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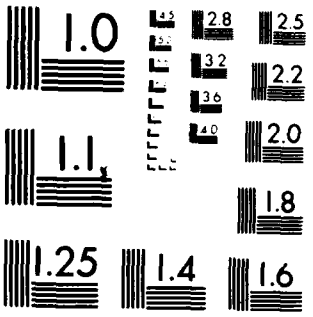

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FOREIGN TECHNOLOGY DIVISION

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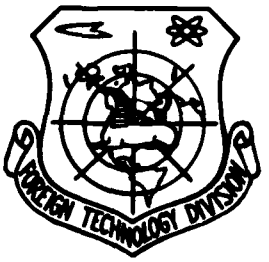

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"QIANG 5" ATTACK AIRCRAFT OF THE PRC

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In 1958, 24 years ago, Russia was still a faithful consultant for the newly established aerospace industry. At that time, differences between the two countries had just begun to surface and Russia gave China permission to produce the supersonic MiG 19. Not long after that, the Russian specialists had to return to their country, leaving behind inexperienced aerospace technical personnel who had not completed their training, to continue the work. The production was first carried out in Shen Yang. Later, production was also started in Tien Chin. Even without help from the specialists, the Chinese aerospace industry was able to provide the Chinese Air Force with hundreds of MiG 19 aircraft, which the Chinese named the "Jian 6" fighter aircraft in 1964.

After accumulating many years of experience, the quality of the airframe and the Tumansky RD-9B jet engine was greatly improved. The latter was produced in Shen Yang and was named "Turbojet 6" engine. It had a maintenance cycle reaching 200 hours, twice the originally designed value. It was installed in the daylight-type "Juan 6C" and in the limited all-weather type "Jian 6A" and "Jian 6B". The latter two are equivalent to MiG 19 PF and PM. In addition, China also developed a double-seater training plane that was completely different from the Russian MiG 19 UTI. It was named the "Jian Training 6". During the 60's and 70's, China developed a series of "Jian 6" aircraft. At the same time, the Chinese Air Force felt a need for an air-to-ground attack plane with higher performance. This was because, when the "Jian 5" was used as an attack plane, it was apparent that its pay load and range of flight were way below the modern standard. (This, in turn, was because "Jian 5" had a better performance at low altitudes). Hence, the new attack plane was to be developed on the basis of the reliable "Jian 6".

The Chinese Air Force obviously is in need of an aircraft that is capable of high speed low altitude breakthrough as well as

