Discussion on the Implementation of Delicacy Management in Aviation Maintenance

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ABSTRACT

Aviation maintenance support is a complex system engineering, which is more and more obvious in departmental collaboration, professional integration and job cross-integration characteristics. It is imperative to promote the delicacy management in aviation maintenance and repair. It is a scientific way to realize lean maintenance and efficient support in aviation equipment maintenance work. This paper discusses in detail the necessity and feasibility of carrying out delicacy management in aviation maintenance support, and gives the basic ways and methods to carry out delicacy management.

INTRODUCTION

Delicacy management is derived from a developed enterprise management philosophy and management methods, it is the socialization of large-scale production and social division of the modern management of the inevitable requirement. The idea of delicacy management has been widely accepted by domestic and foreign enterprises, and has become a basic consciousness of the daily management of enterprises. At the same time, delicacy management has been highly valued by many countries' armed forces in the world. The implementation of delicacy management in the aviation maintenance support is a pioneering and exploratory work. Delicacy management of aviation maintenance refers to the comprehensive use of delicacy management theory, tools and methods to lean maintenance, precision control, fine maintenance, efficient support for the idea to continuously improve the system support capabilities as the fundamental purpose of the aviation maintenance of the whole system, the whole process, the implementation of all elements of scientific management and management of management practices.

THE NECESSITY OF IMPLEMENTING DELICACY MANAGEMENT IN AVIATION MAINTENANCE

The Delicacy Management is the Need of Aviation Equipment Development

In recent years, a large number of new equipment equipped with troops to upgrade the management level of equipment, but the extensive management and practices are still...
widespread, management concepts lag, the management of complex content, the means of scientific management, plan is not small, Regardless of the use of maintenance resources is reasonable, the lack of real-time monitoring of maintenance operations, resulting in deviation from timely correction, the formation of hidden dangers affect the quality and effectiveness of maintenance. Mainly in the following areas: First, the maintenance content set unreasonable. The current maintenance procedures, the periodic work is controlled by the time of flight maintenance content, and control by the calendar period of maintenance, cross coverage, part of the work to repeat, resulting in waste of resources protection, affecting the aircraft intact. Second, maintenance content targeted is not strong. Lack of condition-based maintenance leads to inadequate maintenance or over-maintenance. Third, the concept is old and operability is poor. Mainly manifested in the technical operation steps are not clear. Fourth, the timing of maintenance is unreasonable, the performance in the regular maintenance over frequency, the maintenance of the time limit or the service life is too short. Fifth, there is no dynamic management mechanism, maintenance experience, technical bulletins, modifications and other content cannot be promptly included in the relevant technical documents. The existence of these problems is more and more does not conform to the concept of delicacy management.

The Delicacy Management is the Need of Aviation Maintenance Support Mode Reform

The existing aviation maintenance and support mode has been unable to cope with equipment upgrades, technological innovation brought about by the impact and challenges. In the organizational structure, the main types of the same type of equipment, the system is divided into different, mechanical, ordnance, ad hoc, radio and other professional management, the work of the lack of effective communication with each other; prone to work loopholes; in the work flow, mainly in various planning indicators for the main line of work, the lack of rigorous, meticulous, quantitative control, to complete the task is not responsible to the people, likely to buck-passing phenomenon; in quality control. The focus on the overall quality of the aircraft to check, to take the means mainly in the work is completed, in accordance with the content of repeated checks, the lack of process control, did not form a scientific, into the system of quality control model; in the evaluation system. Maintenance information as the main body of the statistical data as the basis for the assessment, not only covers the overall maintenance activities, not comprehensive, but also the lack of directivity, even if found the problem, it is difficult to recognize the contradictions and problems behind the crux in order to facilitate thorough solve. Therefore, it is necessary to use the delicacy management theory of process management, restraint theory, 6S management theory, comprehensive production and maintenance theory to reshape the aviation maintenance management mode.

The Delicacy Management is the Need of Aviation Equipment Regularization Construction

The regularization construction of aviation equipment has always been an important part of the construction of equipment. But according the force of the actual situation, there is a large difference between the requirements of the aviation maintenance support work and the regularization construction. The main problem is the
maintenance management system is not perfect. First, technical research and maintenance decision-making power is weak. It is difficult to research and analyze the state of single machine, leading to the lack of pertinence of maintenance, extensive management, increased maintenance workload, and reduced the efficiency of protection. Firstly, the paper introduces the design of the maintenance team. Second, the quality inspection system is imperfect. Quality inspection system and maintenance operations system is not separated, the lack of full-time, relatively independent quality supervision team. On the one hand, easily lead to quality inspection work in the form of inspection quality lack of substantive protection. On the other hand, is not conducive to the promotion of front-line workers sense of responsibility. Third, the safety supervision system is not perfect. The implementation of laws and regulations in the existing mode mainly by the management personnel supervision, interference factors, is not conducive to effective supervision. Due to the lack of full-time safety supervision department, resulting in maintenance of some of the problems accustomed to, it is difficult to comply with the rules and regulations into the conscious behavior of maintenance personnel.

THE FEASIBILITY OF IMPLEMENTING DELICACY MANAGEMENT IN AVIATION MAINTENANCE

According to the Development Law, the Delicacy Management is Feasible

From experience management to scientific management, aviation equipment maintenance management and business management has gone through almost the same path. At present, aviation maintenance and support work is also being carried out scientific management, and delicacy management as a scientific management of the development stage, fully applicable to the maintenance of aviation equipment management, in line with the development of management law. In addition, although the delicacy management from the enterprise, but its basic concepts, principles and methods are required for aviation maintenance and maintenance, the essence of its absorption for improving our maintenance work, and further optimize the maintenance content, integration of maintenance resources, innovation maintenance support mode, strengthen the quality and safety management, with delicacy management to promote scientific maintenance to precision, information technology development is entirely feasible.

