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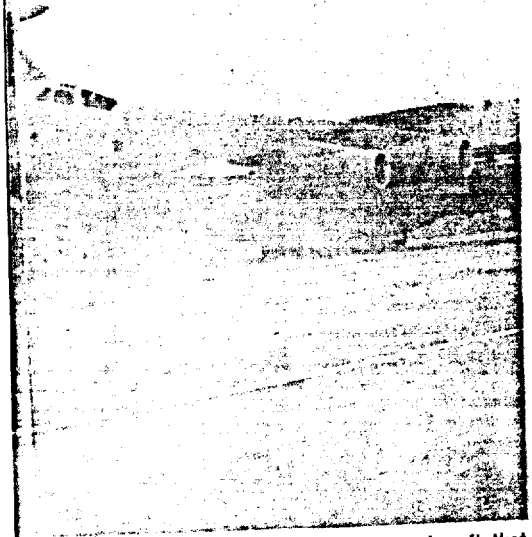
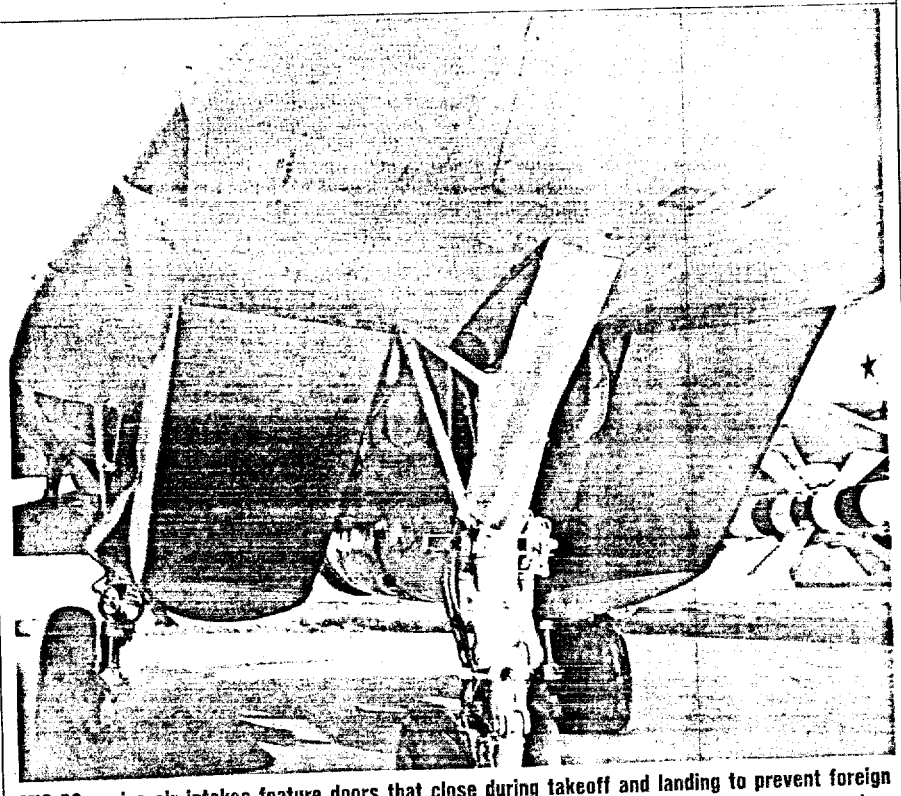
Technology. — 15 Aug 1988.



There are two tail cones on the aircraft that appear to be tail warning devices.

