PRODUCT OPERATING MANUAL

Manual No. ZVP-PC-0055-00

TITAN II RESPIRATOR HELMET

AS/NZS 1716:2003 Version

SECTION

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PanBlast Equipment
PRODUCT OPERATING MANUAL

1.0 STANDARD CONDITIONS & SAFETY PRECAUTIONS

1.1 The PanBlast™ Titan II Respirator Helmet is classified as a continuous flow compressed air line breathing apparatus with helmet for abrasives blasting applications, and meets the requirements of AS/NZS1716:2003 Section 8 Air-Hose and Air-Line Respirators.

1.2 All products and equipment designed and manufactured by Pan Abrasives are intended for use by experienced users of abrasive blasting equipment, and its' associated operations and abrasive blasting media.

1.3 It is the responsibility of the user to:-

1.3.1 Determine if the equipment and abrasive media is suitable for the users intended use and application.

1.3.2 Familiarize themselves with any appropriate laws, regulations, and safe working practices, which may apply within the users working environment.

1.3.3 Provide appropriate operator training and a safe working environment, including operator protective equipment such as, but not limited to, safety footwear, protective eyewear and hearing protection.

1.4 Pan Abrasives Standard Terms and Conditions of Sale apply. Contact your local Pan Abrasives office or distributor should you require any further information or assistance.

2.0 RESPIRATOR COMPRESSED AIRLINE HOSES

NOTE: WHERE APPLICABLE, THE MARKING "F" INDICATES THAT THE APPARATUS AND THE COMPRESSED AIR SUPPLY TUBE CAN BE USED WHERE FLAMMABILITY MAY BE A RISK.

2.1 Compressed air pressure at the point of attachment must be maintained at the pressure as specified in the table is Section 3.2. The point of attachment is where the respirator airline hose is connected to the respirable air source.

! WARNING ! – ENSURE THAT THE COMPRESSED AIR SUPPLY VOLUME AND PRESSURE IS ADEQUATE FOR THE NUMBER OF OPERATORS CONNECTED TO THE SUPPLY, IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

2.2 No more than the maximum number of hoses, or maximum hose lengths should be coupled together, as specified in the table in Section 3.2.

2.3 The respirator helmet is specifically designed for abrasive blasting applications. It must not be used for any other purpose, including but not limited to painting and welding.

3.0 RESPIRATOR COMPRESSED AIRLINE AIR SUPPLY REQUIREMENTS

! WARNING ! – READ THIS SECTION CAREFULLY BEFORE USING THIS EQUIPMENT

3.1 Air Supply Pressure

3.2 The table below should be used to determine the respirator helmet operating pressure settings based on which alternate air control device and airline hose length combination being employed. The air pressure should be adjusted with the respirator helmet, and breathing tube and respirator airline hose(s) attached.

Hose Lengths	Pressure - Kpa					
	Air Flow Controller		Air Cooling Controller		Climate Controller	
	BAC-AF-PB-0036		BAC-AF-PB-0032		BAC-AF-PB-0175	
	A	B	A	B	A	B
20M Airline Hose - BAC-AF-PB-0071	221	296	296	530	462	827
40M Airline Hose - BAC-AF-PB-0071 x 2	248	366	330	580	496	827
60M Airline Hose - BAC-AF-PB-0071 x 3	269	414	358	620	538	827
80M Airline Hose - BAC-AF-PB-0071 x 4	290	468	386	655	580	827

NOTE:

COLUMN A – MINIMUM SUPPLY PRESSURE REQUIRED TO DELIVER 170L/MIN MINIMUM AIRFLOW RATE TO RESPIRATOR HELMET AT THE CONTROLLERS MINIMUM AIR FLOW SETTING.

COLUMN B – MAXIMUM SUPPLY PRESSURE ALLOWED TO ENSURE 425L/MIN MAXIMUM AIRFLOW RATE TO RESPIRATOR HELMET IS NOT EXCEEDED AND NOISE SOUND LEVEL WITHIN RESPIRATOR HELMET IS ALSO LESS THAN 80DBA AT THE CONTROLLERS MAXIMUM AIR FLOW SETTING.

THE MINIMUM COMPRESSED AIRLINE AIR PRESSURE, COLUMN A, MUST ALWAYS BE MAINTAINED AT THE COMPRESSED AIR SUPPLY FILTER. IF THE SUPPLY IS INADEQUATE, OPERATION MUST CEASE UNTIL THE SUPPLY SITUATION HAS BEEN ADDRESSED.

