CHECK FLIGHT CERTIFICATE

Eurocopter EC 225 LP
Turbomeca Makila 2A or 2A1

CFS 351 Issue 1

Date:	Crew:	Observer:	Registration:

Performance	Climb #1	Climb #2	
Average Weight			
Average Altitude			ft
Average Temp.			˚C
Spee			KIAS
Achieved Rate			fpm
Scheduled Rate			fpm
Margin			fpm
Permitted Margin	-20	-20	fpm

Airfield:

Start Weight Kg/Lbs*:

Takeoff cg:

Performance:

SATIS/UNSATIS/NOT APPLICABLE*

*(delete as applicable)**

Defects

No.	Defect	-/R/FT	Action?

(use a continuation sheet as necessary)

Conclusions/Comments

I CERTIFY that I have tested the above aircraft and have detailed the deficiencies and unsatisfactory features above. Those items annotated R or FT must be dealt with as shown in the notes on the reverse side.

Name:	Signed:	Date:	Licence No.:
For CAA Use only	Report Logged by:	Date:	Report No.:

NOTES

General
Only CAA personnel or pilots specifically briefed to carry out CAA check flights may conduct the test.
General notes on test conduct can be found in the CAA Check Flight Handbook.
This sheet replaces any check flight certificate given in the schedule.
Registration: If the aircraft is not on the UK register, add the manufacturer's serial number and expected UK registration (if known).
Crew: Captain, Co-pilot, Flight Engineer (where applicable).
Airfield: Departure airfield.
Start Weight: Actual all up weight at first engine start. Also delete Kg or Lbs as appropriate.
Takeoff cg: Actual cg at lift-off, preferably as a % of the Mean Aerodynamic Chord.

Performance
A full description of climb analysis is given in the CAA Check Flight Handbook.
Climb#1/Climb#2: Enter in these columns data from the first and second climbs.
Average Weight: The aircraft all up weight at the midpoint of the measured climb.
Average Altitude: The altitude at which the line drawn to average the measured points passes through at the mid time.
Average Temp: The temperature at which the line drawn to average the measured points passes through at the mid time.
Speed: The target climb speed (Indicated Airspeed.)
Achieved Rate: The climb rate as given by the slope of the line drawn to average the measured altitude points in feet per minute.
Scheduled Rate: The expected gross rate of climb read from the appropriate graph in the Flight Manual with any adjustments for configuration differences. For large aircraft, the basic gross data are normally to be found in a separate supplement labelled 'Additional Flight Test Data'.
Margin: The difference between the Scheduled and Achieved rates of climb (negative if achieved is lower than scheduled).

Defects
Enter all defects from the flight. All defects must also be entered in the Technical Log. Procedural items entered in the Technical Log (such as re-stowing oxygen masks) need not be entered here. Items affecting flight safety which were known before the flight, whether or not they were deferred should be entered. In the latter case, the defect should be annotated accordingly after the details.
No.: The first column is to allow the items to be numbered.
Defect: Enter details of the defect.
-/R/FT: Classify each defect according to its impact on safety, regardless of whether it can be deferred according to the MEL. Any deferrals should be dealt with in the normal way in the Technical Log. Items requiring rectification (or deferral under the MEL) before further flight for hire or reward or before the issue of the CofA should be marked 'R'. Additionally, items that require re-checking in-flight following rectification (such as inadequate climb performance) should be marked 'FT'. Items requiring both should be marked 'R/FT'.
Action?: This column should be left blank unless further information is required from the engineers or the item is considered to be of sufficient import that CAA action is considered necessary, then the person/department/agency from whom further action is required should be noted in this column. Annotate accordingly if an MOR or similar report is to be raised.

Conclusions/Comments
Any conclusions, notes or comments useful for tracking defects may be entered.
Name: Only the pilot who carried out the test may sign this sheet.

CAA Check Flight Schedules

All CAA Check Flight Schedules (CFSs) are prepared based on a design standard which, before September 2003, was the UK Type Certificate. Following the creation of EASA there may be different design standards in service within the European Union (EU) - this may include modifications approved in any EU country.

It is the responsibility of the flight crew to ensure that the exercises and limitations in the CFS are correct for the aircraft under test.

The prime source of information will be the aircraft flight manual and in the event of conflict the flight manual should be taken as overriding.

CAA policy is that pilots who conduct check flights on behalf of the Authority must be acceptable to the Authority, must have been briefed on techniques and safety considerations before carrying out the tests in these schedules and must have carried out a check flight within the last 4 years.

The CAA does not accept responsibility for the use of a CAA CFS on a test flight not directly under their control.

CHECK FLIGHT SCHEDULE

Eurocopter EC 225 LP **CFS 351 Issue 1**
Turbomeca Makila 2A or 2A1

Registration	
Flight Date	

1. INTRODUCTION

This schedule is only applicable to the EC 225 LP helicopter with Turbomeca Makila 2A or 2A1 engines. It is based on the assumption that the everyday operation of the helicopter serves as a continuous check of the correct functioning of all normal services.

The check flight must be carried out by an experienced pilot acceptable to the Airworthiness Division of the CAA in accordance with this schedule and the general guidance given in the CAA Check Flight Handbook. The crew are expected generally to monitor the behaviour of all equipment and report any unserviceable items.

In addition to completing all the tests in the schedule any characteristics which are considered to be unsafe or undesirable must be recorded.

It is illegal to carry passengers on a test flight made under 'A' or 'B' conditions except passengers performing duties in the aircraft in connection with the flight. Although it may be legal to carry passengers on a test flight with a Certification of Airworthiness in force, it is strongly recommended, for airworthiness Flight Tests and other tests entailing greater risk than normal flight, that:

1. It is preferable to use ballast, and

2. Before accepting any passengers on a test flight the pilot in command should inform them that the risk is greater than on an ordinary flight.

Under no circumstances are the limitations contained in the CAA approved Flight Manual to be exceeded.

Should there be any query regarding the Flight Test or the results, the local CAA Surveyor or the Flight Test Section at Airworthiness Division Flight, Aircraft Certification Department Aviation House, Gatwick, must be consulted.

