

## **MPC 75 briefing**



# MPC 75 briefing

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# Introduction

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# Introduction



The **MPC 75** represents the start of a new family of regional airliners. It is an all-new standard-body, twin-engined, short-haul aircraft in the 90-seat category. A growth version of the MPC 75 provides accommodation for typically 115 passengers.

The demanding and discerning passenger of the 1990s expects from an all-new airliner the latest standards in terms of cabin comfort, spaciousness and carry-on capacity. The MPC 75 meets these standards and provides distinct marketing advantages over its competitors.

The MPC 75 design, unconstrained by any parentage to a previous design, makes full use of advanced technologies wherever they prove to be cost-effective to provide operators with the ability

to achieve unmatched bottom-line benefits in terms of lowest fuel burn and lowest operating costs of any aircraft in its category.

The MPC 75-100 offers passengers increased seat comfort over ranges of up to 1,600 nautical miles in its basic version, with range capability increasing to approximately 2,600 nautical miles with an additional centre wing fuel tank.

The MPC 75-200 is the first stretched version of the basic MPC 75-100 with the fuselage stretched by 16 ft 8 in/5.1 m.

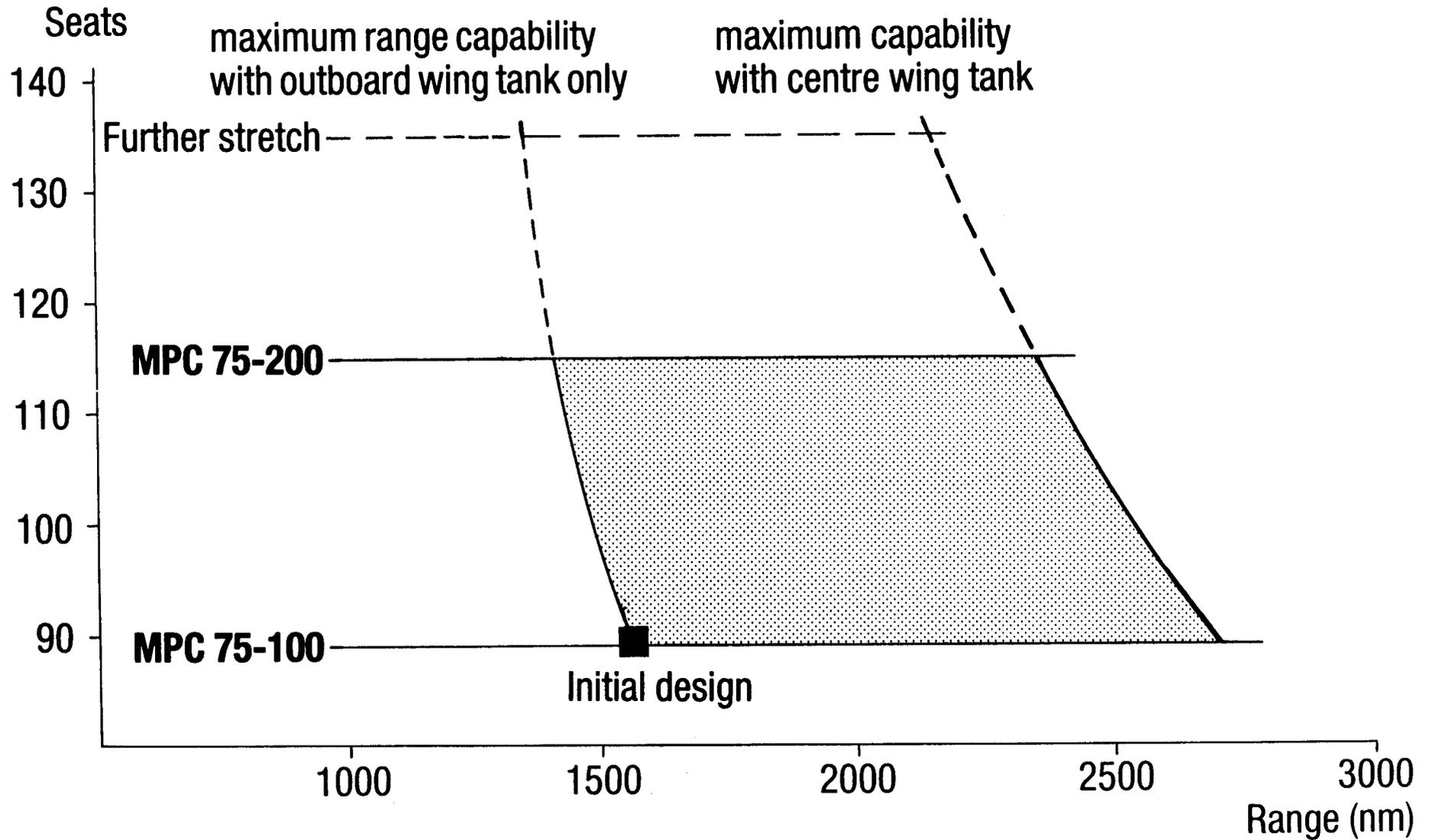
First flight of the MPC 75-100 is scheduled for autumn 1994 with entry into service at the beginning of 1996. Entry into service of the MPC 75-200 is expected towards the end of 1998.

**The MPC 75 – designed for low cost, adaptability and profitability**

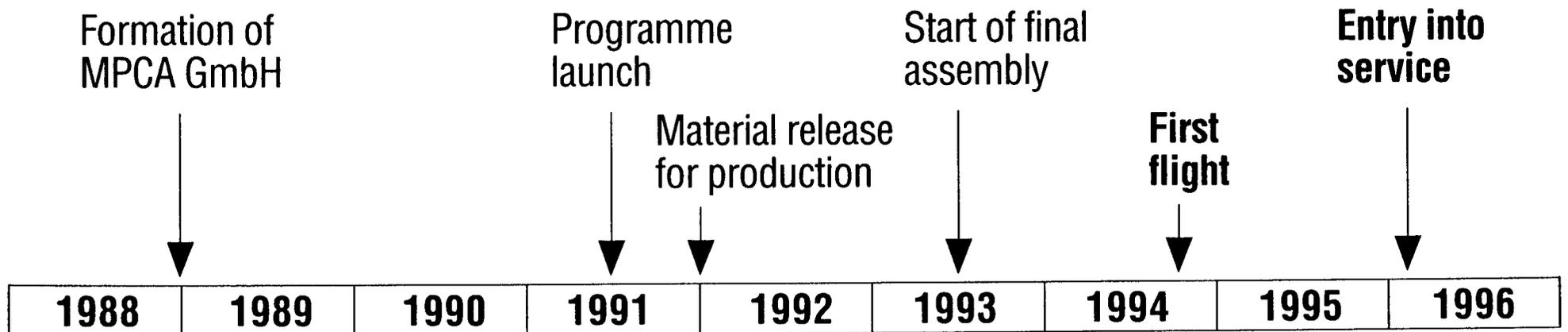
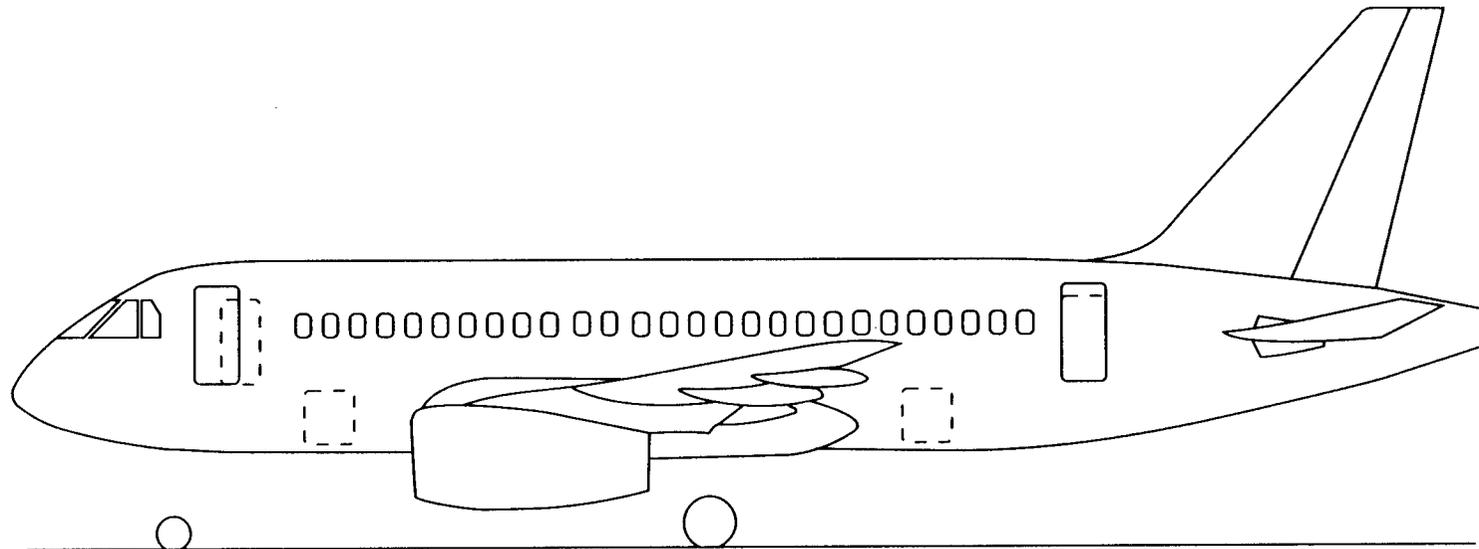


*Olsson*

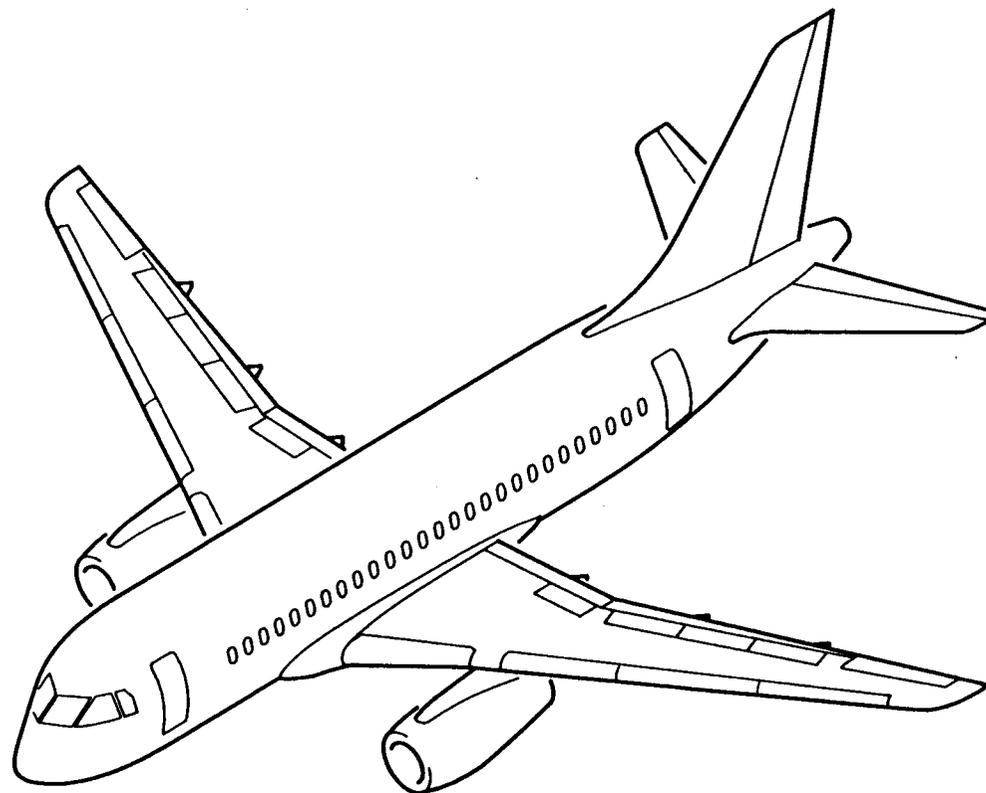
# Family concept



# MPC 75-100 programme schedule



# MPC 75 main data



**Seats (single-class)**  
**Range**

## **MPC 75-100**

**89**  
**1,600 nm/3,000 km**

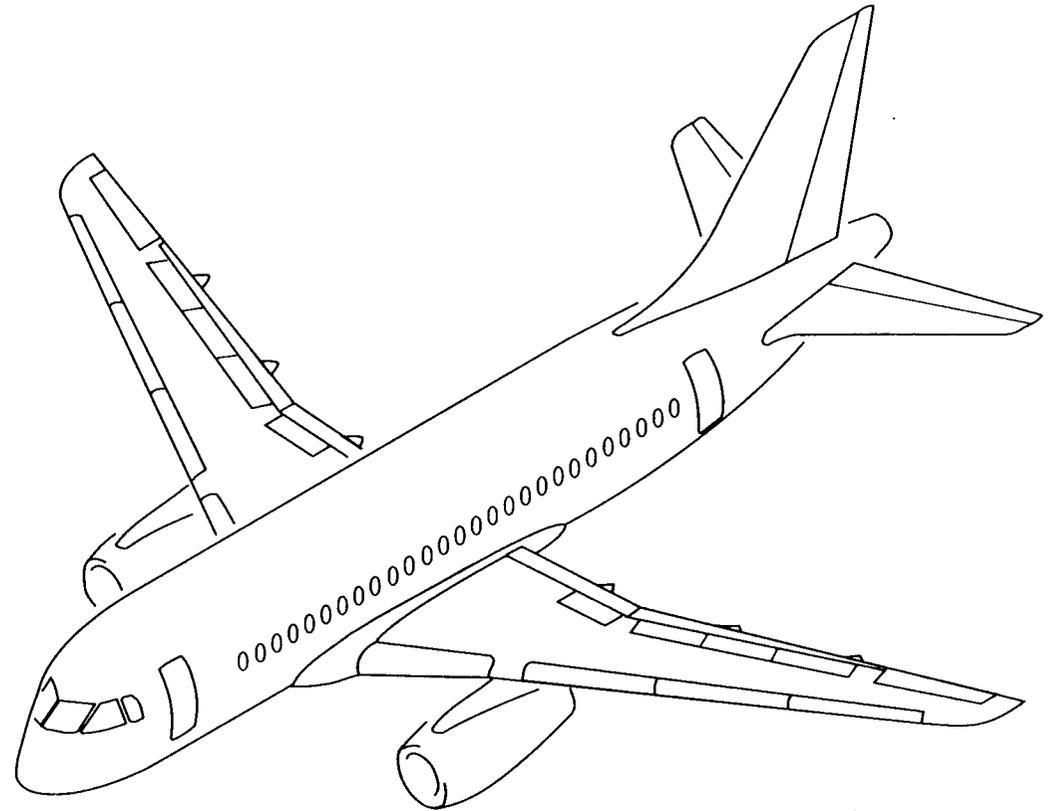
## **MPC 75-200**

**115**  
**1,400 nm/2,600 km**

Note: MPC 75-100 shown

# MPC 75 key features

- Fly-by-wire flight control
- Second generation advanced flight deck with sidesticks
- Highly efficient high bypass turbofans with electronic controls
- Widest use of composite materials in any commercial airliner
- High aspect ratio, low drag wing
- Comprehensive integration of digital avionics
- Fuselage cross-section offers optimum 5-abreast seat comfort



# Payload accommodation

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# MPC 75 fuselage cross-section



The MPC 75 fuselage has a blended double-bubble cross-section, which provides the minimum wetted area consistent with improved standards in three main areas:

- passenger comfort and cabin styling
- carry-on baggage capacity
- underfloor compartment capability

## **Passenger comfort**

The standard 5-abreast cross-section is configured with 63-inch wide triple-seats, 42-inch double-seats and a 20-inch aisle. The 4-abreast First class section consists of 52-inch double-seat units with a 22-inch aisle. These configurations represent an improvement in seat comfort of typically 1 inch per seat and 1 inch in aisle width compared to current 5- or 6-abreast competitors.

## **Carry-on capacity**

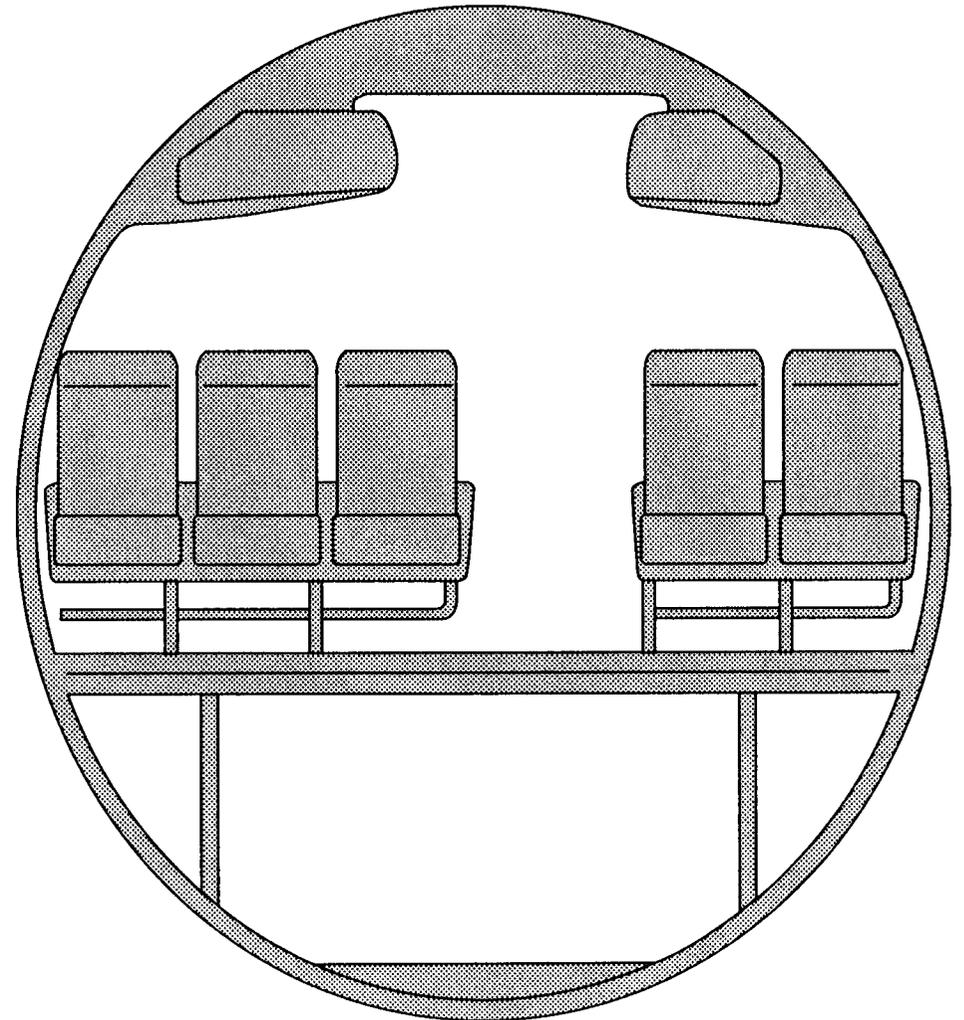
The upper lobe radius and the floor position result in a cabin height of 82 inch (2.08 m) to the ceiling panel, which makes the cabin particularly spacious and allows the installation of large, asymmetrically shaped overhead stowages for improved carry-on capacity. The stowage and lighting design further enhance the attractive appearance of the cabin.

