



Joint Stock Company «Ilyushin Finance Co.»

presents

An-148 aircraft family



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JSC “Ilyushin Finance Co.” presents An-148-100 aircraft family

An-148-100 is a family of regional aircraft, designed for passenger, baggage, post and cargo transportation on domestic and international routes. An-148-100 could be operated on airports with concrete pavement and ground runways, with the airport altitude up to 1500 meters above the sea level. An-148-100 modifications with different fuel capacity and range parameters allow an Operator to choose the most effective solution to fit its route network.

The aircraft is powered by two turbofan D-436-148 engines, produced by JSC “Motor Sich” (Ukraine).

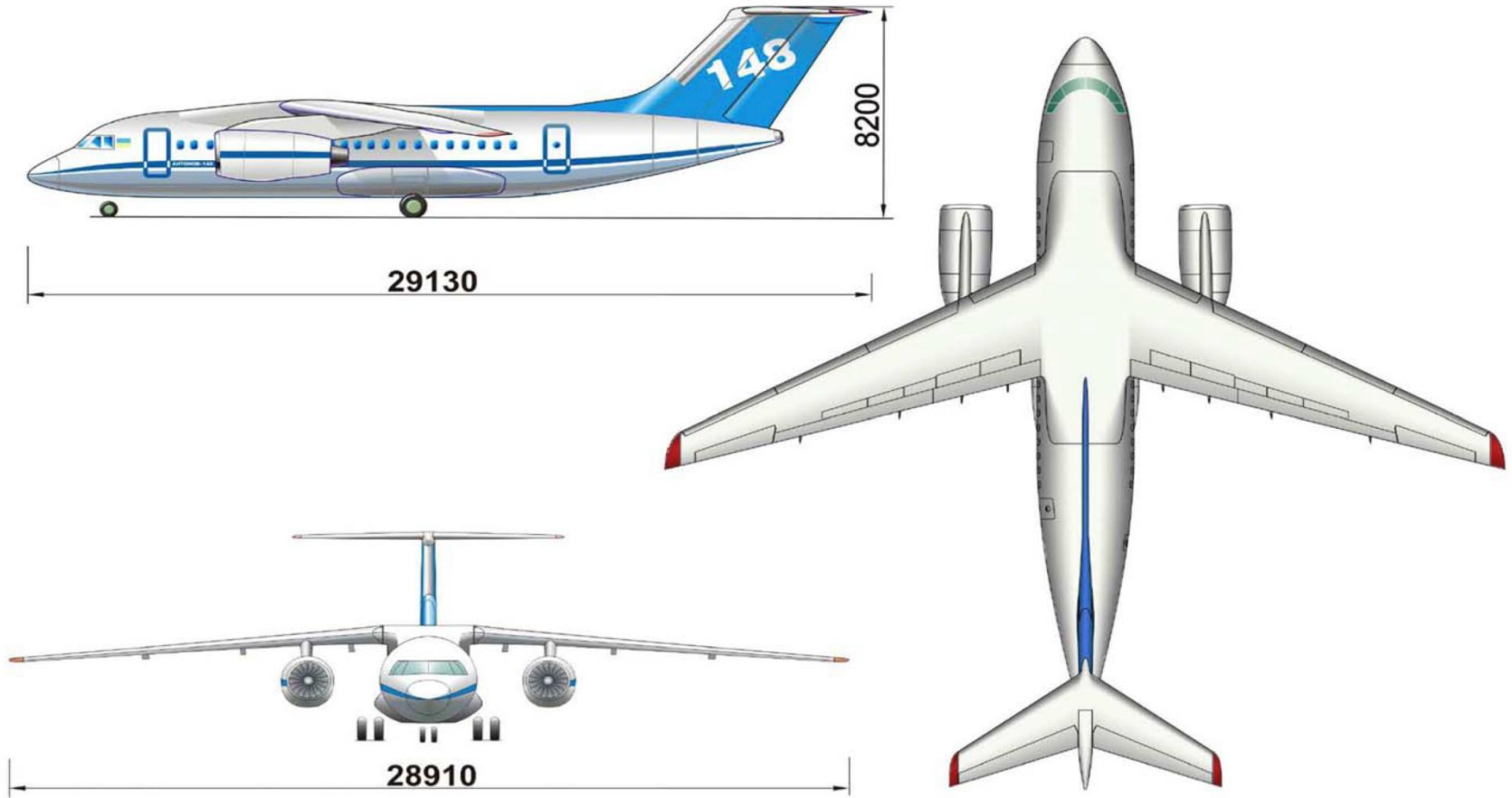
The An-148-100 aircraft family is designed by Antonov Aeronautical Scientific Technical Complex. The serial production is organized on Voronezh Aircraft Manufacturing Company (Voronezh, Russia).

