaklubu to show-competition ALS-83 was awarded second prize.

At the show-competition ALS-85 in Kiev, the club was represented by two-seater "Blue Bird 10" (SP-10) (Fig. 89). The aircraft was built under the guidance of E. Shevchenko for 4 months in 1984 with May 1985 SP-10 flew about 25 hours (the duration of a flight 50 minutes). Flights were continued at the ALS-85.

SP-10-podkosny vysokoplan all-metal construction with a closed double cab, in which pilots are arranged one after another. Three-wheeled chassis with nose wheel. Engine "Che Z" capacity of 62 liters. pp. (45,6 kW).

"Boomerang"

Airplane "Boomerang" (Fig. 90) was built under the direction of Kablukova (720302, 584316 - mother) in 1978-1981. In the future, the apparatus has been progressively elaborated - selected engine and propeller, tail truss girder was replaced by a duralumin tube redesigned chassis.

At the show-competition ALS-85 aircraft Yu Kablukova was a single under-Touch vysokoplan with open cockpit. Front fuselage closed the fairing with windshield, tail made on the tail boom, is located tion in the plane of the central part of the wings. Thus, it is raised a considerable distance from the earth. The tail feathers of the normal scheme. Tail boom and Motorama reinforced braces from the pipes. The aircraft had a mixed design. Empty weight 110 kg.

Three-wheeled chassis with nose wheel. The engine with a pusher propeller located behind the pilot below the wing and different from other amateur engine presence silencer. The aircraft "Boomerang" was installed outboard motor "Vortex-30" capacity 30 liters. pp. (22 kW) with a wooden propeller with a diameter of 1 m. The aircraft flew well.

At the ALS-85 in one of the flights (in a circle over the field) on "Boomerang" stalled engine. A test pilot V. Gordienko successfully landed his plane on the boundary of the airfield on unprepared ground.

At the ALS-85 aircraft "Boomerang" was assigned to the best single-seat fighters and awarded the prize of the journal "Technology - Youth.

Aircraft Zelikov

Son George E. I. Zoellick - continued the work and has a good success (764,744)

EI Zelik - now retired, but in the past sharpener Rostov factory "Red metalhead" - his first airplane began to build, together with GG Shilov in 1948

On this interesting work of designers, enthusiasts "Komsomolskaya Pravda" on September 8 1950. In the article "Winged Dream" informs the following: "This story happened quite recently, its place of action - Rostov on Don, heroes - two deaf and dumb boy. History would seem improbable, if not the letter and documents confirming that all that happened - significantly. Two years ago,

