The Human Side of Safety®
Since 1898

88 Series
Supplied-Air Respirator

Instruction Manual

Type C and Type CE Continuous-Flow Class
MSHA/NIOSH Approval No. TC-19C-293

READ ALL INSTRUCTIONS AND WARNINGS BEFORE USING THIS RESPIRATOR. SAVE THIS MANUAL FOR FUTURE REFERENCE.

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GENERAL INFORMATION

Bullard's 88 Series supplied-air respirators, when properly used, provide a continuous flow of air from a remote air source to the respirator wearer. 88 Series respirators offer protection from airborne contaminants that are not immediately dangerous to life or health (IDLH), or that do not exceed concentrations allowed by applicable OSHA, EPA, NIOSH or ACGIH regulations and recommendations.

88 Series supplied-air respirators are approved by MSHA/NIOSH (TC-19C-293 Type C and CE) to provide respiratory protection in general purpose applications including heavy- and light-duty abrasive blasting, and Type C and CE painting applications. The protective helmet meets ANSI Standard Z89.1-1969 (except weight) Class A requirements for protective headwear for industrial workers. The cape is designed to protect the worker's body from abrasive rebound.

88 Series respirators are compatible with breathing air sources such as breathing air compressors or Bullard Free-Air® Pumps. Bullard offers the appropriate approved breathing tube assembly and air supply hose to connect the 88 Series respirator to these breathing air sources.

88 Series respirators are approved by NIOSH for use with Bullard's optional climate control devices.

COMPONENT CONCEPT

Bullard's 88 Series airline respirators consist of five components (Figure 1): respirator helmet assembly, cape, breathing tube, flow control device and air supply hose. All components must be present and properly assembled to constitute a complete MSHA/NIOSH approved respirator.

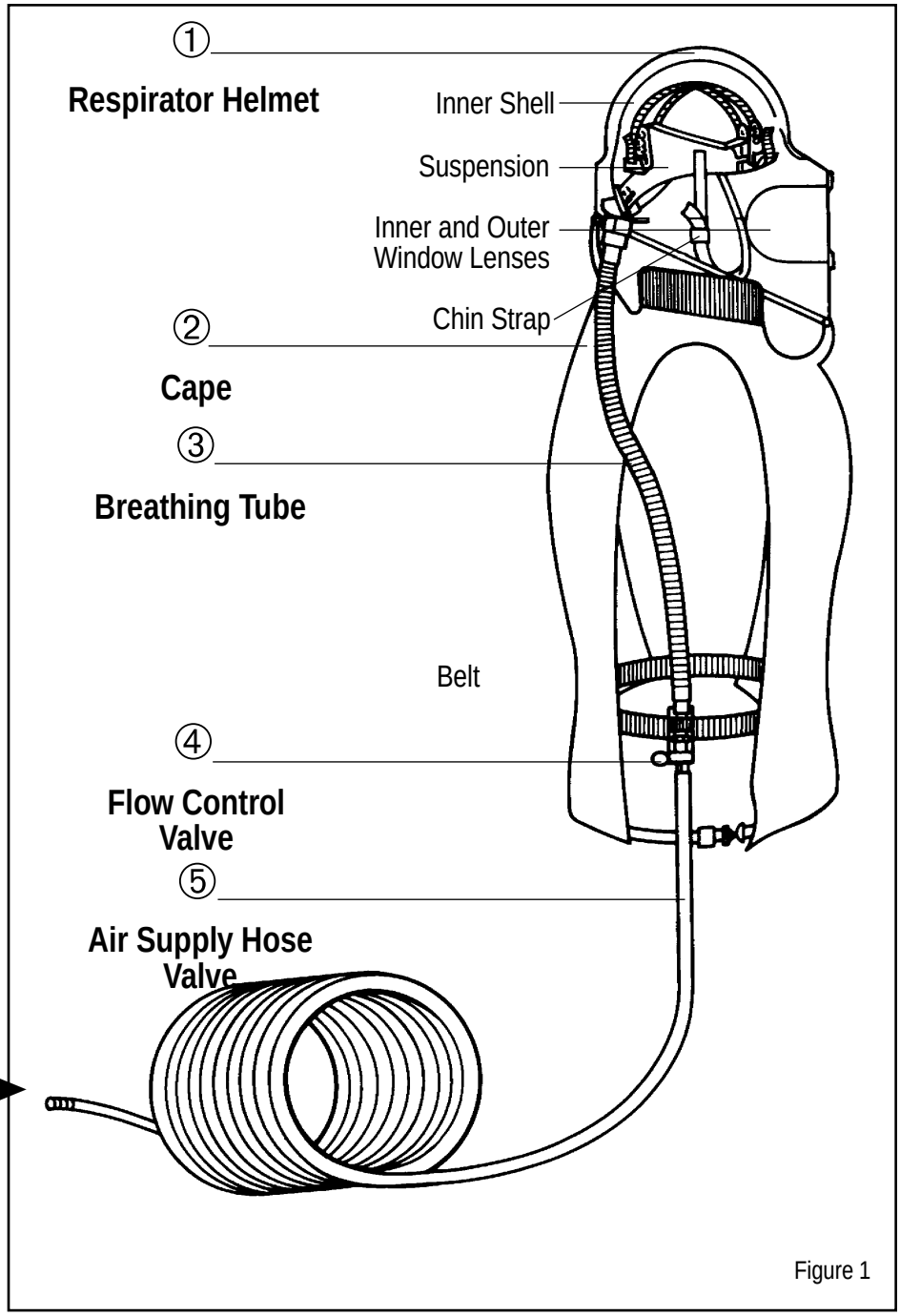


Figure 1

Clean, Breathable Air Source
Supplying Grade "D" or Higher Air Quality (See Breathing Air Requirements on page 7)

⚠WARNING⚠

Failure to use complete MSHA/NIOSH approved Bullard components and replacement parts voids approval of entire assembly. Basic parts are listed on the MSHA/NIOSH Approval Label on page 1.

1. RESPIRATOR HELMET ASSEMBLY: Includes inner shell, headband suspension, chin strap and inner and outer lenses.

2. CAPE: Cape is available in a variety of styles and materials.

28" Cape Models	38" Cape Models	38" Parka Model
4644 Nylon	13644 Nylon 21821 Golden Gate Nylon 33561 Golden Gate Natural Cotton	0367 Hibernia Nylon

3. BREATHING TUBE: Connects respirator helmet to flow control device.

4. FLOW CONTROL DEVICE: Connects breathing tube to air supply hose. Available with a choice of quick-disconnect fittings, constant or adjustable airflow control devices, optional climate control devices, belt included.

Flow Control Devices *					
Without Climate Control Devices		With Climate Control Devices			
		Cold Only		Hot/Cold	
Adjustable	Constant	Adjustable		Adjustable	Constant
F40	F30	AC100030	DC5040	HC240030	HC238830
F40B	F30B	AC100030B	DC5041	HC240030B	HC238830B
F40S	F30S	AC100030S	DC5042	HC240030S	HC238830S
F41	F31	AC1000031	DC5047	HC240031	HC238831
F42	F32	AC100032		HC240032	HC238832
F43	F33	AC100033		HC240033	HC238833
F44	F34	AC100034		HC240034	HC238834
	F35	Frigitron® 2000			
	F35B	Frigitron 2000B			
	F35S	Frigitron 2000S			

*All flow control devices require the 88BT breathing tube to constitute complete breathing tube assemble. Breathing tube must be purchased separately (88BT + F30 = E30).

