Annex I to ED Decision 2016/012/R

'AMC and GM to Part-CAT — Issue 2, Amendment 7'

The Annex to Decision 2014/015/R is amended as follows:

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

(a) deleted text is marked with ~~strikethrough~~;

(b) new or amended text is highlighted in grey;

(c) an ellipsis (…) indicates that the remaining text is unchanged in front of or following the reflected amendment.

1. Sub-paragraph (d) of GM2 CAT.GEN.MPA.195(b) is amended as follows:

(…)

(d) 'continuous monitoring for proper operation' means for a flight recorder system, a combination of system monitors and/or built-in test functions which operates continuously in order to detect the following:

(1) loss of electrical power supply to the flight recorder system;

(2) failure of the equipment performing acquisition and processing;

(3) failure of the recording medium and/or drive mechanism; and

(4) failure of the recorder to store the data in the recording medium as shown by checks of the recorded data including, as reasonably practicable for the storage medium concerned, correct correspondence with the input data.

However, detections by the continuous monitoring for proper operation do not need to be automatically reported to the flight crew compartment.

2. A new AMC to sub-paragraph (f)(1) of CAT.GEN.MPA.195 is introduced:

AMC1 CAT.GEN.MPA.195(f)(1) Handling of flight recorder recordings: preservation, production, protection and use

USE OF CVR RECORDINGS FOR MAINTAINING OR IMPROVING SAFETY

(a) The procedure related to the handling of cockpit voice recorder (CVR) recordings should be written in a document which should be signed by all parties (airline management, crew member representatives nominated either by the union or the crew themselves, maintenance personnel representatives if applicable). This procedure should, as a minimum, define:

(1) the method to obtain the consent of all crew members and maintenance personnel concerned;

(2) an access and security policy that restricts access to CVR recordings and identified CVR transcripts to specifically authorised persons identified by their position;

(3) a retention policy and accountability, including the measures to be taken to ensure the security of the CVR recordings and CVR transcripts and their protection from misuse. The retention policy should specify the period of time after which CVR recordings and identified CVR transcripts are destroyed;

(4) a description of the uses made of the CVR recordings and of their transcripts;

(5) the participation of flight crew member representatives in the assessment of the CVR recordings or their transcripts;

(6) the conditions under which advisory briefing or remedial training should take place; this should always be carried out in a constructive and non-punitive manner; and

(7) the conditions under which actions other than advisory briefing or remedial training may be taken for reasons of gross negligence or significant continuing safety concern.

(b) Each time a CVR recording file is read out under the conditions defined by CAT.GEN.MPA.195(f)(1):

(1) parts of the CVR recording file that contain information with a privacy content should be deleted to the extent possible, and it should not be permitted that the detail of information with a privacy content is transcribed; and

(2) the operator should retain, and when requested, provide to the competent authority:

(i) information on the use made (or the intended use) of the CVR recording; and

(ii) evidence that the persons concerned consented to the use made (or the intended use) of the CVR recording file.

(c) The safety manager or the person identified by the operator to fulfil this role should be responsible for the protection and use of the CVR recordings and of their transcripts, as well as the assessment of issues and their transmission to the manager(s) responsible for the process concerned.

(d) In case a third party is involved in the use of CVR recordings, contractual agreements with this third party should, when applicable, cover the aspects enumerated in (a) and (b).

3. A new GM to sub-paragraph (f)(1) of CAT.GEN.MPA.195 is introduced:

GM1 CAT.GEN.MPA.195(f)(1) Handling of flight recorder recordings: preservation, production, protection and use

USE OF CVR RECORDINGS FOR MAINTAINING OR IMPROVING SAFETY

(a) The CVR is primarily a tool for the investigation of accidents and serious incidents by investigating authorities. Misuse of CVR recordings is a breach of the right to privacy and it works against an effective safety culture inside the operator.

(b) It is noteworthy that the flight data recorder (FDR) may be used for a flight data monitoring (FDM) programme; however, in that case the principles of confidentiality and access restriction of the FDM programme apply to the FDR recordings. Because the CVR is recording the voices of the crew and verbal communications with a privacy content, the CVR recordings must be protected and handled with even more care than FDM data.

(c) Therefore, the use of a CVR recording, when for purposes other than CVR serviceability or those laid down by Regulation (EU) No 996/2010, should be subject to the free prior consent of the persons concerned, and framed by a procedure that is endorsed by all parties and that protects the privacy of crew members and (if applicable) maintenance staff.

