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CHAPTER 18: B777 TRAINING SYLLABI

18.0 TRANSITION TRAINING

Objective:

To enable the Crew to obtain knowledge of aircraft systems, attain proficiency in the application of operational, abnormal and emergency procedures, and to provide hands on training thereof.

At the end of the training program, each crew member must be capable, under all circumstances of carrying out his task, safely and efficiently.

A trainee will be allowed to pass from one phase to the next only if he has attained the skill necessary for the required tasks.


Elements:

This training will consist of the following:

- Type technical Course through e-Learning/classroom training
- FBS Training
- Full flight simulator (FFS) training
- Landing training/unstable approaches & recovery training
- ETOPS/MNPS/EDTO(LOFT)
- Low Visibility Operations – CAT-II/CAT-III training
- Under Supervision Line training

Documentation (Crew App / IPAD):

- Flight Crew Operating Manual Vol. 1
- Flight Crew Operating Manual Vol. 2
- Checklists – Normal / Abnormal (QRH)
- Flight Crew Training Manual
- Minimum Equipment List
- Weight and Balance
- TCAS II Booklet Operations Engineering Technical Bulletin / Operations Engineering Information Bulletin
- Jeppesen/FD Pro

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18.0.1 GROUND TYPE TECHNICAL TRAINING

18.0.1.0 CBT Program through LMS

Objective

The primary object of the e-learning program is to provide flight crew members with the necessary knowledge for understanding the basic functions of aircraft systems, the use of individual system components, integration of the aircraft systems, the understanding / application of Special Operations & Performance and the procedures on the use of safety equipment. Upon successful completion of the type technical course, the trainee will be detailed for initial Simulator Training.

18.0.1.1 Instructor Qualification

This Training will be supervised/conducted by the qualified Pilot/Ground Instructors as defined by the PCAA for assisting the pilots and supplementing through lectures when required either through distance learning or classroom training.

18.0.1.2 Training Aids:

The following Training Aids may be used in this Training Program:

- Personal Laptop/Computer/I Pad and a student account on LMS
- Transparencies where necessary Cockpit illustration panel charts
- Projector (if required)
- White Board / Marker, Pens

18.0.1.3 COURSE DURATION:

The duration of the training program is 13 working days (9 Days on LMS, 1 day both on LMS and classroom and a whole 3 days in Classroom) refer 18.0.1.4 for details.

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18.0.1.4 Day wise course breakup

Each system will be covered through e-learning and classroom training.

DAY	TOPICS	MODE	
Day 1	<p>General Introduction</p> <ul style="list-style-type: none"> • Course Overview • Familiarization with Manuals • Introduction to CBT: • The review of CBT Program • Airplane Familiarization: • Airplane Exterior • Passenger Cabin • Flight Deck and Systems • Aircraft Lighting: • Exterior Lighting • Interior Lighting • Test • Flight Deck Instruments Introduction • Primary Display System • Inboard Display Selectors • Display Select Panel • EFIS Control Panel 	<ul style="list-style-type: none"> • Cursor Control Devices • Display Brightness Control • Display Control Switches • Non-Normal Conditions • Practice/ Test • FMC Familiarization: • FMC • CDU • Us • ing the CDU • Practice/ Test • Electronic Flight Instruments Overview: • EFIS Introduction • PFD – Airspeed, Attitude and Altitude • PFD – VSI, Heading and Auto flight Status • ND Approach and VOR Modes • ND Map and Plan Modes 	LMS

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DAY	TOPICS		MODE
Day 2	<p>Crew Alerting System EICAS:</p> <ul style="list-style-type: none"> • Display and Messages • System Operation • Airplane Status Messages • System Inhibits • Discrete Warnings • Non-normal Conditions <p>Electronic Checklist-I:</p> <ul style="list-style-type: none"> • Introduction • Normal Checklist • Non-normal Checklist • Normal and Non-normal Keys • Non-normal Checklist Queues • Practice/ Test <p>Electronic Checklist-II:</p> <ul style="list-style-type: none"> • Menu Keys • Un-annunciated Checklist • Operational Notes • Deferred Items • Resets and Overrides <p>APU:</p> <ul style="list-style-type: none"> • APU Introduction • Starting and Shut down • Non-normal Conditions • Practice/ Test • Electrical Systems: <ul style="list-style-type: none"> • Main Electrical Components • Primary and Secondary External Power 	<ul style="list-style-type: none"> • APU Power • Generator Power • Electrical System Configuration for Flight • Airplane Shutdown and Security • Electrical Power Distribution: • Ground Handling and Ground Service Buses • Cabin Power Switches • DC Power System • Flight Control DC System • Auto land Electrical Configuration Practice/ Test • Non-normal's: • Backup Power System • Standby Power System • Non-normal Operations • Fuel System • Components and Locations • Operation Prior to Flight • Operation in-flight and After Flight • Fuel Jettison System • Practice/ Test • Fuel System Non-normal: • Fuel Cross feed • Fuel Non-normal Messages 	LMS

DAY	TOPICS	MODE	
Day 3	<p>Engines:</p> <ul style="list-style-type: none"> • Overview • Engine Indications • EEC Normal Mode • EEC Alternate Mode • EEC Non-normal • Practice/ Test • Engine – Oil, Fuel, Vibration: • Oil System • Fuel System • Vibration Monitoring • Non-normal Operation <p>Engine – Ignition and Starting</p> <ul style="list-style-type: none"> • Components • Auto Start • Manual Start • In-flight Start • Continuous Ignition • Shut Down • Non-normal Operations • Practice/ Test • Thrust Reversers: • Overview • Normal Operation • Non-normal Operation <p>ADIRS:</p> <ul style="list-style-type: none"> • Air Data Inertial Reference System – Overview • Air Data Modules • ADIR Unit • ADIRU Pre-flight Alignment and Operations • Secondary Attitude Air Data Reference Unit (SAARU) • Non-normal Operation 	<ul style="list-style-type: none"> • Practice/ Test • PFD – Pitot Static Displace: • PFD Overview • Airspeed Indication • Attitude Indication • Altitude Indication • Vertical Speed Indication • PFD – Attitude – Radio Altitude and Other Displays • Miscellaneous Indications • ILS Approach Indications • Minimums • Heading, Track Indications • Air Data and Attitude Source Selection Switch • PFD Pre-flight • Non-normal Operation • Practice/ Test • NAV Display/ VOR Approach: • NAV Display Overview • Heading and Track Indication • NAV Radio Information and Tuning • Miscellaneous Indications • Centered Mode Display Differences • Non-normal Operations <p>NAV Display – Map and Plan</p> <ul style="list-style-type: none"> • Map and VOR / Approach Differences • Map Symbolology • Map Mode • Heading Reference • NAV Source Switch • ND Pre-flight • Non-normal Operations 	LMS

DAY	TOPICS	MODE	
Day 4	<p>Auto flight Introduction and Pre-flight</p> <ul style="list-style-type: none"> • Introduction • Pre-flight (Performance Data Not Yet Received) • Pre-flight (Performance Data Received) • Pre-flight Summary • Practice/ Test <p>Auto flight – Takeoff, climb, Cruise and Auto throttle Controls:</p> <ul style="list-style-type: none"> • Overview • Takeoff • Flight Level Change • Level Flight • Heading Modes • Auto throttle controls <p>Auto flight – Overview, Pre-flight, Takeoff, Climb and Cruise:</p> <ul style="list-style-type: none"> • Overview • Pre-flight Phase – Use of Auto flight System • Takeoff Phase – Use of Auto flight System • Climb Phase – Use of Auto flight System • Cruise Phase – Use of Auto flight System <p>Auto flight –Cruise, Descent, Approach, Landing and Go-around:</p> <ul style="list-style-type: none"> • Cruise – Additional Features 	<ul style="list-style-type: none"> • Approach – Additional Features • Go-around – Additional Features • Additional Features – Approach and Landing • Takeoff • Climb and Cruise • Approach and Landing • Practice / Test <p>CDU Control of EFIS and DSP:</p> <ul style="list-style-type: none"> • Alternate DSP Control • Alternate EFIS Control • Communications – VHF, HF and Interphone Systems: • Audio Control Panel • HF / VHF Communication • Flight and Service Interphone System • Cabin Interphone System • PA System • SELCAL Communication • Flight Deck Voice Recorder • Communication Non-normal <p>Communications:</p> <ul style="list-style-type: none"> • SATCOM Voice Communication • Crew Alerting system Communication • Non-normal Conditions 	LMS

DAY	TOPICS		MODE
	<ul style="list-style-type: none"> Descent – Additional Features 		
Day 5	<p><i>Communication Data Links</i></p> <ul style="list-style-type: none"> ACARS Data Link Communication Flight Deck Printer Communication Crew Alert System Non-normal Conditions <p><i>FMC Route Entry Part-I</i></p> <ul style="list-style-type: none"> Introduction Enter a Route Enter a Departure Identify a Route Discontinuity Enter a Company Route Uplink a Route Route – 2 Data Link Pre-flight 	<p><i>FMC Route Entry Part-II</i></p> <ul style="list-style-type: none"> Introduction Legs page Waypoint Airspeed Restrictions Waypoint Altitude Restrictions <p><i>Auto flight – VNAV, Non-precision Approaches and Go-around</i></p> <ul style="list-style-type: none"> VNAV Engage VNAV Altitude Control VNAV Cruise and Descent Non-precision Approaches Go-around <p><i>Auto flight Non-normal's</i></p> <ul style="list-style-type: none"> Autopilot Non-normal Auto throttle Non-normal Auto land Non-normal 	LMS
Day 6	<p><i>FMC Climb</i></p> <ul style="list-style-type: none"> Overview Climb Thrust Climb Page Climb Page Modifications FMC Cruise Part-I Initial Level Off from Climb Speed Changes Step Climb with Cruise Page Step Climb with Legs Page Route Data Pages Wind Pages Updating and Wind Data Uplink <p><i>FMC Cruise Part-II</i></p> <ul style="list-style-type: none"> Progress Page 	<ul style="list-style-type: none"> Delete Holding <p><i>FMC Flight Plan Changes</i></p> <ul style="list-style-type: none"> Route Modifications and Discontinuities Creating Waypoints Creating Courses Route Page Operations FMC Route Offset and Fix Info Route Offset Entry and Removal Fix Info – Fix Entry and Abeam Entry Fix Info – Creating Waypoints and Bearing/ Distance Predicted ETA/ Altitude <p><i>FMC Approaches, STARS and Diversions</i></p> <ul style="list-style-type: none"> Arrival Selection 	LMS

DAY	TOPICS		MODE
	<ul style="list-style-type: none"> • Position Report Page • Reference NAV Data Page • Position Reference Pages • FMC Holding • Enter Holding at Present Position • Enter Holding at Fix Not in a Route • Exit Holding – Exit Armed • Exit Holding – At a Fix in a Route • Exit Holding – Direct to Waypoint 	<ul style="list-style-type: none"> • Approach Reference Operations • Alternate Selection • Divert to Alternate Airport • VFR Approaches FMC Non-normal's • Engine Out Climb and Cruise • CDU Failure • FMC Failure • Alternate Navigation Legs Page • Alternate Navigation Progress Page 	
Day 7	<p><i>FMC Pre-Flight</i></p> <ul style="list-style-type: none"> • Ident • <i>Position Initialization</i> • <i>Route/ NAV Radio</i> • <i>Performance Initialization</i> • <i>Thrust Limit and Takeoff Reference</i> <p><i>FMC Climb and Cruise:</i></p> <ul style="list-style-type: none"> • <i>Climb and Cruise Data</i> • <i>Progress Data</i> • <i>RTA Progress</i> • <i>Position Report</i> • <i>Reference NAV Data</i> • <i>Position Reference</i> <p><i>FMC Flight Plan Changes and Flight Progress Data</i></p> <ul style="list-style-type: none"> • <i>Route Data and Winds</i> • <i>Step Climb Part-I</i> • <i>Course Intercepts</i> • <i>Step Climb Part-II</i> • <i>Abeam Points</i> 	<p><i>FMC Descents, Holding and Approach</i></p> <ul style="list-style-type: none"> • <i>Descent Preparation</i> • <i>Descent and Hold</i> • <i>Approach Intercept</i> • <i>Alternates</i> • <i>VFR Arrivals</i> • <i>Alternate Data Link</i> • <i>FMC Performance</i> • <i>Introduction</i> • <i>Cost Index</i> • <i>ECON Speed</i> • <i>Altitude Information</i> • <i>Engine Out Performance</i> • <i>FMC Failure</i> • <i>FMC Takeoff Speeds</i> <p><i>Reduce Thrust Takeoff:</i></p> <ul style="list-style-type: none"> • <i>Methods of Reducing Takeoff Thrust</i> • <i>Derate – Description and Performance Improvement</i> 	LMS

DAY	TOPICS		MODE
	<ul style="list-style-type: none"> • <i>Offset and Airways</i> • <i>LAT / Long Reporting Points</i> 	<ul style="list-style-type: none"> • <i>Assume Temperature – Description, Restriction, Data Sources</i> • <i>Little More About Reduced Thrust Takeoff</i> 	
Day 8	<p><i>Bleed Air</i></p> <ul style="list-style-type: none"> • System Overview • APU Bleed Air • Engine Bleed Air • Bleed Air Isolation • Non-normal Operations • Test • Heating and Air-conditioning • Overview • Pack Operation and Temperature Control • Recirculation Fans • Equipment Cooling, Forward Cargo Air Conditioning • AFT and Bulk Cargo Heating • Shoulder and Foot Heating • Non-normal Operations <p><i>Pressurization</i></p> <ul style="list-style-type: none"> • Overview • System Operation • Non-normal Operation • Test • Anti-ice and Rain Protection • Anti-ice and Rain Components and Location 	<ul style="list-style-type: none"> • Non-normal Operation <p><i>Integrated Standby Flight Instruments (To be covered by PTC Instructor)</i></p> <ul style="list-style-type: none"> • Introduction • Standby Attitude Indicator • Standby ASI • Standby Altimeter • Standby Compass • Clocks • Clock Introduction • Clock Set Time , Elapse Time, Chronograph • Test • ATC Transponder and Wx Radar • ATC Transponder • Wx Radar • Non-normal Operation <p><i>Engine and APU Fire Protection</i></p> <ul style="list-style-type: none"> • Components • Engine Fire Protection • APU Fire Protection • APU Ground Control Panel • Non-normal Operations <p><i>Cargo and Wheel Well Fire Protection</i></p> <ul style="list-style-type: none"> • Cargo Fire Protection • Wheel Well Fire Protection • Lavatory Smoke Detection and Extinguisher • Non-normal's 	LMS

DAY	TOPICS		MODE
	<ul style="list-style-type: none"> Primary Ice Detection System Engine Anti-ice Wing Anti-ice Window Heat Windshield Rain Removal 		
Day 9	<p>Hydraulic Systems</p> <ul style="list-style-type: none"> Hydraulic Components Hydraulically Powered Systems Hydraulic Panel Hydraulic Systems Non-normal Non-normal Indications Demand Pump ON Isolation Valves RAM Air Turbine <p>Landing Gear</p> <ul style="list-style-type: none"> Normal Operation Non-normal Operation Nose and Main Gear Steering Brake Systems Wheel Brakes Parking Brakes Auto Brakes Non-normal Operation <p>Flight Control Overview</p> <ul style="list-style-type: none"> Fly-by-wire Introduction Primary Flight Control System Protection Features 	<ul style="list-style-type: none"> Modes of Operation High Lift Devices Control and Indicators Flight Control Pitch and Yaw Pitch Control Pitch Trim Yaw Control Pitch and Yaw Non-normal Operation <p>Flight Control – Roll</p> <ul style="list-style-type: none"> Ailerons and Flaprons Roll Trim Spoilers Protection Features Non-normal's Additional Flight Control Non-normal's <p>Flight Control – High Lift Devices</p> <ul style="list-style-type: none"> Primary Mode Secondary Mode Alternate Mode Other Non-normal Operations Composite Review 	LMS

DAY	TOPICS		MODE
Day 10 Part 1 *	Crew Alerting System – GPWS/ PWS <ul style="list-style-type: none"> GPWS Displays and Indications GPWS Operation Predictive Windshear System GPWS Controls Tail Strike Indicating System TCAS Types of Alerts System Operation Displays and Indications Operating Practices Inhibits Non-normal Conditions 	Oxygen and Emergency Equipments <ul style="list-style-type: none"> Flight Crew and Passenger Oxygen System Emergency Lighting Flight Deck Side Windows Emergency Equipment EGRESS and Evacuation Doors, Slides and Evacuation Equipment Exterior Doors Passenger Entry Doors Evacuation Slides/ Rafts Non-normal Conditions 	LMS
Day 10 Part 2	Performance <ul style="list-style-type: none"> Takeoff Data Guards Practice Exercises Climb and Cruise Data 	<ul style="list-style-type: none"> Practice Exercises Descent Approach and Landing Data Practice Exercises 	Classroom
Day 11	Variants/ Differences Training In B-777 Fleet Test & Review		LMS
Day 12	SEP DAY 1		Classroom
Day 13	SEP DAY 2		Classroom

*Day 10 is divided into two parts (LMS & Classroom)

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18.1 TRANSITION TRAINING SIMULATOR

18.1.0 FBS

INTRODUCTION

The Fixed Base Simulator (FBS) is a significant part of the training program and is conducted concurrently along with Computer Based Training. It consists of Days developed from specific objectives to progressively train automatic, normal and non-normal flight operations.

Each Day is a flight scenario designed to integrate weather, operating environment, Communications, thrust management, automated airplane maneuvering, and procedures. Operating philosophy and Crew Resource Management (CRM) is an integral part of each Day.

Your goal is to attain proficiency in normal procedures using the flight management system (FMS) and auto flight system. Proficiency is defined as “the ability to perform tasks in real time without assistance”.

Proficiency objectives are identified in each Day with asterisks (*). You must attain proficiency in all identified objectives prior to progressing to FFS training. You must also develop familiarity in non-normal procedures. Familiarity is defined as “understanding the process used to perform a task”. Familiarity objectives are identified in each Day with asterisks (*). Evaluation of your performance will be on a continuous basis (progressive evaluation).

Each Day has 3 parts: the briefing, FBS period, and debriefing.

- The briefing includes a discussion of the proficiency objectives, flight plan and significant events, and required level of performance. Briefing items are referenced to the appropriate sections of the Operations Manual (FCOM) or the Flight Crew Training Manual (FCTM).
- The FBS period affords the crew the opportunity to gain “hands on” system and procedural experience in the airplane environment.
- During the debriefing, a critique will be conducted consisting of a review of the Day and the performance level achieved.

The Days progress from simple to complex. The earlier Days stress normal procedures and the introduction of selected non-normal procedures. The Days progress to include flights that reinforce normal procedures while integrating more complex clearances, flight plan changes, and non-normal procedures. All flights use the FMS and auto flight system to control the airplane.

Related route, weather, and performance data is specified in each Day. Airport information is obtained from the approach charts provided during training. Crew are expected to become familiar with the flight scenario prior to each Day.

The following pages provide planning data and specific procedures for each Day

FBS PROGRAM OBJECTIVES

Train to proficiency in performing airplane normal procedures during all phases of flight.

Train to proficiency in maintaining automatic airplane control and navigation using the auto flight system and Flight Management System (FMS).

Introduce selected non-normal procedures.

TRAINING MATERIALS

- Training Manual
- Operations Manual
- Flight Crew Training Manual
- Navigation plates (Jeppesen)
- LMS

GENERAL GUIDANCE TO INSTRUCTORS

To ensure standardization, Instructors should closely adhere to the Day Plans, Instructor Guide and established teaching procedures.

Suggestions for change are welcome and should be addressed to the Chief Pilot Training.

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Flight Operation Department
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Fixed Base Simulator (FBS) training is designed to teach normal and non-normal procedures. Systems training are the function of the Computer Based Training (CBT) phase, and FBS sessions should only be used for the reinforcement of systems knowledge where it is required. The primary purpose of FBS training is to integrate systems knowledge with operating procedures, both normal and non-normal, in order to prepare the trainees for the next stage of their training.

Instructors should emphasis to the trainees that system information must be derived from the CBT and not during FBS training.

Similarly, the purpose of FBS training is not to teach flying techniques. FBS Days consist of LOFT type scenarios, but it is not necessary to complete each stage of the flight in full. The scenarios are used merely to create situations which require the use of laid down procedures, thereby providing the trainees with the familiarity and practice the need to become proficient.

To this end, motion will not be used, and the autopilot will be engaged at a height of 200 feet after take off, remaining engaged for the rest of the flight. All landing will be accomplished by Auto land Instructors should positively discourage trainees from treating the Day as training for a flight from a specific point of departure to a specific destination. Briefings should be practiced in the pre-Session Briefing period so that, during FBS sessions, neither Emergency, Departure nor Arrival Briefings need be conducted, and the Checklist response to these items will always be "Complete".

Instructors should make use of Position Freeze, Flight Freeze (if required), or a Repositioning function in order to concentrate on accomplishing a procedure rather than on maintaining continuous progress along the route of flight. ATC clearances should be given as required by the instructor and should contain standard phraseology as practiced in actual airspace to maintain realism.

Initial sessions of FBS should concentrate on streamlining checklist use and practicing procedures in the cockpit. Non-normal procedures are introduced

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in the later FBS sessions. The intent is to teach trainees how to accomplish representative non-normal procedures in a systemized manner along with normal procedures.

Multiple failures should not be simulated which can hamper trainee's progress. When a non-normal procedure has been accomplished, the malfunction should be cleared and the system reset.

Instructors to ensure that during intermediate/final level off vertical speed is reduced to 1000 fpm when 1000 ft to level off altitude, in order to reduce frequency of unnecessary TCAS 'RA' activation.

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18.1.0.1 LESSON 1

18.1.0.1.1 FBS 1

DAY SUMMARY

This Day provides flight deck familiarization while practicing normal preflight and post flight procedures as defined in the Operations Manual. There is no flight because the Day focus is on the introduction of normal procedures. Scan flow patterns and crew duty orientation are introduced and practiced. Electronic checklist concepts are also introduced. Seating controls and flight deck lighting are reviewed, as well as APU, electrical, EICAS, and fuel systems as they occur during the procedures.

DAY OBJECTIVES

- Introduce preflight and post flight normal procedures.
- Introduce flight management system (FMS) tasks during preflight.

ROUTE OF FLIGHT

ORIGIN	MANCHESTER (EGCC) Gate ----- RWY 23 R
ROUTE	COMPANY ROUTE
DEPARTURE	SONEX ONE ROMEO (SONE 1R)
DESTINATION	MANCHESTER (EGCC)
FLIGHT NUMBER	PIA 777

PERFORMANCE

GR WT	197,000 KGS	FLAPS	15
FUEL	20,000 KGS	CG	23%
ZFW	177,000 KGS	WIND	Calm
RESERVES	5,500 KGS	SLOPE	0
CRZ ALT	9,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	T/OFF THRUST	THR REDUCTION	1,000'

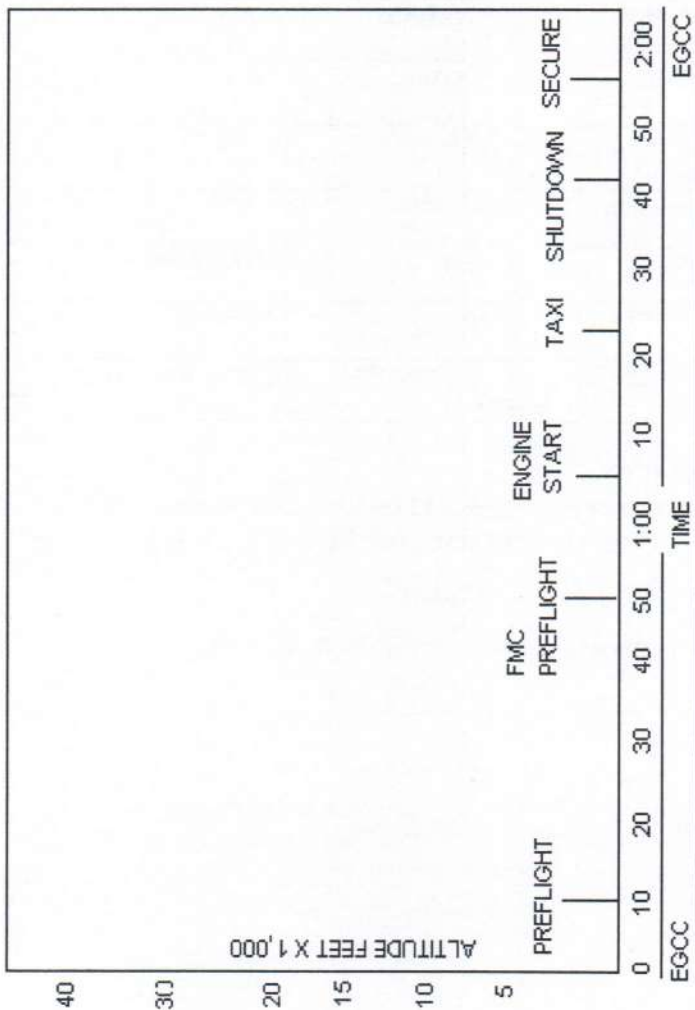
WEATHER

EGCC Wind calm Visibility 15 Km Sky clear Temperature 15° C / Dew Point 08°
 C Altimeter 1013 Mb ILS RWY 23 R in use. Landing and departing RWY 23
 R.

ATIS ARRIVAL 128.17, ATIS DEPARTURE 121.97



PROFILE



PREFLIGHT

Introduce scan flow patterns

Procedural tasks follow a phase of flight order and logical scan Flow pattern Introduce crew duty orientation

The "area of responsibility" concept is used.

Introduce Normal Procedures philosophy

Airplane condition is acceptable, and the flight deck is correctly Configured for each phase of flight.

Procedures are performed from recall and follow a panel flow. System status is verified before engine start by discrete lights and **EICAS**: after engine start by **EICAS** only.

Checklists are performed after the normal procedures and contain only items relating to safety of flight.

CDU manipulations are normally performed by the **PM** or **F/O** and verified by the **PF** or **CAPT**.

During autopilot operations, **MCP** manipulations are normally Performed by the **PF**. During autopilot off operations **MCP** Manipulations are normally performed by the **PM** at the request of the **PF**.

Introduce Display Select Panel (**DSP**)

Selection of the 3 **MFDs**

CANC/RCL switch

Synoptic display philosophy.

Introduce **FMC** Preflight procedures

Company route entry

The crew is not responsible for **FMC** preflight entries on this flight. Introduce

REFERENCE

FCOM NP.21

FCOM NP.21

FCOM NP.21

FCOM

FCTM

FCOM NP.21

FCOM NP.21

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Electronic checklist (ECL) FCOM10/ Checklist
 instructions in QRH Organized by phase of flight

PREFLIGHT

REFERENCE

The **PM** selects and manipulates the checklist.
 Verification and responses are made by the pilot who
 Accomplished the item (area of responsibility)
 Calling up and putting away the **ECL**.

ECL Features:

Many system switch/control positions are sensed (closed loop).
 Checklist closed loop (sensed) steps are continuously evaluated in real time
 for condition.

Gathers notes for easy review.

Deferred items are automatically appended to the appropriate

Normal checklist.

ECL can be controlled by either pilot.

Indication of who is in control on the CCD.

ECL colors.

Checklist complete prompt.

Normal Procedures FCOM NP.21
 Before start procedures FCOM NP.21
 FMC before start procedures FCOM NP.21,11.40

The crew is not responsible for **FMC** entries on this flight.

After Start procedures FCOM NP.21

TAXI-OUT

Normal Procedures FCOM NP.21

Flaps 15 take off.

Taxi is simulated since the FBS has no visual system.

TAKE OFF

Normal Procedures FCOM NP.21

No take off will be accomplished on this flight,
Instead emphasis is on normal procedures.

TAXI-IN

Normal Procedures

REFERENCE

FCOM NP.21

SHUTDOWN

Normal Procedures

FCOM NP.21

SECURE

Normal Procedures

FCOM NP.21

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18.1.0.1.2 FBS 2

DAY SUMMARY

This Day is a local flight originating from and returning to Manchester (EGCC). It continues to practice normal preflight and post flight procedures. The Day introduces auto flight use, flight instrument interpretation, and systems management. In addition, in-flight procedures are introduced and practiced including a flight director takeoff and automatic landing. Emphasis will be on FMS preflight entries, auto flight modes, and electronic flight instrument interpretation

DAY OBJECTIVES

- Perform normal procedures.
- Integrate FMS tasks during normal operation.
- Interpret EFIS displays.
- Integrate systems management tasks during normal procedures.

ROUTE OF FLIGHT

ORIGIN MANCHESTER (EGCC)
 Gate -----
 RWY 23R

ROUTE KUXEM DIRECT KEPAD L15 HON P155 EBOTO UN601
 LESTA

DEPARTURE KUXEM ONE ROMEO (KUXE 1R)

DESTINATION MANCHESTER (EGCC)

FLIGHT NUMBER PIA 777

PERFORMANCE

GRWT	197,000 KGS	FLAPS	15
FUEL	20,000 KGS	CG	23%
ZFW	177,000 KGS	WIND	230/15
RESERVES	5,500 KGS	SLOPE	0
CRZ ALT	9,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000
THRUST LIM	T/OFF THRUST	THR REDUCTION	Flaps 5'

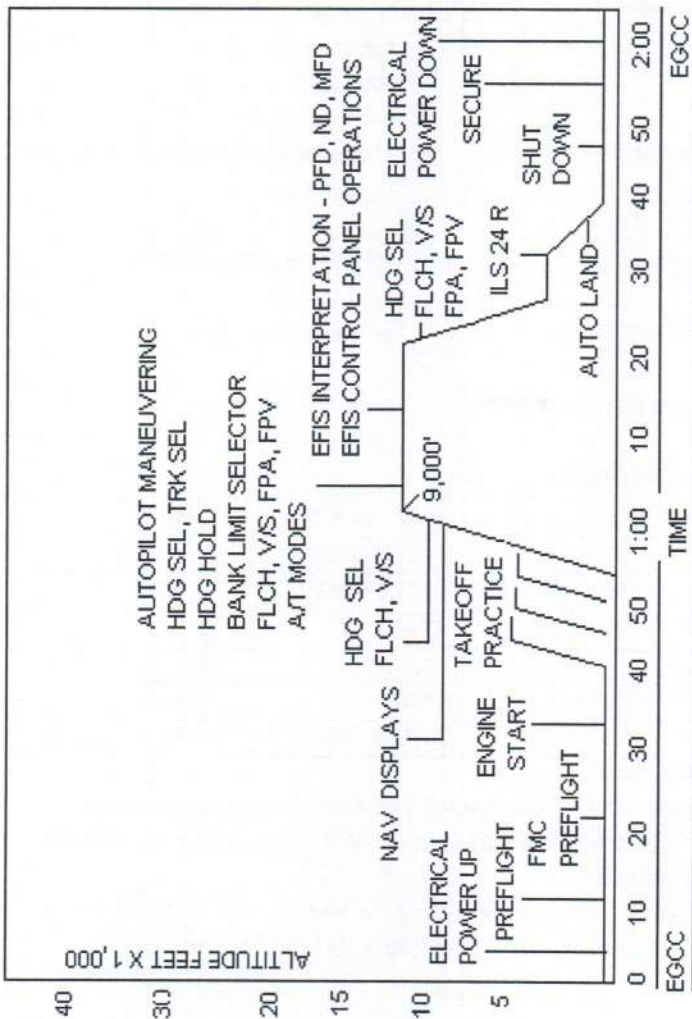
WEATHER

EGCC Wind 230/15 Visibility 15 Km Sky clears Temperature 15C / Dew Point
 08 C Altimeter 1012 mb ILS RWY 23 R / Landing and departing RWY 23 R

CLEARANCE

Pakistan 777 is cleared to London Heathrow KUXEM ONE ROMEO (KUXE 1R)
 departure. Departure frequency 134.42. Squawk 4777.

