LOW VISIBILITY OPERATION

(LVO)

CAT II BRIEFING

LVO- LOW VISIBILITY OPERATIONS

Table of Contents

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LVO- LOW VISIBILITY OPERATIONS

1. flynas Low Visibility Operations (LVO) consist of operating an aircraft in extreme weather conditions. The term LVO includes:
    - Low Visibility Takeoff (LVTO);
    - Landing Category II (CAT II),
2. Flynas is approved by GACA for LVTO (RVR 150m).
3. Flynas is applying for Landing Category II (CAT II), and once approved, flynas will not use an aerodrome for Category II operations unless the aerodrome is approved for such operations by the State in which the aerodrome is located.
4. Flynas will verify that low visibility procedures (LVP) have been established and will be enforced at those aerodromes where low visibility operations are to be conducted.
5. Weather limitations (visibility) applied for LVO are called minima.

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1. Approved minima are indicated in the associated aerodrome chart filed in the JEPPESEN Route Manual for each airport procedure.
2. The cockpit crew must check that the required aerodrome facilities are in operative condition before performing a low-visibility operation. This implies that the LOC, the GP, the radio beacons or the associated DME are operational and that the critical areas (and sensible areas in the case of CAT II are protected).
3. Category II, or lighting system, Includes:
   - ❑ CAT II precision approach lights.
   - ❑ Runway threshold and end lights.
   - ❑ Runway centerline and edge lights.
   - ❑ Touchdown area lights.
   - ❑ RVR evaluation system.
   - ❑ Backup power system.
4. The following updated information must be available when with in LVO:
   - ❑ Direction and speed of the surface wind.
   - ❑ Runway Visual Range (RVR).

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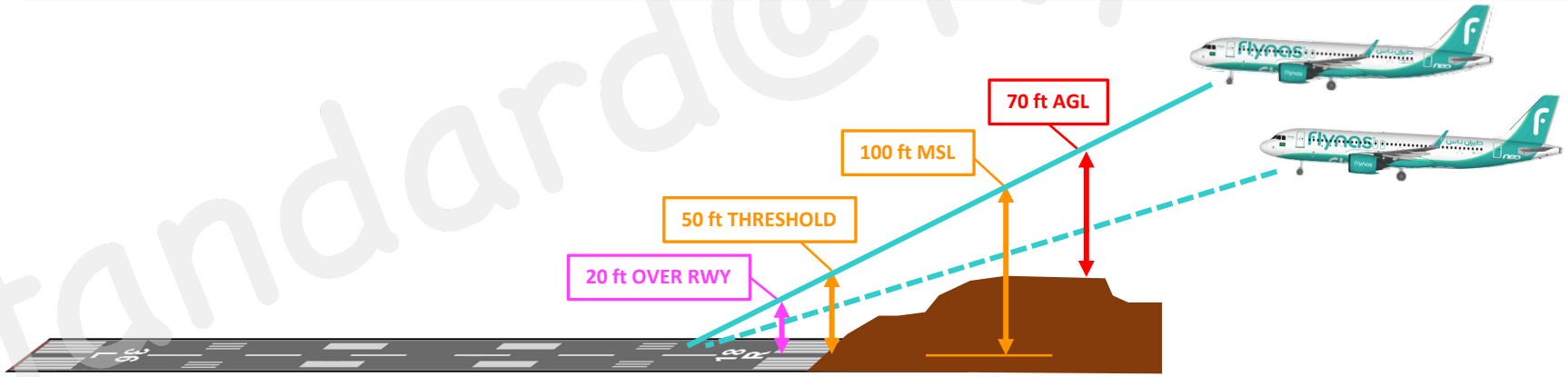
LVO- LOW VISIBILITY OPERATIONS

1. LOW VISIBILITY OPERATIONS

1.1 TERRAIN

Some runways may be suitable for CAT I and CAT III operations, but not for CAT II due to terrain profile in the vicinity of the CAT II break of point.

The slope of terrain In front of the threshold must be within acceptable limits to give reliable radio altitude reading. This means that the irregularity of terrain under the approach path may preclude the use of the radio altimeter. In that case, no CAT II approach is allowed.



Slope terrain before the threshold

LVO- LOW VISIBILITY OPERATIONS

1.2 DECISION HEIGHT (DH)

Decision height (DH) is a specified point in space at which a pilot must make an operational decision. The pilot must decide if the visual references have been established and are adequate to safely continue the approach.
A go-around must be executed if the visual references have not been established.
If the visual references have been established, the approach can be continued. However, the pilot may always decide to execute a go-around if sudden degradations in the visual references or a sudden flight path deviation occur.

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1.2 DECISION HEIGHT (DH)

A pilot may not continue the approach below DH unless a visual reference containing not less than a 3-light segment for ILS CATII of:

- The centerline of the approach lights, or,
- Runway centerline; or,
- Touchdown zone lights, or,
- Runway edge lights

] is/are obtained.

Perform a go-around unless adequate visual references have been established.

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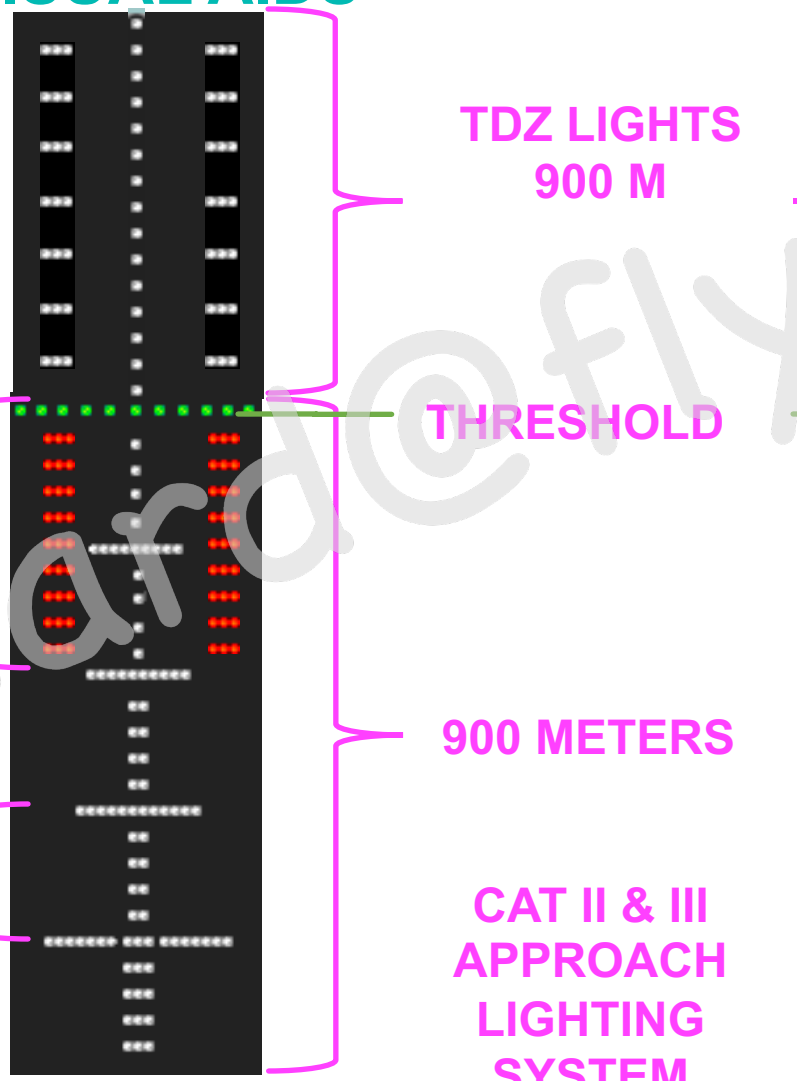
1.2.1 CAT II VISUAL AIDS



