ข้อกำหนดของสำนักงานการบินพลเรือนแห่งประเทศไทย

ฉบับที่ ๑๑๖

ว่าด้วยการปฏิบัติการบินทั่วไป

(Thailand Civil Aviation Regulation - Air Operations Part Non - commercial operations with other than complex motor - powered aircraft (TCAR OPS Part-NCO) and Part Non - commercial operations with complex motor - powered aircraft (TCAR OPS Part-NCC))

อาศัยอำนาจตามความในมาตรา ๖/๑ แห่งพระราชบัญญัติการเดินอากาศ พ.ศ. ๒๔๙๗ แก้ไขเพิ่มเติมโดยพระราชกำหนดแก้ไขเพิ่มเติมพระราชบัญญัติการเดินอากาศ พ.ศ. ๒๔๙๗ พ.ศ. ๒๕๕๘ และมาตรา ๑๕/๑๐ วรรคหนึ่ง (๑) และวรรคสอง แห่งพระราชบัญญัติการเดินอากาศ พ.ศ. ๒๔๙๗ แก้ไขเพิ่มเติมโดยพระราชบัญญัติการเดินอากาศ (ฉบับที่ ๑๔) พ.ศ. ๒๕๖๒ ที่กำหนดให้ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทยมีอำนาจกำหนดมาตรการหรือการดำเนินการที่จำเป็นต่อการกำกับดูแลการบินพลเรือนตามมาตรา ๑๕/๗ ในเรื่องมาตรฐานความปลอดภัย โดยออกข้อกำหนดเพื่อกำกับดูแลให้เป็นไปตามเรื่องดังกล่าว ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทยจึงออกข้อกำหนดในเรื่องมาตรฐานความปลอดภัยเกี่ยวกับการบินทั่วไป เพื่อให้การปฏิบัติการบินทั่วไปสอดคล้องกับมาตรฐานที่กำหนดไว้ในภาคผนวก ๖ ส่วนที่ ๒ การปฏิบัติการบินทั่วไปด้วยเครื่องบิน และภาคผนวก ๖ ส่วนที่ ๓ หมวดที่ ๒ การปฏิบัติการบินทั่วไปด้วยเฮลิคอปเตอร์ และบทแก้ไขเพิ่มเติมแห่งอนุสัญญาว่าด้วยการบินพลเรือนระหว่างประเทศ ค.ศ. ๑๙๔๔ และ Commission Regulation (EU) 965/2012 Part Definition (Part-DEF) Part Organisation Requirements for Air Operations (Part-ORO) Part Non - commercial operations with other than complex motor - powered aircraft (Part-NCO) Part Non - commercial operations with complex motor - powered aircraft (Part-NCC) และ Part Specific Approval (Part-SPA) ไว้ ดังต่อไปนี้

ข้อ ๑ ข้อกำหนดนี้เรียกว่า “ข้อกำหนดของสำนักงานการบินพลเรือนแห่งประเทศไทย ฉบับที่ ๑๑๖ ว่าด้วยการปฏิบัติการบินทั่วไป (Thailand Civil Aviation Regulation - Air Operations Part Non - commercial operations with other than complex motor - powered aircraft (TCAR OPS Part-NCO) and Part Non - commercial operations with complex motor - powered aircraft (TCAR OPS Part-NCC))”

ข้อ ๒ ข้อกำหนดนี้ให้ใช้บังคับตั้งแต่วันถัดจากวันประกาศในราชกิจจานุเบกษาเป็นต้นไป

ข้อ ๓ ให้ยกเลิกข้อกำหนดของสำนักงานการบินพลเรือนแห่งประเทศไทย ฉบับที่ ๑๓ ว่าด้วยการบินทั่วไป ให้ไว้ ณ วันที่ ๑๕ มีนาคม พ.ศ. ๒๕๖๒

ข้อ ๔ ในข้อกำหนดนี้

“การบินทั่วไป” หมายความว่า การปฏิบัติการของอากาศยานนอกเหนือจากการขนส่งทางอากาศเพื่อการพาณิชย์และการทำงานทางอากาศ

“การแสดงเจตนา” (Declaration of Intention) หมายความว่า การยื่นหนังสือต่อผู้อำนวยการเพื่อแสดงเจตนาว่าตนมีความพร้อมในการปฏิบัติการบินทั่วไป และสามารถปฏิบัติตามกฎหมาย กฎระเบียบ และคู่มือที่เกี่ยวข้อง

“ผู้ปฏิบัติการบินทั่วไป” หมายความว่า ผู้ปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่ไม่มีความซับซ้อน และผู้ปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อน แล้วแต่กรณี

“อากาศยานที่มีความซับซ้อน” (Complex motor - powered aircraft) หมายความว่า อากาศยานใด ๆ ที่มีลักษณะอย่างใดอย่างหนึ่ง ดังต่อไปนี้

(๑) เครื่องบินที่มีมวลรวมวิ่งขึ้นสูงสุดมากกว่าห้าพันเจ็ดร้อยกิโลกรัม หรือบรรทุกผู้โดยสารมากกว่าสิบเก้าที่นั่ง หรือปฏิบัติการบินโดยใช้นักบินไม่น้อยกว่าสองคน หรือใช้เครื่องยนต์กังหันก๊าซ (Turbojet) หนึ่งเครื่องยนต์หรือมากกว่า หรือเครื่องยนต์กังหันก๊าซใบพัด (Turboprop) หลายเครื่องยนต์ หรือ

(๒) เฮลิคอปเตอร์ที่มีมวลรวมวิ่งขึ้นสูงสุดมากกว่าสามพันหนึ่งร้อยเจ็ดสิบห้ากิโลกรัม หรือบรรทุกผู้โดยสารมากกว่าเก้าที่นั่ง หรือปฏิบัติการบินโดยใช้นักบินตั้งแต่สองคนขึ้นไป หรือ

(๓) อากาศยานที่สามารถปฏิบัติการบินโดยขึ้นลงทางดิ่ง (Tilt rotor aircraft)

“อากาศยานที่ไม่มีความซับซ้อน” (Non - complex motor - powered aircraft) หมายความว่า อากาศยานนอกเหนือจากอากาศยานที่มีความซับซ้อน

“ผู้อำนวยการ” หมายความว่า ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทย

“สำนักงาน” หมายความว่า สำนักงานการบินพลเรือนแห่งประเทศไทย

ข้อ ๕ ข้อกำหนดนี้ให้ใช้บังคับกับการปฏิบัติการบินทั่วไปของอากาศยานที่จดทะเบียนตามกฎหมายว่าด้วยการเดินอากาศ และการปฏิบัติการบินทั่วไปของอากาศยานต่างประเทศที่ทำการบินขึ้นลงในราชอาณาจักรด้วย

ข้อ ๖ การปฏิบัติการบินทั่วไปตามข้อกำหนดนี้ แบ่งออกเป็น ๒ ประเภท ดังนี้

(๑) การปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่ไม่มีความซับซ้อน (Non - commercial operations with other than complex motor - powered aircraft (NCO))

(๒) การปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อน (Non - commercial operations with complex motor - powered aircraft (NCC))

ข้อ ๗ ผู้ที่จะปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่ไม่มีความซับซ้อน (Non - commercial operations with other than complex motor powered aircraft (NCO)) ต้องเป็นผู้ได้รับใบอนุญาตใช้อากาศยานส่วนบุคคล และต้องมีความสามารถปฏิบัติการบินทั่วไปได้ตามมาตรฐานการปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่ไม่มีความซับซ้อนอย่างน้อยในเรื่อง ดังต่อไปนี้

(๑) บททั่วไป (General)

(๒) การปฏิบัติการบิน และการรับรองการปฏิบัติการบิน (Operational Procedure and Specific Approval)

(๓) สมรรถนะและขีดจำกัดของอากาศยาน (Aircraft Performance and Operating Limitations)

(๔) เครื่องวัด อุปกรณ์ และเอกสารการบินประจำเครื่องบินและเฮลิคอปเตอร์ (Instruments, Data and Equipment)

(๕) การปฏิบัติการบินแบบพิเศษหรือการทำงานทางอากาศด้วยอากาศยานที่ไม่มีความซับซ้อน (Specific Requirements)

(๖) เรื่องอื่นที่เกี่ยวข้องกับความปลอดภัยในการเดินอากาศ

ข้อ ๘ ผู้ที่จะปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อน (Non - commercial operations with complex motor - powered aircraft (NCC)) จะต้องเป็นผู้ได้รับใบอนุญาตใช้อากาศยานส่วนบุคคลและต้องได้รับหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) จากผู้อำนวยการ และต้องมีความสามารถปฏิบัติการบินทั่วไปได้ตามมาตรฐานการปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อนอย่างน้อยในเรื่อง ดังต่อไปนี้

(๑) ระบบบริหารจัดการ (Management System)

(๒) การปฏิบัติการบินและการรับรองการปฏิบัติการบิน (Operating Procedures and Specific Approval)

(๓) ข้อจำกัดเวลาทำการบิน เวลาปฏิบัติหน้าที่และเวลาพักผ่อน (Flight and Duty Time Limitations and Rest Requirements)

(๔) เครื่องวัด อุปกรณ์ และเอกสารการบินประจำเครื่องบินหรือเฮลิคอปเตอร์ (Instruments Data Equipment)

(๕) สมรรถนะและขีดจำกัดของอากาศยานเครื่องบินหรือเฮลิคอปเตอร์ (Performance andOperating Limitations)

(๖) คู่มือ สมุดปูม และบันทึก (Manuals Logs and Records)

(๗) ผู้ประจำหน้าที่ในอากาศ (Flight Crew) พนักงานอำนวยการบิน (Flight Operations Officer/Flight Dispatcher)

(๘) พนักงานต้อนรับในอากาศยานเครื่องบินหรือเฮลิคอปเตอร์ (Cabin Crew)

(๙) การคงความต่อเนื่องของความสมควรเดินอากาศสำหรับเครื่องบินหรือเฮลิคอปเตอร์ (Continuing Airworthiness)

(๑๐) เรื่องอื่นที่เกี่ยวข้องกับความปลอดภัยในการเดินอากาศ

ข้อ ๙ มาตรฐานการปฏิบัติการบินทั่วไปตามข้อ ๗ และข้อ ๘ ให้เป็นไปตามที่กำหนดไว้ใน

(๑) Cover Regulation to TCAR OPS Part-NCC and Part-NCO (TCAR OPS NC) Issue 01 Revision 00 Date 30 January 2026 แนบท้ายข้อกำหนดนี้

(๒) Thailand Civil Aviation Regulation - Air Operations Part Non - commercial operations with other than complex motor - powered aircraft (TCAR OPS Part-NCO) Issue 01 Revision 00 Date 30 January 2026 แนบท้ายข้อกำหนดนี้

(๓) Thailand Civil Aviation Regulation - Air Operations Part Non - commercial operations with complex motor - powered aircraft (TCAR OPS Part-NCC) Issue 01 Revision 00 Date 30 January 2026 แนบท้ายข้อกำหนดนี้

ข้อ ๑๐ ขั้นตอนในการขอและออกหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) มีดังนี้

(๑) ขั้นตอนที่ ๑ การยื่นเอกสารการแสดงเจตนา (Declaration Phase)

(๒) ขั้นตอนที่ ๒ การตรวจสอบเอกสารหลักฐานและตรวจสอบการปฏิบัติการ (Evaluation Phase)

(๓) ขั้นตอนที่ ๓ การออกหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator)

ข้อ ๑๑ ผู้ที่ประสงค์จะปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อน ให้ยื่นคำขอหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ตามแบบที่ผู้อำนวยการกำหนดล่วงหน้าก่อนวันที่คาดว่าจะเริ่มปฏิบัติการบินครั้งแรกไม่น้อยกว่า ๙๐ วัน พร้อมด้วยเอกสารและหลักฐาน ดังต่อไปนี้

(๑) สำเนาใบสำคัญการจดทะเบียนอากาศยาน

(๒) สำเนาใบสำคัญสมควรเดินอากาศ

(๓) สำเนาใบอนุญาตใช้อากาศยานส่วนบุคคล

(๔) หนังสือแสดงเจตนา (Declaration Form) ตามแบบที่ผู้อำนวยการกำหนด

(๕) คู่มือปฏิบัติการ (Operations Manual)

(๖) รายการอุปกรณ์ขั้นต่ำ (Minimum Equipment Lists) (ถ้ามี)

(๗) รายละเอียดวิธีการปฏิบัติการบินตามมาตรฐาน (Standard Operating Procedure: SOP)

(๘) เอกสารหรือหลักฐานอื่นที่ผู้อำนวยการกำหนด

ข้อ ๑๒ เมื่อได้รับคำขอและเอกสารหลักฐานตามข้อ ๑๑ แล้ว ผู้อำนวยการจะตรวจสอบความครบถ้วนถูกต้อง และประเมินความพร้อมของผู้ขอแล้วเห็นว่าผู้ขอมีความสามารถปฏิบัติการบินทั่วไปตามมาตรฐานการปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อนได้ตามข้อ ๙ ผู้อำนวยการจะออกหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for

Declared Operator) โดยอาจระบุเงื่อนไขหรือข้อจำกัดการปฏิบัติการทำงานทางอากาศ (ถ้ามี) และให้ความเห็นชอบคู่มือการปฏิบัติการ (Operations Manual) ตามข้อ ๑๑ (๕) ให้แก่ผู้ขอ

ข้อ ๑๓ ผู้ได้รับหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ที่ประสงค์จะดำเนินการ ดังต่อไปนี้

(๑) เพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงรายละเอียดในหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator)

(๒) เพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงเงื่อนไขหรือข้อจำกัดการปฏิบัติการบินทั่วไป

(๓) เพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงรายละเอียดในเนื้อหาของคู่มือปฏิบัติการ (Operations Manual)

ให้ยื่นคำขอตามแบบที่ผู้อำนวยการกำหนดพร้อมด้วยหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ฉบับเดิม และเอกสารหลักฐานที่เกี่ยวข้อง เพื่อให้ผู้อำนวยการพิจารณาให้ความเห็นชอบล่วงหน้าก่อนวันที่คาดว่าจะดำเนินการไม่น้อยกว่า ๖๐ วัน และจะดำเนินการได้เมื่อได้รับหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ฉบับใหม่

ข้อ ๑๔ เพื่อให้การปฏิบัติการบินทั่วไปของผู้ได้รับหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) เป็นไปด้วยความปลอดภัย ผู้อำนวยการมีอำนาจเพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงเงื่อนไขหรือข้อจำกัดการปฏิบัติการบินทั่วไป หรือสั่งให้แก้ไขรายละเอียดต่าง ๆ ที่เกี่ยวข้องกับการปฏิบัติการบิน หรือสั่งให้แก้ไขเนื้อหาของคู่มือตามรายการและภายในระยะเวลาที่กำหนด โดยจะออกหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ฉบับใหม่ให้แก่ผู้ปฏิบัติการบินทั่วไป และให้หนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ฉบับเดิมเป็นอันสิ้นผล

ข้อ ๑๕ ผู้ปฏิบัติการบินทั่วไปต้องนำหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ที่ผู้อำนวยการออกให้ตามข้อ ๑๒ ข้อ ๑๓ หรือข้อ ๑๔ แล้วแต่กรณี หรือสำเนาหนังสือขึ้นไปกับอากาศยานขณะทำการบินทุกครั้ง

ข้อ ๑๖ ผู้ปฏิบัติการบินทั่วไปมีหน้าที่ ดังต่อไปนี้

(๑) ปฏิบัติให้เป็นไปตามกฎหมายว่าด้วยการเดินอากาศ ตลอดจนการปฏิบัติตามกฎข้อบังคับ ข้อกำหนด ระเบียบ ประกาศ ที่เกี่ยวข้องกับการปฏิบัติการบินทั่วไป

(๒) ปฏิบัติการบินอย่างปลอดภัยและปฏิบัติการในเรื่องอื่น ๆ ตามมาตรฐานการปฏิบัติการบินทั่วไปที่กำหนดไว้ตามข้อ ๙

(๓) ดำเนินการให้เป็นไปตามเงื่อนไขและข้อจำกัดที่ผู้อำนวยการกำหนด รวมทั้งปฏิบัติตามคู่มือปฏิบัติการ (Operations Manual)

(๔) ต้องควบคุมดูแลให้นักบินที่ใช้อากาศยานของตนปฏิบัติตามกฎหมาย กฎระเบียบ และวิธีปฏิบัติที่ผู้อำนวยการกำหนดหรือหน่วยงานที่มีอำนาจของประเทศที่เกี่ยวข้องกำหนด

(๕) ต้องควบคุมดูแลให้นักบินที่ปฏิบัติการบินกับอากาศยานของตนมีความคุ้นเคยกับกฎหมาย กฎระเบียบ และวิธีปฏิบัติที่เกี่ยวข้องกับการปฏิบัติหน้าที่ของตน ตลอดจนพื้นที่ที่จะทำการบิน สนามบิน และสิ่งอำนวยความสะดวกในการเดินอากาศที่ใช้ นอกจากนี้ยังต้องควบคุมดูแลให้ผู้ประจำหน้าที่อื่นมีความคุ้นเคยกับกฎหมาย กฎระเบียบ และวิธีปฏิบัติที่เกี่ยวข้องนั้นเช่นเดียวกัน

(๖) รับผิดชอบในการอำนวยการบิน

(๗) ในกรณีเกิดเหตุการณ์ฉุกเฉินซึ่งอาจเป็นอันตรายต่อความปลอดภัยของอากาศยานหรือบุคคลอื่น ต้องแจ้งเหตุการณ์ดังกล่าวตามหลักเกณฑ์และวิธีการที่สำนักงานกำหนดโดยไม่ชักช้า

(๘) ในกรณีเกิดเหตุการณ์ฉุกเฉินซึ่งอาจเป็นอันตรายต่อความปลอดภัยของอากาศยานหรือบุคคลอื่น และอาจมีความจำเป็นที่ไม่สามารถปฏิบัติตามกฎหมายหรือกฎระเบียบหรือวิธีปฏิบัติใด ๆ ต้องแจ้งต่อสำนักงานหรือหน่วยงานที่มีอำนาจของประเทศนั้น ๆ โดยไม่ชักช้า และต้องส่งรายงานการไม่ปฏิบัติตามกฎหมาย กฎระเบียบ หรือวิธีปฏิบัตินั้นในทันทีที่สามารถกระทำได้

(๙) ต้องควบคุมดูแลให้นักบินที่ปฏิบัติการบินกับอากาศยานของตนมีข้อมูลที่จำเป็นเกี่ยวกับบริการค้นหาและช่วยเหลืออากาศยานที่ประสบภัยในพื้นที่ที่จะทำการบินอยู่ในอากาศยาน

(๑๐) ยินยอมให้พนักงานเจ้าหน้าที่หรือผู้ตรวจสอบด้านการบินเข้าในสถานที่ตั้งและอากาศยานเพื่อทำการตรวจสอบว่าผู้ปฏิบัติการบินทั่วไปได้ดำเนินการตามมาตรฐานที่กำหนดไว้ตามข้อ ๙ ตลอดจนกฎหมายและกฎระเบียบที่เกี่ยวข้อง

(๑๑) หน้าที่อื่นตามที่ผู้อำนวยการกำหนด

นักบินที่ปฏิบัติการบินกับอากาศยานของผู้ปฏิบัติการบินทั่วไปมีหน้าที่และความรับผิดชอบเช่นเดียวกับผู้ปฏิบัติการบินทั่วไปตามที่กำหนดไว้ในวรรคหนึ่ง

ข้อ ๑๗ เมื่อปรากฏแก่ผู้อำนวยการว่าผู้ปฏิบัติการบินทั่วไปกระทำการดังต่อไปนี้ ผู้อำนวยการมีอำนาจสั่งให้ผู้ปฏิบัติการบินทั่วไปทำการตรวจ แก้ไขเอกสาร หรือการกระทำตามรายการและภายในระยะเวลาที่กำหนด

(๑) ฝ่าฝืนหรือไม่ปฏิบัติตามมาตรฐานการปฏิบัติการบินทั่วไปตามข้อ ๙

(๒) ฝ่าฝืนหรือไม่ปฏิบัติตามเงื่อนไขหรือข้อจำกัดการปฏิบัติการบินทั่วไปที่กำหนดไว้ในหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) หรือคู่มือปฏิบัติการ (Operations Manual)

(๓) ฝ่าฝืนหรือไม่ปฏิบัติการให้เป็นไปตามกฎหมายว่าด้วยการเดินอากาศหรือกฎระเบียบอื่นที่เกี่ยวข้อง

(๔) เพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงเอกสารตามข้อ ๑๓ โดยไม่ได้รับความเห็นชอบจากผู้อำนวยการก่อน

(๕) ฝ่าฝืนหรือไม่ปฏิบัติหน้าที่ของผู้ปฏิบัติการบินทั่วไปตามที่กำหนดไว้ในข้อ ๑๖

(๖) ฝ่าฝืน หรือไม่ปฏิบัติตามหลักเกณฑ์และวิธีการปฏิบัติเพื่อความปลอดภัยที่ผู้อำนวยการกำหนด

ข้อ ๑๘ ผู้อำนวยการมีอำนาจสั่งพักใช้หนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) เมื่อปรากฏข้อเท็จจริงว่าผู้ปฏิบัติการบินทั่วไปกระทำการในกรณีหนึ่งกรณีใด ดังต่อไปนี้

(๑) ฝ่าฝืนหรือไม่ปฏิบัติตามมาตรฐานการปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อนตามข้อ ๙ (๓) ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

(๒) ฝ่าฝืนหรือไม่ปฏิบัติตามเงื่อนไขหรือข้อจำกัดการปฏิบัติการบินทั่วไปในหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) หรือคู่มือปฏิบัติการ (Operations Manual) ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

(๓) ฝ่าฝืนหรือไม่ปฏิบัติการให้เป็นไปตามกฎหมายว่าด้วยการเดินอากาศหรือกฎระเบียบอื่นที่เกี่ยวข้อง ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

(๔) เพิ่ม ลด หรือแก้ไขเปลี่ยนแปลงเอกสารตามข้อ ๑๓ โดยไม่ได้รับความเห็นชอบจากผู้อำนวยการก่อน ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

(๕) ฝ่าฝืนหรือไม่ปฏิบัติหน้าที่ของผู้ปฏิบัติการบินทั่วไปตามที่กำหนดไว้ในข้อ ๑๖ ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

(๖) ฝ่าฝืน หรือไม่ปฏิบัติตามหลักเกณฑ์และวิธีการปฏิบัติเพื่อความปลอดภัยที่ผู้อำนวยการกำหนดในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศ

การสั่งพักใช้หนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ตามวรรคหนึ่ง ผู้อำนวยการจะกำหนดระยะเวลาหรือเงื่อนไขให้ผู้ปฏิบัติการบินทั่วไปนั้นจะต้องดำเนินการให้ถูกต้องไว้ด้วยก็ได้

ข้อ ๑๙ ผู้อำนวยการมีอำนาจสั่งเพิกถอนหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) เมื่อปรากฏข้อเท็จจริงว่าผู้ปฏิบัติการบินทั่วไปนั้น

(๑) ถูกเพิกถอนใบอนุญาตใช้อากาศยานส่วนบุคคล

(๒) กระทำการตามข้อ ๑๘ ในประการที่ก่อหรืออาจก่อให้เกิดอันตรายแก่การเดินอากาศอย่างร้ายแรง

(๓) ถูกพักใช้หนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorization for Declared Operator) สองครั้งขึ้นไปภายในช่วงระยะเวลาสองปี

ข้อ ๒๐ บรรดาประกาศ และระเบียบ หรือคำสั่งที่ออกโดยอาศัยอำนาจของข้อกำหนดของสำนักงานการบินพลเรือนแห่งประเทศไทย ฉบับที่ ๑๓ ว่าด้วยการบินทั่วไป ให้ไว้ ณ วันที่ ๑๕ มีนาคม พ.ศ. ๒๕๖๒ ที่ใช้บังคับอยู่ในวันที่ข้อกำหนดฉบับนี้มีผลใช้บังคับ ให้มีผลใช้ได้ต่อไปเท่าที่ไม่ขัดหรือแย้งกับข้อกำหนดฉบับนี้จนกว่าจะมีประกาศ และระเบียบ หรือคำสั่งในเรื่องนั้น ๆ ออกมาใช้บังคับ

ข้อ ๒๑ ให้ผู้ที่ปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่ไม่มีความซับซ้อนอยู่ก่อนวันที่ข้อกำหนดนี้มีผลใช้บังคับดำเนินการปรับปรุงมาตรฐานการปฏิบัติการบินของตนตามมาตรฐานที่กำหนดไว้ในข้อกำหนดนี้ภายในสามปีนับแต่วันที่ข้อกำหนดนี้มีผลใช้บังคับ

ข้อ ๒๒ ให้ผู้ที่ปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อนอยู่ก่อนวันที่ข้อกำหนดนี้มีผลใช้บังคับดำเนินการยื่นคำขอหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ตามข้อ ๑๑ ต่อผู้อำนวยการกำหนดภายใน ๑๘๐ วันนับแต่วันที่ข้อกำหนดนี้มีผลใช้บังคับ และให้ปฏิบัติการบินทั่วไปโดยใช้อากาศยานที่มีความซับซ้อนต่อไปได้จนกว่าผู้อำนวยการจะไม่ออกหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) ให้ ทั้งนี้ เมื่อได้รับหนังสืออนุญาตสำหรับผู้ปฏิบัติการบินทั่วไปที่ได้แสดงเจตนา (Letter of Authorisation for Declared Operator) จะต้องปรับปรุงมาตรฐานการปฏิบัติการบินทั่วไปของตนตามแผนการดำเนินการที่ผู้อำนวยการกำหนดให้แล้วเสร็จภายในวันที่ ๑ กันยายน ๒๕๗๒

ประกาศ ณ วันที่ ๓๐ มกราคม พ.ศ. ๒๕๖๙
พลอากาศเอก มนัท ชวนะประยูร
ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทย

สำนักงานการบินพลเรือนแห่งประเทศไทย
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THAILAND CIVIL AVIATION REGULATION (TCAR)

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FOREWORD

Having regard to section 15/7 section 15/8 of Air Navigation Act, 14th Amendment B.E.2562, whereas the Civil Aviation Authority of Thailand (CAAT) shall have the duties and responsibilities for regulating and oversight on the Safety, Security and Facilitation of civil aviation in Thailand. In regulating and oversight civil aviation to promote sustainable development on civil aviation industry, The CAAT shall also proceed to comply with the Convention on International Civil Aviation, ICAO Annexes and International Standards.

Having regard to the Air Navigation Act and to the essential requirements for air operations laid down in annex 01 to this regulation, the CAAT issued detailed requirements contained in this "TCAR OPS Air Operations" regulation as well as in TCAR OPS Parts.

