CHECK FLIGHT CERTIFICATE

Agusta A109E and S **PW 206C, PW 207C**	**CFS 306 issue 2**	Registration:

Date:	Crew:	Observer:

Performance	Climb #1	Climb #2	
Average Weight			
Average Altitude			ft
Average Temp.			°C
Speed			IAS
Achieved Rate			fpm
Scheduled Rate			fpm
Margin			fpm
Permitted Margin	-20	-20	fpm

Airfield:	
Start Weight	Kg:
Takeoff cg:	
Performance: SATIS/UNSATIS/NOT 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 flight test certificate given in the schedule.

Registration: If the aircraft is not on the UK register, add the manufacturers 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 airtests on the 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 an airtest 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

Agusta A109E and S **CFS 306 Issue 2**
PW 206C PW 207C

Registration

Test Dates

1. INTRODUCTION

This scheduled is applicable only to the Agusta A109E and S helicopter. It is based on the assumption that the every day operation of the helicopter services as a continuous check on the functioning of all normal services.

The Flight Test must be carried out by an experienced pilot acceptable to the AW 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 this Schedule any characteristics which are considered to be unsafe or undesirable must be recorded.

The minimum crew for this flight is to be increased by a flight observer.

WARNING

1. Although it may be legal to carry passengers on a Check flight with a Certification of Airworthiness in force it is strongly recommended, for Check Flights 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.

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

3. If a clipboard or kneeboard is used to record the results there is a possibility of fouling the controls especially the duals, if fitted. To reduce this possibility, the pilot must have briefed the observer on the need to ensure that the clipboard is well clear of the controls especially during manoeuvres requiring large control deflections such as low speed envelope and autorotation. The pilot should monitor the position of the clipboard during the flight to ensure that it is not in a potentially hazardous position. Whenever possible, flexible, rather than rigid, clipboards should be used. Consideration should be given to removing the dual controls if flying with an inexperienced observer.

Should there be any query about the Flight Test or its results, the Flight Test Section at Airworthiness Evaluation & Surveillance, Airworthiness Division, Aviation House, Gatwick must be consulted.

It is permissible for this Schedule to be completed on separate flights and dates provided the loading for each flight is clearly stated. All defects from all flights must be recorded on the Flight Test Certificate even if rectification work has been carried out between flights.

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

Operator/Maintenance Organisation		Registration	
		Flight Date	
Aerodrome		Pilot	
		Observer	

Weather	

Aerodrome altitude			QFE/QNH		
Wind velocity/direction			Ground Temp	
Take-off time			Landing Time	

2. LOADING

If possible the aircraft is to be loaded with full fuel and any necessary ballast to achieve a take-off weight of A109E 2850 Kg, A109S 3175 Kg. Note that it is not desirable to load the A109E to above 2850 kg as the low speed controllability and Vne limits are reduced. For the autorotation rpm test the weight will need to be lower (approximately 2600/2700 Kg,). The C.G. should be approximately in the neutral position.

Take-off weight (actual)		Kg
Fuel contents		
C.G. position		mm aft of datum

3. PRE-FLIGHT INFORMATION

Aircraft model	
Constructors No.	
Total airframe hours	
Floats?	

Engine model		
Serial number		
Hours run since new		
Hours run since overhaul		

4. PRE-FLIGHT CHECKS

Carry out the normal external inspection.

Nav and anti-collision lights	
Landing lights	
Note emergency flotation cylinder pressure, if fitted.	
Note fire bottle pilot-light status	

Carry out the normal pre-flight inspection.

Doors and transparencies: Conditions and operation	
Seats and harnesses	
Placarding: Legibility and accuracy	

Instruments: Legibility and accuracy of colour bands and markings. General condition.

ASI	
IDS	
All other instruments	

ENG GOV to MANUAL. Gently move No1 and then No.2 Power Levers throughout the range of travel, check for adequate friction and lack of binding.	

