



"Serving to Serve Again"

Carburetor vs. Fuel-Injection

Some clients think because we remove the fuel injection system from the Factory Rebuilt and New engines we buy from TCM and install a carburetor in its place that we are against fuel injection. This isn't the case. The reason is...Cessna built the airplanes, 180/182 to utilize a carburetor and TCM built the fuel-injected engine for a completely different airplane. Thus, the fuel-injected engine will not fit into a Cessna 180/182 without major airframe modifications.

For some owners, the thought of cutting holes in the stainless steel firewall and then installing fuel reservoir tanks inside the cockpit, where the people are, plus the additional labor cost and weight is rather objectionable. It is much easier and we think, much safer to modify the engine to fit the airframe. No airframe modifications with our 470, 520 or 550 engines with carburetors.

To address concerns regarding "carburetor ice", I know exactly what you are talking about. Years ago I was a traveling salesman for Chrome Plate selling chrome cylinders along the east coast from Maryland to Florida and west to Louisiana. About one fourth of my time was actually IFR in my 1962 Skylane.

Traveling an area that large, in the wet weather, sparked my interest in going faster and being able to climb above the clouds faster/easier, thus minimizing the carburetor ice exposure. We have achieved, with some degree of success, our goals. *"Real Pilots never go fast enough."* Most of our customers see an increase in airspeed of 15-18 knots. Most of our customers buy the 280 HP engine and the most popular Hartzell Buccaneer propeller.

Propellers do make a difference. We have two and three blade propellers approved, Hartzell and McCauley. You aren't limited to only one model. *"Real Pilots like a choice,"* then they're really confused. Seriously, we know which propeller/engine combination is best for the operation to be performed however, we like for our customers to try various models of propellers if there is any question about which model propeller will be best.

As for the carburetor ice, we use the same model carburetor on our modified engines that your original engine uses, the MA 4-5. We modify the carburetor to allow more fuel to flow through the throat of the carburetor. Not as much vaporization takes place in the throat of the carburetor, but rather in the intake pipes just under the "hot" cylinders. Yes, you can still have carburetor ice, however, it is no where near the extent that a normal 0-470 would have. We have talked to many customers about this and find that carburetor



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ice is no longer a problem. Having said that, we do not remove the carburetor heat system when we install a larger engine. It is there if you need it.

Fuel injected engines never get carburetor ice simply because they don't have a carburetor. They get "induction ice". The aircraft with a fuel-injected engine must have a way to compensate for the ice problem. Some call it "Alternate Air" while the Commander aircraft call it "Induction Heat."

There are many controls in the cockpit all in easy reach of the pilot. "Real Pilots" instinctively reach for the proper control, cabin heat, windshield defrost, induction heat or carburetor heat. Again it is irritating to be reaching for carb heat every few minutes. Real Pilots get scared, been there done that.

Because of the modifications that we have made to the engine and carburetor, we no longer have the severe carb ice problem of a standard Skylane. During the last twelve years of flying my and other Skylanes with our modified engines, I have used carb heat one time.

Jack Johnson



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CARBURETOR

VS

FUEL INJECTION

GRAVITY FED SYSTEM

ENGINE DRIVEN FUEL PUMP

Gravity never Fails	Standby electric pump for use when engine driven pump fails
No airframe modification required. No fuel tanks in cockpit	Extensive costly modification required. Holes cut in firewall, fuel tanks installed in cockpit. "Real Pilots don't like fuel tanks installed beside their feet".
Carb Heat available if needed	Induction Heat or alternate air available if needed.
Cessna built the airplane to utilize a carbureted engine.	Additional instrumentation and controls required for injected engine.
Very, very unlikely that the large fuel jet in the carburetor can ever get blocked. One nozzle feeds six cylinders. It has a "big hole".	A fuel injector nozzle feeding only one cylinder is easily blocked causing one cylinder to stop running or a fuel nozzle partially blocked causing extreme high EGT and possible engine failure.
We derate the 300 HP engine to 280 and 285 HP by a red line on the manifold pressure gauge at 26.5 and 26" and reducing the RPM to 2700 and get a 2500 hour TBO.	Standard ratings for an IO-520 are 300 horsepower at 2850 RPM and 29.92" MP limited to 5 minutes, then reduce to 285 HP at 2700RPM. The IO-550 is 300 HP at 2700 and 29.92" MP. Both engines have 1700 hour TBO
Texas Skyways has more propeller models available than any other modifier.	
Less maintenance and can be maintained by lesser skilled personnel.	Very sophisticated system requires specialized testing equipment for service and adjustment.