

virtualCondor

Operations Manual

General - A

Boeing 757/767



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BOEING 757/767

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1. Economic Fuel Consumption

1.1 Cost Index

Der Cost Index ist ein Verhältnis von Crew zu Luftfahrzeugkosten und wird im Zweifel in Rücksprache mit dem Operations Control Center (OCC) erhöht, um Verspätungen aufzuholen.

Model	ICAO Designator	Cost Index
<i>Boeing 757-330</i>	B753	30
<i>Boeing 767-330ER</i>	B763	30

2. Aircraft Specification

2.1 Mass Configuration

Boeing 757-330

Empty Weight	OEW	61.235 kg
Max. Zero Fuel Mass	MZFM	95.255 kg
Max. Landing Weight	MLW	101.605 kg
Max. Takeoff Mass	MTOM	123.830 kg

Max. Fuel Capacity		34.300 kg
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Boeing 767-330ER

Empty Weight	OEW	85.325 kg
Max. Zero Fuel Mass	MZFM	140.160 kg
Max. Landing Weight	MLW	147.871 kg
Max. Takeoff Mass	MTOM	186.066 kg

Max. Fuel Capacity		73.365 kg
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2.2 Cabin Configuration

Boeing 757-330

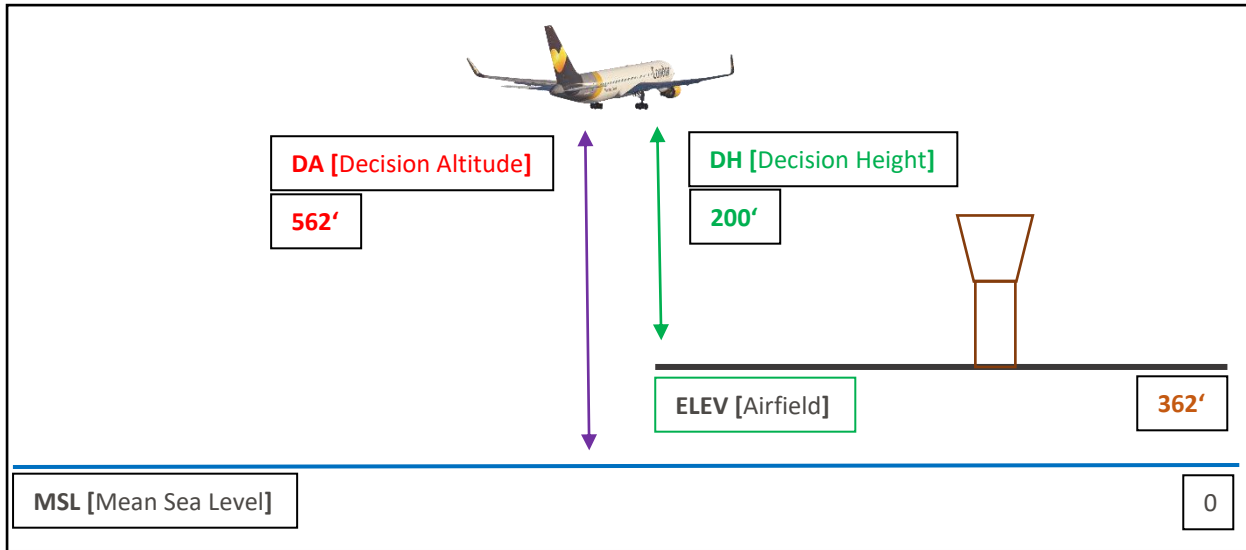
Version	DE75T
<i>Premium Economy</i>	26
<i>Economy</i>	236
Max. Passenger Capacity	236

Boeing 767-330ER

Version	DE76W	DE76S	DE76L
<i>Business Class</i>	18	18	30
<i>Premium Economy</i>	35	35	35
<i>Economy</i>	202	200	180
Max. Pax Capacity	255	253	202

