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Subject: ERA22LA363, Performance Information

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The following digest is derived from a telephone call on 1/31/2023 and through an email received the same day.

The Cessna 150H owner's manual recommends takeoff with flaps up. It goes on to state the ground roll will be shortened by 10% with flaps at 10°, but that advantage is lost in the climb to a 50-ft obstacle clearance height. All of the climb charts are calculated with flaps up also, which is the preferred climb configuration. Best rate of climb with flaps up is 73 mph, which is used in the climb chart. Casey's calculations using the book numbers are as follows:

N89 Resnick Airport runway 22 was 3,839' paved. Calculated density altitude was 1,580 ft. Assuming 1,600 lbs takeoff weight with 7-knot headwind component would have been ~500 ft.

With 10° of flaps, the takeoff roll would have been ~450 ft. Add 10% for each 35° of temperature above standard and it would be back to about 490 ft.

With flaps up, the aircraft should have climbed at ~640 ft per minute when subtracting about 33 ft per minute for the 23° temperature above standard. There is no climb data with 10° of flaps. Best angle of climb is with flaps up and 57 mph but the manual does not give climb rate for that speed. There is verbiage about marginal climb with flaps at 10° in hot weather. (see below, from owner's manual section 2-9).

In short: 490' takeoff roll with a 640 ft per minute climb rate with flaps up. There is no performance data for 10° of flaps.

FLAP SETTINGS.

Normal and obstacle clearance take-offs are performed with flaps up. The use of 10° flaps will shorten the ground run approximately 10%, but this advantage is lost in the climb to a 50-foot obstacle. Therefore the use of 10° flap is reserved for minimum ground runs or for take-off from soft or rough fields with no obstacles ahead.

If 10° of flaps are used in ground runs, it is preferable to leave them extended rather than retract them in the climb to the obstacle. The exception to this rule would be in a high altitude take-off in hot weather where climb would be marginal with flaps 10° .

Flap deflections of 30° and 40° are not recommended at any time for take-off.