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Transducer Cleaning, Fairing and Painting Procedure

18/12/2020

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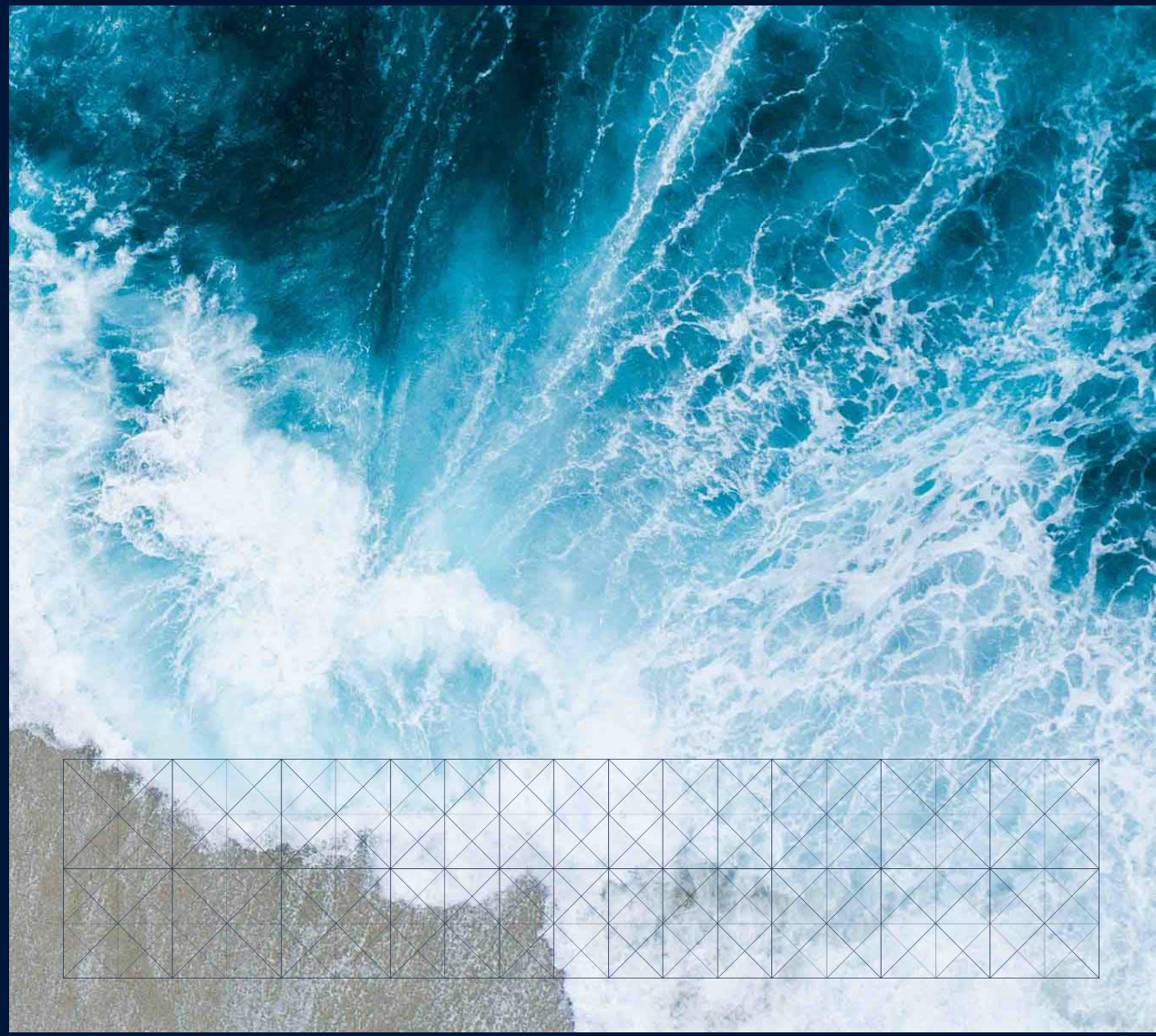