## **Underfloor compartment capability**

The underfloor compartments are efficiently shaped, providing excellent accessibility and the best working conditions for baggage handlers. The ample working height within the underfloor hold compartments, combined with the widest floor of any of its five-abreast competitors, provide for fast manual loading and short turnround times.

# The unique MPC 75 cross-section

- Superior cabin comfort
- Widest aisle
- Attractive interior styling
- Large, asymmetrically shaped overhead stowages
- Widest, deepest underfloor hold of any 5-abreast competitor



**Unmatched market adaptability in its category**

# MPC 75 cabin cross-section features

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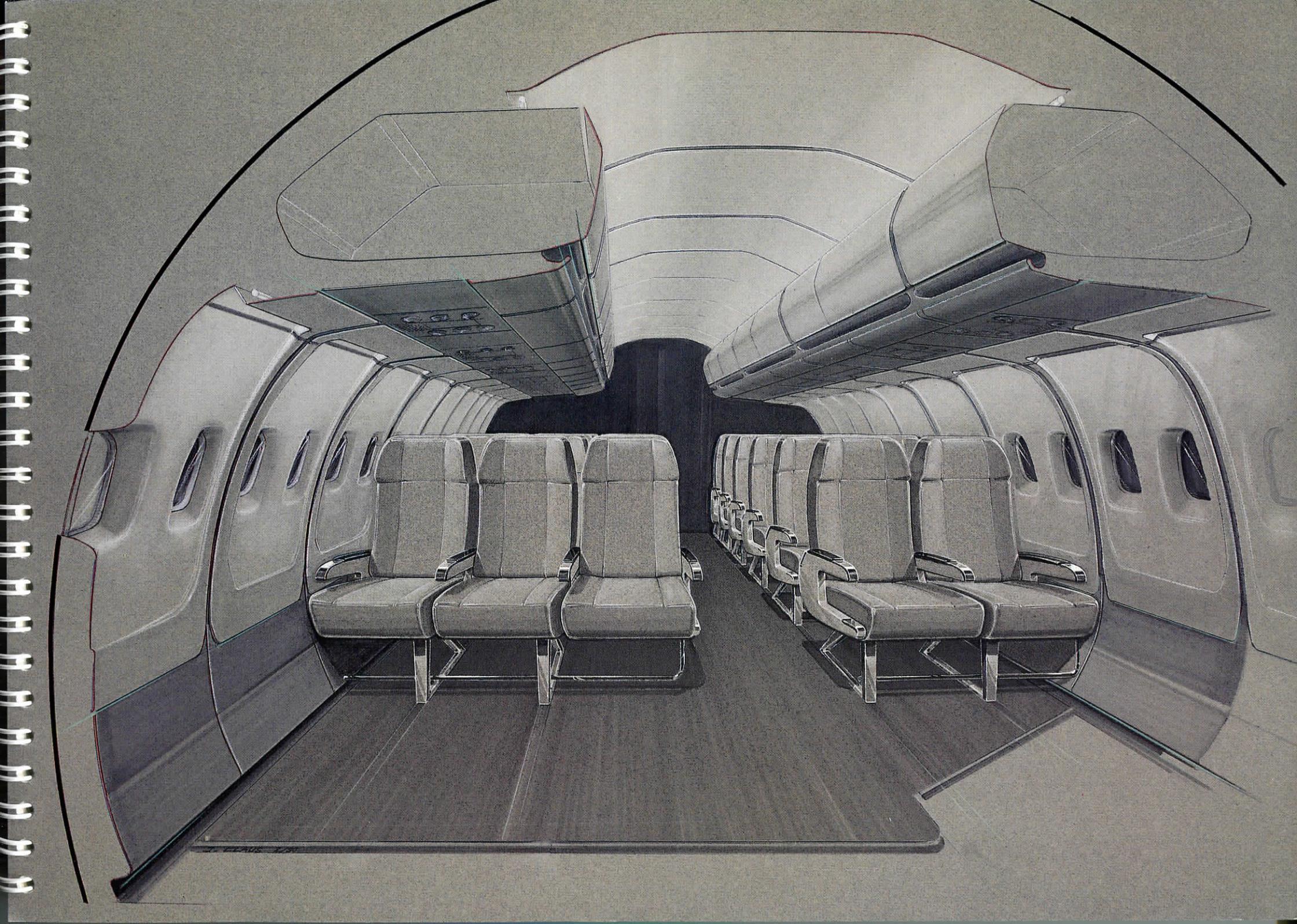


The MPC 75 cross-section maximises the revenue-generating capability and meets the expectations of the demanding and discerning passenger of the 1990s and beyond for more cabin comfort, spaciousness and carry-on capacity.

The cross-section is significantly wider than any cross-section of its direct 5-abreast competitors. This additional width provides superior comfort standards and improved underfloor hold features. Marketing advantages for the operators extend to:

- wider seats
- wider aisle
- superior First class
- more spacious cabin
- more carry-on capacity
- attractive interior styling
- improved lighting design
- better standing height

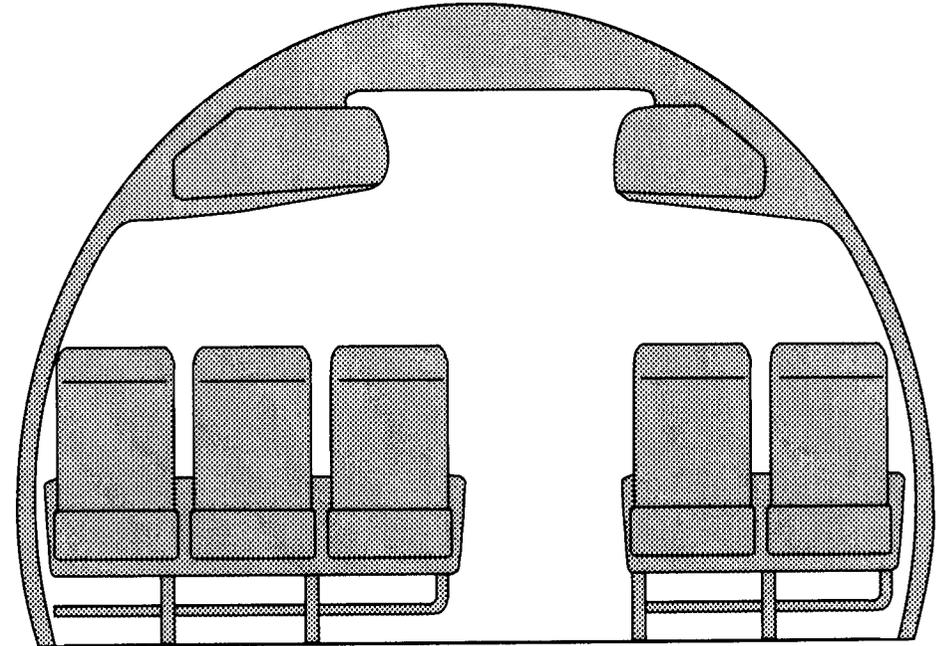
**Unmatched adaptability for different markets**



# MPC 75 cross-section configuration

## Standard configuration

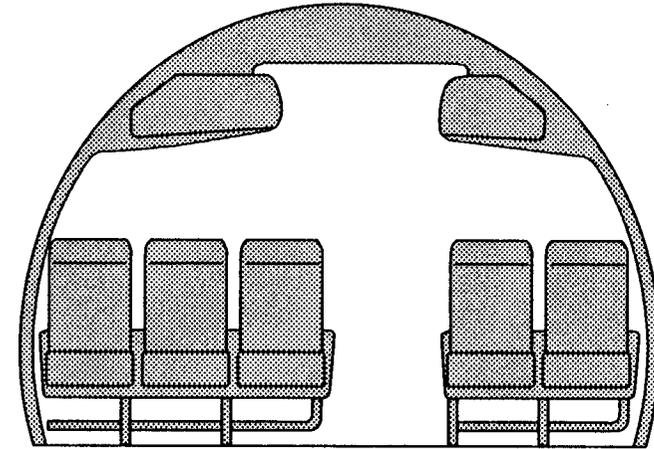
- 63-inch triple seats  
20-inch aisle  
42-inch double seats
- 1 inch wider centre seat
- 1.5 inch armrest space



# MPC 75 cross-section versatility

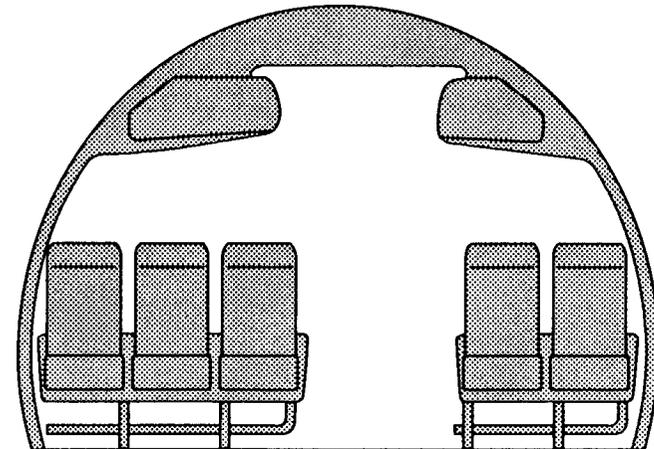
## Alternative 1 – wider seats

- 64-inch triple seats  
19-inch aisle  
42-inch double seats
- 2 inch wider centre seat
- 1.5 inch armrest space



## Alternative 2 – wider aisle

- 59-inch triple seats  
26-inch aisle  
40-inch double seats
- 1.5 inch armrest space

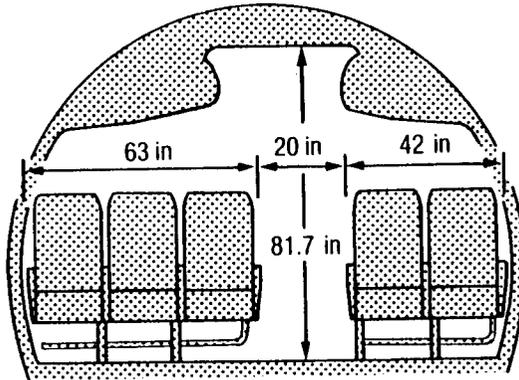


**MPC 75 caters for a wide variety of configuration possibilities**

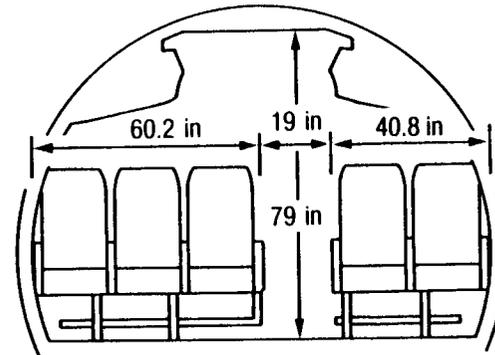
Note: Alternative 2 – Seat dimensions represent 737/727/757 standards

# The advantages of an all-new cross-section

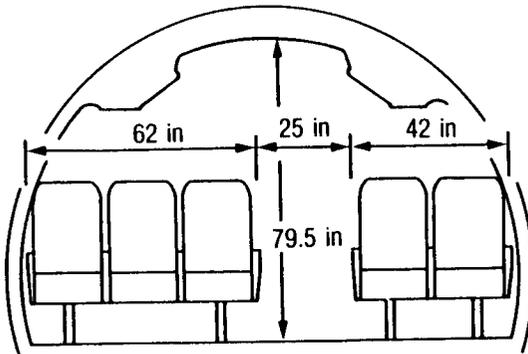
## Passenger cabin



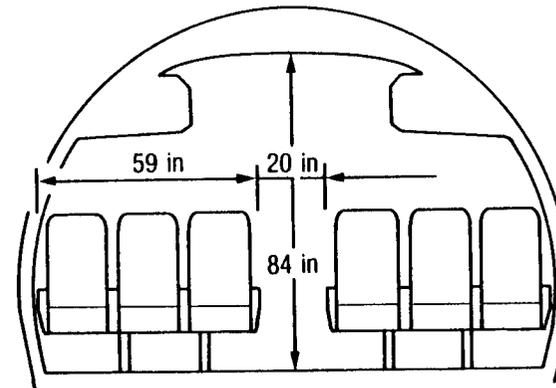
**MPC 75**



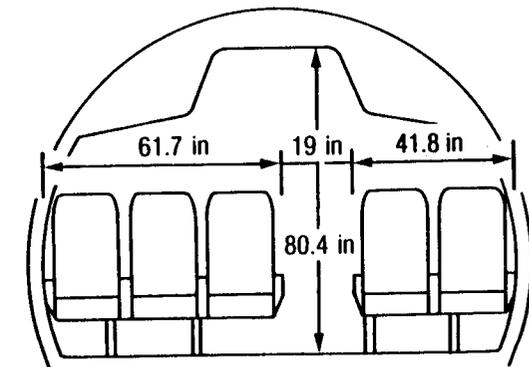
**Fokker 100**



**BAe 146**



**737 series**



**MD-80 series**

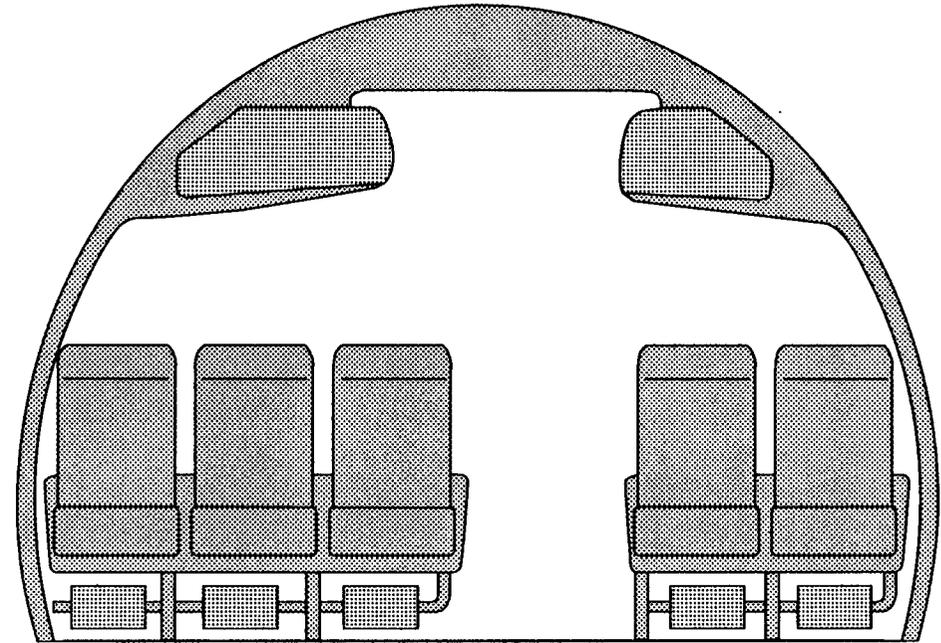
The MPC 75 offers:

- best standing height of 5-abreast competitors
- each seat at least one inch wider than 737 seats
- highest overhead stowage capacity
- 4.3 inch (6 inch) wider cabin than MD-80 series (Fokker 100)

Note: BAe 146 is operated in some markets in a 6-abreast, low-comfort configuration

# MPC 75 overhead stowage

- 2.5 ft<sup>3</sup> per seat
- Integral handrail
- Accommodates garment bags and medium-size cases
- Outward opening doors
- Equal spacing under each seat



**High carry-on capacity – meeting the demands of the discerning passenger**

# MPC 75 cabin features



## Cabin exits

Passenger and service doors are located at each end of the cabin. The forward left hand passenger entrance door has a size of 72 inch  $\times$  34 inch, whereas the rear left hand door has a size of 72 inch  $\times$  30 inch. The door dimensions ensure a smooth passenger flow during embarkation/disembarkation. The service doors on the right hand side of the aircraft have the dimensions 55 inch  $\times$  30 inch. The doors are outward opening plug-type without power assistance. The MPC 75-200 features an additional type III overwing emergency exit measuring 48 inch  $\times$  20 inch.

## Cabin services

The cabin services are grouped at the forward and rear ends of the cabin for maximum efficiency and versatility. The uninterrupted cabin length gives the maximum freedom in arranging seating configurations and class proportions.

On the basic aircraft the position of the galleys and lavatories allows the cabin crew to work in the galley area with the minimum of interference. Galley servicing and passenger boarding/deplaning can be accomplished simultaneously without difficulty.

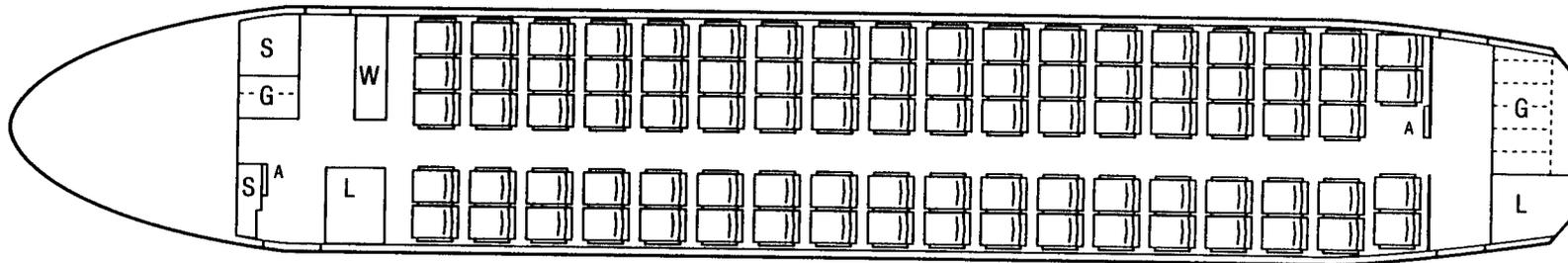
Cabin reconfiguration flexibility is enhanced through the availability of alternative galley and lavatory positions.