Edward I. Zelik and GG Shilov decided to build a real airplane. The boys have started construction of the aircraft. Initially, young designers have made the fuselage, the wings and tail.Stopping was the motor. After a long search for Eduardo, and George managed to get somewhere in the city dump, long end-of-age of the engine from the airplane by-2. Many times kids busy with him and, finally, the engine came to life. Proud named Valery Chkalov was named this remarkable car. The aircraft have been flying.
In essence, this was the first and only case in which designers and test pilots were two deaf aircraft self-taught. This was the first postwar aircraft in our country, built by enthusiasts. The plane flew well in a double version of the engine M-11 and the standard propeller. "Valery Chkalov" (Fig. 91) - braced vysokoplan. Wing bottom had three pairs, and on top of the fuselage was installed rack consisting of four tubes, which carries the upper pair of wings. For beginners, aircraft designers create such an aircraft was an outstanding achievement.
Subsequently, EI Zelik built a sled, boat and two cars, one of which is until now. There was even a helicopter made its own design.
Son of Eduard Ivanovich Yuri learned to fly hang-gliders in fifteen years, and at sixteen built his first aircraft - a hang glider. So at Eduard Ivanovich appeared Assistant.
Having decided to create a lightweight, easy to manage small biplane, father and son started in 1977 to build a plane "Zeipk-1". To build this aircraft took five years.
The aircraft was a biplane with a fuselage odnostoechny in the form of beams of rectangular section with an open cab. The design of an aircraft metal. The aircraft was built entirely from waste duralumin sheet. Steel pipes were Motorama and landing gear. Plating and tail of the fabric and aluminum. Braced biplane "Zelik-1" had the air-cooled engine from a sports bike "Che Z-500 with a capacity of 40 liters. pp. (29,4 kW) with a pusher propeller, which provides traction on the site of 50 kgf (500 N).
The scope of the upper wing biplane was only 4,5 m, the lower -4 m -7,4 m Wing area. "Massa aircraft structure 80 kg take-off weight of 160 kg.
Aircraft Zelik-1 "was tested in summer 1981 While thrust propeller was a small plane flew well.Takeoff run it amounted to 120-140 m. It existed plane for four months. In September of that year, the fifteenth flight, it was destroyed on landing.
But the desire to design and build aircraft designers have then only increased. And for the umpteenth time - all over again, again, drawings, sketches again and refinement in the light of previous mistakes and failures. In constructing the airplane he was assisted by nearly all who to turn to designers, including the Regional Committee of the Komsomol.
Its next aircraft Zelik-2 (Figure 92) designers have built in one year, but to prepare for his creation took three years.
For Yu Zelika, master electric repair shop factory Rosselmash ", it was the third built their flying machine.
In July 1983, "Zoellick-2" rolled out on years of magnetic field. It differed from the previous aircraft. There was even provided for the mechanization of the wing.
Single ultralight aircraft Ze-face-2 "- odnostoechny biplane with open cockpit, the front part of which is closed nose fairing with windshield. The engine with pusher propeller mounted behind the back seat pilot in the central vertical bar of the wing. For the upper and lower wings used ready-made planes - aileron AN-2. Body fixed beam and the central vertical strut of the wing were made of duralumin tube 110X2, 5 mm from the agricultural sprinkling machines "Frigate".Standard driver's seat An-2 was installed in front of a vertical rack in front of the tubular beam to the tail feathers which carries the usual scheme, reinforced braces. The fuel tank (standard plastic canister) as a cassette mounted on the upper wing center section in the lining and fastened with locks.
Landing gear with tail wheel tricycle. The front desk pyramidal with depreciation. Proceedings shock -40 mm, they improvised with a steel coil spring. The rear wheel on the spring. The designers successfully might take a wheel from the truck garden, but also on the tail wheel from the plane of the Polish "Wilga-35", mounted on the main landing gear "Zelika-2, he had a good cross on the airstrip. The plane is operated only on ground floors, as the brakes on the wheels missing. The designers have installed on the plane "Zelik-2" motor boat "Vortex-30. The plane had nose fairing, with this engine, he flew with a small vertical velocity and a rather "sluggish". In 1984, the aircraft nose radome was installed and "Whirl-30" was replaced by the engine of the Skoda ZB8-BI "weighing 40 kg. Engine Skoda ZB8-BI "two-stroke two-cylinder, air-cooled with a working volume of 700 cm3 of the refrigerator" Skoda 706 ", capacity 40 liters. pp. (29,4 kW).After you install this engine plane literally come to life in her eyes - began to fly easily in the air, "sitting" firmly and perfectly obeyed the rudders. Rate of climb it was 1,5 m / sec.
Mass of aircraft structure -144 kg, -226 kg takeoff weight. Wing Area - 7.4 m2 at the extent of 6,3 m Landing speed -70 mph Maximum speed - 120 km / h
In this form, "Zelik-2" exhibited at the ALS-85, where he enjoyed great popularity, was recognized as one of the most successful single training aircraft and received the prize of the journal "Technology - Youth.
Surprisingly simple and tech aircraft from Rostov on Don "Zelik-2" contained three non-standard technical solutions at the level of inventions.

Pilot Test VI Kirsanov gave the plane "Zelik-2" on ALS- 85 the most appreciated.
In 1987, EI Zelik finished work on the engine of our own design, which at the same overall dimensions and weight had the power of about 55 liters. pp. (40,4 kW) and with a propeller diameter of 1.05 m, for 80 kg (800 N) static thrust. With a new engine "Zelik-2 participated in the ALS-87 in Tushino. The tests showed a significant improvement in performance of a plane.Vertical speed increased from 1,5 m / s to 5 m / sec. The maximum speed reached 170 km / h, cruising speed -150 km / h.
All test pilots ALS-87 with pleasure flying "Zelike-2".

Helicopter "Miner-4"
The helicopter was built by an electrician Demidov of town Novoshakhtinsk (Central St., 139) of the Rostov region in 1984 This was the fourth helicopter Demidov. Three constructed previously, and could not rise to gozduh. "Miner-4" to participate in the Festival ALS-85 flew for several hours, "Miner-4" - single-rotor helicopter single circuit (Fig. 143) with the tail rotor. Features include the use of a production engine from automo To VAZ-2103 (the world's first flying helicopter with a car engine). Three-bladed main rotor with blades of the serial Ka-26. Three-wheeled chassis with nose wheel. The helicopter is "Zhiguli" dashboard, ignition and other units, all of the system and the motor were
unchanged. For one hour of flight "Miners" requires 10 liters of gasoline.
29-year-old designer himself learned to fly a helicopter. Airfield he served as its own garden. The designer told the helicopter that flew in the "Miners" about nine hours and not once flew on a visit to a neighboring village.
At the show-competition ALS-85 helicopter and its flight became a sensation. It was appreciated by the technical committee and all participants of the contest. During his helicopter N. Demidov received the prize named after General Designer Mil and a special prize of "Technique - Youth.

