	Civil Aviation Authority - Sultanate of Oman **Flight Safety Department - Personnel Licensing Section** **Type Rating (A&H) Training Program Approval Compliance List**

• **ATO name**			
• **Aircraft Category(s)**	☐ Airplane	☐ Helicopter	
• **Aircraft type(s)**			
• **Compliance list received date**			
• **Inspector name**			
• **ATO focal point contact details**	Name	Phone	Email

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
SECTION 6 Specific requirements for airplane & helicopter Type Rating					
ORA.ATO.125 Training program					
(a)	A training program shall be developed for each type of course offered.				
(b)	The training program shall comply with the requirements of CAR FCL, as applicable.				
AMC1 to ORA.ATO.125 Training Program					
GENERAL					
Flight training in an FSTD and theoretical knowledge instruction should be phased in such a manner as to ensure that students are able to apply to flight exercises the knowledge gained on the ground. Arrangements should be made so that problems encountered during instruction can be resolved during subsequent training.					
AMC2 to ORA.ATO.125 Training Program					
TYPE RATING COURSES - AEROPLANES					
(a)	**Introduction**				
(1)	When developing the training program for a type rating course, in addition to complying with the standards included in the operational suitability data (OSD) as established for the applicable type, the ATO should also follow any further recommendations contained therein.				
(2)	The type rating course should, as far as possible, provide for a continual process of ground, FSTD and flight training to enable the student to assimilate the knowledge and skills required to operate a specific aircraft type safely and efficiently. The student's ability to do this should be determined by the demonstration of a satisfactory level of theoretical knowledge of the aircraft determined by progressive checking of knowledge and examination, progressive assessment by the ATO during flight training and the successful completion of a practical skill test with an examiner.				
(3)	The type rating course should normally be conducted as a single, full-time course of study and training. However, in the situation where the course is intended to enable a pilot to fly a further aircraft type while continuing to fly a current type, such as to enable mixed fleet flying with the same operator, some elements of the theoretical knowledge course conducted by self-study may be undertaken while the student continues to fly the current type.				

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
(b)	**Variants**				
(1)	Familiarization training: Where an airplane type rating also includes variants of the same aircraft type requiring familiarization training, the additional familiarization training may be included in the theoretical knowledge training of the initial type rating course. Flight training should be conducted on a single variant within the type.				
(2)	Differences training: Where an airplane type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course. However, elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of the CAA.				
(c)	**Program of theoretical knowledge and flight training**				
(1)	The training program should specify the time allocated to theoretical knowledge training, FSTD training and, if not approved for zero flight-time training (ZFTT), the airplane. The initial type rating course should be programmed on the basis that the student has the minimum licensing and experience requirements for entry to the course. For a first type rating on a multi- pilot airplane (MPA), the course should also provide for consolidation and type specific training in those elements of basic multi-crew cooperation (MCC) training relevant to the type or variant.				
(2)	If the ATO wishes to provide a training course that includes credit for previous experience on similar types of aircraft, such as those with common systems or operating procedures with the new type, the entry requirements to such courses should be specified by the ATO and should define the minimum level of experience and qualification required of the flight crew member.				
(3)	The ATO is permitted to contract elements of training to a third-party training provider. In such cases the contracted organization should normally be approved to conduct such training. When the contracted organization is not an ATO, the CAA should, within the approval process of the ATO, include the contracted organization and be satisfied that the standard of training intended to be given meets the requirements. The other obligations of the ATO, such as student progress monitoring and an adequate management system, can be exercised by the ATO seeking approval and which retains responsibility for the whole course.				
GROUND TRAINING					
(d)	Syllabus. The ground training syllabus should provide for the student to gain a thorough understanding of the operation, function and, if appropriate, abnormal and emergency operation of all aircraft systems. This training should also include those systems essential to the operation of the aircraft, such as ‘fly-by-wire’ flight control systems, even if the flight crew have little or no control of their normal or abnormal operation.				
(e)	Theoretical knowledge instruction. The theoretical knowledge instruction training should meet the general objectives of (but not be limited to) giving the student:				
(1)	a thorough knowledge of the aircraft structure, powerplant and systems, and their associated limitations, including mass and balance, aircraft performance and flight planning considerations;				
(2)	a knowledge of the positioning and operation of the cockpit controls and indicators for the aircraft and its systems;				
(3)	an understanding of system malfunctions, their effect on aircraft operations and interaction with other systems; and				
(4)	the understanding of normal, abnormal and emergency procedures.				
(f)	Facilities and training aids. The ATO should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of the operation of systems covered by the theoretical knowledge syllabus and, in the case of multi-pilot airplanes, enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should be made available for student self-study outside the formal training program.				
(g)	Computer-based training (CBT). CBT provides a valuable source of theoretical instruction, enabling the students to progress at their own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self-study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the student should also have access to a suitably qualified instructor able to assist with areas of difficulty for the student.				

