



Crane Inspection Guide

a general guidance for container vessel cargo crane inspections conducted on through MATE[®]

version 2019.1



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Introduction

This document serves to provide a better understanding on how to classify observations made during inspection of the cargo cranes on container vessels, which inspections are conducted through MATE[®].

During the thousands of condition surveys we have had carried out over the years, using a large number of external surveyors, we discovered it is often difficult to qualify the extent of defects. This guide is intended to provide background on how to rate observations and whether these observations are acceptable or not.

Please be advised this is only a guide; also the writers of this document are not completely objective. Nonetheless it will show a large number of examples which may assist you in shaping your views.

A topic which is especially open to subjectivity, is that of corrosion, which accordingly is one of the main issues dealt with in this document. The main question to answer, which is not always easy, is when corrosion has reached a stage that it is no longer acceptable.

Although this may depend on the perspective of the inspection and client, in this document we have attempted to find a common viewpoint, as much as possible in line with industry accepted practice.

Most commonly it can be reasoned that, once corrosion starts to become visible, maintenance should be considered. The sooner corrosion is arrested, the easier it is to correct it, using relatively simple methods such as brushing and painting. Once corrosion has reached stages of excessive corrosion or even wastage, repairs become more complicated and costly. Especially on cargo cranes corrosion should not be allowed to become excessive, as the negative consequences of possible failure of a crane can be significant.

In this respect we have divided corrosion into four (4) stages, where stage 3 and 4 are outside acceptable limits.

Stage 1: superficial

In this stage there is only superficial, often atmospheric rust evident, which can easily be brushed off. The rust development, having a light brown colour, does not affect the strength or functionality of the structure and maintenance can be done by the crew whilst the vessel is in operations.

Stage 2: progressing

There is development of rust, often of darker colour. Incidental small, loose rust/paint scales are found in way of the object which have parted from the item, but this is limited. Action is required to arrest the corrosion in order to avoid aggravation. Normally maintenance can still be done by the crew as part of the normal maintenance regime.

Stage 3: excessive

There is development of rust which is dark brown discoloured. Loose rust scales are present on / in way of the structure. Maintenance has become more extensive and time consuming and if the rust is spread over a large area, shore assistance or employment of additional crew may be needed.

Stage 4: wastage

Material is lost, and the functionality of the structure is adversely affected. The structure may be wasted and/or holed and laminar corrosion is evident. Maintenance has become extensive and time consuming and is likely to require shore assistance when spread out over a large area.

Pedestal



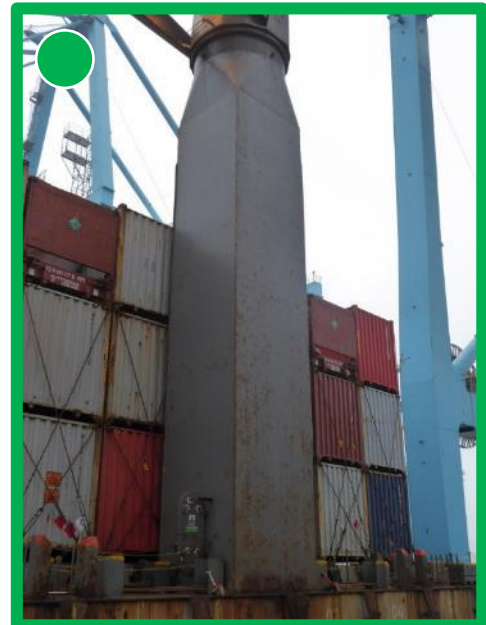
Superficial corrosion along pedestal edge



