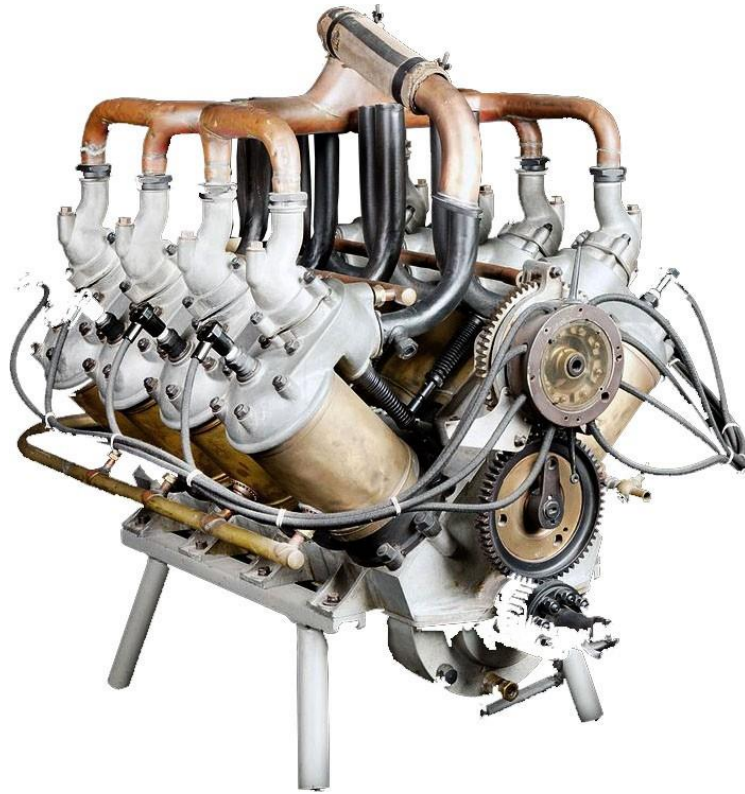


Antoinette V-8: the engine of the 14 Bis



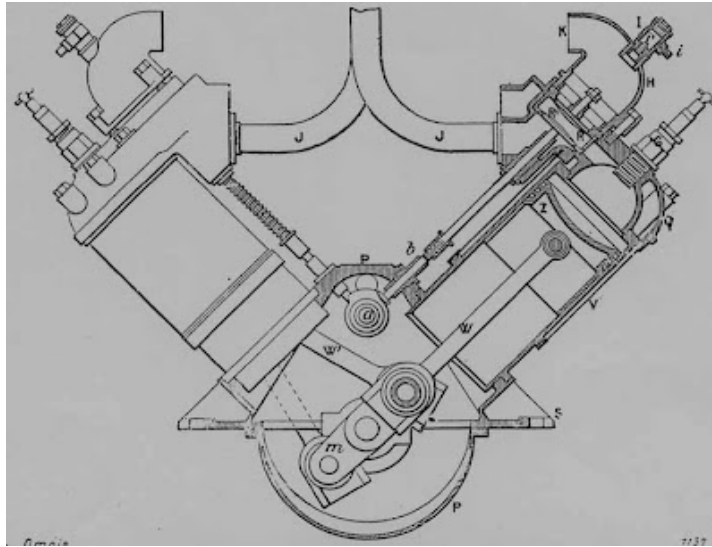
One of the biggest problems encountered by pioneering aviators was the engine. Obviously, there were no aircraft engines for sale, and the pioneers were forced to adapt automotive or nautical engines, or even build their own.

At the turn of the 19th to the 20th century, automotive engines were already well developed, but the power of these engines was either too low or the engines were too heavy to fit into an aircraft. The Wright brothers opted to build their own engine, but it generated a mere 12 HP, insufficient for basic flight functions such as take-off.

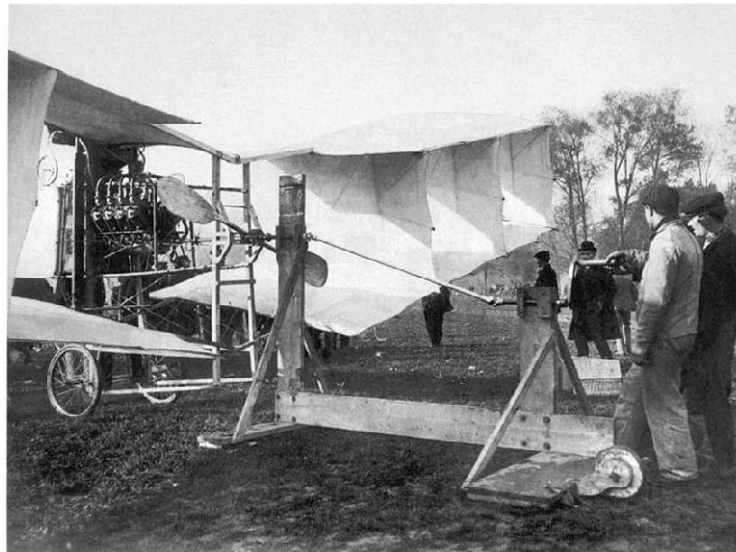
Alberto Santos Dumont, due to his experiences with airships, was very familiar with most of the engines available at the time. When he decided to abandon airships and build an airplane, he came to the conclusion that the best engine available was the Antoinette V-8, then used in speedboats.

