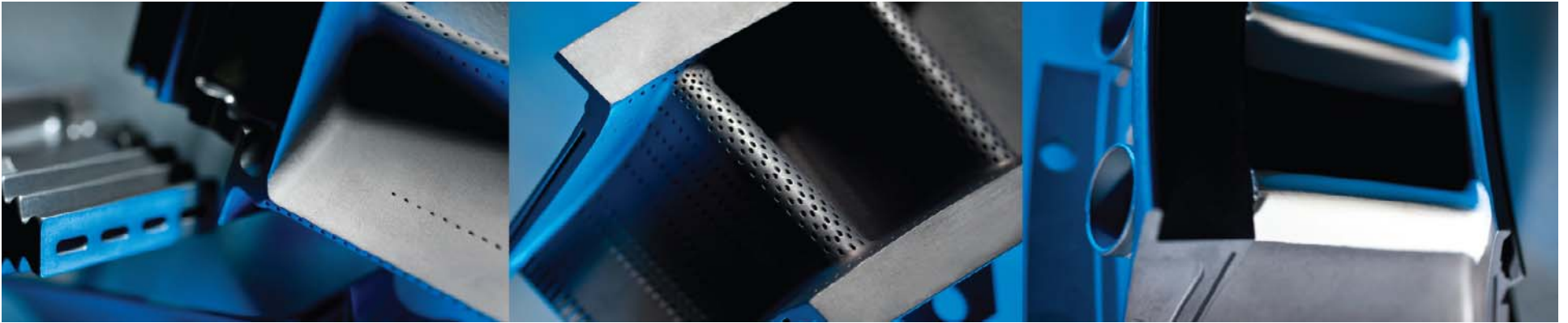


CHROMALLOY



12Th Annual Gorham PMA / DER Conference

Moving Our Industry Forward

Rob Church

Regional Sales Director, The Americas

| April 2010

Content

Chromalloy

Challenges we face

Controlling our future

Chromalloy History

- Started as a Chromalloy American Corporation in the late 1950s
- The first company to leverage protective coatings on Turbine Airfoils
- Developed repair technologies as an extension to OEM designs
- DER repairs began in 1991
- PMA started in 2000
- Acquired by The Carlyle Group in December 2007
- Significant expansion in casting capability in Tampa 2009 / 10



> 50 years of leadership in gas turbine repair technology

Locations

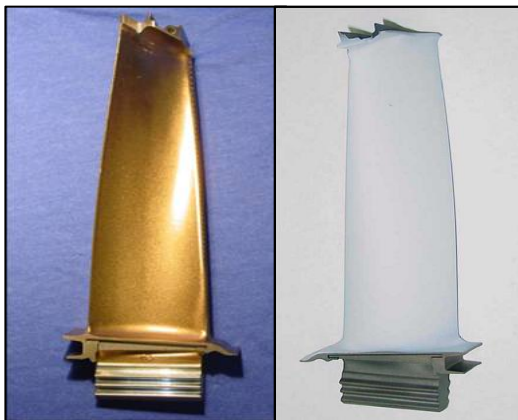
- Phoenix, AZ
- Calexico, CA
- El Cajon, CA
- Gardena, CA
- San Diego, CA
- San Francisco, CA
- Windsor, CT
- Oldsmar, FL
- Stuart, FL
- Tampa, FL
- Newnan, GA
- Burlington, MA
- Carson City, NV
- Orangeburg, NY**
- Midwest City, OK
- Dallas, TX
- San Antonio, TX
- Vancouver, Canada
- Victoria, Australia
- Perth, Australia
- Beijing, China
- Dubai, UAE
- Rochefort, France

- Saint Ouen, France
- Mumbai, India
- Cengkareng, Indonesia
- Qiryat-Gat, Israel
- Kuala Lumpur, Malaysia
- Tilburg, Netherlands
- Jeddah, Saudi Arabia
- Lamlukka, Thailand
- Nottingham, UK
- Glasgow, UK

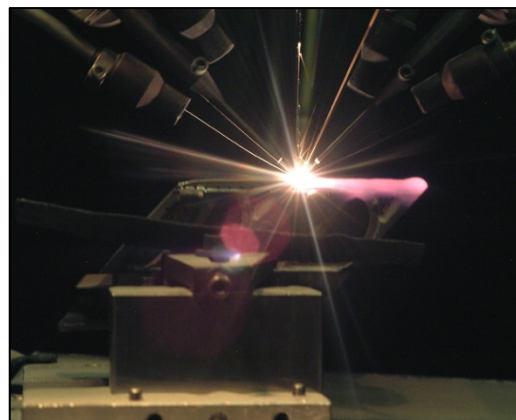
4,000 employees, 33 facilities in 14 countries around the world

Product / service offering

Coatings



Repairs



Parts



Chromalloy is the world's largest independent supplier of technologically advanced repairs, coatings and replacement parts for turbine airfoils and other critical engine components

FAA PMA HPT Blades



JV Charter: Design and manufacture high pressure turbine blades

Chromalloy today

**Chromalloy is a global technology company.
We partner with customers to deliver innovative
solutions that reduce the operating expense, and
extend the life, of gas turbine engines.**

Visit us at www.chromalloy.com

Three key challenges we face . . .

