



B747

OM D – Appendix T

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REVISION RECORD

[illegible]

REVISION HIGHLIGHTS

Summary of Highlights Revision 8 Appendix T	
Section	Reason
Chapter 2 , Full/Command Conv Course, detail 1	Raw data ILS added.
Chapter 2 , Full/Command Conv Course, detail 9	Note added clarifying TRE for LST must have conducted max 25% of training prior to test.
Chapter 2 , Full/Command Conv Course, detail 9/10	Requirement for a PBN approach to 2D limits to be tested and PBN knowledge check to be conducted during the LST as part of PBN qual.
Chapter 2 , Full/Command Conv Course, LIFUS guidance for TCs.	Further guidance for TCs on how to conduct LIFUS.
Chapter 5 , COT Course, detail 2 & 3	Details 2 & 3 swapped such that detail 3 is now LPC.
Chapter 5 , COT Course, detail 6	Detail 6/Command Assessment must be conducted by a TSC or FTM nominated appointment holder.
Section 11.1	Line Continuation Course (LCT) added.
Section 11.3	3-Engine Ferry Course added.
Section 11.4	Command Development Course (CDC) added.
Section 12.2	Now LCT discussion items.
Section 12.3	Now Simulator Differences (prev section 12.2).

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1. This LEP is a complete re-issue showing individual page numbers.
2. Record this revision number on the Record Sheet in the front of this manual.

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0 INTRODUCTION

- The B747-400 is a highly redundant, long-range, wide-body jet airliner manufactured by Boeing Commercial Airplanes. The B747 was the world's first double deck aircraft and the -400 variant, within British Airways, carries up to 337 passengers and has a range of up to 8,357 nautical miles. The aircraft is deployed, almost exclusively, on British Airways Longhaul network.
- The Operation of the Aircraft is in line with the Manufacturer's procedures and SOPs wherever possible.
- The route structure is predominantly longhaul with worldwide destinations.
- The nature of Longhaul operations on the B747-400 means that Line Pilots will be exposed to less handling than they may be used to on other fleets. In particular First Officers will be operating frequently as Heavy Crew with resultant reduction in recency. This means that Pilots on the fleet will need to be very disciplined in order to retain the required skill and knowledge to operate the aircraft following completion of their conversion course.

0.1 B747-400 Training Manual and Operations Manual

This Appendix of the OM D manual forms part of the B747-400 Training Manual as required by AMC1 ORA.ATO.230(b). In addition trainees will need access to the suite of ATO Manuals set out below. Access to these manuals will be made available electronically.

The British Airways ATO Operations Manual consists of the following sections:

OM A: Contains BA policy – What we do (the rules) and is not fleet specific. (OM A).

OM B General: Contains information on how policy is executed – The 'how we do it'. The General section is applicable to all fleets. (OM B).

OM B fleet specific: This includes the following manuals – B747 FCOM, B747 FCTM, B747 MEL/CDL, B747 QRH, B747 FAM, B747 Performance Manual.

OM C: Route Information Manual, Aerodrome charts.

OM D: Training Manual and Appendix T B747-400 specific Training courses (this manual).

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1 CRM FOUNDATION COURSE

See [OM D – Flight Operations Training Manual, Appendix C.4 – CRM Training](#).

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2 B747-400 TYPE RATING COURSES

2.1 B747-400 Type Rating Course (Full)

2.1.0 Introduction

- a. The B747-400 Type Rating course is designed to train and assess the trainee in all items required for the issue of an EASA B747-400 type rating with IR and LV qualification.

Throughout the course the trainee is expected to self-study through the use of the training iBooks, My Learning Academy and FCOM. The trainee will in this way acquire the technical knowledge and understanding for the technical exam. The ground school self-study period is supplemented with Fixed Base Simulator (FBS) sessions. These allow the trainee to practice and commit to memory the Scans, Calls and Procedures required for Line Operations. Upon successful completion of the Ground School phase the trainee will progress to the Full Flight Simulator where Handling and Multi-Crew operational skills will be developed in the B747-400 cockpit environment. This stage will culminate in an assessment phase (LST and LOE). Thereafter the trainee will progress to the Zero Flight Time (ZFT) detail which will complete preparation for Operator Line Training.

The B747-400 Type Rating (including Low Visibility Operations) will be issued upon successful completion of the ZFT phase provided all elements of training including LVO training have been completed as identified by the Course Completion Certificate which will be issued to the trainee. However, on a ZFT course the rating is not activated until the trainee has completed 4 Line Flying under Supervision (LIFUS) Sectors with a qualified TRI, typically a TRI (LIFUS).

Throughout the course there will be ongoing assessment and the trainee will be required to demonstrate that they have acquired the knowledge and skill in a progressive manner. A failure to progress as identified by the Instructors on the course will be referred to the FTM B747.

- b. To be accepted for the B747-400 Type Rating Course the trainee must:
- Hold an unfrozen ATPL.
 - Have completed at least 500 hours or 100 route sectors on a multi-pilot turbo-jet aeroplane certificated to the standards of CS-25 or equivalent airworthiness code or on a multi-pilot

turbo-prop aeroplane having a maximum certificated take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers.

(See FCL 730A.)

- Any other conditions as required by FTM B747.

c. Course overview:

Ground Phase Course Footprint 23 Working Days

Ground Phase	Working Days	
Ground School	11	
SEP	1	
FFS (Handling) incl LVO	8	
LOE/LST/OPC	2	
ZFT	1	
	Total	23

Line Training (Aircraft Phase)

Line Training (Pilot in same Status)	Sectors	
LIFUS with qualified TRI	4	
Operator Line Training	4	
Operator Line Check	2	
	Total	10

- d. Assessment is continuous throughout the course. Each FBS and FFS session sets out the objectives and standard of knowledge and skill required to be demonstrated during the training event. The Instructors will be making this assessment during these training sessions. The regulator also requires specific assessment of competencies for the issue of the rating under EASA part-FCL and to comply with EASA Air Operations Regulations. These events are set out below:

Phase	Event	Day
Ground Phase	Technical/ Performance Test	11
Handling Phase	LOE, LST/OPC	21, 22
Handling Phase	ZFT detail 11	23
Aircraft Phase	Final Line Check	End

- e. The trainee is responsible for his/her own learning. Various training aids are available; Instructors will be present during the Ground Phase to answer questions. The trainee is responsible for allocating time to study the training material both in the classroom and home study.

The continuous assessment process will identify training effectiveness and highlight areas for trainee development and these will be noted by the Instructors as the course progresses. Trainees will be made aware of these development areas during the de-briefing sessions and they will be recorded in the trainee's Trancomm file (for BA Trainees) or Personal Training Record (for non-BA trainees). This will assist the trainee in targeting specific areas of self-study and preparation. The training iBook and FFS details provide guidance on where trainees can look for information when preparing for details.

If a lack of progression in key areas of knowledge, skill or handling is identified the Instructor will make the trainee aware of this informally during the de-brief. If the failure to progress is persistent the FTM will be informed and he/she will decide what steps to take to correct the lack of progression.

- f. All pilot trainees need to achieve, in both handling and CRM, the standard defined in EASA part FCL appendix 9 (SRG1158) and Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) for the successful completion of the LST and issue of the B747-400 Type Rating. In addition, for BA converting pilots, they must achieve at least a level 3 standard in all elements and phases of the course (both technical and non-technical) to successfully complete the British Airways Operator's conversion course.
- g. The British Airways Type Rating Full Course when undertaken by a British Airways pilot using BA SOPs and Pilot Competencies fulfils the requirements of EASA Regulation Air Operations ORO.FC 220 as set out in AMC 1 to the regulation.

2.1.0.1 Additional Notes Specific to the British Airways B747-400 Full Type Rating Course

2.1.0.1.1 Aims

1. To create a course of 11 full flight simulator details, which is fully compliant with EASA, CAA and BA policies.
2. To use interactive training aids and video presentations in the briefing to improve the trainees' learning.
3. To create skill checks at regular points in the course in order to ensure that trainees have attained the skills required to move on to the next stage of the conversion course. These are listed under **Session Proficiency Criteria** for each detail.
4. To create LOFT scenarios so as to develop crews' Competencies.
5. To avoid repeating, unnecessarily, the knowledge and skills gained in the Ground-school course.
6. To make the course a practical preparation for line training.

2.1.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified, proficient pilots with jet experience. It is designed to apply this proficiency to B747-400 handling, as well as training non-technical skills for normal and abnormal situations. Thus improving Pilot Competencies.
- It is assumed that trainees commence the FFS phase having completed the ground-school course, after which they are proficient in terms of aircraft technical knowledge, and reasonably proficient in terms of cockpit set-up, FMS operation and EICAS handling using BA SOPs.

2.1.0.1.3 Course Structure

- The course consists of 11 four hour simulator details:
 - Details 1 to 3 – Normal Handling – Manual and Automatic.
 - Details 4 to 7 – Abnormal and Emergency Handling.
 - Detail 8 – LVOps.
 - Detail 9 – LOE and operator specific training.
 - Detail 10 – Licence Skill Test.
 - Detail 11 – ZFT.

B747-400 Conversion Course Content Overview			
Normal Handling – Manual and Automatic	Detail 1	LHR Take-off Landing	Basic handling Stalling training TCAS
	Detail 2	LHR LV Take-off Landing	PRM Manual ILS & G/A Rejected landings
	Detail 3	SIN Non-ILS database Late runway change	Windshear Circling Holding Pre-flight preparation
Abnormal and Emergency Handling	Detail 4	LHR RTO Evacuation	OEI handling EFATO Fuel
	Detail 5	SEA US Ops Emergency turn	OEI handling Fuel jettison Two engine inoperative
	Detail 6	LHR Crosswind handling Emergency descent	Engine start faults Standby power Standby navigation Non-precision approach
	Detail 7	CPT Flap system Emergency turn Crosswind handling	GPWS Landing jammed stabiliser Unreliable airspeed Hydraulic failures
LVO + operator training	Detail 8	LHR Incapacitation LVO failure cases	Pre-flight preparation Smoke Cold weather Ops Course consolidation as required
LST LOE LVO check (TRE reqd)	Detail 9	MAN/LHR LVO	LOE LST
LST (TRE reqd)	Detail 10	LGW/LHR	LST
ZFT	Detail 11	LHR/JFK	

- Briefings for details 1 to 8 are of 1 ½ hours duration, details 9 to 11 are 1 hour.

Trainees are expected to prepare the items to be covered before each detail. Briefings will therefore take the form of confirmation and clarification of technical knowledge, and discussion of effective non-technical skills. Whiteboard, power point and video will be used to study the various items in the details.

2.1.0.1.4 Detail Format

- The course details are written for a Natural Crew so as to allow an equal distribution of workload whilst trying to avoid a series of exercises flown by one pilot and then the other leading to fatigue and mistakes.
- A degree of flexibility is required for the crew to achieve the most out of the detail. To achieve this the instructor may vary the running order as required.
- For a natural crew the Captain will be Pilot A and First Officer Pilot B.
- With a non-natural crew there will need to be some thought in terms of which pilot will be acting as PF for each exercise. The intention is to use SOPs as much as possible and for the handling pilot to do the flying from the correct seat wherever possible. It is, however, perfectly acceptable and recommended for any automatic flying to be done from either seat in order to preserve adherence to SOPs.

E.g. A Captain in the RHS could fly an automatic NPA for the Captain in the LHS to complete a landing.

Please Note

- For all crews including non-naturals, LVO is to be trained and tested as a crew.
- With 2 co-pilot trainees, detail 8 (LVOps), will need to be completed so that each pilot handles some automatic flight. The requirement for six auto-approaches is for the whole crew and not each individual pilot in the correct seat.
- Manual handling items which are to be signed off as training complete in Trancomm must be flown while seated in the correct seat.
- EASA Part FCL appendix 9 A General states that for the Skill test detail:
 - *The skill test for a multi-pilot aircraft or a single-pilot aeroplane when operated in multi-pilot operations shall be performed in a multi-crew environment. Another applicant or another type rated qualified pilot may function as second pilot.*

- *The applicant shall operate as PF during all sections of the skill test, except for abnormal and emergency procedures, which may be conducted as PF or PNF in accordance with MCC. The applicant for the initial issue of a multi-pilot aircraft type rating or ATPL shall also demonstrate the ability to act as PNF. The applicant may choose either the left hand or the right hand seat for the skill test if all items can be executed from the selected seat.*
- **Briefings in the simulator should be kept to a minimum confirming primarily that aircraft set up is correct. SIDs, STARS, etc. should as far as possible be pre-briefed in the briefing room.**
- **Quick set up implies that the Instructor should assist in set up and in a quick engine start. In details 3 and 8 the crew should complete a scan check so as to consolidate ground school learning. It is expected that the crew will continue to practise scan checks in the briefing rooms as the course progresses.**
- **After detail 4 the Instructor will include a random number of RTOs and EFATOs for practice and consolidation.**

2.1.0.1.5 Format of the Instructor Session Notes

- For each detail there is an overview of the contents for the detail and briefing material available. Some Instructor notes are included in the Session Guide and more in-depth guidance on the “how to” is to be found in the FCTM. The lesson plans in the simulator are only a skeleton outline so as to allow the Instructor more freedom to adjust as necessary to the trainee needs.
- You will find for each of the details:
 - Paperwork required.
 - Session Objective.
 - Training topics.
 - Briefing material available.
 - Proficiency Criteria.
 - Instructor notes (Session Guide). (Only available to the Instructor.)
 - Initial Set up Data (included in the running order).
 - EASA-FCL items for completion in Trancomm. (Only available to the Instructor.)

2.1.0.1.6 Trancomm

- **All reports are to be entered into Trancomm. For details 1 to 8 the Obj Met score is to be used when the Performance Criteria for that detail have been satisfied and all of the Detail is completed. It is always assumed that the technical knowledge is up to standard, if not then grade Obj Not Met.**
- At the end of each detail session is a table which clearly shows which items are being trained in the detail.
- Where an item is to be signed off as training complete the table indicates this with the letters TC in the final column. Instructors should familiarise themselves with the applicable item before running the detail to ensure that the item has been demonstrated as training complete before completing trancomm.
- Trancomm Item scoring is designed such that a score of “Training Input” or “More Practice” will trigger a pop-up box. This pop-up will ask if the item should become a Floating Item. Always select yes, so that the item is carried forward to the next detail. Floating items should then be completed, if possible before commencing the next detail’s content and must be completed by the end of Detail 8 in order to proceed to the LST.
- Detail 8 includes a tick box item which confirms that all 1158 and Operator items (such as PRM) have been trained to a level 3 standard. This box should only be ticked once the Instructor has confirmed that there are no floating items and all course items have been trained to a level 3 standard. Ticking this item will set the TNG Mandatory.
- If a significant number of items are being carried forward the instructor should also alert Training admin and FTM B747 as additional details may be required.
- The Trancomm for the LST detail also contains an item to confirm that LVO training has been completed. The TRE conducting detail 9 must confirm that all items of the LVO training in detail 8 have been completed and are not carried over before ticking this item.

2.1.0.1.7 Briefing Material

- Training iBooks are available from My Learning Academy (<https://baplc.sharepoint.com/sites/flightops>) to assist with study guidance and for reference.

2.1.1 Ground Training

2.1.1.1 Policy

2.1.1.1.1 Objectives

The aim of Groundschool Training is to assist the trainee to:

- Acquire appropriate levels of technical knowledge and operating skills.
- Gain familiarity and confidence with the new aircraft's systems prior to commencing simulator training.

2.1.1.1.2 Standard Required on Completion

On completion of Groundschool the trainee should have:

- Achieved a pass in the CAA, technical examinations.
- Demonstrated a 'good' standard of aircraft operating procedures.

2.1.1.2 Course Description

The courses and examinations are conducted at Flight Technical Training or other suitable location. The technical content is based on a 'need-to-know' principle – non-essential information is omitted.

Study is conducted in a synthetic cockpit known as a 'carrel'. The carrel incorporates Computer Based Training (CBT). This type of training allows the trainee to work at his/her own pace. Instructor assistance is available when required and at regular intervals for tutorials.

Trainees will be issued with the appropriate Technical Study Guides. Aircraft Manuals should be collected by trainees in accordance with the course joining instructions.

Flight Training Device (FTD) exercises totaling a minimum of 20 hours allow trainees to consolidate the information presented in the technical lessons and allow practice of normal and non-normal procedures. In exceptional circumstances, where an FTD may not be available, a maximum of 4 hours FTD may be substituted by an alternative exercise carried out in the study carrel, or using Desk Top Trainer (DTT) equipment.

There are three multiple-choice progress tests and a final multiple-choice examination. The pass mark for each section of the final examination is 75%. All examination questions are drawn from information contained in the FCOM and study guides from Groundschool.

The Technical Study Guide shows how the course is structured, which CBT lessons should be covered prior to each FBS exercise, and which FBS exercise must be completed prior to each progress test or exam.

2.1.1.3 Approved Course Examination Procedure

Type technical courses for which approval has been granted by the CAA will have the following programme of British Airways examinations implemented by Flight Technical Training.

2.1.1.3.1 Progress Tests

There shall be three progress tests contained within the training programme. Each test shall comprise 50 multiple choice questions, each question offering four possible answers. The purpose of the Progress Tests is to assess a candidate's fitness to move on to the next phase of the training programme.

A record will be kept of each Progress Test result although they will not form part of the candidate's final achievement record. British Airways Flight Training currently uses an in-house database to store pilot's results.

2.1.1.3.2 Qualifying Examination

On completion of the ground school technical course each candidate will sit a Qualifying Examination with a minimum of 124 multiple-choice questions, each question offering four possible answers. The examination questions will be distributed over the 8 main subjects of the syllabus. The time allowed for completion is two hours.

At least two Qualifying Examination papers will be prepared. As far as possible, no questions will be repeated in the alternative papers or the Progress Tests.

A record will be kept of results achieved on the Qualifying Examination. The pass mark for the Qualifying Examination will be 75% in each of the 8 subject areas, with no penalty marking.

2.1.1.3.3 Re-sits

Where a candidate achieves less than 75% in any subject area in the Qualifying Examination he/she shall re-sit that section only, of an alternative paper. A re-sit will not be taken on the same day as the original failure.

Consultation with the relevant FTM to consider requiring the re-sitting of an alternative paper in full, should be conducted where a candidate achieves less than 75% overall or requires a re-sit of four or more sections.

In the event of a candidate failing a re-sit examination, the matter shall be referred to the relevant Fleet Training Manager for resolution.

2.1.1.3.4 Marking Progress Tests/Qualifying Examination

On completion of any examination, a full debrief will be carried out by the Instructor responsible for the conduct of the training, and all questions answered incorrectly will be reviewed to establish an understanding of the correct answer.

Candidates are not allowed take any pieces of paper or notes of any kind into the examination room. All materials needed for the exam are provided.

Candidates are not permitted to remove any pieces of paper or notes of any kind from the examination room.

2.1.1.4 B747 Groundschool Programme

Note 1: Students with suitable Boeing FMS equipped aircraft experience (recent within 5 years), will join the course on day 2.

Note 2: The more detailed elements of the theoretical technical course as set out in European Regulation Aircrew AMC 1 part FCL 725 (a) are recorded in the index and contents of the CBT course which is used to deliver the instruction. The CBT course is held on the PC used by the Trainee pilot whilst attending the ground school phase. These PCs are housed in the carrels at the BA ATO and are available to the trainees throughout the ground school phase.

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
1	FMS Desk Top Trainer Exercise	2:00
	FMS Introduction	0:16
	FMS Preflight 1	0:25
	FMS Preflight 2	0:14
	FMS Waypoint Ident	0:12
	FMS LNAV	0:18
	FMS VNAV	0:20
	FMS Additional Pages & Stby Nav	0:16
2	FBS 1 – Procedures	2:00
	Aircraft Introduction	0:10
	CRT Displays	0:08
	CRT Displays Review	0:05
	Primary EICAS	0:17
	Primary EICAS Review	0:14
	Secondary EICAS	0:12
	Secondary EICAS Review	0:10
	General Take-off Performance	0:40

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
3	FBS 2 – Procedures & EICAS	2:00
	FMS Desk Top Trainer Exercise	2:00
	Inertial Ref System	0:16
	Inertial Ref System Review	0:09
	Primary Flight Display	0:15
	Primary Flight Display Review	0:12
	Navigation Display	0:12
	Navigation Display Review	0:10
	Instrument Source Select	0:06
	Instrument Source Select Review	0:04
	Standby Instruments	0:04
	Standby Instruments Review	0:03
	Clocks Video	0:05
	Radio Navigation	0:14
	Radio Navigation Review	0:10
4	FBS 3 – IRS & Flight Instruments	2:00
	Progress Test 1 – EICAS, Inertial Ref, Flight Instruments & Radio Navigation	1:00
	Autoflight Engagement	0:14
	Autoflight Engagement Review	0:11
	Autoflight Basic Modes	0:20
	Autoflight Basic Modes Review	0:13
	Autoflight FLCH & VNAV	0:21
	Autoflight FLCH & VNAV Review	0:11
	Autoflight Take-off & Landing	0:20
	Autoflight Take-off & Landing Review	0:15
	Autoflight Alert & Protection	0:06
	Autoflight Alert & Protection Review	0:04
	Autoflight PVDs & Windshear	0:08
	Autoflight PVDs & Windshear Review	0:05
	AWOPS Video	0:28

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
5	FBS 4 – Autoflight	2:00
	Engine Fuel & Oil	0:16
	Engine Fuel & Oil Review	0:06
	Engine EPR & EEC	0:25
	Engine EPR & EEC Review	0:05
	Engine Ignition	0:16
	Engine Ignition Review	0:04
	Reverse Thrust & Vibration	0:06
	Reverse Thrust & Vibration Review	0:03
	Engine Start & Indicating	0:15
	Engine Start & Indicating Review	0:04
	Fire Protection	0:09
	Fire Protection Review	0:04
6	FBS 5 – Engines & Fire Protection	2:00
	Progress Test 2 – Autoflight, Engines, Fire Protection & Performance	1:00
	AC Power	0:13
	AC Power Review	0:12
	Utility & Galley Buses	0:07
	Utility & Galley Buses Review	0:03
	DC Power, Standby & Other Buses	0:09
	DC Power, Standby & Other Buses Review	0:05
	Fuel Supply	0:15
	Fuel Supply Review	0:10
	Fuel Jettison	0:06
7	Fuel Jettison Review	0:03
	FBS 6 – Fuel & Electrics	2:00
	Hydraulic Power	0:15
	Hydraulic Power Review	0:12
	Rudder	0:07
	Rudder Review	0:07
	Elevators & Stabiliser	0:10
	Elevators & Stabiliser Review	0:10
	Ailerons & Spoilers	0:07
	Ailerons & Spoilers Review	0:08
	Flaps	0:18
	Flaps Review	0:09

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
8	FBS 7 – Hydraulic & Flight Controls	2:00
	Landing Gear	0:13
	Landing Gear Review	0:08
	Brakes	0:13
	Brakes Review	0:09
	APU	0:09
	APU Review	0:08
	Pneumatics	0:13
	Pneumatics Review	0:13
	FMS CDU Exercise	1:30
9	FBS 8 – Landing Gear, APU & Pneumatics	2:00
	Progress 3 – Electrics, Fuel, Hydraulic Power, Flight Controls, Landing Gear, APU, Pneumatics & Performance.	1:00
	Air Conditioning	0:13
	Air Conditioning Review	0:07
	Pressurisation	0:12
	Pressurisation Review	0:08
	Equipment Cooling & Cargo Heat	0:06
	Equipment Cooling & Cargo Heat Review	0:06
10	FBS 9 – Air Conditioning & Pressurisation	2:00
	Ice & Rain Protection	0:08
	Ice & Rain Protection Review	0:05
	Lighting	0:12
	Communications	0:16
	Communications Review	0:05
	Warnings with GPWS	0:22
	Warnings with GPWS Review	0:05
	Enhanced GPWS Video	0:12
	EGPWS & Predictive Windshear	0:12
	TCAS Video	0:22
	TCAS Exercise	0:22

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
11	FBS 10 – Ice & Rain Protection	2:00
	Qualifying Exam	2:00
	Aircraft Inspection Video	0:25
	North Atlantic Operations	0:45
	Polar Brief	0:15
	Landings Video	0:15
	Precision Monitored ILS (US)	0:15
	Upset Prevention and Recovery Training (UPRT)	0:45
	Rnav	0:20
	Ramp Safety Video	0:15

2.1.2 Full Flight Simulator Training

2.1.2.0 Standard B747-400 ZFT Conversion Course Overview

Detail	Exercise	Briefing
1	Training	1:30
2	Training	1:30
3	Training	1:30
4	Training	1:30
5	Training	1:30
6	Training	1:30
7	Training	1:30
8	Training	1:30
9	LOE, LST	1:00
10	LST	1:00
11	ZFT	1:00

2.1.2.1 Introduction to B747-400 Type Rating Conversion Course

The 747-400 conversion course, re-written in 2014, has been designed with 8 training simulator details of 1:30 hours briefing and 4 hours simulator detail. There are 2 further details (9 and 10) which have a 1 hour briefing and consist of two 4 hour details which provide the LST and LOE assessments for licence issue purposes. The final detail, number 11, has a 1 hour report and is the Zero Flight time detail and prepares the trainee for their first route training sector. The trainees should then have at least one clear day to attend CAA Flight Crew Licensing for the issue of their type rating.

2.1.2.1.1 Philosophy of the Course

The course contains all the elements of the MPA Type rating, Skill Test and Proficiency check schedule also known as CAA Form LST/LPC MPA (SRG 1158) and has been based on issue 4. These are the skills and knowledge items which the trainee needs to demonstrate having achieved at a level 3 standard for the issue of the 747-400 type rating as P1. The Trancomm record for each trainee acts as the source of reference to confirm all the elements of Form 1158 have been completed and are to the required standard. Each detail introduction outlines those elements of the 1158 included in that detail.

The details start with basic handling skills and then use building blocks to train and assess those new skills necessary to operate a 747-400. Engine out handling commences in detail 4 where basic handling skills are taught and then also appears in later details where the management and more complex handling are introduced. Engine out work appears throughout the course after detail 4 so that the trainee receives regular exposure to this handling skill.

Detail 4 introduces the first non-normal procedure. Non-normals continue to appear in subsequent details with increasing complexity and initially instructor input is provided to ensure trainees understand and practice those non-technical Competencies such as Leadership and Teamwork, Prioritisation, Diagnosis and Time Management which are key to a successful outcome during non-normal scenarios. There is not enough time for the trainee to see all the possible non-normal scenarios and it is expected that through the course the trainee will read and gain a thorough knowledge of the QRH. The trainer will be assessing the non-technical Competencies during latter details of the course with an emphasis on command capability and a level 3 standard will be a pre-requisite for progress to the LST and ZFT details 9-11.

Training iBooks are provided to aid self study during the course. If clarification is required this should be raised with the instructor at the start of the detail. All manuals including the FCTM, FCOM Vol 1, MEL/CDL, OMA and OMB can be found within the DocuNet app on the iPad. Trainees must ensure they have access to the BA intranet prior to commencing the simulator phase of the course. The instructor led 1:30 briefing is not designed to cover every aspect of that detail's elements and the instructor will expect that the trainee arrives fully briefed and prepared. The instructor only has time to provide knowledge about 'how to do the skill', the sort of tips and handling lessons that cannot be picked up from the reference material alone. The instructor will also use facilitation to assess that the trainee has prepared for the detail adequately. Poor preparation and knowledge will prevent the trainee from progressing to the next detail.

For each detail the trainees will be provided with relevant briefing material including CIRRUS and LORETTA briefs (where applicable) and performance data.

CIRRUS will generally be a shortened version, weights are as per CIRRUS. For lightweight take-offs, CARD will not always be provided as the temp reduction of 70 degrees and FMC speeds will comfortably meet the performance requirement.

Timing in the details means that emphasis should be placed on the handling and management elements of the details, consequently there are only 2 full starts in details 3 and 8. Most other start-ups are by means of an instructor led quick scan and start. If the trainees need additional exposure to the pre-start scan and set-up they can be encouraged to make use of the flight deck model in the briefing rooms and/or use of any unused simulator or the fixed base engineering simulator (on the ground floor annexe). Both full flight simulator and fixed base will require an instructor to log the trainees in to Simnet to provide power and a run through of health and safety requirements and how to log out. The trainees cannot be in a simulator with motion on without an instructor present. There is also an FMC trainer that can be used in ground school if additional exposure to programming the FMC is required.

2.1.2.1.2 Notes for Instructor

The details include lesson plans. In a departure from earlier courses the lesson plans do not contain as many action buttons. However, included in the lesson plan are general instructions and guidance about the items that need to be covered during the detail. Aircraft weight, fuel load and initial weather conditions will be set up by the instructor. It is expected that the instructor will use PTP and IOS buttons to re-position the aircraft and initiate simple failures during the exercises. In responding to the trainees' needs the instructor should manage the detail so as to maximise training value for the trainees. After detail 4 the instructor should introduce random RTOs and EFATOs during subsequent details so as to give the trainee exposure to this possibility on any take-off. These should include low speed rejection. Go-arounds are used throughout the exercises to allow the detail to move along more expeditiously. These should also be assessed and input given to encourage maximum use of the autopilot during unexpected go-arounds. Occasionally these can also be modified to rejected landings (go-around after touchdown) to give the trainees exposure to the aircraft's ability to climb away after touchdown. Again these should be assessed and debriefed where not correctly flown.

In general the trainee should be in the correct seat for any manual handling skill item which is being trained or assessed for the 1158 purposes. This will require some seat changing during the detail and this must always be done with the motion off. It is expected that the instructor will use initiative to modify the plan as necessary to meet the trainees' needs. Items which are flown wholly using automatics can potentially be done from the wrong seat. For example flying the approach so that the other trainee can practice a landing, this can be done (ideally automatically) from the wrong seat. Some items such as emergency descent or unusual attitudes etc. can be flown for the purposes of the 1158 from the incorrect seat. A First Officer could well be operating in the left hand seat (as cruise relief pilot) for such an event. Other exercises are crew exercises and these need only be completed once with one trainee in the wrong seat. With 2 co-pilot trainees, detail 8 (LVOPs), will need to be completed so that each pilot handles some automatic flight. The requirement for six auto-approaches is for the whole crew and not each individual pilot in the correct seat. Where weather conditions are set up to provide maximum crosswind or minimum RVR these will need to be altered to fit the status of the trainee.

Timings for simulator details are predicated on entering the simulator promptly. It is expected that the instructor will set the scene and manage the set-up and trainee SA by the use of mini-brief or scene setting briefs before each item is trained. This should reduce the need for the trainees

to do any briefing. Full set ups are only done in details 3 and 8, all other details should be quick set ups with instructor taking on this task while trainees settle into their seats.

Most details should be completed within the time and any extra time at the end should be used to give some circuit flying, general handling or EFATO/RTO practice according to the trainees' needs.

It is vital that the instructor prepares for a detail by reading the previous trancomm report, talking to the previous trainer and establishing from the trainees themselves how things are progressing and any areas of concern. Any 1158 items that have been carried forward or are incompletely trained need to be identified and completed before moving on to a new detail. The trainer needs to alert FTM and training admin whenever a significant number of items are being carried forward either due to sim unserviceability or trainee difficulties. This will allow FTM to review the programming of additional details with minimal disruption to the route training section of the course. Trainers conducting details approaching the LST (detail 5 onwards) should also make an assessment of the trainees' Competencies and their ability to successfully pass both the LST and LOE assessments. If in any doubt contact must be made to alert FTM by quickest means, use of the alert FTM box in trancomm is not sufficient but should be ticked. There is scope within the footprint of days off to allocate an extra detail, if this should be necessary. With two same status crew with no previous Boeing experience this could be a possibility.

2.1.2.1.3 Trancomm

Trancomm has been modified so that any item assessed as 'more practice' will automatically carry over to the next detail indicating to the next trainer that its training is not complete. Therefore it is vital that any item that is deemed to have been trained to the satisfaction of the requirements of the 1158 **should not** be graded as 'more practice'. This grading should only be used as a training incomplete assessment by the instructor indicating that more practice is required to bring the trainee up to a training complete standard during a subsequent detail.

All items of the 1158 are contained within detail 1-8 trancomm reports. There are in addition some BA items such as USA operations and Runway Change. All items must be assessed as Training complete prior to detail 9.

2.1.2.1.4 Roster Matrix for Standard ZFT Conversion Course

The following is a matrix for the ideal roster pattern for this course. This is the ideal plan but on the day circumstances may require a different days off pattern to be used by training admin.

Day 1-4	Detail 1-4
Day 5-6	Off
Day 7	Detail 4a (if reqd) or Off
Day 8-10	Detail 5-7
Day 11-13	Off
Day 14-16	Detail 8-10
Day 17	Off
Day 18	Detail 11
Day 19	Detail 11a (if reqd) or Off
Day 20-21	Licence day plus at least one day off

2.1.2.2 Full Flight Simulator Course

2.1.2.2.1 B747 – Full Flight Simulator – Detail 1

2.1.2.2.1.1 Summary

The detail is based at London Heathrow with an instructor assisted quick setup on stand 514 ready for a normal engine start and pushback. A short taxi with 180° turn practice on RWY 09R prior to departure. After take-off the aircraft remains at 6000' to complete initial stalling exercises. A further rapid climb to FL380 allows the trainees to explore the high and low speed characteristics of the aircraft at altitude. Whilst at high level TCAS training is completed and stall training is continued. The aircraft is then returned to the circuit for a raw data ILS and go-around practice.

2.1.2.2.1.2 Objectives

- Introduction of basic handling.
- Start of stalling training.
- Complete TCAS training.

2.1.2.2.1.3 Form 1158 Items Practical Training Complete for Following Items in Detail 1

- | | |
|-------|---|
| 1.5 | Taxying. |
| 2.1 | Normal take-offs. |
| 3.1 | Turns with and without spoilers. |
| 3.2 | Tuck under and mach buffets. |
| 3.4.6 | Flight control and trim system. |
| 3.4.9 | Stall warning devices. |
| 3.6.9 | TCAS event. |
| 3.7 | Steep turns with 45 AOB to 180 left and right. |
| 4.1 | Go-around with all engines operating after an ILS (DA). |

2.1.2.2.1.4 Standard Required on Completion of Detail 1

- Correct take-off technique.
- Stalling to a level 3 standard in take-off and cruise configuration.
- TCAS event handling to a level 3 standard.
- General handling adequate.
- Basic CRM and non-technical skills.

-
- Raw data ILS to a level 3 standard.

2.1.2.2.1.5 Briefing and Discussion Items Detail 1

Take-off Technique

- Rotation rate.
- Where to look and visual/instrument cues.
- Initial pitch attitude and flight director commands (flying through the FD).
- Post take-off actions and calls.
- Packs off technique.
- Noise abatement technique.

Stalling

- Indications and avoidance of the stall.
- Correct stall recovery technique.
- Potential causes of stall.
- Cruise/High altitude stall and why it is a more critical manoeuvre due to lack of excess thrust available.
- Introduction of avoid, trap, mitigate and its application to stalling.

High Speed Handling

- Minimal briefing cover Mach buffet/no mach tuck.
- Effect of spoilers in the turn.
- 1.3 g buffet boundary.

180 Degree Turns

- Use FCTM procedures include with/out coming to a stop.
- Clarification of the different techniques used when a runway is contaminated.

Intro to Competencies System and its Integration Through the Course

- Some facilitative debrief and comment on crew interaction including feedback to each other. An explanation (if required) on the integration of technical and non-technical skills within the BA Pilot Competencies.

2.1.2.2.1.6 Notes for Instructor

Establish who is Pilot A and B and annotate trancomm – include the trainee's aviation background and mobile number. If normal crew the Captain must always be Pilot A. Check Licences; if frozen ATPL contact FTM (ATPL skill test may be required at detail 9/10). Give full safety brief and ensure trainees familiar with simulator environment, facilities, performance, and paperwork for details. TCAS training should be completed in this detail and is not re-visited again on the course. If training in this item is not to standard trancomm should be adequately highlighted to indicate that the item needs further training. High speed characteristics (Mach buffet/overspeed) of the 744 are benign and this item is a very brief handling experience of these characteristics for the trainees (this item can be done in incorrect seat). 180° turns on the runway; each trainee should complete at least one of either method from the correct seat to establish the correct visual alignment with the runway edge.

High altitude stalling can be completed from the incorrect seat as an FO could be Acting Pilot in Command in the cruise when such a condition could be encountered. Approach and take-off configuration stall recoveries must be done from correct seat.

Three stalls are required to sign off the 1158 completely: Stalling in take-off configuration (flaps at 20 or 10 in climb out), stalling in cruise (done at high cruise altitude clean configuration), stalling in approach configuration (detail 2) hence stalling training is not completed until the end of detail 2. The stall recovery should be from initial buffet or stick shake whichever comes first. Since all recoveries use the same technique the stall can be initiated from either manual or automatic flight.

Take-offs are done with a very light (5K) crosswind. If trainee has any difficulties consider removing the crosswind. Crosswind technique is briefed in detail 6.

Page 1 and 2 of a CIRRUS is provided for a LHR-LOS sector.

INSTRUCTOR ONLY
2.1.2.2.1.7 Detail 1

DETAIL 1				
Briefing		Simulator safety and emergency briefing. Instructor led quick setup. Pushback and taxi RWY09R. After departure handling practice, high altitude exercises, stalling, TCAS, approach and go-arounds.	LHR RWY 09R	
Initial State		Ground power connected on gate 514, Heathrow.		
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 150/150/155	25.5%	223.0/42.2	71.5	293.5
Route		EGLL to DNMM after departure local flying for return to LHR.		
ATIS		RW09R 070/5 CAVOK 10/5 1010.		
Clearance		BAW 75 to LOS MID3J swk 1666.		

Specific Lesson Plan Steps

1. LHR, daylight, 070/05, CAVOK, 10/05, Q1010, Aircraft on stand 514.
2. Reposition to FL380 for upper air handling, including TCAS, Stall and Overspeed.
3. TCAS encounter at FL380.
4. Reduce fuel to 20T.
5. Set RWY 09L.
6. Reposition base leg for RWY 09L.

2.1.2.2.2 B747 – Full Flight Simulator – Detail 2

2.1.2.2.2.1 Summary

The detail is based at London Heathrow with engines running and an instructor-led quick setup. Detail 2 continues the theme of 4 engine manual handling and introduces landings (the intent is that initial landing tuition will be with the instructor occupying either the left or the right seat). After take-off the aircraft returns for a variety of manual approaches. Stalling training is concluded with stall recoveries in the approach configuration.

2.1.2.2.2.2 Objectives

- Complete stalling training.
- Manual ILS and go-around practice.
- Complete PRM training.
- Introduction to landing technique.
- Rejected landings to an adequate standard.

2.1.2.2.2.3 Form 1158 Items Practical Training Complete for Following Items in Detail 2

- | | |
|-----------|---|
| 2.2 | Instrument take-off. |
| 3.8 | Stall counter measures. |
| 3.8.1 | Recovery from stall. |
| 3.9.3 | Precision approaches down to a DH not less than 200'. |
| 3.9.3.2/3 | Manually with F/D, with Autopilot. |
| 4.2 | Other missed approach. |

Other non-1158 items complete in trancomm:

- ILS PRM.

2.1.2.2.2.4 Standard Required on Completion of Detail 2

- Take-offs to a good consistent standard.
- Competent manually flown ILS and go-around including rejected landing.
- ILS PRM approach training completed (confirm that trainees have watched the briefing material during ground school).
- Landing technique adequate.

-
- Stalling in approach configuration to a level 3 standard.

2.1.2.2.2.5 Briefing and Discussion Items Detail 2

Stalling

- Indications and avoidance of the stall.
- Correct stall recovery technique.
- Potential causes of stall.
- Approach/landing config use of PLIs and correct technique.
- Introduction of avoid, trap, mitigate and its application to stalling.

Landing Technique <1000 ft

- Power settings and pitch attitudes on stabilised approach.
- Stabilised approach criteria.
- Importance of correct trimming and pitch/power couple.
- Where to look and visual cues at 100 ft, 50 ft and 30 ft.
- Ground effect below 200'.
- Importance of wings level and effect of rudder inputs with swept wing.
- Correct use of reverse and calls after touchdown.
- Braking and use of autobrake to clear runway efficiently and quickly.

Manual ILS and Go-around

- With flight director.
- Go-around from rejected landing/low go-around.
- Landing from visual at DA on a Cat 1 manual landing.

ILS PRM Approach

- Confirm trainees have watched FAA briefing video in groundschool.
- Discuss handling of breakout manoeuvre.
- Check trainees' knowledge of PRM approach procedures.

Rejected Landing

- Can only be done if reversers not yet deployed.
- Refer to FCOM Rejected Landing Procedure.

2.1.2.2.2.6 Notes for Instructor

Building on lessons in detail 1 the trainees experience a heavy weight, packs off take-off prior to a return.

The instructor is expected to use his experience to decide upon an order that will satisfy the trainees needs e.g. auto ILS to rejected landing leading into radar circuit etc.

The expectation is that the instructor will occupy an operating seat for landing training.

Page 1 and 2 of a CIRRUS is provided.

2.1.2.2.2.7 Detail 2

DETAIL 2				
Briefing	Refresh simulator H & S. Instructor led quick setup. Heavy weight take-off RWY09R. After departure return for manual approach handling, rejected landings, stall recovery in approach configuration and landing practice.		LHR RWY 09R	
Initial State	Instructor setup for quick start with engines running. Hold short RWY 09R			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
45° 155/167/175	23.5%	227.4/46.6	136.8	364.2
Route	EGLL to FACT after departure local flying for a return to LHR.			
ATIS	RWY 09R 050/05 1000 m RA OVC003 18/10 Q998 (daylight).			
Clearance	RWY 09R MID3J swk1666.			

Specific Lesson Plan Steps

1. LHR, daylight, 050/5, 1000m, RA, OVC003, 18/10, Q998, hold short RWY 09R.
2. Change weather to CAVOK.
3. Reduce fuel to 23T (and freeze).
4. Set RWY 09L.
5. Fail ILS 09L.
6. Fail PAPI 09L.

2.1.2.2.3 B747 – Full Flight Simulator – Detail 3

2.1.2.2.3.1 Summary

The detail is based at Singapore on gate with a full setup, engine start and pushback. A short taxi to RWY 02C for a max weight take-off to LHR gives the trainees exposure to high weight and hot temp operations. After departure in windshear conditions the aircraft returns for windshear on approach training. Thereafter late runway change, NIDA and circling are covered.

2.1.2.2.3.2 Objectives

- Windshear training after take-off and on approach completed.
- Ensure thorough understanding of the Predictive Windshear System installed on the B747.
- Proficient in briefing and executing a Circling Approach.
- FMC holding.
- Non-ILS database approaches to a level 3 standard.
- Rejected landings to a level 3 standard.

2.1.2.2.3.3 Form 1158 Items Practical Training Complete for Following Items in Detail 3

- | | |
|-------|--------------------------------|
| 1.1 | Performance calculation. |
| 2.4 | Take-off at max take-off mass. |
| 3.6.5 | Windshear at take-off/landing. |
| 3.9.2 | Holding procedures. |
| 3.9.4 | NPA down to DA. |
| 3.9.5 | Circling approach. |
| 4.4 | Rejected landing at 50'. |

The following items are also trained in this detail but not training complete:

- | | |
|-----|---|
| 1.3 | Cockpit inspection. |
| 1.4 | Use of checklist prior to starting engines. |
| 1.6 | Pre-flight checks. |

Non-1158 item training complete:

- Late runway change.

2.1.2.2.3.4 Standard Required on Completion of Detail 3

- Take-offs and landings to a good consistent standard.
- SOPs and standards calls progressing.
- Understanding of the principles of non-ILS approach procedures.
- Briefings relevant and concise to enhance SA.
- Windshear handling to a level 3 standard.
- Predictive Windshear System and pilot response understood.
- Late runway switch procedure understood.
- Circling Approach briefed and flown to a level 3 standard.
- FMC holding.

2.1.2.2.3.5 Briefing and Discussion Items Detail 3

Holding

- Correct programming of FMC.
- Use of next hold when holding waypoint is already in legs page later in route e.g. for the go-around.
- Holding speeds in USA.

Circling Approaches

- Becoming rare so require careful briefing, planning and execution.
- FCTM gives good guidance.
- Full use of automatics strongly recommended. Discuss correct modes; if flying an ILS do not use APP mode.
- Emphasise the need during briefing to focus on how the approach will be executed and how and when the aircraft will be configured.
- Control handover point needs highlighting.
- Ensure go-around plan is understood.

Windshear Handling

- Refer to guidance in FCOM and QRH.
- Clearly establish the role of the Predictive Windshear System.
- Immediate windshear alerts are generated when GPWS (air data) senses the aircraft is in windshear conditions whereas predictive windshear alerts are generated using the weather radar system when it detects disturbed air ahead of the aircraft.
- Ensure trainees understand the practical difficulties of managing a “windshear ahead” at a busy airfield during bad weather.
- Confirm correct understanding of the QRH manoeuvre recall actions.

Non-ILS Database Approaches

- APFD modes to use (highlight 3 key requirements prior to FAF: LNAV, VNAV and MCP set to MDA).
- Checking of FMC including legs page, waypoints and glidepath. Extra checks required for RNAV approach.
- Raw data monitoring requirements and lateral and vertical deviation limits on progress page 2 and PFD.
- Transition to visual approach.
- Go-around from non-ILS approach.
- Refer to QRH ops info section aide memoire.

Late Runway Switch Procedure

- Check full understanding of PF handling.
- Check full understanding of PM, MCP and FMC handling.

2.1.2.2.3.6 Notes for Instructor

The aim of detail 3 is to ensure that the trainee is competent at 4-engine handling prior to progressing to OEI handling. If there is any doubt that 4-engine handling is not at the standard expected at this stage FTM must be informed.

The detail starts with a full setup for one trainee whilst the other trainee will conduct a full setup in detail 8. Hence, for simplicity, 1158 items 1.2, 1.4 and 1.6 sign off is delayed until detail 8 completed.

The windshear model is realistic and the Predictive Windshear system works well. On the predictive windshear page (via the special effect page) the instructor can turn the aural/visual predictive windshear warnings 'off', or 'on' so as to force a continue rather than an RTO.

The circling approach is conducted from an ILS to circle and land on the reciprocal runway.

Pages 1 and 2 of a CIRRUS, a LORETO brief, a load sheet and CARD data are provided.

2.1.2.2.3.7 Detail 3

DETAIL 3		
Briefing	Full start including safety checks. Push back, reposition for hold position RWY 02C. Max weight take-off for windshear training.	SIN RWY 02C
Initial State	Ground power connected on gate, Singapore.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
42° 164/171/180	23.7%	233.7/52.9	162.8	396.5

Route	WSSS to EGLL after departure local flying for a return to SIN.
ATIS	RWY 02C 020/15G25 3000 m RA FEW025CB 28/27 Q1020 (night).
Clearance	RWY 02C AROSO 1A swk 2256.

Specific Lesson Plan Steps

1. On gate at SIN, RWY 02C, Night, 020/15G25 RA FEW025CB 28/27 Q1020.
2. Reposition hold short RWY 02C.
3. Reduce fuel to 17T (and freeze).
4. Change weather to 030/10 OVC010 for NIDA training.
5. Fail ILS 02C.
6. Fail ILS 02L.

INSTRUCTOR ONLY

2.1.2.2.4 B747 – Full Flight Simulator – Detail 4**2.1.2.2.4.1 Summary**

The detail is based at London Heathrow with an instructor-led quick setup holding short of runway 27R. After a normal take-off an engine is failed in flight. The trainee can explore manual handling whilst airborne prior to returning to practice OEI approaches and go-arounds. Thereafter EFATOs and RTOs are practiced.

2.1.2.2.4.2 Objectives

- Train RTO manoeuvre (PF and PM) to an adequate standard.
- EFATO handling to adequate standard.
- Passenger Evacuation to a level 3 standard.
- Workload management and prioritisation of actions during and following EFATO.
- Introduction to how aircraft handles OEI with and without autopilot.
- Proficient handling and management of the OEI ILS, G/A and landing, manually flown with flight director.

2.1.2.2.4.3 Form 1158 Items Practical Training Complete for Following Items in Detail 4

- 3.4.0 Engine.
- 3.4.3 Fuel.
- 3.6.1 Fire drills (including evacuation).
- 3.9.1 Adherence to departure and arrival routes.

The following items are also trained in this detail but are not training complete:

- 2.5.2/2.5.3 EFATO.
- 2.6 RTO.
- 3.9.3.4 Manual precision app OEI.
- 4.3 Manual go-around with critical engine failure.
- 5.5 Landing with critical engine simulated inop.

2.1.2.2.4.4 Standard Required on Completion of Detail 4

- RTO (both PF and PM) to an adequate standard at varying weights and caused by both asymmetric and other reasons.
- EFATO to adequate standard to full clean-up.
- OEI manual ILS to an adequate standard.
- OEI manual go-around to an adequate standard.
- OEI landing to an adequate standard.
- Passenger Evacuation to a level 3 standard.

2.1.2.2.4.5 Briefing and Discussion Items Detail 4

RTO

- PF and PM duties.
- Post-RTO management.
- Liaising with CSD/crew.
- Vacating runway.
- Brake cooling considerations and charts.

Passenger Evacuation

- Management.
- Allocation of duties.
- What happens in the cabin.

- Communications.

EFATO

- Handling technique.
- Non-normal management.
- Allocation of duties.
- Prioritisation of actions.
- Post clean-up actions.
- Differences 3 vs 2 engine aircraft (e.g. PAN call not always necessary, continuation policy).

One Engine Inoperative (OEI) Handling

- Manually flying, use of a/t.
- Use of autopilot, trimming, etc. when OEI.

OEI Manual ILS and Go-around

- Configuration changes.
- Thrust settings OEI.
- Effect of incorrect rudder trim on Flight Director indication.
- Rudder input during go-around, rate and amount.
- Thrust application when TOGA pressed (how much thrust and when is it applied, difference from all engines operating).
- Pitch attitude and effect of pitch power couple in the go-around.
- APFD selections after go-around.

OEI Manual Landing

- Rudder trim in or out for landing discuss difference in rudder input as thrust levers closed.
- Flare technique same as all engine operating.
- Effect of thrust reverser.

Use of QRH and Task Allocation during Non-normals

- Use of QRH and understanding of Checklist instructions section CI.
- Use of autopilot to reduce workload.
- Allocation of tasks; who does what during non-normals.
- Prioritisation.
- Understanding of QRH construction, the meaning of bold items, capitals, dotted lines etc.

2.1.2.2.4.6 Notes for Instructor

This is a busy detail hence a quick start and departure are essential. Once airborne, after a normal take-off, fail an engine for OEI manual handling. Points to emphasise include minimal power changes and the need to keep the aircraft in trim.

Reposition or vectors can be used to base leg for manual OEI ILS, G/A and landings as necessary. The expectation is that an 'adequate standard' is attained for manual OEI ILS, G/A and landing since there will be further consolidation in detail 5. Hence, the instructor may find that only one attempt is required prior to moving onto EFATO training. Training should emphasise the EPR datums, minimal power changes and the advantages of disconnecting the A/T prior to level off in the G/A.

Building blocks are used for the EFATO and a suggested running order might be heavy weight (with a V_1/V_R split), then a medium weight and finishing with a light weight EFATO to a full clean up. Instructor to vary conditions as required. Yet again, the expectation is that the trainee will achieve an 'adequate standard' (further training in detail 5) prior to moving onto RTOs. If non-normal crew all handling actions must be completed in the correct seat, but it is acceptable for PM actions to be done in the wrong seat.

RTOs are conducted just prior to the break and building blocks should be used to achieve an adequate standard of competency. With a normal crew RTOs should be alternated with pilots completing handling and managing duties. RTOs are caused by configuration warnings as well as engine fires and then failures that introduce asymmetric handling skills. RTOs should be done at varying weights and speeds including low speed with autothrottle still engaged and RTO autobrake not yet armed. Having achieved an adequate standard, the passenger evacuation is introduced just prior to stopping for break. With a non-normal crew some seat swapping will be required.

2.1.2.2.4.7 Detail 4

DETAIL 4		
Briefing	Instructor led quick start. Normal departure. Engine failure once airborne for OEI training.	LHR RWY 27R
Initial State	Ground power connected holding short RWY 27R, Heathrow.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
For 250T 73° 133/133/142	as per OIS	230.0/49.2	Instructor defined	Instructor defined

Route	EGLL to EGLL after departure local flying.
ATIS	As required.
Clearance	RWY 27R for local flying swk 7000.

Specific Lesson Plan Steps

1. LHR, RWY 27R, Day, Calm, CAVOK, 10°, Q1012.
2. Eng 1 severe failure.
3. Eng 1 fuel cross-feed valve fail (to explore fuel system non-normal).
4. Eng 4 severe failure.
5. Eng 4 cross-feed valve fail (to explore fuel system non-normal).
6. For RTO – forward cargo fire.
7. For RTO – trim “runaway” leading to CONFIG warning.
8. For RTO – loss of No 2 EPR gauge display (crew to continue).
9. For RTO – no 2 eng fire (leading on from step 8).
10. For RTO – autospoiler fail.

2.1.2.2.5 B747 – Full Flight Simulator – Detail 5

2.1.2.2.5.1 Summary

Detail 5 commences at SEA with an instructor-led quick setup, holding short of runway 16L. It consolidates OEI handling, and introduces operational considerations and procedures associated with single engine failures. After EFATO, OEI approach and go-around training a failed engine is relit. The detail then shifts to mid-Atlantic for engine failure and drift down on OTS training. Thereafter a further engine failure leads onto two engine work. The detail has three locations: Seattle, mid-Atlantic and Shannon.

2.1.2.2.5.2 Objectives

- EFATO trained to a level 3 standard (including emergency turn).
- Awareness of emergency turn considerations.
- Ensure trainee understands management considerations during EFATO and during the subsequent return or continuation plan.
- OEI manual ILS to a level 3 standard.
- OEI manual go-around to a level 3 standard.
- OEI landing to a level 3 standard.
- OEI fuel management.
- Fuel jettison.
- 2-engine out handling to a level 3 standard.

2.1.2.2.5.3 Form 1158 Items Practical Training Complete for Following Items in Detail 5

- | | |
|---------|---|
| 3.6.3 | Engine failures, shutdown and restart at a safe height. |
| 2.5 | Take-offs with simulated engine failures. |
| 3.6.4 | Fuel dumping. |
| 3.9.3.4 | Manual precision approach OEI. |
| 4.3 | Manual go-around with critical engine failure. |
| 5.5 | Landing with critical engine simulated inoperative. |
| 5.6 | Landing with two engines simulated inoperative. |

Non-1158 items training complete:

- USA operations.

2.1.2.2.5.4 Standard Required on Completion of Detail 5

- EFATO to a level 3 standard.
- OEI ILS, G/A and landing manually flown with flight director to a level 3 standard.
- Two engine handling to a level 3 standard.
- A good understanding of fuel jettison and management of fuel system after an engine failure.
- A good understanding of engine failure in the cruise and drift down procedures.

2.1.2.2.5.5 Briefing and Discussion Items Detail 5
USA Operations

- Overview of differences in R/T phraseology.
- Differences in alternate minima (US and Canada) and different minima requirements for take-off and landing.
- Visual approaches and the G/A requirements.
- Guidance on source materials for further reading prior to route training.
- Introduce trainee to the Area briefing requirements and material, route information manual (OM Part C) and where to find information on MNPS operations.

EFATO

- Any questions from previous detail.
- Discuss inboard engine failure differences.
- Slew the brief towards the management of the problem. Considerations include: emergency turn, cabin management, ATC handling.
- Introduce the Continuation Policy, which will be new for most pilots, with emphasis on the different priorities on a 4 engine aircraft. Inform the crews that this will be discussed in detail on route training.
- Discuss fuel balancing if continuing with OEI.
- Highlight that Fuel Imbalance checklist in QRH assumes all engines running.

OEI Fuel Management

- OEI fuel management in FCOM 1 SP section.
- How to deal with a FUEL IMBALANCE EICAS message following an engine failure and continuation of flight.
- Basic understanding of how to deal with an imbalance during a short flight such as LHR-LGW when fuel is already tank-to engine.
- It is acceptable to land with crossfeeds open following a OEI continued flight.
- This training should be kept brief and focus on the essentials so as to cope with an imbalance during the LST/LPC. The trainees will cover this in more depth during line training discussion.

Fuel Jettison

- Deciding upon the target fuel remaining to achieve the desired landing weight taking into account structural, runway and environmental considerations.
- Unusual distribution of fuel load after jettison dependent on fuel remaining, requires careful monitoring.

2 Engine Handling and Approaches

- Autopilot available, autothrottle not available.
- Discuss V_{MCA2} and aileron lock out.
- Discuss weight for return considerations and the options for fuel dumping versus the aircraft status and possible immediate return. Reassure crews that a successful 2 engine landing at max take-off weight is easily achievable.
- Ensure thorough understanding of QRH procedures particularly the go-around considerations.
- Discuss management and ATC consideration clarify with ATC inability to go-around once approach commences, sterile runway is a UK terminology.
- Emphasis should be on planning a successful landing with a go-round as last resort but still achievable even at very high weights.

2.1.2.2.5.6 Notes for Instructor

This is another busy detail that requires a quick start from the crew straight into EFATO and emergency turn (ET) training. Hence, it is suggested that the last ten minutes in the classroom are used for the trainees to practice emergency briefings and how they'll fly an ET. Initially plan for the crew to run the first EFATO in real time through to how and when they could consider continuation. This will ensure the management points can be covered when there is the possibility of continuing.

The running order is determined by the instructor to maximise training value. A possible running order for a non-natural crew might be:

- EFATO, ET and full clean up,
- Continuation policy (severe engine failure leading to a return),
- Fuel dump,
- Return for OEI ILS, G/A, repos land,
- SEAT SWAP,
- Repos OEI ILS, G/A, repos land,
- EFATO, ET and full clean up,
- Continuation policy (continue this time with an engine rundown only),
- BREAK BREAK BREAK,
- Engine relight (3.6.3),
- Repos OTS for engine failure and driftdown,
- OEI fuel handling,
- 2 engine inop approach and landing,
- SEAT SWAP,
- 2 engine inop approach and landing.

There is no requirement for a two engine inoperative go-around to be flown (due to the very rare likelihood of it occurring) however if there is time at the end of the detail there is training value to be had by flying one.

Page 1 and 2 of CIRRUS and CARD data are provided.

2.1.2.2.5.7 Detail 5

DETAIL 5				
Briefing	Instructor led quick start. EFATO and ET on departure.		SEA RWY 16L	
Initial State	Ground power connected holding short RWY 16L, Seattle.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
64° 142/158/165	24.2%	222.9/42.1	101.7	324.6
Route	KSEA to EGLL after departure local flying.			
ATIS	RWY 16L 140/10 5sm -RA OVC008 A2991.			
Clearance	RWY 16L SEATTLE 4 swk 4607.			

Specific Lesson Plan Steps

1. SEA, RWY 16L, Dusk, 140/10, 5sm, -RA, OVC008, 12/10, A2991.
2. Reposition mid-Atlantic between 5350N and 5340N FL370, reduce fuel to 52T, to look at engine failure in the cruise.
3. Set SNN RWY 24. Weather day, 250/08, 9999, OVC015, 2/-2, Q1022.
4. Reposition 20 nm West of SNN, FL100 (allows crew to explore approach planning as required).
5. Reposition downwind RWY 24 at SNN. Reduce fuel to 15T.

2.1.2.2.5.8 Appendix Detail 5 Demonstrating Fuel Jettison

The trainees will have thoroughly explored fuel jettison during the ground school phase hence you may not have to explore the finer details of jettison on this detail. However, for completeness, the following is included.

Demonstrating fuel jettison in the simulator requires manual setting of fuel quantity in each individual tank. If fuel quantity is set using total fuel it will distribute fuel equally in all tanks which is not the case when fuel jettison takes place.

Set fuel jettison to 30 tonnes final fuel.

Initial Set-up

Fuel in tanks will be in the region of 120 T at the time fuel jettison commences and distribution will be something like this. Fuel is being supplied from CWT.

13.5 (main 1) 38.1(main 2) (main 3) 38.1 (main 4)13.5
(CWT) 8

4.0 (Res 2) (Res 3) 4.0

Next set CWT fuel to 2T:

13.5 (main 1) 38.1(main 2) (main 3) 38.1 (main 4)13.5
(CWT) 2

4.0 (Res 2) (Res 3) 4.0

This distribution will demonstrate the switching off of CWT jettison pumps when the FUEL PRESS CTR EICAS message shows.

Jettison now commences from main tanks 2 and 3.

Next lower main tanks 2 and 3 to 18 T this demonstrates transfer of fuel from reserves when 2 & 3 get below 18,140 kg. Total fuel now 72.0 T.

Set all main tanks to 13.5 T and Res 1 & 4 and CWT to zero.

Demo Auto Balancing Between Main Tanks 2 and 3

Next demonstrate auto balancing between tanks 2 and 3. Lower fuel in main 2 to 11.0 T and see pumps in 2 switched off automatically to balance left and right.

Demo Transfer from Outboard to Inboard Tanks

Next set 45 T with 9 T in each main tank 2 and 3. This will demo the opening of the transfer valves between 1 and 2 and 4 and 3. This allows fuel to gravity feed from the outer tanks to the inboard tanks to be jettisoned by the override pumps. Actual figure is 9072 kg in either 2 or 3. No balancing tanks 1 and 4.

