

Appendix 1

BASELINE AIRCRAFT DEFINITION

3 Baseline Aircraft Definition

ACH145 certified as model MBB-BK117 D-3

GENERAL

- Energy absorbing fuselage
- Tail boom with fixed horizontal stabilizer and vertical fin with faired-in Fenestron^a
- Upper deck with fittings for main gearbox, engines, hydraulic and cooling system
- Cowlings for main transmission and engines
- Improved engine cowling heat protection
- Skid-type landing gear with skid protectors, capable of taking ground-handling wheels
- Long boarding steps, LH and RH
- Cold weather kit
- Built-in maintenance steps and grips
- Exterior painting (single color)

COCKPIT, CABIN AND CARGO COMPARTMENT

- One-level cabin and cargo compartment floor with integrated rails
- Two hinged cockpit doors with sliding window
- Map case in pilot's door
- Two wide passenger sliding doors with window of push-out type
- Two rear hinged clam-shell doors
- Longitudinally adjustable energy absorbing pilot and copilot seats with head rest and 4-point safety belts with automatic locking system
- Cabin & cockpit boarding grips (LH and RH)
- Flight controls (pilot side)
- Covers for copilot collective lever, cyclic stick and pedals
- Single pilot instrument panel with glare shield
- Interior paneling
- Interior painting in light grey
- Ram-air and electrical ventilating system for cockpit and cabin
- Bleed air heating system
- Ventilation for avionics deck^a
- Helmet holder in the cockpit, rotatable
- Portable fire extinguisher
- Stowage net for first aid kit at the LH rear clam-shell door
- 2 flashlights (torches)
- Slant console
- Center console
- Windscreen wiper for pilot and copilot
- Door open warning
- Pilot's and copilot's collective control guards^b

a. If required by final configuration.

b. Installed or delivered as loose part depending on final configuration.

INSTRUMENTS

- Flight Display Subsystem (FDS) composed of 2 smart multifunction displays (6 x 8 inch) providing the following functions:
 - Flight Navigation Display (FND) format (incl. PFD, FLI, Master list, NAV, RPM, mast moment & fuel indication)
 - Vehicle Monitoring System (VMS) format (incl. engine, gearbox, hydraulic, fuel, electrical system, RPM and clock indication)
- Vehicle Management System (VMS) including:
 - 2 duplex Aircraft Management Computer (AMC)
- Reference sensors:
 - 3 Attitude and Heading Reference Systems (AHRS)
 - 2 Air Data sensors (electrically heated pitot tube and static port)
 - 2 Three Axis Magnetometers (TAM)
- Stand-by instruments:
 - Integrated Electronic Standby Instrument (IESI)
 - Stand-by compass
- Usage Monitoring System (UMS)
- Flight Data Continuous Recorder (FDCR)
- "One hundred feet" alert
- Directional Gyro Free Steering Mode
- Warning unit:
 - Engine fire warning with fuel emergency shut-off
 - Warning lights
 - Fire extinguishing system warning
- Cockpit Control Panel (CCP) for FDS
- Wireless Airborne Communication Server (wACS)
- Engine switch panel:
 - Digital engine control (FADEC)
- Radar altimeter

POWER PLANT

- Two Safran Helicopter Engines ARRIEL 2E turbine engines with electronic engine control (double channel FADEC)
- Crash resistant fuel system with a flexible bladder-type fuel main tank and supply tank (split into two sections)
- Two independent oil cooling and lubrication systems of the engines
- Fire detection and extinguishing system
- Chip detectors with quick-disconnect plugs
- Twin-engine OEI-training mode
- Automatically controlled variable rotor speed system
- Cycle counter
- Drain system
- Firewalls

TRANSMISSION SYSTEM

- Main transmission including an independent redundant lubrication system and monitoring sensors
- Chip detector system with quick-disconnect plug (main transmission)
- Free wheel assemblies in the engine input drives
- Rotor brake system
- Tail rotor transmission system with splash lubrication and oil level sight gauge
- Chip detector system with quick-disconnect plug (tail rotor gearbox)

ROTOR AND FLIGHT CONTROLS

- Bearingless Main Rotor system (BMR), consisting of:
 - Rotor head / mast in one piece
 - Five glass and carbon fiber reinforced blades with erosion protection strip, control cuff, detachable outer blade, elastomeric lead-lag dampers
- Fenestron[®] type tail rotor with ten composite blades (asymmetric blade spacing) and stator
- Tail rotor gearbox fairing
- Basic provisions for an easy integration of a track and balance system
- Dual hydraulic boost system for cyclic and collective blade control of the main rotor
- Electrical hydraulic pump for main rotor
- Tail rotor control system with flexball cable and dual hydraulic booster
- Main rotor blade tip painting (yellow)
- Vector Mast Moment System (VMMS)
- Dual Duplex 4-axis Digital Automatic Flight Control System including upper modes