No corrosion



Superficial corrosion along pedestal edge



Progressing corrosion along pedestal edge

Pedestal



Excessive corrosion along pedestal



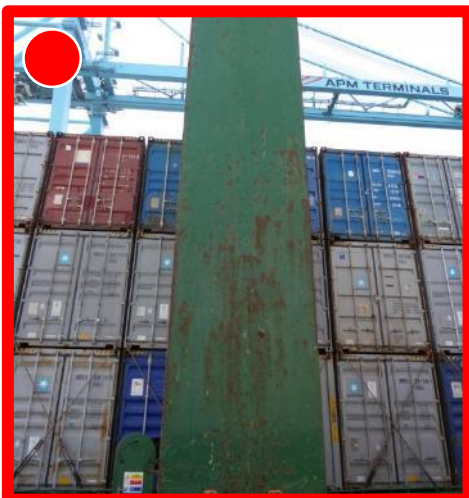
Excessive corrosion along pedestal



Excessive corrosion along pedestal edge



Excessive corrosion along pedestal edge



Excessive corrosion along pedestal



Excessive corrosion along pedestal

Jib



Superficial corrosion on jib



Superficial corrosion on jib



No corrosion

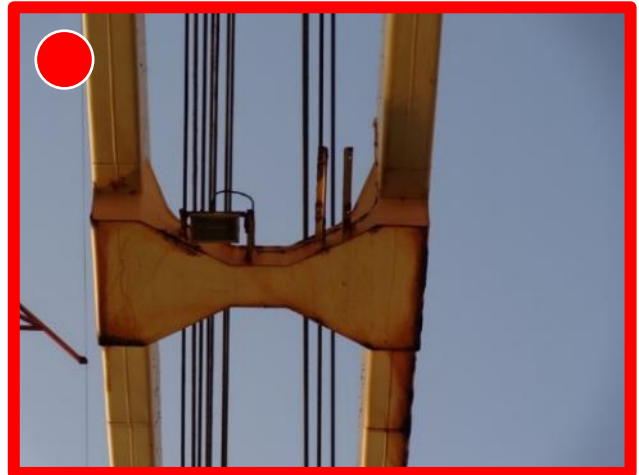


Progressing corrosion on jib

Jib



Jib with (localised) excessive corrosion



Jib cross beam with excessive corrosion



Jib with spots of excessive corrosion



Excessive corrosion along jib



Jib with excessive corrosion (also on pedestal and slewing ring)



Heavy indentation on jib top plate near pivot point

Jib fittings



Jib grating supports with progressive corrosion



Jib end sheave with progressive corrosion



Jib, sound condition



Wire jumpers bent but sound

Jib fittings



Jib with local excessive corrosion



Jib end sheave with excessive corrosion



Excessive corroded cable protection piping



Distorted wire jumper



Lifting eyes on jib with excessive corrosion



Excessive corroded grating support

Jib mounting, hinges and luffing cylinders



Luffing cylinders sound, no corrosion



Limited corrosion on jib / luffing cylinder mounting



Luffing cylinders with spot corrosion



Luffing cylinders sound, no corrosion



Progressive corrosion on jib mounting

Jib mounting, hinges and luffing cylinder



Jib pivot point / hinge pin with excessive corrosion



Jib hinge with excessive corrosion (also on slewing ring)



Luffing cylinder mounting with excessive corrosion



Excessive corrosion on jib mounting point



Excessive corrosion on jib mounting



Luffing cylinders with excessive corrosion



Excessive corrosion on jib mounting

Rigging, wires and hook



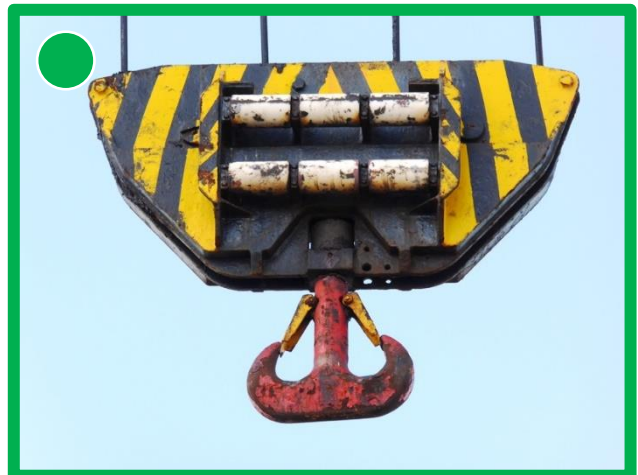
Crane top wire sheave, sound



Wire drum with minor, progressing rust



Block in good condition and safety latches operational



Block fair and safety latches operational

Rigging, wires and hook



Wire with corrosion



Wire dry, lacking grease



Wire sheave with excessive corrosion



Wire sheave with corroded edges



Block with excessive corrosion



Safety latches inoperable

Exterior fittings, ladders, handrails



Ladders and access sound



Ladder with some progressing rust



Topside handrailing sound



Handrailing with superficial corrosion



Minorly damaged/deformed ladder safety ring

Exterior fittings, ladders, handrails



Excessive corrosion on external platform supports and railing



Excessive corrosion / wastage on pedestal ladder



Wastage on emergency escape platform / grid



Excessive corrosion on topside handrail



External ladder with excessive corrosion and distorted.