- 1. World wide economy**
- 2. Our customer base is suffering**
- 3. OEM & Leasing Company behavior**

Three key challenges we face . . .

- 1. World wide economy**
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Worldwide economy

- After 18 months of record breaking declines, the world’s markets are on the mend
- The lagging US economy remains a concern
- Oil remains a question mark

DAX 6235.56 82.01 1.33%↑	CAC 40 4034.23 60.22 1.52%↑	FTSE 100 5744.89 65.25 1.15%↑	DOWJ 10927.9 71.27 0.66%↑
Light, Sweet Crude Oil Futures 84.87 1.11 %↑	Indices	Price Chg Chg%	NY Harbor RBOB Gasoline Futures 2.32 0.0128 %↑
Natural Gas Futures 4.101 0.232 %↑	UK FTSE All Share	2,943.86 33.67 1.2↑	Silver Futures 17.94 0.414 %↑
Gold Futures 1127.9 14.0 %↑	Nasdaq Composite	2,407.31 8.77 0.4↑	Copper Futures 3.577 0.0235 %↑
	S&P/Tsx Composite Index (Official)	12,126.99 89.26 0.7↑	
	Bovespa Index	71,268.84 897.30 1.3↑	
	Iseq-General (Price)	3,979.38 90.81 2.3↑	
	Swiss All Share Index Pr	433.03 2.23 0.5↑	
	RTS Index	1,608.08 37.53 2.4↑	
	Euronext 100	708.96 10.45 1.5↑	

Source: ADVFN.com

The world’s economy over the past 18 months has created a “burning platform” for change in our industry

Three key challenges we face . . .

1. World wide economy
- 2. Our customer base is suffering**
3. OEM & Leasing Company behavior

Our Customer Base is Suffering

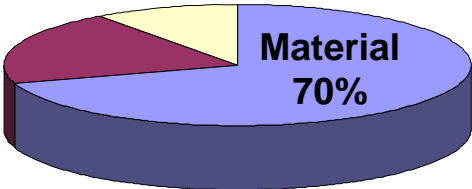
The Good News	The Bad News
<ul style="list-style-type: none">• IATA lowered its 2009 loss estimate to US\$9.4 billion from US\$11 billion• IATA has halved its loss forecast for 2010 to US\$2.8 billion from US\$5.6 billion• Improved being seen in both Asia-Pacific (+ 6.5%) and Latin America (+ 11%) international passenger demand	<ul style="list-style-type: none">• North America (+ 2.1%) and Europe (+ 3.1%) are demonstrating anemic growth in passenger traffic• US Airlines: US\$60 billion in net losses / 160K jobs lost since 2000• Price of fuel has remained high relative to historical perspectives• US unemployment driving demand down