ELECTRICAL INSTALLATION

- Power generation system:
 - Two starter/generators (2 x 200 A, 28 VDC)
 - Nickel-Cadmium battery, (24 VDC, 40 Ah)
 - External power connector (STANAG 3302, LN 9064, SAE AS 25018, SAE AS 35061)
- Power distribution system:
 - Two main busbars
 - Two essential busbars
 - Two shedding busbars
 - Two non-essential busbars (80 A) for optional equipment only
 - Battery bus
 - One utility receptacle in RH side of cargo compartment (28 VDC, 20 A)
- DC power control
- Two avionic master switches
- Headset electrical power supply (28 VDC)
- Lighting:
 - Dual color anti-collision warning light (red flashing) with integrated white strobe light (400 Cd), LED
 - Fixed landing light, LED
 - Three position lights (red, green, white), LED
 - Adjustable instrument lighting
 - One utility light in the cockpit, LED
 - Lights in the cabin and cargo compartment
 - Boarding illumination
 - Emergency lights

GROUND HANDLING KIT^a

- Basic aircraft covers (short term, incl. main rotor blade tie down)
- Oil drain hoses
- Keys for cockpit, cabin, clam-shell doors and tank flap (one-key system)
- Battery key
- Lifting points
- Compass compensation key
- Fuel drain device
- Operational software for AMC and MFD
- Primary Configuration File (PCF)
- Automatic engine data transfer to motorist
- Corrective Maintenance & Fleet monitoring web applications including WACS telecommunication during 3 years
- Standard Maintenance Laptop (Packaged PC) including:
 - MGS (Maintenance Ground Station) software
 - AHDL (Airbus Helicopters Data Loader) software, full licence
 - AASP (Digital software signature checker) software
 - HFDM converter (Flight Data Continuous Recorder converter) software
 - HReplay (to read cockpit camera) software^b
 - Garmin GTX 335 transponder installation tool software^b
 - Data Transfer Module (to upload Euronav 7 database) software^b

- a. Weight not included in the standard helicopter empty weight.
b. If equipped.

DOCUMENTATION (in English)

- One Flight Manual incl. supplements^{a, b} (on paper)
- One Pilots Checklist^c (on paper)
- Master Minimum Equipment List (MMEL)^a online via AirbusWorld portal
- One Logbook (on paper, USB memory stick on demand)
- One Historical Record (on paper, USB memory stick on demand)
- Technical Documentation^{a, d} incl. ALS, MSM, AMM, SDS, WDM, IPC, CECG, SRM online in ORION via AirbusWorld portal
- Service Bulletin Catalogue (SB) online via T.I.P.I.
- List of Applicable Publications (LOAP)^a online via AirbusWorld portal
- One Avionics Manual^a (for avionics installed by Airbus) (on USB memory stick and online via AirbusWorld portal)
- Online Component Maintenance Manual (OCMM)^c for vendor manuals online via AirbusWorld portal
- Engine Documentation^a (online via TOOLS portal), furnished by supplier, including:
 - Maintenance Manual
 - Illustrated Parts Catalogue (IPC)

- a. Revision service included as long as the aircraft is operational.
b. One Flight Manual included in the standard helicopter empty weight.
c. Revision service for 3 years.
d. Customized documentation in special cases / on request.
e. Customized documentation.

AIRBUS

ACH145

Pilot	Single/Dual
VFR / IFR	IFR
Day / Night	Night
Cat. A	Yes
Instrumentation	Glass Cockpit
Avionics	GARMIN
NVG friendly	Yes
MTOW	3,800 kg

Baseline Aircraft

Qty	Document Reference	Commercial Reference	Title	External Comment
1	00-10050-A	D0000-301-00	H145 Baseline Aircraft 145 D-3 24.100.01 E	
1	00-60001-C	D0000-105-00	Placards in English / Italian	

