

From: [REDACTED]
Subject: RE: N6864Q / Questions (WPR19LA128)
Date: Wednesday, October 16, 2019 1:32:16 PM
Attachments: [image001.png](#)
[image003.png](#)
[image004.png](#)

Thanks Henry for the information and pointing out that our maintenance manual is incorrect.

I did a little digging and found that the 520 engines do not come standard with the altitude compensating pump, only the 550 Bonanza engine came with it standard (and many people took them off and put a regular 550 pump on it). In fact, talking to Phillip he says the BA engines will not accommodate an altitude compensating pump at all so I am sure you will be looking at the regular pump (and I looked at the IPC and it says it has a normal pump).

I will contact our tech pubs department and have them fix the Fuel Pump description for the next revision.

KURT GIBSON
Air Safety Investigator

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From: Soderlund, Henry [REDACTED]
Sent: Wednesday, October 16, 2019 4:08 PM
To: Kurt A. Gibson [REDACTED]; Huhn Michael [REDACTED]; Swick Andrew [REDACTED]
Subject: RE: N6864Q / Questions (WPR19LA128)

Knowing Kurt is swamped I did some digging on fuel pumps:

The S35 can have either a IO-520-B or IO-520-BA engine. Both use the same fuel pump. From the engine maintenance manual, "The IO-520-B, BA, BB, C, CB, M and MB type fuel pumps utilize an aneroid and rod assembly that assist in controlling fuel flow. The aneroid housing is referenced to ambient air pressure. The aneroid bellows expands when the air pressure surrounding it decreases. As the aneroid expands it moves the rod increasing the size of the orifice opening. An increased amount of fuel flows through the orifice to a recirculation path. This decreases fuel flow from the fuel pump to the fuel control unit."

From the IO-550 operator's manual: "Altitude compensating fuel pumps are readily identifiable by an aneroid housing, protruding either from the side or bottom of the fuel pump body. The aneroid housing contains a bellow assembly which reacts to atmospheric pressure. The adjustable aneroid works in series with the un-metered fuel pressure to adjust pump output pressure as barometric pressure decreases.

So, it appears that the 520 pump uses the aneroid to control the amount of fuel flow through the pump while the altitude compensating pump uses the aneroid to control fuel pressure.

Now, I am just an airframe investigator so take everything I say with a grain of salt because I could be totally misreading this stuff so hopefully Kurt will have time to double check my work.

Here is the 646212 style pump in the IO-520



Here is a pump with the external aneroid



Henry J. Soderlund
Senior Air Safety Investigator, Air Safety Investigations
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[REDACTED]

From: Kurt A. Gibson [REDACTED]
Sent: Wednesday, October 16, 2019 2:52 PM
To: Huhn Michael <[REDACTED]> Soderlund, Henry <[REDACTED]> Swick Andrew <[REDACTED]>
Subject: Re: N6864Q / Questions (WPR19LA128)

Thanks Mike for the info. When you all are out there if you are able to take a photo of the fuel pump I should be able to verify whether or not the fuel pump is an altitude compensating pump. I will still try to dig up some information on the altitude compensating pump in case he was incorrect (although I am sure the previous owner would have known whether or not he had one of these pumps). Feel free to call me if you have any questions while performing the cursory look at the engine.

As far as your question regarding if the crate should be shipped prior or not, I went ahead and filled out the request for a crate; although I do not know if it will make it there prior to the examination.

Kurt Gibson
Air Safety Investigator
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Office: [REDACTED]

Sent from my Samsung Galaxy S10e

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From: Huhn Michael <[REDACTED]>
Sent: Wednesday, October 16, 2019 11:02:49 AM
To: Kurt A. Gibson <[REDACTED]> 'Henry Soderlund' <[REDACTED]> <[REDACTED]> Andrew <[REDACTED]>
Subject: FW: N6864Q / Questions (WPR19LA128)