



State Foreign Trade Enterprise
SpetsTechnoExport

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Presentation of Ukrainian OEM products installed on Su-30MK(I, A, M, K) Aircraft



JAN 2010

1. Brief information on the State Company “SpetsTechnoExport”, Kiev, Ukraine

The State Foreign Trade Enterprise “SpetsTechnoExport” is Government of Ukraine entity incorporated by the Cabinet of Ministers of Ukraine in 1998 with the purpose to fulfil exports-imports activities at the foreign markets. Since the incorporation our Company gained reputation of reliable partner, which is ready to provide support to the Customers in shortest period in different regions of the World. Our traditional and most esteemed partners are the Republic of India MOD and PSUs, especially Hindustan Aeronautics Limited.

The main services which are provided SFTE “SpetsTechnoExport” around the world are as follows:

- Overhaul, life extension, modernization and spare parts support of **An-32 Aircraft**;
- Development and supply of long range reconnaissance passive radar systems, jamming and monitoring systems, supply and modernization of **ST-68 UM radars**;
- Repair and modernization of main engines, gas turbines, engineering equipment and weapon system of **ships of projects: 61ME, 159, 205, 1241, 266ME, 1258 and submarines of projects 877, 641**;
- Supply of **MiG-29** and **Su-30MKI** aviation radar units, helmet mounted target designation systems, head-up displays, etc;
- Repair and logistic support for all types/modifications of **Tu-142M, IL-38, IL-76/78, MiG and Su Aircraft family, KA-25, KA-28, KA-31 and Mi-25/35, Mi-8/17 and Mi-14 Helicopters**;
- Overhaul of **R-13, R-25, R-29, RD-33 and AL-31FP** aeroengines, **KSA-2(3)** Aircraft aggregates gearbox and it's aggregates, **TG-16M** and **TA-12** turbo generators;
- Upgradation of **Mi-8/17 Helicopters** with unique Infrared missiles countermeasure station **“ADROS”**

KT-01AV/AVE, Solid-state flight data registering device **BUR-4-1**, new night and day **vision Sights, navigation equipment**;

- Modernization of mobile complexes **MK-9.12** (for testing **MiG-29 Aircraft**) and **GURT** (for testing **R-27, R-60 and R-73 missiles**);
- Modernization and digitalization of **P-18, P-19 radars, PRV altimeters, RSBN-4N radars, RSP-10 stations**, transfer of technology, logistics support;
- Supply of **engines with increased HP (up to 1400)** for **T-72, T-80, T-84, T-90 tanks**;
- **Modernization of T-72 tanks**;
- Supply of **active armor protection systems “Nozh”, “Zaslon”** for installation on tanks and light APVs.
- Spare parts support for **“Tunguska”, “Kvadrat”, “OSA-AKM”, “Shilka”** weapon systems, **T-55, T-72, T-90, BMP-II armored vehicles**, etc.
- Training of the customer's personnel in Ukraine.
- Supply of equipment of information-intelligence complexes, including **GSM and CDMA monitoring systems**;
- Supply of radio components, electronic tubes, valves, capacitors, magnetrons, klystrons, micro wave modules.

The SFTE “SpetsTechnoExport” along with our Ukrainian OEMs is able to offer for supply all kinds of spares for the above mentioned Aircraft, Helicopters, Ships and Submarines, as well as aggregates, equipment and raw materials during entire period of their operation.

The SFTE “SpetsTechnoExport” is ready for mutually beneficial co-operation. We will be glad to help our partners in distinguishing their needs in Ukrainian products, technologies and services.

The SFTE “SpetsTechnoExport” has all Government licenses and permissions required for export of military products abroad unlike other Ukrainian trading companies and OEM.

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2. Potential of Ukrainian OEMs in production of items intended for Su-30MKI Aircraft.

Traditionally, since Soviet times Ukraine has a large number of OEM, Design Bureaus and Repair establishments, which are producing wide range of Aircraft spares and aggregates.

Please find below the list of aggregates, spare parts and services, which are produced by Ukrainian OEM for Su-30MKI Aircraft and could be exported by the State Company "SpetsTechnoExport" to India:

- LUTSK PLANT "MOTOR"

State Enterprise "MOTOR" is specialized in:

- repair and overhaul of **AL-31(F,FP)** and **RD-33** ser.2/3 Aeroengines

The OEM is producing wide range of **AL-31FP** spares, which are required to fulfill overhaul of the Engines (list of some of them is enclosed at **Annexure No.1**).

Also M/s "MOTOR" is ready to cooperate in overhaul of all **AL-31FP** Aggregates as well as provide special equipment and test benches required for overhaul.

- JSC "KRASYLIV AGGREGATES PLANT"

The Plant is specialized in manufacturing and overhaul of

- **BD3-USK** Beam holder;

- **APU-470M** Airborne Launchers installed on Su-30MKI Aircraft.

- STATE ENTERPRISE "JULIANY MACHINES-BUILDING PLANT "VIZAR "

The Plant produces the following items , installed on Su-30 MKI Aircraft:

- Multilocks beam holder **MBD3-U6-68**;

- Multilocks beam holder **MBD3-U2T-1(M)**;

- Beam holder **BD4-USKB**;

- Beam holder **BD4-USKM-B**.

- JSC "DNEPROPETROVSK AGGREGATE PLANT"

The Plant specialized in manufacturing and overhaul of different types of Pumps for SU-30MKI, such as:

- **GTN-7-3**;

- **DTSN-80/80T**;

- **DTSN-82**;

- **NP-128**;

- **NP-160D**;

- **NP-96M**;

- **ETSN-45S**;

- **ETSN-45B**;

- **ETSNG-10**;

- **ETSNG-40**.

