Introduction

The ATP VFR Flight Planning Training Supplement will guide you through the flight planning process. It will utilize the resources available to you as an ATP student.

This supplement is designed as an exercise to demonstrate that you understand the important relationships and concepts of VFR flight planning. The contents of this supplement apply to all ATP aircraft types, but performance from the C172S Model will be used for all sample charts.

Required Items

Prerequisites

- Successful completion of the iPad ATP Private Pilot Self-Study Course through Module 12
- Thorough understanding of all concepts involved in VFR flight planning

iPad

- ForeFlight App with DUATS login and WiFi Access
- ATP Flight School App

Books & Publications

- Cessna 172S Model POH (iPad)
- Airport Facility Directory (AF/D) (iPad)
- Current paper sectional for areas of flight - ForeFlight sectionals are not acceptable for this exercise
- 3 copies of the ATP Nav Log
- ATP Weight & Balance Form (if in PA-44 Seminole)
- ATP’s Airworthiness Checklist
- VFR Flight Planning Supplement Worksheet

Tools

- Plotter
- E6B computer
- Calculator
- Scratch paper and pencil

For Your Checkride

- The POH for your n-numbered checkride aircraft
- The maintenance logbook for your n-numbered checkride aircraft
SECTION 1

Initial Planning Overview

Resources

- ForeFlight
- POH
- Scratch paper and pencil

*Complete Table 1.1 on the VFR Flight Planning Supplement Worksheet.*

1. Open ForeFlight, and view a sectional in the Maps tab. Create a straight line between the two airports using the Search Airport or Route box, and add your UTC departure time into the search box.

2. In ForeFlight, look at the total straight-line distance in the nav log bar that appears. Consider the possibility of needing to stop for fuel. ATP uses the figures below as a conservative estimate at lower altitudes.

   - C172M (38 gallons usable, 60% power) ........................................ 200 miles
   - C172R (53 gallons usable, 60% power) ....................................... 250 miles
   - C172S (53 gallons usable, 60% power) ....................................... 250 miles
   - PA-44 (108 gallons usable, 55% power) ..................................... 400 miles

Look for range information in the Performance section – “Range Profile” Chart of the POH to verify for your specific aircraft. If you actually plan to fly this flight, be sure you are adhering to specific ATP fuel policies.
The following fuel limitations apply to all operations in ATP aircraft.

The maximum duration of flight limitation is based on the airplane’s fuel tank capacity.

- Less than 48 gallons ........................................ 2:30 duration
- 48 gallons or greater ..................................... 3:30 duration

ATP policy is for all flights to depart with full fuel tanks unless operational necessity dictates otherwise.
For the checkride, you are required to plan to your first fuel stop.

**Complete Table 1.2 on the VFR Flight Planning Supplement Worksheet.**

Complete Aircraft Number and Route in the Nav Log.

<table>
<thead>
<tr>
<th>NAVIGATION LOG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft Number: <strong>N753GW</strong></td>
</tr>
<tr>
<td>Notes: Avg Winds Aloft:</td>
</tr>
<tr>
<td>Avg GS:</td>
</tr>
</tbody>
</table>

3. Conduct a survey of the straight-line route on your ForeFlight sectional. Consider factors around the straight line to find the best route for navigation and safety.

**Complete Table 1.3 and 1.4 on the VFR Flight Planning Supplement Worksheet.**

**Weather**

**NOTE:** If WiFi is unavailable, get a weather briefing from another approved source.


5. View your straight-line flight route and accurate ETD in the nav log bar. Click the **Send To...** button, and select **File & Brief**. Fill out all required information and select **Brief** in the lower right-hand corner. View the information. This is a legal briefing. You’ll need to refer to it throughout the planning process.