This engine was created by Léon Levasseur and named Antoinette after a beautiful lady, Antoinette Gastambide, the daughter of his patron. Léon thus imitated Gottlieb Daimler, who named his cars and engines Mercedes after another beautiful lady, Mercedes Jellineck.

The Antoinette engine was first used in a boat in 1905. It was an 8-cylinder 90° "V" engine with 24 HP of power at 1,400 RPM. It had direct fuel injection, which was carefully filtered, supplied at high pressure and dosed precisely for each cylinder.



The cylinder bore and piston stroke were both 80 mm, and the original engine had a total displacement of just 3.2 liters. Cooling was of the "evaporative" type, the water from the cooling system was sprayed around the cylinders, removing heat from them as it evaporated. The accessories, such as the injection pump, oil pump and magnetos, were driven by gears or belts. The original engine weighed around 50 kgf and was started manually with a crank.



Santos-Dumont realized in his first experiments that the engine's 24 HP were not enough to get his aircraft off the ground. He replaced it with another Antoinette, also with 8 V-cylinders and very similar to the original, but with 8 liters of displacement and 50 HP of power at 1,100 RPM. This 50 HP engine was developed by Levasseur from the original 24 HP Antoinette, with the cylinders replaced by larger ones with a diameter of 110 mm and a piston stroke of 105 mm.

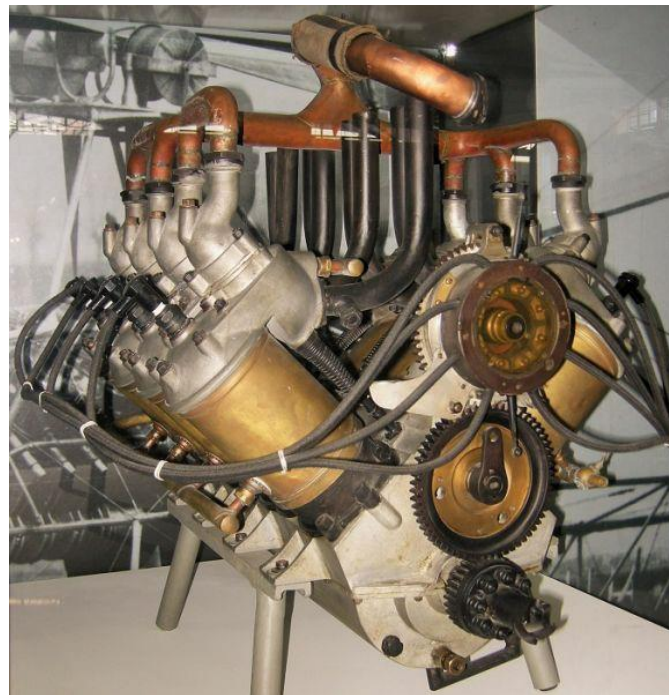
The 14Bis used the 50 HP Antoinette engine on all its flights, including the pioneering flight on October 23, 1906, until it was destroyed in an accident on landing at Saint-Cyr on April 4, 1907.

Santos-Dumont tried to install the rejected 24 HP Antoinette engine in the 14Bis in Demoiselle No. 19, but the aircraft never managed to fly on this configuration. However, it is more likely that the propeller, built on an aluminum frame spun with silk, was responsible for the aircraft's poor performance. At the time, the aerodynamics of propellers were in their infancy, and were probably more responsible for the inefficiency of the powertrains than the engines. The propeller on the 14Bis, for example, was more like a kayak paddle and wasted a lot of engine power.