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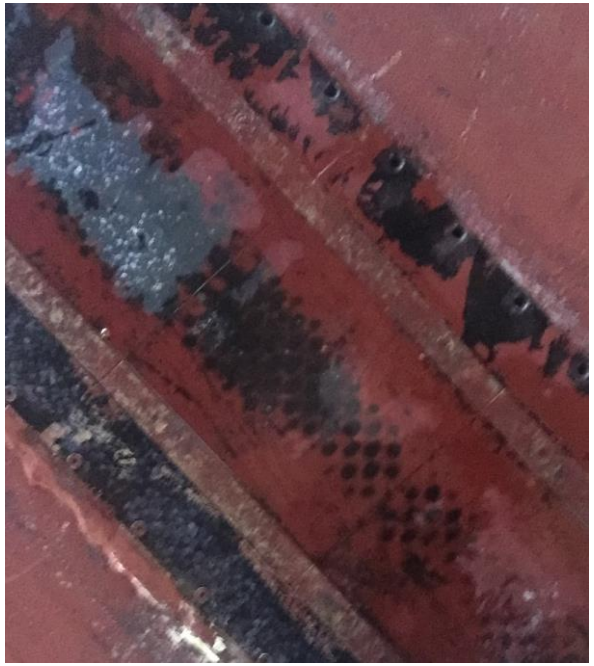
Inspecting and Cleaning Transducer

Proper Maintenance Prevents Poor Performance

Inspecting and Cleaning Transducer

Marine growth (biological fouling) on the transducer face reduces the system performance. For this reason, it is important to keep the transducer face clean. Every time your vessel is in drydock; you must remove the marine growth. At the same time, you must inspect the transducer closely for physical damage.

- Prerequisites: The following tools and consumables are required.
  - Personal protection
  - Fresh water
  - A mild synthetic detergent and a plastic brush
  - A piece of wood or plastic without sharp corners •
  - Citric acid (<50%) (only if required)



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Inspecting and Cleaning Transducer

During normal use, the transducer is subjected to biological fouling. If this marine growth is excessive, it will reduce the performance of the system. Whenever opportunity arise, typically when the vessel is dry-docked, the transducer face must be cleaned for shells and other marine growth. It is important to check the transducer for physical damage. Any cracks, fractures or holes in the red protective coating may result in a water leak, and a leak may cause irreparable damage to the transducer. A transducer must always be handled as a delicate instrument. Incorrect actions may damage the transducer beyond repair. Observe these transducer handling rules:

- Do not activate the transducer when it is out of the water.
- Do not handle the transducer roughly and avoid impacts.
- Do not expose the transducer to direct sunlight or excessive heat.
- Do not use high-pressure water, sandblasting, metal tools or strong solvents to clean the transducer face.
- Do not damage the outer protective skin of the transducer face.
- Do not lift the transducer by the cables.
- Do not step on the transducer cables.
- Do not damage the transducer cables and avoid exposure to sharp objects.

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Inspecting and Cleaning Transducer

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Inspecting and Cleaning Transducer

Procedure

1. Allow for sufficient access to clean and inspect the entire surface of the transducer.
2. Remove biological fouling carefully using a plastic brush, a suitable synthetic detergent and fresh water.
3. Biological material which is strongly rooted in the substrate can be removed carefully with a piece of wood or plastic. If required, you can also use citric acid. Apply, leave it working for several hours, and rinse thoroughly with fresh water.
4. **Do not use high-pressure water, sandblasting, metal tools or strong solvents to clean the transducer face.**
5. **Do not damage the outer protective skin of the transducer face.**
6. Allow the transducer surface to dry.
7. Do a thorough visual inspection of the transducer. Check for dents, scratches, holes or other damage to the surface. If you suspect damage, take a high-resolution photo. Contact your dealer or the Kongsberg support organization for advice.
8. Apply anti-fouling paint as described in the dedicated procedure.

Note:

Because some paint types maybe aggressive to the polyurethane in the transducer, consult our list of approved paints. The list can also be found on Kongsberg Maritime (https://www.kongsberg.com/maritime/).

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Fairing

Fairing Irregularities in the ship's hull or gondola

- Prior to painting the transducers it is important to use a fairing compound to smooth any rough edges that can cause cavitation, resulting in decreased data quality.
- ***Do not apply fairing material on the transducers.***
- Apply as little material as needed.
- Avoid fairing over mounting hardware if possible.
- Follow manufactures recommended application techniques.

