

APPI Guide for Instructors

Slide	Comments
Slide 1	<p>This module is an introduction to the type rating</p> <p>The objective of APPI is to give trainees a better understanding of Aircraft design philosophy</p> <p>Airbus procedures philosophy</p> <p>Pilots human behavior (strengths and weaknesses)</p> <p>And how these aspects interact all together to ultimately ensure safe and efficient flights.</p> <p>Explain that the instructors will take all the opportunities during the training to reinforce and illustrate these messages.</p>
Slide 3	<p>This module will remain at a rather general level to present the global picture.</p> <p>All the details will be provided in the rest of the training. Even if some detailed examples are given to illustrate some of the general principles, it is not the purpose here to go into detailed technical presentations or discussions.</p>
Slide 4	<p>In real life, safety results from complex mechanisms combining:</p> <ul style="list-style-type: none"> -aircraft design -procedures design -pilots behaviors <p>This module will aim at providing trainees with a good understanding of these three aspects as well as of their interactions</p> <p>In order to illustrate what actually makes a safe and efficient flight, we will start discussing about « golden rules »</p>
Slide 6	<p>This module is an introduction to the type rating, and what we explain about cockpit philosophy, airbus procedures or pilots behaviors will be developed or reinforced all along the course.</p>
Airbus Cockpit Philosophy	
Slide 9	<p>Cockpit philosophy, where does it come from ? >> Safety , Comfort, efficiency</p> <p>This module is divided into two parts. For each of them, we will present the design principles as well as the utilization principles. These two aspects were thought together and go together to make the final performance of the aircraft. (holding the best hammer by the wrong end or to put a screw will always lead to a poor performance...)</p>
Slide 10	<p>COCKPIT: explains the cockpit design principles and its subsequent principles - Helps the crew - simplifies - takes benefit from previous experience</p> <p>FLY BY WIRE: The idea is to « demystify » the Fly By Wire - Do not go too much into details</p>
Slide 12	Location of controls, give the example of lights that you use much more than fire handle
Slide 14	<p>Cascade Arrangement on Overhead Panel: system control panels are set one below the other (eng. fire, hydraulic, fuel, elec, bleed) in order to make normal/abnormal procedures straight forward and intuitive. In addition, this arrangement aims at minimizing crew errors and to provide a vertical schematic view.</p>
Slide 19	Automation give the example of CAT III landing with single engine on A320
Slide 20	Automation; you can also mention the level 4 of assistance with the e-link between ATC and the Aircraft and the FANS.
Slide 22	Alerts must be unambiguous to the crew, and must not interfere with operation when not needed or not safe.
Slide 27, 28	Color coding. Push buttons (P/B) with control/display functions are used. Each P/B carries 1 or 2 lights ; in case of 2 lights, the upper indicates the status of the system, the lower indicates if the system is commanded ON/OFF. More info to come with CBT
Slide 29	<p>Display units</p> <p>DU general display principles have been established so as to provide the right information in a given flight phase, and to use synthetic information, when better tailored to the pilot's needs, complementing analytic information, thus enhancing the pilot's situational awareness.</p>
Slide 31	The Less Paper Cockpit is an utilization principle, which also impacts the cockpit layout. The A380 is the best example. Even if it is not yet fully implemented on all aircraft types, this is where we are going.
Slide 33	Do not mention normal law, alternate law and direct law. This will be detailed later in the training

Slide 34	<p>Do not explain the protections.</p> <p>The purpose of these protections is to give full authority to the pilots in order to allow him to consistently obtain the best achievable performance out of the aircraft when required, with an instinctive, immediate action on the related control, while minimizing the risks of over-controlling, oversteering or damaging the aircraft or any system.</p> <p>The implementation of such protections is a benefit for flight safety:</p> <ul style="list-style-type: none"> - it reduces the pilot's stress in emergency situations - it allows the pilot to react unambiguously to emergency situations - it does not require exceptional flying skills, but an instinctive reaction - it allows the pilot to achieve a far higher aircraft performance than on non protected aircraft - the performance achieved is not affected by the pilot's stress or fatigue or skill - the performance is not affected by a restrictive procedure - the training can concentrate on pilot alertness level, rather than on the maneuver itself.
Slide 35	<p>It's just an example to illustrate on an emergency maneuver the benefit provided by the Fly By Wire « Protected aircraft » compared to a Non Fly By Wire « Non Protected aircraft » Here the altitude loss during the recovery procedure is better on a protected aircraft than on a non protected aircraft. It is also better for distance clearance in case of obstacle.</p>
Slide 36	<p>Sides Stick As we have introduced the Fly By Wire concept, we need to introduce its main cockpit interface and their design principles , please use this opportunity to highlight the important role of the armrest in fly by wire.</p>
Slide 39	<p>ATHR - Energy cues (speed trend - THR indicator) The pilot uses those cues to monitor the thrust response to his inputs.</p> <p>Consequently, this implies that the autothrust (ATHR) is monitored by energy cues: speed, speed trend, FMA, thrust level and command</p>
Slide 42	<p>Lateral stability: Do not enter into details</p>
Slide 43	<p>please insist on avoidance of dual inputs and the specific way to take control with fly by wire.</p>
Slide 49	<p>AIRBUS procedures</p>
Slide 74	<p>Pilots interaction</p>
Slide 75	<p>The goal of this last module is to show how aircraft design, airbus procedures, pilot behaviors interact through operational scenarios illustrated by videos</p>
Slide 76	<p>We have selected only 4 examples due to time constraints. Of course we could have illustrated some others, but these ones were very representative and the idea is ultimately to make trainees think themselves about other examples.</p>
	<p>Example 1 video :error on FCU</p>
Slide 78	<p>The CAPT makes an error by selecting the wrong knob We list some rules to prevent error and to recover We refer to golden rules if applicable</p>
	<p>Example 2 video : false glide</p>
Slide 79	<p>The COPILOT announces the DME distance to validate the Glide Slope at top of descent, but didn't do it</p>
	<p>Example 3 video : Expected descent</p>
Slide 81	<p>The COPILOT leaves the FPLN to fly a heading. Then he wants to descend in managed mode which is not possible in HDG selected</p>
	<p>Example 4 video : Routinely disconnection of ATHR</p>
Slide 83	<p>The CAPTAIN disconnects the ATHR without reducing thrust which leads to an unexpected increase of thrust just before landing. This can happen when a trainee has developed routines on an aircraft that has a different design.</p>
	<p>Conclusion</p>
Slide 85	<p>The objective of APPI was to give trainees a better understanding of Aircraft design philosophy Airbus procedures Pilots human behavior (strengths and weaknesses) And how these aspects interact with one another to ultimately ensure safe and efficient flights.</p> <p>Your instructors will take all the opportunities during the training to reinforce and illustrate these messages.</p>