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STABILISED APPROACHES GOOD PRACTICE GUIDE

The Symposia

**Directorate
General of
Civil Aviation**

**Department
of Safety
Management**



BEA

corsair

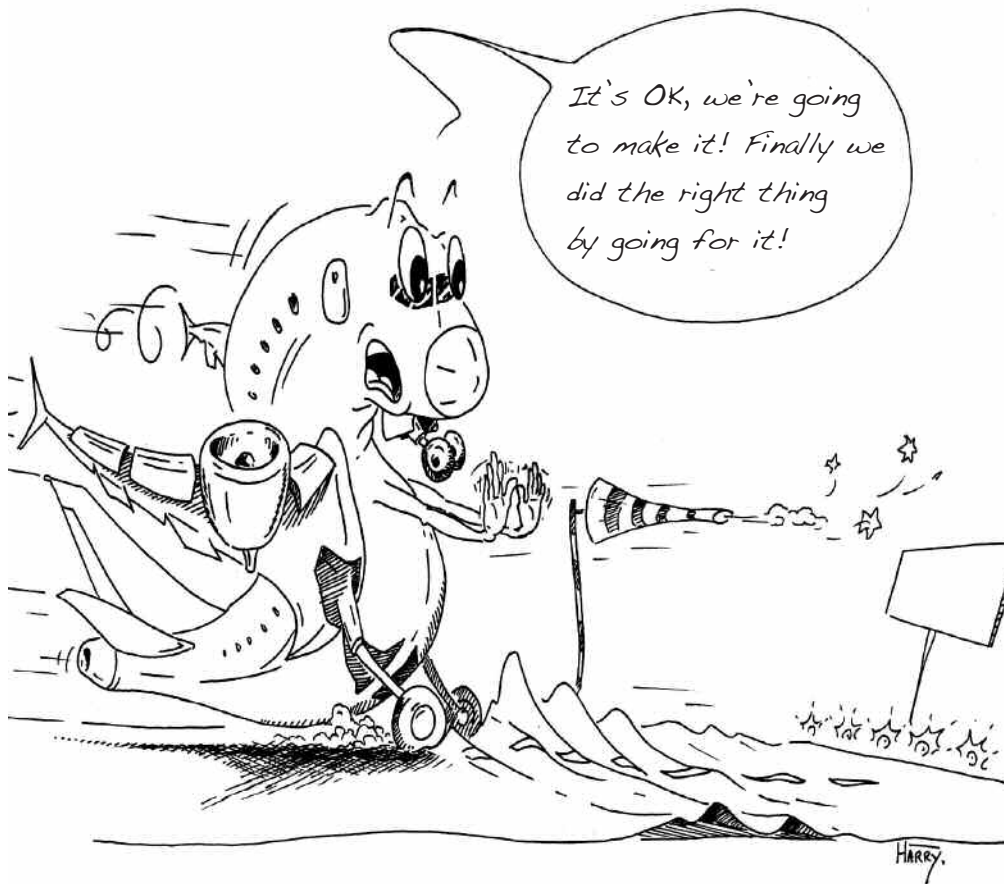
AIR FRANCE



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Stabilisation

PILOTS

According to IATA, a quarter of all accidents in 2005 were due to runway excursion. Most of these occurred following an approach that was never stabilised or that became unstabilised.

Report to the controller any factor which could make a stabilised approach difficult (e.g. tail wind, icing).

Once stabilised, continue the approach. Otherwise go around.

CONTROLLERS

Give the crews enough time on final approach to become stabilised.

The stabilisation criteria usually used at 500 feet, at the latest, are:

- aircraft level on the final approach path, in the landing configuration at the approach speed, with the power set and the pre-landing checklist complete.

Communicate any environmental changes that could prevent a stabilised approach as soon as possible.

Incident involving B737-800 at Paris CDG in 2006
<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>



Flight path deviations during final approach

PILOTS

ATC can be an extra aid to safety if you deviate from the flight path.

Request assistance from ATC if you are in any doubt at all.

CONTROLLERS

When you observe flight path deviations, you must react and even suggest a Go Around.

Given the stress levels that this type of event can create, evaluating such situations should be covered by special training in order to ensure consistent reactions.

