



- HIGH ACCURACY
- HISTORICAL VERACITY
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- RARE VERSIONS AND MODIFICATIONS

## World War I airplanes

#### SCALE 1:72



#### 7259 AVRO 504K

A famous WW I aircraft — the AVRO-504K is faithfully reproduced in this kit.



#### 7268 AVR0504K Zeppelin killer

AVRO 504K — single-seat version intended for anti-Zeppelin patrols. It was equipped with 80 h.p. «Gnome» engines. The aircraft was used in RNAS and front-line aviation of Great Britain in 1915-1916.



#### 7254 MU-1

MU-1 is a float version of basic trainer U-1 (AVRO-504K). The design of floating gear was changed for weight minimizing. 73 airplanes were built. It was used in a USSR NAVY till 1934.



#### 7253 U-1

The first initial trainer in the USSR was based on the AVRO-504 design.



#### 7266 Nieuport IV

The aircraft Nieuport IV was built in 1914 and adopted by Russian Air Forces. On this aircraft P.N. Nesterov has first performed the flight manoeuvre «loop». The plane was used in the World War I.



7260 SPAD S.A.2



7261 SPAD S.A.4

During WWI the firm SPAD has designed a double fighter of original layout. It was a usual biplane with a tractor propeller, but the gunner cabin was placed ahead of a propeller disc plane. The gunner cabin was applied to wings and landing gear by a system of racks. Such layout provided the large sector of bombardment from a machine gun. The prototype named SPAD A has made the first flight in spring of 1915. About one hundred SPAD S.A.2 distinguished by an improved design were produced. The following modification was SPAD S.A.4 with the engine Le Rhone 9J by power 110 h.p. More than half of them have been sold in Russia. After the invention of the synchronizer, which allowed to shoot through a propeller, militaries have refused to use SPAD S.A.2 and SPAD S.A.4. In Russia these airplanes were used until the end of WWI and during civil war.



7273 SPAD S.A.4 with ski gears

## Aircraft of the 30°

SCALE 1:72

The first of soviet autogyro was the KASKR-1 built by designers N.I. Kamov and N.K. Skrzhinsky. It made its maiden flight on September 25, 1929 at the hands of I.V. Mikheyev, with its designer N.I. Kamov in the rear cockpit. The design of the aircraft resembled the well-known Cierva C-8 autogyro. Shortly afterwards the young designers built an improved model, the KASKR-2 (1930) based on the KASKR-1. NII VVS (Air Force Scientific and Research Institute) specialists participated in the evaluation of the autogyros performance. Between 1929 and 1931 the autogyros made 79 test flights.



7265 KASKR-1



7279 KASKR-2



#### 7216 Shavrov Sh-2

Light and compact hydroplane Sh-2 was designed and built by the group of designers under the direction of V. Shavrov in 1930. The first flight of this airplane took place on November 11th 1930. The serial production started in 1932 and continued until 1934. In total over 270 aircraft of Sh-2 were produced. Sh-2 were used as messenger and sanitary aircraft.



#### 7271 Hydroplane SPL

Light and compact hydroplane SPL was designed and built by the group of designers under the direction of I.V. Chetverikov in 1934. The new seaplane had aerodynamic and structural layout of aircraft OSGA-101. The aircraft was supposed to be placed on a submarine in waterproof hangar 2.5 metres in diameter and 7.5 metres long. Dismantling and stowage was carried out manually for 3-4 minutes, and assembling and preparation for taking-off - for 5 minutes. In 1936 SPL was demonstrated at the international exhibition in Milan. Later several international records were held on this aircraft.



#### 7219 I-207

A. Borovkov and I. Florov strutless I-207 was another attempt to combine monoplane's speed with the biplane's maneuverability. Several versions were built including the ground attack variant depicted in this kit. Being a good fighter for its time it was never adopted for serial production as the biplane era came to its end.



#### 7217 Di-6Sh

Two-seater biplane-fighter Di-6 was developed in 1934 in the Central Design Bureau under the supervision of S.A. Kochergin and V.P. Yatsenko. The major task of the design bureau was to develop two-seater fighter which according to its dimensions and fighting characteristics would overcome one-seater fighters. The designers have taken into consideration all of the shortcomings of the predecessors. Di-6 was the first biplane with the retractable chassis. The airplane had the ring engine cowling, closed shooter's cabin with sliding machine gun. Another significant advantage was the fact that this aircraft had the dimensions of I-15. Di-6 was armed with three machine guns ShKAS. 60 such planes were built. The Di-6 took part in Russian-Japanese border conflict in 1939 and in WW II.

Beriev KOR-1 was developed as a shipborne reconnaissance plane intended to be launched by a catapult. The aircraft made its maiden flight on 4 September 1936 and soon was put into serial production. Several KOR-1 aircraft of the 15th Naval reconnaissance regiment took part in the initial stage of WW II. Unlikely to KOR-1 Be-2 was not amphibious aircraft with a conventional landing gear. The Be-2 was cleared for serial production as a reconnaissance and artillery fire adjustment aircraft and took part in the initial stage of the Great Patriotic War.



7225 KOR-1



7226 Be-2

In the late thirties under the direction of chief designer V.V. Shevchenko the experimental fighter of an original design was developed. It was a biplane with a radial engine, but its lower wing might be removed in flight together with landing gears that transformed it into monoplane. The first flight of airplane IS-1 (Iosif Stalin) was held May 29, 1940. In January 1941 the second prototype — IS-2 with more powerful engine was constructed. Flight tests of IS-1 and IS-2 were not successful in achieving required flight characteristics. Therefore this scheme has not received its further development.



7246 IS-1



7276 IS-2



## In the war sky

#### SCALE 1:72



#### 7275 Bf 109W-1

The engineering design of Bf 109W fighter was developed by the company Fieseler in 1941. Bf 109F of Messerschmitt company served as the prototype of this aircraft. The floats of hydroplane Ar 196 were used. In total 6 aircraft in the modification Bf 109W-1 were built. The machines were delivered to Norway and for some time have been used as marine fighters. Bf 109W-1 has the following parameters: length – 10,200 m, height – 4,200 m, wingspan 9,900 m, engine DB-601 E, 1350 h.p.



**7222 FiSK-199 Fisk-199**, the version of a well-known aircraft Bf 109G-2 with 500 kg bomb, extra undercarriage post and suspended tanks.



7214 Bf 109T-1

In 1938 the body of future aircraft carrier «Graf Zeppelin» was developed. The Messerschmidt company developed the aircraft modification Bf 109T-0 to serve as board fighter. The aircraft had increased wing span and was equipped to land at aircraft carrier. The fighter Bf 109E served as a base model. First aircraft Bf 109T-1 was built in 1941. The aircraft had DB-601N engine 1200 h.p. The wings could be folded manually. Between the fifth and sixth fuselage bulkheads the point of catapult anchorage was located. The landing hook was fixed to the seventh bulkhead. The armament consisted of two synchronized machine guns MG-17. 2 machine guns MG-17 or 2 guns MG FF could be wing-mounted. Since aircraft carrier has not been finally built, the fighters were modified to Bf 109T-2 version. The catapult joints and landing hook were dismantled. The aircraft was equipped with underfuselage holder for 300 litre tank, four 50 kg bombs and one 250 kg bomb. In total 60 aircraft of Bf 109T type were built.



7221 Bf 109K-4

The first experimental fighter Bf 109 K-0 was built in 1944. The aircraft had DB605DM engine installed with 1800 h.p. The cowling form was slightly modified due to double-step mechanical compressor located at the engine side. For short-term power increase the engine has been equipped with special device MW-50 for injection into the cylinders the mixture of water and methanol. The armament consisted of one gun MK108 30 mm calibre with 65 shells ammunition and 2 machine guns MG131 13 mm calibre with 300 shells ammunition per barrel. In total 750 aircraft were built.



7248 Bf 109F-2 RZ-65

In 1941 the **Bf 109F-2 RZ-65** "Rauchzylinder" went through the tests. Special homing devices were built into the wing for installation of unguided missiles. The tests showed poor efficiency and imperfection of such armament. Similar missile launching devices were tested on the Bf 110, He-111 and Me 210.



72116 Bf 109E-3



72117 Bf 109E-3/E-4



Initially Bf 109E-1 appeared in the fighting units of Luftwaffe in February 1939. The aircraft differed from its predecessor Bf 109D by a more powerful engine DB601A-1, 1050 h.p., three-bladed airscrew, enforced armament and better flying performances. After the transitional modification Bf 109E-2 that was produced in the quantity of only 25 pcs, the firm developed new modification for mass production - Bf 109E-3 with DB601A engine powered 1175 h.p. and 20-mm gun that shot across the screw shaft. In total 1868 aircraft of E-3 modification were built. During summer and autumn of 1940 the modification Bf 109E-4 has been in production. This modification had improved guns MG FF/M. In 1939 80 pcs of Bf 109E were sold to Switzerland, and 40 pcs — to Spain. During 1940, 40 pcs of these fighters were supplied to Hungary, 73 — to Yugoslavia, 19 — to Bulgaria, 69 — to Romania, 18 — to Slovakia, 5 — to the USSR and 2 — to Japan.



72125 Bf 109F-4





**Bf 109F** fighter entered serial production in 1940. The aircraft was built in several different modifications (F-1–F-6) and its major difference was the armament. The successful combination of speed, maneuverability and armament made this aircraft a powerful adversary of any aircraft of that time.