PROFILE



PRE FLIGHT

Electrical Power up Procedure
Normal procedures
FMC Preflight procedures
Company Route entry

REFERENCE

FCOM SP.6
FCOM NP 21
FCOM NP 21

ENGINE START

Normal procedures
Before start procedure
FMC before Start procedures
After start procedures

FCOM NP 21
FCOM NP 21
FCOM NP.21
FCOM NP 21

TAXI OUT

Normal procedures
Flaps 15 take off

FCOM NP 21
FCTM

TAKEOFF

Normal procedures
Two take offs from each seat – use LNAV/VNAV
on One and HDG SEL/FLCH on the other from
each seat
Review flap retraction schedule
Perform additional practice take offs as desired

FCOM NP 21, FCOM
FCOM NP 21

FCTM

CLIMB

Normal procedures
FMC operations
Interpret navigation displays (NDs)
Heading control
Perform Turns – use HDG SEL
Review indications on the PFD, FMA and ND
– HDG SEL
Altitude Control
Perform climb and review indications on the PFD and

FCOM NP 21
FCOM 11.31
FCOM 10
FCOM SP4

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FMA –FLCH, VS

CRUISE

Normal procedures

FMC Operations

Autopilot Maneuvering

Practice maneuvering the airplane using the

Various integrated autopilot modes.

Heading Control

Practice using autopilot heading control

– HDG SEL, TRK SEL, Use HDG HOLD, TRK HOLD

Discuss Bank Limit Selector

Altitude control

Practice using autopilot altitude control–FLCH,

V/S, FPA, FPV. Practice climb/descent

Thrust Control

Review auto throttle modes

A/T modes: SPD (V/S), THR (FLCH SPD), and FMAs.

Autopilot engage/disconnect

Discuss A/P & A/T engage, disconnect control

Flight Director

Review flight director display

EFIS interpretation

Review the various displays, symbology,
and Colors on the PFD, ND, MFD.

EFIS Control Panel

Normal Operations

Practice normal operations of the EFIS controls.

REFERENCE

FCOM NP

FCOM 10.31

FCOM SP4

FCOM SP4

FCOM SP4

FCOM SP4

FCOM 4

FCOM 4

FCOM 10

FCOM 10

Alternate operation
Practice CDU control of the EFIS control panel.

Arrival Procedures (ARR – *LESTA1M*)
Review arrival procedure (ILS runway 23 R) at
Manchester (EGCC) – ARRIVALS page
APPROACH REF Page – Flaps 30 landing
Enter flap position and VREF speed for landing

REFERENCE
FCOM SP & 11

DESCENT

Normal procedure FCOM NP
FMC operations FCOM 11
Heading Control FCOM SP4
Practice using the heading select function during
Descent – HDG SEL
Altitude Control
Practice using autopilot descent control as FCOM SP4
desired
FLCH, V/S, FPA, FPV

APPROACH

Normal Procedures FCOM NP 21
Review the Flap speed schedule FCTM
ILS approach (Radar Vector if required) FCOM NP21
Approach mode FCOM NP 21
Perform an automatic approach
Introduce FMA annunciations.

LANDING

Normal Procedures FCOM NP 21
Automatic Landing FCOM 4.20.13

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TAXI IN

Normal Procedure

FCOM NP 21

SHUT DOWN

Normal Procedure

REFERENCE
 FCOM NP 21

SECURE

Normal Procedures

FCOM NP 21

Electrical Power down Procedure

FCOM SP.6

18.1.0.2 Lesson 2

18.1.0.2.1 FBS 3

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to London Heathrow (EGLL). The Day practices normal procedures and display management. Crew uses the auto flight system to perform takeoff and control the airplane throughout the flight. LNAV is introduced. Emphasis will be on autopilot pitch modes to control climb and descent, autopilot roll modes to control heading and track, and the CDU to program the active route and update clearance changes in the FMS during the flight. Navigation mode practice and map interpretation are important accomplishments of the Day

DAY OBJECTIVES

- Perform normal procedures.
- Integrate FMS tasks during normal operation.
- Interpret Display Select Panel (DSP) displays.
- Integrate systems management tasks during normal procedures.

ROUTE OF FLIGHT

ORIGIN	MANCHESTER (EGCC) Gate ----- RWY 23R
ROUTE	NON STANDARD AIRWAY CLEARANCE
DEPARTURE	<i>EGCC LISTO2R LISTOL612 HON HON1H EGCC</i>
DESTINATION	London Heathrow (EGLL)
ALTERNATE	Birmingham (EGBB)
FLIGHT NUMBER	PIA 777

PERFORMANCE

GRWT	230,000 KGS	FLAPS	20
FUEL	20,000 KGS	CG	24%
ZFW	210,000 KGS	WIND	220/20
RESERVES	5,500 KGS	SLOPE	0
CRZ ALT	17,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	T/OFF THRUST	THR REDUCTION	1000

WEATHER

EGCC Wind 220/20 Visibility 15 km Sky clear Temperature 10C Dew Point 06
 C Altimeter 1014 Mb ILS RWY 23 R

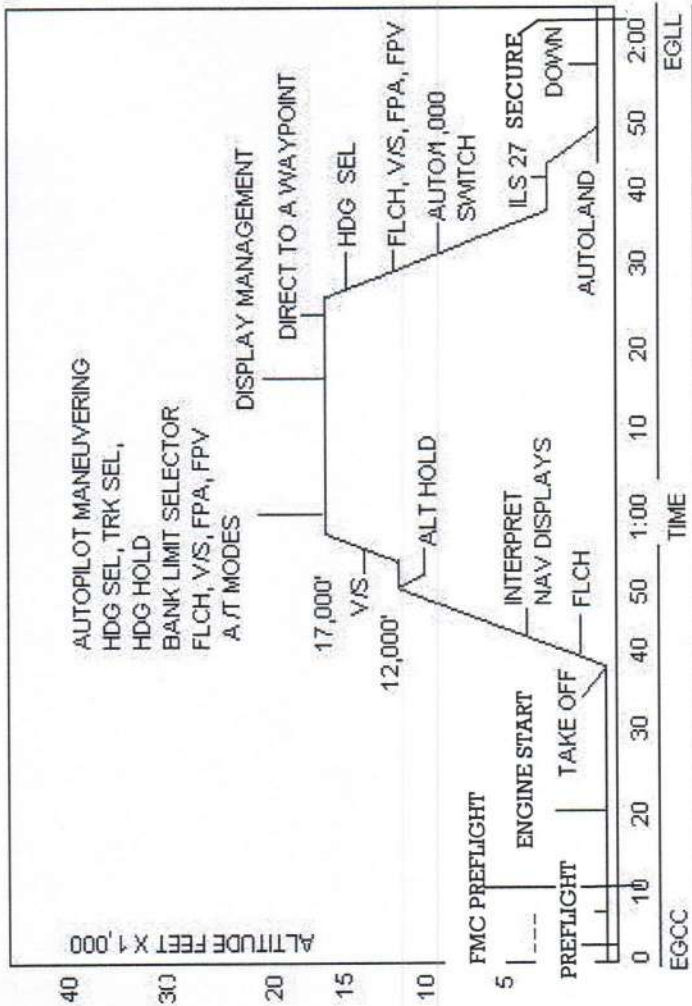
EGLL Wind 330 / 15 Visibility 7 km Ceiling 3,000 Broken Temperature 23 C
 Dew Point 16 C Altimeter 1016 Mb ILS RWY 27 R

CLEARANCE

Pakistan 777 is cleared to London Heathrow *LISTO2R*. DEP frequency 128.05.
 Squawk 4777.



PROFILE



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PRE FLIGHT

Normal procedures
 Introduce Radio Tuning – Audio control
 Introduce Audio Control
 FMC Pre-Flight Procedures
 Manual route entry
 Route: *LISTO L612 HON*

Dep: *LISTO TWO ROMEO (LIST O 2R)*
 Select desired waypoint
 Navigation Display Plan Mode
 ATIS 121.97, DELIVERY (CPT) 121.7,
 GROUND 121.85, TWR 118.62

REFERENCE

FCOM NP.21
 FCOM
 FCOMNP.21,
 FCOM 11.40

FCOM 11.40
 FCOM 11.40

ENGINE START

Normal Procedures
 Before Start procedure
 FMC before Start procedures
 After Start Procedures

FCOM NP 21
 FCOM NP 21
 FCOM NP.21, 11.40
 FCOM NP 21

TAXI OUT

Normal Procedures
 Flaps 20 Take Off

FCOM NP 21

TAKE OFF

Normal Procedures
 Use LNAV and VNAV for Take off

FCOM NP 21

CLIMB

Normal Procedures
 FMC Operations

FCOM NP 21
 FCOM 11

REFERENCE

Interpret navigations Display

FCOM 10

Altitude Control

Climb FL170 with FLCH mode

FCOM SP4

Intermediate level off at FL 120 use ALT HOLD

Climb to FL 170 use V/S

CRUISE

Normal Procedures

FCOM NP.21

FMC Operations

FCOM 11

Autopilot Maneuvering

FCOM SP4

Practice maneuvering the airplane using the

Various integrated autopilot modes, as necessary

Heading Control

FCOM SP4

Practice using autopilot heading controls

HDG SEL, TRK SEL, HDG HOLD, TRK HOLD

Bank Limit selector

Altitude Control

FCOM SP4

Practice Autopilot altitude Controls (Pitch Mode)

FLCH, V/S, FPA, FPV

Thrust Control

FCOM SP4

Review auto throttle modes

Discuss modes – SPD (V/S), THR (FLCH SPD)

and FMAs

Display Management

FCOM 10

Normal Operations

Discuss – inboard display selectors

Display select panel (DSP)

Alternate Operations

Practice CDU control of the display Select panel (DSP)

Direct to a waypoint

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After DOBEM cleared direct KENET - LEGS page FCOM 11

REFERENCE

Arrival procedure (ARR OCK 1A) FCOM 11

Enter arrival procedure ILS 27 R at EGLL

Enter flap position and

VREF speed – APPROACH REF. PAGE

ATIS - 115.1 NAV RADIO

DESCENT

Normal procedures FCOM NP. 21

FMC operations FCOM 11

Heading Control FCOM SP4

Practice using heading select during descent HDG SEL

Altitude Control

Practice using autopilot descent controls as desired

FLCH, V/S, FPA, FPV

AUTO/1000 switch

From OCK proceed direct to BIGGIN (BIG)

APPROACH

Normal Procedures FCOM NO 21, NP

Review the Flap Speeds schedule FCTM

After BIGGIN turn left heading 335' – HDG SEL

Radar vectors to ILS RWY 27 R (LHR)

INTC CRS TO FAF (273 deg) – LEGS page

TWR..... GND.....

ILS Approach

ILS runway 27 R approach at LHR (EGLL)

Display an extended approach course to the final approach

Fix (INTC CRS TO FAF) – LEGS page (D4.0 IRR) FCOM 11

Approach mode FCOM 11

Perform automatic landing ,Review FMA annunciations

LANDING

Normal Procedures
Automatic Landing

REFERENCE

FCOM NP 21
FCOM 4

TAXI IN

Normal Procedures

FCOM NP 21

SHUT DOWN

Normal Procedures

FCOM NP 21

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18.1.0.2.2 FBS 4

DAY SUMMARY

This Day is a night flight from Manchester (EGCC) to London Heathrow (EGLL).

VNAV is introduced. During the flight, LNAV and VNAV will be used as the primary automatic flight modes; however, HDG SEL and FLCH may be used as required. The CDU is used to program the active route and update clearance changes in the FMS during the flight. Holding is introduced and practiced.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform normal procedures.
- Perform integrated FMS tasks.
- Maintain airplane control and navigation using the autopilot and CDU.
- Perform systems management tasks.

ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC) Gate Rwy 05L
ROUTE	<i>LISTO DCT L612 HON1H</i>
DEPARTURE	LISTO TWO SIERRA (LISTO 2S)
DESTINATION	London Heathrow (EGLL)
ALTERNATE	EGBB
FLIGHT NUMBER	PIA777

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PERFORMANCE

GRWT	240,000 KGS	FLAPS	OPT
FUEL	30,000 KGS	CG	24%
ZFW	210,000 KGS	WIND	Calm
RESERVES	5,500 KGS	SLOPE	0
CRZ ALT	17,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000
THRUST LIM	TO 1	THR REDUCTION	Flap 5

WEATHER

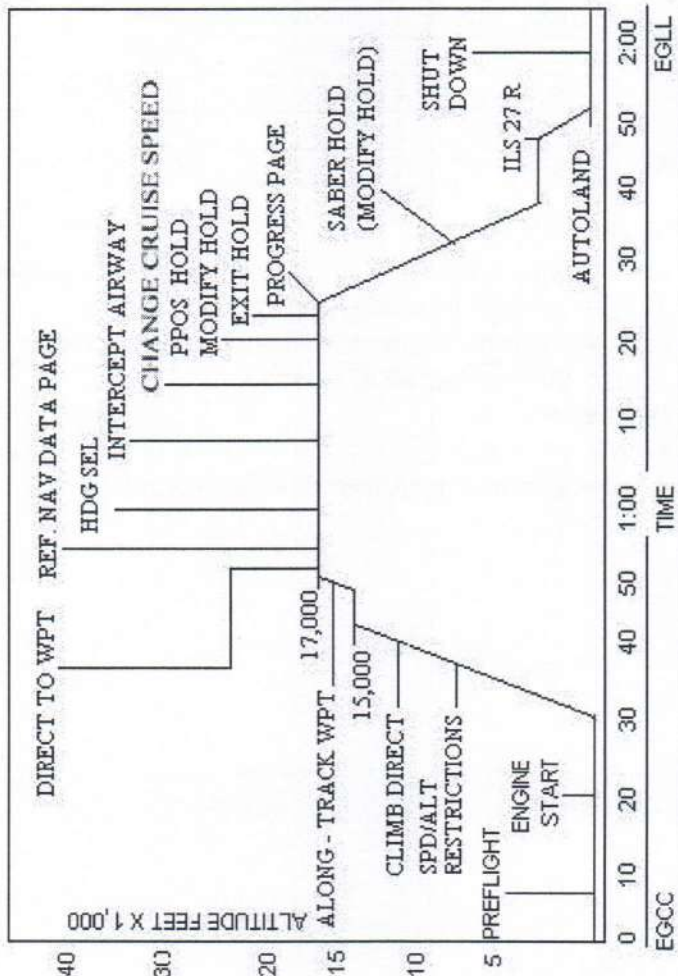
EGCC Wind calm Visibility 15 km Sky clear Temperature 15C
 Dew Point 06C Altimeter 1013 Mb ILS RWY 05 L.

EGLL Wind 270/15 Visibility 10 km Sky clear Temperature 19C / Dew Point
 13C Altimeter 1012 Mb ILS RWY 27 R.

CLEARANCE

Pakistan777 is cleared to LONDON Heathrow LISTO 2S departure. LISTO
 proceed DIRECT TELBA. Departure frequency 121.705 Squawk 4455.

PROFILE



PRE FLIGHT

Normal Procedures
FMC Preflight Procedures
Manual route entry
Route: *LISTO L612 HON*

Departure: *LISTO TWO SIERRA (LISTO 2S)*

FREQ: ATIS – 121.98, CPT – 121.705, GND - 121.855
TWR – 118.63, DEP – 121.705

ENGINE START

Normal Procedures
Before Start Procedures
FMC before Start Procedures
After Start Procedures (Before Taxi)

REFERENCE

FCOM NP.21
FCOM NP.21

FCOM NP.21
FCOM NP.21
FCOM NP.21,
FCOM NP.21

TAXI-OUT

Normal procedures
Flaps 15 or 5 take off

FCOM NP.21

TAKE OFF

Normal Procedures
Use LNAV and VNAV for take off

FCOM NO.21,

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Flight Operation Department (Training Division)		

REFERENCE

CLIMB

Normal Procedures	FCOM NP.21
FMC Operations	FCOM 11
Revised Route LISTO DIRECT HON (Or PRESENT POSITION DIRECT TO HON) L10 <i>BPK Q295 BRAIN P44 CLN DIRECT TRIPO DIRECT LAM.</i>	
Enter speed/altitude Restriction	FCOM 11
CROSS HON at or below FL 200 and 280 knots – 280/200B on LEGS page.	
Climb Direct	
After HON resume normal climb speed and climb FL270 discuss MCP (ALT intervention) and FMC (CLB DIR)	FCOM 11
Along-Track waypoint	
Report 10 miles short of BPK (BPK/-10 on LEGS page)	FCOM 11

CRUISE

Normal procedures	FCOM
NP.21	
FMC operations	FCOM
Heading Control	
From HON, Turn to heading 090' –HDG SEL	
Intercept airways	
On heading 090 Intercept <i>UY250</i> (to) <i>DTY.</i> (RTE page)	
Inhibit Navigation aid	
HON VOR/DME is unreliable – do not use for navigation	
REF NAV DATA page	
Change cruise speed	
Reduce speed to 280 knots for spacing	
VNAV CRZ page	FCOM



CRUISE

REFERENCE

Resume normal speed VNAV CRZ page

Present position HOLD

Hold present position HOLD page

FCOM 11.42

Direct to a waypoint

After CLN/-5 turn right direct TRIPO

FCOM 11.42

Arrival procedure

Expect ILS runway 27 R at London (EGLL)

FCOM

11.42

LAMBOURNE THREE ALFA (LAM 3A)

Amend missed approach procedure and maintain 5000

Review T/D point and deceleration point

Determine ETA, fuel remaining

Determine arrival ETA, and fuel remaining for London

and Alternate airport – Progress page

Modify Hold

Hold at position SABER FL70 and Modify Hold

to NON STD

Exit hold

Depart SABER holding on Course to LAM VOR

FCOM

11.42

DESCENT

Normal Procedures

FCOM NP.21

FMC Operations

FCOM 11.31

Descend and maintain 4,000 at pilot's discretion

APPROACH

REFERENCE

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Flight Operation Department
(Training Division)

Normal Procedures	FCOM NP.21,
ILS Approach	FCOM NP.21
Leave LAM, heading –HDG SEL	
Radar vector to ILS RWY 27 R (EGLL)	
Display an extended approach course to the final	
Approach fix (CF 27R INTC) – ARRIVAL page	FCOM 11
TWR – 118.7 GND - 121.9	

LANDING

Normal Procedures	FCOM NP.21
Automatic Landing	FCOM

TAXI-IN

Normal Procedures	FCOM NP.21
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SHUT DOWN

Normal Procedures	FCOM NP.21
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18.1.0.3 Lesson 3

18.1.0.3.1 FBS 5

DAY SUMMARY

This Day continues to practice clearance changes during a flight in icing conditions from Manchester (EGCC) to Birmingham (EGBB). LNAV and VNAV continue to be used as the primary automatic flight modes. During the flight, HDG SEL and FLCH may be used as required.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform normal procedures.
- Perform integrated FMS tasks.
- Maintain airplane control and navigation using the auto flight system.
- Perform systems management tasks.

ROUTE OF FLIGHT

POLSR POL. POL1B EGBB

ORIGIN

Manchester (EGCC)

Gate -----

RWY 23 R

ROUTE

POLSR POL. POL1B EGBB

DEPARTURE

POLSR

DESTINATION

Birmingham (EGBB)

ALTERNATE

London Heathrow (EGLL)

FLIGHT NUMBER

PIA 777

PERFORMANCE

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GRWT	240,000 KGS	FLAPS	OPT
FUEL	20,000 KGS	CG	24%
ZFW	220,000 KGS	WIND	Calm
RESERVES	7,574 KGS	SLOPE	0
CRZ ALT	FL 190	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000
THRUST LIM	TO 2	THR REDUCTION	1,000'

WEATHER

EGCC Wind calm Visibility 1500m Sleet Ceiling 800 Overcast

Temperature 0C Dew Point -2C Altimeter 1009 Mb ILS RWY 23 R

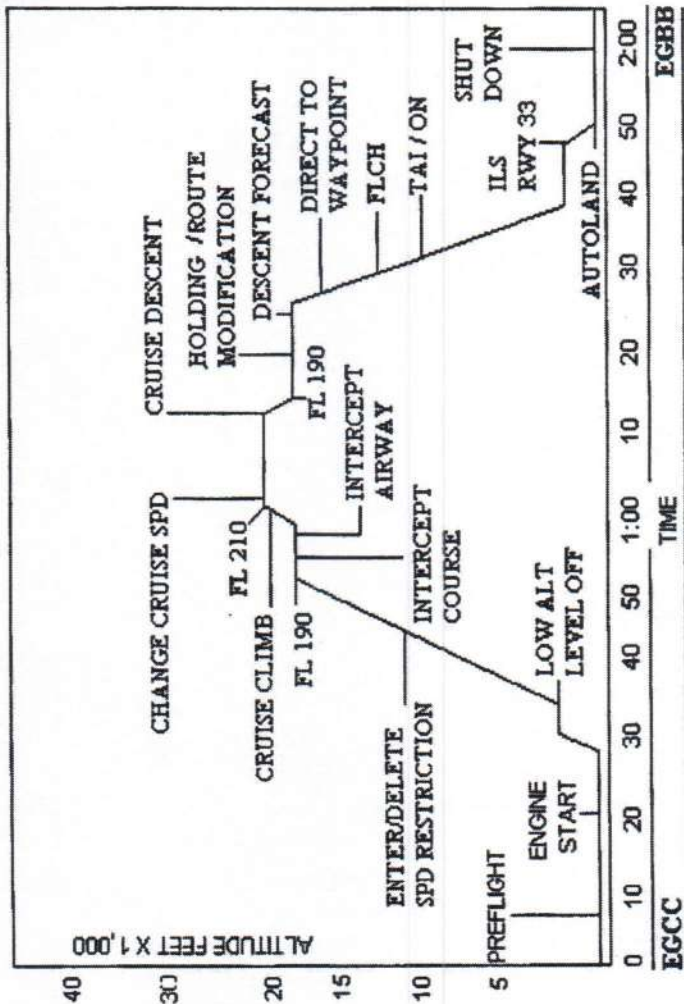
EGBB Wind 330/15 kts Visibility 3000m Rain Ceiling 3000 Broken

Temperature 15C Dew Point 10 C Altimeter 1008 Mb ILS RWY 33.

CLEARANCE Pakistan777 cleared to Birmingham *POLSR*

Departure, Squawk 4464, departure frequency 128.05

PROFILE



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PRE-FLIGHT

Normal Procedures
 FMC Pre-flight Procedures
 Manual entry
 ROUTE: *EGCC POL5R POL. POLIB EGBB*
 DEPARTURE: *POL5R*

REFERENCE

FCOM NP.21
 FCOM NP.21,
 FCOM

ENGINE START

Normal Procedures
 Before Start Procedures
 FMC before start procedures
 After Start Procedures (Before Taxi)
 Engine Anti-Ice Required

FCOM NP.21
 FCOM NP.21
 FCOM NP.21
 FCOM NP.21
 FCOM SP.3

TAXI OUT

Normal Procedures
 Flaps 5 or 15 Take Off

FCOM NP.21

TAKE OFF

Normal Procedures
 Use LNAV and VNAV for take off

FCOM NP.21,
 FCOM 11.41 & 4.20

CLIMB

Normal Procedures
 FMC Operations
 Low altitude level off
 Maintain 2,000 feet – altitude selector
 Enter/Delete Speed restriction
 Passing 3000 Maintain 230 knots for traffic Separation
 Delete at 4,000 and climb to 5,000 feet
 IAS/MACH SELECTOR (speed intervention)
 Climb Direct – Resume normal climb speed.

FCOM NO.21
 FCOM 11.31
 FCTM 4.2

Direct to a waypoint From POL proceed direct DCS L612 GOW

CRUISE

Normal Procedures
FMC Operations
Cruise Climb
Climb and maintain FL 210
Change Cruise Speed
Reduce speed to 290 knots, resume normal speed after reaching 290 knots (speed intervention).

REFERENCE

FCOM NP 21
FCOM 11.31

Cruise Descent
Descent to FL 190 (Altitude Selector)
Holding
Hold at CHASE INBOUND 151° MAX ALT 5000'
– Hold page
Arrival procedure
Expect ILS runway 33 approach *POL1B EGBB*
TAI/ON altitude
Moderate icing is reported surface to 10,000 feet
DESCENT FORECAST page use

DESCENT

Normal Procedures
FMC Operations
Change descent speed
Enter/Delete speed/Altitude Restrictions
Altitude control
Descent to 3,000 feet FLCH

FCOM NP. 21
FCOM 11.31

APPROACH

Normal Procedures

FCOM NP.21

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ILS Approach Radar Vector for RWY 33	FCOM NP. 21,
LANDING	REFERENCE
Normal Approach	FCOM NP.21
Automatic Landing	FCOM NP.21
TAXI-IN	
Normal Procedures	FCOM NP.21
SHUT DOWN	
Normal Procedures	FCOM NP.21
SECURE	
Normal Procedures	FCOM NP.21

18.1.0.3.2 FBS 6

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to Amsterdam (EHAM); Route modifications are made as the flight progresses. Non-normal procedures are introduced. Emphasis will be on engine start and electrical system, smoke and smoke removal, and electronic flight instrument non-normal procedures which are introduced and practiced throughout the flight. A go-around is introduced at Amsterdam followed by radar vectors.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform integrated FMS tasks.
- Apply Crew Resource Management (CRM) attributes while practicing elected Normal and non-normal procedures.
- Maintain airplane control and navigation throughout the flight using the FMS Auto-flight system.
- Perform systems management tasks.
- *Demonstrate required level of proficiency in preflight and Post-flight normal Procedures.
- *Demonstrate required level of familiarity performing appropriate engine start, Electrical system, smoke and smoke removal, and EFIS non-normal procedures.

(*) Denotes proficiency items

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ROUTE OF FLIGHT

ORIGIN MANCHESTER (EGCC)
 Gate -----
 RW 23R

ROUTE EGCC POL5R POL DCT DESIG L603 LAMSO
 LAMSO2A EHAM

DEPARTURE POL5R
DESTINATION AMSTERDAM (EHAM)
FLIGHT NUMBER PIA777

PERFORMANCE

GRWT	230,000 KGS	FLAPS	OPT
FUEL	30,000 KGS	CG	23%
ZFW	200,000 KGS	WIND	320/ 12
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 250	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000
THRUST LIM	AS REQUIRED	THR REDUCTION	Flaps 5

CRZ WIND at DTY FL170 31025
 FL210 33035
 FL250 35045

WEATHER

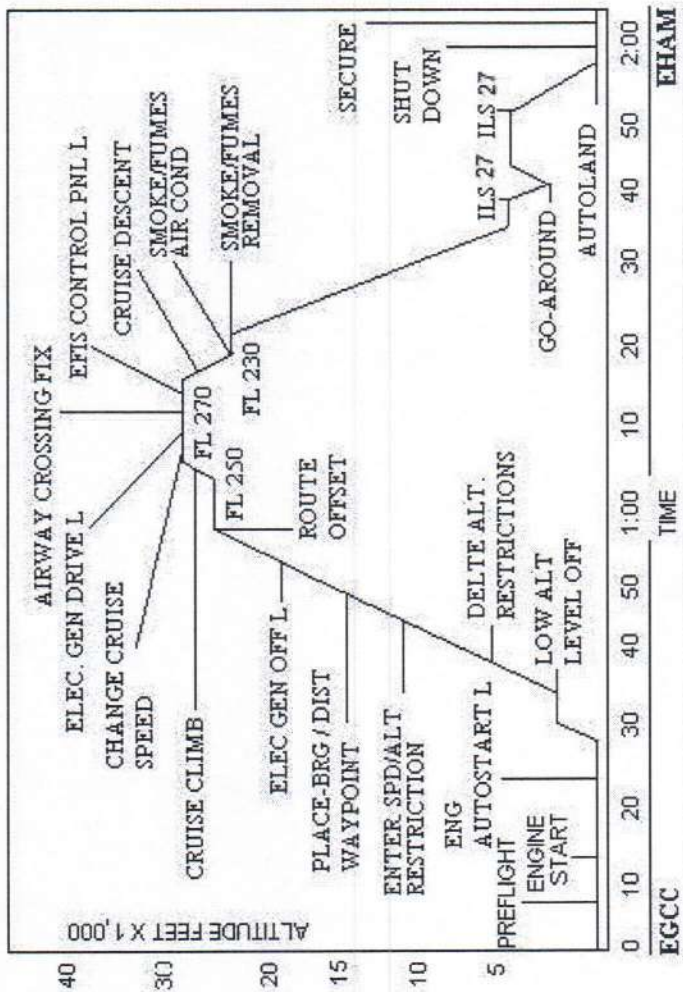
EGCC Wind 320/12 Visibility 15 km Ceiling BKN 2500 Temperature 13C / Dew Point 8 C Altimeter 1014 Mb ILS RWY 23 R.

EHAM Wind 200/15 Visibility 12 km SCT 1800 Temperature 28C Dew Point 21 C Altimeter 1016 Mb.