- CORPORATION “FED”

Corporation of various Ukrainian OEMs “FED” is specialized in production and overhaul of different Su-30MKI aggregates:

- Spare parts and units for Drive Generator **GP-25** (complete list of units are enclosed at Annexure No.2).
- Capsule gas temperature detector **TDK, TDK-M.**

- JSC “ARTEM”

The Plant is specialized in manufacturing and overhaul:

- **ZKTP-1900-0** Brake Parachute Container Lock;
- **ZTP-D-2** Brake Parachute Lock;
- **APU-68UM3** Rockets launcher.

- SE “NOVATOR”

- OEM of Radar units and blocks, test equipment and it's subunits;
- Radio transponder **A- 511 B12.**

- JSC “VOLCHANSKY AGGREGATE PLANT”

The Plant is specialized in manufacturing and overhaul of

- Fuel-Oil Aggregate **4030, 4030A.**

- JSC “PERVOMAISKY MECHANICAL PLANT”

The Plant is specialized in manufacturing and overhaul of different pumps, including ones installed on Su-30MKI:

- Hand Pump **NR-01/1;**
- Plunger Pump **NP-52M;**
- Anti G Valve **AD-15.**

- JSC “ELECTRONPRIBOR”

The enterprise is designer and manufacturer of:

- Unified built-in test and crew warning system “**Ekran-UB-06EKM-2**”, **EKRAN-100;**
- Airborne Parameters Register “**Tester U3 ser. 3**”.

- SE “ARSENAL”

The State Enterprise “ARSENAL” is specialized in production and overhaul of:

- Helmet mounted target designation system “**SURA**”, it's units and supply of spares.

- SE“INSTITUTE OF ELECTROMECHANICAL EQUIPMENT”

- Onboard videotaperecorder “**KRISTALL-M**”.

-SE "INSITUTE OF AEROELASTIC SYSTEMS"

The enterprise is producing brake parachutes of Su-30MKI Aircraft as well as all types of **Brake parachutes** for Russian fighters.

-PRODUCTION ENTERPRISE "FREEZE"

The enterprise is producing brake sectors for brake discs of Su-30MKI Main wheel **KT-213** wheels all well as all types of sectors for other Russian fighters' wheels.

-RADIONIX LLC

Enterprise produces and manufactures different units of Aircraft Radars and also:

- Optical-electronic aiming system interface block **23C/01M** installed on SU-30MKI.
Technical description of the system is enclosed at Annexure No.3

-STATE PLANT "RADAR"

Enterprise is specialized in manufacturing of Aircraft avionics and also:

- Marker radioset **A-611**;
- Radiation warning station **SPO-15 Bereza (L006LM)**.

-STATE ENTERPRISES OF MOD OF UKRAINE "LVIV STATE AIRCRAFT REPAIR PLANT" AND "ZAPOROZHYE AVIATION REPAIR PLANT "MIGREMONT"

LSARP and "MIGREMONT" plants are specializing in overhaul of different types of Su-30MKI Aggregates and systems (list of some aggregates are enclosed at OEM Certificates Section of this Brochure).

-JSC "OMEGA"

The Enterprise is specializes is production of mechanical items and electronic systems, including spare parts for SOS-2-7-1:

| PART NO. | PART No. | MAIN SYSTEM |
|----------------|----------|-------------|
| 6E8.094.085 | BRACKET | SOS-2-7-1 |
| 6E8.094.107 | BRACKET | SOS-2-7-1 |
| 6E8.314.051 | AXLE | SOS-2-7-1 |
| 6E8.410.071 | GEAR | SOS-2-7-1 |
| 6E8.410.186 | GEAR | SOS-2-7-1 |
| 6E8.410.186-01 | GEAR | SOS-2-7-1 |
| 6E8.410.267 | GEAR | SOS-2-7-1 |
| 6E8.410.268-01 | GEAR | SOS-2-7-1 |
| 6E8.410.268-02 | GEAR | SOS-2-7-1 |
| 6E8.410.271 | GEAR | SOS-2-7-1 |
| 6E8.410.274 | GEAR | SOS-2-7-1 |
| 6E8.410.274-01 | GEAR | SOS-2-7-1 |
| 6E8.410.275 | GEAR | SOS-2-7-1 |
| 6E8.410.275-01 | GEAR | SOS-2-7-1 |
| 6E8.470.114 | PINION | SOS-2-7-1 |
| 6E8.470.115 | PINION | SOS-2-7-1 |
| 6E8.470.116 | PINION | SOS-2-7-1 |
| 6E8.470.117 | PINION | SOS-2-7-1 |
| 6EB.470.117-01 | PINION | SOS-2-7-1 |

| | | |
|----------------|-------------|-----------|
| 6E8.470.160-01 | PINION | SOS-2-7-1 |
| 6E8.470.161 | PINION | SOS-2-7-1 |
| 6E8.470.161-01 | PINION | SOS-2-7-1 |
| 6E8.483.025 | GEAR SECTOR | SOS-2-7-1 |

-JSC “ELECTROAVTOMAT”

| | |
|-----------------------------|-------------------------|
| Light fitting | CM-1БМ / SM-1БМ |
| Light fitting | MC2-4 кр / MS2-4 red |
| Light signal | MC2-4 зел / MS2-4 green |
| Shock absorber | АПН-3-2С / APN-3-2S |
| Shock absorber | АПНМ-5 / APNM-5 |
| Light fitting (from SAU-28) | АПНМ-3 / APNM-3 |

- JSC “LJAVA”

| | |
|--------|--------------|
| Switch | ПГ3 5П2НПВ |
| Switch | ПГ3-11П-2НПВ |
| Switch | ПГ3 3п3НПВ |

-JSC “MAYAK”

| | |
|--------|-----------------|
| Handle | НЛП4.252.039C |
| Handle | НЛП4.252.123 СП |

-List of other aggregates and spares of Su-30MKI Aircraft which are manufactured in Ukraine by various plants:

- Different types of **Contactors** (TKS; TKD; TKE; KM; DMR);
- Different types of **Circuit Breakers** (AZS; AZSGK; AZRGK; AZK-1M);
- Different types of **Knobs/Microswitches** (KNR; KNZ, KP, KZ, PK, 4KNR, 8KNR, 711 ets.);
- Different types of **Switches** PKN; KN;PKB7;