TDZ LIGHTS
900 M

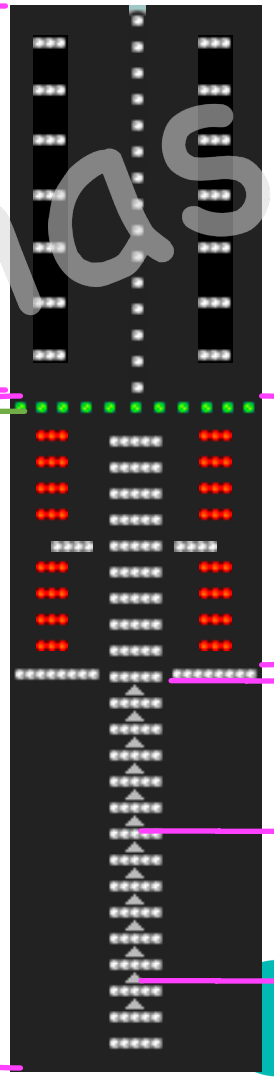
THRESHOLD

300 M

900 METERS

150 M

CAT II & III
APPROACH
LIGHTING
SYSTEM



300 M

CROSS BAR
WIDTH 30 M

BARRETTE

SEQUENCED
FLASHING

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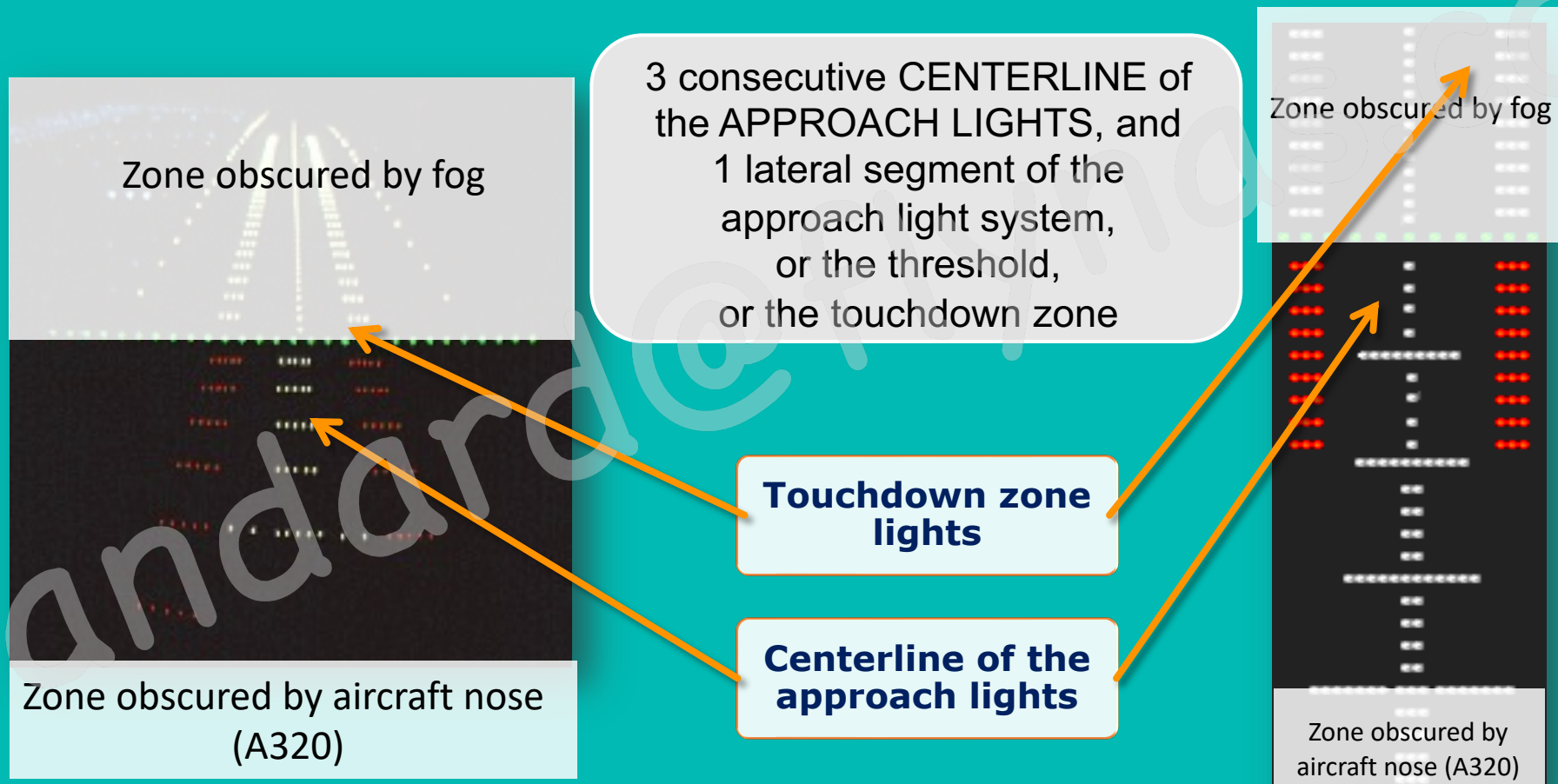
1.2.2 VISUAL SEGMENT AT DH=100ft WITH RVR 350m (TYPICAL CAT II)



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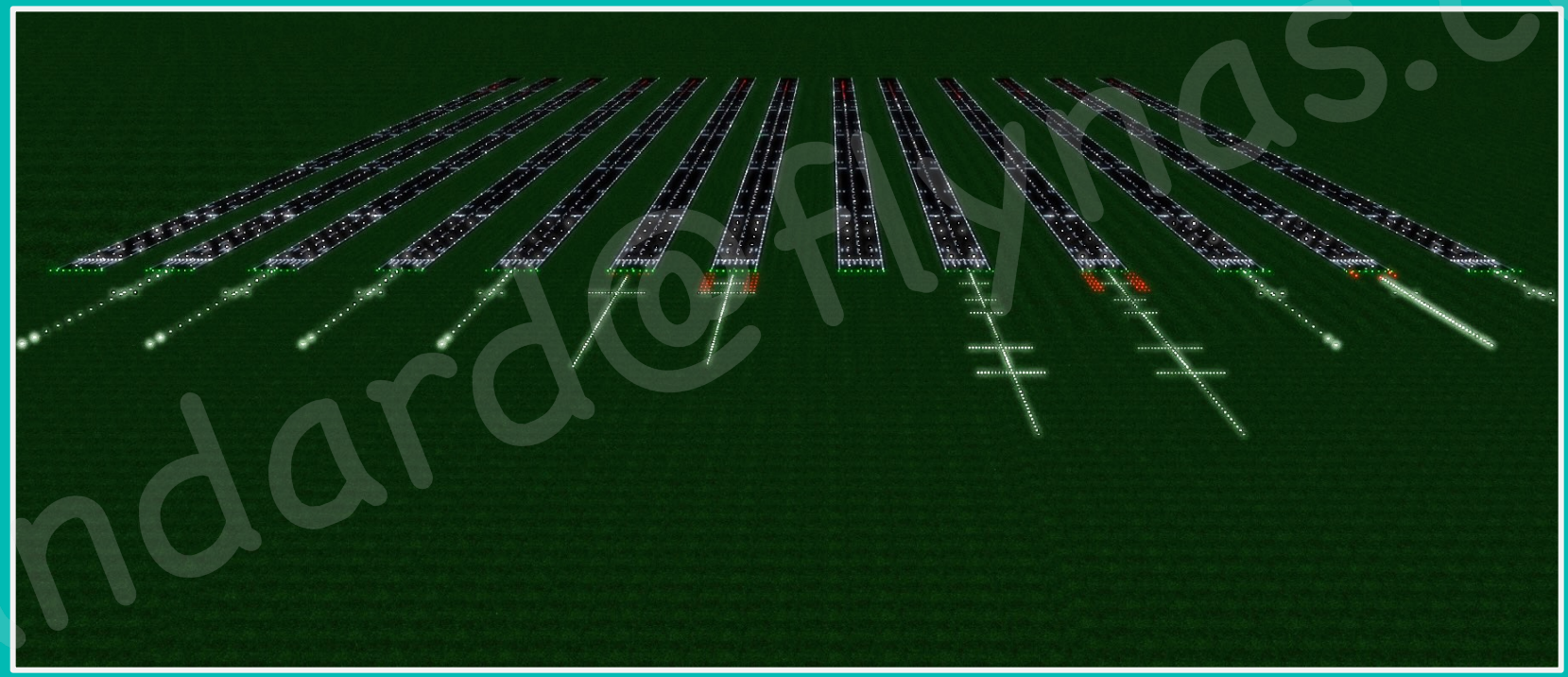
DIFFERENT APPROACH LIGHT SYSTEMS ALS



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1.3 RUNWAY VISUAL RANGE (RVR)

Runway Visual Range (RVR) is the range over the centerline where the pilot can see the runway surface markings and the lights delineating the runway or its centerline.
The transmissometers are located strategically to provide the RVR measurements associated with the three basic portions of a runway:

- TDZ: Touchdown zone
- MID: Mid-runway portion, and
- ROLLOUT: rollout portion or stop end.

