# MRO 2004 – MRO Market Forecast

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Presented by

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## Today’s presentation will cover the following topics:

- **MRO Industry Outlook**
  - *Forecast Introduction*
  - *State Of The Airline Industry*
  - *The Changing Industry Dynamic*
  - *World Fleet Outlook*
  - *World MRO Forecast*
  - *North American MRO Forecast*
- **Summary**
  - *Changing Fleet Dynamic*
  - *World MRO Forecast*

# Forecast Introduction

## Forecast Introduction:

The World Maintenance Repair & Overhaul Market Forecast overview

- **BACK Aviation Solutions and TeamSAI prepare the World Maintenance Repair & Overhaul Market Forecast for McGraw-Hill's Overhaul & Maintenance Magazine**
  - *The forecast summary has been published in the March 2001, May 2002, May 2003 editions and is the cover story in the April 2004 edition*
- **The world forecast is separated into 6 regions:**
  - *North America*
  - *South and Central America*
  - *Europe*
  - *Middle East*
  - *Africa*
  - *Asia – Pacific*
- **The regional data is presented by aircraft body-type (narrowbody, widebody, and regional jet) and also by MRO market segment:**
  - *Heavy Maintenance and Modifications*
  - *Engine Maintenance*
  - *Component Maintenance*
  - *Line Maintenance*


## Forecast Introduction:

The market forecast methodology comprises two separate but mutually dependent steps

- **The Fleet Forecast Methodology**
  - *Econometric model that correlates ASM's and economic activity for commercial jet aircraft*
  - *Predicts overall growth in scheduled airline activity by world region*
  - *Growth in specific blocks reflecting distance, density and aircraft seat class developed based upon historical projections of economic activity*
  - *Market demand for aircraft units adjusted for*
    - *Retirements in existing fleet*
    - *Firm orders and deliveries*
- **The MRO Forecast Methodology**
  - *The MRO Forecast is based on a macro level methodology to identify key market trends and drivers*
  - *An extensive survey of global operator's maintenance expenses combined with our industry experience forms the foundation of the forecast*
  - *Annualized heavy check man-hour and material requirements for each aircraft type are combined to produce a heavy check and modification market*
  - *Similar methodologies are used to develop engine, line maintenance and component market estimates*

# State Of The Airline Industry

## State Of The Airline Industry:

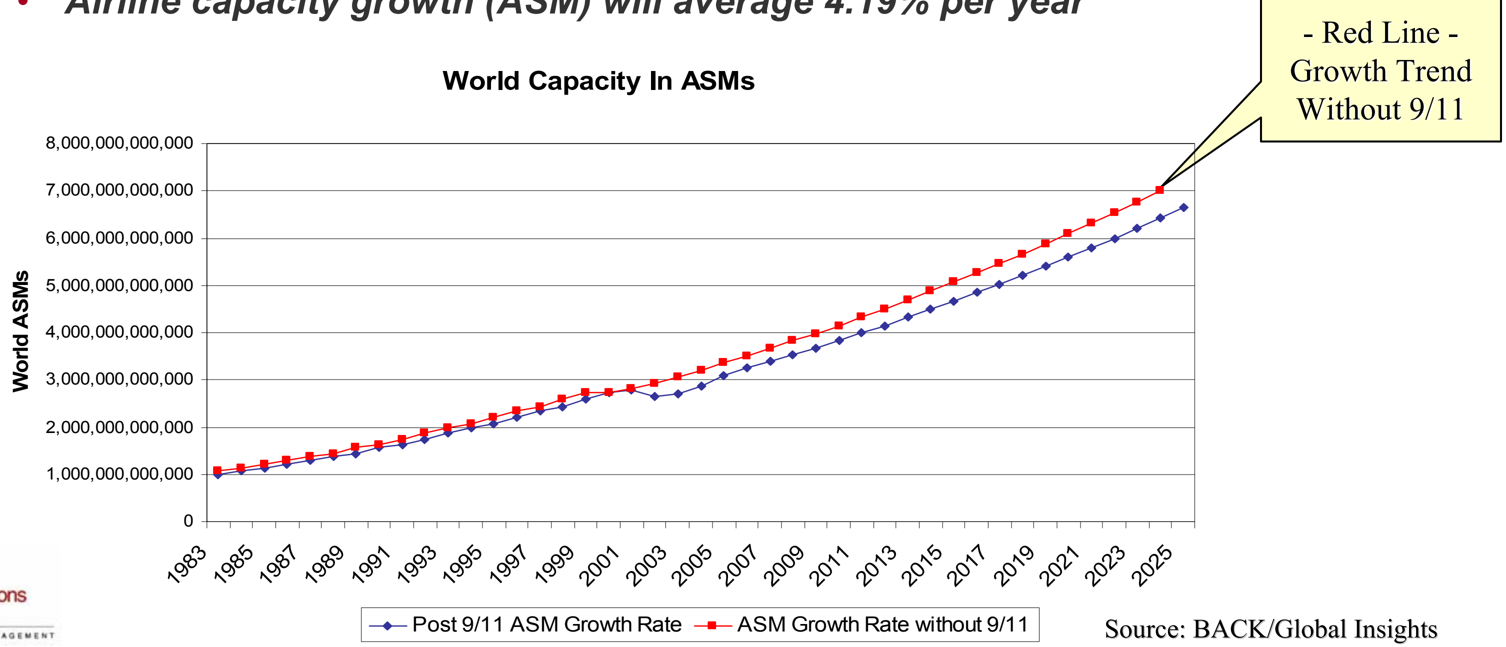
Coming into 2004, the U.S. airline industry gave signs of recovery after gaining some momentum in the second half of 2003; however, the outlook has deteriorated

