

No. 51
Rev. 3
AIRBUS HELICOPTERS
AS 365 N3
EC 155 B
EC 155 B1
June 5, 2017

[illegible]

Max. over temperature on starting: 865°C (transient) * Standard sea level conditions
 ** 100% = 52,110rpm
 *** Torque limited values (FADEC built-in function)

C. G. limits

Longitudinal: Forward limit 3.80 m) refer to Flight Manual for
 Rear limit 4.05 m) authorized weight/C.G. limit combinations

Lateral: R.H. 0.075 m) up to 4,100 kg
 L.H. 0.075 m) up to 4,100 kg
 R.H. 0.050 m) above 4,100 kg
 L.H. 0.050 m) above 4,100 kg

Maximum gross weight: 4300kg

Oil capacity:

GTM: 2 x 5.18 liters (normal level)
 BTP: 9 liters (max. level)
 BTA: 0.5 liters (max. level)

Fuel: Refer to JCAB-Approved Flight Manual.

Engine oil: Refer to JCAB-Approved Flight Manual.

MGB – TGB oil:

1) Gearbox with “11 blades Tail Rotor Head”

Type	NATO	Specifications (effective at least issue)			Comment
		FRANCE	USA	UK	
Synthetic	0.156		MIL.L.23699		
Synthetic	0.160			D.ENG.RD 2497	

2) TGB with “10 blades Tail Rotor Head”

Type	NATO	Specifications (effective at least issue)			Comment
		FRANCE	USA	UK	
Mineral	0.155	AIR 3525	MIL.L.6086	DTD.581	OAT envelope: [-30°C, +50°C]
Synthetic	0.148		MIL.L.7808		OAT envelope: [-40°C, -20°C]

Caution: Mineral and synthetic oils must not be mixed. Refer to Maintenance Manual procedures before changing oil type.

Rotor limitations:

Power-on flight: The speed varies between 355 and 360 rpm depending on the altitude.
 320 rpm (on engine failure on take-off or landing).

Power-off flight:

-Maximum transient contingency speed: 420 rpm
 -Maximum regulated speed: 395 rpm (aural warning at 380 rpm)
 -Minimum speed: 320 rpm (aural warning at 345 rpm)
 -Minimum transient speed: 295 rpm

Maximum forward flight speed:

Never-exceed speed (VNE), power-on:

VNE: 324 km/h (175 kt) at sea level, up to 3,000 kg, then decreasing, as a function of altitude and weight (see JCAB-Approved Flight Manual).

Never-exceed speed (VNE), power-off:

VNE: 250 km/h (135 kt) at sea level, then decreasing as a function of altitude (see JCAB-Approved Flight Manual).

C.G. references:

Longitudinal: 4 m forward of main rotor centerline.

Lateral: Aircraft symmetry plane.

Leveling points:

Three leveling blocks on transmission deck

Maximum service ceiling: 6,096 m (20,000 ft)

Limit load factors: +2.67 G and -1 G.

Minimum flight crew: 1 pilot in R.H. seat.

Maximum number of passenger's seats: 13.

(Refer to EUROCOPTER 365A 04.3462 for approved cabin furnishings).

Baggage capacity: Maximum load 200 kg (maximum load concentration 295 daN/m²).

Fuel capacity:

Total: 1158 liters

Usable: 1134.5 liters

Unusable: 23.5 liters

Rotor setting: Refer to aircraft Maintenance Manual.

Certification basis:

1. Japanese Civil Aeronautics Regulations Annex 1

Part V of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated February 26, 1991 (limited to parts equivalent to the Federal Aviation Regulations Part 29 including Amendments 29-1 through 29-16)
Additional and special Requirement Appendix 1 defined in DGAC Letter No.964425 dated February 10, 1997.

2. Special Conditions

Additional and special Requirement Appendix 4 defined in DGAC Letter No.964425 dated February 10, 1997.