**Complete Table 1.5 on the VFR Flight Planning Supplement Worksheet.**
NOTAMs & PIREPs

6. View the NOTAMs for your route of flight in your briefing.

Complete Table 1.6 on the VFR Flight Planning Supplement Worksheet.

| CHECKRIDE FACT | Save all weather information you use for flight planning to show the examiner. It will prove you executed your planning correctly, even if the weather changes before your checkride. |
SECTION 2

Departure Information

Resources

- ForeFlight
- POH
- Airport Facility Directory (AF/D)
- Calculator
- ATP's Airworthiness Checklist

1. Determine passengers and cargo. Consider necessary survival items, if an off-airport landing must be made in terrain or water.

2. Using ATP's Airworthiness Checklist, complete your weight and balance calculations through takeoff totals.

CHECKRIDE FACT

You must use the weight and balance information from the POH of your n-numbered checkride aircraft to get accurate data.

Verify you are using the correct Center of Gravity Range Chart for your specific aircraft.

Sample

C172S

BEW ...................... 1,641 lbs
ARM .......................... 38.12 in
MOMENT .......... 62,600 lb-in
Departure Weight & Balance

1. **Basic Empty Weight** – Find the BEW, ARM, and MOMENT, in the Weight and Balance section of the POH or Maintenance Log Book.

2. **Front Passenger Seats** – Add the weights of yourself and your instructor, examiner, or passenger. Locate the ARM of the Front Passenger Seats, and multiply by the weight to get the MOMENT.

3. **Rear Passenger Seats** – Add the weights of any load you will be placing in the back seats. Locate the ARM of the Rear Passenger Seats, and multiply by the weight to get the MOMENT.

4. **Baggage Compartment** – Add the weights of the loads in the baggage compartment. Include the case of oil and any other items that stay in the compartment. Locate the ARM of the Baggage Compartment, and multiply by the weight to get the MOMENT.

5. **Zero Fuel Weight** – Add weights 1 through 4 to get zero fuel weight. Add MOMENTS 1 through 4.

6. **Fuel** – Find the fuel capacity in gallons in your POH, and multiply by 6lbs to get the weight. Locate the ARM for the fuel tanks, and multiply by the weight to get the MOMENT.

   ATP policy is for all flights to depart with full fuel tanks unless operational necessity dictates otherwise.

7. **Ramp Weight** – Add weights 5 and 6 to get ramp weight. Add MOMENTS 5 and 6.

8. **Fuel Used for Start/Taxi/Takeoff** – Find this number in the Performance Section of the POH, typically in a Fuel, Time, Distance to Climb chart for 172s. List it in pounds. Since you are losing weight, this will be a negative number. Multiply by the fuel tanks ARM to get the MOMENT. This will be a negative MOMENT.

   C172M .............................................. 1.1 gallons = 6.6 lbs.
   C172R .............................................. 1.1 gallons = 6.6 lbs.
   C172S .............................................. 1.1 gallons = 6.6 lbs.
   PA44 .............................................. 2.67 gallons = 16.0 lbs

9. **Takeoff Totals** – Add your burned fuel to get your takeoff weight. Add the MOMENTS to get your Takeoff MOMENT.

10. Divide Takeoff Moment by Takeoff Weight to get your Takeoff CG.

3. Using ATP's Airworthiness Checklist, mark your takeoff weight and CG in the CG envelope chart. Verify it is within limits. You will complete your weight and balance information for landing once fuel burn is determined.

Departure Airport Information

4. To determine if you can safely depart, view your departure airport in the **Airports** tab in ForeFlight. Verify the information with the AF/D.

   **Complete Table 2.1 through 2.3 on the VFR Flight Planning Supplement Worksheet.**
Performance Calculations

5. Verify that you can takeoff and achieve initial climb performance necessary to make the flight. Enter your Takeoff Distances on ATP’s Airworthiness Checklist.

NOTE: Read all conditions and notes in the performance charts before beginning. Often times you’ll need to decrease or increase a distance value for nonstandard temperature, winds, or density altitude.

CHECKRIDE FACT

Use the Performance charts for the specific aircraft you will be flying in the checkride.

Older models with upgraded engines will have supplements at the end of the POH that alter performance data.