5. AIR SUPPLY HOSE: Connects flow control device to air source supplying clean breathable air.

Hose for High Pressure Compressed Air Source		Hose for Low Pressure Ambient Air Pump
V5 **3/8" I.D.Coiled Hose** V5 Starter/ Extension Hose Available in 25 and 50 foot lengths with a variety of 1/4" quick-disconnect fitting styles and materials. See parts list for details.	**V10** **3/8" I.D. Hose** 469 Starter Hose 545 Extension Hose Available in 25, 50 and 100 foot lengths with a variety of 1/4" quick-disconnect fitting styles and materials. See parts list for details.	**V20** **1/2" I.D. Hose** V20 Starter/ Extension Hose Available in 50 and 100 foot lengths with 1/2" quick-disconnect Industrial Interchange fittings.

⚠ WARNINGS ⚠

1. This respirator, when properly fitted and used, significantly reduces, but does not completely eliminate, the breathing of contaminants by the respirator wearer. Where excessive airborne contaminant levels are found, respirator wearers may obtain a higher level of protection from a valve-operated pressure-demand airline respirator or a pressure-demand self-contained breathing apparatus respirator.

2. Before using this respirator, be sure your employer has determined that airborne contaminates do not exceed those allowed by applicable OSHA, MSHA, EPA, NIOSH or ACGIH regulations and recommendations, or any other applicable regulations for continuous flow airline respirators. Federal law requires that your employer measure and monitor airborne contaminant levels in the work area.

3. Improper respirator use may damage your health and/or cause your death. Improper use may also cause certain life threatening delayed lung diseases such as silicosis, pneumoconiosis or asbestosis.

4. DO NOT wear this respirator if any of the following conditions exist.

   - Atmosphere is immediately dangerous to your life or health (IDLH).
   - You CANNOT escape without the aid of the respirator.
   - Atmosphere contains less than 19.5% oxygen.
   - Work area is poorly ventilated.
   - Unknown contaminants are present.
   - Contaminant concentrations are in excess of regulations or concern-recommendations (as described in item 2 above).

5. DO NOT wear this respirator until you have passed a complete physical exam (perhaps including a lung x-ray) conducted by qualified medical personnel, and have been trained in the respirator's use, maintenance and limitations by a qualified individual (appointed by your employer) who has extensive knowledge of Bullard's 88 Series respirators.

6. DO NOT modify or alter this respirator in any manner. Use only MSHA/NIOSH approved 88 Series components and replacement parts manufactured by Bullard for use with this respirator.

   Failure to use MSHA/NIOSH approved Bullard components and replacement parts such as lenses, hoses, flow control devices, capes and climate control devices, voids MSHA/NIOSH approval of the entire respirator, invalidates all Bullard warranties, and may cause death, lung disease or exposure to other hazardous or life threatening conditions.

7. Inspect all components of this respirator system daily for signs of wear, tear or damage that might reduce the degree of protection originally provided.

   Immediately replace worn or damaged components with MSHA/NIOSH approved Bullard 88 Series components or remove the respirator from service. (See INSPECTION, CLEANING AND STORAGE section on pages 16-18 for proper maintenance of 88 Series respirators.)

8. Be certain your employer has determined that the breathing air source provides at least Grade D breathable air. This respirator must be supplied with clean breathable air at all times.

⚠ WARNINGS (continued) ⚠

9. DO NOT connect the respirator's air supply hose to nitrogen, oxygen,toxic gases, inert gases or other unbreathable, non-Grade D air sources. To prevent this, airline couplings used for this respirator shall be incompatible with outlets for other gas systems. Check the air source before using the respirator. Failure to connect to the proper air source may result in serious injury or death.

10. DO NOT use this respirator in poorly ventilated areas or confined spaces such as tanks, small rooms, tunnels or vessels unless the confined space is well ventilated and the contaminant concentrations are below the upper limit recommended for this respirator. In addition, follow all procedures for confined space entry, operation and exit as defined in applicable regulations and standards, including 29 CFR 1910.146.

11. If you have any questions concerning the use of this respirator, or if you are not sure whether the atmosphere you are working in is immediately dangerous to life or health (IDLH), ask your employer. All instructions for the use and care of this product must be supplied to you by your employer as recommended by the manufacturer and as required by Federal Law (29 CFR 1910.139).

12. DO NOT use this respirator for underwater diving.

For technical assistance call or write:

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
Toll free: 800-827-0423
Phone: 606-234-6611
Facsimile: 606-234-6858

OPERATIONS

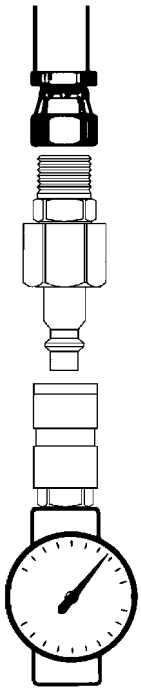


Figure 2

Limitations of Use

RESPIRATORY
This respirator is MSHA/ NIOSH approved (TC-19C-293) as a Type C and CE respirator. It can be worn for general purpose applications, including heavy- and light-duty abrasive blasting, and spray painting.

This respirator is not approved for use in any atmosphere immediately dangerous to life or health (IDLH), or from which the wearer cannot escape without the aid of the respirator.

HEAD
88 Series respirators meet ANSI Standard Z89.1-1997 (except weight) Class G requirements for protective headwear for industrial workers. The helmet is designed to provide limited head protection by reducing the force of falling objects striking the top of the helmet.

FACE
The respirator's inner window meets ANSI Z87.1-1989 requirements for face protection. It provides limited face protection from flying particles or spray of hazardous liquids, but is not shatter-proof.

EYES
88 Series respirators DO NOT provide eye protection. Wear approved safety glasses or goggles at all times.

EARS
88 Series respirators DO NOT provide hearing protection. Use properly fitted earmuffs, earplugs or other protection when exposed to high noise levels.

Breathing Air Requirements

AIR QUALITY
⚠WARNING ⚠: THIS RESPIRATOR MUST BE SUPPLIED WITH CLEAN, BREATHABLE AIR, GRADE D OR BETTER, AT ALL TIMES. THIS RESPIRATOR DOES NOT PURIFY AIR OR FILTER OUT CONTAMINANTS.

Respirable, breathable air must be supplied to the point-of-attachment of the approved Bullard air supply hose. The point-of-attachment is the point at which the air supply hose connects to the air source. A pressure gauge attached to the air source is used to monitor the pressure of air provided to the respirator wearer (Figure 2 and Figure 3).

Supplied breathing air must AT A MINIMUM, meet the requirements for Type 1 gaseous air as described in the Compressed Gas Association Commodify Specification G-7.1 for Grade D or higher quality as specified by Federal regulations 42 CFR, Part 84.141 (b) and 29 CFR 1910.139 (i).

The requirements for Grade D breathable air include:

– Oxygen 19.5-23.5%
– Hydrocarbons (condensed) in mg/m^3 of gas..... 5 mg/m^3 max.
– Carbon monoxide.....10 ppm max.
– Carbon dioxide.....1,000 ppm max.
– Odor ..... Lack of noticeable odor
– No toxic contaminants at levels that make air unsafe to breathe.

Specific measurement of odor in gaseous air is impractical. Air may normally have a slight odor. The presence of a pronounced odor should render the air unsatisfactory.

Contact the Compressed Gas Association (1725 Jefferson Davis Hwy, Arlington, VA 22202) for complete details on Commodity Specification G-7.1.

AIR SOURCE

Locate the source of supplied air whether it is an air compressor or an ambient air pump, such as a Bullard Free-Air pump, in a clean air environment. Locate the air source far enough from your work site to ensure the air remains contaminant-free. Always use an inlet filter on your air source.

Use suitable after-cooler/dryers, filters, like Bullard's Alert-1™ CO monitor, carbon monoxide monitors and alarms, as necessary to assure clean, breathable air at all times.

The air should be regularly sampled to be sure that it meets Grade D requirements.

