



Owners Manual

APH600CE

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1 Scope of Manual

This manual covers setup, operation, maintenance, replacement parts, and important warnings for safe operation of the Clemco Apollo 600 CE Supplied-Air Respirator.

Read the entire manual before installing or operating the equipment.

The following additional equipment may be used in conjunction with the Apollo 600 CE Respirator:

<i>Description</i>	<i>Part-No</i>
Air filter CPF-20	CPF20

These additional parts have to be installed between the compressed air supply and the air supply hose.

2 Applications and Limitations

2.1 General Description

The Apollo 600 CE was specially developed and approved for blasting. (MSHA - NIOSH and EN 271)

The following Warnings and Limitations have to be followed:

- The Apollo 600 CE is **not suitable for other work such as welding or painting!**
- Only for use in an atmosphere which does not represent any imminent danger for life and health and which contains a minimum oxygen volume of 19,5%.
- Do not use this product with pure oxygen or with oxygen enriched air.
- Do not use this product in flammable atmospheres.
- The Apollo 600 CE protects the wearer's head and neck from impact and abrasion caused by abrasive ricochet.
- The helmet is suitable for use when the head is vertical or near vertical. When used in a horizontal posture, the air indicator will not work.
- The helmet can be used at temperatures between -6° and 40°C.
- If the product is used below a temperature of 4°C the water content has to be reduced to avoid freezing.
- The compressed air supply must have a pressure between 6 and 8 bar. To be sure of this pressure you can use our Air Filter CPF 20 which has an integrated pressure regulator. See also 5.2.
- During a period of maximum breathing rate and maximum effort, a negative pressure may occur in the helmet.

2.2 Toxic Dust Poisoning

Recent research by the Occupational Safety and Health Administration (OSHA) has discovered potential risks of lead poisoning to unprotected abrasive blasting operators and other personnel who may be exposed to lead-containing dust in the abrasive blasting vicinity.

This lead laden dust is primarily a result of removing lead based paint.

Danger for life and health can also be caused by coatings which contain heavy metal, asbestos or other toxic material dust.

For that reason it is very important that the Blasting Contractor determines which type of coating has to be removed. If necessary a helmet or an additional Air Respirator which is approved for use with the above materials has to be used.

Lead poisoning can cause death.

2.3 Ear Protection

Always use properly fitted ear protection when using this equipment.

3 Description

The main components for the minimal version from a respirator are as follows:

- Helmet with cape attachment strap, suspension and adapted cape
- Breathing air-hose (length: approx. 1000mm)
- Breathing air-supply hose (length: 10m) with quick-fitting pipe union (female)
- Air control valve

4 Preparation

Please check the following components:

<i>(1) Adjust Helmet Suspension.</i>	– Adjust helmet suspension by turning the knob to suit your head size and adjust chin strap to correct length (see also 7.2).
<i>(2) Check that the lens system is in place.</i>	<ul style="list-style-type: none"> – Inner lens (Replacement see 8.1) – Intermediate lens (Replacement see 8.2) – Perforated outer lenses (Replacement see 8.2) <p>The respirator assembly must never be used without the fixed inner lens, intermediate lens and the outer lenses!</p>
<i>(3) Air Supply Hose.</i>	– Use the quick release coupling to attach the air supply hose to the air control valve.

	<ul style="list-style-type: none">– Attach the other end of the air supply hose to the Air Filter CPF - 20 <p>Use integral handle to carry the respirator. Never hold, carry or hang the respirator by the breathing hose!</p> <p>Mishandling the respirator in this manner may damage the hose!</p>
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5 Air Supply

Air supply to this respirator system is a critical component for the safety of the user and is not included in this delivery. Read this section carefully. Poor quality air will cause serious respiratory injury or death to the user (see 2.2).

5.1 Air Quality

The quality of air supplied to the respirator is extremely critical to the safety of the user. Special care must also be taken to avoid accidental connection to any other gas lines, such as oxygen, acetylene or nitrogen.

Never connect a breathing air line to an air source that has not been tested for gas and particulate contamination.

Do not use piston type (oil bath) compressors for breathing air. These compressors may produce dangerous levels of carbon monoxide.

The presence of unacceptable levels of carbon monoxide (CO) or other gases in the breathing air can cause death to the user.

