Service and warranty maintenance of the product range of the Concern Avrora Scientific and Production Association JSC
Contents

1. General information about the ESC
2. Organization of service maintenance for the objects of the Russian Navy
3. Organization of service maintenance of the exported products
4. Instruments of steady maintenance of the customers in the logistic infrastructure of the Concern
1. General information about the ESC
Concept of development of the ESC

Export & Service Center (earlier – Service & Warranty Maintenance Center) was created in August 2008.

The objective of the ESC activities is step-by-step organization of service and warranty maintenance system for the enterprise’s range of products being manufactured for marine engineering and assuring the following:

- high-quality warranty maintenance of the enterprise’s range of products, installed aboard the marine engineering
- high-quality service maintenance of the enterprise’s range of products, their upkeep in the process of operation
- optimization and enhancement of economic efficiency of the enterprise in the field of after-sale maintenance

Warranty maintenance is performed as per the scope and terms specified in the contractual documents. Service maintenance is performed after completion of warranty, on the contract basis.
Main objectives of the ESC

- Provision of warranty
- Organization of repairs and modernization of the articles
- Technical support of repairs
- Creation of insurance stock of SPTA and components
- Supply of spares, units, training and auxiliary equipment
- Follow-on and engineering supervision
- Development of repair and technical documents for repairs of the products
- Organization of technical and methodological assistance in repair of malfunctions

SWMC mission is to satisfy the customer's requirements of high-quality service and warranty maintenance of products during the whole life cycle.
2. Organization of service maintenance of the Russian Navy objects

<table>
<thead>
<tr>
<th>Service maintenance</th>
<th>Shipyards</th>
<th>Ship repair enterprises</th>
<th>Manufacturer of systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipyard</strong></td>
<td>Organization of the service maintenance system as per the principle “shipyard - customer”, for instance:</td>
<td>Organization of the service maintenance system as per the principle “ship repair enterprise - customer”, for instance:</td>
<td>Organization of the service maintenance system as per the principle “manufacturer of systems – customer”, for instance:</td>
</tr>
<tr>
<td>• Sevmash Production Association JSC</td>
<td>• Zvezdochka Shiprepairing Center JSC – the Northern Fleet, the Black Sea Fleet, the Caspian Flotilla.</td>
<td>• Concern Avrora Scientific &amp; Production Association JSC&lt;br&gt;• Concern Electropribor Central Research Institute JSC</td>
<td>+ Provision of warranty&lt;br&gt;+ Maintenance is provided at the place where the object is based&lt;br&gt;+ Service maintenance is provided in conditions of a ship repair enterprise&lt;br&gt;+ Support of an article by the manufacturer during the whole life cycle</td>
</tr>
<tr>
<td>• Severnaya Verf Shipyard JSC</td>
<td>• Far-Eastern Shipyard Zvezda, North-Eastern Repair Center – the Pacific Fleet&lt;br&gt;• Yantar Baltic Shipyard JSC – the Baltic Fleet</td>
<td>+ Organization of service maintenance as per the geographic principle&lt;br&gt;+ Availability of facilities and qualified personnel&lt;br&gt; - Organization of service maintenance in conditions of a ship repair enterprise is efficient when the contract is concluded for the whole ship</td>
<td></td>
</tr>
<tr>
<td>• Admiralteyskiye Verfi JSC</td>
<td><strong>- Creation of the service maintenance system is inefficient</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is expedient to organize the service maintenance system as per the principle “manufacturer of systems – customer” (at the place where the object is based/ repaired).
1. Overall amount of works within the scope of activities of the Concern Avrora Scientific & Production Association JSC constitutes at least 200 million rubles per year.