By the virtue of section 6/1 section 15/10 paragraph 1 (1) and paragraph 2 of Air Navigation Act, 14th Amendment B.E.2562, which contain provisions relating to the power of The Director General of Civil Aviation of Thailand to lay down necessary measures or actions for the oversight of civil aviation and the safety standard of the Civil Aviation Authority of Thailand, The Director General of Civil Aviation of Thailand, hereby issued the regulation concerning the operations of aircraft as detailed in TCAR OPS Air Operations regulation and TCAR OPS Parts.

By the virtue of the Requirement of the Civil Aviation Authority of Thailand No. 116 on the General Aviation Operations to prescribe the essential requirements for air operations laid down in this regulation, the CAAT issued detail requirements contained in this " TCAR OPS Air Operations regulation " as well as in TCAR OPS Parts including Cover Regulation to TCAR OPS and TCAR OPS Part NCC and NCO.

This Cover regulation to TCAR OPS and TCAR OPS Parts contains an Introduction Definition and Principles of TCAR OPS as well as TCAR OPS Parts and the provisions for the transition for General Aviation operations.

SECTION I – INTRODUCTION AND PRINCIPLES

Article 1 – Introduction

In this publication the word 'must' or 'shall' is used to indicate where the Director General requires the Organisation, owner or operator to respond to and comply with, or adhere closely to, the defined requirement.

If the Organisation's/owner's/operator's response is deemed to be inadequate by the Director General, a specific requirement or restriction may be applied as a condition of the appropriate instrument to be issued under Thailand Civil Aviation Regulations.

Article 2 – Definitions

For the purpose of this Regulation, the following definitions apply:

(1) 'Acceptable means of compliance (AMC)' means non-binding standards adopted by the CAAT to illustrate means to establish compliance with the requirements of the regulations;

(2) 'Alternative means of compliance (AMoC)' means those means that propose an alternative to an existing AMC or those that propose new means to establish compliance with the requirements of the regulations for which no associated AMC have been adopted by the CAAT;

(3) 'Aeroplane' means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under certain conditions of flight;

(4) 'Aerodrome' means a defined area, on land or on water, on a fixed, fixed offshore or floating structure, including any buildings, installations and equipment thereon, intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;

(5) 'Aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth's surface;

(6) 'Aircraft operator' means any legal or natural person operating or proposing to operate one or more aircraft;

(7) 'Aircrew' means flight crew and cabin crew member;

(8) 'Approved training organisation (ATO)' means an organisation which is entitled to provide training to pilots on the basis of an approval issued by the CAAT;

(9) 'Basic Instrument Training Device (BITD)' means a ground-based training device for the training of pilots representing the student pilot's station of a class of aeroplanes, which may use screen-based instrument panels and spring-loaded flight controls, and providing a training platform for at least the procedural aspects of instrument flight;

(10) 'Cabin crew member' means an appropriately qualified crew member, other than a flight crew or technical crew member, who is assigned by an operator to perform duties related to the safety of passengers and flight during operations;

(11) 'Certificate' means any certificate, approval, licence, authorisation, or other document issued as the result of a certification attesting compliance with the applicable requirements;

(12) 'Certification' means any form of recognition in accordance with this Regulation, based on an appropriate assessment, that a legal or natural person, product, part, non-installed equipment, equipment to control unmanned aircraft remotely, aerodrome, safety-related aerodrome equipment, ATM/ANS system, ATM/ANS constituent or other organisation, or flight simulation training device

complies with the applicable requirements of this Regulation and of the delegated and implementing acts adopted on the basis thereof, through the issuance of a certificate attesting such compliance;

(13) 'Certification specifications (CS)' mean technical standards adopted or accepted by the CAAT indicating means to be used by an organisation for the purpose of certification;

(14) 'Chicago Convention' means the Convention on International Civil Aviation and the Annexes thereto, signed in Chicago on 7 December 1944;

(15) 'Commercial air transport' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration;

(16) 'Complex Motor-Powered Aircraft' (CMPA) shall mean:

(i) an aeroplane:

- with a maximum certificated take-off mass exceeding 5 700 kg, or
- certificated for a maximum passenger seating configuration of more than nineteen, or
- certificated for operation with a minimum crew of at least two pilots, or
- equipped with (a) turbojet engine(s) or more than one turboprop engine, or

(ii) a helicopter certificated:

- for a maximum take-off mass exceeding 3 175 kg, or
- for a maximum passenger seating configuration of more than nine, or
- for operation with a minimum crew of at least two pilots, or

(iii) a tilt rotor aircraft.

(17) 'Credit' means the recognition of prior experience or qualifications;

(18) 'Declaration' means a written statement made in accordance with this TCAR OPS Air Operations regulation, TCAR OPS Parts, TCAR PEL FCL/TO or TCAR PEL Parts under the sole responsibility of a legal or natural person subject to these regulations and which confirms that the applicable requirements of this regulation relating to an operator or organisation are complied with;

(19) 'Declared organisation' means an organisation which is approved or authorised to perform operations on the basis of a declaration made in accordance with this TCAR OPS Air Operations regulation, TCAR OPS Parts, TCAR PEL FCL/TO or TCAR PEL Parts;

(20) 'Flight simulation training device' means any type of device in which flight conditions are simulated on the ground, including flight simulators, flight training devices, flight and navigation procedures trainers and basic instrument training devices;

(21) 'Foreign operator' means a non-commercial operator who owns aircraft with foreign registration marks and has their principal place of business in the Kingdom of Thailand.

(22) FSTD categories are:

(i) in the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT) or a basic instrument training device (BITD);

(ii) in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT).

(23) 'Helicopter' means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes;

(24) 'Principal place of business' of an organisation means the head office or registered office of the organisation within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;

(25) 'TCAR PEL - FCL licence' means a flight crew licence which complies with the requirements of TCAR PEL Part FCL.

(26) 'TCAR OPS NC' means this regulation serving as the cover regulation for TCAR OPS Part NCC and Part NCO

Article 3 – Objective

(1) The principal objective of TCARs regulations is to establish and maintain a high uniform level of civil aviation safety in the Kingdom of Thailand.

(2) TCARs Regulations further aims to:

(a) contribute to the Thailand aviation safety policy and to the improvement of the overall performance of the civil aviation sector;

(b) facilitate the mutual recognition of goods, persons, services and capital, providing a level playing field for all actors in the ASEAN market, and improve the competitiveness of the Thai aviation industry;

(c) facilitate the movement of goods, services and personnel worldwide, by promoting the mutual acceptance of certificates and other relevant documents;

(d) promote cost-efficiency, avoiding duplication, and promoting effectiveness in regulatory, certification and oversight processes;

(e) promote, worldwide, the views of the Kingdom of Thailand regarding civil aviation standards and civil aviation regulations;

(f) support passenger confidence in a safe civil aviation.

Article 4 – Subject matter and Scope

(1) This TCAR OPS Non-Commercial operations regulation as well as TCAR OPS Parts NCC and NCO and other Air Operations regulations lays down:

(a) the different types of authorisations and approvals required for:

a. non-commercial operations with aeroplanes and helicopters;

b. operations in specific conditions that require a specific approval from the CAAT.

(b) the requirements for non-commercial with complex motor powered aircraft;

(c) the requirements for operations requiring a specific approval;

(d) the requirements for issuing, maintaining, amending, limiting, suspending or revoking the authorisations granted to Air operators performing non-commercial operations with complex motor-powered aircrafts, aeroplanes and/or helicopters;

(e) the requirements for issuing, maintaining, amending, limiting, suspending or revoking the authorisations granted to Air operators performing operations requiring a specific approval;

(f) the requirements for Air operators performing non-commercial operations with other than complex motor-powered aircrafts, aeroplanes and/or helicopters.

(2) Operations covered by this TCAR OPS Air operations regulation and TCAR OPS Parts are operations of aeroplanes and helicopters, which having their principal place of business in the Kingdom of Thailand.

(3) This Regulation does not apply to air operations with airships, balloons, powered-lifts, ultralights and gliders.

SECTION II – Non-Commercial Air Operations

Article 5 - Non-commercial operations with CMPA

(1) An Operator shall only operate a CMPA for the purpose of non-commercial operations if it holds an authorisation for non-commercial operations with CMPA issued in accordance with TCAR OPS Part ORO and appropriate for the type of operations to be performed;

(2) An operator shall only be issued a TCAR OPS authorisation for non-commercial operations with CMPA when it was found compliant with the detailed requirements contained in this regulation and in TCAR OPS Part ORO and Part NCC applicable to the type of operations to be performed.

(3) An authorisation for non-commercial operations with CMPA may be limited, suspended or revoked when the holder does not comply with the applicable detailed requirements contained in this regulation and in TCAR OPS Part ORO and Part NCC applicable to the type of operations to be performed.

(4) Flight and duty time limitations for non-commercial operations with CMPA shall be implemented in compliance with the detailed requirements contained in Notification of the Civil Aviation Authority of Thailand on Flight Time and Flight Duty Period Limitation.

(5) By derogation to (1), operators of complex motor- powered aeroplanes with a maximum certificated take-off mass (MCTOM) at or below 5 700 kg, equipped with turboprop engines, involved in non-commercial operations are not required to submit a declaration and do not need to obtain authorisation from the CAAT.

(6) By derogation to (2), operators of complex motor- powered aeroplanes with a maximum certificated take-off mass (MCTOM) at or below 5 700 kg, equipped with turboprop engines, involved in non-commercial operations may operate those aircraft in accordance with TCAR OPS Part NCO.

Article 6 - Non-commercial operations with other than CMPA

(1) An Operator shall only operate other than CMPA for the purpose of non-commercial operations, as specified in TCAR OPS Part NCO.

(2) By derogation from Article 5 of the TCAR OPS Air Operations regulation, the following operations with other than CMPA, may be conducted in accordance with TCAR OPS Part NCO:

(a) cost-shared flights by private individuals, on the condition that the direct cost is shared by all the occupants of the aircraft, pilot included and the number of persons sharing the direct costs is limited to six;

(b) competition flights or flying displays, on the condition that the remuneration or any valuable consideration given for such flights is limited to recovery of direct costs and a proportionate contribution to annual costs, as well as prizes;

(c) introductory flights, parachute dropping, glider towing or aerobatic flights performed either by a training organisation having its principal place of business in the Kingdom of Thailand and approved in accordance with TCAR PEL, or by an organisation created with the aim of promoting aerial sport or leisure aviation, on the condition that the aircraft is operated by the organisation on the basis of ownership or dry lease, that the flight does not generate profits distributed outside of the organisation, and that whenever non-members of the organisation are involved, such flights represent only a marginal activity of the organisation.

Article 7 – Training Organisations

(1) An ATO shall only operate a CMPA aircraft for the purpose of flying training as specified in TCAR PEL Part ORA and TCAR OPS Part NCC.

(2) An ATO shall only operate an aircraft other than CMPA for the purpose of flying training as specified in TCAR PEL Part ORA and TCAR OPS Part NCO.

(3) An ATO shall only be issued a TCAR PEL ATO approval when it was found compliant with the detailed requirements contained in this regulation and in TCAR PEL Part ORA and TCAR OPS Part NCC or Part NCO as applicable to the type of aircraft to be operated.

(4) An ATO approval may be limited, suspended or revoked when the holder does not comply with the applicable detailed requirements contained in this regulation and in TCAR PEL Part ORA and TCAR OPS Part NCC or Part NCO as applicable to the type of aircraft to be operated.

(5) A Declared Training Organisation (DTO) shall only operate an aircraft other than CMPA for the purpose of flight training as specified in TCAR PEL Part DTO and TCAR OPS Part NCO;

(6) A DTO shall only be issued a TCAR PEL DTO approval when it was found compliant with the detailed requirements contained in this regulation and in TCAR PEL Part DTO and TCAR OPS Part NCO.

(7) A DTO approval may be limited, suspended or revoked when the holder does not comply with the applicable detailed requirements contained in this regulation and in TCAR PEL Part DTO and TCAR OPS Part NCO.

(8) Flight and duty time limitations for training organisations shall be implemented in compliance with the detailed requirements contained in Notification of the Civil Aviation Authority of Thailand On Flight Time and Flight Duty Period Limitation.

(9) By derogation to (1) of this article, operators of complex motor- powered aeroplanes with a maximum certificated take-off mass (MTOM) at or below 5 700 kg, equipped with turboprop engines, involved in non-commercial operations, may operate those aircraft in accordance with TCAR OPS Part NCO.

SECTION III – Operations requiring a specific approval

Article 8 – Operations requiring a specific approval

(1) An operator or an ATO shall only operate an aircraft for the type of operations listed in (3) of this article if it holds a specific approval issued by the CAAT in accordance with TCAR OPS Part SPA;

(2) An operator or an ATO shall only be issued a TCAR OPS authorisation for operations requiring a specific approval when it was found compliant with the detailed requirements contained in this TCAR OPS Air Operations regulation and in TCAR OPS Part SPA applicable to the type of operations to be performed;

(3) Specific approval from the CAAT is required for operations with:

(a) aeroplanes and helicopters used for:

(i) Operations in airspace, routes or approaches that require compliance with the following PBN Specifications:

- RNP AR APCH; and
- RNP 0.3 for helicopter operation

(ii) operations in airspace requiring compliance with minimum navigation performance specifications (MNPS);

(iii) operations in airspace where a reduced vertical separation minimum of 300 m (1000 ft) applies (RVSM);

(iv) Low-visibility operations (LVOs) and operations with operational credits;

(v) the transport of dangerous goods (DG).

(b) helicopters used for:

(i) operations under VFR at night with the aid of night vision imaging systems (NVIS);

(ii) offshore operations for specialised operations and non-commercial operations with complex helicopters (HOFO);

(iii) helicopter point-in-space approaches and departure with reduced VFR minima (PinS)

(4) A specific approval may be limited, suspended or revoked when the holder does not comply with the applicable detailed requirements contained in this TCAR OPS Air Operations regulation and in TCAR OPS Part SPA applicable to the type of operations to be performed.

SECTION IV – Provisions for the transition

Article 9 – Entry into force and application

(1) This TCAR OPS NC regulation as well as TCAR OPS Parts NCC and NCO, shall enter into force on 01 March 2026.

(2) This TCAR OPS Air Operations regulation as well as TCAR OPS Parts shall be fully applicable and binding in their entirety from the 01 September 2029 Beyond this date, operators shall comply with the detailed requirements contained in this TCAR OPS Air Operations regulation and TCAR OPS Parts and shall have obtained, from the CAAT, the appropriate certificate, approval or authorisation issued in accordance with this TCAR OPS Air Operations regulation and TCAR OPS Parts as applicable.

(3) Between the date in (1) and the date in (2), the transition period operators shall comply with the provisions contained in this Section.

Article 10 – Equivalence of regulations

(1) During the transition period, when compliance with the detailed requirements contained in this TCAR OPS NC regulation and in TCAR Parts has been demonstrated to the CAAT:

(a) for a training programme or course for flight crew, as well as corresponding instructors and examiners;

(b) for checking and assessment of flight crew, as well as corresponding instructors and examiners;

(c) for the requirements applicable to air operators in terms of organisation, management system, personnel, facilities as well as manuals, operating procedures and records;

(d) for crew composition;

(e) for specific approvals;

(f) for flight time limitations;

(g) for performance and operating limitations;

(h) for instrument, data and equipment.

It shall be considered by the CAAT that compliance with corresponding requirements in regulations in force before the entry into force of this TCAR OPS NC regulation and corresponding TCAR OPS Parts, is also achieved.

(2) Operators may propose to comply with some provisions of TCAR OPS NC regulation and TCAR OPS Parts by anticipation without waiting for limit dates listed in this section. This shall be formally agreed by the CAAT.

(3) In such cases the CAAT may impose any related requirement.

Article 11 – Change Management and Transition Plan to TCAR OPS

(1) A non-commercial operator using CMPA shall perform a change management process before implementing the organisational, procedural and documentation changes planned to comply with this TCAR OPS Air Operations regulation and TCAR OPS Parts. This change management process shall, in particular, assess and mitigate:

(a) the risk of pairing of crews with different levels of training;

(b) the risk that members of a same crew use different procedures.

(2) Non-commercial operators using CMPA shall plan for the transition to TCAR OPS considering the dates not to exceed in article 23.

Article 12 – Management system

(1) Non-commercial operators using CMPA shall comply with the following requirements during the transition period:

(a) Personnel involved in compliance monitoring shall have received a training to TCAR OPS provisions, accepted by the CAAT, before submission of documents or declaration made in accordance with this TCAR OPS NC regulation and TCAR OPS Parts or 1 March 2028;

(b) The operator shall have performed a compliance audit of the operator covering all aspects of the operator before submission of any declaration made in accordance with the detailed requirements contained in this TCAR OPS NC regulation and TCAR OPS Parts. The results of such audit shall be provided to the CAAT with the declaration required in TCAR OPS Part ORO;

(c) Declaration as well as other documents submitted to the CAAT, shall be supported by a statement from the person in charge of the compliance management that the documents submitted were verified and found in compliance with applicable TCAR OPS NC regulation and TCAR OPS Parts.

Article 13 – Use of Operating procedures

Revised procedures applicable to flight crews, cabin crew members and flight operations officers contained in Operations Manual (OMA and OMB) to comply with this TCAR OPS NC regulation and TCAR OPS Parts shall not be implemented until the flight crews and cabin crew members involved have been trained to these procedures.

Article 14 – Validity of training delivered before the entry into force of TCAR OPS

Trainings delivered to personnel involved in operations of aircraft, including management personnel and other personnel of an operator delivered before the entry into force of TCAR OPS NC regulation and TCAR OPS Parts in accordance with training programmes approved by the CAAT in accordance with the regulations in force at that time may be considered as valid to demonstrate compliance with the equivalent requirements of TCAR OPS NC regulation and TCAR OPS Parts .

Article 15 – Flight crew training

Operators performing non-commercial operations in accordance with TCAR OPS Part NCC or Part NCO shall comply with the applicable detailed requirements for training of Flight Crew contained in this TCAR OPS NC regulation and TCAR OPS Parts before to be granted an approval and/or authorisation in accordance with TCAR OPS NC regulation and TCAR OPS Parts.

Article 16 – Cabin crew training

(1) For cabin crew members, not holding a valid cabin crew attestation, who have already acquired experience as cabin crew member in operations other than CAT, credit may be granted to the elements of the initial training programme he/she has previously completed if such training elements are documented in his/her training records.

(2) In such a case, the operator should ensure that:

(a) the full training programme, as specified in TCAR OPS Part CC, has been covered; and

(b) cabin crew member passed the associated examination.

(3) Credits granted in accordance with (1) of this article shall be considered as valid to obtain a cabin crew attestation.

Article 17 – Training to TCAR OPS

The training programmes for flight crews, cabin crew members, flight operations officers and other personnel shall include the necessary elements for the transition to TCAR OPS.

Article 18 – Validity of Specific approvals granted before the entry into force of TCAR OPS

(1) During the transition period, operators who obtained specific approvals in accordance with the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts may continue to perform these operations as follows:

(a) for non-commercial operators using CMPA existing authorisation for operations requiring specific approval shall remain valid until 29 February 2028, unless such authorisation expires before. From 01 March 2028, such operators shall only perform operations requiring specific approval for which they have obtained authorisation from the CAAT in accordance with TCAR OPS NC and corresponding TCAR OPS Parts;

(b) for non-commercial operators using other than CMPA and non-commercial operators performing specialised operations using other than CMPA, existing authorisation for operations requiring specific approval shall remain valid until 31 July 2029. From 01 August 2029, such operators shall only perform operations requiring specific approval for which they have obtained authorisation from the CAAT in accordance with TCAR OPS NC and corresponding TCAR OPS Parts;

(c) for authorisations expiring before 01 September 2027, such authorisation may be renewed using the detail requirement contained in the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts;

(d) for authorisation expiring on or after 01 September 2027, such authorisation shall be renewed in accordance with TCAR OPS NC and corresponding TCAR OPS Parts. In accordance with article 10 on the equivalence of the regulations, such specific approval shall be added to the Specific Approval issued in accordance with the regulations in force before the entry into force this TCAR OPS Air Operations regulation and TCAR OPS Parts.

(2) The detailed requirements for the issuance of some specific approvals contained in TCAR OPS Part SPA being equivalent to the provisions contained in the regulations applicable before the entry into force of this TCAR OPS NC regulations and TCAR OPS Parts, these specific approvals granted in accordance with previous regulations shall be considered by the CAAT as compliant with the detailed requirements contained in TCAR OPS NC regulation and TCAR OPS Parts and shall not require any specific demonstration from the operator to obtain the corresponding TCAR OPS specific approval.

(3) The specific approvals stated in (2) are:

(a) The following Performance-Based Navigation (PBN) approvals:

(i) RNP AR APCH for aeroplanes and helicopters; or

(ii) RNP 0.3 for helicopters.

(b) Operations in Airspace with Reduced Vertical Separation Minima (RVSM);

(c) Dangerous Goods.

Article 19 – Granting of a Specific approval during the transition period

(1) During the transition period, Specific approvals may continue to be granted to operators in accordance with the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until 31 August 2027. Such specific approvals shall be added to the Specific Approval issued in accordance with the regulations in force before the entry into force this TCAR OPS NC and corresponding TCAR OPS Parts.

(2) From the 01 September 2027, specific approvals shall be granted using the detailed requirements contained in this TCAR OPS NC and in TCAR OPS Part SPA. In accordance with article 10 on the equivalence of the regulations, such specific approval shall be added to the Specific Approval issued in accordance with the regulations in force before the entry into force this TCAR OPS NC and corresponding TCAR OPS Parts.

(3) Any specific approval granted using the detailed requirements contained in this TCAR OPS NC and in TCAR OPS Part SPA, as specified in (2) of this article shall be added to the Specific Approval issued in accordance with TCAR OPS without requiring further demonstration for the issuance of their TCAR OPS Specific Approval as applicable to the type of operations.

(4) Notwithstanding (2), specific approvals for PBN operations listed in Article 20 (2) may continue to be granted for additional PBN navigation specifications beyond 01 September 2027. In such cases the approval shall be granted using the detailed requirements contained in the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until the operator obtains an authorisation issued in accordance with TCAR OPS.

Article 20 – Specific approvals for PBN operations

(1) For non-commercial operators to continue performing those PBN operations that require a specific approval according to the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts but do not require a specific approval in accordance with TCAR OPS NC and corresponding TCAR OPS Parts, operators shall:

(a) Hold the appropriate specific approval, issued in accordance with the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until 01 March 2029 for non-commercial operators using CMPA and until 01 September 2029 for non-commercial operators using other than CMPA;

(b) continue to operate for the approved PBN operations in accordance with the procedures approved in accordance with the regulations applicable before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until issuance of their authorisation in accordance with TCAR OPS NC and corresponding TCAR OPS Parts.

(2) PBN operations mentioned in (1) and (2) that require a specific approval according to the regulations in force before the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts but do not require a specific approval in accordance with TCAR OPS Air Operations regulation and TCAR OPS Parts are:

(a) RNAV 10;

(b) RNAV 5;

(c) RNAV 2;

(d) RNAV 1;

(e) RNP 4;

(f) RNP 2;

(g) RNP 1;

(h) A-RNP;

(i) RNP APCH (LNAV);

(j) RNP APCH (LNAV/VNAV);

(k) RNP APCH (LP);

(l) RNP APCH (LPV).

(3) PBN operations mentioned in (2) do not require a specific approval in accordance with TCAR OPS NC and corresponding TCAR OPS Parts. The corresponding PBN specification will not be endorsed on the specific approval granted to the operators in accordance with TCAR OPS NC and corresponding TCAR OPS Parts. However, operators shall comply with the detailed requirements for airworthiness approval, crew training, operating procedures and monitoring programs as required in TCAR OPS Part ORO, Part NCC and Part NCO as applicable to the type of PBN operations to be performed.

Article 21 – Specific approvals for MNPS operations

(4) For non-commercial operators to continue performing MNPS operations, operators shall:

(a) Hold the appropriate specific approval, issued in accordance with the regulations in force before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until the obtain specific approval in accordance with TCAR OPS NC and corresponding TCAR OPS Parts;

(b) Continue operating for the approved MNPS operations in accordance with the procedures approved in accordance with the regulations applicable before the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts until issuance of specific approval in accordance with TCAR OPS NC and corresponding TCAR OPS Parts;

(c) Obtain a specific approval issued in accordance with TCAR OPS not later than 01 September 2027. In accordance with article 10 on the equivalence of the regulations, such specific approval shall be added to the Specific Approval issued in accordance with the regulations in force before the entry into force this TCAR OPS NC and corresponding TCAR OPS Parts.

Article 22 – Transition for training organisations

The requirements for the transition of existing training organisations are detailed in TCAR PEL FCL/TO AirCrew Licensing, and Training organisations**.**

Article 23 – Transition for operators performing non-commercial operations with Complex Motor-Powered Aircraft

(1) Operators starting non-commercial operations with CMPA after the entry into force of this TCAR OPS NC and TCAR OPS Parts shall file a declaration and obtain a CAAT authorisation in accordance with TCAR OPS Part ORO.

(2) To continue performing non-commercial operations with CMPA, operators shall comply:

(a) with the provisions contained in article 11 of this regulation;

(b) with the provisions contained in article 12 of this regulation.

(3) Operators performing non-commercial operations with CMPA before the entry into force of this TCAR OPS NC and TCAR OPS Parts may continue to operate provided that:

(a) the operator provides to the CAAT, the plan required by Article 11 of this TCAR NC not later than 30 September 2027.

(b) the operator provides to the CAAT, not later than 28 February 2029, the declaration and the information required by TCAR OPS Part ORO;

(c) the operator obtains from the CAAT the authorisation required under TCAR OPS Part ORO not later than 01 September 2029.

(4) To continue performing non-commercial operations with CMPA after the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts, operators shall:

(a) verify the compliance to TCAR OPS Part NCC Subpart IDE of each aircraft in their fleet and for each aircraft that enters their fleet during the transition;

(b) the verification in (a) shall also include the compliance to the other specific requirements of TCAR OPS Part SPA as applicable to type of operations authorised to be performed with a specific aircraft;

(c) provide the corresponding status containing the status of compliance required in (a) and (b) to the CAAT, not later than 31 August 2027;

(d) in case the status in (c) contains non-compliances with TCAR OPS Part NCC Subpart IDE, the operator shall provide to the CAAT a plan to comply with TCAR OPS Part NCC Subpart IDE not later than 31 August 2027. This plan shall demonstrate that the concerned aircraft will comply with requirement of TCAR OPS Part NCC Subpart IDE not later than 01 September 2029;

(e) in case the status in (c) shows non-compliances with TCAR OPS Part SPA requirement related to instrument data and equipment but demonstrates compliance with the regulations in force before the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts, the operator shall:

(i) inform the CAAT of its intention to continue or not the operations requiring the specific approval for which an aircraft is not compliant in term of instrument, data and equipment;

(ii) In the case the operator is willing to continue such operations, it shall provide to the CAAT a plan for the aircraft to comply with TCAR OPS Part SPA not later than 31 August 2027. This plan shall demonstrate that the concerned aircraft will comply with requirement of TCAR OPS Part SPA not later than 31 August 2029 .