- **Economy**
  - *Exceptional GDP growth in 3Q2003 gave hope for strong job growth, which has lagged despite economic improvement*
  - *Consumer confidence has been on the fence*
- **Unit Revenue**
  - *Year-over-year RASM started to turn positive in May 2003 and finished up 3% for the year for the first time since 2000*
  - *Fare wars in the transcontinental market and LCC growth are impacting the 2004 outlook combined with aggressive planned capacity increases*
  - *Pricing transparency makes recovery to 2000 levels unattainable*
- **Unit Costs**
  - *Significant cost cuts were evident in 2003, especially in airlines involved in or close to bankruptcy restructuring*
  - *Unfortunately, fuel prices have remained surprisingly high with limited hedging besides Southwest*
- **Profitability**
  - *Industry analysts were forecasting relatively modest losses in 2004 of $500-600M on the path of recovery after 2003 losses in excess of $5B and $11B in 2001*
  - *The 2004 estimated losses have recently been revised to over $2B*
  - *Recent terrorist activity and Middle East unrest are a concern*

## State Of The Airline Industry:

The good news is that the long-term industry forecast remains healthy

- Over time cycles smooth out as economic growth becomes the key driver of airline traffic and capacity
- Air travel will not recover to the pre-September 11, 2001 long-term average growth trend but instead will recover to a parallel trend reaching pre-September 11th ASM levels in the 2004 time frame
- Economic growth, 2004–2025
  - *Major projections for the 22-year period 2004 to 2025 are as follows:*
    - *Worldwide economic growth (GDP) will average 3.08% per year*
    - *Airline capacity growth (ASM) will average 4.19% per year*



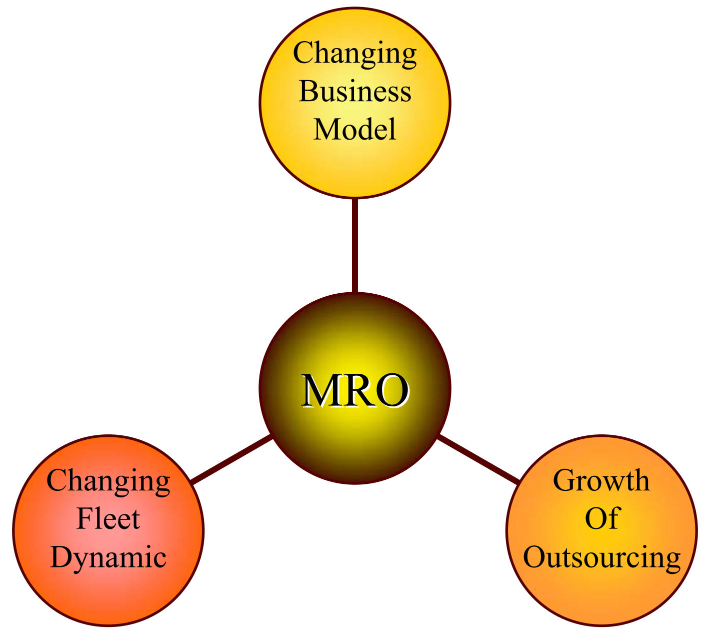

Source: BACK/Global Insights

# The Changing Industry Dynamic

## The Changing Industry Dynamic:

This year's forecast is focused on the changing industry dynamic and the implications for MRO