Source: IATA / ATA

**Asia and Latin America are driving the recovery
North America and Europe have been contracting since mid-2008**

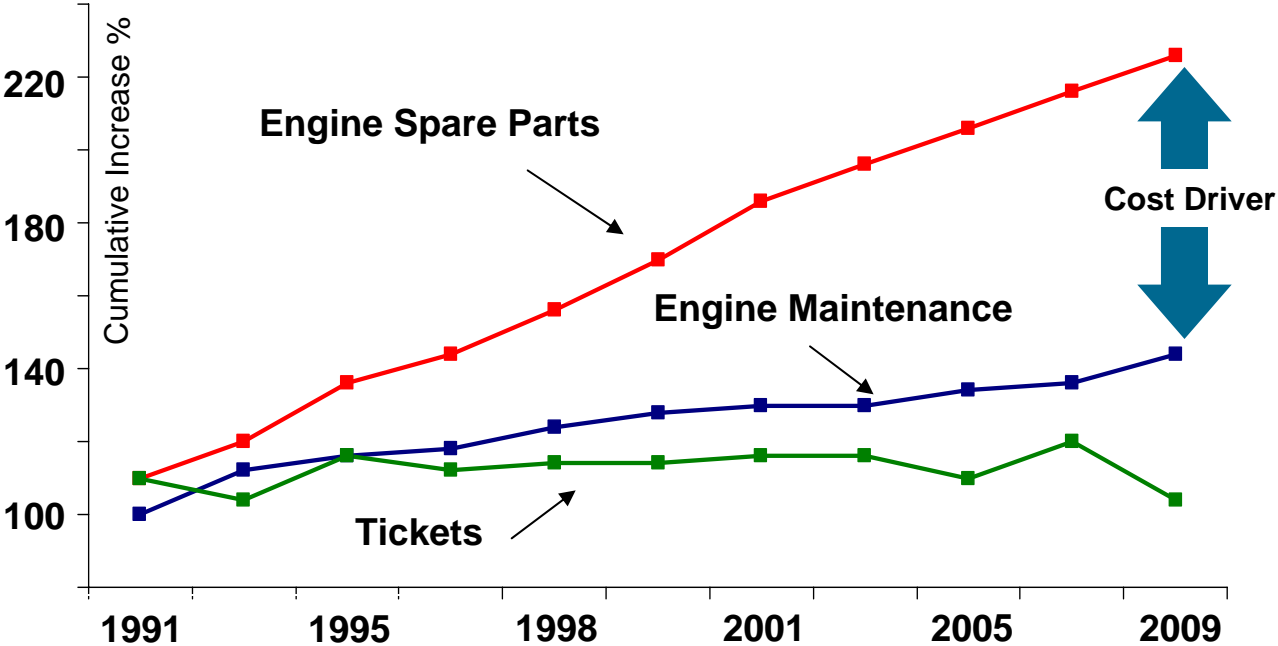
Increasing Engine Maintenance Cost

Engine Overhaul Cost



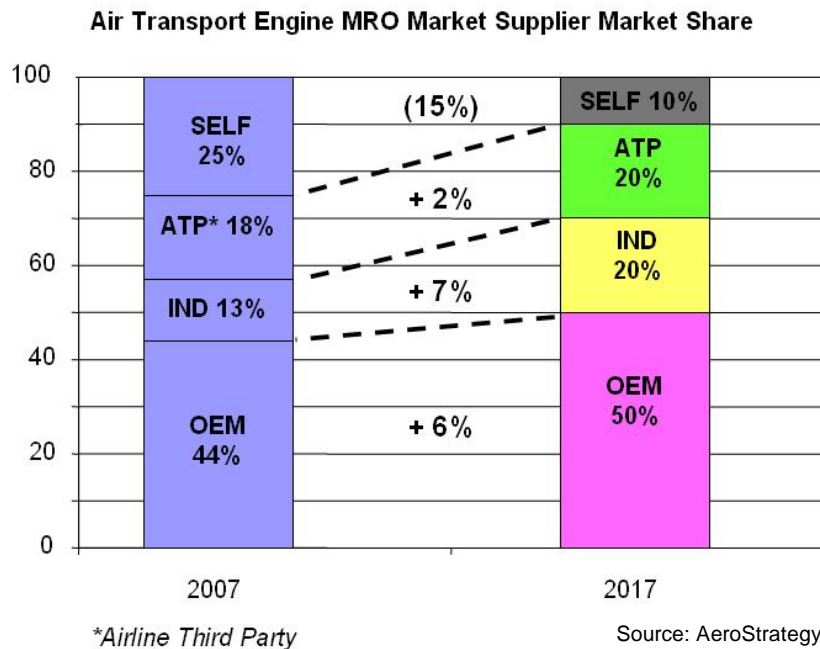
Next to oil, the cost of spare parts is the biggest cost driver in airline operations

Price Escalation



The typical airline business model is incapable of keeping up with the escalation in OEM pricing

Ever increasing OEM pressure



- OEMs moved to licensed service centers and JVs for some engine models to offset PMA threat
- OEMs retain the largest share and control 50% of the engine overhaul market – and it’s growing
- Continuous flow of F.U.D. into the market place “scares” potential customers

This pressure will not let up on it’s own – we need to look for appropriate and effective strategies to fight back

Value Options in Engine Maintenance

FAA DER Repairs

- Reduce scrap rates
- Reduce the cost of existing repairs

FAA PMA Parts

- Reduce the cost of replacements
- Improve availability
- Creates price competition for OEM



**Savings can be
as high as 90%
on original OEM
list pricing**

This options should not be ignored in these or any market conditions

Chromalloy's CFM56-5B / 7B Savings Program

Component	Exposure Rate	Chromalloy Non-Repairable Rate Impact	2009 OEM New Part Pricing	Chromalloy Alternative	Chromalloy Estimated Cost Per Shop Visit	Savings
Platform Fan Blade	80%	10%	\$3,412	PMA	\$2,218	\$1,194
HPC Blade Stg. 1-8	85%	18 – 37%	\$50,851	PMA	\$33,053	\$17,798
HPC Stator Shroud Stg. 1-3	85%	5%	\$863	PMA	\$561	\$302
HPC Seal Sector Stg. 1-8	85%	5 – 20%	\$5,207	PMA	\$3,385	\$1,822
HPT Inner Stat Seal	90%	0%	\$9,127	DER	\$5,933	\$3,194
HPT Vane Stg. 1	90%	20%	\$153,128	DER	\$48,762	\$104,366
HPT Blade Stg. 1	90%	6%	\$39,205	DER	\$1,814	\$37,391
HPT Shroud Stg. 1	90%	20%	\$27,571	DER	\$7,182	\$20,389
LPT Vane Stg. 1	90%	20%	\$61,646	DER	\$26,568	\$35,078
LPT Outer Air Seal Stg. 1-4	35%	7 – 20%	\$5,759	PMA	\$3,743	\$2,016
LPT Blade Stg. 1-4	35%	10 – 50%	\$60,660	PMA	\$39,429	\$21,231
			\$417,429		\$172,648	\$244,781

41% savings per shop visit over the OEM program through a combination of FAA DER & PMA

Three key challenges we face . . .

