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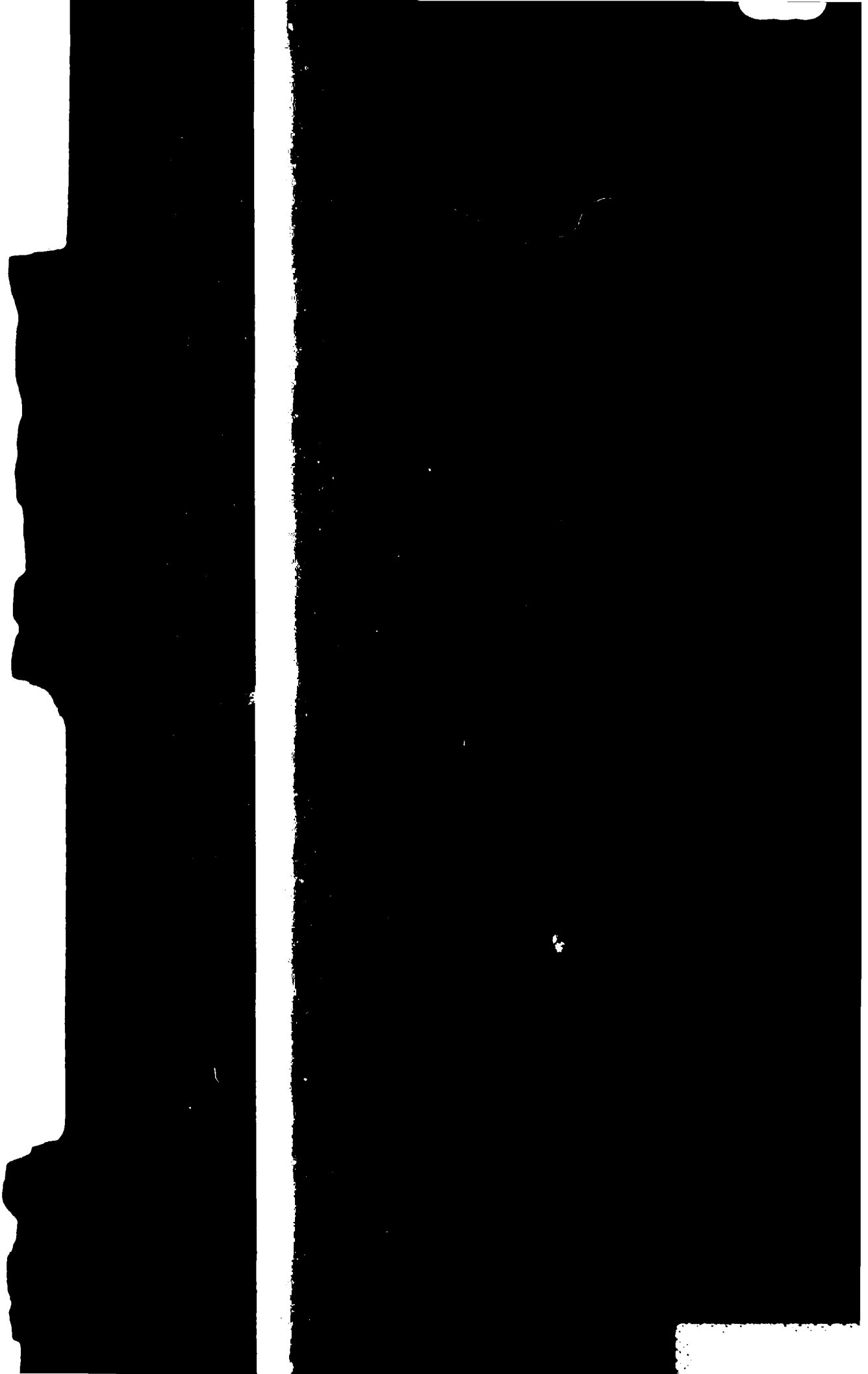