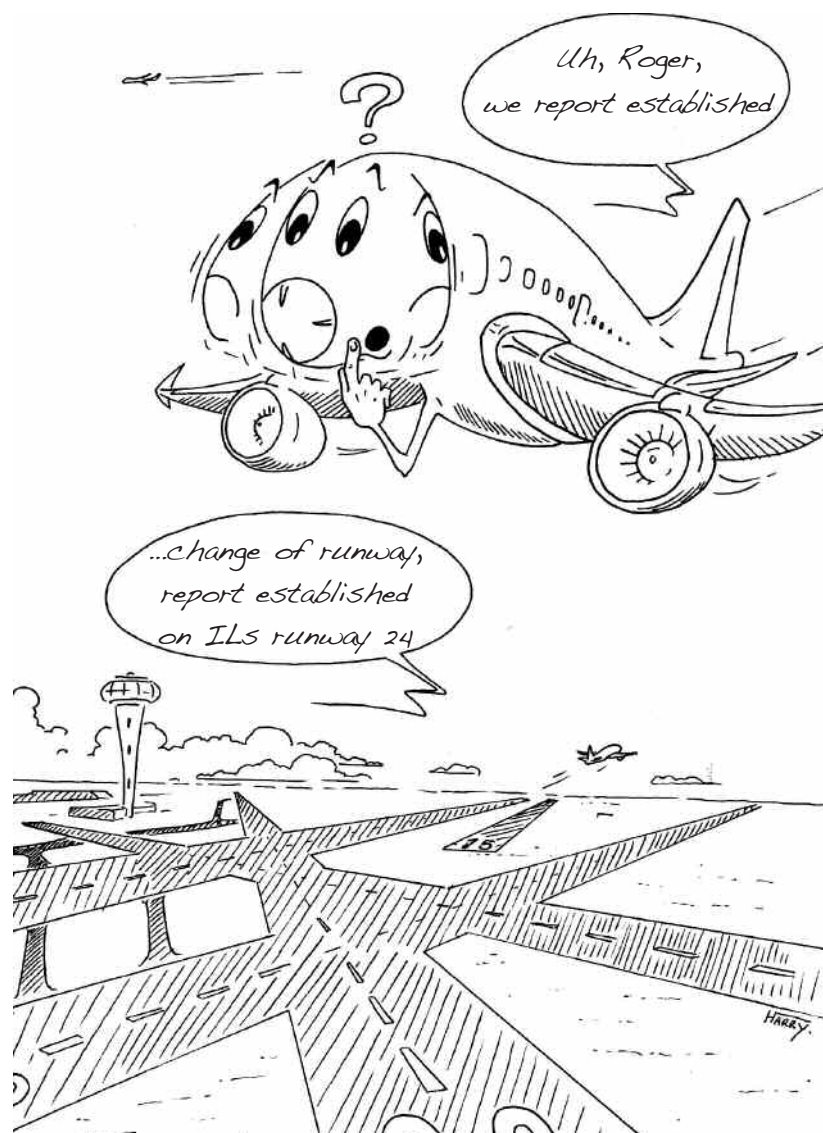
N.B. : In several accidents and incidents in France investigated by the BEA, the controller saw what was happening and could have made a more appropriate response.
(It may be necessary to give controllers appropriate information).

Incident involving a MD 83 at Nantes in 2004:
<http://www.bea-fr.org/docspa/2004/su-fo40321/pdf/su-fo40321.pdf>





Change of runway in use



PILOTS

Changing the runway at the last moment, especially when stabilisation is not possible, is risky.

Accept controllers' instructions only when you are sure they can be achieved with an appropriate safety margin.

CONTROLLERS

Avoid suggesting runway changes late when weather conditions are difficult or at night. The limit mainly depends on:

- Weather conditions;
- The type of approach;
- The complexity of the surroundings.

If you suggest a strategy change, remember to take into account the fact that pilots must be stabilised and any change creates additional workload.

You will find the relevant criteria in your operations manual.

