# Accident notes

Jacob Karp, student, hereafter referred to as Jacob
Second Class Medical 02/13/2019
Student Pilot Certificate [redacted] issued 04/10/2019
[redacted]

George Leo Schmalz, instructor, hereafter referred to as George
Second Class Medical, dated 01/09/2019
Commercial Certificate [redacted] issued 04/28/2006
Flight Instructor Cert [redacted] issued 8/12/2019
Last Biannual 08/12/2019
[redacted]

Aircraft: N96145 / Cessna 172-Q / 17276029
Max weight 2550 pounds
Weight at departure 2305 pounds in CG

- On January 16th, 2020 Jacob and George planned a night cross country from Billings to Big Timber. The cross country would fulfilled the night cross country requirement of the private pilot training and solo cross county approval for Jacob. The expectation was for Jacob to exercise PIC decisions while under the supervision and observation of George. Jacob's responsibility included planning a navigation log, weather briefing, flight plan filing, departure, flight plan activation, enroute navigation, descent, destination field approach, landing pattern and land. Jacob had never flown to Big Timber and the mission was to evaluate cockpit procedures and landing procedures of an unfamiliar field.
- Jacob obtained a standard briefing from FSS and filed a VFR flight plan. Weather was approximately 10 mile visibility, few clouds at 12,000, light surface wind from North West at Billings; en-route weather contained an advisory for turbulence and wind shear below 18,000; and, Big Timber was clearing sky with light wind within an hour of estimated arrival time. Weather was forecasted to deteriorate considerably by the following day.

- George preflighted aircraft while Jacob completed his cockpit organization. George topped-off both tanks and added one quart of oil; therefore, 50 gallons usable gas and crankcase was verified to a fill level of 6 3/4 quarts oil.
- Jacob requested and received taxi clearance to runway 28L at BIL. After taxing to runway 28L, George observed Jacob completing a read and do "before take off" checklist. Take Off clearance was requested and granted for 28L at KBIL. George noted a normal magneto check; normal oil pressure/temperature and fuel pressure.
- Initial climb to 8,500 MSL. On the initial climb after takeoff Jacob reported headset audio problems. Jacob reset the headset plug-in several times with no improvement. George reported Jacobs' audio problem as intermittent and thought they could continue by George performing radio calls as directed by Jacob. As Jacob requested, George call Great Falls radio, activated the VFR Flight plan with an amended time off BIL of 07:10 pm, local time. After 5 or 10 minutes Jacobs headset began working normally; and, George turned all radio calls back over to Jacob.
- Enroute Jacob leveled off at planned cruise altitude, 8,500 MSL. George rechecked oil press/temp and fuel pressure several times while enroute. The temperature gauge needle was aligned with the Letter T on the temperature gauge which was nearly identical to observations made on two training flights earlier in the same day at similar OAT -8 degrees C.
- En-route Jacob was advised, by BIL Departure, a low level Helicopter, not in contact with BIL ATC, overtaking 96145. George spotted helicopter slowly overtaking on the right side, very low level. George recalled checking engine gauges and discovered throttle had backed off to about 2200 RPM. George readjusted throttle to 2500RPM and checked the throttle friction control and discovered it was loose. George brought friction lock to Jacobs attention and asked Jacob to tighten friction lock and confirm cruise power setting and mixture. George recalls the "Cruise" check for power, mixture, and engine instruments at least two more times during cruise. Weather was clear with light occasional chop.
- Top-of -Descent. George recalls Jacob initiating his descent from 8,500MLS about 12DME from Big Timber Airfield (6S0). George recalls airspeed stabilized at about 120 Knots with a 5-600 FPM decent. Jacob received the Big Timber AWOS weather and announced our position to local traffic. As the aircraft descended through 7000 the air became smooth and the stabilized descent appeared on target for a straight in approach. Weather at Big Timber was noted as calm, clear, and cool. George recalled OAT -10C and a 54% relative humidity for the areas forecasted/current conditions.
- Approach to land. George and Jacob discuss a straight in approach, plan a go around, low level approach to look closely at the runway conditions. George observed Jacob correctly perform a before landing setup with landing light on, carb hot, power 1700, mixture rich, flaps 10 degrees. Jacob established stabilized descent at 80 knots and then selected flaps 20 degrees. This point in time George was carefully evaluating Jacobs cockpit procedures and his decision making to continue,

landing using normal maneuvers. Jacob decided early to go around at about 4,800 MSL (350 AGL).

- Go Around. Jacob executed the go around and cleaned up correctly with power up, carb cold, flaps 10 degrees, accelerating while maintaining level flight. George suggested he would look at the runway conditions while Jacob locate and observe the wind sock. Jacob flew full runway length; at runway end he pitched for 80 knot climb and flaps up slowly to zero after positive rate climb confirmed. Jacob turned left crosswind at 5,000 MSL and commented about difficulty of clearly confirming wind. Also, George discussed the height above the runway was to high for him to clearly see the runway conditions. Jacob continued the left pattern climb while make another local traffic advisory radio call.
- Left Pattern for Landing Runway 24. Jacob leveled off at 5,500 MSL in the downwind for runway 24 and initialized another approach to land. Jacob landing setup was correct and smooth; but, George recalled the landing setup early, maybe approximately 1/8 mile early on the downwind. George was preparing for a possible approach to land, too low. George recalls Jacob turning the left base leg early. The two pattern errors resulted in the aircraft high on approach. On short final Jacob called to go around. George agreed and suggested a lower reconnaissance over runway. George witness Jacob properly cleaning up with full power, carb cold, flaps 10, and accelerating. Airplane leveled off 200 AGL and flew full length of runway 24. George could clearly see the runway had snow patch and possibly some ice on the surface. Jacob began pitching for an 80 knot climb during the departure leg. George recalled seeing the complete runway 24 including the runway end markings.
- Initial Climb During Departure. George recalled Jacob had the aircraft configured carb cold, full power, mixture rich, flaps 10 degrees. Jacob began a positive up pitch for an 80 knot climb.
- Everything was what we practiced during a go around or low approach. Once a positive climb rate climb is established we would retract flaps slowly to zero and continue climbing until reaching 500 feet AGL. The 500 foot checklist is a memorized checklist performed at 500 AGL. The checklist would be to turn landing light out, slight reduction of power, one half turn lean on mixture, and then start the bank and turn to crosswind leg.
- George recalls Jacob establishing the 80 knot climb speed. For reason not known for sure mechanically, George experienced a sudden and unexpected power loss. George saw the airspeed decrease. George announced I have the controls and he began aggressive down elevator Inputs, simultaneously reaching for power control. George recalls power control was full in and Jacobs hand was not touching it. George started a left turn back to the field while continuously applying down elevator inputs in order to control airspeed. George recalls frustrated and orally complaining difficulty in controlling airspeed and outside visibility. George recalls an airspeed as slow as 65 knots prior to contact with ground.

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