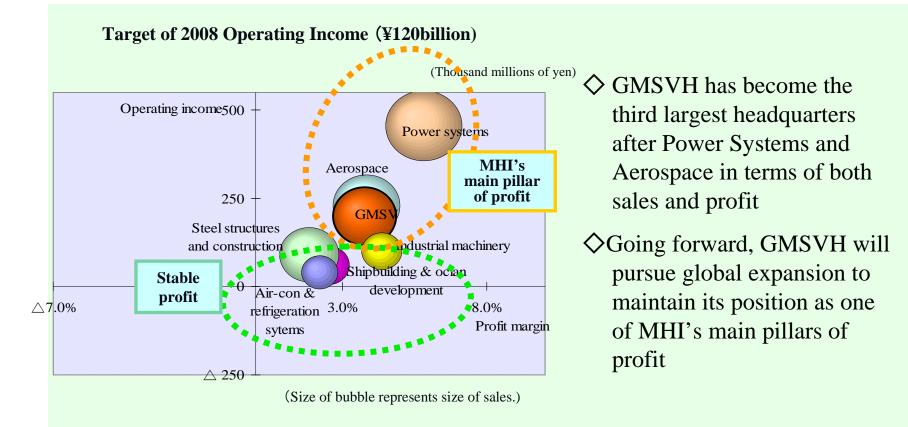
# Overview of General Machinery & Special Vehicle Headquarters Operations July 6, 2006



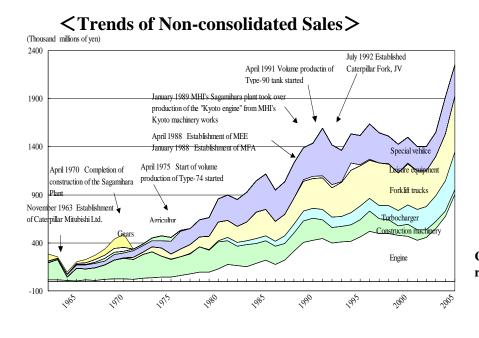
General Machinery & Special Vehicle Headquarters

### Positioning of General Machinery & Special Vehicle Headquarters (GMSVH) in MHI



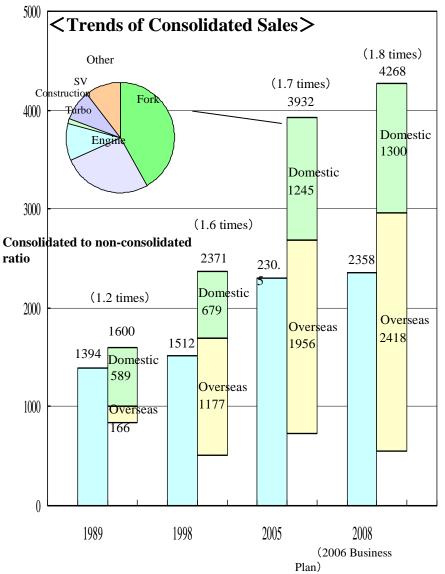
### Trends of GMSVH Operations

(Thousand millions of yen)