It is recommended that the tests are performed in the sequence given. The results are to be written in ink in the spaces provided

2. PRE-FLIGHT INFORMATION

Aircraft Variant:	EC 225 LP	**Engine Variant:**	Makila 2A, 2A1

			Eng 1	**Eng 2**
Registration:		Engine No.		
Airframe No.		Hours Total:		
Airframe Hrs:		TSO:		
Operator/Maint. Organisation:				
Airfield:				
Pilot(s):				
Observer(s):				

3. LOADING

Note: The helicopter shall be loaded to approximately 10,000 Kg if possible or to a lower weight if required to comply with the operators company policy. The C of G should be approximately in the neutral position.

Take-off Weight:	Kg/lb
Fuel:	Kg/lb
CoG Position:	m./in aft of datum

4. GENERAL FLIGHT INFORMATION

Airfield Press Alt	ft	QFE/QNH	/
Wind	/	OAT	ºC
Weather:			
Engine Start:		Land:	
Take-Off:		Shut Down:	

5. REFUELLING

Aircraft should be parked on level ground and refuelled to maximum (including sponson tanks). Select intermediate quantity (see 5.1) and confirm refuelling stops at correct amount. Note fuel quantity in main tanks when main tanks are full. Confirm sponson tanks do not accept fuel until after main tanks full. Confirm delivery meter reading with aircraft quantity after refuel.

	LH Main	RH Main	LH Sponson	RH Sponson
Kg before refuel				
Kg after refuel				
Total after refuel				
Total before refuel				
Kg uplift		X 1.266 =	Litres	(SG=0.79)

Delivery meter total	Litres	
Difference	Litres	%

		SATIS	REMARKS
5.1	Select 1500kg on pressure refuelling panel; monitor and ensure auto-shut-off at selected fuel amount		
5.2	Increase amount to allow for "full" fuel		
5.3	Fuelling stops at selected amount		
5.4	Sponsons not filled before mains full		
5.5	High level shut-offs work in both groups		

6 BEFORE START

		SATIS	REMARKS
6.1	Carry out the normal external inspection		
6.2	Carry out the normal internal inspection		
6.3	All doors and windows: condition and operation		
6.4	All seats and seatbelts: condition and operation		
6.5	All placards and decals in place, legible, correct		
6.6	Standby instruments condition and markings		
6.7	First aid kit - condition & inspection date.		
6.8	Fire extinguishers – condition & inspection dates		
6.9	All lighting (See 31.22)		
6.10	Public address – check all speakers		
6.11	Stowage for safety leaflet etc.		
6.12	Ordnance lights		
6.13	Cabin emergency lights		

7. BEFORE START CHECKS

Conduct the normal Before-Start checklist. In particular, check the following items:

		SATIS	REMARKS
7.1	Correct operation of warnings, cautions, lights		
7.2	Correct operation of fire warning systems		
7.3	Accumulator holding pressure		
7.4	Satisfactory completion of Before Start checklist		

8. FLIGHT CONTROL CHECKS

		SATIS	REMARKS
8.1	AUX Hydraulic Pump ON		
8.2	Pressure 175 ± 10 bar		
8.3	AP Switch (collective) - OFF		
8.4	Flight Controls - Check full/free travel; collective: Check FLI to 10		
8.5	Cyclic centered; AP Switch – ON		
8.6	APM 2 ON		
8.7	Check cyclic auto-centering		
8.8	APM 2 - OFF		
8.9	AUX Hydraulic Pump - OFF		

9. STARTER/ROTOR BRAKE INTERLOCK

With the rotor brake applied to the **21-bar** position and the safety lever aft, confirm the engine start circuit inhibited (no start possible) by selecting IDLE for 2 seconds then OFF on each engine control switch.

WARNING: If the starter does engage, abort the start immediately

		SATIS	REMARKS
9.1	Correct operation of interlock		

Rotor brake OFF

10. ENGINE START

Carry out a high wind start in accordance with the normal checklist. During the start, note the following:

		Engine #1	Engine #2
10.1	Maximum TOT on start (Limits -780/830/840)	°C	°C
10.2	OIL P out at approx 1.6 bar		
10.3	Starter cutout at 64%		
10.4	Idle N1 approx 64%		

		SATIS	REMARKS
10.5	Nr aural warning 75.5% – 95.5%		
10.6	ELEC, HYD, XMSN + M.P, S/B.P warnings out		
10.7	FLT Nr IAW RFM 7.3 (see page 24)		
10.8	Note start time		

11. AFTER START CHECKS

Carry out After Start checks in accordance with the normal checklist. Do not check the Emergency Electrical Generator at this point (see paragraph 31, Electrical Checks).

		SATIS	REMARKS
11.1	Satisfactory completion of after start checklist		

12. EMERGENCY INTERCOM

Confirm satisfactory operation of emergency intercom from each accessible station box using both methods (cyclic PTT first position, station box PTT).

		SATIS	REMARKS
12.1	Pilot		
12.2	Copilot		
12.3	Box 3 (cockpit)		

13. OEI TRAINING MODE and P3 DUAL CHECK VALVE

Select Training Idle on #1 engine. Confirm the selected engine N2 drops to slightly below 92.5%.
Press BLEED HTG and confirm #2 TOT rises by approx 20°.
Switch #2 engine control switch to IDLE. Confirm #1 N1 increases.
Switch #2 engine control switch to FLT.
Select #1 Training Idle to Normal and guard the switch.

Repeat the tests for the #2 engine Training Idle.

		SATIS	REMARKS
13.1	OEI Training Idle check #1 engine		
13.2	#2 TOT rise of approx 20°C		
13.3	OEI Training Idle check #2 engine		
13.4	#1 TOT rise of approx 20°C		

14. P3 VALVE AUTO-CLOSING

Carry out P3 auto-closing check on VMS FADEC page

		SATIS	REMARKS
14.1	P3 indicator shows when heater switched on		
14.2	Switch #2 engine control switch to IDLE. Heater switches off and P3 indicator disappears when TEST 2 selected on FADEC page		
14.3	Repeat test for engine 2 (#1 to IDLE)		

TAXI TO AN AREA SUITABLE FOR HOVER MANOEUVRES

14A NR ILS

		SATIS	REMARKS
14A.1	Select NR/ILS - confirm NR reduction to 98%		

15. TAXI

During taxi, check for satisfactory operation of toe brakes, nosewheel lock and parking brake. Check flight instruments in turns.