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Operator Hurdles

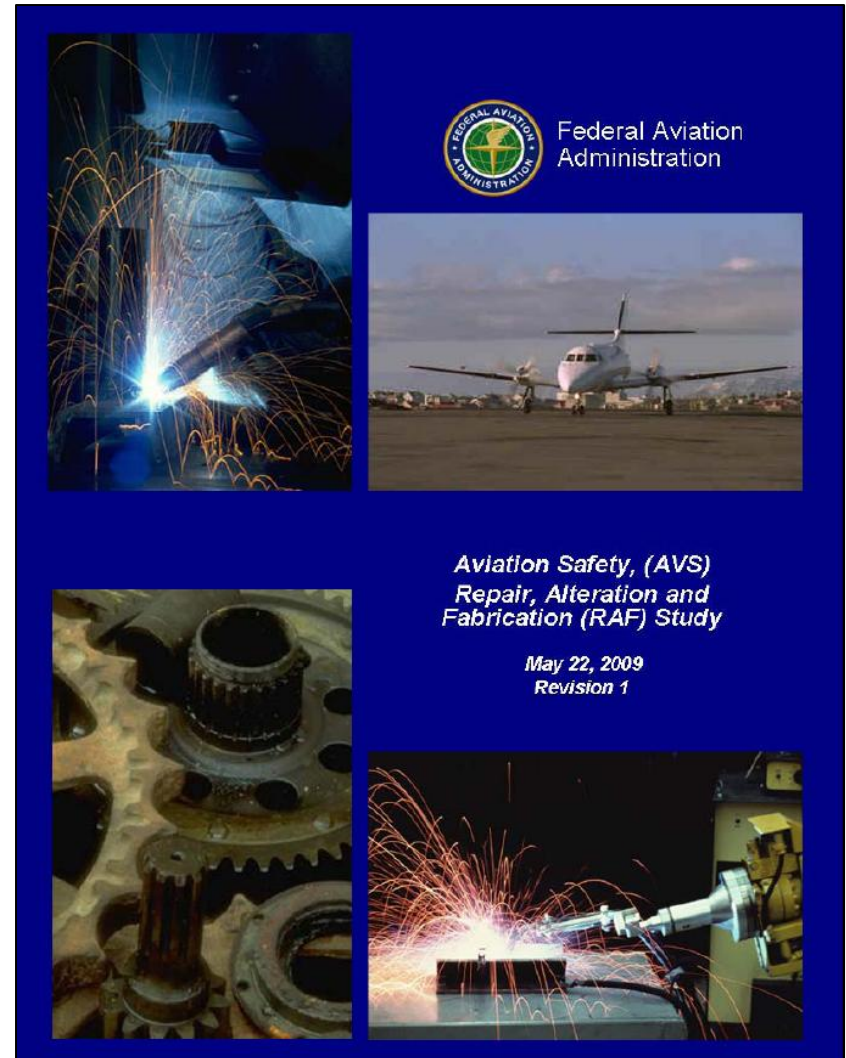
OEM Hurdles	Leasing Company Hurdles
<ul style="list-style-type: none">• Focused on creating Fear, Uncertainty and Doubt (FUD)<ul style="list-style-type: none">• Regulatory position• Safety• Performance• Systems Effect	<ul style="list-style-type: none">• What's in it for them?• Lack of regulatory clarity• Impact on residual value


We must help Operators realize that none of these objections are based in reality

Regulatory Environment

“The general population of PMA parts . . . has increased substantively in past years . . . yet the occurrence of service difficulties and ADs . . . have not . . .”

“What is the difference of parts from these sources? The answer is “no difference”.



