

## Operating and Maintenance Instructions

### WARNINGS



Before using this equipment, read the contents of EN 529 : 2005 and familiarise yourself with the requirements for respiratory protective devices and their potential effects on the wearer.



TORNADO and AIRLINE FCV system users must be familiar with workplace hazards prior to using the equipment and must be fully trained in the use of the apparatus.



TORNADO head-tops must be used with a T/POWER blower, T/A/LINE or AIRLINE FCV. Read this Manual in conjunction with the appropriate User Manual for the air-supplying device prior to using the equipment.



T/POWER must be fitted with filters selected from the TORNADO range of filters which are appropriate for the workplace hazard.



This product must only be used with Protector-branded filters manufactured by Scott Health and Safety Limited. The use of any other filters will negate the approval and will be likely to reduce the level of protection provided.



DO NOT confuse the EN 12941 and EN 12942 TORNADO filter markings with filter markings relating to other EN standards.



DO NOT use T/PROCAP in confined spaces, oxygen deficient atmospheres (<19.5%), oxygen enriched atmospheres (>23%) or where there is an immediate hazard to life or health.



DO NOT use if the ambient temperature is outside of the range -10°C to +50°C. Humidity levels up to 95% RH do not present any operational problems.



T/PROCAP helmets are safe to use at -30°C. The respiratory equipment MUST NOT be used below -10°C.



DO NOT use if the apparatus is damaged. The head-top and air hose must be inspected on every occasion before use to ensure that no damage of any kind is evident, (eg chemical damage, splits or broken stitching), which could cause leakage or reduced levels of protection. A monthly inspection of the apparatus is a mandatory requirement in the UK under COSHH regulations and inspection on a monthly basis is strongly recommended for all other countries.



Protection will only be obtained if the unit is fitted correctly.



Protection levels may be reduced if wind speed exceeds 2 metres per second.



In the unlikely event that the air-supplying device fails while in a hazardous area, there may be a depletion of oxygen within the head-top. DO NOT remove the head-top, LEAVE THE AREA IMMEDIATELY.



TORNADO head-tops can be used in certain explosive and flammable atmospheres when used with T/POWER which is marked as intrinsically safe. It is the employer's responsibility to ensure that the intrinsic safety approval is compatible with the particular environment.



At very high work-rates, pressure in the device may become negative at peak inhalation flow.



It is unlikely that the requirements for leakage will be achieved if hair, spectacle side arms or clothing intrude into the face-seal.



Eye protectors against high-speed particles worn over standard ophthalmic spectacles may transmit impacts, thus creating a hazard to the wearer.



On T/PROCAP/WELD, toughened mineral welding filters (oculars) must only be used in conjunction with a suitable backing lens (ocular).



Scratched or damaged oculars or visors should be replaced.



Filters must not be fitted directly to the helmet/hood.

# TORNADO T/PROCAP & T/PROCAP/WELD

## SPECIFICATION

Description:		Helmet with face-shield or helmet with face-shield and welding visor for use as welding shield
Classification when used with:	T/POWER T/A/LINE AIRLINE FCV	EN 12941 TH2 EN 1835 LDH2 EN 14594 2B
Minimum Design Flow Rate when used with:	T/POWER T/A/LINE AIRLINE FCV	140 L/min 140 L/min 175 L/min
Assigned* (Nominal) Protection Factor when used with:	T/POWER T/A/LINE AIRLINE FCV	20 (50) 20 (50) (50)
Operating Temperature Limits:	Head-top Air-supplying device	-10°C to +50°C Refer to User Manual for air-supplying device being used
Material:	Visor	Polycarbonate or Acetate options
Weight - (Head-top with hose):	T/PROCAP T/PROCAP/WELD	1115 Grams 1420 Grams

\* According to EN 529 : 2005

## MARKINGS AND MEANINGS

The **T/PROCAP** and **T/PROCAP/WELD** head-top markings are in conformance with EN 12941, as follows:

### Head-top Markings:

Marking	Meaning
CE	CE mark
0086	Certifying body
0403	Certifying body
EN12941	Standard - powered respirator
EN1835	Standard - air supplied
EN14594	Standard - air supplied
TH2	Class designation - EN 12941
LDH2	Class designation - EN 1835
2B	Class designation - EN 14594

### Helmet Shell Markings:

Marking	Meaning
Procap	Product name
SCOTT	Manufacturer - Scott Health & Safety
CE	CE mark
EN397	Standard - industrial safety helmets
53 - 65 cm	User head size
-30°C	Impact protection down to -30°C
440vac	Insulates voltages up to 440 V ac
LD	Lateral deformation, resists a lateral clamping force
MM	Helmet molten metal classification

### Face Shield Markings:

Marking	Meaning
SHS	Manufacturer's identification mark
EN166	Standard - eye/face protection
3	Resistance to liquid splashes
9	Resistance to molten metals
B	Medium energy impact
CE	CE mark

### Visor Markings:

Marking	Meaning
3	Shade 3
5	Shade 5
SHS	Manufacturer's identification mark
1	Optical class 1
B	Medium energy impact
F	Low energy impact
3	Resistance to liquid splashes
9	Resistance to molten metals
CE	CE mark

### Welding Shield Markings:

Marking	Meaning
SHS	Manufacturer's identification mark
EN175	Standard - welding shield
S	Increased robustness
9	Resistance to molten metals
1200g	Mass of device
CE	CE mark

## Date of Manufacture:

08						
09						
10	●	●	●	●		
11						
12						

The helmet shell (inside) and face shield (inside, below visor) are marked with a table indicating the month and year of manufacture.

The number on the left hand side of the table indicates the year of manufacture and each triangular segment represents a month within the year, commencing with January. A dot is stamped in each successive segment to indicate the month of manufacture.

In the example shown above, the component was manufactured in July 2010.

## WEARING

### WARNING:

**The head-top should be examined for damage of any kind such as deep scratches, abrasions, cracks and deterioration before every use. Damaged parts, components which have come into contact with solvents and parts that have received significant impact should be replaced.**

### CAUTION:

**Whilst the materials which may come into contact with the wearer's skin are not known to be likely to cause skin irritation or other adverse effects to health, they may cause allergic reactions in particularly susceptible individuals.**

### Note:

Remove the protective transit film from the outside and inside surfaces of the visor before donning.

1. Check that the head-top is in good condition and free from damage that might reduce respiratory protection. Check that the helmet is in good condition and free from cracks or crazing. Flex the helmet and check that crazing or an audible cracking noise does not occur. If it does, the helmet material may have degraded due to environmental ageing and the helmet must be replaced.

2. Ensure that the visor is clean, in good condition and free from cracks, cuts or scratches that might impair vision. Check that the visor is correctly mounted in the face shield, with no gaps around the edge.

### WARNING:

- **Ensure that the visor shade selected is suitable for the tasks to be carried out.**
- **A gold-coated visor does not provide adequate protection for welding applications.**

3. On **T/PROCAP/WELD**, check that the welding shield with flip-up lens housing is in good condition and free from distortion. Check that the lens(es) and welding filter are clean, undamaged and securely fitted into the lens housing. Ensure that the lens housing sits correctly onto the welding shield without leaving gaps that might allow light to enter the head-top.

4. Check that the face seal is in good condition is correctly affixed to the face shield at all points and has the correct tension adjustment.

### Note:

The face seal tension can be adjusted by re-positioning the yellow-coloured fixing studs to either of the adjustment holes in the brow seal, as required.

Face seals with cracks, cuts, tears or excessive soiling must be replaced.

5. Ensure that the brow seal is present and in good condition.

6. Set the hose locking latch at the rear of the helmet to the open position (open padlock symbol) and insert the domed end of the breathing hose into the hose socket.

# TORNADO T/PROCAP & T/PROCAP/WELD

Close the locking latch (closed padlock symbol) to retain the hose.

7. Securely fix the breathing hose to the air-supplying device. Please refer to the User Manual for the air-supplying device for further details.

