Flight Assignment: A.T.P. Quick Reference Handbook

Flight Checklist

(This checklist applies specifically to the subLOGIC Airlines B737-250. Other aircraft pitch, power and/or configuration settings may vary. Check the "Appropriate Flight Settings" lists to determine the appropriate settings for the aircraft you are flying.)

Briefing

- Weather
- Weight & balance
- V speeds

Clearance

- Flight instruments and nav-radios set
- Flaps set
- Spoilers down
- Flight controls (keyboard, joystick, mouse) set or calibrate
- Trim set
- Review departure route and altitude
- Review takeoff speeds and flap retraction schedule
- Note take off time
- COM radios and transponder set

Takeoff

- Full thrust
- Rotate at V_R
- pitch to 10 degrees

Rejected Takeoff (Anytime before V_1)

- idle thrust
- spoilers up
- thrust reverse (if you think you can maintain control)
- brakes

Climb

- gear up as soon as positive climb
- establish climb at V_2 +20 kts
- retract flaps according to schedule
- accelerate to approximately 240 kts, reduce to climb thrust
- level-off at initial assigned altitude if applicable
- above 10,000 ft. pitch for 300 kts/.7M climb
- above 18,000 ft set altimeter to 29.92"

Enroute

- verify operation of autopilot hold
- use an efficient power setting
- verify fuel remaining versus estimated time of arrival at destination

Descent

- below 18,000 ft. set altimeter to local setting
- reduce airspeed to 250 kts below 10,000 ft.
- airspeed bug set for final approach speed: V_{ref}+5 kts
- radio altimeter bug set
- review go-around procedure

Before Approach

- slow to 190 kts, flap 1°
- nav-radios set for approach
- spoilers set to ARM
- 170 kts, flap 5° before intercepting final approach course
- 150 kts, flaps 15°, gear down until reaching final fix (final descent)
- v_{ref} + 5 kts, flap 30°

Landing

- lower nose
- reverse thrust (idle thrust must be set first)
- brakes as required
- zero thrust after reverse thrust is not needed (no reverse thrust below 60 kts)

Go-Around

- takeoff power
- takeoff pitch
- reduce flaps to 15° immediately but gradually (1 setting/3 sec)
- gear up when positive rate of climb
- flap 5° gradually

Approximate Flight Settings for subLOGIC Airlines B737-250

Use these settings as starting points; adjust pitch or power for desired goals of airspeed, altitude, or glidepath. These settings are for standard pressure, temperature and 100,000 lbs gross weight. Changes in these parameters will affect pitch/power requirements.

Flight Segment	Pitch Attitude	Fuel Flow	Comments
Takeoff	10 degrees	10,500 lbs	Pilots using the realistic 15° takeoff pitch attitude will not be de-rated in the ATP flight assignment modes.
250 knot climb (use under 10,000 feet)	9°	set 6500	Reduce fuel flow to 6500 lbs (use under 10,000 feet) after takeoff, then let FF decrease by itself.
300kt.mach 0.7 climb	5°		300 kt climb intercepts 0,7M at approximately 23,000 ft.

Flight Assignment: A

medium power level cruise (15,000 ft. - 0.7M)	1°	3800	
medium power level cruise (25,000 ft. - 0.74M)	2°	2900	
medium power level cruise (35,000 ft. - 0.76M)	3.5°	2500	
0.76M/300kt descent	-0.5°	idle	0.76 until indicated AS (airspeed) increases to 300 kts, then 300 kts.
250 kt descent (use under 10,000 feet)	1.5°	idle	
250 kt cruise (7000 feet)	3.5°	2600	
Approach speed level 170 kts, flaps 5°	3°	1900	
Approach speed level 150 kts, flaps 15° - gear down	3.5°	1900	
Final approach descent Down 3° glideslope 130 kts, flaps 30°, gear down	2.5°	2500	

