

The Koban Twin 1914-1926

by J. L. Smith

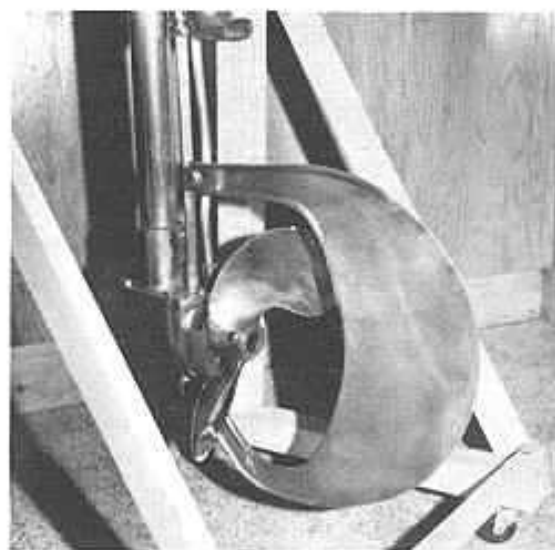
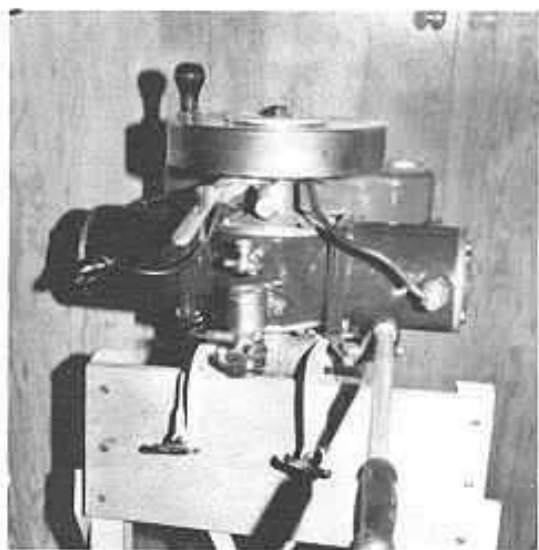
Modern outboard engineers take pride in pointing out the great pains taken to lighten their motors and obtain the most favorable ratio of weight to horsepower. This indeed may well be so, especially with the metals and alloys and engineering know-how available today.

Quite the opposite appears to be the case with the Koban, for no effort has been spared to make it heavier. In many areas solid iron is used, and in others, various grades of bronze and brass in generous amounts. In fact, by 1920 the iron content of the cylinders had been beefed up from the original, and this model weighed in at 85 pounds, although developing only 3 h.p. at 900 r.p.m. Inside those cylinders are solid iron pistons, each piston having two rings about half an inch wide. Extra-sized wrist pins are fitted and the large bronze offset connecting rods are secured to a crank of massive proportions. This is contained within the hefty iron one-piece crankcase. Circular aluminum alloy caps are bolted to the top and bottom of the crankcase and have bronze main bearings pressed into them. The top bearing has the traditional grease cup with an adjustable screw top to maintain pressure of the grease, and in the operating manual owners are admonished to give one half turn to the cap at each outing. These bearing caps have a good diameter to facilitate removal of the crank during disassembly. For those interested in figures, a pair of pistons with their rings, wrist pins, and rods weighed up at nearly four and one-half pounds, the walls of the pistons being five millimeters thick. Each cylinder is bored two and five-eighths inches, and the stroke is two and three-eighths inches. The sheet iron gas tank has a particular form characteristic of the Kobans, having a half oval top and a funnel-shaped base. A heavy bronze filler cap is fitted.

Steering by means of the large bronze rudder is strictly mechanical, the tiller being hooked up to the rudder through a series of linkages and pivot points. Everything below the powerhead and iron mounting bracket is either brass or bronze, right down to the hefty two-blade ten-inch bronze propeller. This motor features a unique adjustment capability for the depth of the propeller in the water. By loosening the nut on the lower end of the bearing plate, the brass drive shaft housing, or shaft sleeve tube as it is called in the instruction book, can be extended a maximum of five inches. This is made possible because of a telescoping arrangement for vertical rudder post, water inlet tube and drive shaft. In addition to this feature, suitable tilt to compensate for transom rake is possible by loosening two large bracket nuts. Serrations are provided for very positive engagement when nuts are retightened.

In its advertising Koban described itself as the world's greatest rowboat motor, without equal, and mentioned prominently that, being built on different lines with opposed two-cylinder construction, it did not shake the boat. It was in fact not the first opposed twin, for Archimedes of Sweden had this as early as 1912. Koch and Bannon devised their motor in the fall of 1913 and set up their shops at 241 South Water Street, Milwaukee, Wisconsin so that the product could be

marketed for the 1914 season. The name Koban was coined by a clever abbreviation of both their names. About the same time both Federal and Arrow presented two-cylinder motors, but it is generally thought that Koban released the first practical domestic-made opposed twin in any quantity.