8. Loosen the head harness using the hand-wheel at the back of the headband and don the head-top, slipping the face seal under the chin. Tighten the hand-wheel so that the head harness fits comfortably over the forehead and the visor is directly in front of your eyes.



The wearing height can be adjusted with the horizontal openings in the crown strap ends (arrowed in the photograph above). The size and shape of the User's head or the use of accessories may require that the headband is adjusted deeper for a correct fit.

If necessary, the head size can be re-adjusted with the ratchet knob at the back of the headband.

9. Pull the face seal back so that it fits comfortably and securely under the chin and around the cheeks.

10. Arrange the breathing hose so that it trails freely down the back. Ensure that it is not kinked, looped or likely to snag.

## AFTER USE

### WARNING:

**DO NOT remove the head-top until safely clear of the hazard area.**

1. Disconnect the breathing hose and use a synthetic sponge moistened in a warm soap and water solution to clean

the head-top and hose. DO NOT permit water to enter the air duct or hose.

2. Rinse the sponge in clean water and remove all traces of soap from the apparatus. Allow the head-top to dry in air at room temperature.

### CAUTION:

- **DO NOT store until thoroughly dry.**
- **DO NOT use heat or sunlight to dry apparatus.**
- **DO NOT scratch the visor.**
- **DO NOT use solvents or strong detergents to clean this product.**
- **Failure to observe the above may result in damage which will be difficult to detect and which could degrade the protective performance.**

3. Replace damaged items or apparatus.

4. If disinfection is required, use **TriGene™** disinfectant wipes or a dilute solution of **TriGene™** disinfectant and warm water.

## STORAGE

When not in use the equipment should be stored in a clean, dry environment, away from direct heat sources between +10°C and +50°C, at a humidity of less than 75% RH.

## MAINTENANCE

Maintenance tasks must only be performed by trained personnel. Please contact **Scott Health and Safety Limited** for training information.

### Helmet:

Helmets in regular outdoor use or used in the proximity of solvents must be replaced at least every 2 years. Helmets used only occasionally may be replaced after approximately 5 years.

### Visor:

In everyday use we recommend that visors be discarded after 6 months in service.

In heavy industrial applications there is likely to be deterioration to the visor in a much shorter period of time. For occasional use we would anticipate a service life of about 12 months, providing the correct maintenance and storage procedures are followed.

### **Welding Shield:**

In everyday use we recommend that welding shields are discarded after 12 months in service. In heavy industrial applications there is likely to be a deterioration of the welding shield in a much shorter period of time, especially in the presence of molten metals and hot solids. For occasional use we anticipate a service life of about 18 months, providing the correct maintenance and storage procedures are followed.

### **Welding Filter and Clear Lens(es):**

We recommend that the welding filter and lens(es) are inspected on each occasion before use and replaced if damage of any kind is present.

## **RECORD INSPECTION AND MAINTENANCE DETAILS**

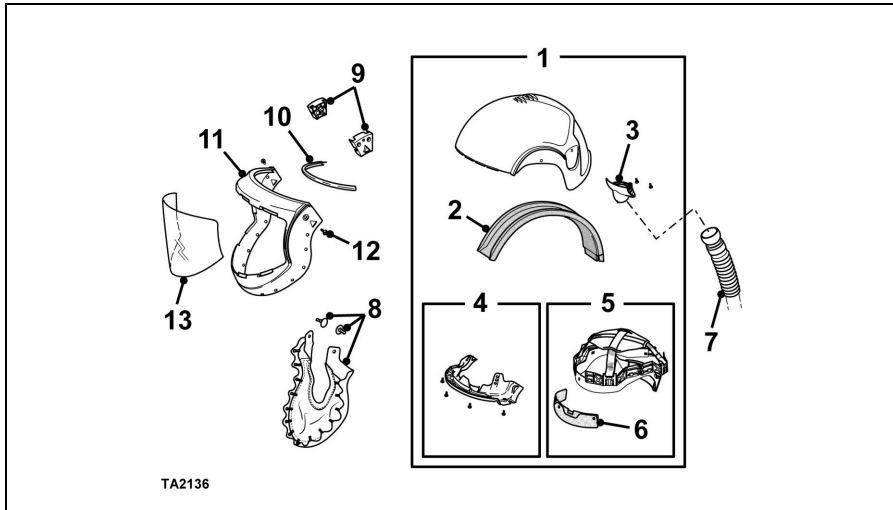
Record test and maintenance details on the Inspection and Maintenance Record Sheet provided at the back of this Manual.

