

# MAN Diesel PrimeServ Academy

## Introduction to the ME Engine





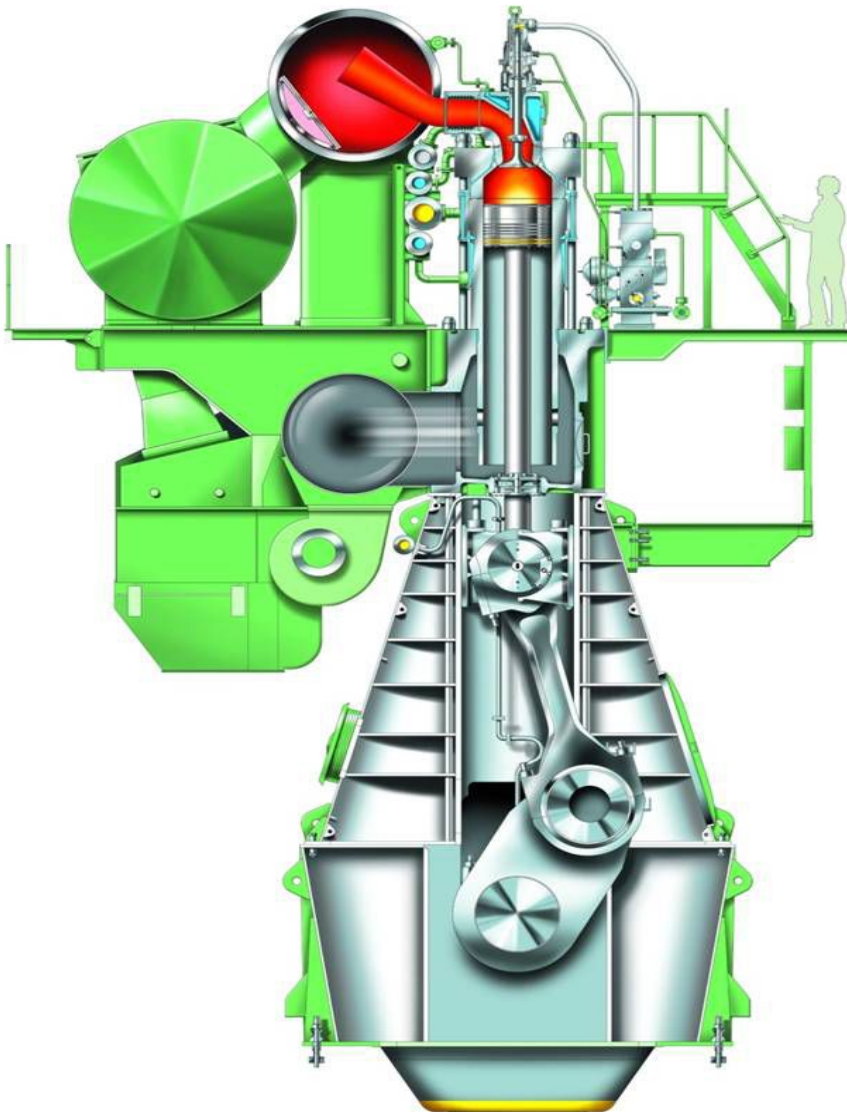
# Designations



## MAN B&W Low Speed Propulsion Engines

### Engine Type Designation

6 S 70 M E-B/C 7.1 -GI-TII



# MEP and mark designation Brief overview



Engine Mark	Year	MEP
		bar
Mk 1	1982	15
Mk 2	1984	16 16,2
Mk 3	1986	16 16,2
		rpm increased by 5-6 %
Mk 4	Omitted	Omitted
Mk 5	1991	17
Mk 6	1991	18 18,2 18,4
Mk 7	1996	19 19,2
Mk 8	2005	20
Mk 9	2006	21