# MPC 75 cabin layouts – single-class



## MPC 75-100

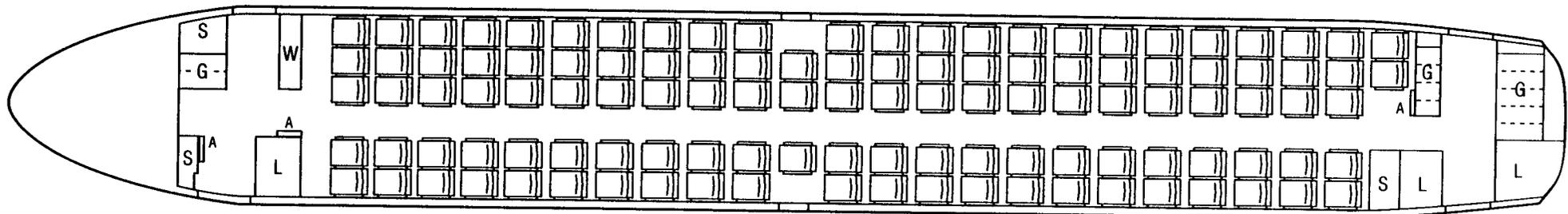
89 seats



32 inch pitch

## MPC 75-200

115 seats

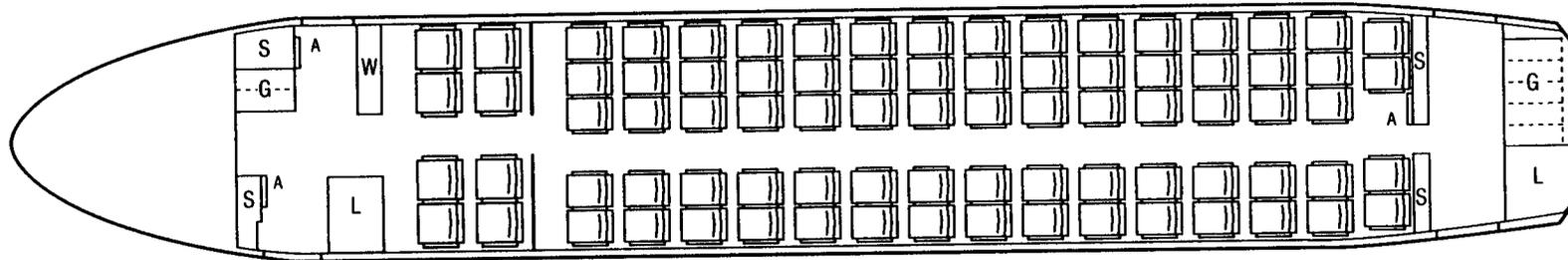


32 inch pitch

# MPC 75 cabin layouts – two-class

## MPC 75-100

**82 seats**

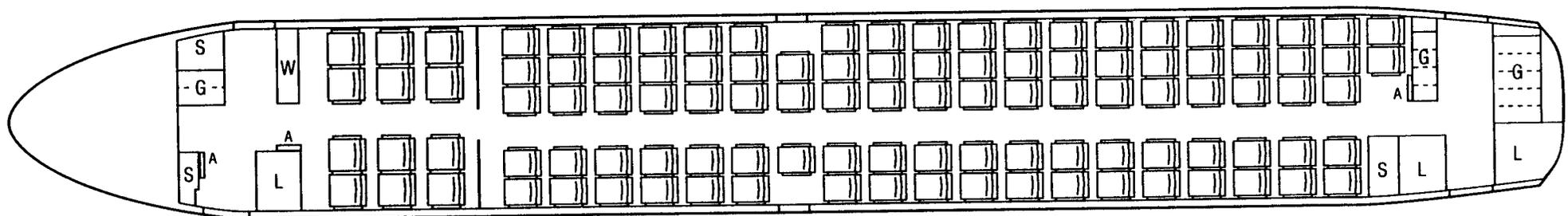


**8 First class**  
**36 inch pitch**

**74 Economy class**  
**32 inch pitch**

## MPC 75-200

**107 seats**



**12 First class**  
**36 inch pitch**

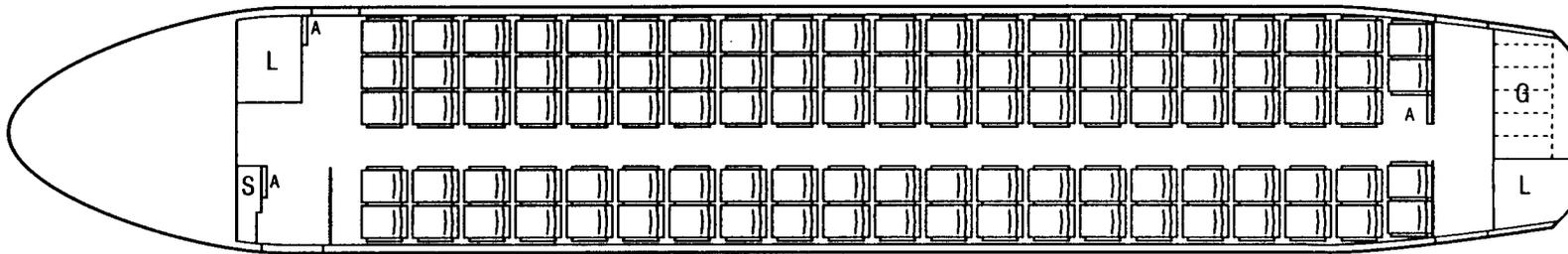
**95 Economy class**  
**32 inch pitch**

# MPC 75 cabin layouts – high density



**MPC 75-100**

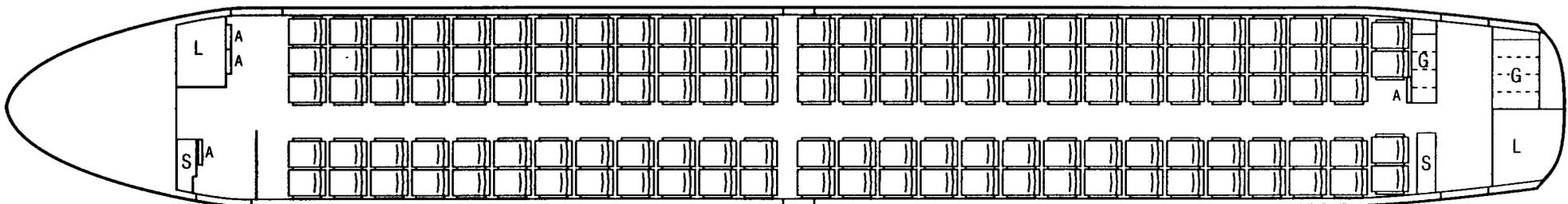
**104 seats**



29 inch pitch

**MPC 75-200**

**134 seats**



29 inch pitch

# MPC 75 – the marketable cabin



## Passenger appeal

The exceptional interior comfort levels and the configuration flexibility of the MPC 75 allow airlines to satisfy the needs of today's increasingly discerning passengers.

The MPC 75 cabin is well lit, capacious and wide:

- 6.0 inch wider than Fokker 100
- 4.3 inch wider than MD-80/MD-90 series
- Up to 45% more overhead stowage volume per seat than competitors
- Better standing height in cabin aisle.

## Matching the market

The MPC 75 cabin offers a supreme marketability to enable airlines to match their precise needs. The cost/profit parameters, such as comfort, cost, capacity, yield may be fine-tuned in an airline operating environment. Hence, for start-up operations the airlines can easily respond to market demand and traffic.

# Cabin intercommunication data system (CIDS)

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## Functions

- Control and operation of cabin-related systems
- Cabin schematic display
- Emergency evacuation signalling
- Testing of cabin-related electrical systems

## Benefits

- High cabin layout flexibility
- Easier cabin reconfiguration
- Reduced weight
- Improved operation and test capabilities

**Application of new technology in the cabin for maximum efficiency**

# MPC 75 underfloor holds

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The MPC 75 underfloor hold design reflects the need to improve baggage handling in this category of aircraft. The installation of a moving-carpet loading system is currently being reviewed.

The MPC 75 rear underfloor hold is sufficiently sized to accept all passenger's baggage plus crew's baggage, thus freeing the space in the forward hold for revenue-generating cargo. Hence, the MPC 75 offers new opportunities to its operators in terms of opening cargo operations to new routes and destinations resulting in an enhanced profit potential.

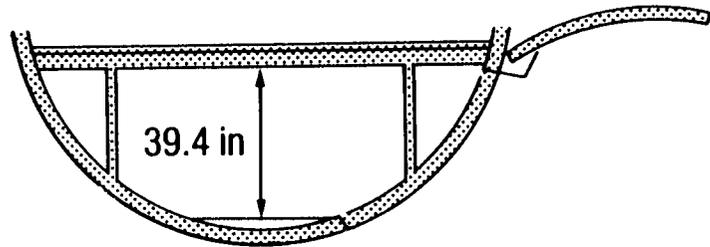
The underfloor holds feature

- highly efficient cross-section shape
- excellent accessibility
- highest volume per seat ratio
- outward opening doors.

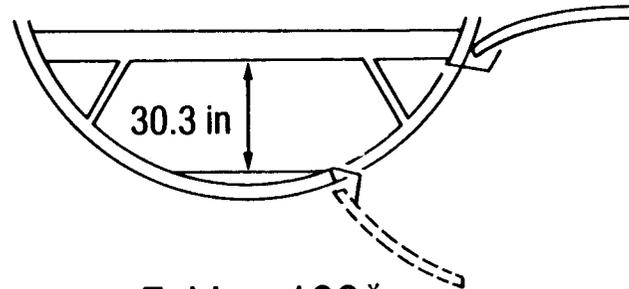
**Efficient underfloor hold design for enhanced profit potential**

# The advantages of an all-new cross-section

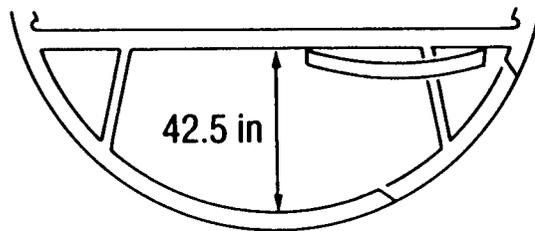
## Underfloor compartment



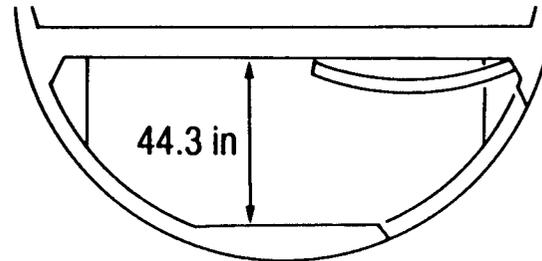
**MPC 75**



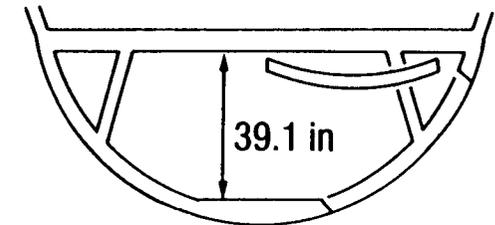
**Fokker 100\***



**BAe 146**



**737 series**



**MD-80 series**

The MPC 75 offers:

- better working height than Fokker 100 and MD-80 series
- outward opening doors
- most efficient shape of 5-abreast competitors
- largest access area

\* Fokker 100 available with outward upward and outward downward opening cargo doors.

# Technical features

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# MPC 75 advanced technology

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The MPC 75 design incorporates advanced aerodynamics, new materials, advanced technology flight controls and systems.

Systems design incorporates the best of proven and new technologies for maximum reliability and efficiency. New-generation digital electronics are extensively used for weight saving, greater reliability, accuracy and reduced crew workload. Combined with a reduction in the number of components and improved troubleshooting, this ensures maintenance costs lower than its competitors and it ensures a reduced spares holding.

With the introduction of the fly-by-wire flight control system, the conventional control-columns become obsolete and can be replaced by sidestick controllers. This step improves considerably the crew's working environment and enhances the safety by providing a full flight-envelope protection. Hence, the advanced technology is exploited to its full extent.

# MPC 75 – advanced technology benefits



## ● All-new wing

- latest aerodynamic standards
- high tolerance to off-optimum conditions
- lower fuel burn

## ● Advanced materials/processes

- lighter, stronger
- enhanced production quality
- improved cost control

## ● Second generation computing

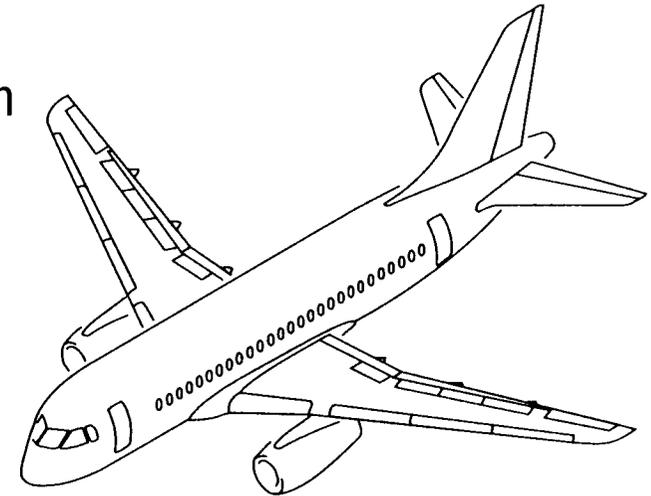
- lower fuel burn
- lower maintenance cost
- lower spares investment

## ● Fly-by-wire

- less weight/lower fuel burn
- lower maintenance cost
- better handling qualities
- flight envelope protection

## ● Advanced engines

- lower fuel burn
- low maintenance cost
- FADEC control
- low noise/emissions



**Trend-setting technologies for bottom-line benefits**

# MPC 75 flight deck

The MPC 75 flight deck incorporates latest state-of-the-art technology. The conventional control-columns have been replaced by sidestick controllers, which represents both a desirable and logical complement to the electrically signalled flight controls and integrated electronics of the MPC 75.

The instrumentation complexity, and consequently the spares investment, has been significantly reduced through the comprehensive integration of avionics systems and the application of flat panel displays. The flat panel displays and all communication and navigation equipment is to the latest ARINC 700 standards. The displays are of equal dimensions to allow for an identical part number and hence an interchangeability of the display units.

Careful consideration is being given to the smallest details to ensure that the two crew members can achieve maximum working efficiency.

Compared to its competitors, the MPC 75 flight deck offers less instruments on the main panel, resulting in a reduced crew workload, better reliability and reduced parts count, improved maintenance diagnosis, improved crew interface and better systems integration.



# MPC 75 flight deck design

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The MPC 75 flight deck design applies latest technology achievements to its optimum extent.

Design features:

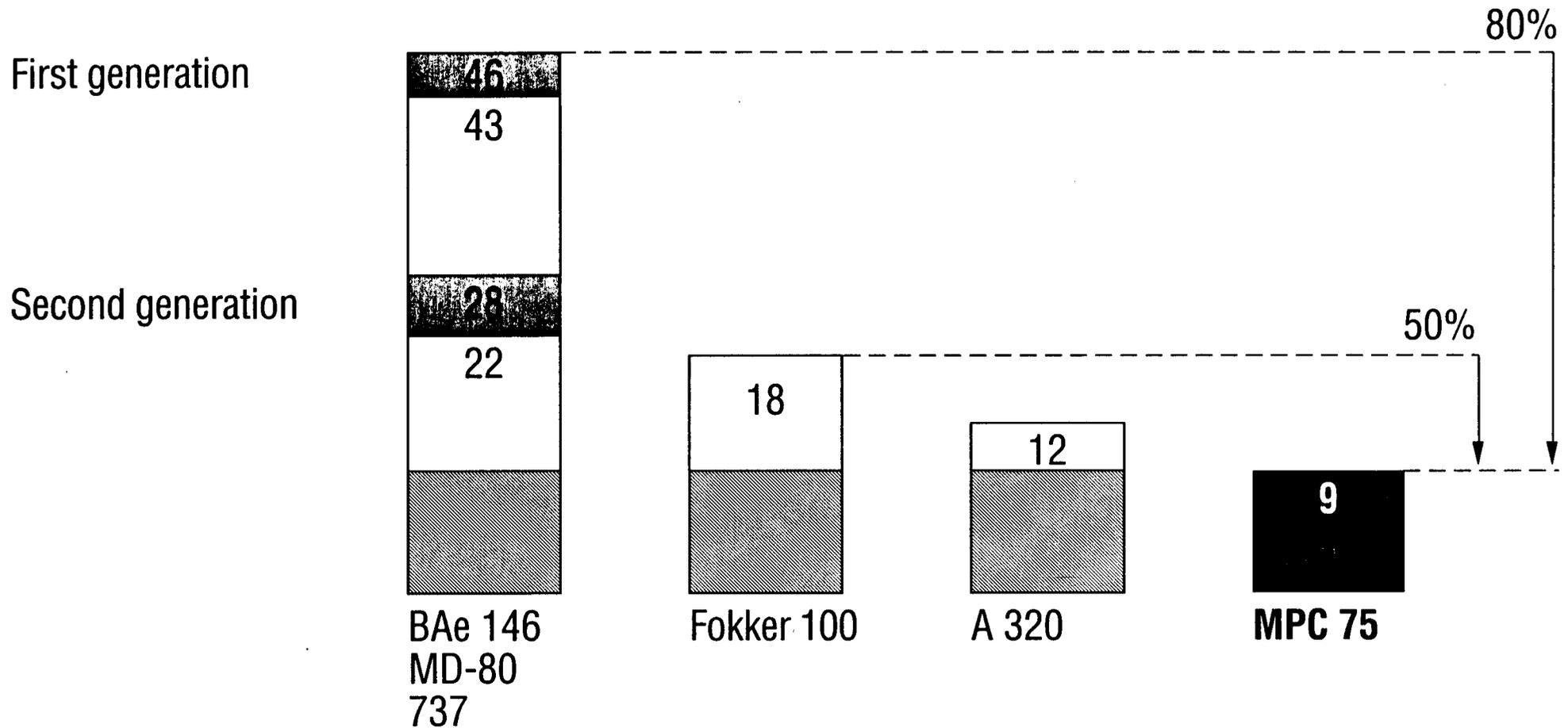
- Third-generation advanced two-crew flight deck
- Full digital equipment
- Sidestick controllers
- Unobstructed instrument panel visibility
- Uncluttered instrument panel with large display units
- Spacious, ergonomically styled interior
- Efficient ventilation and instrument panel cooling
- Excellent external vision
- Wingtips visible from pilot's station

**MPC 75 flight deck: A better, more efficient, more comfortable crew working environment**

# MPC 75 – benefits of advanced technology



## Instrument count on main panel



**Tremendous reduction in instrument count through application of new technology**

# MPC 75 flight deck technology development

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- CMS (Centralised Maintenance System)
- GPWS (Ground Proximity Warning System)
- ACMS (Aircraft Condition Monitoring System) combined with a Multipurpose printer
- ACARS (Aircraft Communication Addressing and Reporting System)
- GPS (Global Positioning System)
- MLS (Microwave Landing System)
- TCAS (Traffic Collision Avoidance System)
- SATCOM (Satellite Communication)

**The MPC 75 design caters for all new technologies that may arise and prove to be cost-effective**

# MPC 75 systems

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The MPC 75 incorporates new technology in all areas of design, to offer tangible operator benefits and to ensure the MPC 75 will remain the most advanced commercial aircraft in its category into and beyond the year 2000.

