

# USAFA Aero Club

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## Airman Information Packet



Revision 7

**For Reference Use Only**

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## Revision History

Revision Number	Description of Changes With Page Number	Date of Revision	Changes Performed By (Name)	Signed off by (name)
0	Document Created	2/13/19	Basil Sonin	Chris Carper
1	Reordered Pages, updated responses for requesting closed traffic, added call signs to aero club performance chart, fixed error on arrivals 16L 34R.	4/4/19	Basil Sonin, Vivien Wu, Dan Hall,	Chris Carper
2	Flight watch frequency corrected pg.11	5/8/19	Bergan Hugos	Chris Carper
3	Updated page 10 to new v-speeds and added page 57 new IACRA Testing Procedures	03/11/20	Chris Carper	Chris Carper
4	Updated page 30 to reflect proper touch and go and go around procedures and page 45 Pre-Solo requirements. Numerous administrative corrections.	10/6/20	Chris Carper	Chris Carper
5	Updated FAA Testing Website Links	10/19/20	Chris Carper	Chris Carper
6	Pg 10, airplanes added, pg 14 ramp name added, pg 17,-26 clarity added pg 29 corrections and speeds updated, pg 32 note and checklist added, pg 34 clarity added pg 37 maneuver changed to have flaps, pg 43, clarity added, pg 47-54 small corrections added.	10/1/2021	Basil Sonin	
7	Airspace map now reflect the new A,B,C,D areas. Pg 54 changed to OPEN book test	11/02/2022	Dan Roehrs	
8				
9				
10				
11				

## Orientation Briefing Guide

**PURPOSE:** This checklist shall be completed prior to any flight without a Certified Flight Instructor (CFI). Items 1 through 3 shall be thoroughly covered with the new member by a CFI. Items 4 through 9 shall be completed prior to completion of initial checkout.

**1. Academy Flight Training Center Purpose and Organization:**

- a. AFI 34-117
- b. Flight Training Center Standard Operating Procedures

**2. Administration and Management:**

- a. Aero Club Manager
- b. Aircraft / Instructor Rates
- c. Use of Flight Training Center Telephones
- d. Aircraft Scheduling and Cancellations
- e. No show / late show penalty
- f. Aircraft Books and Record Keeping
- g. Charges and Incurred Expenses (Safe)
- h. Payments
- i. Flight Training Center (FTC) Access and Security
- j. Aircraft Key box Access
- k. Covenant Not To Sue Form (AF Form 1585)

**3. Safety:**

- a. Safety Meeting Attendance and Documentation
- b. Safety Meeting Viewing and Documentation
- c. Accident / Incident Reporting Procedures
- d. Ground Safety / Ramp and Refueling Safety

**4. Flight Operations:**

- a. FTC Written Exams
- b. FTC / Aircraft Check Out
- c. Operations Environment
- d. Pilot-in Command
- e. Sign-out / Clearing Procedures
- f. Refueling Procedure, Emergency Fuel Shut-off, and Use of Fire Extinguisher
- g. Oil Supply / Window Cleaning Materials Storage
- h. Base Operations / Weather Service / METAR
- i. Hangar and Outside Parking
- j. Aircraft Maintenance / Discrepancy Status (AF Form 781)
- k. VFR Departure / Corridor / Arrival Procedures
- l. Closed Traffic and Center Runway Procedures
- m. Uncontrolled Airfield Procedures
- n. Aircraft Tiedown Use / Technique
- o. Aircraft Discrepancies
- p. Pilots Induced Costs
- q. Egress Training / Orientation

**5. Pre-Flight Clearance Procedures:**

- a. Flight Circle Use and Certifications
- b. Weather Minimums
- c. FTC Local / X-C Flight Plans
- d. Status Board and WX Information Systems



## Checkout Requirements for Pilots

GENERAL KNOWLEDGE*	CFI INITIALS	PILOT INITIALS	DATE
1. Academy Flight Center Restrictions			
2. Local Ground Movement Area and Airspace			
3. Billing, Scheduling System, and Clearing Procedures			
PREFLIGHT*			
4. Weather Information and Sources			
5. Access to Aviation Information at the Training Center			
6. Maintenance Log and Practices			
7. Use of Hangars, Parking Ramps, and Refueling Area			
ACADEMY AIRFIELD OPERATIONS*			
8. Airspace Overview, Departure and Arrival Procedures			
9. Approved Radio Calls: Towered and Non-Towered			
10. Pattern Procedures, Runway Change and Breakouts			
AIRCRAFT MANUEVERS REQUIRED VFR*			
11. Steep Turns, Slow flight, Power-on, Power-off Stalls			
12. Normal, No-Flap, and Power Off 180 Landings			
AIRCRAFT MANUEVERS REQUIRED IFR**			
13. Operating on Instrument References			
14. Conducting Precision and Non-Precision Approaches			
BI-ANNUAL FLIGHT REVIEW see AC 61-98D**			
15. Review of Part 91 Operating and Flight Rules			
16. Pilot Deviation Avoidance			
17. Automation Competency			
18. Angle of Attack Systems			
19. Review of Maneuvers and Procedures			
20. Flight Maneuvers as required by the Instructor			

**CHECKOUT REQUIREMENTS FOR PILOTS CONTINUED**

<b>INSTRUMENT PROFICIENCY CHECK see AC 61-98D**</b>	<b>CFI INITIALS</b>	<b>PILOT INITIALS</b>	<b>DATE</b>
21. Ground Review of Flight Profiles to be Flown			
22. Aircraft Control by Reference to Instruments			
23. Systems and Procedures within the IFR Realm			
24. Aeronautical Decision Making			
25. Stabilized Approaches and Landings			
<b>NIGHT OPERATIONS**</b>			
26. Night Preparation			
27. Night Flight Checkout			
<b>LOCAL EMERGENCY PROCEDURES*</b>			
28. Radio Out Procedures for the Academy Airfield			
29. Alternate Airfields for Divert Purposes			
30. Survival Equipment for Local and Mountain Flights			
<b>POSTFLIGHT PROCEDURES*</b>			
31. After Landing			
32. Parking, Refueling, and Securing Aircraft			

\* - Required for Local Area Checkout

\*\* - As required for Bi-Annual Flight Review, Night or Instrument Checkouts



## How to Expedite Your Training and Save Money

**Comment: Remember that time is money. The longer it takes you to gain proficiency, the longer it takes you to get your license and the more money it costs you. Following are some recommendations of how to speed up your training and save money.**

**Preflight** — Many hours are spent by instructors watching students perform long and monotonous preflights. After the instructor shows you how to do a preflight, come to the Aero Club and practice. Sit in a cockpit with the checklist and run through a preflight over and over and over. Learn it so well that you can get it done in 5 to 10 minutes.

**Engine Startup** — Same thing. Come to the Aero Club, sit in a cockpit with the checklist and simulate running through the startup sequence.

**Engine Run Up** — Same thing. Come to the Aero Club, sit in a cockpit with the checklist and simulate running through the engine run up sequence. Try to minimize engine run time on the ground. (Note: During cold weather operations, allow the aircraft to reach operating temperature before doing the run up.) Remember, every six minutes of running costs you about \$11.00 for the airplane and \$3.80 dollars for the instructor's time.

**Radio Calls** — You have to commit the radio calls to memory. Practice what you have been given in the radio call handouts. They are not hard to do. So practice. You have to know the radio calls before you can fly solo.

**Arrivals and Departures** — Study the diagrams. They're described and illustrated in the Aero Club Standard Operating Procedures and in the In-Flight Guide, which you can find in the Aero Club website. You have to know the arrivals and departures and be able to fly them before you can solo.

**Ground Reference Points** — Know them. They're described and illustrated in the Aero Club Standard Operating Procedures and in the In-Flight Guide, which you can find in the Aero Club website. You have to be able to navigate to them and be able to identify them from the air before you can fly solo.

**Landings and Maneuvers** — Chair fly them at home or sit in a cockpit at the Aero Club and simulate flying them. Practice makes perfect and eliminates repeating flights. Repeating flights is expensive. Remember: \$14.80 for every six minutes.

**Lesson Preparation** — Be prepared for the next lesson, read the text, and watch the video. If necessary, ask questions and clarify with the instructor. A flight lesson cannot be flown if the ground lesson has not been completed.

**One final thing** — Fly with precision. Repeat: Fly with precision. Become your very best. You'll gain proficiency faster and complete the training faster. And, you'll be a better pilot.

## Aero Club Aircraft Performance Chart

<b>Aircraft</b>	<b>N1370U</b>	<b>N1401E</b>	<b>N6601K</b>	<b>N98306</b>	<b>N78512</b>	<b>T41C</b>	<b>94986</b>
Call-Sign	Rally 70	Rally 14	Rally 01	Rally 06	Rally 12	Rally	Rally 08
Year	1976	1978	1981	1985	1969	03 / 04 / 53	1978
Model	C-172 M	C-172 N	C-172 P	C-172 P	C-172 K	R-172E	C-182 Q
IAS	<b>KTS</b>	<b>KTS</b>	<b>KTS</b>	<b>KTS</b>	<b>MPH</b>	<b>MPH</b>	<b>KTS</b>
V <sub>r</sub> Rotate	<b>55</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>60</b>	<b>60</b>	<b>60</b>
Normal Climb	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>85</b>	<b>90</b>	<b>90</b>
Best Glide	<b>65</b>	<b>65</b>	<b>65</b>	<b>65</b>	<b>80</b>	<b>85</b>	<b>70</b>
Stall Entry	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>80</b>	<b>80</b>	<b>75</b>
V <sub>ne</sub>	<b>160</b>	<b>160</b>	<b>158</b>	<b>158</b>	<b>174</b>	<b>182</b>	<b>179</b>
V <sub>no</sub>	<b>128</b>	<b>128</b>	<b>127</b>	<b>127</b>	<b>140</b>	<b>145</b>	<b>143</b>
V <sub>a</sub>	<b>97/89/80</b>	<b>97/89/80</b>	<b>99/92/82</b>	<b>99/92/82</b>	<b>122</b>	<b>127</b>	<b>111/100/89</b>
Weight	2300/1950/1600	2300/1950/1600	2400/2000/1600	2400/2000/1600	2400	2500	2950/2450/1950
V <sub>fe</sub>	<b>85</b>	<b>110/85</b>	<b>110/85</b>	<b>110/85</b>	<b>100</b>	<b>100</b>	<b>140 / 95</b>
V <sub>y</sub> (SL—10,000MSL)	<b>78-68</b>	<b>73-68</b>	<b>76-71</b>	<b>76-71</b>	<b>82-79</b>	<b>95</b>	<b>78-72</b>
V <sub>x</sub> (SL—10,000MSL)	<b>59</b>	<b>59</b>	<b>56</b>	<b>56</b>	<b>68-74</b>	<b>70</b>	<b>60</b>
V <sub>s</sub>	<b>47</b>	<b>47</b>	<b>44</b>	<b>44</b>	<b>57</b>	<b>64</b>	<b>48</b>
V <sub>so</sub>	<b>41</b>	<b>41</b>	<b>33</b>	<b>33</b>	<b>49</b>	<b>53</b>	<b>45</b>
DOWNWIND	<b>85</b>	<b>85</b>	<b>85</b>	<b>85</b>	<b>95</b>	<b>95</b>	<b>95</b>
BASE	<b>75</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>85</b>	<b>85</b>	<b>80</b>
FINAL	<b>65</b>	<b>65</b>	<b>65</b>	<b>65</b>	<b>75</b>	<b>85</b>	<b>70</b>
SHORT FINAL FLAPS UP	<b>60</b>	<b>60</b>	<b>65</b>	<b>65</b>	<b>70</b>	<b>85</b>	<b>70</b>
SHORT FINAL FLAPS DOWN	<b>55</b>	<b>55</b>	<b>60</b>	<b>60</b>	<b>65</b>	<b>75</b>	<b>60</b>
TOTAL FUEL (GALS)	<b>42</b>	<b>43</b>	<b>54</b>	<b>43</b>	<b>42</b>	<b>52</b>	<b>80</b>
USABLE FUEL (GALS)	<b>38</b>	<b>40</b>	<b>50</b>	<b>40</b>	<b>38</b>	<b>46</b>	<b>75</b>
MAX WEIGHT (lbs)	<b>2550</b>	<b>2550</b>	<b>2550</b>	<b>2550</b>	<b>2500</b>	<b>2500</b>	<b>2950</b>

## How to Obtain a Good Weather Brief

- First, get the “big picture”. Use all available sources such as the weather channel, local weather, and any computer sources at your disposal.
- Next comes FSS; 1-800-WX-BRIEF (992-7433) or the 306 OSS Weather at 719-333-2058 to get one of three weather briefings. For 306 OSS, request 1 hour prior to briefing:
  - Outlook — Used when the flight is more than six hours away.
  - Standard — Used to provide all information throughout the flight
  - Abbreviated — Used just prior to takeoff to update information
- Information to be ready to provide to FSS when you speak with them:
  - Certificate Held (Student, Private, Commercial)
  - Aircraft Tail Number
  - Type of flight (IFR or VFR)
  - Aircraft Type
  - Departure Point
  - Estimated time of departure in Zulu time
  - Proposed altitude and route
  - Destination
  - Estimated time enroute
  - Contact information (name and phone number)
- Here is what you will get:
  - Adverse Conditions (thunderstorms, icing, turbulence, ceilings, visibility)
  - Synopsis (cause of weather such as fronts or pressure systems)
  - Current conditions
  - Enroute forecast
  - Destination forecast
  - Winds aloft
  - NOTAMs
  - Ask for TFR’s and what frequencies to open and close flight plan on
- Weather during flight is observed on local FSS frequency on (122.2) for enroute weather.
- 175-1 (Dash—One) from 306 OSS / OSW can be requested one day prior. 306 OSS / OSW will provide if time permits.

