European Aviation Safety Agency

Comment-Response Document 2016-03(C)

Appendix

to ED Decision 2018/001/R

Subject 010 — AIR LAW

RELATED NPA: 2016-03(C) — RMT. 0595 — 6.2.2018

Table of contents

1. Summary of the outcome of the consultation

Please refer to the Explanatory Note to ED Decision 2018/001/R.

2. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

comment	*27-C* comment by: *Reinoud van Wijk* Comment on 010 09 00 00 Aerodromes. I'm missing ICAO Annex 14 volume II for Helicopters. As in Volume I, for aeroplanes and helicopters, are in Volume II chapters as: Heliport data, Physical characteristics, Obstacle environment and Visual aids in my opinion highly relevant for helicopters.
response	Noted. Thank you for providing this comment referring to Subject 010 09 00 00. EASA acknowledges your comment regarding ICAO Annex 14 Volume II for helicopters, but no change to the existing text is considered necessary.

comment	*67-C* comment by: *Julian Scarfe* 010 09 02 and 03 on aerodromes and their physical characteristics are not appropriate for the IR, CBIR and EIR. They are not focused in IFR ops. By contrast, 010 09 04, on visual aids, is justified for inclusion for the IR, CBIR and EIR because correct recognition of visual aids is more important in reduced visibility.
response	Partially accepted. Thank you for providing this comment referring to Subjects 010 09 02 00, 010 09 03 00 and 010 09 04 00. EASA agrees that all learning objectives in Subject 010 09 04 00 regarding 'Visual aids for navigation' should be compulsory for all, and will amend these learning objectives by placing a cross ('X') in the column 'IR' and 'CB-IR(A) and EIR' where the cross was still missing. See also comment 69-C on same LO.

comment	*72-C* comment by: *Luftfahrt-Bundesamt* The LBA has no comments on NPA 2016-03 (C).
Noted	Noted. Thank you for providing this general comment on NPA 2016-03(C).

comment	*74-C* comment by: *European Cockpit Association* 1. Overall, ECA acknowledges there has been reorganization of the way some Learning Objectives (LOs) are presented. The splits / moves are visible, and it seems to add clarity and make logical sense. 2. At the same time, the review shows a **misunderstanding of the concept of Competency-based-training (CBT)**, and therefore puts an almost exclusive focus on checking/assessment provision, **with very few**, if not no, provision on area 100 KSA **training**. In particular, no provision is proposed to develop the trainee's relevant *Core Competencies* through the relevant de-briefings. 3. Moreover, as CBT is to be the new standard for training and licensing purposes, it is essential that there is a **common and coordinated logic sustaining the relevant EASA Rulemaking activities** to avoid duplication, overlaps, and conflicting provisions. In that respect, there should be only one basis for the definition and implementation of Competencies Frameworks throughout the whole Part FCL, and potentially all Aviation Personnel Licensing and Training provisions. 4. Furthermore, with the introduction of CBT, Learning Objectives should emphasize - with regard to e.g. operational procedures - on the importance of the policy update of certain documents and procedures. New students should be able to keep up with the continuous development of new documents or updates of old ones. Therefore, it is not only necessary to know certain information (e.g. which documents to keep on board) but also to know the sources of amendments and future developments. Especially concerning long-range operations, pilots are usually further down the career path and the time of flight school is much in the past. 5. We agree with the need to establish the **minimum amount/percentage of classroom instruction**. However, it is not clear how we can define *the minimum* percentage of classroom instruction. This issue is of particular importance as the classroom instruction, in general, is necessary to check the competencies of the student. 6. We further fear that the lack of **consistency between the *Competencies* developed by an ATO and an airline** will create not only extra cost, but also a potential mismatch between the pilot profile required by the airline and the one provided by the ATO. This may cause some pilots being hired and subsequently dismissed by the airline due to their competency level being inappropriate. This will create not only an extra financial burden, but also a significant social cost for pilots-to-be. 7. We **welcome** the **improvements in certain fields**, e.g. **subject Instrumentation** (022) where we see a good update of the learning objectives, removing irrelevant topics and adding useful new ones. In particular addition of FMA's, Fly by Wire, general **improved automation knowledge** and unreliable

airspeed are a positive change. At the same time, we are missing knowledge requirements on the implementation of HUD displays on more next-gen aircraft as the B787/737Max/A350/etc.

8. The introduction of ***Threat and Error Management*** **(TEM) is welcomed**. It does add a physical/operational dimension to a subject that some find not very practical. If performed properly it helps the student to think in terms of *understanding => recognition => prevention/recovery*, as per UPRT.
9. We further **welcome** the **introduction of the *Fatigue and stress management chapter.*** However, ECA is surprised not to find a new Learning Objective demanding explanation of the **components of FRMS**, given the emphasis put on this subject in the foreword. The student should be able to describe FRMS and explain the main components of it.
10. Similar refers to the ***Peer Support Programs (PSP).*** It is for the benefit of both ATPL and CPL holder to know of the existence of PSP programs and their importance for the safety-culture of an operator.
11. Finally, there seems to be a global search for clarification of theoretical notions, which can only be welcomed if it is in addition to the explanation of the notion itself (and not just vulgarization with less resulting knowledge / understanding).

response

Noted.

Thank you for providing these comments referring to different subjects and for the positive feedback.

Regarding your first and second comment: Noted.

KSA 100 training has been the considerable focus of RMT.0595 and the established rulemaking group has had its own dedicated group set-up to work almost exclusively on this area.

Regarding your third comment: Noted.

EASA acknowledges your comment.

Regarding your fourth comment: Noted.

EASA would like to refer you to its responses to comments 43-A, 44-A and 45-A made to NPA 2016-03(A). These all request that documentation should be available in the exam, as reference material, for those parts of the syllabus where in real life the pilot would be expected to consult the Ops Manual/SOPs rather than rely on memory.

Realistically, EASA is not in a position to create the reference material now for this RMT.0595. EASA shall take this up as a follow-up action for future rulemaking or safety actions.

Regarding your fifth and sixth comment: Noted.

EASA acknowledges your comments.

Regarding your seventh comment: Accepted.

EASA would like to refer you to its responses to the accepted comment 261-B regarding

HUB.
EASA agrees that LOs are needed that cover HUD, SVS and EVS.

The following new heading will be inserted as follows:

022 13 07 00 Head-up display (HUD), synthetic vision system (SVS) and enhanced visual system (EVS).

[…]

Regarding your eighth till eleventh comment: Noted.

EASA acknowledges your comments.

comment *100-C* comment by: *GNSS Centre of Excellence*

Remarks to 010 – major concerns
only eliminated parts and replaced abbreviations – no changes in legislative incorporated!

There is no new LO about PBN – we understand that PBN is mainly solved in 062, there should be some information concerning changes in legislative in area of PBN. Mentioned in subject 010.
We don't understand why LO 010 06 03 05 is eliminated.
We don´t find those information unnecessary and we even recommend more information

Minor concerns in detailed description:
010 04 02 05 Ratings
LO explain ganges un authorization to use RNAV/RNP equipment for en-route, terminal and approach operations.

010 05 04 00
LO Describe the purpose and limitations of use of GNSS equipment in VFR flights.

010 06 03 02
LO State the difference in SID and RNAV SID.

010 06 03 05
LO State the types of RNAV/RNP equipment and navigation performance usually required for departure routes.
LO Explain the use of fly-by and fly-over points.

010 06 04 01 General criteria
LO Explain the relationship between the following terms:
DA, DH, OCA, OCH, MDA, MDH, MOC, DA/H, OCA/H, MDA/H in Continuous Descent Final Approach (CDFA) procedures
LO Translate the following into plain language: TAA, APV, LPV, LNAV/VNAV, LTP, FTP.

010 06 04 02 Approach-procedure design
LO State the accuracy of facilities (VOR, ILS, NDB) + PBN navigation

010 06 04 03 Arrival and approach segments

LO Explain how the use of RNAV/RNP may change approach segments.
LO State what happens if integrity is lost during APCH.

010 06 04 04
LO State what the pilot should do in case of loss of navigation capability during RNAV missed approach.

010 06 04 05
LO State advantages and limitations of RNAV usage during visual maneuvering.

010 06 04 08 PBN navigation (RNAV/RNP) approach procedures
LO Describe the provisions that must be fulfilled before carrying out approaches.
LO Explain possible system composition to use RNAV/RNP approach
LO List RNAV/RNP approaches.
LO Explain APV.
LO Explain LPV.
(this part is partially covered in 062)

010 06 06 01 Basic requirements and procedures
LO State what type of altitude information FMS may provide.

010 07 01 04
LO State the requirement for RNAV/RNP equipment in different types of airspace.

010 07 02 19
LO State the action in case of degradation and/or loss of RNAV/RNP equipment.
LO State the action when entering airspace with RNAV/RNP equipment capable of lower performance than that required.

010 08 04 01 Aeronautical Information Publication (AIP)
LO State in which main part of the AIP the following information can be found:
...
GNSS information part 4.3

response

Thank you for your multiple comments.

EASA has carefully assessed all the comments received.

Regarding your majorly minor concerns to different LOs: Noted.

EASA would like to refer you to its responses regarding these LOs to the different comments elsewhere in this CRD.

Notice of Proposed Amendment 2016-03(C) — General and specific comments. NOTE: Due to technical issues, the FlashPaper version of this sub-NPA does not contain segments for each Subject. Therefore, when placing comments on this sub-NPA, you are kindly requested to indicate clearly the Subject, topic, subtopic, paragraph and LO number you are commenting on. Example: 'Comment on 032 01 01 01 (01)'. p. 1

comment	*2-C* comment by: *Nick Mylne* General Comment on Subject 010 Air Law I entreat you to bear in mind this most important factor when finalising the Learning Objectives : It is not correct - nor indeed fair - to ask candidates to know both EASA and ICAO documents covering the same subject. To give 2 examples. Rules of the Air. Either the candidate is examined on SERA (EASA) or Annex 2 (ICAO). Not both. Licencing. Either the candidate is examined on Part -FCL (EASA) or Annex 1 (ICAO). Not both. Thus please make it crystal clear to ATO's and candidates alike exactly which documents are being examined.
response	Partially accepted. Thank you for providing this general comment on Subject 010. EASA is of the opinion that it is necessary to ensure that student pilots know where to find appropriate information (ICAO, EASA, etc.), and there EASA will amend the text where necessary. The title of Subject LO 010 05 01 00 will be amended as follows: **Overview of ICAO Annex 2 and SERA (Commission Implementing Regulation (EU) No 923/2012 and its references and subsequent amendments)** The LOs in Subject 010 05 02 00, Subject 010 05 03 00, Subject 010 05 04 00, Subject 010 05 05 00 and Subject 010 05 06 00 will be amended by adding the reference (SERA) when appropriate.

comment	*5-C* comment by: *ENAIRE* **NPA file – Item reference - Page:** (C)- **010 06 04 01** - Page 21 **Comment:** Reference (09) classifies the approaches with OCA/H as “precision approach procedures, non-precision approach procedures or visual (circling) procedures”. This does not address APV approaches. **Proposed action:** to add “APV approach procedures” or “approach with vertical guidance procedures” (following ICAO Doc 8168). Notice that these new approaches have been addressed in (C)- ***033 02 01 05*** producing a degree of internal inconsistency.
response	Accepted. Thank you for providing your comment referring to LO 010 06 04 01 (09).

EASA agrees to reword this LO.

The text will be amended as follows:

Explain why a pilot should not descend below obstacle clearance altitude/heights (OCA/Hs), which are established for:

— precision approach procedures;

— non-precision approach procedures;

— visual (circling) procedures;

— APV approach procedures.

Source: **ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1, 1.5 Obstacle clearance altitude/height (OCA/H)**

comment

6-C comment by: *ENAIRE*

NPA file – Item reference - Page: (C) - **010 06 04 02** - Page 22
Comment: Item (06) does not include GNSS systems/facilities (e.g. GBAS). Notice that these new systems have been addressed in (C)- ***033 02 01 05*** producing a degree of internal inconsistency.

response

Noted.

Thank you for providing your comment referring to LO 010 06 04 02 (06).

EASA acknowledges the comment but no change to the existing text is considered necessary.

comment

7-C comment by: *ENAIRE*

NPA file – Item reference - Page: (C)- **010 06 04 03** - Page 23
Comment:
a) Reference (05) does not address APV approaches.
Proposed action: to add "APV approach procedures" or "approach with vertical guidance procedures" (following ICAO Doc 8168).

b) Reference (10) does not address the case in which the APV or GBAS (CAT I) vertical guidance are lost during the APP.
Proposed action: rephrase the item more in general making reference to the "vertical guidance information", since neither APV nor GBAS approaches feature a "Glide Path" strictly speaking.

Notice that all these elements have been addressed in (C)- **033 02 01 05** producing a degree of internal inconsistency.

response

Thank you for your multiple comments.

Thank you for providing your comment referring to LO 010 06 04 03 (05): Not accepted.

	EASA does not see the need to add 'APV approach procedures' into this LO. Based on your comment 5-C above, Subject 010 06 04 01 includes now the APV approach procedures. Thank you for providing your comment referring to LO 010 06 04 03 (10): Not accepted. EASA is of the opinion that this LO is correct like it is, and should not be rephrased.
comment	*23-C* comment by: *AECA helicopteros.* Attachment #1 SUBJECT 010 CHANGES PROPOSAL JUSTIFICATION: This changes proposal intends: 1. **1.-** Establish a clear division between Air Law and ATC procedures. For this reason the subject 010 is divided in two subparts: 011 (Air Law) and 012 (ATC procedures). 2. **2**.- Include the term 'Regulation' for ATC, resulting in a new title: ***Air Law and ATC Regulation and Procedures***. 3. **3**.- Take in account the European Regulation and aviation Organizations. 4. **4.-** In cases in which a European Regulation was established to comply with ICAO regulations, adopt it as first source of knowledge. 5. **5**.- Delete the paragraphs 010 06 03 00 to 010 06 08 02 related with operational procedures translating all to subject 070: Operational procedures (this subject was not changed in this moment). 6. **6.-** Reorganize the syllabus and LOs according the division of point 1.
response	Thank you for your multiple comments. Regarding your first and last comment referring to a division between Air Law and ATC procedures: Not accepted. EASA would like to state that dividing Subject 010 into two subparts is not an objective of this RMT.0595. Regarding your second comment referring to the title 'AIR LAW': Not accepted. EASA is of the opinion that this title should remain like it is. Regarding your third and fourth comment regarding European legislation: Noted. Due to the several accepted comments on Subject 010, there has been an increased focus on European legislation. Regarding your fifth comment regarding LOs 010 06 03 00 to 010 06 08 02: Not accepted. EASA will only delete the LOs related with operational procedures when they are duplicated.

comment *25-C* comment by: *UK CAA*

Page No: 101 – 147 Table

Paragraph No: n/a

Comment: Several Learning Objectives (LO) have been categorised in all subject tables as Basic Knowledge (BK). The intention is that these LOs will be taught by the Approved Training Organisation (ATO) and tested in progress test, but not examined by the National Aviation Authority (NAA) using the European Central Question Bank (ECQB).

The LOs that have been identified as BK are the principles on which all topic areas are developed and higher levels of understanding are achieved, therefore it should be a requirement that these principles are examined. If BK is being taught and tested by the ATO, there is no reason why the ECQB is not used to verify this knowledge and that these principles have been embedded and understood by the student.

Justification: If BK is removed from the ECQB along with the existing questions, new more complex questions to a higher level will have to be developed to make the examination generate with an adequate coverage of all topic areas in individual subjects. This could have a detrimental effect on some students who are naturally nervous when taking examinations, as there will be no BK questions in the test to allow them to build their confidence and they will be seriously disadvantaged by this proposal.

The EASA Exams Team require each topic area to be 5 deep with the number of questions available in the ECQB, this will not be achievable in some subjects as it will not be possible to write additional question one topic area.

With additional questions examining to a higher level, the table at AMC1 ARA.FCL.300(b), detailing the time allowed for an examination and the number of questions for each topic area, will need to be reviewed to establish if an examination is achievable. We are not aware of any evidence that the RMG have confirmation of this or have carried out any sort of analysis or testing.

Proposed Text: n/a

response Noted.

Thank you for your general comment.

EASA acknowledges the comment but no change to the existing text is considered necessary.

comment *39-C* comment by: *Howard JONES*

Comments on LOs as indicted by LO number

AIR LAW

010 01 04 02 (01)

What is the reference document for this LO?
There is no indication of the relevant factors to be described or about the depth of knowledge that is required.

010 02 02 00 (03)
What are the 'various elements' that are relevant to satisfying this LO?

010 02 04 00 (03)
Should this also include common marks?

010 04 01 01 (01)
Needs more clarification about the 'relationship and difference' that would satisfy this LO.

010 04 02 01 (01)
Needs to be rewritten as LO 010 02 03 00 (01), 'Recall the definition of the following terms'. This should apply to all recalling of definitions LOs.

010 04 02 05 (04)
This needs to state what 'other ratings' are relevant for satisfying this LO.

010 05 02 00 (02)
Should this be, 'Explain the requirements for compliance with the Rules of the Air.'?

010 05 03 00 (02)
Would this include the angles for navigation lights? If so, it needs adding to the LO.

010 05 03 00 (03)
This would be better reworded as, 'Interpret marshalling signals'. That way the understanding could be tested.

010 06 03 01 (01)
'State the factors ...' would be better as they don't have names.

010 06 04 01 (01)
Are approach splays unnecessary? The specific angles probably are, but the fact that splays exist probably needs explaining. Isn't this part of the explanation for the narrowing of the segments of the approach as the aircraft gets near to the airfield?

010 06 04 01 (08)
'State' not 'Name'.

010 06 04 02 (03)
Should FAP be added to this list?

010 06 04 03 (09)
'State' not 'Name'.

010 06 04 04 (06)
Reword, 'State the pilot's action ...'.

010 06 07 00 (03)
What do you mean by 'Know about'? What would students need to know to satisfy this objective?

010 06 07 00 (04)
'State' not 'Name'.

010 06 08 02 (02)
'State' not 'Indicate'.

010 06 08 02 (10)
Replace 'as regards' with 'with regard to'.

010 07 01 02 (01)
'State' not 'Name'.

010 07 01 02 (06)
'State' not 'Understand'. That way the understanding is tested.

010 07 01 03 (07)
'State' not 'Name'.

010 07 01 04 (04)
'State' not 'Name'.

010 07 01 05 (10)
'State' not 'Understand'. That way the understanding is tested.

010 07 01 06 (07)
This doesn't seem to make sense. Should it be, 'Describe the conditions for informing aircraft in the vicinity of an aircraft in a state of emergency.'?

010 07 01 07 (05)
Needs to be more specific about what 'general knowledge' is required to be 'demonstrated'.

010 07 02 01 (04)
This LO just sounds too convoluted. Can't it just be plain and say, 'State that a clearance issued by an ATS unit does not include prevention of collision with terrain unless the aircraft is being radar vectored.'

010 07 02 03 (01)
Delete 'service'.

010 07 02 04 (01)
Needs a ',' after FIR.
If the abbreviation is to be used leave it as 'an FIR'.

010 07 02 05 (05)
'State' not 'Name'.

010 07 02 06 (03)
Reword to one of the two options below.
'State within what distance from the THR the PIC must not be given any kind of speed control.'
'State within what distance from the THR the PIC should not expect any kind of speed control.'

010 07 02 09 (01) & (02)
Haven't these been covered by an earlier LO?

010 07 02 10 (03) & (04)
'State' not 'Name'.

010 07 02 12 (03)
'State' not 'Understand'. That way the understanding is tested.

010 07 02 12 (16)
Should this LO contain the word 'minimum'?

010 07 02 13 (05)
Replace 'forwarded' with 'given'. This would cover verbal or electronic means, where forwarded suggests electronic means only.

010 07 02 13 (05)
'Describe' not 'Understand'. That way the understanding is tested.

010 07 02 13 (11)
'State' not 'Name'.

010 07 02 14 (03) & (04)
'Be familiar with' is meaningless as an objective phrase, replace with 'State'.

010 07 02 14 (05)
Replace 'Know about' with 'Describe the consequences of'.

010 07 02 15 (04)
This is a 'wish list' not an objective. The 'wish list' needs to be split up, the required knowledge identified and then LOs written.

010 07 02 17 (03)
'State' not 'Name'.

010 07 02 17 (04)
'Too obvious'. Not necessarily

010 07 02 17 (06)
Delete 'on'.

010 07 02 17 (08)

'Too obvious'. Not necessarily

010 07 02 17 (10)
This needs expanding to identify which parts of the procedure are relevant knowledge for a pilot.

010 07 02 18 (03)
If 010 07 02 17 (08) is 'Too obvious', then this also seems even more obvious - the title of the service says it all.

010 08 01 00 (01)
Insert 'an' before AIS.

010 08 03 00 (02)
Replace 'Name' with 'List' or 'State'.

010 08 04 01 (03)
If this is unnecessary knowledge is ths LO going to be deleted?

010 08 05 00 (01)
What is the 'main content' of EU 1035/2011 that is required to be explained?

010 09 01 00 (02)
'in general terms' would suggest that the dimensions are not required knowledge, is this so?

010 09 02 03 (01)
These are expanded on in 010 09 08 01. Is this LO necessary? Do students really need to know where in Annex 14 they can find guidance on the calculation of TORA, TODA, ASADA and LDA? When are they going to need to do this in their future careers?

010 09 02 04 (01)
'State' not 'Understand'. That way the understanding is tested.

010 09 02 04 (04)
Naming the states does not require students to describe or explain them. Is this what is intended?

010 09 02 04 (05)
'Describe' not 'Understand'.

010 09 03 01 (02)
Replace 'Acquaint yourself with' with 'Describe'.

010 09 03 02 (01)
Surely the term is runway strip not RWY strip.

010 09 03 03 (01)
Surely the term is runway end safety area not RWY-end safety area.

010 09 03 04 (01)
We seem to have replaced words with abbreviations where the word would appear to be better in this context.

010 09 03 05 (01)
We seem to have replaced words with abbreviations where the word would appear to be better in this context.

010 09 04 02 (02)
Not sure if you really want students to know how it is designed. I think that you want them to know the various layouts.

010 09 04 03 (04)
Replace 'Name' with 'Describe' or 'State'.

010 09 04 03 (07)
Delete 'mentioning' it's superfluous.

010 09 04 03 (11)
Would these characteristics include dimensions in terms of spacing? If so please state that dimensions are required.

010 09 04 03 the second (11)
'State' not 'Understand'.

010 09 04 04 (05)
Delete 'the' before 'mandatory'.

010 09 04 05 (01)
Reword, 'Explain why markers located near a RWY or TWY shall be HGT limited.'

010 09 05 02 (05)
Presumably the answer to a question from this LO would be ICAO Annex 2. If not, what are you looking for?

010 09 07 01 (01)
'State' not 'Name'.

010 09 08 03
This needs regularising against some parts of 010 09 04 03.

010 10 02 03 (03)
Replace 'Be Familiar with' with 'Indentify'.

010 11 01 00 (01)
Replace 'Define the following terms:' with 'Recall the definition of the following terms:'.

010 12 00 00
What is meant by the comment 'ICAO exam'?

010 12 01 00 (01)
Replace 'Define the following terms:' with 'Recall the definition of the following terms:'.

010 12 04 00 (06)
'State' not 'Understand'.

010 12 05 00 (02)
Change 'to detain' to 'detaining'.

010 12 06 00 (01)
'Describe' or 'State' not 'Understand'.

010 12 07 01 (01), (02) & (03)
These need to state that they relate to unlawful interference.

010 13 01 00 (01)
Replace 'Define the following terms:' with 'Recall the definition of the following terms:'.

010 13 01 00 (02)
Replace 'Define' with 'Describe'.

010 13 02 00 (02)
Replace 'Understand' with 'Describe'.
What elements of the general procedures in these documents are relevant to this LO? This needs stating.

010 13 03 00 (01) & (02)
'Be familiar with' is meaningless as an objective phrase. Rewrite these LOs and identify what elements of these regulations the students are required to know using objective words like, state, describe, explain etc.

This is really lazy work on the part of EASA!

NEW - REGULATION (EU) No 965/2012 ON AIR OPERATIONS

Regulation structure
(01)
Needs to state which parts of this regulation need to be describe.

Part-ORO and Part-CAT (Annexes III and IV)
(01)New
Needs to indentify which differences are relevant to satisfying this LO.

Parts SPA, NCC and NCO (Annexes V, VI and VII)
(01)New
Needs to identify to what depth the structure needs describing.

(01)New
Define what the 'main content' comprises.

MASS and BALANCE

DEFINITIONS OF MASSES AND INDEXES

Area load or floor load
Change 'Units of measurement used:' to 'Example units:'. Some aircraft use kg/sq ft

Index
I think we need to be careful about the definition of Index. An Index is a moment divide by a constant decided by the manufacturer. It is used to reduce the size of the figures in Mass and Balance calculations. In the case of the DOI we are talking about the moment of the DOM divided by a constant, but on manually plotted trim sheets we are looking at a change in the index based on where the mass is added NOT the INDEX OF THE ADDED MASS.

Operating mass
'The dry operating mass plus take-off fuel but without traffic load.' Surely we only need to state what it includes, not what it doesn't include.

Running (or linear) load
Change 'Units of measurement used:' to 'Example units:'.

Traffic load
There is often confusion between payload and traffic load. These are not the same: strictly, payload would not include non-revenue load. Do we need to make this distinction?

Zero-fuel mass
See comments for Operating mass.

031 02 01 01 (01)
Change 'Define the following mass terms' to 'Recall the definitions of the following mass terms'.

031 02 01 02 (01)
Change 'Define the following load terms' to 'Recall the definitions of the following load terms'.

031 02 02 01 (01), (02), (03) & (06)
Change 'Define the' to Recall the definition of'.

031 02 02 03 (02)
Change to 'Describe the maximum floor loading limit (maximum load per unit of area).'

031 02 02 03 (03)
Change to 'Describe the maximum running load limit (maximum load per unit of fuselage length).'