For CAT II operations, only one measurement is mandatory.

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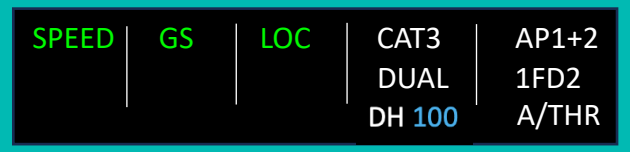
1.4 CAT II MINIMA

- Minimum DH is 100 ft
- Minimum RVR is 300m
- Minimum RVR is 350m if AUTOLAND cannot be completed
- At least one AUTOPILOT must be engaged in APPR MODE, and CAT2, CAT3 SINGLE, or CAT3 DUAL must be displayed in the FMA.
- If the flight crew member performs an automatic approach without AUTOLAND, the AUTOPILOT must be disconnected no later than 80 ft (RA)



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CAT II

CAT II approach: is a precision instrument approach and landing using ILS, with:

1. Decision height (DH) below 200ft but not lower than 100ft; and,
2. A minimum runway visual range (RVR) of 300m.

	DH (feet)	RVR (meters)
CAT II	100≤DH<200	RVR≥300

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1.5 AIRCRAFT LIMITATIONS

- WIND LIMITATIONS*: Headwind 30kts Tailwind 10kts Crosswind 15kts** (10kts OEI)**
  **The wind limitations are based on the surface wind reported by ATC*
  *** As per flynas LVOM*
- When the visibility is lower than 350M, AUTOLAND is compulsory
- Airport elevation ≤ 9200ft
- Autoland is not authorized for overweight
- Engine out: AUTOLAND is approved only in CONF 3 and FULL
- Slope angle within (-2.5°, -3.25°) range
- Automatic rollout on dry or WET RWY only
- For manual landing, AP should be disconnected no later than 80 ft AGL
- The performance of automatic rollout has been demonstrated on dry and wet runways

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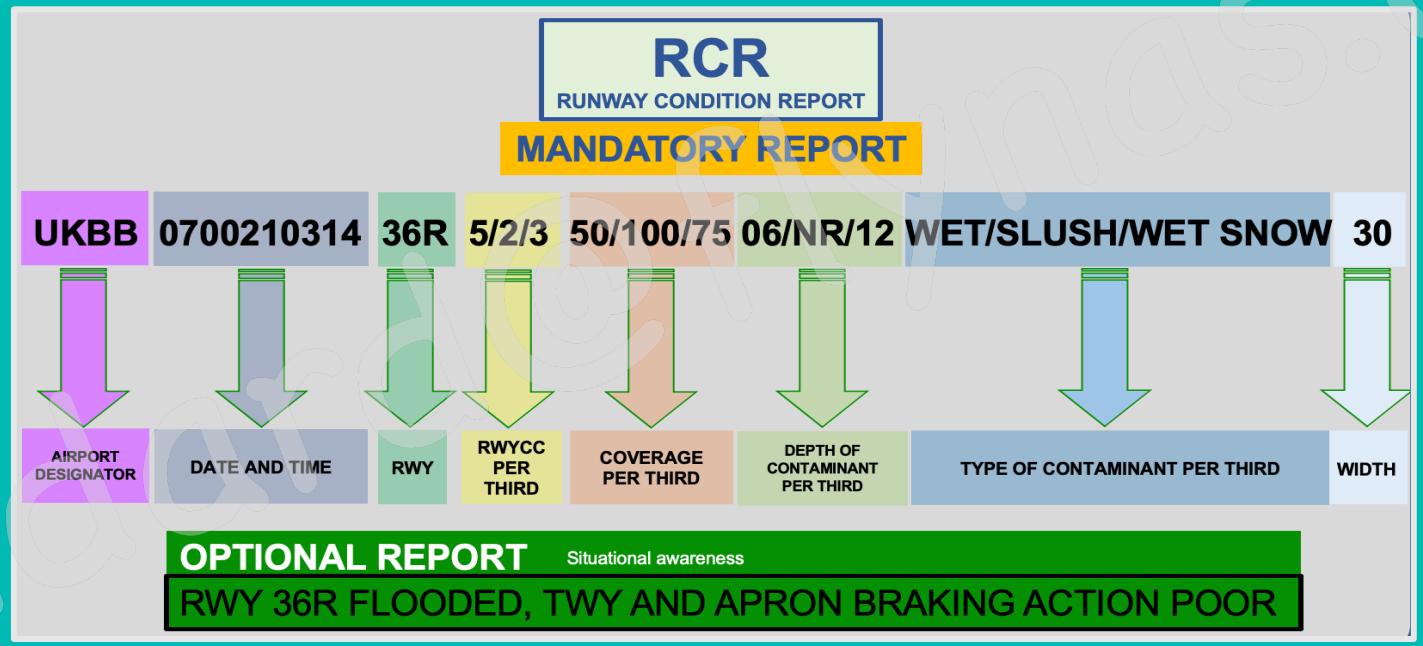
LVO- LOW VISIBILITY OPERATIONS

2. FLIGHT PREPARATION

2.1 DECODING AN SNOWTAM



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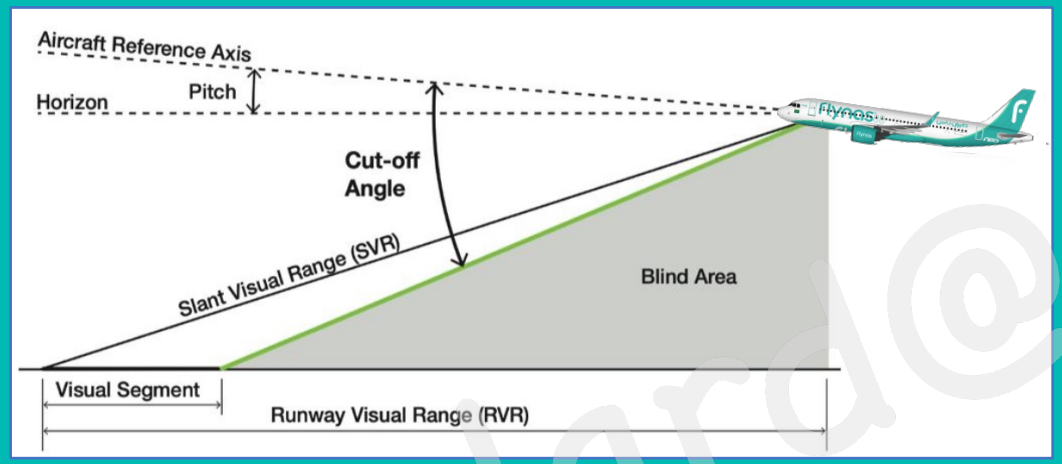
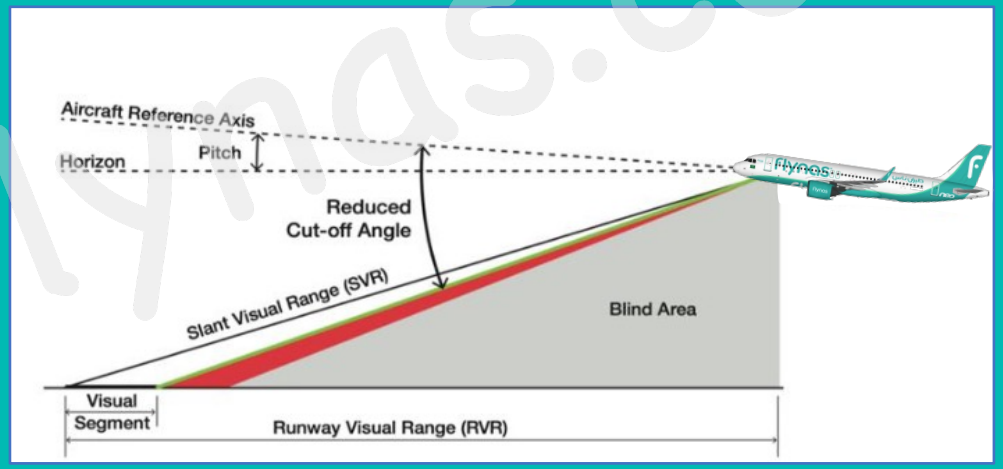
2. FLIGHT PREPARATION

2.2 SEATING POSITION





Such reduced visual segment during approaches with poor visibility conditions, impairs the ability of the flight crew to obtain the proper visual references for landing, increasing the likelihood of a go-around.

