# AIRCRAFT INSPECTION REPORT

For

# **CESSNA 172 RG**

This report documents the results of simulated FAA airworthiness flight testing conducted in accordance with Note and Test Information Sheets of the Spring 2001 MAE 4223 class at Oklahoma State University. These results complete the flight test requirements for evaluation for the Cessna 172 RG test aircraft.

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# ABSTRACT

A Cessna 172 RG was flight tested. Airspeed calibration, stall speed and climb performance tests were performed. Experimental flight test data is compared with the published Cessna data. The airspeed calibration given by Cessna did not correspond to the flight test data. The experimental stall speeds were slightly lower than published Cessna data. Experimental climb performance matched the Cessna data within 100 fpm at 2000, 4000 and 6000 feet. The Cessna flight manual and engine performance data is given.

TABLE OF CONTENTS

# INTRODUCTION

The MAE 4223 Aerodynamics Laboratory class flight tested a Cessna 172 RG. The class performed three tests: airspeed calibration, stall speed and climb performance. The experimental data was compared to the published Cessna flight manual.

All flight testing was performed in a unmodified Cessna 172 RG with U.S registration, N9984B. The Cessna 172 RG is a high wing, retractable gear aircraft with 180 horsepower O-360 and a constant speed propeller. Appendix F shows a partial 172 RG flight manual. Appendix E gives the O-360 engine performance data. Weight and balance information is given in Appendix A.

The airspeed calibration evaluated the Cessna's pitot-static airspeed indicator using the speed course method. The test involved flying the aircraft over a known distance and recording the elapsed time. Two runs of reciprocal heading were made and the groundspeeds averaged.

The stall speed test evaluated the Cessna's stall speed. This test is performed power off and gear down. Two flap positions were tested: 0 and 30 degrees. The test starts at normal cruise. The angle of attack is then slowly increased until stall.

The climb performance test evaluates the rate of climb at four airspeeds. This test consists of timing climbs at 2000, 4000 and 6000 feet. These climbs are normalized to a standard day and plotted. Rates of climb for a standard day and gross weight are calculated. Best rate and angle of climb are found from the rate of climb plots.

# TEST AND EVALUATION

The airspeed test was performed as described above at 80 and 100 KIAS. The atmosphere was bumpy and a 20 knot north wind was present. The gear was up and the flaps retracted during the airspeed runs. Appendix B gives the airspeed calibration data. At 80 knots, the airspeed indicator position error was +2.1 knots. At 100 knots, the position error was +2.4 knots.

The stall speed test was performed as described above. The aircraft weight was 2606 lbs and the cg location was at 44.0 inches. Appendix C gives the stall speed data. With retracted flaps, the aircraft stalled at 45 KIAS (50 KCAS). With 30 degrees of flaps, the aircraft stalled at 35 KIAS (42 KCAS). From theory, the gross weight stall speeds are 50.5 KCAS with retracted flaps and 42.4 KCAS at 30 degrees of flaps.

The climb performance tests were performed as described above. Appendix D gives the sawtooth climb flight data and the data reduction sheets. All climb data was reduced to standard atmosphere conditions at the aircraft's gross weight. Figure 1 gives the Ciw versus Piw curve for 70, 80, 90 and 100 KIAS.

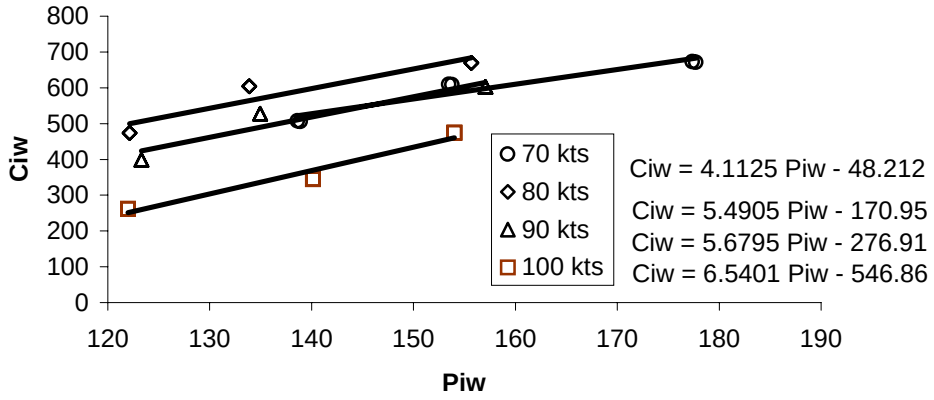



**Figure 1.** Cessna Climb Performance: Ciw versus Piw

From the above Ciw versus Piw plot, climb data at a standard atmosphere was derived. Figure 2 gives the 2650 lb gross weight climb performance at 0, 2000, 4000 and 6000 feet.

