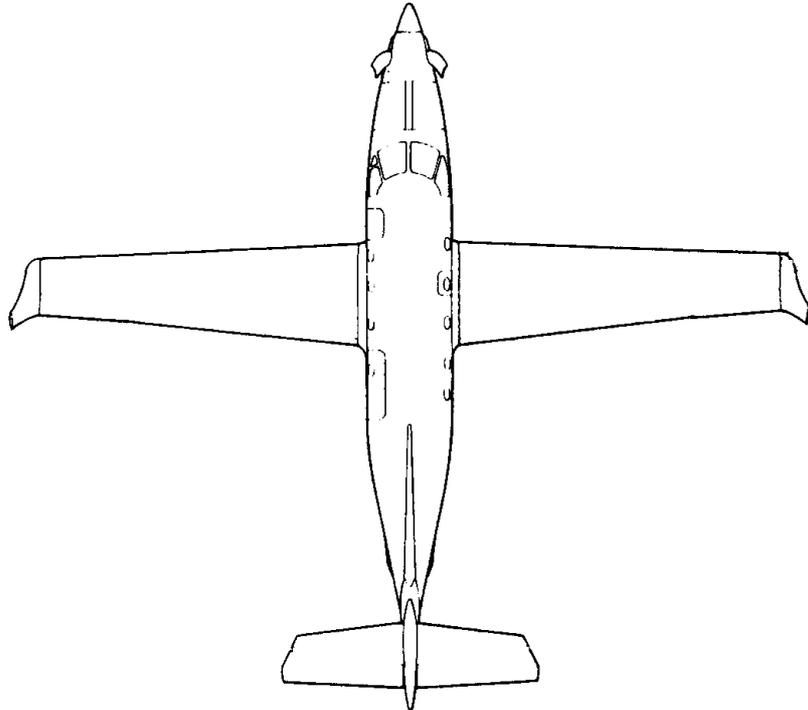


SINGLE ENGINE TURBO-PROP AEROPLANE ENDORSEMENT



ENGINEERING, DATA AND PERFORMANCE QUESTIONNAIRE

FOR _____

(Aeroplane make & model)

Version 1 - 31 August 1996

Name: _____

ARN: _____

Endorser: _____

ARN: _____

(Signature/Name)

Satisfactorily Completed on: / /

The endorsement questionnaire

To qualify for the issue of an aeroplane endorsement you must not only fly the aeroplane to an acceptable standard, but also demonstrate a level of knowledge that satisfies the person conducting your endorsement that you have completed *'training in the operating limitations, procedures and systems of the type of aeroplane for which the endorsement is sought'*. (CAO 40. 1.0, in particular paragraph 4.3 Note 1).

This questionnaire will help you satisfy these knowledge requirements, thereby enhancing safety and reducing costs.

The questionnaire will also be a useful reference, particularly if you do not fly regularly.

In any case, CASA recommends that both you and your instructor keep a copy of the questionnaire for at least 12 months as proof of completion of training.

How to answer these questions

You should use reference material such as Flight Manuals, Pilot Operating Handbooks and theory, and make liberal use of notes and sketches on the applicable questionnaire page.

The layout of the questionnaire corresponds to the sections of most Pilot Operating Handbooks.

Note that some questions may not apply to the aeroplane type on which you are being endorsed. You should mark these 'N/A'(not applicable).

This questionnaire is comprised of 14 pages and may be copied.

General Aircraft Data

1.

(a) What is the make, type and model of the aeroplane?

(b) In which category (categories) is the aeroplane permitted to fly?

Airspeed Limitation

2. List the applicable airspeed for the aeroplane type:

(a) V_{NO} ;

$V_{MAX X/W}$;

V_A (turbulence penetration);

V_X (best climb angle);

V_S ;

V_Y (best climb rate);

V_{FE} -first extension;

V_{LO1} (ldg gear operation up);

V_{LE} (ldg gear extended);

V_{LO2} (ldg gear operation down); and

V_{NE} .

(b) maximum landing light operating speed;

(c) maximum load factor (flaps up) is + g and - g; and

(d) maximum load factor (flaps down) is + g and - g.

Emergency Procedures

3. Detail the emergency procedures for the following situations if applicable:

(a) engine fire on the ground;

(b) engine failure after take-off.,

(c) engine failure in the cruise;

(d) engine fire airborne;

(e) electrical fire on the ground;

(f) electrical fire in flight;

(g) cabin fire in flight;

(h) rapid depressurisation;

(i) emergency undercarriage extension procedure; and

(j) propeller overspeed.

Normal Procedures

4. State describe or detail:

- (a) the cruise power setting, IAS and fuel flow for the aeroplane;
- (b) the climb power setting, IAS and fuel flow for the aeroplane;
- (c) a typical power setting, TAS and fuel flow at 1500ft pressure height; and
- (d) using the aeroplane flight manual, calculate the endurance for the aeroplane at 5000ft AMSL (ISA) with endurance power set.