Information recorded usually includes:

- Name of employer responsible for the apparatus.
- Make, model number or identification mark of the apparatus, together with a description of any distinguishing features, sufficient to enable clear identification.
- Date of the inspection/maintenance together with the name, signature or unique authentication mark of the examiner.
- Condition of the apparatus, details of any defects found and any remedial action taken.

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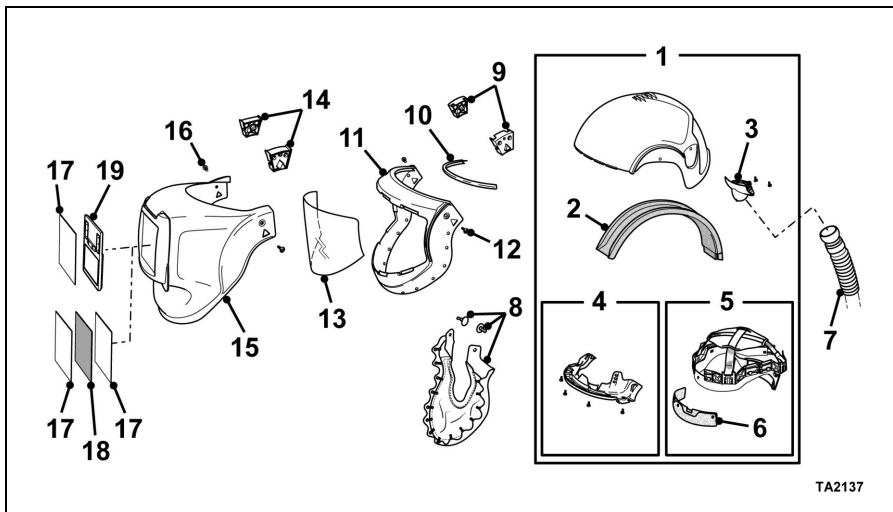
## SPARE PARTS - T/PROCAP



Item No.	Description	Part No.
1	Helmet Assembly	T/PRO/HELM
2	Air Duct	T/PRO/DUCT
3	Hose Socket and Latch	-
4	Brow Seal and Screws	T/PRO/BROWSEAL
5	Head Harness Assembly	T/PRO/HARN
6	Sweatband	(Pack of 10) T/PRO/SB
7	Breathing Hose	T/PRO/HOSE/EPDM
8	Face Seal with Fixing Studs	(Pack of 5) T/PRO/FSEAL
9	Roller Carriage	(Pack of 2) T/PRO/ROLLPACK
10	Wiper Blade	T/PRO/WIPER
11	Face Shield	T/PRO/VIS
12	Screw	(Pack of 10) 2017330
13	Visor - Clear Polycarbonate	(Pack of 10) T/PRO/VISOR/PC
13	Visor - Clear Polycarbonate, Hard Coat	(Pack of 5) T/PRO/VISOR/HC
13	Visor - Green Polycarbonate, Shade 5 (Gold)	(Pack of 1) T/PRO/VISOR/GOLD
13	Visor - Acetate, Shade 3	(Pack of 5) T/PRO/VISOR/AC3
13	Visor - Acetate, Shade 5	(Pack of 5) T/PRO/VISOR/AC5
-	Tear-off Visor Cover	(Pack of 10) T/PRO/TEAROFF
-	TriGene Liquid	(1 Litre) 2008247
-	TriGene Disinfecting Wipes	(Pack of 20) 2004225
-	Screwdriver - Torx 20	T/PRO/DRIVER

