

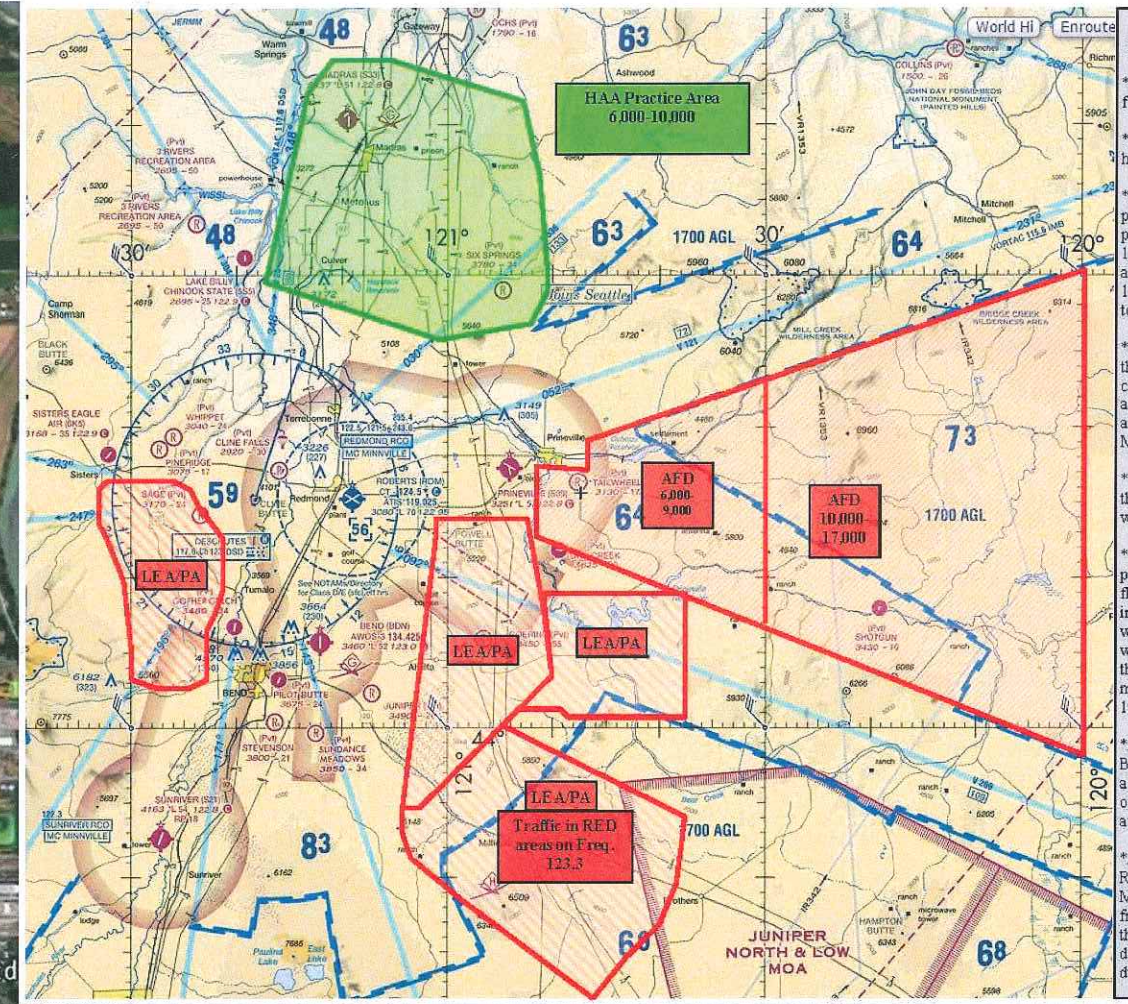
