

PRODUCT CONFORMITY CERTIFICATE VARIATION

CERTIFICATE NUMBER BAS Ex 78209X **Dated** 6 November 1978

SIRA VARIATION NUMBER 4 (FOUR) **Dated** 31 July 2009

VARIATION TO APPARATUS

To Permit:

- 1 The use of an alternative sealing plug.

DESCRIPTIVE DOCUMENTS

| Drawing No. | Sheets | Rev | Date | Title |
|-------------|--------|-----|-----------|---------------------------------|
| A1-801 | 1 to 2 | 6 | 23 Apr 09 | Wolf Airturbo Lamp - Generator |
| A2-801 | 1 to 2 | 6 | 23 Apr 09 | Wolf Turbolite Lamp - Generator |

ADDITIONAL CONDITIONS OF CERTIFICATION

None.

File No. 51A18930

Report No. R51A18930B


C Ellaby
Certification Officer

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PRODUCT CONFORMITY CERTIFICATE VARIATION

CERTIFICATE NUMBER BAS Ex 78209X **Dated** 6 November 1978

SIRA VARIATION NUMBER 3 (THREE) **Dated** 27 January 2009

VARIATION TO APPARATUS

To Permit:

- 1 An alternative rotor design for the Airturbo Lamp, without change to lamp performance.
- 2 An alternative locking collar arrangement for the Turbolite Lamp.
- 3 An alternative designation of the Type A-0444 and Type A-TL45 units as Type A-0445L and Type A-TL45L units respectively, and consequent modification to nameplate details.

DESCRIPTIVE DOCUMENTS

| Number | Sheet | Rev | Date | Description |
|--------|-------|-----|-----------|---------------------------------|
| A1-801 | 1 & 2 | 5 | 16 Dec 08 | Wolf Airturbo Lamp - Generator |
| A2-801 | 1 | 5 | 06 Jan 09 | Wolf Turbolite Lamp - Generator |
| A2-801 | 2 | 5 | 16 Dec 08 | Wolf Turbolite - Generator |
| A1-701 | 1 | 5 | 06 Jan 09 | Wolf Airturbo Lamp |
| A1-701 | 2 | 5 | 16 Dec 08 | Wolf Airturbo Lamp |
| A2-701 | 1 & 2 | 5 | 16 Dec 08 | Wolf Turbolite Lamp |

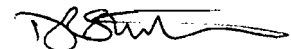
ADDITIONAL CONDITIONS OF CERTIFICATION

None.

File No. 51A18930

Report No. R51A18930A

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D R Stubbings BA MIET
Certification Manager

PRODUCT CONFORMITY CERTIFICATE VARIATION

CERTIFICATE NUMBER BAS Ex 78209X Dated 6 November 1978

SIRA VARIATION NUMBER 2 (TWO) Dated 21 October 2005

VARIATION TO APPARATUS

To Permit:

- 1 The recognition of minor drawing changes do not affect the aspects of the product that are relevant to explosion safety.
- 2 The grooved rubber washer that seals the lens to be manufactured from alternative, elastomeric materials.

DESCRIPTIVE DOCUMENTS

| Drawing No. | Sheet | Rev. | Date | Description |
|-------------|--------|------|-----------|--------------------------------|
| A1-801 | 1 & 2 | 4 | 27 Jul 05 | Wolf Airturbo Lamp – Generator |
| A2-801 | 1 & 2 | 4 | 27 Jul 05 | Wolf Airturbo Lamp |
| A2-802 | 1 of 1 | 4 | 27 Jul 05 | Bulbholder Assembly |

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No. 51A13821

Report No. R51A13821A

C Ellaby
Certification Officer



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PRODUCT CONFORMITY CERTIFICATE VARIATION

CERTIFICATE NUMBER BAS Ex 78209X Dated 6 November 1978

SIRA VARIATION NUMBER 1 (ONE) Dated 1 November 2002

VARIATION TO APPARATUS

To Permit:

- 1 The introduction of minor modifications to up-date the design.

