



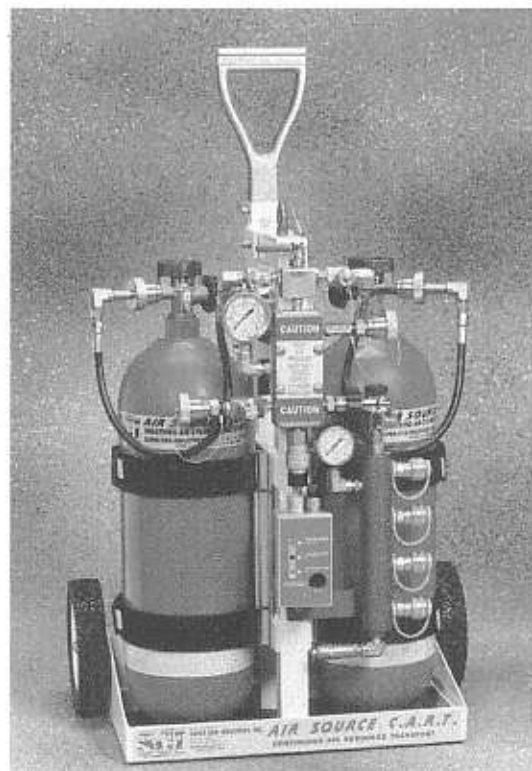
The Air Source® C.A.R.T.

CONTINUOUS AIR RESOURCE TRANSPORT

Operating and Maintenance Instruction Manual

*THE AIR SOURCE® C.A.R.T.
Model F-ASC-001-001*

*THE AIR SOURCE® C.A.R.T.
Model F-ASC-SCUBA*



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PRODUCT DEDICATION

I would like to dedicate the development of the Air Source® C.A.R.T. to two individuals who became my mentors, teachers, confessors, and best friends. This product is dedicated to Chief James Hughes (March 5, 1940 - August 20, 1990). Jim served as Chief of the Bristol Borough fire fighting forces from 1970 through 1974. Jim's devotion to the volunteer fire service was an inspiration to all of us young officers in the fire service. His logic, fairness, and professional approach to all problems within the fire service molded many young people into exceptional fire officers. Jim is sorely missed by many, but forgotten by none. His untimely death from cancer on August 20, 1990 at the age of 50 shocked and saddened all of us who knew, loved and respected him. The second individual that this product is dedicated to is Chief William Mulholland. Bill dedicated over 30 years of his life to the American Fire Service, and served in just about every capacity in the fire service that one can imagine. As Fire Chief of the Falls Township Fire Company No. 1, Bill supervised all of the fire fighting forces that participated in the K-Mart Distribution Center fire of June 21, 1982. This 1.1 million square foot warehouse fire kept firefighters on location for a week. Bill served on many Bucks County, Pa. fire service committees and boards and assisted in the expansion of all fire related county agencies such as the fire school, communications system, EMS program, and 911 emergency response implementation. Bill also served as a Director in the Eastern Division of the IAFC, and in January 1992 was seated as the President of the Keystone State Fire Chiefs Association. Bill also served in many capacities in the Eastern Division of the International Association of Fire Chiefs, ultimately serving as President immediately prior to his death. Bill's undying devotion to the safety and well-being of all firefighters is an inspiration to all of us. Bill's untimely passing on July 3, 1993 will leave a great void in the volunteer fire service community.

"Friendships multiply joys and divide griefs." -- Henry George Bonn (1796-1884)

ABOUT THE INVENTOR OF THE AIRSOURCE® C.A.R.T.

The Air Source® C.A.R.T. was designed and built by Joseph M. Nelson, Sr., who serves as the independent sales and technical advisor of Super Can Industries, Inc. Joe has been a volunteer firefighter for 26 years with the Bristol, Pa. fire service. For 19 of those 26 years, Joe served as Fire Chief of the Bristol Volunteer Fire Co. No. 6, and was the driving force behind the formation of the Dive Rescue Team. In his 26 years as a volunteer firefighter, Joe served in all aspects of fire fighting including engine companies, rescue companies, ladder companies, tactical foam companies, and dive rescue operations. In April of 1991, Joe retired as a Fire Chief to devote his time and energy in designing and marketing new innovative products for the fire service. The Air Source® C.A.R.T. is the first of these endeavors.