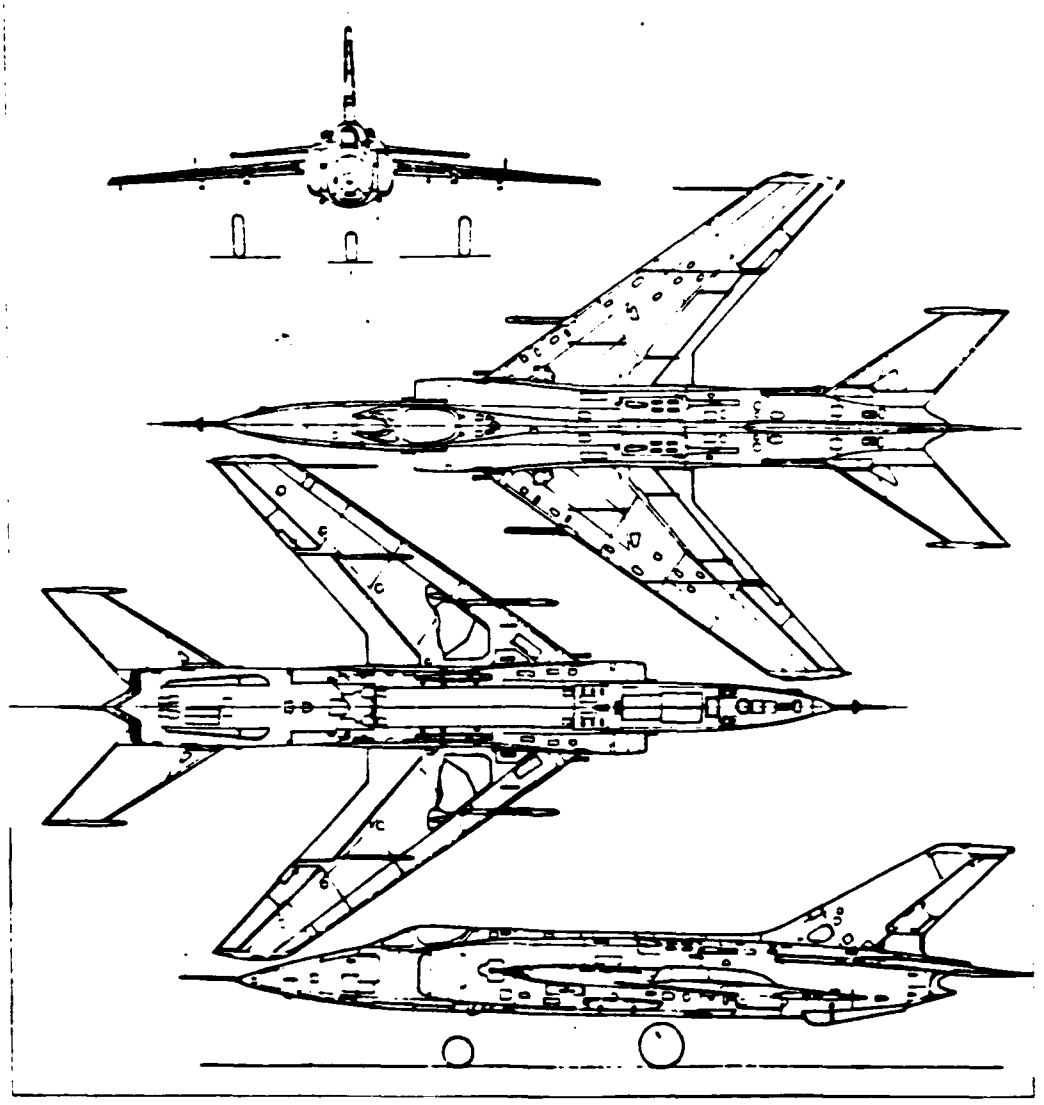


Figure 1. The Qiang 5 attack aircraft

carrying a finite pay load (such as 4250 kg bombs) or other weapon systems (such as multi-rocket launchers), and that, at the same time, can perform well at low speeds and low altitudes. While designing the MiG 19, Mikoyan chose a simple forebody front inlet whose speed could reach 1.3 Mach. This could have been due to Mikoyan's lack of experience in designing side inlets, which caused him to neglect the fact that this aircraft had two engines that were placed at the back of the fuselage. Usually, the forebody front

inlet is designed to match the earlier types of aircraft in which the engine is placed in the central portion of the fuselage. For the "Jian 6" aircraft, it is recommended to install side inlets instead.

There are many examples of the side inlet design. However, most of them involve aircraft in which the engines are placed centrally. Placing the inlets on the sides makes room for radar detection systems. In the "Jian 6", the situation is different. The two "Turbojet 6" engines are very compact, and are placed in the back of the fuselage. Thus, there is plenty of room for an interior weapon cabin and part of the demands of the Chinese Air Force are met. Once the inlets are installed on the sides, various types of equipment such as radio equipment, batteries, air conditioning system and radar can be installed in the nose area.

The side inlet design was eventually adopted, not only to match the double-engine design, but also to keep the greater part of the original design of the MiG 19 unchanged. Thus, the positions of the wings, wheels and cannons could be kept the same, and work and time were saved in the redesigning. A new nose cone was installed in the original "Jian 6" fuselage. Two inlets were placed on the sides. Behind those inlets, the fuselage was made narrower, so as to adapt to high speed flights. Two dividing boards were placed in front of the inlets.