- **In previous years, the forecast was based on three economic scenarios:**
  - ***Slow (recession), moderate and fast global GDP growth***
- **This year, the BACK/SAI MRO forecast moves to a new format to focus on operator cost efficiencies**
  - ***Changing business model for network, low cost and regional carriers***
  - ***Expansion of the RJ fleet market share***
  - ***Growth of outsourcing to 3rd party providers – MRO specialists***



## The Morphing Of Business Models:

Historically, the U.S. airline industry has operated with distinct basic business models for network and low-cost carriers; however, the models have begun to blur

| Model Dimensions | Classic Network Carrier model | Blended Models | Classic Low-Cost Carrier Model |
|---|---|---|---|
| Tactics/Services | ✓2/3 classes<br>✓Numerous on-board and ground services<br>✓Hub networks<br>✓Global alliances | ✓1 or 2 classes<br>✓Growing set of amenities<br>✓Point-to-point and network<br>✓Major hub airports and secondary airports<br>✓New maintenance bases | ✓1 class<br>✓Minimal services<br>✓Point-to-point (high frequency)<br>✓Emphasis on secondary airports<br>✓Keep it simple (KISS)<br>✓Outsource beyond core competencies |
| Distribution & pricing policy | ✓Through channels with increasing direct<br>✓Yield management | ✓Direct distribution whenever possible<br>✓Focus on on-line booking<br>✓Simple pricing<br>✓Transparent pricing | ✓Direct distribution whenever possible<br>✓Simple pricing (4 tiers) |
| Fleet & Mission | ✓Mixed LH/MH/SH<br>✓Domestic & Intl<br>✓TP/RJ via regional partners<br>✓High utilization | ✓Single or mixed types<br>✓SH/MH/LH domestic; transborder, Caribbean intl<br>✓Young fleet, new A/C orders<br>✓Use of regional aircraft directly or with partners<br>✓Very high utilization | ✓Single type<br>✓SH focus<br>✓Older fleet<br>✓No regional aircraft or partners<br>✓Very high utilization |

## The Morphing Of The Business Models:

The second generation low-cost airlines continue to be growth airlines vs. niche players and are driving fundamental industry change

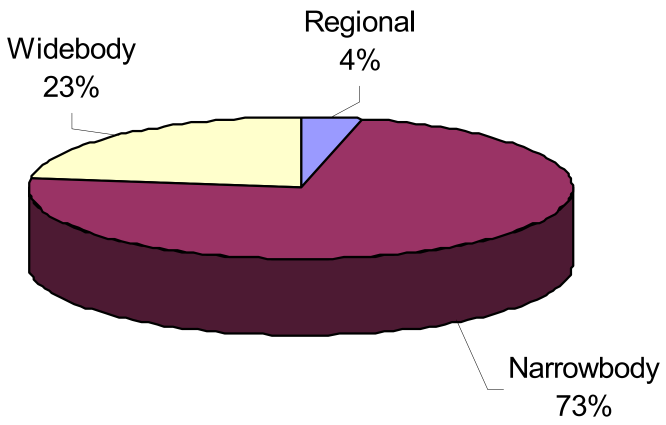
- **Some of the most recent trends are:**
  - ***The changing of places, LCCs with frills and low fares, no frills legacy carriers with low fares and high costs***
  - ***The LCCs and regional airlines continue to grow and benefit from legacy carrier turbulence***
  - ***The LCCs are moving toward a future major position in both the US and European domestic markets***
  - ***Legacy carriers are evolving into international airlines***
  - ***Regional airlines are becoming the domestic spokes of legacy carrier hubs***

## The Changing Fleet Dynamic:

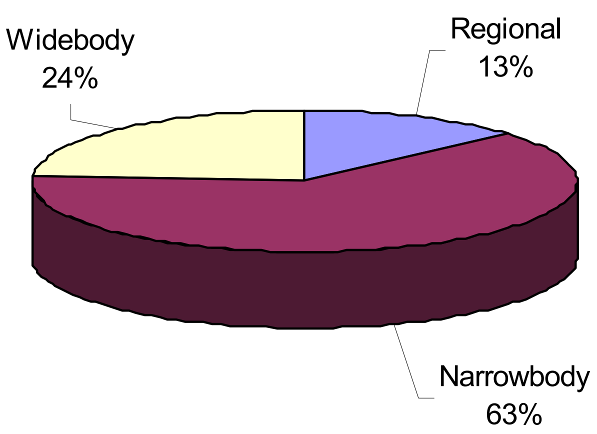
Regional jets entered the market in a small way in the early 90's, but experienced very strong growth in the second half of the decade

