

APPENDIX V
DOT SPECIFICATIONS CYLINDERS SHIPPING CONTAINERS



U.S. Department
of Transportation

Research and
Special Programs
Administration

DOT SPECIFICATION CYLINDERS SHIPPING CONTAINERS

The following information has been abstracted from the Code of Federal Regulations, Title 49, Parts 100-199 and is intended to serve as an aid for in-house use (for shippers, carriers or enforcers) when reviewing hazardous materials procedures. It does not include or refer to all applicable Department of Transportation (DOT) requirements for cylinders. THE TERM "CYLINDER" MEANS A PRESSURE VESSEL DESIGNED FOR PRESSURES HIGHER THAN 40 PSIA (POUNDS PER SQUARE INCH ABSOLUTE) AND HAVING A CIRCULAR CROSS SECTION. IT DOES NOT INCLUDE A PORTABLE TANK, MULTIUNIT TANK CAR TANK, OR TANK CAR.

I. QUALIFICATION MAINTENANCE AND USE OF CYLINDERS, Refer to CFR 49, Sec. 173.1 through 173.30 for requirements applying to all shipments. The Compressed Gas Association Pamphlets are incorporated by reference in CFR, 49, Sec. 171.7 and are made a part of the DOT regulations.

A. GENERAL QUALIFICATIONS (Sec. 173.34(a)(1)). No person may charge or fill a cylinder unless it is as specified in Part 173 and Part 178 of Title 49.

1. Cylinders must not be used that leak, bulge or have defective valves or safety devices, bearing evidence of physical abuse, fire or heat damage, or detrimental rusting or corrosion. Cylinders may be used after repaired and requalified as prescribed in CFR, Title 49.
2. When cylinders with a marked pressure limit are prescribed, other cylinders made under the same specification with a higher marked service pressure limit are authorized. For example, cylinders marked DOT-4B500 (500 lbs pressure) may be used where DOT-4B300 (300 lbs) pressure is specified.

B. Cylinder Markings (Sec. 173.34(c)) Each required marking on a cylinder must be legible. Retest markings and original markings which are becoming illegible may be reproduced by stamping on a metal plate. The plate must be permanently attached to the cylinder (see Figures 1 and 2).

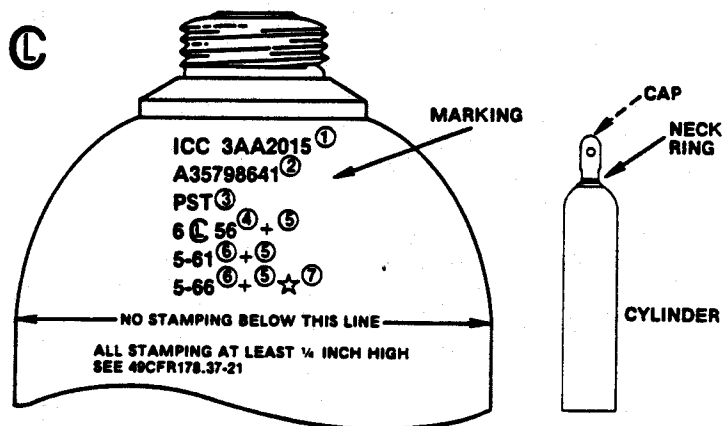
1. Additional markings that do not affect any of the prescribed markings may be made in accordance with marking requirements of the specification.
2. When the space originally provided for dates of subsequent retests become filled, stamping of additional test dates into the external surface of the footing of a cylinder is then authorized.
3. Required cylinder markings on cylinders may not be altered or removed. Exception: The marked service pressure may be changed only upon application to the Director, Office of Hazardous Materials Transportation and receipt of written instructions as to the procedures to be followed.

- C. PRESSURE (SAFETY) RELIEF DEVICES (Sec. 173.34(d)). No person may offer for transportation a cylinder charged with a compressed gas for transportation unless the cylinder is equipped with one or more pressure relief devices. The devices must be sized and selected as to type, location and quantity and tested in accordance with CGA Pamphlet S-1.1.

1. The pressure relief system must be capable of preventing rupture of the normally charged cylinder when subjected to a fire test conducted in accordance with CGA Pamphlet C-14. For acetylene cylinders, use CGA Pamphlet C-12.

MARKING REQUIREMENTS

178.36 to 178.88 Subpart C Specifications for Cylinders.