The position of the front wheel was shifted backwards a little to make more room in the forebody for more equipment. The cockpit was shifted forward a little to obtain a better field of view. The rudder was redesigned to reduce air resistance. Its height was increased to make up for the loss in banking stability due to the new design. In order to avoid tailspin due to increased length of the fuselage, the stabilizing fins of the original "Jian 6" were replaced with two huge stabilizing boards placed on the sides beneath the tail. A less important modification was the change of the sliding canopy of the "Jian 6" into a lift-up type canopy.

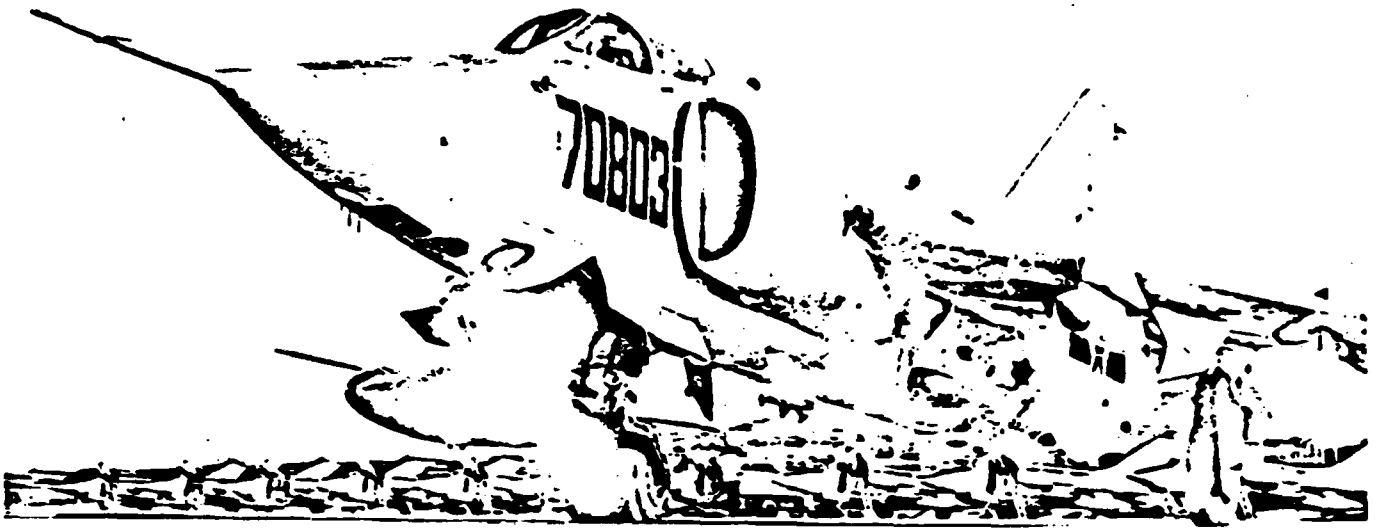


Figure 2. Qiang 5 attack aircraft of the PRC

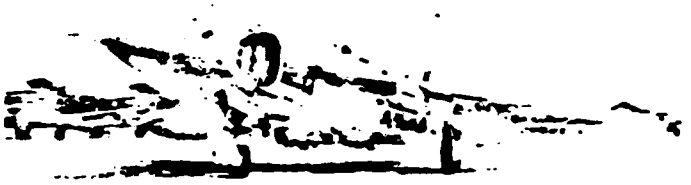


Figure 3. RAF Buccaneer attack aircraft.