years were good, had good grades, was carried out cleanly and well-traveled. However, ALS-85 aircraft VC-03 "Echo", unfortunately, failed to raise in the air: the designer could not achieve stable operation of the engine.
Aircraft designers Kyrgyzstan and Kazakhstan
Mikrosamolety VP Dmitriev
More than fifteen years, Victor Dmitriev, the driver of motor transport service of the Kyrgyz State University, Frunze build planes of their own design. Victor's father was a military pilot, and every day, Victor saw planes in the sky, and on earth. His future, he associated only with air. After high school he decided to go to aviation school, but to become a professional pilot could not.Then came the solution: build the most planes and fly them.
Since 1968 Dmitriev was designed and built twenty-three different aircraft (including their modifications).
One of the first aircraft - X-6 is made by the scheme nizkoplan. The design of his wood.Aerobatic plane had committed aerodynamic shape, a closed canopy and retractable landing gear with shock absorbers. The aircraft was installed a V-twin engine air-cooling capacity of 40 liters. pp. (29.44 kW). Take-off weight of aircraft - 250 kg, length - 4,5 m Wingspan only 4,3 m, area - 3,2 m2. In tests made jogging.
All aircraft VP Dmitriev are classified mikrosamoletov - aircraft with a minimum size, but with a big load on the bearing surface (30 - 70 kg/m2). This provides a high landing speed of aircraft with powerful engines. Moreover, a high landing speed (80 km / h) with only a small range of flight speeds increases the cruising speed of 120 km / h. This rate of "required" is already good aerodynamics, and small geometrical size of the plane problem of stability and controllability mikrosamoleta complicated. Therefore mikrosamolet stricter in piloting. In addition, a small wing chord mikrosamoleta [(0,4-0,5) m] limits the range for (permissible value of the center of gravity of the aircraft). It is within only 5 cm in this case, the alignment will affect even the little things like that, the pilot would fly in heavy boots or light slippers. Even such details can lead to very back of the plane alignment. Not to mention the great influence of thrust screws mikrosamoleta on the stability of its flight.
Mikrosamolet with its minimum dimensions and areas of aerodynamic surfaces has a large angular velocity of rotation on the three spatial axes. This certainly complicates his piloting.
As you know, ultra-light aircraft in which the load on the wing does not exceed 15 kg/m2, landing speed is within the 36-40 km / h and a maximum speed of 100 km / h, compare favorably mikrosamoleta ease of piloting, excellent take-off landing characteristics (even without the mechanization of the wing) and the engine of small capacity.
The dream of many aviation romantics, aircraft enthusiasts is the creation of ultra-low plane, which would be located easily in a suitcase or backpack.
That such work the newspaper Pravda, 13 November 1986 article "The plane was lying under the bed." It was reported on the successful flights on Dmitriev mikrosamolete X-14. And before that, an amateur designer was built and tested many different mikrosamoletov and their modifications. After the plane X-6 V. Dmitriev and his small public KB in 1976, was built plane X-8 (Fig. 138 I).
Public KB in Frunze, which organized the VP Dmitriev, united many enthusiasts designers. It

includes pilots athletes Ugryumov A., Yu Tsyben-ko, commander of the Yak-40 Batsura Yu, N. Kitz and others.
Airplane X-8 is a further development of X-6, and differs from it in the device chassis, new rudders and the two-cylinder inline engine air cooling. The plane had a lot of construction around 85 kg.
In the next mikrosamolete X-9 (Fig. 138, r), which was designed as a vysokoplan, on the wing to reduce landing speeds were set flaps. Wing Area X-9 was 5.6 m2. In testing, the plane was found that the flaps increased the stability of the plane. The plane made several dozen flights.
Airplane X-9 had six versions. The next plane Dmitrieva, who had many and bad flying, an airplane of X-12 (Fig. 138, c). On the flight of this aircraft in newspapers Komsomolskaya Pravda, Izvestia and "Socialist Industry". X-12 was designed as a podkosny vysokoplan open workplace pilot with tricycle landing gear with nose wheel.
Podkosnoe tail normal scheme was installed on the tail boom, formed from four duralumin tubes. The engine air-cooling capacity 42 liters. pp. (30.92 kW) with a pusher propeller was installed behind the back seat driver, behind the wing in the collapse of pipes tail boom. Mass of aircraft structure 51 kg. Wing Area X-12s were only 3 m 2. The wing had a two-slit flaps which improves takeoff and landing characteristics. Airplane in flight (Fig. 138.6) was like a big bird, the review-competition of ALS-84, V. Dmitriev, introduced his new plane X-14A (Fig. 139). The plane was built in five months and a further development of the X-14 aircraft, built in 1982 by Victor Dmitriev plane X-14A is the smallest airplane in the world. In the area of 1,9 m2 wing mass of its construction 45 kg. For comparison, recall that the French mikroeamolet Colomban "Kri-Kri" had an area of 3,1 m2 wing and wing area mikrosamoleta D. Bede BD-5 Micro - 3 meters. "Technical analysis of the data constructed by V. Dmitriev planes shows that the load on the power they have continuously decreased from 15 kg / hp.. (20,4 kg / kW) up to 2,9 kg / hp.. (3,9 kg / kW). decreased, moreover, and the load existing designs Dmitriev.
X-14A had a mixed construction made by the scheme the previous aircraft X-12. On the X-14A was mounted air-cooled engine from a sports bike "Che Z". Wing aircraft was two-slit flaps and slotted ailerons. Tricycle undercarriage, wheels from lyzherollerov. Manufacturing techniques and minimum dimensions of the X-14A made him look like a large model airplane. In addition, V. Dmitriev did on the X-14A command and control bodies nonstandard. In the control stick was installed "pedal", ie, controls the rudder, not ailerons, as usual. Foot control plane did not have. On such a plane, with non-traditional control, the pilot with the same skills to fly at first it was rather difficult. Non-standard was and handle engine management. All this, of course, did not cause much excitement from the technical committee, which was responsible for allowing the aircraft to fly. In flying over technology for ALS-84 aircraft did not participate. Before the rally and after the plane made a lot of flights.

