

REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - ANAC

TYPE CERTIFICATE DATA SHEET Nº ER-8809

Type Certificate Holder: (See Note 7)

EUROCOPTER FRANCE

Aeroport International Marseille-Provence
13725 Marignane
FRANCE

ER-8809-04
Sheet 01

EUROCOPTER

AS 355 F1,
AS 355 F2,
AS 355 N

August 2006

I - Model AS 355 F2 (Normal Category), approved 22 July 1988.

ENGINE	2 Allison 250-C20F (See TCDS n.º EM-8212)
FUEL	JP-4, JP-5, Jet A, Jet A-1 and Jet B (See RFM for emergency fuels.)
ENGINE LIMITS	<p>Take-off:</p> <ul style="list-style-type: none">- torque: 406 N.m (78%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp: 810° C <p>Maximum continuous power:</p> <ul style="list-style-type: none">- Normal Operation:<ul style="list-style-type: none">- torque<ul style="list-style-type: none">hovering: 406 N.m (78%)forward flight: 380 N.m (73%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp.: 738° C- One Engine Inoperative:<ul style="list-style-type: none">- torque: 521 N.m (100%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp.: 810° C <p>For limitations in transient conditions, refer to the RFM.</p>
ROTOR LIMITS	<p>Power on:</p> <ul style="list-style-type: none">- normal operation: 390 +4/-5 rpm- one-engine inoperative: 375 to 394 rpm <p>Power off:</p> <ul style="list-style-type: none">- maximum: 425 rpm (aural warning at 410 rpm)- minimum: 330 rpm (aural warning at 360 rpm)

OIL	Refer to Flight Manual.												
AIRSPEED LIMITS (IAS)	Never exceed speed (V_{NE}): - Power on: 278 km/h (150 kt)* - Power off: 222 km/h (120 kt)**												
	* At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft). In cold weather, subtract 19 km/h (10 kt) when OAT is below -35°C.												
	** At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft). In cold weather, subtract 37 km/h (20 kt) when the OAT is below -25°C. Do not subtract when speed is below 120 km/h (65 kt).												
C. G. RANGE	Longitudinal:												
	<table border="0"> <thead> <tr> <th>Forward (mm)</th> <th>Rear (mm)</th> <th>Gross Weight (kg)</th> </tr> </thead> <tbody> <tr> <td>3 170</td> <td>3 540</td> <td>2 000 and below</td> </tr> <tr> <td></td> <td>3 540</td> <td>2 100</td> </tr> <tr> <td>3 250</td> <td>3 450</td> <td>2 540</td> </tr> </tbody> </table>	Forward (mm)	Rear (mm)	Gross Weight (kg)	3 170	3 540	2 000 and below		3 540	2 100	3 250	3 450	2 540
Forward (mm)	Rear (mm)	Gross Weight (kg)											
3 170	3 540	2 000 and below											
	3 540	2 100											
3 250	3 450	2 540											
	Straight line variation between points given												
	Lateral maximum (See Note 5):												
	- Left of C.L.: 90 mm												
	- Right of C.L.: 90 mm												
MAXIMUM GROSS WEIGHT	2 540 kg												
MINIMUM CREW	1 pilot in the right side.												
NUMBER OF SEATS	6 maximum (pilot included).												
FUEL CAPACITY	Total: 736.7 liters Usable fuel: 730 liters Unusable fuel: 6.7 liters												
OIL CAPACITY	Engine: 5.7 liters MGB: 11 liters TGB: 0.33 liters												
MAXIMUM OPERATING ALTITUDE	4 875 m (16 000 ft)												
S/N's ELIGIBLE	5334 and subsequent. A Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made. <u>Aircraft manufactured in Brazil</u> : see Note 6.												

II - Model AS 355 F1 (Normal Category), approved 8 November 1988.

ENGINE	2 Allison 250-C20F (See TCDS n.° EM-8212)
FUEL	JP-4, JP-5, Jet A, Jet A-1 and Jet B (See RFM for emergency fuels.)
ENGINE LIMITS	<p>Take-off:</p> <ul style="list-style-type: none">- torque: 406 N.m (78%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp: 810° C <p>Maximum continuous power:</p> <ul style="list-style-type: none">- Normal Operation:<ul style="list-style-type: none">- torque<ul style="list-style-type: none">hovering: 406 N.m (78%)forward flight: 380 N.m (73%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp.: 738° C- One Engine Inoperative:<ul style="list-style-type: none">- torque: 521 N.m (100%)- gas generator speed: 53 519 rpm (105%)- output shaft speed: 6 196 rpm- measured gas temp.: 810° C <p>For limitations in transient conditions, refer to the RFM.</p>
ROTOR LIMITS	<p>Power on:</p> <ul style="list-style-type: none">- normal operation: 390 +4/-5 rpm- one-engine inoperative: 375 to 394 rpm <p>Power off:</p> <ul style="list-style-type: none">- maximum: 425 rpm (aural warning at 410 rpm)- minimum: 330 rpm (aural warning at 360 rpm)
OIL	Refer to Flight Manual.
AIRSPPEED LIMITS (IAS)	<p>Never exceed speed (V_{NE}): - Power on: 278 km/h (150 kt)* - Power off: 222 km/h (120 kt)**</p> <p>* At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft). In cold weather, subtract 19 km/h (10 kt) when OAT is below -35°C.</p> <p>** At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft). In cold weather, subtract 37 km/h (20 kt) when the OAT is below -25°C. Do not subtract when speed is below 120 km/h (65 kt).</p>