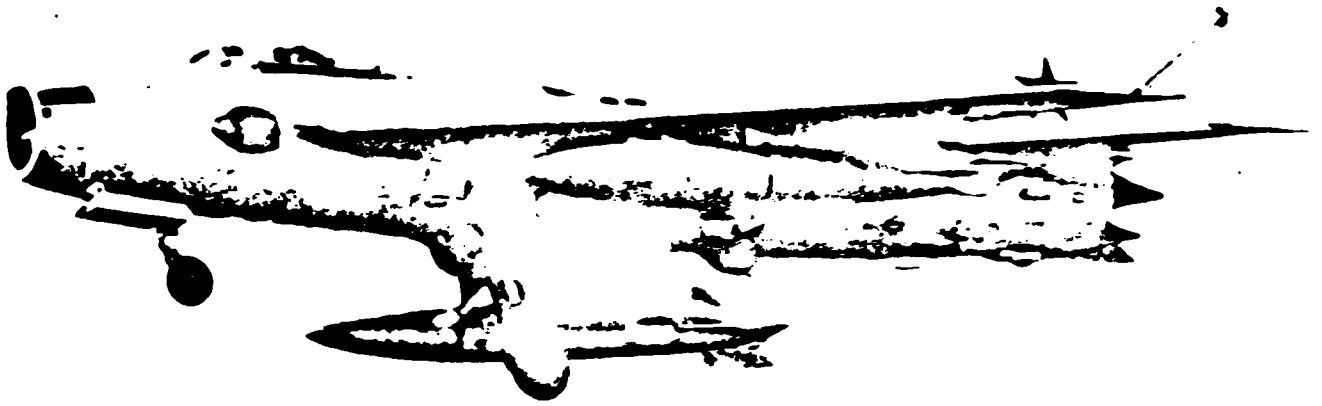


Figure 4. Soviet MiG 19F attack aircraft

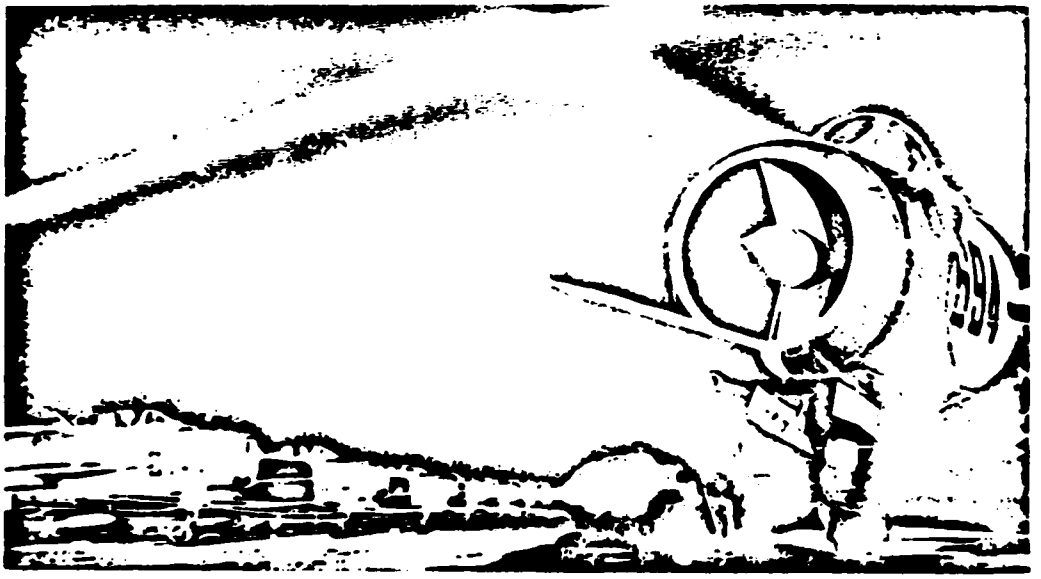


Figure 5. Jian 6 fighter aircraft

As for the wings, the main airfoil and the three ailerons, as well as the 30 mm cannon placed in front of the wing root, were kept the same. Only the flap was slightly modified to slightly increase the area of the wing and to prevent loss of stability in low altitude flights due to turbulent flow produced behind the wing root.

The above are the similarities and differences between "Jian 6" and "Qiang 5". Qiang 5" is regarded by the West as a fighter similar to the Buccaneer of Great Britain, that is, carrying four internally placed 250 kg bombs, and that can be used for the purpose of low altitude, low speed breakthrough. When such fighters were first noticed by western tourists at commercial airports, Chinese officials remarked that the design already had a 10-year history. It can be judged from this that this type of fighter was test flown in the latter part of the 60's, and started to be produced in Nan Ch'ang around 1972 or 1973. Although it is not known how many of such fighters have been produced, the aircraft manufacturing ability of Nan Ch'ang is not to be doubted.