2. It is expedient to conclude preliminary contracts with the enterprises – chief performers of works.
Methods of service maintenance of the products supplied to the Russian Navy

The main task is to expand the servicing network of the Concern with the purpose of high-quality and efficient maintenance of the articles.
1. At present there are 3 detached subdivisions of the Concern (in Murmansk Region, in Severodvinsk and Kaliningrad), which provide servicing of the Concern’s products aboard the ships and vessels of the Northern Fleet and the Baltic Fleet.
2. It is planned to create detached subdivisions of the Concern in Vilyuchinsk (the Pacific Fleet)

Detached subdivisions of the Concern fulfill the following works:

- Warranty servicing
- Installation supervision works on the objects under repairs/commissioning
- Adjustment and debugging works on the objects under repairs/commissioning
- All kinds of repair (restoration of technical readiness) on the objects being repaired
Accreditation of enterprises

**Accreditation** – official acknowledgement by the Concern Avrora Scientific and Production Association JSC that the organizations being accredited have competence in maintenance of the Concern’s systems, on the basis of which the organizations acquire the status of potential partner.

**Accreditation phases:**
- Completion of application form for accreditation
- Arrangement of the package of documents
- Conduction of monitoring and issuing the Certificate of Readiness
- Issuance of Accreditation Certificate (refusal to issue the Certificate)

**Terms of accreditation:**
1. The works are to be performed under technical supervision of the Concern Avrora Scientific & Production Association JSC.
2. Accreditation certificate does not give to the organization being accredited the priority right during conclusion of contracts for fulfillment of works (rendering of services) for the range of the articles listed in the Enclosure to the Certificate.
Location of the accredited organizations (representative offices)

**Avrora-Service JSC**
- Saint-Petersburg
- Novorossiysk
- Sevastopol
- Baltiysk
- Kaliningrad
- Polyarniy

**Primormontazhavtomatika JSC**
- Petropavlovsk-Kamchatskiy
- Vilyuchinsk

**Sudoservis – Avtomatika LLC**
- Stavropol
- Snezhnogorsk

**Arktika Northern Production Association JSC**
- Severodvinsk
- Reid-Servis CJSC

**Varyag-Tekhservis CJSC**
- Vladivostok
- Gadzhiyevo
- Vilyuchinsk
Conclusion of contracts for warranty maintenance

In 2010 the contract for warranty maintenance was concluded with the Sudoservis-Avtomatika LLC, Stavropol

**Buyen project 21630**
- yard № 701

**Mirazh project 14310**
- yards №№ 02500, 02501, 02502

**Sobol project 12200**
- yards №№ 200, 201, 204, 205, 206

Fulfillment of warranty includes support of operation, repairs or replacement of defective component articles of the control systems developed and delivered by the Concern.
Main issues of technological independence provision during development, manufacturing, delivery and operation of weapons and military equipment

1. Life cycle support of the sample of weapons and military equipment
   - estimation and formation of insurance stock for the whole operation period
   - estimation and formation of insurance stock for 12 years (until the mid-life repair)

2. Storage of insurance stock
   - Navy
   - manufacturer (supplier)

3. Financing of insurance stock formation by the agencies of the Navy
   - in the stage of interplant cooperation and manufacturing of the sample of weapons and military equipment
   - during one year from the moment of commissioning

4. Formation of insurance stock
   - in the stage of interplant cooperation and manufacturing of the sample of weapons and military equipment
   - during one year from the moment of commissioning
3. Organization of service maintenance of the exported products

It is expedient to cooperate with Indian partners interacting with the Rosoboronservice (India) and engaging the Avrora (India) Marine Systems Pvt. Ltd.
Aftersales maintenance of the exported systems

1. Optimization of SPTA supply system (creation of identification lists, cataloging of SPTA, interactive preparation of requests for delivery)

2. Development of repair and technical documentation in the RISSE format

3. Equipping of task-specific repair bays (shops) at the basing site

4. Supply of automatic test equipment

5. Repair / modernization

6. Signing of annual maintenance contract

7. Restoration of technical readiness of a SUB with prolongation of mean time between overhaul
Optimization of SPTA supply system