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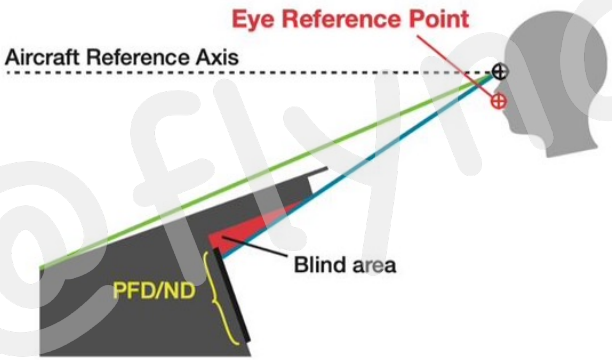
2. FLIGHT PREPARATION

2.2 SEATING POSITION



If the pilot has adjusted the seat to a position that is too high the glareshield can impair the view of the instrument panel and in some cases, hide the upper PFD and ND.
Additionally, operating the rudder pedals through their full range could be more difficult.

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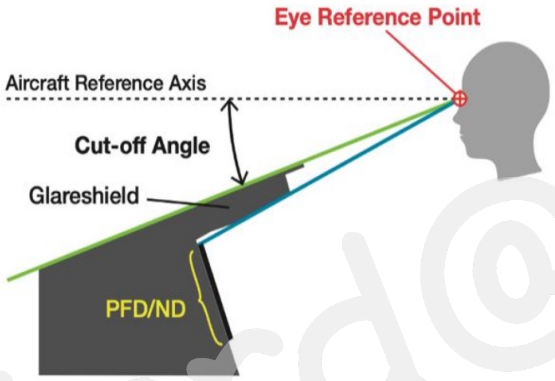
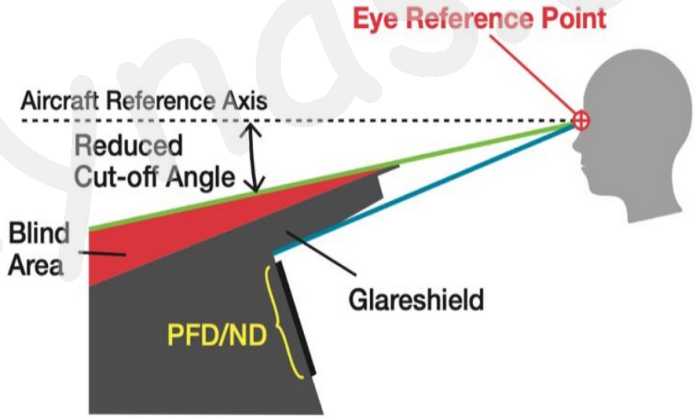
2. FLIGHT PREPARATION

2.2 SEATING POSITION



The crew must realize the importance of eye position during low visibility approaches and landing.



Sitting low, can create a blind area due to the glareshield, reducing the cut-off angle and thus limiting the visual segment.

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3. LOW VISIBILITY TAKEOFF

- LVTO is a takeoff with a Runway Visual Range (RVR) of less than 400m.
- The minimum visibility for a low visibility takeoff is determined by the highest of: Airport takeoff minimum visibility or RVR150m.
- The pilot assessment can replace the reported RVR (initial part of the takeoff run).
- The RVR must be available for all the relevant RVRs except the (initial part of the takeoff run).
- A TAKEOFF ALTERNATE is required.
- CAPTAIN is the PF.
- TOGA thrust must be used.

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3.1 MINIMUM EQUIPMENT FOR LOW VISIBILITY TAKEOFF

- eQRH Required equipment for CAT2 must be checked when an ECAM caution is triggered or other equipment failed.
- On the ground, the eQRH required equipment determines which approach is capable of being used for the next landing.
- Some failures, like antiskid and/or nosewheel steering, are not monitored for landing capability.
- The DH will be displayed on the FMA, and the "HUNDRED ABOVE" and "MINIMUM" auto callouts will be announced, provided that the DH value has been entered on the MCDU.

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4. APPROACH PREPARATION

- Check the eQRH Required Equipment for CAT II.
- TDZ RVR value must be available for the CAT II approach.
- The Captain shall not continue the approach if the reported RVR is below the minimum.
- Refer to the LVO CL.

CAT II required airport facilities

	CAT II
Runway lights	HIRL, and TDZ, and CL
	If only TDZ RVR is available: 500 meters RVR minimum.
	If TDZ and Rollout RVR available: 350 meters RVR minimum.
RVR	The TDZ sensor report is controlling for all CAT II operations. Additional RVR sensors are advisory. A mid RVR sensor or a far end sensor, if available may substitute a rollout RVR.
Approach lights	ALSF 1/2 Sequenced flashing lights may be inoperative.
Runway length	15% additional runway length is available over the landing field length specified for destination airport in GACAR § 121.275.

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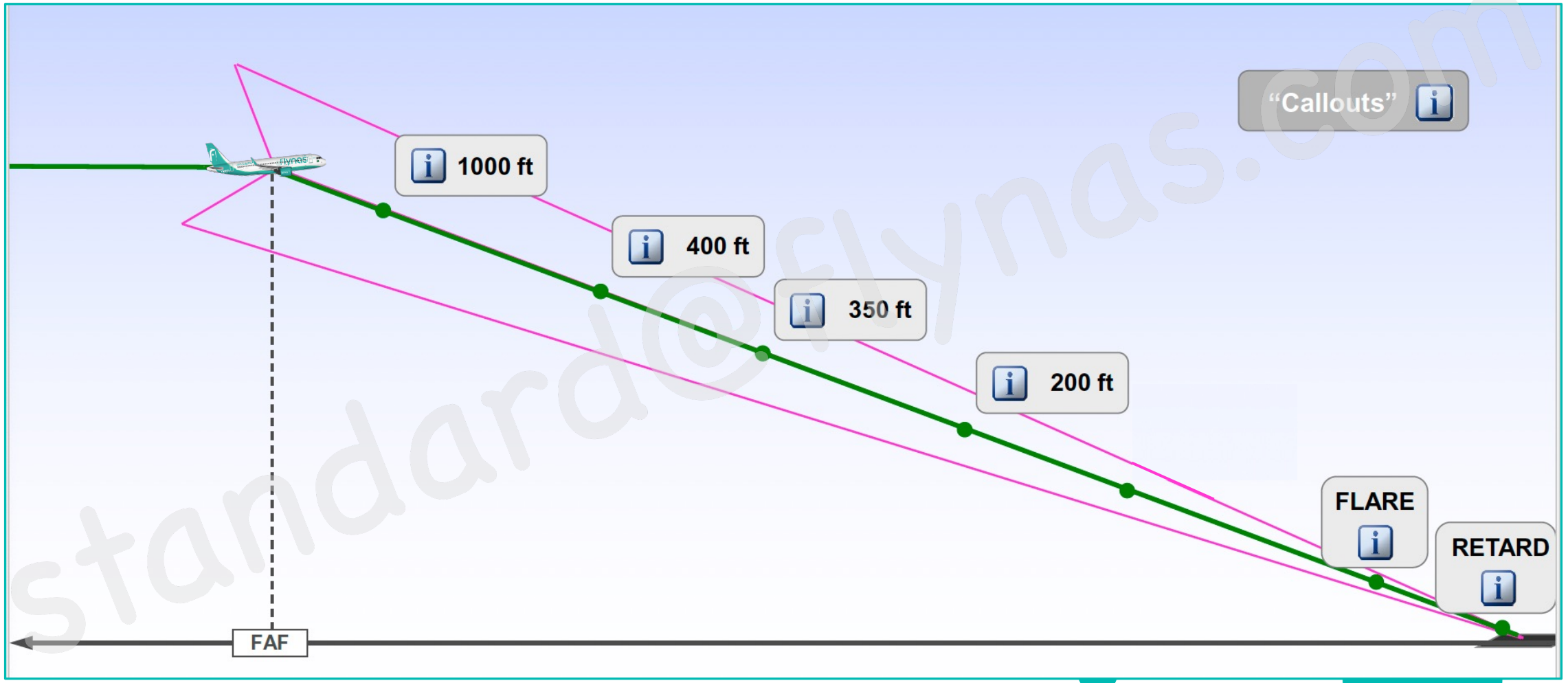