V_1	V_R	V_2	Weight	V_{ref}: Final Approach
122	124	129	85,000 lbs	127
136	138	142	100,000	140
150	152	154	115,000	not authorized

Flap Use Schedule	Setting (degrees)	Speed (kts)	Max Speed (kts)Weight
(during flap application	1	190	230
Or retraction use this	5	170	210
Speed + 20 kts)	15	150	190
	25 to 40	140	180

Flight Assignment: A

Max gear extension speed: 270 kts

Approximate Flight Settings for subLOGIC Airlines A320-150

Use these settings as starting points; adjust pitch or power for desired goals of airspeed, altitude, or glidepath. These settings are for standard pressure, temperature and 132,000 lbs gross weight. Changes in these parameters will affect pitch/power requirements.

Flight Segment	Pitch Attitude	Fuel Flow	Comments
Takeoff	11 degrees	14,400 lbs	15° pitch is normal.
250 knot climb (use under 10,000 feet)	10°	7500	Press the [I] key to set climb thrust.
300kt.mach 0.7 climb	6°	climb thrust	
medium power level cruise (15,000 ft. - 0.7M)	1°	4400	
medium power level cruise (25,000 ft. - 0.74M)	2°	3500	
medium power level cruise (35,000 ft. - 0.76M)	3.5°	2500	
0.76M/300kt descent	0°	idle	0.76 until indicated AS (airspeed) increases to 300 kts, then 300 kts.
250 kt descent (use under 10,000 feet)	1°	idle	
250 kt cruise (7000 feet)	3.5°	2700	
approach speed level 170 kts, flap setting 1, gear up°	2.5°	2500	
approach speed level 150 kts, flap setting 2 - gear down	4°	3600	

Flight Assignment: A

final approach descent		3°	2300
down 3° glideslope			
130 kts, flaps full, gear down			

V_1	V_R	V_2	Weight	V_{ref}: Final Approach
123	124	124	106,000 lbs	117
127	128	129	132,000	132
139	140	141	160,000	146

Flap Use Schedule	Setting (degrees)	Speed (kts)	Max Speed (kts)Weight
(during flap application	1 (10°)	190	230
or retraction use this	2 (20°)	170	200
Speed + 20 kts)	3 (30°)	160	185
	full (40°)	150	177

Max gear extension speed: 280 kts

Approximate Flight Settings for subLOGIC Airlines B767-250

Use these settings as starting points; adjust pitch or power for desired goals of airspeed, altitude, or glidepath. These settings are for standard pressure, temperature and 275,000 lbs gross weight. Changes in these parameters will affect pitch/power requirements.

Flight Segment	Pitch Attitude	Fuel Flow	N_1	Comments
Takeoff	10 degrees	16,000 lbs	103%	B767 pilots generally use N_1 for setting power.
250 knot climb (use under 10,000 feet)	8°	13,000	98% (increases with altitude)	Pressing the [I] key to set climb thrust. FF will be reduced by approximately 13,000 lbs/hr.
300kt.mach 0.7 climb	5°	climb [I]	105% (high altitude)	If you need more power for heavy loads, observe max N_1 at high

altitude.

medium power level cruise (15,000 ft. - 0.7M)	1°	6300	83%
medium power level cruise (25,000 ft. - 0.74M)	1.5°	5500	87.5%
medium power level cruise (35,000 ft. - 0.76M)	2.5°	5300	95.5%
0.76M/300kt descent	-1°	idle	
250 kt descent (use under 10,000 feet)	0.5°	idle	
250 kt cruise (7000 feet)	3°	4800	69%
approach speed level 170 kts, flaps 5°	4.5°	6000	70%
final approach descent down 3° glideslope 140 kts, flaps 30°, gear down	3°	6000	71%

V_1	V_R	V_2	Weight	V_{ref}: Final Approach
116	119	130	220,000 lbs	122
129	133	140	260,000	133
141	144	149	300,000	143

