NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

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Attachment 19 – Execuflight SOPs

OPERATIONAL FACTORS

CEN16MA036

General Information

Definitions

LH/RH – Pilot Station. Designation of seat position for accomplishing a given task because of proximity to the respective control/indicator. Regardless of PF or PNF role, the pilot in that seat performs tasks and responds to checklist challenges accordingly.

PF – Pilot Flying. The pilot responsible for controlling the flight of the aircraft.

PIC – Pilot-in-Command. The pilot responsible for the operation and safety of an aircraft during flight time.

PNF – Pilot Not Flying. The pilot who is not controlling the flight of the aircraft.

Flow Patterns

Flow patterns are an integral part of the SOP. Accomplish the cockpit setup for each phase of flight with a flow pattern, then refer to the checklist to verify the setup. Use normal checklists as "done lists" instead of "do lists."

Flow patterns are disciplined procedures; they require pilots who understand the aircraft systems/controls and who methodically accomplish the flow pattern.

A standardized flow pattern for the cockpit setup before starting engines appears in the Expanded Normals chapter.

Checklists

Use a challenge-response method to execute any checklist. After the PF initiates the checklist, the PNF challenges by reading the checklist item aloud. The PF is responsible for verifying that the items designated as PF or his seat position (i.e., LH or RH) are accomplished and for responding orally to the challenge. Items designated on the checklist as PNF or by his seat position are the PNF's responsibility. The PNF confirms the accomplishment of the item, then responds orally to his own challenge.

In all cases, the response by either pilot is confirmed by the other and any disagreement is resolved prior to continuing the checklist.

After the completion of any checklist, the PNF states "_____ checklist is complete." This allows the PF to maintain situational awareness during checklist phases and prompts the PF to continue to the next checklist, if required.

Effective checklists are pertinent and concise. Use them the way they are written: verbatim, smartly, and professionally.

Omission of Checklists

While the PF is responsible for initiating checklists, the PNF should ask the PF whether a checklist should be started if, in his opinion, a checklist is overlooked. As an expression of good flight deck management, such prompting is appropriate for any flight situation: training, operations, or checkrides.

Challenge/No Response

If the PNF observes and challenges a flight deviation or critical situation, the PF should respond immediately. If the PF does not respond by oral communication or action, the PNF must issue a second challenge that is loud and clear. If the PF does not respond after the second challenge, the PNF must ensure the safety of the aircraft. The PNF must announce that he is assuming control and then take the necessary actions to return the aircraft to a safe operating envelope.

Abnormal/Emergency Procedures

When any crewmember recognizes an abnormal or emergency condition, the PIC designates who controls the aircraft, who performs the tasks, and any items to be monitored. Following these designations, the PIC calls for the appropriate checklist. The crewmem-

NOTE: "Control" means responsible for flight control of the aircraft, whether manual or automatic.

ber designated on the checklist accomplishes the checklist items with the appropriate challenge/response.

The pilot designated to fly the aircraft (i.e., PF) does not perform tasks that compromise this primary responsibility, regardless of whether he uses the autopilot or flies manually.

Both pilots must be able to respond to an emergency situation that requires immediate corrective action without reference to a checklist. The elements of an emergency procedure that must be performed without reference to the appropriate checklist are called memory or recall items. Accomplish all other abnormal and emergency procedures while referring to the printed checklist.

Accomplishing abnormal and emergency checklists differs from accomplishing normal procedure checklists in that the pilot reading the checklist states both the challenge and the response when challenging each item.

When a checklist procedure calls for the movement or manipulation of controls or switches critical to safety of flight (e.g., throttles, engine fire switches, fire bottle discharge switches), the pilot performing the action obtains verification from the other pilot that he is moving the correct control or switch prior to initiating the action.

Any checklist action pertaining to a specific control, switch, or equipment that is duplicated in the cockpit is read to include its relative position and the action required (e.g., "Left Throttle – OFF; Left Boost Pump – NORMAL").