031 02 03 01 (01)
This is a confused LO. It seems to state that the maximum mass for take-off is the regulated take-off mass, 'the maximum mass for take-off (regulated take-off mass)'. This is not the case. It then goes on about the mass-and-load components and structural/ performance limits.
What I think the LO is after is the ability of the student to calculate the maximum allowable take-off mass given a PLTOM, MSTOM, Take-off fuel, and trip fuel. However, part (03) seems to cover this. Does it want the student to calculate the actual take-off mass based on PLTOM, MSTOM, Take-off fuel, trip fuel and traffic load?

031 02 03 01 (02)
See comments for 031 02 03 01 (01).

031 04 01 02 (01) & (02)
Replace 'Name' with 'State'.

031 04 01 02 (05)
Change to 'Recall the definition and explain the meaning of CG'.
What is the reference for the definition of CG?
This LO would be fine as, 'Explain the meaning of CG'.

031 05 02 03 (02)
Please amplify what is meant by, 'and the methods for assessing load distribution'.

031 05 02 05
I think that some guidance is needed here.
What is the examination-approved method of completing LMC paperwork? This may differ from aircraft to aircraft. There may be different LMC limits for fuel and traffic load. For load additions greater than LMC limits I would have had to complete a new load and trim sheet.

031 05 03 01 (03)
The 'methods' that need teaching need to be specified.
Is this objective aimed at the 'cargo loading order' - the order in which the cargo was loaded, or checking that the cargo has been loaded in the correct location in the aircraft?

031 06 03 00
'Securement' is not a common use word. 'Securing' would be more appropriate.

031 06 03 00 (02)
The 'basic methods' that satisfy this objective need stating.

New paragraph - Other methods to present load and trim information (01) New
There needs to be some list of things that constitute what a description would include.

---

response

Thank you for your extensive feedback, which has been greatly appreciated.

EASA has carefully assessed all the comments received.

Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number.

Regarding your comment referring to LO 010 01 04 02 (01): Noted.

There is no indication of the relevant factors to be described or about the depth of knowledge that is required.

Regarding your comment referring to LO 010 02 02 00 (03): Accepted.

EASA agrees that the common mark should be included, as well the nationality mark, next to the registration mark.

The text will be amended as follows:

~~State~~ Explain who is responsible for assigning nationality marks, common marks and registration marks.

Source: **ICAO Annex 7, Chapter 3 Nationality, common and registration marks to be used**

Regarding your comment referring to LO 010 04 01 01 (01): Not accepted.

EASA does not see the need for more clarification about the 'relationship and difference' to satisfy this LO, while the LO is clear like it is.

Regarding your comment referring to LO 010 04 02 01 (01): Not accepted.

EASA does not agree that 010 04 02 01 (01) needs to be rewritten as LO 010 02 03 00 (01), 'Recall the definition of the following terms'. EASA feels the meaning is clear.

Regarding your comment referring to LO L010 04 02 05 (04): Not accepted.

EASA wants to highlight that the same/similar wording is used for Part-FCL.

Regarding your comment referring to LO 010 05 02 00 (02): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

Explain the necessity to comply ~~compliance~~ with the Rules of the Air.

Source**: SERA.2005 Compliance with the rules of the air**

Regarding your comment referring to LO 010 05 03 00 (02): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

Describe the lights, including their angles, to be displayed by aircraft.

Source: **SERA.3215 Lights to be displayed by aircraft**

Regarding your comment referring to LO 010 05 03 00 (03): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

~~Understand~~ Interpret marshalling signals.

Source**: SERA Appendix 1, Chapter 4 Marshalling signals**

Regarding your comment referring to LO 010 06 03 01 (01); Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

~~Name~~ State the factors dictating the design of instrument departure procedures.

Source: **ICAO Doc 8168, Volume I, Part I, Section 2, Chapter 1, 1.1 General**

Regarding your comment referring to LO 010 06 04 01 (01): Noted.

EASA acknowledges your comment.

Regarding your comment referring to LO 010 06 04 01 (08): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

~~Name~~ State the most significant ~~performance~~ factor influencing the conduct of instrument approach procedures.

Source: **ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 1, 1.2.1 External factors influencing the approach procedure**

Regarding your comment referring to LO 010 06 04 02 (03): Accepted.

EASA agrees that the term 'FAB' should be added to this LO.

The text will be amended as follows:

) Define the terms 'IAF', 'IF', 'FAF', 'FAP', 'MAPt' and 'TP'.

Source: **ICAO Doc 8168, Volume I, Part I, Section 1 Definitions, abbreviations and acronyms and units of measurement**

Regarding your comment referring to LO 010 06 04 03 (09): Noted.

In this LO there is no wording of 'Name' but 'Explain'.

Regarding your comment referring to LO 010 06 04 04 (06): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'reaction' with 'action'.

The text will be amended as follows:

State the pilot's ~~reaction~~ action if, upon reaching the MAPt, the required visual reference is not established.

Source: **ICAO Doc 8168, Volume I, Part I, Section 4, Chapter 6 Missed approach segment**

Regarding your comment referring to LO 010 06 07 00 (03): Partially accepted.

EASA agrees that the wording 'know about' is not very clear and will replace this for the wording 'describe'.

The text will be amended as follows:

~~Know about~~ Describe 'normal operating zone (NOZ)' and 'no transgression zone (NTZ)'.

See also see comment 49-D on this LO.

Regarding your comment referring to LO 010 06 07 00 (04): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the aircraft avionics equipment requirements for conducting parallel instrument approaches.

Source: **ICAO Doc 8168, Volume I, Part III, Section 2, Chapter 1**

Regarding your comment referring to LO 010 06 08 02 (02): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Indicate' with 'State'.

The text will be amended as follows:

~~Indicate~~ State whether the 'use of ACAS indications' described in ICAO Doc 8168 is absolutely mandatory.

Source: **ICAO Doc 8168, Volume I, Part III, Section 3, Chapter 3, 3.2 Use of ACAS indications**

Regarding your comment referring to LO 010 06 08 02 (10): Accepted.

EASA agrees that this LO should be reworded and will replace the wording 'as regards' with 'with regard to'.

The text will be amended as follows:

Explain the duties of a pilot with regard to ~~as far as~~ ATC ~~is concerned~~ when an RA~~Resolution Advisory~~ situation is resolved.

Source: **ICAO Doc 8168, Volume I, Part III, Section 3, Chapter 3, 3.2 Use of ACAS indications**

Regarding your comment referring to LO 010 07 01 02 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the objectives of ~~Air Traffic Services (~~ATS~~)~~.

Source: ICAO Annex 11, Chapter 2, 2.2 Objectives of ATS

Regarding your comment referring to LO 010 07 01 02 (06): Not accepted.

EASA is of the opinion that the wording should stay like it is. Understanding can be tested in various ways, not just through statements of fact.

Regarding your comment referring to LO 010 07 01 03 (07): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the lower limit of a CTA as far as ICAO Standards are concerned.

Regarding your comment referring to LO 010 07 01 04 (04): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the purpose of clearances issued by an ATC unit.

***Source:* ICAO Annex 11, Chapter 3, 3.3 Operation of air traffic control service**

Regarding your comment referring to LO 010 07 01 05 (10): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'State'.

The text will be amended as follows:

~~Understand~~ State the content of an ATIS message ~~and the factors involved~~.

***Source:* ICAO Annex 11, Chapter 4, 4.3.7 ATIS for arriving and departing aircraft**

Regarding your comment referring to LO 010 07 01 06 (07): Partially accepted.

EASA agrees that this LO should be reworded to make this LO more sense.

The text will be amended as follows:

~~Describe the limiting conditions for the information of~~ State the information to be provided to those aircraft that operate in the vicinity of an aircraft that is either ~~being~~ in a state of emergency or unlawful interference.

***Source:* ICAO Annex 11, Chapter 4, 4.3.7 ATIS for arriving and departing aircraft**

Regarding your comment referring to LO 010 07 01 07 (05): Accepted.

EASA agrees that this LO should be reworded and will replace the wording 'Demonstrate general knowledge of' with 'Explain'.

The text will be amended as follows:

~~Demonstrate general knowledge of~~ Explain the composition of an ATS route designator.

***Source:* ICAO Annex 11, Appendix 1, 2. Composition of designator (not to the extent of memorising the codes in 2.2.1)**

Regarding your comment referring to LO 010 07 02 01 (04): Partially accepted.

EASA agrees that this LO could me more plain and will reword this LO.

The text will be amended as follows:

State ~~whether or not a clearance issued by~~ which ATS ~~ATC~~ unit~~s~~ provides clearances to do, and do not, ~~does~~ include the prevention of collision with terrain. ~~, and if there is an exception to this, name the exception.~~

***Source:* ICAO Doc 4444, Foreword, 2 Scope and purpose, 2.1**

Regarding your comment referring to LO 010 07 02 03 (01): Not accepted.

EASA is of the opinion that this learning objective is clear like it is.

Regarding your comment referring to LO 010 07 02 04 (01): Accepted.

EASA agrees that this LO needs a ',' after FIR.

The text will be amended as follows:

Describe who is responsible for the provision of flight information and alerting service within an ~~Flight Information Region (~~FIR~~)~~, within controlled airspace and at controlled ADs~~aerodromes~~.

***Source:* ICAO Doc 4444, Chapter 4, 4.2 Responsibility for the provision of flight information service and alerting service**

Regarding your comment referring to LO 010 07 02 05 (05): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the two primary purposes of clearances issued by ATC units.

Source: **ICAO Doc 4444, Chapter 4, 4.5 Air traffic control clearances, 4.5.1 Scope and purpose**

Regarding your comment referring to LO 010 07 02 06 (03): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

State within ~~which~~ what distance from the THR~~threshold~~ the PIC ~~must~~ should not expect any kind of speed control.

Source: **ICAO Doc 4444, Chapter 4, 4.6.3 Descending and arriving aircraft**

See also comment 50-C on this LO.

Regarding your comment referring to LO 010 07 02 09 (01) and (02): Noted.

This LO has not been covered by an earlier LO.

Regarding your comment referring to LO 010 07 02 10 (03) and (04): Accepted.

EASA agrees that both LOs should be reworded and will replace the word 'Name' with 'State'.

The text of both LOs will be amended as follows:

~~Name~~ State the requirements for using a simplified position report with FL~~flight level~~, next position (and time-over) and ensuing significant points omitted.

Source: **ICAO Doc 4444, Chapter 4, 4.11.2 Contents of voice position reports**

~~Name~~ State the item of a position report which must be forwarded to ATC with the initial call after changing to a new frequency.

Source: **ICAO Doc 4444, Chapter 4, 4.11.2 Contents of voice position reports**

Regarding your comment referring to LO 010 07 02 12 (03): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'State'.

The text will be amended as follows:

~~Understand~~ State the difference between the type of separation provided within the various classes of airspace and the various types of flight.

Source: **ICAO Doc 4444, Chapter 5, 5.2 Provisions for the separation of controlled traffic**

Regarding your comment referring to LO 010 07 02 12 (16): Accepted.

EASA realises that the word 'minimum' is missing in this LO and will be added.

The text will be amended as follows:

Indicate the minimum standard horizontal radar separation in NM.

***Source:* ICAO Doc 4444, Chapter 5**

Regarding your comment referring to LO 010 07 02 13 (05): Accepted.

EASA agrees that the word 'given' is better than 'forwarded'.

The text will be amended as follows:

State in which case, when the flight crew are not familiar with the instrument approach procedure being carried out, only the final approach track has to be ~~forwarded~~ given to them by ATC.

***Source:* ICAO Doc 4444, Chapter 6, 6.5.4 Instrument approach**

Regarding your comment referring to LO 010 07 02 13 (05): Not accepted.

This statement does not apply to this learning objective.

Regarding your comment referring to LO 010 07 02 13 (11): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the possible consequences for a PIC if the 'RWY-in-use' is not considered suitable for the operation involved.

***Source:* ICAO Doc 4444, Chapter 7**

Regarding your comment referring to LO 010 07 02 14 (03) and (04): Accepted.

EASA agrees that both LOs should be reworded and will replace the word 'Be familiar with' with 'State'.

The text for both LOs will be amended as follows:

~~Be familiar~~ State ~~with~~ the minimum separation between departing and arriving aircraft.

***Source:* ICAO Doc 4444, Chapter 5, 5.7 Separation of departing aircraft from arriving aircraft**

~~Be familiar~~ State ~~with~~ the non-radar wake-turbulence longitudinal separation minima.

***Source:* ICAO Doc 4444, Chapter 5 and 6**

Regarding your comment referring to LO 010 07 02 14 (05): Accepted.

EASA agrees that this LO should be reworded and will replace the wording 'Know about' with 'Describe the consequences of'.

The text will be amended as follows:

~~Know about~~ Describe the consequences of a clearance to 'maintain own separation' while in VMC.

Source:
ICAO Doc 4444, Chapter 5, 5.8 Time-based wake turbulence longitudinal separation minima, 5.8.1
ICAO Doc 4444, Chapter 6, 6.5.3 Visual approach

Regarding your comment referring to LO 010 07 02 15 (04): Partially accepted.

EASA partially agrees with your comment.

The text will be amended as follows:

~~Acquaint yourself with all the information regarding arriving and/or departing aircraft~~ State the prerequisites for operating on parallel or near-parallel RWYs~~runways,~~ including ~~knowledge about NTZ and NOZ and~~ the ~~various~~ different combinations of parallel arrivals ~~and/~~or departures.

Source: **ICAO Doc 4444, Chapter 6, 6.7 Operations on parallel or near-parallel runways**

Regarding your comment referring to LO 010 07 02 17 (03): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State the ~~two~~ basic identification procedures used with radar.

Source: **ICAO Doc 4444, Chapter 8, 8.6.2.3 SSR and/or MLAT identification procedures and Chapter 8, 8.6.2.4 PSR identification procedures**

Regarding your comment referring to LO 010 07 02 17 (04): Accepted.

EASA agrees with your comment. The abbreviation PSR could be confused with one used in flight planning. Additionally, the student pilot cannot be expected to know this information.

EASA will reinstate LO 010 07 02 17 and will replace the word 'Define' with 'Describe':

~~Define~~ Describe the term 'PSR'.

Source: **ICAO Doc 4444, Chapter 1 Definitions**

Regarding your comment referring to LO 010 07 02 17 (06): Not accepted.

EASA is of the opinion that the word 'on' is necessary.

Regarding your comment referring to LO 010 07 02 17 (08): Accepted.

EASA agrees with your comment. The student pilot cannot be expected to know this information.

EASA will reinstate this LO):

State the aims of radar vectoring as shown in ICAO Doc 4444.

Source: **ICAO Doc 4444, Chapter 8, 8.6.5 Vectoring**

Regarding your comment referring to LO 010 07 02 17 (10): Not accepted.

EASA is of the opinion that this learning objective is clear like it is.

Regarding your comment referring to LO 010 07 02 18 (03): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

Explain ~~why~~ the difference between ~~air traffic advisory service does not deliver 'clearances' but only 'advisory information'.~~ and clearances, stating which ATS units are responsible for their issue.

Source: **ICAO Doc 4444, Chapter 9, 9.1.4.1.3**

Regarding your comment referring to LO 010 08 01 00 (01): Accepted.

EASA realises that the word 'an' is missing in this LO and will be added.

The text will be amended as follows:

State, in general terms, the objective of an AIS ~~the Aeronautical Information Service~~.

Source: **ICAO Annex 15, Chapter 1, Note 1**

Regarding your comment referring to LO 010 08 03 00 (02): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'List'.

The text will be amended as follows:

~~Name (~~ List, in general~~)~~, the kind of aeronautical information/data which an AIS service shall make available in a suitable form to flight crew.

Source: ICAO Annex 15, Chapter 2, 2.2 AIS responsibilities and functions

Regarding your comment referring to LO 010 08 04 01 (03): Noted.

EASA is of the opinion that this LO does not contains unnecessary knowledge and therefore this LO will not be deleted.

Regarding your comment referring to LO 010 08 05 00 (01): Accepted.

EASA agrees that in the current new LO it is not clear what is the 'main content' of Regulation (EU) No 1035/2011 that is required to be explained. EASA will reword this LO.

The text will be amended as follows:

State that Commission Implementing Regulation (EU) No 1035/2011 provides:

- general requirements for the provision of air navigation services;

- specific requirements for the provision of air traffic services;

- specific requirements for the provision of meteorological services;

- specific requirements for the provision of aeronautical information services;

- specific requirements for the provision of communication, navigation or surveillance services.

Regarding your comment referring to LO 010 09 01 00 (02): Partially accepted.

EASA agrees that the wording 'in general terms' is not clear and will reword this LO.

The text will be amended as follows:

Describe~~, in general terms,~~ the intent of the AD reference code and state the functions of the two code elements.

Source: **ICAO Annex 14, Volume 1, Chapter 1, 1.6 Reference Code**

Regarding your comment referring to LO 010 09 02 03 (01): Partially accepted.

EASA acknowledges your concern. The learning objective does not provide key knowledge to pilots. The objective will be simplified.

The text will be amended as follows:

~~List the four most important declared RWY distances and indicate where you can find guidance on their calculation in~~ State that ICAO Annex 14 provides guidance on the calculation of declared distances (TORA, TODA, ASDA, LDA).

Regarding your comment referring to LO 010 09 02 04 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'State'.

The text will be amended as follows:

~~Understand~~ State the purpose of informing AIS and ATS units about the condition of the movement area and related facilities.

Source: **ICAO Annex 14, Volume 1, Chapter 2, 2.9 Condition of the movement area and related facilities**

Regarding your comment referring to LO 010 09 02 04 (04): Accepted.

EASA agrees that this LO is not clear and will be reworded.

The text will be amended as follows:

~~Name~~ Explain the ~~four defined states~~ different types of frozen water on the RWY and their impact on aircraft braking performance.

Source: **ICAO Annex 14, Volume 1, Chapter 2, 2.9 Condition of the movement area and related facilities**

Regarding your comment referring to LO 010 09 02 04 (05): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'Describe'.

The text will be amended as follows:

~~Understand~~ Describe the five levels of braking action including the associated coefficients and codes.

Source: **ICAO Annex 14, Volume 1, Annex A, 6. Assessing the surface friction characteristics of snow-, slush-, ice- and frost-covered paved surfaces**

Regarding your comment referring to LO 010 09 03 01 (02): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Acquaint yourself with' with 'Describe'.

The text will be amended as follows:

~~Acquaint yourself with~~ Describe the general considerations concerning RWYs~~runways~~ associated with a stopway (SWY) or clearway (CWY).

Source: **ICAO Annex 14, Volume 1, Chapter 3, 3.1.9 Runways with stopways or clearways**

Regarding your comment referring to LO 010 09 03 02 (01): Accepted.

The abbreviation for runway is RWY. The question 'Explain the runway strip' or 'Explain the RWY strip' is the same, but for the purpose of clarity and universalisation this LO will be reworded in the previous complete wording.

The text will be amended as follows:

Explain the term '~~RWY~~runway strip'.

Source: **ICAO Annex 14, Volume 1, Chapter 3, 3.4 General, 3.4.1**

Regarding your comment referring to LO 010 09 03 03 (01): Accepted.

The abbreviation for runway is RWY. The question 'Explain the runway-end safety area' or

'Explain the RWY end safety area' is the same, but for the purpose of clarity and universalisation this LO will be reworded in the previous complete wording.

The text will be amended as follows:

Runway-end safety area

Explain the term 'runway~~RWY~~-end safety area'.

Source: **ICAO Annex 14, Volume 1, Chapter 3, 3.5 Runway end safety area 3.5.1 and 3.5.2**

Regarding your comment referring to LO 010 09 03 04 (01) and 010 09 03 05 (01): Partially accepted.

The abbreviation RWY is used for runway, CWY for clearway, SWY for stopway, and TWY for taxiway. To be consistent in the entire syllabus, these abbreviations will normally be used instead of the full wording.

In some cases, the full wording is better for clarity and universalisation.

The text will be amended as follows:

LO 010 09 03 04 Clearway (CWY)

Explain the term '~~CWY~~clearway'.

Source: **ICAO Annex 14, Volume 1, Chapter 3, 3.6 Clearways**

LO 010 09 03 05 Stopway (SWY)

Explain the term '~~SWY~~stopway'.

Source: **ICAO Annex 14, Volume 1, Chapter 3, 3.7 Stopways**

Regarding your comment referring to LO 010 09 04 02 (02): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

State where a RWY designation marking shall be provided and describe the different layouts~~how it is designed~~ (excluding dimensions).

Source: **ICAO Annex 14, Volume 1, Chapter 5, 5.2 Markings**

Regarding your comment referring to LO 010 09 04 03 (04): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Name' with 'Describe'

~~Name~~Describe the different kinds of operations for which a simple approach~~APP~~ lighting system shall be used.

Source: **ICAO Annex 14, Volume 1, Chapter 5, 5.3.4 Approach lighting systems**

Regarding your comment referring to LO 010 09 04 03 (07): Accepted.

EASA agrees that the word 'mentioning' is superfluous and will delete this.

The text will be amended as follows:

Describe the principle of a precision approach ~~APP~~ category II and III lighting system including information such as location and characteristics, especially ~~mentioning~~ the inner 300 m of the system.

***Source*:**

ICAO Annex 14, Volume 1, Chapter 5, 5.3.4.22

ICAO Annex 14, Volume 1, Chapter 5, 5.3.4.30
ICAO Annex 14, Volume 1, Chapter 5, 5.3.4.31

Regarding your comment referring to LO 010 09 04 03 (11): Partially accepted.

EASA partially agrees with your comment.

The text will be amended as follows:

Explain the application and characteristics (as applicable, but limited to colour, intensity, direction and whether fixed or flashing) of:

[…]

Source: **ICAO Annex 14, Volume 1, Chapter 5**

Regarding your comment referring to LO 010 09 04 03, second '(11)': Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'State'.

The text will be amended as follows:

~~Understand~~ State the timescale within which aeronautical ground lights shall be made available to arriving aircraft.

Source: **ICAO Doc 4444, Section 7.15 Aeronautical ground lights**

See also comment 87-C.

Regarding your comment referring to LO 010 09 04 04 (05): Accepted.

EASA agrees that the word 'the' is superfluous and will delete this.

The text will be amended as follows:

Name the kind of signs which shall be included in ~~the~~ mandatory instruction signs.

Source: **ICAO Annex 14, Volume 1, Chapter 5.4 Signs**

Regarding your comment referring to LO 010 09 04 05 (01): Accepted.

EASA agrees that this LO should be reworded.

The text will be amended as follows:

Explain why markers located near a RWY~~runway~~ or TWY~~taxiway~~ shall be HGT-limited. ~~to their height~~.

Source: **ICAO Annex 14, Volume 1, Chapter 5.5 Markers**

Regarding your comment referring to LO 010 09 05 02 (05): Partially accepted.

EASA agrees that this LO is not clear. The answer to a question from this LO is indeed ICAO Annex 2.

The text will be amended as follows:

State ~~where you can find~~ that information about lights to be displayed by aircraft is provided in ICAO Annex 2 (Rules of the Air) and SERA.

Regarding your comment referring to LO 010 09 07 01 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'State'.

The text will be amended as follows:

~~Name~~ State the principal objective of ~~a~~ RFF~~rescue and firefighting~~ services.

Source: **ICAO Annex 14, Volume 1, Chapter 9, 9.2 Rescue and firefighting**

Regarding your comment referring to LO 010 09 08 03: Noted.

The concern is noted, however no change of the LO is necessary.

Regarding your comment referring to LO 010 10 02 03 (03): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Be familiar with' with 'Identify'.

The text will be amended as follows:

~~Be familiar with~~ Identify the documentation required for the departure and entry of passengers and their baggage.

Source: **ICAO Annex 9, Chapter 3. Entry and departure of persons and their baggage**

Regarding your comment referring to LO 010 11 01 00 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Recall the definition of'.

The text will be amended as follows:

Recall the definition of ~~Define~~ the following terms:

alert phase, distress phase, emergency phase, operator, PIC~~pilot-in-command~~, rescue coordination centre, State of R~~r~~egistry, uncertainty phase.

Source: **ICAO Annex 12, Chapter 1 Definitions**

Regarding your comment referring to LO 010 12 00 00: Noted.

The comment has not been explained.

Regarding your comment referring to LO 010 12 01 00 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Recall the definition of'.

The text will be amended as follows:

Recall the definition of ~~Define~~ the following terms:

airside, aircraft security check, screening, security, security control, security-restricted area, unidentified baggage.

Source: **ICAO Annex 17, Chapter 1 Definitions**

Regarding your comment referring to LO 010 12 04 00 (06): Partially accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'Explain', instead of your proposed 'State'.

~~Understand~~ Explain what has to be considered if law enforcement officers carry weapons on board.

Source: **ICAO Annex 17, Chapter 4, 4.7 Measures relating to special categories of passengers**

Regarding your comment referring to LO 010 12 05 00 (02): Partially accepted.

EASA agrees that this LO should be reworded and will replace the word 'to detain' with 'from detaining', instead of your proposed 'detaining'.

The text will be amended as follows:

State the circumstances which could prevent a Contracting State ~~to detain~~ from detaining an aircraft on the ground after being subjected to an act of unlawful seizure.

Source: **ICAO Annex 17, Chapter 5, 5.2 Response**

See also comment 51-C on same LO.

Regarding your comment referring to LO 010 12 06 00 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'Describe'.

The text will be amended as follows:

(01) ~~Understand~~ Describe the principles of the written operator's security programme each Contracting State requires from operators.

Source: **ICAO Annex 17, Chapter 3, 3.3 Aircraft operators**

Regarding your comment referring to LO 010 12 07 01 (01), (02) and (03): Accepted.

EASA agrees that this LO should be reworded to state that they relate to unlawful interference.

The text will be amended as follows:

Describe what the PIC should do, in a situation of unlawful interference, unless considerations aboard the aircraft dictate otherwise.