- From January 1994 to January 2004, the world fleet of regional jets experienced strong growth with a 20% CAGR and increased from 338 units to 2,058 going from just 4% of the global fleet to 13%
- In the nine quarters since September 11th, Worldwide RJ flights are up by 52% from the 4th quarter of 2001 through the 1st quarter of 2004
  - *In the U.S. the change is even more dramatic with RJ flights up by 85% over the same period*

**Fleet Mix 1994**



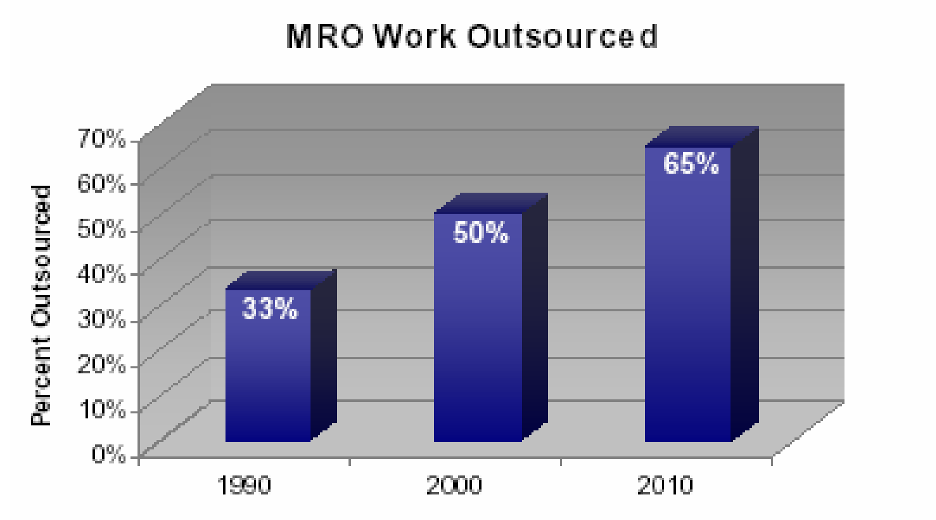

**Fleet Mix 2004**



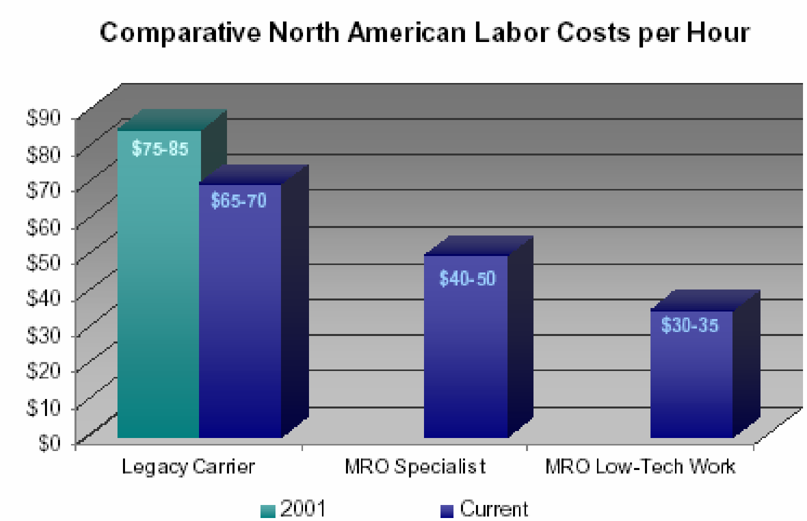

Source: BACK Aviation Solutions Fleet Database
N.B. – Includes Commercial Passenger & Freighter Aircraft

## The Growth Of Outsourcing:

MRO Outsourcing has surged beyond the traditional major users of third-party maintenance services




- **Less than 15 years ago, two thirds of all commercial aircraft maintenance was performed in-house**
- **Today half of this maintenance is performed by outside vendors—MRO specialists**
- **Even with airline internal labor rates declining by 13 – 17%, MRO specialists have a 28 – 38% labor cost advantage**
- **The BACK/SAI team predicts that outsourcing of commercial aircraft maintenance could approach 65% by the end of this decade**

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Source: BACK/SAI MRO Forecast

