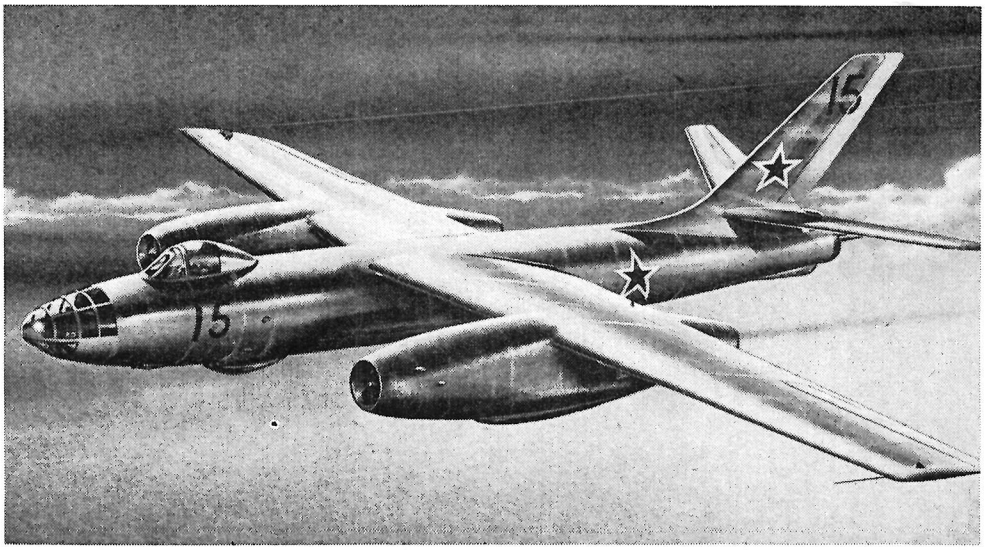
RED JET BOMBER



TWIN-JET BOMBER BACKBONE OF SOVIET TACTICAL AIR POWER

By WILLIAM GREEN
European Correspondent
Canadian Aviation

RECENT official statements give good reasons to suppose that Russia has upward of 8,000 tactical combat airplanes based in the deployment belt formed by the Soviet Union's "satellites" which stretches from the shores of the Baltic to within a few miles of the Mediterranean.

Although by no means entirely equipped with the latest jet combat airplanes, there can be little doubt that the backbone of these tactical elements is provided by a twin-jet bomber, comparable in size and performance to the English Electric Canberra, and designed by Sergei Ilyushin. As yet officially nameless, although often referred to as the IL-26, this bomber has now replaced the majority of the large formations of piston-engined Tupolev Tu-2 attack bombers stationed in Eastern Germany, and has been reported in places as far apart as Estonia, Rumania and China.

The Korean fighting has made it abundantly clear that an army is helpless if it lacks air cover. The Communists have suffered well over 1,000,000 casualties, 47% of which, according to the Supreme HQ, have been the direct result of air attack.

We would indeed be naive were we to suppose that the Kremlin would be guilty of making a similar mistake to that made in Korea in any invasion of Western Europe. Indeed, the quantities of MiG-15 fighters now appearing in Korean skies suggest that every effort is being made on the part of the Soviet Union and Communist China to rectify their previous errors in the Korean War. The numbers of Ilyushin bombers now available suggest that this modern weapon might be thrown into the fray should the peace conferences, under way at the time of writing, not achieve the desired results.

The IL-26 is rapidly becoming the "maid-of-all-work" of Soviet military aviation, already being in service as a close-support tactical bomber, high-altitude reconnaissance bomber, crew trainer and, like its ancestor, the IL-4, for shipping attack by the Soviet Navy from bases along the shores of the Baltic.