## METAR / TAF Decoder

<b>TAF</b> KPIT 091730Z 0918/1024 15005KT 5SM HZ FEW020 WS010/31022KT FM091930 30015G25KT 3SM SHRA OVC015 TEMPO 0920/0922 1/2SM +TSRA OVC008CB FM100100 27008KT 5SM SHRA BKN020 OVC040 PROB30 1004/1007 1SM -RA BR FM101015 18005KT 6SM -SHRA OVC020 BECMG 1013/1015 P6SM NSW SKC
<b>NOTE:</b> Users are cautioned to confirm <i>DATE</i> and <i>TIME</i> of the TAF. For example FM100000 is 0000Z on the <b>10th</b> . Do not confuse with <b>1000Z!</b>
<b>METAR</b> KPIT 091955Z COR 22015G25KT 3/4SM R28L/2600FT TSRA OVC010CB 18/16 A2992 RMK SLP045 T01820159

Forecast	Explanation	Report
<b>TAF</b>	Message type: <u>TAF</u> -routine or <u>TAF AMD</u> -amended forecast, <u>METAR</u> -hourly, <u>SPECI</u> -special or <u>TESTM</u> -non-commissioned ASOS report	<b>METAR</b>
<b>KPIT</b>	ICAO location indicator	<b>KPIT</b>
<b>091730Z</b>	Issuance time: ALL times in UTC " <u>Z</u> ", 2-digit date, 4-digit time	<b>091955Z</b>
<b>0918/1024</b>	Valid period, either 24 hours or 30 hours. The first two digits of EACH four digit number indicate the date of the valid period, the final two digits indicate the time (valid from 18Z on the 9th to 24Z on the 10 <sup>th</sup> ).	
	In U.S. METAR: <u>COR</u> rected of; or <u>AUTO</u> mated ob for automated report with no human intervention; omitted when observer logs on.	<b>COR</b>
<b>15005KT</b>	Wind: 3 digit true-north direction , nearest 10 degrees (or <u>VaRiA</u> ble); next 2-3 digits for speed and unit, <u>KT</u> (KMH or MPS); as needed, <u>G</u> ust and maximum speed; 00000KT for calm; for METAR, if direction varies 60 degrees or more, <u>V</u> ariability appended, e.g., 180 <u>V</u> 260	<b>22015G25KT</b>
<b>5SM</b>	Prevailing visibility; in U.S., <u>S</u> tatute <u>M</u> iles & fractions; above 6 miles in TAF <u>P</u> lus <u>6SM</u> . (Or, 4-digit minimum visibility in meters and as required, lowest value with direction)	<b>3/4SM</b>
	Runway Visual Range: <u>R</u> ; 2-digit runway designator <u>L</u> eft, <u>C</u> enter, or <u>R</u> ight as needed; " <u>?</u> ", Minus or Plus in U.S., 4-digit value, <u>F</u> ee <u>T</u> in U.S., (usually meters elsewhere); 4-digit value <u>V</u> ariability 4-digit value (and tendency <u>D</u> own, <u>U</u> p or <u>N</u> o change)	<b>R28L/2600FT</b>
<b>HZ</b>	Significant present, forecast and recent weather: see table (on back)	<b>TSRA</b>
<b>FEW020</b>	Cloud amount, height and type: <u>S</u> Ky <u>C</u> lear 0/8, <u>F</u> EW >0/8-2/8, <u>S</u> Ca <u>T</u> tered 3/8-4/8, <u>B</u> ro <u>K</u> e <u>N</u> 5/8-7/8, <u>O</u> Ver <u>C</u> ast 8/8; 3-digit height in hundreds of ft; <u>T</u> owering <u>C</u> Umulus or <u>C</u> umulonim <u>B</u> us in <b>METAR</b> ; in <b>TAF</b> , only <u>C</u> B. <u>V</u> ertical <u>V</u> isibility for obscured sky and height "VV004". More than 1 layer may be reported or forecast. In automated <b>METAR</b> reports only, <u>C</u> Lea <u>R</u> for "clear below 12,000 feet"	<b>OVC 010CB</b>
	Temperature: degrees Celsius; first 2 digits, temperature " <u>?</u> " last 2 digits, dew-point temperature; <u>M</u> inus for below zero, e.g., M06	<b>18/16</b>
	Altimeter setting: indicator and 4 digits; in U.S., <u>A</u> -inches and hundredths; ( <u>Q</u> -hectoPascals, e.g., Q1013)	<b>A2992</b>
<b>WS010/31022KT</b>	In U.S. <b>TAF</b> , non-convective low-level ( $\leq 2,000$ ft) <u>W</u> ind <u>S</u> hear; 3-digit height (hundreds of ft); " <u>?</u> "; 3-digit wind direction and 2-3 digit wind speed above the indicated height, and unit, <u>KT</u>	

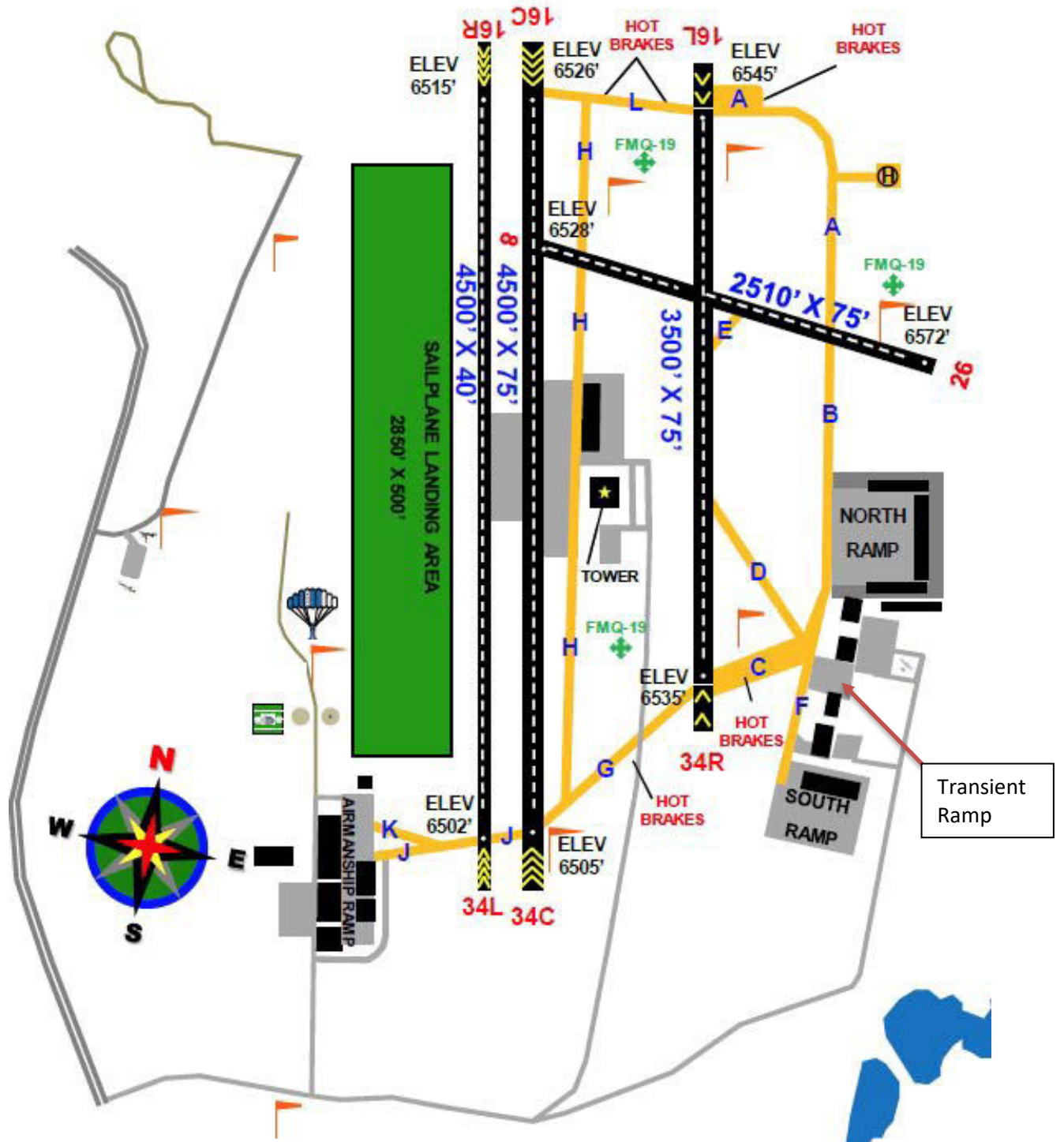
	In <b>METAR</b> , <b>ReMarK</b> indicator & remarks. For example: <u>Sea- Level Pressure</u> in hectoPascals & tenths, as shown: 1004.5 hPa; <u>Temp/dew-point</u> in tenths <u>C</u> , as shown: temp. 18.2 <u>C</u> , dew-point 15.9 <u>C</u>	<b>RMK SLP045 T01820159</b>
<b>FM091930</b>	<b>From</b> : changes are expected at: 2-digit date, 2-digit hour, and 2-digit minute beginning time: indicates significant change. Each FM starts on a new line, indented 5 spaces	
<b>TEMPO 0920/0922</b>	<b>TEMPO</b> rary: changes expected for <1 hour and in total, < half of the period between the 2-digit date and 2-digit hour beginning, and 2-digit date and 2-digit hour ending time	
<b>PROB30 1004/1007</b>	<b>PROB</b> ability and 2-digit percent (30 or 40): probable condition in the period between the 2-digit date & 2-digit hour beginning time, and the 2-digit date and 2-digit hour ending time	
<b>BECMG 1013/1015</b>	<b>BECoMinG</b> : change expected in the period between the 2-digit date and 2-digit hour beginning time, and the 2-digit date and 2-digit hour ending time	

**Table of Significant Present, Forecast and Recent Weather - Grouped in categories and used in the order listed below; or as needed in TAF, No Significant Weather.**

<b>Qualifiers</b>			
<b>Intensity or Proximity</b>			
"-" = Light	No sign = Moderate	"+" = Heavy	
"VC" = Vicinity, but not at aerodrome. In the US METAR, 5 to 10 SM from the point of observation. In the US TAF, 5 to 10 SM from the center of the runway complex. Elsewhere, within 8000m.			
<b>Descriptor</b>			
BC – Patches	BL – Blowing	DR – Drifting	FZ – Freezing
MI – Shallow	PR – Partial	SH – Showers	TS – Thunderstorm
<b>Weather Phenomena</b>			
<b>Precipitation</b>			
DZ – Drizzle	GR – Hail	GS – Small Hail/Snow Pellets	
IC – Ice Crystals	PL – Ice Pellets	RA – Rain	SG – Snow Grains
SN – Snow	UP – Unknown Precipitation in automated observations		
<b>Obscuration</b>			
BR – Mist (≥5/8SM)	DU – Widespread Dust	FG – Fog (<5/8SM)	FU – Smoke
HZ – Haze	PY – Spray	SA – Sand	VA – Volcanic Ash
<b>Other</b>			
DS – Dust Storm	FC – Funnel Cloud	+FC – Tornado or Waterspout	
PO – Well developed dust or sand whirls	SQ – Squall	SS – Sandstorm	
<p>- Explanations in parentheses “()” indicate different worldwide practices.</p> <p>- Ceiling is not specified; defined as the lowest broken or overcast layer, or the vertical visibility.</p> <p>- NWS TAFs exclude BECMG groups and temperature forecasts, NWS TAFS do not use PROB in the first 9 hours of a TAF; NWS METARs exclude trend forecasts. US Military TAFs include Turbulence and Icing groups.</p>			

\*\*\*Note when visibility drops below 3 statute miles, military weather facilities broadcast METAR and TAF in meters.