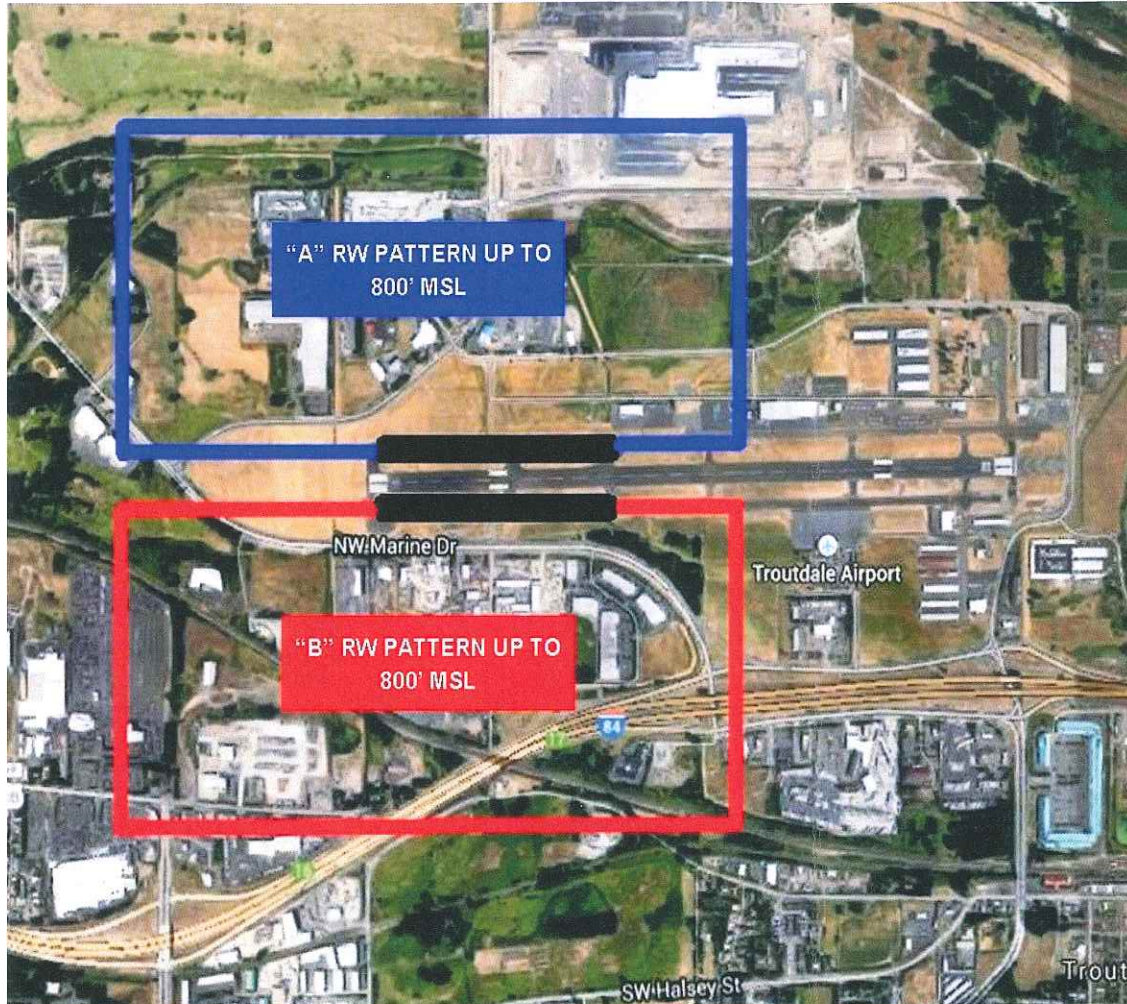
# Aeronautical Information Manual

