APPENDIX J - BASIC PERFORMANCE TEST

FOR WEIGHT-HANDLING EQUIPMENT OPERATOR LICENSE CATEGORY 1 AND 4 CRANES,

EXCEPT MOBILE BOAT HOISTS AND RUBBER-TIRED GANTRY CRANES

Notes: (1) Prerequisite for this examination is complete familiarity with Standard Hand Signals for Controlling Crane Operations shown in figure 10-1.

1. Performance test requirements shall be supplemented and modified by each activity for the particular operating characteristics and features of their cranes as well as the unique mission of the activity.
2. Performance tests for category 4 cranes shall be modified, as necessary, for the type of crane being used.
3. Notation on Test Forms: A short line is provided before each test item. The examiner shall make a check mark to indicate that the applicant has correctly performed or answered the question. The examiner shall indicate by zero or circle where the applicant fails to perform or answer correctly. The examiner shall provide a short written explanation of all failures. Items that are not applicable shall be marked "NA."

GENERAL INFORMATION:

TESTING ACTIVITY: TEST DATE:

APPLICANT'S NAME:

TO BE COMPLETED BY EXAMINER

MAKE AND MODEL OF TEST CRANE:

TYPE AND CAPACITY (See section 8, paragraph 8.7.3):

RESULTS: SATISFACTORY

UNSATISFACTORY

REMARKS:

SIGNATURE:

GROUP A - PRE-OPERATION INSPECTION

1. PRE-USE CHECK.

Note: The hook should be accessible for inspection.

a. Ensure the crane is currently certified before proceeding.

b. Check the crane for tags or other operational restrictions or warnings.

c. Ensure no repairs are in progress.

d. Ensure no vehicles or objects are in a position where they might be struck by the crane and that no other ground or overhead obstacles and hazards are in the crane parking, travel, and work areas.

e. Perform a pre-use walk around check, a machinery check, and an operator cab check, and document on a Crane Operator's Daily Checklist (ODCL, figure 9-1).

f. Remove wheel chocks, unfasten rail clamps, and remove rail truck spring wedges as required.

1. FAMILIARITY WITH LUBRICATION REQUIREMENTS.

a. Check lubricant levels where accessible and identify points that may require lubrication during periods of operation.

GROUP B - STARTING THE ENGINE

1. Check the position and disengage the master switch, engine clutch, or hydraulic pump drive as applicable.

2. Check controller handles and ensure that they are in neutral.

Note: The operator shall explain to the examiner the function of the control handles and of all other pedals, levers, and switches on the crane.

3. Start the engine in sequence and in the manner prescribed by the OEM.

4. Observe gauges for correct readings and describe purpose of gauges.

5. Allow the engine to warm up as appropriate.

Note: Cranes equipped with air or hydraulic controls shall not be operated until gauges show required operating pressure.

6. Engage the master switch, engine clutch, or hydraulic pump drive as applicable, and watch for uncontrolled movement of the crane, boom, or hook.

7. Continue to warm up the engine as required by the OEM.

Note: The operator shall listen for any indication of improper conditions and shall report these and their significance to the examiner.

GROUP C - TESTING OPERATING CONTROLS

1. Close the main switch if applicable.

2. Perform the operational check portion of the pre-use check and document on the ODCL. If at a location where it is operationally possible to check, the lower limit switch shall be checked.. The applicant and the performance examiner shall sign the ODCL.

3. When direct current is used to operate the test crane, observe ammeters, if any, and state whether or not their readings are proper for the movements made.

GROUP D - TRAVELING

Note: For self-propelled cranes.

1. Rotate the boom to center forward or other position as required by OEM for traveling.

2. Prepare the crane for traveling in accordance with OEM's requirements.

3. Inform the crane rigger, track walker, or railway brakeman of destination and allow him/her to direct the crane during its travel.

4. Proceed to the test area.

GROUP E - OPERATING TESTS

Notes: (1) The following problems assume a full revolving crane. If the crane is a limited-rotation derrick or a mobile crane with restricted rotation due to stability, etc., the examiner shall require that it be rotated in the fullest allowable arc.

1. If it is a floating crane, it is assumed that the crane is moored alongside a dock or barge in still water with little wave action. If the water is rough during the test, the examiner may make allowances for the unsteadiness of the crane when applying the standards of accuracy set forth in these tests.
2. The accuracy levels set forth for these tests are meant to be minimum standards. The activity may, based on local mission requirements, impose more stringent standards.
3. At no stage of testing or operation shall the operator allow cables to become slack enough to become loose on the drums. This is an unacceptable practice and the examiner shall mark this action accordingly.

