

Inspection Report

General

Vessel name:	MV ANNA-MARIA	IMO No.:	9407469
Engineer:	Mark Wang	Port:	Fujian Huadong Shipyard

1. Job description

Attended on board as per customer's requirement to carry out inspection of hatch cover during DD in Fujian Huadong Shipyard.

2. Equipment description

Hatch cover: Folding type, total 5 cargo holds.
Maker: Macgregor

3. Report

3.1 Hatch cover panels

- Hatch cover back side and skirt plate (lower part of hatch cover side plate) were rusty, suggest to be de-rusted and paint .
- The packing channel in all hatch cover were rust, suggest to be sandblasted first after remove the rubber packing. And then check the packing channel condition again, damaged packing channels to be renewed.
- Hatch cover drain channels are in bad condition, it is recommended to replace the corroded channels after sandblasting or rust removal.
- All resting stools (mating plates) are corroded. Suggest de-rusting and grinding to Smooth.
- Rubber retain channel of all ventilation doors were rusty. Suggest to remove the ventilation doors for maintenance and renew the rubber packing.
- **We found too much wear from intermediate hinge and end hinge, now hatch cover can not be full opened. Too much gap from intermediate hinge, it is very dangerous for hatch cover operation, the pin may come out!! Hatch cover need to be moved ashore for repair. Suggest to do build-up welding and boring the intermediate hinge hole and the end hinge hole.**

- We found that all running wheels were worn out heavily. It is very dangerous for hatch cover operation. According to spare list of shipside, ship have spare parts of whole ship including bush. Suggest to replace all running wheels.

3.2 Sealing

- Most of hatch cover rubber packing are too much over-compressed and permanent deformed, we suggest to renew all rubber packing and also repair the rusty rubber channels. After renew the rubber packing, we will make measurement and adjustments for hatch cover resting pads and guide stoppers to ensure hatch cover in proper rubber compression and good weathertightness.
- According to shipyard removed rubber packing of meeting joint, we found that rubber doubler was installed before in NO.1 and NO.2. Suggest to install original rubber doubler before install rubber packing in NO.1 and NO.2 meeting joint.
- Hose test / UT test should be carried out after complete all repairs.

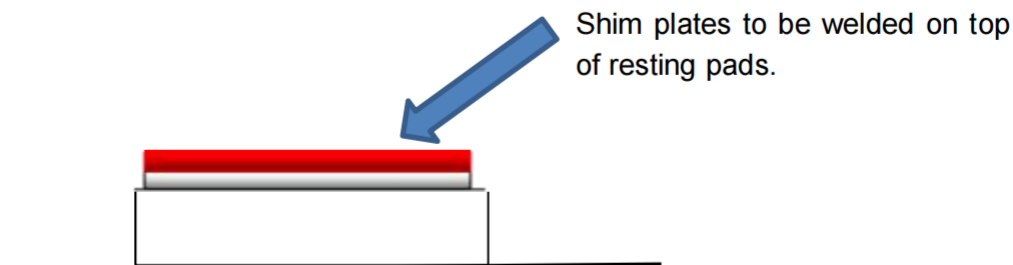
Notes for rubber packing installation:

- 1) Install rubber corner and rubber end first and then install straight rubber packing.
- 2) Straight pieces must be cut to nominal length +1%. Suggest to fit straight rubber packing from bottom to the top when hatch cover opened in "A" position. packing joints should be applied with sikiaflex.
- 3) Do not mix up the different rubber corners.
- 4) Rubber corners should be lubricated by vanseline/Molykote.

3.3 Bearing pad

- Steel to steel bearing pad system. The bearing pads which would cause hatch cover sitting on coaming. The bearing pads will be adjusted by welding one shim plate on the top of resting pads. The bearing pads will be measured and adjusted in final step after renew the rubber packing.

- The sliding surface of bearing pads to be greased to reduce wears down.



Please note:

- 1) Before fix the shim plates, the top of resting pad should grinding to smoothly.
- 2) Prepare sample plate 15x100x100mm 16pcs for gap measurement of resting pad.
- 3) Only tack welding for new shim plates before final checking. Hatch cover need to be closed for checking and confirm the adjustment of bearing pads, once satisfied, then full welding to be done.

3.4 Coaming

- Coaming top including the water drain gutter and rail tack way were rusty, suggest to be sandblasted and paint.
- The crutches of quick acting cleats were rusty, need to be descaled and paint. And quick acting cleats suggested to be removed for maintenance.
- The water drain valve was in normal, and water drain valves to be removed or plug the drain pipes for protecting the valves from sands/ dirty during dock repair. sandblasting. Before ship sailing , all drainage valve to be fit back in position and remove the plug to ensure the water drainage be free.