C. G. RANGE	Longitudinal:		
	Forward (mm)	Rear (mm)	Gross Weight (kg)
	3 170	3 540	2 000 and below
		3 540	2 100
	3 250	3 450	2 400
	Straight line variation between points given		
	Lateral maximum (See Note 5):		
	- Left of C.L.: 90 mm		
	- Right of C.L.: 90 mm		
MAXIMUM GROSS WEIGHT	2 400 kg		
MINIMUM CREW	1 pilot in the right side.		
NUMBER OF SEATS	6 maximum (pilot included).		
FUEL CAPACITY	Total: 736.7 liters Usable fuel: 730 liters Unusable fuel: 6.7 liters		
OIL CAPACITY	Engine: 5.7 liters MGB: 11 liters TGB: 0.33 liters		
MAXIMUM OPERATING ALTITUDE	4 875 m (16 000 ft)		
S/N's ELIGIBLE	5315 and subsequent. <u>Imported aircraft:</u> A Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.		

III - Model AS 355 N (Normal Category), approved 3 August, 1993.

ENGINE	2 Turbomeca ARRIUS 1A
FUEL	ASTM-D-1655 Jet A; ASTM-D-1655 Jet A-1 and ASTM-D-1655 Jet B (For emergency fuels see the RFM).
ENGINE LIMITS	Take-off: - torque: 406 N.m (78%)* - gas generator speed: 53 685 rpm - output shaft speed: 6 256 rpm - measured gas temp: 800° C

ENGINE LIMITS (Cont.)

One engine intermediate contingency (30 min.):

- torque: 599 N.m (115%)*
- gas generator speed: 55 300 rpm
- output shaft speed: 6 256 rpm
- measured gas temp: 800° C

One engine maximum contingency (2.5 min.):

- torque: 683 N.m (131%)
- gas generator speed: 56 140 rpm
- output shaft speed: 6 256 rpm
- measured gas temp: 810° C

Maximum continuous:

- Normal Operation:

- torque

$V_1 > 55$ kt: 380 N.m (73%)*

$V_1 < 55$ kt: 406 N.m (78%)

- gas generator speed: 53 285 rpm
- output shaft speed: 6 256 rpm
- measured gas temp.: 765° C

- One Engine Inoperative:

- torque: 521 N.m (100%)*
- gas generator speed: 53 285 rpm
- output shaft speed: 6 256 rpm
- measured gas temp.: 865° C

For limitations in transient conditions, refer to the RFM.

* Torque limits are function of MGB limitations.

ROTOR LIMITS

Power on:

- normal operation: 390 +4/-5 rpm
- for $V_1 < 55$ kt: 390 +10/-5 rpm
- one-engine inoperative: 375 to 394 rpm

Power off:

- maximum: 425 rpm (aural warning at 410 rpm)
- minimum: 330 rpm (aural warning at 360 rpm)

OIL

Refer to Flight Manual.

AIRSPEED LIMITS (IAS)

Never exceed speed (V_{NE}): - Power on: 278 km/h (150 kt)*
- Power off: 222 km/h (120 kt)**

* At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft).

In cold weather, subtract 19 km/h (10 kt) when OAT is below -35°C.

** At sea level. At higher altitudes, subtract 15 km/h (8 kt) per 1 000 m (2.5 kt per 1 000 ft).

In cold weather, subtract 37 km/h (20 kt) when the OAT is below -25°C. Do not subtract when speed is below 120 km/h (65 kt).

C. G. RANGE	Longitudinal:		
	Forward (mm)	Rear (mm)	Gross Weight (kg)
	3 170	3 540	2 000 and below
	3 250	3 540	2 100
		3 450	2 540

Straight line variation between points given
Lateral maximum (See Note 5):
- Left of C.L.: 90 mm
- Right of C.L.: 90 mm

MAXIMUM GROSS WEIGHT 2 600 kg

MINIMUM CREW 1 pilot in the right side.

NUMBER OF SEATS 6 maximum.

FUEL CAPACITY
Total: 736.7 liters
Usable fuel: 730 liters
Unusable fuel: 6.7 liters

OIL CAPACITY
Engine: 5.7 liters
MGB: 11 liters
TGB: 0.33 liters

MAXIMUM OPERATING ALTITUDE 6 096 m (20 000 ft)

S/N's ELIGIBLE 5361 and subsequent.
Imported aircraft:
A Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.
Aircraft manufactured in Brazil: see Note 6.

DATA PERTINENT TO ALL MODELS:

DATUM Longitudinal: 3 400 mm ahead of the main rotor head center.
Lateral: Rotorcraft symmetry plane.

LEVELING MEANS Transmission platform.