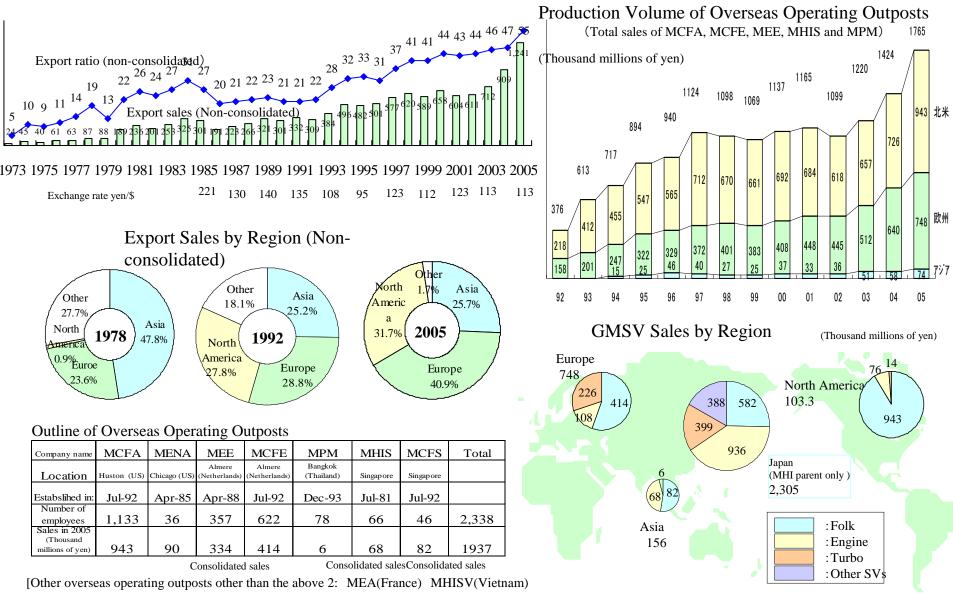


Characteristics

- ①Sales of engine turbochargers as a component have grown in recent years
- ②Aggressive overseas expansion and promotion of local production at overseas operating outposts (Target ratio of non-consolidated earnings to consolidated earnings: 1.8 [Overall MHI: 1.2])
   \*Number of overseas operating outposts: 11



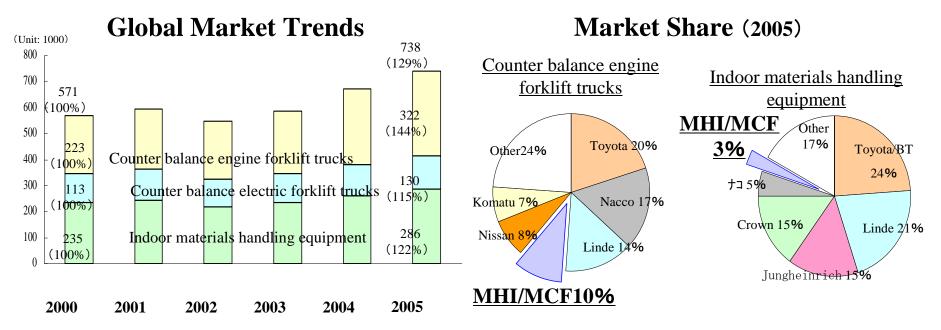
### Overseas Expansion of GMSV



MCFC(China) and Shanghai MHI Turbocharger Co., Ltd. (China)]