**72132** Bf 109F-4/F-6 (Bf109F-4/trop, Bf109F-4/B, Bf109F-4/R5, Bf109F-6)



Fury fighter was built in 1931 by Hawker Aircraft Ltd. The aircraft was of biplane type with mixed construction, metal frame and linen wings, tail and feathering. After successful testing the fighter was adopted to armament of British air fleet. Fury I — main version with 12 cyllinder water cooling Rolls-Royce engine (585 hp). In total 117 fighters were built. Fury II model differed by more powerful engine (640 hp), bigger fuel tanks. In 1935-1938 98 machines were built. In 1940 in Eastern Africa the aircraft participated in fights against Italian fighters.

During 1932-1937 Yugoslavian airforce received 6 aircraft identical to Fury I, and later another 10 planes were built with Kestrel XVI engines (745 hp). In 1937 another 40 fighters were license-built. In April of 1941 the aircraft took part in fights against German fighters.

In 1936 3 aircraft were built for Spanish air force. The aircraft were equipped with Hispano-Suiza engines 12Xbrs (745 h.p.). During the civil war period, Fury were successfully used in military actions at the side of republican army.



72138 Fury I/II





**72139 Fury** (Spain AF)

**72140 Fury** (Yugoslavia AF)



#### 72120 AR-2

The dive-bomber AR-2 was built in 1940 at Design Bureau named after A.A. Arkhangelsky. This aircraft is the further development of SB-2 bomber. The aircraft has passed the government tests with the good results and was approved for the mass production. Its maximum speed at the height of 4700 m comprised 480 km/h and the service ceiling reached 10100 m. The bomb load was 600 kg, in the transfer variant with the bombs on external suspension - up to 1500 kg. This type was produced in limited numbers at Moscow plant AR-2. In total about 250 pcs of this type were built.

#### 7262 Pegas

The Pegas (Pegasus) was conceived as a light bomber and strike aircraft for use against enemy tank and mechanized infantry units. Technological simplicity and low cost allowing mass production were the main requirements. Designed under the leadership of Maj. Gen. Dmitny L. Tomashevich, the prototype was completed in January 1943 at aircraft factory No 288.



I-16 is the major fighter type of Red Army air force during 1930s. The experimental design bureau named after N.N. Polikarpov in 1933 built it. The distinguished peculiarity of this type was its high speed and good manoeuvrability for its time. I-16 had wooden fuselage with covering made of thin layers of wood. Wings and empennage were metal with linen cover. During the years of serial production 10292 machines of different modifications were built. I-16 type 5 has been in serial production since 1935. The aircraft had M-25 710 h.p. engine. Armament: 2 guns in the central part of fuselage and 200 kg bombs on external clip. The I-16 type 6 was widely used during the war in Spain (1936-1938), China (1937-1940), Finland (1939-1940). During the war in Mongolia (May-September 1939) the fighters I-16 were the first in the aviation history to use rocket missiles. The I-16 aircraft took active part in the military actions of the initial stage of Great War.



**72123 I-16 type 5,6** (China, Spain, Finland, USSR)



**72124 I-16 type 5,6** (Spain, USSR)

#### 7231 UTI-4

UTI-4 is a fighter pilot trainer based on the I-16 airframe and power plant. It has the second cockpit with full controls and instrumentation. A lot of such aircraft were built for the Soviet Air Force.





"The Incarnated Beauty", Policarpov I-153 became ultimate in the biplane design. Along with the I-16 it became one of the most important Soviet fighters of thirties. Soviet, Finnish, German and Chinese decals included.

Polikarpov I-17 made its maiden flight in 1935 and 500 km/h speed was achieved during evaluation. The fighter was intended to replace the I-16, but after number of accidents the serial production was canceled.





7208 I-153

7203 I-17

#### 7283 I-180E3

In 1938 N.N. Polikarpov's design bureau started the design works on I-180 fighter. Good flying performances of the new fighter were to be provided by the star-shaped air cooling engine M-88. By the end of 1938 the first experimental machine I-180-1 was built. On December 15th the first flight took place which ended with the crash and the death of the famous test-pilot V.P. Chkalov. Notwithstanding the catastrophe and arrests of some of the designers, the second experimental machine I 180-2 was built. At the final stage of test flights on September 5th, 1939 during the time of fulfilling 53rd flight, the aircraft got into spin and crashed. The pilot T.P. Suzie died. The third experimental aircraft I-180-3 was built in January 1940. This modification had a new engine M88P installed on it and the oil radiator was placed underneath an engine. The armament as well as its location was changed. The shape of cowling was modified as well. On July 6th, 1940 during the government tests the aircraft crashed due to the pilot's mistake. During 1938-1941 13 aircraft of I-180 type were built at Gorkiy plant, 10 of them were of special military series.



#### 72142 Pe-8 ash82

The first test version of bomber TB7 (Pe 8) was built in autumn 1936 by engineers of Tupolev design bureau under management of V.M. Petliakov. M-100 motor (850 hp) was installed inside fuselage, which supplied four fluid cooling engines AM-34FRN with air. In 1938 an improved version of bomber was built. Due to increased the volume of fuel tanks, flight distance increased upto 3500 km. The speed at the height 8600 m comprised 430 km/h. The practical ceiling comprised 11250 km. The bomb loading was 2000 kg. The aircraft was accepted to armament and was built at Kazan air plant #124. Some TB7 were built with air diesel engines M-40 and M-30. After diesel engines proved to be unreliable, AM-35A were installed to TB7. Around one third of all bombers were built with engines M-82 (1700 hp). In July 1941 the first fighting group was formed with famous polar pilot M.V. Vodopianov being a group lead, and in August 1941 this group attacked Berlin. During this long flight, each TB7 carried 3 tons of bombs. In 1942 the aircraft crew led by E.K. Pusepa conducted complicated flight 17800 km long, having delivered to England Soviet diplomatic mission with V.I. Molotov. During the return flight to Moscow, the aircraft during the day time at 7000m passed through Europe occupied by Germans. In 1942 after the death of V.M. Petlyakov, the aircraft was designated as Pe-8. In total 93 bombers of different modifications were built.



#### 72112 I-190

In 1939 the experimental design bureau named after N.N. Polikarpov designed and built the experimental fighter I190. This aircraft was further development of the I-153 type. Using the 2-row star-shaped M-88 engine as the power plant led to the changes in the construction of front fuselage. The linen wings cover was changed to plywood. Armament: 4 synchronized guns 7.62mm ShKAS or two 20mm guns ShVAK. The aircraft could be used as the low-flying attack aircraft, the bomb load being 200 kg. On December 30th 1939 A.I. Zhukov pilot conducted his first flight. During the stage of experiments the engines (M-88, M-88P and M-88A) and airscrews were changed. The aircraft demonstrated the speed of 450 km/h at 7050 m and the ceiling of 12400 m. After the crash on February 13th 1941 the development works on I-190 were stopped. In total 2 machines of I-190 type were built.





NEW

72110 Er-2 ON

Long-distance bomber Er-2 was built in 1940 and was produced on aviation plant N18 in Voronezh. Chief designer - V.G. Ermolayev. Before the beginning of the war, several dozens of this aircraft were built. In 1944 on Irkutsk aviation plant #39, mass production of new modification Er-2 with the diesel engines ACh-30B started. The pilots liked the bomber for the comfortable cockpit with the good view, its stability, manageability, strong armament and survivability. In total, during the period 1944-1946, on Irkutsk aviation plant 391 bomber Er-2 was built. In the end of 1944 with the participation of design bureau named after P.O. Sukhoy four aircraft Er-2 ON with the comfortable passenger cabin were produced for the higher authorities of the country.



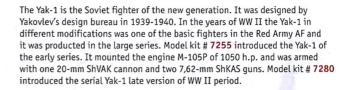
72109 Er-2



7255 Yak-1 early version



7280 Yak-1 late version





7241 Yak-2



7235 Yak-4

Yakovlev Yak-2 was in serial production for a short period and took part in the initial stage of WW II.

The Yak-4 was a light and speedy tactical bomber built mainly of wood and saw a lot of front-line service. Considered by many as "the Russian Mosquito" Yakovlev Yak-4 bomber took part in many WW II battles.



#### 72105 Yak-3 VK107A

The first all-metal aircraft with an engine VK107A was built in April, 1945. The aircraft was notable for its reinforced construction and improved engine cooling system. In the latter half of 1945 the serial production begun on the aircraft plant # 31 in Tbilisi. A small number of Yak-3 with VK107A was built on the aircraft plant #292 in Saratov, but Yak-3 has never been launched into serial production. The military gave preference to fighter Yak-9U as a more reliable and suitable for this engine. In total several dozens of fighters Yak-3 with an engine VK107A were built.



#### 7289 Yak-9U

Yak-9U is a version of Yak-9 with improved aerodynamic characteristics and a new engine M107A. On February 23, 1942 at the time of testing the aircraft developed the speed of 680 km/h at height of 5,800 m. Hardship with tweaking the propeller delayed the beginning of serial production for more than a year, and first serial aircraft Yak-9U appeared at the front only in October, 1944. They showed absolute superiority over German fighters. By August 1945 over 3,900 aircrafts Yak-9U were built.



#### 7286 Yak-9P

In October 1946 Novosibirsk factory # 153 started the serial production of the last and the most perfect modification of the fighter Yak-9 — Yak-9P. The distinctive feature of this modification of Yak was all-metal construction of glider, which ensured its prolonged service life. Among the other improvements was the enlarged number of equipment, which made piloting easier even in complicated metrological conditions and made its possible to mount guns with the caliber of 23, 37 and 45 mm quickly in field environment. The serial production of Yak-9P was stopped in December, 1948.