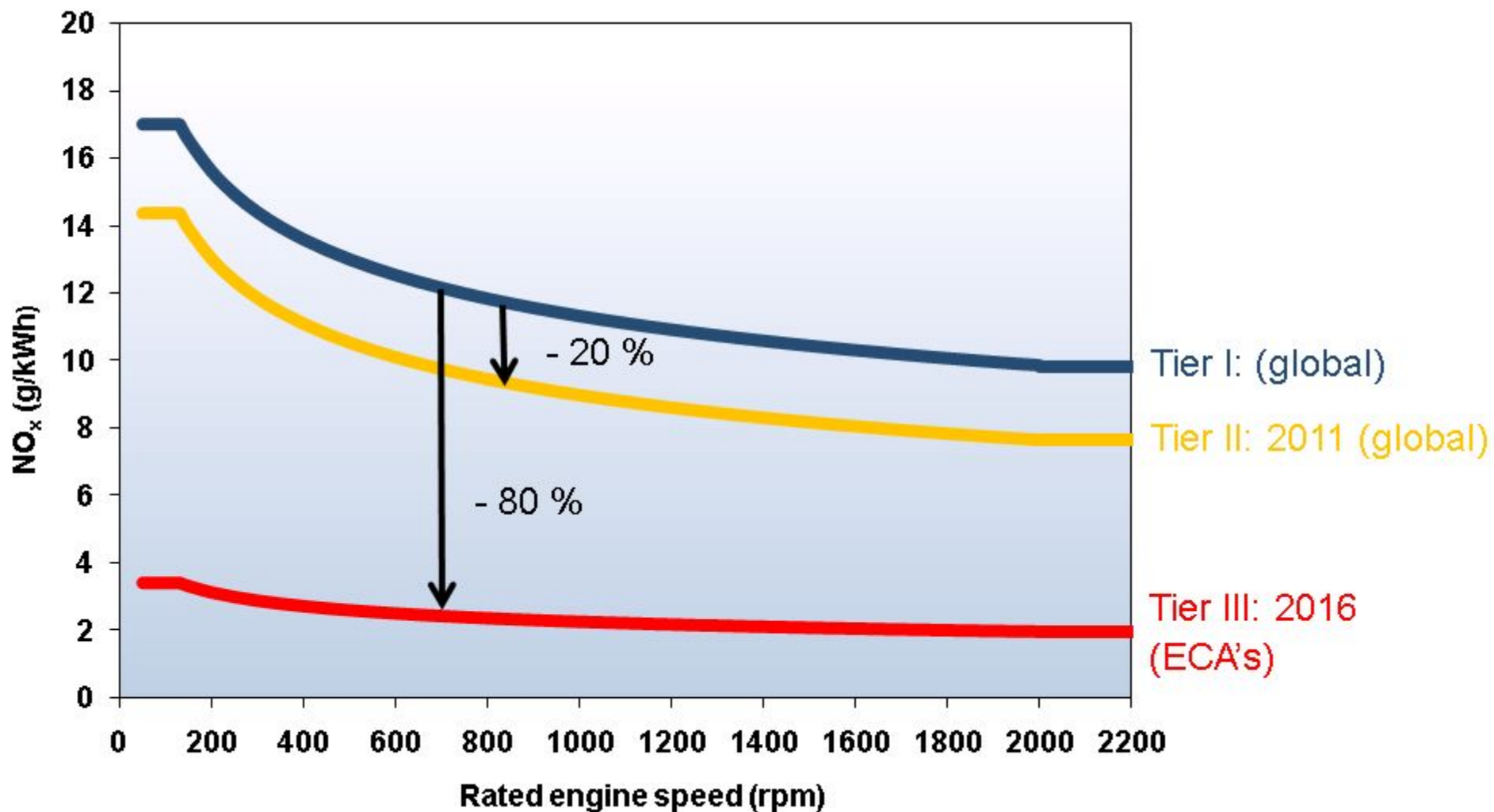
As a general rule engine mark numbers indicate engine rating in relation to MEP and/or Pmax.

- .1 is the first Tier II compliant engine
- .2 is the fuel optimised Tier II compliant engine
- .3 designates variable exhaust cam timing for ME-B engines
- .4 designates design changes and increased Pmax of 5 bar /reduced SFOC
- .5 extended layout diagram (MEP / Speed)

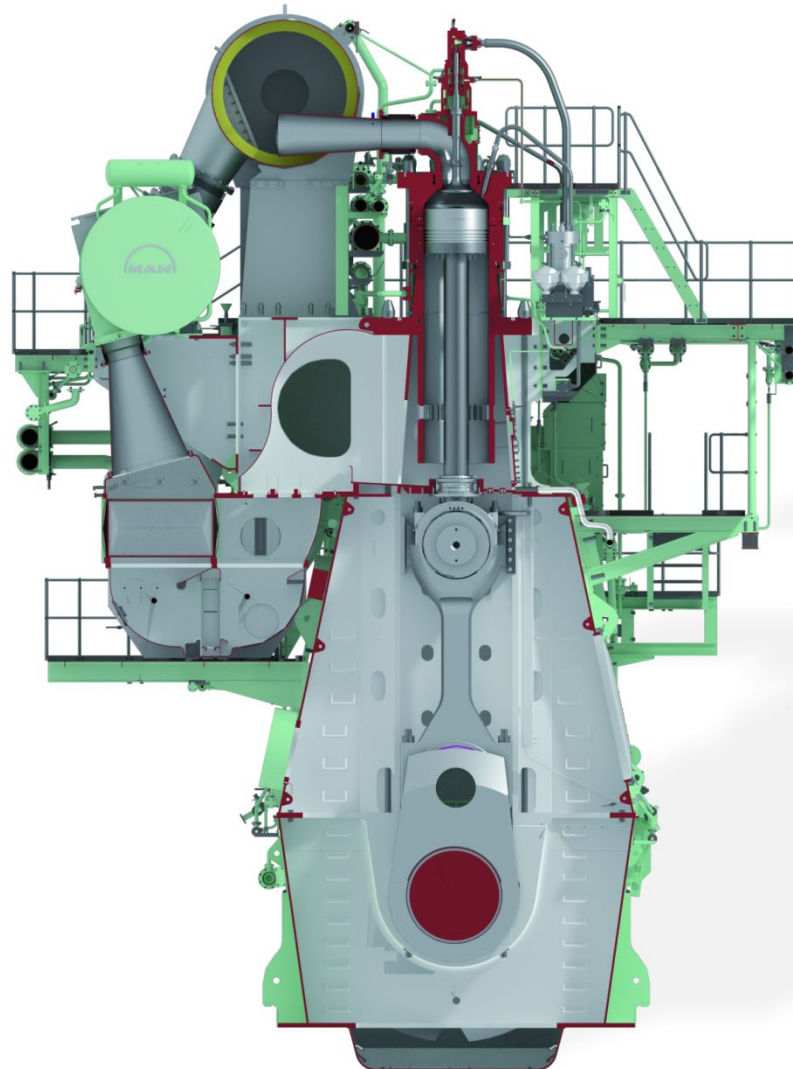
Different design changes is applicable for different versions.