(5) To continue performing non-commercial operations with CMPA after the entry into force of this TCAR OPS NC and corresponding TCAR OPS Parts, the operators shall continue to comply with the applicable airworthiness and maintenance requirements.

Article 24 – Transition for operators performing non-commercial operations with other than Complex Motor-Powered Aircraft

(1) Operators performing non-commercial operations with other than complex motor-powered aircraft shall continue to operate in accordance with the regulations applicable before the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts until 31 August 2029.

(2) Non-commercial operations with other than complex motor-powered aircraft shall be performed in accordance with TCAR OPS Part NCO from 01 September 2029.

(3) To continue performing non-commercial operations with other than CMPA after the entry into force of this TCAR OPS NCSPO and corresponding TCAR OPS Parts, the operators shall continue to comply with the applicable airworthiness and maintenance requirements.

Annex 01 Essential requirements for air operations

1. GENERAL

1.1. A flight must not be performed if the crew members and, as appropriate, all other operations personnel involved in its preparation and execution are not familiar with applicable laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes planned to be used and the air navigation facilities relating thereto.

1.2. A flight must be performed in such a way that the operating procedures specified in the Flight Manual or, where required the Operations Manual, for the preparation and execution of the flight are followed.

1.3. Before every flight, the roles and duties of each crew member must be defined. The pilot in command must be responsible for the operation and safety of the aircraft and for the safety of all crew members, passengers and cargo on board.

1.4. Articles or substances, which are capable of posing a significant risk to health, safety, property or the environment, such as dangerous goods, weapons and ammunition, must not be carried on any aircraft, unless specific safety procedures and instructions are applied to mitigate the related risks.

1.5. All necessary data, documents, records and information to record the respect of the conditions specified in point 5.3 must be retained for each flight and kept available and protected against unauthorised modification for a minimum period of time compatible with the type of operation.

2. FLIGHT PREPARATION

A flight must not be commenced unless it has been ascertained by reasonable means available that all the following conditions are complied with:

2.1. adequate facilities directly required for the flight and for the safe operation of the aircraft, including communication facilities and navigation aids, are available for the execution of the flight, taking into account available Aeronautical Information Services documentation;

2.2. the crew must be familiar with and passengers informed of the location and use of relevant emergency equipment. Sufficient information, related to the operation and specific to the equipment installed, regarding emergency procedures and use of cabin safety equipment must be made available to crew and passengers;

2.3. the pilot in command must be satisfied that:

(i) the aircraft is airworthy as specified in point 6;

(ii) if required, the aircraft is duly registered and that appropriate certificates with respect thereto are aboard the aircraft;

(iii) instruments and equipment as specified in point 5 required for the execution of that flight are installed in the aircraft and are operative, unless waived by the applicable MEL or equivalent document;

(iv) the mass of the aircraft and centre of gravity location are such that the flight can be conducted within limits prescribed in the airworthiness documentation;

(v) all cabin baggage, hold luggage and cargo is properly loaded and secured; and

(vi) the aircraft operating limitations as specified in point 4 will not be exceeded at any time during the flight;

2.4. information regarding meteorological conditions for departure, destination and, where applicable, alternate aerodromes, as well as en-route conditions, must be available to the flight crew. Special attention must be given to potentially hazardous atmospheric conditions;

2.5. appropriate mitigation measures or contingency plans must be in place to deal with potentially hazardous atmospheric conditions expected to be encountered in flight;

2.6. for a flight based on visual flight rules, meteorological conditions along the route to be flown must be such as to render compliance with those flight rules possible. For a flight based on instrument flight rules a destination and where applicable alternate aerodrome(s) where the aircraft can land must be selected, taking into account in particular the forecasted meteorological conditions, the availability of air navigation services, the availability of ground facilities and the instrument flight procedures approved by the State in which the destination and/or alternate aerodrome is located;

2.7. the amount of fuel/energy for propulsion and consumables on board must be sufficient to ensure that the intended flight can be completed safely, taking into account the meteorological conditions, any element affecting the performance of the aircraft and any delays that are expected in flight. In addition, a fuel/energy reserve must be carried to provide for contingencies. Procedures for in-flight fuel/energy management must be established when relevant.

3. FLIGHT OPERATIONS

With regard to flight operations, all the following conditions must be complied with:

3.1. where relevant for the type of aircraft, during take-off and landing, and whenever deemed necessary by the pilot in command in the interest of safety, each crew member must be seated at their crew station and must use the provided restraint systems;

3.2. where relevant for the type of aircraft, all flight crew members required to be on flight deck duty must be and remain at their station, with their seatbelts fastened except en-route for physiological or operational needs;

3.3. where relevant for the type of aircraft and the type of operation, before take-off and landing, during taxiing and whenever deemed necessary in the interest of safety, the pilot in command must ensure that each passenger is properly seated and secured;

3.4. a flight must be performed in such a way that appropriate separation from other aircraft is maintained and that adequate obstacle clearance is ensured, during all phases of the flight. Such separation must at least be those required by the applicable rules of the air, as appropriate to the type of operation;

3.5. a flight must not be continued unless known conditions continue to be at least equivalent to those in point 2. Furthermore, for a flight based on instrument flight rules, an approach toward an aerodrome must not be continued below certain specified heights or beyond a certain position, if prescribed visibility criteria are not met;

3.6. in an emergency, the pilot in command must ensure that all passengers are instructed in such emergency action as may be appropriate to the circumstances;

3.7. a pilot in command must take all necessary measures so as to minimise the consequences on the flight of disruptive passenger behaviour;

3.8. an aircraft must not be taxied on the movement area of an aerodrome, or its rotor must not be turned under power, unless the person at the controls is appropriately competent;

3.9. the applicable in-flight fuel/energy management procedures must be used, when relevant.

4. AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

4.1. An aircraft must be operated in accordance with its airworthiness documentation and all related operating procedures and limitations as expressed in its approved flight manual or equivalent documentation, as the case may be. The flight manual or equivalent documentation must be available to the crew and kept up to date for each aircraft.

4.2. Notwithstanding point 4.1, for operations with helicopters a momentary flight through the limiting height velocity envelope may be permitted, provided that safety is ensured.

4.3. The aircraft must be operated in accordance with the applicable environmental documentation.

4.4. A flight must not be commenced or continued unless the aircraft's scheduled performance, considering all factors which significantly affect its performance level, allows all phases of flight to be executed within the applicable distances/areas and obstacle clearances at the planned operating mass. Performance factors which significantly affect take-off, en-route and approach/landing are, particularly:

(a) operating procedures;

(b) pressure altitude of the aerodrome;

(c) weather conditions (temperature, wind, precipitation and visual range);

(d) size, slope and condition of the take-off/landing area; and

(e) the condition of the airframe, the power plant or the systems, taking into account possible deterioration.

4.5. Such factors must be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data, as appropriate to the type of operation.

5. INSTRUMENTS, DATA AND EQUIPMENT

5.1. An aircraft must be equipped with all navigation, communication and other equipment necessary for the intended flight, taking account of air traffic regulations and rules of the air applicable during any phase of the flight.

5.2. When relevant, an aircraft must be equipped with all necessary safety, medical, evacuation and survival equipment, taking account of the risks associated to the areas of operation, the routes to be flown, the flight altitude and the duration of the flight.

5.3. All data necessary for the execution of the flight by the crew must be updated and available on board the aircraft taking account of applicable air traffic regulations, rules of the air, flight altitudes and areas of operation.

6. CONTINUING AIRWORTHINESS AND ENVIRONMENTAL COMPATIBILITY OF PRODUCTS

6.1. The aircraft must not be operated unless:

(a) the aircraft is airworthy and in a condition for safe and environmentally compatible operation;

(b) the operational and emergency equipment necessary for the intended flight is serviceable;

(c) the airworthiness document and, if applicable, the noise certificate of the aircraft is valid; and

(d) the maintenance of the aircraft is performed in accordance with the applicable requirements.

6.2. Before each flight or a series of consecutive flights, the aircraft must be inspected, through a pre-flight check, to determine whether it is fit for the intended flight.

6.3. The aircraft must not be operated unless it is released to service by qualified persons or organisations, after maintenance. The signed release to service must contain in particular, the basic details of the maintenance carried out.

6.4. Records necessary to demonstrate the airworthiness and environmental compatibility status of the aircraft must be kept, and protected against, unauthorised modification for the period of time corresponding to the applicable continuing airworthiness requirements, until the information contained has been superseded by new information equivalent in scope and detail but in any event not less than 24 months.

6.5. All modifications and repairs must comply with the essential requirements for airworthiness and, if applicable, the environmental compatibility of products. The substantiating data supporting compliance with the airworthiness requirements and requirements for the environmental compatibility of products must be retained and protected against unauthorised modification.

6.6. It is the responsibility of the aircraft operator to ensure that a third party performing the maintenance complies with the operator's safety and security requirements.

7. CREW MEMBERS

7.1. The number and composition of the crew must be determined taking into account:

(a) the certification limitations of the aircraft, including if applicable, the relevant emergency evacuation demonstration;

(b) the aircraft configuration; and

(c) the type and duration of operations.

7.2. The pilot in command must have the authority to give all commands and take any appropriate actions for the purpose of securing the operation and the safety of the aircraft and of persons and/or property carried therein.

7.3. In an emergency situation, which endangers the operation or the safety of the aircraft and/or persons on board, the pilot in command must take any action he/she considers necessary in the interest of safety. When such action involves a violation of local regulations or procedures, the pilot in command must be responsible for notifying the appropriate local authority without delay.

7.4. Without prejudice to point 8.12, when other persons are carried on board, emergency or abnormal situations may only be simulated if those persons have been duly informed and are aware of the associated risks before boarding the flight.

7.5. No crew member must allow their task achievement/decision making to deteriorate to the extent that flight safety is endangered because of the effects of fatigue, taking into account, inter alia, fatigue accumulation, sleep deprivation, number of sectors flown, night duties or time zone changes. Rest periods must provide sufficient time to enable crew members to overcome the effects of the previous duties and to be well rested by the start of the following flight duty period.

7.6. A crew member must not perform allocated duties on board an aircraft when under the influence of psychoactive substances or alcohol or when unfit due to injury, fatigue, medication, sickness or other similar causes.

8. ADDITIONAL REQUIREMENTS FOR OTHER OPERATIONS SUBJECT TO A CERTIFICATION OR DECLARATION REQUIREMENT PERFORMED WITH AEROPLANES, HELICOPTERS OR TILT ROTOR AIRCRAFT

8.1. The operation must not be undertaken unless the following conditions are met:

(a) the aircraft operator must have directly or through agreements with third parties the means necessary for the scale and scope of the operations. Those means comprise but are not limited to the following: aircraft, facilities, management structure, personnel, equipment, documentation of tasks, responsibilities and procedures, access to relevant data and record keeping;

(b) the aircraft operator must use only suitably qualified and trained personnel and implement and maintain training and checking programmes for the crew members and other relevant personnel that are necessary to ensure the currency of their certificates, ratings and qualifications;

(c) as appropriate for the type of activity undertaken and the size of the organisation, the aircraft operator must implement and maintain a management system to ensure compliance with the essential requirements set out in this Annex, manage safety risks and aim for continuous improvement of this system;

(d) the aircraft operator shall establish an occurrence reporting system, as part of the management system under point (c), in order to contribute to the aim of continuous improvement of the safety. The occurrence reporting system shall be compliant with applicable regulation in force in Thailand.

8.2. The operation must only be undertaken in accordance with an aircraft operator's operations manual. Such manual must contain all necessary instructions, information and procedures for all aircraft operated and for operations personnel to perform their duties. Limitations applicable to flight time, flight duty periods and rest periods for crew members must be specified. The operations manual and its revisions must be compliant with the approved flight manual and be amended as necessary.

8.3. The aircraft operator shall establish procedures, as appropriate, so as to minimise the consequences to safe flight operations of disruptive passenger behaviour.

8.4. The aircraft operator must develop and maintain security programmes adapted to the aircraft and the type of operation including particularly:

(a) security of the flight crew compartment;

(b) aircraft search procedure checklist;

(c) training programmes; and

(d) protection of electronic and computer systems to prevent intentional and non-intentional system interference and corruption.

8.5. When security measures may adversely affect the safety of operations, the risks must be assessed and appropriate procedures developed to mitigate safety risks, this may necessitate the use of specialist equipment.

8.6. The aircraft operator must designate one pilot amongst the flight crew as the pilot in command.

8.7. The prevention of fatigue must be managed through a fatigue management system. For a flight, or series of flights, such a system needs to address flight time, flight-duty periods, duty and adapted rest periods. Limitations established within the fatigue management system must take into account all relevant factors contributing to fatigue such as, in particular, number of sectors flown, time-zone crossing, sleep deprivation, disruption of circadian cycles, night hours, positioning, cumulative duty time for given periods of time, sharing of allocated tasks between crew members, and also the provision of augmented crews.

8.8. The aircraft operator must ensure that the tasks specified in point 6.1 and those described in points 6.4 and 6.5 are controlled by an organisation responsible for the continuing airworthiness management that must meet the applicable requirements.

8.9. The aircraft operator must ensure that the release to service required by point 6.3 is issued by an organisation qualified for the maintenance of products, parts and not-installed equipment. This organisation shall meet the applicable requirements.

8.10. The organisation referred to in 8.8 shall establish an organisation manual providing, for use and guidance of personnel concerned, a description of all continuing airworthiness procedures of the organisation.

8.11. A checklist system must be available for use, as applicable, by crew members in all phases of operation of the aircraft under normal, abnormal and emergency conditions and situations. Procedures must be established for any reasonably foreseeable emergency situation.

8.12. Emergency or abnormal situations must not be simulated when passengers or cargo are being carried.

สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Thailand Civil Aviation Regulation - Air Operations Part Non - commercial operations with other than complex motor - powered aircraft (TCAR OPS Part-NCO)

Issue 01

Revision 00

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Approved By

Air Chief Marshal

Manat Chavanaprayoon

Director General

The Civil Aviation Authority of Thailand

Thailand Civil Aviation Regulation (TCAR)

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RECORD OF REVISIONS

Revision No.	Date (DD-MMM-YYYY)	Subject	Insert By (Department-Division)
00	30 JAN 2026	Initial issue including (EU) No 2019/1387, (EU) No2018/1384, (EU) No 2019/1387, (EU) No 2020/2036, (EU) No 2021/1296, (EU) No 2021/2237, (EU) 2022/2203 and (EU) 2023/217. Notably, (EU) 2023/203 was not included.	OPS

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LIST OF EFFECTIVE PAGES

Change and amendment bar is placed against each paragraph affected.

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INTRODUCTION AND APPLICABILITY

In this publication the word ‘must’ or ‘shall’ is used to indicate where the Director General requires the Organisation, owner or operator to respond to and comply with, or adhere closely to, the defined requirement

If the Organisation’s/owner’s/operator’s response is deemed to be inadequate by the Director General, a specific requirement or restriction may be applied as a condition of the appropriate instrument to be issued under Thailand Civil Aviation Regulations.

TCAR OPS is based on the latest consolidated version of Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations, as amended by Regulations up to (EU) No 2023/217. Notably, (EU) 2023/203 was not included as part of the initial issue.

TCAR OPS Part NCO is a part of the overall TCAR OPS Regulation set.

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SUBPART A: GENERAL REQUIREMENTS

NCO.GEN.100 The competent authority

The CAAT is the competent authority designated by the Kingdom of Thailand, where the aircraft is registered. For the purpose of TCAR OPS Part NCO, the CAAT is the competent authority exercising oversight, over operators operating aircrafts registered within the Kingdom of Thailand.

NCO.GEN.101 Means of compliance

Exceptionally, and only when so authorised by the CAAT, alternative means of compliance to those adopted by the CAAT may be used by an operator to establish compliance with the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations.

NCO.GEN.103 Introductory flights

Introductory flights referred to in this TCAR OPS when conducted in accordance with this Part NCO, shall:

(a) start and end at the same aerodrome or operating site,

(b) be operated under VFR by day;marginal

(c) be overseen by a nominated person responsible for their safety; and

(d) comply with any other conditions stipulated by the CAAT.

NCO.GEN.104 Use of aircraft included in an AOC by an NCO operator

(a) An NCO operator may use other than complex motor-powered aircraft listed on an operator's AOC to conduct non-commercial operations in accordance with this part NCO.

(b) The NCO operator using the aircraft in accordance with point (a) shall establish a procedure:

(1) clearly describing how operational control of the aircraft is transferred between the AOC holder and the NCO operator, as referred to in point ORO.GEN.310 of TCAR OPS Part ORO;

(2) describing the handover procedure of the aircraft upon its return to the AOC holder. That procedure shall be included in a contract between the AOC holder and the NCO operator. The NCO operator shall ensure that the procedure is communicated to the relevant personnel.

(c) The continuing airworthiness of the aircraft used pursuant to point (a) shall be managed by organisation responsible for the continuing airworthiness for the aircraft included in the AOC, in accordance with the applicable requirement for continuing airworthiness.

(d) The NCO operator using the aircraft in accordance with point (a) shall ensure the following:

(1) that every flight conducted under its operational control is recorded in the aircraft technical log system;

(2) that no changes to the aircraft systems or configuration are made;

(3) that any defect or technical malfunction occurring while the aircraft is under its operational control is reported to the organisation referred to in point (c) immediately after the flight;

(4) that the AOC holder receives a copy of any occurrence report related to the flights performed with the aircraft, completed in accordance with the applicable regulation on occurrence reporting the CAAT requirement no. 22.

NCO.GEN.105 Pilot-in-command responsibilities and authority

(a) The pilot-in-command shall be responsible for:

(1) the safety of the aircraft and of all crew members, passengers and cargo on board during aircraft operations as referred to in the air operations requirements of the Air Navigation Act B.E 2497, TCAR OPS and other Kingdom of Thailand Civil Aviation Regulations as they may be applicable;

(2) the initiation, continuation, termination or diversion of a flight in the interest of safety;

(3) ensuring that all operational procedures and checklists are complied with as referred to in TCAR OPS and other Kingdom of Thailand Civil Aviation Regulations as they may be applicable;

(4) only commencing a flight if he/she is satisfied that all operational limitations referred to in the in the Air Navigation Act B.E.2497, TCAR OPS and other other Kingdom of Thailand Civil Aviation Regulations as they may be applicable are complied with, as follows:

(i) the aircraft is airworthy;

(ii) the aircraft is duly registered;

(iii) instruments and equipment required for the execution of that flight are installed in the aircraft and are operative, unless operation with inoperative equipment is permitted by the minimum equipment list (MEL) or equivalent document, if applicable, as provided for in points NCO.IDE.A.105, NCO.IDE.H.105 or;

(iv) the mass of the aircraft and, the centre of gravity location are such that the flight can be conducted within limits prescribed in the airworthiness documentation;

(v) all equipment, baggage and cargo are properly loaded and secured and an emergency evacuation remains possible;

(vi) the aircraft operating limitations as specified in the aircraft flight manual (AFM) will not be exceeded at any time during the flight; and

(vii) any navigational database required for PBN is suitable and current;

(5) not commencing a flight if he/she is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance;

(6) not continuing a flight beyond the nearest weather-permissible aerodrome or operating site when his/her capacity to perform duties is significantly reduced from causes such as fatigue, sickness or lack of oxygen;

(7) deciding on acceptance of the aircraft with unserviceabilities in accordance with the configuration deviation list (CDL) or minimum equipment list (MEL), as applicable; and

(8) recording utilisation data and all known or suspected defects in the aircraft at the termination of the flight, or series of flights, in the aircraft technical log or journey log for the aircraft.

(b) The pilot-in-command shall ensure that during critical phases of flight or whenever deemed necessary in the interest of safety, all crew members are seated at their assigned stations and do not perform any activities other than those required for the safe operation of the aircraft.

(c) The pilot-in-command shall have the authority to refuse carriage of or disembark any person, baggage or cargo that may represent a potential hazard to the safety of the aircraft or its occupants.

(d) The pilot-in-command shall, as soon as possible, report to the appropriate air traffic services (ATS) unit any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.

(e) The pilot-in-command shall, in an emergency situation that requires immediate decision and action, take any action he/she considers necessary under the circumstances in accordance with the air operations requirements of the Air Navigation Act B.E 2497 and TCAR OPS. In such cases he/she may deviate from rules, operational procedures and methods in the interest of safety.

(f) During flight, the pilot-in-command shall:

(1) keep his/her safety belt fastened while at his/her station; and

(2) remain at the controls of the aircraft at all times except if another pilot is taking the controls.

(g) The pilot-in-command shall submit a report of an act of unlawful interference without delay to the CAAT and shall inform the designated local authority.

(h) The pilot-in-command shall notify the nearest appropriate authority by the quickest available means of any accident involving the aircraft that results in serious injury or death of any person or substantial damage to the aircraft or property.

NCO.GEN.110 Compliance with laws, regulations and procedure

(a) The pilot-in-command shall comply with the laws, regulations and procedures of those States where operations are conducted.

(b) The pilot-in-command shall be familiar with the laws, regulations and procedures, pertinent to the performance of his/her duties, prescribed for the areas to be traversed, the aerodromes or operating sites to be used and the related air navigation facilities as referred to in in Sections 17, 18, 18/2, 19, 21, 22, 27 of the Air Navigation Act B.E. 2497 and Kingdom of Thailand Civil Aviation Regulation and other national provision as they may be applicable

NCO.GEN.115 Taxiing of aeroplanes

An aeroplane shall only be taxied on the movement area of an aerodrome if the person at the controls:

(a) is an appropriately qualified pilot; or

(b) has been designated by the operator and:

(1) is trained to taxi the aeroplane;

(2) is trained to use the radio telephone, if radio communications are required;

(3) has received instruction in respect of aerodrome layout, routes, signs, marking, lights, air traffic control (ATC) signals and instructions, phraseology and procedures; and

(4) is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

NCO.GEN.120 Rotor engagement - helicopters

A helicopter rotor shall only be turned under power for the purpose of flight with a qualified pilot at the controls.

NCO.GEN.125 Portable electronic devices

The pilot-in-command shall not permit any person to use a portable electronic device (PED) on board an aircraft, including an electronic flight bag (EFB), that could adversely affect the performance of the aircraft systems and equipment or the ability of the flight crew member to operate the aircraft.

NCO.GEN.130 Information on emergency and survival equipment carried

Except for aircraft taking-off and landing at the same aerodrome/operating site, the operator shall, at all times, have available for immediate communication to rescue coordination centres (RCCs) lists containing information on the emergency and survival equipment carried on board.

NCO.GEN.135 Documents, manuals and information to be carried

(a) The following documents, manuals and information shall be carried on each flight as originals or copies unless otherwise specified:

(1) the AFM, or equivalent document(s);

(2) the original certificate of registration;

(3) the original certificate of airworthiness (CofA);

(4) the noise certificate, if applicable;

(5) the list of specific approvals, if applicable;

(6) the aircraft radio licence, if applicable;

(7) the third party liability insurance certificate(s);

(8) the journey log, or equivalent, for the aircraft;

(9) details of the filed ATS flight plan, if applicable;

(10) current and suitable aeronautical charts for the route area of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;

(11) procedures and visual signals information for use by intercepting and intercepted aircraft;

(12) the MEL or CDL, if applicable; and

(13) a passenger manifest, in the case of an international passenger flight;

(14) a cargo manifest, in the case of an international cargo flight; and

(15) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

(b) Notwithstanding (a), on flights:

(1) intending to take off and land at the same aerodrome/operating site; or

(2) remaining within a distance or area determined by the CAAT,

(3) the documents and information in (a)(2) to (a)(8) may be retained at the aerodrome or operating site.

(c) The pilot-in-command shall make available within a reasonable time of being requested to do so by the CAAT, the documentation required to be carried on board.

NCO.GEN.140 Transport of dangerous goods

(a) The transport of dangerous goods by air shall be conducted in accordance with Annex 18 to the Chicago Convention as last amended and amplified by the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284-AN/905), including its supplements and any other addenda or corrigenda.

(b) Dangerous goods shall only be transported by the operator approved in accordance with TCAR OPS Part SPA, Subpart G except when:

(1) they are not subject to the Technical Instructions in accordance with Part 1 of those Instructions; or

(2) they are carried by passengers or the pilot-in-command, or are in baggage, in accordance with Part 8 of the Technical Instructions;

(c) The pilot-in-command shall take all reasonable measures to prevent dangerous goods from being carried on board inadvertently.

(d) The pilot-in-command shall, in accordance with the Technical Instructions, report without delay to the CAAT and the appropriate authority of the State of occurrence in the event of any dangerous goods accidents or incidents.

(e) The pilot-in-command shall ensure that passengers are provided with information about dangerous goods in accordance with the Technical Instructions.

(f) Reasonable quantities of articles and substances that would otherwise be classified as dangerous goods and that are used to facilitate flight safety, where carriage aboard the aircraft is advisable to ensure their timely availability for operational purposes, shall be considered authorised under paragraph 1;2.2.1(a) of the Technical Instructions. This is regardless of whether or not such articles and substances are required to be carried or intended to be used in connection with a particular flight.

The packing and loading on board of the above-mentioned articles and substances shall be performed, under the responsibility of the pilot in command, in such a way as to minimise the risks posed to crew members, passengers, cargo or the aircraft during aircraft operations.

NCO.GEN.145 Immediate reaction to a safety problem

The operator shall implement:

(a) any safety measures mandated by the CAAT; and

(b) any relevant mandatory safety information issued by the CAAT, including airworthiness directives.

NCO.GEN.150 Journey log

Particulars of the aircraft, its crew and each journey shall be retained for each flight, or series of flights, in the form of a journey log, or equivalent.

NCO.GEN.155 Minimum equipment list

(a) An MEL may be established taking into account the following:

(1) the document shall provide for the operation of the aircraft, under specified conditions, with particular instruments, items of equipment or functions inoperative at the commencement of the flight;

(2) the document shall be prepared for each individual aircraft, taking account of the operator's relevant operational and maintenance conditions; and

(3) the MEL shall be based on the relevant Master Minimum Equipment List (MMEL), as established in accordance with certification requirements acceptable to the CAAT and shall not be less restrictive than the MMEL.

(b) The MEL and any amendment thereto shall be notified to the CAAT.