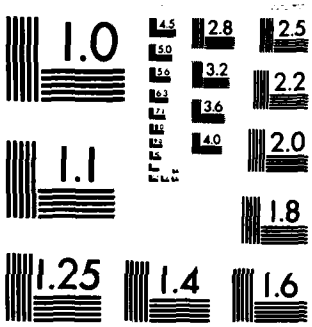

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FOREIGN TECHNOLOGY DIVISION

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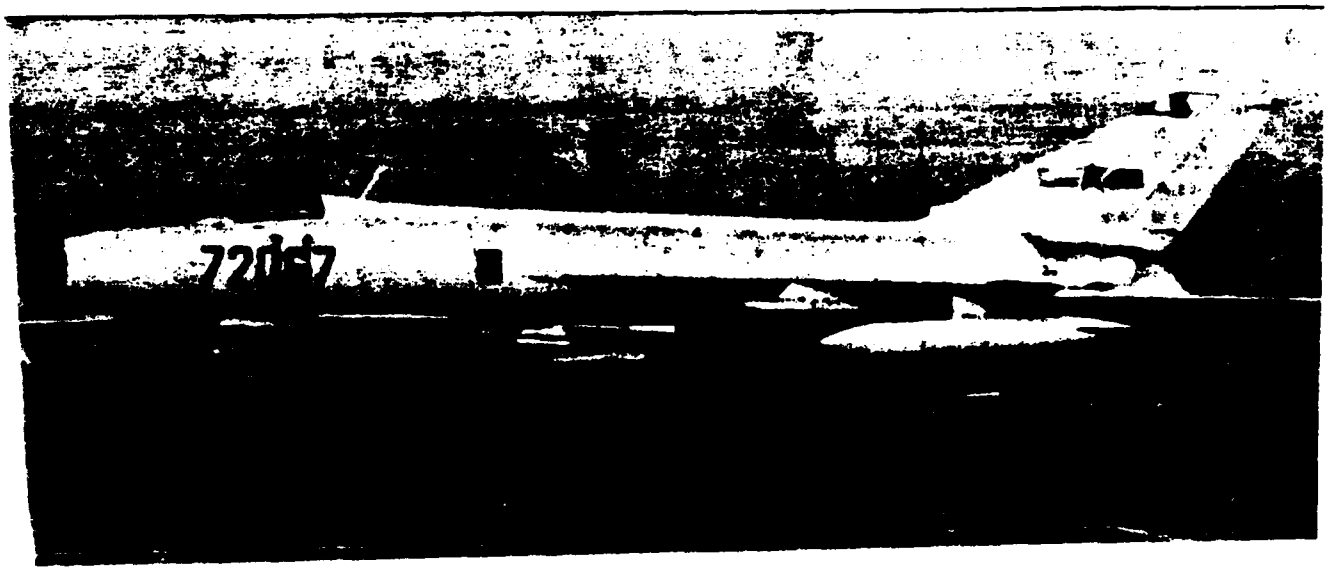

The second photograph of China's new fighter aircraft shows the center section of the fuselage is much longer that which of the "Jian-7". Its tailplane is lower than the main wing.

China Has Developed a New Version of Fighter Aircraft

During the last ten days of September, China published a single picture of a new version of fighter plane. This has brought attention and conjecture on the part of various foreign circles. The following is abstracted from English and Japanese journals. The "Jian-8" model name used in the articles is those writers' mere guesswork. Up until now China has not confirmed it.The three views of the new fighter aircraft were sketched by this magazine.

Following the "Qiang-5" attack aircraft production, another program was launched by China with more lofty aspirations. The designing of a new version of fighter-interceptor was begun in the early 1970's. In 1976, Egypt furnished at least one MiG-23 fighter to China. It seems China didn't copy it. Perhaps because the design of this aircraft is so complex, the Chinese engineers and technicians have been baffled by it. Or perhaps the MiG-23 doesn't possess, at all, the characteristics China needs.

If there really were any difficulty, it was possibly in the copying of the MiG-23's turbine jet engine Tumansky R-29 which develops

a 27,500 lb thrust. Although China signed an agreement in 1975, and had special permission to produce the Rolls-Royce's Spey afterburning turbo-fan, this kind of engine seemed to be at a not yet functional stage before the mid-1980's. The last choice was still the Tumansky R-11 turbo jet engine of the MiG-21. The model built in China was called ""o Pen -7".