Official Guide to Basic Flight Information and ATC Procedures

## 8-1-6 Vision in Flight

### c. Scanning for Other Aircraft.

- Scanning the sky for other aircraft is a key factor in collision avoidance. It should be used continuously by the pilot and copilot (or right seat passenger) to cover all areas of the sky visible from the cockpit. Although pilots must meet specific visual acuity requirements, the ability to read an eye chart does not ensure that one will be able to efficiently spot other aircraft. Pilots must develop an effective scanning technique which maximizes one's visual capabilities. The probability of spotting a potential collision threat obviously increases with the time spent looking outside the cockpit. Thus, one must use timesharing techniques to efficiently scan the surrounding airspace while monitoring instruments as well.
- While the eyes can observe an approximate 200 degree arc of the horizon at one glance, only a very small center area called the fovea, in the rear of the eye, has the ability to send clear, sharply focused messages to the brain. All other visual information that is not processed directly through the fovea will be of less detail. An aircraft at a distance of 7 miles which appears in sharp focus within the foveal center of vision would have to be as close as  $\frac{1}{10}$  of a mile in order to be recognized if it were outside of foveal vision. Because the eyes can focus only on this narrow viewing area, effective scanning is accomplished with a series of short, regularly spaced eye movements that bring successive areas of the sky into the central visual field. Each movement should not exceed 10 degrees, and each area should be observed for at least 1 second to enable detection. Although horizontal back-and-forth eye movements seem preferred by most pilots, each pilot should develop a scanning pattern that is most comfortable and then adhere to it to assure optimum scanning.
- Studies show that the time a pilot spends on visual tasks inside the cabin should represent no more than  $\frac{1}{4}$  to  $\frac{1}{3}$  of the scan time outside, or no more than 4 to 5 seconds on the instrument panel for every 16 seconds outside. Since the brain is already trained to process sight information that is presented from left to right, one may find it easier to start scanning over the left shoulder and proceed across the windshield to the right.
- Pilots should realize that their eyes may require several seconds to refocus when switching views between items in the cockpit and distant objects. The eyes will also tire more quickly when forced to adjust to distances immediately after close-up focus, as required for scanning the instrument panel. Eye fatigue can be reduced by looking from the instrument panel to the left wing past the wing tip to the center of the first scan quadrant when beginning the exterior scan. After having scanned from left to right, allow the eyes to return to the cabin along the right wing from its tip inward. Once back inside, one should automatically commence the panel scan.
- Effective scanning also helps avoid "empty-field myopia." This condition usually occurs when flying above the clouds or in a haze layer that provides nothing specific to focus on outside the aircraft. This causes the eyes to relax and seek a comfortable focal distance which may range from 10 to 30 feet. For the pilot, this means looking without seeing, which is dangerous.



**Hillsboro Aero Prineville Operations**

- \*Use HAA practice area for local maneuvers.
- \*Avoid low flight over houses and livestock.
- \*While in the HAA practice area make position reports on 122.8. If your avionics are capable, monitor 128.15 (Seattle Center) to listen for IFR traffic.
- \*When transitioning through the RDM ILS corridor between the arc and BODEY avoid altitudes between 5100 MSL and 6300 MSL.
- \*Traffic on the arc through the practice area will be at 7800 MSL.
- \*The RED zones are practice areas for other flight schools which include fixed and rotor wing traffic. Use caution while transitioning through these areas and make position reports on 123.3.
- \*Avoid operations at the Bend Airport (KBND) as there is high volume of flight training traffic at that airport.
- \*Avoid operations at Redmond (KRDM) Monday through Friday from 1100 - 1400 as there are many airlines departures and arrivals during these times.

## Collision Avoidance Checklist

You now have the knowledge to minimize the threat of collisions in the air and on the ground. Use the following tactics to enhance the safety of every flight.

### Plan your flight

Know your route, the frequencies you'll need along the way, and the pertinent information for your destination. Fold charts and preset navigational aids to maximize scan time. Program your avionics (including GPS units) on the ground to minimize heads-down time in the air. Anticipate where you may find high traffic/high workload areas. Avoid these areas if possible or plan on being extra vigilant during those phases of the flight.

### Use sunglasses

Sunglasses that block out UV rays help protect your vision and reduce eye fatigue. Red/yellow spectrum lenses make it easier to see through haze. Polarized lenses reduce glare, but this may be a detriment to spotting traffic as the glint of light bouncing off an aircraft is often the very thing that helps make it visible.



### Improve your visibility

Bugs or other contaminants on your windshield can block an aircraft from view and make it more difficult to focus properly. During climbout, make S-turns for improved forward visibility. Once you've reached a safe altitude, use cruise-climb airspeeds to get a better view over the nose.



### Observe proper procedures

Use correct cruising altitudes and traffic pattern procedures. Announce your position at nontowered airports. Recognize that not everyone follows the rules.