The **fly-by-wire** system ensures a more precise control of the flight profile thereby saving fuel and increasing safety.

The **sidestick controllers**, which enable the pilots to make inputs to the flight control computers, reduce mechanical complexity and save weight.

The **On-board Maintenance System (OMS)** reduces unjustified component removals, speeds fault rectification and reduces maintenance costs.

The **Full Authority Digital Engine Control (FADEC)** ensures optimum engine performance, saves weight and reduces pilot workload.

**The MPC 75 systems ensure high reliability and low maintenance costs**

# Benefits of fly-by-wire technology

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The MPC 75 fly-by-wire technology provides direct fuel and maintenance productivity and safety benefits over mechanical flight control systems as applied by the MPC 75 competitors.

## **Weight/Maintenance related benefits**

- Significant weight saving (approximately 350 lb/160 kg eliminated)
- High maintenance electro-mechanical devices eliminated
- Bulky control-column replaced by sidestick controller
- No cable runs, simple control surface rigging

## **Operational benefits**

- Enhanced safety and full flight-envelope protection against windshear, stalling and overspeed
- Improved smoothness and stability
- Improved fuel economy through optimal deflection of control surfaces combined with reduced drag
- Better overall performance through reduced pilot control inputs
- Reduced pilot workload

**Fly-by-wire technology ensures all-round benefits**

# MPC 75 Centralised Maintenance System (CMS)



The MPC 75 Centralised Maintenance System (CMS) simplifies significantly the troubleshooting procedure by interrogating the various electronic systems and isolating eventual faults even at subsystem level. It initiates necessary tests to identify failed components or to check replaced equipment. The resulting diagnostic data is displayed on the Multipurpose Control Display Units (MCDUs).

This user-friendly all electronic CMS is therefore the most advanced second generation fault finding and system test equipment available.

The efficiency and simplicity of the CMS allows to:

- reduce unjustified component removals
- improve the fault rectification process
- reduce maintenance costs

# MPC 75 Centralised Maintenance System (CMS)

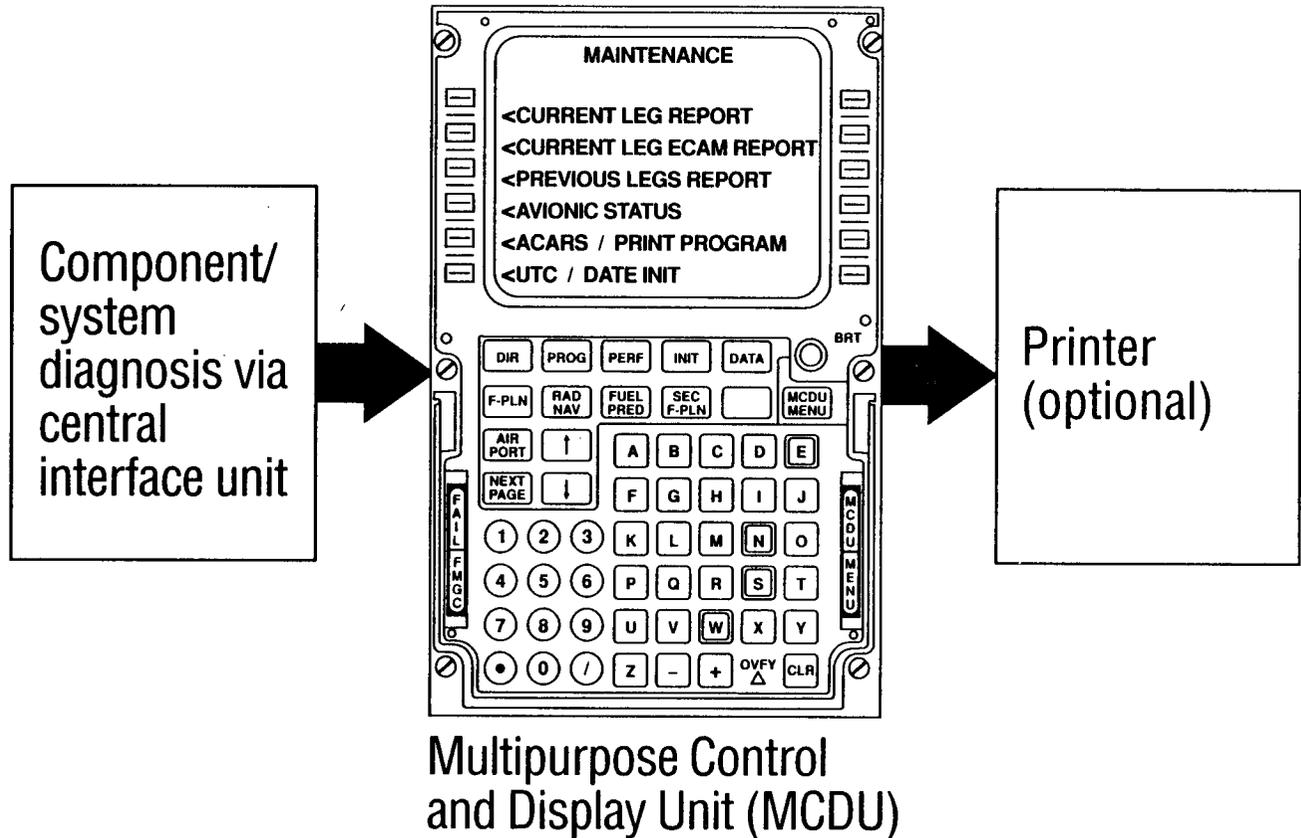


## Functions

- Failure sequence analysis
- Diagnostic data display
- Data print-out capability
- Failed component identification

## Benefits

- Reduction of unnecessary component removal
- Improvement of fault rectification process
- Reduction of shop visit frequency
- Reduction of maintenance costs



**CMS + ECAM = fast, efficient, simple troubleshooting**

# MPC 75 engines



The MPC 75 aircraft family is powered by two all-new, low-noise, low-emission, fuel-efficient, high bypass engines. The thrust level for the MPC 75-100 is about 14,000 lb SLST, with a 16,500 lb thrust category envisaged for the MPC 75-200.

Currently two engine types are on offer, the BMW/Rolls-Royce BR715 and the Pratt & Whitney/MTU RTF-180. MPC Aircraft GmbH however, is still in discussions with Allison (GMA 3014) and Garrett (TFE 742) for a potential application of their proposal. CFM International proposed the M 123 engine for an application on the MPC 75.

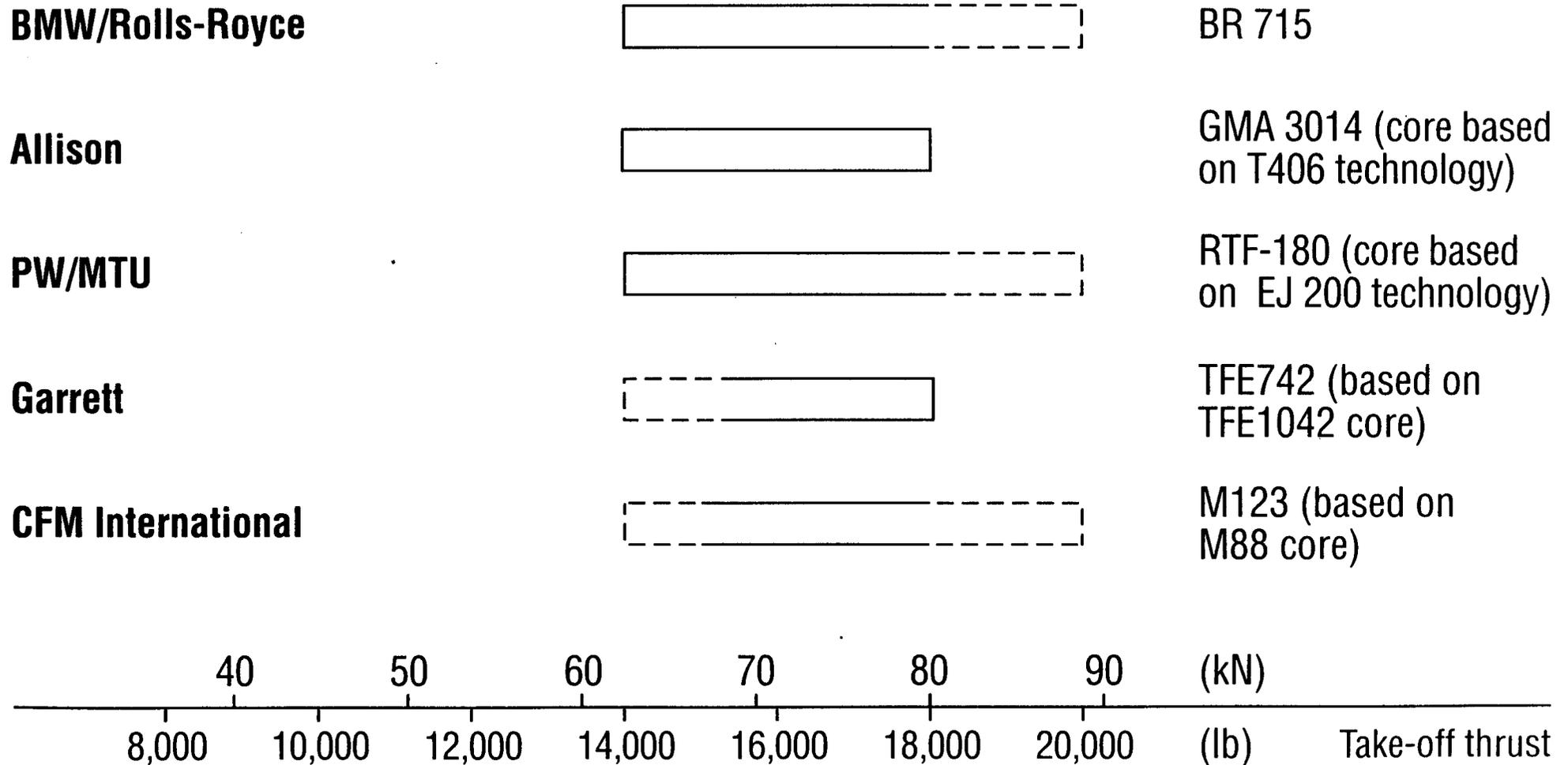
All engine alternatives will have a fan diameter of approximately 53-55 inch and a bypass ratio of around 6.0. The engines feature a built-in thrust growth potential of 30% to achieve typically 18,000 lb SLST with a common core and nacelle.

All engine alternatives fulfil latest noise requirements to enable the MPC 75 to be operated in the John Wayne exempt class at maximum take-off weight. Furthermore all engine manufacturers are confident to achieve NOx-emission reductions of typically 30% relative to the levels of existing modern turbofans.

# MPC 75 engine alternatives



## Engine types under consideration



# MPC 75 advanced engine control (FADEC)

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The MPC 75 engine alternatives are electronically controlled by the Full Authority Digital Engine Control (FADEC). The duplicated FADEC for each engine provides better engine protection and constant engine health monitoring.

The FADEC provides numerous **benefits** compared to the current hydromechanical-type engine control systems:

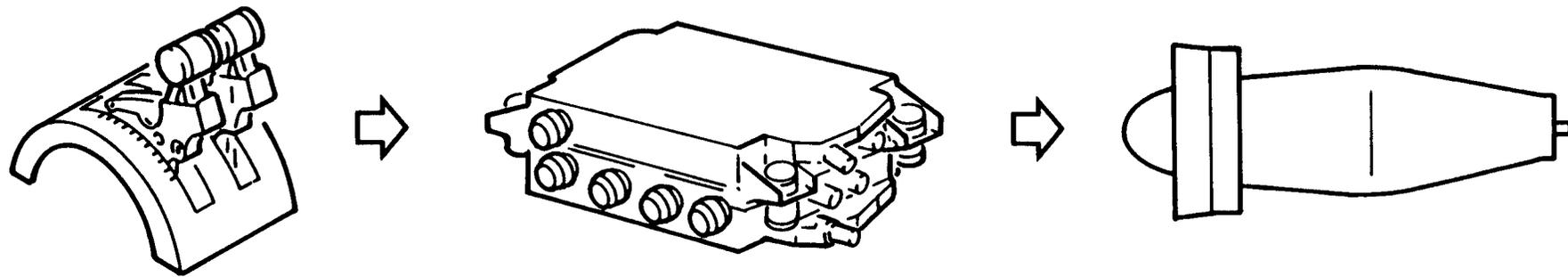
- Reduced powerplant weight
- Optimum engine performance
- Lower fuel consumption
- Reduced pilot workload
- Reduced maintenance costs

The technology level of the FADEC system is fully compatible with the fly-by-wire system of the MPC 75.

# MPC 75 advanced engine control concept

The MPC 75 FADEC system eliminates the problems currently experienced with the hydromechanical-type engine control systems. The duplicated system, which renders obsolete the Fuel Control Units (FCU), controls the engines and their status and is fully integrated with the Fly-By-Wire (FBW) system and the Automatic Flight System (AFS).

The thrust levers, located on the centre pedestal, have discrete positions for different thrust settings and inform the FADEC of the current phase of the flight. The FADEC accordingly controls the engine thrust, providing automatically the optimum output and therefore, minimum fuel burn.



## Functions:

- Full engine fuel control
- Thrust setting computation
- Engine limit protection
- Automatic start sequencing and monitoring
- Thrust reverser control and feedback
- Flight deck indications
- Parameters for engine health monitoring
- Capacity to accept additional sensors

# MPC 75 structural design

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The MPC 75, as an all-new aircraft, is required to meet more stringent regulatory design requirements than a derivative of an existing aircraft model. The structural layout is designed to cater for better comfort standards and increased performance standards compared to its competitors.

The resulting trend to greater weight is compensated for by changing to new, lighter materials such as advanced alloys and fibre composites.

These technologies create benefits in many operating cost areas as there are a saving in fuel burn, operating weight and maintenance.

New materials and production techniques reduce or obviate corrosion and improve load paths with resulting reduced maintenance requirements. Furthermore, an all-new aircraft design allows better optimisation of systems location, particularly with regard to the operating environment and accessibility, again minimising possible failure sources and repair time.

In addition the MPC 75 incorporates, wherever feasible, better standards than are required to avoid or minimise later modifications such as the latest fire and toxicity requirements.

# MPC 75 structural design philosophy



## ● Materials

- Advanced composites
- Advanced alloys

## ● Production techniques

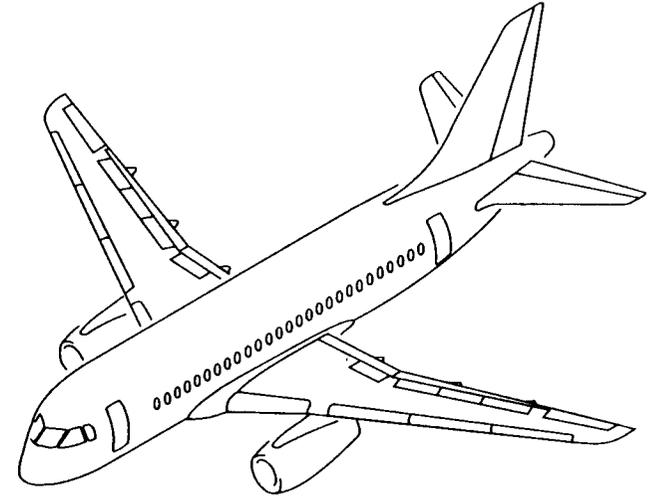
- Computer-controlled fibre lay-up
- Superplastic forming and diffusion bonding (SF/DB)

## ● Design emphasis

- Long trouble-free service life
- High standards of corrosion protection
- Damage tolerance
- Inspectability

## ● Structural life

- 25,000 flights crack-free fatigue life
- 75,000 cycles/70,000 hrs. economic repair life



**High structural reliability and maintainability through modern production methods and new materials**

# MPC 75 composite materials

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MPC Aircraft GmbH, through its partner companies, has wide ranging experience with composite materials in design, development, production and in-service behaviour. The application of composite materials extends to the complete empennage structure, as already embodied in other aircraft programmes. For the first time the outer wing box of a commercial airliner of this category is under consideration to be made from composite materials.