1) General special conditions

2) Equipment special Conditions:

High Intensity Radiated Fields (HIRF)

Lightning

3) Super contingency conditions:

FAR 29.59 at amendment 29-24 Takeoff path: Category A

FAR 29.67 at amendment 29-24 Climb: One engine inoperative

FAR 29.361 at amendment 29-24 Engine torque

FAR 29.549 at amendment 29-24 Fuselage and rotor pylon structures

FAR 29.923 at amendment 29-26 Rotor drive system and control mechanism tests

FAR 29.1045 at amendment 29-26 Climb cooling test procedures

FAR 29.1047 at amendment 29-26 Takeoff cooling test procedures

FAR 29.1143 at amendment 29-24 Engine controls

FAR 29.1305 at amendment 29-24 Powerplant instruments

FAR 29.1521 at amendment 29-26 Powerplant limitations

FAR 29.1549 at amendment 29-24 Powerplant instruments

3. Civil Aeronautics Regulations Annex 2 Chapter 5 (equivalent to ICAO Annex 16 Volume 1 Chapter 8 for Noise Requirements).
4. Civil Aeronautics Regulations Annex 3 (equivalent to ICAO Annex 16 Volume 2 for Fuel Venting Requirements).

Required equipment:

The basic equipment required by the applicable airworthiness regulation (refer to certification basis) must be fitted on the aircraft and safe for operation.

When installed the AFCS must be disengageable with a control provided on the cyclic stick grip.

The Flight Manual must be on board the aircraft.

Documents required for operation:

- | | |
|--------------|---|
| Helicopter: | Flight Manual in Japanese language approved on March 11, 2004 or later JCAB approved revisions. (see Note 4)
Maintenance Manual 365N3 (see Note 3 and 4)
Overhaul Manual 365N3
Repair Manual 365N3

Illustrated Parts Catalog 365N3
Service Bulletins 365N3 |
| Power plant: | JCAB Type Approval No. 702 |

Note 1: The weight and C.G. breakdown including the list of equipment items incorporated in the approved empty weight and the loading instructions shall be on board the helicopter at the time when the individual Certificate or Airworthiness is delivered and, then, at any time. To obtain as precise as possible weight and C.G. data, the helicopter shall stay on jacks as fitted at the jacking points rather than on its landing gear. Where modifications are introduced in the helicopter weight and C.G., the JCAB-Approved Flight Manual instructions shall be referred to.

Note 2: The following placard shall be displayed in clear view of the pilot:
“ THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE JCAB-APPROVED ROTORCRAFT FLIGHT MANUAL.
THE AIRWORTHINESS LIMITATIONS SECTION OF THE ROTORCRAFT MAINTENANCE MANUAL MUST BE COMPLIED WITH “.

Note 3: Chapter 5 “Master Servicing Recommendations” of the Maintenance Manuals have been deemed acceptable by the DGAC for maintaining the helicopters satisfactorily. Sub-chapter 5.99 “Airworthiness Limitations” contains the instructions which have to be mandatory complied with.

Note 4: The compatibility between the optional systems is specified:
- in sub-chapter 5.80 of the “Master Servicing Recommendations” for installation
- in Supplement 0 to Flight Manual for operation.

Note 5: This Data Sheet gives the values applicable to the latest 365 designs. For those aircraft with a former design or fitted with optional systems or subjected in customization, refer to the JCAB-Approved Flight Manual of the concerned aircraft.

B- EC 155 B VERSION FEATURES, Transport Category A and B, Approved March 14, 2004