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
(h)	Self-study and distance learning. Elements of the theoretical knowledge syllabus may be adequately addressed by distance learning, if approved, or self-study, particularly when utilizing CBT. Progress testing, either by self-assessed or instructor-evaluated means should be included in any self-study program. If self-study or distance learning is included in the theoretical knowledge training, the course should also provide for an adequate period of supervised consolidation and knowledge testing.				
(i)	Progress tests and final theoretical knowledge examination:				
(1)	The theoretical knowledge training program should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self-testing facility, and by further testing during the supervised consolidation phase of the ground course.				
(2)	The final theoretical knowledge examination should cover all areas of the theoretical knowledge syllabus. The final examination should be conducted as a supervised written (including computer-based) knowledge test without reference to course material. The pass mark of 75% assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The student should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction. A successful pass of the theoretical knowledge course and final examination should be a prerequisite for progression to the flight training phase of the type rating course, unless otherwise determined in the OSD as established for the applicable type.				
FLIGHT TRAINING					
(j)	Flight simulation training devices (FSTDs). A type rating course for a multi-pilot airplane should include FSTD training. The amount of training required when using FSTDs will depend on the complexity of the airplane concerned, and to some extent on the previous experience of the pilot. Except for those courses giving credit for previous experience (see para (c)(2)), a minimum of thirty-two (32) hours of FSTD training should be programmed for a crew of a multi-pilot airplane, of which at least sixteen (16) hours should be in an FFS operating as a crew. FFS time may be reduced if other qualified FSTDs used during the flight training program accurately replicate the cockpit environment, operation and airplane response. Such FSTDs may typically include flight management computer (FMC) training devices using hardware and computer programs identical to those of the airplane.				
(k)	Airplane training with FFS				
(1)	with the exception of courses approved for ZFTT, certain training exercises normally involving take-off and landing in various configurations should be completed in the airplane rather than in an FFS. Unless otherwise specified in the OSD as established for the applicable type, this take-off and landing training should include: (A) at least four landings in the case of MPAs (or single-pilot high performance complex airplanes (SP HPAs)) where the student pilot has more than 500 hours of MPA experience (or SPA experience) in airplanes of similar size and performance or, in all other cases, at least six landings; (B) at least one full-stop landing; and (C) one go-around with all engines operating.				
(2)	Courses approved for ZFTT (i) During the specific simulator session before line flying under supervision (LIFUS), consideration should be given to varying conditions, for example: (A) runway surface conditions; (B) runway length; (C) flap setting; (D) power setting; (E) crosswind and turbulence conditions; and (F) maximum take-off mass (MTOM) and maximum landing mass (MLM). (ii) At least one landing should be conducted as full-stop landing. The session should be flown in normal operation. Special attention should be given to the taxiing technique. iii) A training methodology should be agreed with the CAA that ensures the trainee is fully competent with the exterior inspection of the airplane before conducting such an inspection un-supervised.				

No	CAR ORA Requirements	Training Program Reference	Compliance Status YES	NO	NA
	((iv) The LIFUS should be performed as soon as possible after the specific FFS session. (v) The license endorsement should be entered on the license after the skill test, but before the first four take-offs and landings in the airplane. At the discretion of the CAA, provisional or temporary endorsement and any restriction should be entered on the license. (vi) Where a specific arrangement exists between the ATO and the commercial air transport operator, the operator proficiency check (OPC) and the ZFTT specific details should be conducted using the operator's standard operating procedures (SOPs).				
(3)	All training exercises should be designed to remain within the training envelope as determined by the ATO (Note: Further guidance regarding the training envelope can be found in GM1 ORA.ATO.125 point (f)).				
(l)	Airplane without FFS				
(1)	Flight training conducted solely in an airplane without the use of FSTDs cannot cover the crew resource management (CRM) and multi-crew cockpit (MCC) aspects of MPA flight training, and for safety reasons cannot cover all emergency and abnormal aircraft operation required for the training and skill test. In such cases, the ATO should demonstrate to the CAA that adequate training in these aspects can be achieved by other means. For training conducted solely on an MPA where two pilots are trained together without the use of an FSTD, a minimum of eight (8) hours of flight training as pilot flying (PF) for each pilot should normally be required. For training on a single-pilot airplane, ten (10) hours of flight training should normally be required. It is accepted that for some relatively simple single or multi-engine aircraft without systems such as pressurization, flight management system (FMS) or electronic cockpit displays, this minimum may be reduced.				
(2)	Airplane training normally involves an inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance with the agreed syllabus. These could include ATC or other traffic delay on the ground prior to take-off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat maneuvers or instrument approaches. In such cases it should be ensured that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.				
(la)	**Additional UPRT training as per CAR FCL should include the elements and components**				

