

T E C H N I C A L B U L L E T I N

#103 June 19, 2000

CYLINDER FILLING PROCEDURE (THIS BULLETIN REPLACES TB #6)

PRODUCTS AFFECTED: All Survivair Respirators Using Compressed Air Cylinders

This Technical Bulletin provides the most current information regarding the use, care and maintenance of Survivair Compressed Air Cylinders. See the following pages for specific precautions, inspection and filling procedures, storage instructions, and warranty information.

Attachment



SURVIVAIRE®
Compressed Air
Cylinder
Safety Precautions
P/N 995296

I. SAFETY PRECAUTIONS

The Warnings, Cautions, and Notes contained in this instruction sheet have the following significance:

*****WARNING*****
Maintenance or operating procedures and techniques that will result in personal injury or death if not carefully followed.

CAUTION
Maintenance or operating procedures and techniques that will result in damage to equipment if not carefully followed.

NOTE

Maintenance or operating procedures and techniques or information considered important enough to emphasize.

II. INSPECTION

After each use and prior to recharging, each air cylinder shall be subjected to a visual inspection as described below.

*****WARNING*****
Do not fill any cylinders that are damaged, you suspect may be damaged or unsafe, or are out of conformance with applicable hydrostatic test dates. Damaged cylinders must be inspected by an approved hydrostatic test facility and repaired as required before being filled.

A. Steel and Aluminum Cylinders

Ensure that no more than five years have elapsed since the last hydrostatic test has been performed, as indicated by the most recent date stamped into the cylinder shoulder. Inspect the exterior of the cylinder for dents, gouges, or rusted areas, and evidence of exposure to high temperature such as darkened or blistered paint, charred decals, melted or distorted gauge lens, etc.

B. Composite Cylinders

Ensure that no more than three years have elapsed since the last hydrostatic test has been performed, and that the cylinder is less than 15 years old. Inspect the exterior of the cylinder for dents, gouges, or cuts which have penetrated and caused separation or unraveling of the composite overwrap. Watch for evidence of exposure to

high temperature such as darkened or blistered paint, charred overwrap or decals, melted or distorted gauge lens, etc.

C. Cylinder Valve

The cylinder valve should also be examined for obvious external damage such as a deformed handwheel, inaccurate or inoperative pressure indicator, damaged threads on the outlet connection, or other evidence of impact or exposure to extreme heat. If internal contamination is suspected, remove the cylinder valve and inspect the interior of the cylinder. The cylinder valve overhaul cycle should be as follows. For steel or all aluminum cylinders, overhaul the valve at every hydrostatic retest (5 year cycle). For composite cylinders, overhaul the valve at every other hydrostatic retest (6 year cycle).

D. Additional Information

Additional information on cylinder inspection and maintenance can be found in CGA pamphlet C-6, "Standards for Visual Inspection of Compressed Gas Cylinders," CGA pamphlet C-6.1, "Visual Inspection of High Pressure Aluminum Cylinders" or CGA pamphlet C-6.2, "Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders," available from the Compressed Gas Association, Inc. If there is any doubt about the suitability of a cylinder to recharge, it should be returned to a certified hydrostatic retest facility for expert examination and retesting.

A comprehensive listing of all licensed hydrostatic test stations is available from the Department of Transportation.

II. FILLING PROCEDURE

A. Air Purity

Unless safety and health codes in your area specify otherwise, air cylinders should be refilled with compressed air meeting the purity requirements for Type 1, Grade D Gaseous Air as specified by the Compressed Gas Association Commodity Specification for Air, Publication G-7.1, and the moisture content, expressed as dewpoint, shall be maintained at -65°F (-53.9°C) or lower, or less than 24.0 ppm by volume moisture content. **UNDER NO CIRCUMSTANCES SHALL AN AIR CYLINDER BE FILLED OR PARTIALLY FILLED WITH OXYGEN.**

B. Maximum Fill Pressure

Determine the service pressure of the cylinder prior to filling. Type 3AA steel cylinders that bear a plus symbol (+) after the most recent retest date may be recharged to a pressure 10% greater than the marked service pressure. For example, a cylinder marked 3AA 2015 with a plus symbol after the latest test date may be filled to a pressure of 2216 psig.