Breathing Air Pressure

Air pressure must be continually monitored at the point-of-attachment while operating this respirator. A reliable air pressure gauge must be present to permit you to continually monitor the pressure during actual respirator operation.

⚠ **DANGER** ⚠: Failure to supply the minimum required pressure at the point-of-attachment for your hose length and type will reduce airflow and may cause injury, disease or death.

The Breathing Air Pressure Table (page 9) defines the air pressure ranges necessary to provide 88 Series respirators with a volume of air that falls within the required range of 6-15 cfm or 170-425 lpm (Ref. 42 CFR, Part 84, Subpart J 84.150).

Make sure you understand the information in the Breathing Air Pressure Table before using this respirator.

1. Determine the type of air source you are using (column 1), then find your flow control valve/climate control device (column 2).
2. Be sure your Bullard air supply hose(s) (column 3) is approved for use with your flow control valve/climate control device.
3. Determine that your Bullard air supply hose is within the approved length (column 4).
4. Make sure you have not exceeded the maximum number of hose sections (column 5).
5. Set the air pressure at the point-of-attachment within the required pressure range (column 6) for your flow control valve/climate control device, and air supply hose type and length. Accurate pressure readings can only be attained when air is flowing into the respirator.

Breathing Air Supply Hoses and Hose Fittings

MSHA/NIOSH approved Bullard air supply hose(s) MUST be used between the breathing tube connection fitting on the wearer's belt and the point-of-attachment to the air supply (Figure 3).

MSHA/NIOSH approved Bullard quick-disconnect fittings MUST be used to connect V5 or V20 hose lengths together. When connecting lengths of V10 hose, only use Bullard V11 hose-to-hose adapters. Secure connection(s) until wrenchtight and leakfree. Total connected hose length and number of hoses MUST be within the ranges specified on the Breathing Air Pressure Table (page 9) and the respirator's MSHA/NIOSH approval label (page 1).

The breathing tube connection fitting MUST be secured to the belt that is supplied with this respirator. Securing the air entry connection fitting helps prevent the air supply hose from snagging, disconnecting or pulling the respirator helmet off your head.

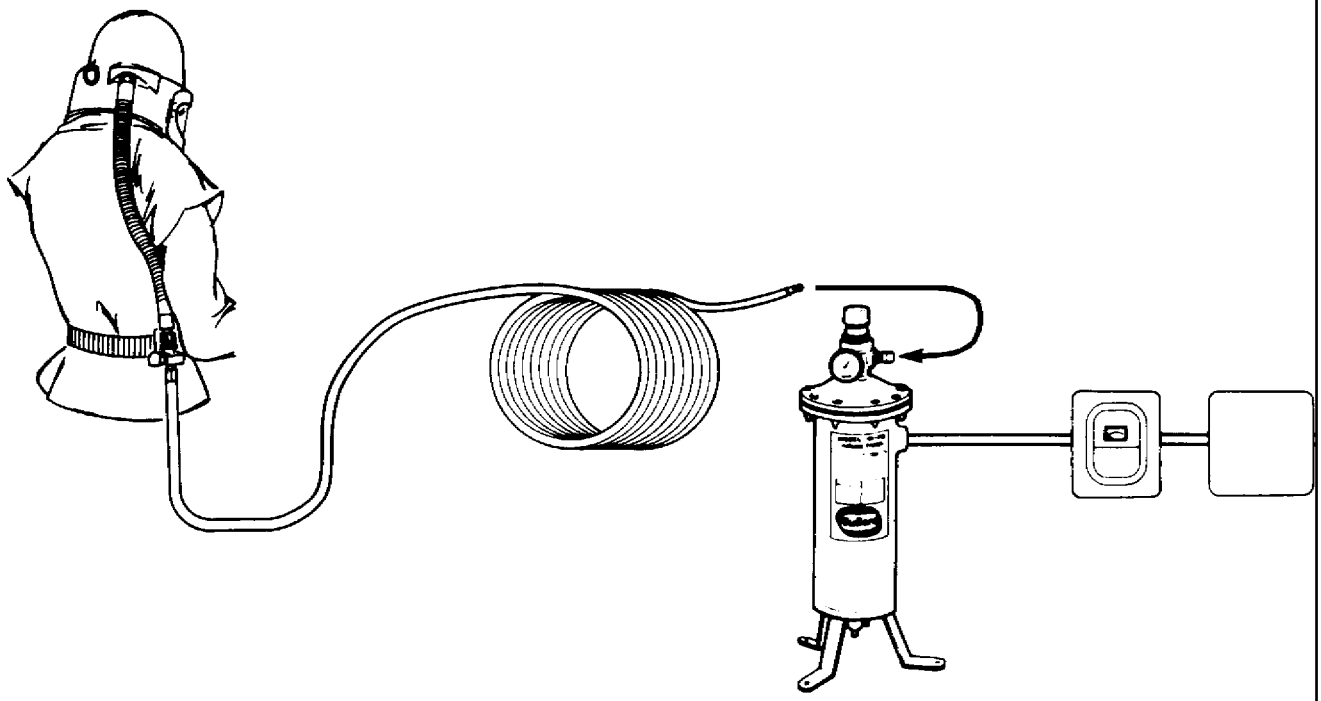
Breathing Air Pressure Table

This table defines the air pressure ranges necessary to provide 88 Series respirators with a volume of air that falls within the required range of 6-15 cfm or 170-425 lpm according to U.S. Government regulations (42 CFR, Part 84, Subpart J, 84.150 Table 1).

1	2	3	4	5	6
Air Source	**Flow Control Device ***	**Air Supply Hose**	**Air Supply Hose Length (feet)**	**Maximum Number of Hose Sections**	**Required Pressure Range (psig air)**
Stationary or Portable Air Compressor	Constant Airflow, F30 Series, F30, F30B,F30S, F31, F32, F33, F34, F 35, F35B, F35S	V10	25	1	14-15
			50	2	15-18
			100	3	19-24
			150	4	23-29
			200	5	25-34
			250-300	5	31-39
		V5	25	1	12-18
			50	2	19-23
	F40 Series, Adjustable Airflow, F40, F40B, F40S, F41, F42, F43, F44	V10	25	1	22-25
			50	2	24-27
			100	3	27-32
			150	4	30-37
			200	5	33-40
			250-300	5	38-45
		V5	25	1	22-26
			50	2	25-30
	AC1000 Series, Air Conditioner Adjustable Airflow, AC100030, AC100030B, AC100030S, AC100031, AC100032, AC100033, AC100034	V10	25-50	2	55-65
			75-150	3	60-70
			175-300	5	65-75
		V5	25	1	55-65
			50	1	56-69
	DC50 Series, DUAL-COOL™, Air Conditioner, Adjustable Flow, DC5040, DC5041, DC5042, DC5047	V10	50	2	48-52
			100	3	59-63
			150	3	68-72
			200	3	80-84
			250	3	85-92
			300	5	90-98
		V5	25	1	53-57
			50	2	67-71
	HC2300 Series, Hot/Cold Tube, Constant Airflow, HC238830, HC238830B, HC238830S, HC238831, HC238832, HC238833, HC238834	V10	25-50	2	65-70
			75-125	3	70-75
			150-225	4	80-85
			250-300	5	85-95
		V5	25	1	67-81
			50	1	70-86
	HC2400Series Hot/Cold Tube Adjustable Airflow HC240030, HC240030B, HC240030S, HC240031 HC240032, HC240033, HC240034	V10	25	1	59-61
			50	2	63-65
			100	3	68-70
			150	4	73-75
			200	4	77-79
			250	5	80-82
			300	5	84-86
		V5	25	1	65-66
			50	1	68-69
Bullard Free-Air® Pumps	F35 Series Constant Airflow F35, F35B, F35S	V20	50	1	4-6
			100	2	6-8
			200	2	10-15
			300	3	13-18
	FRIGITRON 2000 Series Air Conditioner, Adjustable Airflow FRIGITRON 2000 FRIGITRON 2000B FRIGITRON 2000S	V20	50	1	16-22
			100	2	18-25
			200	2	22-30
			300	3	25-34

* All flow control devises require the 88BT breathing tube to constitute complete breathing tube

Typical Breathing Air Source and Respirator Configurations



POINT-OF-ATTACHMENT

The point -of-attachment is the point at which the air supply hose connects to the air source. A pressure gauge attached to the air source is used to monitor the pressure of air provided to the respirator wearer.

