

## MES Delivers Container Cranes with Terminal Management System to Cambodia

MES has recently delivered 2 units of Quayside Gantry Crane "Portainer", 5 units of Yard Container Crane "Transtainer", and one complete set of Container Terminal Management System (CTMS) to Port Authority of Sihanoukville, Kingdom of Cambodia.

Quayside container delivered this time is the first of its kind in Cambodia and its great performance, surpassing that of existing crane, will dramatically improve the cargo handling efficiency of the port. The addition of 5 units of yard container crane, together with the newly delivered container terminal management system, will further improve the over-all container handling efficiency in the Port of Sihanoukville.



## Biomass Livestock Feed Plant

MES has recently completed a biomass livestock feed plant and delivered it to Sanwa Shurui Co., Ltd., which plant produces livestock feed out of spirit lees.

The plant condensates and dries the spirit lees to produce livestock feed by means of steam obtained from biogas out of methane fermentation of some of lees generated during the production process of distilled spirit.

This plant is a hybrid type plant to control the livestock feed production cost increase due to energy cost increase by oil price hike etc. and to decrease the emission of carbon dioxide to curb global warming.

The operation of such complex plant which produces concentrated liquid and dried products is drawing attentions for its contribution to the increase of livestock feed self-sufficiency in Japan.



## M.V. "SHIZUKISAN" World Largest Class Double Hull VLCC Delivered

MES completed a double hull VLCC M.V. "SHIZUKISAN" at its Chiba Works and delivered her to Mitsui O.S.K. Lines, Ltd. on April 22, 2009.

This ship has the largest deadweight and cargo tank capacity as Malacca-max type tanker, being intended to efficiently transport the crude oil with a specific gravity of frequently loaded.

In view of the ocean and global environmental preservation, double hull system is applied not only to the cargo tank but also to the fuel oil tank of the ship, considering the latest relevant rules of IMO (International Maritime Organization). Furthermore, a newly developed energy saving device is installed to improve the propulsion performance, such as navigation speed and fuel oil consumption.

"SHIZUKISAN" is registered under the Japanese flag and classed by Class NK.



## Diesel Engine Production Reached Record-High HP 4.7 Million of 2008

Mitsui Engineering & Shipbuilding Co., Ltd. (MES with president Mr. Yasuhiko Katoh) achieved 4,700,000 Horse Power by 214 engines in the fiscal year of 2008, the highest record in the production of Mitsui-MAN B&W Slow Speed Diesel Engine exceeding that of previous year amounting to 4,520,000 Horse Power by 200 engines.

MES, in order to cope with the active demand in recent years, expanded its diesel engine assembly shop in November 2005 to introduce tact system (assembly-line system) to enhance its annual production capacity to 4,000,000 horse power.



### Public Relations Dept.

3-16, Nihonbashi 1-chome, Chuo-ku, Tokyo 103-0027, Japan  
Phone: 81-3-5202-3147 Fax: 81-3-5202-3064



## Mitsui Engineering & Shipbuilding Co., Ltd. – Technoservice Group

**T**echnoservice Department of Mitsui Engineering & Shipbuilding Co., Ltd. (MES) and MES Technoservice Co., Ltd., a subsidiary of MES, is in charge of after-sales service of the major products supplied by MES Machinery and Systems Hq..

We provide service through domestic and overseas networks - MTH in Hong Kong, MTT in Taiwan, MTS in Singapore, and MTC in Shanghai - to ensure high quality customer service as a group. The group consists of four divisions as follows.

1) Diesel Engine Service Division 2) Plant Machinery Service Division 3) Crane & Induction Heater Service Division and 4) Gas Turbine Co-generation Service Division.



