

Duo-Twin™

**respirator
constant flow and
pressure demand types**

**instructions
parts lists**

⚠ WARNING

This booklet, including the warnings and cautions inside, must be carefully read and followed by all persons who use or maintain this product, including those who have any responsibility involving its selection, application, service or repair. This respirator will perform as designed only if used and maintained according to the instructions. Otherwise, it could fail to perform as designed and persons who rely on this product could sustain serious personal injury or death.

The warranties made by MSA with respect to the product are voided if the product is not installed, used, and serviced in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions. Please read and observe the **WARNINGS** and **CAUTIONS** inside. For any additional information relative to use or repair, write or call 1-800-MSA-2222 during regular working hours.

See separate insert for NIOSH approval information for the Duo-Twin Respirator.



For More Information: Call (1-800-MSA-2222) or Visit Our Website at (www.MSAnet.com)

MSA

Be Sure.
Choose MSA.

MINE SAFETY APPLIANCES COMPANY
PITTSBURGH, PENNSYLVANIA, U.S.A. 15230

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**NIOSH APPROVAL INFORMATION
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 instructions.
- G- If airflow is cut off, switch to filter and/or cartridge and immediately exit to clean air.
- H- Do not wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with sorbent.
- J- Failure to use and maintain this product properly could result in injury or death.
- L- Follow the manufacturer's User Instructions for changing cartridges and/or filters.
- M- All approved respirators shall be selected, fitted, used, and maintained in accordance with 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 Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P- NIOSH does not evaluate respirators for use as surgical masks.
- S- Special or critical user instructions and/or specific use limitations apply. Refer to User Instructions before donning.

SPECIAL USER INSTRUCTIONS

1. Mersorb-P100 cartridges can be used against a mixture of chlorine and mercury that are both present simultaneously, but cannot be used if alternating between mercury-contaminated atmospheres and chlorine-contaminated atmospheres.
2. Mersorb-100 respirators utilize an end-of-service-life indicator for use against metallic mercury vapor. The band around the side of each Mersorb-P100 cartridge consists of chemically-treated paper. In use, as the paper is exposed to metallic mercury vapor it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of his cartridge.
3. This approval applies only when the device is supplied with respirable air through 8 to 300 feet of air supply hose within the pressure range of 65 to 85 pounds per square inch gage.
4. Below 32°F add the following nose cups to the facepiece:
 - a. Ultravue nose cups: 471539, 471540, 471541 or 96671.
 - b. Ultra Elite nose cups: 495188, 495189 or 7-901-1. Remove the 805018 or 7-1384-1 baffle before installing nose cup. The baffle must be used if nose cup is not in place.
5. A maximum of 12 sections of air supply hose may be used in making up the maximum working length of hose. Each section of coiled hose, regardless of length, is considered 50 feet in length (max.: 6 sections).

WARNING

1. **This respirator must be used in conjunction with the proper filters or cartridges for protection against specific contaminants.**
2. **Leave area immediately if:**
 - a. **breathing becomes difficult**
 - b. **dizziness or other distress occurs**
 - c. **you taste or smell contaminant**
 - d. **you experience eye, nose or throat irritation**
3. **This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevent direct contact between the skin and the sealing surface of the facepiece. Do not use this respirator if such conditions exist.**
4. **Do not use for fire fighting.**
5. **Do not use as an underwater device.**
6. **Thoroughly check out the apparatus on receipt prior to use.**
7. **Do not use compressed oxygen with this device.**
8. **This respirator is for use by trained, qualified personnel only.**

Failure to follow the above warnings can result in serious personal injury or death.

RESPIRATOR USE LIMITATIONS

The wearer must comply with the following MSA respirator use limitations:

A. Maximum Use Concentration

Do not exceed ANY of the applicable maximum use concentrations listed below:

RESPIRATOR USE \ RESPIRATOR TYPE	RESPIRATORS WITH PARTICULATE FILTERS OR FILTER CARTRIDGES	RESPIRATORS WITH CHEMICAL OR COMBINATION CARTRIDGES
Routine Use in Air-Supplied Mode Only - Including Entry, Continuous Use and Non-Emergency Egress	<ul style="list-style-type: none"> • 1,000 times Exposure Limit • IDLH 	<ul style="list-style-type: none"> • 100 Times Exposure Limit • IDLH • 1,000 ppm organic vapors for organic vapor respirators only
Routine Use in Air-Purifying Mode - Including Entry, Continuous Use, Non-Emergency Egress and/or Moving from Station-to-Station	<ul style="list-style-type: none"> • 100 Times Exposure Limit • IDLH 	<ul style="list-style-type: none"> • 100 Times Exposure Limit • IDLH • 1,000 ppm organic vapors for organic vapor respirators only
Emergency Escape in Air-Purifying Mode	<ul style="list-style-type: none"> • Unlimited 	<ul style="list-style-type: none"> • 100 Times Exposure Limit • IDLH • 1,000 ppm organic vapors for organic vapor respirators only

- B.** The limitations outlined in the applicable NIOSH approval.
- C.** Any applicable limitation contained in a standard established by a regulatory agency (such as OSHA) with jurisdiction over the wearer.
- D.** Do not use for protection against substances with poor warning properties or those which generate high heats of reaction with sorbent material in the cartridge.
- E.** Do not wear for protection against the following contaminants regardless of concentration or time of exposure. This far-from-complete list is offered only as a guide to proper evaluation of the many contaminants found in industry. Contact MSA for further information on other specific materials.