### SECTION 5 PERFORMANCE

#### CESSNA MODEL 172S

### SHORT FIELD TAKEOFF DISTANCE

AT 2550 POUNDS

**CONDITIONS:**
- Flaps 10°
- Full Throttle Prior to Brake Release
- Paved, level, dry runway
- Zero Wind

<table>
<thead>
<tr>
<th>Press Alt In Feet</th>
<th>0°C</th>
<th>10°C</th>
<th>20°C</th>
<th>30°C</th>
<th>40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. L.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>660</td>
<td>860</td>
<td>1465</td>
<td>925</td>
<td>1575</td>
<td>995</td>
</tr>
<tr>
<td>940</td>
<td>940</td>
<td>1600</td>
<td>1010</td>
<td>1720</td>
<td>1090</td>
</tr>
<tr>
<td>1225</td>
<td>1225</td>
<td>1925</td>
<td>1215</td>
<td>2080</td>
<td>1310</td>
</tr>
<tr>
<td>1535</td>
<td>1535</td>
<td>2120</td>
<td>1335</td>
<td>2295</td>
<td>1440</td>
</tr>
<tr>
<td>1820</td>
<td>1820</td>
<td>2475</td>
<td>1585</td>
<td>2545</td>
<td>1605</td>
</tr>
<tr>
<td>2120</td>
<td>2120</td>
<td>2805</td>
<td>1745</td>
<td>2830</td>
<td>1875</td>
</tr>
<tr>
<td>2410</td>
<td>2410</td>
<td>3170</td>
<td>1920</td>
<td>3170</td>
<td>2120</td>
</tr>
<tr>
<td>2765</td>
<td>2765</td>
<td>3440</td>
<td>2280</td>
<td>3440</td>
<td>2280</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Short field technique as specified in Section 4.
2. Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on dry, grass runway, increase distances by 15% of the “ground roll” figure.
Resources

- Paper sectional(s)
- ForeFlight
- POH
- E6B
- Plotter
- Calculator

1. On your paper sectional, create waypoints and connect them with straight lines using your plotter.

2. Choose your first waypoint around 5 miles away from your departure airport. Continue to choose waypoints fairly close together for the first 20 – 25 miles. This prevents you from having to fly an extremely far distance with your examiner, helps with pilotage in the climb, and reduces cumulative errors of dead reckoning during your actual flight.

3. After all waypoints are created on your paper sectional, use your plotter to measure true course and distance. Note the magnetic variations for the waypoints.

4. Estimate your top of climb and top of descent points. Approximate figures for climb distance are as follows:

   - Total Climb of 3,000 ft .............................................................. 8 miles
   - Total Climb of 4,000 ft .............................................................. 10 miles
   - Total Climb of 5,000 ft .............................................................. 12 miles
   - Total Climb of 6,000 ft .............................................................. 15 miles
   - Total Climb of 7,000 ft .............................................................. 18 miles

Mark your TOC and TOD points on the paper sectional, along your route of flight.

**NOTE:** Your actual distance in the climb will be computed later, and will differ depending on winds and field elevation.

Complete Table 3.1 on the VFR Flight Planning Supplement Worksheet.

5. List your waypoints under the Checkpoints(fixes) column of your Nav Log. List each True Course under the Course(Route) column. Put arrows in the altitude column to signify climb and descent.
6. Choose an altitude for your flight. Remember the minimum safe altitude based on terrain, and consider airspace avoidance. Comply with the hemisphere rule, and VFR altitudes. North or east – choose an odd altitude, south or west – choose an even altitude. Get the pressure altitude by correcting your planned altitude for the altimeter setting on Table 2.3.

**Complete Table 3.2 on the VFR Flight Planning Supplement Worksheet.**

7. List your altitudes, including departure field elevation, cruise, and destination field elevation in the Altitude column of the Nav Log.

8. Return to your weather briefing in ForeFlight to review forecast winds and temperatures aloft. In ForeFlight, you will see all weather stations that you pass along your route of flight. Interpolate between altitudes and use the standard lapse rate to determine winds aloft at your altitude. **If you travel over more than one weather station, use more than one wind and temperature value.** Verify that the forecast is valid for your departure time.