Incident involving a CRJ-100 at Montpellier Fréjorgues in 1998:
<http://www.bea-fr.org/itp/events/itaspecialans/itaspecialans.pdf>

Accident involving a DASH 8 at Paris ROISSY in 1993:
<http://www.bea-fr.org/docspa/1993/d-at930106p/pdf/d-at930106p.pdf>



Visual approaches



PILOTS

Prepare and anticipate your visual approach by doing more than simply mentioning it during the approach briefing but establish check points and gates.

Use the 'visual approach' pattern in your company documents, if it exists.

CONTROLLERS

For visual approach clearances:

- leave time for the crews (briefing, preparing the aircraft),
- mention any constraints that you anticipate using as soon as possible, e.g. altitude or routing,
- talk to the pilots about your constraints in the joint pilot-controller meetings.

Reference: Accident ATR 42 at Lyon in 2005:
<http://www.bea-fr.org/docspa/2005/f-yao5o828/pdf/f-yao5o828.pdf>

Serious incident involving a B737-800 at Cork in 2006:
<http://www.aaiu.ie/upload/general/877o-o.pdf>



Go around clearances

PILOTS

The Go Around is an integral part of preparing for the approach.

Pay as much attention to it as the final approach.

CONTROLLERS

Pilots prepare for a Go Around at the same time as preparing the approach (briefing, FMS, radio aids) in accordance with the published procedure.

If you have to change the Go Around procedure, make it simple and advise the crew as soon as possible.

Where possible avoid using an altitude that is lower than the published altitude.





Go around clearances

PILOTS - CONTROLLERS

The Go Around is a manoeuvre that is used infrequently and consumes resources.

Avoid changing the GA procedure that was originally planned.