15.1 Note off block time. [ ]

		SATIS	REMARKS
15.2	Pilot brakes		
15.3	Copilot brakes		
15.4	Parking brake		
15.5	Nosewheel lock		
15.6	Flight instruments		

16. HOVER / TAKEOFF

Carry out spot turns, sideways and rearwards flight. The tests should be flown at the Flight Manual sideways/rearwards airspeed limits. If this would result in a groundspeed in excess of 20 kts, the speed may be restricted to avoid exceeding this value if desired.

Check for normal control response and aircraft handling. Monitor autopilot performance.

		SATIS	REMARKS
16.1	Note takeoff time.		
16.2	Spot turns left and right		
16.3	Sideways left and right		
16.4	Backwards		
16.5	Autopilot performance, including proper operation of follow-through trim		
16.6	Gentle hover manoeuvres with AP disengaged.		
16.7	After the hover checks, record the MGB temp	°C	and press bar

Takeoff

16.8	Confirm Bleed Valves **OFS** out at 40kt approx.		
16.9	Confirm Nr reduces to 100% between 40-60kt		
16.10	Confirm V_{TOSS} remains at the preset value until reaching V_Y		
16.11	Confirm V_{TOSS} resets to the computed value after reaching V_Y		
16.12	Record landing gear retraction time (max. 16sec)		sec

17. SINGLE ENGINE TRAINING MODE and CLIMB PERFORMANCE

WARNING: Do not allow Nr to droop below 91% or the aircraft will revert to real OEI power with subsequent maintenance penalties.

A: #1 engine

17.1 Reduce speed to below safety pitch on FLI. Select **#2** engine Training Idle switch aft. Confirm **DIFF PWR** is on with <TRAINING> symbol on FLI and <OEI HI> is armed. Increase power to OEI HI on FLI and ΔN1 indicator with Nr drooped to 96%.

CAUTION

The FADEC does not automatically limit TOT, the limit (795 or 800°C depending on modification state) must be respected manually.

Confirm ΔN1 limits at solid red line.

Training OEI HI #1 Engine		

17.2 Lower the collective slightly to allow the Nr to increase to 97 to 98%. Press the OEI LO button on the PH's collective and confirm that OEI LO (Training) is enabled (broken red line).

Training OEI LO #1 Engine		

17.3 Lower the collective slightly to allow the Nr to increase to 97 to 98%. Press the OEI CT button on PH's collective and confirm that OEI CT (Training) is enabled (broken yellow line).

1	Training OEI CT #1 Engine	

17.4 Climb

a) No. 1 Engine

When in Training OEI CT #1 from above test carry out a performance climb.

Test conditions		
	FLI	Training OEI CT
	Nr	96%
	TOT	795 or 800°C depending on modification state
	Bleeds	Off (unless specifically required)
	Landing Gear	Retracted
	IAS	Vy = 80 K**TAS**

(≅ -1 kt / 1000 ft)

When a stable condition has been established on a steady heading with zero sideslip, **record the following:**

										Engine Oil		
Time	**Alt**	**OAT**	**IAS**	**FLI**	**Tq**	**ΔNg**	**Ng**	**T4**	**Nf/Nr**	**Temp**	**Press**	**Fuel**
0												
0.30												
1.00												
1.30												
2.00												
2.30												
3.00												
3.30												
4.00												

17.5 Using PNH's collective OEI buttons, check correct selection of OEI HI, OEI LO and OEI CT settings.

WARNING: Reduce #1 engine N1 to below 90% and torque below 45% before deselecting Training Idle. Nr must **not** be drooped.

Reduce power and select #2 Training Idle to Normal. Maintain speed.

After climb, obtain an accurate OAT by flying at approx mid-climb altitude at climb speed/level flight for 1 min to allow OAT to Stabilise.

Alt		ft
OAT		°C

B: #2 engine

17.6 Select **#1** engine Training Idle switch aft. Confirm DIFF PWR is on with <TRAINING> symbol on FLI and <OEI H> is armed. Increase power to set OEI HI on FLI and ΔN1 indicator with Nr drooped to 96%.

CAUTION

The FADEC does not automatically limit TOT, the limit (795 or 800°C depending on modification state) must be respected manually.

Confirm ΔN1 limits at solid red line.

Training OEI HI #2 Engine		

17.7 Lower the collective slightly to allow the Nr to increase to 97 to 98%. Press the OEI LO button on the collective and confirm that OEI LO (Training) is enabled (broken red line).

Training OEI LO #2 Engine		

17.8 Lower the collective slightly to allow the Nr to increase to 97 to 98%. Press the OEI CT button on the collective and confirm that OEI CT (Training) is enabled (broken yellow line).

Training OEI CT #1 Engine		

When in Training OEI CT #2 from above test carry out a performance climb.

Test conditions		
	FLI	Training OEI CT
	Bleeds	Off (unless specifically required)
	Nr	96%
	TOT	795 or 800°C depending on modification state
	Landing Gear	Retracted
	IAS	Vy = 80 K**TAS**

When a stable condition has been established on a steady heading with zero sideslip, **record the following:**

										Engine Oil		
Time	**Alt**	**OAT**	**IAS**	**FLI**	**Tq**	**ΔNg**	**Ng**	**T4**	**Nf/Nr**	**Temp**	**Press**	**Fuel**
0												
0.30												
1.00												
1.30												
2.00												
2.30												
3.00												
3.30												
4.00												

WARNING: Reduce #2 engine N1 to below 90% and torque below 45% before deselecting Training Idle. Nr must **not** be drooped.

Reduce power to level off and select #1 Training Idle to Normal.

After climb, obtain an accurate OAT by flying at approx mid-climb altitude at climb speed/level flight for 1 min to allow OAT to stabilise.

Alt		ft
OAT		°C

18. POWER ASSURANCE

Switch off P3 air bleeds. Maintain stable flight for 3 minutes at AEO MCP, IAS >120 knots and then conduct M-ARMS RTB acquisition. Recommended to be done at 3000 ft or greater. Ice Detector **OFF**

Record PA figures from gauges as well as those displayed on EPC page.