SUBPART B: OPERATIONAL PROCEDURES

NCO.OP.100 Use of aerodromes and operating sites

The pilot-in-command shall only use aerodromes and operating sites that are adequate for the type of aircraft and operation concerned.

NCO.OP.101 Altimeter check and settings

(a) The pilot-in-command shall check the proper operation of the altimeter before each departure.

(b) The pilot-in-command shall use appropriate altimeter settings for all phases of flight, taking into account any procedure prescribed by the State of the aerodrome or the State of the airspace

NCO.OP.105

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NCO.OP.110 Aerodrome operating minima - aeroplanes and helicopters

(a) For instrument flight rules (IFR) flights, the pilot-in-command shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations

(b) The aerodrome operating minima shall take the following elements into account, if relevant:

(1) the type, performance, and handling characteristics of the aircraft;
(2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and missed approach;
(3) any conditions or limitations stated in the aircraft flight manual (AFM);
(4) the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
(5) the adequacy and performance of the available visual and non-visual aids and infrastructure;
(6) the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs), if established;
(7) the obstacles in the climb-out areas and clearance margins;
(8) the competence and relevant operational experience of the pilot-in-command;
(9) the IAP, if established;
(10) the aerodrome characteristics and the type of air navigation services (ANS) available, if any;
(11) any minima that may be promulgated by the State of the aerodrome;
(12) the conditions prescribed in any specific approvals for low-visibility operations (LVOs) or operations with operational credits.

NCO.OP.111 Aerodrome operating minima - 2D and 3D approach operations

(a) The decision height (DH) to be used for a 3D approach operation or a 2D approach operation flown with the continuous descent final approach (CDFA) technique shall not be lower than the highest of:

(1) the obstacle clearance height (OCH) for the category of aircraft;

(2) the published approach procedure DH or minimum descent height (MDH), where applicable;

(3) the system minimum specified in Table 1;

(4) the minimum DH specified in the AFM or equivalent document, if stated.

(b) The MDH for a 2D approach operation flown without the CDFA technique shall not be lower than the highest of:

(1) the OCH for the category of aircraft;

(2) the published approach procedure MDH, where applicable;

(3) the system minimum specified in Table 1; or

(4) the minimum MDH specified in the AFM, if stated.

Table 1 System minima

Facility	Lowest DH/MDH (ft)
ILS/MLS/ GLS	200
GNSS/SBAS (LPV)	200
Precision approach radar (PAR)	200
GNSS/SBAS (LP)	250
GNSS (LNAV)	250
GNSS/Baro-VNAV (LNAV/VNAV)	250
Helicopter point-in-space approach	250
LOC with or without DME	250
SRA (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

NCO.OP.112 Aerodrome operating minima - circling operations with aeroplanes

(a) The MDH for a circling approach operation with aeroplanes shall not be lower than the highest of:

(1) the published circling OCH for the aeroplane category;

(2) the minimum circling height derived from Table 1; or

(3) the DH/MDH of the preceding IAP.

(b) The minimum visibility for a circling approach operation with aeroplanes shall be the highest of:

(1) the circling visibility for the aeroplane category, if published; or

(2) the minimum visibility derived from Table 1.

Table 1 MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	A	**B**	**C**	**D**
MDH (ft)	400	500	600	700
Minimum Vis (m)	1500	1600	2400	3600

NCO.OP.113 Aerodrome operating minima - onshore circling operations with helicopters

The MDH for an onshore circling operation with helicopters shall not be lower than 250 ft and the meteorological visibility not less than 800 m.

NCO.OP.115 Departure and approach procedures - aeroplanes and helicopters

(a) The pilot-in-command shall use the departure and approach procedures established by the State of the aerodrome, if such procedures have been published for the runway or FATO to be used.

(b) The pilot-in-command may deviate from a published departure route, arrival route or approach procedure:

(1) provided obstacle clearance criteria can be observed, full account is taken of the operating conditions and any ATC clearance is adhered to; or

(2) when being radar-vectored by an ATC unit.

NCO.OP.116 Performance-based navigation - aeroplanes and helicopters

The pilot-in-command shall ensure that, when PBN is required for the route or procedure to be flown:

(a) the relevant PBN navigation specification is stated in the AFM or other document that has been approved by the certifying authority as part of an airworthiness assessment or is based on such approval; and

(b) the aircraft is operated in conformance with the relevant navigation specification and limitations in the AFM or other document mentioned above.

NCO.OP.120 Noise abatement procedures - aeroplanes and helicopters

The pilot-in-command shall take into account published noise abatement procedures to minimise the effect of aircraft noise while ensuring that safety has priority over noise abatement.

NCO.OP.125 Fuel/energy and oil supply – aeroplanes and helicopters

(a) The pilot-in-command shall ensure that the quantity of fuel/energy and oil that is carried on board is sufficient, taking into account the meteorological conditions, any element affecting the performance of the aircraft, any delays that are expected in flight, and any contingencies that may reasonably be expected to affect the flight.

(b) The pilot-in-command shall plan a quantity of fuel/energy to be protected as final reserve fuel/energy to ensure a safe landing. The pilot-in-command shall take into account all of the following, and in the following order of priority, to determine the quantity of the final reserve fuel/energy:

(1) the severity of the hazard to persons or property that may result from an emergency landing after fuel/energy starvation; and

(2) the likelihood of unexpected circumstances that the final reserve fuel/energy may no longer be protected.

(c) The pilot-in-command shall commence a flight only if the aircraft carries sufficient fuel/energy and oil:

(1) when no destination alternate is required, to fly to the aerodrome or operating site of intended landing, plus the final reserve fuel/energy; or

(2) when a destination alternate is required, to fly to the aerodrome or operating site of intended landing, and thereafter, to an alternate aerodrome, plus the final reserve fuel/energy.

NCO.OP.130 Passenger briefing

The pilot-in-command shall ensure that before or, where appropriate, during the flight, passengers are given a briefing on emergency equipment and procedures.

NCO.OP.135 Flight preparation

(a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

(b) Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under IFR, shall include:

(1) a study of the available current meteorological reports and forecasts; and

(2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of meteorological conditionss.

NCO.OP.140 Destination alternate aerodromes - aeroplanes

For IFR flights, the pilot-in-command shall specify at least one destination alternate aerodrome in the flight plan, unless the available current meteorological information for the destination indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, a ceiling of at least 1 000ft above the DH/MDH for an available instrument approach procedure (IAP) and a visibility of at least 5 000m.

NCO.OP.141 Destination alternate aerodromes - helicopters

For IFR flights, the pilot-in-command shall specify at least one destination alternate aerodrome in the flight plan, unless the available current meteorological information for the destination indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, a ceiling of at least 1 000ft above the DH/MDH for an available IAP and a visibility of at least 3 000m.

NCO.OP.142 Destination aerodromes - instrument approach operations

The pilot-in-command shall only select an aerodrome as a destination alternate aerodrome if either:

(a) an IAP that does not rely on GNSS is available either at the destination aerodrome or at a destination alternate aerodrome, or

(b) all of the following conditions are met:

(1) the onboard GNSS equipment is SBAS-capable;

(2) the destination aerodrome, any destination alternate aerodrome, and the route between them are within SBAS service area;

(3) ABAS is predicted to be available in the event of the unexpected unavailability of SBAS;

(4) an IAP is selected (either at destination or destination alternate aerodrome) that does not rely on the availability of SBAS;

(5) an appropriate contingency action allows the flight to be completed safely in the event of unavailability of GNSS.

NCO.OP.143 Destination alternate aerodromes planning minima - aeroplanes

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period:

(a) for an alternate aerodrome with an available instrument approach operation with DH less than 250 ft,

(1) a ceiling of at least 200 ft above the decision height (DH) or minimum descent height (MDH) associated with the instrument approach operation; and

(2) a visibility of at least 1 500m; or

(b) for an alternate aerodrome with an instrument approach operation with DH or MDH 250 ft or more,

(1) a ceiling of at least 400 ft above the DH or MDH associated with the instrument approach operation; and

(2) a visibility of at least 3 000m; or

(c) for an alternate aerodrome without an IAP,

(1) a ceiling of at least the higher of 2 000ft and the minimum safe IFR height; and

(2) a visibility of at least 5 000m.

NCO.OP.144 Destination alternate aerodromes planning minima - helicopters

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period,

(a) for an alternate aerodrome with an IAP:

(1) a ceiling of at least 200 ft above the DH or MDH associated with the IAP; and

(2) a visibility of at least 1 500m by day or 3 000m by night; or

(b) for an alternate aerodrome without an IAP:

(1) a ceiling of at least the higher of 2 000ft and the minimum safe IFR height; and

(2) a visibility of at least 1 500m by day or 3 000m by night

NCO.OP.145 Refuelling with passengers embarking, on board or disembarking

(a) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.

(b) For all other types of fuel/energy, the aircraft shall not be refuelled when passengers are embarking, on board or disembarking, unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

NCO.OP.147 Refuelling with engine(s)and/or rotors turning – helicopters

Refuelling with engine(s) and/or rotors turning shall only be conducted if all those conditions are met simultaneously:

(a) if it is not practical to shut down or restart the engine;

(b) in accordance with any specific procedures and limitations in the aircraft flight manual (AFM);

(c) with JET A or JET A-1 fuel types;

(d) with no passengers or task specialists on board, embarking or disembarking;

(e) if the operator of the aerodrome or operating site allows such operations;

(f) in the presence of the appropriate rescue and firefighting (RFF) facilities or equipment; and

(g) in accordance with a checklist that shall contain:

(1) normal and contingency procedures;
(2) the required equipment;
(3) any limitations; and
(4) responsibilities and duties of the pilot-in-command and, if applicable, crew members and task specialists

NCO.OP.150 Carriage of passengers

The pilot-in-command shall ensure that, prior to and during taxiing, take-off and landing, and whenever deemed necessary in the interest of safety, each passenger on board occupies a seat or berth and has his/her safety belt or restraint device properly secured.

NCO.OP.155 Smoking on board - aeroplanes and helicopters

The pilot-in-command shall not allow smoking on board:

(a) whenever considered necessary in the interest of safety; and

(b) during refuelling of the aircraft.

NCO.OP.160 Meteorological conditions

(a) The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the meteorological conditions along the route and at the intended destination at the estimated time of use will be at or above the applicable VFR operating minima.

(b) The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the meteorological conditions at the destination or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.

(c) If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

NCO.OP.165 Ice and other contaminants - ground procedures

The pilot-in-command shall only commence take-off if the aircraft is clear of any deposit that might adversely affect the performance or controllability of the aircraft, except as permitted in the AFM.

NCO.OP.170 Ice and other contaminants - flight procedures

(a) The pilot-in-command shall only commence a flight or intentionally fly into expected or actual icing conditions if the aircraft is certified and equipped to cope with such conditions as referred to in the air operations requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, including TCAR OPS.

(b) If icing exceeds the intensity of icing for which the aircraft is certified or if an aircraft not certified for flight in known icing conditions encounters icing, the pilot-in-command shall exit the icing

conditions without delay, by a change of level and/or route, and if necessary by declaring an emergency to ATC.

NCO.OP.175 Take-off conditions - aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

(a) according to the information available, the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and

(b) the selected aerodrome operating minima are consistent with all of the following:

(1) the operative ground equipment;

(2) the operative aircraft systems;

(3) the aircraft performance;

(4) flight crew qualifications.

NCO.OP.180 Simulated situations in flight

(a) The pilot-in-command shall, when carrying passengers or cargo, not simulate:

(1) situations that require the application of abnormal or emergency procedures; or

(2) flight in instrument meteorological conditions (IMC).

(b) Notwithstanding (a), when training flights are conducted by an approved training organisation, referred to in TCAR PEL such situations may be simulated with student pilots on-board.

NCO.OP.185 NCO.OP.185 In-flight fuel/energy management

(a) The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.

(b) The pilot-in-command of a controlled flight shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the pilot-in-command has:

(1) committed to land at a specific aerodrome or operating site; and

(2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.

(c) The pilot-in-command of a controlled flight shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

NCO.OP.190 Use of supplemental oxygen

(a) The pilot-in-command shall ensure that all flight crew members engaged in performing duties essential to the safe operation of an aircraft in flight use supplemental oxygen continuously whenever he/she determines that at the altitude of the intended flight the lack of oxygen might result in impairment of the faculties of crew members, and shall ensure that supplemental oxygen is available to passengers when lack of oxygen might harmfully affect passengers.

(b) In any other case when the pilot-in-command cannot determine how the lack of oxygen might affect all occupants on board, he/she shall ensure that:

(1) all crew members engaged in performing duties essential to the safe operation of an aircraft in flight use supplemental oxygen for any period in excess of 30 minutes when the pressure altitude in the the passenger compartment will be between 10 000 ft and 13 000 ft; and

(2) all occupants use supplemental oxygen for any period that the pressure altitude in the the passenger compartment will be above 13 000 ft.

NCO.OP.195 Ground proximity detection

When undue proximity to the ground is detected by the pilot-in-command or by a ground proximity warning system, the pilot-in-command shall take corrective action immediately in order to establish safe flight conditions.

NCO.OP.200 Airborne collision avoidance system (ACAS II)

When ACAS II is used, operational procedures and training shall be in accordance with Kingdom of Thailand Civil Aviation Regulations and other relevant national provisions.

NCO.OP.205 Approach and landing conditions - aeroplanes and helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that:

(a) according to the information available, the meteorological conditions at the aerodrome or the operating site, and the condition of the runway intended to be used will not prevent a safe approach, landing, or missed approach; and

(b) the selected aerodrome operating minima are consistent with all of the following:

(1) the operative ground equipment;

(2) the operative aircraft systems;

(3) the aircraft performance, and

(4) flight crew qualifications.

NCO.OP.206 Approach and landing conditions - helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that:

(a) according to the information available, the meteorological conditions at the aerodrome or the operating site and the condition of the final approach and take-off area (FATO) intended to be used will not prevent a safe approach, landing or missed approach; and

(b) the selected aerodrome operating minima are consistent with all of the following:

(1) the operative ground equipment;

(2) the operative aircraft systems;

(3) the aircraft performance;

(4) flight crew qualifications.

NCO.OP.210 Commencement and continuation of approach - aeroplanes and helicopters

(a) If the controlling RVR for the runway to be used for landing is less than 550 m (or any lower value established in accordance with an approval under SPA.LVO), then an instrument approach operation shall not be continued:

(1) past a point at which the aircraft is 1 000ft above the aerodrome elevation; or

(2) into the final approach segment if the DH or MDH is higher than 1 000ft.

(b) If the required visual reference is not established, a missed approach shall be executed at or before the DA/H or the MDA/H.

(c) If the required visual reference is not maintained after DA/H or MDA/H, a go-around shall be executed promptly.'..

NCO.OP.220 Airborne collision avoidance system (ACAS II)

When ACAS II is used, pilot-in-command shall apply the appropriate operational procedures and be adequately trained.

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

NCO.POL.100 Operating limitations - all aircraft

(a) During any phase of operation, the loading, the mass and the centre of gravity (CG) position of the aircraft shall comply with any limitation specified in the AFM or equivalent document.

(b) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the AFM for visual presentation, shall be displayed in the aircraft.

NCO.POL.105 Weighing

(a) The operator shall ensure that the mass and the CG of the aircraft have been established by actual weighing prior to the initial entry into service of the aircraft. The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. Such information shall be made available to the pilot-in- command. The aircraft shall be reweighed if the effect of modifications on the mass and balance is not accurately known.

(b) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation

NCO.POL.110 Performance - general

The pilot-in-command shall only operate the aircraft if the performance is adequate to comply with the applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes or operating sites used, taking into account the charting accuracy of any charts and maps used.

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 Aeroplanes

NCO.IDE.A.100 Instruments and equipment - general

(a) Instruments and equipment required by this Subpart shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path;

(2) used to comply with NCO.IDE.A.190;

(3) used to comply with NCO.IDE.A.195; or

(4) installed in the aeroplane.

(b) The following items, when required by this Subpart, do not need an equipment approval:

(1) spare fuses;

(2) independent portable lights;

(3) an accurate time piece;

(4) first-aid kit;

(5) survival and signalling equipment;

(6) sea anchor and equipment for mooring;

(7) child restraint device.

(8) a simple PCDS used by a task specialist as a restraint device.

(c) Instruments and equipment not required under Part NCO by this Subpart as well as any other equipment that is not required by other applicable TCAR OPS Parts, but is carried on a flight, shall comply with the following:

(1) the information provided by these instruments or equipment shall not be used by the flight crew to comply with the requirements of the Air Navigation Act B.E 2497, Kingdom of Thailand Civil Aviation Regulations or NCO.IDE.A.190 and NCO.IDE.A.195; and

(2) the instruments and equipment shall not affect the airworthiness of the aeroplane, even in the case of failures or malfunction.

(d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(e) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.A.105 Minimum equipment for flight

A flight shall not be commenced when any of the aeroplane instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the aeroplane is operated in accordance with the MEL, if established; or

(b) the aeroplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCO.IDE.A.110 Spare electrical fuses

Aeroplanes shall be equipped with spare electrical fuses, of the ratings required for complete circuit protection, for replacement of those fuses that are allowed to be replaced in flight.

NCO.IDE.A.115 Operating lights

Aeroplanes operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the aeroplane's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aeroplane;

(e) lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the aeroplane is operated as a seaplane.

NCO.IDE.A.120 Operations under VFR - flight and navigational instruments and associated equipment

(a) Aeroplanes operated under VFR by day shall be equipped with a means of measuring and displaying the following:

(1) magnetic heading;

(2) time, in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed; and

(5) Mach number, whenever speed limitations are expressed in terms of Mach number.

(b) Aeroplanes operated under visual meteorological conditions (VMC) at night, or in conditions where the aeroplane cannot be maintained in a desired flight path without reference to one or more additional instruments, shall be, in addition to (a), equipped with:

(1) a means of measuring and displaying the following:

(i) turn and slip;

(ii) attitude;

(iii) vertical speed; and

(iv) stabilised heading;

and

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate.

(c) Aeroplanes operated in conditions where they cannot be maintained in a desired flight path without reference to one or more additional instruments, shall be, in addition to (a) and (b), equipped with a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.A.125 Operations under IFR - flight and navigational instruments and associated equipment

Aeroplanes operated under IFR shall be equipped with:

(a) a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed;

(5) vertical speed;

(6) turn and slip;

(7) attitude;

(8) stabilised heading;

(9) outside air temperature; and

(10) Mach number, whenever speed limitations are expressed in terms of Mach number;

(b) a means of indicating when the supply of power to the gyroscopic instruments is not adequate; and

(c) a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.A.130 Terrain awareness warning system (TAWS)

Turbine-powered aeroplanes certified for a maximum passenger seating configuration of more than nine shall be equipped with a TAWS that meets the requirements for:

(a) class A equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual certificate of airworthiness (CofA) was first issued after 1 January 2011; or

(b) class B equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual CofA was first issued on or before 1 January 2011.

NCO.IDE.A.135 Flight crew interphone system

Aeroplanes operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCO.IDE.A.140 Seats, seat safety belts, restraint systems and child restraint devices

(a) Aeroplanes shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more;

(2) a seat belt on each seat and restraining belts for each berth;

(3) a child restraint device (CRD) for each person on board younger than 24 months; and

(4) a seat belt with upper torso restraint system on each flight crew seat, having a single point release for aeroplanes having a CofA first issued on or after 25 August 2016.

NCO.IDE.A.145 First-aid kit

(a) Aeroplanes shall be equipped with a first-aid kit.

(b) The first-aid kit shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCO.IDE.A.150 Supplemental oxygen - pressurised aeroplanes

(a) Pressurised aeroplanes operated at flight altitudes for which the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Pressurised aeroplanes operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and:

(i) 100 % of the passengers for any period when the cabin pressure altitude exceeds 15 000 ft, but in no case less than 10 minutes' supply;

(ii) at least 30 % of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment will be between 14 000 ft and 15 000 ft; and

(iii) at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 14 000 ft;

and

(2) all the occupants of the passenger compartment for no less than 10 minutes, in the case of aeroplanes operated at pressure altitudes above 25 000 ft, or operated below that altitude but under conditions that will not allow them to descend safely to a pressure altitude of 13 000 ft within 4 minutes.

(c) Pressurised aeroplanes operated at flight altitudes above 25 000 ft shall, in addition, be equipped with a device to provide a warning indication to the flight crew of any loss of pressurisation.

NCO.IDE.A.155 Supplemental oxygen - non-pressurised aeroplanes

Non-pressurised aeroplanes operated when an oxygen supply is required in accordance with NCO.OP.190 shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

NCO.IDE.A.160 Hand fire extinguishers

(a) Aeroplanes, except aeroplanes less than MTOW of 1200kg, shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

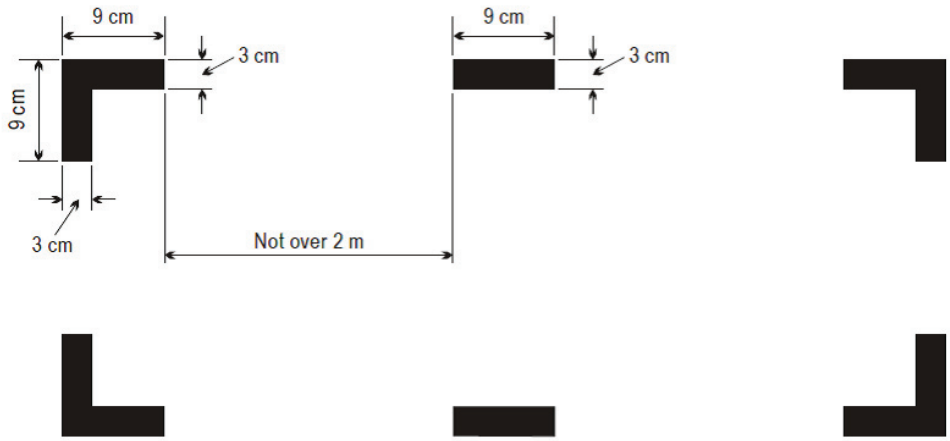
(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCO.IDE.A.165 Marking of break-in points

If areas of the aeroplane's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1
Marking of break-in points



NCO.IDE.A.170 Emergency locator transmitter (ELT)

(a) Aeroplanes shall be equipped with:

(1) an ELT of any type, when first issued with an individual CofA on or before 1 July 2008;

(2) an automatic ELT, when first issued with an individual CofA after 1 July 2008; or

(3) a survival ELT (ELT(S)) or a personal locator beacon (PLB), carried by a crew member or a passenger, when certified for a maximum passenger seating configuration of six or less.

(b) ELTs of any type and PLBs shall be capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

NCO.IDE.A.175 Flight over water

(a) The following aeroplanes shall be equipped with a life-jacket for each person on board, or equivalent individual floatation device for each person on board younger than 24 months, that shall be worn or stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided:

(1) single-engined landplanes when:

(i) flying over water beyond gliding distance from land; or

(ii) taking off or landing at an aerodrome or operating site where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that there would be a likelihood of a ditching;

(2) seaplanes operated over water; and

(3) aeroplanes operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is less.

(b) Seaplanes operated over water shall be equipped with:

(1) one anchor;

(2) one sea anchor (drogue), when necessary to assist in manoeuvring; and

(3) equipment for making the sound signals, as prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

(c) The pilot-in-command of an aeroplane operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is the lesser, shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching, based on which he/she shall determine the carriage of:

(1) equipment for making the distress signals;

(2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and

(3) life-saving equipment, to provide the means of sustaining life, as appropriate to the flight to be undertaken.

NCO.IDE.A.180 Survival equipment

Aeroplanes operated over areas in which search and rescue would be especially difficult shall be equipped with such signalling devices and life-saving equipment, including means of sustaining life, as may be appropriate to the area overflown.

NCO.IDE.A.190 Radio communication equipment

(a) Where required by the airspace being flown aeroplanes shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121,5 MHz.

(c) When more than one communication equipment unit is required, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

(d) For operations where communication equipment is required to meet an RCP specification for performance-based communication (PBC), an aeroplane shall be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s)

NCO.IDE.A.195 Navigation equipment

(a) Aeroplanes operated over routes that cannot be navigated by reference to visual landmarks shall be equipped with any navigation equipment necessary to enable them to proceed in accordance with:

(ii) the ATS flight plan; if applicable; and

(iii) the applicable airspace requirements.

(b) Aeroplanes shall have sufficient navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Aeroplanes operated on flights in which it is intended to land in IMC shall be equipped with suitable equipment capable of providing guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in IMC and for any designated alternate aerodromes.

(d) For PBN operations the aircraft shall meet the airworthiness certification requirements for the appropriate navigation specification.

(e) Aeroplanes shall be equipped with surveillance equipment in accordance with the applicable airspace requirements.

NCO.IDE.A.200 Transponder

Where required by the airspace being flown, aeroplanes shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

NCO.IDE.A.205 Management of aeronautical databases

(a) Aeronautical databases used on certified aircraft system applications shall meet data quality requirements that are adequate for the intended use of the data.

(b) The pilot-in-command shall ensure the timely distribution and insertion of current and unaltered aeronautical databases to the aircraft that require them.

(c) Notwithstanding any other occurrence reporting requirements as defined in the Kingdom of Thailand Civil Aviation Occurrence reporting Regulation, or other national provisions the pilot-in-command shall report to the database provider instances of erroneous, inconsistent or missing data that might be reasonably expected to constitute a hazard to flight.

In such cases, the pilot-in-command shall not use the affected data.

NCO.IDE.A.210 Surveillance Equipment

(a) An aeroplane shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services

(b) For operations where surveillance equipment is required to meet RSP specification for performance-based surveillance (PBS), an aeroplane shall, in addition to the requirement specified at (a):

(i) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);

SECTION 2 Helicopters

NCO.IDE.H.100 Instruments and equipment - general

(a) Instruments and equipment required by this Subpart shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path;

(2) used to comply with NCO.IDE.H.190;

(3) used to comply with NCO.IDE.H.195; or

(4) installed in the helicopter.

(b) The following items, when required under this Subpart, do not need an equipment approval:

(1) independent portable lights;

(2) an accurate time piece;

(3) first-aid kit;

(4) survival and signalling equipment;

(5) sea anchor and equipment for mooring; and

(6) child restraint device.

(7) a simple PCDS used by a task specialist as a restraint device.

(c) Instruments and equipment not required under Part NCO, as well as any other equipment that is not required under TCAR OPS Parts, but carried on a flight, shall comply with the following requirements:

(1) the information provided by these instruments or equipment shall not be used by the flight crew to comply with the requirements of the Air Navigation Act B.E 2497, Kingdom of Thailand Civil Aviation Regulations or NCO.IDE.H.190 and NCO.IDE.H.195; and

(2) the instruments and equipment shall not affect the airworthiness of the helicopter, even in the case of failures or malfunction.