The IL-26 denotes a marked step-forward in Soviet tactical bomber design technique as did the MiG-15 amongst Soviet fighters, and first reports of this airplane in service outside Russia came when a squadron of the new bombers began to replace the piston-engined Tu-2s stationed at Juterbog in Eastern Germany, since which time the IL-26 has become a common sight in East German skies, a formation of them even flying in parade over the

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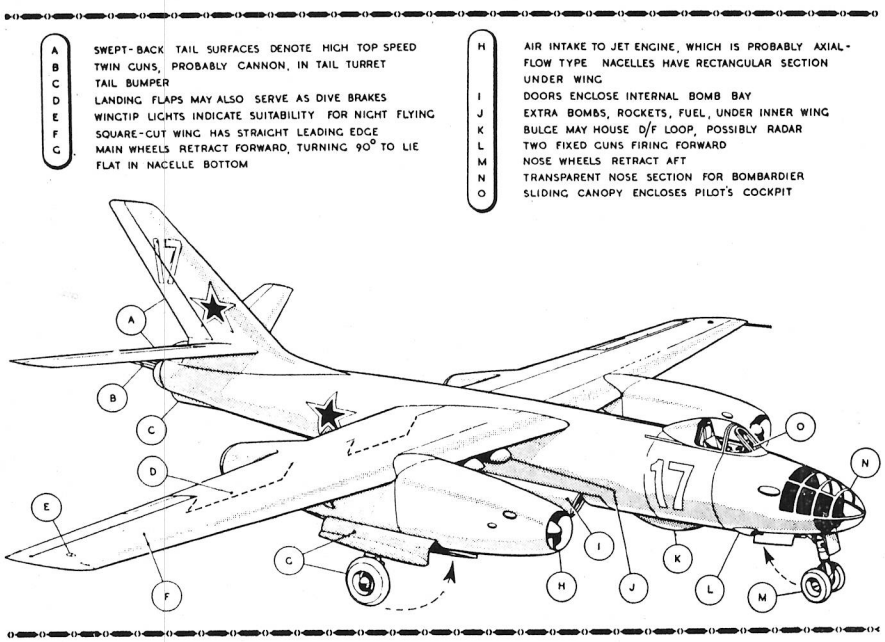
ABOVE—Artist's conception of the Ilyushin IL-26 tactical bomber in flight. This is based on photo evidence and eye-witness reports. It is comparable in some respects to the Canberra but lacks its aerodynamic refinement.

BELOW — Detailed drawing of the IL-26 showing salient features.



VOICE OF READER

(Continued from page 40)

looking forward to seeing this book ever since it was mentioned in your magazine. I am wondering if it is still a live project.

Another thing I've been wondering about concerns registration letters on Canadian aircraft. All works of reference give CF- as the primary registration letters for Canadian civil aircraft but back around 1936 two aircraft were familiar to me that had registration letters that were different. Two "Gipsy" Moths, CG-ANQ and CG-ANX flew in the Regina Area of Saskatchewan about that time if my memory serves me right. I wonder if any of your readers know what eventually happened to those two aircraft.

To a person in the aircraft industry who wants to keep in touch with developments in Canadian aviation and the aircraft industry in particular, your magazine seems to fill a definite need as a source of reliable information. I first read a copy of Canadian Aviation in a reading room in No. 3 Repat. Depot in England in 1945 and I've been reading it practically without a break ever since.

Thanking you, I remain,

Yours truly,
C J. Toms,
14 Wellington St.
Orangeville, Ont.

Note—The proposed book "Wings of Memory," according to our information, still is awaiting a publisher. As for the registration letters, Mr. Toms probably refers to the English registration "G-ANQ" etc. which remained on a number of imported aircraft, including Gipsy Moths, for some time after the "CF" registration was adopted.

—The Editor.

"PROPELLERLESS" FIGHTER

Sir:

A few months before the Italian surrender in World War II, there were reports published about a "propellerless" fighter plane flown by the Italian Air Force.

I do not know whether this plane ever saw combat, but if it did its success must have been limited. I believe it was a development of the Caproni Campini CC2, which flew in 1939.

Can you give me any information on this plane, especially its power plant which must have been a ducted fan (i.e. an axial compressor driven by a conventional reciprocating engine) since the Italians never had any gas turbines.

