



**Hodge Clemco Ltd**

# **Owners Manual**

## **Type APH 60 CE**

(Standard Unit assembly)

## **Type APH 60CEC**

(Optional Climate Control Unit Assembly)

Designation

Compressed Airline BA EN 271

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## EC Declaration of Conformity

Hodge Clemco Ltd, Orgreave Drive, Sheffield. S13 9NR  
declares that the new PPE described hereafter:

APOLLO 60 AIR FED ABRASIVE BLASTING HELMET  
TYPES: APH 60CE AND APH 60 CEC

Is in conformity with the provisions of Council Directive 89/686/EEC and with  
BS EN 271:1995

Is identical to the PPE which is the subject of EC certification of conformity No:  
990601 issued by:

SGS Yarsley  
SGS House  
217 – 221 London Road  
Camberley  
Surrey  
GU15 3EY

Notified body No. 0120

Is subject to the procedure set out in Article 11.B of Directive 89/686/EEC under the  
supervision of the notified body: SGS Yarsley, SGS House, 217 – 221 London  
Road, Camberley, Surrey GU15 3EY U.K.

Completed at Sheffield on **12<sup>th</sup> July 1995**



**Industrial Sales Manager**



**Director**

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### Attenuation Results for APH 60 CE (values in dB)

<b>Frequency</b>	<b>63</b>	<b>125</b>	<b>250</b>	<b>500</b>	<b>1k</b>	<b>2k</b>	<b>4k</b>	<b>8k</b>
<b>Mean Attenuation</b>	9.6	8.9	9.9	7.8	11.3	14.5	21.4	<b>25.8</b>
<b>Standard Deviation</b>	4.0	3.7	3.4	3.6	3.0	3.4	2.9	<b>3.3</b>
<b>Assumed Protection</b>	5.5	5.2	6.5	4.2	8.3	11.1	18.6	<b>22.4</b>

Reference report number: HP/96/2

## **GENERAL DESCRIPTION**

The Clemco Apollo 60CE and the Apollo 60CEC Air Fed Respirator System has been specifically designed for blast cleaning operative protection and comfort and satisfies the requirement of EN 271. This European Standard specifies minimum requirements for compressed air line breathing apparatus incorporating a hood when undertaking blasting work using solid abrasives

The above approval applies only when the respirator system is used complete, without modification, change or substitution

**IMPORTANT: The use of unapproved spares on this helmet totally invalidates the approval and therefore contravenes the Statutory Requirements of COSHH regulations**

***WARNING: Adequate protection may not be provided by this apparatus in atmospheres that are immediately dangerous to health***

**WARNING: This apparatus is NOT suitable for use in flammable atmospheres, and is not designed for use in exceptional low or high temperatures where freezing up or heat exhaustion could result**

## **2.0 COMPONENT PARTS**

**2.1** Ensure that all component parts of the respirator system are present. A complete system comprises

- 1 x Air fed helmet with suspension assembly
- 1 x Cape and muffler lining (or blasters tunic)
- 1 x Breathing air hose assembly
- 1 x Air control valve with belt (or climate tube assembly)

## **3.0 SETTING UP INSTRUCTIONS**

Adjust the helmet suspension assembly as follows :-

### **Sweatband Adjustment**

- 3.1** Hold the helmet upside down, with the front towards you.
- 3.2** Detach the helmet suspension assembly from the helmet by withdrawing the four tapered slides from their housings
- 3.3** Disconnect the wrap-around tab
- 3.4** Lift up both ends of the sweatband and disconnect the size adjustment slide
- 3.5** Insert the size adjustment slide into the appropriate holes for wearer comfort. Replace both sweatband ends and refasten the wrap-around tab

## **Depth Adjustment and Balance**

**3.6** The suspension assembly maintains a fixed distance between the wearer's head and the helmet

**3.7** When refitting the helmet suspension assembly the tapered slides must be firmly seated in their housings

**3.8** To attach the chin strap, insert the strap links over the two posts (10). Adjust for comfort using its slide adjuster

