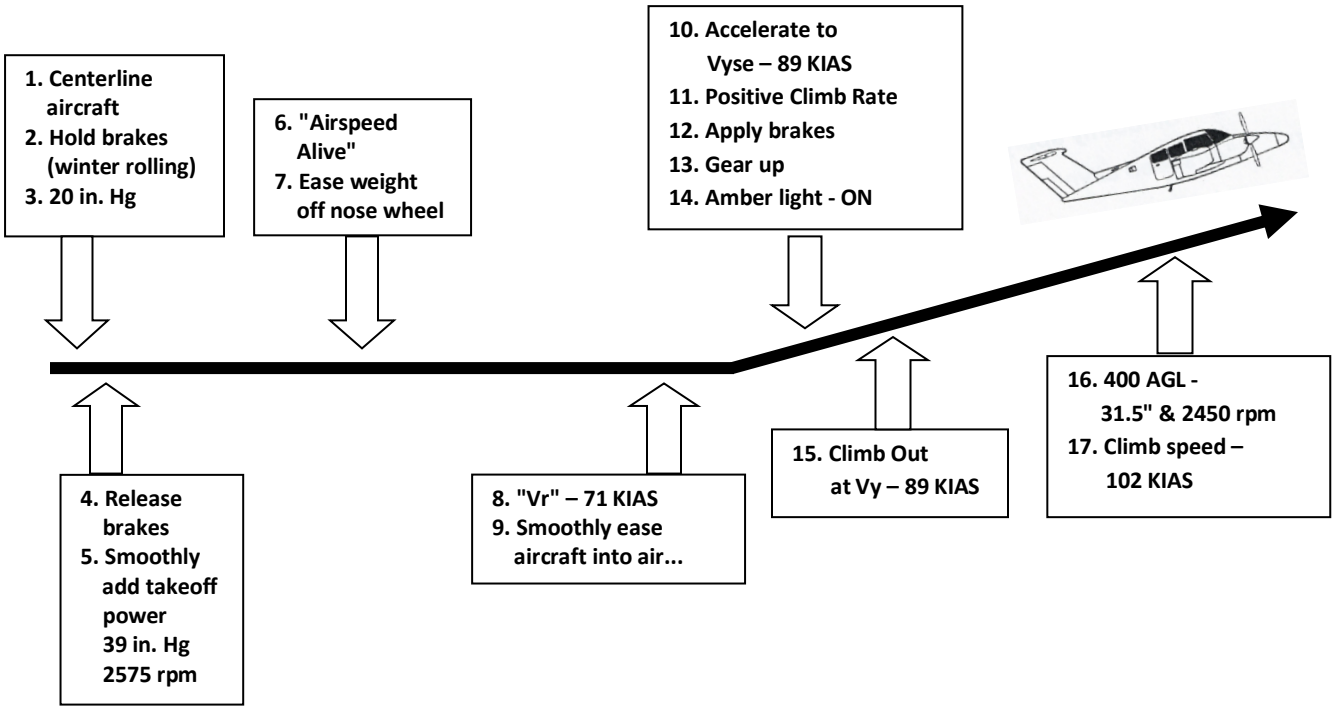
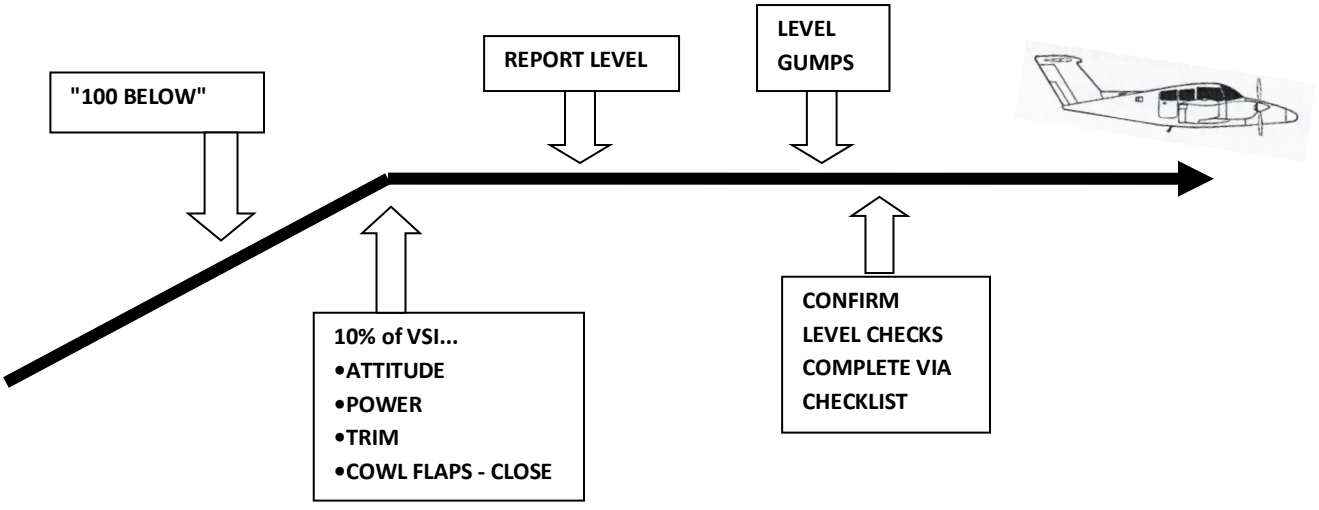
TAKEOFF – PA34-200T