Flap Use Schedule	Setting (degrees)	Speed (kts)	Max Speed (kts)Weight
(during flap application	1	200	240
or retraction use this	5	190	230 (Recommended takeoff flap setting)
speed + 20 kts)	15	180	210 (Recommended takeoff flap setting)
(5° or 15° flap settings	20	170	195
recommended for takeoff)	25	160	190
	30	150	162

Max gear extension speed: 270 kts

Approximate Flight Settings for subLOGIC Airlines B747-350

Use these settings as starting points; adjust pitch or power for desired goals of airspeed, altitude, or glidepath. These settings are for standard pressure, temperature and 650,000 lbs gross weight. Changes in these parameters will affect pitch/power requirements.

Flight Segment	Fuel Flow	Max EPR	Comments
Takeoff	12 degrees	17,000 lbs	1.46	Initial pitch attitudes up to 15° are normal. Reduce pitch attitude to as low as 7° to allow acceleration to 250 knots during flap retraction (without entering a descent) at high gross weights.
250 knot climb (use under 10,000 feet)	8°	14,400		Pressing the [I] key to set climb thrust. FF will be reduced with altitude. B747 pilots generally adjust critical power settings by noting and setting EPR.
300kt.mach 0.7 climb	5°	climb [I]	1.45 (1.55 at high altitude)	If you need more power for heavy loads, increase to max climb EPR of 1.45 (increasing to 1.55 at higher altitudes) and use a 280 kt climb.

Flight Assignment: A

medium power level cruise (15,000 ft. - 0.7M)	0°	5990		
medium power level cruise (25,000 ft. - 0.74M)	1°	4870		
medium power level cruise (35,000 ft. - 0.76M)	2.5°	5115		
0.76M/300kt descent	0°	idle		
250 kt descent (use under 10,000 feet)	0°	idle		
250 kt cruise (7000 feet)	2.5°	4200		
approach speed level 170 kts, flaps 5°	4°	6000		
final approach descent down 3° glideslope 140 kts, flaps 30°, gear down	2.5°	6000	71%	

V_1	V_R	V_2	Weight	V_{ref}: Final Approach
----	----	----	500,000 lbs	130
139	151	159	600,000	133
145	160	167	700,000	---- (max landing weight for subLOGIC B747-350 is 600,000 lbs)
152	167	179	800,000	----

–

Flap Use Schedule	Setting (degrees)	Speed (kts)	Max Speed (kts)Weight
(during flap application	1	190	270
or retraction use this	5	180	250
speed + 20 kts)	10	170	230 (Recommended takeoff flap setting)
(5° or 15° flap settings	20 - 30	150	200

Flight Assignment: A

recommended for takeoff)

Max gear extension speed: 270 kts

Approximate Flight Settings for subLOGIC Airlines Shorts 360

The computer modelling of the Shorts 360 is very simplified, and the aircraft was included primarily to enable you to commute to the smaller airports on subLOGIC Scenery Disks. The Shorts 360 has been specially adapted for this purpose, with high-lift devices for short takeoff and landing capability, and the inclusion of an IRS navigation system navigation system to allow you to navigate to any known co-ordinate system.

Flight Segment	Airspeed	Pitch Attitude	Torque Setting
takeoff	130	10°	3700 ft-lbs
cruise climb	150	7°	3550
cruise	175	0°	3500
descent	190	-5°	3000
final approach descent	120°	-5°	2000
flaps 30°, gear down			

The STO and LDG flap settings on the Shorts 360 instrument panel are used specifically for short field operations. Avoid using these settings until you become familiar with the regular flight characteristics of the aircraft, then experiment carefully. You'll find that you will be able to slow the aircraft to an approach speed of 80 knots.

