

rpb<sup>®</sup> ASTRO<sup>®</sup>

INSTRUCTION MANUAL

National Institute for  
Occupational Safety and Health  
**NIOSH**

**rpb**<sup>®</sup> ADVANCING  
YOUR SAFETY





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**Read all instructions and warnings before using this product.  
Keep this manual for future reference.**

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## INTRODUCTION

The RPB® ASTRO® SUPPLIED - AIR RESPIRATOR TYPE CE is specifically designed for use during Abrasive Blasting. The ASTRO® has been designed for use in atmospheres NOT IMMEDIATELY DANGEROUS TO LIFE OR HEALTH, and from which a user can escape without the aid of the respirator, or that do not exceed concentrations allowed by OSHA, EPA or NIOSH regulations and recommendations.

The RPB® ASTRO® is Approved by NIOSH (TC-19C-417, 19C-423 TYPE CE to provide respiratory protection in abrasive blasting and type CE painting applications. The cape is designed to protect the wearer's upper body from rebounding abrasive.

The RPB® ASTRO® is NIOSH Approved for use with the following flow control devices:

- NV2015 Constant Flow Valve (Low Pressure)
- NV2016 Flow Control Valve
- O3-500 Climate Control Device.

## WARRANTY

*All RPB® Safety products are covered by a manufactures warranty of 3 months. The manufacturer warranty covers defects in material, workmanship and does not cover damage caused by misuse or abuse. RPB® Safety's only obligation and your exclusive remedy shall be to repair, replace or refund the purchase price of such parts or products upon the presentation of proof of purchase. Maximum liability is in no case to exceed the value of the RPB® Safety Product involved.*

## RESPIRATOR COMPONENT CONCEPT

The RPB® ASTRO® SUPPLIED AIR RESPIRATOR consists of three main components: RESPIRATOR HELMET ASSEMBLY, BREATHING TUBE ASSEMBLY, and AIR SUPPLY HOSE illustrated in Fig1.1. All three components must be present and properly assembled to constitute a complete NIOSH approved Respirator.

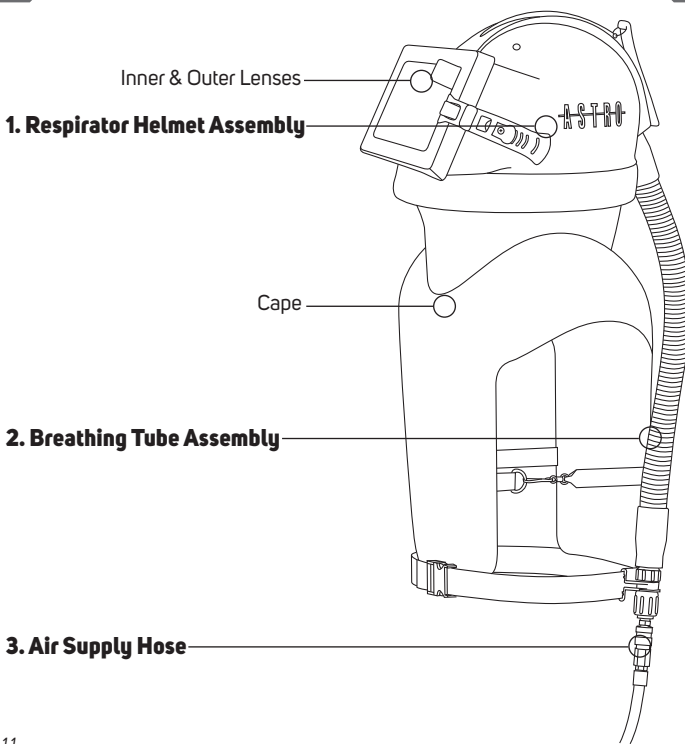


FIGURE 1.1

**!WARNING! Failure to use genuine parts and components that are part of the NIOSH approved respirator assembly will void the approval of the entire respirator assembly.**

