MAN B&W Diesel A/S

Service Letter

SL02-407/KEA
July 2002

Control Air for Exhaust Valves
Action Code: AT FIRST OPPORTUNITY

Dear Sirs

New slow-down function on 90 & 98 MC/MC-C engines with safety valve integrated in the exhaust valve actuator

In order to improve the safety of the engines, we have introduced a slow-down function on the control air feed line for pneumatic closing of the exhaust valves of 90 and 98 bore MC/MC-C engines that have the recently introduced safety valve integrated in the exhaust valve actuator.

Today, an alarm indicates when the air pressure drops to 5.5 bar. However, with the introduction of the new slow-down function, the engine load is, as an extra precaution, lowered automatically if the air pressure drops below 4.5 bar.

We strongly recommend that the new slow-down function is introduced, as this is a design improvement with the aim of enhancing safety.

In order to avoid any confusion regarding our latest safety relief valve design, which is to be used in connection with the exhaust valve for the above engines, please see Encl. 1 and 2.

The pressure transducers for the alarm and the new slow-down function are shown in Encl. 3a and 3b.

The reason for the introduction of this extra precaution is the recognition of the damage that may occur if the air spring pressure to close the exhaust valve becomes too low at high engine loads. The exhaust valve spindle may then reach the mechanical end-stop in the fully open position while, at the same time, the exhaust valve actuator produces max. hydraulic pressure. The slow-down function in connection with the safety relief valve will prevent major damage to the camshaft and the exhaust valve.

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General design of starting and manoeuvring air systems for adequate air supply

Two cases of malfunctioning of exhaust gas valves on large two-stroke engines that were not fitted with the above-mentioned safety valve and pressure switch have been reported recently. In both cases, the air spring pressure to close the exhaust valves had become too low, due to operational reasons, and the valve spindles reached the mechanical end-stop in the fully open position while, at the same time, the exhaust actuator produced max. hydraulic pressure. This led to the cams slipping from their positions and to the exhaust valve air pistons becoming damaged.

This occurred in spite of shutdown of the engine because wind-milling forces caused engine running with reduced rpm.

In both cases, non-standard air systems had been used, and the system for supplying the exhaust valve air spring with the necessary air had been unable to do this because other consumers had been coupled to the system.

On the basis of this experience, we strongly request that the MAN B&W simple standard system, with combined starting and manoeuvring air systems, is followed for all MAN B&W engines, including engines already in service. Please note that the reduction station must be adjacent to the engine.

We enclose the MAN B&W standard starting air system diagram for reference, see Encl. 4, and also a drawing of an unacceptable solution, Encl. 5.

Questions or comments regarding this SL should be directed to our Dept. 2160.