ATP Aircraft Controls

Flight Controls

Function	Keyboard	Keypad
Pitch up (up elevator)		[2]
Pitch down (down elevator		[8]
Roll left (left aileron)		[4]
Roll right (right aileron)		[6]

Flight Assignment: A

Neutralise roll (and yaw in auto co-ordination mode)	[5]
Fine pitch up (trim joystick/yoke)	[1]
Fine pitch down (trim joystick/yoke)	[7]

Yaw left (left rudder)	[<]
Yaw right (right rudder)	[>]
Neutralize rudder	[L]
Auto co-ordination on/off toggle	[/]

Deploy flaps (one step)	[+]
retract flaps (one step)	[-]

Deploy spoilers (one step)	[Ins]
retract spoilers (one step)	[Del]

reverse thrust (from idle)	[9]
idle thrust	[0]
decrease thrust	[-]
increase thrust	[=]
climb thrust	[I]
full thrust	[\] or [backspace] (# on GB keyboards)
brakes	[M]

retract landing gear	[[ ]
extend landing gear	[ ]]

Aircraft Simulation Controls

Function	Keyboard
Primary/secondary	[tab]
Instrument toggle	

Flight Assignment: A

Auto-taxi to preferred runway	[~]
(in flights assignment)	
Pause/restart	[P]
Refresh screen display	[Esc]

ATP Navigation Controls

Function	Keyboard
Select NAV1	[Shift]{1}
Select NAV2	[Shift][2]
Select DME	[Shift 3]
Select ADF	[Shift][4]
Select IRS	[Shift][5]
Select RMI1	[Shift][6]
Select RMI2	[Shift][7]
Select heading bug	[Shift][8]
Select airspeed bug	[Shift][;]
Select radio altimeter bug	[Shift][']

The following eight keystroke combinations adjust the selected item (above).

Increase full MHz frequency value	[Shift][=]
(coarse increase bug setting)	
Decrease full MHz frequency value	[Shift][-]
(coarse decrease bug setting)	
Increase fractional kHz frequency value	[Shift][ ]]
(fine increase bug setting)	

Flight Assignment: A

Decrease fractional kHz frequency value	[Shift][[ ]
(fine increase bug setting)	
Increase OBS setting	[Shift][0]
Decrease OBS setting	[Shift][9]
Audible nav-transmitter ident. code on	[Shift][I]
Audible nav-transmitter ident. code off	[Shift][O]
Autopilot master on/off toggle	[Shift][Z]
Autopilot heading toggle:	[Shift][X]
Heading bug/NAV1/NAV2/off	
Autopilot altitude toggle: altitude hold/off	[Shift][C]
Decrease altimeter setting	[Shift][<]
Increase altimeter setting	[Shift][>]

ATP View Controls

Function	Keyboard	Keypad
First 3D window on/off toggle	[Shift]{backspace}	
Second 3D window on/off toggle		[Shift][Num Lock]
Map view on/off toggle		[Shift][Scroll Lock]
Cycle through turned-on windows		[Shift][ins]
And select window to be adjusted		
Give selected window top overlap priority	[Shift][P]	
Zoom in (selected window]		[Shift][+]
Zoom out (selected window)		[Shift][-]
Reset 1X zoom factor (selected window)	[Shift][N]	
Cycle through selected 3D window	[Shift][Caps Lock]	
View modes: cockpit/tower/spot		
Place control tower at current aircraft position	[Shift][/]	
(in tower view mode)		

Selected 3D window cockpit view direction:

Forward		[Shift][8]

Flight Assignment: A

Left front	[Shift][7]
Right front	[Shift][9]
Left	[Shift][4]
Right	[Shift][6]
Left rear	[Shift][1]
Right rear	[Shift][3]
Rearward	[Shift][2]
Down	[Shift][5]

Adjust selected 3D window cockpit view:

Up	[Shift][T]
Down	[Shift][B]
Left	[Shift][F]
Right	[Shift][H]
Reset default window	[Shift][G]

Second 3D window autoview:

Autoview on	[Shift][Q]
Autoview off	[Shift][tab]

ATP Communication Controls

<u>Function</u>	<u>Keyboard</u>
Select COM1	[Ctrl][1]
Select COM2	[Ctrl][2]
Select XPNDR	[Ctrl][3]

The following four keystroke combinations adjust the selected radio (above).