### Communicate

When flying in controlled airspace, familiarize yourself with the required communication procedures. At nontowered airports, begin announcing your position when 10 miles out.



### Educate passengers

As part of your preflight briefing, explain basic scanning procedures to passengers and have them assist in spotting traffic. Explain FAA radar advisory procedures, so they can help locate traffic called by ATC.

### Use aircraft lights

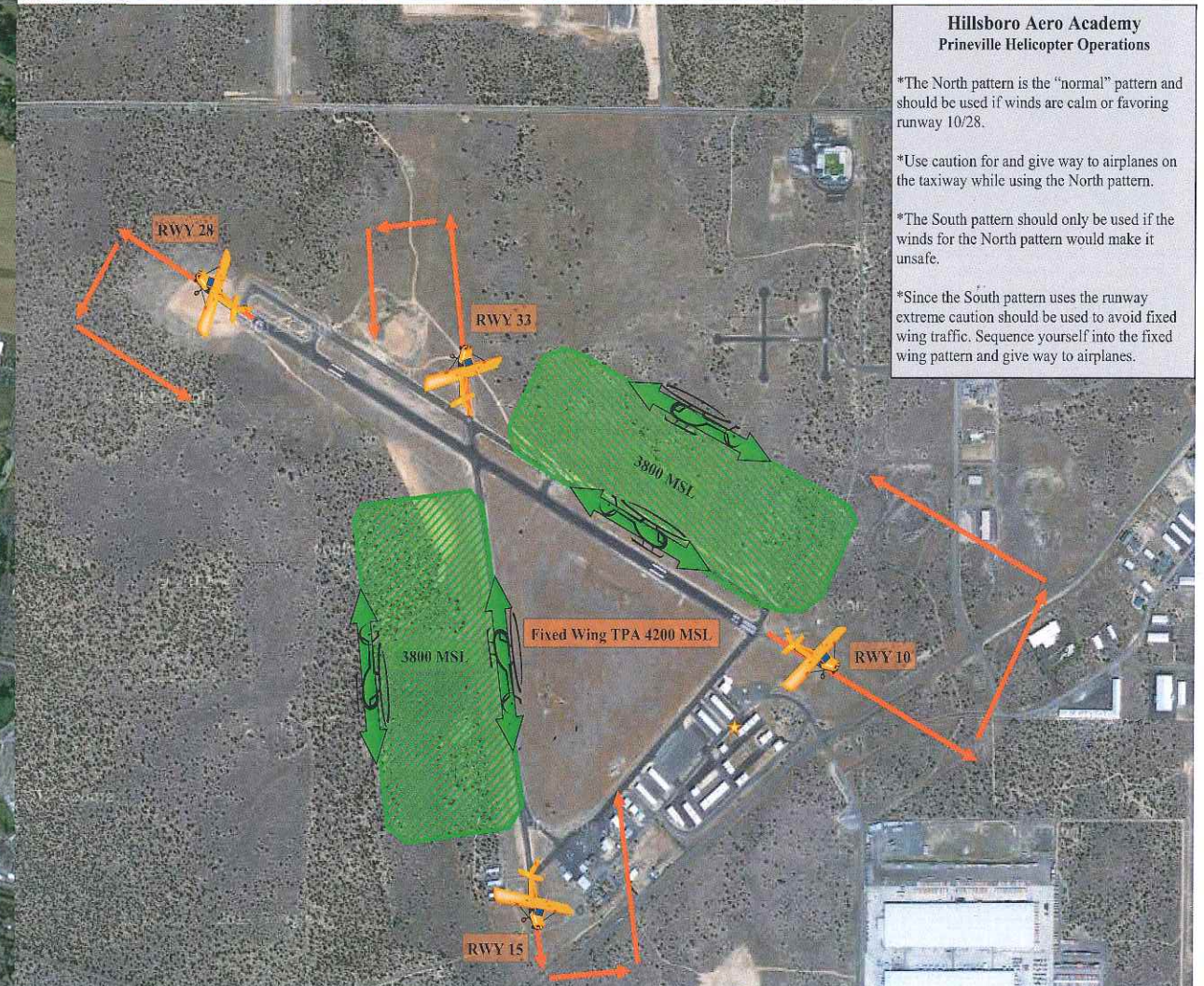
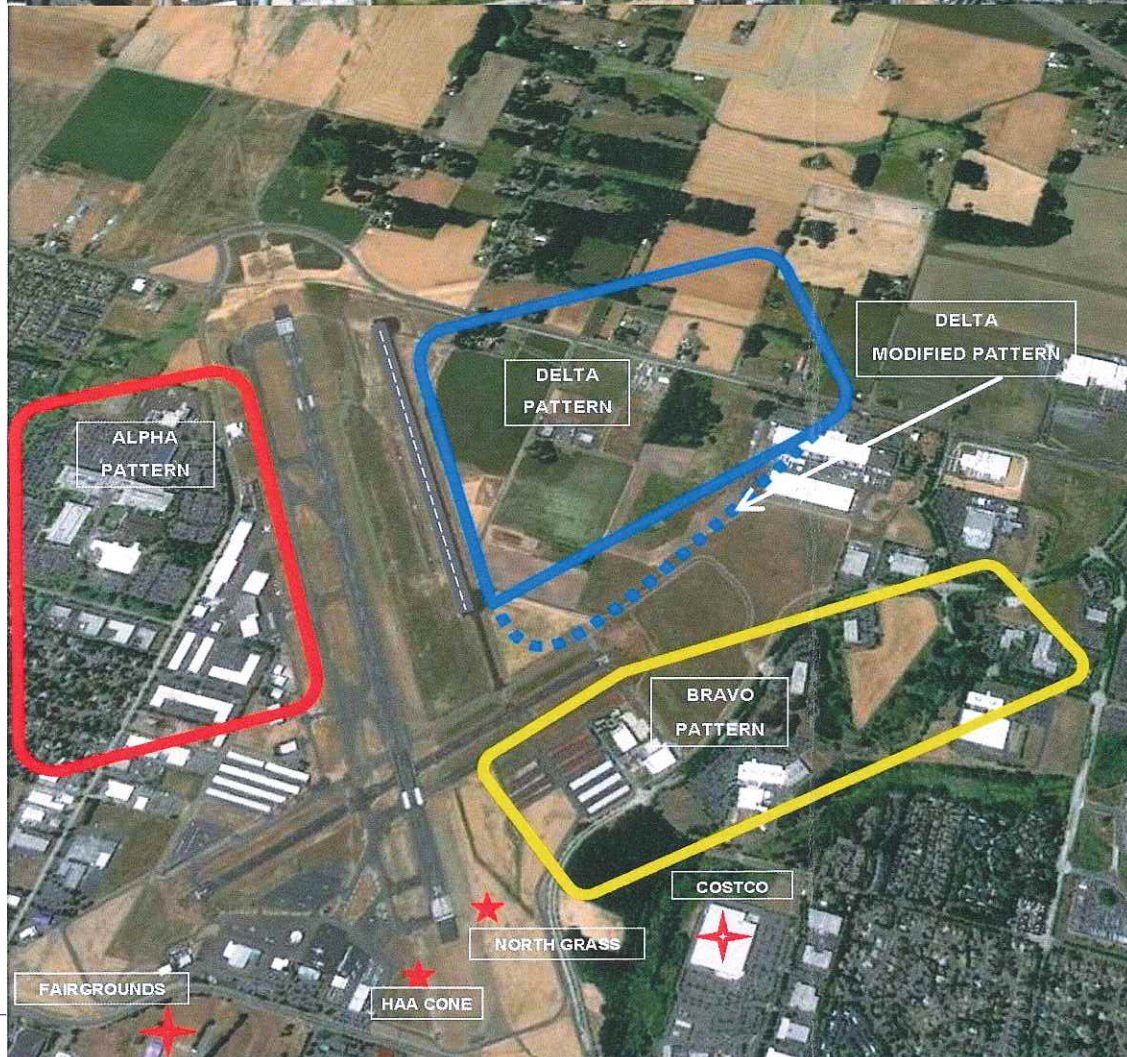
Install and use additional lighting to help other pilots see your aircraft. Use your landing light on approach, departure, and climbout - especially within 10 miles of any airport.