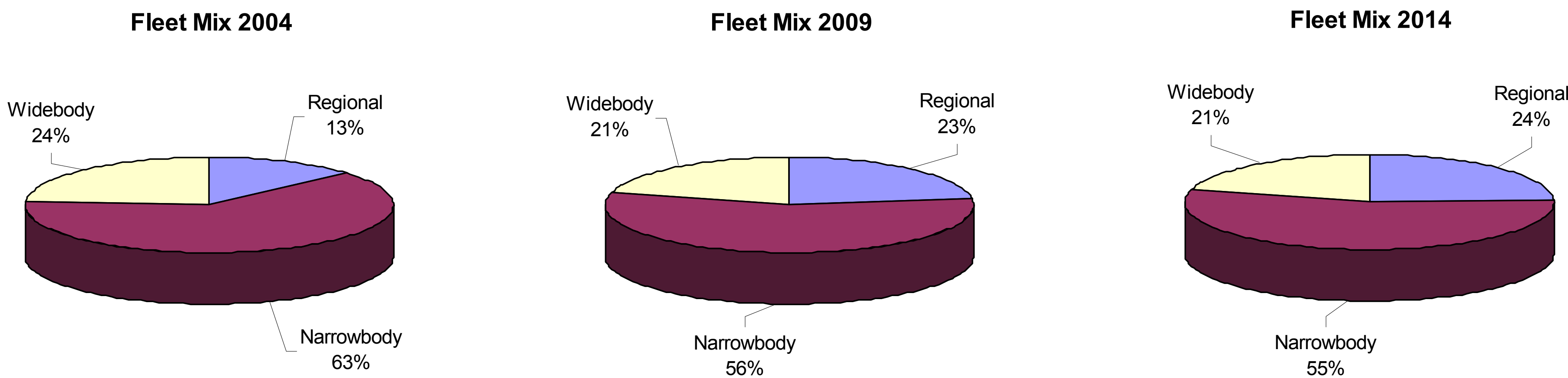
# MRO Industry Outlook

**World Fleet Outlook**
**World MRO Forecast**
**North American MRO Forecast**

## The World Fleet Outlook:

The BACK/SAI world jet fleet forecast indicates that the world's fleet will grow by 60% over the next 10 years and the RJ will continue to play a significant role

- **The total global fleet will grow from 16,030 airframes in 2004 to 25,586 in 2014**
- **The traditional market share by aircraft type is changing as RJs increase from 13% of the world's fleet in 2003 to 24% of the world's fleet in 2014**
  - ***Over 70% of that growth will occur in the next 5 years***