## After - Sales Service Business for Diesel Engine

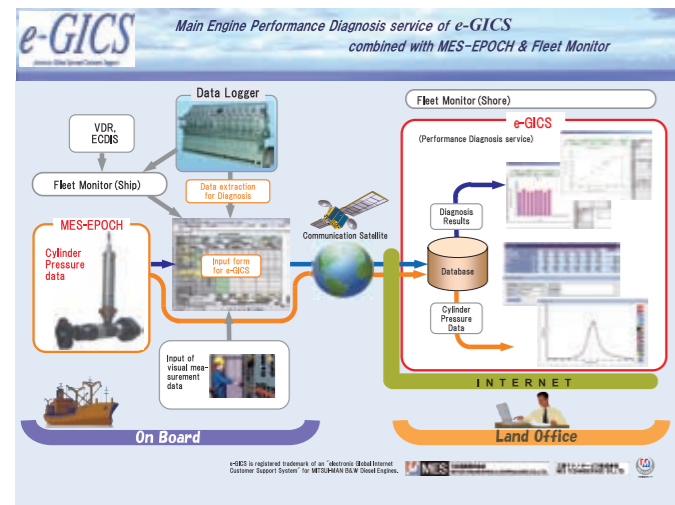
Diesel Engine Service Division is in charge of after - sales service of "slow speed large size diesel engine" known as "Mitsui - MAN B&W". We have service engineers in domestic and overseas bases to provide quick technical support. In order to meet the increasing demand for main engine repair and technical service in Chinese ports along with the increasing cargo volume to China and dry-dock there, Technoservice

Group has just established the fourth overseas office "MTC" - MES Technoservice (Shanghai) Co., Ltd. - in Shanghai in April 2009.

As for parts supply, extensive kinds of spare parts are stored in Japan for quick delivery while some parts are stored in Singapore for emergency supply.

### Efforts to Enhance Safety and Reliability: e-GICS

MES has developed "e-GICS –Global Internet Customer Support". "e-GICS" enables diagnoses of engine performance and maintenance condition of major parts in no time:



furthermore, technical information can be retrieved as well. This MES has developed "e-GICS –Global Internet Customer Support". "e-GICS" enables diagnoses of engine performance and maintenance condition of major parts in no time: furthermore, technical information can be retrieved as well. This service is now utilized by more than 131 companies worldwide with 1,400 registered vessels and is highly appreciated for its availability of quick diagnosis, early problem detection, and data management in a consolidated manner.

"e-GICS" has detected problems such as propeller damage, hull fouling, abnormal wear of fuel pumps and piston ring grooves, etc. at an early stage.

In this way, "e-GICS" has greatly contributed to safe navigation and maintenance cost saving. In terms of measurement accuracy improvement, the electronic cylinder pressure analyzer, "MES- EPOCH", has been developed by MES and it is already in practical use. Its data can be transferred to "e-GICS" and improves the reliability of performance diagnosis.

Recently, the "Electronic Cylinder Gauge" was developed by MES to measure the cylinder liner wear amount accurately, safely, and easily. It can be measured from the outside cylinder liner only by removing the exhaust valve. This device enhances safety and convenience.

### Efforts to Preserve the Global Environment: Alpha Lubricator System

In September 2002, MES launched the retro-fit installation of the Alpha Lubricator System to the vessels in service, and the number of vessels exceeds 400.

This system injects cylinder oil at high speed and at accurate timing under electronic control. In comparison with conventional mechanical lubricators, the high performance Alpha Lubricator can reduce cylinder oil consumption by 20 - 30%, which enables cost saving of vessel operation. In addition, this lubricator helps decrease the particulate material

(PM) in the exhaust gas from the main engine and decreases scavenging drain, which takes an important role in decreasing environmental pollution.



### Efforts to Advance in Skill for onboard crews and to Improve Customer Service: Training Course

To contribute to vessel safety operation/management and education for onboard crews, MES offers a training course in regards with maintenance for diesel main engine which takes advantage of our experience and expertise in engine production and after-sales service business over the years.

The "5-day standard training course" includes lectures on maintenance and maintenance technology of the diesel main engine, overhauling/assembly training of turbocharger, fuel pump, and fuel valve in the training center, lectures and training on MES standard equipment, bridge maneuvering system and electronic governor both made by MSR\*1. "2-day courses" and/or "3-day courses" are also available if requested.

Recently, special lectures on ME engine using ME engine simulator have started.

"112 companies with 280 trainees", not only from Japan but also from abroad, have enrolled in the training course since its start in November 2006.



\*1 MSR: Mitsui Zosen System Research Inc.

### After-sales Service Business for Plant Machinery

Plant Machinery Service Division is in charge of after-sales service for machinery and equipment supplied by MES such as steam turbine, turbo-compressor, reciprocating compressor, blast furnace blower, top pressure recovery turbine, boiler (for power generation, industrial use and marine use), process equipment for refineries and chemical plants. The comprehensive range of services of the division is based on the standpoint of LSS (Lifecycle Solution Service).