1. Creation of identification lists and cataloging of SPTA
2. Interactive preparation of requests for SPTA delivery (“REQUEST”)
3. Creation of automated system of request handling
4. Monitoring of obsolete components. Determination of their analogues, development and manufacturing
5. Creation of insurance stock of SPTA
6. Signing of framework contract for SPTA delivery
7. Possibility to prepare “urgent” requests for SPTA
8. Obtaining of export license for 5 years for selling of SPTA
Equipping of repair bays at a basing site

To improve the efficiency of product servicing the ESC provides the following:

1. Equipping of repair bays:
   - FSUE Atomflot

2. Equipping of weapon repair shops:
   - Indian Navy:
     - Non-standard checking and testing facilities for control system of technical facilities of pr.1135.6
     - Test benches for control system Terek-2E of pr.11430
     - Non-standard checking and testing facilities for hardware and software complex 1134D of pr.11430

3. Workstations:
   - ROS(I):
     - 2 workstations for Bur and Grot type modules
   - AIMS:
     - 4 workstations for Bur and Grot type modules

4. Diagnostic systems (in perspective):
   - Indian Navy:
     - Diagnostic tool (based on automated test equipment manufactured by the Main Scientific and Production Association Granit JSC)
     - Diagnostic tool Diakom (jointly with the CRIST JSC)

Task-specific technological equipment, being supplied by the ESC, is to be installed on the customer’s shore objects (repair shops), with the purpose of functional checking, debugging, repairs and testing of the modules.
Repair and modernization of control system of technical facilities (CS TF)

For a foreign customer the ESC of the Concern Avrora Scientific and Production Association JSC provides the following (in cooperation with the JSC Rosoboronexport):

- examination of systems;
- installation, debugging and commissioning of systems;
- assistance for conduction of repair and restoration works;
- conduction of tests;
- modernization;
- warranty servicing of systems;
- annual maintenance.

<table>
<thead>
<tr>
<th>Diesel-electric submarine of pr. 877EKM</th>
<th>Diesel-electric submarine of pr. 636</th>
<th>Frigate of pr. 1135.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>• AICS Lama-EKM</td>
<td>• AICS Lama-EKM</td>
<td>• LCS TF CS Angara-11356</td>
</tr>
<tr>
<td>• GSS CS Palladij-M</td>
<td>• CS KADK</td>
<td>• MPP CS Burya-11356</td>
</tr>
<tr>
<td>• MCS Pirit-M</td>
<td>• GSS CS Palladij-M</td>
<td>• S CS Dolomit - M1-A</td>
</tr>
<tr>
<td></td>
<td>• MCS Pirit-M</td>
<td>• SG CS Korraks-01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• GSS CS Onega-11356</td>
</tr>
</tbody>
</table>
### Annual maintenance contract (AMC)

AMC includes complete range of works and services for upkeep of the Concern’s products, including the following:

<table>
<thead>
<tr>
<th>1. Provision of continuous operability of systems during the period of AMC:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ planned and preventive maintenance; fulfillment of routine maintenance;</td>
</tr>
<tr>
<td>✓ checking of interfacing with adjacent systems</td>
</tr>
<tr>
<td>✓ analysis of system condition after mission</td>
</tr>
<tr>
<td>✓ inspection before repairs</td>
</tr>
<tr>
<td>✓ development of repair specification</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Repairs of faulty modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ checking of repaired units in onboard systems</td>
</tr>
<tr>
<td>✓ replenishment of used SPTA in the course of one month</td>
</tr>
<tr>
<td>✓ inclusion of all the modules of new/ modernized equipment in the contract</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Conduction of current repairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ scheduled works on new/ modernized equipment</td>
</tr>
<tr>
<td>✓ provision of test equipment for fulfillment of planned maintenance</td>
</tr>
<tr>
<td>✓ provision of SPTA and consumables for fulfillment of planned maintenance within the scope of the contract</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ consultation in system operation and maintenance</td>
</tr>
<tr>
<td>✓ consultation in preventive maintenance, fault identification and elimination, use of embedded checking and measuring instrumentation and external checking equipment, finding of faults in electric circuit, loading of backup software, adjustment of systems, replacement of modules, setup of parameters, testing/ setup and measurement of system parameters for checks and sea trials</td>
</tr>
</tbody>
</table>

