Examiner Safety Manual

for

Single pilot type aircraft

Multi-Engine Turboprop (land)

Types of aircraft covered:

Asta GAF	**AstaMET**
Beechcraft	**BE90/99/100/200, BE300/1900**
Cessna Reims Aviation	**C406/425, C441**
De Havilland Canada	**DHC6**
Dornier	**DO128, DO228**
Embraer	**EMB110**
Grumman	**S2FT**
Mitsubishi	**MU2B**
Piaggio	**Piaggio 166, Piaggio 180**
Pilatus Britten	**BN2T**
Piper	**PA31/42**
Rockwell	**Rockwell MET**
Short (Bombardier)	**SC7 Skyvan**
Swearingen Fairchild	**SA226/227**

Contents

1 General

1.1Examiner safety manual (ESM)

Appendix 1 to FCL 1.240 (5) provides that: "The Authority will provide the examiner with safety criteria to be observed in the conduct of the test/check.".

The safety instructions described in this manual must be applied by examiners for all tests on MULTI-ENGINE TURBOPROP aeroplanes, with the exception of tests carried out within an ATO with a safety manual for the type/class of aeroplane in question.

This manual is published by:
DGAC - DSAC/PN - Pôle Examens - 50, rue Henry Farman - 75720 PARIS CEDEX 15.

This manual replaces the "Flight Examiner and Instructor manual" for the corresponding type/variant

of aeroplane. This manual does not replace the flight manual or operating manual, as applicable.

This manual is available online at:
http://www.developpement-durable.gouv.fr/IMG/pdf/MS_Examinateur_MET_Juillet2014_cle0122d1.pdf

Updates to this manual can be published at any time, without notice.
The examiner is responsible for checking the validity of the version used prior to any in-flight test.

1.2Simulated failures.

Simulated failures can be classified into two categories: major failures and minor failures.
Major failures consist of those with a direct influence on the flight path or safety and which last for a given period, such as engine malfunctions, landing gear failure and the failure of systems or circuits which are considered essential for flight. Other failures such as flap failure, the loss of a generator or a non-essential or backed-up circuit can be considered as minor.
The list of minor or major failures will vary for each aircraft, depending on manufacturer requirements, and even operator requirements.

The failure simulation must be adapted to your experience, the situation on the day and the crew in all cases.
It is also important to remember that a failure simulation is a means of checking the skills and not the limits of the student.

Combining two major failures is **not permitted.**
A major failure should only be combined with another failure or two minor failures if the situation is realistic and has training benefits.

Failures can only be initialised using the method adopted in this manual, excluding all other methods.

Failure simulations will be stopped if the conditions for execution are not optimal. If safety could be compromised by continuing with a failure simulation, the safety pilot will immediately take the controls and the following announcements will be required:
"I HAVE CONTROL" by the safety pilot or
"RIGHT CONTROL – PROCEDURE OVER" by the examiner if in the back seat

If a real failure occurs when a simulation is planned or in progress, the above announcements will be made by the safety pilot or the examiner and the procedure will be immediately interrupted.

2 Feedback system

Permanent feedback is required for operations and distribution due to the safety-related nature of this manual. Any problem encountered during a simulated failure or procedure affecting the safety of the aircraft or the crew must be analysed.

The feedback form enclosed must be filled out by the examiner and distributed to the coordinator for single pilot aircraft examiners who, after analysis, may distribute the information and/or update specific instructions in this manual.

This form can also be used to submit comments or suggestions.

MET aeroplane ESM feedback form	
Sheet No.	
Aircraft type	
TRE number	
Brief description of the situation	
Problems or safety-related issues	
Solutions proposed and amendments	

Feedback sheet to be transmitted to:

The Coordinator for professional examiners for single-pilot aeroplanes
DGAC
DSAC/PN.
50, rue Henry Farman
75720 PARIS Cedex 15
Tel.: 01 58 09 35-23 /43-43
To the attention of:
E-mail: eric.tournier@aviation-civile.gouv.fr
: stephane.kovacic@aviation-civile.gouv.fr

3 Procedure template.

3.1 FCL reference and title

FCL section and title for the procedure.
Precise procedure required to check the skills of the pilot for the type or class and FCL references (appendix 2 to FCL 1.170, appendix 2 to FCL 1.210, appendix 3 to FCL 1.240, appendix 2 to FCL 1.330 & 1.345).
This sheet can validate the item in the defined section. Several procedures validate the same section. The examiner will select the appropriate sheet in coordination with the safety pilot depending on external risks.