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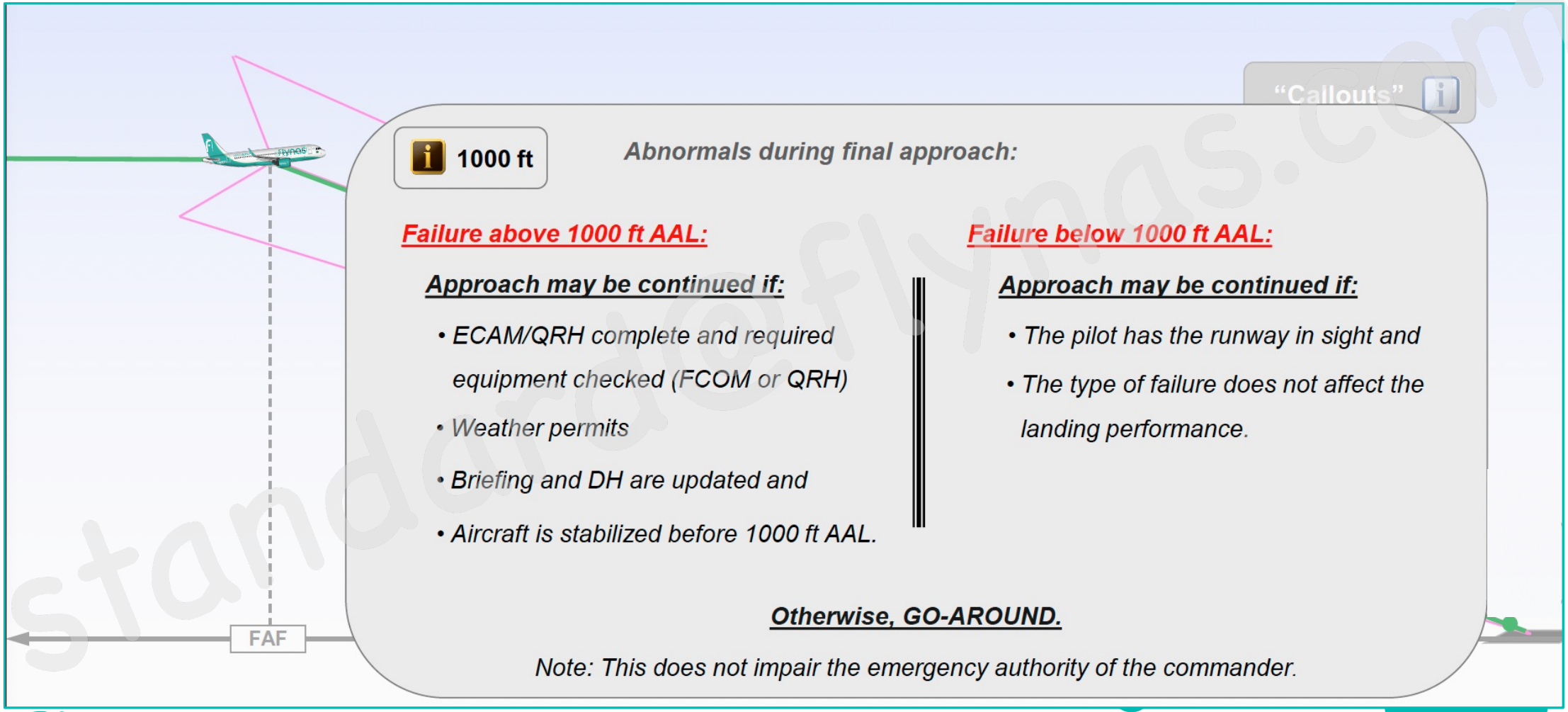

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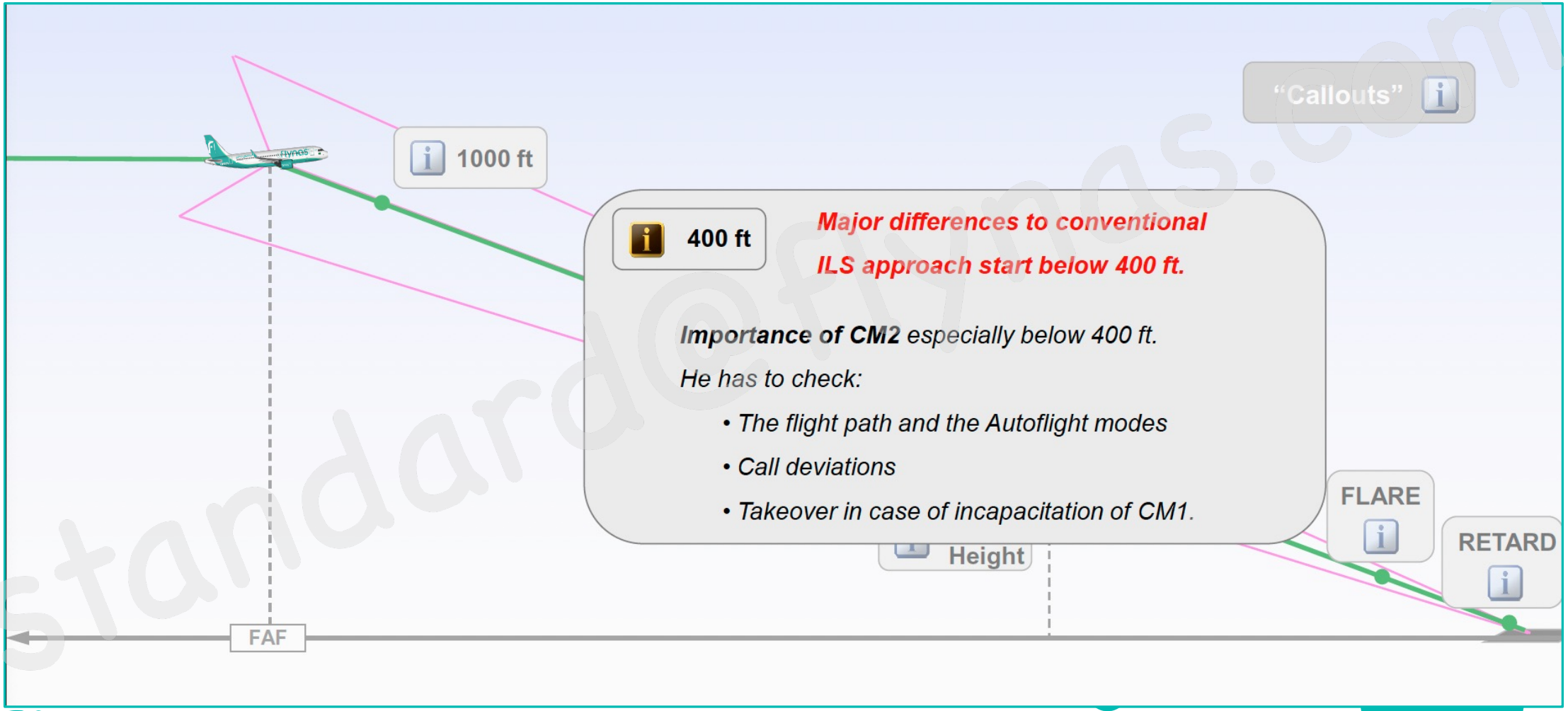