## !WARNINGS!

1. Do not use this respirator until you have been trained in the respirators use, maintenance and limitations by a qualified individual (appointed by your employer) who has extensive knowledge of the RPB® ASTRO® Respirator.
2. Before using this respirator ensure your employer has determined that airborne contaminant concentrations do not exceed those allowed by applicable OSHA, EPA or NIOSH regulations and recommendations for continuous-flow supplied air respirators. Federal law requires that the employer measures and monitors airborne contaminant levels in the work area.
3. DO NOT wear this respirator if any of the following conditions exist:
  - Atmosphere is immediately dangerous to your life or health.
  - You CAN NOT escape without the aid of the respirator.
  - Atmosphere contains less than 19.5% oxygen.
  - Work area is poorly ventilated.
  - Contaminants are in excess of regulations or recommendations.
  - Radiation exists in the work area, or materials are Radioactive.
4. Do not modify or alter this respirator. Use only NIOSH approved RPB® ASTRO® components and replacement parts. The use of non approved parts voids the NIOSH approval of the entire respirator assembly.
5. Inspect all components of the respirator daily for signs of damage or wear and tear that may reduce the level of protection originally provided.
6. DO NOT use abrasives containing silica, lead, arsenic or sharp glass particles - use of abrasives containing these elements could result in serious Injury or death.
7. DO NOT wear this respirator until you have passed a complete physical exam including a lung X-ray conducted by qualified medical personnel.
8. Improper use of this respirator may cause injury or death. Improper use may also cause life threatening delayed lung diseases such as silicosis, pneumoconiosis or asbestosis.
9. This respirator, when properly fitted and used, significantly reduces but does not completely eliminate the breathing of contaminants by the respirator wearer.
10. BE CERTAIN your employer has determined that the breathing air source provides at least Grade D breathable air. The respirator must be supplied with clean filtered breathing air at all times.
11. DO NOT connect the respirator's air supply hose to nitrogen, toxic gases, inert gases, or other unbreathable non Grade D air sources. Check the air source before using the respirator. Failure to connect the supply hose to the proper air source could result in serious injury or death.
12. DO NOT use this respirator in poorly ventilated areas or confined spaces. Ensure the area is well ventilated and

that the contaminant concentrations are below those recommended for this respirator. Follow all procedures for confined space entry, operation and exit as defined in applicable regulations and standards.

13. LEAVE WORK AREA IMMEDIATELY IF:

- Any respirator component becomes damaged.
- Airflow stops or slows down.
- Breathing becomes difficult.
- You become dizzy, nauseous, too hot, too cold or ill.
- Vision is impaired.

14. DO NOT wear this respirator if the ambient usage temperature is below -10°C or above +60°C.

**NIOSH - CAUTIONS AND LIMITATIONS**

- A Not for use in atmospheres containing less than 19.5 percent oxygen.
- B Not for use in atmospheres immediately dangerous to life or health.
- C Do not exceed maximum use concentrations established by regulatory standards
- D Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E Use only the pressure ranges and hose lengths specified in the user's instructions
- J Failure to properly use and maintain this product could result in injury or death.
- M All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N Never substitute, modify, add or omit parts. use only exact replacement parts in the configuration as specified by the manufacturer.
- O Refer to user's instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- S Special or critical user's instructions and/or specific limitations apply. Refer to user's Instruction page 9 (breathing air pressure table) before donning.

## RESPIRATOR OPERATION

### AIR QUALITY

This respirator must be supplied with clean breathable air, Grade D or better, at all times. The RPB<sup>®</sup> ASTRO<sup>®</sup> does not purify air or filter contaminants.

Breathable air must be supplied to the point of attachment of the RPB<sup>®</sup> Safety air supply hose. Supplied breathing air must at least meet the requirements for Type 1 gaseous air described in the Compressed Gas Association Commodity Specifications G.71 (Grade D or higher)

### AIR SOURCE

Locate the air source in a clean air environment, always use a filter on the inlet of your air source. Do not park vehicles beside your air inlet as this will cause carbon monoxide to be drawn into your air supply. Use suitable aftercoolers / dryers with filters and carbon monoxide alarms to assure clean breathable air is supplied at all times. The air should be regularly sampled to ensure that it meets Grade D requirements.

### AIR SUPPLY HOSE AND FITTINGS

RPB<sup>®</sup> Safety air supply hoses must be used between the point of attachment and the respirator breathing air connection at the wearer's belt. RPB<sup>®</sup> Safety quick disconnect fittings must be used to connect the hose lengths together. The hose sections must be within the approved length and the amount of sections must be within the number specified in the Breathing Air Pressure Table on page 9.

