

Getting the engine to turn on for the first time:

- Replaced all fluids.
- Disassembled part of the engine to expose the carburetors (this is an old boat so it has carburetors rather than fuel injectors which simplified the project).
- Without removing the carburetors (this will be important later on) we used “Carb Cleaner” in order to flush out all of the old gasoline and oil that had been stuck there for multiple months.
- After assembling the engine back and spraying starter fluid, the engine finally turned on for the first time but it wouldn’t run continuously.

Troubleshooting, First Attempt:

- We started hypothesizing about possible things that would cause the engine to stop running. After some days of thinking and analyzing multiple engine diagrams specific to that engine, we concluded that the issue had to be either lack of gasoline getting to the engine or lack of air.

Action taken:

- We opened the carburetors more by twisting some screws which would potentially allow for more gas to flow in.
- We replaced the fuel lines with new ones since the original ones looked cracked due to continuous exposure to sunlight.
- We replaced the fuel filter with a new and bigger version. This filter was also clear so it allowed us to check how much gasoline was going through it.
- We replaced the gas pump gaskets to ensure a perfect seal and prevent any loss of pressure on the side of the gas pump.

Results:

- Increasing the gas flow into the carburetors didn’t have any effect on the engine performance but it made a fuel leak more noticeable on the lower side of the engine.
- The new “see-through” filter provided valuable information since we noticed there was air going in to the filter as well.

Troubleshooting, Second Attempt:

- After some brainstorming, speaking to boat engine technicians, and disassembling the engine again. We decided to go a step further by removing the carburetors from the engine bay. This allowed us to have a better look at them.

Action taken:

- We completely disassembled the carburetors.

- Deep cleaned the engine bay and checked for any fuel or air leaks that we might have missed during the first disassembly.
- Analyzed the fuel line coming from the gas tank.

Discoveries:

- While disassembling the carburetors, we found out a tiny hole inside them was completely blocked by “gunk”. We completely cleared these obstructions and proceeded to putting the carburetors back together.
- The fuel line coming in from the gas tank had a leak which was allowing air to flow into the gas pump and affecting pressure.

Results:

- The engine turned on perfectly and it would stay on while idling.
- Multiple fun weekends to Medina Lake and Canyon Lake throughout spring and summer.

Final tweaks:

- Adjusted the throttle so the boat could have a smoother acceleration.
- Rewired one of the boat gauges in order to make it function properly again.