Freedom, range of travel, adjustment of yaw control	

With battery switch on, check:

Warning/Caution/Advisory panel. Press TEST for less than 6 seconds, check that the vocal alarms are *not* heard.	
Repeat with the TEST held for greater than 6 seconds, check the following vocal alarms are all given: Rotor low, Engine 1 out, Engine 2 out, Engine 1 fire, Engine 2 fire, Warning, Rotor high, Landing gear, (200 ft 109S only),150 ft.	

Engine Fire Extinguisher

Pull CB's FIRE EXTING 1 & 2
Fuel shut off valves – ON
Press S/OFF FIRE push-button of No.1 and No.2 engines
In turn, check operation of fuel shut-off valves.
Push S/OFF FIRE to reset valves and reset CB's

Engine Start:

Check rotor brake caution illuminates with brake on
Disengage rotor brake,caution light out

During engine start up, check and record:

	Eng 1	Eng 2
Residual TOT		
Maximum TOT		

Gas Producer speed at commencement of Main Rotor rotation (25% maximum)

Both flight hydraulic systems, pressure available immediately on rotor engagement.

Ground idle N2/Nr 65 ± 1%

Record fuel pump pressures:

No1		No2	

Before Take-off Checks complete ?

5. TAXIING CHECKS

Taxy time

5.1 Check efficiency of parking brake when applied from a taxy at 5Kts.

5.2 During taxi, depress pilot's brakes and insure that the aircraft comes to a smooth controlled stop with no indication of binding or swerving.

5.3 Turns :

Perform a ground taxi turn to the right by depressing the right pedal. Increase to a tight turn. There should be no indications of binding in the pedals.
(Do not depress the brakes during this check).

Repeat the check in a ground taxi turn to the left.

6. HOVER CHECKS

Take-off to low hover and record the following:

Take-off time

ENG	TORQUE	TOT	N_R	PRESS ALT	OAT
1					
2					

7. LOW SPEED ENVELOPE

7.1 Helipilot engaged in ATTD mode. See Appendix 1 for test method. Assess the vibration level, control response and position (adequate control margin) during the following manoeuvres. The tests should be flown at up to the Flight Manual limit. If this would result in a groundspeed in excess of 20 kts, the speed may be restricted to avoid exceeding this value if desired.

a) Axial turns left and right

b) Sideways flight left and right

c) Rearwards flight

7.2 Disengage Helipilot/auto flight system and carry out gentle hover manoeuvres (it is not necessary to fly sideways/rearwards up to limit speeds).

Re-engage Helipilot/auto flight system, note smooth re-engagement.

8.1 SINGLE ENGINE CLIMB PERFORMANCE *ENGINE No 1*

Set No 2 engine mode switch to idle at approximately Vy. With the altimeter set to 1013 mb (29.91 in hg) climb at OEI Maximum Continuous power at the scheduled en-route climb speed, landing gear retracted, for 4 minutes. Note that use of maximum continuous OEI power is permitted by the Flight Manual for maintenance purposes.

Conditions

	A109E	A109S
Torque %	**124**	**133**
TOT °C	**885**	**900**
N_1 %	**100.4**	**99.7**
N_R %	**100**	**100**
IAS Kts	**60**	**75 – 2/1000 ft**

Time	Alt	OAT	IAS	Torque	TOT	N_1	N_R	Engine Oil Temp	Engine Oil Press	Fuel
0										
0.30										
1.00										
1.30										
2.00										
2.30										
3.00										
3.30										
4.00										

After the climb, obtain an accurate OAT by flying at approximately mid-climb altitude at Vy in level flight for 1 min. to allow OAT to stabilise

Alt	
OAT	

Reset no 2 Eng Mode switch to Flight

8.2 SINGLE ENGINE CLIMB PERFORMANCE *ENGINE No 2*

Set No 1 engine mode switch to idle at approximately Vy.