CLEARANCE

Pakistan777 is cleared to Amsterdam, POL5R ONE ROMEO Departure Frequency 134.42, squawk 4316.

PROFILE



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PRE FLIGHT

- * Normal Procedures
- * FMC Pre-Flight Procedures

Clearance: *POLSR*

Wind Data Entry

Thrust Limit as required

Enter or check Climb 1

THRUST LIMIT PAGE

REFERENCE

FCOM NP.21

FCOM NP.21,

FCOM, FCOM 11

FCOM

ENGINE START

- * Normal Procedures
- * Before Start Procedures
- * FMC before Start procedures
- Introduce Non-normal ECL Procedures
- * ENG. AUTO START L
- * After Start Procedures
(Reset when completed)

FCOM NP.21

FCOM NP.21

FCOM NP.21

FCOM

QRH 7.3

FCOM NP.21

TAXI OUT

Normal Procedures

Flaps 05 OR 15Take off

Runway Change to 05 L

Departure (SID) Changed to *DESIGIS*

EGCC DESIGIS DESIG L 603 LAMSO LAMSO2A EHAM

FCOM NP.21

FCOM

TAKE OFF

Normal Procedures

Use LNAV and VNAV for Take off

FCOM NP.21

CLIMB

- Normal Procedures
- FMC Operations
- Low Altitude level off
- Maintain 2500 feet – Altitude selector
- Delete altitude restriction
- Cancel all altitude restrictions, climb and maintain FL 250 altitude selectors (altitude instructions) or FMC (Climb Direct)
- Enter speed/altitude restrictions
- 11.31
- Maintain 230 knots for traffic separation until Reaching 10,000 feet on VNAV CLB page
- Place bearing/Distance way point
- 11.42
- POL direct DESIG radial 080/15 (DES01).*
- From that point turn right HDG 180 intercept L603 to LAMSO.*
- ELEC GEN OFF L
- (Reset when complete)

REFERENCE

 FCOM NP.21
 FCTM

FCOM

FCOM

QRH 6.5

CRUISE

- Normal Procedures
- FMC Operations
- Route Offset
- Offset 15 Miles (L 15) north of present route RTE page
- Proceed direct to LAMSO LAMS2A Arrival Amsterdam
- Cruise Climb
- Climb and maintain FL 270 – Altitude selector
- Change Cruise Speed
- After the cruise climb reduce speed to 290 knots for spacing - IAS/MACH selector. (Speed Intervention)

FCOM NP.21

FCOM 11.31

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Resume normal speed

REFERENCE

Route Modification/airways crossing fix

After *LAMSO* turn *R HDG150* intercept *L620 TULIP Y12*

SPY (SPIJKERBOOR) Expect radar vectors

ELEC GEN DRIVE L

QRH 6.4

EFIS control Panel

QRH & FCOM

10.10

(Reset when completed)

CRM consideration.

Crew member Training and Development

Build team skills

Discuss system capabilities and options

Review options to reinforce crew understanding

Cruise Descent

Descend and maintain FL 230 – Alt selector

ATIS 108.4/132.97

SMOKE/FUMES AIR COND

QRH 8.6

CRM Considerations

Captain's Authority

Manage and direct crew actions

Exercise emergency authority

Assign duties and responsibilities

Direct crew and get feedback

SMOKE/FUMES REMOVAL

QRH 8.24

DESCENT

Normal Procedures

FCOM NP.21

Descent and maintain FL 100

FMC Operations

FCOM 11.31

APPROACH

REFERENCE

Normal Procedures

FCOM NP.21

Descent and maintain FL70 - proceed direct to

FCOM NP.21

SPL and cleared for ILS Approach RWY 27

GO-AROUND

Normal Procedures

FCOM NP.21

Go ground

FCOM NP.21

Climb on track 269' to 2000 ATC

APPROACH

Normal Procedures

FCOM NP.21

ILS Approach

FCOM NP.21

Radar Vector to ILS 27 – SCHIPHOL (WP) intc

LANDING

Normal Procedures

FCOM NP.21

Automatic Landing

FCOM

TAXI IN

Normal Procedures

FCOM NP.21

SHUT DOWN

Normal Procedures

FCOM NP.21

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SECURE

Normal Procedures

FCOM NP.21

18.1.0.4 Lesson 4

18.1.4.4.1 FBS 7

DAY SUMMARY

This Day is a flight from Amsterdam (EHAM) to Manchester (EGCC). The crew continues to integrate and practice FMS tasks. Emphasis will be on air systems, engine, APU, passenger evacuation, and fire non-normal procedures.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform integrated FMS tasks including holding.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Demonstrate continuous airplane control and navigation using the FMS auto flight system.
- Perform integrated systems management tasks.
- VNAV non-ILS approach procedures will be introduced per operator procedures.
- *Demonstrate required level of proficiency in normal in-flight procedures.

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- *Demonstrate required level of familiarity performing appropriate air system, engine, APU, fire, and passenger evacuation non-normal procedures.

(*) Denotes proficiency items

ROUTE OF FLIGHT

ORIGIN	Schiphol International Airport (EHAM) RWY 18L Takeoff Position
ROUTE	<i>EHAM (RWY 18L) BERG4E BERGI L602 SUPUR L60 SOPEK L60 OTBED OTBED1M (RWY 23R) EGCC</i>
DEPARTURE	<i>BERG4E</i>
DESTINATION	MANCHESTER (EGCC)
ALTERNATE	EGLL
FLIGHT NUMBER	PIA 777

PERFORMANCE

GRWT	230,000 KGS	FLAPS	OPT
FUEL	30,000 KGS	CG	24%
ZFW	200,,000 KGS	WIND	200°/ 15
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 300	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000

WEATHER

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EHAM Wind 200/15 Visibility 15 kms Temperature 25 C dew Point 20C
 Altimeter 1012 Mb ILS RWY 18 L

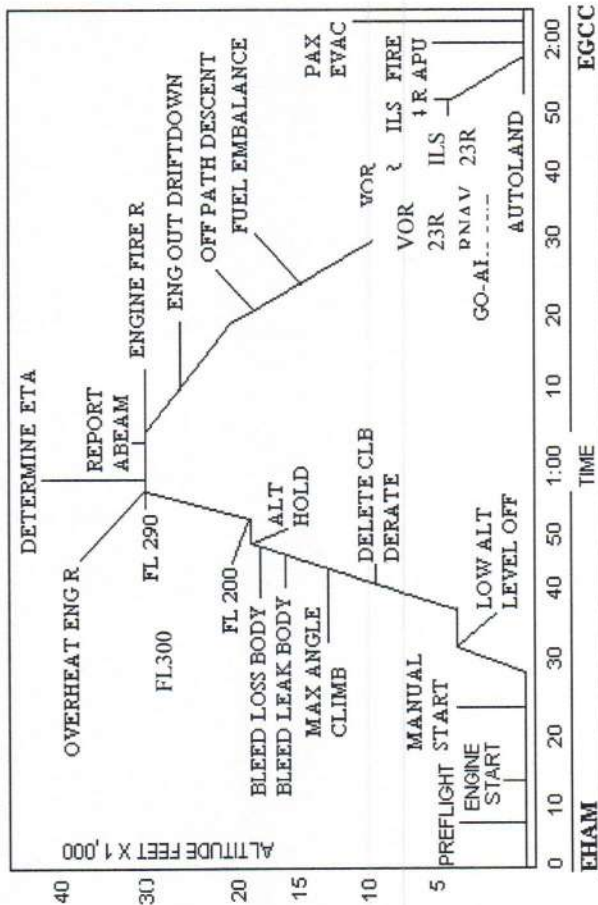
EGCC Wind 350 / 15 Visibility 10 kms Temperature 25C Dew Point 19C
 Altimeter 1016 Mb ILS RWY 23 R

CLEARANCE

Pakistan 777 is cleared to Manchester *BERGE4E* Departure. *BERG1 L60*
SOPEK Squ awk 4776. Departure frequency 121.2.



PROFILE



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PRE-FLIGHT

Normal Procedures
 FMC Pre-Flight Procedures
 Manual route entry
EHAM BERG4E BERGI L602 SOPUR L60
SOPEK L60 OTBED OTBEDIM EGCC

Departure: *BERG4E*
 Airways crossing fix
 Thrust limit as required
 Enter an assume temperature,
 Use CLB 1 for climb thrust – THRUST LIMIT PAGE

REFERENCE

FCOM NP.21
 FCOM NP.21
 FCOM

ENGINE START

Normal Procedures
 Before Start Procedures
 FMC before start procedures
 Manual Start procedure
 Perform a Manual Engine Start on both engines
 After Start Procedures

FCOM NP.21
 FCOM NP.21
 FCOM NP.21.
 FCOM SP.7
 FCOM NP.20

TAXI OUT

Normal Procedures
 Flaps 5 OR 15 Take off

FCOM NP.21
 FCTM

TAKE OFF

*Normal Procedures
 Use LNAV and VNAV for take off
 Flaps 15 take off
 (Use QRH for after take off checklist)

FCOM NP.21

CLIMB

- * Normal Procedures
- FMC procedure
- Low altitude level off
- Delete climb thrust derate (during initial climb)
- THRUST LIMIT PAGE Maximum angle climb
- Expedite climb to FL 180 - VNAV climb page

REFERENCE

- FCOM NP.21
- FCOM 11
- FACTM
- FCOM 11

- * BLEED LEAK BODY
- * BLEED LOSS BODY (Reset when complete)

REFERENCE

- QRH 2.2
- QRH 2.7

- Immediate level off
- Maintain present altitude (app FL200) – ALT HOLD
- After level off continue climb to FL 300

FCOM

CURISE

- * Normal Procedures
- FMC Operations
- * OVERHEAT ENG R Reset when complete
(Use QRH checklist)
- Determine ETA at LAMBOURNE (LAM) and BPK
(FMC ROUTE PAGE & PROGRESS PAGE)
- Create Abeam point
- Report abeam CLN - FIX INFORMATION PAGE
- Arrival Procedure
- Arrival (OTBE1M) VOR 23R*
- * FIRE ENG R
- CRM Considerations
- Resource Management

- FCOM NP.21
- FCOM 11
- QRH 8.8
- FCOM 11
- FCOM 11
- FCOM 11
- QRH 8.2

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Obtain All Required Information	
Obtain Assistance and Coordinate Information	REFERENCE
Use Other Aircraft for Assistance when Necessary	
Engine Out drift down	FCOM.11
Perform an engine out drift down to the engine	FCTM 4
Out maximum cruise altitude – EOD/D page.	

DESCENT

Normal Procedures	FCOM NP.21
At pilot's discretion descend and maintain 5,000	
FMC Operations	FCOM 11
Evaluate an OFFPATH DESCENT	FCOM 11
Evaluate a direct descent to a waypoint and altitude – OFFPATH DES page (discuss clean/drag circle)	
* FUEL IMBALANCE	QRH 12.13,

APPROACH

Non Normal Procedures	FCOM NP .21,
VOR DME approach (LNAV and VNAV use)	FCOM NP 21,
FCTM	
Non ILS approach procedure VNAV	QRH
Fly pattern	FCOM NP21.
FCTM	
Use of autopilot recommended	
Fly off from FAF	
No waypoint modifications	
Flap configuration and speed Pacing	FCTM
Use of speed intervention	
LNAV and VNAV use	
One of the following required for VNAV use:	

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Appropriate path with MAP at or before runway threshold
 Glide path angle published on chart and/or legs page
 Published VNAV DA (H)

REFERENCE

FMCS Certified for instrument approach navigation with radio or GPS updating RNP vs. ANP-RNP manual entry (0.3 for GPS).

FMA annunciation

Discuss "on approach" logic

FCOM 11 FCTM 5

APPROACH

Use of MDA (H) versus DA (H)

FCTM 5

If DA (H) is not published, the DA (H) may be considered to be the Equivalent of the currently applicable published MDA) H) Provided the Principal operations inspector grants this authorization.

If required to use MDA (H) for the approach minimum altitude, the Barometric minimum selector should be set at MDA+50 feet to ensure that, if a missed approach is initiated, descent below the MDA (H) does not occur during the missed approach.

Set MDA (H) or DA (H) on MCP Raw data requirements

FCTM

Set missed approach altitude

FCOM NP 21, FCTM

Autopilot disconnect

Flight director procedures

Visual flight path below DA (H) or MDA (H)

FCTM 8

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GO-AROUND

Non-Normal Procedures (Engine Inoperative)
 Go-around (engine Inoperative)
 Fly the published missed approach procedure

REFERENCE

QRH
 FCOM NP.

APPROACH

Non-Normal Procedures (Engine Inoperative)
 Flaps 20 landing
 ILS Approach (Engine Inoperative)
 NP.21,FCOM
 ILS RWY 23 R at Manchester

FCOM

FCOM

LANDING

Normal Procedures
 NP.21
 Automatic Landing

FCOM

FCOM 4

TAXI IN

Normal Procedures
 NP.21
 * FIRE APU
 FIRE APU lead to a Passenger Evacuation

FCOM

QRH 8.1

* PASSENGER EVACUATION
 BACK COVER

QRH

CRM Consideration – Crewmember Training
 Development
 Ensure Communication available with cabin crew
 Keep cabin aware of plans Lend support and
 encouragemen Additionally,



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TAXI IN

CRM Considerations – Communications Acquire information on airplane status. First Officer, Tower, Cabin Staff, Other. Resolve conflicting information. Advocate position and communicate.

REFERENCE

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18.1.4.4.2 FBS 8

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to London Heathrow (EGLL). FMS tasks continue to be integrated and practiced. Engine and hydraulic system non-normal procedures are practiced.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform integrated FMS tasks.
- Perform integrated systems management tasks.
- VNAV non-ILS approach procedures will be practiced per operator procedures.
- *Demonstrate continuous airplane control and navigation using the FMS and Auto flight system.
- *Demonstrate required level of proficiency in normal procedures such as engine start, taxi, takeoff SID and climb, FMC work, holding.
- *Demonstrate required level of proficiency in non-normal procedures ENG FAIL R, Hydraulic sys C practiced in this session.

(*) Denotes proficiency items

ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC)
	Gate -----
	RWY 23 L
ROUTE	EGCC SANBA1Y SANBA DCT PEDIG M605 DTY DCT WCO EGLL
DEPARTURE	SONEX ONE YANKEE (SONE 1Y)

DESTINATION LONDON (Heathrow) EGLL
 ALTERNATE EGBB
 FLIGHT NUMBER PIA 777

PERFORMANCE

GRWT	220,000 KGS	FLAPS	OPT
FUEL	20,000 KGS	CG	24%
ZFW	200,000 KGS	WIND	Calm
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 290	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3000'
THRUST LIM	AS REQUIRED	Thr Reduction	Flaps 5 or 15

WEATHER

EGCC Wind calm / Visibility 5 Kms / Ceiling 3,000 Overcast / Temperature 15C

Dew Point 11 C / Altimeter 1012 Mb / ILS RWY 05 L

EGLL Wind 210 / 10 / Visibility 7 miles / Ceiling 5,000 Broken / Temperature

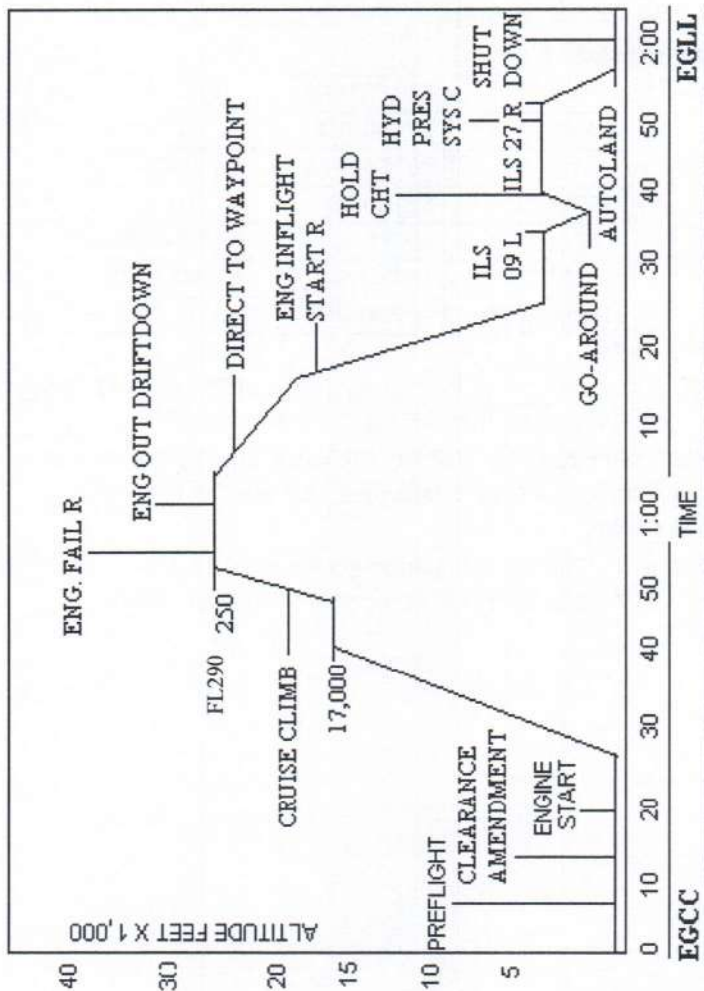
25C / Dew Point 18C / Altimeter 1016 Mb / ILS RWY 27 L

CLEARANCE

Pakistan 777 is cleared to London Heathrow (EGLL), *SANB1Y* departure. *SANBA*

DCT PEDIG, squawk 4747 departure frequency 136.57.

PROFILE





PRE-FLIGHT

Normal Procedures
FMC Preflight Procedures (Manual Entry)
SONEX direct HON L10 to BPK direct LAM
Thrust Limit as required
Enter an assumed temperature, use
Full CLB thrust - THRUST LIM page

REFERENCE

FCOM NP.21
FCOM NP.21

FCOM

ENGINE START

Normal Procedures
Before Start procedures
FMC before Start Procedures
Clearance amendment, RWY 05 L now in use
New route LISTO 2S SIERRA (LISTO 2S)
From LISTO L612 HONILEY (HON) L10
to BPK then direct to LAM
Use an assumed temperature take off; use full
CLB thrust.
Cruise altitude change – 17,000

FCOM NP.21
FCOM NP.21
FCOM NP.21

After Start Procedure

FCOM NP.21

TAXI OUT

Normal Procedures
Flaps 15 OR 5 take off

FCOM NP.21
FCTM

TAKE OFF

Normal Procedures
Use LNAV and VNAV for take off

FCOM NP.21,

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CLIMB

Normal Procedures

FMC Operations

CRUISE

Normal Procedures

FMC Operations

Cruise Climb

Climb and maintain FL 290 – Altitude Selector

Arrival procedure

BIG1Z

*ENG FAIL R

Engine out Drift down

Perform an Engine out drift down to the engine out

Maximum cruise altitude EO D/D page

REFERENCE

FCOM NP.21

FCOM

FCOM NP.21

FCOM 11

FCOM 11

QRH 7.14

FCOM 11

FCTM 4

DESCENT

Normal Procedures

FMC Operations

Direct to a waypoint

After HON proceed direct to Westcott

(WCO NDB 335Khz)

Engine In-Flight Start R

Arrival procedure

Expect BNN 4A arrival ILS RWY 09 L approach

At pilot's discretion descent and maintain 2500

Cross WCO NDB at or above 7000

FCOM NP.21

FCOM 11

FCOM 11

QRH 7.22

FCOM 11

APPROACH

Normal Procedures

FCOM NP.21

ILS Approach	FCOM NP.21.
GO-AROUND	REFERENCE
Normal procedures	FCOM NP.21
GO-AROUND	FCOM NP.21
Climb straight ahead when passing 1580 feet or D 0.0 IAA whichever is later turn left direct to Chiltern (CHT NDB 277Khz) and hold at 3000 feet.	
*Holding	FCOM 11
Hold at CHILTERN (CHT NDB as published) Climb and maintain 3,000 – HOLD page	
*HYD PRESS SYS C	QRH 13.4
APPROACH	
Normal Procedures	FCOM NP.21
ILS Approach	FCOM NP.21
Radar vector to ILS RWY 27 L	
Display an extended approach course to D4.0 ILL (INTC) 27 L - ARRIVAL page	
LANDING	
Normal Procedures	FCOM NP.21
Automatic Landing	FCOM
TAXI-IN	
Normal Procedures	FCOM NP.21
SHUTDOWN	
Normal Procedures	FCOM NP.21
Restore all systems to normal prior to shutdown.	

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18.1.0.5 Lesson 5

18.1.4.5.1 FBS 9

DAY SUMMARY

This Day is a flight in icing conditions from Manchester (EGCC) to London (EGLL) with a diversion back to Manchester (EGCC). It continues to introduce and practice non-normal procedures. Emphasis will be on engine, icing, and hydraulic system non-normal procedures, and fuel jettison and in-flight diversion considerations and procedures.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Perform integrated FMS tasks.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- VNAV non-ILS approach procedures will be practiced per operator procedures.
- *Demonstrate appropriate level of proficiency performing integrated systems management tasks.
- *Demonstrate required level of proficiency in performing normal approach procedures.
- Demonstrate required level of familiarity performing appropriate environmental, Engine, fuel, and hydraulic system non-normal procedures.

(* Denotes proficiency item.



ROUTE OF FLIGHT

ORIGIN	MANCHESTER (EGCC) Gate ----- RWY 05 L
ROUTE	EGCC (RWY 05L) LISTO2S LISTO L612 HON HONIH EGLL (27L)
DEPARTURE	LISTO2S
DESTINATION	LONDON Heathrow (EGLL)
ALTERNATE	MANCHESTER (EGCC)
FLIGHT NUMBER	B777

PERFORMANCE

GRWT	240,000 KGS	FLAPS	OPT
FUEL	30,000 KGS	CG	25%
ZFW	210,000 KGS	WIND	320 ^o / 15
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 250	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3000
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000'

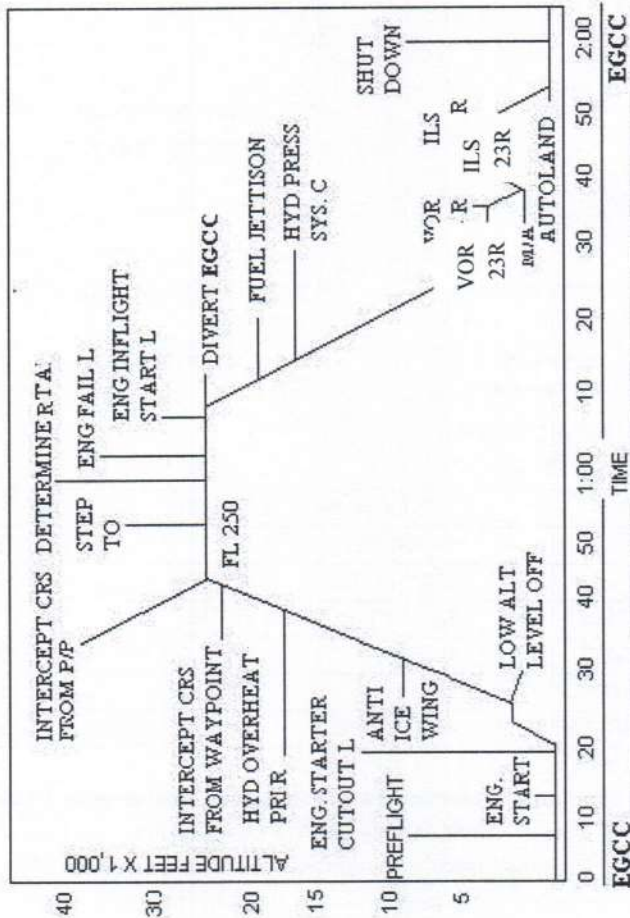
WEATHER

EGCC Wind 320/15 Visibility 5 km Rain Ceiling 2000 Overcast Temperature 01° C Dew Point 0° C, Altimeter 1011 Mb RWY 05 L.

EGLL Wind 260/ 10 Visibility 1000m Rain Ceiling 500 Overcast Temperature 05° C Dew Point 0°C Altimeter 1007 Mb ILS RWY 27 L.

CLEARANCE Pakistan 777 is cleared to London LISTO2S departure, squawk 2523. Departure frequency 128.05

PROFILE



PRE-FLIGHT REFERENCE

Normal Procedures	FCOM/NP.21
FMC Preflight procedures	FCOM/NP.21,
Manual Route entry	FCOM
Route non standard airway clearance MONTY	
N864 DIKAS DIRECT KENET	
Departure MONTY ONE SIERRA (MONTY 1S)	
Thrust Limit as required	FCOM 11
Enter or check climb derate of CLB 1	
– THRUST LIM page	

ENGINE START

Normal Procedures	FCOM/NP.21
Before Start Procedures	FCOM/NP.21
FMC before Start procedures	FCOM NP.21
*ENG STARTER CUTOFF L	QRH 7.37
After Start Procedures	FCOM
Engine Anti-Ice required	FCOM SP

TAXI OUT

Normal Procedures	FCOM/NP.21
Flaps 5 OR 15 take off	

TAKE OFF

Normal Procedures	FCOM NP.21
Use LNAV and VNAV for take off	

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CLIMB

Normal Procedures	REFERENCE FCOM NP.21
*FMC Operations	FCOM 11
Low Altitude level off	FCOM , FCTM
*ANTI-ICE WING	FCOM, QRH 3.6
*HYD. OVERHEAT PR1 R	FCOM, QRH 13.2
Intercept course from a waypoint	FCOM 11
Ten miles before WAL VOR (114.1) turn left heading 200 to intercept the 165 radial from WALLASEY (WAL 114.1) VOR (WAL165 ON LEG page)	
Intercept course from present position (P/P) When past abeam MONTY fly course 225 turn L 090 HDG intercept L15 to HON (P/P225 ON LEGS PAGE)	

CRUISE

Normal Procedures	FCOM NP.21
FMC Operations	FCOM 11
STEP TO	FCOM 11
Determinate the time and distance to the step climb point for a step climb to FL 410 – VNAV CRZ & PROGRESS page	
Discussion only, DO NOT execute	
Determine RTA at TAPRO PROGRESS PAGE	FCOM 11
* FUEL LEAK	QRH 12.18
CRM consideration – Resource Management	
Obtain all required information	
Obtain assistance and coordinate information	
Prepare for route alterations	
One Pilot flies he other pilot works the problem	
Address and resolve the problem	
Divert (Selection of an alternate)	FCOM 11

Arrival procedures

CRUISE

REFERENCE

Select Manchester as alternate using HON as
the overhead divert point – ALTN page

Proceed direct to LESTA

*LESTA1M arrival for VOR DME 23 R approach (use LNAV and VNAV for
approach).*

**Another t /off with same WT. passing 10000 ft,
ATC has advised London airfield closed due
security reason ,Delay undetermined.**

DESCENT

Normal Procedures

FCOM NP.21

Descend and maintain 6000 feet

FMC Operations

FCOM 11

***FUEL JETTISON**

QRH 12.16

Perform a fuel jettison to reduce weight to
maximum Landing weight (MLW)

***HYD PRES SYS C.**

QRH 13.4

APPROACH

***Normal procedures**

FCOM NP.21

VNAV VOR approach (23 R)

FCOM NP.21

GO-AROUND

Normal Procedures

FCOM NP.21

GO-AROUND (Published procedure)

FCOM NP.21

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APPROACH

- * Normal Procedures
- ILS approach 23 R approach (Radar Vector)

FCOM NP.21
FCOM NP.21

LANDING

- * Normal Procedures
- Automatic Landing

FCOM NP.21
FCOM 4

TAXI-IN

Procedures

Normal
FCOM NP.21

SHUTDOWN

- Normal Procedures
- Restore all systems to normal prior to shutdown.

FCOM NP.21

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18.1.0.5.2 FBS 10

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to London Heathrow (EGLL) with a diversion into Birmingham (EGBB) it uses the full capabilities of the airplane systems including FMS. Emphasis is on display, cargo fire, air system, and flight control non-normal procedures. This flight reviews and enhances proficiency for the next phase of training.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Demonstrate appropriate level of proficiency performing FMS tasks.
- Demonstrate the appropriate level of proficiency maintaining continuous airplane control and navigation using the FMS auto flight system during complex situations under adverse conditions.
- Demonstrate the required level of proficiency performing go-around procedures.
- Demonstrate required level of familiarity performing appropriate display, cargo fire, air system, and flight control non-normal procedures. Evaluate crew progress/proficiency prior to the next phase of training. Provide any necessary training or recommendation prior to the next phase of training.

(*) Denotes proficiency item.

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ROUTE OF FLIGHT

ORIGIN MANCHESTER (EGCC)
 Gate -----
 RWY 23 R
 ROUTE EGCC SANBIR SANBA DCT PEDIG M605 DTY
 DCT WCO EGLL
 EPARTURE LONDON Heathrow (EGLL)
 DESTINATION BIRMINGHAM (EGBB)
 ALTERNATE PIA 777
 FLIGHT NUMBER

PERFORMANCE

GRWT	220,000 KGS	FLAPS	OPT
FUEL	20.000 KGS	CG	23%
ZFW	200,000 KGS	WIND	Calm
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 250'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000'

WEATHER

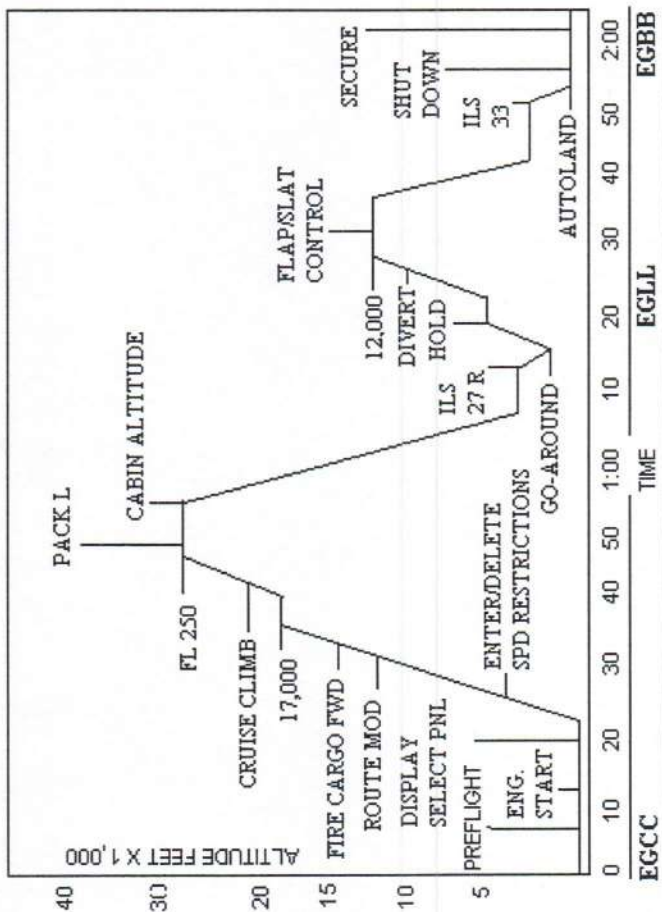
EGCC Wind calm Visibility 2 km / Light Snow Ceiling 1000 Overcast
 Temperature 00C / Dew Point -20C Altimeter 1007 Mb RWY 23 R

EGLL Wind calm Visibility 1km Fog Ceiling 400 Overcast Temperature 08C Dew
 Point 06 C I Altimeter 1006 Mb ILS RWY 27 R

EGBB Wind 020/10 Visibility 9 km Haze Ceiling 3000 Broken Temperature 09C
 Dew Point 02C Altimeter 1008 Mb ILS RWY 33

CLEARANCE Pakistan 777 is cleared to London Heathrow SANBIR departure,
 squawk 4465. Departure frequency 136.57.