I - Certification basis

1. Japanese Civil Aeronautics Regulations Annex 1
 Part V of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated April 15, 1992 (limited to parts equivalent to the Federal Aviation Regulations Part 29 including Amendments 29-22 through 29-31)
 Additional and special Requirement Appendix 1 defined in DGAC Letter No.964425 dated February 10, 1997.
 FAR 29.561(b)(3) Emergency landing conditions - general
 FAR 29.571 Fatigue evaluation of structure
 FAR 29.785 Seats, berths, safety belts, and harnesses
 FAR 29.1305(a)(4)(i) Low fuel warning
2. Special Conditions
 High Intensity Radiated Fields (HIRF)
 Minimum in flight experience
 Ingestion of hail
3. Exemptions from FAR 29 first issue:
 FAR 29.562 Emergency landing dynamic conditions
 FAR 29.631 Bird strike (for optional installations taken from previous AS365 versions and to a certain extent for windshield)
 FAR 29.952 Fuel system crash resistance
4. Equivalent safety findings:
 FAR 29.173, 175 Static longitudinal stability and Demonstration of static longitudinal stability
 FAR 29.807(c) Passenger emergency exit: other than side-of-fuselage
 FAR 29.923(p)(1) Rotor drive system and control mechanism tests – Endurance tests; operating lubricants (for Tail Gear Box)
 FAR 29.955(b) Fuel transfer system
 FAR 29.1151 Rotor brake controls
 FAR 29.1303(j) Flight and navigation instruments – speed warning device
 FAR 29.1545(b)(4) Airspeed indicator markings
 FAR 29.1549(b) Powerplant instruments
 FAR 29 Appendix B § IV Airworthiness criteria for helicopter Instrument Flight – static longitudinal stability
5. Civil Aeronautics Regulations Annex 2 Chapter 5 (equivalent to ICAO Annex 16 Volume 1 Chapter 8 for Noise Requirements).
6. Civil Aeronautics Regulations Annex 3 (equivalent to ICAO Annex 16 Volume 2 for Fuel Venting Requirements).

II - Technical characteristics and operational limitations

1. Approved type design definition: According to EUROCOPTER document 365A04.6060
2. Description: According to EUROCOPTER document 365A04.6000
3. Equipments: According to EUROCOPTER document 365A04.6422
4. Dimensions:

Width:	3.50 m
Height:	4.352 m
Length:	12.709 m
Rotor diameter:	
Main rotor:	12.60 m
Rear rotor:	1.10 m

5. Engines: 2 TURBOMECA – ARRIEL 2C1 turbo shaft engines
(JCAB Type Approval No. 702)

6. Power plant limitations:

Rating	Time limit	Limit torque N.m	Minimum guaranteed power* kW	Maximum guaranteed gas generator speed** %	Maximum validated T4 °C
30 s OEI	30 s	1160	718***	105.22	1000
2 mn OEI	2 mn	1055	646	101.65	941
Continuous OEI	Unlimited	980	622***	100.46	912
Take-off	5 mn	885	581	100.98	912
Max. continuous	Unlimited	761	581	98.79	877

For NR = 350 rpm

Max. over temperature on starting: 865°C (transient) * Standard sea level conditions

** 100% = 52,110rpm

*** Torque limited values (FADEC built-in function)

7. Fluids:

7.1 Fuel: Refer to JCAB-Approved Flight Manual.

7.2 Engine oil: Refer to JCAB-Approved Flight Manual.

7.3 MGB – TGB oil:

Type	NATO	Specifications (effective at least issue)			Comment
		FRANCE	US	UK	
Mineral	0.155	AIR 3525	MIL-L-6086	DTD 581	OAT envelope: [-20°C, +40°C] for starting [-40°C, +40°C] for flight
Synthetic	0.148		MIL-L-7808 J		OAT envelope: [-40°C, -5°C] for starting and flight

8. Fluid capacities:

8.1 Fuel:

Total: 1280 liters

Usable: 1256.5 liters

Unusable: 23.5 liters

8.2 Engine oil:

2 x 6.2 liters (normal level)

8.3 MGB-TGB oil:

MGB: 9 liters (max. level)

TGB: 0.5 liters (max. level)

9. Airspeeds:

Power-on never exceed speed:

Absolute VNE = 324 km/h (175 kt)

Decreasing function of altitude: refer to JCAB-Approved Flight Manual

Power-off never exceed speed:

Absolute VNE = 250 km/h (135 kt)