Yours faithfully
MAN B&W Diesel A/S

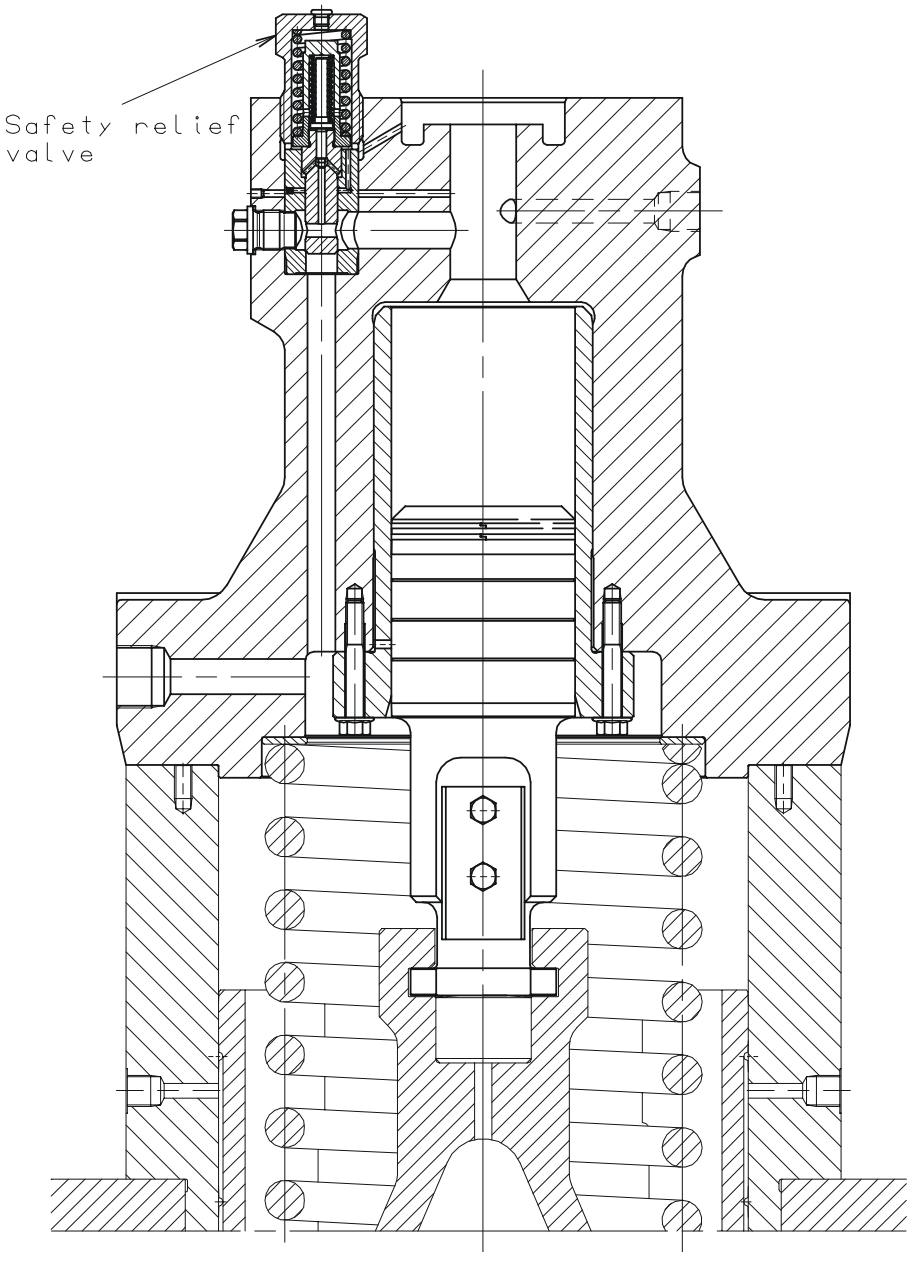
Carl-Erik Egeberg Kjeld Aabo

Encl.

Enclosure 1

Safety Valve, Exhaust Actuator/Valve Gear

K/LS90MC/MC-C, K98MC/MC-C

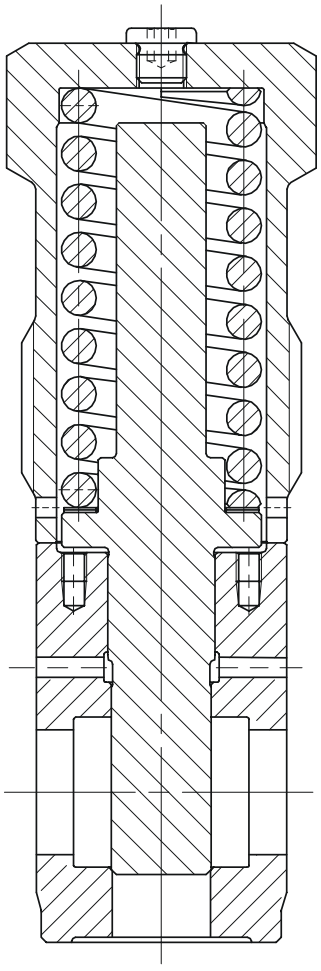


Enclosure 2

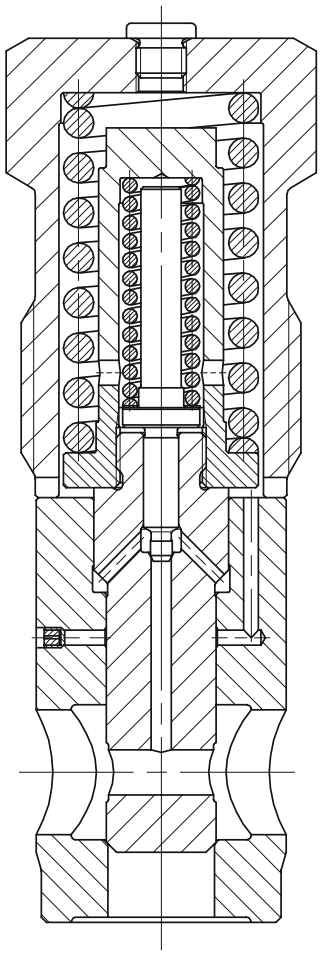
Safety Valve, Exhaust Actuator/Valve Gear