Weight and Balance and Performance

(a) Specify the correct values of-

- (i) the maximum ramp weight;
- (ii) the maximum take-off weight;
- (iii) the maximum landing weight;
- (iv) the maximum Zero fuel weight;
- (v) the maximum number of adult persons on board (POB);
- (vi) the maximum baggage weight;
- (vii) the maximum fuel which can be carried with a full load of adult passengers (80Kg/person) and maximum baggage weight;

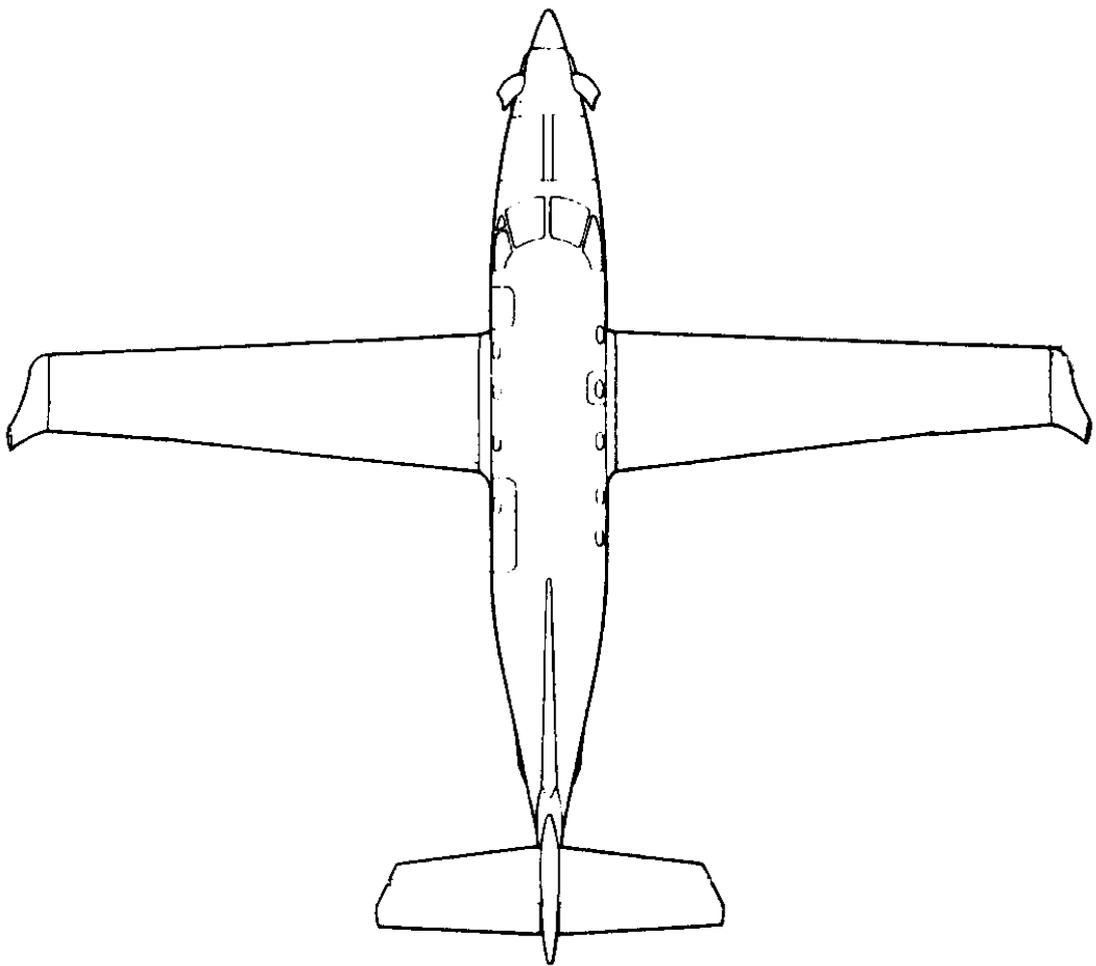
(b) (i) do any of the weight limitations in (i) to (vii) vary from category to category?

(ii) if so, what are the weight limitations of each category?

- (iii) using the aeroplane flight manual, and a typical loading problem posed by the endorser, determine the take-off weight and balance solution (maximum take off weight and C of G position), the amount of fuel that can be carried and the endurance;
- (iv) calculate the take-off distance required at maximum take-off weight, 2500ft AMSL and OAT 30°C; and
- (v) the minimum landing distance at maximum landing weight for the conditions at (iv).

Fuel System, Fuel and Fluids

6. State or describe/sketch for the aircraft:
- (a) the correct grade of fuel;
 - (b) any approved alternate fuel;
 - (c) the location of fuel tanks and drain points;
 - (d) the total and usable fuel in each tank;
 - (e) the position of the fuel tank vents;
 - (f) location of the fuel boost/auxiliary pumps;
 - (i) maximum and minimum operating pressure;
 - (ii) when should these pumps be used?



- (g) if applicable, the fuel tank change procedure;
 - (i) what conditions apply to tank selection for take-off and landing?