PROBLEM 1 - TEST FOR ACCURACY

Place an open container or other suitable target within the operating range of the crane. The target shall be at least half the height of the hook block and approximately 12 inches in diameter larger than the largest dimension of the hook block. The target shall be placed on a type of support that will not keep it from being knocked over when struck by the hook block or any other part of the crane. Adjust the boom angle so that the hook is inward from the target, rotate the crane in a complete circle or to its fullest arc, and, without the help of signals, lower the empty hook block into the target without knocking it over. The operator shall make three attempts. A time limit may be imposed by the examiner.

The following actions are considered unacceptable:

a. Failure to accurately place hook. The operator shall, in at least two out of three attempts, lower the empty hook into the target without knocking it over.

b. Failing to keep safe distances from hazards. The operator shall not cause any part of the crane to come within 10 feet of obstructions.

c. Striking. The operator shall not cause the hook to strike the ground, boom, or any object or person.

d. Rotating abruptly. The operator shall not cause the hook to jerk, seesaw, or wobble while rotating.

e. Rotating too rapidly. The operator shall not rotate the crane so rapidly as to cause excessive throw of the hook by centrifugal force.

f. Contacting limit switches.

PROBLEM 2 - LIFTING AND HANDLING HEAVY LOADS

Note: When hammerhead cranes are used, trolley motion shall be substituted where boom motions are requested.

The object or test weights to be lifted in this test should weigh between 25 percent and 50 percent of the rated capacity of the crane and shall be placed at an intermediate position between the crane's minimum radius and the maximum radius for that load. If

applicable, the operator, with such assistance as may be needed, shall extend and secure the outriggers. After the load is staged, properly rigged, and attached to the hook, a line shall be drawn around it on the ground six inches out from its edges. One inch shall be added for every ten feet of radius beyond twenty feet. Upon receiving the proper signal, the operator shall lift the weight to clear the ground. Except for emergency signals, no other signal shall be given during this test. The operator shall then boom-out close to maximum operating radius for the load being lifted, boom-in close to minimum radius, rotate the crane one full revolution or its fullest arc, and then set the load inside the boundary line originally drawn around the weight. When approaching the original position, the examiner, rigger, or a qualified assistant may rotate the load with taglines to conform to the drawn outlines, but without guiding the load into the desired position.

The following actions are considered unacceptable:

a. Failure to accurately place the load. The operator shall, in not more than two attempts, place the load inside the marked area.

b. Failing to obtain a firm level position (Mobile cranes only). The operator shall not handle the load until the crane is in a firm and level position and outriggers deployed, if required.

c. Placing the hook inaccurately. The operator shall place the hook within six inches of the attaching point of the load without taking more than two compensating moves before specific assistance of a rigger is required.

d. Hoisting the load prematurely. The operator shall not hoist until the load has been properly secured, the rigger is clear of the load, and the hoist signal is given.

e. Failing to observe improper rigging. The operator shall inform the examiner whenever, in the opinion of the operator, the rigging appears to be improper or unsafe.

f. Delaying hoist action. The operator shall hoist the load promptly when so signaled.

g. Snapping the load. The operator shall take the slack out of the line in a slow controller position before applying the full hoisting power.

h. Failing to test the brake. The operator shall stop hoisting the load when it is a few inches above the ground or deck and apply the brake to make sure that it will hold the load.

i. Failing to preserve stability. The operator shall not boom down to the extent that the position of the load exceeds the safe operating radius of the crane for the load being lifted.

j. Failing to keep safe distances from hazards. The operator shall not cause any part of the crane to come within 10 feet of obstructions.

k. Striking. The operator shall not cause the hook or load to strike the ground, boom, or any object or person.

l. Rotating abruptly. The operator shall not cause the load to jerk, seesaw, or wobble while rotating.

m. Rotating too rapidly. The operator shall not rotate the crane so rapidly as to cause excessive throw of the load by centrifugal force.

n. Endangering Personnel. The operator shall not position the load over personnel and shall sound a warning for them to stay clear of the crane and the load.

o. Exceeding the allowable swing arc. The operator shall not rotate the crane beyond the allowable swing arc for mobile cranes nor contact limit switches for limited arc cranes and derricks.