Time Critical Situations

When the aircraft, passengers, and/or crew are in jeopardy, remember three things.

- FLY THE AIRCRAFT – Maintain aircraft control.
- RECOGNIZE CHALLENGE – Analyze the situation.
- RESPOND – Take appropriate action.

Rejected Takeoffs

The rejected takeoff (abort) procedure is a preplanned maneuver; both crewmembers must be aware of and briefed on the types of malfunctions that mandate an abort. Assuming the crew trains to a firmly established SOP, either crew-member may call for an abort.

The PF normally commands and executes the takeoff abort for directional control problems or catastrophic malfunctions. Additionally, any indication of the following malfunctions prior to V_1 is cause for an abort:

- engine failure
- engine fire
- thrust reverser deployment.

In addition to the above, the PF usually executes an abort prior to 80 KIAS for any abnormality observed.

When the PNF calls an abort, the PF announces "Abort," or "Continue," and executes the appropriate procedure.

Critical Malfunctions in Flight

In flight, the observing crewmember positively announces a malfunction. As time permits, the other crewmember makes every effort to confirm/identify the malfunction before initiating any emergency action.

If the PNF is the first to observe any indication of a critical failure, he announces it and simultaneously identifies the malfunction to the PF by pointing to the indicator/annunciator.

After verifying the malfunction, the PF announces his decision and commands accomplishment of any checklist memory items. The PF monitors the PNF during the accomplishment of those tasks assigned to him.

Non-Critical Malfunctions in Flight

Procedures for recognizing and verifying a non-critical malfunction or impending malfunction are the same as those used for time critical situations: use positive oral and graphic communication to identify and direct the proper response. Time, however, is not as critical and allows a more deliberate response to the malfunction. Always use the appropriate checklist to accomplish the corrective action.

Radio Tuning and Communication

The PNF accomplishes navigation and communication radio tuning, identification, and ground communication. For navigation radios, the PNF tunes and identifies all navigation aids. Before tuning the PF's radios, he announces the NAVAID to be set. In tuning the primary NAVAID, the PNF coordinates with the PF to ensure proper selection sequencing with the autopilot mode. After tuning and identifying the PF's NAVAID, the PNF announces "(Facility) tuned and identified."

Monitor NDB audio output anytime the NDB is in use as the NAVAID. Use the marker beacon audio as backup to visual annunciation for marker passage confirmation.

In tuning the VHF radios for ATC communication, the PNF places the newly assigned frequency in the head not in use (i.e., preselected) at the time of receipt. After contact on the new frequency, the PNF retains the previously assigned frequency for a reasonable time period.

Altitude Assignment

The PNF sets the assigned altitude in the altitude alerter and points to the alerter while orally repeating the altitude. The PNF continues to point to the altitude alerter until the PF confirms the altitude assignment and alerter setting.

Pre-Departure Briefings

The PIC should conduct a pre-departure briefing prior to each flight to address potential problems, weather delays, safety considerations, and operational issues. Pre-departure briefings should include all crewmembers to enhance team-building and set the tone for the flight. The briefing may be formal or informal, but should include some standard items. The acronym AWARE works well to ensure no points are missed. This is also an opportunity to brief any takeoff or departure deviations from the SOP due to weather or runway conditions.

NOTE: The acronym AWARE stands for the following:

- Aircraft status
- Weather
- Airport information
- Route of flight
- Extra.

Advising of Aircraft Configuration Change

If the PF is about to make an aircraft control or configuration change, he alerts the PNF to the forthcoming change (e.g., gear, speedbrake, and flap selections). If time permits, he also announces any abrupt flight path changes so there is always mutual understanding of the intended flight path.

Time permitting, a PA announcement to the passengers precedes maneuvers involving unusual deck or roll angles.

Transitioning from Instrument to Visual Conditions

If visual meteorological conditions (VMC) are encountered during an instrument approach, the PNF normally continues to make callouts for the instrument approach being conducted. However, the PF may request a changeover to visual traffic pattern callouts.