

Difficulties and Solutions in the Construction of General Aircraft Maintenance Specialty

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Abstract. Constant new policies of low-altitude opening have provided advantages for the development of general aircraft. At the same time, the higher requirements of people should be supported by professionals. So, its long-term development needs the training with aviation maintenance professionals. However, there are still some difficulties in the construction of maintenance specialty at present, which has prevented the development of general aircraft to some extent. In order to promote the aviation market, it is necessary for related members to establish new concepts of training talents and formulate scientific plans for training aviation maintenance professionals.

Keywords: general aircraft; maintenance specialty; difficulties; solutions.

1. Introduction

General aviation, a significant part in civil aviation, refers to the air moving in various areas. Since the reform and opening-up, there have been numerous supporting policies to help general aviation obtain dramatic progress and development momentum. However, the increasing requirement with the number of airline workers means the more aviation maintenance talents who can enhance the maintenance level and guarantee the stable operation of general aircrafts. Therefore, it is necessary to construct talent-training model based on the condition of general aviation and provide more high-quality maintenance professionals.

2. The Necessity of Strengthening the Construction of Aircraft Maintenance Specialty

Affected by lots of factors, most aviation colleges launch the major of transport aviation and fail to consider the demands of general aviation, which causes the shortage of professionals. But in face of many catastrophes like Wenchuan Earthquake and Yushu Earthquake, general aviation plays a significant role in doing the rescue and relief work, protecting people's property, and safeguarding the social stability. In the next few years, China has attached great importance to the development of aviation industry and put forward lots of constructive suggestions to ensure the smooth development and new stage of general aircraft reform. Since 2010, low-altitude opening has been implemented in many areas like Heilongjiang and Guangdong[1]. Meanwhile, the trial implementation has also expanded.

The opening of low-altitude airspace is obviously successful. Training with general maintenance talents has been important and urgent for colleges as the general aircraft is gradually gaining its popularity. The construction of aviation maintenance speciality cannot exist without the efforts of people from all walks of life. Firstly, the policy support. The director of Civil Aviation Administration(CAA) put forward in the meeting that vigorously supporting general aviation can help realize strengthening our nation by civil aviation and improve the whole level of our aviation industry. CAA has encouraged many colleges to launch related majors and train specific talents according to the demands of market and social development, which has not only raised the clear objectives and scientific training direction for aviation colleges, but contributed more aviation maintenance talents for our society. In this progress, colleges will integrate current resources, strengthen the capital investment on general aviation, introduce advanced facilities, and establish good experimental environment to help them improve the practical abilities.

Secondly, establish the general aviation base. Certain support to general aviation industry by our country covers the establishment of industry parks and general aviation base in which college students

can have access to practical operation, which is beneficial for the students of maintenance. For instance, now that some college in Guangzhou has cooperated with local industry park, then college students can practice and test what they have learned in the park. On the one hand, students can have deep learning with aviation maintenance knowledge and increasing practical level; on the other hand, they can have higher comprehensive abilities[2] to qualify themselves for any job in the industry. For another example, Changchun and Shenyang have established the deepening trail points to make effective implementation with the contents of low-altitude airspace. Constant improvement with the management mechanism of general aircraft can lay a good foundation for low-altitude management. Thirdly, cooperate with enterprises. The training method of integrating enterprises, colleges and research institutes has been adopted by most colleges, which is good for the students of aviation maintenance and college development. Colleges can introduce the elastic mechanism to choose the flexible talents, confirm the teaching direction and training scheme, and effectively adjust the market direction by implementing “market and model”. Such behavior can ensure deep cooperation with enterprises, make teaching more targeted, satisfy the demands of enterprises and market, and help students and enterprises more adaptive to each other.

3. Analysis on the Difficulties of the Construction of Current General Aircraft Maintenance Specialty

3.1 Irrational Resources of Maintenance Staff

The quality of maintenance staff is related to the success of flight, but in the new period, there are numerous maintenance workers failing to meet with the standard of versatile talents. At present, most aviation maintenance workers are those who are demobilized to general aviation, graduate from aviation colleges, or retire from the civil aviation enterprises. Due to the lack of systematic aviation practice and enough maintenance knowledge, the demobilized personnel cannot well qualify this job[3]. Graduates lack practical operation experiences even though they have received good education in the college. So their failure to effectively assembling parts lowers the maintenance efficiency. And as for retired workers, although they have accumulated lots of experiences in their former work, they cannot skillfully apply new technology to maintenance because of the old age and stiff thinking, which causes the reduced maintenance efficiency. Therefore, in order to ensure the long-term development of general aviation, the resource of maintenance personnel should be considered, and they are supposed to have some practical experience on the basis of receiving overall and systematic practice, and improve their maintenance quality.

