

Redbird GIFT Instrument Rating

Instructor Guide

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General Information

Guided Independent Flight Training – Instrument Rating (GIFT-IR) is an in-sim training asset intended to give student pilots practical flight training that compliments instruction from their CFII and provides opportunities for practice.

It is recommended that the CFII accompany their student on their first several GIFT-IR missions unless and until the student has demonstrated mastery of preflight briefings and use of the navigational equipment provided in the aircraft used for your Redbird simulator.

CFIs are encouraged to keep track of student performance scores via each student's online GIFT account. This allows CFIIs the ability to identify a student's deficiencies and provide extra instruction and practice.

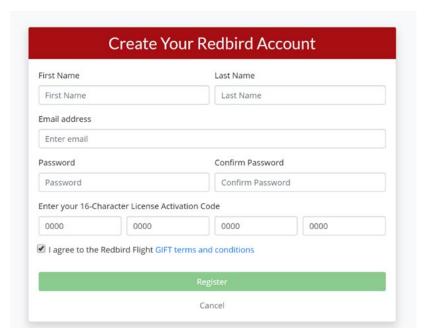
If you have questions, feedback, or would like guidance on any of the GIFT modules, please contact the Redbird GIFT team at **gift@redbirdflight.com**.

Redbird Account and Pilot Key

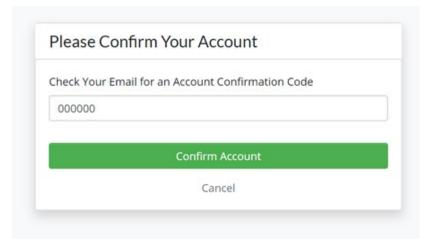
If you or your client already has a Redbird Account, please refer to the **Existing**Redbird Account section of this document.

Create a New Redbird Account and Activate GIFT License

On any computer that has a USB drive and is connected to the internet, visit **gift.redbirdflight.com/activate**.



Fill in the form with your account information, 16-Character License Activation Code, select the check box to agree to the GIFT EULA, and click Register.



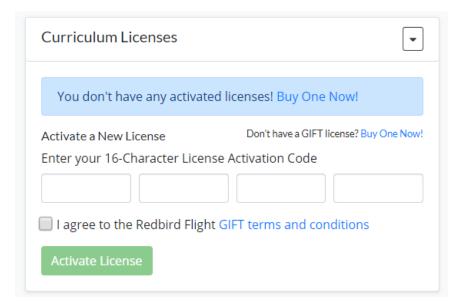
Check your email for your account confirmation code. Type the code into the field shown here and click

Confirm Account.

Refer to Creating a Pilot Key in this guide for the next step.

Existing Redbird Account

If you or your client already has a Redbird Account, visit account.redbirdflight.com on a computer that is connected to the internet and has a USB drive. Login with the correct email/username and password.



Open **Curriculum Licenses** box and enter the 16-Character
License Activation Code.

Select the check box to agree to the **GIFT EULA**.

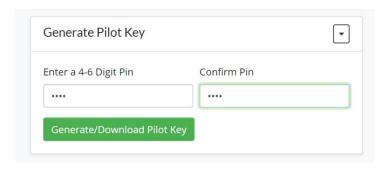
Click the **Activate License** button.

Refer to Creating a
Pilot Key in this guide
for the next step.

Creating a Pilot Key

On the main account page in your Redbird Account, open **Generate Pilot Key** and type in a 4-6 digit PIN of your choosing.

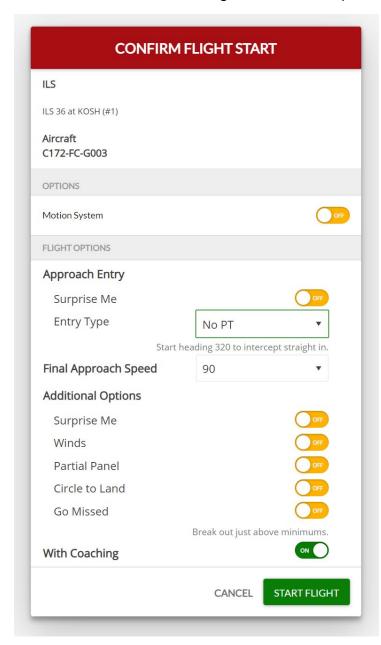
A file will download to your computer with your name followed by ".rbpk." Copy this file to any USB thumb drive.