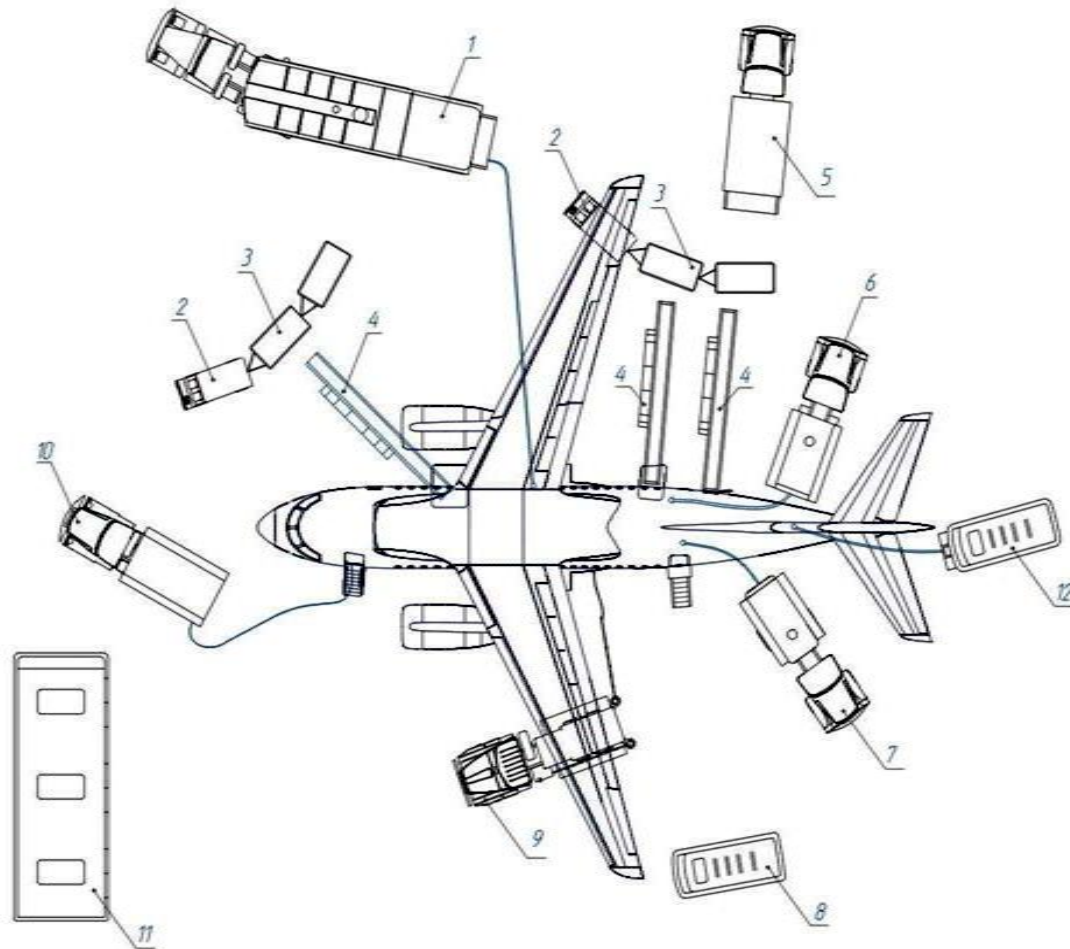
An-148-100 aircraft is distinguished by modern aerodynamic configuration and fuel efficient engines. Modern avionics, radio equipment and fly-by-wire controls ensures the flight crew to operate the aircraft on all kinds of air routes under heavy weather conditions, day and night, also on the routes with high flight intensity.

An-148 conceptual features

- Aircraft family (75-100 seats)
- Cooperation with best designers
- Digital avionics with flexible adaptation
- Exploitation in any region
- High level of passenger and crew comfort
- Compliance with AP-25 и CS-25 standards
- Digital technology design







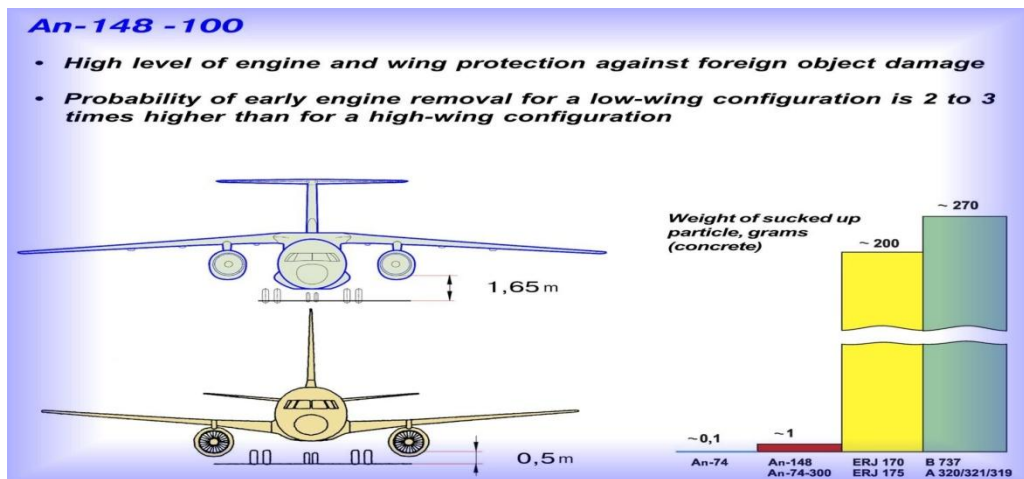
1. Fueling
2. Utility tug and trailers
3. Trailers
4. Belt conveyor
5. Bulk loader
6. Toilet service
7. Potable water
8. Cabin cleaning
9. Aerodrome mobile electrical unit
10. Unified gas charging station
11. Passenger bus
12. Air start



