Maximize your safety

Webinar 02/July/2020

Stefan Langhein
MY-T Head of Service
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MAN PrimeServ
Agenda

1  Your presenter
2  Company overview
3  Boost your efficiency
Introduction

Your presenter

Name
Stefan Langhein

Function
Head of Service MAN Energy Solutions Malaysia ES

Expertise
Dipl.- Ing. Mechanical Engineering
PrimeServ MAN ES South East Asia (9 Years)
Project Manager – Oil & Gas Projects (12 Years)

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MAN Energy Solutions

Company profile

Marine systems
- Two-stroke and four-stroke engines for marine applications
- Propellers and complete propulsion systems incl. fuel gas systems
- Turbocharger

Power plants
- Two-stroke and four-stroke engines for stationary applications
- Diesel and gas power plants

Turbomachinery
- Compressors, gas and steam turbines, and expanders
- Complex machine trains
- Chemical reactors
MAN Energy Solutions

Turbomachinery applications

Upstream (production)
Compressors, expanders, gas turbines

Midstream (transportation)
Compressors, gas turbines

Downstream (processing)
Compressors, expanders, steam turbines, gas turbines, reactors

Industrial products
Compressors, vacuum blowers, reactors

Industrial gases
Compressors, steam turbines, reactors

Industrial power generation
Steam turbines, gas turbines

MAN PrimeServ
Comprehensive service support
MAN Energy Solutions

PrimeServ Omnicare: your one-stop service

- Services for your entire fleet – including non OEM turbomachinery and equipment
- Strong network of multi-brand experts
- Regional Omnicare managers ensuring that global best practice is brought to you

Benefits
- Increased capacity, safety, reliability and availability
- Improved efficiency and cost-effective operation
- Same standards and quality as for OEM equipment
MAN PrimeServ
Region: Team Engineering Consulting MAN Energy Solutions SEA

- Studies: Feasibility – Rotor dynamic – Thermodynamic
- Design: Revamps – Machine Selection - Components
- Consulting: Operation & Safety – Trouble Shooting

Head of Technical Consulting / Engineering
Manfred Manik
Dipl.-Ing.

Instrumentation Control System
Zuhair Norisham B.Sc.

Thermodynamic Rotordynamic
Reinhold Tucholke Dipl.-Ing.

Application Thermodynamic
Kah Ho Pau M. Eng.

General Machine Periphery
Sutthiphan Papharat B.Eng.

Vibration Monitoring Analysis
Phan The Anh B.Sc.
MAN PrimeServ
Strategic expertise

Availability
Meet rising performance expectations within increasingly complex and dynamic operating environment

Efficiency
Improve the efficiency of your turbomachinery for more attractive margins

Safety
Comply with contemporary safety standards and regulations to ensure safe operation

Sustainability
Adapt your equipment to increasingly stringed emission regulations and reduce your CO2 footprint

Capacity
Adjust the capacity of your equipment for optimum operation and to further develop your business

Availability
Safety
Efficiency
Capacity
Sustainability
Safety - Motivation

Challenge

Do you meet your safety targets?

Ensuring robust levels of safety is both social responsibility and vital to your business strategy. Once deemed mere expenses, the costs of safety measures now are universally acknowledged as strategic investments. But as our understanding of their relevance grows, safety risks are becoming increasingly complex.
Your turbomachinery is a core element of your production process. We help you to identify the right safety investments and make the business case for safety:

- **Enhance operational safety**
- **Improve machine safety**
- **Increase cyber security**
Operational Safety

Enhance operational safety

Qualification
Professional trainings to familiarize your staff with the equipment, establish a safety mindset, develop and practice procedures, and avoid potential risks in daily operation and maintenance.

Inspections
Periodic inspection of your equipment by our field service to assess and determine the overall condition of your turbomachinery to identify possible safety gaps.

On-site hazard assessments
To ensure that you and your employees can work in a safe working environment, we support you in the preparation and execution of hazard assessments.
Operational Safety

Enhance operational safety: Customer trainings

Features
- All disciplines trainings
- Operator trainings
- Maintenance trainings
- I&C and control system trainings
- Special trainings

Benefits
- Performance in PrimeServ Academies, on site, or as virtual trainings/eLearings
- Combination of theoretical and hands-on classes
- Tailor-made trainings adjusted to customer’s equipment and application
Safety
PrimeServ Academies

Oberhausen - Zurich - Shanghai

Web-based Training

Operator Training

Class Room Training

Hands-On Training
Operational Safety
Enhance operational safety: Periodic inspections

Features
− Reading and evaluation of operating data
− Inspection of core machine, control system and auxiliaries
− Functional testing of individual components, systems, and safety chain

Benefits
− Periodic assessment of condition of entire turbomachinery train
− Identification of safety gaps
− Validation and monitoring of wearing behavior
− Feedback on routine maintenance and operation improvements and procedures
Operational Safety

Health Check Light

Offering a systematic investigation of their turbomachinery operating condition:

Features:

- Questionnaire with required operating data
- Evaluation of provided Machine operating data
- Report and recommendations
- Discussions of results
Monitor your equipment