- service maintenance of Lama-EKM, FHSL Lama-ER systems of a diesel-electric submarine of pr. 877 (yards №№ 313, 412, 1317)
Right to carry out foreign trade activity with regard to defense products

Obtaining this right will enable the Concern to carry out independently the following:

- supply of spares, assemblies, units, devices, components, task-specific, training and auxiliary equipment,
- supply of technical documents for the earlier supplied defense products,
- conduction of works on examination, standardization, prolongation of operating life,
- conduction of works on maintenance, repairs (including modernization, which does not require R&D),
- disposal,
- other works which provide complete service maintenance of the earlier supplied defense products,
- consulting of foreign specialists in conduction of such works.

Advantages:
- improvement of efficiency of work fulfillment (supply of SPTA)
- possibility to engage Avrora (India) Marine Systems Pvt. Ltd. in works (in India)
4. Instruments of steady maintenance of the customers in the logistic infrastructure of the Concern

4.1. Program of customer information support Request

4.2. Automated system of request handling

4.3. Cataloging of supply articles

4.4. System for monitoring of obsolete components
4.1. Request – program of customer information support

Phase 1. Completion of the form

Request program enables a customer to form and to send interactively (by means of Internet) a request for delivery of SPTA.
4.1. Request – program of customer information support

Phase 2. Interactive preparation of a request
4.1. Request – program of customer information support

Phase 3. Work with databases
4.1. Request – program of customer information support

Phase 4. Preparation, storage and sending of a document
4.2. Automated system of request handling

Automated request handling system for SPTA provides the following:

1. Monitoring of request handling progress (including preparation of reports)
2. Keeping of directories (projects of ships, numbers of yards, systems, customers, suppliers, price calculation coefficients)
3. Information security protection

The Number entry (as well as the Request Date) is to be filled in by a customer.

Customer in the Customer entry is to be chosen in the list, which can be edited by means of the directory tab - Customers.

Project No, Yard No and System in the corresponding entries are to be chosen in the list, which can be edited by means of the directory - Systems Onboard.

The Notes entry is to be filled in by a customer.
4.2. Automated system of request handling

Phases of request handling
Databases of automated request handling system

Database of requests

Directories database contains 9 tabs:
- Customers,
- Suppliers,
- Systems Onboard,
- Systems,
- Coefficients of in-house production,
- 1S coefficients,
- Management of users,
- Prices of Production Complex and suppliers,
- Export prices.
4.3. Cataloging of supply articles

In compliance with the resolution of the Ministry of Industry and Trade of the RF, the Ministry of Defense of the RF, the Federal Service on Military and Technical Cooperation of the RF and the FSUE Rosoboronexport № P1300/5-21502 dated 02.10.2008

It is recommended to the manufacturers of final samples of the exported weapons and military equipment to carry out the following activities in cooperation with the allied enterprises:

1. Preparation of data for identification lists of SPTA
2. Cataloging of SPTA and consumables required for operation of the exported weapons and military equipment

During determination of organizations-developers and manufacturers of defense products, taking part in fulfillment of export contracts for delivery of such products, the Ministry of Industry and Trade takes into consideration meeting of these conditions by these organizations.
4.3. Cataloging of supply articles

Phases of cataloging

1. Sending of information about the range of supply articles to the Cataloging Center of the FSUE Rosoboronexport

2. Sending of specifications of supply articles to the Cataloging Center

3. Receiving of the NATO Stock Number (NSN) for supply articles from the Cataloging Center
4.3. Cataloging of supply articles

