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558 AIRCRAFT REPAIR PLANT

UPGRADE OF Su-27/Su-30 AIRCRAFT



225320 Republic of Belarus, Baranovichi
50 let VLKSM Str., 7



ISO 9001

BUREAU VERITAS
Certification
No BY228992Q-U



EN 9100

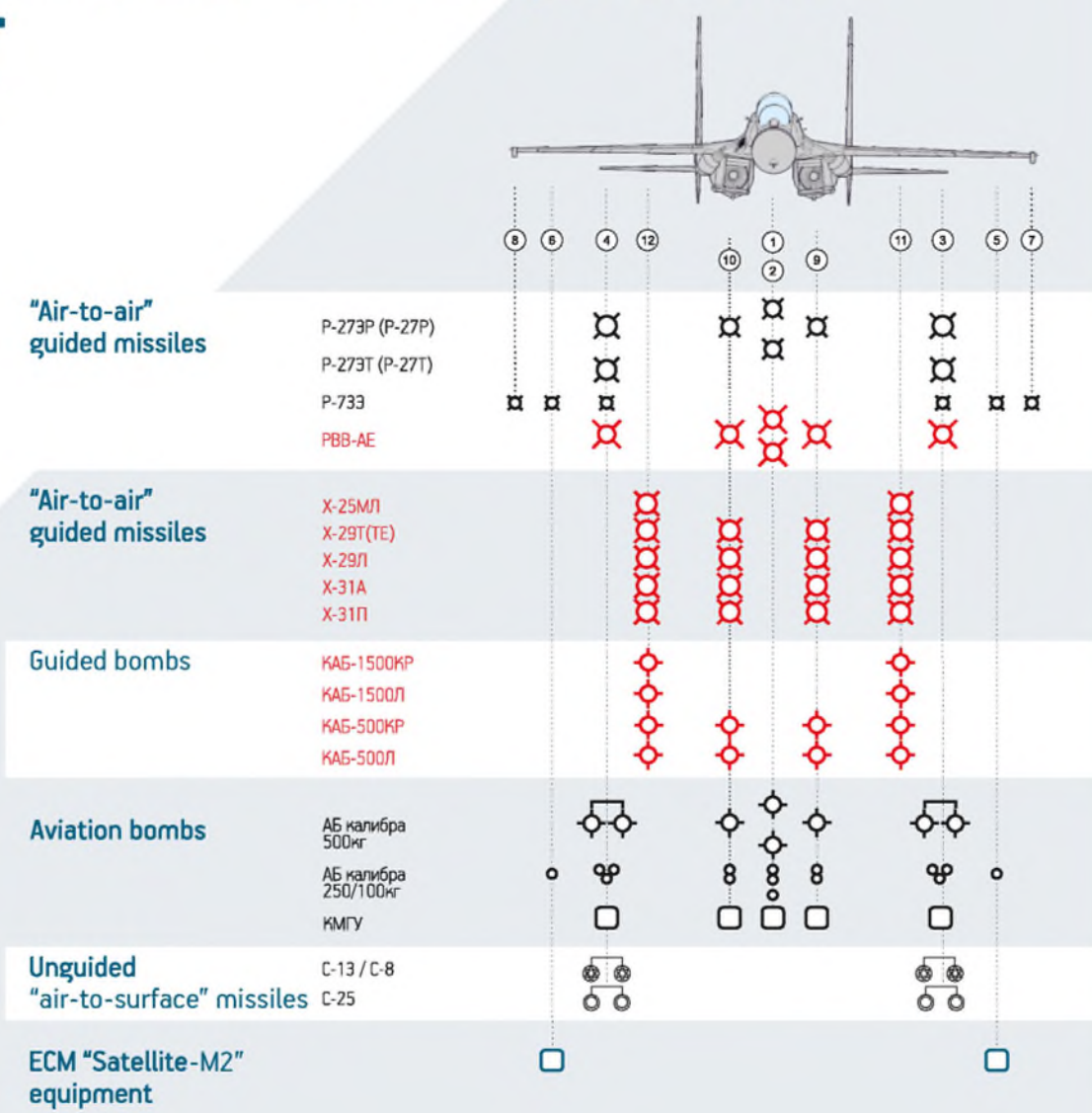
BUREAU VERITAS
Certification
No 7264005-REV0