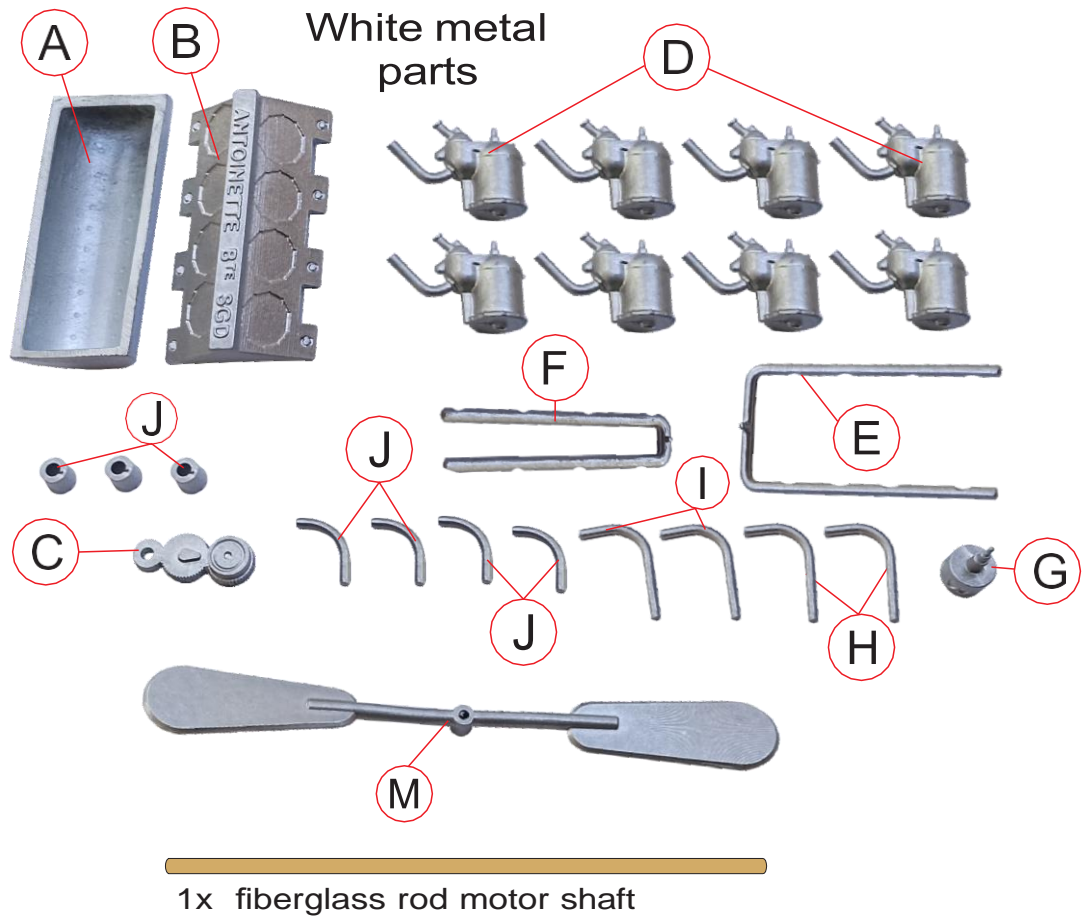
Levasseur later built a 100 HP V-16 engine by joining two blocks from the 8-cylinder Antoinette. Santos-Dumont used this engine in a reconstruction of his plane No. 15, which had crashed on its first flight test. This rebuilt No. 15 was renamed No. 17. The Antoinette V-16 engine was fitted with a wooden tripod propeller.

Airplane No. 17, however, was decommissioned before it could be tested, as Santos-Dumont was bet by his friend Charron, at a dinner party in Maxim's restaurant, to reach a speed of 100 km on water. Santos-Dumont accepted the bet, removed the Antoinette V-16 engine and its propeller from No. 17 and built Santos-Dumont No. 18, a type of airboat (photo below). This contraption, however, tended to sink at the bow when the engine was started at full power, and Santos-Dumont lost the bet.

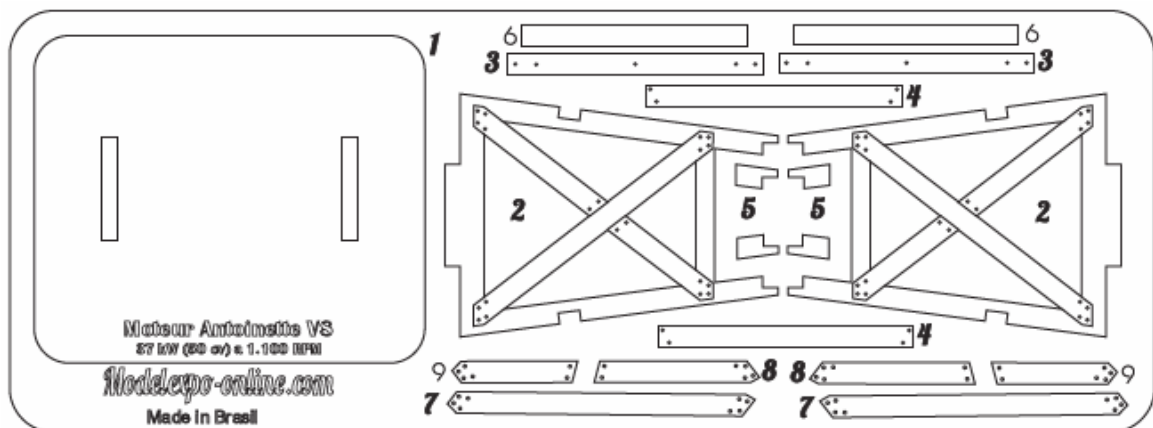
Levasseur also built a gigantic V-32 engine, which was never fitted to any aircraft. The Antoinette engines were the best aero engines built in the pioneering period of aviation, before the First World War, until the appearance of the Rhone rotary radial engines.