**Complete Table 3.3 on the VFR Flight Planning Supplement Worksheet.**
Climb/Descent Speed, Fuel, Distance, and Time

1. Determine your climb and descent speeds. In the Performance section of the POH, look at any Climb and Descent charts that exist. If descent speeds do not exist, plan on descending at cruise speed.

<table>
<thead>
<tr>
<th>PRESS ALT FT</th>
<th>CLIMB SPEED KIAS</th>
<th>RATE OF CLIMB FPM</th>
<th>TIME IN MIN</th>
<th>FUEL USED GAL</th>
<th>DIST NM</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.L.</td>
<td>74</td>
<td>730</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>1000</td>
<td>73</td>
<td>695</td>
<td>1</td>
<td>0.4</td>
<td>2</td>
</tr>
<tr>
<td>2000</td>
<td>73</td>
<td>655</td>
<td>3</td>
<td>0.8</td>
<td>4</td>
</tr>
<tr>
<td>3000</td>
<td>73</td>
<td>620</td>
<td>4</td>
<td>1.2</td>
<td>6</td>
</tr>
<tr>
<td>4000</td>
<td>73</td>
<td>600</td>
<td>6</td>
<td>1.5</td>
<td>8</td>
</tr>
<tr>
<td>5000</td>
<td>73</td>
<td>550</td>
<td>8</td>
<td>1.9</td>
<td>10</td>
</tr>
<tr>
<td>6000</td>
<td>73</td>
<td>505</td>
<td>10</td>
<td>2.2</td>
<td>13</td>
</tr>
<tr>
<td>7000</td>
<td>73</td>
<td>455</td>
<td>12</td>
<td>2.6</td>
<td>16</td>
</tr>
<tr>
<td>8000</td>
<td>72</td>
<td>410</td>
<td>14</td>
<td>3.0</td>
<td>19</td>
</tr>
<tr>
<td>9000</td>
<td>72</td>
<td>360</td>
<td>17</td>
<td>3.4</td>
<td>22</td>
</tr>
<tr>
<td>10,000</td>
<td>72</td>
<td>315</td>
<td>20</td>
<td>3.9</td>
<td>27</td>
</tr>
<tr>
<td>11,000</td>
<td>72</td>
<td>265</td>
<td>24</td>
<td>4.4</td>
<td>32</td>
</tr>
<tr>
<td>12,000</td>
<td>72</td>
<td>220</td>
<td>28</td>
<td>5.0</td>
<td>38</td>
</tr>
</tbody>
</table>

NOTES:
1. Add 1.4 gallons of fuel for engine start, taxi and takeoff allowance.
2. Mixture leaned above 3,000 feet for maximum RPM.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.
2. Determine distance and time to climb, considering departure field elevation and cruise altitude. Use the Fuel, Time, and Distance to climb chart.

**CHECKRIDE FACT**

Use the performance charts from the POH of the specific aircraft you will be flying for all performance calculations. If you are flying an airplane with a modified engine, refer to all supplements for modified performance data.

---

**Example 4.1**

Field elevation is 1100 ft, and we are climbing to a pressure altitude of approximately 4500 ft. Since 4500 ft pressure altitude does not exist on the chart, we'll average the figures between 4000 and 5000 ft.

So, from sea level, it would take us 7 minutes, 1.65 gallons, and 9.5 miles to reach 4500 ft.

Since we’ll be departing from 1100 ft pressure altitude, we’ll use the 1000 ft figures, and subtract them from TOC altitude data. So, to climb from 1100 ft to 4500 ft, it should take us approximately

\[
\begin{align*}
7 & \quad - \quad 1 \quad = \quad 6 \text{ minutes} \\
1.64 & \quad - \quad 0.4 \quad = \quad 1.25 \text{ gallons} \\
9.5 & \quad - \quad 2 \quad = \quad 7.5 \text{ miles}
\end{align*}
\]

In this case, our notes say the following:

NOTES:
1. Add 1.1 gallons of fuel for engine start, taxi, and takeoff allowance.
2. Mixture leaned above 3000 feet for maximum RPM.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.