Figure 3

RESPIRATOR ASSEMBLY

BEFORE ASSEMBLING THIS RESPIRATOR, READ THE WARNING LABELS ON THE INSIDE OF THE RESPIRATOR CAPE AND THE HELMET SHELL.

REMOVE AND READ THE WARNING CARD INSERTED BETWEEN THE RESPIRATOR'S TWO LENSES.

Sizing the Headband

Before you can size the headband suspension, the cape and headband must be removed from the helmet using the following steps:

1. Open hinged window frame by lifting up on window latch.
2. Remove cape from helmet by lifting up on over-center clamp and disengaging cape from helmet groove (Figure 4).
3. Turn helmet upside down. To remove inner shell from helmet, hook index finger into loop on back of inner shell. Press thumb against helmet rim and pull loop toward front of helmet, then pull up and away from helmet (Figure 5). This releases inner shell.
4. Size the standard 88TG headband by squeezing top and bottom edges of rear buckle together with your thumb and forefinger. At the same time, decrease headband size by sliding right hand portion of head-band through buckle.
5. Place the headband on your head. Pull down allowing headband to expand until it feels comfortable. Headband automatically adjusts to your size and locks when you release your grip (Figure 6).
6. Remove headband from your head.

   NOTE: If using the optional 88RT ratchet headband, refer to the instruction sheet provided with the 88RT.

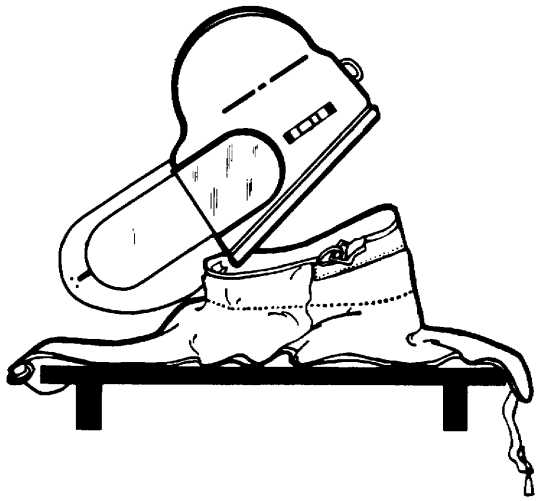


Figure 4

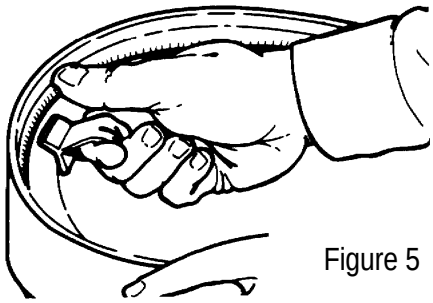


Figure 5

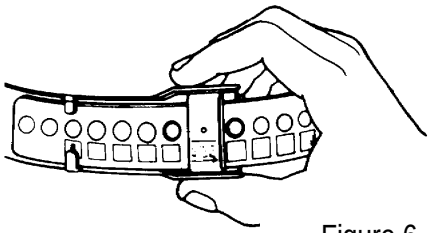


Figure 6

ADJUSTING SUSPENSION FOR VERTICAL FIT

The headband may be raised or lowered in the front and/or back by repositioning the hanger keys. Vertical adjustment makes headband ride higher or lower on wearer's head. It also can adjust the tilt forward or backward.

1. Rotate hanger key 90° in either direction until hole in hanger key aligns with post on headband. Pull key away from headband. (Figure 7).
2. Move key to desired vertical position.
3. Rotate hanger key 90° toward headband until key locks in place (Figure 7).
4. Repeat steps 1-3 for other hanger keys.

Installing Headband into Inner Shell

1. Turn inner shell and headband suspension upside down.
2. Place headband inside shell with brow pad facing front of shell.
3. Bending hanger keys at hinge, insert keys into respective key slots. Push firmly until keys snap into place (Figure 8).
4. Insert inner shell into helmet with front of shell tilted down. Align round hole located at front of shell with washer at inside front of helmet. Press back of shell into helmet until it snaps in place.

USING THE 88CS CHIN STRAP

1. Attach chin strap to inner shell by sliding chin strap loop over hook as shown in Figure 9.
2. Put helmet on your head. Adjust chin strap length with the plastic slide.

OPTIONAL LENS COVERS

1. If desired, apply optional lens covers designed to protect the respirator's plastic lens. Apply 2-3 lens covers at a time.
2. When lens becomes soiled, remove by pulling tab at edge of lens cover to clear your vision.

Attaching Cape to Helmet

1. Place cape on table or workbench. (Figure 4)
2. With window frame open, place helmet on top of cape.
3. Line up the hook-shaped catch on the cape with the front center of the helmet (Figure 4). Catch should firmly engage under bottom front edge of helmet.

   NOTE: Installation is easiest when started at the front of cape and helmet.
4. Ease cape rim completely into the groove along helmet edge, working your way to the back. Be certain cape is completely in place at every point along helmet's bottom edge.
5. Snap the over-center clamp to tighten cable and hold cape snugly on helmet.
6. Close and latch window frame.

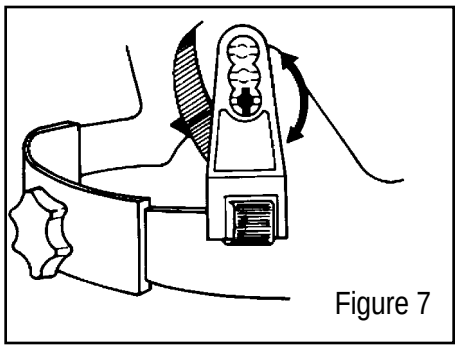


Figure 7

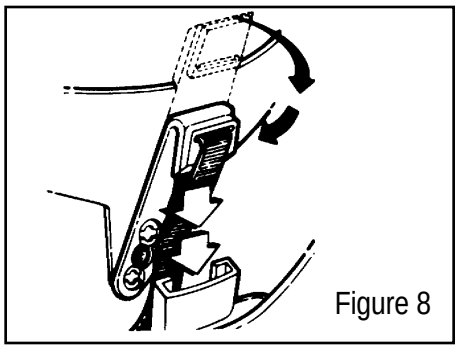


Figure 8

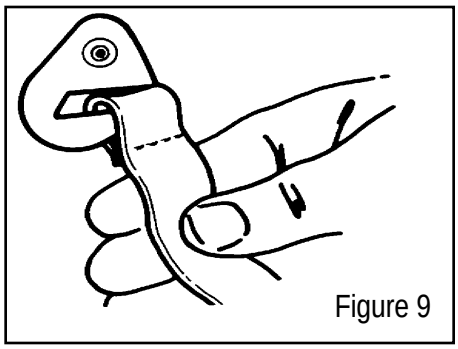


Figure 9

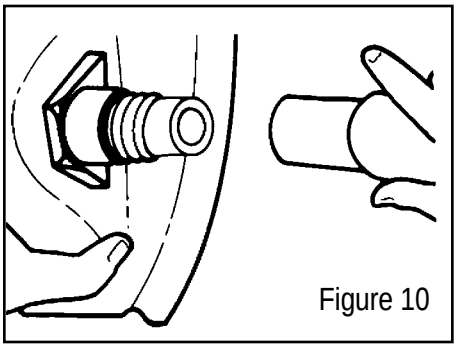


Figure 10

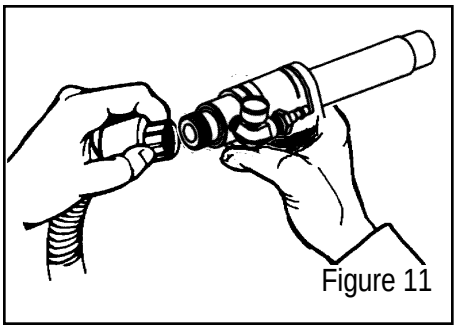


Figure 11

Installing Breathing Tube Assembly into Respirator Helmet

1. Connect breathing tube assembly to helmet by screwing plastic hose connector to fitting located on the side of the helmet. Turn clockwise to tighten (Figure 10).