## **Window System**

The window system is an important part of the helmet and comprises:-

- a) An inner polycarbonate safety window secured by a moulded rubber gasket to the helmet shell
- b) An intermediate window secured within the window frame on one of the two location lugs
- c) Replacement outer windows retained in place by the hinged window frame

With this system installed correctly the blaster can easily remove an etched outer replacement window when required by simply drawing his hand across the front of the helmet and pulling the tab. The window will tear along the perforations and the border is retained within the window frame ensuring the sealing effect is maintained throughout the life of the pack of outer windows

***WARNING: The user must ensure that the windows are correctly installed prior to each blasting operation. Failure to do so could result in reduced visibility and/or personal injury***

**3.9** Unfasten the window frame latch and open the window frame assembly

**3.10** Check seating of the window gasket

**3.11** Check that the protective film has first been removed from both faces of the inner safety window and the window is correctly and securely in position in the root of the window slot of the window gasket and the gasket remains correctly positioned onto the helmet shell

**3.12** Remove the intermediate window

**3.13** Remove any retained replacement outer window material from the window frame and check that the sponge seal on the inside of the window frame is in good condition and in position

**3.14** Take up the pack of six replacement outer lens material and check that the top lens has the tab folded in the opposite way to the other five

**3.15** Locate the replacement outer windows within the window frame so that the set of tabs are located outside the frame towards the hinge and the sixth tab is located inside the frame and folded towards the helmet shell

**3.16** Install the intermediate inner window onto the interior of the window frame by locating one of the two slots onto one of the retaining protrusions on the window

**3.17** Securely fasten the window frame latch and ensure that all window are correctly clamped in position

**3.18** Attach the breathing hose assembly between the helmet inlet and air control valve outlet. Ensure the coupling gaskets or 'o' rings are in place and where appropriate the black hose cuff connects to the belt air control valve.

**DO NOT OVER TIGHTEN.**

**3.19** Connect the other end to the air control valve outlet, again ensuring the required seal is in place and air flow is in the correct direction

**3.20** Connect the requisite lengths of breathing air supply hose (30) (31) to the inlet of the air control valve using the quick connector coupling (34)

**NB It is recommended that 10mm bore breathing air supply hose (32) (33) be used when installing the optional Climate Control Tube (22)**

**3.21** The air supply hose should then be connected to a Clemco breathing air filtration system (see separate owners manual)

#### **4.0 AIR SUPPLY**

***WARNING: Oxygen and oxygen enriched air supplies must not be used with this respirator system***

**4.1** The helmet must be supplied with minimum respirable breathing air at 170ltrs per min. (6 cubic ft per min)

**4.2** The air compressor should be equipped with a high temperature or carbon monoxide (CO) warning device or both. An overloaded compressor, or one in poor mechanical condition may produce carbon monoxide (CO) and objectionable odours

**4.3** When using portable compressors, precautions must also be taken to prevent exhaust gases from entering the air intake. It is advisable to have the exhaust gases ducted downwind to a safe non combustible area

**4.4** A breathing air filter should be installed between the air compressor and the air fed helmet. This should remove objectionable odours, pipe scale, condensed moisture, oil mist, oil vapours and any other particulate matter

**4.5** Checks should be carried out prior to use and at suitable intervals to ensure

requirements. The user shall ensure that the pressure range of the air supply to the helmet system is within the limits recommended by the manufacturer. (See table 1 for guidance).

