Takeoff distances calculation for a Cessna 150H field elevation 1,114’ temperature 88° F at gross weight and flaps retracted.

| Gross Weight | IAS 50’ MPH | Head Wind | Sea Level & 59°F | | At 2,500 ft & 50° F | |
|---|---|---|---|---|---|---|
| | | | Ground roll | Total to Clear 50’ Obs | Ground roll | Total to Clear 50’ Obs |
| 1,600 | 64 | 0 | 735 | 1385 | 910 | 1,660 |
| | | | | | | |

Notes from Manual:

Increase the distance 10% for each 35° F increase in temperature above standard for the altitude.

For operation on dry, grass runway, increase distance of (both “ground roll and total to clear 50’ obstacle”) by 7% of the total to clear 50’ obstacle figure.

Performance Calculations:

Ground roll at 2,500 – ground roll at sea level then divide by 2 and add that number to the ground roll at sea level which will give you an interpolated estimate of the ground roll under standard day conditions. See below

910 – 735= 175 then 175/2=87.5 then add 735+87.5=822.5

823’ ground roll standard day

Then you add the factors for the notes in the Owner’s Manual page 5-3 10%

823 x 1.1 = 905.3 this ground roll for the above temperature and increase in altitude.

The 50’ obstacle

1660-1385=275 then 275/2=137.5+1385=1522.5 distance to clear 50’ obstacle.

1522.5x1.1=1,674.75’

Then you add the factors for the notes in the Owner’s Manual page 5-3 of 7%

Then the increase for the dry grass runway which add 7% of the 50’ obstacle to both numbers

**905.3+117=1,022.5’ ground roll**

**1,675+117=1,792’ to clear the 50’ obstacle**

## —TAKE-OFF DISTANCE— FLAPS RETRACTED HARD SURFACE RUNWAY

| GROSS WT. LBS. | IAS 50 FT. MPH | HEAD WIND KNOTS | AT SEA LEVEL & 59° F. | | AT 2500 FT. & 50° F. | | AT 5000 FT. & 41° F. | | AT 7500 FT. & 32° F. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | GROUND RUN | TOTAL TO CLEAR 50 FT. OBS | GROUND RUN | TOTAL TO CLEAR 50 FT. OBS | GROUND RUN | TOTAL TO CLEAR 50 FT. OBS | GROUND RUN | TOTAL TO CLEAR 50 FT. OBS |
| 1600 | 64 | 0 | 735 | 1385 | 910 | 1660 | 1115 | 1985 | 1360 | 2440 |
| | | 10 | 500 | 1035 | 630 | 1250 | 780 | 1510 | 970 | 1875 |
| | | 20 | 305 | 730 | 395 | 890 | 505 | 1090 | 640 | 1375 |

NOTES: 1. Increase the distances 10% for each 35°F. increase in temperature above standard for the particular altitude.
2. For operation on a dry, grass runway, increase distances (both "ground run" and "total to clear 50 ft. obstacle") by 7% of the "total to clear 50 ft. obstacle" figure.

## —MAXIMUM RATE-OF-CLIMB DATA—

| GROSS WEIGHT LBS. | AT SEA LEVEL & 59° F. | | | AT 5000 FT. & 41° F. | | | AT 10000 FT. & 23° F. | | |
|---|---|---|---|---|---|---|---|---|---|
| | IAS, MPH | RATE OF CLIMB FT./MIN. | FUEL USED, GAL. | IAS, MPH | RATE OF CLIMB FT./MIN. | FUEL USED FROM S.L., GAL. | IAS, MPH | RATE OF CLIMB FT./MIN. | FUEL USED FROM S.L., GAL. |
| 1600 | 73 | 670 | 0.6 | 69 | 440 | 1.6 | 65 | 220 | 3.0 |

NOTES: 1. Flaps retracted, full throttle, mixture leaned to smooth operation above 5000 ft.
2. Fuel used includes warm-up and take-off allowances.
3. For hot weather, decrease rate of climb 15 ft./min. for each 10°F above standard day temperature for particular altitude.

## —LANDING DISTANCE— FLAPS LOWERED TO 40°- POWER OFF HARD SURFACE RUNWAY - ZERO WIND

| GROSS WEIGHT LBS. | APPROACH SPEED, IAS, MPH | AT SEA LEVEL & 59° F. | | AT 2500 FT. & 50° F. | | AT 5000 FT. & 41° F. | | AT 7500 FT. & 32° F. | |
|---|---|---|---|---|---|---|---|---|---|
| | | GROUND ROLL | TOTAL TO CLEAR 50 FT. OBS | GROUND ROLL | TOTAL TO CLEAR 50 FT. OBS | GROUND ROLL | TOTAL TO CLEAR 50 FT. OBS | GROUND ROLL | TOTAL TO CLEAR 50 FT. OBS |
| 1600 | 58 | 445 | 1075 | 470 | 1135 | 495 | 1195 | 520 | 1255 |

NOTES: 1. Decrease the distances shown by 10% for each 4 knots of headwind. .
2. Increase the distance by 10% for each 60°F. temperature increase above standard.
3. For operation on a dry, grassy runway, increase distances (both "ground roll" and "total to clear 50 ft. obstacle") by 20% of the "total to clear 50 ft. obstacle" figure.



Figure 5-3.

(2) Mixture -- Rich.
(3) Primer -- As required.
(4) Ignition Switch -- "BOTH."
(5) Throttle -- Open 1/4".
(6) Propeller Area -- Clear.
(7) Starter Handle -- Pull.

## BEFORE TAKE-OFF.

(1) Throttle Setting -- 1700 RPM.
(2) Engine Instruments -- Within green arc.
(3) Magnetos -- Check (75 RPM maximum differential between magnetos
(4) Carburetor Heat -- Check operation.
(5) Suction Gage -- Check (4.6 to 5.4 inches of mercury).
(6) Flight Controls -- Check.
(7) Trim Tab -- "TAKE-OFF" setting.
(8) Cabin Doors -- Latched.
(9) Flight Instruments and Radios -- Set.
(10) Optional Wing Leveler -- "OFF."

## TAKE-OFF.

### NORMAL TAKE-OFF.

(1) Wing Flaps -- Up.
(2) Carburetor Heat -- Cold.
(3) Throttle - Full "OPEN."
(4) Elevator Control -- Lift nose wheel at 50 MPH.
(5) Climb Speed -- 73 MPH until all obstacles are cleared, then set up climb speed as shown in "NORMAL CLIMB" paragraph.

### MAXIMUM PERFORMANCE TAKE-OFF.

(1) Wing Flaps - Up.
(2) Carburetor Heat -- Cold.
(3) Brakes -- Hold.
(4) Throttle -- Full "OPEN."
(5) Brakes -- Release.
(6) Elevator Control -- Slightly tail low.
(7) Climb Speed -- 57 MPH (with obstacles ahead).

## CLIMB.

### NORMAL CLIMB.

(1) Air Speed -- 75 to 80 MPH.