

Leung, Henry

From: ellenyan@gfs.gov.hk
Sent: 20 July 2016 16:35
To: Leung, Henry
Cc: codywong@gfs.gov.hk; Tang, Steven
Subject: Re: CE31/2014 (CE) - Police Facilities in Kong Nga Po - Final Draft EIA Report -- GFS's reply
Attachments: Operation Information of Helicopter.pdf; EASA Type Certificate Data Sheet No. EASA.R.150 for Models EC175B.pdf; EASA Type-Certificate Data Sheet for Noise No. EASA.R.150 for Models EC175B.pdf; FIG 4-8.pdf

Dear Henry,

I confirm that I have no comment on the revised ranges of approach/taking-off flight paths as shown in Fig 4-8. I confirm the information as attached are correct.

Regards,
Captain Ellen Yan
Government Flying Service
Pilot I (Helicopter)
Tel: 2305 8366

"Leung, Henry"
<Henry.Leung@mottmac.com>
m> To
"ellenyan@gfs.gov.hk"
20/07/2016 15:21 <ellenyan@gfs.gov.hk>
"codywong@gfs.gov.hk"
<codywong@gfs.gov.hk>
cc
"Tang, Steven"
<Steven.Tang@mottmac.com>
Subject
CE31/2014 (CE) - Police
Facilities in Kong Nga Po -
Final Draft EIA Report --
GFS's reply

Dear Cody / Ellen,

Further to the discussion yesterday, the restricted ranges of approach / taking-off flight paths during emergency use / non-emergency use would be slightly reduced as shown in attached FIG 4-8. Please confirm us there is no glaring issue / problem for the revised restricted ranges.

Please also confirm the information in the attached files.

It would be grateful if you can confirm us the information today. Should you have any queries, please feel free to contact us
Thanks for your kind attention.

Regards,
Henry Leung

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(See attached file: Operation Information of Helicopter.pdf)(See attached
file: EASA Type Certificate Data Sheet No. EASA.R.150 for Models EC175B.pdf)(See attached file: EASA Type-Certificate Data
Sheet for Noise No. EASA.R.150 for Models EC175B.pdf)(See attached file: FIG 4-8.pdf)

Police Facilities at Kong Nga Po

Operation Information of Helicopter

The flight profile (or vertical profile) of helicopter at the proposed KNP helipad is as follows:

- Approach: Descend from 150m above the helipad with an approaching angle of 16 degree, and reduce the flight speed to 0 knots in about 1 minute.
- Departure (Take-off): Climb up to 150m above the helipad with a departure angle of 12 degree, and increase the flight speed to 60 knots in about 1 minute.
- Flyover: 500ft (150m) above helipad usually with a flight speed of 60 - 140 knots.
- Normal Hovering: Turn on the spot at 8ft (2.5m) for Airbus Helicopters H175 to adjust the orientation to touchdown / lift-off in 8 seconds. Maximum Hovering Height of 40-50ft (12-15m) for training purpose for about 2 minutes.
- Idling: About 4 minutes.

The frequency of using similar existing Lo Wu Range helicopter landing site In Year 2010 - 2015 is shown in Table below. For emergency use, the frequency from 7pm to 7am in Year 2010 - 2015 is only 3 in total.

Table: Frequency of using Lo Wu Range Helicopter Landing Site

Period	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Total
Day-time (7am to 7pm)	36	53	45	43	59	98	334
Evening and Night-time (7pm to 7am)		2		1			3

Only one noise complaint about the existing Lo Wu Range helicopter landing was received in Year 2013.

The proposed KNP helipad will be used for training during day-time period only. Details of the training are shown in Table below.

Table: HKPF Day-time Training

Description	Type A Training	Type B Training
Average no. of occasion per year	52 (weekly basis)	16
No. of helicopter used per cycle	2	1
No. of cycle per occasion	3 – 4	8-10
Duration per cycle expected	Less than 15 minutes	Less than 15 minutes
Duration per occasion expected	Less than 1 hour	Less than 2.5 hours

Maximum two helicopters will be deployed simultaneously during emergency use / non-emergency use. Only one helicopter will be allowed to hover, approach, or take-off within the assessment area while another helicopter should be idling on ground. The helicopter will be in approaching or taking-off within the restricted ranges of approach / taking-off flight paths during emergency use / non-emergency use as shown in attached FIG 4-8.

