



Multi-Crew Co-Operation Course (Airplane)

Multi-Crew Co-Operation Training

1. The objectives of MCC training are optimum decision making, communication, division of tasks, use of checklists, mutual supervision, teamwork, and support throughout all phases of flight under normal, abnormal and emergency conditions. The training emphasises the development of non-technical skills applicable to working in a multi-crew environment.
2. The training should focus on teaching students the basics on the functioning of crew members as teams in a multi-crew environment, not simply as a collection of technically competent individuals. Furthermore, the course should provide students with opportunities to practice the skills that are necessary to be effective team leaders and members. This requires training exercises which include students as crew members in the PF and PNF roles.
3. Students should be made familiar with inter-personal interfaces and how to make best use of crew co-operation techniques and their personal and leadership styles in a way that fosters crew effectiveness. Students should be made aware that their behaviour during normal circumstances can have a powerful impact on crew functioning during high workload and stressful situations.
4. Research studies strongly suggest that behavioural changes in any environment cannot be accomplished in a short period even if the training is very well designed. Trainees need time, awareness, practice and feedback, and continual reinforcement to learn lessons that will endure. In order to be effective, multi-crew co-operation training should be accomplished in several phases spread over a period.

Basic Multi-Crew Co-Operation Course

5. The contents of the basic MCC course should cover theoretical knowledge training, practice and feedback in:
 - (a) Interfaces. Examples of software, hardware, environment and live ware mismatches in practice.

(b) Leadership/followership' and authority.

- Managerial and supervisory skills.
- Assertiveness.
- Barriers.
- Cultural influence.
- PF and PNF roles.
- Professionalism.
- Team responsibility.

(c) Personality, attitude and motivation.

- Listening.
- Conflict resolution.
- Mediating.
- Critique (pre-flight analyses and planning, ongoing-review, post flight).
- Team building.

(d) Effective and clear communication during flight.

- Listening.
- Feedback.
- Standard phraseologies.
- Assertiveness.
- Participation.

(e) Crew co-ordination procedures.

- Flight techniques and cockpit procedures.
- Standard phraseologies.
- Discipline.



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- (f) The use of checklists is of special importance for an orderly and safe conduct of the flights. Different philosophies have been developed for the use of checklists. Whichever philosophy is used depends on the complexity of the aircraft concerned, the situation presented, the flight crew composition and their operating experience and the operator's procedures as laid down in the Flight Operations Manual.
- (g) Mutual supervision, information and support.
 - (a) Any action in handling the aircraft should be performed by mutual supervision. The pilot responsible for the specific action or task (PF or PNF) should be advised when substantial deviations (flight path, aircraft configuration etc.) are observed.
 - (b) Call-out procedures are essential, especially during take-off and approach, to indicate progress of the flight, systems status etc.
 - (c) Operation of aircraft systems, setting of radios and navigation equipment etc. should not be performed without demand by the PF or without information to the PF and his confirmation.
- (h) The contents of paragraphs 3 and 4 can best be practised by performing the exercises in IEM JCAR-FCL1.261 (d) in simulated commercial air transport operations.
- (i) Practice and feedback of MCC with regard to the L-L (live ware - live ware) interface should also make provision for students for self and peer critique in order to improve communication, decision making and leadership skills. This phase is best accomplished through the use of flight simulators and video equipment. Video feedback is particularly effective because it allows participants to view themselves from a third-person perspective; this promotes acceptance of one's weak areas which encourages attitude and behavioural changes.

Exercises

- (j) The exercises should be accomplished as far as possible in a simulated commercial air transport environment. The instruction should cover the following areas:



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- (a) Pre-flight preparation including documentation, and computation of take-off performance data;
- (b) Pre-flight checks including radio and navigation equipment checks and setting;
- (c) Before take-off checks including power plant checks, and take-off briefing by PF;
- (d) Normal take-offs with different flap settings, tasks of PF and PNF, call-outs;
- (e) Rejected take-offs; crosswind take-offs; take-offs at maximum take-off mass; engine failure after V1.
- (f) Normal and abnormal operation of aircraft systems, use of checklists;
- (g) Selected emergency procedures to include engine failure and fire, smoke control and removal, wind shear during take-off and landing, emergency descent, incapacitation of a flight crew member;
- (h) Early recognition of and reaction on approaching stall in differing aircraft configurations;
- (i) Instrument flight procedures including holding procedures; precision approaches using raw navigation data, flight director and automatic pilot, one engine simulated inoperative approaches, non-precision and circling approaches, approach briefing by PF, setting of navigation equipment, call-out procedures during approaches; computation of approach and landing data;
- (j) Go-around; normal and with one engine simulated inoperative, transition from instrument to visual flight on reaching decision height or minimum descent height/altitude.
- (k) Landings, normal, crosswind and with one engine simulated inoperative, transition from instrument to visual flight on reaching decision height or minimum descent height/altitude.



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Where MCC training is combined with training for an initial type rating on a multi-pilot Airplane, the exercises (a), (b), (c), (f), (g) and (J) may be conducted in a FTD as part of an approved course.

Reinforcement

- (k) No matter how effective the classroom curriculum, interpersonal drills, LOFT exercises, and feedback techniques are, a single exposure during the multi-crew co-operation course for the initial issue of a multi-pilot Airplane type rating will be insufficient. The attitudes and influences which contribute to ineffective crew coordination are ubiquitous and may develop over a pilot's lifetime. Thus it will be necessary that the training of non-technical skills will be an integral part of all recurrent training for revalidation of a multi-pilot Airplane type rating as well as of the training for the issue of further multi-pilot type ratings.

(See JCAR-FCL 1.261(d))

(See Appendix 1 to JCAR-FCL 1.261(d))