K/LS90MC/MC-C, K98MC/MC-C

Previous

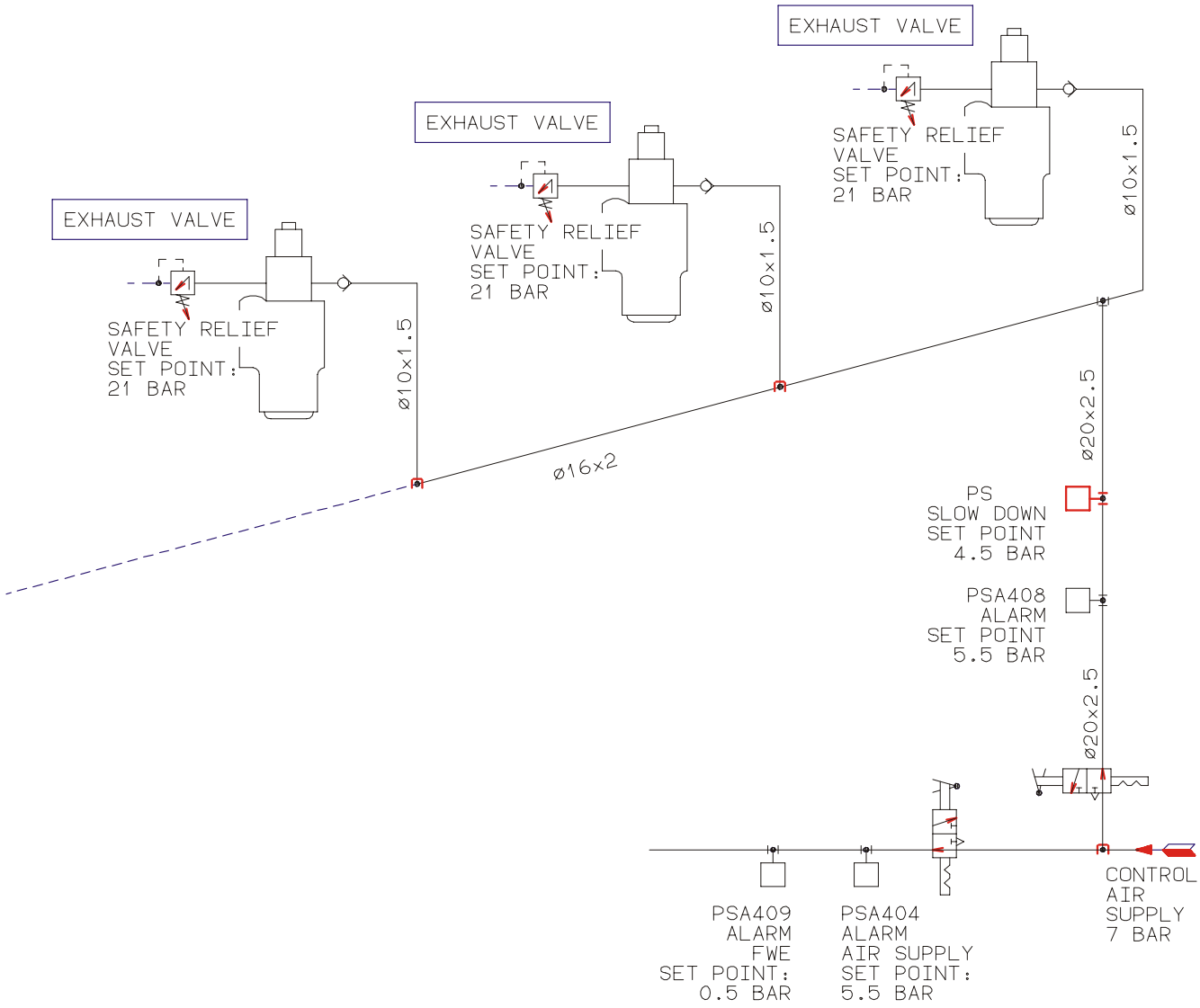


New



Enclosure 3a