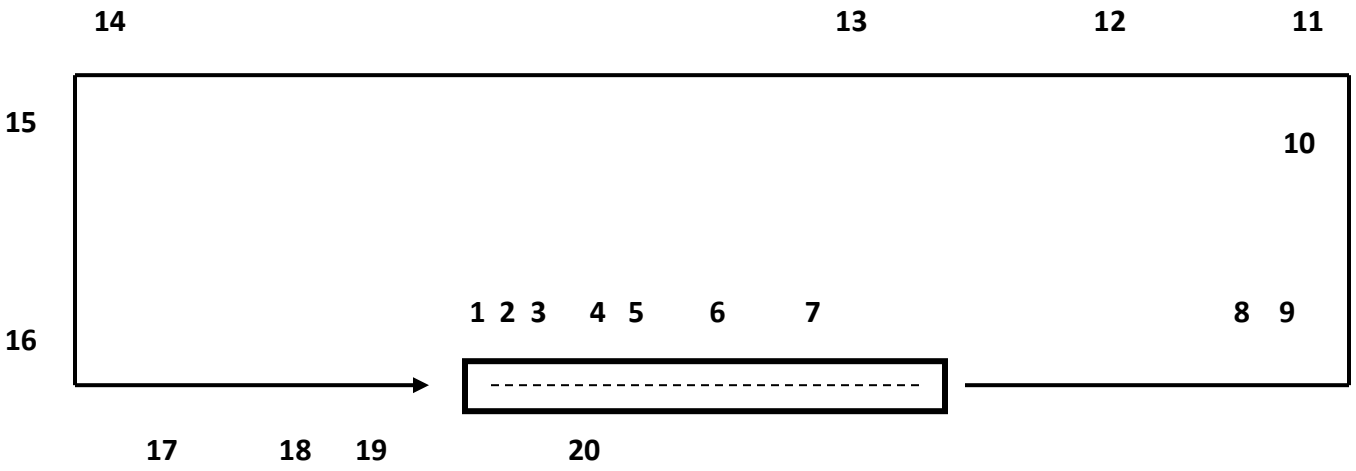
CRUISING FLIGHT

GUMPS

Gas : Fuel Selectors, Quantity
Undercarriage : Landing Gear
Mixture
Propeller : Props, Throttles
Switches : Cowl Flaps, Flaps, Fuel Pumps, Generators, Mags, Lights
Seat Belts



MUTI - ENGINE CIRCUIT PROCEDURES



1. Pre take briefing - complete
2. Centerline Aircraft
   - Hold brakes
     (Winter - Keep rolling)
   - 1500 RPM - Check engine instruments
3. Off brakes
   - Smoothly apply full power
4. "Airspeed alive"
5. "Vr – 71 KIAS
6. Vyse – 89 KIAS
   Positive Climb
   Apply brakes
   Gear Up
   Amber Light - ON
7. Climb out Vy - 89 KIAS
8. 400` AGL
   - 31.5" MP
   - 2450 RPM
9. 500` AGL
   - Turn crosswind leg
   - Use HSI course arrow for rectangular circuit
10. "100 below" (900 AGL)
11. Level 1000` AGL
    - Attitude - Cruise
    - Power - 19" MP, 2250 RPM
    - 100 KIAS
    - Trim - as required
    - Turn - downwind

12. Call Downwind
13. Gas - Main Tanks
    Undercarriage - Down
    Mixture - Rich
    Props - 2300 RPM
    Switches
    - Cowl Flaps - Open
      (Winter Close)
    - Fuel Pumps - Off
    - Lights as required

    Seat belts, Harnesses - On
    Breaks - Check
14. 45° Off runway - turn base leg
15. Power - 15"
    Flaps - Half (25°)
    Speed - 100 KIAS
16. Turn Final 500` AGL
17. Establish on Final
    - Full Flaps (40°)
    - 90 KIAS
18. Short Final Check
    - Mixture - Rich
    - Props - Full Fine
    - Gear - 3 Green & one in the mirror

19. When runway made.....
    - Ease throttles to idle
    - Full idle in flare
    - Touchdown smoothly at +300/-100 ft from a predetermined touchdown point
20. On runway - Touch & Go
    - Control aircraft
    - Flaps up
    - Verity props full fine
    - Smoothly apply full power
    - Vr 71 KIAS .....

MANEUVERING AT REDUCED AIRSPEED

Aim :

To determine that candidate can demonstrate good energy management skills (power/drag) by maintaining safe flight control in all configurations while maneuvering at speeds in the final approach speed range.

Description :

At an operationally safe altitude or the manufacture's recommended minimum height, whichever is higher, the candidate will be asked to stabilize the aeroplane at 1.3 KIAS or Vmc + 10 knots, whichever is greater. The examiner will then ask the candidate to extend the gear and full flaps deflection and to maneuver the aircraft while maintaining this reduced airspeed.