ARMAMENT OF SERIES AND UPGRADED Su-27/Su-30 AIRCRAFT

Armament of series and upgraded Su-27/Su-30 aircraft

- Armament of standard aircraft
- Additional armament of upgraded aircraft
- Electronic countermeasures protection means



Increase of combat capabilities of the upgraded aircraft is achieved as follows:

- 01** Applying expanded assortment of "air-to-air" and "air-to-surface" precision air weapons;
- 02** Implementation of mapping modes with low, mean and high resolution;
- 03** Display of coordinates of the detected ground targets for targeting formation.

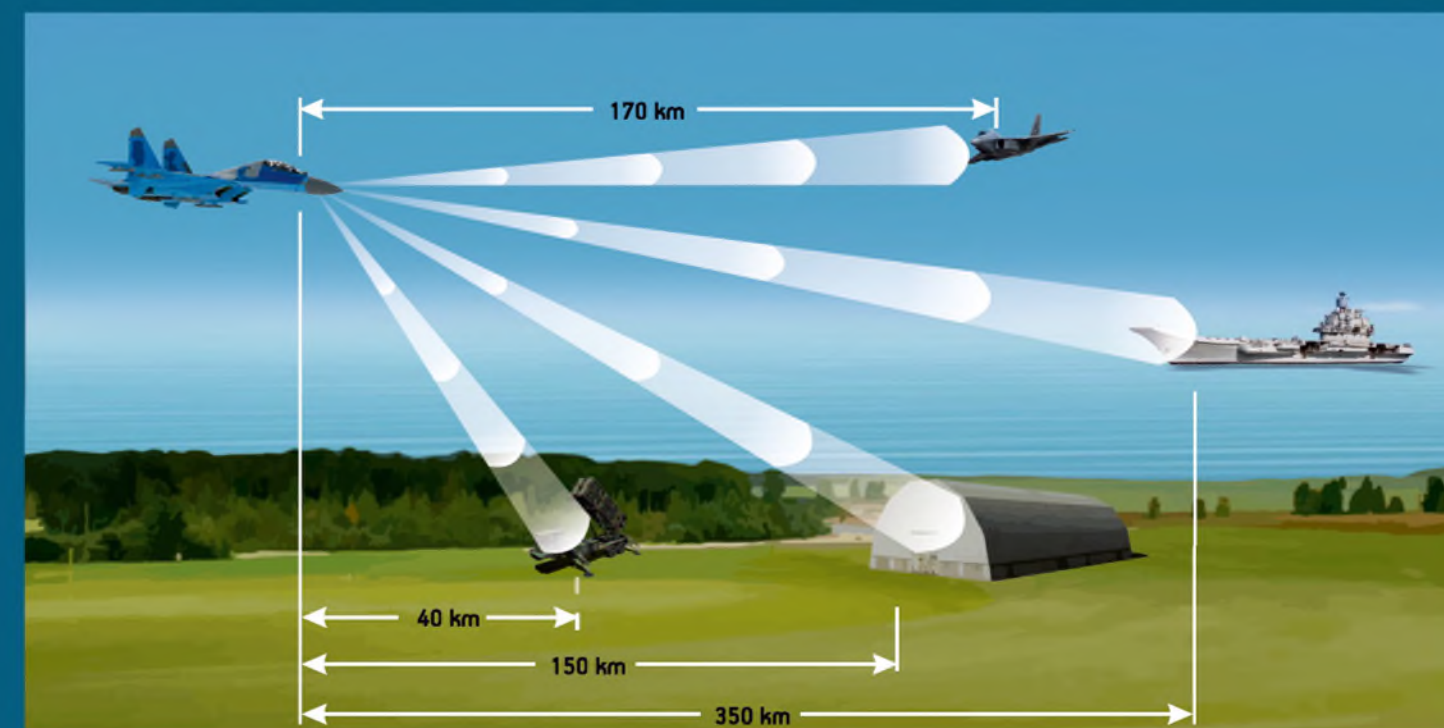


IMPLEMENTATION OF NEW OPERATION MODES OF RADARSIGHTING SYSTEM

Provides:

- 01** Applying "air-to-air" missiles PBB-AE with active homing head (AHH);
- 02** Implementation of mapping modes with low, mean and high resolution;
- 03** Applying "air-to-surface" guided missiles with active homing head for surface target damage;
- 04** Display of coordinates of the detected ground targets for targeting formation.

Increase in combat capabilities due to H001 radar targeting system modernization and implementation of autonomous radar channel



Target detection at a distance:

- | | | | |
|--------|--|--------|--|
| 150 km | MiG-29 type in FHS (in "distant detection" mode) | 40 km | "Launcher" type with RCS 30 m ² |
| 150 km | "Hangar", "railway bridge" type with RCS 1000 m ² | 350 km | Ground targets in real beam overview mode. |

NAVIGATION SYSTEM CAPABILITY ENHANCEMENT

Provides:

99 points
Input and storage of data about waypoints, aerodromes, radio beacons for each type (6 points in series variant);

5 +/- meters
Accuracy in determination of the aircraft location current coordinates (+/- 700 m in series variant);

8 routes
Data generation and storage (2 routes in series variant);

0,2 m/s
Ground speed error;

VOR/ILS, DME
Capability of navigation performance according to ICAO standard;

2 systems
Automatic and manual in-flight change of navigational guide points.

Target approach accuracy:

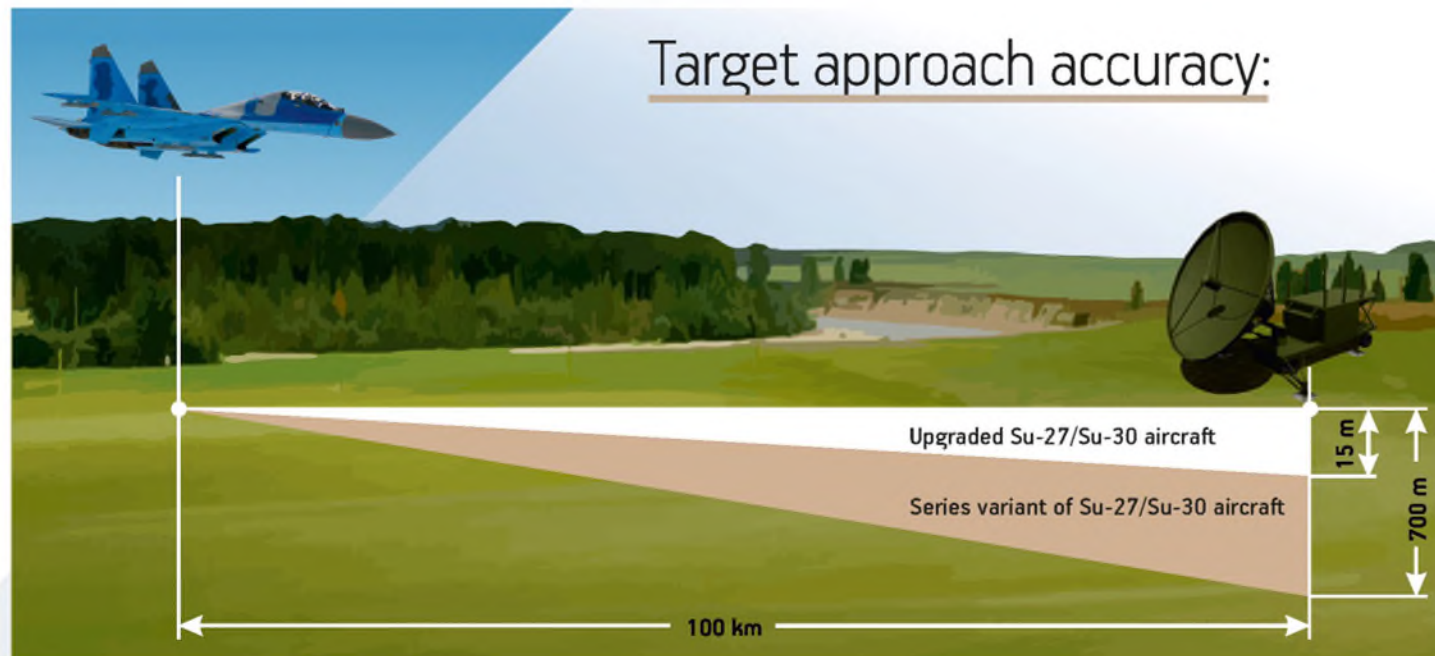


Image on multifunctional display (MFD) in navigation mode



VIDEO RECORDING SYSTEM

Provide: recording of communications systems audio signal and video information from MFD and HUD

Information frames from multifunctional display

01. Flight route

03. Radar scanning mode

05. Video recording image of external environment and HUD information

02. Navigation mode

04. Television image from TV homing head of X-29T missiles



Upgrade of the aircraft cockpit control and navigational equipment

COCKPIT CONFIGURATION OF THE UPGRADED AIRCRAFT



01. Interface unit of video recording system and solid-state recorder

02. Television camera of video recording system

03. Multifunctional display

04. "Экран-УБ-02 М-4" system indicator

05. ECM "Satellite-M2" equipment control and indication board

INSTALLATION OF AIRBORNE SYSTEM OF INFORMATION RECEIVING AND TRANSMISSION

Provides:

- 01 Coordinate data transmission of detected ground targets to ground control stations;
- 02 Control over aircraft airspace position;
- 03 Storage of information about flight parameters from ground operator;
- 04 Operational control over aircraft equipment performance;
- 05 Provision of assistance to the pilot in particular cases;
- 06 Flight personnel training;
- 07 Ground targeting.



GROUND SYSTEM OF INFORMATION RECEIVING AND TRANSMISSION



APPLYING CONTROL COMPLEX OF POWER PLANT AND Su-27/Su-30 AIRCRAFT SYSTEMS

Parameter control and registration complex is applied for evaluation of flight performance and condition of power plants and aircraft airborne systems.

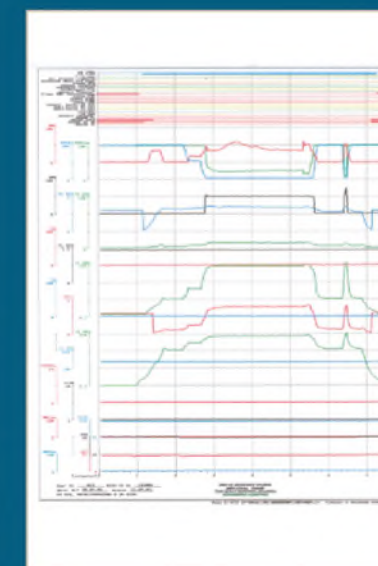
Control complex provides:

- 01 Recording of parameter information coming from organic and reinstalled sensors and aircraft systems to the complex solid storage unit and removable flash-cassette of "Экран" system;
- 02 Flight information processing and carrying out express analysis concerning condition of power plants and the aircraft airborne systems;
- 03 Documentation and storage of processed information in electronic form, as well as in graphic and text form.