Acrolein	Methanol	Ozone
Aniline	Methyl bromide	Phosgene
Arsine	Methyl chloride	Phosphine
Bromine	Methylene chloride	Phosphorous trichloride
Carbon monoxide	Nickel carbonyl	Stibine
Diisocyanates	Nitric Acid	Sulfur chloride
Dimethylaniline	Nitro compounds:	Urethane or other
Dimethyl sulfate	Nitrogen oxide	diisocyanate-containing
Hydrogen cyanide	Nitroglycerin	paints
Hydrogen selenide	Nitromethane	Vinyl chloride

- F.** Mixtures of Contaminants — NIOSH allows this respirator to be used for protection against a mixture of contaminants that are present simultaneously or alternately against one contaminant then another (using the same cartridges or filters) if the mixture meets the following conditions:

- a. The cartridge/filter must be approved for all contaminants present.
 - b. NIOSH permits mixing of the following contaminants: organic vapors, sulfur dioxide, chlorine, ammonia, methylamine, chlorine dioxide, hydrogen sulfide, and hydrogen chloride.
 - c. Particulates can be mixed with any other particulate or any gas or vapor for which the cartridge is approved.
 - d. Mersorb-P100 cartridges can be used against a mixture of chlorine and mercury that are both present simultaneously, but can not be used if alternating between mercury-contaminated atmospheres and chlorine-contaminated atmospheres.
 - e. Contaminants present simultaneously must be below IDLH levels for the specific contaminants. If any one contaminant in the mixture exceeds the IDLH concentration then the entire mixture must be treated as IDLH and the respirator cannot be used (except for escape from particulates with appropriate filter).
- G.** GMT cartridge users are limited to 10 mppca for a maximum of 60 minutes and must use the cartridges immediately after opening the bag.

Time Use Limitation

N- and R- filters shall be limited to 8 hours of use (continuous or intermittent) against particulates. [Service time can be extended by performing an evaluation in the specific workplace setting that demonstrates (a) that the extended use will not degrade the filter efficiency below 95% or (b) that the total mass loading of the filter is less than 100mg.]

EXPOSURE LIMITS

A listing of acceptable exposure limits from the following sources are provided on MSA’s website found at www.MSAnet.com:

- American Conference of Governmental Industrial Hygienists (ACGIH)
- Occupational Safety and Health Administration (OSHA)
- National Institute for Occupational Safety and Health (NIOSH)
- American Industrial Hygiene Association (AIHA)

Contact MSA at 1-800-MSA-2222 for information.

Exposure Limits for Mixtures

The American Conference of Governmental Industrial Hygienists (ACGIH) publishes the following information to determine the TLV of a mixture.

First determine the total concentration of the chemical mixture (C_{Mixture}) from the individual contaminant concentrations (C_1, C_2, C_3, \dots) using the following formula:

$$C_{\text{Mixture}} = C_1 + C_2 + C_3 + \dots$$

The TLV of the mixture is found by using the following formula where T_1, T_2, T_3, \dots are the individual contaminant TLVs and C_1, C_2, C_3, \dots are the individual contaminant concentrations:

$$T_{\text{Mixture}} = \frac{C_{\text{Mixture}}}{\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3} + \dots}$$

Only use these equations if the contaminants present are actually mixed. Some substances do not mix and may be present separately, for example, in pockets or at different levels. In that case, the lowest TLV of the substances present must be used to determine the appropriate respirator category for protection against all contaminants present.

See MSA's website at www.MSAnet.com for additional information.

RESPIRATOR FIT TEST

A qualitative or quantitative respirator fit test must be carried out for each wearer of this respirator to determine the amount of protection it will provide. Respirator fit tests are explained fully in the American National Standard for Respiratory Protection, ANSI Z88.2, which is published by the American National Standards Institute, 11 West 42nd Street, New York, New York 10036.

Quantitative Test

If a quantitative fit test is used, a fit factor that is at least 1,000 shall be obtained before that respirator is assigned to an individual.

Qualitative Test

If a qualitative fit test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 1,000.

Duo-Twin Respirators must be qualitatively or quantitatively fit tested in a negative-pressure mode. This will cover use of the respirator in both air-purifying and air-supplied modes of operation.

▲ WARNING

The user must perform a respirator fit test and follow all warnings and limitations specified. Failure to do so can result in serious personal injury or death.

APPLICATION AND OPERATING PRINCIPLE

The Duo-Twin Respirator is a combination air supplied respirator and air purifying respirator. It is NIOSH approved for use with either particulate filters and/or chemical cartridges for respiratory protection against specified contaminants.

The air supplied mode of operation enables the user to work for long periods of time in contaminated atmospheres without depleting the filters or cartridges. The air purifying mode of operation can be used for entry, egress, and moving from station to station in a contaminated atmosphere. It can also be used for continuous use when an air supply is not available. The Duo-Twin Respirator is not for use in atmospheres containing less than 19.5 percent oxygen or in immediately dangerous to life or health (IDLH) atmospheres.

Constant Flow Type - During use, the air-supplied mode of operation prevails as long as the user is connected to an air source. The air purifying mode of operation is entered automatically if the air-line is disconnected or if the air source is lost for any reason.

Demand/Pressure Demand Type - During use, the D/PPD exhalation valve must be in the FILTER/CANISTER position when using the respirator in the air purifying mode of operation. When the air-line is connected, the user must switch the D/PPD exhalation valve to the AIR-LINE position to use the respirator in the air supplied mode of operation.

When the air-line is disconnected or if the air source is lost for any reason, the user must switch the D/PPD exhalation valve back to the FILTER/CANISTER position to again use the respirator in the air purifying mode of operation.

Inhaled air enters the facepiece either through the filters or cartridges or from the airline, valve/regulator, and breathing tube. The inhaled air passes over the lens, keeping it free from fog, before it is taken into the lungs. Exhaled air leaves the facepiece through the exhalation valve and consequently is not rebreathed. A check valve prevents the exhaled air from passing out through the filters or cartridges.

Note: Training on the Demand/Pressure Demand Duo-Twin Respirator should include a brief familiarization period where the employee is allowed to use the device in both modes. This will allow the employee to recognize the higher breathing resistance associated with the airline position of the D/PPD exhalation valve and allow him/her to practice switching the valve from one position to the other.

BEFORE USE

1. Make sure certain conditions of exposure are (a) within the limits for which the device is approved (see appropriate NIOSH approval plate)

and, (b) within the limits established by MSA (see “Respirator Use Limitations” section). Do not use in areas which are not ventilated. Do not use in atmospheres containing less than 19.5 percent oxygen or in atmospheres immediately dangerous to life or health. If oxygen concentration sufficient to support life is questionable, use self-contained breathing apparatus only.

