



# Yak-130

Combat Trainer

- ★ Developed by the Yakovlev Design Bureau (member of IRKUT Corporation) in accordance with the Tactical and Technical Requirement of the Russian Air Force
- ★ Mass manufacturing implemented at the Irkutsk Aviation Plant (subsidiary of IRKUT Corporation) for the Russian Air Force and foreign



- ★ **flight and combat training of fighter pilots**
- ★ **air-to-air and air-to-surface combat**



## **Why new generation:**

- ★ high thrust-to-weight ratio (0,81)
- ★ excellent take off-landing characteristics (operability from 3rd class airfields including unpaved)
- ★ high maneuverability; ability to perform maneuvers at high angle-of-attack ( $\alpha > 35^\circ$ ) typical for modern fighters
- ★ meeting contemporary flight safety requirements :
  - twin-engine power plant
  - digital quadruple redundant fly-by-wire control system
  - on-board automated test-and-control system for equipment and aircraft systems
  - "0-0" ejection seats with "through-canopy" ejection capability
- ★ training mode providing imitated combat employment against air and ground targets without suspension of real weapons
- ★ employment flexibility and expanded weaponry options (up to 3,000 kg max load at 9 external hard points)
- ★ Long life (10,000 flight / 30 years of operation)



## Aircraft supplies to the Russian Air Force and to foreign customers

*Pre-contract negotiations with potential customers*

*Supply of 16 aircraft under the export contract*

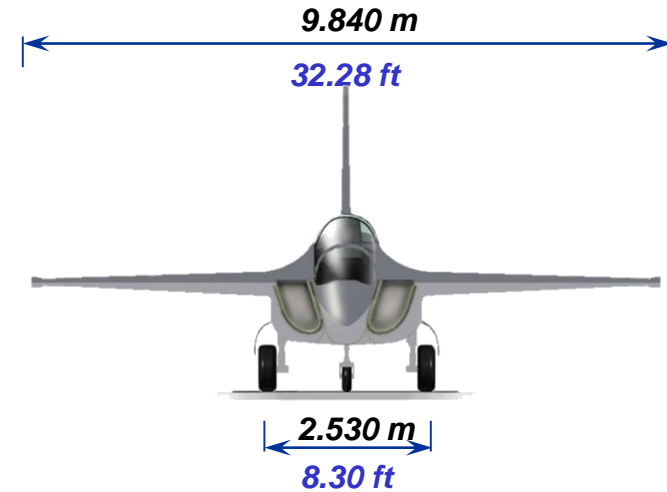
**2009** *Completion of state tests*

**2010** *Operations of aircraft from the first batch by the Russian Air Force (12 aircraft)*

**2011** *Contract with the Russian Defense Ministry to supply 55 aircraft until 2015 (plus 10 optional). Contract to supply additional aircraft until 2020 is planned*

**2012** *Supply of the first 15 aircraft to the Russian Air Force*





Length	11.493 m	37.71 ft
Wing span	9.840 m	32.28 ft
Wing area	23.52 m <sup>2</sup>	253.17 ft <sup>2</sup>
Leading edge wing sweep		31 deg
Downward view along aircraft axis:		
- for trainee		16 deg
- for instructor		6 deg
Landing gear wheel base	3.945 m	12.94 ft
Wheel track	2.53 m	8.30 ft