***WARNING: An approved belt mounted air control valve must always be used with this air fed helmet system***

***WARNING: When using the optional climate control tube (22) appropriate ear protection must be worn***

Table 1

Air Supply Hose length x i.d.	Pressure at Air Filter bar (psi)	Air Flow ltr/min
10m x 6mm	3.8 (55)	270
	2.3 (33)	170
20m x 6mm	4.7 (68)	270
	2.9 (42)	170
40m x 6mm	6.2 (90)	270
	4.2 (61)	170
10m x 10mm	2.4 (35)	270
	1.4 (20)	170
60m x 10mm	3.2 (46)	270
	1.9 (26)	170

**NB** For hose lengths totalling more than 40m, 10mm breathing air supply hose should be used (32)(33)

## **5.0 OPERATING INSTRUCTIONS**

**5.1** Turn ON the air supply to the helmet

**5.2** Check all hoses and connections for air leaks. Take corrective action to eliminate any leaks

**5.3** Ensure that air is entering the helmet and fully complies with 4.1 . Prior to use this may be determined by attaching the air flow kit (WV 90 AFK) and optional air quality kit (D5185710) Frequent monitoring of air flow in use may be carried out by consulting the pressure indicator(28) which should read clear of the red sector

**IMPORTANT - TO COMPLY WITH HEALTH AND SAFETY REQUIREMENTS IT IS ESENTIAL THAT THE AIR FLOW AND AIR QUALITY BE FREQUENTLY MONITORED AND RECORDED**

***WARNING: At higher work rates the inhalation of the user will increase and can cause reduced/negative pressure within the helmet which could be dangerous. Air flow adjustments must always be made to ensure adequate air supply to the user in all conditions - Refer to Table 1 above and increase pressure accordingly***

**5.4** Place the helmet on the head ensuring that the cape's inner muffler fits snugly around the neck.

**5.5** Readjust the air flow to suit personal preference. The air control valve (21) incorporates a fixed orifice. Therefore the air supply should be adjusted at the breathing air filter to provide a minimum of 170 ltrs/min into the helmet

**5.6** Pull the cape down around the chest and connect the elasticated straps under the arms and tighten as required

**5.7** Secure the waist belt complete with air control valve over the cape and around the waist. Adjust the fit using the slide adjuster

***WARNING: Under NO circumstances must the helmet system be worn without the belt being securely fastened around the waist. Operation without the belt securely fastened can be dangerous***

**5.8** Ensure that the window frame latch is securely fastened

**5.9** When the final replacement window has been frosted a new set should be introduced into the window frame as detailed in section 3

***WARNING: Under No circumstances must the helmet be used without the lens system being in place and window frame securely fastened***

## **6.0 Maintenance**

**6.1** The helmet , hoses, air entry ports and fittings should be routinely checked for dust and debris and cleaned when contaminated or there is a suspicion of abrasive having entered the helmet (See 7)

**6.2** The inner safety window should not need changing often if properly protected by the intermediate and the outer windows. To change an inner safety window, first remove the latex helmet cover (if fitted) then remove the old inner safety window. Ensure that the gasket is clean and fully seated within the helmet shell window aperture. Seat the new safety window fully into the root of the window slot of the gasket, ensuring a perfect seal is made between gasket and helmet shell and between gasket and inner safety window

**6.3** Check sponge seal on inside of window frame. Replace if damaged or torn

**6.4** The suspension assembly is a critical factor in assuring helmet wearer safety, and it should be replaced at the first signs of wear

**6.5** When the helmet cape becomes soiled it may be removed and washed in warm soapy water. To remove the cape:

**6.5.1** Slide one end out of the helmet attachment strap at the part where the groove is notched

**6.5.2** Continue to slide the cape around the rim of the helmet until the cape is completely detached from the groove.

**6.6 To install the new cape:**

**6.6.1** Slide one end into the helmet attachment strap at the part where the groove is notched

**6.6.2** Continue to slide the cape around the rim of the helmet until the whole cape is completely in the groove and the single line stitch on the cape is at the centre back position (See Fig 1)

**6.7** Replace the chin strap if worn

**6.8** Replace the window frame if badly worn or when it becomes difficult to maintain a seal between the window frame, outer windows, intermediate window and the window gasket

**6.9** Where the optional latex helmet cover is fitted, it should be checked for wear and thoroughly cleaned prior to refitting to the helmet. When refitting care should be taken to ensure that it is positioned correctly beneath the window frame

**NB. It may be necessary to trim the rubber around the window frame to ensure the window latch engages correctly**

**6.10** When the inlet filter screen (27) in the air control valve outlet or helmet inlet (12) need to be replaced remove the retaining washer with a small screwdriver, remove dirty filter and replace with new kit.

