



Aircraft Company "ASA-Aerodesign"



Viscount V100

a multipurpose lightweight airplane



The Project Concept

Viscount V100



Contents

	Page
1. Designer information	3
2. Basic design features of the Viscount V100 airplane	3
3. The project's status	5
4. Specifications	6
5. General view	7

1. Designer Information



The Design Organization Certificate

The aircraft was designed by **ASA-Aerodesign**, an aircraft building corporation in association with the Moscow Aviation Institute's Design Bureau. (**OSKBES MAI**).

The Design Bureau has been designing and manufacturing lightweight airplanes since 1967, and has successfully fulfilled 17 design projects for aircrafts of various types.

2. Basic Design Features of the Viscount V100 Airplane

2.1. Versatility

Due to innovative design features, **Viscount V100** can be used for the purposes of various aviation works, specifically:

- air cargo transportation and air tourism;
- skydiving;
- air patrol over gas pipelines and oil pipelines, high-voltage overhead power lines, forestlands, water bodies, etc.;
- aerial photography, and instrumental monitoring;
- ambulance airplane;
- radio relay aircraft.

Cargo transportations and air tourism. The airplane has an interior that is unique in its class, which makes it possible for passengers to walk freely when the plane is airborne. The low touchdown speed and the convenient landing gear arrangement make it possible for the plane to land on poorly prepared airfields, including the possibility for the crew to visually choose

an airfield when the plane is still airborne. The aircraft can be operated in hard-to-reach remote regions where transportation network is being through its development stage. Besides, the airplane perfectly suits the customized air transportations carried out by governmental agencies, e.g., Emergencies Ministry, the Federal Border Service, etc. Spacious cabin allows the transportation of bulky cargo, which can be loaded through specialized cargo door.

Skydiving. The airplane stands among the best “lifting” aircrafts in the industry. The **Viscount** exceeds its analogs in both climbing speed and the capacity of the passenger cabin, the criteria that are of utmost importance for skydivers. The aircraft is expected to be accepted for service by most flying clubs of the Voluntary Association for Assistance to Army, Aviation, and Fleet across Russia and the CIS, and can be used for practice of airborne forces.

Air patrol over gas pipelines and oil pipelines, high-voltage overhead power lines, forestlands, water bodies, aerial photography, and instrumental monitoring. The **V100** better suits for all and any of the aviation works above due to the following reasons:

- it has a more conveniently arranged equipment and operator’s workplaces;
- it takes **V100** a shorter time to approach the designated area due to easy adaptability to poor airfields;
- the cockpit provides the widest view possible;
- capability of installation of supplementary tank leading to the increase of flying range and flight time.

2.2. Easy and Cost-effective Operation

Either of the two engines can be installed on the airplane, specifically:

- **Pratt&Whitney PT6A-65B;**
- **Honeywell TPE331.**

Both engines operate on aviation kerosene that is a more accessible fuel in comparison to aviation gasoline. The time between overhauls is 7000 hours for a TPE331 engine, which is almost five times as long as that of the analogues.

The materials used are perfectly maintainable.

2.3. Reliable Engineering Solutions and Construction Materials

The project only uses certified technological solutions that were tested by the designer on previous aircrafts and proven to be fully applicable to the needs of manufacture and operation.

The aircraft's design is completely based on conventional commercially used materials manufactured both in Russia and abroad.

2.4. Utilization of Effective Technologies

The aircraft was designed in conformance with the requirements of high technologies and full-scale production. Implementation of the modern high-precision and efficient production equipment alongside with conventional manufacturing practices is planned.

2.5. Reliability and Safety

The **Viscount V100** aircraft was designed in accordance with the Aviation Regulations AP-23 that are similar to the European EASA CS-23 and the American FAR part 23 aviation regulations.

All the aircraft's vital components have been designed taking into account the possibility of fatigue, in order to extend the durability thereof through various means, including proper choice of materials, and reduction of load on the areas that are the mostly exposed to strain.

The most critical components and mechanisms can be easily accessed while the aircraft is in operation.

The project includes the complete sequence of the static tests.

3. The Project's Status

- The **LLC "AC "ASA-Aerodesign""** has purchased from Public Joint-Stock Company "Russian Aircraft Corporation "MiG"" a components inventory including 20 assembly sets of the T-101 and An-2 aircraft, remaining after the closure of the project "Grach", which is the prototype of **Viscount V 100**, which allows to produce 20 airplanes **Viscount**.
- The engines and modern instrumentation systems are being currently installed.
- The design package for the new airplane is being created.
- The work study is in progress.
- The necessary documents for the application for the type certificate are being prepared.
- The manufacturing facility to mass-produce airplanes is currently under construction.

The planned production rate is 50-60 airplanes per year.

