

<b>NPA 2016_03 (F)</b>	<b>European Cockpit Association – Comments:</b>	
<b>Subject 040 — Human performance and limitations</b>		Add new Learning Objective: <u>State the existence of Peer support programs, FRMS, just culture principles, and explain their importance for the safety-culture of an operator.</u> Knowledge useful for ATPL and CPL.
<b>040 01 01 01 (1) Becoming competent pilot</b>	<b>3</b>	It must be clarified which ICAO core competencies are referred to in this LO? DOC 9995 or Doc 9869?
<b>040 01 03 00 (13) - Flight safety concepts</b>	<b>5</b>	Add LO: " <i>Explain the main concepts and of CRM and HF and it's relationship with flight safety.</i> " More details on this subject to be included in 040 03 LO's
<b>040 01 04 00 - Safety culture</b>	<b>6</b>	Add LO: " <i>Name basic concepts of SMS (including hazard identification and risk management) and it's relationship with safety culture.</i> "
<b>040 02 01 01 (04)</b>	<b>6</b>	We suggest to keep Boyles law in the Los. It has practical implications for example in barotrauma and trapped gas. The physiological significance is important in daily working environment.
<b>040 02 01 01 (08),(09), (10) Basics of flight physiology</b>	<b>7</b>	Do not remove these Learning Objectives.
<b>040 02 01 02 (47) Respiratory and circulatory system</b>	<b>12</b>	Do not delete 040 02 01 02 (47). The content on how to counteract hyperventilation can be crucially important in difficult situations and is not covered anywhere else in the Syllabus. Furthermore, we find it illogical not to talk about the prevention and "treatment" of hyperventilation. Even though "paperbag" ventilation is not recommended, an efficient way is to calm down the breathing. In addition, this is the only way to be used if one was hyperventilated when using the OXY mask, which is the most common situation when a pilot hyperventilates.
<b>040 02 01 02 (51), (52)</b>	<b>12</b>	Do not remove these Learning Objectives. For what concerns LO 040 02 01 02 (52) - pilots should be aware of the approximate altitude of DCS, e.g. there is no risk below 10 000 ft and usually hypoxia is the issue to come first and secondary DCS.
<b>040 02 01 03 (01)(02)(05) and (07) High altitude environment</b>	<b>14</b>	Do not delete 040 02 01 03 (01) and (02). The content is not covered anywhere else, ozone filters are not even mandatory on all commercial aircrafts and the pilot needs to know about the harmful effects of ozone exposure for the benefit of the passengers and the crews health. Also, do not delete 040 02 01 03 (05) and (07), as the effect of solar flares on the amount of radiation is not covered anywhere else. For the benefit of the passengers and the crew's health, a pilot needs to know the countermeasures that can reduce the dose. It is irresponsible to deny any effect of solar flares on radiation and its effects on passenger and crew health, through deleting these LO's. Also, for what concerns LO 040 02 01 02 (05) - There are pilots that are afraid of solar storms and therefore there should be proper information on the radiation doses that may be encountered.
<b>040 02 01 03 (05),(06), (10)</b>	<b>14</b>	Do not remove these Learning Objectives.
<b>040 02 02 03</b>	<b>19</b>	Do not remove this Learning Objective. (clarification is needed as the crosses X are out for all licenses types)
<b>040 02 02 05 (11) Integration of sensory inputs</b>	<b>22</b>	Do not remove this Learning Objective. The somatogravic and proprioceptive illusions reinforce each other and e.g. the illusion of nose up during acceleration is a real risk during all-engine go around.

040 02 03 02 (05) Body rhythm and sleep	24	Personal temperature sensation can actually, for many individuals, be quite a good warning signal for potential problems with body rhythm. We therefore believe the LO 040 02 03 02 (05) should remain in the Syllabus.
040 02 03 02 Body rhythm and sleep	24	The whole chapter is relevant also for CPL and Helicopters.
040 02 03 02 (17) (New!)	25	Add new LO 040 02 03 02 (17): <b><u>Describe the health effects of inadequate amount of sleep and disruptions of circadian rhythm.</u></b> Reasoning: There is a solid evidence on the negative health effects of inadequate sleep to obesity, cardiac and vascular diseases, type 2 diabetes, infections, some cancers and even mortality. Also circadian disruption plays a role in these issues. Pilot profession often includes sleep and circadian disruptions and therefore these should be taught to the candidates.
040 02 03 03 (05)	26	Amend the LO 040 02 03 03 (05): <b><u>State when a pilot should seek medical advice from an aeromedical examiner (AME) or Aeromedical Center (AeMC).</u></b> Delete the second part of the sentence: <i>(...) and when the aeromedical section of an authority should be informed.</i> Reasoning: In the current EASA Part MED there is no obligation to inform the authority, but the AME or AeMC, which in turn inform the authority.
040 02 03 03 (15) Problem areas for pilots	27	Add to the list <b><u>"State the harmful effects of obesity on the following: -sleep apnea."</u></b> Reasoning: The prevalence (or diagnostics) of sleep apnea has increased and more and more pilots are diagnosed with it. Obesity is an important risk factors and should be included to the list.
040 02 03 03 (16) Problem areas for pilots	28	The issue of BMI and it's effects has been discussed in the former JAA SET (Subject Expert Team), which amended the LOs last time. It is not the best way to measure obesity, as very muscular people may have high BMI without obesity. But BMI is still used very widely in medicine and also in the EASA Part MED. Therefore, we would like to point out that while it might still be appropriate to have it as LO, the LO should also elaborate on the limitations of using BMI. <b>If there is a need to get rid of BMI, this should first be removed from part MED, and only after that from the LOs.</b>
040 02 03 03 (17) Problem areas for pilots	28	ECA would like to request clarification of the purpose of the LO 040 02 03 03 (17).