#### 7230 Yak-18 NKAF light night bomber

Light, slow and difficult to locate the Yak-18 was used along with the Po-2 as a light night bomber during th Korean War for attacking targets like fuel bases. Two bombs come with the kit as well as the North Korean Air Force decal.



#### 7292 Yak-54

During the Afghan war the engineers developed light manoeuvrable anti-partisan aircraft on the base of Yak-52. At the pylons under the reinforced wing 2 blocks of UB-32 were installed. New aircraft received the name of Yak-54. Unfortunately the plane was not produced in mass quantities. The only sample of Yak-54 is being exhibited in Monino museum.

## In the beginning of jet epoch



Missile interceptor I-302P was designed in 1940 under the guidance of M.K. Tihonravov. In August 1943 the aircraft went through the tests in LII. Unfortunately due to the problems with engine installation, the mass production of this aircraft did not start.

7220 I-302P



7212 I-270

Mikoyan and Gurevich I-270 interceptor developed in 1946 was based on German Me 263 rocket-powered fighter technology. Two prototypes were built and both were lost during evaluation program, but this small bullet-like airplane paved the way for more sussessful MiG designs.

In 1946 the first Soviet twin-engined jet-propelled fighter MiG-9 was created in design office of A.I. Mickoyan and M.I. Gurevich. By its flying-technical level and the basic characteristics the aircraft was at the level of European fighters produced in 1945-1946. In all for the years of serial production 610 aircrafts were built. MiG-9 was the first Soviet fighter taking part in mastering the technique of jet bombers interception. In the course of the mark on the missile plane belonging to «Air-Surface» class, KS-1 type one of the serial aircrafts MiG-9 was re-equipped for pointing system testing. The pointing apparatus of KS-1 missile plane and cabin of researching engineer were assembled on the aircraft. The flights began in 1949 and made it possible to master the pointing system and to reduce the time of the completing of the first Soviet missile plane intended for missile carriers Tu-4KS and Tu-16KS.



7299 MiG-9



7243 MiG-9L

In 1946 the first Soviet Jet fighters successfully passed State tests and were adopted by Air Force. Practically at once the need for corresponding planes with double-manning appeared. The serial fighter Yak-15 was taken as a base of the construction of training aircraft Yak-21 in Yakovlev design office. The armament was taken away and on its place, in front of pilot's cabin, designers placed the second cabin for the trainee. Simultaneously with Yak-21, in response to increased demand for fighters, the staff of Yakovlev design office was working out a single-seater fighter Yak-17 and two-seater fighter Yak-21T (Yak-17UTI). Flying tests of the first training aircraft Yak-21 started in April, 1947. Although the aircraft flew well, the tests were stopped, because it had already become clear that Yak-21T (Yak-17UTI) would have better characteristics.



7223 Yak-15



7247 Yak-21



7224 Yak-17



7282 Yak-17UTI



#### 72143 Yak-25

On June 19<sup>th</sup> 1952 two-seater fighter Yak 120 designed by A.S. Yakovlev conducted its first flight. The following maximum parameters were achieved: speed – 1090 km/h (at 5000 m), service ceiling – 14500 m, distance with attached tank – 2700 km. The aircraft achieved 1000 m height within 5.50 min. After certain improvements, Yak-25 has been released into serial production at Saratov airplant. First serial fighters were equipped with fings right RP-1D. Starting from 1955, the aircraft has been manufactured in modification Yak-25M with radar station «Sokol». In NATO the aircraft has been designated as «Flashlight». In total 480 Yak-25 aircraft of various modifications have been produced.



72122 St. Oll

72122 Su-9U

Su-9 fighter-interceptor was built in 1957. New engine AL-7F-1, radar unit TsD30 and K-5M missiles were installed on this type. The maximum flying speed was 2230 km/h. The service ceiling was 21000 m. During the period 1957-1962 the Novosybirsky Plant named after Chkalov has produced 888 Su-9 of various modifications. The Moscow Plant # 30 has built 126 Su-9 fighters. The test version of Su-9 was built in 1960. In the beginning of 1962 in order to provide the instructor with the needed observation scope, the cockpit and the canopy were designed and added to this aircraft, also the autopilot device AP-28Zh-1 was added. The mass production of this type started on Plant # 30. In total 50 pcs of Su-9U type were built.

#### 72121 Su-11

Su-11 is the improved version of Su-9 equipped with the more powerful radar unit "Oryol" (Eagle), modern engine AL-7F-2 and missiles of K-8 type. Within the time period 1962-1965 about 100 machines of Su-11 were built at the aviation plant # 153.





## Sport and light-weight planes



7251 UT-2

The Yakovlev UT-2 was developed as an initial trainer aircraft. Many VVS pilots made their first flight in the UT-2.



#### 7227 Yak-18

The Yak-18 made its maiden flight in May 1946 and soon replaced Policarpov Po-2 as an initial trainer. Yuriy Gagarin — the first man to orbit the earth made his first flight on the Yak-18.



7269 Yak-50

7294 Yak-50 second serial version

In 1972 the new single-seater sporting plane Yak-50 was designed in Yakovlev design office. After the plant and state flying tests in 1973 the aircraft was launched into a serial production at Arsenievskiy aviation plant. Soon the small series of modernized version with non-removable undercarriage were developed. Yak-50 was actively exploited in the flying clubs and exported to many countries. With the appearance of Yak-50 at the international competitions the tough style of piloting was approved, under which flight manoeuvres are performed at a high speed and with big overloads. After the creation of Yak-50 many other countries began to design high-speed piloting aircrafts. 



7270 Yak-52



7285 Yak-53

Two years after the appearance of Yak-50, a double-seat training aircraft Yak-52 was created on its base. Besides the double-seat cockpit, Yak-52 was also notable for nose landing gear. After adaptation and tests in 1978 the aircraft was launched in series production in Romania. Since 1979 aircraft Yak-52 started to arrive to DOSAAF aeroclubs in USSR. Yak-52 replaced Yak-18 as an initial trainer.

Yak-53 is a single-seat version of Yak-52.



7213 Su-26M

Sukhoy Su-26 became absolutely the best aerobatic airplane of its time and won many awards at world championships. It was succeeded on the production line by more advanced Su-26M incorporating new fin, propeller and canopy.



#### 72144 Yak-52M

Sport aircraft Yak-52M is a part of training complex based on Yak-130. the aircraft is intended for initial pilots' training. The installed equipment allows the pilot to gain piloting skills and familiarizes him with aviation equipment. The aircraft repair plant in Ivanovo conducts modernization of serial

aircraft Yak-52 into Yak-52M modification. The important distinction of Yak-52M is catapult system SKS-94MYA, new cockpit windscreen with improved vision, and better performance parameters.



**7228** Pitts S-2A

Developed in 1948 Pitts biplane really became "The Aircraft for the World". Many national aerobatic teams preferred this type. Improved Pitts S-2A demonstrated even better capabilities and though the future belonged to monoplane aircrafts, a lot of these small and beautiful biplanes are still flying for commercial teams.



7232 PZL-104 "Wilga"



7278 PZL-104 "Wilga" hydroplane

The aircraft PZL 104 Wilga performed its maiden flight on June 1st, 1953. Thanks to good construction the aircraft was widely adopted in agriculture, training, air medical service and VVS (Soviet Air Forces) as a patrol aircraft. In 1964 Wilga, having reached an altitude of 6836 metres, held a national Polish record for aircrafts of this class. For exploiting the plane on small reservoirs the version with flotation landing gears was designed and a small series was built. The aircraft PZL 104 Wilga has obtained the recognition throughout the world for its reliability and simplicity. Designed and manufactured in Poland, the PZL-104 Wilga light utility aircraft was favored by many East European operators. Reliable and easy to maintain it will continue its service life well into the 21st century.





7287 Christen Eagle 1 7298 Christen Eagle 2

Christen Eagle is popular American sport plane. It was created to compete with famous Pitts S2A plane. Model kits # 7287 Christen Eagle 1 and # 7298 Christen Eagle 2 present one-seater and double-seater versions of the airplane.



7267 Gee Bee R-1



72114 Gee Bee R-2

GB «Super Sportster», the famous «flying cask» of brothers Granwill, the winner of Thompson's prize race in 1931 and 1932, was built by the firm Aircraft GB in 1931. Everything in aircraft's design was sacrified to speed. Robert Hall, the plane's chief designer from the United States, practically turned it into a flying engine. The aircraft appeared to be very difficult in piloting and caused death of many well-known



AERO 45 — light multifunctional aircraft, which was built by the Czech firm AERO in 1947. By 1951 the company produced about 200 aircraft, most of them were exported to German Democratic Republic, Hungary, Italy, Switzerland and USSR. AERO 145 were built in 1959. The aircraft was modified in the following way: higher power engines and radio station were installed; also the cockpit transparencies were changed. In total over 500 aircraft of AERO 145 type were produced. AERO 45 and AERO 145 were used as air taxi, and also as messenger and sanitary aircraft. Some AERO 45 planes served in air force of CzSSR under the code name K 75.







72104 AERO-145

7229 "Voyager"

In 1981 designer Bert Rutan started working on development of the original aircraft for non-stop flight around the Earth. The flight tests started on June 22nd, 1984. The airframe was built of composition materials and was strong and light. The weight of the airframe without the engines - 426 kg, the weight of the empty aircraft - 1251 kg, take-off weight - 5137 kg. The aircraft had two engines: front - 130 h.p. and rare - 110 h.p. "Voyager" has conducted its historical round-the-Earth flight on December 14th, 1986. It was piloted by Dick Rutan and Jean Eager. The aircraft passed 40225 km and landed in the same airport.