You may store other files on this thumb drive, but Redbird recommends dedicating a single thumb drive to your Redbird account.

Starting a Flight Scenario

Redbird Navigator, the menu-driven command system used to operate GIFT- IR, provides flight options that allow you to customize each flight according to flight type, procedures, and various conditions. For example, if you wish to practice an approach, such as ILS, select the ILS flight, then select options as desired.



If you are using a full-motion Redbird simulator, you can choose to enable motion in the **Motion System** section.

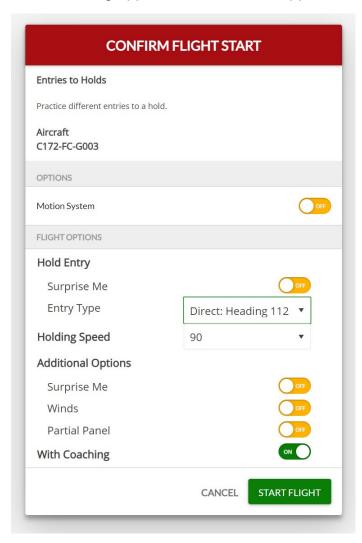
Under **Approach Entry**, you may select a straight-in "No Procedure Turn" (No PT) approach, an approach with PT, or an approach which includes ATC vectors.

Select the **Final Approach Speed** you will maintain. How well you maintain this speed will be scored against ACS standards, just like a Designated Pilot Examiner would.

Add **Additional Options**. You may select none, some, or all of these options.

Finally, select whether coaching is enabled in the **With Coaching** menu area. When coaching is on, you will hear spoken instructions from a "virtual CFI" guiding you through your flight and letting you know when you deviate. The virtual CFI will tell you what you're doing wrong, and how to correct it. Be sure not to deviate too much, though! Eventually, the CFI might say "You've deviated too much" and make you start over.

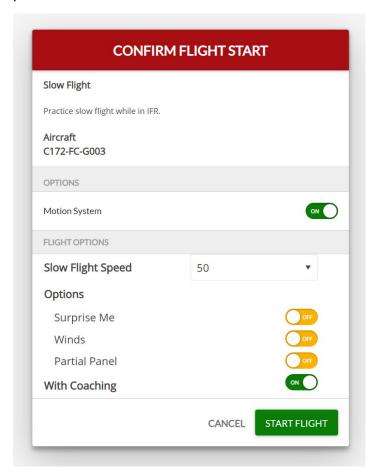
You'll also notice that there are "**Surprise Me**" options available in two sections of the flight menu. If you want a more realistic flight experience, select one or both of the **Surprise Me** options. Selected for Approach Entry, ATC will randomly instruct you to perform a straight in approach, PT approach, or vectored approach. Selected for Additional Options, you will experience one or more of the following: winds, partial panel failure, circling approach, or a missed approach due to IMC below minimums.



For non-approach maneuvers, a few different options are available.

For example, this is the menu for Entries to Holds. Under **Hold Entry**, select Direct, Teardrop, or Parallel. For **Holding Speed**, select the speed you will try to maintain throughout the maneuver.

Menu selections for all GIFT-IR maneuvers are labeled to be as self-explanatory as possible.



This is the menu for the Slow Flight maneuver. The selectable **Slow Flight Speed** is the indicated airspeed you should maintain in slow flight, and the speed upon which your airspeed score will be based.

A note on navigational equipment: While certain navigational equipment found in Redbird Simulator aircraft is necessary for some approaches, it is not necessary for all of them. RNAV approaches in the simulator's Cessna 172SP with analog gauges, for example, require the GPS functionality of the installed Garmin 530 or 430, but an ILS approach does not. While most pilots opt to load approaches into their GPS navigational systems even when not required, note that use of these systems for backup positional and procedure information is entirely optional, and that GIFT-IR does not provide instruction on their use.