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Fairing

Recommended Material

Intergard 822

Epoxy Filler

International

PRODUCT DESCRIPTION	A two pack epoxy filler. Zero VOC.
INTENDED USES	For use as a filler for pitted steel prior to maintenance coating. Also, approved for use on anode shields. For use at Newbuilding, Maintenance & Repair or On Board Maintenance.

- Manufacturer: International Marine Coatings
- Product: Intergard 822 two-part epoxy filler
- https://www.international-marine.com/product/intergard-822
- (Equivalent fairing material may be used)

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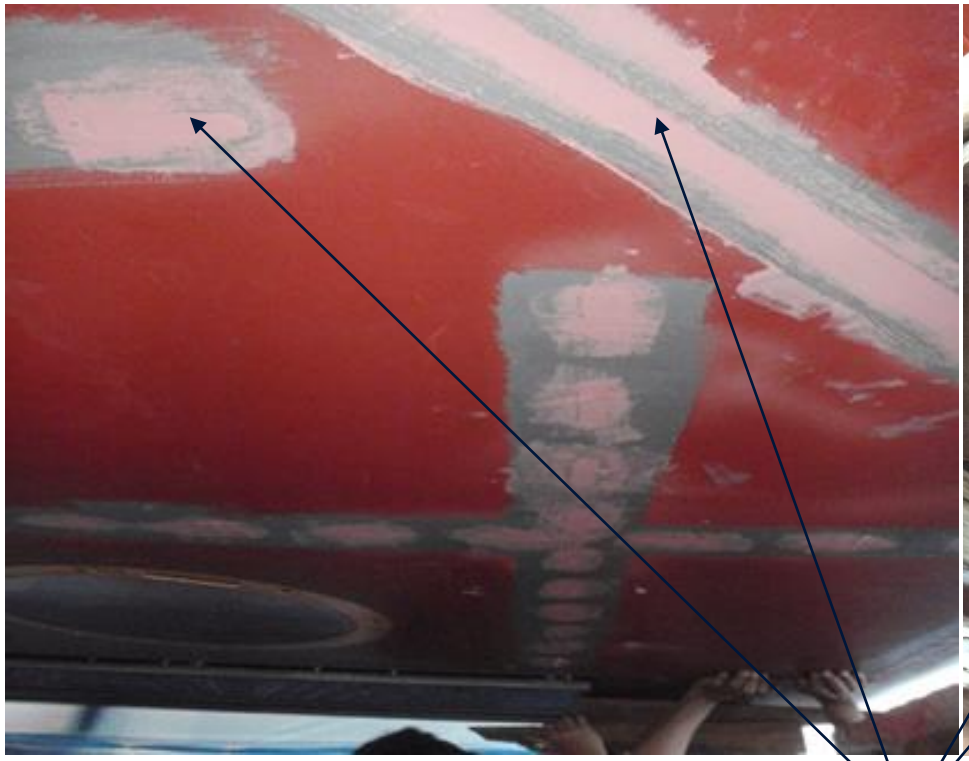
Fairing



Grind and fill all weldments

It is not recommended to fair hardware.