 Federal Aviation Administration

*Aviation Safety, (AVS)
Repair, Alteration and
Fabrication (RAF) Study*

*May 22, 2009
Revision 1*

Safety

Airworthiness Directives Since 1992

OEMs

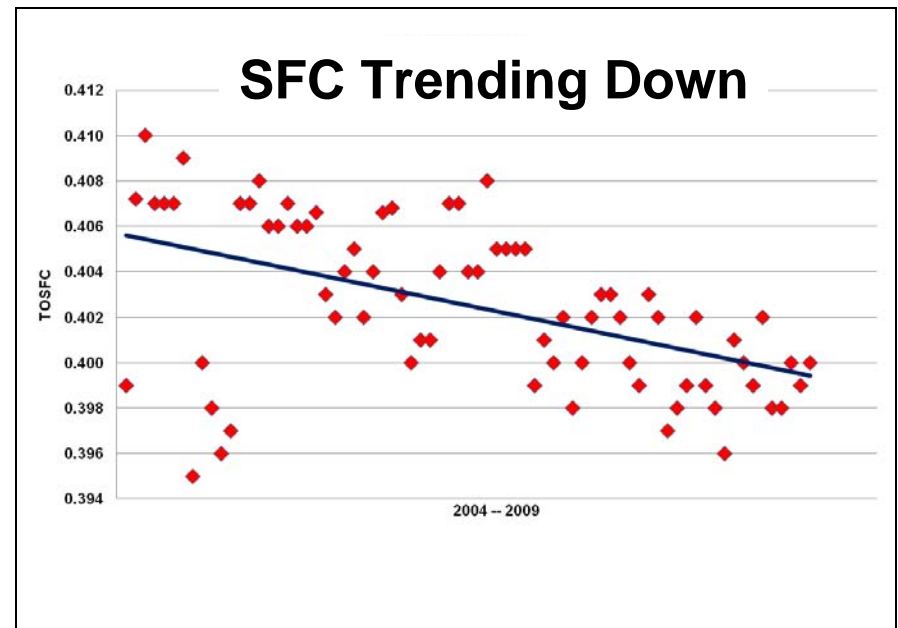
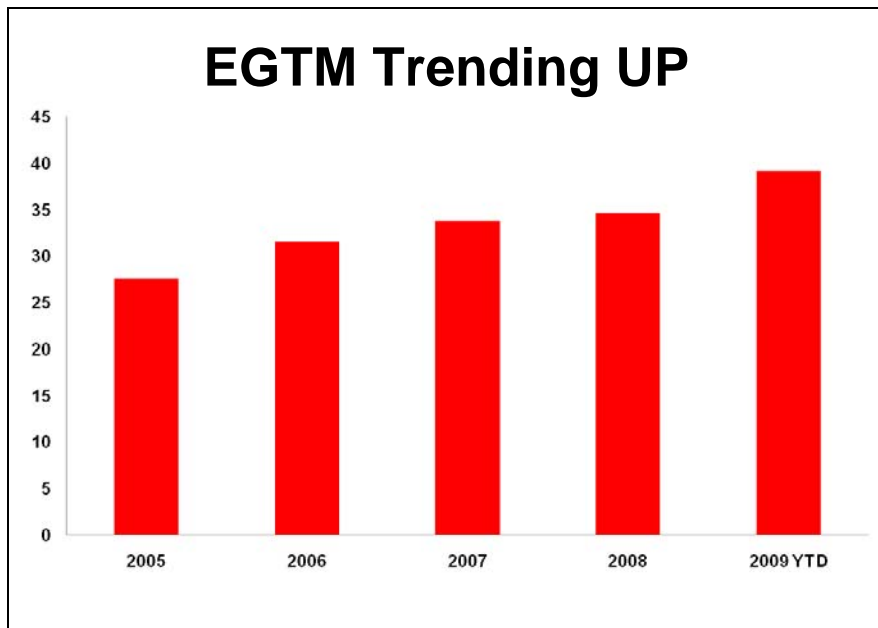
PMA Manufactures

286

3



Performance & Residual Value



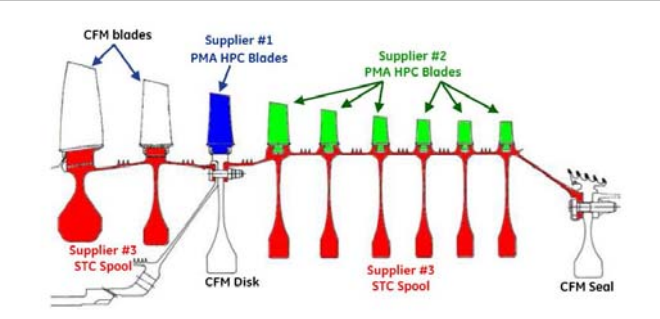
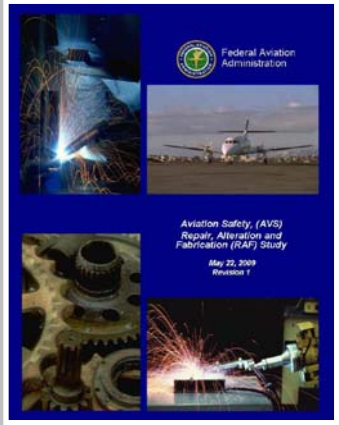
Improved engine test cell measured SFC has been achieved whilst increasing exposure to advanced DER repairs and Chromalloy FAA approved replacement parts

Leasing Companies

- **Leasing companies are fundamentally financial institutions**
- **They typically do not permit Operators to utilize PMA / DER for one simple reason**
 - **There's nothing in it for them?**
- **Operators need to start pressing the Leasing community to meet their needs**
- **The Leasing community is suffering from the overall economic environment**
 - **The time is right for Customers (Operators) to define their requirements and demand the freedom to leverage safe, approved tactics to reduce their operating expenses: PMA / DER**

Operators need to remind the leasing companies who the customer is in the relationship