Integrated digital  
re-programmable  
fly-by-wire control  
system

On-board  
automated  
test-and-control  
system for  
equipment  
and systems

TA-14-130  
Auxiliary  
Power Unit

Power Plant with  
two AI-222-25  
engines

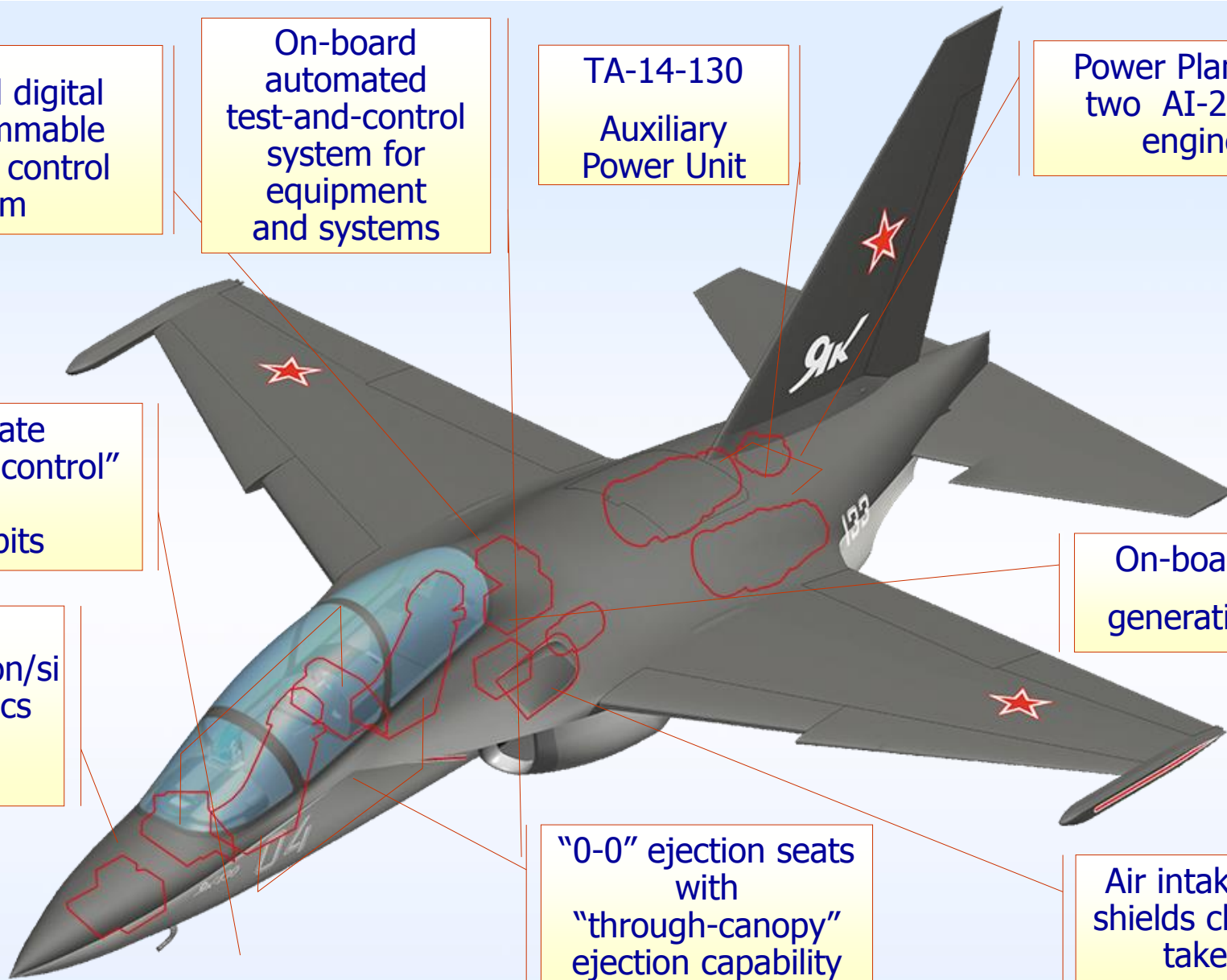
Up-to-date  
"inform-and-control"  
field  
of cockpits

Digital  
flight/navigation/si  
ghting avionics  
suite

On-board oxygen  
generation system

"0-0" ejection seats  
with  
"through-canopy"  
ejection capability

Air intakes with  
shields closing at  
take-off



Design ceiling	12,500 m	41,000 ft
Maximum climb speed (4,500 m)	65 m/s	213.3 ft/s
Maximum true airspeed (clean)	1,060 km/h	572 KCAS
Take off speed (clean)	210 km/h	113 KCAS
Landing speed (clean)	190 km/h	103 KCAS
Max speed, 10,000 m (32,800 ft), 50% fuel	0,93 M	
Operational load limit (clean)	+8/-3 g	
Takeoff distance (clean)	550 m	1,804 ft
Landing run (clean)	750 m	2 461 ft





Maximum takeoff weight with payload

10,290 kg

22,686 lb

Fuel capacity:

- internal tanks

1,700 kg

3,748 lb

- external tanks

2 x 450 kg

2 x 992 lb

Maximum combat payload

3,000 kg

6,614 lb

Max range

1,600 km

864 nm

Max range (with 2 external tanks),  
12,000 m (39,400 ft)

2,100 km

1,130 nm



## Service life:

airframe 10,000 f h

engine 3,000 f h

APU 2,000 f h

**Aircraft service life** 30 years

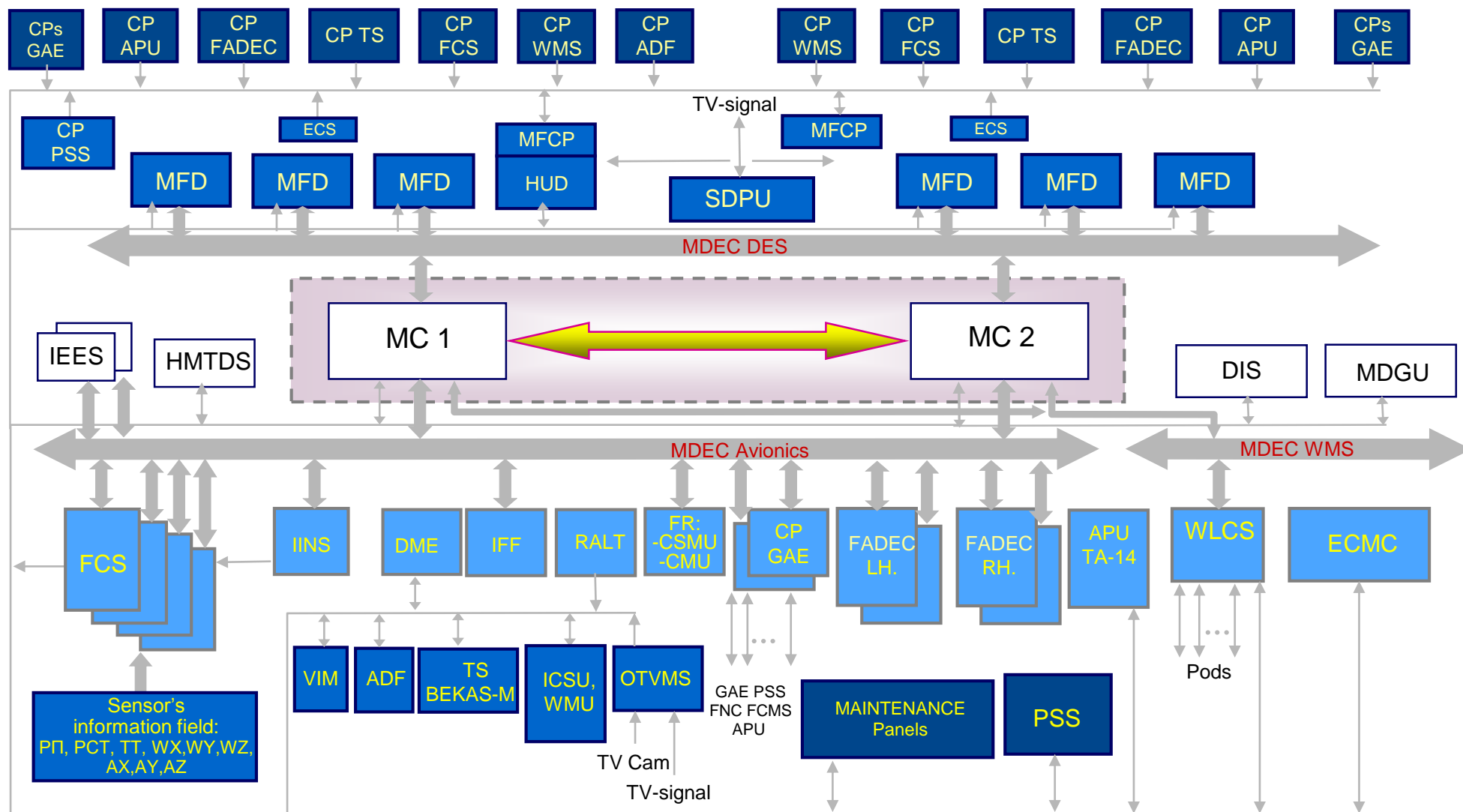
**MTBF** 10÷12 h

**Time of preparing to the next sortie** 15 min



## Trainee Cabin

## Instructor Cabin



3,000-kg (6,600-lb) max load at 9 external hard points

★ **2** R-73E "air-to-air" missiles with IR self-guiding head or **2** ECM pods with decoy launchers