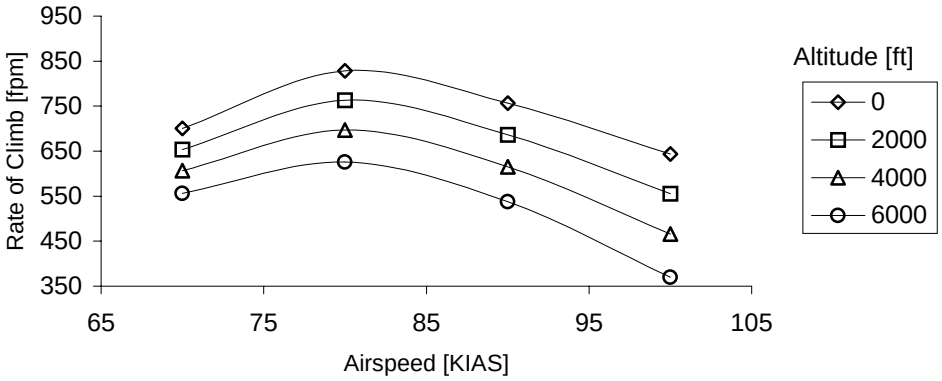



**Figure 2.** Cessna 172 RG: Standard Climb Performance

The best rate,Vy, and angle of climb,Vx, were determined from the rate of climb plot in Appendix D. Table 1 shows the best rate of climb and the speeds for best rate and angle of climb.

| Altitude [ft] | Vx [KIAS] | Vy [KIAS] | ROC [fpm] |
|---|---|---|---|
| 0 | 78 | 82 | 830 |
| 2000 | 78 | 81 | 760 |
| 4000 | 78 | 80 | 700 |
| 6000 | 78 | 80 | 630 |

**Table 1.** Cessna 172 RG Climb Speeds

# CONCLUSIONS AND RECOMMENDATIONS

The Cessna approved flight manual is given in Appendix F. Cessna reports data for the three flight tests performed in this report.

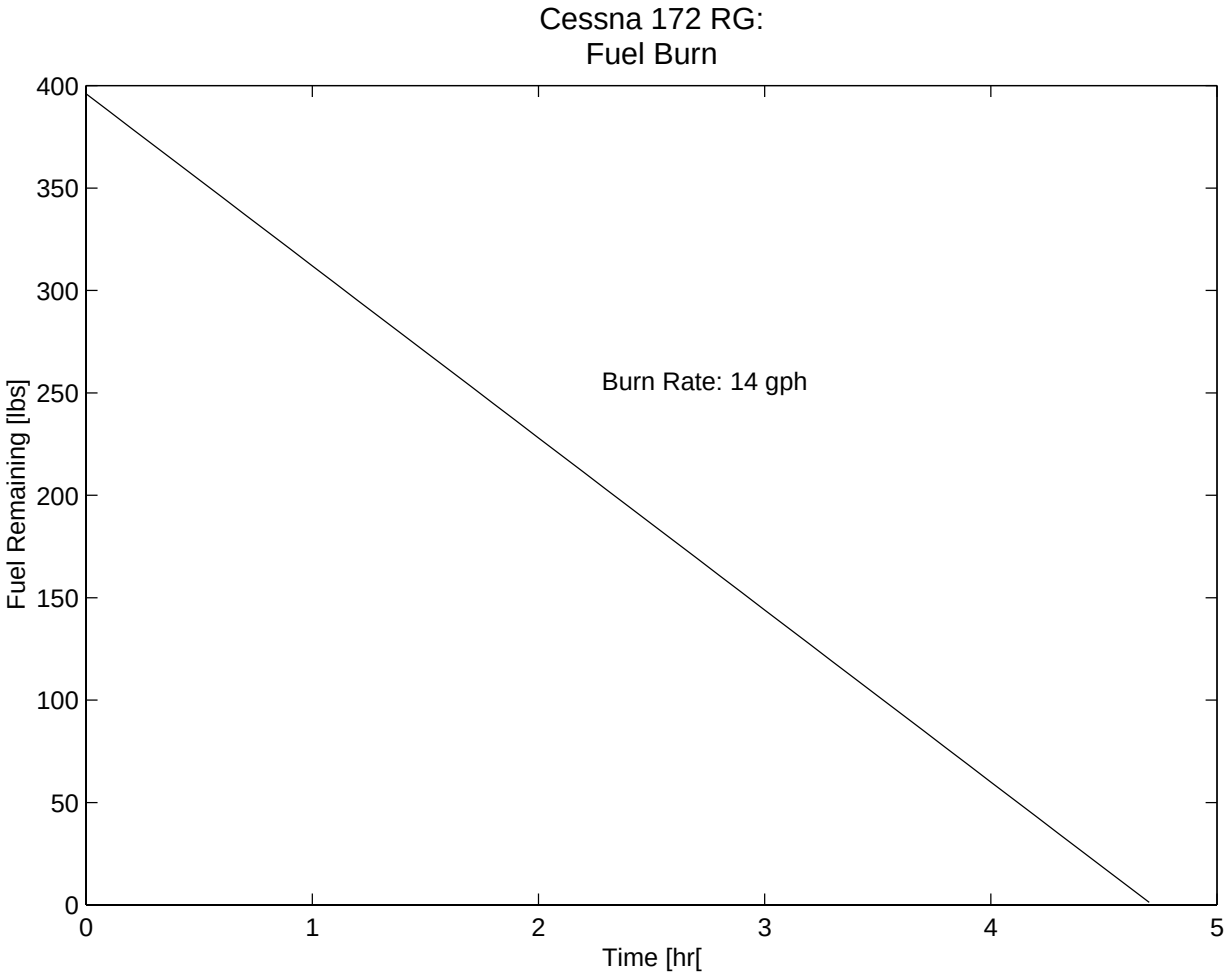
The Cessna flight manual's airspeed calibration data is given on page 5-9 of Appendix F. This report found an error of +2.1 knots at 100 knots and +2.4 knots at 80 knots. The Cessna manual states zero error at 80 knots and –1 knots at 100 knots. This difference of 3 knots is not excessive. Because this report's tests were performed under less than ideal conditions, 20 knot crosswind and non-smooth air, our test data may have steady state flight conditions with a constant indicated airspeed.