DESCRIPTIVE DOCUMENTS

| Number | Sheet | Rev | Date | Description |
|--------|--------|-----|------------|--|
| A1-701 | 1 to 2 | 4 | 22 Sept 02 | General Arrangement – 'Airturbo' Lamp |
| A1-801 | 1 to 2 | 3 | 22 Sept 02 | General Arrangement – Generator 'Airturbo' Lamp |
| A2-701 | 1 of 2 | 4 | 22 Sept 02 | General Arrangement – 'Turbolite' Lamp |
| A2-701 | 2 of 2 | 3 | 22 Sept 02 | General Arrangement – 'Turbolite' Lamp |
| A2-801 | 1 to 2 | 3 | 22 Sept 02 | General Arrangement – Generator 'Turbolite' Lamp |

ADDITIONAL CONDITIONS OF CERTIFICATION

None



M D Shearman
Certification Manager

File No. 53A9561

Report No. R53A9561A

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British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Certificate of Assurance - Variation

SUPPLEMENTARY CERTIFICATE BAS No. Ex 78209X/9

This is to certify that Apparatus Certificate number:

Ex 78209X

held by:

THE WOLF SAFETY LAMP COMPANY LIMITED

of

Sheffield, S8 0YA

for the:

TYPE 0445/U/M AIRTURBO LAMP

is hereby extended to apply to the apparatus designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 1112/01/001

Sheet 1 of 2

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances. Representation of equipment as "Certified" is valid only when the number of the prime certificate to which this certificate is a supplement is given on the relevant EECS Manufacturing Licence or Verification Certificate.



I M CLEARE
DIRECTOR
19 September 2001



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
Tel: +44 (0)1298 28000 Fax: +44 (0)1298 28244
internet: www.baseefa.com e-mail: baseefa.info.eecs@hsl.gov.uk



British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Schedule

Supplementary Certificate BAS No. Ex 78209X/9

VARIATION

To permit an alternative type of bulbholder for the "Turbolite" lamp.

DRAWING

| <u>Number</u> | <u>Sheet</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|--------------|-------------|---------------------|
| A2-802 | 1 | 3 | 14.09.01 | Bulbholder Assembly |

British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Certificate of Assurance - Variation

SUPPLEMENTARY CERTIFICATE BAS No. Ex 78209X/8

This is to certify that Apparatus Certificate number:

Ex 78209X

held by:

THE WOLF SAFETY LAMP COMPANY LIMITED

of:

Sheffield, S8 0YA

for the:

TYPE 0445/U/M AIRTURBO LAMP

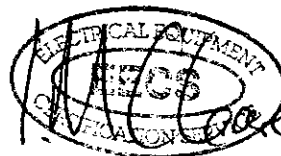
is hereby extended to apply to the apparatus designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 1112/01/001

Sheet 1 of 4

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances. Representation of equipment as "Certified" is valid only when the number of the prime certificate to which this certificate is a supplement is given on the relevant EECS Manufacturing Licence or Verification Certificate.



**I M CLEARE
DIRECTOR**

21 April 1997



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire. SK17 9JN, United Kingdom
Tel: 01298 28000 Fax: 01298 28244



Registration Number
020
The use of the Accreditation
Mark indicates compliance in
respect of those activities
covered by the accreditation
certificate number 020.

British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Schedule

Supplementary Certificate BAS No. Ex 78209X/8

VARIATION

The certification is amended to include only the following units and drawings:-

1) Airturbo Lamps

1.1 Airturbo Lamp Type A-0444 (also known as the Type 0444/U/M) having a 12V 55W tungsten halogen bulb sited within a ballglass with a polycarbonate guard.

The Airturbo Lamp A-0444 is coded Ex s II T6.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|--------------------|
| A1-701 Sheet 1 | 3 | 10.4.97 | General Assembly |

1.2 Airturbo Lamp Type A-0445 (also known as the Type 0445/U/M) having a 12V 55W tungsten halogen bulb sited within a glass reflector housing fitted with a plain glass lens and an optional cast metal guard.