SPECIAL ACKNOWLEDGMENTS

I would like to take the time to thank all of my fellow firefighters whose opinions, experience, comments, and suggestions brought the Air Source® C.A.R.T. from a concept into a reality. A special thanks to the dedicated officers and members of the Philadelphia Fire Department's Heavy Rescue 1. These highly motivated, dedicated individuals, under the command of Captain William Schweizer, assisted in every stage of the research and development of the Air Source® C.A.R.T. It is always a pleasure to work with people who are dedicated to their career, and the members of Heavy Rescue 1 exemplify the meaning of the word "professional".

SPECIAL NOTES

The Air Source® C.A.R.T. was designed with every possible safety consideration. From the self-arming alarm system to the personnel locator system, we kept the firefighter and rescuer in mind. Our concerns for the safety and well-being of firefighters and rescuers is due to the fact that we also are firefighters. We have faced the same situations and conditions that you will face in the future. It is our belief that Murphy was an optimist when he wrote, "ANYTHING THAT CAN GO WRONG, WILL". In our experience on difficult operations, we discovered that "EVERYTHING THAT COULD GO WRONG, DID GO WRONG."

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1.0 INTRODUCTION

Super Can Industries, Inc. has designed and manufactured a superior product in the Air Source® C.A.R.T. We firmly believe in the design, safety and features of the Air Source® Cart and the benefit that the Cart will bring to air line extension breathing operations. It is our intent not only to deliver quality products, but to support and assist our users in all aspects of the Air Source® C.A.R.T.'s operating and maintenance requirements, so that you may fully understand the product as we do.

The Air Source® C.A.R.T. is a Continuous Air Resource Transport that is designed to be an independent and continuous source of breathing air to pressure demand air line respirators.

The Air Source® C.A.R.T. can also be supply air for pneumatic tools in an emergency, provided the air pressure needed to operate the pneumatic tools operate within the 75 to 120 psi range.

!!! WARNING !!!

Do not use the Air Source® C.A.R.T. to supply pneumatic tools while the C.A.R.T. is being used to supply breathing air to a respirator user. The continuous requirement of air to power pneumatic tools will lower the air supply to the respirator users, and has the potential to contaminate the air supply.

1.1 IMPORTANT INFORMATION

This Operating and Maintenance Instruction Manual contains important information and must be completely read and understood by all persons who may use or maintain this apparatus.

The Air Source® C.A.R.T. should be used or maintained only by trained persons who know and understand the instructions contained within this manual.

Warnings, Cautions, and Notes used in this manual have the following significance:

!!! WARNING !!!

Procedures and techniques that will result in personal injury or death if not carefully followed.

!! CAUTION !!

Procedures and techniques that will result in damage to the equipment if not carefully followed.

NOTE

Procedures and techniques that are considered important enough to emphasize.

!!! WARNING !!!

1. Do not use the Air Source® C.A.R.T. until the instruction manual has been read and understood.
2. Do not use the Air Source® C.A.R.T. to supply breathing air to respirators without a trained and qualified Cart attendant always positioned at the Cart.
3. Do not use the Air Source® C.A.R.T. to supply respirators used in IDLH (Immediately Dangerous To Life And Health) atmospheres unless those respirators have an emergency back-up air supply, (Egress cylinder) of sufficient duration for escape from IDLH atmospheres or hazardous conditions. An IDLH atmosphere is any atmosphere that poses an immediate hazard to life and produces immediate irreversible debilitating effects on health.
4. Use of this Air Source® C.A.R.T. to supply air to a Pressure Demand Airline respirator does not convert the respirator into the equivalent of a Self-Contained Breathing Apparatus (SCBA) or an Emergency Escape Breathing Apparatus (EEBA). Pressure Demand Airline respirators supplied with breathing air from this Air Cart must be also connected to a back-up supply of air carried in an air cylinder on the person of the respirator user in order to be used where SCBA or EEBA's are used.
5. In all areas, Federal and/or State OSHA (Occupational Safety And Health Administration) regulations must be followed involving breathing apparatus use/selection and technical operational guidelines for the type of operation involved.