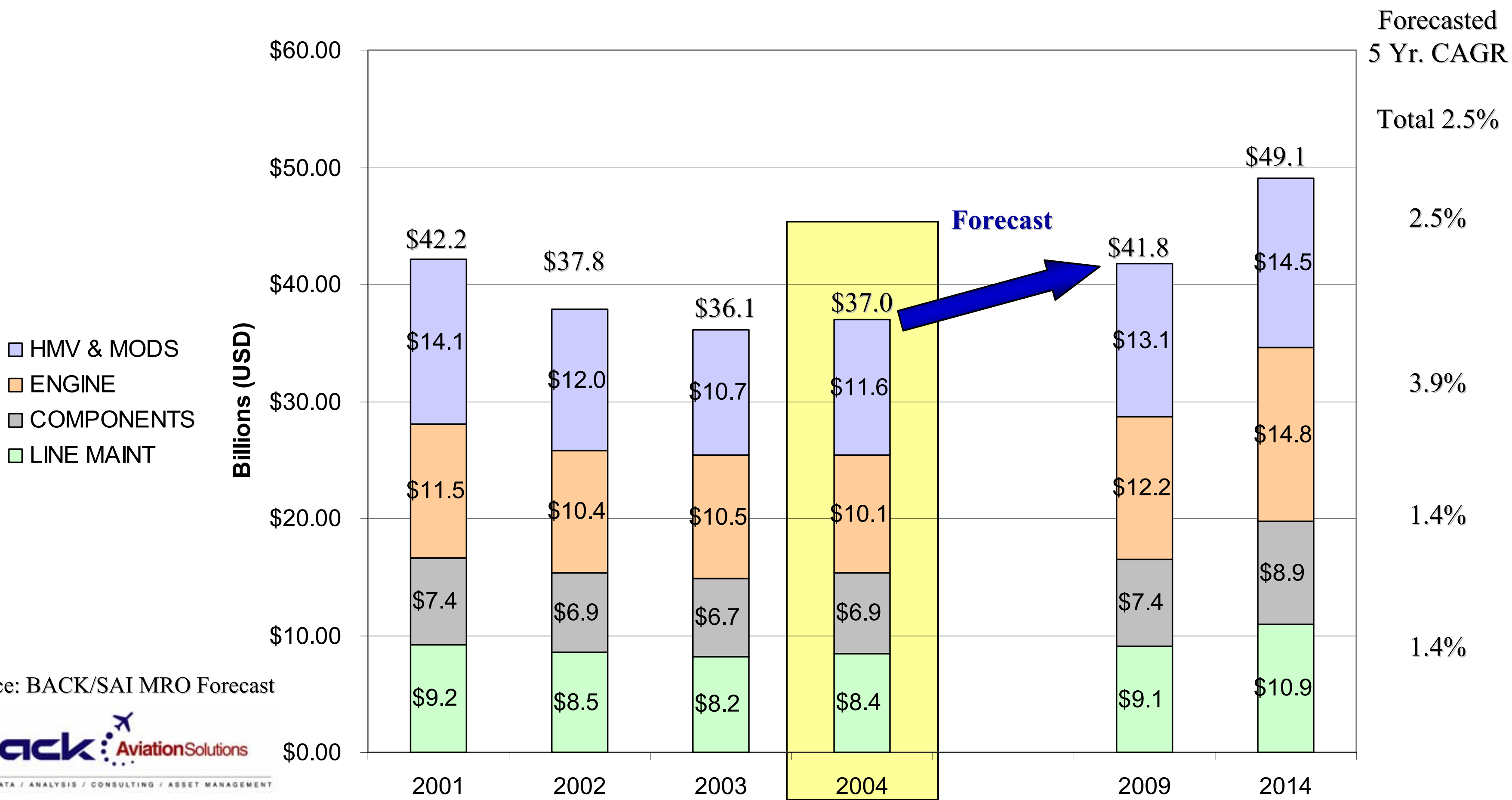



Source: BACK/SAI Fleet Forecast
N.B. – Includes Commercial Passenger & Freighter Aircraft


## The World MRO Forecast:

The value of the worldwide MRO market is up for the first time in three years

- The 2004 worldwide MRO market will increase by 2.5% in 2004




Source: BACK/SAI MRO Forecast

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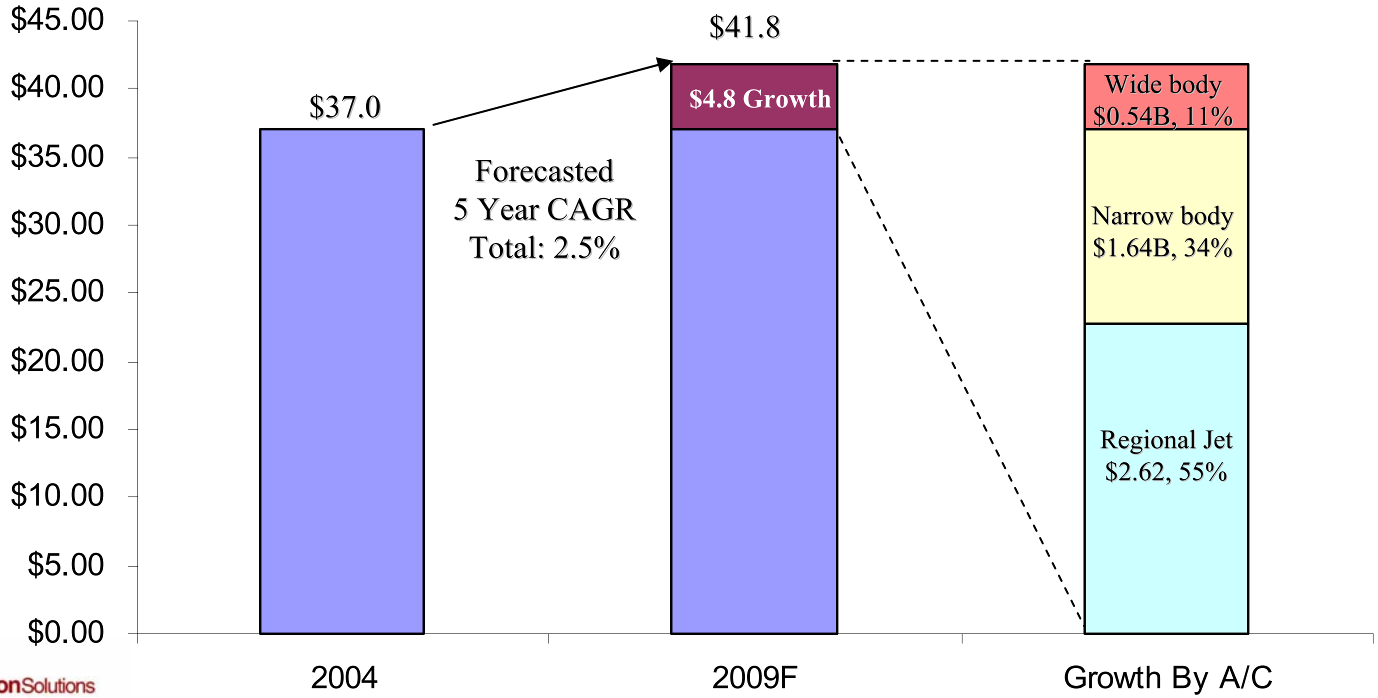
## The World MRO Forecast:
Regional jets and narrow body aircraft will drive the future growth in MRO services