## Helicopters

Mil Mi-1 became the first serial helicopter in the USSR. The helicopter made its first lift-off in September 1948. The serial production began in 1951. In 1957 the Mi-1M with larger cockpit and improved avionics entered production lines. The Mi-1M served with all Warsaw Pact Armed Forces as well as Austria, North Korea, Afghanistan and Syria.

Mi-1MG — modification of the helicopter Mi-1M with float-type gear for water landing. Since 1958 this helicopter was used on ice-breakers and in whaling flotilla "Slava" for reconnaissance and rescue missions.

The USSR has started to work on engineering design of military helicopters in 1958. The Mile Construction Bureau has designed the first military modification Mi-1MU with antitank missile complex "Falanga". The helicopter was built in 1961, has successfully passed the tests and has been recommended for production.

Mi-1A was the most widespread ambulance helicopter in the Soviet Union. In 1954 a contract was signed regarding the production of helicopter Mi-1 and its power units in Poland. On August 26th 1956 first Mi-1 helicopters of Polish assembly were shown to the public during demonstration flight at Okes aerodrome. The serial helicopters received the name SM-1/300 (300 implied overhaul period of rotor blades). In 1971 experimental modification of SM-1/300 with the additional wing was built.

In 1954 according to the order of the Soviet Army the ambulance helicopter Mi-3 was built on the base of Mi-1A. The new version had four-blade basic propeller, an altered cockpit and a suspended gondola for transportation of the wounded.



7234 Mi-1M



7250 Mi-1MU



**72113** SM-1/300 with wings



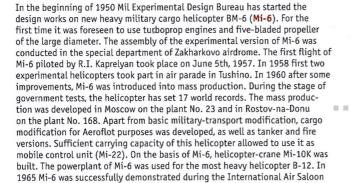
7238 Mi-1MG



7284 Mi-1 ambulance



7297 Mi-3 ambulance





72119 Mi-6



72131 Mi-6 late version





in Le Bourge.



7256 Ka-15M



7277 Ka-15M anti-submarine



72106 Ka-15NH



7290 Ka-15 ambulance

Test pilot D.K.Yefremov performed the maiden flight of the helicopter Ka-15 on April 14th, 1953. State tests were finished in 1955. The serial production was developed on the aircraft plant in Ulan-Ude. In 1956 a number of revisions were made which allowed improving the field-performance data of the helicopter. A lot of different versions were built on the basis of Ka-15M. Thanks to a small size and high manoeuvrability the helicopter was successfully exploited on the ships even in the conditions of wind force 6. In 1956 an agricultural version of helicopter —Ka-15NH assigned for applying fertilizes on the fields and struggle against pests, was designed. It was equipped with special removable gear for spraying, fertilization and generation of aerosols. The anti-submarine version of Ka-15M was equipped with two radio sonobuoys RGB-N or with the reception facility SPARU. In all in the course of serial production 354 helicopters of different modifications continued to be in use till mid seventies. Other version of Ka-15M was ambulance modification of helicopter with suspended gondola for transportation of the wounded. In all in the course of serial production 354 helicopters of different modifications continued to be in use till mid seventies. The Ka-15 and its versions remained in service for almost



**7252 Ka-18**Four-seat Ka-18 became the first pure civilian helicopter in the USSR and featured a colorful painting scheme.



7242 Ka-15





7240 Ka-26





7281 Ka-26 cargo

In 1987 the Design Bureau named after Kamov built the new version of Ka-126 helicopter on the base of Ka-26 helicopter. Ka-126 is a modernization of multipurpose helicopter Ka-26. The major difference of Ka-126 from its predecessor is the power plant. New turbo-prop engine TV-0-100,

7272 Ka-126

The helicopter Ka-26 was first demonstrated at the autumn exhibition in Moscow in 1965. Thanks to its efficient construction the helicopter could be easily transformed from the passenger version to the agricultural and the cargo-carrying version. The helicopter was widely used in the national economy of the USSR and was exported into many countries.

530 kW developed by Motor construction design bureau, VR-126 reduction gear and new transmission were installed on this type. The helicopter was designed for performing aviation tasks in agriculture and forestry, as well as for cargo and civil transportation. The export modification Ka-128 was developed on the basis of Ka-126. On the export version it was foreseen to install French engine Ariel 1D1, 731 kW.



7274 Ka-226 MChS



72129 Ka-226 "Serega"



72130 Ka-226 ambulance



**7245 Ka-31**Developed as a shipborn AEWACS helicopter, the Ka-31 has a large ventral radar antenna.

The helicopter Ka-226 was built in 1997 and is a modernization of helicopter Ka-126. The helicopter had two engines Allison 250-C20 installed for security reasons. If one of the engines on Ka-226 failed, the climbing was provided for. The re-equipment of the base model into any other modification was done by the way of partial dismantling of equipment and installation of additional designation equipment. In the sanitary and rescue version for the Emergency Situations Ministery, the helicopter had an option of installation of electric winch with weight-carrying capacity - 300 kg, with suspended container with emergency-rescue equipment, loudspeaker and searchlight.



72136 HUP-1



72137 HUP-2/3

helicopters arrived to the test centre in spring 1949. In the course of military tests, the test pilot Jim Ryan has conducted the Nesterov's loop for the first time in the world on XHJP-1 helicopter. After the test program, the helicopter entered the serial production. The HUP-1helicopter series consisted of 32 machines. Some of the helicopters were equipped with droppable hydro-acoustic stations. Parallel with the serial production the new modification HUP-2 was developed with more powerful engine R-975-42 and autopilot. The US Navy has purchased 165 helicopters HUP-2, another 15 machines were transferred to French Navy. The helicopters were used to transport carg and passengers, and also performed the rescuing functions. In 1951 the Navy has placed an order

another 15 machines were transferred to French Navy. The helicopters were used to transport cargo and passengers, and also performed the rescuing functions. In 1951 the Navy has placed an order with Piasecki for new modification of the helicopter with the reinforced cabin flooring. The land modification has been designated H-25A «Army Mule». The US Army has purchased 70 of such helicopters. Also the new Navy modification HUP-3 was developed with new engine - R-975-46A. The Navy received 50 of such helicopters.

The helicopter HUP-1 has been developed by the Piasecki company in 1948. The first three test



## Actual military aviation

#### **SCALE 1:72**

#### 72111 Yak-27R

The reconnaissance plane Yak-27R was built in 1958 on the basis of the experimental aircraft Yak-122. For increasing the field of view from the cabin the fuselage nose cone was glazed completely. The aircraft was given an improved wing, on which only inner wing fences were left. The wingspan increased due to use of outrigger wingtip behind the wing fillets. The power plant of serial Yak-27R included two RD-9F and the range ability reached 1770 km at an altitude of 10000 meters. The use of suspended fuel tanks has allowed increasing the range ability up to 2380 km. In total, 180 aircrafts Yak-27R were built. The first public showing of the aircraft took place at the fly-past in Tushino in 1961. In NATO the reconnaissance plane Yak-27R was given the name "Mangrove".



Yak-28I was adopted in 1962. The aircraft was equipped with the integrated system of the armament control consisting of a radar station «Initsiativa (Initiative) 2», an optical sight OPB116 and an automatic pilot AP-28K. With its help the crew could retrieve and attack pin-point mobile targets at any time of a day and in hard meteorological conditions. In total 223 aircrafts of this modification were built. Yakovlev Yak-28P became the standard PVO interceptor. Reconnaissance airplane Yak-28R was adopted in 1967. In January 1966 the first serial aircraft Yak-28R went down from the stocks of Irkutsk aircraft manufacturing facilities. The aircraft was built on the base of Yak-28I with substantial construction changes. The radar station "Initsiativa (Initiative) 3" was set on the aircraft. The cockpit enclosure was enlarged and glaring area of forward fuselage was extended for increasing the field of view from the navigator's cabin. Three compartments for five interchangeable variants of reconnaissance equipment were set instead of the bomb compartment. The tankage was increased by 550 litres. The aircraft-jammer Yak-28PP was built in the basis of Yak-28R. A complex of electronic warfare means (stations "Bouquet", "Strela", "Fasol-1", "Siren") and Doppler airspeed and drift indicator DISS-3A with specially altered navigation computer NVU-VI2 were placed in the fuselage. For making passive jamming the blocks UB-16-57UM with 57-mm NAR S-5P were suspended on the wing holders. The aircraft protection system included also device ASO-2I, which shot special ammunition for jamming missiles with thermal warheads. Light supersonic tactical jammer Yak-28PP was adopted and exploited in front-line air force units. In order to extend the fighting capacities of fighter-bomber Yak-28, in 1969 Yakovlev's design bureau has produced a new modification of Yak-28IM with four pylons for additional armament. 183 aircrafts of different versions were produced in total. The planes proved to be the best representatives of all the Yak-28 family.



7288 Yak-28I



7244 Yak-28P



7291 Yak-28R



72108 Yak-28PP



72126 Yak-28IM

#### 72102 Yak-28L

Factory tests of the new modification of the bomber Yak-28L started in 1960. The aircraft was equipped with a radio-command range-difference guidance system DBS-2S "Lotos". The station permitted to point the aircraft at a stationary target by means of receiving signals from two ground control stations, situated behind the front line. In process of testing the improved engine R-11AF2-300 with the tractive force 6200 kg each were set on the afterburning in the newly shaped gondolas, and the glazing of the cabin of the operator's navigator was changed. Irkutsk aircraft manufacturing facilities produced the debugged Yak-28L.