AND there are several exceptions for above 'rules'

# ECA Applicable limits



# Same structural parts as MC-Design



# Development of the ME-engine



1991 Start of Intelligent Engine Project

1993 4T50MX equipped with Electronic Engine Control equipment

1997 4T50MX with 2nd generation control equipment

1997/98 Design - Production - Installation of mechanical/hydraulic components for service test on M/T "Bow Cecil"

1997/98 Design and implementation of governor functionality, and service test onboard "Shanghai Express"

1998/2000 Design - Production - Test - Installation of Engine Control System on M/T "Bow Cecil"

2000 Start of service test on M/T "Bow Cecil"

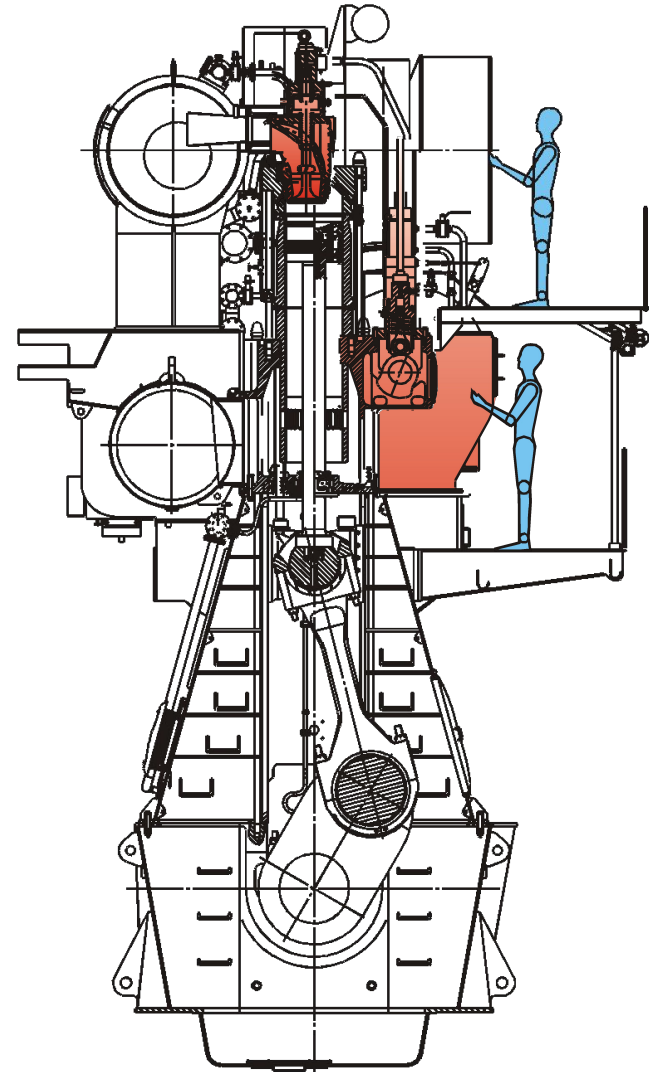
2003 First production engine



# MC-C Components Omitted / Redesigned



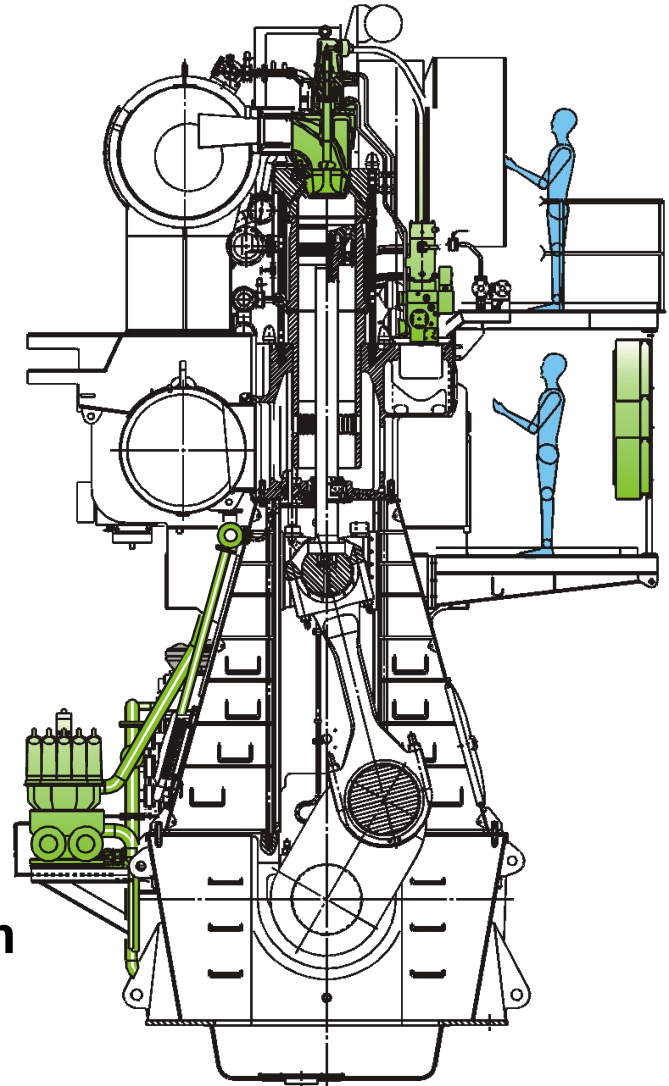
- Chain drive
- Chain wheel frame
- Chain box on frame box
- Camshaft with cams
- Roller guides for fuel pump and exhaust valve
- Fuel pumps
- Exhaust valve
- Exhaust actuator
- Starting air distributor
- Governor
- Regulating shaft
- Mechanical Lubricator
- Local control stand

