CIMAC – Circle

Dubai, 2006-12-06

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PAY FOR PERFORMANCE

Utilization based long-term maintenance agreements for ABB Turbochargers

www.abb.com/turbocharging

Customer expectations

“Safe and reliable operation”

“Closer relationship with the supplier to reduce cost and at the same time improve reliability”

“No surprises in terms of costs”

“Availability of spare parts, speed in the delivery of spare parts and technical expertise”

“Support for the annual turbocharger budgeting”

Ingredients of a Solution

- ABB's product and design knowledge as the OEM of the product
- Unique product and service database ATURB@web
- Knowledge about the concrete customer application
- Electronic Maintenance Scheduler
- World-wide closely knit service network
- Ability to offer the totality of our service from each of our more than 80 service stations

ABB‘s proposal – Turbocharging OPAC

Turbocharging Operation Performance Package

BASE

Regular
Overhaul

-Payment per turbocharger running hour
-Spare parts and local expenses included
-Minimum duration of five years

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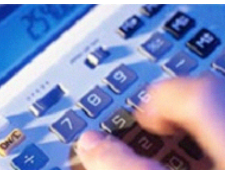
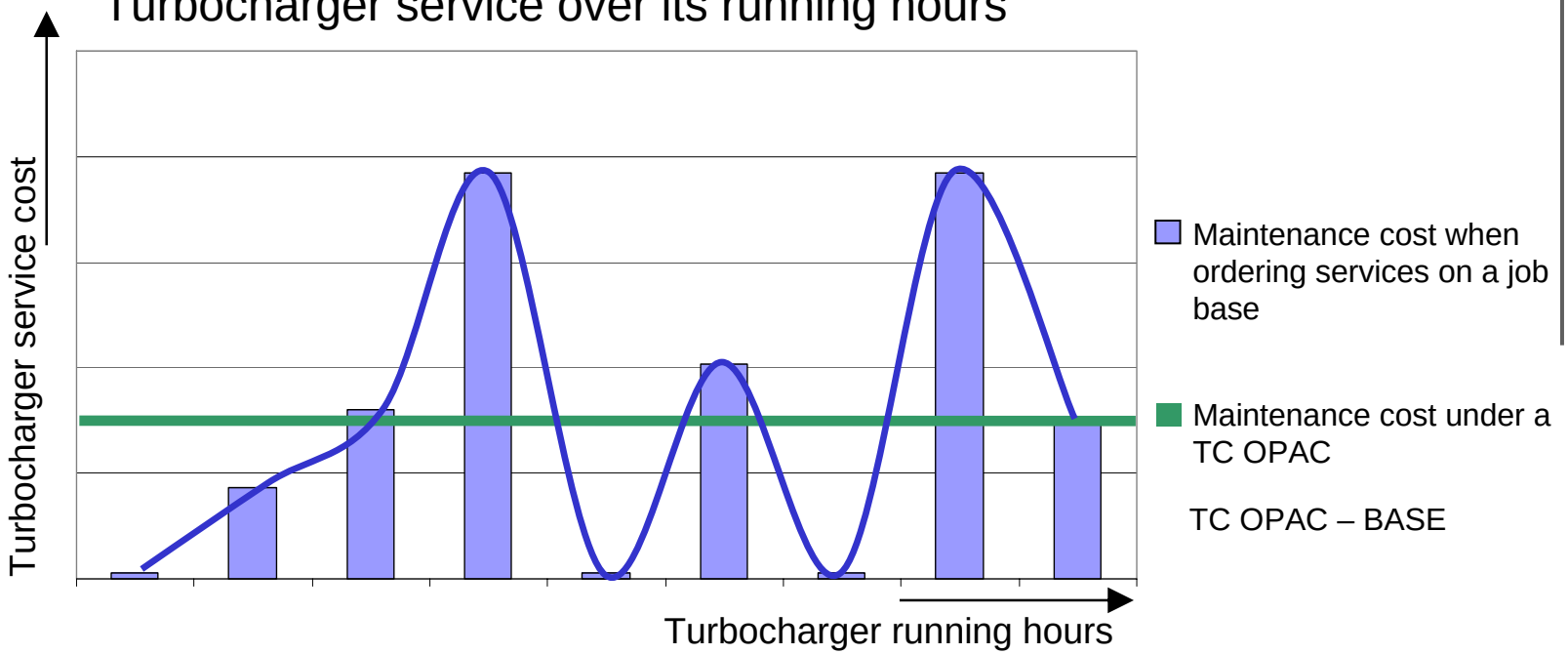
Cash-flow versus cost-flow