Vso : 62 KIAS, Vmc : 61 KIAS / PA34-200T

- 1.3 × Vso (62KIAS) = **81 KIAS** ← **Establish and maintain this Airspeed !!!**
- Vmc (61 KIAS) + 10 knots = 71 KIAS

1. HALT Check
(prior commencing air exercises)

Height ; Minimum 5,000 ft AGL, POH Page 4.51
Aircraft ; GUMP check complete

- Fuel - Main
- Fuel quantity - sufficient
- Gear - up
- Mixture - Rich
- Prop - 2500 rpm
- Cowl Flaps - close
- Flaps - Up
- Fuel Pump - OFF
- Landing Light - As required

Location ; Safe area
Traffic ; medium bank for a 90 degrees turn, right and left.

Acceptable Performance

Airspeed : +10 / -5 KIAS
Heading : ± 10°
Altitude : ± 100 feet

2. Maneuvering at REDUCED AIRSPEED

Initially, flight at reduced airspeed will be entered clean:

(1) Power 15" - Trim
(2) Power 17" - Trim

From here, we`ll enter reduced airspeed in the dirty configuration

(3) Confirm Vlo - Gear Down
(4) Power - 18" - Trim
(5) Confirm Vfe - Flaps 40° (Full Flaps)
(6) Power 20" - Trim
(7) Maintain 81 KIAS and Altitude
(8) Add – 1 to 3" for turns

3. To recover:

(1) Power - 30"
(2) Gear Up - Trim
(3) Flaps Up 25°, 10°, 0° - Trim
(4) Maintain Altitude and Heading
(5) Power 19" - Trim
(6) Level GUMPS

STEEP STURN

Aim :

To determine that the candidate can perform a level and coordinated steep turn.

Description :

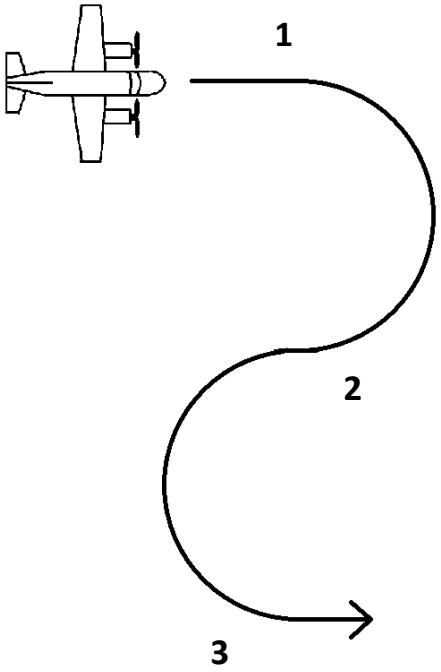
At an operationally safe altitude, the candidate will be asked to execute a steep turn through 180°, with an angle of 45°, then without pause, reverse the turn to roll out on the original heading. the candidate will specify the selected altitude and initial heading prior to entering the turn. The examiner will assign an airspeed for the maneuver.

Procedure :

1. Initially roll to 30° bank, then apply back pressure while continuing to roll to 45° bank.
   A slight power increase may be required to maintain constant airspeed in the turn.

2. To roll out on a pre-determined heading, use the "rule of thumb" of rolling out at 1/2 of the angle of bank
   (so we will roll out at approximately 22° in advance of "bug").

3. While rolling out, reduce original power and back pressure on the control column.



Acceptable Performance

- Promptly return to straight and level
- Maintain altitude within ± 100 feet
- Maintain speed within ± 10 KIAS
- Maintain bank angle within ± 5°
- Roll out of turn within 10° of entry heading

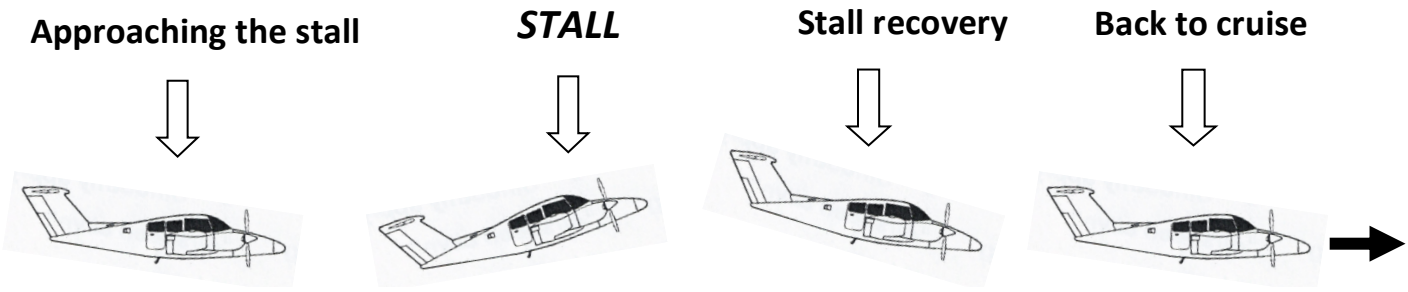
STALL IN THE CLEAN CONFIGURATION

Aim :

To determine the candidate can recognize power-off stalls and can accomplish recovery positively and with a minimum loss of altitude.