3.2 Minima

The meteorological or technical minima required to execute the corresponding section.

3.3 Failure simulation

Advice for the procedure. This section provides the examiner with instructions on the conditions and execution method for the simulated failure by the safety pilot.

If no specific instruction is given in this section, the corresponding failure must be triggered in accordance with good instructional practices for the single-pilot aeroplane type or class qualification.

3.4 Stopping the procedure in a normal situation.

The return to nominal conditions is a sensitive part of the test which must be studied as it increases crew workload. This point is essential to avoid any confusion or misunderstandings between the student and the safety pilot.

3.5 Safety instructions.

It is appropriate to create a framework for the execution of the manoeuvres for the aeroplane and the crew. This framework must be adapted to your experience and external risks. **This framework is intended to ensure the safety of the aircraft and the crew and may not be exceeded.** On the other hand, the framework may be restricted depending on internal or external risks.

3.6 Threat and Error Management (T.E.M.)

According to experience, an improper or sudden manoeuvre by a student can lead to a critical situation. This section lists the most frequent dangers and errors recorded during tests.

4 *General rules*

These rules apply to all sections of an in-flight test on a multi-engine turboprop type aeroplane.
These rules do not replace the flight manual

The safety instructions specific to each section are complementary to these rules and described in the following section.

Before starting the test, the examiner must ensure that the safety instructions described in this section and the next section can be complied with, for all of the procedures and manoeuvres planned for the test.

4.1 General test conditions

- **daytime.**

- **specific flight, without passengers:**
  The test may not be combined with another flight, such as a maintenance or training flight.

- **briefing:**
  The examiner will give a pre-test briefing.
  All of the in-flight items required for the test will be in their usual positions in accordance with the safety manual. The safety pilot will be fully involved in this respect.

- **The aeroplane must be in good technical condition with no known major failure.**
  The test will be immediately interrupted if a real failure occurs during execution.

- **The auto feather system (if fitted) will be armed throughout the entire test (unless indicated otherwise in the flight manual).**

- **The test will be carried out in controlled airspace as far as possible.**

- **Failure simulation is a means of checking the skills and under no circumstances the limits of the student. The simulations must be adapted to your experience, the situation on the day and the crew in all cases.**

4.2 Meteorological minima

at the airfield(s) used for runway circuit handling manoeuvres:

- **Minimum visibility: 3000 m**
- **Minimum ceiling: 1000 ft**
- **Non-contaminated runway**

for the entire flight:

- **No icing conditions during single-engine flight manoeuvres (including simulations)**

4.3 Situations not authorised during the test

- **Flight with shutdown turbine (gas generator) not permitted below 5000 ft AGL**
- **Real feathering not permitted below 3000 ft AGL for free turbines, 5000 ft AGL for power turbines**
- **Flight at a speed less than 1.30xVs not permitted below 5000 ft AGL (Vs = stall speed in the configuration used)**
- **Engine failure or single-engine flight, including when simulated, not permitted with the flaps at maximum angle (Position 100%, DOWN or LANDING depending on the aeroplane)**
- **Flight with a breaker open for flight purposes not permitted below 1000 ft AAL. This prohibition will not apply in the event of a real failure occurring during the test.**

Important: The Above Ground Level (AGL) values must take into consideration the altitude of obstacles or terrain within a radius of 5 NM on either side of the flight path.

The Above Airfield Level (AAL) values are based on the altitude of the airfield used.