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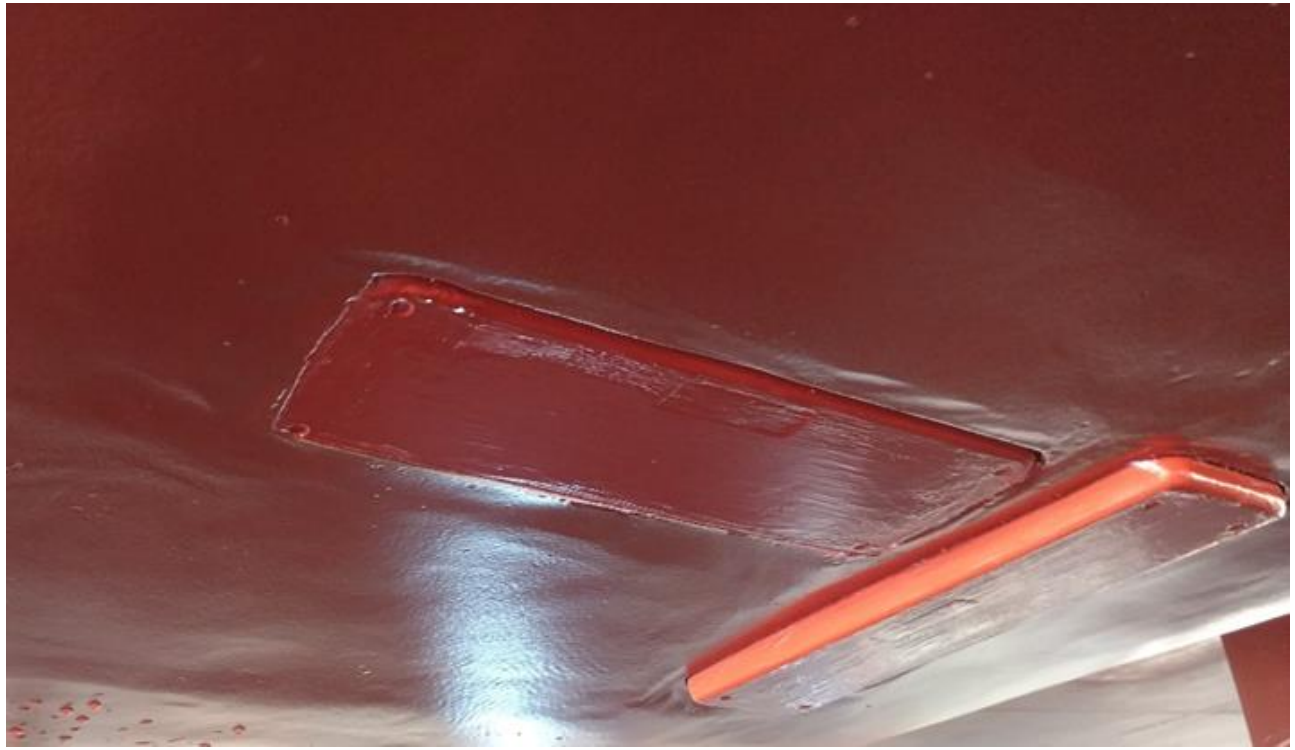
Fairing



Improper Application:

Over applying fairing material can affect the systems performance. Avoid applying fairing material on the cover plates or mounting bars.

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Fairing

Smooth transition

Grind welds flush when applicable

Fill Large Gaps and Holes

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Fairing

Smooth surface; Ready for paint.

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Fairing

These Transducers are ready for paint.

There is a smooth flat surface.

Small gaps of up to 1/8” are a normal part of the installation

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Painting Instructions

Painting the transducer face

Marine growth (biological fouling) on the transducer face reduces the echo sounder transducers performance. We recommend that you paint the transducer face immediately after installation, and then again as often as required to maintain the protection.

Prerequisites: The following tools and consumables are required.

- Personal protection
- Fresh water
- A mild synthetic detergent and a plastic brush
- Fine grade sandpaper (240inch grit size)
- Primer
- Anti-fouling paint
- Wet film gauge
- Airless spray

- *Because some paint types may be aggressive to the polyurethane in the transducer, consult our list of approved paints.*

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Painting Instructions

Context

- The transducer has not been designed with any protection against biological fouling. Anti-fouling paint may therefore be applied to the transducer face. To minimize the negative acoustical effects the layer of anti-fouling paint must be as thin as possible.

- Note: The anti-fouling paint will reduce the acoustical performance of the transducer. The surface roughness of the transducer substrate and the thickness of the paint may also influence the performance. Kongsberg Maritime cannot be held responsible for any negative consequences of the anti-fouling paint.

- Observe the relevant instructions and safety information provided by the paint manufacturer.

Painting Instructions

Procedure

1. Clean the transducer thoroughly. Make sure that you remove all oil grease residues, as well as salt and other contamination.
2. Allow the transducer surface to dry.
3. Abrade the transducer surface by hand using a sanding paper with 240 inch grit size. Do not exceed a surface roughness (R max) of 35 microns as this can influence the echo sounder transducers performance.
4. Remove all dust.
5. Apply the primer and let it dry.
6. Apply the paint. Observe the instructions provided by the paint manufacturer. Use air less spray. Apply the minimum specified film thickness per coat and for the complete layer. It is not possible to measure dry film thickness on transducer surface. You must therefore use a wet film gauge to frequently measure the paint thickness.
7. **Note: We strongly recommend that you do not use a paintbrush and/or a roller.**
8. Allow the paint to dry.
9. *Further requirements: The contractor or shipyard must keep a daily paint log recording all relevant information from the surface treatment.*