13.5 (main 1) 9.0 (main2) (main 3) 9.0 (main 4) 13.5

Demo End of Jettisoning

Set fuel to 31 T to demonstrate approaching end of jettison distribution as below:

9.0 (main 1) 6.5 (main2) (main 3) 6.5 (main 4) 9.0

When the fuel reaches the pre-set figure in this case 30T the fuel to remain figure changes to white and flashes for 5 seconds. Jettison and transfer pumps are deactivated and the FUEL OVRD message appears until the Fuel Jettison selector is turned off.

Discuss fuel management when jettison complete. Highlight how configuring to normal tank-to-engine configuration will result in fuel imbalance message. With an engine shutdown the fuel distribution is further complicated and some explanation of how to balance fuel when engine out or on all engines after jettison complete should be given. Explain how the QRH Fuel Imbalance checklist assumes all engines are running.

2.1.2.2.6 B747 – Full Flight Simulator – Detail 6

2.1.2.2.6.1 Summary

Detail 6 looks at various failures both on the ground and in the air and allows crews to deal with relatively simple non-normals. It begins with engine start faults on stand and continues with various simple failures with the intent being for the trainees to practice non-normal management and cement QRH discipline. Take-off and landings are in strong (but not limiting) crosswinds to introduce crosswind handling technique. The detail has two locations: Heathrow and Keflavik.

2.1.2.2.6.2 Objectives

- Crosswind take-offs to an adequate standard.
- Crosswind landings to an adequate standard.
- Develop prioritisation and workload management skills during non-normals and the use of TDODAR.
- Engine start problem awareness.
- Confirm correct crosswind take-off and landing technique.
- Management and execution of emergency procedures, including rapid depressurisation.
- Introduction to workload management, non-normal management structure and prioritisation.
- Introduction to US operations (more training given during route flying).
- Standby Nav operation following double FMC failure.
- Demonstration of standby power.

2.1.2.2.6.3 Form 1158 Items Practical Training Complete for Following Items in Detail 6

- | | |
|--------|--|
| 3.4.1 | Pressurisation and air conditioning. |
| 3.4.4 | Electrical system. |
| 3.4.11 | Radios, navigation equipment, instruments, FMS. |
| 3.4.14 | APU. |
| 3.6.6 | Simulated cabin pressure failure/emergency descent. |
| 5.1 | Normal landing after an ILS with transition to visual flight on reaching DH. |

Non-1158 items training complete:

- Engine start faults.

Items trained but not training complete:

2.3 Crosswind take-off (completed in detail 7).

5.3 Crosswind landing (completed in detail 7).

2.1.2.2.6.4 Standard Required on Completion of Detail 6

- Competent ability in navigating using standby navigation and understanding of management and implications of double FMC failure.
- Competency in dealing with engine start faults.
- Emergency descent training complete to a level 3 standard.
- Crosswind take-off to an adequate standard.
- Crosswind landing to an adequate standard.
- Competent ability in navigating using standby navigation and understanding of management and implications of a double FMC failure.
- Total electrical failure and standby power demonstrated and understood.
- Understanding of differences in RT and ops in USA; instructor to guide trainees to areas of preparation/reading prior to route training.
- Competent workload management during non-normals.
- Briefings relevant and concise to enhance SA.

2.1.2.2.6.5 Briefing and Discussion Items Detail 6

Start Faults

- Ensure the trainee understands that Autostart may undertake a number of start attempts before aborting the start sequence and that the Autostart QRH memory items are not actioned until the Autostart EICAS message appears.
- Highlight that Autostart protection for hung and hot starts is only available up until the point of starter cutout.
- Highlight the need to monitor oil pressure by idle N3 rise in all starts.

Cabin Altitude EICAS/Emergency Descent

- Emphasise that the priority is for the flight crew to don oxygen masks quickly and to be diligent in completing the subsequent memory actions before any decision is made on the need to descend. Do not assume descent is inevitable.
- Explain the importance of clearly establishing who is in control and therefore who does what tasks.
- Consider the difficulty of seeing and operating the pressurisation panel from the left seat. ECS synoptic can be useful.
- Once established in the descent use the terrain function to confirm any MSA considerations.
- Post descent management. Cabin needs/ATC/Planning.

Crosswind

- Take-off technique.
- How to keep wings level.
- No rush to uncross controls after lift -off.
- Pod scrape attitudes and roll angles.
- Landing technique.
- Secondary effect of large rudder and swept wing on the 747.
- Autopilot technique.

Standby Power System/Total Electrical Failure

- Indications.
- Use of T-DODAR and its applicability.
- Management of QRH checklist for electrical failures.
- Due to the nature of the EICAS display heirachy, and the number of systems linked to an AC Bus, the source Bus failure may not be presented on the first page of EICAS messages.

Briefings

- Relevant and concise to enhance SA.
- What is meant by relevant.
- Use of open and interactive questioning to share mental model.

Use of QRH and Task Allocation during Non-normals

- Use of QRH and understanding of Checklist Instructions section CI.

- Use of autopilot to reduce workload.
- Allocation of tasks; who does what during non-normals.
- Prioritisation.
- Assessing time available to make decisions and generate options.

Non-ILS (Non Database) Approach – NINDA

- How to construct a NINDA in the FMC.
- What modes can be used.

2.1.2.2.6.6 Notes for Instructor

This detail starts on stand 514 with an instructor assisted setup up until the ‘Before Start’ checks. Thereafter run the start in real time introducing start faults as necessary.

After a crosswind take-off various non-normals are explored. When conducting these failures remember that the emphasis is on understanding the systems, procedures and non-normal management structure. Hence, LOFT style scenarios are to be avoided. Instructors are encouraged to use simulator flight freeze as necessary.

Yet again, instructors will have to use their knowledge, skills and experience to construct a training order for the detail. Note that if you have a non-natural crew, there is no requirement to be in the correct seat for the emergency descent or any auto flown approach. The detail finishes with crosswind landings. Note that the simulator model is less realistic for landings when the crosswind exceeds 30kts.

Page 1 and 2 of Cirrus is provided for a LHR-JFK sector.

2.1.2.2.6.7 Detail 6

DETAIL 6		
Briefing	Instructor led setup until the Before Start Checklist. Engine start faults leading onto a crosswind take-off. Thereafter simple non-normals.	LHR RWY 27L
Initial State	Ground power connected on gate 514, Heathrow.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
68° 149/153/161	25.8%	229.2/48.4	83.0	311.3

Route	EGLL to KJFK after departure local flying for a return to LHR.
ATIS	RWY 27L 360(180)/15(+) 9999 FEW010 SCT050 15/10 Q1020 (daylight).
Clearance	RWY 27L WOBUN 3G swk1444.

Specific Lesson Plan Steps

- Set LHR, RWY 27L, 360/15, 9999, 15/10, FEW010, SCT050, Q1020.
- APU fire on start.

3. Engine start fault: hung start No 4 (should lead to an Autostart message). Reinforce use of MEL after QRH.
4. Engine start fault: hot start on No 4.
5. Tail pipe fire No 2.
6. Reposition to “AGORI” FL360, FMC routing: AGORI 5820N 6030N 6040N.
7. ELEC AC BUS 3 FAIL.
8. ELEC AC BUS 1 FAIL.
9. Total electrical failure.
10. Slow loss of cabin pressurisation.
11. Rapid loss of cabin pressurisation.
12. Left FMC fail.
13. Right FMC fail.
14. For NINDA training. Set KEF RWY 11, ILS failed, 200/15, OVC009, -3/-5, Q1012.
15. Reduce aircraft fuel to 53T (GW 282.2T). Reposition aircraft 20nm East of KEF.

2.1.2.2.7 B747 – Full Flight Simulator – Detail 7

2.1.2.2.7.1 Summary

Detail 7 is based at CPT with an instructor-led quick setup holding short of RWY 01. It looks at more complex system failures and at GPWS. It consolidates non-normal management (NNM) and highlights that the NNM structure works even for complex failures. Take-offs and landings are in strong (but not limiting) crosswinds.

2.1.2.2.7.2 Objectives

- Crosswind take-off to a good standard.
- Crosswind landing to a good standard.
- Ensure competency of hydraulic QRH procedures.
- Jammed stab QRH procedures managed to successful outcome.
- GPWS training complete.
- A thorough understanding of the NNM structure.

2.1.2.2.7.3 Form 1158 Items Practical Training Complete for Following Items in Detail 7

- | | |
|--------|--|
| 2.3 | Crosswind take-off. |
| 3.4.2 | Pitot static system. |
| 3.4.5 | Hydraulic system. |
| 3.4.10 | Ground proximity warning system, weather radar, radio altimeter, transponder. |
| 3.4.12 | Landing gear and brake system. |
| 3.4.13 | Slat and flap system. |
| 3.6.8 | Other emergency procedures. |
| 5.2 | Landing with simulated jammed horizontal stabiliser in any out-of-trim position. |
| 5.3 | Crosswind landing. |
| 5.4 | Traffic pattern and landing without extended or partly extended flaps and slats. |

Competencies:

- These should all be assessed as a level 3 standard at this stage.

2.1.2.2.7.4 Standard Required on Completion of Detail 7

- Crosswind take-off to a good standard.
- Crosswind landing to a good standard.
- Hydraulic faults managed and resolved to achieve a successful outcome.
- Jammed stab managed and resolved to achieve a successful outcome.
- Effective use of the NNM structure.
- Correct handling of GPWS manoeuvre as PF and PM.

2.1.2.2.7.5 Briefing and Discussion Items Detail 7

GPWS

- Use of Terrain to avoid.
- Corrections to MSA to calculate MOA.
- Our operation aims to avoid and trap. GPWS is the lowest level of mitigation but relies on an immediate, consistent and unquestioning response.
- Reason for MSA call during climb and descent and implications for GPWS.
- Simulator exercise is a requirement for 1158 and therefore needs to be forced against all the natural pilot instinct and warnings that should have helped avoid and trap a controlled flight into terrain event.

Flap Problems

- Overview of flap system faults and impact on operation.
- Prioritisation of selecting a safe speed if fault occurs on take-off.
- Impact of increased approach speed on landing distance, brakes (what about high altitude airport).
- Use of T-DODAR in decision making. What time may be available if fault happens on final approach with only reserve + alternate fuel in tanks.

Hydraulic Failures

- No memory items.
- Any system failure means aircraft CAT 1.
- Any single system failure means you can continue.

- More than 1 hydraulic system failure plan to land at nearest suitable.
- System 2 and 3 no autopilot and no stab trim (jammed stab QRH).
- System 1 and 4 requires good time management and effective prioritising.
- Cover implication of increased approach speed ref QRH PI Section.
- Brake energy management considerations. Hot/High/Fast.
- Emphasise that the QRH is complex and requires careful management which will take time. Effective use of non-technical skills including Workload Management/high level of SA/projecting ahead. Considerations of how the approach will be flown is usefully employed in this exercise.

Jammed Stab

- Discuss the symptoms of this condition as there is no Jammed Stab EICAS (unannunciated QRH check list). With autopilot engaged >autopilot EICAS message plus poor autopilot performance may occur.
- Diagnosis is important so take autopilot out and try to trim to confirm condition. Once confirmed go to QRH.
- Again stress the need to use any available time to manage the problem. Careful briefing with focus on how and when to configure, use of autopilot, problems caused by auto thrust, how to manage the cabin, how to manage ATC. If time permits this can be run as a mini loft exercise.

2.1.2.2.7.6 Notes for Instructor

After a quick setup take-off is in a strong (but not limiting) crosswind to allow 1158 sign off.

Once airborne various failures can be explored (instructor to choose order to maximise training value). Yet again, emphasis is on understanding the systems, procedures and non-normal management structure. The instructor is encouraged to use flight freeze as necessary to stress training and non-technical issues. As the trainees move towards the LOE and LST there may be some value in allowing some of the later scenarios to run to conclusion for management and SOP practice however careful briefing will be required to ensure that crew SA is not degraded.

GPWS training must be conducted from the correct seat. Recovery should be commenced only when the hard warning is triggered despite any trainee discomfort at ignoring a soft warning. Briefing should emphasise that a GPWS hard warning might not have any soft warning precursor however prompt recovery at the hard warning will result in safe mitigation.

There is no requirement for unreliable airspeed to be flown to a full conclusion. However, instructors must ensure that memory drills are followed and that the checklist structure is fully understood.

Page 1 and 2 of CIRRUS and CARD data are provided for a CPT-LHR sector.

Note: There is an emergency turn procedure.

2.1.2.2.7.7 Detail 7

DETAIL 7		
Briefing	Instructor led quick setup positioned holding short of RWY 01. Crosswind take-off leading into complex non-normals.	CPT RWY 01
Initial State	Ground power connected holding short RWY 01, Capetown.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
29° 149/168/179	23.4%	244.0/63.2	135.4	379.4

Route	FACT to EGLL after departure local flying for a return to CPT.
ATIS	RWY 01 100(280)/15(+) CAVOK 25/18 Q1005 (night).
Clearance	RWY 01 KODES 1A swk2256.

Specific Lesson Plan Steps

1. Set CPT, RWY 01, 100/15, CAVOK, 25/18, Q1005, night.
2. MEL item 29-11-01, No 1 hydraulic demand pump U/S.
3. Fail No 1 engine driven pump (should lead to total loss of system 1 pressure).
4. HYD PRESS SYSTEM 1.
5. HYD PRESS SYSTEM 2.
6. HYD PRESS SYSTEM 3.
7. HYD PRESS SYSTEM 4.
8. HYD OVHT SYSTEM 2.
9. HYD CONTROL SYSTEM 1.
10. FLAP DRIVE.
11. Reduce fuel to 20.4T.
12. Jammed stabiliser (suggest doing this at 300kt).
13. Captain's pitot tube blocked (for unreliable airspeed).

2.1.2.2.8 B747 – Full Flight Simulator – Detail 8

2.1.2.2.8.1 Summary

Detail 8 is the final detail prior to LOE and LST and therefore the crews should have all items complete in trancomm by the end of this detail. It is unlikely that there will be sufficient time to complete any previously uncovered items unless they are minor. Inform Training Admin/FTM if you identify a problem.

The detail is based at London Heathrow with a full setup, engine start and pushback. Thereafter this is a short taxi in LVPs and icing conditions prior to departure. The detail includes LVOps, incapacitation and SFF.

2.1.2.2.8.2 Objectives

- All 1158 items and trancomm entries complete.
- Training in cold weather and operations in icing conditions.
- Confirm all aspects of pilot incapacitation understood.
- Use of oxygen masks and management of smoke checklist.
- Raw data ILS completed to a good standard of accuracy ensuring that the crew have a good understanding of power settings and attitude.
- LVOps procedures and approaches flown to complete 1158 items.

2.1.2.2.8.3 Form 1158 Items Practical Training Complete for Following Items in Detail 8

- | | |
|---------|--|
| 1.3 | Cockpit inspection. |
| 1.4 | Use of checklist prior to starting engines. |
| 1.6 | Pre-flight checks. |
| 2.6 | Rejected take-off. |
| 3.4.7 | Anti and de-icing system, glare shield heating. |
| 3.4.8 | Autopilot/flight director. |
| 3.6.2 | Smoke control and removal. |
| 3.6.7 | Incapacitation. |
| 3.9.3.1 | Precision approach manually flown without flight director. |
| 6.1 | Rejected take-off at minimum authorised RVR. |
| 6.2 | ILS approaches in simulated IMC down to DH. |
| 6.3 | Go-around from DH. |

6.4 Landing with visual reference established at DH.

Other non-1158 items training complete in trancomm:

- Cold weather operations.

2.1.2.2.8.4 Standard Required on Completion of Detail 8

- LVOps procedures and approaches to a level 3 standard.
- Good knowledge of cold weather ops including use of TO 1/2 on contaminated runways.
- Raw data ILS to a level 3 standard.
- Competent at fitting and handling of oxygen masks and communications during smoke conditions.
- Incapacitation during cruise and approach understood.
- All conversion items completed and crew assessed as ready for LST in Pilot Competencies.

2.1.2.2.8.5 Briefing and Discussion Items Detail 8

Cold Weather Ops

- De-icing techniques with/out engines running.
- Engine run-ups.
- Taxi and take-off in contaminated conditions including discussion of TO 1/2 take-off. Prepare CARD for this departure using TO 1/2 flow diagram in performance manual.
- Use of nacelle and wing ant-ice.
- Management of checklist when flap extension delayed.

Smoke

- Oxygen mask fitting and use of purging and 100% lever.
- QRH Smoke drill.
- Managing workload and communications across flight deck and with Cabin.

Raw Data ILS

- Confirm the powers and attitudes required and emphasise the importance of power/attitude/trim for the exercise.
- Discuss pros and cons of use of auto thrust during manual flying.
- Discuss wind awareness and use of track line.
- Once go round complete reintroduce the F/D but continue to reinforce the importance of powers and attitudes for all manual flying.
- Ensure the concept of minimum power changes and the use of flap and gear at the correct time will reduce workload and enhance accuracy.

Incapacitation

- Refer to OMA, OMB and FCTM.
- For pilots new to LH cover use of relief crew and medlink considerations.
- Discuss the difference of incapacitation in cruise and on approach.
- Discuss management of incapacitation through to taxi to stand.

ADC Demo

- Ensure the pilots understand that in the worst case of no IAS information a “flight with unreliable airspeed” approach and landing is easily achieved.
- Ensure understanding that pitch attitude is a “fast/slow” indicator i.e. higher than expected pitch attitude means that the aircraft is slow (unsafe) whilst a lower than expected pitch attitude means that the aircraft is fast (safe).
- Ensure understanding about how to transition from each phase of flight using the checklist e.g. descent at .84/290/flaps up/idle thrust, transitioning to level flight at 5000, configuring whilst level, following the glide thereafter.

AWOPs

- Cover FCOM 1 limitation section for autoland limitations.
- Discuss USA and Canadian AWOP’s differences.
- Discuss aircraft downgrades and reversions.
- Discuss implications of ground equipment failures.
- RVR visual requirements fully understood.

- Confirm DH setting procedures.
- Emphasise that 747-400 is capable of Cat IIIB no DH autoland with one engine inoperative.

2.1.2.2.8.6 Notes for Instructor

It is crucially important that instructors ensure that the trainee's PF and PM roles from detail 3 are reversed. This ensures that the 1158 items 1.3, 1.4 and 1.6 can be signed off.

It may be necessary with non-natural crews to fly items from the incorrect seat (eg take-off in 75 m RVR with 2 F/Os, a quick mini brief should suffice and obviously the crew member concerned must realise that his/her performance is not assessed).

The LVOps requires a minimum of 6 approaches but there should be plenty of time so the crews and instructor can debrief/brief to set the scene for the next approach. Incapacitation is included in the LVOps exercise. If possible one should be allowed to run until its conclusion.

As ever, when flying multiple approaches in LVOps the detail could become repetitive. The instructor should intersperse the detail with raw data ILs and SFF to break the monotony.

A landing is not required for the SFF drill but the trainees should understand the philosophy of the drill and be able to complete the initial elements with their masks fitted.

As this is the final sim detail before the LST all items of the 1158 and therefore trancomm must be completed. Each pilot must have reached a level 3 standard so that a pass of the LST is not in doubt. In general terms it is beneficial to have some extra practice rather than an LST fail and a confidence rebuild. If you have doubts discuss with the FTM.

Page 1 and 2 of a CIRRRUS, a LORETO brief, a load sheet and CARD data are provided.

2.1.2.2.8.7
Detail 8

DETAIL 8				
Briefing		Full start including safety checks. Push back, LVO taxi in icing conditions, departure from RWY 27L.		LHR RWY 27L
Initial State		Ground power connected on gate 514, Heathrow.		
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 131/131/140	24.7%	208.3/27.5	36.4	244.7
Route	EGLL to UDD after departure local flying for a return to LHR.			
ATIS	RWY 27L 260/4 75 m FG R75/75/75 VV001 2/2 Q1015 LVPs (daylight).			
Clearance	RWY 27L BPK 7G swk2256.			

- On gate at LHR, RWY 27L, Day, 260/4, 75 m, R75/75/75, FG, VV001, 2/2, Q1015, Icing conditions.
- SMOKE DRS 5R.
- SMOKE LAVATORY.
- Set RWY 27R.
- LOC deviation (activate below 500').
- Single AP failure (to generate LAND 2).
- Rad Alt failure (to generate LAND2).

INSTRUCTOR ONLY

2.1.2.2.9 B747 – Full Flight Simulator – Detail 9

2.1.2.2.9.1 Summary

This detail comprises of a Line Orientated Evaluation (to align mandatories) and the first part of the Licence Skill Test. It starts with a full setup prior to a MAN-LHR sector. The LOE is completed and, whilst airborne, the detail moves smoothly onto the LST. Sector 2 starts in LVPs and continues with various LST items.

2.1.2.2.9.2 Objectives

- To complete an LOE using LOE protocol.
- To complete LVO qualification.
- To complete the first part of the LST.

2.1.2.2.9.3 Standard Required on Completion of Detail 9

Pilot Competencies

- All to a level 3 standard.

2.1.2.2.9.4 Line Orientated Evaluation

The crew are operating a flight from Manchester to London Heathrow. The aircraft is on stand and requires a full start up.

LOE BRIEFING

- Purpose of the LOE is to evaluate your operational proficiency in a line orientated scenario.
- The flight will contain a sequence of events and is intended to be practical and realistic.
- Events are not technically difficult and will require effective use of non-technical skills to achieve a successful outcome.
- Flight will be run in real time with normal paperwork and aircraft library.
- Use BA SOPs and act as you would on the aircraft.
- This is a crew exercise and it does not matter who starts as P1 or P2.
- I will act as ATC, cabin crew, etc. in the normal way.
- Afterwards, we will have an open discussion to review how you managed events, to maximise learning.

2.1.2.2.9.5 Licence Skill Test

The LST is the opportunity for the trainees to demonstrate that they can complete the necessary elements of the skill test to the required standard for issue of their 747-400 type rating.

Training input during the briefing is NOT appropriate to an LST (Std doc 24A 20.3). Theoretical knowledge will have been checked by multi-choice test so a “continued level of knowledge” check is not required (Std doc 24A 14.4).

A licence check should be completed and if a trainee is only in possession of a CPL for upgrade the test must also include the ATPL skill test.

In accordance with EASA part FCL requirements the TRE conducting details 9 and 10 must not have given flight instruction to the trainees for more than 25% of previous training details. Refer to FTM if there is any doubt.

A PBN knowledge check is required as part of the PBN qualification.

2.1.2.2.9.6 Examiner Notes

The LOE requirement is for a minimum of 2 events to be assessed. The instructor can use the IOS failures page or select the event from the failures offered in the lesson plan.

Debrief of the LOE should focus on non-technical skills and use standard LOE debrief technique.

The LST is completed in accordance with Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) requirements. If two co-pilots, the detail may need to be briefed so as to explain that hand over of control may not occur in the normal manner. The briefing will include a full LPC/LST brief.

Page 1 and 2 of a CIRRRUS, a LORETO brief, a load sheet and CARD data are provided.

TRANCOMM COMPLETION

Trancomm for detail 9 contains three LOE events for grading. The instructor should state clearly what type of event was assessed in the comments box adjacent to the event and then grade accordingly. Normal LOE evaluation criteria should be applied with a pass in a minimum of 50% of the events required for successful completion of the LOE. Any event not passed must be trained to a level 3 standard. Trancomm also contains an LOE completed box which must be marked so as to update the trainees' mandatories.

This detail includes some of the 6 items from section 3 for LST assessment purposes of handling of normal and abnormal procedures.

2.1.2.2.9.7 Detail 9

DETAIL 9				
Briefing	On stand at Manchester. Ground power connected. Full engine start.			MAN RWY 23R
Initial State	Ground power connected, Manchester. Icing conditions.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 136/138/146	23%	233/52.2	30.0	263.0
Route	EGCC to EGLL.			
ATIS	RWY 23R 150/5 4000 m BR OVC006 7/6 Q1018.			
Clearance	RWY 23R SANBA 1R swk2143.			

Specific Lesson Plan Steps

1. Manchester – gate 27 – RWY 23R – EXT POWER connected.
233/30/263/23%, FUEL FREEZE OFF.
Wx...150/6 4000 OVC006 7/6 Q1018.
CInce...SANBA 1R SID, HON, BNN 4A swk 2243.
THR REV 2 LOCKED OUT – LOE event 1.
2. REMOVE GROUND ELECTRICS.
3. PUSH BACK – to face south.
4. DOORS TO AUTO.
5. AUTOSTART DURING ENG 3 START LOE – LOE event 2.
6. CANCEL ENG 3 AUTOSTART FAULT.
7. FLAPS PRIMARY LOE – LOE event 3.
 - Step trips PRI TE FLAP CONT CB E1 on cb panel P6-1 generating FLAPS PRIMARY EICAS.
8. CANCEL FLAPS PRIMARY FAULT – LOE complete.
 - Action step THEN manually reset CB E1on cb panel P6-1 to remove fault.
9. Set Wx FOR MANUAL ILS LHR O9L LHR.
 - ATIS G RWY 09L 120/7 5000 OVC004 6/5 Q1016 TEMPO OVC001 BCMG 8000 BKN015.
 - Actual Wx set for G/A.

- Vector or repos for pilot B man ILS no F/D to G/A (3.9.3.1).
 - Pilot B man ILS no F/D (3.9.3.1).
10. ENG 2 FLAMEOUT (3.6.3).
11. Set Wx FOR 2 ENG INOP LANDING.
- ATIS H 100/6 8000 OVC015 Q1016.
 - Trainer input to shut down eng 1.
 - Pilot A 2EI approach for pilot B 2EI landing (5.6), seat swap for NNC.
12. REPOS 12NM FINAL RWY 09L 2500FT 230KTS.
- Optional step for repos.
- BREAK BREAK BREAK.
13. Manchester – hold short RW23R.
- 233/30/263/23%, FUEL FREEZE OFF.
- Wx...220/4 100 FG OVC001 VV/// 5/4 Q1018.
- CInce...SANBA 1R SID.
- Aircraft fully serviceable.
- Vectors for ILS 23R.
 - For NNC, RHS pilot is PF, manually amend RVR to 600 m.
14. ENG 1 FLAME OUT – ACTIVATE BELOWV₁ RTO (2.6/6.1) – or –.
15. ENG 4 FLAME OUT – ACTIVATE BELOW V₁ RTO (2.6/6.1).
16. REPOS TO 23R TAKEOFF, CANCEL FAULTS, RESET WEIGHTS.
- Restart engines.
 - Same pilot to take-off.
 - Downwind for TCAS RA.
17. RHS TCAS RA TCAS (3.6.9).
- From the QUICK TCAS PAGE events 4 Climb Climb and 3 Descend.
- Descend work well.

18. FAIL C AUTOPILOT (3.4.8).

- Check which is engaged first, if C A/P engaged, use next step instead.
- Action downwind RWY 23R.
- Generates NO LAND 3.

19. FAIL R AUTOPILOT (3.4.8)

- Do not action if C A/P already failed from prev step.

20. CAT 3A APPROACH SET UP.

- ATIS E ILS 23R 220/6 250m FG OVC001 VV/// R23R 250/250/250 5/4 Q1018 LVPs in force.
- Actual Wx set for G/A.
- Vectors for auto ILS (6.2) and G/A from D/H (6.3).
- Snapshot for NNC.

21. POST G/A LHS TCAS RA (3.6.9).

- LHS when level downwind from the QUICK TCAS PAGE events.
- 4 Climb Climb and 3 Descend Descend works well.
- Skip this step for a NNC.

22. SECOND LVP APPROACH.

- Hand-over control to RHS.
- Weather improvement, patch of heavy fog lifted.
- MAN ATIS F ILS 23R 220/6 250m FG OVC001 VV/// R23R 250/125/75 5/4 Q1018 LVPs in force.
- Actual weather OVC001 RVR 200 for succesful LV landing (6.4).

23. AUTOBRAKES FAIL DURING ROLLOUT (3.4.12).

- Action after autoland. Landing gear and brake system or ->.

24. AUTO SPEEDBRAKE FAIL (3.4.6).

- Use this step for NNC after 2nd landing.

25. CABIN CREW REPORT FLAMES IN CABIN.

- For a NNC, use repos or snap recall to repeat LV approaches (and TCAS RA) before actioning this step.

- Leads to an evacuation (3.6.1).

26. CONNECT GROUND POWER.

27. END OF DETAIL.

2.1.2.2.10 B747 – Full Flight Simulator – Detail 10

2.1.2.2.10.1 Summary

This detail completes the Licence Skills Test, which began in Detail 9. It starts with a full start at London Gatwick routing to London Heathrow. The second part of the detail is a return sector back to London Gatwick.

2.1.2.2.10.2 Objectives

- To complete the Licence Skills Test.
- On successful completion of this detail the TRE should complete forms SRG 1119A and SRG 2199 and give to the trainee to take to CAA L & TS for type rating issue. (ATPL skill test box ticked if unfreezing a frozen ATPL.).

2.1.2.2.10.3 Standard Required on Completion

Pilot Competencies

- All to a level 3 standard.

2.1.2.2.10.4 Briefing

BRIEFING TOPICS

This detail completes the licence skills test which commenced in the previous detail.

Instructors should ensure that all items required to be signed off at the end of the simulator course are completed.

LST BRIEF

If a different TRE conducts detail 10 a full LPC re-brief will be required and no repeats can be carried forward from detail 9.

2.1.2.2.10.5 Examiner Notes

This detail includes some of the 6 items from section 3 for LST assessment purposes of handling of normal and abnormal procedures.

The instructor must ensure that each candidate has attempted 3 items from 3.4 and 3 items from 3.6.

Page 1 and 2 of a CIRRUS for both sectors, a LORETO brief, a load sheet and CARD data are provided.

2.1.2.2.10.6 Detail 10

DETAIL 10				
Briefing	On stand at London Gatwick. Ground power connected. Full engine start.			LGW RWY 26L
Initial State	I Ground power connected, Gatwick. Icing conditions.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 134/134/142	22.7%	230/49.2	20.0	250.0
Route	EGKK to EGLL.			
ATIS	RWY 26L 240/6 1000 m BR OVC002 6/5 Q1008.			
Clearance	RWY 26L SAM 1X swk2256.			

Specific Lesson Plan Steps

- London Gatwick – on gate – RWY 26L – EXT POWER connected.
230/20/250/24%, FUEL FREEZE off.
Wx... 240/6 1000 OVC002 6/5 Q1008.
Clnce... SAM 1X, swk 2243.
- REMOVE GROUND ELECTRICS.
- PUSH BACK.
- DOORS TO AUTO.
- ELEC AC BUS 3 CAUTION (3.4.4).
 - During engine 3 start.
- CANCEL ELEC AC BUS 3 FAULT.
 - Cancel fault when QRH reset actioned. Taxi to rwy 26L. After V₁ ->.

7. ENG 1 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V_1 and V_2 or \rightarrow .
8. ENG 4 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V_1 and V_2 .
9. CANCEL ENG 1 FIRE WARNING.
 - Action as appropriate during memory drill.
10. CANCEL ENG 4 FIRE WARNING.
 - Action as appropriate during memory drill.
11. SET LHR RWY 27R.
 - OEI ILS and G/A (3.9.3.4 and 4.3).
 - ATIS D ILS RWY 27R 220/8 800 OVC002 6/5 1007.
 - Actual wx set for G/A.
 - NNC: handover ctrl to brief then take ctrl to fly ILS and G/A from correct seat.
12. RNAV 27R WX IMPROVEMENT WITH ILS FAILED.
 - ATIS E RNAV APP 27R 250/6 5000 OVC009 6/5 1007 27L not available.
 - NPA (3.9.4) and OEI landing (5.5).
 - NNC: fly app from "wrong" seat and land from correct seat.
BREAK BREAK BREAK.
13. Set LHR HOLD SHORT 27R.
230/20/250/24%. FUEL FREEZE off.
Wx...220/6 600 FG OVC002 6/5 Q1007 FAIL STN CANCELLED.
Clnce – MID4F SID, expect FL110, TIMBA1C STAR, swk 4322.
NNC seat swap. Restart engines.
14. ENG 1 FLAME OUT – ACTIVATE BELOW V_1 RTO (2.6 / 6.1) or \rightarrow .
15. ENG 4 FLAME OUT – ACTIVATE BELOW V_1 RTO (2.6 / 6.1).
16. REPOS TO 27R TAKEOFF, CANCEL FAULTS, RESET WEIGHTS SAME WX WITH RVR 1000.
 - Restart engines, same pilot to take-off. After V_1 \rightarrow .

17. ENG 1 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V_1 and V_2 or \rightarrow .
18. ENG 4 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V_1 and V_2 .
19. CANCEL ENG 1 FIRE WARNING.
 - Action as appropriate during memory drill.
20. CANCEL ENG 4 FIRE WARNING.
 - Action as appropriate during memory drill.
21. SET LGW RWY 26L.
 - OEI ILS and G/A (3.9.3.4/4.3).
 - ATIS N ILS RWY 26L 220/7 800 OVC002 6/5 1008.
 - Actual wx set for G/A.
 - NNC: handover ctrl to brief then take ctrl to fly ILS and G/A from correct seat.
22. RNAV APP 26L WX IMPROVEMENT (to LNAV minima to satisfy PBN 2D approach requirements for PBN qual).
 - ATIS O RNAV APP 26L 250/6 5000 BKN008 6/5 1008 26L GLIDEPATH UNSERVICEABLE.
 - NPA (3.9.4) and OEI landing (5.5).
 - NNC: fly app from "wrong" seat and land from correct seat.
23. REPOS TO 26L TAKEOFF, CANCEL FAULTS, RESET WEIGHTS.
 - NC: all items should be complete. For a NNC, a further 2 RTOs to be flown from "wrong" seat to check PM RTO actions. Use IOS as appropriate. Evac (3.6.1) for pilot not checked during detail 9.
24. CONNECT GROUND POWER.
25. END OF DETAIL.

2.1.2.2.11 B747 – Full Flight Simulator – Detail 11

2.1.2.2.11.1 Summary

This detail is a Zero Flight Time detail for those pilots meeting the qualification requirements in respect of flying hours and type experience. The frontispiece will state whether ZFT applies and this detail will take the place of Base Training on the aircraft. It will also prepare the trainee for their first line-training sector. Included within the detail is a JFK familiarisation section.

Progression to the ZFT detail will be subject to successful completion of the Licence Skills Test in details 9 and 10.

2.1.2.2.11.2 Conduct

This detail may only be conducted by an FTM nominated TRI.

The simulator motion, flight control, visual and sound systems must all be fully serviceable.

Each trainee must complete a minimum of 6 landings and take-offs of which 3 must be unassisted. The instructor must occupy the non-handling pilot's seat for this section of the detail. In practical terms this means that the instructor will occupy the non-handling pilot's seat on completion of pushback and prior to taxi until the required landing consistency and competency has been achieved.

The instructor should be prepared to re-emphasise basic, practical advice for achieving competent handling such as; correct seat position, visual reference points, correct use of pitch trim and use of arm rests. A reminder; the instructor may need to look at the trainee to establish the root cause of any handling difficulties.

It is a requirement for ZFT candidates to use full stop landings utilising the reposition function as required. Within the detail vary weight and wind for both take-offs and landings to match typical conditions that the candidate might encounter during line flying. This may require a change of weight in flight prior to re-positioning to finals.

2.1.2.2.11.3 Objectives

- At the end of this detail the trainee should be fully prepared for the line training section of the conversion course and have consistently demonstrated the correct technique in the handling of the take-off and landing manoeuvres.
- Both pilots fly and understand the modes to use when flying a Canarsie visual overlay database procedure.

- Both pilots consolidate non-ILS database approaches (specifically VOR RWY22L JFK).

2.1.2.2.11.4 Standard Required on Completion

- Handling consistently demonstrated to a level 3 standard.
- A minimum of 6 landings and take-offs, of which 3 must be unassisted.
- Exposure to and practice at rejected landings and go-arounds not at DA/DH.
- A CRI approach flown to a level 3 standard.

2.1.2.2.11.5 Briefing and Discussion Items Detail 11

Correct Take-off, Approach and Landing Technique

- OMA Visual Approaches.
- Take-off and landing technique facilitated from trainee.
- Rejected landing (Go-around after touchdown) including lack of FD until climbing away, leaving gear and flaps until airborne, initial pitch attitude and thrust setting (full), thrust set manually (no TOGA), rotation speed.
- Go-around from above Aa including autopilot use and modes.
- Effect of pushing TOGA twice during GA including pitch/power.

Canarsie Visual Overlay Database Procedure

- Discuss autopilot vertical modes to be used when flying a fair weather approach versus a poor weather approach.
- Briefings on this approach should focus on 'how to fly' and highlight the potential traps e.g. non-standard calls, avoiding overshooting the centreline in strong SW winds, use of VNAV deviation pointer to aid flying the glidepath etc.
- The relevance of DMHYL as a MAPt.

Preparation for First Sector

- Discuss first route sector, preparation, check-in and other relevant information for first longhaul sector. Visas/passports?
- Explain licence issue procedure (see below).

2.1.2.2.11.6 Notes for Instructor

A suggested structure for the detail is as follows:

- Quick engine start.
- Departure RWY 27R, full clean up.
- Full arrival ILS 27R to a full stop landing.
- Reposition to JFK.
- VOR RWY 22L and CRI RWY 13L familiarisation.
- Within the detail there will be.
 - Full stop landings/Snapshot re-position for both trainees.
 - Practice rejected landings (runway blocked after touchdown).
 - Go-around manually with TOGA button pressed twice (full power).
 - Go-around above DA including above Aa.

Instructor is expected to use his/her experience to best maximise training value for the candidates noting that there may be equal value for a G/A from a CRI approach as there is for a landing.

2.1.2.2.11.7 Administration

On successful completion of this detail the trainee will initially visit the Licensing and Training Standards (L & TS) department at Gatwick prior to proceeding with their line training sectors.

It is vital that they are aware of the procedures involved and are in possession of the appropriate paperwork. It is also essential that they have been fully briefed on what to expect and how to prepare for their first line-training sector.

The following is a brief guide:

- The candidate will need to take their LST/MPA Form (given to them after detail 10) and Licence to the CAA to arrive by 09:00 local for same day service. Applications received after 10:00 will be processed as postal applications.
- Tel. +441293 573700/www.caa.co.uk.
- Course Completion is produced automatically by TRANCOMM provided all details correctly completed.

- It is electronically signed and sent to the CAA (TRI must press 'SEND TO CAA' on TRANCOMM menu).
- It is recommended that the TRI prints off a copy for the trainee to present to CAA FCL as a backup should there be any technology issues.
- Preparation for first sector:
 1. Print Self Study Item sheet and explain rationale.
 2. Establish their first destination.
 3. Use of route briefing and Intranet.
 4. Use the ZFT detail to identify relevant issues.
 5. Dependant on experience, discuss the following:
 - What time to report – how much time to allow.
 - Where to park.
 - The T5 Process.
 - System of in-flight rest and use of the bunks.
 - Rest prior to operating.
 - Potential effects of long flight/time change.
 - Contacts/Health cover whilst away from base.

The amount of information required will depend on the trainee's background, experience and communication with contacts within the airline. Do not assume familiarity with the line operation.

2.1.2.2.11.8 Detail 11

DETAIL 11				
Briefing	Holding short RWY 27R. Ground power connected. Quick engine start.			LHR RWY 27R
Initial State	Ground power connected, Heathrow.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 133/133/142	23%	230/52.2	30.0	250
Route	EGLL for local area flying.			
ATIS	RWY 27R 280/5 CAVOK 7/6 Q1013.			
Clearance	RWY 27R BPK SID swk2143.			

Specific Lesson Plan Steps

- London Heathrow – HOLD SHORT 27R – EXT POWER connected.
220/30/250/23%, FUEL FREEZE ON.
Wx...280/5 CAVOK 7/6 Q1013.
ZFT take-off and landing practice.
- QUICK ENG START AND ALIGN IRS.
- REMOVE GROUND ELECTRICS.
 - Takeoff and landing practice at LHR.
- FAIL ILS 27R.
 - Also consider using PTP VISUAL page to fail PAPIs.
- RESTORE ILS 27R.
- REPOSITION JFK HOLD SHORT 22R.
220/30/250/23%, FUEL FREEZE ON.
Wx...210/5 CAVOK 7/6 A2992.
- SET RWY 22L CAVOK 210/6 A2992.
 - VOR/DME approach practice.
 - Use vectors or repos as appropriate.
 - ILS left serviceable for realism.

-
8. SET RWY 13L CAVOK 120/6 A2992 DUSK.
 - CRI approach practice at dusk. Use vectors or repos as appropriate.
 9. CONNECT GROUND POWER.
 10. END OF DETAIL.

2.1.3 Operator Line Training (Including LIFUS)

Line training provides the opportunity for a flight crew member to put into practice the procedures and techniques that he/she has been made familiar with during the ground and simulator course. This is accomplished under the supervision of a Training Captain occupying the other seat. Line training is concluded once the trainee is able to perform a safe and efficient flight conducted within the tasks of their role and status. Thereafter the candidate will be assessed over a 2-sector line check.

The aim of line training for this course is to familiarise the trainee with a practical application of BA SOPs and the BA line environment and network.

2.1.3.1 Line Flying Under Supervision

2.1.3.1.1 Introduction

This is the element of the Line Training referred to in EASA part FCL and part ORO for completion of the Type Rating when conducting a ZFT Type Rating Conversion course.

- The Trainee is required to complete 4 Take-offs and Landings at the controls under the supervision of a TRI suitably qualified for the purpose [ORO.FC.220 (e) (3) and FCL 910.TRI].
- The Trainee must commence Line Flying Under Supervision (LIFUS) not later than 21 days after the completion of the Licence Skill Test (LST) or after appropriate refresher training provided by the operator. The content of such training shall be described in the Training manual (see below). The ZFT detail must also have been completed within 21 days of the LST [Refer to ORO.FC.220 (e) (1 &2)].
- Refresher training, in the event of not commencing LIFUS within 21 days of the LST; will consist of the Trainee undertaking as a minimum 6 Take-offs and 6 Full Stop Landings in the FFS with an Instructor qualified to deliver such training. The manoeuvres must be performed to a level 3 standard. If the delay is significantly more than 21 days the FTM will decide on any additional training as required.

2.1.3.1.2 Content of LIFUS

- Instructors conducting the first 4 sectors must ensure that the Trainee operates as P1 for all of these sectors so that they conduct all Take-offs and Landings during this phase. The Instructor must not use these sectors for their own recency requirements.

- If the requirement is not satisfied due to weather conditions or other technical reasons prohibiting the trainee from conducting the take-off or landing; the Instructor must ensure that this is highlighted in Trancomm and that both Training Admin and the next Instructor are informed. It is possible that the next Instructor may not be qualified for the purposes of this regulation.
- During these sectors the Instructor is primarily assessing the Trainee's handling of the Take-off and Landing. However, the B747-400 is a Longhaul aircraft and additional training of discussion items and other technical and non-technical skills should be possible throughout the flight.
- Trancomm should clearly indicate when the Trainee has demonstrated consistently that the Take-off and Landing have been performed to the required standard.
- If there is any doubt about the Trainee's ability to complete the Take-off and Landing to the required standard the Instructor should discuss with FTM B747 whether the trainee should proceed to the next phase without some additional training.

2.1.3.2 Safety

Training should be suspended if safety is likely to be compromised. SOPs with control handover during the approach should normally be employed. This helps to reduce fatigue and allows the trainee to observe and the trainer to demonstrate. However, SOPs may be varied at the discretion of the trainer if useful training value will be gained. Both crew members must be clear as to how and why this variance will take place.

Trainers must not interfere with the normal operation of the aircraft systems.

The passengers should not be informed that training is in progress.

Do not make deliberate errors to “test” the trainee. However minor omissions (e.g. during flight deck preparation) are permitted in order to assess a trainee's monitoring.

Whenever possible allow trainees time to correct minor errors, valuable learning can occur from this process. However, significant errors should be corrected immediately.

Do not allow a situation to occur where either crew member becomes overloaded. For example, trainers should not permit a scenario to develop where a go-around is required because trainer intervention was delayed.

Remain aware of commercial considerations and the importance of maintaining schedule.

2.1.3.3 Safety Pilots

A safety pilot is required for a minimum of the trainee's first 2 sectors. Hence the first 2 sectors will be rostered on a flight that requires a heavy co-pilot.

Safety pilots provide a crucial resource to the instructor during a trainee's initial sectors when workload is particularly high. They can be used as the instructor requires, including external checks, company radio communications, etc.

Safety pilots must be carefully briefed, by the Training Captain, on their role and as to what is expected of them.

A suitable brief may consist of their actions during both normal and abnormal situations, including emergencies. It should be made clear when the Training Captain would wish them to speak up and as to what they are expected to monitor.

They should be reminded that their role is a safety related one and that they should not provide any training input.

Training Captains should contact FTM B747 and Training Admin if a safety pilot is required beyond the minimum 2 sectors. Once the safety pilot is no longer required, tick the Release Safety Pilot box in Trancomm.

2.1.3.4 Line Training Discussion Items

- Your aim is simply to assess whether the trainee has achieved a 'Good' level of knowledge – *commensurate with role and experience*.
- Please do not feel obliged to conduct long sessions of ground training; use facilitation rather than instruction and indicate to the trainee where further private study is required.
- Refer to [OM Part D Appendix T 12.1](#) for line training discussion items matrix and expanded list.

2.1.3.5 AWOPS/LVO

Any DEP who has not previously flown Cat II/III operations with an EU operator will be required to fly 1 practice auto-land on the aircraft during Line Training to complete their LVO qualification. FTM will provide further details for any DEP affected by this requirement.

2.1.3.6 Weather Limitations

Trainees will operate to the appropriate limits for their status (Captain or First Officer) as per OM A 8.1.3.

2.1.3.7 Line Training – Guidance for Training Captains

Over the course of the line training phase the trainer's role changes significantly. Training Captains must demonstrate flexibility and SOPs may be varied to ensure that trainees obtain maximum training value. Training Captains must highlight whenever SOPs are varied such that the trainee is fully aware what the correct SOP is.

A suggested structure for the course might be...

Sector 1 – 2 (LIFUS training)

Trainee to operate as **P1** for **both** sectors (weather permitting).

At this early stage, the trainee will benefit from seeing “what right looks like” hence Training Captains should consider varying SOPs and demonstrating a CRC brief, an aircraft brief (including an emergency brief) and a descent brief on sector 1.

Over the two sectors, the Training Captain's emphasis is on the handling characteristics of the B747 (both on the ground and in the air).

Sector 3 – 4 (LIFUS training)

Trainee to operate as **P1** for **both** sectors (weather permitting).

Trainee to conduct all briefings as per SOPs.

Training Captain MUST inform FTM and Training Admin if the trainee has NOT completed the first 4 T/Os AND landings.

Training Captains must brief the trainee to expect a P2 sector on their next trip and to review all P2 duties prior to that report.

Sector 5 – 6

Standard mix of P1/P2 sectors.

Training Captains should consider the benefit of operating as P1 on sector 5 (including demonstrating a T/O and landing). A normal sector will reinforce SOPs, briefing technique and handling. Thereafter, trainee to operate sector 6 as P1.

Training Captains to consider allowing the trainee to land using F30 prior to East coast sectors.

Sector 7 – 8

Standard mix of P1/P2 sectors however Training Captains should consider the benefit of allowing the trainee to land off their own automatic approach.

Typical Progress

This is a minimum footprint course hence the expectation is for the trainee to progress quickly. The course requires large building blocks and significant preparation is required prior to each flight e.g. the trainee will probably only have 2 P2 sectors hence scan flows must be almost at RCS after the first P2 sector (sector 5?). Training Captains must inform the trainee of their progress and intervene early if progress is slow due to lack of preparation. If any trip is scored as Objectives Not Met, FTM must be informed.

2.1.3.8 Ready for Line Check

Tick the appropriate Trancomm box when:

- The trainee has completed at least the minimum number of sectors (5.2.0c).
- The trainer is confident that the trainee will achieve a level 3 standard or better grade in the final Line Check.

The trainee should be reassured that there is no such thing as a perfect sector. A good sound performance is all that is required.

If the trainee is not ready for line check after 4 sectors then the next Training Captain, Training Admin and FTM B747 must be informed.

2.1.3.9 Final Line Check – Guidance for Training Captains

A trainee will only be allowed to progress to final check if they have demonstrated that all areas of their operation are to a level 3 standard and all Line Training discussion items are complete.

The Training Captain should:

- Check the trainee's licence, passport, visa and medical dates are valid prior to flight.
- Ensure that licence, passport, visa and medical dates are correctly entered into the Crewlink mandatory system.

- Assess the trainee's ability to perform satisfactorily a complete flight from preflight briefing through to post flight duties in terms of Pilot Competencies. The trainee should have met the Route Briefing requirements as set out in [Part OM A Chapter 5](#) (Pilot's Area and Aerodrome qualification).
- Assess that the trainee complies with the role and responsibilities expected of a BA pilot.
- Not lead the trainee but by the nature of the number of sectors of training there may be areas of operation that the trainee has not been exposed to prior to the check and some allowance should be made for this.
- When debriefing, focus on the positives, avoid being chronological or nit-picking and highlight areas for development and improvement. Pilot Competencies integrates both technical and non-technical skills, hence the debrief should combine both as well.
- Ensure that the debrief identifies areas for on-going development. These should be discussed with the trainee and included in their final Trancomm report. It should be explained to the trainee that they will need to ensure that they take responsibility for maintaining their own personal standards in all aspects of their operation.

2.2 B747-400 Type Rating Course (New Command Conversion)

2.2.0 Introduction

- a. The B747-400 Type Rating course is designed to train and assess the trainee in all items required for the issue of an EASA B747-400 type rating with IR and LV qualification.

Throughout the course the trainee is expected to self-study through the use of the training iBook, My Learning Academy and FCOM. The trainee will in this way acquire the technical knowledge and understanding for the technical exam. The ground school self-study period is supplemented with Fixed Base Simulator (FBS) sessions. These allow the trainee to practice and commit to memory the Scans, Calls and Procedures required for Line Operations. Upon successful completion of the Ground School phase the trainee will progress to the Full Flight Simulator where Handling and Multi-Crew operational skills will be developed in the B747-400 cockpit environment. This stage will culminate in an assessment phase (LST, LOE and a command assessment). Thereafter the trainee will progress to the Zero Flight Time (ZFT) detail which will complete preparation for Operator Line Training.

The B747-400 Type Rating (including Low Visibility Operations) will be issued upon successful completion of the ZFT phase provided all elements of training including LVO training have been completed as identified by the Course Completion Certificate which will be issued to the trainee. However, on a ZFT course the rating is not activated until the trainee has completed 4 Line Flying under Supervision (LIFUS) Sectors with a qualified TRI, typically a TRI (LIFUS).

Throughout the course there will be on going assessment and the trainee will be required to demonstrate that they have acquired the knowledge and skill in a progressive manner. A failure to progress as identified by the Instructors on the course will be referred to the FTM B747.

- b. To be accepted for the B747-400 Type Rating Course the trainee must:
 - Hold an unfrozen ATPL.
 - Have completed at least 500 hours or 100 route sectors on a multi-pilot turbo-jet aeroplane certificated to the standards of CS-25 or equivalent airworthiness code or on a multi-pilot

turbo-prop aeroplane having a maximum certificated take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers.

(See FCL 730A.)

- Any other conditions as required by FTM B747.

c. Course overview:

Ground Phase Course Footprint 24 Days (Incl 4 Days EFC)

Ground Phase	Working Days	
Essentials for Command	4	
Ground School	11	
SEP	1	
FFS (Handling) incl LVO	8	
LOE/LST/OPC	2	
Command Assessment	1	
ZFT	1	
	Total	28

Line Training (Aircraft Phase)

Line Training (New Command)	Sectors	
LIFUS with qualified TRI	4	
Line Training	6	
Final Command check	2	
	Total	12

- d. Assessment is continuous throughout the course. Each FBS and FFS session sets out the objectives and standard of knowledge and skill required to be demonstrated during the training event. The Instructors will be making this assessment during these training sessions. The regulator also requires specific assessment of competencies for the issue of the rating under EASA part-FCL and to comply with EASA Regulation Air Operations. These events are set out thus:

Phase	Event	Day
Ground Phase	Technical/ Performance Test	15
Handling Phase	LOE, LST/OPC	25, 26
Handling Phase	Command Assessment	27
Handling Phase	ZFT detail 11	28
Aircraft Phase	Final Command Check	End

- e. The trainee is responsible for his/her own learning. Various training aids are available; Instructors will be present during the Ground Phase to answer questions. The trainee is responsible for allocating time to study the training material both in the classroom and home study.

The continuous assessment process will identify training effectiveness and highlight areas for trainee development and these will be noted by the Instructors as the course progresses. Trainees will be made aware of these development areas during the de-briefing sessions and they will be recorded in the trainee's Trancomm file (for BA Trainees) or Personal Training Record (for non-BA trainees). This will assist the trainee in targeting specific areas of self-study and preparation. The training iBook and FFS details provide guidance on where trainees can look for information when preparing for details.

If a lack of progression in key areas of knowledge, skill or handling is identified the Instructor will make the trainee aware of this informally during the de-brief. If the failure to progress is persistent the FTM will be informed and he/she will decide what steps to take to correct the lack of progression.

- f. All pilot trainees need to achieve, in both handling and CRM, the standard defined in EASA part FCL appendix 9 (SRG1158) and Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk for the successful completion of the LST and issue of the B747-400 Type Rating. In addition, the command trainee must achieve an overall score of 3 or better to successfully complete the new command conversion course.
- g. The British Airways Type Rating Full Course when undertaken by a British Airways pilot using BA SOPs and Pilot Competencies skills fulfills the requirements of EASA Regulation Air Operations ORO.FC 220 as set out in AMC 1 to the regulation.

2.2.0.1 Additional Notes Specific to the British Airways B747-400 Type Rating Course (Command Conversion)

2.2.0.1.1 Aims

1. To create a course of 12 full flight simulator details, which is fully compliant with EASA, CAA and BA policies.
2. To use interactive training aids and video presentations in the briefing to improve the trainees' learning.
3. To create skill checks at regular points in the course in order to ensure that trainees have attained the skills required to move on to the next stage of the conversion course. These are listed under **Session Proficiency Criteria** for each detail.
4. To create command training and LOFT scenarios so as to develop crews' Competencies.
5. To avoid repeating, unnecessarily, the knowledge and skills gained in the Ground-school course.
6. To make the course a practical preparation for line training.

2.2.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified, proficient pilots with jet experience. It is designed to apply this proficiency to B747-400 handling, as well as training non-technical skills for normal and abnormal situations.
- It is assumed that trainees commence the FFS phase having completed the ground-school course, after which they are proficient in terms of aircraft technical knowledge, and reasonably proficient in terms of cockpit set-up, FMS operation and EICAS handling using BA SOPs.

2.2.0.1.3 Course Structure

- The course consists of 12 four hour simulator details:
 - Details 1 to 3 – Normal Handling – Manual and Automatic.
 - Details 4 to 7 – Abnormal and Emergency Handling.
 - Detail 8 – LVOps.
 - Detail 9 – LOE and operator specific training.
 - Detail 10 – Licence Skill Test.
 - Detail 10a – Command Assessment.
 - Detail 11 – ZFT.
- Command Assessment is continuous throughout details. Should a serious issue arise then this should be addressed before continuing with the course.

B747-400 Conversion Course Content Overview			
Normal Handling – Manual and Automatic	Detail 1	LHR Take-off Landing	Basic handling Stalling training TCAS
	Detail 2	LHR LV Take-off Landing	PRM Manual ILS & G/A Rejected landings
	Detail 3	SIN Non-ILS database Late runway change	Windshear Circling Holding Pre-flight preparation
Abnormal and Emergency Handling	Detail 4	LHR RTO Evacuation	OEI handling EFATO Fuel
	Detail 5	SEA US Ops Emergency turn	OEI handling Fuel jettison Two engine inoperative
	Detail 6	LHR Crosswind handling Emergency descent	Engine start faults Standby power Standby navigation Non-precision approach
	Detail 7	CPT Flap system Emergency turn Crosswind handling	GPWS Landing jammed stabiliser Unreliable airspeed Hydraulic failures

B747-400 Conversion Course Content Overview			
LVO + Operator Training	Detail 8	LHR Incapacitation LVO failure cases	Pre-flight preparation Smoke Cold weather Ops Course consolidation as required
LST LOE LVO check (TRE reqd)	Detail 9	MAN/LHR LVO	LOE LST
LST (TRE reqd)	Detail 10	LGW/LHR	LST
Command Assessment	Detail 10a	LOE style	
ZFT	Detail 11	LHR/JFK	

- Briefings for details 1 to 8 are of 1½ hours duration, details 9 to 11 are 1 hour.

Trainees are expected to prepare the items to be covered before each detail. Briefings will therefore take the form of confirmation and clarification of technical knowledge, and discussion of effective non-technical skills. Whiteboard, power point and video will be used to study the various items in the details.

2.2.0.1.4 Detail Format

- The course details are written for a Natural Crew so as to allow an equal distribution of workload whilst trying to avoid a series of exercises flown by one pilot and then the other leading to fatigue and mistakes.
- A degree of flexibility is required for the crew to achieve the most out of the detail. To achieve this the instructor may vary the running order as required.
- For a natural crew the Captain will be Pilot A and First Officer Pilot B.
- With a non-natural crew there will need to be some thought in terms of which pilot will be acting as PF for each exercise. The intention is to use SOPs as much as possible and for the handling pilot to do the flying from the correct seat wherever possible. It is, however, perfectly acceptable and recommended for any automatic flying to be done from either seat in order to preserve adherence to SOPs.

E.g. A Captain in the RHS could fly an automatic NPA for the Captain in the LHS to complete a landing.

Please Note

- For all crews, including non naturals, LVO is to be trained and tested as a crew. The requirement for six auto-approaches is for the whole crew and not each individual pilot in the correct seat.
- Manual handling items which are to be signed off as training complete in Trancomm must be flown while seated in the correct seat.
- EASA Part FCL appendix 9 A General states that for the Skill test detail:
 - *The skill test for a multi-pilot aircraft or a single-pilot aeroplane when operated in multi-pilot operations shall be performed in a multi-crew environment. Another applicant or another type rated qualified pilot may function as second pilot.*
 - *The applicant shall operate as PF during all sections of the skill test, except for abnormal and emergency procedures, which may be conducted as PF or PNF in accordance with MCC. The applicant for the initial issue of a multi-pilot aircraft type rating or ATPL shall also demonstrate the ability to act as PNF. The applicant may choose either the left hand or the right hand seat for the skill test if all items can be executed from the selected seat.*
- **Briefings in the simulator should be kept to a minimum confirming primarily that aircraft set up is correct. SIDs, STARs, etc. should as far as possible be pre-briefed in the briefing room.**
- **Quick set up implies that the Instructor should assist in set up and in a quick engine start. In details 3 and 8 the crew should complete a scan check so as to consolidate ground school learning. It is expected that the crew will continue to practise scan checks in the briefing rooms as the course progresses.**
- **After detail 4 the Instructor will include a random number of RTOs and EFATOs for practice and consolidation.**

2.2.0.1.5 Format of the Instructor Session Notes

- For each detail there is an overview of the contents for the detail and briefing material available. Some Instructor notes are included in the Session Guide and more in-depth guidance on the “how to” is to be found in the FCTM. The lesson plans in the simulator are only a skeleton outline so as to allow the Instructor more freedom to adjust as necessary to the trainee needs. In details 3 and 8 the crew should complete a scan check so as to consolidate ground school learning. It is expected that the crew will continue to practise scan checks in the briefing rooms as the course progresses.
- You will find for each of the details:
 - Paperwork required.
 - Session Objective.
 - Training topics.
 - Briefing material available.
 - Proficiency Criteria.
 - Instructor notes (Session Guide). (Only available to the Instructor.)
 - Initial Set up Data (included in the running order).
 - EASA-FCL items for completion in Trancomm. (Only available to the Instructor.)

2.2.0.1.6 Trancomm

- All reports are to be entered into Trancomm. For details 1 to 8 the Obj Met score is to be used when the Performance Criteria for that detail have been satisfied and all of the Detail is completed. It is always assumed that the technical knowledge is up to standard, if not then grade Obj Not Met.
- At the end of each detail session is a table which clearly shows which items are being trained in the detail.
- Where an item is to be signed off as training complete the table indicates this with the letters TC in the final column. Instructors should familiarise themselves with the applicable item before running the detail to ensure that the item has been demonstrated as training complete before completing trancomm.

- Trancomm Item scoring is designed such that a score of “Training Input” or “More Practice” will trigger a pop-up box. This pop-up will ask if the item should become a Floating Item. Always select yes, so that the item is carried forward to the next detail. Floating items should then be completed, if possible before commencing the next detail's content and must be completed by the end of Detail 8 in order to proceed to the LST.
- Detail 8 includes a tick box item which confirms that all 1158 and Operator items (such as PRM) have been trained to a level 3 standard. This box should only be ticked once the Instructor has confirmed that there are no floating items and all course items have been trained to a level 3 standard. Ticking this item will set the TNG Mandatory.
- If a significant number of items are being carried forward the instructor should also alert Training admin and FTM B747 as additional details may be required.
- The Trancomm for the LST detail also contains an item to confirm that LVO training has been completed. The TRE conducting detail 9 must confirm that all items of the LVO training in detail 8 have been completed and are not carried over before ticking this item.

2.2.0.1.7 Briefing Material

Training iBooks are available from My Learning Academy (<https://baplc.sharepoint.com/sites/flightsops>) to assist with study guidance and for reference.

2.2.1 Essentials for Command Course

2.2.1.0 Introduction

This course should be completed prior to an individual undertaking Command training.

It is a 4 day non-residential course held at Waterside.

The course aim is:

“To enable new Captains to explore the elements of Command and feel equipped with the appropriate knowledge, skills and understanding to undertake this role to maximum effect.”