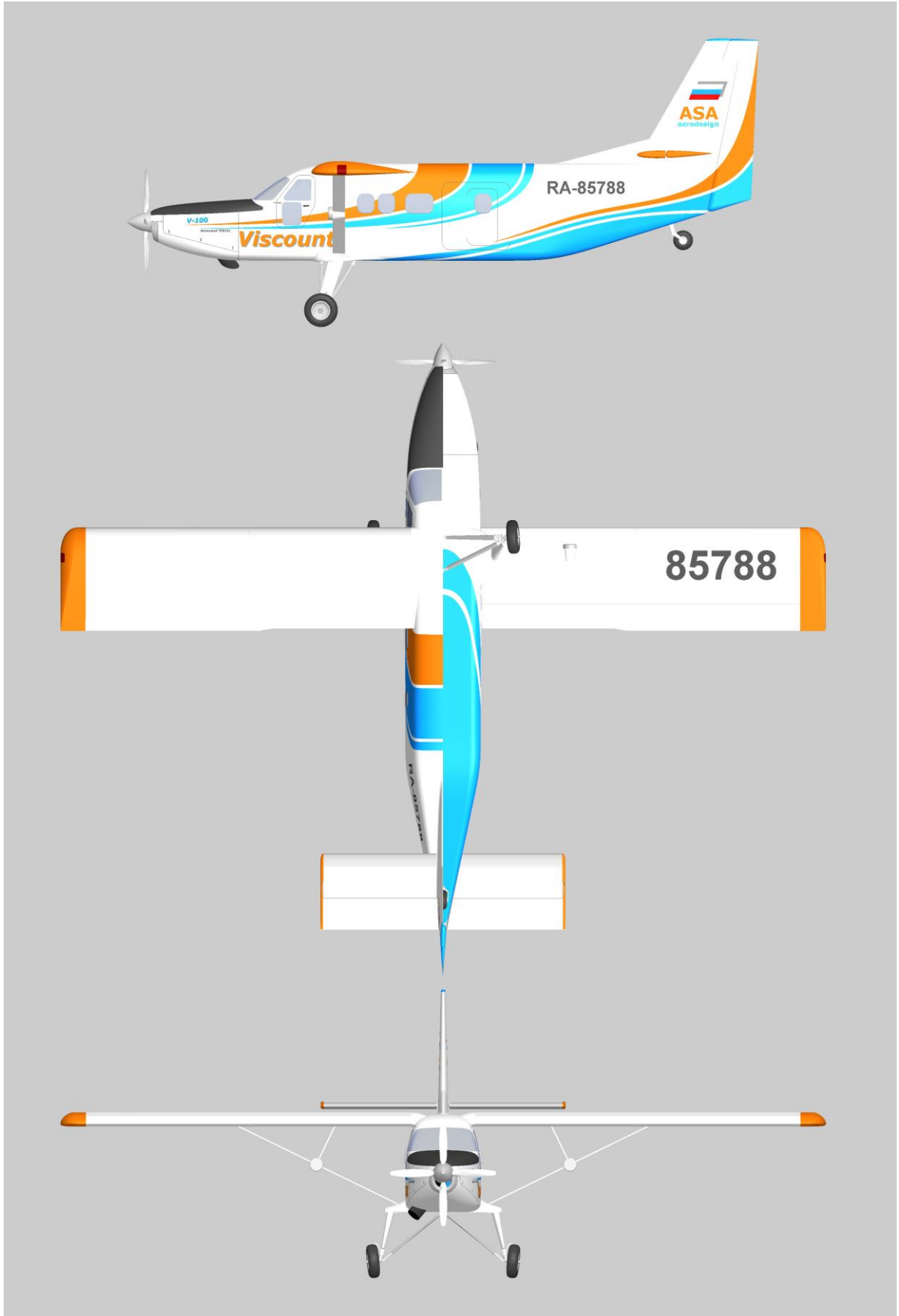
4. Specifications

	Parameter	Unit	Value
1	Wing area	m ²	43.7
2	Wing span	m	18.2
3	Fuselage depth	m	2.5
4	Fuselage width	m	1.8
5	Fuselage length	m	15.2
6	Wheel base	m	8.2
7	Landing gear tread	m	3.36
8	Wheels	mm	800x260 470x210
9	Engine type and power*	h.p.	Pratt&Whitney PT6A-65B 1300
10	Maximum takeoff weight	Kg	5250
11	Maximum payload	Kg	2000
12	Passenger capacity	Seats	9-14
13	Crew	Members	2
14	Maximum level speed	Km/h	340
15	Maximum cruising speed	Km/h	310
16	Flying range	Km	1200
17	Operating altitude	m	0-4000
18	Service ceiling	m	6500
19	Takeoff roll	m	190
20	Takeoff distance	m	540
21	Landing roll	m	220
22	Landing distance	m	515

(*) a Honeywell TPE331-12JR engine can be installed.

Performance of skydiving version			
1	Rate of climb ($V_{y H=0}$)	m/sec	5.5
2	Rate of climb at the altitude of 4000 m ($V_{y H=4000m}$)	m/sec	3.8
3	Time to altitude H=4000 m	Minutes	14.2
4	Descending time	Minutes	6.5
5	Fuel consumption per flight	Kg	89

5. General view



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