The Cessna stall speed data is given on page 5-12 of Appendix F. This report determined stall speeds at a central cg location and gross weight to be 50.5 KCAS at zero flap deflection and 42.4 KCAS at 30 degrees of flaps. Interpolating the Cessna manual at a central cg shows a stall speed of 55 KCAS with zero flaps and 50 KCAS at 30 degrees of flaps. The poor air conditions during this report's stall tests probably influenced the calculated stall speeds. Additionally, the stall speeds were roughly estimated due to the airspeed indicator not marked below 50 KIAS.

The Cessna climb performance data is given on page 5-16 of Appendix F. This report determined climb performance as given in Figure 2 and Table 1. At 2000 feet and 10 degrees, Cessna reports a best rate of climb of 820 fpm at 84 KIAS. This report found a best rate of climb of 760 fpm at 81 KIAS. At 4000 feet, Cessna reports 630 fpm at 81 KIAS. At 4000 feet, this report found that the best rate of climb was 700 fpm at 80 KIAS. Likewise at 6000 feet and 3 degrees Celsius, Cessna reports 560 fpm at 80 KIAS. This report found 630 fpm at 80 KIAS. The difference may be due to atmospheric disturbances and an older aircraft.

# APPENDIX A: WEIGHT AND BALANCE

APPENDIX A (cont): FUEL BURN



# APPENDIX B: AIRSPEED CALIBRATION

# APPENDIX C: STALL SPEEDS

# APPENDIX D: SAWTOOTH CLIMBS

## 70 KIAS FLIGHT DATA

N9984B
4/13/01

| PO'D | EW | GS | | Weight | |
|---|---|---|---|---|---|
| Takeoff | | 11:55 | | 2545 | |
| Land | | 12:38 | | | |
| 70 kts | | | | | |
| TIME [s] | altitude [ft] | OAT [F] | MAP [in H20] | RPM | TIME |
| 0 | 1500 | | 27.5 | 2700 | |
| 30 | 1800 | | | | |
| 60 | 2140 | 57 | | | |
| 90 | 2520 | | | | |
| 120 | 2840 | | 26 | | |
| | | | | | 12:01 |
| 0 | 1500 | | 27.5 | | |
| 30 | 1820 | | | | |
| 60 | 2160 | 58 | | | |
| 90 | 2480 | | | | |
| 120 | 2800 | | 26 | | |
| | | | | | |
| 0 | 3500 | | 25 | | |
| 30 | 3840 | | | | |
| 60 | 4120 | 54 | | | |
| 90 | 4370 | | | | |
| 120 | 4710 | | 24 | | |
| | | | | | 12:13 |
| 0 | 3500 | | 25 | | |
| 30 | 3880 | | | | |
| 60 | 4120 | 53 | | | |
| 90 | 4480 | | | | |
| 120 | 4810 | | 24 | | |
| | | | | | |
| 0 | 5500 | | 23.5 | | |
| 30 | 5740 | | | | |
| 60 | 5980 | 51 | | | |
| 90 | 6240 | | | | |
| 120 | 6520 | | 22.5 | | |
| | | | | | 12:23 |
| 0 | 5500 | | 23.5 | | |
| 30 | 5780 | | | | |
| 60 | 6060 | 50 | | | |
| 90 | 6300 | | | | |
| 120 | 6590 | | 22.5 | | |

## 80 KIAS FLIGHT DATA

N9984B
13-Apr-01

| PO'D | BC | EW | Weight |
|---|---|---|---|
| Takeoff | 1012 | | 2583 |
| Land | 1056 | | |