**7.0 CLEANING**

**7.1** Remove cape and muffler lining (See 6.5) wash using warm soapy water

**7.2** Wash the helmet assembly and belt with warm soapy water **DO NOT IMMERSER THE HELMET IN WATER** as this will saturate the acoustical foam layer located between the inner and outer helmet shell

**7.3 Removal and cleaning of the suspension assembly**

**7.3.1** Detach the suspension assembly from the helmet by withdrawing the tapered slides from their housings

**7.3.2** Detach the chin strap links from the two buttons

**7.3.3** Clean sweatband assembly and chin strap using warm soapy water

**7.3.4** Refit the helmet suspension assembly ensuring the tapered slides are fully in their housings

**7.4** In the event that the acoustic foam lining inside the helmet becomes contaminated or there is a suspicion that abrasive may have entered the helmet, the following clean out procedure should be taken;

**7.4.1** Remove the cape from the helmet

**7.4.2** Hold the helmet upside down and remove the LH and RH self adhesive cheek pads

**7.4.3** Remove the chin strap from each side post

**7.4.4** Remove the six head harness supports

**7.4.5** Knock out the two retaining dowels (16) from each side and withdraw the inner crown

**7.4.6** Remove the two layers of acoustic filter material

**7.4.7** Carefully clean the helmet interior out and ensure no contamination and or abrasive particles remain

**7.4.8** Fit the new set of acoustic filter pads (14), correctly positioning them into the top and sides of the helmet shell first by positioning the two halves of the close cell type adjacent to the helmet shell and then placing the one-piece open cell type over it so that the inner crown retainers are not obstructed

**7.4.9** Refit the inner crown replace the two retaining dowels and suspension assembly, and ensure that all the tapered slides are firmly seated in their housings

**7.4.10** Fit new self adhesive LH and RH cheek pads

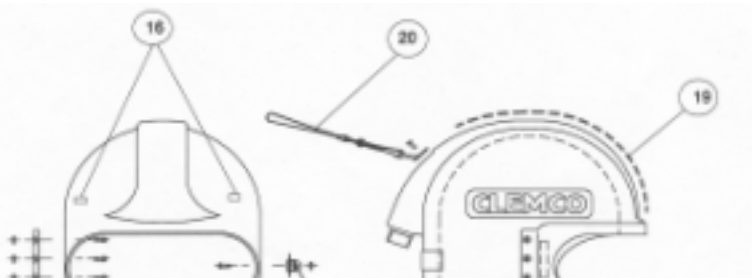
**7.4.11** Re-attach chin strap by inserting the strap links over the buttons

**7.5** When the filter screens in the helmet air inlet and air control valve outlet (12) (27) need to be replaced, remove the retaining ring/washer with a small screwdriver, remove dirty filter screen and replace with new kit

## 8.0 STORAGE

**8.1** For overnight storage the helmet assembly should be hung by the hanging strap at the rear of the helmet

**8.2.1** For longer term storage, the assembly should firstly be cleaned and dried. The cape should then be tucked up into the helmet and stored in a plastic bag to prevent dust and moisture from entering during storage