Decreasing function of altitude: refer to JCAB-Approved Flight Manual

10. Rotor limitations:
 - Power-on flight: 342 to 350 rpm (governed speed range)
 - Power-off flight:
 - Maximum permissible emergency transient: 390 rpm
 - Maximum steady-state: 375 rpm
 - Minimum: 316 rpm
 - Minimum permissible emergency transient: 295 rpm
11. Maximum operating altitude:
 - Flight: $H_p = 3,965 \text{ m (13,000 ft)}$
 - Take-off and landing: $H_{\sigma} = 2,591 \text{ m (8,500 ft)}$
12. Approved kinds of operation: Day/night VFR, IFR, Category B, Category A (see Note 3)
13. Maximum gross weight: 4,800 kg
14. Limit maneuvering load factor:
 - Positive limit: +3.2 G (at 4,800 kg)
 - Negative limit: -1.0 G
15. Center of gravity range:
 - Longitudinal: Forward limit: 3.80 m (refer to JCAB-Approved Flight Manual for authorized weight /C.G. limit combinations)
Rear limit: 4.07 m
 - Lateral: R.H. limit: 0.05 m
L.H. limit: 0.05 m
16. Datum
 - Longitudinal CG: 4 m forward of the main rotor centerline.
 - Lateral CG: aircraft symmetry plane.
17. Mean aerodynamic cord:
 - Main rotor: 0.385 m
 - Rear rotor: 0.094 m
18. Leveling means:
 - Three leveling blocks on transmission deck.
19. Minimum flight crew: 1 pilot on R.H. seat
20. Maximum seating capacity: 15 (including pilot seats)
21. Emergency exits: 3 type IV exits on each side of the fuselage
22. Baggage hold:
 - Maximum load: 300 kg
 - Distributed maximum load: 295 kg/m²
23. Serial numbers:
 - Aircraft S/N 6544 and up of EC155B version

III- Operating and service instructions

1. Flight manual: EC155B flight manual in Japanese language approved on March 11, 2004 or later JCAB approved revisions.

2. Maintenance manual: EC155B master servicing manual chapter 04 airworthiness limitations approved on December 9, 1998 or later DGAC approved revisions
EC155B aircraft maintenance manual
EC155B structural repair manual
EC155B illustrated parts catalog
3. Service letters and service bulletins
4. Engine documentation: JCAB Type Approval No.702.

IV- Notes

1. The weight and C.G. breakdown including the list of equipment items incorporated in the approved weight and the loading instructions shall be on board the helicopter at the time when the individual Certificate of Airworthiness is delivered and, then, at any time. To obtain as precise as possible weight and C.G. data, the helicopter shall stay on jacks as fitted at the jacking points rather than on its landing gear. Where modifications are introduced in the helicopter weight and C.G., the Flight Manual instructions shall be referred to.
2. The EC155B Master Servicing Manual has been deemed acceptable by the DGAC to perform proper maintenance on the helicopters. EC155B MSM Chapter 04 "Airworthiness Limitations" covers the instructions that must be complied with.
3. Category A operations require the following modification to be embodied : AMS N° 07-22B47 single pilot IFR flights require the following modifications to be embodied : AMS N° 07-39B78, 07-39B79, 07-71B85 and 07-71B91.

C- EC 155 B1 VERSION FEATURES, Transport Category A and B, Approved March 14, 2004