- Different types of **Aircraft Lamps LFL/LFSM**, SM; KGМN (KGМ); KGSM;
- Different types of **Electrical Motors** DRV; DID; DGM; DPM; MMT-1.5S-OM;
- Different types of **Transmitters** MST(V);
- Different types of **Radio-Frequency Cables** RK;
- Different types of **Airborne cables** BPDO (E); PTL(E);
- Different types of **Wires** MGSHV;
- All types of **Rubber Sleeves** under TY 380051515-92 (1Y; 1M; 2Y; 2M; 3Y; 3M; 4Y; 4M; 5Y; 5M);
- All types of **Rubber Sleeves** under TY 0056016-87 type 40Y (3atm/5atm/7atm/13atm);
- **Aircraft Fabrics:** AZT; NT-7
- **Thermometers:** TP-2; TNV-45; TV-45K;
- Different types of **Voltmeters** V; VF; VA;
- Different types of **Ampermeters**: A; AF;

- **Magnetic tape** for system “Tester” EP-298;
- Different types of **Shock absorbers** APN; APNM; AFD; AD
- Different types of **Light Annunciators**: BANO; XC; ANO; FR-11; SM-1BM (KM); MS-M; MS2-4; SPP-2; APM; AGL; S (S-60; S-80; SV; ST), SLTSN; FM; FSHM; MFS; PRM; KS;
- **Headlamps** MPRF; PBS; FR-9;
- **Tables** TS-3M; TS-5M;
- **Fuse holders** DVP; DPB, PM;
- Different types of **Connectors**: SHR; SNTS; CNP; SR; SHR; RS; RPKM; RM; 2RM; 2RMG; RPS; RP; 2RTT; SHRA; SHRAP; SHK; ШЩ;
- **Oxygen Hoses** KSH (KSH-52M)
- **Oxygen Hoses** 9B6 ... (9B6.450.366)
- Several types of **Bearings** ETY 100;
- Different types of **Valves** GU; GI; GS; GM; GMI; 6ZH; 6N; 6P;
- Some types of **TWTs** UV;
- Different types of **Fuses** PM; SP; IP; VP
- Different types of **Photo Diodes** FD (FDK) (UFD);
- Different types of **Electromagnets**: EMKO-K; EMKO-M; EMKO-KT; EMKO-MT; EMO-2/2T;

Other aggregates/spare parts, produced by various OEM in Ukraine:

**D-3M; D-3-2M; P-77 var.2; P-109; T-99; T-142;
 2IA-7AB; PK-9B; ITE-2TB; P-104; P-109; EP-528T ser.2;
 P-117; PP-53-4T; UM-4; K-82; SPS-1; KTU-1M; UPT-1M ser.2;
 PP-SSP; SSP-2I; SPT-20; ATD-24M; IM-3A.**

- Capacitors, Diodes, Microcircuits, Transformers and small electronic components.

Annexure No.1

**BRIEF LIST OF AL-31FP AEROENGINE SPARES, PRODUCED BY
LUTSK PLANT "MOTOR"**

| # | Part No. | Description | Main assembly |
|----|------------------|--------------|---------------|
| 1 | 2011.01.182-1 | SPRING | NR-59A |
| 2 | 2064.255 | SPRING | NR-59A |
| 3 | 2162.01.047 | SPRING | RSF-59A |
| 4 | 2162.01.177 | SPRING | RSF-59A |
| 5 | 2162.01.203 | SPRING | RSF-59A |
| 6 | 2162.02.018-2 | SPRING | RSF-59A |
| 7 | 2176.01.141-1 | SPRING | RSF-59A |
| 8 | 2176.01.199-01 | SPRING | RSF-59A |
| 9 | 2176.01.224-2 | SPRING | RSF-59A |
| 10 | 2176.01.336-3 | SPRING | RSF-59A |
| 11 | 2176.02.029 | SPRING | RSF-59A |
| 12 | 2176.02.076-01 | SPRING | RSF-59A |
| 13 | 2176.02.139 | SPRING | RSF-59A |
| 14 | 2218.03.042-1 | SPRING | RSF-59A |
| 15 | 2218.03.069-1 | SPRING | RSF-59A |
| 16 | 2255.01.066-1 | SPRING | RSF-59A |
| 17 | 2255.03.053 | SPRING | RSF-59A |
| 18 | 2268.01.108 | SPRING | RSF-59A |
| 19 | 2062.552 | SPRING | NR-59A |
| 20 | 2073.317 | SPRING | NR-59A |
| 21 | 2166.235 | SPRING | NR-59A |
| 22 | 2166.264-2 | SPRING | NR-59A |
| 23 | 2166.314-1 | SPRING | NR-59A |
| 24 | 2166.327 | SPRING | NR-59A |
| 25 | 2166.427-5-01 | SPRING | NR-59A |
| 26 | 2166.427-5-02 | SPRING | NR-59A |
| 27 | 2166.427-5-03 | SPRING | NR-59A |
| 28 | 2185.01.097 | SPRING | NR-59A |
| 29 | 2185.01.109-1 | SPRING | NR-59A |
| 30 | 2185.02.048-2 | SPRING | NR-59A |
| 31 | 2185.02.048-2-01 | SPRING | NR-59A |
| 32 | 2185.02.048-2-02 | SPRING | NR-59A |
| 33 | 2185.02.048-2-03 | SPRING | NR-59A |
| 34 | 2185.02.048-2-04 | SPRING | NR-59A |
| 35 | 2185.02.048-2-05 | SPRING | NR-59A |
| 36 | 2185.02.048-2-06 | SPRING | NR-59A |
| 37 | 2185.02.048-2-07 | SPRING | NR-59A |
| 38 | 2185.02.048-2-08 | SPRING | NR-59A |
| 39 | 2185.02.111 | LOCKING RING | NR-59A |
| 40 | 2185.02.137-1 | SPRING | NR-59A |
| 41 | 2185.02.137-1-01 | SPRING | NR-59A |
| 42 | 2185.02.137-1-02 | SPRING | NR-59A |
| 43 | 2185.02.137-1-03 | SPRING | NR-59A |
| 44 | 2220.033-1 | SPRING | FN-59A |
| 45 | 2220.061-1 | SPRING | FN-59A |