Source: **ICAO Annex 2, Chapter 3, 3.7 Unlawful interference**

Describe what the PIC, of an aircraft subjected to unlawful interference, should do if:

[…]

Source: **ICAO Annex 2, Attachment B 'Unlawful interference'**

Describe what the PIC should attempt to do with regard to broadcast warnings and the ~~to decide at which~~ level at which to proceed, in a situation of unlawful interference, ~~the crew is proceeding~~ if no applicable regional procedures for in-flight contingencies have been established.

Source: **ICAO Annex 2, Attachment B 'Unlawful interference'**

Regarding your comment referring to LO 010 13 01 00 (01): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Recall the definition of'.

The text will be amended as follows:

~~Define~~ Recall the definition of the following terms:

accident, aircraft, flight recorder, incident, investigation, maximum mass, operator, serious incident, serious injury, State of Design, State of Manufacture, State of Occurrence, State of the Operator, State of Registry.

Source: **ICAO Annex 13, Chapter 1 Definitions**

Regarding your comment referring to LO 010 13 01 00 (02): Partially accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Explain', instead of your proposed 'Describe'.

The text will be amended as follows:

~~Define~~ Explain the difference between 'serious incident' and 'accident'.

Source: **ICAO Annex 13, Chapter 1 Definitions and Attachment C 'List of examples of serious incidents'**

Regarding your comment referring to LO 010 13 02 00 (02): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Understand' with 'Describe'. There appears to be a mistake which is causing the confusion here. There has been inclusion of ICAO and EU documents in the same LO. The EU documents are then referred to in subsequent LOs. To solve this problem, this LO should be changed to remove the EU reference as well as the other proposed change.

The text will be amended as follows:

~~Understand~~ Describe the general procedures for the investigation of an accident or incident according to ICAO Annex 13.

Source:

ICAO Annex 13, Chapter 4, 4.1

ICAO Annex 13, Chapter 5, 5.1 to 5.4.1

Regarding your comment referring to LO 010 13 03 00 (01) and (02): Accepted.

EASA agrees that the wording 'Be familiar with' is meaningless as an objective phrase. These LOs will be reworded and split up in four learning objectives.

The text will be amended as follows:

~~Be familiar with Council Directive 94/56/EC of 21 November 1994 establishing the fundamental principles governing the investigation of civil aviation accidents and incidents.~~ Identify an occurrence as being either an accident, incident or serious incident in Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.

Source: **Regulation (EU) No 996/2010, Article 2(1), (7) and (16) and Annex 'List of examples of serious incidents**

~~Be familiar with Council Directive 2003/42/EC of the European Parliament and of the Council of 13 June 2003 on occurrence reporting in civil aviation.~~ Describe the relationship between Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation.

Source:

Regulation (EU) No 376/2014, p. L122/18 (3) and p. L122/21 (28);

Regulation (EU) No 996/2010

~~Be familiar with the differences between the procedures for accident and incident investigation in EU regulations compared to ICAO Annex 13.~~ State the subject matter and

scope of Regulation (EU) No 376/2014 (Article 3).
Source: **Regulation (EU) No 376/2014, Article 3**

Identify occurrences that ~~have to~~ must be reported (Regulation (EU) No 376/2014, Article 4).
Source: **Regulation (EU) No 376/2014, Article 4**

Identify occurrences that should be voluntarily reported (Regulation (EU) No 376/2014, Article 5).

Source: **Regulation (EU) No 376/2014, Article 5**

~~Discuss the collection, storage and analysis of occurrence information~~ Describe how information from occurences is collected, stored and analysed (Regulation (EU) No 376/2014, Articles 6, 8, 13 and 14).
Source: **Regulation (EU) No 376/2014, Articles 6, 8, 13 and 14**

comment *43-C* comment by: *KLM Flight Academy*

Following comments are not general. Due to technical problems it has to be given here as stated by the webmaster of EASA

response Noted.

Thank you for providing this comment regarding your following comments.

Unable to provide a response because of missing comment.

comment *49-C* comment by: *Bristol Groundschool*

010 06 07 00 (03). "know about" is inappropriate for objectives. I suggest *delete* "know about" *add* "Explain the purpose of"

response Accepted.

Thank you for providing your comment referring to LO 010 06 07 00 (03).

EASA agrees that the wording 'know about' is not very clear and will replace this with the wording 'Describe'.

The text will be amended as follows:

~~Know about~~ Describe 'normal operating zone (NOZ)' and 'no transgression zone (NTZ)'.

See also comment 39-D on same topic.

comment *50-C* comment by: *Bristol Groundschool*

010 07 02 06 (03). Badly worded. Suggest, *delete* whole objective and *add "*state within which distance from the threshold can the PIC expect to be free from speed restrictions

imposed by ATC."

response

Partially accepted.

Thank you for providing your comment referring to LO 010 07 02 06 (03).

EASA agrees that this LO should be reworded, based on the feedback received in comment 39-D.

The text will be amended as follows:

State within ~~which~~ what distance from the THR~~threshold~~ the PIC ~~must~~ should not expect any kind of speed control.

Source: **ICAO Doc 4444, Chapter 4, 4.6.3 Descending and arriving aircraft**

comment *51-C* comment by: *Bristol Groundschool*

010 12 05 00 (02). Bad grammar, suggest *delete* "to detain" *add* "detaining"

response

Partially accepted.

Thank you for providing your comment referring to LO 010 12 05 00 (02).

EASA agrees that this LO should be reworded and will replace the word 'to detain' with 'from detaining', instead of your proposed 'detaining'.

The text will be amended as follows:

State the circumstances which could prevent a Contracting State ~~to detain~~ from detaining an aircraft on the ground after being subjected to an act of unlawful seizure.

Source: **ICAO Annex 17, Chapter 5, 5.2 Response**

See also same comment 39-D on this LO.

comment *57-C* comment by: *European Cockpit Association*

Attachment #2

NPA 2016_03 (C)		European Cockpit Association - Comments
Subject 010 — Air law	**Page nb**	
010 01 01 01 (01/02) Part I — Air navigation	**3**	In addition to the existing requirements, the student should be able to explain the basic principles of the Chicago Convention (Supervision of safety, cooperation on the basis of equality, territorial jurisdiction. Also, explain the relationship between registration, nationality and jurisdiction.
010 01 01 01 (03)	**4**	In addition to the existing requirements, the student should be able to explain the difference

		between scheduled and non-scheduled flights. He/she should be also able to explain the freedoms of air.
010 01 01 02 (02) Part II — The International Civil Aviation Organization (ICAO)	**5**	In addition to the existing requirements, the student should be able to describe the role of ICAO, organisation and decision making and dispute process
010 01 01 02 (05) ICAO	**5**	LO on SARPS should be maintained
010 01 02 03 Suppression of Unlawful Acts Against the Safety of Civil Aviation; — The Conventions of Tokyo, The Hague and Montreal Convention of 1988	**6**	Keep the Learning Objective; The student should be able to explain the goal of these conventions in respect of jurisdictions and the competence of the commander and authorities. This is one of the oldest conventions, widely ratified and still valid for the situation in the world i.e. hijacking and unruly passengers
010 01 02 04 International agreements	**7**	This Learning Objective should be kept, and modified accordingly: **explain the reason for the existence of bilateral agreements, explain the models, liberalisation and market regulation, Open Skies US-EU.** As a future commercial pilot the student need to know about landing rights and also the component of fair competition on a level playing field. In addition, the student should be able to describe slots and their relationship with traffic rights (bilateral agreements).
010 01 02 05 International private law	**7**	The student should have a basic knowledge on the Warsaw and Montreal Conventions. Also, the Learing Objective 010 01 02 05 (4) should be kept, highlighting the difference between the Warsaw and Montreal philosophy and when (which moment) these convention are applicable. Reasoning: As a commercial pilot knowledge about how liability is organised, the maximums and rights and obligations of the airline and/or commander is needed. Also the difference between those two and applicability should be pointed out.
010 01 02 05 (5)	**8**	The student should be able to explain the conditions of extraordinary circumstances, refering to the main and applicable jurisprudence, as well as what is the relevance to the liability and rights of passengers as stated in the Montreal Convention. Reasoning: A commercial pilot needs to know when compensation is applicable or not.
010 01 02 05 (7)	**8**	Add Learning Objective on the assistance to disabled persons (EU Reg 1107/2006)
010 01 04 01 (2) European organisations & EASA	**9**	**At least the structure of EASA's regulation should be explained, like Regulations, Implementing**

		rules, AMC's and CS's (hard and soft law)
010 01 04 01 (3) European organisations & EASA	**9**	The Learning Objective on the **relationship between EASA and NAA** should be maintained.
010 01 04 02 (01)	**9**	The scope and governance of ATM by Eurocontrol and the relationship worldwide should be added. Also, the student should be able to describe objectives of SES, and the principles of the European Common Aviation Area (ECAA).
010 01 04 03 (01)	**9**	The student should at least have a basic knowledge on the existence of ECAC and its aim (to safety and security).
010 01 04 04 *(new)*		A student should have a basic knowledge of the international, European and national pilot representation organisations, and their role.
010 04 02 02 (1)	**12**	In addition - the student should be able to explain the difference between hard law and soft law.
010 04 02 02 (02) - Content and structure FCL	**12**	It is important to understand the differences between AMC/GM and Part FCL
010 05 03 00 (19) - General rules	**16**	This LO should be included also for helicopters ATPL (H)
Subject 031 — Mass and balance		
031 05 02 04 (08)	**95**	Amend the wording: *Explain the relationship between pitch trim and CG position and the operational significance.*
Subject 032 — Performance (aeroplane)		
		General comment: knowledge regarding effects and hazards of contaminated runways as well as drag types is also relevant for CPL. These Learning Objectives are more suitable within the syllabus 032 04 01 07 Contaminated runways
032 04 01 07	**130**	Correct: the syllabus reference 032 04 01 07 appears twice for different Learning Objectives (**Contaminated runways** and also for **Take-off climb**); to be renumbered.
032 04 01 10 (03)	**134**	The Learning Objective 032 04 01 10 (03) should be added to the scope of CPL; Move to 032 04 01 07
032 04 02 10 (04)	**134**	Add „displacement drag" to the scope of 032 04 02 10 (04); Move to 032 04 01 07
Subject 033 — Flight planning and monitoring		
		Performance Based Navigation is only shortly addressed when it comes to approaches. PBN should be addressed by a separate Learning

		Objective.
033 01 01 03 (03) - AD charts and AD directory	**154**	If the list is erased will complicate the understanding and issues requirements of this LO
033 02 01 01 (01) - ATS routes	**156**	If the list is erased will complicate the understanding and issues requirements of the LO
033 02 01 01 (02) - ATS routes	**157**	In comments it is specified that High-Level charts are not a requirement for helicopters, but when reading though the details - it seems to be the contrary. There is a need for a clarification or separation of LO's. Same comments for LO 033 02 01 02 (01) and (02)
033 02 01 03 (01)	**157**	Do not delete LO 033 02 01 03 (01).
033 02 01 03 (04) Altitudes	**158**	The letter "t" is missing at the word *State.* Also, the list of important altitudes should be completed with the **grid altitude.**
033 02 01 05 (04) - Instrument approach charts	**160**	A clarification is needed whether PINS app is deleted? Covered in 062 07 05 09
033 04 01 04 - Selection of alternates	**171**	This LO should be mandatory also for helicopters.
033 04 03 00 - PET and PSR	**173**	Both PET and PSR should be also covered in CPL courses A and H
Subject 034 — Performance (helicopter)		
034 01 02 02 (03) - Terms and definitions	**185**	If this LO is not applicable to CPL then the LO (09) does not make sense.
034 01 02 02 (04) - Terms and definitions	**185**	Climb angle and climb gradient is a concept that CPL licences must also include.

response

Thank you for your extensive feedback, which has been greatly appreciated.

EASA has carefully assessed all the comments received.

Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number.

Regarding your comment referring to LO 010 01 01 00 (01), (02) and (03): Not accepted.

EASA is of the opinion that no changes are needed in these LOs. These LOs assume the student has general knowledge of the Chicago Convention. The details are not necessary. In addition, EU regulations on the subject must be taken into account as the main source.

Regarding your comment referring to LO 010 01 01 02 (02): Noted.

The NPA included already some of your suggestions like that the student should be able to describe the role of ICAO, organisation and decision-making, and dispute process.

Regarding your comment referring to LO 010 01 01 02 (05): Not accepted.

SARP documents are not directly used by EU pilots and therefore SARPs should not be maintained in the text.

Regarding your comment referring to LO 010 01 02 03 (01) to (04): Not accepted.

EASA does not see the need to reinstate these LOs. Operators have their own approved policies for such contingencies and no change to revert is considered necessary.

Regarding your comment referring to LO 010 01 02 04 (01): Not accepted.

EASA does not see the need to reinstate this LO. The theory of bilateral agreements is not considered necessary for pilots in terms of flight safety.

Regarding your comment referring to LO 010 01 02 05 (01): Not accepted.

EASA does not see the need to reinstate this LO. This knowledge is not considered necessary for pilots/flight safety. In the agreements cited there is no reference to the PIC.

Regarding your comment referring to LO 010 01 02 05 (07): Not accepted.

EASA does not see the need to add an LO on the assistance to disabled persons (Regulation (EC) No 1107/2006). The carriage of SCPs is covered in Operational Procedures.

Regarding your comment referring to LO 010 01 04 01 (04): Accepted.

EASA agrees that this LO should be reinstated, and reworded.

The text will be amended as follows:

State that the structure of the regulatory material related to EASA involves:

— hard law (regulations, implementing rules);

— soft law (certification specifications, acceptable means of compliance, guidance material).

Regarding your comment referring to LO 010 01 04 01 (03): Not accepted.

EASA does not see the need to reinstate this LO. The objective is not considered necessary.

Regarding your comment referring to LO 010 01 04 02 (01): Not accepted.

EASA does not see the need to reinstate this LO. The objective is not considered necessary for pilots and no changes to the text in this area are proposed.

Regarding your comment referring to LO 010 01 04 03 (01): Not accepted.

EASA does not see the need to reinstate this LO. The objective is not considered necessary for pilots and no changes to the text in this area are proposed.

Regarding your comment referring to Subject 010 01 04 04: Noted.

The suggestion is useful, however there is no direct statement about which organisations should be included. This may be a suitable inclusion for a later amendment to 010.

Regarding your comment referring to LO 010 04 02 02 (01): Partially accepted.

This area has been addressed in LO 010 01 04 01 by adding the following new LO:

State the meaning of the terminology associated with the EASA regulations' structure, specifically: regulations; implementing rules; certification specifications; acceptable means of compliance; guidance material.

Regarding your comment referring to LO 010 04 02 02 (02): Noted.

It is important to understand the differences between AMCs/GM and Part FCL.

Regarding your comment referring to LO 010 05 03 00 (19): Accepted.

This LO should be included also for ATPL(H).

EASA agrees with your proposal.

The text will be amended by placing an 'X' in ATPL(H) for 010 05 03 00 (19).

comment *66-C* comment by: *René Meier, Europe Air Sports*

Check

response Noted.

comment *68-C* comment by: *CAA-NL*

Enclosed the comments of the Netherlands on the **Notice of Proposed Amendment 2016-03 (C)**

010 01 01 02 - LO (03):
Do not delete
For intercontinental flights you have to understand and read in operational messages to pilots and in route manuals that there are different ICAO Regions.

010 01 01 02 - LO (04):
Do not delete
It explains for ICA pilots why route training and differences training is important. See for e.g chapter 4 of the subject 070 the procedures of the NAT.

010 01 01 02 - LO (05):
Do not delete
We should be aware that the ICAO Annexes, PANS and docs forms the basis of all regulations we have at European and national level. I agree that knowledge of the hierarchy is not necessary
Proposal: Know the precence of ICAO documents (Annexes, PANS, SUPPS and DOCs) and its meaning for the international civil aviation

010 01 02 02 – LO (02)
Do not delete
This LO explains that we have made of the EU 1 cabotage area. Pilots shall know that there is more work available for them if we can operate in a liberalized marked. Freedoms of the air, bilaterals and cabotage are of the most importance of our transport business.
Proposal: Describe the legal situation within the EU with regard to international air services

010 01 02 03
We suggest to keep these LOs as they are now for the moment. But they should be rephrased and should more specific and aiming to the position, rights and possibilities of the PIC

10 01 02 03 - LO (01)
Keep LO. It is the threat against civil aviation. It explains also why flight crew needs flight safety training, security training and other company training.

10 01 02 03 - LO (02)
Keep LO. The juridical position of the captain. What is a captain, a crewmember or a passenger allowed to do during the flight in case of unlawfull interference (e.g quarrel).

10 01 02 03 - LO (03)
Keep LO on hijacking. It give the right to pilots to continue their flight after hijaking.

10 01 02 04
See the comment at 010 01 020 01

10 01 02 04 – LO (02)
Keep LO. This theoretical knowledge is background knowledge for the pilot to understand how our worldwide transport system is arranged.

010 01 02 05
We are in favour to add a new LO that covers the rights of passengers based on Commission Regulation EU No 261/2004

10 01 02 06
Keep LO. The PIC has to keep documents on board. For e.g. insurance papers. He has to convince himself that the papers are on board and that for (international) flights there is a provision based on the Treaty of Rome.

10 01 02 07 – LO (01)
Keep LO. What are the rights of a pilot?

10 06 08 02 – LO (09); 10 08 01 05 – LO (09); 10 07 02 10 – LO (10); 10 07 02 15 – LO (09); 10 07 02 17 - LO (03);
Check renumbering

10 09 04 01 – LO (02)
Keep LO. The landing 'T' is still in use. Important current sign on uncontrolled aerodromes.

	010 11 04 00 – LO (01) Instead of 'explain': 01 and 0 we propose the following: Recognize the SAR signals and explain the obligation to have the signals on board.
response	Thank you for your extensive feedback, which has been greatly appreciated. EASA has carefully assessed all the comments received. Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number. Regarding your comment referring to LO 010 09 04 01 (02): Accepted. EASA agrees that the landing 'T' is still in use and it is an important current sign on uncontrolled aerodromes and will reinstate this LO. The text will be reinstated as follows: Describe a landing-direction indicator. ***Source:* ICAO Annex 14, Volume 1, Chapter 5, 5.1.2 Landing direction indicator** Regarding your comment referring to LO 010 11 04 00 (02): Partially accepted. EASA agrees that this LO should be reworded in a slightly different way than your proposal. The text will be amended as follows: ~~Explain the signals to be used for~~ Recognise the SAR 'air–ground signals' for use by survivors. ***Source:* ICAO Annex 12, Chapter 5.8 Search and rescue signals and Appendix** Regarding your comment referring to LO 010 01 01 02 (03): Not accepted. EASA does not see the need to reinstate this LO. Regarding your comment referring to LO 010 01 01 02 (04): Not accepted. EASA does not see the need to reinstate this LO. This is an area of inclusion in Operational Procedures. Regarding your comment referring to LO 010 01 01 02 (05): Not accepted. EASA does not see the practical use of knowing all ICAO publications, except for the Annexes. EASA will not retain the deleted text. Regarding your comment referring to LO 010 01 02 02 (02): Not accepted. EASA does not see the need to reinstate this LO. This is not a pilot-/safety-related area. Regarding your comment referring to LO 010 01 02 03 (01): Not accepted. EASA does not see the need to reinstate this LO. Regarding your comment referring to LO 10 01 02 03 (02): Not accepted.

EASA does not see the need to reinstate this LO.

Regarding your comment referring to LO 10 01 02 03 (03): Not accepted.

EASA does not see the need to reinstate this LO.

Regarding your comment referring to LO 10 01 02 04 (02): Not accepted.

EASA does not see the need to reinstate this LO.

Regarding your comment referring to Subject 10 01 02 04: Not accepted.

EASA does not see the need for a new LO that covers the rights of passengers based on Commission Regulation (EC) No 261/2004.

Regarding your comment referring to Subject 10 01 02 06: Not accepted.

EASA does not see the need to reinstate this Subject, because it is of no practical use.

Regarding your comment referring to LO 10 01 02 07 (01): Not accepted.

EASA does not see the need to reinstate this LO.

Regarding your comment referring to LOs 10 06 08 02 (09), 10 08 01 05 (09), 10 07 02 10 (10), 10 07 02 15 (09), and 10 07 02 17 (03): Noted.

EASA will check all the numbering of the LOs once all the amendments (based on accepted comments) are made.

comment

69-C comment by: *Aero-Club of Switzerland*

Comment on 010 09 02 and
Comment on 010 09 03
In our view they do not fit, these two topics are not elements we have to pay attention to as flight crews.

Comment on 010 09 04
This provision is important for IR, CB-IR and EIR flight crew because recognising correctly the indications of visual aids is important, particularly when operating in poor visibility conditions.

response

Partially accepted.

Thank you for providing your comment referring to Subject 010 09 02 and 010 09 03.

EASA agrees that all LOs in 090 09 04 00 00 regarding ‘Visual aids for navigation’ should be compulsory for all, and will amend these LOs by placing a cross (‘X’) in the column ‘IR’ and

	'CB-IR(A) and EIR' where the cross was still missing. See also comment 67-D to this LO.
comment	*70-C* comment by: *Aero-Club of Switzerland* Subject 010 Air Law fits better now, many thanks for reducing the formerly really heavy requirements in several areas. All flight crew we discussed this Subject with fully endorse your "no practical use" comments. Subject 031 Mass and Balance fits. Subject 032 Performance aeroplanes is ok for us. Subject 033 Flight planning and monitoring is ok for us. Subject 034 Performance helicopters is ok for our rotary wing community.
response	Noted. Thank you for your positive feedback and the comments on these different subjects. For Subject 010: EASA acknowledges the comments for Subject 01, but no change to the existing text is considered necessary.
comment	*75-C* comment by: *FAA* Air Laws Section pages 5 and 6. We concur with the removal of the items that reference ICAO standards. We feel these have no instructional value in terms of pilot training and competency. Regulation Structure, Page 76. Similarly, a knowledge of the differences between ICAO PANS-OPS and EU rules is not necessary for the purposes of initial pilot certification.
response	Partially accepted. Thank you for your comment on the LO regarding the regulation structure. EASA agrees that knowing the differences between documents is not necessary for initial pilot certification and will remove the learning objective in question.
comment	*76-C* comment by: *DGAC FRANCE* **General comment** First DGAC France would like to thank EASA for the update of the learning objectives, the theoretical knowledge syllabi and ground school exams. We congratulate the Agency on the comprehensive overhaul of the learning objectives which will lead to more simplicity. We notice in particular that the subject 022 in particular is well done, the learning

objectives are clearer and the curriculum is both more precise and less redundant.
Secondly DGAC France supports the introduction of the TEM concept and application in the training programs. Nevertheless, without entering too much into details DGAC France wants to develop only two points among those that caught our attention and arose questions.
§ One of the goals of the area 100 KSA is to teach the future pilots the need for developing these core competencies so that they could manage the threats and errors in the TEM model.
We would like to emphasize that there is no need to assess future pilots on that knowledge, the only need is that the trainees understand the use of competencies in a TEM model, and the way they can rely on them.
The ICAO-defined competencies should be all introduced (and not only a selection of them) with their ICAO definitions, in order to prepare students to use them during practical training and need not to be assessed during the theoretical part of the training.
We suggest ensuring an identical level of use within the ATOs, that the observable indicators for these learning objectives should be in compliance with the ICAO principles.
DGAC France also considers that it is necessary to ensure consistency between the different EASA working groups on the EBT core competencies before implementing them.
§ We are surprised by the important focus on mental maths developed in this NPA. Mental maths should only be exercised to develop the situation awareness competency. Therefore, the assessment should be as less pervasive as possible since we do not see a significant safety or competency concern nowadays with the evolution of the cockpits.

response

Noted.

Thank you for your general comment regarding different subjects.

EASA acknowledges the general comments but no change to the existing text in 010 is considered necessary.

comment

77-C comment by: *DGAC FRANCE*

Doc C
Page 25/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 06 04 06
~~*Area Navigation (RNAV)*~~ *approach procedures based on VOR/distance-measuring equipment (DME)*
LO (01) Describe the provisions that must be fulfilled before carrying before carrying out VOR/DME RNAV approaches.
LO (02) Explain the disadvantages of the VOR/DME RNAV system. LO (03) List the factors the navigational accuracy of the VOR/DME RNAV system depends on.
LO (03) List the factors the navigational accuracy of the VOR/DME RNAV system depends on.

Content of comment:
Anti-pedagogic. Nowadays, VOR RNAV approaches can be flown in Overlay.

Alternative draft for proposed amendment

Delete the Los.

~~LO (01) Describe the provisions that must be fulfilled before carrying before carrying out VOR/DME RNAV approaches.~~
~~LO (02) Explain the disadvantages of the VOR/DME RNAV system. LO (03) List the factors the navigational accuracy of the VOR/DME RNAV system depends on.~~
~~LO (03) List the factors the navigational accuracy of the VOR/DME RNAV system depends on.~~

Ask questions about RNAV approaches, not about VOR RNAV, it is outdated.

response

Not accepted.

Thank you for providing your comment referring to Subject 010 06 04 06.

The subject area in question has been assigned to radio navigation.

comment

78-C comment by: *DGAC FRANCE*

Doc C
Page 27/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 06 06 01
Basic requirements and procedures
LO (02) Define the term “QNH” and “QFE”

Content of comment:
The term “QFE” is outdated

Alternative draft for proposed amendment

Delete the term “QFE”.

LO (02) Define the term “QNH” ~~and “QFE”~~

response

Not accepted.

Thank you for providing your comment referring to LO 010 06 06 01 (02).

EASA acknowledges the comment but no change to the existing text is considered necessary at this time.

comment

79-C comment by: *DGAC FRANCE*

Doc C

Page 31/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 06 08 01
Operation of transponders
LO (05) State the transponder mode and code to indicate:
- A state of emergency
- A COMmunication failure
- Unlawful interference

Content of comment:
The word "mode" is anti-pedagogic in case of emergency : transponder are nowadays mode S and the pilots can no longer select A mode

Alternative draft for proposed amendment

Delete the word "mode".

LO (05) State the transponder ~~mode and~~ code to indicate:
- A state of emergency
- A COMmunication failure
- Unlawful interference

response

Partially accepted.