Conditions

	A109E	A109S
Torque %	124	133
TOT °C	885	900
N_{1} %	100.4	99.7
N_{R} %	100	100
IAS Kts	60	75 – 2/1000 ft

Time	Alt	OAT	IAS	Torque	TOT	N_1	N_R	Engine Oil Temp	Engine Oil Press	Fuel
0										
0.30										
1.00										
1.30										
2.00										
2.30										
3.00										
3.30										
4.00										

After the climb, obtain an accurate OAT by flying at approximately mid-climb altitude at Vy in level flight for 1 min. to allow OAT to stabilise

Alt	
OAT	

Reset no 1 Eng Mode switch to Flight

9. POWER ASSURANCE

Carry out an **in-flight** engine power check on each engine in turn in accordance with the **Flight Manual Section 4**.
Allow conditions to stabilise then record.

ENG	PRESS ALT	OAT	TORQUE	TOT	N_1	N_2	CHART TOT	CHART N1	ΔTOT	ΔN1
1										
2										

10. HANDLING

Note:-

It is permissible to carry out 10.3 (autorotation) before 10.1 and 10.2 if the helicopter is at high altitude after performing items 8 and 9.

10.1 Cruise

10.1.1 At a normal cruising speed and power, check and record the following items:

	PRESS ALT	*IAS*	*OAT*	*ENGINE*	*N1*	*TOT*	*TORQUE*
PILOT				1			
CO-PILOT				2			
STANDBY (If fitted)							

Altimeters. Check for proper operation and agreement. e.g. no excessive lag and smooth operation	
ASI's should agree to within ± 5 knots.	

Check VSI's for correct operation.	

	Δ Alt	ΔSpeed
Select ALTERNATE static source. Note altitude and speed increase. Maximum permitted 300 ft.		

10.1.2 At normal cruise power and speed carry out steep turns left and right.

Vibration level	
Control response	

10.2 Maximum Speed Test

10.2.1 Determine Vne from placard before next test.

Increase speed progressively to placarded V_{NE} using maximum continuous power.

10.2.2 Carry out gentle turns (up to 20° left and right).

Note: Vibration level

Control response

10.3 Autorotation

10.3.1 Carry out a steady autorotative descent at 70 KIAS (75 KIAS for 109S) with the collective lever fully down (maintain power levers in FLIGHT position).

ALT	OAT	IAS	N_R	N_2	N_1 #1	N_1 #2	FUEL STATE

NOTE:

Do not exceed power off rotor rpm limitations (90 to 110% for 109E), (95 to 110% for 109S).

10.3.2 Carry out turns (up to 30° AOB) left and right in autorotation.

10.4 Rapid Engine Acceleration

Set 60% torque (LD-SH switch in matched torque position) and note approximate collective position. Maintain power levers in FLIGHT position and descend with approximately 5% torque set at approximately 70 KIAS. Increase collective to give about 60% torque in not less than 3 seconds. Check there is no tendency for surge and satisfactory engine response.

NOTE 1

Care must be taken not to increase collective too quickly; carry out practice collective pulls at a slow rate first and progressively increase rate. Increase collective to the approximate position noted at 60% matched torques.

NOTE 2

Do not reduce below N_R limit (99% 109E) (95% transient 109S).

Note: Engine response

Transient droop N_R%

11. HELIPILOT/AUTO FLIGHT CHECKS

11.1 At approximately 135 KIAS with both channels engaged check the aircraft returns to its original attitude, with a maximum of one slight overshoot, after the following disturbances:-

In ATTD mode check that autotrim is not engaged

i) Pitch

a) Without re-trimming alter pitch attitude by 5° nose up in less than 2 seconds then release cyclic. (Note this is a 5° change of attitude not 5° nose up absolute).

b) Repeat nose down.

ii) Roll

a) Alter roll attitude by 10° left in less than 2 seconds then release cyclic.

b) Repeat 10° right.

iii) Yaw

Note satisfactory yaw channel functioning during i) and ii).