   NOTE: Do not remove foam from inside the breathing tube. The foam helps reduce the noise level of the incoming air.

Using Climate Control Devices

88 Series respirators are approved by NIOSH for use with five optional Bullard climate control devices: AC1088 Series, DC50 Series, HC2388 Series, HC2488 Series and Frigitron 2088 Series.

1. Follow the instructions supplied with your climate control device.
2. Be sure to use only the 88BT with your climate control device.
3. Screw nylon hose connector on end of breathing tube to hose thread on climate control device.
4. Firmly tighten hose connector by hand (Figure 11).
5. Lace belt supplied with respirator through belt loop bracket on climate control device.

⚠ WARNING ⚠: ONLY USE CLIMATE CONTROL DEVICES MANUFACTURED BY BULLARD. SUBSTITUTING OTHER CLIMATE CONTROL DEVICES WILL VOID THE NSHA/NIOSH APPROVAL AND MAY CAUSE INJURY, DISEASE OR DEATH.

RESPIRATOR USE

⚠WARNING ⚠: DO NOT PUT ON OR REMOVE THIS RESPIRATOR IN A HAZARDOUS ATMOSPHERE. DO NOT REMOVE THIS RESPIRATOR IN A HAZARDOUS ATMOSPHERE EXCEPT FOR EMERGENCY ESCAPE PURPOSES.

Putting on Respirator

Before using your 88 Series respirator, complete the assembly instructions given on pages 11-12. Before putting on respirator, make sure there is no dirt, dust, or contaminants inside the helmet.

1. Connect the Bullard air supply hose that is part of the MSHA/NIOSH approved assembly to the air source supplying Grade D breathing air. Turn on the breathing air source.
2. With air flowing, connect breathing tube assembly to air supply hose. Connect quick-disconnect fitting on breathing tube assembly to quick-disconnect coupler on air supply hose. Once fitting is secured, release coupling sleeve to lock fittings together. Pull on both hoses to make sure they are attached securely.
3. Adjust air pressure at point-of-attachment to within the approved pressure range (Figure 2). See the Breathing Air Pressure Table (page 9) for approved pressure ranges.
4. With air still flowing, lower 88 Series respirator helmet onto your head for a comfortable fit.
5. Position headband for a comfortable fit. See instructions on pages 11 and 12 for proper headband sizing.
6. Pull elastic chin strap under your chin and adjust for a secure and comfortable fit. The chin strap will help balance the helmet and should be worn at all times.
7. Be sure that the knitted inner neck cuff fits snugly around your neck to help provide a barrier to airborne contaminants.
8. With breathing tube assembly attached to the helmet, fasten belt around waist or hips and adjust for comfort.
9. Pull respirator cape around your body and secure sides by connecting the snap hooks. If using the Golden Gate cape, first secure the ties that connect in back, then in front. If using the Hibernia parka, tighten belt at waist.

   If using the Hibernia parka, tighten the belt at the waist.
10. Recheck air pressure and adjust if necessary.
11. With air still flowing into your respirator, you are now ready to enter work area.

Adjust neck cuff

Always wear respirator in work area

Taking Off Respirator

When finished working, leave work area wearing respirator and with air still flowing. Once outside contaminated area, remove respirator and then disconnect the air supply hose using the quick-disconnect fittings.

NOTE: If using V20 Series (1/2" I.D.) air supply hose, the hose quick-disconnect coupler does not have a shut-off valve. Therefore, air will continue to flow freely after disconnecting hose from respirator.

⚠ WARNING ⚠

LEAVE WORK AREA IMMEDIATELY IF:

- **Any respirator component becomes damaged.**
- **Airflow into respirator helmet stops or slows down.**
- **Air pressure gauge drops below the minimum specified in the Breathing Air Pressure Table (page 9).**
- **Breathing becomes difficult.**
- **You become dizzy, nauseous, too hot, too cold or ill.**
- **You taste, smell or see contaminants inside respirator helmet.**
- **Your vision becomes impaired.**

⚠ WARNING ⚠

DO NOT STORE RESPIRATOR IN YOUR WORK AREA OR LEAVE IT UNATTENDED IN A CONTAMINATED ENVIRONMENT. RESPIRABLE CONTAMINANTS CAN REMAIN SUSPENDED IN THE AIR FOR MORE THAN ONE HOUR AFTER WORK ACTIVITY CEASES, EVEN THOUGH YOU MAY NOT SEE THEM. PROPER WORK PRACTICE REQUIRES YOU TO WEAR THE RESPIRATOR UNTIL YOU ARE OUTSIDE THE CONTAMINATED AREA. IF YOU SET THE RESPIRATOR DOWN IN A CONTAMINATED ENVIRONMENT, CONTAMINANTS, DIRT AND DUST COULD GET INTO THE RESPIRATOR. WHEN YOU PUT THE RESPIRATOR BACK ON, YOU COULD BREATHE IN CONTAMINANTS UPON REUSE.

INSPECTION, CLEANING AND STORAGE

Bullard's 88 Series respirators have a limited service life. Therefore, a regular inspection and replacement program must be conducted. Certain parts such as capes and lenses must be replaced frequently.

The 88 Series respirator and all component parts and assemblies should be inspected for damage or excessive wear, before and after each use, to ensure proper functioning. Immediately remove the respirator from service and replace parts or assemblies that show any sign of failure or excessive wear that might reduce the degree of protection originally provided.

Use only complete MSHA/NIOSH approved Bullard 88 Series components and replacement parts on this respirator. Refer to parts list for correct part numbers.

Since respirator use and the quality of maintenance performed vary with each job site, it is impossible to provide a specific time frame for respirator replacement. As a general guideline, the 88 Series respirator should be replaced after two years of service or less.

This respirator should be cleaned and sanitized at least weekly, or more often if subjected to heavy use. Respirators used by more than one person must be cleaned, inspected and sanitized after each use. If not cleaned, contamination may cause illness or disease.

REMEMBER, THE AIR YOU BREATHE WILL NOT BE CLEAN UNLESS THE RESPIRATOR YOU WEAR IS CLEAN.

Cape

INSPECTION: Remove the cape from the respirator helmet and inspect it for rips, tears or damage from excessive wear that might reduce the degree of protection originally provided. Inspect the inner neck cuff for elasticity.

If you detect any of these signs, replace your cape immediately or remove the respirator from service.

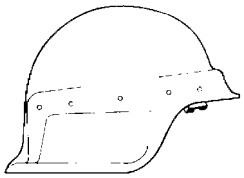
⚠WARNING ⚠DO NOT SUBSTITUTE ANY CAPES OTHER THAN THOSE MANUFACTURED BY BULLARD. SUBSTITUTING OTHER CAPES WILL VOID THE MSHA/NIOSH APPROVAL AND MAY CAUSE INJURY, DISEASE OR DEATH.

