Concord, N.H. to Manchester, N.H.

The flight begins at Concord Municipal airport, KCON, Concord, New Hampshire with Manchester, N.H., KMHT, the destination.

This flight ends with the simplest VOR approach. You will fly to the VOR, proceed outbound from the VOR, away from the field, make a procedure turn to the left, and return to the VOR, finally descending to the runway.

Do nothing until you have gone through the step-by-step details of the flight with this text and your charts. Only by doing this will you both understand the purpose of each step, but you will visualize them in your mind, a very important part of instrument flight.

- Set the flight simulator weather conditions to 1000 ft overcast, cloud tops at 10,000 ft., and one mile visibility. The wind is calm.
- Move your aircraft to Concord's Runway 35, and retract the flaps to 0°.
- Tune the Nav-2. receiver to the Manchester VOR, 114.4 MHz., ident MHT.

  NOTE: Fly this entire Approach with your Nav-2 Receiver for better needle visibility.
- Set VOR-2 OBS to 172°. Reset the timer to zero.
- Takeoff from Runway 35 with a climbing left turn to the southwest. ATC has cleared you to 3000 ft.
- Intercept V141 south-bound, 172° magnetic course indicated by the VOR needle centering and a TO flag showing. Cruise at 110 kts.
- Track inbound to the MHT VOR. Heading will be 172° with no wind.
- On station passage, when the FROM flag appears, turn left to 155° and set the VOR-2 OBS to 155°.
- Start the timer, and track outbound for two minutes.
- During the outbound leg from the VOR, descend to 2000 ft. You probably will have to continue your descent into the procedure turn since you have 1000 ft. to lose.
- After two minutes outbound from the VOR, turn left to the procedure turn heading of 110°. Reset and restart the timer.
- Fly the 110° heading for one minute then make a 180° turn to the right to 290°.
- Set the VOR-2 OBS to 335° the inbound heading to the VOR and to Manchester's

Runway 35 and reset the timer, but do not start it yet.

- Intercept the MHT 335° radial with a right turn, and start the timer.
- Descend to 1600 ft., drop one notch of flaps and slow to 75 kts.
- Shortly after two minutes on the timer you will reach station passage at the MHT VOR, indicated by the TO-FROM flag switching to FROM.
- Maintain your heading; don't worry on station passage if the needle slides off the side of the gauge. If you're tracking well it will return to center shortly after station passage.

The purpose of everything that you have done so far is to stabilize the approach *before* arriving at the FAF, Final Approach Fix. By stabilizing the approach only power adjustments will be necessary to descend or maintain level flight. If you don't stabilize the approach before arriving at the FAF, it's not likely to be satisfactory.

- If there is a crosswind, which is common, the inbound leg from the procedure turn to the FAF is the place to establish the correct WCA, not after passing the FAF.
- On station passage at MHT, when the FROM flag appears, reset and restart the timer, and reduce power to descend to the MDA, Minimum Descent Altitude, of 860 ft.
- Don't chase the needle on station passage. Maintain 75 kts. and proceed outbound from the VOR on the 335° radial towards the runway, remaining level at 860 ft.
- The distance from the station to the runway is 4.3 nm. At 75 kts 3 min., 26 secs. will elapse to cover this distance.
- With one mile visibility you should sight the runway or approach lights at about 2 min, 38 secs. after station passage. Although the runway will lie dead ahead if you have tracked from the VOR well, it is angled 17° to the right. Runway 35's heading is 352° so be prepared to turn to it when you sight it.
- On seeing the runway, further slow the aircraft and configure it for landing. Field elevation is 234 ft so you will have a little over 600 ft to descend to land.

Repeat the flight with the same conditions, but set in a 026° at 26 kts crosswind into your Flight Sim weather page. This will give you a 010° at 26 kts magnetic crosswind. Enjoy the challenge and satisfaction of flying it well.

Remember, the winds in Flight Simulator are Magnetic Direction, not True Direction, so enter your Magnetic Course into the Virtual E6-B Computer along with the 010° at 26 kts wind when calculating Wind Correction Angles, WCA, and Ground speeds.