# Airport Diagram











## Radio Call Basics

1. WHO are you calling
  2. WHO you are (Call Sign)
  3. WHERE you are
  4. WHAT do you want to do
  5. Special Information
- 

## Towered Departure

### 1) ATIS (128.525)

### 2) TAXI (Ground: 118.125)

“Academy Ground, Rally \_\_ (transient ramp / south ramp) taxi with (ATIS)\_\_\_\_, N/S/Cessna Meadow Lake Departure or Closed Pattern”

### 3) Takeoff (Tower 124.15)

“Academy Tower, Rally \_\_ Holding short Runway \_\_”

### 4) At 6,900’

“Rally \_\_ (L/R) request closed”

Or announce

“Rally \_\_ (L/R) crosswind”

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## Non Towered Departure

### 1) TAXI (CTAF: 124.15)

“Academy Traffic, Rally \_\_ Taxi from (transient ramp / south ramp) to (16L / 34R), Academy”

### 2) Takeoff

“Academy Traffic, Rally \_\_ taking off (16L/34R), N/S/Cessna Meadow Lake Departure or Closed Pattern, Academy”

### 3) At 6,900’

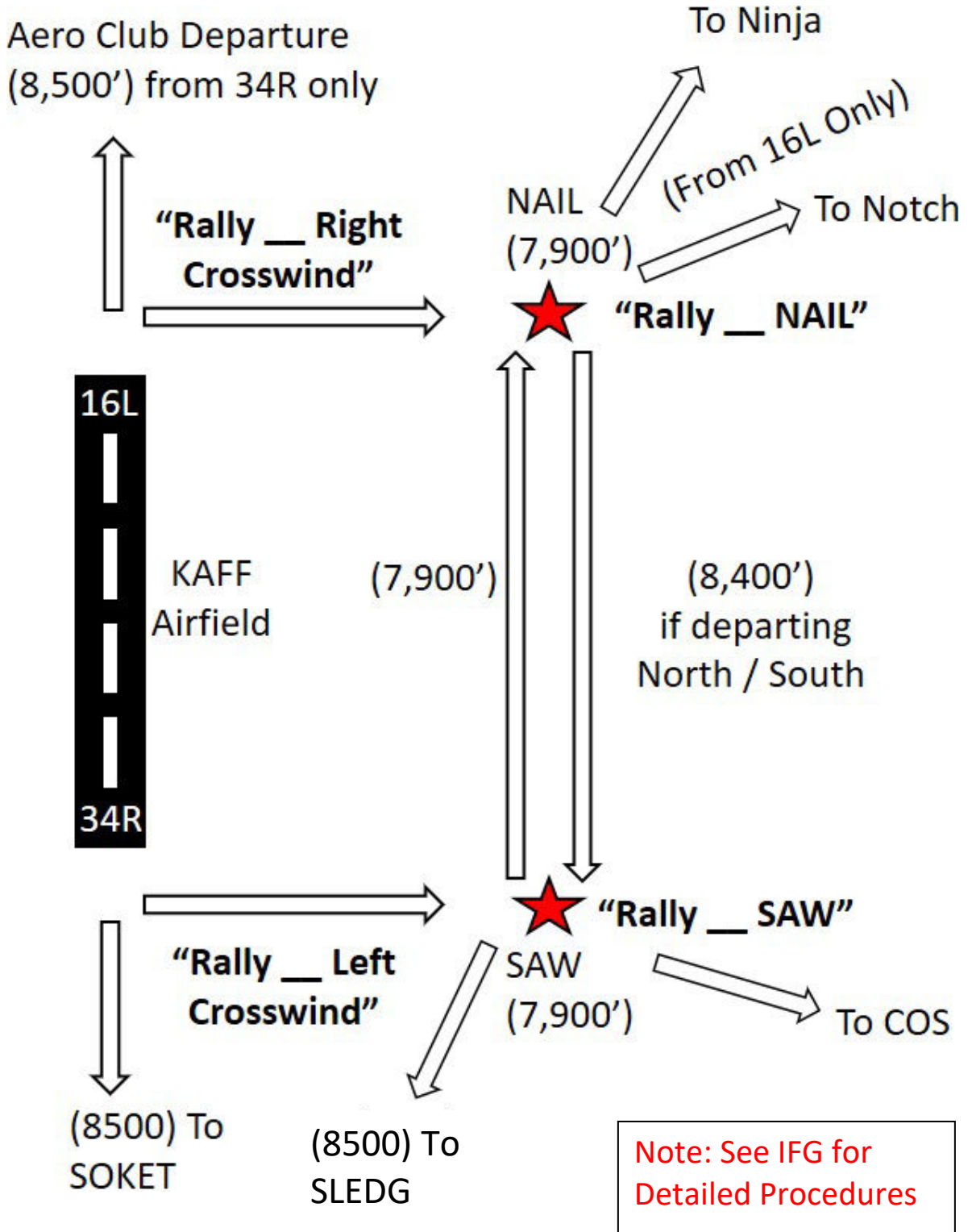
“Academy Traffic Rally \_\_ (L/R) closed, Academy” or

“Academy Traffic Rally \_\_ (L/R) crosswind, Academy”

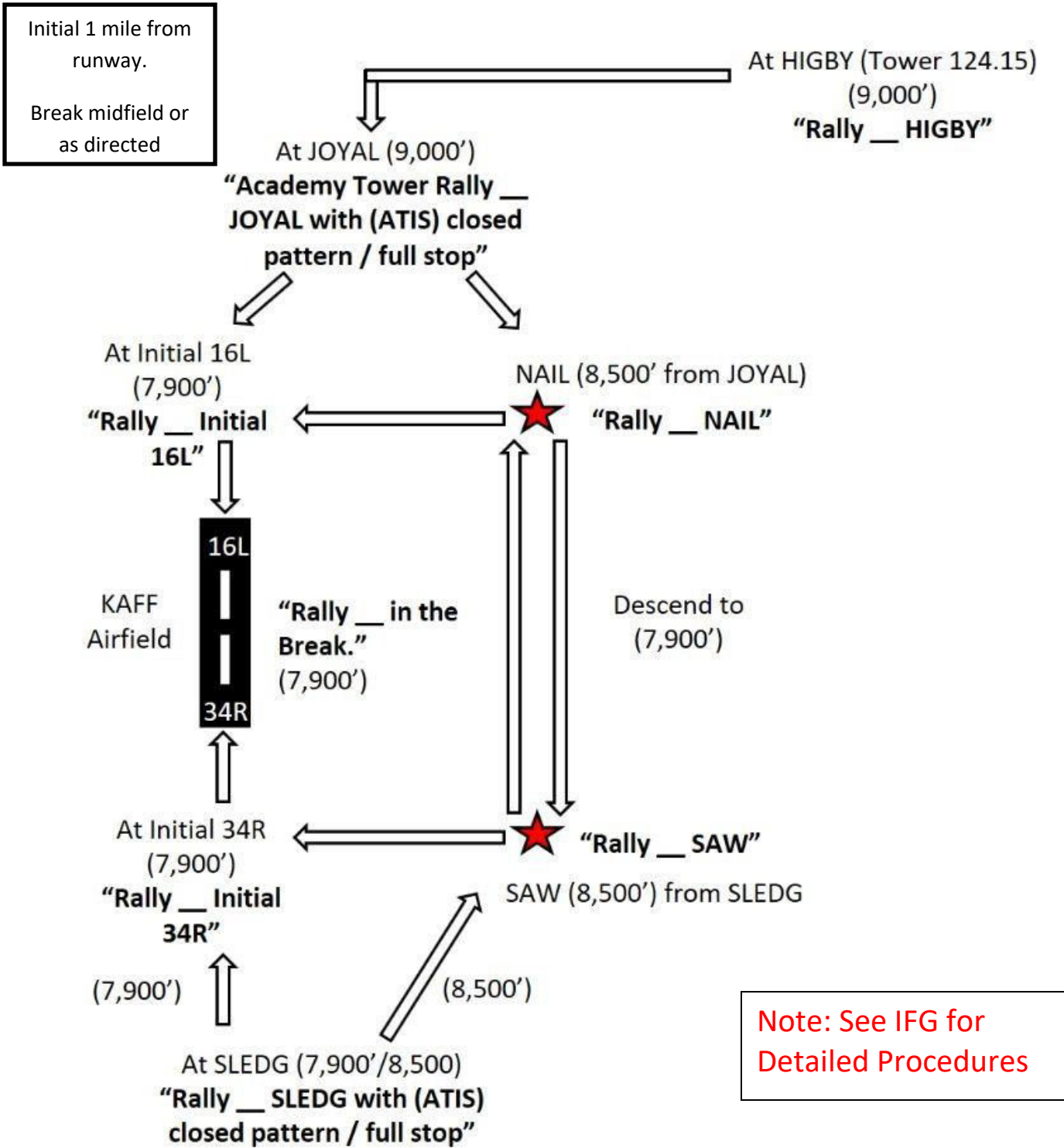
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# USAF Academy Radio Calls

## Departure and Outside Downwind 16L and 34R



## Arrivals 16L and 34R



## North Arrival – Towered, Runway 34R / 16L

1) **ATIS (128.525)**

2) **At HIGBY, 9,000', (Tower 124.15)**

“Rally\_\_\_HIGBY”

3) **At JOYAL, 9,000' (Tower 124.15)**

“Academy Tower, Rally \_\_ JOYAL with ATIS\_\_\_\_full stop/closed pattern”

\*\*\***(Skip to step 6 for runway 16L Arrival)**\*\*\*

4) **At NAIL 8,400'**

“Rally\_\_\_NAIL”

5) **SAW 7,900'**

“Rally\_\_\_SAW”

6) **Initial 7,900'**

“Rally\_\_\_Initial, 34R/16L”

7) **In the Break, 7,900'**

“Rally\_\_\_in the break, 34R/16L”

8) **Base Turn**

“Rally\_\_\_base 34R / 16L touch and go/full stop/option”

9) **After Landing (Ground 118.12)**

“Academy Ground, Rally\_\_\_taxi to transient ramp”

---

## South Arrival – Towered, Runway 34R / 16L

1) **ATIS (128.525)**

2) **At SLEDG, 7,900' or 9,500 (Tower 124.15)**

“Academy Tower, Rally\_\_\_SLEDG with ATIS \_\_, full stop/closed pattern”

\*\*\***(Skip to step 5 for runway 34R Arrival)**\*\*\*

3) **At SAW 7,900'**

“Rally\_\_\_SAW”

4) **At NAIL 7,900'**

“Rally\_\_\_NAIL”

**5) At Initial 7,900'**

"Rally\_\_\_Initial 34R/16L"

**6) In the Break, 7,900'**

"Rally\_\_\_in the break, 34R/16L"

**7) Base Turn**

"Rally\_\_\_base 34R / 16L"

**8) After Landing (Ground 118.12)**

"Academy Ground, Rally\_\_\_taxi to transient ramp"

---

**North Arrival – Non Towered, Runway 34R / 16L**

**1) At HIGBY, 9,000', (CTAF 124.15)**

"Rally\_\_\_HIGBY"

**2) At JOYAL, 9,000'**

"Academy Traffic, Rally\_\_\_JOYAL, full stop / closed pattern"

**\*\*\* (Skip to step 6 for runway 16L Arrival) \*\*\***

**3) At NAIL, 8,500'**

"Academy Traffic, Rally\_\_\_NAIL"

**4) At SAW, 7,900'**

"Rally\_\_\_SAW"

**5) At Initial 7,900'**

"Rally\_\_\_Initial 34R/16L"

**6) In the Break, 7,900'**

"Rally\_\_\_in the break, 34R/16L"

**7) Base Leg**

"Academy Traffic, Rally\_\_\_Base, 34R/16L touch and go/full stop/option, Academy Traffic"

**8) After Landing, (CTAF 124.15)**

"Academy Traffic, Rally\_\_\_clear of 34R/16L, taxi to transient ramp, Academy Traffic"

---

## South Arrival – Non Towered, Runway 34R / 16L

**1) At SLEDG, 8,000' or 9,500 (CTAF 124.15)**

“Academy Traffic, Rally\_\_\_SLEDG Runway 34R/16L full stop/closed pattern”

**\*\*\* (Skip to step 4 for runway 34R Arrival) \*\*\***

**2) At SAW, 7,900'**

“Academy Traffic, Rally\_\_\_SAW”

**3) At NAIL, 7,900'**

“Rally\_\_\_NAIL”

**4) At Initial 7,900'**

“Rally\_\_\_Initial 34R/16L”

**5) In the Break, 7,900'**

“Rally\_\_\_in the break, 34R/16L”

**6) Base Leg**

“Academy Traffic, Rally\_\_\_Base, 34R/16L touch and go/full stop/option, Academy Traffic”

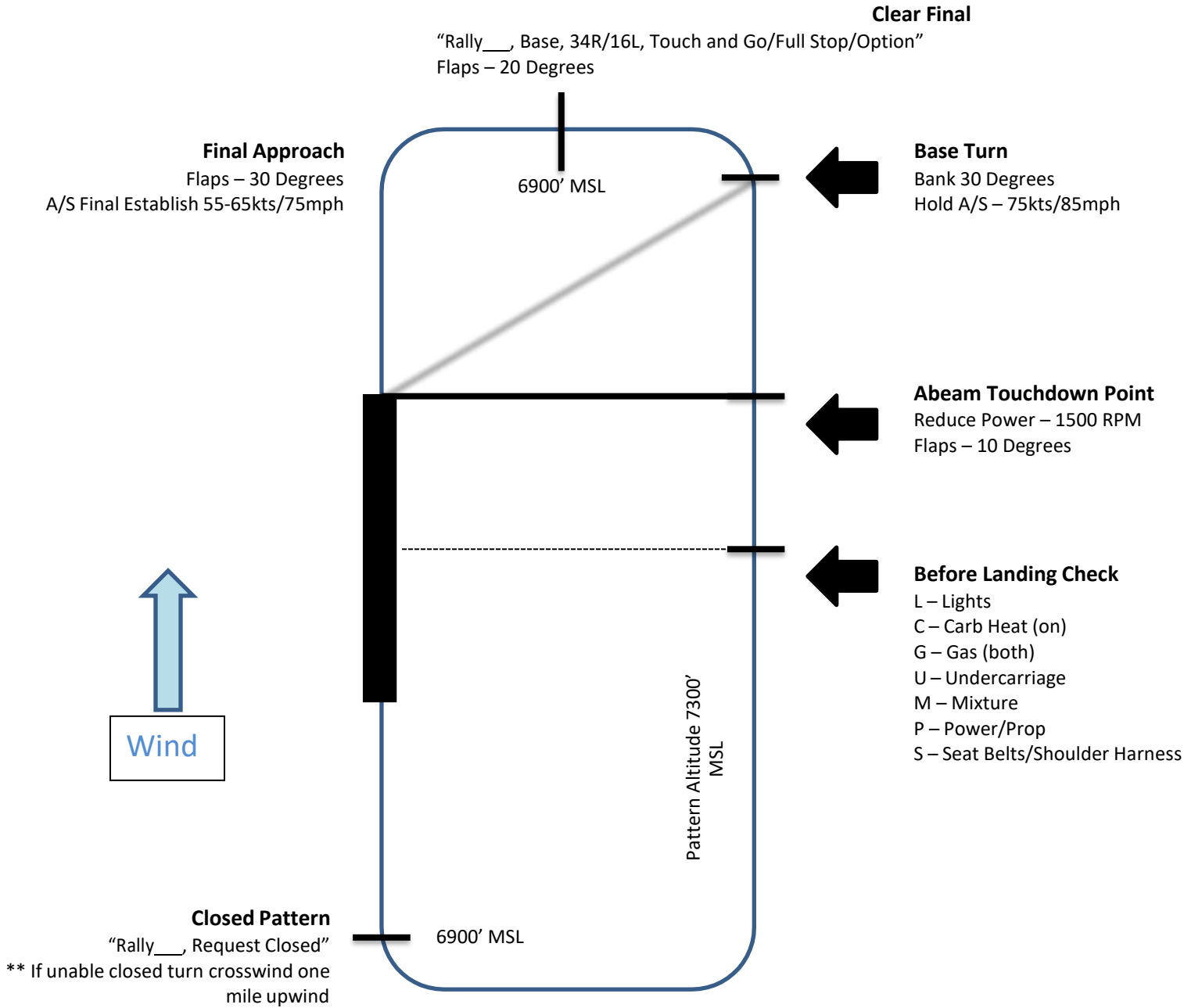
**7) After Landing, (CTAF 124.15)**

“Academy Traffic, Rally\_\_\_clear of 34R/16L, taxi to transient ramp, Academy Traffic”