CLEANING: Machine wash the cape in cold or warm water using a gentle cycle. Use a mild laundry detergent. Air-dry only. After cleaning, carefully inspect the cape once again for signs of damage.

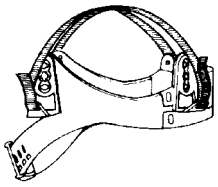
Do not use volatile solvents to clean this respirator or any parts and assemblies. Strong cleaning and disinfecting agents, and many solvents, can damage the plastic parts.

Your respirator cape may be machine washed

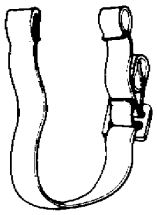
Helmet



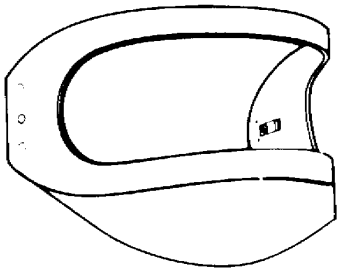
Inner Shell



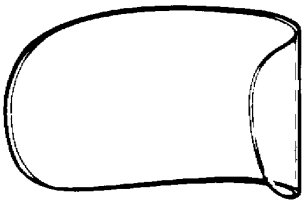
Headband Suspension



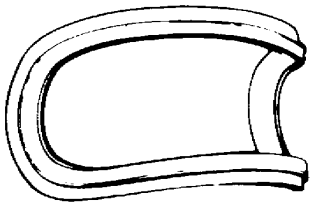
Chin Strap



Window Frame



Plastic Inner Lesns



Window Frame Gasket

Headband and Chin Strap

INSPECTION: Remove the headband suspension and chin strap from the inner shell. Inspect the headband for cracks, frayed or cut crown straps, torn headband or size adjustment slots, loss of pliability or other signs of excessive wear. Check the chin strap for loss of elasticity, cuts and cracked hanger clips.

If damage is detected, replace parts immediately with Bullard replacement parts or remove the respirator from service.

CLEANING: The headband suspension and chin strap should be hand-sponged with warm water and mild detergent, rinsed and air-dried. After cleaning and before reassembling, once again carefully inspect the parts for signs of damage.

Helmet

INSPECTION: Inspect the helmet and inner shell for nicks, gouges, cracks, holes and any damage due to impact, rough treatment or wear.

If damage is detected replace parts immediately with Bullard replacement parts or remove the respirator from service.

CLEANING: The helmet, inner shell, and window frame should be hand-sponged with warm water and mild detergent, rinsed and air-dried.

After cleaning and before reassembling, once again carefully inspect the helmet and parts for signs of damage.

Lenses and Window Frame Gasket

INSPECTION: Be sure the plastic inner lens fits securely in the black window frame gasket. Remove any grit or dust from the gasket. Be sure the plastic outer lens is installed underneath the clamps on the back of the outer window frame. Inspect the window frame gasket closely for cuts, wear or damage that will prevent a proper seal against the inner faceshield lens or the helmet window frame.

CLEANING: To clean the lenses, hand-sponge with warm water and mild detergent, rinse and air-dry.

⚠WARNING⚠ DO NOT USE LENSES OTHER THAN THOSE LISTED ON THIS PAGE. SUBSTITUTING OTHER LENSES VOIDS THE MSHA/NIOSH APPROVAL. USE OF NON-BULLARD LENSES MAY ALLOW CONTAMINANTS TO ENTER THE RESPIRATOR AND MAY CAUSE INJURY, DISEASE OR DEATH.

NOTE: All Bullard lenses are stamped with the appropriate Bullard part number described below.

Bullard Lens Description	Bullard Lens Part No.
Inner lens for 88 Series Respirators	771B
Outer lenses for 88 Series Respirators	771
	771R
Inner lens for 88R Series Respirators	461B
Outer lenses for 88R Series Respirators	461
	461R

Breathing Tube

INSPECTION: Inspect the vinyl breathing tube for tears, cracks, holes, or excessive wear that might reduce the degree of protection originally provided. If any signs of excessive wear are present, replace the breathing tube immediately or remove the respirator from service.

CLEANING: To clean the breathing tube, hand-sponge with warm water and mild detergent, being careful not to get water inside. Rinse and air-dry. After cleaning, once again carefully inspect breathing tube for signs of damage.

⚠WARNING⚠ : DO NOT CUT OR REMOVE FOAM THAT IS INSIDE THE BREATHING TUBE. THE FOAM HELPS REDUCE THE NOISE LEVEL OF THE INCOMING AIR SUPPLY. IT DOES NOT FILTER OR PURIFY YOUR BREATHING AIR. NIOSH HAS APPROVED THIS RESPIRATOR WITH THE FOAM IN PLACE.

Flow Control Valve/ Climate Control Device

INSPECTION: Be sure the quick-disconnect fitting is screwed tightly into the breathing tube so no air can escape during use. Check the adjustment knob on the flow control device for cracks and other damage.

CLEANING: To clean, hand-sponge with warm water and detergent, being careful not to get water inside. After cleaning, once again carefully inspect breathing tube for signs of damage. If any signs of excessive wear are present, replace the flow control valve/climate control device or remove th respirator from service.

Air Supply Hose

INSPECTION: The starter and extension hose(s) should be inspected closely for abrasions, corrosion, cuts, cracks and blistering. Be sure the hose fittings are crimped tightly to the hose so that air cannot escape. Make sure the hose has not been kinked or crushed by any equipment that may have rolled over it.

If any of the above signs are present or any other signs of excessive wear are detected, replace the air supply hose(s) immediately or remove the respirator from service.

CLEANING: The air supply hose(s) should be hand-sponged with warm water and mild detergent, rinsed and air-dried. Do not get water inside the air supply hose. After cleaning, once again carefully inspect air supply hose(s) for signs of damage.

⚠WARNING⚠: ONLY USE HOSES THAT ARE NIOSH APPROVED FOR USE WITH THIS RESPIRATOR. OTHER HOSES COULD REDUCE AIRFLOW AND PROTECTION, AND EXPOSE THE WEARER TO LIFE THREATENING CONDITIONS.

Storage

After reusable respirator components have been cleaned, dried and inspected, place them in a plastic bag or an airtight container.

Store the respirator and parts where they will be protected from contamination, distortion and damage from elements such as dust, direct sunlight, heat, extreme cold, excessive moisture and harmful chemicals.

Store in a clean place away from contaminants

PARTS AND ACCESSORIES FOR 88 SERIES SUPPLIED-AIR RESPIRATORS

88 Series supplied-air respirators consist of five components: respirator helmet assembly, cape, breathing tube, flow control device and air supply hose. There are options for some components to fit customer specifications. All components must be present and properly assembled, including a Bullard air supply hose, to constitute a complete MSHA/NIOSH approved respirator (Approval No. TC-19C-293, Type C and CE).