Phase 1. Sending of information about the range of supply articles

- Preparation of the list of supply articles (Database)
- Sending of the list of supply articles to the Cataloging Center (file with identification list of supply articles)
- Checking of the list of supply articles by the Cataloging Center
- Observations of the Cataloging Center regarding the list of supply articles
4.3. Cataloging of supply articles

Data sources for the range of supply articles

- Identification lists of supply articles
- Databases of purchased and made-in articles
- Database of obsolete articles
- Paper archive
### 4.3. Cataloging of supply articles

#### Example of identification list of supply articles

<table>
<thead>
<tr>
<th>Name of an article</th>
<th>Number of a list</th>
<th>Number of position in a hierarchy</th>
<th>Full name of a supply article</th>
<th>Designation of a supply article</th>
<th>OKP code of a supply article</th>
<th>Translation into English</th>
<th>Quantity</th>
<th>OKPO code, name, address of a manufacturer</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard SPTA for AICS Lama-EKM article of pr. 636</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| AICS Lama-EKM | ДАИЕ.466 459.008 | 1.1 | Module MBU12 | ДАИЕ.468 749.024-01 | НУ | 64929 22452 | Module MBU12 | 796 | 1 | ОКРО 07524888, Concern Avroa Scientific & Production Association JSC, 194012, Saint-Petersburg, 15 Karbysheva Str. | |
| AICS Lama-EKM | ДАИЕ.466 459.008 | 1.2 | Module MBU11 | ДАИЕ.468 749.022-01 | НУ | 64929 22447 | Module MBU11 | 796 | 1 | ОКРО 07524888, Concern Avroa Scientific & Production Association JSC, 194012, Saint-Petersburg, 15 Karbysheva Str. | |

**Function:** Module MBU12 of ДАИЕ.468749.024 and ДАИЕ.468749.024-01 modifications is intended for switching (external control signals) and protection of power supply circuits of double-wound electromagnets of TF CS actuators.

**Basic dimensions:** Conditional width: 20
Overall dimensions (w x h x l), mm: 19.5 x 283 x 276
Weight, g: 1250
Main consumption parameters: Aggregate time of winding being under voltage, hours (when ambient temperature is from –60 to +85°C, atmospheric pressure is from 5 to 2280 mm Hg and switched current is up to 2A), 100.

**Rate of operations, Hz not more than:** 2.

**Resistance of winding, Ohm:** 1100 ± 110.

**Operation conditions:**
The module is used in control and adjustment systems. Aggregate time of winding being under voltage, hours (when ambient temperature is from –60 to +85°C, atmospheric pressure is from 5 to 2280 mm Hg and switched current is up to 2A), 10 000.

**Rate of operations, Hz not more than:** 2.

**Resistance of winding, Ohm:** 1100 ± 110.

---

**Notes:**

- **AICS Lama-EKM**
- **Export & Service Center**
4.3. Cataloging of supply articles