### BREATHING AIR PRESSURE

The air pressure must be continually monitored at the point of attachment while the air is flowing to the respirator. Air pressure must be read from a reliable pressure gauge whilst the respirator has air flowing through it.

**!WARNING!** Failure to supply the respirator with the minimum required pressure at the point of attachment for the length of air supply hose used could result in contaminants being inhaled as the pressure in the helmet may become negative due to peak inhalation flow when working at very high work rates.



## SPECIAL OR CRITICAL USERS INSTRUCTIONS

### BREATHING AIR PRESSURE TABLE *Table 1.1*

This table lists air pressure ranges needed to provide the RPB® ASTRO® with the volume of air that falls within the required range of 6-15cfm or 170-425 lts/min according to US government regulations.

**BEFORE USING THIS RESPIRATOR MAKE SURE YOU UNDERSTAND THE TABLE BELOW.**

1. AIR SOURCE	2. BREATHING TUBE ASSEMBLY AND FLOW CONTROL DEVICES	3. AIR SUPPLY HOSE	4. SUPPLY HOSE LENGTH (FT)	5. MAX NUMBER OF SECTIONS	6. PRESSURE RANGE (PSIG AIR)
Portable or Stationary Compressor	NV2021/NV2016 Flow Control Valve Assembly	NV2028 (25ft) NV2029 (50ft) NV2027(100ft)	25	1	26 - 27
			50	1	27 - 28
			100	2	30 - 31
			150	3	33 - 34
			200	4	36 - 37
			250	5	38 - 39
300	6	41 - 43			
Low Pressure Compressor or Air Pump	NV2021/NV2015 Low Pressure Constant Flow Valve Assembly	NV2035 (50ft) NV2036 (100ft)	25	1	7-8
			50	1	8-9
			100	2	10-11
			150	3	11-12
			200	4	12-13
			250	5	14-15
300	6				
Portable or Stationary Compressor	NV2021/03-500 Climate Control Assembly	NV2028 (25ft) NV2029 (50ft) NV2027(100ft)	25	1	50 - 80
			50	1	55 - 85
			100	2	60 - 95
			150	3	65 - 95
			200	4	70 - 100
			250	5	75 - 100
300	6	85 - 100			

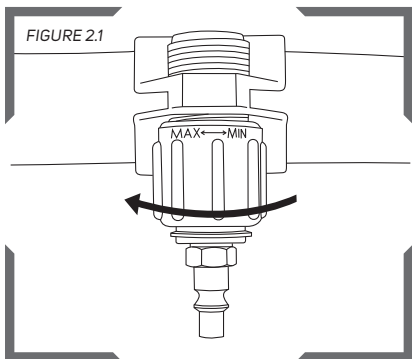
**Note:** Please see Appendix A for other hose configurations.

Set the air pressure at the point of attachment within the range specified in column 6 for your breathing tube assembly, hose length and amount of hose sections. Make sure air is flowing through your respirator when setting the pressure.

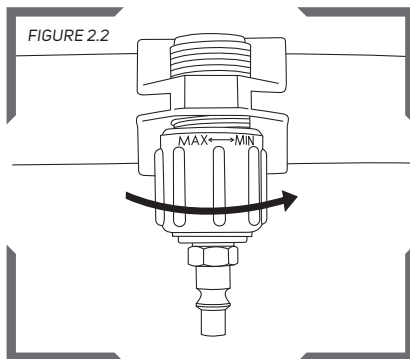
**!WARNING! RESPIRATORS MUST BE SUPPLIED WITH RESPIRABLE AIR MEETING THE REQUIREMENTS OF CGA G-71 GRADE D OR HIGHER QUALITY.**

## RESPIRATOR USE

### AIRFLOW CONTROL VALVE

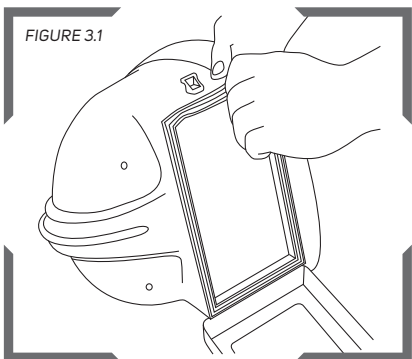


Air flowing into the helmet is controlled using the regulator as shown in Fig 2.1 and 2.2.