The two R-11 engines have, each, a 9,500 lb static thrust power. Their afterburning thrust is 12,500 lb. The total thrust amounts to 25,000 lb, which is enough for thrusting a twin-engine fighter, weighing slightly more than 30,000 lb, at 2 M or higher speed.

The new fighter "Jian-8", or called F-8, evolved evidently from the "Jian-7"/MiG-21, but two engines certainly were mounted in it. The F-8 retains the features of the "Jian-7" nose air intake and the translation bifurcated shock, but its air intake is bigger than that of the "Jian-7".

The length of the aircraft was extended, and an outer rack was added in front of the main wing, to be used, possibly, for carrying an auxiliary fuel tank. The afterbody of the fuselage, with its low-set horizontal tailplane and inclined base plate, is enough to show that this is a twin-engine aircraft.

It looks as if the main wing is triangle-shaped. It is designed by enlarging, proportionately, the main wing of the "Jian-7"/MiG-21. It differs distinctly from the "Jian-7" by the outer aileron which is under the main wing; the vertical tail is higher: it appears to have less sweep back. A small air intake was added at the foot of the leading edge.

Following the "Jian-8", the next project of China is not yet clear. China intends to buy the Pratt & Whitney PW1120 turbo jet engine which develops a thrust of 20,000 lb. The General Electric F404 engine, providing only a 18,000 lb thrust, has not been able, it is quite evident, to supply as much power as China requires. This shows that the new fighter aircraft will be a single engine fighter, which is now in some stage of development. Perhaps China takes the PW1120 to be a bigger and heavier "Spey" engine.

(England International Aviation Journal)

The giant fighter aircraft developed by China's own technology was named "Jian-8". Two turbo jet engines were installed on the aircraft with delta wings. Early in 1980, two Chinese turncoat pilots described this newly developed fighter in their published memoranda; thus the existence of this version of fighter has been determined.

The contents of the memoranda show that this aircraft has a delta main wing, two turbo jet engines and an excellent capacity of supersonic and high-altitude climb. From the synthesis of the different documents, this is a new, modified MiG-21 attack plane. The nose air intake was expanded a lot, and the aircraft has the feature of being able to fly under all weather conditions. The aircraft was fitted with a fire control system and more advanced electronic equipment. It has a single vertical tail and two all-flying tailplanes. Its engines are two "Wo Pen-7" (R-11) turbo jet engines which are identical to those of the "Jian-7" fighter. Its maximum speed is about 2.2m. The developmental stage, convincingly, has been finished and series production will be undertaken soon.

According to the guesswork of some experts, this new fighter aircraft is perhaps the expanded version of the MiG-21. In 1961, the Soviet Union built also a twin-engine MiG-21 with expanded fuselage *. The latter was published. But people don't know why this version has not been developed continuously since then and was not placed in production. It is generally believed that China had referred to the Soviet design of this aircraft when she developed the "Jian-8" fighter.

(Japon World Military Aircraft, 1981)

* Editor's note:

This aircraft is called Ye-166 in the Soviet Union. It is known that it was designed by the Mikoyan OKB Design Institute. The Western countries call it Flipper. Originally, it was planed to be developed as a giant interceptor aircraft weighing two times the MiG-21 weight, but it was defeated in the competition with the Su-15 designed by Sukhoi. After that, the Soviet Union abandoned the plan to develop this aircraft.

The prototype of this version set a new record of a 100 km closed-circuit flight at the speed of 2400km per hour. Some aircraft prototypes such as the single engine, twin-engine, delta wing, swept-back wing and delta tail-plane were developed from the basic design. Among them, the twin-engine aircraft with delta wing is very similar to the new fighter in the picture (see picture) recently published by China.