---

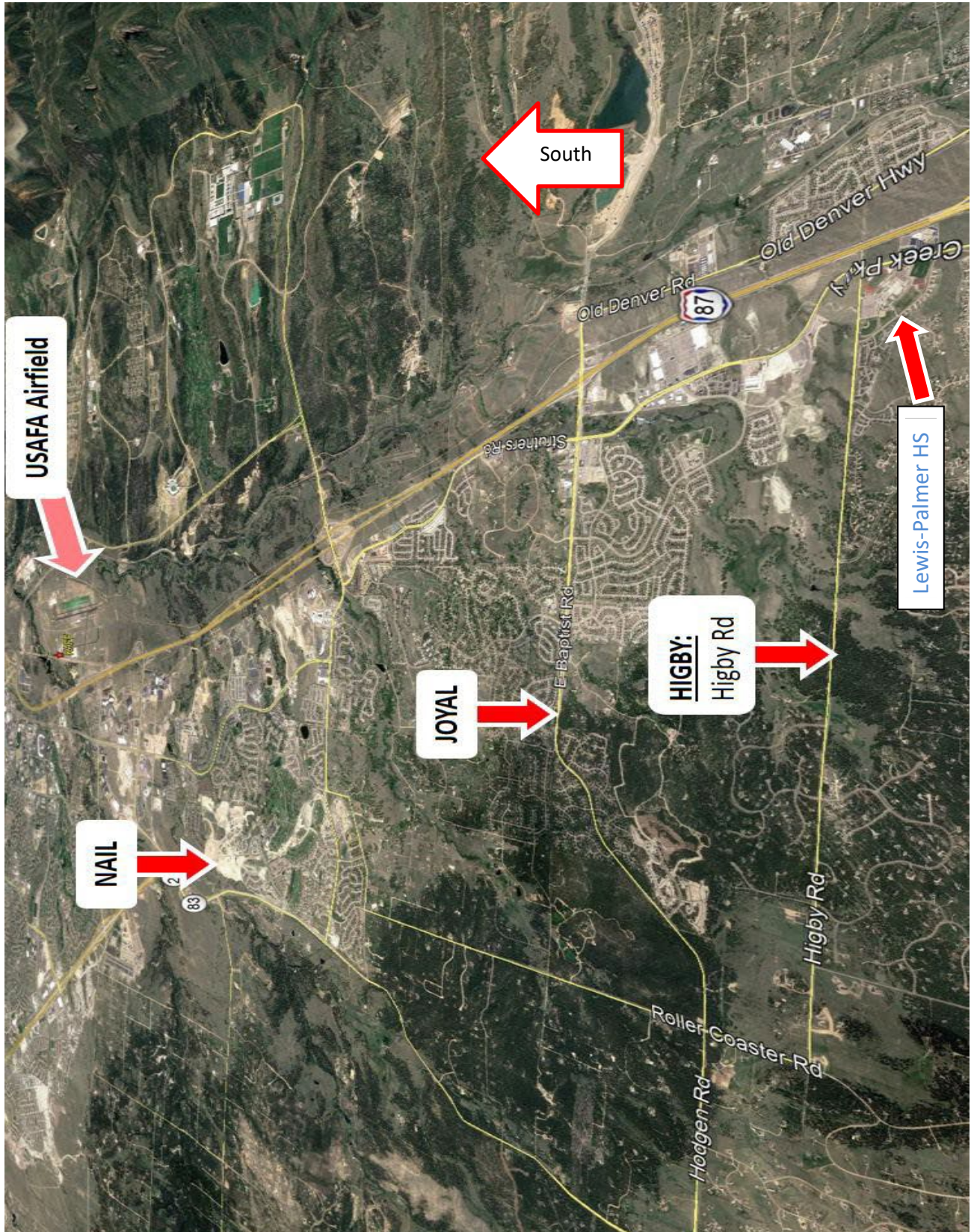
# Radio Calls for Closed Traffic Pattern