According to Foreign Military Practice, the Delicacy Management is Feasible

At present, the US military maintenance has been carrying out the "lean maintenance" as the core of the delicacy management. For example, the refinement of management to the Marine Corps equipment maintenance has brought great changes. According to Essex base data statistics, the US Marine Corps, the main equipment in the implementation of lean maintenance have been substantially reduced, before and after the maintenance of part of the maintenance of lean compared to the time shown in figure 1. From the US military to carry out the practice of delicacy management can be seen, delicacy management has become the US military maintenance support ability to provide a strong starting point. And our military aviation equipment maintenance work with the technology-intensive, resource-intensive and so on, it is easier to implement
refined management, refinement of the transformation, to play a delicacy management to enhance the effectiveness of a huge role in the work. Therefore, we must understand the basic theory of delicacy management, master its principles and methods, the fine of the basic principles and the combination of practical work in order to promote our military aviation equipment maintenance work to a new level.

![Figure 1. Comparison of equipment maintenance time before and after lean maintenance in US Marine Corps.](image)

**According to the Status of Our Military Maintenance Support, the Delicacy Management is Feasible**

At present, the Air Force aviation maintenance system is actively carrying out the "goods have standards, things have process, management have system, people have quality" as the goal, improve the regulatory standards system, optimize the workflow system, improve maintenance operations system, improve the quality and safety supervision system, construct delicacy management information system, in order to promote the delicacy management lay the foundation. And from five aspects, such as aircraft maintenance, aircraft periodic maintenance, aircraft state control, personnel training and assessment, and safeguard equipment management, to further explore the realization of maintenance and delicacy management of the way. Naval Air Force actively carry out aviation equipment maintenance and support regularization construction, put forward to information, intensive management as the starting point, optimize the management mechanism, innovation management mechanism, reform management methods, equipment management scattered, data transmission and exchange difficult. Difficult and other issues, to promote the standardization of equipment management. These efforts have greatly enhanced the aviation equipment support capability, resulting in tremendous economic and military benefits, and played a positive role in further improving the combat effectiveness of the armed forces.

**THE BASIC METHOD OF IMPLEMENTING DELICACY MANAGEMENT IN AVIATION MAINTENANCE**

The basic ways to carry out the fine management mainly include: to establish organization and guidance agencies, regulations system, specialized talent team and
The Establishment of Organization and Guidance Agencies in the Delicacy Management

The implementation of delicacy management of the complicated work, involving many personnel involved in a wide field. Therefore, we must rely on the existing organizational structure to set up a special organization and guidance agencies, responsible for planning, processing, coordination of the implementation of delicacy management of the work. The US Air Force in order to delicacy management of the 21st century into the daily chain of command and control of all aspects of the army, set up by the Air Force Deputy Chief of Staff, an important process leader, deputy commander of the command and related departments together to form the process of the commission, As the implementation of the 21st century delicacy management leadership.

The Establishment of Law and Regulation System in the Delicacy Management

The implementation of delicacy management requires the establishment of a special regulatory system, which include the overall planning, guidance manuals and system documents. The overall planning belongs to the macro level of the regulatory text, the maintenance of aviation equipment maintenance areas of the implementation of delicacy management to explain. Guidance is a medium-level rules and regulations of the system, which is to guide organizations at all levels to carry out the basis of delicacy management. System files are the operating procedures of each work area, whether the decision-making level, management, or external fields, repair shop and other front-line operating level, need to follow the characteristics and laws of the organization of the work area of the division of work, establish the appropriate system file. At the same time, should also be with the aviation equipment replacement, maintenance personnel composition changes, equipment support mode of reform requirements to make corresponding adjustments to achieve dynamic and continuous improvement of delicacy management.

The Establishment of Specialized Talent Team in the Delicacy Management

Delicacy management is able to lead the organization to continuous improvement, to excellence, a very important reason is that it will operations research, statistics, game
theory, systems engineering, a large number of advanced disciplinary theory into the management activities, from macro to micro decision operation, "clap the head", "take it for granted" and other extensive, random management habits shut out. Delicacy management of the operation, relying on the information, data, its huge tool system, most of them have a strong professional, therefore, the implementation of delicacy management, must cultivate the establishment of a delicacy management ability of qualified personnel, so as to enable the smooth implementation of delicacy management up. US Air Force in the implementation of the 21st century, the process of delicacy management, training for all levels of personnel are provided with strict certification conditions and procedures, from the system to ensure the quality of training.

The Establishment of Network Information Platform in the Delicacy Management

The implementation of delicacy management needs to give full play to the role of information technology in the changes of management mode. It is necessary to set up a network information technology platform for delicacy management of aviation maintenance, which includes five subsystems: aviation maintenance first-line management system, aviation maintenance quality control system, aviation maintenance equipment management system, personnel education training management system and technical support data management system. Finally, we integrate these systems into our military communications network infrastructure, to achieve interoperability, to maximize the role of information platform, boost the efficient operation of delicacy management in aviation maintenance.

CONCLUSIONS

We implement the delicacy management in the aviation maintenance support, which is an attempt of the aviation equipment maintenance management. May encounter a variety of difficulties, there will be different voices, especially in the delicacy management of the concept has not been understood in the case of the situation to carry out this work, the difficulties may be more. According to the air force aviation maintenance mode reform and effect of regularization construction of naval aviation equipment maintenance, carry out delicacy management in aviation equipment maintenance support must be combined with the actual force, the experience of enterprise management, create new ideas for aviation equipment maintenance.

REFERENCES