The service of the Plant Machinery Service division covers all over the world and the contents of the service include parts supply, machinery and equipment maintenance, engineer dispatch, troubleshooting, retro-fitting, life-expectancy diagnosis, performance improvement, capacity change, and etc.

In particular, retro-fitting, life expectancy diagnosis, performance improvement, and capacity change are carried out in close cooperation with MES's R&D Headquarters and Design Department based on our engineering expertise and are winning

customer's trust.

We have recently implemented our long-term maintenance service package agreement. It provides a "whole maintenance plan" which includes parts supply and supervisory dispatch on a priority basis.



### After-sales Service Business for Crane

MES has already delivered more than 250 units of container crane (Portainer) and 990 units of yard crane (Transtainer) under the technical cooperation with PACECO, USA, one of the affiliated companies of MES.

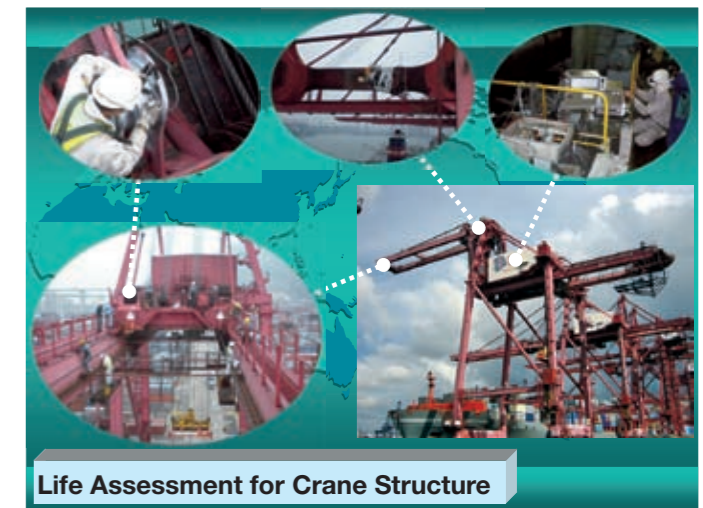
Customers nowadays need not only the modernized crane (of larger capacity and quicker operation) to cope with the increasing volume of containers to be handled but also environment-friendly crane for the preservation of the global environment. The division responds to various kinds of customer needs based on our technical know-how acquired over the 40 years of design, manufacturing, maintenance, repair and modification work while enhancing the quality of work menu.

.....(Work Menu) .....

- Up-grading (Modernization) : performance improvement such as increasing speed, lifting capacity, height increase, and Twin Spreader Installation (Environment Friendliness): Fuel saving Engine variable speed control, Emission-Free using yard power system.

- Rehabilitation Work : Electrical parts such as PLC, inverter, etc. and mechanical parts such as gear reducer, lifting equipment, etc

- Diagnosis Work : Electrical/control parts, Remaining Life Expectancy of structure component



Life Assessment for Crane Structure

### After-sales Service Business for Induction Heater

MES has delivered more than 1,000 sets of induction heaters, and MES maintains the top share of the market of induction heaters among the medium range over 1000kw and the large range over 3000kw.

We offer high quality after-sales service by utilizing the technology for design and production as a heater manufacturer based on our vast experience.



### After-sales Service Business for Gas Turbine

Gas Turbine Co-Generation Service Division has been providing most suitable maintenance service based on the highly sophisticated maintenance technology acquired through the self-developed Mitsui SB Gas Turbine and Co-Generation System for over 50 years.

MES started research in the development of the industrial gas turbine from 1949 in order to cope with the demand of using not only oil but also natural gas and achieved in developing the SB series for cogeneration gas turbine.

On the other hand, with the aim of strengthening the line-up of medium class gas turbines and pursuing the use of cleaner energy, MES concluded a packaging agreement with Solar Turbines Inc. in 1996.

From then, with the combination of our own developed gas turbine technology and the new gas turbine technology of

Solar Turbines, we are now well organized to meet the various demands of the recent markets and customers.

The operating status of Gas Turbines can be monitored by MES with the Remote Monitoring System through internet. Under this system, more accurate daily operational management can be achieved. This system has proven itself to be an effective communication tool between the Customer and MES.

The operational condition of Gas Turbines can be accurately simulated by the Simulator that MES developed as an educational tool for operation and maintenance staffs and to solve the problems by simulating the operational status in emergency cases.

We are continually aiming at higher technological assistance and maintenance service for our customers.