3.3 The respirator helmet must be supplied with AS/NZS 1715:2009 or higher quality breathing air between airflow rates of 170l/min (6cfm) and 425l/min (15cfm) at all times. The noise level within the respirator helmet shall not exceed 80dBA as specified in AS/NZS 1716:2003, at any time during operation. These operating parameters are achieved by

setting the operating pressure of the respirator helmet at the point of attachment to be within the pressure ranges as specified in the table in Section 3.2 above for the relevant alternate air control device and airline hose length combination.

3.4 Located adjacent to the lens window within the respirator helmet is an airflow indicator. If the air flow to the respirator helmet is as specified in Section 3.2, the indicator float will show **GREEN.** Should the air flow to the respirator helmet be inadequate, the air flow indicator will show **RED**.

! WARNING ! VERY ARDUOUS OPERATING CONDITIONS, LEADING TO PEAK OPERATOR INHALATION FLOW, MAY CAUSE NEGATIVE PRESSURE WITHIN THE RESPIRATOR HELMET.

3.5 The airflow to the respirator helmet must remain between a minimum of 170l/min and a maximum of 425l/min at all times.

! WARNING ! – DO NOT USE THE RESPIRATOR IF THE FLOW INDICATOR IS SHOWING RED, WITH THE AIR FLOW CONTROLLER, AIR COOLING CONTROLLER OR CLIMATE CONTROLLER SET AT MAXIMUM FLOW TO THE RESPIRATOR.

3.6 Breathing Air Quality

! WARNING ! – READ THIS SECTION CAREFULLY BEFORE USING THIS EQUIPMENT.

3.7 The quality of compressed air supplied to the respirator must be filtered quality breathing air as per AS/NZS1715 or higher quality.

! WARNING ! – FAILURE TO MAINTAIN THE AIR MOISTURE CONTENT AS SPECIFIED IN AS/NZS1715 MAY CAUSE FREEZING OF THE RESPIRATOR HELMET AND/OR ITS' ASSOCIATED COMPONENTS.

3.8 Heavy metal paint, asbestos, and other toxic material dusts will cause serious lung disease or death without the use of properly designed and approved air supplied respiratory equipment by blast operators and all personnel within the work site area.

3.9 Never connect a respirator airline hose to an air source that has not been tested for gas or particulate contamination. The presence of unacceptable levels of carbon monoxide (CO) in the breathing air will cause death to the operator.

3.10 It is recommended not to use piston type or oil bath compressors for breathing air. Use of these types of compressors poses an extreme danger of producing unacceptable levels of carbon monoxide in breathing air which could cause death to the operator.

3.11 The compressor must have adequate output and the plumbing between the compressor and the point of attaching the air supply hose must have sufficient capacity to supply the volume of air at the pressure required.

3.12 Do not use any caustic chemicals or solvents that may be irritating or harmful to the user, or which change the properties of the materials used in any part of the respirator helmet system.

3.13 The design Approvals and Standards applicable to the respirator helmet applies only when used as a complete system as supplied, without any modification, deletion or substitution of any components.

3.14 The quality of air supplied to the respirator helmet is critical to the safety and comfort of the operator. Special care must also be taken to avoid accidental connection to any other gas lines; such as, oxygen, acetylene or nitrogen etc.

! WARNING ! – DO NOT CONNECT OXYGEN OR OXYGEN ENRICHED AIR SUPPLY TO THE RESPIRATOR HELMET.

3.15 Air supply by oil lubricated air compressors must be equipped with a high temperature alarm or a carbon monoxide (CO) alarm, or both. If only a high temperature alarm is used, the air from the compressor must be tested frequently for the presence of carbon monoxide (CO). It is the operators' responsibility to check the air supply. This includes the compressor, carbon monoxide alarms, air filters and shut down devices. An overheated compressor, or one that is in poor mechanical condition, may produce carbon monoxide (CO) and objectionable odors. A carbon monoxide (CO) removal system may also be used to ensure breathing air quality.

! WARNING ! NEVER ALLOW ANY VEHICLE OR INTERNAL COMBUSTION ENGINE TO OPERATE NEAR OR AROUND THE AIR COMPRESSOR INTAKE.