E. W. Hamilton,
39 Brock St.,
Kingston, Ont.

Note—The Italians did not succeed in producing any jet combat airplanes during the war years. The reports referred to by the reader concerning a "propellerless" fighter plane resulted from the wide publication—mostly in the nontechnical press—of a photo captioned: "New type propellerless Italian fighter plane."

In actual fact, the photo depicted a Caproni-Reggiani Re 2001 fighter of quite orthodox type, being a closeup view of the nose. The revolving airscrew blades were not reproduced in the photo (thus it became "propellerless") and the aperture for the motor-cannon in the spinner was described as, "The circular intake in the nose admits air to the compressor and ejects through an adjustable outlet in the tail."

Although the reports referred to by the reader originated as a hoax, purely and simply, it is a curious coincidence that the Caproni company did suggest a development of the Caproni-Reggiani Re 2005 with a supplementary propulsion cylinder engine of 370 hp. to drive two centrifugal compressors; one for supercharging the main DB 605 engine and the auxiliary unit, and the second to supply a stream of air in which fuel was to be burned in the tail. The war ended before this project reached fruition.

The CC2, referred to by the reader, was not a success but, nevertheless, Campini persevered and produced a number of designs for the Italian Air Ministry for fighter and bomber aircraft utilizing ducted fan power units located in the wing and driven remotely from one or two recriprocating engines in the fuselage.

With afterburning one of the Campini fighters had an estimated top speed of 450 mph at 33,000 ft. Campini also submitted a proposal for a turboprop unit utilizing a nine-stage turbine and an eight-stage centrifugal compressor.

—William Green
European Correspondent

RED JET BOMBER

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outskirts of Berlin on Boxing Day at an altitude at which the grey-green camouflage of their upper surfaces and the sky-blue undersurfaces could be seen clearly.

The Ilyushin bomber lacks the aerodynamic refinements of the comparable Canberra bomber. The generally clean fuselage contours are marred by a pilot's enclosure which appears clumsy to Western standards. There is a bulge under the forward fuselage aft of the nosewheel housing, which may house a D/F loop but more probably a radome, and a large tail bumper.

The only unorthodox external feature is the combination of straight wings and marked tail sweep which produces a striking contrast of angles in the plan view. The need for rear defense is apparent from the provision of a tail gunner, although the rearward-firing armament also fits in with the airplane's primary role of tactical troop support. Other armament includes one 20-mm or 30-mm calibre gun installed either side of the nosewheel housing.

The useful-looking bomb bay is some 17 feet in length, the doors of which are sectioned; the inner sections folding upwards and inwards and the outer sections folding downwards and outwards, in order to present as little airflow disruption as possible during fast bombing runs. Racks carrying small bombs or rocket projectiles are mounted inboard of the jet nacelles.

The extremely long, gently-tapering nose discloses the airplane's relationship to the IL-4 of a decade earlier, and makes much use of transparent panels, although a specialized ground attack and "tank-buster" variant is reported to have a "solid" nose contained heavy cannon. The wings, which are mounted in shoulder position and centrally on the fuselage, have only slight dihedral and are square-cut throughout, without any noticeable fillets. There is no taper on the leading edge but pronounced taper on the trailing edge and square-cut tips.

The design of the jet nacelles would suggest the use of axial-flow rather than centrifugal-type engines, although Soviet turbojet develop-

ment is still very much an enigma. Their size may indicate the first operational application of the large M-012 axial-flow units derived from the Jumo 012 and brought up to production status.

The underslung jets are mounted close inboard; their nacelles reach forward as far as the rear of the pilot's canopy, and are visually of similar girth to the fuselage. They have a very distinctive shape; both sides and under surfaces are flat, presumably dictated by the need to house the main wheels flat in the nacelles.

The main wheels of the undercarriage appear to retract forward, the wheels turning through 90 deg. to lie flat under the air intakes. The nacelles are some 25 feet long, but the M-012 turbojet is itself some 15 feet in length, and the extra 10 feet of the nacelles may be accounted for by an after burner extension.