Shown: Pattern for 16L, see IFG for 34R and Center Runway

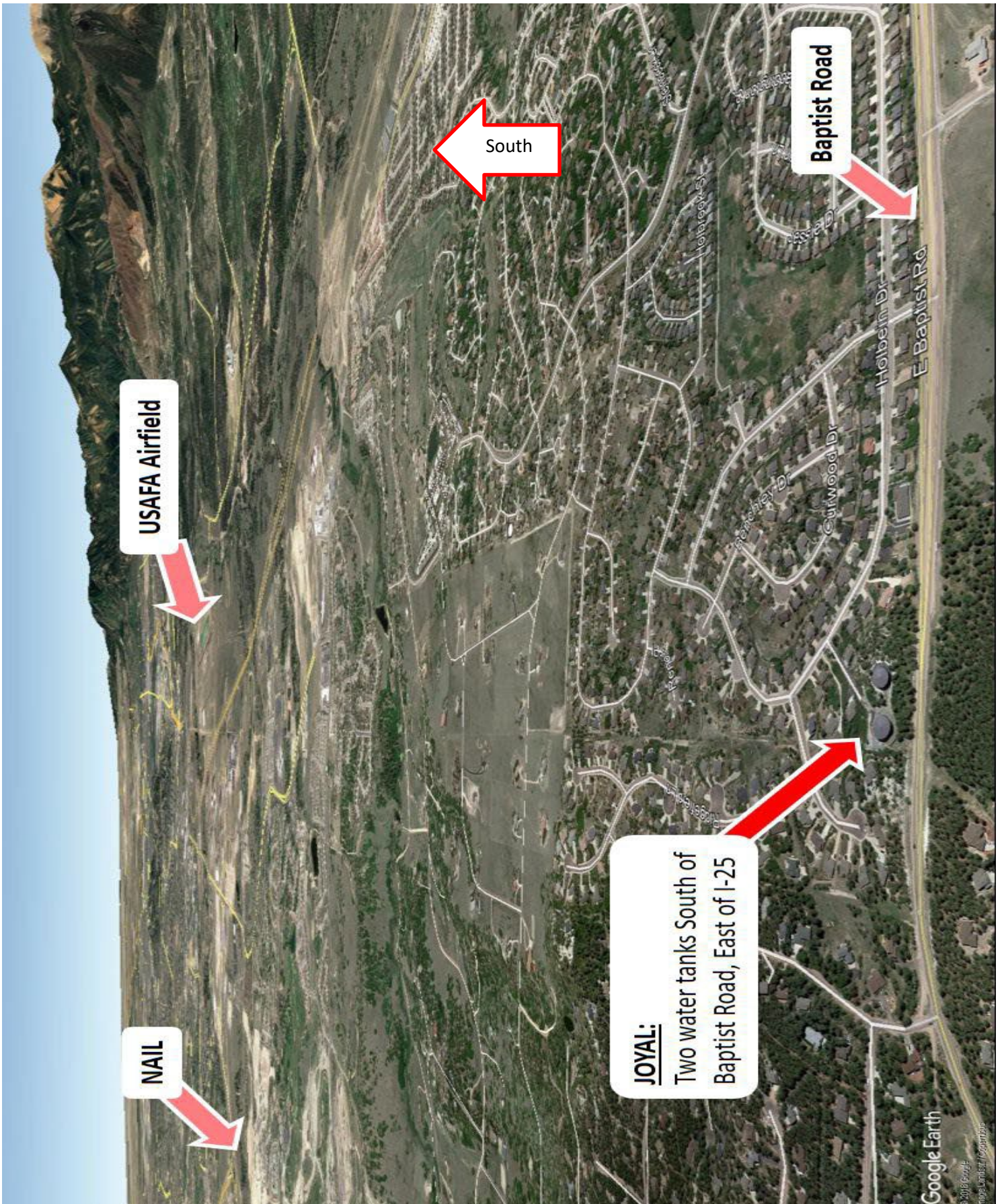




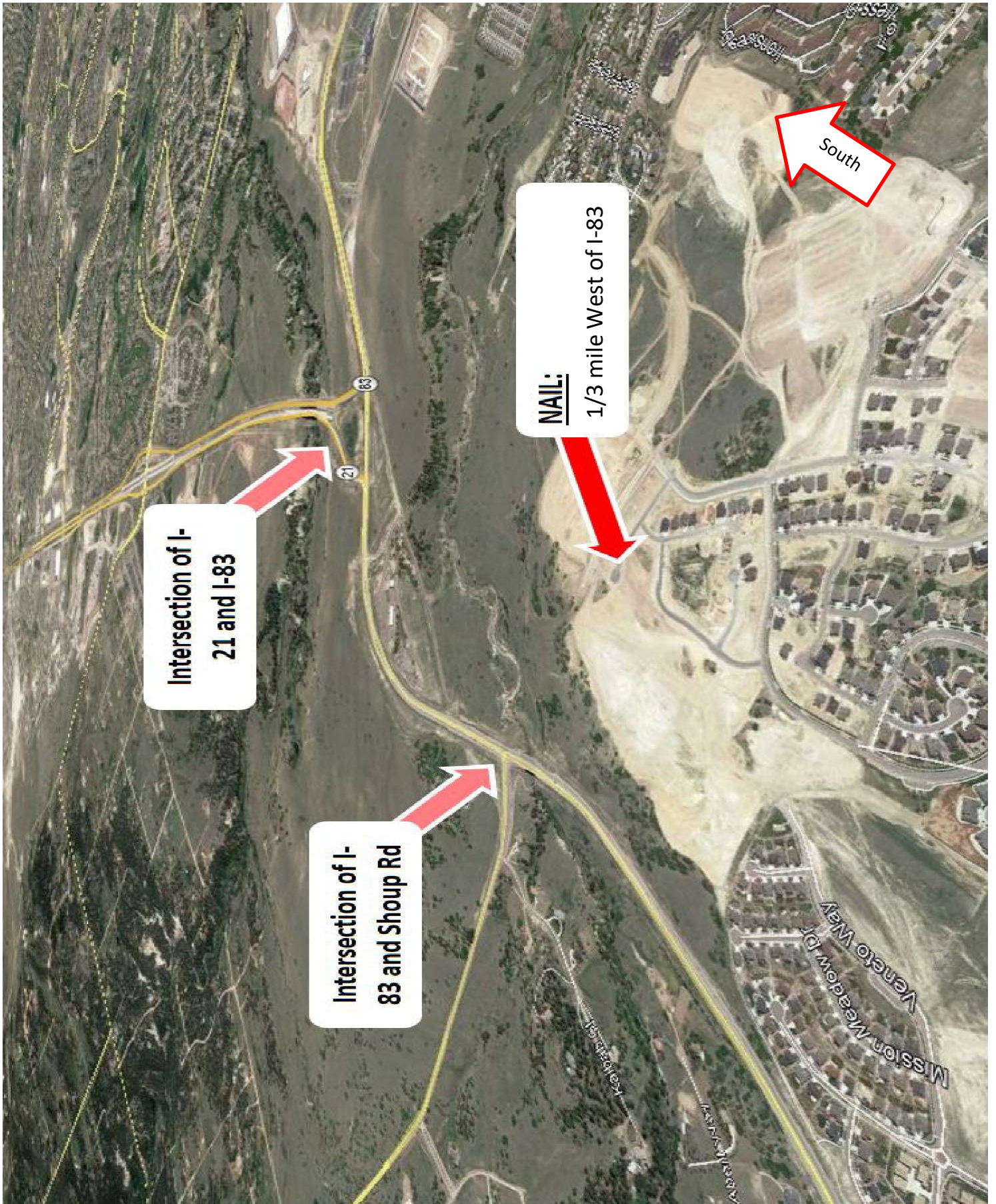
# HIGBY

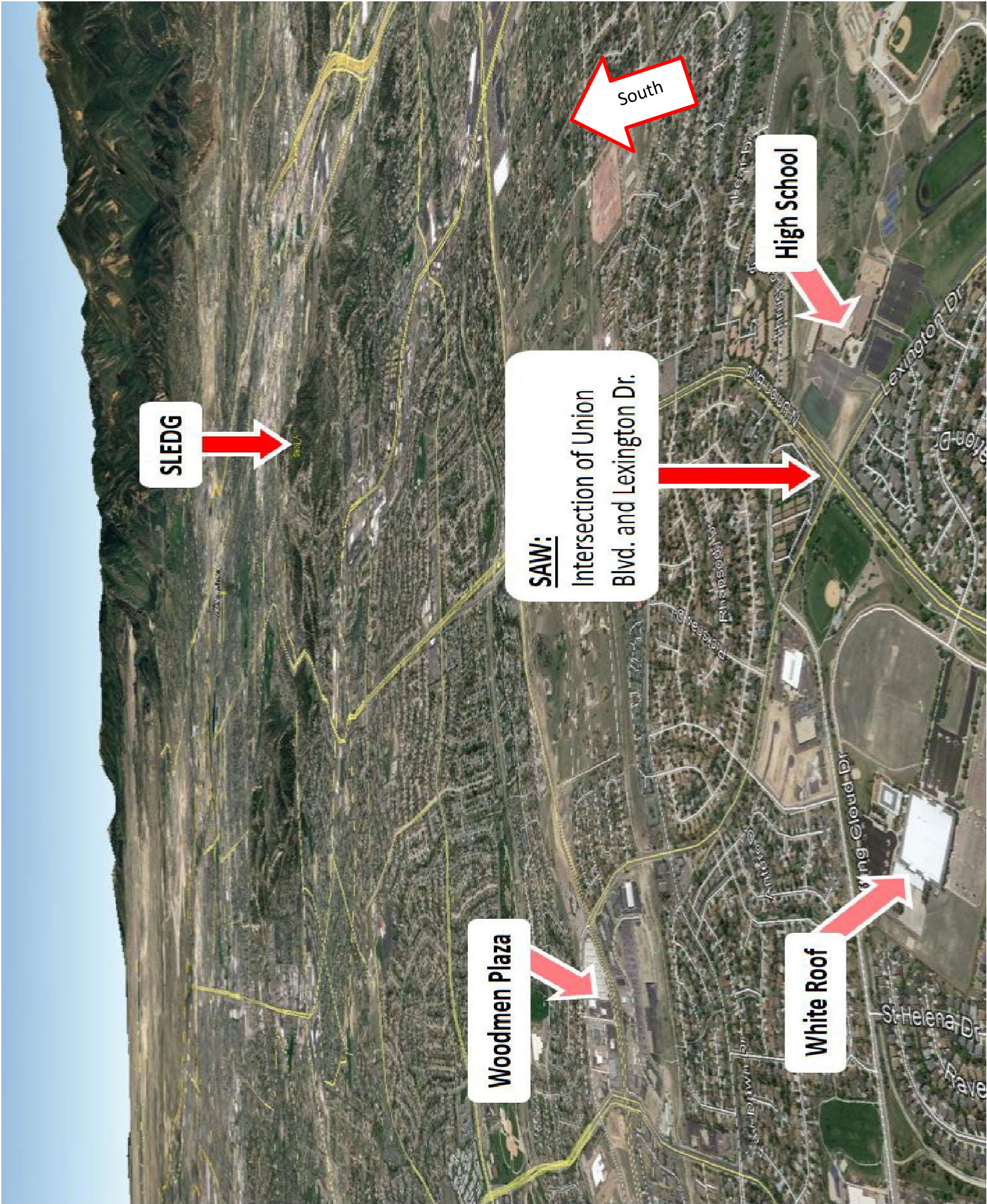


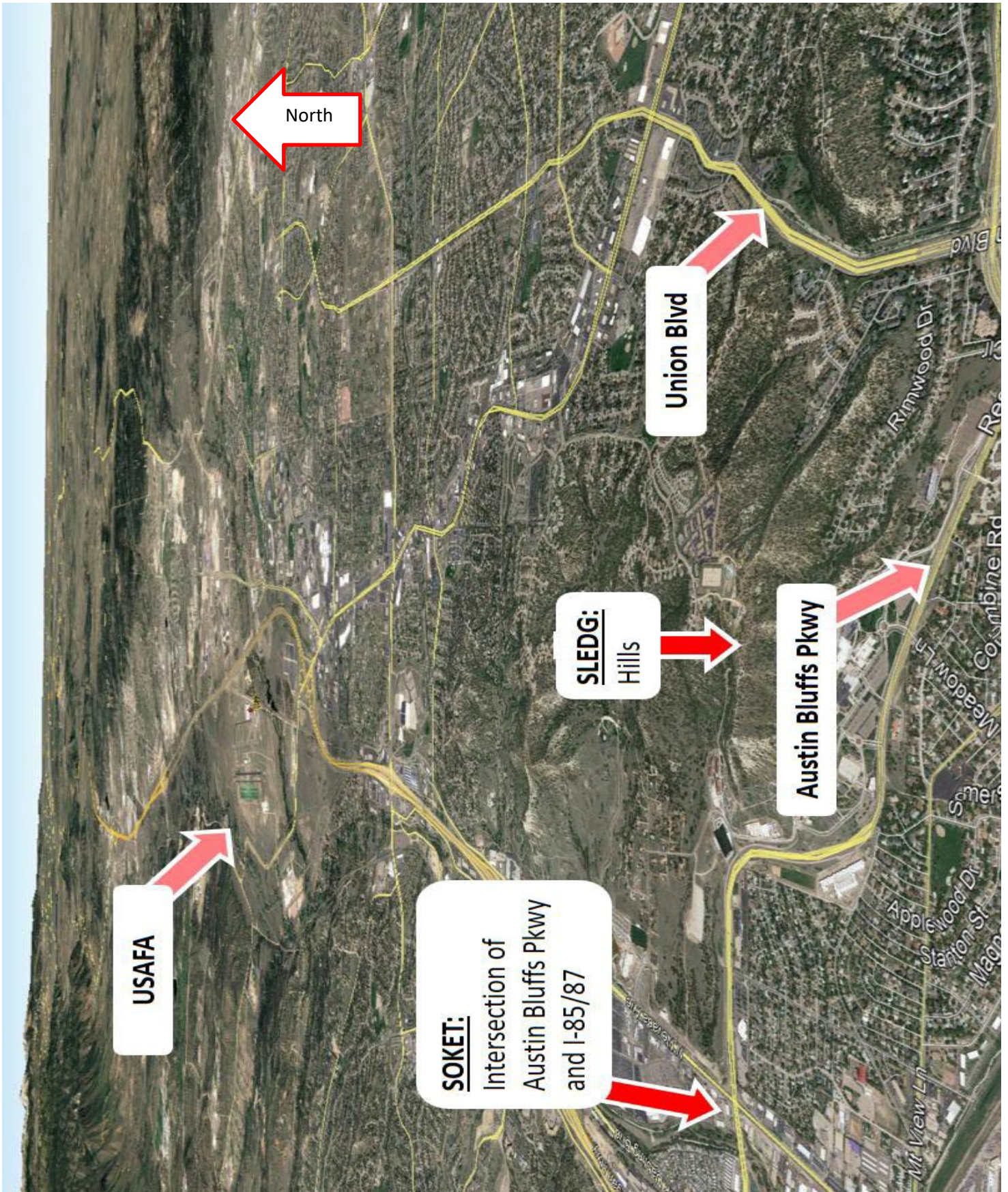
JOYAL



NAIL







## Mnemonic Aids for Checklist (Checklist Takes Precedence)

### PRE-TAKEOFF

L - Lights  
H – Heading  
A – Altimeter  
T – Transponder (Altitude)  
T – Trim/Time  
S – Seatbelts

(Lights, Camera, Action, Time)

### PRE-LANDING

At midfield downwind)

L – Lights  
C – Carb heat  
G – Gas (both)  
U – Undercarriage down  
M – Mixture  
P – Power / Primer  
S – Seatbelts

### PRE-LANDING (182)

L – Lights  
C – Carb Heat / Cowl Flaps  
G – Gas  
U – Undercarriage  
M – Mixture  
P – Prop / Power  
S – Seatbelts

---

### DOWNWIND (Midfield)

Pattern altitude - 7300  
Speed - 85kts / 95mph  
Parallel runway  
Runway halfway up wing strut  
LCGUMPS

### ABEAM THE NUMBERS

Power 1500 rpm  
Airspeed in the white, flaps 10 (depends on winds and type of landing)  
Trim for 500 fpm descent

### BASE TURN

Radio call (L or R base)  
Start base turn (30 degree bank)  
Wings level  
Flaps 20 (if desired, depends on winds and type of landing)  
Check power, check speed, check pitch, alt (high/low, fast/slow)

### FINAL TURN

Radio call (final)  
Start final turn (30 degree bank)  
Wings level (if no crosswind)  
Check power  
Stabilize the approach (speed, centerline, glide path)  
Verbalize airspeed and centerline repeatedly (Ex: 65, centerline)  
Pitch for speed, Power for altitude  
*(Never try to recover a botched approach/landing – go around)*

### ONCE RUNWAY MADE

Power as needed  
Flare, glide to touchdown  
Keep flying airplane to tie-downs (aileron, elevator control for wind)

**TOUCH and GO'S (STUDENT PILOTS MUST PERFORM FULL STOP TAXI-BACK)**

Proper Aileron and Rudder Input to Maintain Center Line Wings Level

Flaps Up

Full power

Carburetor heat in

Rotate at  $V_r$

Climb at  $V_y$

**GO AROUND (The Earlier the Decision the Better – Go Arouns are cheap)**

Full power

Pitch for level flight

Carburetor heat in

Flaps to 20

Accelerate to  $V_x$ , Positive rate of climb, Flaps to 10

Accelerate to  $V_y$ , flaps to 0

# Flight Maneuver Profile

## TRAFFIC PATTERN

### Normal Takeoff

1. Prepare the aircraft for the maneuver (takeoff checklist-LHATTS)
2. Takeoff clearance
3. Taxi onto runway centerline
4. Apply full power (2000 RPM Minimum) (75% Airspeed @ ½-computed takeoff distance)
5. Rotate at Vr
6. Climb at Vy
7. Climb Checklist (power full, flaps up, airspeed Vy, and landing light off)

### Normal Landing

1. Prepare the aircraft for the maneuver (Altitude 7300)
2. Downwind Altitude (LCGUMPS-prior to mid field)
3. Abeam touchdown point (Flaps 10)
4. Base Leg (Flaps 20)
5. Final Approach (Flaps 30)
6. Stabilized approach (aim point/touch down point, airspeed, longitudinal axis aligned with centerline, windsock)
7. Threshold (Power idle, 3 deg pitch up)
8. Touch down at minimum controllable airspeed
9. After landing checklist (flaps ups up, carb heat off, landing light off)

### Soft Field Takeoff

1. Prepare the aircraft for the maneuver (takeoff checklist, flaps per POH)
2. Takeoff clearance
3. Taxi onto runway centerline (keep aircraft moving)
4. Apply full power (maintain full back pressure on the yoke)
5. Lift off in ground effect (stay in ground until either Vx or Vy)
6. Climb at Vx or Vy
7. Climb Checklist (power full, flaps up, and landing light Off)

### Soft Field Landing

1. Prepare the aircraft for the maneuver (Altitude 7300)
2. Downwind (LCGUMPS-prior to mid field)
3. Abeam touchdown point (Flaps 10)
4. Base Leg-Flaps 20
5. Final Approach Flaps 30 airspeed 1.3 x Vso
6. Stabilized approach (aim point/touch down point, longitudinal axis aligned with centerline)
7. Threshold (5 degrees pitch up)
8. Touch down at minimum controllable airspeed
9. Control yoke full aft – no braking or minimum braking
10. After landing checklist (flaps ups up, carb heat off, landing light off)

### Short Field Takeoff

1. Prepare the aircraft for the maneuver (takeoff checklist, flaps per POH)
2. Takeoff clearance
3. Taxi onto runway centerline (begin at runway threshold)
4. Apply brakes and add full power (2000 RPM Minimum)



5. Release brakes and accelerate to and rotate at Vr
6. Climb at Vx until clear obstacle
7. Climb at Vy
8. Climb Checklist (flaps up, carb heat off, landing light off)

### **Short Field Landing**

1. Prepare the aircraft for the maneuver (Altitude 7300)
2. Downwind (LCGUMPS-prior to mid field)
3. Abeam touchdown point (Flaps 10)
4. Base Leg (Flaps 20)
5. Final Approach Flaps 30 airspeed 1.3 x Vso
6. Stabilized approach (aim point/touch down point, longitudinal axis aligned with centerline)
7. Touch down at minimum controllable airspeed
8. Control yoke full aft
9. Brakes - apply
10. After landing checklist (flaps up, carb heat off, landing light off)

### **No-Flap Approach and Landing**

***Steps 1-4 are identical to a normal approach and landing procedure.***

5. When abeam touchdown point, on extended base, or on extended final (when ready to descend out of pattern altitude): Reduce power to approx. 1300 RPM
6. Slow to Vy
7. Descend out of TPA at Vy
8. Maintain Vy until landing is assured, then slow to final approach speed until 10' to 20' above the runway (aim point/touch down point, longitudinal axis aligned with centerline)

### **Abort**

1. Throttle Idle
2. Brakes as required
3. Flaps up

### **Go Around**

1. Power full (carb heat off)
2. Flaps 20
3. Airspeed Vy
4. Radio call "Rally xx on the go"

### **Slips** (*Check POH for Limits using Flaps*)

1. Prepare the aircraft for the maneuver - Stabilized approach
2. Power idle
3. Airspeed 1.3 Vso
4. Upwind wing lower into wind
5. Rudder opposite (enough to maintain ground track)
6. Recover to desired glide path