5*The Procedures.*

5.1 Engine start-up: Malfunctions

1 - FCL references	Regulation No. 1178/2011
2 - Minima	-
3 – Situation simulated by the examiner	Announce a significant increase in temperature, a fire for the engine in question or any procedure from the flight manual leading to a shutdown at start-up (no ignition, no turbine rotation, etc..) .
4 - Stop the procedure	After handling the malfunction and before restarting the engine.
5 - SAFETY INSTRUCTIONS	Always inform ground staff before boarding the aeroplane, a misunderstanding of the situation could lead to dangerous reactions. E.g.: Involve safety staff on the ground by asking them to make a conventional engine shut down sign at start-up. Visual scanning must be maintained outside the aircraft until the engines come to a complete shutdown Do not forget to take the limitations of the starter and/or battery into consideration. Pay close attention to the actions of the pilot and be ready to block these actions Reconfigure the aircraft before restarting (with engine ventilation if necessary).
6 - ERRORS AND CRITICAL SITUATIONS	Rushed execution of procedures and inappropriate actions. E.g.: engine error, fuel line opened, fire extinguisher struck, etc.

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Min. runway width: 30 m Min. runway length = 1.5 ASD* calculated for the conditions on the day ** ASD = Accelerate-Stop Distance published in the flight manual*
3 - Simulation of the failure or procedure - Situation simulated	Allow the aeroplane to accelerate to a maximum speed of 60 kt then: – clearly announce the activation of an alarm or an explicit failure (e.g. "CABIN DOOR indicator on", "flames out of left engine", "Inconsistent anemometer", etc.), or – activate alarm lights.
4 - Stop the procedure	Wait until conclusions are reached on the decisions made Announce end-of-procedure Wait long enough to allow the brakes to cool
5 - SAFETY INSTRUCTIONS	Notify ATC before the procedure Check that the student has not blocked wrists or knees. Wait long enough to allow the brakes to cool. Start the procedure at the earliest possible point to avoid the aeroplane storing energy, which must subsequently be dissipated.
6 - ERRORS AND CRITICAL SITUATIONS	Late reaction, no throttle reduction, sudden braking, reduced throttle for one engine only.

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	Using a suitable cover for each instrument or by disabling the sources (disconnect the sources, dim the screens) of the following information: – main artificial horizon and main heading indicator, or – EADI and EHSI for aeroplanes equipped with electronic instruments, or – the PFD for aircraft equipped with integrated electronic avionics.
4 - Stop the procedure	In straight and level flight, remove the covers or re-establish the display and sources of the corresponding instruments.
5 - SAFETY INSTRUCTIONS	Check that no flag has appeared for back-up instruments
6 - ERRORS AND CRITICAL SITUATIONS	Incorrect visual scanning, sensory illusions, reverse bank correction, disorientation *, initial spiralling in descent (particularly during the partial panel). ** If the student is disorientated, stop the procedure, remove the covers, the safety pilot will take the controls, return the aeroplane to straight and level flight. Wait long enough for the pilot to adapt before restarting the manoeuvres.*

5.4 Very low speed flight

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No severe or moderate turbulence, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	Specify the required speed with reference to Vs. The pilot should reduce power. The power will not be reduced to IDLE, but minimal power will be maintained to prevent the risk of a propeller spuriously switching to fine pitch and guarantee the symmetrical re-acceleration of the engines (control power).
4 - Stop the procedure	Acceleration managed by the pilot, at Vi > 1.45 x Vs , announce "end-of-procedure", . Check configuration at the end of manoeuvres: landing gear and flaps
5 - SAFETY INSTRUCTIONS	min. 5000 ft AGL, maintain the minimum engine power described in 3), check that each zone is maintained before each manoeuvre, check configuration at the end of manoeuvres: landing gear and flaps
6 - ERRORS AND CRITICAL SITUATIONS	Sudden control input, lack of precision, Excessive bank, Acceleration configuration or engine limits exceeded.

