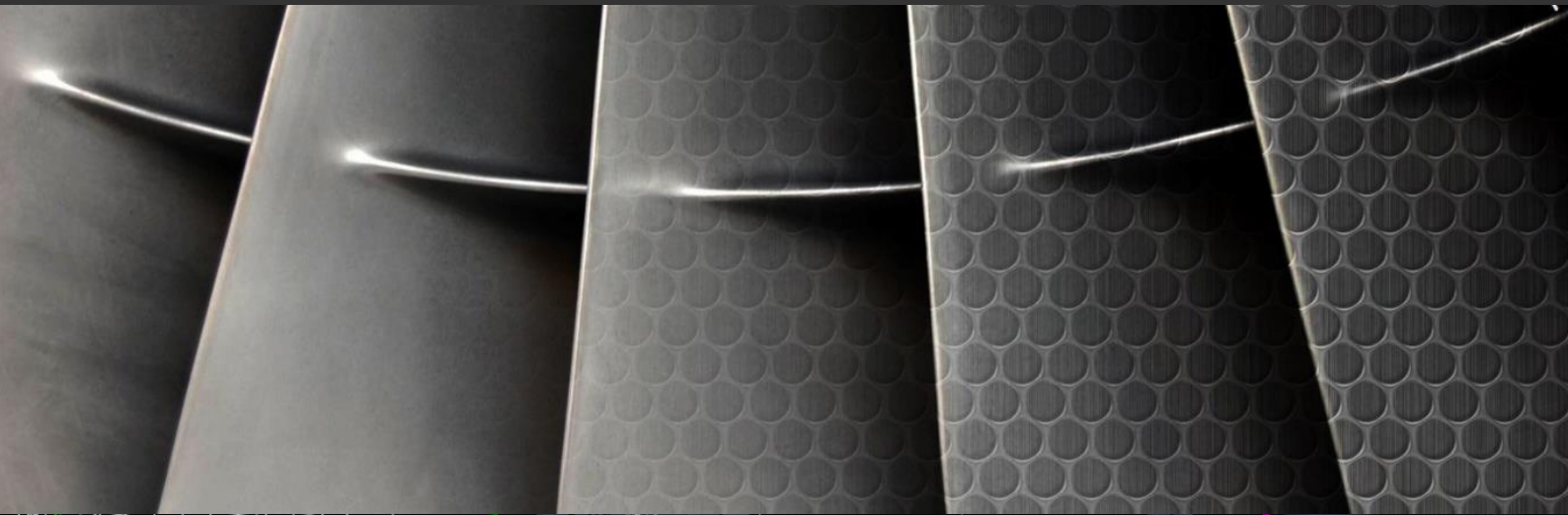


# Flight Operations



*Cost Index Database*

v1.3.3

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TOGA  
projects

## Introduction

This cost index database will help you to find the best cost index to use for your virtual flights depending on the airline and aircraft type. We highly recommend to use the **Airlines list** in order to get the most accurate cost index, however, if the airlines you are searching for is not listed, you can use a typical cost index for your aircraft using the **Aircraft list**.

A **glossary** is also available at the end of this document.

### What is the cost index or CI?

During a flight the cost mainly comes from two different things: the hourly crew cost and the fuel cost, both depends on time. The cost index synthesizes both costs in order to minimize the cost of a specific flight by giving priority to the fuel consumption or the flight time. This allows to calculate speeds and optimum altitudes. In a nutshell the higher the CI is, the costlier the flight is.

$$CI = \frac{\text{Crew cost per time}}{\text{Cost per fuel quantity}}$$

Usual cost index values are located between 0 and 200 depending on the airline, type of flight, and delay, it can be changed during flight for schedule purposes.

### Accuracy of this database

This database is aimed for flight simulation only and for realism purpose, it is based on real world data. As this document mainly depends on user's feedbacks and many other sources, some values may be slightly outdated or wrong. Some airlines or aircraft in this document may not exist anymore or may be retired, they are left here as simulation still allows to fly old airlines and retired aircraft.

The real world cost indexes also regularly change depending on the oil barrel price and this document is based on typical values.