There is no evidence available to support the statement made by western analysts that "Qiang 5" has a 30% increase in wing area over "Jian 6" and that the former is 44% heavier than the latter. It is more plausible that "Qiang 5" is heavier than "Jian 6" by 135 to 180 kg, and its fuel capacity is increased by 15 to 20%. With the internal bomb cabin full with 760 km bombs, and two auxiliary fuel tanks aboard, "Qiang 5" has a combat radius of 370 km when it flies in the low-low-low sequence. Its combat radius is 650 km when it flies in the high-low-high sequence, and it retains the ability to escape at full speed. The one-way range of flight is about 1,850 km, and the climbing limit is 15,500 m.

The engine used in "Qiang 5" is the "Turbojet 6A", an improved version of "Turbojet 6". The dry thrust has been increased from the original 2600 kg to 3000 kg, while the reheat thrust has been increased from 3250 kg to 3750 kg. The period between major overhauls has been lengthened considerably. "Qiang 5" can reach a maximum speed of 1.2-1.35 Mach, a height of 10,000 m, and a maximum

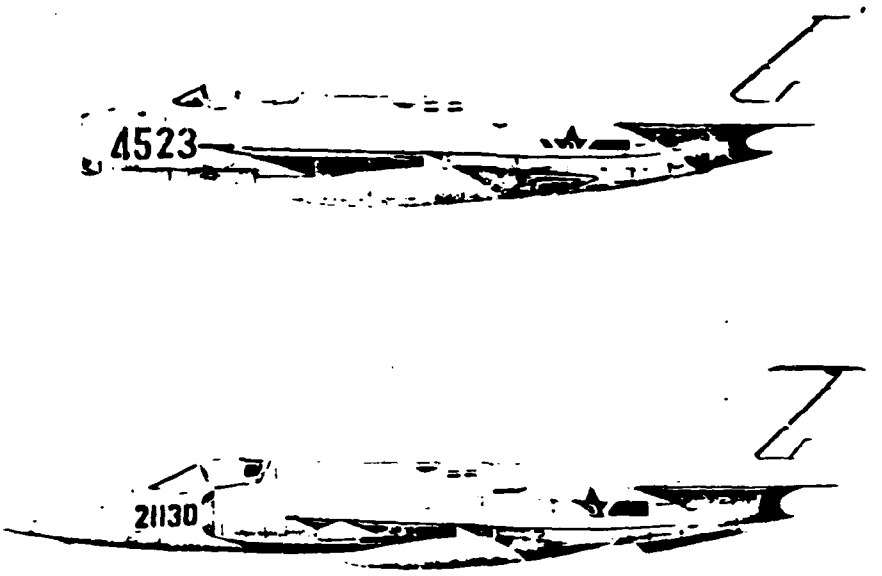


Figure 6. Schematic drawing showing the difference between Jian 6 (above) and Qiang 5 (below).