Police Facilities at Kong Nga Po

Operation Information of Helicopter

Only Airbus Helicopter H175 will be operated in the planned KNP helipad during emergency use and non-emergency use. The noise levels of the Airbus Helicopters H175 in non-lateral movements will be lower than that of the Super Puma AS 332 L2.

The noise levels of the Airbus Helicopters H175 (provided by helicopter manufacturer) are as follows:

Table: Helicopter Noise Data (with Lateral Movements)

Flying Mode	ICAO Max. Noise Level EPNdB	Demonstrated Noise Level EPNdB
Approach	98.8	95.1
Take-off	95.8	89.8
Flyover	93.8	91.0

Source: Excerpted from "EASA Type-Certificate Data Sheet for Noise No. EASA.R.150 for Models EC175B". 'H175' is the trade name for helicopters of Type Certificate 'EC175 B' according to "EASA Type Certificate Data Sheet No. EASA.R.150 for Models EC175B". Details can be referred to the attached.

With reference to the ICAO Annex 16, the reference distances under conservative approach are as follows:

Approach Mode: Reference distance = 120 metres;

Take-off Mode: Best rate of climb = 15 degree. Reference distance = 150 metres;

Flyover Mode: Reference distance = 150 metres.

In addition, the description of emergency use is as follow:

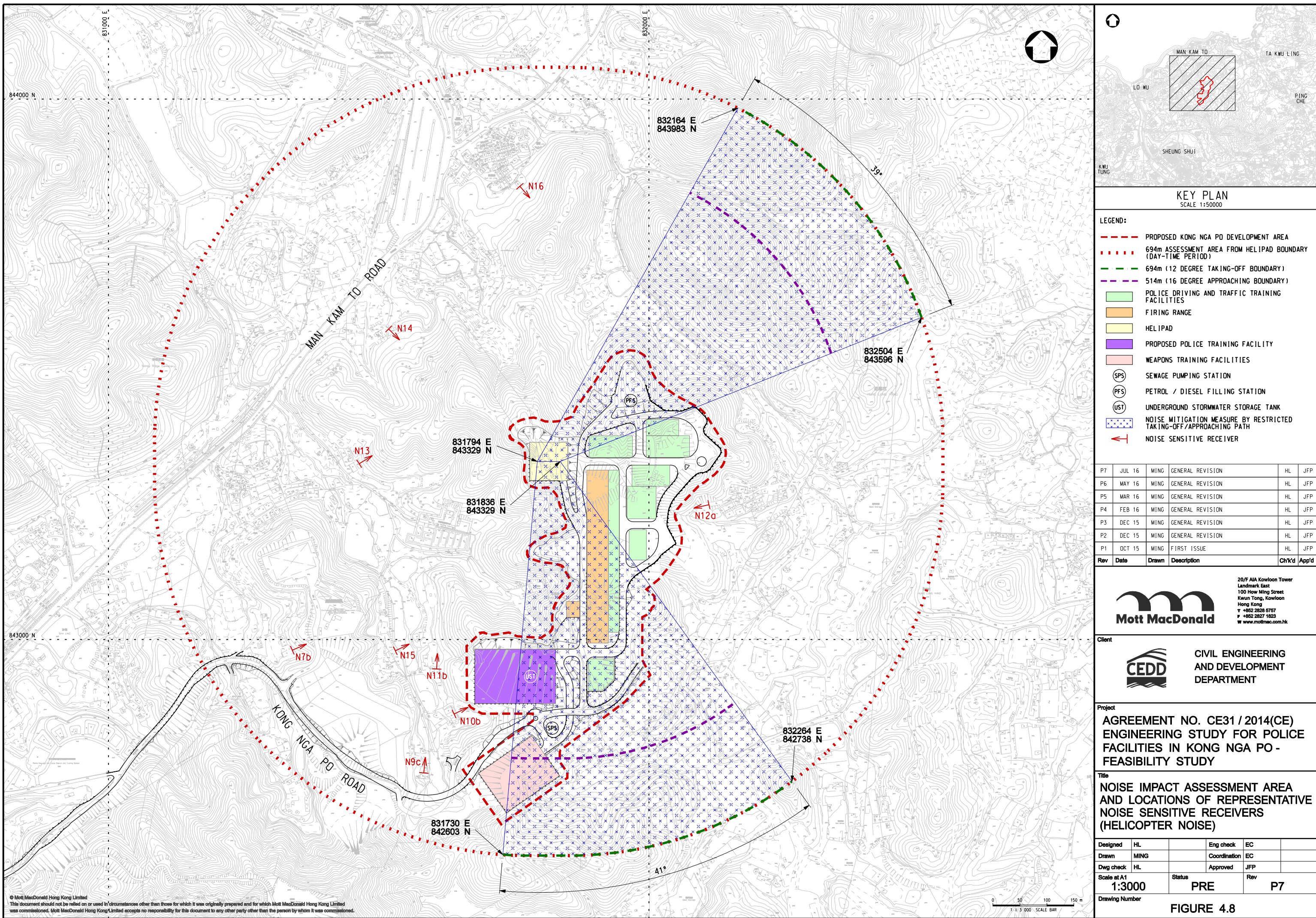
The operation of the proposed helipad within the Project site may have potential helicopter noise impact to the existing residential premises in the vicinity of the Project site. The planned helipad at KNP is for emergency use (i.e. air ambulance, search & rescue, supporting law enforcement agencies and fire fighting) without time restriction and non-emergency use (i.e. training) restricted to 7am to 7pm only. Details of the emergency use are list as below:

- Air Ambulance - Government Flying Services (GFS) provides a 24-hour air ambulance service for patients in the outlying islands to receive immediate medical treatment in hospitals. GFS has a 20-minute services pledge for locations within Island Zone such as Hong Kong Island, Cheung Chau, Hei Ling Chau, Lantau, Peng Chau and Soko Islands, and 30 minutes for elsewhere within the Hong Kong territory. This accounts for the time that GFS receives emergency callouts from clinics throughout the territory to the arrival time on-scene.

- Search & Rescue (SAR) - One of the major responsibilities of the GFS lies with SAR operations (e.g. injured hikers and vessels in distress). The area of responsibility covers Hong Kong SAR, the majority of the South China Sea up to 700 nautical miles (1300 km) south of Hong Kong.

- Supporting Law Enforcement Agencies - The HKPF makes frequent use of GFS's helicopters in operations such as anti-smuggling, anti-illegal immigrations, anti-drug trafficking, movement of personnel and traffic monitoring.

- Fire Fighting - GFS's helicopters are used for countryside fire suppression operations. In addition to the standard fire bucket system, these helicopters can also be fitted with a 'belly tank' with its own suction pump and fire foam delivery system to enhance the fire fighting capability.





European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET FOR NOISE**

No. EASA.R.150

for

EC175

**Type Certificate Holder:
Airbus Helicopters**

Aéroport International Marseille - Provence
13725 Marignane cedex
France

For models: EC175B

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Type Certificate Holder¹ **Airbus Helicopters** Aircraft Type Designation¹ **EC175B**

Engine Manufacturer¹ **Pratt & Whitney Canada** Engine Type Designation¹ **PT6C-67E**

Additional modifications essential to meet the requirements or needed to attain the certificated noise levels¹ **None**

Noise Certification Basis **ICAO Annex 16, Volume I** Edition / Amendment Chapter¹ **8 (8.4.2)**

EASA Record No.	Maximum Mass		Take-Off EPNL		Overflight EPNL		Approach EPNL		See Note
	Take-off ¹ (kg)	Landing (kg)	Level ¹	Limit	Level ¹	Limit	Level ¹	Limit	
D375	7,500	7,500	89.8	95.8	91.0	93.8	95.1	98.8	-

¹ See Note 1.

TCDSN EASA.R.150 Notes

1. Items so marked shall be included on EASA Form 45.

Change Record

Issue	Date	Changes
Issue 1	05 February 2014	Initial Issue

-END-



TYPE CERTIFICATE DATA SHEET

No. EASA.R.150

for

EC175

Type Certificate Holder

Airbus Helicopters

Aéroport International Marseille – Provence

13725 Marignane CEDEX

France

For Model: EC175 B



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SECTION 1: EC175 B**I. General**

- | | |
|--|--|
| 1. Type/ Model/ Variant | |
| 1.1 Type | EC175 |
| 1.2 Model | EC175 B |
| 1.3 Variant | - - - |
| 2. Airworthiness Category | Large Rotorcraft, Category A and B |
| 3. Manufacturer | Airbus Helicopters
Aéroport International Marseille – Provence
13725 Marignane CEDEX, France |
| 4. Type Certification Application Date | 15 February 2007 |
| 5. State of Design Authority | EASA |
| 6. Type Certificate Date | 30 January 2014 |