11.2 Reduce speed to **120 KIAS** and repeat 11.1 with only one channel engaged.

i) Pitch Channel 1

a) 5° nose up.

b) 5° nose down

ii) Roll Channel 1

a) 10° left

b) 10° right

iii) Yaw Channel 1

Note satisfactory functioning.

i) Pitch Channel 2

a) 5° nose up.

b) 5° nose down

ii) Roll Channel 2

a) 10° left

b) 10° right

Re-engage Channel 1, Autotrim ON

11.3 During the flight test check that when making 30° bank turns without using the trim release or cyclic trimmer, the fly through capability is retained (control forces do not *continue* to increase during the manoeuvre).

11.4 <u>ALTITUDE HOLD</u>

i) At a normal cruise speed engage ALT hold,

ii) Check altitude is held ±50 ft.

iii) With heading hold also engaged gently reduce torque by about 20%. Check altitude is held within 100 ft of datum and then returning to datum ± 50 ft.

iv) a) At 120 KIAS engage VS mode and select a rate of climb of 500 fpm. When rate of climb has stabilised engage ALT mode and check altitude returns to level at engagement after maximum of 100 ft overswing.

b) Repeat with a 500 fpm rate of descent.

11.5 <u>AIRSPEED HOLD</u>

i) a) From trimmed level flight at 130 KIAS with fixed collective and heading hold, move cyclic aft against trim and establish approximately 120 KIAS. Release cyclic and check that the aircraft smoothly returns to the trimmed condition ± 5 kts.

b) Repeat with forward cyclic to 140 KIAS (do not exceed V_{NE}).

c) Check airspeed trim rate (cyclic trimmer) is approx 2 Kts/sec

11.6 HEADING HOLD

i) Check correct operation of heading hold during flight at normal cruise speed.

ii) At 130 KIAS in level flight with feet off the pedals slowly increase and decrease collective to give a ± 10% torque change, check heading maintained.

11.7 NAV COUPLING

At a typical cruise speed check tracking in NAV mode

11.8 SAS MODE

At a typical cruise speed check operation in SAS mode during straight flight and turns.

11.9 SAS OUT

At 110 KIAS disengage both SAS 1and 2. Carry out turns, climbs and descents. Check smooth disengagement/re-engagement.

11.10 ILS (Optional)

Carry out a coupled ILS at 110 to 120 KIAS. Check correct operation of auto level (if equipped with radar altimeter) and go-around mode (see 11.11 (f) for commanded values in GA).

11.11 Go-Around Mode (if optional 11.10 not carried out)

a) Align the heading bug with present heading.

b) Set up 110 to 120 KIAS, 500 fpm descent (VS mode) landing gear down.

c) Engage HDG mode.

d) Rotate heading bug left or right 90° to establish 20° to 25° bank angle.

e) Engage GA mode when bank angle is 20° to 25°.

f) Check GA commands wings level and then constant heading and for the A109E (depending on modification state):
750 fpm climb (-103 wiring) or,
1000 fpm at approx 80 KIAS (-107 wiring).
For the A109S: 750 fpm at speeds above 65 KIAS
Adjust power using collective cue.

Re-engage HDG

g) Rotate heading bug left or right 30° and check new heading is acquired.

12. FUNCTIONING

12.1 Check the following items for satisfactory functioning:

Windscreen demisting system	
Heater	

12.2 Landing Gear

Vocal warning 'LANDING GEAR' below 200 ft with gear up.	
At 120 KIAS record: Time to lower	
Time to raise	

12.3 Hydraulic Systems

At 100 KIAS switch off HYD 1 carry out gentle turns switch through to HYD 2 off. Check for any cyclic control load or jump Reslect	

13. LANDING

13.1 Tail Rotor Control Loads (only applicable to A109E fitted with tail bias spring or 'plastic' blades and A109S).

At 60 KIAS deselect No1 hydraulic system and carry out an approach to the hover (into wind). The pedal force should not exceed approximately 35 Kg (80 lbs), precise measurement not required. Transition into forward flight and reselect Hyd 1	

13.2 If a hard surface is available, carry out running landing at up to 30 Kts groundspeed with nosewheel locked.	
13.3 Confirm no tendency for lateral padding or resonance during a smooth landing with a gentle collective lowering.	