# TORNADO T/PROCAP & T/PROCAP/WELD

## SPARE PARTS - T/PROCAP/WELD



TA2137

Item No.	Description	Part No.
1	Helmet Assembly	T/PRO/BLACK/HELM
2	Air Duct	T/PRO/DUCT
3	Hose Socket and Latch	-
4	Brow Seal and Screws	T/PRO/BROWSEAL
5	Head Harness Assembly	T/PRO/HARN
6	Sweatband	(Pack of 10) T/PRO/SB
7	Breathing Hose	T/PRO/HOSE/EPDM
8	Face Seal with Fixing Studs	(Pack of 5) T/PRO/FSEAL
9	Roller Carriage	(Pack of 2) T/PRO/ROLLPACK
10	Wiper Blade	T/PRO/WIPER
11	Face Shield	T/PRO/VIS
12	Screw	(Pack of 10) 2017330
13	Visor - Clear Polycarbonate	(Pack of 10) T/PRO/VISOR/PC
13	Visor - Clear Polycarbonate, Hard Coat	(Pack of 5) T/PRO/VISOR/HC
13	Visor - Green Polycarbonate, Shade 5 (Gold)	(Pack of 1) T/PRO/VISOR/GOLD
13	Visor - Acetate, Shade 3	(Pack of 5) T/PRO/VISOR/AC3
13	Visor - Acetate, Shade 5	(Pack of 5) T/PRO/VISOR/AC5
14	Roller Carriage	(Pack of 2) T/PRO/ROLLPACK/W
15	Welding Shield Assembly	T/PRO/WELD/VIS
16	Screw	(Pack of 10) 2017330
17	Clear, Anti-spatter Lens	(Pack of 10) TWS-CAS
18	Passive Welding Screen - Fixed Shade 10	(Pack of 1) TWS-10
18	Passive Welding Screen - Fixed Shade 11	(Pack of 1) TWS-11
18	Passive Welding Screen - Fixed Shade 12	(Pack of 1) TWS-12
18	Passive Welding Screen - Fixed Shade 13	(Pack of 1) TWS-13
19	Auto Welding Filter Cartridge - Fixed Shade 11	(Pack of 1) TEWF3/11
19	Auto Welding Filter Cartridge - Variable Shade 9 to 13	(Pack of 1) TEWF4/9-13
-	Tear-off Visor Cover	(Pack of 10) T/PRO/TEAROFF
-	TriGene Liquid	(1 Litre) 2008247
-	TriGene Disinfecting Wipes	(Pack of 20) 2004225
-	Screwdriver - Torx 20	T/PRO/DRIVER

# **TORNADO T/PROCAP & T/PROCAP/WELD**

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## **FITTING SPARES**

### **To Replace the Hose:**

1. Set the hose locking latch to the open position (open padlock symbol) and remove the breathing hose from the head-top.
2. Insert domed end of replacement breathing hose into the hose socket and close the locking latch (closed padlock symbol) to retain the hose.

### **To Replace the Face Seal:**

1. Remove the 2 yellow fixing studs that attach the face seal to the brow seal.
2. Pull the face seal from the outside of the face shield to withdraw each of the 15 location pins from their holes. Remove the face seal.
3. Attach the replacement face seal by inserting each of the 15 location pins into their respective holes and pulling each pin, from the inside of the face shield, to ensure that all pins are correctly located.
4. Secure the 2 yellow fixing studs and face-seal to the brow seal.
5. Thoroughly inspect the face seal to ensure that all fixing points are correctly seated and that no gaps or creases are evident.

### **To Replace the Face Shield:**

1. Remove the face seal as described above.
2. Using a Torx 20 Screwdriver, remove the fixing screws from both sides of the face shield. Place aside for re-use.
3. Pull the sides of the face shield slightly to disengage from the triangular location pegs on the roller carriages and remove the face shield.
4. Inspect the condition of the existing wiper blade and visor. Replace if necessary.
5. Before fitting the replacement face shield, locate wiper blade into the top groove of face shield and install the visor into position (see *To Replace the Visor*). Ensure that both components are located correctly before proceeding further.