040 02 03 03 (19) Problem areas for pilots; back pains	25	<p>LO 040 02 03 03 (19) must remain in the Syllabus. Many pilots experience back problems, as they spend a large amount of time sitting (often less than optimum conditions from an ergonomics perspective). Due to this fact - solid background knowledge on prevention and treatment is vital. According to the association of AME's in Germany, backpain is a major factor of pilots reporting sick. The mentioned countermeasures are effective to reduce possible health problems. Finally, this LO is not covered anywhere else. We suggest the following, modified wording: Heading title: <b><u>Back pain and prolonged sitting</u></b>. Text of LO: <b><u>Describe the typical back problems (unspecific back pain, slipped disc) that pilots have and the health effects of prolonged sitting. Explain also the ways of preventing and treating these problems:</u></b></p> <ul style="list-style-type: none"> <li>- <b><u>good sitting posture;</u></b></li> <li>- <b><u>lumbar support;</u></b></li> <li>- <b><u>good physical condition;</u></b></li> <li>- <b><u>in-flight exercise, if possible;</u></b></li> <li>- <b><u>physiotherapy.</u></b></li> </ul> <p><u>Additional reasoning:</u> Back problems are extremely common among pilots. There are ways of preventing the problems and this way reduce the risk of "occupational" problems. In addition, with last ten years a growing amount of evidence of the negative health effects on prolonged sitting has been obtained. It seems that not even a moderate physical exercise can compensate for prolonged sitting. Therefore a short stretching brake once in 1 to 2 hours should be performed. It is enough to stand up and most of the flight decks are big enough for this. This LO could be only for ATPL and CPL levels when most likely longer flights will be flown.</p>
040 02 03 03 (28)	30	Comment: „Tropical Climate“ and it's associated problems do occur in our region as well.
040 02 03 03 (27) till (29)	29	040 02 03 03 (27) till (29) are relevant also for CPL and Helicopters.
040 02 03 03 (31)	30	Keep the LO 040 02 03 03 (31): <b><u>State which preventative hygienic measures, vaccinations, drugs and other measures reduce the chances of catching these diseases</u></b> . Reasoning: It is important for crews to know which vaccinations are needed in travel work (e.g. Hepatitis A&B, Yellow fever, Tetanus) and the prevention of different common diseases that travelers come across (e.g. malaria, dengue fever, Zika virus)
040 02 03 03 (33) <i>(New)</i> Arctic climate	30	<b><u>Add LO 040 02 03 03 (33) Arctic climate</u></b> . Reasoning: This LO should address the effects of extreme low temperatures and how to handle them, e.g dry air, chill factor etc... Rational: A quite significant area of the EASA world belongs to that climatic zone. It should be addressed in ATPL and CPL, both fixed wing and particularly helicopter.
040 02 03 04 (12)	32	Comment: This new LO should be removed. <b><u>It constitutes an unjustified accusation of aviation professionals and is highly judgemental</u></b> . At minimum - it must be re-phrased e.g <u>what factors can lead to excessive use of alcohol?</u> (Include CPL)
040 02 03 04 (19) (New!) Fume event	33	Add a new LO: <b><u>Describe a fume event and the possible incapacitating effects of it</u></b> . Reasoning: Fume events have been discussed with passion in the media and aviation community. There are different believes concerning them and there is a need for proper objective information. ICAO has published a circular on the issue in 2015: ICAO Circular 344 - GUIDELINES ON EDUCATION, TRAINING AND REPORTING OF FUME EVENTS. This could be used as a reference for the issue.
040 03 01 03 (04) Memory	35	Comment: Recent research (e.g. Loukopoulos, Dismukes, Barshi 2009) indicates that the <b><u>7±2 postulated by Miller in the 1950s is too optimistic</u></b> and in reality the <b><u>human short-term memory is more on the order of 5±2</u></b> – on that note, it <b><u>may be appropriate to include an LO on “multi-tasking” and if/how humans are capable of this.</u></b>
040 03 02 04 (06)	41	Expand this LO to include some information on the history of the man-machine interface, including background on “human-centered” philosophy.