External pressures

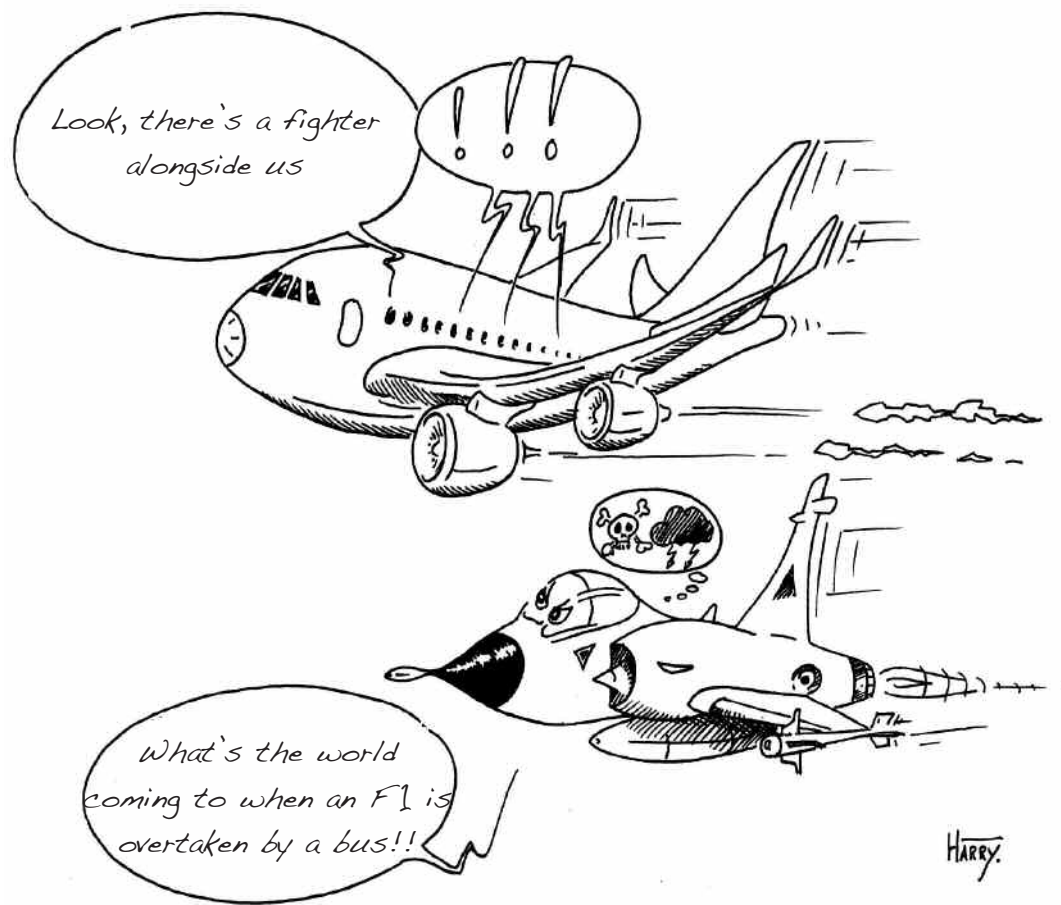
PILOTS

External pressures, especially financial and commercial, increase the risk of continuing with an unstabilised approach (or one that becomes unstabilised).

CONTROLLERS

Just like the pilots, you are also confronted by pressures - especially of timing - when managing the approach sequence. They may make it difficult for the crew to become stabilised. The human risk factor must be considered in the TRM and the joint pilot-controller meetings.

Accident involving a CRJ at Guipavas in 2003:
<http://www.bea-fr.org/docspa/2003/f-js030622p/pdf/f-js030622p.pdf>



Clearances incompatible with aircraft performance

PILOTS

When it is part of a sequence of speed adjustments with a high level radio traffic, we can be reluctant to question or negotiate with a request to maintain speed.

Refuse controller's requests when they appear to be incompatible with stabilising the approach.

Advise the controller when you reduce speed to stabilise the approach.

If your final approach speed is going to be different from normal, advise the controller during initial approach.

CONTROLLERS

A request to maintain a speed that is too high too near the threshold can prevent the crew from stabilising the approach.

Avoid requests for speed to be maintained at over 220 kts on the extended centreline and over 180 kts closer than 7 NM from the threshold.



Training sessions

PILOTS

Instructors: do not give in to the temptation to continue with an unstabilised approach for training purposes.

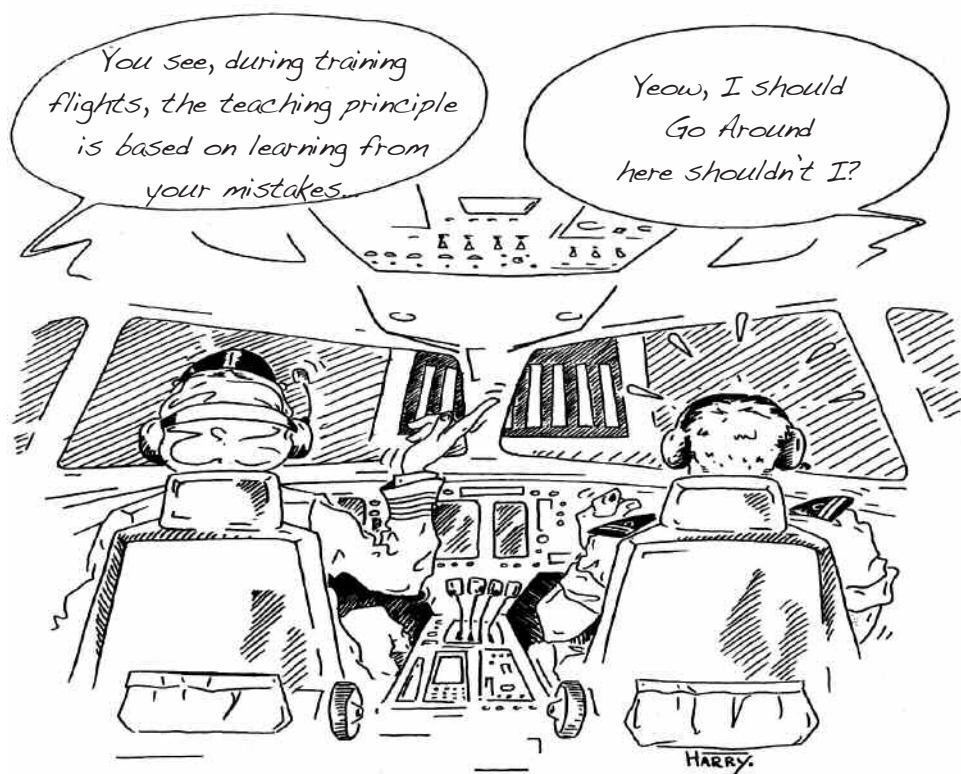
The Go Around level has two advantages:

- total compliance with the minimum stabilisation height,
- performance of a manoeuvre that is unusual in flight.