4. A new AMC to sub-paragraph (f)(1a) of CAT.GEN.MPA.195 is introduced:

AMC1 CAT.GEN.MPA.195(f)(1a) Handling of flight recorder recordings: preservation, production, protection and use

CVR RECORDING INSPECTION FOR ENSURING SERVICEABILITY

(a) When an inspection of the CVR recording is performed for ensuring audio quality and intelligibility of recorded communications:

(1) the privacy of the CVR recording should be ensured (e.g. by locating the CVR replay equipment in a separated area and/or using headsets);

(2) access to the CVR replay equipment should be restricted to specifically authorised persons;

(3) provision should be made for the secure storage of the CVR recording medium, the CVR recording files and copies thereof;

(4) the CVR recording files and copies thereof should be destroyed not earlier than two months and not later than one year after completion of the CVR recording inspection, except that audio samples with no privacy content may be retained for enhancing the CVR recording inspection (e.g. for comparing audio quality);

(5) only the accountable manager of the operator, and when identified to comply with ORO.GEN.200, the safety manager should be entitled to request a copy of the CVR recording files.

(b) The conditions enumerated in (a) should also be complied with if the inspection of the CVR recording is subcontracted to a third party. The contractual agreements with the third party should explicitly cover these aspects.

5. A new AMC to sub-paragraph (f)(2) of CAT.GEN.MPA.195 is introduced:

GM1 CAT.GEN.MPA.195(f)(2) Handling of flight recorder recordings: preservation, production, protection and use

USE OF FDR DATA FOR AN FDM PROGRAMME

The use of FDR data in the framework of an FDM programme may be acceptable if it fulfils the conditions set by sub-paragraph (f)(2) of CAT.GEN.MPA.195.

6. The number and subtitle of AMC1 CAT.IDE.A.190 are amended as follows:

AMC1.1 CAT.IDE.A.190 Flight data recorder

OPERATIONAL PERFORMANCE REQUIREMENTS FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CofA ON OR AFTER 1 JANUARY 2016 AND BEFORE 1 JANUARY 2023

7. In Table 1 of AMC1 CAT.IDE.A.190 (now renumbered AMC1.1 CAT.IDE.A.190), Parameter 27 is amended as follows:

27	Air–ground status. Air–ground status and a sensor of each landing gear if installed

8. In Table 2 of AMC1 CAT.IDE.A.190 (now renumbered AMC1.1 CAT.IDE.A.190),

(a) Parameter 15 is amended as follows:

15	Autopilot, autothrottle and automatic flight control system (AFCS) mode and engagement status

(b) Parameter 21 is amended as follows:

21	Vertical deviation — the approach aid in use should be recorded. For auto-land/category III operations, each system should be recorded:
21a	ILS/GPS/GLS glide path
21b	MLS elevation
21c	~~GNSS approach path~~ Integrated approach navigation (IAN)/integrated area navigation (IRNAV), vertical deviation

(c) Parameter No 32 is amended as follows:

32	Landing gear:
32a	Landing gear position
32b	Gear selector position

(d) Parameter No 56 is amended as follows:

56	Fuel quantity ~~or fuel quantity~~ in CG trim tank

(e) Parameters Nos 72, 73 and 74 are amended as follows:

72	Trim control input position in the flight crew compartment, pitch ~~Flight crew compartment trim control input position pitch~~ — when mechanical means for control inputs are not available, ~~cockpit~~ displayed trim position~~s~~ or trim command should be recorded.
73	Trim control input position in the flight crew compartment, roll ~~Flight crew compartment trim control input position roll~~ — when mechanical means for control inputs are not available, ~~flight crew compartment~~ displayed trim position~~s~~ or trim command should be recorded.
74	Trim control input position in the flight crew compartment, yaw ~~Flight crew compartment trim control input position yaw~~ — when mechanical means for control inputs are not available, ~~flight crew compartment~~ displayed trim position~~s~~ or trim command should be recorded.