The course objectives are to:

- Understand the role and responsibilities of a Captain.
- Recognise the need to prioritise and balance a Captain's responsibilities.

- Understand how personal style can influence the success or failure of the operation.
- Review a framework for problem-solving, decision-making and managing ambiguity.
- Identify what works well and why, in managing different situations, and review a range of useful tools and techniques.
- Understand the importance of continual learning and reflection.

The course satisfies the EASA Regulation Air Operations requirement for Command Human Factors training as set out in ORO.FC 115 and its AMC.

An outline of the course content is as follows:

2.2.1.1 Day 1

Course Introduction

Outlines the course aim and sets out what will be covered over next 4 days.

Themes that are repeatedly emphasised are the Captain's Score-card – a set of balanced priorities which encapsulate the Role of the Captain, non-technical skills and risk management.

Leadership and Management

Looks at key aspects of leadership. Examines the personal attributes we have which effect how we manage and lead a team. Introduces the concept of "Emotional Intelligence" which is another key theme throughout the course.

Introduction to Case Studies

One of the more practical parts of the course are the Case Studies. These are scenarios which are based on real events. They are introduced by a video clip or a short script. The idea is to analyse each case study in a structured way which will hopefully become useful in line-flying.

These case studies are spread throughout the 4 days.

Teamwork

Key to the success of a team is how it is managed. This is explored in some detail and concentrates on such things as personality, behaviour and effective communication skills.

Setting the Tone

An oft-used phrase but what does it actually mean? The importance of this topic is emphasised and discussion follows as to how set an open, professional atmosphere with our work colleagues.

Cabin Crew

A look at cabin crew's perceptions of pilots and vice versa. We look at why these differences exist and what we can do about them. A little more detail of their role and discussion of how we can work more effectively together.

2.2.1.2 Day 2

Cost Module

A look at some important cost areas in our business and how we can make a positive impact on the bottom line.

Guest Speaker: Investor Relations

An update on the state of the business and the issues facing the industry from BAs Head of Investor Relations.

Business and Brand

Discussion about what a brand is and what specifically is represented by the BA Brand. Where Captains fit into this Brand and how they can influence it in a positive way.

A presentation on the Exec Club and Corporate Sales – what they are worth and what we can do for them.

Duty Hours and Limitations

A quick look at this complex subject and how to get the most out of your crew.

Legal

A look at how the Captain's Role fits with the background of national and international legislation.

Guidance on how to manage dilemmas.

2.2.1.3 Day 3

Situational Awareness and Decision Making

Including discussion of the elements and level's of SA, workload management including "situational control", the error management model and Decision Making skills.

Flight Ops Safety

A quick look at the historical development of flight safety within flight operations. Discussion of SESMA, BASI 4 and the safety culture of the department.

Guest Speaker: Head of Security

A presentation on how security plays an important part in the role of the captain. Examination of some real BA events and discussion of the learning points.

Managing a Complex Scenario

How to manage difficult operational situations on line. This is based around a diversion scenario and brings out many learning points which will help the effective management of any such situation.

Open Floor Discussion

Opportunity for delegates to raise any issues or concerns they have as they approach their command courses. Also discussion of other topics such as a model for analysing problems using weighting and probability.

2.2.1.4**Day 4****Dealing with Passengers Including PAs**

A quick look at how we can make a positive impact on our passengers. An exercise on making effective PAs.

Customer Service Recovery

How to intervene with a disgruntled passenger – how to listen and how to act to try to recover the situation.

Counselling and Where to get Help

There is a pastoral role involved in Command. The Captain is often called upon to break bad news, this can be a daunting task – we cover how to do this effectively.

Where to get help for your crew and yourself when faced with difficult personal circumstances.

Guest Speaker: A BA Director

An opportunity to listen to and question a member of the Leadership Team on any burning issues.

Final In-depth Case Studies

An in-depth examination of 2 separate events. The aim is to summarise the Course and thus the role of the Captain in a practical way.

2.2.2 Ground Training

2.2.2.1 Policy

2.2.2.1.1 Objectives

The aim of Groundschool Training is to assist the trainee to:

- Acquire appropriate levels of technical knowledge and operating skills.
- Gain familiarity and confidence with the new aircraft's systems prior to commencing simulator training.

2.2.2.1.2 Standard Required on Completion

On completion of Groundschool the trainee should have:

- Achieved a pass in the CAA technical examinations.
- Demonstrated a 'good' standard of aircraft operating procedures.

2.2.2.2 Course Description

The courses and examinations are conducted at Flight Technical Training or other suitable location. The technical content is based on a 'need-to-know' principle – non-essential information is omitted.

Study is conducted in a synthetic cockpit known as a 'carrel'. The carrel incorporates Computer Based Training (CBT). This type of training allows the trainee to work at his/her own pace. Instructor assistance is available when required and at regular intervals for tutorials.

Trainees will be issued with the appropriate Technical Study Guides. Aircraft Manuals should be collected by trainees in accordance with the course joining instructions.

Flight Training Device (FTD) exercises totaling a minimum of 20 hours allow trainees to consolidate the information presented in the technical lessons and allow practice of normal and non-normal procedures. In exceptional circumstances, where an FTD may not be available, a maximum of 4 hours FTD may be substituted by an alternative exercise carried out in the study carrel, or using Desk Top Trainer (DTT) equipment.

There are three multiple-choice progress tests and a final multiple-choice examination. The pass mark for each section of the final examination is 75%. All examination questions are drawn from information contained in the FCOM and study guides from Groundschool.

The Technical Study Guide shows how the course is structured, which CBT lessons should be covered prior to each FBS exercise, and which FBS exercise must be completed prior to each progress test or exam.

2.2.2.3 Approved Course Examination Procedure

Type technical courses for which approval has been granted by the CAA will have the following programme of British Airways examinations implemented by Flight Technical Training.

2.2.2.3.1 Progress Tests

There shall be three progress tests contained within the training programme. Each test shall comprise 50 multiple choice questions, each question offering four possible answers. The purpose of the Progress Tests is to assess a candidate's fitness to move on to the next phase of the training programme.

A record will be kept of each Progress Test result although they will not form part of the candidate's final achievement record. British Airways Flight Training currently uses an in-house database to store pilot's results.

2.2.2.3.2 Qualifying Examination

On completion of the ground school technical course each candidate will sit a Qualifying Examination with a minimum of 124 multiple-choice questions, each question offering four possible answers. The examination questions will be distributed over the 8 main subjects of the syllabus. The time allowed for completion is two hours.

At least two Qualifying Examination papers will be prepared. As far as possible, no questions will be repeated in the alternative papers or the Progress Tests.

A record will be kept of results achieved on the Qualifying Examination. The pass mark for the Qualifying Examination will be 75% in each of the 8 subject areas, with no penalty marking.

2.2.2.3.3 Re-sits

Where a candidate achieves less than 75% in any subject area in the Qualifying Examination he/she shall re-sit that section only, of an alternative paper. A re-sit will not be taken on the same day as the original failure.

Consultation with the relevant FTM to consider requiring the re-sitting of an alternative paper in full, should be conducted where a candidate achieves less than 75% overall or requires a re-sit of four or more sections.

In the event of a candidate failing a re-sit examination, the matter shall be referred to the relevant Fleet Training Manager for resolution.

2.2.2.3.4 Marking Progress Tests/Qualifying Examination

On completion of any examination, a full debrief will be carried out by the Instructor responsible for the conduct of the training, and all questions answered incorrectly will be reviewed to establish an understanding of the correct answer.

Candidates are not allowed take any pieces of paper or notes of any kind into the examination room. All materials needed for the exam are provided.

Candidates are not permitted to remove any pieces of paper or notes of any kind from the examination room.

2.2.2.4 B747 Groundschool Programme

Note 1: Students with suitable Boeing FMS equipped aircraft experience (recent within 5 years), will join the course on day 2.

Note 2: The more detailed elements of the theoretical technical course as set out in European Regulation Aircrew AMC 1 part FCL 725 (a) are recorded in the index and contents of the CBT course which is used to deliver the instruction. The CBT course is held on the PC used by the Trainee pilot whilst attending the ground school phase. These PCs are housed in the carrels at the BA ATO and are available to the trainees throughout the ground school phase.

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
1	FMS Desk Top Trainer Exercise	2:00
	FMS Introduction	0:16
	FMS Preflight 1	0:25
	FMS Preflight 2	0:14
	FMS Waypoint Ident	0:12
	FMS LNAV	0:18
	FMS VNAV	0:20
	FMS Additional Pages & Stby Nav	0:16
2	FBS 1 – Procedures	2:00
	Aircraft Introduction	0:10
	CRT Displays	0:08
	CRT Displays Review	0:05
	Primary EICAS	0:17
	Primary EICAS Review	0:14
	Secondary EICAS	0:12
	Secondary EICAS Review	0:10
	General Take-off Performance	0:40

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
3	FBS 2 – Procedures & EICAS	2:00
	FMS Desk Top Trainer Exercise	2:00
	Inertial Ref System	0:16
	Inertial Ref System Review	0:09
	Primary Flight Display	0:15
	Primary Flight Display Review	0:12
	Navigation Display	0:12
	Navigation Display Review	0:10
	Instrument Source Select	0:06
	Instrument Source Select Review	0:04
	Standby Instruments	0:04
	Standby Instruments Review	0:03
	Clocks Video	0:05
	Radio Navigation	0:14
	Radio Navigation Review	0:10
	FBS 3 – IRS & Flight Instruments	2:00
	Progress Test 1 – EICAS, Inertial Ref, Flight Instruments & Radio Navigation	1:00
4	Autoflight Engagement	0:14
	Autoflight Engagement Review	0:11
	Autoflight Basic Modes	0:20
	Autoflight Basic Modes Review	0:13
	Autoflight FLCH & VNAV	0:21
	Autoflight FLCH & VNAV Review	0:11
	Autoflight Take-off & Landing	0:20
	Autoflight Take-off & Landing Review	0:15
	Autoflight Alert & Protection	0:06
	Autoflight Alert & Protection Review	0:04
	Autoflight PVDs & Windshear	0:08
	Autoflight PVDs & Windshear Review	0:05
	AWOPS Video	0:28

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
5	FBS 4 – Autoflight	2:00
	Engine Fuel & Oil	0:16
	Engine Fuel & Oil Review	0:06
	Engine EPR & EEC	0:25
	Engine EPR & EEC Review	0:05
	Engine Ignition	0:16
	Engine Ignition Review	0:04
	Reverse Thrust & Vibration	0:06
	Reverse Thrust & Vibration Review	0:03
	Engine Start & Indicating	0:15
	Engine Start & Indicating Review	0:04
	Fire Protection	0:09
	Fire Protection Review	0:04
6	FBS 5 – Engines & Fire Protection	2:00
	Progress Test 2 – Autoflight, Engines, Fire Protection & Performance	1:00
	AC Power	0:13
	AC Power Review	0:12
	Utility & Galley Buses	0:07
	Utility & Galley Buses Review	0:03
	DC Power, Standby & Other Buses	0:09
	DC Power, Standby & Other Buses Review	0:05
	Fuel Supply	0:15
	Fuel Supply Review	0:10
	Fuel Jettison	0:06
	Fuel Jettison Review	0:03
7	FBS 6 – Fuel & Electrics	2.00
	Hydraulic Power	0:15
	Hydraulic Power Review	0:12
	Rudder	0:07
	Rudder Review	0:07
	Elevators & Stabiliser	0:10
	Elevators & Stabiliser Review	0:10
	Ailerons & Spoilers	0:07
	Ailerons & Spoilers Review	0:08
	Flaps	0:18
	Flaps Review	0:09

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
8	FBS 7 – Hydraulic & Flight Controls	2:00
	Landing Gear	0:13
	Landing Gear Review	0:08
	Brakes	0:13
	Brakes Review	0:09
	APU	0:09
	APU Review	0:08
	Pneumatics	0:13
	Pneumatics Review	0:13
	FMS CDU Exercise	1:30
9	FBS 8 – Landing Gear, APU & Pneumatics	2:00
	Progress 3 – Electrics, Fuel, Hydraulic Power, Flight Controls, Landing Gear, APU, Pneumatics & Performance.	1:00
	Air Conditioning	0:13
	Air Conditioning Review	0:07
	Pressurisation	0:12
	Pressurisation Review	0:08
	Equipment Cooling & Cargo Heat	0:06
	Equipment Cooling & Cargo Heat Review	0:06
10	FBS 9 – Air Conditioning & Pressurisation	2:00
	Ice & Rain Protection	0:08
	Ice & Rain Protection Review	0:05
	Lighting	0:12
	Communications	0:16
	Communications Review	0:05
	Warnings with GPWS	0:22
	Warnings with GPWS Review	0:05
	Enhanced GPWS Video	0:12
	EGPWS & Predictive Windshear	0:12
	TCAS Video	0:22
	TCAS Exercise	0:22

B747 Ground School Programme		
Day	Subject	Time Allowed (hrs/mins)
11	FBS 10 – Ice & Rain Protection	2:00
	Qualifying Exam	2:00
	Aircraft Inspection Video	0:25
	North Atlantic Operations	0:45
	Polar Brief	0:15
	Landings Video	0:15
	Precision Monitored ILS (US)	0:15
	Rnav	0:20
	Ramp Safety Video	0:15

2.2.3 Full Flight Simulator Training

2.2.3.0 B747-400 ZFT Command Conversion Course Overview

Detail	Exercise	Briefing
1	Training	1:30
2	Training	1:30
3	Training	1:30
4	Training	1:30
5	Training	1:30
6	Training	1:30
7	Training	1:30
8	Training	1:30
9	LOE, LST	1:00
10	LST	1:00
10A	Command Assessment	1:00
11	ZFT	1:00

2.2.3.1 Introduction to B747-400 Command Conversion Course

The 747-400 conversion course, re-written in 2014, has been designed with 8 training simulator details of 1:30 hours briefing and 4 hours simulator detail. There are 2 further details (9 and 10) which have a 1 hour briefing and consist of two 4 hour details which provide the LST and LOE assessments for licence issue purposes. The penultimate detail, number 10A, has a 1 hour report and should have a stand-in FO rostered. However, in extremis, the other trainee (having been suitably briefed) can occupy the right seat. The final detail, number 11, has a 1 hour report and is the Zero Flight time detail and prepares the trainee for their first route training sector. The trainees should then have at least one clear day to attend CAA Flight Crew Licensing for the issue of their type rating.

2.2.3.1.1 Philosophy of the Course

The course contains all the elements of the MPA Type rating, Skill Test and Proficiency check schedule also known as CAA Form LST/LPC MPA (SRG 1158) and has been based on issue 4. These are the skills and knowledge items which the trainee needs to demonstrate having achieved at a level 3 standard for the issue of the 747-400 type rating as P1. The Trancomm record for each trainee acts as the source of reference to confirm all the elements of Form 1158 have been completed and are to the required standard. Each detail introduction outlines those elements of the 1158 included in that detail.

The details start with basic handling skills and then use building blocks to train and assess those new skills necessary to operate a 747-400. Engine out handling commences in detail 4 where basic handling skills are taught and then also appears in later details where the management and more complex handling are introduced. Engine out work appears throughout the course after detail 4 so that the trainee receives regular exposure to this handling skill.

Detail 4 introduces the first non-normal procedure. Non-normals continue to appear in subsequent details with increasing complexity and initially instructor input is provided to ensure trainees understand and practice those non-technical Competencies such as Leadership and Teamwork, Prioritisation, Diagnosis and Time Management which are key to a successful outcome during non-normal scenarios. There is not enough time for the trainee to see all the possible non-normal scenarios and it is expected that through the course the trainee will read and gain a thorough knowledge of the QRH. The trainer will be assessing the non-technical Competencies during latter details of the course with an emphasis on command capability and a level 3 standard will be a pre-requisite for progress to the LST, Command Assessment and ZFT details 9-11.

Training eBooks are provided to aid self study during the course. If clarification is required this should be raised with the instructor at the start of the detail. All manuals including the Flight Crew Training Manual (FCTM), FCOM, OM A, OM B, OM C and MEL/CDL can be found within the DocuNet app on the iPad. Trainees must ensure they have access to the BA intranet prior to commencing the simulator phase of the course. The instructor led 1:30 briefing is not designed to cover every aspect of that detail's elements and the instructor will expect that the trainee arrives fully briefed and prepared. The instructor only has time to provide knowledge about 'how to do the skill', the sort of tips and handling lessons that cannot be picked up from the reference material alone. The instructor will also use facilitation to assess that the trainee has prepared for the detail adequately. Poor preparation and knowledge will prevent the trainee from progressing to the next detail.

For each detail the trainees will be provided with relevant briefing material including CIRRUS and LORETO brief (where applicable) and CARD performance data.

Apart from detail 1, CIRRUS will generally be a shortened version, loadsheets are provided for completeness but not for every take-off weight in detail. For lightweight take-offs, CARD will not always be provided as the temp reduction of 70 degrees and FMC speeds will comfortably meet the performance requirement.

Timing in the details means that emphasis should be placed on the handling and management elements of the details, consequently there are only 2 full starts in details 3 and 8. Most other start-ups are by means of an instructor led quick scan and start. If the trainees need additional exposure to the pre-start scan and set-up they can be encouraged to make use of the flight deck model in the briefing rooms and/or use of any unused simulator or the fixed base engineering simulator (on the ground floor annexe). Both full flight simulator and fixed base will require an instructor to log the trainees in to Simnet to provide power and a run through of health and safety requirements and how to log out. The trainees cannot be in a simulator with motion on without an instructor present. There is also an FMC trainer that can be used in ground school if additional exposure to programming the FMC is required.

2.2.3.1.2 Notes for Instructor

The details include lesson plans. In a departure from earlier courses the lesson plans do not contain as many action buttons. However, included in the lesson plan are detailed instructions and guidance about the items that need to be covered during the detail. Action buttons are in general only provided to set initial conditions of weather and aircraft weight, fuel and to initiate complex failures. It is expected that the instructor will use PTP and IOS buttons to re-position the aircraft and initiate simple failures during the exercises. In responding to the trainees' needs the instructor should manage the detail so as to maximise training value for the trainees. After detail 4 the instructor should introduce random RTOs and EFATOs during subsequent details so as to give the trainee exposure to this possibility on any take-off. These should include low speed rejection. Go-arounds are used throughout the exercises to allow the detail to move along more expeditiously. These should also be assessed and input given to encourage maximum use of the autopilot during unexpected go-arounds. Occasionally these can also be modified to rejected landings (go-around after touchdown) to give the trainees exposure to the aircraft's ability to climb away after touchdown. Again these should be assessed and debriefed where not correctly flown.

In general the trainee should be in the correct seat for any manual handling skill item which is being trained or assessed for the 1158 purposes. This will require some seat changing during the detail and this must always be done with the motion off. Some guidance is given in the lesson plan but it is expected that the instructor will use initiative to modify the plan as necessary to meet the trainees' needs. Items which are flown wholly using automatics can potentially be done from the wrong seat. For example flying the approach so that the other trainee can practice a landing, this can be done (ideally automatically) from the wrong seat. Some items such as emergency descent or unusual attitudes etc. can be flown for the purposes of the 1158 from the incorrect seat. A First Officer could well be operating in the left hand seat (as cruise relief pilot) for such an event. Other exercises are crew exercises and these need only be completed once with one trainee in the wrong seat. With 2 command trainees, detail 8 (LVOps), will need to be completed so that each pilot handles some automatic flight. The requirement for six auto-approaches is for the whole crew and not each individual pilot in the correct seat. Where weather conditions are set up to provide maximum crosswind or minimum RVR these will need to be altered to fit the status of the trainee.

Timings for simulator details are predicated on entering the simulator promptly. It is expected that the instructor will set the scene and manage the set-up and trainee SA by the use of mini-brief or scene setting briefs before each item is trained. This should reduce the need for the trainees

to do any briefing. Full set ups are only done in details 1 and 2, all other details should be quick set ups with instructor taking on this task while trainees settle into their seats.

Most details should be completed within the time and any extra time at the end should be used to give some circuit flying, general handling or EFATO/RTO practice according to the trainees' needs.

It is vital that the instructor prepares for a detail by reading the previous trancomm report, talking to the previous trainer and establishing from the trainees themselves how things are progressing and any areas of concern. Any 1158 items that have been carried forward or are incompletely trained need to be identified and completed before moving on to a new detail. The trainer needs to alert FTM and training admin whenever a significant number of items are being carried forward either due to sim unserviceability or trainee difficulties. This will allow FTM to review the programming of additional details with minimal disruption to the route training section of the course. Trainers conducting details approaching the LST (detail 5 onwards) should also make an assessment of the trainees' handling and management skills and their ability to successfully pass both the LST and LOE assessments. If in any doubt contact must be made to alert FTM by quickest means, use of the alert FTM box in trancomm is not sufficient but should be ticked. There is scope within the footprint of days off to allocate an extra detail, if this should be necessary. With two same status crew with no previous Boeing experience this could be a possibility.

2.2.3.1.3 Trancomm

Trancomm has been modified so that any item assessed as 'more practice' will automatically carry over to the next detail indicating to the next trainer that its training is not complete. Therefore it is vital that any item that is deemed to have been trained to the satisfaction of the requirements of the 1158 **should not** be graded as 'more practice'. This grading should only be used as a training incomplete assessment by the instructor indicating that more practice is required to bring the trainee up to a training complete standard during a subsequent detail.

All items of the 1158 are contained within detail 1-8 trancomm reports. There are in addition some BA items such as USA operations and Runway Change. All items must be assessed as Training complete prior to detail 9.

2.2.3.1.4 Roster Matrix for Standard ZFT Command Conversion Course

The following is a matrix for the ideal roster pattern for this course. This is the ideal plan but on the day circumstances may require a different days off pattern to be used by training admin.

Day 1-4	Detail 1-4
Day 5-6	Off
Day 7	Detail 4a (if reqd) or Off
Day 8-10	Detail 5-7
Day 11-13	Off
Day 14-16	Detail 8-10
Day 17	Off
Day 18-19	Detail 10a-11
Day 20	Detail 11a (if reqd) or Off
Day 21-22	Licence day plus at least one day off

2.2.3.2 Full Flight Simulator Course

2.2.3.2.1 B747 – Full Flight Simulator – Detail 1

2.2.3.2.1.1 Summary

The detail is based at London Heathrow with an instructor assisted quick setup on stand 514 ready for a normal engine start and pushback. A short taxi with 180° turn practice on RWY 09R prior to departure. After take-off the aircraft remains at 6000' to complete initial stalling exercises. A further rapid climb to FL380 allows the trainees to explore the high and low speed characteristics of the aircraft at altitude. Whilst at high level TCAS training is completed and stall training is continued. The aircraft is then returned to the circuit for a raw data ILS and go-around practice.

2.2.3.2.1.2 Objectives

- Introduction of basic handling.
- Start of stalling training.
- Complete TCAS training.

2.2.3.2.1.3 Form 1158 Items Practical Training Complete for Following Items in Detail 1

- | | |
|-------|---|
| 1.5 | Taxying. |
| 2.1 | Normal take-offs. |
| 3.1 | Turns with and without spoilers. |
| 3.2 | Tuck under and mach buffets. |
| 3.4.6 | Flight control and trim system. |
| 3.4.9 | Stall warning devices. |
| 3.6.9 | TCAS event. |
| 3.7 | Steep turns with 45 AOB to 180 left and right. |
| 4.1 | Go-around with all engines operating after an ILS (DA). |

2.2.3.2.1.4 Standard Required on Completion of Detail 1

- Correct take-off technique.
- Stalling to a level 3 standard in take-off and cruise configuration.
- TCAS event handling to a level 3 standard.
- General handling adequate.
- Basic CRM and non-technical skills.

- Raw data ILS to a level 3 standard.

2.2.3.2.1.5 Briefing and Discussion Items Detail 1

Take-off Technique

- Rotation rate.
- Where to look and visual/instrument cues.
- Initial pitch attitude and flight director commands (flying through the FD).
- Post take-off actions and calls.
- Packs off technique.
- Noise abatement technique.

Stalling

- Indications and avoidance of the stall.
- Correct stall recovery technique.
- Potential causes of stall.
- Cruise/High altitude stall and why it is a more critical manoeuvre due to lack of excess thrust available.
- Introduction of avoid, trap, mitigate and its application to stalling.

High Speed Handling

- Minimal briefing cover Mach buffet/no mach tuck.
- Effect of spoilers in the turn.
- 1.3 g buffet boundary.

180 Degree Turns

- Use FCTM procedures include with/out coming to a stop.
- Clarification of the different techniques used when a runway is contaminated.

Intro to Competencies and its Integration Through the Course

- Some facilitative debrief and comment on crew interaction including feedback to each other. An explanation (if required) on the integration of technical and non-technical skills within the BA Pilot Competencies.

2.2.3.2.1.6 Notes for Instructor

Establish who is Pilot A and B and annotate trancomm – include trainee's aviation background and mobile number. If normal crew the Captain must always be Pilot A. Check Licences; if frozen ATPL contact FTM (ATPL skill test may be required at detail 9/10). Give full safety brief and ensure trainees familiar with simulator environment, facilities, performance, and paperwork for details. TCAS training should be completed in this detail and is not re-visited again on the course. If training in this item is not to standard trancomm should be adequately highlighted to indicate that the item needs further training. High speed characteristics (Mach buffet/overspeed) of the 744 are benign and this item is a very brief handling experience of these characteristics for the trainees (this item can be done in incorrect seat). 180° turns on the runway; each trainee should complete at least one of either method from the correct seat to establish the correct visual alignment with the runway edge.

High altitude stalling can be completed from the incorrect seat as an FO could be Acting Pilot in Command in the cruise when such a condition could be encountered. Approach and take-off configuration stall recoveries must be done from correct seat.

Three stalls are required to sign off the 1158 completely: Stalling in take-off configuration (flaps at 20 or 10 in climb out), stalling in cruise (done at high cruise altitude clean configuration), stalling in approach configuration (detail 2) hence stalling training is not completed until the end of detail 2. The stall recovery should be from initial buffet or stick shake whichever comes first. Since all recoveries use the same technique the stall can be initiated from either manual or automatic flight.

Take-offs are done with a very light (5K) crosswind. If trainee has any difficulties consider removing the crosswind. Crosswind technique is briefed in detail 6.

Page 1 and 2 of a CIRRUSS is provided for a LHR-LOS sector.

2.2.3.2.1.7 Detail 1

DETAIL 1					
Briefing		Simulator safety and emergency briefing. Instructor led quick setup. Pushback and taxi RWY09R. After departure handling practice, high altitude exercises, stalling, TCAS, approach and go-arounds.		LHR RWY 09R	
Initial State		Ground power connected on gate 514, Heathrow.			
PERF DATA		MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 150/150/155		25.5%	223.0/42.2	71.5	293.5
Route		EGLL to DNMM after departure local flying for a return to LHR.			
ATIS		RWY 09R 070/05 CAVOK 10/05 Q1010 (daylight).			
Clearance		BAW 75 to LOS MID3J swk1666.			

Specific Lesson Plan Steps

1. LHR, daylight, 070/05, CAVOK, 10/05, RWY 09R, Aircraft on stand 514.
2. Reposition to FL380 for upper air handling, including TCAS, Stall and Overspeed.
3. TCAS encounter at FL380.
4. Reduce fuel to 20T.
5. Set RWY 09L.
6. Reposition base leg for RWY 09L.

INSTRUCTOR ONLY

2.2.3.2.2 B747 – Full Flight Simulator – Detail 2

2.2.3.2.2.1 Summary

The detail is based at London Heathrow with engines running and an instructor-led quick setup. Detail 2 continues the theme of 4 engine manual handling and introduces landings (the intent is that initial landing tuition will be with the instructor occupying either the left or the right seat). After take-off the aircraft returns for a variety of manual approaches. Stalling training is concluded with stall recoveries in the approach configuration.

2.2.3.2.2.2 Objectives

- Complete stalling training.
- Manual ILS and go-around practice.
- Complete PRM training.
- Introduction to landing technique.
- Rejected landings to an adequate standard.

2.2.3.2.2.3 Form 1158 Items Practical Training Complete for Following Items in Detail 2

- | | |
|-----------|---|
| 2.2 | Instrument take-off. |
| 3.8 | Stall counter measures. |
| 3.8.1 | Recovery from stall. |
| 3.9.3 | Precision approaches down to a DH not less than 200'. |
| 3.9.3.2/3 | Manually with F/D, with Autopilot. |
| 4.2 | Other missed approach. |

Other non-1158 items complete in trancomm:

- ILS PRM

2.2.3.2.2.4 Standard Required on Completion of Detail 2

- Take-offs to a good consistent standard.
- Competent manually flown ILS and go-around including rejected landing.
- ILS PRM approach training completed (confirm that trainees have watched the briefing material during ground school).
- Landing technique adequate.

- Stalling in approach configuration to a level 3 standard.

2.2.3.2.2.5 Briefing and Discussion Items Detail 2

Stalling

- Indications and avoidance of the stall.
- Correct stall recovery technique.
- Potential causes of stall.
- Approach/landing config use of PLIs and correct technique.
- Introduction of avoid, trap, mitigate and its application to stalling.

Landing Technique <1000 ft

- Power settings and pitch attitudes on stabilised approach.
- Stabilised approach criteria.
- Importance of correct trimming and pitch/power couple.
- Where to look and visual cues at 100 ft, 50 ft and 30 ft.
- Ground effect below 200'.
- Importance of wings level and effect of rudder inputs with swept wing.
- Correct use of reverse and calls after touchdown.
- Braking and use of autobrake to clear runway efficiently and quickly.

Manual ILS and Go-around

- With flight director.
- Go-around from rejected landing/low go-around.
- Landing from visual at DA on a Cat 1 manual landing.

ILS PRM Approach

- Confirm trainees have watched FAA briefing video in groundschool.
- Discuss handling of breakout manoeuvre.
- Check trainees' knowledge of PRM approach procedures.

Rejected Landing

- Can only be done if reversers not yet deployed.
- Refer to FCOM Rejected Landing Procedure.

2.2.3.2.2.6 Notes for Instructor

Building on lessons in detail 1 the trainees experience a heavy weight, packs off take-off prior to a return.

The instructor is expected to use his experience to decide upon an order that will satisfy the trainees needs e.g. auto ILS to rejected landing leading into radar circuit etc.

The expectation is that the instructor will occupy an operating seat for landing training.

Page 1 and 2 of a CIRRUS is provided.

2.2.3.2.2.7 Detail 2

DETAIL 2		
Briefing	Refresh simulator H & S. Instructor led quick setup. Heavy weight take-off RWY09R. After departure return for manual approach handling, rejected landings, stall recovery in approach configuration and landing practice.	LHR RWY 09R
Initial State	Instructor setup for quick start with engines running. Hold short RWY 09R.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
45° 155/167/175	23.5%	227.4/46.6	136.8	364.2

Route	EGLL to FACT after departure local flying for a return to LHR.
ATIS	RWY 09R 050/05 1000m RA OVC003 18/10 Q998 (daylight).
Clearance	RWY 09R MID3J swk1666.

Specific Lesson Plan Steps

1. LHR, daylight, 050/5, 1000m, RA, OVC003, 18/10, Q998, hold short RWY 09R.
2. Change weather to CAVOK.
3. Reduce fuel to 23T (and freeze).
4. Set RWY 09L.
5. Fail ILS 09L.
6. Fail PAPI 09L.

2.2.3.2.3 B747 – Full Flight Simulator – Detail 3

2.2.3.2.3.1 Summary

The detail is based at Singapore on gate with a full setup, engine start and pushback. A short taxi to RWY 02C for a max weight take-off to LHR gives the trainees exposure to high weight and hot temp operations. After departure in windshear conditions the aircraft returns for windshear on approach training. Thereafter late runway change, NIDA and circling are covered.

2.2.3.2.3.2 Objectives

- Windshear training after take-off and on approach completed.
- Ensure thorough understanding of the Predictive Windshear System installed on the B747.
- Proficient in briefing and executing a Circling Approach.
- FMC holding.
- Non-ILS database approaches to a level 3 standard.
- Rejected landings to a level 3 standard.

2.2.3.2.3.3 Form 1158 Items Practical Training Complete for Following Items in Detail 3

- | | |
|-------|--------------------------------|
| 1.1 | Performance calculation. |
| 2.4 | Take-off at max take-off mass. |
| 3.6.5 | Windshear at take-off/landing. |
| 3.9.2 | Holding procedures. |
| 3.9.4 | NPA down to DA. |
| 3.9.5 | Circling approach. |
| 4.4 | Rejected landing at 50'. |

The following items are also trained in this detail but not training complete:

- | | |
|-----|---|
| 1.3 | Cockpit inspection. |
| 1.4 | Use of checklist prior to starting engines. |
| 1.6 | Pre-flight checks. |

Non-1158 item training complete:

- Late runway change

2.2.3.2.3.4 Standard Required on Completion of Detail 3

- Take-offs and landings to a good consistent standard.
- SOPs and standards calls progressing.
- Understanding of the principles of non-ILS approach procedures.
- Briefings relevant and concise to enhance SA.
- Windshear handling to a level 3 standard.
- Predictive Windshear System and pilot response understood.
- Late runway switch procedure understood.
- Circling Approach briefed and flown to a level 3 standard.
- FMC holding.

2.2.3.2.3.5 Briefing and Discussion Items Detail 3
Holding

- Correct programming of FMC.
- Use of next hold when holding waypoint is already in legs page later in route e.g. for the go-around.
- Holding speeds with/out auto-thrust.
- Holding speeds in USA.

Circling Approaches

- Becoming rare so require careful briefing, planning and execution.
- FCTM gives good guidance.
- Full use of automatics strongly recommended. Discuss correct modes; if flying an ILS do not use APP mode.
- Emphasise the need during briefing to focus on how the approach will be executed and how and when the aircraft will be configured.
- Control handover point needs highlighting.
- Ensure go-around plan is understood.

Windshear Handling

- Refer to guidance in FCOM and QRH.
- Clearly establish the role of the Predictive Windshear System.
- Immediate windshear alerts are generated when GPWS (air data) senses the aircraft is in windshear conditions whereas predictive windshear alerts are generated using the weather radar system when it detects disturbed air ahead of the aircraft.
- Ensure trainees understand the practical difficulties of managing a “windshear ahead” at a busy airfield during bad weather.
- Confirm correct understanding of the QRH manoeuvre recall actions.

Non-ILS Database Approaches

- APFD modes to use (highlight 3 key requirements prior to FAF: LNAV, VNAV and MCP set to MDA).
- Checking of FMC including legs page, waypoints and glidepath. Extra checks required for RNAV approach.
- Raw data monitoring requirements and lateral and vertical deviation limits on progress page 2 and PFD.
- Transition to visual approach.
- Go-around from non-ILS approach.
- Refer to QRH ops info section aide memoire.

Late Runway Switch Procedure

- Check full understanding of PF handling.
- Check full understanding of PM, MCP and FMC handling.

2.2.3.2.3.6 Notes for Instructor

The aim of detail 3 is to ensure that the trainee is competent at 4-engine handling prior to progressing to OEI handling. If there is any doubt that 4-engine handling is not at the standard expected at this stage FTM must be informed.

The detail starts with a full setup for one trainee whilst the other trainee will conduct a full setup in detail 8. Hence, for simplicity, 1158 items 1.2, 1.4 and 1.6 sign off is delayed until detail 8 completed.

The windshear model is realistic and the Predictive Windshear system works well. On the predictive windshear page (via the special effect page) the instructor can turn the aural/visual predictive windshear warnings ‘off’, or ‘on’ so as to force a continue rather than an RTO.

The circling approach is conducted from an ILS to circle and land on the reciprocal runway.

Pages 1 and 2 of a CIRRUS, a LORETO brief, a load sheet and CARD data are provided.

2.2.3.2.3.7 Detail 3

DETAIL 3		
Briefing	Full start including safety checks. Push back, reposition for hold position RWY 02C. Max weight take-off for windshear training.	SIN RWY 02C
Initial State	Ground power connected on gate, Singapore.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
42° 164/171/180	23.7%	233.7/52.9	162.8	396.5

Route	WSSS to EGLL after departure local flying for a return to SIN.
ATIS	RWY 02C 020/15G25 3000m RA FEW025CB 28/27 Q1020 (night).
Clearance	RWY 02C AROSO 1A swk 2256.

Specific Lesson Plan Steps

- On gate at SIN, RWY 02C, Night, 020/15G25 RA FEW025CB 28/27 Q1020.
- Reposition hold short RWY 02C.

-
3. Reduce fuel to 17T (and freeze).
 4. Change weather to 030/10 OVC010 for NIDA training.
 5. Fail ILS 02C.
 6. Fail ILS 02L.

2.2.3.2.4 B747 – Full Flight Simulator – Detail 4

2.2.3.2.4.1 Summary

The detail is based at London Heathrow with an instructor-led quick setup holding short of runway 27R. After a normal take-off an engine is failed in flight. The trainee can explore manual handling whilst airborne prior to returning to practice OEI approaches and go-arounds. Thereafter EFATOs and RTOs are practiced.

2.2.3.2.4.2 Objectives

- Train RTO manoeuvre (PF and PM) to an adequate standard.
- EFATO handling to adequate standard.
- Passenger Evacuation to a level 3 standard.
- Workload management and prioritisation of actions during and following EFATO.
- Introduction to how aircraft handles OEI with and without autopilot.
- Proficient handling and management of the OEI ILS, G/A and landing, manually flown with flight director.

2.2.3.2.4.3 Form 1158 Items Practical Training Complete for Following Items in Detail 4

- | | |
|-------|--|
| 3.4.0 | Engine. |
| 3.4.3 | Fuel. |
| 3.6.1 | Fire drills (including evacuation). |
| 3.9.1 | Adherence to departure and arrival routes. |

The following items are also trained in this detail but are not training complete:

- | | |
|-------------|--|
| 2.5.2/2.5.3 | EFATO. |
| 2.6 | RTO. |
| 3.9.3.4 | Manual precision app OEI. |
| 4.3 | Manual go-around with critical engine failure. |
| 5.5 | Landing with critical engine simulated inop. |

2.2.3.2.4.4 Standard Required on Completion of Detail 4

- RTO (both PF and PM) to an adequate standard at varying weights and caused by both asymmetric and other reasons.
- EFATO to adequate standard to full clean-up.
- OEI manual ILS to an adequate standard.

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- OEI manual go-around to an adequate standard.
- OEI landing to an adequate standard.
- Passenger Evacuation to a level 3 standard.

2.2.3.2.4.5 Briefing and Discussion Items Detail 4

RTO

- PF and PM duties.
- Post-RTO management.
- Liaising with CSD/crew.
- Vacating runway.
- Brake cooling considerations and charts.

Passenger Evacuation

- Management.
- Allocation of duties.
- What happens in the cabin.
- Communications.

EFATO

- Handling technique.
- Non-normal management.
- Allocation of duties.
- Prioritisation of actions.
- Post clean-up actions.
- Differences 3 vs 2 engine aircraft (e.g. PAN call not always necessary, continuation policy).

One Engine Inoperative (OEI) Handling

- Manually flying, use of a/t.
- Use of autopilot, trimming, etc. when OEI.

OEI Manual ILS and Go-around

- Configuration changes.
- Thrust settings OEI.
- Effect of incorrect rudder trim on Flight Director indication.

- Rudder input during go-around, rate and amount.
- Thrust application when TOGA pressed (how much thrust and when is it applied, difference from all engines operating).
- Pitch attitude and effect of pitch power couple in the go-around.
- APFD selections after go-around.

OEI Manual Landing

- Rudder trim in or out for landing discuss difference in rudder input as thrust levers closed.
- Flare technique same as all engine operating.
- Effect of thrust reverser.

Use of QRH and Task Allocation During Non-normals

- Use of QRH and understanding of Checklist instructions section CI.
- Use of autopilot to reduce workload.
- Allocation of tasks; who does what during non-normals.
- Prioritisation.
- Understanding of QRH construction, the meaning of bold items, capitals, dotted lines etc.

2.2.3.2.4.6 Notes for Instructor

This is a busy detail hence a quick start and departure are essential. Once airborne, after a normal take-off, fail an engine for OEI manual handling. Points to emphasise include minimal power changes and the need to keep the aircraft in trim.

Reposition or vectors can be used to base leg for manual OEI ILS, G/A and landings as necessary. The expectation is that an 'adequate standard' is attained for manual OEI ILS, G/A and landing since there will be further consolidation in detail 5. Hence, the instructor may find that only one attempt is required prior to moving onto EFATO training. Training should emphasise the EPR datums, minimal power changes and the advantages of disconnecting the A/T prior to level off in the G/A.

Building blocks are used for the EFATO and a suggested running order might be heavy weight (with a V1/Vr split), then a medium weight and finishing with a light weight EFATO to a full clean up. Instructor to vary conditions as required. Yet again, the expectation is that the trainee will achieve an 'adequate standard' (further training in detail 5) prior to moving onto RTOs. If non-normal crew all handling actions must be completed in the correct seat, but it is acceptable for PM actions to be done in the wrong seat.

RTOs are conducted just prior to the break and building blocks should be used to achieve an adequate standard of competency. With a normal crew RTOs should be alternated with pilots completing handling and managing duties. RTOs are caused by configuration warnings as well as engine fires and then failures that introduce asymmetric handling skills. RTOs should be done at varying weights and speeds including low speed with autothrottle still engaged and RTO autobrake not yet armed. Having achieved an adequate standard, the passenger evacuation is introduced just prior to stopping for break. With a non-normal crew some seat swapping will be required.

2.2.3.2.4.7 Detail 4

DETAIL 4		
Briefing	Instructor led quick start. Normal departure. Engine failure once airborne for OEI training.	LHR RWY 27R
Initial State	Ground power connected holding short RWY 27R, Heathrow.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
For 250T 73° 133/133/142	as per OIS	230.0/49.2	Instructor defined	Instructor defined

Route	EGLL to EGLL after departure local flying.
ATIS	As required.
Clearance	RWY 27R for local flying swk 7000.

Specific Lesson Plan Steps

1. LHR, RWY 27R, Day, Calm, CAVOK, 10°, Q1012.
2. Eng 1 severe failure.
3. Eng 1 fuel cross-feed valve fail (to explore fuel system non-normal).
4. Eng 4 severe failure.
5. Eng 4 cross-feed valve fail (to explore fuel system non-normal).
6. For RTO – forward cargo fire.
7. For RTO – trim “runaway” leading to CONFIG warning.
8. For RTO – loss of No 2 EPR gauge display (crew to continue).
9. For RTO – no 2 eng fire (leading on from step 8).
10. For RTO – autospoiler fail.

2.2.3.2.5 B747 – Full Flight Simulator – Detail 5

2.2.3.2.5.1 Summary

Detail 5 commences at SEA with an instructor-led quick setup, holding short of runway 16L. It consolidates OEI handling, and introduces operational considerations and procedures associated with single engine failures. After EFATO, OEI approach and go-around training a failed engine is relit. The detail then shifts to mid-Atlantic for engine failure and drift down on OTS training. Thereafter a further engine failure leads onto two engine work. The detail has three locations: Seattle, mid-Atlantic and Shannon.

2.2.3.2.5.2 Objectives

- EFATO trained to a level 3 standard (including emergency turn).
- Awareness of emergency turn considerations.
- Ensure trainee understands management considerations during EFATO and during the subsequent return or continuation plan.
- OEI manual ILS to a level 3 standard.
- OEI manual go-around to a level 3 standard.
- OEI landing to a level 3 standard.
- OEI fuel management.
- Fuel jettison.
- 2-engine out handling to a level 3 standard.

2.2.3.2.5.3 Form 1158 Items Practical Training Complete for Following Items in Detail 5

- | | |
|---------|---|
| 3.6.3 | Engine failures, shutdown and restart at a safe height. |
| 2.5 | Take-offs with simulated engine failures. |
| 3.6.4 | Fuel dumping. |
| 3.9.3.4 | Manual precision approach OEI. |
| 4.3 | Manual go-around with critical engine failure. |
| 5.5 | Landing with critical engine simulated inoperative. |
| 5.6 | Landing with two engines simulated inoperative. |

Non-1158 items training complete:

- USA operations.

2.2.3.2.5.4 Standard Required on Completion of Detail 5

- EFATO to a level 3 standard.
- OEI ILS, G/A and landing manually flown with flight director to a level 3 standard.
- Two engine handling to a level 3 standard.
- A good understanding of fuel jettison and management of fuel system after an engine failure.
- A good understanding of engine failure in the cruise and drift down procedures.

2.2.3.2.5.5 Briefing and Discussion Items Detail 5

USA Operations

- Overview of differences in R/T phraseology.
- Differences in alternate minima (US and Canada) and different minima requirements for take-off and landing.
- Visual approaches and the G/A requirements.
- Guidance on source materials for further reading prior to route training.
- Introduce trainee to the Area briefing requirements and material, route information manual (OM Part C) and where to find information on MNPS operations.

EFATO

- Any questions from previous detail.
- Discuss inboard engine failure differences.
- Slew the brief towards the management of the problem. Considerations include: emergency turn, cabin management, ATC handling.
- Introduce the Continuation Policy, which will be new for most pilots, with emphasis on the different priorities on a 4 engine aircraft. Inform the crews that this will be discussed in detail on route training.
- Discuss fuel balancing if continuing with OEI.
- Highlight that Fuel Imbalance checklist in QRH assumes all engines running.

OEI Fuel Management

- OEI fuel management in FCOM 1 SP section.

- How to deal with a FUEL IMBALANCE EICAS message following an engine failure and continuation of flight.
- Basic understanding of how to deal with an imbalance during a short flight such as LHR-LGW when fuel is already tank-to engine.
- It is acceptable to land with crossfeeds open following a OEI continued flight.
- This training should be kept brief and focus on the essentials so as to cope with an imbalance during the LST/LPC. The trainees will cover this in more depth during line training discussion.

Fuel Jettison

- Deciding upon the target fuel remaining to achieve the desired landing weight taking into account structural, runway and environmental considerations.
- Unusual distribution of fuel load after jettison dependent on fuel remaining, requires careful monitoring.

2 Engine Handling and Approaches

- Autopilot available, autothrottle not available.
- Discuss V_{MCA2} and aileron lock out.
- Discuss weight for return considerations and the options for fuel dumping versus the aircraft status and possible immediate return. Reassure crews that a successful 2 engine landing at max take-off weight is easily achievable.
- Ensure thorough understanding of QRH procedures particularly the go-around considerations.
- Discuss management and ATC consideration clarify with ATC inability to go-around once approach commences, sterile runway is a UK terminology.
- Emphasis should be on planning a successful landing with a go-round as last resort but still achievable even at very high weights.

2.2.3.2.5.6 Notes for Instructor

This is another busy detail that requires a quick start from the crew straight into EFATO and emergency turn (ET) training. Hence, it is suggested that the last ten minutes in the classroom are used for the trainees to practice emergency briefings and how they'll fly an ET. Initially plan for the crew to run the first EFATO in real time through to how and when they could consider continuation. This will ensure the management points can be covered when there is the possibility of continuing.

The running order is determined by the instructor to maximise training value. A possible running order for a non-natural crew might be:

- EFATO, ET and full clean up,
- Continuation policy (severe engine failure leading to a return),
- Fuel dump,
- Return for OEI ILS, G/A, repos land,
- SEAT SWAP,
- Repos OEI ILS, G/A, repos land,
- EFATO, ET and full clean up,
- Continuation policy (continue this time with an engine rundown only),
- BREAK BREAK BREAK,
- Engine relight (3.6.3),
- Repos OTS for engine failure and driftdown,
- OEI fuel handling,
- 2 engine inop approach and landing,
- SEAT SWAP,
- 2 engine inop approach and landing.

There is no requirement for a two engine inoperative go-around to be flown (due to the very rare likelihood of it occurring) however if there is time at the end of the detail there is training value to be had by flying one.

Page 1 and 2 of CIRRUS and CARD data are provided.

2.2.3.2.5.7 Detail 5

DETAIL 5				
Briefing	Instructor led quick start. EFATO and ET on departure.		SEA RWY 16L	
Initial State	Ground power connected holding short RWY 16L, Seattle.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
64° 142/158/165	24.2%	222.9/42.1	101.7	324.6
Route	KSEA to EGLL after departure local flying.			
ATIS	RWY 16L 140/10 5sm -RA 15/10 A2991.			
Clearance	RWY 16L SEATTLE 4 swk 4607.			

Specific Lesson Plan Steps

1. SEA, RWY 16L, Dusk, 140/10, 5sm, -RA, OVC008, 12/10, A2991.
2. Reposition mid-Atlantic. Suggest between 5340N and 5330N, to look at engine failure in the cruise.
3. Set SNN RWY 24. Weather day, 250/08, 9999, OVC015, 2/-2, Q1022.
4. Reposition 20 nm West of SNN, FL100 (allows crew to explore approach planning as required).
5. Reposition base leg RWY 24 at SNN. Reduce fuel to 15 T.

2.2.3.2.5.8 Appendix Detail 5 Demonstrating Fuel Jettison

The trainees will have thoroughly explored fuel jettison during the ground school phase hence you may not have to explore the finer details of jettison on this detail. However, for completeness, the following is included.

Demonstrating fuel jettison in the simulator requires manual setting of fuel quantity in each individual tank. If fuel quantity is set using total fuel it will distribute fuel equally in all tanks which is not the case when fuel jettison takes place.

Set fuel jettison to 30 tonnes final fuel.

Initial Set-up

Fuel in tanks will be in the region of 120 T at the time fuel jettison commences and distribution will be something like this. Fuel is being supplied from CWT.

13.5 (main 1) 38.1 (main 2) (main 3) 38.1 (main 4) 13.5
(CWT) 8

4.0 (Res 2) (Res 3) 4.0

Next set CWT fuel to 2 T:

13.5 (main 1) 38.1 (main 2) (main 3) 38.1 (main 4) 13.5
(CWT) 2

4.0 (Res 2) (Res 3) 4.0

This distribution will demonstrate the switching off of CWT jettison pumps when the FUEL PRESS CTR EICAS message shows.

Jettison now commences from main tanks 2 and 3.

Next lower main tanks 2 and 3 to 18 T this demonstrates transfer of fuel from reserves when 2 & 3 get below 18,140 kg. Total fuel now 72.0 T.

Set all main tanks to 13.5 T and Res 1 & 4 and CWT to zero.

Demo Auto Balancing Between Main Tanks 2 and 3

Next demonstrate auto balancing between tanks 2 and 3. Lower fuel in main 2 to 11.0 T and see pumps in 2 switched off automatically to balance left and right.

Demo Transfer from Outboard to Inboard Tanks

Next set 45 T with 9 T in each main tank 2 and 3. This will demo the opening of the transfer valves between 1 and 2 and 4 and 3. This allows fuel to gravity feed from the outer tanks to the inboard tanks to be jettisoned by the override pumps. Actual figure is 9072 kg in either 2 or 3. No balancing tanks 1 and 4.

13.5 (main 1) 9.0 (main2) (main 3) 9.0 (main 4) 13.5

Demo End of Jettisoning

Set fuel to 31 T to demonstrate approaching end of jettison distribution as below:

9.0 (main 1) 6.5 (main2) (main 3) 6.5 (main 4) 9.0

When the fuel reaches the pre-set figure in this case 30T the fuel to remain figure changes to white and flashes for 5 seconds. Jettison and transfer pumps are deactivated and the FUEL OVRD message appears until the Fuel Jettison selector is turned off.

Discuss fuel management when jettison complete. Highlight how configuring to normal tank-to-engine configuration will result in fuel imbalance message. With an engine shutdown the fuel distribution is further complicated and some explanation of how to balance fuel when engine out or on all engines after jettison complete should be given. Explain how the QRH Fuel Imbalance checklist assumes all engines are running.

2.2.3.2.6 B747 – Full Flight Simulator – Detail 6

2.2.3.2.6.1 Summary

Detail 6 looks at various failures both on the ground and in the air and allows crews to deal with relatively simple non-normals. It begins with engine start faults on stand and continues with various simple failures with the intent being for the trainees to practice non-normal management and cement QRH discipline. Take-off and landings are in strong (but not limiting) crosswinds to introduce crosswind handling technique. The detail has two locations: Heathrow and Keflavik.

2.2.3.2.6.2 Objectives

- Crosswind take-offs to an adequate standard.
- Crosswind landings to an adequate standard.
- Develop prioritisation and workload management skills during non-normals and the use of TDODAR.
- Engine start problem awareness.
- Confirm correct crosswind take-off and landing technique.
- Management and execution of emergency procedures, including rapid depressurisation.
- Introduction to workload management, non-normal management structure and prioritisation.
- Introduction to US operations (more training given during route flying).
- Standby Nav operation following double FMC failure.
- Demonstration of standby power.

2.2.3.2.6.3 Form 1158 Items Practical Training Complete for Following Items in Detail 6

- | | |
|--------|--|
| 3.4.1 | Pressurisation and air-conditioning. |
| 3.4.4 | Electrical system. |
| 3.4.11 | Radios, navigation equipment, instruments, FMS. |
| 3.4.14 | APU. |
| 3.6.6 | Simulated cabin pressure failure/emergency descent. |
| 5.1 | Normal landing after an ILS with transition to visual flight on reaching DH. |

Non-1158 items training complete:

- Engine start faults.

Items trained but not training complete:

2.3 Crosswind take-off (completed in detail 7).

5.3 Crosswind landing (completed in detail 7).

2.2.3.2.6.4 Standard Required on Completion of Detail 6

- Competent ability in navigating using standby navigation and understanding of management and implications of double FMC failure.
- Competency in dealing with engine start faults.
- Emergency descent training complete to a level 3 standard.
- Crosswind take-off to an adequate standard.
- Crosswind landing to an adequate standard.
- Competent ability in navigating using standby navigation and understanding of management and implications of a double FMC failure.
- Total electrical failure and standby power demonstrated and understood.
- Understanding of differences in RT and ops in USA; instructor to guide trainees to areas of preparation/reading prior to route training.
- Competent workload management during non-normals.
- Briefings relevant and concise to enhance SA.

2.2.3.2.6.5 Briefing and Discussion Items Detail 6

Start Faults

- Ensure the trainee understands that Autostart may undertake a number of start attempts before aborting the start sequence and that the Autostart QRH memory items are not actioned until the Autostart EICAS message appears.
- Highlight that Autostart protection for hung and hot starts is only available up until the point of starter cutout.
- Highlight the need to monitor oil pressure by idle N3 rise in all starts.

Cabin Altitude EICAS/Emergency Descent

- Emphasise that the priority is for the flight crew to don oxygen masks quickly and to be diligent in completing the subsequent memory actions before any decision is made on the need to descend. Do not assume descent is inevitable.
- Explain the importance of clearly establishing who is in control and therefore who does what tasks.
- Consider the difficulty of seeing and operating the pressurisation panel from the left seat. ECS synoptic can be useful.
- Once established in the descent use the terrain function to confirm any MSA considerations.
- Post descent management. Cabin needs/ATC/Planning.

Crosswind

- Take-off technique.
- How to keep wings level.
- No rush to uncross controls after lift -off.
- Pod scrape attitudes and roll angles.
- Landing technique.
- Secondary effect of large rudder and swept wing on the 747.
- Autopilot technique.

Standby Power System/Total Electrical Failure

- Indications.
- Use of T-DODAR and its applicability.
- Management of QRH checklist for electrical failures.
- Due to the nature of the EICAS display heirachy, and the number of systems linked to an AC Bus, the source Bus failure may not be presented on the first page of EICAS messages.

Briefings

- Relevant and concise to enhance SA.
- What is meant by relevant.
- Use of open and interactive questioning to share mental model.

Use of QRH and Task Allocation during Non-normals

- Use of QRH and understanding of Checklist Instructions section CI.

- Use of autopilot to reduce workload.
- Allocation of tasks; who does what during non-normals.
- Prioritisation.
- Assessing time available to make decisions and generate options.

Non-ILS (Non Database) Approach - NINDA

- How to construct a NINDA in the FMC.
- What modes can be used.

2.2.3.2.6.6 Notes for Instructor

This detail starts on stand 514 with an instructor assisted setup up until the ‘Before Start’ checks. Thereafter run the start in real time introducing start faults as necessary.

After a crosswind take-off various non-normals are explored. When conducting these failures remember that the emphasis is on understanding the systems, procedures and non-normal management structure. Hence, LOFT style scenarios are to be avoided. Instructors are encouraged to use simulator flight freeze as necessary.

Yet again, instructors will have to use their knowledge, skills and experience to construct a training order for the detail. Note that if you have a non-natural crew, there is no requirement to be in the correct seat for the emergency descent or any auto flown approach. The detail finishes with crosswind landings. Note that the simulator model is less realistic for landings when the crosswind exceeds 30kts.

Page 1 and 2 of Cirrus is provided for a LHR-JFK sector.

2.2.3.2.6.7 Detail 6

DETAIL 6				
Briefing	Instructor led setup until the Before Start Checklist. Engine start faults leading onto a crosswind take-off. Thereafter simple non-normals.		LHR RWY 27L	
Initial State	Ground power connected on gate 514, Heathrow.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
68° 149/153/161	25.8%	229.2/48.4	83.0	311.3
Route	EGLL to KJFK after departure local flying for a return to LHR.			
ATIS	RWY 27L 360(180)/15(+) 9999 15/10 Q1020 (daylight).			
Clearance	RWY 27L WOBUN 3G swk1444.			

Specific Lesson Plan Steps

1. Set LHR, RWY 27L, 360/15, 9999, 15/10, FEW010, SCT050, Q1020.
2. APU fire on start.
3. Engine start fault: hung start No 4 (should lead to an Autostart message). Reinforce use of MEL after QRH.

4. Engine start fault: hot start on No 4.
5. Tail pipe fire No 2.
6. Reposition to “AGORI” FL360, FMC routing: AGORI 5820N 6030N 6040N.
7. ELEC AC BUS 3 FAIL.
8. ELEC AC BUS 1 FAIL.
9. Total electrical failure.
10. Slow loss of cabin pressurisation.
11. Rapid loss of cabin pressurisation.
12. Left FMC fail.
13. Right FMC fail.
14. For NINDA training. Set KEF RWY 11, ILS failed, 200/15, OVC009, -3/-5, Q1012.
15. Reduce aircraft fuel to 53T (GW 282.2T). Reposition aircraft 20 nm East of KEF.

2.2.3.2.7 B747 – Full Flight Simulator – Detail 7

2.2.3.2.7.1 Summary

Detail 7 is based at CPT with an instructor-led quick setup holding short of RWY 01. It looks at more complex system failures and at GPWS. It consolidates non-normal management (NNM) and highlights that the NNM structure works even for complex failures. Take-offs and landings are in strong (but not limiting) crosswinds.

2.2.3.2.7.2 Objectives

- Crosswind take-off to a good standard.
- Crosswind landing to a good standard.
- Ensure competency of hydraulic QRH procedures.
- Jammed stab QRH procedures managed to successful outcome.
- GPWS training complete.
- A thorough understanding of the NNM structure.

2.2.3.2.7.3 Form 1158 Items Practical Training Complete for Following Items in Detail 7

- | | |
|--------|--|
| 2.3 | Crosswind take-off. |
| 3.4.2 | Pitot static system. |
| 3.4.5 | Hydraulic system. |
| 3.4.10 | Ground proximity warning system, weather radar, radio altimeter, transponder. |
| 3.4.13 | Slat and flap system |
| 3.4.12 | Landing gear and brake system. |
| 3.6.8 | Other emergency procedures. |
| 5.2 | Landing with simulated jammed horizontal stabiliser in any out-of-trim position. |
| 5.3 | Crosswind landing. |
| 5.4 | Traffic pattern and landing without extended or partly extended flaps and slats. |

Competencies:

- These should all be assessed as a level 3 standard at this stage.

2.2.3.2.7.4 Standard Required on Completion of Detail 7

- Crosswind take-off to a good standard.
- Crosswind landing to a good standard.
- Hydraulic faults managed and resolved to achieve a successful outcome.
- Jammed stab managed and resolved to achieve a successful outcome.
- Effective use of the NNM structure.
- Correct handling of GPWS manoeuvre as PF and PM.

2.2.3.2.7.5 Briefing and Discussion Items Detail 7

GPWS

- Use of Terrain to avoid.
- Corrections to MSA to calculate MOA.
- Our operation aims to avoid and trap. GPWS is the lowest level of mitigation but relies on an immediate, consistent and unquestioning response.
- Reason for MSA call during climb and descent and implications for GPWS.
- Simulator exercise is a requirement for 1158 and therefore needs to be forced against all the natural pilot instinct and warnings that should have helped avoid and trap a controlled flight into terrain event.

Flap Problems

- Overview of flap system faults and impact on operation.
- Prioritisation of selecting a safe speed if fault occurs on take-off.
- Impact of increased approach speed on landing distance, brakes (what about high altitude airport).
- Use of T-DODAR in decision making. What time may be available if fault happens on final approach with only reserve + alternate fuel in tanks.

Hydraulic Failures

- No memory items.
- Any system failure means aircraft CAT 1.
- Any single system failure means you can continue.

-
- More than 1 hydraulic system failure plan to land at nearest suitable.
 - System 2 and 3 no autopilot and no stab trim (jammed stab QRH).
 - System 1 and 4 requires good time management and effective prioritising.
 - Cover implication of increased approach speed ref QRH PI Section.
 - Brake energy management considerations. Hot/High/Fast.
 - Emphasise that the QRH is complex and requires careful management which will take time. Effective use of non-technical skills including Workload Management/high level of SA/projecting ahead. Considerations of how the approach will be flown is usefully employed in this exercise.