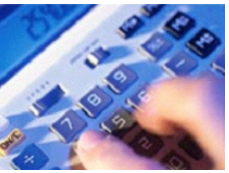


Services performed in accordance with ABB service guidelines

Timed to the lowest possible operational impact for the customer

Turbocharging OPAC simplifies cash-management and planning

Dealing with risk - Example



Partnr	Beschreibung	BASE Exchange Interval [h]
10100	Replacement Turbocharger, base version	0
21000	Shaft	64000
25000	Compressor wheel	64000
32221	Bearing cover	
32110	Bearing flange compressor end	100000
32112	Bearing flange turbine end	100000
42001	Bearing casing	100000
43001	Partition wall	45000
51000	Turbine casing	40000
51002	Clamping strap (1 piece, 4 total)	50000
51003	Verbus disc (per piece, 12 total)	50000
51004	Hex screw (per piece, 12 total)	50000
51100	Gasoutlet elbow	----
52400	Gasoutlet flange	30000
56001	Nozzle ring	40000
57200	Burst protection	50000
57210	Burst ring	50000
72000	Compressor casing	100000
72012	Clamping strap (1 piece, 3 total)	100000
72020	V-Clamp (Filter-Compr. Casing)	------
77000	Insert wall	100000
79000	Diffuser	100000
81000	Silencer	
82000	Air suction branch	100000
86505	Speed sensor	----
97070	KIT1 (TC Inspection)	12000
97076	KIT2 (Bearing inspection)	12000
97080	KIT3 (Bearings)	12000

Dealing with risk - Approach

- PLUS and PREMIUM only
- What is the probability under PLUS/PREMIUM that the part X has to be replaced→ Risk profile
- Origin of risk profiles
  - Analysis of concrete application
  - Statistical analysis of Service Reports

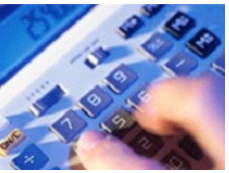
→ Risk profiles consider i.a.:
  - → TC-type
  - → Engine-type
  - → Fuel
  - → SIKO load profile
  - → Washing strategy

Dealing with risk (continued)

Transfer of defined risk from customer to ABB

BASE	PLUS	PREMIUM
Regular Overhaul	*Service due to performance problems* **and** Regular Overhaul	*Foreign Object Damage* *Lack of Lube Oil* *Lube Oil quality* **and** *Service due to performance problems* **and** Regular Overhaul