### **HIGH ALTITUDE MANEUVERS**

**CLEAR: Clearing Turns, Landing (emergencies), Engine Instruments, Airspeed (Va) / Altitude, Radio Call**

### **Practice Area Procedures**

1. Prepare the aircraft for the maneuver- Altitude 9000, airspeed Va
2. Identify boundaries, Perform, select emergency landing site

### **Steep Turns**

1. Prepare the aircraft for the maneuver (Altitude 9000, airspeed Va)
2. Select heading reference point (inside and outside)
3. Bank aircraft 45 degrees
4. Power add 200 RPM
5. Trim 2 turns
6. Complete 360-degree turn
7. Recover (begin rollout at ½ bank angle)
8. Cruise checklist (flaps, mixture, power carb heat, trim)

### **Slow flight Flaps Up**

1. Prepare the aircraft for the maneuver- Altitude 9000, power 2300, and airspeed Va
2. Select heading reference point (inside and outside)
3. Power 1500-1600 rpm (carb heat and trim)
4. Airspeed Vs plus 5kts (trim)
5. Power 1800rpm (trim)
6. Recover
7. Cruise checklist (flaps, mixture, power carb heat, rim)

### **Slow flight Flaps Down**

1. Prepare the aircraft for the maneuver- Altitude 9000, power 2300, and airspeed Va
2. Select heading reference point (inside and outside)
3. Power 1500-1600 rpm (carb heat and trim)
4. Flaps 10 (trim)
5. Flaps 20 (trim)
6. Flaps 30 (trim)
7. Airspeed Vso plus 5kts (trim)
8. Power 2100 RPM (trim)
9. Recover power full, flaps 20, airspeed Vx flaps 10, airspeed Vy flaps 0,
10. Cruise checklist (flaps, mixture, power carb heat), (trim)

### **Power on Stalls** (Recommended Entry from Slow Flight Clean)

1. Prepare the aircraft for the maneuver- Altitude 9000, power 2300, and airspeed Va
2. Select heading reference point (inside and outside)
3. Power 1500-1600 RPM (carb heat and trim)
4. Airspeed Vr
5. Pitch 20 deg nose up, add full power, Rudder Coordination
6. Acknowledge stall warning horn and buffet
7. Recover (power full, nose to horizon)
8. Cruise checklist (flaps, mixture, power carb heat, trim)

### **Power off Stalls** (Recommended Entry from Slow Flight Landing Configuration)

1. Prepare the aircraft for the maneuver- Altitude 9000, power 2300, and airspeed Va
2. Select heading reference point (inside and outside)
3. Power 1500-1600 rpm (carb heat and trim)
4. Flaps 30
5. Airspeed 1.3 Vso
6. Stabilized approach
7. Pitch 20 deg nose up

8. Acknowledge stall warning horn and buffet
9. Recover power full, nose to horizon, flaps 20, airspeed  $V_x$ , flaps 10, airspeed  $V_y$ , flaps 0
10. Cruise checklist (flaps, mixture, power, carb heat)

### LOW ALTITUDE MANEUVERS

#### Turns Around a Point

1. Prepare the aircraft for the maneuver (Altitude 1000 AGL, power 2300 RPM, Airspeed 90)
2. Select a small but prominent reference point (close to a suitable landing spot)
3. Enter the maneuver approximately downwind
4. Maintain a constant radius around the reference point by varying the bank to compensate for wind
5. Plan to depart on the entry heading after two turns

#### S-Turns

1. Prepare the aircraft for the maneuver (Altitude 1000 AGL, power 2300 RPM, Airspeed  $V_a$ )
2. Select a reference line running approximately perpendicular to the wind. (Close to a suitable landing spot)
3. At a point directly over the reference line, heading downwind, initiate a  $180^\circ$  constant radius turn
4. At the completion of the turn, the aircraft should be directly over and perpendicular to the reference line with the wings level
5. Immediately upon completion of the first turn, an identical turn is begun on the upwind side of the reference line in the opposite direction
6. Bank and WCA should be adjusted, as necessary, through the maneuver to achieve two complete semicircles of equal radius

## INSTRUMENTS

### ATTITUDE INSTRUMENT FLYING

Attitude instrument flying may be defined in general terms as the control of an airplane's spatial position by use of instruments rather than by outside visual reference. Thus, proper interpretation of the flight instruments provides the same information as visual references outside the airplane. Attitude control is stressed in terms of pitch control, bank control, power control, and trim control. Instruments are divided into the following three categories:

#### A. Pitch instruments

- 1) Attitude indicator (AI)
- 2) Altimeter (ALT)
- 3) Airspeed indicator (ASI)
- 4) Vertical speed indicator (VSI)

#### B. Bank instruments

- 1) Attitude indicator (AI)
- 2) Heading indicator (HI)
- 3) Turn coordinator (TC) or turn-and-slip indicator (TandSI)
- 4) Magnetic compass

#### C. Power instruments

- 1) Manifold pressure gauge (MP), if equipped
- 2) Tachometer (RPM)
- 3) Airspeed indicator (ASI)

Attitude instrument flight consists of three fundamental skills: instrument cross-check, instrument interpretation, and airplane control. Trim technique is a skill that should be refined.

1. **Cross-checking** (also called scanning) is the continuous and logical observation of instruments for attitude and performance information.

2. **Instrument interpretation** requires you to understand each instrument's construction, operating principle, and relationship to the performance of your airplane.

3. **Airplane control** requires you to maintain your airplane's attitude or change it by interpretation of the instruments.

### **COMMON ERRORS DURING INSTRUMENT CROSS-CHECK**

1. **Fixation**, or staring at a single instrument, usually occurs for a good reason, but with poor results.

2. **Omission** of an instrument from the cross-check may be caused by failure to anticipate significant instrument indications following attitude changes.

3. **Emphasis** on a single instrument, instead of on the combination of instruments necessary for attitude information, is normal during the initial stages of instrument training.

### **Unusual Attitudes**

#### **Nose-High Attitudes**

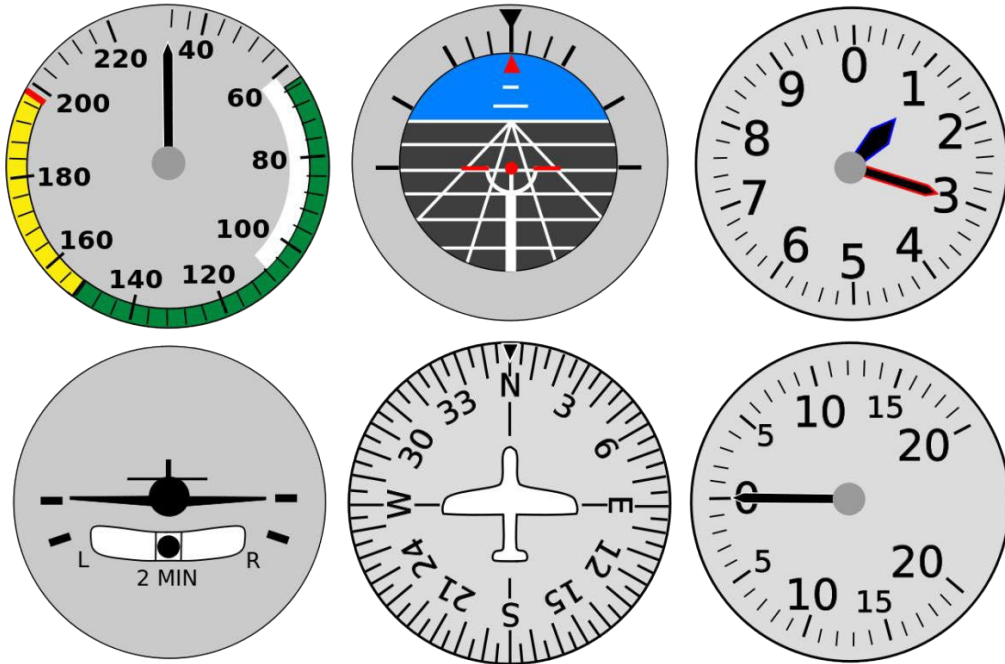
If the airspeed is decreasing, or below the desired airspeed, increase power (as necessary in proportion to the observed deceleration), apply forward elevator pressure to lower the nose and prevent a stall, and correct the bank by applying coordinated aileron and rudder pressure to level the miniature aircraft and center the ball of the turn coordinator. The corrective control applications are made almost simultaneously, but in the sequence given above. A level pitch attitude is indicated by the reversal and stabilization of the ASI and altimeter needles. Straight coordinated flight is indicated by the level miniature aircraft and centered ball of the turn coordinator.

#### **Nose-Low Attitudes**

If the airspeed is increasing, or is above the desired airspeed, reduce power to prevent excessive airspeed and loss of altitude. Correct the bank attitude with coordinated aileron and rudder pressure to straight flight by referring to the turn coordinator. Raise the nose to level flight attitude by applying smooth back elevator pressure.

#### **Get the bearing**

Determine which radial you are on by turning the OBS (Omni Bearing Selector) knob until the CDI (Course Deviation Indicator) needle is centered and you have a FROM indication. In order to fly to the station, you would first twist the OBS knob until the needle is centered and the white triangle points to "TO." Note that this will be exactly 180° from the current radial. Now turn the aircraft to this new heading and keep the needle centered- this will take you to the VOR station.



### VOR Procedures

1. Locate the airplane's position using the navigation system.
2. Intercept and tracks a given course, radial, or bearing, as appropriate.
3. Recognize and describes the indication of station passage, if appropriate.

### BASIC VOR NAVIGATION

1. Pick a VOR for use in navigation.
2. Tune and identify the VOR.

### Locate the airplane's position using the navigation system

1. Tune the VOR frequency in the navigation radio.
2. Identify that you have the correct station and the signal is reliable by listening to the Morse code identifier.
3. Set the course by turning the OBS (Omni Bearing Selector) knob until the CDI (Course Deviation Indicator) needle is centered and you have a FROM indication.

### Intercept and tracks a given course, radial, or bearing, as appropriate

1. In order to fly to the station, you would first twist the OBS knob until the needle is centered and the white triangle points to "TO".  
**Note** that this will be exactly 180° from the current radial.
2. Now turn the aircraft to this new heading.
3. Fly the heading of the desired course. Once established on the heading, note the position of the CDI. If it is to the right, your course is to the right. Likewise, if it is left, the course is left.
4. Track the course. As the CDI moves close to the center, turn your heading to match the course. Keep the needle centered to stay on course. If it starts drifting left, turn left to get back on course.
5. Tracking inbound (towards the station) and outbound (away from the station) radials is exactly the same, except you should get a TO indication when flying inbound and a FROM indication when flying outbound on a radial.
6. Adjust for wind.

1. On intercept, first maintain same heading as desired course
2. Note drift off course downwind
3. Turn 20° into wind back toward course
4. When CDI centers on course, reduce wind correction to 10°

#### **EMERGENCIES**

**M**-aintain aircraft control

Aviate: Fly the Plane, establish best glide

**A**-nalyze the situation

Navigate: Select Landing Area

**T**-ake proper action

Communicate: Transmit 121.5, Squak Emergency Code

**L**-and as soon as **conditions permit**

Run Emergency Checklists to Troubleshoot

#### **Emergency Descent – Refer to Specific Aircraft POH and Checklist for Precise Procedures**

During a simulated emergency descent, the student must be able to recognize situations requiring an emergency descent, such as cockpit smoke and/or fire. Situational awareness, appropriate division of attention, and positive load factors should be maintained during the maneuver and descent.

1. Perform two 90° clearing turns
2. Reduce throttle to idle, Flaps Full (White Arc)
3. Pitch for airspeed below Vfe, do not over speed flaps (+0, -10 Knots)
4. Initiate turning descent, while clearing for traffic (30-45° bank)
5. Notify ATC/Traffic as appropriate

#### **EMERGENCY APPROACH AND LANDING (SIMULATED)**

1. Analyze the situation and select an appropriate course of action
2. Establish and maintain best-glide airspeed, **±10 knots**
3. Select a suitable landing area
4. Considering the flight and ground environment, plan and follow a flight pattern to the landing area
5. Prepare for landing, or go-around, as specified by the examiner
6. Follow the appropriate checklist

#### **SYSTEMS AND EQUIPMENT MALFUNCTIONS**

Understand system and equipment malfunctions appropriate to the airplane.

Take appropriate action in at least three simulated emergencies appropriate to the airplane.

Follow the appropriate checklist or procedure.