3. Operation Procedures

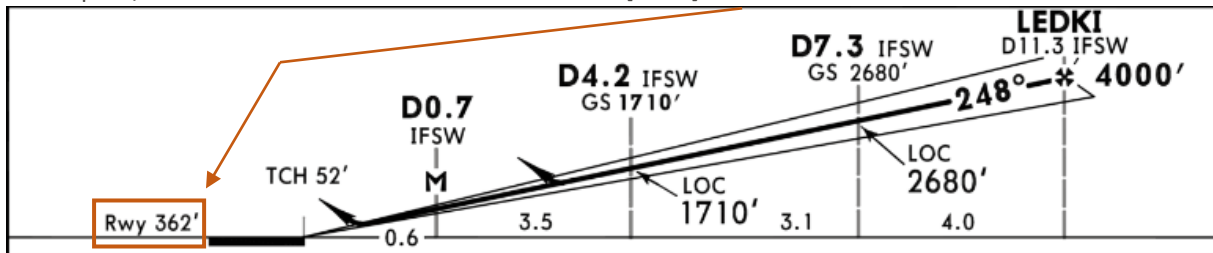
3.1 Minimum Altitudes



Airport Elevation

The airfield elevation [ELEV] can be reviewed in the vertical profile of the ILS chart.

The airport / threshold elevation for ILS25LZ at Frankfurt [EDDF] is **362 feet**.



Decision Altitude [DA] – Decision Height [DH]

STRAIGHT-IN LANDING RWY 25L	
ILS	
DA(H)	562' (200')

Decision Altitude [DA] is always mentioned as the first number (**bold**) and the Decision Height [DH] is shown within the brackets.

Decision Altitude [DA] *Airport Elevation + Decision Height [DH]*

Decision Height [DH] see Table

Category	Decision Height (DH) / Decision Altitude (DA)	Runway Visual Range (RVR)
CAT I	200' (Decision Altitude)	550m (Visibility)
CAT II	100'	300m
CAT IIIa	50'	200m
CAT IIIb	0'	75m

3.1.1 CAT I

Prior to each approach (~30min before Top of Descend [TOD]) the crew should check the current METAR and decide whether to use the ILS and which category.

WMKK 062330Z 0000KT 9000 FEW030 SCT140 BKN280 27/24 Q1011 NOSIG

Limits

Visibility	Minimum	550m	550
Clouds	Minimum	200ft AGL	FEW/SCT/BKN002

3.1.1 CAT II – IIIb

CAT II, IIIa and IIIb should be performed if the airport is certified for this operation and the visibility or the cloud ceiling is below CAT I.

CAT IIIc is not certified for virtualCondor.

3.1.1 Cockpit Setup

The **Decision Altitude (309')** is set on the Altimeter by moving the orange selector bug, whereas the **Decision Height (200')** is set on the ADI/EHSI Selector panel.

Altimeter Bug at 309'



ADI DH REF at 200'



The Decision Height (DH) shown on EADI



3.2 Minimum Fuel Policy

3.2.1 Boeing 757-330

ALTN Fuel	Destination Airport to Alternate Airport
Final Reserve Fuel	30 Minutes Holding @ 1500 feet over Alternate Airport

Final Reserve Fuel Calculation

Dry Operating Weight (DOW)	61.235 kg
Payload (PAX)	30.431 kg
Payload (Cargo)	1500 kg
Landing Weight (LW)	93.166 kg

Conversion [kg / lbs]

$$93166 \text{ kg} \times 2,205 \text{ [kg} \rightarrow \text{lbs]} = \underline{\underline{205.431 \text{ lbs}}}$$

Weight (1000LB)		Pressure Altitude (Feet)								
		1500	5000	10000	15000	20000	25000	30000	35000	40000
200	EPR	1.16	1.18	1.21	1.26	1.31	1.38	1.46	N/A	N/A
	KIAS	213	213	213	213	213	213	213	N/A	N/A
	FF/ENG	3990	3910	3540	3480	3540	3420	3390	N/A	N/A

Calculation:

$$\text{Fuel Flow [FF/ENG]} \times 2 = 3990 \text{ lbs/h} \times 2 = \underline{\underline{7980 \text{ lbs/h}}}, \text{ / } 2,205 \text{ [lbs} \rightarrow \text{kg]} = \underline{\underline{3619 \text{ kg/h}}}$$

Standard Final Reserve Fuel is **1800kg**

3.2.2 Boeing 767-330ER

ALTN Fuel	Destination Airport to Alternate Airport
Final Reserve Fuel	30 Minutes Holding @ 1500 feet over Alternate Airport

Final Reserve Fuel Calculation

Dry Operating Weight (DOW)	85.321 kg
Payload (PAX)	25.023 kg
Payload (Cargo)	2000 kg
Landing Weight (LW)	112.344 kg

Conversion [kg / lbs]

$$112.344 \text{ kg} \times 2,205 \text{ [kg} \rightarrow \text{lbs]} = \underline{\underline{247.718 \text{ lbs}}}$$