In a number of the countries of the world in 50's activities on creation of a vertical takeoff and landing airplane started. In the USSR a design bureau named after Yakovlev created experimental airplane Yak-36. For the first time it was shown at the air show in Domodedovo in 1967. Later airplane Yak-38 that has made the first flight December 2, 1970 was created. The power plant of an airplane consists of two engines RD-36-35FVR and one engine R-27V-300. 231 airplanes Yak-38 of different modifications were built. They have gone into service aircraft of Navy Fleet of the USSR. For training pilots was created double Yak-38U. Airplanes Yak-38 were based on cruisers of Kiev class. In 90s airplanes Yak-38 were taken out of service.



7257 Yak-38



7258 Yak-38U

#### 7293 Yak-130D

The new version of aircraft Yak-130D, capable to solve training as well as fighting tasks effectively was made in Yakovlev design office in accordance with extra demands of Russian Air Force. The aircraft is equipped with new Slovak-produced engines DV2, new electrical equipment and a refueling bar. Yak-130D is capable to carry practically all the nomenclature of front aviation's weapon on the nine assemblies of the external hanger bracket. The beginning of deliveries of serial aircraft is expected in 2005.





7264 La-250 "Anaconda"

Appearance of guided rocket weapon in the early fifties determined the system approach in aeromechanics designing. K-15 consisted of aircraft carrier La-250 and missile «275», had to become one of the first armament system. The first experimental La-250A was built on June the 16-th, 1956. At the stage of shop an engineer M.L. Baranovsky and a test pilot A.G. Kochetkov guided test the project. The emergence of the aircraft at the aerodrome aroused a storm of cheers, and the hero of the occasion was given a nickname «Anaconda». From 1956 to 1958 four pre-serial aircraft were built. Unfortunately, crashes and other difficulties the aircraft constructors were faced with did not allow finishing the operation development of a distant intercept system of K-15 in time. By the late fifties performance attributes of aircraft La-250 no longer met the requirements of Air Force. Thus, in July of 1959 the work was stopped. The 4-th prototype of La-250 is exhibited in Monino city museum. Performance requirements to the system of such purpose were defined more precisely once again and the government regulation concerning working out of intercept system Tu-28-80 was issued before long.



<mark>72100</mark> Tu-128 "Fiddler"



72115 Tu-128UT "Pelican"



7263 Su-15TM



72107 Su-15UM

In mid fifties the conception of the aviation missile complex was originated in the USSR. Since then an interceptor was regarded as a constituent part of a uniform system. The system consisted of a missile-carrier, air-to-air missiles, airborne radar aids and ground radio aids. Long-range supersonic patrol interceptor **Tu-128** was built in 1961. In order to increase an attack effectiveness two missiles K-80 were equipped with war-heads of semi-active homing guidance, and two other missiles — with thermal war-head. At that expectancy of hitting the mark averaged 76-77%. One more peculiarity of the complex was the long range of a missile-carrier. That allowed to enlarge a point of interception up to 1,500 km, barring bombers from crossing the frontier. An interceptor could patrol in the holding area for 3-3,5 hours. From 1961 to 1970 188 interceptors Tu-128 and 10 training **Tu-128UT** were built.

Sleepless guard of the sky, the Su-15TM became world famous after incident with Korean Boeing-747. Training fighter Su-15UM was built in April 1976. The machine was built on the basis of the aircraft Su-15TM of the last series. It was possible to position the instructors cabin without lengthening fuselage and without reducing the size of the fuel tanks. Su15UM was equipped with the armament system designed for using R98T and R60 rockets. Moreover, the aircraft could carry two containers UPK-23-250. The aircraft was produced by Novosibirsk plant named after V. Chkalov. Overall about 1300 aircraft Su15 were built in different modifications.



7239 MiG AT early version



72128 MiG AT late version

The Design Bureau named after A.I. Mikoyan has developed new two-seater training aircraft MiG AT in 1996 in order to train the pilots for the fighters of fourth and fifth generation. Striving to reduce the weight of the aircraft and fuel consumption, the aircraft designers decided not to install arrow shaped wings. In the construction of the aircraft the composition materials were used. The machine had reliable engines AI-25TLM installed. MiG AT conducted its first flight on March 16th, 1996. Two modifications of the aircraft with the French engines TRDD SNECMA "Larsac" 04-R20 (2 x 1440 kilogram-force) and Russian engines RD1700 were built in 2000. The aircraft also had new digital system of remote control and new catapult chairs of "0-0" K-93 class. Apart from Russian Air Force, the most probable buyer of MiG AT is Indian Air Force.

X-55 is a compact strategic cruise missile which was adopted for armament in 1983. X55 was developed according to the normal aerodynamics scheme with straight folded wing and fins. By-pass jet engine was located on the sliding pylon. The design of the missile was developed in a way to reduce radar and heat detection. Strategic missile X-55 can reach the target with high accuracy even if it is a great deal remoted from the point of missile start. The missiles are carried by the aircraft of strategic aviation - TU-95 MC and Tu-160. In NATO countries X-55 received code name AS-15 "Kent".



72127 X-55 & X-55M

## "Heavy horses" of the sky



#### 72141 An-8

The military cargo aircraft An-8 was built in 1956 by Antonov Experimental Design Bureau. The aircraft had 2 turbojet engines AI-20D, with 3810 kWt capacity. An-8 is equipped with large cargo door in the tail part of fuselage. Chassis of high maneuverability allow landing and take-off from airfields. At the front part of fuselage, the shooter's cabin is located, equipped with the tower with paired guns of 23 mm caliber. The cruiser flight speed comprises 520 km/h; flight distance – 850 km. Maximum landing load is 11 t.



72101 An-26 early version



72118 An-26 late version



7296 An-32



72134 An-26RT/RR/Z



72103 An-30



72133 An-32P

Antonov's Experimental Construction Bureau designed new passenger aircraft An-24 in 1959. The military cargo modification An-24T was designed on its base. During 1967-1971, 164 aircraft of this type were built in Irkutsk. In 1964 the designers presented the project of the new modification that differed from the previous one with the new construction of the nose and tail end. In the tail part the cargo hatch was located that was locked by a hatch-locking bar of the original design. The new aircraft could transport and drop in the air not only cargo, but also light armor. The government test flights lasted during 1968-1970. The mass production started in 1970 at Kiev aviation plant. In total 1398 aircraft of this type were built: 564 pcs were used in defense departments of USSR, 420 pcs were exported, and the rest was transferred to different ministries. Being named An-26, this is specified to have 5.5 t cargo capability and to ensure continued air operations from semi-prepared airfields. Furthermore, the airlifter has 38-40 passenger capacity and provides 24 wounded persons with medical men escort accomodation in medevac version. Transport aircraft An-30 is the later design of Antonov design bureau. The An-26 and An-30 airlifters saw widespread service in Afghanistan war against rebel Mujahideen forces. Today many countries use the aircrafts around the world. The aircraft of short take-off and landing An-32 was designed by Experimental Design Bureau Antonov in 1976 and designated for transportation of cargo and passengers on short and medium distances. High power availability allows to conduct flights with steep trajectory from mountain airdromes located on the heights upto 4500 m. The aircraft for fighting forest fires An-32P is one of the latest modifications. Along the boards of fuselage two external water pouring devices are installed with the volume around 8000 l. The point of liquid discharge is determined with the help of breech-sight NKPB-7. Before 1990, 214 airplanes An-32 were sold for export to different countries. Most of all were exported to India (118) and Afghanistan (49).



## "Amonst

(epoxy model kits)

Passenger aircraft II-18 was developed by Experimental Design Bureau named after S.V. Ilyushin in 1957. Four turboprop engines AI-20M with the power 2950 kWt (4000 h.p.) designed by the engineer A.G. Ivchenko and automated piloted-navigation system. The first flight was conducted by Il-18 on July 4th, 1957. Mr. V.K. Kokkinaki served as a crew commander. The government tests ended in 1958, after that the mass production of the aircraft started. Within the time period 1957-1959, 564 passenger aircraft were produced in total. After the end of their service, Il-18 was partially modified into the aircraft of electronic radio countermeasures and radio reconnaissance. The aircraft received the code name II-20 (NATO Code "Coot-A"). The ice reconnaissance plane Il-24N was developed in 1970 on the base of Il-18 and designed to receive the information regarding the ice coverage of Arctic Ocean with the purpose of securing cargo seafaring in Arctic Regions.

On June 15, 1965 at the international exhibition in Paris the unique transport plane An-22 "Antey" was first introduced to the general public. At that time An-22 excelled all the world's aircrafts at the size of commercial load (60 tons) and the size of the cargo-carrying cabin. After this demonstration in NATO An-22 was given code name "Cock". From November. 1965 to January, 1976 66 "Antey" aircrafts



72009 An-22 early version





72012 Il-76 72019 A-50



72011 Il-18



72013 Il-20/Il-24

Antisubmarine aircraft IL-38 was built in 1962 on the base of passenger aircraft II-18 The aircraft was equipped with "Berkut spot-reconnaissance system that consisted of droppable sonobuoys and special on-board equipment that could find and destroy the adversary's submarines at any weather conditions. The depth bombs, antisubmarine guided missiles, torpedoes and mines could be stored in fuselage cells. The mass production of this aircraft lasted until 1972. In total 58 aircraft of this type were built.