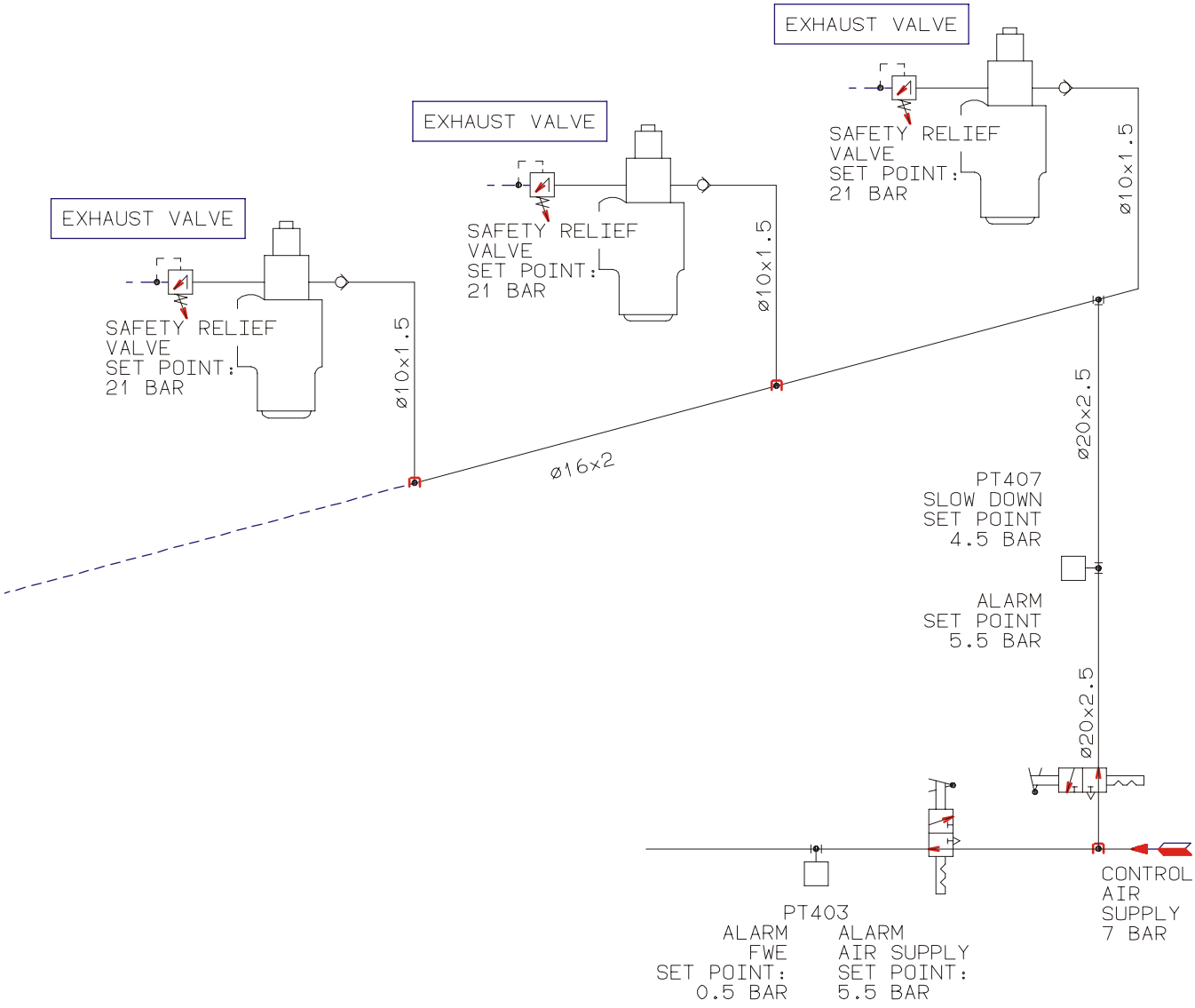
New slow-down function:
– Retrofit on existing ships