We must factor in the temperatures for our initial legs, starting with the forecasted departure airport temperature. A strong head or tailwind can affect these figures, so while you don’t need to make an adjustment in your math, be aware of it as you complete your flight.

---

3. Using the Calibrated Airspeed table in the Performance section of the POH, convert your IAS figure to CAS. Using your E6B, compute Climb and Descent TAS based on temperature and altitude. Using calibrated airspeed to calculate true airspeed will give you more accurate figures.
(Table 4.1 and 4.2 on the VFR Flight Planning Supplement Worksheet.

Cruise TAS
4. Compute your planned airspeed for the cruise portion of your flight.

It is ATP Policy for all Cross Country Flights to be flown at 60% BHP in the Seminole, and 75% BHP in single-engine aircraft.

Use the “Cruise Performance” chart in the Performance Section of your POH. Find the closest altitude and get cruise performance data.

Use the performance charts from the POH of the specific aircraft you will be flying for all performance calculations. If you are flying an airplane with a modified engine, refer to all supplements for modified performance data.

NOTE: Every time the temperature changes, your TAS should change – even small changes should be noted.
Complete Table 4.3 and 4.4 on the VFR Flight Planning Supplement Worksheet.

5. List the winds aloft and temperatures from Table 3.3 in the Wind column of the Nav Log. List the TAS for each leg in the TAS column of the nav log. Remember to plan your descent using Cruise Performance charts if you do not have specific descent charts.
### Check Points (Fixes)

<table>
<thead>
<tr>
<th>VOR</th>
<th>Course (Route)</th>
<th>Altitude</th>
<th>Wind</th>
<th>CAS</th>
<th>TC</th>
<th>TH</th>
<th>MH</th>
<th>CH</th>
<th>Dist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KCRG</td>
<td>290</td>
<td>320</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bridges</td>
<td>290</td>
<td>320</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Use the "3 : 1 Rule" to determine your descent distance at cruise ground speed. Time and fuel to descend will be calculated as part of cruise calculations later. If planning for a Seminole, use the Fuel, Time, and Distance to Descend chart in the POH.

\[
\text{Distance to Descend} = \frac{\text{Altitude to Lose} \times 3}{1000}
\]

**Example 4.2**

At 4500 ft in cruise, you must descend to a pattern altitude of 1300 ft. You must lose 3200 ft of altitude. Your TAS is 109 knots.

\[
\frac{3200 \times 3}{1000} = 9.6 \text{ miles}
\]

**Complete Table 4.5 on the VFR Flight Planning Supplement Worksheet.**

### Heading Calculations

7. Calculate your true headings, using your E6B computer. True heading (TH) is true course (TC) corrected for winds. **You must use your true course**, since winds are always given in reference to true, not magnetic north. Copy the true course from Table 3.1 in the TC column on the Nav Log. Correct the true course for the winds and note the wind correction angle (WCA) or the direction in which you will turn into the wind to establish your crab angle. List each in the WCA column on the Nav Log. List your ground speed from each calculation in the GS column of the Nav Log.

\[
\text{TH} = \text{TC} - \text{LEFT cross wind component as derived from the E6B}
\]

\[
\text{TH} = \text{TC} + \text{RIGHT cross wind component as derived from the E6B}
\]
8. Now take magnetic variation into account. Copy the the variation from Table 3.1 into the Var. column of the Nav Log. Use the following formulas to calculate magnetic heading, and enter into the MH column of the Nav Log.

\[
\begin{align*}
MH &= TH + \text{West Variation} \\
MH &= TH - \text{East Variation}
\end{align*}
\]

9. Locate the Compass Deviation Card in your POH, and factor in the installation and magnetic errors of the compass. Put the ± error in the COMP DEV. column for each Magnetic Heading. List each in the Dev. column of the Nav Log. Use the following formula to calculation compass heading, and list in the CH column of the Nav Log.