Thank you for providing your comment referring to LO 010 06 08 01 (05).

EASA partially agrees with your comment.

The text will be amended as follows:

State the transponder ~~mode and~~ code to indicate:

— a state of emergency;

— a COM~~communication~~ failure;

— unlawful interference.

Source: **ICAO Doc 8168, Volume I, Part III, Section 3, Chapter 1**

comment *80-C* comment by: *DGAC FRANCE*

Doc C
Page 32/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 06 08 02
Operation of airborne collision avoidance system (ACAS) equipment
LO (07) List the reasons which may force a pilot to disregard an RA Resolution Advisory.

Content of comment:
No practical use according to the BEA and anti-pedagogic.
Alternative draft for proposed amendment

Delete the LO.
~~LO (07) List the reasons which may force a pilot to disregard an RA Resolution Advisory.~~

response

Not accepted.

Thank you for providing your comment referring to LO 020 06 08 02 (07)

EASA does not agree to delete this LO. It is vital that pilots fully understand how their aircraft are separated from other aircraft and have an early understanding of what to do when such situations arise.

comment *81-C* comment by: *DGAC FRANCE*

Doc C
Page 43/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 07 02 12
Separation methods and minima
LO (10) List the two main methods for horizontal separation.

Content of comment:
No practical use.

Alternative draft for proposed amendment

Delete the LO.

~~LO (10) List the two main methods for horizontal separation.~~

response

Not accepted.

Thank you for providing your comment referring to LO 010 07 02 12 (10).

EASA does not agree to delete this LO. It is vital that pilots fully understand how their aircraft is separated from other aircraft.

comment *82-C* comment by: *DGAC FRANCE*

Doc C
Page 46/196

Subject:
SUBJECT 010 – AIR LAW

syllabus reference 010 07 02 14
Miscellaneous separation procedures
LO (06) Give a brief description of “essential traffic” and “essential traffic information”.

Content of comment:
No practical use.

Alternative draft for proposed amendment

Delete the LO.
~~LO (06) Give a brief description of “essential traffic” and “essential traffic information”.~~

response

Not accepted.

Thank you for providing your comment referring to LO 010 07 02 14 (06).

EASA does not agree to delete this LO. It is vital that pilots fully understand these terms.

comment *83-C* comment by: *DGAC FRANCE*

Doc C
Page 54/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 08 04 04
Aeronautical information circulars (AICs)
LO (02) Explain the organisation and standard colour codes of AICs.

Content of comment:
The “standard colour codes of AICs” are unnecessary knowledge.

Alternative draft for proposed amendment

Delete “and standard colour codes of AICs”.

LO (02) Explain the organisation ~~and standard colour codes of AICs.~~

response

Partially accepted.

Thank you for providing your comment referring to LO 010 08 04 04 (02).

The text will be amended as follows:

Explain the organisation ~~and standard colour codes~~ of AICs.

Source: **ICAO Annex 15, Chapter 7, 7.1 Origination**

comment *84-C* comment by: *DGAC FRANCE*

Doc C
Page 56/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 09 02 03
Declared distances
LO (01) List the four most important declared RWY distances and indicate where you can find guidance on their calculation in ICAO Annex 14

Content of comment:
There are only four declared distances

Alternative draft for proposed amendment

Delete "most important"

LO (01) List the four ~~most important~~ declared RWY distances and indicate where you can find guidance on their calculation in ICAO Annex 14

response

Not accepted.

Thank you for providing your comment referring to LO 010 09 02 03 (01).

EASA is of the opinion that this LO is clear like it is.

comment *85-C* comment by: *DGAC FRANCE*

Doc C
Page 60/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 09 04 03
Lights
LO (06) describe the principle of a precision approach category I lighting system including information such as location and characteristics.
Remark: This includes the 'Calvert' system with additional crossbars.

Content of comment:
The term 'Calvert' is not used in Annex 14 neither in Doc 9157

response

Partially accepted.

Thank you for providing your comment referring to LO 010 09 04 03 (06).

EASA agrees that the term 'Calvert' is not used in Annex 14 neither in Doc 9157, and the remark regarding 'Calvert' will be deleted from this LO.

The text will be amended as follows:

Describe the principle of a precision approach~~APP~~ category I lighting system including

information such as location and characteristics.

Source:
ICAO Annex 14, Volume 1, Chapter 5, 5.3.4.10
ICAO Annex 14, Volume 1, Chapter 5, 5.3.4.14

~~*Remark: This includes the 'Calvert' system with additional crossbars.*~~

comment *86-C* comment by: *DGAC FRANCE*

Doc C
Page 61/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 09 04 03
Lights
LO (08) describe the wing bars of precision approach path indicator (PAPI) and abbreviated precision approach path indicator (APAPI)

Content of comment:
Add interpret what the pilot will see during approach using PAPI

response Accepted.

Thank you for providing your comment referring to LO 010 09 04 03 (08).

EASA agrees that this LO should be reworded.

The text will be amended as follows:

Describe the wing bars of precision approach path indicator (PAPI) and abbreviated precision approach path indicator (APAPI). Interpret what the pilot will see during the approach using PAPI.

Source: **ICAO Annex 14, Volume 1, Chapter 5, 5.3.5.24 to 5.3.5.27 PAPA and APAPI**

comment *87-C* comment by: *DGAC FRANCE*

Doc C
Page 62/196

Subject:
SUBJECT 010 – AIR LAW
syllabus reference 010 09 04 03
Markers
LO (11) understand the timescale within which aeronautical ground lights shall be made available

Content of comment:

	This LO is not an Annex 14 one. We can find this information in Doc 4444 Chap. 7.15.22
response	Partially accepted. Thank you for providing your comment referring to LO 010 09 04 03 (11). The text will be amended as follows: ~~Understand~~ State the timescale within which aeronautical ground lights shall be made available to arriving aircraft. ***Source:*** **ICAO Doc 4444, Section 7.15 Aeronautical ground lights** See also comment 39-D on this LO.

comment	*88-C* comment by: *DGAC FRANCE* **Doc C** **Page 64/196** **Subject:** **SUBJECT 010 – AIR LAW** *syllabus reference 010 09 05 00* *Visual aids for denoting obstacles* **Content of comment :** - Be advised that the Annex 14 chap 6 has been completely reorganised in the sixth edition. Annex 14 talks now about 'Mobile objects' (marking or lighting) and 'fixed objects' (marking or lighting). For example, there are now 9 types of lights (table 6-1). The organisation of the LO's (marking of objects/Lighting of objects) are perhaps outdated.
response	Noted. Thank you for providing your comment referring to Subject 010 09 05 00. EASA is aware that ICAO Annex 14 has been completely reorganised in the sixth edition.

comment	*89-C* comment by: *DGAC FRANCE* **Doc C** **Page 71/196** **Subject:** **SUBJECT 010 – AIR LAW** *syllabus reference 010 12 04 00* *Preventive security measures* LO (03) State what each Contracting State is supposed to do if passengers subjected to

	security control have mixed after a security screening point. **<u>Content of comment:</u>** Too obvious. **Alternative draft for proposed amendment** Delete the LO. ~~LO (03) State what each Contracting State is supposed to do if passengers subjected to security control have mixed after a security screening point.~~
response	Not accepted. Thank you for providing your comment referring to LO 010 12 04 00 (03). EASA is of the opinion that this LO is important and should stay.

comment	*94-C* comment by: *Karl Hunkeler* All items considered to be tested in Subject 010 for IR should also be tested for CBIR/EIR, because all IR operations are subject to the same rules.
response	Noted. Thank you for providing your general comment referring to Subject 010. EASA may review these LOs when the LOs are further updated in the future.

comment	*95-C* comment by: *Karl Hunkeler* 010 06 03 02 (02) and similar: the responsibility of the pilot to act when unable to utilise the published procedure should be stated (e.g. concerning climb gradient).
response	Noted. Thank you for providing your general comment referring to LO 010 06 03 02 (02).

comment	*96-C* comment by: *Karl Hunkeler* All proposed deletions in the subject 010 Air Law are welcome!
response	Noted. Thank you for providing your general comment referring to Subject 010.

comment	*98-C* comment by: *FTEJerez* **Comment on 010 00 00 00 Air Law** 010 01 03 01 (01) Should be BK especially as 010 01 04 01 (01) 010 04 02 02 (03) general principles, needs to be more specific. 010 06 06 01 (01) should be BK covered in meterology 050 010 06 06 01 (02) should be BK covered in meterology 050 010 06 06 01 (03) should be BK covered in meterology 050 010 06 06 01 (04) should be BK covered in meterology 050 010 06 06 01 (08) BK 010 06 06 02 (04) BK 010 07 01 07 (05) No practical use 010 07 02 09 (01) BK already defined in 010 06 06 01 010 08 04 01 (03) BK. The AIP has indexes so this is unnecessary knowledge 010 09 07 01 (03) Do not include the table of AD categories for rescue and fire fighting 010 12 00 00 what is ICAO exam? 010 13 03 00 (01) be familiar' To what level does this refer, require more guidance. 010 13 03 00 (02) be familiar' To what level does this refer, require more guidance. New subsection regulation more guidance required to satisfy this LO definitions (01) definitions should be BK Parts SPA, NCC NCO `'Explain the main content', more guidance required as to what is the main content.
response	Not accepted. Thank you for providing your comment referring to different LOs in Subject 010. EASA does not agree to make those LOs as BK, as indicated in your comment.

comment	*99-C* comment by: *European GNSS Agency* **Detailed changes to LO** Additions are marked in grey. Deletions are written in ~~strikethrough~~. From our side – following LOs need to be added. **Comment on 010 04 02 05 Ratings** LO State under which circumstances a pilot is authorized to use RNAV/RNP equipment for en-route, terminal and approach operations. **Comment on 010 05 04 00** LO Describe the purpose and limitations of use of GNSS equipment in VFR flights. **Comment on 010 06 04 04** LO State what the pilot should do in case of loss of navigation capability during RNAV missed approach. **Comment on 010 06 04 05** LO State advantages and limitations of RNAV usage during visual manoeuvring. **Comment on 010 06 04 08 PBN navigation (RNAV/RNP) approach procedures** LO Describe the provisions that must be fulfilled before carrying out approaches.

	LO Explain possible system composition to use RNAV/RNP approach LO List RNAV/RNP approaches. LO Explain APV. LO Explain LPV. (this part is partially covered in 062) **Comment on 010 08 04 01 Aeronautical Information Publication (AIP)** LO State in which main part of the AIP the following information can be found: ... GNSS information part 4.3 **Comment on 033 02 01 05 Instrument-approach charts** LO Define channel number and it´s separation. **Comment on 033 04 01 04 pre-flight preparation of GNSS achievability** LO Define why it is important to check GNSS achievability.
response	Not accepted. Thank you for providing your comments referring to different LOs in Subject 010. EASA does not agree to add those LOs proposed in your comment.

comment	*44-A* comment by: *FTEJerez* **Comment on:** **Subject 010 — AIR LAW** **Theoretical knowledge examination** Air Law is a vast subject and teaching it has been a challenge in the pilot training industry since the beginning, as the instructor has to convene teaching a subject for a real life scenario where 90% of the times you have to consult the reference material with an exam that is 100% memory items. The training should be focused in replicating the practical use of Air Law as much as possible and, as so, we propose that the exam splits its questions in two categories: - 010 05 00 00 (Annex 02) and 010 09 00 00 (Annex 14) - mostly memory items, no reference material; - Rest of it - All documentation available to be used as reference material, the student has to search through and find the correct answer. We believe that this change in the examination procedure would help provide a more practical use of the documentation. Rather than having instructors directing the students to whatever more or less random set of facts EASA has on their exams in any given moment, this focuses the instruction and the examination toward a working knowledge of the documents.
response	Not accepted. Thank you for providing this comment referring to Subject 010. EASA has been discussing this issue, but this change is not within the scope of RMT.0595. This change which will have substantial bearing on the examination as well as the teaching of this Subject. It has, however, been noted for further discussion. The rationale is sound.

Appendix

to ED Decision 2018/001/R

Subject 031 — FLIGHT PERFORMANCE AND PLANNING — MASS AND BALANCE

RELATED NPA: 2016-03(C) — RMT.0595 — 6.2.2018

Table of contents

3. Summary of the outcome of the consultation

Please refer to the Explanatory Note to Decision 2018/001/R.

4. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

(General Comments)

comment	*9-C* comment by: *Lufthansa Flight Training (Jae)* 031 05 02 05 (03): in my opinion in this case a new load- & trimsheet has to be prepared, so why this LO?
response	Accepted. Thank you for providing this comment referring to LO 031 05 02 05 (03). EASA agrees that this LO is not necessary and will be therefore deleted.

comment	*10-C* comment by: *Lufthansa Flight Training (Jae)* New paragraph at the end of 031: ACARS, EFB and LPC: this makes sense, but which standard shall be used? in each airline it looks different ?
response	Partially accepted. Thank you for providing this comment referring to Subject 031. EASA agrees with both the need to include ACARS, EFB and the LPC methods of transferring mass and balance information onto the flight deck and that there are different formats. This LO will therefore be reassigned as Basic Knowledge (BK) enabling the approved training organisation (ATO) to select formats that they use to teach this LO and according to which they internally test the student's ability to describe and extract information. The text will be amended as follows: in the BK column, an 'X' will be added.

	See also comment 39-C and 90-C on this subject.

comment	*11-C* comment by: *Lufthansa Flight Training (Jae)* 031 definitions of masses and indexes: Dry Operating Index: Aeroplane index at dry operating mass. it is not the centre of gravity, it is the moment converted by the index formula Index: moment reduced in numerical value by an index formula Loading Index: What is that? I sit the chang in index due to load? or the index of the loaded aeroplane? Please clarify
response	Accepted. Thank you for providing this comment referring to LO 031 05 01 03 (02). EASA agrees that the new proposed wording of this LO is not clear and the proposed deletion of words of this LO will be reinstated. The text will be amended as follows: Define the terms 'index' ~~'loaded index'~~ and 'dry operating index' (DOI), and calculate the DOI given the relevant formula and data.

comment	*13-C* comment by: *Lufthansa Flight Training (Jae)* 031 02 01 01 (01): delete in-flight mass (gross mass)
response	Not accepted. Thank you for providing this comment referring to LO 031 02 01 01 (01). EASA is of the opinion that this LO is important and should stay. In-flight mass required for helicopters due to load lateral CG restrictions with external load.

comment	*14-C* comment by: *Lufthansa Flight Training (Jae)* 031 04 02 01 (01): conditions, intervals and requirements for reweighing not necessary for a CAT pilot, he is not responsible for reweighing
response	Partially accepted. Thank you for providing this comment referring to LO 031 04 02 01 (01).

EASA agrees that the pilot is not responsible for reweighing, but in order to identify a potential hazard or error, should be aware of when an aircraft should be reweighed.

The text will be amended as follows:

~~Explain~~Describe the general procedure and regulations ~~for weighing~~ ~~of~~ relating to when an aircraft should be reweighed or data recalculated. ~~(conditions, intervals, reasons and requirements for reweighing).~~

Remark: See the applicable operational requirements.

comment *15-C* comment by: *Tore Jopperud*

031 01 02 03 04 & 031 01 02 03 05 - It should be kept in mind that TAS is not a variable pilots use during normal flight. All speeds selected by pilots are based on IAS/CAS or mach number (converted to an IAS/CAS on the display) where TAS is only ever a resultant.

response Noted.

Thank you for providing this comment referring to LOs 031 01 03 (04) and (05).

EASA acknowledges your comment.

comment *39-C* comment by: *Howard JONES*

Comments on LOs as indicted by LO number

AIR LAW

(…)

MASS and BALANCE

DEFINITIONS OF MASSES AND INDEXES

Area load or floor load
Change 'Units of measurement used:' to 'Example units:'. Some aircraft use kg/sq ft

Index
I think we need to be careful about the definition of Index. An Index is a moment divide by a constant decided by the manufacturer. It is used to reduce the size of the figures in Mass and Balance calculations. In the case of the DOI we are talking about the moment of the DOM divided by a constant, but on manually plotted trim sheets we are looking at a change in the index based on where the mass is added NOT the INDEX OF THE ADDED MASS.

Operating mass

'The dry operating mass plus take-off fuel but without traffic load.' Surely we only need to state what it includes, not what it doesn't include.

Running (or linear) load
Change 'Units of measurement used:' to 'Example units:'.

Traffic load
There is often confusion between payload and traffic load. These are not the same: strictly, payload would not include non-revenue load. Do we need to make this distinction?

Zero-fuel mass
See comments for Operating mass.

031 02 01 01 (01)
Change 'Define the following mass terms' to 'Recall the definitions of the following mass terms'.

031 02 01 02 (01)
Change 'Define the following load terms' to 'Recall the definitions of the following load terms'.

031 02 02 01 (01), (02), (03) & (06)
Change 'Define the' to Recall the definition of'.

031 02 02 03 (02)
Change to 'Describe the maximum floor loading limit (maximum load per unit of area).'

031 02 02 03 (03)
Change to 'Describe the maximum running load limit (maximum load per unit of fuselage length).'

031 02 03 01 (01)
This is a confused LO. It seems to state that the maximum mass for take-off is the regulated take-off mass, 'the maximum mass for take-off (regulated take-off mass)'. This is not the case. It then goes on about the mass-and-load components and structural/ performance limits.
What I think the LO is after is the ability of the student to calculate the maximum allowable take-off mass given a PLTOM, MSTOM, Take-off fuel, and trip fuel. However, part (03) seems to cover this. Does it want the student to calculate the actual take-off mass based on PLTOM, MSTOM, Take-off fuel, trip fuel and traffic load?

031 02 03 01 (02)
See comments for 031 02 03 01 (01).

031 04 01 02 (01) & (02)
Replace 'Name' with 'State'.

031 04 01 02 (05)
Change to 'Recall the definition and explain the meaning of CG'.

	What is the reference for the definition of CG? This LO would be fine as, 'Explain the meaning of CG'. **031 05 02 03 (02)** Please amplify what is meant by, 'and the methods for assessing load distribution'. **031 05 02 05** I think that some guidance is needed here. What is the examination-approved method of completing LMC paperwork? This may differ from aircraft to aircraft. There may be different LMC limits for fuel and traffic load. For load additions greater than LMC limits I would have had to complete a new load and trim sheet. **031 05 03 01 (03)** The 'methods' that need teaching need to be specified. Is this objective aimed at the 'cargo loading order' - the order in which the cargo was loaded, or checking that the cargo has been loaded in the correct location in the aircraft? **031 06 03 00** 'Securement' is not a common use word. 'Securing' would be more appropriate. **031 06 03 00 (02)** The 'basic methods' that satisfy this objective need stating. **New paragraph - Other methods to present load and trim information (01) New** There needs to be some list of things that constitute what a description would include.
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number. Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Area load or floor load: Accepted. EASA agrees that this text should be reworded and will replace 'Units of measurement used' with 'Example units'. Some aircraft use kg/sq ft. The text will be amended as follows: SUBJECT 031 — MASS AND BALANCE […] *Area load or floor load* The load (or mass) distributed over a defined area. ~~Units of measurement used~~ Example units: — SI: N/m^2, kg/m^2; — Non-SI: psi, lb/ft^2. [...] *Dry operating index (DOI)*

The aircraft index at dry operating mass.

[…]

Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Index: Accepted.

EASA agrees that this text should be reworded. An index is a moment divided by a constant decided by the manufacturer. It is used to reduce the size of the figures in mass and balance calculations. In the case of the DOI, we are talking about the moment of the DOM divided by a constant, but on manually plotted trim sheets we are looking at a change in the index based on where the mass is added, NOT the INDEX OF THE ADDED MASS.

The text will be amended as follows:

SUBJECT 031 — MASS AND BALANCE

[…]

Index

An index is a moment reduced in a numerical value by an index formula.

[…]

Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Operating mass: Accepted.

EASA agrees that this text should be reworded and the last part of the sentence will be deleted.

The text will be amended as follows:

SUBJECT 031 — MASS AND BALANCE

[…]

Operating mass

The dry operating mass plus take-off fuel ~~but without traffic load~~.

[…]

Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Running (or linear) load: Accepted.

EASA agrees that this text should be reworded and will replace the wording ‘Units of measurement used’ with ‘Example units’. Some aircraft use kg/sq ft.

The text will be amended as follows:

SUBJECT 031 — MASS AND BALANCE

[…]

Running (or linear) load

The load (or mass) distributed over a defined length of a cargo compartment irrespective of load width. ~~Units of measurement used~~ Example units:

— SI: N/m, kg/m;

— Non-SI: lb/in, lb/ft.

[…]

Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Traffic load: Accepted.

EASA agrees that there is often confusion between payload and traffic load. These are not the same: strictly speaking, payload would not include non-revenue load.

For clarity, the definition of the term 'payload' was added in the 'DEFINITIONS OF MASSES, LOADS AND INDEXES' list:

A new definition will be inserted as follows:

SUBJECT 031 — MASS AND BALANCE

[…]

Payload

The total mass of passengers, baggage and cargo but excluding any non-revenue load.

[…]

Regarding your comment referring to MASS and BALANCE — DEFINITIONS OF MASSES AND INDEXES — Zero fuel mass: Accepted.

EASA agrees that this text should be reworded and the last part of the sentence will be deleted.

The text will be amended as follows:

SUBJECT 031 — MASS AND BALANCE

[…]

Zero fuel mass

The dry operating mass plus traffic load ~~but excluding fuel~~.

Regarding your comment referring to LO 031 02 01 01 (01): Not accepted.

EASA considers the word 'Define' as the appropriate verb in this LO.

Regarding your comment referring to LO 031 02 01 02 (01): Not accepted.

EASA considers the word 'Define' as the appropriate verb in this LO.

Regarding your comment referring to LO 031 02 02 01 (01), (02), (03) and (06): Not accepted.

EASA considers the word 'Define' as the appropriate verb in this LO.

Regarding your comment referring to LO 031 02 02 03 (02): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Describe'.

The text will be amended as follows:

Describe the m~~M~~aximum floor load (maximum load per unit of area).

Regarding your comment referring to LO 031 02 02 03 (03): Accepted.

EASA agrees that this LO should be reworded and will replace the word 'Define' with 'Describe'.

The text will be amended as follows:

Describe the m~~M~~aximum running load (maximum load per unit of fuselage length).

Regarding your comment referring to LO 031 02 03 01 (01): Not accepted.

The LO ensures that the student can calculate the regulated take-off mass; the allowed

take-off mass is in 031 02 03 01 (03).

Regarding your comment referring to LO 031 02 03 01 (02): Not accepted.

The LO ensures that the student can calculate the regulated landing mass.

Regarding your comment referring to 031 04 01 02 (01) and (02): Accepted.

EASA agrees that these LOs should be reworded and will replace the word 'Name' with 'State'.

The text will be amended as follows:

~~Name~~ State where the CG position for an aircraft at basic empty mass can be found.

~~Name~~ State where the CG limits for an aircraft can be found.

Regarding your comment referring to LO 031 04 01 02 (05): Accepted.

EASA agrees that this LO should be reworded and will delete the word 'Define'.

The text will be amended as follows:

Explain the meaning of centre of gravity (CG).

Regarding your comment referring to LO 031 05 02 03 (02): Partially accepted.

EASA agrees that this LO, but also LO (03), should be clarified by deleting the reference to the methods.

The text will be amended as follows:

Explain the purpose of each load sheet ~~sections and the methods for assessing load distribution~~.

Explain the purpose of boxed maximum figures in load sheet sections is to ~~and methods for~~ cross-check~~ing~~ the actual and limiting mass values.

Regarding your comment referring to LO 031 05 02 05: Accepted.

EASA agrees that examination-approved method of completing LMC paperwork may differ from aircraft to aircraft. EASA comes to the conclusion that this entire LO is not needed and is therefore deleted.

See also comment 9-C on this LO.

Regarding your comment referring to LO 031 05 03 01 (03): Accepted.

EASA agrees that the 'methods' that need teaching need to be specified.

The text will be amended as follows:

Describe the methods to check that cargo has been loaded in correct position in relation to the loading manifest, including identifying hazard of a cargo loaded in reverse order (visual inspection of one or more unit load devices (ULDs).

Regarding your comment referring to LO 031 06 03 00 (01): Accepted.

EASA agrees that this LO should be reworded regarding the word 'securing'.

The text will be amended as follows:

Explain the reasons to ~~for~~ restrain or secure cargo and baggage.~~ having an adequate tie-down of loads.~~

Regarding your comment referring to LO 031 06 03 00 (02): Accepted.

EASA agrees that the 'basic methods' that satisfy this objective need to be stated.

The text will be amended as follows:

~~Name~~Describe the basic methods ~~for~~ to restrain or secure~~ing~~ loads (unit load devices secured by latches on roller tracks or to tie down points by straps; bulk cargo restrained by restraining nets attached to attachment points and tie-down points).

Regarding your comment referring to LO New paragraph — Other methods to present load and trim information (01) New: Partially accepted.

EASA agrees with both the need to include ACARS, EFB and the LPC methods of transferring mass and balance information onto the flight deck and that there are different formats. This LO will therefore be reassigned as Basic Knowledge (BK) enabling the ATO to select formats that they use to teach this LO and on which they internally test the student's ability to describe and extract information.

The text will be amended as follows: in the BK column, an 'X' will be added.

See also EASA's response to comment 10-C and 90-C on this subject.

comment *52-C* comment by: *Bristol Groundschool*

031 04 01 07 (02). No practical use. Crews do not do this!

response Partially accepted.
Thank you for providing this comment referring to LO 031 04 01 07 (02).

EASA agrees that this LO could be more clarified.