Breathing air must be only used in following conditions:

- Breathing air used to supply the respirator must be respirable breathing air and is not allowed to contain less than 19,5 % by volume of oxygen.
- Prior to using the respirator, read the owner's manual and all instructions, labels, and warnings related to the compressed air source. Take special care about all the statements and warnings from the compressor supplier.
- If an oil-lubricated compressor is used, it must be equipped with a high-temperature alarm or carbon monoxide (CO) alarm, or both. If only a high temperature alarm is used, that air from the compressor must be tested frequently for the presence of carbon monoxide. The user is responsible for the inspection of the breathing air, the compressor, the alarm system for carbon monoxide, the Air Filter and wear of the instruments. A compressor which is too hot or was not maintained properly can produce carbon monoxide or a bad smell. To assure a good quality of breathing air you can also use systems to remove or to convert the carbon monoxide. The maximum permitted concentration of CO₂ in breathing air is 10ppm (parts per 1,000,000).

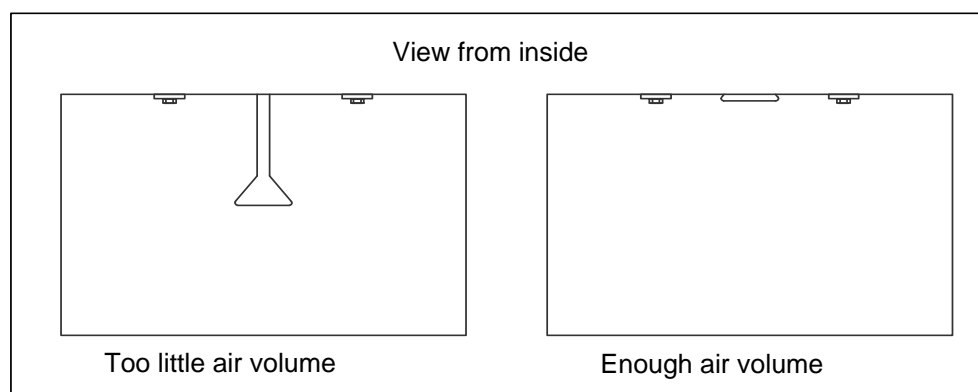
- Regardless of the air compressor type, precautions must be taken to prevent contaminants from entering through the compressor intake. The compressor inlet must be located away from all sources of toxic contaminants including carbon monoxide which is found in engine exhaust and in any form of combustion. No vehicles should be allowed near the compressor intake.
- 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 may vary in design and operation.
- A fitted Air Filter like the CPF-20 Filter, must be connected and maintained regularly to filter bad smells, oil mist, condensed water, rust from pipes and other contents.

5.2 Air Volume Velocity, Pressure and Hose Length

The quantity of air needed from a blaster for having enough oxygen to breathe is between

130l/min ... 190l/min.

This minimum supply ensures that the volume indicator is functioning, i.e the flag is retracted – otherwise the flag falls down into view.



Use only CE-approved hoses with safety couplings between the air filter and the control valve (see section 11 – spare parts).

The **maximum hose length** between the filter and the control valve can be **40m**. If it is necessary to use longer hoses you have to contact the manufacturer to take appropriate measures.

The **maximum pressure** at the supply hose is **8bar**.

6 Operation

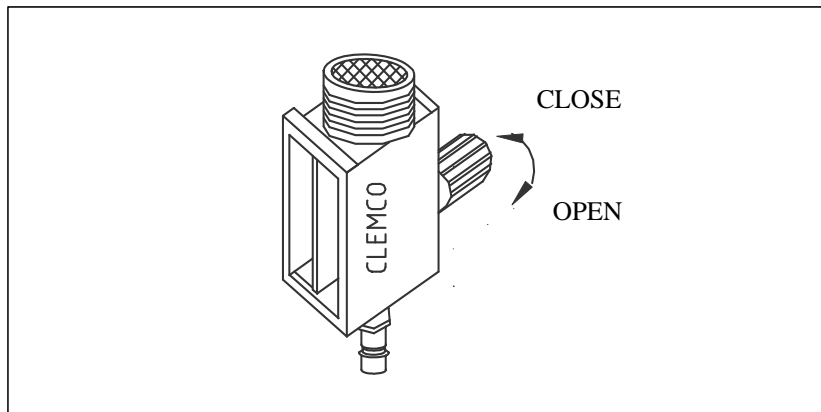
Prior to operation , the helmet, breathing tube, air supply hose, air entry ports and fittings must be thoroughly inspected and cleaned of all dust and debris. Also inspect the helmet suspension and adjust it if necessary (Adjustments see section 7.2).