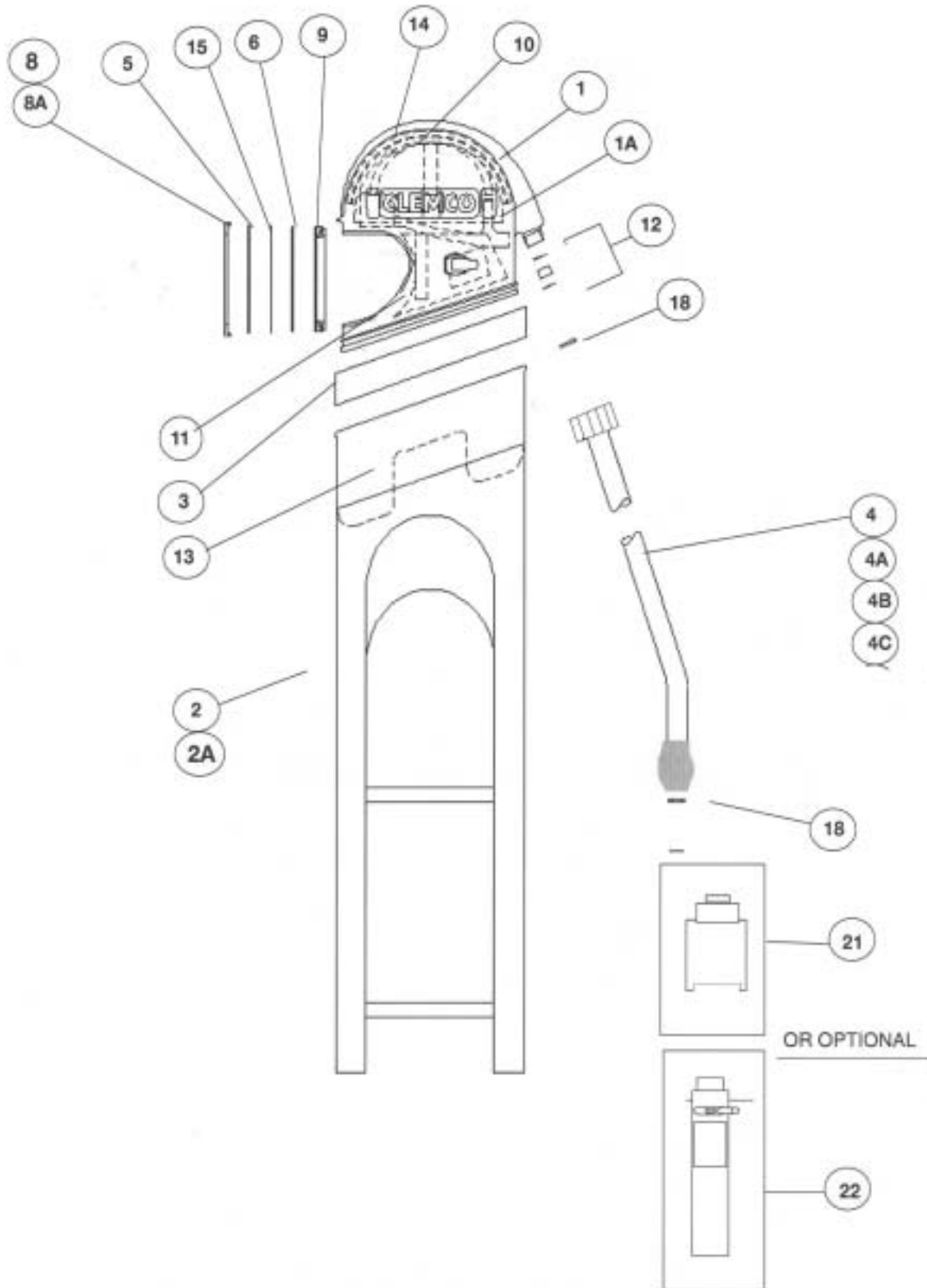


## PARTS IDENTIFICATION

**APH- 60CE** Air-fed helmet, complete with suspension assembly cape with muffler lining, breathing air hose assembly, standard, air control valve and belt

**APH - 100 CEC** Air Fed helmet complete with suspension assembly cape with muffler lining, breathing hose assembly, climate control tube and belt

