

# WP 12-ES1003

Revision 0

## Masterline Oxygen Booster Pump Operation

Technical Procedure

EFFECTIVE DATE: 10/11/2006

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APPROVED FOR USE

**TABLE OF CONTENTS**

INTRODUCTION ..... 3

REFERENCES ..... 3

EQUIPMENT LIST ..... 3

PRECAUTIONS AND LIMITATIONS ..... 3

PREREQUISITES ACTIONS ..... 3

PERFORMANCE ..... 4

1.0 FILLING CYLINDERS ..... 4

2.0 NORMAL SHUTDOWN ..... 5

3.0 REPLACING THE OXYGEN SUPPLY ..... 5

4.0 EMERGENCY SHUTDOWN ..... 5

## INTRODUCTION <sup>1</sup>

This procedure provides information for step-by-step operation of the Masterline Oxygen Booster Pump.

## REFERENCES

### BASELINE DOCUMENTS

- Title 30 *Code of Federal Regulations* §49.6 (4), "Mine Rescue Teams - Equipment and Maintenance Requirements"
- Masterline General Installation and Operating Requirements
- Masterline Oxygen Safety Precautions
- Masterline Oxygen Booster Pump Filling Procedure

### REFERENCED DOCUMENTS

- None

## EQUIPMENT LIST

- Open-end wrench set
- High-pressure oxygen in cylinder(s) (>350 pounds per square inch [psi])

## PRECAUTIONS AND LIMITATIONS

- Personnel will have completed Compressed Cylinder Training SAF-619 prior to performance of this procedure.

## PREREQUISITES ACTIONS

- 1.0 Verify that only cylinders with a current hydrostatic test will be filled.

**PERFORMANCE****WARNING**

Cylinders that are dented or show signs of excessive wear (corrosion) must not be filled. These may not be able to withstand the pressure and could cause injury to personnel.

**NOTE**

At least 350 psi must be maintained in the supply cylinders at all times.

**1.0 FILLING CYLINDERS****NOTE**

Masterline refers to the pump with its attached fittings as a "Booster."

- 1.1 Close all isolation valves and bleed valves on pump manifold and Booster.
- 1.2 Fully open valve on supply oxygen cylinder.
- 1.3 Open inlet shut-off valve on Booster.
- 1.4 Open Booster outlet valve (#1 valve).
- 1.5 Briefly open any of the four manifold outlet valves (#2 valves) to purge air from system.
- 1.6 Close inlet shut-off valve on Booster.
- 1.7 Connect cylinders to be filled to connector fittings on manifold.
- 1.8 Open #2 valve for each cylinder to be filled.
- 1.9 Open cylinder valves and listen for leaks.
- 1.10 Open Booster outlet valve and read pressure on cylinders at Booster outlet gauge.
- 1.11 Slowly open Booster inlet shut-off valve.
- 1.12 Modulate pressure equalization rate with Booster inlet shut-off valve to minimize heat.
- 1.13 Read pressure on Booster inlet gauge and Booster outlet gauge to guide equalization.
- 1.14 Once equalized, fully open inlet shut-off valve.

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**NOTE**

In Step 1.15, Booster will shut off when cylinders reach cut-off pressure.

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- 1.15 Energize Booster.
  - 1.16 If cylinder pressure drops after cylinders cool, restart Booster to top off cylinders.
  - 1.17 After Booster shuts off, close cylinder valves and manifold outlet valves (# 2 valves).
  - 1.18 Open outlet fitting bleed valves.
  - 1.19 Loosen fill connectors and remove cylinders.
  - 1.20 If other cylinder(s) are to be filled, repeat Steps 1.7 through 1.19.
- 2.0 NORMAL SHUTDOWN
- 2.1 Close inlet shut-off valve.
  - 2.2 Bleed all pressure from system by opening Booster outlet valve and manifold outlet valve.
  - 2.3 Close all valves.
- 3.0 REPLACING THE OXYGEN SUPPLY
- 3.1 Disconnect depleted oxygen supply bottle.
  - 3.2 Label depleted oxygen bottle(s) "EMPTY."
  - 3.3 Remove empty oxygen bottle(s).
  - 3.4 Install a full medical grade/aviator grade new oxygen cylinder.
- 4.0 EMERGENCY SHUTDOWN
- 4.1 Turn off power to Booster.
  - 4.2 Shut off the oxygen supply.