2. Do not wear for protection against substances with poor warning properties or those which generate high heats of reaction with sorbent materials in the cartridge.
3. Wear impermeable protective clothing for exposure to gases and vapors which can poison by skin absorption.
4. Ensure that a source of air is available which conforms to the requirements as specified in the “Air-Supply” section.
5. The following inspection points must be checked before donning the respirator. A respirator that fails the inspection must not be used. The respirator must be repaired or replaced.
 - a. Headbands: Check to see that the headbands still have their elasticity. Inspect for breaks or tears and make sure all buckles are in place and working properly.
 - b. Facepiece: Check facepiece for dirt, cracks, tears or holes. Inspect the shape of the facepiece for possible distortions that may occur from improper storage and make sure the rubber is flexible, not stiff.
 - c. Inhalation and exhalation valves: Check for cracks, tears, distortion, dirt or build-up of material between valve and valve seat.
 - d. Cartridge receptacles: Check to make sure gaskets are in place and check for cracks and damage to threads.
 - e. Cartridges and/or filters: Make sure cartridges and filters are clean. Never try to clean a filter or cartridge by washing it or using compressed air. Inspect cartridges for dents, scratches or other damage, particularly the metal sealing bead around the bottom.
6. Assemble respirator as follows:
 - a. Attach cartridges and/or filters to receptacles on facepiece as follows:

CARTRIDGES: Thread cartridges into receptacles carefully. Hand tighten to prevent damage to threads. To ensure a good seal against the gaskets, tighten each cartridge by gripping as much of the circumference of the receptacle as possible and then slowly turning the cartridge until tight.

FILTERS: Insert the appropriate filter into the appropriate filter cover. Never load filters into the receptacles. Snap filter covers onto receptacles or cartridges taking care not to damage filters.
 - b. Securely attach breathing tube between airline valve and facepiece.
 - c. Slide belt clip onto belt.
7. Don and adjust in fresh air only per “Fitting the Mask” section. Check facepiece tightness per “Test for Tightness” section.
8. If filter is being reused, see “Replacing Cartridges/Filters” section.

DURING USE

When using Duo-Twin Respirator with airline disconnected, the dust cover must be placed onto the airline quick disconnect fitting (Schrader/Foster steel or SnapTite fittings only).

Leave area immediately if:

1. Leakage is detected by smell, taste, or eye, nose or throat irritation.
 2. High breathing resistance is encountered.
 3. Any feeling of nausea, dizziness or ill-being develops.
-

AFTER USE

1. Check condition of respirator. Clean and replace any parts necessary.
 2. Store apparatus in clean, dry location.
-

ASSEMBLY INSTRUCTIONS

The Duo-Twin Adapter enables an Ultravue or an Ultra Elite Facepiece to function as a Duo-Twin Facepiece.

FITTING THE MASK - FULL FACEPIECE

Pull out headband straps, especially the “FRONT” or forehead strap, so that their ends are at the buckles, then grip the facepiece between thumb and fingers, insert chin well into the lower part of facepiece and pull headbands back over head. To obtain a firm and comfortable fit against the face at all points, adjust headbands as follows:

1. Make sure that straps lie flat against head.
 2. Tighten the lower or “NECK” straps.
 3. Tighten the “SIDE” straps. (Do not touch forehead or “FRONT” strap.)
 4. Place both hands on headband pad and push it towards the neck.
 5. Repeat operations 2 and 3.
 6. Tighten the forehead or “FRONT” strap a few notches if necessary.
-

TEST FOR TIGHTNESS

THE FACEPIECE MUST BE SUBJECTED TO THE FOLLOWING TIGHTNESS TEST BEFORE EACH USE. With Air-Line disconnected, test the apparatus facepiece for tightness by holding the hands tightly over the inlet(s) of the filters or cartridges. Inhale gently so that the facepiece collapses slightly and hold breath for ten seconds. The facepiece will remain collapsed while breath is held providing the assembly is gas tight. If any leakage is detected around the facial seal, readjust head harness straps and repeat test until there is no leakage. If

other than facial seal leakage is detected, the condition must be investigated and corrected before another test is made. The facepiece must pass the tightness test before the user attempts to enter any toxic atmosphere.

SERVICE LIFE INDICATOR

The Mersorb-P100 Cartridges utilize a service life indicator for use against metallic mercury vapor. The small area at the center of the inlet surface of each cartridge and the band around the side of each Mersorb-P100 cartridge consist of chemically treated paper. In use, as the paper is exposed to metallic mercury vapor, it changes from orange to brown. When the indicator color changes to brown, the cartridge is beginning to lose its effectiveness against metallic mercury vapor and must be replaced. Thus, the wearer has a constant, positive check on the condition of his cartridges.

REPLACING CARTRIDGES/FILTERS

The length of time the cartridge will give protection depends on the concentration of the contaminant and the rate of breathing while in the air purifying mode of operation. When the facepiece is properly adjusted, the following conditions are indications that the chemical cartridges or filters have served their useful life and must be replaced.

- CARTRIDGES:**
- Odor or taste of gases or vapors; eye, nose, or throat irritation.
 - Mersorb-P100 Cartridges only: Brown color on end-of-service life indicator.
 - GMT Cartridge only: Maximum 60 minutes use.
- FILTERS:** Excessive breathing resistance upon inhalation. Time use limitation has been reached.

To replace cartridges proceed as follows:

- A. Remove the expended cartridges and discard.
- B. Remove the replacement cartridges from storage bags and insert into threaded receptacles making sure gaskets are in place in the receptacles.
- C. Carefully hand tighten the cartridges to prevent damage to threads. To ensure a good seal against the gaskets, tighten each cartridge by gripping as much of the circumference of the receptacle as possible and then slowly turning the cartridge until tight.

To replace filters proceed as follows:

- A. Remove the filter covers and discard filters.
- B. Place a new filter in each filter cover. Never load filters into the receptacles.
- C. Replace filter covers taking care not to damage the filters.

⚠ WARNING

- **Protection voided if sealing gaskets are not in their proper places.**
- **Do not use a filter or chemical cartridge if there are any visible signs of damage.**
- **If respirator is worn through a shower (as in asbestos abatement), filters/cartridges must be replaced after each use.**

Failure to follow the above warnings can result in serious personal injury or death.