Advantages of “high-wing” scheme

An-148-100 gives customers a unique opportunity of direct flight to cities with poorly developed airfield infrastructure which is provided by:

- “high-wing” aerodynamic scheme
- maximum 1900 m runway required
- door-integrated ladder



Operation in any region and under heavy weather conditions



Natural icing under temperatures of -20° C. Arkhangelsk, Naryan-Mar (Russia)

Large attack angle tests



Ultra low temperatures (-55° C). Yakutsk, Nerungi (Russia).

Heat (temperature up to $+45^{\circ}$ C) and highland (airport altitude up to 1500m). Karshi (Uzbekistan), Gumri (Armenia)



An-148-100 operation conditions extension



- Validation according with CS-25 regulations (in process)
- Operation from ground runways (completed)
- IIIA landing category ICAO (in process)
- RNP-1 implementation (completed)
- Flight operation at latitude up to 73° (completed)



Operational Data

	Aircraft modifications		
	An-148-100A	An-148-100B	An-148-100E
Take-off weight, t	38.55	41.55	43.7
Max passenger capacity	85 (30")		
Max payload, kg	9000		
Cruise speed, km/h	820-870		
Cruise altitude, m	12200		
Range with 75 passengers, km	2100	3500	4400
Fuel consumption, kg/h	1550	1600	1650
Balanced take-off distance, m	1600	1800	1900
ICAO landing category	II (IIIA)*		
Operational range:			
-operational temperature, t	-55°....+45°		
-aerodrome elevation above sea level, m	-300....1500		
Crew	2 pilots+ 2 flight attendants		