(d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(e) All required emergency equipment shall be easily accessible for immediate use.

NCO.IDE.H.105 Minimum equipment for flight

A flight shall not be commenced when any of the helicopter's instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the helicopter is operated in accordance with the MEL, if established; or

(b) the helicopter is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCO.IDE.H.115 Operating lights

Helicopters operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the helicopter's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the helicopter;

(e) lighting supplied from the helicopter's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the helicopter is amphibious.

NCO.IDE.H.120 Operations under VFR - flight and navigational instruments and associated equipment

(a) Helicopters operated under VFR by day shall be equipped with a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed; and

(5) slip.

(b) Helicopters operated under VMC at night, or when the visibility is less than 1 500 m, or in conditions where the helicopter cannot be maintained in a desired flight path without reference to one or more additional instruments, shall be, in addition to (a), equipped with:

(1) a means of measuring and displaying the following:

(i) attitude;

(ii) vertical speed; and

(iii) stabilised heading; and

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate.

(c) Helicopters operated when the visibility is less than 1 500 m, or in conditions where the helicopter cannot be maintained in a desired flight path without reference to one or more additional instruments, shall be, in addition to (a) and (b), equipped with a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

NCO.IDE.H.125 Operations under IFR - flight and navigational instruments and associated equipment

Helicopters operated under IFR shall be equipped with:

(a) a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed;

(5) vertical speed;

(6) slip;

(7) attitude;

(8) stabilised heading; and

(9) outside air temperature;

(b) a means of indicating when the supply of power to the gyroscopic instruments is not adequate;

(c) a means of preventing malfunction of the airspeed indicating system required by (a)(4) due to condensation or icing; and

(d) an additional means of measuring and displaying attitude as a standby instrument.

NCO.IDE.H.126 Additional equipment for single pilot operations under IFR

Helicopters operated under IFR with a single pilot shall be equipped with an autopilot with at least altitude hold and heading mode.

NCO.IDE.H.135 Flight crew interphone system

Helicopters operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCO.IDE.H.140 Seats, seat safety belts, restraint systems and child restraint devices

(a) Helicopters shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more, or a station for each crew member or task specialist on board;

(2) a seat belt on each passenger seat and restraining belts for each berth, and restraint devices for each station;

(3) for helicopters first issued with an individual CofA after 31 December 2012, a seat belt with an upper torso restraint system for each passenger who is aged 24 months or more;

(4) a child restraint device for each person on board younger than 24 months; and

(5) a seat belt with upper torso restraint system incorporating a device that will automatically restrain the occupant's torso in the event of rapid deceleration on each flight crew seat.

(b) A seat belt with upper torso restraint system shall have a single point release.

NCO.IDE.H.145 First-aid kit

(a) Helicopters shall be equipped with a first-aid kit.

(b) The first-aid kit shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCO.IDE.H.155 Supplemental oxygen - non-pressurised helicopters

Non-pressurised helicopters operated when an oxygen supply is required in accordance with NCO.OP.190 shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

NCO.IDE.H.160 Hand fire extinguishers

(a) Helicopters, shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

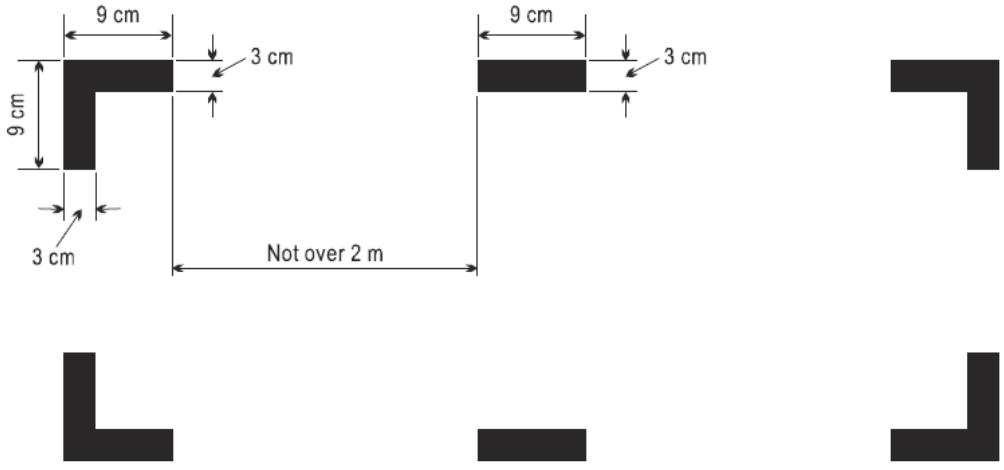
(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCO.IDE.H.165 Marking of break-in points

If areas of the helicopter's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1 Marking of break-in points



NCO.IDE.H.170 Emergency locator transmitter (ELT)

(a) Helicopters certified for a maximum passenger seating configuration above six shall be equipped with:

(1) an automatic ELT; and

(2) one survival ELT (ELT(S)) in a life-raft or life-jacket when the helicopter is operated at a distance from land corresponding to more than 3 minutes flying time at normal cruising speed.

(b) Helicopters certified for a maximum passenger seating configuration of six or less shall be equipped with an ELT(S) or a personal locator beacon (PLB), carried by a crew member or a passenger, or with an automatic ELT.

(c) ELTs of any type and PLBs shall be capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

NCO.IDE.H.175 Flight over water

(a) Helicopters shall be equipped with a life-jacket for each person on board or equivalent individual flotation device for each person on board younger than 24 months, which shall be worn or stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, when:

(1) flying over water beyond autorotational distance from land where in case of the critical engine failure, the helicopter is not able to sustain level flight; or

(2) flying over water at a distance of land corresponding to more than 10 minutes flying at normal cruising speed, where in case of the critical engine failure, the helicopter is able to sustain level flight; or

(3) taking off or landing at an aerodrome/operating site where the take-off or approach path is over water.

(b) Each life-jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

(c) The pilot-in-command of a helicopter operated on a flight over water at a distance from land corresponding to more than 30 minutes flying time at normal cruising speed or 50 NM, whichever is less, shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, based on which he/she shall determine the carriage of:

(1) equipment for making the distress signals;

(2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and

(3) life-saving equipment, to provide the means of sustaining life, as appropriate to the flight to be undertaken.

(d) The pilot-in-command shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, when deciding if the life-jackets required in (a) shall be worn by all occupants.

NCO.IDE.H.180 Survival equipment

Helicopters, operated over areas in which search and rescue would be especially difficult, shall be equipped with such signalling devices and life-saving equipment, including means of sustaining life, as may be appropriate to the area overflown.

NCO.IDE.H.185 All helicopters on flights over water - ditching

Helicopters flying over water in a hostile environment beyond a distance of 50 NM from land shall be either of the following:

(a) designed for landing on water in accordance with the relevant certification specifications;

(b) certified for ditching in accordance with the relevant certification specifications; or

(c) fitted with emergency flotation equipment.

NCO.IDE.H.190 Radio communication equipment

(a) Where required by the airspace being flown helicopters shall be equipped with radio communication equipment capable of conducting two-way communication with those aeronautical stations and on those frequencies to meet airspace requirements.

(b) Radio communication equipment, if required by (a), shall provide for communication on the aeronautical emergency frequency 121,5 MHz.

(c) When more than one communications equipment unit is required, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

(d) When a radio communication system is required, and in addition to the flight crew interphone system required in NCO.IDE.H.135, helicopters shall be equipped with a transmit button on the flight controls for each required pilot and/or crew member at his/her working station.

(e) For operations where communication equipment is required to meet an RCP specification for performance-based communicatio (PBC), an aeroplane shall be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s)

NCO.IDE.H.195 Navigation equipment

(a) Helicopters operated over routes that cannot be navigated by reference to visual landmarks shall be equipped with navigation equipment that will enable them to proceed in accordance with:

(1) the ATS flight plan, if applicable; and

(2) the applicable airspace requirements.

(b) Helicopters shall have sufficient navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Helicopters operated on flights in which it is intended to land in IMC shall be equipped with navigation equipment capable of providing guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing such guidance for each aerodrome at which is intended to land in IMC and for any designated alternate aerodromes.

(d) For PBN operations the aircraft shall meet the airworthiness certification requirements for the appropriate navigation specification;

(e) Helicopters shall be equipped with surveillance equipment in accordance with the applicable airspace requirements.

NCO.IDE.H.200 Transponder

Where required by the airspace being flown, helicopters shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

NCO.IDE.H.205 Management of aeronautical databases

(a) Aeronautical databases used on certified aircraft system applications shall meet data quality requirements that are adequate for the intended use of the data.

(b) The pilot-in-command shall ensure the timely distribution and insertion of current and unaltered aeronautical databases to the aircraft that require them.

(c) Notwithstanding any other occurrence reporting requirements as defined in the Kingdom of Thailand Civil Aviation Occurrence reporting Regulation, or other national provisions the pilot-in-command shall report to the database provider instances of erroneous, inconsistent or missing data that might be reasonably expected to constitute a hazard to flight.

In such cases, the pilot-in-command shall not use the affected data.

NCO.IDE.H.210 Surveillance Equipment

(a) An helicopter shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services

(b) For operations where surveillance equipment is required to meet RSP specification for performance-based surveillance (PBS), an aeroplane shall, in addition to the requirement specified at (a):

(i) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);

SUBPART E: SPECIFIC REQUIREMENTS

SECTION 1 General

NCO.SPEC.100 Scope

This subpart establishes specific requirements to be followed by a pilot-in-command conducting non-commercial specialised operations with other-than complex motor-powered aircraft.

NCO.SPEC.105 Checklist

(a) Before commencing a specialised operation, the pilot-in-command shall conduct a risk assessment, assessing the complexity of the activity to determine the hazards and associated risks inherent in the operation and establish mitigating measures.

(b) A specialised operation shall be performed in accordance with a checklist. Based on the risk assessment, the pilot-in-command shall establish such checklist appropriate to the specialised activity and aircraft used, taking account of any section of this subpart.

(c) The checklist that is relevant to the duties of the pilot-in-command, crew members and task specialists shall be readily accessible on each flight.

(d) The checklist shall be regularly reviewed and updated, as appropriate.

NCO.SPEC.110 Pilot-in-command responsibilities and authority

Whenever crew members or task specialists are involved in the operation, the pilot-in-command shall

(a) ensure compliance of crew members and task specialists with NCO.SPEC.115 and NCO.SPEC.120;

(b) not commence a flight if any crew member or task specialist is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance;

(c) not continue a flight beyond the nearest weather-permissible aerodrome or operating site when any crew member or task specialist's capacity to perform duties is significantly reduced from causes such as fatigue, sickness or lack of oxygen;

(d) ensure that crew members and task specialists comply with the laws, regulations and procedures of those States where operations are conducted;

(e) ensure that all crew members and task specialists are able to communicate with each other in a common language; and

(f) ensure that task specialists and crew members use supplemental oxygen continuously whenever he/she determines that at the altitude of the intended flight the lack of oxygen might result in impairment of the faculties of crew members or harmfully affect task specialists. If the pilot-in-command cannot determine how the lack of oxygen might affect the occupants on board, he/she shall ensure that task specialists and crew members use supplemental oxygen continuously whenever the cabin altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the cabin altitude exceeds 13 000 ft.

NCO.SPEC.115 Crew responsibilities

(a) The crew member shall be responsible for the proper execution of his/her duties. Crew duties shall be specified in the checklist.

(b) During critical phases of the flight or whenever deemed necessary by the pilot-in-command in the interest of safety, the crew member shall be restrained at his/her assigned station, unless otherwise specified in the checklist.

(c) During flight, the flight crew member shall keep his/her safety belt fastened while at his/her station.

(d) During flight, at least one qualified flight crew member shall remain at the controls of the aircraft at all times.

(e) The crew member shall not undertake duties on an aircraft:

(1) if he/she knows or suspects that he/she is suffering from fatigue as referred to in latest revision of the 'Notification of the Civil Aviation Authority of Thailand on Flight Time and Flight Duty Period Limitations B.E. 2559' and TCAR OPS, as they may be applicable or feels otherwise unfit to perform his/her duties; or

(2) when under the influence of psychoactive substances or alcohol or for other reasons as referred to in TCAR OPS and other applicable Kingdom of Thailand Civil Aviation Regulations.

(f) The crew member who undertakes duties for more than one operator shall:

(1) maintain his/her individual records regarding flight and duty times and rest periods as referred to in TCAR OPS Part ORO, Subpart FTL, if applicable; and

(2) provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.

(g) The crew member shall report to the pilot-in-command:

(1) any fault, failure, malfunction or defect, which he/she believes may affect the airworthiness or safe operation of the aircraft, including emergency systems; and

(2) any incident that was endangering, or could endanger, the safety of the operation.

NCO.SPEC.120 Task specialists responsibilities

(a) The task specialist shall be responsible for the proper execution of his/her duties. Task specialists' duties shall be specified in the checklist.

(b) During critical phases of the flight or whenever deemed necessary by the pilot-in-command in the interest of safety, the task specialist shall be restrained at his/her assigned station, unless otherwise specified in the checklist.

(c) The task specialist shall ensure that he/she is restrained when carrying out specialised tasks with external doors opened or removed.

(d) The task specialist shall report to the pilot-in-command:

(1) any fault, failure, malfunction or defect, which he/she believes may affect the airworthiness or safe operation of the aircraft, including emergency systems; and

(2) any incident that was endangering, or could endanger, the safety of the operation.

NCO.SPEC.125 Safety briefing

(a) Before take-off, the pilot-in-command shall brief task specialists on:

(1) emergency equipment and procedures;

(2) operational procedures associated with the specialised task before each flight or series of flights.

(b) The briefing referred to in (a)(2) may not be required if task specialists have been instructed on the operational procedures before the start of the operating season in that calendar year.

NCO.SPEC.130 Minimum obstacle clearance altitudes - IFR flights

The pilot-in-command shall establish minimum flight altitudes for each flight providing the required terrain clearance for all route segments to be flown in IFR. The minimum flight altitudes shall not be lower than those published by the State overflown.

NCO.SPEC.145 Simulated situations in flight

Unless a task specialist is on-board the aircraft for training, the pilot-in-command shall, when carrying task specialists, not simulate:

(a) situations that require the application of abnormal or emergency procedures; or

(b) flight in instrument meteorological conditions (IMC).

NCO.SPEC.150 Ground proximity detection

If installed, the ground proximity warning system may be disabled during those specialised tasks, which by their nature require the aircraft to be operated within a distance from the ground below that which would trigger the ground proximity warning system.

NCO.SPEC.155 Airborne collision avoidance system (ACAS II)

Notwithstanding NCO.OP.200, the ACAS II may be disabled during those specialised tasks, which by their nature require the aircraft to be operated within a distance from each other below that which would trigger the ACAS.

NCO.SPEC.160 Release of dangerous goods

The pilot-in-command shall not operate an aircraft over congested areas of cities, towns or settlements or over an open-air assembly of persons when releasing dangerous goods.

NCO.SPEC.165 Carriage and use of weapons

(a) The pilot-in-command shall ensure that, when weapons are carried on a flight for the purpose of a specialised task, these are secured when not in use.

(b) The task specialist using the weapon shall take all necessary measures to prevent the aircraft and persons on board or on the ground from being endangered.

NCO.SPEC.170 Performance and operating criteria - aeroplanes

When operating an aeroplane at a height of less than 150 m (500 ft) above a non-congested area, for operations of aeroplanes that are not able to sustain level flight in the event of a critical engine failure, the pilot-in-command shall have:

(a) established operational procedures to minimise the consequences of an engine failure; and

(b) briefed all crew members and task specialists on board on the procedures to be carried out in the event of a forced landing.

NCO.SPEC.175 Performance and operating criteria - helicopters

(a) The pilot-in-command may operate an aircraft over congested areas provided that:

(1) the helicopter is certified in category A or B; and

(2) safety measures are established to prevent undue hazard to persons or property on the ground

(b) The pilot-in-command shall have:

(1) established operational procedures to minimise the consequences of an engine failure; and

(2) briefed all crew members and task specialists on board on the procedures to be carried out in the event of a forced landing.

(c) The pilot-in-command shall ensure that the mass at take-off, landing or hover shall not exceed the maximum mass specified for:

(1) a hover out of ground effect (HOGE) with all engines operating at the appropriate power rating; or

(2) if conditions prevail that a HOGE is not likely to be established, the helicopter mass shall not exceed the maximum mass specified for a hover in ground effect (HIGE) with all engines operating at the appropriate power rating, provided prevailing conditions allow a hover in ground effect at the maximum specified mass.

SECTION 2 Helicopter external sling load operations (HESLO)

NCO.SPEC.HESLO.100 Checklist

The checklist for HESLO shall contain:

(a) normal, abnormal and emergency procedures;

(b) relevant performance data;

(c) required equipment;

(d) any limitations; and

(e) responsibilities and duties of the pilot-in-command, and, if applicable, crew members and task specialists.

NCO.SPEC.HESLO.105 Specific HESLO equipment

The helicopter shall be equipped with at least:

(a) one cargo safety mirror or alternative means to see the hook(s)/load; and

(b) one load meter, unless there is another method of determining the weight of the load.

NCO.SPEC.HESLO.110 Transportation of dangerous goods

The operator transporting dangerous goods to or from unmanned sites or remote locations shall apply to the CAAT for an exemption from the provisions of the Technical Instructions if they intend not to comply with the requirements of those Instructions.

SECTION 3 Human external cargo operations (HEC)

NCO.SPEC.HEC.100 Checklist

The checklist for HEC shall contain:

(a) normal, abnormal and emergency procedures;

(b) relevant performance data;

(c) required equipment;

(d) any limitations; and

(e) responsibilities and duties of the pilot-in-command, and, if applicable, crew members and task specialists.

NCO.SPEC.HEC.105 Specific HEC equipment

(a) The helicopter shall be equipped with:

(1) hoist operations equipment or cargo hook;

(2) one cargo safety mirror or alternative means to see the hook; and

(3) one load meter, unless there is another method of determining the weight of the load.

(b) The installation of all hoist and cargo hook equipment other than a simple PCDS, and any subsequent modifications shall have an airworthiness approval appropriate to the intended function.

SECTION 4 Parachute operations (PAR)

NCO.SPEC.PAR.100 Checklist

The checklist for PAR shall contain:

(a) normal, abnormal and emergency procedures;

(b) relevant performance data;

(c) required equipment;

(d) any limitations; and

(e) responsibilities and duties of the pilot-in-command, and, if applicable, crew members and task specialists.

NCO.SPEC.PAR.105 Carriage of crew members and task specialists

The requirement laid down in NCO.SPEC.120(c) shall not be applicable for task specialists performing parachute jumping.

NCO.SPEC.PAR.110 Seats

Notwithstanding NCO.IDE.A.140(a)(1) and NCO.IDE.H.140(a)(1), the floor of the aircraft may be used as a seat, provided means are available for the task specialist to hold or strap on.

NCO.SPEC.PAR.115 Supplemental oxygen

Notwithstanding NCO.SPEC.110(f), the requirement to use supplemental oxygen shall not be applicable for crew members other than the pilot-in-command and for task specialists carrying out duties essential to the specialised task, whenever the cabin altitude:

(a) exceeds 13 000 ft, for a period of not more than 6 minutes;, or

(b) exceeds 15 000 ft, for a period of not more 3 minutes.

NCO.SPEC.PAR.120 Release of dangerous goods

Notwithstanding point NCO.SPEC.160, parachutists may carry smoke trail devices and exit the aircraft for the purpose of parachute display over congested areas of cities, towns or settlements or over an open-air assembly of persons, provided those devices are manufactured for that purpose.

SECTION 5 Aerobatic flights (ABF)

NCO.SPEC.ABF.100 Checklist

The checklist for ABF shall contain:

(a) normal, abnormal and emergency procedures;

(b) relevant performance data;

(c) required equipment;

(d) any limitations; and

(e) responsibilities and duties of the pilot-in-command, and, if applicable, crew members and task specialists.

NCO.SPEC.ABF.105 Documents and information

The following documents and information listed in NCO.GEN.135(a) need not be carried during aerobatic flights:

(a) details of the filed ATS flight plan, if applicable;

(b) current and suitable aeronautical charts for the route/area of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted; and

(c) procedures and visual signals information for use by intercepting and intercepted aircraft.

NCO.SPEC.ABF.110 Equipment

The following equipment requirements need not be applicable to aerobatic flights:

(a) first-aids kit as laid down in NCO.IDE.A.145 and NCO.IDE.H.145;

(b) hand-fire extinguishers as laid down in NCO.IDE.A.160 and NCO.IDE.H.180; and

(c) emergency locator transmitters or personal locator beacons as laid down in NCO.IDE.A.170 and NCO.IDE.H.170.

SECTION 6 Maintenance check flights (MCFs)

NCO.SPEC.MCF.100 Levels of maintenance check flights

Before conducting a maintenance check flight, the operator shall determine the applicable level of the maintenance check flight as follows:

(a) a “Level A” maintenance check flight for a flight where the use of abnormal or emergency procedures, as defined in the aircraft flight manual, is expected, or where a flight is required to prove the functioning of a backup system or other safety devices;

(b) a “Level B” maintenance check flight for any maintenance check flight other than a “Level A” maintenance check flight.

NCO.SPEC.MCF.105 Operational limitations

(a) By way of derogation from point NCO.GEN.105(a)(4) of this Part NCO, a maintenance check flight may be conducted with an aircraft that has been released to service with incomplete maintenance as specified in applicable requirement for continuing airworthiness.

(b) By way of derogation from point NCO.IDE.A.105 or NCO.IDE.H.105, the pilot-in-command may conduct a flight with inoperative or missing items of equipment or functions required for the flight if those inoperative or missing items of equipment or functions have been identified in the checklist referred to in point NCO.SPEC.MCF.110.

NCO.SPEC.MCF.110 Checklist and safety briefing

(a) The checklist referred to in point NCO.SPEC.105 shall be updated as needed before each maintenance check flight and shall consider the operating procedures that are planned to be followed during the particular maintenance check flight.

(b) Notwithstanding point NCO.SPEC.125(b), a safety briefing of the task specialist shall be required before each maintenance check flight.

NCO.SPEC.MCF.120 Flight crew requirements

When selecting a flight crew member for a maintenance check flight, the operator shall consider the aircraft complexity and the level of the maintenance check flight as defined in point NCO.SPEC.MCF.100.

NCO.SPEC.MCF.125 Crew composition and persons on board

(a) The pilot-in-command shall identify the need for additional crew members or task specialists, or both, before each intended maintenance check flight, taking into consideration the expected flight crew member or task specialist workload and the risk assessment.

(b) The pilot-in-command shall not allow persons on board other than those required under point (a) during a “Level A” maintenance check flight.

NCO.SPEC.MCF.130 Simulated abnormal or emergency procedures in flight

By way of derogation from point NCO.SPEC.145, a pilot-in-command may simulate situations that require the application of abnormal or emergency procedures with a task specialist on board if the simulation is required to meet the intention of the flight and if it has been identified in the check list referred to in point NCO.SPEC.MCF.110 or in operating procedures.

NCO.SPEC.MCF.140 Systems and equipment

When a maintenance check flight is intended to check the proper functioning of a system or equipment, that system or equipment shall be identified as potentially unreliable, and appropriate mitigation measures shall be agreed prior to the flight in order to minimise risks to flight safety.

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สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Thailand Civil Aviation Regulation - Air Operations

Part Non - commercial operations with complex motor - powered aircraft

(TCAR OPS Part-NCC)

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Approved By

Air Chief Marshal

Manat Chavanaprayoon

Director General

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RECORD OF REVISIONS

Revision No.	Date (DD-MMM-YYYY)	Subject	Insert By (Department-Division)
00	30 JAN 2026	Initial issue including (EU) No 2019/1387, (EU) No2018/1384, (EU) No 2019/1387, (EU) No 2020/2036, (EU) No 2021/1296, (EU) No 2021/2237, (EU) 2022/2203 and (EU) 2023/217, Notably, (EU) 2023/203 was not included.	OPS

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INTRODUCTION AND APPLICABILITY

In this publication the word 'must' or 'shall' is used to indicate where the Director General requires the Organisation, owner or operator to respond to and comply with, or adhere closely to, the defined requirement.

If the Organisation's/owner's/operator's response is deemed to be inadequate by the Director General, a specific requirement or restriction may be applied as a condition of the appropriate instrument to be issued under Thailand Civil Aviation Regulations.

TCAR OPS is based on the latest consolidated version of Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations, as amended up to (EU) No 2023/217. Notably, (EU) 2023/203 was not included as part of the initial issue.

TCAR OPS Part NCC is a part of the overall TCAR OPS Regulation set.

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SUBPART A: GENERAL REQUIREMENTS

NCC.GEN.100 The competent authority

For the purpose of TCAR OPS Part NCC, the CAAT is the competent authority exercising oversight, over operators subject to an authorisation obligation and having their principal place of business in the Kingdom of Thailand.

NCC.GEN.101 Additional requirements for flight training organisations

Approved training organisations that are required to comply with this part shall also comply with:

(a) TCAR OPS Part ORO point ORO.GEN.310, as applicable; and

(b) TCAR OPS Part ORO point ORO.MLR.105.

NCC.GEN.105 Crew responsibilities

(a) The crew member shall be responsible for the proper execution of his/her duties that are:

(1) related to the safety of the aircraft and its occupants; and

(2) specified in the instructions and procedures in the operations manual.

(b) During critical phases of flight or whenever deemed necessary by the pilot-in-command in the interest of safety, the crew member shall be seated at his/her assigned station and shall not perform any activities other than those required for the safe operation of the aircraft.

(c) During flight, the flight crew member shall keep his/her safety belt fastened while at his/her station.

(d) During flight, at least one qualified flight crew member shall remain at the controls of the aircraft at all times.

(e) The crew member shall not undertake duties on an aircraft:

(1) if he/she knows or suspects that he/she is suffering from fatigue as referred to in the latest revision of the 'Notification of the Civil Aviation Authority of Thailand on Flight Time and Flight Duty Period Limitations' and TCAR OPS, as they may be applicable or feels otherwise unfit, to the extent that the flight may be endangered; or

(2) when under the influence of psychoactive substances or alcohol or for other reasons as referred to in TCAR OPS and other applicable Kingdom of Thailand Civil Aviation Regulations.

(f) The crew member who undertakes duties for more than one operator shall:

(1) maintain his/her individual records regarding flight and duty times and rest periods as referred to in TCAR OPS Part ORO, Subpart FTL.

(2) provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.