After flight, compare manually derived margins to those displayed on VMS EPC page.

	SATIS	REMARKS
18.1 M-ARMS RTB acquisition (MCP)		

	Gauges & graph		VMS EPC		
	Eng 1	Eng 2	Eng 1	Eng 2	
N1					%
TOT					°C
Torque					%
N2					%
IAS					Kt
Pressure alt. / Po	ft		hPa		
OAT/T1					°C
TOT margin (Fig 1)					°C
Net Tq margin					%
Net pwr margin (Fig 2)					

Ice detector **ON**

19. AUTOROTATION HANDLING

Note that autorevs are measured at lighter weight, see Appendix 2

19.1 At approx. 80 KIAS carry out 30° banked turns left & right in autorotation	SAT/UNSAT	

20. ENGINE ACCELERATION

At approx. 80 KIAS apply sufficient collective to gently join the needles (minimum 5% torque) then pull to about 6.5 FLI in approximately 3 seconds; check the engine response for absence of surge and observe transient Nr droop.

NOTE

Care must be taken not to increase collective too quickly; carry out practice collective pulls at a slow rate first and progressively increase rate.

	SATIS	REMARKS
20.1 Engine response and absence of surge		
20.2 DIFF POWER light does not illuminate		
20.3 Transient Nr droop		%

21. CRUISE and VNE CHECK

21.1 Carry out 30° banked turns port and starboard. Note satisfactory control response and handling characteristics.

Port	SAT/UNSAT	
Starboard	SAT/UNSAT	

21.2 VNE CHECK

In the cruise at a safe altitude at the speed achieved with MCP, engage ASI and HDG hold and set Vne. Carry out gentle turns left and right and assess the vibration levels. Recover smoothly to a gentle climb.

Altitude Ft	OAT °C	FLI	IAS kt	Vne kt	Fuel kg	Vibration level
						Sat / Unsat

21.3 Fuel System

Confirm satisfactory operation including transfer system.	

22. AVCS

Fly at 80 – 90 KIAS and switch off AFT then FWD AVCS and note any increase in vibration. Switch on AFT then FWD AVCS and note reduction in vibration

		SATIS	REMARKS
22.1	AFT AVCS OFF. Note increase in vibration		
22.2	Both AVCS OFF. Note increase in vibration		
22.3	AFT AVCS ON. Note reduction in vibration		
22.4	Both AVCS ON. Note reduction in vibration		

23. AP AND HYDRAULICS OFF

Fly at 100 KIAS and disengage AP on cyclic. Disengagement should be smooth. Carry out gentle manoeuvres and confirm normal aircraft response. Switch off AP hydraulics, fly gentle manoeuvres and confirm normal response. Switch AP hydraulics ON then re-engage AP; check smooth re-engagement.

		SATIS	REMARKS
23.1	AP disengagement		
23.2	Flight AP OFF		
23.3	Flight AP HYD OFF		
23.4	AP HYD reselection		
23.5	AP re-engagement		

24. STANDBY STATICS

In stable cruise at about 100 KIAS, air bleeds OFF, windows and vents closed, check the standby static system. Switch between normal and standby systems two or three times and note the change in ASI and Baralt indications (both instruments will over read in standby mode, by the values in the table).

		Pilot	Copilot	ISIS	Placard Value	
24.1	ASI difference	+	+	+		knots
24.2	ALT difference	+	+	+		feet

Return the valves to the normal position.

25. AUTOPILOT CHECKS

25.1 Datum Holding, AP 1 & 2 engaged

Establish straight and level flight at 130kt. Check Autopilot performance as follows:

		SATIS	
a)	Without retrimming, displace the cyclic to alter pitch angle by 5º nose-up. Release cyclic and check pitch altitude returns to datum ±1º with minimal overshoot.		
b)	Repeat (a) for 5º nose-down.		
c)	Repeat (a) for 10º left roll.		
d)	Repeat (a) for 10º right roll.		
e)	Note yaw channel performance during c) and d)		

25.2 Datum Holding AP 1 only engaged

Disengage AP 2 and repeat 25.1 a) to e).

a)	Pitch 5º nose-up		
b)	Pitch 5º nose-down.		
c)	Roll 10º left.		
d)	Roll 10º right.		
e)	Yaw channel performance.		

25.3 Datum Holding AP 2 only engaged.

Re-engage AP 2 and disengage AP 1.
Repeat 25.1 a) to e).

		SATIS	
a)	Pitch 5º nose-up		
b)	Pitch 5º nose-down.		
c)	Roll 10º left.		
d)	Roll 10º right.		
e)	Yaw channel performance.		

25.4 Heading Hold Mode

a) At 130 kt approx, straight and level, HDG engaged, make power changes of approx ± 10% Tq
Note satisfactorily heading stability

b) At 130 kt approx, straight and level, set heading index to aircraft heading. Engage HDG mode, move index 90° right and confirm aircraft turns to stbd at max. 20°±2° roll attitude onto selected heading ± 1°.
Repeat for 90° left.

Right		
Left		

25.5 Co-ordinated Turns

At 130 kt approx straight and level, remove feet from pedals and carry out 30° banked turns to port and starboard. Confirm turns balanced within 1 ball width.

Right		
Left		

25.6 Altitude Hold Mode

At 130 kt approx straight and level, engage ALT mode.

Confirm altitude held ± 50ft		
Slowly reduce power by approx 10% Tq.		
Confirm altitude held ±50 ft		

Slowly increase power by approx 10% Tq.

Confirm altitude held ±50 ft

Use cyclic inputs to override Alt hold and note

Excess deviation thresholds

Disengage Alt Hold

-	ft
+	ft

25.7 Airspeed Mode

At 130 kt approx straight and level, engage A/S mode.

Confirm airspeed is held ±5 kt

Slowly reduce power by approx 10% Tq.

Confirm airspeed is held ±5 kt

Slowly increase power by approx 10% Tq.

Confirm airspeed is held ±5 kt

By means of cyclic displacement (not Beep Trim), Decrease speed by 10 kt. Release and note previous speed is reacquired and held ± 5kt

Using the cyclic beep trim, reduce IAS demand by 20 kt. Note the new airspeed is acquired smoothly.