ITEM	PART NO	DESCRIPTION
1	APH0064	APOLLO OUTER HELMET SHELL ONLY
1A	APH0065	APOLLO INNER HELMET CROWN
2	APH4435	CAPE WITH MUFFELR LINING
2A	CBS2	* BLASTERS TUNIC
2B	APH4436	* REINFORCED CAPE WITH MUFFLER LINING
3	APH10534	HELMET ATTACHMENT STRAP
4	APH22811	BREATHING HOSE ASSEMBLY
4A	APH22811A	* BREATHING HOSE ASSEMBLY (670MM LONG)
4B	APH22811B	* BREATHING HOSE ASSEMBLY (530MM LONG)
4C	APH21550	BREATHING HOSE ASSEMBLY
5	APH0002	OUTER TEAR OFF WINDOWS
6	APH4367	INNER SAFETY WINDOW
7	APH4368	WINDOW LATCH KIT
8	APH8741	WINDOW FRAME KIT
8A	IND10034	DUST SEAL (ROLL)
9	APH4452	WINDOW GASKET
10	APH8892	HELMET SUSPENSION ASSEMBLY
11	APH4460	CHIN STRAP
12	APH4381	FILTER SCREEN KIT
13	APH8740	MUFFLER LINING ONLY
14	APH4369	ACOUSTIC FOAM KIT
15	APH4373	INTERMEDIATE WINDOW
16	APH21552	RETAINNG DOWELS (2)
18	04370	GASKET (PK6) ( FOR APH 21550 ONLY)
19	APH0010	* LATEX HELMET COVER
20	CPF03623	HELMET HANGING STRAP
21	APH100024	AIR CONTROL VALVE ( SEE PAGE 13)
22	APH4411	* CLIMATE CONTROL TUBE
* OPTIONAL		



### Air Control Valve and Waistbelt

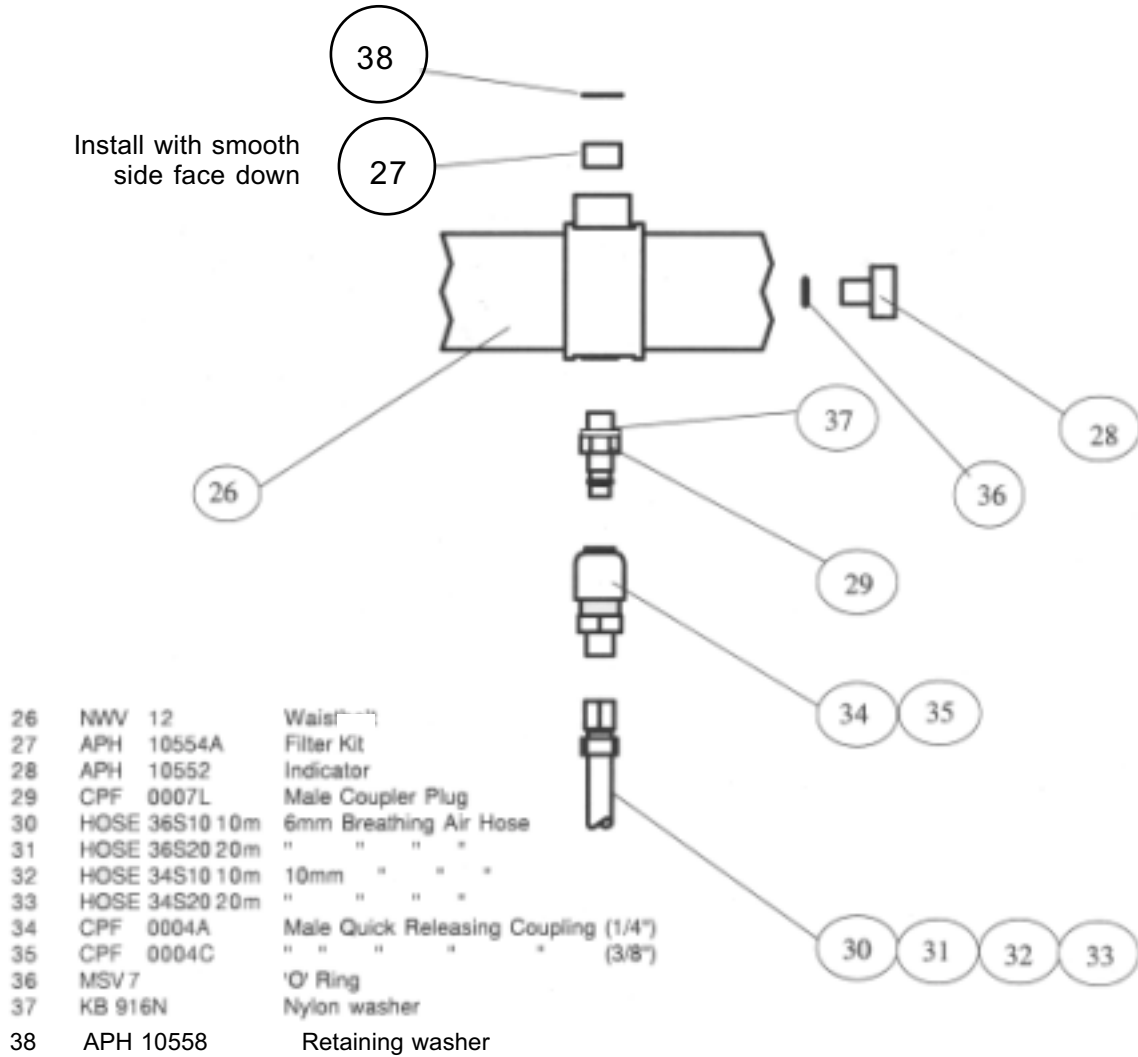
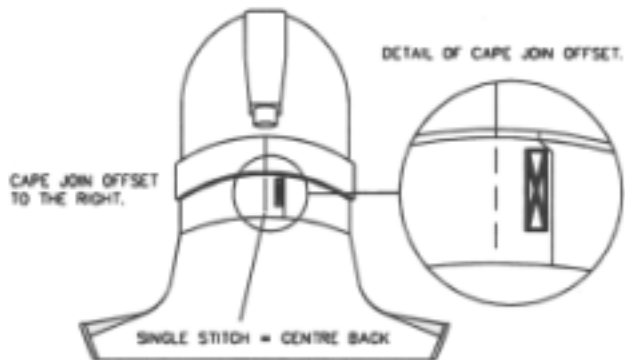