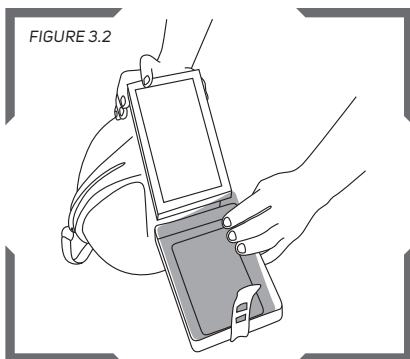
**NOTE:** The minimum of 170 l/min should be flowing through the helmet when the regulator is in the closed position as in Fig 2.2 and the pressure set in accordance with the table on page 9.

### LENSES



#### Inner Lens

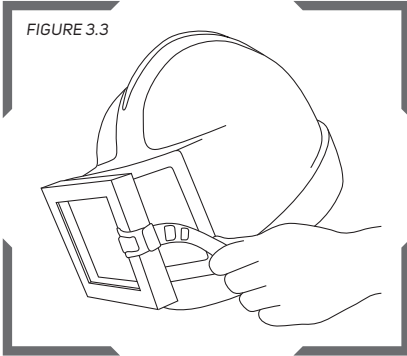
Place one end into the gasket first, then slowly roll the gasket over the sides of the lens, working towards the other end.



#### Outer Lens

Place the lens into the face frame and push past the locating ribs.

FIGURE 3.3



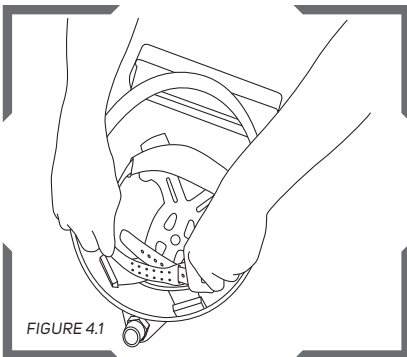
Fold the visor across the front of the helmet and lock the strap tightly over the side cleat.

**NOTE**

Always make sure that a RPB® Safety inner lens is securely fitted into the window frame gasket. Proceed fitting lenses as Fig 3.1, Fig 3.2, Fig 3.3.

**SETTING UP**

FIGURE 4.1



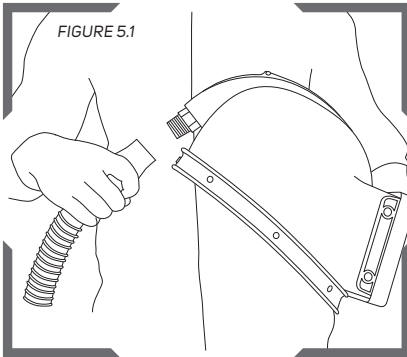
**Head Harness**

To adjust the head harness first unclip the locating pegs, then slide the band in or out to the desired size. Note: slide inwards to reduce the size. Once the desired size is obtained, clip the locating pegs back together.

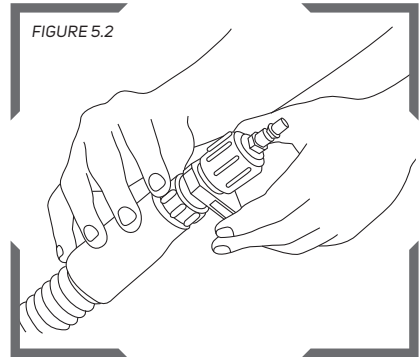
**Putting the Helmet in Place**

Hold the helmet in front of you, holding the inner bib collar open. Lift the helmet and place it on your head making sure the head harness fits securely.

