



43 GAYLORD ROAD, ST. THOMAS, ONTARIO, CANADA N5P 3R9
TELEPHONE: 519-637-1855 FACSIMILE: 519-637-1848

ARVA INDUSTRIES INC.

**MODEL PE48M
PEDESTAL CRANE
CCGS LIMNOS**

ON VESSEL ACCEPTANCE TEST REPORT

CRANE SERIAL NUMBER: 1831-171660

SPECIFICATION 501.06 AMENDMENT # 3

11, 13 & 17 of May 2010

DOCUMENT APPROVALS

ARVA INDUSTRIES INC.

ENG. MGR.

Shawn Smith

Q.A. MGR.

Michael Lewis

ENGINEER

Michael Sargeant P.Eng.

T.C. ONTARIO
REGION INSPECTOR

Miroslav Cekic

Senior Marine Safety Inspector

CCGS Q.A. INSPECTOR

Wayne Cottle

CRANE MODEL PE48M

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Crane Serial Number: 1831-171660

Test Date: 11, 13 & 17 of May 2010

1.0 CRANE COMPONENT WEIGHT:

Pedestal Assembly	9,240 lbs
Boom Assembly (With hoist and cable & less hook block)	10,579 lbs
Total Weight at Shipping	19,819 lbs

2.0 INSTALLATION ONTO VESSEL

- Install the assembled crane onto vessel and torque swing bearing bolts to 800 ft/lbs dry. Swing stop switch and ramps must face the bow of the ship.
- Connect electrical wiring at collector ring assembly and to ships power. Reference Electrical Schematic A-123156. Check correct rotation of motor/pump assembly.
- Reeve hoist for 6-part lift with hook block.

3.0 FUNCTION & OPERATIONAL NO LOAD TEST

With crane connected to electrical power, check function directions, limit switch operation and proper function cut-out of anti two-block and swing. Check control, feathering, braking and limit switch operations with no load. Check flood light operation. Check operation of swing stop system, system stop to be set on board ship.

Left Hand Swing Limit: Good

Right Hand Swing Limit: Good

3.1 Swing Control: (Check Feathering)

Speed (one (1) rpm required)	Right Time: 45 seconds
Speed (one (1) rpm required)	Left Time: 42 seconds

Comment: Had to extend cut out ramp to ensure boom light clearance.
Completed May 22 2010.

3.2 Boom Lift & Lower:

Control (Check Feathering)	
Speed up: (0 to 75 Degrees)	26 seconds
Speed down: (75 to 0 Degrees)	20 seconds

Comment: Replace holding valves – boom bounces when feathering with no load. Changed ratio from 3:1 to 1.5:1.

3.3 Main Hoist:

Control (Check Feathering) Reeved 6 part line

Speed up: (50 fpm required, at hook) 30' (65 seconds)

Speed down: (50 fpm required, at hook) 30' (65 seconds)

Single Line speed specified 100 to 250 fpm.

Comment: Six part line.

3.4 Load System: To be function tested for proper operation. Set to 10,000 lbs @ 30 ft. radius See chart for maximum and minimum radius and load capacity. Check maximum load operation of 30,000 lbs @ 10 ft.

Comment: 10,000 lb @ 30', load monitor ok.

9.9 @ 30 ft – system cut out envelope radius 30'

Weight 9,946 lbs + 346 lbs hook block

Transport Canada requested check at maximum load at 10 ft (approximately 3 meters) and minimum load at maximum extension (per boom markings). Completed.

4.0 OVERLOAD & PROOF TEST

NOTE: Function circuit pressure may have to be temporarily increased to make some of the following test lifts.

Lloyds Structural Load test to consist of 1.33 times rated moment to be imposed onto crane and support structure.

Crane is to be loaded with the boom horizontal and the main hook at a 30 ft. radius, lift cylinders are to be bottomed out.

A measurement is to be taken at boom tip to ship's fixed point with no load imposed and documented.

Test load to be imposed is: Total of **13,300 lbs.** @ 30 ft. radius

Load may be lifted with hoist and reeved with 6 part line.

Load is to be imposed for five (5) minutes.