The inferred characteristics of the "Jian-8" are as follows:	
Length	19 m
Height	5.2 m
Total width	10 m
Wing area	40 m^2
Empty weight	12,000kg
Gross weight	17,000kg
Max T-O weight	19,000kg
Two "Wo Pen-7"engines	
-Static thrust(each)	4,300kg
-Afterburning thrust (each)	5,900kg
Fuel load capacity	5,000 l
Max level speed (at altitude of 12,000m)	2.3M (1,320miles)
Level climb	12,000m/minute
Practical ceiling	18,000m
Duration range	500-1,000 miles

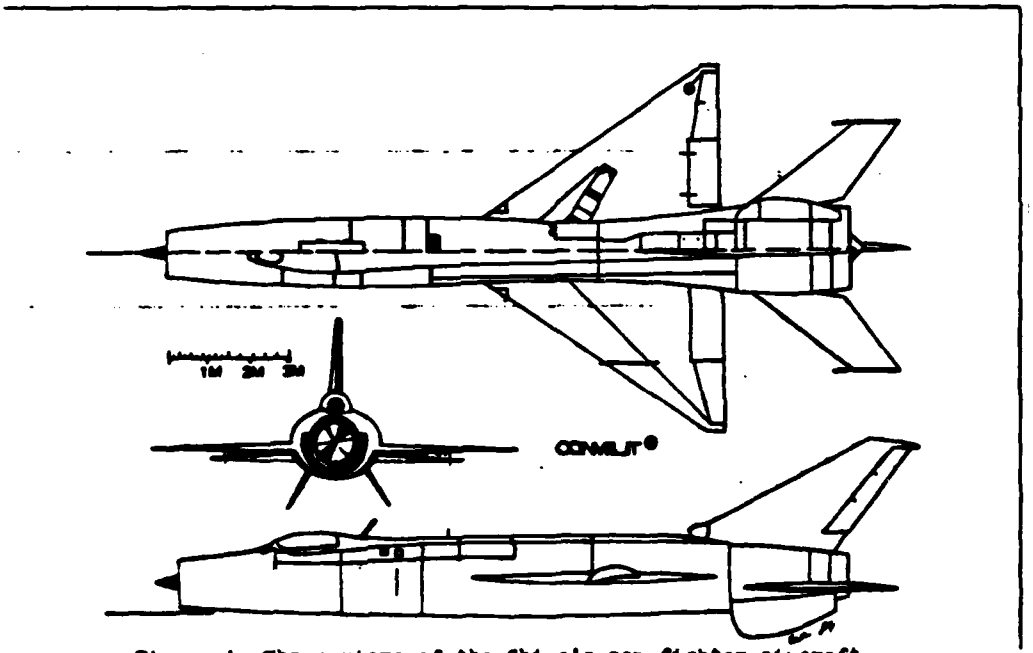

Figure 1. Three views of the China's new fighter aircraft.

The armament system of the "Jian-7" is comprised of an optical aimer SM-3A for the machine-gun that communicates with the ranging radar, and the incidence angle sensor, as well as the side slip angle sensor. The airborne weapons are comprised of a 30 mm machine-gun at each side of the fuselage. The underwing racks can hitch a couple of air-to-air missiles, the R550 or PL-2, or hitch two launchers fitted with rockets of 57 mm, and/or two 50-250kg airbone bombs. Two 500 kg bombs can be hitched at the overload.

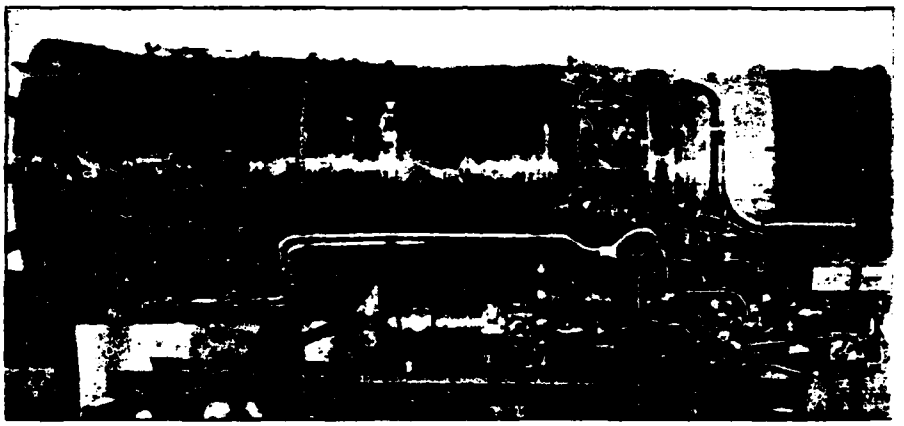

Figure 2. The "Wo Pen-7" afterburning turbojet engine, foreign countries estimate its used also in Chinese newest single-seat fighter; the configuration is such that the two engines are mounted side by side.