9. A new AMC to CAT.IDE.A.190 is introduced and inserted between AMC1.1 CAT.IDE.A.190 and AMC2 CAT.IDE.A.190:

AMC1.2 CAT.IDE.A.190 Flight data recorder

OPERATIONAL PERFORMANCE REQUIREMENTS FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CofA ON OR AFTER 1 JANUARY 2023

(a) The operational performance requirements for FDRs should be those laid down in EUROCAE Document 112A (Minimum Operational Performance Specification for Crash Protected Airborne Recorder Systems) dated September 2013, or any later equivalent standard produced by EUROCAE.

(b) The FDR should, with reference to a timescale, record:

(1) the list of parameters in Table 1 below;

(2) the additional parameters listed in Table 2 below, when the information data source for the parameter is used by aeroplane systems or is available on the instrument panel for use by the flight crew to operate the aeroplane; and

(3) any dedicated parameters related to novel or unique design or operational characteristics of the aeroplane as determined by the Agency.

(c) The parameters to be recorded should meet the performance specifications (range, sampling intervals, accuracy limits and resolution in read-out) as defined in the relevant tables of EUROCAE Document 112A, or any later equivalent standard produced by EUROCAE.

Table 1: FDR — All aeroplanes

No*	Parameter
1a	Time; or
1b	Relative time count
1c	Global navigation satellite system (GNSS) time synchronisation
2	Pressure altitude (including altitude values displayed on each flight crew member's primary flight display)
3	Indicated airspeed or calibrated airspeed (including values of indicated airspeed or calibrated airspeed displayed on each flight crew member's primary flight display)
4	Heading (primary flight crew reference) — when true or magnetic heading can be selected as the primary heading reference, a discrete indicating selection should be recorded.
5	Normal acceleration
6	Pitch attitude — pitch attitude values displayed on each flight crew member's primary flight display should be recorded, unless the aeroplane is type certified before 1 January 2023 and recording the values displayed at the captain position or the first officer position would require extensive modification.
7	Roll attitude — roll attitude values displayed on each flight crew member's primary flight display should be recorded, unless the aeroplane is type certified before 1 January 2023 and recording the values displayed at the captain position or the first officer position would require extensive modification.

No*	Parameter
8	Manual radio transmission keying and CVR/FDR synchronisation reference
9	Engine thrust/power:
9a	Parameters required to determine propulsive thrust/power on each engine, in both normal and reverse thrust
9b	Flight crew compartment thrust/power lever position (for aeroplanes with non-mechanically linked engine controls in the flight crew compartment)
14	Total or outside air temperature
16	Longitudinal acceleration (body axis)
17	Lateral acceleration
18	Primary flight control surface and/or primary flight control pilot input (For aeroplanes with control systems in which the movement of a control surface will back drive the pilot's control, 'or' applies. For aeroplanes with control systems in which the movement of a control surface will not back drive the pilot's control, 'and' applies. For multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. For aeroplanes that have a flight control break-away capability that allows either pilot to operate the controls independently, record both inputs):
18a	Pitch axis
18b	Roll axis
18c	Yaw axis
19	Pitch trim surface position
23	Marker beacon passage
24	Warnings — In addition to the master warning, each 'red' warning that cannot be determined from other parameters or from the CVR and each smoke warning from other compartments should be recorded.
25	Each navigation receiver frequency selection
27	Air–ground status . Air–ground status and a sensor of each landing gear if installed

* The number in the left-hand column reflects the serial number depicted in EUROCAE Document112A.

Table 2: FDR — Aeroplanes for which the data source for the parameter is either used by the aeroplane systems or is available on the instrument panel for use by the flight crew to operate the aeroplane

No*	Parameter
10	Flaps:
10a	Trailing edge flap position
10b	Flight crew compartment control selection
11	Slats:

No*	Parameter
11a	Leading edge flap (slat) position
11b	Flight crew compartment control selection
12	Thrust reverse status
13	Ground spoiler and speed brake:
13a	Ground spoiler position
13b	Ground spoiler selection
13c	Speed brake position
13d	Speed brake selection
15	Autopilot, autothrottle and automatic flight control system (AFCS): mode and engagement status (showing which systems are engaged and which primary modes are controlling the flight path and speed of the aircraft)
20	Radio altitude. For auto-land/category III operations, each radio altimeter should be recorded.
21	Vertical deviation — the approach aid in use should be recorded. For auto-land/category III operations, each system should be recorded:
21a	ILS/GPS/GLS glide path
21b	MLS elevation
21c	Integrated approach navigation (IAN) /Integrated Area Navigation (IRNAV), vertical deviation
22	Horizontal deviation — the approach aid in use should be recorded. For auto-land/category III operations, each system should be recorded:
22a	ILS/GPS/GLS localiser
22b	MLS azimuth
22c	GNSS approach path/IRNAV lateral deviation
26	Distance measuring equipment (DME) 1 and 2 distances:
26a	Distance to runway threshold (GLS)
26b	Distance to missed approach point (IRNAV/IAN)
28	Ground proximity warning system (GPWS)/terrain awareness warning system (TAWS)/ground collision avoidance system (GCAS) status — a suitable combination of discretes unless recorder capacity is limited in which case a single discrete for all modes is acceptable:
28a	Selection of terrain display mode, including pop-up display status
28b	Terrain alerts, including cautions and warnings and advisories
28c	On/off switch position
29	Angle of attack

No*	Parameter
30	Low pressure warning (each system):
30a	Hydraulic pressure
30b	Pneumatic pressure
31	Ground speed
32	Landing gear:
32a	Landing gear position
32b	Gear selector position
33	Navigation data:
33a	Drift angle
33b	Wind speed
33c	Wind direction
33d	Latitude
33e	Longitude
33f	GNSS augmentation in use
34	Brakes:
34a	Left and right brake pressure
34b	Left and right brake pedal position
35	Additional engine parameters (if not already recorded in parameter 9 of Table 1, and if the aeroplane is equipped with a suitable data source):
35a	Engine pressure ratio (EPR)
35b	N1
35c	Indicated vibration level
35d	N2
35e	Exhaust gas temperature (EGT)
35f	Fuel flow
35g	Fuel cut-off lever position
35h	N3
35i	Engine fuel metering valve position (or equivalent parameter from the system that directly controls the flow of fuel into the engine) – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification.
36	Traffic alert and collision avoidance system (TCAS)/airborne collision avoidance system (ACAS) — a suitable combination of discretes should be recorded to determine the status of the system:
36a	Combined control

No*	Parameter
36b	Vertical control
36c	Up advisory
36d	Down advisory
36e	Sensitivity level
37	Wind shear warning
38	Selected barometric setting — to be recorded for the aeroplane where the parameter is displayed electronically:
38a	Pilot selected barometric setting
38b	Co-pilot selected barometric setting
39	Selected altitude (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically
40	Selected speed (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically
41	Selected Mach (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically
42	Selected vertical speed (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically
43	Selected heading (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically
44	Selected flight path (all pilot selectable modes of operation) — to be recorded for the aeroplane where the parameter is displayed electronically:
44a	Course/desired track (DSTRK)
44b	Path angle
44c	Coordinates of final approach path (IRNAV/IAN)
45	Selected decision height — to be recorded for the aeroplane where the parameter is displayed electronically
46	Electronic flight instrument system (EFIS) display format, showing the display system status:
46a	Pilot
46b	Co-pilot
47	Multi-function/engine/alerts display format, showing the display system status
48	Alternating current (AC) electrical bus status — each bus
49	Direct current (DC) electrical bus status — each bus
50	Engine bleed valve(s) position
51	Auxiliary power unit (APU) bleed valve(s) position
52	Computer failure — all critical flight and engine control systems

No*	Parameter
53	Engine thrust command
54	Engine thrust target
55	Computed centre of gravity (CG)
56	Fuel quantity in CG trim tank
57	Head-up display in use
58	Paravisual display on
59	Operational stall protection, stick shaker and pusher activation
60	Primary navigation system reference:
60a	GNSS
60b	Inertial navigational system (INS)
60c	VHF omnidirectional radio range (VOR)/distance measuring equipment (DME)
60d	MLS
60e	Loran C
60f	ILS
61	Ice detection
62	Engine warning — each engine vibration
63	Engine warning — each engine over temperature
64	Engine warning — each engine oil pressure low
65	Engine warning — each engine overspeed
66	Yaw trim surface position
67	Roll trim surface position
68	Yaw or sideslip angle
69	De-icing and/or anti-icing systems selection
70	Hydraulic pressure — each system
71	Loss of cabin pressure
72	Trim control input position in the flight crew compartment, pitch — when mechanical means for control inputs are not available, displayed trim position or trim command should be recorded.
73	Trim control input position in the flight crew compartment, roll — when mechanical means for control inputs are not available, displayed trim position or trim command should be recorded.
74	Trim control input position in the flight crew compartment, yaw — when mechanical means for control inputs are not available, displayed trim position or trim command should be recorded.
75	All flight control input forces (for fly-by-wire flight control systems, where control surface position is a function of the displacement of the control input device only, it is not