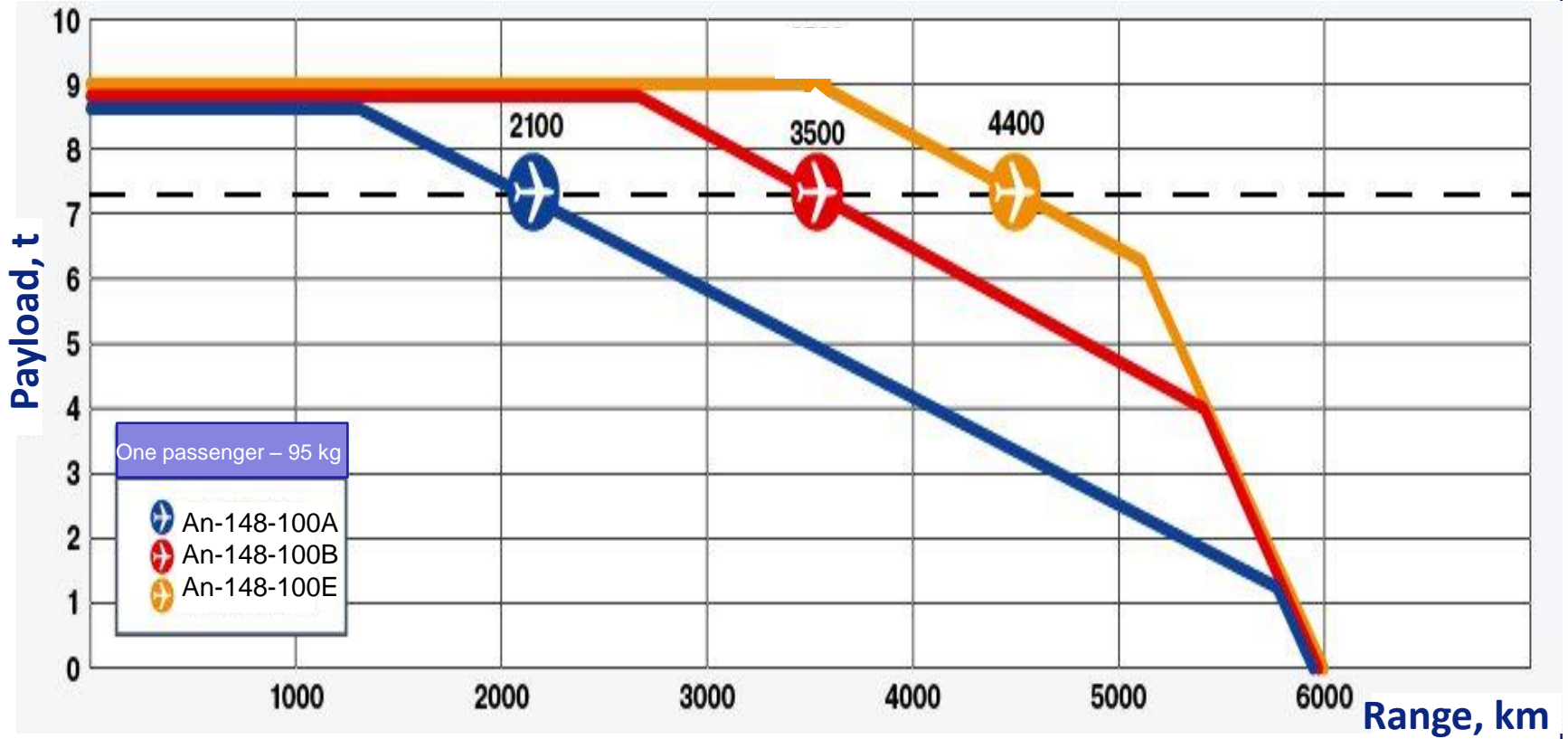
Service life

	Airframe			Engine		
	An-148-100A	An-148-100B	An-148-100E	D-436-148	WD AI-450-MS	
Flight hours	80000	80000	80000	40000	16000	
Years	30	30	30	20000	32000	
Landings	60000	40000	30000			

* Cat IIIA is expected to be certified till December 2009.



"Payload-Range" Diagram



An-148-100 aircraft
production cycle - 12
months.
An-148 (VIP) - 14-16
months.



First 34 An-148 aircraft produced at VASO –
ordered by «Ilyushin Finance Co.»



An-148-100 passenger aircraft is designed in accordance with AP-25 and EASA CS-25 requirements.

Type certification with some temporary operational limitations (Cat. III A, RNP-1, Airport aviation above 1500m, etc.) is performed in accordance with Aviation Regulations AP-21 procedure and meets the following requirements:

- Aircraft– AP-25 & EASA CS-25;
- Engine– AP-33;
- APU – AP-WD;
- Aircraft components produced by CIS countries – in accordance with chapter 9 of Ap-21;
- Imported components – in accordance with 651.18.035-97 standard.

Aircraft noise requirements – are in compliance with Chapter 4 of Annex 16 to the Chicago Convention on International Civil Aviation (volume 1 “Aircraft noise”, with the amendment 1-7) requirements and Russian AP-36 Aviation Regulations.

Engine Emission – is in compliance with annex 16 to the Chicago Convention on International Civil Aviation (volume 2 “Aircraft Engine Emission”, with the amendment 1-4) requirements and Russian AP-34 Aviation Regulations.

26 February 2007 Type Certificate № CT 264-AH-148 was issued by Interstate Aviation Committee (MAK).

Compliance to safety standards:

1. Aircraft equipped with:

- Bullet-proof pilot cabin door
- Crew and flight assistant special communication devices;
- Video surveillance system;
- Weapon and ammunition transportation box ;
- Hidden aisle;
- Anti-thief device;
- Place for suspicious objects found on board.

2. Aircraft meets standards and requirements:

- Appendix 6 ICAO (Part I. Chapter 13 “Safety”);
- Appendix 8 ICAO (Part IIIB, Section K “Aviation Safety”);
- AP-25.795, CS-25.795, FAR-25.795;
- Russian FAS Instructions №36I 24.04.97. and resolution of Russian Government №282 14.05.03





An-148-100 is equipped with modern avionics, which includes Flight Management System (FMS), Inertial Reference System, Collision Avoidance System (CAS), EGPWS system and satellite navigation. Aircraft avionics permit flights in RVSM conditions and allow to navigate on international routes in Europe and North America (RNP-1), and to land under ICAO II (IIIA) category.



- Automatic Flight Control System
- Inertial Navigation System LCR-100
- Fault Detection System
- Strength Parameters Recorder
- Flight Data recorder with solid state data storage
- Navigation Landing Indicator
- Air Data Computer
- Standby Combined Flight Instrument
- Pilot Tube
- Pilot Tube Heating Control Unit
- Enhanced Ground Proximity Warning system Mark-V
- Collision Avoidance System -100A
- Weather radar System RDR-4B
- Instrument Landing System VIM-95
- Radio altimeter ALT-4000
- Automatic Direction Finder
- Satellite Navigation System
- Navigation Computer
- Integrated Equipment Control System
- Integrated indicating and warning System
- Emergency Radio station
- Internal Communication Equipment
- Radio Control Unit
- Cockpit Voice Recorder
- Critical Condition Warning System
- Crew warning System



Engines

Aircraft is powered by two turbofan D-436-148 engines produced by JSC “Motor Sich”.



