

## **OSHA AND THE INSPECTION REQUIREMENTS FOR AIR COMPRESSORS ON UNINSPECTED COMMERCIAL VESSELS**

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Air compressors have many uses and can be found on many commercial workboats and barges. On larger vessels they are used to start the diesel engines. On other vessels they are used to power various tools. On commercial dive vessels they are used to supply air for hard hat diving as well as power various tools. Surveying air compressors on those vessels will be the subject of another article.

### **OSHA General**

OSHA 29 CFR Subpart M – *Compressed Gas and Compressed Air Equipment* is the basic guidance for any survey of air compressors on uninspected commercial vessels. The only section under this subpart is 29 CFR 1910.169 *Air Receivers*.

29 CFR 1910.169(a)(1) *Application* states: "This section applies to compressed air receivers, and other equipment used in providing and utilizing compressed air for performing operations such as cleaning, drilling, hoisting, and chipping. ... This section is not intended to apply to compressed air machinery and equipment used on transportation vehicles such as steam railroad cars, electric railway cars, and automotive equipment."

Although uninspected commercial vessels obviously fall under the transportation exemption of this paragraph that does not mean OSHA should be ignored when surveying these vessels. Besides surveying for the obvious (corrosion, broken welds, cracks, dents, leakage, etc.) the following modified OSHA guidelines found in 29 CFR 1910.169 offer a template for marine surveyors to use when surveying these installations on uninspected commercial vessels.

Note this section of OSHA does not cover the electrical standards for installation of air compressors. Surveyors should use NFPA 302, ABYC or other standards, whichever is more appropriate for the vessel they are surveying.

## Template for Surveying Air Compressors Using OSHA Guidelines

1. Safety valves. Safety valves should be constructed, installed, and maintained in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME), Section VIII Edition 1968.

2. Installation and equipment requirements.

a. Installation.

(1) ALL air receivers should have a nameplate with the ASME code symbol (a clover leaf with a "U" or "UM") on the tank to indicate it is in compliance with the ASME Code and meets all safety and construction regulations.

(2) Air receivers should be so installed that all drains, handholes, and manholes therein are easily accessible. Air receivers should be located in normally accessible locations.

(3) Is the installation properly secured? Does it interfere with other operations? I was recently on a workboat that had a large portable air compressor permanently secured in the upper level of the machinery space. The installation appeared secure for the vessel operational area (the Columbia River and its tributaries). I would not have approved it for coastwise operation. The problem was that the handles stuck out and partially blocked the hatch opening from the aft deck into the upper level of the machinery space. This was obviously a violation of 29 CFR Subpart E - *Exit Routes, Emergency Action Plans, and Fire Protection Plans* and was so noted on my survey report.

b. Drains and traps.

(1) ASME Section VIII, Div. 1, paragraph UG-25(f), requires a suitable drain opening in air receivers. A drain pipe and valve should be installed at the lowest point of every air receiver to provide for the removal of accumulated oil and water. Adequate automatic traps may be installed in addition to drain valves.

(2) The drain valve on the air receiver should be opened and the receiver completely drained frequently to prevent the accumulation of excessive amounts of liquid in the receiver. When was this last accomplished? What procedures does the owner have in place to do this? Are they in writing? How often is it done and is this recorded? Does this comply with the manufacturer's recommendations?

### 3. Gauges and valves.

a. Every air receiver should be equipped with a readily visible indicating pressure gauge and with one or more spring-loaded safety valves. The total relieving capacity of such safety valves must prevent pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent.

b. No valve of any type shall be placed between the air receiver and its safety valve or valves.

c. Safety appliances, such as safety valves, indicating devices and controlling devices, should be constructed, located, and installed so that they cannot be readily rendered inoperative by any means, including the elements.

d. All safety valves should be tested frequently and at regular intervals to determine whether they are in good operating condition. When was this last accomplished? What procedures does the owner have in place to do this? Are they in writing? How often is it done and is this recorded? Does this comply with the manufacturer's recommendations?

#### Other Recommendations for Surveying Air Compressors

1. Internal Inspection of Air Receivers. Since air receivers are typically constructed out of carbon steel, they are subject to internal corrosion from water which has condensed from the compressed air. Internal inspections or NDT testing of air receivers should be conducted every three to five years or whenever the vessel is in drydock.

2. Hydrostatic testing of Air Receivers. Hydrostatic testing should be accomplished based on manufacturer's recommendations; the results of any internal inspection; or at anytime a receiver shows evidence of bad dents, corroded areas, leakage, or other conditions that indicate weakness which might make the receiver unsafe.

#### Conclusion

From the above it can be seen that the surveyor should do more than list the make and model of any air compressor installed on a vessel they are surveying and look for obvious deficiencies (corrosion, broken welds, cracks, dents, leakage, etc.).