| | | | |
|----|------------------|--------|--------|
| 46 | 2252.01.031 | SPRING | NR-59A |
| 47 | 2335.02.006-1 | SPRING | NR-59A |
| 48 | 2335.02.006-1-01 | SPRING | NR-59A |
| 49 | 2335.02.006-1-02 | SPRING | NR-59A |
| 50 | 2335.02.006-1-03 | SPRING | NR-59A |
| 51 | 2335.02.006-1-04 | SPRING | NR-59A |
| 52 | 2335.02.006-1-05 | SPRING | NR-59A |
| 53 | 2335.02.108-3 | SPRING | NR-59A |
| 54 | 2565.007 | SPRING | NR-59A |

LIST OF GP-25 COMPONENTS, PRODUCED IN UKRAINE

| No. | Description | Part Number |
|-----|-----------------------|--------------------|
| 1 | Hydraulic machine | GP25.300 |
| 2 | Differential | GP25.600 |
| 3 | Edge sealing | GP25.840 |
| 4 | Casing | GP25.771 |
| 5 | Casing | GP25.883 |
| 6 | Cover | GP25.883 |
| 7 | Cover | GP25.830 |
| 8 | Centrifugal regulator | GP25.580 |
| 9 | Pinion | GP25.231 |
| 10 | Pinion | GP25.232 |
| 11 | Pin | GP25.233 |
| 12 | Shaft-pinion | GP25.835 |
| 13 | Casing | GP25.831 |
| 14 | Bushing | GP25.761 |
| 15 | Pinion | GP25.903 |
| 16 | Bend clamp | GP25.800 |
| 17 | Bushing | GP25.523 |
| 18 | Bushing | GP25.524 |
| 19 | Guide | GP25.525 |
| 20 | Rod | GP25.527 |
| 21 | Ge-rotor | GP25.832/833 |
| 22 | Ge-rotor | GP25.832-01/833-01 |
| 23 | Ge-rotor | GP25.832-02/833-02 |
| 24 | Flange | GP25.007 |
| 25 | Semi-coupling RH | GP25.011 |
| 26 | Semi-coupling RH | GP25.051 |
| 27 | Semi-coupling LH | GP25.522 |
| 28 | Comb | GP25.522 |
| 29 | Casing | GP25.540-T |
| 30 | Insert | GP21.532-4 |
| 31 | Inspection glass | GP23.054 |
| 32 | Threaded locking | GP23.715 |
| 33 | Split Pin | GP23.471-4 |
| 34 | Valve unit | GP23.600 |
| 35 | Valve | GP21.080 |
| 36 | Lag | GP25.1-020 |
| 37 | Chain | GP25.1-1-02 |
| 38 | Shoe | GP25.370 |
| 39 | Screw | GP25.440 |
| 40 | Bushing | GP25.521 |
| 41 | Angle | GP25.081 |
| 42 | Angle | GP25.082 |

| | | |
|----|---------------|--------------|
| 43 | Nut | GP25.902 |
| 44 | Cylinder | GP25.745 |
| 45 | Slide valve | GP25.714/701 |
| 46 | Spring | GP25.013 |
| 47 | Spring | GP25.057 |
| 48 | Cup | GP21.398 |
| 49 | Sealing ring | GP23.053 |
| 50 | Sealing ring | GP23.049-7 |
| 51 | Sealing | GP23.052 |
| 52 | Sealing | GP23.052-01 |
| 53 | Sealing | GP23.052-02 |
| 54 | Screw | GP23.067 |
| 55 | Washer | GP22.212 |
| 56 | Washer | GP22.212-1 |
| 57 | Spring | GP22.232 |
| 58 | Cup | GP21.326 |
| 59 | Ring | GP23.064 |
| 60 | Spacer | GP21.064 |
| 61 | Thermofuse | GP21.458 |
| 62 | Plug | GP21.462 |
| 63 | Washer | GP21.422 |
| 64 | Washer | GP21.422-1 |
| 65 | Washer | GP21.422-2 |
| 66 | Cup | GP22.983 |
| 67 | Cup | GP22.206 |
| 68 | Screw | GP23.027 |
| 69 | Cup | GP22.309 |
| 70 | Plug | GP21.227 |
| 71 | Valve | GP21.421 |
| 72 | Ring | GP21.236 |
| 73 | Screw | GP22.449 |
| 74 | Output | GP21.950 |
| 75 | Spiral insert | GP21.532 |

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Annex No 3 .Description of optical-electronic aiming system 23C/01(M) produced in Ukraine

ООО «РАДИОНІКС»
03039 Україна г.Київ ул.Ізюмська,7
тел./факс +38(044) 400-47-51, тел. +38(044) 587-70-58
Email: radionix@mail.ru



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Email: radionix@mail.ru

Optical-electronic aiming system interface block with ADC&DAC conversion 23C/01M



Designed for an old 23C/01 interface block with substitution and repair. They are operating with the Optical-electronic aiming systems of the MIG-29 and SY-27 fighter aircrafts. The new version of 23C/01, the 23C/01M is made with the new components and the state of the art technology. It has improved ADC and DAC characteristics and reliability.