1. DOT or ICC marking may appear-new manufacture must read "DOT". 49CFR171.14
"3AA" indicates spec in 49CFR178.37.
"2015" is the marked service pressure.
2. Serial number- no duplicates permitted with any particular symbol- serial number combination.
3. Symbol of manufacturer, user, or purchaser.
4. "5 66" date of manufacture. Month and year.
"C" disinterested inspector's official mark.
5. Plus mark (+) indicates cylinder may be 10% overcharged per 49CFR173.302(C).
6. Retest dates
7. 5 pointed star indicates ten year retest interval See 49 CFR173.34(e)(15).

CAUTION: This is a training aid and does not include all provisions of the regulations.

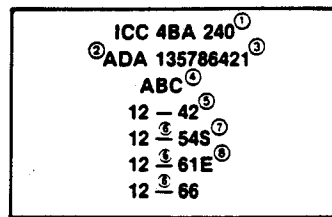
FIGURE 1 MARKING REQUIREMENTS

2. Cylinders must not be shipped with leaking safety relief devices. Safety relief devices must be tested for leaks before the charged cylinder is shipped from the cylinder filling plant. YOU MUST NOT repair leaking fuse plug devices, where leak is through the fusible metal (or between the fusible metal and the opening in the plug body) NOTE: Remove the device and replace the fusible metal.
3. Safety relief devices are not required on cylinders 12 inches or less in length (exclusive of neck), including those that are 4 1/2 inches or less in outside diameter.

EXCEPTIONS:

- (a) Safety relief devices are required on specifications 9, 40, 41, and 39 cylinders (Sec. 178.65). Metal safety relief valves are required on specification 39 cylinders used for liquefied flammable gases. Fusible safety relief devices are not authorized on specification 39 cylinders liquefied compressed gases.
 - (b) Safety relief devices are required on cylinders charged with a liquefied gas with a service pressure of 1,800 psi or higher.
 - (c) Safety relief devices are required on cylinders charged with nonliquefied gases to a pressure of 1,800 psi or higher at 70°F.
4. Except for specification 39 cylinders and cylinders for Acetylene in solution, safety relief devices are not required on cylinders charged with nonliquefied gas under pressure of 300 psi or less at 70°F.
 5. Safety relief devices are prohibited on cylinders charged with Poison A gas or Liquid.

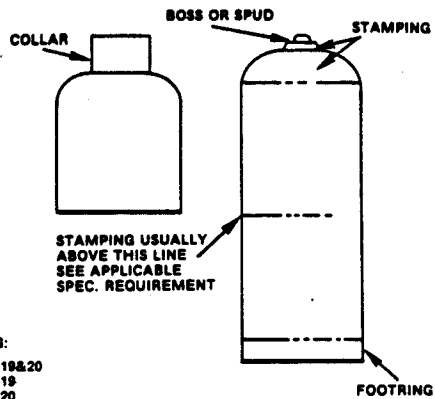
MARKING REQUIREMENTS



MARKINGS ON 4B 4BA 4BW CYLINDERS

ALL MARKS AT LEAST 1/8 INCH HIGH SEE APPLICABLE SPEC.

DOT SPECIFICATION:		MARKING:
4B	49CFR178.50	SUB-PAR:19&20
4BA	49CFR178.51	SUB-PAR:19
4BW	49CFR178.51	SUB-PAR:20



- (1) DOT or ICC marking may appear-new manufacture cylinder must read "DOT". See 49CFR171.14 "4BA" indicates DOT spec applying. "240" is the marked service pressure.
- (2) Symbol of manufacturer, user, or purchaser.
- (3) Serial number - no duplicates permitted with any particular symbol - serial number combination.
- (4) Inspector's official mark.
- (5) "2-42" month and year of manufacture.
- (6) Retest dates.
- (7) "S" denotes modified hydrostatic test method used. See 49CFR173.(e)(19).
- (8) "E" denotes visual inspection used. See 49CFR173.34(e)(10).

CAUTION: This is a training aid and does not include all provisions of the regulations.

- OPTIONAL MARKS:**
1. Owners name & address
 2. T.W.-XXX - tare weight usually pounds.
 3. WC-XXX - water capacity usually pounds.

Figure 2 - MARKING REQUIREMENTS

6. Safety relief devices are prohibited on cylinders charged with Fluorine.
7. Safety relief devices are prohibited on cylinders charged with Methyl mercaptan; with Mono-, Di-, or trimethylamine, Anhydrous; with not over 10 pounds of Nitrosyl Chloride; or with less than 165 pounds of Anhydrous Ammonia.
8. Safety relief devices, if used, must be in the vapor space of cylinders containing Pyroforic liquids, n.o.s., covered by Sec. 173.134.