The following steps have to be carried out before using the helmet:

<i>(1) Air supply.</i>	<ul style="list-style-type: none"> – Start compressor. – Open service valve to pressurize the air supply line.
<i>(2) Check air pressure.</i>	Pressure must be set with the connected respirator.
<i>(3) Check equipment.</i>	<ul style="list-style-type: none"> – Check all safety and breathing equipment used in conjunction with the respirator, as recommended by the manufacturer.
<i>(4) Check air supply hose.</i>	<ul style="list-style-type: none"> – Check air supply hoses and connections for tightness and leaks.
<i>(5) Put the respirator on.</i>	<ul style="list-style-type: none"> – Put the respirator on (keep it as upright as possible to prevent abrasive from falling inside.) – Position the knit cuff on the inner collar so that it fits comfortably. The collar assists in the prevention of dust entering the helmet. Do not allow shirt collars or other matter to interfere with the fit the cuff provides around the user's neck. – Pull the cape down to fully extend it, and connect the straps on each side under the arms. – Put the belt and control valve on over the cape, buckle the belt around the waist and tighten it using the adjusting slide.

7 Adjustments

7.1 New Control Valve

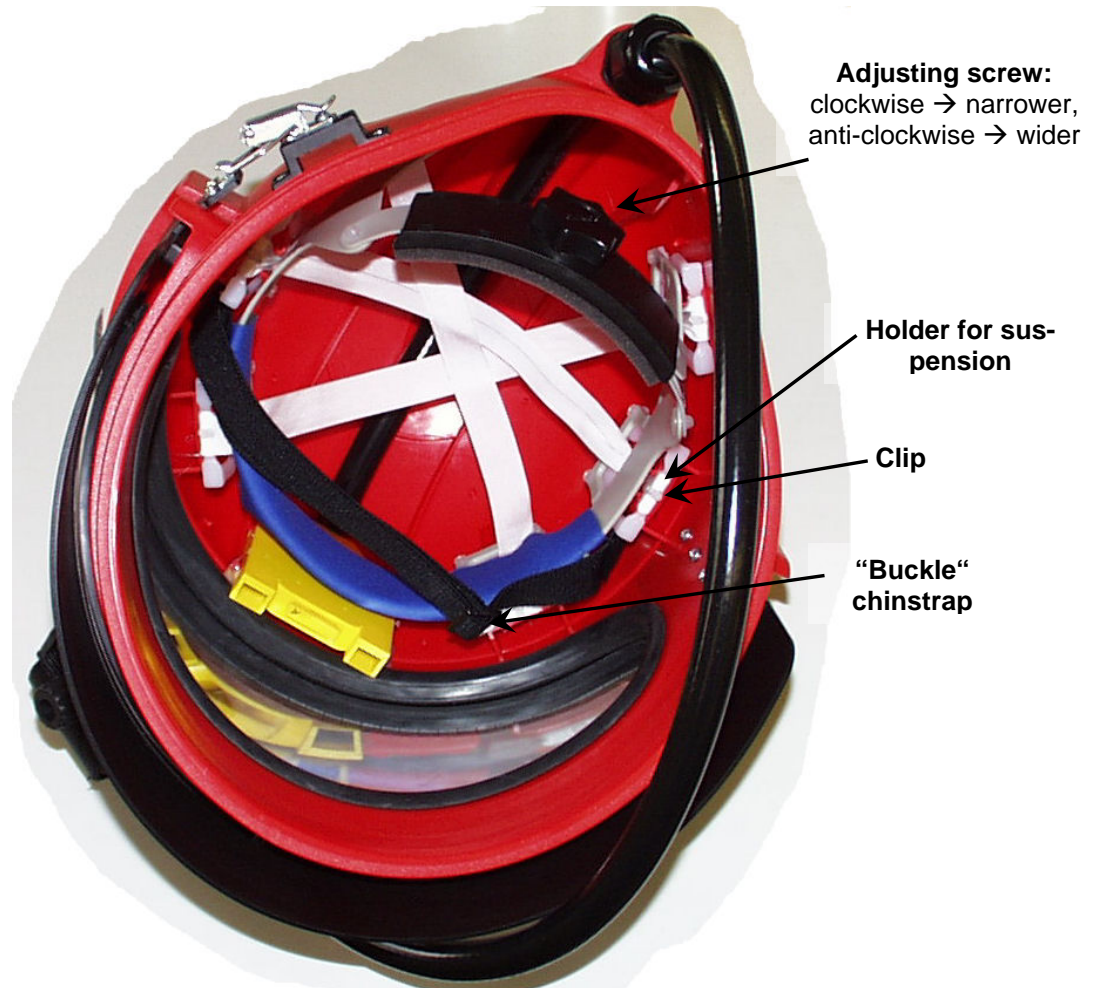


Picture 1: New control valve

Clemco's Air Control Valve allows the user to increase or decrease the volume of breathing air while wearing the supplied air respirator. To regulate it the knob on the side has to be turned.