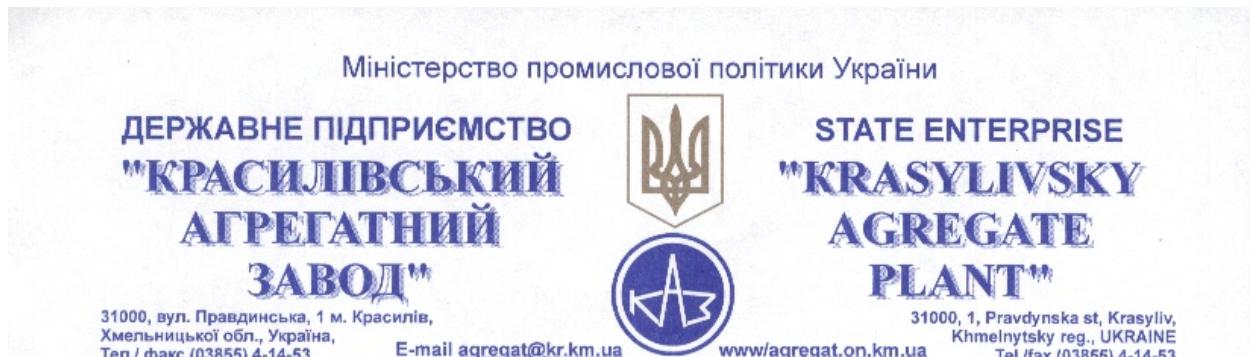
The interface block provides:

- signals voltages measurements with the AD conversion and processing these values to the binary serial interface code worlds
- receiving control information for the Optical-electronic aiming system from the weapon control system computer, processing it to the analog voltages and commands, and also sending the information from the Optical-electronic aiming system to the weapon control system computer and display system computer by the serial interface lines.
- Half wave interval of AC supply voltage measurement and converting it to digital code.

Technical characteristics:

| | | |
|--|-------|--------------------|
| analog to digital conversion error less then 0.2% from the reference voltage level | | less then ±2µs |
| half wave interval measurement error | | |
| code word length..... | | – 32bit |
| serial interface lines..... | | – 5 |
| power consumption (from the AC 110...122V)..... | | less then 15VA |
| continuous time of operating..... | | more then 3 hours. |

**LIST OF SOME OEM CERTIFICATES ISSUED IN THE NAME OF
SPETSTECHNOEXPORT FOR REALIZATION OF MANUFACTURESRS
PRODUCTS**



Від 3.07.07 № 10-1404

На № _____ від _____

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AUTHORISATION LETTER

This is to certify that SFTE
«Spetstechnoexport» is authorized to participate in
all tenders of Air HQ, IAF, Ministry of Defence of
India and M/S Hindustan Aeronautics Limited for
the range of produced by our Enterprise.

Best regards,

Director



Korolyuk P.V.

13209

**LIST OF SOME OEM CERTIFICATES ISSUED IN THE NAME OF
SPETSTECHNOEXPORT FOR REALIZATION OF MANUFACTURESRS
PRODUCTS**

Міністерство промислової політики України

**ДЕРЖАВНЕ ПІДПРИЄМСТВО
"КРАСИЛІВСЬКИЙ
АГРЕГАТНИЙ
ЗАВОД"**

31000, вул. Правдинська, 1 м. Красилів,
Хмельницької обл., Україна.
Tel./fax (03855) 4-14-53

E-mail: aggregat@kr.km.ua



**STATE ENTERPRISE
"KRASYLIVSKY
AGREGATE
PLANT"**

31000, 1, Pravdynska st, Krasyliv,
Khmelnytsky reg., UKRAINE
Tel./fax (03855) 4-14-53

Від 30.04.08 № 10-1059

На № _____ від _____

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AUTHORISATION LETTER

This is to certify that State Enterprise "Krasylivsky Aggregate Plant" is the OEM of Beam Holder BD3-USK-A and Airborne Launcher APU-470 installed on SU-30MKI aircraft. In this concern we authorize SFTE "Spetstechnoexport" to represent our interest and products in India and participate in all tenders of Air Headquarters, IAF and M/S "Hindustan Aeronautics Limited" for the range of products produced by our Enterprise.

Best regards,

M.V. Koroluk
Director





State Enterprise of Defence Ministry of Ukraine Lutsk Repair Plant "MOTOR"

Kivertsivska st. 3, 43006 Lutsk, Volyn region, UKRAINE
Phone: (+3803322) 41491, Phone/Fax: (+380332) 770149, 777335

E-mail: info@motor-lutsk.ua, www.motor-lutsk.com
info@motor-lutsk.com

No. 1443
"31-04 2008

AUTHORISATION LETTER

This is to certify that State Enterprise of MOD of Ukraine "Lutsk Repair Plant "Motor" is authorized Plant to fulfil repair and overhaul of Engines RD-33-2S, AL-31 and their aggregates, overhaul of items VKA, GTDE-117(1), TC-21 and PGL-30M, as well as manufacture spare parts for above mentioned Items.

In this concern we confirm that SFTE "SpetsTechnoExport" could represent our interest and products in India and participate in all tenders of Indian Air Headquarters, Ministry of Defence and M/S "Hindustan Aeronautics Limited" for the range of products produced and overhauled by our Enterprise.

Best regards,

V. Maraculin,
Deputy Director



Державне підприємство

НОВАТОР

УКРАЇНА, 29016, м. Хмельницький, вул. Тернопільська, 17
 тел. (+380-3822) 2-10-74, факс: (+380-382) 78-80-13
 Телетайп: 291126 «ІСКРА» E-mail:centre@novator.km.ua
 тел./факс: (+380-3822) 2-34-70 E-mail: office@novator-tm.com



State enterprise

NOVATOR

17, Ternopilska St., Khmelnytsky, 29016, UKRAINE
 tel.: (+380-3822) 2-10-74, fax: (+380-382) 78-80-13
www.novator-tm.com tel./fax:(+380-3822) 2-34-70

Від 29.07.08 № 62/119
 на № _____ від _____

AUTHORISATION LETTER

This is to certify that State Enterprise "Novator" is the OEM of Radars and units for MiG-21BIS (KOPYO Radar), MiG-29, MiG-29 upgrade version (ZHYK Radar), MiG-35 (ZHYK Radar) and SU-30 a/c, as well as test equipment for these Radars. In this concern we authorize SFTE "Spetsstehnoexport" to represent our interest and products in India and participate in all tenders of Air Headquarters, IAF and M/S "Hindustan Aeronautics Limited" for the range of products produced by our Enterprise.