72010 Il-38

Military-transport aircraft II-76 was built in Iliushin Experimental Design Bureau in 1971. The chief designer of the aircraft is R.P.Papkovsky. In 1974 II-76 went through the series of tests and was adopted for armament. On the basis of military-transport aircraft a lot of various aircraft of special use are built. Several planes were re-equipped into air command units Il-82, the flying hospital Il-76MD "Scalpel-MT" was built. In 1983 for testing the fighting laser and for studying the distribution of rays in the upper layer of the atmosphere, the version A-60 was built. On the basis of Il-76, the fuellers Il-78 and Il-78M were built and well as the aircraft of radio supervision A-50. In total around 950 aircraft Il-76 of all modifications were built, over 100 of which were sent for export.



#### 72020 An-10

Passenger aircraft An-10 was built by Experimental Design Bureau named after Antonov in 1957. For the aircraft with fuselage of big diameter special aerodynamics and constructive components were foreseen, as well as new airconditioning system for passenger section. Good landing/take-off parameters, along with chassis of high maneuvrability allowed to use this aircraft from airfields. First AN-10 took-off in March 1957 piloted by test pilots Ya.I. Vernikov and I.Ye. Davydov. Starting from 1959 the aircraft has been used actively at all Aeroflot lines. At the worldwide fair in Brussels in 1958, the aircraft was awarded with Big





72008 3M "Bison"





72015 VM-T "Atlant"

In November 1952 on Moscow plant # 23 (OKB-23) under the management of chief engineer Mr. V.M. Miasishchev the first test version of strategic intercontinental bomber M-4 was built. As a power plant four turbo-jet engines AM-03 designed by A.A. Mikulin with the take-off thrust 8700 kgf were installed. First in the history of aviation bicycle chassis were used, big arrow-shaped wing and hermetic cabins. Also the aircraft had catapult chairs of new design. All crew members in case of necessity could catapult down. The aircraft piloted by the test pilot F.F. Opadchiy conducted its first flight on January 20th, 1953. In the course of test flights the record speed for the aircraft of such type was achieved - 947 km/h; and service ceiling - 12500 m. On May 1st 1954 the aircraft M-4 was presented to the public for the first time during air parade on Red Square in Moscow. After some changes the aircraft was put into service. In summer 1954 the engineers started to modernize M-4 in such a way that VD-7 engines could be installed with the take-off thrust over 11000 kgf. With new engines, increased fuel supply, and improved aerodinamics, it was possible to achieve endurance which was sufficient to reach the most remoted point of USA. The aircraft received new wing with broader wingspan, radar RBP-5 was installed in the nose part of the aircraft. The maximum take-off weight of the aircraft was over 200 t. The aircraft received designation 3MH and was produced on the plant # 23. Some aircraft were produced with engines RD-3M-500 (designation 3MS). In total 74 bombers with designation 3MN and 3MS were built. Starting from 1962 the aviation plant started to modify aircraft into tanker aeroplane (designation 3MS-II and 3MN-II). In 1960 the aviation units for long distance flights were equipped with 3MD - the latest serial modification of the bomber. This machine had wing of larger surface and sharpened nose part. In 1980 V.M.Miasishchev Design Bureau created aircraft VM-T «Atlant» intended for transportation of large cargoes on external mounting located under the fuselage. Atlant's fuselage was reinforced and equipped with two-fin tail unit and automatic control system. The first flight took place on April 29th, 1981.



#### 72005 An-71 AEWR

An operative and tactical aircraft An-71 for early radar signal detection has been created in 1985 on the base of aircraft An-72. The aircraft provides execution of following functions: ability of long-range detection and simultaneous tracking up to 120 low-flying and low-contrast targets; detection of radiating radar stations in the wide frequency range, its classification and bearing determination; the aircraft combined operation with an interceptor fighters: information transmission to command posts; operation in various geographical zones at ordinary and adverse weathers at day and night and at air temperatures ±50° C; flight time 4,5-5 hours; an independent basing over a long period of time.

#### 72001 T4-100

The development and building of the unique aircraft under the guidance of the general constructor Pavel Sukhoy started some decades ago. Titanic-steel bomber T4, nicknamed by creators «Sotka» (by hundredth part), could become the pioneer of Russian aircraft building due to its capability of conducting long flights at great supersonic speeds. Everyone who took part in the development of this aircraft thinks that its design and construction is a breakthrough in the aviation because of the technological and constructive innovations applied to this machine. The titanic alloys used back then specifically for T4 aircraft, work up to now. It is possible that without titanic and steel technological papiled in «Sotka» development, «Buran» wouldn't fly up later. But, as it often happens, the authorities did not support the creator, being ahead of his time. The T4 project, which can be called "the swan song" of P. Sukhoy, was closed by the country leaders of that time.



#### 72007 Tu-160

Tu-160 aircraft is multi-functional strategic bomber intended for attacks at the adversary's objectives from high and low altitude. The maximum ammunition loading of this aircraft is 40000 kg. The main ammunition consists of guided short-range missiles and strategic cruise air-based missiles X-55CM (12 pieces), which are being hanged by two catapult devices MKU-6-5U of drum type. Another ammunition type with the X-15C missiles is intended for suppressing adversary's air-raid (24 missiles). The defense complex Baikal is installed on board of this airplane allowing to detect adversary's air raid, determine its location, suppress with interference or leave false targets behind the aircraft. The first flight of this airplane took place on December 18th 1981. The code name «Black Jack» was given to this machine by NATO.



## NEW!

#### 72016 M-50

In 1954 ropy Experimental Design Bureau named after V.M. Miasischev started design works on new ultrasonic intercontinental bomber M-50. The development of innovations in terms of technology, engineering solutions and materials required cooperation of almost 20 experimental design bureaus, and over 10 big plants coordinated by various ministries and governmental agencies. The most important peculiarities of M-50 aerodynamics were thin triangular wing with the break on the front edge and rotary horizontal empennage. The investigation on the most efficient engine placement was one of the first important tasks. It was required to secure the best positioning of air-intakes, minimize aero-

dynamic resistance and simplify the design. Besides expulsions in aerodynamic pipes, the air tests were held for bulky types, being launched from catapult. At M-50 for the first time the automatic system of gravity center adjustment during flight was used through fuel pumping-over between fuselage and wing tanks. With electronics usage implementation, the bomber crew was reduced to 2 crewmembers. At the first experimental aircraft there was no defensive armament, but at the serially produced aircraft it was foreseen to install stern cannon mounting with remote control. The maximum bomb load comprised 30000 kg. It was also foreseen to mount ultrasonic cruise missile M-61 with launching distance 1000 km. M-50 conducted its first flight on October 27th, 1959 at Zhukovskoe airfield. Since by the start of test flights, the engines of P.F. Zubets construction have not been developed yet, the aircraft had four less powerful engines VD-7B installed (9750 h.p. each) designed by Experimental Construction Bureau named after V.A. Dobrynin. To increase the haul to 14000 kgp, two underwing engines BD7 were equipped with afterburning chambers. In August 1961 M-50 has been demonstrated at air parade in Tushino. However, at that time, in USSR the preference was given to missile armament, therefore M-50 has not been released into serial production. NATO Code Designation — «Bounder»

#### 72017 Tu-126

The experimental aircraft of distance radar detection was built in 1961 on the basis of passenger aircraft Tu-114. The fuselage had powerful pylon installed, on the upper part of which rotating radome was mounted with radar station "Liana". The radar station allowed to locate air targets at distance from 100 to 350 km. The aircraft also had fueling barrel with the system of supplementary fueling in the air. The former passenger cabin provided enough space for powerful radio-, radar-equipment and equipment for signal processing. The aircraft started its service in 1966 and served until 1984. NATO designated this aircraft as «Moss».



# NEWI

#### 72018 V-12

The largest helicopter in the world V-12 of M.L. Mile design conducted its first flight in spring 1967. 8 world records were achieved on this helicopter. In June 1971 the helicopter was first exhibited at International aviation saloon in Le Bourge, were the visitors were impressed by its dimensions and technical parameters. The wingspan reached 67 meters, fuselage length comprised 37 meters, height - 4,4 meters, chassis wheels diameter - 1,7 meters, maximum weight - 105 tons. The idea of building heavy cargo helicopter first appeared in 1960 as one of the components of quick nuclear war plan. It was intended that his mission would be to deliver missiles, as well as bulky loads to the launching point. The production of V-12 turned out to be too expensive, and regardless of all the achievements, the helicopter has not been produced serially. The largest helicopter in the world, having also the highest loading capacity, is currently exhibited in Aviation Museum in Monino.

## Aviation in scale 1:144

First prototype of amphibia airplane rose into the air in October 1947. Good speed characteristics were ensured by two ten-cylinder engines R-1820-76A, 1425 h.p. each. After the test program, US Navy has adopted new hydroplan for armament. First serial amphibians were produced by Grumman company in June 1949 in SA-16A version (Search Amphibian). In January 1956 new version SA-16B was built with the larger wing-span. Hydroplanes were actively used during the Korean war and in Vietnam. After long patrolling, additional fuselage tank and two suspended vessels under the wing were installed — this allowed to prolong the flight, total duration being 12-14 hours. In Korea and in Vietnam crews of amphibians managed to save lifes of 229 pilots. In May 1961 new modification of amphibian SHU-16B with new big radar AN/ ASP-8B, with antenna that could be removed to the tail part and additional search equipment has arrived for armament. In total 464 aircraft were built in various modifications.