Jammed Stab

- Discuss the symptoms of this condition as there is no Jammed Stab EICAS (unannunciated QRH check list). With autopilot engaged >autopilot EICAS message plus poor autopilot performance may occur.
- Diagnosis is important so take autopilot out and try to trim to confirm condition. Once confirmed go to QRH.
- Again stress the need to use any available time to manage the problem. Careful briefing with focus on how and when to configure, use of autopilot, problems caused by auto thrust, how to manage the cabin, how to manage ATC. If time permits this can be run as a mini loft exercise.

2.2.3.2.7.6 Notes for Instructor

After a quick setup take-off is in a strong (but not limiting) crosswind to allow 1158 sign off.

Once airborne various failures can be explored (instructor to choose order to maximise training value). Yet again, emphasis is on understanding the systems, procedures and non-normal management structure. The instructor is encouraged to use flight freeze as necessary to stress training and non-technical issues. As the trainees move towards the LOE and LST there may be some value in allowing some of the later scenarios to run to conclusion for management and SOP practice however careful briefing will be required to ensure that crew SA is not degraded.

GPWS training must be conducted from the correct seat. Recovery should be commenced only when the hard warning is triggered despite any trainee discomfort at ignoring a soft warning. Briefing should emphasise that a GPWS hard warning might not have any soft warning precursor however prompt recovery at the hard warning will result in safe mitigation.

There is no requirement for unreliable airspeed to be flown to a full conclusion. However, instructors must ensure that memory drills are followed and that the checklist structure is fully understood.

Page 1 and 2 of CIRRUS and CARD data are provided for a CPT-LHR sector.

Note: There is an emergency turn procedure.

2.2.3.2.7.7 Detail 7

DETAIL 7		
Briefing	Instructor led quick setup positioned holding short of RWY 01. Crosswind take-off leading into complex non-normals.	CPT RWY 01
Initial State	Ground power connected holding short RWY 01, Capetown.	

PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
29° 149/168/179	23.4%	244.0/63.2	135.4	379.4

Route	FACT to EGLL after departure local flying for a return to CPT.
ATIS	RWY 01 100(280)/15(+) CAVOK 25/18 Q1005 (night).
Clearance	RWY 01 KODES 1A swk2256.

Specific Lesson Plan Steps

1. Set CPT, RWY 01, 100/15, CAVOK, 25/18, Q1005, night.
2. MEL item 29-11-01, No 1 hydraulic pump U/S.
3. Fail No 1 Demand pump (should lead to total loss of system 1 pressure).
4. HYD PRESS SYSTEM 1.
5. HYD PRESS SYSTEM 2.
6. HYD PRESS SYSTEM 3.
7. HYD PRESS SYSTEM 4.
8. HYD OVHT SYSTEM 2.
9. HYD CONTROL SYSTEM 1.
10. FLAP DRIVE.
11. Reduce fuel to 20.4T.
12. Jammed stabiliser (suggest doing this at 300kt).
13. Captain's pitot tube blocked (for unreliable airspeed).

2.2.3.2.8 B747 – Full Flight Simulator – Detail 8

2.2.3.2.8.1 Summary

Detail 8 is the final detail prior to LOE and LST and therefore the crews should have all items complete in trancomm by the end of this detail. It is unlikely that there will be sufficient time to complete any previously uncovered items unless they are minor. Inform Training Admin/FTM if you identify a problem.

The detail is based at London Heathrow with a full setup, engine start and pushback. Thereafter this is a short taxi in LVPs and icing conditions prior to departure. The detail includes LVOPs, incapacitation and SFF.

2.2.3.2.8.2 Objectives

- All 1158 items and trancomm entries complete.
- Training in cold weather and operations in icing conditions.
- Confirm all aspects of pilot incapacitation understood.
- Use of oxygen masks and management of smoke checklist.
- Raw data ILS completed to a good standard of accuracy ensuring that the crew have a good understanding of power settings and attitude.
- LVOPs procedures and approaches flown to complete 1158 items.

2.2.3.2.8.3 Form 1158 Items Practical Training Complete for Following Items in Detail 8

- | | |
|---------|--|
| 1.3 | Cockpit inspection. |
| 1.4 | Use of checklist prior to starting engines. |
| 1.6 | Pre-flight checks. |
| 2.6 | Rejected take-off. |
| 3.4.7 | Anti and de-icing system, glare shield heating. |
| 3.4.8 | Autopilot/flight director. |
| 3.6.2 | Smoke control and removal. |
| 3.6.7 | Incapacitation. |
| 3.9.3.1 | Precision approach manually flown without flight director. |
| 6.1 | Rejected take-off at minimum authorised RVR. |
| 6.2 | ILS approaches in simulated IMC down to DH. |
| 6.3 | Go-around from DH. |

6.4 Landing with visual reference established at DH.

Other non-1158 items training complete in trancomm:

- Cold weather operations.

2.2.3.2.8.4 Standard Required on Completion of Detail 8

- LVOps procedures and approaches to a level 3 standard.
- Good knowledge of cold weather ops including use of TO 1/2 on contaminated runways.
- Raw data ILS to a level 3 standard.
- Competent at fitting and handling of oxygen masks and communications during smoke conditions.
- Incapacitation during cruise and approach understood.
- All conversion items completed and crew assessed as ready for LST in Pilot Competencies.

2.2.3.2.8.5 Briefing and Discussion Items Detail 8

Cold Weather Ops

- De-icing techniques with/out engines running.
- Engine run-ups.
- Taxi and take-off in contaminated conditions including discussion of TO 1/2 take-off. Prepare CARD for this departure using TO 1/2 flow diagram in performance manual.
- Use of nacelle and wing ant-ice.
- Management of checklist when flap extension delayed.

Smoke

- Oxygen mask fitting and use of purging and 100% lever.
- QRH Smoke drill.
- Managing workload and communications across flight deck and with Cabin.

Raw Data ILS

- Confirm the powers and attitudes required and emphasise the importance of power/attitude/trim for the exercise.
- Discuss pros and cons of use of auto thrust during manual flying.
- Discuss wind awareness and use of track line.
- Once go round complete reintroduce the F/D but continue to reinforce the importance of powers and attitudes for all manual flying.
- Ensure the concept of minimum power changes and the use of flap and gear at the correct time will reduce workload and enhance accuracy.

Incapacitation

- Refer to OMA, OMB and FCTM.
- For pilots new to LH cover use of relief crew and medlink considerations.
- Discuss the difference of incapacitation in cruise and on approach.
- Discuss management of incapacitation through to taxi to stand.

ADC Demo

- Ensure the pilots understand that in the worst case of no IAS information a “flight with unreliable airspeed” approach and landing is easily achieved.
- Ensure understanding that pitch attitude is a “fast/slow” indicator i.e. higher than expected pitch attitude means that the aircraft is slow (unsafe) whilst a lower than expected pitch attitude means that the aircraft is fast (safe).
- Ensure understanding about how to transition from each phase of flight using the checklist e.g. descent at .84/290/flaps up/idle thrust, transitioning to level flight at 5000, configuring whilst level, following the glide thereafter.

AWOPs

- Cover FCOM 1 limitation section for autoland limitations.
- Discuss USA and Canadian AWOP’s differences.
- Discuss aircraft downgrades and reversions.
- Discuss implications of ground equipment failures.
- RVR visual requirements fully understood.

- Confirm DH setting procedures.
- Emphasise that 747-400 is capable of Cat IIIB no DH autoland with one engine inoperative.

2.2.3.2.8.6 Notes for Instructor

It is crucially important that instructors ensure that the trainee's PF and PM roles from detail 3 are reversed. This ensures that the 1158 items 1.3, 1.4 and 1.6 can be signed off.

It may be necessary with non-natural crews to fly items from the incorrect seat (eg. take-off in 75 m RVR with 2 F/Os, a quick mini brief should suffice and obviously the crew member concerned must realise that his/her performance is not assessed).

The LVOps requires a minimum of 6 approaches but there should be plenty of time so the crews and instructor can debrief/brief to set the scene for the next approach.

Incapacitation is included in the LVOps exercise. If possible one should be allowed to run until its conclusion.

As ever, when flying multiple approaches in LVOps the detail could become repetitive. The instructor should intersperse the detail with raw data ILSs and SFF to break the monotony.

A landing is not required for the SFF drill but the trainees should understand the philosophy of the drill and be able to complete the initial elements with their masks fitted.

As this is the final sim detail before the LST all items of the 1158 and therefore trancomm must be completed. Each pilot must have reached a level 3 standard so that a pass of the LST is not in doubt. In general terms it is beneficial to have some extra practice rather than an LST fail and a confidence rebuild. If you have doubts discuss with the FTM.

Page 1 and 2 of a CIRRRUS, a LORETO brief, a load sheet and CARD data are provided.

2.2.3.2.8.7 Detail 8

DETAIL 8				
Briefing		Full start including safety checks. Push back, LVO taxi in icing conditions, departure from RWY 27L.		LHR RWY 27L
Initial State		Ground power connected on gate 514, Heathrow.		
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 131/131/140	24.7%	208.3/27.5	36.4	244.7
Route	EGLL to UDD after departure local flying for a return to LHR.			
ATIS	RWY 27L 260/4 400 m FG R75/75/75 VV001 2/2 Q1015 LVPs (daylight).			
Clearance	RWY 27L BPK 7G swk2256.			

Specific Lesson Plan Steps

1. On gate at LHR, RWY 27L, Day, 260/4, 400m, R75/75/75, FG, VV001, 2/2, Q1015, Icing conditions.
2. SMOKE DRS 5R.
3. SMOKE LAVATORY.
4. Set RWY 27R.
5. LOC deviation (activate below 500').
6. Single AP failure (to generate LAND 2).
7. Rad Alt failure (to generate LAND2).

2.2.3.2.9 B747 – Full Flight Simulator – Detail 9

2.2.3.2.9.1 Summary

This detail comprises of an Line Orientated Evaluation (to align mandatories) and the first part of the Licence Skill Test. It starts with a full setup prior to a MAN-LHR sector. The LOE is completed and, whilst airborne, the detail moves smoothly onto the LST. Sector 2 starts in LVPs and continues with various LST items.

2.2.3.2.9.2 Objectives

- To complete an LOE using LOE protocol.
- To complete LVO qualification.
- To complete the first part of the LST.

2.2.3.2.9.3 Standard Required on Completion of Detail 9

Pilot Competencies

- All to a level 3 standard.

2.2.3.2.9.4 Line Orientated Evaluation

The crew are operating a flight from Manchester to London Heathrow. The aircraft is on stand and requires a full start up.

LOE BRIEFING

- Purpose of the LOE is to evaluate your operational proficiency in a line orientated scenario.
- The flight will contain a sequence of events and is intended to be practical and realistic.
- Events are not technically difficult and will require effective use of non-technical skills to achieve a successful outcome.
- Flight will be run in real time with normal paperwork and aircraft library.
- Use BA SOPs and act as you would on the aircraft.
- This is a crew exercise and it does not matter who starts as P1 or P2.
- I will act as ATC, cabin crew, etc. in the normal way.
- Afterwards, we will have an open discussion to review how you managed events, to maximise learning.

2.2.3.2.9.5 Licence Skill Test

The LST is the opportunity for the trainees to demonstrate that they can complete the necessary elements of the skill test to the required standard for issue of their 747-400 type rating.

Training input during the briefing is NOT appropriate to an LST (Std doc 24A 20.3). Theoretical knowledge will have been checked by multi-choice test so a “continued level of knowledge” check is not required (Std doc 24A 14.4).

A licence check should be completed and if a trainee is only in possession of a CPL for upgrade the test must also include the ATPL skill test.

In accordance with EASA part FCL requirements the TRE conducting details 9 and 10 must not have given flight instruction to the trainees for more than 25% of previous training details. Refer to FTM if there is any doubt.

A PBN knowledge check is required as part of the PBN qualification.

2.2.3.2.9.6 Examiner Notes

The LOE requirement is for a minimum of 2 events to be assessed. The instructor can use the IOS failures page or select the event from the failures offered in the lesson plan.

Debrief of the LOE should focus on non-technical skills and use standard LOE debrief technique.

The LST is completed in accordance with Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) requirements. If two co-pilots, the detail may need to be briefed so as to explain that hand over of control may not occur in the normal manner. The briefing will include a full LPC/LST brief.

Page 1 and 2 of a CIRRRUS, a LORETO brief, a load sheet and CARD data are provided.

TRANCOMM COMPLETION

Trancomm for detail 9 contains three LOE events for grading. The instructor should state clearly what type of event was assessed in the comments box adjacent to the event and then grade accordingly. Normal LOE evaluation criteria should be applied with a pass in a minimum of 50% of the events required for successful completion of the LOE. Any event not passed must be trained to a level 3 standard. Trancomm also contains an LOE completed box which must be marked so as to update the trainees' mandatories.

This detail includes some of the 6 items from section 3 for LST assessment purposes of handling of normal and abnormal procedures.

2.2.3.2.9.7 Detail 9

DETAIL 9				
Briefing	On stand at Manchester. Ground power connected. Full engine start.			MAN RWY 23R
Initial State	Ground power connected, Manchester. Icing conditions.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 136/138/146	23%	233/52.2	30.0	263.0
Route	EGCC to EGLL.			
ATIS	RWY 23R 150/5 4000m BR OVC006 7/6 Q1018.			
Clearance	RWY 23R SANBA 1R swk2143.			

Specific Lesson Plan Steps

1. Manchester – gate 27 – RWY 23R – EXT POWER connected.
233/30/263/23%, FUEL FREEZE OFF.
Wx...150/6 4000 OVC006 7/6 Q1018.
CInce...SANBA 1R SID, HON, BNN 4A swk 2243.
THR REV 2 LOCKED OUT – LOE event 1.
2. REMOVE GROUND ELECTRICS.
3. PUSH BACK – to face south.
4. DOORS TO AUTO.
5. AUTOSTART DURING ENG 3 START LOE – LOE event 2.
6. CANCEL ENG 3 AUTOSTART FAULT.
7. FLAPS PRIMARY LOE – LOE event 3.
 - Step trips PRI TE FLAP CONT CB E1 on cb panel P6-1 generating FLAPS PRIMARY EICAS.
8. CANCEL FLAPS PRIMARY FAULT – LOE complete.
 - Action step THEN manually reset CB E1on cb panel P6-1 to remove fault.
9. Set Wx FOR MANUAL ILS LHR O9L LHR.
 - ATIS G RWY 09L 120/7 5000 OVC004 6/5 Q1016 TEMPO OVC001 BCMG 8000 BKN015.
 - Actual Wx set for G/A.

- Vector or repos for pilot B man ILS no F/D to G/A (3.9.3.1).
 - Pilot B man ILS no F/D (3.9.3.1).
10. ENG 2 FLAMEOUT (3.6.3).
11. Set Wx FOR 2 ENG INOP LANDING.
- ATIS H 100/6 8000 OVC015 Q1016.
 - Trainer input to shut down eng 1.
 - Pilot A 2EI approach for pilot B 2EI landing (5.6), seat swap for NNC.
12. REPOS 12NM FINAL RWY 09L 2500FT 230KTS.
- Optional step for repos.
- BREAK BREAK BREAK.
13. Manchester – hold short RW23R.
- 233/30/263/23%, FUEL FREEZE OFF.
- Wx...220/4 100 FG OVC001 VV/// 5/4 Q1018.
- CInce...SANBA 1R SID.
- Aircraft fully serviceable.
- Vectors for ILS 23R.
 - For NNC, RHS pilot is PF, manually amend RVR to 600 m.
14. ENG 1 FLAME OUT – ACTIVATE BELOW V1 RTO (2.6/6.1) – or –.
15. ENG 4 FLAME OUT – ACTIVATE BELOW V1 RTO (2.6/6.1).
16. REPOS TO 23R TAKEOFF, CANCEL FAULTS, RESET WEIGHTS.
- Restart engines.
 - Same pilot to take-off.
 - Downwind for TCAS RA.
17. RHS TCAS RA TCAS (3.6.9).
- From the QUICK TCAS PAGE events 4 Climb Climb and 3 Descend
- Descend work well

18. FAIL C AUTOPILOT (3.4.8)

- Check which is engaged first, if C A/P engaged , use next step instead.
- Action downwind RWY 23R.
- Generates NO LAND 3.

19. FAIL R AUTOPILOT (3.4.8).

- Do not action if C A/P already failed from prev step.

20. CAT 3A APPROACH SET UP.

- ATIS E ILS 23R 220/6 250m FG OVC001 VV/// R23R 250/250/250 5/4 Q1018 LVPs in force.
- Actual Wx set for G/A.
- Vectors for auto ILS (6.2) and G/A from D/H (6.3).
- Snapshot for NNC.

21. POST G/A LHS TCAS RA (3.6.9)

- LHS when level downwind from the QUICK TCAS PAGE events.
- 4 Climb Climb and 3 Descend Descend works well.
- Skip this step for a NNC.

22. SECOND LVP APPROACH.

- Hand-over control to RHS.
- Weather improvement, patch of heavy fog lifted.
- MAN ATIS F ILS 23R 220/6 250 m FG OVC001 VV/// R23R 250/125/75 5/4 Q1018 LVPs in force.
- Actual weather OVC001 RVR 200 for succesful LV landing (6.4).

23. AUTOBRAKES FAIL DURING ROLLOUT (3.4.12).

- Action after autoland. Landing gear and brake system or ->.

24. AUTO SPEEDBRAKE FAIL (3.4.6).

- Use this step for NNC after 2nd landing.

25. CABIN CREW REPORT FLAMES IN CABIN.

- For a NNC, use repos or snap recall to repeat LV approaches (and TCAS RA) before actioning this step.

- Leads to an evacuation (3.6.1).

26. CONNECT GROUND POWER.

27. END OF DETAIL.

2.2.3.2.10 B747 – Full Flight Simulator – Detail 10

2.2.3.2.10.1 Summary

This detail completes the Licence Skills Test, which began in Detail 9. It starts with a full start at London Gatwick routing to London Heathrow. The second part of the detail is a return sector back to London Gatwick

2.2.3.2.10.2 Objectives

- To complete the Licence Skills Test.
- On successful completion of this detail the TRE should complete forms SRG 1119A and SRG 2199 and give to the trainee to take to CAA L & TS for type rating issue. (ATPL skill test box ticked if unfreezing a frozen ATPL.).

2.2.3.2.10.3 Standard Required on Completion

Pilot Competencies

- All to a level 3 standard.

2.2.3.2.10.4 Briefing

BRIEFING TOPICS

This detail completes the licence skills test which commenced in the previous detail.

Instructors should ensure that all items required to be signed off at the end of the simulator course are completed.

LST BRIEF

If a different TRE conducts detail 10 a full LPC re-brief will be required and no repeats can be carried forward from detail 9.

2.2.3.2.10.5 Examiner Notes

This detail includes some of the 6 items from section 3 for LST assessment purposes of handling of normal and abnormal procedures.

The instructor must ensure that each candidate has attempted 3 items from 3.4 and 3 items from 3.6.

Page 1 and 2 of a CIRRUS for both sectors, a LORETO brief, a load sheet and CARD data are provided.

2.2.3.2.10.6 Detail 10

DETAIL 10				
Briefing	On stand at London Gatwick. Ground power connected. Full engine start.			LGW RWY 26L
Initial State	I Ground power connected, Gatwick. Icing conditions.			
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 134/134/142	22.7%	230/49.2	20.0	250.0
Route	EGKK to EGLL.			
ATIS	RWY 26L 240/6 1000 m BR OVC002 6/5 Q1008.			
Clearance	RWY 26L SAM 1X swk2256.			

Specific Lesson Plan Steps

- London Gatwick – on gate – RWY 26L – EXT POWER connected.
230/20/250/24%, FUEL FREEZE off.
Wx... 240/6 1000 OVC002 6/5 Q1008.
CInce... SAM 1X, swk 2243.
- REMOVE GROUND ELECTRICS.
- PUSH BACK.
- DOORS TO AUTO.
- ELEC AC BUS 3 CAUTION (3.4.4).
 - During engine 3 start.
- CANCEL ELEC AC BUS 3 FAULT.
 - Cancel fault when QRH reset actioned. Taxi to rwy 26L. After V₁ ->.
- ENG 1 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V₁ and V₂ or ->.
- ENG 4 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V₁ and V₂.
- CANCEL ENG 1 FIRE WARNING.
 - Action as appropriate during memory drill.

INSTRUCTOR ONLY

10. CANCEL ENG 4 FIRE WARNING.
 - Action as appropriate during memory drill.
11. SET LHR RWY 27R.
 - OEI ILS and G/A (3.9.3.4 and 4.3).
 - ATIS D ILS RWY 27R 220/8 800 OVC002 6/5 1007.
 - Actual wx set for G/A.
 - NNC: handover ctrl to brief then take ctrl to fly ILS and G/A from correct seat
12. RNAV 27R WX IMPROVEMENT WITH ILS FAILED.
 - ATIS E RNAV APP 27R (to LNAV minima to satisfy PBN 2D approach requirements for PBN qual) 250/6 5000 OVC009 6/5 1007 27L not available.
 - NPA (3.9.4) and OEI landing (5.5).
 - NNC: fly app from "wrong" seat and land from correct seat.

BREAK BREAK BREAK.
13. Set LHR HOLD SHORT 27R.

230/20/250/24%. FUEL FREEZE off.

Wx...220/6 600 FG OVC002 6/5 Q1007 FAIL STN CANCELLED.

Clnc – MID4F SID, expect FL110, TIMBA1C STAR, swk 4322.

NNC seat swap. Restart engines.
14. ENG 1 FLAME OUT – ACTIVATE BELOW V₁ RTO (2.6 / 6.1) or ->.
15. ENG 4 FLAME OUT – ACTIVATE BELOW V₁ RTO (2.6 / 6.1).
16. REPOS TO 27R TAKEOFF, CANCEL FAULTS, RESET WEIGHTS SAME WX WITH RVR 1000.
 - Restart engines, same pilot to take-off. After V₁ ->.
17. ENG 1 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V₁ and V₂ or ->.
18. ENG 4 FIRE AND FAILURE (3.6.1/2.5.2).
 - Action between V₁ and V₂.
19. CANCEL ENG 1 FIRE WARNING.
 - Action as appropriate during memory drill.

20. CANCEL ENG 4 FIRE WARNING.

- Action as appropriate during memory drill.

21. SET LGW RWY 26L.

- OEI ILS and G/A (3.9.3.4/4.3).
- ATIS N ILS RWY 26L 220/7 800 OVC002 6/5 1008.
- Actual wx set for G/A.
- NNC: handover ctrl to brief then take ctrl to fly ILS and G/A from correct seat.

22. RNAV APP 26L WX IMPROVEMENT (to LNAV minima to satisfy PBN 2D approach requirements for PBN qual).

- ATIS O RNAV APP 26L 250/6 5000 BKN008 6/5 1008 26L GLIDEPATH UNSERVICEABLE.
- NPA (3.9.4) and OEI landing (5.5).
- NNC: fly app from "wrong" seat and land from correct seat.

23. REPOS TO 26L TAKEOFF, CANCEL FAULTS, RESET WEIGHTS.

- NC: all items should be complete. For a NNC, a further 2 RTOs to be flown from "wrong" seat to check PM RTO actions. Use IOS as appropriate. Evac (3.6.1) for pilot not checked during detail 9.

24. CONNECT GROUND POWER.

25. END OF DETAIL.

2.2.3.2.11 B747 – Full Flight Simulator – Detail 10a**2.2.3.2.11.1 Summary**

This detail acts as the Command Assessment using the LOE format. This detail must be conducted by FTM, TSC or other FTM nominated TRE only.

2.2.3.2.11.2 Objectives

This detail must be assessed as a level 3 standard or better for trainee to progress to detail 11.

2.2.3.2.11.3 Standard Required on Completion of Detail 10a

- LOE completed to a level 3 standard as a minimum.
- Debrief items consistent with a level 3 standard.
- All Pilot Competencies consistent with a level 3 standard Captain.

2.2.3.2.11.4 Briefing

- LOE briefing.
- Any items which the trainees wish to discuss in preparation for the route training.

2.2.3.2.11.5 Notes for Instructor

This is a standard LOE detail which acts as a Command Assessment. The trainee cannot proceed to ZFT detail 11 unless the LOE is assessed as a level 3 standard or better as a Captain. If there is any doubt about the standard achieved then the trainer should discuss in person with FTM. It is unacceptable for a trainee to continue to detail 11 if any aspects including SOPs, handling or non-technical skills are assessed below a level 3 standard.

The instructor can select an LOE from the lesson plan of check B, D or F. Both trainees can complete the same or different scenarios. The stand-in will act as co-pilot for both LOEs. Some thought should also be given to timing as there will only be 1:55 (to allow a 10 minute break for stand-in and trainer) available for each trainee, and the LOE may need to be adapted to allow timely completion. The trainees should be given a push-back slot time if appropriate; adherence to it forms part of the overall Command Assessment. Debriefing will need to be completed after the second LOE. Paperwork will also be available by accessing the relevant check folder in the briefing room PCs.

Each Command trainee will act as Pilot-in-Command with the stand-in First Officer briefed to act as competent but without initiative. In extremis (e.g. last minute sickness) the other Command on type trainee can act as stand-in but this will not be planned.

Normal LOE briefing/debriefing and grading protocol should be applied, and a successful completion will update the trainees' mandatories. However, emphasis in this detail is to assess the trainee's skill as a Captain in the LHS prior to completing ZFT. This detail is the Command Assessment detail.

The need to re-train some events for successful completion of the LOE will not in itself mean failure of the Command Assessment, as the trainer will be evaluating the whole performance as a Captain. However, re-training in a significant number of events would be unusual. If skill re-training is required in the simulator, this may impact on time available for the detail.

Trancomm

The trancomm course footprint for a new Command ZFT course will be the existing ZFT conversion course. However, after detail 10, insert detail 4 from the Command on Type course to use for scoring detail 10a (Command assessment). This will usually be done by FTM when allocating this course but can also be initiated by the instructor grading this detail.

The trancomm record for detail 10a will include 6 generic event headings. Depending on the selected scenario there may be less than 6 events to grade. In this case mark any unused event as N/A (not applicable). The events should be assessed and graded using the normal LOE protocol. In the commentary box for each generic event include details of the event as well as any commentary and appraisal. The overall detail commentary should also state clearly which LOE scenario was used for the exercise. Finally, ensure that following successful completion of the LOE that the LOE completed box is marked so as to update the mandatory.

2.2.3.2.11.6 **Detail 10a Lesson Plan**

Detail 4				
Briefing				
Initial state				
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	CIRRUS	??
Initial position				
Route				
ATIS				
Clearance	BAW104 cleared to			

Instructor to select LOE scenario from database of previous LOEs.

2.2.3.2.12 B747 – Full Flight Simulator – Detail 11

2.2.3.2.12.1 Summary

This detail is a Zero Flight Time detail for those pilots meeting the qualification requirements in respect of flying hours and type experience. The frontispiece will state whether ZFT applies and this detail will take the place of Base Training on the aircraft. It will also prepare the trainee for their first line-training sector. Included within the detail is a JFK familiarisation section.

Progression to the ZFT detail will be subject to successful completion of the Licence Skills Test in details 9 and 10.

2.2.3.2.12.2 Conduct

This detail may only be conducted by an FTM nominated TRI.

The simulator motion, flight control, visual and sound systems must all be fully serviceable.

Each trainee must complete a minimum of 6 landings and take-offs of which 3 must be unassisted. The instructor must occupy the non-handling pilot's seat for this section of the detail. In practical terms this means that the instructor will occupy the non-handling pilot's seat on completion of pushback and prior to taxi until the required landing consistency and competency has been achieved.

The instructor should be prepared to re-emphasise basic, practical advice for achieving competent handling such as; correct seat position, visual reference points, correct use of pitch trim and use of arm rests. A reminder; the instructor may need to look at the trainee to establish the root cause of any handling difficulties.

It is a requirement for ZFT candidates to use full stop landings utilising the reposition function as required. Within the detail vary weight and wind for both take-offs and landings to match typical conditions that the candidate might encounter during line flying. This may require a change of weight in flight prior to re-positioning to finals.

2.2.3.2.12.3 Objectives

- At the end of this detail the trainee should be fully prepared for the line training section of the conversion course and have consistently demonstrated the correct technique in the handling of the take-off and landing manoeuvres.
- Both pilots fly and understand the modes to use when flying a Canarsie visual overlay database procedure.

- Both pilots consolidate non-ILS database approaches (specifically VOR RWY22L JFK).

2.2.3.2.12.4 Standard Required on Completion

- Handling consistently demonstrated to a level 3 standard.
- A minimum of 6 landings and take-offs, of which 3 must be unassisted.
- Exposure to and practice at rejected landings and go-arounds not at DA/DH.
- A CRI approach flown to a level 3 standard.

2.2.3.2.12.5 Briefing and Discussion Items Detail 11

Correct Take-off, Approach and Landing Technique

- OMA Visual Approaches.
- Take-off and landing technique facilitated from trainee.
- Rejected landing (Go-around after touchdown) including lack of FD until climbing away, leaving gear and flaps until airborne, initial pitch attitude and thrust setting (full), thrust set manually (no TOGA), rotation speed.
- Go-around from above Aa including autopilot use and modes.
- Effect of pushing TOGA twice during GA including pitch/power.

Canarsie Visual Overlay Database Procedure

- Discuss autopilot vertical modes to be used when flying a fair weather approach versus a poor weather approach.
- Briefings on this approach should focus on 'how to fly' and highlight the potential traps e.g. non-standard calls, avoiding overshooting the centreline in strong SW winds, use of VNAV deviation pointer to aid flying the glidepath etc.
- The relevance of DMHYL as a MAPt.

Preparation for First Sector

- Discuss first route sector, preparation, check-in and other relevant information for first longhaul sector. Visas/passports?
- Explain licence issue procedure (see below).

2.2.3.2.12.6 Notes for Instructor

A suggested structure for the detail is as follows:

- Quick engine start.
- Departure RWY 27R, full clean up.
- Full arrival ILS 27R to a full stop landing.
- Reposition to JFK.
- VOR RWY 22L and CRI RWY 13L familiarisation.
- Within the detail there will be:
 - Full stop landings/Snapshot re-position for both trainees.
 - Practice rejected landings (runway blocked after touchdown).
 - Go-around manually with TOGA button pressed twice (full power).
 - Go-around above DA including above Aa.

Instructor is expected to use his/her experience to best maximise training value for the candidates noting that there may be equal value for a G/A from a CRI approach as there is for a landing.

2.2.3.2.12.7 Administration

On successful completion of this detail the trainee will initially visit the Licensing and Training Standards (L & TS) department at Gatwick prior to proceeding with their line training sectors.

It is vital that they are aware of the procedures involved and are in possession of the appropriate paperwork. It is also essential that they have been fully briefed on what to expect and how to prepare for their first line-training sector.

The following is a brief guide:

- The candidate will need to take their LST/MPA Form (given to them after detail 10) and Licence to the CAA to arrive by 09:00 local for same day service. Applications received after 10:00 will be processed as postal applications.
- Tel. +441293 573700/www.caa.co.uk.
- Course Completion is produced automatically by TRANCOMM provided all details correctly completed.

- It is electronically signed and sent to the CAA (TRI must press 'SEND TO CAA' on TRANCOMM menu).
- It is recommended that the TRI prints off a copy for the trainee to present to CAA FCL as a backup should there be any technology issues.
- Preparation for first sector:
 1. Print Self Study Item sheet and explain rationale.
 2. Establish their first destination.
 3. Use of route briefing and Intranet.
 4. Use the ZFT detail to identify relevant issues.
 5. Dependant on experience, discuss the following:
 - What time to report – how much time to allow.
 - Where to park.
 - The T5 Process.
 - System of in-flight rest and use of the bunks.
 - Rest prior to operating.
 - Potential effects of long flight/time change.
 - Contacts/Health cover whilst away from base.

The amount of information required will depend on the trainee's background, experience and communication with contacts within the airline. Do not assume familiarity with the line operation.

2.2.3.2.12.8 Detail 11

Detail 11				
Briefing		Holding short RWY 27R. Ground power connected. Quick engine start.	LHR RWY 27R	
Initial State		Ground power connected, Heathrow.		
PERF DATA	MACTOW	ZFW/Payload	Fuel	Gross Wt
73° 133/133/142	23%	230/52.2	30.0	250
Route	EGLL for local area flying.			
ATIS	RWY 27R 280/5 CAVOK 7/6 Q1013.			
Clearance	RWY 27R BPK SID swk2143.			

Specific Lesson Plan Steps

1. London Heathrow – HOLD SHORT 27R – EXT POWER connected.
220/30/250/23%, FUEL FREEZE ON.
Wx...280/5 CAVOK 7/6 Q1013.
ZFT take-off and landing practice.
2. QUICK ENG START AND ALIGN IRS.
3. REMOVE GROUND ELECTRICS.
 - Takeoff and landing practice at LHR.
4. FAIL ILS 27R.
 - Also consider using PTP VISUAL page to fail PAPIs.
5. RESTORE ILS 27R.
6. REPOSITION JFK HOLD SHORT 22R.
220/30/250/23%, FUEL FREEZE ON.
Wx...210/5 CAVOK 7/6 A2992.
7. SET RWY 22L CAVOK 210/6 A2992.
 - VOR/DME approach practice.
 - Use vectors or repos as appropriate.
 - ILS left serviceable for realism.

8. SET RWY 13L CAVOK 120/6 A2992 DUSK.
 - CRI approach practice at dusk. Use vectors or repos as appropriate.
9. CONNECT GROUND POWER.
10. END OF DETAIL.

2.2.4 Operator Line Training (Including LIFUS)

Line training provides the opportunity for a flight crew member to put into practice the procedures and techniques that he/she has been made familiar with during the ground and simulator course. This is accomplished under the supervision of a Training Captain occupying the other seat. Line training is concluded once the trainee is able to perform a safe and efficient flight conducted within the tasks of their role and status. Thereafter the candidate will be assessed over a 2-sector line check.

The aim of line training for this course is to familiarise the trainee with a practical application of BA SOPs and the BA line environment and network.

2.2.4.1 Line Flying Under Supervision

2.2.4.1.1 Introduction

This is the element of the Line Training referred to in EASA part FCL and EASA Regulation Air Operations part ORO for completion of the Type Rating when conducting a ZFT Type Rating Conversion course.

- The Trainee is required to complete 4 Take-offs and Landings at the controls under the supervision of a TRI suitably qualified for the purpose [ORO.FC.220 (e) (3) and FCL 910.TRI].
- The Trainee must commence Line Flying Under Supervision (LIFUS) not later than 21 days after the completion of the Licence Skill Test (LST) or after appropriate refresher training provided by the operator. The content of such training shall be described in the Training manual (see below). The ZFT detail must also have been completed within 21 days of the LST [Refer to ORO.FC.220 (e) (1 &2)].
- Refresher training, in the event of not commencing LIFUS within 21 days of the LST; will consist of the Trainee undertaking as a minimum 6 Take-offs and 6 Full Stop Landings in the FFS with an Instructor qualified to deliver such training. The manoeuvres must be performed to a level 3 standard. If the delay is significantly more than 21 days the FTM will decide on any additional training as required.

2.2.4.1.2 Content of LIFUS

- Instructors conducting the first 4 sectors must ensure that the Trainee operates as P1 for all of these sectors so that they conduct all Take-offs and Landings during this phase. The Instructor must not use these sectors for their own recency requirements.

- If the requirement is not satisfied due to weather conditions or other technical reasons prohibiting the trainee from conducting the take-off or landing; the Instructor must ensure that this is highlighted in Trancomm and that both Training Admin and the next Instructor are informed. It is possible that the next Instructor may not be qualified for the purposes of this regulation.
- During these sectors the Instructor is primarily assessing the Trainee's handling of the Take-off and Landing. However, the B747-400 is a Longhaul aircraft and additional training of discussion items and other technical and non-technical skills should be possible throughout the flight.
- Trancomm should clearly indicate when the Trainee has demonstrated consistently that the Take-off and Landing have been performed to the required standard.
- If there is any doubt about the Trainee's ability to complete the Take-off and Landing to the required standard the Instructor should discuss with FTM B747 whether the trainee should proceed to the next phase without some additional training.

2.2.4.2 Safety

Training should be suspended if safety is likely to be compromised. SOPs with control handover during the approach should normally be employed. This helps to reduce fatigue and allows the trainee to observe and the trainer to demonstrate. However, SOPs may be varied at the discretion of the trainer if useful training value will be gained. Both crew members must be clear as to how and why this variance will take place.

Trainers must not interfere with the normal operation of the aircraft systems.

The passengers should not be informed that training is in progress.

Do not make deliberate errors to "test" the trainee. However minor omissions (e.g. during flight deck preparation) are permitted in order to assess a trainee's monitoring.

Whenever possible allow trainees time to correct minor errors, valuable learning can occur from this process. However, significant errors should be corrected immediately.

Do not allow a situation to occur where either crew member becomes overloaded. For example, trainers should not permit a scenario to develop where a go-around is required because trainer intervention was delayed.

Remain aware of commercial considerations and the importance of maintaining schedule.

2.2.4.3 AWOPS/LVO

Any DEP who has not previously flown Cat II/III operations with an EU operator will be required to fly 1 practice auto-land on the aircraft during Line Training to complete their LVO qualification. FTM will provide further details for any DEP affected by this requirement.

2.2.4.4 Weather Limitations

Trainees will operate to the appropriate limits for their status (Captain or First Officer) as per [OM A](#).

2.2.4.5 Line Training Discussion Items

- Your aim is simply to assess whether the trainee has achieved a 'Good' level of knowledge – *commensurate with role and experience*.
- Please do not feel obliged to conduct long sessions of ground training; use facilitation rather than instruction and indicate to the trainee where further private study is required.
- Refer to [OM Part D Appendix T 12.1](#) for line training discussion items matrix and expanded list.

2.2.4.6 Ready for Line Check

Tick the appropriate Trancomm box when:

- The trainee has completed at least the minimum number of sectors (5.1.0c).
- The trainer is confident that the trainee will achieve a level 3 standard or better grade in the final Line Check.

The trainee should be reassured that there is no such thing as a perfect sector. A good sound performance is all that is required.

2.2.4.7 Command Training – Guidance for Training Captains

Over the course of the line training phase the trainer's role changes significantly. Initially the trainer will be driving the operation as necessary to ensure the commercial success of the service. At the same time he will be helping the trainee ease into his/her new surroundings. The handling characteristics of the aircraft should be familiar, the difference will be with their new responsibilities. The trainee should be encouraged to embrace their new position from the outset. Training intervention should reduce as the line training phase progresses.

To assist this transition the trainer should:

- Act, when “in role”, as a competent, friendly co-pilot lacking in initiative.
- Try to stay in role but be willing to train if necessary.
- Try to “sit on your hands” to stop yourself from “re-taking” command.
- Be supportive since this will help build confidence.
- Remember that it is essential for the trainee to feel confident that you are on their side.
- Clearly brief the trainee as to the co-pilot role played by the Training Captain in the RHS. The objectives of this are twofold, firstly to give practice in the non-technical skills required to lead the operation effectively and secondly to give the trainee a feeling that the buck stops with them.
- Try to go along with all the trainee's decisions and leadership. This allows the trainee to decide the outcome of every situation. Feedback and debriefing will be mostly facilitated however it may still be appropriate to demonstrate and instruct on occasion. The caveats for the Training Captain are that safety must never be compromised and the commercial operation should be minimally compromised (e.g. carrying extra fuel is acceptable but departing late due to slow and ineffective briefing is unacceptable).
- Encourage the trainee to give feedback to the trainer on his performance as a co-pilot.
- Give the trainee full responsibility for handling the AMLs, loadsheet and NOTOC. The trainee should check/prepare the documents and indicate their acceptance by writing the date and Training Captains name in the appropriate boxes before handing them over for signature. When satisfied that all the documents are correct the Training Captain should sign and then pass them back to the trainee

without any further action. It is the trainee's responsibility to ensure that the correct pages are extracted and given to the dispatcher/engineer.

- Allow the trainee to command the whole operation, using all the resources available to him/her, and allow them to deal with any difficulties which may arise. This will include the trainee briefing all resources (cabin crew, TRM, etc.) as to the nature of the training being conducted.

The trainer should avoid:

- Making deliberate errors to test the trainee although minor errors on setup are acceptable.
- Role playing or changing your personality – there are plenty of problems that naturally occur on a sector that will challenge most trainees.

Progress

The sectors move quickly from handling in the LHS to command training and then finally to assessment (the FCC).

Sector allocation – traditionally the trainee has completed a much higher proportion of P1 sectors than PM. Yet all trainees and trainers believe that it is much harder to command when fulfilling the PM role. Feedback suggests that trainees would like more practice in this difficult role. Hence, **once LIFUS training has been concluded**, Fleet would advocate as close as possible to a 50:50 split of sectors.

Sectors 1-4

Full active training support. Allowing trainee to consolidate handling elements from the simulator phase and allow to get comfortable in the seat before introducing co-pilot "role" play. TC operating at TA level – however allowing time for the trainee to demonstrate that he too is projecting ahead. **Trainee to operate as P1 for the first 4 T/Os and Landings – Training Admin to be informed if this is not possible.**

Sectors 5-8

Starting to introduce co-pilot "role" play – that is to say a gradual withdrawal of SA and leaving the management of the operation to the trainee. It is VITAL that the trainee knows that he **MUST** treat you as a **co-pilot**. Whilst in co-pilot role, the instructor must never change their personality and the role playing should be limited to withdrawing support i.e. operating towards the 'notice' level.

Sectors 9-10

TC is now operating at NOTICE level only. This penultimate trip prior to final check should have the trainer offering very little support to the trainee. This is NOT a dummy line check per se but at the end of the trip the trainer should be confident that the trainee has dealt with any command situation with minimal trainer input. A suggested running format is to split the flight into phases and then mini-debrief after each phase, e.g. the first phase might be from check-in, aircraft preparation, departure and initial cruise duties. Thereafter debrief that phase with any development points as necessary. To emphasise this is still training and is NOT a check hence training input, if required, may be appropriate.

2.2.4.8 Command Line Check – Guidance for Training Standards Captains

This check is conducted by one of the following: a Flight Manager, a Training Standards Captain (TSC) or a nominated Training Captain. To achieve promotion the candidate must achieve a pass at grade 3 or better.

2.2.4.8.1 Briefing

Arrange to meet the candidate and trainer about 10 or 15 minutes before the normal briefing time. Candidates are usually nervous and so try to help them to relax. Explain the following points:

- That the emphasis is on the “big picture” – whilst you expect to see a “level 3 standard” knowledge of the aircraft operation and obvious competence in SOPs – you are not going to be picky or pedantic about trivial points.
- The candidate should be briefed that usually the final result of the check will not be made known until the trip is complete, this may be back at the Crew Reporting Centre.
- The Command Check will normally be rostered as a 2-sector trip, ideally one each as HP and NHP. The allocation of duties is up to the candidate as a normal operational decision and if circumstances prevent the RHS Training Captain from handling “his/her” sector it will not compromise the check.
- If a sector is “given away” then it should be regarded as a co-pilot handling sector but not full PIUS as the candidate should still be able to demonstrate his command abilities in dealing with situations and not delegating them to someone who is really a very competent Captain.
- The trainer in the right seat is the legal commander but will only operate to First Officers limits.

- The trainer should be competent and friendly but lacking in initiative. He will operate at the “Notice” level of Situational Awareness.
- The trainer will not make any deliberate mistakes.
- The trainer is a useful source of information and if asked a direct question will answer it with the level of knowledge appropriate to that of a competent co-pilot.
- During the check the TSC may give appropriate feedback to the trainer, or intervene, in order to ensure consistency and standardisation. This will have no effect on the outcome.
- That the TSC is there to observe and not to take part as an additional crew member – do not be put off by note taking, it may not be related to the operation.
- That the candidate is the acting Captain and should manage the operation accordingly.
- Remind the candidate to brief the Cabin Crew about the check.

2.2.4.8.2 Onboard the Aircraft

Upon entering the aircraft:

- Give the crew some "space" to settle in. Try to stand back and yet observe any interaction with staff, cabin crew, etc.
- Take your place on the flight deck in time to hear the PreFlight Checklist, critical data entry and briefing. Pay particular attention to non-technical skills employed.
- Listen to the Passenger Addresses.
- Monitor the progress of the flight.
- If the candidate fails – give support. He/she will feel very deflated and will need very careful handling. Discreetly, you may decide to tell the Cabin Crew the bad news.
- The candidate will have to be interviewed by the FTM B747 before any further training and assessment is organized. It is a management decision as to what any subsequent action will be.

2.2.4.8.3 Debriefing

- Identify the “key” good and not so good significant points.
- Avoid a length debrief of minor points.

-
- The trainee is promoted to Captain with immediate effect. The TSC should inform Current Operations, Training Administration and FTM B747.
 - Remind the new Captain of his extensive responsibilities as detailed in [OM A](#).
 - BA Captains are expected to maintain the highest personal and operational standards.
 - If a Captain's standards slip the First Officer will think it is acceptable to operate in a substandard way. Be aware of the "Loneliness of Command". Sometimes it is necessary to distance yourself from the rest of the crew to make a sound, objective judgement. Be prepared for this and the potential unreasonable response from your crew members.
 - Should a significant incident occur please discuss it with fleet management without delay.
 - TSCs should remind the new Captain to arrange an interview with the FTM B747.
 - He should complete 2 sectors within the next 7 days and will be "brown-lined" for 8 sectors in longhaul. Confirm that the successful new commander understands "brown-line" as it applies to first officers that he might fly with.
 - A Captain may permit route take-offs and landings to be carried out by co-pilots from the right seat provided that the Captain has completed 10 sectors following the final line check.
 - Consolidation Period: 2 months. Ascertain if any reserve, leave or standby has been rostered.
 - He/she must not operate below Cat 1 minima until 50 hours or 20 sectors have been completed – these figures include training.
 - A re-braided uniform should have been arranged prior to the course but it is acceptable to operate in SFO uniform. A re-braiding authority can be obtained from a Duty Flight Crew Executive.
 - Complete the Trancomm Line Check form as usual.
 - Advise the candidate of the way in which he/she can provide course feedback and emphasise the importance of feedback.
 - Ask for feedback on your own performance.
 - Debrief the Training Captain in the RHS on their performance.

2.3 B747-400 Type Rating Course (Single Trainee)

Not applicable to the 747-400

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3 B747-400 TYPE RATING COURSE (SHORT)

Not applicable to 747-400.

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4 B747-400 DIFFERENCES COURSE

Not applicable to 747-400.

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5 **B747-400 COMMAND ON TYPE/TYPE RATED OPERATOR CONVERSION COURSE**

5.1 **B747-400 Command on Type (COT) Course**

5.1.0 **Introduction**

- a. The B747-400 COT course is designed to train and assess the trainee in the skills required to progress to a Command role on the aircraft.
- b. To be accepted for the B747-400 COT the trainee must:
 - Hold an unfrozen ATPL.
 - Have completed at least 500 hours or 100 route sectors on a multi-pilot turbo-jet aeroplane certified to the standards of CS-25 or equivalent airworthiness code or on a multi-pilot aeroplane having a maximum certified take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers.

(See FCL 730A.)

- Any other condition as required by FTM B747.

- c. Course overview:

Ground Phase Course Footprint 9 Working Days (Incl 4 Days EFC)

Ground Phase	Working Days	
Essentials For Command	4	
Full Flight Simulator	4	
LPC	1	
LOE/Command Assessment	1	
	Total	10

Line Training (Aircraft Phase)

Line Training	Sectors	
Line Training	10	
Final Command Check	2	
	Total	12

- d. Assessment is continuous throughout the course. Each FFS session sets out the objectives and standard of knowledge and skill required to be demonstrated during the training event. The regulator also requires specific assessment of competencies for the issue of the rating under EASA part-FCL and to comply with EASA Regulation Air Operation. These events are set out thus:

Phase	Event	Day	Instructor
FFS Phase	LPC	6	TC
FFS Phase	LOE, LV, Command Assessment	10	TC
Aircraft Phase	Final Command Check	End	TSC#

TSC or other specifically nominated TC briefed by FTM B747.

- e. The trainee is responsible for his/her own learning. The continuous assessment process will identify training effectiveness and highlight areas for trainee development and these will be noted by the Instructors as the course progresses. Trainees will be made aware of these development areas during the de-briefing sessions and they will be recorded in the trainee's Trancomm file. This will assist the trainee in targeting specific areas of self-study and preparation.

If a lack of progression in key areas of knowledge, skill or handling is identified the Instructor will make the trainee aware of this informally during the de-brief. If the failure to progress is persistent the FTM will be informed and he/she will decide what steps to take to correct the lack of progression.

It is imperative that progression to sector 1 and to sector 11 is undertaken with confidence that whilst there may still be training – it is of a minor nature only. (Akin to the debrief points one might bring up in an LOE or Line check).

- f. All command trainees need to achieve, in both handling and CRM, the standard defined in EASA part FCL appendix 9 (SRG1158) and Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) for the successful completion of the LPC. In addition, the command trainee must achieve an overall score of 3 or better to successfully complete the British Airways Command on Type Course.

5.1.0.1 Additional Notes Specific to the British Airways B747-400 Command on Type (COT) Course

5.1.0.1.1 Aims

1. To create a course of 6 full flight simulator details, which is fully compliant with EASA, CAA and BA policies.
2. To use interactive training aids and video presentations in the briefing to improve the trainees' learning.
3. To create skill checks at regular points in the course in order to ensure that trainees have attained the skills required to move on to the next stage of the conversion course. These are listed under **Objectives** for each detail.
4. To create command training and LOFT scenarios so as to develop crews' Competencies.
5. To make the course a practical preparation for line training.

5.1.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified B747-400 pilots. It is designed to apply this proficiency to LHS handling, as well as training non-technical command skills for normal and abnormal situations.
- The trainee has already developed some handling skill in the LHS from exposure during time on the fleet and completing some checks in the LHS. Familiarity with the seat and switch position should have been gained from cruise relief pilot duties.

5.1.0.1.3 Course Structure

- The course consists of 6 four hour simulator details:
 - Detail 1 General Handling.
 - Detail 2 LPC.
 - Detail 3 General Handling and Non-Normal management.
 - Detail 4 LVOps and Non-Normal management.
 - Detail 5 Scenario-based Non-Normal management.
 - Detail 6 LV, LOE and Command Assessment.

- Command Assessment is continuous throughout details. Should a serious issue arise then this should be addressed before continuing with the course.
- Briefings for details 1 to 5 are of 1½ hours duration, detail 6 is 1 hour.

Trainees are expected to prepare the items to be covered before each detail. Briefings will therefore take the form of confirmation and clarification of technical knowledge, and discussion of effective non-technical skills. Whiteboard, keynote and video will be used to study the various items in the details.

5.1.0.1.4 Detail Format

- The course is written to be conducted with 2 COT trainees.
- A degree of flexibility is required for the crew to achieve the most out of the detail. To achieve this the instructor may vary the running order as required.
- The course is designed for 2 Command trainees on type paired together. This will mean some flying from the RHS during the simulator detail but this will always be done with the auto-pilot engaged. Establish Pilot A and B at start of course and retain these positions throughout the course.
- Following successful completion of the simulator phase the trainees will normally complete 10 sectors ICUS in the left seat (without a safety pilot) and a 2 sector final line check. Route training will be completed by a TC and the final line check by FTM, TSC or other TC nominated by FTM.

5.1.0.1.5 Format of the Instructor Session Notes

- For each detail there is an overview of the contents for the detail and briefing material available. Some Instructor notes are included in the Session Guide and more in-depth guidance on the “how to” is to be found in the FCTM. The lesson plans in the simulator are only a skeleton outline so as to allow the Instructor more freedom to adjust as necessary to the trainee needs.
- You will find for each of the details:
 - Suggested detail running order.
 - Paperwork required.
 - Session Objective.
 - Training topics.
 - Briefing material available.

-
- Proficiency Criteria.
 - Initial Set up Data (included in the running order).
 - Trainees on this course will be type rated on the 744 and should have very good technical knowledge. Detail 1 should be used to ensure that they are comfortable with the seat change and handling the aircraft and systems from the new position. Detail 1 is also an opportunity to assess that the trainees' SOPs and general operation is to a level 3 standard. Do not allow progression to detail 2 if there is any doubt.
 - The subsequent details focus almost exclusively on the Command role. There is minimal handling although they will still be doing take-offs and landings from the LHS. The trainee Captain will be expected to hand over to the trainee in the RHS who will fly the aircraft making maximum use of the auto-pilot when in the RHS. The instructors should be focussing on assessing the trainees' ability to manage the flight and cope with prioritisation; time and workload management; diagnosis and review; ability to risk assess options generated and overall competency as a Captain. Debrief should focus mainly on non-technical competencies. If SOPs or handling ability is not to a level 3 standard the trainee should not be allowed to progress to the next detail without discussion with the FTM.
 - During the details the instructor is expected to add non-normals and vary weather as he/she sees fit. The lesson plans only give an outline of the initial conditions and items to be covered during the detail.
 - Detail 6 is the Command Assessment. The instructor conducting detail 5 must be satisfied that the trainee has consistently demonstrated level 3 standard in the previous 5 details before allowing the trainee to proceed to detail 6. If there is any doubt then the trainer must make immediate contact with the FTM to discuss progress.
 - A stand-in co-pilot will normally be rostered for detail 6 except in exceptional circumstances. It will normally be a training co-pilot on a training block but could be a line co-pilot. The co-pilot should be briefed to operate according to SOPs as a competent co-pilot lacking initiative. If under exceptional circumstances a co-pilot is not available then the other trainee can act as co-pilot in the RHS but to allow a fair assessment of each trainee's individual ability it is vital that the instructor carefully briefs both trainees as follows; when they operate in the RHS they are not being assessed as a Command trainee and they are expected and required to act as a competent

co-pilot who shows no initiative. In either case the instructor should be aware of any excessive support from the RHS and take steps to correct it should this occur during the exercises.

5.1.0.1.6 TRANCOMM

- **All reports are to be entered into Trancomm. For details 1 to 5 the Obj Met score is to be used when the Performance Criteria for that detail have been satisfied and all of the Detail is completed. It is always assumed that the technical knowledge is up to standard, if not then grade Obj Not Met.**
- At the end of each detail session is a table which clearly shows which items are being trained in the detail.
- Where an item is to be signed off as training complete the table indicates this with the letters TC in the final column. Instructors should familiarise themselves with the applicable item before running the detail to ensure that the item has been demonstrated as training complete before completing trancomm.
- Trancomm Item scoring is designed such that a score of “Training Input” or “More Practice” will trigger a pop-up box. This pop-up will ask if the item should become a Floating Item. Always select yes, so that the item is carried forward to the next detail. Floating items should then be completed, if possible before commencing the next detail’s content and must be completed by the end of Detail 5 in order to proceed to the Command Assessment.
- If a significant number of items are being carried forward the instructor should also alert Training admin and FTM B747 as additional details may be required.

5.1.1 Essentials for Command Course

5.1.1.0 Introduction

This course should be completed prior to an individual undertaking Command training.

It is a 4 day non-residential course held at Waterside.

The course aim is:

“To enable new Captains to explore the elements of Command and feel equipped with the appropriate knowledge, skills and understanding to undertake this role to maximum effect.”

The course objectives are to:

- Understand the role and responsibilities of a Captain.

- Recognise the need to prioritise and balance a Captain's responsibilities.
- Understand how personal style can influence the success or failure of the operation.
- Review a framework for problem-solving, decision-making and managing ambiguity.
- Identify what works well and why, in managing different situations, and review a range of useful tools and techniques.
- Understand the importance of continual learning and reflection.

The course satisfies the EASA Regulation Air Operations requirement for Command Human Factors training as set out in ORO.FC 115 and its AMC.

An outline of the course content is as follows:

5.1.1.1 Day 1

Course Introduction

Outlines the course aim and sets out what will be covered over next 4 days.

Themes that are repeatedly emphasised are the Captain's Score-card – a set of balanced priorities which encapsulate the Role of the Captain, Competencies and risk management.

Leadership and Management

Looks at key aspects of leadership. Examines the personal attributes we have which effect how we manage and lead a team. Introduces the concept of "Emotional Intelligence" which is another key theme throughout the course.

Introduction to Case Studies

One of the more practical parts of the course are the Case Studies. These are scenarios which are based on real events. They are introduced by a video clip or a short script. The idea is to analyse each case study in a structured way which will hopefully become useful in line-flying.

These case studies are spread throughout the 4 days.

Teamwork

Key to the success of a team is how it is managed. This is explored in some detail and concentrates on such things as personality, behaviour and effective communication skills.

Setting the Tone

An oft-used phrase but what does it actually mean? The importance of this topic is emphasised and discussion follows as to how set an open, professional atmosphere with our work colleagues.

Cabin Crew

A look at cabin crew's perceptions of pilots and vice versa. We look at why these differences exist and what we can do about them. A little more detail of their role and discussion of how we can work more effectively together.

5.1.1.2 Day 2**Cost Module**

A look at some important cost areas in our business and how we can make a positive impact on the bottom line.

Guest Speaker: Investor Relations

An update on the state of the business and the issues facing the industry from BAs Head of Investor Relations.

Business and Brand

Discussion about what a brand is and what specifically is represented by the BA Brand. Where Captains fit into this Brand and how they can influence it in a positive way.

A presentation on the Exec Club and Corporate Sales – what they are worth and what we can do for them.

Duty Hours and Limitations

A quick look at this complex subject and how to get the most out of your crew.

Legal

A look at how the Captain's Role fits with the background of national and international legislation.

Guidance on how to manage dilemmas.

5.1.1.3 Day 3**Situational Awareness and Decision Making**

Including discussion of the elements and level's of SA, workload management including 'situational control', the error management model and Decision Making skills.

Flight Ops Safety

A quick look at the historical development of flight safety within flight operations. Discussion of SESMA, BASI 4 and the safety culture of the department.

Guest Speaker: Head of Security

A presentation on how security plays an important part in the role of the captain. Examination of some real BA events and discussion of the learning points.

Managing a Complex Scenario

How to manage difficult operational situations on line. This is based around a diversion scenario and brings out many learning points which will help the effective management of any such situation.

Open Floor Discussion

Opportunity for delegates to raise any issues or concerns they have as they approach their command courses. Also discussion of other topics such as a model for analysing problems using weighting and probability.

5.1.1.4**Day 4****Dealing with Passengers Including PAs**

A quick look at how we can make a positive impact on our passengers. An exercise on making effective PAs.

Customer Service Recovery

How to intervene with a disgruntled passenger – how to listen and how to act to try to recover the situation.

Counselling and Where to get Help

There is a pastoral role involved in Command. The Captain is often called upon to break bad news, this can be a daunting task – we cover how to do this effectively.

Where to get help for your crew and yourself when faced with difficult personal circumstances.

Guest Speaker: A BA Director

An opportunity to listen to and question a member of the Leadership Team on any burning issues.

Final In-depth Case Studies

An in-depth examination of 2 separate events. The aim is to summarise the Course and thus the role of the Captain in a practical way.

5.1.2 Full Flight Simulator Details**5.1.2.1 Detail 1****5.1.2.1.1 Summary**

Provide trainees with handling practice in the LHS in all the skill based elements of the LPC. Introduce Command non-technical skills during RTO. There is no paperwork provided for this detail.

5.1.2.1.2 Objectives

By the end of this detail the trainees should be comfortable and confident in their ability to handle the aircraft in the LHS including one engine inoperative flying. There is no further opportunity in the course to practice these skills and a level 3 standard should be demonstrated by the end of the detail.

5.1.2.1.3 Standard Required on Completion of Detail 1

- Aircraft handling (including OEI and taxiing) all to level 3 standard.
- SOPs to level 3 standard.
- RTO handling from LHS to level 3 standard.
- Good understanding of Leadership and Teamwork Competency during RTO.

5.1.2.1.4 Briefing

- Professional standards and Captains as role models.
- Intervention.
- Authority Gradient.
- Leadership.
- RTOs.

5.1.2.1.5 Notes for Instructor

The first half of this detail is aimed at getting the trainees comfortable with handling in the LHS. The RTO exercises allow some training input but also a chance to assess how well the trainees have prepared for their promotion. Have they thought about how they are going to communicate with passengers and crew? What about prioritising their actions after stopping? Do they know the Captain's actions, or is a lot of training input required? RTO training should include some failures where a 'continue' call would be appropriate. It should also include training in min RVR (75 m) although these are not **examined** until detail 6. If there is any doubt about how well the trainee has prepared for the role then the FTM should be contacted to discuss this. Debrief at the end should focus on non-technical competencies. If there are significant SOP and handling skills in need of training input and debriefing then this should be discussed with FTM prior to next detail.

Landing practice on 4 engines should be done with light crosswinds only as this area is covered in detail 3.

OEI training is conducted as a pure handling exercises (e.g. once the After T/O checks are completed after the EFATO then the trainer can interject). 2EI handling is trained in detail 3. EFATOs are revisited in detail 3 also as they need to be trained at min RVR.

Intervention – if possible 3 approaches (having taken control at 1000') should be flown by the trainer in the RH operating seat. Errors should be made in order to ensure that the trainee raises his level of intervention – however the final approach should result in the RHS occupant **responding** to the intervention and hopefully this will result in a successful RHS landing).

No paperwork is provided for this detail.

5.1.2.1.6 Detail 1 Lesson Plan

DETAIL 1		
Briefing	Simulator safety and emergency briefing. Quick set-up and engine start with minimal pre-take-off briefing.	Heathrow RW 09R
Initial State	Engines running at holding point LHR 09R.	

PERF DATA	MAC TOW	ZFT	FUEL	TOW
All Take-Offs	From IOS	220T	40T	220T

Initial position	Holding point RW 09R
Route	Local area flying
ATIS	RW09R 050/10 9999 OVC020 12/06 Q1015
Clearance	Local area flying

1. Instructor to select weather and departure and as required.
- Pilot A in the LHS as P1.

INSTRUCTOR ONLY

5.1.2.2 Detail 2

5.1.2.2.1 Summary

Two distinctive areas to this detail – handling (crosswind and 2EO) and the start of NNM training.