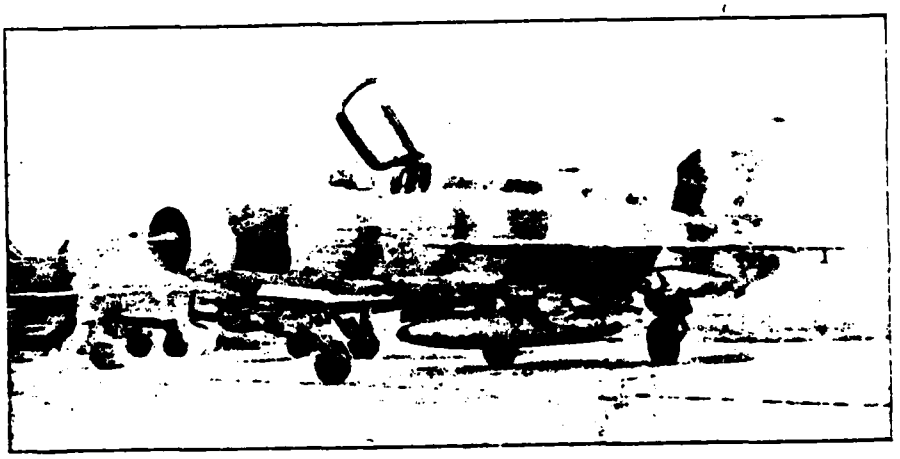

Figure 3. "Jian-7" fighter has taken part in the National Day military parade. The original production line for the "Jian-6" was replaced by the "Jian-7". Until the series production of a new fighter aircraft and until outfitting the troops with it, the "Jian-7" is the main fighter aircraft. Figure 3 shows the Jian-7 with drop tank and rocket launcher.

The main characteristics of the modified export "Jian-7"version are as follows:

Length	13.94m
Height	4.1m
Wing span	7.15m
Wing area	23m²
Empty weight	5,145kg
Normal T-O weight (with two PL-2 missiles)	7,372kg
Max level speed (at altitude of 12,500-18,500m)	2.05M
Practical ceiling	18,800m
Max range(at altitude of 11,000m) with missiles only	1,200km
with missiles and auxiliary fuel tank	1,490km
Take-off speed	310-330km/h
Take-off run range	800-1000m
Max service overload (only with two PL-2 missiles)	7 g
Landing run range	800-1000 m
Landing speed	300-320km/h

For further improvement of he performance of the "Jian-7"aircraft, China has imported some advanced fire control electronic equipment items which were mounted in the "Jian-7" for the purpose of the replacement and improvement of the original system. The main items include:

1. A level view indicator and weapon-aiming computer used to replace the original airborne aimer. The level view indicator can also indicate navigation data. It is similar to the indicator of the American F-16 fighter except for the function of inertial navigation and instrument landing function.

2. A ranging radar with quickly varying frequency that has a better capacity of ranging & anti-interference; thus it enables the missile to attack a target at a longer launching distance.

3. A new version of atmospheric data computer was added.

4. A new type of radar altimeter was added.

5. A 2-band communication radio with a security device replaced the original very high frequency radio station.

6. Three stator deflectors, of which the efficiency is 80%, replaced four rotational deflectors of lower efficiency, in order to provide electrical energy for the above described improved equipment.

The above-mentioned, refitted instruments have higher reliability and good maintainability. They all have a self-checking capacity and can be changed in the frontline airport, without need for calibration. The preheat time of the instruments doesn't exceed two minutes, thereby the maintenance time before aircraft start can be reduced.
The breakdown interval of the radar and level view indicator is several hundred hours while it is more than 1000 hours for the other instruments. The life of all these instruments surpasses 10,000 hours.