II. Certification Basis

- | | |
|---|--|
| 1. Reference Date for determining the applicable requirements | 1 March 2009 (CRI A-01) |
| 2. Airworthiness Requirements | CS 29, Amdt. 2 – Large Rotorcraft (EASA Decision 2008/010/R) |
| 3. Special Conditions | - Extended Take-Off Power Duration (CRI E-01)
- HIRF Protection (CRI F-01) |
| 4. Exemptions | none |
| 5. Deviations | none |
| 6. Equivalent Safety Findings | <ul style="list-style-type: none"> - Fatigue evaluation of structure (CRI C-02) - Fire in Cargo and Baggage Compartments (CRI D-04) - Main aisle width (CRI D-05) - Passenger emergency exits other than side of fuselage (CRI D-06) - Ditching emergency exits (CRI D-07) - Passenger emergency exit access (CRI D-10) - Emergency Exit Marking (CRI D-12) - Fire detector electrical circuit testability in flight (CRI E-07) - Cigalhe system: part time display of vehicle parameters (CRI F-03) - Independent power source for stand-by attitude indicator (CRI F-04) - Airspeed and powerplant indicators green arc (CRI G-01) - Powerplant instruments marking during Engine training mode (CRI G-03) |
| 7. Requirements elected to comply | Noise requirements as defined in II.8 below |
| 8. Environmental Protection Requirements | Fuel venting:
ICAO Annex 16, Volume II, Part II, Chapter 2 (CS-34)
Noise:
ICAO Annex 16, Volume I, Part II, Amdt. 10, |



Chapter 8 (EASA CS-36, Amdt. 3)

For details see EASA Type Certificate Data Sheet for Noise TCDSN EASA.R.150.

9. Operational Suitability Data (OSD) see SECTION 2 below

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

Basic Helicopter: TNM000A1517E99/D
Optional installations: TNM000A2544E99/D
2. Description

Large passenger transport twin-engine helicopter category A and B
Main rotor: Spheriflex, 5 blades
Tail rotor: Spheriflex, 3 blades
Landing gear: tricycle retractable
Powerplant: 2 independent turbines
3. Equipment

As required by compliance with the Certification Basis and listed in the Type Design Definition documents
4. Dimensions
 - 4.1 Fuselage

Length: 15.68 m
Width: 3.35 m
Height: 4.84 m
 - 4.2 Main Rotor

Diameter: 14.80 m
 - 4.3 Tail Rotor

Diameter: 3.20 m
5. Engine
 - 5.1 Model

Pratt & Whitney Canada
2 x Model PT6C-67E
 - 5.2 Type Certificate

EASA TC/TCDS n°: EASA.IM.E.022
 - 5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Limits

5.3.1.1 All Engines Operative (AEO) limits

	N1 [% (rpm)]	TOT [°C]	TQ [%]
Max Transient PWR (20 sec)	105.4 (39 500)	820	only allowed up to V _y 2 x 110
Max TOP (5 min)	104.6 (39 200)	815	only allowed up to V _y 2 x 100
MCP (unlimited)	102.7 (38 500)	775	2 x 93.2
Extended PWR (30 min continuous, 50 min cumulated/flight)	104.6 (39 200)	815	2 x 100



5.3.1.2 One Engine Inoperative (OEI) limits

	N1 [% (rpm)]	TOT [°C]	TQ [%]
Overshoot			165.7
OEI HI (30 sec)	111 (41 600)	915	153.4
OEI LO (2 min)	108 (40 500)	865	136.4
OEI CT (unlimited)	105.4 (39 500)	820	119.3

5.3.1.3 Other Engine limits

Refer to approved RFM

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

Types of fuel	NATO Code	Specifications			
		USA	UK	France	Other
Kerosene-50 (AVTUR FSII) JP-8 [-45°C < Tp < +55°C]	F34	MIL-DTL 83133	DEF.STAN. 91-87	DCSEA 134	STANAG 3747
Kerosene 50 (AVTUR) JET-A1 [-45°C < Tp < +55°C]	F35	ASTM-D-1655 MIL-DTL 83133	DEF.STAN. 91-91	DCSEA 134	STANAG 3747 / GOST R 52050-2006
High Flash Point (AVCAT FSII) JP-5 [-45°C < Tp < +55°C]	F44	MIL-DTL 5624	DEF.STAN. 91-86	DCSEA 144	---

Note: For alternative authorized fuel and authorised additives refer to approved RFM

6.2 Oil

6.2.1 Engine lubricants

Types of oil	NATO Code	Specifications
Synthetic 3 cSt oils (restricted use)	---	MIL-PRF-7808L Type I (3cSt)
Average synthetic 5 cSt	0-156 Normal	MIL-PRF-23699F Type II (5cSt)