6. Mount the face shield to the roller carriages by aligning the triangular location holes with the respective pegs.

7. Secure into position using the 2 fixing screws removed previously. DO NOT over-tighten.

8. Refit the face seal as described above.

### **To Replace the Visor:**

1. Remove the face shield and face seal from the head-top as described above.
2. For all further details of visor removal and replacement, please refer to the User Instruction Leaflet provided with the replacement visor.

### **To Replace a Face Shield Roller Carriage:**

#### **Note:**

On **T/PROCAP/WELD** it will first be necessary to remove the welding shield and welding shield roller carriages.

1. Remove the face shield as described in *To Replace the Face Shield*.
2. Push the roller carriage along the slide bar, toward the rear of the helmet, until roller carriage becomes detached.
3. Locate replacement roller carriage onto the slide bar and push the carriage along slide bar, until contact is made with the brow seal.
4. Refit the face shield as described in *To Replace the Face Shield*.

### **To Replace the Welding Shield:**

1. Using a Torx 20 Screwdriver, remove the fixing screws from both sides of the welding shield. Place aside for re-use.
2. Pull the sides of the welding shield slightly to disengage from the triangular location pegs on the roller carriages and remove the welding shield.
3. Inspect the condition of the existing lens(es) and welding filter. Replace if necessary.



4. Mount the welding shield to the roller carriages by aligning the triangular location holes with the respective pegs.
5. Secure into position using the 2 fixing screws removed previously. DO NOT over-tighten.

## **To Replace the Anti-spatter Lens(es) and Welding Filter:**

1. Lift up the lens housing on the welding shield.
2. Release the spring clip by pressing upwards and outwards from the bottom of the lens housing. Remove the welding filter and lens(es).
3. Insert a new anti-spatter lens into the lens housing, followed by the welding filter and if desired, a second anti-spatter lens.

### **CAUTION:**

**In all cases, an anti-spatter lens should be fitted IN FRONT of the welding filter to protect it from sparks. In certain applications it may also be desirable to fit a further anti-spatter lens behind the welding filter.**

4. Refit the retaining clip back into its recess at the bottom of the lens housing to retain the lenses.

## **To Replace a Welding Shield Roller Carriage:**

1. Remove the welding shield as described in *To Replace the Welding Shield*.
2. Push the roller carriage along the slide bar, toward the rear of the helmet, until roller carriage becomes detached.
3. Locate replacement roller carriage on the slide bar and push the carriage along slide bar, until contact is made with the face shield roller carriage.
4. Refit the welding shield as described in *To Replace the Welding Shield*.

## **To Replace the Brow Seal:**

### **Note:**

For ease of access it may be necessary to remove the face shield and face seal.

1. Using a Torx 20 Screwdriver, remove the 4 fixing screws that secure the brow seal to the helmet shell. Remove brow seal and screws.
2. Locate replacement brow seal into position, taking care to ensure that the rubber skirt sits between the sweatband and helmet shell.
3. Wrap the front lip of the brow seal over location ribs at the front of the helmet shell.
4. Check to ensure that the front lip is correctly seated over the ribs, that there are no gaps and that the seal is not creased or trapped.

### **Note:**

When the brow seal is positioned correctly, the fixing holes in the seal and helmet shell will be in exact alignment.

5. Secure brow seal into position using 4 screws, in the following order: outermost holes first followed by innermost. DO NOT over-tighten.
6. Refit face shield and face seal if removed.