060630V10.2 3

## Forklift Trucks – Business Environment





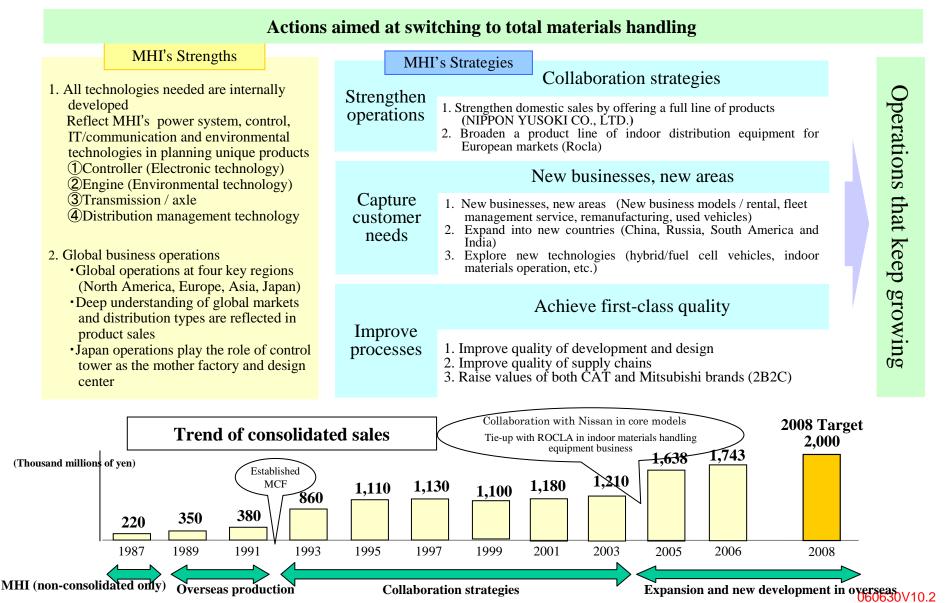
| <b>Market Trends</b>  | MHI's Challenges  |  |  |  |
|---|---|--|--|--|
| Europe, the U.S. and Japan: cyclical<br>demand in accordance with economic trend.<br>China, Russia and India are growth markets.  | Expansion in China (Expand diffusion<br>models by means of technology licensing<br>while start local production of new models.) |  |  |  |
| Expansion into emerging markets (Russia,<br>South America and India)<br>Ratio of electric forklift trucks is rising amid<br>surging oil prices and rising environmental<br>awareness. | Efforts to promote energy savings, fuel<br>emission controls and other environmental<br>technologies.                           |  |  |  |
| Demand for indoor materials handling<br>equipment increased, reflecting greater<br>distribution efficiency at plants and smaller<br>distribution lots.                                | Strengthen electronic forklift trucks for<br>overseas markets. Enter the indoor materials<br>handling equipment market.         |  |  |  |



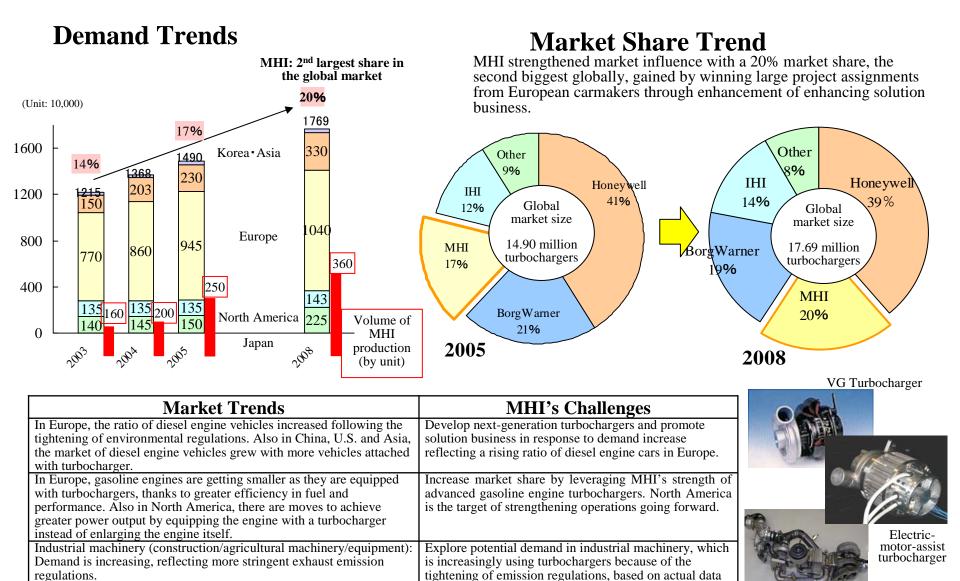
Indoor materials handling equipment

### Forklift Trucks – Main Strategies

#### Efforts to continue growth in global markets by switching to total materials handling



### Turbochargers - Business Environment



turbochargers.

of MHI's construction machinery equipped with

Two-stage turbocharger

### Turbochargers – Main Strategies

Leverage MHI's strength as an engine manufacturer to expand scale in small size turbochargers for passenger car engines

Sales by Type of Vehicle (Non-consolidated)