The text will be amended as follows:

Explain and calculate aircraft CG movement as a flight progresses, given location of fuel tank (inner wing, outer wing, central, additional aft central, horizontal stabiliser), and mass of fuel consumed from that tank and aeroplane's previous CG.

comment *56-C* comment by: *FTEJerez*

Comments on 031 - Mass and Balance:

031 01 01 01 BK but needs to be examined
031 01 01 02 Covered in Performance.
031 01 02 01 Is this covered in POF?
031 01 02 02 Covered in POF
031 02 01 01 Essential knowledge and should be examinable
031 02 01 02 Essential knowledge and should be examinable
031 02 02 01 Essential knowledge and should be examinable
031 02 02 03 Essential knowledge and should be examinable
031 02 03 03 Essential knowledge and should be examinable
031 04 01 01 Essential knowledge and should be examinable
031 04 01 02 (05) Essential knowledge and should also be explained in definitions.
031 04 01 06 Not essential knowledge but must be taught in order for the students to know where to find this information in the CAP696
031 04 01 07 (01) Not essential knowledge but must be taught in order for the students to know where to find this information in the CAP696
031 04 02 01 (02) Not essential knowledge but doesn´t take very long at all to go through the slide with the FTE weighing schedule and it helps reinforce the theory that has just

been taught.
031 04 03 01 (01) This is info taken from the CAP696 which again needs to be covered
031 04 03 02 (01) This is info taken from the CAP696 which again needs to be covered
031 05 01 03 (01) You need to understand the principle in order to proceed with (02)
031 05 02 01 (01) (02) These 2 explanations are covered in SEP/MEP/MRJT so could be removed.

031 05 03 01 (03) It states that this is essential knowledge, particularly for cargo operations. But it also has an X under BK. Although the course is generic and not tailored to cargo operations per se, it does say essential and doesn´t state exclusively for cargo and therefore should be taught.

response

Thank you for your extensive feedback, which has been greatly appreciated.

EASA has carefully assessed all the comments received.

Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number.

Regarding your comment referring to Subject 031 01 01 01: Noted.

031 question (not 021 area) would be too basic for effective multiple-choice question at commercial level.

Regarding your comment referring to Subject 031 01 01 02: Noted.

This LO is an important factor in the understanding of allowed take-off mass.

Regarding your comment referring to Subject 031 01 02 01: Noted.

Central to hazards in 031 subject.

Regarding your comment referring to LO 031 01 02 02: Noted.

Important to understanding in 031 subject.

Regarding your comment referring to LOs 031 02 01 01 (01), 031 02 01 02 (01), 031 02 02 01, 031 02 03 03 (01), 031 04 01 01, 031 04 01 07 (01), 031 04 02 01 (02), 031 04 03 01 (01),
031 05 01 03 (01), 031 05 02 01 (01), 031 05 01 03 (02) and 031 05 03 01 (03): Noted.

BK to be taught and tested at the ATO and application of these LOs is examined in other LOs.

Regarding your comment referring to LOs 031 04 01 02 (05), 031 04 01 06 (01) and 031 04 03 02 (01): Accepted.

EASA agrees that these LOs should be examinable. The text will be amended as follows: in the BK column ,the ‘X’ will be deleted.

comment *57-C* comment by: *European Cockpit Association*

Attachment #2

(…)

NPA 2016_03 (C)		European Cockpit Association - Comments
Subject 031 — Mass and balance		
031 05 02 04 (08)	**95**	Amend the wording: *Explain the relationship between pitch trim and CG position and the operational significance.*

(…)

response

Accepted.
Thank you for providing this comment referring to LO 031 04 01 07 (02).

EASA agrees that this LO should be reworded.
The text will be amended as follows:

Explain the relationship between pitch and CG position and the operational significance.

See also EASA's response to comment 65-C on same LO.

comment *65-C* comment by: *Tore Jopperud*

031 05 02 04 08 - An aeroplane may require nose up or down trim for take-off as this all depends on the loading on the day. LO should be reworded to reflect this, e.g. "trim units vs. CG position" rather than referring to direction of trim.

response

Accepted.
Thank you for providing this comment referring to LO 031 05 02 04 (08).

EASA agrees that this LO should be reworded.
The text will be amended as follows:

Explain the relationship between pitch and CG position and the operational significance.

See also EASA's response to comment 57-C on same LO.

comment *90-C* comment by: *DGAC FRANCE*

Doc C
General comment

Subject:
SUBJECT 031 – MASS AND BALANCE

	Content of comment: It is worth to see clearer writings in LOs, and taking account of new technologies (ACARS EFB…).
response	Partially accepted. Thank you for providing this comment referring to Subject 031. EASA agrees with both the need to include ACARS, EFB and the LPC methods of transferring mass and balance information onto the flight deck and that there are different formats. This LO will therefore be reassigned as Basic Knowledge (BK) enabling the ATO to select formats that they use to teach this LO and on which they internally test the student's ability to describe and extract information. The text will be amended as follows: in the BK column, an 'X' will be added. See also EASA's response to comment 10-C and 39-C on this subject.

Additional comments received by email:

comment	*Per email* comment by: SAT: Blatter Patrick 031 04 02 01 (1) This LO can be discussed in a very deep and detailed manner. We prefer a short introduction in this LO (it should be written under comments). “state” or “name” 031 04 01 01 “name” changed to “state” 031 04 01 02 “name" To be consistent we propose to use the same wording as the meaning in both LO is the same (in our opinion).
response	Thank you for providing these comments. Regarding your comment referring to LO 031 04 02 01 (01): Partially accepted. EASA agrees that the pilot is not responsible for reweighing, but in order to identify a potential hazard or error, should be aware of when an aircraft should be reweighed. The text will be amended as follows: ~~Explain~~Describe the general procedure and regulations ~~for weighing~~ ~~of~~ relating to when an aircraft should be reweighed or data recalculated. ~~(conditions, intervals, reasons and requirements for reweighing).~~ *Remark: See the applicable operational requirements.* See also EASA’s response to comment 14-C on this LO. Regarding your comment referring to LO 031 04 01 01: Noted. In the NPA proposal, the wording ‘Name’ is already changed into ‘State’. Regarding your comment referring to LO 031 04 01 02: Accepted. EASA agrees that these LOs should be reworded and will replace ‘Name’ with ‘State’. The text will be amended as follows: ~~Name~~ State where the CG position for an aircraft at basic empty mass can be found. ~~Name~~ State where the CG limits for an aircraft can be found. See also EASA’s response to comment 39-C on this LO.

comment	*email* comment by: *Phil Croucher* 031 04 01 03 Extract % MAC information from aircraft documents Used to say, correctly, “Extract MAC information from aircraft documents”. % MAC is the result of a calculation using aircraft mass and dry operating index data or using C of G position and details of the MAC. It is different for each flight, so cannot be in

	the aircraft documents. The empty C of G which will be in the weight schedule in some form is not expressed as % MAC, because no calculation can be done with it. What is there is the arm of the leading edge and the length of the MAC, hence the old LO.
response	Accepted. Thank you for providing this comment referring to 031 03 01 03 (01). EASA agrees that the empty CG which will be in the weight schedule in some form is not expressed as % MAC, because no calculation can be done with it. The text will be amended as follows: Extract ~~%~~ MAC information from aircraft documents.

Appendix

to ED Decision 2018/001/R

Subject 032 — FLIGHT PERFORMANCE AND PLANNING — PERFORMANCE — AEROPLANES

RELATED NPA: 2016-03(C) — RMT.0595 — 6.2.2018

Table of contents

5. Summary of the outcome of the consultation

Please refer to the Explanatory Note to Decision 2018/001/R.

6. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

comment *3-C* comment by: *Lufthansa Flight Training GmbH (Si)*

For questions concerning the comments you are welcome to contact:

Patrik Sivander * Phone: +49(0)421 5592-448 * e-mail: Patrik.Sivander@lft.dlh.de

Hans-Guenter Luxa * Phone: +49(0)421 5592-235 * e-mail: Hans-Guenter.Luxa@lft.dlh.de

---

Page 101, **032 01 01 01 (01)**
Learning objective does not clearly indicate what can be demanded of the candidate when demonstrating that he/ she meets the LO.

Page 102, **032 01 01 03 (01) New**
Learning objective does not clearly indicate what can be demanded of the candidate when demonstrating that he/ she meets the LO.

Page 103, **032 01 01 04 (04) New**
Learning objective does not clearly indicate what can be demanded of the candidate when demonstrating that he/ she meets the LO.

Where do I find the source to check the correctness of the statement "the size of a safety factor depends on the likelihood of the event and the range of measured performance data"?

Page 105, **032 01 02 02 (15)**
Describe the 'clearway' (CWY) and 'stopway' (STW) according to CS-Definitions.

If 'clearway' is abbreviated (CWY), than the logical abbreviation for stopway is (SWY).

Page 106, **032 01 02 03 (02) New**
"[...] different alitudes [...]" is not precise enough.

Suggestion: "[...] different density altitudes, [...]" or "[...] different pressure altitudes and temperatures, [...]"

Page 106, **032 01 02 03 (03) New**
"[...] different alitudes [...]" is not precise enough.

Suggestion: "[...] different density altitudes, [...]" or "[...] different pressure altitudes and temperatures, [...]"

Page 106, **032 01 02 03 (04) New**
"[...] different alitudes [...]" is not precise enough.

Suggestion: "[...] different density altitudes, [...]" or "[...] different pressure altitudes and temperatures, [...]"

Page 108, **032 01 03 02 (10) New**
"Describe the effect of wind on SR and SR_G [...]"

This part of the LO is already implemented in *LO (07) New* and *(08) New*, see "[...] and under different meteorological conditions."
Furthermore the sentence in *LO (10) New* itself makes no sense - to many words.

Suggestion for re-wording *LO (10) New*: "Describe the effect of wind on the optimum speed for SR_G compared to the optimum speed for SR."

Page 111, **032 01 04 00 (06)**
It is impossible to EXPLAIN the difference between 'angle' and 'gradient'. It is comparable to a LO "Explain the difference between an apple and a pear.".

Suggestion for rewording: "Define the terms 'angle' and 'gradient'"

Page 111, **032 01 04 00 (08)**
"[...] temperature, pressure altitude, including an inversion [...]"

For a more logical sentence change the sequence of variables:
"[...] pressure altitude, temperature, including an inversion [...]"

Page 111, **032 01 04 00 (11)**

Please delete this LO, since it has no practical application at all. The pilot neither knows the engine thrust nor does he know the aeroplane drag in a climb.

Page 112, **032 01 05 00 (03)**
"Explain the meaning and effect of 'excess thrust required' (drag) and 'excess power required' in a steady descent."

I am sorry, but I do not understand this LO. What is "excess thrust required"? It cannot be (drag), because drag is identical to thrust required.
In a steady descent there is no excess thrust, there is a thrust deficiency.
What is the intention of this LO?

Page 113, **032 02 01 00 (01)**
"Define the following to speeds: [...]"

has to be changed to:
"Define the following take-off speeds: [...]"

Page 113, **032 02 01 00 (04)**
Learning objective does not clearly indicate what can be demanded of the candidate when demonstrating that he/ she meets the LO.

Page 114, **032 02 01 00 (07)**
"Explain the effect of engine failure on the controllability of a multi-engine aeroplane under given conditions."
* In my opinion the controllability is an aerodynamic issue, not a performance related issue.
* What are the "given conditions"?
Suggestion: Move this LO to 080 Principles of Flight

Page 115, **032 02 03 00 (06)**
"Describe the effect of brake release before take-off power is set on the TODA and ASDA."

'TODA' and 'ASDA' have to be replaced by 'TOD' and 'ASD'. Brake release before take-off power is set has NO EFFECT on 'TODA' and 'ASDA'!

Page 116, **032 02 03 00 (11)**
To keep the flow, this LO should be moved to behind LO (06)

Page 116, **032 02 03 00 (12) New**
"Describe the landing airborne and ground roll and [...] too high at the screen."
Please reword:
"Describe the landing airborne distance and ground roll distance and [...] too high at the

screen height."

Page 121, **032 03 03 01 (02)**
"Calculate the [...]"

Please reword:
"Determine the [...]"

Page 121, **032 03 03 01 (04)**
"Determine the ground-roll [...]"
Please reword:
"Determine the ground-roll distance [...]"

Page 122, **032 03 03 01 (08)**
"Determine the minimum headwind or maximum tailwind component."

What is a minimum headwind component?
The maximum tailwind component is found in the AFM and is fix for a specific aeroplane, e.g. 10 kt for F33 Bonanza.
What is the intention of this LO?

Page 122, **032 03 03 01 (09) New**
"Given take-off run available (TORA), TODA and ASDA [...]"

Since TODA and ASDA are solely used as abbreviation in this LO I suggest the following rewording:
"Given TORA, TODA and ASDA [...]"
or
"Given take-off run available (TORA), take-off distance available (TODA) and accelerate-stop distance available (ASDA) [...]"

Page 123, **032 03 03 04 (03)**
"Determine [...] and/or minimum or maximum wind component."

What is the intention of the latter part of this LO?
Is there any practical relevance for real life flying?

Page 126, **032 04 01 01 (05) New**
"Explain how loss of runway length due [...]"

This LO is not correct/ precise enough. Please reword:
""Explain how loss of TORA due [...]"

Page 126, **032 04 01 01 (07) New**

Please move LO to behind LO (03)

Page 127, **032 04 01 02 (05)**
"Explain the take-off distances for specified conditions and configuration for all engines operating and one-engine-inoperative."

Isn't this LO almost identical to Page 126, 032 04 01 01 (04)?
"Define the following distances in accordance with CS-25: [...] - take-off distance with all engines operating and one-engine-inoperative."

Page 127, **032 04 01 02 (07)**
"[...] dense air [...]"

Please reword:
"[...] air density [...]"

Page 128, **032 04 01 03 (01)**
"Explain the accelerate-stop distance for specified conditions and configuration for all engines operating and one-engine-inoperative."

Isn't this LO almost identical to Page 126, 032 04 01 01 (04)?
"Define the following distances in accordance with CS-25: [...] - accelerate-stop distance with all engines operating and one-engine-inoperative."

Page 128, **032 04 01 03 (06)**
Aren't there words missing in this LO??
Suggestion: "Explain the effect of the use of brakes, [...] and brake temperature indication on the accelerate-stop distance."

Page 130, **032 04 01 07, (01)**
The knowledge of this LO is already required on Page 115, 032 02 03 00 (04)

Page 130, **032 04 01 07, (06)**
Is this knowledge really required by a pilot? I have never seen a pilot performing this calculation "in the wild".
What is the practical reason for this LO?
In my opinion this LO is too deep knowledge and is not practically relevant.

Suggestion for re-wording:
"State the speed range in which dynamic hydroplaning usually occurs for a rotating and non-rotating tyre."

Page 131, **032 04 01 07, (07)**
Is this knowledge really required by a pilot?

What is the practical reason for this LO?
What is the meaning of "[...] which represents the actual tire situation"? What is a "tire situation"?
In my opinion this LO is too deep knowledge and is not practically relevant.

Page 134, **032 04 01 10 (05) New**
"Explain the benefits and implications of using a derating on a contaminated runway."

"derating" has not been defined at this point. The definition is found in a later LO (032 04 01 11)
Suggestion: Move this LO to 032 04 01 11 (06) New

Page 132, **032 04 01 12 (02) New**
"Determine the optimum flap position and PLTOM from given figures"

What kind of figures do you have in mind?
Shouldn't this LO be found in 032 05 01 00 (Use of Aeroplane Performance Data)?

Page 138, **032 04 03 06 (05)**
"Describe the buffet onset boundary (BOB) and determine the high- and low-speed buffet (speed/Mach number only). high- and low-speed buffet (speed/Mach number only).."

Please delete the "copy & paste"-mistake: "[...] high- and low-speed buffet (speed/Mach number only).."

Page 139, **032 04 03 06 (06)**
"Analyse the influence of bank angle, mass and the 1.3G buffet on a step climb"

Please add a word - write "[...] 1.3G buffet margin [...]"

Page 139, **032 04 03 06 (06)**
"Analyse the influence of bank angle, [...]"

Please delete: "of bank angle,"
The bank angle is already implemented in the 1.3G buffet margin

---

Page 139, **032 04 03 06 (07) New**
"Describe that the high-speed buffet can occur at speeds slower or faster than M_{MO} high- and low-speed buffet (speed/Mach number only)."

Sentence makes no sense, please delete "copy & paste"-mistake: "[...] high- and low-speed buffet (speed/Mach number only)"

Page 144, **032 04 06 03 (01)**

"Explain the effect [...] for a given runway length [...]"

Please be more precise and replace "runway length" by "landing distance available".

In case of a displaced threshold the landing distance is shorter than the runway length.
EASA, Annex 1:
"Landing distance available (LDA)' means the length of the runway which is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane landing."

Page 144, **032 04 06 03 (02)**
"Explain the effect on landing distance and maximum allowable landing mass of the following devices affecting:"

I think that "- deceleration" is misplaced and should be the last word of the statement:
"Explain the effect on landing distance and maximum allowable landing mass of the following devices affecting deceleration:"

Page 144, **032 04 06 03 (03)**
"Explain the effect [...] for a given runway length."

Please be more precise and replace "runway length" by "landing distance available".

In case of a displaced threshold the landing distance is shorter than the runway length.
EASA, Annex 1:
"Landing distance available (LDA)' means the length of the runway which is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane landing."

Page 145, **032 05 01 00 (01) New**
"[...] FLTOM [...]"

It should probably be "FLLTOM", see Page 129, 032 04 01 06

Page 146, **032 05 01 00 (04) New**
"[...]tyre-limited take-off mass."

According to Page 135, 032 04 01 14 it should be "tyre-speed limited take-off mass."

---

response

Thank you for your extensive feedback, which has been greatly appreciated.

EASA has carefully assessed all the comments received.

Each comment has been dealt with on a one-by-one basis. Comments on LOs as indicated by LO number.

Regarding your comment referring to LO 032 01 01 01 (01): Accepted.

EASA agrees that this LO does not clearly indicate what can be expected from the candidate when demonstrating that they meet the LO. The same applies to LO 032 01 01 01 (03).

The text will be amended as follows:

Describe the application of certification specifications (CSs) with regard to the different kinds of ~~Interpret the European Union airworthiness requirements according to~~ aeroplanes ~~relating to aeroplane performance~~.

Describe ~~Name~~ the general differences between aeroplanes ~~as~~ certified according to CS-23 (CS 23.1, CS 23.3) and CS-25 (CS 25.1, CS 25.20).

Regarding your comment referring to LO 032 01 01 03 (01) new: Noted.

EASA would like to highlight that this LO is categorised as BK.

Regarding your comment referring to LO 032 01 01 04 (04) new: Not accepted.

EASA would like to state that this is basic knowledge but it is important to understand that the size of safety factors depends on these variables.

Regarding your comment referring to LO 032 01 02 02 (15): Partially accepted.

EASA agrees with your comment that the logical abbreviation for a stopway would be SWY. However, the CS-Definitions do not specify any abbreviation for stopway nor clearway. EASA therefore decides to remove both abbreviations as they fulfil no purpose.

The text will be amended as follows:

Describe ~~the terms~~ 'clearway' ~~(CWY)'~~ and 'stopway' ~~(STW)'~~ according to CS-Definitions.

Regarding your comment referring to LO 032 01 02 03 (02), (03) and (04) new: Accepted.

EASA agrees with your comment and will amend LOs 02), (03) and (04) with your suggestion to use the wording 'density altitudes' instead of 'altitudes'.

The text will be amended as follows:

Describe how, for different density altitudes, thrust and power available vary with speed for a propeller-driven aeroplane.

Describe how, for different density altitudes, thrust and power available vary with speed for a turbojet aeroplane.

Describe how, for different density altitudes, drag and power required vary with indicated airspeeds (IAS) and true airspeeds (TAS).

Regarding your comment referring to LO 032 01 03 02 (10) new: Partially accepted.

EASA does not agree that LO (10) is implemented in the previous LOs (07) and (08), as it is well established in the industry that wind is to be treated separately from meteorological conditions. However, this LO is indeed confusing and has been rewritten for clarity.

The text will be amended as follows:

Describe the effect of wind on SR_G and the optimum speed for SR_G, when compared to SR and the optimum speed for SR.

Regarding your comment referring to LO 032 01 04 00 (06): Accepted.

EASA agrees to reword this LO for clarity.

The text will be amended as follows:

~~Explain~~ ~~Describe~~ State the difference between a climb angle and gradient.

Regarding your comment referring to LO 032 01 04 00 (08): Accepted.

EASA agrees to reword this LO for clarity.

The text will be amended as follows:

Explain the effects of ~~temperature, wind~~ pressure altitude and temperature, including an inversion, on climb performance (angle and rate of climb).

Regarding your comment referring to LO 032 01 04 00 (11): Not accepted.

EASA does not agree to delete this LO. EASA considers this to be a good exercise to understand how the climb gradient is affected in case of an engine failure.

Regarding your comment referring to LO 032 01 05 00 (03): Partially accepted.

Excess thrust required, or excess drag, is the difference between drag and thrust for a given speed. They are broader than 'thrust deficiency' as this implies an unwilling descent which, fortunately, is not always the case. The LO will be rewritten for further clarity.

The text will be amended as follows:

Explain ~~Describe~~ the meaning of 'excess thrust required' (excess drag) and 'excess power required' in a steady descent.

Regarding your comment referring to LO 032 02 01 00 (01): Partially accepted.

As the speeds in the bullet points include VREF, which is a landing speed, the word 'to' will be removed instead.

The text will be amended as follows:

Define the following ~~to~~ speeds ~~according CS-23~~:

— stall speeds V_S, V_{S0} and V_{S1};

— rotation speed V_R;

— speed at 50 ft above the take-off surface level;

— reference landing speed V_{REF}.

Regarding your comment referring to LO 032 02 01 00 (04): Partially accepted.

Even though this LO defines the range of paragraphs to teach, it is too broad and it would leave open the possibility of creating questions to a level of detail that is inadequate for an ATPL. However, understanding the paragraphs is fundamental to answering questions related to other LOs. Hence EASA agrees that this LO belongs to BK and will add 'X' in the column BK.

Regarding your comment referring to LO 032 02 01 00 (07): Partially accepted.

EASA agrees that this LO needs to be rewritten to increase its clarity.

The text will be amended as follows:

Explain the effect of engine failure on the minimum control speed ~~controllability~~ of a multi-engine aeroplane under given conditions (temperature and pressure altitude).

Regarding your comment referring to LO 032 02 03 00 (06): Accepted.

EASA agrees that this LO is not clear and will reword it.

The text will be amended as follows:

Describe ~~Explain~~ the effects of brake release before take-off power is set on the TOD~~A~~ and ASD~~A~~.

Regarding your comment referring to LO 032 02 03 00 (11): Not accepted.

EASA does not agree to move this LO after LO (06). LOs are not designed to have a given flow, but to list the required knowledge to teach. It is up to the training organisation to define a flow that it finds suitable.

Regarding your comment referring to LO 032 02 03 00 (12) new: Accepted.

EASA agrees to amend this LO according to the given suggestion.

The text will be amended as follows:

Describe the landing airborne distance and ground-roll distance and estimate the effect on the landing distance when the aeroplane is too fast or too high at the screen.

In comment 29-C, a similar issue was raised regarding the clarity of this LO.

Regarding your comment referring to LO 032 03 03 01 (02): Accepted.

EASA agrees to change the wording from ‘calculate’ to ‘determine’.

The text will be amended as follows:

~~Calculate~~ Determine the field-length-limited take-off mass and take-off speeds, given de-factored distance, configuration, pressure altitude, temperature and headwind/tailwind component.

A similar comment was raised in comment 32.

Regarding your comment referring to LO 032 03 03 01 (04): Accepted.

EASA agrees to amend this LO according to the given suggestion.

The text will be amended as follows:

Determine ~~Find~~ the ground-roll distance and take-off distance from graphs.

Regarding your comment referring to LO 032 03 03 01 (08): Partially accepted.

EASA agrees that this LO is not clear.

The text will be amended as follows:

Determine ~~Find~~ the minimum headwind or maximum tailwind ~~wind~~ component required for take-off for a given mass and airfield conditions.

Regarding your comment referring to LO 032 03 03 01 (09): Accepted.

EASA agrees to amend this LO according to the given suggestion, merged with the

accepted comment 31-C on the same LO.

The text will be amended as follows:

Given take-off run available (TORA), TODA and ASDA, slope and surface conditions, calculate the de-factored distance to be used for commercial air transport, using the appropriate take-off graphs.

Regarding your comment referring to LO 032 03 03 04 (03): Partially accepted.

There is practical relevance, as awareness of the effects of wind on allowed landing mass is crucial. However, EASA agrees that this LO needs clarifications.

The text will be amended as follows:

~~Find landing field length data.~~ Determine the field-length-limited landing mass and landing speeds, given de-factored distance, configuration, pressure altitude, temperature and headwind or tailwind component.

In comment 33-C, a similar issue was raised regarding this LO (03).

Regarding your comment referring to LO 032 04 01 01 (05): Accepted.

EASA agrees that this LO is not precise enough and will reword it.

The text will be amended as follows:

Explain how loss of TORA due to alignment is accounted for.

Regarding your comment referring to LO 032 04 01 01 (07): Not accepted.

EASA does not agree to move this LO after LO (03). The LOs are not designed to have a given order, but to list the required knowledge to teach. It is up to the training organisation to define an order that it finds suitable.

Regarding your comment referring to LO 032 04 01 02 (05): Not accepted.

EASA would like to state that the different LOs have different taxonomy levels.

Regarding your comment referring to LO 032 04 01 02 (07): Accepted.

EASA agrees with the comment.

The text will be amended as follows:

Explain the influence of aeroplane mass, air density and flap settings on V_1 and V_{2MIN} and thereby take-off distance.

Regarding your comment referring to LO 032 04 01 03 (01): Partially accepted.

EASA would like to state that the different LOs have different taxonomy levels, but agrees to reword this LO for clarity.

The text will be amended as follows:

Explain how the accelerate-stop distance is affected by given ~~for specified~~ conditions and configuration for all engines operating and one-engine-inoperative.

Regarding your comment referring to LO 032 04 01 03 (06): Partially accepted.

EASA agrees that this LO is not clear.

The text will be amended as follows:

Explain how the accelerate-stop distance is affected by the use of brakes, anti-skid, ~~use of~~ reverse thrust, ground spoilers ~~or~~ (lift dumpers) and by brake energy absorption limits, delayed temperature rise and brake temperature indication ~~and tyre limitations~~.