3.5 Hydraulics & operation

- The working pressure for hydraulic pump were checked that No.1 is 14 Mpa, and No.2 is 14 Mpa. And after adjusted pressure and then checked the pressure No.1 14 Mpa, No.2 15 Mpa. We have to renew No.1 and NO.2 hydraulic pumps due to can not build up the pressure. (normal pressure is 28 Mpa)

- No leakage was found for hydraulic hose of hydraulic cylinder ,but which was aged,suggest to keep some spares for emergency use.
- No leakage was found for the directional valve,but which was rusty and aged, suggest to keep some spares for emergency use.
- No leakage were found for hydraulic hose of the control stand,but which was aged,suggest to keep some spares for emergency use.
- By-pass valve was in normal.
- Suggest to check all grease points (e.g. cylinder hinges, end hinges, intermediate hinges, wheels) to make sure they are still working well. If found the point is hard to apply grease, it to be dismantled for further checking and repairing

4. Suggest Spare Part for repairs

Item	Description	Quantity	Remarks
1	Rubber packing corner packing 1021571	2pcs	
2	Rubber packing corner standing 1021572	6pcs	
3	SIKAFLEX 221	10pcs	
4	MacGregor glue tite 5KG/PACK	10pcs	
5	MacGregor glue 20G	10pcs	
6	Hydraulic pump of hatch cover	2pcs	For renew
7	Direction valve	1pcs	For spare
8	Hose of cylinder	10pcs	
9	Hose of control valve block	15pcs	

5. Pictures



the condition of the HC backside and skirt plate



Rubber channel was rusty



the condition of drain channel



Rubber channel was rusty



Mating plate was rusty



Rubber packing of ventilation



Intermediate hinge was worn out heavily



Some covers can not full open



End hinge was worn out heavily



Running wheel was worn out heavily



the condition of rubber packing



the condition of rubber packing



the condition of rubber packing



Rubber doubler of meeting joint



Resting pad was rusty



Drain gutter was rusty





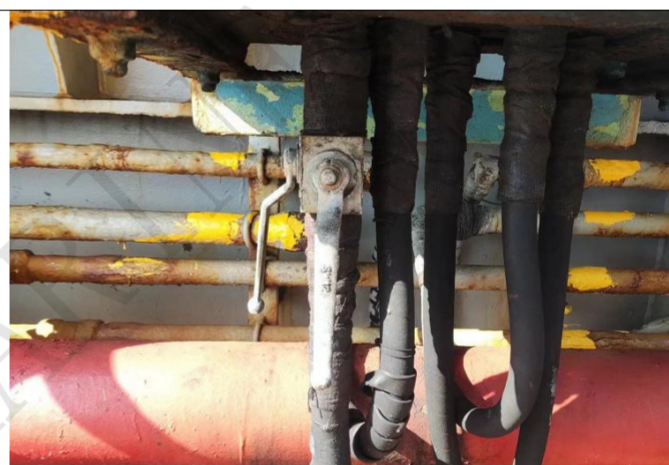
Pressure of the pump



Electric current of the pump



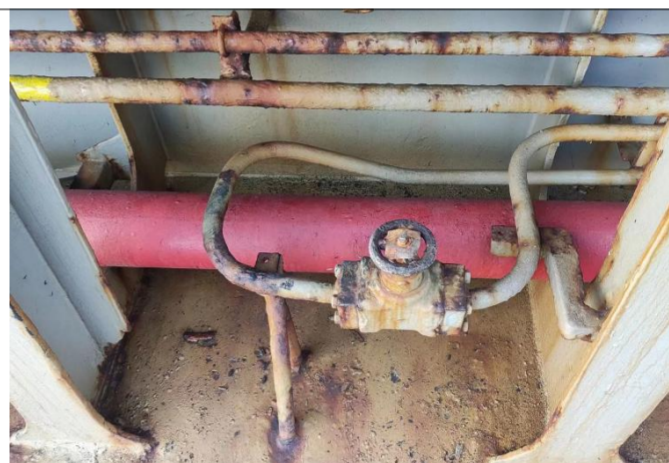
System pressure of pump



Hose of control valve block



the condition of the control valve block



By-pass valve of hatch cover



Condition of cylinder



Grease pipe of intermediate hinge

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Summary of Repair suggestions

- 1) Renew all hatch cover rubber packings;
- 2) Repair all intermediate hinge and end hinge;
- 3) Sandblast the rubber channels and renew the poor ones;
- 4) Sandblast the drain channels and renew the poor ones;
- 5) Maintenance all ventilation of hatch cover;
- 6) renewal poor hydraulic pipe;
- 7) Replace all running wheels;
- 8) Renew two hydraulic pumps;
- 9) De-rust the hatch cover panel/ coaming top /rail tack way/ resting pad / resting stool(mating plate)/position stopper/ touch block;
- 10) Hatch cover service engineer must attend for measurement work 、 resting pads
- 11) adjustments 、 hatch cover operation final commissioning 、 hatch cover weathertight adjustments/test.

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