Epsilon
Compliance

# *INGRESS PROTECTION TEST CERTIFICATE*

**Epsilon Certificate Number:**

03TEST1242

**This certificate is issued for the following equipment:**

Pelican Protector Case Range; 1010, 1020, 1030, 1040, 1050 and 1060.

**Manufactured and submitted by:**

Pelican Products Inc.
23215 Early Avenue
Torrance
CA 90505
USA

**This Certificate is issued subject to the conditions of Epsilon Compliance and any additional conditions as may be prescribed.**

**European Standard**

EN60529: 1992 Incorporating Amendments Nos.1 and 2

**International Standard**

IEC529: 1989

**Ingress Protection Rating:** IP67

**This is to certify that the above apparatus has been tested in accordance with the requirements of EN60529: 1991 Incorporating Amendments Nos.1 and 2 and IEC529: 1989 and offers a degree of protection IP67.**

**Project Number:** ETS0693/A/1

**Issue Date:** 21st July 2003

On Behalf of Epsilon Compliance

S L D'Henin
Certification Manager

ASCB(E) Accrediting Certifying Bodies.

**This certificate may only be used in its entirety and without change**

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# Certification Report

## Ingress Protection Report

Checked: A Moran
Approvals Engineer

Author: S D'Henin
Principal Approvals Engineer

Date: 22 July 2003

INGRESS PROTECTION REPORT

Equipment: Pelican Protector Case Range; 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660.

Company: Pelican Products Inc.

Report No: RETS(P)0693/A/1

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# TEST REPORT

Author: A. Moran
Approvals Engineer

Carried out by Epsilon Compliance on behalf of:

Pelican Products Inc.
23215 Early Avenue
Torrance
CA 90505
USA.

*Commercially in confidence*

## 1 INTRODUCTION

**Equipment:** Pelican Protector Case range 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660.

**European Standards:** EN60529: 1992 incorporating Amendments Nos.1 and 2 (Degrees of protection provided by enclosures)

**Assessments and Tests Conducted Between:** 22nd April – 22 July 2003

**Samples Received:**

| Sample | Quantity | Serial Number | Date Received at Epsilon |
|---|---|---|---|
| Micro Case 1010 | 1 | 03/03/2022 | 10th April 2003 |
| Micro Case 1020 | 1 | 03/03/2023 | 10th April 2003 |
| Micro Case 1030 | 1 | 03/03/2024 | 10th April 2003 |
| Micro Case 1040 | 1 | 03/03/2025 | 10th April 2003 |
| Micro Case 1050 | 1 | 03/03/2026 | 10th April 2003 |
| Micro Case 1060 | 1 | 03/03/2027 | 10th April 2003 |
| Large Case 1610 | 1 | 03/03/2000 | 31st March 2003 |
| Large Case 1620 | 1 | 03/03/2030 | 10th April 2003 |
| Large Case 1660 | 1 | 03/03/1998 | 31st March 2003 |

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## 1.1 Description of Apparatus

Pelican Protector Case range 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660, are made of copolymer and are sealed with a neoprene o-ring and secured with ABS latches. They include also an automatic purge valve for quick equalization after changes in atmospheric pressure.
The cases have the following approximate dimensions;

| Sample | Exterior Dimensions |
|---|---|
| Micro Case 1010 | 138 x 103 x 54 mm. |
| Micro Case 1020 | 162 x 121 x 54 mm. |
| Micro Case 1030 | 191 x 98 x 62 mm. |
| Micro Case 1040 | 191 x 129 x 54 mm. |
| Micro Case 1050 | 191 x 129 x 79 mm. |
| Micro Case 1060 | 238 x 141 x 64 mm. |
| Large Case 1610 | 624 x 490 x 303 mm. |
| Large Case 1620 | 630 x 492 x 352 mm. |
| Large Case 1660 | 800 x 581 x 479 mm. |

Micro Cases have two hinges along the back edge, and one locking mechanism along the front edge. A gasket is situated around the rim inside the lower half of the case which is compressed by a lip situated around the rim in the upper half of the case when the case is shut.

Large Cases 1610 and 1620 have two hinges along the back edge, and four locking mechanisms, two along the front edge and one on each side. A gasket is situated around the rim inside the upper half of the case which is compressed by a lip situated around the rim in the lower half of the case when the case is shut.

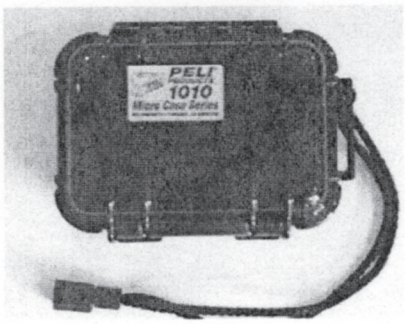
Large Case 1660, has three hinges along the back edge, and seven locking mechanisms, three along the front edge and two on each side. A gasket is situated around the rim inside the upper half of the case which is compressed by a lip situated around the rim in the lower half of the case when the case is shut.