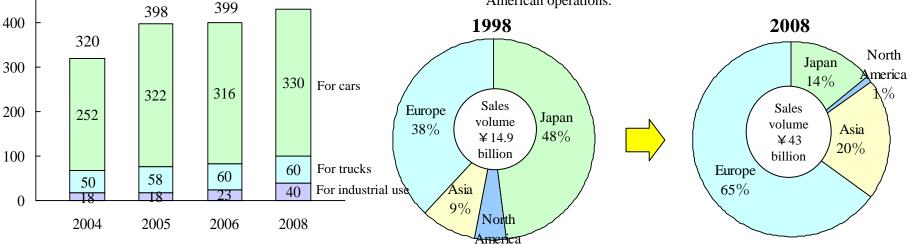
430

(Thousand millions of yen)

500

#### Sales Ratio of Turbochargers by Region

Sales in Europe and Asia grew sharply due to a greater ratio of diesel engine cars reflecting more stringent environmental regulations in Europe and a growth in the market of diesel engine vehicles in Asia. The challenge going forward is to strengthen North American operations.



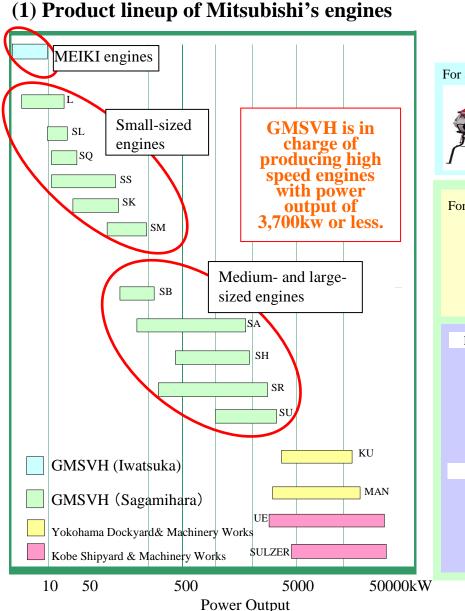
#### Efforts to Establish Global Operations Structure

- (1)Beef up local production capacity of MEE (the Netherlands) and strengthen functions of local headquarters in Europe
- ②Start full-scale operations in North America
- (3)Strengthen production in facilities in Asia (South Korea, Shanghai, Southeast Asia)

#### Strengthen Competitiveness

- (DExpand solution business, in which MHI even performs examination on behalf of customers
- 2 Seize the opportunity of responding to emission regulations to expand in industrial machinery (fully leverage MHI's strengths as an engine manufacturer)
- (3)Differentiate MHI's turbochargers from peers by developing next-generation turbochargers (2-stage turbo charger, electronic control system, etc.)

## Expansion of Engines Business



#### (2) Engines produced by GMSVH

Engines covering all types of use



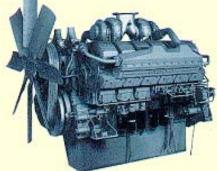
\*EMS:Energy Management Services

060630V10.2 9

### Engines – Business Environment

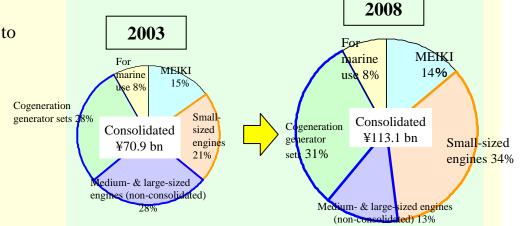
#### Market Environment

- Demand for replacement engines has increased as fuel emission regulations are being implemented
- Market size has expanded
  - -Demand for small-sized engines mainly for construction machinery and agricultural machinery for BRICs countries has grown
  - -Despite surging oil prices, demand for engines for power generation units has grown in areas where electric power supply is not stable
  - -Demand for engines for ships has increased chiefly in Southeast Asia
- Corporate needs have changed: from ownership to usage