CONTROLLERS

Instructors: an excessive 'Laisser – Faire' attitude and excessive time pressure (reduced aircraft separation, maintaining speed, lack of information on tailwinds) will compromise stabilisation.

A Go Around will worsen a situation that's already under strain.





Radar vectoring

PILOTS

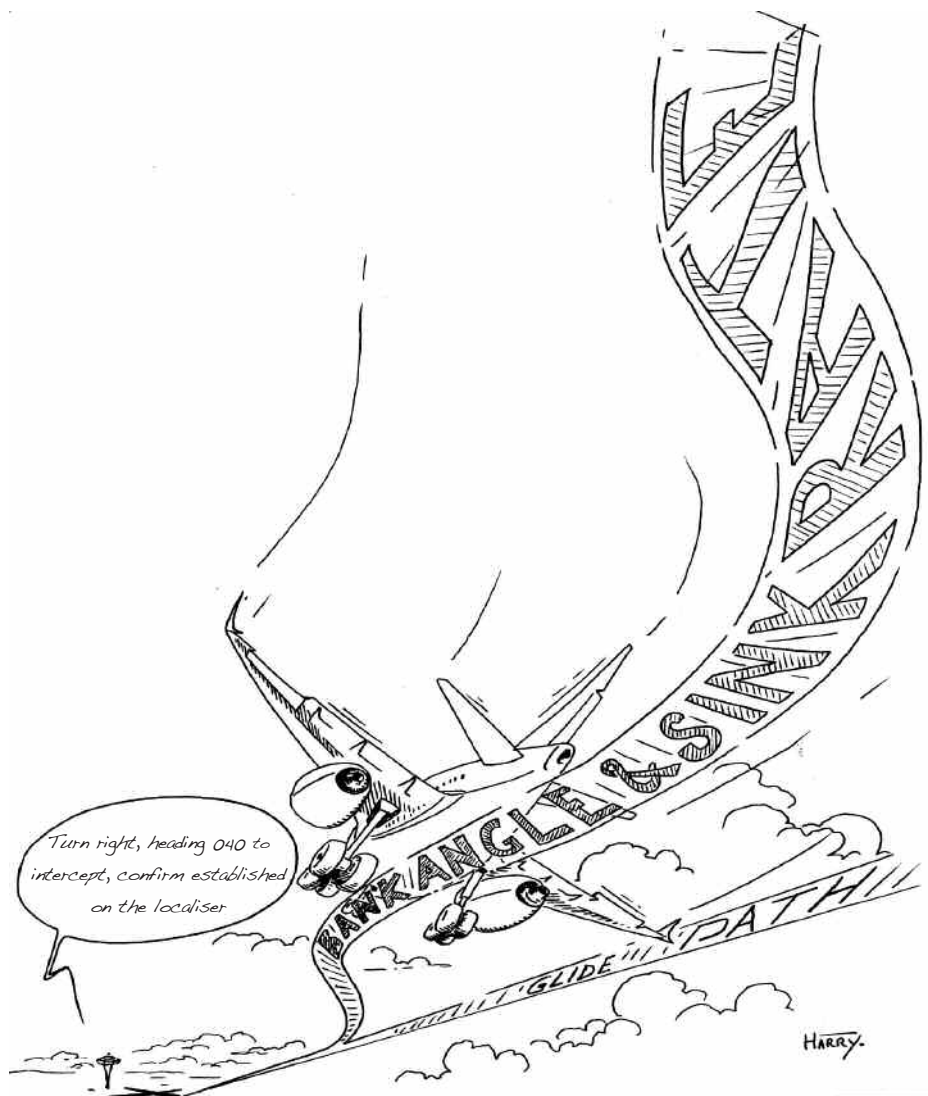
You should be aware of your horizontal and vertical position in respect of a stabilised approach at all times when under radar control.