#### **EMERGENCY EQUIPMENT AND SURVIVAL GEAR**

1. Understand emergency and survival equipment appropriate to aircraft and flight environment
2. Identify equipment that should be aboard the airplane

#### **SPIN AWARENESS**

1. Understand aerodynamic factors related to spins
2. Be able to discuss flight situations where unintentional spins may occur
3. Know procedures for recovery from unintentional spins

## Emergency Procedures Closed Book Exam

### Engine Fire During Start

1. CRANKING – CONTINUE if engine starts:	5. MIXTURE – IDLE CUT OFF
2. POWER – 1700 RPM (Few Minutes)	6. CRANKING – CONTINUE
3. ENGINE – SHUT DOWN if engine fails to start:	7. ENGINE – SECURE
4. THROTTLE – FULL OPEN	

### Engine Fire During Flight

1. MIXTURE – IDLE CUT OFF	4. CABIN HEAT AND AIR – OFF (Except overhead vents)
2. FUEL SELECTOR VALVE – OFF	5. AIRSPEED – 100 KIAS
3. MASTER SWITCH – OFF	6. FORCED LANDING – EXECUTE

### Engine Failure in Flight (Cruise)

1. AIRSPEED – 65 KIAS	4. MIXTURE – RICH
2. CARBURATOR HEAT – ON	5. IGNITION SWITCH – BOTH
3. FUEL SELECTOR – BOTH	6. PRIMER – IN AND LOCKED

### Emergency Approach and Landing

1. AIRSPEED – 65 KIAS (FLAPS UP) 60 (FLAPS DOWN)	6. MASTER SWITCH – OFF
2. MIXTURE – IDLE CUT OFF	7. DOORS – UNLATCH
3. FUEL SELECTOR VALVE – OFF	8. TOUCH DOWN – SLIGHTLY TAIL LOW
4. IGNITION SWITCH – OFF	9. BRAKES – APPLY HEAVILY
5. FLAPS – AS REQUIRED	

### Fill in the Blanks:

1. $V_A$ 99 KIAS	2400 Lbs
2. $V_A$ 92 KIAS	2000 Lbs
3. $V_A$ 82 KIAS	1600 Lbs
4. $V_{FE}$ 110 KIAS	(First Extension Increment)
5. Best Glide Speed @ Maximum Gross Weight: 65 KIAS @ 2400 Lbs	

# Emergency Procedures Closed Book Answer Sheet

## Engine Fire During Start

1. if engine starts:	5.
2.	6.
3. if engine fails to start:	7.
4.	

## Engine Fire During Flight.

1.	4.
2.	5.
3.	6.

## Engine Failure in Flight (Cruise)

1.	4.
2.	5.
3.	6.

## Emergency Approach and Landing

1.	6.
2.	7.
3.	8.
4.	9.
5.	

















## Fill in the Blanks:







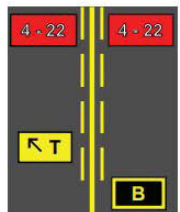
1. $V_A$	KIAS	2400 Lbs
2. $V_A$	KIAS	2000 Lbs
3. $V_A$	KIAS	1600 Lbs
4. $V_{FE}$	KIAS	(First Extension Increment)
5. Best Glide Speed @ Maximum Gross Weight:		KIAS @ 2400 Lbs



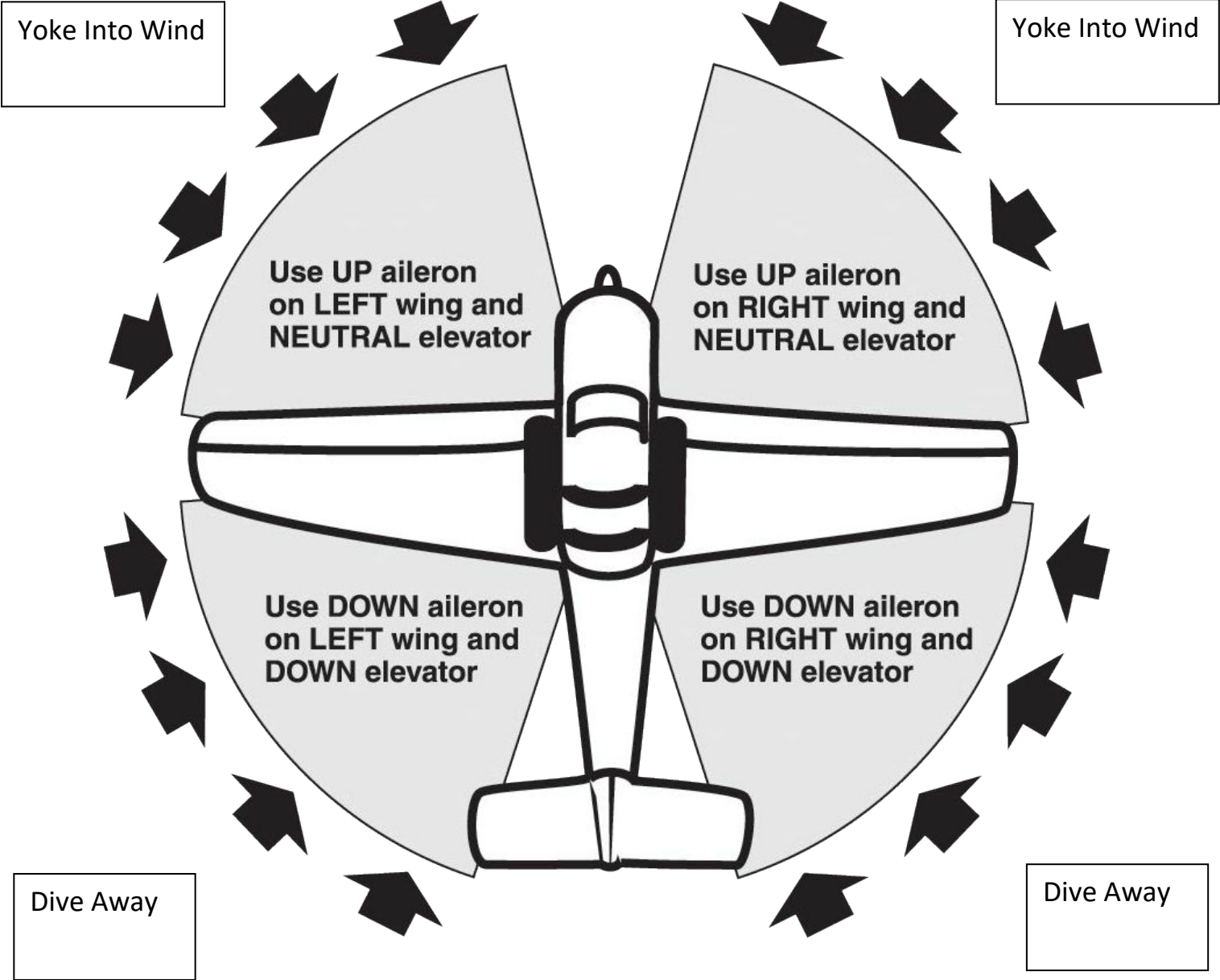
—Student Pilot Information—

## Runway Markings

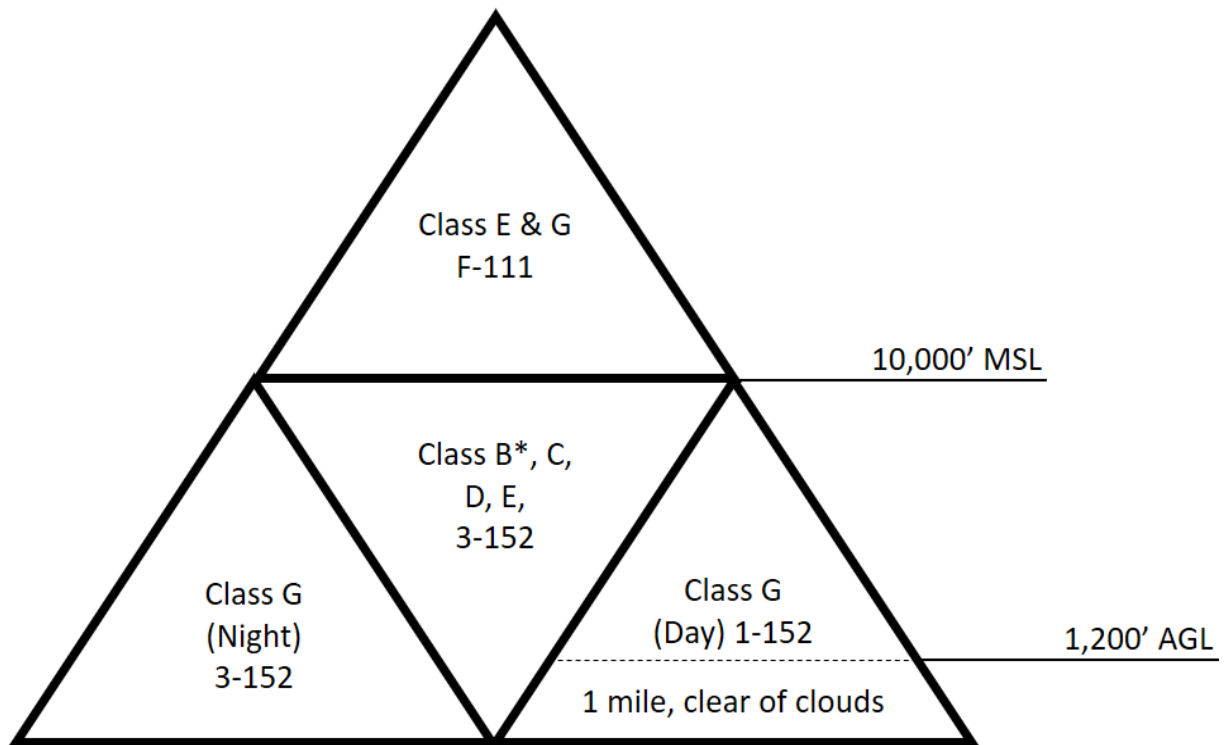
EXAMPLE	TYPE OF SIGN	PURPOSE	LOCATION/CONVENTION
	Mandatory: Hold position for taxiway/runway intersection.	Denotes entrance to runway from a taxiway.	Located <u>L side</u> of taxiway within 10 feet of hold position markings.
	Mandatory: Holding position for runway/runway intersection.	Denotes intersecting runway.	Located <u>L side</u> of rwy prior to intersection, & <u>R side</u> if rwy more than 150' wide, used as taxiway, or has "land & hold short" ops.
	Mandatory: Holding position for runway approach area.	Denotes area to be protected for aircraft approaching or departing a runway.	Located on taxiways crossing thru runway approach areas where an aircraft would enter an RSA or apch/ departure airspace.
	Mandatory: Holding position for ILS critical area/precision obstacle free zone.	Denotes entrance to area to be protected for an ILS signal or approach airspace.	Located on twys where the twys enter the NAVAID critical area or where aircraft on taxiway would violate ILS apch airspace (including POFZ).
	Mandatory: No entry.	Denotes aircraft entry is prohibited.	Located on paved areas that <u>aircraft</u> should not enter.
	Taxiway Location.	Identifies taxiway on which the aircraft is located.	Located along taxiway by itself, as part of an array of taxiway direction signs, or combined with a runway/taxiway hold sign.
	Runway Location.	Identifies the runway on which the aircraft is located.	Normally located where the <u>proximity of two rwys</u> to one another could cause confusion.
	Runway Safety Area / OFZ and Runway Approach Area Boundary.	Identifies exit boundary for an RSA / OFZ or rwy approach.	Located on taxiways on <u>back side</u> of certain runway/taxiway holding position signs or runway approach area signs.
	ILS Critical Area/POFZ Boundary.	Identifies ILS critical area exit boundary.	Located on taxiways on <u>back side</u> of ILS critical area signs.
	Direction: Taxiway.	Defines designation/direction of intersecting taxiway(s).	Located on <u>L side, prior to intersection</u> , with an array L to R in clockwise manner.
	Runway Exit.	Defines designation/direction of exit taxiways from the rwy.	Located on same side of runway as exit, prior to exit.
	Outbound Destination.	Defines directions to take-off runway(s).	Located on taxi routes to runway(s). <u>Never</u> collocated or combined with other signs.
	Inbound Destination.	Defines directions to airport destinations for arriving aircraft.	Located on taxi routes to airport destinations. <u>Never</u> collocated or combined with other types of signs.
	Information.	Provides procedural or other specialized information.	Located along taxi routes or aircraft parking/staging areas. May not be lighted.
	Taxiway Ending Marker.	Indicates taxiway does not continue beyond intersection.	Installed at taxiway end or far side of intersection, if visual cues are inadequate.
	Distance Remaining.	Distance remaining info for take-off/landing.	Located along the sides of runways at 1000' increments.

EXAMPLE	TYPE OF MARKING	PURPOSE	LOCATION/CONVENTION
	Holding Position.	Denotes entrance to runway from a taxiway.	Located across centerline within 10 feet of hold sign on taxiways and on certain runways.
	ILS Critical Area/POFZ Boundary.	Denotes entrance to area to be protected for an ILS signal or approach airspace.	Located on twys where the twys enter the NAVAID critical area or where aircraft on taxiway would violate ILS apch airspace (including POFZ).
	Taxiway/Taxiway Holding Position.	Denotes location on taxiway or apron where aircraft hold short of another taxiway.	Used at ATCT airports where needed to hold traffic at a twy/twy intersection. Installed provides wing clearance.
	Non-Movement Area Boundary.	Delineates movement area under control of ATCT, from non-movement area.	Located on boundary between movement and non-movement area. Located to ensure wing clearance for taxiing aircraft.
 Taxiway Edge.	Taxiway Edge.	Defines edge of usable, full strength taxiway.	Located along twy edge where contiguous shoulder or other paved surface NOT intended for use by aircraft.
 Dashed Taxiway Edge.	Dashed Taxiway Edge.	Defines taxiway edge where adjoining pavement is usable.	Located along twy edge where contiguous paved surface or apron is intended for use by aircraft.
	Surface Painted Holding Position.	Denotes entrance to runway from a taxiway.	Supplements elevated holding position signs. Required where hold line exceeds 200'. Also useful at complex intersections.
	<b>Enhanced Taxiway Centerline.</b>	Provides visual cue to help identify location of hold position.	Taxiway centerlines are enhanced 150' prior to a runway holding position marking.
	Surface Painted Taxiway Direction.	Defines designation/direction of intersecting taxiway(s).	Located L side for turns to left. R side for turns to right. Installed prior to intersection.
	Surface Painted Taxiway Location.	Identifies taxiway on which the aircraft is located.	Located R side. Can be installed on L side if combined with surface painted hold sign.