ПИП-27



Correction control of transducer chain of power unit



Flight control of power units and board systems



Engine parameters control under ground check

"SATELLITE-M2"* – FIRE HITTING PROTECTION AGAINST HIGH-PRECISION RADIO GUIDED WEAPON

* AIRBORNE ECM PROTECTION SYSTEM

Designation

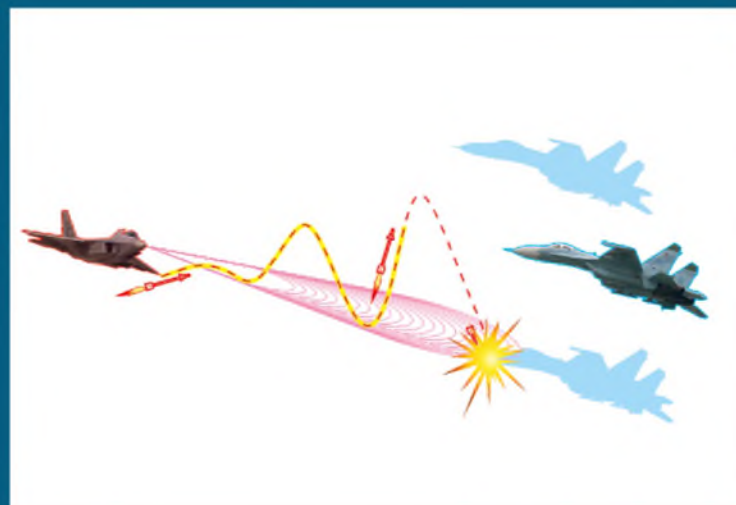
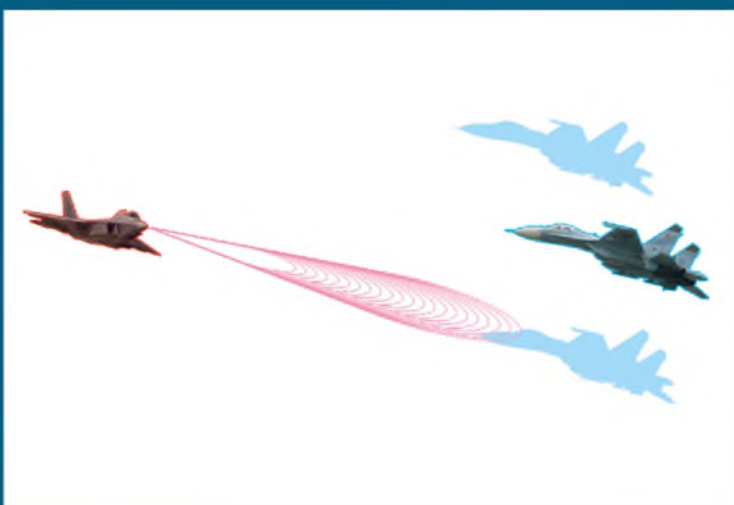
"Satellite-M2" individual airborne ECM protection system is designed for individual ECM protection system of the aircraft, whatever the type, from high-precision radio guided weapons launched from enemy Airborne Interceptor Missile Systems (IMS) and Air Defense Missile Systems (ADMS);

High-precision radio guided weapons include Airborne Interceptor Missile Systems and Air Defense Missile Systems carrying missile with semi active and active radar homing heads.

Operation principle

01. Survey stage

02. Lock-on tracking and launching missile on decoy target



"SATELLITE-M2"* – FIRE HITTING PROTECTION AGAINST HIGH-PRECISION RADIO GUIDED WEAPON

* AIRBORNE ECM PROTECTION SYSTEM

Reliable ECM protection is achieved by means of active jamming which effects:

01 angle measurement channels of fighter-interceptors and aircraft radio-location aiming complexes

02 active (semi-active) homing heads of guided aircraft missiles and antiaircraft guided missiles.

Jamming create concealed guided crippling of angle measurement follow-up systems, execute leads guided missile to:

- intense alternating accelerations;
- flight path curvature;
- substantial decrease of flight range due to depletion of the engine energy potential;
- increase of current and terminal miss.