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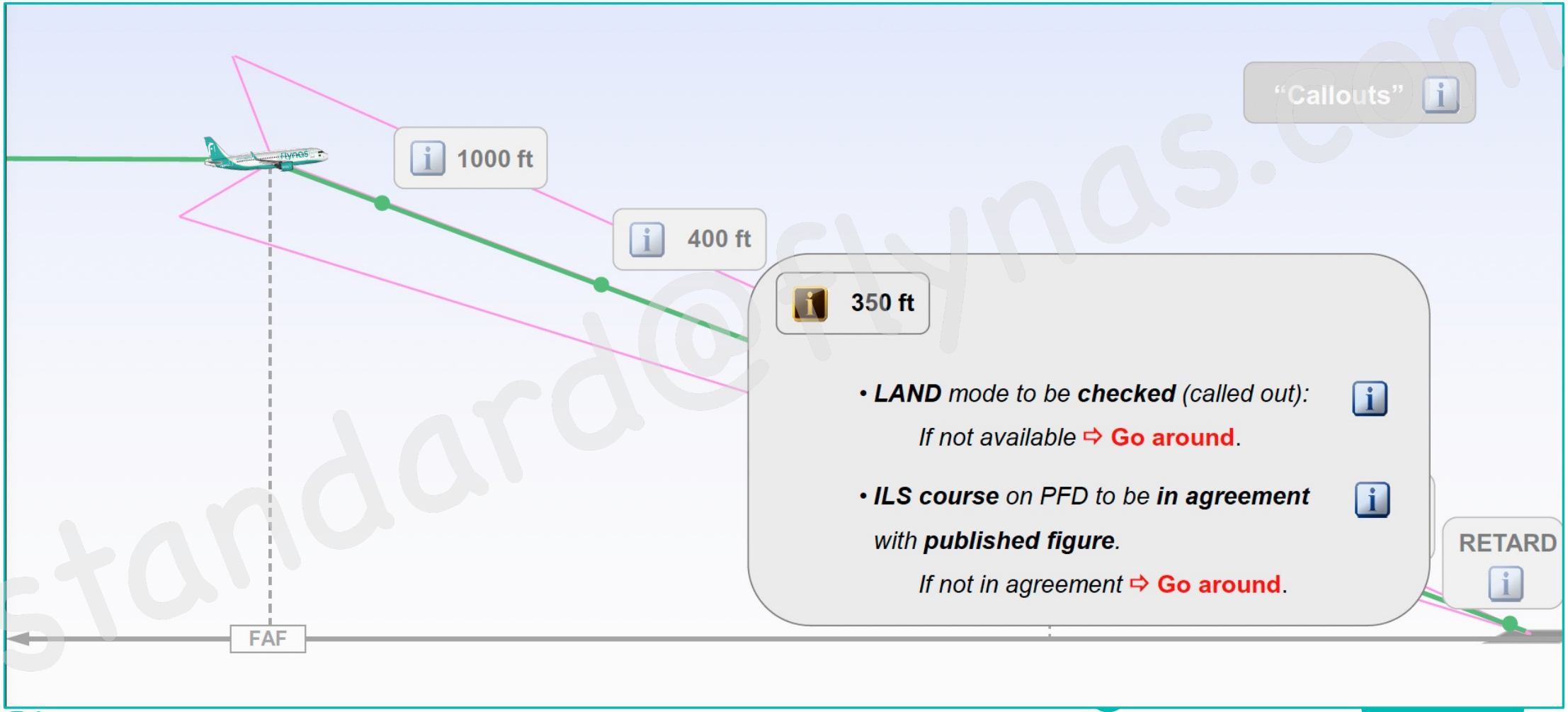

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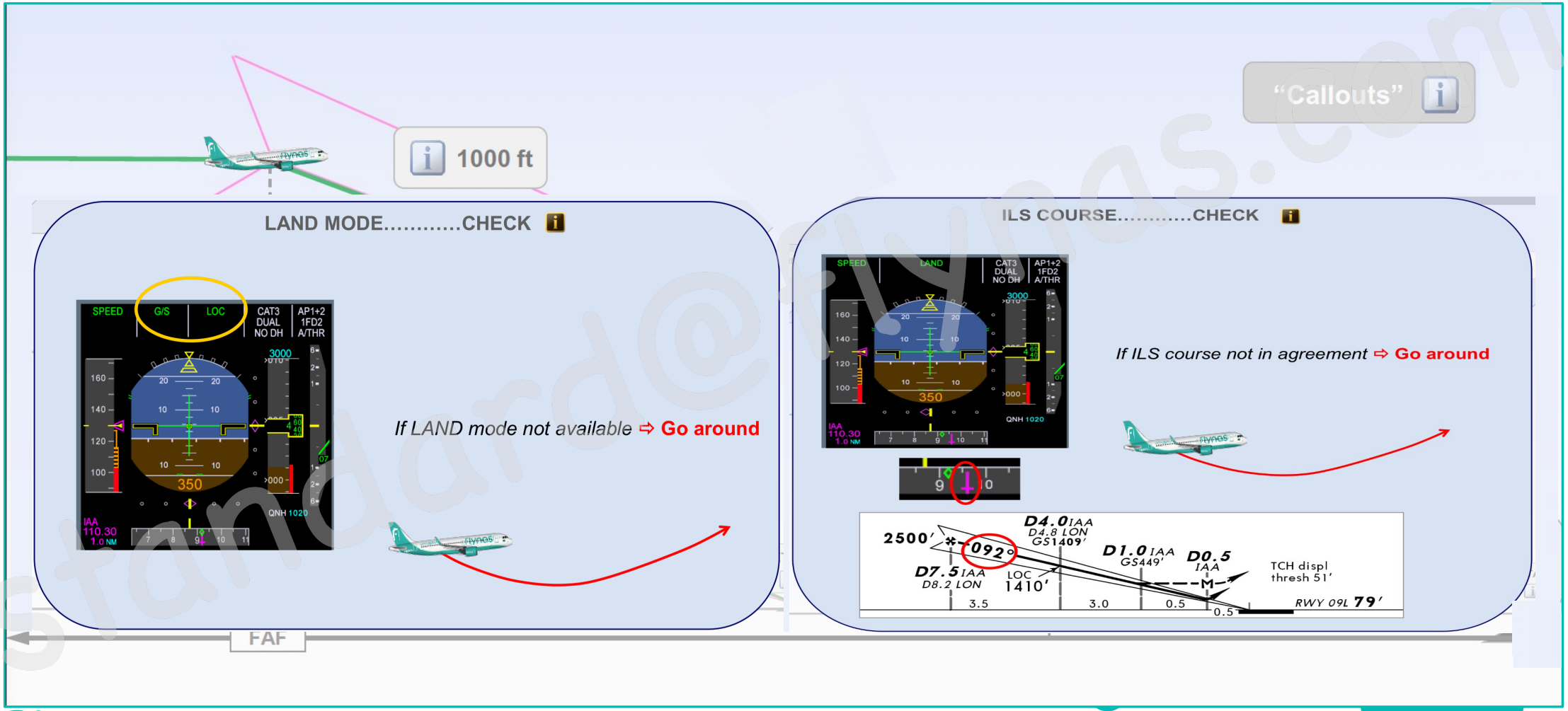

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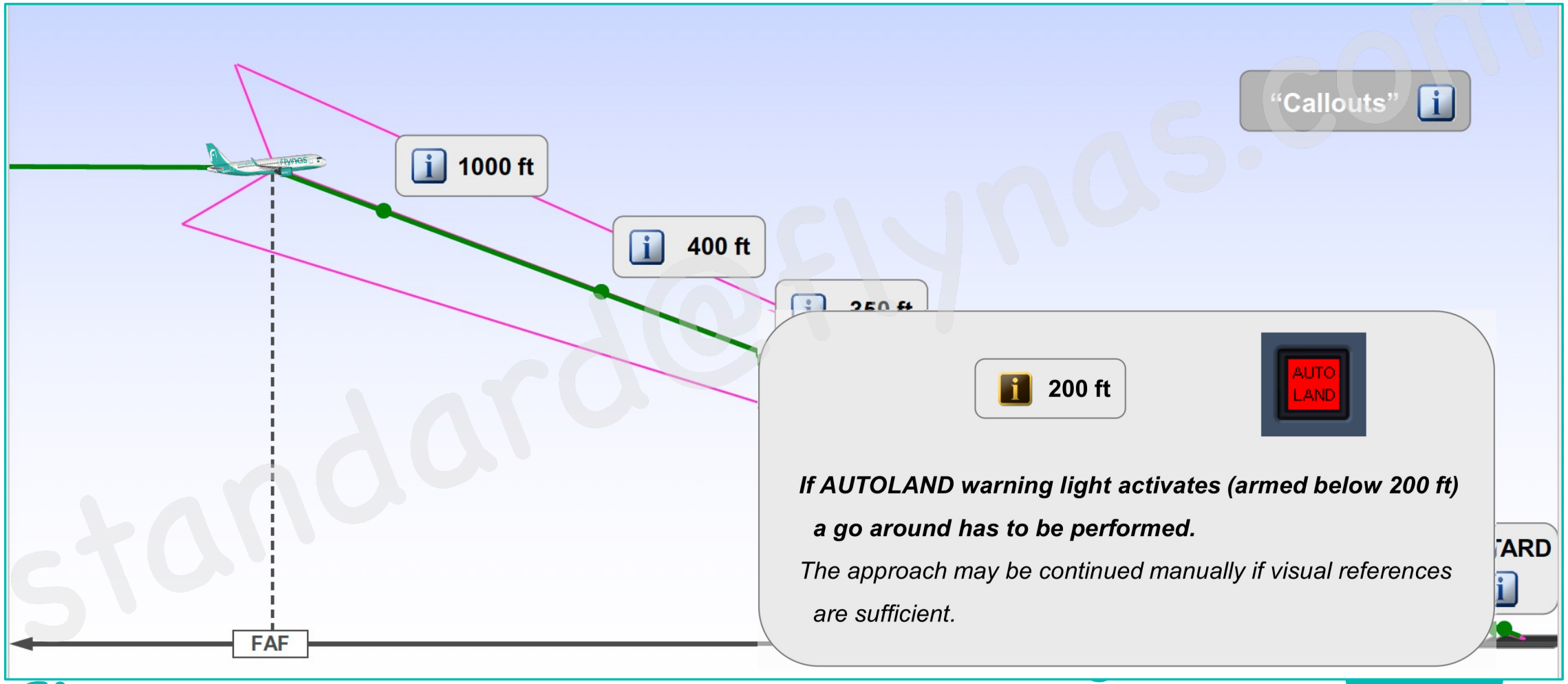