LIFE, № 17 (34), 29 April 2001 19 pages
Easiest plane
It was built RYBINSK INVENTORS PETER ANTIPOV
Gregory Telnov, photo by Alexander Lomakin

Biplane Antipova looks a bit old fashioned. but it differs from the machines that have been raised to the sky at the dawn of aviation, as a Mercedes from the cart. His aircraft designer from Rybinsk made from ultra-light modern polymeric materials. Without the engine, it weighs only 65 pounds! The wings were specifically designed to pick up the pilot for 10 thousand feet. Antipov was going to beat the Australians owned altitude record for cars of this class.
Experts from aviation CB were amazed not only design excellence, but more the fact that such a plane designed and made a human-century, never graduated from college. And he built on piles, the means limiting yourself and your family in every way! He did his Thirteenth twenty years. So last winter put new engines and began to prepare to record flight. But ...
Petrov suffered his plane himself. Initially, the machine proved to be excellent. And then - as in the song: Once in flight the engine refused. It happened at a height of 50 meters,
The plane broke into a tailspin and crashed into the ground. Antipov miraculously survived, escaped with only injuries.
- Saved by the fact that laid the plane high degree of reliability - explained Peter Genrikhovich.
After a disaster, Antipov decided not to rebuild the old and build a new plane - with the new ultra-light materials. It will be so light that it folded, calmly able to carry one person.

GENERAL AVIATION 5 * 2000
Triplane-TANDEM

This scheme, in my opinion, to synthesize the best qualities of classic and tandem schemes. It is flawed "duck" scheme, perhaps a little inferior in aerodynamic as a classic, that at speeds of 60 ... 150 km / h is acceptable and improves the tandem circuit, and corresponds to the main criterion - safety.
My aircraft is operated in the range of speeds deltaplanes, despite the flying weight of 100 kg higher than deltaplanes the same area of the wings and engine power.