ECM "Satellite-M2" on Su-27/Su-30 aircraft

Objects of ECM "Satellite-M2" impact:

01 – airborne radio-location aiming complex of Su-27, MiG-29, MiG-25, MiG-23, MiG-31, Su-30 aircrafts of all modifications, including phase array "БАРС" floodlight, F-15, F-16, F-18, F-22, Mirage-2000, EF-2000

02 – homing heads of P-27P, AIM-120 AMRAAM, AIM-7 "Sparrow", "Activ Sky Flash", "Matra Mica", MIM-23B, MIM-104, 9M38 missiles

03 – "Оса", "Тунгуска", "Roland", "Gepard", "Patriot", "Бук-М1" ADMS

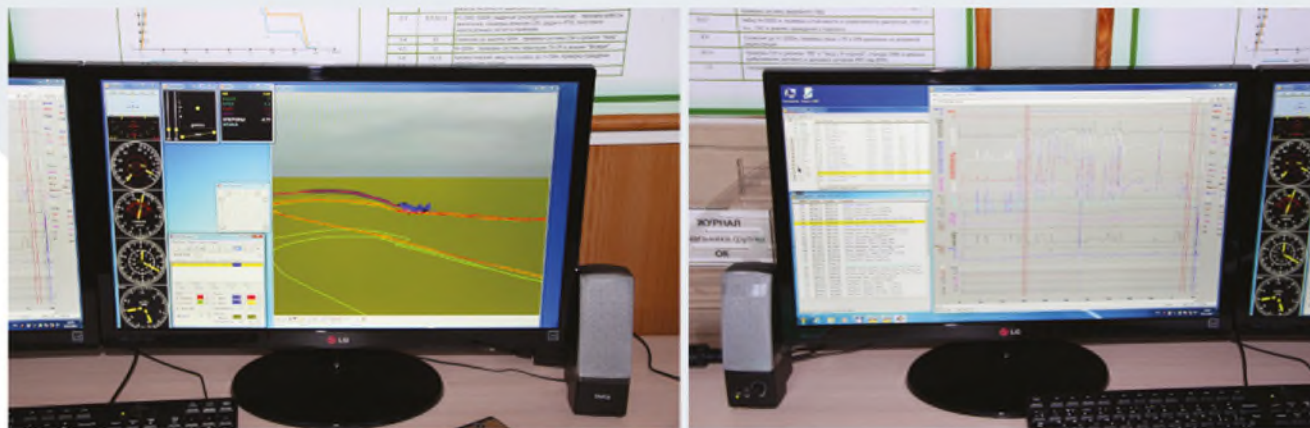
“ДВИНА-М” AUTOMATED FLIGHT INFORMATION PROCESSING SYSTEM

The system is intended for:

- 01 Reading;
- 02 Operational processing;
- 03 Storage of flight information, registered by such devices as “Тестер”, “Гамма”, “МСПР-64”, “СОК УБД”, “Экран”, БУР-4, БР-4Т-3, БУР-1-2, БУР-4-1-10, БУР-СЛ-1.



FLIGHT DATA RERECORDING UNIT



WORK STATION OF “ДВИНА-М” INFORMATION PROCESSING SYSTEM OPERATOR

“ДВИНА-М” INFORMATION PROCESSING SYSTEM

Provides:

- 01 Multiwindow operation mode including operation on several monitors in all Windows operating systems;
- 02 Multilanguage capability (Russian, French, English);
- 03 Operational adjustment for the type of airborne recording device and particular aircraft;
- 04 Flight data input into PC from flight data preparation unit of “Экран” system flash-cassette, airborne storage units from stock re-recording means as “УВ3-3”, “Обзор-МС”, etc;
- 05 Operational review and automated processing of flight information receiving diagrams, tables and statistics with printer output capability;
- 06 Simultaneous flight data analysis for “Экран” system from different airborne systems (ТЕСТЕР, БЦВМ-1,2, МБК РЛ etc.);
- 07 Express analysis and control of aircraft information between flights;
- 08 Terrain route building using digital map or satellite images and dynamic visualization of aircraft flight and primary instrument readings in 3D graphics reflecting ground profile, with approved diagram guiding and displaying registered video images and audio information in a particular window;
- 09 Archivation and long-term storage of flight information on removable optical media.