PROFILE



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PREFLIGHT

- Normal Procedures
- FMC Preflight procedure
- Manual route entry
 - Route SONEX direct DESIG L603 DOLAS
 - direct LAM
- TO thrust limit as required
- Enter or check climb derate of
 - CLB 2 – THRUST LIM page.

REFERENCE

- FCOM NP.21
- FCOM NP.21
- FCOM
- FCOM

ENGINE START

- Normal procedures
- Before Start procedures
- FMC before Start procedures
- After Start procedures
- * Engine Anti-Ice required

- FCOM NP.21
- FCOM NP.21
- FCOM NP.21
- FCOM NP.21
- FCOM SP

TAXI-OUT

- Normal Procedures
- Flaps 15 OR 5 take off

- FCOM NP.21

TAKE OFF

- Normal procedures
- Use LNAV and VNAV for take off
- DISPLAY SELECT PNL

- FCOM NP.21,
- FCOM 10

CLIMB

- Normal Procedures
- FMC Operations
- Enter/delete speed restriction
- Maintain 220 knots for traffic separation

- FCOM NP.21
- FCOM 11
- FCOM 11

CLIMB

REFERENCE

IAS/MACH Selector (speed intervention)

Resume normal climb speed

Route modification

After DOLAS direct BANEM, join *N866* (to) *DIGSU*

CROSS SECTION OF N866 AND L10 to BPK

* FIRE CARGO FWD

QRH 8.14

CRUISE

Normal procedures

FCOM NP.21

*FMC Operations

FCOM 11

Cruise Climb

Climb and maintain FL 250 – Altitude Selector.

* PACK L

QRH 2.14

Arrival procedure

From present position direct to LAM and hold

SOUTH WEST on radial 266 left turn radar vector

ILS RWY 27 R approach (London Heathrow)

*CABIN ALTITUDE

QRH 2.1

Malfunction leads to a rapid descent.

FCTM 7

Be aware that Communications barriers are

present keep all informed of decisions and

intentions: First Officer Cabin ATC.

Additionally,

CRM considerations – Problem solving process

Use all resources to gather information

Be aware of time constraints

Discuss, propose, seek feedback, and take action.

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DESCENT

- *Normal Procedures
- FMC Operations
- Amended missed approach clearance
- At 1000 AGL turn right direct to BUZAD
- climb 4000

REFERENCE

- FCOM NP.21
- FCOM 11
- FCOM

APPROACH

- * Normal Procedures
- ILS approach
- ILS RWY 27 R approach at London (EGLL)

REFERENCE

- FCOM NP.21
- FCOM

GO-AROUND

- *Normal procedures
- Go-around
 - At 1000 AGL proceed direct to BUZAD climb and
 - Maintain 4000
- Engine Failure during go-around
- CRM Consideration-Resource Management
 - Obtained all required information
 - Obtain assistance and coordinate information
- Engine in-flight start
- CRM Consideration-Situation awareness
- Prepare for route alteration
 - PF and PM specific duties must be followed
 - Address and resolve the problem
- Divert (Selection of an alternate)
- Divert to Birmingham (EGBB) – ALTN page
- New Cruise altitude
 - Climb and maintain FL 120

- FCOM NP.21
- FCOM NP 21,
- FCOM/QRH
- FCOM/QRH

Arrival procedure
GROVE 1A arrival ILS RWY 33 approach at

GO-AROUND

Birmingham (EGBB)
FLAP/SLAT CONTROL

Proceed direct to holding position GROVE
(Radial 286 of HON VOR)
Hold at GROVE North West with right turn

REFERENCE

QRH 9.8

APPROACH

Normal Procedures

After departing holding position GROVE descent
maintain 2500 and heading 154 for ILS RWY 33
approach (Birmingham) Radar Vector to the ILS
RWY 33 approach at Birmingham.
Display an extended approach course D4.0 IBM
(MAPLE) RWY 33 - ARRIVAL PAGE

FCOM NP.21

LANDING

Normal procedures
Automatic landing

FCOM NP.21
FCOM

TAXI-IN

Normal Procedures
FCOM NP.21

SHUT DOWN

Normal Procedures

FCOM NP.21

SECURE

Normal Procedures

FCOM NP.21

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18.1.1 FFS

INTRODUCTION

The Full Flight Simulator Days are designed to include normal, supplementary normal and non-normal procedures as published in the Operations Manual. Each day's program has three parts: a one-hour briefing, a four-hour simulator period divided into two segments, and a debriefing. The four hour simulator period is designed for two pilots to each fly a two-hour segment. Immediately following each period, a debriefing consisting of a review of the trainee's performance will be conducted by the instructor. Items to study for the next period will be identified.

Each Day is organized in a "Phase of Flight" format that specifies training items to be completed and the sequence of presentation. Other information includes the weather and airplane information for calculating takeoff performance. Airfield information can be obtained from the approach charts. Each Day contains briefing items which are referenced to sections in the Operations Manual (FCOM) or the Flight Crew Training Manual (FCTM). You are expected to become thoroughly familiar with these items prior to each training period.

As much as practical, realism will be maintained during training. The instructor will act as Company dispatcher, ground crew, and ATC. Flights will be flown in real time except when repositioning is specified in the Day plan. These requirements do not preclude verbal instructions and comments when appropriate, and position freezing and repositioning to make more efficient use of available time.

The trainee is expected to demonstrate a satisfactory level of skill and knowledge in the performance of all maneuvers and procedures.

GENERAL GUIDANCE TO INSTRUCTORS

The Full Flight Simulator Days include Normal, Supplementary and Non-Normal procedures as published in the Flight Crew Operating Manual (FCOM), and the Flight crew Training Manual (FCTM). Days culminate in the Pilot Proficiency Check (PPC).

Each Day's programmed has 3 parts; a one hour briefings a four hour simulator period (divided into 2x2 hour periods) wherein the Day will be repeated for each trainee, and a debriefing. At the end of the debriefing, the Instructor should identify those items to study for the next period.

Each Day is organized in a "Phase of Flight" format that specifies training items to be completed and the sequence of presentation. A loft type scenario, using airfields on PIA network, is used whenever practicable. Details of each Day are contained in this Guide, along with flight data to be used which includes weather, aircraft, and route information. Performance data should be supplied by the Instructor, and trainees will use standard Jeppesen charts throughout.

Each Day contains briefing items which are referenced to the FCOM or the FCTM. Trainees are expected to review and familiarize themselves with these items before each Day. For purposes of standardization, Instructors should closely adhere to the briefing notes, which are derived from the FCOM, FCTM, and general Boeing guidance.

As far as practicable, realism should be maintained during Full flight Simulator training. Headsets should be used, and all normal communications are to be expected. To this end, the Instructor should act as ATC, ground crew, cabin crew, and Company operations staff. Flights should be flown in real time whenever it impacts realism, the Instructor should advise trainees that repositioning is taking place, and he should provide reorientation guidance.

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Instructors will instruct and comment in real time, so the previous paragraph does not preclude verbal instructions and comments where appropriate, and the use of position or flight freeze facilities of the simulator is encouraged where they enhance training value.

The trainee is expected to demonstrate the required level of skill, experience, and knowledge in the performance of all the designated maneuvers and procedures. Though each trainee is required to pass a PPC at the end of Full Flight Simulator Training, his performance should be continuously evaluated throughout.

Instructors to ensure that during intermediate/final level off vertical speed is reduced to 1000 fpm when 1000 ft to level off altitude, in order to reduce frequency of unnecessary TCAS 'RA' activation.

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18.1.1.1 FFS 1

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to London Heathrow (EGLL). The crew performs a complete preflight. Normal procedures and a few non-normals will be practiced. Emphasis will be on familiarizing the student with manual flight characteristics and ground handling techniques of the airplane. Demonstrations will also be conducted to familiarize the crew with flight envelope protection features of the B-777.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
 - Initiate practice of manual flight characteristics of fly-by-wire, alert, envelope Protection systems, manual ILS, visual approaches, touch and go and full stop Landings.
 - Apply Crew Resource Management attributes while practicing selected normal and Non-normal procedures.
 - Improve skill level of previous training objectives.
 - Demonstrate required level of proficiency in aborted engine start, cruise, and Descent procedures.
- (* Denotes proficiency item.

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ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC)
ROUTE	<i>EGCC SANBA1R SANBA UN859 HON L10 DTY WCO EGLL</i>
DEPARTURE	SONEX ONE ROMEO (SONE 1R)
DESTINATION	London Heathrow (EGLL)
FLIGHT NUMBER	PK777

PERFORMANCE

GR WT	220,000 KGS	FLAPS	OPT
FUEL	20,000 KGS	CG	23%
ZFW	200,000 KGS	WIND	230/15
RESERVES	6,100 KGS	SLOPE	ZERO
CRZ ALT	15,000'	EO ACCEL HT	1,000
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000'

WEATHER

EGCC Wind 230/15 Visibility 20 km SKC Temperature 15°C Dew Point 10°C
 Altimeter 1013 Mb RWY 23 R.

EGLL Wind 270/20 Visibility 25 km SKC Temperature 25°C Dew Point 4°C
 Altimeter 1013 Mb ILS RWY 27 R.

CLEARANCE

Pakistan 777 is cleared to London Heathrow *SANBAIR* departure. Squawk 2550. Departure frequency 136.57.



PREFLIGHT

Normal Procedures
Program FMC, Set trim, airspeeds
And mode Control Panel
Seat Position
Accomplish Checklists

REFERENCE

FCOM NP.21, FCTM
FCOM
FCOM

ENGINE START

Normal Procedures
Auto start – Hot Start
*ENG AUTO START R
Manual Start – Hung Start
*ABORTED ENG START L

FCOM NP.21
QRH 7.3, FCOM
FCOM SP.7
QRH 7.1, FCOM

TAXI-OUT

Normal Procedures
Taxi
Thrust/Jet blast
Tiller/rudder pedal steering
Turn radius/wing tip travel
Pavement width requirements
180 turns
Main/nose gear ground track
Taxi speed/ND GS display
Take off briefing

FCOM NP.21, FCTM



TAKE OFF

Take off
LNAV/VNAV
Setting TO Thrust (auto throttle)
Rotation rate and target pitch attitude
Flap Retraction
Flap Maneuvering Speeds
Flight Mode Annunciates (FMAs)

REFERENCE

FCOM NP.21, FCTM
FCOM 11
FCOM
FCTM
FCTM

CLIMB REFERENCE

Normal Procedures
Climb (No autopilot)
Climb Speeds
Flight characteristics
Exercise roll rates, heading, and airspeed change
Trim requirements
Change roll and pitch modes.

FCOM NP.21

CRUISE

*Normal procedures
Econ cruise at 15,000 feet
Demonstration of:
Bank angle protection
Stall Protection
Stall and recovery
Auto throttle Wakeup
Unusual attitudes (Nose high/Nose low)
Recognition
Recovery

FCOM NP.21, FCTM
FCOM, FCTM
QRH, FCTM
QRH, FCTM

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DESCENT

Demonstration of:
 Over-speed Protection
 *Normal Procedures
 LNAV/VNAV Descent Profile
 Engage autopilot
 Demonstrate autopilot override
 (Pitch/roll)
 Engage autopilot

REFERENCE

FCOM, FCTM

 FCOM NP.21, FCTM
 FCOM 4

APPROACH and LANDING

ILS auto land approach RWY 27 R (F/D off), full stop landing	FCOM NP.21
Approach Selection	FCOM 11
Intercept course to	FCOM 11
NAV radios, visual and Aural ID	FCOM 11
ILS Auto Tune	FCOM 11
Flap extension/maneuver speeds	FCTM
Note pitch attitudes and power settings	
At all flaps position	
FMAs	
Standard Callouts	FCTM, SOP
Flare and touchdown	FCOM
Autopilot and auto throttle disconnect	FCOM
Autopilot override (landing rollout)	FCOM

TAKE OFF

Normal Procedures

REFERENCE

FCOM NP.21,FCTM

APPROACH and LANDING

Manual, F/D, ILS approach RWY 27 R

Touch & go landing

Intercept Course to

Landing flare

FCOM, FCTM

FCOM

APPROACH and LANDING

Visual Traffic Pattern RWY 27 R

Touch & go Landing

Pattern altitude/timing

Landing gear/Flaps extension

PAPI/VASI

Map Runway Display

Trend Vector

QRH, FCTM

APPROACH and LANDING

REFERENCE

*PRI FLIGHT COMPUTERS

QRH 9.22,

FCOM

Primary flight computers fail

Secondary/Direct Mode

FCOM

Reverse Procedures

PNF Callouts

FCTM

Visual traffic pattern RWY 27 R

Full Stop landing

QRH, FCTM

TAXI-IN and SHUTDOWN

Normal Procedures

FCOM

After landing

Shutdown

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18.1.1.2 FFS 2

DAY SUMMARY

This Day is a flight from London Heathrow (EGLL) to Manchester (EGCC) with a weather diversion required. Normal procedures and selected non-normal will be practiced. Emphasis will be on a loft exercise followed by visual approaches and landings.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of air conditioning pack failure, loss of cabin pressurization and hydraulic pump failure.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.

ROUTE OF FLIGHT

ORIGIN	London Heathrow (EGLL) RWY 27 R
ROUTE	BPK N601 POL
DEPARTURE	BROOKMAN PARK SEVEN FOXTROT (BPK 7F)
DESTINATION	Manchester (EGCC)
FLIGHT NUMBER	PIA777

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PERFORMANCE

GRWT	240,000 KGS	FLAPS	opt
FUEL	30,000 KGS	CG	23%
ZFW	210,000 KGS	WIND	230/5
RESERVES	5,600 KGS	SLOPE	0
CRZ ALT	FL 310	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000'

WEATHER

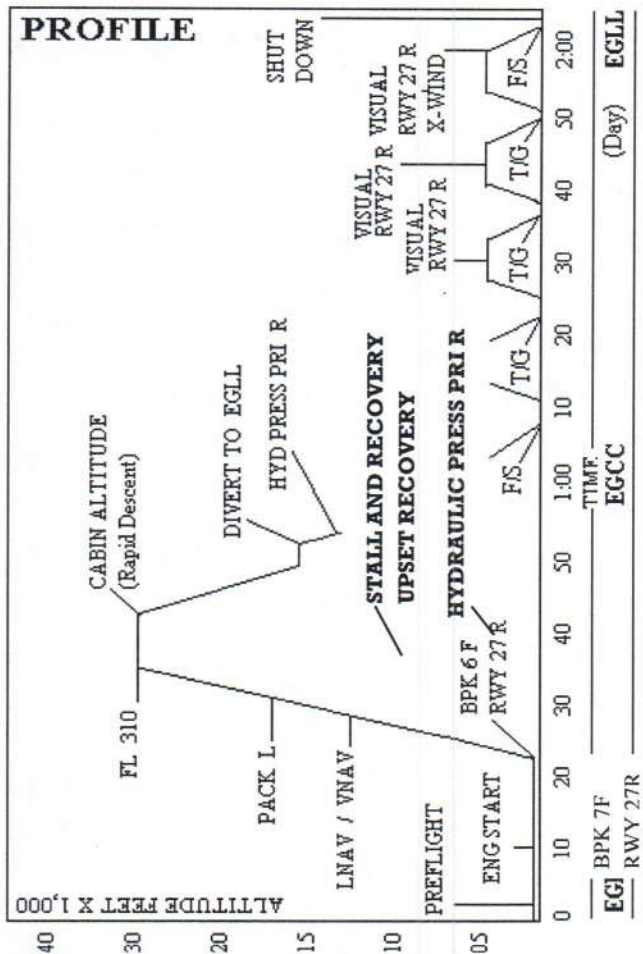
EGLL Wind 230/05 Visibility 6 km Ceiling 1000 Overcast Temperatures 10C Dew Point 09C Altimeter 1012 Mb ILS RWY 27 R.

EGCC Wind 230/5 Visibility 4000m Ceiling 800 Overcast Temperature 14C Dew Point 11C Altimeter 1011 Mb ILS RWY 23 R.

EGLL Wind 260/ 15 Visibility 2000m Ceiling 500 Overcast Temperature 10C Dew Point 09 Altimeter 1011 Mb ILS RWY 27 R.

CLEARANCE

Pakistan 777 is cleared to Manchester (EGCC) BROOKMANS PARK SEVEN FOXTROT (BPK 7F) departure. Departure frequency 118.82, Squawk 1777.



PREFLIGHT

Normal Procedures

REFERENCE

FCOM NP.21, FCTM

ENGINE START

Normal Procedures

FCOM NP.21

TAXI-OUT and TAKE OFF

Normal Procedures

FCOM NP.21, FCTM

CLIMB REFERENCE

LNAV and VNAV

FCOM NP.21, FCTM

PACK L

QRH 2.14

CRUISE

Normal Procedures

FCTM, FCOM NP 21

Econ Cruise at FL 310

CABIN ALTITUDE/rapid descent

FCOM, FCTM

EICAS message and flight check indications

Use of autopilot

Rapid descent to lowest safe altitude, or 10,000 feet

Level-off procedures

AIRWORK

Stall and recovery

QRH, FCTM

Upset recovery training

FCTM 7

DESCENT

LNAV/VNAV descent profile

FCOM 11

Descent Planning (FMC)

FCOM 11

Divert to EGLL

FMC New destination (Rte page)

FCOM 11

<p>HYD PRESS PR1 R</p> <p>APPROACH and LANDING</p> <p>Manual, F/D, ILS approach RWY 27 R</p> <p>Full stop landing</p> <p>FMC – Approach selection</p> <p>Intercept course to</p> <p>Nav Radios</p> <p>ILS auto tune</p> <p>Standard Callouts</p> <p>Flare and touchdown</p> <p>Reversing techniques</p> <p>TAKE OFF (ceiling 2000ft o/c)</p> <p>Normal Procedures</p> <p>APPROACH and LANDING</p> <p>Visual traffic pattern RWY 27 R</p> <p>Touch & go landing</p> <p>Pattern altitude/timing</p> <p>Landing gear/Flaps extension</p> <p>PAP1/VAS1</p> <p>Map runway Display</p> <p>Trend Vector</p> <p>APPROACH and LANDING</p> <p>Visual traffic pattern RWY 27 R</p> <p>Touch & go landing</p> <p>Normal Procedures</p> <p>APPROACH and LANDING</p> <p>Visual traffic pattern RWY 27 R</p> <p>Touch & go landing</p> <p>Normal Procedures</p>	<p>FCOM 13.3</p> <p>REFERENCE</p> <p>FCOM NP.21, FCTM</p> <p>FCOM 11,</p> <p>FCOM 11</p> <p>FCOM 11</p> <p>FCOM 11</p> <p>FCTM</p> <p>FCOM NP.21, FCTM</p> <p>FCOM NP.21</p> <p>FCTM</p> <p>FCOM NP.21</p> <p>FCTM</p> <p>FCOM NP.21</p> <p>FCTM</p>
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APPROACH and LANDING

Visual traffic pattern RWY 27 R
Crosswind, full stop landing
Normal Procedures
Crosswind

TAXI-IN and SHUTDOWN

Normal Procedures

REFERENCE

FCOM NP.21, FCTM

FCTM

FCOM NP.21

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18.1.1.3 FFS 3

DAY SUMMARY

This Day is a local flight at Manchester (EGCC). Normal procedures and selected non-normal will be practiced. Emphasis will be on rejected takeoff exercises, non-ILS approaches and the introduction of engine inoperative characteristics. Non-ILS instrument approaches will be accomplished using VNAV unless operators require the use of V/S. For operators using VNAV, at least one non-ILS instrument approach will be accomplished using V/S to demonstrate the capability in case VNAV is not available.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of rejected and crosswind takeoffs, engine-out procedures, and raw data ILS, VOR and circling approaches.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.
- Demonstrate required level of proficiency in preflight, taxi-out, normal takeoff, raw data ILS, normal landing, main gear steering, engine-out landing (TAC on), fire, engine fire, ILS approach with engine inoperative (TAC on), Missed approach with engine inoperative (TAC on), and engine inoperative Visual traffic pattern and manual landing (TAC on).

(* Denotes proficiency item.

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ROUTE OF FLIGHT

ORIGIN Manchester (EGCC)
 RWY 23 R
 Gate
 ROUTE SONEX DIRECT MCT VOR (Local Flying)
 DEPARTURE SONEX ONE ROMEO (SONE 1R)
 DESTINATION Manchester (EGCC)
 FLIGHT NUMBER PIA777

PERFORMANCE

GRWT	205,000 KGS	FLAPS	OPT
FUEL	20,000 KG	CG	23%
ZFW	185,000 KGS	WIND	140/10
RESERVES	5,500 KGS	SLOPE	0
CRZ ALT	5,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRD	THR REDUCTION	1000'

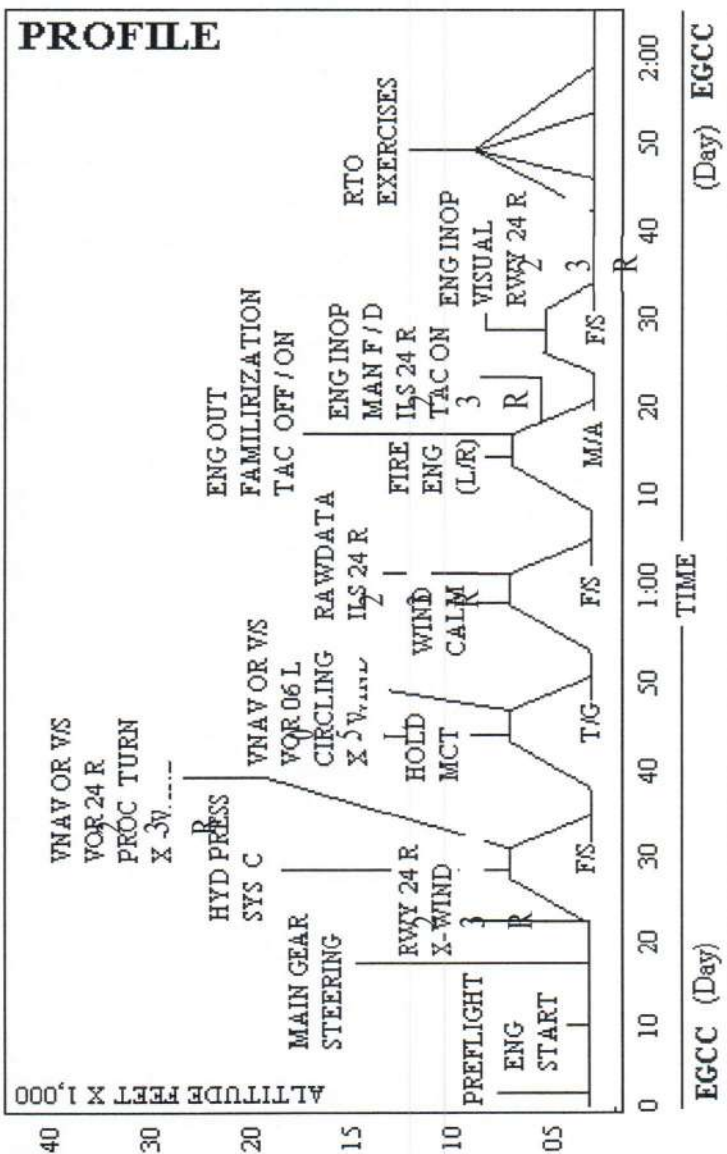
WEATHER

EGCC Wind 140/10 Visibility 2000m Rain Ceiling 500 Overcast Temperature
 15C Dew Point 14 C Altimeter 1015 Mb ILS RWY 23R.

CLEARANCE

Pakistan777 is cleared Manchester Airport (EGCC) SONEX ONE ROMEO
 departure. Climb and maintain 5000ft (Local Flying). Departure frequency
 136.57, Squawk 0600.

PROFILE



PREFLIGHT

Normal Procedures

REFERENCE

FCOM NP.21, FCTM

ENGINE START

*Normal Procedures

FCOM NP.21

Engine anti-ice use

FCOM, SP.3

TAXI-OUT

*Normal Procedures

FCOM NP.21, FCTM

*MAIN GEAR STEERING

QRH 14.9, FCOM

TAKE OFF

Normal procedures

FCOM NP.21

Crosswind consideration

Thrust reduction

FCOM, FCTM

Acceleration height

FCTM

Pattern airspeeds

FCTM

APPROACH and LANDING

HYD PRESS SYS C

QRH 13.4

Hydraulic System loss/leak

Review checklist effect of lost components

VOR approach RWY 23 R

FCOM NP.21, SP.4,

With procedure turn, full stop landing

FCTM

VNAV or V/S as per operator procedures

NON PRECISION APPROACH Procedure – VNAV FCOM SP.4,FCTM

Flight Pattern

FCOM

NP.21,FCTM

Use of autopilot recommended

NON PRECISION APPROACH Procedure – VNAV

REFERENCE

Fly off from FAF

No waypoint modifications

Flap configuration and speeds

FCM

Pacing

Use of speed intervention

LNAV and VNAV use

One of the following required for VNAV use;

Appropriate path with MAP at or before runway
threshold Glide path angle published on chart
and/or legs page

Published VNAV DA (H)

FMCS certified for instrument approach navigation
with radio or GPS

Updating. RNP vs. ANP-RNP manual entry (0.3 for GPS).

FMA annunciations

Discuss "on approach" logic

FCOM 11

Use of MDA(H) versus DA(H)

FCM 5

If DA (H) is not published, the DA (H) may be
Considered to the equivalent Of the currently
applicable published MDA (H) provided the
principal Operations inspector grants this
authorization.

If required to use MDA (H) for the approach

Minimum altitude, the barometric minimums selector

should be set at MDA+50 feet to ensure that, if an
missed approach is initiated, descent below the

MDA (H) does not occur during the missed approach.

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Set MDA (H) or DA (H) on MCP Raw data requirements Set missed approach altitude Autopilot disconnect Flight director procedures Visual flight path below DA (H) or MDA (H) Manual landing	REFERENCE FCTM 5 FCOM SP.4, FCTM 5 FCOM NP 21
NON-Precision Approach Procedures-V/S (For information only)	FCOM SP.4, FCTM
Flight Pattern	FCOM NP.21, FCTM
Use of autopilot recommended Fly off from FAF No waypoint modification	
Flap configuration and speeds Pacing LNAV use	FCTM
FMCS certified for instrument approach navigation with radio or GPS Updating. RNP vs. ANP-RNP manual entry (0.3 for GPS)	
FMA annunciation	
Discuss "on approach" logic 5	FCOM 11.31, FCTM
Set MDA (H) on MCP The barometric minimums selector should be set at MDA+50 feet To ensue that, if a missed approach is initiated, descent below the MDA (H) does not occur during the missed approach	
Raw data requirements Path Guidance Techniques	FCTM FCOM SP.4, FCTM

Monitor the VNAV path deviation indication
Use the altitude range is at step down fix or VDP
300 feet per NM altitude
Set missed approach altitude
Autopilot disconnect
Flight director procedures
Visual flight path below MDA (H)
Manual landing

REFERENCE

FCTM

TAKE OFF

Normal Procedures
Climb to pattern altitude

FCOM NP.21, FCTM

APPROACH and LANDING

Holding MCT
Holding entry
Next hold
Holding speed
Exiting methods
VOR approach RWY 23 R
Circle to land 05 L
VNAV or V/S per operator procedures

FCOM 11.43, FCTM

FCOM 11.43, FCTM

Non-Precision Circle Approach

Procedures-VNAV

Flight Pattern
Use of autopilot recommended
Fly off from FAF
No waypoint modifications
Flap configuration and speed
Use of speed intervention
LNAV and VNAV use

FCOM SP.4, FCTM

FCOM NP 21, FCTM

FCTM

One of the following required for VNAV use:
Appropriate path with MAP at or before
runway threshold glide path angle published
on chart and/or legs page
Published VNAV DA (H)
FMCS certified for instrument approach navigation with
radio or GPS updating RNP vs. ANP-RNP manual
entry (0.3 for GPS).

REFERENCE

Non-Precision Circle Approach

Discuss "on approach" logic
Set MDA (H) on MCP

FCOM 11

For a circling approach, set barometric minimum
selector to MDA (H) then set the MCP altitude to
the next 10 foot increment above the MDA (H) and
circle at MCP altitude.

Raw data requirement

FCTM

Circling approach maneuvering

FCTM

Maintain visual contact during circle

Airspeed during maneuvering normally requires

CAT D (FAA) – 141 to 165 Knots

CAT C (ICAO) – 136 to 180 knots

Set missed approach altitude

FCOM SP.4, FCTM

Autopilot disconnect

Flight director procedures

Visual flight path below MDA (H)

* Touch & go landing

FCOM NP.21, FCTM

Non-Precision Circle Approach

Procedures-V/S (for information only)

QRH, FCTM

Flight Pattern

QRH, FCTM

Use of autopilot recommended

Fly off from FAF

REFERENCE

No waypoint modification`

Flap configuration and speed

FCTM

Pacing

LNAV use

FMCS certified for instrument approach navigation
with radio or GPS updating. RNP vs. ANP-RNP manual
entry (0.3 for GPS).

