



**Capt. Dr. Christian NORDEN**

Training Policy and Development – In Service Fleet

# Go Around handling

## 1. Introduction

Recent serious incidents involved improperly conducted Go Around maneuvers. This article will briefly describe two of these occurrences. It will then make a short number of simple and important recommendations to help avoid the re-occurrence of this critical type of events.

## 2. Description of incidents

AF 2545 Moscou-Paris  
23/09/2009

### 2.1. First event

On a hazy morning with low patches of cloud (Vis 3000m, SCT002, BKN003), the crew conducted a manual (flight and thrust) ILS approach. The crew had no visual contact at MDA (200 ft AAL). The Captain (PF), considering a low missed approach altitude of 170ft AAL, advanced the thrust levers progressively (within 5 seconds) but stopped the action when in the FLX/MCT notch. He increased the pitch to about 6° Aircraft Nose Up. The aircraft stopped descent at 150ft RA and CONF3 was selected. 4 seconds after setting the levers in the FLEX/MCT detent, the Autopilot (A/P) was engaged and the landing gear retracted. The aircraft – still in LAND mode, due to the lack of TOGA selection – immediately conducted a rapid pitch down to regain the glide slope. PF moved the thrust levers to the CLB detent. At 127ft RA and a pitch of 3.9° Nose Down, the EGPWS audio “SINK RATE” sounded. The PF disconnected the Auto Pilot and pulled almost full back on the stick. The aircraft had reached a minimum height of 76ft RA at an airspeed of 182kts, in CONF3, gears up.

1700 ft AAL



**Figure 1**  
PFD (at 140ft and 80ft) after setting MCT instead of TOGA at 200ft during an ILS approach, (symbolic graphic – no direct reproduction of the described events)

### 2.2. Second event

On a foggy day the crew conducted an ILS approach A/P and ATHR on. There was no contact at the minimum. The crew initiated a Go Around at a Radio Altitude of 185ft, but the thrust levers were momentarily moved only to a position just forward of, before being retarded to the FLX/MCT detent. Three seconds later the Flaps were retracted to CONF3. The Captain disconnected the Autopilot at 57ft simultaneously EGPWS “DON’T SINK” alert sounded. The aircraft reached its lowest RA of 38ft.

## 3. Technical considerations

On the Airbus Fly By Wire (FBW) aircraft, the common Go Around flight guidance modes of the Auto Flight System (AFS) are triggered by setting the thrust levers to TOGA. If the crew decides to go around and fails to set TOGA, the AFS status will depend on the type of approach:

- For an **ILS approach**, the A/P remains engaged in the currently selected AFS mode
- For a **managed Non Precision Approach** (FINAL APP), the AFS remains in FINAL APP mode. Disengage the Autopilot 50 ft below minimum and revert to the basic modes (depending on Mod Status)
- For a **fully or partially selected NPA**, the A/P remains engaged in the selected mode.

## 4. Recommendations

### 4.1. Applying TOGA in the proper way

Setting TOGA in Go Around (and in any other maneuver where maximum thrust is required instantly) should be a one-step intuitive action i.e. pushing the thrust levers rapidly up to the full forward mechanical stop. Pilots must not count the mechanical detents (clicks), like in setting thrust on Take-Off. Instructors in pilot training could emphasize this movement by the description of “firewalling it”, a term well known to most pilots from their early days of basic training. (fig. 2)

### 4.2. Monitoring the basic flying parameters, pitch/thrust

Airbus Golden Rule N°2 “Fly, navigate ...” applies also to the G/A phase :

Initiation of a rotation to get a positive rate of climb has priority (on the A320 for example, this translates to 15° of pitch with all engines and approximately 12,5° if one engine is out). Only then follow SRS Flight Director pitch bars orders if consistent with the intended flight path, and if the FMA has been checked.

### 4.3. Checking and announcing the FMA

Airbus Golden Rule N°5 requires: “Know your FMA at all times”. For the GA it means to verify that the expected mode (MAN TOGA/SRS/GA TRK or MAN TOGA/SRS/NAV) is displayed and announced immediately after the flap have been retracted one step and the flight path has been confirmed using raw data (see § 4.2).

### 4.4. Connecting the AP only when the FD shows the intended flight path

Before engaging the Autopilot (AP), the Flight Crew should follow the recommended practice: Fly the aircraft on the intended path, check on the FMA that the Flight Director is engaged with the appropriate modes.

### 4.5. Training recommendations

Academic training should ensure that crews understand that thrust levers in Airbus FBW have more than just the thrust function. They are not only used to control thrust in Manual or Auto mode, but serve also as “Mode Selectors” in certain stages of flight. The multiple additional functions of the thrust levers are for example the:

- Engaging of common modes when TOGA or FLEX (for T/O only) is set
- Sequencing of the FMS flight plan into the missed approach procedure when TOGA is set
- Retracting of the speed brakes, if extended when setting TOGA (fig. 3).



Figure 2  
Thrust levers in  
TOGA position

“Firewall it”

Thrust Levers  
are also  
Mode selectors



Figure 3  
Airbus FBW thrust  
levers are also  
“Mode Selectors”