Alternatively, if centrifugal units are used, they may be mounted well forward in the nacelles in order to clear the main spar and leave space for the main wheels, in which case the unusual nacelle length may be dictated by airflow considerations. However, the latter reason for the extreme nacelle length would seem unlikely as it would mean that the cg. would probably be too far forward.

Still Unknown Quantity

The performance characteristics of the Ilyushin are still very much of an unknown quantity, although eye witnesses have reported that the airplane is fast low down and lands very slowly with the aid of large slotted flaps. Although there is reason to believe that the IL-26 is more powerful than was at first thought, top speed is unlikely to exceed 580 mph, with a cruising speed upwards of 500 mph.

Although our knowledge of the Ilyushin IL-26 is limited to its external features at the present time, it is important that we mark and note the high standard of development that this airplane denotes. Underestimation of the Soviet airplane industry's potential might lead to the acquisition of more detailed knowledge of this airplane's capabilities, knowledge absorbed in the depths of an air raid shelter.

THE designer of this jet assault bomber (which we will refer to as the IL-26, pending official confirmation of this designation, or concrete evidence disproving it). Lieut.-Gen. Sergei A. Ilyushin, was born in 1894, the son of a peasant. He commenced his career in the Imperial Russian Air Force, entered the Zhukovski Air Academy in the late '20s and later graduated to TsAGI, the Central Aerodynamics Institute.

While working at TsAGI, Sergei Ilyushin produced two designs which carried him to the top rank of Soviet airplane designers; the TsKB-26, which entered quantity production as the DB-3 bomber, and the BSh-1 single-seat armored ground attack airplane, later to be known officially as the IL-2 and commonly as the Stormovik.

In Finnish Campaign

The DB-3 was blooded in the initial Russo-Finish campaign where it had little opposition to contend with and its poor defensive armament did not seriously effect the course of operations. Just prior to the German invasion of Russia, a redesigned version of the DB-3, the DB-3F, was placed in production, and when Russia changed her system of designating production airplanes to one in which an indication of the designer's name was given—unusual in a state where any form of individuality is frowned upon — the DB-3F was redesignated IL-4.

Both the IL-2 and IL-4 were widely used throughout the war years, the IL-4 gaining for itself the distinction of being the first Russian bomber to attack Berlin. Powered by two 1,100-hp M-88B radials, the IL-4 had a top speed of 265 mph and manifested the adaptability which has since characterized all Ilyushin's designs. In addition to being employed as a long-range strategic bomber — maximum range being 2,500 miles — the IL-4 was used for close-support work, crew training and, until quite recently, coastal reconnaissance and anti-shipping strikes by Soviet Naval squadrons.

Needed Fighter Escort

The IL-2 single-seater was powered by a 1,600-hp AM-38 engine. However, its poor performance and lack of rear-firing armament necessitated fighter escort on ground attack missions and a modified two-seater version, the IL-2B, was produced with a rear-firing 12-7-mm. gun and the more powerful 1,700-hp AM-38-F engine, or, alternatively, the 1,650-hp VK-107. With the availability of the 2,000-hp AM-42 engine, Ilyushin completely redesigned the airplane to take full advantage of the increased power, the result being the IL-10, which is still widely used by the operational elements of both the Soviet Union and her satellites.

With the end of the war in Europe, Sergei Ilyushin turned a part of his attention to the design of commercial and military transports, the first of which, the IL-12, is now standard medium-range transport of the national airline, Aeroflot, and the airborne elements of the Red Army. This airplane was followed in 1946 by the four-engined IL-18, a scaled-up version of the twin-engine IL-12B, powered by four ASh-21-112 radials of 1,700 hp each.

Although introduced on Aeroflot's Moscow - Vladivostock route and having a reasonable performance, top speed being 304 mph, and range being 1,864 miles at 282 mph, the IL-18 is not believed to have been entirely successful and there is little doubt that only small numbers of this airplane have been built, although one report of the 1948 Aviation Day air display says that 10 IL-18 transports appeared in the fly-past.