AIR SUPPLY

1. Air Hose - Any combination of the following Air Supply Hoses which does not exceed 300 feet may be used:

- Part No. 455020 - Hose, Neoprene, 15 ft., Brass, Model No. 7-665-1
- Part No. 455021 - Hose, Neoprene, 25 ft., Brass, Model No. 7-665-1
- Part No. 455022 - Hose, Neoprene, 50 ft., Brass, Model No. 7-665-1
- Part No. 471511 - Hose, PVC, 15 ft., Brass, Model No. 7-664-1
- Part No. 471512 - Hose, PVC, 25 ft., Brass, Model No. 7-664-1
- Part No. 471513 - Hose, PVC, 50 ft., Brass, Model No. 7-664-1
- Part No. 474043 - Hose, Coiled Nylon, 50 ft., Model No. 5-511-1
- Part No. 481051 - Hose PVC, 8 ft., Brass
- Part No. 481071 - Hose, Neoprene, 8 ft.

See Air Hose connection instruction sheet Part No. 995602 for possible assemblies which may be used to connect air hoses and valves.

2. Pressure -
 - a. Constant Flow - Air must be supplied to the inlet end of the air hose under a pressure between 35-40 psig.
 - b. Demand/Pressure Demand - Air must be supplied to the inlet end of the air hose under a pressure between 65-85 psig.
3. Air Source - The purity of the air supply is the responsibility of the user. The respirator is approved only when the air supplied meets the requirements of Compressed Gas Association Specification G-7.1 for type I, Class D Gaseous Air. This requires that the air contain no more than 20 parts per million (ppm) carbon monoxide, not more than 1000 parts per million (ppm) carbon dioxide, and not more than 5 milligrams per cubic meter of oil vapor or oil particulates.

CLEANING AND DISINFECTING

The facepiece (with the filters or cartridges removed) should be cleaned and disinfected after every use with MSA's Confidence Plus Cleaning Solution (P/N 10009971).

1. Make a solution, following the instructions on the cleaner disinfectant label.
2. Immerse soiled equipment in the solution and scrub gently with a soft brush until clean. Take care to clean the exhalation valve in the facepiece and all other parts that exhaled air contacts.
3. Rinse in clear warm water (at or below 120°F) and then air dry.

None of the metal, plastic, rubber, leather, cloth, or glass parts will be adversely affected by the cleaning solution.

⚠ CAUTION

Cleaning and disinfecting at or below 120°F will avoid possible overheating and distortion of parts of the respirator assembly, which would necessitate replacement.

Instructions for Disassembly and Cleaning of D/PD Valve

1. Remove D/PD valve by carefully pulling valve from rubber of facepiece.
2. Remove the three screws from around the outside of the valve. Do not attempt to remove the screw in the bottom of the valve. Remove plunger assembly and spring from the body assembly.
3. To clean, follow instructions in cleaning and disinfecting section.
4. If any parts of the D/PD valve are cracked, torn, or in any way damaged, the valve must be replaced.
5. For reassembly:
 - a. Insert spring back into body assembly. Push plunger assembly into the body assembly and line up the grooves with the holes. Thread the three screws securely into the assemblies. Turn the D/PD valve between the in and out positions to see if the valve is functioning.
 - b. Install D/PD valve into the facepiece so that the groove on the valve is inserted into the exhalation valve hole under the chin cup of the facepiece making sure that the large portion of the valve is on the outside. Align the inside oval of the valve so that it does not interfere with the inlet assembly or chin cup.

MAINTENANCE

This apparatus must be kept in good condition to function properly. When any part shows evidence of excessive wear or damage, it must be replaced immediately with the proper part. Extra parts should be readily available. Refer to the “Before Use” section for proper inspection of the apparatus. This apparatus, when not in use, should be stored in a clean, dry location.

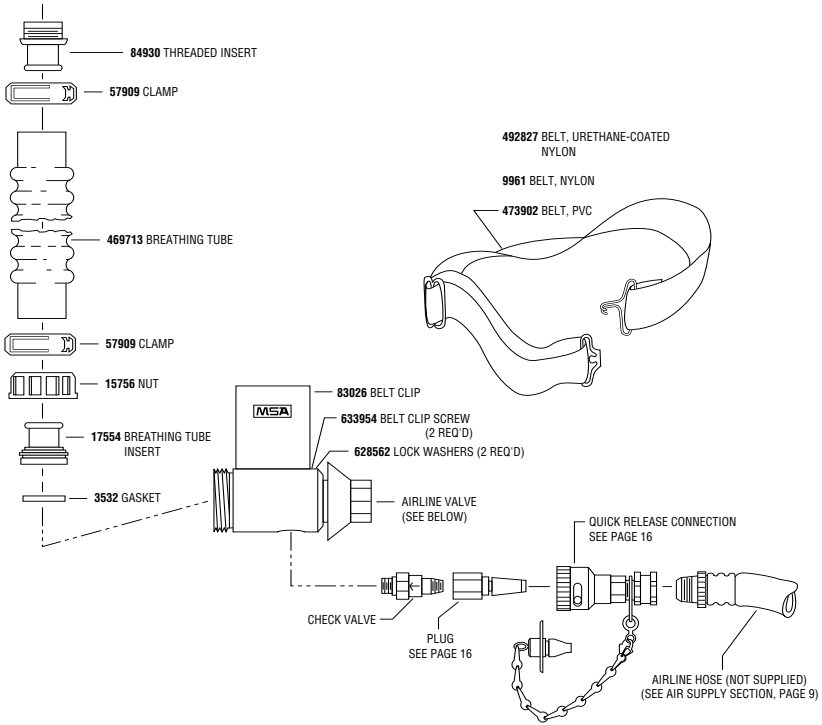
⚠ WARNING

Do not enter any atmosphere with this respirator unless you know that:

- 1. You have read, understood and followed all instructions and warnings pertaining to the respirator.**
- 2. The respirator and conditions meet the requirements outlined.**
- 3. The cartridges are the proper type for the contaminants present.**
- 4. The amount of oxygen is sufficient to support life (that is, at least 19.5 percent oxygen by volume at sea level). Do not use if oxygen concentration sufficient to support life is questionable.**
- 5. Respirator does not leak. (See “Test for Tightness”.)**
- 6. Cartridges do not need to be replaced. Discard exhausted cartridges.**
- 7. You are not color-blind and can distinguish between the beginning and ending colors of the service life indicator (when using Mersorb-P100 respirators only).**

Failure to follow the above warnings can result in serious personal injury or death.