Phase 2. Sending of specifications of supply articles to the Cataloging Center

Request for specifications by Cataloging Center

Sending of reply to Cataloging Center

Information retrieval in DB and archive
### 4.3. Cataloging of supply articles

#### Example of request for specifications

<table>
<thead>
<tr>
<th>INC</th>
<th>FIG</th>
<th>Код характеристики (MRC)</th>
<th>Наименование характеристики на английском языке</th>
<th>Определение характеристики на английском языке</th>
<th>Наименование характеристики на русском языке</th>
<th>Определение характеристики на русском языке</th>
<th>Инструкция для ответа</th>
</tr>
</thead>
<tbody>
<tr>
<td>00248</td>
<td>A01700</td>
<td>CSQN</td>
<td>SHORT-CIRCUIT/INTERUPT CUR</td>
<td>THE MAXIMUM RATE ЭНЗМУТОМ МАКСИМАЛЬНОЕ ЗНЭ</td>
<td></td>
<td></td>
<td>УКАЖИТЕ МАКСИМАЛЬНОЕ ЗНАЧЕНИЕ ТОКА СРАБАТЫВАНИЯ/ОБРЫВА ЦЕПИ В АМПЕР</td>
</tr>
<tr>
<td>00248</td>
<td>A01700</td>
<td>CBBL</td>
<td>FEATURES PROVIDED</td>
<td>THOSE FEATURES, NO/ПРИСПОСОБЛЕНИЯ/ПРИСПОСОБЛЕНИЯ</td>
<td></td>
<td></td>
<td>ВЫБРАТЬ ИЗ СЛЕДУЮЩИХ ВАРИАНТОВ: ВНУТРЕННЯЯ ОБРАБОТКА/ВЕМ КРЫТЫЕ</td>
</tr>
<tr>
<td>00248</td>
<td>A01700</td>
<td>AFKH</td>
<td>INTERRUPTION INDICATOR METH</td>
<td>THE MEANS IN WHICH МЕТОД ИНДИКАЦИИ МЕТОД, КОТОРЫМ</td>
<td></td>
<td></td>
<td>ВЫБРАТЬ ИЗ СЛЕДУЮЩИХ ВАРИАНТОВ: AD ВИЗУАЛЬНОЕ/AF КЕРАМИЧЕСКОЕ ПОКРЫТЬ</td>
</tr>
<tr>
<td>00248</td>
<td>A01700</td>
<td>AFXF</td>
<td>CIRCUIT OVER-CURRENT INTERR</td>
<td>INDICATES THE TYPE ЦИП ТИП ПЕРЕГРУЗКИ ПО</td>
<td></td>
<td></td>
<td>УКАЖИТЕ ЗНАЧЕНИЕ, УКАЖИТЕ ВИД ТОКА (ПОСТОЯННЫЙ, ПЕРЕМЕННЫЙ)</td>
</tr>
<tr>
<td>00248</td>
<td>A01700</td>
<td>AFXE</td>
<td>MAXIMUM VOLTAGE RATING IN V</td>
<td>THE MAXIMUM VOLT/МАКСИМАЛЬНОЕ Н/МАКСИМАЛЬНОЕ НА</td>
<td></td>
<td></td>
<td>УКАЗАТЬ ВЕЛИЧИНУ МАКСИМАЛЬНО ДОПУСТИМОЙ НАГРУЗКИ В АМПЕРАХ</td>
</tr>
<tr>
<td>00248</td>
<td>A01700</td>
<td>AEBJ</td>
<td>CONTINUOUS CURRENT RATING</td>
<td>THE MAXIMUM DIRECTION ВЕЛИЧИНА ПОСТОЯННАЯ ВЕЛИЧИНА ПОСТОЯННАЯ</td>
<td></td>
<td></td>
<td>ВЫБРАТЬ ГРАФИЧЕСКОЕ ИЗОБРАЖЕНИЕ ИЗ FIG A01700 СТР. ДО-78, УКАЗАТЬ ЦИФРОБ</td>
</tr>
</tbody>
</table>
### 4.3. Cataloging of supply articles

#### Example of entered specifications

<table>
<thead>
<tr>
<th>INC</th>
<th>FIG</th>
<th>Code characteristics (MRC)</th>
<th>Description characteristics in English language</th>
<th>Description characteristics in Russian language</th>
<th>Instruction for the response</th>
</tr>
</thead>
<tbody>
<tr>
<td>00248</td>
<td>A01700</td>
<td>CSQN</td>
<td>SHORT-CIRCUIT/INTERRUPT CUT THE MAXIMUM RATE [VALUE] THE SAFETY CIRCUIT MAXIMUM VALUE</td>
<td>МАКСИМАЛЬНАЯ ПАМЯТКА МУЛЬТИФУНКЦИОНАЛЬНАЯ ЗНАЧЕНИЕ</td>
<td>Изменение</td>
</tr>
</tbody>
</table>
### 4.3. Cataloging of supply articles