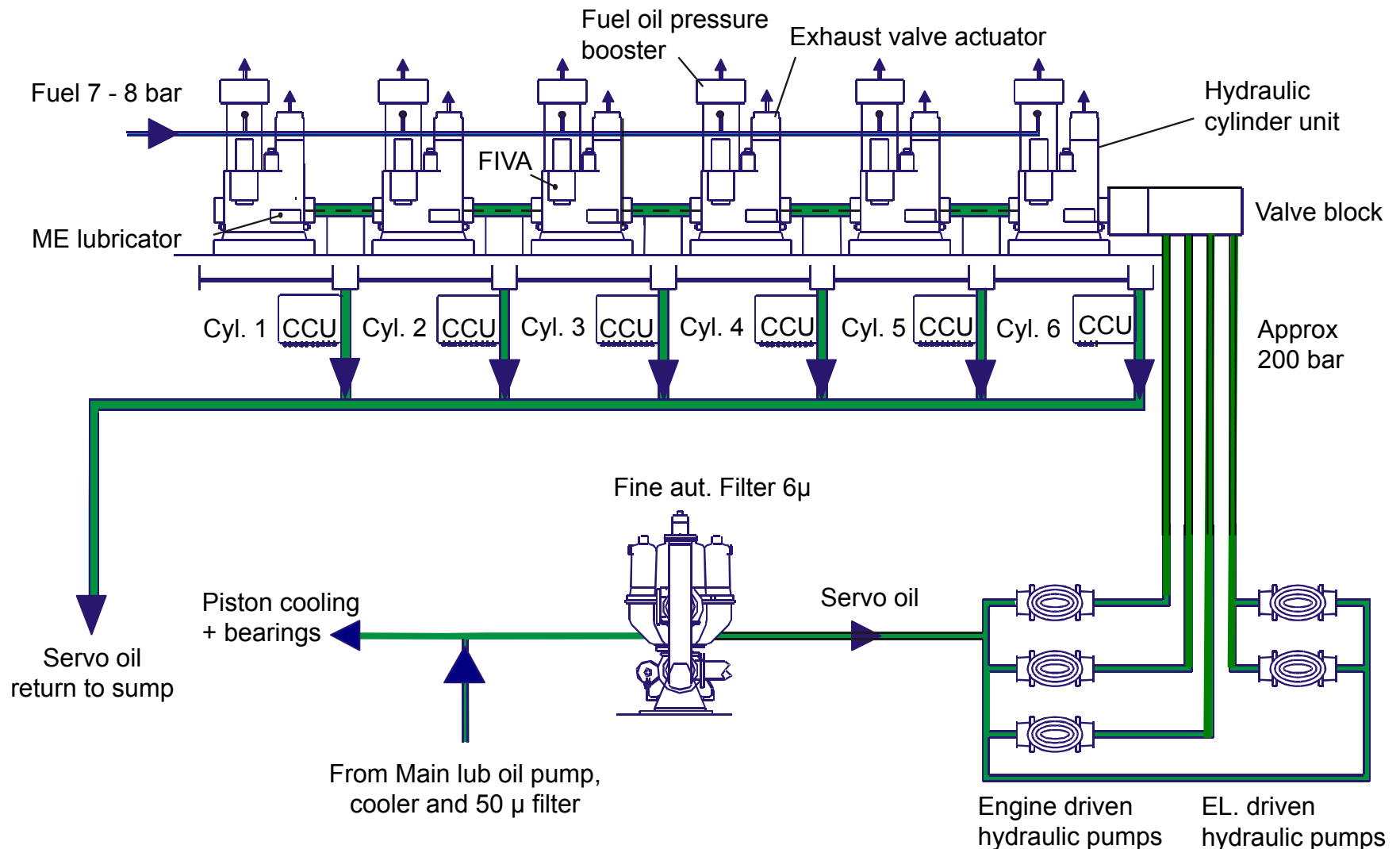


# New Components / Redesigned



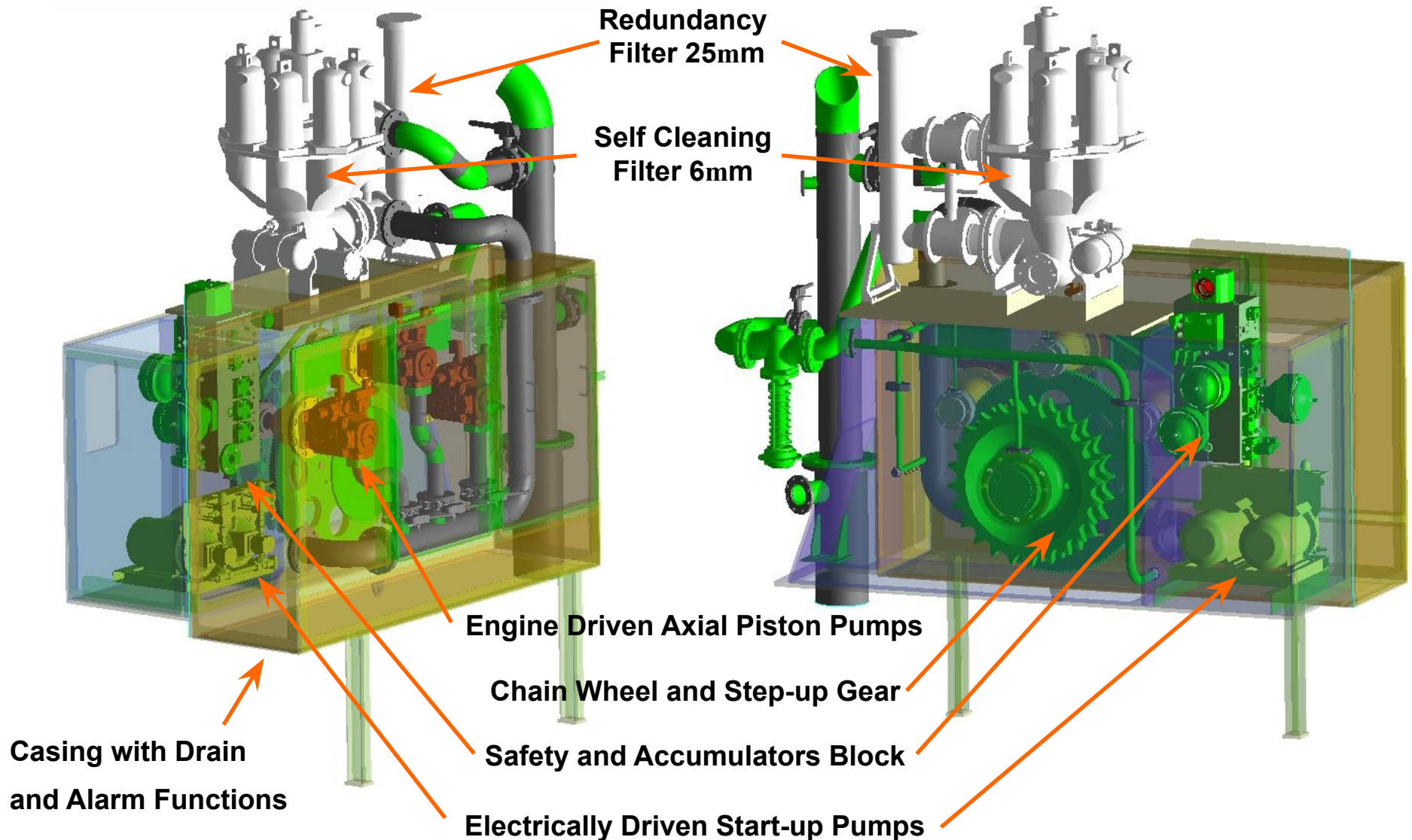
- **Hydraulic Power Supply (HPS)**
- **Hydraulic Cylinder Unit (HCU)**
- **Engine Control System (ECS)**
  - Starting air valves
  - Start and Reversing sequences
  - Governor function
  - Auxiliary blowers
  - Electronically Profiled Injection (EPIC)
  - Exhaust valve actuation
  - Cylinder lubrication (ACC)
- **Exhaust valve**
- **Crankshaft position sensing system**
- **Local Operation Panel (LOP)**