PROBLEM 3 - ABILITY TO FOLLOW SIGNALS ACCURATELY

Place a screen or use a bulkhead or building so that the operator cannot see any part of the load or its supporting slings during the operation. The load shall be light enough not to affect the stability or balance of the crane. A competent signal person or rigger shall direct the operator in the following actions:

1. Placing the hook so that the rigger can attach the load.
2. Lifting the load.
3. Placing the load so that the operator must adjust the boom angle and rotate the boom.
4. Allowing a rigger to detach the load.
5. Lifting the hook clear of the load.

The following actions are considered unacceptable:

a. Moving without signals. When working with the aid of a signal person or rigger, the operator shall not move any part of the crane except in response to signals. The operator may stop the crane without signals if he/she feels the signaled move is unsafe.

b. Responding to signals inaccurately. The operator shall take prompt and appropriate action in response to each signal. If the operator fails to

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understand a signal, he/she shall stop the crane until the signal is understood.

c. Responding to "Go" signals abruptly. The operator shall not engage any controller so abruptly as to start any movement with a jerk.

d. Responding to "Stop" signals too slowly. The operator shall not continue any action after being directed to stop.

e. Hoisting the load prematurely. The operator shall not hoist until the rigger is clear of the load and the hoist signal is given.

f. Delaying hoist action. The operator shall hoist the load promptly when so signaled.

g. Snapping the load. The operator shall take the slack out of the line in a slow controller position before applying the full hoisting power.

h. Rotating abruptly. The operator shall not cause the load to jerk, seesaw, or wobble while rotating the crane.

i. Rotating too rapidly. The operator shall not rotate the crane so rapidly as to cause excessive throw of the load by centrifugal force.

j. Failing to obtain a firm level position. The operator shall not handle the load until the crane is in a firm and level position (outriggers deployed if required).

PROBLEM 4 - LIFTING AND HANDLING ODD-SHAPED OR SHIFTING LOADS

Note: For cranes capable of traveling with loads.

Over an approximately 200 linear feet course (suitable for the type of crane being used), lift and carry a light to moderate weight load approximately 20 feet long. Pipe, beams, logs, or loose lumber are acceptable. Place the load at the end of the course as directed by the examiner. A ground man or rigger using a tagline to control excessive swing or rotation of the load shall assist the operator.

The following actions are considered unacceptable:

a. Failing to maintain a firm level position. The operator shall not handle or travel with the load unless the crane is in a firm and level position that can be maintained through the travel operation.

b. Hoisting the load prematurely. The operator shall not hoist until the load has been properly secured and the rigger is clear of the load and the hoist signal is given.

c. Failing to observe improper rigging. The operator shall inform the examiner whenever, in the opinion of the operator, the rigging appears to be improper or unsafe.

d. Delaying hoist action. The operator shall hoist the load promptly when so signaled.

e. Snapping the load. The operator shall take the slack out of the line in a slow controller position before applying the full hoisting power.

f. Failing to test the brake. The operator shall stop hoisting the load when it is a few inches above the ground or deck and apply the brake to make sure that it will hold the load.

g. Failing to preserve stability. The operator shall not boom down to the extent that the position of the load exceeds the safe operating radius of the crane for the load being lifted.

h. Failing to keep safe distances from hazards. The operator shall not cause any part of the crane to come within 10 feet of obstructions.

i. Striking. The operator shall not cause the hook or load to strike the ground, boom, or any object or person.

j. Rotating abruptly. The operator shall not cause the load to jerk, seesaw, or wobble while rotating.

k. Rotating too rapidly. The operator shall not rotate the crane so rapidly as to cause excessive throw of the load by centrifugal force.

l. Endangering Personnel. The operator shall not position the load over personnel and shall sound a warning for them to stay clear of the crane and the load.

m. Improper Configuration. The operator shall position the boom only as allowed by the OEM for pick and carry operations. The operator shall engage the spud lock (rotate luck) if required by the OEM.

GROUP F - RETURNING, STOPPING AND SECURING THE CRANE

1. Travel the crane to the designated parking area.

2. Set the boom at approximately 45o angle with the hook block hanging 4 to

8 feet below the boom point sheaves or place the boom in the boom cradle if required.

3. Rotate the boom into the proper location to set the house or wind lock.

4. Set all controllers in neutral, set all drum pawls, and open the master switch. Disengage the engine clutch or hydraulic pump drive as applicable.

5. Stop the engine as prescribed.