No*	Parameter
	necessary to record this parameter):
75a	Control wheel input forces
75b	Control column input forces
75c	Rudder pedal input forces
76	Event marker
77	Date
78	Actual navigation performance (ANP) or estimate of position error (EPE) or estimate of position uncertainty (EPU)
79	Cabin pressure altitude – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
80	Aeroplane computed weight – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
81	Flight director command:
81a	Left flight director pitch command – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
81b	Left flight director roll command – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
81c	Right flight director pitch command – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
81d	Right flight director roll command – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification
82	Vertical speed – for aeroplanes type certified before 1 January 2023, to be recorded only if this does not require extensive modification

* The number in the left-hand column reflects the serial number depicted in EUROCAE Document 112A.

10. The number and subtitle of AMC1 CAT.IDE.H.190 are amended as follows:

AMC1.1 CAT.IDE.H.190 Flight data recorder
OPERATIONAL PERFORMANCE REQUIREMENTS FOR HELICOPTERS HAVING AN~~n~~ MCTOM OF MORE THAN 3 175 KG AND FIRST ISSUED WITH AN INDIVIDUAL CofA ON OR AFTER 1 JANUARY 2016 AND BEFORE 1 JANUARY 2023

11. Paragraph (c) of AMC1 CAT.IDE.H.190 (now renumbered AMC1.1 CAT.IDE.H.190) is amended as follows:

(c) The FDR parameters should meet, as far as practicable, the performance specifications (range, sampling intervals, accuracy limits and minimum resolution in read-out) defined in the operational performance requirements and specifications of EUROCAE Document ~~ED-~~112, including amendments No 1 and No 2, or any later equivalent standard produced by EUROCAE.

12. Parameter No 9 of Table 1 of AMC1 CAT.IDE.H.190 (now renumbered AMC1.1 CAT.IDE.H.190) is amended as follows:

9	Power on each engine:
9a	Free power turbine speed (N_F)
9b	Engine torque
9c	Engine gas generator speed (N_G)
9d	~~Cockpit~~ Flight crew compartment power control position
9e	Other parameters to enable engine power to be determined

13. Parameter No 10 of Table 1 of AMC1 CAT.IDE.H.190 (now renumbered AMC1.1 CAT.IDE.H.190) is amended as follows:

10	Rotor:
10a	Main rotor speed
10b	Rotor brake (if installed)

14. A new AMC to CAT.IDE.H.190 is introduced and inserted between AMC1 CAT.IDE.H.190 (now renumbered AMC1.1 CAT.IDE.H.190) and AMC2 CAT.IDE.A.190:

AMC1.2 CAT.IDE.H.190 Flight data recorder

OPERATIONAL PERFORMANCE REQUIREMENTS FOR HELICOPTERS HAVING AN MCTOM OF MORE THAN 3 175 KG AND FIRST ISSUED WITH AN INDIVIDUAL CofA ON OR AFTER 1 JANUARY 2023

(a) The operational performance requirements for FDRs should be those laid down in EUROCAE Document 112A (Minimum Operational Performance Specification for Crash Protected Airborne Recorder Systems) dated September 2013, or any later equivalent standard produced by EUROCAE.

(b) The FDR should, with reference to a timescale, record:

(1) the list of parameters in Table 1 below;

(2) the additional parameters listed in Table 2 below, when the information data source for the parameter is used by helicopter systems or is available on the instrument panel for use by the flight crew to operate the helicopter; and

(3) any dedicated parameters related to novel or unique design or operational characteristics of the helicopter as determined by the Agency.

(c) The parameters to be recorded should meet the performance specifications (range, sampling intervals, accuracy limits and resolution in read-out) as defined in the relevant tables of EUROCAE Document 112A, or any later equivalent standard produced by EUROCAE.