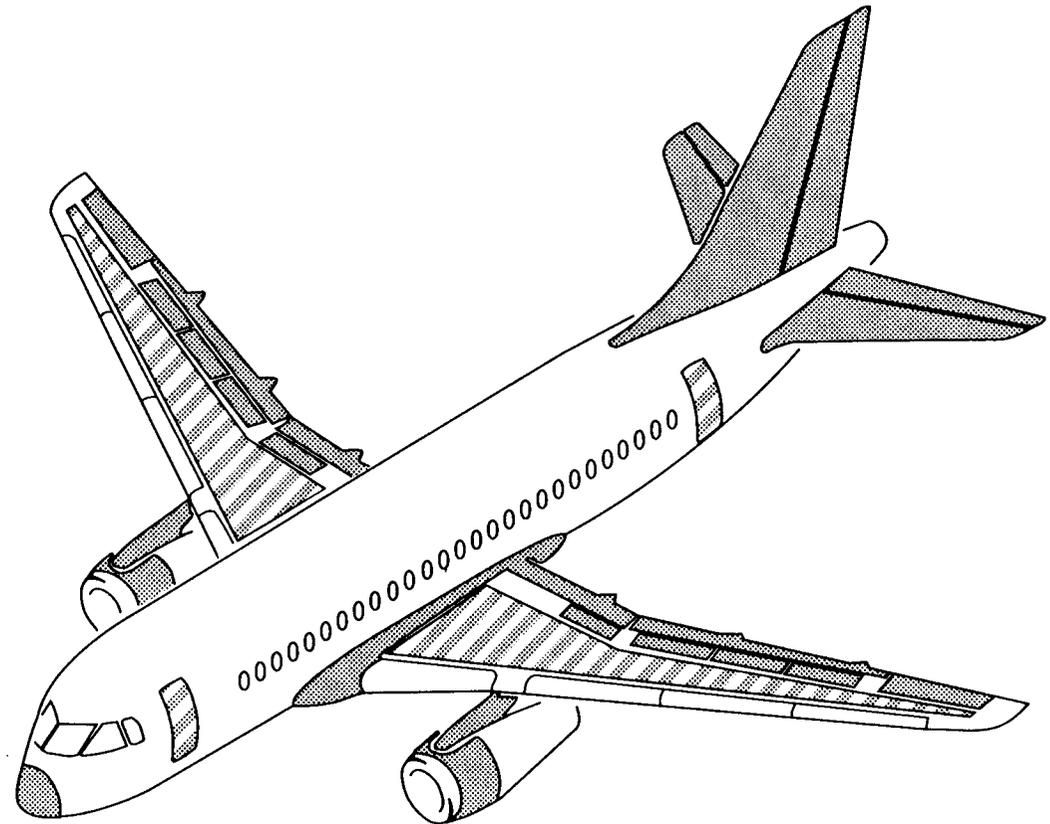
The extensive use of advanced composite materials significantly contributes to a low airframe weight, with savings of up to typically 20% being achieved over conventional metallic components. A share of approximately 25% of the structural weight of the aircraft is made of composite materials resulting in a weight saving of approximately 5% of the Manufacturer's Weight Empty (MWE). Further advantages extend to a tremendous reduction of parts count together with savings in fuel burn, maintenance and operating costs.

# MPC 75 composite material application



Further to composite material applications shown, major additional components include:

- Landing gear doors
- Floor panels



**Extensive use of advanced composite materials saves approximately 20% weight over conventional metallic components**

# Operational aspects

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# MPC 75 ground operations – general



Airport compatibility is a major design consideration, therefore the operational benefits of the MPC 75 begin on the ground.

The separation between passenger embarkation/disembarkation and servicing activities, combined with the wide main entrance door ensures smooth ground operations, allows fast turnrounds and hence increases utilisation or gains a useful slack to soak up inevitable air traffic control delays or any other delays due to the increasing airport congestions.

The mechanised cargo loading, which is currently under review, ensures rapid underfloor loading and unloading.

Airstairs as an option for the forward passenger door and a new optimised APU give the MPC 75 total independence and operational capability at all levels of airport.

The MPC 75 offers low turnround times to the operator with all its advantages like higher utilisation and increased revenue generating potential.

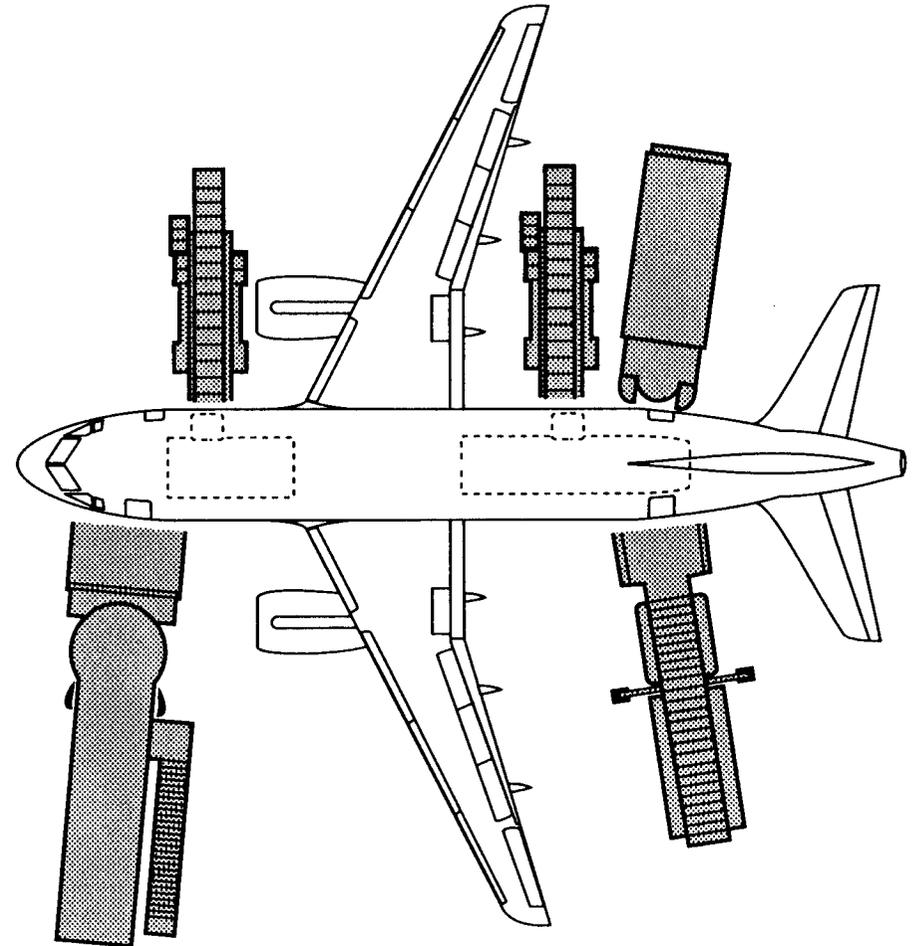
# Ground handling

- Passenger and service doors at front and rear end
- Integral airstairs available as an option
- Separation of servicing activities from passenger embarkation/disembarkation
- Ease of galley servicing and cabin reconfiguration
- Good accessibility for servicing activities
- Centralised maintenance system (CMS) for rapid troubleshooting
- Ease of on-line maintenance

**Full main base turnaround in 25 minutes**

Note: MPC 75-100 shown

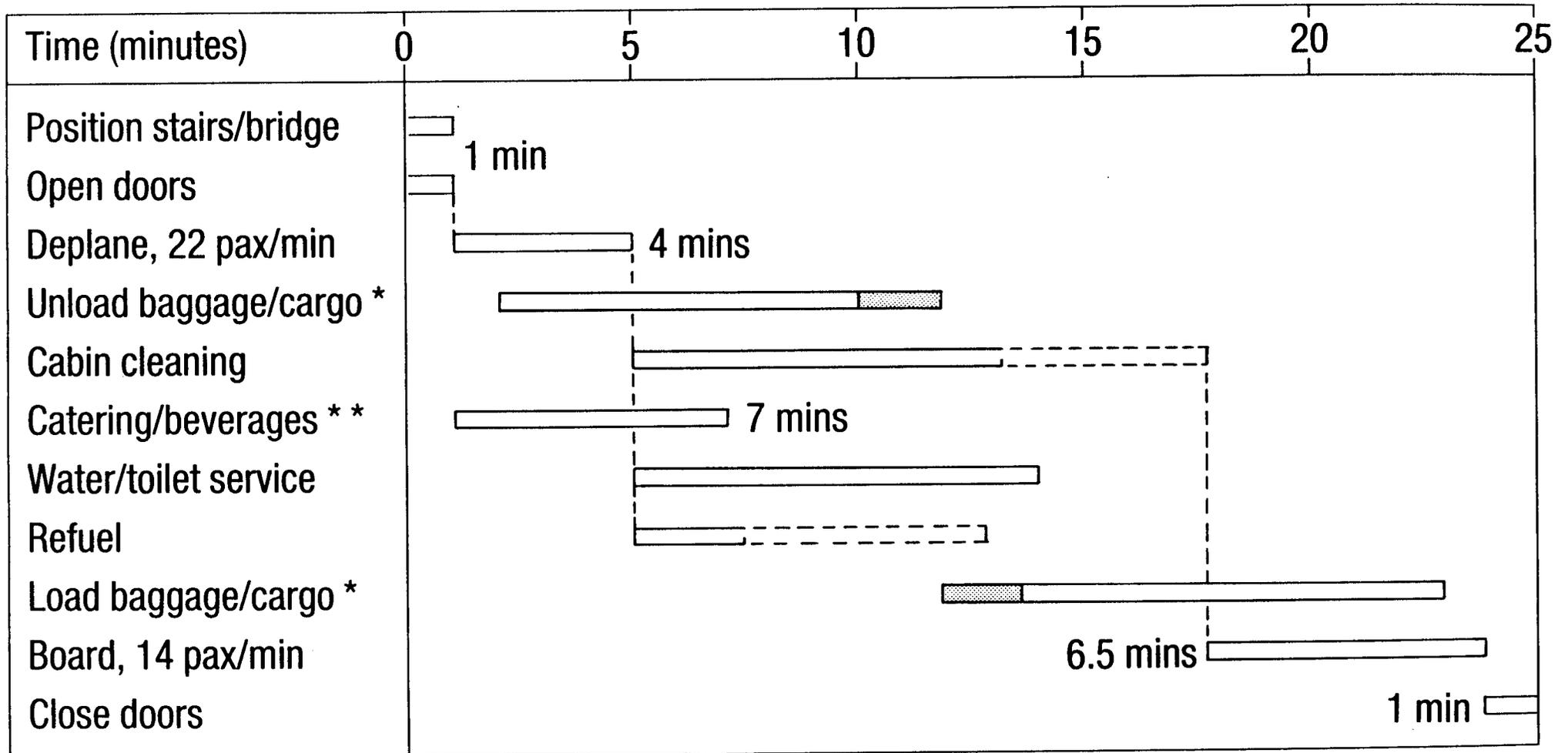
M75.F.1007



# MPC 75-100 turnround



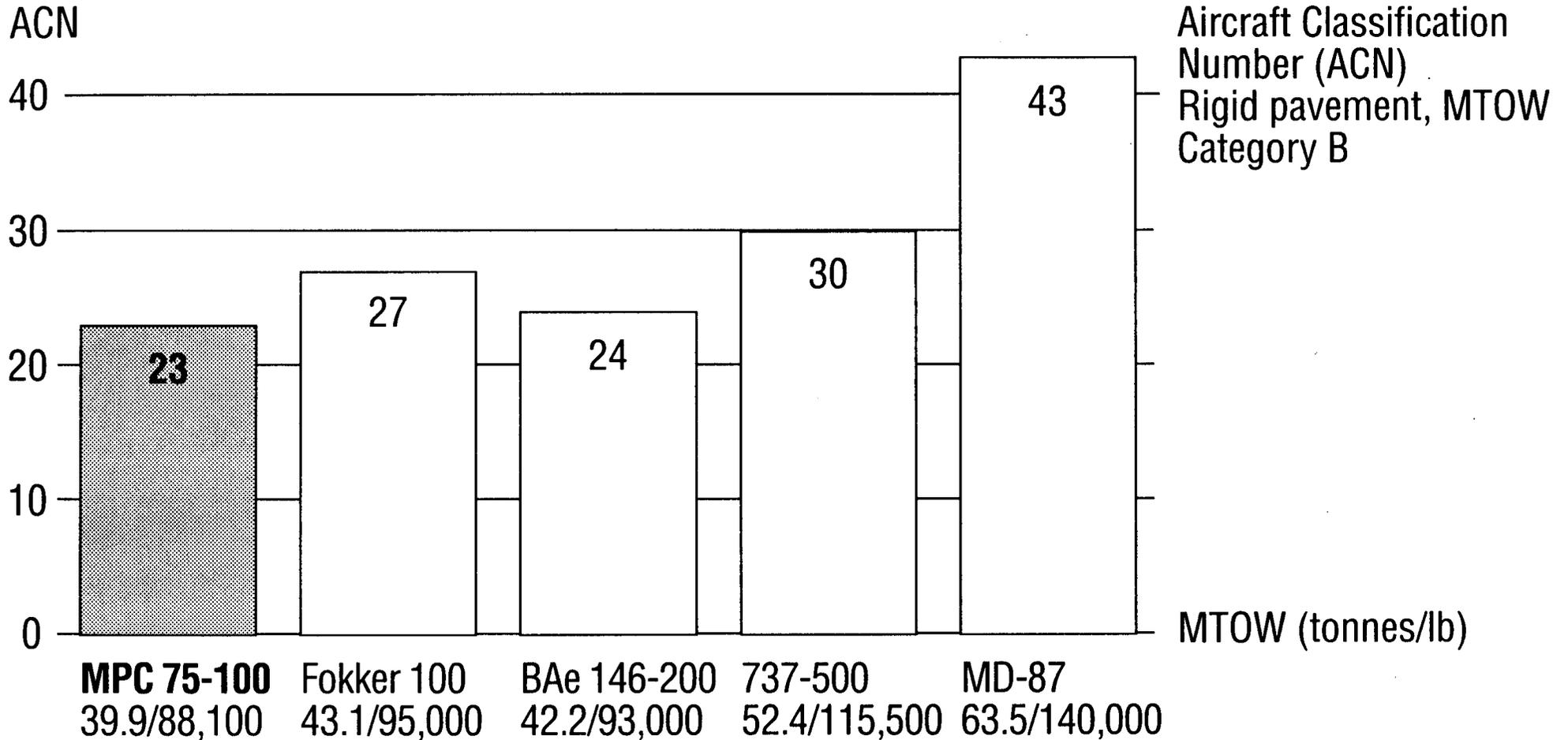
89 pax off, on, 1 door in use



\* quantity limited by available turnround time

\*\* catering through rear right hand door

# MPC 75 pavement loading – ACN



**MPC 75 offers lowest runway loading – MPC 75 can be operated into more low-strength airports than its competitors**

# MPC 75 environmental acceptability



The MPC 75 fits well into an environment-conscious world with its low noise, low emission and low fuel burn levels.

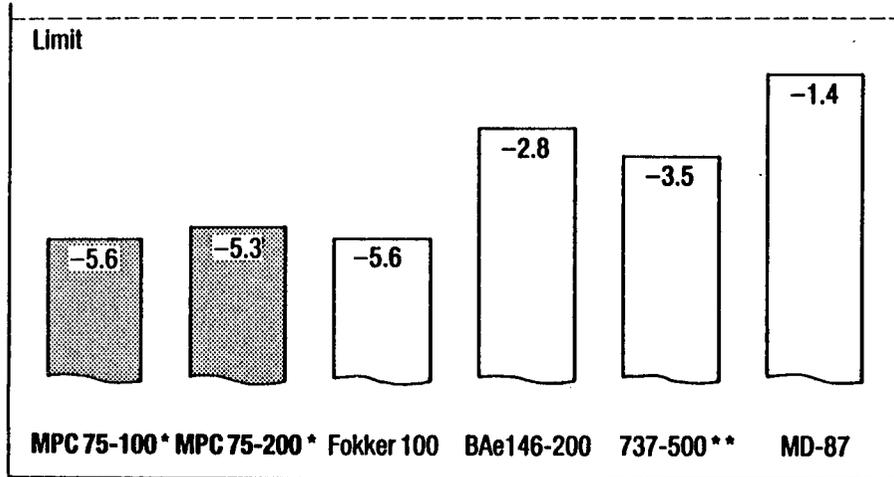
The MPC 75 is quiet on approach, landing and take-off with its cumulative noise level of 23.1 EPNdB (MPC 75-100), or 21.7 EPNdB (MPC 75-200) respectively, below the FAR 36, Stage 3 or ICAO Chapter 3 noise limits. The quietness of the MPC 75 at airports is more than just a "good neighbour" image for local residents. Its immunity from noise curfews and the ability to increase aircraft utilisation round the clock enhances revenue earning potential.

In addition to low noise levels, the combustion emission levels of the MPC 75 are also in accordance with the latest requirements. Again, low pollutant aircraft can translate into hard cash, because some European countries have introduced a tax based on pollutant output and/or noise levels.

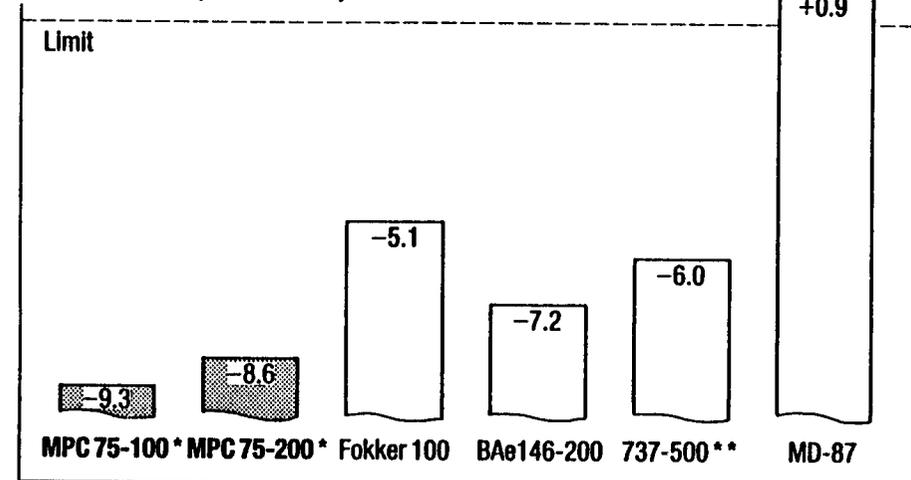
As well as opening up new market opportunities the environmental acceptability of the MPC 75 family of aircraft will ensure a long in-service life and will permit operators to gain a competitive edge for success in the rapidly changing world of the airline business in the nineties and beyond.