- ORBIT PLOT
CTG 1201 - T1X vs CH2

Orbit Display
29-Dec-05 13:56:15

-20 -15 -10 -5 0 5 10 15 20
T1X in Microns

-20 -15 -10 -5 0 5 10 15 20
CH2 in Microns

P-PX= 20.98
P-PY= 13.42
LOAD = 100.0
RPM = 4675 (77.92 Hz)
Operational Safety

Enhance operational safety: On-site hazard assessments

Features

− On-site consultancy for safety assessments
− Support on defining necessary safety measures to guarantee operational safety
− Professional on-site assessment of potential hazards
− Evaluation of hazards together with customer

Benefits

− A safe working environment for satisfied employees due to increased operational safety
− Maximum availability of machine operation with the use of suitable safety measures
Machine Safety

Improve machine safety

PrimeServ TechCheck

Let us check your machinery train against current state-of-the-art requirements in terms of safety and availability. Get the best out of your process while complying with safety legislation.

Service bulletins

Benefit from regular updates on machinery issues to ensure safe machine operation day by day. Our service bulletins provide you with safety recommendations on MAN equipment.

Revamps and modification

Benefit from our revamp solutions to maximize the safety of your machinery train and comply with today's safety standards and regulations.
Machine Safety

Improve machine safety: PrimeServ TechCheck

With **PrimeServ TechCheck** we will detect and close safety gaps on your turbomachinery equipment as well as on related auxiliary systems. As an OEM we are able to evaluate and improve the overall availability of your machinery train.

**Features**
- Check and reach required Safety Integrity Level (SIL)
- Comply with applicable codes and standards
- Structured risk analysis of whole machinery train
- Recommendations for safety & availability improvements

**Benefits**
- Improved availability of machinery train
- Maximized safety acc. to state-of-the-art requirements
Machine Safety

Improve machine safety: Service Bulletin

To be always up-to-date on required modifications and retrofits, we provide service bulletins to inform you about further developments on specific equipments and parts.

Features
- Service bulletin to inform about developments
- Considering current market requirements
- Comply with today's codes and standards

Benefits
- Maximize safety of your machine, equipment or parts
- Avoid unplanned shutdowns / increase train availability
Machine Safety

Improve machine safety: Revamps and modifications

We will provide recommendation for revamps and modifications for your entire machine train, based on your operating data and the state of the art technology currently used.

Features
- Replacement of obsolete parts
- Upgrade of materials and components
- Installation of additional instrumentation and safety features

Benefits
- Improvement of machine reliability and availability
- Increase the lifetime of your machine
- Comply with latest codes and standards
Machine Safety

Reference: Upgrade of Steam Turbine Overspeed System

Work scope

- Replacement of mechanical overspeed system to a state of the art electro hydraulic overspeed control and protection system
- Safety validation study for verification of safety loops and mechanical integrity of turbine
- Mechanical and electrical engineering
- Modification of the turbine shaft
- Required I&C hardware and mounting material
- Modernization of the complete overspeed control and overspeed protection system including new control cabinet.
Cyber Safety

Increase cyber security

Risk analysis
Assessment of weak points of given configuration and identification of gaps addressing external and internal risks.

Awareness training
Cyber security awareness training for maintenance and operation personnel to raise awareness for possible risks, safety guidelines, processes, and organizational measures.

Upgrade solutions
Upgrade of unit control panel and PLC according to the requirements of the cyber security concept and current technical standards.
A problem has been detected and Windows has been shut down to prevent damage to your computer.

**PAGE_FAULT_IN_NONPAGED_AREA**

If this is the first time you've seen this stop error screen, restart your computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed.  
If this is a new installation, ask your hardware or software manufacturer for any Windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing.  
If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced Startup options, and then select Safe Mode.

Technical information:

*** STOP: 0x00000050 (0x8072A990, 0x0000001)***
Cyber Safety

Increase cyber security: Multi-level cyber security concept

Features

- IEC 62443 based defense in depth concept addressing external and internal risks
- Comprehensive multi-level concept addressing organizational security, plant security, network security, and component security
- Priorities set in order security, availability, integrity and confidentiality

Benefits

- Protection of turbines and compressors against unauthorized network access and configuration changes at control level
- Safeguarding against cyber threats to avoid damage to equipment, processes, plant, and environment
Cyber Safety

Increase cyber security: Upgrade of industrial workstations

Features
- Update of operating system and control system software to current version
- Implementation of cyber security measures, e.g. whitelisting
- Installation of new IPCs with latest hardware components
- New network layout for HMI redundancy

Benefits
- Increased cyber security
- Implementation of scripts and tools for advanced diagnostic functions
- Preparation for possible use of PrimeServ Assist
PrimeServ Assist

Our Digital Solution

1. Data collection
2. Data transmission
3. Data storage and access
4. Data Monitoring and Evaluation by MAN
5. Status and Advice for the customer

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MAN PrimeServ
Public

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Efficiency
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Availability
March - April

Efficiency
May - June

Safety
July - August

Sustainability
September - October

Capacity
November - December

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Efficiency

Thank you!

Survey
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Contact
For any questions or further information, don’t hesitate to speak to your local contact or contact me directly.
Thank you very much!