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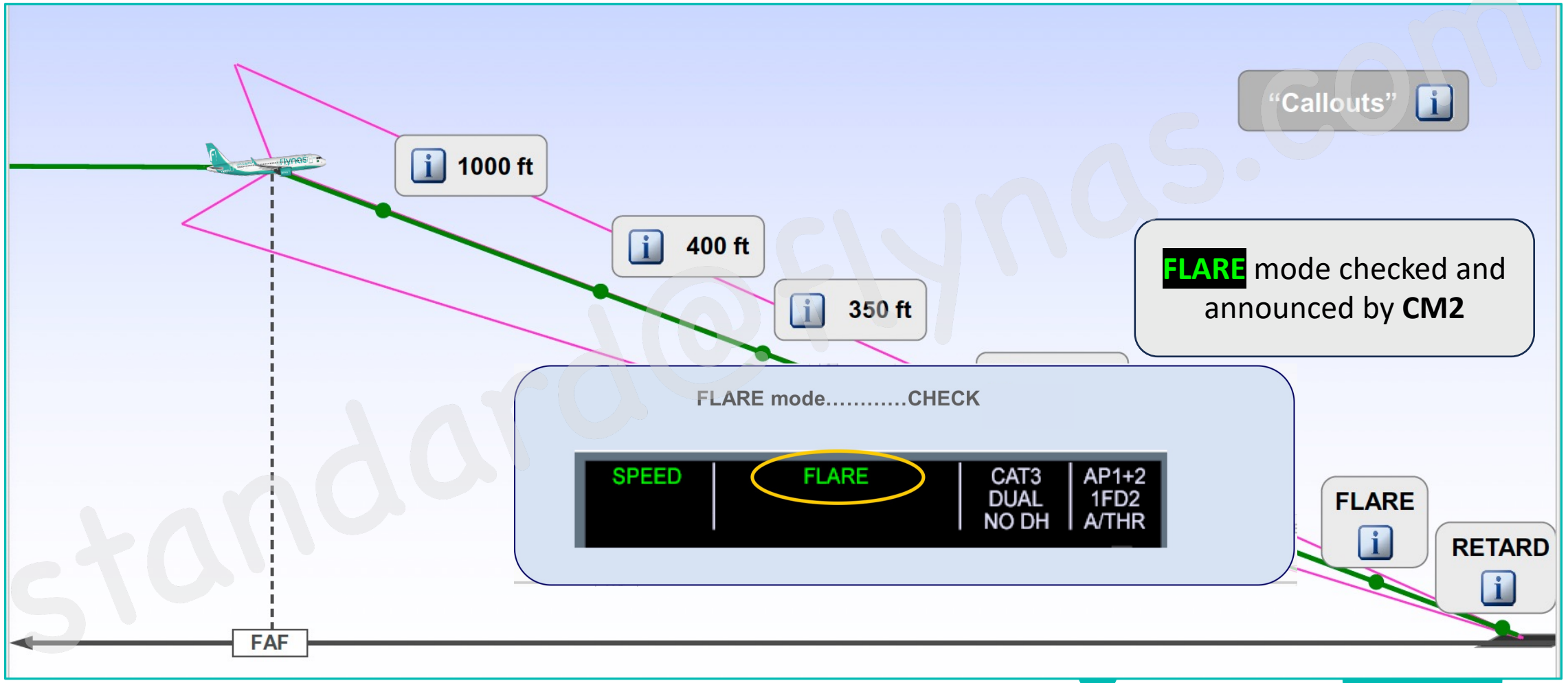

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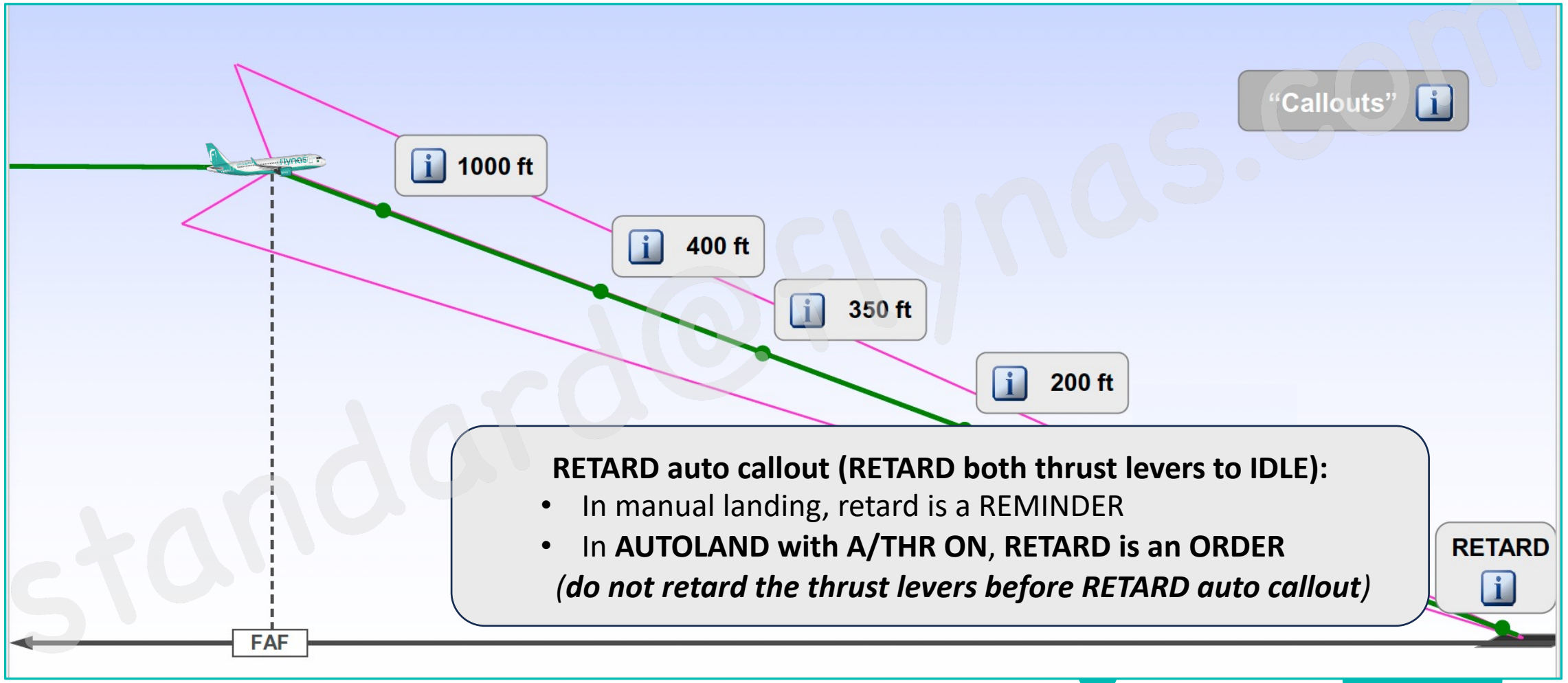