## **To Replace the Head Harness:**

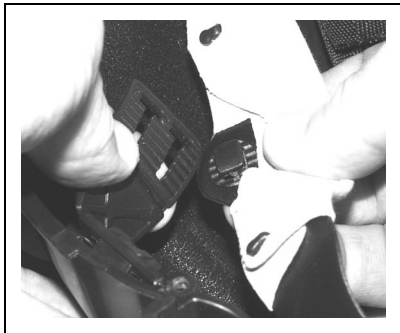
1. Remove the face shield, face seal and brow seal as described above.
2. With the helmet shell inverted and the head harness facing uppermost, pull each of the 4 head harness anchor tags from its housing in the helmet shell.
3. Locate replacement head harness inside helmet shell with the sweatband facing toward the front of the helmet.
4. Insert each of the 4 head harness anchor tags into its corresponding housing in the helmet shell. Ensure that each anchor tag is securely held in position.
5. Refit the brow seal, face shield and face seal as described above.

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## To Replace the Sweatband:

### Note:

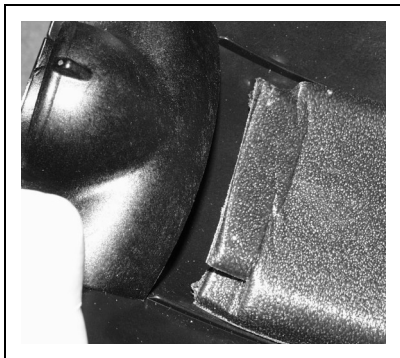
For ease of access it may be necessary to remove the face shield, face seal and brow seal.



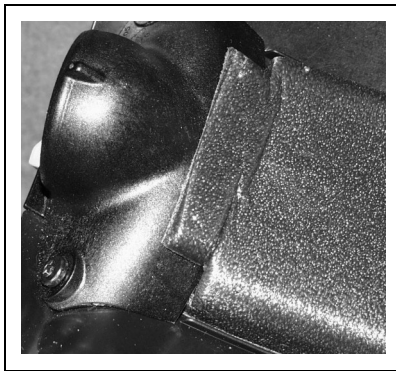
1. Disconnect the forehead strap from the 2 adjustment tags at the front of the headgear.
2. Remove sweatband from the 3 retaining hooks on the forehead strap. Fit replacement sweatband.
3. Re-connect the forehead strap to the 2 adjustment tags at the front of the headgear.
4. Refit face shield, face seal and brow seal if removed.

## To Replace the Air Duct:

1. Remove the brow seal as described in *To Replace the Brow Seal*.
2. Grasp open end of air duct at the front of the helmet shell and pull to remove the duct from the helmet.



3. Insert replacement air duct, (split end first), from the front of the helmet shell toward the rear, making sure that the duct sits between the 2 locating ribs inside helmet shell.



4. Locate the 2 small outer tongues on the split end of the air duct underneath the hose socket housing and the large, central tongue above the hose socket housing.

### Note:

When the duct is positioned correctly, the split end should appear as above, the duct should sit between the 2 location ribs all along its length and the open end should be flush with the helmet brim at the front.

### WARNING:

**Ensure that the duct is fitted correctly, as described above, before proceeding further.**

5. Refit the brow seal as described in *To Replace the Brow Seal*.

## WARRANTY

The products manufactured at our factories in Skelmersdale and Vaasa carry a warranty of 12 months (unless stated otherwise) for parts, labour and return to site. The warranty period runs from the date of purchase by the end user.

These products are warranted to be free from defects in materials and workmanship at the time of delivery.

**SCOTT** will be under no liability for any defect arising from wilful damage, negligence, abnormal working conditions, failure to follow the original manufacturer's instructions, misuse or unauthorised alteration or repair.

Evidence of purchase date will need to be provided for any claims arising during the warranty period. All warranty claims must be directed through **SCOTT Customer Services** and in accordance with our sales return procedure.

## NOTIFIED BODIES

Inspec International Limited (0194)  
56 Leslie Hough Way,  
Salford,  
Greater Manchester,  
M6 6AJ,  
England.

BSI Product Services (0086)  
Kitemark House,  
Maylands Avenue,  
Hemel Hempstead,  
HP2 4SQ,  
England.

Finnish Institute of Occupational  
Health (0403)  
Topeliuksenkatu 41 a A,  
FI-00250,  
Helsinki,  
Finland.