The Airturbo Lamp A-0445 is coded Ex s II T6.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|--------------------|
| A1-701 Sheet 2 | 1 | 22.1.97 | General Assembly |

The Airturbo Lamps described above have a common regulator and alternative assembly.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|-------------------|--------------|-------------|--------------------|
| A1-801 Sheets 1&2 | 2 | 3.4.97 | Alternator |



Supplementary Certificate BAS No. Ex 78209X/8

2. Turbolite Lamps

2.1 Turbolite Lamp Type A-TL44 (also known as the Type 44) having a 24V 250W standard or high output tungsten halogen bulb sited within a ballglass with a polycarbonate guard.

The Turbolite Lamp Type A-TL44 is coded Ex s II T4.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|--------------------|
| A2-701 Sheet 1 | 3 | 10.4.97 | General Assembly |

2.2 Turbolite Lamp Type A-TL45 (also known as the Type 45) having a 24V 250W standard or high output tungsten halogen bulb sited within a reflector housing fitted with a plain glass lens.

The Turbolite Lamp Type A-TL45 is coded Ex s II T4.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|--------------------|
| A2-701 Sheet 2 | 1 | 22.1.97 | General Assembly |

The Turbolite Lamps described above have a common regulator and alternator assembly together with a common bulb holder assembly.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|----------------|--------------|-------------|---------------------|
| A2-801 Sheet 1 | 1 | 22.1.97 | Alternator |
| A2-801 Sheet 2 | 2 | 3.4.97 | Alternator |
| A2-802 | 2 | 23.1.97 | Bulbholder Assembly |

British Approvals Service for Electrical
Equipment in Flammable Atmospheres



Schedule

Supplementary Certificate BAS No. Ex 78209X/8

2.3 Turbolite Lamp Type SL250, as certified under Ex 78209X/6, having a construction similar to the Turbolites described above but providing an output by means of a fibre optic cable.

The Turbolite Lamp Type SL250 is coded Ex s II T4.

SPECIAL CONDITIONS FOR SAFE USE

The following Special Conditions for Safe Use replace those previously specified in this certificate:-

- 1 The unit is for connection to a clean dry air supply having a maximum pressure of 8 bar (125 psi).
- 2 The unit may be connected to the air supply by either an earthed metal pipe or a flexible hose. In the case of a flexible hose this is to be suitable for the conditions of use and be "anti-static" having a resistance between connections of 10^4 to 10^8 ohms to NCB Specification P182 or BS 2050.



British Approvals Service for Electrical
Equipment in Flammable Atmospheres

Certificate of Assurance Variation

THIS IS TO CERTIFY THAT CERTIFICATE NO Ex 78209X

Held by THE WOLF SAFETY LAMP CO LTD
of Sheffield, S8 0YA

for the 0445/U/M 'AIRTURBO' LAMP

is hereby extended to apply to the apparatus conforming to the specification set out in the Schedules of the said Certificate but having any variation specified in the following Schedule.

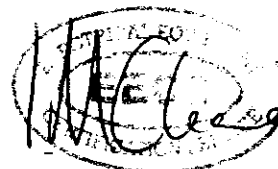
A copy of this Supplementary Certificate shall be attached to the original certificate.

VARIATION Revision of the triac circuit, bulb holder and rotor assemblies used in the Turbolite models.

DRAWINGS

| Number | Issue | Date | Description |
|----------|-------|---------|-----------------------|
| M-AT-610 | 3 | 13.9.91 | Triac Circuit Diagram |
| M-AT-747 | 1 | 10.9.91 | Bulb Holder Assembly |
| M-AT-745 | 1 | 25.9.91 | Rotor Assembly |

File No: EECS 1112/01/001



I M CLEARE
DIRECTOR EECS
19 March 1992

CERTIFICATE NO: Ex 78209X/7

SD



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
Tel: 0298 26211 Fax: 0298 79514 Telex: 668113 RLSD G





British Approvals Service for Electrical
Equipment in Flammable Atmospheres

Certificate of Assurance Variation

THIS IS TO CERTIFY THAT APPARATUS CERTIFICATE NO Ex 78209X

Held by **THE WOLF SAFETY LAMP CO LTD**
of Sheffield, S8 0YA

for the **0445/U/M AIR TURBO LAMP**

is hereby extended to apply to the apparatus conforming to the specification set
out in the Schedules of the said Certificate but having any variation specified
in the attached Schedule.