By virtue of his temperament, I do not aspire to great speeds, but I know the golden rule: "No speed - no flying." So decide for themselves the task of "low speed - the safety of flight. As a result, and came into the world designed and built by me alone in the home aircraft. What came of it - to judge aviation specialists.
The originality of the scheme and the structure itself was laid not in order to surprise the inhabitants and cause confusion in the aircraft designers. I have reviewed the existing schemes of the aircraft and tried to bring together all the best that is in them. A schematic design was not chosen by chance. She suffers profound reconstruction, which is very important for the experimental apparatus. All controls, wiring, units of the mind and are available for inspection, repair and even alterations. Besides the appearance of the aircraft does not suffer. Very important: spatial design allows you the wings of a large elongation. As a result, decreases the load on the wing span, why increase the aerodynamic quality of the aircraft compared with the same, but with the extension of 6 ... 8. With a small airstrip and a cruising speed of 80 ... 100 km / h, my plane is kept steadily in the air and listen to hydroplane at speeds of 60 km / hour. I flew on it and the wind at 6 m / sec and with a side wind 6 ... 8 m / sec, which is strictly forbidden to do, especially such "butterfly". But the paradox of our life is: we are causing pain is easily the closest and do not take care of works of their hands ... At the minimum speed of 40 km per hour plane parashyutiruet. Rooley front wing flaps are working elevators. Rooley rear wing flaps - trimmers, which will compensate for breach of center of gravity apparatus in one direction or another if it is a pilot weight of the nominal, or if there is an additional load up to 100 ... 150 kg. Rooley flaps front and rear wings, working in pairs, are the flaps, which reduces the landing speed of 15 km / h (40 mph) and take-off - at 10 km / h (45 mph). On average engine speed 5000 rpm (maximum - 6800 rpm) the aircraft flies at a speed of 85 km / hour. Takeoff to use was not necessary. The presence of pipe-strut has no negative effect on aerodynamics, aircraft-slug.
Of course, not very convenient to get to the pilot seat, which for the experimental design can be forgiven, but quite easy to fly the aircraft, even at 10 degrees below zero. Sam aircraft designed for operation in the warm season, but before the spring has been so far ...
Because of the scarcity of funds and time spent on getting their aircraft was built from time to time, with huge breaks in 3 ... 5 years. The idea and the beginning of construction dates back to 1986 (4 months), then a break of 3 years and post-Roiko him for 1 year and 6 months. The first test flight took place in the city of Dzerzhinsk, Donetsk region on Sunday in Pentecost. That's why I named my LA "Trinity". Then, with a low-power (30 hp) engine, Skoda and improvised screw questionable aerodynamic aircraft could reach speeds of 65 km / hour. However, this was enough to break away from the field at a speed of 60 km per hour and fly in a straight line of 1100 m at an altitude of 10 m. experienced "Trinity" is easier to pilot me at 30 kg. But me and that was enough. And if I believed in 5 years that my plane will take off, now convinced about that. In the first flight, my plane is manned by pitch and roll tselnopovorotnoe wings, brakes did not. And I realized: without a powerful engine sound even better would be a bad glider plane.While these engines we have not had.
Only after 6 years I managed to earn $ 6000 for the "Rotax" 64 hp and three-bladed propeller. In 1997, I began to modernize its old design, but, after 4 months of work had to be postponed. It was necessary to accumulate funds to be able to do only the construction of the aircraft, then build a hangar, shop at the new place already at the airport. It is only in December 1998, I was able to embark on his dream. To do this, I disposed of my business. In the eyes of the townsfolk, I received more than a rash. Luckily, my wife supports me. What a pleasure - their favorite, and even a creative business. December 31, 1999 the aircraft was ready.
The first flight I made on Jan. 26, 2000, accidentally climbed to a height of 30 meters and flew 500 meters in a straight line, almost unable to fly. I mixed up the coordination of movement on the handle of the gas, and instead gave a full reset mode engine. There were no emergency.What I have learned this art, building a plane, or the vehicle itself was successful, if for amateurs ... But a couple of weeks, I gradually learned the plane and had flown many times on it from one end of the airfield in the 1500 meters at a height of 2 ... 10 m. After that I invited from the Armavir his old friend, the master of sports of international class in aerobatics and a great lover of ALS Anatolia Agafonovich Balueva.
February 20, 2000 he experienced my LA. Characteristics of an airplane on a table drawn up by him and my testimony. "I had a desire to make it" dead "loop" - both shared with me the assessment design ball.

Designed and created by me in a real aircraft design scheme proves its vitality and promise.Having studied the history of Russian and foreign aviation, I dare say that flying machine tandem triplane was not yet. And I believe that the aircraft of such a scheme will be able to fill that niche operating speed of 60 ... 100 km / h, accessible only deltaplanes, which, incidentally, are not so safe, as they are advertised. Triplane tandem can be multi-purpose aircraft. The draft of such an aircraft (fuselage, double and run-flying amphibious catamaran) I have. But in order to build a new plane at home in Russia, you must have $ 3000. This is half the value in my possession "Rotax." Absurdity: a unique plane is half price let the beautiful, but all the same

conveyer, stream products. But these I have no money.
For this reason, I visited the Red Wings, "which in Taganrog, specializing in producing deltaplanes and asked Vodolazsky Chubais, as he looked at my idea to find interested people in my project. He replied that my device deserve attention, but they themselves great difficulties in implementing proven deltaplanes because of the difficult economic situation in our society."Let the machine is simply magnificent, but his promotion to a lot of money and time. And he proposed to write to you to the editor: "This is the only publication that enjoys a professional reputation. And they really figure out what is your design."

And so I wrote you a long message. I do not suffer from vanity, because I and so is what self-respect. But, having received from you known in aviation circles, I may have received material support to his cause, or an invitation to cooperate. Well, since it will, "that the suit" sewn for itself, "what: not the first time delay interesting job and earn money at him the same.
I have in my life, as in the parable of the masons working in the quarry: "What are you doing here, working every day in your own sweat and so inspiring?" "Temple of order," - from one-Chambers. But that's only regret in his 50 years has once again descend into the quarry, to build their temple. I have several friends avialyubiteley. So they are building aircraft collectively, the three of us and more. And in my town I'm alone, though here and a big repair plant row, and I myself am at the airport, where the squadron is based is private selhozaviatsii.
AP Savchenko (mines in Rostov region).