FMA annunciations

Discuss "on approach" logic

FCOM 11, FCTM 5

Set MDA (H) on MCP

Non-Precision Circle Approach

For a circling approach, set barometric minimums
selector to MDA (H) then set the MCP altitude to
the next 100 foot increment above the MDA (H)
and circle at MCP altitude.

Raw data requirements

FCTM

Path Guidance Techniques

FCTM

Monitor the VNAV path deviation indication

Use the altitude range is at step-down fix or

VDP 300 feet per NM altitude.

Circle approach maneuvering

FCTM

Maintain visual contact during circle

Airspeed during maneuvering normally requires

CAT D (FAA) – 141 to 165 knots

CAT C (ICAO) – 136 to 180 knots

Set missed approach altitude

FCTM

Autopilot disconnect

Flight director procedures

Visual flight path below MDA (H)

*Touch and go landing

REFERENCE

FCOM NP.21, FCTM

APPROACH and LANDING

RAW DATA, ILS approach RWY 23 R

Normal Procedures

* Manual Landing

FCOM NP.21,

FCOM NP.21, FCTM

TAKE OFF

* Normal takes off

Climb to pattern altitude

FIRE ENGINE L, R

FCOM NP.30, FCTM

QRH 8.2

APPROACH and LANDING

Engine out familiarization

TAC off, TAC on

*Manual, F/D, ILS approach RWY 23 R

*Missed approach

Engine inoperative

TAC on

FCTM

FCOM NP.20, .30,

APPROACH and LANDING

* Visual traffic pattern RWY 23 R

Full stop landing

*Manual landing

Engine inoperative

TAC on

Reversing techniques

Braking considerations

FCOM

FCTM

RTO EXERCISES

- RTO exercises
- Review RTO procedures/consideration
- Brake cooling
- Review conditions and data for each exercise
- CRM Consideration
- Situational Awareness
- Crosscheck available information
- Awareness of available decision time
- Distractions possible due to malfunctions

REFERENCE

- FCTM
- QRH
- PERFORMANCE IN FLT
- FCTM

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18.1.1.4 FFS 4

DAY SUMMARY

This Day is a local flight at Manchester (EGCC). Normal procedures and selected non-normal will be practiced. Emphasis is on crosswind take offs and landing and non-precision approaches. VNAV or V/S will be used on non-ILS approaches per operator procedures.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of engine fire on take off and localizer approaches.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.

ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC) RWY 23 R Gate -----
ROUTE	SONEX DIRECT MCT VOR (Local Flying)
DEPARTURE	SONEX ONE ROMEO (SONE 1R)
DESTINATION	Manchester (EGCC)
FLIGHT NUMBER	PIA777

PERFORMANCE

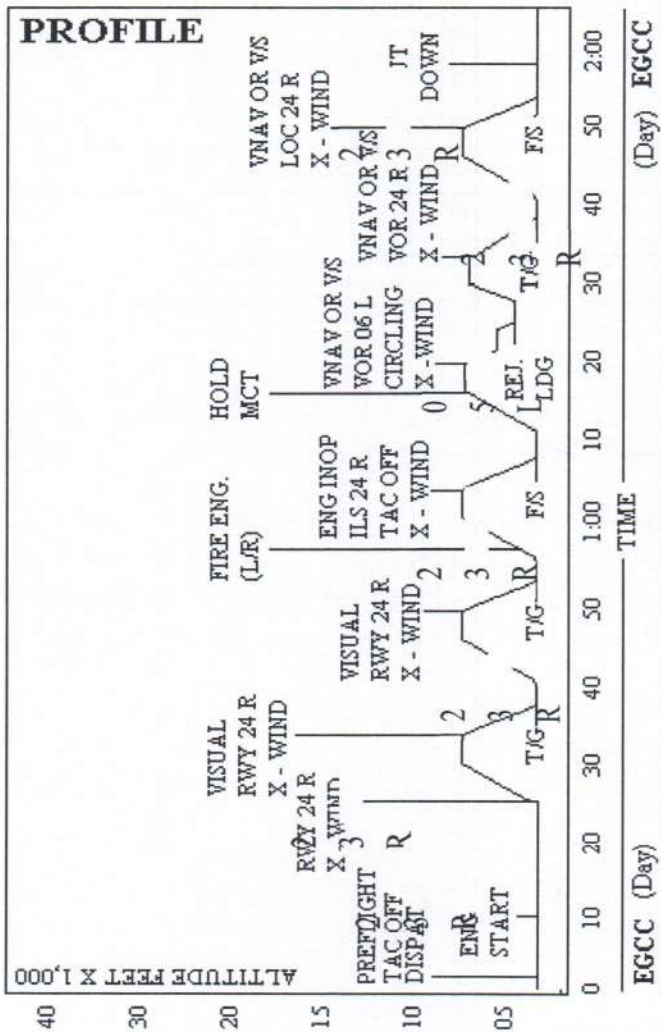
GRWT	210,000 KGS	FLAPS	OPT
FUEL	20,000 KGS	CG	23%
ZFW	190,000 KGS	WIND	310/15
RESERVES	5,300 KGS	SLOPE	0
CRZ ALT	3,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000'

WEATHER

EGCC Wind 310/15 Visibility 2000m Rain Ceiling 500 Overcast Temp 15C
Dew Point 14 C Altimeter 1015 mb ILS RWY 23 R.

CLEARANCE

Pakistan777 is cleared to Manchester Airport (EGCC) SONEX ONE ROMEO
(SONE 1R) Departure . Departure frequency 136.57, Squawk 1423.





PREFLIGHT

Normal Procedures
Dispatch with thrust asymmetry
compensator (TAC) inoperative

ENGINE START

Normal Procedures

TAXI-OUT

Normal Procedures

TAKE OFF

Normal Procedures
Crosswind

APPROACH and LANDING

Visual traffic pattern RWY 23 R
Touch and go landing
Crosswind

APPROACH and LANDING

Visual traffic pattern RWY 23 R
Touch and go landing
Crosswind

APPROACH and LANDING

FIRE ENGINE (L/R) during climb
ILS approach RWY 23 R, full stop landing
Engine inoperative

REFERENCE

FCOM NP.21, FCTM

FCOM NP.21

FCOM NP.21, FCTM

FCOM NP.21
FCTM

FCOM NP.20, .30,
FCTM

FCOM NP.21,
FCTM

FCOM
FCOM NP.21, FCTM



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Crosswind

FCTM

TAC off

TAKE OFF

REFERENCE

Normal procedures

FCOM NP.21, FCTM

APPROACH and LANDING

Hold MCT

VOR approach RWY 23 R circle to land

FCOM NP.21.

RWY 05 L rejected landing

FCTM

VNAV or V/S per operator procedures

Crosswind landing

Rejected landing procedures

FCTM

APPROACH and LANDING

VOR approach RWY 23 R

FCOM NP.21,

Touch and go landing

FCTM

VNAV or V/S

Crosswind landing

APPROACH and LANDING

LOC approach RWY 23 R

FCOM NP.21,

Full stop landing

FCTM

VNAV or V/S per operator procedures

Crosswind landing

TAXI-IN and SHUTDOWN

Normal Procedures

FCOM NP.21

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18.1.1.5 FFS 5

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to Karachi International Airport (OPKC) with an in-flight diversion required. Normal procedures and selected non-normal will be practiced. This flight emphasizes in-flight diversion considerations and procedures. Engine failure after VI characteristics and procedures will be introduced.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of TCAS, dual engine failure/stall, fuel jettison, and engine failure on takeoff after V 1.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.
- Demonstrate required level of proficiency in climb, engine EEC mode, dual engine failure/stall, engine in-flight start, fuel jettison, takeoff with engine failure after V 1 (TAC on), climb with engine inoperative (TAC on), APU fire and passenger evacuation.

(*) Denotes proficiency item.

ROUTE OF FLIGHT

ORIGIN Manchester (EGCC)
RWY 23 R
Gate -----

ROUTE SONEX UL975 DESIG L603 DOLAS DIRECT ZDN
G208 PG DOSTI

DEPARTURE SONEX ONE ROMEO (SONE 1R)

DESTINATION Karachi International Airport (OPKC)

ALTERNATE OPNH ,ENROUTE ALT, EGLL, EDDF etc.

FLIGHT NUMBER PIA777

PERFORMANCE

GRWT	280,000 KGS	FLAPS	OPT
FUEL	60,000 KGS	CG	26%
ZFW	220,000 KGS	WIND	140/15
RESERVES	6,500 KGS	SLOPE	0
CRZ ALT	FL 310	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000

WEATHER

EGCC Wind 140/15 Visibility 550m Ceiling 2500 Broken 15000 Overcast
Temperature 20C Dew Point 19 C Altimeter 1019Mb.

OPKC Wind 050/10 Visibility 10 km Scattered 5000'. Temperature 31°C
/ Dew Point 21° C Altimeter 1011 Mb.

EGLL Wind 270/10 Visibility 10 km Ceiling 1000 Broken, 2500 Overcast
Temperature 14°C Dew Point 10°C Altimeter 1016Mb.

CLEARANCE

Pakistan777 is cleared to OPKC, SONEX ONE ROMEO
(SONE 1R). Departure. Departure frequency 136.57, squawk 4234.



PREFLIGHT

Normal Procedures

ENGINE START

Normal Procedures

TAXI-OUT and TAKE OFF

Normal Procedures

Crosswind takes off

Heavy Weight take off

Practice Take off abort with engine failure

BRAKE COOLING SCHEDULE

CLIMB

*Normal Procedures

ATC Quick Level off

Manual control versus MCP

TCAS event

*ENG EEC MODE L

FCOM

*DUAL ENG FAIL/STALL

Flight Deck indications

Drift down, if required

DESCENT

One engine restarts during

Dual Engine Fail/ Stall checklist

*ENG IN-FLIGHT START L, R

Second engine restarts

FMC status after in-flight start

FMC (diversion) CRM considerations

Workload management

Sequence tasks

Avoid work overload and do not be hurried.

REFERENCE

FCOM NP.21, FCTM

FCOM NP.21

FCOM NP.21, FCTM

FCTM

QRH-

FCOM NP.21, FCTM

FCTM

QRH 7.12,

QRH 7.2, FCTM 8.7

FCOM, FCTM

QRH

QRH 7.22, FCTM 8.8

DESCENT

Diversion

*FUEL JETTISON

Level at 10,000 feet

APPROACH and LANDING

ILS approach RWY 27 R

Full stop landing

Crosswind landing

ENGINE FAILURE PRACTICE

Engine failure practice (wind calm)

*Take off with engine failure after VI (TAC on)

*Climb with engine failure (TAC on)

Take off with **Eng Svr Damage/Sep L, R**
after VI (TAC off)

Climb with engine failure (TAC off)

TAKE OFF

Engine Lim/Surge/ Stall after VI (TAC off)

Engine failure indications

Rudder required for directional control

Rotation rate and target pitch attitude

Flight director usage

Slip/skid indicator

APPROACH and LANDING

Engine inoperative, manual F/D,
missed approach (TAC off)

Trim requirements

Engine inoperative missed approach

Rudder requirement

LNAV

VNAV/FLCH

REFERENCE

FCOM

QRH 12.16

FCTM 8.19

FCOM NP.21,

FCTM

FCOM NP.21, FCTM

QRH 7.8

QRH, FCTM

FCOM

QRH 7, FCTM

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APPROACH and LANDING

Engine inoperative, visual traffic pattern,
 RWY 27 R full stop landing (TAC off)
 Rudder trim
 Traffic pattern
 Zero trim
 Reverser technique

REFERENCE

FCTM

TAXI-IN REFERENCE

*FIRE APU
 *PASSENGER EVACUATION
 Passenger evacuation, procedure
 Emergency exits – selection and use
 CRM considerations
 Communications – acquire information on airplane status
 First Officer
 Tower
 Cabin staff
 Resolve conflicting information
 Advocate course of action and communicate to all involved.

QRH 8.1

QRH BACK COVER

FCTM

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DAY SUMMARY

This Day is local flight at Manchester airport (EGCC) beginning with night conditions and terminating during day light (Wind shear Training). The crew performs a limited preflight while the instructor starts the engines and configures the overhead panel. Normal procedures and selected non-normal will be practiced. Emphasis will be on hydraulic failures, flight control failures, and wind shear. VNAV users will practice V/S non-ILS approach procedures.

The manual F/D VOR procedure turn approach is annotated as a Proficiency Check Requirement (*). If not performed satisfactorily, it will be included in the Day 9 Evaluation flight profile.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of hydraulic failure of two systems. Flaps/slats control failure, and wind shear exercise.
- Apply crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.
- Demonstrate required level of proficiency in take off with crosswind take off with slippery runway, night take off, take off with wind shear, climb with wind shear, wind shear on approach, manual F/D VOR approach, engine imperative traffic pattern and landing, hydraulic failure (R+C) system, and flaps/slats control failure.

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(*) Denotes proficiency item.

ROUTE OF FLIGHT

ORIGIN Manchester (EGCC)
 RWY 23R
 Gate -----

ROUTE SONEX DIRECT TO MCT VOR (Local Flying)
 SONEX ONE ROMEO (SONE 1R)

DEPARTURE Manchester (EGCC)

DESTINATION PIA777

FLIGHT NUMBER

PERFORMANCE

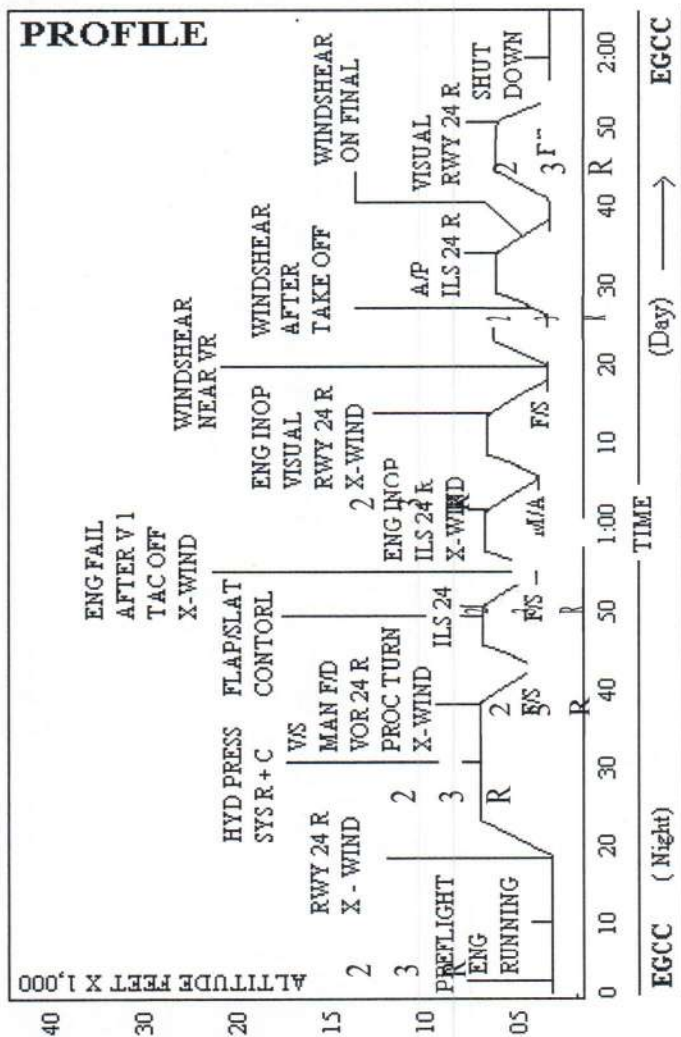
GRWT	210,000 KGS	FLAPS	OPT/20
FUEL	20,000 KGS	CG	24%
ZFW	190,000 KGS	WIND	150/10
RESERVES	6,100 KGS	SLOPE	0
CRZ ALT	4,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000

WEATHER

EGCC Wind 150/10 Visibility 3000 m Light Snow Ceiling 600 Overcast
 Temperature 01C Dew Point 01C Altimeter 1012 mb ILS RWY 23 R.
 Braking action on taxiways and runways POOR / slush on taxiways.

CLEARANCE

Pakistan777 is cleared to Manchester Airport (EGCC) SONEX ONE ROMEO
 (SONE 1R) Departure. SONEX Direct MCT VOR. . Departure frequency
 136.57, squawk 1777.





PREFLIGHT

Normal Procedures
Program FMC, set trim, airspeeds
and MCP panel
Accomplish checklist
Set lighting
Instructor will configure overhead panel
and start engines
De-icing requirements

REFERENCE

FCOM NP.21, FCTM

FCOM

FCOM SP.3, FCTM

ENGINE START

Engine running
Engine anti-ice

FCOM, SP.3

TAXI-OUT

Normal Procedures
Taxi in adverse weather
Engine anti-ice/run-up

FCTM
FCOM SP.3

TAKE OFF

* Crosswind take off
* Take off on slippery runway
* Night take off
Adverse runway conditions take off

FCTM
FCOM SP 16.1

APPROACH and LANDING

* HYD PRESS SYS R+C
Loss of Right and Center Hydraulic Systems
Review FCOM for affected components

QRH 13.18, FCOM



APPROACH and LANDING

Slats hydraulic operations

Flaps hydraulic operations

Main landing gear hydraulic operation

Auto speed brake

Main gear steering

Auto brake

Normal and Alternate brakes

Right thrust reverser

Additional time required for flap/slat extension

Reduced flight control capability

Flaps 20 and VREF 30+20

(ensures go around performance)

Crosswind limit 20 knots

* Manual, F/D, VOR approach RWY 23 R

Procedure turn, full stop landing

Non precision Approach Procedures - V/S

Flight pattern

Use of autopilot recommended

Fly off from FAF

No waypoint modifications

Flap configuration and speeds

Pacing

LNAV use

FMC certified for instrument approach

navigation with radio or GPS Updating.

RNP Vs ANP-RNP manual entry (0.3 for GPS).

FMA annunciations

Discuss "on approach" logic

Set MDA(H) on MCP

REFERENCE

FCTM

FCOM SP.4, FCTM

FCOM NP.21, FCTM

FCTM

FCOM 11

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APPROACH and LANDING

The barometric minimums selector should be set at MDA+50 feet to ensure that, if a missed approach is initiated, descent below the MDA(H) does not occur during the missed approach.

Raw data requirement

Path Guidance Techniques

Monitor the VNAV path deviation indication

Use the altitude range arc at step-down fix or VDP 300 feet per NM altitudes

Set missed approach altitude

Autopilot disconnect

Flight director procedures

Visual flight path below MDA (H)

Set minimums to LOC (G/S OUT)

Manual landing, flaps 20

CRM considerations

Promote group climate

Promote crew participation and interaction

Involve cabin staff

Problem solving process

TAKE OFF

Normal takes off

Retract flaps, climb to 4,000 feet

APPROACH and LANDING

*FLAP/SLAT CONTROL

Use of alternate Flap operation

flap 20 landing, VREF 20

Radar vector ILS approach RWY 23 R

Full stop landing

REFERENCE

FCTM

FCOM SP.4, FCTM

FCTM

QRH 9.8, FCOM

FCTM

TAKE OFF

Take off, engine failure after VI
ENG FAIL L/R – after VI
TAC off – Directional control
Crosswind conditions

APPROACH and LANDING

Engine inop, radar vector, ILS approach
RWY 23 R missed approach
Crosswind conditions

APPROACH and LANDING

*Engine inop. Visual traffic pattern RWY 23 R
full stop landing
Crosswind conditions

WINDSHEAR TRAINING

Wind shear encounter on the runway and
after liftoff
Avoidance, precaution and recovery.
Wind shear recovery procedure
Wind shear indication
Use of pitch attitude and thrust
To control flight path versus airspeed
Do not change configuration
Respecting stick shaker
Go-around considerations
Use of the autopilot/flight director
Crew coordination
Report wind shear activity to ATC
*Take off wind shear near VR (practice)

REFERENCE

FCOM NNM.2, FCTM
FCOM, QRH

FCTM

FCTM

FCTM

FCTM

FCTM

FCOM, FCTM, QRH

FCOM, FCTM, QRH

FCOM

TAKE OFF

- *Take off, wind shear after liftoff
(Continue take off)

REFERENCE

QRH, FCTM

APPROACH and LANDING

- * Autopilot, ILS approach RWY 23 R
- Wind shear on final, missed approach
- * Missed approach
- Wind shear escape maneuver, automatic
- Monitor system performance.

REFERENCE

FCTM

QRH, FCTM

APPROACH and LANDING

- Visual traffic pattern RWY 23 R
- Normal manual landing, full stop

FCOM NP.21,

FCTM

TAXI-IN and SHUTDOWN

Normal Procedures.

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18.1.1.7 FFS 7

DAY SUMMARY

This Day is a flight from London Heathrow (EGLL) to Manchester (EGCC) with a diversion required. The crew performs a limited preflight while the instructor starts the engines and configures the overhead panel. Normal procedures and selected non-normal will be practiced. Emphasis will be on a LOFT exercise followed by a diversion. Pilot incapacitation after missed approach at EGCC, A RECOGNITION IS REQUIRED BY REMAINING PILOT. DETAIL IS MENTION IN FCTM 1.39

Practice of Heavy weight TAKEOFF with engine fail at V1 and heavy WT both engine operative landing will be practiced later in the session. A TOGW of 260000kgs will be used. (Page 139 of this chapter)

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of electrical malfunction, Forced landing, cargo fire, and engine low oil pressure, PILOT INCAPACITATION. Heavy wt takeoff and landing.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.

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ROUTE OF FLIGHT

ORIGIN London Heathrow (EGLL)
 RWY 27 R
 Gate -----
ROUTE BPK UN601 POL
DEPARTURE BROOKMANSPARK SEVEN FOXTROT
 (BPK 7F)
DESTINATION Manchester (EGCC)
ALTERNATE Birmingham (EGBB)
FLIGHT NUMBER PIA777

PERFORMANCE

GRWT	240,000 KGS	FLAPS	OPT
FUEL	30,000 KGS	CG	24%
ZFW	210,000 KGS	WIND	180°/ 15
RESERVES	6,100 KGS	SLOPE	0
CRZ ALT	16,000'	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRED	THR REDUCTION	1,000

WEATHER

EGLL Wind 180/15 Visibility 3 km Ceiling 800 Broken 15,000 Overcast
 Temperature 10 C Dew Point 08 Altimeter 1015 Mb ILS RWY 27 R.

EGCC Wind calm Visibility 1 km Ceiling 300 Overcast Temperature 10 C
 Dew Point 09C Altimeter 1013 Mb.

EGBB Wind 330/10 Visibility 5 km. Scattered 10,000. Temperature 10
 C. Dew point 02. Altimeter 1010 Mb ILS RWY 33.

CLEARANCE Pakistan 777 is cleared to Manchester Airport (EGCC)
 BROOKMANSPARK SEVEN FOXTROT (BPK 7F) departure, squawk 4737.
 Departure frequency 118.82.

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PREFLIGHT

Normal Procedures

Program FMC, set trim, airspeeds,
 and MCP Panel
 Intercept course from
 Accomplish checklists
 Dispatch with thrust asymmetry
 Compensator (TAC) inoperative
 Instructor will configure overhead panel and
 start engines

FCOM NP.21, FCTM
 FCOM

ENGINE START

Engines running

FCOM NP.21

TAXI-OUT and TAKE OFF

Rejected take off procedure
 Normal procedures
 RWY 27R
 Crosswind take off
 LNAV at 400'

QRH/FCTM
 FCOM NP.21, .30,FCTM

CLIMB

VNAV
 Low altitude level-off
 Ground Prox Warning
 ELEC GEN OFF L

FCOM NP.21, FCTM
 FCTM
 QRH, FCOM, FCTM
 QRH 6.5, FCOM

CRUISE

Normal Procedures
 Dual Eng Fail/Stall
 Forced landing

FCOM NP. 21/FCTM
 QRH 7.2



TAKE OFF

Normal procedure

REFERENCE

FCOM NP21

CRUISE

FIRE CARGO AFT

QRH 8.12

DESCENT

Normal Procedures

FCOM NP.21, FCTM

APPROACH and LANDING

ILS approach RWY 05L

FCOM NP.21, FCTM

TAC off

After localize and/or glideslope capture

Change to ILS RWY 05R

MCP Procedures

FCOM

The approach mode can be disengaged:

After localizer and/or glide slope are captured,
by pushing the approach switch a second time
above 1,500 feet radio altitude (AFDS reverts to
HDG HLD and V/S)

After localizer and/or glide slope are capture, by
engaging the TO/GA mode or disengaging the
autopilot and turning both flight director switches off:

FMC procedures

Reselect new approach ILS RWY 05R

ILS approach RWY 05R missed approach

PILOT INCAPACITATION

FCTM 1.39

ENG OIL PRESS L, R

QRH 7.30

Divert to EGBB

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APPROACH and LANDING

Engine inop,
 ILS approach RWY 33
 Missed approach
 TAC off
 Crosswind

FCOM NP.21/FCTM
 FCTM

APPROACH and LANDING

Engine inop, visual traffic pattern
 RWY 33 full stop landing
 TAC off
 Crosswind landing

FCOM NP.21/QRH
 FCTM

TAXI-IN and SHUTDOWN

Normal Procedures

FCOM NP.21

HEAVY WT TRAINING REQUIREMENT ,TOGW 260,000 KGS

1. TAKE OFF

Engine fails after V1 TAC OFF
 Rudder required for directional control
 Rotation rate and target pitch altitude

FCTM ,FCOM NP 30,

FD usage

ENG IN FLIGHT START.

QRH 7.22, FCOM

2. APPROACH and LANDING

Heavy WT Both Engine operative
 ILS approach
 Missed approach from DH

FCOM NP 20, 30
 FCTM 6.14, QRH 0.4

3. VISUAL and TRAFFIC PATTERN

Normal manual landings

FCOM

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18.1.1.8 FFS 8 Pre-Rating

DAY SUMMARY

This Day is a flight from Manchester (EGCC) to London Heathrow (EGLL). The crew performs a complete preflight. Normal procedures and selected non-normal will be practiced. This flight is a review and proficiency enhancement flight in preparation for the Check Ride (Line Oriented Evaluation). VNAV or V/S will be used on non-ILS approaches per operator procedures.

Thrust limit and flap setting has to be calculated through TOGW analysis chart and inserted in FMS for optimum performance. The method is given in the SOP.

DAY OBJECTIVES

- Integrate selected normal and non-normal procedures.
- Initiate practice of electrical AC bus failure and wheel well fire.
- Apply Crew Resource Management attributes while practicing selected normal and non-normal procedures.
- Improve skill level of previous training objectives.
- *Demonstrate required level of proficiency in rejected takeoff, takeoff with crosswind and low ceiling and visibility, electric AC bus failure, smoke/fumes removal, wheel well fire, TCAS resolution advisory, loss of cabin altitude, rapid descent, unusual attitudes, holding, VOR approach, circling approach, rejected landing, ILS automatic landing, takeoff with engine failure after V 1 (TAC off), engine inoperative climb (TAC off), manual flight director engine inoperative ILS approach (TAC off), and engine inoperative missed approach (TAC off).

(* Denotes proficiency item.



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ROUTE OF FLIGHT

ORIGIN Manchester (EGCC)
RWY 23 R
Gate -----

ROUTE SONEX UL975 DESIG L603 DOLAS
DIRECT LAM

DEPARTURE SONEX ONE ROMEO (SONE 1R)
DESTINATION London Heathrow (EGLL)

ALTERNATE Manchester (EGCC)

FLIGHT NUMBER PIA777

PERFORMANCE

GRWT	210,000 KGS	FLAPS	Opt,15
FUEL	20,000 KGS	CG	23%
ZFW	190,000 KGS	WIND	320/15
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 290	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	AS REQUIRD	THR REDUCTION	1,000

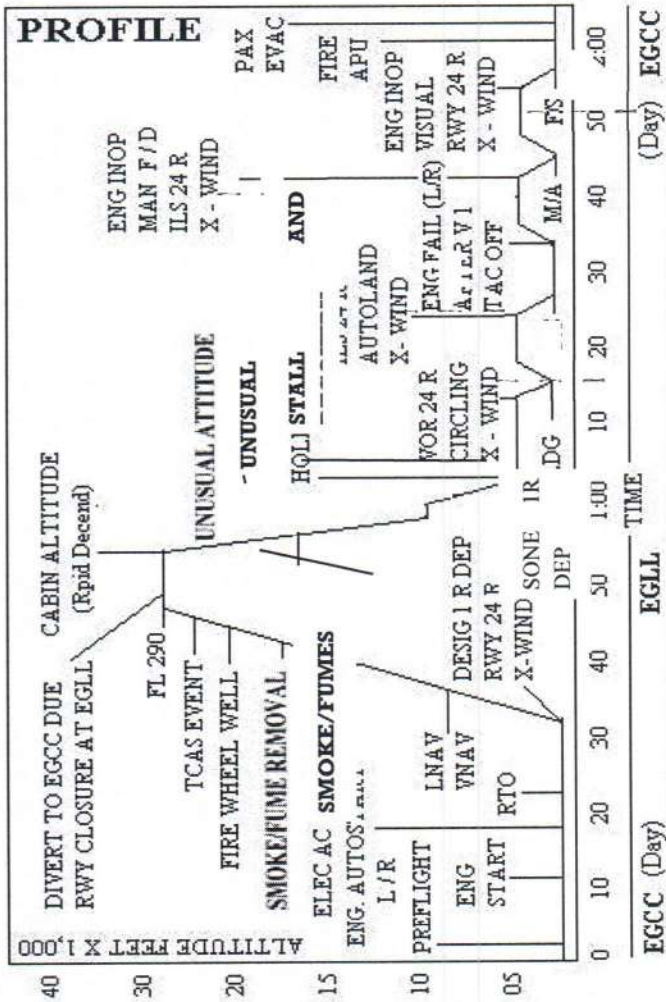
WEATHER

EGCC Wind 320/15 Visibility 3000m Ceiling 1200 Overcast Temperature 09C
Dew Point 07 C Altimeter 1010 Mb ILS RWY 23 R.

EGLL Wind 270/10 Visibility 4 km Ceiling 800 Overcast Temperatures
10 C Dew Point 07 C Altimeter 1011 Mb VOR RWY 27 R.

CLEARANCE

Pakistan 777 is cleared to London Heathrow Airport (EGLL). SONEX ONE ROMEO (SONE 1R) departure. Departure frequency 136.575, squawk 4737.