Refuse clearances that send you too high and/or too fast; or would reduce separation due to a tailwind or cause glide slope interception from above...

CONTROLLERS

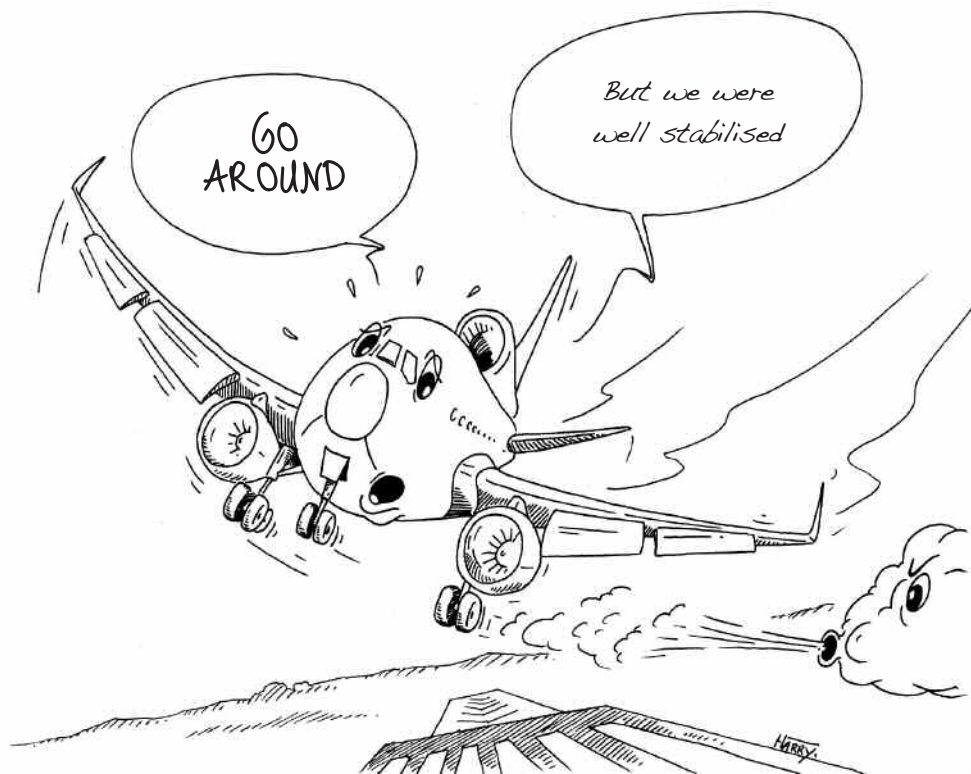
Make sure that radar vectors end on a published approach procedure at the right altitude before the final descent point (FAF/FAP).

Take tailwinds into account during radar control particularly on final approach because they are an important contributory factor towards unstabilised approaches.



Incident involving a MD 83 at Nantes in 2004:
<http://www.bea-fr.org/docspa/2004/su-fo40321/pdf/su-fo40321.pdf>

Incident involving a B737-800 at Paris CDG in 2006:
<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>



Approaches that become unstabilised

PILOTS

It is difficult to recognise destabilisation in short final. It is possible to Go Around even after touch down as long as the reverse thrust has not been engaged.

CONTROLLERS

In marginal conditions, be prepared for an aircraft performing a GA after touching down!

Accident involving an A340 at Toronto in 2005:
<http://www.tsb.gc.ca/fr/reports/air/2005/a05h0002/a05h0002.pdf>

Incident involving a B747 at Cayenne in 2001:
<http://www.bea-fr.org/docspa/2001/f-zc010525/pdf/f-zc010525.pdf>

