

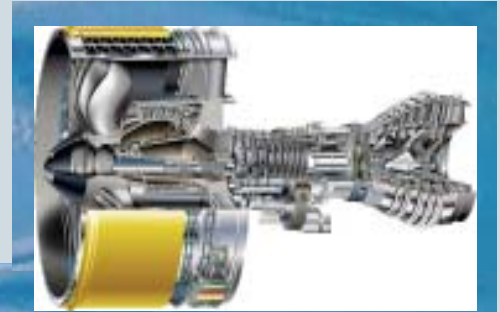
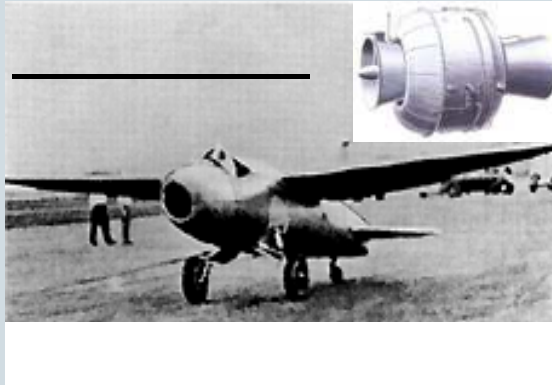
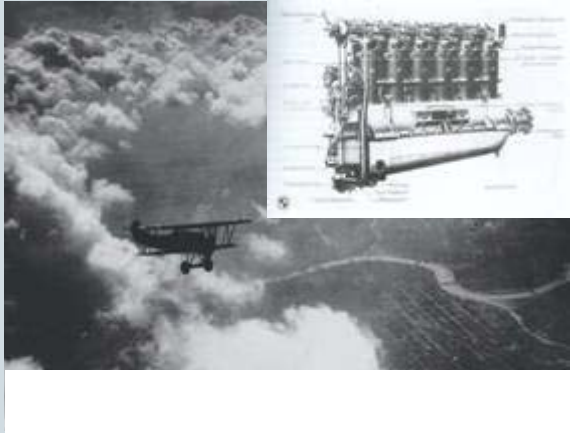
# **Technology Perspectives for Aircraft Propulsion**

**SAE Power Systems Conference  
and  
SAE World Aviation Congress  
Reno, Nevada  
November, 2nd, 2004**

**Prof. Dr. Klaus Broichhausen, MTU Aero Engines**

**... This is MTU Aero Engines**

- ... Future challenges commercial & military engines
- ... Technological answers