D-436-148 engine performance:

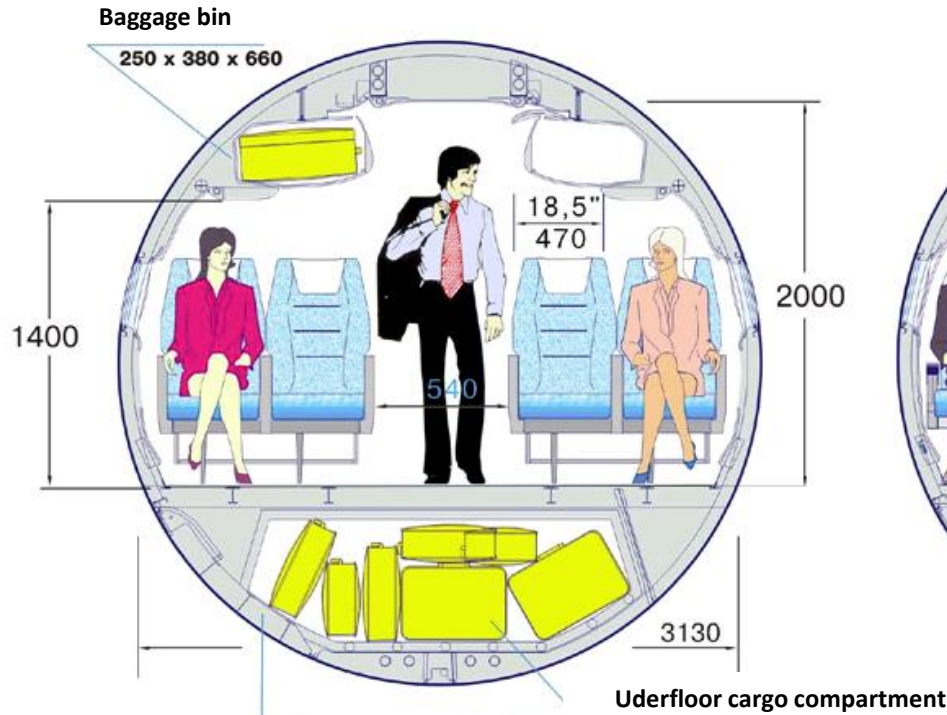
- Max take off thrust (MCA, H=0) – 6400 kg
- Cruise thrust (H=11000 m, M=0,75, MCA +10° C) – 1500 kg
- Specific fuel consumption – 0,62 kg/kgs·h
- Max bypass ratio – 4,8
- Compression ratio at maximum continuous power – 24
- Fan diameter – 1,37 m
- Engine length – 3,694 m
- Weight on delivery – 1890 kg

Auxiliary Power Unit (APU)

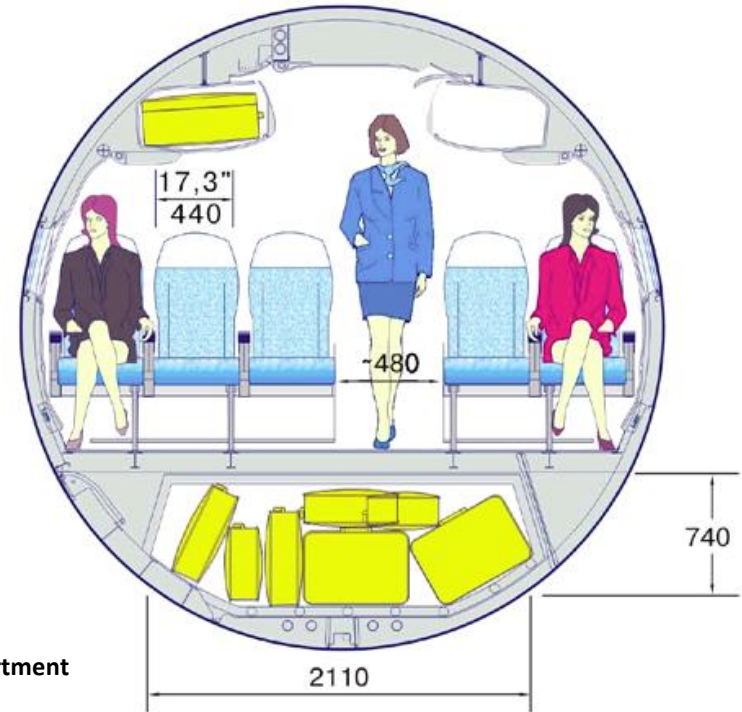
The aircraft is equipped with Auxiliary Power Unit AI-450-MS produced by JSC “Motor Sich”.