Duo-Twin Constant Flow Respirator Components (See page 17 for Facepiece)



**Duo-Twin
Constant Flow
Airline Valve
Assemblies Complete
Model 5-713-1**

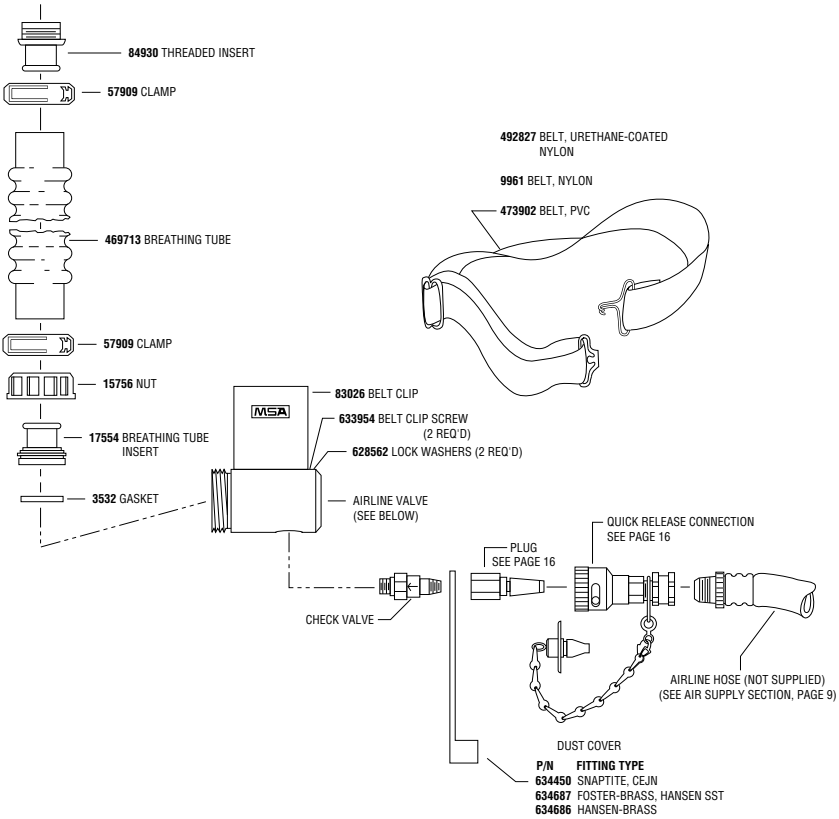
Part No.
489243
489244
489245
489246
489248
489247
489249
489250
489251
489252

**Duo-Twin
Constant Flow
Airline Valve
Assemblies Less Quick
Disconnect Socket**

Part No.
489228
489231
489232
489229
489233
489230
489234
489235
489236
489237

Type
Snap-Tite (Al)
Snap-Tite (Brass)
Snap-Tite (SST)
Foster (Steel)
Foster (Brass)
Hansen (Brass)
Hansen (SST)
Duff-Norton
Cejn, Locking
Snap-Tite (Ai), Locking

Duo-Twin Constant Flow Respirator Components (See page 17 for Facepiece)



**Duo-Twin
Constant Flow
Airline Valve
Assemblies Complete
Model 5-622-1**

Part No.
483526
483530
483531
483528
483532
483529
483533
483534
483535
483536

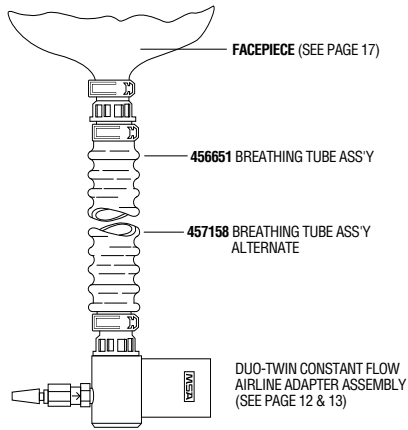
**Duo-Twin
Constant Flow
Airline Valve
Assemblies Less Quick
Disconnect Socket**

Part No.
484054
484057
484058
484055
484059
484056
484060
484061
484062
484063

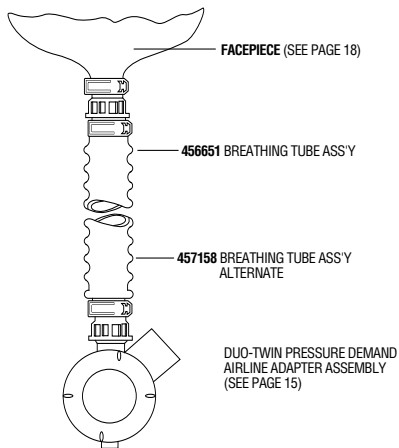
Type

Snap-Tite (Al)
Snap-Tite (Brass)
Snap-Tite (SST)
Foster (Steel)
Foster (Brass)
Hansen (Brass)
Hansen (SST)
Duff-Norton
Cejn, Locking
Snap-Tite (Al), Locking