A copy of this Supplementary Certificate shall be attached to the original
certificate.

File No: EECS 1112/01/001

EECS Certification Report 91(C)027

CERTIFICATE NO: Ex 78209X/6
Sheet 1/2
SD



I M CLEAR
DIRECTOR EECS
10 May 1991



Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
Tel: 0298 26211 Fax: 0298 79514 Telex: 668113 RLSD G





Schedule

Certificate of Assurance No Ex 78209X/6 dated 10 May 1991

VARIATION Alternative construction comprising an air driven 250W, 24
bulb assembly within a brass housing with a fibre optic
output to form a

WOLF TURBOLITE SL 250

DRAWINGS

| Number | Issue | Date | Description |
|----------|-------|---------|------------------------|
| 044/07-2 | 1 | 14.3.91 | Lamp Housing Assembly |
| 044-01 | 1 | 14.3.91 | Lamp Housing |
| 044-02 | 1 | 14.3.91 | Lamp Housing Lid |
| 044-07/1 | 1 | 14.3.91 | Filter Assembly Detail |
| 044-06 | 1 | 14.3.91 | Retaining Ring |
| 044-04 | 1 | 14.3.91 | Distance Ring |
| 044-09 | 1 | 14.3.91 | Filter & Lens Holder |
| 044-010 | 1 | 14.3.91 | Light Guide Lock Nut |
| 044-011 | 1 | 14.3.91 | Light Guide Adaptor |
| 044-012 | 1 | 14.3.91 | Filter Spacer |



BASEEFA

British Approvals Service
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in
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Certificate of Assurance

THIS IS TO CERTIFY THAT APPARATUS CERTIFICATE NO Ex 78209X

Issued to THE WOLF SAFETY LAMP COMPANY (Wm MAURICE) LIMITED
of Sheffield, South Yorkshire

is hereby extended to apply to the apparatus conforming to the specification set out in the Schedule of the said Certificate but having the variation specified in the following Schedule.

VARIATION Circuit revision for the triac circuit used within the Turbolite 45 when fitted with the M36 or M33 bulb (see Variation Six of Ex 78209X/3).

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-610 | 2 | 7.11.86 | Triac Circuit |

File: EECS 1112/01/001
(formerly SFA 15/54/01)

Code: Ex s II T4 or T6 (see Schedule)



I M CLEARE
DIRECTOR

CERTIFICATE NO: Ex 78209X/005 dated 19 January 1987

IT

Re-issued on 12 September 1988 in order to amend the wording and the manufacturer's code in the file reference.

43 1986



BASEEFA

British Approvals Service
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Electrical Equipment
in
Flammable Atmospheres

Certificate of Assurance

THIS IS TO CERTIFY THAT APPARATUS CERTIFICATE NO Ex 78209X

Issued to

**THE WOLF SAFETY LAMP COMPANY (Wm MAURICE) LIMITED
of Sheffield**

is hereby extended to apply to the apparatus conforming to the specification set out in the Schedule of the said Certificate but having the variation specified in the attached Schedule.

File: SFA 15/54/01

Code : Ex s II T4 to T6 (See Schedule)

Sheet 1/2

CERTIFICATE NO: Ex 78209X/4 dated 19 June 1986
49/37

BASEEFA Harpur Hill Buxton Derbyshire SK17 9JN Tel 0298 6211 Telex 668113 RLSD G



Jal **B HILL
DIRECTOR**

Certificate of Assurance

Schedule

NUMBER Ex 78209X/4

DATED 19 June 1986

VARIATION ONE Modification of the Airturbo 0444/U/M and 0445/U/M to permit:-

a) The turbine shroud to be fitted to the turbine wheel by heat shrinking.