If connected properly to the air supply the valve allows the breathing air to be adjusted to between 160l/min to 400l/min.

7.2 Adjustment of Suspension Assembly



Picture 2: Suspension

The following steps have to be carried out before using the helmet:

(1) <i>Remove Cape.</i>	<ul style="list-style-type: none"> – Open buckle by pressing the small lever and pull out belt. – Remove cape.
(2) <i>Adjust suspension.</i>	Adjust suspension by rotating the knob to fit your head size. Turning clockwise → suspension gets narrower; turning anti-clockwise → suspension gets wider.
(3) <i>Adjust chinstrap.</i>	Adjust chinstrap to correct length by moving the buckle.
(4) <i>Re-attach cape.</i>	See 8.4.

The suspension maintains a fixed distance between the head and the helmet. The suspension must be properly installed and adjusted to provide the protection and comfort for which the helmet is designed.

8 Maintenance Program / Replacement Parts

- The helmet, the hoses, air entry ports and fittings should be checked for dust or debris every day, and should be cleaned before using.
- Periodically inspect and clean the foam filter and screen in the alternate air control valve.
- After using the helmet it should be stored in a clean and dry area by hanging the respirator by the handle.

8.1 Replacing Inner Lens

<i>(1) Open frame.</i>	Open latch and fully open the frame.
<i>(2) Remove inner lens.</i>	<ul style="list-style-type: none"> – Open window gasket in upper area from outside by hand. – With the other hand press out lens from inside. – Check that window gasket still fits well.
<i>(3) Place new lens.</i>	<ul style="list-style-type: none"> – Clean gasket and moisten groove for lens with mild soapy water. – Place new lens centred on gasket and push it around into the groove of the gasket. Avoid scratches on the lens!
<i>(4) Close frame again.</i>	Hook the frame in latch and close it.

8.2 Replacing Intermediate Lens and Perforated Outer Lenses

Up to five outer lenses may be installed at one time. For maximum visibility we recommend to install only so many lenses to last for a work period.

Preparing lenses in the following manner will permit lenses to be pulled off easily by a user wearing heavy gloves:

<i>(1) Open frame.</i>	Open latch and fully open frame.
<i>(2) Remove outer lens.</i>	Remove outer lens carefully from plastic locating pegs.
<i>(3) Remove used outer lenses.</i>	Remove perforated outer lenses and/or rims of used outer lenses from plastic locating pegs.
<i>(4) Fit new perforated outer</i>	Position tabs to hinge side and pull through all tabs except the last and

<i>lenses.</i>	press outer lenses on to plastic locating pegs.
<i>(5) Fit new intermediate lens.</i>	When fitting the new intermediate lens, check that there's no dust or dirt between the lenses. Press outer lens onto plastic locating pegs.
<i>(6) Close frame again.</i>	Hook the frame on to the latch and close it.

8.3 Replacing Suspension

Pull out suspension assembly carefully from the six adaptors (see also picture 2).

The clips are supposed to fix the suspension in the helmet crown. The curved side has to face the centre of the helmet.

When placing the new suspension check that the chinstrap is placed in front of the suspension assembly.

8.4 Nylon-Cape

When the cape becomes soiled or requires replacement, it can easily be removed as follows:

<i>(1) Detach cape.</i>	<ul style="list-style-type: none"> – Open buckle by pressing the small lever and pull out belt – Remove cape.
<i>(2) Reattach new cape.</i>	<ul style="list-style-type: none"> – Put sewed-in spring of cape in groove of helmet beginning at the front (seam of cape has to face backwards). – Attach spring of cape all around the helmet completely in groove. – Place belt in such a way that the buckle is placed opposite to the hook of the frame and the end of the belt faces the rear. – Mount belt, check position of cape and close belt with ratchet.

8.5 Replacement of Collar

The inner collar plays an important role in controlling air escape from the helmet and preventing ingress of dust. To replace or wash the collar it has to be detached with the zip from the cape (see point 9 for service maintenance and cleaning).