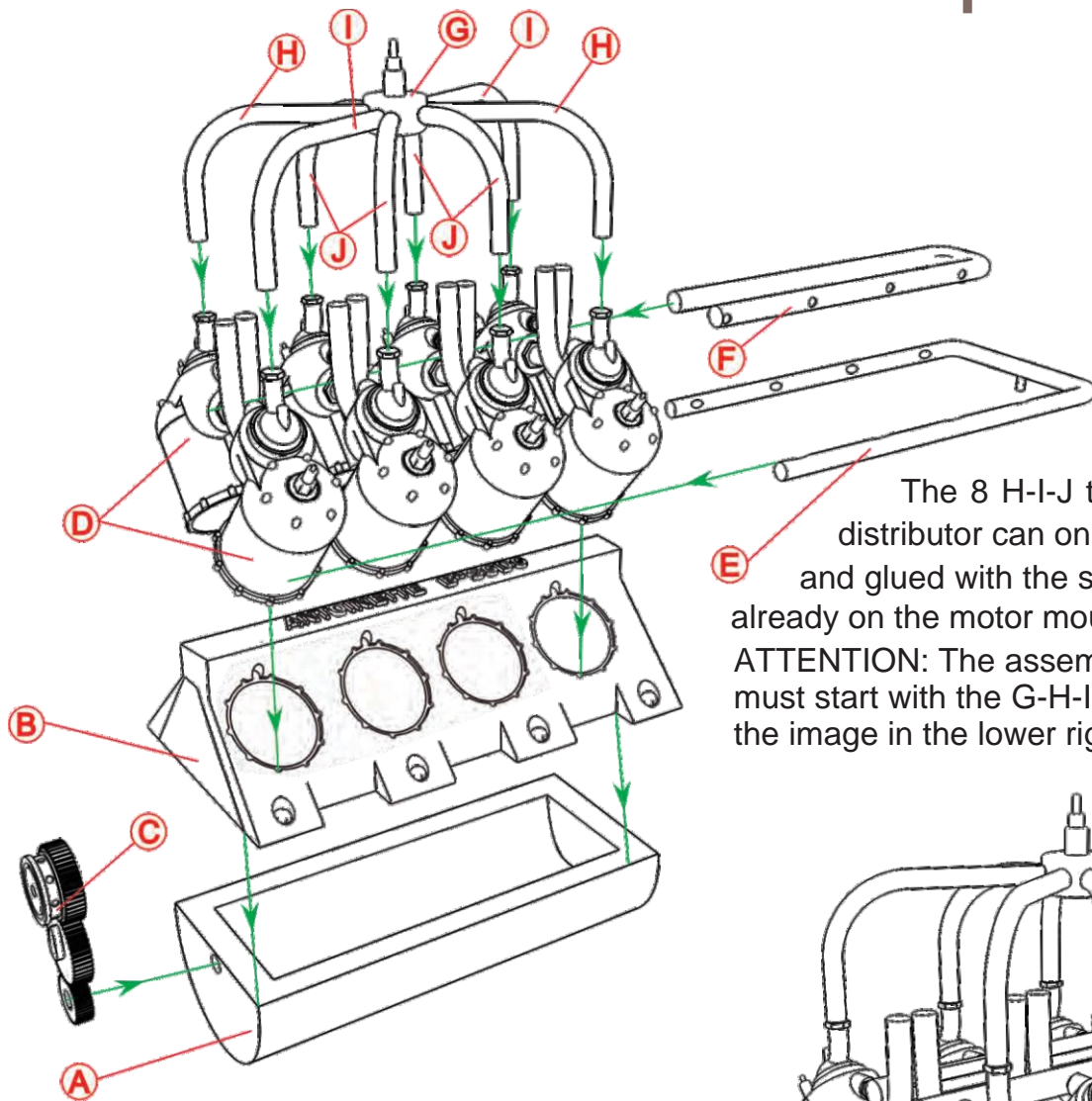
Metal Parts List



Wood Parts List



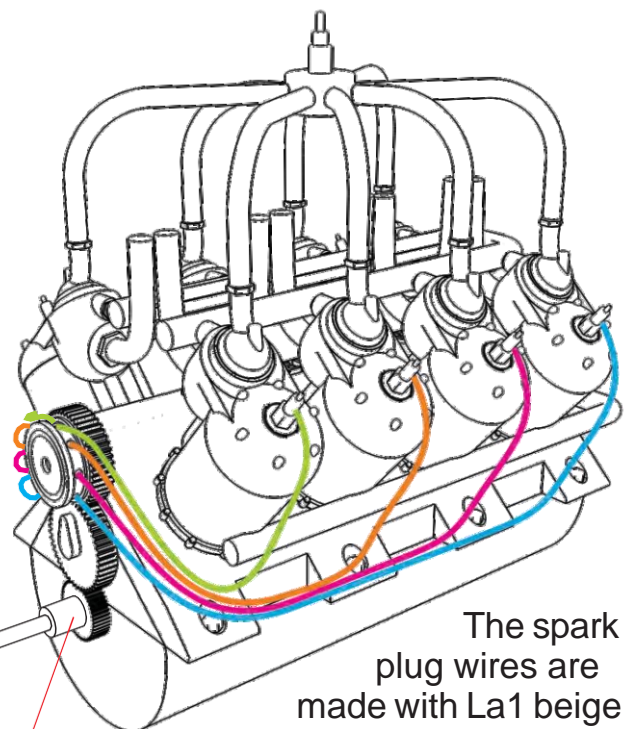
Antoinette V8 50hp Motor



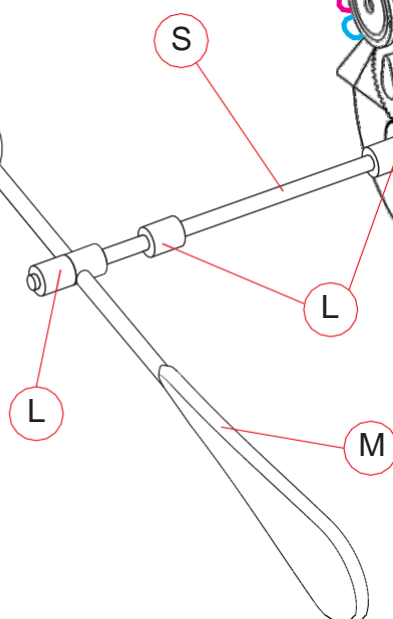
The 8 H-I-J tubes and the G distributor can only be assembled and glued with the set A-B-C-D-E-F already on the motor mounts.

ATTENTION: The assembly of the distributor must start with the G-H-I pieces, as shown in the image in the lower right corner.