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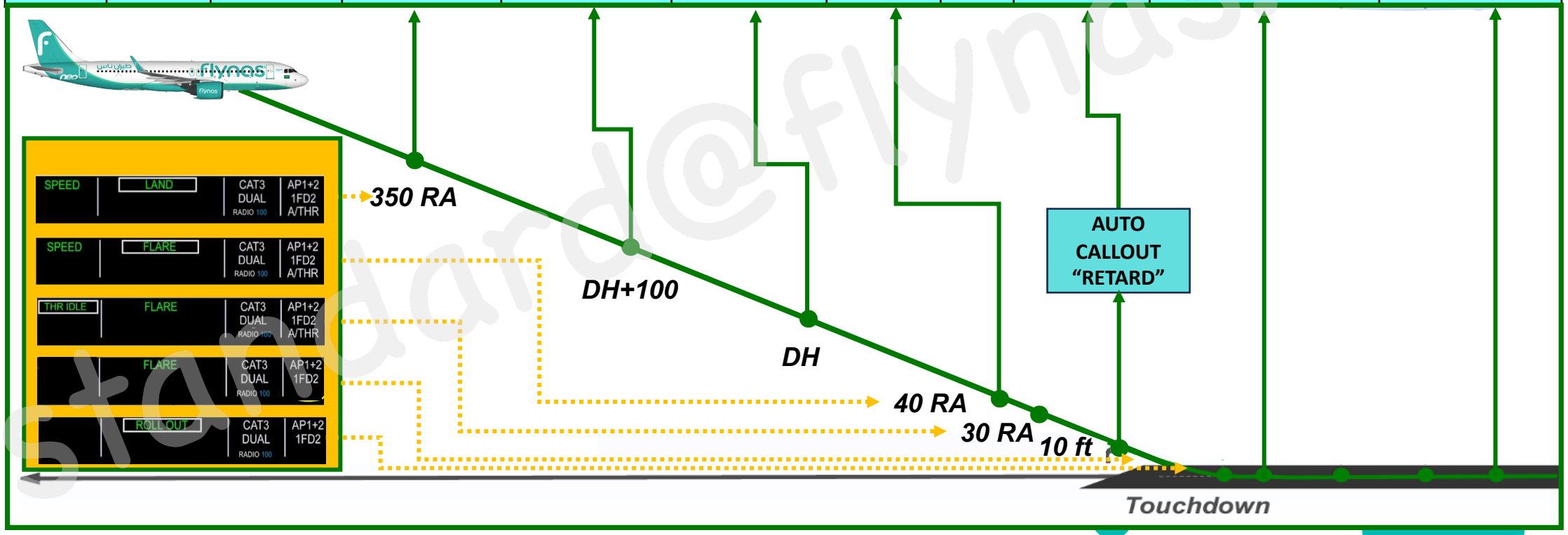
CALLOUT	RA ALIVE	1000 FT	350 RA	DH+100 FT	DH	40 RA	30 RA	10 RA	TOUCHDOWN	At the end of the rollout
PM	RA ALIVE	ONE THOUSAND	CHECK PFD ILS COURSE	ONE HUNDRED ABOVE	MINIMUM	FLARE or NO FLARE	IDLE	AUTO CALLOUT "RETARD"	ROLL OUT SPOILERS REVERSE GREEN	
PF	CHECKED	CHECKED	CHECK PFD ILS COURSE	CHECKED	"CONTINUE" or "GO AROUND"		IDLE	MOVE THR LVRS IDLE		DISCONNECT AP



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5. APPROACH PROCEDURES: FLIGHT PARAMETERS DEVIATIONS

DEVIATIONS DURING GLIDE BEAM CAPTURE	▹ Pitch attitude becomes less than -2.5 ° or greater than +10 ° (nose up) ▹ Vertical speed exceeds +500 ft/min or -1 250 ft/min
DEVIATIONS DURING FINAL APPROACH	▹ Speed goes below speed target - 5 kt or above speed target + 10 kt ("SPEED") ▹ Pitch attitude goes below -2.5 ° or above 10 ° ("PITCH") ▹ Bank angle becomes greater than 7 ° ("BANK") ▹ Descent rate becomes greater than 1 000 ft/min ("SINK RATE") ▹ ½ DOT LOC or ½ DOT GLIDE deviation ("LOC" or "GLIDE")

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6. FAILURES AND ASSOCIATED ACTIONS

Failures during the approach:

ABOVE 1000ft AGL, the approach may continue **from CAT II to CAT I** only if:

- ECAM actions are completed.
- At least one FD is available.
- RVR is at least for CAT I minima.
- The updated briefing includes CAT I minima (also updated in the MCDU).

BELOW 1000ft AGL, a GO-AROUND must be performed.

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6. IF VISUAL REFERENCES ARE NOT SUFFICIENT, PERFORM A GO-AROUND

BELOW 1000ft AGL

ALPHA FLOOR activation
AP OFF (Cavalry Charge)
TRIPPLE CLICK (Capability downgraded)
AMBER CAUTION/ SINGLE CHIME
ENGINE FAILURE

At 350ft AGL

NO LAND MODE
Incorrect RWY COURSE

At 200ft or below

RED AUTOLAND light

At flare height

NO FLARE on FMA

After the GO-AROUND, check the eQRH REQUIRED EQUIPMENT FOR CAT2 table, compute the landing performance computation with the new aircraft status and confirm the actual weather conditions

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Thanks for reviewing the

LOW VISIBILITY OPERATION

(LVO)

CAT II BRIEFING

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- *Refer to FCOM/OM-A/LVOM for approach details.*
- *Perform standard approach briefing, then review this checklist.*

CAT II

- **DESTINATION AIRPORT MINIMA**

Aircraft capability	CAT II
RVR (M)	300/ 350
DH (ft)	100 ft RA or higher if depicted in the Jeppesen approach chart

- **ALTERNATE(S) WEATHER MINIMA:** ABOVE REQUIRED MINIMA
- **LIMITATIONS**
  - When the visibility is lower than 350M, AUTOLAND is compulsory
  - Headwind ≤ 30 kts
  - Tailwind ≤ 10 kts
  - Crosswind ≤ 15 kts
  - Airport elevation ≤ 9200ft
  - Autoland is not authorized for overweight
  - Engine out: AUTOLAND is approved only in CONF FULL
  - Slope angle within (-2.5° , -3.25°) range
  - Automatic rollout on dry or WET RWY only
  - For manual landing, AP should be disconnected no later than 80 ft AGL

CREW

CM1 AND CM2 QUALIFIED AND CURRENT.....CHECKED
CM1.....PF
SEATING POSITION.....ADJUSTED

AIRPORT

(OPS SPECS) AIRPORT.....AUTHORIZED
RUNWAY APPROVED FOR CAT II OPERATIONS.....CHECKED and CONFIRMED
LVP IN FORCE.....CHECKED and CONFIRMED
NOTAMS (failed or downgraded equipment table) .....CHECKED
WX (DESTINATION AND ALTN(S) ABOVE MINIMA).....CHECKED
RUNWAY AND APPROACH LIGHTS.....CHECKED
Visual cues (CAT II): *3 consecutive lights (RCL of ALS, or TDZ, or RWY edge, or CL and ALS crossbar/ RWY THRESHOLD. RWY TDZ lighting*

AIRCRAFT

IPADS/ MOBILE PHONES FLIGHT MODE/OFF.....CONFIRMED
TECHNICAL STATUS (MEL; CDL; OEB; STATUS).....CHECKED
QRH REQUIRED EQUIPMENT.....REVIEWED

TASKSHARING

CM1	CM2
• Will control the flight path and speed.	• Will monitor A/C position and flight parameters head down throughout the approach, Go Around, or Landing
BELOW 350 ft RA	
• Will start the outside scan	• Will announce the FMA mode changes
At DH	
• If no call out "CONTINUE" or "GO AROUND"	• Initiate a GO AROUND

APPLY THE FOLLOWING STRATEGY IN THE CASE OF:

- TRIPLE CLICK: CAPABILITY CHANGE
- LANDING CAPABILITY DEGRADATION, i.e.,(SINGLE CHIME), AUTOLAND LIGHT

ABOVE 1000 FT AAL	▪ ECAM/QRH PROCEDURE.....COMPLETE ▪ APPROACH AND LANDING CAPABILITY.....CHECK ▪ REQUIRED EQUIPMENT.....CHECK ▪ IF LANDING CAPABILITY CHANGED, IF REQUIRED: RVR.....CHECK; DH.....ADJUST; ARRIVAL BRIEFING.....UPDATE
BELOW 1000 FT AAL	• GO AROUND PERFORM UNLESS VISUAL CONTACT IS CLEARLY ESTABLISHED AND CAN BE MAINTAINED

ADDITIONAL CONSIDERATIONS

- *Get the last RVR before APPROACH BAN POINT*
- *Report: On Ground/ Rwy Vacated/ Go Around*
- *Plan to be stabilized at least 1500 ft*
- *Consider CAT II ops when the ceiling is below 200ft*
- *With OEI or one THR REV INOP, IDLE REV is recommended (if LDG PERF permits)*