Fig.1



## The Clemco Climate Control Tube – Type APH4411 Operating and Maintenance Instructions

	<b>Item</b>	<b>Part No</b>	<b>Description</b>		
	16	NWV12	WAIST BELT		
	15	CPF0008	3/8 COUPLER PLUG		
	14	A8	3/8 ADAPTER NIPPLE		
	13	HOSE 34S 20	10MM OF BREATHING AIR SUPPLY (X20M)		
	12	HOSE 34S 10	10MM OF BREATHING AIR SUPPLY (X10M)		
	11	FASM635A	SCREW		
	10	MSV7	'O' RING		
	9	APH10556	INDIACATOR GAUGE		
	8	APH10559	ADAPTOR BUSH		
	7	RCAMV10	FEMALE TEE		
	6	NWV23	ADAPTOR NIPPLE		
	5	CPF004C	QUICK DISCONNECT COUPLING FOR 10MM HOSE		
	4	CPF004A	QUICK DISCONNECT COUPLING FOR 6MM HOSE		
	3	APH8849	QUICK DISCONNECT NIPPLE		
	2	APH8448	FILTER SCREEN		
1	APH 4378	SHIELD			
	Length of air supply hose	Internal dia of hose	Supply pressure (bar)	Air Flow (l/min)	
	20m	6mm	3.4	170	
	60m	10mm	5.2	170	

**Warning:** The intrinsic noise level generated by the relatively high air speed through the Climate Control Tube may exceed 80dB(A). Therefore ear defenders (ED1) or ear plugs (EP1) MUST BE WORN