3.16 When breathing air is supplied by oil lubricated and oil less air compressors, certain precautions must be taken. The compressor inlet must be located away from all sources of toxic contaminants including carbon monoxide which is found in the engine exhaust and in any combustion of oil products. Other contaminants that may be harmful to the operator can enter the respiratory equipment through the compressor air inlet. This inlet must not be located in proximity to any exhaust system outlet, ventilation flue or source of fumes or particles of any kind.

3.17 The precautions described above also apply to portable compressors. In addition, in the case of engine driven compressors, precautions must be taken to prevent engine exhaust gases from entering the air intake of the compressor. Compressor engine exhaust should be piped to a location safely downwind from the compressor air intake. Compressors vary in

design and operation; therefore, it is important that users carefully read the manufacturers operation and maintenance instructions.

3.18 An appropriate respirator airline filter such as the PanBlast™ VisiFlo, PBF or PBF Junior must be installed and regularly maintained to remove objectionable odors, oil mist, oil vapors, water condensation, water pipe scale and any other particulate matter.

3.19 Breathing Air Supply from Cylinders

! WARNING ! NEVER USE OR OPERATE BREATHING AIR CYLINDERS WITHOUT THE PROPER TRAINING AND USE OF PRESSURE REDUCING DEVICES.

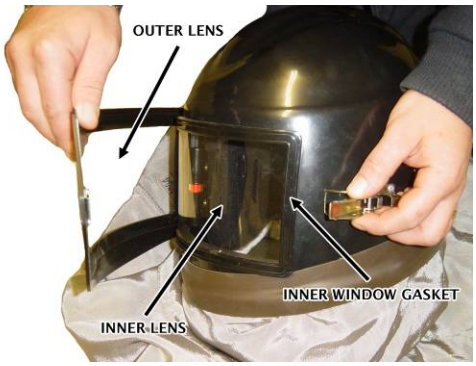
3.20 The user or user's employer must ensure that all cylinders used to supply breathing air meet all the requirements including, but not limited to, testing, maintenance, certificate of analysis for air quality, and moisture content.

3.21 All cylinders must be equipped with a properly maintained pressure reducing valve to ensure that the air pressure supplied to the respirator helmet is as specified in Section 3.2.

4.0 PREPARATION FOR OPERATION

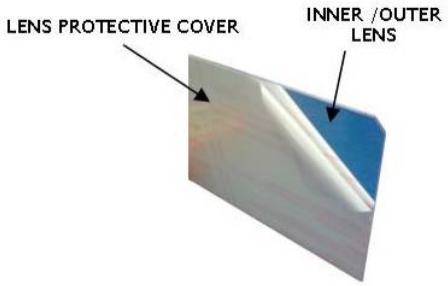
! WARNING ! – READ SECTION 1.0 OF THIS MANUAL CAREFULLY BEFORE USING THIS EQUIPMENT

4.1 Check that the inner lens is in place and correctly seated within the inner window gasket



4.2 Ensure that the protective removable layers are removed from each side of both the inner and outer lenses before using the helmet.

NOTE: THE PROTECTIVE LAYERS ON THE OUTER LENS ARE TRANSPARENT.



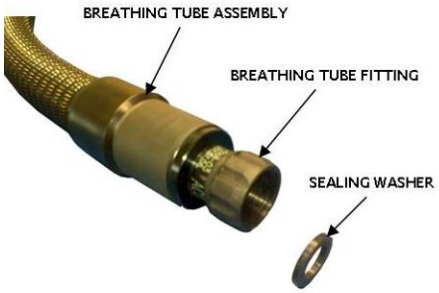
! WARNING ! – THE LENSES HAVE NOT BEEN COATED WITH ANY ANTI-FOGGING COMPOUNDS. DO NOT USE THE RESPIRATOR HELMET IF OPERATOR VISION IS IMPAIRED IN ANY WAY DUE TO MISTING OR FOGGING.

4.3 Check that the outer lens is in place, and correctly located in the lens frame assembly, and that the lens frame is securely latched in the closed position against the inner window gasket.

! WARNING ! – THE RESPIRATOR LENSES ARE DESIGNED FOR OPERATOR PROTECTION AGAINST REBOUNDING ABRASIVE PARTICLES.

4.4 Check that both the inner collar and outer cape are in place, and that the rubber sealing band is correctly positioned to provide a seal around the full circumference of the bottom of the respirator, and over the top of the outer cape press studs.