- (h) when refuelling to less than full tanks, what restrictions apply, and how is the fuel quantity checked?

- (i) if applicable, the minimum and normal hydraulic fluid capacity;

- (j) the correct grade of oil for the aeroplane;

- (k) the minimum oil quantity before flight;

- (l) the maximum quantity of oil;

- (m) the maximum, minimum and normal engine oil pressures;

- (n) the maximum, minimum and normal engine oil temperatures;

Turbine Engine

7. Answer the following questions:

- (a) What is the type, number and designation of the engine?

- (b) What is the SHP of the engine?

(c) What is the maximum ITT (TOT) on:

- (i) start;
- (ii) take-off;
- (iii) climb;
- (iv) maximum continuous power;
- (v) idle;
- (vi) reverse;
- (vii) transient;

(d) Max Ng (N1) on take-off,

(e) Max Np (N2) on take-off,

(f) Max torque on:

- (i) take-off.,
- (ii) climb;
- (iii) maximum continuous power;
- (iv) idle;
- (v) reverse; and
- (vi) transient;

(g) What is the minimum inflight power limit?

(h) Starter cycle limitations:

- | | | |
|-------|--------------|-------------|
| (i) | _seconds on | minutes off |
| (ii) | _seconds on | minutes off |
| (iii) | _ seconds on | minutes off |

(i) What oil pressure illuminates the warning light if fitted?

(j) Before shutdown, the engine must run at or below ITT for _____seconds/minutes.

(k) What is the critical/prohibited RPM range and what limitations apply to this range?

(l) What are the manual ignition time limits?

(m) When should the anti-icing be activated?

(n) What is the purpose of the overspeed/underspeed governor and what are the settings/range of the governor?

(o) What is the auto ignition and when is it used?

(p) What are the settings of the condition lever, and what is the purpose of each setting?

Propellers

8. Answer the following:

(a) Describe the propeller system in general.

(b) What is the BETA mode and range?

(c) Over what RPM range in flight does the propeller governor operate?

- (d) How is an overspeed/underspeed prevented?
- (e) What drives the blade into:
 - (i) fine pitch?
 - (ii) coarse pitch?
 - (iii) reverse?
- (f) What precautions apply to propeller operations both in the air and on the ground?
- (g) What is the purpose of the negative torque sensor (NTS)?
- (h) What indications show that the propeller is in the NTS range?
- (i) What action would correct this unfavourable NTS situation?

Airframe

9. Answer the following:

- (a) What type is the undercarriage system? (fixed/retractable (tricycle/conventional))
- (b) Which control surfaces can be trimmed?
- (c) How are the flap systems activated?
- (d) Describe the flap indicating system.
- (e) What is the flap operating range?
- (f) What are the dangers associated with a ruptured bleed air pipe?
- (g) What action should be taken to minimise the damage caused by a ruptured bleed air pipe?

- (h) Sketch the location of all exits.
- (i) Describe/sketch the location of:
 - (i) landing/taxi lights;
 - (ii) pitot heads;
 - (iii) air intakes; and
 - (iv) fuel caps.
- (j) What is the wing span of the aeroplane?

Ancillary Systems

10. Answer the following questions:

- (a) What systems are hydraulically operated?
- (b) What procedures are followed when a hydraulic system failure is suspected?
- (c) What provision is made for emergency hydraulic system operation?
- (d) How many brake applications would be expected from a pressurised brake accumulator (if applicable)?
- (e) What are the electrical power sources?
- (f) At what voltage does the DC system operate?
- (g) Where is the battery and the external power receptacle located?
- (h) How long can the battery supply emergency power?
- (i) Can an external power source be used?
- (i) if so, what is the procedure?

- (k) Following an alternator/generator failure in flight, which non essential electrical services should be switched off?
- (l) If a stall warning device is fitted, is it electrical or mechanical?
- (m) How is the cockpit ventilated?
- (n) How is the cockpit heated?
- (o) Describe the pressurisation system (if applicable);
- (p) What is the maximum permissible cabin altitude?
- (q) What are the symptoms of, and dangers associated with an outlet valve which is jammed closed?
- (r) Describe/sketch the location of the following safety equipment:
 - (i) fire extinguisher;
 - (ii) E LT;
 - (iii) torches;
 - (iv) survival equipment.

Flight Instruments

11. Answer the following questions:

- (a) Where are the pitot head(s), static vent(s) and any water drain points for the pitot/static system located?
- (b) What type of pitot heat system is fitted to the aeroplane?

- (c) Is there an alternate static source fitted? - if so;
 - (i) where is this located?
 - (ii) what is the purpose of this system?
 - (iii) if used, what effect does it have on instruments?
- (d) What instruments and gauges are AC powered?
- (e) What instruments and gauges are DC powered?
- (f) What is the limit of generator reset attempts?
- (g) At what temperature will the battery overheat light illuminate?
 - (i) If illuminated, what action is required?
- (h) What does the auxiliary battery provide power for?
- (i) How is an inverter failure indicated?

END OF QUESTIONNAIRE