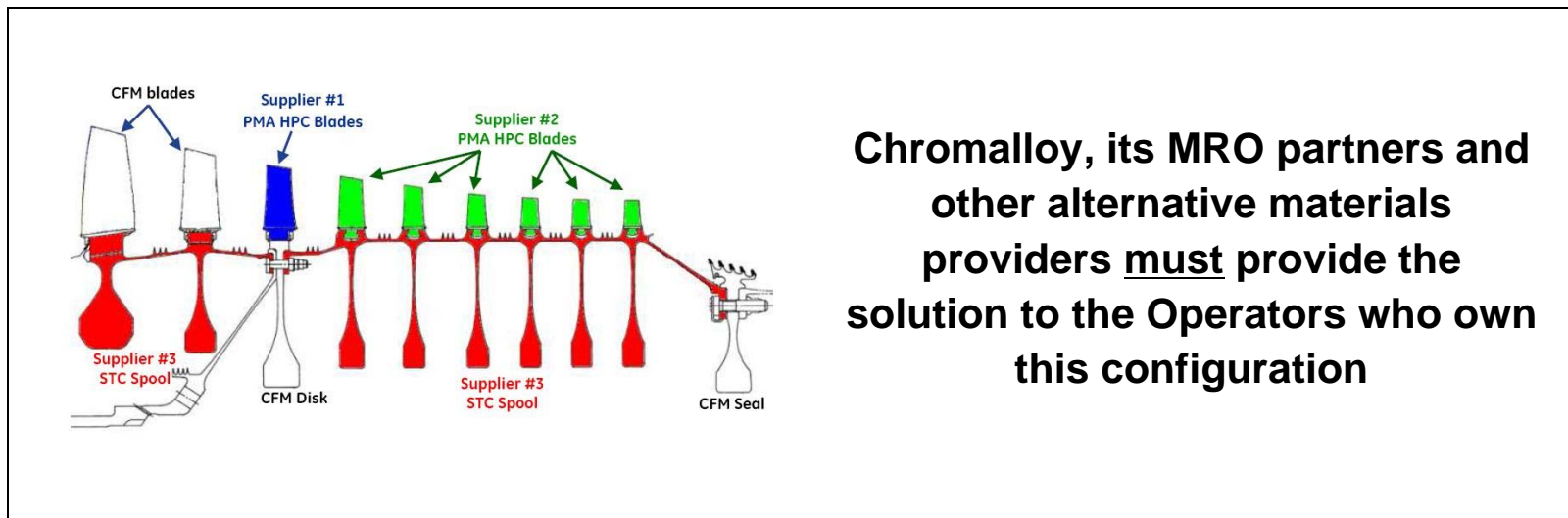
Systems Effect: Reality Check

OEM	FAA / EASA
<ul style="list-style-type: none"> • Can't support this configuration due to the presence of FAA / EASA authorized new material and repairs  <p>The diagram illustrates a CFM engine component assembly. It shows a central shaft with various parts attached. Labels include: 'CFM blades' at the top left, 'Supplier #1 PMA HPC Blades' in the middle, 'Supplier #2 PMA HPC Blades' on the right, 'Supplier #3 STC Spool' at the bottom left, 'CFM Disk' at the bottom center, and 'CFM Seal' at the bottom right.</p>	<ul style="list-style-type: none"> • FAA RAF Report / May 2009 • By virtue of the rigorous approval process necessary to gain PMA / DER Approvals alternative materials and repairs are “equal to or better than” original components  <p>The collage includes: a close-up of a jet engine, an airplane on a runway, a person working on a component, and a gear mechanism. Text in the collage includes: 'Federal Aviation Administration', 'Aviation Safety, (AVS) Repair, Alteration and Fabrication (RAF) Study', and 'May 22, 2009 Revision 1'.</p>

The system effects argument fundamentally ignores the position of the world’s aviation authorities and borders on anti-trust behavior