4.5 Carefully fit the sealing washer to one end of the breathing tube, and attach it to the fitting on the rear of the respirator, by screwing the hose end fitting in the clockwise direction. Ensure that the tube fitting is secured and hand tight.



NOTE: NEVER LIFT AND/OR CARRY THE RESPIRATOR HELMET ASSEMBLY BY THE BREATHING TUBE, AS DAMAGE TO THE RESPIRATOR HELMET OR BREATHING TUBE MAY OCCUR. ONLY USE THE STRAP HANDLE ASSEMBLY PROVIDED TO CARRY/LIFT THE RESPIRATOR HELMET.

4.6 The respirator helmet is now ready for operation.

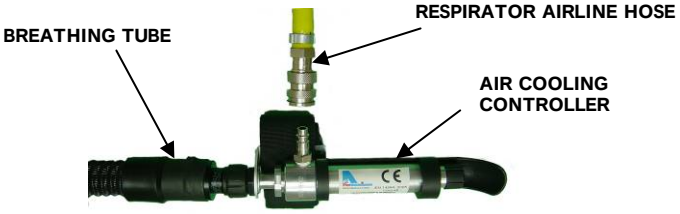
5.0 OPERATING INSTRUCTIONS

5.1 Ensure that the respirator helmet has been set up and checked as detailed in Section 4.0 of this manual, and that the breathing air is supplied as detailed in Section 3.0 of this manual.

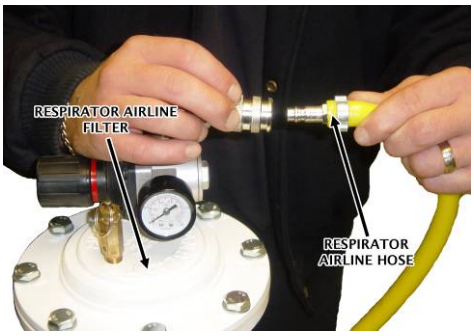
5.2 Carefully fit the second sealing washer to the opposite end of the breathing tube, and attach it to either the Air Flow Controller, Air Cooling Controller or Climate Controller, by screwing the hose end fitting in the clockwise direction. Ensure that the hose fitting is secured and hand tight.

Refer to Operating Manual ZVP-PC-0041-01 for further details on the breathing tube.

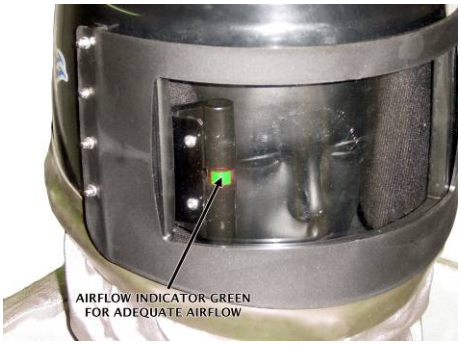
5.3 Attach the respirator airline hose to the Air Flow Controller/Air Cooling Controller/Climate Controller, ensuring that the respirator airline hose is in accordance with the lengths shown in the table in Section 3.2 of this manual.



5.4 Connect the male end quick disconnect coupling on the respirator airline hose to the respirator airline filter assembly, ensuring that the breathing air quality is as specified in section 3.6 of this manual.



5.5 If the supply pressure and hose lengths have been set in accordance with the table in Section 3.2, the flow indicator will show **GREEN.**



! WARNING ! – NEVER EXCEED THE MAXIMUM SPECIFIED HOSE LENGTHS AS STIPULATED IN SECTION 3.2.

! WARNING ! – DO NOT USE THE RESPIRATOR IF THE FLOW INDICATOR IS SHOWING RED.

5.6 The Titan II Respirator Helmet is approved for use with the PanBlast™ 20m Airline Hose with Quick Disconnects:- BAC-AF-PB-0071

This hose may be used in multiples up to 80m long, as detailed in the table in Section 3.2 of this manual. The maximum operating pressure of the airline hose is 2.4Mpa.

! WARNING ! – DUE TO THE NOISE LEVELS GENERATED BY ABRASIVE BLASTING EQUIPMENT, THE USE OF HEARING PROTECTION PLUGS IS RECOMMENDED WHEN USING THIS RESPIRATOR HELMET. NOTE THAT SOME REDUCTION IN THE AUDIBILITY OF ANY WARNING/ALARMS MAY RESULT.