5.5 Stalls - Approaches to stalls

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	The pilot should reduce power. The power will not be reduced to IDLE, but minimal power will be maintained to prevent the risk of a propeller spuriously switching to fine pitch and guarantee the symmetrical re-acceleration of the engines. Examples of minimum power to be maintained: for a Pratt & Wittney PT-6 turbine: min. 150 ft lbs for a Garrett turbine: xxx Examples of situations to be simulated: – Clean stall and standard recovery: Level flight from descent under the AP, with no throttle – Approach to a stall in descending turn, approach config: Excessive bank on final turn by VFR, poorly controlled – Approach to a stall in landing config: Level flight at MDA for a standard approach or correction of a low flight path with poor speed control
4 - Stop the procedure	Announce "end-of-procedure" Acceleration managed by the pilot
5 - SAFETY INSTRUCTIONS	min. 5000 ft AGL, maintain the minimum engine power described in 3), check that each zone is maintained before each manoeuvre, Check configuration at the end of manoeuvres: landing gear and flaps
- ERRORS AND CRITICAL SITUATIONS	Priority not given to reducing angle of attack. Throttle movement too fast at the end of the procedure with a desire to maintain altitude at any cost. Engine control varies, the aircraft could stall asymmetrically*. ** the safety pilot will take the controls and fly a suitable recovery in this case.*

1 - FCL references	Regulation No. 1178/2011
2 2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot,
3 - Simulation of the failure or procedure - Situation simulated	Ball in the centre No aircraft in the vicinity Flap position 1 (Approach or Take-Off) Reduce the critical engine*, propeller feathered (MAX RPM) Full power allowable for the operative engine Angle of attack 2° more than the nominal N-1 angle of attack Maintain constant heading to maximum yaw input The student must recover from the manoeuvre by reducing the operative engine appropriately and reducing angle of attack **The power will not be reduced to IDLE, but minimal power will be maintained to prevent the risk of a propeller spuriously switching to fine pitch and guarantee the symmetrical re-acceleration of the engines (control power).* Examples of situations to be simulated: N-1 go-around or failure at takeoff or at go-around with poor control of angle of attack, inadequate energy levels on N-1 final approach, non-consideration of drag in N-1 flight (landing gear not retracted, propeller not feathered, etc.)
4 - Stop the procedure	Speed more than 1.45 Vs and aeroplane in level flight: announce "end-of-procedure." Acceleration managed by the pilot
5 - SAFETY INSTRUCTIONS	min. 5000 ft AGL, check that each zone is maintained before each manoeuvre, Check configuration at the end of manoeuvres: landing gear and flaps Allow loss of altitude Stop trim use at 1.45 Vs Priority must be accorded to reducing power for the operative engine.
6 - ERRORS AND CRITICAL SITUATIONS	Full power not used for the operative engine, leading to a risk of stall before Vmca, Sudden bank action before reducing power for the operative engine, Parameters exceeded for the operative engine. **Students must reduce power to recover control of the aeroplane.**

1 - FCL references	Regulation No. 1178/2011
2 2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	Plan for at least 1500 ft in altitude variation for the manoeuvres. Example of a dive situation: Establish clean holding speed 1.45Vs, bank 45° and release the stick. Apply the recovery method For a more realistic approach, fly the recovery using the back-up horizon (This critical situation can be caused by ADI failure) Nose-up recovery: Pull on the stick and bank the aeroplane to a maximum angle of 45°. Apply the recovery method.
4 - Stop the procedure	When parameters are stable Aeroplane in level flight
5 - SAFETY INSTRUCTIONS	min. 6000 ft AGL at the start of the procedure. Do not descend below 4000 ft AGL during the manoeuvre. Plan for a large enough area for manoeuvres, particularly in terms of the altitude variation cleared by ATC (if clearance is required). Speed at the start of the procedure compatible with acceleration without exceeding limits, particularly limit speeds.
6 - ERRORS AND CRITICAL SITUATIONS	Confusion between a descending turn and a dive, wings not brought to horizontal Sudden action potentially causing the maximum load factor to be exceeded. Incorrect initial configuration (flat, landing gear) End of procedure with inappropriate throttle adjustment.

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	Complete execution of an engine failure or shutdown procedure with effective feathering and shutdown. Example of a simulated voluntary engine shutdown: The examiner verbally announces a situation requiring the engine to be shut down (strong engine vibrations, etc.) After the pilot has handled the voluntary engine shutdown, the examiner announces "End-of-procedure" and requests an in-flight relight.
4 - Stop the procedure	Engine restart using reference documentation
5 - SAFETY INSTRUCTIONS	min. 5000 ft AGL Min. speed: 1.45 Vs. Near to an accessible airfield.
6 - ERRORS AND CRITICAL SITUATIONS	Incomplete execution of the shutdown procedure before relighting the engine Sudden switch to propeller MAX RPM with IDLE torque during a STARTER ASSISTED relight. HOT START for non-assisted relights.