Prospective developments cascade STABIPIZATORIOGO HELICOPTER

In the mid-90's, working on Rostvertol, every day passing by standing in a number of Mi-24 helicopter and seeing the wings on either side of the fuselage, I thought: 'hovering wings create these energy losses, but for certain reasons, to remove they can not, otherwise these machines are not able to perform their primary duties. " and then it became clear - hover these wings should be able to be installed vertically, thus, the resistance of an inductive flow would reduce to a minimum. was viewed as a consequence of a single phenomenon, namely: one of the wings left or right, depending on the direction of rotation of rotor will create torque that can fend off the reaction torque resulting from the work of the main rotor. further this idea clearly formed in the drawings, calculations, and I designed the patent application № 98112068/28 (013372) with priority of 22.06.98.

In the journal "AON" № 6, 1999, published an article M. Joghana "New management by helicopters, which develops the current state and trends of the world helicopter fleet. Of particular interest to me has caused a message that at various times there have been proposals to use inductive flow rotor helicopter profiled aerodynamic surfaces for directional control helicopter. In the same article as an illustration of the idea of aerodynamic compensation reactive since the author chose, in my opinion, not very successful scheme with a wing-vanes.Approximately 50% of these surfaces are virtually absent in parry reactive moment, as well as the mode of oblique blasting, that is, when flying with the translational velocity of these surfaces should be able to turn towards the oncoming flow. To do this, change the design, which is shown in the article Joghana at p.24 ("AON" № 6, 1999). This (amended) design proposed by me in a patent application on 22.06.98. To check the efficiency of this design and determine its performance of the hovering team headed by highly experienced and talented designer of gliders light aircraft - Igor Petrovich Shevchenko were designed and constructed two experimental setups. One with a diameter propeller 1,05 m and 12 kg of thrust, which has an electric motor power of 250 W, the second - with a diameter of the screw 4 meters and a capacity of 4.3 kW electric motor. When you unlock his motor power was reduced to 7.9 kW and thus was obtained thrust 1 to 10 kg. Test results obtained from these plants in the presence of the expert committee composed of leading experts Rostvertol and led by the rector of the institute management and innovation in the aviation industry OM Lengevskim, suggest that such a system of directional control can be much more efficient than helicopters with tail rotor. Article OM Geauga to say that the area of aerodynamic surfaces of the helicopter equipped with a control system, will be from 1 to 7 to 21% of the sour cream surface of the main rotor. The calculations showed, if I use the proposed design, it is enough just from 8 to 1 0% depending on the load of the main rotor. Experiments conducted on the experimental plants, these calculations are fully confirmed. I fully agree with the author of the article is that virtually parrying reactive moment rotor such a scheme should not consume power from the engine. At the low setting was obtained on the needs of power, which amounted to about 3%. V modern helicopters with tail rotor, this value is between 13 and 15% (10 ... 15% consumes

tail rotor and 3 ... 5% transmission). There are indications that losses can be reduced to 1,5 ... 2% with the selection of stabilizers with different twist and profiles, where the latter must be accomplished taking into account the variable velocity field of the inductive flow under the rotor, as well as the twist of the flux . In calculating the area of stabilizers for helicopters with different take-off weight and rotor diameter was detected trend - with increasing take-off weight and diameter of the rotor area percentages of stabilizers to areas sour cream surface of the rotors are reduced.Measurements were conducted on plants, it is confirmed. Power losses under this system, directional control due to the fact that the stabilizing effect force drawdown, which is caused by frontal and inductive resistance stabilizers. But this quantity is very small compared to the lifting of stabilizers, in practice it at 35 ... 40 times smaller than the latter. But PPCL Rostvertol currently under design and construction work, which will soon give a final conclusion on the feasibility of manufacturing such a helicopter. At Rostvertol Chief of new developments PGKohan and lead engineer on the airframe and powerplant SA Rogov, based on the conclusion of the expert committee and the test report, believe that the commencement of the work necessary to complete and produce a single ultra-light helicopter, which will be proposed to test the system in a test flight. If it is confirmed that the weight and power characteristics will be close to that obtained theoretically, the cost, this machine will be much more profitable than the existing helicopters with tail rotor. First of all, because the manufacturing cost of such a machine would be 25 ... 30% lower. Weight construction to decline by 5 ... 7%, with 12 ... 14% of engine power goes to the creation of an additional lift. These two factors will lead to an increase in load ratio of 1.5 to 2 times. Windmilling speed this car will be more secure than existing helicopters with tail rotor, as the rotor does not have to rotate through the transmission, tail rotor, which will reduce the rate of descent. And importantly, that the lack of a tail rotor and transmission of vibration resulting from their work.
SP Lisin (design engineer Ltd.
Rosvertol,

And Victor smiled, sat at the controls, and here on this aircraft, after a short takeoff rose into the sky. Shook his wings a few times. And turned into a barely visible against the dark cloud point.
What kind of camera? Weight - 46 kg, speed - 55 km per hour, engine power - 42 hp. pp., load capacity - 80 - 90 kilograms. The design sobst-vennaya. Storage Location - disassembled under the bed.
What we add to this? Victor Dmitriev - the driver of the Kyrgyz State University - is engaged in the construction of 18 years. During this time produced more than 20 models.
- The man with the most ancient times tried to fly like a bird, - says Victor. - Why do I feel for this eccentric, I do not know ...
Maybe those fools who do not want to fly?
B. SVARTSEVICH photo of the author.