Repeat for a 20 kt speed increase (Do not exceed Vne)

Use cyclic inputs to override airspeed hold and note

excess deviation thresholds:

-	kt
+	kt

25.8 "4-Axis" Mode

At 120kt, straight and level, engage airspeed hold. Using ALT A, set a target altitude approx 1000ft higher then press to arm.

When aircraft stabilises in the climb, reduce the target airspeed to 110 kt

Note new airspeed is acquired with ± 5 kt

Increase target airspeed to 120 kt

Note new airspeed is acquired with ± 5 kt

Note aircraft acquires and holds the target altitude within ± 50ft

Repeat for an altitude 1000 ft lower and a rate of descent of 500fpm		

25.9 Autopilot power limiting operation

In normal cruise, engage IAS and ALT. When stabilised, beep target airspeed to Vne.

25.9.1 Power limited at MCP on FLI with no loss of altitude		

Engage V/S and select climb 1000 fpm

25.9.2 Power remains limited at MCP on FLI		

25.10 CRUISE HEIGHT operation

Fly over water or flat ground and descend to 1000 feet at 100 KIAS. Set both Radalt DH bugs to 200 feet. Engage A/S and HDG. Set the demanded Cruise Height to 250 feet and engage the mode.

CAUTION: Use of Cruise Height is prohibited in IMC over land

25.10.1 Aircraft descends at 500 fpm to 250 feet		
25.10.2 Height maintained ±20 feet		

Use collective beep to adjust height ±50 feet and HDG hold to fly turns left and right.

25.10.3 Aircraft attains new height correctly		
25.10.4 Height maintained ±20 feet in turns		

Without pressing the collective trim release, press down on the collective and descend to below selected 200ft to generate a **FLY UP** warning.

25.10.5 Confirm FND **FLY UP** indications		
25.10.6 Confirm climb back to preset CR.HT		

Climb as required.

26. LANDING GEAR LOW HEIGHT WARNING

If possible, select an area where descent to below 150ft can be made safely and legally (if necessary, delay this test until approach to landing). If an approach to an airfield is made with the landing gear up, advise ATC before the approach of late landing gear extension. Terrain Inhibit may be needed if not at an airfield.
Reduce speed until the red L/G warning illuminates. With IAS below 100kt, reduce height until the audio warning sounds, which should be 150ft Radalt (NORM)

26.1	L/G warning on at 60kt +/- 5kt		
26.2	TAWS "Too low, Gear" at 150ft (V-26, tone only for –24)		

Recover to a safe altitude.

27. LANDING GEAR EMERGENCY OPERATION

At approx Vy, with the normal L/G lever UP, pull the emergency L/G extension handle UP and start a timer. Select the normal L/G lever DOWN. Check the following:

27.1	Pump light ON		
27.2	L/G extends correctly (3 greens)		
27.3	Extension time (should be <2 minutes)		

CAUTION: If the landing gear is not fully extended within two minutes, switch off the pump and allow to cool for 5 minutes. Reduce speed to Vy and run the pump again. Do not allow the pump to run for longer than two minutes as it will overheat and may cause an electrical fire.

Push the Emergency L/G extension handle DOWN. Confirm:

27.4	Pump light OUT		
27.5	L/G correct indications remain (3 greens)		

Retract the L/G normally.

28. GO-AROUND MODE

With IAS and HDG selected, descend at 50 KIAS and 500 fpm, and select a heading change. When stabilised in the turn, press GA on the collective.

28.1	<G.A> is annunciated on FND		
28.2	IAS demand selects 80kts (Vy)		
28.3	V/S demand selects to 1000 fpm ROC		
28.4	HDG remains engaged		

29. COUPLED ILS (Optional test)

Fly a 4-axes coupled ILS. Confirm all indications correct and satisfactory performance of autopilot. Allow aircraft to descend to 80ft “Level Flight”.

29.1	ILS Indications		
29.2	Autopilot performance		

30. RUNNING LANDING

Carry out a running landing at 30 kt groundspeed (40kt limit) with the nosewheel lock IN and confirm absence of nosewheel shimmy.

30.1	Confirm no shimmy		
30.2	Note landing time		

31. ELECTRICAL CHECKS

Before shutdown, conduct the following checks. With both engines in FLT, switch each Alternator and TRU OFF then ON in turn and confirm no consumers lost.

31.1	Alternator 1		
31.2	Alternator 2		
31.3	TRU 1		
31.4	TRU 2		

Switch of BOTH Alternators. Check that the Secondary DC Bux 3PP is lost, but the Essential DC Bus 2PP remains available.

31.5	Bus Tie Open light **[** **]** ON		
31.6	Secondary DC Bus shed		
31.7	PP21 available (Cockpit strip light)		
31.8	PP22 available (Storm Light)		
31.9	PP23 available (Pressure Refuel)		
31.10	PP24 available (Ice Detector)		
31.11	PP25 available (TAWS)		
31.12	PP26 available (VOR 2)		
31.13	PP27 available (VHF 2)		
31.14	PP28 available (Radalt)		

Switch the Emergency Electrical Generator ON and start the clock.

31.15	PP21 shed (MFD 3, AHRS 1)		
31.16	PP22 shed (EID 2, ADU 1, MFD 4)		
31.17	PP23 shed (Pressure Refuel)		
31.18	PP24 shed (Ice Detector)		
31.19	PP25 shed (FMS)		
31.20	PP26 retained (MFD 1, MFD 2)		

After approximately 2 minutes:

31.21	Confirm **<FLOW>** ON with approx. 28V on Emergency Supply		

Switch both Alternators back ON and then deselect Emergency Electrical Generation.

31.22 Check functioning of all external lighting:

Anti-collision	
Strobes	
Position	
Dinghy	
Floods	
Landing	

32. SHUT DOWN CHECKS

Continue with normal engine shutdown, noting the rotor audio warning thresholds; apply the rotor brake at 45% Nr and check the rotor stops within 6 – 11 seconds.