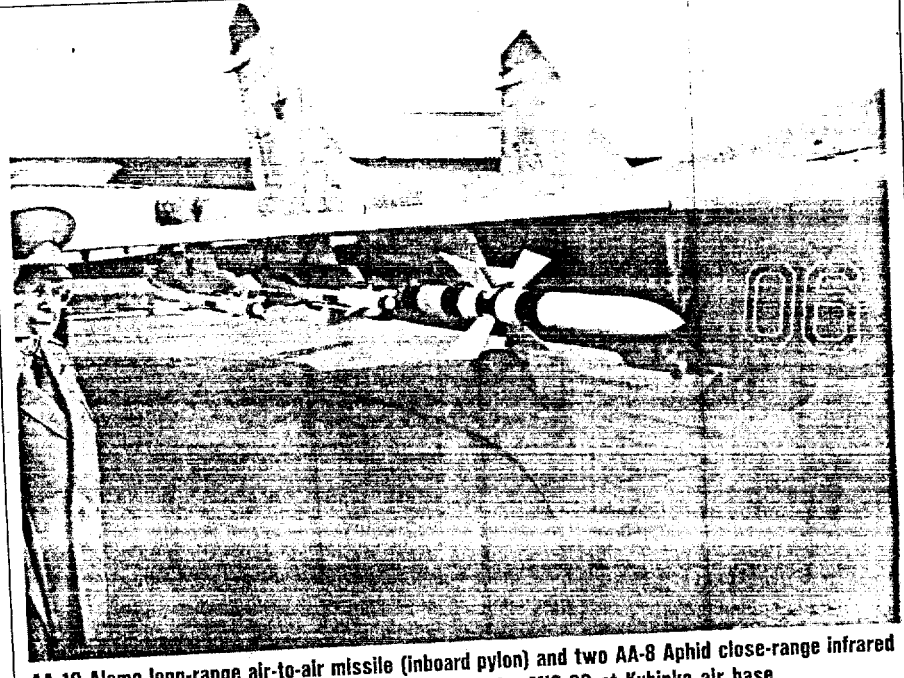


MiG-29 engine air intakes feature doors that close during takeoff and landing to prevent foreign object ingestion. Engine air is taken in through louvers in upper surface of wing root leading edge.

As in the B-1B, each crew station has individual ejection seats. The four hatches can be seen from the outside. The seats were not as comfortable as those found in U. S. military aircraft, but Fornell said that human engineering was evident in the rest of the cockpit. Sliding windows on either side of the cockpit provided cool air during the more than 15 min. Carlucci and Fornell occupied it. Visibility from the cockpit is reasonably good, according to Fornell.

The Blackjack has a centrally mounted control stick, as does the B-1B, rather than a transport- or bomber-type yoke. "The Soviets must have found that it was better to provide their Blackjack pilots with fighter-type controls, rather than bomber controls," Fornell said.

The stick, which has a slightly different grip from that of the B-1B, sits on a pedestal slightly higher than the U. S. bomber's. Each pilot has four throttles mounted to the left of his



AA-10 Alamo long-range air-to-air missile (inboard pylon) and two AA-8 Aphid close-range infrared air-to-air missiles shown mounted under the wing of a MiG-29 at Kubinka air base.