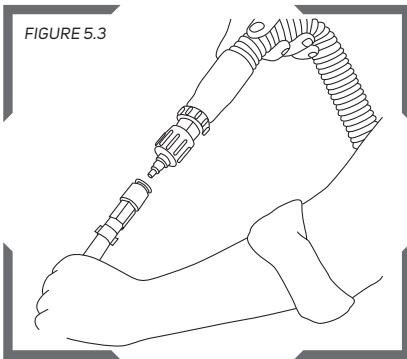
## SETTING UP CONTINUED



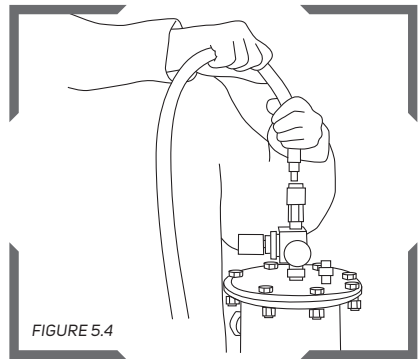
First screw on the breathing hose in a clockwise direction onto the helmet.



Screw the loose running nut in a clockwise direction onto the flow control device, e.g. NV2016.



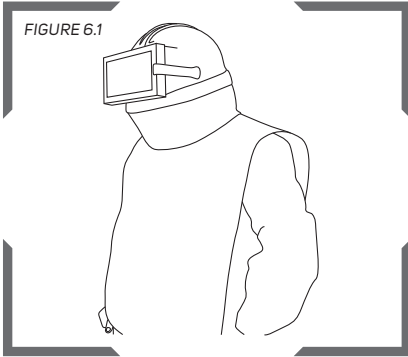
Take the quick disconnect fitting on the Air Supply Hose and push onto the tail of the Flow Control Device.



Connect the Air Supply Hose Tail to the point of attachment supplying Grade D air.

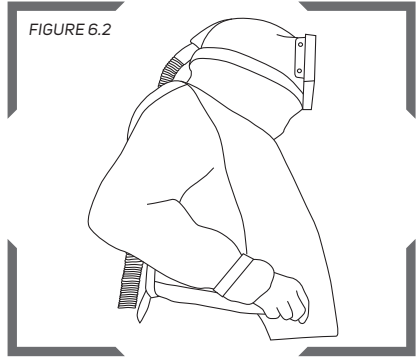
## FITTING THE CAPE AND BELT

FIGURE 6.1



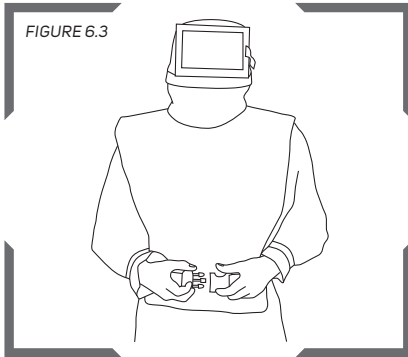
Once the helmet is fitting comfortably on your head, straighten the cape down at the front and back.

FIGURE 6.2



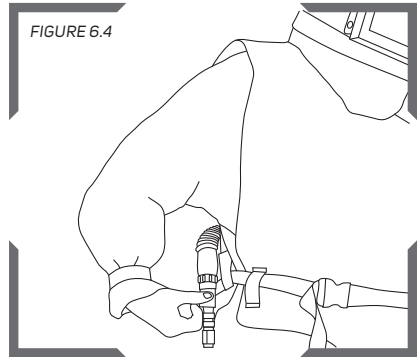
Place the Flow Control Device to your desired hip pocket.

FIGURE 6.3



Now bring both buckles together at the front and push them until you hear a click. Pull the tab to tension the belt to your requirement.

FIGURE 6.4



Now the helmet is fully fitted and the belt tightened, adjust the airflow into the helmet with the Flow Control Device adjustment barrel see Fig 2.1 on Page 10. Again check the air pressure at the source to make sure it is still in accordance with Table 1.1 on page 9.

## DOFFING YOUR HELMET

To remove the helmet, first exit the working area and reverse procedures in Respirator Use.