5.7 Invert the respirator helmet downwards and open the inner collar and lift the respirator onto your head. Ensure that the inner collar fits snugly and comfortably. Pull the outer cape to its' full extent, and connect the clips located on either side of the cape.

5.8 Also approved for use with the Titan II Respirator Helmet is a leather outer cape (BAC-BH-PB-0024). The leather cape is of heavier construction than the standard nylon cape, and is recommended for blasting applications where metallic abrasives are being used, and/or operating in confined spaces where the cape will be subjected to more aggressive rebounding of the abrasive.

5.9 The leather cape is fitted in the same manner as the standard nylon cape.

5.10 Fit the Air Flow Controller/Air Cooling Controller/Climate Controller belt around the waist and adjust for a firm fit as required. It may be necessary for another person to assist the operator with fitting of the helmet and belt assembly.

6.0 OPERATING ADJUSTMENTS

6.1 The alternate Air Flow Controller (BAC-AF-PB-0036) allows the operator to increase or decrease the volume of air entering the helmet by turning the regulator adjusting ring.

6.2 Refer to Operating Manual ZVP-PC-0039-01 for further details on the operation of the Air Flow Controller.

6.3 The alternate Air Cooling Controller (BAC-AF-PB-0032) allows the operator to adjust the temperature of the incoming air supply to the helmet. This is done by rotating the adjusting knob until the desired air temperature is achieved.

6.4 It is recommended that the Air Cooling Controller be used when the incoming air supply to the respirator helmet becomes too warm for the operator to work comfortably.

6.5 It is normal for warm air to be discharged from the vent hole in the bottom of the Air Cooling Controller while in operation.

6.6 Refer to Operating Manual ZVP-PC-0042-01 for further details on the operation of the Air Cooling Controller.

6.7 The alternate Climate Controller (BAC-AF-PB-0175) operates in a similar manner to the Air Cooling Controller, but may be used to supply either heated or cooled air to the respirator helmet. The Climate Controller can be switched from heating to cooling by way of the control switch located on the top of the unit.

6.8 It is recommended that the Climate Controller be used when the incoming air supply to the respirator helmet becomes too warm or too cool for the operator to work comfortably.

6.9 Refer to Operating Manual ZVP-PC-0043-01 for further details on the operation of the Climate Controller.

7.0 REMOVAL AND STORAGE INSTRUCTIONS

7.1 Prior to removing the respirator helmet, disconnect the outer cape retaining clips, then carefully lift the respirator helmet off. Disconnect the air supply to the respirator helmet when not in use. It is also recommended to turn off the compressed air supply to the respirator airline filter.

7.2 When not in use, it is recommended that the respirator helmet be suspended from the eyelet in the strap handle provided in a clean and dry area, in order to prevent dust and abrasive from entering the inner section of the respirator. Do not tuck the outer cape into the respirator.

7.3 The helmet respirator should be stored in clean and dry area, with an ambient temperature between -10ºC and 60ºC.

8.0 MAINTENANCE INSTRUCTIONS

ALL REPAIRS AND ADJUSTMENTS MUST BE CARRIED OUT BY SUITABLY QUALIFIED PERSONS, AND ONLY GENUINE PANBLAST™ APPROVED PARTS MAY BE USED.

8.1 The PanBlast™ Titan II Respirator Helmet has a limited service life, and it requires regular inspection and servicing with approved replacement parts. If the respirator helmet shell shows any signs of significant wear, cracks or holes etc, the respirator helmet assembly should be discarded and replaced.

8.2 Prior to using the respirator helmet, all hoses and fittings should be checked for dust and debris, and cleaned or replaced if necessary.

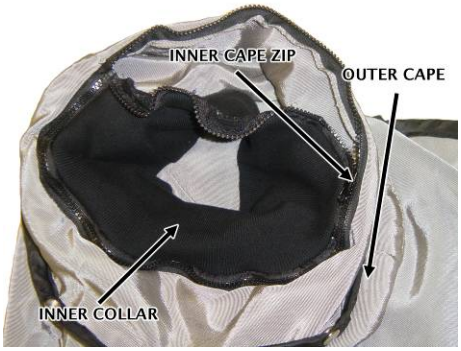
8.3 Carefully inspect the breathing tube assembly daily, checking for any signs of wear, splits or tears in the outer casing of the tube assembly.

! WARNING ! – ANY AIR LEAKS IN THE BREATHING TUBE WILL RESULT IN A REDUCTION OF AIR FLOW TO THE RESPIRATOR HELMET.