21.11. 03
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Plane under the bed

Legendary aircraft designer moved to Ryazan

He made the smallest in the world manned aircraft. Malyutka called a miracle, the inventor of self-taught - a genius. It was said the whole Union. In America, he'd been robbed. Then he robbed in Russia. And then she did forget. Six months ago, builder amateur Victor Dmitriev with his wife and daughter moved to Ryazan. Here he makes his next plane.

Maiden flight
Meet Viktor arranged in his studio in the heart of Ryazan. Master genuinely delighted guests and began hastily wipe stool - seat, Mol. He wiped his hands and sat down next: "Maybe a smoke first?" - And lit a cigarette with matches Dmitriev painted with a plane on the box.
- Oh, yes you even match air - I tried to joke.
- Yes, sir, I just pursue aircraft - the interlocutor smiled and put his box in the pocket of his overalls splattered with shaving.
- Viktor, how can still get that aircraft carried away?
- My father was an aviator. He once graduated from the Academy of the Zhukovsky. And I have since my childhood living on military air bases. And to me this "heavenly" life like it. Of course, I dreamed of becoming a pilot. But in flight school, unfortunately, I could not do. He graduated from vocational school to machine operator. Rabo-tal driver. But that childhood dream has not disappeared, he decided to build airplanes and fly them:. The first machines were produced very rude and did not fly. Frankly speaking - came out trash.
- And what it was - your first flight?

- Oh, it was ... Give to remember ... In the ninth class school-se. The plane was no engine. By the way, I have a picture somewhere, even left. It was a classic scheme, without any of my innovations. He called me his "X-one - kind of like an experimental sample. But I did not have any experience in construction. That turned out just a big beautiful model airplane. I even then the engine could not get. Now I understand that on the example I just learned to build.
- And when did your creations for the first time soared?
- In the seventies, I first broke away from the runway. Rather, it was no more than just separation from shosseyki. Such a big jump. It was only in 1979, I flew his plane and gave a circle.
- Sami at the helm sat?
- Well, who else?
- You know how to fly?
- I can. Once I realized that you can build a very good airplane. But if a person does not know how to fly, he will break technique, and he maimed. Here I had the task to produce a training apparatus. I worked on this topic almost four years and built a six modifications of training aircraft.
The last of them, "X-9Г", has proved very successful. And on it I learned to fly. Then on my development began in earnest to pay attention.
- Viktor, how many planes did?
- Well, about thirty.
- All of them yourself is checked on it?
- Yes. There were, of course, instances when I gave the wheel a military pilot. But the only existing model. And only in a straight line.

Best feature
- Viktor, and not whether this happened ... pah-pah, so you have to test engine refused?
- What to spit something? Smiles Dmitriev. - I have twenty times the motor in the air failed. They then were unreliable. So had to do aircraft design with improved durability to trouble in the air suddenly happened. And for safe landings, I worked on the theme "Stability of aircraft landing at low speeds. My devices can fly at a speed of about 50 kilometers per hour. In fact, if you are landing at this speed, a sudden fall - this is equivalent to a fall from the bicycle. And if you refuse to engine aircraft such as Su-26 or Yak-52 landing on a little speed - will be a catastrophe.
- Here is listening to you and can not understand why you all need this?
- You know, at first I just wanted to fly. It was a childhood dream.
- So you've built to his pleasure dissect the sky?
- Yes, at first it was. And then I began to receive aircraft with very interesting characteristics and in some cases exceeded aircraft performance data is the best domestic and foreign models.And it was possible to run my model in the series. But since the Soviet Union collapsed and the industry collapsed in the country of my development as nothing passed. But when I was in America, many businessmen were interested in my plane.

Suitcases version

- Abroad technique exposed?
- Yes, and not once. In Germany, participated in exhibitions of the Union, but many more where all over the world ... But in America, I put his plane at the World Airshow.
- What is there to show?
- Custom design - rapped inventor. - Weight - 46 kg, speed - 55 km per hour, engine power -42 horsepower, load capacity - 80-90 kilos. Storage location - under the bed daughters ...
- You now what?
- On the plane. The device is easier to pilot. A lift can double it. Ed-ski flying ant. It is pleasant to recall how the World Airshow in America called it a miracle. But at the exhibition featured more than two and a half thousand a variety of machines. Then my "X-14d» crowds. He even closed off the ribbon, so as not trampled. And imagine the surprise the Americans, when I was a few minutes ... folded plane in case.
- Wow! I honestly thought it was fiction - collapsible flying machine?
- Pre-flight "suitcase Boeing's how it works: from the container on the trunk of a car to get details of the apparatus. Screws tighten the tubular frame. To him also join the wings and tail.And - for the Bodi-engine! For everything takes 15 minutes.
- I wonder how Koreans have responded to such a wonder? Well, the authorities, for example ...
- That one day I was summoned to the Central Committee of Kyrgyzstan and started asking about aircraft. Apparently, they've been reading articles in the Western press and doubted. They decided to consult a CB Yakovlev "about my, how they felt crazy tricks. Briefed the General Designer "Jacob," but he did not believe it. To little girl with wing area in less than two square meters soared, and even at speeds of 55 kilometers per hour! "This model even gets off the ground did not!" - Said the designer Yakovlev.
It is strange, and why did the delegation from our Central Committee has not said the designer, I have repeatedly and successfully flown on this plane! Here he was surprised!