- The MRO world market will grow by $4.8B USD over the next 5 years
- RJs and narrow body aircraft will account for 89% of the growth in MRO demand

### MRO Growth By Aircraft Segment (2009 = $41.8B USD)



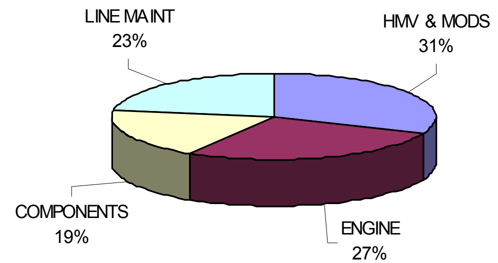

Source: BACK/SAI MRO Forecast

## The World MRO Forecast:

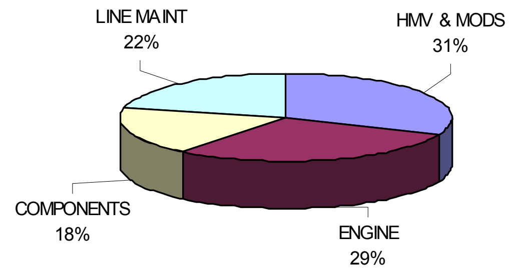
At the predicted growth rate, the worldwide MRO market value will not reach its 2001 peak of $42.2B (USD) until the end of the decade despite ASM levels being at their 2001 peak by year end 2004

- **HMV/MODS currently represent the largest segment of the MRO market at $11.6B or 31%**
- **Engine overhauls are second at $10.1B or 27%**
- **Line maintenance, tied directly to flying levels, is $8.4B or 23%**
- **Component overhaul is at $6.9B or 19%**
- **Over the ten year forecast period, HMV/MODS will grow at the slowest pace increasing by 25% to $14.5B by 2014**
  - ***Due in part to a younger fleet, RJ penetration, and lower labor rates***
- **Engine overhaul is forecasted to grow by 46.5% to $14.8B in 2014 making it the largest of the four segments**
- **Components and line maintenance are both expected to grow by 29% to 30% over the 10 year forecast period**

