

# Air Traffic Control Procedures

Nolan, Chap 5

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## FAA Responsibility

- Separate civilian and military aircraft in controlled airspace in U.S.
  - Separate
    - Aircraft in controlled airspace operating IFR, and
    - VFR aircraft in controlled airspace (Class A, B, C, D)
  - No services to non-participating aircraft and aircraft in non-controlled airspace
- U.S. airspace divided into 24 Air Route Traffic Control Centers (ARTCC)
  - Centers
- Busy airports have TRACONS
  - Terminal Radar Approach Control
- Some airports have Towers (ATCT)

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# Centers (ARTCC)

- 24 ARTCCs in U.S.
- ARTCC divided into sectors
  - Sectors designed to manage flow of aircraft
    - Vertical sectors
      - Low altitude: upto 18,000 MSL
        - » Victor airways
      - High altitude: 18,000 MSL to 60,000MSL
        - » Jet airways



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## Air Route Traffic Control Center (ARTCC) Locations and Boundaries



Figure 5-5, pg 208 4

# Low-altitude ARTCC Sectors



Figure 5-6, pg 209

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# Hand-off Procedures

- Required for aircraft crossing boundary
  - Sector - Sector
  - Center - Center
  - Center – TRACON
  - TRACON - Tower
- Transfer of control
  - Transferring controller
  - Receiving controller
- Transfer of communication
  - Pilot directed to contact Receiving controller prior to leaving airspace of Transferring controller

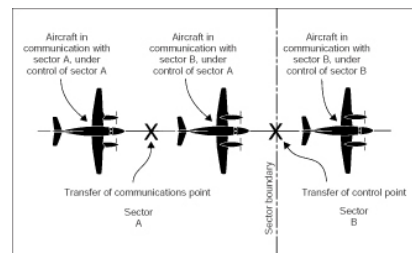


Figure 5-7, pg 210

## Preferential Routes

- Enhance traffic flow and reduce controllers workload
  - When multiple airways between airports, one-way airways avoid head-on collisions
  - When single airways between airports
    - Inbound and Outbound Altitudes
      - Heading east – odd numbered altitudes (FL350)
      - Heading west – even numbered altitudes (FL320)
- See Figure 5-8, page 212

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## Approval Request

- Deviations from Letter Agreement
  - Bad weather, traffic, pilot request
- Transferring Controller contacts Receiving Controller
- APPREQ

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## ARTCC Controllers

- 1-3 controllers assigned to separate aircraft in a sector
  1. Flight Data Controllers
    - Assists other controllers, pass information
  2. Radar Controllers
    - Separate aircraft
      - Issue altitude, heading, airspeed changes
  3. Non-radar Controller
    - Assists Radar Controller
      - Aircraft too low or too far away for radar
    - Update flight strips
      - Aircraft position, altitude, route of flight
    - Takes over if radar fails

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## Air Traffic Control Tower (ATCT) Responsibilities

- ATCT:
  - 40 mile radius from airport
  - Surface to 6,000' – 10,000'
- 3 to 10 operating positions
  - Ground Controller
    - Works in Tower Cab
    - Separates aircraft on ramp, taxiways, inactive runways
    - Coordinates other ground vehicles
    - Control Taxiway lighting systems
    - Uses unique frequency 121.90 MHz
  - Local Controller
    - Separation of aircraft arriving and departing
      - Smooth orderly flow of traffic
      - Determine active runways
      - Issue landing and takeoff clearances
  - Approach and Departure Control
    - TRACON

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## Homework Chap 5

1. Explain a handoff
  - When does it occurs
  - Why is it necessary
  - What is meant by “transfer of communication”
  - What is meant by “transfer of control”
2. Identify responsibilities of ARTCC
3. Identify responsibilities in ATCT
4. What is an ARTCC
5. How is airspace organized (use a diagram)