Besides the above-mentioned improvements, two under-wing outer racks were added; a pair of 4801 auxiliary fuel tanks or rocket launching devices can be hitched there.

The "Qiang-5" Attack Aircraft

The "Qiang-5", the first version of supersonic fighter aircraft successfully developed in China, was designed and built by the Nan Chang Aircraft Manufacture Company. The development of the "Qiang-5" began in the late-1950s. The basic design was finished in 1960, and the trial-manufacture of the prototype was then started. In those days, the Chinese national economy was in a 3-year period of major difficulty. During the four years of development, the engineers and technicians overcame one difficulty after another; relying on their own efforts, they finished the tests necessary for the development of the new aircraft. The tests included: a tunnel test at high and low speed, a ground simulation test of the diverse systems, and the static- and powered-strength test. These enabled the first prototype of the aircraft to fly successfully for the first time on June 5, 1965.

At the end of the same year, the series production of the "Qiang-5" was approved. After that, the armed forces were equipped with a large number of this aircraft. In recent years, the "Qiang-5" aircraft were exported to third world countries.

The main role of the "Qiang-5" is making a sudden and fast attack from a low-altitude or extra low-altitude, thus supporting the ground troops at short-range in the sky. It can attack diverse targets on the ground with bombs and rockets: for instance, assembly areas of

troops, missile launching sites, communication centers, airports, inshore warships, and tank columns. It can drop bombs from level position, as well as make a dive attack. Its machine-gun and rocket can be used for aerial combat in self-defense. The aircraft can also carry air-to-air missiles.

The configuration of the aircraft is a swept-back wing with air intakes at both sides, which enables it to have room in the nose for electronic equipment. One may well say that this was a bold and successful attempt on the part of Chinese designers at that time, as compared with the configuration of the MiG fighter with an air intake on the nose which was built in China with imported technology.

The wing of the aircraft is a middle monospar wing. The sweep back angle of 25% chord is 52.5°. The ratio of wing to chord is 3.37. The negative dihedral angle of the wing root is 4° . The multi-spar box structure wing consisted of a stressed-skin, ribs and spars. The inner side of its trailing edge is a zap flap, and the outer side is a sealed-in, compensated aileron. There is a skid fin on the upper surface of the semi-spread wing of the left and right wings. It is used to stem the lateral flow of the boundary layer in order to prevent premature stall of the wingtip.

The fuselage is a normal, semi-monocoque consisting of a stressed-skin, longitudinal spars and long booms. The fuselage is divided into a forebody and an afterbody. The middle of the fuselage has a shape like a bee's waist to accord with the demands of the surface law for supersonic aircraft. The important position near the cockpit of the forebody is fitted with bulletproof armor.

The tailplane is mounted on the mid-upper section of the tail. Its total area is 8.62m^2; its mobile area is 5.0m^2. The gross area of the vertical tail and rudder is 4.64m^2.

Two "Wo Pen-6" engines are mounted side by side in the afterbody. The maximum thrust of one engine is 2,600 kg; The creating thrust is 3,250kg; the overhaul life is 200 hours. There are 5 fuel tanks in the fuselage, three in the forebody, two in the afterbody. Their gross capacity is 3,730 l. Each underwing inner rack can hitch an auxiliary fuel tank of 760 l capacity. When the inner rack is used for hitching

bombs, each outer rack cansupport a 400 l auxiliary fuel tank.

The aircraft uses a tricycle undercarriage; its retraction and release are controlled by a hydraulic system. The front support and the main support both have a single wheel. The front wheel retracts forward into the fuselage. The main wheels retract backward into the wing.

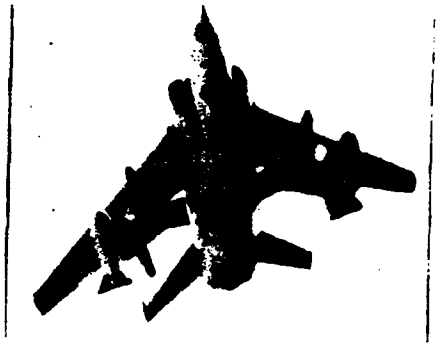

Figure 4. Qiang-5 in low level attack training.