and

b) The provision of a baffle-silencer to the exhaust ports.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|---------------------------------|
| M/AT/648 | 6 | 18.1.85 | 0445/U/M Assembly |
| M/AT/583 | 3 | 13.11.85 | 0444/U/M Assembly |
| M/AT/334 | 3 | 13.11.85 | Reflector Housing |
| M/AT/327 | 4 | 24.4.85 | Airturbo Turbine Wheel |
| M/AT/639 | 1 | 24.4.85 | Turbine Wheel Shroud |
| M/AT/640 | 2 | 2.12.85 | Air Silencer Baffle |
| M/AT/537 | 5 | 18.12.85 | Lock Screw Ring |
| M/AT/585 | 3 | 4.11.85 | 0444/U/M Parts List |
| M/AT/586 | 4 | 21.5.85 | 0444/U/M Alternative Parts List |
| 16285 SM | 4 | 14.11.85 | 0445/U/M Parts List |
| M/AT/550 | 4 | 16.5.85 | 0445/U/M Alternative Parts List |

VARIATION TWO Modification of the Turbolite 44 and 45 as Variation One and additionally:-

a) The magnet shroud to be fitted to the magnet by heat shrinking.

and

b) Redesign of the air regulator piston and associated parts to enhance piston seating.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|-------------------------|
| M/AT/548 | 3 | 8.5.85 | Turbolite 44 Assembly |
| M/AT/364 | 5 | 8.5.85 | Turbolite 45 Assembly |
| M/AT/516 | 3 | 13.2.85 | Piston Head |
| M/AT/514 | 3 | 10.9.84 | Piston Spacer |
| M/AT/322 | 1 | Jan 81 | Spring |
| M/AT/638 | 1 | 24.1.85 | Magnet Shroud |
| M/AT/584 | 5 | 14.11.85 | Turbolite 44 Parts List |
| M/AT/549 | 8 | 14.11.85 | Turbolite 45 Parts List |

14 SEP 1984



British Approvals Service
for
Electrical Equipment
in
Flammable Atmospheres

Certificate of Assurance

THIS IS TO CERTIFY THAT APPARATUS CERTIFICATE NO Ex 78209X

Issued to **THE WOLF SAFETY LAMP COMPANY (Wm MAURICE) LIMITED**
of Sheffield

is hereby extended to apply to the apparatus conforming to the specification set out in the Schedule of the said Certificate but having the variation specified in the attached Schedule.

File: SFA 15/54/01

Test Report : 84(s)154
dated 7 August 1984

Code : Ex s II T4 or T6 (see schedule)

Sheet 1/5

CERTIFICATE NO: Ex 78209X/3 dated 21 August 1984
101/35

B. HILL
DIRECTOR

Certificate of Assurance

Schedule

NUMBER Ex 78209X/3

DATED 21 August 1984

VARIATION ONE To permit the use of equivalent hexagonal socket head cap screws as used on the Turbolite 45 in place of the existing triangular head screws for securing the housing cover and lens guard on the Airturbo 0445/U/M.

VARIATION TWO Use of an alternative lock screw for the pressure regulator, having a hexagonal socket.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-540 | 3 | 13.7.83 | Lock Screw |

VARIATION THREE Minor dimensional change to the seating of the grooved rubber washer common to the Airturbo 0445/U/M and the Turbolite 45, also title clarification for the glass disc.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|-----------------------|
| M-AT-400 | 3 | 22.7.82 | Grooved Rubber Washer |
| M-AT-541 | 2 | 3.8.84 | Glass Disc |

VARIATION FOUR Reduction in overall thickness of 1mm in the lens ring incorporated in both the Airturbo 0445/U/M and the Turbolite 45.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-490 | 3 | 30.6.82 | Lens Ring |

VARIATION FIVE Alternative construction of the piston assembly used in the Turbolite 45 to facilitate diaphragm seating, also clarification of drawings titles.

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|---------------------------|
| M-AT-535 | 2 | 7.7.83 | Turbolite Piston Assembly |
| M-AT-514 | 2 | 21.10.83 | Piston Spacer |
| M-AT-515 | 2 | 3.8.84 | Regulating Plate |
| M-AT-516 | 2 | 3.8.84 | Piston Head |
| M-AT-517 | 2 | 3.8.84 | Piston Spring |
| M-AT-518 | 2 | 3.8.84 | Piston Diaphragm |
| M-AT-587 | 1 | 18.4.83 | Diaphragm Seat |