Flight Scenarios

Note that all approach plates and other charts needed for the scenarios listed below are available in the Redbird GIFT-IR online course, in the kneeboard screen as a clickable link when you are flying a GIFT-IR scenario, and at the end of this document in **Appendix A**.

Approaches

Instrument Landing System Approach (ILS)

ILS RWY 36 at Wittman Regional Airport, Oshkosh, Wisconsin.

Airplane Configuration at Start of Flight: Throttle at ¾ power, flaps up, straight and level flight at 90 knots.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This is a precision approach, so you will have both vertical and horizontal guidance.

You may choose to load the flight plan into your GPS (such as a Garmin 530 or G1000), but this is an optional step. Be sure to tune your NAV and COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix). Turn your OBS knob to ensure that your VOR indicator is pointed to the runway heading indicated on the approach plate.

Keys to Success

- Remember that your CDI and glide slope needles become more sensitive to deviation as you fly closer to the runway.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if you are still in IMC at decision altitude, execute a missed approach per the missed approach procedures on the approach plate.

Localizer Approach (LOC)

LOC RWY 7 at Westerly State Airport, Westerly, Rhode Island.

Airplane Configuration at Start of Flight: Throttle at $\frac{3}{4}$ power, flaps up, straight and level flight at 90 knots.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This is not a precision approach and does not provide vertical guidance, so you will have to manage your altitude without a glide slope needle. A stair-step descent from one fix to the next is recommended.

You may choose to load the flight plan into your GPS (such as a Garmin 530 or G1000), but this is an optional step. Be sure to tune your NAV and COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix). Turn your OBS knob to ensure that your VOR indicator is pointed to the runway heading indicated on the approach plate.

Keys to Success

- Managing your descent becomes easier if you use a stair-step method –
 descend quickly (700-800 fpm) to the lowest allowable altitude as you pass each
 fix.
- Remember that your CDI needle becomes more sensitive to deviation as you fly closer to the runway.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if you are still in IMC at decision altitude, execute a missed approach per the missed approach procedures on the approach plate.

VOR Approach

VOR RWY 35 at Kalamazoo/Battle Creek International Airport, Kalamazoo, Michigan.

Airplane Configuration at Start of Flight: Throttle at ¾ power, flaps up, straight and level flight at 90 knots.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This is not a precision approach and does not provide vertical guidance, so you will have to manage your altitude without a glide slope needle. A stair-step descent from one fix to the next is recommended. Also, the VOR radial used for lateral guidance to the runway is not perfectly aligned with the runway. Carefully study the airport detail inset in the lower left corner of the approach plate to fully understand the relationship between the approach radial and the intended runway. Pay special attention to DME distances at each fix.

You may choose to load the flight plan into your GPS (such as a Garmin 530 or G1000), but this is an optional step. Be sure to tune your NAV and COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix). Turn your OBS knob to ensure that your VOR indicator is pointed to the VOR heading indicated on the approach plate.

Keys to Success

- Managing your descent becomes easier if you use a stair-step method –
 descend quickly (700-800 fpm) to the lowest allowable altitude as you pass each
 fix
- Keep in mind that the approach radial is not perfectly aligned with the extended centerline of the runway, and the runway threshold is not at 0.0 DME.
- Remember that your CDI needle becomes more sensitive to deviation as you fly closer to the VOR.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if
 you are still in IMC at decision altitude, execute a missed approach per the
 missed approach procedures on the approach plate.

RNAV LPV Approach

RNAV (GPS) RWY 25 at Herlong Recreational Airport, Jacksonville, Florida.

Airplane Configuration at Start of Flight: Throttle at $\frac{3}{4}$ power, flaps up, straight and level flight at 90 knots.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This approach provides lateral and vertical guidance, so "fly the needles" to maintain a proper path and glide slope. Because GPS is providing deviation information to your CDI and glide slope needles, they do not become more sensitive to deviation as you fly closer to the runway (as they do with non-GPS approaches).

