

# Environmental Testing of Pelican Cases

## MIL C-4150J



**WYLE LABORATORIES Inc.** IN THE USA HAVE PERFORMED THE FOLLOWING TESTS TO THE MIL C-4150J STANDARD ON THE PELICAN CASES LISTED:

1400, 1450, 1470, 1500, 1520, 1550, 1600, 1620, 1650 & 1700.

THE MIL-C-4150J TESTS THE FOLLOWING:

WEIGHT, LEAK, REUSABILITY, HANDLING, VIBRATION, IMPACT AND DROP.

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### **WEIGHT**

VISUALLY INSPECT THE TEST SPECIMEN. WEIGH THE TEST SPECIMEN, MEASURE THE INSIDE LENGTH, WIDTH, BASE AND LID DEPTH. ESTABLISH THE MINIMUM WEIGHT REQUIRED DURING FIRST ARTICLE TESTING IN ACCORDANCE WITH MIL-C-4150J (see page 3).

### **LEAK**

VISUALLY INSPECT THE TEST SPECIMEN. PLACE THE TEST SPECIMEN IN A SUBMERSION TANK. VERIFY THE UPPER MOST SURFACE IS BENEATH THE WATER SURFACE NOT LESS THAN ONE INCH OR MORE THAN TWO INCHES. VERIFY THE WATER TEMPERATURE IS NOT LESS THAN 40F BELOW THE TEMPERATURE AT WHICH THE SPECIMEN IS SEALED. ALLOW THE TEST SPECIMEN TO SOAK FOR ONE HOUR.

N.B. THE LEAK TEST IS PERFORMED BEFORE AND AFTER EVERY OTHER TEST.

### **REUSABILITY**

VISUALLY INSPECT THE TEST SPECIMEN. OPEN AND CLOSE THE TEST SPECIMEN 5 TIMES. NO TOOLS OR OTHER AIDS ARE TO BE USED. VISUALLY INSPECT THE TEST SPECIMEN FOR DEGRADATION. EASE OF OPERATION AND FREEDOM FROM INTERFERENCE SHALL CONSTITUTE ACCEPTANCE.

### **HANDLING**

VISUALLY INSPECT THE TEST SPECIMEN. LOAD THE SPECIMEN WITH THE APPROPRIATE TEST LOAD AS SPECIFIED IN THE WEIGHTS TEST RESULTS (see page 3). SUSPEND THE CASE A SUFFICIENT DISTANCE FROM THE FLOOR TO THE

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(Cont. Handling)

GROUND BY ONE HANDLE, OR LIFTING RING, FOR A MINIMUM OF TWO MINUTES. PERFORM A VISUAL INSPECTION FOR DAMAGE, FAILURE OR DEFORMATION.

## **VIBRATION**

VISUALLY INSPECT THE TEST SPECIMEN. LOAD EACH TEST SPECIMEN WITH THE APPROPRIATE TEST LOAD AS SPECIFIED IN THE WEIGHTS TEST RESULTS (see page 3). PLACE THE TEST SPECIMEN ON A VIBRATION MACHINE. EACH SPECIMEN IS TO BE TESTED ON ALL POSITIONS IN WHICH THE SPECIMEN MIGHT BE SHIPPED. IF MORE THAN ONE SHIPPING POSITION IS REASONABLE, INTERRUPT THE TEST AT EQUAL PERIODS OF TIME, AND CHANGE THE POSITION. MIDWAY IN THE PERIOD OF TIME THAT THE SPECIMEN IS TESTED RESTING ON EACH SURFACE, THE SPECIMEN SHALL BE ROTATED 180 DEGREES, IF THE SPECIMEN ROCKS ON THE PLATFORM.