Accent On Tactical Jets

However, like most other top-line Soviet designers, Sergei Ilyushin's primary attention was directed toward the development of jet tactical airplanes to replace his IL-4. The results of TsAGI experiments in adapting existing airframes (such as the Tu-2 and Pe-8) to take German axial-flow turbojets were made available to all Soviet designers, and Ilyushin is reported to have been allotted the task of completing and developing one of the advanced German jet projects, as were other designers.

In the case of Ilyushin, he was assigned the Heinkel HE 343 long-range jet bomber which Sigfrid Gunther had been working on prior to the German collapse. The He 343 was powered by four Jumo 004C turbojets and was intended to carry a bomb load of 4,000 lb. Top speed was estimated at 540 mph and maximum range was 1,850 miles. A Russian prototype of this airplane was completed and flown in the Aviation Day fly-past of 1947, and that was the last report ever received concerning this machine.

Although four-engined, the Russian-built He 343 was not a particularly large airplane. The projected line of development for the original German machine was the replacement of the four low-powered Jumo 004C units by two of the

considerably more powerful Jumo 012 turbojets, and it is very likely that further Russian development followed a similar course; reports of a straight-wing, twin-axial-flow turbojet bomber with ventral dorsal and tail turrets in service in relatively small numbers tying in very well with a description of a twin-jet version of the He 343. Again, Sigfrid Gunther, who offered his services to the U. S. Government but was refused employment, reputedly accepted Russian offers a couple of years after the war and joined Sergei Ilyushin's design staff.

During the years following the appearance of the Soviet version of the He 343, reports began to filter through the chinks in the iron curtain concerning another jet bomber featuring the unusual combination of a straight wing and swept tail assembly. As more details of this machine became available it obtained the spurious type number Tu-10 and was credited to Andrei N. Tupolev. However, it is now known officially to have originated in the Ilyushin stable, and, as we have already mentioned, it has become known unofficially as the IL-26.

PIPER-STINSON EXECUTIVE PLANE

(Continued from page 28)

with 10% in this category of Pacer owners.

2. More Instruments—About 50% of the 1951 four-seaters were equipped with primary flight group or better, with a rapidly increasing number of Gyro instruments demanded.

3. All Pacers delivered last year were equipped with radio while 25% had omni-range receivers for radio navigation.

4. About 80% of Piper aircraft delivered for non-military use went to business firms, private individuals and farmers. The balance of 20% went to airport service operators and dealers. This is a significant change from the 1947 picture showing 87% of production going to airport operators. It is described as "an encouraging trend toward the sale of aircraft for non-aeronautical revenue-producing purposes."

AS AN item of reminiscent interest, Tony Piper, one of the three sons of W. T. Piper in the parental firm, produced the following totals of Piper production by types: E-2 Cub 553; J-2 Cub 989; J-3 Cub, 15,317; J-4 Cub 1,255; J-5 Cub 1,408; PA-11 1,434; PA-12 3,760; PA-14 238; PA-15 388; PA-16 736; PA-17 212; PA-18 950 (to last Oct.); PA-20 808 (to last Oct.); PA-22 348; L-4 (military) 5,000.

The early history of lightplane development was the story of a search for a low-priced lightweight engine.

One of the first to be tried was the Browback Kitten with two opposed cylinders developing 25 hp. This Kitten designation inspired the name "Cub" for Piper lightplanes. The next effort involved a 9-cylinder 45-hp French radial engine, the Salmson. Then came the Continental A-40 which, after considerable development, became a widely accepted lightplane engine. Until 1938, the lightplane industry was limited to 40 hp. An important forward step was the development of engines with 50 hp and more.

Before and after the war, the big lightplane emphasis was on trainers. In 1946, for instance, some 6,000 civilian lightplane trainers were built in the U. S. Now the trend has changed and the main effort is concentrated on putting the personal aircraft to work as a means of transportation or as a farm implement.