The cape must be replaced when the collar is stretched to the point where it no longer fits snugly around the neck.

8.6 Replacement of Lens Frame

The lens frame must be replaced if a seal is not maintained any more or if the rubber latch doesn't stay closed. When changing the lens frame the acoustic pads in the inner part of the helmet should be changed also.

8.7 Replacement of Chin Strap

The chinstrap must be replaced at the first sign of wear.

To get the chinstrap off the holder push it up into the helmet till it snaps out, then take it off the holders.

When replacing the new chinstrap, check that the bevelled side faces the centre of the helmet.

9 Service Maintenance and Cleaning

Follow the washing instructions described in this section. 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.

9.1 Filter

The filter (foam) is in the air control valve. Replace the foam filter at the first sign of soiling. To do this you have to remove the spring washer with a small screwdriver and take out the dirty foam. Afterwards reassemble these 3 parts in reverse order.

9.2 Nylon-Cape

The cape can be machine washed using warm water and mild detergent. Dry it in a clothes dryer at the lowest temperature setting. Do not dry clean. See section 8.4 for removal and installation instructions.

9.3 Collar

For removing perspiration and dust the collar should be washed daily. Remove the collar from the cape and wash it in warm water and mild detergent. Dry it in a clothes dryer at the lowest temperature setting. Do not dry clean. See section 8.5 for removal and installation instructions.

9.4 Sweatband / Suspension

The sweatband, suspension assembly, and chinstrap should be washed using warm water and mild detergent. See section 8.3 for removing suspension assembly.

9.5 Helmet Assembly

The helmet assembly should be cleaned with disinfectant. You can use the product "Indicur" from the Company „Henkel“.

WARNING! This product was only tested for compatibility with our helmet. When using this product you have to follow the instructions in the manual. We do not take any liability for any skin complaints or other health issues when using this product.

9.6 Lenses

Inner and outer lenses should be replaced when pitted or scratched. However mild detergent and water can be used to clean them. Volatile solutions such as alcohol, gasoline or ammonia must be not used to clean these lenses. Allow the lens to air dry; cloth and towels can scratch the lens surface.

10 Storage

10.1 Daily Storage

When the helmet is not in use, it must be stored in a clean, dry area. Hang the helmet in the vertical by the handle.

10.2 Long Duration Storage

After cleaning and thorough drying, the cape should be tucked inside the helmet. The helmet should then be placed in a plastic bag and the bag sealed to keep out dust and moisture.

11 Spare Parts

11.1 Helmet

<i>Pos.</i>	<i>Part-No.</i>	<i>Model</i>	<i>Description</i>
-	APH60CE	APOLLO 600 CE	Helmet A-600 CE complete with: – Air control valve and cape