Measurement before imposing load: (Boom End) 8'1"

Measurement after imposing load: (Boom End) 8'

After load is removed, crane structure and support is to be inspected and checked for deformation by re-measuring distance from boom tip to previously fixed location on deck. Verify that the after test height is approximately the same as the original (within a 1/2").

Comment: Transport Canada requested that load test consist of 1.25 rated maximum load be imposed. Crane was loaded with the boom horizontal and at full extension. First test was 4,100 lbs at 12.2 meters (approximately 40 ft) and second test was 37,500 lbs at 3 meters (approximately 10 ft).

4.1 Hoist Proof Test: (1.33 times rated load)

Lift 16,000 lbs on 2-part line at 26.5 ft radius. Check lifting and braking.

Comment: Transport Canada tested 1.25 maximum load by lifting 37,500 lbs on a 6-part line at 10 ft.

4.2 Boom Proof Test: (1.33 times rated load)

Boom up and down with 16,000 lbs load at 26.5 ft radius. Observe up and down function.

Comment: Not tested.

4.1 Swing Proof Test: (1.33 times rated load)

Swing left and right with 16,000 lbs load at 26.5 ft radius. Observe start and stop of function.

Comment: Not tested.

5.0 PERFORMANCE TEST WITH RATED LOADS

5.1 Anti Two-Block Operation:

Check operation of anti two-block ensuring that boom function is also cut off. Boom must not lower, extend or hoist raise when anti two-block is actuated.

Comment: A2B work -Cut out function operational

Swing cut out works

Swing override works

5.2 Main Hoist: Lift 12,000 lbs. load at 25 ft. radius. Measure hoist speed and check hoist lower brake. This test verifies single part line pull of 6,000 lbs on 3rd layer.

Up: Time _____, Distance _____, Speed _____

Down: Time: 21.93, Distance: 10', Speed: 36' per minute

With 6-part hook hoist hook speed to be a minimum of 50 fpm with 12,000 lb load.

Hoisting Pressure: 1300 psi , Lowering Pressure: 1600 psi

Comment _____

5.3 Swing: With 12,000 lbs at 25 ft. Swing 180 degrees. Swing speed to be one (1) rpm maximum.

Check swing brake operation.

Left: Time: 21 seconds, Speed 0.7 rpm

Right: Time: 21 seconds, Speed 0.7 rpm

Note Swing Pressure: Left 1500 psi, Right 1500 psi,

Comment: Swing was done at 90 degrees. Not tested.

5.4 Boom Lift:

With 12,000 lbs load: Function to be capable of boom up and down at 25 ft. radius. Check for cylinder drift when stopping function.

Boom Luff Up Pressure: 2650 psi, Lowering Pressure: 1200 psi

Comment: Not tested. See #4 test loads.

5.5 Boom Lift Cylinder Leak Test

With 12,000 lbs at 25 ft, lift weight with boom approximately 2 ft and measure distance to ground. Hold for five (5) minutes. Re-measure after five (5) minutes. Take into consideration oil cooling in cylinders.

Original Height: 8-1/2"

Height after five (5) Minutes: 8-1/2"

Comment: Load held for five minutes.

5.6 Electrical Amperage Draw Test

Measure amperage inrush at time of start-up: 370 Amps

Measure amperage draw with pump running: No Load _____
Rated Load _____

Comment: Not tested.

6.0 CLEAN AND FLUSH HYDRAULIC OIL

Following test, oil is to be cleaned as outlined in ISO/TOR10949 to cleanliness of 16/12/10 ISO4406. Hire Lifco to test onboard ship and re-filter if necessary.

Lifco Head Office

250 Martindale Road, St. Catharines, Ontario L2R 6P9

(905) 641-0033 (main phone)

(905) 641-2360 (direct phone)

1-800-313-7022 (main fax)

1-800-895-4326 (toll-free)

Comment: Declined.

7.0 ACCEPTANCE

CCGS: _____

T.C. MO: _____

Arva Industries Inc:

SSN V.P. OPERATIONS 14 June 2010
ARVA IND. INC. Michael G. Sargeant P. Eng. 14 June 2010
Hedde Marine J. McLeod C.A. 15 June 2010