### Database navigation

To make your navigation in this database easier, we have added useful links which allow you to jump between chapters of interest, you can identify these links by their **bold appearance**. In case you are lost in the manual, just click the blue arrow on the top right corner to return to the table of contents



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## Aegan Airlines

A319/A320	CI = 20
A321	CI = 25

## Aer Lingus

A319 ( <i>retired</i> )	CI = 5
A320	CI = 4
A321	CI = 6
A332	CI = 13
A333	CI = 16
B757	CI = 11

## Aeroflot

A32X	CI=10-20
B763	CI = 60

## Aerolinas Argentinas

B737	CI = 25
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## Aerologic

B77F	CI = 170
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## Aeromexico

B737	CI = 30
B757	CI = 50
B767	CI = 64
MD80	CI = 44

## Air Baltic

General	CI = 28
B757	CI = 50

## Air Berlin

A319	
→ BHP ( <i>HB-XXX</i> )	CI = 3
→ BER ( <i>D-XXXX</i> )	CI = 6
A320	CI = 8
A321	
→ NLY ( <i>OE-XXX</i> )	CI = 7
→ BER ( <i>D-XXXX</i> )	CI = 8
A332	CI = 80
B737 NG	CI = 8

## Air Canada

B767	CI = 100
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## Air France

Short/Medium haul <i>Delayed flight</i>	CI = 10 <i>CI = 99-250</i>
La navette * <i>Delayed flight</i>	CI = 150 <i>CI = 250</i>
Long haul <i>Delayed flight</i>	CI = 50 <i>CI=100-500</i>

\* From ORY and full economy aircraft only.

## Air Malta

B737	CI = 25
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## Air New Zealand

B767	CI = 45
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## Air Tran

General	CI = 30
---------	---------

## Alaska Airlines

General	CI=15-30
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## American Airlines

### Flight duration < 4 hours

MD80	CI = 24
A32X	CI = 27
B737	CI = 35
B757	CI = 80
B767	CI = 65
B772	CI = 85
B77W	CI = 90

### Flight duration > 4 hours

MD80	CI = 21
A32X	CI = 22
B737	CI = 30
B757	CI = 75
B767	CI = 60
B772	CI = 80
B77W	CI = 85

## Atlas Air

B748F	CI=64-74
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\* Including 061, 063, 067, 071 and 074.

## Austrian

General	CI = 35
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## British Airways

### Cruise

A318	CI = 30
A319/A320	CI = 15
A321	CI = 20
A380	CI = 120
B737 CL	CI = 28
B744 *	CI = 90
B757 & B767	CI = 40
B777 * <i>Eco</i>	CI = 100 CI = 57
B787	CI = 25

\* CI = 0 can also be used on westbound flights from USA to UK or from UK to Asia.

### Climb

General	CI = 0
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## British Midlands

General	CI = 40
---------	---------

## Cathay Pacific

B744	CI = 80
------	---------

## Cebu Pacific

General	CI = 5
A32X	CI = 10

## China Airlines

B744	CI = 85
------	---------

## Condor

A320	CI = 26
A321	CI = 33
B752	CI = 18
B753	CI = 30
B767	CI = 30

## Delta Airlines

B737	CI = 13
B744	CI = 100
B757	CI = 55
B762	
→ ECON	CI = 81
→ SL1	CI = 54
→ OT1	CI = 243
B763	
→ ECON	CI = 94
→ SL1	CI = 63
→ OT1	CI = 377
B763ER	
→ ECON	CI = 113
→ SL1	CI = 75
→ OT1	CI = 377
B764	
→ ECON	CI = 107
→ SL1	CI = 71

\* ECON is for maximum cost operations;  
SL1 is for fuel economy with tailwinds or ahead schedule;  
OT1 is used with headwinds and behind schedule.

## Easyjet

A319 & A320	CI = 12
A321	CI = 23

## Egyptair

A320	CI = 23
A321	CI = 25
A330	CI = 35
B735	CI = 18
B738	CI = 22
B772	CI = 37
B77W	CI = 44

## EI AI

B737	CI=15-30
B747	CI = 39
B757	CI=20-40
B762	
→ Europe	CI=30-45
→ Other	CI=40-45
B777	CI = 71

## Emirates

A330	CI = 26
A343	CI = 24
A345	CI = 28
A380	CI = 50
B77W	CI = 36
<i>If 777-300ERD *<sup>1</sup></i>	<i>CI= 37</i>
B772LR/LRF	CI = 35
B772ER	CI = 36
<i>If special reg &amp; shorthaul *<sup>2</sup></i>	<i>CI = 34</i>