# Comparative noise levels

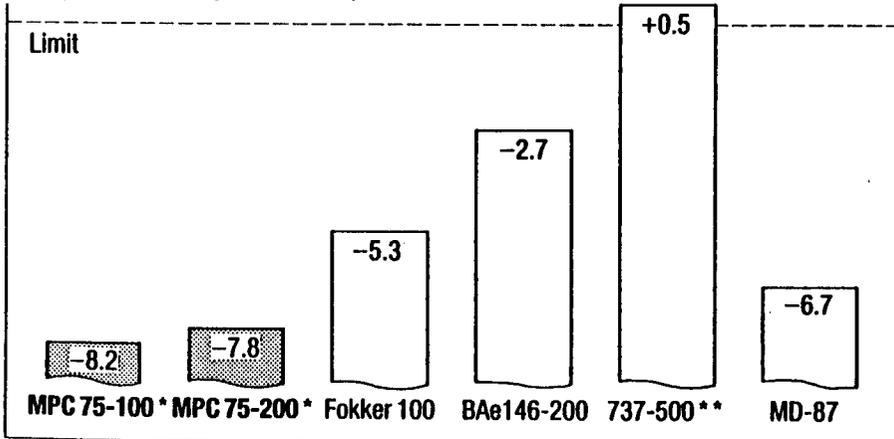
## Take-off (EPNdB)



## Sideline (EPNdB)



## Approach (EPNdB)



--- FAR36 Stage 3/  
ICAO Chapter 3 limit

\*) Target levels

\*\*\*) Estimated levels

# The changes of the operating environment

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- Worldwide liberalisation of the air transport system
- Flexibility in tariff development
- Airport and airspace congestion
- More stringent environmental restrictions
- Computer reservation systems (CRS)
- Creation of mega carriers and cross-border partnerships
- Multiple designation

**New challenges for the worldwide air transport system**

# MPC 75 – the response to new challenges

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- Extremely low noise levels and emissions
- Excellent airfield performance and manoeuvrability
- Latest generation of navigational equipment
- Rapid turnround times and high utilisation
- Outstanding operating efficiency
- Lowest direct operating costs in its category

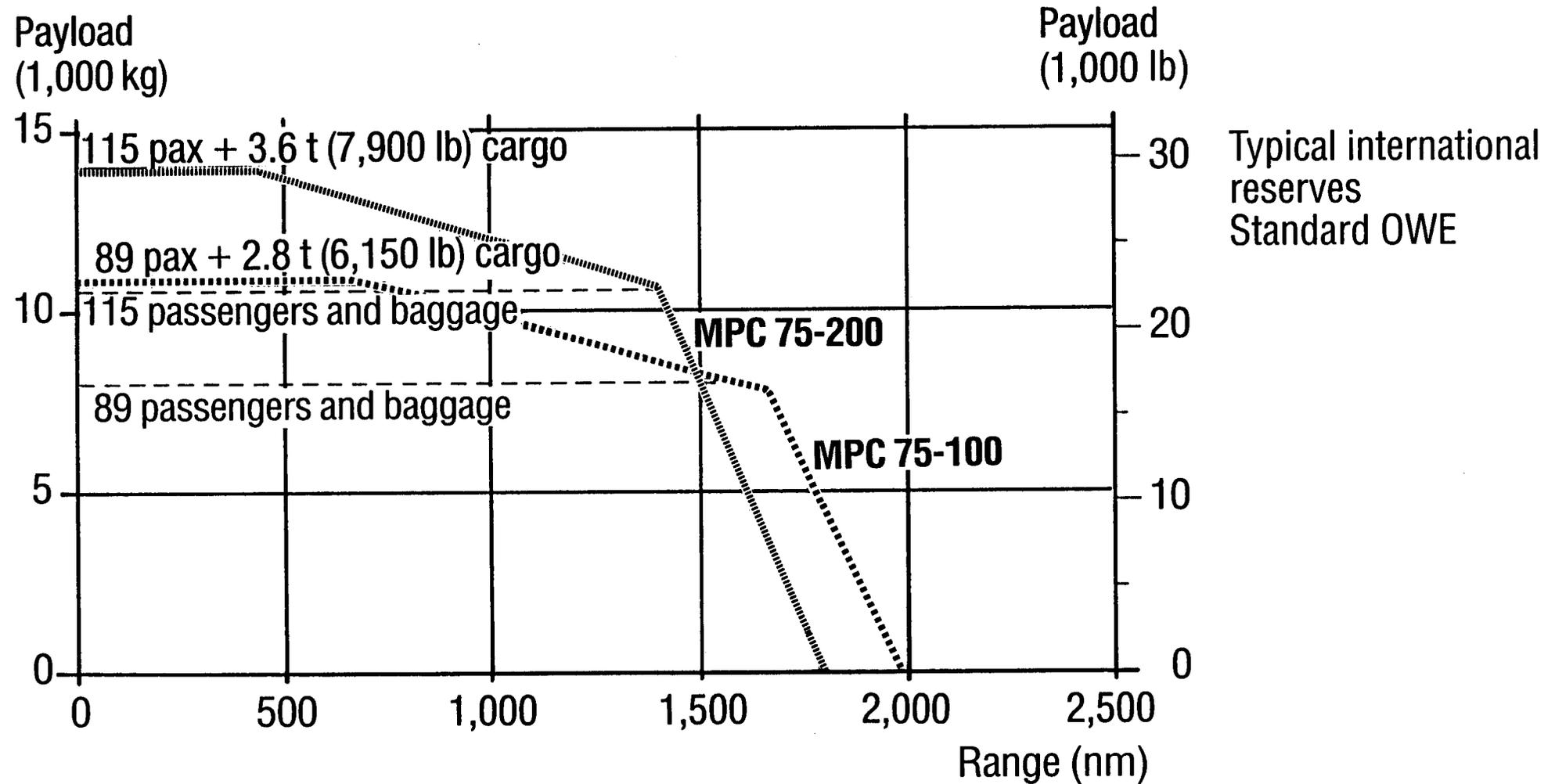
**The MPC 75 meets the most demanding challenges of the nineties and beyond**

# Performance/economics

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# MPC 75 payload range capability

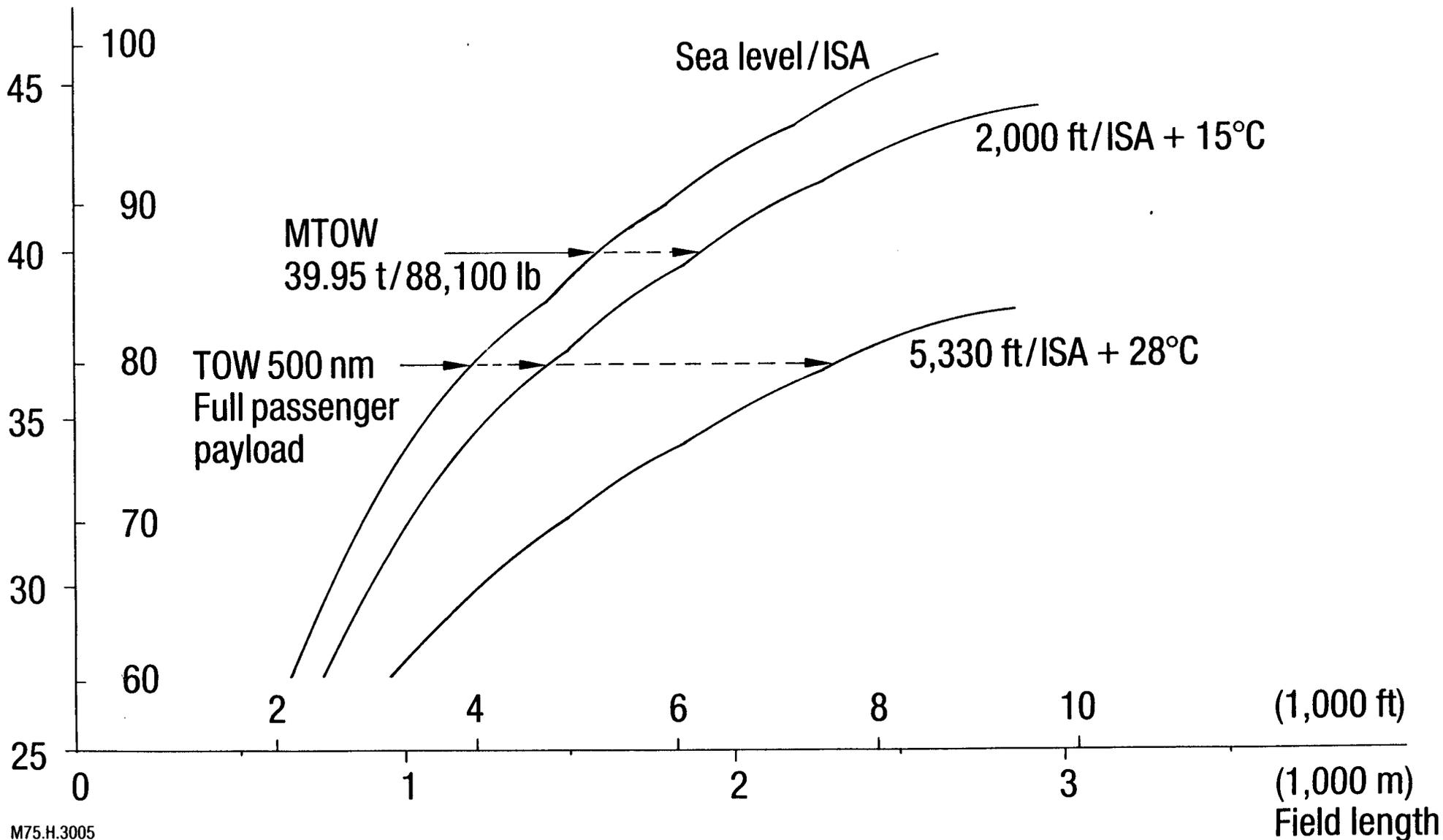


Note: Further range potential of typically 1,000 nm available through the addition of a centre wing tank

# MPC 75-100 take-off performance



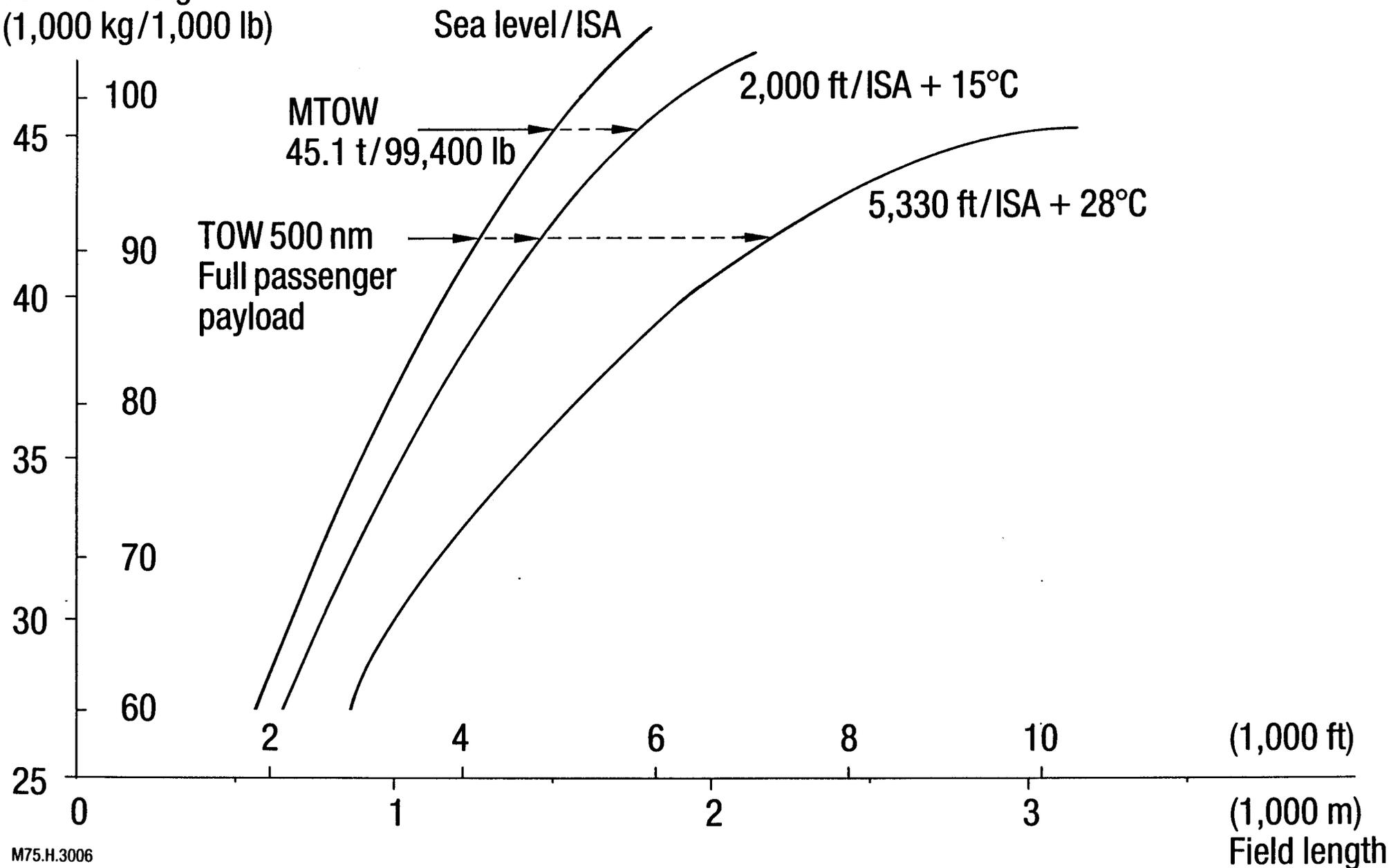
Take-off weight  
(1,000 kg/1,000 lb)



# MPC 75-200 take-off performance



Take-off weight  
(1,000 kg/1,000 lb)