5.1.2.2.2 Objectives

By the end of this detail the trainees should be comfortable and confident in their abilities to handle the aircraft in the LHS. There is minimal further opportunity in the course to practice these skills and a level 3 or better standard in Manual Flight Control should be demonstrated by the end of the detail.

The detail introduces NNM, it includes the instructor occupying an operating seat and demonstrating what “right looks like”. The trainee should demonstrate a good understanding of the NNM tool and be able to implement it in simple scenarios.

5.1.2.2.3 Standard Required on Completion of Detail 2

- Handling in the LHS manual and automatic to a level 3 standard.
- Handling of 2 engine out flying to at least a level 3 standard with a good understanding of the performance aspects.
- Crosswind take-offs and landings to at least a level 3 standard.
- SOPs and technical knowledge to at least a level 3 standard.
- A good understanding of the NNM tool.
- A basic understanding of pace control and how to change management style depending on the urgency of a failure.

5.1.2.2.4 Briefing

- Managing the chimp.
- Pace control.
- Effective briefing.
- Contingency strategies.
- 2EI handling and performance.
- Crosswinds.

5.1.2.2.5 Instructor Notes

A suggested format might be that the first half of the detail concentrates exclusively on handling with one seat swap. Thereafter, the second half has the instructor occupying the LHS and demonstrating “what right looks like”. The failure for the demo is a BLD DUCT LEAK L – this failure will allow ANC to be emphasised, the need for pace control and the need for a (post failure management) review. Consequently, the instructor will return to his normal seat and create a non-normal scenario from the **FAILURE MATRIX*** (below).

Details 2, 4 and 5 require flexibility with regard to scenario construction. Over these 3 details all ‘required’ failures must be trained. With that in mind, the instructor must annotate, in the narrative section of TRANCOMM, what scenarios have been completed. Within the matrix, the **RED** failures are considered to be more difficult than the **BLUE** failures. So, if possible, the instructor should pick a **RED** and a **BLUE** failure that combine well.

Careful briefing of the crew is required to ensure maximum training value. Ideally, the ‘co-pilot’ should allow the ‘Captain’ to manage the scenarios hence it is imperative that they don’t ‘jump in’ with suggestions. Also, the instructor should use flight freeze at suitable ‘pinch points’ to emphasise good decision making and, most importantly, to avoid a negative outcome.

The FAILURE MATRIX contains an RTO column. The purpose of this column is to suggest failures that could result in a “continue” call should the fault manifest itself on the take-off roll. The instructor might also consider giving the trainee an ADD prior to dispatch followed by a further failure during the take-off roll eg dispatch with an ADD FMC R u/s and then subsequently fail the L FMC on the roll. This will allow the instructor to train how you should anticipate further failures if the trainee Captain hasn’t covered it at the briefing stage.

BOS – LHR paperwork is provided.

***FAILURE MATRIX**

	RTO	Required	Competency	Next Event	Example
Oven Fire/SFF		✓	K & AofP		DFW
Engine Fail OTS		✓	K & AoP		
Medical		✓	WM		YYZ/BCN
Fuel Jettison		✓	PS & DM		VS/BOS
LG Lever		✓	SA		GRU
FMC L/R	✓	✓ (L+R)	WM		
Red Bomb		✓	WM		
FLAPS DRIVE			WM		SFO
Nose & Body Gear Up			SA		VS
ANTISKID	✓		PS & DM		
Total Electrics			SA	✓	RUH
BLD DUCT LEAK L/R			SA		
GEAR TILT			SA & W		MEX
ELEC AC BUS 1/4			WM	✓	
HYD OVHT SYS 1/4			SA	✓	
BLEED 1-4	✓		WM		
ELEC DRIVE 1-4	✓		WM		
EQUIP COOLING			WM		TMS
SMOKE ZN F REST			K & AoP		
ELEC GEN OFF	✓		WM	✓	
ELEC UTIL BUS L/R	✓		WM	✓	
ENG EEC MODE	✓		WM	✓	
FUEL PUMP	✓		SA		

INSTRUCTOR ONLY

INSTRUCTOR ONLY

	RTO	Required	Competency	Next Event	Example
HYD PRESS DEM	✓		SA		GRU
HYD PRESS ENG	✓		SA		GRU
OVHT ENG COWL	✓		SA		
OVHT ENG STRUT	✓		SA		
PACK 1, 2, 3	✓		WM		
TEMP CARGO HEAT	✓		WM		
>TIRE PRESSURE	✓		WM		
>YAW DAMPER U/L	✓		PS & DM		
RUDDER RATIO S	✓		PS & DM		
RUDDER RATIO D	✓		PS & DM		
ENG OIL PRESS	✓		SA		DEL

5.1.2.2.6 Detail 2 Lesson Plan

DETAIL 2				
Briefing	Quick start at BOS. On taxiway.		Boston RW15R	
Initial State				
PERF DATA	MAC TOW	ZFT	FUEL	TOW
All Take-Offs	From IOS	220T	67.1T	292.8T
Initial position		Holding position RW15R		
Route		BOS-LHR		
ATIS		RW15R 230/25 CAVOK 12/8 A2992		
Clearance		BAW45B cleared to LHR CELTK4 SQ2525 or as required		

1. On taxiway in BOS for RWY 15R

226.8/67.1/292.8 MACTOW 22% dusk, no OPDEFs

230/25 CAVOK 12/8 A2992

- Clnc: CELTK4 SQ2525.
- Pilot A LHS.

5.1.2.3 Detail 3

5.1.2.3.1 Summary

This detail is to revalidate the trainees' LPC in the LHS. The detail contains all the elements of the LPC but does not include LVOs – LVOs are not trained until detail 4 and are tested in detail 6.

5.1.2.3.2 Objectives

This detail is assessed in accordance with CAA Standards Doc 24 and normal BA criteria. Doc 24 is published by the CAA and amended from time to time – this document is available at www.caa.co.uk.

5.1.2.3.3 Standard Required on Completion of Detail 3

- LPC completed to at least a level 3 standard.

5.1.2.3.4 Briefing

- NNM structure.
- Risk.
- BRAN.
- QRH.
- Standard LPC briefing – including a check of cold weather operations as per standards Doc 24. The LVOps knowledge, licence signing and CAA form completion is checked/completed in detail 6.
- A PBN knowledge check is required as part of the PBN qualification.

5.1.2.3.5 Notes for Instructor

This is a standard LPC detail excluding LVOps. LVOps is tested on detail 6 and, for simplicity, all paperwork (150C signing and 1119 completed) is deferred until the end of detail 6. This detail must be conducted by a TRE.

The first LPC commences with a full start on a taxiway. This is done as a crew exercise and is not repeated after the break. The examiner should give the crew a push-back time of simulator entry + 25 minutes which they must adhere to. Careful briefing will be required to ensure that all handling is from the correct seat. The only exception to this is that each candidate must be tested in a PM role on an RTO, with that in mind the other candidate will have some handling from an incorrect seat to achieve this.

Following the break the pilots swap seats, engines are now running at the holding point at JFK for a return sector to BOS following a similar scenario to the first sector.

TRE to note that both candidates **MUST** fly a PBN 2D approach during the detail. An RNAV approach to LNAV minima satisfies this requirement and qualifies the candidate with a PBN endorsement.

This detail **MUST** be conducted by a TRE.

5.1.2.3.6 Detail 3 Lesson Plan

DETAIL 3				
Briefing	Full start at BOS. On taxiway.		Boston RW15R	
Initial State	A/C anti-iced. No contamination.			
PERF DATA	MAC TOW	ZFT	FUEL	TOW
1st Take-Off	22%	226.8T	20.1T	246.9T
Initial position		Taxiway RW 15R		
Route		BOS-JFK-BOS		
ATIS		RW15R 190/5 1/2SM BR OVC003 9/8 A2988		
Clearance		BAW61G cleared to JFK SSOXS4 SQ2525		

1. On taxiway in BOS for RWY 15R

226.8/20.1/246.9 MACTOW 22% daytime, no OPDEFs

190/5 1/2SM BR OVC003 9/8 A2988

- Clnc: BAW61G to JFK on a SSOXS4 Squawk 2525.
- Full start-up.
- Pilot B LHS P1 (use of cxlist 1.4 and preflight cx 1.6).
- ELEC GEN OFF 2 during taxi (3.4.4).
- RTO due to stab trim runaway (2.6, 3.4.6).

2. Re-position TO RW 15R

- Engine failure after V1 (2.5.3) and follow the SID (3.9.1).
- No handover to pilot A.
- All self-handled by pilot B.

3. Set JFK RW22L

**180/7 2SM BR OVC001 BCMG 3SM OVC007 11/10 A2985.
Actual wx set to cloud base 0 ft rvr 50 m.**

- Pilot B manual OEI ILS (3.9.3.4) and G/A from DA (4.3).

4. Set JFK RW22L ILS glidepath u/s. Vectors for RNAV 22L (to LNAV minima to satisfy PBN 2D approach requirements for PBN qual)

180/7 3SM OVC007 11/10 A2985.

- NPA (3.0.4) flown by pilot A in RHS.
- OEI landing (5.5) flown by pilot B in LHS.

5. Set takeoff JFK RW22R

226.8/18.7/245.5 MACTOW 22% daytime, no OPDEFs

200/5 3 SM OVC007 A2985

- Pilot A handling from RHS.
- RTO and EVAC as PM for pilot B due to FIRE CARGO FWD (3.6.1).

BREAK BREAK BREAK

Trainer to set up next sector during break – pilot A/B seat swap.

6. Set takeoff JFK RW22R
Wx as before.

- Clnc: BAW61F to BOS on a MERIT4 squawk 2526.
- Pilot A LHS.
- RTO and EVAC as PM for pilot A.

7. Set takeoff JFK RW22R
Wx as before.

- RTO (2.6) due to Captain's pitot blocked (3.4.2).

8. Re-position TO RW22R

- TCAS after departure (3.6.9).
- Engine failure (either eng stall or oil pressure) (3.6.8 and 3.6.3).
- No handover to pilot B.
- All self-handled by pilot A.

9. Set BOS RW33L

290/5 1/2SM BR OVC003 BCMG 4SM OVC008 9/8 A2988.
Actual wx set to cloud base 0 ft rvr 50 m.

- Pilot A manual OEI ILS (3.9.3.4) and G/A from DA (4.3).

10. Set BOS RW33L ILS glidepath u/s. Vectors for RNAV 33L (to LNAV minima to satisfy PBN 2D approach requirements for PBN qual)

300/5 4SM OVC008 9/8 A2988

- NPA (3.0.4) flown by pilot B in RHS.
- OEI landing (5.5) flown by pilot A in LHS.

11. Set takeoff BOS RW33L

226.8/20.1/246.9

310/5 1/2SM BR OVC003 9/8 A2988

- Clnc: BAW61G to JFK on a SSOXS4 Squawk 2525.
- Pilot A P1 in LHS.
- Engine failure after V1(2.5.3) and follow the SID (3.9.1).

12. Ground power

DISPLAY BLANK.

INSTRUCTOR ONLY

5.1.2.4 Detail 4**5.1.2.4.1 Summary**

This detail starts in LVPs. It should continue the NNM training from the previous detail but combines it with the knowledge element expected from a BA Captain. The knowledge is checked by looking at examples of degraded performance either due to environmental conditions or aircraft unserviceability as well as LVOps. The subject of time management/workload management is examined with some tips on HOW to manage workload.

5.1.2.4.2 Objectives

By detail end, the trainee should have a good understanding of pace control and how to change management style depending on the urgency of a failure. The instructor will still be using flight freeze as a training tool but it should be more to emphasise positive decision making rather than intervening to avoid a negative outcome.

5.1.2.4.3 Standard Required on Completion of Detail 4

- A thorough understanding of LVOps procedures and correct handling of auto-approaches and auto-lands.
- A good understanding of pace control and how to change management style depending on the urgency of a failure.
- A good understanding of workload management.

5.1.2.4.4 Briefing

- MEL/CDL.
- Performance.
- LVOps from a Captain's perspective.

5.1.2.4.5 Instructor Notes

This detail starts with LVO training. With careful planning, it might be possible to combine this training with the NNM training however, if not, the instructor must ensure that **each** trainee completes at least one LVO take-off, one go-around and one landing.

As stated in detail 2 instructor notes, all ‘required’ failures from the FAILURE MATRIX are required to be trained over details 3-5. Hence, It is imperative that the instructor consults the trainees’ TRANCOMM reports from detail 2 to establish what ‘required’ failures from the FAILURE MATRIX have been trained and what remain to be trained. Thereafter, careful thought is required to construct a combination of failures that create realistic scenarios for training. By the end of this detail, there should be a maximum of 3 ‘required’ failures outstanding.

Careful briefing of the crew is required to ensure maximum training value. Yet again, the ‘co-pilot’ should allow the ‘Captain’ to manage the scenarios hence it is imperative that they don’t ‘jump in’ with suggestions. The instructor should still be using flight freeze at suitable ‘pinch points’ however, by detail end, there should be less likelihood of a negative outcome and so any flight freezes are likely to be to emphasise good decision making.

5.1.2.4.6 Detail 4 Lesson Plan

DETAIL 4				
Briefing	Quick start at LHR. On taxiway.		Heathrow RW27L	
Initial State	Ground power connected, Heathrow.			
PERF DATA	MAC TOW	ZFT	FUEL	TOW
All Take-Offs	From IOS	226.8T	86T	311.8
Initial position		Various		
Route		LHR-BOS		
ATIS		RW27L 150/3 100 m FG OVC001 VV/// 03/03 Q1018		
Clearance				

1. On taxiway LHR for RWY 27L

226.8/86/311.8 MACTOW 22% dusk, no OPDEFs

230/25 CAVOK 12/8 A2992

- Clnc: CELTK4 SQ2525.
- Pilot B in the LHS as P1.

5.1.2.5 Detail 5**5.1.2.5.1 Summary**

Detail 5 involves part of a real flight (like an LOE) but where the scenarios are modelled on real life, recent events. There are various start points both on the ground and in the air and the intention is to give the trainee confidence that they can cope with any failure using the models and tools that the COT teaches.

5.1.2.5.2 Objectives

This detail concludes NNM training and ensures that the trainee is ready for their Command Assessment.

5.1.2.5.3 Standard Required on Completion of Detail 5

- NNM to at least a level 3 standard.
- A thorough understanding of how to vary pace depending on the urgency of a failure.

5.1.2.5.4 Briefing

- Maintenance of SA.
- Managing Change.

5.1.2.5.5 Instructor Notes

The scenarios are derived from AAIB or eBasis reports. The 3 letter airfield code corresponds to the **FAILURE MATRIX** found in COT detail 2. However, to provide simplification all scenarios are flown LHR-JFK or vice-versa. This will allow trainees to prepare but should discourage inappropriate pattern matching.

Careful briefing of the crew is required to ensure maximum training value. Yet again, the ‘co-pilot’ should allow the ‘Captain’ to manage the scenarios hence it is imperative that they don’t ‘jump in’ with suggestions. The instructor should still be using flight freeze at suitable ‘pinch points’ however, by detail end, there should be little chance of a negative outcome and so any flight freezes are likely to be to emphasise good decision making.

Paperwork is provided for LHR-JFK-LHR.

The full details of the scenarios are listed within the instructor iBook and is to be used to build the trainees SA prior to releasing the simulator. A summary of each event is listed in the table below.

SCENARIOS

LOCATION	START POINT	FAILURES
Mid-Atlantic	Entering the OTS	Severe turbulence/CBs Wind/Temp shift passenger injuries
LGW	Hold short RW	HYD 4 leak Gear Fails to extend
LHR	Hold short RW	Vibration No 2 Engine Ops disconnect AC BUS fail (AC BUS FAIL SHORT 3)
RUH	Hold short RW	F/Os PFD and ND remove Ops disconnect 2 ACBUS fail (AC BUS FAIL SHORT 3)
GRU	Hold short RW	LG fails to move past the OFF Cos
GRU	Hold short RW	ENG 1 fail HYD 1 leak
MEX-LHR	Hold short RW	GEAR TILT
SFO-LHR	1 hr before landing	FLAPS DRIVE

LOCATION	START POINT	FAILURES
DFW-LHR	Mid-Atlantic	SFF SMOKE LAV FIRE CSD OFFICE
LHR-DEL	Hold short RW	ENG 1 OIL PRESS SFF
ORD-LHR Div BOS	Hold short RW	Medical emergency Diversion
-LHR Div YYZ	Mid-Atlantic	Medical emergency Diversion
LHR-ACC Div BCN	CRUISE	Medical emergency Diversion
LHR-ORD Div LHR	Hold short RW	GEAR lever stuck at OFF Diversion Partial GEAR UP landing

5.1.2.5.6 Detail 5 Lesson Plan

DETAIL 5		
Briefing	Quick start at LHR/JFK. 1. Holding short of the RW 2. Just joined OTS 3. Mid Atlantic 4. 1 hr before arrival to LHR/JFK	Heathrow RW27R JFK RW13R
Initial State	Ground power connected, Heathrow/JFK.	

PERF DATA	MAC TOW	ZFT	FUEL	TOW
All Take-Offs	From IOS	from CIRRUSS	from TRAINEE	from IOS

Initial position	Various – according to scenario
Route	LHR-JFK-LHR
ATIS	As required
Clearance	As required

- Instructor to select weather and departure and as required.**
 - Pilot A in the LHS as P1.

5.1.2.6 Detail 6**5.1.2.6.1 Summary**

Detail 6 is the Command Assessment. It also resets the trainees' mandatories by conducting an LOE and completes the LV section of the LPC.

5.1.2.6.2 Objectives

- To complete an LOE using LOE protocol.
- To complete LVO qualification.
- Form FCL150C signed in licence with expiry to end of the month in which detail 6 is completed. No allowance can be taken for any unexpired LPC in the RHS, all mandatories are re-set during this course.
- LPC form SRG/1119 completed and posted in the normal way.

5.1.2.6.3 Standard Required on Completion of Detail 6

- LVOps completed to a level 3 or better standard – including a knowledge check.
- All Pilot Competencies to a level 3 or better standard as a BA Captain.
- Minimal debrief items.

5.1.2.6.4 Briefing

- LOE briefing.
- Any items which the trainees wish to discuss in preparation for the route training.
- LVO knowledge check.

5.1.2.6.5 Instructor Notes

This is a standard LOE detail which acts as a Command Assessment. The trainee cannot proceed to line flying unless the LOE is assessed at a minimum level 3 standard as a Captain. If there is any doubt about the standard achieved then the trainer should discuss in person with FTM.

The stand-in will act as co-pilot for both LOEs. Careful thought should be given to timings as the instructor must complete a Command Assessment (including LOE) and the LV qualification for each trainee. The trainees should be given a push-back slot time if appropriate; adherence to it forms part of the overall Command Assessment. Debriefing will need to be completed after the second LOE.

Each Command trainee will act as Pilot-in-Command with the stand-in First Officer briefed to act as competent but without initiative. In extremis (e.g. no stand-in Co-Pilot is available) the other COT trainee can act as stand-in but this will not be planned. Should this happen, careful briefing of the other trainee is required to ensure that a fair Assessment is conducted.

Normal LOE briefing/debriefing and grading protocol should be applied, and a successful completion will update the trainees' mandatories. However, emphasis in this detail is to assess the trainee's skill as a Captain in the LHS. This detail is the Command Assessment detail.

The need to re-train some events for successful completion of the LOE will not in itself mean failure of the Command Assessment, as the trainer will be evaluating the whole performance as a Captain. However, re-training in a significant number of events would be unusual. If skill re-training is required in the simulator, this may impact on time available for the detail.

The detail starts on the ground in Manchester and the first LOE and Command Assessment terminates whilst airborne. Thereafter, a seat swap is required. The second LOE and Command Assessment, after any change in fuel and weather (as required) and a mini-brief, starts whilst airborne and terminates after landing or during vectors in the TMA. The detail concludes with an LV revalidation.

This detail must be conducted by a TSC or Training Captain as nominated by FTM B747.

The examiner can choose from various initial weather conditions and various LOEs scenarios.

Page 1 and 2 of a CIRRRUS, a LORETO brief, a load sheet and CARD data are provided.

After the de-brief, the examiner must ensure that all paperwork has been completed (1119s and 150C) – since these were not completed in detail 3.

It is imperative that progression to sector 1 of line training is undertaken with confidence that whilst there may still be training – it is of a minor nature only.

5.1.2.6.6 Detail 6 Lesson Plan

DETAIL 6				
Briefing	Stand 27 at MAN. On stand.		Manchester RW23R	
Initial State	Ground power connected, Manchester.			
PERF DATA	MAC TOW	ZFT	FUEL	TOW
All Take-Offs	From IOS	236.8T	from TRAINEE	??
Initial position		On stand RW23R		
Route		MAN-LHR		
ATIS		Various as required by TRE		
Clearance		RW23R SANBA 1R squawk 2143		

1. LOE 1

On stand 27 MAN for RWY 23R

236.8/?? MACTOW ?% daytime

ADD 29-11-2 HYD DEM PUMP 1 U/S (LOE event 1)

180/25G30 9999 SHRA BKN005 12/10 Q1000

- CLNC to LHR RWY23R SANBA 1R squawk 2143.
- Pilot B in LHS.
- Strong winds take-off (LOE event 2).

2. FMC R fail (LOE event 3)

3. LOE complete once a plan has been formulated.

Motion off, seat swap and pilot A in LHS.

4. LOE 2
Set LHR RW09L
Airborne start
236.8/?/? MACTOW 22% daytime, no OPDEFs
170/25G30 9999 OVC009 12/10 Q999

- Strong winds arrival (LOE event 1).

5. G/A above DA due to security event at LHR (LOE event 2)
6. Diversion (LOE event 3)

Weather as reqd.

7. LOE complete when aircraft on vectors in TMA

BREAK

BREAK

BREAK

8. LOE 3
On stand 27 MAN for RWY 23R
236.8/?/? MACTOW ?% daytime
180/10 9999 SHRA BKN065 SNSH 02/01 Q999
Cold weather ops (LOE event 1)

- CLNC to LHR RWY23R SANBA 1R squawk 2143.
- Pilot B in LHS.

9. HEAT P/S CAPT (LOE event 2)
10. Captain's pitot blocked

- IAS disagree (LOE event 3).

11. LOE complete once a plan has been formulated.

Motion off, seat swap and pilot A in LHS.

12. LOE 4
Set LHR RW09L
Airborne start.
236.8/?/? MACTOW 22% daytime, no OPDEFs
170/10 9999 OVC009 02/01 Q987
13. BLD DUCT LEAK L (LOE event 1)
14. ENG 2 FAIL ON FINALS (LOE event 2)

15. **Cold weather ops** (LOE event 3)

16. **LOE complete** after cold weather operations on the ground

BREAK

BREAK

BREAK

17. **LOE 5**

On stand 27 MAN for RWY 23R

ADD 34-61-1 FMC L U/S (LOE event 1)

236.8/?? MACTOW ??% daytime

180/12 9999 SHRA BKN005 SNSH 12/10 Q1000

- CLNC to LHR RWY23R SANBA 1R squawk 2143.
- Pilot B in LHS.

18. **FLAPS control during retraction** (LOE event 2)

19. **EQUIP COOLING** (LOE event 3)

20. **LOE complete** once a plan has been formulated.

Motion off, seat swap and pilot A in LHS.

21. **LOE 6**

Set LHR RW09L

Airborne start.

236.8/?? MACTOW 22% daytime, no OPDEFs

170/25G30 9999 OVC009 12/10 Q999

- Strong winds arrival (LOE event 1).
- Pilot B in the LHS.

22. **Windshear go-around** (LOE event 2)

23. **Diversion due to deteriorating weather issues** (LOE event 3)

24. **LOE complete** when aircraft is on vectors in the TMA.

BREAK

BREAK

BREAK

25. LOE 7

On stand 27 MAN for RWY 23R

236.8/?? MACTOW ?% daytime

180/12 1200 DZ BKN005 04/03 Q1000

Cold weather ops (LOE event 1)

- CLNC to LHR RWY23R SANBA 1R squawk 2143.
- Pilot B in LHS.

26. ENG 1 EEC MODE (LOE event 2)
27. ENG 2 OIL PRESS (LOE event 3)
28. LOE complete once a plan has been formulated.

Motion off, seat swap and pilot A in LHS.

29. LOE 8

Set LHR RW09L

Airborne start.

236.8/?? MACTOW 22% daytime, no OPDEFs

210/12 9999 BKN009 04/03 Q1002

30. RED BOMB threat in flight (LOE event 1)
31. GEAR TILT (LOE event 2)

BREAK

BREAK

BREAK

32. Set hold short LHR 27L

LVPs in use

220/25/245 MACTOW 23%, no OPDEFs

CALM 100 m FG R75/75/75 OVC001 12/12 Q999

- Pilot B in the LHS.
- LV take-off.
- LV revalidation including a minimum of RTO, go-around and a landing in minimum RVR.
- Motion off, swap seats and repeat with Pilot A.

5.1.3 Line Training

Line training provides the opportunity for the candidate to put into practice the procedures and techniques that he/she has become familiar with during the EFC and simulator course. This is accomplished under the supervision of a Training Captain occupying the right hand seat. Line training is concluded once the candidate is able to perform a safe and efficient flight conducted within the tasks of their role and status. Thereafter the candidate will be assessed over a 2 sector final command check.

5.1.3.1 Safety

Training should be suspended if safety is likely to be compromised. SOPs with control handover during the approach should normally be employed. This helps to reduce fatigue and allows the trainee to observe and the trainer to demonstrate. However, SOPs may be varied at the discretion of the trainer if useful training value will be gained. Both crew members must be clear as to how and why this variance will take place.

Trainers must not interfere with the normal operation of the aircraft systems.

The passengers should not be informed that training is in progress.

Do not make deliberate errors to “test” the trainee. However minor omissions (e.g. during flight deck preparation) are permitted in order to assess a trainee’s monitoring.

Whenever possible allow trainees time to correct minor errors, valuable learning can occur from this process. However, significant errors should be corrected immediately.

Do not allow a situation to occur where either crew member becomes overloaded. For example, trainers should not permit a scenario to develop where a go-around is required because trainer intervention was delayed.

Remain aware of commercial considerations and the importance of maintaining schedule.

5.1.3.2 AWOPS/LVO

Command on Type trainees are not required to complete an autoland during the line training. Sufficient approaches will have been conducted during the simulator phase of training to comply with regulations.

5.1.3.3 Weather Limitations

Command course trainees may operate to Captain’s limits.

5.1.3.4 Ready for Line Check

Tick the appropriate Trancomm box when:

- The trainee has completed at least the minimum number of sectors (5.1.0c).
- The trainer is confident that the trainee will achieve a level 3 or better grade in the final Command Line Check.

The trainee should be reassured that there is no such thing as a perfect sector. A good sound performance is all that is required.

5.1.3.5 Line Training Discussion Items

- Your aim is simply to assess whether the trainee has achieved a 'Good' level of knowledge – *commensurate with role and experience*.
- Please do not feel obliged to conduct long sessions of ground training; use facilitation rather than instruction and indicate to the trainee where further private study is required.
- Refer to [OM Part D Appendix T 12.1](#) for line training discussion items matrix and expanded list.

5.1.3.6 Command Training – Guidance for Training Captains

Over the course of the line training phase the trainer's role changes significantly. Initially the trainer will be driving the operation as necessary to ensure the commercial success of the service. At the same time he will be helping the trainee ease into his/her new surroundings. The handling characteristics of the aircraft should be familiar, the difference will be with their new responsibilities. The trainee should be encouraged to embrace their new position from the outset. Training intervention should reduce as the line training phase progresses.

To assist this transition the trainer should:

- Act, when "in role", as a competent, friendly co-pilot lacking in initiative.
- Try to stay in role but be willing to train if necessary.
- Try to "sit on your hands" to stop yourself from "re-taking" command.
- Be supportive since this will help build confidence.
- Remember that it is essential for the trainee to feel confident that you are on their side.

- Clearly brief the trainee as to the co-pilot role played by the Training Captain in the RHS. The objectives of this are twofold, firstly to give practice in the non-technical skills required to lead the operation effectively and secondly to give the trainee a feeling that the buck stops with them.
- Try to go along with all the trainee's decisions and leadership. This allows the trainee to decide the outcome of every situation. Feedback and debriefing will be mostly facilitated however it may still be appropriate to demonstrate and instruct on occasion. The caveats for the Training Captain are that safety must never be compromised and the commercial operation should be minimally compromised (e.g. carrying extra fuel is acceptable but departing late due to slow and ineffective briefing is unacceptable).
- Encourage the trainee to give feedback to the trainer on his performance as a co-pilot.
- Give the trainee full responsibility for handling the AMLs, loadsheet and NOTOC. The trainee should check/prepare the documents and indicate their acceptance by writing the date and Training Captains name in the appropriate boxes before handing them over for signature. When satisfied that all the documents are correct the Training Captain should sign and then pass them back to the trainee without any further action. It is the trainee's responsibility to ensure that the correct pages are extracted and given to the dispatcher/engineer.
- Allow the trainee to command the whole operation, using all the resources available to him/her, and allow them to deal with any difficulties which may arise. This will include the trainee briefing all resources (cabin crew, TRM, etc.) as to the nature of the training being conducted.

The trainer should avoid:

- Making deliberate errors to test the trainee although minor errors on setup are acceptable.
- Role playing or changing your personality – there are plenty of problems that naturally occur on a sector that will challenge most trainees.

Progress

The sectors move quickly from handling in the LHS to command training and then finally to assessment (the FCC).

Sector allocation – traditionally the trainee has completed a much higher proportion of P1 sectors than PM. Yet all trainees and trainers believe that it is much harder to command when fulfilling the PM role. Feedback suggests that trainees would like more practice in this difficult role and so Fleet would advocate as close as possible to a 50:50 split of sectors.

Destinations – those that have a high degree of “difficulty” are of massive benefit to the trainee e.g. MEX, ORD etc. This will allow the trainee to visit such potentially problematic destinations with trainer assistance prior to being exposed to such destinations as a new Captain.

Sectors 1-4

Full active training support. Allowing trainee to consolidate handling elements from the simulator phase and allow to get comfortable in the seat before introducing copilot “role” play. TC operating at TA level – however allowing time for the trainee to demonstrate that he too is projecting ahead.

Sectors 5-8

Starting to introduce co-pilot “role” play – that is to say a gradual withdrawal of SA and leaving the management of the operation to the trainee. It is VITAL that the trainee knows that he **MUST** treat you as a **co-pilot**. Whilst in co-pilot role, the instructor must never change their personality and the role playing should be limited to withdrawing support i.e. operating towards the ‘notice’ level.

Sectors 9-10

TC is now operating at NOTICE level only. This penultimate trip prior to final check should have the trainer offering very little support to the trainee. This is NOT a dummy line check per se but at the end of the trip the trainer should be confident that the trainee has dealt with any command situation with minimal trainer input. A suggested running format is to split the flight into phases and then mini-debrief after each phase, e.g. the first phase might be from check-in, aircraft preparation, departure and initial cruise duties. Thereafter debrief that phase with any development points as necessary. To emphasise this is still training and is NOT a check hence training input, if required, may be appropriate.

5.1.3.7 Command Line Check – Guidance for Training Standards Captains

This check is conducted by one of the following: a Flight Manager, a Training Standards Captain (TSC) or a nominated Training Captain. To achieve promotion the candidate must achieve a pass at level 3 or better.

5.1.3.7.1 Briefing

Arrange to meet the candidate and trainer about 10 or 15 minutes before the normal briefing time. Candidates are usually nervous and so try to help them to relax. Explain the following points:

- That the emphasis is on the “big picture” – whilst you expect to see a good knowledge of the aircraft operation and obvious competence in SOPs – you are not going to be picky or pedantic about trivial points.
- The candidate should be briefed that usually the final result of the check will not be made known until the trip is complete, this may be back at the Crew Reporting Centre.
- The Command Check will normally be rostered as a 2-sector trip, ideally one each as HP and NHP. The allocation of duties is up to the candidate as a normal operational decision and if circumstances prevent the RHS Training Captain from handling “his/her” sector it will not compromise the check.
- If a sector is “given away” then it should be regarded as a co-pilot handling sector but not full PIUS as the candidate should still be able to demonstrate his command abilities in dealing with situations and not delegating them to someone who is really a very competent Captain.
- The trainer in the right seat is the legal commander but will only operate to First Officers limits.
- The trainer should be competent and friendly but lacking in initiative. He will operate at the “Notice” level of Situational Awareness.
- The trainer will not make any deliberate mistakes.
- The trainer is a useful source of information and if asked a direct question will answer it with the level of knowledge appropriate to that of a competent co-pilot.
- During the check the TSC may give appropriate feedback to the trainer, or intervene, in order to ensure consistency and standardisation. This will have no effect on the outcome.

-
- That the TSC is there to observe and not to take part as an additional crew member – do not be put off by note taking, it may not be related to the operation.
 - That the candidate is the acting Captain and should manage the operation accordingly.
 - Remind the candidate to brief the Cabin Crew about the check.

5.1.3.7.2 Onboard the Aircraft

Upon entering the aircraft:

- Give the crew some "space" to settle in. Try to stand back and yet observe any interaction with staff, cabin crew, etc.
- Take your place on the flight deck in time to hear the PreFlight Checklist, critical data entry and briefing. Pay particular attention to non-technical skills employed.
- Listen to the Passenger Addresses.
- Monitor the progress of the flight.
- If the candidate fails – give support. He/she will feel very deflated and will need very careful handling. Discreetly, you may decide to tell the Cabin Crew the bad news.
- The candidate will have to be interviewed by the FTM B747 before any further training and assessment is organized. It is a management decision as to what any subsequent action will be.

5.1.3.7.3 Debriefing

- Identify the “key” good and not so good significant points.
- Ensure that a poor display of CRM will always warrant a grading of 4 or 5 in Trancomm. A shortfall in non-technical skills behavior must be accurately evidenced in the report. This grading will allow the FTM B747 to provide additional training and to manage the situation in an appropriate manner.
- Avoid a length debrief of minor points.
- The trainee is promoted to Captain with immediate effect. The TSC should inform Current Operations, Training Administration and FTM B747.
- Remind the new Captain of his extensive responsibilities as detailed in OM Part A(1).
- BA Captains are expected to maintain the highest personal and operational standards.
- If a Captain’s standards slip the First Officer will think it is acceptable to operate in a substandard way. Be aware of the “Loneliness of Command”. Sometimes it is necessary to distance yourself from the rest of the crew to make a sound, objective judgement. Be prepared for this and the potential unreasonable response from your crew members.
- Should a significant incident occur please discuss it with fleet management without delay.
- TSCs should remind the new Captain to arrange an interview with the FTM B747.
- He should complete 2 sectors within the next 7 days and will be “brown-lined” for 8 sectors in longhaul. Confirm that the successful new commander understands “brown-line” as it applies to first officers that he might fly with.
- A Captain may permit route take-offs and landings to be carried out by co-pilots from the right seat provided that the Captain has completed 10 sectors following the final line check.
- Consolidation Period: 2 months. Ascertain if any reserve, leave or standby has been rostered.
- He/she must not operate below Cat 1 minima until 50 hours or 20 sectors have been completed – these figures include training.
- A re-braided uniform should have been arranged prior to the course but it is acceptable to operate in SFO uniform. A re-braiding authority can be obtained from a Duty Flight Crew Executive.

- Complete the Trancomm Line Check form as usual.
- Advise the candidate of the way in which he/she can provide course feedback and emphasise the importance of feedback.
- Ask for feedback on your own performance.
- Debrief the Training Captain in the RHS on their performance.

5.2 B747-400 Type Rated Operator Conversion Course

5.2.0 Introduction

- This course is designed for pilots already in possession of a valid B747-400 type rating (or a rating that has expired by not more than 3 years).
- To be accepted for the B747-400 Type Rated Operator Conversion Course the trainee must:
 - Hold an unfrozen ATPL.
 - Have completed at least 500 hours or 100 route sectors on a multi-pilot turbo-jet aeroplane certified to the standards of CS-25 or equivalent airworthiness code or on a multi-pilot aeroplane having a maximum certified take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers.

(See FCL 730A.)

 - Any other condition as required by FTM B747.
- Course overview:

Ground Phase	Working Days
Ground School	TBD by FTM
Full Flight Simulator	3
LOE	1
LPC	1

Line Training (Aircraft Phase)

Line Training	Sectors
Line Training	4
Final Check	2
	Total
	6

- d. Assessment is continuous throughout the course. Each FFS session sets out the objectives and standard of knowledge and skill required to be demonstrated during the training event. The regulator also requires specific assessment of competencies for the issue of the rating under EASA part-FCL and to comply with Regulation Air Operation. These events are set out thus:

Phase	Event	Day	Instructor
FFS Phase	LOE	4	TC/TCP
FFS Phase	LPC	5	TC/TCP
Aircraft Phase	Final Check	End	TC

- e. The trainee is responsible for his/her own learning. The continuous assessment process will identify training effectiveness and highlight areas for trainee development and these will be noted by the Instructors as the course progresses. Trainees will be made aware of these development areas during the de-briefing sessions and they will be recorded in the trainee's Trancomm file. This will assist the trainee in targeting specific areas of self-study and preparation.

If a lack of progression in key areas of knowledge, skill or handling is identified the Instructor will make the trainee aware of this informally during the de-brief. If the failure to progress is persistent the FTM will be informed and he/she will decide what steps to take to correct the lack of progression.

- f. All trainees need to achieve, in both handling and CRM, the standard defines in EASA part FCL appendix 9 (SRG1158) and Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) for the successful completion of the LPC. In addition, the trainee must achieve at least a level 3 standard in all elements and phases of the course (both technical and non-technical) to successfully complete the British Airways Type Rated Operator Course.

5.2.0.1 Additional Notes Specific to the British Airways B747-400 Type Rated Operator Conversion Course

5.2.0.1.1 Aims

1. To create a course of 5 full flight simulator details, which is fully compliant with EASA, CAA and BA policies.
2. To use interactive training aids and video presentations in the briefing to improve the trainees' learning.

3. To create skill checks at regular points in the course in order to ensure that trainees have attained the skills required to move on to the next stage of the conversion course. These are listed under **Objectives** for each detail.
4. To create LOFT scenarios so as to develop crews' Competencies.
5. To make the course a practical preparation for line training.

5.2.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified B747-400 pilots. It is designed to train BA SOPs and operation and introduce the trainee to the BA Pilot Competencies.

5.2.0.1.3 Course Structure

- The course consists of 5 four hour simulator details:
 - Detail 1 General Handling.
 - Detail 2 and 3 LOFT training.
 - Detail 4 LOE.
 - Detail 5 LPC/LVOps.
- Assessment is continuous throughout details. Should a serious issue arise then this should be addressed before continuing with the course.
- Briefings for details 1 to 3 are of 1½ hours duration, details 4 and 5 are 1 hour.

Trainees are expected to prepare the items to be covered before each detail. Briefings will therefore take the form of confirmation and clarification of technical knowledge, and discussion of effective non-technical skills. Whiteboard, power point and video will be used to study the various items in the details.

5.2.0.1.4 Detail Format

- The course is written to be completed by 2 Type-Rated Operator Conversion Course trainees.
- A degree of flexibility is required for the crew to achieve the most out of the detail. To achieve this the instructor may vary the running order as required.

- The course is designed for 2 trainees on type paired together. This will mean some flying from the LHS during the simulator detail but this will always be done with the auto-pilot engaged. Establish Pilot A and B at start of course and retain these positions throughout the course.
- Following successful completion of the simulator phase the trainees will normally complete 8 sectors in the right seat (without a safety pilot) and a 2 sector final line check. Route training and final line check will be completed by a TC.

5.2.0.1.5 Format of the Instructor Session Notes

- For each detail there is an overview of the contents for the detail and briefing material available. Some Instructor notes are included in the Session Guide and more in-depth guidance on the 'how to' is to be found in the FCTM. The lesson plans in the simulator are only a skeleton outline so as to allow the Instructor more freedom to adjust as necessary to the trainee needs.

You will find for each of the details:

- Suggested detail running order.
- Paperwork required.
- Session Objective.
- Training topics.
- Briefing material available.
- Proficiency Criteria.
- Instructor guidance notes.
- Initial Set up Data (included in the running order).

Trainees on this course will be type rated on the 744 and should have very good technical knowledge. Detail 1 should be used to introduce BA SOPs. Also it is an opportunity to check that all handling is to a level 3 standard. Do not allow progression to detail 2 if there is any doubt.

The subsequent details focus almost exclusively on the BA SOPs and non-normal management. There is minimal handling although they will still be doing take-offs and landings from the RHS. The trainee will be expected to hand over to the trainee in the LHS who will fly the aircraft making maximum use of the auto-pilot when in the LHS. The instructors should be focussing on assessing the trainees' ability to manage the flight; time and workload management; diagnosis and review; ability to risk assess options generated and overall handling. If SOPs or handling ability is not to a level 3 standard the trainee should not be allowed to progress to the next detail without discussion with the FTM.

During details the instructor is expected to inject non-normals and vary weather as he/she sees fit. The lesson plans only give an outline of the initial conditions and items to be covered during the detail.

Detail 4 is the LOE. The instructor conducting detail 3 must be satisfied that the trainee has consistently demonstrated a good level 3 standard in the previous 3 details before allowing the trainee to proceed to detail 4. If there is any doubt then the trainer must make immediate contact with the FTM to discuss progress.

The other trainee will act as Captain in the LHS but to allow a fair assessment of each trainee's individual ability it is vital that the instructor carefully briefs both trainees as follows; when they operate in the RHS they are expected and required to act as a competent co-pilot, the other trainee in the LHS will operate as Captain but it must be stressed that they are not expected to be to BA Captain standard.

5.2.0.1.6 TRANCOMM

- **All reports are to be entered into Trancomm. For details 1 to 4 the Obj Met score is to be used when the Performance Criteria for that detail have been satisfied and all of the Detail is completed. It is always assumed that the technical knowledge is up to standard, if not then grade Obj Not Met.**
- At the end of each detail session is a table which clearly shows which items are being trained in the detail.
- Where an item is to be signed off as training complete the table indicates this with the letters TC in the final column. Instructors should familiarise themselves with the applicable item before running the detail to ensure that the item has been demonstrated as training complete before completing trancomm.
- Trancomm Item scoring is designed such that a score of "Training Input" or "More Practice" will trigger a pop-up box. This pop-up will ask if the item should become a Floating Item. Always select yes, so that the item is carried forward to the next detail. Floating items should then be completed, if possible before commencing the next detail's content.
- If a significant number of items are being carried forward the instructor should also alert Training admin and FTM B747 as additional details may be required.

5.2.0.2 B747-400 Type Rated Operator Conversion Course Organisation

Ground School

FTM to determine and arrange ground school refresher. The minimum will be one FBS detail with a ground instructor to refresh the pre start cockpit preparation, engine start procedures/faults and shutdown checks. There is minimal exposure to the full start and shutdown procedures during the details until the LOE/LPC. Trainees will need to ensure that they are fully conversant with these procedures through their own self study.

Full Flight Simulator (FFS)

This phase is dedicated to aircraft handling, operator SOPs and managing Normal and Non-Normal operations.

In accordance with the requirements of EASA part-FCL the LPC/OPC and LOE are conducted in a commercial air transport environment. Specifically a 4 hour proficiency check detail assessing all the elements required by EASA part-FCL appendix 9 (SRG1158) and a 2 hour Line Oriented Evaluation.

Line Training

A Type rated DEP will be rostered for 4 training sectors followed by a 2 sector line check. The first two sectors will be on a flight with a heavy co-pilot. All line training discussion items should be covered over the 4 training sectors. The Line Training Captain should establish that the trainee is familiar with BA SOPs and demonstrates a level 3 standard in handling and technical knowledge; previous experience on the B747-400 should be determined and Training Input (TI) adjusted accordingly. If the trainee is not ready for Final Check after 4 sectors inform FTM 747 who will decide on any additional training.

LVO training: Any DEP who has not previously flown Cat II/III operations with an EU operator will be required to fly 1 practice auto-land on the aircraft during Line Training to complete their LVO qualification. FTM will provide further details for any DEP affected by this requirement.

5.2.1 Full Flight Simulator Details

5.2.1.1 Detail 1

5.2.1.1.1 Summary

Provide trainees with handling practice in all the skill based elements of the LPC. There is no paperwork provided for this detail.

5.2.1.1.2 Objectives

By the end of this detail the trainees should be comfortable and confident in their ability to handle the aircraft including one engine inoperative flying. There is minimal further opportunity in the course to practice these skills and a level 3 or better standard should be demonstrated by the end of the detail.

5.2.1.1.3 Standard Required on Completion of Detail 1

- Handling of the aircraft including taxiing to a level 3 standard.
- SOPs approaching a good standard.
- RTOs, OEI ILS, Go-around and Landings to a level 3 or better standard.
- Good understanding and application of Leadership and Teamwork Competencies during RTO.

5.2.1.1.4 Briefing

- SOPs.
- Standard calls.
- Altimeter setting procedures.
- Differences in operation from previous operator.
- Flight continuation policy.
- Communications with CSD normal and non-normal.

5.2.1.1.5 Notes for Instructor

The first half of this detail is aimed at introducing BA SOPs and general handling consolidation. Have they thought about the differences in Ops with their previous airline? Are the RTO actions the same? If there is any doubt about how well the trainee has prepared for the role then the FTM should be contacted to discuss. There are only 2 more details before the LOE so the trainee is expected to hit the ground running. The instructor may want to include a full start-up depending on the trainees’ needs.

Debrief should focus on non-technical skills, SOPs and general handling. If significant debriefing is required then FTM should be informed prior to the next detail.

Day 1 Outro should include pre-notifying the faults for detail 2. LOFT 1: double hydraulic failure (system 1 and 4), LOFT 2: flap drive failure on approach.

5.2.1.1.6 Detail 1 Lesson Plan

DETAIL 1				
Briefing	Simulator safety and emergency briefing. Quick set-up and engine start with minimal pre-take-off briefing		LHR R/W27L	
Initial state	Engines running at holding point LHR RW27L			
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	60T	280T
Initial position	Taxi position RW 27L			
Route	EGLL local area flying			
ATIS	RW27L 220/10 10 km ovc/050 15/8 QNH 1001			
Clearance	BAW101 cleared to local area flying			

- Taxi position LHR RW27L.**

220/10 10 km ovc/050 15/8 NH 1001.

220/60/280 MACTOW 23.
 - Pilot A handling in RHS.
 - Taxi to runway for taxi practice.
 - All self handled with no hand over of control.

INSTRUCTOR ONLY

- Visual circuits to allow trainee to practice handling.
- When comfortable re-set for take-off for practice of EFATO, OEI manual ILS, OEI manual GA and OEI landing.
- All above to a level 3 standard.
- Re-set take-off and practice RTO until a level 3 standard including management of post stopping actions as Captain.

2. **Re-set taxi position RW27L.**

220/10 10 km ovc/050 15/8 NH 1001.

220/60/280 MACTOW 23.

- Pilot B handling in RHS.
- Taxi practice to runway.
- All self handled with no hand over of control.
- Visual circuits to allow trainee to practice handling.
- When comfortable re-set for take-off for practice of EFATO, OEI manual ILS, OEI manual GA and OEI landing.
- All above to a level 3 standard.
- Re-set take-off and practice RTO until a level 3 standard including management of post stopping actions as Captain.

3. **Ground power.**

4. **End detail.**

5.2.1.2 Detail 2**5.2.1.2.1 Summary**

Two LOFT details, one for each trainee, lasting about 1:30 hrs. The LOFT provides exposure to non-normal management. Second half is Non-ILS database approaches.

5.2.1.2.2 Objectives

This detail introduces a standard sector with a non-normal to manage for each trainee. Extra fuel can be loaded as the emphasis is on checklist management/prioritisation and system knowledge. Significant training input is expected with this type of trainee. The trainee also has an opportunity to practice managing a non-ILS database approach (flown by pilot in RHS).

5.2.1.2.3 Standard Required on Completion of Detail 2

- Thorough understanding of FCOM 1 requirements for a non-ILS approach (database and non-database).
- Successful outcome of the LOFT scenario should never have been in any doubt.
- Handling in RHS manual and automatic to a level 3 standard.
- SOPs and technical knowledge to a level 3 standard.

5.2.1.2.4 Briefing

- Check understanding of Non-ILS database and non-database procedures.
- Discuss use of T-DODAR as a diagnostic and work allocation tool.
- Hydraulic Failures.
- Flight control failures.

5.2.1.2.5 Instructor Notes

This is the first of the real time LOFT and is a chance for the trainee to practice QRH handling and consolidate SOPs. Extra fuel should be added to ensure that there is little time pressure. A quick engine start and set-up should be used to keep the LOFT to 1:30 for each trainee. There will significant instructor led training input to ensure that the trainees understand how to use TDODAR and to ensure that checklist handling is correct. Having assessed handling in detail 1 the focus on this detail is on QRH use and further SOP consolidation. Most handling (other than take-off and landing) will be done from LHS with auto-pilot engaged. There is also a chance to manage a non-ILS database approach.

Debrief should focus on non-technical skills, QRH handling and SOPs. If significant debriefing is required then FTM should be informed prior to the next detail.

Day 2 Outro should include pre-notifying the faults for detail 3. LOFT 1: cabin depressurization, LOFT 2: engine rundown above Aa. Instructor to pre-notify MEL item for detail 3 LOFT 2: left outflow valve inop.

5.2.1.2.6 Detail 2 Lesson Plan

DETAIL 2				
Briefing	Quick engine start. Holding point RW22 pilot to run checks from briefing checklist		STN RW 22	
Initial state	Engines running at holding point STN RW22			
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	CIRRUS	??
Initial position	Holding point 22			
Route	STN-LHR-STN			
ATIS	RW22 180/25 1300 m mist ovc/005 2/0 QNH 988 NOSIG			
Clearance	BAW102 cleared to LHR CPT 4R to WCO direct BNN			

1. Holding point STN RW22.

180/25 1300 m mist ovc/005 2/0 QNH 988.

Aircraft to be set up from IOS according to fuel selected.

- Pilot B handling in RHS.

- Do not allow trainee to take more than CIRRUS fuel.
- Normal sector with a short hold at BNN (one hold only).
- After descent checks handover to Pilot A for approach.

2. Set LHR RW27L.

180/25 1400 m mist ovc/004 2/-1 QNH 991.

- When leaving the hold action a hydraulic system 1 failure followed by a hydraulic system 4 failure.

3. Re-set take-off RW27L.

180/25 5 km ovc/009 2/-1 QNH 991.

220/60/280 MACTOW 23.

- Pilot B still handling in RHS.
- Crosswind take-off expect vectors for non-ILS approach RW 27L.
- Hand-over to Pilot A to fly automatic RNAV or LLZ approach RW27L.
- Pilot B complete manual crosswind landing.

...BREAK...

4. Re-set take-off LHR RW27L.

Aircraft conditions as CIRRUS and set-up in IOS.

180/25 1300 m mist ovc/002 2/1 QNH 991.

- Clearance to Stansted BPK SID - BKY expect ILS RW 22.
- Pilot A handling.
- Load CIRRUS fuel + 30 mins.
- After descent briefing handover to Pilot B for approach.

5. Re-set STN RW22.

140/25 1400 m mist ovc/005 3/1 QNH 988.

Short delay at LOREL (one hold only).

On the approach action a flap drive failure.

6. **Re-set take-off LHR RW27L.**

180/25 5 km ovc/009 2/-1 QNH 991.

220/60/280 MACTOW 23.

- Pilot A still handling in RHS.
- Crosswind take-off expect vectors for non-ILS approach RW 27L.
- Hand-over to Pilot B to fly automatic RNAV or LLZ approach RW27L.
- Pilot A complete manual crosswind landing.

7. **Re-set take-off RW27L.**

- Any remaining time use for practice as requested by trainees.

8. **Ground power.**

9. **End detail.“**

5.2.1.3 Detail 3**5.2.1.3.1 Summary**

One LOFT lasting about 1:30 hrs for each trainee. First LOFT involves performance calculation and departure in contaminated conditions. Second LOFT includes an MEL item. Both LOFTs include AWOPs. After completion of LOFT remaining 1 hour of detail used for 2 engine out handling.

5.2.1.3.2 Objectives

This detail further consolidates BA SOPs, QRH handling and completes AWOPS training.

5.2.1.3.3 Standard Required on Completion of Detail 3

- Thorough understanding of AWOPs procedures and correct handling of auto-approaches and auto-lands.
- Handling in RHS manual and automatic to a level 3 standard.
- SOPs and technical knowledge to a level 3 standard.
- Handling of 2 engine out flying to a level 3 standard with good understanding of performance aspects.

5.2.1.3.4 Briefing

- Check knowledge of AWOPs procedures.
- Pressurisation system and emergency descent.
- Management of engine failures and continuation policy.
- Discuss 2 engine out handling, criteria for airfields for 2 engine out landing (when continuing on 3) and performance on 2 engines including Vmca 2 and its affect on control at lower weights when approach speed is close to Vmca2. Fuel balancing when operating on 3 engines under flight continuation policy. Discussion should also include do we dump fuel or land overweight if on 2 engines? Reinforce that aim is not to go-around on 2 engines and this is a last resort mitigation that should be avoided.

5.2.1.3.5 Notes for Instructor

This is the last detail before the LOE. The detail involves two LOFTs both routing MAN to LHR. Ensure planning and pre-departure times are kept realistic by giving trainees a sim boarding time and take-off slot which is fixed. The intent is to put some time pressure which needs to be managed as it would on their first route training sector.

For DEPs joining from an EU operator with previous LVO experience to DH<200' the detail must include 1 further auto-approach and G/A practice for each trainee. This will make a total of 6 LVO approaches (as a crew) to DH<200' in detail 3.

If a DEP has not conducted LVO procedures with an EU operator or has not previously operated to CAT II/III minima inform FTM to ascertain additional training.

The instructor must assess each trainee individually and will require to carefully brief the LHS pilot to behave as a Captain during the LVO.

Both pilots should also practice a two engine approach, go-around and landing from the RHS as a handling exercise. The first approach for each trainee can be flown with autopilot from LHS for a handover to RHS before 1000 aal at the latest. Briefing by trainees in the simulator should be kept to a minimum (due to time constraints) with the management aspects discussed in the briefing room. The emphasis in the simulator is on handling of the aircraft on two engines from the RHS.

5.2.1.3.6 Detail 3 Lesson Plan

DETAIL 3				
Briefing	Quick panel scan followed by quick start after briefing Taxi position pilot to run checks from briefing checklist		Manchester RW 23R	
Initial state	Engines shutdown hold position MAN RW23R			
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	25T	245T

Initial position	Hold short MAN RW23R
Route	MAN-LHR X2
ATIS	RW23R 210/10 1800 m BR ovc/005 -1/-4 QNH 1000 NOSIG
Clearance	BAW103 cleared to LHR HON1R

1. Hold position MAN RW23R.

210/10 1800 m BR ovc/005 -1/-4 NH 1000.

Aircraft to be set up from IOS according to fuel selected.

- Pilot A handling in RHS.
- Cabin depressurisation in the cruise (take snapshot prior to event).
- Repeat depressurisation for other trainee (no seat swap required as this could occur when acting as relief pilot).

2. Set LHR RW09L.

180/5 200 m FzFg ovc/005 -1/-1 NH 999 (sim wx).

Pass weather to crew as 180/5 100 m fzfg ////-1/-1 NH999.

- LVPs are in force.
- On approach below 1000 ft give RVR 200 m.

3. Land 2.

- Activate at 500 ft.
- Go-around due no reversion.
- Vector for second approach.
- Autoland by Pilot B.

4. Re-set take-off Holding point MAN RW23R.

MEL item left outflow valve inop (outflow valve) (or other instructor selected MEL item).

240/20 5 km ovc/004 2/-1 NH 999.

- Weight and fuel as per sector 1.
- Engines running.
- Pilot B handling in RHS.

5. Above Aa action an engine rundown.

Flight continuation to LHR on 3 engines.

6. Set LHR RW27L LVP.

240/15 100 m Fg /// -0/-0 NH 1001.

7. Below 300 ft activate ILS deviation.

After go-around vector for Cat3B no DH Autoland by Pilot A.

8. Re-set take-off LHR RW27L.

260/10 4 km haze ovc/007 6/1 NH1001.

230/80/310 mactow from IOs.

- Clearance to JFK BPK departure.
- Pilot B handling in RHS.
- EFATO engine rundown due bird strike on inboard engine.
- Followed shortly after by engine stall on outboard engine.
- Vector for 2 engine out approach (overweight).
- Briefing should be minimal as this is a handling exercise.
- ATC instigated go-around below 1000 aal by Pilot B.
- Snap shot back to finals for 2 engine out landing Pilot B.

9. Re-set take-off LHR RW27L.

260/10 4 km haze ovc/007 6/1 NH1001.

230/40/270 mactow from IOs.

- Pilot A handling.
- Inboard fire and fail.
- Outboard fire.
- Fire eventually extinguished.
- Vector for 2 engine out approach.
- ATC instigated go-around below 1000 aal by Pilot A.
- Snapshot back to finals for 2 engine out landing pilot.

10. Ground power.

11. End detail.

5.2.1.4 Detail 4**5.2.1.4.1 Summary**

This detail is an LOE.

5.2.1.4.2 Objectives

This detail must be assessed as a level 3 standard or better for trainee to progress to detail 5 and LPC in the RHS.

5.2.1.4.3 Standard Required on Completion of Detail 4

- LOE completed to a level 3 standard as a minimum.
- Debrief items consistent with a level 3 standard.
- All Pilot Competencies consistent with a level 3 standard co-pilot.

5.2.1.4.4 Briefing

- LOE briefing.
- Any items which the trainees wish to discuss in preparation for the route training.

5.2.1.4.5 Notes for Instructor

This is a standard LOE detail. The trainee cannot proceed to LPC detail 5 unless the LOE is assessed as a level 3 standard or better. If there is any doubt about the standard achieved then trainer should discuss in person with FTM. It is unacceptable for a trainee to continue to detail 5 if any Pilot Competencies are assessed below a level 3 standard.

The instructor can select any LOE from the lesson plans of check B, D or F.

Normal LOE briefing/debriefing and grading protocol should be applied, and a successful completion will update the trainees' mandatories.

If two trainees are paired together only one LOE needs to be completed for the pair working as a crew.

The LOE lasts 2 hours. After the break the remainder of the detail should be used as practice for the LPC.

Trancomm Completion

The trancomm record for detail 4 will include 6 generic event headings. Depending on the selected scenario there may be less than 6 events to grade. In this case mark any unused event as N/A (not applicable). The events should be assessed and graded using the normal LOE protocol. In the commentary box for each generic event include details of the event as well as any commentary and appraisal. The overall detail commentary should also state clearly which LOE scenario was used for the exercise. Finally, ensure that following successful completion of the LOE that the LOE completed box is marked so as to update the mandatory.

5.2.1.4.6 Detail 4 Lesson Plan

DETAIL 4				
Briefing				
Initial state				
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	CIRRUS	??
Initial position				
Route				
ATIS				
Clearance	BAW104 cleared to			

Instructor to select LOE scenario from database of previous LOEs.

INSTRUCTOR ONLY

5.2.1.5 Detail 5**5.2.1.5.1 Summary**

This detail is to revalidate the trainees' LPC in the RHS. The detail contains all the elements of the LPC plus 1 auto-approach, 1 go-around and 1 autoland for each trainee to revalidate their Cat 3 qualification in the LHS.

5.2.1.5.2 Objectives

This detail is assessed in accordance with CAA Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and normal BA criteria.

5.2.1.5.3 Standard Required on Completion of Detail 5

- LPC completed to a level 3 standard.
- Form FCL150C signed in licence with expiry to end of the month in which detail 5 is completed. No allowance can be taken for any unexpired LPC in the RHS, all mandatories are re-set during this course.
- LPC form SRG/1119 completed and posted in the normal way.

5.2.1.5.4 Briefing

- Standard LPC briefing.
- Any items which the trainees wish to discuss in preparation for the route training.
- A PBN knowledge check is required as part of the PBN qualification. ■

5.2.1.5.5 Notes for Instructor

This is a standard LPC detail (including AWOPs), after successful completion the TRE can sign the trainee’s licence. All assessment should be in accordance with Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and normal BA criteria.

The first LPC commences with a full start on the gate at T5. This is done as a crew exercise and is not repeated after the break. The examiner should give the crew a push-back time of simulator entry +25 minutes which they must adhere to. During the start the examiner introduces an engine start fault. This should not unduly delay the start sequence. Once push-back is complete, the aircraft can be re-positioned to the holding point. The RTO must be done in minimum RVR. The route is self-handled following the EFATO with no hand over of control, this requires careful briefing. The engine failure must include a fire which can be extinguished. Following the first NPA which is flown with autopilot engaged, the autopilot must be disengaged so as to ensure a manual go-around is flown. The disengagement can be initiated by the examiner, using the PTP, approaching DA. The autopilot remains failed and during the subsequent manually flown ILS the LHS pilot is incapacitated at 500’ resulting in a manual landing. The AWOPs element follows, during which the examiner should introduce a TCAS event.

Following the break the pilots swap seats, engines are now running at the holding point at LGW for a return flight to LHR following the same scenario as the first sector. The AWOPs and TCAS are completed at LHR for the second pilot.

Any time at the end of the detail should be used to allow the trainee to fly an approach and landing at their first destination on the route training.