Phase 3. Receiving of NSN

<table>
<thead>
<tr>
<th>Serial №</th>
<th>Name</th>
<th>Designation</th>
<th>NATO Stock Number (NSN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Unit БСПД</td>
<td>ДАИЕ.468232.103</td>
<td>6340574404422</td>
</tr>
<tr>
<td>2.</td>
<td>Indicator И07-00</td>
<td>АМИЕ.305432.013</td>
<td>6210574404332</td>
</tr>
<tr>
<td>3.</td>
<td>Keyboard</td>
<td>КЛ4.05 МКЛД.468319.002-05</td>
<td>7025574404340</td>
</tr>
</tbody>
</table>
As a result of conducted works more than 800 supply articles of the Concern’s range will be cataloged.
4.4. System for monitoring of obsolete components

Phase 1. Identification of obsolete components

1. Create in the program of component monitoring the electronic requests to the Department of External Procurement for identification of obsolete purchased articles in the list of components of an individual article (for instance, system or device).

2. Using the software for monitoring of components, it receives the list of approved purchased articles, specified in the list of components of those articles, which are specified in the electronic requests.

3. Using the software for monitoring of components, it prepares and sends queries to the firms-suppliers regarding the purchased articles, which are obsolete, or scheduled to become obsolete purchased articles.

4. Receives the answers from the firms-suppliers about obsolete purchased articles and informs about them the Applicability Group.

5. Enters the information about obsolete purchased articles into the database of purchased articles.

Decision of actual termination of manufacturing of the articles, which are required for operation of earlier supplied to a foreign customer defense products is to be taken by the agent of military and technical cooperation (FSUE Rosoboronexport) only after receiving from the Federal Service on Military & Technical Cooperation of the RF the notification about solving with a foreign customer the issues of termination of article manufacturing (meeting the demands of a foreign customer for this article).
4.4. System for monitoring of obsolete components

Phase 2. Making a decision

6. Receive by means of the software for monitoring of components the list of component parts containing obsolete components

7. Make the decision of correction of design documentation or development of an analogue of chosen component part containing obsolete components and, by means of the software for monitoring of components, prepare the requests for them to the departments-developers

8. Makes a decision (chooses one of the variants in the software for monitoring of components):
   a) there is an analogue of an obsolete component or it can be developed (item 9)
   b) it is possible to develop an analogue of a component part containing an obsolete component, or there is its analogue, which can be purchased (item 12)
   c) manufacturing of a component part containing this obsolete component is discontinued (item 16)
4.4. System for monitoring of obsolete components

Variant A. Correction of design documentation

9. Corrects design documentation, develops an analogue of an obsolete component

10. By means of the software for monitoring of components it informs an administrator of the database of purchased articles about the analogue of an obsolete component

11. Enters the information about the analogue of an obsolete component into the database of purchased articles

Variant B. Development of the analogue of a component part

12. Develops or chooses the purchased analogue of a component part containing obsolete components

13. By means of the software for monitoring of components it informs an administrator of the database of maid-in items about the developed or purchased analogue of a component part containing obsolete components

14. Enters the information about the analogue of a component part containing obsolete components into the database of made-in items

15. By means of the software for monitoring of components it receives the information about the analogue of a component part containing an obsolete component
4.4. System for monitoring of obsolete components

Variant C. Termination of component part manufacturing

**Department-developer**

16. By means of the software for monitoring of components it informs the administrator of the database of made-in items about termination of manufacturing of a component part containing obsolete components

**Administrator of DB of purchased components**

17. Enters the information about termination of manufacturing of a component part containing obsolete components into the database of made-in items

**ESC**

18. By means of the software for monitoring of components it receives the information about termination of manufacturing of a component part containing obsolete components

**ESC**

19. Informs the customers and the Federal Service on Military & Technical Cooperation about termination of manufacturing of component parts containing obsolete components

Export & Service Center