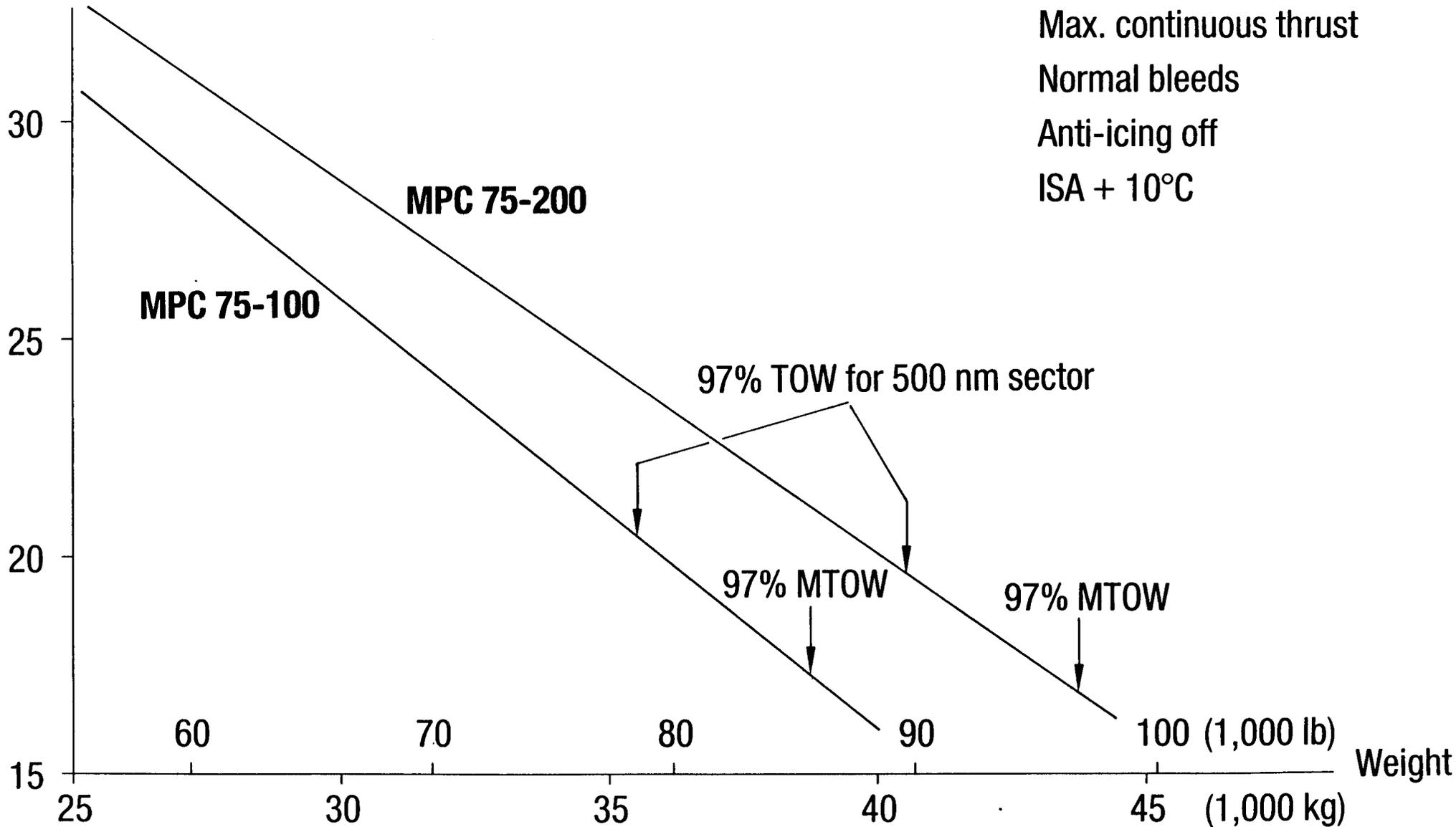


# MPC 75 engine out altitude capability

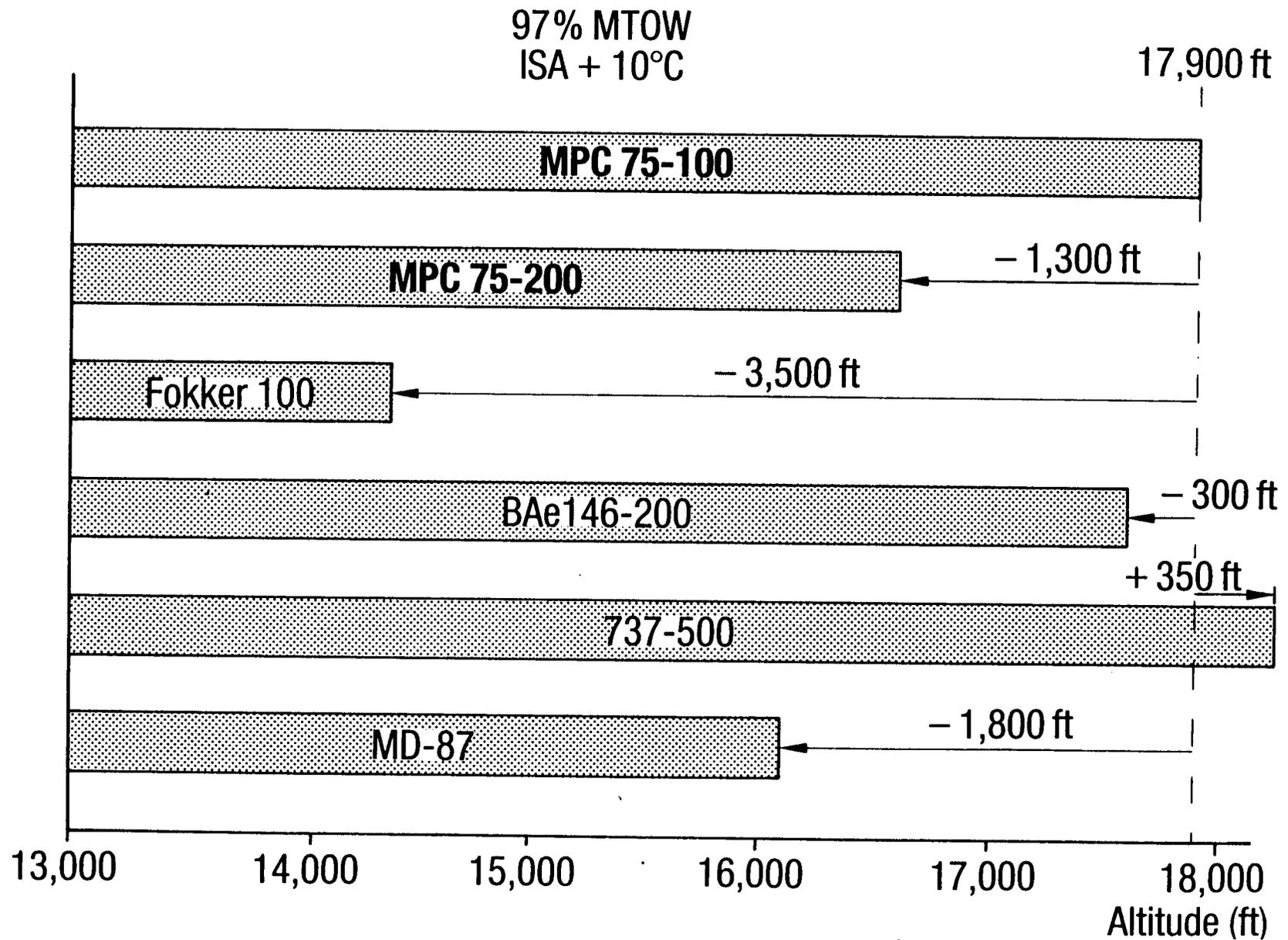


Flight level (1,000 ft)

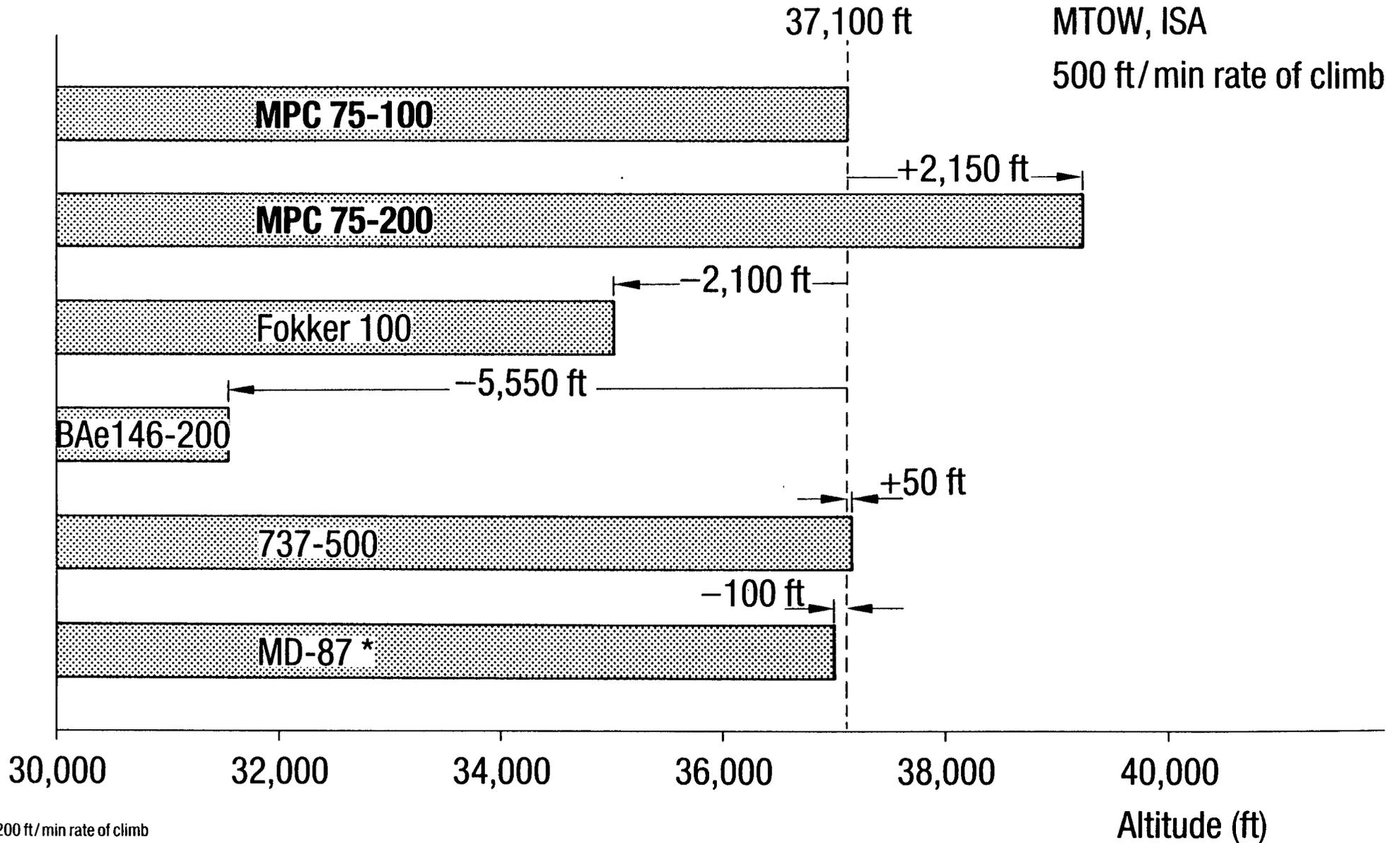
1.1% gradient  
Max. continuous thrust  
Normal bleeds  
Anti-icing off  
ISA + 10°C