Elements and components		TK instruction	FSTD/ Airplane training				
A	**Aerodynamics**						
1	General aerodynamic characteristics	x					
2	Airplane certification and limitations	x					
3	Aerodynamics (high and low altitudes)	x	x				
4	Airplane performance (high and low altitudes)	x	x				
5	A o A and stall awareness	x	x				
6	Stick shaker or other stall-warning device activation (as applicable)	x	x				
7	Stick pusher (as applicable)	x	x				
8	Mach effects (if applicable to the airplane type	x	x				
9	Airplane stability	x	x				
10	Control surface fundamentals	x	x				
11	Use of trims	x	x				
12	Icing and contamination effects	x	x				
13	Propeller slipstream (as applicable)	x	x				

No	CAR ORA Requirements			Training Program Reference	Compliance Status		
					YES	NO	NA
B	**Causes of and contributing factors to upsets**						
1	Environmental	x					
2	Pilot-induced	x					
3	Mechanical (airplane systems)	x					
	Elements and components	**TK instruction**	**FSTD/ Airplane training**				
C	**Safety review of accidents and incidents relating to airplane upsets**						
1	Safety review of accidents and incidents relating to airplane upsets	x					
D	**G-load awareness and management**						
1	Positive/negative/increasing/decreasing G-loads	x	x				
2	Lateral G awareness (sideslip)	x	x				
3	G-load management	x	x				
E	**Energy management**						
1	Kinetic energy vs potential energy vs effect of thrust-drag ratio on the total energy	x	x				
F	**Flight path management**						
1	Relationship between pitch, power and performance	x	x				
2	Performance and effects of differing power plants (if applicable)	x	x				
3	Manual and automation inputs for guidance and control	x	x				
4	Type-specific characteristics	x	x				
5	Management of go-arounds from various stages during the approach	x	x				
6	Automation management	x	x				
7	Proper use of rudder	x	x				
G	**Recognition**						
1	Type-specific examples of physiological, visual and instrument clues during developing and developed upsets	x	x				
2	Pitch/power/roll/yaw	x	x				
3	Effective scanning (effective monitoring)	x	x				
4	Type-specific stall protection systems and cues	x	x				
5	Criteria for identifying stalls and upsets	x	x				

No	CAR ORA Requirements			Training Program Reference	Compliance Status		
					YES	NO	NA
H	**System malfunction** (including immediate handling and subsequent operational considerations, as applicable)						
1	Flight control defects	x	x				
2	Engine failure (partial or full)	x	x				
3	Instrument failures	x	x				
4	Loss of reliable airspeed (see also point (lb) of this AMC)	x	x				
5	Automation failures	x	x				
6	Fly-by-wire (FBW) protection degradations	x	x				
7	Stall protection system failures including icing alerting systems	x	x				
(lb)	Flight path management (manual or automatic, as appropriate) during unreliable airspeed indication and other failures at high altitude in airplanes with a maximum cruising altitude above FL300. The following training elements should be integrated into type rating training courses for airplanes with a maximum cruising altitude above FL300:						
	Elements	**TK instruction**	**FSTD/ Airplane training**				
1	Basic flight physics principles concerning flight at high altitude, with a particular emphasis on the relative proximity of the critical Mach number and the stall, pitch behavior, and an understanding of the reduced stall angle of attack when compared with low altitude flight.	x	x				
2	Interaction of the automation (autopilot, flight director, auto throttle/auto-thrust) and the consequences of failures inducing disconnection of the automation.	x	x				
3	Consequences of an unreliable airspeed and other failures indication at high altitude and the need for the flight crew to promptly identify the failure and react with appropriate (minimal) control inputs to keep the aircraft in a safe envelope.	x	x				
	Degradation of FBW flight control laws/modes and its consequence on aircraft stability and flight envelope protections, including stall warnings.	x	x				
4	Practical training, using appropriate simulators, on manual handling at high altitude in normal and in non-normal flight control laws/modes, with particular emphasis on pre-stall buffet, the reduced stall angle of attack when compared with low altitude flight, and the effect of pitch inputs on the aircraft trajectory and energy state.		x				
5	The requirement to promptly and accurately apply the stall recovery procedure, as provided by the aircraft manufacturer, at the first indication of an impending stall. Differences between high-altitude and low-altitude stalls must be addressed.	x	x				
6	Procedures for taking over and transferring manual control of the aircraft, especially for FBW airplanes with independent side-sticks.	x	x				
7	Task sharing and crew coordination in high workload/stress conditions with appropriate call-out and acknowledgement to confirm changes to the aircraft flight control law/mode.	x	x				
SKILL TEST							
(m)	Upon completion of the flight training, the pilot will be required to undergo a skill test with an examiner to demonstrate adequate competency of aircraft operation for issue of the type rating. The skill test should be separate from the flight training syllabus, and provision for it cannot be included in the minimum requirements or training hours of the agreed flight training program. The skill test may be conducted in an FFS, the airplane or, in exceptional circumstances, a combination of both.						