## 2 ASSESSMENTS

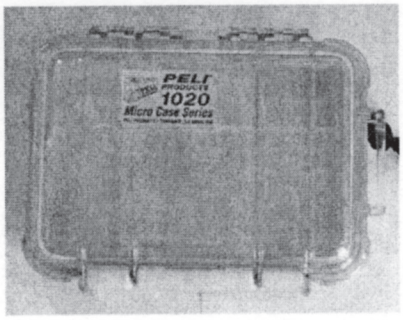
The IP tests were carried out on representative samples for each series provided by Pelican. The selection was made considering the case dimensions and ABS latches as well as distance between them. In each test the worst case representative sample was chosen therefore the test result will be covering the whole case range.

| IP Test | Representative Sample |
|---|---|
| IP6X | 1060 & 1620 |
| IPX6 | 1620 |
| IPX7 | Whole Micro Case Range |

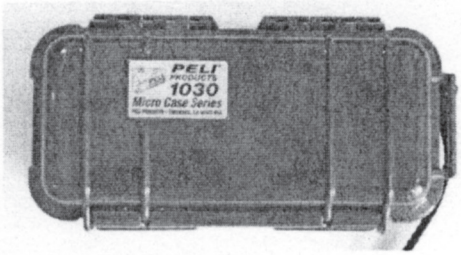
**Micro case 1010**



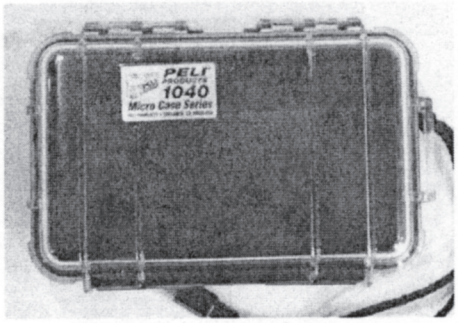

**Micro case 1020**



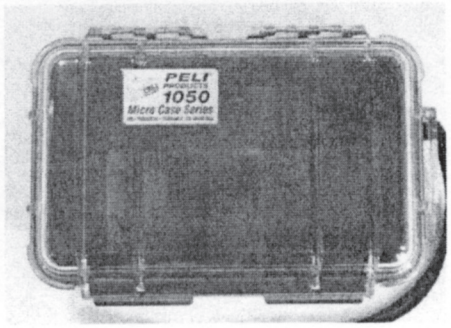

**Micro case 1030**



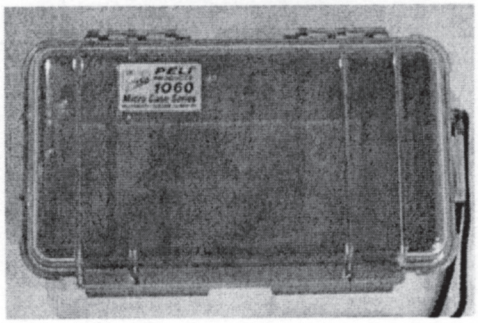

**Micro case 1040**




**Micro case 1050**




**Micro case 1060**

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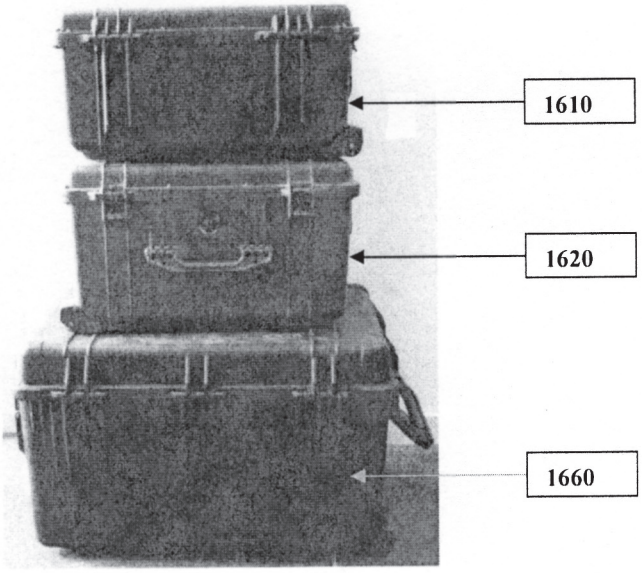
**Large cases 1610, 1620 and 1660**




## 3 TESTS

### 3.1 Test Methods

The cases were subjected to ingress protection tests for a degree of protection IP67 and IP66.

#### 3.1.1 Ingress Protection Level First Numeral 6 (IP6X)

The test samples were fitted with an extraction tube prior to the test. The tube was used to apply a depression of 200 mm $H_20$ (20 mbar) below atmospheric pressure to the test sample. Note that due to very low leakage rates, the extraction rate values were not applied and the maximum depression method used.

The sample was exposed to the specified dust environment, at the stated depression, for 8 hours.