Note: For further details refer to approved RFM

6.2.2 MGB, IGB and TGB lubricants

Types of oil	Conditions	Specifications		
		USA	UK	France
NATO O-155 mineral oil, 8 cSt	OAT > -20°C	MIL.L 6086.D	DTD 581 C OEP .70	AIR 3525
			Foaming index 20-0 ml max at 93°C	
NATO O-155 mineral oil, 8 cSt	OAT > -25°C	MIL.L 6086.D	DTD 581 C OEP .70	AIR 3525
			Foaming index 20-0 ml max at 93°C	

Note: For further details refer to approved RFM

6.2.3 Hydraulic fluids

MIL-H-83282C or MIL-PRF-83282D
(NATO code H-537) only

6.3 Additives

n/a

7. Fluid capacities

7.1 Fuel

Standard fuel tank

Fuel tank capacity: 2 616 litres

Unusable fuel: 17.7 litres

7.2 Oil

Engine (each): 8.0 litres

MGB: 21.0 litres

IGB: 1.0 litres

TGB: 1.5 litres

Hydraulic:

Main supply I: 5.0 litres

Main supply II: 9.0 litres

7.3 Coolant System Capacity

n/a

8. Air Speed Limitations

$V_{NE \text{ PWR On}}$:

from -1 500 ft Hp to 3 000 ft Hp: 175 KIAS

For reduction of V_{NE} with altitude, refer to approved RFM.

$V_{NE \text{ PWR Off}}$:

$V_{NE \text{ PWR On}} - 40 \text{ KIAS}$

Refer to approved RFM for other speed limitations.

9. Rotor Speed Limitations

Power on [rpm (%]):

Maximum 298.5 (107)

Reference 279.0 (100)

Minimum continuous 265.2 (95)

Minimum transient AEO and OEI 231.7 (83)

Power off [rpm (%]):

Maximum transient (20 s) 326.7 (117)

Maximum continuous 307.1 (110)

Minimum continuous 244.3 (87.5)

Minimum transient 231.7 (83)



10. Maximum Operating Altitude and Temperature

10.1 Altitude

For TKOF/LDG:

Category A: from -1 500 ft Hp up to +13 000 ft Ho

Category B: from -1 500 ft Hp up to +13 000 ft Ho

For flight:

from -1 500 ft Hp to +15 000 ft Ho

10.2 Temperature

From -40°C to ISA+40°C limited to OAT +50°C

For variation of Temperature limitations with altitude, refer to approved RFM and applicable Supplements.

11. Operating Limitations

VFR day and night

IFR

Non-icing conditions

12. Maximum Mass

Max gross mass in-flight: 7 500 kg (16 535 lb)

Max gross mass on-ground: 7 550 kg (16 645 lb)

13. Centre of Gravity Range

Refer to approved RFM [Section 2.2] and applicable Supplements (as for Extended Aft Centre of Gravity Envelope and Hoist Installation).

14. Datum

Longitudinal:

the datum plane (STA 0) is located at 7 000 mm forward of main rotor centre line

Lateral:

fuselage symmetry plane

15. Levelling Means

Levelling reference marking on upper deck on LH side near to frame 4 MGB

16. Minimum Flight Crew

VFR: 1 pilot (right seat)

IFR: 2 pilots

17. Maximum Passenger Seating Capacity

VFR: up to 17

IFR: up to 16

See approved RFM for approved seating configuration

18. Passenger Emergency Exit

10 exits:

4 exits on each side of the passenger cabin

1 exit on each side of the cockpit

19. Maximum Baggage/ Cargo Loads

Cargo floor max load: 300 kg

Cargo floor max unit load: 160 kg/m²

20. Rotor Blade Control Movement

For rigging information refer to Maintenance Manual

21. Auxiliary Power Unit (APU)

n/a

22. Life-limited Parts

See approved ALS Chapter 04 of the Maintenance Servicing Manual



23. Wheels and Tyres

Tyres: nose: 15x6.00-6
 main: 615 x 225-10
 Wheels: nose: C 20525 000
 main: C 20147 200