Product Support / COS

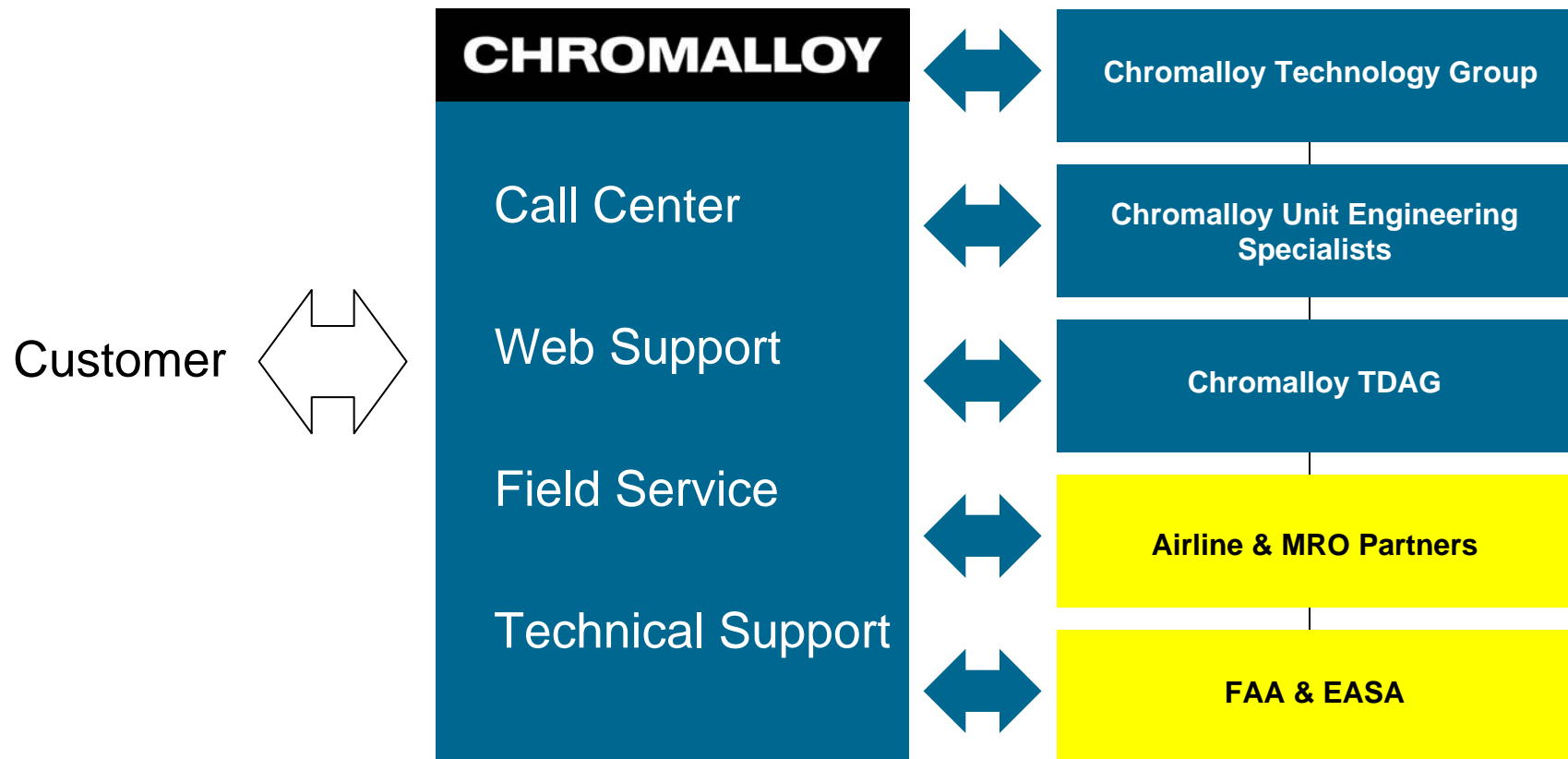
- Chromalloy and other alternative materials providers recognize the growing need for greater and enhanced Product Support
- OEM's are becoming increasingly aggressive in an effort to devalue alternative parts and repairs



Chromalloy, its MRO partners and other alternative materials providers must provide the solution to the Operators who own this configuration

Chromalloy is embarking on an industry leading effort designed to support our customers base

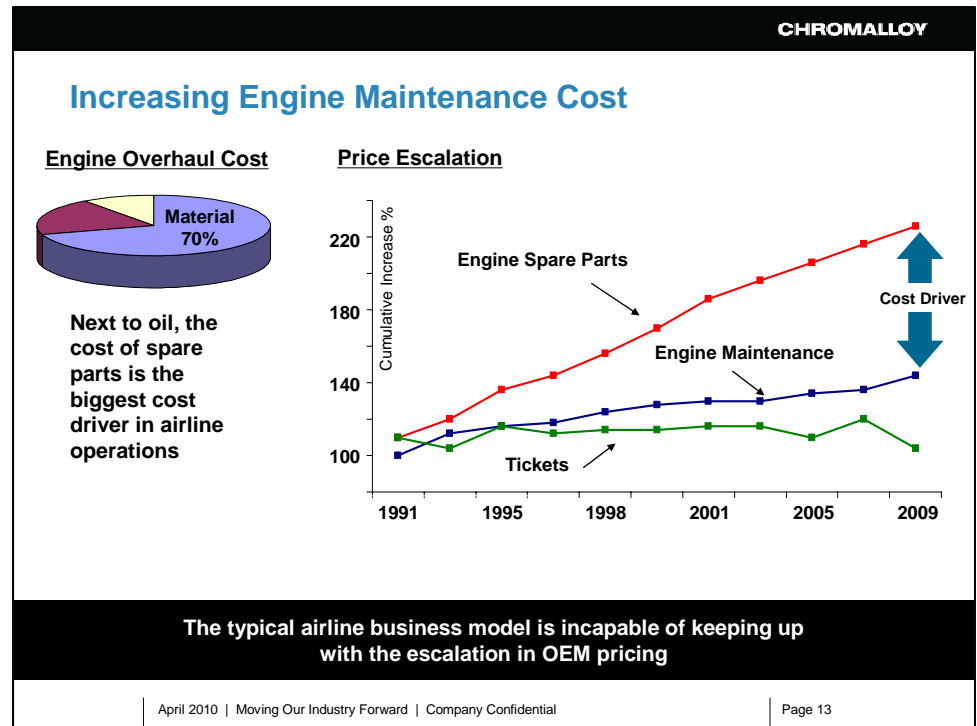
Chromalloy Product Support



Chromalloy Product Support will leverage the collective technical capability of in-house, resources, partners and the regulatory authorities to solve customer issues

Addressing Operator Concerns

- Requirement






Addressing Operator Concerns

- Requirement
- Cost savings



CHROMALLOY						
Chromalloy's CFM56-5B / 7B Savings Program						
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Addressing Operator Concerns