32.1	Low Nr audio ON (95% Nr)		Nr
32.2	Low Nr audio OFF (70-75% Nr)		Nr
32.3	Rotor brake stopping time		Sec
32.4	Note Shut Down Time		

33. POST FLIGHT ACTION

33.1 Power Assurance (see 18)

Determine the power margin and thermal condition from the relevant charts in the flight manual and compare with VMS figures (enter data in section 18). Note that a power margin rather than a torque margin is given. An estimation of the torque margin can be obtained by dividing the power margin by 2 (in cool/medium altitude conditions).

	Graph values		
	Eng 1	Eng 2	
TOT margin			°C
Net power margin			%
Net torque margin			%

33.2 Performance Climb (see section 17)

Plot the data and determine the achieved rate of climb. The scheduled performance must be obtained from the flight manual and compared with the achieved performance.

	Eng 1	Eng 2	
Mean Alt			ft
OAT			ºC
AUW			Kg/lb
Achieved RoC			fpm
Schedule RoC			fpm
Delta ROC			fpm

33.3 AUTOREVS

Appendix 2

Compare the achieved Nr with the target value from Figure 1 of this schedule.

Attempt	1	2	
Altitude			ft
OAT			°C
Zero fuel mass			kg
Fuel			kg
Aircraft mass			kg
Achieved Nr			
Target Nr			
Delta Nr			

Figure 1 Scheduled minimum Nr in autorotation
Figure 2 Regulated Nr

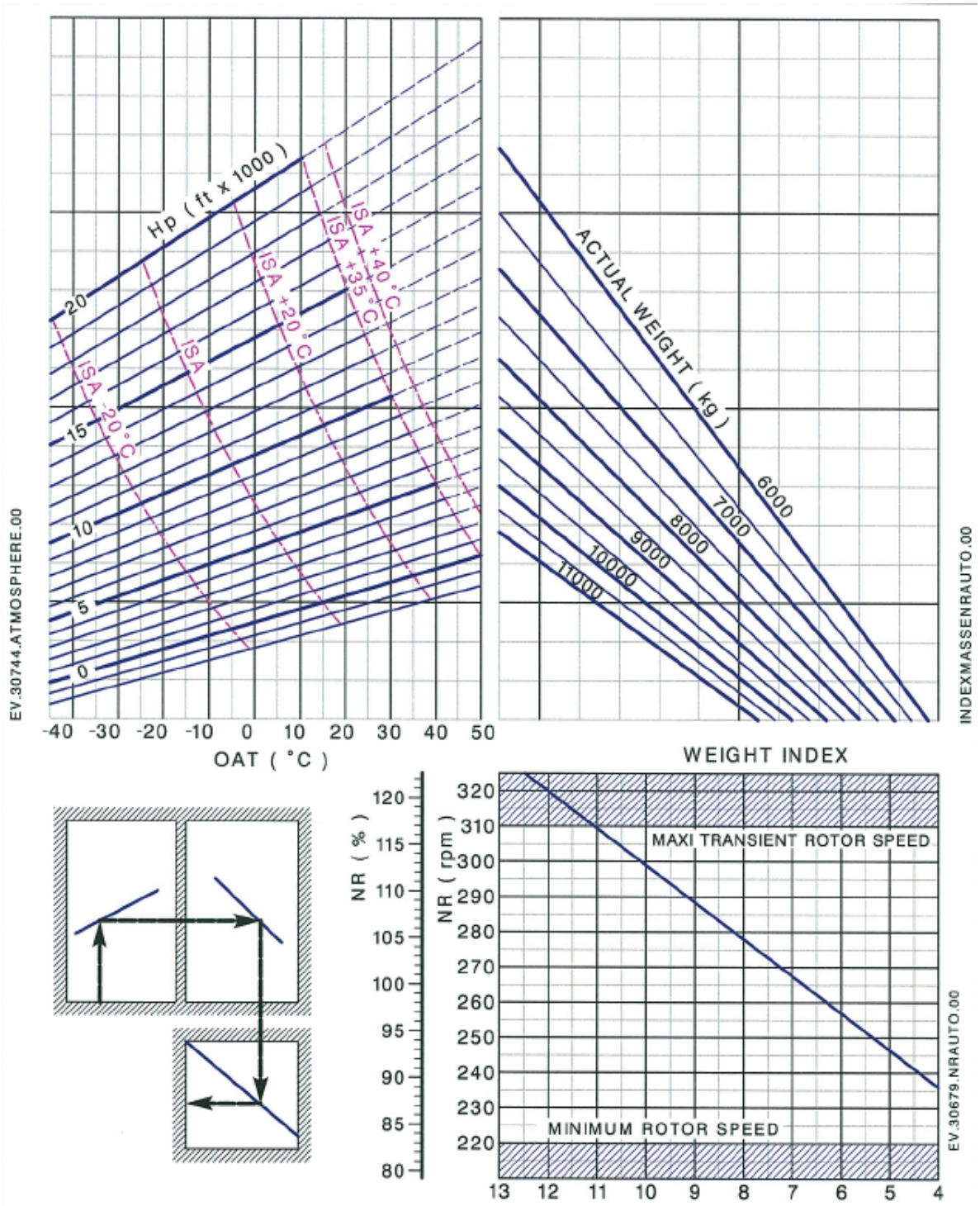
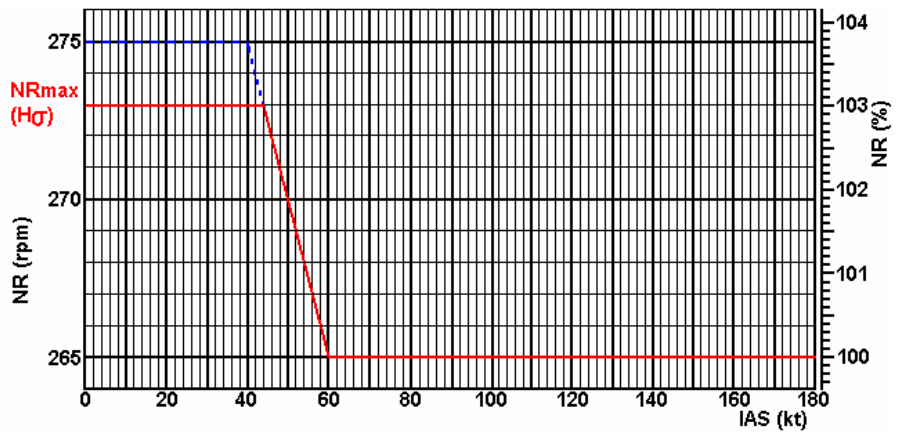