1.2 AIR SOURCE® C.A.R.T. OVERVIEW

The Air Source®, Series of Continuous Air Resource Transports (C.A.R.T.), was designed and developed to fill a void in the fire and rescue service for a source of continuous air supply for rescuers at the scene of a confined space rescue. In the design and developmental stages, many other uses for the Cart were recognized and utilized. The Cart has been used to supply multiple air tools such as air chisels, air bags, and air-powered cutoff tools, etc. at rescue scenes. It has been used to supply Hazardous Material Suits and SCBA at Haz Mat incidents. The Air Source C.A.R.T. can be used whenever a continuous available source of medium pressure (115 psi) is needed. The Cart is sold without cylinders so that the customer may utilize their own existing inventory of SCBA cylinders. Cylinders are an available option from Super Can Industries, Inc. and their authorized distributors. In the research and development of the Air Source® C.A.R.T., which took 18 months, we tried to simulate every possible scenario that a rescuer could come in contact with, and address those issues. This product was designed by firefighters -- not engineers -- and it was designed to protect our most valuable asset, the firefighter.

1.3 THE CONCEPT OF THE AIR SOURCE® C.A.R.T.

The concept of the Air Source® C.A.R.T. came to me after being involved with numerous rescues, fire ground operations, search at fire scenes, auto extrication's, and Hazardous Materials incidents. Although many of the modern Self Contained Breathing Apparatus have the capabilities of using an air line supply, no one addressed the issue of how to supply these devices with an uninterrupted supply of air in a compact, easy to use package with practicality in mind.

I have been on the scene of disasters where multiple air powered tools were needed, and every time an additional tool was used, a separate air cylinder and regulator had to be placed into service. These cylinders and regulators failed to provide a low air warning device for the tool, and when the tool stopped operating because it was out of air, operations had to cease until a new air cylinder was connected. This often caused delays and interruptions of rescue operations.

In working with the officers and members of the Philadelphia Fire Department's Heavy Rescue 1 on various projects and tools during the formation of this elite unit, I recognized many incidents where a dependable supply of high quality breathing air was needed. Searches and rescues in high-rise buildings, operations in gas or smoke-filled subway systems, confined space rescues in manholes, sewer systems, and tanks all pose potential disastrous results should a rescuer be

restricted by either a long duration SCBA or an interrupted supply of air. Thus the Air Source® C.A.R.T. was born. Currently, many accessory items to the Cart are under development and testing, and we will have these available shortly.

The entire concept of the Cart was designed around the fire service. Subsequently, a number of items had to be taken into consideration. Overall size (it had to fit in a compartment), mobility (we had to transport it where it was needed), weight (it had to be as light as possible), compact (we may have to bring it through a very small space), attachment point (we may have to lower it into a remote area), safety (we had to know that the air supply was dwindling so that we could transfer operations to the unused supply cylinder), multiple outlets (we had to supply more than one person or device at a time), durability (the rigors and demands of the fire service are grueling), and practicality (it had to work). All of these considerations and much more had to be put into the design of the Cart.

The Air Source® C.A.R.T. also overcomes the 300' length restriction on truck mounted low pressure air line supply hoses to air line supplied equipment, due to the fact that the Air Source® C.A.R.T. becomes the regulated air supply to the equipment. No longer does the truck have to be located within 300 feet of the incident, only the Cart. The length of the high pressure supply to either of the high pressure fill options is unrestricted, and is only limited by practicality and the length of high pressure supply hoses.

1.4 WHAT YOU MUST KNOW TO USE THE UNIT

That the respirators to be used with the Cart are suitable for the intended use.

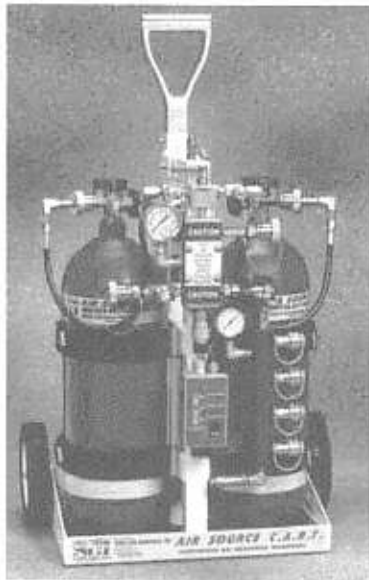
1. That the atmosphere in which the respirator is to be used is not IDLH or that the respirator has sufficient additional self-contained air supply to escape from the IDLH atmosphere.
2. The Cart is in proper working order with fully charged compressed breathing air cylinders.
3. That the breathing air cylinders used are D.O.T. (Department of Transportation) approved, have a current hydrostatic test date, and are safe to use in accordance with applicable standards
4. That the air within the cylinders is Grade " D" filtered breathing air in accordance with N.F.P.A. (National Fire Protection Association) and N.I.O.S.H. (National Institute of Occupational Safety and Health) publicized standards in effect.
5. That the respirator must have an air supply working pressure of between 60 and 120 psi.