5.2.1.5.6 Detail 5 Lesson Plan

DETAIL 5				
Briefing	Full start LHR. On the gate at T5			
Initial state	A/C anti-iced. No contamination			
PERF DATA	MAC TOW	ZFW	FUEL	TOW
All Take-offs	From IOS	220T	40	260

Initial position	Holding point RW27R
Route	LHR-LGW-LHR
ATIS	180/5 100 m FG /// 1/1 NH1001
Clearance	BAW105 cleared to LGW

1. On gate at T5.

180/5 100 m fg ovc/001 1/1 NH 1001.

220/40/260 Mactow from IOs.

- Pilot B handling in RHS.
- Full start to push back within 25 minutes. Examiner to introduce an engine start fault from IOS during push-back. Following completion of checklist clear fault and complete start (3.4.0).
- After successful engine start re-position to holding point RW27R.
- RTO due engine rundown.

2. Re-position TO RW27R.

- Engine failure and extinguishable fire (3.6.1) after V₁.
- No handover to Pilot A.
- All self handled by Pilot B.

3. Set LGW RW26L.

180/5 1500 m Fg ovc/008 -1/-1 NH 999 tempo 500 m. Actual wx set 180/5 800 ovc/004.

ILS Glidepath on maintenance.

- Offer RNAV or LOC only approach flown by Pilot B.
- No handover to Pilot B.
- Pilot A self handles flight to LHR.

4. Set LHR RW27L ILS glidepath u/s.

260/10 2 km haze ovc/007 3/1 NH1001 tempo 500 m. Actual wx: 260/10 800 m ovc/004 3/1 NH1001.

- ATC offers LLZ or RNAV approach RW27L.
- Just before MDA disconnect autopilot (3.4.8).
- Manual go-around by Pilot B.

5. Re-set Glidepath.

- ILS available.
- Manual ILS flown by Pilot B.
- At 500 ft Pilot A incapacitated forcing Pilot B to continue for own manual landing (3.6.7).

6. Set take-off LGW RW26L.

180/5 100 m ovc 100 6/6 NH999.

- Take-off by Pilot B in RHS prior to hand over, Pilot B to complete TCAS manoeuvre (3.6.9).
- Handover to Pilot A.
- Auto-approach with ILS nav failure below 1000 ft (3.4.11).
- Crew diagnose and failure re-set.
- Vector for second approach Cat 3B no DH.
- Autoland by Pilot B.

7. Re-set take-off Holding point LGW26L.

180/5 100 m ovc/001 2/2 NH 999.

220/40/260.

Engines running.

- Pilot A handling in RHS.
- RTO due engine failure.

8. Re-set LGW Take-off RW26L.

- Engine failure and extinguishable fire (3.6.1) after V₁.
- Pilot A flies non-ILS approach.
- Prior to MDA disconnect autopilot (3.4.8).
- Pilot A flies manual go-around.
- After go-around ATC vector for manual ILS.

9. Re-set Glidepath RW27L ILS now fully serviceable.

- At 500 ft Pilot B incapacitated resulting in manual landing by Pilot A (3.6.7).

10. **Re-set take-off LHR RW27L.**

260/10 100 m fg /// 4/4 NH1001.

230/40/270 mactow from IOs.

- Pilot A handling.
- After take-off initiate TCAS manoeuvre (3.6.9) for Pilot A before handover to Pilot B.
- Auto-approach.

11. **ILS deviation activate below 300 aal.**

- Go-around by Pilot A (3.4.11).

12. **Clear ILS deviation.**

- Vector for second approach.
- Cat3B No DH Autoland by Pilot A.

13. **Ground power.**

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5.2.2 Line Training

Line training provides the opportunity for a flight crew member to put into practice the procedures and techniques that he/she has been made familiar with during the ground and simulator course. This is accomplished under the supervision of a Training Captain occupying the other seat. Line training is concluded once the trainee is able to perform a safe and efficient flight conducted within the tasks of their role and status. Thereafter the candidate will be assessed over a 2-sector line check.

The aim of line training for this course is to familiarise the trainee with a practical application of BA SOPs and the BA line environment and network.

5.2.2.1 Safety

Training should be suspended if safety is likely to be compromised. SOPs with control handover during the approach should normally be employed. This helps to reduce fatigue and allows the trainee to observe and the trainer to demonstrate. However, SOPs may be varied at the discretion of the trainer if useful training value will be gained. Both crew members must be clear as to how and why this variance will take place.

Trainers must not interfere with the normal operation of the aircraft systems.

The passengers should not be informed that training is in progress.

Do not make deliberate errors to “test” the trainee. However minor omissions (e.g. during flight deck preparation) are permitted in order to assess a trainee’s monitoring.

Whenever possible allow trainees time to correct minor errors, valuable learning can occur from this process. However, significant errors should be corrected immediately.

Do not allow a situation to occur where either crew member becomes overloaded. For example, trainers should not permit a scenario to develop where a go-around is required because trainer intervention was delayed.

Remain aware of commercial considerations and the importance of maintaining schedule.

5.2.2.2 Safety Pilots

A safety pilot is required for a minimum of the trainee's first 2 sectors. Hence the first 2 sectors will rostered on a flight that requires a heavy co-pilot.

Safety pilots provide a crucial resource to the instructor during a trainee's initial sectors when workload is particularly high. They can be used as the instructor requires, including external checks, company radio communications, etc.

Safety pilots must be carefully briefed, by the Training Captain, on their role and as to what is expected of them.

A suitable brief may consist of their actions during both normal and abnormal situations, including emergencies. It should be made clear when the Training Captain would wish them to speak up and as to what they are expected to monitor.

They should reminded that their role is a safety related one and that they should not provide any training input.

Training Captains should contact FTM B747 and Training Admin if a safety pilot is required beyond the minimum 2 sectors. Once the safety pilot is no longer required, tick the Release Safety Pilot box in Trancomm.

5.2.2.3 AWOPS/LVO

Any DEP who has not previously flown Cat II/III operations with an EU operator will be required to fly 1 practice auto-land on the aircraft during Line Training to complete their LVO qualification. FTM will provide further details for any DEP affected by this requirement.

5.2.2.4 Weather Limitations

Trainees will operate to the appropriate limits for their status (Captain or First Officer) as per OM Part A(1).

5.2.2.5 Line Training Discussion Items

- Your aim is simply to assess whether the trainee has achieved a 'Good' level of knowledge – *commensurate with role and experience*.
- Please do not feel obliged to conduct long sessions of ground training; use facilitation rather than instruction and indicate to the trainee where further private study is required.
- Refer to [OM Part D Appendix T 12.1](#) for line training discussion items matrix and expanded list.

5.2.2.6 Ready for Line Check

Tick the appropriate Trancomm box when:

- The trainee has completed at least the minimum number of sectors (5.2.0c).
- The trainer is confident that the trainee will achieve a level 3 standard or better grade in the final Line Check.

The trainee should be reassured that there is no such thing as a perfect sector. A good sound performance is all that is required.

If the trainee is not ready for line check after 4 sectors then the next Training Captain, Training Admin and FTM B747 must be informed.

5.2.2.7 Final Line Check – Guidance for Training Captains

A trainee will only be allowed to progress to final check if they have demonstrated that all areas of their operation are to a level 3 standard and all Line Training discussion items are complete.

The Training Captain should:

- Check the trainee's licence, passport, visa and medical dates are valid prior to flight.
- Ensure that licence, passport, visa and medical dates are correctly entered into the Crewlink mandatory system.
- Assess the trainee's ability to perform satisfactorily a complete flight from preflight briefing through to post flight duties in terms of Pilot Competencies. The trainee should have met the Route Briefing requirements as set out in OM Part A(1) Chapter 5 (Pilot's Area and Aerodrome qualification).
- Assess that the trainee complies with the role and responsibilities expected of a BA pilot.
- Not lead the trainee but by the nature of the number of sectors of training there may be areas of operation that the trainee has not been exposed to prior to the check and some allowance should be made for this.
- When debriefing, focus on the positives, avoid being chronological or nit-picking and highlight areas for development and improvement. Pilot Competencies integrates both technical and non-technical skills, hence the debrief should combine both.

-
- Ensure that the debrief identifies areas for on-going development. These should be discussed with the trainee and included in their final Trancomm report. It should be explained to the trainee that they will need to ensure that they take responsibility for maintaining their own personal standards in all aspects of their operation.

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6 RECURRENT CHECKS

6.0 Introduction

- To make statement that HF/CRM is imbedded as an integral part of all re-current check cycles and responsibility for HF training on each fleet resides with the fleet FTM.

6.1 LPC/OPC

- Refer to EASA part FCL (LPC) and EASA Regulation Air Operations (OPC).
- Refer to B747 My Learning Academy (MLA) for details of current checks.

6.2 ATQP/LOE

- Refer to OM Part D Appendix Y for ATQP Program.
- Refer to B747 My Learning Academy (MLA) for details of current checks.

6.3 Line Check

- Under EASA Regulation Air Operations AMC ORO FC 230(b) (3) (vi) single sector recurrent line checks approved with our SOPs.
- The line check is considered a particularly important factor in the development, maintenance and refinement of high operating standards, and can provide a valuable indication of the usefulness of company training policy and methods.
- Line checks are a test of a flight crew member's ability to perform a complete line operation satisfactorily, including pre-flight and post-flight procedures and use of the equipment provided, and an opportunity for an overall assessment of a pilot's ability to perform the duties required.
- The route chosen should be such as to give adequate representation of the scope of a pilot's normal operations. When weather conditions preclude a manual landing, an automatic landing is acceptable. The line check is not intended to determine competence on any particular route.
- In addition to the above duties, flight crew members should be assessed on their non-technical Competencies. The pilot-in-command, or co-pilot acting as pilot-in-command, should also demonstrate their ability to manage the operation and take appropriate command decisions.

-
- The Examiner must always occupy the Observer's seat unless conducting an Initial Line Check (Final Check) or conducting a Line Check on a pilot whose Line Check has expired. In these cases the Examiner must occupy an Operating seat.
 - Each flight crew member shall undergo a Line check on the aeroplane to demonstrate competence in carrying out normal line operations.
 - Line checks must establish the ability to perform satisfactorily a complete line operation including pre-flight and post-flight procedures and use of the equipment provided.
 - The flight crew will be assessed using Pilot Competencies as the debrief framework.
 - Line checks must be completed in the aeroplane.
 - Line checks must be conducted by suitably trained commanders, nominated by the operator and acceptable to the Authority.
 - When conducting single sector Line Checks they are a good environment to assess and give developmental feedback to Senior First Officers as part of their Command development. The Examiner should encourage the Operating Captain to allow the First Officer to act as P1U/S provided the weather and operation allow delegation of the role to the co-pilot. When only the First Officer is under check the Examiner should recommend that the First Officer is allowed to operate the sector in the P1U/S role subject to weather and any other operational restrictions, (e.g Captain only landing).
 - The B747-400 is certified as a Two crew aeroplane. Even though most operations will involve three crew, the Line check is an opportunity to assess the Crew's ability to operate in a two crew environment in particular with time management during the departure phase. If the Examiner is acting as a Heavy Crew member it is legitimate and expected that he will play no part as the Operating crew until the aircraft has reached Top of Climb and he has observed the Crew under check conducting a portion of the cruise including receiving and programming any MNPS clearance and waypoint check. The Examiner will then act as a relief crew member until preparation for the descent when he will revert to the Examiner role.

6.4 SEP

Refer to OM [OM D – Cabin Operations Training Manual](#).

SEP is conducted annually for all Flight Crew and Cabin Crew. The content of the SEP session can be found on the BA Intranet. Further information on SEP training can also be found in the OM [OM D – Cabin Operations Training Manual](#).

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7 TRI TRAINING

Refer to OM [Part D Appendix I](#)

7.0 Introduction

- a. The objective of the TRI Course is to train to the level of proficiency necessary for the issue of a B747-400 TRI (A) certificate. The course is designed to give training to the applicant in theoretical knowledge instruction; in-flight instruction (Training Captains only) and synthetic flight instruction in order to instruct on an B747-400 ZFT Type Rating Course including LIFUS (where applicable). It meets the requirements set out in EASA part-FCL subpart J (FCL.930TRI) and CAA STDS Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

- b. Pre-entry requirements (qualifications required) for initial issue.

General. An applicant for an instructor certificate shall be at least 18 years of age. (For the B744 the requirement to hold an ATPL will mean that the age limit is 21 years of age.)

Additional pre-requisites for the initial issue of a TRI(A). An applicant for an instructor certificate shall:

1. Hold an ATPL pilot licence on the applicable aircraft category; and the rating for which flight instruction is to be given (except for SFI see AMC FCL 900 b);
 2.
 - i. Have completed 1500 hours flight time as a pilot on multi-pilot aeroplanes; and
 - ii. Have completed within the 12 months preceding the date of application, 30 route sectors including take-offs and landings as PIC or co-pilot on the B744 of which 15 sectors may be completed in an FFS representing the type.
 3. Passed an Assessment of Competence (AoC) for the relevant category of instructor on the B744 (See 7.0 e).
- c. Course overview:

Training FO

Phase	Duration
TRI Part 1	5 days
Simulator Training	10 days

Training Captain

Phase	Duration
TRI Part 1	5 days
Simulator Training	10 days
LIFUS Training	3 days
Aircraft Training and Final Check	6 Sectors

TRI (sim) training is conducted by a TSC or other nominated Training Captain.

TRI (line) training is conducted by a TSC or other nominated Training Captain.

TRI LIFUS is conducted by a TSC.

The final two sectors (aircraft training and Final Check) are conducted by a TSC.

Note: A tutor cannot examine a trainee to whom training has been given for the course.

- d. Assessment is continuous throughout the course. Each FFS session or flight has a set of objectives. Also the standard of knowledge and skill requiring to be demonstrated during the training event is detailed. However the regulator requires that specific assessments of competency over the course are made. Specifically these events are set out below:

Training FO

Phase	Event	Day	Instructor
FFS Phase	Assessment of Competence	15	Examiner

Training Captain

Phase	Event	Day	Instructor
FFS Phase	Assessment of Competence	15	Examiner
Aircraft Phase	Final Check	End	TSC#

or other specifically nominated TC briefed by FTM B747.

All instructors shall be trained to achieve the following competencies:

- Prepare resources.
- Create a climate conducive to learning.
- Present knowledge.
- Integrate crew resource management.
- Manage time to achieve training objectives.
- Facilitate learning.
- Assess trainee performance.
- Monitor and review progress.
- Evaluate training sessions.
- Report outcome.

The trainee is responsible for his/her own learning. Various sources of information will be available including the MLA, FCOM, CAP413, Standards Documents No.29 and No.43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk). The trainee is responsible for allocating time to study the training material prior to presenting themselves for the course.

The continuous assessment process will identify training effectiveness and highlight areas for trainee development. Trancomm will reflect the trainees progress and, during the debrief session, the trainee will be made aware of specific areas to focus on.

If lack of progression in key areas of knowledge, skill or attitude is identified the Course Tutor will make the trainee aware of this informally during the de-brief. If failure to progress is persistent the FTM B747 will be informed and he/she will decide what steps are required to meet the trainees needs.

- e. Assessment of Competence (AoC) for issue of a TRI.

An applicant for an instructor certificate shall pass an assessment of competence in the appropriate aircraft category to demonstrate to an examiner qualified in accordance with part FCL. 1005. TRE a (5), the ability to instruct a student pilot to the level required for the issue of the relevant licence, rating or certificate.

(Note FCL. 1005 a (5) requires a TRE to have at least 3 years' experience as an examiner and be a Tutor for the B747 TRI course (must have privileges to instruct on a course for which examiner privileges are being exercised) to conduct AoCs for issue, revalidation or renewal of a TRI. Additionally within BA they must have been nominated by the FTM to conduct these assessments, generally they will be a TSC on the fleet.)

This assessment shall include:

1. Demonstration of the competencies described in FCL.920 (para d above), during pre-detail, post-detail and theoretical knowledge instruction;
2. Oral theoretical examinations pre-detail and post-detail briefings and in-flight demonstrations in the appropriate aircraft class, type or FSTD;
3. Exercises adequate to evaluate the instructor's competencies.

The assessment shall be performed on the same class or type of aircraft or FSTD used for the flight instruction.

Note: When an assessment of competence is required for revalidation of an instructor certificate, an applicant who fails to achieve a pass in the assessment before the expiry date of an instructor certificate shall not exercise the privileges of that certificate until the assessment has successfully been completed.

If the TRI assessment of competence is conducted in a FFS, the TRI certificate shall be restricted to flight instruction in FFSs.

The restriction shall be lifted when the TRI has passed the assessment of competence on an aircraft.

In this case, the TRI may conduct line flying under supervision, provided that the TRI training course has included additional training for this purpose (see TRI (LIFUS) course at 7.3).

f. Standard required.

Instructor training is a continuous assessment course. The SI is expected to demonstrate consistently high levels of knowledge and application in the following areas:

- Aircraft handling skills.
- Technical knowledge.
- Pilot Competencies.
- Teaching and Learning skills acquired during the TRI Part 1 module.

Additionally the Instructor must demonstrate that they have acquired sufficient skill and knowledge in simulator operation and the key instructor competencies as set out in para d (above) to be able to deliver effective training on a Type Rating Conversion course. To proceed to the AoC detail the SI should have achieved Objectives Met in all details prior to the AoC. If any detail during the course has been assessed as Objectives Not Met the SI's progress will have been subject to an assessment by the fleet FTM in conjunction with the course Tutor as part of the informal MOP procedure. This assessment will include a decision on whether TRI training should continue. An SI must be assessed as Objectives Met in the detail immediately preceding the AoC to be allowed to continue to assessment.

The AoC will be assessed in accordance with the standards set out in CAA SRG Standards Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

7.1 TRI Part 1 Course

7.1.0 Introduction

The TRI Part 1 Module of the type TRI Course is required by FCL.930.TRI (a) (1). It meets the requirements of AMC1 FCL.920 (Instructor Competencies and assessment) using the guidance provided by AMC FCL.930.FI Part 1.

The course is a generic course for all fleets and must be attended by all newly appointed British Airways Type Rating Instructors.

An existing British Airways TRI who is converting to a new type and is completing a type specific course to extend their Instructor privileges to the new type (as set out in FCL. 910 TRI) is not required to complete a further TRI Part 1 (see FCL.930 TRI (b)).

An applicant for a TRI sponsored by another operator must attend this course if they are applying for issue of an initial Type Rating Instructor Certificate. If they are seeking extension of TRI privileges to a new type they must demonstrate to the satisfaction of the BA ATO Head of Training that they have completed a TRI Part 1 which meets the requirements of FCL 930 TRI (a) (1).

7.1.1 Course Objectives

The objective of the course is to provide TRI STUDENT with a foundation in training and learning theory and practice together with an awareness of the knowledge, skills and attitude required of a TRI.

These skills and competencies include but are not limited to:

- Creating a climate conducive to learning
- Identifying and responding to trainees' needs
- Presenting and transferring knowledge
- Facilitating understanding
- Demonstration
- Identification, evaluation and correction of errors
- Giving feedback
- Relevance of effective and pre-emptive briefings
- Assessing Trainee performance
- Writing accurate and objective reports
- Managing time to achieve training objectives
- Integrating Human Factors training

7.1.2 Training Methodology

The course takes place over 5 days including a practical simulator training session on day 3. There is a small amount of pre-course preparation work for the TRI STUDENT and assessment is continuous throughout the course. The course has been specifically designed to be highly interactive, utilise a variety of training media and focuses on the active participation of the trainees from the outset.

The training methods include: Interactive Classroom sessions; Break out group Briefings and De-briefings, use of video for feedback, Full flight Simulator for role specific training, role playing scenarios.

Additionally from day 2 onwards the training session commences with a one to one facilitated feedback session between a Course Tutor and each TRI STUDENT. The TRI STUDENT maintains a personal development file and the course is subject to an official written report within the TRANCOMM system; (alternative company systems will be utilised for TRI STUDENTS sponsored by another operator). The TRI STUDENT is expected to participate fully and therefore cannot always take comprehensive notes; hand-outs covering relevant material from the day's modules are distributed at the end of each course day.

There is 1 TRI TUTOR for every 3 TRI STUDENTS or fraction thereof.

TRI TUTORS must conduct at least 1 TRI Part 1 Course or similar trainer training event in a 3 year period. In the event of a lapse in recency, appropriate retraining and assessment will be carried out as defined by the Chief Tutor.

A list of Course TRI TUTORS as at November 2015 is included in [Section 7.1.6](#).

7.1.3 Course Overview

The table below sets out the content of the course and time allocated to each module. Total time excluding breaks is 34:40 hours.

DAY	PROGRAMME	TIMING	TOTAL
ONE	<i>An Introduction to Training and Learning Theory – Skills Training</i>		
	<ul style="list-style-type: none"> • Course Introduction • What Trainers Do • How People Learn • Core Skills 1 • Feedback • Creating a Learning Environment • Briefing Skills • Briefing Assignments for Day 2 	<ul style="list-style-type: none"> • 0900-0945 • 0945-1045 • 1100-1215 • 1330-1515 • 1530-1630 • 1630-1645 • 1645-1730 • 1730-1740 	7:25
TWO	<i>Application of Practical Briefing Skills – Further Development of TRI Part 1 Models</i>		
	<ul style="list-style-type: none"> • Self-Preparation Time for Briefings • Practice Briefings • Core Skills 2 • The Training Cycle • Managing Errors 1 • Observing • Briefing for Day 3 (Simulator Session) 	<ul style="list-style-type: none"> • 0900-1000 • 1000-1300 • 1330-1430 • 1445-1545 • 1545-1615 • 1615-1645 • 1645-1715 	7:30

DAY	PROGRAMME	TIMING	TOTAL
THREE	<i>Application of the Knowledge and Skills Learned in a Dynamic Simulator Environment</i>		
	<ul style="list-style-type: none"> • Generic Circuit Briefing by Trainee Instructor • Simulator Training Sessions (4 Hours) • Debrief of Training Sessions • Managing Errors - Discussion and wash-up session with the entire course 	<ul style="list-style-type: none"> • 0830-1030 • 1100-1500 • 1530-1630 • 1630-1730 	8:00
FOUR	<i>Human Performance and CRM Training – Application of Debriefing Skills</i>		
	<ul style="list-style-type: none"> • Human Performance and Limitations • Introduction to CRM Training and Assessment • Introduction to Pilot Competencies • The Debrief in Practice – Demonstration • Briefing for Afternoon Session • Practice Debriefing Sessions 	<ul style="list-style-type: none"> • 0900-0945 • 0945-1030 • 1045-1215 • 1215-1245 • 1330-1345 • 1345-1715 	7:15
FIVE	<i>Managing the Extremes of Performance – Training in Different Environments</i>		
	<ul style="list-style-type: none"> • Managing Extremes • Report Writing • Ground/Flight Differences • Introduction to next phase of TRI Course • Outro 	<ul style="list-style-type: none"> • 0900-1030 • 1045-1130 • 1230-1345 • 1345-1415 • 1415-1445 	4:30
TOTAL			34:40

7.1.4 Course Material

There is a TRI Part 1 Course presenter manual. This is only available for the TRI TUTORS nominated to present the course. This also contains the relevant media for the course.

There is no specific training material for this module of the TRI course. TRI STUDENTS are expected to have a good technical knowledge of their specific type and a high level of skill. They will have passed a selection process which will have assessed their suitability in terms of personality and disposition to instruct.

The intensity and concentration required during the course means that the TRI STUDENTS are not expected to have done any specific pre-module preparation. All training material is provided during the course itself.

7.1.5 Assessment

A written personal progress report should be maintained for each TRI STUDENT throughout the course and their training abilities should be assessed as satisfactory by the course tutor before progressing to the next part. The TRI STUDENTS are continuously assessed and their progress monitored by the TRI TUTORS who observe how the TRI STUDENTS assimilate the skills and knowledge which are presented to them over the 5 days.

The TRI STUDENTS are given regular feedback by their fellow STUDENTS and each day by their supervising TRI TUTOR. This feedback is designed to reinforce key learning points and personal traits and to highlight areas where the TRI STUDENT may need to modify behaviour or focus learning to become a more effective instructor.

Any TRI STUDENT who fails to show sufficient proficiency in the necessary skills or inadequate ability to absorb the knowledge and key learning points would have this fed back to them during the one to one sessions. The TRI TUTOR would then work collaboratively with the TRI STUDENT and their respective FTM to decide on the best course of action with regard to proceeding to the Type specific TRI course. (In the case of a non-BA TRI STUDENT this discussion would be had with the Training Manager of the sponsoring company in conjunction with the Head of Training for BA ATO or his nominated representative).

7.1.6 TRI Part 1 Course Tutors

Chief Tutor – Captain Greg Steele

Tutors:

- Captain Charles Everett
- Captain John Diggory
- Captain John Leech
- Captain Paul Field
- Captain John Phillips
- Captain Rob De Martino
- Captain Jerry Palmer
- Captain George Baillie
- Captain David Kennedy

7.2 TRI/SFI (Sim Phase)

7.2.0 Introduction

This course may be undertaken by Captains and Co-pilots who have completed the TRI Part 1 Course. Candidates should have above average skills in the following areas:

- Aircraft technical knowledge.
- Standard operating procedures.
- Pilot Competencies.

7.2.0.1 Objectives

The aim is for candidates to:

- Learn to use the Instructor Operating Station (IOS).
- Develop the instructional skills acquired during the TRI Part 1.
- Develop Human Factor Analytical Skills.
- Gain familiarity with the Conversion Course simulator exercises.
- Learn to assess when a trainee has achieved the LST standard.
- Reach a satisfactory standard for a final test.
- Achieve TRI rating and CRMI authorisation.

7.2.0.2 Method

During the course the Student Instructor will:

- Manage the simulator from the IOS.
- Develop his/her instructional technique.
- Give briefings on Conversion Course subjects.
- Demonstrate aircraft handling and instructional patter.
- Identify and correct errors.
- Give and receive feedback and tutoring.

7.2.0.3 Terminology

Student Instructor (SI):	The TRI candidate.
Tutor Pupil (TP):	The TRI instructor who will act as the student instructor's pupil.
SI one/SI two:	A term used when there is a need to differentiate between candidates.
Tutor:	The TRI Tutor conducting the course.
Examiner:	A BA examiner authorised by the CAA to carry out the TRI Test.

7.2.0.4 Standard Required

The TRI course is a continual assessment course and the trainee's progress throughout the various elements of the course are closely monitored. During all stages of the course the course tutor will provide comprehensive feedback after each simulator training session and Trancomm reports will be completed.

Should the trainee's progress fall below the acceptable standard then the course tutor should inform the Flight Manager (Training) immediately. The TRI course may be suspended pending review.

7.2.0.5 Roster Matrix for Standard TRI/SFI (Sim Phase)

The following is a matrix for the ideal roster pattern for this course. This is the ideal plan but on the day circumstances may require a different days off pattern to be used by training admin.

Day 1-3	TRI 1-3
Day 5-6	Off
Day 7-9	TRI 4-6
Day 10-12	Off
Day 13-15	TRI 7-9
Day 16-17	Off
Day 18	TRI 10 – AoC

7.2.1 Course Overview

7.2.1.1 Pre-course Preparation

- Student Instructors should obtain the following:
 - Flight Crew Training Manual (FCTM).
 - Training access to Trancomm. (Home access is possible).
 - Sim Operator's Quick Reference Manual.
- Revise all volumes of the Aircraft Library paying particular attention to SOPs, expanded checklists, allocation of duties, standard call-outs, etc.
- Study Human Factors and Error Management material so that you can discuss the concepts using the appropriate terminology.
- Revise ATC RT phraseology – CAP 413.
- Obtain TRI and TRE application forms from Training Admin.
- Prepare for the first briefings and simulator detail.

7.2.1.2 Instructional Techniques

The techniques required include briefing, demonstration, observation, objective analysis, correction, feedback and report writing. These are the six primary training skills learnt on the TRI Part 1 and these will be re-enforced and developed throughout the course.

7.2.1.3 Briefing

During the discussion on Day 2 the Tutor will give an example of a classroom briefing on which the SIs can model their briefings. A "text book" briefing will:

- Start from where the trainee is.
- Be clear and contain all the necessary technical information required.
- Include the necessary "how" as well as the "when & where".
- Include a "whiteboard" diagram or schematic where appropriate with the use of colour to enhance visual presentation.
- Contain a bullet point summary in conclusion.
- Contain questions to check a satisfactory level of transfer of information and understanding.

7.2.1.4 Demonstration

During Day 1 the Tutor will give an example of a “text book” patterned demonstration. This will demonstrate the technique to be used when the SIs are themselves required to demonstrate a particular exercise. During the early part of the course the tutor will specify which items are required to be demonstrated but as the SIs gain confidence and experience they must be able to recognise when a demonstration is appropriate and intervene accordingly without prompting from the tutor. The ideal patterned demonstration will consist of:

- The setting of the scene.
- Pre-emptive pattern which describes in advance the technique to be used.
- The accurate reproduction of the patterned technique.
- Bullet point summary of the highlights after the demonstration is complete.

It is absolutely vital that the demonstration is not allowed to become a “running commentary” as the trainee will have little capacity left to assimilate the important features of the demonstration.

7.2.1.5 Observation

Accurate observation is essential to complete worthwhile analysis. The SIs ability to observe and make appropriate notes where required at the same time as operate the simulator will require practice. The SI's ability to observe accurately will increase when his knowledge of what to look for develops. This highlights the need for the SIs to begin to accrue a library of common errors.

7.2.1.6 Analysis

The analysis of “why” a manoeuvre was incorrectly flown or conducted is of significant importance. The SI must be encouraged to look for the “root cause” of inconsistency or difficulty with a manoeuvre, e.g. incorrect trimming technique which results in poor heading or pitch/ speed control. The SI will be expected to include analysis of CRM issues.

7.2.1.7 Correction

The SI must be able to correct with appropriate use of the “how” factor. This will necessitate a level of empathy with the trainee and an understanding of “what” particular aspect of the technique the trainee is likely to find difficult.

7.2.1.8 Debrief

A “text book” debrief is clear, concise, objective and of appropriate length. It will focus on both technical and non-technical issues and contain elements of praise and criticism where necessary. Feedback is wasted and the learning value will be diminished if there is any element of disagreement between the instructor and the trainee as to what happened. The imperative to seek agreement on what happened, why it happened and how the trainee will proceed to correct the technique.

7.2.1.9 Tutor Led Discussion

Throughout the course the Tutor will begin each session with discussion on a variety of subjects including:

- TRI Part 1 refresher.
- Introduction to the Conversion Course details:
 - Pointers for managing the details.
 - Typical trainee errors, difficulties and remedies.
- Detail management, time-keeping, observing and note-taking.
- Demonstrations and patter.
- The similarities/differences between training and checking.
- Form LST MPA (Part Two).
- The standard required for “Training Complete”.
- Managing poor performance.
- The conduct of LOE and typical scenarios.
- Decision Making.
- Situation Awareness.
- Standardisation and refresher training.
- Trainer feedback forms.

7.2.1.10 Briefings

For detail 1, a 10 minute briefing will be prepared. For details 3-9, briefings will be prepared beforehand. The total time given for briefing each day should be restricted to 30 min per **SI** (with the exception of TRI 7 which has a 40 min brief for each SI).

These will include all of the major topics from the conversion course and items covered in check/refreshers. The intention is to complete one full brief and two mini briefs each day. The briefs will be assigned by the TP

at the end of the previous detail. At the end of the course the **SI** will have a comprehensive folder of briefings available. The tutor should occasionally ask the **SI** for a “mini-brief” on a non-prepared topic to allow practice for ad hoc briefing.

Some of the more complex and challenging briefings will be given by both **SI**'s. It is vitally important that the **SI** understands that the purpose of the briefing is to provide the “how to” knowledge such that the trainee will know, before entering the simulator, what techniques and skills will achieve a successful outcome to the exercise.

The purpose is **not** to just repeat information/diagrams which the trainee will have already read. This knowledge should be checked by appropriate facilitation.

- The **SI** should establish the role of the **TP**: DEP, TEP, etc.
- Consider any personal factors – Is he/she hungry, tired or otherwise distressed?
- The **SI** may assume that the **TP** has studied the relevant chapters of the Ops Manual.
- Use facilitation to check that the trainee has prepared thoroughly and understands the subject matter. Use instruction to eliminate areas of confusion.
- Concentrate on the practical aspects, pass on tips and hints, and try to raise (or maintain) the trainee's confidence.
- Explain *how to* rather than simply *what* they will do.
- Guard against any tendency to intimidate or impress the trainee with superior knowledge.
- Remember, the purpose of the briefing is not simply to repeat information which has already been studied during the groundschool.
- Keep-it-Simple.

7.2.1.11 Simulator

Details 4 and 6–9 will be run by the **SI** from the instructors panel.

If required, demonstrations will be carried out by the **SI** in an operating seat as requested by the **SI** at the panel or the Tutor. However, as mentioned earlier, the **SI** should be able to recognise when a demonstration is needed and the tutor should facilitate this by poor handling accordingly.

The **SI** training file contains checklists for items to be demonstrated and exercises to be conducted and/or observed. Each exercise will be signed off when the **SI** has shown a good standard of observation, debriefing and applied appropriate training input to correct the **TP**. It is the responsibility of the Tutor to ensure that all the exercises are conducted/observed (as required) by both **SI's** by the end of detail 8.

During the detail the Tutor will provide feedback on any items demonstrated. The SI will observe the Tutor role playing trainees and provide analysis, feedback and training input to improve the trainees performance. The Tutor will provide feedback on this process as necessary.

- The TRI details are representative of the elements of the Conversion Course simulator syllabus.
- SI's will teach key elements of the conversion course.
- Throughout the course the **Tutor** will help the **SI** to gain confidence and efficiency in the use of the IOS.
- The TP will go "into role" when the lesson begins and will remain in role as a trainee, allowing the **SI** freedom to conduct the lesson. He will go out of role if it is necessary to communicate as a tutor.
- The TP will "role-play" trainees from different backgrounds with varying abilities. They will include DEPs and Command Course trainees, etc.
- The TP will endeavour to moderate the role-play (avoiding elaborate acting) to that which is required for effective instruction.
- For most demonstrations the SI's will operate from the "unfamiliar" seat.
- Particular attention should be given to observation and correct analysis.
- The SI should obtain agreement with the TP of what took place before making conclusions.
- During demonstrations, the SI should ensure that his "patter" is "**ahead**" of the aircraft rather than describing history, or what has just happened.

7.2.1.12 TRI Test

Progress will be continuously assessed and the **SI** will only be put forward for detail 10 if the Tutor(s) are confident that the required standard will be achieved. Where there is doubt the **SI** will be advised and appropriate action will be taken.

Detail 10 is conducted by a TRE with privileges to conduct TRI AoCs (the Examiner). Each **SI** will be asked to construct a simulator detail and briefing based on exercises selected and pre-advised by the examiner. These will be chosen from the test exercises given at the end of this document. The briefing will be approximately 30 minutes during which one topic should be fully briefed and “refresher” mini-briefs given for the other exercises. The simulator detail should not exceed 1 hour 30 mins for each **SI**. The Examiner will role play a trainee and will require the **SI** to demonstrate an item. The Examiner should allow the **SI** to determine when a demonstration is necessary as a result of poor handling skills, however, the Examiner could request a demonstration on any of the subjects within the known exercise. The other **SI** will act as a competent stand-in. The **SI** will conduct the exercises from the panel and provide analysis, assessment and feedback of the TPs performance covering both technical aspects and human factor issues. This should include recommendations for further training as seen necessary. A debriefing session during which the **SI** will provide a written report on the TPs performance will complete the check.

- The **SI** will be assessed and recommended for the TRI AoC (TRI 10) when the required standard has been achieved.
- TRI 10 is conducted by a TRE with privileges to conduct TRI AoCs.
- The **SI** will plan a scenario for the detail and use a manual set-up.
- This training task will create “time-pressure” as the simulator detail must last no longer than 1½ hours. The **SI** must use his/her judgement to identify and achieve what is realistically possible whilst maintaining a good standard of instruction.
- The TP conducting TRI 9 will need to be advised by the assessor of the test exercises for each candidate.
- The **SI** will be required to give a 30 minute briefing.
- The Examiner will role-play a trainee and the **SI** will need to demonstrate as necessary.

The **SI** will observe, identify and correct errors, and give:

- Feedback including recommendations for further training if appropriate.

- The SI will debrief the exercise and produce a report.

7.2.1.13 Timetable

	Briefing	Simulator	Debriefing
TRI Course Detail 1-2	3 hours	4 hours	1 hour
TRI Course Details 3-9	2 hours	4 hours	1 hour
TRI AoC Detail 10	1.5 hours	4 hours	1 hour

7.2.1.14 Course Detail

Pre-course

- Acquire whiteboard pens.
- Watch demonstration briefing video.
- Watch facilitated debrief video.
- Review TRI Part 1 Course notes and consider practical application of core skills.
- Preview form 1158.
- Complete documentation.
- Study CAP 413 (RT guide).
- Read OM Part D.
- Review Pilot Competencies.
- Ensure well rested (no major social engagements).
- Complete data protection module (on BA property).
- Prepare first day's 10 min brief.

7.2.1.15 TRI 1

Report 3 hr

7.2.1.15.1 Briefing

SI brief: *(10 mins.)*

- Normal Take-off/Normal ILS.
(Feedback given but no assessment at this stage.)

Tutor brief:

- Normal landing.

Discussion items:

- Course intro and safety briefing.
- Sim qualification and approval.
- Course structure and expectations.
- Heathrow training facilities including Flight Technical Training and sim engineers.
- Facilitate trainee background.
- TRI Part 1 course refresher and practical application as a bridge between TRI Part 1 Course and TRI Part 2 & 3 course.
- Briefing room equipment and facilities.
- CARD.
- Trancomm access.
- E-whiteboard integration into briefings.
- Desktop icons.
- NERS.

7.2.1.15.2 Simulator

Tutor led:

- Safety briefing.
- SimNet.
- IOS.
- FASTERV checks.
- Handling from non-normal seat.
- Practical observation, analysis and note-taking.
- Demonstration of teaching stalling.
- How to manage a demo with a seat swap.
- Sim exit procedure.

7.2.1.15.3 Debrief

Wash-up of lessons learned during TRI 1.

Practical examination of SI notes taken in simulator.

Discussion of the implications of giving an effective, facilitated debrief.

7.2.1.16 TRI 2

Report 3 hr.

7.2.1.16.1 Briefing

SI brief:

- None.

Tutor brief:

- EFATO.
- Double FMC as a discussion of teaching complex failures.

Discussion items:

- Time keeping.
- Conversion course overview.
- Teaching and Learning skills (illustrating, demonstrating, summarising, talking, questioning, listening). SIs to give examples of where they have seen or would use these skills and how to apply them effectively.
- Integration and practical application of non-technical skills for human factor evaluation and assessment. (SIs to give a personal example of a training experience where it was used well and badly).
- How to instruct complex failures involving handling/technical knowledge/CRM. Double FMC failure as example.

7.2.1.16.2 Simulator

SI led:

- At least one demonstration.

Tutor led:

- Teaching handling skills (EFATO, OEI, TCAS, normal app and G/A).

Continued familiarity with IOS, observation, analysis.

7.2.1.16.3 Debrief

Demonstration of facilitative debrief by tutor.

Wash up of IOS use.

7.2.1.17 TRI 3

Report 2 hr.

7.2.1.17.1 Briefing

SI brief:

- Flaps system.
- Pressurisation and Cabin Altitude.

Tutor brief:

- Generic Non-Normal Management module (NNM).

Discussion items:

- Facilitation as basis for debrief of non-technical issues.
- Levels of training input.
- Trainee's needs (i.e. background, common faults and practical application).
- Training complete standard required.
- Teaching non-technical skills in normal, abnormal and emergency situations.
- Tutor to allocate briefing subjects for TRI 4.

7.2.1.17.2 Simulator

Tutor led:

- Teaching technical failures (flap failures, cabin alt, standby power, double FMC failure).
- Non-technical/behavioural observation and analysis.

7.2.1.17.3 Debrief

Facilitative debrief by SIs with non-technical issues fully integrated.

How to prioritise debrief points and avoid chronological review.

7.2.1.18 TRI 4

Report 2 hr.

7.2.1.18.1 Briefing

SI brief: (20 mins. each)

- RTO.
- Non-ILS approach.

Discussion items:

- EASA Part FCL and EASA Regulation Air Operations.
- Form 1158.
- LST/MPA (part 2).
- Trancomm.
- Report writing (with emphasis on the demonstrated not the anticipated standard).
- Intro to detail planning (airfield selection, wx, weights, CARD, NUBRF, Cirrus). Tutor to guide SIs through planning and paperwork.

7.2.1.18.2 Simulator

SI to run detail with tutor support.

At this stage the tutor will begin to introduce skill-based role play with some non-technical debrief points, e.g. non-interactive briefing leading to poor SA.

Tutor led:

- How to train GPWS including IOS set-up.

SI led:

- Teach RTO, non-ILS app, X-wind Idg, late runway change.

7.2.1.18.3 Debrief

SI to conduct facilitated debrief of TP in role.

SI to write Trancomm report.

7.2.1.19 TRI 5 (ZFT Qualification)

Report 2 hr.

7.2.1.19.1 Purpose

The purpose of the TRI 5 detail is to equip the SI with the skills to teach take-offs and landings in the simulator, identifying and correcting typical trainee errors. The SI also needs to be able to assess whether a suitable standard has been reached to progress to the next stage of training, LIFUS. The detail will familiarise the trainee with take-offs and full stop landings at various weights and conditions. This detail is different from previous TRI details in that the SI will sit in an operating seat throughout, and manage the detail, including operating the IOS, from that seat. The SI will therefore learn to operate the aircraft from their non-normal seat.

7.2.1.19.2 Briefing

Discussion items:

- Teaching Taxiing, Take-offs and Landing in the simulator.
- Managing the simulator from an operating seat.
- Common errors.
- Standard required on completion of ZFT.
- ZFT requirements (see EASA Regulation Air Operations ORO.FC.220 (e)).

SI 1 brief: (20 min)

- Correct Taxi technique.
- Correct Landing technique.

SI 2 brief: (20 min)

- Correct Take-off technique.
- Correct Rejected Landing technique.

7.2.1.19.3 Simulator

- 2 hr per SI, each SI to occupy their unfamiliar seat.
- First 30 mins purely familiarisation to the seat and will include taxi, take-off and a full stop landing.
- Thereafter SI led ZFT detail.

-
- TP to reproduce common errors for SI observation, analysis and correction.

Typical Faults:

- Slow and fast rotation techniques.
- High/fast and low/slow approaches.
- Poor centerline tracking.
- Incorrect landing technique.

7.2.1.19.4 Debrief

SI 1 debriefs TP and provides assessment of standard achieved and suitability to progress to the next phase (LIFUS).

TP to debrief SI 1 on performance in simulator and debrief.

Repeat for SI 2.

Trainer to give SIs pre-prepared Trancomm for TRI 6.

7.2.1.20 TRI 6

Report 2 hr.

7.2.1.20.1 Briefing

At this stage tutor will increase role-play throughout detail to include briefing, simulator and debrief. Typical trainee problems will be introduced of both a technical and non-technical nature. Limited interaction during the briefing and handling issues are examples.

SI brief: (30 mins. each pair)

- OEI app/GA/ldg + LVPs.
- Two engs inop handling/management + cold wx ops.

Discussion items:

- Training problems.
- MOP.
- Present pre-prepared Trancomm for next detail.

7.2.1.20.2 Simulator

Tutor led:

- How to train windshear including IOS set-up.

SI led:

- OEI flying, Two engs inop flying, smoke/cargo fire, fuel jettison.

7.2.1.20.3 Debrief

Facilitative debrief by both SIs.

Trancomm (including CAP formula).

Tutor to give SIs pre-prepared Trancomm for TRI 7.

7.2.1.21 TRI 7

Report 2 hr.

7.2.1.21.1 Briefing

SI brief: *(40 mins. each SI)*

- Each SI to prepare briefs from Trancomm report presented during TRI 6. Each brief should cover 3 topics, i.e. 1 handling, 1 technical and 1 non-technical issue.

7.2.1.21.2 Simulator

SI led:

- SIs to design and run detail according to TP needs identified in Trancomm report.

Tutor to assess both detail management and instructional skills with minimal intervention/support.

7.2.1.21.3 Debrief

Full facilitated debrief by SIs. Assessment to include whether training complete.

SI to write Trancomm report.

Tutor to allocate conversion details to be trained in TRI 8.

7.2.1.22 TRI 8

Report 2 hr.

7.2.1.22.1 Briefing

SI brief:

- Allocated elements for respective conversion detail using routine briefing material from conversion course (including e-whiteboard).

SI to be given Trancomm report just prior to detail. This will be a straightforward report for a candidate (TP) who has scored “objectives met”. No remedial training for candidate should be required.

Discussion items:

- As requested by TP.

Tutor to role-play as appropriate to allow SI to establish whether training is complete in trained items.

7.2.1.22.2 Simulator

SI led:

- SI to run detail using conversion course lesson plan.

7.2.1.22.3 Debrief

SI to debrief TP.

Tutor to provide feedback to SI in preparation for TRI 9 (TRI test practise detail).

7.2.1.23 TRI 9

Report 2 hr.

7.2.1.23.1 Briefing

SI brief: (30 mins. each SI)

- Each SI to give 2 briefings from the following selection based on a dummy Trancomm report:
 - Jammed stab.
 - EFATO.
 - OEI ILS and GA.

-
- Hydraulic failure.

Discussion items:

- TRI administration, qualifications and privileges.
- Highlight relevant items of Standards Doc 43, 29 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and also EASA part FCL and EASA Regulation Air Operations (instructors authority) in preparation for TRI test.

7.2.1.23.2 Simulator

SI led:

- Each SI will conduct a 1.30 hr detail of instruction from the sim console but must include a demonstration from the pilot's seat and an asymmetric element.

7.2.1.23.3 Debrief

Full facilitated debrief of TP by SI with non-technical issues fully integrated.

SI to demonstrate effective prioritisation and avoid chronological sequencing.

Tutor to give Trancomm reports for TRI test.

7.2.1.24 TRI 10 (Assessment of Competence)

Report 1.30 hr.

7.2.1.24.1 Briefing

SI brief: *(30 min. each SI)*

- As required by Trancomm report/scenario.

Briefing will include 1 item of a technical nature and 1 item of a non-technical nature requiring a shorter brief. Non-technical issues to be fully incorporated in order for Examiner to assess SI as CRMI.

Discussion items:

- CAA Examiner based on standards doc 43 appendix D (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).
- Examiner briefing. (10 min.)

The Examiner will remain in role from commencement of the SI brief through the sim detail until the end of the debrief.

7.2.1.24.2 Simulator

SI led:

- Each SI will be examined during the course of a 1.30 hr detail based on the pre-prepared scenario. The SI will instruct from the sim console throughout, but at some point a demonstration from the pilot's seat must be included. Instruction must also include an asymmetric element. The SI will be fully responsible for training, detail management, observation and analysis and time-keeping.

7.2.1.24.3 Debrief

SI will perform fully facilitative debrief based upon observations made during the sim detail.

Examiner to confirm knowledge of Regulation Aircrew part FCL subparts H and J.

Examiner to inform each SI of result of TRI test.

7.3 TRI (LIFUS) Course

7.3.1 Introduction

The course will be conducted by suitably tutors and examiners with the appropriate skill and experience as required. This course may be undertaken by Captains who have completed the TRI (FFS Only) course.

This course is for the purpose of qualifying a Training Captain to conduct training on the aircraft as part of the line training portion of a conversion course or command course. It also qualifies the Training Captain to conduct bi-annual line checks on line crews and final checks on completion of a conversion course (command conversions and co-pilot conversions). (Final command checks can only be completed by a TSC or FTM B747 nominated Training Captain.)

The TRI (LIFUS) qualifies the Training Captain to conduct line flying under supervision (LIFUS) including the first four take-offs and landings.

Objectives

The aim is for the student instructor to qualify to:

- Operate the aircraft from the RHS during normal and emergency operations.

-
- Become skilled at teaching take-off and landing on the aircraft.
 - Become familiar with recognizing when intervention is required and appropriate intervention techniques.
 - Pass a TRI (LIFUS) final check.

Method

During the course the student instructor will:

- Complete a RHS OPC in the simulator .
- Be exposed to mishandling during take-off and landing and develop suitable and appropriate intervention techniques.
- Be exposed to abnormal and emergency situations during take-off and landing and to develop suitable methods to deal with them.
- Complete RHS familiarisation on the aircraft.
- Conduct live training on the aircraft with a TP role playing a trainee.
- Be observed conducting live training on the aircraft on a real trainee.

Terminology

Student Instructor (SI): The TRI (LIFUS) candidate.

Tutor Pupil (TP): The TRI (LIFUS) Tutor who will act as the student instructor's pupil. SI1/SI2: A term used when there is a need to differentiate between candidates.

Administration

The TP will assign the TRI (LIFUS) course in Trancomm.

This course will trigger a RHS OPC mandatory which will be renewed annually during the recurrent LPC/OPC check.

Standard Required

The TRI (LIFUS) course is a continual assessment course and the trainee's progress throughout the various elements of the course are closely monitored. During all stages of the course the course tutor will provide comprehensive feedback after each simulator or aircraft training session and Trancomm reports will be completed.

Should the trainee's progress fall below the acceptable standard then the course tutor should inform the FTM B747 immediately. The TRI (LIFUS) course may be suspended pending review.

7.3.1.0 Simulator Training

Report 2hr.

7.3.1.1 LIFUS Day 1

Objectives

The purpose of LIFUS day 1 is for the SI to consolidate the correct technique for take-off and landing and to complete a RHS OPC.

Briefing

Discussion items:

- RHS OPC requirements EASA Regulation Air Operations ORO.FC.235.
- AWOPS operations as P2.
- Responsibilities of the TRI (LIFUS) during Line Training.
- Conducting a Line Check.

SI 1 and SI 2 brief (20 min each) as if:

- On a real aircraft.
- First ever take-off.
- First ever landing.

Simulator

SI 1 in the RHS (operates as PF throughout) SI 2 (operates as PM).

SI 1 practises:

- RTO as PF and PM in RHS.
- EFATO with fire and full clean up.
- Manually flown ILS OEI.
- Manually flown G/A OEI.
- Return to visual and OEI circuit.
- Manual OEI landing.

Swap seats and repeat for SI 2.

BREAK BREAK BREAK.

SI 1 OPC RHS.

Swap seats.

SI 2 OPC RHS.

Debrief

Tutor led debrief and outro for LIFUS Day 1.

7.3.1.2 LIFUS Day 2

Objectives

To experience common errors during the take-off and landing phase.

To demonstrate and recognize appropriate levels of intervention on the aircraft.

Briefing

Discussion items:

- When to intervene on the aircraft.
- Preparing and planning training on the aircraft.
- Note taking.
- Achieving an on-time departure during training.
- Typical trainee personality profiles.
- Training the visual approach and landing.
- The rushed approach, avoiding/trapping/mitigating aspects.
- Common errors during: taxiing, take-off and climb, initial approach and landing (esp late or early flare).
- Guarding controls as necessary.

SI 1 to brief (5 min):

- Crosswind take-off.

SI 2 to brief (5 min):

- Crosswind landing.

Simulator

SI 1 operates IOS and observes.

SI 2 operates in RHS, Tutor in LHS role playing trainee (TP).

SI 2 to brief:

- First take-off as if it is the TP's first ever on the aircraft.
- First landing as if it is the TP's first ever on the aircraft.

TP role plays common errors/mishandling during:

- Taxi.
- RTO.
- EFATO.
- Take-off.
- Approach.
- Landing (include go-arounds/rejected landings).

SI 2 practises intervention.

BREAK BREAK BREAK.

Swap seats and repeat the above for SI 1.

Debrief

Tutor led debrief and outro for LIFUS Day 2.

Tutor to emphasise:

- The importance of early verbal and physical intervention.
- The importance of expecting the unexpected.
- The importance of managing fatigue (will the trainee sleep prior to their first B747 landing?).
- Recognising when to make a training point.
- The difficulty in judging ground speed during landing and taxi (due to pilot seat height).

7.3.2 Aircraft Training

7.3.2.1 Sectors 1 and 2

The TC will be the nominated commander and operate in the left seat, the SI will gain competence and experience in the right seat as both PF and PM. The SI must demonstrate a competent level of operation, to line check standard, in the right seat as PF and PM.

7.3.2.2 Sectors 3 and 4

The SI will operate as the nominated commander and will be expected to demonstrate that he/she is capable of competently managing all aspects of a line training flight. The SI will operate from both seats during this phase. The TSC will introduce role playing and typical trainee faults. The SI will be expected to take notes and provide appropriate training input.

The TSC must be satisfied that the SI has sufficient breadth of knowledge of aircraft systems, manuals and BA procedures to adequately brief all aspects of the conversion course discussion items.

The TSC should discuss the standards expected in final checks and bi-annual line checks.

The SI must demonstrate the ability to operate a normal flight whilst delivering training and ensuring the safety of the operation.

At the end of this phase the TSC must give a positive recommendation that the SI is ready to operate with a “live” trainee under supervision. Any concerns regarding the SI progress should be raised with FTM B747 at the earliest opportunity.

7.3.2.3 Sectors 5 and 6 (Including Final Check)

These sectors will be conducted with a “live” trainee and the SI in the operating seat as commander. The TSC will observe the SI conducting live training from the supernumerary seat.

The TSC will also observe the conduct of any discussion items and the debrief. TSC will provide guidance and feedback as necessary.

At the end of this phase the TSC will confirm that the SI has reached the standard required to carry out all aspects of line training and checking.

7.3.2.4 Final Assessment

At the end of the supervised training the TRI TUTOR must make an assessment on whether the Training delivered by the TRI STUDENT has been effective and done to the satisfaction of the TRI TUTOR. Questions he may want to ask himself in making the assessment:

- Did the TRAINEE leave the flight understanding better how to operate the B747-400 in normal line operations.
- Can the TRAINEE land and take-off in the aircraft using the correct technique. If not has this been correctly analysed and adequately de-briefed by the TRI STUDENT.
- Has the TRAINEE had value added to his learning experience by the TRI STUDENT.
- Has the whole event been a positive experience for the TRAINEE and the TRI STUDENT.
- Was the TRI STUDENT coping with the workload and if not what action did he take to protect himself, the aircraft, the operation, the TRAINEE.
- Did the TRI STUDENT display a good knowledge and standard of operation.
- Did the TRI STUDENT have to intervene, if so was it appropriate and effective; what was the outcome.

If the TRI TUTOR is in any doubt about the capabilities of the TRI STUDENT to undertake training in an aircraft in-flight during the LIFUS sectors then he must not assess the training as complete. At this stage of the course there is scope for additional training to be provided but in the first instance the FTM B747-400 must be informed with a detailed report of the TRI TUTOR's concerns and areas requiring more development as well as the reasons and evidence.

There is no AoC and this assessment is an internal event which is recorded in Trancomm. If the TRI STUDENT is deemed to demonstrate the required standard the sectors are marked as Training complete.

7.4 TRI (Aircraft)

Not applicable to the B747-400.

7.5 LOE Assessor

7.5.0 Introduction

There are two LOE Assessor courses:

- Short course designed for instructors who have already completed the TRE standardisation course and have a TRE authorisation;
- Full course for a new Instructor who has not yet completed a TRE standardisation course.

A converting TRI/TRE who was qualified as LOE assessor on a previous fleet does not have to undertake either course when extending Instructor privileges to a new type.

Aims

To be trained and assessed as proficient to run Line Orientated Evaluations.

Objectives

To be trained on the principles of ATQP and LOE, and to practise the briefing, running, observing, assessing, debriefing and recording of LOEs.

To observe and practice running LOEs within a normal simulator and crew environment under the supervision of an existing LOEA.

To be assessed as proficient to run LOEs by a TSC.

7.5.1 Short Course LOE Assessors Course

Course Overview for Current TRE

TREs are trained and assessed as proficient for examining roles. The only requirement for a current TRE to be qualified as a LOEA is to complete a day of training in the conduct of event based assessment. The content of the day is as follows:

ATQP principles and goals	Regulatory background. BA ATQP programme. Principles and goals.	30 mins
ATQP design	Task analysis including knowledge, skills and behaviours. Training needs analysis. New recurrent training syllabus. Entry into ATQP syllabus. Conversion courses. Feedback loop including validation of training and operational standards.	1 hour
LOE scenarios	Event sets, lesson plans, proficiency standards and markers. Briefing and debriefing including use of Pilot Competencies. LOE Standards Document. Assessment criteria including use of LOE event videos. Use of NERS (sim video facility). Documentation including assessment sheets and electronic training records.	5 hours
Trainer standardisation	Trainer and trainee feedback. TSCs standardisation of LOE details. Feedback of trainer scoring.	30 mins

The course shall be conducted by a fleet TSC or other training pilot nominated as an LOEA Tutor.

Third party trainers may be used to conduct LOEs provided they are qualified as LOE Assessors as above.

7.5.2 Full LOE Assessors Course

Course Overview for Current TRI

Two days of combined classroom and simulator training:

Day 1

ATQP principles and goals	Regulatory background. BA ATQP programme. Principles and goals.	30 mins
ATQP design	Task analysis including knowledge, skills and behaviours. Training needs analysis. New recurrent training syllabus. Entry into ATQP syllabus. Conversion courses. Feedback loop including validation of training and operational standards.	1 hour
LOE scenarios	Event sets, lesson plans, proficiency standards and markers. Briefing and debriefing including use of Pilot Competencies. LOE Standards Document. Assessment criteria including use of LOE event videos.	2 hours
Simulator detail	Lesson Plans. Event assessment including use of LOE marker sheets.	2 hours/ student
Debriefing	Debriefing of simulator detail.	30 mins

Day 2

LOE scenarios	LOE Standards Document. Debriefing including use of Pilot Competencies. Dealing with failure. Assessment criteria including use of LOE event videos. Use of NERS (sim video facility). Documentation including assessment sheets and electronic training records.	3 hours
Trainer standardisation	Trainer and trainee feedback. TSC's standardisation of LOE details. Feedback of trainer scoring.	30 mins
Simulator detail	Event assessment including use of LOE marker sheets. Retraining criteria. LOE assessment. LOE detail management and intervention.	2 hours/ student
Debriefing	Debriefing of simulator detail.	30 mins

The classroom and simulator training shall be conducted by a fleet TSC or other training pilot nominated as an LOEA Tutor. The course will normally be run with two LOEA students but may be run with one student and a stand-in.

For the simulator details, the LOEA Tutor can occupy either operating seat with the students taking turns to occupy the IOS and the other operating seat. The LOEA Tutor should role play both positive and negative event markers.

Days 3 and 4

Each student will observe and practice running two LOEs within a normal simulator and crew environment under the supervision of an existing LOEA. This will require the student to be rostered alongside another training pilot for two sessions of the current LOE sim check.

Day 5

Each student will be assessed as proficient to run LOEs by being observed and assessed by a fleet TSC. This will require the student and TSC to be rostered together for one session of the current LOE sim check.

Student progress at all stages must be recorded in Trancomm, including positive and negative development points. If progress falls below a satisfactory standard the student will be managed under the Managing Operational Performance process (see [Chapter 12](#)).

7.6 Converting TRI (Course to Extend the Privileges of a TRI to a New Type)

7.6.1 Converting TRI – Training Captain (Course to Extend TRI Privileges to the B747-400)

7.6.1.0 Introduction

This course is for the purposes of extending the privileges of an existing TRI (A) certificate and will be referred to as the B747-400 TRI Short course.

The objective of the Short TRI Course is to train to the level of proficiency necessary for the issue of a B747-400 TRI (LIFUS) certificate. The course is designed to give training to the applicant in theoretical knowledge instruction; in-flight instruction and synthetic flight instruction in order to instruct on a B747-400 ZFT Type Rating Course including LIFUS (where applicable). It meets the requirements set out in EASA part-FCL subpart J (FCL.930TRI) and CAA STDS Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Training Captains will complete the additional aircraft in-flight training required to add the aircraft (1st four sectors of Line Flying under Supervision post ZFT training) privileges which is designated as LIFUS on the certificate.

Non-BA instructors must be sponsored by an approved operator to undertake this course. The scope and quantity of aircraft in-flight training and ZFT training will be agreed by the operator, its NAA, the CAA and FTM B747.

The course is designed to train Two TRI STUDENTS during the FFS phase.

7.6.1.0.1 Pre-requisites

The applicant must already be in possession of a TRI (A) certificate on a Multi-pilot aircraft type.

All BA instructors must have completed the British Airways TRI Part 1 course (formerly Core Course). See [Section 7.1](#).

BA Training Captain (TC):

1. ZFT and LIFUS (aircraft training) qualification (or equivalent) on previous fleet.

Non-BA Instructor:

1. Meet the requirements set out below and additional experience as agreed between the sponsoring operator and FTM B747.
2. Have completed a TRI Part 1 Course of at least 25 hours acceptable to FTM B747 (alternatively attend the BA TRI Part 1 Course).

In addition to the above BA pre-requisites EASA Part FCL 910.(b).TRI sets out the following minimum requirements to extend the privileges of an existing TRI to a new type:

1. Completed within the 12 months preceding the application at least 15 route sectors, including take-offs and landings on the applicable aircraft type of which 7 sectors may be completed in an FFS.
2. Completed the technical training and flight instruction parts of the relevant TRI course (BA B747-400 short course).
3. Passed an Assessment of Competence (AoC) in accordance with FCL.935 and CAA STDS Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Any applicant who does not meet the above requirements must inform FTM B747 prior to commencing the course.

7.6.1.0.2 Course Infrastructure and Manuals

The course will be conducted primarily at the British Airways Learning and Training Centre at Heathrow using the British Airways Level D B747-400 simulator. Briefings will take place in the associated or adjacent briefing rooms.