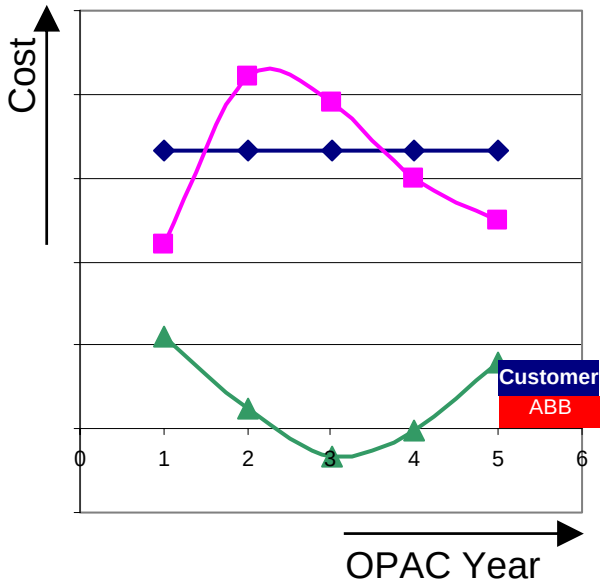
Dealing with risk - Example



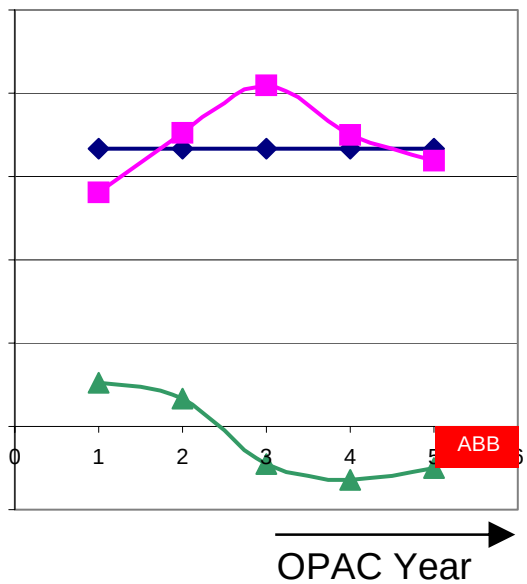
Partnr	Beschreibung	BASE	PLUS	PREMIUM
		Exchange Interval [h]	Exchange Probability [%]	Exchange Probability [%]
10100	Replacement Turbocharger, base version	0	0	
21000	Shaft	64000	10	100
25000	Compressor wheel	64000	5	100
32221	Bearing cover		5	100
32110	Bearing flange compressor end	100000	5	80
32112	Bearing flange turbine end	100000	5	80
42001	Bearing casing	100000	10	80
43001	Partition wall	45000	5	100
51000	Turbine casing	40000	5	50
51002	Clamping strap (1 piece, 4 total)	50000	0	0
51003	Verbus disc (per piece, 12 total)	50000	0	0
51004	Hex screw (per piece, 12 total)	50000	0	0
51100	Gasoutlet elbow	----		
52400	Gasoutlet flange	30000	10	70
56001	Nozzle ring	40000	5	50
57200	Burst protection	50000	0	0
57210	Burst ring	50000	5	5
72000	Compressor casing	100000	5	20
72012	Clamping strap (1 piece, 3 total)	100000	0	0
72020	V-Clamp (Filter-Compr. Casing)	------		
77000	Insert wall	100000	5	70
79000	Diffuser	100000	5	50
81000	Silencer			
82000	Air suction branch	100000	5	5
86505	Speed sensor	----		
97070	KIT1 (TC Inspection)	12000	100	100
97076	KIT2 (Bearing inspection)	12000	100	100
97080	KIT3 (Bearings)	12000	10	100

Dealing with risk

OPAC situation 1



OPAC situation 2



- Customer payment under Turbocharging OPAC
- Comparable standardized pricing
- Cumulated delta between above curves

Deviation may appear between calculated risk and actual cost incurred

Situation 1 – actual cost < calculated risk

ABB reimburses customer part of the cumulated delta

Situation 2 – actual cost > calculated risk

ABB bears 100% of the cumulated delta

Flexibility for the customer

The customer defines his requirements and needs – Turbocharging OPAC will follow.

Influential factors to be selected by the customer

OPAC level	BASE, PLUS PREMIUM
Turbochargers	Main engine, auxiliary engines
Time	Duration of Turbocharging OPAC (running hours)
Risk	Number of visits for unforeseen events (PLUS) for the entire OPAC
	Number of visits for unforeseen events (PREMIUM) for the entire OPAC
Exchange parts	Additional exchange components may help the customer to minimize its scheduled and unscheduled downtime. The corresponding cost can be included into the running hour price, reducing the customers cost fluctuation

Added value for the customer

- **Increased operational reliability and safety**
- **Reduction of total TC-operating cost**
- **Reliable budgeting of turbocharger maintenance cost**
- **Reduction of internal administration cost**
  - Maintenance planning by ABB
  - No call for quotation
- **Professional and timely service and maintenance**
- **Benefiting from ABB's consolidated turbocharging experience**
- **One contact for all turbocharging related aspects**
- **Package available as a direct service from ABB or as a part of a engine service package**


ABB