In his excellent and informative article regarding Kobans in the April 1969 issue of the *Outboarder*, Richard Hawie presents pictures of several models and many facts pertaining to them. The 1914 model shown had finned detachable cylinder heads, above water exhaust and battery ignition. The ad mentions weedless rudder and propeller and further describes the motor as having double the power with 50 per cent more speed. None of the 1914 models are known to exist, at least among those registered with the Club. There are substantial changes in the 1915 model shown in the same article. It has a magneto, a rim-type flywheel with no starting knob, muffler with underwater exhaust pipe, cylinders integral with crankcase and smooth cylinder heads with the name Koban cast in. The float feed carb was mounted on the front of the right-hand cylinder facing the motor. Fuel passed to the crankcase by means of a passage cast into the cylinder wall. Evidently from the 1915 models on, underwater exhaust was an option, as our members in a recent survey reported a variety of installations, some above and others below water exhaust. Dick Hawie's 1917 catalog describes it as an option available for an additional \$5.00. The 1915 models could be bought either with battery ignition or magneto, but it is not clear if there was a difference in price. Six motors of this time are registered with the Club, the oldest belonging to Mr. A. Violet, and they all have battery ignition. By 1917 the Model D had a bronze check valve type carb of Koban manufacture located centrally on the front of the crank case. Some of the earlier C models with the offset carb were still available.

A further change was made to the Model D in 1918 when the rim-type flywheel gave way to a brass sheathed conventional appearing type but with the installation of a man-sized cranking handle. This flywheel weighed 14 pounds. Underneath the flywheel, the mag plate was not completely round, but was made in a V-shaped segment. Although described as an aeroplane-type breaker, the whole set-up appears very ordinary with the usual coil, condenser and spring-equipped points operating from an eccentric on the flywheel hub. The carb has a needle valve, and in addition its entire base can be rotated on threads by grasping its knurled edges. This regulates the speed, together with the timer lever, which is set centrally for high speed. For reverse, the operator presses the button on the timer lever, moves the lever about ten degrees to the right, and releases the button again. Evidently grounding the condenser and making the spark come early did the trick. The mag lever would again be centralized and

making the spins come only one way. The big job would again be centralized and everything done quickly to prevent the motor from stopping. Perusing the book of instructions, it is interesting to note that only one quarter pint of heavy oil per gallon of gasoline was recommended.

Just about all of the post-1915 models registered with the Club are magneto models. The next and final change in design came in 1920 when the motors were made with detachable cylinders. As previously mentioned, the cylinders, while retaining the same bore, were made considerably heavier, about 7/16 inch being added to their diameter; and larger water passages were cast in, although no water cooling was supplied to the heads. It was probably felt that these, being of aluminum alloy, could dissipate the heat readily. It is assumed that the magneto was usual with the later models, although the underwater exhaust was optional. When it was so equipped, a manually-operated shutter in the muffler could provide an above-water exhaust outlet for starting or whenever desired by the operator. The muffler itself is a simple brass tube about three inches in diameter. At each end cast aluminum alloy manifolds connect to the cylinder exhaust ports. A brass priming cup was mounted on the crankcase just above the carb.

A description of the Koban would not be complete without mention of the unusual cooling system. There are two bronze gears in the aft section of the lower unit, the upper being keyed directly on the prop shaft, the lower operating off the upper. Portions of the upper gear are exposed to the open water so that when the motor is running water is "folded in" and squeezed into a compartment either to the left or the right of the unit, depending on whether the motor is going forward or backward. A ball bearing covers the orifice over each compartment, allowing passage of water only one way, again depending on which way the gears are rotating. When one bearing is up, the other will be down, acting as a check valve. The whole system is dependent on relative water pressure, but has dangers, in that the ball bearing may become stuck with corrosion or foreign material may become caught in the gears. Water thus pumped is conducted up by a pipe to the cylinders and exits from the top of each cylinder through a short curved pipe.



Owners of Kobans registered with the Club were surveyed for information regarding their motors, and responded with great cooperation. There are at least 21 known Kobans in existence and possibly more. From the serial numbers supplied it might appear that Koban used the first

number or two to denote the year and the following numbers for the production of that year. For example, Violet's motor bears serial number 5,543. The first figure denotes 1915, his being the 543rd motor produced that year. The remaining five motors of this period are as follows: 5,570 (Brooke); 5,667 (Brautigam); 5,926 (Strot); 5,949 (Seibel); and finally 5,998 (Weidman), this being the last of that year registered in our Club. Hawie's motor 6,353 would be a 1916 and so on down the list until Seibel's 22,035 would be the 35th motor produced in 1922. The motor pictured with this article, bearing serial number 20,423, would be the 423rd motor produced in 1920. [This interpretation is strictly personal, and any comment from members would be welcome.]

We have no later models than this registered; and while there must have been Kobans produced and sold during the three-year period subsequent to 1922, Koban must have been feeling the competitive pinch from Evinrude, Johnson, and Elto, who were by this time marketing much lighter and speedier machines. The Koban Outboard Company was purchased by Walter O. Hoth and a partner, Otto Schellin, sometime shortly after World War I. These gentlemen are now deceased. The concern was bought out in 1926 by Evinrude. There is no reason to believe that Koban production continued from that time, but the new owners probably supplied service and parts as long as they were available.

The principle of opposed two-cylinder construction for outboard motors is outmoded today, but there is no doubt that Koban put forth an idea that was destined to last for 35 years and made a very real contribution in the search for smoother and dependable machines.

