

# Analysis of Maintenance and Inspection Status of Aeronautical Machinery and Improvement Countermeasures

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**Abstract:** In the daily operation process of airlines, aviation machinery maintenance and inspection work play an important role. At present, the quality of life of the people in our country is constantly improving. In daily travel, we have not only used cars, trains and other means of transportation, but also started to choose airplanes as the first choice in a higher frequency. In recent years, with the improvement of living standards, more and more people choose to travel during holidays. Therefore, the traffic volume of aviation aircraft is increasing year by year, but it also increases the risk of aviation aircraft failure, so it is particularly important to do a good job in the maintenance and inspection of aviation machinery. In this paper, according to the current situation of aviation machinery maintenance and inspection, put forward targeted improvement measures to ensure the safety and stability of China's aviation aircraft operation.

**Keywords:** Aeronautical machinery; Maintenance inspection; The scene; Improve the countermeasures

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## 1. Introduction

The continuous development of science and technology has also promoted the development of aviation enterprises. Aircraft is an important tool for people to travel, so it is necessary to guarantee the safety of aircraft operation. Nevertheless, the aviation aircraft in the daily operation of the problem will also occur, the need to carry out aviation machinery maintenance and inspection work. Therefore, aviation enterprises need to strengthen the maintenance and inspection of aviation machinery, improve the safety of aircraft flight, so as to ensure the safety of people's travel, and promote the healthy development of China's aviation industry.

## 2. Aviation machinery maintenance inspection status

### 2.1. Maintenance personnel operating level is low

Social and economic development, also gradually innovative flying chess manufacturing technology. In the actual manufacturing stage, mechanical equipment involves a wide range of knowledge, and in the process of aviation machinery maintenance and inspection, staff need to constantly improve their professional skills to meet the needs of aviation machinery maintenance and inspection. However, in view of the current status of aviation machinery maintenance and inspection, the professionalism of talents needs to be improved. The aviation enterprises do not clearly divide the responsibilities of maintenance work, which reduces the overall level of maintenance work and fails to guarantee the quality of aviation machinery equipment. For example, for the electrical equipment of aviation aircraft, professional operators need to be deployed in the operation and maintenance stage. Low-level maintenance personnel are only engaged in simple

maintenance work, and cannot repair mechanical and electrical equipment. Therefore, it will increase the harm of mechanical and electrical equipment maintenance, and seriously threaten the safety of subsequent flights.

## **2.2. The reserve of maintenance equipment is not sufficient**

Maintenance equipment mainly includes aircraft maintenance tools and mechanical parts. In the process of aviation mechanical maintenance inspection, faces the problem of insufficient maintenance equipment reserves. The lack of certain maintenance tools, because of the space shuttle fault has diversified characteristics, different fault needs to use different maintenance tools, but because of the lack of some tools, it can't meet the demand of maintenance. Therefore, to extend the time of maintenance and reduce the maintenance quality, the mechanical parts were not enough, as the mechanical parts were used during the shuttle maintenance phase, and the old parts had to be replaced with the new parts. However, in the process of repairing the shuttle, mechanical parts are not sufficient enough to be replaced in time, which affects the aircraft's production flight and increases the working pressure of maintenance personnel.

## **2.3. The maintenance operation is not standardized**

In the process of aviation machinery maintenance inspection, maintenance staff usually carry out maintenance work according to work experience. However, some maintenance personnel bear the heavy workload, because of the unreasonable arrangement of work content, resulting in the aviation machinery maintenance and inspection work is too chaotic. In addition, in the maintenance and inspection stage of aviation machinery, although the maintenance procedures were established in the early stage, they were not updated in time in the follow-up work. As the number and type of aviation machinery equipment increased, the initial construction workflow and system could not meet the requirements of maintenance work.

## **2.4. The maintenance system is not perfect**

The guarantee of aviation machinery maintenance and inspection work is the maintenance system, but in practical work, aviation enterprises do not have a reasonable arrangement of maintenance tasks, leading to maintenance personnel to bear greater work pressure, not only need to clean up the space shuttle, but also to deal with aircraft failure. In addition, the inspection time arranged by aviation enterprises is unreasonable, which leads to the lack of reference for the actual work of maintenance personnel. Simultaneously, the number of maintenance times will be reduced, thus increasing the safety risks in the flight process of aircraft.

## **3. Common methods for maintenance and inspection of aviation machinery**

### **3.1. Direct inquiry method**

If aircraft mechanical failure happened will not be able to continue running, maintenance and repair personnel can use direct query method of the aviation machinery breakdown, keepers need and maintenance personnel and communication. Furthermore, the aircraft mechanical equipment running status, integrated all aspects of information, accurate judgment aircraft mechanical failure, and corresponding treatment measures are put forward

### **3.2. Intuitive visual method**

Intuitive visual method is mainly to use the intuitive experience of staff to check aircraft mechanical equipment, staff need to fully understand the layout and connection of aircraft parts, through observation to determine the location of failure. First of all, it is necessary to determine the equipment failure by combining the mechanical state, etc. Secondly, it is necessary to determine the abnormal problem by combining the movement speed of the equipment, and finally, it is necessary to determine whether the water

and pollution inside the equipment occur by combining the mechanical seal. In addition, it is necessary to comprehensively check the operating state of the switch device.