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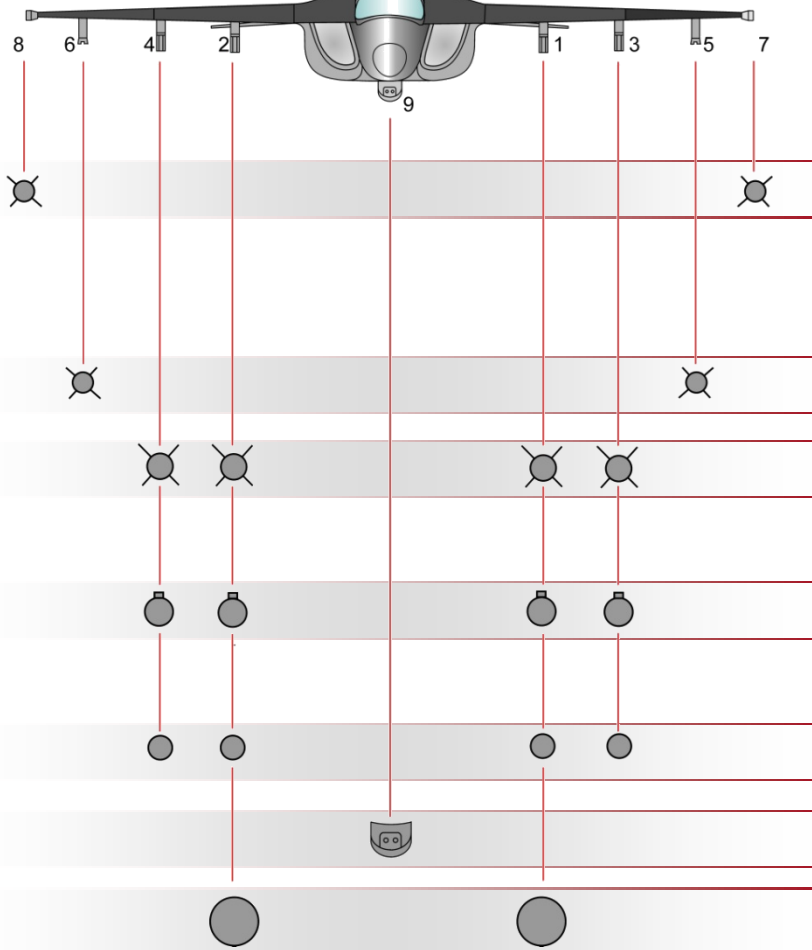
★ **4** KAB-500Kr TV-guided bombs

★ **80** x S-8 80-mm rockets, or **20** S-13 122-mm rockets, or **4** S-25 266-mm rockets