PRE-FLIGHT

Normal Procedures
Departure/take off alternate

REFERENCE

FCOM NP.21, FCTM

ENGINE START

Normal procedures
ENG AUTOSTART L, R
Engine anti-ice

FCOM NP.21
QRH 7.3, FCOM
FCOM, SP3

TAXI-OUT and TAKE OFF

Normal Procedures
Engine anti-ice
Crosswind
*Rejected Take off procedures
*Take off with low visibility and ceiling

FCOM NP.21, FCTM
FCOM SP.3, FCTM

FCTM

CLIMB

Normal Procedures
LNAV/VNAV
*ELEC AC BUS L, R
*SMOKE/FUMES REMOVAL
*FIRE WHEEL WELL
TCAS event
FCTM

FCOM NP.21, FCTM

QRH 6.1
QRH 8.24
QRH 8.17
FCOM, QRH MAN 1.6,

CRUISE REFERENCE

Normal procedures
Divert to Manchester due London
RWY closure
* CABIN ALTITUDE/ rapid descent
EICAS message and flight deck indications
Use of autopilot

FCOM NP.21, FCTM

QRH 2.1, FCTM

Rapid descent to lowest safe altitude, or 10,000 feet

REFERENCE

Level-off procedures
CRM Considerations – Captains authority
Emergency authority
Minimize risk
Control airplane, crew, and passengers.

DESCENT

* Unusual Attitude (nose high/nose low)
Level off FL100
Stall and recovery

QRH, FCTM

FCTM, QRH

APPROACH and LANDING

* Hold MCT
* VOR approach RWY 23 R circle to land
RWY 05 L rejected landing
Crosswind landing
* Rejected landing procedure

FCOM, FCTM

FCTM

FCTM

APPROACH and LANDING

ILS approach RWY 23 R
* Auto land
Crosswind landing

FCOM NP.21

FCTM

TAKE OFF

Take off, engine failure after VI
* ENG FAIL L, R
Crosswind
TAC off

FCOM, FCTM

QRH 7.14,

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* Climb engine inoperative

FCTM

APPROACH & LANDING

REFERENCE

* Manual F/D, ILS approach

FCOM NP.21

RWY 23 R

FCTM

Engine Inop

Crosswind

TAC off

* Missed approach

APPROACH and LANDING

Visual traffic pattern RWY 23 R

FCOM NP.21

Full stop landing

FCTM

Engine inop

Crosswind landing

TAC off

Engine inoperative landing

TAXI-IN and SHUTDOWN

Normal Procedures

FCOM NP.21

*FIRE APU

QRH 8.1, FCOM

*PASSENGER EVACUATION

QRH back cover

Passenger evacuation, procedure

FCTM 8.12

Emergency exits – selection and use

CRM considerations

Communications – acquire information on airplane status

First Officer

Tower

Cabin staff

Resolve conflicting information

Advocate course of action and communicate to all involved.

18.1.1.9 FFS 9 Evaluation

EVALUATION SUMMARY

The simulator evaluation flight profile includes those procedures and maneuvers that can be evaluated in a motion visual simulator. The sequence may be changed and other non-normal procedures selected at the discretion of the check pilot.

The instructor will provide appropriate instructions, weather information and air traffic clearances and, insofar as possible, conduct the flight on a real time basis. VNAV or V/S will be used on non-ILS approaches per operator procedures. Simulator system faults will be removed after each full stop landing.

The crew will be expected to respond to instructions and situations as they would on a line flight and to use flight deck resources available (autopilot, auto throttle, etc.) unless specifically restricted by the instructor. Command qualities and crew coordination are a part of the evaluation.

ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC) RWY 23 R Gate -----
ROUTE	<i>EGCC SANBIR SANBA PEDIG M605 DTYDCT WCO EGLL</i>
DEPARTURE	<i>POLSR</i>
DESTINATION	London Heathrow (EGLL)
ALTERNATE	Manchester (EGCC)
FLIGHT NUMBER	PIA777

PERFORMANCE

GRWT	220,000 KGS	FLAPS	opt
FUEL	20,000 KGS	CG	24%
ZFW	200,000 KGS	WIND	220/15
RESERVES	5,400 KGS	SLOPE	0
CRZ ALT	FL 290	EO ACCEL HT	1,000'
COST INDEX	180	ACCEL HT	3,000'
THRUST LIM	As required	THR REDUCTION	1,000'

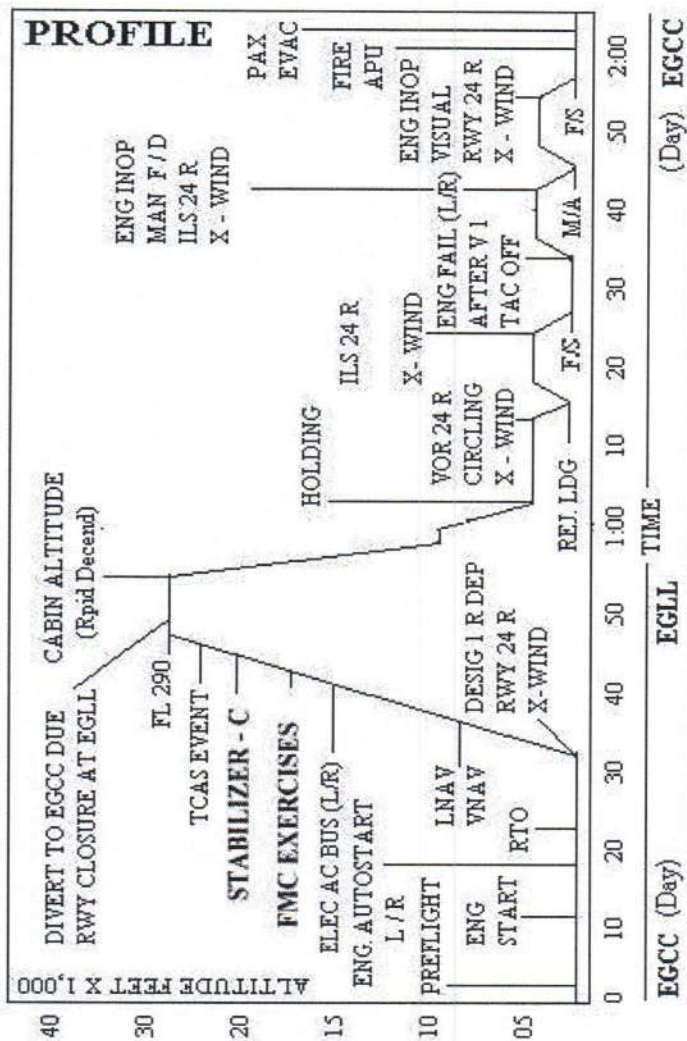
WEATHER

EGCC Wind 220/15 Visibility 3 km Ceiling 1200 Overcast Temperature 09C
Dew Point 07 C Altimeter 1010 Mb ILS RWY 23 R.

EGLL Wind 270/10 Visibility 4 km Ceiling 800 Overcast Temperature
10 C Dew Point 07 C Altimeter 1011 Mb VOR RWY 27 R.

CLEARANCE

Pakistan 777 is cleared to London Heathrow Airport (EGLL). SONEX ONE
ROME0 (SONE 1R). Departure control 136.57, squawk 4737.



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18.1.1.10 FFS 10 Landing/recognition of Unstable Approaches & Recovery Training

LANDING TRAINING

OBJECTIVES

The purpose of the landing training is to fulfill Type Rating and Endorsement Requirements and to prepare the trainee for Line Training and to become proficient in the Landing Technique.

Varying wind conditions

Takeoff / landing in wind shear

Landing from "Steep" or "Shallow" Approaches

Recovery from Rejected Landing

Landing with one engine

X-wind Landing technique

Avoiding tail strikes

GENERAL


An *SFI/SFE* will conduct the landing training. One hour briefing will precede landing training session

The emphasis will be on crew coordination throughout with minimum of distractions for flight profiles enabling the trainee's concentration to be focused on performing the necessary procedures.

DURATION

Each trainee will receive two hours of landing training in the simulator before commencing line training. RHS training for captains on following items:

- (3) Takeoff Engine Failure at V1
- (4) **ILS** approach single engine
- (4) Single Engine go around
- (5) Single Engine ILS APP & landing/evacuation

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PREPARATION

The trainee will demonstrate ability to perform all normal procedures.

Trainees are expected to study and understand related sections in FCTM prior to landing training.

Instructor will provide take off and landing data card (if applicable).

AREAS TO BE COVERED

Normal preflight procedures

Use of automation

Manual handling

Lesson Plan

UNSTABILIZED APPROACH RECOGNITION AND RECOVERY TRAINING

OBJECTIVES

This training is to imbed the concept of different energy states and its impact on stable approach. Any attempt to correct unstable approach ceases at 1000 ft AAL. Go-around becomes mandatory then.

DURATION

One hour per trainee

GUIDELINES TO INSTRUCTOR

This briefing and training can be carried out together with the landing session or separately.

LANDING TRAINING (SIMULATOR)

NAME _____ P- _____ DATE ____ / ____ / ____

POSITION: () CM1 () CM2						
	Number of Attempts			Extra Attempts		
TOW – 250,000 KGS						
WIND:						
HEAD WIND 20 KTS						
HEAD WIND 30 KTS						
X-WIND (LEFT - 45°) 30 KTS						
X-WIND (RIGHT - 45°) 30 KTS						
X-WIND (90°) LEFT 30 KTS						
X-WIND (90°) RIGHT 30 KTS						
WIND SHEAR:						
TAKEOFF (HEAD WIND TO TAIL WIND)						
TAKEOFF (TAIL WIND TO HEAD WIND)						
DOWN BURST (TAKEOFF AND LANDING)						
VISUAL APPROACHES (USING VASI)						
STEEP APPROACH (ROD>1000 FPM, NO VASI)						
SHALLOW APP. (ROD<300 FPM, NO VASI)						
REJECT LANDING						
SINGLE ENG APPROACH (L ENG FAIL):						
X-WIND (90°) LEFT 30 KTS						
SINGLE ENG APPROACH (R ENG FAIL):						
X-WIND (90°) RIGHT 30 KTS						
EXTRA LANDINGS (CAPTAIN RHS)						
TOW (LIGHT) – 197,000 KGS HEAD WIND 30 KTS						
TOW (HEAVY) – 325,000 KGS HEAD WIND 30 KTS						
Note:						
5. Each takeoff / landing will be marked with a "v" (tick).						
6. A total number of about Twenty (20) landings will be practiced and marked in the boxes. Additional landings, if required, may be practiced if time permits.						
7. The above landings practice is considered sufficient for a crew member to achieve a satisfactory standard.						
8. Instructor to mention in comments if extra landings have been required.						

DATE: _____

CAPT./FO : _____ P-NO: _____ AIRCRAFT: _____

Type of License & No. _____ Duration of Training 01Hours/trainee

1. **Recognition** of development of UA through.
 - a) Knowing and understanding the appropriate parameters and tolerances associated with an approach.
 - b) The dynamics involved e.g.; ATC, Fatigue Factor, Hurry Syndrome, Weather. Any malfunctions or abnormality.
 - c) Infringement of applicable tolerances necessitating a Go-Around.
2. **Controlling** a situation developing into a UA through manipulating aircraft controls or notifying ATC of company policy on stabilized approach.
3. **Action** necessitating a Go Around is the final step. A non-punitive time-honored maneuver which saves lives.
 - a) A It is essential to acknowledge the fact that all maneuvers required to control an unstable approach has a lower limit of 1000 feet AAL.
 - b) Practice Balked Landing

APPRO-ACHES	WIND EFFECT	ATC RESTRICTIONS	MALFUNCTION	TOPOGRAPHIC EFFECTS
ILS RNP Visual	1) Windshear 2) Increasing Tail wind 3) Micro Burst	1) 160 till 4nm 2) Late descent clearance	1) Flap asymmetry 2) CG limit	Mountain wave

Filling Instructions: Approach types and rest of the other scenarios must be filled in above table.

Comments of SFI/SFE _____

SIGNATURE OF TRAINEE

NAME & SIGNATURE OF SFI/SFE

18.1.1.11 FFS 11 ETOPS/MNPS/EDTO(LOFT)

GENERAL

This gives crew members the opportunity to practice line operations (e.g. manoeuvres, operating skills, systems operation and the Company procedures) with a full crew compliment in realistic environment. Crew members learn to handle a variety of scripted real time scenarios which include routine, abnormal, and emergency situations. They also learn and practice Cockpit Resource Management skills, including crew coordination, judgment, decision making, and communication skills.

LESSON SUMMARY

The overall objective of ETOPS/LOFT is to improve total flight crew performance, thereby preventing incidence and accidents during operational flying.

This lesson consists of four-hour ETOPS/LOFT.

The session should contain the following phases:

- i) Briefing,
- ii) pre-flight planning documents and activities.
- iii) Flight time
- iv) De-briefing

LESSON OBJECTIVES

Complete introduction to ETOPS/LOFT

Practice diversion during ETOPS portion of flight

Consider fuel jettison, drift down and other non-normal checklist requirements.

Consider RVSM requirements.

Consider communication requirements.

CPDLC Training

ETOPS: Extended Range Twin Engine Operation

Twin engine aircraft over a route that contains a point further than sixty minutes still air flying time from an adequate airport at one engine out cruise speed under ISA condition.

MNPS: Minimum Navigation Performance Specification (FL-285-420)

SOTA: Shanon Oceanic Transition Area

OCA: Oceanic Control Area

TMI: Track Message Identification (01 to 365)

PM: Publish Minima

NAT: North Atlantic

GNE: Gross Navigation Error

RVSM: Reduce Vertical Separation Minimum (FL290-410)

RNP: Required Navigation Performance (Operation)

EEP: ETOPS Entry Point (Never Move)

ETP-CP: Equitime point /critical point (Move with headwind or tailwind etc.)

(Reference Weight (B-777) 324 tons – 120 MTS 850 nm SPD 0.84 M/320 kts)

316 tons for 180 MTS 1272 nm SPD 0.84 M/320 kts

ROUTE OF FLIGHT

ORIGIN	Manchester (EGCC)
	Gate -----
	RWY 23R
ROUTE	EGCC EKLAD1R EKLAD Y53 WAL L10 PENIL
	M144 BAGSO DCT DOGAL DCT 54N020W
	DCT 53N030W DCT 52N040W DCT
	50N050W DCT ELSIR N316A TUSKY DCT
	PLYMM PARCH3 JFK
DESTINATION	JFK
FLIGHT NUMBER	PIA777

PERFORMANCE

GRWT	263,584 KGS	FLAPS	opt
FUEL	58,984 KGS	CG	25%
ZFW	205,000 KGS	WIND	Calm
RESERVES	8,333 KGS	SLOPE	0
CRZ ALT	FL 340,360	EO ACCEL HT	1,000'
COST INDEX	30	ACCEL HT	3,000'
THRUST LIM	As required	THR REDUCTION	1,000'

CLEARANCE

Pakistan777 is cleared to the JFK, via the EKLAD1R Departure. Maintain Flight Level 60. Departure control frequency 134.12, squawk 4234.



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>>> EGCC (MANCHESTER RWY 05RL/23LR) <<< ETD 1220 UTC

TAF 100459Z 1006/1112 30004KT 9999 BKN008 TEMPO 1006/1009 BKN010
BECMG 1009/1012 BKN014 PROB30 TEMPO 1015/1018 SCT015 BECMG
1018/1021 BKN008 PROB30 1100/1109 4000 BR BKN004 BECMG
1109/1112 SCT015

>>> KJFK (JOHN F KENNEDY INTL) <<< ETA 1930 UTC

TAF 100536Z 1006/1112 03015KT P6SM OVC015 FM101700 02015G23KT
P6SM SCT015 OVC025 FM102300 02013KT P6SM SCT025 SCT150
FM110800 02012KT P6SM SCT150

>>> KBOS (GENERAL EDWARD LAWRENCE LOGAN) <<< ALTERNATE

TAF 100540Z 1006/1112 35014G22KT 1 1/2SM -SN BR OVC020 FM101000
36014KT P6SM OVC025 FM101300 36013G22KT P6SM OVC025 FM102100
36011KT P6SM SCT025 FM110000 01007KT P6SM FEW250 FM110500
01011KT P6SM SCT250 FM110900 01011G19KT P6SM SCT020

>>> EINN (SHANNON) <<< SNN SUITABLE 1154Z/1835Z

TAF 100500Z 1006/1106 VRB03KT 8000 OVC007 PROB40 TEMPO 1006/1010
4000 BR BKN004 BECMG 1010/1012 15007KT 9999 FEW008 BKN012
BECMG 1012/1014 FEW012 SCT020 TEMPO 1100/1106 5000 BR
BKN005

>>> CYYT (ST. JOHN'S INTL) <<< YYT SUITABLE 1635Z/1751Z

TAF 100538Z 1006/1106 35010KT P6SM SCT008 BKN040 TEMPO 1006/1018
2SM -SHSN BKN008 OVC040 BECMG 1015/1017 13012KT FM101800
13012KT P6SM BKN025 FM110000 15007KT 5SM -SN OVC020 FM110200
15007KT 1SM -SN OVC008 FM110400 15005KT 3/4SM -SN VV008

>>> EGBB (BIRMINGHAM) <<<

TAF 100458Z 1006/1106 26005KT 6000 BKN008 PROB30 1006/1008 4000
HZ BECMG 1008/1011 9999 FEW015 PROB40 TEMPO 1011/1106 9000
BKN012

>>> EGLL (LONDON HEATHROW RWY 09RL/27LR) <<<

TAF 100459Z 1006/1112 VRB03KT 6000 SCT018 TEMPO 1006/1010 4000



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BR PROB30 TEMPO 1006/1009 0800 FG BKN000 BECMG 1009/1012
9999 PROB30 TEMPO 1009/1011 BKN008 PROB30 1102/1106 8000
BKN014

>>> BIEG (EGILSSTADIR) <<<

TAF 100455Z 1006/1106 22025G40KT 9999 SCT030 BKN050 TX01/1006Z
TNM07/1106Z BECMG 1015/1018 22020KT

>>> BIKF (KEFLAVIK) <<<

TAF 100455Z 1006/1106 24035G50KT 8000 SHSN FEW015CB BKN030
TX00/1006Z TNM04/1106Z TEMPO 1006/1106 1000 SHSN BKN008CB
BECMG 1015/1018 22025G35KT

>>> BGSF (KANGERLUSSUAQ) <<<

TAF 100453Z 1006/1101 08008KT 9999 BKN090 TEMPO 1006/1101 BKN040

>>> LPLA (LAJES) <<<

TAF 100510Z 1006/1106 VRB03KT 9999 FEW025 PROB40 TEMPO 1110/1118
SCT020 BKN035

>>> CYQX (GANDER INTL) <<<

TAF 100538Z 1006/1106 31004KT P6SM FEW010 FM101000 33005KT P6SM
SCT010 TEMPO 1010/1015 3SM -SHSN BKN010 BECMG 1012/1014
15008KT FM101500 15008KT P6SM BKN010 BECMG 1019/1021 10008KT
FM110000 04008KT 5SM -SHSN BKN008 FM110500 29006KT 3SM -SN
BKN020

>>> CYYR (GOOSE BAY) <<<

TAF 100530Z 1006/1106 24005KT P6SM FEW150 BKN200 FM101600
22010G20KT P6SM SCT030 BKN100 TEMPO 1018/1022 3SM -SN BKN030
OVC080 FM102200 29012G22KT P6SM -SHSN BKN030 TEMPO 1022/1105
5SM -SHSN BLSN FM110500 29010KT P6SM FEW050

>>> CYJT (STEPHENVILLE) <<<

TAF 100538Z 1006/1106 03006KT P6SM SKC BECMG 1010/1012 08010KT
FM101500 08010KT P6SM BKN025 FM102200 07008KT 5SM -SHSN
BKN020 OVC100 FM110300 VRB03KT 2SM -SHSN BKN008

>>> CYHZ (STANFIELD INTL) <<<

TAF 100538Z 1006/1106 03012KT P6SM FEW020 OVC120 TEMPO 1006/1010
4SM -SN OVC020 FM101000 02008KT 2SM -SN OVC010 TEMPO
1010/1022 6SM -SN SCT010 OVC040 BECMG 1016/1018 01008KT

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FM102200 36008KT P6SM BKN015 BECMG 1100/1102 35012G22KT
 >>> KBGR (BANGOR INTL) <<<

TAF 100732Z 1008/1106 03007KT P6SM VCSH OVC035 FM101600 36005KT
 P6SM BKN035 FM101800 36005KT P6SM SCT040 FM102100 01004KT
 P6SM SCT250
 >>> CYQB (JEAN LESAGE INTL) <<<

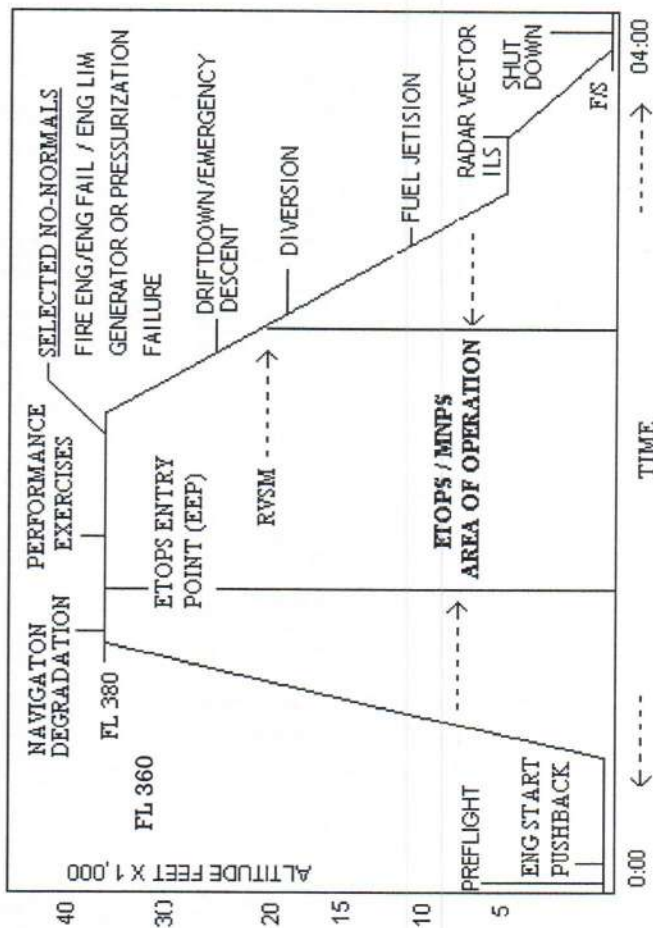
TAF 100538Z 1006/1106 06012KT P6SM OVC040 TEMPO 1006/1016 4SM
 -SN OVC020 PROB30 1006/1016 2SM -SN OVC015 FM101600 24012KT
 P6SM FEW030 BECMG 1020/1022 32008KT FM110000 33010KT P6SM
 SKC BECMG 1104/1106 05005KT
 >>> CYUL (PIERRE-ELLIOTT-TRUDEAU INTL) <<<

TAF 100538Z 1006/1106 01013KT P6SM OVC025 TEMPO 1006/1016 4SM
 -SN OVC015 FM101600 21008KT P6SM FEW030 BECMG 1022/1024
 31010KT FM110000 21005KT P6SM SKC BECMG 1101/1103 02010KT

>>> KIAD (WASHINGTON DULLES INTL) <<<

TAF 100714Z 1007/1112 01008KT P6SM -FZDZ OVC013 FM100800 01009KT
 5SM BR OVC013 FM101400 36011KT P6SM OVC015 FM110100 01009KT
 P6SM SCT015 FM110900 36006KT P6SM FEW250

PIA B777 ETOPS Training Profile



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PREFLIGHT

Normal procedures & ETOPS preparation

ENGINE START

Start & pushback clearance (tail right)

Normal Procedures

TAXI-OUT AND TAKE OFF

Normal procedures

Heavy Weight take off

CLIMB

Normal procedures

CRUISE

Complete normal cruise level off

Navigation Performance Degradation Exercises

Prior to entering MNPS area

RVSM requirement degradation exercise

Before ETOPS Entry Point (EEP)

Complete ETOPS company Operating procedures

Obtain weather updates for Enroute Alternates

Check FMS BRG/DIST to next alternate.

Send verification of ETOPS critical system checks

(Supports ETOPS supplemental maintenance programmed)

Confirm communication capability (HF, SATCOM)

CPDLC (Controller Pilot Data Link communication) Log in.

Enter ETOPS segment of flight plan

Five minutes after EEP

FIRE ENG L or R, or

ENG FAIL L or R, or

ENG LIM (EGT overheat with thrust lever closed), or volcanic ash encounter.

PRESSURIZATION FAILURE

Complete non-normal checklist with non in-flight restart possible.

FMC

Drift down

RVSM consideration, turn away from track

As indicated on navigation chart RVSM rules

Determine new altitude capability

Determine Drift down airspeed and use VNAV for drift down

Diversion

ETOPS consideration

Chose ETOPS alternate

Obtain new clearance

Divert to alternate

Use FMC ALTN page

CRM Considerations

Workload management

Sequence tasks

Avoid work overload

Do not be hurried.

DESCENT

FUEL JETTISON

APPROACH and LANDING

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Radar Vectors, ILS approach RWY 11 (KEF),

Full stop landing

TAXI-IN

Normal procedures

SHUTDOWN

Normal Procedures

SECURE

Normal procedures

062003 EGGXZOZX

(NAT-1/3 TRACKS FLS 340/390 INCLUSIVE

SEP 07/1130Z TO SEP 07/1900Z

PART ONE OF THREE PARTS-

A RESNO 55/20 55/30 54/40 53/50 RIKAL

EAST LVLS NIL

WEST LVLS 340 350 360 370 380 390

EUR RTS WEST NIL

NAR N438A N440A-

B DOGAL 54/20 54/30 53/40 52/50 TUDEP

EAST LVLS NIL

WEST LVLS 340 350 360 370 380 390

EUR RTS WEST NIL

NAR N398A N402A-

END OF PART ONE OF THREE PARTS)

(NAT-2/3 TRACKS FLS 340/390 INCLUSIVE

SEP 07/1130Z TO SEP 07/1900Z

PART TWO OF THREE PARTS-



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C NEBIN 5330/20 5330/30 5230/40 5130/50 UMESI
EAST LVLS NIL
WEST LVLS 350 360 370 380 390
EUR RTS WEST NIL
NAR N376A N384B-

D MALOT 53/20 53/30 52/40 51/50 ALLRY
EAST LVLS NIL
WEST LVLS 340 350 360 370 380 390
EUR RTS WEST NIL
NAR N356E N362A-

E TOBOR 5230/20 5230/30 5130/40 5030/50 BUDAR
EAST LVLS NIL
WEST LVLS 350 360 370 380 390
EUR RTS WEST NIL
NAR N336A N344A-

F LIMRI 52/20 52/30 51/40 50/50 ELSIR
EAST LVLS NIL
WEST LVLS 340 350 360 370 380 390
EUR RTS WEST NIL
NAR N316A N324A-
END OF PART TWO OF THREE PARTS)

(NAT-3/3 TRACKS FLS 340/390 INCLUSIVE
SEP 07/1130Z TO SEP 07/1900Z
PART THREE OF THREE PARTS-

G DINIM 51/20 51/30 50/40 49/50 JOOPY
EAST LVLS NIL
WEST LVLS 340 350 360 370 380 390

EUR RTS WEST NIL
NAR N276C N280A-

REMARKS.

1. TMI IS 250 OPERATORS ARE REMINDED TO INCLUDE THE TMI NUMBER AS PART OF THE OCEANIC CLEARANCE READ BACK.
2. SEND RCL 90-30 MINUTES PRIOR TO OCEANIC ENTRY POINT.
3. PBCS OTS LEVELS 350-390. PBCS TRACKS AS FOLLOWS
TRACK B
TRACK C
TRACK D
TRACK E
TRACK F
END OF PBCS OTS
4. INCLUDE THE MAX LEVEL IN RCL. IF NO MAX LEVEL IS PROVIDED THE RCL LEVEL WILL BE CONSIDERED HIGHEST ACCEPTABLE FL THAT CAN BE MAINTAINED AT THE OCEANIC ENTRY POINT.
5. CLEARANCE MAY DIFFER FROM THE FLIGHT PLAN, FLY THE CLEARANCE.
6. STRATEGIC LATERAL OFFSET PROCEDURE SHOULD BE USED FOR ALL OCEANIC CROSSINGS. LEFT SLOP IS PROHIBITED.

7. 10 MINUTES AFTER PASSING OEP SQUAWK 2000 UNLESS OTHERWISE INSTRUCTED.

8. NAVIGATION ERRORS CAN BE PREVENTED BY THE USE OF PROPER FMS WAYPOINT PROCEDURES.

9. ADS-C AND CPDLC ARE MANDATED FOR LEVELS 290-410 IN NAT AIRSPACE.

10. UK AIP. ENR 2.2.4.2 PARA 5.2 STATES THAT NAT OPERATORS SHALL FILE PRM'S.

11. OPERATORS SHOULD REFERENCE NAT DOC 007 CHAPTER 8 AND 13 FOR SPECIFIC NAT OCEANIC PROCEDURES.

12. DATA LINK EQUIPPED FLIGHTS NOT LOGGED ONTO DOMESTIC AIRSPACE, PRIOR TO ENTERING THE SHANWICK OCA, MUST INITIATE A LOGON TO EGGX 10-25 MINS PRIOR TO OCA ENTRY.
(END OF PART THREE OF THREE PARTS)



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CAPTAIN

PREPARED BY FLIGHT OPERATIONS OFFICER

SHHOOD ALI Lic. 894

COMPUTER GENERATED FPL, FOO SIGNATURE NOT REQUIRED.