3.2 Lack the Construction of Aviation Practice Platform

Aviation maintenance is rather comprehensive, not only referring to the related theory, but integrating teachers with practice to promote students' better learning. Currently, colleges lack the capital investment with practical teaching, leading to the incomplete establishment of practice platform. Students' learning is just at the theoretical level[4], which means that they cannot give play to the original value of aviation maintenance. Even though there are practice platforms in some colleges, students have few opportunities to use them, and the lack of corresponding practical lesson makes the effect of aviation maintenance not obvious. College teaching is essential to aviation maintenance talents. If colleges and teachers don't provide practice platforms, students will be more likely to make mistakes and feel frustrated in the practice. As a result, it will cause some damage to public property.

4. Solutions to the Construction of General Aircraft Maintenance Specialty

4.1 Optimize the Course System

Teachers are supposed to optimize the course system and upgrade teaching concepts in the new period, which can guarantee the good teaching effects of general aviation maintenance and the

training with versatile talents to meet with the related requirements of market. In the traditional teaching mode, students have few opportunities to practical operation due to the lack of practical teaching, causing their inferior initiative and low comprehensive level. However, the new market economy system requires teachers to innovate teaching methods and include market demands into course teaching to ensure students get professional training and improve learning quality under the premise of mastering the basic knowledge of aviation maintenance[5]. In the era of Internet, colleges can launch the online optional course for maintenance so that students will not be restricted by the place. They can learn via the Internet in bedrooms or dining hall. In addition, students will have homework to practice after the class, which is helpful to examine what they have learned and supervise them to carefully learn and finish homework. Students can timely ask teachers about their difficulties in the learning or practice by sending e-mail or QQ messages. What's more, teachers can make micro videos in advance and students can watch these videos in classroom or outside. If there is a rather difficult chapter, teachers should make the video according to every small part and make detailed explanation with knowledge points, which can help students learn maintenance methods in their fragmentary time and reduce the learning pressure.

4.2 Establish Corresponding Talent Training Plan based on the Development Requirements of Market and Industry

Due to the effect of the development of aviation industry, it is necessary to train comprehensive high-technology talents meeting the demands of current market and aviation industry[6]. Domestic aviation maintenance has also get development along with the constant development of domestic aviation industry. So aviation maintenance specialty should connect various demands of enterprise development with related personnel, formulate corresponding teaching schemes and textbooks, and establish suitable system for the course. In terms of the entire structural system, the related science and technology about aviation maintenance should be paid enough attention to so that timely adjustment in the course can be made. As a result, professional aviation maintenance personnel can master new technology in the first place, adapt to the new demands of aviation enterprise development, ensure the safe flying of planes, and lay foundation for the long-term development of aviation enterprises.

4.3 Strengthen the Team Construction and Create New Teaching Talents

The construction of teaching staff should be constantly promoted to establish a high-quality and professional team. In view of its strong practicality, teachers should have professional knowledge and strong practical ability. Therefore, connected with real demands of industry development, the aviation maintenance specialty needs to establish high-quality teaching staff integrated technology with theory. To realize this goal needs the cooperation of various talents, namely, teachers try their best to teach and workshops do the corresponding practical guidance well.

4.4 Establish Professional Training Base.

Establishing training base for skilled talents based on the professional laws and regulations can guarantee the training of versatile and high-tech maintenance talents. In order to further improve students' practical operation level, the training with practical abilities should be strengthened at the same time of textbook teaching. Effective integration of practical teaching and real practice can help realize the basic target of talent training. Practical teaching can better integrate theory and practice, helpful to train the whole level of students[7]. Besides, according to the real condition of aviation enterprises, colleges can introduce corresponding models to face the enterprises and users, carry out on-the-job training and establish maintenance training institutions. Currently, colleges have made progress in introducing new models and purchasing planes, but the practical maintenance should be strengthened.

4.5 Foster the Cooperation with Enterprises and Share the Resources

At the same time of developing, colleges should make efforts to acquire the support from government and help from enterprises, and they should strive for corresponding instruments and promote the further development of professional practice by means of the relation with aviation enterprises. Colleges can establish friendly relationship with enterprises through the donation of external enterprises so that they can have better cooperation in the later employment[8]. In addition, colleges can invite experts from various enterprises to have field lectures and strengthen the teaching of aviation maintenance team so as to get its entire quality promoted. As a result, the cooperation between colleges and enterprises can help expand the popularity of enterprises, establish the good image of enterprises, and realize the win-win situation.

5. Conclusion

In the new period, elastic teaching mode is more suitable than traditional teaching mechanism for general aviation maintenance teaching. It can be better connected with market, and able to control the difficulty degree of specialized course. In this way, teaching objectives can be avoided to disjoint with market. Even it can adapt to the current environment of market. Meanwhile, the adoption of elastic course model can help students acquire rather strong operation skills on the basis of having a deep learning with specific knowledge, and successfully have a job after graduation.

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