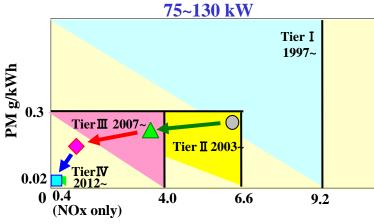
#### Efforts by MHI

- Develop engines in line with environmental regulation timetables in Japan, U.S. and Europe
- •Beef up production capacity of facilities, including overseas facilities, in a timely manner to adapt to growing demand
- Strengthen service operations, including EMS and full-maintenance service contracts, to accommodate diversified needs of corporate customers
- Beef up production capacity including capacity at suppliers

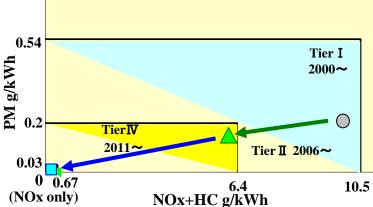


### Efforts to Develop Environmental Technologies

#### U.S. emission standards for off-road vehicles and equipment and MHI's efforts







#### **Development of engines in compliance with** fuel emission regulations



Tier III-compliant engine with power output of 100kW Small-sized engine •High turbo charging technology •Production to start in Nov 2006



- Tier-II compliant engine with power output of 2000kW Medium- and large-sized engine •High pressure fuel injection
  - •New model production to start in April 2007

#### Efforts for other environmental consideration



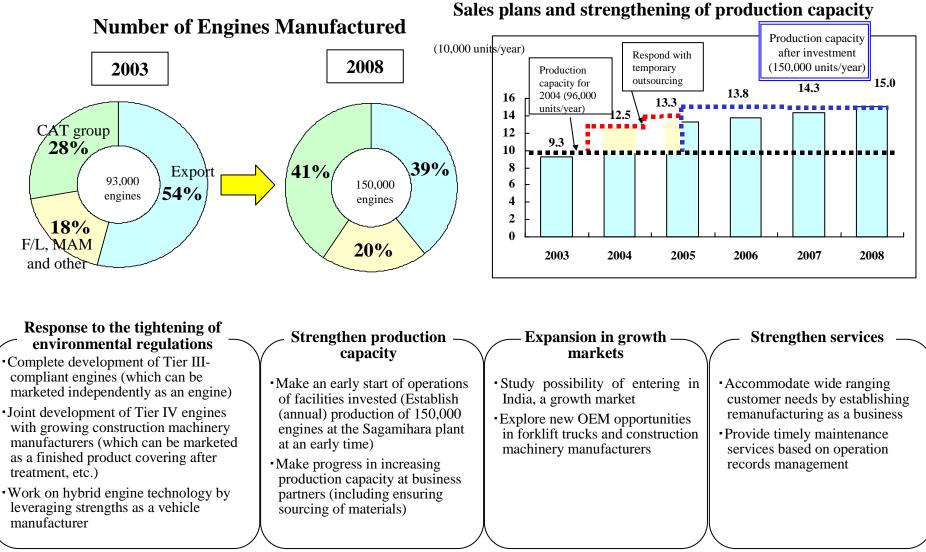
Highest heat efficiency in this class of engine Clean emission mirror cycle gas engine



Ultra-low noise (70dB) **Generator** package

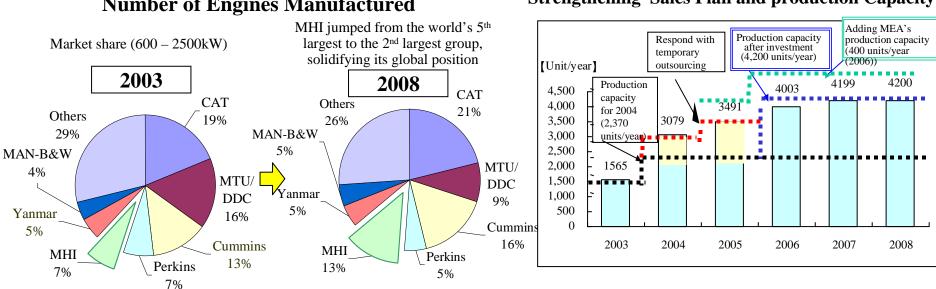
## Small Engines – Main Strategies

Expand business of vehicle engines to respond to the tightening of environmental regulations