\[
\text{Compass Heading} = MH \pm \text{Compass Deviation}
\]

<table>
<thead>
<tr>
<th>CHECKRIDE FACT</th>
<th>Use the Compass Deviation Card in your POH for your specific aircraft when planning for your checkride.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>For</th>
<th>N</th>
<th>30</th>
<th>60</th>
<th>E</th>
<th>120</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steer</td>
<td>0</td>
<td>28</td>
<td>57</td>
<td>86</td>
<td>117</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For</td>
<td>S</td>
<td>210</td>
<td>240</td>
<td>W</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>Steer</td>
<td>180</td>
<td>212</td>
<td>243</td>
<td>274</td>
<td>303</td>
<td>332</td>
<td></td>
</tr>
</tbody>
</table>

Sample Compass Deviation Card

<table>
<thead>
<tr>
<th>Check Points (fixes)</th>
<th>VOR</th>
<th>Course (Route)</th>
<th>Altitude</th>
<th>Wind</th>
<th>CAS</th>
<th>TC</th>
<th>TH</th>
<th>MH</th>
<th>CH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freq.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCRG</td>
<td></td>
<td>290</td>
<td>41'</td>
<td>320</td>
<td>4</td>
<td>76</td>
<td>290</td>
<td>284</td>
<td>289</td>
</tr>
<tr>
<td>Bridges</td>
<td></td>
<td>290</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. List the total distance form Table 3.1 in the first box in the Dist. column on the Nav Log. List the distance for each leg from Table 3.1 in the Leg column of the Nav Log. Subtract the first leg distance from the total distance and list in the Rem. column. Continue subtracting each leg from the previous Rem. column figure and list each the Rem. column.
11. Calculate the estimated time for each leg based on Ground Speed and Distance. Enter the value in the ETE column of the Nav Log. List total time enroute at the bottom of the column.

\[
\text{ETE (in tenths of an hour)} = \frac{\text{Leg Distance}}{\text{Ground Speed}}
\]

12. Enter your Estimated Time of Departure from Table 1.1 in the Time Off in the Nav Log. This column must list time values in Zulu time.

\[\text{ETA (Waypoint 1)} = \text{ETD} + \text{ETE (to Waypoint 1)}\]

Add ETE to the previous row's ETA to get the ETA for each waypoint.

13. Using GPH required for the Climb, Cruise, and Descent (Table 4.3), calculate Fuel Burn for each leg. If you have multiple legs in the climb or descent, divide the Fuel Burn between the legs.

\[
\text{Fuel Burn} = \text{ETE (in tenths of hours)} \times \text{GPH}
\]

14. Add up the ETE column to get Total Time Enroute, and the Fuel Burn column to get total Fuel Burn and list in the Nav Log. Enter the Average GPH in Cruise from Table 4.4 in the GPH header field of the Nav Log.

<table>
<thead>
<tr>
<th>Dist</th>
<th>GS</th>
<th>Time Off</th>
<th>GPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leg</td>
<td></td>
<td>12:00z</td>
<td>7.9</td>
</tr>
<tr>
<td>Rem</td>
<td>Est</td>
<td>ETE</td>
<td>ETA</td>
</tr>
<tr>
<td>182</td>
<td>Act</td>
<td>5</td>
<td>69</td>
</tr>
<tr>
<td>177</td>
<td></td>
<td>50.3</td>
<td>:09</td>
</tr>
<tr>
<td>170</td>
<td></td>
<td>50.2</td>
<td></td>
</tr>
</tbody>
</table>

15. Calculate legal fuel required. Daytime VFR requires 30 minutes of reserve at cruise burn. Nighttime VFR requires 45 minutes of reserve at cruise burn.

\[\text{Day VFR Fuel Required} = \text{Total Fuel Burn} + (\text{Cruise Fuel Rate in GPH} \times 0.5)\]
\[\text{Night VFR Fuel Required} = \text{Total Fuel Burn} + (\text{Cruise Fuel Rate in GPH} \times 0.75)\]

Complete Table 4.6 on the VFR Flight Planning Supplement Worksheet.
SECTION 5

Destination Information

Resources

- ForeFlight
- POH
- Airport Facility Directory (AF/D)
- Calculator
- ATP’s Airworthiness Checklist

1. Using ATP’s Airworthiness Checklist, complete your weight and balance calculations for landing.

**CHECKRIDE FACT**

You must use the weight and balance information from the POH of your n-numbered checkride aircraft to get accurate data.