You must load the flight plan into your GPS (such as a Garmin 530 or G1000), in order to fly this approach. Be sure to tune your COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix). In addition to "flying the needles" you may use the moving map option available in some GPS systems (if available) to crosscheck your progress along the approach.

Keys to Success

- Fly the needles
- Note that in most GPS systems, your CDI needle will indicate direction to your next fix, not just to the runway. Once you reach the fix, your needle will automatically "sequence" to indicating the direction to your next fix, or to the runway.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if you are still in IMC at decision altitude, execute a missed approach per the missed approach procedures on the approach plate.

RNAV LNAV+VNAV Approach

RNAV (GPS) RWY 17 at Miami Regional Airport, Miami, Oklahoma.

Airplane Configuration at Start of Flight: Throttle at $\frac{3}{4}$ power, flaps up, straight and level flight at 90 knots.

This approach is very similar to RNAV LPV. The main difference is that this approach provides slightly less-accurate positional information. That said, LNAV+VNAV approaches usually result in breaking out at minimums to find the runway directly ahead, and at an appropriate glide slope angle for a normal landing.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This approach provides lateral and vertical guidance, so "fly the needles" to maintain a proper path and glide slope. Because GPS is providing deviation information to your CDI and glide slope needles, they do not become more sensitive to deviation as you fly closer to the runway (as they do with non-GPS approaches).

You must load the flight plan into your GPS (such as a Garmin 530 or G1000), in order to fly this approach. Be sure to tune your COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix). In addition to "flying the needles" you may use the moving map option available in some GPS systems (if available) to crosscheck your progress along the approach.

Keys to Success

- Fly the needles
- Note that in most GPS systems, your CDI needle will indicate direction to your next fix, not just to the runway. Once you reach the fix, your needle will automatically "sequence" to indicating the direction to your next fix, or to the runway.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if you are still in IMC at decision altitude, execute a missed approach per the missed approach procedures on the approach plate.

RNAV LNAV Approach

RNAV (GPS) RWY 25 at Wiley Post-Will Rogers Memorial Airport, Barrow, Alaska.

Airplane Configuration at Start of Flight: Throttle at ¾ power, flaps up, straight and level flight at 90 knots.

You will start in one of three possible locations a few miles from the approach based on your selection of a straight-in approach (No PT), approach with procedure turn, or approach with vectors. This is not a precision approach and does not provide vertical guidance, so you will have to manage your altitude without a glide slope needle. A stair-step descent from one fix to the next is recommended.

You must load the flight plan into your GPS (such as a Garmin 530 or G1000). Be sure to tune your COM radios correctly, and switch COM frequencies once established on the approach (HINT: you should be established before reaching the final approach fix).

Keys to Success

- Managing your descent becomes easier if you use a stair-step method –
 descend quickly (700-800 fpm) to the lowest allowable altitude as you pass each
 fix.
- Note that in most GPS systems, your CDI needle will indicate direction to your next fix, not just to the runway. Once you reach the fix, your needle will automatically "sequence" to indicating the direction to your next fix, or to the runway.
- Listen carefully to the in-simulator flight instructor and ATC, especially at the beginning of the flight.
- Use pitch to control your airspeed, and power to adjust your rate of descent.
- If at any time you aren't confident that you are performing a stable approach, or if you are still in IMC at decision altitude, execute a missed approach per the missed approach procedures on the approach plate.

Non-Approach Maneuvers

Holds

Note: These maneuvers are performed at 6,000 MSL – you may wish to adjust your mixture for maximum engine performance.

All holds are unpublished, performed northwest of an airway intersection at a fix named TICKY in Western Oregon. You will fly 1-minute legs and make 1-minute standard rate turns to reverse course during the hold.

Direct Entry

Airplane Configuration at Start of Flight: You will begin your flight roughly north of the fix, aligned for a direct entry. Follow ATC heading instructions to enter and fly the hold for 1 complete circuit.

Teardrop Entry

You will begin your flight roughly north of the fix, but not well-aligned for a direct entry. Follow ATC heading instructions, and any instructions your in-simulator instructor issues, to perform a teardrop entry to the hold. Fly the hold for 1 complete circuit.