Certificate of Assurance

Schedule

NUMBER Ex 78209X/3

DATED 21 August 1984

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--|-------------|--------------------|
| M-AT-366 | 2 | 20.10.83 | Piston Body |
| VARIATION SIX | Alternative use of an M33 tungsten bulb in place of the existing M36 tungsten bulb in the Turbolite 45, with associated change in bulb holder, assembly and triac circuit. The rating remains unchanged at 250W 24V. | | |

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|----------------------------|
| M-AT-539 | 3 | 22.9.83 | Bulbholder Assembly |
| M-AT-544 | 4 | 21.2.84 | Bulbholder |
| M-AT-545 | 3 | 21.2.84 | Contact for Bulb and Triac |
| M-AT-546 | 2 | 14.5.82 | Contact for Bulb |
| M-AT-610 | 1 | 16.11.83 | Triac Circuit |

VARIATION SEVEN Use of a U.V filter dome and a ventilated reflector on the Turbolite 45 to form a:-

TURBOLITE 45 U.V LAMP

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|-------------------------|
| M-AT-364 | 3 | 4.7.83 | Turbolite 45 Assembly |
| M-AT-549 | 6 | 9.5.84 | Turbolite 45 Parts List |
| M-AT-335 | 4 | 4.7.83 | Reflector |
| M-AT-591 | 1 | 7.7.83 | U.V Filter Dome |

VARIATION EIGHT Alternative use in the Airturbo 0445/U/M of a ball glass and polycarbonate guard with locking ring and rubber seal to form an:-

AIRTURBO 0444/U/M

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-583 | 2 | 23.8.83 | 0444/U/M Assembly |
| M-AT-585 | 1 | 17.3.83 | Parts List |

Certificate of Assurance

Schedule

NUMBER Ex 78209X/3

DATED 21 August 1984

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|------------------------|
| M-AT-586 | 3 | 21.2.84 | Alternative Parts List |
| M-AT-536 | 2 | 23.8.83 | Polycarbonate Guard |
| M-AT-537 | 3 | 9.4.84 | Lock screw Ring |
| M-AT-560 | - | 19.5.82 | Lock screw |
| M-AT-582 | 4 | 11.4.84 | Ball Glass |
| M-AT-593 | 2 | 23.8.83 | Grooved Rubber Washer |

VARIATION NINE Alternative use in the Turbolite 45 of a ball glass and polycarbonate guard with locking ring and rubber seal to form a:-

TURBOLITE 44

DRAWINGS

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|-------------------------------|
| M-AT-548 | 2 | 29.8.83 | Turbolite 44 |
| M-AT-584 | 3 | 9.5.84 | Parts List |
| *M-AT-536 | 2 | 23.8.83 | Polycarbonate Guard |
| *M-AT-537 | 3 | 9.4.84 | Lock screw Ring |
| *M-AT-582 | 4 | 11.4.84 | Ball Glass |
| *M-AT-593 | 2 | 23.8.83 | Grooved Rubber Washer |
| M-AT-538 | 2 | 23.8.83 | Alternative Washer and Spacer |

* The above marked drawings are common to both the Turbolite 44 and the Airturbo 0444/U/M (Variation Seven).

ADDITIONAL SPECIAL CONDITION FOR SAFE USE

The polycarbonate guard used on both the Airturbo 0444/U/M and the Turbolite 44 (Variations Seven and Eight above) may be adversely affected by some solvent vapours. If such vapours are likely to be present in the vicinity of the unit in service protective measures may be necessary.

VARIATION TEN Modification to the housing cover common to all existing Airturbo and Turbolite models covered by this certificate to provide extra running clearance for the turbine wheel.

Certificate of Assurance

Schedule

NUMBER Ex 78209X/3

DATED 21 August 1984

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-325 | 2 | 28.2.84 | Housing Cover |

VARIATION ELEVEN Modifications to the alternative generator housing common to all existing Airturbo and Turbolite models covered by this certificate. The modifications comprise:-

(a) Reduction in the number of the exhaust holes with corresponding increase in their diameter.

(b) Revision of the piston chamber to aid diaphragm support.