In comment 37-C, a similar issue was raised regarding this LO (03).

Regarding your comment referring to LO 032 04 01 07 (01): Not accepted.

EASA would like to state that the knowledge of this LO is not already required in LO 032 02 03 00 (04). In LO 032 02 03 00 (04), the pilot is required to explain the effects of runway surface condition. In LO 032 04 01 07 (01), the pilot is required to define the different runway surface conditions.

Regarding your comment referring to LOs 032 04 01 07 (06) and (07): Partially accepted.

EASA agrees that LO 032 04 01 (06) is too detailed and of little practical use. The LO will be rephrased and LO 032 04 01 07 (07) will be removed.

The text will be amended as follows:

~~Calculate~~ ~~Compute~~ Explain the difference between the two dynamic hydroplaning speeds and state which of them is the most limiting for an aircraft operating on a wet runway ~~using the following formulas:~~

~~Spin-down speed (rotating tire) (kt) = 9 square root (pressure in PSI).~~

~~Spin-up speed (non-rotating tire) (kt) = 7.7 square root (pressure in PSI).~~

Source: ~~(~~**NASA TM-85652/Tire friction performance /p. 8**~~)~~

~~(07) State that it is the spin-up speed rather than the spin-down speed which represents the actual tire situation for aircraft touchdown on flooded runways.~~

~~(NASA TM-85652/Tire friction performance/p. 8)~~

Regarding your comment referring to LO 032 04 01 10 (05) new: Not accepted.

EASA does not agree to move this LO (05) to LO 032 04 01 11 (06) new. The LOs are not designed to have a given order, but to list the required knowledge to teach. It is up to the training organisation to define an order that it finds suitable.

Regarding your comment referring to LO 032 04 01 12 (02) new: Not accepted.

EASA is of the opinion that this LO brings further additions to the LOs under 032 05 01 00.

Regarding your comment referring to LO 032 04 03 06 (05): Accepted.

EASA agrees to delete the duplicate text in this LO.

The text will be amended as follows:

Describe the buffet onset boundary (BOB) and determine the high- and low-speed buffet (speed/Mach number only). ~~high and low-speed buffet (speed/Mach number only)..~~

Regarding your two comments referring to LO 032 04 03 06 (06): Partially accepted.

EASA agrees to add the word ‘margin’ in this LO, but does not agree to delete the wording

'of bank angle'. Including the bank angle emphasises the change of load factor associated with it and how that relates to the 1.3 buffet margin.

The text will be amended as follows:

Analyse the influence of bank angle, mass and the 1.3g buffet margin on a step climb.

Regarding your comment referring to LO 032 04 03 06 (07) new: Accepted.

EASA agrees to delete the duplicate text in this LO.

The text will be amended as follows:

Describe that the high-speed buffet can occur at speeds slower or faster than $M_{MO.}$

Regarding your comment referring to LO 032 04 06 03 (01): Accepted.

EASA agrees that in case of a displaced threshold the landing distance is shorter than the runway length. Hence, this LO will be reworded as you suggested.

The text will be amended as follows:

Explain the effect of runway slope, surface conditions and wind on the maximum landing mass for a given ~~runway length~~ landing distance available in accordance with the applicable operational requirements.

Regarding your comment referring to LO 032 04 06 03 (02): Accepted.

EASA agrees with the comment.

The text will be amended as follows:

Explain the effect on landing distance and maximum allowable landing mass of the following devices affecting deceleration:

~~— deceleration;~~

— reverse;

— anti-skid;

— ground spoilers or lift dumpers;

— autobrakes.

Regarding your comment referring to LO 032 04 06 03 (03): Accepted.

EASA agrees that in case of a displaced threshold the landing distance is shorter than the runway length. Hence, this LO will be reworded as you suggested.

The text will be amended as follows:

Explain the effect of temperature and pressure altitude on the maximum landing mass for a given ~~runway length~~ landing distance available.

Regarding your comment referring to LO 032 05 01 00 (01): Accepted.

EASA agrees with the comment and will amend 'FLTOM' into 'FLLTOM'.

The text will be amended as follows:

Determine from given graphs the field-lenght-limited take-off mass (FLLTOM) and describe situations in which this limitation could be most restrictive for take-off.

Regarding your comment referring to LO 032 05 01 00 (04): Accepted. EASA agrees with the comment and will amend 'tyre-limited' into 'tyre-speed-limited'. The text will be amended as follows: Determine from given graphs the tyre-speed-limited take-off mass.

Notice of Proposed Amendment 2016-03(C) — General and specific comments. NOTE: Due to technical issues, the FlashPaper version of this sub-NPA does not contain segments for each Subject. Therefore, when placing comments on this sub-NPA, you are kindly requested to indicate clearly the Subject, topic, subtopic, paragraph and LO number you are commenting on. Example: 'Comment on 032 01 01 01 (01)'. p. 1

comment	*16-C* comment by: *Tore Jopperud* 032 01 03 01 04 - Pilots never fly selected TAS as it is a result. The commanded speeds are IAS/CAS or Mach number.
response	Partially accepted. Thank you for providing your comment referring to LO 032 01 03 01 (04). EASA does not agree with your statement, but because of this EASA realises that the LO was not clear and will be reworded to improve clarity. The text will be amended as follows: Describe how the maximum achievable straight and level flight IAS and TAS vary with altitude.

comment	*17-C* comment by: *Tore Jopperud* 032 01 03 02 06 - RPM is not a value directly used for jet engines (no RPM indicator exist). Thrust setting (N1 or EPR) more appropriate.
response	Accepted. Thank you for providing your comment referring to LO 032 01 03 02 (06). EASA agrees that rpm is not a value directly used for jet engines (no rpm indicator exists). Thrust setting (N1 or EPR) is indeed more appropriate. The text will be amended as follows: (06) State ~~Define aeroplane~~ how a turbojet engine's ~~Specific Fuel Consumption (~~SFC~~)~~ varies with temperature and thrust.

comment	*18-C* comment by: *Tore Jopperud* 032 01 03 03 07 - There is no definition for straight and level holding. Speed control/reducing the speed of incoming aeroplanes at a distance may be referred to as

	lateral holding although that is probably not an official term either. Holding is a 1min, 1.5min or 2min pattern depending on what is available, airspace constraints etc. The benefit of asking ATC for longer holding legs for longer periods of holding should be discussed.
response	Partially accepted. Thank you for providing your comment referring to LO 032 01 03 03 (07). EASA agrees with your view that 'holding straight and level' is not an official term. Reducing airspeed to avoid holding is more easily understood. The text will be amended as follows: Describe the benefits of managing your en-route airspeed to reduce or avoid holding time, and the operational situations when it could be used (commanded by the pilot or air traffic control (ATC), when delays at arrival airport occur).

comment	*19-C* comment by: *Tore Jopperud* 032 01 04 00 05 - There appear to be duplication with regards to the thrust/power required/available curves. First of all, these are never seen by pilots in any readily available documentation and second, the concept is the same whether it is climb, descent, straight and level or any other manoeuvre. All should be combined to increase the overall understanding of the concept rather than divided into separate entities and compartmentalised. 032 01 04 00 08 - Pressure altitude and inversion have nothing to do with each other. "Including an inversion" suggest that they are related. Sentence should be rearranged. Wind (deleted for some reason) also have, at times, a significant effect with most significant being classified windshear. 032 01 04 00 10 - Engine failure will have an effect on climb performance at any stage, not only during take-off. The way it stands it suggest the traditional "V1 cut" only. 032 01 04 00 11 - Accurate thrust values are not readily available to pilots thus it is not a calculation performed by line pilots. Should be reclassified as "BK" as this is a purely theoretical number exercise with very limited value.
response	Thank you for your multiple comments. Regarding your comment referring to LO 032 01 04 00 (05): Not accepted. EASA is of the opinion that even though this LO only covers climb, there is nothing preventing the ATO from combining different LOs to make a better pedagogical sense. EASA believes that the structure is helpful to find different LOs. Additionally, the level of knowledge of the concepts that is required on those LOs is adequate for a line pilot. Graphs are not only for aerodynamicists; aerodynamicists develop the graphs, and airline pilots should be able to interpret them. A graph is a visual and empiric way of representing the relationship between two factors, which is within the level of knowledge a pilot should have, and the LOs require only that. Regarding your comment referring to LO 032 01 04 00 (08): Partially accepted. The suggestion of introducing wind in the LO is not accepted as it is already directly addressed elsewhere. Regarding including inversion, see response to comment 3-C.

The text will be amended as follows:

Explain the effects of ~~temperature, wind~~ pressure altitude and temperature, including an inversion on climb performance (angle and rate of climb).

Regarding your comment referring to LO 032 01 04 00 (10):

EASA agrees that engine failure will have an effect on climb performance at any stage, not only during take-off.

The text will be amended as follows:

Describe the effect of engine failure on ~~take-off~~ climb performance (angle and rate of climb and V_X and V_Y).

Regarding your comment referring to LO 032 01 04 00 (11): Not accepted.

EASA does not agree to reclassify this LO as BK. This LO is a useful aid for understanding energy management and should be directly examinable.

comment

20-C comment by: *Tore Jopperud*

032 01 05 00 02, 032 01 05 00 03 & 032 01 05 00 04 - As previous comment for same concept. Thrust/power required/available seems duplicated and separated rather than explained as a concept.

032 01 05 00 06 - What is the purpose of this LO? It is exactly the same as 032 01 05 00 05 except using power to extend the "glide". Should be deleted as it does not encourage a concept as a whole but simple facts.

response

Not accepted.

Thank you for providing your comment referring to LOs 032 01 05 00 (02), (03, (04) and (06).

EASA is of the opinion that even though this LO only covers descent, there is nothing preventing the ATO from combining different LOs to make a better pedagogical sense. We believe that the structure is helpful to provide detailed LOs.

comment

21-C comment by: *Joost*

Hello,

Sorry my English is not so good.

I have a comment on LO 032 03 03 01 and than 04: Determine the ground-roll and take-off distance from graphs. You don,t say which variabeles, conditions they MUST GIVE on test questions.

When i must use a table for determine de landing distance or take off distance, what are then the rules?

On LO 032 03 03 04 Landing number 05: Determine landing distance and ground-roll

	distance for GIVEN flap position, aeroplane weight and airfield data. Comment: Now you GIVE some varibeles. Why? I think it,s better that you write the same conditions that MUST be GIVEN, for calculations, or questions for determine the landing or take off performance, landing or take off distance. Now its different from each other Make clear what you mean with Airfield data. The QNH, or the Elevation of the RUnway, or Elevation of the Airfield, or Pressure altitude? Sometimes you say calculate, other times Determine: Why? Whats the difference? What do you mean? On LO 032 03 03 01 02: Calculate the field-length-limited take-off mass and take-off speeds, given de-factored distance, configuration, pressure altitude, temperature and headwind/tailwind component. FOR EXAMPLE: The LO above is clear written. Write it the same for LO for calculate or determine landing, or take off performance questions. Kind regards, Joost
response	Not accepted. Thank you for providing your comment referring to Subject 032 03 03 00. When determining ground roll and take-off distance from graphs, the variables are given in the graphs. The same applies for the other LOs in this comment. EASA is therefore of the opinion that the level of detail for these LOs is enough.

comment	*28-C* comment by: *Tore Jopperud* 032 02 01 00 06 - Should be reworded to include any engine failure (not only limited to critical engine) will affect the parameters stated in this LO. Critical engine has been defined in 032 02 01 00 05.
response	Accepted. Thank you for providing your comment referring to LO 032 02 01 00 (06). EASA agrees that this LO should be reworded to include any engine failure (not only limited to critical engine). The text will be amended as follows Explain the effect of ~~the critical engine inoperative~~ an engine failure on the power required, ~~and~~ the total drag (thrust required) and climb performance of a multi-engine aeroplane.

comment	*29-C* comment by: *Tore Jopperud* 032 02 03 00 12 - LO does not read well. "Describe the landing airborne and ground roll..."

	does not make any sense. What does "landing airborne" mean?
response	Accepted. Thank you for providing your comment referring to LO 032 02 03 00 (12). EASA agrees that this LO is not clear and will reword it. The text will be amended as follows: Describe the landing airborne distance and ground-roll distance and estimate the effect on landing distance of the aeroplane being too fast or too high at the screen. In comment 3-C, a similar issue was raised regarding the clarity of this LO.

comment	*30-C* comment by: *Tore Jopperud* 032 02 04 00 03 - Too broad. Is this for multi-engine class B as "applicable operational requirements" could mean anything. LO should be deleted and LOs similar to 032 02 04 00 04/05 should be created for multi-engine class B as necessary.
response	Not accepted. Thank you for providing your comment referring to LO 032 02 04 00 (03). EASA considers this LO as adequate.

comment	*31-C* comment by: *Tore Jopperud* 032 03 03 01 09 - "Gross, level, paved take-off graphs" seems to contradict the variable parameters stated in the beginning of the LO. Using "appropriate take-off graphs" is more appropriate.
response	Accepted. Thank you for providing your comment referring to LO 032 03 03 01 (09). EASA agrees to amend this LO, merged with the accepted comment 3-C on the same LO. The text will be amended as follows: Given take-off run available (TORA), TODA and ASDA, slope and surface conditions, calculate the de-factored distance to be used for commercial air transport using the appropriate take-off graphs.

comment	*32-C* comment by: *Tore Jopperud* 032 03 03 03 01 - Determine rate of climb based on what type of data? Too broad as it stands. Rate of climb calculations based on forces are not relevant to a line pilot and a calculation that is never performed during normal operations. Data is tabulated or retrieved from a graph.
response	Noted. Thank you for providing your comment referring to LO 032 03 03 03 (01). Subject 032 03 03 03 is deleted in the NPA text.

comment	*33-C* comment by: *Tore Jopperud* 032 03 03 04 03 - LO and its intention makes little sense as it is written. Either it should be to find a maximum landing mass based on a given runway (in given conditions) or it should be to find whether a runway is suitable for a given mass (in given conditions). 032 03 03 04 07 & 032 03 03 04 08 appear to cover this.
response	Partially accepted. Thank you for providing your comment referring to LO 032 03 03 04 (03). There is practical relevance, as awareness of the effects of wind on allowed landing mass is crucial. However, EASA agrees that this LO needs clarifications. The text will be amended as follows: ~~Find landing field length data.~~ Determine the field-length-limited landing mass and landing speeds, given de-factored distance, configuration, pressure altitude, temperature and headwind/tailwind component. A similar issue was raised in comment 3-C.

comment	*34-C* comment by: *Tore Jopperud* 032 03 03 04 07 - LO does not read well. Placing a comma after "calculate" will improve reading of a very long sentence. Also, "gross, level, paved take-off graphs" seems to contradict the variable parameters stated in the beginning of the LO. Using "appropriate take-off graphs" is more appropriate.
response	Partially accepted. Thank you for providing your comment referring to LO 032 03 03 04 (07). EASA agrees that this LO does not read well and will be reworded. The text will be amended as follows: Calculate, given the landing distance available (LDA), slope and surface type and condition, the de-factored distance to be used for commercial air transport, using the appropriate landing graphs.

comment	*35-C* comment by: *Tore Jopperud* 032 02 03 00 11 - These parameters also have an influence on landing distance.
response	Accepted. Thank you for providing your comment referring to LO 032 02 03 00 (11). EASA agrees that these parameters also have an influence on landing distance, and will insert this in the LO. The text will be amended as follows: Explain the effects of pressure altitude and temperature on the take-off distance, take-off

	climb, landing distance and approach climb.

comment	*36-C* comment by: *Tore Jopperud* 032 04 01 02 05 - Intention of this LO makes little sense as written. Is the intention to compare between all engines and engine out take-off performance? Changine "explain" to "compare" will help the matter. 032 04 01 02 07 - The term "dense air" makes no sense. Amending to "air density" will improve clarity.
response	Accepted. Thank you for providing your comment referring to LOs 032 04 01 02 (05) and (07). EASA agrees to reword both LOs for clarity reasons. The text will be amended as follows: ~~Explain~~ Compare the take-off distances for specified conditions and configuration for all engines operating and one-engine-inoperative. Explain the influence of aeroplane mass, air density and flap settings on V_1 and V_{2MIN} and thereby take-off distance.

comment	*37-C* comment by: *Tore Jopperud* 032 01 04 03 06 - LO does not read well and its intention is not clear as there is a list of factors that do not necessarily related to accelerate stop distance. "Brake energy absorbtion limits" are determined during the design phase (no influence by the pilot) and "delayed temperature rise" and "brake temperature indicators" have no influence on accelerate stop distance and. Either the design is adequate and the factors within limits (take-off is permitted) or the factors are not (take-off forbidden). 032 01 04 03 07 - LO is wide open to personal interpretation and there is almost an endless number of hazards associated with a rejected take-off. A minimum number of hazards should be specified to ensure compliance with the intention of the LO.
response	Thank you for multiple comments. EASA assumes these comments refer to LOs 032 04 01 03 (06) and (07). Regarding your comment referring to LO 032 04 01 03 (06): Accepted. EASA agrees that this LO is not clear. The text will be amended as follows: Explain how the accelerate-stop distance is affected by the use of brakes, anti-skid, ~~use of~~ reverse thrust, ground spoilers ~~or~~ (lift dumpers) and by brake energy absorption limits, delayed temperature rise and brake temperature indication ~~and tyre limitations~~. In comment 3-C, a similar issue was raised regarding this LO (06).

Regarding your comment referring to LO 032 04 01 03 (07): Partially accepted.

This LO is considered to be specific enough; however, it will be evaluated through other LOs. EASA agrees this LO belongs to BK and will add an 'X' in the column BK.

Following the debate regarding this comment, it was also decided to propose the addition of a new LO in Subject 032 05 01 00:

Calculate the break cooling time following a rejected take-off given appropriate data.

comment

38-C comment by: *Tore Jopperud*

032 04 01 07 01 - The term "damp" is no longer in use for runway state.

032 04 01 07 02 - LO should be changed to read "describe types of deposits" and "wet" is not a contaminant. Also "damp" is no longer in use as a term.

032 04 01 07 05 - The intended types of hydroplaning should be stated in LO. Pilots have no access to NASA documents in any normal documents used in normal airline operating environment.

032 04 01 07 06 - Should be deleted as these calculations have no relevance to the pilot. First of all a pilot will have no easy access to the actual pressures of the aeroplane tyres making the whole exercise irrelevant as a purely mathematical exercise.

032 04 01 07 07 - This LO has no practical use to a pilot who should never land on a flooded runway. Should be deleted or reclassified as "BK".

032 04 01 07 08 - Should be amended to include "wet" runways too as these are not covered under contaminated runways.

response

Thank you for the multiple comments.

Regarding your comment referring to LO 032 04 01 07 (01): Accepted.

EASA agrees with your comment and will remove damp runway from the LO.

The text will be amended as follows:

Define a 'contaminated runway', ~~a 'damp runway',~~ a 'wet runway', and a 'dry runway'.

Regarding your comment referring to LO 032 04 01 07 (02): Partially accepted.

EASA agrees with your comment regarding damp runways, but also considers the reference to deposits unnecessary.

The text will be amended as follows:

Describe ~~List~~ the different types of contamination: ~~damp,~~ wet or water patches, rime or frost-covered, dry snow, wet snow, slush, ice, compacted or rolled snow, frozen ruts or ridges.

Source: ~~(~~**ICAO Annex 15, Appendix 2**~~)~~

Regarding your comment referring to LO 032 04 01 07 (05): Not accepted.

The document serves as reference for the types of hydroplaning in a more complete way than could be included in the LO.

Regarding your comment referring to 032 04 01 07 (06): Accepted.

See response to similar comment 3-C.

The text will be amended as follows:

~~Compute~~ Explain the difference between the two dynamic hydroplaning speeds and state which of them is the most limiting for an aircraft operating on a wet runway ~~using the following formulas:~~

~~Spin-down speed (rotating tire) (kt) = 9 square root (pressure in PSI).~~

~~Spin-up speed (non-rotating tire) (kt) = 7.7 square root (pressure in PSI).~~

Source: ~~(~~**NASA TM-85652/Tire friction performance /p. 8**~~)~~

Regarding your comment referring to 032 04 01 07 (07): Accepted.

See response to similar comment 3-C.

The text will be amended as follows:

(07) ~~State that it is the spin-up speed rather than the spin-down speed which represents the actual tire situation for aircraft touchdown on flooded runways.~~

~~(NASA TM-85652/Tire friction performance/p. 8)~~

Regarding your comment referring to 032 04 01 07 08: Not accepted.

The focus of this block of the syllabus is on contaminated runways.

comment *40-C* comment by: *Tore Jopperud*

032 04 01 07 XX - Take-off climb. This section has the same LO numbering as 032 04 01 07 XX - Contaminated runways. Must be renumbered to eliminate LO number duplications for different subject parts.

032 04 01 07 06 (take-off climb section) - This LO does not read well as is refers to aeroplane conditions. What is an aeroplane condition? Aeroplane configuration is the appropriate term.

response Thank you for the multiple comments.

Regarding your comment referring to Subject 032 04 01 07: Accepted.

EASA agrees that this section has the same LO numbering as 032 04 01 07 XX 'Contaminated runways'. These sections must be renumbered to eliminate LO number duplications for different subject parts.

Regarding your comment referring to LO 032 04 01 07 (06): Accepted.

EASA agrees that this LO does not read well and will reword it.

The text will be amended as follows:

Explain the effects of aeroplane configuration and meteorological conditions on the take-off climb.

comment *41-C* comment by: *Tore Jopperud*

032 04 01 08 03 - Aeroplane condition. What is mean by this term? Aeroplane

	configuration is a more appropriate and recogniseable term.
response	Accepted. Thank you for providing your comment referring to LO 032 04 01 08 (03). EASA agrees that 'aeroplane configuration' is a more appropriate and recognisable term. The text will be amended as follows: Explain ~~Determine~~ the effects of aeroplane configuration and meteorological conditions on the ~~determination of~~ obstacle-limited take-off mass.

comment	*42-C* comment by: *Tore Jopperud* 032 04 01 09 03 - Where is the term MATOM defined? This is not a recogniseable term. Presume it is the same as regulated take-off weight (RLTOW), which is the common term so why not use terms candidates will actually use in the real world. 032 04 01 09 04 - What is the reason for this being "BK"? This is highly relevant as it is actually something a pilot is highly likely to encounter during normal line flying and need to be aware of the consequences of.
response	Thank you for the multiple comments. Regarding your comment referring to LO 032 04 01 09 (03): Accepted. EASA agrees that MATOM is not a recognisable term and will replace it with the term 'RTOM'. The text will be amended as follows: Interpret what take-off limitation (field length, obstacle, climb, structural, etc.) is restricting a particular RTOM as it is presented RTOW tables or similar. See also response to similar comment 54-C. Regarding your comment referring to LO 032 04 01 09 (04): Accepted. EASA agrees that this LO is highly relevant as it is actually something a pilot is highly likely to encounter during normal line flying and need to be aware of the consequences. EASA will remove the BK classification.

comment	*44-C* comment by: *Tore Jopperud* 032 04 01 10 01 - What is the intention of this LO? There is no difference in the core process for determining the performance data for any kind of runway surfrace state. A runway is a runway and the required data is the same type. The only difference for contaminated runways is assessing type, cover and depth of contaminant to use for the calculation/finding the appropriate table. Should be reclassified as "BK" or deleted as it stands. 032 04 01 10 02 - Where are the restricions on the the use of a wet V1 specified? Wet V1

can be used on a dry runway without restricions as it is more restrictive. This is frequently done if rain showers/rain is likely whether the runway is wet or not at the time of take-off.

032 04 01 10 04 - This emphasis on impingement drag is excessive for normal operations, even on contaminated runways. Monitoring of acceleration should be done at all times as incorrect thrust setting may be used or the flex temperature may be incorrect etc. Should be reclassified as "BK" as this LO is way too specific towards one single fact rather than the overall picture a pilot should have.

032 04 01 10 05 - The term "a derating" should be changed to "derated take-off thrust" for improved clarity.

response

Thank you for the multiple comments.

Regarding your comment referring to LO 032 04 01 10 (01): Not accepted.

EASA would like to state that there are significant differences that can even lead to the use of special dedicated sets of additional take-off data.

Regarding your comment referring to LO 032 04 01 10 (02) new: Accepted.

EASA agrees that wet V1 can be used on a dry runway without restrictions as it is more restrictive.

The text will be amended as follows:

Describe a wet V_1 and explain the consequences of using a wet V_1.

Regarding your comment referring to LO 032 04 01 10 (04) new: Partially accepted.

EASA agrees that, in the current form, the LO places too much emphasis on impingement drag and should also include displacement drag, making it more complete and less misleading. This way the two decelerating forces caused by runway contaminations are mentioned.

The text will be amended as follows:

Describe displacement drag, impingement drag, and methods to monitor acceleration.

Regarding your comment referring to LO 032 04 01 10 (05) new: Accepted.

EASA agrees that the term ‘a derating’ should be changed to ‘derated take-off thrust’ for improved clarity.

The text will be amended as follows:

Explain the benefits and implications of using a derated take-off thrust on a contaminated runway.

comment

45-C comment by: *Tore Jopperud*

032 04 02 01 01 & 032 04 02 01 02 - The effect on what? This LO must be more specific as it is wide open for personal interpretation. The intended parameters should be specified to indicate the intention of the LO.