\*<sup>1</sup> Reg: A6-EMN, EMM, EMO, EMP, EMR, EMS, EMT, EMU, EMV, EMX, EMW;

\*<sup>2</sup> Reg: A6-EMI, EMH, EML, EMK, EMJ

## Etihad

A319	CI = 18
A320	
→ No Sharklets	CI = 16
→ Sharklets	CI =
A321 (sharklets)	CI = 15
A332	CI = 23
A332F	CI = 25
A333	CI = 26
A340	CI = 32
A380	CI = 50
B772LR	CI = 41
B772LRF	CI = 44
B77W	
→ For reg A6-JAx	CI = 43
→ For reg A6-ETx	CI = 45
B789	CI = 25

## Eurowings

A32X <i>If operated by BER</i>	CI = 11 <i>CI = 15</i>
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## Fedex

MD11	CI = 200
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## Fly Dubai

B737 → From OMDB → To OMDB	CI = 32 CI = 12
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## FlyGlobespan

B737	CI = 14
B738	CI = 13

## FlyNiki

General	CI = 50
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## Frontier

A318 & A319	CI = 6-8
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## Germania

Airbus	CI = 8
Boeing	CI = 10

## Gol

B737	CI = 25
------	---------

## Hamburg International

A319	CI = 40
B737	CI = 30

## Iberia

A32X	CI=35-50
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## Icelandair

B752	CI = 16
B753	CI = 18
B767	CI = 18

## Jet2

B733	CI = 5-8
B738	CI = 7-9
B752	CI=10-17

## JetBlue

General	CI = 35
---------	---------

## Kingfisher

A32X	CI = 18
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## KLM

A330	
→ CRZ	CI = 60
→ CLB	CI = 150
→ DES	CI = 300
B737	
→ CLB	CI = 30
→ CRZ & DES	CI = 15
B747	
→ CLB	CI = 150
→ CRZ	CI = 300
→ DES	CI = 50
B777 & MD11	
→ CLB	CI = 50
→ CRZ	CI = 100
→ DES	CI = 10
F70 & F100	
→ CRZ	CI = 30
→ CLB & DES	CI = 15

## Lufthansa

A32X	CI = 30
A330 & A340	CI=70-90
A380	CI = 60
B744 & B748	CI = 70

## Lufthansa Cargo

General	CI = 50
B772LRF	CI = 80
MD11	CI = 30

## Luxair

B737	CI = 10
B738	CI = 8

## Nordavia

B735	CI = 27
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## Nordstar Airlines

B737	CI = 30
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## Norwegian Air Shuttle

B737 NG	
→ Standard Ops	CI = 15
→ Express Ops <sup>*1</sup>	CI = 40
→ Delayed Ops <sup>*2</sup>	CI = 80
B737 CL	CI = 20
B787	CI = 36

<sup>\*1</sup> All routes to HEL, LGW, SXF, VIE, ORY, DUS, and domestic Finland routes;

<sup>\*2</sup> All routes to HRG, RMF, LPA and TFS.

## Nouvelair

A320	CI = 28
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## Novair

A321	CI = 4
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## PAL

B77W	
→ CLB & DES	CI = 0
→ CRZ	CI = 100

## PIA

B777	CI = 180
→ CLB & DES	310/0.84
→ CRZ	LRC

## Qantas

B744	CI=50-100
General	
→ Domestic	CI = 40
→ International *	CI = 20

\* Up to CI = 250 to meet schedule/duty limits

## Qatar Airways

A319CJ	
→ From OTHH	CI = 9
→ To OTHH	CI = 8
A320	CI = 10
A321	CI = 11
A332/F	CI = 15
A333	CI = 15
A346	CI = 21
A350	CI = 30
A380	CI = 160
B772LR/LRF	
→ From OTHH	CI = 120
→ To OTHH	CI = 110
B77W	CI = 120
B787	
→ From OTHH	CI = 110
→ To OTHH	CI = 25

## Royal Air Maroc

B737	CI = 34
B738 *	CI = 24
B763	CI = 39
B787	CI = 42

\* CI = 50 is used to/from LHR, ORY and AMS.