(c) Removal of excess material from the casting.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|--------------------|
| M-AT-333 | 5 | 20.2.84 | Generator Housing |

VARIATION TWELVE To permit the use of wing nuts on both sides of the bridle on all existing models covered by this certificate.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> | <u>Description</u> |
|---------------|--------------|-------------|------------------------|
| M-AT-619 | 1 | 3.4.84 | Alternative Parts List |



BASEEFA

British Approvals Service
for
Electrical Equipment
in
Flammable Atmospheres

Certificate of Assurance

THIS IS TO CERTIFY THAT CERTIFICATE NO Ex 78209X

Issued to

THE WOLF SAFETY LAMP COMPANY (WM MAURICE) LIMITED
of Sheffield

is hereby extended to apply to apparatus conforming to the specification set out in the Schedules of the said Certificate but having the variations specified in the attached Schedule.

File: SFA 15/54/01

WOLF TEST REPORTS No. TL006 dated 19.5.82
No. TL007 dated 20.5.82
No. TL008 dated 20.5.82



CERTIFICATE NO: Ex 78209X/2 dated 25 November 1982
105/05

B HILL
DIRECTOR

Certificate of Assurance

Schedule

NUMBER Ex 78209X/2

DATED 25 November 1982

Generator housing modified to provide accommodation for

- a) alternative turbine and generator assembly
- b) alternative air pressure regulator assembly
- and c) alternative lampholder for a Tungsten Halogen lamp
(Reference No. 83-7024 manufactured by Thorn Lighting)
with control circuitry incorporating a triac, diodes
and resistors to form the

TURBOLITE 45 LAMP

rated at 250 watts (maximum) at up to 24 volts with change
of temperature classification to T4.

| <u>DRAWING</u> | <u>ISSUE</u> | <u>DATE</u> |
|----------------|--------------|-------------|
| M-AT-364 | 1 | 9.3.82 |
| M-AT-333 | 1 | 4.2.82 |
| M-AT-539 | 1 | 16.4.82 |
| M-AT-544 | 2 | 14.5.82 |
| M-AT-545 | 2 | 14.5.82 |
| M-AT-535 | 1 | 14.4.82 |
| M-AT-514 | 1 | 1.2.82 |
| M-AT-515 | 1 | 1.2.82 |
| M-AT-516 | 1 | 2.2.82 |
| M-AT-517 | 1 | 2.2.82 |
| M-AT-518 | 1 | 2.2.82 |
| M-AT-366 | 1 | 1.2.82 |
| M-AT-531 | 1 | 9.3.82 |
| M-AT-542 | 1 | 23.4.82 |
| M-AT-551 | 2 | 16.9.82 |
| M-AT-559 | 1 | 19.11.82 |



BASEEFA

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Certificate of Assurance

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of Sheffield

is hereby extended to apply to apparatus conforming to the specification set out in the Schedules of the said Certificate but having the variations specified in the attached Schedule.

File: SFA 15/54/01

Test Report No: 82(s)235
dated 8 November 1982

B HILL
DIRECTOR

CERTIFICATE NO: Ex 78209X/1 dated 24 November 1982
104/12

Certificate of Assurance

Schedule

NUMBER Ex 78209X/1

DATED 24 November 1982

Sheet 1 of 2

1. Modified reflector housing with or without an alternative housing profile to provide an alternative thread locking arrangement.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> |
|---------------|--------------|-------------|
| M-AT-334 | 1 | 4.2.82 |

2. Alternative design of generator housing.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> |
|---------------|--------------|-------------|
| M-AT-333 | 2 | 8.9.82 |

3. Alternative design of housing cover with omission of lubrication facility and

- a. omission of bearing jack-out facility
- b. omission of internal strengthening ribs

- and c. increased fixing screw shroud height to form a triangular base for the fitting in the inverted attitude.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> |
|---------------|--------------|-------------|
| M-AT-325 | 1 | 4.2.82 |

4. Alternative design of lens ring with omission of integral lens guarding ribs and with

- a. increased axial thickness of periphery
- and b. increased axial depth of recess to accommodate a thicker glass disc

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> |
|---------------|--------------|-------------|
| M-AT-490 | 2 | 13.5.82 |

5. Cover glass increased in thickness from 10mm to 15mm.

DRAWING

| <u>Number</u> | <u>Issue</u> | <u>Date</u> |
|---------------|--------------|-------------|
| M-AT-541 | 1 | 20.4.82 |