040 03 04 01 (02)	43	Do not remove this Learning Objective. What is the reasoning for deletion?
040 03 04 02 (03) and (05)	43	040 03 04 02 (03) and (05) are relevant also for CPL and Helicopters.
040 03 04 03 (01) till (15)	44	Subject 040 03 04 02 is relevant also for CPL and Helicopters. Reasoning: While CPL is targeting Single Pilot concepts operating under these rules still is not a „one man show“. All of these subjects do also affect single pilot operation.
040 03 04 04 (05)&(06) Communication	46	If this particular LO is deleted, the importance of the various aspects of communication (linguistics theory of “speech acts”) must nevertheless be included somewhere. The mere distinction between “verbal” and “non-verbal” communication does not suffice. At least some background knowledge of the four elements of a speech act should be included in the LOs
040 03 04 04 (12)	46	Do not remove this Learning Objective. It is useful knowledge, and practical example allows the student to retain the knowledge better.
040 03 04 04 (17)	47	This LO is formulated very generic. ECA believes a more precise breakdown of the elements of communication, including some background information on linguistic “speech act” theory (see also my comment above) is required
040 03 05 01 (05) Personality, attitude and behaviour	47	Comment: What about “environmentalist theory”? This states that personality is also a product of the environment to which one was exposed at significant moments (e.g. childhood, schooling, training).
040 03 05 01 (06)	48	This LO is formulated very generic. <b>More specific details should be included</b> , as the LO as it stands now leaves way too much room for misinterpretation and/or <b>inadequate coverage of this very important area.</b>
040 03 05 03 (01) till (03)	49	040 03 05 03 (01) till (03) is relevant also for CPL and CPL Helicopters
040 03 06 02 (15)	51	LO 040 03 06 02 (15) should be kept, e.g.: <b>Explain a simple model of stress</b> . Reasoning: This model has been very useful in explaining e.g. why the same demand may produce stress to one individual, whereas not to another. Stress is a result of perceived demands and perceived ability and sometimes does not have anything to do with reality.
040 03 06 05 (01)	52	Modify the existing text of LO: Explain the term ‘fatigue’ and differentiate between the two types of fatigue ( <b>short term and cumulative</b> ). Comment: <b>Add clarification of what two types of fatigue are meant.</b>
040 03 06 05 (09) (New, important!) FRMS	53	Add new LO 040 03 06 05 (09): <b>Describe FRMS and explain the main components of it</b> . Reasoning: FRMS has been in ICAO regulation for 5 years and is now also an option in the in the EASA FTL regulation. More and more airlines are using it and therefore the candidates should have some kind of knowledge on it. Finally, 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.

Area 100 KSA — Knowledge, skills and attitudes		
Preamble	56	Remove the reference to Airbus core competencies (there shouldn't be a reference to Airbus or any other OEM)
100 01 00 00 COMMUNICATION	57	<p>This chapter is very specific and reflects the KSA's developed and described in PANS TRG. Whilst it's effectiveness has been proven to a certain extent in conjunction with MPL Cadet training, a specific prove of this new regulation has not been shown with the traditional licenses.</p> <p><b><u>A timely review (like the "proof of concept for the MPL" developed by ICAO) of this regulation must be planned within a certain timeframe,</u></b> (for example two years from now) to ensure the concepts effectiveness through a proper review process.</p>
100 01 00 00 (05)	57	Delete 100 01 00 00 (05). To interprete body language is not an observable, objective behaviour and will always be subject to subjective assessment
100 05 00 00 SITUATION AWARENESS AND RESILIENCE	59	<p>As <b>more emphasis is being placed on Situation Awareness and Resilience, perhaps an <u>LO concerning Cognitive Readiness</u> should also be added.</b> Proper techniques (e.g. breathing and/or relaxation) can be taught; to enable the pilot to attain the necessary physical state first, enabling the pilot to then make rational/cognitive decisions and /or apply pre-scripted actions to handle stressful situations. "Chair Flying" is often mentioned during training, but often actual instruction on how to do this is lacking.</p>
100 01 00 00 (01) till (04), 100 02 01 00 (08), 100 03 00 00 (01) till (07), 100 04 00 00 (02) till (04), 100 06 00 00 (01) till (03), and All Subject 100 0900 00		Replace "show" with " <b><u>demonstrate</u></b> ".