# One engine out ceiling capability

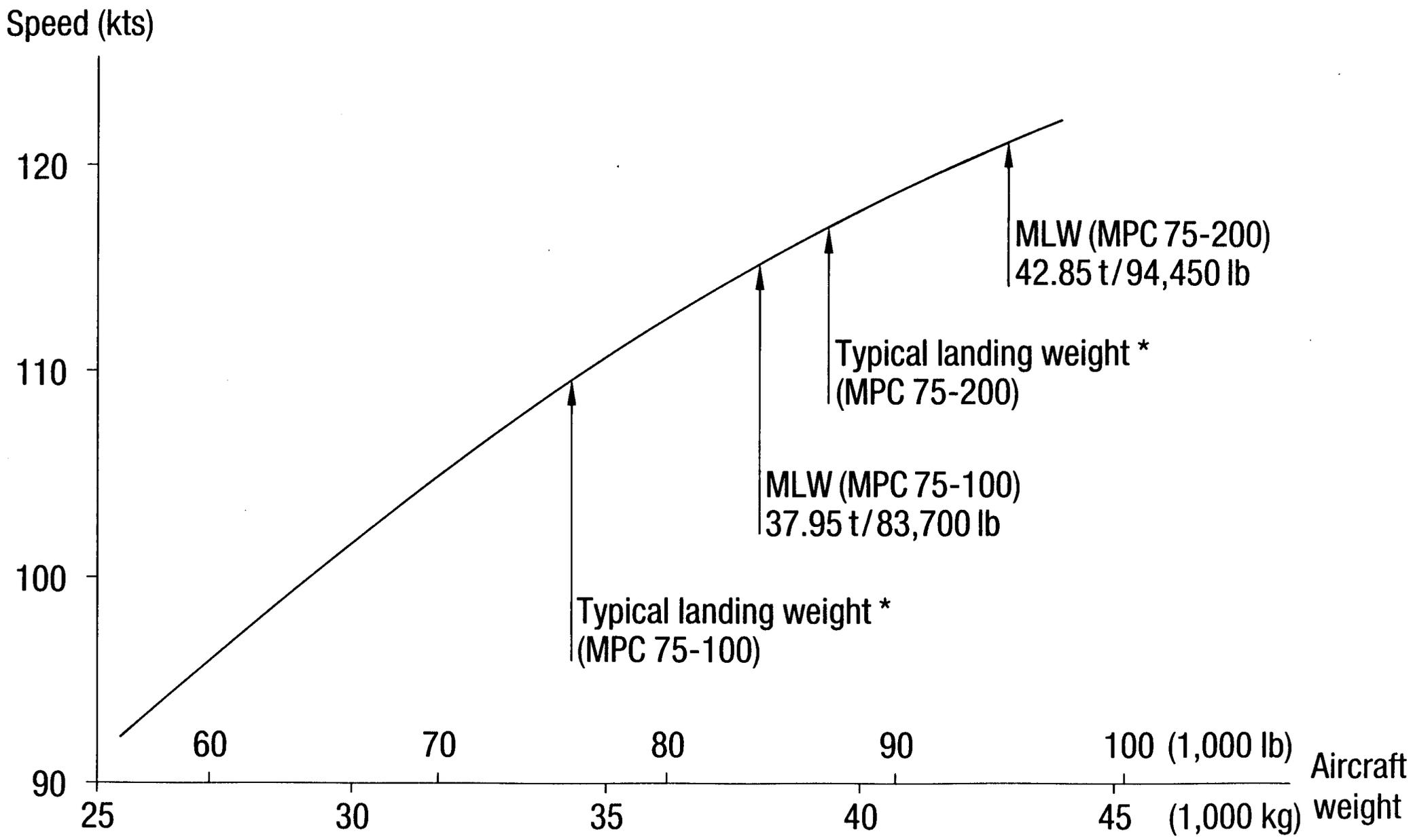


# Initial cruise altitude capability



\*) 200 ft/min rate of climb

# MPC 75 approach speed

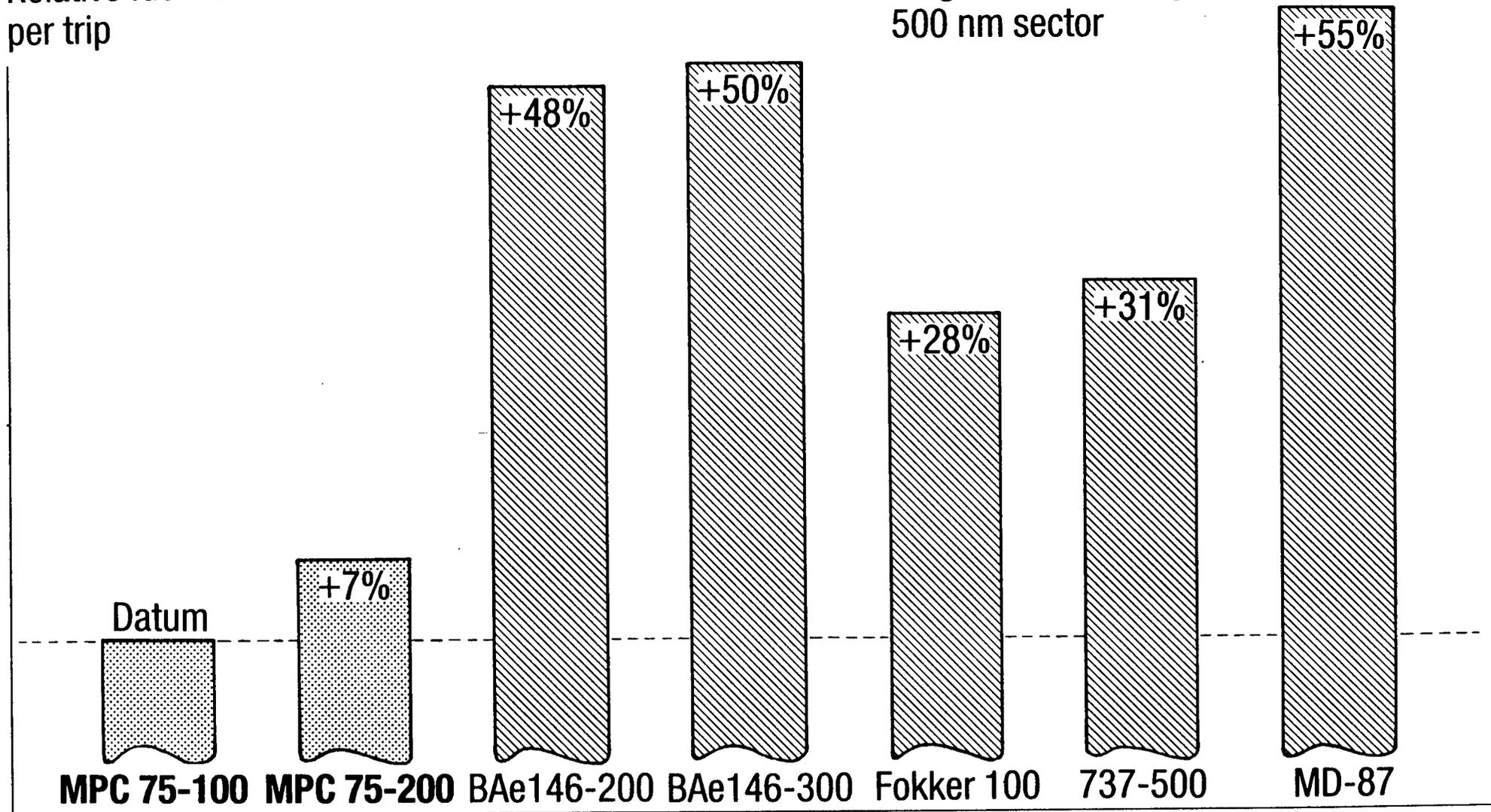


# MPC 75 fuel burn comparison



Relative fuel burn  
per trip

Single-class seating  
500 nm sector

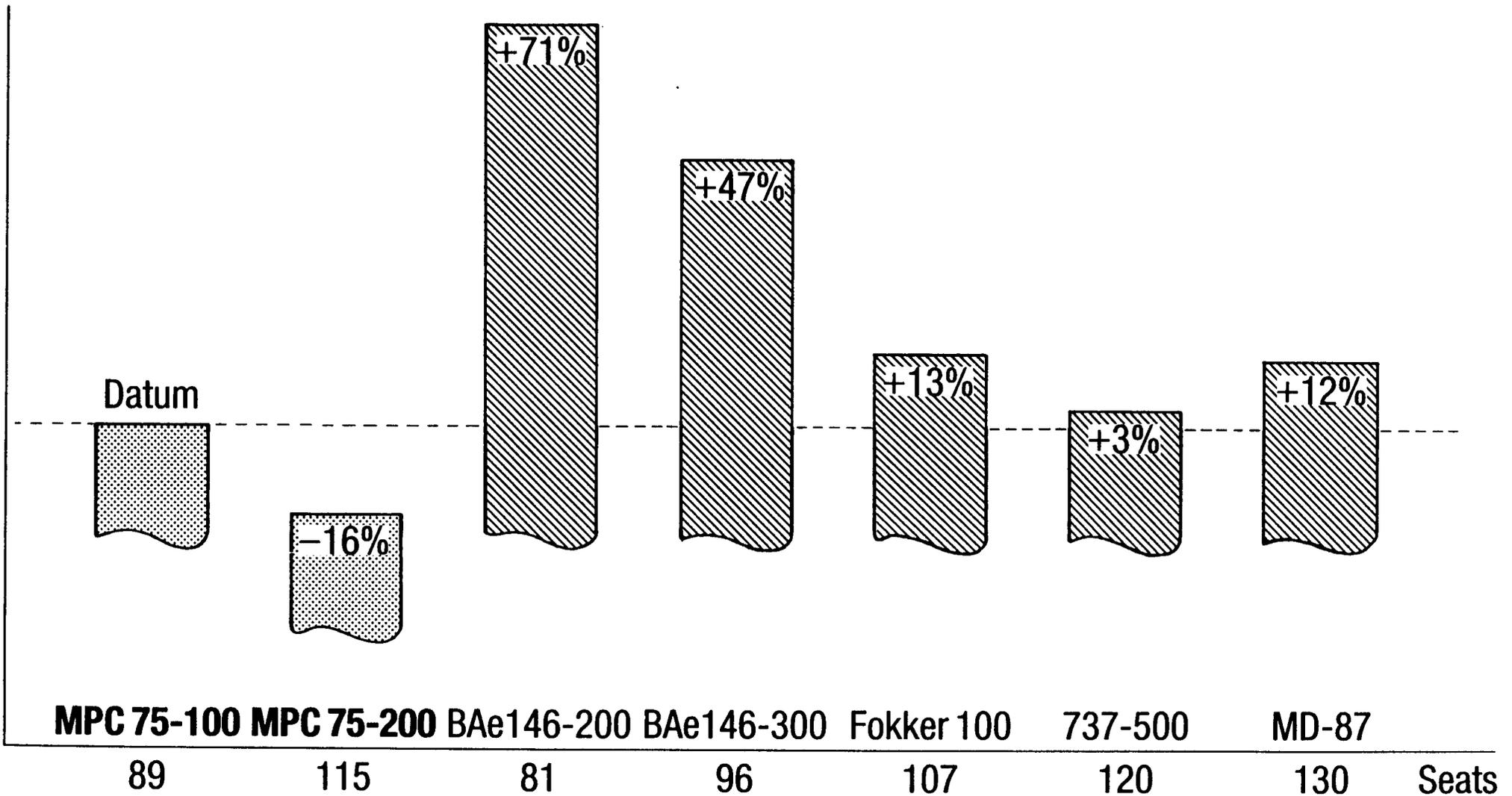


# MPC 75 fuel burn comparison



Relative fuel burn  
per seat

Single-class seating  
500 nm sector



# MPC 75 operating cost assumptions

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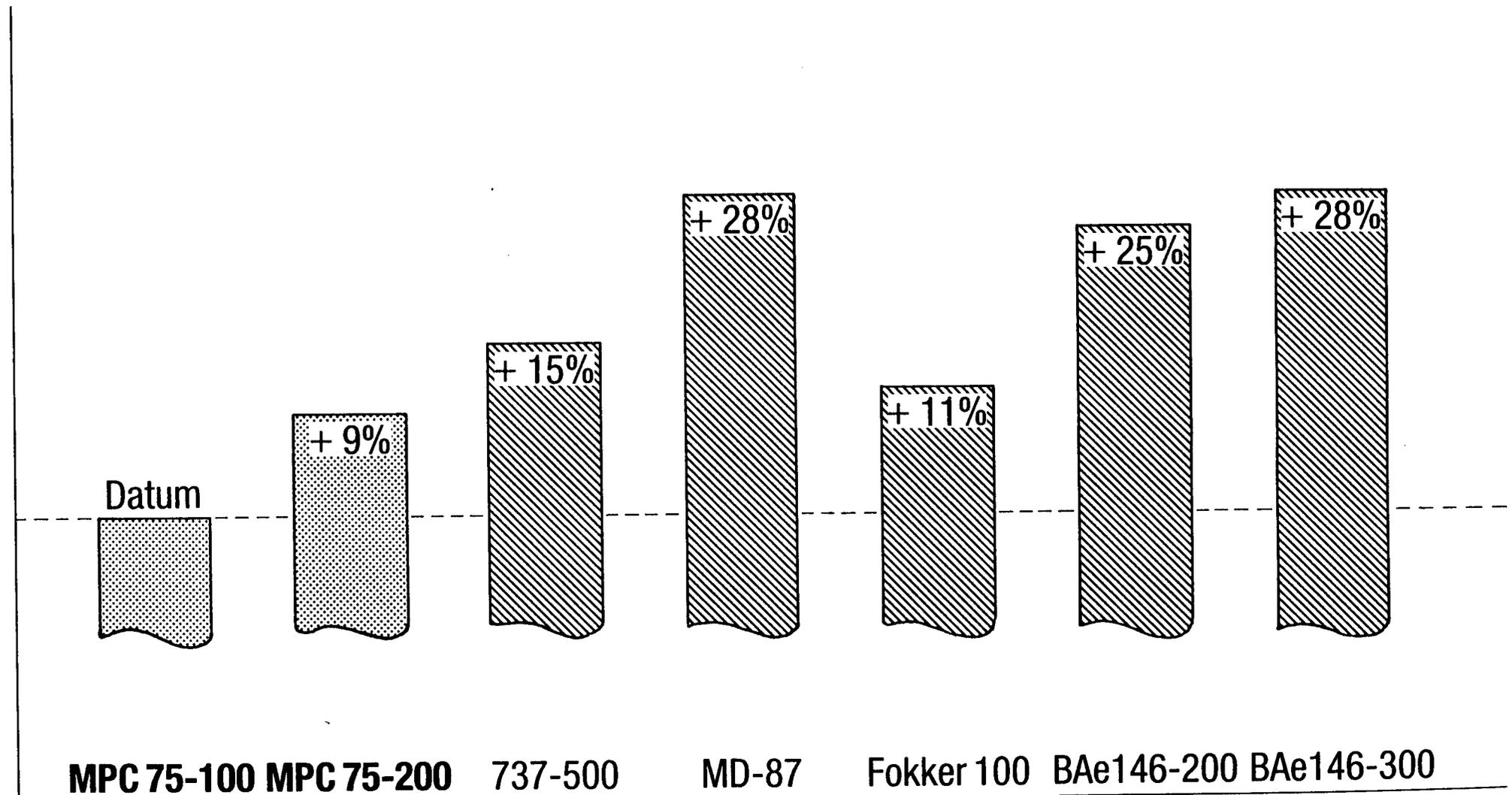
## 1990 economic conditions

<b>Fuel</b>	90 cents/USgallon
<b>Maintenance</b>	MPCA estimates; labour \$ 23 /manhour, burden 200% of labour
<b>Flight crew</b>	formula method (function of MTOW and utilisation)
<b>Landing fees</b>	\$ 2.45 per tonne of MTOW
<b>Investment</b>	aircraft flyaway price plus spares (6% airframe and 30% bare engine)
<b>Insurance</b>	0.5% flyaway price per annum
<b>Depreciation</b>	total investment over 15 years to 10% residual value
<b>Interest</b>	average annual interest charge (3% of total investment)
<b>Utilisation</b>	3200 block hours for 500 nm sector

# Operating cost comparison

Relative direct operating cost per trip

Single-class seating  
500 nm sector

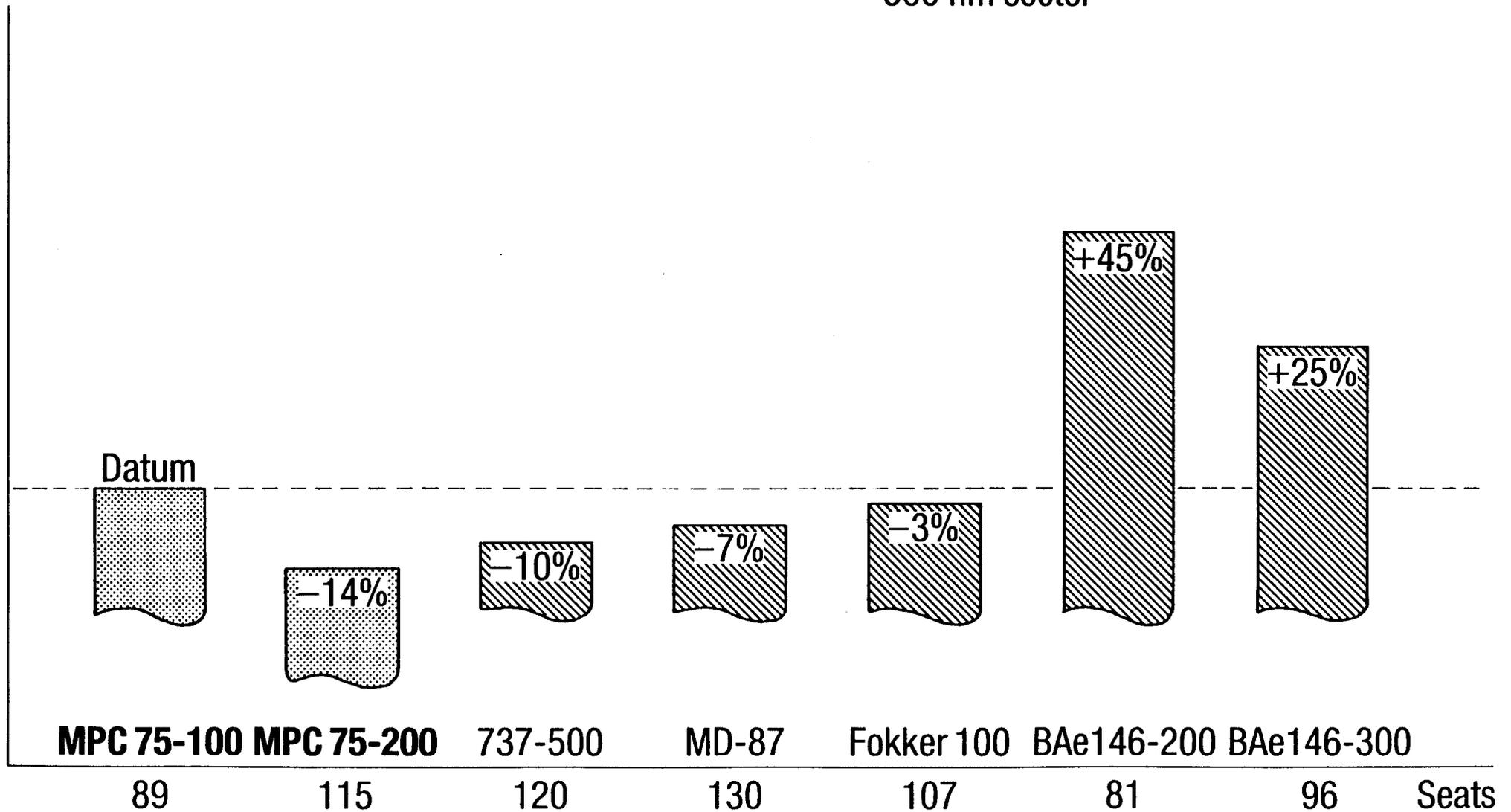


# Operating cost comparison



Relative direct operating cost per seat

Single-class seating  
500 nm sector



# Summary

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# MPC 75 summary

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- Uncompromised, all-new, advanced technology 90-seater
- Maximum flexibility and efficiency in all areas of design
- Excellent comfort standards for the passengers of the nineties
- Cost-effective application of advanced technology
- Unmatched seat-mile costs in this category of aircraft

**The MPC 75 is highly adaptable to the changes incurred by the airline liberalisation and its more competitive operating system**

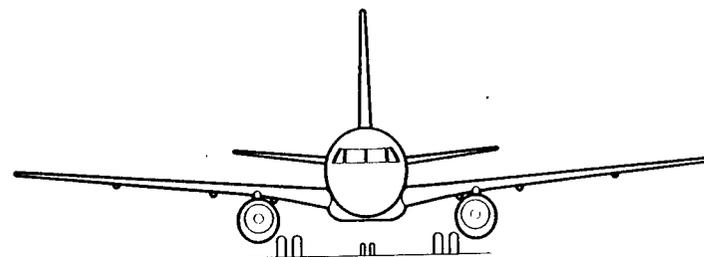
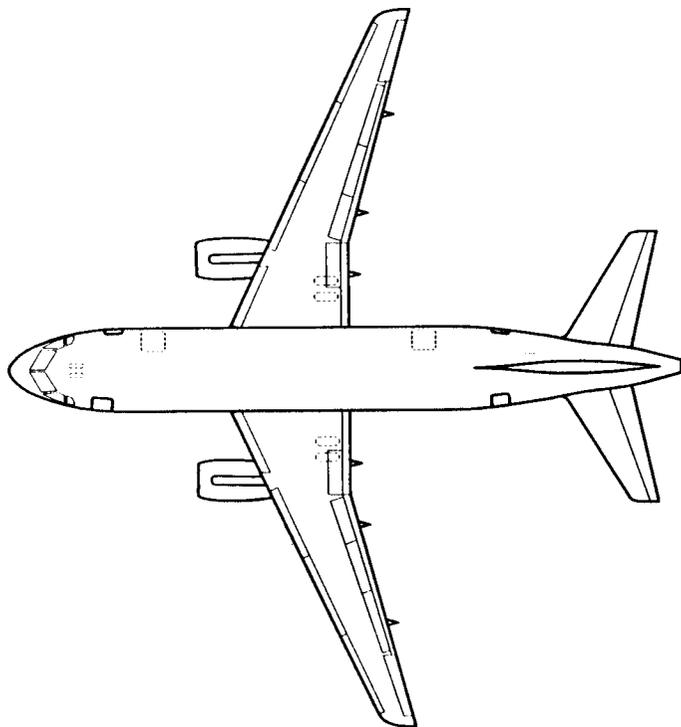
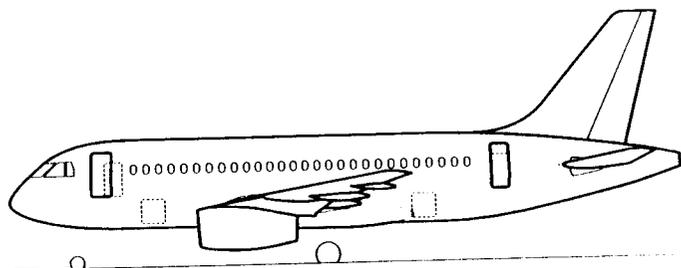
# Appendix (basic data)

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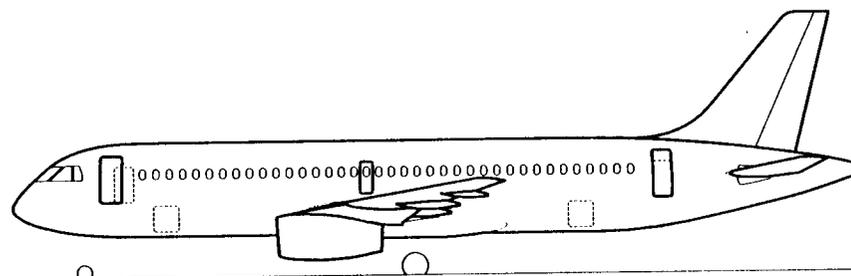


# MPC 75-100 general arrangement

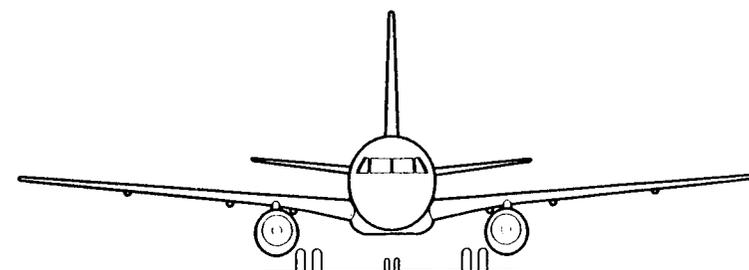
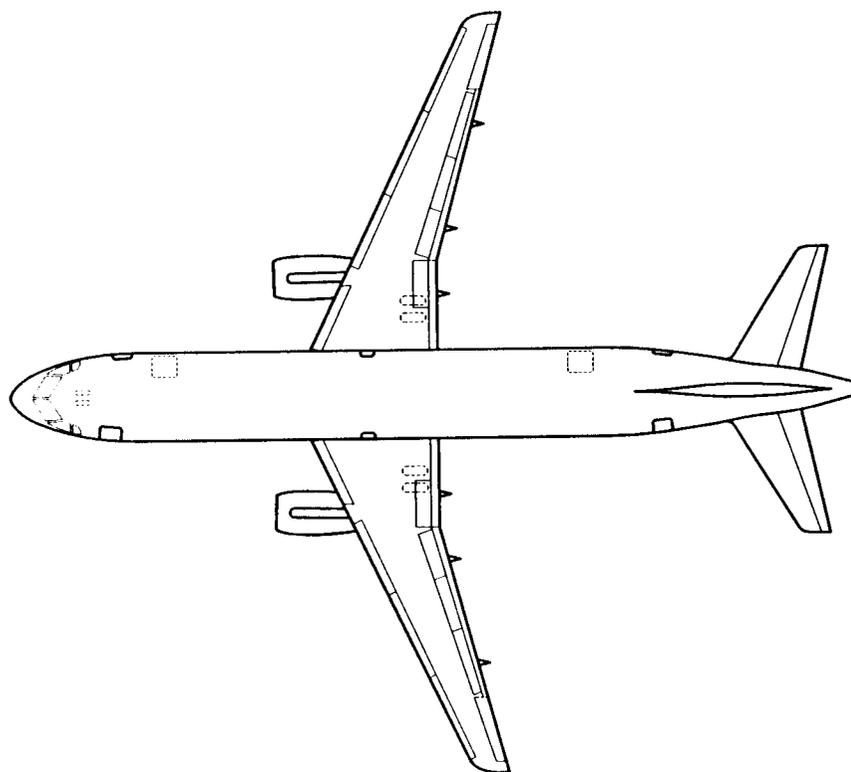
Span	97 ft 6 in/29.7 m
Length	93 ft 7 in/28.5 m
Height	33 ft 4 in/10.2 m



# MPC 75-200 general arrangement



Span	97 ft 6 in/29.7 m
Length	110 ft 3 in/33.6 m
Height	33 ft 4 in/10.2 m



# MPC 75 basic data



	<b>MPC 75-100</b>	<b>MPC 75-200</b>
Maximum take-off weight	39,950 kg / 88,100 lb	45,100 kg / 99,400 lb
Maximum landing weight	37,950 kg / 83,700 lb	42,850 kg / 94,450 lb
Maximum zero-fuel weight	35,350 kg / 77,950 lb	41,000 kg / 90,400 lb
Operating weight empty	24,500 kg / 54,000 lb	27,000 kg / 59,500 lb
Maximum structural payload	10,850 kg / 23,950 lb	14,000 kg / 30,900 lb
Maximum fuel capacity	10,450 litres / 2,760 USg 5,000 litres / 1,320 USg	
– outboard tanks		
– centre section tanks		
Seats – typical two-class	82	107
– single-class	89	115
Cabin width (at armrest level)	3.23 m / 10 ft 7 in	
Overhead stowage volume	6.54 m <sup>3</sup> / 231.0 ft <sup>3</sup>	8.75 m <sup>3</sup> / 309.0 ft <sup>3</sup>
Underfloor hold capacity	18.15 m <sup>3</sup> / 641.0 ft <sup>3</sup>	27.55 m <sup>3</sup> / 973.0 ft <sup>3</sup>
Wing area	92 m <sup>2</sup> / 990 ft <sup>2</sup>	
Engine thrust	62.3kN / 14,000 lb SLST	73.4 kN / 16,500 lb SLST

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While the information presented in this study is given in good faith, based upon the latest information available to MPC Aircraft GmbH, no warranty or representation is intended and it must not be taken as establishing any commitment on the part of MPC Aircraft GmbH.

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