★ **4** x 50-, 100-, 250-, 500-kg aerial bombs

★ SNPU-130 pod with GSh-23L gun

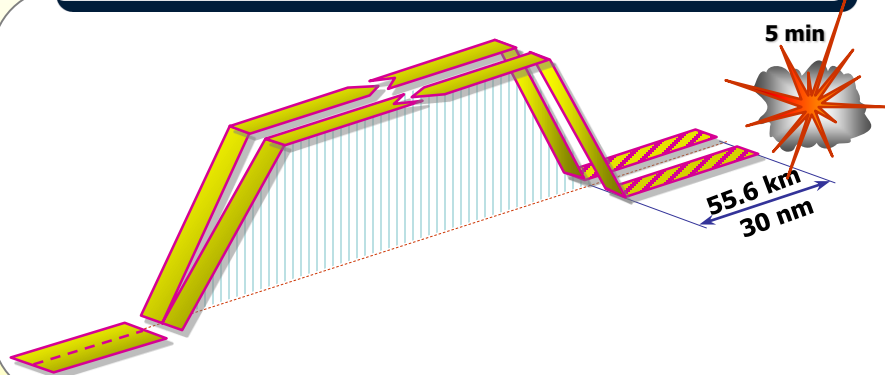
★ **2** PTB-450 auxiliary fuel tanks



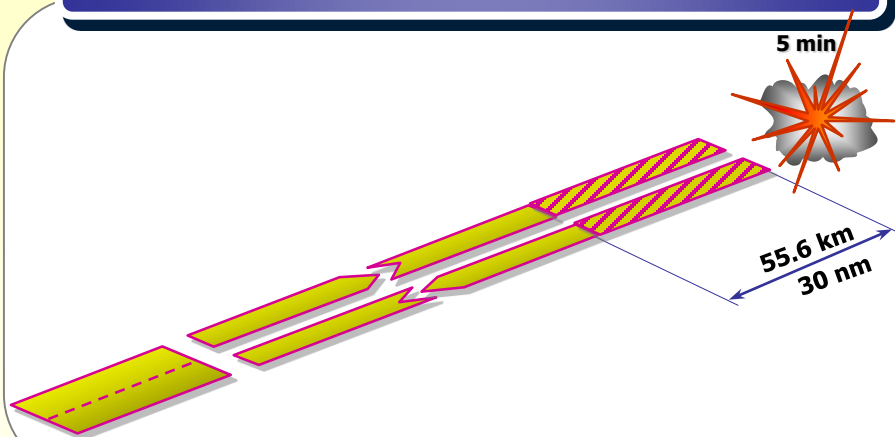


- 2 x 250-kg (551-lb) bombs
- 1 gun pod
- 2 fuel tanks
- 2 ECM pods

**LO-HI-HI-LO - 680 km (367 nm)**

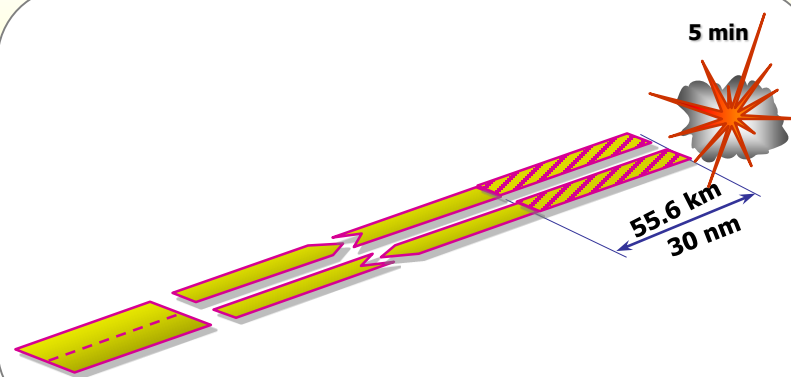


**LO-LO-LO-LO - 380 km (205 nm)**



- 2 x 500-kg (1,102-lb) bombs
- 1 gun pod
- 2 fuel tanks
- 2 IR missiles
- 2 ECM pods

**LO-LO-LO-LO - 340 km (184 nm)**



## Combat and training capabilities enhancement

- ★ optronic system pod
- ★ in-flight refueling system
- ★ airborne radar
- ★ widening the aircraft's weaponry options



## Computerised Training Classroom



## Specialised combat Simulator



## Flight and Combat Training



**The Yak-130 facility covers entire envelope of basic and advanced training**





- 1. In accordance with long-term plans of the Russian Ministry of Defense, IRKUT Corporation has launched mass production of Yak-130 and ensures reliable and high quality support of supplied aircraft, both in Russia and abroad.**
- 2. Yak-130 is a new generation combat trainer with performance characteristics close to those of modern fighter aircraft at subsonic speeds. The new-generation avionics, aircraft systems, engines, airframe, as well as advanced aerodynamics ensure:**
  - ★ high training and combat effectiveness;**
  - ★ high level of flight safety;**
  - ★ low costs of flight hour and aircraft life cycle.**
- 3. The Yak-130 Combat Trainer is the best cost/effectiveness choice for both advanced/lead-in training and combat employment.**



**THANK YOU FOR YOUR TIME**