**!WARNING!** NEVER remove your helmet when in the working area.

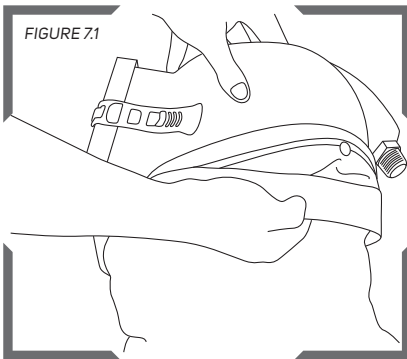
## INSPECTION, CLEANING AND STORAGE

The RPB<sup>®</sup> ASTRO<sup>®</sup> Supplied Air Respirator has a limited service life, therefore a regular inspection and replacement programme must be conducted. Certain parts such as lenses must be replaced frequently.

All components of the respirator assembly should be inspected for damage or wear and tear before use. Replace worn or damaged parts immediately. **USE ONLY RPB<sup>®</sup> Safety ASTRO<sup>®</sup> PARTS.** Refer to the parts list for the correct part numbers.

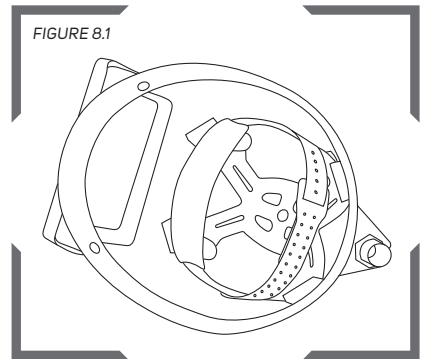
**!WARNING!** DO NOT CLEAN RESPIRATOR WITH VOLATILE CHEMICALS.

### REMOVING THE CAPE



First remove the cape cover band to reveal the eight press studs. The cape can then easily be removed by undoing the four press studs.

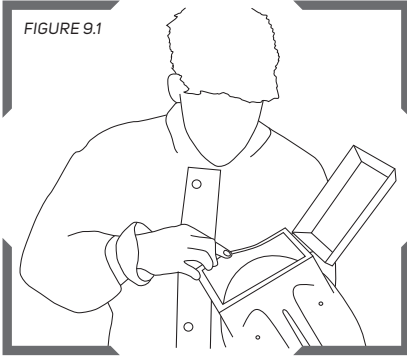
### INSPECTING THE HELMET



Having removed the cape, wipe out the inside of the helmet with a soft cloth and mild detergent. Check the inside for cracks in the shell and damage to the air inlet.

## INNER LENS AND GASKET

FIGURE 9.1



Make sure the window frame gasket is securely fitted in the helmet with no cracks or tears in the seal. Check that the inner lens is correctly fitted into the gasket.

When necessary replace lenses as in Figures 3.1 and 3.2.

## BREATHING TUBE ASSEMBLY

Inspect the breathing tube for cracks, tears or excessive wear. Check that the fittings are secured into the cuffs tightly, not allowing any air leaks.

Replace the hose as soon as any signs of damage or excessive wear become evident.

Do not remove the foam that is inside the breathing tube as this is a critical component.

**!WARNING!** Air leaks will cause a drop in air flow through the respirator helmet resulting in less protection from contaminants.

## AIR SUPPLY HOSE

The air supply hoses should be inspected for:

1. Cuts or tears
2. Cracks or signs of perishing
3. Blisters or weak points
4. Abrasive wear the hose or are not worn, remove any dirt inside couplings with a duster gun.
5. Ferrules firmly crimped in place
6. Quick disconnect couplers do not move in.

**USE ONLY HOSES NIOSH APPROVED FOR USE WITH THIS RESPIRATOR.**

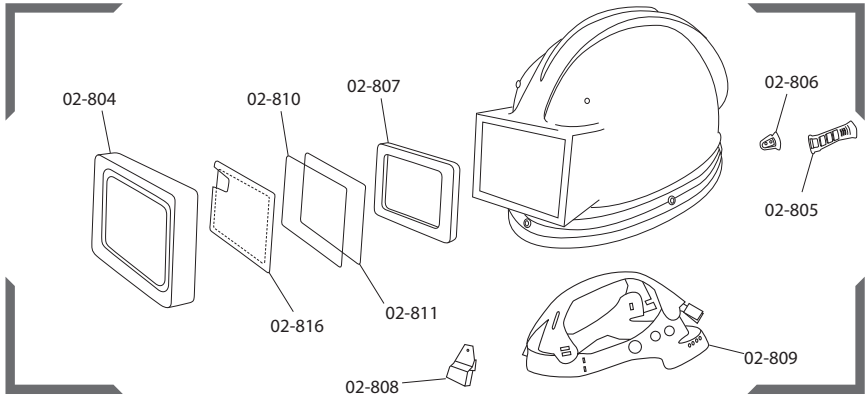
## STORAGE

After the respirator components have been cleaned and inspected, place them in a plastic bag or an airtight container. Store the respirator parts away from excessive heat, dust, cold, moisture or harmful chemicals.