Increase full MHz frequency value	[Ctrl][=]
(increase most-significant-digits value)	

Flight Assignment: A

Decrease full MHz frequency value	[Ctrl][-]
(decrease most-significant-digits value)	
Increase fractional kHz frequency value	[Ctrl][ ]]
(Increase least-significant-digits value)	
decrease fractional kHz frequency value	[Ctrl][[ ]
(decrease least-significant-digits value)	
"Roger" (read back transmission)	[Ctrl][Enter]
Request repeat last transmission	[Ctrl][Caps Lock]
Request/verify clearance	[Ctrl][X]
Check in with new ATC facility	[Ctrl][tab]
Request taxi for take off	[Ctrl][.]
Request different runway	[Ctrl][/]
Request new altitude	[Ctrl][A]
Report leaving altitude	[Ctrl][Q]
Request frequency change	[Ctrl][F]
Request radar vectors	[Ctrl][V]
Request radar vectors	[Ctrl][V]
Report traffic/runway in sight	[Ctrl][T]
Report missed approach	[Ctrl][M]
Request taxi to ramp	[Ctrl][,]
Cancel clearance (exit flight assignment mode)	[Ctrl][C]

ATP Generic Communications Facility Frequencies

The following frequency settings may be tuned on your COM radio when flying the aircraft in single or career flight assignment mode

Control Facility	Frequency
Generic ATIS	127.00
Generic flight service	122.20

ATP Simulation Controls

Function	Keyboard

Flight Assignment: A

Quiet (sound off)	[Alt][Q]
Warning sounds only	[Alt][W]
All sounds on	[Alt][E]
Start demo recording	[Alt][I]
Stop demo recording	[Alt][O]
Cycle through and select demo time	[Alt][T]
Recording interval:1/5/15 seconds	
Instant replay	[Alt][P]
Slew mode on/off toggle	[Alt][S]

Slew Mode Controls

Move forward/backward	[8]/[2]
Move left/right	[4]/[6]

Enable/disable keyboard flight control input	[Alt][K]
Enable/disable joystick/yoke flight control input	[Alt][J]
Calibrate joystick/yoke	[Alt][N]
Visual attitude indicator on/off toggle	[Alt][M]
Cruise scenery mask (all objects enabled)	[Alt][;]
Manoeuvre scenery mask	[Alt][']
(reduced objects, same complexity)	
Final approach scenery mask (high speed	[Alt][Enter]
runway scenery only, increased complexity)	
Decrease image complexity	[Alt][<]
Increase image complexity	[Alt][>]
Auto complexity on/off toggle	[Alt][/]
Shader on/off toggle	[Alt][Caps lock]
Scenery load	[Alt][L]
Accelerate time	[Alt][+]
Decelerate time	[Alt][-]
16X time	[Alt][Ins]
Reset 16X time	[Alt][Del]
Load Hotkey mode 1	[Alt][Ctrl][1]
Load Hotkey mode 2	[Alt][Ctrl][2]

Flight Assignment: A

Load Hotkey mode 3	[Alt][Ctrl][3]
Load Hotkey mode 4	[Alt][Ctrl][4]
Load Hotkey mode 5	[Alt][Ctrl][5]
Load Hotkey mode 6	[Alt][Ctrl][6]
Load Hotkey mode 7	[Alt][Ctrl][7]
Load Hotkey mode 8	[Alt][Ctrl][8]
Load Hotkey mode 9	[Alt][Ctrl][9]
Reset to start of currently loaded flight mode	[Alt][Ctrl][0]
Exit the program (from normal flight mode)	[Alt][X]

ATP Menu Selection

NOTE: The keyboard Function keys are used to bring up all simulation control and configuration menus.

