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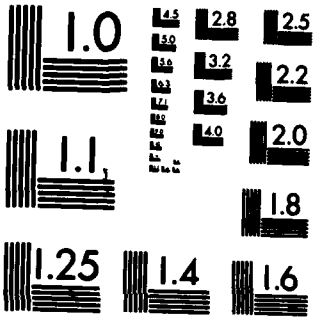

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FOREIGN TECHNOLOGY DIVISION

CHINA AND PAKISTANI AVIATION

by

J.E. Fricker

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CHINA AND PAKISTANI AVIATION

J. E. Fricker/translated (into Chinese) by Yu

British pilot/journalist J. E. Fricker visited Pakistan early this year on invitation by its Air Force. He wrote an article, "Chinese Assisting Pakistani Industry," published in Aviation Week and Space Technology (United States) on March 2, 1981. The following is a Chinese translation [as appeared in a Chinese journal HANGKONG ZHISHI (Popular Aeronautics)] for readers' information. The title of the Chinese translation was changed by the Chinese journal. Our publication of the Chinese translation does not mean that this journal is in agreement with the author's viewpoint or confirms his report. This inclusion is merely to provide readers some evaluation and criticizing information abroad to China's aeronautical development.

Kamra, Pakistan--People's Republic of China is giving substantial technical and equipment support to help Pakistan establish a Pakistan Aeronautical Complex for aircraft and engine assembly and overhaul.

A factory erected with Chinese assistance to handle the Shenyang F-6 fighter, the Chinese-built version of the Soviet MiG-19SF, now is used for complete rebuild of F-6s for the Pakistan air force.

A Dassault Mirage 3 overhaul factory at Kamra has already completed the first major overhauls of the Pakistan air force's Mirage 3EPs, the first stage in development of the Pakistan Aerospace Complex.

The third stage, which is scheduled for completion in June, will be activation of a new facility alongside the Mirage 3 plant to manufacture under license the Swedish Saab-Scania MFI-17 Supporter trainer and liaison aircraft. Pakistan has sales rights in the Southwest Asia area, where the MFI-17 is known as the Mushshak (Expert).

Pakistan air force technicians, observers said, now show a high degree of ingenuity, resourcefulness and high skill levels in dealing with a wide variety of equipment coming from the East and West. Previous aerospace industry experience in Pakistan had been limited to assembly from parts of the Aerospatiale Alouette 3 helicopter and Cessna O-1 liaison aircraft by the Pakistan Army Aviation workshop at Dhamial, near Rawalpindi.

Another assembly program was established in 1976 by the air force to produce the MFI-17 at Risalpur. However, the Kamra complex originated from the more fundamental approach to develop an industrial potential, an idea stemming from the 1971 war with India.

The war resulted in a requirement by the Pakistan air force for an aircraft battle damage repair facility located fairly close to the main operational sectors along the central and northern borders with India.

This was followed by a diplomatic approach by Pakistan to the Chinese government in 1972 to establish a Pakistan repair center for the F-6 fighter. The Chinese not only agreed in principle but also offered a more advanced facility than had been requested, including full overhaul and rebuild capabilities.

Essentially, the Chinese came up with a turnkey operation that they funded. In a protocol signed the same year, the Chinese--in addition to

technical assistance--offered to fund and supply a complete F-6 rebuild factory, including all equipment, machine tools, steam generating plant and electrical fittings down--as one official put it--to the last nut and bolt.

All that was required of Pakistan was supply of the factory site, labor force and cement, sand and water.

One factor that led to the Chinese involvement was the short overhaul lives of the Chinese supplied F-6s, which have constituted the main operational strength of the Pakistan air force for many years.

Chinese metallurgical state of the art is reflected in the time between major overhauls (TBO) of the F-6's twin Tumansky RD-9B-811 turbojet engines of only 100 flying hours. Air force technicians have been unable to increase this TBO by even 10 percent because of air force safety regulations. Overhaul has been conducted for some time, with help from the Chinese, at the Sharea Faisal Maintenance Unit near Karachi.