After use hang the respirator up by the hand strap, this will help keep the inside of the helmet free of contaminants.

## PARTS AND ACCESSORIES

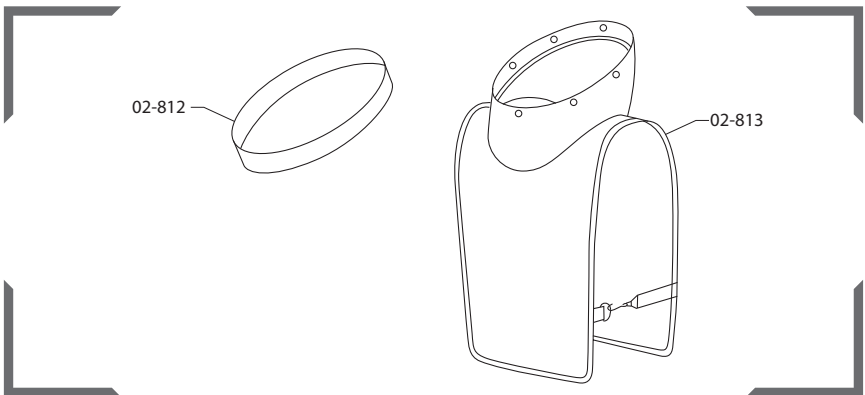
### VISOR AND LENSES *Figure 10.1*



Part No.	Description
02-804	Visor
02-805	Visor Strap
02-806	Cleat
02-807	Gasket Seal
02-808	Suspension Clip (pkt 4)

Part No.	Description
02-809	Head Suspension
02-810	Inner Lens (pkt 10)
02-811-015	Outer Lens (pkt 50)
02-816	Tearoff Lens

### RESPIRATOR CAPES *Figure 10.2*








Part No.	Description
02-812	Cape Cover Band
02-813	Nylon Cape



**AIR SUPPLY HOSES**

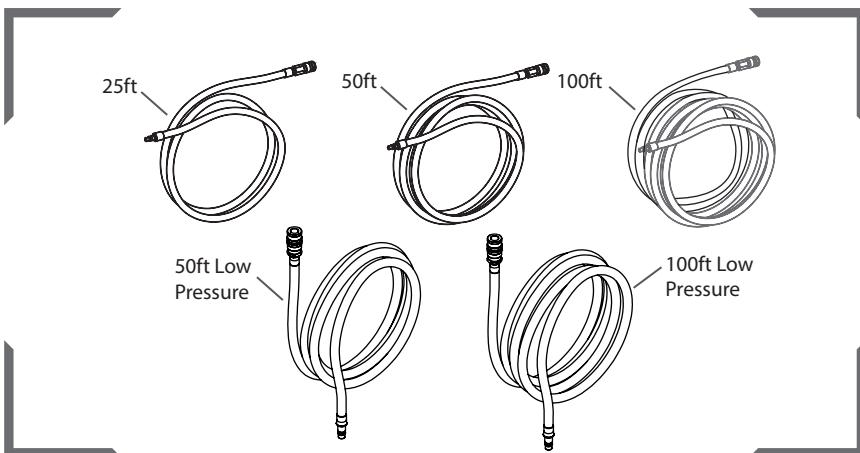
Figure 10.3

Series	1. Couplers	2. Plugs	3. Supplied-Air Hose Assemblies
<p>RPB Quick Disconnect</p>	<p>NV2025 1/4" FM NPT</p> 		<p>NV2028 RPB 25ft NV2029 RPB 50ft NV2027 RPB 100ft</p>
<p>Schrader Twist Lock</p>	<p>03-042-CF 1/4" FM NPT</p> 	<p>03-042-PM 1/4" M NPT 03-042-PMS 1/4" M NPT SWIVEL</p> 	<p>04-342-25 Schrader 25ft 04-342-50 Schrader 50ft 04-342-100 Schrader 100ft</p>
<p>RPB Low Pressure</p>	<p>NV2037 3/8" Hose Barb</p> 	<p>NV2034 3/8" Hose Barb</p> 	<p>NV2035 RPB 50ft NV2036 RPB 100ft</p>