Mandatory Items

Qty	Document Reference	Commercial Reference	Title	External Comment
05 General Equipment				
1	05-03015-B	D2562-000-00	First aid kit	Customization of first aid kit content necessary to comply with EASA AIR-OPS requirements. Medications may have to be removed for export.
1	05-22028-B	D7935-000-00	Fuzz burner for engines, main transmission and Fenestron® gearbox	
1	05-23008-B	D7165-000-00	Engine compressor wash kit	
1	05-31121-B	D2514-500-00	Tinted sun shades incl. IR filter for cockpit windshield roof section	
1	05-37027-A	D6701-001-00	Copilot flight controls	
1	05-38024-C	D3111-101-00	Instrument panel extension on copilot side	
1	05-39017-A	D2513-001-00	Map case in copilot door	
1	05-41012-A	D2143-000-00	Electrical heating system	
1	05-68012-A	D3343-000-00	Additional electrical unit	
1	05-85017-B	D2841-000-00	Fuel management system (fuel flow meters)	
06 Specific Mission Equipment				
1	06-45091-A	D3344-100-00	Search & landing light, LED	
1	06-67064-B	D2563-400-00	Emergency Locator Transmitter (ELT)	ELT code to be provided by the customer latest 4 months prior to helicopter delivery.
07 Interior Layout				
1	07-15028-B	D2512-101-00	Height adjustable copilot seat instead of standard copilot seat	
1	07-15028-B	D2512-102-00	Height adjustable pilot seat instead of standard pilot seat	

08 Avionics

1	08-00466-A	D2300-100-01	Avionics Package SP/DP IFR GTN 750Xi / Lynx / ACU6100	Product offered with EASA certification. The availability of other certifications needs to be confirmed by Airbus helicopter sales representative.
1	08-16116-B	D2352-000-00	Digital Voice Control System (DVCS 6100). incl. ACU 6100 (Becker), pilot + copilot	
1	08-22086-A	D3451-500-00	Transponder Lynx NGT9000R+ (ACSS)	Incl. ADS-B out. ADS-B in. TCAS I. Product offered with EASA certification. The availability of other certifications needs to be confirmed by Airbus helicopter sales representative.
1	08-25035-A	D3455-000-00	Distance Measuring Equipment (DME) DME-4000 (Rockwell Collins)	
1	08-26058-A	D3431-000-00	Marker beacon receiver MKR3300-1 (Becker)	
1	08-43085-B	D3463-701-00	GPS/NAV/COM GTN 750Xi (Garmin), copilot	SBAS RNP approach local service availability verification through your Airbus helicopter sales representative on request.
1	08-43085-B	D3463-702-00	GPS/NAV/COM GTN 750Xi (Garmin), pilot	SBAS RNP approach local service availability verification through your Airbus helicopter sales representative on request.
1	08-43079-B	D3464-000-00	Wireless connectivity Flight Stream 510 (Garmin)	
1	08-65048-B	D3161-000-00	Flight Display Subsystem (FDS), copilot	
1	08-99003-C	D0000-151-08	Avionics Package SP/DP IFR GTN Series interconnection / wiring	
1	08-35055-G	D3446-000-00	Helicopter Terrain Awareness and Warning System (H-TAWS) - Helionix	The database update service is provided under a dedicated service contract. Please contact your Airbus helicopter sales representative for further information.
1	08-35057-E	D3446-100-00	Synthetic Vision System (SVS) - Helionix	The database update service is provided under a dedicated service contract. Please contact your Airbus helicopter sales representative for further information.
1	08-65074-A	D3161-100-00	Helionix data connector	
1	08-82003-A	D3139-100-00	Cockpit camera	

Optional Items

Qty	Document Reference	Commercial Reference	Title	External Comment
05 General Equipment				
1	05-02063-C	D1113-300-00	Complex exterior painting instead of standard painting	
1	05-02066-C	D1113-500-00	Surface protective coating (Airglaze), incl. main rotor blades	
1	05-21034-D	D7162-600-00	Inlet Barrier Filter (IBF) system, synthetic filters	
1	05-31126-D	D5635-100-00	Tinted windows incl. IR filter in cockpit doors	
1	05-31126-D	D5635-200-00	Tinted windows incl. IR filter in sliding doors	
1	05-31126-D	D5635-400-00	Tinted windows incl. IR filter in cabin	
1	05-31126-D	D5635-600-00	Tinted push-out cabin windows incl. IR filter	
1	05-36034-B	D5310-000-00	Step areas on cabin roof	
1	05-36034-B	D7113-000-00	Additional maintenance handles on transmission cowling	
1	05-39019-A	D2514-100-00	Map case on instrument panel glare shield	
1	05-42056-B	D2111-200-00	Air Conditioning System (ACS)	
1	05-61024-A	D2433-200-00	Battery (44 Ah, 24 VDC) ULM (Saft) instead of standard battery	
1	05-67030-B	D2465-100-00	Power sockets (28 VDC) at center console and LH rear cabin wall	The power sockets are normally secured with a 20 A circuit breaker. Depending on the final helicopter configuration the circuit breaker value may vary.
1	05-91015-A	D0910-000-00	Ground handling wheels	GSE