The F-6 airframes presented a more difficult problem, officials said. The airframe needs a major overhaul after each 600 flying hours, and this forced the air force to dismantle the aircraft at the maintenance unit for shipment back to China.

Because of this, about 20 percent of the air force's total F-6 fleet of about 140 aircraft were kept out of service for up to 18 months at a time, allowing for the work to be completed and for the round trip to and from Shanghai.

After a survey, the Pakistan Aeronautical Complex was established at disused Campbellpur Air Base at Kamra, between Rawalpindi and Peshawar, a base built by Britain in World War 2 and subsequently abandoned.

A new 10,000-foot runway, parallel taxi strip and air traffic control building was completed. Two World War 2 Bellman hangars were dismantled

at Sargodha and reerected at Kamra to supplement the Chinese-built facilities.

These hangars became the base for the Mirage rebuild factory, after a Pakistan air force investigation into the overhaul and service lives of its French fighters. Pakistan received its first Mirage 3EP strike interceptors in 1969.

Five years later, two of these were flown back to France to Avions Marcel Dassault in Pakistan air force Lockheed C-130s for fatigue analysis and other tests. From these and other studies made by the Royal Australian Air Force, it was determined that the major overhaul life of the Mirage 3 airframe could be extended from nine years to 11, or 1800 flying hours, whichever came sooner. TBO of the Mirage 3's Snecma ATAR 09C engine is about 600 hours, although this may be extended after compressor modifications.

The 200-acre facility is organized on commercial lines, headed by Air Commodore Atta Sheikh, who reports to the Defense Production Division of the tri-service Pakistan Defense Ministry.

Additional buildings have been built for respraying and engine testing, and a firing range for bore sighting and armament testing is available. The Mirage rebuild factory is currently manned by about 1360 Pakistani air force personnel, including 61 officers and 518 civilians, and its scheduled commitments take it to the year 2000 and beyond.

The largest unit at Kamra is the F-6 rebuilt factory, which was inaugurated last November and received its first aircraft in December. More than 1430 Pakistanis are employed there, including over 500 air force personnel. The 115-acre site will be used to overhaul about 30 aircraft per year.

China donated the main structure and its equipment, and Pakistan supplied $89 million in capital investment.

Overhaul of the Tumansky RD-9B turbojet engines will continue at Sharea Faisal, but the aircraft factory has taken on additional work in manufacturing of 1140-liter (300-gallon) underwing drop tanks as well as some 4000 items relating to the F-6.

About 20 percent of the F-6 factory manpower is engaged in manufacturing, under terms of the agreement with the Chinese. The Chinese will maintain a technical team at Kamra for about a year to supervise overhaul of the initial batch of three aircraft now in the factory.

Underwing fuel tank production, aimed at 300 per year, makes use of jigs to insert cylindrical sections and extend the small 760-liter (200-gallon) underwing tanks of the F-6.

First F-6 rebuild will roll out in October and, as experience is gained, it is estimated that overhaul times will be reduced to about six months from arrival at Kamra to return to service.

Third stage of the Kamra complex is the Aircraft Manufacturing Factory, now nearing completion at a capital cost of about $26 million. This figure does not include equipment now being delivered for formal opening in June. -

Shenyang F-6 Rebuild Factory at Kamra was supplied and equipped by the People's Republic of China and forms the centerpiece of the new Pakistan Aeronautical Complex.

Pakistan air force officers inspect the first Shenyang F-6 at the Kamra facility.

This facility will provide a follow-on capability for the Swedish MFI-17, which started with a 10-aircraft program at Risalpur in 1976, progressively increasing to a total of 117 of the single-engine light aircraft in the air force and army aviation inventory.

Government officials see Pakistan Aeronautical Complex as embryonic industry over the next few years. Plans are now in hand for a further rebuild factory for ground and airborne radar equipment to form the base for a new defense electronics industry.

Photographs and explanations in this article are from the original article.