Duo-Twin Constant Flow Respirator Assembly

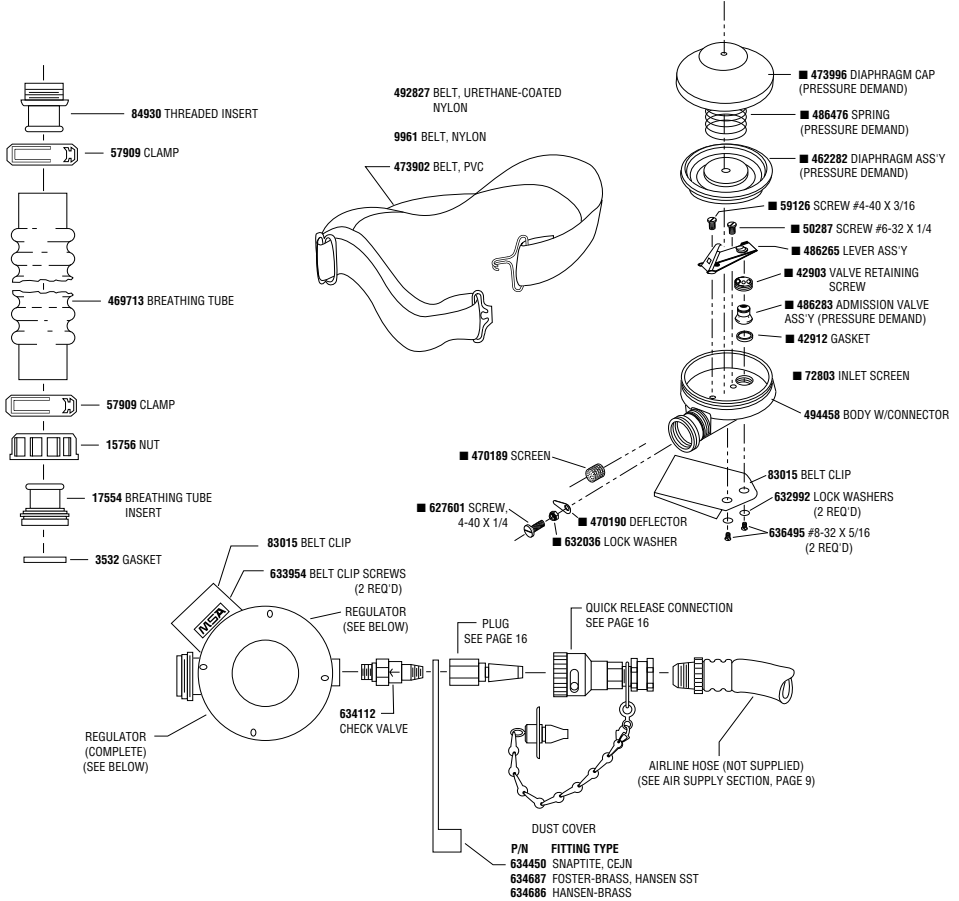


Duo-Twin Pressure Demand Respirator Assembly



Duo-Twin Pressure Demand Respirator

(See page 18 for Facepiece)



Duo-Twin Regulator Assemblies Complete Model 7-679-1

Part No.
481934
481937
481938
481935
481936
481940
481939
481941
481943
481944

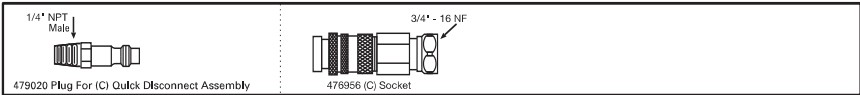
Duo-Twin Regulator Assemblies Less Quick Disconnect Socket

Part No.
481871
481873
481874
481870
481872
481876
481875
481877
481878
481879

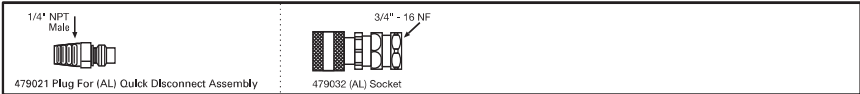
Type
Snap-Tite (Ai)
Snap-Tite (Brass)
Snap-Tite (SST)
Foster (Steel)
Foster (Brass)
Hansen (Brass)
Hansen (SST)
Duff-Norton
Cejn, Locking
Snap-Tite (Ai), Locking

QUICK DISCONNECTS FOR FLOW CONTROL DEVICES

CEJN — Chrome (C)



SNAP-TITE — Aluminum (AL)

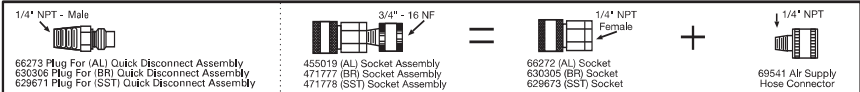


NON-LOCKING TYPES

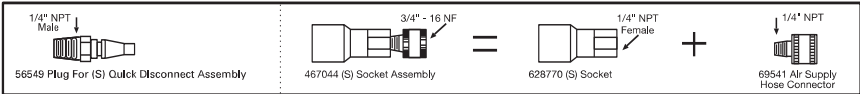
SNAP-TITE — Aluminum (AL)

Brass (BR)

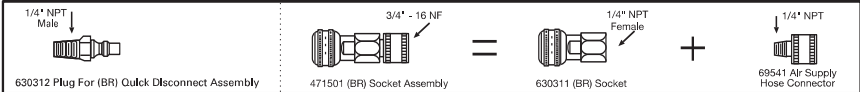
Stainless Steel (SST)



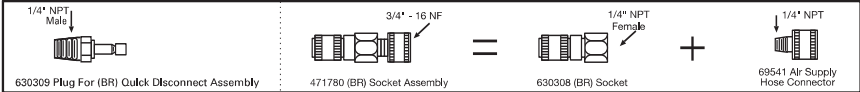
FOSTER — Steel (S)



HANSEN — Brass (BR)

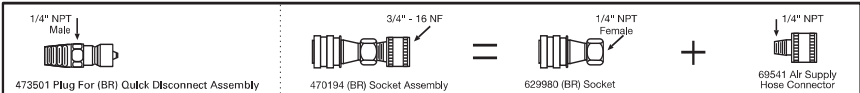


DUFF-NORTON — Brass (BR)

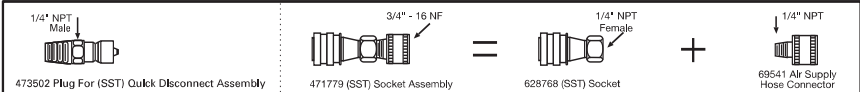


NON-LOCKING TYPES — WITH CHECK VALVE IN PLUG

FOSTER — Brass (BR)



HANSEN — Stainless Steel (SST)