NOTE Should any divergent oscillations be noted, lift off immediately and carry out a normal landing, consider repositioning the helicopter.

Landing time.	

14. SYSTEMS CHECKS

14.1 Electrical System Checks

The following tests are applicable to Emergency Bus Bar System, if not fitted see appropriate RFM pages for equipment that should remain on-line or be lost. Complete boxes in both cases.

Emergency Bus Bar system fitted?	Yes	No

a) **Single Generator Failure**

Switch off each generator in turn, no services should be lost. #1 (#2) DC GEN caution light.
Both generators back on.

b) **Failure of One Generator and Associated DC Bus**

Switch off GEN 1 and GEN 1 BUS.
Caution lights: #1 DC GEN and BUS TIE
All loads on #1 Bus lost and both copilot EFIS.

Check following loads on Emerg Bus #1 maintained:

Fuel quantity
Force trim
SAS 1
Attitude engage
Landing gear position indicator
INV 1

Reselect GEN 1 and GEN 1 BUS

Switch off GEN 2 and GEN 2 BUS
Caution lights #2 DC GEN, BUS TIE, INV 2 and SAS 2 OFF

All loads on #2 Bus and pilot EHSI are lost.

Check following loads on Emerg Bus #2 maintained:

Fuel quantity
Pilot Intercom system
ADI standby
Pilot cockpit wander light
VHF No 2
Pilot EADI
EDU No 2 (EDU No 1 also functioning from No1 system)

Reselect GEN 2 and GEN 2 BUS

c) **Failure of Generator Bus(es)**

Switch off GEN 1 BUS, BUS TIE caution light illuminates. No loads lost. Leave switch in off position.

Switch off GEN 2 BUS, BATT DISCH caution illuminates after a few seconds.

Switch battery off, EDU Primary (No 1) lost, check SAS 1 or 2 can be engaged.
Switch on battery and both GEN BUS.

d) **Failure of One Generator and Other Bus**

Switch off GEN 1 and GEN 2 BUS.
Caution lights #1 DC GEN, BUS TIE and BATT DISCH

Switch battery off, ELECTRICAL Warning, EDU Primary lost. Caution lights BATT OFF,
INV 1 and SAS 1 OFF. Copilot's EADI and EHSI lost.

Check the following loads on Essential Bus 1 and DC Bus 2 retained:

VOR 2
ADF
Comm 2
Standby ADI
SAS 2
Pilot's EADI & EHSI

Reselect battery *then* reselect GEN 1 and GEN 2 BUS [Reset INV if necessary]

Repeat for GEN 2 and GEN 1 BUS, Caution lights:
#2 DC GEN, BUS TIE, BATT DISCH
Switch battery off, ELECTRICAL Warning, EDU Primary lost. Caution lights BATT OFF,
INV 2 and SAS 2 OFF. Pilot's EHSI lost, pilot's intercom lost.
Check the following loads on Essential Bus 2 and DC Bus 1 retained:

VOR 1
ATC Transponder
Comm 1 (only functions when FAIL selected on ICS)
SAS 1
Copilot's EADI and EHSI

Reselect battery *then* reselect GEN 2 and GEN 1 BUS [Reset INV if necessary]

e) **Failure of both Generators**

Switch off GEN 1 and 2
ELECTRICAL Warning and BATT DISCH

All loads maintained

Carry out Flight Manual procedure:

Pilot wander light on
GEN 1 BUS & GEN 2 BUS off

Check that SAS 1 can be reselected (or remains on)

Fuel pump 1 and 2 off (A109E only)

Emergency Bus 1 and 2 supply power, check the following are still powered:

A109E:

Attitude engage (check ATTD HOLD switch position)
Fuel quantity
Force trim
Intercom system pilot (check by transmitting, VHF #2)
Landing gear position indicator
Landing light
Pilot EADI
Standby ADI
EDU No 1 & 2
VOR #2

A109S:

See List in RFM (for example, Page 3-55 at Rev 0, page number may change at later revision)

Reselect all systems.

f) **Inverter Failure**

Switch off INV 1, Caution light INV 1
Check INV 2 powers 115 and 26V busses of the failed inverter, SAS 1 & 2 operational (re-engage if necessary).

Reset INV 1
Switch off INV 2, check INV 1 powers SAS 1 & 2

Reset inverter

14.2 Intercom System checks

Note that individual systems may be configured in a different way, if the following is not appropriate a suitable check should be devised.

Pull CB PLT INTERCOM on overhead panel.

Push ICS FAIL/NORM button on central pedestal to FAIL.
Check intercom and VHF 1 transmit still functions.
Reset CB.

Check pilot's foot transmit switch functions.

14.3 Radio Master

Switch off radio master 1 & 2
Pull CB's RADIO MASTER OVRD 1 & 2
Check radios still function

Reset switches and CB's

14.4 Engine Shutdown

Shutdown the engine.

If rotor brake is fitted check for satisfactory operation from 40%

Cockpit lighting.

15. POST FLIGHT ACTION

15.1 Performance Climb

Plot out the data on the analysis sheet provided and determine the achieved rate of climb (RoC). The scheduled performance must be obtained from the flight manual (For example, 109E Figure 4-20 to 4-22 at Rev 23, Fig number may change in future revisions) and compared with the achieved performance.
Record the results on the front sheet (Check Flight Certificate).

15.2 Power Assurance

Use the Power Check Chart in the Flight Manual to determine the scheduled TOT and N1 and record the values in section 9.

15.3 Autorotation RPM

For A109E Chapter 62 Fig 62-5 for scheduled N_R

For A109S Chapter 18 A109SOB-A-18-10-01-00A-373A-A Figure 2

Achieved N_R	–	Scheduled N_R	=	

Record of Changes

Changes from Issue 1 to Issue 2.

Add References to ‘S’ model.