5.9 Clean landing

1 - FCL references	Regulation No. 1178/2011
2 - Minima	LDA (*) > 1.5 x LD flaps 0° (**) or LDA (*) > 3 x LD full flaps **: LDA = Landing Distance Available* ***: LD = Clean Landing Distance according to the flight manual for the conditions on the day*
3 - Simulation of the failure or procedure - Situation simulated	When the pilot extends the flaps, verbally announce or indicate with a gesture that the flap system or controls have blocked. Example: The examiner announces "The flaps will not extend" and the safety pilot will block the flap control.
4 - Stop the procedure	The examiner announces "end of flap failure"
5 - SAFETY INSTRUCTIONS	Prefer a Stop and go or a full stop landing (no touch and go). No change of configuration on final approach. If a breaker is deactivated by the pilot during the check list phase, the breakers must be reconfigured by the safety pilot before descending below 1000 ft AAL.
6 - ERRORS AND CRITICAL SITUATIONS	Poor approach angle judgement and improper speed on final approach, inadequate attitude, Inappropriate reduction in power based on the absence of drag, ground control.

5.10 Landing gear extension/retraction failure

1 - FCL references	Regulation No. 1178/2011
2 - Minima	-
3 - Simulation of the failure or procedure - Situation simulated	Just before the pilot extends/retracts the landing gear, verbally announce or indicate with a gesture that the landing gear system or controls have blocked. Example: The examiner announces "The landing gear will not extend/retract" and the safety pilot will block the landing gear control.
4 - Stop the procedure	Clearly announce the end of the landing gear failure. The safety pilot announces "recycling" to the PF and reconfigures the aircraft, including the re-activation of the landing gear breaker. The procedure ends when the aircraft comes to a complete standstill after landing.
5 - SAFETY INSTRUCTIONS	The breakers must be reconfigured by the safety pilot before descending below 1000 ft AAL.
6 - ERRORS AND CRITICAL SITUATIONS	- Min. speed not maintained - Sudden and/or imprecise flight control - Automatic pilot not used - Poor time management, leading to a non-stable approach: do not allow the student to start the final approach without having fully managed the failure - Landing gear extended/retracted by the pilot before the examiner has time to announce the failure. In this case, the examiner allows the landing gear to extend/retract in full to avoid forcing systems.

5.11 Emergency descent.

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Descent minimum FL > safety altitude (*)+ 2000 ft **: Safety altitude = Safety altitude in the area used for the manoeuvres (MSA, grid MORA, etc.)*
3 - Simulation of the failure or procedure - Situation simulated	Define the initial level Define the minimum level Verbally simulate explosive decompression with an uncontrollable positive cabin climb rate or the appearance of smoke in the cabin. Actual use of O_2 PEQ masks and simulated dropping of passenger O_2 masks
4 - Stop the procedure	Stable altitude, throttle applied, automatic pilot engaged, masks removed and conclusions reached on the decisions made. Announce "end-of-procedure".
5 - SAFETY INSTRUCTIONS	Not to be carried out in icy conditions Coordination with ATC to define the minimum level for the manoeuvre as a target level The minimum level will be above or equal to the safety altitude +2000 ft
6 - ERRORS AND CRITICAL SITUATIONS	Poor use of the automatic pilot, leading to voluntary disconnection, Extension of drag-inducing devices outside of limits, Propeller not set to max. RPM, Throttle not reduced, Poor forward planning when approaching VMO, Switch to level light inadequately prepared, Power not readjusted in level flight, No conclusions reached on the decisions made.

5.12 Engine fire at rotation

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	Announce an engine fire verbally after unstick. E.g.: "LEFT ENGINE FIRE indicator on! "
4 - Stop the procedure	Wait for the conclusions reached on the decisions made Announce "end-of-procedure". Set or instruct the student to set the appropriate torques for the engines to reduce the asymmetry Wait to achieve complete stable symmetrical flight with N engines before taking further action
5 - SAFETY INSTRUCTIONS	Consider the environment (ATC, air traffic) to ensure that a choice must be made and a decision reached, and notify ATC before the procedure if necessary due to a changed flight path, The safety pilot must block the throttle to avoid any action on the engines below 400 ft AAL, Systematically check drag-inducing devices (landing gear and flaps).
6 - ERRORS AND CRITICAL SITUATIONS	Procedure initially launched too hastily and below 400 ft AAL, Confusion with engine failure at takeoff, No explicit change in plan of action leading to a change in flight path with no coordination with ATC.