Duo-Twin Constant Flow Facepiece Components

Facepiece Assemblies

SMALL — MODEL 7-708-2								MEDIUM — MODEL 7-708-1								LARGE — MODEL 7-708-3							
Part Number	RUBBER			SPEAKING DIAPHRAGM		NOSECUP		Part Number	RUBBER			SPEAKING DIAPHRAGM		NOSECUP		Part Number	RUBBER			SPEAKING DIAPHRAGM		NOSECUP	
	Black Hycar	Black Silicone	Green Hycar	With	Less	With	Less		Black Hycar	Black Silicone	Green Hycar	With	Less	With	Less		Black Hycar	Black Silicone	Green Hycar	With	Less	With	Less
483837	•			•			•	483819	•			•			•	483855	•			•			•
483843	•						•	483825	•						•	483861	•						•
483838	•						•	483820	•						•	483856	•						•
483844	•						•	483826	•						•	483862	•						•
483851		•					•	483833		•					•	483869		•					•
483853		•					•	483835		•					•	483871		•					•
483852			•				•	483834			•				•	483870			•				•
483854		•					•	483836				•			•	483872				•			•
483849				•			•	483831					•		•	483867					•		•
483850							•	483832					•		•	483868						•	•

Facepiece Components

ACCESSORY EQUIPMENT

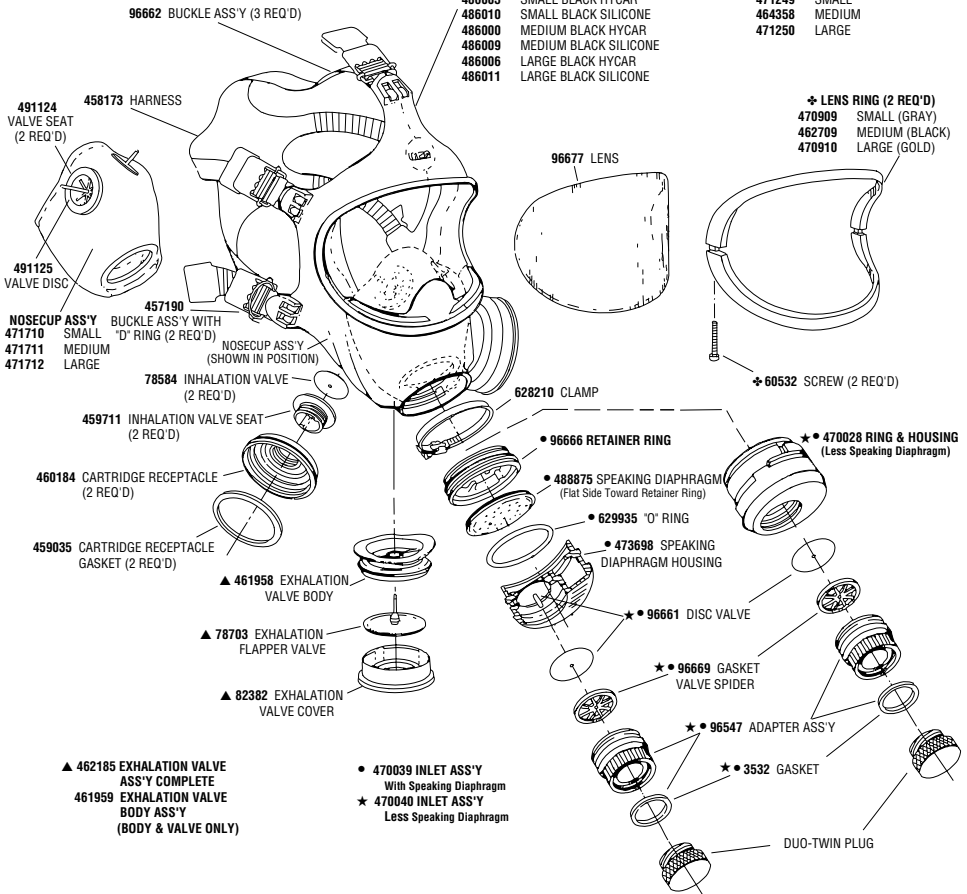
- 456975 COVER LENS (CLEAR) 25 PER PKG.
- 454819 SPECTACLE KIT

FACEPIECE BLANK

- | PART NO | DESCRIPTION |
|---------|-----------------------|
| 486003 | SMALL BLACK HYCAR |
| 486010 | SMALL BLACK SILICONE |
| 486000 | MEDIUM BLACK HYCAR |
| 486009 | MEDIUM BLACK SILICONE |
| 486006 | LARGE BLACK HYCAR |
| 486011 | LARGE BLACK SILICONE |

+ LENS RING REPLACEMENT KIT

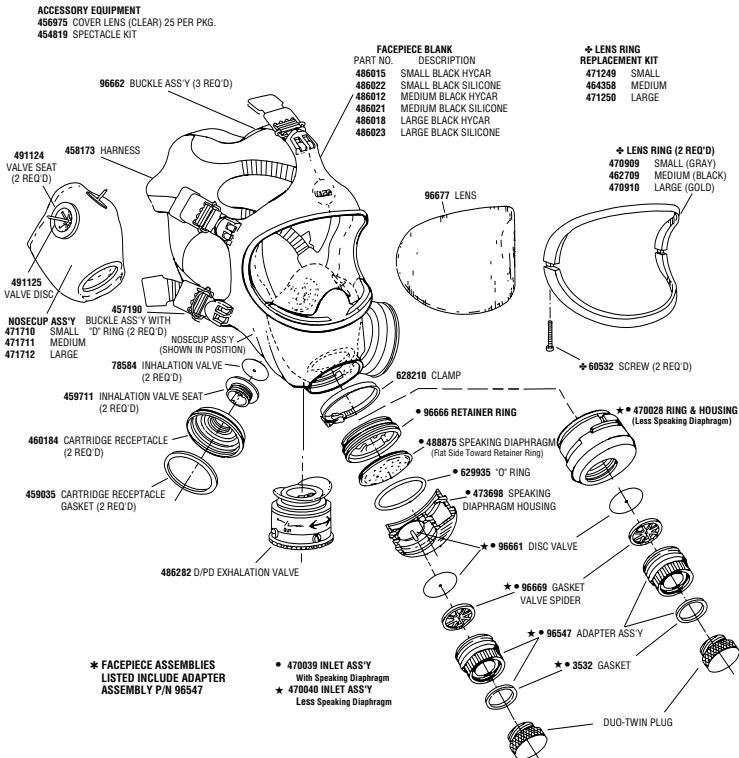
- 471249 SMALL
- 464358 MEDIUM
- 471250 LARGE