Business class



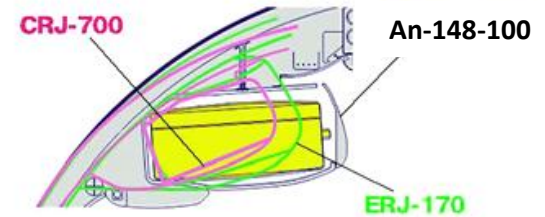
Economy class



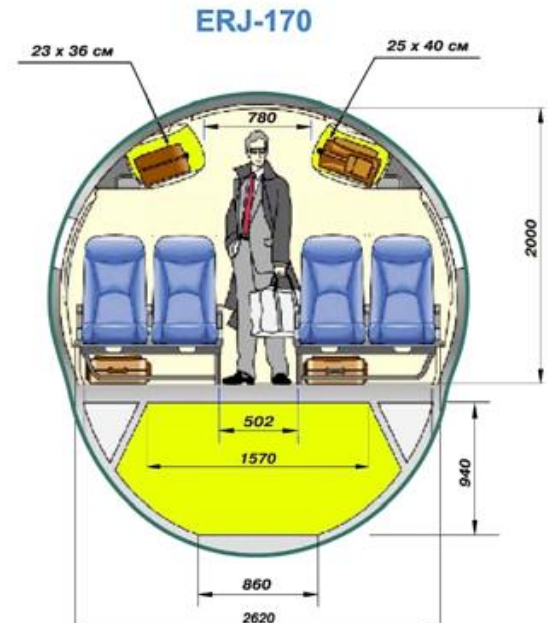
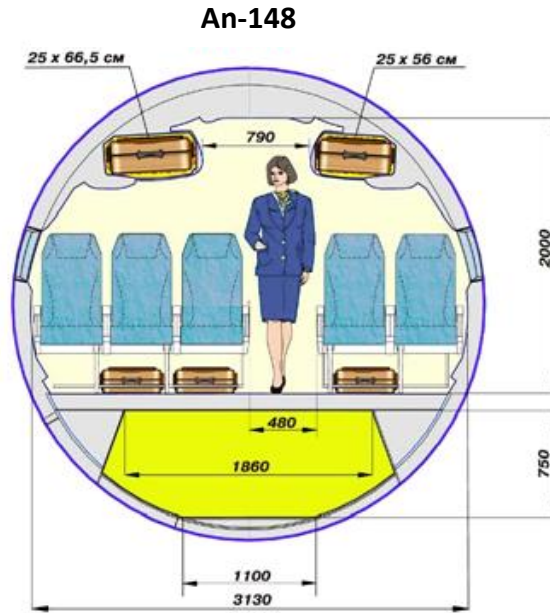
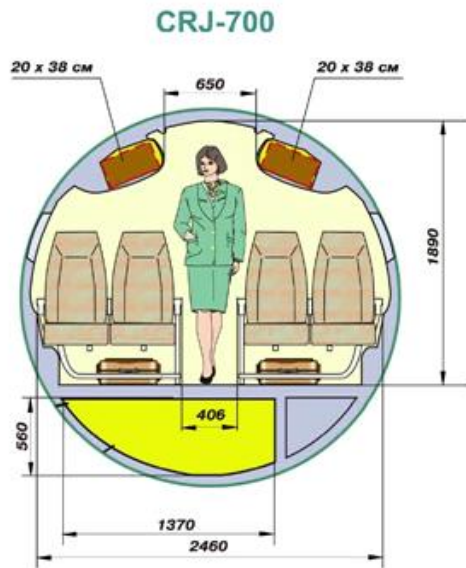
Underfloor cargo compartment door

Hand luggage dimensions

An-148-100	25X66,5 (56) sm
CRJ-700	20 x 38 cm
ERJ-170	25 x 40 cm



An-148 cross-section in comparison with analogs



Cargo bin volume per passenger:

An-148	0,056 m ³
CRJ- 700	0,040 m ³
ERJ- 170	0,055 m ³

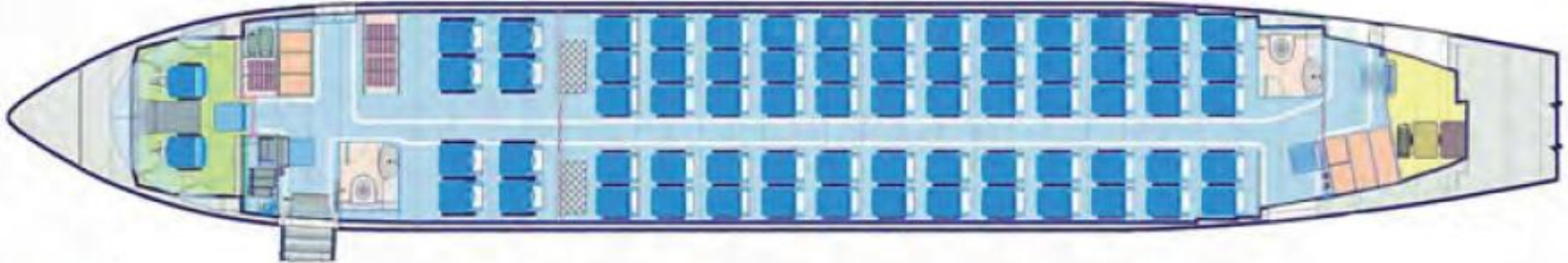
Cargo compartment volume per passenger:

An-148	0,213 m ³
CRJ- 700	0,177 m ³
ERJ- 170	0,207 m ³

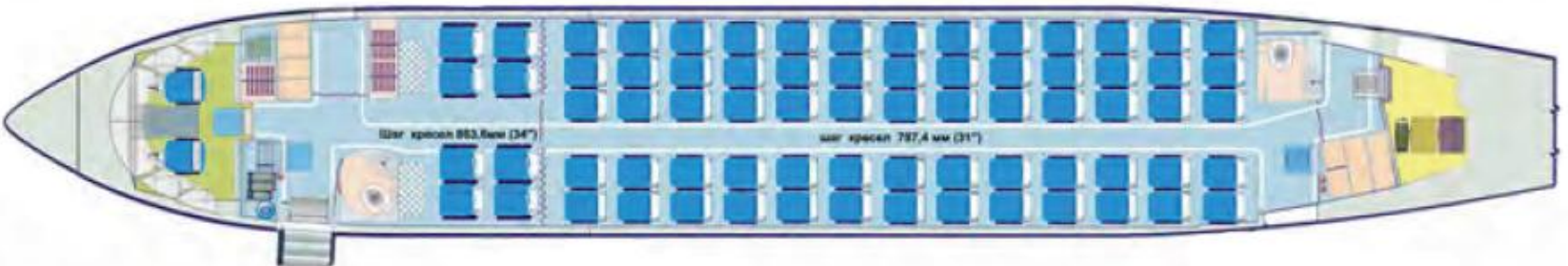


Passenger cabin two-class layout versions

Two-class layout for 68 passengers. (8 seats – pitch 889mm (35”), 60 seats – pitch 812,8mm (32”).

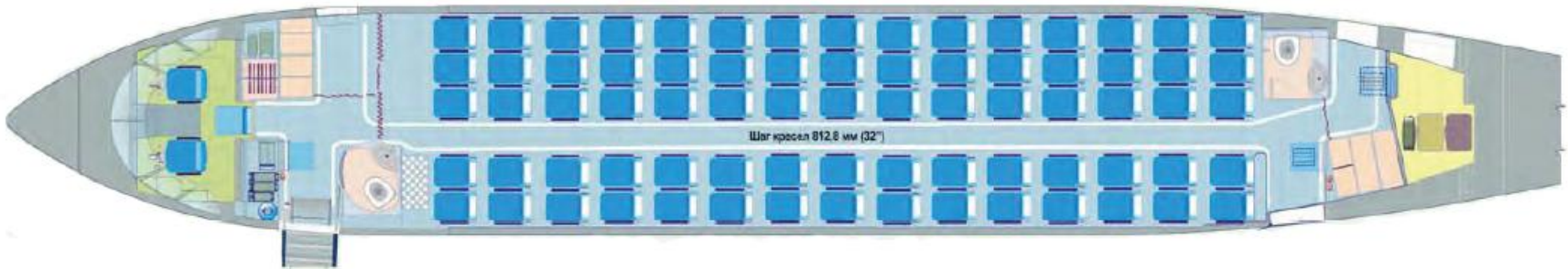


Two-class layout for 73 passengers. (8 seats– pitch 863,6 mm (34”), 65 seats– pitch 787,4 mm (31”).

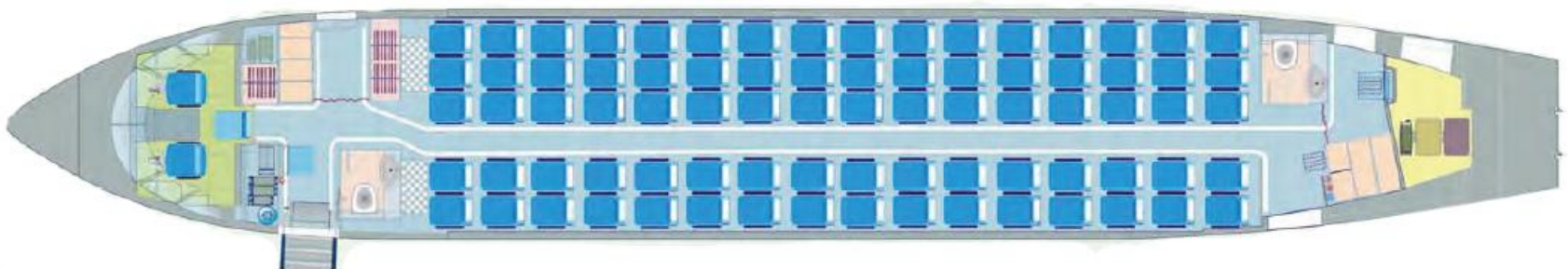


Passenger cabin single-class layout versions

Single-class layout version for 75 passengers. Pitch— 812,8 mm (32").



