# Report from China

Our Board of International Editors (see inside front cover) is asked to prepare one article or editorial capturing significant events in their respective countries. Wang Nan-Show is our In-

ternational Editor from China, and has provided an editorial by He Wenzhi. Wang Nan-Show serves as Vice President of the Chinese Aeronautics and Astronautics Establishment.

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Journal of Aircraft

# **Outlook for Chinese General Aviation**

He Wenzhi is currently serving as Vice Minister of the Ministry of the Aero-Space Industry. In July 1988, he delivered a speech to a symposium on the policy of developing general aviation in China. His speech provides an outlook for the development of the general aircraft market in China.

Wenzhi has a distinguished career in Aeronautics, following his graduation from the Aeronautical College of Qing Hua University in 1952. He has worked for the Nan Change Aircraft Company and the Chinese Helicopter Design Research Institute. He has served as Vice President of the Chinese Society of Aeronautics and Astronautics and as a Professor at the North-Western Polytechnical University, Nanjing Aeronautical Institute, and Beijing University of Aeronautics and Astronautics.

Wang Nan-Show International Editor Journal of Aircraft

# On Developing Chinese General Aviation

He Wenzhi
Vice Minister, Ministry of Aero-Space Industry

### Chinese General Aviation at Present

Our policy must be based on the present reality. This is the right attitude towards the matter. But what, then, is the present reality in the nation's general aviation?

# I. Foundation Has Already Been Laid and Achievements Scored

Starting with locust killing and forest protection in 1951, Chinese general aviation has developed a fleet of more than 200 aircraft. Its business has expanded into other areas. But most of the operations are still involved in agriculture and forestry. Let's just look at the case of the Civil Aviation Administration of China (CAAC) from 1951-1987. It has accumulated 610,000 hours of agricultural operations covering an area of 1.27 billion mus of farmland, 260 million mus of aerial afforestation, and 15 million mus of aerial sowing of grassland. This really is a great achievement. Progress has also been made in industrial aviation, such as remote sensing, photographing, surveying, power-line erecting, minerals and resources exploration, oil mining, scientific research, video taping, ambulance services, security patrol, coastal environment monitoring, etc.

The manufacturing of Chinese general aviation aircraft started with the first copy production of the Soviet Antonov II (Chinese designation: Y-5). With the help of Soviet experts, the Y-5 aircraft was well received by users in all related circles for its safety, reliability, low altitude performance, good equipment, and multipurpose capability.

It is understood that there are still 12,000 An-II aircraft in service in the Soviet Union. The Soviets are still buying the aircraft from Poland to reinforce their current An-II fleet. The Polish have a production rate of over 300 aircraft per year for the Soviet Union and eastern European countries. China is a developing country. We must first make full use of our current aircraft fleet, and then rely on our own production of

aircraft. That's the realistic way to develop our agricultural aircraft in the present socialist primary stage.

The production of Y-11 aircraft was jointly decided by six ministries. The aircraft was certified in 1977 by the State Aero Products Certification Committee, but only 27 were produced. To put these aircraft into operation, the Ministry of Aviation Industry has been set up, in cooperation with the Ministry of Geology and Minerals and the Xinjiang Production and Construction Corps, the Feilong (Flying Dragon) Company, and the Xinjiang General Aviation Service Team. Their services have been appreciated since their very beginnings. They show that there are bright prospects for general aviation in China.

## II. There Is Still a Long Way to Go

At present, there are about 26,000 agricultural aircraft in the world, compared with 200 or so in China, which is about only 2-3% of such aircraft in the Soviet Union and the United States, and even fewer than those in Australia, Poland and New Zealand. According to the figures published by the International Agricultural Aviation Center in 1982, only 38.5 million mus of farmland were treated by agricultural aviation in China, which represented only 2.6% of the total cultivated area, compared with 40-50% in developed countries.

The Chinese government is now working at medium- and long-term science and technological development programs in accordance with Premier Li Peng's Report on the Government Work. We will work out a medium- and long-term development program for the aerospace industry in which the development of general aviation aircraft constitutes an indispensible chapter.

## III. Supply Falls Short of Urgent Demand

China is a large country. The development of general aviation aircraft lags far behind the requirements of the

development of industry and agriculture. Not long ago, a report from CAAC to the State Council revealed that the requirement in the country for agricultural aircraft this year is about 300. CAAC has now less than 50%, which can only serve some of the most important tasks and areas to a certain limit. Peasants have begun to run their own general aviation businesses. A rubber plantation in Hainan Island was plagued with powdery mildew. Spraying from the ground was impossible because the affected part was on top of the rubber trees. They made a rough runway 500-m long and rented a Y-5 for dusting. It cost only a few cents per mu dusting and the results were good. Peasants in Shaanxi and Henan province also collected money to buy aircraft. It is obvious that the need is urgent and we expect that approximately 1000 general aviation aircraft will be required by the end of the century.

# IV. Bigger Steps in Development and Production of General Aviation Aircraft is Expected

In recognition that general aviation will definitely develop with the development of our national economy, we made an overall arrangement for the development of general aviation aircract in the Seventh Five-Year Plan with the support of the State Planning Commission, the Science and Technology Commission, CAAC and other related departments. This includes the following.

#### Bigger Aircraft

A Y-5B, with a payload of 1.5 t, is a modified version of a Y-5. The modification is mainly on electronics, weight reduction, incorporation of air conditioning and ventilation systems, and Polish engines and propellers, as well as dusting and spraying sytems in accordance with American examples. Two aircraft had been made and they are currently in flight testing. It is scheduled to be certified in the third quarter of the year.