Marked Service Pressure	2015 psig
10% of 2015	<u>+201 psig</u>
Maximum Fill Pressure	2216 psig

Composite and aluminum cylinders may be filled **only** to

Composite and aluminum cylinders must **never** be filled to a pressure greater than the marked service pressure.

C. Filling Procedure

The fill station should be constructed and equipped in accordance with applicable state industrial safety codes.

The cylinder may be partially immersed (**DO NOT** submerge the cylinder valve) in a water bath to minimize the temperature rise that occurs as the cylinder is filled. The fill hose should be equipped with a restraining cable to prevent uncontrolled "whipping" in case of hose failure.

After connecting the fill hose, open the cylinder valve **fully**. A separate metering valve must be used to control the fill rate. Fill the cylinder slowly, at a rate not to exceed 500 psig per minute. (Use caution if faster recharging rates are used.) After the initial filling, allow the cylinder to cool to room temperature, then "top off" to achieve full service pressure.

Use particular care to ensure that an air cylinder is never connected to a source capable of supplying air at a pressure greater than the maximum service pressure of that cylinder.

If filling with the Survivair SuperCharge® rapid cylinder filling system, follow all cautions, warnings, and procedures contained in the SuperCharge Operation Instructions. **DO NOT** fill with a SuperCharge unless you thoroughly understand the filling instructions, and all required conditions are met.

IV. STORAGE

Air cylinders should be recharged as soon as is practical after use. Cylinders should not be stored partially charged, for two reasons:

1. If used without recharge, the service duration of the apparatus is reduced.
2. The safety relief device is designed specifically to protect a fully charged cylinder from the effects of a fire.

If the cylinder is stored empty and the valve is inadvertently left open, humid atmospheric air may enter the cylinder and result in interior corrosion.

If a self-contained breathing apparatus is to be maintained in "standby" mode, i.e., available for immediate emergency usage, the cylinder pressure gauge should be checked as least once a month to assure that the cylinder is charged to full service pressure.

V. ADDITIONAL SURVIVAIR INFORMATION

If you need additional information on any SURVIVAIR product, consult your local distributor or contact:

the service pressure indicated on the cylinder label.

SURVIVAIR, Inc.
3001 South Susan Street
Santa Ana, CA 92704
(714) 545-0410 or (800) 821-7236
FAX (800) 201-4407

VI. WARRANTY AND LIMITATION OF LIABILITY

LIMITED WARRANTY: SURVIVAIR® warrants this product to be free from defects in materials and workmanship for 15 years from the date of purchase. During this period, SURVIVAIR will repair or replace defective parts, at SURVIVAIR's option. Freight charges to and from the SURVIVAIR factory shall be paid by the purchaser.

EXCLUSIONS: **NOTWITHSTANDING ANY CONTRARY TERM IN THE PURCHASER'S PURCHASE ORDER OR OTHERWISE, THE ONLY WARRANTY EXTENDED BY SURVIVAIR IS THE EXPRESSED LIMITED WARRANTY DEFINED ABOVE. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.**

CONDITIONS: To maintain this warranty this product must be used, maintained, and inspected as prescribed in these instructions, including prompt replacement or repair of defective parts and such other necessary maintenance and repair as may be required. Normal wear and tear, and parts damaged by abuse, misuse, negligence, or accidents are specifically excluded from this warranty.

LIMITATION OF LIABILITY: No other oral warranties, representations, or guarantees of any kind have been made by SURVIVAIR, its distributors, or the agents of either of them, that in any way alter the terms of this warranty. **EXCEPT AS HEREIN PROVIDED, SURVIVAIR SHALL HAVE NO LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, TO ANY PURCHASER OR USER OF THIS PRODUCT ARISING FROM THE SALE, USE, OR OPERATION OF THIS PRODUCT.**

WARNING: The failure to use and maintain this equipment in strict conformance with the applicable instruction manual may result in serious personal injury, and its use in any manner that is not expressly authorized pursuant to the applicable instruction manual may result in severe adverse impacts to human health.