Barkhorn Precision Engines
Vista, CA

Reg. : MSA Carburetor 10-3103-1 S/N Y-42-4326

Carburetor came in for overhaul on 10/24/01.

I installed an AP-FLOAT for the first time. I remember the FLOAT was difficult to set up, but bench tested O.K.

During the month of February, carburetor was returned for failing to idle below 1100 – 1200 RPM in flight. I removed the Idle Tube, looking for obstructions or contamination and found nothing. I removed the Idle Adjustment Needle and blew compressed air back through the carburetor and blew air through every passage. I reassembled the carburetor, connected it to the test bench and was able to stabilize the fuel level by adjusting the Float several times. At this time, my main concern was the Idle Circuit, since the complaint was "Not Idling". I realize now, I was totally mislead by the idling problems of the carburetor, While dealing apparently all along with an **intermittent** leaking Float Valve, which made the carburetor work fine under power but loaded up the engine, when power was reduced. I have personally overhauled nearly 400 carburetors in the last 20 years (according to my records) most of them in the 1980ties and once we all learned to give the Needle Valve plenty of clearance while it was hanging of the Metal Float and still retracting the Needle Valve of it's Seat in the down-position, we had **predictability.** With the AP-Float, we have lots of **uncertainty.** We never know how the AP-Float will react inside the Bowl with it's marginal pontoon clearance of .031"min., given

all the variables, and we don't know if that required clearance between Needle Valve Retractor Clip and Float Valve shoulder, however marginal, **no** value is given; is it .001"? , .010"? or even .050"?, (the last one would work for me,) will disappear when the AP-Float is bouncing around inside the Bowl during flight. To duplicate that scenario on our factory-recommended test bench, I don't think is possible. To say the least, the Installation Instructions are incomplete, not precise at all and misleading.

In conclusion, the carburetor was returned to the shop again on 2/26/02. This time for a leaking Float Valve. A new CF Float Valve was installed; the AP-float carefully adjusted and after several attempts the Fuel level stabilized on the test bench. The carburetor was released for service and failed in flight, killing a decent man, who left behind a wife and a 13 year old daughter. And that is something I have to live with for the rest of my life.

Gerhard Barkhorn