Menu	Function Key
Flight Modes menu	[F1]
Mode Library menu	[F2]
Environment menu	[F3]
Views menu	[F4]
Graphics menu	[F5]
Aircraft menu	[F6]
Flight Planning menu	[F7]
Status Report menu	[F9]
Help menu	[F10]

The ATP Manual

(Sections 1 & 2)

1 Running ATP

Starting ATP from Hard Disk

1. Start PC-DOS or MS-DOS.

2. Log onto the hard disk drive subdirectory you created for the ATP program. For example, to log onto the subdirectory called "ATP" on hard disk drive C, type C:

and press [Enter] to log onto hard disk drive C, then type CD ATP and press [Enter] to change directories.

3. Type ATP and press [Enter] to load and run ATP.

Self-Running Demonstration Program

Flight Assignment: ATP starts out by running a pre-recorded demonstration program after the program has loaded. Press [Esc] to exit the sample flight assignment demo and place the aircraft on runway 14L at O'Hare International Airport in Chicago.

Exiting from ATP

There are several ways to exit from ATP. Use whichever method you prefer:

• Press [Ctrl] [X] (when you are in flight mode with no menus showing), or

• Select the Flight Modes menu (press F1) and choose option 7, Quit, or

• Press [Ctrl] [Break] any time.

CONFIG.ATP File Modifications

The CONFIG.ATP file in the ATP subdirectory can be modified to custom-tailor the simulation to your system configuration. The CONFIG.ATP file is initially set to the following parameters:

display=auto

mouse=auto

sound=pcspkr

scenery=\scenery

stick=stick

keyboard=auto

You can use any ASCII text editor program to modify the CONFIG.ATP file as necessary - Brief, Pmate, etc., or the EDLIN line editor provided with DOS. (The DOS Reference Manual describes how to use the EDLIN line editor.) We do not recommend using a word processing program (WordPerfect, Microsoft Write, etc.) to edit CONFIG.ATP, since these programs can insert unwanted formatting commands or control characters into the file. Use your text editor program to modify these lines as indicated to adjust the simulation in the following ways:

display = auto Automatic selection of display driver.

ega EGA/VGA 640x350 high4es monitors, 16-color.

egb EGA 320x200 16-color.

mcga MCGA, VGA 320x200 256-color.

cga CGA 320x200 4-color.

herc Hercules, EGA monochrome 640x350.

tandy Tandy 1000 320x200 16-color.

mouse = auto Automatic mouse driver detect and use if present.

no Do not use the mouse driver.

sound = pcspkr Use PC speaker for sound generation.

adlib Use AdLib sound board for sound generation.

scenery = "'(subdirectory) You may want to store your scenery files in a

separate subdirectory on your hard drive. (Scenery

files are created from optional subLOGIC Scenery

Disks as described in Chapter 19.) If your scenery

files are located in a different subdirectory than

ATP, you will have to modify this line so that the

program can find and load the scenery. (For

example, if the scenery files are located in a separate

subdirectory called SCENERY, change this line to

read scenery=\scenery.)

stick = stick Use joystick driver.

keyboard = auto Automatic selection of keyboard driver.

ibm Standard IBM (or Tandy Enhanced) keyboard.

tandy Standard Tandy 1000 keyboard.

2 A Quick Test Flight

The following steps are presented to get you flying as quickly as possible This procedure gives you an idea of what the ATP simulation is all about and satisfies the natural desire to take the Boeing 737 out for its first flight without having to read the manual and learn all of the appropriate keyboard controls.

To begin the sample flight, load and run the ATP program and perform the following steps in sequence:

1. Press [Esc] to exit the demo program and place your aircraft at the starting location in normal flight mode. Press [F3] to turn on the Environment menu, then press the keyboard [2] key to set the day light control option to DAY mode. Press [space bar] to exit the menu and return to normal flight mode.

