

# KF9—the Mercury Mystery Motor

KF9\_The Mercury Mystery Motor..doc

Gary Orloff / Wmohat

Edited 4/2/2020

**By Gary Orloff**

I recently got an email from my good friend Mr. Scott Wimbush. Scott is a active member of our Western Reserve Chapter and has a true love of all old outboards that is only surpassed by his knowledge and ability to work on them. He made a proposal to me that I suspect will result in some interest and questions from the Mercury lovers in our club. What Scott said is, “Gary, I think I have a good suggestion for your next story for *The Antique Outboarder*.” Of course this piqued my interest and I wanted to know more of what this story might be about.

Scott went on to say, “What would you think if I told you Mercury made a tractor lower unit for one of their motors?” For Scott to say this, I knew he’d discovered something that convinced him it was worth pursuing. “What are you talking about?” I asked. He went on to tell me, “Mercury’s first four cylinder, the KF9, has a Y pipe water tube that feeds the powerhead.”

“OK, now you’ve lost me,” I said. “Describe this pipe to me and how it works.”

“The Y of the pipe faces down toward the lower unit,” said Scott, “and depending on which way the lower unit is installed, one side of the Y directs the water from the pump up to the powerhead.”

I said, “OK, so you’re saying the lower unit can be installed backwards, with the propeller facing the front of the boat?”

“Yes,” he replied. “There are two holes in the lower unit where it splits from the midsection. One of them is blind and the other is from the discharge of the water pump. One side of the Y pipe fits into the hole from the pump and the other fits in the blind hole. When you install the lower unit with the propeller facing forward it reverses the position of the two holes so that now the original side of the Y pipe that was feeding water fits into the blind hole and the discharge side hole from the pump fits to the side of the Y pipe that originally ended in the blind hole. No matter which way the lower unit is assembled the pump can deliver water to cool the engine!”

He went on to say there are a number of other things that suggest this was an intentional design. “When the lower unit is installed as a conventional pusher propeller style, the stud that is on the leading edge of the lower unit and holds the unit onto the midsection has a small V shaped block that streamlines the lower unit, and when the lower unit is installed as a tractor, that same V block can be installed on the propeller side edge to streamline it when it faces the water from that direction!”



(Left Picture)  
**Side View of the two different notches where the V Block can fit.**

**View of the supply hole from the water pump (right hole) and the blind hole (left hole) that the Y pipe fits into.**  
(See picture below)



Another convincing point is the way the water intake is designed. As a pusher style the intake is on the lower port side of the gear case, and when the lower unit is installed as a tractor the intake is on the lower starboard side. In either case it is in the direct stream of the flow of water, as the holes into the pump housing are almost centered in the grooves.



**KF9 Water Intake Holes (above)**



**Looking down at the Y Pipe inside the lower unit!**



**Looking down from above the lower unit, the second hole down from the top is the water supply from the pump. The third hole down is the blind hole the "Y" pipe fits into!**

**The top and bottom holes are the stud holes that hold the "V" blocks in place.**

One more point of interest is the way the skeg is designed. Both sides of it are curved so it didn't matter which way it faced the water flow. (See the picture below, on the right).



**Standard Pusher Position (V block in FRONT)**



**Tractor Position (V block in REAR)**

Now the interesting thing is, did they ever manufacture a propeller for when it was installed as a tractor lower unit? Think about this: Facing the propeller shaft from the front of a boat it would still turn in a left hand rotation, but the hub of the propeller would have to be with the large end facing the gear case and the blades would have to be designed to draw water across the hub from the small pointed end to the large end that mated to the gear case! Would it be classed as a left hand rotation when viewed from the front of the boat or a right hand rotation when viewed from the rear of a boat across the gear case? I have checked the Michigan Wheel catalog for Mercury KF9 propellers and have never found a tractor propeller for a KF9, so this poses the question: Has anyone ever seen, tried or know of a KF9 engine with the lower unit installed as a tractor lower unit, and if so what propeller did it have on it? It would be possible to use a right hand rotation propeller mounted backwards if it had a small hub section and used a spacer behind it to blend with the gear case, but I don't know if anyone has tried that idea.



**A right-hand rotation prop, that could have been used on the KF9 in Tractor Drive configuration.**

One other thing that concerned me is about thrust. If the unit were mounted in the tractor position the thrust would be reversed from a pusher style propeller. Being that this lower unit is all ball and roller bearings it should not pose a problem from the standpoint of the gears and bearings. According to the drawings of the KF9 lower units, the load would first go against the bearing, which is held in place by the water pump housing, which is held in place by the threaded water pump cover, so reversing the thrust should be handled by all the parts in the lower unit assuming the ball thrust bearing is designed symmetrically and can handle thrust equally from either direction.”

As an added bit of information, after I called Michigan Wheel and they didn't know of any propellers they had made for the KF9 in the tractor position, I wondered who might know more about this mystery? The only person I could imagine that might have the answer was none other than Mercury's very own Chief Engineer, Charlie Strang! So I called him and asked if they ever ran many tests with the KF9 in the tractor position, and if they did what propeller did they use? Charlie said they did run some test with it in the tractor mode but it was so unruly in the turns they never promoted it! The props were specially made just as experiments and none were ever manufactured for production! Being the engine was a one year production and the castings were already in production they decided to just let it go thru! So I guess there's still some unanswered questions about why Mercury went to all that trouble?



**KF9 mid section and lower unit, partially disassembled to show where the Y pipe comes down from the powerhead!**



**KF9 lower unit with V block installed on the leading edge for the standard "pusher" setup!**



**KF9 set up for Tractor Mode**



(above)

**Old picture of KF9 in Pusher Mode**



(Left)

**At the Piston Power Show in 2019, set up in “Tractor Mode”. This did raise a few eyebrows!**

As an additional note, neither the KG9 or the Mark 40 has the Y tube water pipe, but the blind hole is still in those two engines and according to Scott it was a one year design. I have checked the Mercury manual and there is no mention of it, so the mystery continues!

**Keep the Blue Smoke Flowing!**

...

\*\*\*\*\* END of ARTICLE \*\*\*\*\*