1401 SA-16A "Albatross"

1402 HU-16B "Albatross"

1414 HU-16B "Triphibian"



#### 1409 DHC-5 "Buffalo"

De Havilland Canada DHC-5 Buffalo has been developed on the basis of DHC-4 Caribou. The aircraft had larger fuselage if compared to its prototype. It conducted its first flight on April 9th, 1964. Four machines were ordered by US army for test flights.

The aircraft has received initial designation C-8A. After the test program, Canadian Air Force ordered 15 aircraft DHC-5A. Six of them were used for navy patrol. Some aircraft were built for the air forces of Brazil and Peru. In 1974 the production of the new modification DHC-5D started. This type had more powerful engines and improved flying parameters. The production of Buffalos ceased in 1982. Aircraft DHC-5D were supplied to the air force of Cameroon (3 machines), Ecuador (3 machines), Egypt (10) and some other countries.

Cargo aircraft C-123B "Provider" was built in 1953 by Chase Aircraft Company. The serial C-123B aircraft equipped with two-piston engines 1715 kVt (2300 h.p.) Pratt-Whitney R-2800 conducted its first flight on September 1st 1954. During the test flights C-123 showed maximum speed of 394 km/h, the flight distance being 2366 km. The aircraft was adopted into armament by US Airforce and was widely used in various military conflicts. In total 302 aircraft of this type were built, including one for static tests on durability and 24 for export supplies. Major modifications: HC-123B - aircraft modification with AN/APN-158 radar - 11 pcs built;

C-123J - the designation of ten C-123B aircraft for flights in arctic conditions with additional J44 Fairchild engines; C-123J - the designation of 183 C-123B aircraft with additional engines J85-GE-17 in underwing nacelles and automatic deceleration regulation; NC/AC-123k - new designation of 2 aircraft of C-123B type after their modernization into armed night observer; UC-123K: the designation of 34 aircraft of C-123K type modified to perform defoliation tasks in Vietnamese jungles.



1406 C-123J



1403 SHU-16B/ASW

"Albatross"

1404 C-123B/K



1407 NC/AC-123K



1405 HC-123B



1408 UC-123B/K



1411 Avro 683 "Lancaster"



1412 Avro 679 "Manchester"



1413 Avro 694 "Lincoln"

Avro 683 Lancaster was the best British WWII heavy bomber. Double-engine Manchester aircraft served as its prototype. The aircraft conducted its first flight on Jan 9th, 1941. The new bomber was approved, and soon after, the first orders for its production were received. In total 7377 aircraft in various modifications were built. The squadrons of 59 bombing units were equipped with Lancasters. During the war, they have conducted over 156000 flights and have released 618350 tons demolition bombs and over 51 mln incendiary bombs. After the war, some aircraft were transferred to French Navy. Some bombers were re-equipped into cargo aircraft.

Double-engined bomber **Avro 679 Manchester** has been built in 1939. After the flight test the first serial contract has been signed: originally for 200 and later for 400 aircraft. During the night of Feb 24th/25th, six Manchesters conducted their first flight. The last bombing happened on June 25th/26th 1942. In total 1269 flights were made, 1875 tons of various bombs were released. In total 202 bombers were built, from which 40 percent were lost in fights and 25 percent as the result of various accidents.

In 1943 the aircraft Avro Lancaster was the main force of bombing aviation. The new development of Avro company had Rolls-Royce engines Merlin 85 and were distinguished with the best technical characteristics. The new model used some of the elements of Lancaster design, however, the changes were so many that the model has received a designation Avro 694 Lincoln. The new wing had larger wing span and was attached to longer fuselage. It has also been foreseen to install heavier equipment. The first flight took place on June 9th, 1944. The British production consisted of 3 sample aircraft and 72 aircraft of Mk I type and 465 of Mk II type. In 1947 30 aircraft were delivered to Argentinean Army. One aircraft Mk XV was built by the company Victory Aircraft in Canada; 43 aircraft Mk30 and 30 aircraft Mk 30A were produced in Australia.



1417 An-225 "Mriya"



In the mid 1985 the Antonov construction bureau has received a task to develop new aircraft with the possibility to carry spaceship "Buran" and large components of "Energy" missile carrier. To reduce the cost, and make the project less time consuming, the engineers used An-124 as the base model. The fuselage and wings of An-225 represent modified relevant parts of An-126. The fuselage retained the same cross-section parameters, however its length has increased. To reduce the weight, the cargo door in the back was dismantled; the wing had new central section added, and the wingspan has increased. The quantity of engines was increased to 6. The bulky loads that cannot be fit into cabin, are being transported in horizontal position. The load is supported by two main fixing knots located above central section. An-225 conducted its first flight on Dec 21st 1988. In June 1989 the aircraft along with spaceship Buran was demonstrated at Paris air fair. Currently An-225 "Mria" is the largest aircraft in the world.



An-72 — military carrier turbo-jet aircraft of shorted take-off and landing, creating by Aviation Scientific and Technical Complex named after O.K. Antonov.

Bomber He-111 has been designed by German engineers in 1935. During the period of serial production, numerous modifications of this aircraft have been developed with different engines and armament. He-111 started its military service during the war in Spain (1936-1939), and with the beginning of WWII, it took active part in all of the major German military operations. The flight distance (2800 km) allowed it to conduct massive bombings at the adversary's side. In 1942 He-111Z (Zwilling) has been built, with two fuselages, combined central was section and 5 engines. In total 12 such aircraft were built. In 1943 He-111Z was used by German army in Crimea for evacuation of wounded and military cargo delivery.

SCALE

## The vehicles of different time periods











7201 VW type 60

7202 VW type 87

7203 VW type 93

7205 VW type 230/3

Ferdinand Porsche developed a famous car that was widely used by Wehrmacht. Born as a family car VolksWagen Beetle saw a lot of military service. One of many versions served with Wehrmacht was the Type 60. Another military version of VolksWagen Beetle — VW type 87 featured foldable tarpaulin top. 564 such vehicles were built in 1941-1944, a large number of them were delivered to Africa Corps. VW type 93 is the ambulance version of the famous Beetle. This version served with German Army during the WW II. VW type 230-3 is yet another military version of the Beetle. And VW type 825 pick up is light utility truck based on the VW Beetle.





the USA. In parallel a new automobile plant began to grow and in 1932 was known as GAZ (Gorky Automobile Plant). In January of 1932 the first GAZ-AA truck (a copy of the Ford-AA) was produced in the new plant. The GAZ-AA became a famous and respected vehicle in the Soviet Union, given the nickname "Polutorka" for its 1.5 tone cargo capacity ("poltora" means one and half). In 1934 mass production of a copy of the Ford-Timken - GAZ-AAA (3-axied modification of the GAZ-AA) was started. This truck was a little heavier than GAZ-AA, less speedy, but its load capacity increased from 1,5 t to 2 t.

In February of 1930 the first Ford-AA trucks cars were built in Nizhniy Novgorod, from parts shipped in from





I-153 "Chaika"

The aircraft starter AS-1 was built in 1936 on the base of GAZ AA truck. The standard cargo platform of the truck was slightly moved backwards to place the fuel pump with the elevated pipe. The power-switching box was installed at the standard truck's gearbox hatch. Due to the fact that engines were installed at the different height above the earth, the upper conic gear could be turned on with the help of telescopic device with lever gear. In order to connect the starter's trunk with the airscrew, the special elevated maintenance ground had to be used. The trunk could be plugged to the airscrew only after the special shoes were placed underneath the chassis and the front wheels of the airplane. As soon as the speed of airscrew rotation exceeded the trunk's rotation, the trunk was automatically unplugged and pulled back. The aircraft starter AS-1 was used until the late 1940's. Polikarpov Construction Bureau developed I-153 fighter in 1937. This aircraft is a further development of the I-15 fighter. The serial production had started in Moscow in 1939 at # 1 plant and continued until 1941. In total 3437 aircraft were built. This fighter was first used in Khalkhin-Gol river battle on June 7th, 1939 when 9 airplanes of this type shot down 4 Japanese fighters Ki-27. The fighting experience showed that I-153 could only be used with I-16, otherwise the losses were significant. By the beginning of war, I-153 along with I-16 formed the foundation of Soviet fighter aviation. The I-153 type served during the Great War until 1943. Several I-153 served at the Air Force of the Northern Navy until the end of war as the quardians of internal marine convoys in the White Sea.



207 PARM-1 ZIS-6

Six-wheelmotor vehicle ZIS-6 has been launched into serial production at Moscow vehicle plant named after I.Stalin in 1937. Due to the fact that the vehicle had 3 axles, it had excellent performance characteristics. The chassis of this vehicle were used for mobile aircraft repair shops (PARM 1). The vehicle had equipment installed which allowed for technical staff to repair the aircraft right at the airfield.



#### 7230 Tram-car series "X"

The tram-car series "X" was produced by Mytischi carriage-building plant with assistance of specialists from Kharkov. The tram-car had successfully passed the tests and was approved as standard for all cities of the USSR in 1927. By the end of 1938 tram-cars of series "X" were used in 73 cities of the USSR. During the World War II the tram-cars took on

special significance in view of shortage of transport vehicles. These vehicles were used for transportation of the workers to military factories and for supplying of the building materials to defense constructions, part of tram-cars were modified to ambulance vehicles. These tram-cars took part in the evacuation of the plants of Kharkov city. With using of these cars were established the loading of factory's equipment to rail stations. After war tram-cars were produced the modified versions of the series "X" which were used till the middle of 1960s. A part of them were modified to repair vehicles. The last tram-cars were withdrawn from service in the middle of the 1980s.