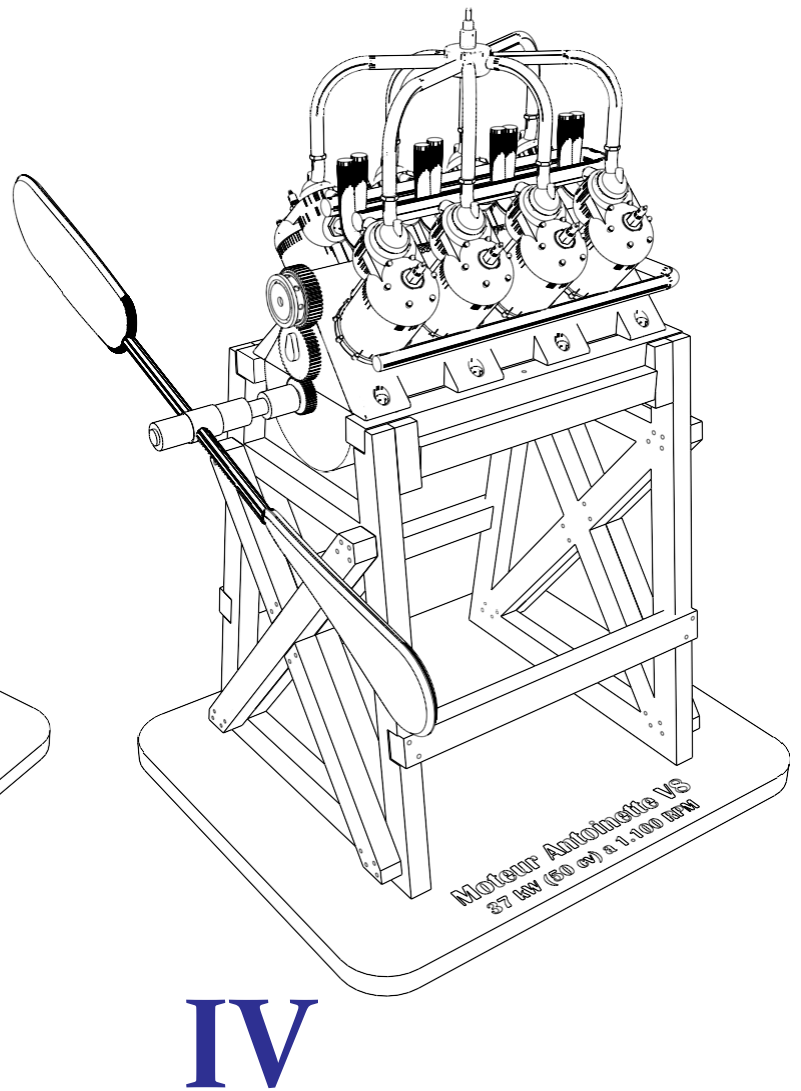
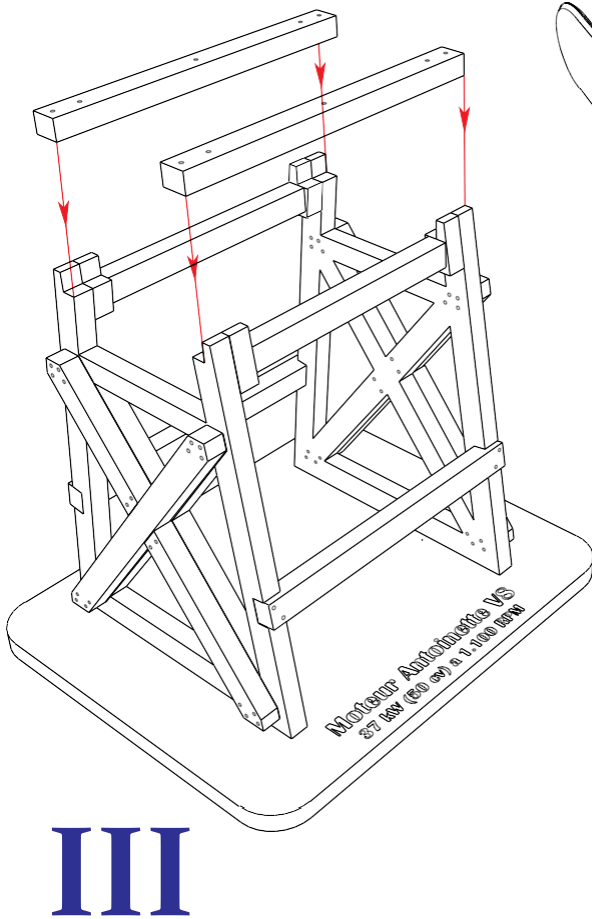
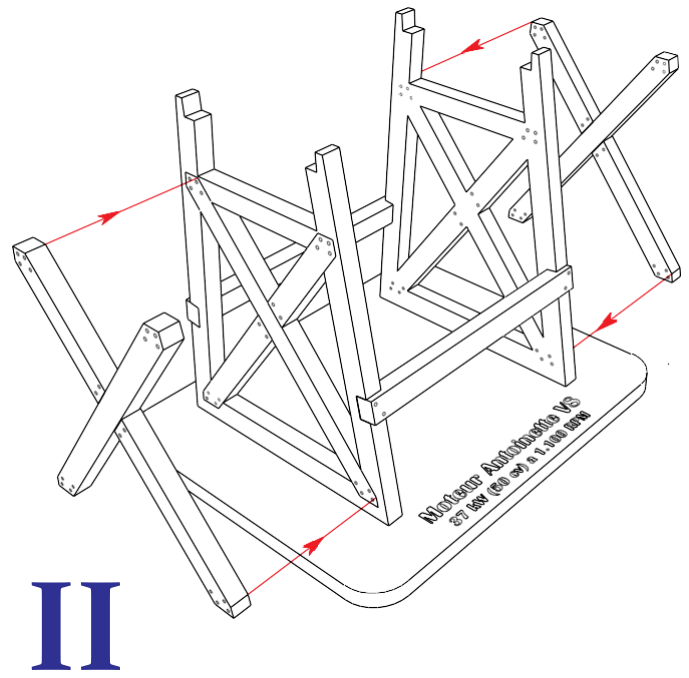
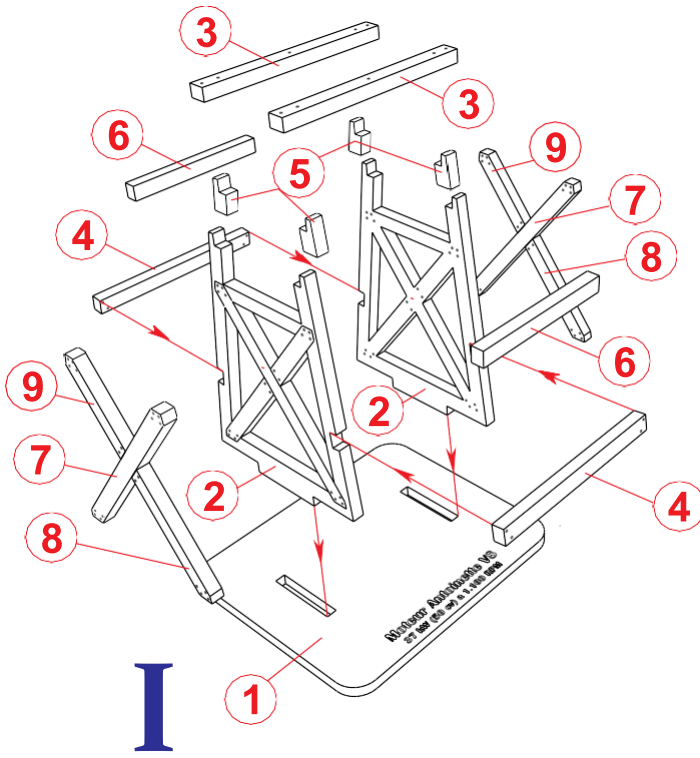
With the motor glued to the motor mounts, connect the propeller shaft S (70x1.6mm piece) fitting it through the propeller shaft bearing to the engine part C. Insert the 2 retainers L inside the nacelle. Place the propeller on the shaft without using glue. Connect retainer L and glue it to the shaft.