6. The couplings on the Cart must match the couplers used on the respirator hose assembly and that the hose assembly be the type supplied by the manufacturer of the breathing apparatus.
7. That the Electronic Control Module (ECM) Alarm System on the Air Source® C.A.R.T. be functional and operating during use of the Cart.

These brief written instructions cannot substitute for a formal training program. Such training should include an opportunity to learn how to inspect, properly maintain and operate the Air Source® C.A.R.T.

1.5 AIR SOURCE® C.A.R.T. MODELS AND DESCRIPTIONS

The Carts are available in two different configurations. Both models utilize two cylinders, a diverter valve, pressure bleed valves, a high pressure manifold, a high pressure gauge, a pressure regulator, a low pressure manifold, a low pressure gauge, four low pressure outlets with quick disconnect collar lock style connectors, a wheeled frame unit, a main frame unit, a low pressure warning alarm system, two high pressure hose assemblies that connect the cylinders to the high pressure manifold system, and the appropriate cylinder mounting hardware. All high pressure fittings used in the system are either anodized aluminum, stainless steel, or zinc chromate steel fittings rated for a minimum of 5,000 psi service.



1.5.1 THE AIR SOURCE® ASC C.A.R.T.

The Air Source® ASC C.A.R.T. is designed for use with sizes, types, and makes of S.C.B.A. cylinders that are currently on the market, including SCUBA (Self Contained Underwater Breathing Apparatus) cylinders.

1.5.2 THE AIR SOURCE® SCUBA C.A.R.T.

The AIR SOURCE® SCUBA C.A.R.T. is designed for use with all sizes, types, and makes of SCUBA cylinders. It is configured with SCUBA cylinder adapters to CGA 346 adapters to utilize SCUBA cylinders normally, but to also allow the connection of standard Self Contained Breathing Apparatus cylinders in an emergency.

1.5.3 OPTION CODES

HPI - High Pressure Inlet Option.

This option includes all hardware, stainless steel shutoff valve, fittings, CGA 347 male connector, and stainless steel cap and chain to protect the threads when not in use. It permits the connection of a high pressure air supply such as a high rise fill line, air compressor, D.O.T. supply cylinders or A.S.M.E. supply cylinders to permit the continuous operation of the Cart from a high pressure air source that may arrive on location after the Cart is in service.

The advantage of the HPI option is that when the HPI option is not being used as an incoming high pressure supply, it can be used to place an additional high pressure regulator into service.

HPI-CV - High Pressure Inlet with Check Valve Option.

With this option, the stainless steel shutoff valve is replaced with a check valve. In this design, this attachment point can only be used to bring a high pressure air source into the Cart. It **can not** be used as a high pressure outlet for an additional regulator.

HPO - High Pressure Outlet Option.

With this option, a stainless steel shutoff valve with CGA 346 male connector and stainless steel protective cap are located on the lower left hand side of the high pressure manifold. This option permits the connection of an additional regulator, or a high pressure line, to TANDEM connect multiple Carts to a common external air source. When not being utilized as an outlet, it may be utilized as an alternate inlet.

The HPO (high pressure outlet) option may be ordered and used with either the HPI (high pressure inlet) or the HPI-CV (high pressure inlet with check valve option). The combination of both an inlet and outlet assembly gives the Air Source® C.A.R.T. maximum versatility for all operations. The low pressure manifold can be equipped with any available quick disconnect connectors. Please specify make and type. Hansen, Aero, Foster, Schrader, or Snap Tite "H" series types are standard; other connector styles are available and may incur an extra cost.

NOTE

Although the Air Source® C.A.R.T. is available in different configurations, it is recommended that it be utilized with 60 min. duration cylinders.