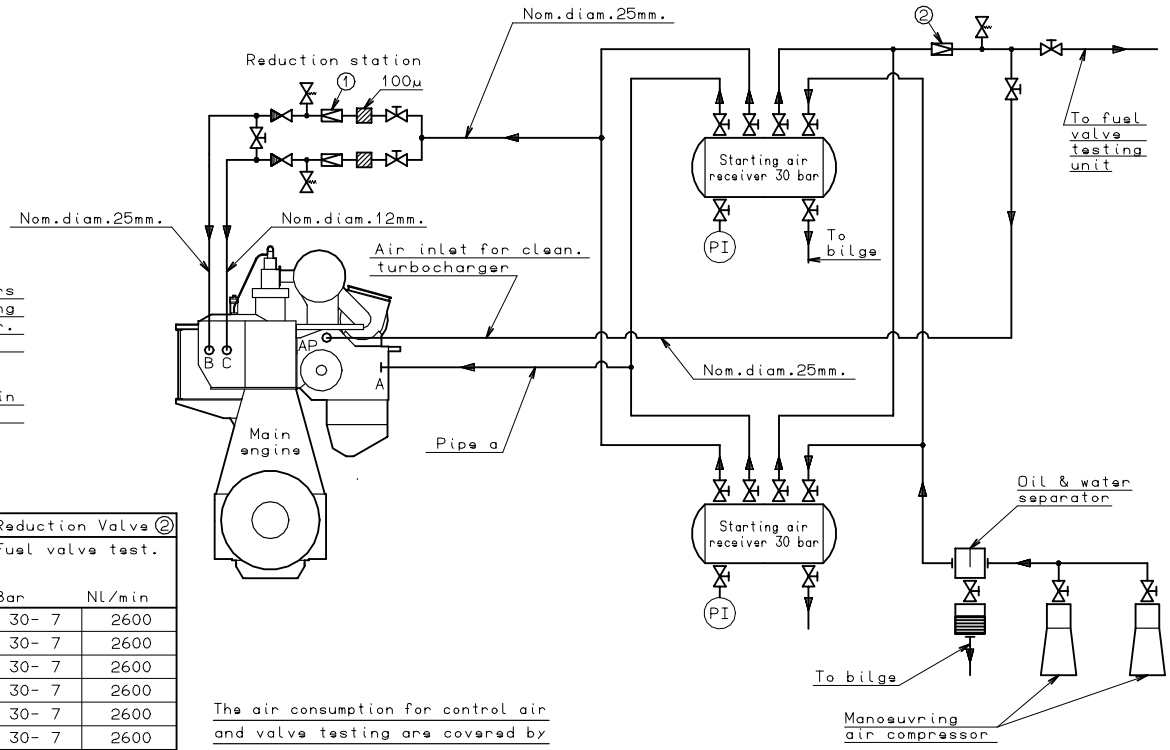
2530/KSA/JCB
2002-06-19

Enclosure 3b

New slow-down function:
– Installation on newbuildings



MBD Starting Air System



Number of aux.engines,pumps,coolers etc.subject to alteration according to the actual specification.For arr. common for main engine and MAN B&W aux.engines,see spec.drawing.