## Medium-Sized Aircraft

The Y-11B, with a payload of 1.2 t, is based on the Y-11 of the Harbin Aircraft Factory. The power plant will be changed to 400 hp engines with feathering functions so as to meet the certification requirements of single-engine climbing. It is scheduled to finish flight testing and be certified in the middle of 1990.

## Small Aircraft

The Nong-5, with payload 800 kg, is a new single-engine, single-seat agricultural aircraft, whose development has already been started by the Nanchang Aircraft Company. It is scheduled to finish flight testing and be certified in 1990.

Batch production of these aircraft can only start in the Seventh Five-Year Plan. To meet the present, urgent need, approximately 50 Y-11s will be produced for end users.

### Helicopter

After 545 aircraft were turned out, the production of the Z-5, a copy product of the Soviet Mi-4 helicopter, was stopped. The Ministry of Aero-Space Industry is now arranging the development and production of helicopters in the order of heavy, medium, light, and microlight, in accordance with instructions by the State Council and the Military Commission of the Central Committee of the Communist Party of China on helicopter development series and the planning of the Seventh Five-Year Plan. The plan is as follows.

- 1) In the 12-ton class or heavier, three Z-8s (copied after the Super Frelon) have been produced and are in flight testing.
- 2) In the eight-ton class, the development has already begun.
- 3) In the four-ton class, a total of 50 Z-9s (the Dauphin helicopter introduced from France) will be assembled with 38 already finished. The next step is to have 89% of the parts and

components made in China in 1990. The structure of the Dauphin is only half of its gross weight, and composite materials represent more than 40%. It is an advanced helicopter that marks a new beginning in the development of Chinese helicopter.

4) In the two-ton class, a "Small Dauphin" in two-ton class will be developed using the technology of the Z-9.

### V. Protection and Support Policy is Urgently Needed

One of the important reasons why the slow development in the general aviation cannot meet the urgent need is that our policy does not match the situation. For example, the Xinjiang General Aviation Service Team created 2.5 million yuan social economic earnings in 1985, and 8 million yuan agricultural increases in 1986. But the team itself lost 400,000 Yuan each year. Some agricultural aviation teams can afford buying the aircraft but cannot afford the operations because of the high fuel price and low service charge. No fuel supplied for agricultural aviation is at a normal price. They have to make special efforts to buy their fuel at much higher prices, and that drives up the direct operating cost above the standard stipulated by the government. Secondly, spares are very hard to come by. They have to ask for help at "military product price." Thirdly, maintenance is expensive. The Y-11 has to be periodically inspected and repaired at every 200 flying hours. It costs 15,000 yuan each time. To repair a compass output amplifier, for example, costs 50% of its selling price. In a word, the loss of the agricultural avaition is caused by our policy. Protection and support policies are urgently need to facilitate the development of the general aviation.

# Suggestions to the Policy for the Development of General Aviation

Learn from Foreign Experience, Develop Along the Road with Chinese Characteristics

In the present situation of reform and openness, the Chinese aviation industry must develop on the basis of aviation production—military production and civil production combined... and march to the world. It must work hard to serve the construction of the national economy and defense.

To develop general aviation, we have to work very hard on marketing. Foreign experience proved the point. The U.S. set up two aviation administrations: one for airworthiness, mainly responsible for quality and safety, the other to help airlines develop a market. We should do the same. This task has historically fallen on the shoulders of the Chinese aerospace industry, and we are now making preparations for the setting up of a civil aircraft development and marketing corporation. We hope the State Council will give approval and support in policy and financing.

Correctly Handle the Relations Between Buying Domestic Aircraft and Foreign Aircraft

In the past, we developed our military aircraft but bought our passenger planes for civil airlines. We still have to import medium and large passenger planes like Boeing the 747 and 737. But for general aviation aircraft, especially agricultural aircraft, we should rely on our own efforts, develop whatever our end-users want.

Comrade Deng Ziaping pointed out in 1981, "Domestic airlines should fly indigenous aircraft." Comrade Li Peng took a ride on board a Y-7 plane and gave several instructions on develoing trunkline aircraft and improving the Y-7 plane. The State Council has allocated money to our ministry for the development of civil aircraft. This shows that the Central Committee of the Communist Party of China and the central government attached great importance to civil aircraft development.

Quite recently, State Councilor Zou Jiahua wrote his comments on the CAAC No. 134 document: "We have laid an aviation industry foundation through the years. I think we

must make our own agricultural aircraft, no matter what difficulties we have. Our aviation industry will surely fulfill the task of supplying agricultural aircraft. For this reason, I don't think we need to import. We will ask the Aero-Space Ministry to do this. Besides, the central leadership has been stressing the develoment of agriculture, there is good reason that the task of developing agricultural aircraft should be fulfilled." The above instructions should be specially emphasized in this symposium on general aviation.

Support Policy Must Be Taken in Accordance with the Development of the General Aviation

1) Encourage agricultural and forestry departments and related provincial agencies to develop agricultural aviation. Aviation industry should improve its running of agricultural aviation service teams. Now, 11 aircraft factories with air-field facilities are establishing their general aviation service companies after the pattern of the Feiling Company to expand their services. The number of aircraft will be increased to about 100 in the Seventh Five-Year Plan, which needs 50 million yuan loan from the state. They will also cooperate with other departments in expanding aviation service.

- 2) Provide government subsidies and reduce taxes. The prices of our agricultural products are quite low and the money available for agricultural flying is therefore rather limited. I would suggest that the state adopt economic support policies and subsidize the buyers of agricultural aircraft, and reduce or remit taxes on products and VAT, and supply normal-priced fuel.
- 3) Improve air-traffic control systems to accommodate the agricultural operation requirements. It should ensure safety and facilitate the agricultural and forestry operations.

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