Topside handrailing with wastage



Excessive corrosion on handrail at the base of the jib

Operator's cabin



Operator's cabin with superficial corrosion



Operator's cabin with superficial corrosion



Operator's cabin with superficial corrosion



Interior, sound

Operator's cabin



Operator's cabin exterior with excessive corrosion



Operator's cabin exterior with excessive corrosion (and one inoperative flood light)



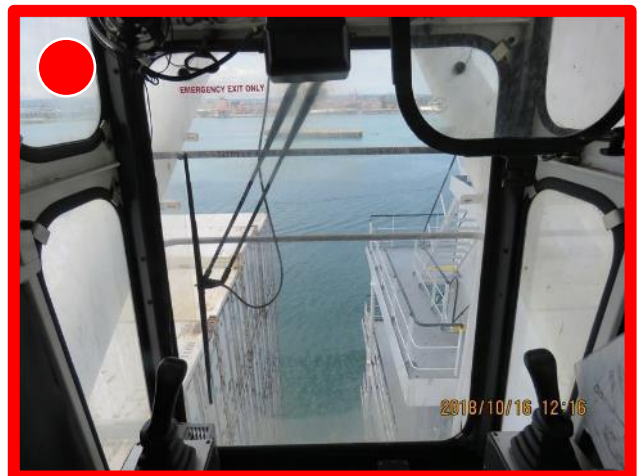
Cabin structure excessively corroded / local wastage



Inside view: cabin structure wasted



Floor window obscured



Dirty side windows

Crane machinery



Sound hoses, couplings coated



Anti-corrosion tape on slewing motor couplings



Superficial corrosion on valve block



Progressive corrosion on valve block



Hoses sound, shiny appearance not related to leakage because there is no dripping of oil

Crane machinery



Hydraulic hoses stained and with paint



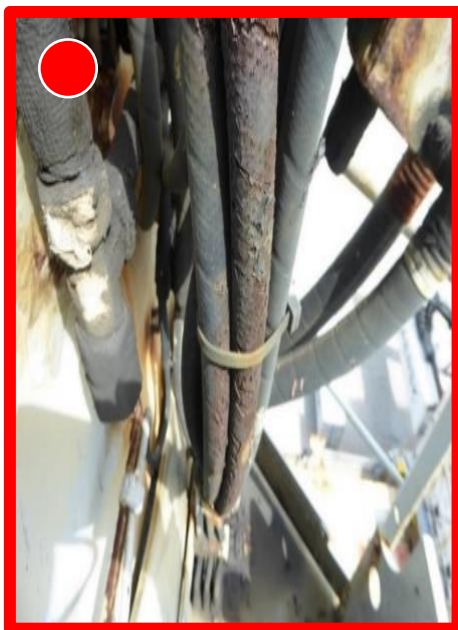
Slewing motors with excessive corrosion



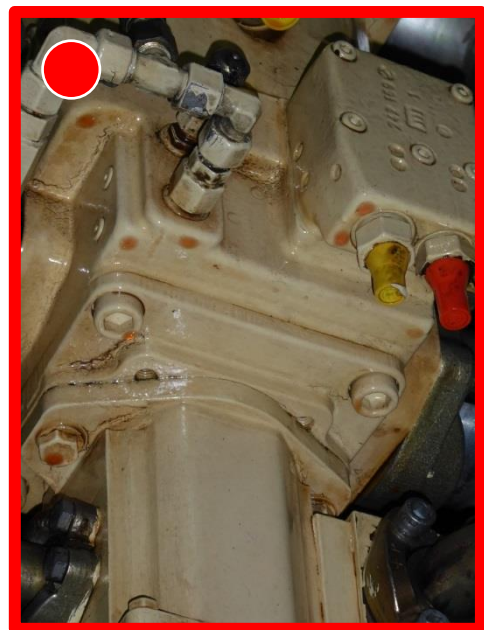
Excessive corrosion on valve block



Excessive corrosion on valve block



Hydraulic hoses worn

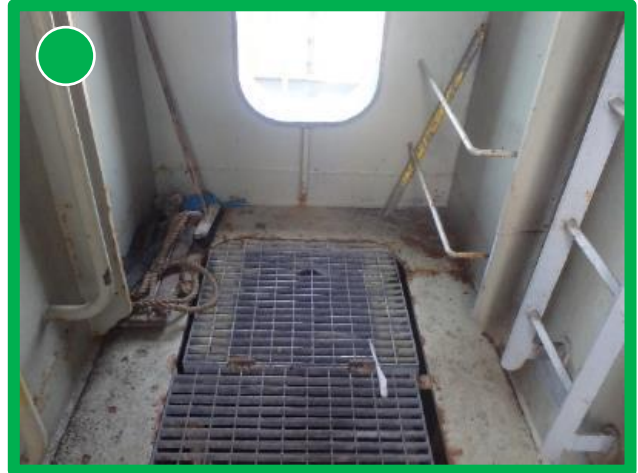


Oil drips adhering on pump

Crane interior



Crane interior, clean and safe



Pedestal entrance, some stored items but not obstructing



Pedestal entrance, some stored items but not obstructing
(passage to ladder is free)



Progressing corrosion on entrance deck

Crane interior



Interior and ladders with excessive corrosion



Interior platform, dirty



Pedestal entrance with objects obstructing passage



Pedestal entrance with objects obstructing passage



Objects in pedestal structure obstructing passage



Intermediate crane platform, oily and slippery