Parallel Entry

You will begin your flight roughly south of the fix. Follow ATC heading instructions, and any instructions your in-simulator instructor issues, to perform a parallel entry to the hold. Fly the hold for 1 complete circuit.

Keys to Success

- Maintain your altitude and airspeed throughout the maneuver.
- Visualize your path to entry before you begin.
- Rolling out on the correct heading for each leg of the hold is more important than performing a perfect standard rate turn each time.
- Carefully time your legs and adjust as needed to make your inbound leg exactly
 1 minute, especially if wind is present.
- Regardless of your entry type, technique, or ability to fly with precision, remain on the protected side of the hold.

Patterns A & B

Patterns A & B were designed to give instrument pilots practice performing the most common types of maneuvers associated with instrument approaches. Frequent practice with Patterns A & B help build so-called "muscle memory" which allows pilots to fly approach segments such as procedure turns, entries to holds, and missed approaches without undue mental exertion. This frees the pilot to attend to the other tasks of instrument flying. Mastery of Patterns A & B are critically important to better ensure safety in flight.

Although these flight exercises don't result in a landing, arrival at a particular fix, or other obvious goal, repetition and mastery of these pattern will yield at least as much benefit as any other maneuver found in GIFT-IR.

Pattern A

Pattern A should be the first pattern attempted and mastered before moving on to Pattern B. Pattern A requires the pilot to fly timed legs and make timed standard-rate turns at varying airspeeds. A closer look at Pattern A reveals some familiar maneuvers. For example, the first four minutes of flight are spent performing the equivalent of a procedure turn. The next few minutes resemble a teardrop entry to a hold. Et cetera.

Note that if you make a turn that is not perfectly standard rate, you will arrive at your target heading a little before or after the intended amount of time allotted for the turn. It is more important to turn out on the correct heading than exactly on time. Note how early or late you were in your turn and keep practicing to perfect your standard rate turn technique.

Pattern B

Pattern B follows the same general path as Pattern A, but requires more configuration changes along the way. Pattern B also requires some simultaneous changes in configuration, such as bank and power. At the end, a simulated missed approach is performed.

Once Pattern B is mastered, you are encouraged to fly GIFT-IR approaches and notice the difference in your ability to maintain precision while hand-flying an approach. Any feelings of task saturation you may have felt before should also be noticeably reduced.

Steep Turns

Steep turns challenge and sharpen your skills in flight with reference to instruments while performing a dynamic maneuver. Just as with steep turns in VMC, you will have the option to perform either a 45° or a 50° steep turn all the way around the compass, once in each direction.

Slow Flight

Slow flight in VMC tests your ability to maintain heading, altitude, and airspeed in stable flight. In IMC, you will be measured by the same metrics. Expect a few legs of straight and level flight, with occasional instructions to turn to a heading using a standard rate turn.

Additional Options

One or more Additional Options may be selected for approaches, and a smaller subset of Additional Options can be selected with non-approach maneuvers.

Available Additional Options include:

Wind – a 5-10 knots wind will be present, deflected \pm - approximately 40° from the primary track of the maneuver (such as a runway heading for an approach, or the inbound leg heading for a hold).

Partial Panel – a vacuum system failure, or symptoms equivalent to an AHRS failure (G1000) will present in the first few second of your flight.

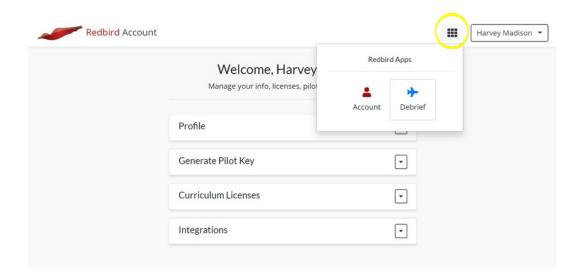
Circle to Land – ATC will instruct you to circle to land on the reciprocal of your approach runway.

Go Missed – IMC will exist at and below decision altitude.

