

Vladimir Mikhailovich Myasishchev

Russian Engineer. Born 28 September 1902. Died 14 October 1978.

Chief Designer 1951-1960 of OKB-23. Developed innovative bomber, cruise missile, and spaceplane designs. Later Director of TsAGI, and regained his own design bureau just before his death.

Stalin's response to the American post-war nuclear threat was authorisation to begin development of means of nuclear attack of the United States. Veteran aircraft designer Tupolev was tasked with development of an intercontinental bomber. After initial study Tupolev reported that it would not be possible to develop an intercontinental bomber using jet engines; his Tu-95 would use German-designed turboprops. However another designer, Myasishchev, claimed to be able to design an intercontinental jet bomber. Accordingly the Central Committee decree on 24 March 1951 created the OKB-23 Myasishchev design bureau.

Myasishchev managed to complete the first prototype 103M (M-4 Bear) bomber ten months after go-ahead (compared with four years for the B-52). The 103M represented a tremendous increase in Soviet technology: altitude was increased by 50%, range doubled, and takeoff mass was four times greater than any previous Soviet aircraft.

The United States pursued development of the B-52 intercontinental jet bomber and the Navaho cruise missile while declining to develop ballistic missiles. This difference with the Soviet bomber/ballistic missile approach led Academician Keldysh of the Academy of Sciences to form a group that raised the question of Soviet development of a similar long-range unpiloted aircraft. A government decree on 20 May 1954 authorised the Myasishchev aircraft design bureau to proceed with full-scale development of the Buran trisonic intercontinental cruise missile. The development of unstoppable ICBM's made intercontinental cruise missiles obsolete. Korolev's R-7 ICBM completed its first successful test flight in August. Buran was being prepared for its first flight when Myasishchev's project was cancelled on November 1957.

After the cancellation, Myasishchev continued to pursue use of the M-42 cruise stage in aviation research and space exploration. In 1958 he appealed to both Khrushchev and Minister of Defence of Malinovskiy to support continued development. At this time Myasishchev was developing the first Soviet supersonic bomber, the M-50. On the basis of this immense delta-winged vehicle Myasishchev proposed the RSS-52 aerospace vehicle – launch of the M-42 from an M-50 bomber. In the United States, the X-15 was being developed to answer analogous questions. However due to the expense and technical problems, Myasishchev was unable to convince the leadership to approve the RSS-52.

In December 1959 a government resolution was issued for design of manned spaceplanes. Myasishchev collaborated with Korolev in designing the M-48/VKA spacecraft. OKB-23 also designed a launch vehicle for the second phase of the program - a three-stage vehicle with a total lift-off thrust of 980 tonnes.

In October 1960 Kremlin intrigues led to Myasishchev's design bureau being dissolved. OKB-23 became Filial 1 of Chelomei's OKB-52 and all work on the VKA-23 was stopped. Myasishchev left to become head of TsAGI (Central Hydrodynamics Institute).

In 1976 Myasishchev was allowed to form a new unrelated design bureau as a kind of 'skunk works' for advanced projects (EMZ Myasishchev – V M Myasishchev Experimental Machine-Building Plant). This group was responsible for the M-17 high-altitude aircraft, designed to intercept and shoot down high-altitude intelligence balloons being floated by the CIA across the Soviet Union. Myasishchev also oversaw design of the VM-T Atlant aircraft, a modification of his original M-4 bomber used to transport the Buran orbiter and Energia core propellant tanks from the factory to Baikonur. He died before seeing it fly.

Bibliography:

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Myasishchev Chronology

24 March 1951 - Central Committee decree created the OKB-23 Myasishchev design bureau.

Myasishchev was tasked with building an intercontinental jet-powered bomber, something veteran aircraft designer Tupolev said was impossible. Myasishchev managed to complete the first prototype 103M (called M-4 Bear in the West) bomber ten months after go-ahead. Myasishchev would later play a key role in Soviet spaceplane development.

1953 January - Expert commission examined the EKR design

In 1951 to 1953 Korolev's design bureau had prepared an experimental trisonic ramjet design, the EKR. The expert commission felt that there were still many technical problems to be solved, most of which were better handled by an aircraft designer rather than Korolev. Further, Korolev had to place the highest priority on development of the R-7 ICBM. Therefore a final government decree on 20 May 1954 authorised the Lavochkin and Myasishchev aircraft design bureaux to proceed in parallel with full-scale development of trisonic intercontinental cruise missiles.

1953 April - USSR Council of Ministers approve R-7 ICBM, Buran and Burya intercontinental cruise missiles

Informal go-ahead was given for Korolev to start design work on the R-7. In parallel, Myasishchev OKB-23 and Lavochkin OKB-301 began design of intercontinental ramjet cruise missiles.

20 May 1954 - Soviet government decree for full-scale development of trisonic intercontinental cruise missiles.

Council of Soviet Ministers (SM) Decree 957-409 'On transfer of intercontinental cruise missile work to the Ministry of Aviation Industry' was issued. Korolev had to place the highest priority on development of the R-7 ICBM. Therefore the final government decree authorised the Lavochkin and Myasishchev aircraft design bureaux to proceed in parallel with full-scale development of trisonic intercontinental cruise missiles. Both missiles would use ramjet engines by Bondaryuk, astronavigation systems by R Chachikyan, inertial navigation systems by G Tolstoysov, and aerodynamics developed by TsAGI (Central Hydrodynamics Institute). Lavochkin's Burya would use rocket booster engines built by Glushko, while Myasishchev's Buran would use Isayev engines. Both missiles were to deliver a nuclear warhead over an 8,500 km range. But the warhead design specified for the Lavochkin missile had a total mass of 2,100 kg, while that for the Myasishchev missile weighed 3,500 kg.