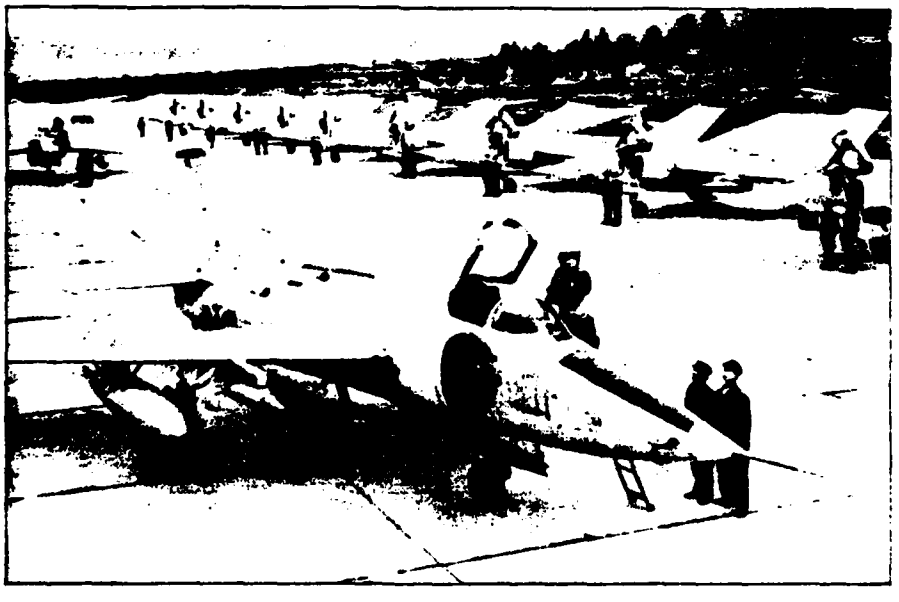

Figure 5. Qiang-5 attack aircraft of the Chinese Air Force, it was placed in production in 1965, and was exported to third world countries in recent years.

There are two hydraulic systems with 210 kg/cm^2 pre
The main hydraulic system controls the retraction and release
undercarriage, wheel brakes, wing flaps, spee reducer, after
etc. The auxiliary system drives the aileron and the booster
tailplane. The rudder is driven mechanically, but the
aileron and the regulating plate of the rudder are driven ele

The "Qiang-5" has altogether eight outer racks: fou
the fuselage and four under the wing. The normal bomb load ca
is 1,000 kg, the maximum bomb load capacity attains 2,000kg.
fuselage rack can hitch a 250-340 kg bomb and bomb cluster.
on the inner side of the wings can hitch a 57 mm or 90 mm mis
cher or hitch a 250 kg bomb. The out rack can carry air-to-ai
At the wing root on each side, a 23 mm machine-gun is mounte
gun carries 100 bullets. An optical aimer SH-1J is used for l
dive bombing,as well as for launching missile towards the gro

The vital equipment of the "Qiang-5" includes a mi
catapult developed by China. With it,the pilot will be ejecte
the aircraft safely at zero altitude and at a speed of 250-6

Main tactical characteristics

Length (with air speed tube)	16.73m
Wing span	9.7m
Height	4.51m
Wing area	27.95m^2
Practical empty weight	6,494kg
T-O weight(without outside load)	9,530kg
(with all the outside load)	12,000kg
Max level speed sea level,without outside load	1,210km/h
at altitude of 11,000m without outside load	1.12 M
Practical ceiling(without outside load)	16,000m
Max climb rate (at altitude of 5000m)	85-103m

Take-off speed	300-330km/h
Take-off run	
without outside load, boosted	700-750m
with all the outside load, boosted	1,250m
Landing speed	278-307km/h
Landing run	1,660m
Combat radius	410-600km
Max practical overload	
without outside load	7.5g
with empty auxiliary fuel tank	6.5g
with full auxiliary fuel tank and bombs	5g
Max Mach number	1.5

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