80 kts

| TIME [s] | altitude [ft] | OAT [F] | MAP [in H20] | RPM | TIME |
|---|---|---|---|---|---|
| 0 | 1500 | | 27.5 | 2700 | |
| 30 | 1870 | | | | |
| 60 | 2200 | 56 | | | |
| 90 | 2550 | | | | |
| 120 | 2880 | | 26 | | |
| | | | | | 10:24 |
| 0 | 1500 | | 27.5 | | |
| 30 | 1880 | | | | |
| 60 | 2200 | 56 | | | |
| 90 | 2600 | | | | |
| 120 | 2900 | | 26 | | |
| | | | | | |
| 0 | 3500 | | 25 | | |
| 30 | 3850 | | | | |
| 60 | 4140 | 55 | | | |
| 90 | 4480 | | | | |
| 120 | 4760 | | 24 | | |
| | | | | | 10:34 |
| 0 | 3500 | | 25 | | |
| 30 | 3830 | | | | |
| 60 | 4150 | 55 | | | |
| 90 | 4500 | | | | |
| 120 | 4780 | | 24 | | |
| | | | | | |
| 0 | 5500 | | 23.5 | | |
| 30 | 5750 | | | | |
| 60 | 5980 | 50 | | | |
| 90 | 6220 | | | | |
| 120 | 6480 | | 22.5 | | |
| | | | | | 10:44 |
| 0 | 5500 | | 23.5 | | |
| 30 | 5790 | | | | |
| 60 | 6050 | 50 | | | |
| 90 | 6310 | | | | |
| 120 | 6590 | | 22.5 | | |

## 90 KIAS FLIGHT DATA

N9838B
3/30/01

| PO'D | A.B | C.O | J.C | | Weight | |
|---|---|---|---|---|---|---|
| Takeoff | | | 10:35 | | 2764 | |
| Land | | | 11:20 | | | |

90 kts

| TIME [s] | altitude [ft] | OAT [F] | MAP [in H20] | RPM | TIME |
|---|---|---|---|---|---|
| 0 | 1500 | 45 | 27 | 2700 | |
| 30 | 1800 | | | | |
| 60 | 2100 | | | | |
| 90 | 2450 | | | | |
| 120 | | | 26 | | |
| | | | | | |
| 0 | 1500 | | 27.5 | | |
| 30 | 1800 | | | | 10:45 |
| 60 | 2250 | | | | |
| 90 | 2500 | | | | |
| 120 | 2750 | | 26 | | |
| | | | | | |
| 0 | 3500 | 45 | 25 | | |
| 30 | 3800 | | | | |
| 60 | 4050 | | | | |
| 90 | 4300 | | | | |
| 120 | 4550 | | 24 | | |
| | | | | | |
| 0 | 3500 | 45 | 25 | | |
| 30 | 3800 | | | | 10:53 |
| 60 | 4125 | | | | |
| 90 | 4450 | | | | |
| 120 | 4725 | | 24 | | |
| | | | | | |
| 0 | 5500 | 42.5 | 24 | | |
| 30 | 5750 | | | | |
| 60 | 5950 | | | | |
| 90 | 6200 | | | | |
| 120 | 6400 | | 22.5 | | 11:03 |
| | | | | | |
| 0 | 5500 | | 23.5 | | |
| 30 | 5700 | | | | |
| 60 | 5925 | | | | |
| 90 | 6150 | | | | |
| 120 | 6350 | | 23 | | 11:10 |

# 100 KIAS FLIGHT DATA

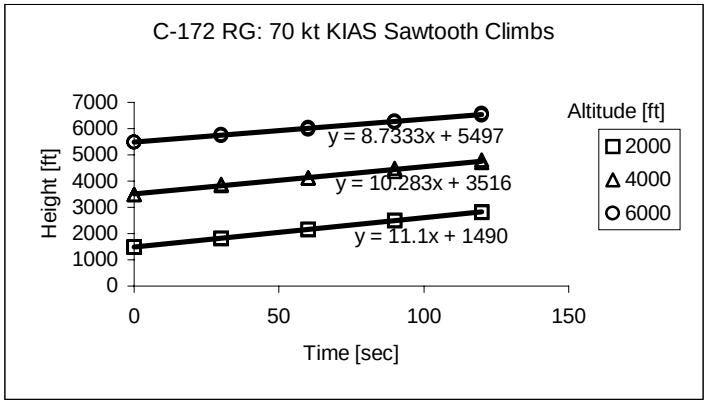
N9838B
3/30/01

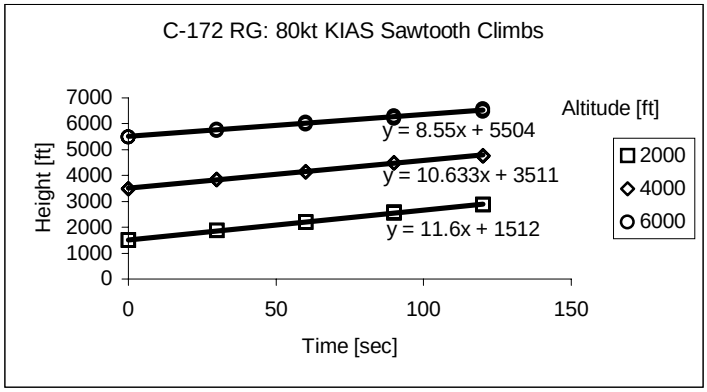
| PO'D FC EW MA | | | Weight | |
|---|---|---|---|---|
| Takeoff | 800 | | 2774 | |
| Land | 840 | | | |