Best regards,

A. A. Vdovychenko,
Director



ДЕРЖАВНЕ ПІДПРИЄМСТВО
МІНІСТЕРСТВА ОБОРОНИ УКРАЇНИ
“ЛЬВІВСЬКИЙ ДЕРЖАВНИЙ
АВІАЦІЙНО-РЕМОНТНИЙ
ЗАВОД”

79040, Україна, м. Львів, вул. Авіаційна, 3
 Телефони: 62-39-60 керівник
 62-50-69 головний інженер
 62-52-01 приймальна
 Факси: 62-43-88
 97-61-60
 97-62-45



STATE ENTERPRISE
OF MINISTRY OF DEFENCE
OF UKRAINE
“LVIV STATE AIRCRAFT REPAIR
PLANT”

3, Aviationay st., Lviv, Ukraine, 79040
 Telephones: 62-39-60 Director
 62-50-69 Chief Engineer
 62-52-01 Reception
 Fax: 62-43-88
 97-61-60
 97-62-45

AUTHORISATION LETTER

This is to certify that State Enterprise MOD “Lviv State Aircraft Repair Plant” is authorized Plant to fulfil repair and overhaul of all types of MiG aircraft, its aggregates, as well as aggregates of SU-30MKI, including following:

| | |
|--------------------------|---|
| AU46-05 | CONTROL ASSEMBLY |
| NRO1/1 | MANUAL PUMP |
| SCHM-1-1.15 | NUMBER INDICATOR M |
| I-2-3-210 OST103749-74 | CYLINDER “NITROGEN” |
| 702800M | ELECTROPNEUMATIC VALVE |
| 773700A | ELECTROHYDRAULIC DISTRIBUTOR |
| 991AT3.02A-01 | ONBOARD VALVE |
| SCHM-1-0.65 | NUMBER INDICATOR M |
| SCHM-1-0.85 | NUMBER INDICATOR M |
| SCHM-1-1.5 | NUMBER INDICATOR M |
| 8D2.966.512-03 | FILTER |
| 1-6-2 (without cylinder) | FIRE EXTINGUISHER |
| GTN7-Ser.3 | HYDRO-TURBINE PUMP |
| MSTV-2.2A | PRESSURE INDICATOR |
| SPT-0.15A | INDICATOR OF DIFFERENTIAL PRESSURE |
| SPT-0.35 | INDICATOR OF DIFFERENTIAL PRESSURE |
| 8D2.966.085 | AIR FILTER |
| 989AT1-20 | NON-RETURN VALVE |
| 698800 | ELECTRO MAGNETIC VALVE |
| DTSN-80 | FUEL PUMP |
| SCHM-1-1.25 | NUMBER INDICATOR M |
| 3271 | NON-RETURN VALVE |
| 8D2.966.756-01 | FILTER |
| DVGM | SENSOR OF HEIGHT |
| DDK-1 | SENSOR OF OXYGEN PRESSURE |
| MA-250K | MANOMETER |
| PVD-7 | AIR-PRESSURE RECEIVER |
| PVD-18-3M | AIR-PRESSURE RECEIVER |
| 9-А-4071 with LH supply | GUN |
| SEP-72MD | ELECTRIC POWER SUPPLY SYSTEM |
| BRZU-115VO-1 | REGULATING UNIT OF PROTECTION AND CONTROL |
| Article 781 | WATCH |

and OEM of following Boards for testing of different aircraft systems are produced by the Enterprise:

- Multi purpose Panel for Automatic Monitoring of the Commutation Devices.
- Board for Automatic Control of Airborne Electrocables.
- Panel for Automated Check up of Onboard Control Systems of Engine Modes.
- Facility of On-line-test "BERKUT".
- Mobile Complexes MK-9.12M and MK-T10;
- Universal Automatic Measuring Complex.

In this concern we authorize SFTE "SpetsTechnoExport" to represent our interest and products in India and participate in all tenders of Air Headquarters, IAF and M/S "Hindustan Aeronautics Limited" for the range of products produced by our Enterprise.

Best regards,

A. Kravchuk,
Director



ВІДКРИТЕ АКЦІОНЕРНЕ ТОВАРИСТВО
**«ДНІПРОПЕТРОВСЬКИЙ
 АГРЕГАТНИЙ ЗАВОД»
 (АТ «ДАЗ»)**



вул. Щепкіна, 53, м. Дніпропетровськ, 49052, Україна
 тел. +38 (056) 371-03-99, 370-28-19
 факс +38 (056) 371-03-58
 E-mail: daz@sbit.dp.ua http: www.aodaz.com.ua
 Свід. № 03312335, ІПН 143116104023, ЕДРПОУ 14311614,

06.08.08 № 90/ 1490-03

JOINTSTOCK COMPANY
**«DNIIEPROPETROVSK
 AGGREGATE PLANT»
 (SC «DAP»)**

53 Schepkin str. Dniepropetronsk, 49052, Ukraine
 tel. +38 (056) 371-03-99, 370-28-19
 fax. +38 (056) 371-03-58
 E-mail: daz@sbit.dp.ua http: www.aodaz.com.ua

AUTHORISATION LETTER

This is to certify that Joint Stock Company “Dnepropetrovsk Aggregate Plant” is the OEM of following units / pumps installed on SU-30MKI aircraft: GTN-7-3, DTSN-80/80T, DTSN-82, NP-128, NP-160D, NP-96M, ETSN-45C, ETSNG-10, ETSNG-40.

In this concern we authorize SFTE “SpetsTechnoExport” to participate in all tenders of Air Headquarters, IAF and M/S “Hindustan Aeronautics Limited” for the range of products produced by our Plant.