Figure 1 – Scheduled Minimum Nr
Source: Flight Manual Section 10.4 Figure 1



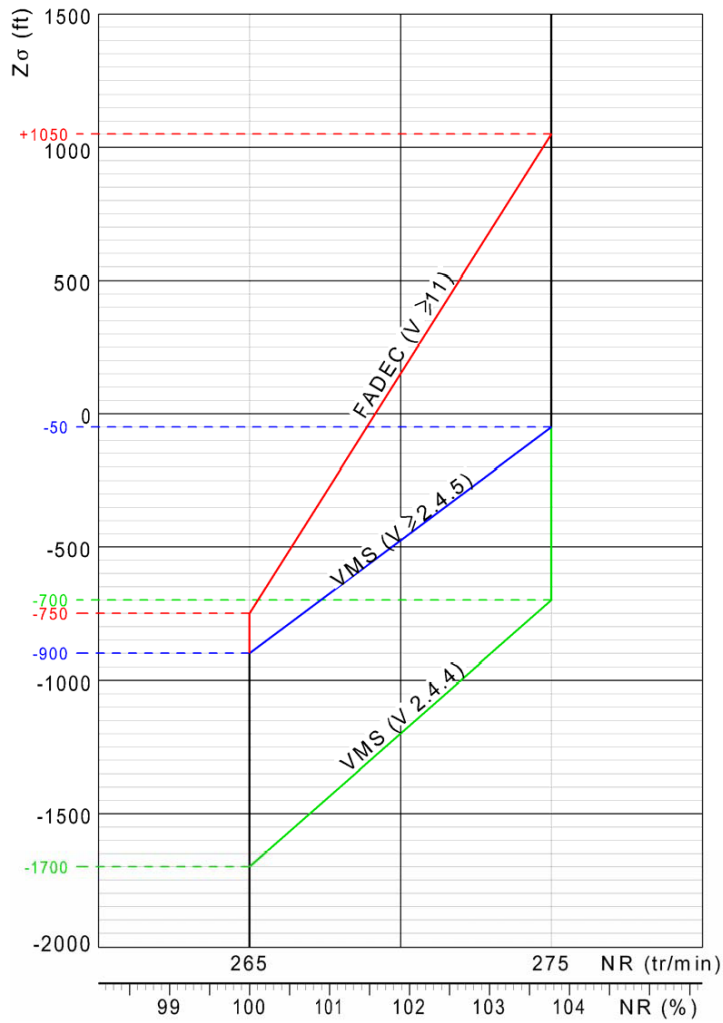


Figure 2 – Regulated NR. Source: Flight Manual Section 7.3

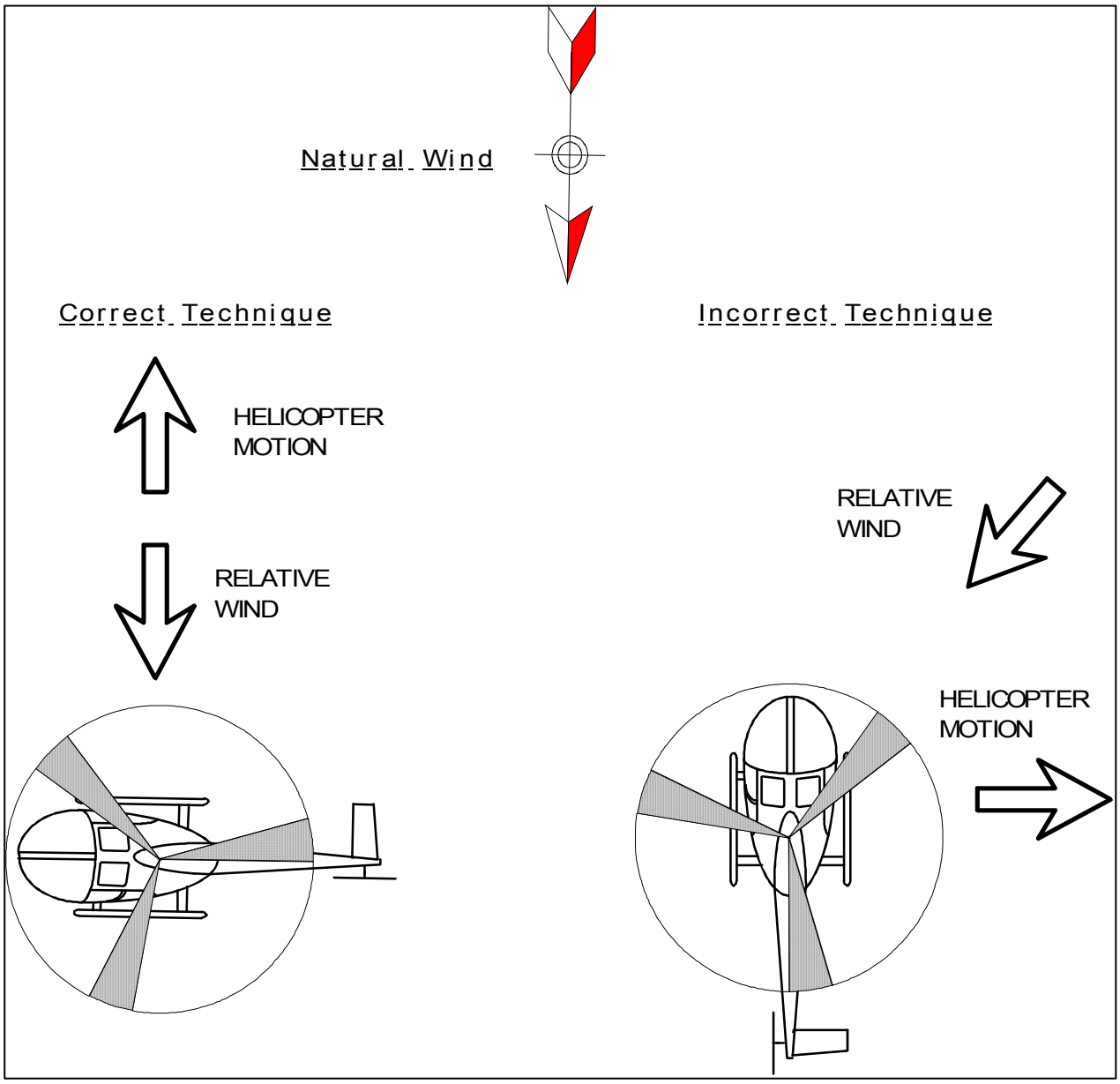
Note that later versions of this Figure may be published.