It will be expected that trainees will be fully conversant with and have access to the B747-400 suite of electronic manuals including but not limited to:

1. FCOM.
2. FCTM.
3. MEL/CDL.
4. LIDO airfield charts (or other agreed operator charts).
5. British Airways E-learning site.

Trainees can expect to mostly make use of whiteboards and occasional electronic media for the support of any briefings that are delivered during the course.

7.6.1.0.3 Tutors and Examiners

Tutors conducting the course will be highly experienced TRI/TRE qualified on the B747-400 and with more than 3 years' experience as a TRI.

British Airways ATO and FTM B747 hold a list of nominated Tutors for the course which can be made available upon request.

TRI examiners will be in possession of a TRE which includes the privileges to conduct AoC for the issue, revalidation or renewal of a TRI or SFI certificate. Additionally they must be a B747 TRI course Tutor (an examiner must have privileges to instruct on a course for which examiner privileges are being exercised). (This is shown as an additional restriction in the holders TRE certificate FCL 1005. TRE (a) 5). A list of approved examiners for the course will be held by BA ATO and FTM B747 and can be made available on request.

Tutor/Student ratio:

The course is designed to be conducted with two Student Instructors and one Tutor.

TRI TUTOR recency:

The TRI TUTOR should ideally teach or examine on a TRI Part 2 & 3 Course (or TRI Part 1 or Examiner Standardisation course) at least once every 3 years to remain current. If there have been no courses during this period the FTM B747 will ensure that the TRI TUTOR has completed appropriate refresher training in the FFS to practice the Role playing techniques required on the course. The TRI TUTOR must be a current and practicing TRI on the B747-400 fleet.

Course Overview

The table below sets out the modules required to be completed according to the type of TRI certificate required:

Module	TRI FFS and LIFUS
Observations	Recommended
FFS Module	✓
AoC	✓
Aircraft training	✓

The table below sets out the typical minimum footprint for each module:

Module	Details/Days or sectors	Training Hours	FFS Hours
FFS Observations (recommended) *	3 details		
FFS Module	3 days	22.5 hrs (10.5 hrs briefing/debriefing, 12 hrs FFS)	12 hours
AoC (not on a live crew) **	1 day	1.5 hours briefing 1.0 hour de-briefing	3 hours
Aircraft Training	6 sectors	N/A	N/A

* Observations are recommended for the TRI STUDENT to gain familiarisation with use of the B747-400 Instructor Operating Station. The Short TRI course assumes that the TRI STUDENT has a good knowledge of the operation of the simulator.

** A TRI with a valid TRI certificate on another type will preferably conduct an AoC whilst conducting training on a live crew during the course of a normal FFS training detail.

7.6.1.1 Simulator Training

7.6.1.1.0 Introduction

During the FFS sessions the TRI STUDENT is introduced to and practices the training skills appropriate to B747-400 type rating and re-current/ refresher training.

For reference, the following terminology will be used in the course documentation and during the conduct of the course:

TRI TUTOR	TRI Course tutor.
TRI STUDENT	TRI under training (TRI STUDENT A or B as necessary).
TRAINEE	TRI tutor when performing the role of trainee.

TRI STUDENT 1 and 2 will be allocated on day 1 and continue throughout the course.

This course assumes that the TRI STUDENT has a high level of knowledge of aircraft systems and procedures.

FTM B747 will ensure that the TRI STUDENT has the potential to complete the course successfully by reviewing the TRI STUDENT's previous training record prior to commencing the course.

(For non-BA TRI STUDENTS the Sponsoring operator is responsible for ensuring that the TRI STUDENT has an appropriate level of knowledge and experience to undertake the course.)

The course is intended for an experienced TRI/SFI on another type, they will be pilots who have assimilated a high level of technical knowledge and been selected for training as TRI.

It is expected that TRI STUDENTS will spend time preparing for the course in advance. The course is not intended to make good any shortfall in technical knowledge; those students who do not prepare are unlikely to succeed.

The course syllabus uses selected elements of exercises from a typical Type Rating Transition Course and sessions, to provide the environment for the development of instructional technique.

7.6.1.1.1 Objectives

- To introduce the converting TRI to their new working environment.

- To discuss training philosophy on the B747-400 and provide tools and skills necessary for instructing on a B747-400 type rating course.

To familiarise the TRI STUDENT with all aspects of operating and running the B747-400 FFS, including operation outside a lesson plan.

- To allow the TRI STUDENT to practice instruction from the instructor operating station (IOS).
- To allow the TRI STUDENT to practice demonstrating, fault analysis and fault correction.
- To allow the TRI STUDENT an opportunity to give and receive feedback.
- To refresh Instructor competencies as set out in AMC 1 FCL.920:
 - Preparing resources.
 - Creating a climate conducive to learning.
 - Presenting knowledge.
 - Integrating Human Factors training.
 - Facilitate learning.
 - Assessing Trainee performance.
 - Monitoring and reviewing progress.
 - Evaluating training session outcomes.
 - Reporting outcomes effectively.
- Become fully conversant with relevant EASA simulator qualification and approval requirements (including familiarisation with Simnet).

7.6.1.1.2 Teaching Methods

The TRI STUDENT will practice the skills required to deliver type transition and recurrent training including briefing, demonstration (handling), observation, objective analysis, facilitation, feedback and report writing. The primary training skills developed in the core instructor competencies (TRI Part 1) course will be reinforced with practical examples.

The TRI STUDENT will be expected to prepare simulator briefings, during which the TRI TUTOR will examine selected topics relevant to the simulator session. The TRI STUDENT will give the simulator session brief to the TRAINEE. He or she is expected to use all relevant documentation and electronic manuals (OIS, FCOM, FCTM, etc).

TRI STUDENTS will be required to prepare lessons plans, adapting the information provided in the course session.

During the sessions the TRI STUDENT will be required to demonstrate procedures and manoeuvres, to observe the TRAINEE's performance, to provide analysis/feedback and write a clear objective TRAINEE's report.

The TRI STUDENT will be asked to assess the competency of the TRAINEE during the FFS exercise. If the TRAINEE has been deemed not to have reached proficiency in an exercise the TRI TUTOR will expect the de-briefing to include an expectation of what further training would be necessary to achieve proficiency. Assessment is a key Instructor competency and should not be confused with Examining.

The TRI TUTOR will provide technique training and feedback for the TRI STUDENT.

TRI TUTORS will play the role of the TRAINEE.

Role Play Rules of Engagement

The TRI TUTOR will be clear about the traits and abilities of the TRAINEE being portrayed. The acting will not eclipse the fundamental reason for using role play which is to give the TRI STUDENT some realistic but basic character types with problems and handling skills which may be typically demonstrated. The TRI TUTOR will aim to be consistent in these traits throughout the day's detail. The personality traits are also necessary to allow the TRI STUDENT to explore Human factors issues which must form an integral part of the briefing, de-briefing, observation, fault finding and correction techniques which the TRI TUTOR will want to observe in the TRI STUDENT. The TRI STUDENT should be comfortable debriefing technical and non-technical issues using the BA Pilot Competencies framework. (Non-BA TRI STUDENTS will be allowed to use their own operator's equivalent CRM markers).

There will be two basic types of TRAINEE:

CAPTAIN CRUSTY: A very experienced but unenthusiastic Captain.

FIRST OFFICER GREEN: An enthusiastic but inexperienced pilot with only minimal experience on heavy jets.

The TRAINEE will display a range of abilities and behaviours, consistent with the role adopted for the session. Errors observed by the TRI STUDENT should be analysed and corrected, concentrating on the

underlying problems encountered by the TRAINEE. The TRI STUDENT should focus on root error causes and deficiencies of technique and not simply offer advice to correct the error symptom.

The TRI STUDENT can assume that all items to be trained FFS that have not been briefed by them have already been adequately briefed in another session.

Seating in the FFS

The TRAINEE will operate from the appropriate pilot seat, with the non-instructing TRI STUDENT occupying the vacant operating seat and performing in a competent manner.

Details 1 the instructing TRI STUDENT will operate the simulator from the IOS.

Detail 2 to 3 will require the TRI STUDENT to instruct from the non-normal operating seat as if undertaking ZFT or aircraft training.

7.6.1.1.3 Assessment

TRI STUDENT progress will be continually assessed throughout the course and he or she will only be allowed to continue to the AoC (assessment of competence) if the Course TRI TUTOR has seen a consistent demonstration of the required standard throughout the two details and is confident that the required standard will be demonstrated during the AoC.

Typical but not exclusive areas of assessment include:

- Quality and effectiveness of Briefings and De-briefings. Did it cover not just “what” but “how to”? Is the TRI STUDENT delivering added value rather than regurgitating what is written in the manuals or other training material?
- Correct fault analysis and corrective instruction that addresses the root cause and not the symptom.
- Understanding, analysis and correction of Human Factors issues that arise and integrating them seamlessly into all elements of the training session rather than an add on at the end of the de-brief.
- Time keeping throughout the session.
- Management of the session.
- Meeting the TRAINEE's needs and using the TRAINEE's knowledge.

- Is the TRI STUDENT going to be an effective Instructor?

During the final debrief session of each day the TRI tutor will give the TRI student a verbal assessment of the standard demonstrated during the session. This will contain both positive and developmental feedback which the TRI student will be expected to act upon during subsequent training sessions. This debrief will be reflected in the TRANCOMM report which was written by the TRI tutor.

If there is any doubt about the TRI STUDENT’S ability to complete the course this will be raised by the TRI TUTOR at the earliest opportunity during the de-brief sessions and any remedial action will be discussed informally. The FTM B747 will be informed at the first opportunity of the content of the de-brief and remedial action discussed. Any decision to provide extra training will be at the sole discretion of the FTM B747. It is not a TRI STUDENT’S right to be provided additional training on a TRI course as there is an expectation of a high level of skill and knowledge prior to attending the course and it is not designed to have the spare time to provide remedial training. The provision of any additional sessions is therefore unlikely.

The final assessment at the end of the FFS training is an AoC which can be found at [Section 7.6.1.2](#).

7.6.1.1.4

FFS Module Footprint

Detail	Day	Brief	Debrief	Sim	Exercise
1	1	2:00	1:30	4:00	Sim familiarisation and basic TRI tutoring.
2	2	2:00	1:30	4:00	RHS OPC and correct take-off and landing technique.

Detail	Day	Brief	Debrief	Sim	Exercise
3	3	2:00	1:30	4:00	LIFUS, common errors and intervention techniques.
Obs	4-6	1:30		3 details minimum	Observations of training details prior to AoC under the supervision of a TRI.
4 AoC	7	A/R	A/R	Conversion Or Training Detail	AoC undertaken with TRI running a conversion or training detail with live trainees.

7.6.1.1.5 Briefing, De-briefing and Reports

Briefings will be conducted using primarily Whiteboards. There will be limited opportunity to use electronic media. This is to allow the TRI STUDENT to gain an in depth knowledge of the subject matter. It requires much more knowledge to be able to draw a diagram and associated writing then to point out items on a screen.

The use of a whiteboard will also act as a useful refresher, for experienced TRIs, of instructing techniques that they may not have used for some time.

There will be opportunities to use electronic briefing media when the TRI STUDENT undertakes observations.

Typical TRI STUDENT Briefing Structure:

1. Start on time.
2. Introductions.
3. Remaining questions from previous session.
4. Overview of session.
5. Session objectives.
6. New topics to be briefed.
7. Summary.
8. Any questions.
9. Finish on time.
10. Break.

Typical TRI STUDENT De-briefing Structure:

- Start after a short break.
- Resolve any TRAINEE questions.
- Give TRAINEE an indication of whether objectives have been achieved.
- Give balanced briefing of lessons learnt, positive outcomes and areas for improvement using Pilot Competencies.
- Briefings should include not just what the TRAINEE needs to do to progress up the KSA (Knowledge/Skill/Attitude) line but also pointers on how to achieve this.
- Provide an assessment of whether the TRAINEE has achieved proficiency in the exercises and if not what additional training or changes need to be made to achieve sign off.
- Answer any questions.
- Review next session.

Briefings and De-briefings:

Should:

1. Not just repeat what the TRAINEE has already read in the Manuals. It should add value.
2. Not be boring.
3. Not be a monologue (the instructor should use facilitation in an appropriate manner).
4. Tell the TRAINEE how he is progressing.
5. Give the TRAINEE pointers to improve his skill.

The TRI STUDENT will complete a short report at the end of each day's session on the TRAINEE's performance in the session.

Reports should:

1. Be factual.
2. Not contain subjective opinion.
3. Contain a brief but relevant commentary.

4. Give an appraisal of the standard demonstrated as given to the TRAINEE in the de-brief.
5. Include any pointers that have been verbally given to the TRAINEE.
6. Not contain anything that has not been discussed with the TRAINEE.
7. Clearly state if the required standard has been demonstrated and what, if any, additional training is required to achieve the standard.

7.6.1.1.6 Day 1

Report 2 hr.

Objectives

- To gain familiarity and confidence in operating the B747-400 simulator IOS.
- For the tutor to demonstrate common errors on the B747-400.

Tutor led discussion on:

- Course introduction and philosophy.
- Briefing room equipment and procedures.
- Briefing room and simulator safety briefings.
- Use of TRANCOMM.
- Setup and use of NERS.
- Review of the standards required.
- Specific needs of various trainees converting from: Airbus, DEPs, command on type and new commands.

Si 1 and SI 2 brief (15 mins each) on one of the following topics:

- Visual circuits.
- An RTO.
- An EFATO.
- An RNAV approach.
- A circling approach.

Simulator

After demonstrating a simulator safety briefing the course tutor will instruct the two course candidates on the simulator controls and, in particular, the following items:

- Set up without lesson plans.
- How to access lesson plans.
- Use and hazards of position freeze, total freeze, 2X and 4X, etc.
- Failing radio facilities and general fault introduction.
- Alteration of weather scenarios.
- Any other general topics related to the efficient of the simulator.

The course tutor will occupy the left seat.

SI 1 to:

- Setup the simulator as per the following scenarios.
- Mini brief the following events.
- Provide training intervention and debrief as required.

SI 2 to:

- Occupy the right seat.
- Fly the manoeuvre as briefed by SI 1.

EVENT 1

Set VHHH, rwy 07R T/O position, ATENA1E, windshear on take-off.
120/20G30 5000 m +RN OVC005 18/17 1009
220T/140T/360T

EVENT 2

Set KSFO, rwy 28L overhead at 11000', ILS PRM and breakout.
220/5 9999 OVC010 22/10 A2992
225T/14T/239T

BREAK BREAK BREAK

SI's to swap seats and roles.

EVENT 3

Set SBGR, rwy 09R overhead at 7000', EGPWS.
100/10 CAVOK 26/22 1010
232T/15T/247T

EVENT 4

Set KLAX, rwy 24R 12 nm final, TCAS RA in landing configuration.
220/8 CAVOK 25/22 A2998
225T/12T/237T

Debrief

Tutor led debrief and outro for day 1.

7.6.1.1.7 Day 2

Report 2 hr.

Objectives

The purpose of day 2 is for the SI to complete a RHS OPC and to confirm how to teach the correct technique for take-off and landing.

Briefing

Discussion items:

- RHS OPC requirements EASA Regulation Air Operations ORO.FC.235.
- AWOPS operations as P2.
- Responsibilities of the TRI (LIFUS) during Line Training.
- Conducting a Line Check.

SI 1 and SI 2 brief: *(20 min each)*

- Correct take-off technique.
- Correct landing technique.

Simulator

SI 1 in the RHS (operates as PF throughout) SI 2 (operates as PM).

SI 1 practises:

- RTO as PF and PM in RHS.
- EFATO with fire and full clean up.

- Manually flown ILS OEI.
- Manually flown G/A OEI.
- Return to visual and OEI circuit.
- Manual OEI landing.

Swap seats and repeat for SI 2.

BREAK BREAK BREAK

SI 1 OPC RHS.

Swap seats.

SI 2 OPC RHS.

Debrief

Tutor led debrief and outro for LIFUS Day 1.

7.6.1.1.8 Day 3

Objectives

To experience common errors during the take-off and landing phase.

To demonstrate and recognise appropriate levels of intervention on the aircraft.

Briefing

Discussion items:

- When to intervene on the aircraft.
- Preparing and planning training on the aircraft.
- Note taking.
- Achieving an on-time departure during training.
- Typical trainee personality profiles.
- Training the visual approach and landing.
- The rushed approach, avoiding/trapping/mitigating aspects.
- Common errors during: taxiing, take-off and climb, initial approach and landing (esp late or early flare).
- Guarding controls as necessary.

SI 1 to brief (5 min):

- Crosswind take-off.

SI 2 to brief (5 min):

- Crosswind landing.

Simulator

SI 1 operates IOS and observes.

SI 2 operates in RHS, Tutor in LHS role playing trainee (TP).

SI 2 to mini brief:

- First take-off as if it is the TP's first ever on the aircraft.
- First landing as if it is the TP's first ever on the aircraft.

TP role plays common errors/mishandling during:

- Taxi.
- RTO.
- EFATO.
- Take-off.
- Approach.
- Landing (include go-arounds/rejected landings).

SI 2 practises intervention.

BREAK BREAK BREAK

Swap seats and repeat the above for SI 1.

Debrief

Tutor led debrief and outro for Day 3.

Tutor to emphasise:

- The importance of early verbal and physical intervention.
- The importance of expecting the unexpected.

-
- The importance of managing fatigue (will the trainee sleep prior to their first B747 landing?).
 - Recognising when to make a training point.
 - The difficulty in judging ground speed during landing and taxi (due to pilot seat height).

7.6.1.2 Assessment of Competence (AoC)

7.6.1.2.1 Introduction

The validity of the existing TRI certificate held by the TRI STUDENT will determine the type of AoC which will be undertaken upon successful completion of all 3 FFS sessions.

If the BA TRI STUDENT has a TRI Certificate on another MPA type which is still valid there is a choice of AoC:

- Normally the AoC will be conducted by a TRE qualified and nominated to undertake such assessments observing the TRI STUDENT completing a simulator conversion training detail of not less than 2 hours FFS plus associated Briefing and De-briefing from the B747-400 FFS British Airways ATO Type Rating course (full or command conversion). If a conversion detail is not available the AoC can be conducted on any B747-400 FFS training detail (eg a check day 2 training detail) except for an LOE or any form of Operator training such as a Command on Type course. The Aoc will be conducted in accordance with CAA STDS Doc 43 Appendix C part 2 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).
- If a training detail is not available the AoC can be conducted using role play – see below.

If the TRI STUDENT has a TRI certificate which has expired or is a non-BA TRI STUDENT:

- The Aoc must be completed using role play. This is done delivering a simulator training session of not less than 1:30 hours to a TRE qualified and nominated for the purposes of conducting TRI AoC. The AoC will be conducted in accordance with CAA STDS Doc 43 appendix C part 1 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

FCL. 1005 requires than an examiner shall not conduct an assessment of competence of an applicant for the issue of an Instructor certificate to whom they have provided flight instruction during the instructor course.

The AoC must be successfully completed before progression to any aircraft in-flight training.

7.6.1.2.2 Conduct of AoC on Live Trainees

The CAA is quite specific that the AoC must be conducted in accordance with the requirements of STDs Doc 43 appendix C (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Hence all INSTRUCTOR EXAMINERS and TRI STUDENTS must refer to Doc 43 appendix C part 2 to familiarise themselves with the most up to date AoC procedure.

The TRI STUDENT will have been notified by Training admin which Conversion detail will be used. They should familiarize themselves with the detail.

The course overview requires that the STUDENT TRI completes 3 observation training details prior to an AoC.

7.6.1.2.3 Conduct of an AoC Using Role Play

The CAA is quite specific that the AoC must be conducted in accordance with the requirements of STDS Doc 43 appendix C (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Hence all TRI EXAMINERS and TRI STUDENTS must refer to Doc 43 appendix C part 1 to familiarize themselves with the most up to date AoC procedure.

At least a day prior to the AoC the EXAMINER will inform the TRI STUDENT of the exercises to be used from the list of scenarios below (see [Section 7.6.2.2.4](#)). Additionally the examiner will define which two exercises will be briefed (one long and one short brief). The TRI STUDENT can anticipate being required to demonstrate at least one of the engine inoperative exercises from the operating seat.

The EXAMINER will define for the TRI STUDENT the type of TRAINEE that he will be training and the operating status (Captain or Co-pilot). The EXAMINER will act as the TRAINEE.

The TRI STUDENT will construct a lesson plan which will allow training of the defined elements in an efficient manner.

7.6.1.2.4 AoC Scenarios

Scenario 1

- One engine inop ILS approach to minima and G/A.
- RNAV non-precision approach.
- ELEC DRIVE 1 fault.

Scenario 2

- Engine failure after V_1 .
- Selected non-precision approach one engine inoperative.
- One hydraulic system failure.

Scenario 3

- Engine failure after V_1 .
- Selected non-precision approach one engine inoperative.
- RTO and evacuation procedures.

Scenario 4

- One engine inoperative ILS approach to minima and G/A.
- Raw data ILS to minima and G/A.
- Windshear.

7.6.1.2.5 Administration Procedures

The administrative procedure after completion of an AoC is set out in CAA STDs Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and accompanying CAA publications. The TRI EXAMINER will issue the necessary documentation according to the outcome of the AoC as set out in the current version of this document.

In the case of non-BA TRI STUDENT, they will undergo an AoC using role play as set out above and the administrative procedure set out by the sponsoring operator's NAA will be followed.

TRANCOMM will be completed by the TRI EXAMINER to reflect the outcome of the AoC and record any relevant de-brief points.

7.6.1.3 Aircraft Training

7.6.1.3.1 Sectors 1 and 2

The TC will be the nominated commander and operate in the left seat, the SI will gain competence and experience in the right seat as both PF and PM. The SI must demonstrate a competent level of operation, to line check standard, in the right seat as PF and PM.

7.6.1.3.2 Sectors 3 and 4

The SI will operate as the nominated commander and will be expected to demonstrate that he/she is capable of competently managing all aspects of a line training flight. The SI will operate from both seats during this phase. The TSC will introduce role playing and typical trainee faults. The SI will be expected to take notes and provide appropriate training input.

The TSC must be satisfied that the SI has sufficient breadth of knowledge of aircraft systems, manuals and BA procedures to adequately brief all aspects of the conversion course discussion items.

The TSC should discuss the standards expected in final checks and bi-annual line checks.

The SI must demonstrate the ability to operate a normal flight whilst delivering training and ensuring the safety of the operation.

At the end of this phase the TSC must give a positive recommendation that the SI is ready to operate with a 'live' trainee under supervision. Any concerns regarding the SI progress should be raised with FTM B747 at the earliest opportunity.

7.6.1.3.3 Sectors 5 and 6 (Including Final Check)

These sectors will be conducted with a 'live' trainee and the SI in the operating seat as commander. The TSC will observe the SI conducting live training from the supernumerary seat.

The TSC will also observe the conduct of any discussion items and the debrief. TSC will provide guidance and feedback as necessary.

At the end of this phase the TSC will confirm that the SI has reached the standard required to carry out all aspects of line training and checking.

7.6.1.3.4 Final Assessment

At the end of the supervised training the TRI TUTOR must make an assessment on whether the Training delivered by the TRI STUDENT has been effective and done to the satisfaction of the TRI TUTOR. Questions he may want to ask himself in making the assessment:

- Did the TRAINEE leave the flight understanding better how to operate the B747-400 in normal line operations.
- Can the TRAINEE land and take-off in the aircraft using the correct technique. If not has this been correctly analysed and adequately de-briefed by the TRI STUDENT.
- Has the TRAINEE had value added to his learning experience by the TRI STUDENT.
- Has the whole event been a positive experience for the TRAINEE and the TRI STUDENT.
- Was the TRI STUDENT coping with the workload and if not what action did he take to protect himself, the aircraft, the operation, the TRAINEE.
- Did the TRI STUDENT display a good knowledge and standard of operation.
- Did the TRI STUDENT have to intervene, if so was it appropriate and effective; what was the outcome.

If the TRI TUTOR is in any doubt about the capabilities of the TRI STUDENT to undertake training in an aircraft in-flight during the LIFUS sectors then he must not assess the training as complete. At this stage of the course there is scope for additional training to be provided but in the first instance the FTM B747-400 must be informed with a detailed report of the TRI TUTOR's concerns and areas requiring more development as well as the reasons and evidence.

There is no AoC and this assessment is an internal event which is recorded in Trancomm. If the TRI STUDENT is deemed to demonstrate the required standard the sectors are marked as Training complete.

7.6.2 Converting TRI – Training Co-Pilot (Course to Extend TRI Privileges to the B747-400)

7.6.2.0 Introduction

This course is for the purposes of extending the privileges of an existing TRI (A) certificate and will be referred to as the B747-400 TRI Short course.

The objective of the TRI Short Course is to train to the level of proficiency necessary for the issue of a B747-400 TRI (FFS) certificate. The course is designed to give training to the applicant in theoretical knowledge instruction; in-flight instruction and synthetic flight instruction in order to instruct on a B747-400 ZFT Type Rating Course. It meets the requirements set out in EASA part-FCL subpart J (FCL.930TRI) and CAA STDS Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Training First Officers will only complete the FFS element of the course and will qualify as TRI (A) FFS only.

Non-BA instructors must be sponsored by an approved operator to undertake this course. The scope and quantity of aircraft in-flight training and ZFT training will be agreed by the operator, its NAA, the CAA and FTM B747.

The course is designed to train Two TRI STUDENTS during the FFS phase.

7.6.2.0.1 Pre-requisites

The applicant must already be in possession of a TRI (A) certificate on a Multi-pilot aircraft type.

All BA instructors must have completed the British Airways TRI Part 1 course (formerly Core Course). See [Section 7.1](#).

BA Training Co-pilot (TCP):

1. TRI FFS only experience (a transferring TCP does not need to have been qualified to conduct ZFT training on a previous fleet; this course is designed to provide specific FFS ZFT training for TCPs).

Non-BA Instructor:

1. Meet the requirements set out below and additional experience as agreed between the sponsoring operator and FTM B747.

2. Have completed a TRI Part 1 Course of at least 25 hours acceptable to FTM B747 (alternatively attend the BA TRI Part 1 Course).

In addition to the above BA pre-requisites EASA Part FCL 910.(b).TRI sets out the following minimum requirements to extend the privileges of an existing TRI to a new type:

1. Completed within the 12 months preceding the application at least 15 route sectors, including take-offs and landings on the applicable aircraft type of which 7 sectors may be completed in an FFS.
2. Completed the technical training and flight instruction parts of the relevant TRI course (BA B747-400 short course).
3. Passed an Assessment of Competence (AoC) in accordance with EASA part FCL.935 and CAA STDS Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Any applicant who does not meet the above requirements must inform FTM B747 prior to commencing the course.

7.6.2.0.2 Course Infrastructure and Manuals

The course will be conducted primarily at the British Airways London Heathrow Campus using the British Airways Level D B747-400 simulator. Briefings will take place in the associated or adjacent briefing rooms.

It will be expected that trainees will be fully conversant with and have access to the B747-400 suite of electronic manuals including but not limited to:

1. FCOM.
2. FCTM.
3. MEL/CDL.
4. NAVTECH airfield charts (or other agreed operator charts).
5. British Airways E-learning site.

Trainees can expect to mostly make use of whiteboards and occasional electronic media for the support of any briefings that are delivered during the course.

7.6.2.0.3 Tutors and Examiners

Tutors conducting the course will be highly experienced TRI/TRE qualified on the B747-400 and with more than 3 years' experience as a TRI.

British Airways ATO and FTM B747 hold a list of nominated Tutors for the course which can be made available upon request.

TRI examiners will be in possession of a TRE which includes the privileges to conduct AoC for the issue, revalidation or renewal of a TRI or SFI certificate. (This is shown as an additional restriction in the holders TRE certificate FCL 1005. TRE (a) 5). A list of approved examiners for the course will be held by BA ATO and FTM B747 and can be made available on request.

Tutor/Student ratio:

The course is designed to be conducted with two Student Instructors and one Tutor.

TRI TUTOR recency:

The TRI TUTOR should ideally teach or examine on a TRI Part 2 & 3 Course (or TRI Part 1 or Examiner Standardisation course) at least once every 3 years to remain current. If there have been no courses during this period the FTM B747 will ensure that the TRI TUTOR has completed appropriate refresher training in the FFS to practice the Role playing techniques required on the course. The TRI TUTOR must be a current and practicing TRI on the B747-400 fleet.

Course Overview

The table below sets out the modules required to be completed according to the type of TRI certificate required:

Module	TRI FFS (incl ZFT)
Observations	Recommended
FFS Module	✓
AoC	✓

The table below sets out the typical minimum footprint for each module:

Module	Details/Days or sectors	Training Hours	FFS Hours
FFS Observations (recommended) *	3 details		
FFS Module	2 days	15 hrs (7 hrs briefing/ debriefing, 8 hrs FFS)	8 hours
AoC (not on a live crew) **	1 day	1.5 hours briefing 1.0 hour de-briefing	3 hours

* Observations are recommended for the TRI STUDENT to gain familiarisation with use of the B747-400 Instructor Operating Station. The Short TRI course assumes that the TRI STUDENT has a good knowledge of the operation of the simulator.

** A TRI with a valid TRI certificate on another type will preferably conduct an AoC whilst conducting training on a live crew during the course of a normal FFS training detail.

7.6.2.1 Simulator Training

7.6.2.1.0 Introduction

During the FFS sessions the TRI STUDENT is introduced to and practices the training skills appropriate to B747-400 type rating and re-current/ refresher training.

For reference, the following terminology will be used in the course documentation and during the conduct of the course:

TRI TUTOR	TRI Course tutor.
TRI STUDENT	TRI under training (TRI STUDENT A or B as necessary).
TRAINEE	TRI tutor when performing the role of trainee.

TRI STUDENT 1 and 2 will be allocated on day 1 and continue throughout the course.

This course assumes that the TRI STUDENT has a high level of knowledge of aircraft systems and procedures.

FTM B747 will ensure that the TRI STUDENT has the potential to complete the course successfully by reviewing the TRI STUDENT's previous training record prior to commencing the course.

(For non-BA TRI STUDENTS the Sponsoring operator is responsible for ensuring that the TRI STUDENT has an appropriate level of knowledge and experience to undertake the course.)

The course is intended for an experienced TRI/SFI on another type, they will be pilots who have assimilated a high level of technical knowledge and been selected for training as TRI.

It is expected that TRI STUDENTS will spend time preparing for the course in advance. The course is not intended to make good any shortfall in technical knowledge; those students who do not prepare are unlikely to succeed.

The course syllabus uses selected elements of exercises from a typical Type Rating Transition Course and sessions, to provide the environment for the development of instructional technique.

7.6.2.1.1 Objectives

- To introduce the converting TRI to their new working environment.
- To discuss training philosophy on the B747-400 and provide tools and skills necessary for instructing on a B747-400 type rating course.
- To familiarise the TRI STUDENT with all aspects of operating and running the B747-400 FFS, including operation outside a lesson plan.
- To allow the TRI STUDENT to practice instruction from the instructor operating station (IOS).
- To allow the TRI STUDENT to practice demonstrating, fault analysis and fault correction.
- To allow the TRI STUDENT an opportunity to give and receive feedback.
- To refresh Instructor competencies as set out in AMC 1 FCL.920:
 - Preparing resources.
 - Creating a climate conducive to learning.
 - Presenting knowledge.
 - Integrating Human Factors training.
 - Facilitate learning.
 - Assessing Trainee performance.
 - Monitoring and reviewing progress.

-
- Evaluating training session outcomes.
 - Reporting outcomes effectively.
 - Become fully conversant with relevant EASA simulator qualification and approval requirements (including familiarisation with Simnet).

7.6.2.1.2 Teaching Methods

The TRI STUDENT will practice the skills required to deliver type transition and recurrent training including briefing, demonstration (handling), observation, objective analysis, facilitation, feedback and report writing. The primary training skills developed in the core instructor competencies (TRI Part 1) course will be reinforced with practical examples.

The TRI STUDENT will be expected to prepare simulator briefings, during which the TRI TUTOR will examine selected topics relevant to the simulator session. The TRI STUDENT will give the simulator session brief to the TRAINEE. He or she is expected to use all relevant documentation and electronic manuals (OIS, FCOM, FCTM, etc).

TRI STUDENTS will be required to prepare lessons plans, adapting the information provided in the course session.

During the sessions the TRI STUDENT will be required to demonstrate procedures and manoeuvres, to observe the TRAINEE's performance, to provide analysis/feedback and write a clear objective TRAINEE's report.

The TRI STUDENT will be asked to assess the competency of the TRAINEE during the FFS exercise. If the TRAINEE has been deemed not to have reached proficiency in an exercise the TRI TUTOR will expect the de-briefing to include an expectation of what further training would be necessary to achieve proficiency. Assessment is a key Instructor competency and should not be confused with Examining.

The TRI TUTOR will provide technique training and feedback for the TRI STUDENT.

TRI TUTORS will play the role of the TRAINEE.

Role Play Rules of Engagement

The TRI TUTOR will be clear about the traits and abilities of the TRAINEE being portrayed. The acting will not eclipse the fundamental reason for using role play which is to give the TRI STUDENT some realistic but basic character types with problems and handling skills which may be typically demonstrated. The TRI TUTOR will aim to be consistent in these traits throughout the day's detail. The personality traits are also necessary to allow the TRI STUDENT to explore Human factors issues which must form an integral part of the briefing, de-briefing, observation, fault finding and correction techniques which the TRI TUTOR will want to observe in the TRI STUDENT. The TRI STUDENT should be comfortable debriefing technical and non-technical issues using the BA Pilot Competencies framework. (Non-BA TRI STUDENTS will be allowed to use their own operator's equivalent CRM markers).

There will be two basic types of TRAINEE:

CAPTAIN CRUSTY: A very experienced but unenthusiastic Captain.

FIRST OFFICER GREEN: An enthusiastic but inexperienced pilot with only minimal experience on heavy jets.

The TRAINEE will display a range of abilities and behaviours, consistent with the role adopted for the session. Errors observed by the TRI STUDENT should be analysed and corrected, concentrating on the underlying problems encountered by the TRAINEE. The TRI STUDENT should focus on root error causes and deficiencies of technique and not simply offer advice to correct the error symptom.

The TRI STUDENT can assume that all items to be trained FFS that have not been briefed by them have already been adequately briefed in another session.

Seating in the FFS.

The TRAINEE will operate from the appropriate pilot seat, with the non-instructing TRI STUDENT occupying the vacant operating seat and performing in a competent manner.

Details 1 the instructing TRI STUDENT will operate the simulator from the IOS.

Detail 2 will require the TRI STUDENT to instruct from the non-normal operating seat as if undertaking ZFT or aircraft training.

7.6.2.1.3 Assessment

TRI STUDENT progress will be continually assessed throughout the course and he or she will only be allowed to continue to the AoC (assessment of competence) if the Course TRI TUTOR has seen a consistent demonstration of the required standard throughout the two details and is confident that the required standard will be demonstrated during the AoC.

Typical but not exclusive areas of assessment include:

- Quality and effectiveness of Briefings and De-briefings. Did it cover not just “what” but “how to”? Is the TRI STUDENT delivering added value rather than regurgitating what is written in the manuals or other training material?
- Correct fault analysis and corrective instruction that addresses the root cause and not the symptom.
- Understanding, analysis and correction of Human Factors issues that arise and integrating them seamlessly into all elements of the training session rather than an add on at the end of the de-brief.
- Time keeping throughout the session.
- Management of the session.
- Meeting the TRAINEE’s needs and using the TRAINEE’s knowledge.
- Is the TRI STUDENT going to be an effective Instructor?

During the final debrief session of each day the TRI tutor will give the TRI student a verbal assessment of the standard demonstrated during the session. This will contain both positive and developmental feedback which the TRI student will be expected to act upon during subsequent training sessions. This debrief will be reflected in the TRANCOMM report which was written by the TRI tutor.

If there is any doubt about the TRI STUDENT’S ability to complete the course this will be raised by the TRI TUTOR at the earliest opportunity during the de-brief sessions and any remedial action will be discussed informally. The FTM B747 will be informed at the first opportunity of the content of the de-brief and remedial action discussed. Any decision to provide extra training will be at the sole discretion of the FTM B747. It is not a TRI STUDENT’S right to be provided additional training on a TRI course as there is an expectation of a high level of skill and knowledge prior to attending the course and it is not designed to have the spare time to provide remedial training. The provision of any additional sessions is therefore unlikely.

The final assessment at the end of the FFS training is an AoC which can be found at chapter [7.6.2.2](#).

7.6.2.1.4 FFS Module Footprint

Detail	Day	Brief	Debrief	Sim	Exercise
1	1	2:00	1:30	4:00	Sim familiarisation and basic TRI tutoring.
2	2	2:00	1:30	4:00	Correct take-off and landing technique.
Obs	3-5	1:30		3 details minimum	Observations of training details prior to AoC under the supervision of a TRI.
3 AoC	6	A/R	A/R	Conversion Or Training Detail	AoC undertaken with TRI running a conversion or training detail with live trainees.

7.6.2.1.5 Briefing, De-briefing and Reports

Briefings will be conducted using primarily Whiteboards. There will be limited opportunity to use electronic media. This is to allow the TRI STUDENT to gain an in depth knowledge of the subject matter. It requires much more knowledge to be able to draw a diagram and associated writing then to point out items on a screen.

The use of a whiteboard will also act as a useful refresher, for experienced TRIs, of instructing techniques that they may not have used for some time.

There will be opportunities to use electronic briefing media when the TRI STUDENT undertakes observations.

Typical TRI STUDENT Briefing Structure:

1. Start on time.
2. Introductions.
3. Remaining questions from previous session.
4. Overview of session.
5. Session objectives.
6. New topics to be briefed.

7. Summary.
8. Any questions.
9. Finish on time.
10. Break.

Typical TRI STUDENT De-briefing Structure:

- Start after a short break.
- Resolve any TRAINEE questions.
- Give TRAINEE an indication of whether objectives have been achieved.
- Give balanced briefing of lessons learnt, positive outcomes and areas for improvement including seamless incorporation of the Pilot Competencies.
- Briefings should include not just what the TRAINEE needs to do to progress up the KSA (Knowledge/Skill/Attitude) line but also pointers on how to achieve this.
- Provide an assessment of whether the TRAINEE has achieved proficiency in the exercises and if not what additional training or changes need to be made to achieve sign off.
- Answer any questions.
- Review next session.

Briefings and De-briefings:

Should:

1. Not just repeat what the TRAINEE has already read in the Manuals. It should add value.
2. Not be boring.
3. Not be a monologue (the instructor should use facilitation in an appropriate manner).
4. Tell the TRAINEE how he is progressing.
5. Give the TRAINEE pointers to improve his skill.

The TRI STUDENT will complete a short report at the end of each day's session on the TRAINEE's performance in the session.

Reports should:

1. Be factual.
2. Not contain subjective opinion.
3. Contain a brief but relevant commentary.
4. Give an appraisal of the standard demonstrated as given to the TRAINEE in the de-brief.
5. Include any pointers that have been verbally given to the TRAINEE.
6. Not contain anything that has not been discussed with the TRAINEE
7. Clearly state if the required standard has been demonstrated and what, if any, additional training is required to achieve the standard.

7.6.2.1.6 Day 1

Report 2 hr.

Objectives

- To gain familiarity and confidence in operating the B747-400 simulator IOS.
- For the tutor to demonstrate common errors on the B747-400.

Briefing

Tutor led discussion on:

- Course introduction and philosophy.
- Briefing room equipment and procedures.
- Briefing room and simulator safety briefings.
- Use of TRANCOMM.
- Setup and use of NERS.
- Review of the standards required.
- Specific needs of various trainees converting from: Airbus, DEPs, command on type and new commands.

SI 1 and SI 2 brief (15 mins each) on one of the following topics:

- Visual circuits.
- An RTO.
- An EFATO.
- An RNAV approach.
- A circling approach.

Simulator

After demonstrating a simulator safety briefing the course tutor will instruct the two course candidates on the simulator controls and, in particular, the following items:

- Set up without lesson plans.
- How to access lesson plans.
- Use and hazards of position freeze, total freeze, 2X and 4X, etc.
- Failing radio facilities and general fault introduction.
- Alteration of weather scenarios.
- Any other general topics related to the efficient of the simulator.

The course tutor will occupy the left seat.

SI 1 to:

- Setup the simulator as per the following scenarios.
- Mini brief the following events.
- Provide training intervention and debrief as required.

SI 2 to:

- Occupy the right seat.
- Fly the manoeuvre as briefed by SI 1.

EVENT 1

Set VHHH, rwy 07R T/O position, ATENA1E, windshear on take-off.
 120/20G30 5000 m +RN OVC005 18/17 1009
 220T/140T/360T

EVENT 2

Set KSFO, rwy 28L overhead at 11000', ILS PRM and breakout.
220/5 9999 OVC010 22/10 A2992
225T/14T/239T

BREAK BREAK BREAK

SI's to swap seats and roles.

EVENT 3

Set SBGR, rwy 09R overhead at 7000', EGPWS.
100/10 CAVOK 26/22 1010
232T/15T/247T

EVENT 4

Set KLAX, rwy 24R 12 nm final, TCAS RA in landing
configuration.
220/8 CAVOK 25/22 A2998
225T/12T/237T

Debrief

Tutor led debrief and outro for day 1.

7.6.2.1.7 Day 2

Report 2 hr.

Objectives

The purpose of day 2 is to teach the correct technique for take-off and landing.

Briefing

Discussion items:

- Discuss what TRAINEE proficiency is required at the end of a ZFT detail.
- How to conduct ZFT training on a B747-400 type conversion course.
- Teaching the correct Take-off technique.
- Teaching the correct Landing technique.
- Typical faults and how to correct.
- Documentation required after completion of a ZFT. How many take-offs and landings?

-
- Rules regarding when TRAINEE must fly and the validity of the Rating prior to completing LIFUS.
 - How to observe when sitting in the operating seat.
 - Running the simulator from the operating seat.
 - When to intervene.

SI 1 and SI 2 brief: *(20 min each)*

- Correct take-off technique.
- Correct landing technique.

Simulator

SI 1 in the LHS (operates as PF throughout) SI 2 (operates as PM).

SI 1 practises:

- RTO as PF in LHS.
- EFATO.
- Manually flown ILS OEI.
- Manually flown G/A OEI.
- Manual OEI landing.

TRI tutor provides instruction on how to teach take-off and landing.

SI 1 teaches TRI tutor correct take-off technique to proficiency using reposition (changing conditions of X-wind, weight up to MTOW and TO power settings).

SI 1 teaches TRI tutor correct landing technique with full stop to proficiency using reposition (changing conditions of X-wind, weight up to MLW, flap setting and with/without autobrake).

BREAK BREAK BREAK

Swap seats and repeat for SI 2.

Debrief

Tutor led debrief and outro for Day 2.

7.6.2.2 Assessment of Competence (AoC)

7.6.2.2.1 Introduction

The validity of the existing TRI certificate held by the TRI STUDENT will determine the type of AoC which will be undertaken upon successful completion of both FFS sessions.

If the BA TRI STUDENT has a TRI Certificate on another MPA type which is still valid there is a choice of AoC:

- Normally the AoC will be conducted by a TRE qualified and nominated to undertake such assessments observing the TRI STUDENT completing a simulator conversion training detail of not less than 2 hours FFS plus associated Briefing and De-briefing from the B747-400 FFS British Airways ATO Type Rating course (full or command conversion). If a conversion detail is not available the AoC can be conducted on any B747-400 FFS training detail (eg a check day 2 training detail) except for an LOE or any form of Operator training such as a Command on Type course. The Aoc will be conducted in accordance with CAA STDS Doc 43 Appendix C part 2 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).
- If a training detail is not available the AoC can be conducted using role play – see below.

If the TRI STUDENT has a TRI certificate which has expired or is a non-BA TRI STUDENT:

- The Aoc must be completed using role play. This is done delivering a simulator training session of not less than 1:30 hours to a TRE qualified and nominated for the purposes of conducting TRI AoC. The AoC will be conducted in accordance with CAA STDS Doc 43 appendix C part 1 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

FCL. 1005 requires that an examiner shall not conduct an assessment of competence of an applicant for the issue of an Instructor certificate to whom they have provided flight instruction during the instructor course.

The Aoc must be successfully completed before progression to any aircraft in-flight training.

7.6.2.2.2 Conduct of AoC on Live Trainees

The CAA is quite specific that the AoC must be conducted in accordance with the requirements of STDs Doc 43 appendix C (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Hence all INSTRUCTOR EXAMINERS and TRI STUDENTS must refer to Doc 43 appendix C part 2 to familiarise themselves with the most up to date AoC procedure.

The TRI STUDENT will have been notified by Training admin which Conversion detail will be used. They should familiarize themselves with the detail.

The course overview requires that the STUDENT TRI completes 3 observation training details prior to an AoC.

7.6.2.2.3 Conduct of an AoC Using Role Play

The CAA is quite specific that the AoC must be conducted in accordance with the requirements of STDs Doc 43 appendix C (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

Hence all TRI EXAMINERS and TRI STUDENTS must refer to Doc 43 appendix C part 1 to familiarize themselves with the most up to date AoC procedure.

At least a day prior to the AoC the EXAMINER will inform the TRI STUDENT of the exercises to be used from the list of scenarios below (see [Section 7.6.2.2.4](#)). Additionally the examiner will define which two exercises will be briefed (one long and one short brief). The TRI STUDENT can anticipate being required to demonstrate at least one of the engine inoperative exercises from the operating seat.

The EXAMINER will define for the TRI STUDENT the type of TRAINEE that he will be training and the operating status (Captain or Co-pilot). The EXAMINER will act as the TRAINEE.

The TRI STUDENT will construct a lesson plan which will allow training of the defined elements in an efficient manner.

7.6.2.2.4 AoC Scenarios

Scenario 1

- One engine inop ILS approach to minima and G/A.

- RNAV non-precision approach.
- ELEC DRIVE 1 fault.

Scenario 2

- Engine failure after V_1 .
- Selected non-precision approach one engine inoperative.
- One hydraulic system failure.

Scenario 3

- Engine failure after V_1 .
- Selected non-precision approach one engine inoperative.
- RTO and evacuation procedures.

Scenario 4

- One engine inoperative ILS approach to minima and G/A.
- Raw data ILS to minima and G/A.
- Windshear.

7.6.2.2.5 Administration Procedures

The administrative procedure after completion of an AoC is set out in CAA STDs Doc 43 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and accompanying CAA publications. The TRI EXAMINER will issue the necessary documentation according to the outcome of the AoC as set out in the current version of this document.

In the case of non-BA TRI STUDENT, they will undergo an AoC using role play as set out above and the administrative procedure set out by the sponsoring operator's NAA will be followed.

TRANCOMM will be completed by the TRI EXAMINER to reflect the outcome of the AoC and record any relevant de-brief points.

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8 TRE TRAINING

8.0 Introduction

- Examiners shall not conduct:
 - a. Skill tests or assessments of competence of applicants for the issue of a licence, rating or certificate:
 1. To whom they have provided flight instruction for the licence, rating or certificate for which the skill test or assessment of competence is being taken; or
 2. When they have been responsible for the recommendation for the skill test, in accordance with FCL.030(b).
 - b. Skill tests, proficiency checks or assessments of competence whenever they feel that their objectivity may be affected. (Examples of a situation where the examiner should consider if his/her objectivity is affected are when the applicant is a relative or a friend of the examiner, or when they are linked by economical interests or political affiliations, etc.)
- TRE(A). Applicants for a TRE certificate for aeroplanes shall:
 1. In the case of multi-pilot aeroplanes, have completed 1500 hours of flight time as a pilot of multi-pilot aeroplanes of which at least 500 hours shall be as PIC;
 2. Hold a CPL or ATPL and a TRI certificate for the applicable type;
 3. For the initial issue of an TRE certificate, have completed at least 50 hours of flight instruction as a TRI, FI or SFI in the applicable type or an FSTD representing that type. (BA note: this requirement is not applicable when extending the privileges to a new type.)

8.1 Examiner Standardisation Course

8.1.0 Introduction

The Examiner Standardisation Course is required by EASA part FCL.1015. It meets the requirements of AMC1 FCL.1015.

The requirements for the approval and conduct of the course together with details of the initial application, revalidation and renewal process are clearly laid out in CAA Standards Document No. 41 (as published by the

CAA and amended from time to time. This document is available at www.caa.co.uk). BA will strive to provide an outstanding course through appropriately qualified staff, suitable facilities and a relevant training syllabus. The Chief Tutor will be prepared to provide a practical demonstration of the course, as required, to the satisfaction of a TI of the CAA.

The course is a generic course for all fleets and must be attended by all suitably qualified Type Rating Instructors (TRI) prior to the initial issue of an Examiners Certificate.

Following successful completion of the Examiner Standardisation Course, the trainee examiner will practice conducting checks under the supervision of an experienced examiner and then complete an Examiner Assessment of Competence (EAoC) on a 'live' crew observed by a CAA Inspector. BA require a minimum of 5 'observation' details prior to the EAoC with the final detail observed by a BA Standards Course Tutor (CT) or Senior Examiner (SE).

Prior to the initial issue of a TRE Certificate candidates shall have completed at least 1500 hours as a pilot of multi-pilot aeroplanes of which at least 500 hours shall be as PIC and 50 hours of flight instruction as a TRI, FI or SFI in the applicable type or an FSTD representing that type (see FCL.1010.TRE).

When an examiner adds or transfers to a different aircraft type he will qualify on that type as an examiner using the EAoC format. There is no need to complete a further Examiner Standardisation Course (see FCL.1025 (4)).

8.1.1 Course Objectives

The aim of the BA TRE Standards Course is to provide candidates with the basic skills necessary to become an examiner. By the end of the course the candidate should be able to conduct a License Skill Test, License Proficiency Check and Operator Proficiency Check, where applicable, including the briefing, assessment and debriefing, to the standard required by the CAA.

8.1.2 Training Methodology

The overall structure consists of pre-course preparation, a five-day residential course culminating in an internal Assessment of Competence. The basic format of the course is:

- Two ground school days familiarising the candidates with the legislation and considering practical application together with practice briefing, de-briefing and LPC/OPC detail construction.
- Three simulator days comprising one detail for each trainee examiner. Each examiner is expected to create their own lesson plan from a report of an Incomplete or Partially Passed check. Timings for the details are 30 minute brief, 5 minute transit to simulator and 1 hour 30 minute detail followed by a 20 minute de-brief and subsequently, developmental feedback.

One CT is required for each pair of trainee examiners or fraction thereof. If an individual trainee examiner attends the course a suitable stand in is required for the simulator part of the course.

The classroom sessions that make up the two ground school days are shared between two CTs. There is an open book exam on day two covering the legislative information from the previous sessions.

For the Simulator exercises the trainee examiners are split into pairs. A CT is assigned to each pair of trainees. He occupies the LHS and flies a flight profile as an LPC candidate. He injects sensible errors in order to provide the trainee examiners with reasonable opportunities to assess performance and determine the appropriate course of action.

One course student occupies the RHS and acts as a co-pilot. However, this is a non-standard role where he has to resist the urge to point out errors in order to give the other trainee the opportunity to exercise his own observation skills. He should make notes of the exercise and provide the course tutor with a reduced, but correctly structured, debrief of the exercise.

The other course student acts as the examiner. He runs the exercise from the IOS using a scenario provided the day before. He must decide on the order of the items to be tested and the appropriate weather conditions to be simulated for the detail. This student will conduct a full brief and debrief.

On the final day of the course a different CT is assigned to the pair for an end of course Assessment of Competence. It is acceptable for this CT to have carried out the ground school training for the candidates.

8.1.3 Course Overview

The table below sets out the content of the course in more detail:

Day	Morning Activity	Afternoon Activity
One	Introduction Domestic arrangements Course Overview Instructing vs. Examining EASA Part FCL EASA Regulation Air Ops ANO & AIP Standards Document 24	OPC/LPC Content Licence Checks PANS OPS Briefing Demonstration brief Candidates pre-prepared brief Review day one Outline day two
Two	Review legislation Open book exam Review exam De-briefing and demonstration Examiner records/LPC MPA form Examiner liabilities Practical scenarios/planning the detail	Detailed requirements of LPC items Practice generic brief Review day two Brief for simulator familiarisation detail Brief and prepare for exercises one and two
Three	Simulator familiarisation detail (If required) Simulator Exercise One	Simulator Exercise Two Brief and prepare for exercises three and four
Four	Simulator Exercise Three	Simulator Exercise Four Brief and prepare for exercises five and six
Five	Simulator Exercise Five Assessment of Competence	Simulator Exercise Six Assessment of Competence Course wash-up session

8.1.4 Course Material

There is a TRE Standardisation Course manual. This is only available to the CTs nominated to present the course.

Candidates are advised in the course joining material to obtain electronic copies of the relevant CAA, ICAO & EASA documents. For BA candidates these can be accessed from the Examiner section on the MLA website, <http://www.bablends.com>. For non BA candidates the documents can be found on the CAA website, <http://www.caa.co.uk> and the EASA website <http://www.easa.europa.eu>.

8.1.5 Assessment

The TRE candidate's progress must be continually assessed. Each candidate will have a dedicated file including their open book exam answer sheet and TRANCOMM reports on all training activities and the Examiner Assessment of Competence, that occur during the Standards Course. This file should also be used to record all simulator observation details and should be presented to the CAA Inspector prior to the EAoC. The file is the responsibility of the candidate under the guidance of the CT.

The minimum course standard is that required to pass the EAoC. This requires a trainee examiner to demonstrate that he is able to conduct a check in accordance with the requirements of CAA Standards Document 24(A) (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and that he has knowledge of other relevant documents.

BA must notify CAA Licensing and Training Standards when a trainee examiner has completed a Standards Course, together with the result. Where a trainee examiner has not met the required standard, the course tutor's recommendations (e.g. remedial training) should be specified. The CAA will not conduct an EAoC on a trainee examiner until it has received confirmation from BA that the required standard has been reached.

8.1.6 TRE Standardisation Course Tutors

Chief Tutor – Captain Charles Everett

Tutors:

- Captain Martin Abbot
- Captain Tim Frost
- Captain Kevin Lyons
- Captain Brian Malone
- Captain Richard McBrien
- Captain Minesh Patel
- Captain Greg Steele

8.2 Observations

Newly appointed TRE's who will conduct proficiency checks, skill tests and Assessments of Competence on behalf of British Airways are required to complete 5 observations. These will be undertaken under the supervision of a qualified TRE. The final observation will be supervised by a BA Standards Course Tutor or fleet SE. This final observation will act as an assessment prior to putting the candidate forward for an EAoC with a CAA Inspector. A trainee will not be put forward for an EAoC unless they are deemed to have a very high expectation of passing the assessment.

8.3 EAoC

The EAoC is conducted by a CAA inspector. The Trainee will conduct a Proficiency Check or Skill Test in accordance with CAA Standards Doc 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) on a 'Live Crew'.

8.4 Converting TRE

- A converting Instructor from another fleet will need to re-validate his or her TRE certificate to extend its privileges to the B747-400.
- The re-validation will be done after completion of the simulator phase of the TRI extension of privileges course.
- There is no TRE course for this purpose and the Student Examiner will be rostered to observe a recommended minimum of 3 LPC or LST details. It will be expected that during these observations the Student Examiner will have some practice at running the detail under the supervision of the rostered TRE.
- Upon successful completion of the observations the student Examiner will present him/herself for the EAoC.
- EAoC can be done by a Fleet SE or CAA TI using a recurrent LPC or LST detail.

9 LINE TRAINING CAPTAIN (NON LIFUS) COURSE

9.0 Introduction

- a. The Line Training Captain's (non LIFUS) course is for those Training Captains who are appointed as Line Training Captains only, with no simulator qualifications. The objective of the Line Training Captain's course is to train to the level of proficiency required to conduct the line training portion of a Conversion course or Command course on the B747-400. It also qualifies the Training Captain to conduct bi-annual line checks on line crews and final line checks on completion of a conversion course (Command conversions and co-pilot conversions). Final Command checks on newly promoted Captains can only be completed by one of the following: a TSC, FTM B747 or a nominated Training Captain.

Note 1: A Line Training Captain (non LIFUS) cannot conduct any training during the LIFUS phase of a ZFT conversion.

Note 2: In normal circumstances it is not BA policy to appoint Line Training Captains (non LIFUS).

- b. To be accepted for the course the trainee must:
- Be entitled to act as PIC on the aircraft during such flight instruction.
 - Any other condition as required by FTM B747.
- c. Course overview:

Phase	Duration
TRI Part 1	5 days
Simulator Training	3 days
Aircraft Training and Final Check	6 sectors

Line Training Captain (non LIFUS) courses are conducted by a TSC or other nominated Training Captain.

The final two sectors (aircraft training and Final Check) are conducted by a TSC.

- d. It is a continuous assessment course. Each training day has a set of objectives. The objectives define the breadth and depth of knowledge and skill required to be demonstrated. The course tutor will assess whether these objectives have been met during the

training session. The Operator requires that certain assessments of competence are made. Specifically these events are set out below:

Phase	Event	Day
Simulator Training	RHS OPC	5
Aircraft Training	RHS line check	9
Aircraft Training	Final Check	End

- e. The trainee is responsible for his/her own learning. Various sources of information will be available including the MLA and FCOM. The trainee is responsible for allocating time to study the training material prior to presenting themselves for the course.

The continuous assessment process will identify training effectiveness and highlight areas for trainee development. Trancomm will reflect the trainees progress and, during the debrief session, the trainee will be made aware of specific areas to focus on.

If lack of progression in key areas of knowledge, skill or attitude is identified the tutor will make the trainee aware of this informally during the de-brief. If failure to progress is persistent the FTM B747 will be informed and he/she will decide what steps are required to meet the trainee’s needs.

- f. All trainees need to demonstrate that they:
 - Can complete a line check in the RHS.
 - Can perform the duties of an aircraft Captain from both LHS and RHS.
 - Can train competently and effectively on the aircraft from both LHS and RHS.
 - Can complete a line check from any seat.
 - Are well informed and familiar with all operating systems and procedures.
 - Are familiar with all the appropriate documentation, syllabi and depth of discussion required for each conversion course line training discussion subject.
 - Have gained the necessary techniques for training, fault correction, briefing and debriefing.

- Are able to readily diagnose typical faults a converting pilot may make during a line training flight, with particular reference to the assessment of developing situations and timely interventions to secure a safe line operation.
- Can recognise normal trainee progress.
- Can assess final check standard.
- Are able to conduct bi-annual line checks on line crews.

9.1 TRI Part 1 Course

9.1.1 Introduction

The TRI Part 1 Module of the type TRI Course is required by EASA part FCL.930.TRI (a) (1). It meets the requirements of AMC1 FCL.920 (Instructor Competencies and assessment) using the guidance provided by AMC FCL.930.FI Part 1.

The course is a generic course for all fleets and must be attended by all newly appointed British Airways Type Rating Instructors.

An existing British Airways TRI who is converting to a new type and is completing a type specific course to extend their Instructor privileges to the new type (as set out in FCL. 910 TRI) is not required to complete a further TRI Part 1 (see FCL.930 TRI (b)).

An applicant for a TRI sponsored by another operator must attend this course if they are applying for issue of an initial Type Rating Instructor Certificate. If they are seeking extension of TRI privileges to a new type they must demonstrate to the satisfaction of the BA ATO Head of Training that they have completed a TRI Part 1 course which meets the requirements of FCL 930 TRI (a) (1).

9.1.2 Course Objectives

The objective of the course is to provide a TRI STUDENT with a foundation in training and learning theory and practice together with an awareness of the knowledge, skills and attitude required of a TRI.

These skills and competencies include but are not limited to:

- Creating a climate conducive to learning.
- Identifying and responding to trainees' needs.
- Presenting and transferring knowledge.
- Facilitating understanding.

- Demonstration.
- Identification, evaluation and correction of errors.
- Giving feedback.
- Relevance of effective and pre-emptive briefings.
- Assessing Trainee performance.
- Writing accurate and objective reports.
- Managing time to achieve training objectives.
- Integrating Human Factors training.

9.1.3 Training Methodology

The course takes place over 5 days including a practical simulator training session on day 3. There is a small amount of pre-course preparation work for the TRI STUDENT and assessment is continuous throughout the course. The course has been specifically designed to be highly interactive, utilise a variety of training media and focuses on the active participation of the trainees from the outset.

The training methods include: Interactive Classroom sessions; Break out group Briefings and De-briefings, use of video for feedback, Full flight Simulator for role specific training, role playing scenarios.

Additionally from day 2 onwards the training session commences with a one to one facilitated feedback session between a Course Tutor and each TRI STUDENT. The TRI STUDENT maintains a personal development file and the course is subject to an official written report within the TRANCOMM system; (alternative company systems will be utilised for TRI STUDENTS sponsored by another operator). The TRI STUDENT is expected to participate fully and therefore cannot always take comprehensive notes; hand-outs covering relevant material from the day's modules are distributed at the end of each course day.

There is 1 TRI TUTOR for every 3 TRI STUDENTS or fraction thereof.

TRI TUTORS must conduct at least 1 TRI Part 1 course or similar trainer training event in a 3 year period. In the event of a lapse in recency, appropriate retraining and assessment will be carried out as defined by the Chief Tutor.

A list of Course TRI TUTORS as at February 2013 is included in [Section 9.1.7](#).

9.1.4 Course Overview

The table below sets out the content of the course and time allocated to each module. Total time excluding breaks is 34:40 hours.