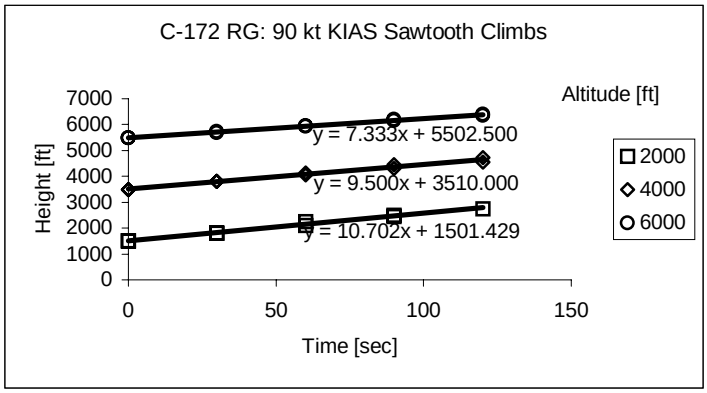
100 kts

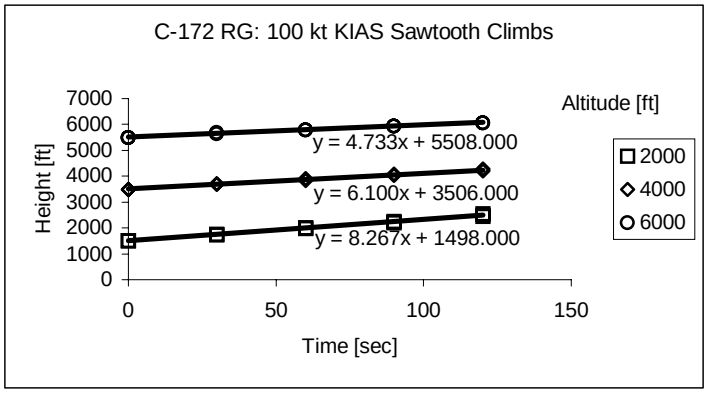
| TIME [s] | altitude [ft] | OAT [F] | MAP [in H20] | RPM | TIME |
|---|---|---|---|---|---|
| 0 | 1500 | 55 | | 2700 | |
| 30 | 1740 | | | | |
| 60 | 2000 | | 27 | | |
| 90 | 2260 | | | | |
| 120 | 2560 | | | | |
| | | | | | |
| 0 | 1500 | | | | |
| 30 | 1760 | | | | |
| 60 | 1980 | | 27 | | |
| 90 | 2200 | | | | |
| 120 | 2440 | | | | |
| | | | | | 815 |
| 0 | 3500 | | | | |
| 30 | 3680 | | | | |
| 60 | 3840 | | 25.25 | | |
| 90 | 4020 | | | | |
| 120 | 4200 | | | | |
| | | | | | 820 |
| 0 | 3500 | 54.5 | | | |
| 30 | 3720 | | | | |
| 60 | 3900 | | 25.25 | | |
| 90 | 4080 | | | | |
| 120 | 4280 | | | | |
| | | | | | |
| 0 | 5500 | | | | |
| 30 | 5640 | | | | |
| 60 | 5780 | | 23.5 | | 825 |
| 90 | 5940 | | | | |
| 120 | 6070 | | | | |
| | | | | | |
| 0 | 5500 | 50 | | | |
| 30 | 5680 | | | | |
| 60 | 5800 | | 23.5 | | 830 |
| 90 | 5940 | | | | |
| 120 | 6070 | | | | |