DESCRIPTION :

At an operationally safe altitude that allows that recovery at or above the altitude recommended by the manufacture (5,000 ft AGL) or at 2,000 ft AGL, whichever is higher, this maneuver will be entered from straight and level flight with the power set to idle on all engines. The examiner will ask you for a stall in the cruise configuration. The stall entries should not involve excessively high nose attitude.



1 . HALT Check

Height ; Minimum 5,000 ft AGL, POH Page 2-5
Aircraft ; GUMP check complete

- Fuel - Main
- Fuel quantity - sufficient
- Gear - up
- Mixture - Rich
- Prop - Full fine
- Cowl Flaps - close
- Flaps - Up
- Fuel Pump - OFF
- Landing Light - As required

Location ; Safe area
Traffic ; medium bank for a 90 degrees turn, right and left.

Acceptable Performance

- ability to enter the stall
- recovery procedures
- minimum altitude loss
- engine, gear, and flap management in recovery

2. ENTRY

1) Use the HG bug for heading reference
2) Power smoothly to idle (gear warning sound will be ON)
3) Ensure props are full fine
4) Maintain height with increasing back pressure
5) Stall warning sound will be ON
6) Controls become very "mushy"
7) With stall buffet, skink or nose drops...

3. RECOVERY

1) Reduce back pressure and lower nose to unstall the airplane
2) Smoothly apply 3/4 of max power(as props are full fine) until Vmc is reached, and then apply 39” power
3) Establish cruise attitude to minimize altitude loss
4) At 76 KIAS (Vx), establish climb attitude and positive rate of climb
5) Accelerate to 89 KIAS (Vy) then climb, set climb power to 31.5”, 2450 rpm
6) Level aircraft back at altitude. Set power to 19" between excises
7) Level GUMPS

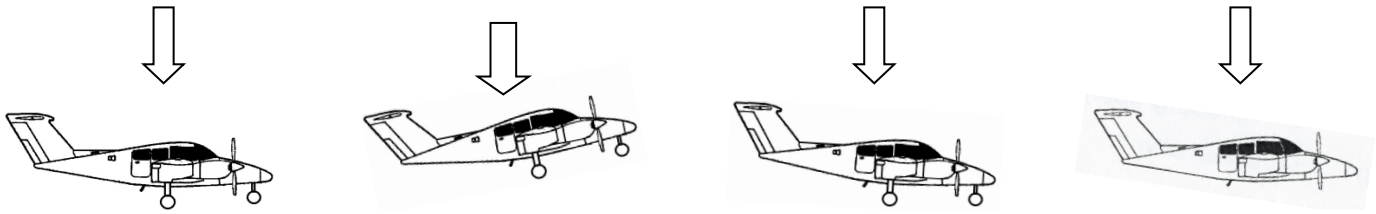
APPROACH TO STALL IN THE LANDING CONFIGURATION

Aim :
To determine the candidate can recognize an imminent power-off stall in the landing configuration and can demonstrate avoidance positively and smoothly with a minimum loss of altitude**.**

DESCRIPTION :

At an operationally safe altitude that would allow recovery at or above 2,000 feet AGL or the minimum height recommended by the manufacture, whichever is higher, a stall will be approached in the landing configuration from straight and level flight, with the power set at or near idle on all engines. The candidate will recognize and recover smoothly and correctly at the first indication of an imminent stall with a minimum loss of altitude.

Approaching the stall | **First indication of the stall** | **Recovery** | **Back to cruise**



1 . HALT Check

Height ; Minimum 5,000 ft AGL, POH 4.51
Aircraft ; **GUMP** check complete
- Fuel - Main
- Fuel quantity - sufficient
- Gear - up
- Mixture - Rich
- Prop - Full fine
- Cowl Flaps - close
- Flaps - Up
- Fuel Pump - ON
- Landing Light - As required

Location ; Safe area
Traffic ; medium bank for a 90 degrees turn, right and left.