# Taxiing Wind Diagram



## Cloud Clearance Criteria



- \*Clear of Clouds (Class B)
- F-111 = 5 SM Visibility, 1,000' above and below, 1 SM horizontally
- 3-152 = 3 SM Visibility, 1,000' above, 500' below, 2,000' horizontally
- 1-152 = 1 SM Visibility, 1,000' above, 500' below, 2,000' horizontally

Basic VFR Minimums: 1,000' Ceiling and 3NM visibility (minimum weather needed for takeoff and landings).

## Required Paperwork for Solo

- Complete AF Form 1710 (Aero Club Membership Application)
  - Complete credit card authorization form
  - Complete Form 1585 (Covenant Not to Sue)
  - Copy of US birth certificate, valid US Passport or complete the TSA Alien Flight Training Process
  - The club needs copies of the following:
    - Military Identification (CAP, DOD, NAF, and Government Employees/contractors)
    - FAA Medical
    - Student Pilot Certificate (Completed in IACRA)
  - Read and become familiar with the Aero Club Standard Operating Procedures (SOP). Available at the Aero Club or online at: <http://usafaservices.com/aerclub.htm>
  - Complete the following exams (available at the Aero Club or online at the above address), you must score 80% to pass. These tests are easy hover, they are time consuming! Approximate times to complete the tests have been included.
    - **Local Procedures, Annual Standardization (website)**
    - **Aircraft Test(website), Open(website) and Closed book(website)**
    - **Pre-Solo Test (Airman Packet)**
  - All tests and local flights will be completed before your instructor can fill out AF Form 1584. This form must be completed and have two signatures on it to be valid, instructor and pilot. You must have this form completed to fly solo.
  - Read and sign off the Pilots Induced Cost (PIC).
  - Attend this month's safety meeting or make-up safety meeting. Sign roster showing you attended the meeting.
  - You and your instructor will also need to go through and sign off the Orientation Briefing Guide.
  - All tests, standardization, aircraft checks, safety meetings, and landings need to be signed off by your instructor.
  - Membership folder needs to be built including all of the above paperwork. Your checkout instructor will do this for you.
  - TSA logbook endorsements:
    - Pre-solo aeronautical knowledge logbook endorsement — FAR 61.87 (b,c)
    - Solo Flight logbook endorsement — FAR 61.87(n) (change to 30 day for the Air Force)
    - High Performance (as required)
  - Flightcircle endorsed to book solo flights. Pilot profile complete.
  - Student Pilot Certificate (apply after first flight with student)
  - Emergency Procedures trifold folder to satisfactory level
- After Initial Solo:
- Solo takeoffs and landings at another airport 25nm (KFLY or KCOS) for Stage 1 FAR 61.93
  - Solo Cross Country FAR 61.93

# Pre-Solo Written Exam

## Instructions

Complete the following exam using the same sheet. This exam contains questions of FAA Parts 61, 91, AFI 34-117, Aircraft Systems, and Local Procedures. Do not assume information not specifically provided in the questions. Each numbered question is worth 2 points, if any part of an answer is wrong, the question is wrong! Passing score is 80%.

---

Student's Name \_\_\_\_\_ Instructor Name \_\_\_\_\_

Grade \_\_\_\_\_ Date \_\_\_\_\_

I have administered and reviewed this written exam as required by FAR 61.87 (b) and find the student's aeronautical knowledge satisfactory for solo flight.

IP \_\_\_\_\_ Cert. # \_\_\_\_\_ Date \_\_\_\_\_

### THE FOLLOWING QUESTIONS ARE COVERED IN FAR PART 1

1. Give an example of the following terms. (FAR 1.1)

A. Category \_\_\_\_\_

B. Class \_\_\_\_\_

2. Define the term pilotage. (FAR 1.1)

A. \_\_\_\_\_

3. Define the following terms. (FAR 1.1)

A. Va \_\_\_\_\_

B. Vfe \_\_\_\_\_

C. Vne \_\_\_\_\_

D. Vr \_\_\_\_\_

E. Vs \_\_\_\_\_

F. Vso \_\_\_\_\_

G. Vx \_\_\_\_\_

**THE FOLLOWING QUESTIONS ARE COVERED IN FAR PART 61**

4. What three documents must a pilot have in their possession while exercising the privileges of a pilot certificate? (61.3 a / c)

A. \_\_\_\_\_ B. \_\_\_\_\_

C. \_\_\_\_\_

5. What are the limitations on student pilots while operating an aircraft in solo flight? (61.87n)

A.

\_\_\_\_\_

B.

\_\_\_\_\_

6. What general limitations are placed on a student pilot while acting as pilot in command? (61.89)

A.

\_\_\_\_\_

B.

\_\_\_\_\_

C.

\_\_\_\_\_

D.

\_\_\_\_\_

E.

\_\_\_\_\_

F.

\_\_\_\_\_

G.

\_\_\_\_\_

H.

\_\_\_\_\_



**THE FOLLOWING QUESTIONS ARE COVERED IN FAR PART 91**

7. Who is responsible for the operation of the aircraft? (FAR 91.3)

A.

---

8. Who is responsible for determining whether an aircraft is in condition for a safe flight? (91.7)

A.

---

9. What action is required if the PIC discovers an un-airworthy condition is discovered? (FAR 91.7)

A.

---

10. No person may act as a crewmember after consuming alcohol or while using any drug that affects the person's faculties in any way contrary to safety until what conditions are met? (91.17)

A.

---

B.

---

C.

---

11. A PIC shall before beginning a flight, become familiar all available information concerning that flight. This information must include, for a flight not in the vicinity of an airport. (91.103)

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

E. \_\_\_\_\_

F. \_\_\_\_\_

G. \_\_\_\_\_

12. Who has the right-of-way when two aircraft are on final approach to a landing? (FAR91.113)

A.

---

13. What are the minimum safe altitudes? (FAR 91.119)

Anywhere

---

Over congested areas

---

Other than congested areas

---

14. What are the dimensions of class D airspace, the direction of standard traffic pattern and communication requirements? (FAR 91.129 and reference to 91.126 and 91.127)

A.

---

B.

---

C.

---

15. What are the weather requirements to **enter** Class C airspace? (91.130 ) and (91.215)

A.

---

---

16. What are the weather requirements for operations in Class D airspace? (91.155)

A.

---

17. What are the fuel reserve requirements for a day VFR flight and a night VFR flight? (91.151)

A. Day \_\_\_\_\_

B. Night \_\_\_\_\_

18. What are the VFR cruising altitudes and at what altitudes do they apply? (91.159)

A.

---

19. What are the minimum equipment and instrument requirements for a day VFR flight? (91.205b)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

**THE FOLLOWING QUESTIONS ARE COVERED IN THE AERONAUTICAL INFORMATION MANUAL (AIM)**

20. Interpret the sign in figure 2-3-31 and 2-3-33 (AIM Ch. 2 sec.3 Para.9)

A.

---

B.

---

21. Describe Class C airspace: Dimensions, pilot requirements, equipment, communication and airspeed limit (AIM 3-2-4)

A.

---

B.

---

C.

---

D.

---

E.

---

22. Describe Class D airspace: Dimensions, pilot requirements, equipment, communication and airspeed limit? (AIM 3-2-5)

A.

---

B.

---

C.

---

D.

---

E.

---

23. Name the closed pattern legs? (AIM 4-3-2)

A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_

D. \_\_\_\_\_ E. \_\_\_\_\_

24. At what point do you turn crosswind in a civilian airfield? (AIM 4-3-3 and figure 4-3-2)

A.

---

25. How can a pilot obtain radar assistance when in a difficult situation? (AIM 6-2-1)

A.

---

**THE FOLLOWING QUESTIONS ARE COVERED IN AFMAN 34-117 (AERO CLUB SOP)**

26. When is "student" considered a "no show" for a scheduled flight and what charges apply?

(Chapter1 Paragraph11)

A. \_\_\_\_\_

B. \_\_\_\_\_

27. What are the wind limitations for solo student pilot? (4.9)

A. \_\_\_\_\_ B. \_\_\_\_\_

C. \_\_\_\_\_

28. What is the restriction on flying with an open discrepancy? (6.2)

A.

\_\_\_\_\_

29. What is the flight restriction for a solo student pilot with cumulonimbus cloud formations (thunderstorms) within 15nm of the academy airfield? (AFI 34-117, A2.4.2.7)

A.

\_\_\_\_\_

30. All aero club flights must flight plan for a fuel reserve of \_\_\_\_\_ hours at cruise power. (AFI 4.17.12.1)

**THE FOLLOWING QUESTIONS ARE COVERED IN THE AIRCRAFT PILOT OPERATING HANDBOOK USE THE POH FOR A CESSNA 172 P MODLE (6601K)**

31. Describe the engine of the Cessna 172. (POH 1-3 / STC Paperwork in Metal Binder)

A. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

32. What are the accept fuel grades that can be used in the Cessna 172? (POH 1-3)

A.

\_\_\_\_\_

33. Where is the Reference Datum that is used for weight and Balance computations? (POH 6-4)

A.

---

34. How are the flight controls operated? (POH 7-8)

A.

---

35. What type of flaps does the Cessna 172 use; how are they operated? (POH 7-10)

A. \_\_\_\_\_

B. \_\_\_\_\_

36. How are the brakes actuated? (POH 7-10)

A.

---

37. How is fuel delivered to the engine? (POH 7-20)

A.

---

38. Describe the north departure when taking off on 16L? Include checkpoints and altitudes. (Inflight Guide)

A.

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## Solo Navigation Exam

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### Instructions

This is an **OPEN** book exam and contains questions from the FAR parts 61, 91, Aeronautical Information Manual (AIM), Aero Club SOP and the excerpt from the Denver Sectional. Do not assume information not specifically provided in the questions.

---

1. As a student pilot, do you need to carry your logbook on a solo cross-country?  
A. \_\_\_\_\_
2. From what FAR may the PIC deviate from to handle an in-flight emergency that requires immediate action?  
A. \_\_\_\_\_
3. How long can you operate above 12,500' without supplemental oxygen and at what altitude must you use supplemental oxygen?  
A. \_\_\_\_\_  
B. \_\_\_\_\_
4. True course + or - magnetic variation equals?  
A. \_\_\_\_\_
5. What is the magenta dashed line at #1 mean?  
A. \_\_\_\_\_
6. When must a VFR flight plan be filed? Who do file with?  
A. \_\_\_\_\_  
B. \_\_\_\_\_
7. After opening a VFR flight plan how long after the estimated time enroute has elapsed, does the FSS wait before starting to look for you?  
A. \_\_\_\_\_
8. What is the nearest FSS? Name two services they provide.  
A. \_\_\_\_\_  
B. \_\_\_\_\_
9. When should the heading indicator be set to the magnetic compass and how often should it be rechecked?  
A. \_\_\_\_\_

10. When determining your position relative to a VOR you should you use a TO or FROM indication?

A. \_\_\_\_\_

11. What does the airport symbol at Meadow Lake (#2) vs. airport symbol Colorado Springs East (#3) indicate?

A. \_\_\_\_\_

12. What does the symbol at #4 indicate?

A. \_\_\_\_\_

13. What does the flag at #5 indicate and what is its name?

A. \_\_\_\_\_

B. \_\_\_\_\_

14. What type of airspace is at #6?

A. \_\_\_\_\_

15. Under what circumstances can you enter the airspace at #6?

A. \_\_\_\_\_

16. What do the symbols at #7 indicate?

A. \_\_\_\_\_

B. \_\_\_\_\_

17. What kind of landmark is at #8?

A. \_\_\_\_\_

18. What class of airspace are you in at #9 (disregard the alert area A-639A)

A. \_\_\_\_\_

19. What is the minimum safe altitude (AGL) in the vicinity of #10?

A. \_\_\_\_\_

20. What is the significance of a magenta colored airport symbol on a sectional chart?

A. \_\_\_\_\_

21. What is the significance of a blue colored airport symbol on a sectional chart?

A. \_\_\_\_\_

22. What class of airspace is indicated at #11 (blue dashed line)?

A. \_\_\_\_\_



23. What are the VFR cloud clearance and visibility requirements to enter that airspace (#11)?

A. \_\_\_\_\_

24. Decode the airport information block for Pueblo airport (#11)

Line 1. \_\_\_\_\_

Line 2. \_\_\_\_\_

Line 3. \_\_\_\_\_

Line 4. \_\_\_\_\_

Line 5. \_\_\_\_\_

25. At #12 is an MOA, can you enter it VFR when the area is active?

A. \_\_\_\_\_

26. What kind of landmark is a #13?

A. \_\_\_\_\_

27. What is the minimum safe altitude (AGL) over #11? (City of Pueblo)

A. \_\_\_\_\_

28. What kind of landmark is at #14?

A. \_\_\_\_\_

29. What kind of landmark (5010) is at 15?

A. \_\_\_\_\_

30. What kind of landmark is at #16?

A. \_\_\_\_\_

31. A solo student pilot, on a cross country, needs to return to the academy airfield how long before sunset?

A. \_\_\_\_\_

# Testing Information

<https://FAA.PSlexams.com>

\*You will need your FTN # from IACRA to make an account\*

Once logged in you will then be able to select your

## Test Type / Location / Time

### Academy Flight Training Center Schedule

#### Tuesdays

0800, 1100, and 1400

#### Fridays

0800 and 1100