Everywhere deception

At home Dmitriev "airplane business did not exist." But Americans have long pondered after the exhibition were invited to the States. In overseas Sacramento Victor appeared with his best time by air - thus folding "Õ-14d"

Soon, from his car made a "KIT" - set for self-assembly. Then the "KIT" entered into a free market. And then our hero simply "shod": dragged out of the house all the documentation on the development. I had to return to his native Kyrgyzstan. But from there the family self-taught designer soon left. Long traveled to Russia, and later settled in the Rostov region.

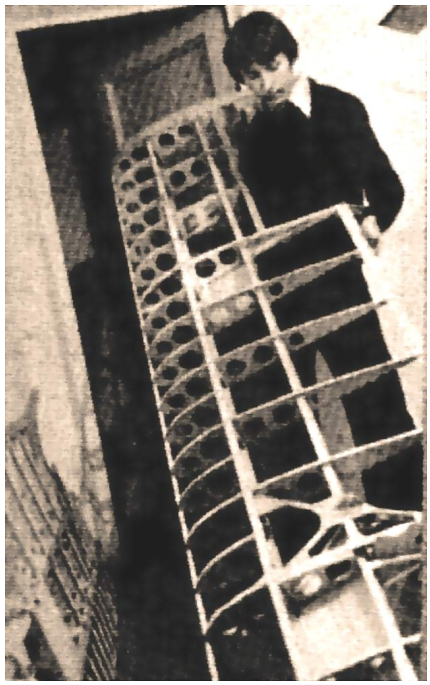
- Administration of Gdańsk Salsk promised full support and work. But cheated - Dmitriev drop look. - And had to go to work in a woodworking shop. Once familiar from abroad offered to make a plane for the show and even gave air engine, which is worth more than twenty thousand dollars. But now a local businessman gathered in Germany for a new car and offered to bring the engine to Rostov. I agreed.

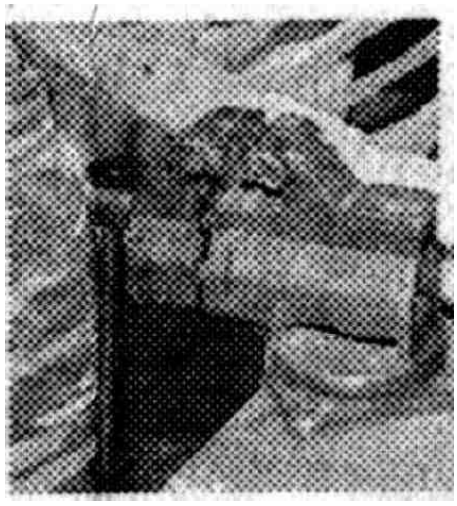
- Something you're not very happy to talk about this ...

- Just one seems to realize what a dear little thing he came across, and insolently took it myself. I had to go to court and the case is not closed. And after some time again climbed into the house, and claimed the only documents, letters and drawings. Money was not touched.

Six months ago, Victor Dmitriev invited to Ryazan. By the order of one aviaorganizatsii he built here next plane. Now comes assembly. A lot of work: in the morning, late at night - home.Viktor said that even the city is really no time to look. And said that by February the plane will be ready. And then, perhaps, the designer can finally see Ryazan. From a bird's eye.

There is one from Victor's dream ...





7 blitz questions

- Do all of you have made planes special?
- They are fe And on each long you can tell.
- The secrets of their own, the develc pment is?
- Of course O nly until the patent has failed.
- Is it true that one of your devices - the smallest in the world?
- They say that the relevant records already in the Guinness Book of Records. But we have already not seen.
- When the first time at the test you stalled the engine, you scared?
- There was no ti We stayed a second to focus and p ıt the car.
- How many screws goes to the assembly plane?
- For today's models - about four thousand.
- Have the designer flight form?
- And how S uit foreign donations, and the helmet - the military.
- The dream N ot associated with the aircraft.
- I would like to stay in Ryazan, find a jo F ra ja ir craft-related.

Alexander Ryumin