

Checking Device for Checking Compressed Air Breathing Apparatus of Fire Fighters

Ph.D. Associate Professor Kh.M. Dusmatov

Professor of the Department "Prevention of emergency situations"
(Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan)

Mukhamedov I.I.

(Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan)

Nabiyev A.A.

(Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan)

Abstract: The article discusses a testing device for testing breathing apparatus with compressed air used in fire and rescue units of the Ministry of Emergency Situations of the Republic of Uzbekistan. The necessity of carrying out checks of devices in the breathing simulation mode is substantiated.

Key words: gas and smoke protection service (GSPS), compressed air breathing apparatus, testing device, maintenance, gas and smoke protection.

The main means of respiratory protection in the fire and rescue units of the Ministry of Emergency Situations of the Republic of Uzbekistan are breathing apparatus with compressed air (CABA). The special conditions in which firefighters (gas and smoke protectors) have to work put forward increased requirements for the reliability of the equipment they use. Any failure here is a potential threat to their life and health.

During operation, personal respiratory protection equipment is subject to maintenance to maintain it in good condition. Maintenance, repair of personal respiratory protection equipment and rescue devices for them is carried out on the basis of the requirements of operational documentation and the results of diagnosing their technical condition.

Types of maintenance of personal respiratory protection equipment

The maintenance system for personal respiratory protection equipment provides for:

working check;

checks No. 1,2;

cleaning and disinfection;

current repair.

The results of the performance of work on the maintenance of personal respiratory protection equipment are recorded in the inspection logs. The results of inspection No. 2 and current repairs are also recorded in the registration card for personal respiratory protection equipment.

Maintenance of personal respiratory protection equipment is carried out in the mode of daily activities in stationary conditions on the basis of the gas and smoke protection service and the control post of the gas and smoke protection service, in the technical service units of manufacturers of personal respiratory protection equipment, as well as at the fire extinguishing site in environment unsuitable for breathing, on a fire truck - the base of the gas and smoke protection service (if used).

The filling of air (oxygen) cylinders at the place of fire extinguishing is carried out from the compressor units of the fire compressor station.

Working inspection and inspection No. 1, cleaning and disinfection of personal respiratory protection equipment is carried out by gas and smoke protectors, to whom they are assigned.

Replacing the regenerative cartridge and oxygen cylinder is mandatory after each use of the breathing apparatus in compressed air, regardless of the time of work in it.

Carrying out a working check

Operational check - a type of maintenance of personal respiratory protection equipment, which is performed before each inclusion in personal respiratory protection equipment.

A working check is carried out before each inclusion in personal respiratory protection equipment under the control of the commander of the gas and smoke protection service in order to promptly establish the

serviceability and correct functioning (operation) of units and mechanisms, and during training sessions and training - under the control of the head of the lesson.

Carrying out inspection No. 1

Check No. 1 is a type of maintenance of personal respiratory protection equipment aimed at their constant maintenance in good condition and readiness for use during operation, checking the serviceability, completeness and correct functioning (operation) of components and mechanisms.

Check No. 1 is carried out on the basis of the gas and smoke protection service or at the control post of the gas and smoke protection service:

gas and smoke protectors of the incoming guard (shift on duty) during the period of preparation for taking up duty (before divorce and shift) under the supervision of the head of the guard (duty shift);

gas and smoke protectors involved in training in their free time, immediately before training in the fresh air or in an unbreathable environment under the guidance of the leader of the lesson (training);

gas and smoke protectors from among the officials of the State Fire Service who are not part of the guard (duty shift) - under the control of the official of the State Fire Service responsible for the organization and activities of the use of technical means of personal respiratory protection.

Inspection No. 1 of personal respiratory protection equipment in reserve on a fire truck is carried out by the squad leader, in his absence - by the assistant chief of the guard (duty shift) with an entry in the inspection log No. 1.

Check No. 2 is carried out on the basis of the gas and smoke protection service by a senior foreman (foreman) of the gas and smoke protection service or at the service center of the manufacturer in accordance with the requirements of the operational documentation for the serviced personal respiratory protection equipment.

Test No. 2 of the compressed air breathing apparatus is carried out on separate work tables.

The replacement of components and (or) parts is reflected in the registration card and in the passport for breathing apparatus for compressed air.

During the warranty period for the compressed air breathing apparatus established by the manufacturer, inspection No. 2 of the compressed air breathing apparatus is not carried out.

The direction of the compressed air breathing apparatus for inspection No. 2 is carried out by the operating department in accordance with the plan - schedule for the maintenance of the compressed air breathing apparatus.

Data on the acceptance of breathing apparatus in compressed air for repair and issuance after repair by the senior foreman (master) of the base of the gas and smoke protection service enters into the registration log of inspection No. 2 of the breathing apparatus in compressed air

Verification of measuring instruments (pressure gauges (pressure and vacuum meters) of compressed air breathing apparatus, control devices, compressor units) is carried out in metrological services (organizations), including the Ministry of Emergency Situations of the Republic of Uzbekistan, with the issuance of a certificate of verification.

Of great importance for maintaining (CABA) in a constant good condition is its high-quality maintenance at the bases of the gas and smoke protection service (GSPS). The installations and devices used at the GSPS bases are intended only for carrying out static checks of breathing apparatus, which today is not enough to carry out high-quality checks and adjustments of breathing apparatus.

Checking the breathing apparatus in breathing simulation mode is one of the main checks that allows you to get complete information about the state of the device. So, for example, in accordance with the NFPA 1852 standard [1], each device in operation is subject to an annual check in breathing simulation mode. Checking in the breathing simulation mode quantitatively determines whether the current technical condition of the device meets the requirements of the standards and the possibility of its use in high breathing modes associated with the performance of high-load work by gas and smoke protectors.

The world's leading manufacturers in the field of personal protective equipment have developed dynamic installations with an electric drive, operating under the control of a computer with specialized software. Such installations allow carrying out full-functional checks of devices and provide the most reliable information about their performance.

However, one of the disadvantages of this type of installations is the very high cost. Electric driven

units are of limited use in operation and are used mainly in the development and production of breathing apparatus, or at a few service centers for their maintenance.

The way out of this situation can be the use of a new generation of test equipment with a pneumatic drive, which makes it possible to carry out static tests, as well as some types of dynamic tests of devices. Such installations can work without the use of power.

At present, Airgo has developed and certified the Multitest installation, which currently has no analogues in its class.

A distinctive feature of the Multitest installation is:

- Possibility of functional testing of breathing apparatus in the breathing simulation mode. By default, the value of lung ventilation is set to 60 l/min, which corresponds to moderate work conditions.
- reliable sealing of any types of masks, including those with fastening on a helmet-helmet of a firefighter, due to the original design of the headform, which has a solid main and inflatable shell;
- convenience of working with the unit due to the combination of all units in a single housing and the original pneumatic system.

According to the specialists of the institute, installations of this type could be used at the bases and posts of the GSPS and used during inspections No. 1 or No. 2. GSPS or service posts of GSPS as additional installations for checking and adjusting breathing apparatus.

The introduction of units with the function of simulating breathing in the practice of operation of bases and service posts of GSPS will improve the reliability of the operation of various CABA, timely identify shortcomings in the operation of CABA, which ultimately will improve the safety level of gas and smoke protectors when extinguishing fires.

Literature

1. NFPA 1852 «Standard on Selection, Care, and Maintenance of Open-Circuit Self Contained Breathing Apparatus (SCBA)»
2. Order of the Ministry of Emergency Situations of the Republic of Uzbekistan dated October 14, 2019 No. 517 “On approval of the rules of the gas and smoke protection service”.