The spark plug wires are made with La1 beige cotton thread colored black. Make the arrangement with the help of a pin or toothpick.



Engine amount instructions

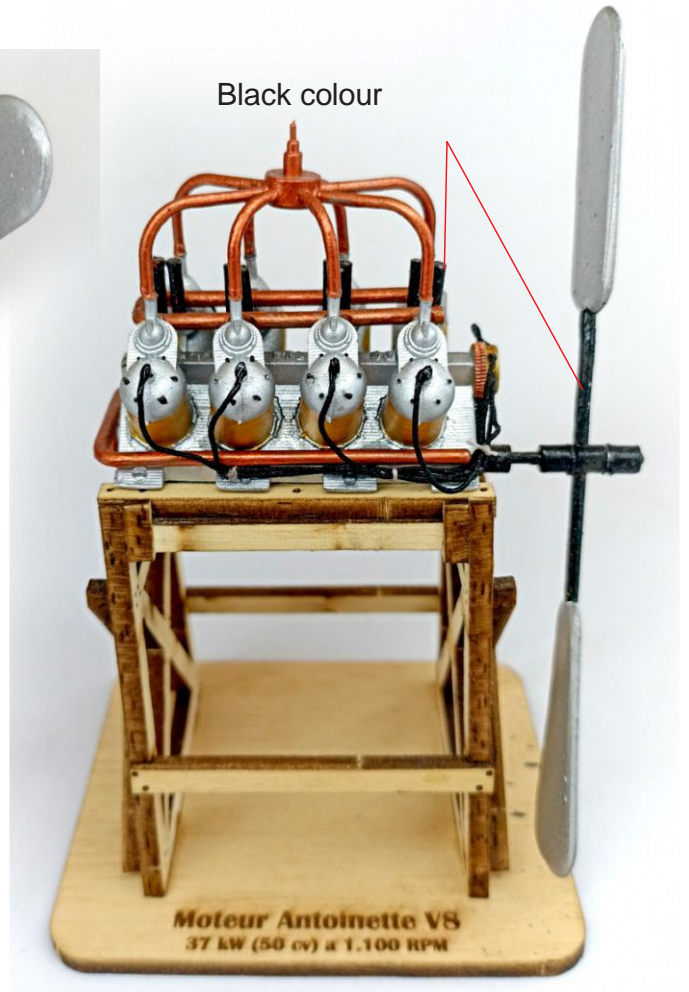