## SAWTOOTH CLIMB PLOTS FOR 70, 80, 90, 100 KIAS



## 70 KIAS SAWTOOTH CLIMB DATA REDUCTION

| 0 | DIR | N | S | N | S | N | S |
|---|---|---|---|---|---|---|---|
| 1 | CAS | 71 | 71 | 71 | 71 | 71 | 71 |
| 2 | OBS ROC | 666 | 666 | 616.92 | 616.92 | 523.998 | 523.998 |
| 3 | W | 2506 | 2506 | 2500 | 2500 | 2492 | 2492 |
| 4 | Hp | 2000 | 2000 | 4000 | 4000 | 6000 | 6000 |
| 5 | OAT | 57 | 58 | 54 | 53 | 51 | 50 |
| 6 | 5+460 | 517 | 518 | 514 | 513 | 511 | 510 |
| 7 | Tstd at 4 | 51.9 | 51.9 | 44.7 | 44.7 | 37.6 | 37.6 |
| 8 | 7+460 | 511.9 | 511.9 | 504.7 | 504.7 | 497.6 | 497.6 |
| 9 | OAT | 57 | 58 | 54 | 53 | 51 | 50 |
| 10 | 9+460 | 517 | 518 | 514 | 513 | 511 | 510 |
| 11 | _6/8_ | 1.009963 | 1.011916 | 1.018427 | 1.016445 | 1.026929 | 1.02492 |
| 12 | _8/6_ | 0.990135 | 0.988224 | 0.981907 | 0.983821 | 0.973777 | 0.975686 |
| 13 | RPM | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 |
| 14 | MAP | 27 | 27 | 24.5 | 24.5 | 23 | 23 |
| 15 | BHP | 169.1594 | 168.9961 | 150.6186 | 150.7654 | 140.1258 | 140.2631 |
| 16 | _15*sqrt12 | 168.323 | 167.9981 | 149.2498 | 149.5407 | 138.2763 | 138.5475 |
| 17 | 2*11 | 672.6353 | 673.9363 | 628.2879 | 627.0655 | 538.1089 | 537.0558 |
| 18 | sqrt(s)at hp | 0.970927 | 0.970927 | 0.942338 | 0.942338 | 0.914221 | 0.914221 |
| 19 | W/Wstd | 0.94566 | 0.94566 | 0.943396 | 0.943396 | 0.940377 | 0.940377 |
| 20 | sqrt(19) | 0.972451 | 0.972451 | 0.971286 | 0.971286 | 0.969731 | 0.969731 |
| 21 | 19^1.5 | 0.919608 | 0.919608 | 0.916307 | 0.916307 | 0.911913 | 0.911913 |
| 22 | Piw | 177.7164 | 177.3733 | 153.4896 | 153.7888 | 138.6263 | 138.8982 |
| 23 | Ciw | 671.5816 | 672.8806 | 609.5623 | 608.3764 | 507.3063 | 506.3135 |

## 80 KIAS SAWTOOTH CLIMB DATA REDUCTION

| 0 | DIR | N | S | N | S | N | S | |
|---|---|---|---|---|---|---|---|---|
| 1 | CAS | 80 | 80 | 80 | 80 | 80 | 80 | |
| 2 | OBS ROC | 696 | 696 | 637.98 | 637.98 | 513 | 513 | |
| 3 | W | 2741 | 2741 | 2735 | 2735 | 2728 | 2728 | |
| 4 | Hp | 2000 | 2000 | 4000 | 4000 | 6000 | 6000 | |
| 5 | OAT | 56 | 56 | 55 | 55 | 50 | 50 | |
| 6 | 5+460 | 516 | 516 | 515 | 515 | 510 | 510 | |
| 7 | Tstd at 4 | 51.9 | 51.9 | 44.7 | 44.7 | 37.6 | 37.6 | |
| 8 | 7+460 | 511.9 | 511.9 | 504.7 | 504.7 | 497.6 | 497.6 | |
| 9 | OAT | 56 | 56 | 55 | 55 | 50 | 50 | |
| 10 | 9+460 | 516 | 516 | 515 | 515 | 510 | 510 | |
| 11 | _6/8_ | 1.008009 | 1.008009 | 1.020408 | 1.020408 | 1.02492 | 1.02492 | |
| 12 | _8/6_ | 0.992054 | 0.992054 | 0.98 | 0.98 | 0.975686 | 0.975686 | |
| 13 | RPM | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 | |
| 14 | MAP | 26.8 | 26.8 | 24.5 | 24.5 | 23 | 23 | |
| 15 | BHP | 169.3233 | 169.3233 | 150.4723 | 150.4723 | 141.2509 | 141.2509 | |
| 16 | _15*sqrt12 | 168.6492 | 168.6492 | 148.96 | 148.96 | 139.5231 | 139.5231 | |
| 17 | 2*11 | 701.5745 | 701.5745 | 651 | 651 | 525.7838 | 525.7838 | |
| 18 | sqrt(s)at hp | 0.970927 | 0.970927 | 0.942338 | 0.942338 | 0.914221 | 0.914221 | |
| 19 | W/Wstd | 1.03434 | 1.03434 | 1.032075 | 1.032075 | 1.029434 | 1.029434 | |
| 20 | sqrt(19) | 1.017025 | 1.017025 | 1.015911 | 1.015911 | 1.01461 | 1.01461 | |
| 21 | 19^1.5 | 1.051949 | 1.051949 | 1.048497 | 1.048497 | 1.044474 | 1.044474 | |
| 22 | Piw | 155.6598 | 155.6598 | 133.8779 | 133.8779 | 122.1236 | 122.1236 | |
| 23 | Ciw | 669.7751 | 669.7751 | 603.8537 | 603.8537 | 473.7608 | 473.7608 | |