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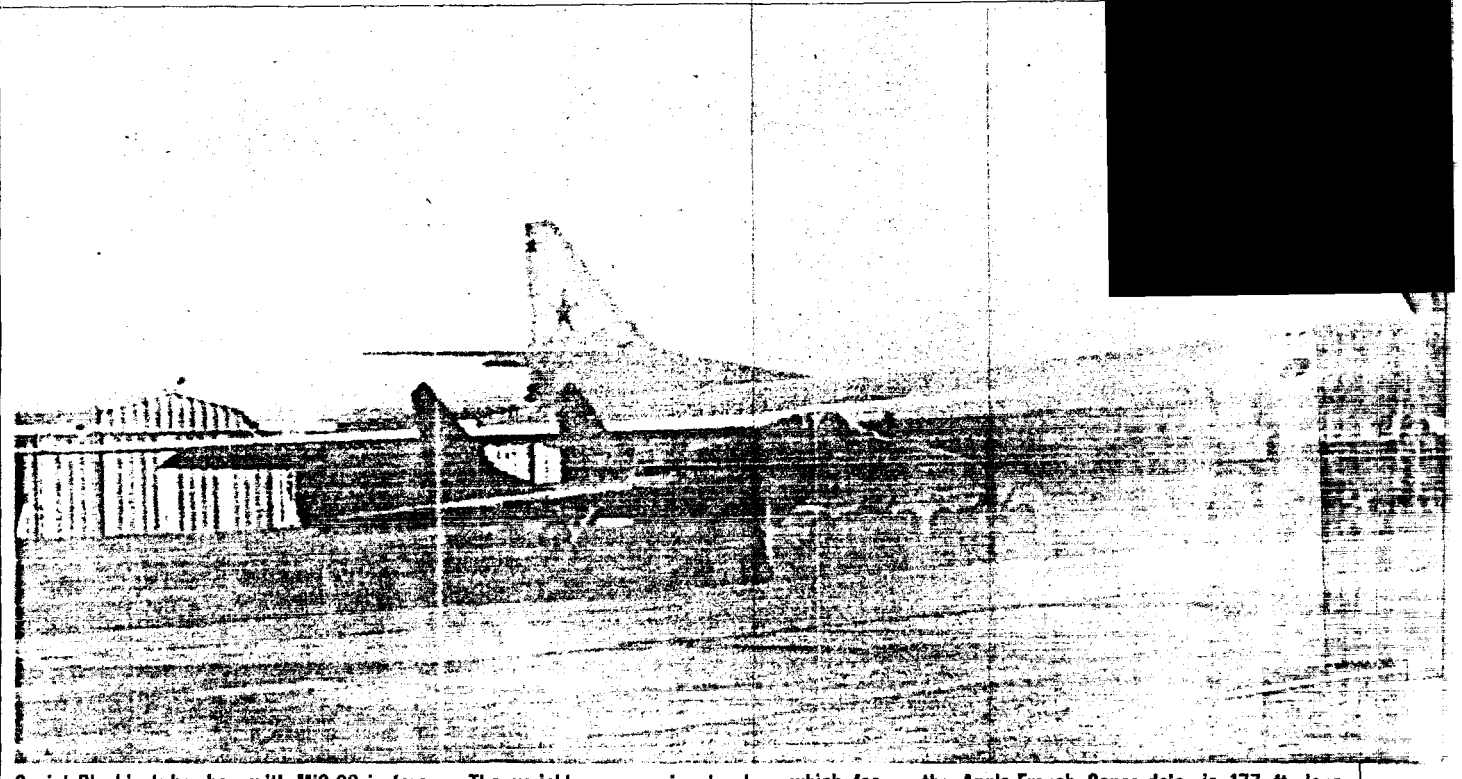
Blackjack Shares Aspects Of U.S. B-1B and XB-70

DAVID M. NORTH, JOHN D. MORROCCO/WASHINGTON



Soviet Blackjack bomber, with MiG-29 in foreground, is shown at Kubinka air base, USSR. The variable-sweep wing bomber, which features a straight, highly tapered nose similar to the Anglo-French Concorde's, is 177 ft. long and has a fully extended wingspan of 182 ft.

The Soviet Blackjack bomber closely resembles the U.S. Air Force B-1B in its configuration as a strategic penetrator, but features the contours and manufacturing smoothness of the experimental XB-70 built by North American Rockwell in the early 1960s, according to a Defense Dept. official.

The Blackjack is similar in design and layout to the Rockwell International B-1B, but is closer in size to a Boeing B-52, U.S. Air Force Maj. Gen. Gordon E. Fornell told AVIATION WEEK & SPACE TECHNOLOGY. The exterior skin of the aircraft is far more aerodynamically clean than most other Soviet aircraft, Fornell said. Fornell, a graduate of the Air Force test pilot training school at Edwards AFB, Calif., was an observer of the XB-70 program and has flown the B-1B.

U.S. Secretary of Defense Frank C. Carlucci and Fornell, his senior military aide, inspected one of the Soviet bombers during a visit to Kubinka air base, 40 mi. west of Moscow on Aug. 2 (AW&ST Aug. 8, p. 14).

The Blackjack inspected by Fornell and Carlucci was painted white with a red star on the tail and had the number 12 stenciled on the crew hatch door on the underside of the fuselage. It appeared to be an early production version, Fornell said. At least 11 bombers have been produced and a number are operational in the Soviet air force.

INTERNAL WEAPONS BAYS

The Blackjack has two large internal weapons bays, each of which can accommodate six AS-15 air-launched cruise missiles (ALCMs) or 12 short-range attack missiles (SRAMs) on a rotary launcher. The launcher in the aircraft inspected by Carlucci and Fornell was equipped with six ALCMs in the forward bomb bay, which took up two-thirds of its length. Fornell said the launcher is very similar to the B-1B's.