8.4 On a weekly basis, remove the inner padding, and check the condition of the inner foam air diffuser. The diffuser should be replaced if it shows any sign of deterioration or airflow restriction.

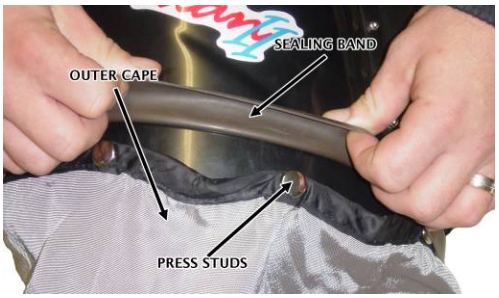
! WARNING ! – DO NOT USE THE RESPIRATOR HELMET WITHOUT THE DIFFUSER TUBE CORRECTLY FITTED.

8.5 On a daily basis, check the condition of both the inner collar and outer capes. The inner collar should provide a snug fit around the operators' neck to prevent the entry of dust and abrasive into the respirator helmet. Replace the collar and cape as necessary. The inner collar is attached to the outer cape by way of a zipper arrangement. Simply unzip the inner collar to remove it from the outer cape. The inner collar may be washed in a mild detergent, and air dried.



8.6 To replace the cape, carefully roll the rubber sealing band upwards, exposing the press studs which retain the cape on the respirator helmet shell. If the sealing band is damaged or has become stretched from its' original size, it should also be replaced. Carefully remove the cape press studs from the respirator shell, and discard the old cape. Position the join/seam in the neck of the new cape at the rear of the respirator helmet shell, and commence attaching the press studs to the respirator shell, starting from this point. Once fully attached, pull the sealing band down over the cape press studs, taking care to ensure that the

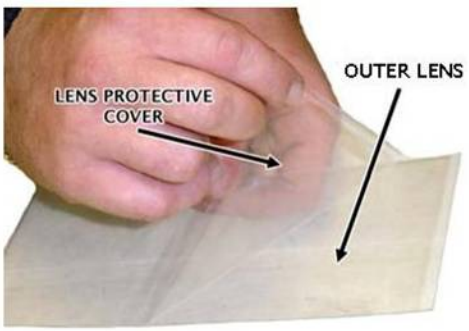
sealing band creates a positive seal around the full circumference of the respirator helmet shell.

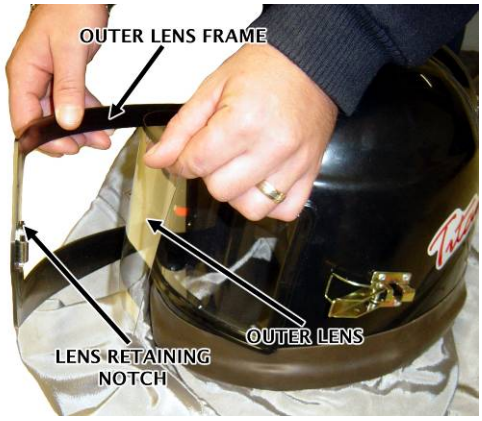


8.7 Refer to Operating Manual ZVP-PC-0038-01 for further details on the Titan II Alternate Respirator Capes.

8.8 During operation, the outer lenses will become frosted over from rebounding abrasive. These lenses should be replaced as soon as the operators' visibility is impaired. The outer lenses are replaced by unlatching the window frame latch, then swing open the frame on the hinge. The outer lenses are simply inserted within the window frame notches provided.

NOTE: THE LENS PROTECTIVE LAYER MUST BE PEELED OFF THE LENS BEFORE FITTING IT INTO THE WINDOW FRAME.



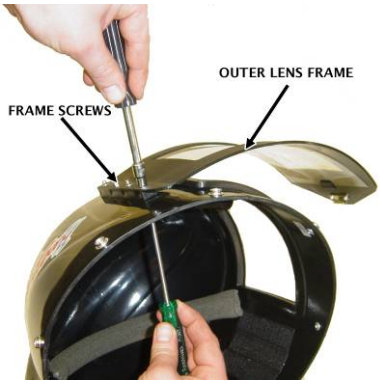


Once fitted into the frame, close the window frame and latch, and check that the frame and lens are fully sealed against the respirator helmet inner window gasket.

