

**ATTACHMENT ONE**

**M/V EMERALD ISLE WORK PACKAGE SPECIFICATIONS**

***Brand names specified are used as an example of the quality, performance, and industry standards desired of the equipment/products/and materials. Approved equals must be approved by BITA/BIBCO.***

**1/4/2022**

Documents/Drydock2021/Work Pack Specs

## ***Project A***

### ***Shaft/Bearings***

Shipyard to order one new shaft for the starboard side and bearing sets for both the starboard and port side. If not needed will be used as spares.

Starboard alignment checked while in the water and after entering drydock. (Unable to do so in September. The starboard shaft could not be disconnected from the transmission.)

If needed the shafts and bearings removed and inspected. Troubleshoot and replace/blue fit if needed.

Send out old shaft if replaced and determine if useable/repair/ and ship to 103 Bridge Street, Charlevoix, MI 49720 if work can't be completed before vessel leaves the yard.

Leave shafts unbolted and check alignment after entering water. Troubleshoot and bolt in place.

Existing coupling on starboard side has a lip that makes it difficult for bolting. Machine down lip at least 1/2".

## ***Technical and Parts***

### ***Shaft***

The shaft is supported without liners by two water lubricated bearings in the vessel. The shaftline arrangement is detailed on the original construction drawing H56-G01-02, revision C (Attachment 6). Alignment is to be completed according to the Caterpillar Mounting and Alignment Instructions (Attachment 6) and the Twin Disc Alignment Guide (Attachment 6).

The shaft shall be 6 inch diameter, alloy 17-4 PH stainless steel boat shafting, ("Aquamet 17" or equal), centerless ground, having 135 ksi ultimate tensile strength. The shaft length given by reference (2) is around 27'- 2" (326 inches). See Attachment 6 for exact measurements and details.

The shaft diameter, straightness and surface finish shall all be verified and documented to be within the manufacturing tolerances published by the material supplier.

At the propeller end the shaft shall be tapered, keyed and threaded in accordance with SAE standard J-755.

Keyway ends at each end of the shaft shall be "spooned" for stress relief.

Documentation reports for the shaft diameter, straightness and surface finish shall all be furnished to the BIBCO/BITA.

### ***Bearings***

2	cutlass bearings	861532101	Size 6" ID x 7.75" OD x 24" LG
2	stave bearings	806720152	L-0600-0800x6 C2 16.5 secured
2	compression head	806416131	0600-0614
16	socket head cap screws	893161600	5/8x1-1/4 18-8 SST
16	lock washer Hi Collar	891371601	5/8 18-8 SST

Make recommendations if another and type of bearing should be added to the shaft for support at a future drydocking.

### ***Project B***

#### ***Five Year Inspections***

Prepare vessel and assist the United States Coast Guard with the five-year inspections per CFR 46.

Make all necessary repairs and return vessel to working order.

### ***Project C***

#### ***Propellers/Rudders***

Remove rudders inspect and reinstall.

Remove propellers and install Kruger propellers (owner supplied)

Send out Khalenburg propellers taken off vessel for balancing/repairs and ship to 103 Bridge Street, Charlevoix, MI 49720 if work can't be completed before vessel leaves the yard.

Make any necessary repairs.

### ***Project D***

Inspect potable water pipes for cleaning and or replacement.

Inspect fuel delivery supply line to tank for cleaning and or replacement.