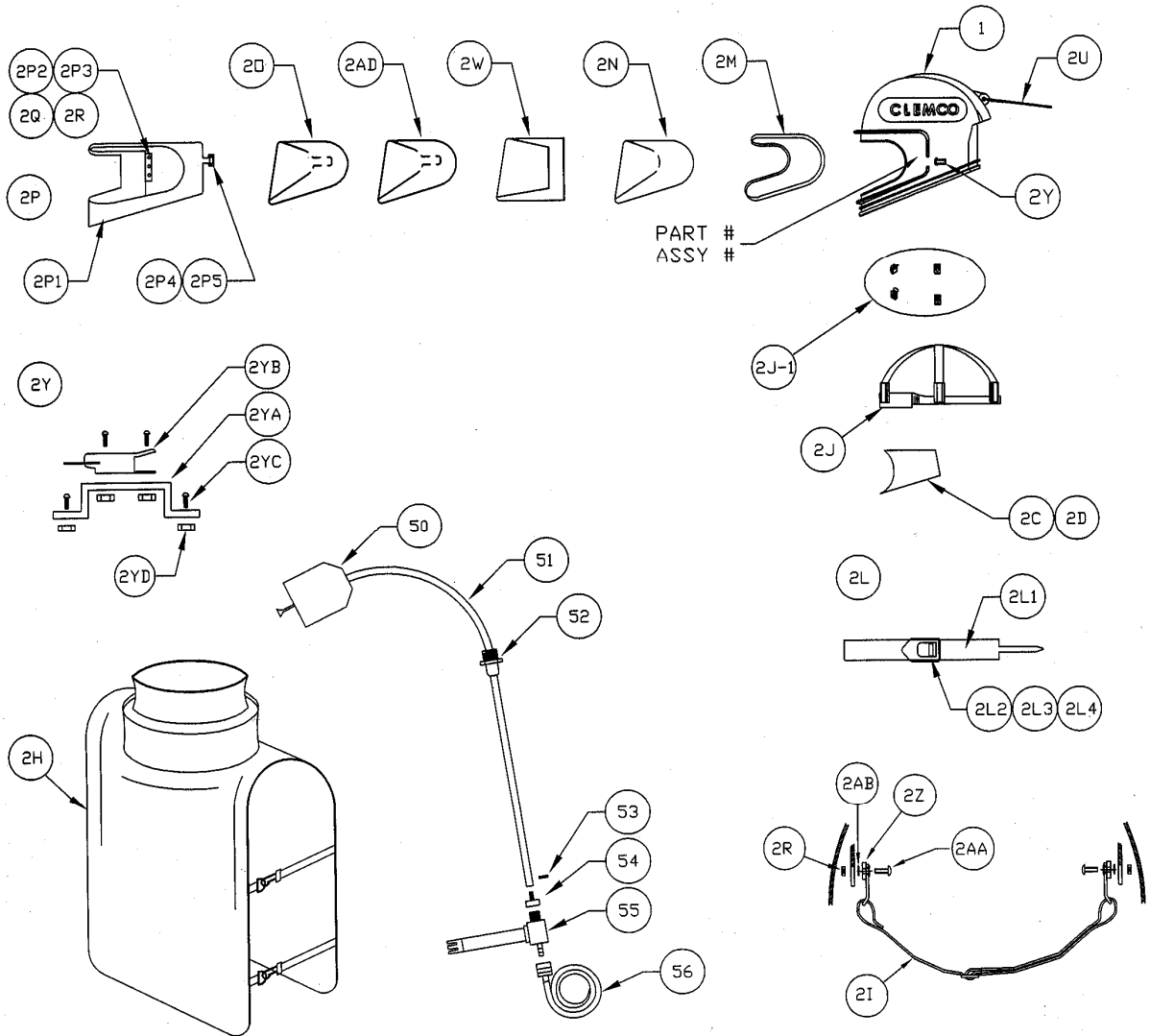
11.2 Air Control Valve

<i>Pos.</i>	<i>Part-No.</i>	<i>Model</i>
-	APH4381	Filter set (foam-filter, screen and spring washer)
-	APH100042	Air Control valve new; complete
55	APH100074	Air Control valve new; without belt

11.3 Components

<i>Pos.</i>	<i>Part-No.</i>	<i>Model</i>
1	APH23800A	Outer helmet shell A-600
2C	APH4491	Acoustic foam r.h.
2D	APH4492	Acoustic foam l.h.
2H	APH23815D	Cape A-600
2I	APH4460	Chinstrap
2J	APH23806I	Suspension assembly A-600
2J1	APH23821I	Clip (for suspension assembly)
2L	APH23801D	A-600 cape attachment

Pos.	Part-No.	Model
2L3	APH23803D	A-600 draw latch window frame
2L4	APH24245D	Screw M6x8 for latch
2M	APH23819D	A-600 window gasket
2N	APH60000	Inner lens (1mm Polycarbonate; 1 piece)
2O	APH04361I	Perforated outer lens 0,2mm (25 PK) (special order)
2P	APH24012D	A-600 window frame complete
2P1	APH23810D	A-600 window frame black
2P2	APH23812D	A-600 hinge black
2P3	APH99269D	Rivet (base)
2P4	APH04454D	Rivet (head)
2P5	APH08738I	Catch for window frame
2Q	APH23805I	Screw for A-600 (6/32 x 1/2")
2R	APH08924I	Nut #6
2W	APH60001	Intermediate lens (1 piece)
2Z	APH90266D	Chinstrap holder
2AA	APH23805I	Screw (6/32 x 1/2")
2AB	APH03889I	External star washer
2AD	APH60002	Outer lens (pack 6)
2YA	APH23813D	A-600 latch base
2YB	APH04449I	Draw latch
2YC	APH04438I	Screw for A-600 (6/32 x 1/2")
2YD	APH08924I	Nut #6
50	APH100913	A-600 CE air indicator complete with hose
50	APH100915	A-600 air indicator
51	APH100914	Air hose black 1m
52	APH100917	A-600 high-strength cable gland
53	APH24263D	Clamp for 9mm hose
54	APH01030D	Hose connection
55	APH100042	Regulator valve complete with belt



Picture 4: Single components of Apollo 600 CE