(g) The crew member shall report to the pilot-in-command:

(1) any fault, failure, malfunction or defect, which he/she believes may affect the airworthiness or safe operation of the aircraft, including emergency systems; and

(2) any incident that was endangering, or could endanger, the safety of the operation.

NCC.GEN.106 Pilot-in-command responsibilities and authority

(a) The pilot-in-command shall be responsible for:

(1) the safety of the aircraft and of all crew members, passengers and cargo on board during aircraft operations as referred to in the air operations requirements of the Air Navigation Act B.E 2497, TCAR OPS and other Kingdom of Thailand Civil Aviation Regulations as they may be applicable;

(2) the initiation, continuation, termination or diversion of a flight in the interest of safety;

(3) ensuring that all instructions, operational procedures and checklists are complied with in accordance with the operations manual and as referred to in TCAR OPS and other Kingdom of Thailand Civil Aviation Regulations as they may be applicable.

(4) only commencing a flight if he/she is satisfied that all operational limitations referred to in the Air Navigation Act B.E.2497, TCAR OPS and other other Kingdom of Thailand Civil Aviation Regulations as they may be applicable are complied with, as follows:

(i) the aircraft is airworthy;

(ii) the aircraft is duly registered;

(iii) instruments and equipment required for the execution of that flight are installed in the aircraft and are operative, unless operation with inoperative equipment is permitted by the minimum equipment list (MEL) or equivalent document, as required in NCC.IDE.A.105 or NCC.IDE.H.105;

(iv) the mass of the aircraft and centre of gravity location are such that the flight can be conducted within the limits prescribed in the airworthiness documentation;

(v) all cabin baggage, hold luggage and cargo are properly loaded and secured;

(vi) the aircraft operating limitations as specified in the aircraft flight manual (AFM) will not be exceeded at any time during the flight;

(vii) each flight crew member holds a valid licence in accordance with TCAR PEL Part FCL;

(viii) flight crew members are properly rated and meet competency and recency requirements; and

(ix) any navigational database required for performance-based navigation is suitable and current;

(5) not commencing a flight if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance;

(6) not continuing a flight beyond the nearest weather-permissible aerodrome or operating site, when the capacity of any flight crew member to perform duties is significantly reduced from causes such as fatigue, sickness or lack of oxygen;

(7) deciding on acceptance of the aircraft with unserviceabilities in accordance with the configuration deviation list (CDL) or minimum equipment list (MEL), as applicable;

(8) recording utilisation data and all known or suspected defects in the aircraft at the termination of the flight, or series of flights, in the aircraft technical log or journey log for the aircraft; and

(9) ensuring that:

(i) flight recorders are not disabled or switched off during flight;

(ii) in the event of an occurrence other than an accident or a serious incident that shall be reported according to ORO.GEN.160(a), flight recorders' recordings are not intentionally erased; and

(iii) in the event of an accident or a serious incident, or if preservation of recordings of flight recorders is directed by the investigating authority:

(A) flight recorders' recordings are not intentionally erased;

(B) flight recorders are deactivated immediately after the flight is completed; and

(C) precautionary measures to preserve the recordings of flight recorders are taken before leaving the flight crew compartment.

(b) The pilot-in-command shall have the authority to refuse carriage of or disembark any person, baggage or cargo that may represent a potential hazard to the safety of the aircraft or its occupants.

(c) The pilot-in-command shall, as soon as possible, report to the appropriate air traffic services (ATS) unit any hazardous weather or flight conditions encountered that are likely to affect the safety of other aircraft.

(d) Notwithstanding the provision of (a)(6), in a multi-crew operation the pilot-in-command may continue a flight beyond the nearest weather-permissible aerodrome when adequate mitigating procedures are in place.

(e) The pilot-in-command shall, in an emergency situation that requires immediate decision and action, take any action he/she considers necessary under the circumstances in accordance with the air operations requirements of the Air Navigation Act B.E 2497 and TCAR OPS. In such cases he/she may deviate from rules, operational procedures and methods in the interest of safety.

(f) The pilot-in-command shall submit a report of an act of unlawful interference without delay to the CAAT and shall inform the designated local authority.

(g) The pilot-in-command shall notify the nearest appropriate authority by the quickest available means of any accident involving the aircraft that results in serious injury or death of any person or substantial damage to the aircraft or property.

NCC.GEN.110 Compliance with laws, regulations and procedures

(a) The pilot-in-command shall comply with the laws, regulations and procedures of those States where operations are conducted.

(b) The pilot-in-command shall be familiar with the laws, regulations and procedures, pertinent to the performance of his/her duties, prescribed for the areas to be traversed, the aerodromes or operating sites to be used and the related air navigation facilities as referred to in Sections 17, 18, 18/2, 19, 21, 22, 27 of the Air Navigation Act B.E. 2497 and Kingdom of Thailand Civil Aviation Regulation and other national provision as they may be applicable.

NCC.GEN.115 Common language

The operator shall ensure that all crew members can communicate with each other in a common language.

NCC.GEN.119 Taxiing of aircraft

The operator shall establish procedures for taxiing to ensure safe operation and to enhance runway safety.

NCC.GEN.120 Taxiing of aeroplanes

The operator shall ensure that an aeroplane is only taxied on the movement area of an aerodrome if the person at the controls:

(a) is an appropriately qualified pilot; or

(b) has been designated by the operator and:

(1) is trained to taxi the aeroplane;

(2) is trained to use the radio telephone, if radio communications are required;

(3) has received instruction in respect of aerodrome layout, routes, signs, marking, lights, air traffic control (ATC) signals and instructions, phraseology and procedures; and

(4) is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

NCC.GEN.125 Rotor engagement — helicopters

A helicopter rotor shall only be turned under power for the purpose of flight with a qualified pilot at the controls.

NCC.GEN.130 Portable electronic devices

The operator shall not permit any person to use a portable electronic device (PED) on board an aircraft that could adversely affect the performance of the aircraft's systems and equipment.

NCC.GEN.131 Use of electronic flight bags (EFBs)

(a) Where an EFB is used on board an aircraft, the operator shall ensure that it does not adversely affect the performance of the aircraft systems or equipment, or the ability of the flight crew member to operate the aircraft.

(b) Prior to using a type B EFB application, the operator shall:

(1) conduct a risk assessment related to the use of the EFB device that hosts the applicatioand to the EFB application concerned and its associated function(s), identifying the associated risks and ensuring that they are appropriately managed and mitigated; the risk assessment shall address the risks associated with the human–machine interface of the EFB device and the EFB application concerned; and

(2) establish an EFB administration system, including procedures and training requirements for the administration and use of the device and the EFB application.

NCC.GEN.135 Information on emergency and survival equipment carried

The operator shall at all times have available for immediate communication to rescue coordination centres (RCCs) lists containing information on the emergency and survival equipment carried on board.

NCC.GEN.140 Documents, manuals and information to be carried

(a) The following documents, manuals and information shall be carried on each flight as originals or copies unless otherwise specified:

(1) the AFM, or equivalent document(s);

(2) the original certificate of registration;

(3) the original certificate of airworthiness (CofA);

(4) the noise certificate;

(5) the authorisation as specified in TCAR OPS Part ORO Subpart DEC;

(6) the list of specific approvals, if applicable;

(7) the aircraft radio licence, if applicable;

(8) the third party liability insurance certificate(s);

(9) the journey log, or equivalent, for the aircraft;

(10) details of the filed ATS flight plan, if applicable;

(11) current and suitable aeronautical charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;

(12) procedures and visual signals information for use by intercepting and intercepted aircraft;

(13) information concerning search and rescue services for the area of the intended flight;

(14) the current parts of the operations manual that are relevant to the duties of the crew members, which shall be easily accessible to the crew members;

(15) the MEL or CDL;

(16) appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;

(17) appropriate meteorological information;

(18) cargo and/or passenger manifests, if applicable (for instance international flight); and

(19) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

(b) In case of loss or theft of documents specified in (a)(2) to (a)(8), the operation may continue until the flight reaches its destination or a place where replacement documents can be provided.

NCC.GEN.145 Handling of flight recorder recordings: Preservation, production, protection and use

(a) Following an accident, a serious incident or an occurrence identified by the investigating authority, the operator of an aircraft shall preserve the original recorded data of the flight recorders for a period of 60 days or until otherwise directed by the investigating authority.

(b) The operator shall conduct operational checks and evaluations of recordings, to ensure the continued serviceability of the flight recorders which are required to be carried.

(c) The operator shall ensure that the recordings of flight parameters and data link communication messages required to be recorded on flight recorders are preserved. However, for the purpose

of testing and maintaining those flight recorders, up to 1 hour of the oldest recorded data at the time of testing may be erased.

(d) The operator shall keep and maintain up to date documentation that presents the necessary information to convert raw flight data into flight parameters expressed in engineering units.

(e) The operator shall make available any flight recorder recordings that have been preserved, if so determined by the CAAT.

(f) Without prejudice to the Kingdom of Thailand Civil Aviation occurrence reporting regulation and other relevant national provisions.

(1) Except for ensuring flight recorder serviceability, audio recordings from a flight recorder shall not be disclosed or used unless all of the following conditions are fulfilled:

(i) a procedure related to the handling of such audio recordings and of their transcript is in place;

(ii) all crew members and maintenance personnel concerned have given their prior consent;

(iii) such audio recordings are used only for maintaining or improving safety.

(1a) When flight recorder audio recordings are inspected for ensuring flight recorder serviceability, the operator shall protect the privacy of those audio recordings and make sure that they are not disclosed or used for purposes other than ensuring flight recorder serviceability.

(2) Flight parameters or data link messages recorded by a flight recorder shall not be used for purposes other than for the investigation of an accident or an incident which is subject to mandatory reporting, unless such recordings meet any of the following conditions:

(i) are used by the operator for airworthiness or maintenance purposes only;

(ii) are de-identified;

(iii) are disclosed under secure procedures.

(3) Except for ensuring flight recorder serviceability, images of the flight crew compartment that are recorded by a flight recorder shall not be disclosed or used unless all the following conditions are fulfilled:

(i) a procedure related to the handling of such image recordings is in place;

(ii) all crew members and maintenance personnel concerned have given their prior consent;

(iii) such image recordings are used only for maintaining or improving safety.

(3a) When images of the flight crew compartment that are recorded by a flight recorder are inspected for ensuring the serviceability of the flight recorder, then:

(i) those images shall not be disclosed or used for purposes other than for ensuring flight recorder serviceability;

(ii) if body parts of crew members are likely to be visible on the images, the operator shall ensure the privacy of those images.

NCC.GEN.150 Transport of dangerous goods

(a) The transport of dangerous goods by air shall be conducted in accordance with Annex 18 to the Chicago Convention as last amended and amplified by the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO Doc 9284-AN/905), including its supplements and any other addenda or corrigenda.

(b) Dangerous goods shall only be transported by the operator approved in accordance with TCAR OPS Part SPA, Subpart G except when:

(1) they are not subject to the Technical Instructions in accordance with Part 1 of those Instructions; or

(2) they are carried by passengers or crew members, or are in baggage, in accordance with Part 8 of the Technical Instructions.

(c) The operator shall establish procedures to ensure that all reasonable measures are taken to prevent dangerous goods from being carried on board inadvertently.

(d) The operator shall provide personnel with the necessary information enabling them to carry out their responsibilities, as required by the Technical Instructions.

(e) The operator shall, in accordance with the Technical Instructions, report without delay to the CAAT and the appropriate authority of the State of occurrence in the event of any dangerous goods accidents or incidents.

(f) The operator shall ensure that passengers are provided with information about dangerous goods in accordance with the Technical Instructions.

(g) The operator shall ensure that notices giving information about the transport of dangerous goods are provided at acceptance points for cargo as required by the Technical Instructions.

SUBPART B: OPERATIONAL PROCEDURES

NCC.OP.100 Use of aerodromes and operating sites

The operator shall only use aerodromes and operating sites that are adequate for the type of aircraft and operation concerned.

NCC.OP.101 Altimeter check and settings

(a) The operator shall establish procedures for altimeter checking before each departure.

(b) The operator shall establish procedures for altimeter settings for all phases of flight, which shall take into account the procedures established by the State of the aerodrome or the State of the airspace, if applicable

NCC.OP.105 Specification of isolated aerodromes — aeroplanes

For the selection of alternate aerodromes and the fuel/energy planning and in-flight re-planning policy, the operator shall not consider an aerodrome as an isolated aerodrome unless the flying time to the nearest weather- permissible destination alternate aerodrome is more than:

(a) for aeroplanes with reciprocating engines, 60 minutes; or

(b) for turbine-engined aeroplanes, 90 minutess.

NCC.OP.110 Aerodrome operating minima — general

(a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations.

(b) The method used to establish aerodrome operating minima shall take all the following elements into account:

(1) the type, performance, and handling characteristics of the aircraft;

(2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and missed approach;

(3) any conditions or limitations stated in the aircraft flight manual (AFM);

(4) the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;

(5) the adequacy and performance of the available visual and non-visual aids and infrastructure;

(6) the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs);

(7) the obstacles in the climb-out areas and necessary clearance margins;

(8) any non-standard characteristics of the aerodrome, the IAP or the environment;

(9) the composition of the flight crew, their competence and experience;

(10) the IAP;

(11) the aerodrome characteristics and the available air navigation services (ANS);

(12) any minima that may be promulgated by the State of the aerodrome;

(13) (13) the conditions prescribed in any specific approvals for low-visibility operations (LVOs) or operations with operational credits; and

(14) (14) the relevant operational experience of the operator.

(c) The operator shall specify a method of determining aerodrome operating minima in the operations manual.

NCC.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations

(a) The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) or category I (CAT I) operation shall not be lower than the highest of:

(1) the minimum height to which the approach aid can be used without the required visual reference;

(2) the obstacle clearance height (OCH) for the category of aircraft;

(3) the published approach procedure DH where applicable;

(4) the system minimum specified in Table 1; or

(5) the minimum DH specified in the AFM or equivalent document, if stated.

(b) The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:

(1) the OCH for the category of aircraft;

(2) the system minimum specified in Table 1; or

(3) the minimum MDH specified in the AFM, if stated.

Table 1 System minima

Facility	Lowest DH/MDH (ft)
Instrument landing system (ILS)	200
Global navigation satellite system (GNSS)/Satellite-based augmentation system (SBAS) (Lateral precision with vertical guidance approach (LPV))	200
GNSS (Lateral Navigation (LNAV))	250
GNSS/Baro-vertical navigation (VNAV) (LNAV/VNAV)	250
Localiser (LOC) with or without distance measuring equipment (DME)	250
Surveillance radar approach (SRA) (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300

Facility	Lowest DH/MDH (ft)
SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

NCC.OP.112 Aerodrome operating minima — circling operations with aeroplanes

(a) The MDH for a circling approach operation with aeroplanes shall not be lower than the highest of:

(1) the published circling OCH for the aeroplane category;

(2) the minimum circling height derived from Table 1; or

(3) the DH/MDH of the preceding IAP.

(b) The minimum visibility for a circling approach operation with aeroplanes shall be the highest of:

(1) the circling visibility for the aeroplane category, if published; or

(2) the minimum visibility derived from Table 1.

Table 1 MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	A	B	C	D
MDH (ft)	400	500	600	700
Minimum VIS (m)	1500	1600	2400	3600

NCC.OP.113 Aerodrome operating minima — onshore circling operations with helicopters

The MDH for an onshore circling operation with helicopters shall not be lower than 250 ft and the meteorological visibility not less than 800 m.

NCC.OP.115 Departure and approach procedures

(a) The pilot-in-command shall use the departure and approach procedures established by the State of the aerodrome, if such procedures have been published for the runway or FATO to be used.

(b) Notwithstanding (a), the pilot-in-command shall only accept an ATC clearance to deviate from a published procedure:

(1) provided that obstacle clearance criteria are observed and full account is taken of the operating conditions; or

(2) when being radar-vectored by an ATC unit.

(c) In any case, the final approach segment shall be flown visually or in accordance with the published approach procedures.

NCC.OP.116 Performance-based navigation — aeroplanes and helicopters

The operator shall ensure that, when PBN is required for the route or procedure to be flown:

(a) the relevant PBN specification is stated in the AFM or other document that has been approved by the certifying authority as part of an airworthiness assessment or is based on such approval; and

(b) the aircraft is operated in conformance with the relevant navigation specification and limitations in the AFM or other document mentioned above.

NCC.OP.120 Noise abatement procedures

The operator shall develop operating procedures taking into account the need to minimise the effect of aircraft noise while ensuring that safety has priority over noise abatement.

NCC.OP.125 Minimum obstacle clearance altitudes — IFR flights

(a) The operator shall specify a method to establish minimum flight altitudes that provide the required terrain clearance for all route segments to be flown in IFR.

(b) The pilot-in-command shall establish minimum flight altitudes for each flight based on this method. The minimum flight altitudes shall not be lower than that published by the State overflown.

NCC.OP.130 Fuel/energy scheme – aeroplanes and helicopters

(a) The operator shall establish, implement, and maintain a fuel/energy scheme that comprises:

(1) a fuel/energy planning and in-flight re-planning policy; and

(2) an in-flight fuel/energy management policy.

(b) The fuel/energy scheme shall:

(1) be appropriate for the type(s) of operation performed; and

(2) correspond to the capability of the operator to support its implementation.

NCC.OP.131 Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters

(a) As part of the fuel/energy scheme, the operator shall establish a fuel/energy planning and in-flight re-planning policy to ensure that the aircraft carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation.

(b) (b)The operator shall ensure that the fuel/energy planning of flights is based upon at least the following elements:

(1) (1)procedures contained in the operations manual as well as:

(i) current aircraft-specific data derived from a fuel/energy consumption monitoring system, or, if not available;

(ii) (data provided by the aircraft manufacturer; and

(2) the operating conditions under which the flight is to be conducted including:

(i) aircraft fuel/energy consumption data;

(ii) anticipated masses;

(iii) anticipated meteorological conditions;

(iv) the effects of deferred maintenance items or configuration deviations, or both; and

(v) anticipated delays.

(c) For aeroplanes, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes:

(1) taxi fuel/energy that shall not be less than the amount expected to be used prior to take-off;

(2) trip fuel/energy that shall be the amount of fuel/energy that is required to enable the aeroplane to fly from take-off, or from the point of in-flight re-planning, to landing at the destination aerodrome;

(3) contingency fuel/energy that shall be the amount of fuel/energy required to compensate for unforeseen factors;

(4) destination alternate fuel/energy:.

(i) when a flight is operated with at least one destination alternate aerodrome, it shall be the amount of fuel/energy required to fly from the destination aerodrome to the destination alternate aerodrome; or

(ii) when a flight is operated with no destination alternate aerodrome, it shall be the amount of fuel/energy required to hold at the destination aerodrome to compensate for the lack of a destination alternate aerodrome;

(5) final reserve fuel/energy that shall be the amount of fuel/energy that is calculated at holding speed at 1 500ft (450 m) above the aerodrome elevation in standard conditions according to the aircraft estimated mass on arrival at the destination alternate aerodrome, or destination aerodrome when no destination alternate aerodrome is required, and shall not be less than:

(i) for aeroplanes with reciprocating engines on visual flight rules (VFR) flights by night and instrument flight rules (IFR) flights, the fuel/energy to fly for 45 minutes; or

(ii) for aeroplanes with reciprocating engines on VFR flights by day, the fuel/energy to fly for 30 minutes;

(iii) for turbine-engined aeroplanes, the fuel/energy to fly for 30 minutes;

(6) additional fuel/energy, if required by the type of operation; it shall be the amount of fuel/energy to enable the aeroplane to perform a safe landing at a fuel/energy en route alternate aerodrome (fuel/energy ERA aerodrome critical scenario) in the event of an engine failure or loss of pressurisation, whichever requires the greater amount of fuel/energy, based on the assumption that such a failure occurs at the most critical point along the route; this additional fuel/energy is required only if the minimum

amount of fuel/energy that is calculated according to points (c)(2) to (c)(5) is not sufficient for such an event;

(7) extra fuel/energy to take into account anticipated delays or specific operational constraints; and

(8) discretionary fuel/energy, if required by the commander.

(d) For helicopters, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes all of the following:

(1) fuel/energy to fly to the aerodrome or operating site of intended landing;

(2) if a destination alternate is required, destination alternate fuel/energy, which shall be the amount of fuel/energy that is required to execute a missed approach at the aerodrome or operating site of intended landing, and thereafter, to fly to the specified destination alternate, approach and land; and

(3) final reserve fuel/energy, which shall not be less than:

(i) for flights under VFR, fuel/energy to fly for at least 20 minutes at best-range speed; or

(ii) for IFR flights, fuel/energy to fly for at least 30 minutes at holding speed at 450 m (1 500ft) above the aerodrome or operating site of intended landing or destination alternate in standard temperature conditions.

(e) The operator shall ensure that if a flight has to proceed to a destination aerodrome other than the one originally planned, in-flight re-planning procedures for calculating the required usable fuel/energy are available and comply with points (c)(2) to (c)(7) for aeroplanes, and point (d) for helicopters.

(f) The pilot in command shall only commence a flight or continue in the event of in-flight re-planning, when satisfied that the aircraft carries at least the planned amount of usable fuel/energy and oil to safely complete the flight.

NCC.OP.135 Stowage of baggage and cargo

The operator shall establish procedures to ensure that:

(a) only hand baggage that can be adequately and securely stowed is taken into the passenger compartment; and

(b) all baggage and cargo on board that might cause injury or damage, or obstruct aisles and exits if displaced, is stowed so as to prevent movement.

NCC.OP.140 Passenger briefing

The pilot-in-command shall ensure that:

(a) prior to take-off passengers have been made familiar with the location and use of the following:

(1) seat belts;

(2) emergency exits; and

(3) passenger emergency briefing cards;

and if applicable:

(4) life-jackets;

(5) oxygen dispensing equipment;

(6) life-rafts; and

(7) other emergency equipment provided for individual passenger use;

and

(b) in an emergency during flight, passengers are instructed in such emergency action as may be appropriate to the circumstances.

NCC.OP.145 Flight preparation

(a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

(b) Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under IFR, shall include:

(1) a study of the available current meteorological reports and forecasts; and

(2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of meteorological conditions.

NCC.OP.147 Destination alternate aerodromes planning minima — aeroplanes

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period:

(a) for an alternate aerodrome with an available instrument approach operation with DH less than 250 ft

(1) a ceiling of at least 200 ft above the DH or MDH associated with the instrument approach operation; and

(2) a visibility of at least the higher of 1 500m and 800 m above the instrument approach operation RVR/VIS minima; or

(b) for an alternate aerodrome with an instrument approach operation with DH or MDH 250 ft or more,

(1) a ceiling of at least 400 ft above the DH or MDH associated with the instrument approach operation; and

(2) a visibility of at least 3 000m; or

(c) for an alternate aerodrome without an instrument approach procedure,

(1) a ceiling of at least the higher of 2 000ft and the minimum safe IFR height; and

(2) a visibility of at least 5 000m.

NCC.OP.148 Destination alternate aerodrome planning minima — helicopters

The operator shall only select an aerodrome as a destination alternate aerodrome if the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period:,

(a) for an alternate aerodrome with an instrument approach procedure (IAP):

(1) a ceiling of at least 200 ft above the DH or MDH associated with the IAP; and

(2) a visibility of at least 1 500 m by day or 3 000 m by night; or

(b) for an alternate aerodrome without an IAP:

(1) a ceiling of at least 2 000 ft or the minimum safe IFR height — whichever is greater; and

(2) a visibility of at least 1 500 m by day or 3 000 m by night.

NCC.OP.150 Take-off alternate aerodromes — aeroplanes

(a) For IFR flights, the pilot-in-command shall specify at least one weather-permissible take-off alternate aerodrome in the flight plan if the meteorological conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or if it would not be possible to return to the aerodrome of departure for other reasons.

(b) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:

(1) for aeroplanes having two engines, not more than a distance equivalent to a flight time of 1 hour at the single-engine cruise speed in still air standard conditions; and

(2) for aeroplanes having three or more engines, not more than a distance equivalent to a flight time of 2 hours at the one-engine-inoperative (OEI) cruise speed according to the AFM in still air standard conditions.

(c) For an aerodrome to be selected as a take-off alternate aerodrome the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.

NCC.OP.151 Destination alternate aerodromes — aeroplanes

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate aerodrome in the flight plan, unless:

(a) the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, the approach and landing may be made under visual meteorological conditions (VMC); or

(b) the place of intended landing is designated as an isolated aerodrome and:

(1) an instrument approach procedure is prescribed for the aerodrome of intended landing; and

(2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:

(i) a cloud base of at least 300 m (1 000ft) above the minimum associated with the instrument approach procedure; and

(ii) visibility of at least 5,5 km or of 4 km more than the minimum associated with the procedure.

NCC.OP.152 Destination alternate aerodromes — helicopters

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate in the flight plan, unless:

(a) an instrument approach procedure is prescribed for the aerodrome of intended landing and the available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival, or from the actual time of departure to 2 hours after the estimated time of arrival, whichever is the shorter period:

(1) a cloud base of at least 120 m (400 ft) above the minimum associated with the instrument approach procedure; and

(2) visibility of at least 1500 m more than the minimum associated with the procedure; or

(b) the place of intended landing is isolated and:

(1) an instrument approach procedure is prescribed for the aerodrome of intended landing;

(2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:

(i) the cloud base is at least 120 m (400 ft) above the minimum associated with the instrument approach procedure;

(ii) visibility is at least 1 500 m more than the minimum associated with the procedure; and

NCC.OP.153 Destination aerodromes — instrument approach operations

The pilot-in-command shall ensure that sufficient means are available to navigate and land at the destination aerodrome or at any destination alternate aerodrome in the case of loss of capability for the intended approach and landing operation.

NCC.OP.155 Refuelling with passengers embarking, on board or disembarking

(a) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.

(b) For all other types of fuel/energy, necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

NCC.OP.157 Refuelling with engine(s)and/or rotors turning – helicopters

(a) Refuelling with engine(s) and/or rotors turning shall only be conducted:

(1) with no passengers embarking or disembarking;

(2) if the operator of the aerodrome/operating site allows such operations;

(3) in accordance with any specific procedures and limitations in the aircraft flight manual (AFM);

(4) with JET A or JET A-1 fuel types; and

(5) in the presence of the appropriate rescue and firefighting (RFF) facilities or equipment.

(b) The operator shall assess the risks associated with refuelling with engine(s) and/or rotors turning.

(c) The operator shall establish appropriate procedures to be followed by all involved personnel, such as crew members and ground operations personnel.

(d) The operator shall train its crew members and ensure that the involved ground operations personnel is trained appropriately.

(e) The operator shall ensure that the helicopter refuelling procedure with engine(s) and/or rotors turning are specified in the operations manual. This procedure and any change thereto shall require prior approval by the competent authority.