## 90 KIAS SAWTOOTH CLIMB DATA REDUCTION

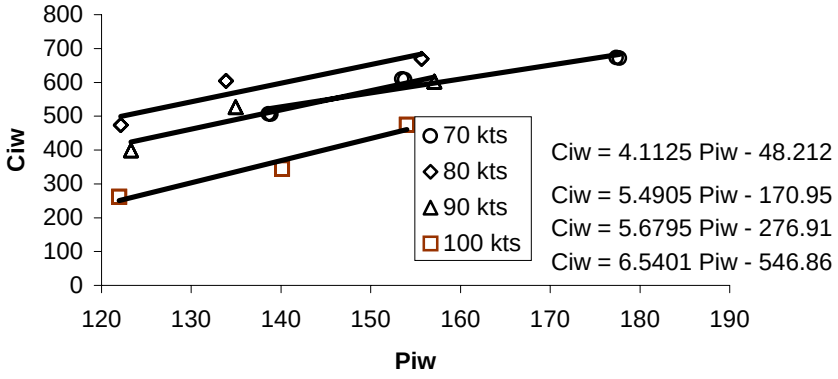
| 0 | DIR | W | E | W | E | W | E |
|---|---|---|---|---|---|---|---|
| 1 | CAS | 89 | 89 | 89 | 89 | 89 | 89 |
| 2 | OBS ROC | 642.12 | 642.12 | 570 | 570 | 439.98 | 439.98 |
| 3 | W | 2764 | 2764 | 2756.5 | 2756.5 | 2750.5 | 2750.5 |
| 4 | Hp | 2000 | 2000 | 4000 | 4000 | 6000 | 6000 |
| 5 | OAT | 45 | 45 | 45 | 45 | 42.5 | 42.5 |
| 6 | (5)+460 | 505 | 505 | 505 | 505 | 502.5 | 502.5 |
| 7 | Tstd at (4) | 51.9 | 51.9 | 44.7 | 44.7 | 37.6 | 37.6 |
| 8 | 7+460 | 511.9 | 511.9 | 504.7 | 504.7 | 497.6 | 497.6 |
| 9 | OAT | 45 | 45 | 45 | 45 | 42.5 | 42.5 |
| 10 | (9)+460 | 505 | 505 | 505 | 505 | 502.5 | 502.5 |
| 11 | _(6)/(8)_ | 0.986521 | 0.986521 | 1.000594 | 1.000594 | 1.009847 | 1.009847 |
| 12 | _(8)/(6)_ | 1.013663 | 1.013663 | 0.999406 | 0.999406 | 0.990249 | 0.990249 |
| 13 | RPM | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 |
| 14 | MAP | 26.5 | 26.75 | 24.5 | 24.5 | 23.25 | 23.25 |
| 15 | BHP | 171.1574 | 171.1574 | 151.9548 | 151.9548 | 143.2962 | 143.2962 |
| 16 | _(15)*sqrt(12) | 172.3228 | 172.3228 | 151.9097 | 151.9097 | 142.5958 | 142.5958 |
| 17 | (2)*(11) | 633.4647 | 633.4647 | 570.3388 | 570.3388 | 444.3126 | 444.3126 |
| 18 | sqrt(s)at hp | 0.970927 | 0.970927 | 0.942338 | 0.942338 | 0.914221 | 0.914221 |
| 19 | W/Wstd | 1.043019 | 1.043019 | 1.040189 | 1.040189 | 1.037925 | 1.037925 |
| 20 | sqrt(19) | 1.021283 | 1.021283 | 1.019896 | 1.019896 | 1.018786 | 1.018786 |
| 21 | (19)^1.5 | 1.065217 | 1.065217 | 1.060885 | 1.060885 | 1.057423 | 1.057423 |
| 22 | Piw | 157.0693 | 157.0693 | 134.9348 | 134.9348 | 123.2847 | 123.2847 |
| 23 | Ciw | 602.231 | 602.231 | 526.9669 | 526.9669 | 398.7098 | 398.7098 |