5.13 Engine failure during takeoff

This sheet applies for failure at both takeoff and a go-around.

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Meteorological conditions compatible with flight based on external cues from the seat of the safety pilot, No risk of reduced availability for the safety pilot.
3 - Simulation of the failure or procedure - Situation simulated	1 – the examiner announces "Engine failure" 2 – The safety pilot smoothly reduces the power of one engine using the throttle or the Cut-Off switch if at >5000 ft AGL 3 – The safety pilot directly sets the transparency parameters to simulate the activation of auto feather if fitted, or - leave reduced power to simulate the auto-feather failure or on aeroplanes without auto feather Example of a simulated failure at go-around: After establishing the approach speed and configuration (landing gear extended and approach flaps, auto feather armed), at > 6000 ft AGL, instruct the student to go around and fly an initial climb. When the landing gear is retracted, the safety pilot will cut one engine using the Cut Off switch. When the failure has been handled, the examiner announces "End-of-procedure" and requests an in-flight relight, covering section 5.5.
4 - Stop the procedure	Wait for the conclusions reached on the decisions made Announce "end-of-procedure". Set or instruct the student to set the appropriate torques for the engines to reduce the asymmetry
5 - SAFETY INSTRUCTIONS	Conditions to activate the failure: – Minimum height 400 Ft AAL – Landing gear retracted (for aeroplanes with retracting landing gear) – Flap configuration for single-engine climb – Speed above Vyse – Auto feather armed * ** if real engine failure spuriously occurs, the safety pilot will push the 2 throttle levers forward until the inoperative engine automatically feathers.*
6 - ERRORS AND CRITICAL SITUATIONS	Improper attitude. Sudden action leading to excessive parameters for the operative engine. Sudden reverse yaw input. Excessive or inadequate yaw input in the correct direction. Poor flight path control. *Note: It may be necessary to reduce power for the operative engine if bank control is lost.*

5.14 Asymmetric approach

1 - FCL references	Regulation No. 1178/2011
2 - Minima	-
3 - Simulation of the failure or procedure - Situation simulated	Before the approach phase, reduce one of the engines to idle or organise an engine failure at takeoff or go-around after a previous approach.
4 - Stop the procedure	Announce "end-of-procedure". Set or instruct the student to set the appropriate torques for the engines to reduce the asymmetry Wait to achieve complete stable symmetrical flight with N engines before starting any other procedure or on the ground
5 - SAFETY INSTRUCTIONS	No unrealistic ATC restrictions for the procedure **Check that the AUTO FEATHER is armed: in the event of actual failure, push the 2 throttle levers forward until the system activates.**
6 - ERRORS AND CRITICAL SITUATIONS	Use of full power for the remaining engine, despite existing excessive speed. Overtorque for the operative engine during the approach. Late application of throttle during a low speed holding turn. Automatic pilot maintained with no yaw trim, likely to lead to flight at constant bank angle and sensory illusions when disconnecting the automatic pilot It may be necessary to reduce power for the operative engine if bank control is lost.

5.15 Asymmetric go-around

1 - FCL references	Regulation No. 1178/2011
2 - Minima	-
3 - Simulation of the failure or procedure - Situation simulated	The aeroplane must be configured for final approach, simulated single engine, **with flaps at the Approach setting**, subsequent to a simulated failure, fire or engine shutdown.
4 - Stop the procedure	Clean aeroplane, controlled flight path, next segment and limit announced.
5 - SAFETY INSTRUCTIONS	Minimum height for the manoeuvre: DA, MDA or DH (as applicable). *Check that the AUTO FEATHER is armed at all times: in the event of actual failure, push the 2 throttle levers forward until the system activates*.
6 - ERRORS AND CRITICAL SITUATIONS	Improper attitude, Sudden action leading to overtorque for the operative engine Sudden yaw input. Poor or no flight path control