DAY	PROGRAMME	TIMING	TOTAL
ONE	<i>An Introduction to Training and Learning Theory – Skills Training</i>		
	<ul style="list-style-type: none"> • Course Introduction. • What Trainers Do. • How People Learn. • Core Skills 1. • Feedback. • Creating a Learning Environment. • Briefing Skills. • Briefing Assignments for Day 2. 	<ul style="list-style-type: none"> • 0900-0945 • 0945-1045 • 1100-1215 • 1330-1515 • 1530-1630 • 1630-1645 • 1645-1730 • 1730-1740 	7:25
TWO	<i>Application of Practical Briefing Skills – Further Development of Training and Learning Models</i>		
	<ul style="list-style-type: none"> • Self-Preparation Time for Briefings. • Practice Briefings. • Core Skills 2. • The Training Cycle. • Managing Errors 1. • Observing Briefing for Day 3 (Simulator Session). 	<ul style="list-style-type: none"> • 0900-1000 • 1000-1300 • 1330-1430 • 1445-1545 • 1545-1615 • 1615-1645 • 1645-1715 	7:30
THREE	<i>Application of the Knowledge and Skills Learned in a Dynamic Simulator Environment</i>		
	<ul style="list-style-type: none"> • Generic Circuit Briefing by Trainee Instructor. • Simulator Training Sessions (4 Hours). • Debrief of Training Sessions. • Managing Errors – Discussion and wash-up session with the entire course. 	<ul style="list-style-type: none"> • 0830-1030 • 1100-1500 • 1530-1630 • 1630-1730 	8:00
FOUR	<i>Human Performance and CRM Training – Application of Debriefing Skills</i>		
	<ul style="list-style-type: none"> • Human Performance and Limitations. • Introduction to CRM Training and Assessment. • Introduction to Pilot Competencies. • The Debrief in Practice – Demonstration. • Briefing for Afternoon Session. • Practice Debriefing Sessions. 	<ul style="list-style-type: none"> • 0900-0945 • 0945-1030 • 1045-1215 • 1215-1245 • 1330-1345 • 1345-1715 	7:15

DAY	PROGRAMME	TIMING	TOTAL
FIVE	<i>Managing the Extremes of Performance – Training in Different Environments</i>		
	<ul style="list-style-type: none"> Managing Extremes. Report Writing. Ground/Flight Differences. Introduction to next phase of TRI Course. Outro. 	<ul style="list-style-type: none"> 0900-1030 1045-1130 1230-1345 1345-1415 1415-1445 	4:30
TOTAL			34:40

9.1.5 Course Material

There is a TRI Part 1 Course presenter manual. This is only available for the TRI TUTORS nominated to present the course. This also contains the relevant media for the course.

There is no specific training material for this module of the TRI course. TRI STUDENTS are expected to have a good technical knowledge of their specific type and a high level of skill. They will have passed a selection process which will have assessed their suitability in terms of personality and disposition to instruct.

The intensity and concentration required during the course means that the TRI STUDENTS are not expected to have done any specific pre-module preparation. All training material is provided during the course itself.

9.1.6 Assessment

The TRI Part 1 is a not a pass or fail course. However, the TRI STUDENTS are continuously assessed and their progress monitored by the TRI TUTORS who observe how the TRI STUDENTS assimilate the skills and knowledge which are presented to them over the 5 days.

The TRI STUDENTS are given regular feedback by their fellow STUDENTS and each day by their supervising TRI TUTOR. This feedback is designed to reinforce key learning points and personal traits and to highlight areas where the TRI STUDENT may need to modify behaviour or focus learning to become a more effective instructor.

Any TRI STUDENT who fails to show sufficient proficiency in the necessary skills or inadequate ability to absorb the knowledge and key learning points would have this fed back to them during the one to one sessions. The TRI TUTOR would then work collaboratively with the TRI STUDENT and their respective FTM to decide on the best course of action with regard to proceeding to the Type specific TRI course. (In the case of

a non-BA TRI STUDENT this discussion would be had with the Training Manager of the sponsoring company in conjunction with the Head of Training for BA ATO or his nominated representative).

9.1.7 TRI Part 1 Course Tutors

Chief Tutor – Captain Greg Steele

Tutors:

- Captain Charles Everett.
- Captain John Diggory.
- Captain John Leech.
- Captain Paul Field.
- Captain John Phillips.
- Captain Rob De Martino.
- Captain Jerry Palmer.
- Captain George Baillie.
- Captain David Kennedy.

9.2 Simulator Training

9.2.0 Introduction

This course may be undertaken by Captains who have completed the TRI Part 1 Course. Candidates should have above average skills in the following areas:

- Aircraft technical knowledge.
- Standard Operating Procedures.
- Pilot Competencies.

9.2.0.1 Objectives

The aim for the candidates is to:

- Develop the instructional skills acquired during the TRI Part 1 course.
- Develop Human Factors analytical skills.
- Pass a RHS OPC.
- Learn when and how to intervene.

-
- Practice intervention.
 - Understand the difference between checking and training.
 - Recognise normal trainee progress.

9.2.0.2 Method

During the course the Student Instructor will:

- Practice briefing and debriefing.
- Demonstrate aircraft handling.
- Identify and correct errors.
- Give and receive feedback.

9.2.0.3 Terminology

Student Instructor (SI):	The TRI candidate.
Tutor Pupil (TP):	The TRI instructor who will act as the SI's pupil.
SI one/SI two:	A term used when there is a need to differentiate between candidates.
Tutor:	The Tutor conducting the course.

9.2.0.4 Simulator Overview

9.2.0.4.1 Pre-course Preparation

Student Instructors should:

- Ensure that they have training access to Trancomm.
- Revise all volumes of the aircraft Library paying particular attention to SOPs, expanded checklist, allocation of duties, standard call-outs, etc.
- Study Human Factor and Error management material such that they can discuss the concepts using the appropriate phraseology.

9.2.0.4.2 Observation

Accurate observation is essential to complete worthwhile analysis. The SI's ability to observe whilst maintaining a safe operation and make appropriate notes where required will require practice. The SI's ability to observe accurately will increase when his/her knowledge of what to look for develops. This highlights the need for the SI to begin to accrue a library of common errors.

9.2.0.4.3 Analysis

The analysis of “why” something happened is of significant importance. The SI must be encouraged to look for the “root cause”. The SI will be expected to include analysis of non-technical issues.

9.2.0.4.4 Debrief

A “text book” debrief is clear, concise, objective and of appropriate length. It will focus on both technical and non-technical issues and contain elements of praise and criticism where necessary. Feedback is wasted and the learning value will be diminished if there is any element of disagreement between the instructor and the trainee as to what happened. The imperative is to seek agreement on what happened, why it happened and how the trainee will proceed to the correct technique.

9.2.1 LTC Course Simulator Detail 1

9.2.1.1 Briefing – 1:30 Hours

- Safety briefing and course introduction.
- Elements of the RHS OPC to be undertaken in the detail.
- Responsibilities of the LTC during line training.
- Discussion on typical B747 specific handling difficulties and intervention.
- Discussion on the use of Trancomm, grading and licence checking.
- Conducting a line check.

9.2.1.2 Simulator One – 4 Hours

Nominate SI one and SI two for the course.

SI one in RHS (operates as HP throughout) SI two in LHS (operates as NHP).

0:00-0:15	Quick set up on runway.
0:15-1:05	SI one practices following items: <ul style="list-style-type: none"> • RTO as HP and NHP in RHS. • EFATO with fire and full clean up. • Manually flown ILS OEI. • Manually flown G/A OEI. • Return to visual OEI circuit. • Manual OEI landing. Repeat until competent.
1:05-2:00	SI one and SI two swap seats. SI two repeats the exercise from the RHS.
	...BREAK – 15 minutes...
2:15-3:00	SI one in RHS. SI one completes OPC in RHS. <ul style="list-style-type: none"> • RTO as NHP/HP (in low vis). • EFATO. • OEI Manual ILS and G/A. • OEI Manual landing.
	All items must be flown to normal OPC standard.
3:00 -3:50	SI two in RHS.
	Repeat of OPC for SI two.
3:50-4:00	Exit simulator.

SI on the short course will have had handling practice in the RHS during the TRI (A) course. It is expected that they will be able to complete the RHS OPC during the first half of the sim detail. **The second half of the detail should be used to refresh typical faults and intervention and include a manual landing from the RHS following a Cat 1 approach to DA and a Rejected Landing following intervention by the SI. Also include handling in strong crosswind. Tutor should occupy the LHS for the second half of the detail once both OPCs are completed.**

9.2.1.3 Debriefing – 1 Hour

- Items arising from the detail.
- SI one debriefs SI two on handling.
- SI two debriefs SI one on handling.
- Trancomm report write ups.
- Tutor gives briefing subjects for detail 2.

9.2.2 LTC Course Simulator Detail 2

9.2.2.1 Briefing – 2 Hours

Tutor led discussion 1:00

- When to intervene on the aircraft.
- Preparing and planning training on the line flying.
- Note taking.
- Achieving an on-time departure during training.
- Typical trainee personality profiles.
- Training the visual approach and landing.
- Coping with a mis-handled take-off and landing.
- The rushed approach – Avoiding/Trapping/Mitigating.
- Common errors during:
 - Taxiing.
 - Take-off/climb.
 - Initial approach.
 - Landing (esp late/early flare, unstable at 1000').

... BREAK 10 mins to allow the SIs to prepare...

SIs give 15 minute (max) min-brief each followed by tutor feedback.

These briefings should be designed to simulate the style of mini-brief required to be given during line training as short refreshers prior to the trainee undertaking the flight/procedure. There should be an assumption that the trainee has completed the conversion course and has received full training on the subject as part of the course.

Briefing topics:

- Take-off and landing with a crosswind.
- Visual join to a circuit and visual approach.

Break and prepare for detail – 10 minutes.

9.2.2.2 Simulator Two – 4 Hours

Training and intervention.

SI two operates in RHS, Tutor in LHS role playing trainee (TP).

SI one operates IOS, observes and takes notes.

0:00-0:15	Quick start on taxiway at LHR.
0:15-1:05	TP demonstrates common errors during: <ul style="list-style-type: none"> • Taxi. • Take-off. • Approach (including unstable/rushed). • Landing (include go-arounds/rejected landings). SI two practices intervention and corrective briefs. The intervention should include exposure to mishandling of the landing and take-off requiring intervention/guarding of control and one of which results in a rejected landing.
1:05-2:00	Swap seats SI one occupies RHS SI two at IOS. Repeat for SI one. <p style="text-align: center;">...BREAK...</p>
2:10-3:05	SI two in RHS TP in LHS, SI one operates IOS and acts as ATC. TP flies short sector from LHR to LGW or STN. During flight TP introduces some typical trainee errors. SI two observes, takes notes, trains and intervenes as required.
3:05-3:55	SI swap seats and roles. TP flies return sector repeating above. SI one observes, takes notes, trains and intervenes as required.
3:55-4:00	Exit simulator.

9.2.2.3 Debriefing – 1:30 Hours

SI one and SI two take 10 minutes to review notes and prepare debrief.

- SI two debriefs TP (15 mins max).
- SI one debriefs TP (15 mins max).
- Tutor provides feedback to both SIs on debrief.
- Tutor debriefs simulator detail.

- Tutor provides briefing subjects for detail 3 and route for sim 3.
- SI to write short trancomm report on TP to hand in for next detail.

9.2.3 LTC Course Simulator Detail 3

9.2.3.1 Briefing – 2 Hours

Tutor led discussion (1:00).

Review reports written for detail 2.

Trainee problems and managing poor performance.

- What does right look like?
- Actions when trainee falls below target.
- Identifying the good as well as the weak areas of progress.
- External causes? Awareness of the trainee's fitness mental/ physical state.
- Informal MOP using the training cycle:
 - Agree the facts.
 - Agree the progress.
 - Agree the changes required and give pointers.
 - Handover notes/reports writing/trainee copy of report.
 - Contact FTM.
- Briefings/patter/demos:
 - What are the objectives of a pre-flight briefing?
 - Take-off/descent briefings what makes a sensible and practical briefing.
 - Pre-emptive briefings (mini briefs).
 - Patter and demonstration.
- CRM issues:
 - Using facilitation when is it/is it not appropriate in line training.
 - Managing defensive trainees.
 - CRM when acting as part of the operating crew.
 - Training admin and your responsibilities.

- Line checks:
 - Differences from line training.
 - Line check vs final check.
 - Line checks when operating as “Heavy”.

...Break 10 minutes to allow SI to prepare for briefings...

SI one and SI two give maximum 15 minute briefings on one of the following subjects:

- Operation on the Organised Track System.
- Flying a NPA, e.g. brief for VOR 22L at JFK or CRI approach JFK.

Feedback from tutor so as to leave 10 minutes to prepare for simulator.

9.2.3.2 Simulator Three – 4 Hours

Practice in line training on a short sector

SI one in RHS, TP acts as a Command trainee, SI two as IOS and ATC. Tutor to simulate operation on a short sector with typical Command conversion faults but include non-technical type faults typical of a new Command.

0:00 -1:45	<p>Full start and pushback. Short sector with flight time approx 30 minutes. Include a NPA at destination. Taxi in and shutdown (if time available). TP role playing. SI one to observe, take notes, intervene if necessary and provide training input as appropriate, whilst operating as LTC in overall of the flight.</p> <p style="text-align: center;">...BREAK – 15 minutes...</p>
2:00-3:50	<p>Swap roles SI two in RHS. Repeat above on a different but similar sector. TP to role play a new Command trainee with different trainee errors. SI two to observe, take notes, intervene if necessary and provide training input as appropriate, whilst operating as LTC in overall command of the flight.</p>
3:50-4:00	<p>Exit simulator.</p>

9.2.3.3 Debrief – 1:30 Hours

SI allowed 10 minutes to prepare notes for debrief.

- SI one debriefs TP (max 15 minutes).
- SI two debriefs TP (max 15 minutes).
- Tutor provides feedback.
- Discuss other line training functions, e.g. LCT, pre-command, etc.
- Brief for next phase of course.

On completion of detail 3 the tutor must make a positive recommendation for SI to continue to next phase. This recommendation must encompass: handling ability in RHS, capacity to cope with additional workload and ability to deliver effective training during line flying whilst managing a safe operation as aircraft Commander.

9.3 Aircraft Training

9.3.1 Sectors 1 and 2

The TC will be the nominated commander and operate in the left seat, the SI will gain competence and experience in the right seat as both PF and PM. The SI must demonstrate a competent level of operation, to line check standard, in the right seat as PF and PM.

9.3.2 Sectors 3 and 4

The SI will operate as the nominated commander and will be expected to demonstrate that he/she is capable of competently managing all aspects of a line training flight. The SI will operate from both seats during this phase. The TSC will introduce role playing and typical trainee faults. The SI will be expected to take notes and provide appropriate training input.

The TSC must be satisfied that the SI has sufficient breadth of knowledge of aircraft systems, manuals and BA procedures to adequately brief all aspects of the conversion course discussion items.

The TSC should discuss the standards expected in final checks and bi-annual line checks.

The SI must demonstrate the ability to operate a normal flight whilst delivering training and ensuring the safety of the operation.

At the end of this phase the TSC must give a positive recommendation that the SI is ready to operate with a “live” trainee under supervision. Any concerns regarding the SI progress should be raised with FTM B747 at the earliest opportunity.

9.3.3 Sectors 5 and 6 (Including Final Check)

These sectors will be conducted with a ‘live’ trainee and the SI in the operating seat as commander. The TSC will observe the SI conducting live training from the supernumerary seat.

The TSC will also observe the conduct of any discussion items and the debrief.

TSC will provide guidance and feedback as necessary.

At the end of this phase the TSC will confirm that the SI has reached the standard required to carry out all aspects of line training and checking.

10 RECURRENT TRAINER TRAINING

10.1 TRI Revalidation/Renewal

- Establish mechanism for re-validation from the choice of 3 options (there is also a renewal requirement if TRI expires which is quite extensive. FTM to make clear to TRI and Training admin that allowing a TRI certificate to lapse results in a lengthy renewal process).

a. Revalidation

1. Aeroplanes. For revalidation of a TRI(A) certificate, the applicant shall, within the last 12 months preceding the expiry date of the certificate, fulfil one of the following 3 requirements:
 - i. Conduct one of the following parts of a complete type rating training course: simulator session of at least 3 hours or one air exercise of at least 1 hour comprising a minimum of 2 take-offs and landings;
 - ii. Receive instructor refresher training as a TRI at an ATO;
 - iii. Pass the assessment of competence in accordance with FCL.935.
 - iv. For at least each alternate revalidation of a TRI certificate, the holder shall have to pass the assessment of competence in accordance with FCL.935.

b. Renewal

1. Aeroplanes. If the TRI (A) certificate has lapsed the applicant shall have:
 - i. Completed within the last 12 months preceding the application at least 30 route sectors, to include take-offs and landings on the applicable aeroplane type, of which not more than 15 sectors may be completed in a flight simulator;
 - ii. Completed the relevant parts of a TRI course at an approved ATO;
 - iii. Conducted on a complete type rating course at least 3 hours of flight instruction on the applicable type of aeroplane under the supervision of a TRI(A).

10.2 TRI Skills Refresher

- To be populated with details of any Trainer Training courses as determined by FTM.

10.3 Examiner Refresher Seminar and TRE Revalidation

10.3.0 Introduction

FCL.1025 details the requirements for the validity, revalidation and renewal of examiners certificates. Further details are also given in CAA Standards Document 24(A) (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk).

The requirements for validity, revalidation and renewal detailed in FCL.1025 are:

- a. Validity. An examiner certificate shall be valid for 3 years.
- b. Revalidation. An examiner certificate shall be revalidated when the holder has, during the validity period of the certificate:
 1. Conducted at least 2 skill tests, proficiency checks or assessments of competence during each year of validity of the certificate (note an LPC or LST detail conducted on a crew where both pilots are under assessment counts as two tests).
 2. Attend an examiner refresher seminar provided by the competent authority or by an ATO and approved by the competent authority, during the last year of the validity period.
 3. One of the skill tests or proficiency checks completed during the last year of the validity period in accordance with (1) shall have been assessed by an inspector from the competent authority or by a senior examiner specifically authorised to do so by the competent authority responsible for the examiner's certificate.
 4. When the applicant for the revalidation holds privileges for more than one category of examiner, combined revalidation of all examiner privileges may be achieved when the applicant complies with the requirements in (b)(1) and (2) and FCL.1020 for one of the categories of examiner certificate held, in agreement with the competent authority.
- c. Renewal. If the certificate has expired, applicants shall comply with the requirements of (b)(2) and FCL.1020 before they can resume the exercise of the privileges.

- d. An examiner certificate shall only be revalidated or renewed if the applicant demonstrates continued compliance with the requirements in FCL.1010 and FCL.1030.

AMC1 FCL.1025 states that the examiner refresher seminar should follow the content of the examiner standardisation course. Details of the BA standardisation course can be found in [Chapter 8](#) of this manual.

BA have developed an examiner refresher seminar to comply with the requirements of FCL.1025. The CAA has approved this seminar.

10.3.1 Course Objectives

The aim of the BA Examiners Refresher Seminar is to:

- Refresh and update the regulatory knowledge required to be an examiner and become familiar with the layout of the relevant EASA, CAA & ICAO documentation.
- To refresh examiner knowledge of CAA Standards Document 24 (as published by the CAA and amended from time to time. This document is available at www.caa.co.uk) and its practical application in running efficient Skill Tests or Proficiency Checks.
- To comply with EASA Aircrew Regulation FCL.1025 and its associated AMC1 FCL.1025, AMC1 FCL.1015 and AMC2 FCL.1015.

10.3.2 Training Methodology and Overview

The syllabus is designed for delivery by two qualified tutors.

The Seminar shall last a minimum of 6 hours duration excluding breaks and is designed to be modular and interactive in order to attend to candidates needs. Minimum course content is outlined below.

0800

- Introduction.
- Legislation.
- EASA Aircrew Regulation EASA FCL including www.easa.europa.eu.
- EASA Regulation Air Operations.
- PAN-OPs.
- ANO.
- Standards Doc 24(A).

1230 Lunch

- EASA licences including non-UK licences.
- Medical Requirements.
- Result and Administration.
- Forms and Assessment.
- CAA website and information notices www.caa.co.uk.

Additionally for BA Candidates:

- Scoring and Trancomm.
- The MLA and www.bablends.com.

On completion of the Seminar each candidate shall be issued with a Course Completion Certificate to insert in their licence. A copy will also be sent to CAA Flight Crew Standards for their records. For BA candidates a record of completion will also be entered into Trancomm.

10.3.3 Course Material

There is a TRE Examiners Refresher Seminar manual. This is only available to the Course Tutors (CT) nominated to present the course.

Candidates are advised in the course joining material to obtain, up to date, electronic copies of the relevant CAA, ICAO & EASA documents. For BA candidates these can be accessed from the Examiner section on the MLA website, www.bablends.com. For non BA candidates the documents can be found on the CAA website, www.caa.co.uk and the EASA website www.easa.europa.eu.

10.3.4 Assessment

No assessment is required as part of this seminar.

10.3.5 TRE Standardisation Course Tutors

Chief Tutor – Captain Charles Everett.

Tutors:

- Captain Martin Abbot,
- Captain Mark Cocks,
- Captain Graham Croft,
- Captain Tim Frost,
- Captain Kevin Lyons,
- Captain Brian Malone,
- Captain Richard McBrien,
- Captain Jerry Palmer,
- Captain Minesh Patel,
- Captain Greg Steele,
- Captain Ed Walters.

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11 OTHER COURSES

11.0 Introduction

This section contains additional courses specific to the fleet that do not fall under the subsections of the previous chapters.

11.1 Line Continuation Training (LCT)

11.1.0 Introduction

- a. The purpose of the Boeing 747 LCT Course is to allow new pilots to consolidate their operational knowledge and flying skills on the Boeing 747 aircraft and network, receive additional training in PICUS duties and to demonstrate that standards have been maintained. The intention is for the course to be scheduled to include the first annual line check, post completion of the conversion course, in sector 3 of this 4 sector course.

Prior to the course the trainee is expected to self-study all discussion items listed in [OM Part D Appendix T 12.2 – LCT Discussion Items](#). During the course, the trainee can expect in-depth discussion of all listed items. These discussions will be led by the Training Captain and should include real-life application of the subjects.

The emphasis of the course is on training however during the course there will be an assessment (in the form of a line check) to determine whether the trainee has absorbed the theory taught.

- b. To be accepted for the course the trainee must:
 - Have less than twelve months from their initial conversion course.
 - Any other condition as required by FTM B747 e.g. poor performance during a simulator or line check.
- c. Course overview:

Line Continuation Training	Sectors
Operator Line Training	3
Operator Line Check	1
	Total 4

- d. The trainee is responsible for his/her own learning. Various sources of information are available – Docunet and the MLA. The trainee is responsible for allocating time to study the training material prior to presenting themselves for the training course.

During the training phase, assessment will be continuous and will identify areas for trainee development. Trainees will be made aware of these development areas during the de-briefing sessions and they will be recorded in the trainee's Trancomm file.

If a lack of progression is identified the Training Captain will make the trainee aware of this during the de-brief. If the failure to progress is persistent the FTM will be informed and he/she will decide what steps to take to correct the lack of progress.

11.1.0.1 Additional Notes Specific to the British Airway B747 LCT Course

11.1.0.1.1 Aims

1. To create a course which is fully compliant with BA policy.
2. To identify areas of strength and areas requiring further development for the trainee.
3. To allow the trainee to conduct true PICUS line sectors whilst flying a normal line operation.
4. To allow the trainee to receive additional crosswind handling when possible.

11.1.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified, proficient B747 pilots.
- It is assumed that the trainee is non-technically proficient and familiar with the Pilot Competencies.

11.1.0.1.3 Course Structure for Trainee

The course will be scheduled over two bid months with a trip in each month. This structure can be varied at the discretion of FTM B747.

B747 LCT Course Content Overview	
Sector 1 & 2	Two standard PICUS sectors.
Sector 3	A normally constituted crew, Line Check – Training Captain checking from P3 seat and LCT trainee operating as PICUS (weather and recency permitting).
Sector 4	A PICUS sector with Training Captain operating in an operating seat and line Captain from previous sector operating as P3.

11.1.0.1.4 Course Structure and Information for Training Captains

The intention is that the course is delivered by two different Training Captains however this is not a requirement and can be conducted by the same Training Captain as training resources allow.

Prior to each trip, it is recommended that the Training Captain contact the trainee to set the expectation for the trip and answer any questions that he/she might have. Also, prior to the second trip, it is recommended that the Training Captain contact the line Captain to explain the format for that trip and set the expectation wrt to handling sectors on the Line Check.

11.1.1 Philosophy of the Course

The LCT course is based on three principles:

1. Consolidation:

Having had (up to) 12 months settling into the RHS of the B747 this is an opportunity to standardise and answer any queries that might have surfaced over that time. Also, due to the nature of the longhaul B747 operation, it is recognised that the opportunity to practise T/O and landing technique might have been minimal in that period thus the intent for the trainee to operate PICUS sectors over the course.

2. Learning by doing:

Having been trained on the first trip, the second trip gives the trainee an opportunity to apply those skills learned with a normal line Captain in the LHS.

3. Detailed debriefing on areas of strength and any areas requiring development:

The ultimate aim of the course is to ensure that the trainee is developing his/her Pilot Competencies and is comfortable in the BA operating environment. Hence, the trainee must know what areas are strengths (and must be continued) and what areas require development.

11.1.2 Trancomm

- All reports are to be entered into TRANCOMM.

On trip one, the OBJ MET score is to be used when at least an initial Pilot Competencies of level 3 has been achieved. Training Captains should use the Pilot Competency Grading for LPC/LOE Overall Score as guidance for scoring.

- If trip one has been scored as OBJ NOT MET then FTM B747 must be informed as soon as practical.
- A Line Check will be created as part of the course and the trainee's mandatories will be updated. Training Captains must ensure that they select a 24 month Line Check when completing the check entry in TRANCOMM.
- If the line Captain on trip two is under check a separate line Check for him/her will require to be allocated.
- After sector 3 checking, the Training Captain will complete a TRANCOMM entry for the Line Check.
- After sector 4 training, the Training Captain will complete a TRANCOMM entry including recording the final Pilot Competencies. Training Captains should use the Pilot Competency Grading for LPC/LOE Overall Score as guidance for scoring.

11.1.3 LCT Course Breakdown

1. Trip One:

Any 2/3/4 crew trip.

Two standard PICUS sectors with training input as required intended to standardise.

The Training Captain to manage and brief all resources accordingly.

The trainee is responsible for all aspects of time management over the trip.

Discussion items to be briefed over the trip as required.

2. Trip Two:

Any 3/4 crew trip.

The Training Captain must not be part of the crew during the Take Off, Climb, Descent and Landing phases of the single sector, outbound Line Check as per [OM Part D Appendix T 6.3 – Line Check](#) guidelines. Ideally (recency and weather dependant) P2 operates a PICUS sector.

The crew to manage and brief all resources on the first sector regarding the Line Check and the Training Captain's role.

A standard debrief for the crew on the Line Check.

A PICUS sector for the trainee on the return sector with the Training Captain in the LHS.

The Training Captain to manage and brief all resources accordingly on the return sector.

Discussion items to be completed over the trip as required.

Note: It is NOT a requirement to cover all items and if there are some that haven't been concluded, the course should still be marked as completed. It is preferred that the Training Captain adds value with an in depth discussion and real life applications of some items rather than a cursory conversation of all items.

A course outro.

11.2 Pre-Command (PICUS) Course

11.2.0 Introduction

- a. The B747-400 PICUS Course is designed to further train the candidate in the skills required to undertake the Captain's role. Ideally the course will be scheduled after the Essentials For Command Course (EFC) such that the models and theories covered within that course can be consolidated and built upon.

Prior to the course the trainee is expected to self-study OM A [Section 8](#), the generic non-normal management tool, the MEL/CDL, the PICUS iBook (contained on the MLA) and the AML. The trainee will in this way acquire the generic knowledge required as a foundation for the PICUS course.

The emphasis of the course is on training however at the end of the course there will be an assessment to determine whether the trainee has absorbed the theory taught on the course.

- b. To be accepted for the course the trainee must:
- Have the seniority that would suggest that a Command Course may be scheduled in the near future.
 - Any other condition as required by the FTM B747.

- c. Course overview:

Course Footprint 5 working days.

Phase	Working Days
Simulator Training	1
Line Training	3
Simulator Assessment	1

- d. It is a continuous assessment course. Each training day has a set of objectives. The objectives define the breadth and depth of knowledge and skill required to be demonstrated. The Training Captain will assess whether these objectives have been met during the training session. The Operator requires that an assessment of competence over the course is made. Specifically this event is set out below:

Phase	Event	Day
Second Simulator Phase	Soft LOE Assessment	5

- e. The trainee is responsible for his/her own learning. Various sources of information will be available including the MLA and FCOM. The trainee is responsible for allocating time to study the training material prior to presenting themselves for the course.

The continuous assessment process will identify training effectiveness and highlight areas for trainee development. Trancomm will reflect the trainees progress and, during the debrief session, the trainee will be made aware of specific areas to focus on.

If lack of progression in key areas of knowledge, skill or attitude is identified the Training Captain will make the trainee aware of this informally during the de-brief. If failure to progress is persistent the FTM B747 will be informed and he/she will decide what steps are required to meet the trainees needs.

- f. Handling during the simulator phase is not assessed due to the trainee occupying an unfamiliar seat. However non-technical skills at all times and aircraft handling during the flying phase must meet the standard as defined in EASA part FCL.

11.2.0.1 Additional Notes Specific to the British Airways B747 PICUS Course

11.2.0.1.1 Aims

1. To create a course which is fully compliant with BA policy.
2. To use interactive training aids and video presentations in the briefing to improve the trainees learning.
3. To identify areas of strength, areas for development and suggested preparation for the candidate prior to commencing a command course.
4. To create command training and LOFT scenarios so as to develop crews' non-technical skills.
5. To make the course a practical preparation for a command course.
6. To train how to manage non-normal flight situations.
7. To allow the trainee to conduct true P1US line sectors whilst flying a normal line operation.
8. To assess whether the trainee has attained the skills required to progress onto a command course.

11.2.0.1.2 Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified, proficient B747 First Officers.
- It is assumed that the trainee is non-technically proficient and is familiar with the Pilot Competencies.
- It is preferred (but not required) that the trainee has completed an Essentials For Command (EFC) course prior to starting the PICUS course.

11.2.0.1.3

Course Structure for Trainee

B747 PICUS Course Content Overview	
Simulator (training) detail 1	2.5 hours of ground school and simulator briefing. LOFT scenarios based at LHR and JFK. Trainee to occupy the left seat. A mixture of time critical and non-time critical failure training scenarios.
3-day JFK trip – if JFK is not available then any (minimum) 3-day trip deemed suitable by FTM B747	Two P1US sectors. Trainee acting as pilot in command in the right seat.
Simulator (assessment) detail 2	Trainee to occupy the left seat. One LOE type assessment scenario per trainee. LHR-SFO or LAX-LHR

11.2.0.1.4

Course Structure for Training Captain

- The intention is for two Training Captains to deliver the course and will be allocated thus:

Simulator detail 1	3-day JFK trip	Simulator detail 2
First Training Captain		
	Second Training Captain	

- Both trips should be scheduled to arrive in JFK on the same day as close as possible within planning constraints.

11.2.0.1.5

Course Composition

The course is written for two First Officers. This allows the trainee Captain to occupy the left seat during the simulator phase and have a competent (but lacking initiative) P2 occupying the right seat. Trainees to swap seats and roles after the break.

11.2.0.1.6

Format of the Instructor Session Notes

For each stage there is an overview of the requirements to be met and the briefing material available. Course running tips are included in the course pack.

You will find for each simulator detail:

- Detail suggested running order.
- Paperwork required.
- Session objectives.

- Training Topics.
- Proficiency Criteria.
- Instructor notes.
- Initial setup data.

11.2.0.1.7 Trancomm

- All reports are to be entered into TRANCOMM. The OBJ MET score is to be used when the performance criteria for that training detail/ trip have been satisfied.
- The simulator assessment detail is to be scored as OBJ MET if progress has been made over the course and the trainee has demonstrated that they are in a position to commence a command course. If not then grade the detail as OBJ NOT MET.
- If a detail has been scored as OBJ NOT MET then FTM B747 must be informed as soon as is practical.

11.2.0.1.8 Briefing Material

All briefing material and suggested preparation for the course can be found on the MLA.

11.2.1 General

11.2.1.1 Philosophy of the Course

The PICUS course is based on five principles:

1. Systematic approach to instruction:

The input from the Training Captain must recognise that this is the start of the trainee's path to command. Hence the training style employed may well require flexibility in both content and delivery to ensure successful task completion e.g. use of flight freeze during the simulator training day to optimise effective decision making and encourage better understanding of the time available for a task.

2. Learning by doing:

Training in the command role is practised whilst managing failures (in the simulator phase) and leading the operation (in the aircraft phase).

3. Training towards proficiency:

At the end of the course the trainees should demonstrate an understanding of the skills required to role model Command behaviour.

4. Unrestricted access to a Training Captain:

The course is designed such that the trainee has the opportunity to discuss all aspects of their forthcoming command course including course structure, course preparation etc with two Training Captains and one trainee colleague.

5. Detailed debriefing on areas of strength and any areas requiring development:

The ultimate aim of the course is to best prepare the candidate for the successful completion of his/her command course. Hence the trainee must know what areas require development.

11.2.2 PICUS Course Organisation

11.2.2.1 PICUS Course Description

The course is divided into three distinct phases:

1. Simulator Training Phase

A 1230L report time for 2.5 hours of briefing prior to a 4 hour simulator training detail.

Briefing will include modules on:

- Authority Gradient.
- Generic Non-Normal Management.
- Non-Normal Briefing.

A 4 hour simulator training detail, with the trainee occupying the left seat, practising managing time critical and non-time critical events.

A 30 minute debrief on the learning points from the detail.

An outro for day 1 on what you can expect for phase 2 (aircraft training).

2. Flying Training Phase

A 3-day JFK trip.

Two standard P1US sector with training input (TI) as required intended to improve command skills.

The trainee is expected to manage and brief all resources accordingly.

The trainee is responsible for all aspects of time management over the trip.

Once established on the ocean, the Training Captain will discuss relevant command scenarios to encourage discussion on generic command style.

An outro from the flying phase to discuss what the learning points over the trip have been and what can be expected in the simulator assessment phase.

3. Simulator Assessment Phase

A 1400L report time for an LOE type assessment simulator detail with the trainee occupying the left seat.

A 1 hour self-brief for the trainees.

A 4 hour detail during which each trainee will manage one scenario each (note a landing is not required).

A 60 minute debrief including, if possible, the use of the NERS video system.

A course outro.

11.2.2.2 Instructor Briefing

The duration of the instructor briefing is stated in the table below:

	BRIEFING	DEBRIEFING
Simulator Training	2.30	At Instructor's discretion
Flying Training	1.30	
Simulator Assessment	1.00	

11.2.3

Flight Simulator Training

11.2.3.1

Simulator Training Session Guide

Training Captain determines Trainee A and Trainee B for the first detail and maintains it throughout the course.

General recommendations:

- The intention of the simulator training detail is to consolidate the theory covered in the briefing room.
- Use the flight freeze function as necessary to emphasise a learning point and/or avoid poor decision making.
- Ensure that the trainee realises that handling, whilst in the incorrect seat, is not assessed.
- Brief the “co-pilot” to behave as a competent, non-leading P2.
- Each Trainee to fly one non-time critical and one time critical non-normal event.

11.2.3.2

Simulator setup

Sector 1			
Trainee A in the left seat			
Location:	EGLL holding short rwy 27L		
Weather:	22009KT 180V310 6000 OVC009 07/02 Q1001 NOSIG		
Aircraft:	ZFW 219.4	Fuel 72.7	TOW 291.1
Route:	LHR – JFK		

Fly two scenarios as per briefing pack.

BREAK BREAK BREAK

Sector 2			
Trainee B in the left seat			
Location:	KJFK holding short rwy 04L		
Weather:	03012KT 10SM OVC020 06/01 A3039		
Aircraft:	ZFW 219.4	Fuel 66.1	TOW 284.7
Route:	JFK – LHR		

Fly two scenarios as per briefing pack.

11.2.4 Flying Training

As per 11.2.2.1 (2).

11.2.5 Simulator Assessment

11.2.5.1 Simulator Assessment Session Guide

Training Captain to:

- Brief candidates to expect a real time scenario with no flight freezes.
- Brief candidates to expect to have the detail recorded using the NERS system.
- Brief the “co-pilot” in the RHS to behave as a competent, non-leading P2.
- Brief the candidates that all handling, whilst in the incorrect seat, is not assessed.
- Allow the candidates to self-brief with pre-prepared paperwork.

11.2.5.2 Simulator Setup

Sector 1			
Trainee B in the LHS.			
Location:	EGLL taxi position rwy 27R		
Weather:	220/09KT 5000 –RA OVC005CB 07/02 1001		
Aircraft:	ZFW 214.4	Fuel 115.8	TOW 329.1
Route:	LHR – SFO		

BREAK BREAK BREAK

Sector 2			
Trainee A in the LHS.			
Location:	KLAX hold short rwy 24L		
Weather:	250/09KT 4SM OVC008 18/14 A3000		
Aircraft:	ZFW 224.4	Fuel 106.6	TOW 330.0
Route:	KLAX – EGLL		

11.3 B747 Three Engine Ferry Flight Course

11.3.0 Introduction

11.3.0.1 General

The use of 3 Engine Ferry Flight (3EFF) should be considered only when no reasonable alternative course of action is available since the margins for control and performance, especially in the approach and climb phases, can be significantly different from those associated with normal operations and, in particular, landing distance requirements.

No revenue passengers or cargo should be carried on 3EFF. Persons on board should be limited to crew members and British Airways engineering personnel whose presence are essential to the safe operation of the aircraft.

The 3EFF course provides:

- The training required to ensure the safe preparation and management of such flight, and
- The training required for the 3EFF instructor.

The 3EFF course is a generic training course on the 3EFF and has taken into account EASA and Boeing recommendations at the time of publication.

11.3.0.2 Crew and Flight Prerequisites

The crew members of a 3EFF must be:

- Type-rated and current on the B747,
- experienced on type (i.e. not a brown line holder),
- suitably briefed by a qualified 3EFF Captain,

Additionally, the flight must:

- have a designated 3EFF qualified pilot as Captain, and
- have the take-off conducted by that designated 3EFF qualified pilot.

11.3.0.3 Training Captain Validation

This course is dual purpose. It can be used for initial qualification as well as revalidating a 3EFF pilot qualification.

11.3.0.4 Completion Standards

- Knowledge of required standards.
- Knowledge of risk linked to a second engine failure during take-off.
- Knowledge of fuel planning and balancing.
- Demonstrate high level of skill in flying all elements of the simulator training detail; 3EFF take-off/RTO/loss of second engine and continued take-off.

11.3.0.5 Course Footprint

Day 1	
FFS Briefing	1:00
FFS	4:00
FFS Debriefing	0:30

11.3.1 Three Engine Ferry Flight Briefing

11.3.1.1 Training Objectives

To ensure the safe, efficient preparation and management of a 3EFF.

11.3.1.2 Scheduled Briefing Duration

Initial Validation/Revalidation: 1 hours.

11.3.1.3 Equipment Documentation References

See B747 Three Engine Ferry Manual.

See B747 Three Engine Ferry document.

11.3.1.4 Instructor's Briefing Content

Briefing on the following key points:

- Technical condition of the aircraft.
- Performance computation/CARD data/understanding of VSTOP versus V1.
- Operating limitations.
- Weather conditions.
- 3EFF operating procedures:
 - Take-off procedures – control wheel handling.
 - Thrust setting procedures.

- 2 Engines-out procedure.

11.3.1.5 3EFF Pilot's Preparation Prior to Simulator Detail and/or 3EFF

a. Ground Related

The B747 Three Engine Ferry Manual (ESS> eManuals> B747> B747 Three Engine Ferry Manual) gives the details of the procedure and limitations for the operation of a 3EFF.

Certain technical conditions must be assessed, especially the condition of the failed engine, i.e. "windmilling" or "core blank" condition. Furthermore, some systems must be fully operational and others specially configured for the proposed flight.

It is important that a comprehensive briefing is given to all crew members on all aspects of the 3EFF, in particular:

- Pre-flight planning.
- Route planning.
- Performance.
- Incapacitation procedures.

Preflight planning, special attention must be given to:

- Every crew member must carefully study the B747 Three Engine Ferry Manual.
- The 3EFF additional limitations for take-off, which are:
 - The take-off is only authorised from a dry or wet runway. It is **not** authorised from a contaminated runway.
 - The maximum crosswind allowed from the "dead side" is 7 kt.
 - The flap for take-off is F10.

Route planning, special attention must be given to:

- The weather and in particular to the avoidance of icing conditions.
- Fuel planning and balancing procedures including ensuring that a 3EFF CIRRUS has been produced by FTD.
- Obtaining 3EFF special flight Authorisation when flying within US or Canadian airspace.

Performance, special attention must be given to:

- The selection of the take-off runway, taking into account densely populated areas as well as performance capabilities. Also, an understanding that the minimum weather required is to allow visual manoeuvring around obstacles as necessary (especially in the event of a second engine failure on take-off).
- Ensure that derate 2 (TO 2) is used for take-off.
- Determine whether take-off performance is based on Packs Off or one Pack On.

Performance calculations for 3EFF differ at take-off from a normal take-off computation.

CARD calculates a V_{STOP} instead of a V_1 . Note that CARD annotates V_{STOP} as V_1 . If a second engine fails before V_{STOP} , the aircraft can be stopped on the remaining length of the runway. Above, V_{STOP} , the pilot should continue the take-off.

Also, due to the higher V speeds, a light forward pressure may be required up to V_R to ensure that the aircraft does not rotate early.

Incapacitation procedures, special attention must be given to:

- Ensure that the First Officer is fully briefed on his/her actions should the Captain become incapacitated before or during the initial airborne phase.

b. Flight Related

Specific take-off thrust setting procedures have been defined for the two following cases:

- Inner engine inoperative.
- Outer engine inoperative.

The procedures are engine dependant. Refer to the B747 Three Engine Ferry Manual for the specific procedures.

In summary:

- Align the aircraft with the runway centre line and apply foot brakes. Press TOGA to update the ND if GPS is unserviceable.
- Rudder trim setting: The rudder trim must be kept at zero for the take-off roll.

- Thrust application: Set the thrust of the symmetrical live engines to TO2 and increase the thrust of the remaining live engine in accordance with the aircraft speed. It is extremely important to strictly adhere to the thrust setting procedure. If too much thrust has been applied compared to the speed, do not retard the thrust lever but delay thrust increase until regaining directional control. As speed increases, the rudder will become more effective, allowing more thrust to be applied on the remaining operative engine.

Full rudder deflection may be needed early in the take-off roll, particularly in crosswind conditions.

During the take-off roll:

- It is preferable to use nose wheel steering for directional control on the take-off roll however, in extremis, the nose wheel tiller can be used.
- Keep in mind if a second engine fails in the initial part of the take-off roll (up to 85 kt) the auto brake will not activate, therefore the pilot will have to stop the aircraft using the brake pedals.
- If a sudden lateral deviation (aircraft yaw) occurs, that has not been ordered by the pilot, he should stop the aircraft immediately, as a second engine failure is probably the source of this deviation.

Just after 113 kt, all 3 engines will be at TO2 thrust. At V_R , rotate the aircraft towards the engine-out pitch attitude (approx 11°) and maintain $V_2 - V_2 + 10$ kt.

In case of a 2ND engine failure:

- Again, rotate the aircraft towards the engine-out pitch attitude (approx 11°) and maintain V_2 .
- Consider increasing the thrust on any inboard engine to TOGA thrust – however the **emphasis** is on **maintaining control** of the aircraft.
- Consider increasing the thrust on any outboard engine to TOGA thrust when speed is > 160 kts (V_{mca2} wings level is approx 156 kt) – again the **emphasis** is on **maintaining control** of the aircraft.

- V_{mca2} is affected by bank angle hence, if controllability is an issue, a bank towards the live engines will reduce V_{mca2} and may improve controllability. Equally, a bank towards the dead engines will increase V_{mca2} and may decrease controllability.
- Initial Aa is 400' aal (unless CARD has different due to obstacles). Fly level using (ALT) HOLD, accelerate to F1 speed and retract the flaps to F1.
- Once F1 speed is achieved, climb out at F1 speed and (weather permitting) remain in that configuration for a return to origin.
- If a return is not possible (due to blocked runway etc) then once at a safe height accelerate to a **minimum** of $V_{ref} + 100$ kts and retract the flaps fully.
- Visually manoeuvre to avoid any obstacles as required.

11.3.2 3EFF Full Flight Simulator Detail

11.3.2.1 3EFF Detail Format and CARD Information

JFK RWY 31L

Weather – 220/7 CAVOK 15° A2992

A/C weight – 265T

CARD 87 perf data

Engine 1 U/S

Rapid start

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.G-CIVO ---- BAW3C      29SEP17 0423Z
PERFORMANCE
PERFORMANCE MSG
1 of 1
BA292      29SEP17 04:23
G-CIVO      G ENG
A/C PACKS ON
KJFK/31L
W/C 1 HW    TEMP 15C
DRY RWY     ANTI-ICE OFF
QNH 1013    MACTOW 0

PERF CORR
3 ENGINE FERRY (V1 IS
VSTOP) - DERATE 2 FULL
POWER T/O
ASDA 4423

-----
265.0      REQUESTED TOW
( . )      FMC CALC GR WT
-----
F/L (TWY Z)      TOR 4423
*****
* FLAP 10 *      TOPL: 266.2
*****
ATOW  TEMP  V1  VR  V2
265.0  13   152 152 165
265.0  15   152 152 165
265.0  17   152 152 165
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NOTES
NONE

END 1 OF 1

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Sim order:

- 1st T/O – RTO.
- 2nd T/O – continued 3 engine take-off.
- 3rd T/O – #2 Engine failure at rotate, clean up at 400'.
- Rotate pilots RHS to LHS.

Note 1: The **minimum** requirement for a 3EFF qualification is an RTO, a continued take off and a 2nd failure at V_R .

Note 2: Time permitting (especially in the case of an initial validation) there is value in additional training. Namely:

1. Training 2 RTO scenarios: 1, after thrust has been set and 2, before thrust is set.
2. A further #3 engine surge whilst downwind leading to a single engine landing.

11.3.2.2 Licence Requirements

The candidate must carry a copy of his/her trancomm report. The narrative of the trancomm report must include wording that states, “3-engine ferry revalidation/renewal completed including abnormal operations law BA Ops manual. Sim scenario based at JFK 31L. Valid until XX/XX/XXXX”.

11.4 Command Development Course (CDC)

11.4.0 Introduction

- a. The purpose of the CDC is allow new B747 Captains to demonstrate that standards have been maintained since passing their Command Course whilst giving the opportunity to develop situational leadership skills (such as coaching, supporting and delegating). The intention is for the course to integrate the trainee’s recurrent Simulator Check with a line trip that includes their first Line Check, a training sector and discussion items as required.

Prior to the course the trainee is expected to self-study the CDC iBook (contained on the MLA). This iBook is designed to provide information that will be used to lead discussion during the training phase of the course.

The course is a mix of checking and training. All training delivered during the CDC is tailored to the needs of the trainee. These needs will have been identified during the check phases of the course and will use the Pilot Competencies framework.

- b. To be accepted for the course the trainee should:
- Have less than twelve months from passing their Command Course.
 - Any other condition as required by FTM B747 e.g. poor performance during a simulator or line check.
- c. Course overview:

Phase	Duration
Recurrent Simulator Check	2 days
Line Check	Sector 1
Line Training	Sector 2

- d. The trainee is responsible for his/her own learning. Various sources of information are available – Docunet and the MLA. The trainee is responsible for allocating time to study the training material prior to presenting themselves for the course.

The check element of the course will be run in the normal way with little intervention during the checks and a debrief immediately after each check. Thereafter, the intent is training. During the training phase, areas of strength will be reinforced and areas requiring development will be trained.

11.4.0.1

Additional Notes Specific to the British Airways B747 CDC

11.4.0.1.1

Aims

1. To have a course which is fully compliant with BA policy.
2. To observe the new Captain under check prior to Line Training.
3. To identify areas of strength and areas requiring further development for the trainee.
4. To give the trainee an opportunity to practise giving away a PICUS sector to the Training Captain on sector 2.

11.4.0.1.2

Trainee Starting Point

- The course is based on the assumption that all trainees starting the course are qualified, proficient B747 Captains.
- It is assumed that the trainee is non-technically proficient and familiar with the Pilot Competencies.

B747 CDC Content Overview	
A recurrent 2-day simulator check rostered as a normally constituted crew check	A standard 2 day LPC/OPC or LOE check.
Sector 1	A normally constituted crew, Line Check – Training Captain checking from P3 seat.
Sector 2	Training Captain operating a PICUS sector from the right seat with CDC Captain operating in the left seat. Co-pilot from sector 1 operating as P3 (relief pilot).

11.4.0.1.3 Course Structure and Information for Training Captains

The intention is that the course should be delivered by one Training Captain. Prior to the course, it is recommended that the Training Captain contact the trainee to set the expectation for the course and answer any questions that he/she might have. Also, prior to the line trip, it is recommended that the Training Captain contact the line copilot to explain the format for the trip and set the expectation for the Line Check and subsequent CDC Line Training on sector 2.

11.4.1 General

11.4.1.1 Philosophy of the Course

The CDC is based on three principles:

1. Consolidation:

Having had (up to) 12 months settling into the LHS of the B747, this is an opportunity to standardise and answer any queries that might have surfaced over that time.

2. Development:

The primary focus of the B747 Command Course is to produce a safe and competent line Captain. During that course, it is recognised that the priority is on coaching the trainee on how to direct and that the other quadrants of the Situational Leadership model (coach, support and delegate) are given less emphasis. The CDC will give tools on how to develop these other areas of the Situation Leadership model.

3. Detailed debriefing on areas of strength and any areas requiring development:

The ultimate aim of the course is to ensure that the trainee is developing his/her Pilot Competencies and is comfortable operating in the LHS of the B747. Hence, the trainee must know what areas are strengths (and must be continued) and what areas require development.

11.4.1.2 Trancomm

- All reports are to be entered into TRANCOMM.
- The Training Captain will require to assign two courses to the CDC trainee – a normal recurrent simulator check and a CDC.
- A Line Check will be created as part of the CDC and the trainee's mandatories will be updated. Training Captains must ensure that they select a 24 month Line Check when completing the check entry in TRANCOMM.

- If the line co-pilot on sector 1 is under check a separate Line Check for him/her will require to be allocated.
- After sector 1 checking, the Training Captain will complete a TRANCOMM entry for the Line Check.
- After sector 2 training, the Training Captain will complete a TRANCOMM entry including recording the final Pilot Competencies. Training Captains should use the Pilot Competency Grading for LPC/LOE Overall Score as guidance for scoring.

11.4.2 CDC Course Breakdown

1. 2-Day Recurrent Simulator Check:

Simulator Check notes contained on the MLA.

The Training Captain to manage and brief all resources as part of a normal recurrent check (LPC/OPC or LOE).

2. CDC line trip:

Any 3/4 crew trip.

The Training Captain must not be part of the crew during the Take Off, Climb, Descent and Landing phases of the single sector, outbound Line Check as per [OM Part D Appendix T 6.3 – Line Check](#) guidelines.

The CDC Captain should allow the First Officer to act as PICUS provided the weather and operation allow delegation of the role to the co-pilot.

The crew to manage and brief all resources on the first sector regarding the Line Check and the Training Captain's role.

A standard debrief for the crew on the Line Check.

A PICUS second sector with the Training Captain operating in the RHS.

Discussion items to be completed over the trip as required.

A course outro.

12 APPENDICES

12.1 Conversion Course Discussion Items

Below is a list of discussion items which the Trainee will be expected to study as part of their preparation for line training. The list is the same for all pilots under training on the B747. As the line training phase continues these items should be discussed and signed off in Trancomm. The instructor should, by means of a facilitative discussion, confirm that the trainee has understood the important elements of each discussion item according to their status. Some of the items (e.g. Ground Air/x-bleed start) may be naturally covered during a normal operation and if the trainee has demonstrated good knowledge, may be signed off without the need for further questioning. The Instructor should also use the relevance of the route/destination to ascertain the Trainee's knowledge and understanding, e.g. the Emergencies on the OTS item is best discussed during a North American flight rather than over Africa. This will require the Instructor to be aware of what destinations the trainee will be visiting during this phase and plan accordingly.

The list of discussion items is a minimum and during the course of the line training the instructor may find it appropriate to explore other areas of the trainee's knowledge of both the Aircraft and the Operation.

Flight Planning/Fuel		
1	Flight Planning/Fuel	Met/minima Alternate requirements Fuel policy: Planning – inc SCF Pre-flight – Fuel LMC, Minimum contingency In-flight Low fuel state – (PAN/MAYDAY/min fuel advisory)
Emergencies/Failures/Abnormal Procedures		
2	Incapacitation – Medical Emergency	Pilot/crew/passenger Handling in-flight/on-ground
3	Engine failure in cruise	Drift-down (inc terrain/traffic considerations) Fuel management Range/endurance
4	Rapid decompression/Emergency descent	Initial actions Decompression level-off (MSA awareness) Diversion handling (wx, airfields, fuel, medical) Escape routes

5	Radio/comms failure	Transponder 7600 ICAO basic procedures plus national variations
6	Emergencies on OTS	Mayday/Pan Turnoff/descent/turn back procedure
7	Cabin Crew liaison (emergencies)	Initial contact NITS brief Access to flight deck
8	Standby Nav/FMC u/s	Alternative navigation procedures Use of Autopilot – roll/pitch modes Use of LNAV/VNAV Nav aid selection/tuning Performance/speed information MNPS?
9	Low fuel temp	FMC pre-flight Crew awareness and actions
10	Cargo Fire	Mayday – land at nearest suitable airport Fuel jettison/overweight landing Possible evacuation
11	Autothrottle u/s	Thrust lever handling Crew awareness and monitoring
Descent/Approach Considerations		
12	Holding	FMC and A/P usage EAT/EFCs, fuel capability Holding speeds/timing – ICAO/USA
13	Descent below MSA	Rate of descent approaching MSA Reliance on single NAV aid/system Positive radar control IMC/VMC requirements
14	Approach Handling	Continuous Descent Approach Approach gates/SAC Avoiding Rushed Approaches Late Runway change Missed approach – varying altitudes
15	Non-precision approaches	VOR/NDB/ILS Backbeam/LDA PAR/ SRA/circling/curved approaches, Overlay approaches Use of LNAV/VNAV Use of A/P – roll/pitch modes Minimum A/P disconnect altitude
16	RNAV approaches	Navigation accuracy Use of A/P – roll/pitch modes Position/energy awareness
17	PRM approaches	ATC monitoring Breakout procedure
General In-flight Procedures		

18	Operating Altitudes	Optimum, max and recommended altitudes MOA: MSA corrections Low temperature error
19	Non-standard altimetry	QFE ops: QNH Procedure Metric ops: Flight level conversion
20	Diversions	In-flight: Navigation/comms Alternates: Opening hours, minima, fire category, fuel, customs On ground: Passenger handling Flight planning Fuel/PDC/Transit Check Loadsheet/nil change of load cert

21	OM C/Route Briefing	<p>Aerodrome Classification; Restricted/visit Europe QFE Ops Eastern Med Radio procedures (Nicosia/Ercan) SCATANA Rules Middle/Far East FIR boundaries/border crossing Areas of High MSA Africa General (Offset) In-Flight Broadcast N.America RT phraseology Speed Control Visual Approaches Missed Approaches LAHSO Caribbean/S.America ATC Comms Increased weather reporting Safety altitudes High density altitudes North Atlantic NAT/OTS Clearance WATRS Waypoint crossing Position report (HF) RVSM/MNPS – and failures SLOP Reroutes – Tracks & Distances/ winds/fuel Polar area Polar tracks Canadian Northern Track System Polar FMS/IRS/CDU failures</p>
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Adverse Weather

23	Adverse Weather	<p>AWOPS</p> <ul style="list-style-type: none"> Limitations Acft serviceability RVRs – inc rules for USA/Canada PVDs Visual reference required – t/o and ldg Failures/reversion Missed approach <p>Cold wx ops</p> <ul style="list-style-type: none"> Limitations Contaminated/slippery Rwys Performance/CARD De-icing/ice precautions Holdover times Engine/wing anti-ice <p>Turbulence</p> <ul style="list-style-type: none"> Use of wx radar Acft handling – AFDS modes Turbulence speeds Crew/passenger handling (PAs) <p>Windshear Avoidance</p> <ul style="list-style-type: none"> Precautions – t/o and landing Encounter – t/o, landing and in-flight <p>Hot/high ops</p> <ul style="list-style-type: none"> Flt deck/cabin preparation Temperature inversion (Perf) Density Altitude (TAS v IAS) <p>Crosswinds</p> <ul style="list-style-type: none"> Limitations Technique
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General

24	Refuelling	<p>General procedures – fuel overseer</p> <p>Ramp Servicing/Fluid Replenishment manual</p> <p>Precautions with passengers on board</p>
25	Company communications	<p>ACARS, HF, SATCOM</p> <p>Passenger handling (Airport Centre)</p> <p>Maintrol</p> <p>Medlink</p>

26	Library – Load and balance, QRH, Operations Manual – OM A, Notices, ASRs, LIDO GEN	Load/balance Manual loadsheets/balance charts Nil/minor change of load certificate Animals/dangerous goods QRH Applicability & usage (v MEL) Operations Manual – OM A Min Crew complement Use of 'Heavy Crew' Flight & Duty Time Limitations Jump/rest seat – authority/usage Customs Diplomatic mail Notices OMNs, FAN, OSN, TSN ASRs When & how LIDO GEN Section Fire category Interception procedures Wake vortex category/separation
27	Aircraft Maintenance Log (AML)	Parts 1 & 2 ADDs, open entries Pre-departure – fuel figures Post flight
28	MEL/CDL	Applicability Time/sector limits Single Event Authorisations ACF, EDI/EDA/TRM/TI Performance penalties, CARD
29	Performance manual/CARD	T/o and landing data Contaminated & reduced braking action Rwys Performance corrections
30	Loadsheets and NOTOC	Final/provisional loadsheets 'Compliance'/'Revisions to' – limits/actions Fuel LMC NOTOC Dangerous goods Through-flights
31	Ground-air/X-bleed start	Supplementary procedures Ground crew communications Precautions/restrictions
32	Remote Hold procedures	Fuel usage – APU/engine Engine shutdown/restart procedures
33	Packs-off take-off	Supplementary procedures Actions before t/o and after t/o

34	Engine shutdown on taxi-in	Restrictions/precautions
35	Co-pilot Operations	Limits v prudence/experience Minimum sectors for Captain to give away sectors
36	Captain's responsibilities	Legal, ANO Company/commercial Colleagues – 'PICUS' operation
37	Departure and arrival briefings	Content/style/relevance/ understanding Potential 'traps' 'Big' picture Interactive Intervention Post Flight Review
38	Current Safety Issues	Operational Safety Notices SESMA ASRs BASIS

12.2 LCT Discussion Items

Below is a list of discussion items which the trainee will be expected to study as part of their preparation for LCT. Training Captains should endeavour to use "real world" examples to reinforce the practical application of OM/FCOM/FCTM knowledge into the B747 operation.

Note: It is NOT a requirement to cover all items and if there are some that haven't been concluded, the course should still be marked as completed. It is preferred that the Training Captain adds value with an in-depth discussion and real life applications of some items rather than a cursory conversation on all items.

LCT Discussion Items	
Fuel Policy	<p>DIVF versus DIVC – when and what are the ramifications of each?</p> <p>For practical application of the rules consider the flight in 3 distinct phases:</p> <ul style="list-style-type: none"> • CRC until bowser disconnect. • after bowser disconnect until dispatched. • after dispatch. <p>Practical application of how to manage fuel from after dispatch until approaching destination.</p> <p>Low Fuel State: “Minimum Fuel” advisory, when would you call it? What would be in the call? Any difference US to the rest of the world? PAN/ MAYDAY?</p>
MEL/QRH	<p>What different assumptions does each manual make with regard to further failures? How would this affect your strategic decision making on the day?</p> <p>What manual is <i>controlling</i> prior to dispatch? How does that change after dispatch?</p> <p>When is dispatch?</p> <p>Consider the difference in operating restrictions for a STATUS message e.g. “HEAT P/S CAPT” prior to dispatch versus an EICAS message “HEAT P/S CAPT” after dispatch (even if still on the ground).</p>
Flight Continuation Policy	<p>Range and endurance 2/3 engine inc a worked example of an engine failure at ETP (on a return sector) and weather needed for subsequent 2-eng approach.</p>
LIDO/mPilot/OMC	<p>CPDLC logins</p> <p>Airfield Classification Policy</p> <p>LIDO outages</p> <p>JFK CRI 13L – good weather/poor weather</p>

LCT Discussion Items	
Descent below MSA/ Radar cleared altitude	Visual Approaches (separation in the US)
Other emergency/ abnormals	Equip cooling. Cargo Fire – did you dispatch with a pack U/ S? You will need pack 1 or pack 2. Hydraulics – Where do we divert? Why? What urgency is there?
Non-ILS approaches	RNP/Overlay/Non-ILS (Non-Database) approach. Raw Data Monitoring Requirements. Deviation and Monitoring limits – what happens when outside these limits? Permitted modes.

12.3 Appendix 3 – Simulator to Aircraft Differences

The 747 simulators differ from the fleet aircraft in the following ways:

- No ACARS
- No HF
- No ATIS
- No Satcom
- No flight deck door viewer

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