Air Traffic Control Procedures

Nolan, Chap 5

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)
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 60,000 MSL
      - Jet airways
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
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

Approval Request

• Deviations from Letter Agreement
  – Bad weather, traffic, pilot request

• Transferring Controller contacts Receiving Controller

• APPREQ
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

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
Homework Chap 5

1. Explain a handoff
   - When does it occur
   - 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)