1956 During the Year - Lavochkin begins construction of first Burya cruise missile.

Myasishchev was just completing project design of his Buran design, while Lavochkin was already completing construction of the first Burya.

30 June 1957 - First serious manned winged spacecraft design

Myasishchev OKB-23 sketches first serious manned winged spacecraft design.

1957 November - Buran trisonic intercontinental cruise missile cancelled.

Council of Soviet Ministers (SM) Decree 'On termination of work on the 40 Buran intercontinental cruise missile' was issued. Buran was being prepared for its first flight when Myasishchev's project was cancelled. After successful flight tests of Lavochkin's Burya missile, the Soviet leadership did not see any need for continued development of a parallel ramjet design. Following the cancellation, Myasishchev sought approval for test of an air-launched version.

1958 During the Year - Myasishchev proposed use of the Buran M-42 cruise stage in aviation research

On the basis of the immense delta-winged M-50 bomber Myasishchev proposed the RSS-52 aerospace vehicle. The M-50 derivative would enter a circuit 1,000 km from base, accelerate to supersonic speed, and then launch the M-44. The M-44 would accelerate to hypersonic velocity, conduct a high speed run of an overwater circuit, and then splash down in the sea. In the United States, the X-15 was being developed to answer analogous questions. However due to the expense and technical problems, Myasishchev was unable to convince the leadership to approve the RSS-52.

1 June 1958 - Start of construction of manned spacecraft

Competing manned projects. Korolev OKB-1 proposed Vostok ballistic capsule as quickest way to put a man in space while meeting Zenit project's reconnsat requirements. Under project VKA-23 (Vodushno Kosmicheskiye Apparaty) Myasishchev OKB-23 proposed two designs, a faceted craft with a single tail, and a dual tail contoured version. Tsybin OKB-256 proposed seven man winged craft

with variable wing dihedral. Contracts awarded to all three OKB's to proceed with construction of prototypes. R-7 booster to be used for suborbital launches.

1959 September - PKA Spaceplane Draft Project Completed

The Tsybin bureau was closed down shortly after the draft project was completed. Tsybin and his staff transferred to the Myasishchev bureau in October 1959 (which had its own on-going VKA-23 winged spacecraft project). The Myasishchev bureau was then in turn closed and the staff transferred to Filial 1 of Chelomei's OKB-52 bureau in 1960. Tsybin's work on the PKA was passed to the Mikoyan bureau and formed the starting point for the design of the Spiral spaceplane.

1960 April - M-48 spaceplane draft project reviewed by expert commission.

It was clear that many technical problems had to be cleared incrementally before an operational vehicle could be fielded. Myasishchev's team went 'back to the drawing board', the result being two alternative single-crew orbital spaceplanes (VKA-23 Design 1 and VKA-23 Design 2).

April 1960 - Chelomei plan for Organic Space System.

Chelomei visits Khrushchev in the Crimea and presents his ambitious plan for an Organic Space System - a space infrastructure serviced by an integrated family of launch vehicles and spacecraft. The system would include orbiting stations, space factories, winged rockets, and nuclear weapons stored in space with plenty of decoys to defeat any enemy counter-measures. UR-200 rockets would fulfil all roles in servicing this array of weapons. Dementiev supported Chelomei's proposals, but the chief designer would need a factory to support fabrication of the rockets and spacecraft. Myasishchev's bureau and its associated Khrunichev factory were an obvious choice, since the decision had been taken not to put the M-50 bomber or Buran cruise missile into production and the factory would soon be idle.

1960 September - VKA-23 spaceplane.

Following the very critical review of the first M-48 spaceplane design by the expert commission, Myasishchev went back to the drawing board. In March to September 1960 this work resulted in definition of two alternative configurations. The first alternative was an unconventional faceted shock-wave riding design (see VKA-23 Design 1). The second Myasishchev VKA-23 design was an elegant-looking, porpoise-fuselaged winged vehicle.

1 October 1960 - Ongoing winged manned spacecraft project cancelled

In reduction of military-industrial complex, Myasishchev and Tsybin design bureaus are closed and work stopped on the three prototype winged manned spacecraft already built.

3 October 1960 - Chelomei acquires Myasishchev and Khrunichev OKBs.

Central Committee of the Communist Party and Council of Soviet Ministers Decree 1057-434 'On transfer of OKB-23 as Branch No. I of OKB-52 and on course of work on IS anti-satellite system' was issued. Chelomei acquired the OKB-23 of Vladimir Mikhailovich Myasishchev, (which had formerly designed heavy bombers), as well as the M K Khrunichev heavy aviation factory. Both of these organisations had a very high level of technical and manufacturing expertise, and assisted Chelomei in quickly moving ahead on his new space projects.

1 November 1960 - Chelomei R winged manned spacecraft project starts

Immediately after cancellation of similar projects at Myasishchev and Tsybin bureaus, Chelomei's new bureau is assigned to build equivalent of US Dynasoar / Saint II. Winged manned spacecraft for interception, inspection, and destruction of US satellites up to 290 km altitude. Two man crew, 24 hour mission duration, large aft drag brakes.

1 November 1962 - Chelomei takes over Lavochkin and Myasishchev OKBs

At Khrushchev's decision Chelomei takes over Lavochkin's OKB-301 and Myasishchev's OKB-23. Lavochkin had built objects 205, 207, 400 (SA-1,2,5); Chelomei UR-96 ABM-1.