2. ENTRY

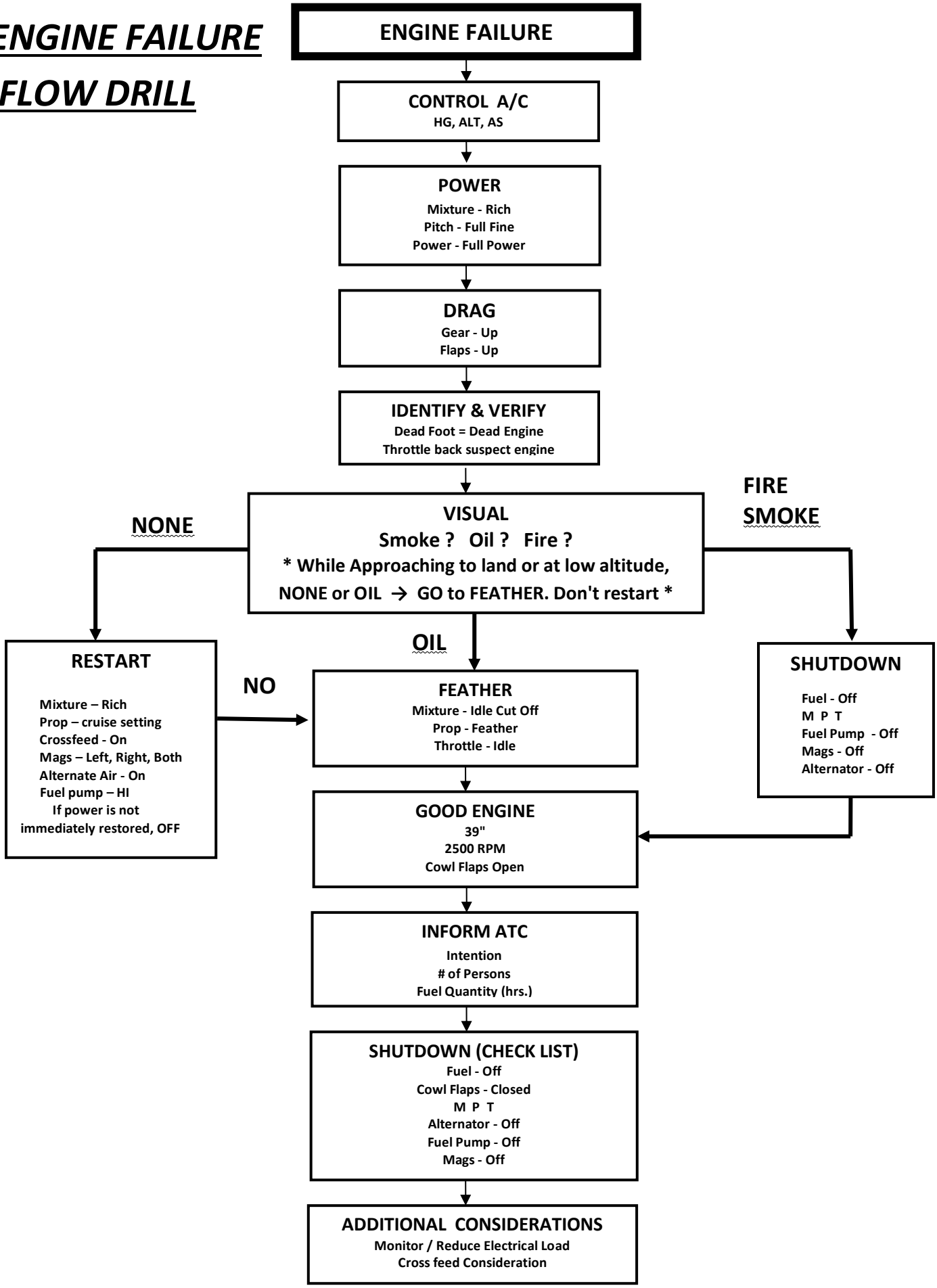
1) Use the HG bug for heading reference
2) Power to 15"
3) Gear down
4) Flaps 27°
5) Power to idle
6) Props full fine
7) Maintain height with increasing back pressure
8) At first indication of imminent stall (warning light or horn, buffet), **Announce "Stall"**.

3. RECOVERY

1) Lower nose as required to avoid stall
2) Smoothly apply 3/4 of max power(as props are full fine) until Vmc is reached, and then apply 39" power
3) Flaps up
4) Establish cruise attitude to minimize altitude loss
5) At 76 KIAS (Vx), establish climb attitude and positive rate of climb
6) Gear up
7) Accelerate to 89 KIAS (Vy) and set climb power 31.5"/2450
8) Level aircraft back at altitude. Set power to 19" between excises
9) Level GUMPS

Acceptable Performance
- ability to enter the stall
- recovery procedures
- minimum altitude loss
- engine, gear, and flap management in recovery

ENGINE FAILURE FLOW DRILL



PRECAUTIONARY ENGINE SHUTDOWN

Aim :
To determine that the candidate can confirm the need for an intentional engine shutdown and complete procedure.

DESCRIPTION :
The candidate will respond to a scenario (i.e.: mechanical problem) presented by the examiner that requires an intentional engine shutdown. The candidate will then simulate the shutting down of an engine and complete the appropriate checklist(s). The examiner will establish zero-thrust on the simulated inoperative engine after the candidate has simulated feathering the propeller. The candidate will then describe the subsequent course of action to be taken. (e.g. find nearest appropriate airport, advise ATC, etc.)

Scenarios : **Rough running engine**
Partial power loss
Propeller over-speed
High / Low oil pressure
Oil leak
etc.

In the interest of reducing the likelihood of incurring long term damage to the engine, the pilot prudently elects to conduct an intentional engine shutdown...

Assessment will be based on the candidate`s ability to:

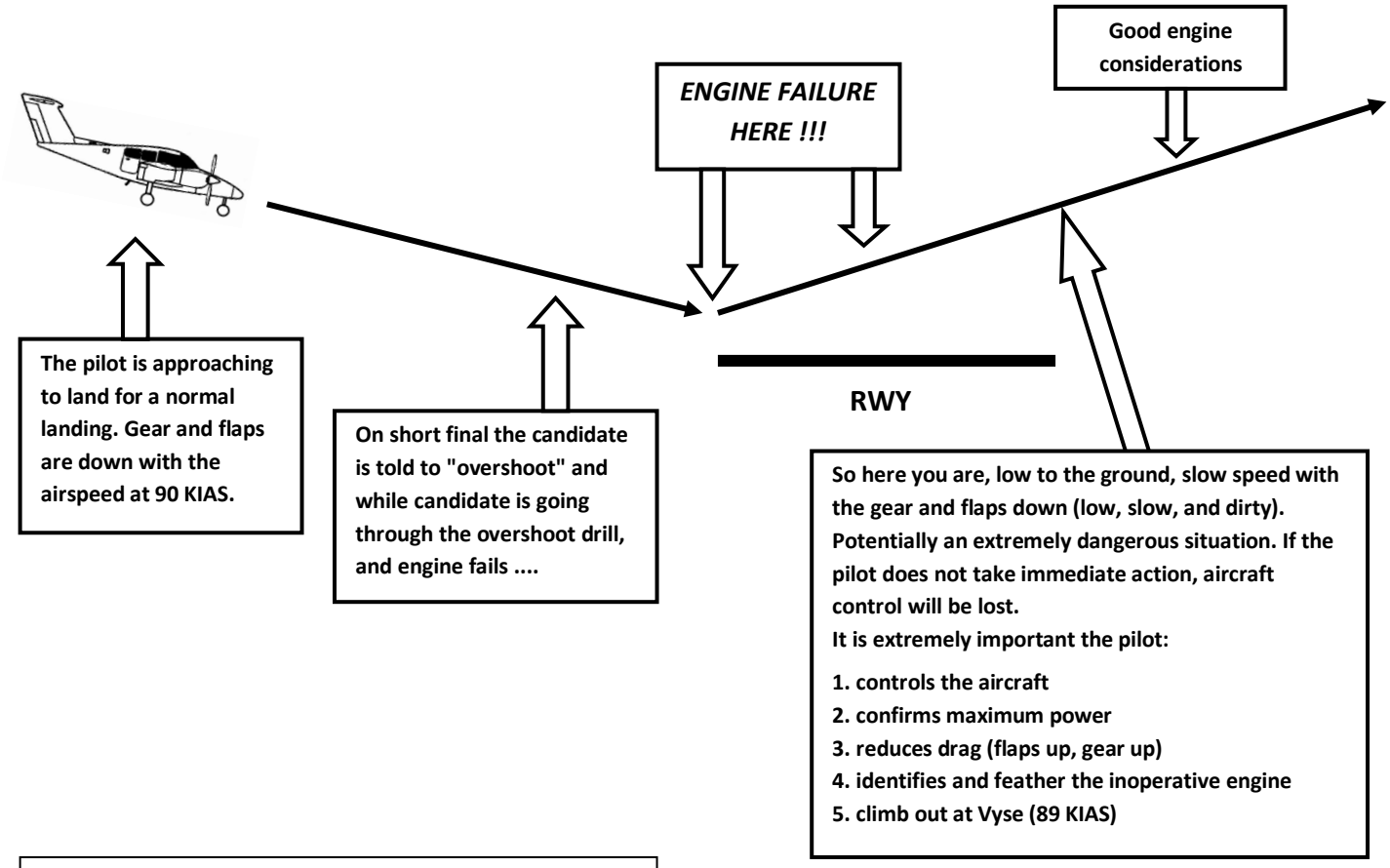
1. **analyze the situation as presented by the examiner;**
2. **simulated the procedure for shutting down the engine by completing all necessary checks in accordance with the appropriate emergency checklist(s);**
3. **maintain altitude (±100 feet)**
4. **maintain heading (±20 degrees);**
5. **maintain the recommended airspeed (+10 / -5 knots);**
6. **demonstrate an understanding of the possible cascade of system failures resulting from an engine shutdown;**
7. **determine whether or not the engine should be re-started and explain the reason for the decision;**
8. **demonstrate good decision-making when dealing with the consequence of the failure**

- **This scenario is normally conducted on the return trip back to the home airport during a Multi-Engine Flight Test.**
- **It is normally a precursor to Ex 11B, Arrival, Approach and Landing - One Engine Inoperative.**

ENGINE FAILURE DURING AN OVERSHOOT

Aim :
To determine to the candidate the candidate maintain flight control following an engine failure during an overshoot.

DESCRIPTION :
At an operationally safe altitude the candidate will be asked to place the aircraft in the landing configuration and initiate a descent for final approach to a landing. Upon full flap final approach speed for the aircraft being established, and the approach stabilized, the examiner will ask the candidate to overshoot. The examiner will simulate failure of an engine on the overshoot. The simulated failure will occur prior to gear retraction and at a speed above the one engine inoperative best rate-of-climb speed (Vyse).