032 04 02 01 04 - There is no practical relevance to this LO as pilots use either IAS or mach no. as speed reference and TAS is just a result. Also, the sentence about "cross-over altitude" is out of place and indirectly covered by 032 04 05 01 03. Should be deleted or

	reclassified as "BK".
response	Thank you for the multiple comments. Regarding your comment referring to LOs 032 04 02 01 (01) and (02): Accepted. EASA agrees that these LOs should be more specific and will reword them. The text will be amended as follows: Explain the effect of climbing ~~with~~ at constant IAS on: — TAS; — Mach number; — climb gradient; — rate of climb. (02) Explain the effect of climbing ~~with~~ at constant Mach number on: — TAS; — IAS; — climb gradient; — rate of climb. See also EASA's response to your similar comment 59-C. Regarding your comment referring to LO 032 04 02 01 (04): Not accepted. EASA is of the opinion that understanding the effect on TAS under and above the tropopause is fundamental for understanding the relationship between IAS and Mach number. See also EASA's response to your similar comment 59-C.

comment	*46-C* comment by: *Tore Jopperud* 032 04 02 02 03 - What is the intention of this LO? Aeroplane acceleration referring to what speed? Needs to be more specific with greater clarity as it doesn't make much sense as it stands and wide open for personal interpretation. 032 04 02 02 04 - The speed limit (stall) when climbing at constant mach no. should also be included in this LO (or separate LO) as it is equally an issue.
response	Thank you for the multiple comments. Regarding your comment referring to LO 032 04 02 02 (03): Partially accepted. The LO will be deleted as it is covered in 032 04 02 01: ~~(03) Explain the effect of aeroplane acceleration during a climb with constant IAS or Mach number.~~ Regarding your comment referring to LO 032 04 02 02 (04): Accepted. EASA agrees to include a climb at constant Mach number. The text will be amended as follows: Explain the effect on the operational speed limit when climbing at constant IAS and at

constant Mach number.

comment *47-C* comment by: *Tore Jopperud*

032 04 03 06 02 - It should be specified whether optimum altitude in this context is purely performance related or whether meteorological conditions etc. are to be included too.

032 04 03 06 03 - The intention of this LO should be made clearer. If the intention is to include operational/technical limitations in addition to performance considerations it should be specified.

032 04 03 06 06 - Optimum altitude is not determined by bank angle. As it stands it is not clear whether the LO is intending to cover factors affecting the reasons for a step climb or what happens to various factors during the climb.

032 04 03 06 07 - This LO makes little sense (awkward wording) and its purpose as required knowledge is not clear. First of all, an aeroplane is never operated beyond MMO making faster than MMO completely irrelevant. Flying faster than MMO means overspeed and the aeroplane will be subject to maintenance inspection after landing. The aeroplane will always be operated between minimum and maximum speed (the black area of the speed tape) as simple as that. If some buffet occasionally occur the pilots will probably never notice as it will be masked by turbulence and/or other sources of vibration.

response Thank you for the multiple comments.

Regarding your comment referring to LO 032 04 03 06 (02): Not accepted.

EASA concluded that the LO as it stands includes both performance factors as well as meteorological factors, and that both are important factors on optimum altitude.

Regarding your comment referring to LO 032 04 03 06 (03): Not accepted.

EASA concluded that all the factors limiting maximum altitude are important and that no need for further specification is needed.

Regarding your comment referring to LO 032 04 03 06 (06): Partially accepted.

EASA agrees, based on comment 3-C, to add the word ‘margin’ in this LO, but does not agree to delete the wording ‘of bank angle’. Including the bank angle emphasises the change of load factor into the 1.3 buffet margin.

The text will be amended as follows:

Analyse the influence of bank angle, mass and the 1.3g buffet margin on a step climb.

Regarding your comment referring to LO 032 04 03 06 (07): Noted.

EASA would like to point out that M_{MO} is often higher than Mach crit in modern aircraft, therefore we find it important to make students aware that even an operation at a speed lower than M_{MO} can mean that they have passed Mach crit.

Regarding wording, see response to comment 3-C.

comment *48-C* comment by: *KLM Flight Academy*

	032 02 03 00 12 delete 'too high' as this depends on the landing technique. 'too high increases LD' is enough.
response	Not accepted. Thank you for providing your comment referring to LO 032 02 03 00 (12). EASA does not agree to delete the wording 'too high'. In this case, too high implies inadequate landing technique, and not a different landing technique. Additionally, see new wording in response to comment 3-C.

comment	*53-C* comment by: *Bristol Groundschool* **032 02 03 00** (07). Provision of Fig 4.1 from CAP698 will be required - suggest referencing that here in the LO.
response	Partially accepted. Thank you for providing your comment referring to LO 032 02 03 00 (07). Besides the reference to graphs, EASA is of the opinion that a pilot should be able to perform basic mathematical calculations to find crosswind as well as headwind/tailwind components as well as determining these by rule of thumb. The LO will be rewritten to include all of these. The text will be amended as follows: Explain the effect of wind on take-off and landing distances, and determine the actual headwind/tailwind component given the runway direction, wind speed and direction, by use of wind component graphs, mathematical calculations, and rule of thumb. As a consequence of the change of this LO, LO 032 02 03 00 (08) will also be rewritten as follows: Explain why an aeroplane has maximum crosswind limit(s) and determine the crosswind component given the runway direction, wind speed and direction, by use of wind component graphs, mathematical calculations, and rule of thumb.

comment	*54-C* comment by: *Bristol Groundschool* **032 04 01 09.** Provision of an EFB could be an issue for ATO's.
response	Accepted. Thank you for providing your comment referring to Subject 032 04 01 09. Students have to be aware of the existence of EFB, as it's quickly becoming the standard for many airlines. The LOs will be rewritten as to not imply that it is required to work with an actual EFB, nor one would be required at the examinations. The LOs will be rewritten as follows:

032 04 01 09 ***Performance-limited take-off mass (PLTOM) and regulated take-off mass (RTOM) tables***

Define PLTOM~~performance-limited take-off mass~~ and RTOM.

Describe the use of RTOM tables or similar to find PLTOM and how this can also be done using an EFB.

Interpret what take-off limitation (field length, obstacle, climb, structural, etc.) is restricting a particular RTOM as it is presented in RTOM tables or similar.

Describe why data from an EFB can differ from data derived from RTOM tables or similar.

comment *57-C* comment by: *European Cockpit Association*

Attachment #2

NPA 2016_03 (C)		European Cockpit Association - Comments
Subject 032 — Performance (aeroplane)		
		General comment: knowledge regarding effects and hazards of contaminated runways as well as drag types is also relevant for CPL. These Learning Objectives are more suitable within the syllabus 032 04 01 07 Contaminated runways
032 04 01 07	**130**	Correct: the syllabus reference 032 04 01 07 appears twice for different Learning Objectives (**Contaminated runways** and also for **Take-off climb**); to be renumbered.
032 04 01 10 (03)	**134**	The Learning Objective 032 04 01 10 (03) should be added to the scope of CPL; Move to 032 04 01 07
032 04 02 10 (04)	**134**	Add „displacement drag“ to the scope of 032 04 02 10 (04); Move to 032 04 01 07

response Thank you for the multiple comments.

Regarding your comment referring to LO 032 04 01 07: Noted.

See response to comment 40-C.

Regarding your comment referring to LO 032 04 01 10 (03) new: Not accepted.

The referred knowledge is not part of the CPL requirements. No movements of LOs are considered, as the purpose of the document is not to serve as a pedagogically built manual but as a list of required knowledge. It is up to the ATOs to organise the syllabus as they feel more suitable.

Regarding your comment referring to LO 032 04 01 10 (04) new: Accepted.

No movements of LOs are considered, as the purpose of the document is not to serve as a pedagogically built manual but as a list of required knowledge. It is up to the ATOs to

organise the syllabus as they feel more suitable.

The text will be amended as follows:

Describe displacement drag, impingement drag, and methods to monitor acceleration.

See also response to comment 44-C.

comment *58-C* comment by: *Tore Jopperud*

032 04 03 07 03 - Cost index influence the entire profile so descent speeds should be included.

response Accepted.

Thank you for providing your comment referring to LO 032 04 03 07 (03).

EASA agrees that cost index influences the entire profile, so descent speeds should be included.

The text will be amended as follows:

Describe the effect of cost index on climb, cruise and descent speeds.

comment *59-C* comment by: *Tore Jopperud*

032 04 05 01 01 & 032 04 05 01 02 - The effect on what? This LO must be more specific as it is wide open for personal interpretation. The intended parameters should be specified to indicate the intention of the LO.

032 04 05 01 04 - There is no practical relevance to this LO as pilots use either IAS or mach no. as speed reference and TAS is just a result. Should be deleted or reclassified as "BK".

032 04 05 01 05 - Should be deleted as this LO serves no purpose as it's intention (I guess) is covered by 032 04 05 01 06. There is no difference to these limiting speeds just because the aeroplane is descending and the speeds are defined in several other places.

response Thank you for the multiple comments.

Regarding your comment referring to LOs 032 04 02 01 (01) and (02): Accepted.

EASA agrees that this LO should be more specific.

The text will be amended as follows:

Explain the effect of climbing ~~with~~ at constant IAS on:

— TAS;

	— Mach number; — climb gradient; — rate of climb. Explain the effect of climbing ~~with~~ at constant Mach number on: — TAS; — IAS; — climb gradient; — rate of climb. See also EASA's response to your similar comment 45-C. Regarding your comment referring to LO 032 04 02 01 (04): Not accepted. EASA is of the opinion that understanding the effect on TAS under and above the tropopause is fundamental for understanding the relationship between IAS and Mach number. See also EASA's response to your similar comment 45-C. Regarding your comment referring to LO 032 04 05 01 (05): Not accepted. EASA is of the opinion that it fits in an LO about descent techniques.

comment	*60-C* comment by: *Tore Jopperud* 032 04 05 02 03 - Energy management of chemical energy during descent? Fair enough it is a "BK" LO but what is chemical energy about? If it is fuel efficiency then why not use common terms such as fuel efficiency. This is not a physics course.
response	Not accepted. Thank you for providing your comment referring to LO 032 04 05 02 (03). EASA would like to state that this is basic knowledge and indeed this is the physics behind the very important concept of energy management. Since potential and kinetic energy are correct physical terms, chemical energy might as well be used for consistency.

comment	*61-C* comment by: *Tore Jopperud* 032 04 06 03 02 - This LO does not read well at all. "Deceleration" is not a device but a result of the other devices. Should be rewritten in order to make sense. 032 04 06 03 04 - Should also include wet runways as these are not covered by the term contaminated runways. Landing technique may be similar, especially if the runway has water patches but of less depth than required to be classified as contaminated.
response	Thank you for the multiple comments. Regarding your comment referring to LO 032 04 06 03 (02): Accepted.

EASA agrees to correct this editorial in this LO.

The text will be amended as follows:

Explain the effect on landing distance and maximum allowable landing mass of the following devices affecting deceleration:

— ~~deceleration;~~

— reverse;

— anti-skid;

— ground spoilers or lift dumpers;

— autobrakes.

See also EASA's response to comment 3-C.

Regarding your comment referring to LO 032 04 06 03 (04): Accepted.

EASA agrees that this LO should also include wet runways as these were not covered by the term contaminated runways.

The text will be amended as follows:

Explain the effect of hydroplaning on landing distance required and methods of managing landing on contaminated or wet runways.

comment *62-C* comment by: *Tore Jopperud*

032 04 06 04 01 - Where is the term "quick turnaround limits" defined? Unless the definition can be provided the LO must specify the intended meaing because, as it stands, it makes no sense. One can guess it is about break temperature limitis for take-off but this is nowhere clear and wide open for personal interpretation.

response Accepted.

Thank you for providing your comment referring to LO 032 04 06 04 (01).

EASA agrees that this LO is not clear and will be reworded.

The text will be amended as follows:

~~Define the 'quick turnaround limits' and explain their purpose~~ Describe how break temperature limits the turnaround times.

comment *63-C* comment by: *Tore Jopperud*

032 05 01 00 04 & 032 05 01 00 05 - Neither of these speeds are determined during normal performance calculations and a pilot would not have access to the required data in the normal performance data sources unless specifically looking for it in other documentation. Should be reclassified as "BK" as it is nice to know and be able to do it but certainly not required for a line pilot.

032 05 01 00 06 - This is LO is a duplication of the subequent LOs (032 05 01 00 07 to 10) which all include this process. Should be deleted as its intention is not clear other than being a duplication.

	032 05 01 00 07 - This is essentially the same LO as 032 05 01 00 08 and appears a duplication. The maximum mass is usually determined prior to loading to establish whether there are any loading restricions for a given runway. The V-speeds for this mass are usually not considered at this stage. Should be reworded to reflect finding the limiting take-off mass only. 032 05 01 00 09 - This LO is way over the top. Assumed/FLEX temperatures are retrieved from RTOW tables or using EFB and not a breakdown through a selection of graphs and tables. The intention of this LO is covered perfectly by 032 05 01 00 10 making this LO an unnessecary and complicating addition. Should be deleted or reclassified as "BK".
response	Thank you for the multiple comments. Regarding your comment referring to LOs 032 05 01 00 (04) new and (05) new: Not accepted. EASA does not agree to reclassify these LOs as BK. Tyre limits have to be considered for increased V2 procedures. Regarding your comment referring to LO 032 05 01 00 (06) new: Not accepted. EASA is of the opinion that this LO is not a duplication. This LO is to state that this is actually a factor in performance calculations for certain aeroplanes. Regarding your comment referring to LO 032 05 01 00 (07) new: Accepted. EASA agrees to reword this LO: The text will be amended as follows: Determine the maximum take-off mass using given RTOM tables. Regarding your comment referring to LO 032 05 01 00 (09): Accepted. EASA agrees with your opinion and will delete the LO.

comment	*64-C* comment by: *Tore Jopperud* 032 05 03 00 01 - What "applicable operational requirements" are to be considered? This is wide open to personal interpretation and any operational requirements are intended should be specified. 032 05 03 00 04 - LO is out of place as it is not a consideration for landing performance. Should be moved to revised 032 04 06 04 XX where it makes more sense. If kept, rejected take-off (RTO) has never been part of a landing manoeuvre. RTO must be deleted and moved to an appropriate LO concerning take-off. 032 05 03 00 05 - LO does not belong as part of landing performance. Should be moved to revised 032 04 06 04 XX where it makes more sense.
response	Thank you for the multiple comments.

Regarding your comment referring to LO 032 05 03 00 (01): Accepted.

EASA agrees that 'applicable operational requirements' is not clear and will be removed as it is not necessary.

The text will be amended as follows:

Determine the field length required for landing with a given landing mass from the aeroplane performance data sheets ~~in accordance with the applicable operational requirements~~.

Regarding your comment referring to LO 032 05 03 00 (04): Accepted.

EASA agrees with your second option for rewording this LO.

The text will be amended as follows:

Determine the ~~maximum quick turnaround~~ ~~mass~~ brake cooling time for different landing masses ~~under given conditions from~~ using the aeroplane performance data sheets.

Regarding your comment referring to LO 032 05 03 00 (05): Accepted.

EASA agrees to delete this LO (05) as it is already covered in the revised Subject 032 04 06 04.

See the response to comment 62-C.

The text will be amended as follows in Subject 032 04 06 04:

~~Define the 'quick turnaround limits' and explain their purpose~~ Describe how break temperature limits the turnaround times.

The text will be deleted as follows in Subject 032 05 03 00:

~~(05) Determine the maximum 'quick turnaround mass'~~

comment

91-C comment by: *DGAC FRANCE*

Doc C
General comment

Subject:
SUBJECT 032 – PERFORMANCE - AEROPLANE

Content of comment:
Good reorganization of the classification.

response

Noted.

EASA would like to thank you for your general positive comment.

Appendix

to ED Decision 2018/001/R

Subject 033 — FLIGHT PLANNING AND MONITORING

RELATED NPA: 2016-03(C) — RMT.0595 — 6.2.2018

Table of contents

7. Summary of the outcome of the consultation

Please refer to the Explanatory Note to Decision 2018/001/R.

8. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

(General Comments)	-

comment *101-C* comment by: *GNSS Centre of Excellence*

033
major concern - several changes, but many new aspects not covered – no new Los, just removals or moves
There are no new LOS concerning PBN. Main issue is problematic of FMS with PBN. We recognize PBN will be most used type of navigation in nearest future. Theoretical knowledge shall aim more on this area. Number of LO aimed to this area is significantly lower than conventional navigation. We found as most important to add LO connected with FMS PBN usage. This area is normally covered only in type rating, but with PBN concept established, it is possible to move part of training in earlier training. In subject 030 is essential to state limitations and obligations of PBN during flight planning.

detailed description:

033 01 01 02
LO Explain how to determine the position of a significant VFR point for insertion into a GNSS flight plan.
Using distance and bearing from an existing significant point
Using coordinates

033 02 01 04 Standard Instrument Departures (SIDs) and
LO Define SID and STAR for RNAV only.
LO Describe the difference between SID/STAR, RNAV SID/STAR and RNAV SID/STAR overlay.
LO Interpret all data and information represented on SID and STAR charts, particularly:
RNAV waypoints and non-RNAV intersection
Fly-over and fly-by waypoints

033 02 01 05 Instrument-approach charts

LO Define channel number and it´s separation.

033 02 01 07 Usability of GNSS/FMC in flight planning and monitoring
LO Describe the advantages of GNSS/FMC equipment use:
Automatic calculation and display of tracks and leg distances
Additional route information in the database (minimum altitudes, approach procedures)
Time and fuel estimates over waypoints
Ability to adjust speed to arrive over a waypoint as a defined time
Time and fuel revisions based on predicted and actual wind
LO Describe limitations of usage GNSS/FMC equipment
Pilot entered errors (flight levels, wind, temperature, fuel)
The effect of other than predicted wind on fuel and time estimates
The effect of aircraft non-standard configuration on FMS predictions

033 04 01 02
LO Check that satellite based facilities are available during the expected time of use.
LO Check that GBAS/SBAS augmentation is available during the expected time of use.

033 04 01 04 pre-flight preparation of GNSS achievability
LO Define why it is important to check GNSS achievability.
LO Define RAIM NOTAM and NANU messages.
LO Explain the difference in use of augmented and non-augmented GNSS in connection with the achievability check.
LO Explain the difference in planned and unplanned outage of GNSS or SBAS.

033 05 01 01
LO Determine the correct entries
RNAV/RNP equipment (item 9, 18).

response

Thank you for your multiple comments.

EASA has carefully assessed all the comments received.

Regarding your general comment referring to Subject 033: Noted.

EASA would like to state that PBN is covered mainly in Subject area 062.

Regarding your comment referring to Subject 033 01 01 02: Accepted.

EASA agrees to insert a new LO as you proposed.

Explain how to determine the position of a significant VFR point for insertion into a global navigation satellite system (GNSS) flight plan, using the distance and bearing from an existing significant point and using coordinates.

Regarding your comment referring to Subject 033 02 01 04: Accepted.

EASA agrees to insert two new LOs as you proposed in Subject 033 02 01 04.

The new LOs will be inserted as follows:

Define SID and STAR for RNAV only.

Describe the difference between SID/STAR, RNAV SID/STAR and RNAV SID/STAR overlay.

EASA agrees to add ‘RNAV waypoints and non-RNAV intersection’ and ‘fly-over and fly-by-waypoints’ to LO 033 02 01 04 (03).

The text of LO (03) will be amended as follows:

Interpret all data and information represented on SID and STAR charts, particularly:

— rRoutings,;
— dDistances,;
— cCourses,;
— rRadials,;
— altitudes/levels,;
— frequencies,;
— restrictions,;
— RNAV waypoints and non-RNAV intersection;

fly-over and fly-by-waypoints.

Regarding your comment referring to Subject 033 02 01 05: Not accepted.

EASA does not see the need to add an LO defining channel number and its separation.

Regarding your comment referring to Subject 033 02 01 07: Accepted.

EASA agrees to insert two new LOs as you proposed in Subject 033 02 01 07.

The new LOs will be inserted as follows:

Describe the advantages of global navigation satellite system/flight management computer (GNSS/FMC) equipment regarding:

— automatic calculation and display of tracks and leg distances;
— additional route information in the database (minimum altitudes, approach procedures);
— time and fuel estimates over waypoints;
— ability to adjust speed to arrive over a waypoint at a defined time;
— time and fuel revisions based on predicted and actual wind.

Describe the limitations of using GNSS/FMC equipment:

— pilot-entered errors (flight levels, wind, temperature, fuel);
— the effect of other than predicted wind on fuel and time estimates;
— the effect of aircraft non-standard configuration on FMS predictions.

Regarding your comment referring to Subject 033 04 01 02: Accepted.

EASA agrees to insert two new LOs as you proposed in Subject 033 04 01 02.

The new LOs will be inserted as follows:

Check that satellite-based facilities are available during the expected time of use.

Check that GBAS/SBAS augmentation is available during the expected time of use.

Regarding your comment referring to Subject 033 04 01 04: Accepted.

EASA agrees to insert a new subject ‘pre-flight preparation of GNSS achievability’ containing four LOs as you proposed.

The new subject containing four LOs will be inserted as follows:

033 04 01 04 Pre-flight preparation of GNSS achievability

(01) Define why it is important to check GNSS achievability.

(02) Define RAIM NOTAM and NANU messages.

(03) Explain the difference in use of augmented and non-augmented GNSS in connection with the achievability check.

(04) Explain the difference in planned and unplanned outage of GNSS or SBAS.

In comment 99-C, the same issue was raised regarding this LO (07).

Regarding your comment referring to Subject 033 05 01 01: Not accepted.

EASA considers that this is already incorporated into LO 033 05 01 01 (02).

Notice of Proposed Amendment 2016-03(C) — General and specific comments. NOTE: Due to technical issues, the FlashPaper version of this sub-NPA does not contain segments for each Subject. Therefore, when placing comments on this sub-NPA, you are kindly requested to indicate clearly the Subject, topic, subtopic, paragraph and LO number you are commenting on. Example: 'Comment on 032 01 01 01 (01)'. p. 1

comment *4-C* comment by: *Paul Smith*

With reference to subject 033 `Flight Planning and Monitoring`

Although I applaud the team for their efforts in generating NPA 2016-03, when it comes to this particular subject (033) I am strongly of the opinion that there has been a real confusion between `planning` and navigation.
Flight PLANNING is an activity that is conducted on the GROUND before flight commences to construct an outline plan for the forthcoming sector. This will involve the use of charts to generate a suitable route, availability of approachs, NOTAMS, assessment of terrain/safe fight altitudes, navaid availability, and weather considerations in generating plannned headings, flight times and predicted fuel useage.

Once airborne, we EXECUTE that plan using NAVIGATIONAL techniques/solutions in order to successfully fly the required track. The main monitoring task is that of checking that fuel reserves remain above the planned minimums at all stages. To that effect the `Monitoring` aspect of flight planning is concerned for the most part with FUEL. We are using navigational techniques and solutions to monitor track and timings.

Your proposed changes at NPA2106-03 are confusing planning with navigation!! Please leave things as they were and keep all your proposed changes from subject 061 (General Navigation) in that syllabus where they clearly belong. In other words, the present system with the existing arrangement of topics within subjects 033 and 061 is NOT BROKEN. Please leave it as is or you will be generating 100s of unnecessary man hours that already hard-pressed FTOs will have to find in an already busy teaching program to deal with these unnecessary syllabus changes!

I will now list the effected LOs specifically:

033 01 01 02 (05) - even the LO text clearly refers to a navigational consideration

033 01 01 02 (08) - the choice of features for turning points/route selection is a navigational question. Features with vertical extent etc is a navigational criteria.

	033 02 01 07 (09) to (12) - these LOs are concerned with vertical NAVIGATION and should therefore be left as is in subject 061 033 04 01 04 (01) to (07) - again , needless tinkering with LOs that sit logically in the Operational Procedures syllabus (071). I see no reason for them to be moved to subject 033 whatsoever. 033 06 01 01 (05) and (06) - again, we are talking about inflight **navigational solutions** to a PLAN that was constructed on the GROUND. Therefore, please leave them in subject 061. Of course without monitoring anything we will never notice any errors in the flight, all the solutions to rectify errors are NAVIGATIONAL TECHNIQUES. 033 06 01 01 (07) and (08) - I have flown ac for over 30 years. I never used the 1:60 rule on the ground during the planning stage! It is a navigational tool to get the ac back onto track following an error. Leave it in subject 061!! 033 06 01 01 (09) - an off course fix will be a technique used during the EXECUTION PHASE (i.e. when airborne) to generate a navigational solution to a track error. Please leave it in subject 061 where it belongs. 033 06 01 01 (10) - `enter NAVIGATIONAL en-route data...` again, it is airborne NAVIGATION. Please leave the LO in subject 061. 033 06 01 01 (13) - this is VERTICAL NAVIGATION. Please leave this LO in subject 061 which is a much more logical place for it. 033 06 01 01 (14) - this LO concerns `real time` vertical navigation: i.e. an in cockpit calculation of ROD on the approach having assessed the ACTUAL wind conditions. This sort of calculation would never be conducted on the ground at the planning stage. Leave this LO as is in 061. In summary: PLANNING is done on the ground! In the air we EXECUTE that plan and use NAVIGATIONAL techniques to make corrections if our ground plan is not working. The current `balance` between subjects 033 and 061 works extremely well. Please don`t tey and fix what isn`t broken. NPA 2016-03 is going to cause FTOs to find hundreds of man hours to implement it when we are already stretched with current teaching commitments. Change IS needed but please don`t make a change for `the sake of it` when there is no clear benefit to anybody!
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Regarding your general comment referring to Subject 033 ‘Flight planning and monitoring’: Noted. EASA would like to refer you to the individual syllabus reference responses. Regarding your comment referring to LO 033 01 01 02 (05): Accepted. EASA agrees that this LO (moved from old Subject 061 05 01 00 (07)) should not be in Subject 033 and will be deleted from the NPA and reinstated in the new Subject 061 under new LO 061 02 02 01 (07).

Regarding your comment referring to LO 033 01 01 02 (08): Accepted.

EASA agrees that this LO (moved from old Subject 061 05 01 00 (13)) should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 under new LO 061 02 02 01 (13).

Regarding your comment referring to LOs 033 02 01 07 (09) to (12): Accepted.

EASA agrees that these LOs (moved from old Subject 061 05 02 00) should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 and inserted in Subject 061 01 08 02 'Average wind velocity (WV)'.

See also EASA's response to comment 44-D.

Regarding your comment referring to LOs 033 04 01 04 (01) to (07): Accepted.

EASA agrees that these LOs (moved from old Subject 071 01 03 01) should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 071 under 071 01 03 01 (06) to (12).

Regarding your comment referring to LOs 033 06 01 01 (05) and (06): Accepted.