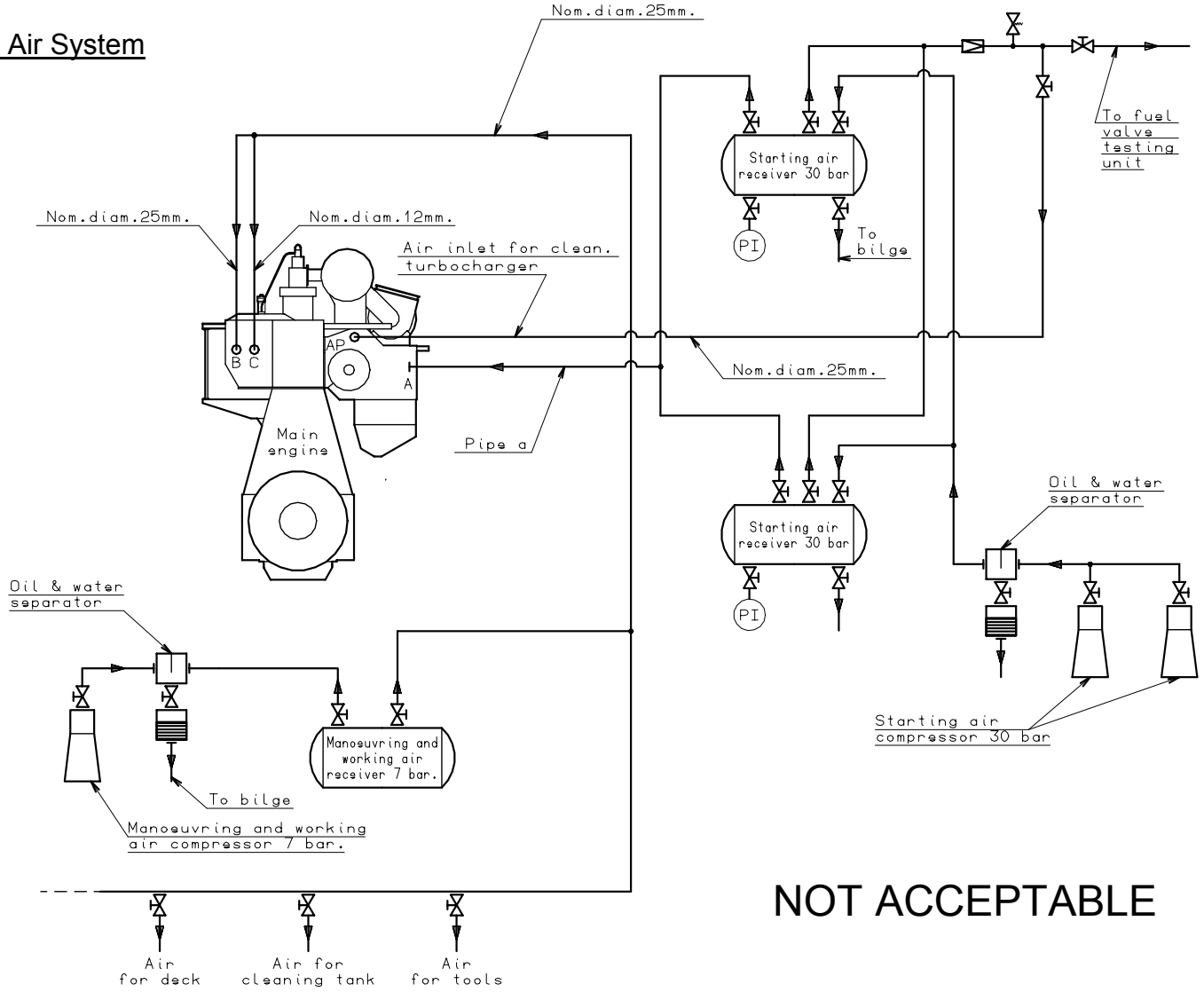
For flow rates and capacities for main engine, see list of capacities for actual engine type.

Engine type	Nom.diam. of pipe marked a	Reduction Valve ① Control & safety air		Reduction Valve ② Fuel valve test.	
		Bar	Nl/min	Bar	Nl/min
4-9S35MC	65	30- 7±10%	1400	30- 7	2600
4-8L35MC	65	30- 7±10%	1400	30- 7	2600
4-8L42MC	90	30- 7±10%	1400	30- 7	2600
4-9S42MC	90	30- 7±10%	1400	30- 7	2600
4-8S46MC-C	100	30- 7±10%	1400	30- 7	2600
4-8S50MC/MC-C	100	30- 7±10%	2100	30- 7	2600
4-8L50MC	100	30- 7±10%	2100	30- 7	2600
4-8S60MC/MC-C	125	30- 7±10%	2100	30- 7	2600
4-8L60MC	125	30- 7±10%	2100	30- 7	2600
4-8S70MC/MC-C	150	30- 7±10%	2100	30- 7	2600
4-8L70MC	150	30- 7±10%	2100	30- 7	2600
4-12S80MC	150	30- 7±10%	2100	30- 7	2600
4-12K80MC	150	30- 7±10%	2100	30- 7	2600
4-12L80MC	150	30- 7±10%	2100	30- 7	2600
6-12K80MC-C	150	30- 7±10%	2100	30- 7	2600
4-12K90MC	175	30- 7±10%	2100	30- 7	2600
4-12L90MC	175	30- 7±10%	2100	30- 7	2600
6-12K90MC-C	175	30- 7±10%	2100	30- 7	2600
6-12K98MC/-C	200	30- 7±10%	2100	30- 7	2600

The air consumption for control air and valve testing are covered by the capacities stated for air receiver and compressors in the list of capacities

Enclosure 4

Non-MBD Starting Air System



NOT ACCEPTABLE

Enclosure 5

3250/DFA/2002-04
Drawing No. 000000-0