NCC.OP.160 Use of headset

(a) Each flight crew member required to be on duty in the flight crew compartment shall wear a headset with boom microphone or equivalent. The headset shall be used as the primary device for voice communications with ATS:

(1) when on the ground:

(i) when receiving the ATC departure clearance via voice communication; and

(ii) when engines are running;

(2) when in flight:

(i) below transition altitude; or

(ii) 10 000 ft, whichever is higher; and

(3) whenever deemed necessary by the pilot in command.

(b) In the conditions of (a), the boom microphone or equivalent shall be in a position that permits its use for two-way radio communications.

NCC.OP.165 Carriage of passengers

The operator shall establish procedures to ensure that:

(a) passengers are seated where, in the event that an emergency evacuation is required, they are able to assist and not hinder evacuation of the aircraft;

(b) prior to and during taxiing, take-off and landing, and whenever deemed necessary in the interest of safety by the pilot-in-command, each passenger on board occupies a seat or berth and has his/her safety belt or restraint device properly secured; and

(c) multiple occupancy is only allowed on specified aircraft seats occupied by one adult and one infant properly secured by a supplementary loop belt or other restraint device.

NCC.OP.170 Securing of passenger compartment and galley(s)

The pilot-in-command shall ensure that:

(a) before taxiing, take-off and landing, all exits and escape paths are unobstructed; and

(b) before take-off and landing, and whenever deemed necessary in the interest of safety, all equipment and baggage are properly secured.

NCC.OP.175 Smoking on board

The pilot-in-command shall not allow smoking on board:

(a) whenever considered necessary in the interest of safety;

(b) during refuelling of the aircraft;

(c) while the aircraft is on the surface unless the operator has determined procedures to mitigate the risks during ground operations;

(d) outside designated smoking areas, in the aisle(s) and lavatory(ies);

(e) in cargo compartments and/or other areas where cargo is carried that is not stored in flame-resistant containers or covered by flame-resistant canvas; and

(f) in those areas of the passenger compartments where oxygen is being supplied.

NCC.OP.180 Meteorological conditions

(a) The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the weather conditions along the route and at the intended destination at the estimated time of use will be at or above the applicable VFR operating minima.

(b) The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the weather conditions at the destination and at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.

(c) If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

NCC.OP.185 Ice and other contaminants — ground procedures

(a) The operator shall establish procedures to be followed when ground de-icing and anti-icing and related inspections of the aircraft are necessary to allow the safe operation of the aircraft.

(b) The pilot-in-command shall only commence take-off if the aircraft is clear of any deposit that might adversely affect the performance or controllability of the aircraft, except as permitted under the procedures referred to in (a) and in accordance with the AFM.

NCC.OP.190 Ice and other contaminants — flight procedures

(a) The operator shall establish procedures for flights in expected or actual icing conditions.

(b) The pilot-in-command shall only commence a flight or intentionally fly into expected or actual icing conditions if the aircraft is certified and equipped to cope with such conditions as referred

to in the air operations requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, including TCAR OPS.

(c) If icing exceeds the intensity of icing for which the aircraft is certified or if an aircraft not certified for flight in known icing conditions encounters icing, the pilot-in-command shall exit the icing conditions without delay, by a change of level and/or route, and if necessary by declaring an emergency to ATC.

NCC.OP.195 Take-off conditions — aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

(a) the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and

(b) the selected aerodrome operating minima are consistent with all of the following:

(1) the operative ground equipment;

(2) the operative aircraft systems;

(3) the aircraft performance;

(4) flight crew qualifications.

NCC.OP.200 Simulated situations in flight

(a) The pilot-in-command shall, when carrying passengers or cargo, not simulate:

(1) situations that require the application of abnormal or emergency procedures; or

(2) flight in instrument meteorological conditions (IMC).

(b) Notwithstanding (a), when training flights are conducted by an approved training organisation, referred to in TCAR PEL such situations may be simulated with student pilots on-board.

NCC.OP.205 Fuel/energy scheme – in-flight fuel/energy management policy

(a) The operator shall establish procedures to ensure that in-flight fuel/energy checks and fuel/energy management are performed.

(b) The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.

(c) The pilot-in-command shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the pilot-in-command has:

(1) committed to land at a specific aerodrome or operating site; and.

(2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.

(d) The pilot-in-command shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

NCC.OP.210 Use of supplemental oxygen

The pilot-in-command shall ensure that he/she and flight crew members engaged in performing duties essential to the safe operation of an aircraft in flight use supplemental oxygen continuously whenever the cabin altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the cabin altitude exceeds 13 000 ft.

NCC.OP.215 Ground proximity detection

When undue proximity to the ground is detected by a flight crew member or by a ground proximity warning system, the pilot flying shall take corrective action immediately in order to establish safe flight conditions.

NCC.OP.220 Airborne collision avoidance system (ACAS)

The operator shall establish operational procedures and training programs when ACAS is installed and serviceable so that the flight crew is appropriately trained in the avoidance of collisions and competent in the use of ACAS II equipment.

NCC.OP.225 Approach and landing conditions — aeroplanes and helicopters

(a) the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual; and

(b) the selected aerodrome operating minima are consistent with all of the following:

(1) the operative ground equipment;

(2) the operative aircraft systems;

(3) the aircraft performance; and

(4) flight crew qualifications.

NCC.OP.230 Commencement and continuation of approach

(a) For aeroplanes, if the reported visibility (VIS) or controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:

(1) past a point at which the aeroplane is 1 000ft above the aerodrome elevation; or

(2) into the final approach segment (FAS) if the DH or MDH is higher than 1 000ft..

(b) For helicopters, if the reported RVR is less than 550 m and the controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:

(1) past a point at which the helicopter is 1 000ft above the aerodrome elevation; or

(2) into the FAS if the DH or MDH is higher than 1 000ft.

(c) If the required visual reference is not established, a missed approach shall be executed at or before the DA/H or the MDA/H.

(d) If the required visual reference is not maintained after DA/H or MDA/H, a go-around shall be executed promptly.

(e) Notwithstanding point (a), in the case where no RVR is reported, and the reported VIS is less than the applicable minimum, but the converted meteorological visibility (CMV) is equal or greater than the applicable minimum, then the instrument approach can be continued to the DA/H or MDA/H.

(f) Notwithstanding points (a) and (b), if there is no intention to land, the instrument approach may be continued to the DA/H or the MDA/H. A missed approach shall be executed at or before the DA/H or the MDA/H.

NCC.OP.235 EFVS 200 operations

(a) An operator that intends to conduct EFVS 200 operations with operational credits and without a specific approval shall ensure that:

(1) the aircraft is certified for the intended operations;

(2) only runways, FATOs and IAPs suitable for EFVS operations are used;

(3) the flight crew members are competent to conduct the intended operation, and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation is established;

(4) operating procedures are established;

(5) any relevant information is documented in the minimum equipment list (MEL);

(6) any relevant information is documented in the maintenance programme;

(7) safety assessments are carried out and performance indicators are established to monitor the level of safety of the operation; and

(8) the aerodrome operating minima take into account the capability of the system used.

(9) The operator shall not conduct EFVS 200 operations when conducting LVOs.

(10) Notwithstanding point (a)(1), the operator may use EVSs meeting the minimum criteria to conduct EFVS 200 operations, provided that this is approved by the CAAT

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

NCC.POL.100 Operating limitations — all aircraft

(a) During any phase of operation, the loading, the mass and the centre of gravity (CG) position of the aircraft shall comply with any limitation specified in the AFM, or the operations manual, if more restrictive.

(b) Placards, listings, instrument markings, or combinations thereof, containing those operating limitations prescribed by the AFM for visual presentation, shall be displayed in the aircraft.

NCC.POL.105 Mass and balance, loading

(a) The operator shall establish the mass and the CG of any aircraft by actual weighing prior to initial entry into service. The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. Aircraft shall be reweighed if the effect of modifications on the mass and balance is not accurately known.

(b) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation.

(c) The operator shall determine the mass of all operating items and crew members included in the aircraft dry operating mass by actual weighing, including any crew baggage, or by using standard masses. The influence of their position on the aircraft's CG shall be determined. When using standard masses the following mass values for crew members shall be used to determine the dry operating mass:

(1) 85 kg, including hand baggage, for flight crew/technical crew members; and

(2) 75 kg for cabin crew members.

(d) The operator shall establish procedures to enable the pilot-in-command to determine the mass of the traffic load, including any ballast, by:

(1) actual weighing;

(2) determining the mass of the traffic load in accordance with standard passenger and baggage masses; or

(3) calculating passenger mass on the basis of a statement by, or on behalf of, each passenger and adding to it a predetermined mass to account for hand baggage and clothing, when the number of passenger seats available on the aircraft is:

(i) less than 10 for aeroplanes; or

(ii) less than six for helicopters.

(e) When using standard masses the following mass values shall be used:

(1) for passengers, those in Tables 1 and 2, where hand baggage and the mass of any infant carried by an adult on one passenger seat are included:

Table 1 Standard masses for passengers — aircraft with a total number of passenger seats of 20 or more

Passenger seats	20 and more		30 and more
	Male	Female	All adult
Adults	88 kg	70 kg	84 kg
Children	35 kg	35 kg	35 kg

Table 2 Standard masses for passengers — aircraft with a total number of passenger seats of 19 or less

Passenger seats	1 – 5	6 – 9	10 – 19
Male	104 kg	96 kg	92 kg
Female	86 kg	78 kg	74 kg
Children	35 kg	35 kg	35 kg

(2) for baggage:

(i) for aeroplanes, when the total number of passenger seats available on the aeroplane is 20 or more, standard mass values for checked baggage in Table 3;

Table 3 Standard masses for baggage — aeroplanes with a total number of passenger seats of 20 or more

Type of flight	Baggage standard mass
Domestic	11 kg
Within the S.E Asia region	13 kg
Intercontinental	15 kg
All other	13 kg

(ii) for helicopters, when the total number of passenger seats available on the helicopters is 20 or more, the standard mass value for checked baggage of 13 kg.

(f) For aircraft with 19 passenger seats or less, the actual mass of checked baggage shall be determined:

(1) by weighing; or

(2) by calculation on the basis of a statement by, or on behalf of, each passenger. Where this is impractical, a minimum standard mass of 13 kg shall be used.

(g) The operator shall establish procedures to enable the pilot-in-command to determine the mass of the fuel load by using the actual density or, if not known, the density calculated in accordance with a method specified in the operations manual.

(h) The pilot-in-command shall ensure that the loading of:

(1) the aircraft is performed under the supervision of qualified personnel; and

(2) traffic load is consistent with the data used for the calculation of the aircraft mass and balance.

(i) The operator shall establish procedures to enable the pilot-in-command to comply with additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment and the maximum seating limit.

(j) The operator shall specify, in the operations manual, the principles and methods involved in the loading and in the mass and balance system that meet the requirements contained in (a) to (i). This system shall cover all types of intended operations.

NCC.POL.110 Mass and balance data and documentation

(a) The operator shall establish mass and balance data and produce mass and balance documentation prior to each flight specifying the load and its distribution in such a way that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:

(1) aircraft registration and type;

(2) flight identification, number and date, as applicable;

(3) name of the pilot-in-command;

(4) name of the person who prepared the document;

(5) dry operating mass and the corresponding CG of the aircraft;

(6) mass of the fuel/energy at take-off and mass of trip fuel/energy;

(7) mass of consumables other than fuel/energy, if applicable;

(8) load components including passengers, baggage, freight, and ballast;

(9) take-off mass, landing mass, and zero fuel/energy mass.

(b) Where mass and balance data and documentation are generated by a computerised mass and balance system, the operator shall verify the integrity of the output data.

(c) When the loading of the aircraft is not supervised by the pilot-in-command, the person supervising the loading of the aircraft shall confirm by hand signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation established by the pilot-in-command. The pilot-in-command shall indicate his/her acceptance by hand signature or equivalent.

(d) The operator shall specify procedures for last minute changes to the load to ensure that:

(1) any last minute change after the completion of the mass and balance documentation is entered in the flight planning documents containing the mass and balance documentation;

(2) the maximum last minute change allowed in passenger numbers or hold load is specified; and

(3) new mass and balance documentation is prepared if this maximum number is exceeded.

NCC.POL.111 Mass and balance data and documentation — alleviations

Notwithstanding NCC.POL.110 (a)(5), the CG position may not need to be on the mass and balance documentation, if the load distribution is in accordance with a pre-calculated balance table or if it can be shown that for the planned operations a correct balance can be ensured, whatever the real load is.

NCC.POL.115 Performance — general

The pilot-in-command shall only operate the aircraft if the performance is adequate to comply with the Kingdom of Thailand or other applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes or operating sites used, taking into account the charting accuracy of any charts and maps used.

NCC.POL.120 Take-off mass limitations — aeroplanes

The operator shall ensure that:

(a) the mass of the aeroplane at the start of take-off shall not exceed the mass limitations:

(1) at take-off as required in NCC.POL.125;

(2) en-route with one engine inoperative (OEI) as required in NCC.POL.130; and

(3) at landing as required in NCC.POL.135;

allowing for expected reductions in mass as the flight proceeds and for fuel jettisoning;

(b) the mass at the start of take-off shall never exceed the maximum take-off mass specified in the AFM for the pressure altitude appropriate to the elevation of the aerodrome or operating site, and if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition; and

(c) the estimated mass for the expected time of landing at the aerodrome or operating site of intended landing and at any destination alternate aerodrome shall never exceed the maximum landing mass specified in the AFM for the pressure altitude appropriate to the elevation of those aerodromes or operating sites, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.

NCC.POL.125 Take-off — aeroplanes

(a) When determining the maximum take-off mass, the pilot-in-command shall take the following into account:

(1) the calculated take-off distance shall not exceed the take-off distance available with a clearway distance not exceeding half of the take-off run available;

(2) the calculated take-off run shall not exceed the take-off run available;

(3) a single value of V_1 shall be used for the rejected and continued take-off, where a V_1 is specified in the AFM; and

(4) on a wet or contaminated runway, the take-off mass shall not exceed that permitted for a take-off on a dry runway under the same conditions.

(b) Except for an aeroplane equipped with turboprop engines and a maximum take-off mass at or below 5 700 kg, in the event of an engine failure during take-off, the pilot-in-command shall ensure that the aeroplane is able:

(1) to discontinue the take-off and stop within the accelerate-stop distance available or the runway available; or

(2) to continue the take-off and clear all obstacles along the flight path by an adequate margin until the aeroplane is in a position to comply with NCC.POL.130.

NCC.POL.130 En-route — one engine inoperative — aeroplanes

The pilot-in-command shall ensure that in the event of an engine becoming inoperative at any point along the route, a multi-engined aeroplane shall be able to continue the flight to an adequate aerodrome or operating site without flying below the minimum obstacle clearance altitude at any point.

NCC.POL.135 Landing — aeroplanes

The pilot-in-command shall ensure that at any aerodrome or operating site, after clearing all obstacles in the approach path by a safe margin, the aeroplane shall be able to land and stop, or a seaplane to come to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 Aeroplanes

NCC.IDE.A.100 Instruments and equipment — general

(a) Instruments and equipment required by this Subpart shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path;

(2) used to comply with NCC.IDE.A.245;

(3) used to comply with NCC.IDE.A.250; or

(4) installed in the aeroplane.

(b) The following items, when required by this Subpart, do not need an equipment approval:

(1) spare fuses;

(2) independent portable lights;

(3) an accurate time piece;

(4) chart holder;

(5) first-aid kits;

(6) survival and signalling equipment;

(7) sea anchor and equipment for mooring; and

(8) child restraint device.

(c) Instruments and equipment or accessories not required under this TCAR OPS Part NCC as well as any other equipment which is not required under this Regulation, but carried on a flight, shall comply with the following requirements:

(1) the information provided by those instruments, equipment or accessories shall not be used by the flight crew members to comply with requirements of the Air Navigation Act B.E 2497, Kingdom of Thailand Civil Aviation Regulations or points NCC.IDE.A.245 and NCC.IDE.A.250 of this TCAR Part;

(2) the instruments and equipment shall not affect the airworthiness of the aeroplane, even in the case of failures or malfunction.

(d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(e) Those instruments that are used by a flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his/her station, with the minimum practicable deviation from the position and line of vision which he/she normally assumes when looking forward along the flight path.

(f) All required emergency equipment shall be easily accessible for immediate use.

NCC.IDE.A.105 Minimum equipment for flight

A flight shall not be commenced when any of the aeroplane's instruments, items of equipment, or functions, required for the intended flight are inoperative or missing, unless:

(a) the aeroplane is operated in accordance with the operator's minimum equipment list (MEL);

(b) the operator is approved by the CAAT to operate the aeroplane within the constraints of the master minimum equipment list ("MMEL") in accordance with TCAR OPS Part ORO point ORO.MLR.105(j); or

(c) the aeroplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCC.IDE.A.110 Spare electrical fuses

Aeroplanes shall be equipped with spare electrical fuses, of the ratings required for complete circuit protection, for replacement of those fuses that are allowed to be replaced in flight.

NCC.IDE.A.115 Operating lights

Aeroplanes operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the aeroplane's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aeroplane;

(e) lighting supplied from the aeroplane's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the aeroplane is operated as a seaplane.

NCC.IDE.A.120 Operations under VFR — flight and navigational instruments and associated equipment

(a) Aeroplanes operated under VFR by day shall be equipped with a means of measuring and displaying the following:

(1) magnetic-heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed;

(5) slip; and

(6) Mach number whenever speed limitations are expressed in terms of Mach number.

(b) Aeroplanes operated under visual meteorological conditions (VMC) over water and out of sight of the land, or under VMC at night, or in conditions where the aeroplane cannot be maintained in a

desired flight path without reference to one or more additional instruments, shall be, in addition to (a), equipped with:

(1) a means of measuring and displaying the following:

(i) turn and slip;

(ii) attitude;

(iii) vertical speed; and

(iv) stabilised heading;

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate; and

(3) a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

(c) Whenever two pilots are required for the operation, aeroplanes shall be equipped with an additional separate means of displaying the following:

(1) barometric altitude;

(2) indicated airspeed;

(3) slip, or turn and slip, as applicable;

(4) attitude, if applicable;

(5) vertical speed, if applicable;

(6) stabilised heading, if applicable; and

(7) Mach number whenever speed limitations are expressed in terms of Mach number, if applicable.

NCC.IDE.A.125 Operations under IFR — flight and navigational instruments and associated equipment

Aeroplanes operated under IFR shall be equipped with:

(a) a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed;

(5) vertical speed;

(6) turn and slip;

(7) attitude;

(8) stabilised heading;

(9) outside air temperature; and

(10) Mach number whenever speed limitations are expressed in terms of Mach number;

(b) a means of indicating when the supply of power to the gyroscopic instruments is not adequate;

(c) whenever two pilots are required for the operation, an additional separate means of displaying for the second pilot:

(1) barometric altitude;

(2) indicated airspeed;

(3) vertical speed;

(4) turn and slip;

(5) attitude;

(6) stabilised heading; and

(7) Mach number whenever speed limitations are expressed in terms of Mach number, if applicable;

(d) a means of preventing malfunction of the airspeed indicating systems required in (a)(4) and (c)(2) due to condensation or icing;

(e) an alternate source of static pressure;

(f) a chart holder in an easily readable position that can be illuminated for night operations;

(g) a second independent means of measuring and displaying altitude; and

(h) an emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating an attitude indicating system for a minimum period of 30 minutes. The emergency power supply shall be automatically operative after the total failure of the main electrical generating system and clear indication shall be given on the instrument or on the instrument panel that the attitude indicator is being operated by emergency power.

NCC.IDE.A.130 Additional equipment for single-pilot operations under IFR

Aeroplanes operated under IFR with a single pilot shall be equipped with an autopilot with at least altitude hold and heading mode.

NCC.IDE.A.135 Terrain awareness warning system (TAWS)

Turbine-powered aeroplanes with a maximum certified take-off mass (MCTOM) of more than 5 700 kg or a maximum operational passenger seating configuration (MOPSC) of more than nine shall be equipped with a TAWS that meets the requirements for:

(a) class A equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual certificate of airworthiness (CofA) was first issued after 1 January 2011; or

(b) class B equipment, as specified in an acceptable standard, in the case of aeroplanes for which the individual CofA was first issued on or before 1 January 2011.

NCC.IDE.A.140 Airborne collision avoidance system (ACAS)

Turbine-powered aeroplanes with an MCTOM of more than 5700 kg or an MOPSC of more than 19 shall be equipped with ACAS II.

NCC.IDE.A.145 Airborne weather detecting equipment

The following aeroplanes shall be equipped with airborne weather detecting equipment when operated at night or in IMC in areas where thunderstorms or other potentially hazardous weather conditions,

regarded as detectable with airborne weather detecting equipment, may be expected to exist along the route:

(a) pressurised aeroplanes;

(b) non-pressurised aeroplanes with an MCTOM of more than 5 700 kg; and

(c) non-pressurised aeroplanes with an MOPSC of more than nine.

NCC.IDE.A.150 Additional equipment for operations in icing conditions at night

(a) Aeroplanes operated in expected or actual icing conditions at night shall be equipped with a means to illuminate or detect the formation of ice.

(b) The means to illuminate the formation of ice shall not cause glare or reflection that would handicap flight crew members in the performance of their duties.

NCC.IDE.A.155 Flight crew interphone system

Aeroplanes operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCC.IDE.A.160 Cockpit voice recorder

(a) The following aeroplanes shall be equipped with a CVR:

(1) aeroplanes with an MCTOM of more than 27 000 kg and first issued with an individual CofA on or after 1 January 2016; and

(2) aeroplanes with an MCTOM of more than 2 250 kg:

(i) certified for operation with a minimum crew of at least two pilots;

(ii) equipped with turbojet engine(s) or more than one turboprop engine; and

(iii) for which a type certificate is first issued on or after 1 January 2016.

(b) The CVR shall be capable of retaining data recorded during at least:

(1) the preceding 25 hours for aeroplanes with an MCTOM of more than 27 000 kg and first issued with an individual CofA on or after 1 January 2022; or

(2) the preceding 2 hours in all other cases.

(c) The CVR shall record with reference to a timescale:

(1) voice communications transmitted from or received in the flight crew compartment by radio;

(2) flight crew members' voice communications using the interphone system and the public address system, if installed;

(3) the aural environment of the flight crew compartment, including, without interruption, the audio signals received from each boom and mask microphone in use; and

(4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.

(d) The CVR shall start automatically to record prior to the aeroplane moving under its own power and shall continue to record until the termination of the flight when the aeroplane is no longer capable of moving under its own power.

(e) In addition to (d), depending on the availability of electrical power, the CVR shall start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.

(f) If the CVR is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the CVR is deployable, it shall have an automatic emergency locator transmitter.

NCC.IDE.A.165 Flight data recorder

(a) Aeroplanes with an MCTOM of more than 5 700 kg and first issued with an individual CofA on or after 1 January 2016 shall be equipped with an FDR that uses a digital method of recording and storing data and for which a method of readily retrieving that data from the storage medium is available.

(b) The FDR shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation and be capable of retaining data recorded during at least the preceding 25 hours.

(c) Data shall be obtained from aeroplane sources that enable accurate correlation with information displayed to the flight crew.

(d) The FDR shall start automatically to record the data prior to the aeroplane being capable of moving under its own power and shall stop automatically after the aeroplane is incapable of moving under its own power.

(e) If the FDR is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the FDR is deployable, it shall have an automatic emergency locator transmitter.

NCC.IDE.A.170 Data link recording

(a) Aeroplanes first issued with an individual CofA on or after 1 January 2016 that have the capability to operate data link communications and are required to be equipped with a CVR shall record on a recorder, where applicable:

(1) data link communication messages related to ATS communications to and from the aeroplane, including messages applying to the following applications:

(i) data link initiation;

(ii) controller–pilot communication;

(iii) addressed surveillance;

(iv) flight information;

(v) as far as is practicable, given the architecture of the system, aircraft broadcast surveillance;

(vi) as far as is practicable, given the architecture of the system, aircraft operational control data; and

(vii) as far as is practicable, given the architecture of the system, graphics;

(2) information that enables correlation to any associated records related to data link communications and stored separately from the aeroplane; and

(3) information on the time and priority of data link communications messages, taking into account the system's architecture.

(b) The recorder shall use a digital method of recording and storing data and information and a method for readily retrieving that data. The recording method shall allow the data to match the data recorded on the ground.

(c) The recorder shall be capable of retaining data recorded for at least the same duration as set out for CVRs in NCC.IDE.A.160.

(d) If the recorder is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the recorder is deployable, it shall have an automatic emergency locator transmitter.

(e) The requirements applicable to the start and stop logic of the recorder are the same as the requirements applicable to the start and stop logic of the CVR contained in NCC.IDE.A.160(d) and (e).

NCC.IDE.A.175 Flight data and cockpit voice combination recorder

Compliance with CVR requirements and FDR requirements may be achieved by:

(a) one flight data and cockpit voice combination recorder if the aeroplane has to be equipped with a CVR or an FDR; or

(b) two flight data and cockpit voice combination recorders if the aeroplane has to be equipped with a CVR and an FDR.

NCC.IDE.A.180 Seats, seat safety belts, restraint systems and child restraint devices

(a) Aeroplanes shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more;

(2) a seat belt on each passenger seat and restraining belts for each berth;

(3) a child restraint device (CRD) for each person on board younger than 24 months;

(4) a seat belt with upper torso restraint system incorporating a device that will automatically restrain the occupant's torso in the event of rapid deceleration:

(i) on each flight crew seat and on any seat alongside a pilot's seat; and

(ii) on each observer's seat located in the flight crew compartment; and

(5) a seat belt with upper torso restraint system on the seats for the minimum required cabin crew, in the case of aeroplanes first issued with an individual CofA after 31 December 1980.

(b) A seat belt with upper torso restraint system shall have:

(1) a single point release;

(2) on the seats for the minimum number of required cabin crew members, two shoulder straps and a seat belt that may be used independently; and

(3) on flight crew seats and on any seat alongside a pilot's seat either of the following:

(i) two shoulder straps and a seat belt that may be used independently; or

(ii) a diagonal shoulder strap and a seat belt that may be used independently for the following aeroplanes:

(A) aeroplanes with an MCTOM of 5 700 kg or less and with an MOPSC of nine or less that are compliant with the emergency landing dynamic conditions defined in the applicable certification specification;

(B) aeroplanes with an MCTOM of 5 700 kg or less and with an MOPSC of nine or less that are not compliant with the emergency landing dynamic conditions defined in the applicable certification specification and having an individual CofA first issued before 25 August 2016

NCC.IDE.A.185 Fasten seat belt and no smoking signs

Aeroplanes in which not all passenger seats are visible from the flight crew seat(s) shall be equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.