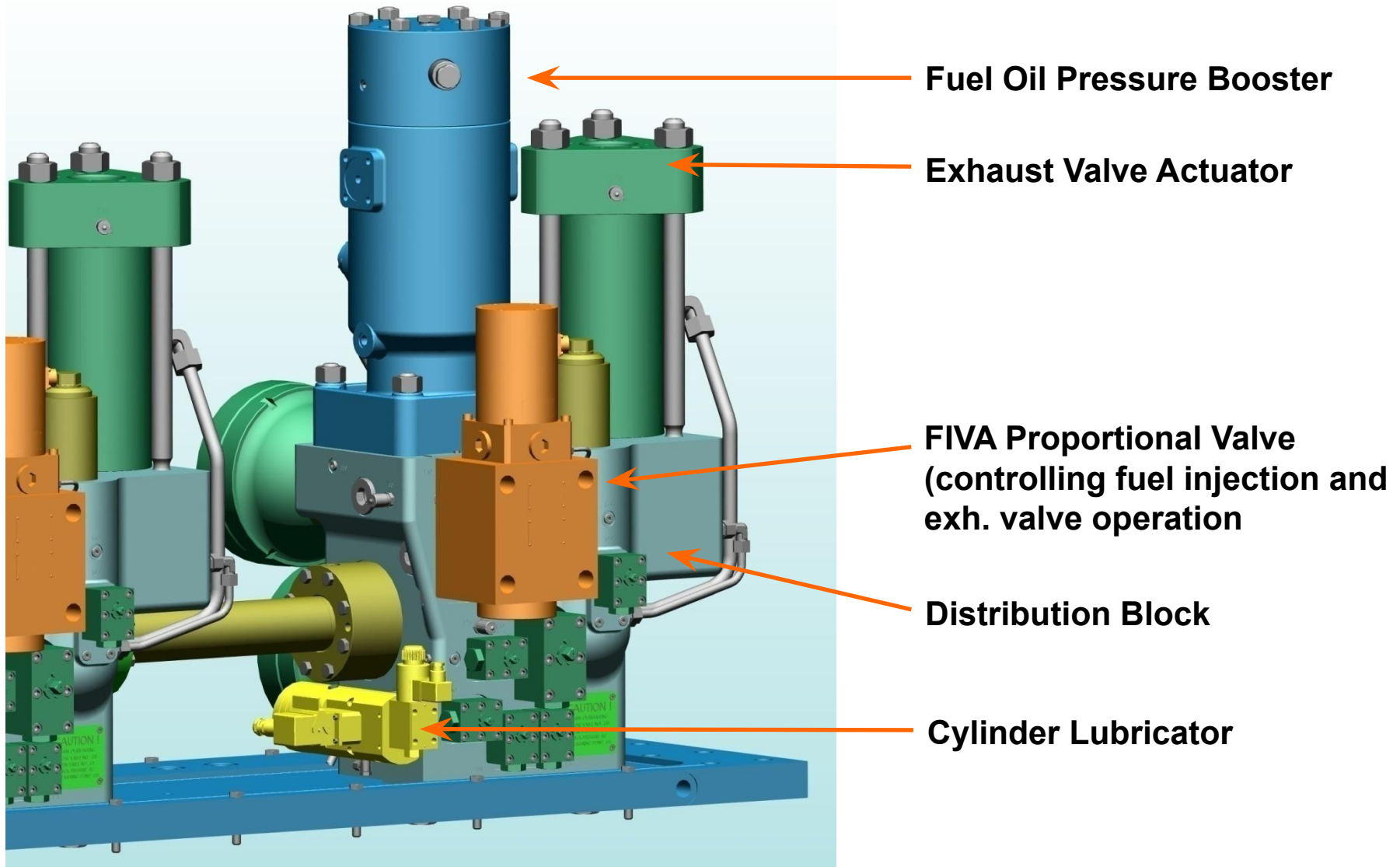


# Hydraulic Power Supply – HPS

## 7S60ME-C



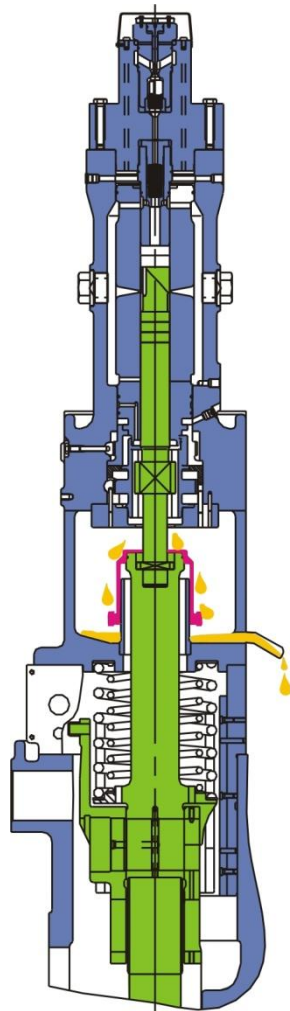
# Hydraulic Cylinder Unit - HCU



# ME Fuel Oil Pressure Booster MC versus