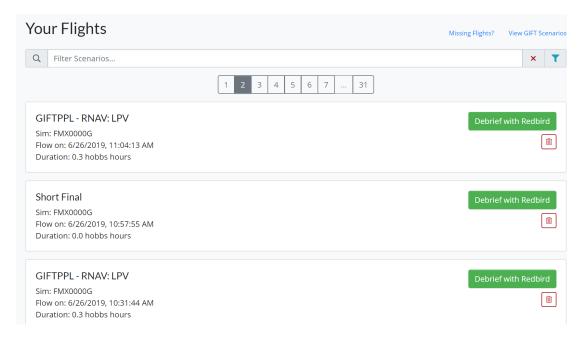
Surprise Me – the simulator will randomly activate one or more of the above options. If Go Missed and Circle to Land are both selected, ATC will instruct you to perform a circling approach early in your flight, but ceilings will be below minimums.

Flight Debrief

After each flight, your performance and scores are saved to your online Redbird account. Login to your **Redbird Account** and select Debrief to view past flights.



Your flights are listed in order from newest to oldest by default. Find the flight you wish to view and select Debrief with Redbird.

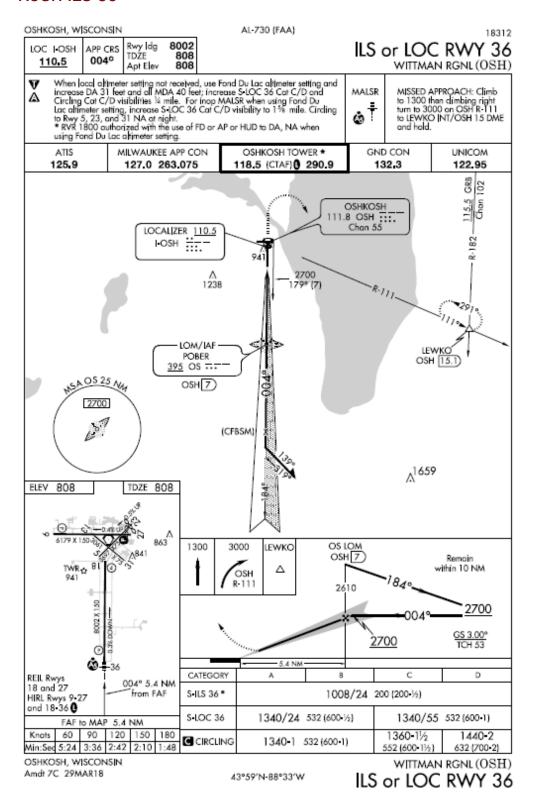


Graphical depictions of your flightpath and performance at each moment of your flight are displayed.