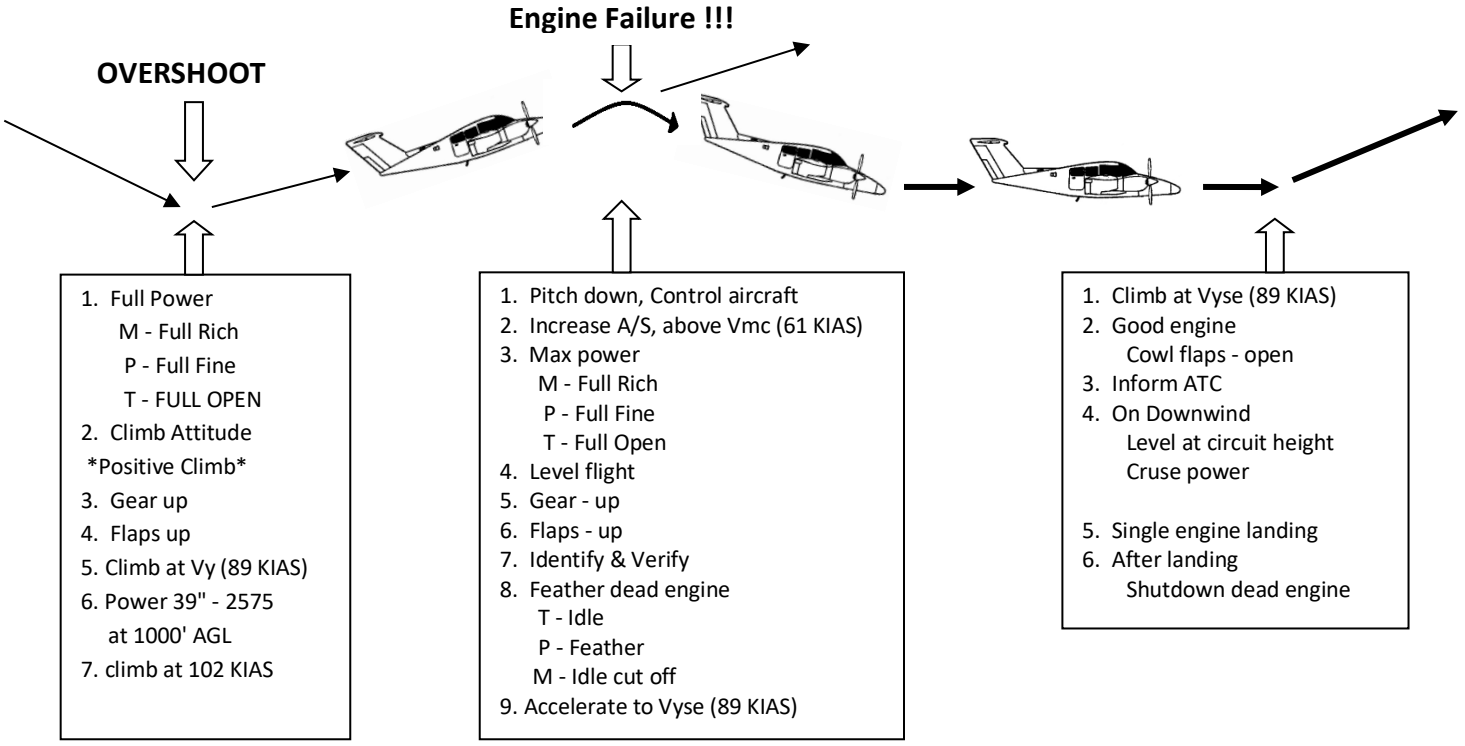


Acceptable Performance
Assessment will be based on the candidate`s ability to:

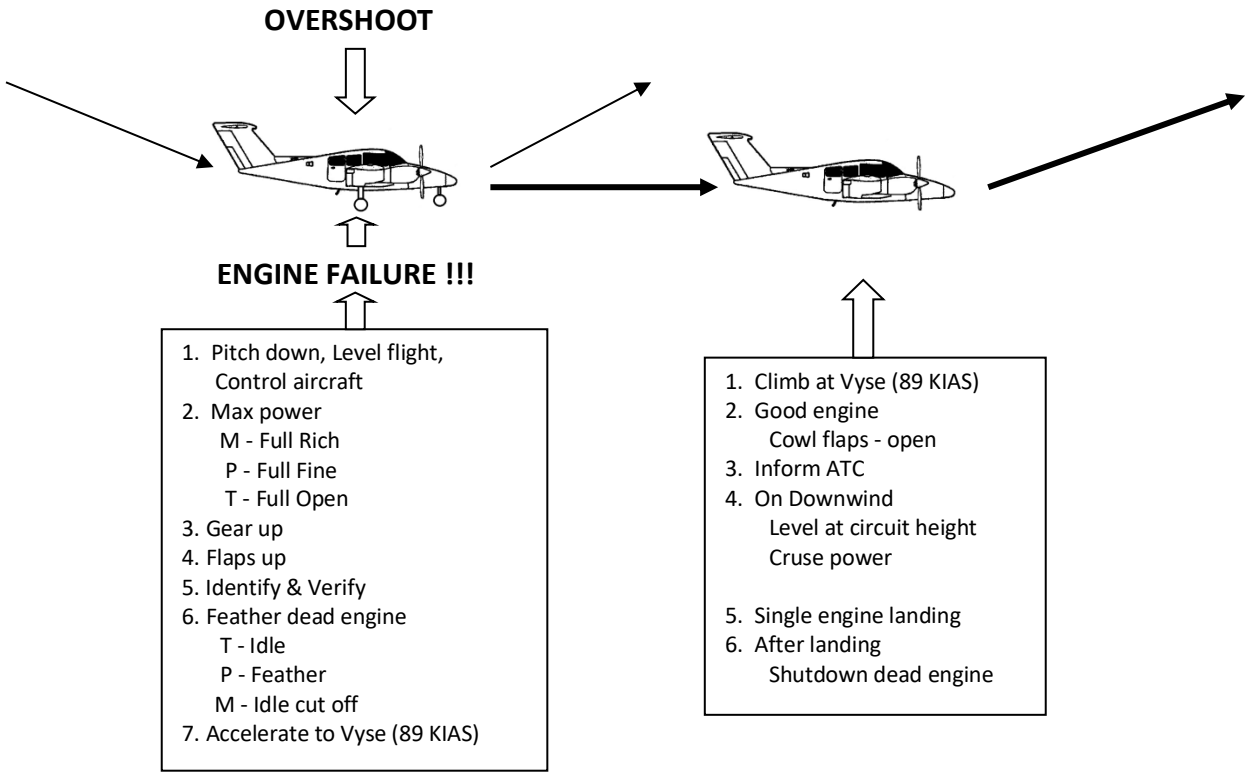
1. Apply correct procedures in accordance with the Pilot Operating Handbook
2. Maintain heading within ± 20°
3. Establish speed at the one engine inoperative best rate-of-climb speed (Vyse) +10 / -5 KIAS in any case, not less than (Vxse)
4. Establish a positive rate of climb, if the aircraft is capable

