National Emergency Services Academy, CIVIL AIR PATROL
Mission Aircrew School

SCANNER TRAINING
INSTRUCTOR
B Flight / West Route

A. PRE-FLIGHT BRIEFING

1. Sign in personnel, aircraft, and vehicles. Use mission flow chart

2. Discuss how the scanner watches for other aircraft during departure, cruise, and approach.

3. Have the trainee discuss the scanner's duties during:
   a. Departure
   b. En route
   c. Approach and landing

4. Discuss purpose of the flight:
   a. How objects on the ground look from the air at different heights and speeds, including:
      1) Angular displacement and aircraft motion effects on surface coverage (fixation area)
      2) Difference between scanning range and search visibility ranges

   b. Common obstacles to flight (e.g., towers and guy wires, buildings, power lines).

   c. Scanning techniques:
      1) Use of diagonal and vertical scanning patterns from both sides of the aircraft
      2) Identification of visual clues

   d. Search effectiveness factors:
      1) Position of the sun (time of day)
      2) Atmospheric conditions (haze, dust, water vapor, bright sun)
      3) Clouds and shadows
      4) Terrain and ground cover
      5) Condition of the scanner (fatigue, illness)
      6) Aircraft height above ground
      7) Aircraft speed
      8) Cleanliness of windows
      9) Use of binoculars

   e. Use of sectional and maps to identify positions and objects on the ground.

   f. How to locate people and vehicles on the ground.

g. How various factors affect your ability to locate and identify people on the ground (e.g., victim's position & clothing, terrain).

h. Emergency signals that may be used by victims:
   1) Fire and/or smoke
   2) Signal mirrors
   3) Panels on the ground
   4) Messages on the ground
   5) Light signals (primarily nighttime)

i. How to communicate with victims on the ground (e.g., drops, aircraft movements, and radio)

j. Factors affecting probability of detection (use POD chart on the 104):
   1) Meteorological, search, and scanning visibility
   2) Type of terrain
   3) Ground track of the aircraft
   4) Search track (scanning range and ground track)
   5) Track spacing
   6) Possibility and probability areas
   7) Search altitude and speed

5. Initiate a 104.

6. Give the trainee a clipboard, a sectional chart, and a map. Discuss the differences in detail between the sectional and the map. With assistance, the trainee will follow the route and locate major land features on both the sectional chart and the map. *Just as importantly, the trainee will see <u>what is not shown</u> on the sectional chart and map.* Discuss using GPS coordinates to locate points on the chart and map; also discuss use of VOR radials for locating a point on the sectional.

7. Aircraft passenger and safety briefing:
   a. Demonstrate use of safety belts and harnesses
   b. Identify emergency exits

8. Aircraft survival equipment:
   a. Locate the ELT and its antenna, discuss manual activation
   b. Demonstrate use of all radios
   c. Go through contents of the survival kit

B. PROCEED TO TRAINING TARGETS

During the flight, the trainee should spend most of the time looking outside the airplane. Enroute to the first target, fly at cruise speed 90-100 KIAS. Upon reaching a suitable point in the city, do a circling climb to 2000' AGL and then point out the differences (especially in the size of people and cars). Proceed to first target and establish 1000' AGL at 90-100 kts.

At the tank farm demonstrate how aircraft speed affects search effectiveness. Demonstrate a steep turn around the target. Also, let the trainee experiment with the binoculars (discuss what to do to prevent or mitigate the effects of airsickness and vertigo).

During the flight, the trainee will spend most of the time looking outside the airplane and then associating major landmarks with what appears on the sectional chart. Discuss what to look for during a route search. Upon reaching Target #1, circle one of the towers at 2000' AGL and point out the guy wires, markings, and lights.

On longer sections of the route cruise at 2000 AGL at 100 KIAS.

At Target #5, have the trainee locate the tank farm on both the sectional and the map. Then let the trainee draw a map of the dam on the clipboard with sufficient detail to direct a ground team to the dam.

Whenever possible, point out objects on the ground which resemble search visual clues, such as:

- Light colored or shiny objects
- Smoke and fire
- Blackened areas
- Local discoloration of foliage
- Fresh bare earth
- Breaks in cultivated field patterns
- Water and snow
- Tracks and signals
- Birds and animals

1. Towers — South Southwest of Columbus (BAK) on both sides of the river.

2. Closed Air Port — 7 Miles south of Columbus (BAK) and east of the river.

3. Proceed south along the river

4. River — Point out the rail road tracks, power transmission lines & other items of interest

5. Tank Farm — 14.2 NM south of Columbus (BAK) along the river

6. Towers — North of Seymour

WEST TRAINING TARGETS

Proceed direct to Lake Monroe Bridge located 10 miles Southeast of Monroe County (BMG). Crossing low hills Northwest of Seymour, demonstrate high and low altitude changes 2000, 1000 and 500 AGL in relation to hilly country.

1. Bridge — Circle bridge at 2000, 1000 and 500 while discussing damage assessment. [N 39 04.5' W 086 25.5']

RETURN TO COLUMBUS (BAK)

1. While retuning to BAK point out landmarks and terrain features.

2. Discuss the approach and landing phases of flight. The intent is to familiarize the trainee with how an aircraft approaches an airport. Discuss the fact that many aircraft accidents occur within 5-10 miles of the airport, and show the trainee where one would look when near an airport during a search.

3. Grease the landing.

C. DEBRIEFING

1. Answer any questions.

2. Go over notes and the drawing. Critique the map as if you were a ground team leader being sent to the target. Have the trainee complete the 104, including transferring the clipboard drawing onto the 104.

3. Ask the trainee some questions on the information contained on their sectional chart. Encourage the trainee to become thoroughly familiar with the sectional.

4. Complete the 104.

5. Sign the trainee's qualification card or 101-T.

6. Give the trainee a copy of the ground-to-air signals handout to keep. Emphasize that the next flight requires knowledge of the signals.

7. Give the trainee an old sectional chart to keep. Show the trainee how to use a sectional, including the legends. Emphasize that the next flight requires use of the sectional.