#### 3.1.2 Ingress Protection Level Second Numeral 6 (IPX6)

The large cases test samples were subjected to a water spray from all practicable directions using a standard 12.5 mm internal diameter nozzle at a flow rate of 100 L/min, from a distance of 2.5 – 3 metres. The test was carried out for 3 minutes.

#### 3.1.3 Ingress Protection Level Second Numeral 7 (IPX7)

The micro cases test samples were immersed in a tank of water such that the lower part of the samples was 1 m below the surface of the water and the upper part of the samples were at least 150 mm below the surface of the water for 30 minutes.

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### 3.2 Test Results

#### 3.2.1 Ingress Protection Level First Numeral 6 (IP6X)

The samples were removed from the dust cabinet after 8 hours and examined for dust ingress; no ingress of dust was observed.

#### 3.2.2 Ingress Protection Level Second Numeral 6 (IPX6)

Excess water was removed from the outside of the sample and then examined internally for ingress of water; no ingress was observed.

#### 3.2.3 Ingress Protection Level Second Numeral 7 (IPX7)

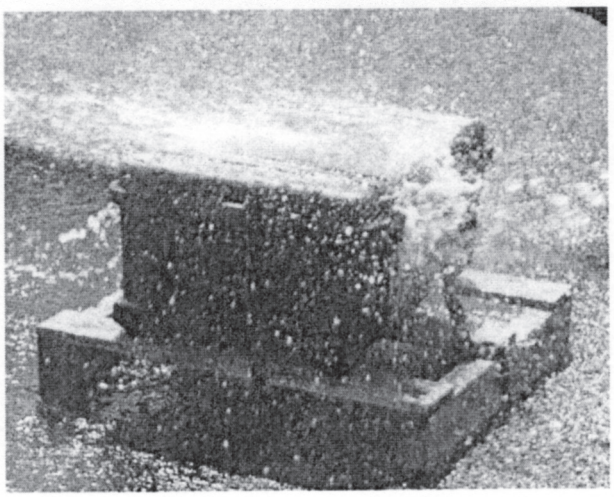
The samples were removed from the water tank after 30 minutes and examined for ingress of water; no ingress was observed.

## 4 CONCLUSION

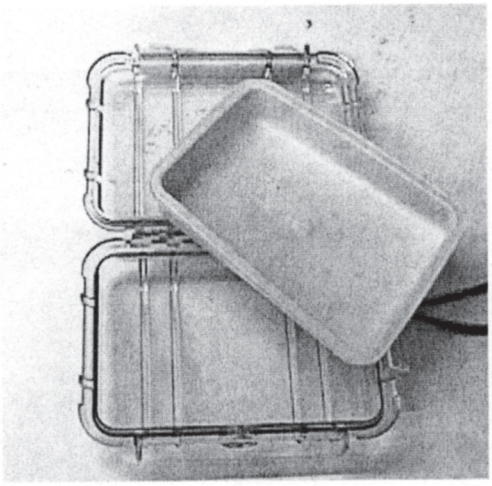
The test samples type tested were deemed to offer a degree of ingress protection IP66 on large cases and IP67 on micro cases in accordance with the requirements of the relevant clauses of EN60529: 1992 incorporating Amendments Nos.1 and 2.

**Appendix 1**

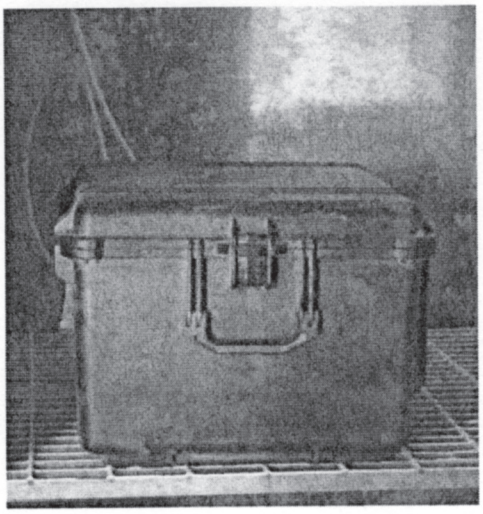
Picture 1
Large Case 1620 During IPX6 Test



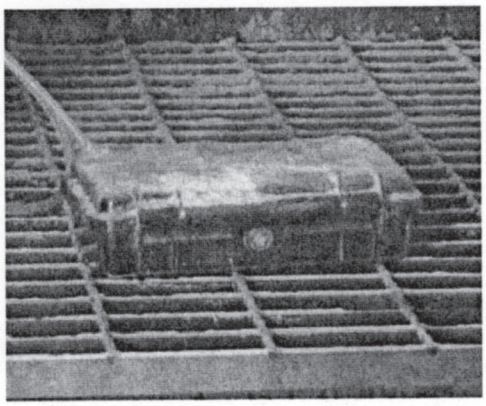
Picture 2
Micro Case 1020 After IPX7 Test



Picture 3
Large Case 1620 After IP6X Test



Picture 4
Large Case 1060 After IP6X Test



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