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Painting Instructions

Approved anti-fouling paints

- This is our list of approved antifouling paints for all transducer types. Always refer to the manufacturer's documentation and data sheets for a complete procedure and for relevant safety information.
- **Important Do not paint the transducer with traditional hull plating paint. Use only the correct type of approved paint specified. Do not use high-pressure water, sandblasting, metal tools or strong solvents to clean the transducer face.**

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Painting Instructions

Interlux

- Manufacturer: Interlux
- Address: 7520 E Independence Blvd. Suite 160 Charlotte, NC 28227
- Manufacturer's website: https://www.interlux.com/en/us/
- **Products:**
  - Primer: InterProtect 2000E
    - Apply 50 µm dry film thickness.
  - Paint: Micron CF
    - Apply 100 µm dry film thickness.
  - Data Sheets

    -https://www.interlux.com/en/us/boatpaint/primer/interprotect-2000e

    -https://www.interlux.com/en/us/boatpaint/antifouling/micron-cf

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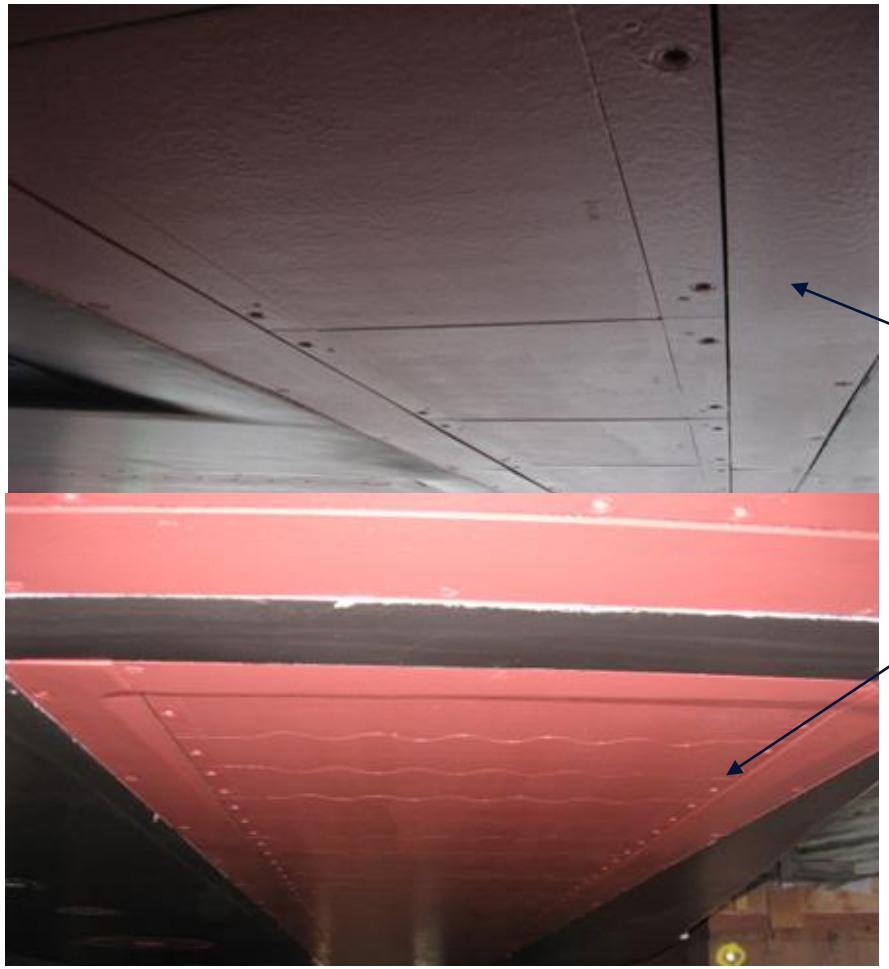
Painting Instructions



Properly applied, finished paint job. There is a thin, even coat applied with the no drips or brush marks.

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If in Doubt,

Contact Support

km.support.lynnwood@kongsberg.com