Duo-Twin D/PD Facepiece Components Facepiece Assemblies

SMALL — MODEL 7-1049-2						MEDIUM — MODEL 7-1049-1						LARGE — MODEL 7-1049-3								
Part Number	RUBBER		SPEAKING DIAPHRAGM		NOSEUCUP		Part Number	RUBBER		SPEAKING DIAPHRAGM		NOSEUCUP		Part Number	RUBBER		SPEAKING DIAPHRAGM		NOSEUCUP	
	Hycar	Silicone	With	Less	With	Less		Hycar	Silicone	With	Less	With	Less		Hycar	Silicone	With	Less	With	Less
484520	•		•			•	484502	•		•			•	484538	•		•			•
484521	•		•		•		484503	•		•		•		484539	•		•		•	
484526	•		•		•		484508	•		•		•		484544	•		•		•	
484527	•		•		•		484509	•		•		•		484545	•		•		•	
484532	•		•		•		484514	•		•		•		484550	•		•		•	
484533	•		•		•		484515	•		•		•		484551	•		•		•	
484534	•	•	•		•		484516	•		•		•		484552	•	•	•		•	
484535	•	•	•		•		484517	•		•		•		484553	•	•	•		•	
484536	•	•	•		•		484518	•		•		•		484554	•	•	•		•	
484537	•	•	•		•		484519	•		•		•		484555	•	•	•		•	
496146	•		•		•		496110	•		•		•		496182	•		•		•	
496147	•		•		•		496111	•		•		•		496183	•		•		•	
496152	•		•		•		496116	•		•		•		496188	•		•		•	
496153	•		•		•		496117	•		•		•		496189	•		•		•	
496158	•		•		•		496122	•		•		•		496194	•		•		•	
496159	•		•		•		496123	•		•		•		496195	•		•		•	
496160	•		•		•		496124	•		•		•		496196	•		•		•	
496161	•		•		•		496125	•		•		•		496197	•		•		•	
496162	•		•		•		496126	•		•		•		496198	•		•		•	
496163	•		•		•		496127	•		•		•		496199	•		•		•	
496164	•	•	•		•		496128	•		•		•		496200	•	•	•		•	
496170	•		•		•		496134	•		•		•		496206	•		•		•	
496177	•		•		•		496141	•		•		•		496213	•		•		•	
496178	•		•		•		496142	•		•		•		496214	•		•		•	
496180	•		•		•		496144	•		•		•		496216	•		•		•	
10003800	•		•		•		814709	•		•		•		10003881	•		•		•	

Facepiece Components

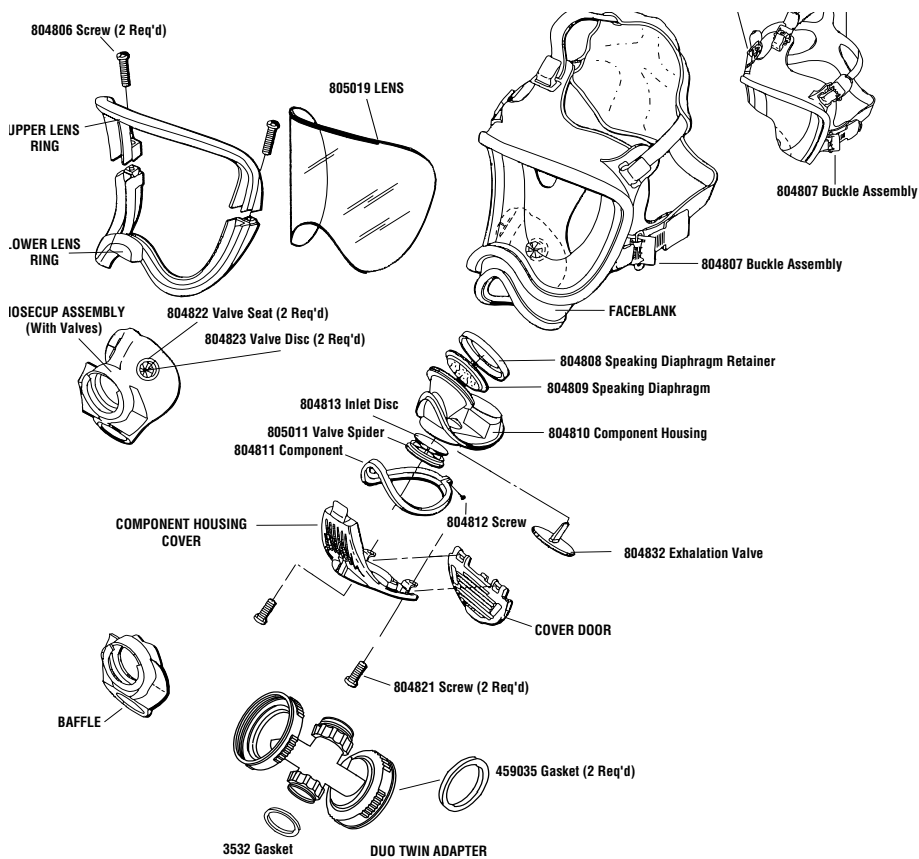


Ultra Elite® Demand Facepiece

Facepiece Assemblies

SMALL — MODEL 7-934-2			MEDIUM — MODEL 7-934-1			LARGE — MODEL 7-934-3		
Part No.	Rubber		Part No.	Rubber		Part No.	Rubber	
	Hycar	Silicone		Hycar	Silicone		Hycar	Silicone
491146	•		491145	•		491147	•	
491505		•	491502		•	491508		•
493064	•		493020	•		493108	•	
493072		•	493028		•	493116		•
10046621	•		10046617	•		10043949	•	
10046622		•	10046618		•	10046625		•
10046623	•		10046619	•		10046626	•	
10046624		•	10046620		•	10046628		•
10052780	•		10052779	•		10046629	•	
10052776	•		10052781	•		10046630	•	
						10052777	•	
						10052778	•	

Facepiece Components



NOTES



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