

Test Report No. 2312A
Qualification Test Procedure
for the
Applied Design Company Model 927A
Metal Shipping and Storage Container
for
Combustion Engineering, Inc.
Fuel Bundle Assembly

APPLIED DESIGN COMPANY, INC.
Tonawanda, New York 14150

November 25, 1968

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Reference A

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1.0 Purpose

It is the purpose of this Qualification Test Procedure to present a plan for testing Container, Applied Design Company's Part No. 927A for Combustion Engineering, Inc. for functional conformance to the applicable specification.

2.0 Applicable Documents

Applied Design Company Drawing 927A1, Container
Combustion Engineering, Inc. Specification Code MFG-03-01

3.0 Facilities

Hoist for rough handling and hoisting tests.

Quick release mechanism, mechanically actuated.

Cables and connections as required to conduct impact test as described in a later section herein.

Barrier as required to conduct impact tests.

Wood blocking as required to conduct rotational drop test.

Fork lift truck for lifting and towing tests.

Crane hoist for 30-foot drop test.

3.1 Test Equipment

15 psig. minimum range pressure measuring device.

✓ Three acceleration sensing elements and recording equipment capable of measuring plus or minus 25 vector g's with an accuracy of plus or minus ten per cent.

3.2 Utility Requirements

13 psig. minimum air supply

Electrical power for instrumentation.

4.0 Documentation

A log will be kept of the test data. Photographs will be taken before and after the testing program.

5.0 Tests

Tests shall be conducted in the order of listing.

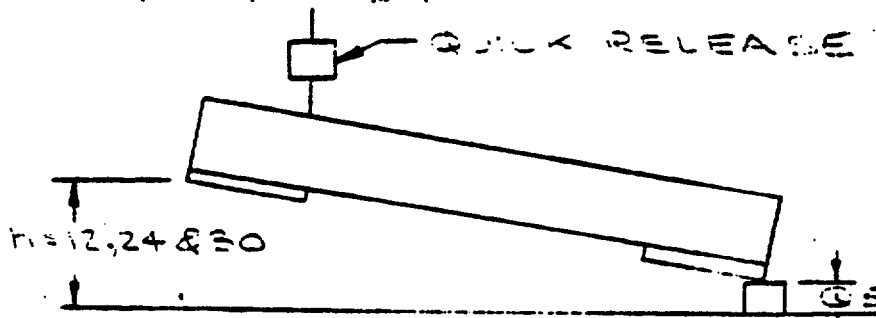
5.1 Install dummy units. This will be accomplished at Combustion Engineering, Inc. A log will be kept of this operation to establish a procedure.

5.2 Unloading Test in accordance with Paragraph 4.4.10 will be conducted at Combustion Engineering, Inc. Remove the dummy units from the strongback. The removal of the Fuel Bundle Assemblies will be observed and a log kept of this operation to be used in establishing a procedure. Reinstall dummy as accomplished in Paragraph 5.1 and ship container to Applied Design Company.

5.3 Pressurize container to 5 psig. and maintain this pressure for one hour. This test is performed upon return of the loaded container from Combustion Engineering, Inc.

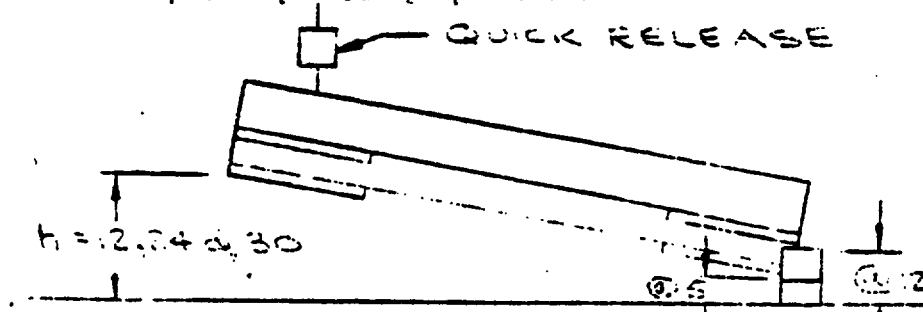
5.4 Conduct the following Drop Tests:

5.4.1 Edgewise Drop Test per Paragraph 4.4.3.2



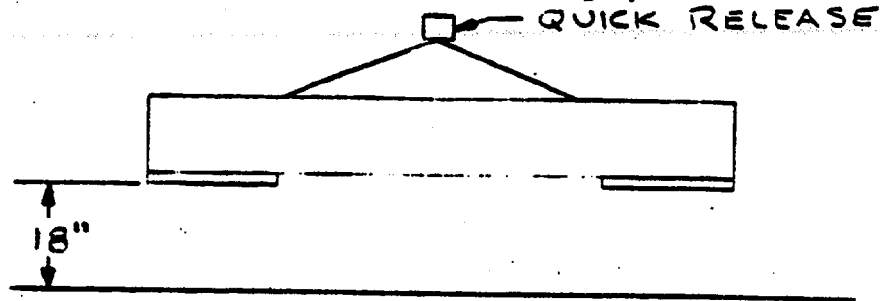
This test is performed on each end of the container.