- Requirement 
- Cost savings 
- Regulatory approval 


CHROMALLOY

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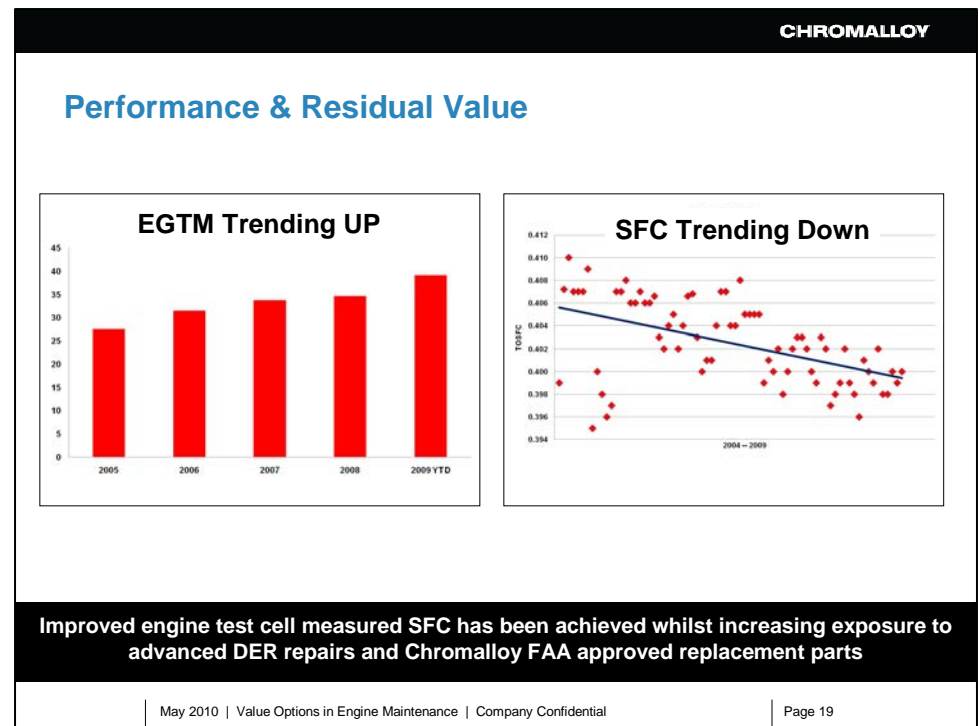
Addressing Operator Concerns

- Requirement 
- Cost savings 
- Regulatory approval 
- Safety 



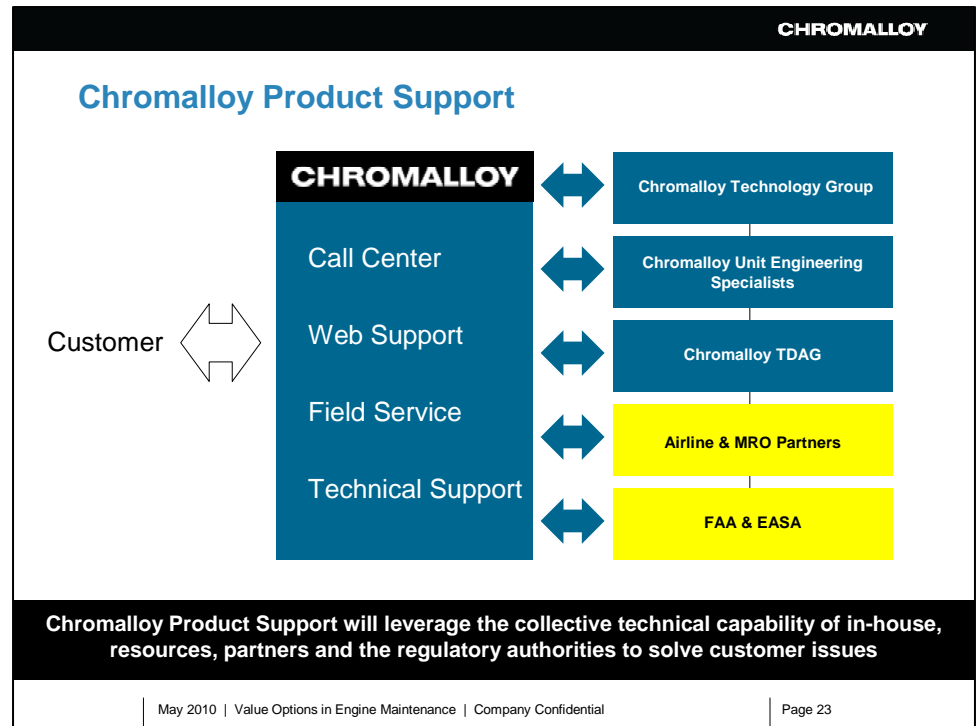
Addressing Operator Concerns

- Requirement
- Cost savings
- Regulatory approval
- Safety
- Performance



Addressing Operator Concerns

- Requirement 
- Cost savings 
- Regulatory approval 
- Safety 
- Performance 
- Product Support 



In closing . . .

- **No better allies than the group in this room**
- **Let's make this an easier decision for our partners – the airlines**
- **Let's collectively take PMA / DER to the next level**
- **The airlines need access to a fair and competitive parts / repair market – let's work together to help them get there**



What's wrong with competition?

CHROMALLOY