I - Certification basis

1. Japanese Civil Aeronautics Regulations Annex 1
 Part V of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated April 15, 1992 (limited to parts equivalent to the Federal Aviation Regulations Part 29 including Amendments 29-22 through 29-31)
 Certification basis for Eurocopter model EC155B helicopter defined in DGAC Letter 2002/0503/SFACT/N. HE dated February 7, 2002.
 FAR 29.561(b)(3) Emergency landing conditions - general
 FAR 29.571 Fatigue evaluation of structure
 FAR 29.785 Seats, berths, safety belts, and harnesses
 FAR 29.1305(a)(4)(i) Low fuel warning
2. Special Conditions
 High Intensity Radiated Fields (HIRF)
 Minimum in flight experience
 Ingestion of hail
3. Exemptions from FAR 29 first issue:
 FAR 29.562 Emergency landing dynamic conditions
 FAR 29.631 Bird strike (for optional installations taken from previous AS365 versions and to a certain extent for windshield)
 FAR 29.952 Fuel system crash resistance
4. Equivalent safety findings:
 FAR 29.173, 175 Static longitudinal stability and Demonstration of static longitudinal stability
 FAR 29.807(c) Passenger emergency exit: other than side-of-fuselage
 FAR 29.923(p)(1) Rotor drive system and control mechanism tests – Endurance tests; operating lubricants (for Tail Gear Box)
 FAR 29.923, 927(b)(2) Rotor drive system and control mechanism tests and Additional tests
 FAR 29.955(b) Fuel transfer system
 FAR 29.1151 Rotor brake controls
 FAR 29.1303(j) Flight and navigation instruments – speed warning device
 FAR 29.1545(b)(4) Airspeed indicator markings
 FAR 29.1549(b) Powerplant instruments
 FAR 29 Appendix B § IV Airworthiness criteria for helicopter Instrument Flight – static longitudinal stability
5. Civil Aeronautics Regulations Annex 2 Chapter 5 (equivalent to ICAO Annex 16 Volume 1 Chapter 8 for Noise Requirements).
6. Civil Aeronautics Regulations Annex 3 (equivalent to ICAO Annex 16 Volume 2 for Fuel Venting Requirements).

II - Technical characteristics and operational limitations

1. Approved type design definition: According to EUROCOPTER document 365A04.6926
2. Description: According to EUROCOPTER document 365A04.6840
3. Equipments: According to EUROCOPTER document 365A04.6422
4. Dimensions:

Width:	3.50 m
Height:	4.352 m
Length:	12.709 m

Rotor diameter:

Main rotor: 12.60 m
Rear rotor: 1.10 m

5. Engines: 2 TURBOMECA – ARRIEL 2C2 turbo shaft engines
(JCAB Type Approval No. 702)

6. Power plant limitations:

Rating	Time limit	Limit torque N.m	Minimum guaranteed power* kW	Maximum guaranteed gas generator speed** %	Maximum validated T4 °C
30 s OEI	30 s	1193	750***	105.48	996
2 mn OEI	2 mn	1060	729***	101.94	944
Continuous OEI	Unlimited	1018	640***	100.96	926
Take-off	5 mn	885	612	101.56	929
Max. continuous	Unlimited	761	612	99.34	891

For NR = 350 rpm

Max. over temperature on starting: 865°C (transient) * Standard sea level conditions
** 100% = 52,110rpm
*** Torque limited values (FADEC built-in function)

7. Fluids:

7.1 Fuel: Refer to JCAB-Approved Flight Manual.

7.2 Engine oil: Refer to JCAB-Approved Flight Manual.

7.3 MGB – TGB oil:

Type	NATO	Specifications (effective at least issue)			Comment
		FRANCE	US	UK	
Mineral	0.155	AIR 3525	MIL-L-6086	DTD 581	OAT envelope: [-20°C, +50°C] for starting [-40°C, +50°C] for flight
Synthetic	0.148		MIL-L-7808 J		OAT envelope: [-40°C, 0°C] for starting and flight

8. Fluid capacities:

8.1 Fuel:

Total: 1280 liters
Usable: 1256.5 liters
Unusable: 23.5 liters

8.2 Engine oil:

2 x 6.2 liters (normal level)

8.3 MGB-TGB oil:

MGB: 9 liters (max. level)
TGB: 0.5 liters (max. level)

9. Airspeeds:

Power-on never exceed speed:

Absolute VNE = 324 km/h (175 kt)

Decreasing function of altitude: refer to Flight Manual

Power-off never exceed speed:

Absolute VNE = 250 km/h (135 kt)

Decreasing function of altitude: refer to Flight Manual

10. Rotor limitations:

Power-on flight: 342 to 350 rpm (governed speed range)

Power-off flight:

-Maximum permissible emergency transient: 390 rpm

-Maximum steady-state: 375 rpm

-Minimum: 316 rpm

-Minimum permissible emergency transient: 295 rpm

11. Maximum operating altitude:

Flight: $H_p = 4,572 \text{ m (15,000 ft)}$

Take-off and landing: $H_o = 3,960 \text{ m (13,000 ft)}$

12. Approved kinds of operation: Day/night VFR, IFR, Category B, Category A

13. Maximum gross weight: 4,850 kg, or
4,920 kg for helicopters equipped with Eurocopter modifications n° 62C17, 67B62, 39C30, 39C37, 22B55, 29B62, 29B64 and 11B62, and limited to operations at $-30^\circ\text{C} < \text{OAT} < +50^\circ\text{C}$

13bis. Maximum gross weight for Taxiing: 4,950 kg

13ter. Limit maneuvering load factor:

Positive limit: +3.18 G (at 4,850 kg) or +3.135 G (at 4,920 kg)

Negative limit: -1.0 G

14. Center of gravity range:

Longitudinal: Forward limit: 3.80 m (refer to JCAB-Approved Flight Manual for authorized weight / C.G. limit combinations)
Rear limit: 4.07 m

Lateral: R.H. limit: 0.05 m

L.H. limit: 0.05 m

15. Datum

Longitudinal CG: 4 m forward of the main rotor centerline.

Lateral CG: aircraft symmetry plane.

16. Mean aerodynamic cord:

Main rotor: 0.385 m

Rear rotor: 0.094 m

17. Leveling means:

Three leveling blocks on transmission deck.

18. Minimum flight crew: 1 pilot on R.H. seat

19. Maximum seating capacity: 15 (including pilot seats)

20. Emergency exits: 3 type IV exits on each side of the fuselage

21. Baggage hold:

Maximum load: 300 kg

Distributed maximum load: 295 kg/m²

22. Serial numbers:

Aircraft S/N 6620 and up of EC155B1 version

III- Operating and service instructions

1. Flight manual: EC155B1 flight manual in Japanese language approved on March 11, 2004 or later JCAB approved revisions.
2. Maintenance manual: EC155B1 master servicing manual chapter 04 airworthiness limitations approved on July 16, 2002 or later DGAC approved revisions
EC155B1 aircraft maintenance manual
EC155B1 structural repair manual
EC155B1 illustrated parts catalog
3. Service letters and service bulletins
4. Engine documentation: JCAB Type Approval No. 702.

IV- Notes

1. The weight and C.G. breakdown including the list of equipment items incorporated in the approved weight and the loading instructions shall be on board the helicopter at the time when the individual Certificate of Airworthiness is delivered and, then, at any time. To obtain as precise as possible weight and C.G. data, the helicopter shall stay on jacks as fitted at the jacking points rather than on its landing gear. Where modifications are introduced in the helicopter weight and C.G., the JCAB-Approved Flight Manual instructions shall be referred to.
2. The EC155B1 Master Servicing Manual has been deemed acceptable by the DGAC to perform proper maintenance on the helicopters. EC155B1 MSM Chapter 04 “Airworthiness Limitations” covers the instructions that must be complied with.

D- NOTES APPLICABLE TO ALL VERSIONS

NOTE J1. Dates of application for EASA and JCAB Type Certificate are as follows.

Model	EASA No.EASA.R.105	JCAB No. 51
AS365N3	October 6, 1997	August 27, 2003
EC155B	December 9, 1998	August 27, 2003
EC155B1	July 16, 2002	August 27, 2003

NOTE J2. This Type Certificate Data Sheet (TCDS) is based on EASA TCDS No.EASA.R.105 Issue 03.

NOTE J3. Turbomeca ARRIEL 2C, 2C1 and 2C2 engines have JCAB Type Approval No. 702.

NOTE J4. JCAB-approved Rotorcraft Flight Manual shall be written in Japanese.

NOTE J5. Specified placards and markings shall be written in Japanese and JCAB approved Japanese placards and markings are described in AIRBUS HELICOPTERS Document No. 365ABN0444 and No. 365ABN0445.

NOTE J6. Installation of white strobe light requires JCAB-approved Flight Manual.

NOTE J7. At least one hand fire extinguisher must be conveniently located in passenger compartment area other than cockpit compartment area.