06 Specific Mission Equipment

1	06-26025-C	D3181-000-00	Tail boom camera (incl. Cat. A vertical takeoff and landing functionality)	
1	06-46011-A	D3347-400-00	Fenestron light	
1	06-46013-B	D3328-000-00	Automatic activation of illumination with door opening	
1	06-61032-D	D3214-000-10	Emergency floats, fixed provisions	
1	06-61033-B	D3214-100-00	Emergency floats, landing gear	
1	06-61038-D	D2565-100-10	Emergency floats with integrated liferafts (DART - STC), fixed provisions	This STC includes EASA and FAA certification. Prices and leadtimes for further national certifications are available on request.
1	06-61038-D	D2565-100-20	Emergency floats with integrated liferafts (DART - STC), detachable parts	This STC includes EASA and FAA certification. Prices and leadtimes for further national certifications are available on request.
1	06-65013-C	D2625-200-00	2nd portable fire extinguisher	Required for seating configuration with 7 passengers or more.
1	06-66023-B	D3324-000-00	Illuminated signs "NO SMOKING / FASTEN SEAT BELT"	
1	06-74032-A	D3331-000-00	Cargo light	
1	06-89003-A	D2631-000-00	Smoke detector	Required for separation wall cabin / baggage compartment.

07 Interior Layout

1	07-27021-D	D2522-000-00	Passenger seating, 8 club seats (standard arrangement)	
8	07-27021-D	D2522-800-07	Passenger seating, stowage pocket below seat	
1	07-30090-A	D2581-200-00	Enhanced sound proofing kit	
1	07-31002-A	D2508-600-10	Separation wall for cabin / baggage compartment, aft, fixed provisions	
1	07-50071-A	D5221-000-00	Jettisonable cockpit doors	
1	07-60042-A	D2513-100-00	Map cases in sliding doors	
1	07-60046-C	D8504-100-00	Universal cargo net	
1	07-80050-E	MAG-45200-100-1	ACH Line, 8 Passengers, package (MAG - STC)	
1	07-91097-C	MAG-45210-110-2	ACH Line, carpet for cockpit and cabin, three rows seating layout	
1	07-83034-B	MAG-45210-120-2	ACH Line, leather cuffs for controls	
1	07-83035-C	MAG-45210-121-1	ACH Line, rotor brake lever	
1	07-80053-B	MAG-45220-106-1	ACH Line, stainless steel protection sheets at entry	
1	07-91098-D	MAG-45220-130-1	ACH Line, cabin ceiling with air outlets, lights and center carbon plate	
1	07-91111-B	MAG-45220-140-1	ACH Line, carbon inserts for adapter plates	
1	07-80052-C	MAG-45220-150-1	ACH Line, leather upholstery for sliding door map case (LH/RH)	
1	07-80051-B	MAG-45220-170-1	ACH Line, metal placards	
1	07-91116-C	MAG-45220-180-1	ACH Line, leather upholstery for frame at rear clamshell doors	
2	07-86037-D	MAG-45230-140-2	ACH Line, leather upholstery for crew seats	
8	07-86038-E	MAG-45230-150-2	ACH Line, leather upholstery for passenger seats	
8	07-91154-A	MAG-45230-155-3	ACH Line, Headset holder	
2	07-86017-C	MAG-45230-110-2	ACH Line, protection covers for crew seats	GSE
8	07-86018-B	MAG-45230-120-2	ACH Line, protection covers for passenger seats	GSE
1	07-91117-C	MAG-45230-131-2	ACH Line, protection covers for carpet, three rows seating layout	GSE
1	07-80050-E	D2582-400-00	ACH Line interior painting, light beige (RAL 1013), Semi gloss finish	
1	07-80050-E	MAG-45290-161-1	ACH Line, Oyster color mood	
1	07-85049-C	MAG-45220-140-2	ACH Line, separation wall between cabin and baggage compartment, rear installation	