### **3.3. Touch judgment method**

Maintenance personnel use body parts to contact the mechanical equipment to feel whether the temperature of the equipment is normal. For example, in the normal working state, the temperature of the mechanical power adjustment tube is not obvious, while the temperature of the motor and the temperature of the transformer should be within 70°C. The maintenance personnel use the touch judgment method to find the overheating problem, which indicates that the mechanical circuit has a problem, and it is necessary to arrange professional personnel to timely repair the problem.

## **4. Improvement countermeasures for the maintenance and inspection status of aviation machinery**

### **4.1. Build a professional team**

The continuous development of science and technology has gradually improved the technical level and types of aviation aircraft, so it has also improved the professional level of aviation machinery maintenance and inspection. Aviation enterprises need to establish a professional aviation machinery maintenance and inspection team. Aviation enterprises need to comprehensively improve and assess the professional knowledge and skills of the mechanical maintenance team, maintain and maintain the aviation machinery normally, and comprehensively improve all work links to avoid secondary damage to the aircraft due to human factors. At the same time, we need to arrange a professional maintenance team to update the maintenance equipment, and use advanced equipment to complete the maintenance and inspection of aviation machinery, so that the quality of aircraft maintenance can be improved.

Aviation machinery maintenance and inspection work is related to the safety of aircraft flight, so maintenance personnel need to maintain a high sense of responsibility. Aviation enterprise need for maintenance personnel to carry out ideological education, regularly carry out safety education, to make it clear their work responsibilities, establish maintenance personnel post cultural awareness and consciousness of safety work, reduce the incidence of human error, not only can improve the professionalism of maintenance personnel, at the same time can enhance the level of aviation mechanical maintenance inspection.

### **4.2. Increase the reserve of maintenance equipment**

Aviation enterprises need to ensure maintenance equipment reserves. Therefore, aircraft maintenance needs can be met to save maintenance time and improve overall work efficiency. On one hand, aviation enterprises need to reasonably add maintenance tools to effectively maintain aviation aircraft. Aviation enterprises need to purchase maintenance work according to work requirements, to comprehensively solve the problems of failure, and improve the safety of aviation aircraft operation. On the other hand, need to add reasonable mechanical parts as mechanical components are important parts of aircraft maintenance. Thus, aviation enterprises need to purchase a variety of mechanical parts, in order for timely maintenance. Additionally, they should pay attention to regular supplement mechanical parts at the same time, avoid because components are not enough to affect the actual work progress, this allows to reduce the maintenance personnel work pressure.

### **4.3. Enhancing technical support**

Aeronautical aircraft have been constantly updated in recent years; thus, the aviation machinery maintenance inspection team has to learn new knowledge and skills constantly. Aviation enterprises need to organize regular training work to provide professional maintenance courses for mechanical maintenance

personnel. At the same time, they can take foreign exchanges and study, or hire professional experts to carry out knowledge lectures. Due to the particularity of aircraft equipment, some failures may be returned to the factory for maintenance, thus increasing the maintenance time and expenses. In order to improve the quality of aeronautical machinery maintenance and inspection work, maintenance personnel need to be trained to repeatedly operate and train important and difficult problems, so that actual faults can be solved efficiently.

#### **4.4. Improve the maintenance system**

Aviation enterprises need to improve the maintenance system of aviation machinery, improve the speed of aircraft maintenance, and ensure the safety of aircraft operation. On one hand, maintenance tasks need to be reasonably arranged, and maintenance time needs to be increased to reduce the work pressure of maintenance personnel, so that they can complete the maintenance tasks in an orderly manner. In each maintenance work, aviation enterprises should pay attention to the arrangement of more than two maintenance personnel, thereby to improve the level of aviation machinery maintenance. At the same time, it is necessary to formulate scientific operating standards, reduce the difficulty of maintenance work, and successfully complete the maintenance and inspection tasks of aviation machinery. On the other hand, it is necessary to stipulate the inspection time to prevent the failure of aviation machinery through inspection work. Aviation enterprises need to establish different time levels and arrange maintenance personnel to check the space shuttle regularly to reduce the incidence of failure and improve the stability of the operation of the aircraft.

#### **5. Conclusion**

Aiming at the current situation of aviation machinery maintenance and inspection, this paper puts forward targeted improvement countermeasures, whereby to enhance the level of aviation machinery maintenance and inspection, ensure the stability of aviation aircraft, and improve the safety of people's travel.

#### **Disclosure statement**

The author declares no conflict of interest.

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