### Medium and Large Sized Engines – Main Strategies

Focus on potentially profitable engines including engines for continuous power generation and ship engines



#### **Number of Engines Manufactured**

**Strengthening Sales Plan and production Capacity** 

|   | -Expansion of OEM business<br>on a non-consolidated basis  | •Engines for continuous power generation and ship engines<br>•Engines for continuous power generation: Respond to the shift in demand to gas engines reflecting surging oil prices   |  |  |  |
|---|--|--|--|--|--|
| • | Continue OEM supply to large<br>power generation unit<br>manufacturers   | •Engines for marine use: Explore<br>Respond to the tightening of<br>environmental regulations  | e Southeast Asian and South Am   | erican Markets   |  |
|   | Make inroads into U.S. and<br>European markets with a lineup<br>of gas engines which have<br>achieved further efficiency | <ul> <li>Engines for continuous power<br/>generation: Respond to the shift in<br/>demand to gas engines reflecting<br/>surging oil prices</li> <li>Ship engines: Explore Southeast<br/>Asian and South American<br/>Markets</li> </ul> | <ul> <li>Strengthen capabilities of<br/>offering power generation units<br/>in Southeast Asia</li> <li>Promote overseas sourcing by<br/>strengthening purchasing<br/>functions at overseas facilities</li> </ul> | <ul> <li>Shift from generator sets to cogeneration</li> <li>Strengthen competitive strength of products by attaching value (including drying processing system, etc.)</li> </ul> |  |

### Meiki Engines – Main Strategies

Increase profitability by shifting from a strategy to achieve higher margins without expanding scale to a strategy to achieve higher margins by expanding scale



### Current State of Development of New Tanks



Addition of C41 function Link-up with the main regiment's command control system and other features

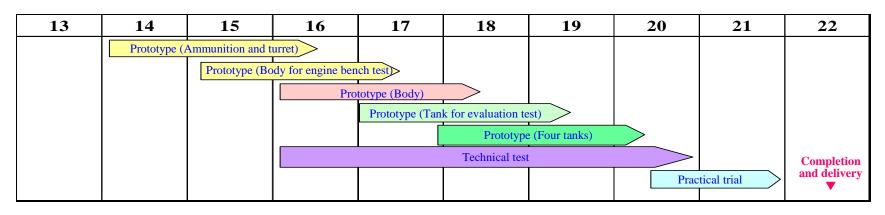
#### Theme of development

- Develop a tank which is smaller and lighter but maintains high levels of firepower and agility, in response to changes in needs from defense of domestic territories to defense of urban areas
- Achieve improved combat capability in a tank battle by making exhaustive use of IT technology

| Name  | New model                     | Type-90 tank             | Type-74 tank    |
|---|-------------------------------|--------------------------|-----------------|
| Gross weight<br>(w/ fuel and<br>ammunition) | Lighter than<br>Type –90 tank | Approx. 50 tons          | Approx. 38 tons |
| Number of crew                              | Same as Type-90               | 3                        | 4               |
| Main gun                                    | Higher power<br>than Type-90  | 120 mm<br>smoothbore gun | 105 mm tank gun |
| Maximum speed                               | Same as Type-90               | Approx 70 km/h           | 53 km/h         |
| C41 function*                               | 0                             | ×                        | ×               |

\* Self positioning and data-sharing-among-peer-tanks function

(C4I: Command, Control, Communication, Computer, and Intelligence)



#### **Development Timetable**

### Medium- to Long-term Vision for GMSVH

#### Aim to expand scale while aiming to achieve higher quality and profitability

- 1. Transform business structure to achieve global standard and promote reform of a corporate culture which will support the transformation
- 2. Establish profit generating quality centering on production capabilities as the mother factory and product capabilities as the design center
- 3. Expand business globally by playing the role of control tower of overseas facilities

