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ARTICLES FOR THE NEWSLETTER

If you have an articles for the newsletter that you would like to share with the DPE and the CFI community send me an e-mail with the article. Paul.J.Maenza@faa.gov
This does not guarantee it will be published, but I will send you a response.

CONSOLIDATION OF DPE SEMINARS

Starting January 2004 the DPE Recurrent Seminar Program will be consolidated to just 19 seminars per year. You can find this new schedule on the AFS-600 website under DPE Seminars 2004.

LYRIS CANCELED

The Lyris E-mail contract has been canceled. The new Designee Notification System will start beginning August 1, 2003. The website address to register for this new system is < <http://faa.okccc.edu> >. Pick one or all three choices, this will include airworthiness information too. Also look on the AFS-600 website for a direct link to this web address.

TEACHING AND TESTING IN TECHNICALLY ADVANCED AIRCRAFT

Technically advanced aircraft are not new to the aviation teaching and testing environment. When Sperry Gyroscope Co. developed the attitude indicator in 1930, instructors and evaluators had to develop methods to ensure the student/applicant could operate with, and without, this new device safely. The avionics industry has grown by leaps and bounds over the last 15 years by designing and developing new devices to ease pilot workload and make flight safer. For pilots who learned to fly using technology developed 30, 40, or even 50 years ago, the new challenges brought by advanced technology have been “high hurdles” at times. New generation pilots on the other hand, who grew up with computers, are generally able to grasp the new technology easier and therefore can more readily adapt to the changes required. Two challenges facing instructors and examiners are: (1) keeping up pace with the numerous types of new equipment coming on line; and (2) how to train and evaluate pilots not only in the normal operating procedures, but also how to cope with the abnormal and emergency situations that can occur with the new technology.

The challenges we face today are not new to teaching or testing. In the late 80’s and early 90’s electronic flight display systems started appearing in many corporate and general aviation turboprops, jets, and helicopters. The training industry developed, largely by trial and error, techniques and procedures to train pilots and evaluate pilot proficiency using this new technology. This ensured that certification standards continued to be met. One of the most important considerations was, “What does the pilot do if he/she loses one or more of the primary flight displays?” Since most displays could be moved to a different location on the instrument panel, new scanning and interpretation procedures had to be learned. A common problem was “information overload”. There could be so much information on the flight display at any given time that the pilot could become confused and lose situational awareness. Also, backup flight instruments were not located in the most convenient position on the instrument panel. Therefore, emphasis on training not only in flying the aircraft, but on operating the new equipment became paramount. Students spent hours in cockpit procedures trainers, using desktop training aids and computer programs learning proper programming procedures.

Today, the advent of single large glass displays having all of the flight information portrayed in front of the pilot, and another display containing checklists, engine parameters, weather radar, terrain avoidance and traffic information, adds more challenges to teaching and testing. The importance of teaching and ensuring the proper use of autopilots and flight stabilization devices became apparent during training in aircraft equipped with these devices. The pilot must be totally familiar with all of the equipment’s normal, abnormal, and emergency operating procedures. This is especially critical in the event of a failure of a primary flight display, which may require that the pilot use an instrument scan pattern that is “abnormal” or unfamiliar. What makes the scan pattern abnormal is that the attitude, airspeed, and directional information necessary for maintaining control of the aircraft may be located in such a way that the pilot must make constant head movement’s up/down and left/right in order to retrieve the information. An example would be when the backup pitch, bank, and heading information are not directly in front of the pilot. The pilot may have to move his/her head down for attitude information, up for heading information, and left or right for communications or navigation information. It requires a higher level of proficiency to fly an aircraft with this type of sensor movement than a normal (conventional instrumentation layout) partial panel situation where all of the instruments are in front of the pilot.

The challenge for evaluators, as we mentioned above, is to not only know the equipment, but to determine that the applicant can fly the aircraft under normal, abnormal and emergency situations. The question the evaluator needs to also ask is, “What are the types of failure that could occur with this equipment?” For example, if the aircraft is equipped with a single primary flight display, can the applicant fly the aircraft safely if this display fails? What is considered partial panel in an aircraft equipped with a single primary flight display? Most current technically advanced aircraft have an attitude indicator as the backup flight attitude instrument instead

of a turn needle/coordinator. Can the applicant fly the aircraft moving their head while setting up the navigation equipment, communicating with air traffic, and controlling the aircraft? Is the applicant taking full advantage of the automation installed in the aircraft? Is the applicant maintaining situational awareness while handling abnormal or emergency procedures? Most importantly, is the applicant managing the risk in the decision making process?

Technically advanced aircraft pose no more of an obstacle to today's flight instructors or evaluators than our predecessors faced when the range finders, automatic direction finders, or instrument landing systems were developed. Those instructors and evaluators had to prepare themselves first, in order to develop safe, efficient, and proficient pilots. We too must prepare ourselves, as flight instructors and evaluators, by learning as much as we can about the new equipment. Attending manufacturer schools, obtaining training developed by industry and/or doing homework is the only way we can keep pace with the new technology. Sitting back and saying, "Well I will just use my old techniques" is not going to ensure that today's pilots are the best qualified and safest in the air. It is up to the flight instructors and evaluators to move ahead and become the point of the teaching and testing arrow in taking our industry into the 21st century. Old dogs can learn new tricks!