The U.S. Air Force Strategic Air Command's newest bomber, however, has three internal weapon bays and each rotary launcher is capable of holding eight SRAMs each. The Blackjack observed during the visit did not appear to have an external weapons capability, Fornell said.

Access to the cockpit is through a large hatch on the underside of the fuselage forward of the bomb bays using a separate support equipment platform, Fornell said. The access to the aircraft is unlike that on the B-1B, which has its own electrically driven, self-contained ladder (AW&ST Sept. 14, 1987, p. 54).

There is a long corridor toward the nose that passes through the avionics bays on both sides for 10-15 ft. before reaching the defense and offensive electronic system operator positions. As in the B-1B, the crewmember positions are on opposite sides of the aircraft. Fornell was not allowed to linger in this area to observe the electronic equipment.

The interior layout of the Blackjack is similar to that of the B-1B, but is much cramped and grey, Fornell said.

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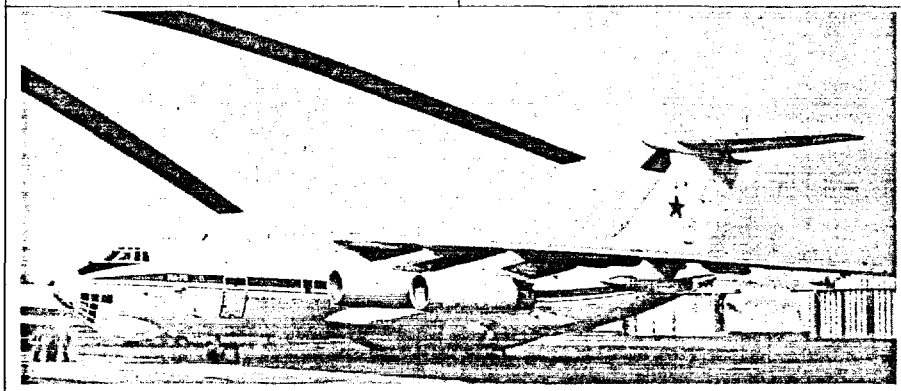
The throttles have a round lollipop grasp, rather than the molded grasp found on the B-1B, Fornell said.

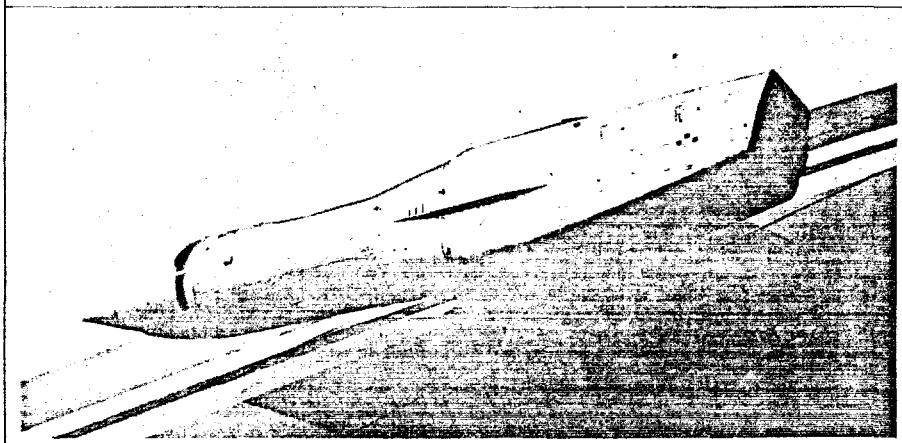
A manual selectable wing-sweep mechanism, on the right side of both the pilot and copilot, allows for settings of 20-65 deg. The forward wing sweep position on the B-1B is 15 deg., and it has a similar, 65-deg. aft position.

As the wing is swept forward, Fornell said, a triangular piece of the middle portion of the wing raises. The resulting 3 × 3-ft. vertical tab or fence resembles a winglet on the Gulfstream 3.