Table 1: FDR — All helicopters

No*	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated airspeed or calibrated airspeed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying CVR/FDR synchronisation reference
9	Power on each engine:
9a	Free power turbine speed (N_F)
9b	Engine torque
9c	Engine gas generator speed (N_G)
9d	Flight crew compartment power control position
9e	Other parameters to enable engine power to be determined
10	Rotor:
10a	Main rotor speed
10b	Rotor brake (if installed)
11	Primary flight controls — pilot input or control output position if it is possible to derive either the control input or the control movement (one from the other) for all modes of operation and flight regimes. Otherwise, pilot input and control output position:
11a	Collective pitch
11b	Longitudinal cyclic pitch
11c	Lateral cyclic pitch
11d	Tail rotor pedal
11e	Controllable stabilator (if applicable)
11f	Hydraulic selection
12	Hydraulics low pressure (each system should be recorded)
13	Outside air temperature
18	Yaw rate or yaw acceleration
20	Longitudinal acceleration (body axis)
21	Lateral acceleration
25	Marker beacon passage

No*	Parameter
26	Warnings — including master warning, gearbox low oil pressure and stability augmentation system failure, and other 'red' warnings where the warning condition cannot be determined from other parameters or from the cockpit voice recorder
27	Each navigation receiver frequency selection
37	Engine control modes

* The number in the left-hand column reflects the serial numbers depicted in EUROCAE Document 112A.

Table 2: FDR - Helicopters for which the data source for the parameter is either used by the helicopter systems or is available on the instrument panel for use by the flight crew to operate the helicopter

No*	Parameter
14	AFCS mode and engagement status (showing which systems are engaged and which primary modes are controlling the flight path)
15	Stability augmentation system engagement (each system should be recorded)
16	Main gear box oil pressure
17	Gear box oil temperature:
17a	Main gear box oil temperature
17b	Intermediate gear box oil temperature
17c	Tail rotor gear box oil temperature
19	Indicated sling load force (if signals are readily available)
22	Radio altitude
23	Vertical deviation — the approach aid in use should be recorded:
23a	ILS glide path
23b	MLS elevation
23c	GNSS approach path
24	Horizontal deviation — the approach aid in use should be recorded:
24a	ILS localiser
24b	MLS azimuth
24c	GNSS approach path
28	DME 1 & 2 distances
29	Navigation data:
29a	Drift angle
29b	Wind speed
29c	Wind direction
29d	Latitude
29e	Longitude

No*	Parameter
29f	Ground speed
30	Landing gear or gear selector position
31	Engine exhaust gas temperature (T_4)
32	Turbine inlet temperature (TIT)/interstage turbine temperature ITT)
33	Fuel contents
34	Altitude rate (vertical speed) — only necessary when available from cockpit instruments
35	Ice detection
36	Helicopter health and usage monitor system (HUMS):
36a	Engine data
36b	Chip detector
36c	Track timing
36d	Exceedance discretes
36e	Broadband average engine vibration
38	Selected barometric setting — to be recorded for helicopters where the parameter is displayed electronically:
38a	Pilot
38b	Co-pilot
39	Selected altitude (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
40	Selected speed (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
41	Selected Mach (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
42	Selected vertical speed (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
43	Selected heading (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
44	Selected flight path (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
45	Selected decision height (all pilot selectable modes of operation) — to be recorded for the helicopters where the parameter is displayed electronically
46	EFIS display format (showing the display system status):
46a	Pilot
46b	First officer
47	Multi-function/engine/alerts display format (showing the display system status)
48	Event marker

No*	Parameter
49	Status of ground proximity warning system (GPWS)/terrain awareness warning system (TAWS)/ground collision avoidance system (GCAS):
49a	Selection of terrain display mode including pop-up display status — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
49b	Terrain alerts, both cautions and warnings, and advisories — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
49c	On/off switch position – for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
50	Traffic alert and collision avoidance system (TCAS)/airborne collision avoidance system (ACAS):
50a	Combined control — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
50b	Vertical control — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
50c	Up advisory — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
50d	Down advisory — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
50e	Sensitivity level — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
51	Primary flight controls — pilot input forces:
51a	Collective pitch — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
51b	Longitudinal cyclic pitch — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
51c	Lateral cyclic pitch — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
51d	Tail rotor pedal — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
52	Computed centre of gravity — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification
53	Helicopter computed weight — for helicopters type certified before 1 January 2023, to be recorded only if this does not require extensive modification

* The number in the left-hand column reflects the serial numbers depicted in EUROCAE Document 112A.