1	07-85050-D	MAG-45240-102-2	ACH Line, cabinet, rear	Non simultaneous fitment with middle passenger seat in rear row.
1	07-85050-D	MAG-45240-103-2	ACH Line, ice box for cabinet	
1	07-86038-E	MAG-45230-154-2	ACH Line, literature pockets at the back of the middle row seats	
1	07-91124-C	MAG-45220-135-1	ACH Line, armrests at window niches	
1	07-91140-B	MAG-45290-180-2	ACH Line, change of safety belt color	
1	07-91140-B	MAG-45290-193-2	ACH Line, change of carbon into wooden surface (ACH Catalogue)	
1	07-91140-B	MAG-45290-198-2	ACH Line, change of carpet into luxury carpet	
1	07-91140-B	MAG-45290-200-2	ACH Line, change of carpet color	
1	07-91140-B	MAG-45290-181-2	ACH Line, change of safety belt buckles into metal	

08 Avionics

1	08-15586-A	D2315-800-00BFE	Cellular and Satellite communication device DZMx (Flightcell), BFE	DZMx (Flightcell) is Buyer Furnished Equipment (BFE). Please provide EASA Form 1 and tracking record for historical data without gaps (Log-card or other document) for each item provided, independently for new or used parts. Following P/N can be installed: DZP_04-800-BEW, DZP_04-800-BPW, DZP_04-802-BPW. Activated software options need to be agreed before contract signature.
1	08-17090-C	D2331-010-00	Cabin loudspeaker	
2	08-18064-D	D2333-000-01	Headset adapter cable Glenair/LEMO ANR, short	
8	08-18064-D	D2333-100-03	Headset adapter cable Glenair/LEMO ANR, coiled, with IC/TX switch	
10	08-18068-A	D2316-110-00	Headset A30 ANR LEMO (Bose), bluetooth, high impedance	
1	08-31064-B	D3443-000-10	Weather radar RDR 2000 (Honeywell), fixed provisions	
1	08-31064-B	D3443-020-30	Weather radar RDR 2000 incl. control unit CP466 - NVG (Honeywell), vendor parts	
1	08-31073-D	D3443-400-00	ACH Style nose	Weight, in combination with weather radar RDR 2000 (Honeywell), fixed provisions: 2.2 kg.
1	08-46058-C	D3168-100-00	Moving map - Helionix	The database update service is provided under a dedicated service contract. Please contact your Airbus helicopter sales representative for further information. In combination with Transponder Lynx NGT9000R+ (ACSS), no traffic information is indicated on the moving map.
1	08-65057-A	D3113-302-00	Universal tablet holder, pilot	
1	08-65057-A	D3113-301-00	Universal tablet holder, copilot	
1	08-65069-C	D2491-502-00	Power sockets (USB type A & C), pilot	
1	08-65069-C	D2491-501-00	Power sockets (USB type A & C), copilot	
1	08-65069-C	D2491-400-00	Power sockets (USB type A & C), cabin, middle and rear row	
1	08-65069-C	D2491-600-00	Power sockets (USB type A & C), center console	
1	08-81049-B	D3133-000-00	Cockpit Voice and Flight Data Recorder (CVFDR)	Ground station not included.
1	08-83042-C	D3171-200-10	Health Monitoring System (HMS), fixed provisions	

Further Available Equipment

Qty	Document Reference	Commercial Reference	Title	External Comment
1	05-31120-C	D5204-301-00	Sliding door fastener, max. position, LH	
1	05-31120-C	D5204-302-00	Sliding door fastener, max. position, RH	
1	07-50081-A	D5231-200-00	One-hand latching system for clam-shell doors (ADAC - STC)	This STC includes EASA and FAA certification. Prices and lead times for further national certifications are available on request.

Export control regulations: Airbus Helicopters is committed to strict compliance with all applicable export control regulations and requires a corresponding commitment from the Customer. Some items/commodities are controlled under at least one export control law or regulation and therefore may require export authorization(s) and Airbus Helicopters cannot guarantee that they will be granted. Nevertheless Airbus Helicopters will perform all necessary procedures for obtaining such authorization(s). The Customer shall support the authorization(s) application(s) procedure(s) by providing the necessary documentation and information, particularly end-user certificates, undertakings, documents on the utilization of the items/commodities, etc. The Customer shall comply with the conditions of the export authorization(s). Airbus Helicopters reserves the right to deliver the helicopter without the controlled items, should the competent authorities deny or delay export authorization(s). The same is valid if the competent authorities do not react at all or in cases of a return without action or if otherwise the absence of a required authorizations or provisions of any regulations inhibit a delivery in time.

The Customer is responsible for the identification of instruments and equipment required to comply with the relevant regulations. Based on the mission parameters defined by the Customer and upon request, Airbus Helicopters can advise the Customer on the identification of instruments and equipment required to comply with the European Air Operations Regulation (EU Regulation n° 965/2012, so called EASA AIR-OPS)