8.9 The respirator helmet inner lenses will also require periodic changing, and this should be done as soon as the operators' vision becomes impaired. When changing the inner lens, check the condition of the inner window gasket. This seal should provide an airtight seal between the respirator helmet shell and the inner lens. Replace the inner window gasket if necessary.

NOTE: THE LENS PROTECTIVE LAYER MUST BE PEELED OFF THE LENS BEFORE FITTING IT INTO THE WINDOW FRAME.

8.10 The respirator helmet window frame will also be subjected to wear from rebounding abrasives, and should be replaced as required. It is necessary to remove the respirator helmet inner padding to remove the window frame retaining screws.



8.11 The respirator helmet inner padding can be removed and washed in a mild detergent and warm water, and then air dried. Replacement padding assemblies are also available.

8.12 The inner surface of the respirator helmet shell may be wiped clean with a clean soft cloth and mild commercial disinfectant, and then air dried.

8.13 The operation of the respirator helmet airflow indicator should be checked on a weekly basis. The indicator float should move freely in the sight glass with no airflow to the helmet. Slowly invert the respirator helmet, and check that the indicator float slides freely within the sight glass. If necessary, dismantle the flow indicator assembly, and check for any obstructions of blockages within the sight glass and/or air feed tube, and clean/replace as necessary.

! WARNING ! CAUSTIC CHEMICALS AND/OR SOLVENTS MUST NOT BE USED TO CLEAN ANY PART OF THE AIR RESPIRATOR HELMET ASSEMBLY, AS IT MAY CAUSE DETERIORATION OF THE RESPIRATOR OUTER PROTECTIVE SHELL, AS WELL AS CAUSE IRRITATION OR BE HARMFUL TO THE BLASTING OPERATOR.

9.0 Titan II Supplied Air Respirator Parts Listing

9.1 Titan II Supplied Air Respirator With Alternate Accessories

Stock Code	Description
BAC-BH-0022-05	Titan II Respirator Helmet With Standard Cape
BAC-BH-0138-00	Titan II Respirator Helmet With Standard Cape & Air Flow Controller
BAC-BH-0141-00	Titan II Respirator Helmet With Standard Cape & Air Cooling Controller
BAC-BH-0144-00	Titan II Respirator Helmet With Standard Cape & Climate Controller
BAC-BH-0139-00	Titan II Respirator Helmet With Leather Cape & Air Flow Controller
BAC-BH-0142-00	Titan II Respirator Helmet With Leather Cape & Air Cooling Controller
BAC-BH-0145-00	Titan II Respirator Helmet With Leather Cape & Climate Controller

9.2 Titan II Supplied Air Respirator Parts Listing

Item	Stock Code	Description
1	BAC-AF-PB-0036	Air Flow Controller
2	BAC-AF-PB-0032	Air Cooling Controller
3	BAC-AF-PB-0175	Climate Controller
4	BAC-BH-0161-03	AcoustiFlex Breathing Tube
5	BAC-BH-PB-0020	Inner Shell Sponge Liner
6	YAC-BH-PB-0093	Air Flow Indicator
7	BAC-BH-0007-08	Air Entry Kit
8	YAC-BH-PB-0010	Respirator Helmet Shell
9	BAC-BH-PB-0009	Respirator Helmet Strap Handle
10	YAC-BH-PB-0011	Inner Shell
11	BAC-BH-PB-0006	Inner Padding Kit - Standard
12	BAC-BH-PB-0087	Inner Padding Kit - Thick
13	BAC-BH-PB-0090	Inner Padding Kit - Thin
14	YAC-BH-PB-0012	Sealing Band
15	BAC-BH-PB-0004	Inner Collar & Outer Cape - Standard
16	BAC-BH-PB-0024	Inner Collar & Outer Cape – Leather (Optional)
17	YAC-BH-PB-0035	Outer Lens Frame Latch
18	BAC-BH-PB-0069	Inner Lens Gasket
19	BAC-BH-0158-00	Inner Lens - Pack of 20
20	BAC-BH-PB-0015	Outer Lens - Pack of 100
21	BAC-BH-PB-0102	Outer Lens Frame
22	YAC-BH-PB-0042	Inner Collar
23	YAC-BH-PB-0016	Inner Rear Padding
24	BAC-AF-PB-0071	20m Airline Hose c/w Quick Disconnects (Refer to Table 3.2)

9.3 Titan II Respirator Helmet Exploded View