ENGINE FAILURE DURING AN OVERSHOOT

1. ENGINE FAILURE when Climbing



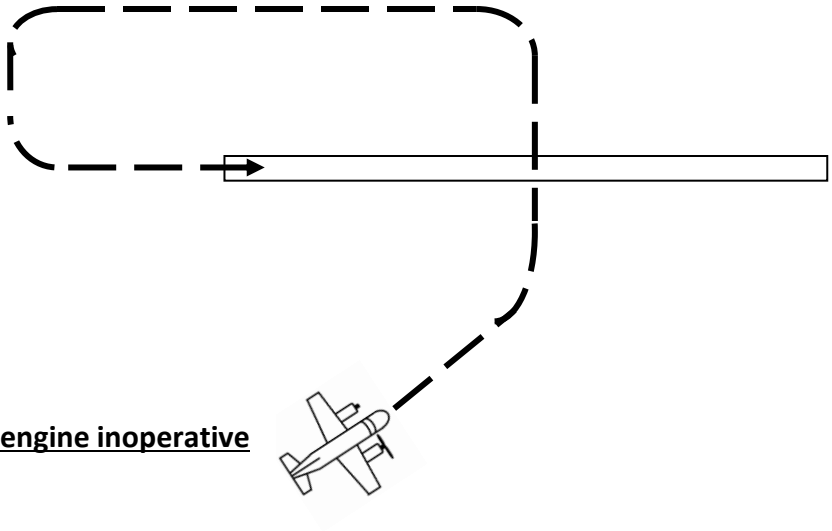
2. ENGINE FAILURE when Applying Full Power



ONE ENGINE INOPERATIVE CIRCUIT, APPROACH & LANDING

Aim :
To determine the candidate can fly safely an arrival procedure and an approach and land with one-engine inoperative (simulated).

DESCRIPTION :
The candidate is expected to carry out a safe arrival procedure and landing in accordance with the recommended procedures in the POH for "Single-Engine Approach and Landing".



<u>One engine inoperative</u>

- Extending the gear on final approach.
- Flaps 25° on final approach.
- Vref 95 KIAS. (Single Engine Landing)
- When operating on a single engine, the airspeed never be allowed to fall below the Vyse 89 KIAS.

Acceptable Performance
Assessment will be based on the candidate`s competence to :

1. fly an appropriate circuit with regard for other traffic
2. complete the arrival, approach and landing
3. complete the appropriate checklist(s)
4. fly the final approach at the recommended airspeed (+10 /-5 knots)
5. land in the normal touchdown zone
6. touch down with the longitudinal axis aligned with and over the runway centerline / landing path

EMERGENCY PROCEDURES / MALFUNCTIONS

Aim :
To determine the candidate can complete all emergency checks and recommended procedures in the event of a system malfuncyion or other emergency situation.

DESCRIPTION :
The candidate will be requested to demonstrate or explain the recommended procedures for **3 emergency situations** described by the examiner. These situations will be appropriate to the aircraft being used for the flight test.

This exercise may be tested on the ground with all aircraft systems shutdown, or in flight. It will be the sole responsibility of the examiner to determine if aircraft performance, weather conditions, and other factoes permit the safe conduct of this exercise in flight.

Candidates must be ready to deal with any three of the folowing

1. partial power loss
2. rough engine operation or overheat
3. turbocharger failure
4. propeller over-speed
5. engine fire
6. fuel starvation
7. boost pump failure
8. cross-feed
9. electrical fire
10. vacuum system failure
11. electrical malfunctions
12. landing gear malfunctions
13. brake failure or seizure
14. flap failure
15. heater overheat
16. door opening in flight
17. emergency descent
18. loss of fuel pressure
19. plugged pittot / static source
20. gyro suction failure
21. any other emergency, unique to the aircraft flown

Acceptable Performance

1. Promptly and correctly identify the emergency situation.
2. Promptly apply correct procedures in accordance with the Pilot Operating Handbook or Emergency Checklist.