Single-class layout version for 80 passengers. Pitch— 762 мм (30").

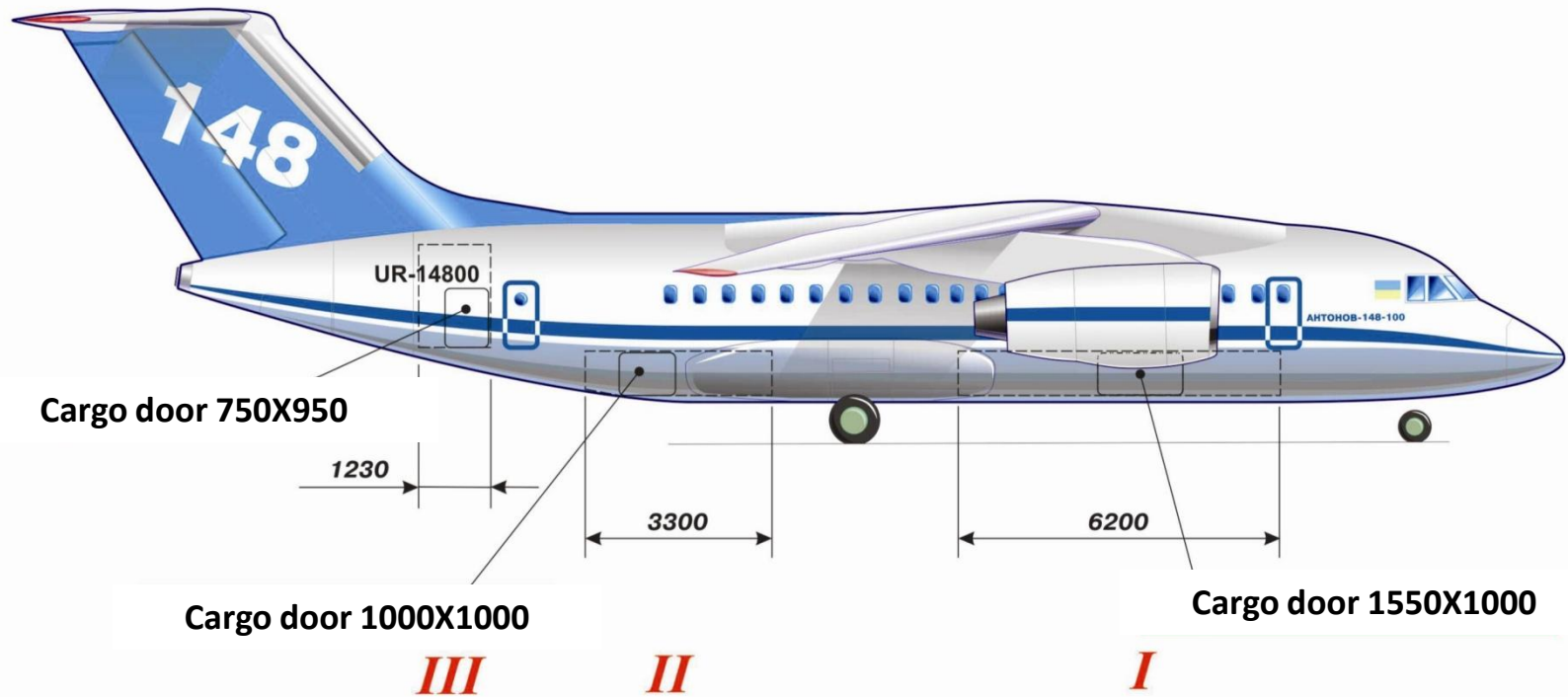




Economy-class cabin



An-148-100 baggage-cargo compartment



Cargo door 1000X1000

III

II

I

Cargo door 1550X1000

Baggage-cargo compartment

- I** - front underfloor compartment 8,55 m³
- II** - rear underfloor compartment 4,35 m³
- III** - rear compartment 3,10 m³



An-148-100 aircraft maintenance can be performed by Russian specialists as well as by the Operator's specialists, trained in a certified center.

The airframe Maintenance Schedule requires the following forms of maintenance works*:

Line maintenance:

- Form «T» (transit) — before each flight
- Form «E» (daily) — not less than once in two days (48 hours)
- Form «W» (two weeks) — once in two weeks

Periodical maintenance:

- Form «A»; «S A»** — after 750 flight hours or 300 landings
- Form «C»; «S C» — after 36 month, 7500 flight hours or 3000 landings
- Form «3C»; «S 3C» (detailed construction inspection) — after 8-10 years

The line maintenance forms are performed by the technical team, located in the Customer base airport.

Notes:

* For the following conditions:

- Flight hours per month ~ 250 hours
- Average flight duration ~ 2 hours

** «S A», «S C» — forms for airframe inspection

Basic warranty given to the Client – 24 month from the date of delivery (is fixed in the sale and purchase agreement)