NCC.IDE.A.190 First-aid kit

(a) Aeroplanes shall be equipped with first-aid kits in accordance with Table 1.

Table 1 Number of first-aid kits required

Number of passenger seats installed	Number of first-aid kits required
0 – 100	1
101 – 200	2
201 – 300	3
301 – 400	4
401 – 500	5
501 or more	6

(b) First-aid kits shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCC.IDE.A.195 Supplemental oxygen — pressurised aeroplanes

(a) Pressurised aeroplanes operated at flight altitudes for which the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Pressurised aeroplanes operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and:

(i) 100 % of the passengers for any period when the cabin pressure altitude exceeds 15 000 ft, but in no case less than 10 minutes' supply;

(ii) at least 30 % of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment will be between 14 000 ft and 15 000 ft; and

(iii) at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 14 000 ft;

(2) all the occupants of the passenger compartment for no less than 10 minutes, in the case of aeroplanes operated at pressure altitudes above 25 000 ft, or operated below that altitude, but under conditions that will not allow them to descend safely to a pressure altitude of 13 000 ft within 4 minutes.

(c) Pressurised aeroplanes operated at flight altitudes above 25 000 ft shall, in addition, be equipped with:

(1) a device to provide a warning indication to the flight crew of any loss of pressurisation; and

(2) quick donning masks for flight crew members.

NCC.IDE.A.200 Supplemental oxygen — non-pressurised aeroplanes

(a) Non-pressurised aeroplanes operated at flight altitudes when the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Non-pressurised aeroplanes operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 13 000 ft; and

(2) all crew members and passengers for any period that the pressure altitude in the passenger compartments will be above 13 000 ft.

NCC.IDE.A.205 Hand fire extinguishers

(a) Aeroplanes shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCC.IDE.A.206 Crash axe and crowbar

(a) Aeroplanes with an MCTOM of more than 5 700 kg or with an MOPSC of more than nine shall be equipped with at least one crash axe or crowbar located in the flight crew compartment.

(b) In the case of aeroplanes with an MOPSC of more than 200, an additional crash axe or crowbar shall be installed in or near the rearmost galley area.

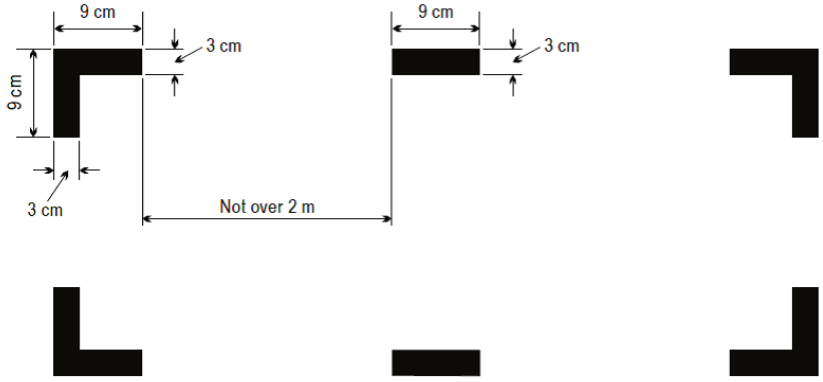
(c) Crash axes and crowbars located in the passenger compartment shall not be visible to passengers.

NCC.IDE.A.210 Marking of break-in points

If areas of the aeroplane's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1

Marking of break-in points



NCC.IDE.A.215 Emergency locator transmitter (ELT)

(a) Aeroplanes shall be equipped with:

(1) an ELT of any type or an aircraft localisation means meeting the requirement of TCAR OPS Part CAT, CAT.GEN.MPA.210, when first issued with an individual CofA on or before 1 July 2008;

(2) an automatic ELT or an aircraft localisation means meeting the requirement of TCAR OPS Part CAT, CAT. GEN.MPA.210, when first issued with an individual CofA after 1 July 2008.

(b) ELTs of any type shall be capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

NCC.IDE.A.220 Flight over water

(a) The following aeroplanes shall be equipped with a life-jacket for each person on board or equivalent individual floatation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided:

(1) landplanes operated over water at a distance of more than 50 NM from land or taking off or landing at an aerodrome or operating site where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that there would be a likelihood of a ditching; and

(2) seaplanes operated over water.

(b) Each life-jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

(c) Seaplanes operated over water shall be equipped with:

(1) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the aeroplane on water, appropriate to its size, weight and handling characteristics; and

(2) equipment for making the sound signals as prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

(d) The pilot-in-command of an aeroplane operated at a distance away from land where an emergency landing is possible greater than that corresponding to 30 minutes at normal cruising speed or 50 NM, whichever is the lesser, shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching, based on which he/she shall determine the carriage of:

(1) equipment for making the distress signals;

(2) life-rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and

(3) life-saving equipment to provide the means of sustaining life, as appropriate to the flight to be undertaken.

NCC.IDE.A.230 Survival equipment

(a) Aeroplanes operated over areas in which search and rescue would be especially difficult shall be equipped with:

(1) signalling equipment to make the distress signals;

(2) at least one survival ELT(S); and

(3) additional survival equipment for the route to be flown taking account of the number of persons on board.

(b) The additional survival equipment specified in (a)(3) does not need to be carried when the aeroplane:

(1) remains within a distance from an area where search and rescue is not especially difficult corresponding to:

(i) 120 minutes at one-engine-inoperative (OEI) cruising speed for aeroplanes capable of continuing the flight to an aerodrome with the critical engine(s) becoming inoperative at any point along the route or planned diversion routes; or

(ii) 30 minutes at cruising speed for all other aeroplanes; or

(2) remains within a distance no greater than that corresponding to 90 minutes at cruising speed from an area suitable for making an emergency landing, for aeroplanes certified in accordance with the applicable airworthiness standard.

NCC.IDE.A.240 Headset

(a) Aeroplanes shall be equipped with a headset with a boom microphone or equivalent for each flight crew member at their assigned station in the flight crew compartment.

(b) Aeroplanes operated under IFR or at night shall be equipped with a transmit button on the manual pitch and roll control for each required flight crew member.

NCC.IDE.A.245 Radio communication equipment

(a) Aeroplanes operated under IFR or at night, or when required by the applicable airspace requirements, shall be equipped with radio communication equipment that, under normal radio propagating conditions, shall be capable of:

(1) conducting two-way communication for aerodrome control purposes;

(2) receiving meteorological information at any time during flight;

(3) conducting two-way communication at any time during flight with those aeronautical stations and on those frequencies prescribed by the appropriate authority; and

(4) providing for communication on the aeronautical emergency frequency 121,5 MHz.

(b) When more than one communication equipment unit is required, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

(c) For operations where communication equipment is required to meet an RCP specification for performance-based communication (PBC), an aeroplane shall be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s)

NCC.IDE.A.250 Navigation equipment

(a) Aeroplanes shall be equipped with navigation equipment that will enable them to proceed in accordance with:

(1) the ATS flight plan, if applicable; and

(2) the applicable airspace requirements.

(b) Aeroplanes shall have sufficient navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Aeroplanes operated on flights in which it is intended to land in IMC shall be equipped with suitable equipment capable of providing guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in IMC and for any designated alternate aerodromes.

(d) For PBN operations the aircraft shall meet the airworthiness certification requirements for the appropriate navigation specification.

(e) Aeroplanes shall be equipped with surveillance equipment in accordance with the applicable airspace requirements.

NCC.IDE.A.255 Transponder

Aeroplanes shall be equipped with a pressure altitude reporting secondary surveillance radar (SSR) transponder and any other SSR transponder capability required for the route being flown.

NCC.IDE.A.260 Management of aeronautical databases

(a) Aeronautical databases used on certified aircraft system applications shall meet data quality requirements that are adequate for the intended use of the data.

(b) The operator shall ensure the timely distribution and insertion of current and unaltered aeronautical databases to all aircraft that require them.

(c) Notwithstanding any other occurrence reporting requirements as defined in the Kingdom of Thailand Civil Aviation Occurrence reporting Regulation, or other national provisions the operator shall report to the database provider instances of erroneous, inconsistent or missing data that might be reasonably expected to constitute a hazard to flight. In such cases, the operator shall inform flight crew and other personnel concerned, and shall ensure that the affected data is not used.

NCC.IDE.A.265 Surveillance Equipment

(e) An aeroplane shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services

(f) For operations where surveillance equipment is required to meet RSP specification for performance-based surveillance (PBS), an aeroplane shall, in addition to the requirement specified at (a):

(i) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);

SECTION 2 Helicopters

NCC.IDE.H.100 Instruments and equipment — general

(a) Instruments and equipment required by this Subpart shall be approved in accordance with the applicable airworthiness requirements if they are:

(1) used by the flight crew to control the flight path;

(2) used to comply with NCC.IDE.H.245;

(3) used to comply with NCC.IDE.H.250; or

(4) installed in the helicopter.

(b) The following items, when required by this Subpart, do not need an equipment approval:

(1) independent portable light;

(2) an accurate time piece;

(3) chart holder;

(4) first-aid kit;

(5) survival and signalling equipment;

(6) sea anchor and equipment for mooring; and

(7) child restraint device.

(c) Instruments and equipment not required by this Subpart as well as any other equipment which is not required by other applicable TCAR OPS Parts, but is carried on a flight, shall comply with the following: Instruments and equipment or accessories not required under this part, as well as any other equipment which is not required under TCAR OPS Regulation, but carried on a flight, shall comply with the following requirements:

(1) the information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with the requirements of the Air Navigation Act B.E 2497, Kingdom of Thailand Civil Aviation Regulations or NCC.IDE.H.245 and NCC.IDE.H.250; and the information provided by those instruments, equipment or accessories shall not be used by the flight crew members to comply with airworthinbess requirements or points NCC.IDE.H.245 and NCC.IDE.H.250 of this part;

(2) the instruments and equipment shall not affect the airworthiness of the helicopter, even in the case of failures or malfunction.

(d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.

(e) Those instruments that are used by a flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his/her station, with the minimum practicable deviation from the position and line of vision which he/she normally assumes when looking forward along the flight path.

(f) All required emergency equipment shall be easily accessible for immediate use.

NCC.IDE.H.105 Minimum equipment for flight

A flight shall not be commenced when any of the helicopter's instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the helicopter is operated in accordance with the operator's minimum equipment list (MEL);

(b) the operator is approved by the CAAT to operate the helicopter within the constraints of the master minimum equipment list ("MMEL") in accordance with TCAR OPS Part ORO point ORO.MLR.105(j); or

(c) the helicopter is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

NCC.IDE.H.115 Operating lights

Helicopters operated at night shall be equipped with:

(a) an anti-collision light system;

(b) navigation/position lights;

(c) a landing light;

(d) lighting supplied from the helicopter's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the helicopter;

(e) lighting supplied from the helicopter's electrical system to provide illumination in all passenger compartments;

(f) an independent portable light for each crew member station; and

(g) lights to conform with the International Regulations for Preventing Collisions at Sea if the helicopter is amphibious.

NCC.IDE.H.120 Operations under VFR — flight and navigational instruments and associated equipment

(a) Helicopters operated under VFR by day shall be equipped with a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed; and

(5) slip.

(b) Helicopters operated under VMC over water and out of sight of the land, or under VMC at night, or when the visibility is less than 1 500 m, or in conditions where the helicopter cannot be maintained in a desired flight path without reference to one or more additional instruments, shall be equipped, in addition to (a), with:

(1) a means of measuring and displaying the following:

(i) attitude;

(ii) vertical speed; and

(iii) stabilised heading;

(2) a means of indicating when the supply of power to the gyroscopic instruments is not adequate; and

(3) a means of preventing malfunction of the airspeed indicating system required in (a)(4) due to condensation or icing.

(c) Whenever two pilots are required for the operation, helicopters shall be equipped with an additional separate means of displaying the following:

(1) barometric altitude;

(2) indicated airspeed;

(3) slip;

(4) attitude, if applicable;

(5) vertical speed, if applicable; and

(6) stabilised heading, if applicable.

NCC.IDE.H.125 Operations under IFR — flight and navigational instruments and associated equipment

Helicopters operated under IFR shall be equipped with:

(a) a means of measuring and displaying the following:

(1) magnetic heading;

(2) time in hours, minutes and seconds;

(3) barometric altitude;

(4) indicated airspeed;

(5) vertical speed;

(6) slip;

(7) attitude;

(8) stabilised heading; and

(9) outside air temperature;

(b) a means of indicating when the supply of power to the gyroscopic instruments is not adequate;

(c) whenever two pilots are required for the operation, an additional separate means of displaying the following (note single-pilot IFR operations are not authorised in the Kingdom of Thailand)

(1) barometric altitude;

(2) indicated airspeed;

(3) vertical speed;

(4) slip;

(5) attitude; and

(6) stabilised heading;

(d) a means of preventing malfunction of the airspeed indicating systems required in (a)(4) and (c)(2) due to condensation or icing;

(e) an alternate source of static pressure;

(f) a chart holder in an easily readable position that can be illuminated for night operations; and

(g) an additional means of measuring and displaying attitude as a standby instrument.

NCC.IDE.H.130 Additional equipment for single-pilot operations under IFR

(Note single-pilot IFR operations are not authorised in the Kingdom of Thailand)

Helicopters operated under IFR with a single pilot shall be equipped with an autopilot with at least altitude hold and heading mode.

NCC.IDE.H.145 Airborne weather detecting equipment

Helicopters with an MOPSC of more than nine and operated under IFR or at night shall be equipped with airborne weather detecting equipment when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather detecting equipment, may be expected to exist along the route to be flown.

NCC.IDE.H.150 Additional equipment for operations in icing conditions at night

(a) Helicopters operated in expected or actual icing conditions at night shall be equipped with a means to illuminate or detect the formation of ice.

(b) The means to illuminate the formation of ice shall not cause glare or reflection that would handicap flight crew members in the performance of their duties.

NCC.IDE.H.155 Flight crew interphone system

Helicopters operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.

NCC.IDE.H.160 Cockpit voice recorder

(a) Helicopters with an MCTOM of more than 7 000 kg and first issued with an individual CofA on or after 1 January 2016 shall be equipped with a CVR.

(b) The CVR shall be capable of retaining data recorded during at least the preceding 2 hours.

(c) The CVR shall record with reference to a timescale:

(1) voice communications transmitted from or received in the flight crew compartment by radio;

(2) flight crew members' voice communications using the interphone system and the public address system, if installed;

(3) the aural environment of the cockpit, including, without interruption, the audio signals received from each crew microphone; and

(4) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.

(d) The CVR shall start automatically to record prior to the helicopter moving under its own power and shall continue to record until the termination of the flight when the helicopter is no longer capable of moving under its own power.

(e) In addition to (d), depending on the availability of electrical power, the CVR shall start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.

(f) If the CVR is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the CVR is deployable, it shall have an automatic emergency locator transmitter.

NCC.IDE.H.165 Flight data recorder

(a) Helicopters with an MCTOM of more than 3 175 kg and first issued with an individual CofA on or after 1 January 2016 shall be equipped with an FDR that uses a digital method of recording and storing data and for which a method of readily retrieving that data from the storage medium is available.

(b) The FDR shall record the parameters required to determine accurately the helicopter flight path, speed, attitude, engine power, configuration and operation and be capable of retaining data recorded during at least the preceding 10 hours.

(c) Data shall be obtained from helicopter sources that enable accurate correlation with information displayed to the flight crew.

(d) The FDR shall start automatically to record the data prior to the helicopter being capable of moving under its own power and shall stop automatically after the helicopter is incapable of moving under its own power.

(e) If the FDR is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the FDR is deployable, it shall have an automatic emergency locator transmitter.

NCC.IDE.H.170 Data link recording

(a) Helicopters first issued with an individual CofA on or after 1 January 2016 that have the capability to operate data link communications and are required to be equipped with a CVR shall record on a recorder, where applicable:

(1) data link communication messages related to ATS communications to and from the helicopter, including messages applying to the following applications:

(i) data link initiation;

(ii) controller–pilot communication;

(iii) addressed surveillance;

(iv) flight information;

(v) as far as is practicable, given the architecture of the system, aircraft broadcast surveillance;

(vi) as far as is practicable, given the architecture of the system, aircraft operational control data; and

(vii) as far as is practicable, given the architecture of the system, graphics;

(2) information that enables correlation to any associated records related to data link communications and stored separately from the helicopter; and

(3) information on the time and priority of data link communications messages, taking into account the system's architecture.

(b) The recorder shall use a digital method of recording and storing data and information and a method for readily retrieving that data. The recording method shall allow the data to match the data recorded on the ground.

(c) The recorder shall be capable of retaining data recorded for at least the same duration as set out for CVRs in NCC.IDE.H.160.

(d) If the recorder is not deployable, it shall have a device to assist in locating it under water. By 1 January 2020 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the recorder is deployable, it shall have an automatic emergency locator transmitter.

(e) The requirements applicable to the start and stop logic of the recorder are the same as the requirements applicable to the start and stop logic of the CVR contained in NCC.IDE.H.160(d) and (e).

NCC.IDE.H.175 Flight data and cockpit voice combination recorder

Compliance with CVR and FDR requirements may be achieved by one flight data and cockpit voice combination recorder.

NCC.IDE.H.180 Seats, seat safety belts, restraint systems and child restraint devices

(a) Helicopters shall be equipped with:

(1) a seat or berth for each person on board who is aged 24 months or more;

(2) a seat belt on each passenger seat and restraining belts for each berth;

(3) for helicopters first issued with an individual CofA after 31 December 2012, a seat belt with an upper torso restraint system for each passenger who is aged 24 months or more;

(4) a child restraint device (CRD) for each person on board younger than 24 months;

(5) a seat belt with upper torso restraint system incorporating a device that will automatically restrain the occupant's torso in the event of rapid deceleration on each flight crew seat; and

(6) a seat belt with upper torso restraint system on the seats for the minimum required cabin crew, in the case of helicopters first issued with an individual CofA after 31 December 1980.

(b) A seat belt with upper torso restraint system shall:

(1) have a single point release; and

(2) on flight crew seats, on any seat alongside a pilot's seat and on the seats for the minimum required cabin crew, include two shoulder straps and a seat belt that may be used independently.

NCC.IDE.H.185 Fasten seat belt and no smoking signs

Helicopters in which not all passenger seats are visible from the flight crew seat(s) shall be equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.

NCC.IDE.H.190 First-aid kit

(a) Helicopters shall be equipped with at least one first-aid kit.

(b) The first-aid kit(s) shall be:

(1) readily accessible for use; and

(2) kept up-to-date.

NCC.IDE.H.200 Supplemental oxygen — non-pressurised helicopters

(a) Non-pressurised helicopters operated at flight altitudes when the oxygen supply is required in accordance with (b) shall be equipped with oxygen storage and dispensing apparatus capable of storing and dispensing the required oxygen supplies.

(b) Non-pressurised helicopters operated above flight altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft shall carry enough breathing oxygen to supply:

(1) all crew members and at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10 000 ft and 13 000 ft; and

(2) all crew members and passengers for any period that the pressure altitude in the passenger compartment will be above 13 000 ft.

NCC.IDE.H.205 Hand fire extinguishers

(a) Helicopters shall be equipped with at least one hand fire extinguisher:

(1) in the flight crew compartment; and

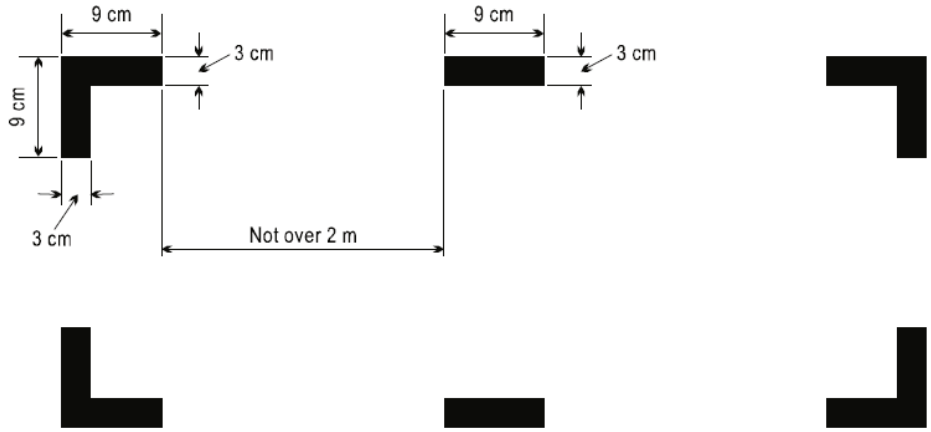
(2) in each passenger compartment that is separate from the flight crew compartment, except if the compartment is readily accessible to the flight crew.

(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

NCC.IDE.H.210 Marking of break-in points

If areas of the helicopter's fuselage suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in Figure 1.

Figure 1 Marking of break-in points



NCC.IDE.H.215 Emergency locator transmitter (ELT)

(a) Helicopters shall be equipped with at least one automatic ELT.

(b) An ELT of any type shall be capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

NCC.IDE.H.225 Life-jackets

(a) Helicopters shall be equipped with a life-jacket for each person on board or equivalent individual floatation device for each person on board younger than 24 months, which shall be worn or stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, when:

(1) operated on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, where in the case of the critical engine failure, the helicopter is able to sustain level flight;

(2) operated on a flight over water beyond autorotational distance from the land, where in the case of critical engine failure, the helicopter is not able to sustain level flight; or

(3) taking off or landing at an aerodrome or operating site where the take-off or approach path is over water.

(b) Each life-jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

NCC.IDE.H.226 Crew survival suits

Each crew member shall wear a survival suit when so determined by the pilot-in-command based on a risk assessment taking into account the following conditions:

(a) flights over water beyond autorotational distance or safe forced landing distance from land, where in the case of a critical engine failure, the helicopter is not able to sustain level flight; and

(b) the weather report or forecasts available to the commander/pilot-in-command indicate that the sea temperature will be less than plus 10 °C during the flight.

NCC.IDE.H.227 Life-rafts, survival ELTs and survival equipment on extended overwater flights

Helicopters operated:

(a) on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, where in the case of the critical engine failure, the helicopter is able to sustain level flight; or

(b) on a flight over water at a distance corresponding to more than 3 minutes flying time at normal cruising speed, where in the case of the critical engine failure, the helicopter is not able to sustain level flight, and if so determined by the pilot-in-command by means of a risk assessment;

shall be equipped with:

(1) in the case of a helicopter carrying less than 12 persons, at least one life-raft with a rated capacity of not less than the maximum number of persons on board, stowed so as to facilitate their ready use in emergency;

(2) in the case of a helicopter carrying more than 11 persons, at least two life-rafts, stowed so as to facilitate their ready use in an emergency, sufficient together to accommodate all persons capable of being carried on board and, if one is lost the remaining life-raft(s) having the overload capacity sufficient to accommodate all persons on the helicopter;

(3) at least one survival ELT (ELT(S)) for each required life-raft; and

(4) life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.

NCC.IDE.H.230 Survival equipment

Helicopters operated over areas in which search and rescue would be especially difficult shall be equipped with:

(a) signalling equipment to make distress signals;

(b) at least one survival ELT (ELT(S)); and

(c) additional survival equipment for the route to be flown taking account of the number of persons on board.

NCC.IDE.H.232 Helicopters certified for operating on water — miscellaneous equipment

Helicopters certified for operating on water shall be equipped with:

(a) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the helicopter on water, appropriate to its size, weight and handling characteristics; and

(b) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

NCC.IDE.H.235 All helicopters on flights over water — ditching

Helicopters shall be designed for landing on water or certified for ditching in accordance with the relevant certification specifications or fitted with emergency flotation equipment when operated on a flight over water in a hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed.

NCC.IDE.H.240 Headset

Whenever a radio communication and/or radio navigation system is required, helicopters shall be equipped with a headset with boom microphone or equivalent and a transmit button on the flight controls for each required pilot and/or crew member at his/her assigned station.

NCC.IDE.H.245 Radio communication equipment

(a) Helicopters operated under IFR or at night, or when required by the applicable airspace requirements, shall be equipped with radio communication equipment that, under normal radio propagating conditions, shall be capable of:

(1) conducting two-way communication for aerodrome control purposes;

(2) receiving meteorological information;

(3) conducting two-way communication at any time during flight with those aeronautical stations and on those frequencies prescribed by the appropriate authority; and

(4) providing for communication on the aeronautical emergency frequency 121,5 MHz.

(b) When more than one communications equipment unit is required, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

(c) When a radio communication system is required, and in addition to the flight crew interphone system required in NCC.IDE.H.155, helicopters shall be equipped with a transmit button on the flight controls for each required pilot and crew member at his/her assigned station.

(d) For operations where communication equipment is required to meet an RCP specification for performance-based communication (PBC), an aeroplane shall be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP specification(s)

NCC.IDE.H.250 Navigation equipment

(a) Helicopters shall be equipped with navigation equipment that will enable them to proceed in accordance with:

(1) the ATS flight plan, if applicable; and

(2) the applicable airspace requirements.

(b) Helicopters shall have sufficient navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment shall allow safe navigation in accordance with (a), or an appropriate contingency action, to be completed safely.

(c) Helicopters operated on flights in which it is intended to land in IMC shall be equipped with navigation equipment capable of providing guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in IMC and for any designated alternate aerodromes.

(d) When PBN is required the aircraft shall meet the airworthiness certification requirements for the appropriate navigation specification.

(e) Helicopters shall be equipped with surveillance equipment in accordance with the applicable airspace requirements.

NCC.IDE.H.255 Transponder

Helicopters shall be equipped with a pressure altitude reporting secondary surveillance radar (SSR) transponder and any other SSR transponder capability required for the route being flown.

NCC.IDE.H.260 Management of aeronautical databases

(a) Aeronautical databases used on certified aircraft system applications shall meet data quality requirements that are adequate for the intended use of the data.

(b) The operator shall ensure the timely distribution and insertion of current and unaltered aeronautical databases to all aircraft that require them.

(c) Notwithstanding any other occurrence reporting requirements as defined in in the Kingdom of Thailand Civil Aviation Occurrence reporting Regulation, or other national provisions the operator shall report to the database provider instances of erroneous, inconsistent or missing data that might be reasonably expected to constitute a hazard to flight.

In such cases, the operator shall inform flight crew and other personnel concerned, and shall ensure that the affected data is not used.

NCC.IDE.H.265 Surveillance Equipment

(a) An helicopter shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of air traffic services

(b) For operations where surveillance equipment is required to meet RSP specification for performance-based surveillance (PBS), an aeroplane shall, in addition to the requirement specified at (a):

(i) be provided with surveillance equipment which will enable it to operate in accordance with the prescribed RSP specification(s);