PPS FLIGHT PLAN

----- FLT# /DATE

ORG /DST ACFT/REG PLAN ID GRIB AVGWC/TD PIACCFK/07SEP23 EGCC/KJFK B77L /APBGY 2770
070600 -17 / 6.5

ETD:12:00/18:35:ETA

FMS ROUTE RT DIST 2921 GC DIST 2893 EGCC RW23R.EKLAD1R.EKLAD
EKLAD Y53 WAL L10 PENIL M144 BAGSO DCT DOGAL/M083F360 DCT 54N020W DCT 53N030W
DCT 52N040W DCT 50N050W DCT ELSIR/N0484F360 N316A TUSKY DCT PLYMM

PLYMM.PARCH3.RW22R KJFK

FL PROFILE
EGCC/FL360/

EQPTTYPE B777-200LR / ENGTYPE GE90-110B1L

PERFORMANCE SCHEDULE - 250/310/M.83 - CI 30 - M.83/310/250 APD FACTOR - 4.8 PC

PLANNED	FUEL	TIME	WEIGHTS PLAN		ACTUAL	STRUCTURAL OR PERF LIMIT	
TRIP	47852	6:35					
CONTINGE NCY	2393	0:20					
XHLD DEST	0	0:00	ZFW	205000	.....	MZFW	209106
ALTN KBOS	4928	0:42	RPF	58984	.....	FCAP	154229
XHLD ALTN			RPW	263984	.....	MRPW	340594
STD	3405	0:30	TOW	263584	MTOW	340194
HOLDING							
ADDITIONA L/BU	0	0:00	TIF	47852		

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MIN	58577	8:07	LDW	21573	MLDW	223167
RFEQUIRED				2			
EXTRA	7	0:00	FOD	10732			
TKOF FUEL	58584	8:07	RES	8332			
TAXI FUEL	400				FUEL ORDERED		
RAMP FUEL	58984	8:07			REASON		

BALLAST FUEL 0 INCL IN RAMP FUEL

BURNOFF ADJUSTMENT PER 1000 KGS DECREASE IN TAKEOFF WT - -143 KGS
BURNOFF ADJUSTMENT PER 1000 KGS INCREASE IN TAKEOFF WT - 167 KGS

RESTRICTED MAX TAKE OFF WEIGHT INFORMATION

A. B. C.

R.T.O.G.W 340194 MLDW 223167 MZFW 209106

TRIP FUEL 47852 T.O.FUEL 58584

LNDG LMT TOGW 271019 ZFW LMT TOGW 267690

ALTERNATE AIRPORTS SUMMARY

ALTN FL ETI ZFW TRIP RQDFOB NM

BOS/KBOS 250 0:42 205000 4928 8332 202

DCT MERIT DCT ORW

/ 0 0:00 205000 0 3405 0

ATC CLRNC:.....

EKLAD Y53 WAL L10 PENIL M144 BAGSO DCT DOGAL DCT 5420N

DCT 5330N DCT 5240N DCT 5050N DCT ELSIR N316A TUSKY DCT

PLYMM

EGCC/FL360/

ATIS - EGCC INFO

RWY . . . WIND . . . / . . VIS . . . TEMP . . . QNH . . .

ATC CLRNC

.....

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ICAO : EGCC ELEV : 257		LAT : N53:21.2 LON : W002:16.5 REMAINING DISTANCE: 2921				TAKEOFF FUEL 58584					
POINT POINT FREQ	FIR NAME LATITUDE	AWY MORA LONGITUDE	FL MORA TURB	QAT WC GE	TAS MACH GE	TR/T TR/M	DIST TTLD WIND/VEC	ETI TTLT	ETO RTO ATO	SEGRG ACCRG FOE	AWID AGS ABRN
MCT03 SID WAYPOINT	EGTT N53:19.6	EKLA1R W002:19.7	CLB 35 6	VAR T 1 6	349 0.60 350	230 230	2 2 0:00 188/032	0 0 0	..... ..... .....	105 505 58479	...............
TH262 SID WAYPOINT	EGTT N53:19.3	EKLA1R W002:20.8	CLB 35 6	VAR T 1 6	349 0.60 350	247 247	1 3 0:00 188/032	0 0 0	..... ..... .....	53 558 58427	...............
TH274 SID WAYPOINT	EGTT N53:19.3	EKLA1R W002:21.3	CLB 35 6	VAR T 1 6	349 0.60 350	270 270	0 3 0:00 188/032	0 0 0	..... ..... .....	0 558 58427	...............
IKR25 SID WAYPOINT	EGTT N53:19.5	EKLA1R W002:26.0	CLB 35 6	VAR T 1 6	349 0.60 350	273 273	3 6 0:01 188/032	1 0 0	..... ..... .....	158 715 58269	...............
R253H SID WAYPOINT	EGTT N53:19.0	EKLA1R W002:28.5	CLB 35 6	VAR T 1 6	349 0.60 350	253 253	2 8 0:01 188/032	0 0 0	..... ..... .....	105 821 58164	...............
R253M SID WAYPOINT	EGTT N53:17.5	EKLA1R W002:36.4	CLB 35 6	VAR T 1 6	349 0.60 350	252 252	5 13 0:02 188/032	1 0 0	..... ..... .....	263 1093 57901	...............
R253P SID WAYPOINT	EGTT N53:16.6	EKLA1R W002:41.2	CLB 35 6	VAR T 1 6	349 0.60 350	252 252	3 16 0:03 188/032	1 0 0	..... ..... .....	158 1241 57743	...............
EKLAB SID WAYPOINT	EGTT N53:15.2	EKLA1R W002:49.5	CLB 35 6	VAR T 1 6	349 0.60 350	254 254	5 21 0:04 188/032	1 0 0	..... ..... .....	263 1504 57481	...............
WAL WALLASEY 114.10	EGTT N53:23.5	Y53 W003:08.1	CLB 45 6	VAR T 1 6	349 0.60 350	307 307	14 35 0:06 188/032	2 0 0	..... ..... .....	736 2240 56745	...............
FENIL FENIL	EGTT N53:37.0	L10 W003:39.8	CLB 45 6	VAR T 1 6	349 0.60 350	306 306	23 58 0:10 188/032	4 0 0	..... ..... .....	1209 3449 55536	...............
BABRA BABRA	EGTT N53:37.6	M144 W003:56.7	CLB 45 6	VAR T 1 6	349 0.60 350	274 275	10 68 0:12 188/032	2 0 0	..... ..... .....	526 3974 55010	...............
GIGTO GIGTO	EGTT N53:38.0	M144 W004:05.8	CLB 46 6	VAR T 1 6	349 0.60 350	274 275	5 73 0:13 188/032	1 0 0	..... ..... .....	263 4237 54747	...............

POINT POINT FREQ	FIR NAME LATITUDE	AWY LONGITUDE	FL MOHA TURB	OAT WC TURB	TAS MACH GS	TR/T TR/M	DIST TTLD WIND/VEC	ETI TTLT	ETO RTO ATO	SEGSO ACCBO FCB	ANID AGS ABRN
UNDUK UNDUK	EGTT NS3:38.5	M144 W004:18.7	CLB 46 6	VAR T 1 6	349 0.60 350	274	8 81 188/032	1 0:14	..... ..... .....	420 4657 54327	...............
SOPAK SOPAK	EGTT NS3:38.8	M144 W004:27.1	CLB 46 6	VAR T 1 6	349 0.60 350	274	5 86 188/032	1 0:15	..... ..... .....	263 4920 54064	...............
RAMOX RAMOX	EGTT NS3:39.6	M144 W004:50.4	CLB 46 6	VAR T 1 6	349 0.60 350	273	14 100 188/032	2 0:17	..... ..... .....	736 5656 53328	...............
-TOC-	M144	CLB	VAR	349	273	5	1	.....	263	.....
	46	T 1	0.60	105	0:18	.....	5919	.....	53065	.....
	NS3:39.9	W004:58.8	6	350	274	188/032	.....	.....	.....	.....
OGTUG OGTUG	EGTT NS3:40.2	M144 W005:08.8	360 46 6	-54 H 21 6	480 0.83 459	273	6 111 196/070	1 0:19	..... ..... .....	101 6020 52964	...............
BAGSO FIR BAGSO	EISN NS3:40.8	M144 W005:30.0	360 15 6	-54 H 21 6	480 0.83 459	273	12 123 196/070	2 0:21	..... ..... .....	203 6223 52761	...............
DOGAL DOGAL	EGGX NS4:00.0	DCT W016:00.0	360 39 6	-53 H 5 6	481 0.83 476	277	337 460 190/049	42 1:03	..... ..... .....	5351 11574 47410	...............
MAT HLA ENTRY											
5420N 54N020W	DCT NS4:00.0	360 W020:00.0	11 0	-50 H 28 0	484 0.83 456	272	176 626 248/030	23 1:26	..... ..... .....	2904 14478 44506	...............
E-ENT	DCT	360	11	-50	483	264	29	4	.....	463	.....
	NS3:57.1	W020:49.1	0	H 23	0.83	665	1:30	.....	14941	.....
	NS3:57.1	W020:49.1	0	460	272	320/024	.....	.....	44043	.....
5330N 53N030W	DCT NS3:08.0	360 W030:00.0	11 6	-51 H 23 6	483 0.83 460	264	333 998 334/063	43 2:13	..... ..... .....	5317 20258 38726	...............
ETP-1	DCT	360	11	-52	482	265	136	18	.....	2167	.....
	NS2:44.2	W033:43.9	0	H 31	0.83	1134	2:31	.....	22426	.....
	NS2:44.2	W033:43.9	0	451	277	312/038	.....	.....	36589	.....
5240N 52N040W	DCT NS2:00.0	360 W040:00.0	11 0	-50 H 31 0	482 0.83 451	265	234 1368 279/032	31 3:02	..... ..... .....	3729 26155 32830	...............

POINT FREQ	FIR NAME	AWY LONGITUDE	FL MOEA LONGITUDE	OAT WC TURB	TAS MACH GS	TR/T TR/M	DIST TTLD WIND/VEC	ETI TTLT	ETC RTO ATO	SEGBO ACCB0 FOB	AMID AGS ABRM
E-EXT	DCT	360	-50	483	256	129	18	.....	2056	.....	.....
		11	H 40	0.83		1497	3:20	.....	28211	.....	.....
		N51:26.6 W043:21.2	0	443	271	266/036		.....	30774	.....	.....
S050N S0N050W	DCT	360	-49	483	256	267	36	.....	4255	.....	.....
		11	H 40	0.83		1764	3:56	.....	32466	.....	.....
		N50:00.0 W050:00.0	0	443	271	239/040		.....	26518	.....	.....
ELSIR ELSIR	CDQX DCT	360	-48	483	250	83	11	.....	1312	.....	.....
		11	H 37	0.83		1847	4:07	.....	33778	.....	.....
		N49:30.0 W052:00.0	0	446	267	230/039		.....	25206	.....	.....
NAT MLA EXIT											
-FC1- Fuel Check 1	KZBW N316A	360	-47	484	246	356	45	.....	5247	.....	.....
		31	H 14	0.83		2203	4:52	.....	39025	.....	.....
		N46:47.8 W059:56.7	0	470	263	192/023		.....	19959	.....	.....
TUSKY TUSKY	KZBW N316A	360	-48	482	239	356	43	.....	4892	.....	.....
		28	T 11	0.83		2859	5:35	.....	43917	.....	.....
		N43:33.9 W067:00.0	0	493	255	005/019		.....	15067	.....	.....
PLYMH STAR WAYPOINT	KZNY DCT	360	-51	477	240	176	22	.....	2489	.....	.....
		18	H 7	0.82		2735	5:57	.....	46406	.....	.....
		N42:02.6 W070:25.6	0	470	256	286/010		.....	12578	.....	.....
-TOD- STAR WAYPOINT	PARCH3	360	-50	477	247	41	7	.....	665	.....	.....
		22	H 7	0.82		2776	6:04	.....	47071	.....	.....
		N41:46.5 W071:16.3	0	470	260	281/009		.....	11913	.....	.....
FVD STAR WAYPOINT	KZBW PARCH3	DSC	VAR	320	247	8	0	.....	-56	.....	.....
		22	H 7	----		2784	6:04	.....	47015	.....	.....
		N41:43.5 W071:25.8	0	313	260	238/023		.....	11969	.....	.....
TRAIT STAR WAYPOINT	KZBW PARCH3	DSC	VAR	320	220	34	7	.....	154	.....	.....
		22	H 7	----		2818	6:11	.....	47169	.....	.....
		N41:17.1 W071:55.1	0	313	233	238/023		.....	11815	.....	.....
PARCH STAR WAYPOINT	KZBW PARCH3	DSC	VAR	320	220	15	3	.....	68	.....	.....
		31	H 7	----		2833	6:14	.....	47237	.....	.....
		N41:06.0 W072:07.2	0	313	232	238/023		.....	11747	.....	.....
CCC STAR WAYPOINT	KZBW PARCH3	DSC	VAR	320	252	32	6	.....	145	.....	.....
		31	H 7	----		2865	6:20	.....	47382	.....	.....
		N40:55.8 W072:47.9	0	313	265	238/023		.....	11603	.....	.....
ROBER STAR WAYPOINT	KZBW PARCH3	DSC	VAR	320	216	18	4	.....	233	.....	.....
		27	H 11	----		2683	6:24	.....	47614	.....	.....
		N40:41.1 W073:02.0	0	313	229	238/023		.....	11370	.....	.....
CRAIL STAR WAYPOINT	KZNY PARCH3	DSC	VAR	320	270	14	4	.....	282	.....	.....
		27	H 15	----		2897	6:28	.....	47896	.....	.....
		N40:41.2 W073:20.6	0	313	283	238/023		.....	11088	.....	.....

POINT POINT FREQ	FIR NAME LATITUDE	AWY LONGITUDE	FL MOHA	CAT WC TURB	TAS MACH GS	TR/T TR/M	DIST TTLE WIND/VEC	ETI TTLT	ETC RTO ATO	SEGBO ACCEO FCB	AWID ASS ABRN
CAPIT STAR WAYPOINT	KZNY N40:45.6	PARCH3 W073:37.8	DSC 27	VAR H 15	320 0	289 313	14 302	4 238/023	..... .....	208 48104	........
KJFK 13ft	PARCH2 N40:38.4	DSC W073:46.7	27	VAR H 15	320 313	223 236	10 238/023	3 .....	..... .....	148 48252	........

ATIS - DESTINATION INFO

RWY . . . WIND . . . / . . . VIS . . . TEMP . . . QNH . . . TL

ATIS - ALTERNATE 1 INFO

RWY . . . WIND . . . / . . . VIS . . . TEMP . . . QNH . . . TL

Alternate	KZBW	DCT	MERIT	DCT	GRW
MERIT	KZBW	DCT	250	+22	418
MERIT			30		0.68
	N41:22.9	W073:08.2	0		437
					046
					236/021
				
					3172
				
					31424
				
					7560
				
GRW	KZBW	DCT	DSC	VAR	416
STAR WAYPOINT			31	----	078
	N41:33.4	W072:00.0	0		431
					091
					VAR/VAR
				
					233
				
					31658
				
					7326
				
JEWIT	KZBW	STAR	DSC	VAR	286
STAR WAYPOINT			22	----	043
	N41:41.8	W071:42.6	0		305
					058
					VAR/VAR
				
					62
				
					51720
				
					7264
				
FOSTY	KZBW	STAR	DSC	VAR	304
STAR WAYPOINT			22	----	043
	N41:50.6	W071:38.5	0		319
					058
					VAR/VAR
				
					178
				
					51898
				
					7086
				
HEFTY	KZBW	STAR	DSC	VAR	212
STAR WAYPOINT			22	----	043
	N41:54.3	W071:33.8	0		227
					058
					VAR/VAR
				
					57
				
					51955
				
					7030
				
WOCNS	KZBW	STAR	DSC	VAR	212
STAR WAYPOINT			22	----	043
	N41:57.0	W071:30.4	0		227
					058
					VAR/VAR
				
					45
				
					52000
				
					6984
				
QUINC	KZBW	STAR	70	14	283
STAR WAYPOINT			22		0.42
	N42:00.7	W070:45.2	0		300
					098
					263/017
				
					790
				
					52790
				
					6194
				

POINT POINT FREQ	FIR NAME	AWY LATITUDE	FL MORA LONGITUDE	QAT WC TYPE	TAS MACH GS	TR/T TR/M	DIST TTLD WIND/VEG	ETI TTLT	ETG RTG ATC	SEGB0 ACCB0 FOB	AWID AGE ARRW
DUNKE STAR WAYPOINT	KZBW	STAR	DSC 17 N42:04.9 W070:39.4	VAR 0	202 219	046	6 3100 VAR/VAR	2 7:11	.....	76 52866 6118	.....
HAVRD STAR WAYPOINT	KZBW	STAR	DSC 17 N42:10.1 W070:46.2	VAR 0	202 219	316 331	7 3107 VAR/VAR	2 7:13	.....	89 52955 6029	.....
YAARD STAR WAYPOINT	KZBW	STAR	DSC 17 N42:13.3 W070:50.4	VAR 0	202 219	316 331	4 3111 VAR/VAR	1 7:14	.....	51 53006 5979	.....
BGDIG STAR WAYPOINT	KZBW	STAR	DSC 17 N42:17.6 W070:56.0	VAR 0	202 219	316 331	6 3117 VAR/VAR	2 7:16	.....	76 53082 5903	.....
PAARK STAR WAYPOINT	KZBW	STAR	DSC 17 N42:20.6 W071:00.0	VAR 0	202 219	316 331	4 3121 VAR/VAR	1 7:17	.....	51 53132 5852	.....
KBOS BOSTON/GENERAL	STAR	DSC 34	VAR N42:21.8 W071:09.4	0	256 251	346 001	2 3123 VAR/VAR	0 7:17	.....	47 53180 5805	.....

Climb :105 NM in 0:18 hrs 5919 Kg Descent:145 NM in 0:28 hrs 1181 Kg

ATIS - INFO

RWY . . . WIND . . . / . . . VIS . . . TEMP . . . QNH TL

DESTINATION ARRIVAL

ELEVATION 257

ETA/18:35 RETA/. ATA/. ON BLOCKS/.

----- ENROUTE WIND AND TEMPERATURE SUMMARY -----

ROFOR EGCC/KJFK

IDENT	FL 320			FL 340			FL 360			FL 380			FL 400		
	W/V	TMP		W/V	TMP		W/V	TMP		W/V	TMP		W/V	TMP	
MCT03	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
TH262	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
TH274	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
IXR25	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
R253H	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
R253M	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
R253P	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
EKLAD	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
WAL	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
SEHIL	200/055	-42		200/059	-47		199/064	-54		198/066	-55		198/058	-58	
BABRA	193/059	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
GIGTO	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
UNDUX	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
SOPAK	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
RAMOX	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
-TDC-	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
OSTUG	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
BAGSO	193/058	-43		196/066	-48		196/070	-54		196/071	-55		196/061	-57	
DOGAL	209/058	-45		208/057	-50		214/044	-52		220/040	-51		226/026	-50	
54N020W	320/023	-44		324/024	-47		320/024	-50		315/023	-49		315/026	-49	
E-EMT	350/061	-43		350/066	-46		350/050	-50		349/045	-50		349/030	-51	
53N030W	321/039	-41		318/039	-46		320/044	-52		322/045	-53		322/048	-56	
ETP-1	296/031	-41		296/034	-46		297/038	-51		298/039	-52		298/041	-55	
52N040W	258/029	-41		257/029	-44		264/032	-50		272/032	-50		272/034	-54	
E-EXT	258/043	-41		256/044	-44		256/039	-49		257/037	-50		257/033	-54	
50N050W	232/046	-41		233/044	-45		233/040	-49		233/038	-49		233/033	-53	
EL5IR	239/047	-41		233/046	-44		230/039	-48		227/037	-48		227/030	-52	
-FCL-	091/012	-38		097/012	-41		100/012	-46		103/011	-47		103/011	-50	
TUSKY	298/018	-41		294/016	-45		324/014	-50		353/013	-51		353/010	-54	
PLVMM	258/016	-41		259/014	-46		297/009	-51		335/007	-52		335/005	-55	
-TOD-	255/016	-42		258/016	-47		284/011	-52		311/009	-53		311/007	-56	
PVD	255/016	-42		258/016	-47		284/011	-52		311/009	-53		311/007	-56	
TRAIT	242/022	-41		244/023	-46		264/014	-51		285/010	-52		285/006	-55	
PARCH	242/022	-41		244/023	-46		264/014	-51		285/010	-52		285/006	-55	
CCC	242/022	-41		244/023	-46		264/014	-51		285/010	-52		285/006	-55	
ROBER	242/022	-41		244/023	-46		264/014	-51		285/010	-52		285/006	-55	
CRAIL	242/022	-41		244/023	-46		264/014	-51		285/010	-52		285/006	-55	
CAPIT	239/023	-41		232/023	-46		215/014	-50		198/012	-51		198/008	-54	

DESCENT WIND

FL300 228/024 FL240 228/015 FL180 228/023 FL100 234/024 FL050 228/024

FIX MACH/CRUIS TIME 6:35 BRNCF 47852 IFN 205000 FMA CI 30

EGCC/FL360/

ALT 2 K805 FL 0 DIST 0 NM XXXX FUEL 0



Flight Operation Department
(Training Division)

OM PART-D
Document # F/TRG/01-D01

Edition 6
Rev 00
March 25, 2024

B777 TRAINING SYLLABI

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LOAD CONTROL ADVICE
FLT PIACCFKSECT MAN/JFK 07SEP23

REG AFBGY CAPT
BURN OFF: 47852 KGS
TAKEOFF: 58584 KGS
TAXI: 400 KGS
BLOCK: 58984 KGS
BOX A: 340194 KGS
ZFW ACCEPTED: 205000 KGS
DISPATCHER NAME: SHHOOD ALI Lic. 894

 PAKISTAN International Airlines <i>Great People to Fly With</i>	OM PART-D Document # F/TRG/01-D01	Edition 6 Rev 00 March 25, 2024
	Flight Operation Department (Training Division)	B777 TRAINING SYLLABI	Chapter 18 Page - 176

18.1.1.12 FFS 12 AWO(LVO/Cat-II/Cat-III)

LOW VISIBILITY OPERATIONS - Cat-II /Cat-III TRAINING

OBJECTIVE

To train the crew in procedures and techniques to conduct a safe and efficient takeoff, approach & landings in low visibility conditions; and to provide hands on practice in Category-II / Category-III conditions in the simulator.

ELEMENT AND DURATION

A briefing of one and a half (1½) hour will precede the SIM CAT-II/-III TRAINING.

SIM CAT-II / CAT-III TRAINING & EVALUATION Three (3) Hours.

TRAINING AIDS

- E-learning (LMS)
- White Board and Marker Pens
- CAT II /III Approach plates (applicable runway)
- Low Visibility Operations (FCTM, OM-A, SOP)

GENERAL

- Simulator Instructors will conduct the Low Visibility Operations Briefing in the Simulator's Briefing Room.
- The instructor will conduct the briefing and provide details on the exercises.
- A thorough and comprehensive briefing will reduce the need for coaching during the FFS session, which is rarely constructive, as it tends to distract the trainee from the exercise at hand. It is therefore imperative that whenever there is a need for extensive instruction during the exercise, the simulator should be frozen, and released after the instruction is completed.
- At the end of each session, de-briefing will be conducted by the Instructor, reviewing the performance of the Flight Crew with special emphasis on those maneuvers or procedures where the Flight Crew was found lacking.

- The emphasis will be on crew CO-ORDINATION throughout, with the minimum of distractions for flight profiles etc. enabling the trainee's concentration to be focused on performing the necessary procedures.
- The development of improved all-weather landing capabilities has been accomplished without sacrificing either safety standards or good operating practice. Furthermore, the refinements of automatic flight control systems, including equipment redundancy and fail-operational design for CAT-II /CAT-III conditions, are available for all precision approaches and this contributes to higher levels of overall safety and operating efficiency.
- It is recommended to use the maximum available automatic capacity LAND 3 whenever an automatic precision approach is required, in order to reduce the effect of a component failure on the operational capability.

Initial Qualification

- Complete the Cat-II /Cat-III A/B Simulator Training.
- Successfully demonstrate ILS approaches in CAT II/CAT III A/B condition in the Simulator for his/her Evaluation.
- Demonstrate at least 1 ILS approach in under supervision flying (auto-land) using CAT-II/CAT-III A/B procedure in non-actual condition.
- The Captain/First Officer will be cleared to operate down to CAT-II/CAT-III A/B minima after completion of 100 hours on type followed by a CAT-II/CAT-III A/B simulator check or during first recurrent simulator training/check.



CAT-III TRAINING

Pre Session Briefing	DH Philosophy			
	RVR Philosophy			
	Relationship between DH & RVR			
	Task Sharing			
	The decision process			
	Loss of references below DH			
	Minimum equipment			
	Cat II/ cat III Crew qualification requirements			
	CAT-II/CAT-III Certification			
	ATC Calls			
	Seat Position			
	Use of Taxi / Landing lights			
	CAT-II/CAT-III Briefing			
	Failure & associated actions			
	Down grading conditions			
Auto Flight operating limitations				
Aircraft requirements				
Approach & Runway lighting				
Weather	CALM	<400 MTRS	TEMP 2°C	QNH 1013
Airport/Runway/Condition	MANCHESTER 23R		DRY	
	TOM-230 T		Flaps – 30	CG – 25%
RANK & NAME	DATE:	PLND.TRG TIME 03:00	ACTUAL TRG TIME :	
COMMENTS:				
NAME OF INSTRUCTOR		SIGNATURE		TRAINEE'S SIGNATURE

777 Full Flight Simulator Training Divisions, Flight Operations

Transition Training Record



777 TRAINING RECORD
LOW VISIBILITY OPERATION QUALIFICATION
FIS Lesson

NAME	P-NO	CREW POSITION/PPPM	PLND TRG TIME 03 00	ACTUAL TRG TIME	TOTAL TIME

Training Item	Scheduled Repetitions	Actual Repetitions	Rating		Training Item	Scheduled Repetitions	Actual Repetitions	Rating	
			PF	PM				PF	PM
Briefing (concept prepared by Instructor)	1				LOC DEV below DH CAT III	1			
SMGS taxi	1				G/S DEV above DH CAT III	1			
Low visibility takeoff	1				CAT III/II AEP with Genl Equipment Failure	1			
CAT III/II, U.S. approach (approach light demonstration)	1				Axis Landing with engine fail L/R (Full stop)	1			
Full stop landing (Auto land)	1				CAT III/II, U.S. approach	1			
CAT-III, U.S. approach	1				SINGLE SOURCE U.S. (BELOW 300)	1			
Missed approach	1				SINGLE SOURCE U.S. Radio Altimeter	1			
A/R CAT-III, U.S. approach	1				Other instrument failure scenarios	1			
Full stop landing	1				Piloting misconfiguration	1			
Low visibility RTO (ENG FAIL, TAC out)	2				Missed approach	2			
Low visibility takeoff (Engine failure after V1, TAC out)	1				CAT-III, U.S. approach	1			
ENG FAIL (L/R) TAC out	1				Rejected landing	1			
Aep with Eng Fail below AH	1				CAT-III, U.S. approach	1			
Full Passive Approach with auto Pilot Disconnect below DH (300m or Less RVR)	1				Taxi-in				
CAT III/II Approach with Revert to Higher Minimum	1				Shutdown				

Comments (Required for all items not scored and/or any):

DATE	INSTRUCTOR NAME (CAA INSPECTOR/DCPA / SIM INSTRUCTOR)	INSTRUCTOR SIGNATURE

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PREFLIGHT

Accomplished by the instructor
 Complete all required CDU entries
 NAV/RAD, MCP and flight instrument preflight.

ENGINE START

Fast start accomplished by the instructor

LOW VISIBILITY TAXI OUT AND TAKE OFF

Normal procedures
 Taxi in low visibility condition – *As per SOP*
 In taxi position RWY 23 R
 Surface Movement Guidance and Control System (SMGCS)

Low Visibility Taxi Procedures

Bear in mind that, in very low RVR values, one would expect to see bright lights at a safe distance but not unlit or poorly lit obstacles, such as aircraft tails or wing tips. From certain angles, their navigation lights do not show up well. Since aircraft movement rates will be low in these conditions, taxi as slowly as necessary for safety. Do not hesitate to request from ATC the positions of other taxing aircraft or to ask for a “follow me” car.

Stop Bar lighting

Taxi routes, lighting, and surface markings

Low Visibility Take Off

A takeoff on Runway where the RVR is less than 400 m (EU - OPS1)
 Consult concept and definition and flight crew procedure defined in SOP.

TAKEOFF RVR/VIS

The takeoff minima is mainly determined by the airport equipment installed (RWY lighting system, RVR measurement system), Weather at Destination &

Alternate, Rejected Takeoff Consideration, Low visibility takeoff operations below landing minima, may require a takeoff alternate. When selecting a takeoff alternate, consideration should be given to unexpected events such as an engine failure or other non-normal situation that could affect landing minima at the takeoff alternate. Operators, who have authorization for engine inoperative Category II/III operations, may be authorized lower alternate minima. (Normally within one hour for Twin engine).

With proper crew training and appropriate runway lighting, takeoffs with RVR as low as 125m / 150m for category C / D respectively are authorized by PCAA.

With takeoff guidance systems and centreline lighting that meets FAA or ICAO criteria for Category III operations, takeoffs with visibility as low as 300ft/75m RVR may be authorized, NOT AVIALABLE ON B777 PIA AIRCRAFTS. Regulatory agencies may impose takeoff crosswind limits specifically for low visibility takeoffs.

All RVR readings must be equal to or greater than required takeoff minima. If the touchdown RVR system is inoperative, the pilot estimation of RVR may be authorized by regulatory agencies.

If it is necessary to reject the takeoff and visibility is very limited, directional control with reference to the runway lights will become progressively more difficult as speed is reduced.

As soon as the first red/white centreline lights pass under the nose of the aircraft, there is 3000'/900 m of runway left and ground speed should be in no case higher than 100 kts.

If all centreline lights are red, there is less than 1000'/300m of runway available.

DEMONSTRATION OF APPROACH LIGHTING

Autopilot, CAT II / III, ILS approach RWY 23 R, full stop landing

At the following RA heights, freeze the simulator to

Demonstrate approach lighting.

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Show DAY and NIGHT conditions.

CAT I	449	(200') <i>BARO</i>	RVR 550m
CAT II		100' RA	RVR 350m
CAT IIIa		50' RA	RVR 200m
CAT IIIb	WITH OR WITHOUT DH,		RVR 75m

Seating Position

As a rule, it can be said that sitting 1 centimetre too low results in a reduction of the cut-off angle of 1 degree, corresponding to a loss of 10m of the visual segment from a height of 100 feet. Further lowering of the seat position will aggravate the situation because of a greater reduction of the visual segment. A pilot sitting too low will also have the tendency to pitch down the aircraft in order to acquire additional ground visibility.

This will usually lead to a very dangerous situation: Unstabilised aircraft with a high rate of descent.

Complete AUTOLAND and ROLLOUT.

APPROACH AND LANDING

Autopilot, CAT II/cat III ILS approach

RWY 23 R missed approach

Configuration

Flaps 20 or 30

Select auto brakes 2 or 3

Use of landing lights

APPROACH BRIEFING

Complete the approach preparation before arrival in the terminal area.