Cat. No.	Description
PARTS FOR 88 SERIES RESPIRATORS	
88TG	4-point headband suspension with sizing posts and Microporite® brow pad (25/pkg)
88RT	4-point headband suspension with Sure-Lock ratchet sizing knob and Microporite brow pad (25/pkg)
88CS	Elastic Chin Strap
88PL	Inner shell/air plenum
88CK	Breathing tube connector kit
17921	Latch Kit (includes catch, latch, pin and strike)
889	Window Frame for 88 Series
7713	Window Frame Gasket for 88 Series
88R9	Window Frame for 88R Series
4613	Window Frame Gasket for 88R Series
77BFW	Box Front Adapter Kit, complete (for 77 and 88 Series only)
77GLT	Tempered Glass Lens for 77 BFW
LENSES AND MYLAR COVERS	
Lenses for 88 Series (except 88R)	
771B	Inner Plastic Lens, .040" thick (25/pkg)
771(.040)	Outer Plastic Lens, .040" thick (25/pkg)
771(.020)	Outer Plastic Lens, .020" thick (50/pkg)
771R(.015)	Outer Plastic Lens, .015" thick (50/pkg)
7714	Clear Mylar Lens Cover, Adhesive-Backed (25/pkg)
77LC	Clear Mylar Lens Cover, Perforated-Edges (25/pkg)
Lenses for 88R only	
461B	Inner Plastic Lens, .040" thick (25/pkg)
461	Outer Plastic Lens, .040" thick (25/pkg)
461R	Outer Plastic Lens, .015" thick (50/pkg)

Cat. No.	Description
CAPES	
4644	Medium Weight Nylon Cape - 28" length
13644	Medium Weight Nylon Cape - 38" length
21821	"Golden Gate" style - Medium Weight Nylon Cape - 38" length
33561	"Golden Gate" style - Medium Weight Natural Cotton Cape - 38" length
136417	Medium Weight Natural Cotton Cape - 38" length
0367	Hibernia Parka. Medium Weight Nylon Parka with sleeves- 38" length
BREATHING TUBE AND CLIMATE CONTROL ASSEMBLIES (INCLUDES BELT)	
Adjustable Flow	
E40	Breathing tube assembly. 1/4" Industrial Interchange (steel) quick-disconnect fitting
AC108830	Air Conditioner. 1/4" Industrial Interchange (steel) quick-disconnect fitting
Frigitron 2088	Air Conditioner. 1/2" Industrial Interchange (steel) quick-disconnect fitting, (for use with Bullard EDP30 Free-Air pump)
HC248830	Hot/Cold tube. 1/4" Industrial Interchange (steel) quick-disconnect fitting
DC5040	DUAL-COOL tube. 1/4" Industrial Interchange (steel) quick disconnect fitting. Order DUAL-COOL vest separately.
Constant Flow	
E35	Breathing tube assembly. 1/2" Industrial Interchange (stee) quick-disconnect fitting
DUAL-COOL VEST	
DC70ML	DUAL-COOL vest. Size: M/L. Order DUAL-COOL tube separately.
DC70XLXXL	DUAL-COOL vest. Size: XL/XXL. Order DUAL-COOL tube separately.

PARTS AND ACCESSORIES FOR 88 SERIES SUPPLIED-AIR RESPIRATORS

Cat. No.	Description
REPLACEMENT PARTS FOR BREATHING TUBE ASSEMBLIES	
88BT	Breathing tube only, with threaded hose connectors
4612	Belt, nylon webbing
AIR SUPPLY HOSE KITS	
V10 Series Hoses (3/8"I.D.) for use with breathing air compressors	
4696	25-foot Starter hose with 1/4" Industrial Interchange Q.D. coupler
46913	25-foot Starter hose with 1/4" Schrader Q.D. coupler
46915	25-foot Starter hose with 1/4" Snap-Tite Q.D. coupler
5454	25-foot Extension hose
5457	50-foot Extension hose
5458	100-foot Extension hose
V20 Series Hoses (1/2" I.D.) for use with Free-Air Pumps	
V2050ST	50-foot Starter/Extension hose with 1/2" Industrial Interchange Q.D. coupler
V20100ST	100-foot Starter/Extension hose with 1/2" Industrial Interchange Q.D. coupler
V5 Series Coiled Hoses for use with breathing air compressors	
V52530	25-foot Starter hose with 1/4" Industrial Interchange Q.D. coupler
V55030	50-foot Starter hose with 1/4" Industrial Interchange Q.D. coupler
V52531	25-foot Starter hose with 1/4" Schrader Q.D. coupler
V55031	50-foot Starter hose with 1/4" Schrader Q.D. coupler
V52532	25-foot Starter hose with 1/4" Snap-Tite Q.D. coupler
V55032	50foot Starter hose with 1/4" Snap-Tite Q.D. coupler

Cat. No.	Description
QUICK-DISCONNECT NIPPLES	
1/4" Industrial Interchange	
S9841	With 1/4" Female NPT
V17	With 3/8" Female NPT
1/4" Schrader	
S19432	With 1/4" Female NPT
S19433	With 3/8" Female NPT
1/4" Snap-Tite	
S19442	With 1/4" Female NPT
S17651	With 3/8" Female NPT
QUICK-DISCONNECT COUPLERS (SHUT-OFF TYPE)	
1/4" Industrial Interchange	
V14	With 1/4" Female NPT
366254	With 3/8" Female NPT
366054	With 1/4" Male NPT
V15	With 3/8" Male NPT
1/4" Schrader	
V18	With 1/4" Female NPT
S17603	With 1/4" Male NPT
S17601	With 3/8" Male NPT
1/4" Snap-Tite	
V19	With 1/4" Female NPT
S17615	With 3/8" Female NPT
S17611	With 1/4" Male NPT
S17614	With 3/8" Male NPT
QUICK-DISCONNECT HOSE ADAPTERS	
V11	Hose-to-hose, 3/8" hose to 3/8" hose
V12	Hose-to-pipe, 3/8" hose to 1/4" pipe
V13	Hose-to-pipe, 3/8" hose to 3/8" pipe

To order replacement parts, contact your local Bullard distributor or Bullard's Customer Service Department.

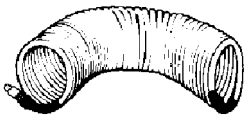
Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
Toll Free: 800-827-0423
Phone: 234-6611
Facsimile: 606-234-6858

88 Series Respirator Replacement Parts

13644

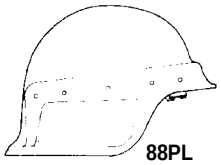
4644

21821

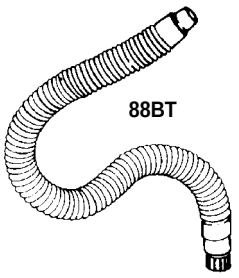


V5 Coiled Hose
V52530, V55030,
V52531, V55031,
V52532, V55032

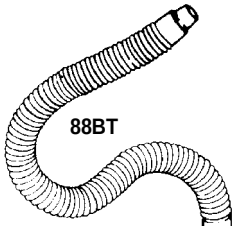
Air Supply Hose
5454, 5457, 5458
V2050ST, V20100ST