## 100 KIAS SAWTOOTH CLIMB DATA REDUCTION

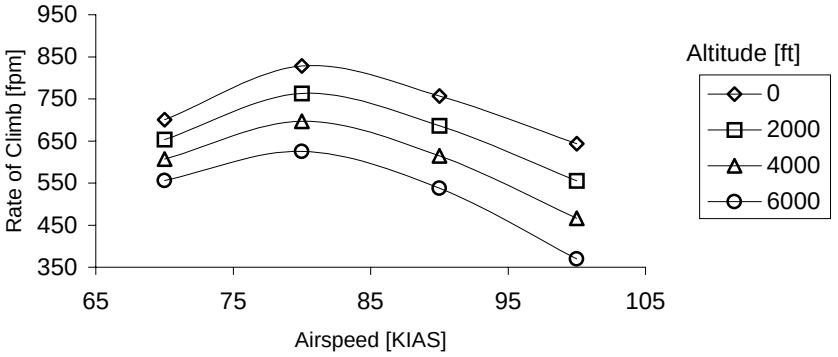
| 0 | DIR | W | E | W | E | W | E |
|---|---|---|---|---|---|---|---|
| 1 | CAS | 99 | 99 | 99 | 99 | 99 | 99 |
| 2 | OBS ROC | 496.02 | 496.02 | 366 | 366 | 283.98 | 283.98 |
| 3 | W | 2764 | 2764 | 2749 | 2749 | 2743 | 2743 |
| 4 | Hp | 2000 | 2000 | 4000 | 4000 | 6000 | 6000 |
| 5 | OAT | 55 | 55 | 54 | 54 | 50 | 50 |
| 6 | (5)+460 | 515 | 515 | 514 | 514 | 510 | 510 |
| 7 | Tstd at (4) | 51.9 | 51.9 | 44.7 | 44.7 | 37.6 | 37.6 |
| 8 | 7+460 | 511.9 | 511.9 | 504.7 | 504.7 | 497.6 | 497.6 |
| 9 | OAT | 55 | 55 | 54 | 54 | 50 | 50 |
| 10 | (9)+460 | 515 | 515 | 514 | 514 | 510 | 510 |
| 11 | _(6)/(8)_ | 1.006056 | 1.006056 | 1.018427 | 1.018427 | 1.02492 | 1.02492 |
| 12 | _(8)/(6)_ | 0.993981 | 0.993981 | 0.981907 | 0.981907 | 0.975686 | 0.975686 |
| 13 | RPM | 2700 | 2700 | 2700 | 2700 | 2700 | 2700 |
| 14 | MAP | 27 | 27 | 25.25 | 25.25 | 23.5 | 23.5 |
| 15 | BHP | 169.4876 | 169.4876 | 158.5459 | 158.5459 | 142.2386 | 142.2386 |
| 16 | _(15)*sqrt(12) | 168.9767 | 168.9767 | 157.1051 | 157.1051 | 140.4988 | 140.4988 |
| 17 | (2)*(11) | 499.0238 | 499.0238 | 372.7442 | 372.7442 | 291.0567 | 291.0567 |
| 18 | sqrt(s)at hp | 0.970927 | 0.970927 | 0.942338 | 0.942338 | 0.914221 | 0.914221 |
| 19 | W/Wstd | 1.043019 | 1.043019 | 1.037358 | 1.037358 | 1.035094 | 1.035094 |
| 20 | sqrt(19) | 1.021283 | 1.021283 | 1.018508 | 1.018508 | 1.017396 | 1.017396 |
| 21 | (19)^1.5 | 1.065217 | 1.065217 | 1.056558 | 1.056558 | 1.053101 | 1.053101 |
| 22 | Piw | 154.0194 | 154.0194 | 140.121 | 140.121 | 121.9703 | 121.9703 |
| 23 | Ciw | 474.4189 | 474.4189 | 344.868 | 344.868 | 261.5404 | 261.5404 |

## SAWTOOTH CLIMB DATA REDUCTION PLOTS

Cessna 172RG: Standardized Climb Performance

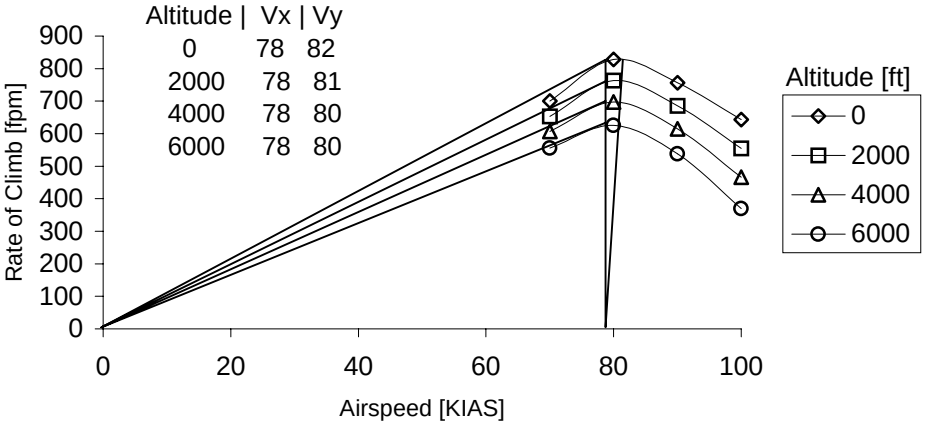



Cessna 172 RG: Standard Climb Performance




Cessna 172 RG: Standard Climb Performance

| Altitude | Vx | Vy |
|---|---|---|
| 0 | 78 | 82 |
| 2000 | 78 | 81 |
| 4000 | 78 | 80 |
| 6000 | 78 | 80 |



# APPENDIX E:  ENGINE DATA

# APPENDIX F:  TEST AIRCRAFT FLIGHT MANUAL