CAT II /CAT-III approach plate.

Radio altitude (R/A) vs. barometric altitude.

CAT II DA (H) – 100 feet /cat III DH OF 50 FT radio altitude (where authorized)

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Check that the marker beacon is selected on the audio panel. The course and glide slope signals are reliable only when their warning flags are not displayed, localizer and glide slope pointers are in view, and the ILS identifier is received. Confirm the published approach inbound course is set or displayed.

Prior to the start of an instrument approach, the pilot flying should brief the other pilot as to intentions in conducting the approach. Both pilots should review the approach procedure. All pertinent approach information, including minimums and missed approach procedures, should be reviewed and alternate courses of action considered.

As a guide, the approach briefing should include at least the following:

- Weather and NOTAMS at destination and alternate, as applicable.
- Type of approach and the validity of the charts to be used
- Navigation and communication frequencies to be used
- Minimum safe sector altitudes for that airport
- Approach procedure including courses and heading
- Vertical profile including all minimum altitudes, crossing altitudes and approach minimums
- Determination of the Missed Approach Point (MAP) and the missed approach procedure
- Other related crew actions such as tuning of radios, setting of course information, or other special requirements.
- Taxi routing to parking.
- Any appropriate information related to a non-normal procedure
- Management of AFDS.

APP mode should not be selected until:

- The ILS is tuned and identified
- The airplane is on an inbound intercept heading
- Both localizer and glide slope pointers appear on the attitude display in the proper position

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- Clearance for the approach has been received.

The glide slope may be captured before the localizer in some airplanes. The glide slope may be captured from either above or below. Glide slope capture does not occur if the intercept angle to the localizer is greater than 80°. The maximum intercept angle for the localizer is 120°. To avoid unwanted glide slope capture, LOC mode may be selected initially, followed by the APP mode. (Glide slope inhibited before localizer capture 04.10.15)

When using LNAV to intercept the final approach course, ensure raw data indicates localizer interception to avoid descending on the glide slope with LOC not captured. If needed, use HDG SEL/TRK SEL or HDG HOLD/TRK HOLD to establish an intercept heading to final approach course.

Standards callouts

DA (H) – MINS selector on RADIO ALTIMETER/ BARO

CAT II required equipment

Second-in-command duties during CAT II/CAT III approaches

The pilot monitoring should continue standard callouts during final approach and the pilot flying should acknowledge callouts.

IF NO AUTO CALLS (PM to make standard calls as define in AWOPS)

AUTOLAND PROCEDURE

Auto land status annunciator

Below 1500 FEET RADIO ALTITUDE

FLARE and ROLLOUT armed ASA display LAND 2/3

Autopilot control of the rudder

500 FEET TO 200 FEET RADIO ALTITUDE

(Crab angle >10°, 5° - 10° & <5°) Depending on the strength of the crosswind, the amount of forward slip induced is limited to 5°.

Runway align maneuver

Effect on control when reverting to manual landing

50 FEET RADIO ALTITUDE (60' to 40') FLARE ENGAGED GREEN (Flare capture)

50-25 FEET RADIO ALTITUDE

A/T retards THRUST LEVERS & THRUST IDLE engage

PFD auto throttle FMA changes – SPD to IDLE

2 FEET RADIO ALTITUDE WINGS ARE LEVELLED

ROLLOUT CAPTURES

Roll out not demonstrated on contaminated runway and AFDS Roll-Out mode performance cannot be assured.

FLARE annunciation disappears at touchdown

ROLLOUT replaces LOC capture annunciation.

A/T disengages with reverse thrust.

Autopilot Missed Approach

GA switch

Flight Mode Annunciations

Pitch and roll commands activate in GA

Flap retraction

Missed approach waypoints

LNAV use

Missed approach

- Push TO/GA switch (AFDS)
- Flaps 20 (flaps 5 optional 1 engine)
- Go-around attitude
- Go-around thrust
- Positive rate of climb, gear up
- Above 400 feet select roll mode (AFDS)
- At flaps retraction altitude, set speed for desired flap setting
- Retract flaps on schedule
- After flap retraction, select FLCH or VNAV as required
- Verify tracking route and altitude capture
- After Takeoff checklist

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If an auto land annunciation changes or system fault occurs above ALERT HEIGHT that requires higher weather minimums (reversion to NO AUTOLAND), do not continue the approach below these higher minimums unless suitable visual reference with the runway environment is established.

Autopilots having failed operational capability are designed to safely continue an approach below ALERT HEIGHT after a single failure of an autopilot element. The autopilots protect against any probable system failure and safely land the airplane. AFDS design provides for an AH of at least 200 feet HAT but may be modified to a lower value by operators. The pilot should not interfere below AH unless it is clearly evident pilot action is required.

Alert Height

Is evaluated during aircraft certifications.

Alert heights are normally used for fail operational Category III operations. Alert height is a height above the runway, above which a Category III approach must be discontinued and a missed approach initiated if a specified failure occurs in one of the redundant parts of the Auto Landing System or in the relevant ground equipment.

Fail Operational

Fail operational refers to an AFDS capable of completing an ILS approach, auto land, and rollout following the failure of any single system component after passing alert height.

Fail Passive

Fail passive refers to an AFDS which in the event of a failure causes no significant deviation of airplane flight path or attitude. A DA (H) is used as approach minimums.

Recommended elements of a Stabilized Approach

The following recommendations are consistent with criteria developed by the Flight Safety Foundation.

All approaches should be stabilized by 1,000 feet above airport elevation in instrument meteorological conditions (IMC). An approach is considered stabilized when all of the following criteria are met:

- The aircraft is on the correct flight path,
- Only small changes in heading/pitch are required to maintain the correct flight path,
- The aircraft speed is not more than VREF+10 knots indicated airspeed and not less than VREF,
- The aircraft is in the correct landing configuration
- Sink rate is no greater than 1,000 fpm; if an approach requires a sink rate greater than 1,000 fpm, a special briefing should be conducted.
- Power setting is appropriate for the aircraft configuration.
- All briefings and checklists have been conducted.

As the aircraft crosses the Runway Threshold it should be:

- Stabilized on target airspeed to within + 10 knots until arresting descent rate at flare.
- On a stabilized flight path using normal maneuvering
- Positioned to make a normal landing in the touchdown zone (the first 3,000 feet or first third of the runway, whichever is less).

Mandatory Missed Approach

On all instrument approaches, execute an immediate missed approach:

- If a navigation radio or flight instrument failure occurs which affects the ability to safely complete the approach in instrument conditions
- When on ILS final approach, in instrument conditions, and either the localizer or glide slope indicator shows full deflection

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- When the navigation instruments show significant disagreement and visual contact with the runway has not been made
- When on an RNP based approach, and an FMC alerting message indicates that ANP exceeds RNP
- When on a radar approach and radio communication is lost.

APPROACH AND LANDING

Autopilot, CAT-II /CAT-III ILS approach

RWY 23 R full stop landing

CONFIGURATION

Flaps 20 or 30

Select auto brakes 2 or 3

Use of landing lights

DECISION HEIGHT DA (H) RECOGNITION

DA (H) callouts – PM voice backup

RVR information and limitations

RA display/authorization/inoperative

CHARACTERISTICS OF ILS AND RUNWAY LIGHTING SYSTEMS

Runway lighting systems required for CAT-II/CAT-III

USE OF VISUAL CUES UNDER REDUCED RVR

Conditions required to descend below DA (H) or AH

Descent to runway/touchdown zone

Visual references

Approach light system

Threshold markings

REIL, VASI, TDZ marking/lights

RWY marking/lights

PROCEDURES/TECHNIQUES TO TRANSITION FROM NON-VISUAL TO VISUAL FLIGHT UNDER REDUCED RVR

PM procedures
Flare and touchdown
SMGCS taxi procedures.

LOW VISIBILITY / TAKE OFF

TAKEOFF WITH ENGINE FAILURE BEFORE & AFTER V1

TAKEOFF WITH SUDDEN REDUCTION OF RVR

TAKEOFF WITH LOSS OF LATERAL GUIDANCE

(Introduce Pilot Incapacitation during takeoff / landing)

In takeoff position RWY 23 R

TAC ON

LOW VISIBILITY REJECTED TAKE OFF (RTO), RVR < 400M

Timely engine failure recognition

Reasons for reject (high speed/low speed)

PM call out malfunction and 60 knots

Auto brake use

Speed brake use

ACTIONS AFTER STOPPING

Notify tower

Notify passengers/cabin crew

Perform non-normal checklist (if required)

Evacuate the airplane (if required)

Taxi clear of runway (if appropriate)

Review Brake cooling schedule

LOW VISIBILITY TAKE OFF, ENGINE FAILURE AFTER V1,

RVR < 400M

TAC on

ENGINE FAIL (L/R)

LOW VISIBILITY TAKE OFF, RVR < 400M

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APPROACH AND LANDING (MISSED APPROACH)

Autopilot, CAT-II/CAT-III ILS approach RWY 23 R

SINGLE SOURCE ILS

(Left and right ILS receivers fail)

EICAS ANNUNCIATIONS;

AUTOPILOT DISCONNECT

SINGLE SOURCE ILS

NO AUTOLAND

INSTRUMENT AND EQUIPMENT FAILURE WARNING SYSTEM

Autopilot disengages

Flight Director Bias out of view

Respective electronic display

PF, PM procedures

Positive monitoring

Non-normal procedures/indications/actions

APPROACH AND LANDING

Autopilot, CAT II/CAT III, ILS approach RWY 23 R full stop landing

A working knowledge of approach lighting systems and regulations as they apply to the required visual references is essential to safe and successful approaches. Touchdown RVR is normally controlling for Category I, II, and III approaches. For Category I and II approaches, mid and rollout RVR are normally advisory. For Category III operations mid and rollout RVR may be controlling. In some countries, visibility is used instead of RVR. (Approval from the regulatory agency is required to use visibility rather than RVR.)

CAT-II / CAT-III APPROACH & LANDING VISIBILITY REQUIREMENTS

CAT-II DA (H) – 100 FEET RADIO ALTITUDE & RVR 350m (where authorized)

CAT-III A DA (H) – 50 FEET RADIO ALTITUDE & RVR 200m (where authorized)

CAT-III B DA (H) WITH OR WITHOUT DH AND RVR 75m (where authorized)

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CAT-II / CAT-III AUTHORIZATION

Refer to concept and definition, flight crew procedure.

NOTAMS and ATIS for ILS performance and status or degradation Airplane condition: systems status and CAT II/CAT-III MEL status standard callouts per flight Crew training Manual Approach profile and go-around procedures.

Consideration of rollout conditions, including visibility, runway exiting, Use of landing lights. Refer to flight crew procedure

CAT-II/CAT-III APPROACH TECHNIQUES

Select auto brakes 2 or 3 (start APU at 10000 Optional)

Check winds (per regulatory authority)

Max. Headwind 25 knots

Max. Tailwind 10 knots

Max. Crosswind 25 knots

Flaps 30 or 20 (30 will be flatter for visibility)

Captain makes all CAT II/CAT-III approaches and landings

CAT-II/CAT-III OPERATIONS

Category II approaches may be conducted using the autopilot or flight director with HUDLS only (FAA), with one or two engine.

PIA POLICY. Auto Landing System should be serviceable for CAT-II approach & landing. (Check MEL, DDPG)

CAT-III APPROACH Auto landing system is mandatory

The following equipment must be operative for an automatic approach in

Category II

Conditions:

LAND 3 or LAND 2 annunciated and EICAS messages SGL SOURCE DISPLAY, SGL SOURCE RAD ALT or SGL SOURCE ILS not displayed.

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CAT-III OPERATIONS

CAT-III operation is based on an approach to touchdown using the automatic landing system. Normal operations should not require pilot intervention. However, pilot intervention should be anticipated in the event inadequate airplane performance is suspected. or when an automatic landing cannot be safely accomplished in the touchdown zone. Guard the controls on approach through the landing roll and be prepared to take over manually, if required.

The airplane is certified for CAT IIIB operations with two engines operating or with one engine operating for flaps 20 or flaps 30 landing.

CAT-IIIa / Auto land

For CAT IIIa operations the following equipment must be operative and LAND 3 or LAND 2 annunciated.

- 2 autoland status annunciators (ASA)
- EICAS message SGL SOURCE DISPLAY, SGL SOURCE RAD ALT or SINGLE SOURCE ILS not displayed.

CAT-IIIb / Auto land

For CAT-IIIb operation, visual reference is not normally a specific requirement for continuation of the approach to touchdown

CAT-IIIb operations require the following equipment to be operative and LAND 3 annunciated:

- Auto throttle engaged
- 2 auto land status annunciators
- - EICAS message SGL SOURCE DISPLAY, SGL SOURCE RAD ALT or SINGLE SOURCE ILS not displayed.

Automatic Flight EICAS Messages

The following EICAS messages can be displayed.

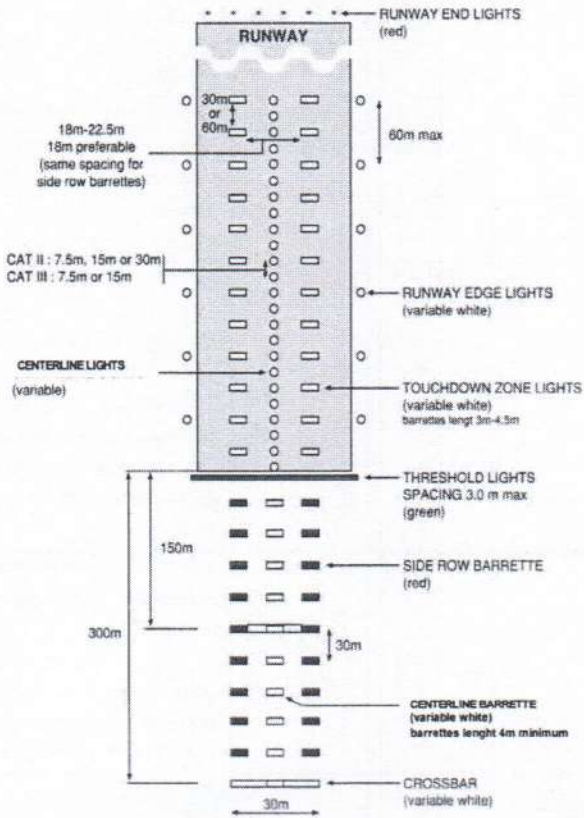
Message	Level	Aural	Condition
AUTOPILOT	Caution	Beeper	Autopilot is operating in a degraded mode. Engaged roll and / or pitch mode may have failed, or the autopilot has entered envelope protection.
AUTOPILOT DISC	Warning	Siren	Autopilot has disconnected.
AUTOTHROTTLE DISC	Caution	Beeper	Both auto throttles have disconnected.
AUTOTHROTTLE L, R	Advisory		Affected auto throttle is OFF or has failed.
NO AUTOLAND	Caution Advisory	Beeper	Auto land is not available. Message is a caution if fault occurs after LAND 3 or LAND 2 is annunciated, or approach has been selected but does not engage by 600 AGL. Message is an advisory if fault occurs before LAND 3 or LAND 2 is annunciated.
NO LAND 3	Caution Advisory	Beeper	Auto land system does not have redundancy for triple channel auto land. Message is a caution if fault occurs after LAND 3 is annunciated. Message is an advisory if fault occurs before LAND 3 is annunciated.

AFDS Faults

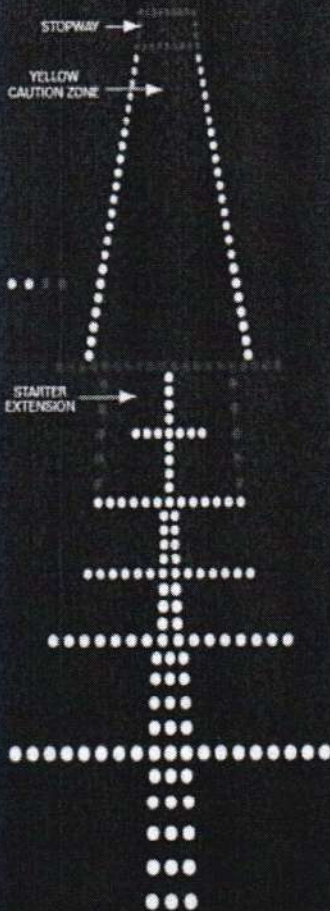
Consult the FCTM, Flight preparation and flight crew procedure (SOP).

CAT II/III APPROVAL PROCESS

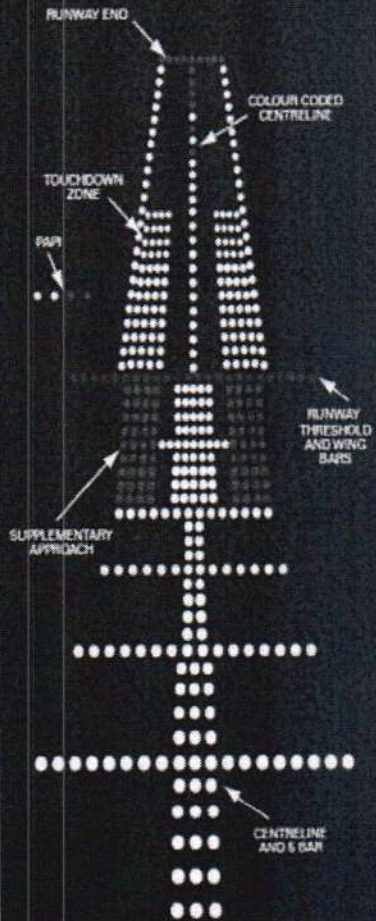
Figure 5.4 Runways lights / Approach light system

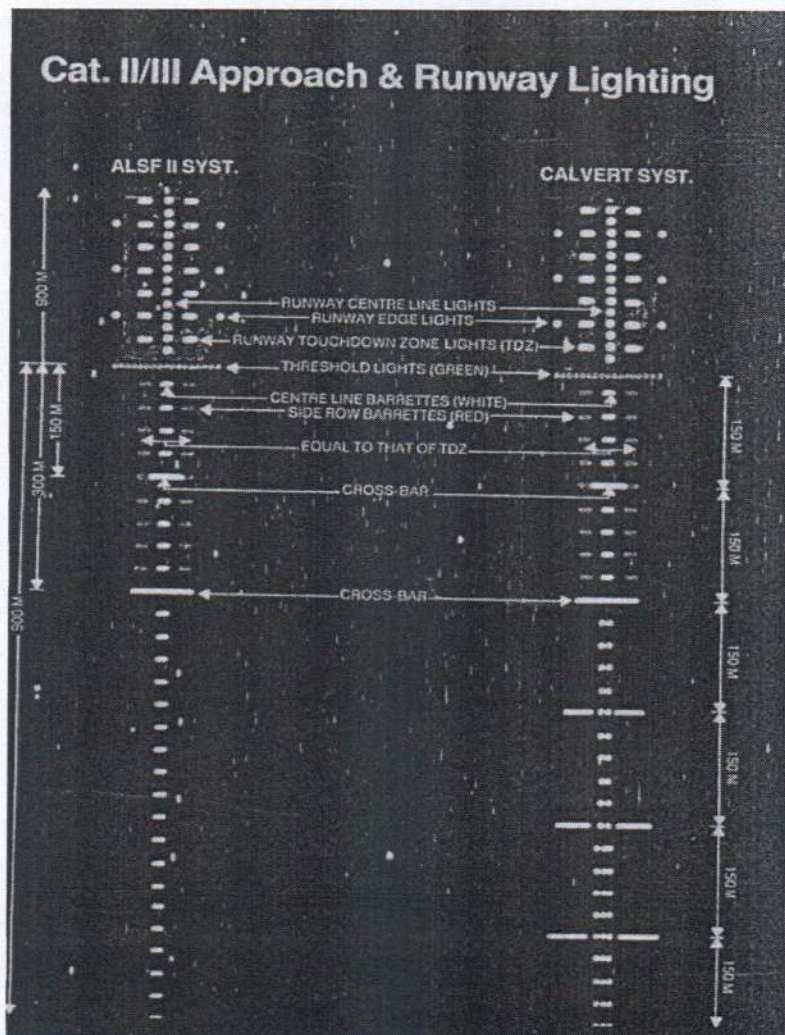


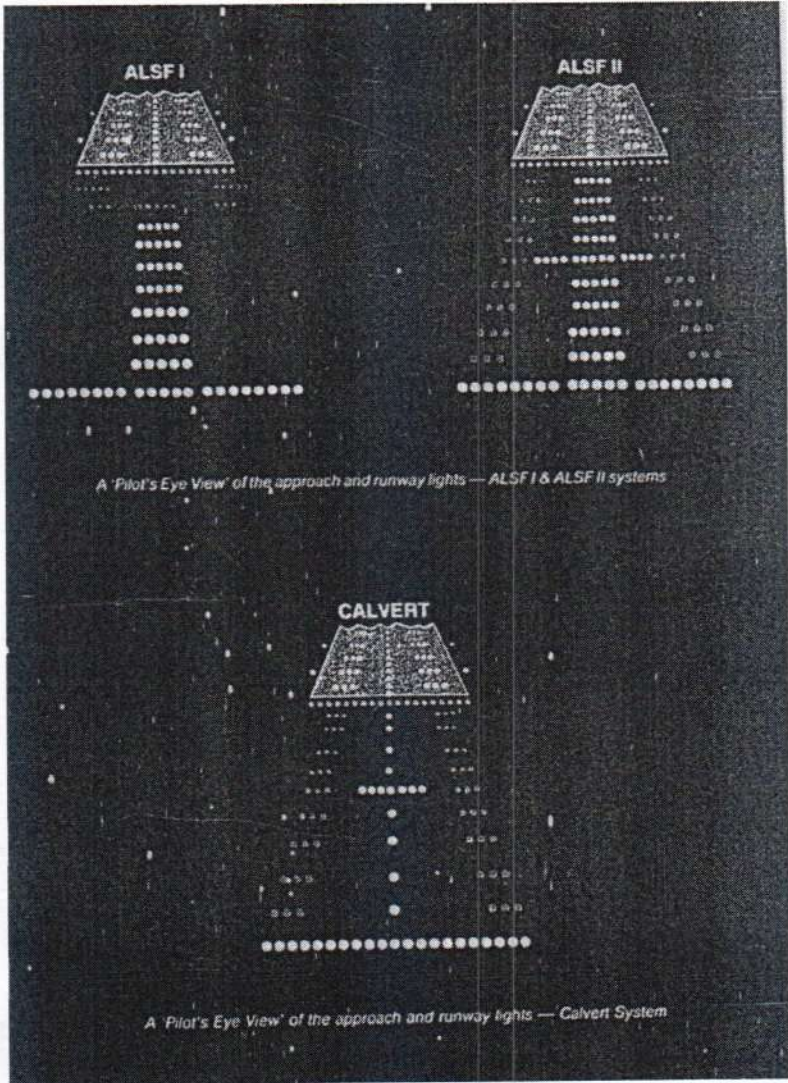
**APPROACH AND RUNWAY LIGHTING
TYPICAL CAT I SYSTEM SHOWING
TAKE-OFF STARTER EXTENSION AND
STOPWAY LIGHTING**



**APPROACH AND RUNWAY LIGHTING
TYPICAL CAT II OR CAT III SYSTEM**

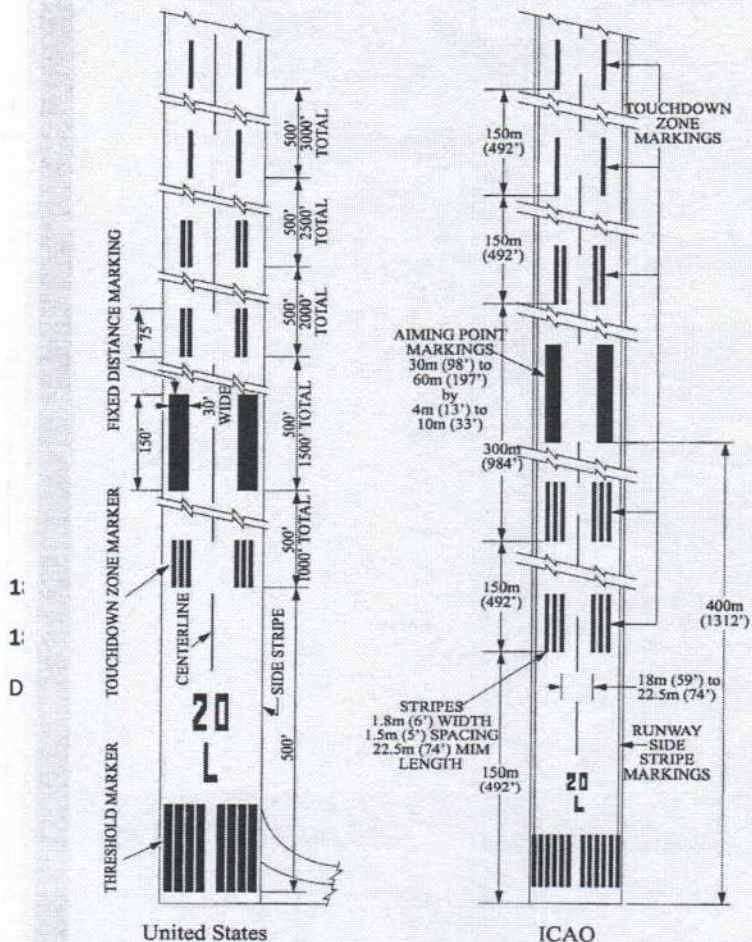







Landing Runway Markings (Typical)

The following runway markings are for runways served by a precision approach.



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CFIT simulator training should be given during initial transition and recurrent training. This training should follow a building block approach to learning. It is recognized that there are many contributing factors that may lead to the loss of vertical and horizontal situational awareness by the flight crew. Because of this, the flight crew cannot be exposed to all of the situations in the simulator that they may confront during their normal flight operations. However, a well-structured training program will include exposure to a sufficient number of contributing factors in each exercise to make the training as realistic as possible.

CFIT scenarios can be introduced during:

- A low-altitude level-off just after takeoff, with a radar vector turn toward high terrain, and no subsequent vectoring.
- An early enroute descent into a mountainous/hilly terminal area in an intensive communications environment or in adverse weather conditions during a non precision approach.
- A takeoff or missed approach with a low-altitude level off and a turn toward high terrain.

Fig 1.

Exercise	Description	Training Objectives
1.	Insert a simulator "mountain*" in VFR conditions during flight on the downwind leg of the traffic pattern	Demonstrate GPWS warnings and proper response times and procedures for the escape maneuver.
2.	Insert a simulator "mountain*" in IMC during an appropriate phase of flight.	Demonstrate flight crew awareness and coordination in CFIT situations. Practice correct escape maneuver procedures.

* Invisible, rapidly rising terrain simulator feature.

The simulator training should include:

- A briefing.
- A minimum of two exercises. Refer to Figure 1.
- A critique.

Before the CFIT exercise:

- Review the need for crew awareness and coordination.
- Discuss the importance of knowing GPWS warnings and the requirement for rapid flight crew response to these warnings.
- Review CFIT traps.
- Review the escape maneuver/procedure and pilot techniques.

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APPROACH AND LANDING ACCIDENT REDUCTION (ALAR)

A stabilised approach provides a basis for a good landing, it provides the crew with the optimum conditions to flare, land, and stop the aircraft.

An approach must be stabilised by 1,000 ft in IMC and by 500 ft in VMC.

1. The aircraft must be on the correct flight path.
2. Only small changes in heading and pitch are required to maintain the correct flight path.
3. The aircraft speed is less than $V_{ref}+20$ kts, and less than $V_{ref} + 15$ kts at the threshold.
4. The aircraft is in the landing configuration.
5. Sink rate less than 1,000 feet per minute.
6. Power setting appropriate for configuration.
7. All briefings and checklists have been completed.
8. Instrument landing system (ILS) approaches - must be flown within the equivalent of one dot of the glideslope or localizer.
9. Visual approaches - wings must be level on final before 500 ft.
10. Circling approaches - wings must be level on final before 300 ft.

Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilised approach require a special briefing.

UPSET PREVENTION AND RECOVERY TECHNIQUE (UPRT)

For instructional purposes, several different airplane upset situations should be discussed. These include the following:

- Nose high, wings level.
- Nose low, wings level.
 - Low airspeed.
 - High airspeed.

- High bank angles.
 - Nose high.
 - Nose low.

Airplanes that are designed with electronic flight control systems, commonly referred to as “fly-by-wire” airplanes, have features that should minimize the possibility that the airplane would enter into an upset and assist the pilot in recovery, if it becomes necessary. But, when fly-by-wire airplanes are in the degraded flight control mode, the recovery techniques and aerodynamic principles discussed in this training aid are appropriate. Some environmental conditions can upset any airplane. But the basic principles of recognition and recovery techniques still apply, independent of flight control architecture.

Airplane autopilots and autothrottles are intended to be used when the airplane is within its normal flight regime. When an airplane has been upset, the autopilot and autothrottle must be disconnected as a prelude to initiating recovery techniques. Situational analysis of the energy state of the aircraft is also required. This analysis assesses the energy and trend. This includes but is not limited to altitude, airspeed, attitude, load factor, power setting, position of flight controls, position of drag and high-lift devices, and the rate of change. This analysis may cause the crew to make appropriate changes, such as use of speed brakes or lowering the landing gear for drag as necessary to aid in the recovery. In other words, manage the energy.

Note: Higher than normal control forces may be required to control the airplane attitude when recovering from upset situations. Be prepared to use a firm and continuous force on the control column and control wheel to complete the recovery.

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Guidance is given in B-777 FCTM (7.15) and B-777 QRH (MAN 1.7)

STALL AND RECOVERY

Recovery from stall requires a deliberate and smooth reduction in wing angle of attack. The elevator is the primary pitch control in all flight conditions, not thrust.

The present approach to stall technique being employed is focused on “powering” out of the near-stalled condition with emphasis on minimum loss of altitude. At high altitude this technique may be totally inadequate due to the lack of excess thrust. It is impossible to recover from a stalled condition without reducing the angle of attack and that will certainly result in a loss of altitude, regardless of how close the airplane is to the ground. Although the thrust vector may supplement the recovery it is not the primary control. At stall angles of attack, the drag is very high and thrust available may be marginal. Also, if the engine(s) are at idle, the acceleration could be very slow, thus extending the recovery.

Guidance is given in B-777 FCTM (7.8) and B-777 QRH (MAN 1.1)