APPENDIX 1

SIDEWARDS & REARWARDS FLIGHT

For the sidewards flight tests the helicopter should be rotated so that the natural wind is on the side of the aircraft. The aircraft should then be gently accelerated into the wind and stabilised. The mean natural wind should be added to the estimated ground speed to give the required relative air speed.

For rearwards flight the helicopter should be aligned tail into wind and gently accelerated rearwards to achieve the required relative airspeed.



APPENDIX 2

AUTOROTATION RPM

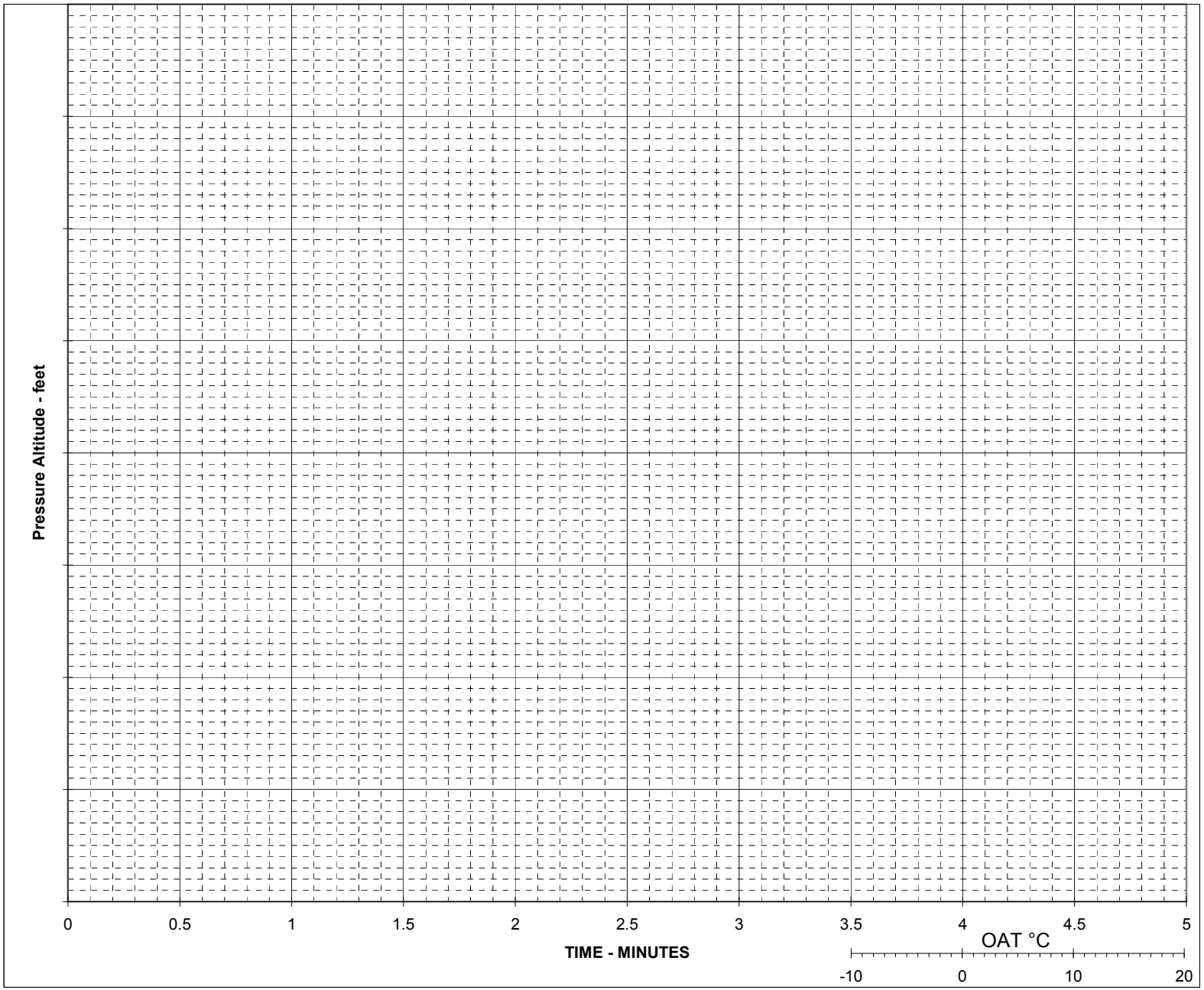
AUTOROTATION

At a safe altitude and with 1013 hPa set on an altimeter subscale, carry out a gentle entry to autorotation at Vy (80 KIAS –1/1000 ft). The collective should be at minimum pitch, with zero torque and a positive Nr/N2 split. The Nr limits of 109.5% (117% transient) are NOT to be exceeded. If these conditions cannot be met, make a further attempt when the aircraft mass has reduced.

As a guide, target Nr at 8500 kg at 2000 ft pressure altitude and +10°C is 109%.

Once established in autorotation, record the following information when passing a suitable altitude:

Attempt	Altitude Ft	OAT °C	Nr	N2 #1	N2 #2	Fuel kg
1						
2						



AIRCRAFT TYPE
REGISTRATION
DATE OF TEST

Mean Weight
No 1 _____ Kg
No 2 _____ Kg

Mean Altitude
No 1 _____ feet
No 2 _____ feet

Mean OAT
No 1 _____ °C
No 2 _____ °C

ACHIEVED ROC
No 1 _____ ft/min
No 2 _____ ft/min

SCHEDULED ROC
No 1 _____ ft/min
No 2 _____ ft/min

DELTA ROC
No 1 _____ ft/min
No 2 _____ ft/min