**PW6000**



**Airbus A318**

**JT8D**



**Boeing MD80-Reihe**

**V2500**



**Airbus A319, A320,  
A321, Boeing MD-90**

**PW2000**



**Boeing 757**

**CF6-80**



**Airbus A300,  
A310, A330  
Boeing 747, B767, MD-11**

**GP7000**



**Airbus 380**

**PW4000G**



**Boeing 777**

**PW500**



**Cessna Bravo  
Cessna Excel**

**PW300**



**Learjet 60  
Do328JET  
Gulfstream G200  
Hawker 1000  
Dassault Falcon 7X  
Cessna Sovereign**

**C250-C20**



**Bo105  
Jet Ranger**

**EJ200**



**EF2000 Eurofighter  
Typhoon**

**RB199**



**Panavia Tornado**

**J79**



**F4-Phantom II**

**Tyne**



**Transall  
Breguet Atlantic**

**F117-PW-100**



**C-17 Globemaster III**

**T64**



**Sikorsky CH-53-G**

**MTR390**



**Eurocopter Tiger**

**Larzac**



**Alpha Jet**

**TP400-D6**



**Airbus A400M**

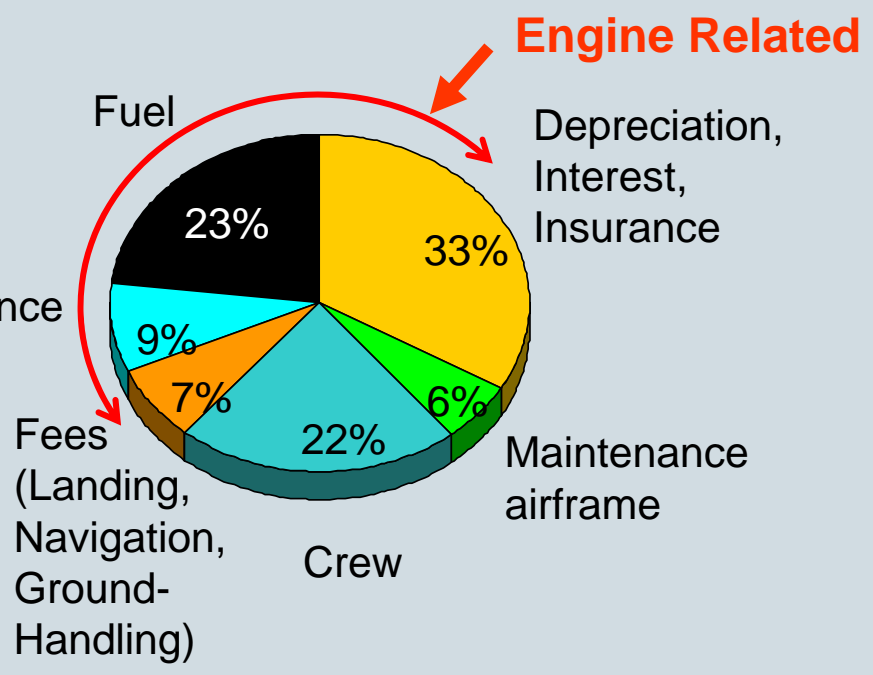
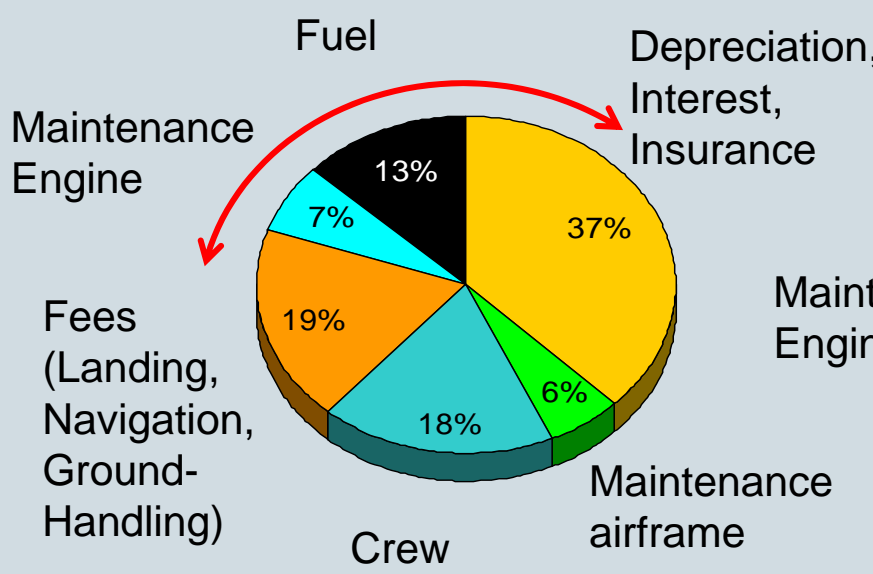
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**Short Range**  
(A320 bei 500 nm)

**Long Range**  
(A340-300 bei 6000 nm)





## Decibel count raised in US-EU hushkit battle

RAMON LOPEZ/WASHINGTON DC

A TRANSATLANTIC war of wits over European Commission plans to place serious restrictions on hushkitted com-

aircraft registered in non-EU states to go on flying in the EU after 2002 unless the aircraft have been operated in the EU between 1995 and 1999, and have remained on the same register.

portation says the regulation "...seems to be motivated by a desire to appear tough on noise to placate local constituencies, or by a mistaken belief that US operators will dump hushkitted aircraft in

## Europe proceeds with hushkit ban

JULIAN MORON/PARIS

THE EUROPEAN Union (EU) is on a collision course with the USA over noise regulations after the European Parliament voted on 30 March for a proposed ban to proceed on lin-

which was put on hold for a year pending discussions with the USA on new Stage 4 regulations, would be "totally unacceptable", says the Parliament.

In its resolution, the Parliament said it would consider a "limited review" of its ruling on hushkitted

to withdraw this "pending a global agreement". It says it wants the USA to take a "constructive approach" to negotiating a new noise standard.

The European proposals have drawn the threat from US Congress of a loss of British Air-

## Engines with more power and less noise

Anyone who watches baseball regularly knows about Shea Stadium: The home of the New York Mets lies under

### Meeting federal requirements

In 1990, Congress promulgated the Airport Noise and Capacity Act, ordering

## The approaching Green Tax

Consideration for the environment is one of the newest and most influential trends in today's culture and society. The increasing influence of so-called 'green parties' and non-governmental organisations with environmental protection goals is a worldwide phenomenon; their having gained membership in the par-

## Airlines Fear Kyoto Protocol Would Curtail Growth

PERRÉ SPARACO/CANNES, FRANCE

The United Nations' global environmental protocol, tentatively scheduled to take effect in 2002, could have a major impact on the airline industry's health and long-term growth prospects.

According to the goals set forth in 1997 at the World Climate Change conference in Kyoto, greenhouse gas emissions should

decrease by 5.2% during 1990-2010. In addition, commercial transports' operational life-cycle extends over 25-30 years, and no dramatic reduction of emissions could be achieved in a short time period, experts stressed during an environmental conference here sponsored by the Paris-based Air Promotion Group (APG). To comply with the Kyoto

22% during 1990-2010. Last year, France

## EIS 2015+

<b>Min. Fuel Burn</b>	<b>-15-20%</b>
<b>Low Noise</b>	<b>-30-40 dB</b>
<b>Low Emissions</b>	<b>-80% NO<sub>x</sub></b>



- 1. Advanced engine concepts**
  - *improved conventional Turbofans*
  - *max. propulsive efficiency engines*
  - *max. thermal efficiency engines*
- 2. High efficiency/low noise components**
- 3. Smart & power optimized systems**

Environmental friendly materials and manufacturing processes

Competitive cost