5.16 Asymmetric approach at MVL

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Visibility > MVL with no risk of losing sight of the runway during the manoeuvre, Ceiling > 1000 ft AAL
3 - Simulation of the failure or procedure - Situation simulated	Aeroplane with simulated N-1 engines in MVL configuration Check that speed is equal to or more than 1.45 Vs for the configuration. Check the Approach flaps. Stop the procedure at 700ft AAL even if the MDA is lower.
4 - Stop the procedure	Announce "end-of-procedure". Set or instruct the student to set the appropriate N1 for the engines to reduce the asymmetry Wait to achieve complete stable symmetrical flight with N engines before starting any other procedure or on the ground
5 - SAFETY INSTRUCTIONS	Minimum height for stopping the procedure: 700 ft AAL.
6 - ERRORS AND CRITICAL SITUATIONS	Improper attitude, Sudden action leading to overtorque for the operative engine Sudden yaw input. Poor or no flight path control

5.17 Asymmetric landing

1 - FCL references	Regulation No. 1178/2011
2 - Minima	Cross wind < 15 kt, LDA (*) > 1.5 x LD flaps 0° (**) **: LDA = Landing Distance Available* ***: LD = Clean Landing Distance according to the flight manual for the conditions on the day*
3 - Simulation of the failure or procedure - Situation simulated	After a previous engine failure, the final approach is flown with transparency parameters for the simulated inoperative engine. Before touchdown, the safety pilot will inform the pilot to reduce the 2 throttle levers during the flare.
4 - Stop the procedure	When the aeroplane comes to a complete standstill on the runway.
5 - SAFETY INSTRUCTIONS	Check yaw damper disconnected, **Cross wind below 15 kt** preferably from the side opposite to the operative engine, Runway width 30 m and length > 1.5 LD Flaps 0°, **Full flaps must not be used**.
6 - ERRORS AND CRITICAL SITUATIONS	Sudden reduction in power, leading to asymmetry during the flare, Use of full reverse thrust for one single engine (the safety pilot must be ready to reduce the two engines to idle, set Max. RPM for the two engines and use reverse thrust on both engines).

5.18 Touch & go

A touch and go procedure can save time for a takeoff directly after a normal landing.
Touch and goes must not be considered mandatory and must not be combined with any other failure or downgraded situation (such as a clean landing or asymmetric landing).

1 - FCL references	Regulation No. 1178/2011
2 - Minima	LDA > LA + TD * **: LDA = Landing Distance Available* *LD = Clean Landing Distance according to the flight manual for the conditions on the day* *TD = Takeoff Distance according to the flight manual for the conditions on the day*
3 - Simulation of the failure or procedure - Situation simulated	The safety pilot informs the student of the intended touch and go after checking that the instructions have been understood (briefing). With the nose wheel on the runway and power reduced, the safety pilot will retract the flaps to the takeoff position, set the trims to takeoff position and announce "VERTICAL THROTTLE LEVERS", followed by "Ready for takeoff" when the propeller control and configuration are ready. The pilot will apply power for takeoff in two stages: initially with the levers vertical, followed by takeoff power when the safety pilot announces: “Ready for takeoff” If, at any time, the safety pilot, the pilot or the examiner, considers that it is not safe to take off, the person will announce "STOP" and the touch & go procedure will be interrupted.
4 - Stop the procedure	At the end of the take-off sequence
5 - SAFETY INSTRUCTIONS	Check that runway length is adequate (> LD + TD) The safety pilot will manage the flaps and the trim, the student pilot will control the path of the aeroplane. If the safety pilot considers that the takeoff is not safe for any reason, he will announce "STOP" and the student will abort the takeoff. The safety pilot and the examiner must be aware of the time required and remaining runway.
6 - ERRORS AND CRITICAL SITUATIONS	Overtorque when applying power, Rotation at an excessive speed, Difficulty maintaining the centre line due to the asymmetric or hasty application of power, Perception of the end of the runway, stress and regression of the pilot, applying the twin piston procedure leading to pilot-induced yaw and sometimes a reduction in power and sudden braking.