Best regards,



**ГОСУДАРСТВЕННОЕ ПРЕДПРИЯТИЕ
"ХАРЬКОВСКОЕ АГРЕГАТНОЕ
КОНСТРУКТОРСКОЕ БЮРО"**

Украина, 61023, г. Харьков, ул. Сумская, 132
тел. (057) 707-02-71, факс (057) 707-02-73, 700-48-94
Email: khadb@bk.ru

08.08.2008 № 225-8/1086

На № _____ від _____

**STATE ENTERPRISE
"KHARKOV AGGREGATE
DESIGN BUREAU"**

132, Sumska St., 61023 Kharkiv, Ukraine
phone (057) 707-02-71, fax (057) 707-02-73, 700-48-94
E-mail: khadb@bk.ru

AUTHORISATION

We authorize SFTE interest and products in India Headquarters, IAF and M/S the range of military products Enterprise.

Best regards,



**First deputy of Chief Designer
E.V. Pavlyuk**

LETTER

"Spetstechnoexport" to represent our and participate in all tenders of Air "Hindustan Aeronautics Limited" for designed and produced by our Enterprise.

– Director



відкрите акціонерне товариство

ВОВЧАНСЬКИЙ АГРЕГАТНИЙ ЗАВОД

вул. Пушкіна, 2, м. Вовчанськ, Харківська обл., 62503, Україна
 телефон 8 (05741) 4-27-03; тел./факс 8 (05741) 4-34-30; e-mail: vza@kharkov.ukrtel.net
 Код ЄДРПОУ 14309847
 ISO 9001:2000

20.08.08 № 03.10/14 на № _____ від _____

AUTHORISATION LETTER

This is to certify that JSC “Volchanskiy aggregate plant” is the OEM of manufacturing and overhaul of Fuel-Oil units 4030 and 4030A (SU-30MKI). In this concern we authorize SFTE “Spetsstehnoexport” to represent our interest and products in India and participate in all tenders of Air Headquarters, IAF and M/S “Hindustan Aeronautics Limited” for the range of products produced by our Enterprise.

Best regards,

O.A. Antonenko



ТОВ «РАДІОНІКС»
04111 м.Київ, вул.Салютна,1Б оф.1
тел. +38(044) 400-47-51, Email: radionix@mail.ru



«RADIONIX» Ltd.
04111 Ukraine, Kyiv, Salutna, 1B of.1
tel. +38(044) 400-47-51, Email: radionix@mail.ru

**SFTE “SpetsTechnoExport”
(Director I. Gladush)**

Authorization Certificate

By this Certificate we authorize the State Company “SpetsTechnoExport” to promote the products, developed and produced by our Enterprise for the MiG and Su - family of Aircrafts at the foreign markets.

«RADIONIX» Ltd

Director



S.Zavyalov

PROTOCOL

on the results of the visit of Air Attaché of Embassy of India in Ukraine to Arsenal Central Design Bureau State Enterprise

Kyiv

July 23, 2008

ПРОТОКОЛ

за результатами візиту Військово-повітряного аташе посольства Індії в Україні в Казенне підприємство "Центральне конструкторське бюро "Арсенал"

Київ

23 липня 2008р.

In the meeting participated:

From Indian party:

1. Gp. Capt. PE Patange, Air Attaché of Embassy of India in Ukraine;

From Arsenal CDB SE:

1. M.I. Likholt, Director and Chief Designer,
2. V.T. Glushchenko, Head of Department;

From SFTE "Spetschnoexport":

1. P.I. Fedoruk, Head of Department,
2. A.V. Cherednyk, Deputy Head of Department,
3. S.M. Khosh, Leading Specialist.

В зустрічі приймали участь:

З Індійської сторони:

1. Полковник ПЕ Патанге, Військово-повітряний аташе Посольства Індії в Україні;

Від КП "ЦКБ "Арсенал":

1. М.І. Лихоліт, директор-Головний конструктор,
2. В.Т. Глущенко, начальник відділу;

Від ДГЗП "Спецтехноекспорт":

1. П.І. Федорук, начальник департаменту,
2. А.В. Чередник, заст. начальника департаменту,
3. С.М. Хош, провідний спеціаліст.

Arsenal CDB SE has presented its enterprise and acquainted the Air Attaché with the products exhibition.

Arsenal CDB SE has showed an operation of SURA Helmet-Mounted Target Designation System (HMTDS), which is used in Su-30MKI aircraft of Indian Air Force, and informed of SURA HMTDS upgrade. At present time upgraded SURA HMTDS possessing a new capability of flight & sighting data display is under flight tests.

The set of information and promotional material as well as presentation CD handed to the Air Attaché.

The visit was resulted in the following decision:

1. The Air Attaché will inform Ministry of Defence and other interested institutions of India of the data received.
2. In case of interest in any goods or services of Arsenal CDB the Air Attaché will advice Arsenal CDB SE and SFTE "Spetschnoexport" of respective matter.

КП "ЦКБ "Арсенал" провело презентацію свого підприємства та ознайомило Військово-повітряного аташе з виставкою продукції.

КП "ЦКБ "Арсенал" продемонструвало роботу нашоломної системи цілевказування (НСЦ) СУРА, яка застосовується на літаках Су-30МКІ Індійських ВПС, та надало інформацію щодо проведеної модернізації НСЦ СУРА. На даний час модернізована НСЦ СУРА, в якій введена нова функція індикації прицільно-пілотажної інформації, проходить льотні випробування.

Військово-повітряному аташе переданий комплект рекламно-інформаційних матеріалів та CD з матеріалами презентації.

За результатами візиту прийняте наступне рішення:

1. Військово-повітряний аташе доводить отриману інформацію до Міністерства оборони та інших зацікавлених установ Індії.
2. У разі зацікавленості в продукції та послугах КП "ЦКБ "Арсенал" Військово-повітряний аташе надасть відповідну інформацію до КП "ЦКБ "Арсенал" та ДГЗП "Спецтехноекспорт".