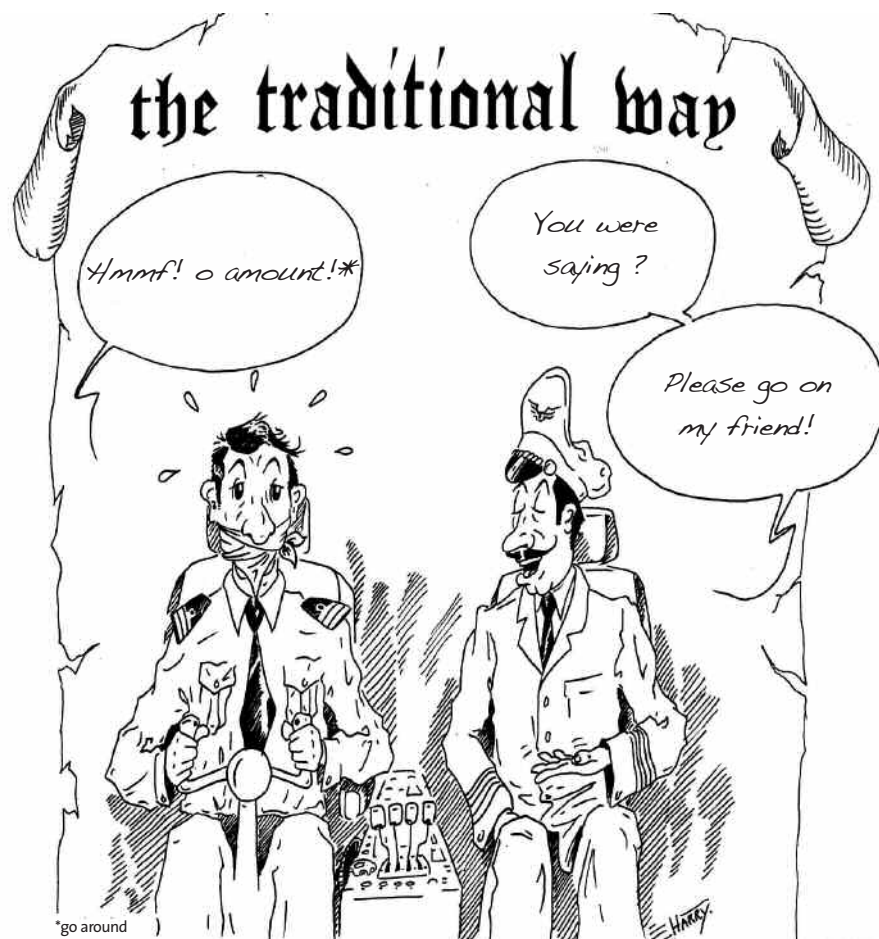


The FO and the go around

PILOTS

The FO must suggest a Go Around whenever he/she considers it necessary.

When he/she is PF and the aircraft is below the minimum stabilisation height, he/she must be able to take the decision and execute it.



Incident involving a B747-300 at Roissy in 2006:
<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>

Incident involving a B737-800 at Paris CDG in 2006:
<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>



GPWS Alarms

PILOTS

The GPWS alarm is an objective alert to lack of stabilisation or loss of stabilisation during the approach.

The correct response to a GPWS alarm below the minimum stabilisation height is a Go Around.

CONTROLLERS

An MSAW alarm can be a sign of lack of stabilisation or loss of stabilisation. In addition to the standard MSAW phrases, a suggested Go Around is always possible.



Accident involving a CRJ at Brest in 2005:
<http://www.bea-fr.org/docspa/2003/f-js030622p/pdf/f-js030622p.pdf>

Incident involving a B737-800 at Paris CDG in 2006:
<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>



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http://www.aviation-civile.gouv.fr/html/actu_gd/ans/ans.htm

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<http://www.bea-fr.org/docspa/2005/f-yao50828/pdf/f-yao50828.pdf>

Serious incident involving a B737-800 at Cork in 2006:

<http://www.aaiu.ie/upload/general/8770-o.pdf>

Accident involving a CRJ at Brest in 2005:

<http://www.bea-fr.org/docspa/2003/f-js030622p/pdf/f-js030622p.pdf>

Incident involving a MD 83 at Nantes in 2004:

<http://www.bea-fr.org/docspa/2004/su-fo40321/pdf/su-fo40321.pdf>

Accident involving a DASH 8 at Paris ROISSY in 1993:

<http://www.bea-fr.org/docspa/1993/d-at930106p/pdf/d-at930106p.pdf>

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<http://www.tsb.gc.ca/fr/reports/air/2005/a05h0002/a05h0002.pdf>

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<http://www.bea-fr.org/itp/events/ita6/ita6.pdf>