THE VIBRATION PLATFORM WAS STARTED AT A FREQUENCY OF 3-HERTZ AND ONE INCH DOUBLE AMPLITUDE. STEADILY INCREASED THE FREQUENCY UNTIL THE SPECIMEN LEAVES THE PLATFORM, I.E. UNTIL A SHIM 1/16 INCH THICK COULD BE EASILY SLID UNDER THE TEST SPECIMEN. UNLESS FAILURE OCCURS, THE TOTAL TIME FOR THE VIBRATION SHALL BE TWO HOURS IF THE SPECIMEN IS TESTED IN ONE POSITION, AND THREE HOURS IF TESTED IN MULTIPLE POSITIONS.

## **IMPACT**

VISUALLY INSPECT THE TEST SPECIMEN. PLACE THE TEST SPECIMEN IN A CHAMBER. INSTALL A THERMOCOUPLE ON THE TEST SPECIMEN. INCREASE THE CHAMBER TEMPERATURE TO +60C (+6/-0) AT A RATE THAT WOULD PRECLUDE THERMAL SHOCK. ALLOW THE TEST SPECIMEN TO SOAK AT +60C (+6/-0) UNTIL STABLE.

AFTER THE TEMPERATURE SOAK, REMOVE THE TEST SPECIMEN FROM THE CHAMBER AND LOAD THE TEST SPECIMEN WITH THE APPROPRIATE TEST LOAD AS SPECIFIED IN THE WEIGHTS TEST RESULTS (see page 3). SUBJECT THE TEST SPECIMEN TO ONE INCLINE IMPACT ON EACH SURFACE.

PERFORM THE SAME PROCEDURE IN THE CHAMBER, BUT THIS TIME DECREASE THE TEMPERATURE TO -20C. AFTER THE TEMPERATURE SOAK, REPEAT THE IMPACT TEST WHILST LOADED WITH THE SAME WEIGHTS.

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## **DROP**

VISUALLY INSPECT THE TEST SPECIMEN. PERFORM THE SAME PROCEDURE AS FOR THE IMPACT TEST IN THE TEMPERATURE CHAMBER (+60C).

AFTER THE TEMPERATURE SOAK, REMOVE THE TEST SPECIMEN FROM THE CHAMBER, AND LOAD THE TEST SPECIMEN WITH THE APPROPRIATE TEST LOAD AS SPECIFIED IN THE WEIGHTS TEST RESULTS (see page 3). DROP THE SPECIMEN, AT THE HEIGHT DESIGNATED IN THE WEIGHTS TEST RESULTS (see page 3), IN EACH OF THE FOLLOWING ORIENTATIONS (8 drops).

- CORNERWISE DROP ON EACH OF TWO SETS OF DIAGONALLY OPPOSITE CORNERS.
- FOLLOWED BY ONE FLAT DROP ON THE BOTTOM.
- ONE FLAT DROP ON THE TOP.
- FLAT DROPS ON TWO ADJACENT SIDES.

REPEAT THE DROP TESTS AS ABOVE, BUT FIRST RE SOAK THE CASE IN THE TEMPERATURE CHAMBER AT A TEMPERATURE OF -20C.

## **WEIGHT AND DROP TABLE FOR PELI CASES**

	<b>MINIMUM</b>	<b>DROP</b>	<b>DROP</b>
<b>CASE MODEL</b>	<b>WEIGHT REQUIRED</b>	<b>WEIGHT</b>	<b>HEIGHT</b>
1400	19.84 LBS	24 LBS	30"
1450	19.84 LBS	25.6 LBS	30"
1470	19.84 LBS	24 LBS	30"
1500	19.84 LBS	26.6 LBS	30"
1520	29.76 LBS	38.2 LBS	25"
1550	49.60 LBS	60 LBS	21"
1600	49.60 LBS	61.6 LBS	21"
1620	90.39 LBS	111.1 LBS	18"
1650	70.55 LBS	91.6 LBS	19"
1700	49.60 LBS	64.8 LBS	21"

THE ABOVE INFORMATION IS TO BE USED AS A GUIDE ONLY FOR THE TESTING PROCEDURE OF THE MIL STANDARD. IF YOU REQUIRE MORE DETAILED INFORMATION ON A SPECIFIC PELICAN CASE, PLEASE CONTACT PELICAN PRODUCTS.