Weight (1000LB)		Pressure Altitude (Feet)								
		1500	5000	10000	15000	20000	25000	30000	35000	40000
260	N1	55.8	58.6	63.0	67.0	71.6	76.0	80.2	84.6	91.0
	KIAS	210	210	210	210	210	210	210	210	210
	FF/ENG	4230	4150	404	3970	3920	3900	3870	3900	4090
240	N1	54.1	56.6	60.8	65.1	69.3	74.0	78.3	82.6	88.7
	KIAS	204	204	204	204	204	204	204	204	204
	FF/ENG	3960	3890	3780	3700	3650	3620	3590	3600	3740

Calculation:

$$\text{Fuel Flow [FF/ENG]} \times 2 = 4233,6 \text{ lbs/h} \times 2 = \underline{\underline{8467,2 \text{ lbs/h}}}, \text{ / } 2,205 \text{ [lbs} \rightarrow \text{kg]} = \underline{\underline{3840 \text{ kg/h}}}$$

Standard Final Reserve Fuel is **1920kg**

3.3 Separation

3.3.1 Vertical Separation

Reduced Vertical Separation Minima (**RVSM**) are generally applied as semi-circular flight rules in all airspaces, divided by North / South direction.

Exception are published in the associated Aeronautical Information Publication (**AIP**).

European Airspaces which divide RVSM in West / East and not North /South direction are for example:

- *France*
- *Spain*
- *Portugal*

Vertical Separation Description

AGL – FL290	Vertical Separation		VSM	Opposite Direction	1000 feet
				Same Direction	2000 feet
FL290 – FL410	<u>Non-Reduced</u> Vertical Separation		non-RVSM	Opposite Direction	2000 feet
				Same Direction	4000 feet
	<u>Reduced</u> Vertical Separation		RVSM	Opposite Direction	1000 feet
				Same Direction	2000 feet

VSM/RVSM Flightlevel (North/South Division)

RVSM	
180° - 359°	000° - 179°
FL430	
	FL410
FL400	FL390
FL380	FL370
FL360	FL350
FL340	FL330
FL320	FL310
FL300	
	FL290
FL280	FL270
FL260	FL250
FL240	FL230
FL220	FL210
FL200	FL190
FL180	

NON-RVSM	
180° - 359°	000° - 179°
FL430	
	FL410
FL390	
	FL370
FL350	
	FL330
FL310	
	FL290
FL280	FL270
FL260	FL250
FL240	FL230
FL220	FL210
FL200	FL190
FL180	

3.3.2 Wake Turbulence Separation

Reduced Final Approach		2,5 Nm
Standard Final Approach	without Wake Turbulence Separation	3 Nm
Final Approach	with Wake Turbulence Separation	5 Nm

3.4 Speed Restrictions

3.4.1 Inflight

General Speed Restriction below FL100 is **250kts** IAS.

Boeing 757-330 and Boeing 767-330ER are allowed to proceed over 250kts IAS above Transition Altitude (TA):

- Gross Weight (GW) requires more than 250kts IAS for a clean configuration
- High Speed is approved by ATS

3.4.2 Taxi

[DRY weather]

All *Boeing* aircraft are required to maintain a maximum speed, not exceeding **10kts**, during manoeuvring and sharp turns.

Long and straight taxiways without slopes may allowed to pass up to **30kts**.

[WET and CONTAMINATED]

All *Boeing* aircraft are required to maintain a maximum speed , not exceeding **10kts**, during manoeuvring and sharp turns. Every other taxiway shall not be passed by exceeding **15kts** during wet and contaminated conditions.

3.5 Autopilot

The Autopilot (A/P) and Autothrottle (A/T) shall be engaged and disengaged simultaneously.

Conditions for Manual Flight

A/C in **VMC** and **Runway in Sight – Clear of Clouds**

CAT II - CAT IIIb Landings are automated precision approaches and shall not be performed manually.

Keep in mind: *Fly manually or manage the automated flight.*

4. Aircraft Systems

4.1 Weather Radar (WXR)

The Weather Radar has several features to analyse the forward and upcoming weather and is shown on the EHSI.