Verify you are using the correct Center of Gravity Range Chart for your specific aircraft.

**Arrival Weight & Balance**

1. List Fuel Burn from Table 4.7. Copy the ARM of the fuel tanks, and multiply to get the MOMENT. This will be a negative number.
2. Add the Takeoff Weight and the Fuel Burn to get the Landing Weight. Add the MOMENTS. Divide Landing MOMENT by Landing Weight to get Landing CG.

2. Plot the Landing Weight and CG, and verify it’s within limits. Draw a line from the Takeoff Weight and CG to the Landing Weight and CG, to ensure you’ll be within the CG envelope for the entire flight.

**Arrival Airport Information**

3. To determine if you can safely land, view your arrival airport in the Airports tab in ForeFlight. Verify the information with the AF/D.

**Complete Table 5.1 through 5.3 on the VFR Flight Planning Supplement Worksheet.**

**Landing Performance Calculations**

4. Verify that you can land and stop on the runway without damaging the aircraft. Enter your Landing Distances on ATP’s Airworthiness Checklist.
NOTE: Read all conditions and notes before beginning. Often times you’ll need to decrease or increase a number for nonstandard temperature, winds, or density altitude.

CHECKRIDE FACT

Use the Performance charts for the specific aircraft you will be flying in the checkride.

Older models with upgraded engines will have supplements at the end of the POH that alter performance data. Be thorough in your performance planning.

### CESSNA
**MODEL 172S**

#### SECTION 5
**PERFORMANCE**

**SHORT FIELD LANDING DISTANCE**
**AT 2550 POUNDS**

**CONDITIONS:**
- Flaps 30°
- Power Off
- Maximum Braking
- Paved, level, dry runway
- Zero Wind
- Speed at 50 Ft: 61 KIAS

<table>
<thead>
<tr>
<th>Press Alt In Feet</th>
<th>0°C</th>
<th>10°C</th>
<th>20°C</th>
<th>30°C</th>
<th>40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grnd Roll Ft</td>
<td>Total Ft To Clear 50 Ft Obst</td>
<td>Grnd Roll Ft</td>
<td>Total Ft To Clear 50 Ft Obst</td>
<td>Grnd Roll Ft</td>
</tr>
<tr>
<td>S. L.</td>
<td>545</td>
<td>1290</td>
<td>565</td>
<td>1320</td>
<td>585</td>
</tr>
<tr>
<td>1000</td>
<td>565</td>
<td>1320</td>
<td>585</td>
<td>1350</td>
<td>605</td>
</tr>
<tr>
<td>2000</td>
<td>585</td>
<td>1355</td>
<td>610</td>
<td>1385</td>
<td>630</td>
</tr>
<tr>
<td>3000</td>
<td>610</td>
<td>1385</td>
<td>630</td>
<td>1425</td>
<td>655</td>
</tr>
<tr>
<td>4000</td>
<td>630</td>
<td>1425</td>
<td>655</td>
<td>1460</td>
<td>675</td>
</tr>
<tr>
<td>5000</td>
<td>655</td>
<td>1460</td>
<td>680</td>
<td>1500</td>
<td>705</td>
</tr>
<tr>
<td>6000</td>
<td>680</td>
<td>1500</td>
<td>705</td>
<td>1540</td>
<td>730</td>
</tr>
<tr>
<td>7000</td>
<td>705</td>
<td>1545</td>
<td>730</td>
<td>1585</td>
<td>760</td>
</tr>
<tr>
<td>8000</td>
<td>735</td>
<td>1585</td>
<td>760</td>
<td>1630</td>
<td>790</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Short field technique as specified in Section 4.
2. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
3. For operation on dry, grass runway, increase distances by 45% of the "ground roll" figure.
4. If landing with flaps up, increase the approach speed by 9 KIAS and allow for 35% longer distances.
SECTION 6