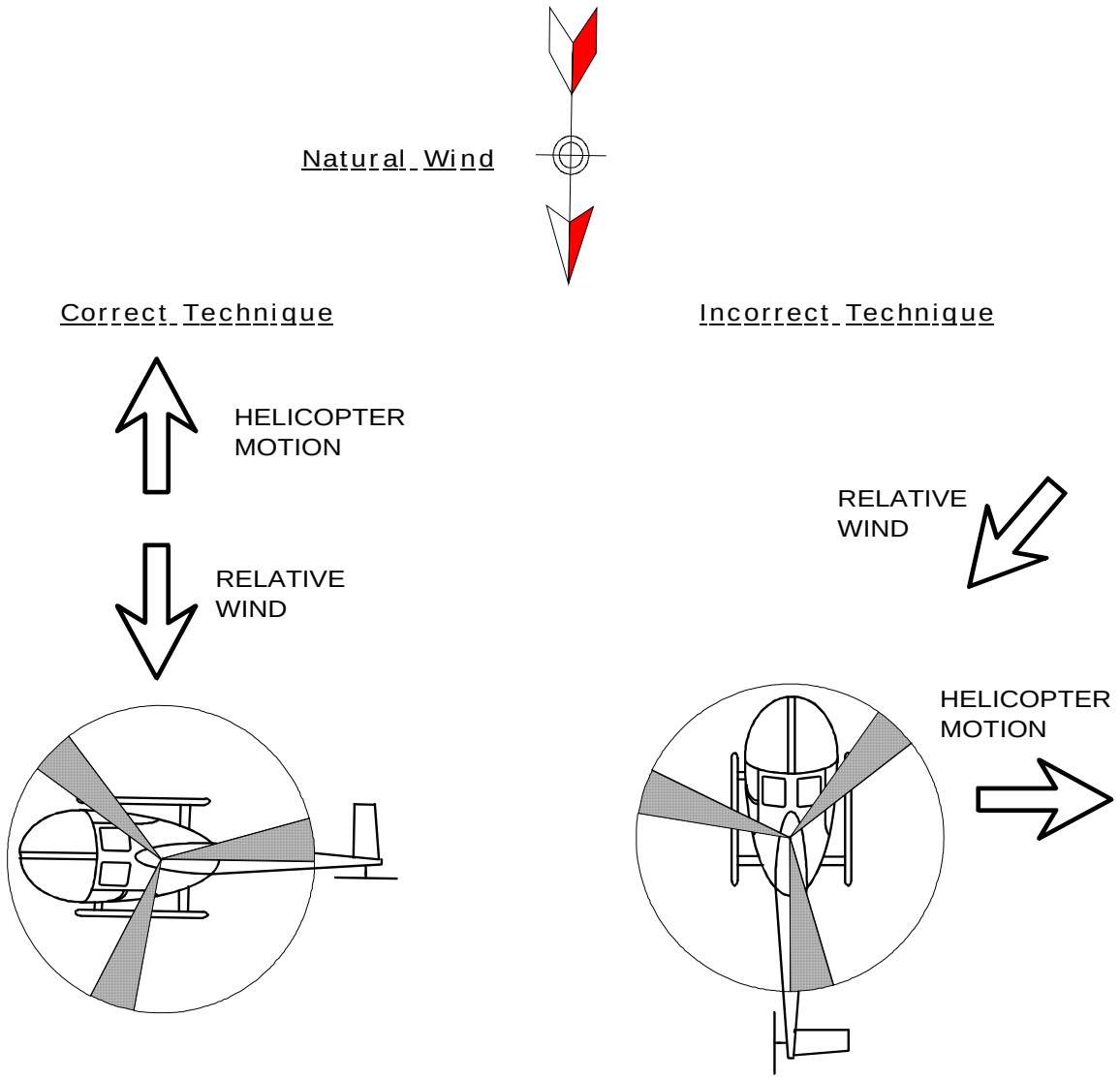
Page 4	Change to “Check Flight Handbook”. Remove “CAA” before approved Flight Manual (e.g. EASA FM may be used). Change address.
Page 5	Change loading values to include ‘S’ model and add note for 109E to be not above 2850 kg.
Page 6	Add instruction to select MANUAL for Power Lever check. Vocal alarm at 200 ft for ‘S’ model.
Page 8	Replace 30 kts with “Flight Manual limit”. Remove restriction on exceeding 20 kts groundspeed (now optional). Add auto flight system for ‘S’ model.
Page 9/10	Add ‘S’ model conditions.
Page 11	10.1.2 Remove 30° AOB and replace with “steep turns”.
Page 12	Add speed for ‘S’ model autorotation. 10.4 add N_R limit for ‘S’ model.
Page 14	11.5 Correction of error (collective trimmer to cyclic trimmer).
Page 15	11.11 Add ‘S’ model values and instruction to re-engage heading.
Page 16	13.1 Add applicability of test.
Page 17	Add instruction for aircraft not fitted with Emergency Bus Bar System.
Page 20	15.1 Minor change to wording. 15.3 Add references to scheduled N_R.

