MITSUI E&S

Mitsui E&S Machinery Co., Ltd.

TECHNO NEWS

for MITSUI－MAN B&W engines,		No.111	
Introduction of Ultrasonic Thickness Checker		APPROVED	H.Sakamoto
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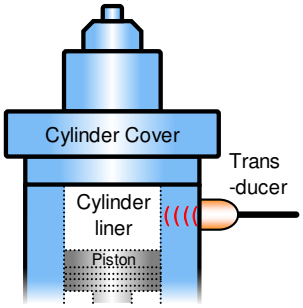
ENGINE TYPE	MC, MC-C, ME-B, ME-C	DATE	2020.7.31

We are pleased to introduce a new device that can measure the changes of the cylinder liner wall thickness from outside by ultrasonic for early detection of cylinder liner wear. Without overhauling the cylinder cover, it is able to measure the upper part wear amount that cannot be checked by the port inspection.



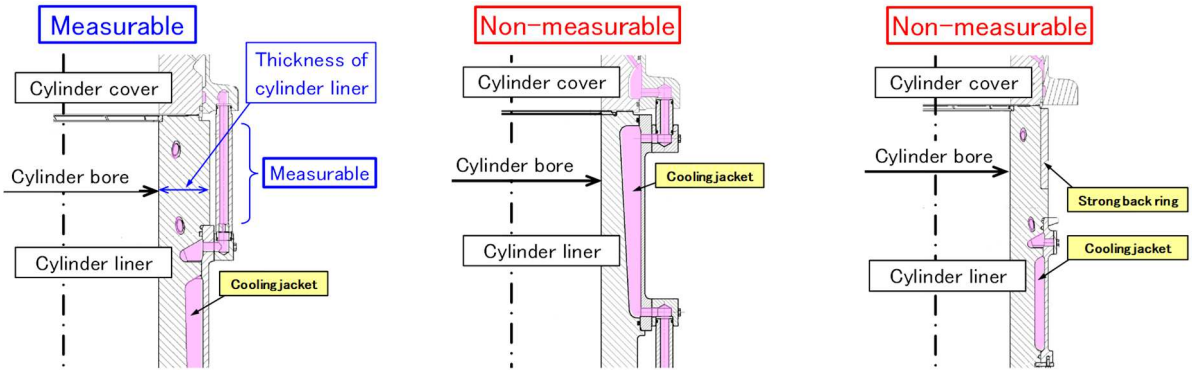
【Measurement principle】
Cylinder liner wall thickness is measured by ultrasonic from outside.

【Measurable cylinder liner】
Cylinder liner wall top area that is parallel on inside and outside, and not covered by cooling water.

・Resolution: 1/100 mm
・Measurement surface temp.: 0～150 degC

※ The measured value changes because the sound velocity is slightly different depending on the measurement point. The progress of wear is judged from the trend based on the first measured value, not the absolute value.

Some types of cylinder liner cannot be used as shown below. Please confirm the details with us.



There are 2 types available;【Standard type】for simple measurement, and【Advance type】equipped with automatic temperature correction function.

In this connection, it is convenient to measure the actual bore with the "Digital Cylinder Gauge" announced in TN084.

PRIORITY			
IMMEDIATELY ☐	AT FIRST OPPORTUNITY ☐	WHEN CONVENIENT ☐	OTHERS ■

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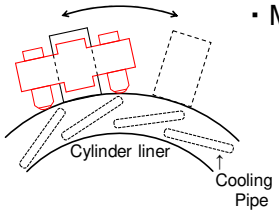
ClassNK MS JAB ISO 9001 CM 005

It is important to measure and record time series data, measured at same position in order to understand wear trends and detect early abnormalities.

Standard type



・Move the measuring position horizontally by hand, and search for the position that has high sensitivity.

・The optimum amplification factor can be selected by watching the indicated waveform on the screen.
・With function that detects only the necessary waveforms, noise can be avoided and it is able to capture the changes of the target thickness only.
・Maximum 10,000 points of data can be saved in the main unit.

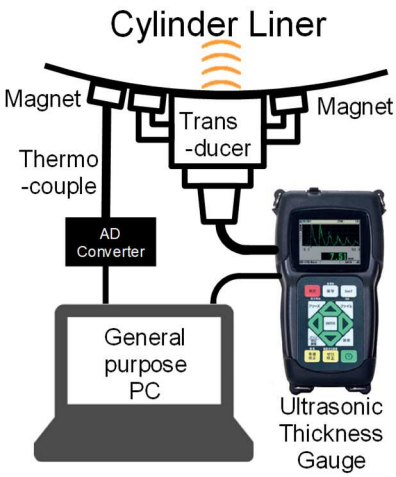
【Notes for Standard type】

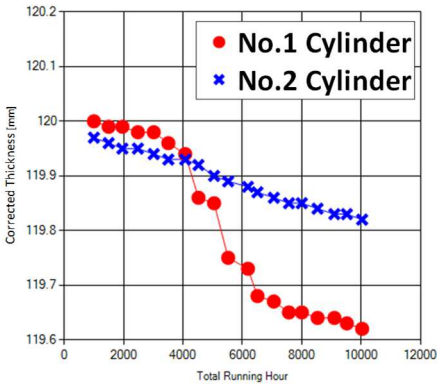
Temperature condition of the cylinder liner must be same at each time of measurement.
(Recommended condition: more than 12 hours after engine is stopped and the cylinder cooling water outlet temperature is the same each measurement.)

Advance type

・It is able to measure during engine running. (Cooling water outlet temp is stable after 1 hour or more)
・The transducer and temperature sensor are fixed by magnets, and can be measured by one person like the Standard type.
・It is able to measure even if the cylinder liner temperature is different from the last measurements.
・Data can be output to csv format.
・The graph with total running hours on horizontal axis is able to display on PC screen.
・PC is necessary for measuring and data processing. (Please confirm to us about the PC specifications.)


※PC is an optional.





Graph example

Please also refer to the Parts Information MPI0043, MPI0044.

For any inquiries, please contact the sales representative with reference to Service Note No.111.