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
COURSE COMPLETION CERTIFICATE					
(n)	The HT, or a nominated representative, should certify that all training has been carried out before an applicant undertakes a skill test for the type rating to be included in the pilot's license. If an ATO is unable to provide certain elements of the training that is required to be carried out on an aircraft the ATO may issue such a certificate confirming the completion of the ground training or the training in an FSTD.				
AMC3 to ORA.ATO.125 Training program					
TYPE RATING COURSES - HELICOPTERS					
(a)	**Introduction**				
(1)	When developing the training program for a type rating course, in addition to complying with the standards included in the operational suitability data (OSD) as established for the applicable type, the ATO should also follow any further recommendations contained therein				
(2)	the course should, as far as possible, provide for integrated ground, FSTD and flight training designated to enable the student to operate safely and qualify for the grant of a type rating. The course should be directed towards a helicopter type, but where variants exist, all flying and ground training forming the basis of the course should relate to a single variant.				
(b)	**Variants**				
(1)	Familiarization training: where a helicopter type rating also includes variants of the same aircraft type requiring familiarization training, the additional familiarization training may be included in the theoretical knowledge training of the initial type rating course.				
(2)	Differences training: where a helicopter type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course, although elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of the CAA.				
(c)	**Training in helicopter and FSTDs.** The training program should specify the amounts of flight training in the helicopter type and in FSTDs (FFS's, flight training devices (FTDs), or other training devices (OTDs)). Where a suitable FFS is geographically remote from the normal training base, the CAA may agree to some additional training being included in the program at a remote facility.				
(d)	**Skill test.** The content of the flight training program should be directed towards the skill test for that type. The practical training given in CAR-FCL should be modified as necessary. The skill test may be completed in a helicopter, in an FFS (Full flight simulator) or partially in a helicopter and in an FSTD. The use of an FSTD for skill tests is governed by the level of approval of the flight simulator and the previous experience of the candidate. Where an FSTD is not available, abnormal operations of systems should not be practiced in a helicopter other than as allowed for in the skill test form for the type.				
(e)	**Phase progress tests and final theoretical knowledge examination**. Prior to the final theoretical knowledge examination covering the whole syllabus, the training program should provide for phase progress tests associated with each phase of theoretical knowledge instruction. The phase progress tests should assess the candidate's knowledge on completion of each phase of the training program.				

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
(f)	**Facilities: ground school equipment, training facilities and aids**. The ATO should provide, as a minimum, facilities for classroom instruction. Additional classroom training aids and equipment including, where appropriate, computers, should reflect the content of the course and the complexity of the helicopter. For multi-engine and multi-pilot helicopters, the minimum level of ground training aids should include equipment that provides a realistic cockpit working environment. Task analysis and the latest state-of–the-art training technology is encouraged and should be fully incorporated into the training facilities wherever possible. Facilities for self and supervised testing should be available to the student.				
(g)	**Training devices**. An FTD or OTD may be provided to supplement classroom training in order to enable students to practice and consolidate theoretical instruction. Where suitable equipment is not available, or is not appropriate, a helicopter or flight simulator of the relevant variant should be available. If an FTD represents a different variant of the same helicopter type for which the student is being trained, then differences or familiarization training is required.				
(h)	**Computer-based training (CBT).** Where CBT aids are used as a training tool, the ATO should ensure that a fully qualified ground instructor is available at all times when such equipment is being used by course students. Other than for revision periods, CBT lessons should be briefed and debriefed by a qualified ground instructor (TKI).				
(i)	**Theoretical knowledge instruction**				
(j)	The theoretical knowledge instruction training should meet the general objectives of giving the student:				
(1)	a thorough knowledge of the helicopter structure, transmissions, rotors and equipment, powerplant and systems, and their associated limitations;				
(2)	a knowledge of the positioning and operation of the cockpit controls and indicators for the helicopter and its systems;				
(3)	a knowledge of performance, flight planning and monitoring, mass and balance, servicing and optional equipment items;				
(4)	an understanding of system malfunctions, their effect on helicopter operations and interaction with other systems; and				
(5)	the understanding of normal, abnormal and emergency procedures and giving the student the understanding of potential control problems near the edge of the handling envelope. In particular, the phenomenon of ‘servo transparency’ (also known as ‘jack stall’) should be covered for those helicopter types where it is a known problem. The amount of time and the contents of the theoretical instruction will depend on the complexity of the helicopter type involved and, to some extent, on the previous experience of the student.				
(k)	**Flight training**				
(1)	FSTDs. The level of qualification and the complexity of the type will determine the amount of practical training that may be accomplished in an FSTD, including completion of the skill test. Prior to undertaking the skill test, a student should demonstrate competency in the skill test items during the practical training.				
(2)	Helicopter (with FSTD). With the exception of courses approved for ZFTT, the amount of flight time in a helicopter should be adequate for completion of the skill test.				
(3)	Helicopters (without FSTD). Whenever a helicopter is used for training, the amount of flight time practical training should be adequate for the completion of the skill test. The amount of flight training will depend on the complexity of the helicopter type involved and, to some extent, on the previous experience of the applicant.				