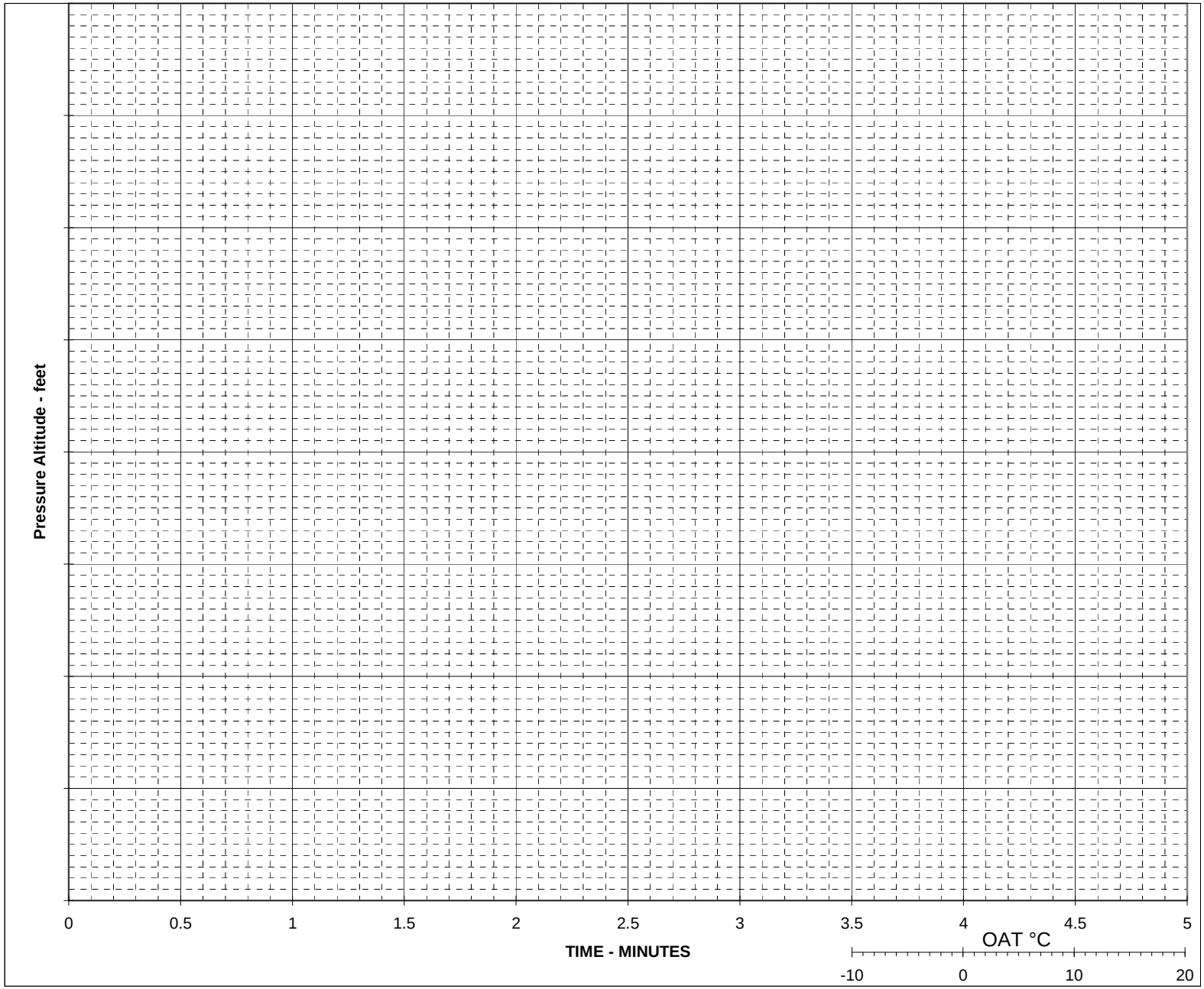
APPENDIX 1

SIDEWAYS AND REARWARDS FLIGHT

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

For rearwards flight the helicopter should be lined up tail into wind and gently accelerated rearwards to achieve the required relative air speed.





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