### 1.0 INTRODUCTION

- 1.1** The Clemco climate control tube has been specifically designed for blast cleaning operative protection and comfort and satisfies the requirement of EN271 when used with a Clemco approved blasting helmet. The above approval applies only when the respirator system is used complete without modification, change or substitution.
- 1.2** The unit supplies the user with either warm or cool breathing air. The temperature adjustment lever on the unit allows the user to adjust the temperature of air to the blasting helmet to suit the individual requirements. (Approx. 10°C to 30°C)

### 2.0 AIR SUPPLY

- 2.1** The Climate control tube must be supplied with adequate volume of respirable breathing air to ensure minimum supply of 170ltrs/min into the helmet. Under normal conditions the lengths of breathing air supply hose must not exceed 20m (6mm i.d.) or 60m (10mm i.d.) see table 2. In extreme temperature conditions the maximum range of air supply temperature adjustment can only be achieved using 10mm i.d breathing air supply hose

- 2.2 The air compressor should be equipped with a high temperature or carbon monoxide (CO) warning device or both. An overloaded compressor or one in poor mechanical condition may produce carbon monoxide (CO) and objectionable odours.
- 2.3 When using portable compressors, precautions must also be taken to prevent exhaust gases from entering the air intake. It is advisable to have the exhaust gases ducted downwind to a safe non combustible area
- 2.4 A breathing air filter should be installed between the air fed helmet. This should remove objectionable odours, pipe scale, condensed moisture, oil mist, oil vapours and any other particulate matter
- 2.5 Checks should be carried out prior to use and at suitable intervals to ensure that the volume and quality of breathing air meets legislated Health & Safety requirements

***Warning: To comply with health and safety requirements the breathing air must be tested frequently for the presence of contaminants i.e. Carbon Monoxide (CO<sup>2</sup>) Hydrocarbons, etc. Kits are available for this purpose***

### **3.0 OPERATING INSTRUCTIONS**

These operating instructions should be used in conjunction with those issued with the approved air fed blasting helmet

***Warning: The maximum recommended inlet air pressure for the unit is 110 p.s.i. Under no circumstances must it be connected to an air supply greater than 110 p.s.i. (75 bar)***

- 3.1 Turn OFF the air supply to the system then remove existing air control valve and replace with the climate control tube
- 3.2 Attach the quick disconnect coupling of the air supply hose to the Climate control tube as shown
- 3.3 Move the temperature adjustment lever to warm (min flow)
- 3.4 Turn ON the air supply and regulate the air pressure until:
  - a) the air flow meter ( when fitted) reads 170 ltr/min
  - or b) the indicator gauge (9) reads mid scale
- 3.5 Don suitable ear protection
- 3.6 After placing the helmet over the head secure the waist belt over the cape and around the waist.

- 3.7 To adjust the air temperature, move the adjustment lever at the top of the unit in the appropriate direction. Allow at least one minute for the temperature change to occur, the readjust if required
- 3.8 Frequent monitoring of airflow may be carried out by consulting the pressure indicator (9) which should read clear of the red sector

#### **4.0 MAINTENANCE**

- 4.1 The climate control tube is a complex assembly and should not be disassembled any further than as instructed below
- 4.2 Disconnect the air supply
- 4.3 Unscrew the quick disconnected nipple (3) from the units air inlet
- 4.4 Remove the filter screen (2) using a small screwdriver and check it's cleanliness
- 4.5 Clean the filter screen if necessary by blowing clean with compressed air
- 4.6 Reassemble the unit
- 4.7 The shield which protects the operator's hip from any frosting which may form on the unit during operation should be replaced when worn
- 4.8 Replace the indicator gauge (9) and 'O' ring (10) if damaged or worn

#### **5.1 Problem Solving**

The climate control tube has no moving internal parts and requires minimal maintenance. Should inadequate air flow through the tube or a poor performance be experienced check :-

- 5.1.1 The indicator gauge (9) reads within the green sector
- 5.1.2 The filter screen (2) is free of obstructions ( See section 3)

**NB The air discharge temperature is affected by the temperature and volume of the air supplied to the climate control tube**



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