ME



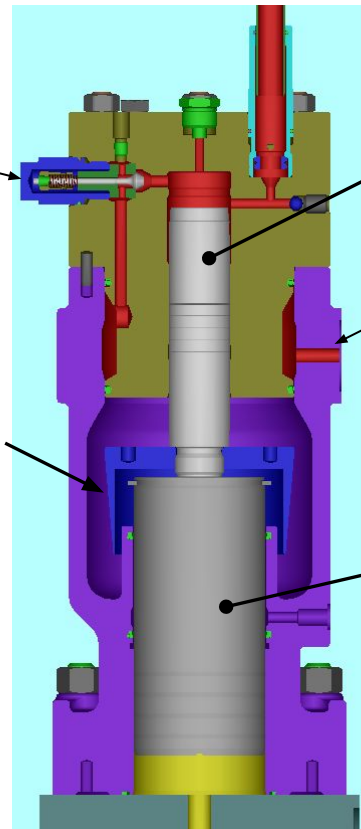
**S50MC-C**



**S50ME-C**

**Suction Valve**

**Feed back  
Position sensor**

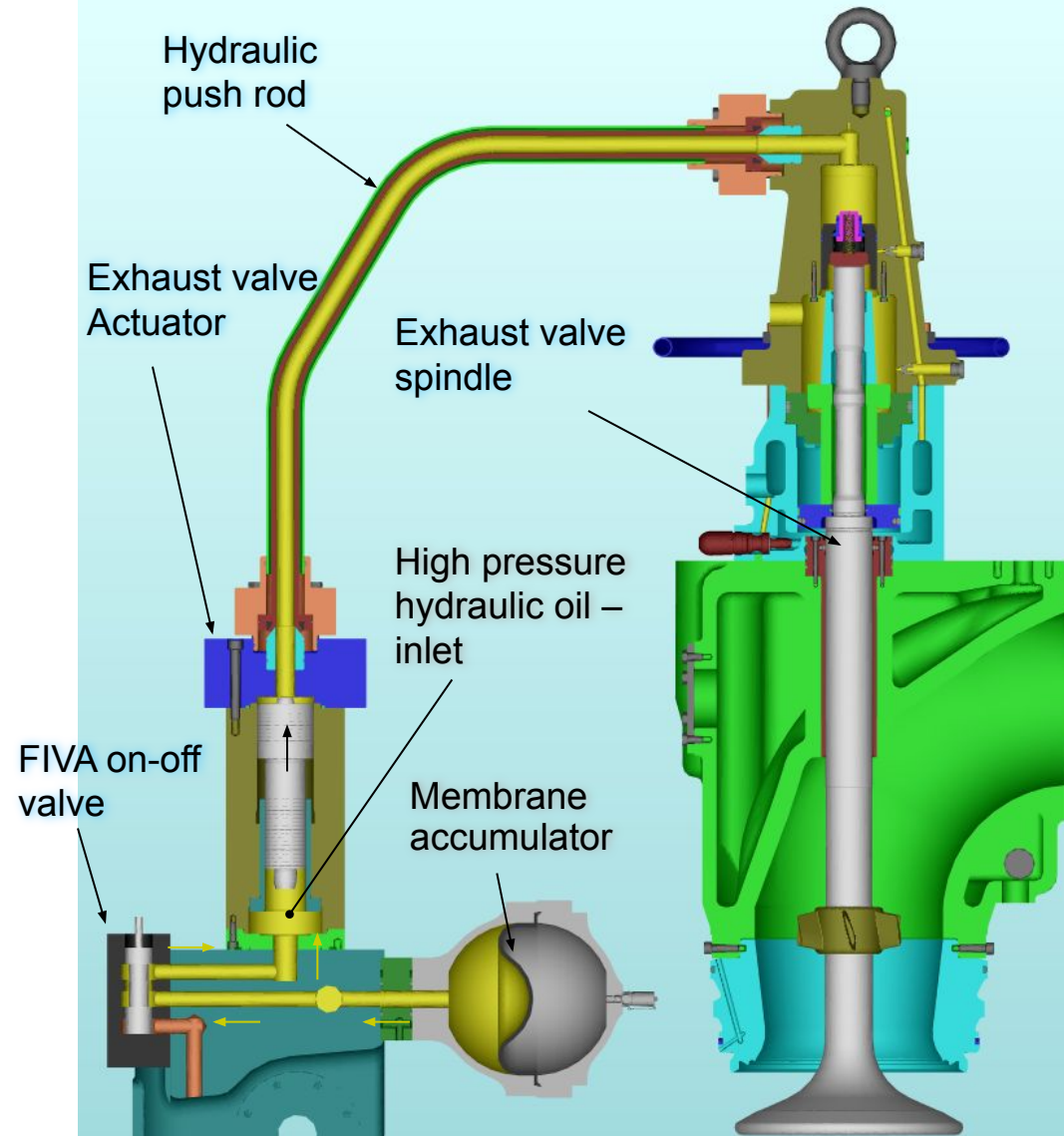
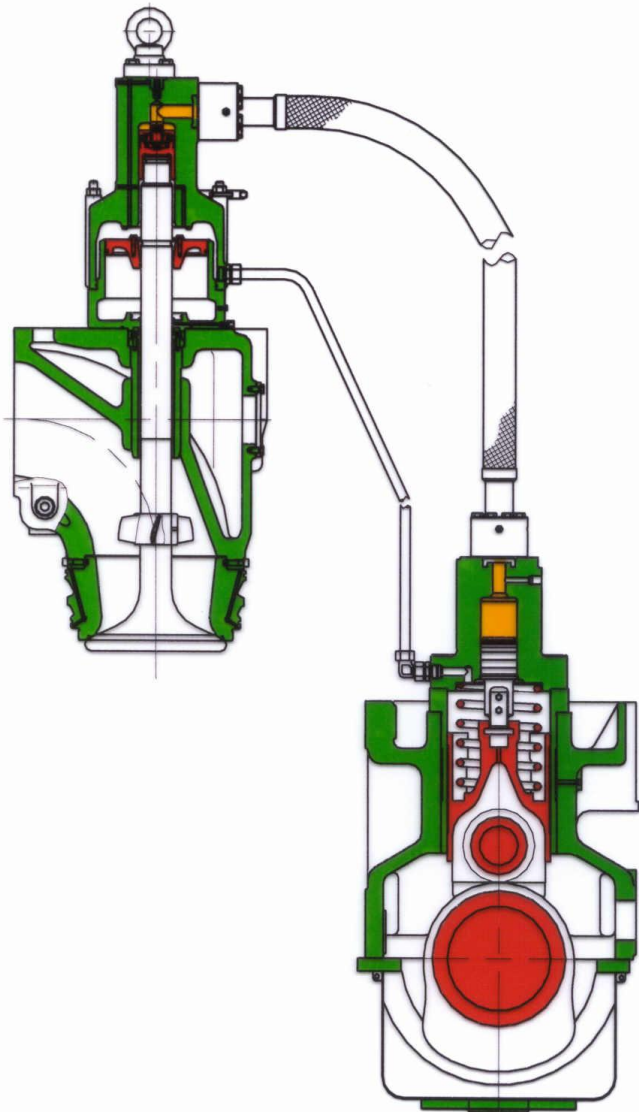