IV. Operating and Service Instructions

- | | |
|--|--|
| 1. Flight Manual | <ul style="list-style-type: none"> - EC175 B Flight Manual, normal revision RNO, date code 14-03, approved by EASA on 30 January 2014, or subsequent approved issues; - EC175 B Flight Manual for aircraft equipped with the modification 99A03550-00-M-ECP or 99A04155-00-M-ECP, normal revision RNO, date code 15-43 approved by EASA on 18 December 2015, or subsequent approved issues |
| 2. Maintenance Manual | <ul style="list-style-type: none"> - Airworthiness Limitations as EC175 Maintenance Servicing Manual, Chapter 04, edition 2014.01.08, Rev. 000, approved by EASA on 30 January 2014, or subsequent approved issues - Maintenance Servicing Manual EC175 and Aircraft Maintenance Manual EC175 as published by Airbus Helicopters |
| 3. Structural Repair Manual | Structural Repair Manual EC175, as published by Airbus Helicopters |
| 4. Weight and Balance Manual | Section 6 of Complementary Flight Manual EC175, as published by Airbus Helicopters |
| 5. Illustrated Parts Catalogue | Illustrated Parts Catalogue EC175, as published by Airbus Helicopters |
| 6. Service Letters and Service Bulletins | Service Letters and Service Bulletins EC175, as published by Airbus Helicopters |
| 7. Required Equipment | As per compliance with Certification Basis and in accordance with the Type Design Definition. Refer to approved Flight Manual and MMEL. |

V. Notes

1. Manufacturer's eligible serial numbers: s/n 5002, and subsequent.
2. Cabin interior and seating configurations must be approved, if differing from the Type Design Definition.
3. The certified "optional" installations are each approved independently of the basic helicopter and an approved RFM Supplement is associated to each optional installation if necessary.
4. The EC175 B is certified as Category A rotorcraft with operating limitations as defined in the relevant approved RFM Supplement.



V. Notes (contd.)

5. The EC175 B is certified for Ditching with the optional installations and operating procedures as defined in the relevant approved Flight Manual Supplement.
6. Designation: "H175" is the trade name for helicopters of Type Certificate "EC175 B"

* * *



SECTION 2: OPERATIONAL SUITABILITY DATA (OSD)

The OSD elements listed below are approved by the European Aviation Safety Agency as per Commission Regulation (EU) 748/2012, as amended by Commission Regulation (EU) No 69/2014.

I. OSD Certification Basis

- I.1 Reference Date for determining the applicable OSD requirements
13 February 2014, Ref. EC175 ORI 4, Issue 2
- I.2 MMEL - Certification Basis
Elected to comply to: CS-MMEL, Initial Issue
- I.3 Flight Crew Data - Certification Basis
Elected to comply to: CS-FCD, Initial Issue

II. OSD Elements

- II.1 MMEL
Master Minimum Equipment List EC175 B, Normal Revision 0, Date-code 14-30,
or later EASA-approved revisions
- II.2 Flight Crew Data
Flight Crew Data for EC175, Doc. TC M000A0621E99, Issue A, dated 24 September 2015,
or later EASA-approved revisions



SECTION: ADMINISTRATIVE**I. Acronyms and Abbreviations**

AEO	All Engines Operative	MCP	Maximum Continuous Power
C.G.	Centre of Gravity	min	Minute
CG _x	Centre of Gravity on the x-axis	MMEL	Master Minimum Equipment List
CG _y	Centre of Gravity on the y-axis	OAT	Outside ne Engine Inoperative
CRI	Certification Review Item	OEI	One Engine Inoperative
CS	Certification Specification	OSD	Operational Suitability Data
cSt	Centistoke	PWR	Power
Hp	Pressure altitude	RFM	Rotorcraft Flight Manual
Hσ	Density Altitude	s/n	Serial Number
FCD	Flight Crew Data	sec	Seconds
HIRF	High Intensity Radiated Field	STA	Station
IFR	Instrumental Flight Rules	TKOF	Take-off
ISA	Internat. Standard Atmosphere	TOP	Take-off Power
KIAS	Knots Indicated Air Speed	VFR	Visual Flight Rules
LDG	Landing	V _{NE}	Never Exceed Speed
LH	Left Hand	V _{NE PWR On}	Never Exceed Speed Power On
Max	Maximum		

II. Type Certificate Holder Record

Type Certificate Holder	Period
Airbus Helicopters Aéroport International Marseille – Provence 13725 Marignane CEDEX, France	since 30 January 2014

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	5 Feb 2014	Initial issue	Initial Issue, 30 January 2014
Issue 02	18 Dec 2015	Operating Temperature and Altitude extension; Aft Longitudinal C.G. limits extension; RFM for Helionix Step 2/2R configurations; Operational Suitability Data added; Trade name added.	- - -

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