

30. Visual Inspection Procedure (VIP)

30.1 Introduction

This course is designed to promote safety in the care and maintenance of high-pressure cylinders. The VIP program is intended to demonstrate to the scuba industry a need to meet and exceed the minimum standards established by the Code of Federal Regulations. In addition, it is intended to train inspectors in the proper handling, filling, and inspection techniques, including the identification of the various defective conditions that can lead to cylinder rejection or condemnation. The course will also cover the operation and repair of valves, cleaning and maintenance and the operation of high-pressure compressor systems.

Upon successful completion of this course graduates may:

1. Visually inspect high-pressure cylinders for defective conditions that could cause a cylinder failure.
2. Train fill station operators (FSO) in the safe methods of handling, transporting, and filling of high-pressure cylinders.

It is important that the student understands that a requalification course is required every 3 years.

30.2 Who May Teach

1. Any active SDI Visual Inspector Procedure Instructor.
2. Any professional who deals with high pressure cylinders and has been given written permission by SDI to teach this course.

30.3 Student to Instructor Ratio

Academic:

1. No more than 3 students per demonstration setup; tools and cylinders for the practical exercises.
2. No more than 30 students per active SDI VIP Instructor without the use of an experienced assistant to ensure the students understand the procedures which are presented to them.

30.4 Student Prerequisites

Minimum age 18.

30.5 Course Structure and Duration

Course Structure:

1. SDI allows instructors to structure courses according to the number of students participating and their skill level.

Duration:

1. A suggested minimum of 6 hours for classroom lectures and demonstrations.

30.6 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the:
 - a. *SDI Non-Scuba General Liability Release and Express Assumption of Risk Form*

Upon successful completion of the course the instructor must:

1. Issue the appropriate SDI certification by submitting the *SDI Diver Registration Form* to SDI Headquarters or registering the students online through member's area of the SDI website.

30.7 Training Material

Required Material:

1. SDI Visual Inspection Procedures Student Manual or eLearning.
2. SDI Visual Inspection Procedures PowerPoint presentation.

30.8 Required Equipment

1. A right-angle mirror with a magnification of 2 times and having a diameter small enough to enter the cylinder neck.
2. An inspection light of sufficient size and intensity to illuminate the mirror and threads being inspected.
3. A light wand or other light source to illuminate the interior surfaces of the cylinder being inspected.

4. A straight and right-angle pick and pit reference gauge to estimate the depth of any pitting noted on the cylinder walls.

30.9 Approved Outline

Instructors may use any additional text or materials that they feel help present these topics.

Recommended text includes the current CGA C6 and C6.1, or country specific equivalent. The SDI Visual Inspection Procedures Student Manual is mandatory for use during this course.

The following topics must be covered:

1. Purpose:
 - a. Legal requirements, standards of the community.
2. Safe Handling of Cylinders:
 - a. Fill station operator rules and recommendations.
 - b. Identification of the various cylinder markings.
 - c. Legal/illegal filling requirements.
 - d. Filling procedures.
3. Tools and their uses.
4. Visual inspection indications:
 - a. Proper identification of the various defect conditions.
5. Criteria for rejection and condemnation of a cylinder:
 - a. Define the criteria for cylinder rejection.
 - b. Define the criteria for condemning a cylinder.
6. Other services:
 - a. Valve inspection and cleaning.
 - b. Compressor operations.
 - c. Oxygen cleaning.
7. The basis for cylinder cleaning.
8. Visual Inspection Procedure:
 - a. Step by step walk-through of the inspection process.

30.10 Required Skill Performance and Graduation Requirements

The student is required to display a degree of competency in the identification of various defective conditions presented to him by the instructor using actual cylinders with known defective conditions.

1. Inspect a cylinder during the program.
2. Satisfactorily complete the SDI Visual Inspection written examination with a score of at least 80%.
3. Demonstrate the ability to identify those conditions in a cylinder that would reject or condemn it.