AUTO/WX+T Weather + Turbulence Mode active
-3 Tilt (scan angle) is at -3° down
TFC TCAS Mode is active

[Gain]

This feature allows to increase/decrease the intensity of the scan

[Tilt]

Adjustment of the angle of the radar in relation to your flightpath (UP/DOWN)

[Modus] **TURB** (or **WX+T**) should be generally selected



4.2.1 Departure

During departure, the forward and climb sector should be scanned for turbulence and precipitation.

The recommended **TILT**-setting is [+5]



4.2.2 Cruise

Use of the weather radar inflight and during cruise depends on the expected range and intensity of expected rain/thunderstorms/turbulence ahead.

Due to the curvature of the earth, the **TILT**-setting has to be changed according to the expected range of the target.

Longrange-Scanning Lower **TILT**-setting (0° -> -3°)

Closerange-Scanning Level **TILT**-setting (0° -> -1°)

4.2.3 Approach

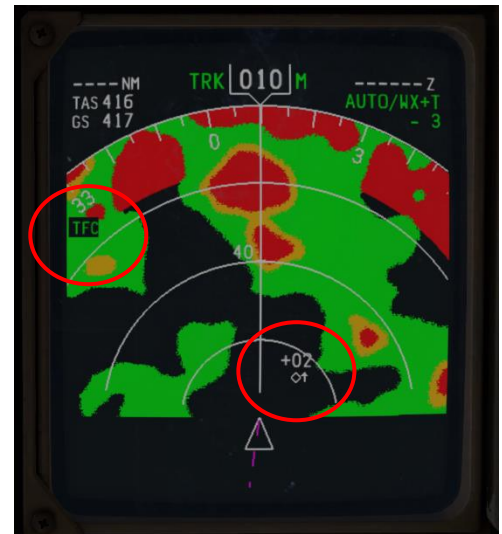
During departure, the forward and climb sector should be scanned for turbulence and precipitation.

The recommended **TILT**-setting is [-5]



4.2 Traffic Collision and Avoidance System (TCAS)

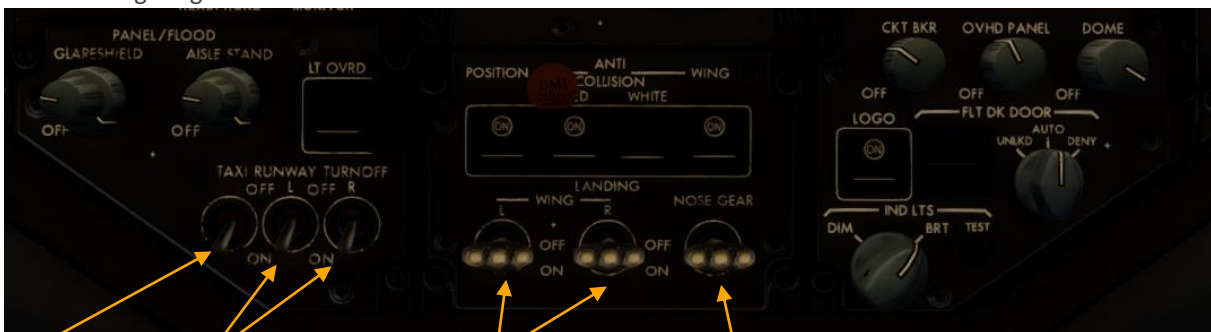
The TCAS system is activated by switching the Transponder at least into the Traffic Advisory (TA) or Resolution Advisory (TA/RA) mode.



The display mode on the EHSI is activated/de-activated by pushing the TFC button on the range selector knob on the ADI/EHSI selector panel.

4.3 Light Operation

Overhead Lighting Panel



(1) Taxi Light (2) Runway Turnoff (3) Wing Landing Light (4) Nose Gear Landing Light

3.8.1 Daylight Operations

- Position - Always (On)
- Red Anti Collision - Before Engine Start (On) | After Engine Shutdown (Off)
- White Anti Collision - Before Takeoff (On) und After Landing (Off)

- Taxi (1) - Before Taxi (On)
- Runway Turnoff (2) - Before Taxi (On)
- Wing Landing Light (3) - Before Take-Off (On) | Passing FL100 (Off)
- Passing FL100 (On) | After Landing (Off)

- Nose Gear Landing Light (4) - Before Take-Off (On) | After Gear Up (Off)
- Before Landing (On) | After Landing (Off)

3.8.2 Night Operations

- Wing - Before Taxi (On), climbing and passing FL100 (Off)
- Descending FL100 (On), after Engine Shutdown (Off)
- Logo - Ground to FL100 (On), Cruise above FL100 (Off)