5.4.2 Cornerwise Drop Test per Paragraph 4.4.3.3



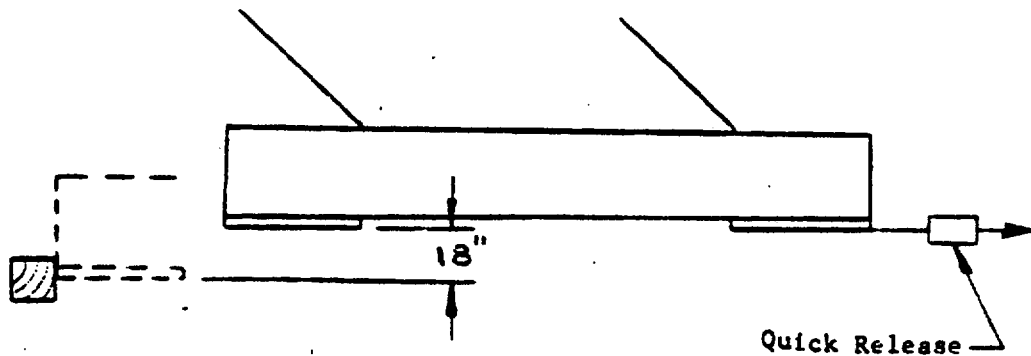
This test is performed on diagonally opposite corners of the container.

5.4.3 Flatwise Drop Test in accordance with Paragraph 4.4.3.1

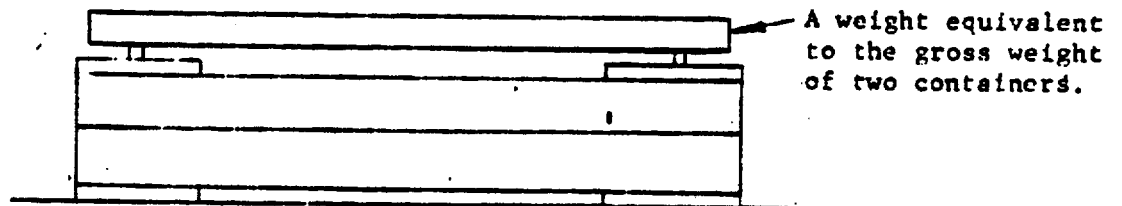


Roll-over test in accordance with Paragraph 4.4.4 of the Specification.

5.4.4 Impact Test in accordance with Paragraph 4.4.5.2



5.5 Stacking Test in accordance with Paragraph 4.4.6 of the Specification.



A weight equivalent to twice the gross weight of a loaded container is placed on the stacking brackets of the test container and allowed to rest for two minutes, to illustrate there is no yielding.

5.6 Hoisting test in accordance with Paragraph 4.4.7 of the Specification. The loaded container is lifted free of the floor by each of its lifting eyes and held for two minutes.

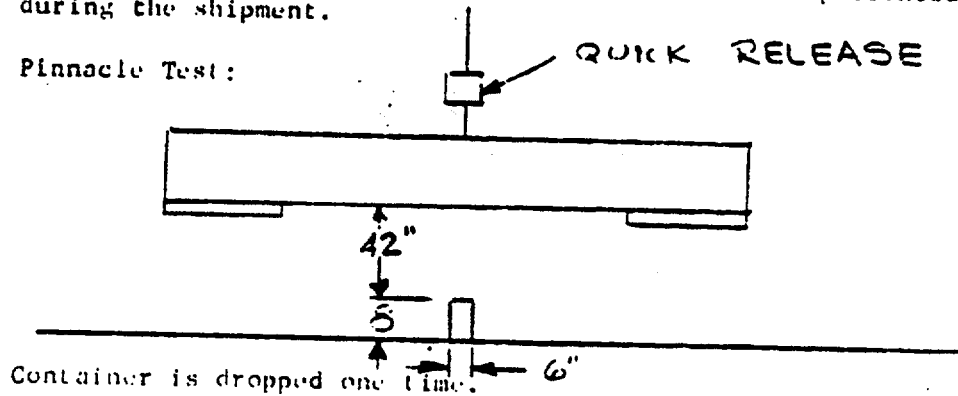
5.7 Lifting test in accordance with Paragraph 4.4.8 of the Specification. This test requires that the loaded container be transported 100-feet by a fork lift truck. This test requirement will be fulfilled many times in handling during the testing program.

5.8 Towing test in accordance with Paragraph 4.4.9 of the Specification. This test is conducted connecting the container to the towing eyes and towed for a distance of 50-feet in one direction and then the tow is passed on the other end of the container and container is towed back to the original location.

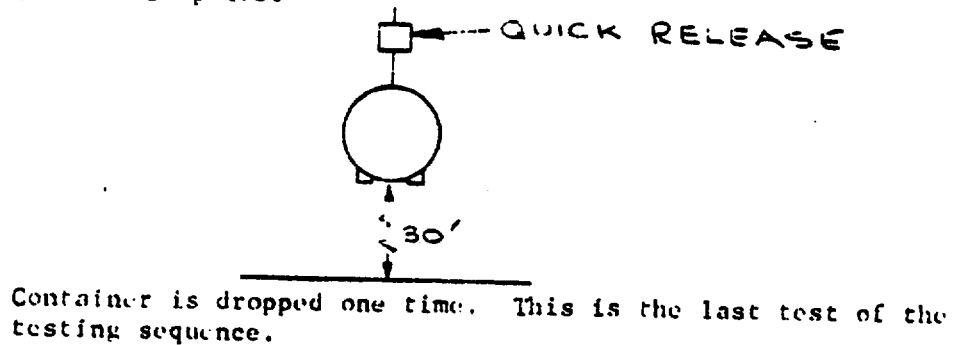
5.9 Shipping Test

This test is the return shipment from Combustion Engineering. Clay will be placed between the suspension frame and the container shell to determine the maximum deflection experienced during the shipment.

5.10 Pinnacle Test:



5.11 30-Foot Drop Test



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