MAXIMUM BAGGAGE
R. H. lateral compartment: 100 kg
L. H. lateral compartment: 120 kg
Rear compartment: 80 kg

**ROTOR BLADE AND
CONTROL MOVEMENTS**

For rigging information refer to the Maintenance Manual.

IMPORT ELIGIBILITYComplete aircraft (all models):

A Brazilian Certificate of Airworthiness may be issued on the basis of on a DGAC Export Certificate on Airworthiness (or a third country Export Certificate on Airworthiness, in case of used aircraft imported from such country), including the following statement:

“The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate n° 8812 and in the condition of safe operation.”

Aircraft kits (AS 355 F2, AS 355 N):

Aircraft kits scheduled for shipment to Brazil for assembly at Helibras will be accompanied with a conformity certification document JAA Form One released in accordance with Eurocopter procedures under DGAC Production Organization Approval N°F.G.003 (See Production Certification and Note 6). The CTA Report H.10.094-01 dated 31 July 1987 or further revisions, contains the Brazilian requirements for the acceptance of these aircraft (See Note 4).

CERTIFICATION BASIS

TC N° 8809 issued on 22 July 1988, in the basis of the following requirements:

Models 355 N:

- RBHA 27, corresponding to FAR 27 Amdts. 27-1 through 27-16; and
- Special Conditions specified in DGAC letter 53879, dated 17 August 1980.

Models 355 F1/F2:

- RBHA 27, corresponding to FAR 27 Amdts. 27-1 through 27-20, plus the following sections of Amdt. 27-21: 27.21, 27.45, 27.71, 27.143, 27.151, 27.161, 27.173, 27.175, 27.177, 27.672, 27.673, 27.729, 27.735, 27.779, 27.807, 27.1329, 27.1419, 27.1519, 27.1525, 27.1585 and 27.1587; and
- Special Conditions specified in DGAC letter 54408, dated 21 October 1988.

REQUIRED EQUIPMENT

The basic required equipment, as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the rotorcraft for certification.

A Brazilian RFM approved by the DGAC should be carried in each helicopter.

NOTES:

- NOTE 1** Current weight and balance report, including the list of equipment included in the certificated empty weight and loading instructions when necessary, must be provided with each helicopter, at the time of the original certification. To obtain the proper weight and C. G. information, the helicopter must be jacked up rather than supported on the skids.
If modifications affecting the weight and C. G. are applied to the helicopter, consult the instructions on the RFM.
- NOTE 2** The following placard must be displayed in the clear view of the pilot:
“THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL. THE AIRWORTHINESS LIMITATIONS SECTION OF THE ROTORCRAFT MAINTENANCE MANUAL MUST BE COMPLIED WITH.”
The placards for load limitations in the cabin and cargo compartment must be as follows:
- In the cabin compartment: “CARGA MÁXIMA NA CABINE
PISO TRASEIRO 310 kg
PISO DIANTEIRO 150 kg”
- In the rear baggage compartment: “CARGA MÁXIMA 80 kg”
- In the left side compartment: “CARGA MÁXIMA 120 kg”
- In the right side baggage compartment: “CARGA MÁXIMA 100 kg”
For others placards refer to the Brazilian RFM and the Report nº H10.094-01, dated 31 July 1987.
- NOTE 3** The retirement times of certain parts and inspection requirements listed in the section 5.99 “Airworthiness Limitations”, are mandatory. These values of retirement times and inspections cannot be changed without DGAC and ANAC engineering approval.
- NOTE 4** The differences of the Brazilian helicopters relating to the basic DGAC type design are documents summarized in the following documents:
1. The Brazilian Helicopters Flight Manual approved by DGAC on behalf of ANAC; and
2. Marking and Placards (See Note 2).
- NOTE 5** The lateral CG values listed in this ER correspond to the basic helicopter. Different values are approved for specific optional installations, such as the Hoist, and are listed in the corresponding Supplement of the RFM. However, these increased limits are valid only for flight. For takeoff and landing, the limits presented in this ER and in the Section 2 of the Brazilian RFM approved by the DGAC must be used.
- NOTE 6** Helibras (Brazil) has signed with Eurocopter (France) a technical cooperation agreement contract to manufacture in Brazil the AS 355 F2 and AS 355 N models using kits produced by Eurocopter, in conformity to the DGAC approved Type design. Helibras helicopters are produced under Helibras Production Certificate, assembled and tested in accordance with procedures approved under the French type design by Eurocopter and accepted by the ANAC under the terms and conditions of Helibras Production Certificate. Helicopter serial numbers produced by Helibras as the manufacturer are identified in Eurocopter document N° L102-001 (list of serial numbers of stage 2 helicopters produced by Helibras) referenced in both the French and the Brazilian Type Certificate Data Sheets.

NOTE 7 The TC Holder before 01 January 1992 was:
SOCIÉTÉ NATIONALE INDUSTRIELLE AEROSPATIALE
37, Boulevard de Montmorency
75781 Paris Cedex 16
FRANCE

CLÁUDIO PASSOS SIMÃO
Gerente Geral de Certificação de Produtos Aeronáuticos
(Manager, Aeronautical Products Certification)