**Fuel Plunger**

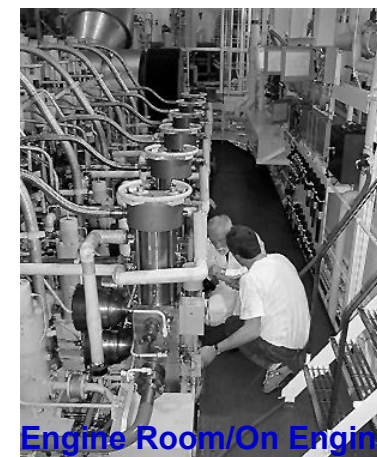
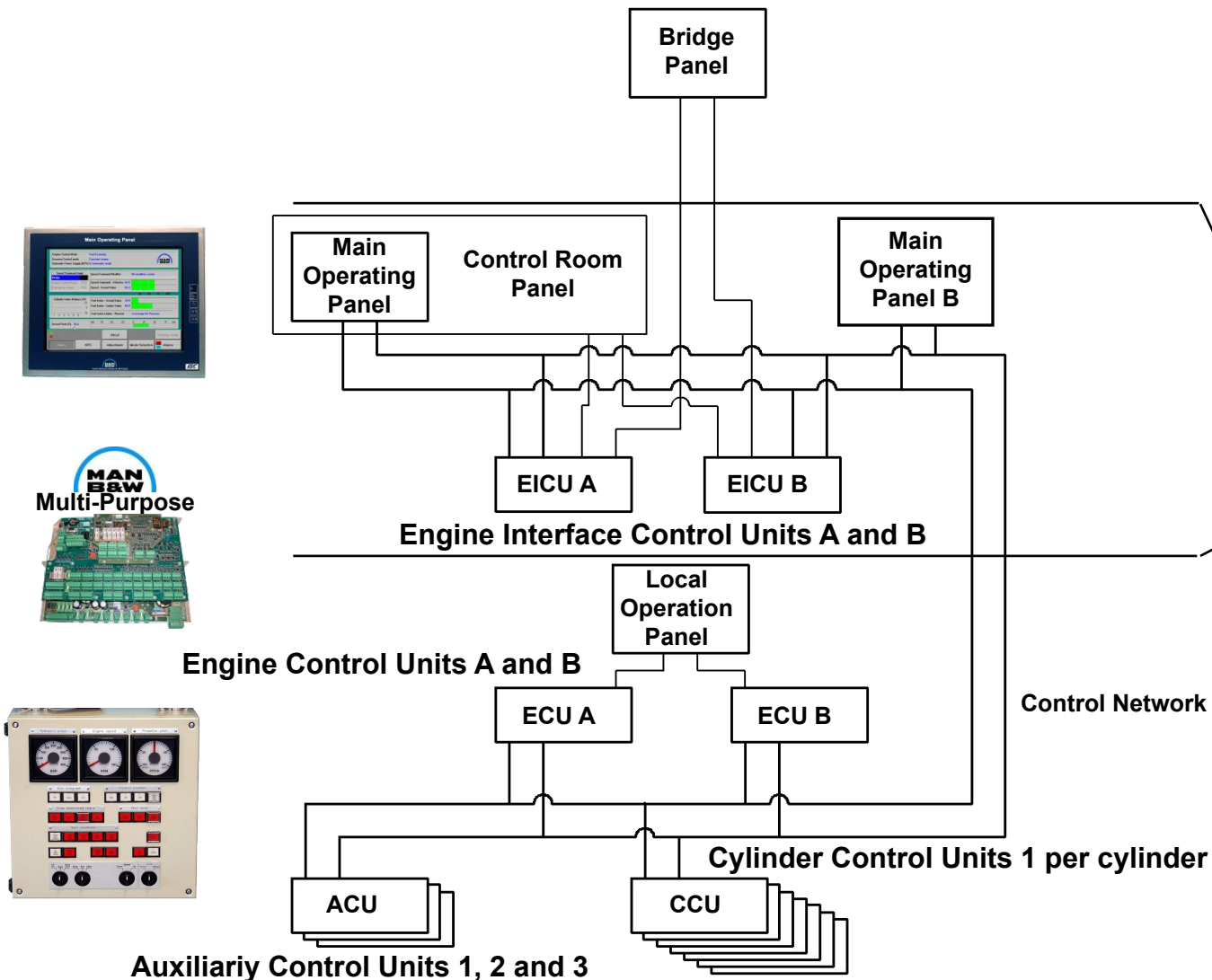
**Fuel oil inlet  
pressure 7 - 8 bar**

**Hydraulic actuator**

# Exhaust valve system MC versus ME



# ME Engine Control System



# ME Tachosystem