EASA agrees that these LOs (moved from old Subject 061 05 03 01 'Ground speed revision') should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 under Subject 061 01 05 04 'Ground speed revision'.

Regarding your comment referring to LOs 033 06 01 01 (07) to (09): Accepted.

EASA agrees that these LOs (moved from old Subject 061 05 03 02 'Off-track corrections') should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 under Subject 061 01 05 05 'Off-track corrections'.

Regarding your comment referring to LO 033 06 01 01 (10): Accepted.

EASA agrees that these LOs (moved from old Subject 061 05 03 02 'Off-track corrections') should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 under Subject 061 01 05 05 'Off-track corrections'.

Regarding your comment referring to LO 033 06 01 01 (13) and (14): Accepted.

EASA agrees that these LOs (moved from old Subject 061 05 03 04 'Gradients versus rate of climb/descent') should not be in Subject 033 and will be deleted from this Subject and reinstated in the new Subject 061 under Subject 061 01 05 07 'Gradients versus rate of climb/descent'.

comment *8-C* comment by: *ENAIRE*

NPA file – Item reference - Page: (C) - **033 04 01 01** - Page 170
Comment: Reference (01) only addresses "ground facilities and services required for the planned flight". This should be updated to take into account GNSS systems.
Proposed action: amend the text in both references 033 04 01 01 and LO (01) as follows: "ground and/or space-based facilities and services".

response Accepted.

Thank you for providing your comment referring to LO 033 04 01 01 (01) and the subject title.

EASA agrees that not only GNSS systems but satellite-based facilities and services should

be taken into account.

The text will be amended as follows:

Ground- and satellite-based facilities and services

Check that the ground- and satellite-based facilities and services required for the planned flight are available and adequate.

comment *24-C* comment by: *PTN CTKI*

033 030 00 00 Fuel Planning (033 03 01 00 General)

Please introduce, explain and describe how to calculate NAM from NM.

response Accepted.

Thank you for providing your comment referring to Subject 033 03 00 00.

EASA agrees to add a new LO to cover this topic.

The following new LO will be inserted as follows:

Explain and describe how to calculate nautical air miles (NAM) from nautical ground miles (NGM).

comment *55-C* comment by: *Bristol Groundschool*

Subject 033 —Flight planning and monitoring

The new LOs are fine – some of the inclusions/exclusions seem a little strange to me, but overall, I have no major issues with them. Most of my points concern the 'logistics' associated with the LOs, in particular aircraft types and fuel tables and graphs utilized in the fuel calculation questions, and the enroute charts and airport plates that will be used for the exam questions. In a fairly random order, my concerns are:

1. **General Student Pilot Route Manual (GSPRM).** Good to see that the charts and airport plates in the current JEPPESEN MANUAL are going to be updated. However, the current course material uses these charts for discussion and illustration in various planning exercises. Some lead time will be required for the change over to the new up to date charts.

- Please can we have dates nominated for the introduction of these new charts which will allow enough time for the adjustment of course material.
- Request that the chart/plate publisher (Jeppesen?) be confirmed.

2. **033 03 00 00 Fuel Planning.**

- Request the aircraft types/tables/graphs that will be used in the Exam system be detailed in LOs. Current assumption is that it is aircraft used will be the SEP/MEP/MRJT (aeroplane) or SEPH (helicopter). If there is an intention to include other types (LRJT or TETH) it is only reasonable that this is detailed in LOs.

	• Contingency Fuel. Can the method of calculation of contingency fuel (aeroplane) be detailed in LOs. Currently we are assuming that 5% of TRIP is the 'most likely' method – sometimes a comparison of this figure with 5 minutes holding at 1500ft is required. Can this be clarified and written down in LOs and can the questions be consistent in application of the requirements in 965/2012. 3. **033 03 02 04 Extra Fuel.** LO requires students to 'Calculate the possible extra fuel under given conditions'. Extra fuel is loaded 'if required by the commander'. Any question on this LO needs to be very clear on the commanders' decision/requirement if a precise calculation is required. 4. **033 03 03 02 and 033 03 03 03** Isolated aerodrome procedure (aeroplanes) and Predetermined point procedure (PDP). The LO needs to be looked at again. The rule in 965/2012 simply states: Isolated aerodrome procedure If the operator's fuel policy includes planning to an isolated aerodrome, the last possible point of diversion to any available en-route alternate (ERA) aerodrome should be used as the predetermined point. Hence the larger part of the LO should be considering the PDP procedure, which provides the planning requirement for the isolated airfield situation. 5. **033 03 03 04** Fuel Tankering. The tables and/or graphs to be used in the exams should be specified in LOs. 6. **033 04 03 00** Point of equal time, Point of safe return. Currently the exam system only examines the 'all engine' scenario; is there any intention to introduce 'engine failure' calculations?
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Regarding your comment referring to Subject 033 'Flight planning and monitoring': Noted. EASA would like to refer to the individual syllabus reference responses. Regarding your comment referring to the General Student Pilot Route Manual (GSPRM): EASA acknowledges your comment. Regarding your comment referring to Subject 033 03 00 00: Noted. EASA considers that students should be conversant with the generic examples currently in use: SEP, MEP, MRJT, LRJT, SEPH, and TETH. Furthermore, EASA considers that the method of calculation of contingency fuel (aeroplane) should be known by the students in accordance with the regulations. Regarding your general comment referring to Subject 033 03 03 04: Noted. EASA considers that students should be conversant with the generic examples currently in use. Regarding your general comment referring to Subject 033 04 03 00: Noted. EASA would like to state that there are no plans at the moment to introduce engine failure

scenarios.

comment *57-C* comment by: *European Cockpit Association*

Attachment #2

NPA 2016_03 (C)		European Cockpit Association - Comments
Subject 033 — Flight planning and monitoring		
		Performance Based Navigation is only shortly addressed when it comes to approaches. PBN should be addressed by a separate Learning Objective.
033 01 01 03 (03) - AD charts and AD directory	**154**	If the list is erased will complicate the understanding and issues requirements of this LO
033 02 01 01 (01) - ATS routes	**156**	If the list is erased will complicate the understanding and issues requirements of the LO
033 02 01 01 (02) - ATS routes	**157**	In comments it is specified that High-Level charts are not a requirement for helicopters, but when reading though the details - it seems to be the contrary. There is a need for a clarification or separation of LO's. Same comments for LO 033 02 01 02 (01) and (02)
033 02 01 03 (01)	**157**	Do not delete LO 033 02 01 03 (01).
033 02 01 03 (04) Altitudes	**158**	The letter "t" is missing at the word *State.* Also, the list of important altitudes should be completed with the **grid altitude.**
033 02 01 05 (04) - Instrument approach charts	**160**	A clarification is needed whether PINS app is deleted? Covered in 062 07 05 09
033 04 01 04 - Selection of alternates	**171**	This LO should be mandatory also for helicopters.
033 04 03 00 - PET and PSR	**173**	Both PET and PSR should be also covered in CPL courses A and H

response

Thank you for your multiple comments.

EASA has carefully assessed all the comments received.

Regarding your general comment referring to PBN: Noted.

EASA would like to state that PBN is mainly covered in Subject 062, but also can be found in other Subject areas.

Regarding your comment referring to LO 033 01 01 03 (03): Not accepted.

EASA considers that a list is not required in this syllabus area.

Regarding your comment referring to LO 033 02 01 01 (01): Not accepted.

EASA considers that a list is not required in this syllabus area.

Regarding your comment referring to LO 033 02 01 01 (02): Noted.

EASA would like to state that high-level charts will not be used for helicopter questions.

Regarding your comment referring to LO 033 02 01 03 (01): Accepted.

EASA agrees to retain the deleted altitudes in this LO as there are a lot of questions referring to the Jeppesen Student Pilot Route Manual.

Regarding your comment referring to LO 033 02 01 03 (04): Accepted.

EASA agrees to correct this spelling error and will amend the word 'Sate' into 'State'.

Regarding your comment referring to LO 033 02 01 05 (04): Noted.

EASA would like to state that 'PinS' is covered in Subject area 062.

Regarding your comment referring to Subject 033 04 01 04: Accepted.

EASA agrees that this subject should be also mandatory for helicopters. These LOs have been moved back to Subject 071. An 'X' will be added under the column 'Helicopter ATPL/IR' for Subjects 071 01 03 01 (06) to (12).

Regarding your comment referring to Subject 033 04 03 00: Accepted.

EASA agrees that both PET and PSR should be also covered in CPL courses A and H. An 'X' will be added under the column CPL (A) and (H).

comment *73-C* comment by: *AHS*

Received from Glyn Harley: Comment: Add LO 033 03 01 00 (08) New | 033 03 01 00 General | Please introduce, explain and describe how to calculate NAM from NM. | ATPL(A), CPL(A), ATPL(H)/IR, ATPL(H), CPL(H), IR

response Accepted.

EASA agrees to add a new LO to cover this topic.

A new LO will be inserted in Subject 033 03 01 01 as follows:

Explain and describe how to calculate nautical air miles (NAM) from nautical ground miles (NGM).

In a comment received by seperate mail, the same issue was raised regarding this LO (07).

comment *92-C* comment by: *DGAC FRANCE*

Doc C

	General comment **<u>Subject:</u>** **SUBJECT 033 – FLIGHT PLANNING AND MONITORING** **<u>Content of comment:</u>** This new version of LO is easier to use.
response	Noted. Thank you for providing your comment referring to Subject 033. EASA acknowledges your positive comment.

comment	*97-C* comment by: *Karl Hunkeler* Subject 033: All LOs considered relevant for IR should also be included for CBIR/EIR
response	Noted. Thank you for providing your comment referring to Subject 033. EASA acknowledges your comment.

comment	*99-C* comment by: *European GNSS Agency* **Detailed changes to LO** Additions are marked in grey. Deletions are written in ~~strikethrough~~. From our side – following LOs need to be added. (…) **Comment on 033 02 01 05 Instrument-approach charts** LO Define channel number and it´s separation. **Comment on 033 04 01 04 pre-flight preparation of GNSS achievability** LO Define why it is important to check GNSS achievability.
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Regarding your comment referring to Subject 033 02 01 05: Not accepted. EASA does not see the need to add an LO defining channel number and its separation. Regarding your comment referring to Subject 033 04 01 XX: Accepted. EASA agrees to insert a new subject on 'pre-flight preparation of GNSS achievability' containing four LOs as proposed in comment 101-C. The new subject containing four LOs will be inserted as follows: ***033 04 01 04 Pre-flight preparation of GNSS achievability*** (01) Define why it is important to check GNSS achievability. (02) Define receiver autonomous integrity monitoring (RAIM), NOTAM and notice advisory to NavStar users (NANU) messages.

(03) Explain the difference in use of augmented and non-augmented GNSS in connection with the achievability check.

(04) Explain the difference in planned and unplanned outage of GNSS or SBAS.

comment *155-E* comment by: *me*

Comments on LOs of subject 033

033 01 01 01 Airspace, communication, visual and radio navigation data from VFR charts

(01) Select routes and altitudes taking the following criteria into account:
- classification of airspace
- restricted areas

ATC: Same as 010.07.01

033 01 01 02	***Planning courses, distances and cruising levels from with VFR charts***

(06) State the function of contour lines on a topographical chart.
(07) Indicate the role of 'layer tinting' (colour gradient) in relation to the depiction of topography on a chart.
(08) Using the contours shown on a chart, describe the appearance of a significant feature.

Substitute by only one LO : interpret contourlines, layer tinting and appearance of significant features of navigation charts

033 01 01 05 Completion of navigation plan

(06) Calculate wWind cCorrection aAngles (WCAs), and dDrift and gGround sSpeeds (GS).

Same as 061.01.03.02 together with 061.01.05.04: cancel LO here

033 02 01 01 Airways and routes Air traffic service (ATS) routes

(01)
Identify suitable routings by identifying all relevant aeronautical and regulatory information (including information published in the national aeronautical information publication (AIP)) required for IFR flight planning. Select the preferred airway(s) or route(s) considering:
— altitudes and flight levels;
— standard routes;
— ATC restrictions;
— shortest distance;
— obstacles;

(02) New Identify and describe ATS routes (conventional, area navigation (RNAV), required navigation performance (RNP), conditional routes (CDRs), and direct routes).

Subject of ATC, same as 010.07.01 and 010.08 AIS; cancel here

033 02 01 02 Courses and distances from en-route charts
(02)
Determine bearings and distances of waypoints from radio navigation aids
No practical use for flight planning,;

033 02 01 03	***Altitudes***

(1) Define the following minimum altitudes:
- minimum sector altitude (MSA)
Covered in 010.06(Doc8168)
(2) Extract the following minimum altitudes from the chart(s):
- MSA
Covered in 010.06(Doc8168)

(3) State who is responsible for terrain separation during IFR flight inside and outside controlled airspace.
Same as 010.07.02.01
(04) Sate the minimum obstacle clearance requirements for en-route IFR flight inside and outside controlled airspace.
Same as 010.05.05.00 Content of ICAO Annex 2
(05) State when a temperature error correction must be applied by either the pilot or ATC.
Not explicit but content of 010.07.02.07

(06) Identify and explain the use of minimum radar vector altitudes.
Not explicit but content of 010.07.02.07

All subject of ATC, cancel here

(7) Calculate the minimum pressure altitude required with a given obstacle clearance, magnetic track, OAT, QNH and reduced vertical separation minimum (RVSM)/non-RVSM information.

(8)Calculate true altitude from a given pressure altitude and obstacle elevation using OAT and QNH.

Same as 050:
050 01 06 03 Determine the true altitude/height for a given altitude/height and a given ISA temperature deviation
050 01 06 03 Calculate the terrain clearance and the lowest usable flight level for given atmospheric temperature and pressure conditions

Subject of MET and ATC

033 02 01 04
Standard iInstrument dDepartures (SIDs) and sStandard instrument aArrival (STAR) rRoutes (STARs)

(02) State that SID and STAR charts show procedures only in a pictorial presentation style which is not to scale.

Substitute by :may not be true to scale
Whole 033 02 01 04 is covered by 010.06(Doc 8168), cancel here

033 02 01 05 Instrument-approach charts
(01) to (04)
Whole 033 02 01 05 Subject of ATC (010.06(Doc 8168) and 071.01.02) and Procedures which should be implemented as new chapter of 062

033 02 01 06 Communications and radio navigation planning data
(01)
Find the communication frequencies and call signs for aeronautical services for IFR flights from en-route charts.
Subject of ATC: 092 AZF

033 02 01 07
Completion of a manual navigation plan
Determine variation and calculate magnetic/true courses.
Same as 061.01.03.01.04

Calculate True Airspeed (TAS) from given aircraft performance data, altitude and Outside-Air Temperature (OAT).
Same as 033.01.01.05

Calculate wWind cCorrection aAngles (WCAs)/dDrift and gGround sSpeeds (GSs).
Same as 033.01.03.02 ; 061.01.03.02 together with 061.01.05.04

033 04 01 00 Notice to airmen (NOTAM) briefing
ATC; covered by 071.01.02, cancel here

033 04 01 04 Selection of alternates
Whole paragraph is subject of ATC 071.01.02; cancel here

033 04 02 02 Update of navigation plan using the latest meteorological information
Whole paragraph: what is new here, all basic calculations.
Cancel whole paragraph

033 04 02 05 Update of fuel plan
what is new here, all basic calculations.
Cancel whole paragraph

033 05 00 00 ICAO FLIGHT PLAN (ATS fFlight pPlan)
Whole paragraph is subject of ATC

033 06 01 01 Monitoring of track and time
(3) to (6) and (15)
Cancel: these are basic calculations which are repetitions of other LOs
(7) to (9)
These basics should move to 061; these are procedures for VFR not for IFR
(13) and (14) move to a new chapter of 062 procedures;

	One formula is sufficient, add values for standard glidepath of 3 degrees: 5*gs=ROD And 300ft per 1NM ***033 06 01 02 In-flight fuel management*** Covered in 071.01.02 OPS1.255 Fuel policy (07) New Calculate revised fuel consumption based on changes to the pre-flight plan including changes of W/V, cruise level, OAT, distances, Mach number and CAS**.** cancel: these are basic calculations which are repetitions of other LOs
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Regarding your comment referring to LO 033 01 01 01: Not accepted. EASA confirms this forms part of selecting routes within Subject area 033. Regarding your comment referring to LOs 033 01 01 02 (05) to (07): Not accepted. EASA has deleted LOs (05) and (08) here in Subject 033 and moved these LOs to Subject 061 to LO 061 02 02 01 (07) and LO 061 02 02 01 (13). This was based on the accepted comment 4-C. Based on the general part of comment 4-C, a thorough review of all the LOs proposed to be moved from Subject 061 to Subject 033 has been performed, and EASA has also deleted LOs 033 01 01 02 (06) and (07) as these LOs are included in LOs 061 02 02 01 (11) and (12) and are more relevant to subject 'navigation'. Regarding your comment referring to LO 033 01 01 05 (06): Not accepted. EASA does not agree to delete this LO as it is part of completion of the navigation plan. Regarding your comment referring to LOs 033 02 01 01 (01) and (02): Not accepted. EASA does not agree to delete these LOs as these LOs belong to Subject 033. Regarding your comment referring to LO 033 02 01 02 (01): Not accepted. EASA does not agree to delete this LO as it belongs to Subject 033. Regarding your comment referring to LOs 033 02 01 03 (01) to (08): Not accepted. EASA does not agree to delete these LOs as they belong to Subject 033. Regarding your comment referring to LO 033 02 01 04 (02): Partially accepted. EASA does not agree to delete this LO as it belongs to Subject 033. EASA agrees with the proposed text change. The text will be amended as follows: State ~~the reasons why~~ that SID and STAR charts show procedures only in a pictorial presentation style which ~~is not to scale~~ may not be true to scale. Regarding your comment referring to LOs 033 02 01 05 (01) to (04): Not accepted. EASA does not agree to delete these LOs as they belong to Subject 033. Regarding your comment referring to LO 033 02 01 06 (01): Not accepted. EASA does not agree to delete this LO as this subject belongs to Subject 033. Regarding your comment referring to Subject 033 02 01 07: Not accepted. EASA does not agree to delete this Subject as it belongs to Subject 033. Regarding your comment referring to Subject 033 04 01 00: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Regarding your comment referring to Subject 033 04 01 00: Accepted.

EASA has reinstated this in Subject area 071. The LOs are to be found under LOs 071 01 03 01 (06) to (12).

Regarding your comment referring to Subject 033 04 02 02: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Regarding your comment referring to Subject 033 04 02 05: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Regarding your comment referring to Subject 033 05 00 00: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Regarding your comment referring to Subject 033 06 01 01: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Regarding your comment referring to Subject 033 06 01 01: Partially accepted.

EASA has reinstated LOs (05) to (10), (13) and (14) in Subject area 061.

See EASA response to comment 4-C regarding the same issue.

Regarding your comment referring to Subject 033 06 01 02: Not accepted.

EASA does not agree to delete this Subject as it belongs to Subject 033.

Additional comments received by email:

comment	*Per email* comment by: SAT: Blatter Patrick GSPRM 1:500:000 VFR aeronautical charts of Germany: as part of a minimum? It doesn't make really sense to be "fixed" on German charts. Plotting charts of the North Atlantic: what kind of information should be implemented in the chart? 033 01 01 01 (01) VFR semicircular rules shall be kept since it is a source of separation 033 01 01 02 (09) Selection of cruising altitude of based on the calculated minimum altitude in reference to VFR semicircular rule 033 02 01 01 (02) These informations must be presented on the charts in the GSPRM 033 02 01 03 (01) MDA/ MHA are available in DOC 8186 033 02 01 03 (02) Altitudes defined in (01) must be able to retract from the charts (GSPRM) 033 02 01 07 Completion of a manual navigation plan (but here is no standard navigation plan?) 033 03 00 00 Fuel planning still on basis of CAP 697
response	Thank you for your multiple comments. EASA has carefully assessed all the comments received. Regarding your comment referring to GSPRM: Noted. EASA is waiting for a response from Jeppesen regarding a suitable VFR chart. Plotting charts for the North Atlantic will be included in the GSPRM. Regarding your comment referring to LO 033 01 01 01 (01): Accepted. EASA agrees that in this LO the criterion 'VFR semicircular rules' should be kept since it is a source of separation and will retain this criterion. Regarding your comment referring to LO 033 01 01 02 (09): Noted. EASA notes that the whole of LO 033 01 refers to VFR flights. Regarding your comment referring to LO 033 02 01 01 (02): Noted. EASA states that this information would be on the charts for relevant questions. Regarding your comment referring to LO 033 02 01 03 (01): Accepted. EASA agrees to retain the deleted altitudes in this LO as there are a lot of questions referring to the Jeppesen Student Pilot Route Manual. Regarding your comment referring to LO 033 02 01 03 (02): Accepted. EASA agrees to retain the deleted altitudes in this LO as there are a lot of questions referring to the Jeppesen Student Pilot Route Manual and ICAO Doc 8168. Regarding your comment referring to Subject 033 02 01 07: Noted. EASA notes that there is no standard navigation plan. Students should be familiar with suitable navigation plans as used in ground school instruction. Regarding your comment referring to Subject 033 03 00 00: Noted. EASA would like to inform that new tables/graphs are being introduced into new questions. They will be similar to existing tables/graphs in the CAP 697.

comment	*email* comment by: *Glyn Harley* 033 03 02 04 (03) Include the fuel penalty incurred when loading Extra Fuel (i.e the additional fuel burn due to increased mass).
response	Accepted. Thank you for providing your comment referring to LO 033 03 02 04 (03). EASA agrees to include this information and will insert a new LO. A new LO will be inserted in Subject 033 03 02 04 as follows: Explain the fuel penalty incurred when loading extra fuel (i.e. the additional fuel burn due to increased mass).

comment	*email* comment by: *Glyn Harley* 033 030 01 00 Fuel Planning: Please introduce, explain and describe how to calculate NAM from NM. Applicable to the same exam categories as listed in the other LOs (.ATPL(A), CPL(A), ATPL(H)/IR, ATPL(H), CPL(H), IR)
response	Accepted. EASA agrees to add a new LO to cover this topic. A new LO will be inserted in Subject 033 03 01 01 as follows: Explain and describe how to calculate nautical air miles (NAM) from nautical ground miles (NGM). In 73-C, the same comment was raised regarding this LO (07).

comment	*email* comment by: *Phil Croucher* I think they got it very WRONG in moving lots of navigational LOs from Gen Nav into Flt Planning. You PLAN on the ground and EXECUTE that plan in the air. Any corrections will be navigational solutions, Descent strategies FOR EXAMPLE come under the heading of `VERTICAL NAVIGATION` as far as I'm concerned. The parameter MONITORED in flight is FUEL - hence the importance of CAP697. Yes, of course you keep an eye on tracking etc but corrections (e.g. 1 in 60 rule) are NAVIGATIONAL techniques, not planning techniques.

response	Noted. Thank you for providing your comment referring to navigational LOs. EASA would like to refer you to its responses throughout this CRD regarding this topic.

comment	*email* comment by: *AHS* Items to review on the guidelines for the GSPRM: • the terminal co-ordinates of the area to be covered by the VFR chart of Germany are no longer stated, • the terminal co-ordinates of the area to be covered by the low and high altitude en-route IFR charts are no longer stated, (these were specifically requested by chart providers and this was minuted in the WG meeting) • there is no mention of the VFR General Section and an example aerodrome directory (again requested during a WG Meeting) • one of the suggested aerodrome/heliports has actually closed, and • the VFR charts for Zürich and Friedrichshafen have not been requested, therefore no VFR only airfield is included (also specifically requested by the GA members of the WG)….
response	Noted. Thank you for providing your comment referring to GSPRM. The GSPRM is subject to a separate review and your comments will be taken into account.

comment	*email* comment by: Glyn Harley 1. OFP introduction and modern computerised Flight Planning should be described. 2. Please add an LO stating that the carriage of extra fuel will incur a fuel penalty and that with given data the amount of extra fuel that can be loaded is to be calculated including the fuel penalty (the “old” extra fuel calculations in the ECQB should be checked).
response	Accepted. Thank you for providing your comment referring to LO 033 03 02 04 (03). EASA agrees to include this information and will insert a new LO. A new LO will be inserted in Subject 033 03 02 04 as follows: Explain the fuel penalty incurred when loading extra fuel (i.e. the additional fuel burn due to increased mass).

Appendix

to ED Decision 2018/001/R

Subject 034 — FLIGHT PERFORMANCE AND PLANNING — PERFORMANCE — HELICOPTERS

RELATED NPA: 2016-03(C) — RMT.0595 — 6.2.2018

Table of contents

9. Summary of the outcome of the consultation

Please refer to the Explanatory Note to Decision 2018/001/R.

10. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

Notice of Proposed Amendment 2016-03(C) — General and specific comments. NOTE: Due to technical issues, the FlashPaper version of this sub-NPA does not contain segments for each Subject. Therefore, when placing comments on this sub-NPA, you are kindly requested to indicate clearly the Subject, topic, subtopic, paragraph and LO number you are commenting on. Example: 'Comment on 032 01 01 01 (01)'. p. 1

comment *57-C* comment by: *European Cockpit Association*

Attachment #2

NPA 2016_03 (C)		European Cockpit Association - Comments
Subject 034 — Performance (helicopter)		
034 01 02 02 (03) - Terms and definitions	**185**	If this LO is not applicable to CPL then the LO (09) does not make sense.
034 01 02 02 (04) - Terms and definitions	**185**	Climb angle and climb gradient is a concept that CPL licences must also include.

response Accepted.

Thank you for providing this comment referring to LOs 034 01 02 02 (03) and (04).

EASA agrees that syllabus reference 034 01 02 02 (03) and 034 01 02 02 (04) should be applicable to the CPL as well and will amend the text according to your proposal by adding an 'X' in the 'Helicopter' column.

comment	*93-C* comment by: *DGAC FRANCE* **Doc C** **Subject:** **SUBJECT 034 – PERFORMANCE - HELICOPTER** **Content of comment:** No comment
response	Noted. Thank you for providing this general comment to Subject 034.