Nav Log & Checkride Documents

Resources

- Nav Log Pages
- Calculator
- VFR Flight Planning Supplement Worksheet
- Printed Weather Documents
- Performance/W&B Documents

You have completed all the calculations and planning required to safely make your flight. Now you must complete the Nav Log and organize your documents for presentation.

1. In the Notes section of the Nav Log, copy your Cruise averages – Ground Speed, True Airspeed, Winds Aloft, and Temperatures.

2. Enter your departure airport and traffic pattern altitude from Table 2.2.

3. Refer to Table 4.4 and copy the average cruise information, including CAS. For Fuel on Board, subtract Start/Taxi/Takeoff Fuel from Ramp Fuel in Table 2.1 in gallons.

<table>
<thead>
<tr>
<th>CRUISE</th>
<th>AIRPORT: KCRG</th>
<th>TPA: 941'</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT</td>
<td>% PWR</td>
<td>Press ALT</td>
</tr>
<tr>
<td>4500'</td>
<td>60%</td>
<td>4520'</td>
</tr>
</tbody>
</table>

4. If you require more than one page for your route, draw both the departure and the destination runway layouts in the boxes. Otherwise, draw the destination runway layout.

5. Copy the departure and destination frequencies from Table 2.2 and Table 5.2. If your Nav Log is more than one page, be sure to list the frequencies on the appropriate page.

6. Fill out the VFR Flight Plan Form. If you are going to make the flight, file the flight plan using Foreflight.

CHECKRIDE FACT

Do not file or open the flight plan you planned. Since you are not actually completing this flight, filing and opening a flight plan would cause Search and Rescue Operations to be initiated 30 minutes after your destination ETA.
Notes About Flight Plans

A flight plan is filed with flight service with an estimated time of departure, and becomes void if the flight plan is not opened within 1 hour.

The flight plan can be activated in one of three ways:

1. Call the AFSS and ask for your flight plan to be activated. You can also request flight plan activation immediately after filing
2. At a tower controlled airport you can request ground control to open your flight plan for you
3. The flight plan can be activated once airborne on the local Flight Watch frequency (122.0 is the default, check for RCO's at VORs near the airport of departure and check the AFD for listed RCO frequencies.

Flight plans should be closed with the FSS upon arrival at your destination. This can be done from the air or the ground on Flight Watch frequency, by request to the tower at controlled airports, or by calling the AFSS once on the ground.

Should you not close your flight plan, the FSS will allow a half hour of "grace time" and then start search procedures. They will first call the destination to see if you've landed. They will next call any other contact numbers (aircraft home base etc.). If the aircraft cannot be located, a full Search and Rescue effort will be initiated along your route of flight. Pilots can be liable for the costs of SAR operations. Do not forget to close your flight plan.

**NOTE:** Pilots must always speak with a Flight Service Weather Briefer and request a briefing.

Student and Private Pilots must request a standard briefing.

Instrument, Commercial students, and CFIs may request an abbreviated briefing.

7. Complete the ATP Airworthiness Checklist and preflight your aircraft prior to flight.
Atlanta (FFC, LZU, PDK) • Austin • Camarillo • Charlotte • Chicago
Dallas (ADS, DFW, GKY, TKI) • Daytona Beach • Denver (APA, BJC) • Fort Lauderdale
Fort Myers • Hartford • Houston • Jacksonville • Long Beach • Louisville • Morristown • Nashville
New York • Oakland • Phoenix (IWA, SDL) • Portland • Raleigh-Durham • Richmond • Riverside
Sacramento • Salt Lake City • San Diego • Seattle (PAE, TIW) • Tampa • Trenton • Tucson