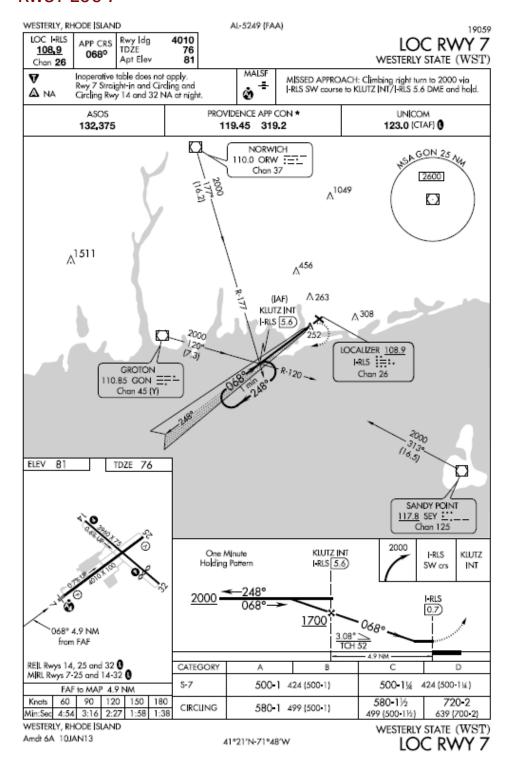


APPENDIX A

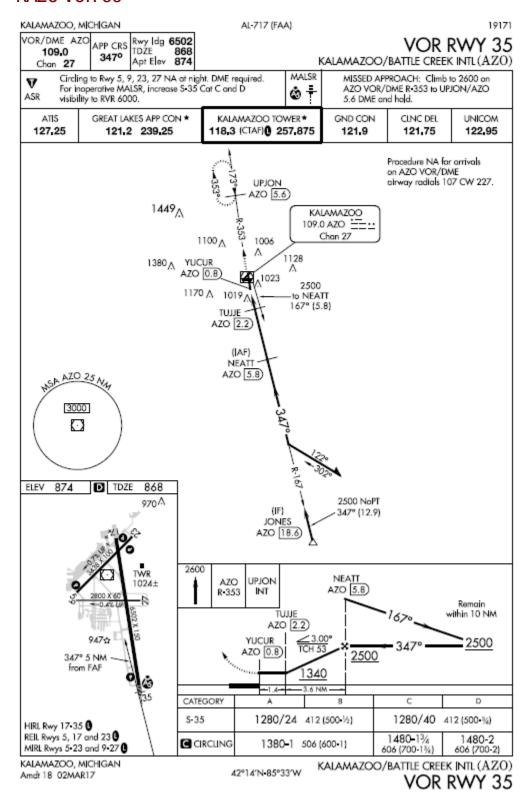
KOSHILS 36



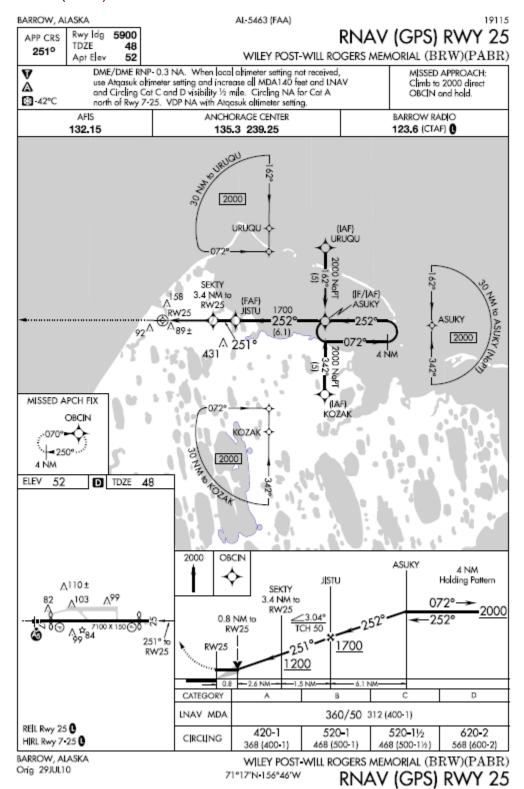
KWST LOC 7



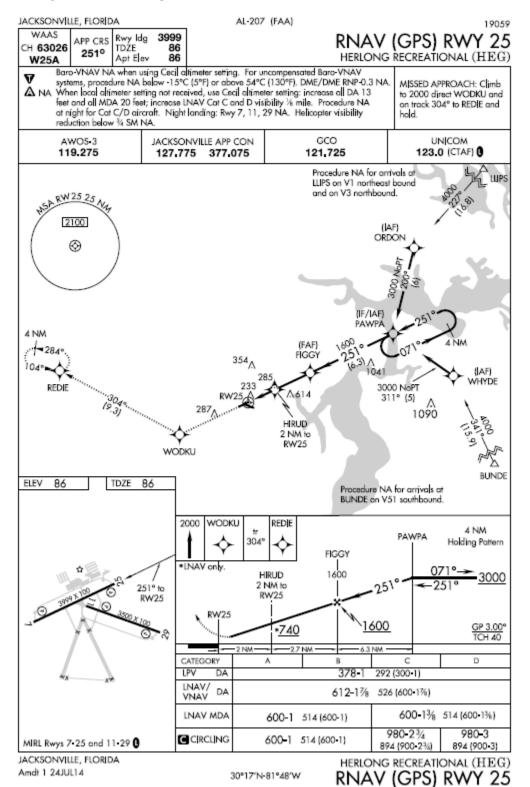
KAZO VOR 35