2. You are sitting on runway 14L at Chicago-O'Hare International Airport, and Chicago is visible in the distance. Press [Alt] [>] two times to increase the complexity level of the scenery displayed in the cockpit forward view. Scenery complexity level can be adjusted to improve either the frame rate or the visual display as desired.

3. Hold down the [Shift] key and press the [Caps Lock] key to view your Boeing 737 aircraft from O'Hare control tower. Press [Shift] [Caps Lock] again to see the Boeing 737 from a closer (spot plane) perspective. Finally, press [Shift] [Caps Lock] again to return to cockpit forward view.

4. Press the [backspace] key to set takeoff thrust. The aircraft will begin moving rapidly down the runway and you will see the runway markings moving a separate underneath you at an increasing rate of speed. Monitor the airspeed indicator in S line to the upper left corner of the instrument panel and watch the moving airspeed needle. When the needle reaches the airspeed "bug" (the yellow diamond on the

instrument), press the keypad [2] key two times in rapid succession. This applies a slight bit of up elevator, causing the aircraft to liftoff from the runway.

5. The natural horizon (the line where the blue sky meets the ground) will begin to drop in the cockpit view as your aircraft noses up. Press the keypad [8] key three times to apply down elevator before the horizon disappears from view. Let the aircraft fly for several seconds to stabilize itself, then press the [P] key to pause the simulation. You can press this key any time to stop the aircraft in mid-flight and think about what you want to do next. The [P] key toggles the pause feature on and off.

In a real takeoff, you would raise the landing gear immediately after establishing positive climb, begin retracting flaps as necessary and reduce to climb thrust at240 knots indicated airspeed. These procedures will be covered later, since the aircraft can perform adequately in takeoff configuration for purposes of this demonstration.

6. Hold down the [Shift] key and press the keypad [7] key to select the left front view. (The [Shift] key is used to make all view selections and adjustments.) You can see Chicago and Lake Michigan in the distance. While still holding the [Shift] key, press the keypad [4] key to select left view, then press [Shift][I] to select left rear view. You can see the front of the engine and the wing extending beyond it. The keypad keys are used in conjunction with the [Shift] key to select a view direction. Try them for yourself. [Shift] [2] provides an unrealistic rearward view, and [Shift] [5] lets you look straight down. When you're through looking around, press [Shift] [8] to return to cockpit forward view.

7. Press [P] to unpause the simulation and continue your flight. While the aircraft is flying, press the [tab] key to turn on the secondary instrument panel. This panel, when selected, takes the place of the primary (first) instrument panel. The secondary instrument panel includes engine monitoring instruments, the color weather radar display, and other less-often-used gauges and indicators. Take a look at the workings of the secondary instruments, the press [tab] again to return to the primary instrument panel.

8. Quickly press and release the keypad [4] key to start banking the aircraft to the left, then press the keypad [5] key about six or seven seconds later to hold a shallow bank angle. When the city of Chicago nears the center of the cockpit forward view, press and release the keypad [6] key to start banking to the right to level your wings. Press the keypad [5] key when the aircraft is level. Use shallow left and right banks to get yourself on a level flight heading towards Chicago.

9. Press [F3] to select the Environment menu, then press the keyboard [2] key one time to select the DUSK flying environment. Press [space bar] to exit the menu and see what Chicago looks like at dusk. Press [F3], then keyboard [2], then [space bar] again to view the city of Chicago at night. City buildings are lit up at night, and many rows of city street lights are visible. Press [F3], then press the keyboard [2] key two more times followed by [space bar] to return to a normal daylight view.

10. Press the keypad [8] key three times to pitch down slightly and head directly for the Chicago city buildings. See what the individual buildings look like in close-up. Finally, hold down the [Alt] and [Ctrl] keys and press the keyboard [0] key to return the aircraft to O'Hare runway 14L. You are now back where you started.

This simple test flight offers only a small glimpse of the wide variety of simulation features and options included with the ATP program. Move on to the next page to begin your introduction to the world of commercial transport aviation.