The new truck modification with turbo-gas engine has been built on the basis of GAZ AA. The gas-generating modification has been designated GAZ-42. The truck has been fueled by gas. The truck had its own gas generator. This device, gas cooler, and supplies of wood made GAZ-42 240 kg heavier than the base model. The maximum speed comprised 50 km/h. Despite all the difficulties on maintenance of gas-generating equipment, thousands of vehicles equipped with it, both, during the pre-war and war period, could save on liquid fuel. In total 33 840 GAZ-42 with gas generating equipment were











7208 GAZ-51

7209 GAZ-51 "Bochka"

7214 MZ-51M

7216 Lublin-51



The most mass truck GAZ-51 was designed in 1944-45 and for more than 30 years was produced by a car factory in Gorkiy city since 1946. The truck was produced under license in Poland, Peoples Republic of China, Peoples Democratic Republic of Korea. It was used in armed forces and national economy. There were produced a lot of modifications of special use on the base of GAZ-51, sach as GAZ-51 "Bochka" refueler version. Since 1949 the oil-filling car MZ-51M had been produced in Mogilyov by the Kirov works on the chassis of GAZ-51A. It was intended for heating and mechanical filling of aircraft engines with filtered hot oil, From 1951 to 1975 the truck was produced in Poland under the name Lublin-51 at the enterprise FSC in Lublin. In all over 15,000 trucks were produced. It was used in armed forces and national economy. This model represents the early version with the wooden cab. The army ambulance automobile AS-3, automobiles PAZ-651, PAZ-653, and some other vehicles designed for special usage were built at Pavlov Bus Plant using the driving gear of GAZ-51. These automobiles were built in serial quantities.







218 GAZ-63 7226 GAZ-63A

The development of the new generation truck - GAZ-51 - started at Horky automobile plant yet before the war. After the purchase of American equipment GAZ could finally produce cross-country vehicles with all-wheel drive. The serial production of GAZ-63 started of September 31st, 1948. The early production vehicles had wooden-metal driver's cab like the one GAZ-51 had. Since 1950 this cab was changed to metal one. Along with GAZ-63, its modification GAZ-63A was produced. This modification had the winch installed at the front edge of the frame. The winch had 65 m rope and could develop the maximum traction force up to 4500 kg. It was actuated through vehicle's transmission. In 1968 the production of GAZ-63 was stopped - its successor was GAZ-66. This vehicle was widely used in the Army and exported to the countries of Warsaw Treaty and the Middle East. In total 474464 vehicles of GAZ-63 modifications were produced.

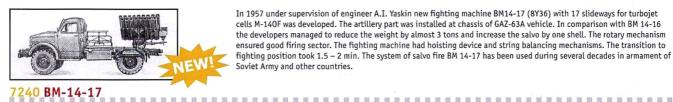




235 UPG-250GM 7238 PSG-65/130B

The installation UPG-250GM is designed for checks, pressure tests, and additional fuelling of hydraulic systems with hydraulic mixture AMG-10. It consists of engine ZIL-152B1, hydraulic system and electric equipment. The engine and equipment are mounted in the special cabin which in its turn is installed on the chassis of the automobile GAZ-51.

Station PSG-65/130B is designed for pumping fuel at the stocks of fuel-lubricant materials, filling of auto tanks and fuellers. Special equipment of the station is mounted on chassis of the automobile GAS51A in a special pumping cabin.



In 1957 under supervision of engineer A.I. Yaskin new fighting machine BM14-17 (8Y36) with 17 slideways for turbojet cells M-140F was developed. The artillery part was installed at chassis of GAZ-63A vehicle. In comparison with BM 14-16 the developers managed to reduce the weight by almost 3 tons and increase the salvo by one shell. The rotary mechanism ensured good firing sector. The fighting machine had hoisting device and string balancing mechanisms. The transition to fighting position took 1.5 - 2 min. The system of salvo fire BM 14-17 has been used during several decades in armament of Soviet Army and other countries.

Before the beginning of World War II Soviet design engineers had created a tank with the unique characteristics. Having had a good armament and armour, T-34 appeared to be an unpleasant surprise for the German Army in 1941. Soviet tankmen highly estimated and liked this machine for its reliability and practicability. In all more than 52.000 T-34 tanks of different modifications were produced.



224 Flak 38



T-34 ZSU Flak38

In the years of the WW II German anti-aircraft plant Flak 38 was adopted by German Air-defence Forces and was actively used in struggle against enemy's aircrafts. Single-barrelled and four-barrelled versions were built, as well as small anti-aircraft guns for using in highlands Geburgsflak 38. This model presents a four-barrelled version of the Flakvierling 38.

During the WW II German command made an active use of seized T-34 tanks. In this model the version with the German four-barrel anti-aircraft gun Flak 38 is presented. It was done anew in field conditions. The model is made on the base of the real machine, the photographs of which were published in mass





7211 T-34/85 Repair Retriever

7212 T-34/85 R.R. with winch

In the years of the Great Patriotic War Red Army, having the large amount of tanks, had few tractors and repair machines. Therefore, a repair retriever was created on the base of the tank T-34/85. Thanks to this experience in post-war period several types of retrievers with different specialized equipment were designed.



#### 7210 T-34/85 of the NVA type 63

During the Vietnam War, the North Vietnamese Army was provided with small number of ZSU-57-2 air defense vehicles. To supplement these, small number of T-34/85 tanks were modified with a new turret mounting the Chinese Type 63 twin 37-mm gun.



7204 2S6 "Tunguska"
The USSR military force adopted 2S6M «Tunguska» antiaircraft complex on September 8th, 1982. The main feature of this complex is gun and rocket weapons at one base, plus additional optic and radio fire command equipment with the usage of the radio location, digital and the hydraulic targeting systems. "Tunguska" is designed for anti-aircraft defense systems for armor and tank divisions at march and at all stages of battle action. It is capable of a full range of destruction of adversary's force (without the 'deadly zone' typical for anti-aircraft complex), which is achieved by the consequential firing of the target, first with the rockets, and then with the gunfire.





7220 T-34/D-30

T-34/85 tank was adopted into armament on December 15th, 1943. During the years of WWII over 52 000 of T-34 tanks were built in different modifications. T-34 tank took active part in military actions in Korea (1950), Near East (1956-1973), Vietnam, Ethiopia, Yugoslavia and other hot spots. During the Arabi-Israeli war, the Syrian army has re-equipped some of the tanks into mobile artillery units. The 122 mm howitzer D-30 was installed on T-34 tank instead of the gun turret.



#### 7222 D-30

A 122 mm howitzer D-30 was adopted into the armament in 1960. It was designed according to the new scheme: it had three trails instead of the usual two trails; its running gear was installed on the upper mount; also the jack was installed for lowering and lifting the gun when shifting it from one position to another. The howitzer is transported in the unusual way - with its barrel looking forward. The time of shifting the gun from the transportation position to the firing one is 1,5-2,5 min. The D-30 122 mm is a very reliable howitzer with small dimensions and weight. It is an unsurpassed type of the army artillery even nowadays.



7232 Egyptian T-34 SPG 122 mm #7232 T-34 has also been on Egypt's armament. Several tanks were substantially modernized. T-34 has a new tower installed with 122mm howitzer D-30.



**7239** Egyptian T-34 SPG 100 mm #7239 — Egyptian SPG, armed with the 100 mmBS-3 gun on the basis of tank T-34. One of such captured tanks is exhibited in military museum in Israel.



125 mm gun "Sprut-B" was built in Experimental Design Bureau – 9 in 1968 and accepted for armament. The gun is pulled by the truck "Ural -4320" or MT-LB prime mover. To move on the fighting field, the gun is equipped by the special power plant, produced on the basis of the engine MeM3-967A with hydraulic drive. The transition time from field status into fighting one – 1,50 min, and vice versa – around 2 min.

7231 Sprut 2A-45M

The most popular army jeep HMMWV was added to USA armoury in 1985. It has proved itself as one of the most universal, effective and mobile tactical vehicles of the present. In all more than 140 000 high mobile multi-purpose vehicles of different modifications have been made. HMMWV is widely used in armed forces of almost 40 countries.



7215 M966 Tow Carrier



7217 M1038 Four Men Cab



7219 M988 Two Men Cab



7223 M1025 Armament Carrier



7225 M1035 Ambulance

The UAZ-469 replaced its famous predecessor — the GAZ-69 at Ulyanovsk production line in 1972 and became the standard Soviet Army jeep for decades. The car was delivered to many armed forces around the world and was praised for its reliability and robust construction. Model kit # 3503 presents the UAZ-469 VAI version (VAI stands for Military Traffic Control service). # 3507 presents the SFOR version. # 3505 presents the UAZ-469 with KPV 14,50-mm large-calibre machine gun and # 3508 — UAZ-469 with 106 mm gun of the Northern Alliance in Afghanistan war. All UAZ-469 model kits are 1/35 scale and equiped with rubber wheels!



3503 UAZ-469 VAI



3505 UAZ-469 with KPV 14,5 mm machine gun



3507 UAZ-469 SFOR



3508 UAZ-469 with 106 mm gun

SCALE 1:35





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7255 Yak-1

7256 Ka-15M

7257 Yak-38

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#### Plastic model kits of military machinery

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