this is not preceded by analysis), and in carrying out such work jointly according to the plans of the ministry and the State Committee of Standards (Gosstandart).

The MP analysis is carried out in accordance with the annual plan by the metrological service with the involvement, if required, of other enterprise departments.

In the course of the MP analysis it is also necessary to check the normative and technical documents (NTD) for products and their testing methods; the availability at enterprises of testing and measuring equipment required for input checking of component parts (products), for technological processes and their testing, and for evaluating the quality of and testing finished products; the organization and efficient operation of the departmental metrological service; and condition of the testing and measuring equipment at enterprises. The work entailed in analyzing the measurement conditions is officially recorded in a report signed by the chief metrologist and approved by the chief engineer of the enterprise. The required forms are appended to the report.

The departmental services' activity in supervising the measuring and testing equipment is analyzed periodically — once every five years. On the basis of this analysis measures are adopted for improving metrological provisions at the enterprises.

The metrological service together with workshop representatives check periodically (in accordance with the quarterly or monthly plans) the conditions of measurements in the factory workshops and departments. In the course of checking it is also ascertained that the required documents are available at the operators' positions; that the requirements for measuring means and methods are correctly specified in documents; that the measuring and testing equipment is in good technical condition; that its testing and certification dates are maintained; that measurement (testing) techniques are implemented; and that the measuring and testing equipment is correctly utilized. The results are officially recorded in a report which is signed by representatives of the metrological service and the inspected enterprise.

Correct and precise determination of the metrological provision's organizational foundations will help enterprises to raise the level of work carried out in this sphere.

ROLE OF METROLOGICAL PROVISIONS IN A COMPREHENSIVE SYSTEM FOR CONTROLLING THE QUALITY OF REPAIR WORK

V. F. Sizov and N. P. Shramkov

In order to further raise the quality of civil aircraft repairs, our enterprise has developed and is applying stage by stage the Comprehensive Working Quality-Control System (CWQCS). The difficulty in establishing such a system resides in the specific features of repair work.

The CWQCS is a mutually interrelated aggregate of organizational, technical, economic, and educational-idea measures aimed at raising the efficiency and quality of aircraft repair work. The CWQCS organizational and methodic foundation consists of enterprise standards which relate the specific factory requirements with those of state, republican, and industrial standards and have legal force in their own sphere of operations.

The CWQCS is based on the general theory of control regulations and it specifies the sequence of operations aimed at attaining the basic objectives. All the factory departments participate in realizing this task, and their functions in the CWQCS are specified in the main enterprise standard (STP) 407-001-77 on "CWQCS. Basic regulations."

The complexity of the repaired aircraft equipment, the high precision required for measuring the parameters of the reconditioned products, and the necessity of maintaining the uniformity of these measurements naturally make metrological provisions for the quality of the repairs one of the most important problems. Its solution is entrusted to the metrological service with the chief metrologist at its head to ensure direct participation in the technical preparations of production and to ensure a stable level of high-quality repairs.

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The factory metrological-service experts drafted on the basis of the standardization plan the enterprise standard STP 407-034-77 on "CWQCS. Metrological provisions for high-quality repairs," which sets up the basic directions of work and interrelates all the special standards used for determining the sequence of various operations entailed in metrological provisions for high-quality repairs.

The basic trends of the work carried out by the metrological service in the course of technical preparations for production include: organizing acceptance testing for components, materials, spare parts, and tools stocked for repairs; metrological examination of the design and technological documents; metrological certification of nonstandard equipment; and the development and application of new measuring means and methods.

Acceptance testing at the plant is organized according to the enterprise standard STP 407-027-78 on "CWQCS. Organization of acceptance testing."

Guided by the enterprise standards, the factory experts metrologically examine the design and technological documents in order to raise their quality and to ensure efficient measurements at all the stages of the technological process in repairs. The factory metrological service examines the documents metrologically according to a schedule compiled by experts of the chief technologists' departments and the mechanization and automation department.

The particular feature of aircraft repairs consists of utilizing a large amount of nonstandard equipment, attachments, and tools. In order to ensure trustworthy measurements this equipment is metrologically certified in accordance with the STP 407-025-78 on "CWQCS. Procedure for manufacturing, delivering, and utilizing special tools, attachments, and nonstandard equipment."

The factory metrological service carries out important work for ensuring a stable level of high-quality repairs. All the measuring equipment is periodically tested according to schedules agreed upon by the Belorussian Republican Center of Standardization and Metrology (BRCSM) and approved by the chief engineer of the plant. More than 80% of the factory measuring equipment is tested by the enterprise experts.

A group of factory experts deals with developing testing techniques, as well as testing and repairing measuring equipment intended for special, strictly limited purposes. Such measuring equipment was previously inspected by specialized enterprises. This entailed additional expenditure of time and money on transportation, testing, and repairs, and it increased the measuring-equipment reserve stocks.

The plant utilizes a large amount of nondestructive testing equipment, on whose reading accuracy depends the timely detection and elimination of defects. However, not all such instruments have normative and technical documents which specify means and methods for testing their parameters. The factory metrological-service experts drafted a number of instructions on adjusting, tuning, and testing the flaw detectors used at the plant. This raised the trustworthiness of testing and eliminated cases of low-quality flaw detection.

Under manufacturing conditions where quality is ensured at all the production stages, metrologists cannot limit their activity only to measuring-equipment testing; they should ensure the reliability, comparability, and trustworthiness of all measurements and testing carried out in production. Therefore, the metrological-service experts continuously supervise the measuring-equipment application. In this connection the requirements of the STP 407-034-77 are correlated with those of the STP 407-041-78 on "CWQCS. Organizing technical control over the quality of repairs," which determines the metrological-service functions in controlling technically the quality of finished products.

In order to improve the skills in handling and utilizing measuring instruments, the metrological service, in conjunction with the training and advisory center of the All-Union Institute for Raising the Qualifications of the Leading Personnel, Engineers, and Technicians in the Field of Standardization, Production Quality, and Metrology (VlSM), organized the training of the Technical Control Division (OTK) workers in the foundations of metrology. Uniform operations and mutual assistance of metrologists and OTK experts provide desirable results.

One of the principal tasks of the metrological service consists of analyzing the condition of measurements in order to establish whether the measuring means and methods meet the requirements of the normative and technical documents. The activity of the metrological