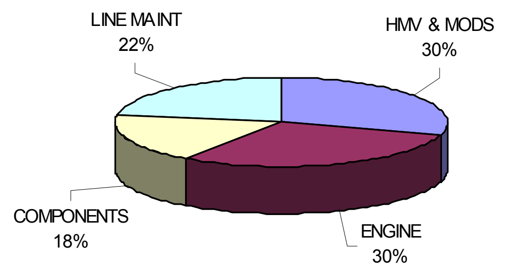
**2004 (Total = $37.0 Billion USD)**




**2009 (Total = $41.8 Billion USD)**




**2014 (Total = $49.1 Billion USD)**



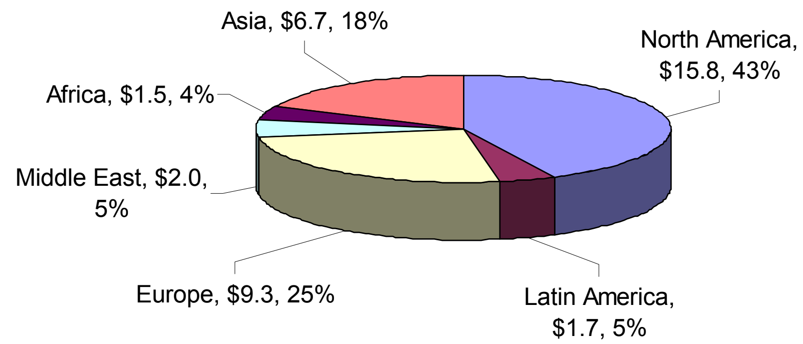

Source: BACK/SAI MRO Forecast

## The World MRO Forecast:

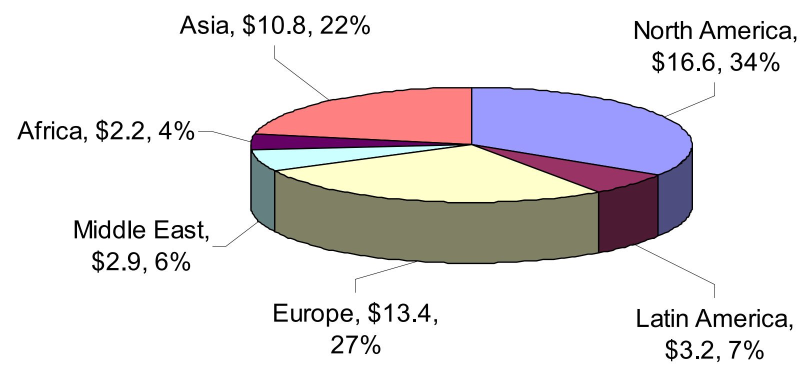
The North American market will remain the world's largest in terms of value over the next 10 years

- **But MRO is expanding much faster in other regions of the world**
  - ***The North American MRO market value is $15.8B or 43% of the world total***
    - ***The North American market is forecasted to grow by 5.1% to $16.6B in 2014***
    - ***However, this will only represent 34% of the world total of $49.1B in 2014 which represents a share loss of 9%***
- **Latin America is forecasted to be the fastest growing market increasing by 88% from a small base of $1.7B in 2004 to $3.2B in 2014 representing 7% of the total world market**
  - ***The growth is fueled by strong GDP growth, expansion of US carriers into Latin America, and US MRO work migration***
- **Asia will gain the most market share increasing from $6.7B or 18% to $10.8B or 22% of the world total**
- **Europe will increase from $9.3B or 25% to $13.4B or 27% of the world total**

**2004 (Total = $37.0 Billion USD)**




**2014 (Total = $49.1 Billion USD)**




Source: BACK/SAI MRO Forecast

## In Summary

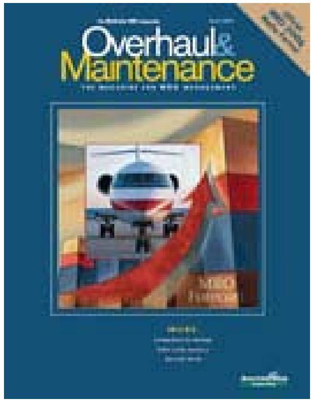
- **Changing Fleet Dynamic**
  - *From January 1994 to January 2004, the world fleet of regional jets experienced a 20% CAGR and increased from 338 units to 2,058 going from just 2% of the global fleet to 13%*
  - *The RJ fleet, as a percent of commercial jet deliveries, has grown from less than 10% in 1993 to almost 40% in 2003*
  - *Traditional market share by aircraft type is changing as RJs increase from 13% of the world's fleet in 2003 to 24% of the world's fleet in 2014 with over 70% of that growth occurring in the next 5 years*
  - *The acceleration of RJ growth will slow the MRO market because of the cost efficiencies gained, but the growth in total aircraft numbers will more than offset this MRO market loss*

## In Summary

- **MRO Market Size**
  - *The MRO market size, measured in U.S. dollars, will grow by 2.5% in 2004 going from $36.1B to $37B but will not achieve its 2001 peak market size of $42.2B until 2010*
    - *Over the next five years the MRO market will experience a 2.5% CAGR and will increase to $41.8B and in ten years will have increased to $49.1B*
  - *Industry capacity growth will not recover to the pre-September 11, 2001 long-term average growth trend but instead will recover to a parallel trend reaching pre-September 11th ASM levels in the 2004 time*
  - *The spike in new aircraft deliveries experienced in the late 90s along with the postponement of scheduled maintenance following 9/11 will generate a “Bulge” in HMV and MOD activity between 2004 and 2009*
  - *The world fleet will grow 60% over the next 10 years*
  - *Aircraft size is declining*
  - *Average aircraft age is declining*
  - *The value of MRO activity per aircraft will decline 17% over the next 10 years as the average aircraft size declines, largely the result of RJ fleet growth, and labor rates and cost efficiencies are realized*

## Read more about the Worldwide MRO forecast..

- In the April, 2004 issue of Overhaul and Maintenance Magazine




- For more detailed MRO analysis visit our websites or contact us…

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