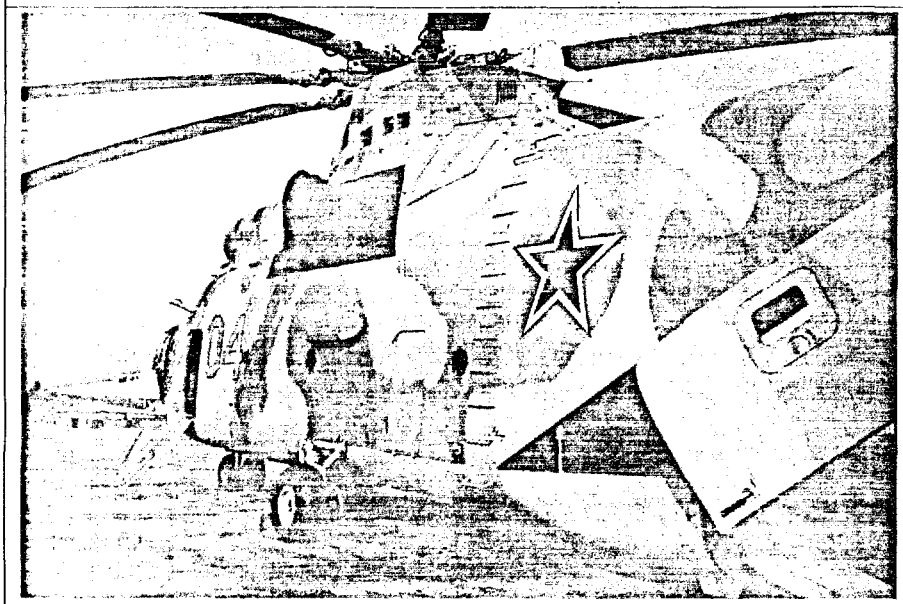
Flight instrumentation, displayed directly in front of the pilot and copilot, is similar to that of the Collins FD-109 system found in many corporate aircraft. The aircraft symbol was displayed on the attitude indicator/flight director, but there were no other visual cues shown, Fornell said. There is a large center console featuring engine instrumentation displayed in a vertical tape format, similar to that favored by the U. S. Air Force. There are very limited instrumentation and controls in the cockpit overhead, and aircraft system controls are located on the large center console between the seats, Fornell said.



Il-78 Midas aerial refueling tanker, photographed a Kubinka air base, became operational last year. The tanker, a version of the Il-76 transport, will replace the M-4 Bison.



Close-up view shows drogue-type refueling pods on port side of rear fuselage of Il-78 aerial refueling tanker. The aircraft is equipped with three refueling pods.



Mi-26 Halo heavy-lift helicopter, with eight-blade main rotor, can carry 85 combat-equipped troops or a maximum payload of 44,000 lb.

INSTRUMENT CONSOLE

A CRT display, mounted high on the center instrument console, appeared to be the caution and warning light panel, Fornell said. There was no head-up display. A Soviet pilot who briefed Fornell on the aircraft said there was no artificial presentation of the environment outside the cockpit, but that the aircraft did have a terrain-following capability.

Underneath the Blackjack's fuselage, aft of the radome, is a chin-mounted unit similar to that on McDonnell Douglas RF-4s housing some kind of electro-optical or infrared sensor, most likely transmitted to the electronic warfare officers, Fornell said.

The engine inlet compartments on the four-engine bomber feature splitters on the divider between each intake, with variable ramps on either side. Fornell said they resembled those used on the XB-70.

The Blackjack uses a fully movable vertical tail for yaw control, rather than the conventional rudder arrangement found in most aircraft, especially those with supersonic capabilities. The horizontal stabilizers are mounted at the intersection of the aircraft's dorsal and main fins, slightly higher than the B-1B's stabilizers. Fornell said he saw evidence that the Soviets have been changing the design and position of the fully movable horizontal stabilizer. Fornell could not determine whether the Blackjack had conventional flight controls or a more advanced fly-by-wire system found on some advanced U. S. aircraft.

INTELLIGENCE ASSESSMENTS

Soviet air force officials confirmed earlier U. S. intelligence assessments of the aircraft's design and performance specifications, including a gross weight of 590,000 lb. and an unrefueled combat radius of 7,300 km. (3,930 naut. mi.).

The Soviet pilot who briefed Carlucci and Fornell said that the aircraft did not have an aerial refueling capability, though U. S. intelligence has seen evidence of a drogue-and-probe system, with the probe located forward of the bomber's cockpit. Fornell said it appeared the Soviets were still sorting out [illegible] process for the aircraft. □

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