Gp. Capt. PE Patange

Air Attaché

Embassy of India in Ukraine

Полковник ПЕ Патанге

Військово-повітряний аташе
посольства Індії в Україні



M.I. Likholt

Director and Chief Designer

Arsenal CDB SE

М.І. Лихоліт

Директор-Головний конструктор
КП "ЦКБ "Арсенал"



P.I. Fedoruk

Head of Department

SFTE "Spetschnoexport"

П.І. Федорук

Начальник Департаменту
ДГЗП "Спецтехноекспорт"

**PROTOCOL OF VISIT TO SE
“GYLANSKY MACHINE-BUILDING
PLANT “VIZAR”**

Kyiv

25.07.2008

**ПРОТОКОЛ ВИЗИТУ ДО ДП
«ЖУЛЯНСЬКИЙ МАШИНОБУДІВНИЙ
ЗАВОД «ВІЗАР»**

Київ

25.07.2008

Commission consisting of Representative of Air Headquarters Ministry of Defence of India Air Attaché of Embassy of India in Ukraine Gp. Capt. PE Patange, Representative of State Enterprise “Gylansky Machine-Building Plant “Vizar” Director A.O. Koval and Representative of SFTE “SpetsTechnoexport” Deputy Head of Department O.V. Cherednyk (hereinafter referred to as Parties) signed this Protocol about the following:

Sides has inspected facilities of the Plant utilized for manufacturing of following items:

- Multilock Beam Holder MBD3-U6-68 - (SU-30MKI)
- Beam Holder BD3-UMK2-B - (MiG-29, MiG-27)
- Multilock Beam Holder MBD3-U2T-1 - (MiG-23, MiG-27, MiG-29, SU-30MKI)
- Beam Holder BD4-USKB - (SU-30MKI)
- Lock D3-UM - (MiG-27, MiG-29)
- Lock D3U-1A - (MiG-23, MiG-27, MiG-29, SU-30MKI)

Sides agreed that Plant has all requisite facilities utilized for overhaul and manufacturing of items indicated below.

All the items, produced by State Enterprise “Gylansky Machine-Building Plant “Vizar”, could be promoted at the foreign markets by SFTE “SpetsTechnoExport”.

Комісія у складі представника Штаб-квартири ВПС Міністерства Оборони Індії Військово-повітряного аташе Полковника ПЕ Патанге, директора ДП «Жулянський машинобудівний завод «Візар» А.О. Ковала та представника ДГЗП «Спецтехноекспорт» заступника начальника Департаменту контрактів №1 О.В. Чередника (надалі Сторони) підписали даний Протокол про наступне:

Сторони ознайомилися з можливостями Підприємства щодо виробництва наступних Виробів:

- Многозамковий балочний тримач МБД3-У6-68 - (СУ-30МКІ).
- Балочний тримач БД3-УМК2-Б – (МіГ-29, МіГ-27)
- Многозамковий балочний тримач – (МіГ-23, МіГ-27, МіГ-29, СУ-30МКІ)
- Балочний тримач БД4-УСКБ – (СУ-30МКІ)
- Замок ДЗ-УМ – (МіГ-27, МіГ-29)
- Замок ДЗУ-1А – (МіГ-23, МіГ-27, МіГ-29, СУ-30МКІ).

Сторони згодні, що Завод має необхідні потужності для проведення ремонту та виробництва виробів вказаних вище.

ДП «Жулянський машинобудівний завод «Візар» підтверджує, що ДГЗП «Спецтехноекспорт» може поставляти інозамовнику всі вищевказані Вироби.

For and on behalf
of the Air Headquarters
Ministry of Defence of India
Від імені Штаб-квартири ВПС
Міністерства Оборони Індії

Сергей

For and on behalf of
the State Enterprise
State Enterprise “Gylansky
Machine-Building Plant “Vizar”
Від імені

ДП «Жулянський
машинобудівний завод
«Візар»



For and on behalf
SFTE “SpetsTechnoExport”
Від імені
ДГЗП “Спецтехноекспорт”

Денис



STATE SERVICE OF EXPORT CONTROL OF UKRAINE

CONFIRMATION

dated 25.10.06 № 10/4-2745

This is to certify that the State Foreign Enterprise Spetstechnoexport (SFTE Spetstechnoexport) is authorized by the Cabinet of Ministers of Ukraine to exercise export and import of military goods

Valerii V. Hryshko
Deputy Chairman,
State Service of Export Control of Ukraine





Серія А00

№ 597574

СВІДОЦТВО

ПРО ДЕРЖАВНУ РЕЄСТРАЦІЮ
ЮРИДИЧНОЇ ОСОБИ

ДОЧІРНЄ ПІДПРИЄМСТВО ДЕРЖАВНОЇ КОМПАНІЇ
"УКРСПЕЦЕКСПОРТ" - ДЕРЖАВНЕ
ГОСПРОЗРАХУНКОВЕ ЗОВНІШньОТОРГІВЕЛЬНЕ
ПІДПРИЄМСТВО "СПЕЦТЕХНОЕКСПОРТ"

Ідентифікаційний код
юридичної особи

30019335

Місце знаходження
юридичної особи

04073, МІСТО КИЇВ, МОСКОВСЬКИЙ
ПРОСПЕКТ, БУД. 7

Місце проведення державної
реєстрації

ОБОЛОНСЬКА РАЙОННА У МІСТІ
КИЄВІ ДЕРЖАВНА АДМІНІСТРАЦІЯ

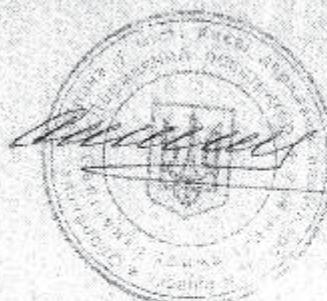
Дата проведення державної
реєстрації

Номер запису про включення відомостей про
юридичну особу до ЕДР

08.07.1998 р.

1 069 120 0000 002705

Державний реєстратор



І.І. СЕРГІЕНКО