### Equip yourself

If you operate an aircraft without radios or transponders, consider installing them to enhance your safety. Regulations require that aircraft equipped with transponders must have them on during flight in controlled airspace.

### Scan for traffic!

Use the techniques presented in this Safety Advisor (see Page 5). Remember to devote more time to scanning for traffic outside than scanning the instruments inside.



### Hillsboro Aero Academy Prineville Helicopter Operations

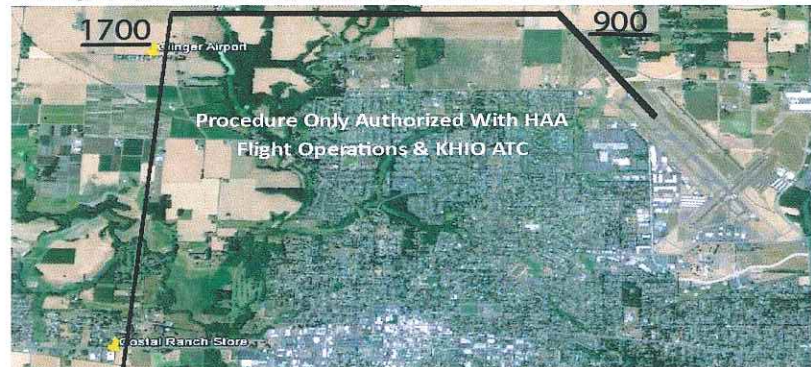
- \*The North pattern is the "normal" pattern and should be used if winds are calm or favoring runway 10/28.
- \*Use caution for and give way to airplanes on the taxiway while using the North pattern.
- \*The South pattern should only be used if the winds for the North pattern would make it unsafe.
- \*Since the South pattern uses the runway extreme caution should be used to avoid fixed wing traffic. Sequence yourself into the fixed wing pattern and give way to airplanes.

**NOT A REPLACEMENT FOR  
FAA APPROVED SECTIONAL**

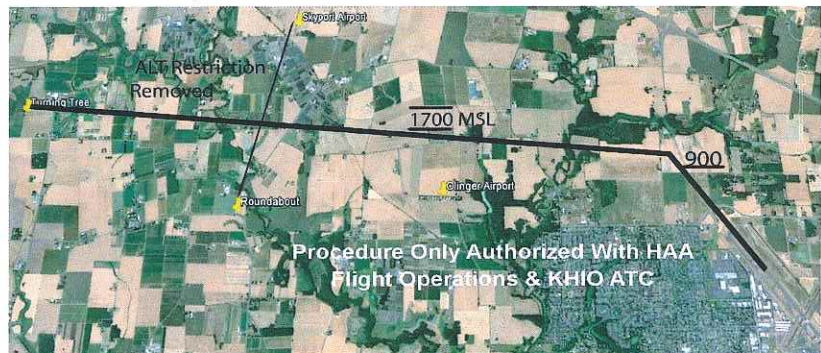
Use CAUTION near, from or to the UBG VOR. Flying at & below 2700' MSL advise traffic on Frequency 122.9. Above 2700' MSL use Portland Approach Frequency.

-  Water
-  Cities
-  Terrain
-  Practice Areas
-  Transitioning Aircraft Use Indicated Routes
-  High Traffic Caution Area
-  Uncontrolled Airport Advisory Area Within 3 sm & 2000' AGL. Report & Monitor Airport Traffic on CTAF Frequency.
-  Roads
-  Airports
-  Sky Diving Area
-  RW Off Airport Landing Areas
-  Reporting Points

**KHIO Bald Peak Departure (RWY 31L)**  
Climb RWY heading (308°) to 900' MSL. Past departure end of RWY then climbing left turn to Olinger Airport. Cross Olinger Airport @ or above 1700' MSL direct to Bald Peak.



**KHIO Turning Tree Departure (RWY 31L)**  
Climb RWY Heading (308°) 900' MSL. Past departure end of RWY make climbing left turn to 1700' direct to Turning Tree.



**KHIO Forest Grove Arrival (RWY 31L)**  
Enter Class "D" Airspace at 1200' MSL Altitude Restriction