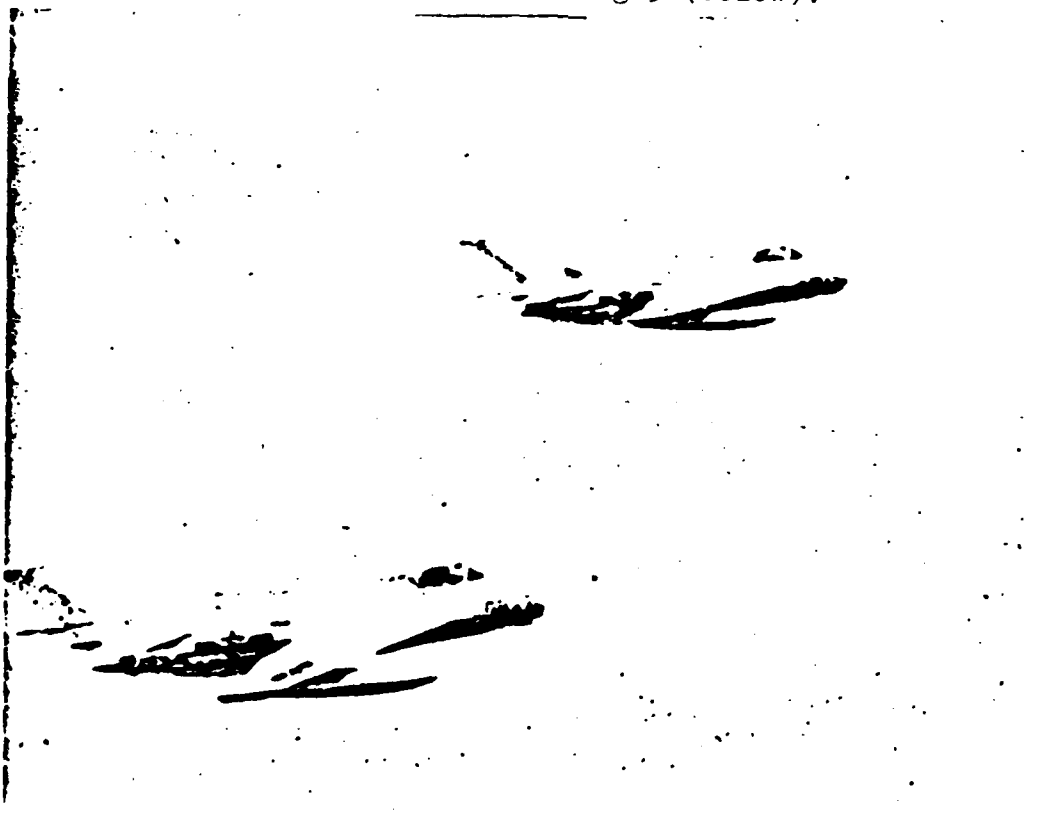
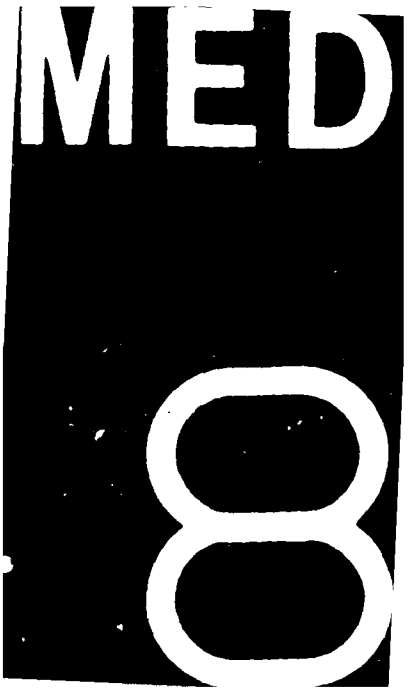


Figure 7. Jian 6 aircraft on its flying mission.

horizontal speed of 0.95 Mach. Its climbing ability is 20,000 ft/min. It is believed that "Qiang 5" is capable of high speed low altitude breakthrough. This however, requires it to abandon all its external racks, the ejection of which is a rather costly measure.

Besides the internal bomb cabin, "Qiang 5" has two weapon racks outside the bomb cabin doors and beneath the wings. Each of these can carry one 250 kg bomb. In addition, it has four wing racks used to carry auxiliary fuel tanks, air-to-air missiles, 57 mm 8-shot bunched-rocket launchers and bombs. Other internal equipment are believed to include a navigation and ranging radar, a radar altimeter, an instrument that identifies friend or foe, aircraft cannon camera, Chinese style ARK-5 radio compass, RSIU-4VHF transmitter and MRP-48P receiver.

To summarize, the "Qiang 5" attack aircraft produced in Nan Ch'ang (which the westerners call the "Fantan" fighter) can be regarded as a product of a period of transition that is barely acceptable according to western standards. Even though its range of flight and payload capacity are much improved over those of "Jian 5", "Jian 6" and "Jian 7", a lot is still to be desired when "Qiang 5" is compared against western aircraft, such as the Jaguar ground attack aircraft.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