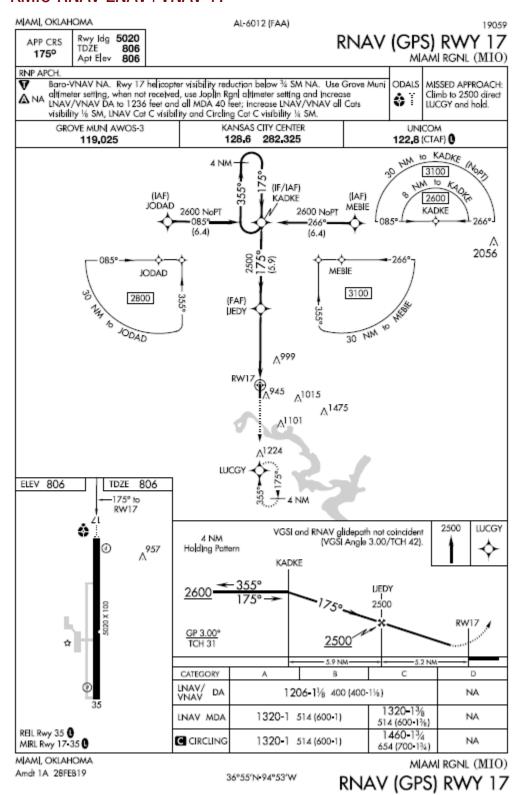
PABR (BRW) RNAV LNAV 25



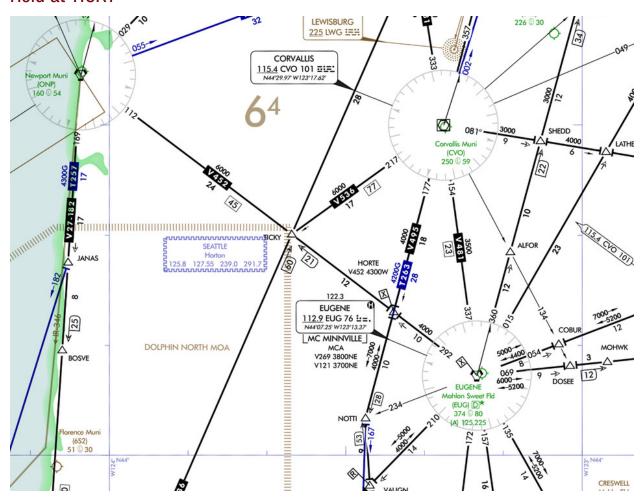
KHEG RNAV LPV 25



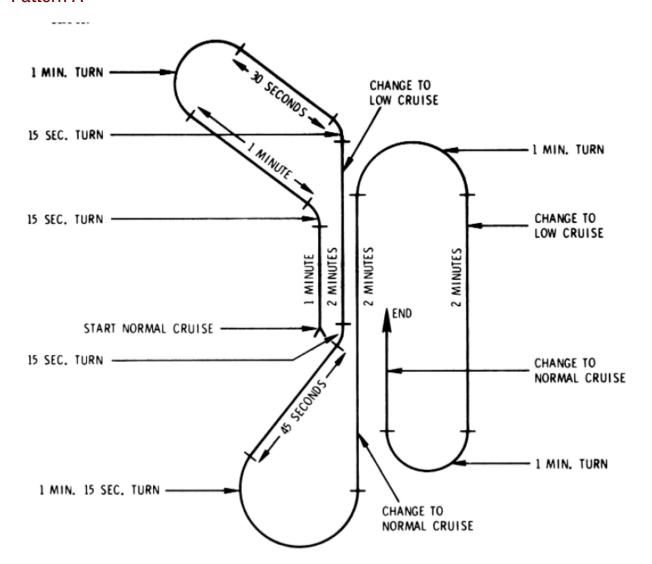
KMIO RNAV LNAV+VNAV 17



Hold at TICKY



Pattern A



Pattern B