## PARTS AND ACCESSORIES CONTINUED

### AIR SUPPLY HOSES

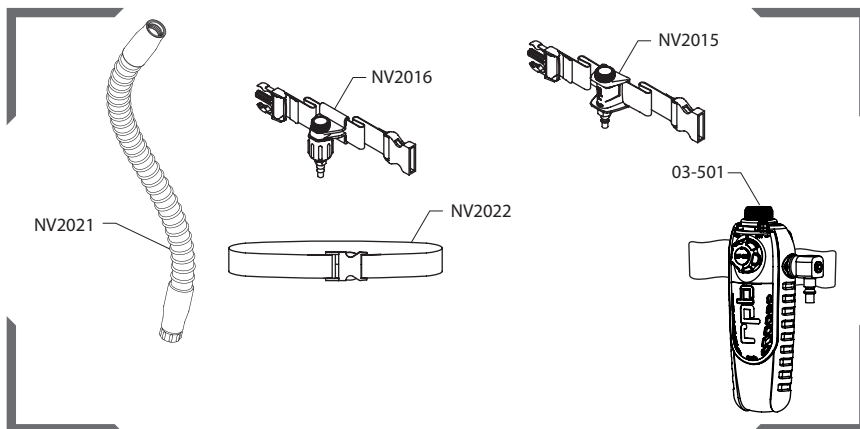
Figure 10.4



As detailed in column 3 of Figure 10.3

### BREATHING TUBE & FLOW CONTROL DEVICES

Figure 10.5



#### Part No. Description

NV2021 Breathing Tube

NV2022 Belt

NV2016 Flow Control Valve Assembly - Includes: Flow Control Valve, Belt

NV2015 Constant Flow Valve - Low Pressure

03-500 C40<sup>®</sup> Climate Control Assembly - Includes: Climate Control, Belt

## APPENDIX A1 - SCHRADER AIR PRESSURE TABLE

1. AIR SOURCE	2. BREATHING TUBE ASSEMBLY AND FLOW CONTROL DEVICES	3. AIR SUPPLY HOSE	4. SUPPLY HOSE LENGTH (FT)	5. MAX NUMBER OF SECTIONS	6. PRESSURE RANGE (PSIG AIR)
Portable or Stationary Compressor	NV2021/NV2016 Flow Control Valve Assembly	04-342-25 (25ft) 04-342-50 (50ft) 04-342-100 (100ft)	25	1	28-30
			50	1	30-32
			100	2	33-35
			150	3	36-38
			200	4	40-42
			250	5	44-46
300	6	48-50			
Portable or Stationary Compressor	NV2021/03-500 Climate Control Assembly	04-342-25 (25ft) 04-342-50 (50ft) 04-342-100 (100ft)	25	1	60-80
			50	1	65-85
			100	2	70-95
			150	3	75-95
			200	4	80-100
			250	5	85-100
300	6	95-100			

# OTHER PRODUCTS

ISO9001  
CERTIFIED COMPANY

## RPB® C40 CLIMATE CONTROL

Looking for an advanced climate control device that can heat and cool your supplied air just by the slide of a lever? Look no further than the RPB® C40. From the searing heat of an Arizona summer to a severe Scandinavian winter the RPB® C40 will keep you comfortable.



## AIRLINE FILTRATION

The RPB® RADEX AIRLINE FILTER™ offers increased capacity, versatility and filtration. This optional equipment combines the versatility of either floor or wall mounting with increased filtration capacity, enabling customization to meet worker's needs and working environments.



## AIR QUALITY MONITORING

Do you need an intelligent gas monitor that can give you complete confidence in the air you and your employees are breathing? The RPB® GX4® Gas Monitor has the ability to detect up to 4 gases simultaneously, giving you total peace of mind.



**1866 494 4599**  
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