No	CAR ORA Requirements	Training Program Reference	Compliance Status		
			YES	NO	NA
GM1 ORA.ATO.125 Training program					
UPSET PREVENTION AND RECOVERY TRAINING (UPRT)					
(a)	General. The objective of the UPRT is to ensure that pilots are competent to prevent or recover from a developing or developed airplane upset. Prevention training prepares pilots to avoid upsets whereas recovery training prepares pilots to prevent an accident once an upset condition has developed.				
(b)	Human factors				
(1)	Threat and Error Management (TEM) and Crew Resource Management (CRM) principles should be integrated into the UPRT. In particular, the surprise and startle effect as well as the importance of resilience development should be emphasized.				
(2)	Training should also emphasize that an actual upset condition may expose pilots to significant physiological and psychological challenges, such as visual illusions, spatial disorientation and unusual G-forces, with the objective of developing strategies to deal with such challenges.				
(c)	Development of training scenarios. During the development of training scenarios, the ATO should ensure that all of the following is avoided:				
(1)	negative training and negative transfer of training; and				
(2)	training utilizing predictive scenarios. Refer to Revision 2 of the Airplane Upset Recovery Training Aid (AURTA)1 for further guidance on the development of training scenarios.				
(d)	Additional guidance. Specific guidance to the UPRT elements and exercises is available in:				
(1)	the latest revision of the ICAO Doc 10011 ‘Manual on Airplane Upset Prevention and Recovery Training’;				
(2)	Revision 3 of the Airplane Upset Prevention and Recovery Training Aid (AUPRTA)2; and				
(3)	the Flight Safety Foundation publication ‘A Practical Guide for Improving Flight Path Monitoring’, November 2014.				
(e)	Training platform				
(1)	When designing a training course, ATOs should select airplanes that are suitable for all the required training exercises. Where certain exercises require particular capabilities, then an ATO may consider the use of different airplanes for different exercises. Examples include basic UPRT or instrument flight training and the advanced UPRT course				
(2)	For basic UPRT training conducted during the CPL or ATP courses, it is not anticipated that aerobatic category airplanes will be required or that aircraft need to be certificated for intentional spins. Airplanes with a maximum bank angle limitation may not be suitable for exercises such as steep turns or recovery from spiral dive.				
(3)	For the advanced UPRT course (CAR FCL), the use of an airplane certificated in the aerobatic category will provide the greatest safety margin. Airplanes certificated in the normal or utility category may also be suitable provided the exercises used during the training take into account the capabilities of the airplane and are planned to remain within the training envelope for the airplane, as determined by the ATO (see point (f)).				
(f)	Training envelope. The training envelope is the envelope within which all training exercises will be carried out. It should be specified by the ATO in terms of the range of attitudes, speed and g-loads that can be used for training, taking into account:				
(1)	the training environment;				
(2)	the capabilities of the instructors; and				
(3)	in the case of training in FSTDs, the limitations of the FSTD; and				
(4)	in the case of training in airplanes, the capabilities and certification of the aircraft, while considering a margin of safety in order to ensure that unintentional deviations from the training envelope will not exceed aircraft limitations. Different training envelopes may be specified for different airplane types even within a single training course.				

• Assessment Result	☐ Satisfactory	☐ Unsatisfactory
• Remarks		
Inspector Name	**Signature**	**Date**