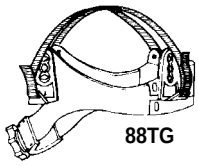
88PL



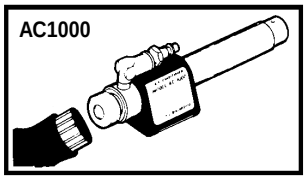
88BT



88BT



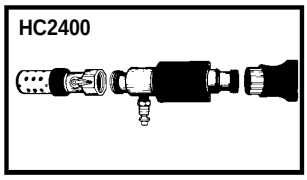
88TG



AC1000

F40

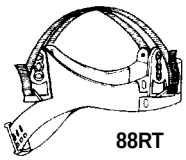
F35



HC2400

4612

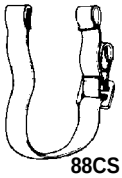
4612



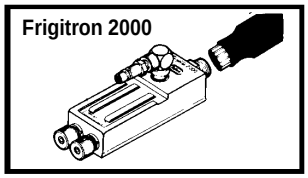
88RT

Breathing Tube Assembly
Adjustable Airflow
E40

Breathing Tube Assembly
Constant Airflow
E35

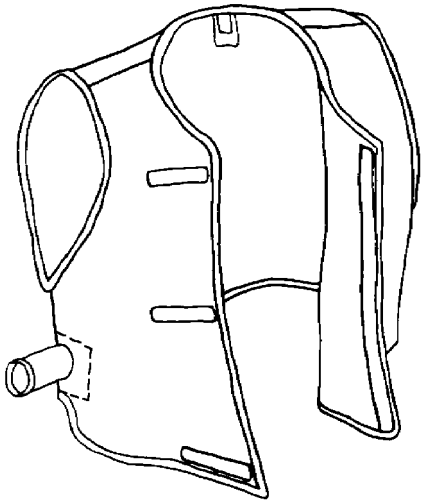


88CS



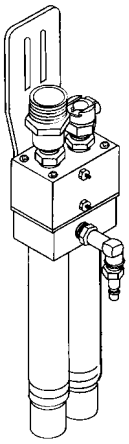
Frigitron 2000

88 Series Respirator Replacement Parts

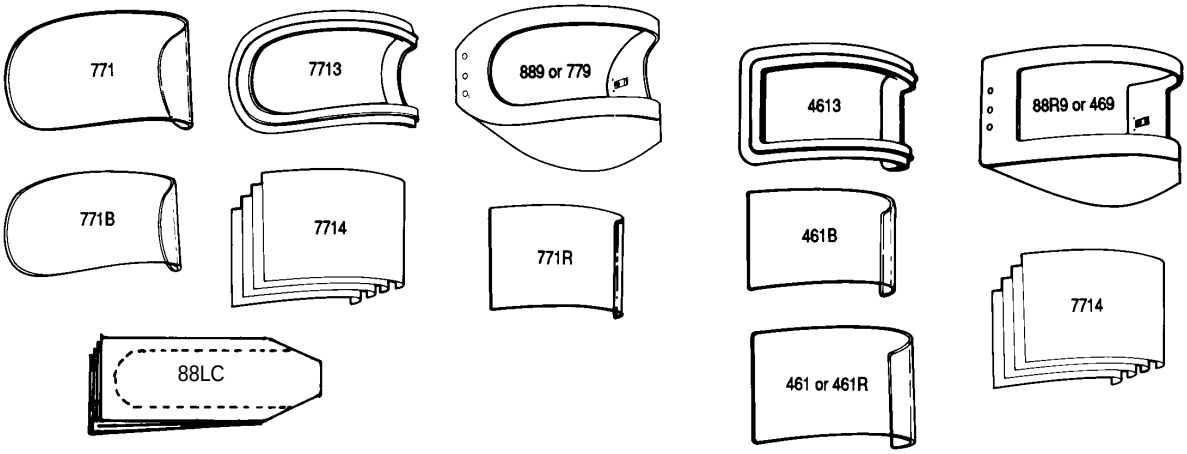


DC70ML
DC70XLXXL

DC5040



CH60



Return Authorizations

IMPORTANT: THE FOLLOWING STEPS MUST BE COMPLETED BEFORE BULLARD WILL ACCEPT ANY RETURNED GOODS. PLEASE READ CAREFULLY.

Follow the steps outlined bellow to return goods to Bullard for repair or replacement under warranty or for paid repairs:

1. Contact your Bullard Customer Service Representative by telephone or in writing at:

   Bullard
   1898 Safety Way
   Cynthiana, KY 41031-9303
   Toll Free: 800-827-0423
   Phone: 606-234-6611

   In your correspondence or conversation with your Customer Service Representative, describe the problem as completely as possible. For your convenience, your Representative will try to help you correct the problem over the telephone.

2. Verify with your Representative that the product should be returned to Bullard. Customer Service will provide you with written permission and a return authorization number as well as the labels you will need to return the product.

3. Before returning the product, decontaminate and clean it to remove any hazardous materials which may have settled on the product during use. It is against the law to ship hazardous or contaminated materials. Products suspected of contamination will be professionally disposed of at the customer's expense.

4. Ship returned products, including those under warranty, with all transportation charges prepaid. Bullard cannot accept returned goods on a freight-collect basis.

5. Returned products will be inspected upon return to the Bullard facility. Your Customer Service Representative will telephone you with a quote for required repair work which is not covered under warranty. If the cost of repairs exceeds stated quote by more than 20%, your Representative will call you with authorization to complete repairs. After repairs are completed and the goods have been returned to you, Bullard will invoice you for actual work performed.

The Human Side of Safety.®
Since 1898.

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
Call toll free 800-827-0423
Phone: 606-234-6611
Facsimile: 606-234-6858

3748-01 (0294) 6088000001

APPROVAL LABEL

88 Series Respirator System

United States Department of Labor
MSHA
Mine Safety and Health Administration

NIOSH

PERMISSIBLE

AIRLINE RESPIRATOR
TYPE C and CE CONTINUOUS-FLOW CLASS

Mine Safety and Health Administration
National Institute for Occupational Safety and Health

APPROVAL NO. TC-19C-293

ISSUED TO: **Bullard**
Cynthiana, Kentucky, U.S.A.

LIMITATIONS: Approved for respiratory protection in any atmosphere not immediately dangerous to life or health and from which the wearer can escape without the aid of the respirator. This approval applies only when the respirator is supplied with respirable air through approved hose(s), in allowable length(s), through belt-mounted air control systems, including accessories, at pressure ranges shown in the table.

CAUTION: Do not wear this respirator in any atmosphere immediately dangerous to life or health. Follow manufacturer's instructions for providing a supply of respirable air. In making renewals or repairs, parts used must be identical to those furnished by the manufacturer under the pertinent approval. This respirator shall be selected, fitted, used and maintained in accordance with Mine Safety and Health Administration, Occupational Safety and Health Administration and other applicable regulations.

Bullard's 88 Series airline respirators consist of the following components: respirator hood assembly, breathing tube assembly and air supply hose. All components must be present and properly assembled to constitute a complete MSHA/NIOSH approved respirator. See pages 3-4 of the instruction manual for the approved assembly parts.

MSHA/NIOSH Approval No. TC-19C-293. Issued to Bullard on May 4, 1995.

Breathing Tube Assembly (Part No.)	Air Supply Hose (Part No.)	Air Supply Hose Length (Feet)	Maximum Number of Hose Sections	Required Pressure Range (psig air)
F30, F30B, F30S F31, F32, F33, F34, F37	V10	25	1	14-15
		50	2	15-18
		100	3	19-24
		150	4	23-29
		200	5	25-34
		250-300	5	31-39
	V5	25	1	12-18
		50	2	19-23
F40, F40B, F40S, F41, F42, F43, F44, F47	V10	25	1	22-25
		50	2	24-27
		100	3	27-32
		150	4	30-37
		200	5	33-40
		250-300	5	38-45
	V5	25	1	22-26
		50	2	25-30
AC100030, AC100030B, AC100030S, AC100031, AC100032, AC100033, AC100034, AC100037	V10	25-50	2	55-65
		75-150	3	60-70
		175-300	5	65-75
	V5	25	1	55-65
		50	1	56-69
DC5040, DC5041, DC5042, DC5047,	V10	50	2	48-52
		100	3	59-63
		150	3	68-72
		200	3	80-84
		250	3	85-92
		300	5	90-98
	V5	25	1	53-57
		50	2	67-71
HC238830, HC238830B, HC238830S, HC238831, HC238832, HC238833, HC238834, HC238837	V10	25-50	2	65-70
		75-125	3	70-75
		150-225	4	80-85
		250-300	5	85-95
	V5	25	1	67-81
		50	1	70-86
HC240030, HC240030B, HC240030S, HC240031, HC240032, HC2480033, HC240034, HC240037	V10	25	1	59-61
		50	2	63-65
		100	3	68-70
		150	4	73-75
		200	4	77-79
		250	5	80-82
		300	5	84-86
	V5	25	1	65-66
		50	1	68-69
F35, F35B, F35S	V20	50	1	4-6
		100	2	6-8
		200	2	10-15
		300	3	13-18
FRIGITRON 2000, FRIGITRON 2000B, FRIGITRON 2000S	V20	50	1	16-22
		100	2	18-25
		200	2	22-30
		300	3	25-34