6. Alternative grooved rubber washer to accommodate a 15mm thick cover glass.

Certificate of Assurance

Schedule

NUMBER Ex 78209X/1

DATED 24 November 1982

Sheet 2 of 2

DRAWING
Number

Issue

Date

M-AT-400

1

3.2.82

7. Alternative design of pressure regulator locking screw.

DRAWING
Number

Issue

Date

M-AT-540

1

19.4.82

8. Alternative certification plate.

DRAWING
Number

Issue

Date

M-AT-561

1

16.9.82

16 NOV 1978



BASEEFA

British Approvals Service
for
Electrical Equipment
in
Flammable Atmospheres

Certificate of Assurance

THIS IS TO CERTIFY THAT THE NO 0445/U/M 'AIRTURBO' LAMP
submitted by
THE WOLF SAFETY LAMP CO (WM MAURICE LTD)
of Sheffield

designed and constructed in accordance with the Specification set out in the First Schedule and the documents therein referred to, has been found to comply with the requirements of SFA 3009 for Group II and Temperature Class T6

This Certificate also applies to:

- 1) other apparatus conforming to the specification set out in the First Schedule
- 2) other apparatus conforming to the specification set out in the First Schedule, but having any variation specified in the Second Schedule

This Certificate is granted subject to the general conditions applicable to the Approval Service and any special conditions as may be prescribed.

This Certificate does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances because such usage may be subject to statutory requirements.

Code: Ex s II T6

File: SFA/15/54/01

Test Report No TR 76(s)014



Mill
Director

CERTIFICATE NO: Ex 78209X dated 6 November 1978

Certificate of Assurance

First Schedule

NUMBER Ex 78209X

DATED 6 November 1978

APPARATUS

THE NO 0445/U/M 'AIRTURBO' LAMP comprising:

- (a) A compressed air driven (125 psi max) alternator assembly rated at 12 volts 55 watts with encapsulated windings.
- (b) A lampholder for use with 12 volt 55 watt lamp.
- (c) An enclosure for (a) and (b) through which compressed air is ducted via a pressure regulator to provide a continuously scavenged atmosphere within the fitting.

The lamp is provided with a toughened glass disc retained by a metal mounting bezel and incorporating a protective guard.

| DRAWING NUMBER | SHEET NUMBER | ISSUE NUMBER | DATED |
|-------------------|-----------------|-----------------|---------|
| 16285SM | 1 | 1 | 6.10.78 |
| 16285SM | 2 | 1 | 6.10.78 |
| 16285SM | 3 | 1 | 6.10.78 |
| 16285SM | 4 | 1 | 6.10.78 |

SPECIAL CERTIFICATION CONDITIONS

1. The fitting must be connected to a clean and uncontaminated air supply.
2. The connection hose must have a resistance between 10^9 ohms maximum and 10^6 ohms minimum.
3. The polycarbonate disc which may form an integral part of this unit may be subject to attack by one or more of the solvent vapours listed in BS 4683 : Part 4 and BASEEFA Standard SFA 3009, if such vapours are likely to be present in the vicinity of the unit in service. In this case suitable protection against attack by the vapours may be required.

Certificate of Assurance

Second Schedule

NUMBER Ex 78209X

DATED 6 November 1978

VARIATION ONE

Toughened glass disc replaced by a polycarbonate disc with the addition of a warning label, and with or without the substitution of a mounting bezel not incorporating a protective guard.

VARIATION TWO

Toughened glass disc replaced by a cast plate which has a male thread entry for connection to a fibre optics lead

to form

WOLF 'AIRTURBO' LAMP NO SL55

| DRAWING NUMBER | SHEET NUMBER | ISSUE NUMBER | DATED |
|-------------------|-----------------|-----------------|---------|
| 16285SA | 1 | 1 | 6.10.78 |
| 16285SA | 2 | 1 | 6.10.78 |
| 16285SA | 3 | 1 | 6.10.78 |
| 16285SA | 4 | 1 | 6.10.78 |
| 16285SM | 1A/4 | 1 | 3.11.78 |