Actual engine model

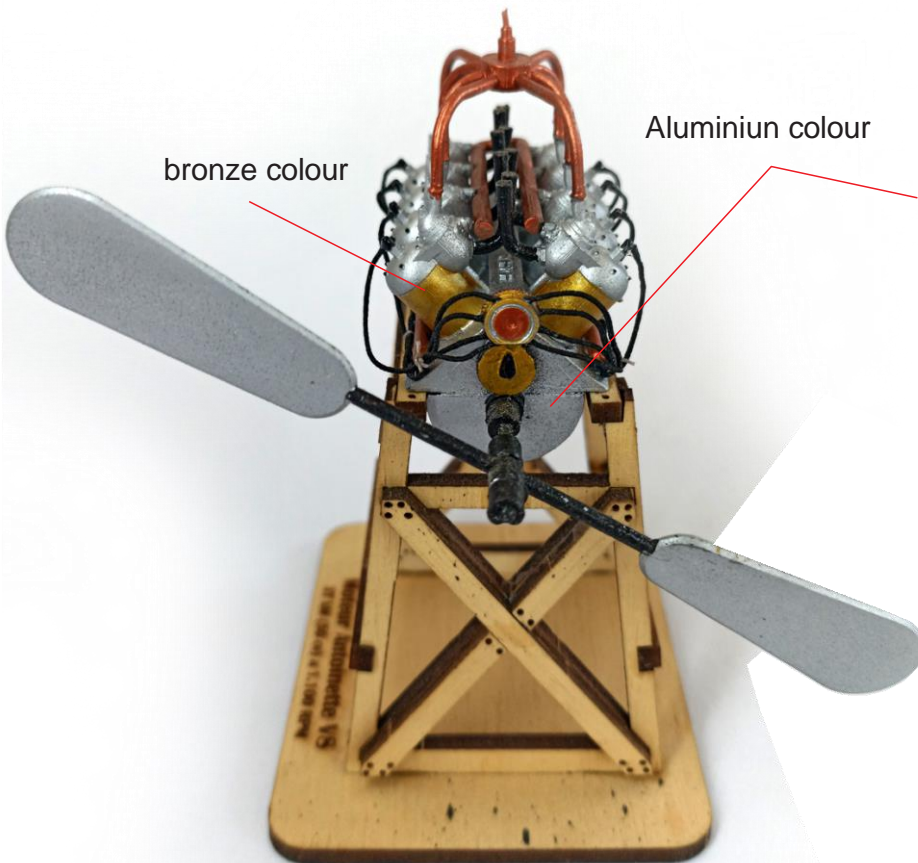
copper color

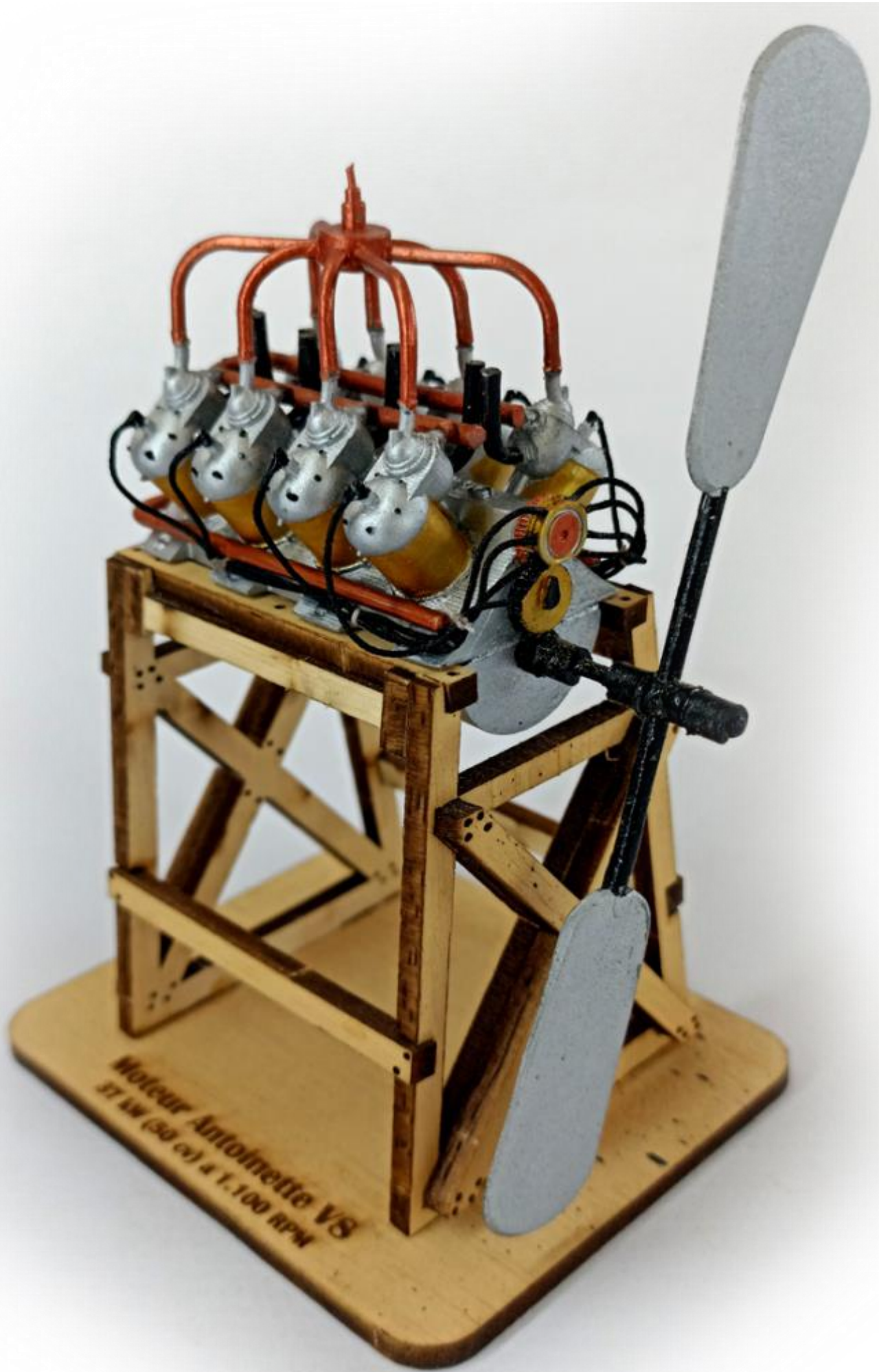


Black colour



Aluminium colour





Moteur Antoinette V8
17 CV (20 CV) à 1.100 RPM