## Ryanair

B738	CI = 6
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## S7

General	CI = 30
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## SAS

A32X	CI = 6
A330 & A340	CI = 50
B737 NG	CI=5-8
B737 CL	CI=40-45
CRJ9	CI = 9
MD80	CI=10-45

## Singapore Airlines

B747 & B777	CI = 150
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## Skyexpress Russia

B737 CL	
→ Domestic	CI = 28
→ International	CI = 32

## SmallPlanet

General	CI = 15
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## South African Airways

General	CI = 50
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## Southwest Airlines

B737 NG	CI=36-40
B737 CL	CI=28-30

## SunExpress

General	CI = 2-4
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## Swiss Airlines

A32X	
→ ≤ FL290	CI = 10
→ > FL290	CI = 20
A330 & A340	
→ LRC	CI = 30
→ M0.82 CRZ *1	CI = 30
→ M0.83 CRZ *2	CI = 150

\*1 Up to FL280 use CI, above use M0.82 manually edited;

\*2 Up to FL280 use CI, above use M0.83 manually edited.

## TAM Linhas Areàs

A319	CI = 19
A320	CI = 26
A321	CI = 25
A332	CI = 26
B763	CI = 34
B77W	CI = 38

## Thomas Cook BEL

A320	CI = 10
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## Thomas Cook UK

A321	CI = 13
A332	CI = 27
B752	CI = 28
B753	CI = 29
B763	CI = 27

## Thomas Cook SE

A321	CI = 21
A332	CI = 40
A333	CI = 39

## Tui

General	CI = 15
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## Tui BEL (JetairFly)

General	CI=13-14
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## Tui UK (Thomson Airways)

A320	CI = 13
A321	CI = 17
B733	CI = 10
B738	CI = 13
B752	CI = 23
B763	CI = 25
B787	CI = 21

\* CI = 19 is used for long hauls

\* CI = 11 is used for short hauls

## Transavia

B737	
→ Standard ops	CI = 36
→ Delayed ops	CI=300-350

## Tunisair

A320	CI = 17
B736	CI = 13

## Turkish Airlines

B77W	CI = 26
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## Ukraine International

B737 NG & CL	CI=11-14
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## United Airlines

### Flight duration < 4 hours

A32X	CI = 27
B737 NG & CL	CI = 35
B752	CI = 80
B763	CI = 65
B772	CI = 85
B744	CI = 90

### Flight duration > 4 hours

A32X	CI = 22
B737 NG & CL	CI = 30
B752	CI = 75
B763	CI = 60
B772	CI = 80
B744	CI = 85

## Virgin America

A32X	CI=30-35
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## Virgin Atlantic

A333	CI = 32
A343	CI = 30
A346	CI = 40
B747 CL ( <i>FMS equipped</i> )	CI = 150
B744	CI=73-93
→ <i>Eastbound</i>	CI = 75
→ <i>Westbound</i>	CI = 90

## Virgin Blue

General	CI=12-25
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## Volotea

B717	CI = 15
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## Westjet

B737 NG	CI=20-25
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## Wizzair

A320 ( <i>w &amp; w/o SL</i> )	CI = 15
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## XL Airways FR

A330	CI=40*
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\* M0.81 maximum during CRZ phase

\* 300kt/M0.81 during CLB/DES instead of CI

## Aircraft typical cost indexes

Airbus	MRC	Typical	LRC
A32X	CI = 0	CI = 50-80	CI = Unknown
A330	CI = 0	CI = 30-60	CI = Unknown
A340	CI = 0	CI = 30-60	CI = Unknown

Boeing	MRC	Typical	LRC
B717	CI = 0	CI = 5-25	CI = 25
B737 CL	CI = 0	CI = 10-30	CI = 30
B737 NG	CI = 0	CI = 10-30	CI = 35
B744	CI = 0	CI = 25-80	CI = 230
B757	CI = 0	CI = 15-50	CI = 85
B767	CI = 0	CI = 15-50	CI = 70
B777	CI = 0	CI = 90-150	CI = 180

Fokker	MRC	Typical	LRC
F70 & F100	CI = 0	CI = 20-40	CI = Unknown

McDonnell Douglas	MRC	Typical	LRC
MD80	CI = 0	CI = 10-50	CI = Unknown
MD11	CI = 0	CI = 80-120	CI = 200

## Glossary

- CI = Cost Index
- CLB = Climb
- CRZ = Cruise
- DES = Descent
- ECON = Economic
- FL = Flight level (Altitude in feet / 100)
- LRC = Long Range Cruise
- MRC = Maximum Range Cruise
- Reg = Aircraft Registration
- SL = Sharklets (Airbus Only)