

June 17, 2015



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 12122
(FIFTEENTH REVISION)

EXPIRATION DATE: August 31, 2017

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: ARC Automotive
Knoxville, TN

2. PURPOSE AND LIMITATIONS:

a. This special permit authorizes the manufacture, marking, sale, and use of non-DOT specification pressure vessels for use as components for safety systems and explosive articles. The pressure vessels, charged with non-toxic, non-liquefied gases, or mixtures thereof, are authorized for transportation in commerce subject to requirements and limitations herein. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

b. FIVE-YEAR TRANSPORTATION AUTHORIZATION: This special permit authorizes transportation of the pressure vessels identified herein for up to five years from the date of manufacture. This limitation does not apply to non-specification pressure vessels when installed in a safety device. This special permit provides no certification of safety for end use environments and life cycles.

c. SPECIAL PERMIT SCOPE LIMITATIONS: This special permit only applies to a package of pressure vessels or seat belt pretensioners when it is an article of commerce in transportation. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards

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and risks associated with consumer use, incorporation as a component of a vehicle or other device, or other uses not associated with transportation in commerce.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.301(a)(1), 173.302a(a)(1), 178.65(f)(2) and 178.65(i)(3) in that a non-DOT specification cylinder is not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of the ARC Automotive, Inc. dated April 17, 2013, submitted in accordance with § 107.109, April 19, 2013, submitted in accordance with § 107.105 and the public proceeding thereon, and additional information dated May 11, 2015.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/Division	Identification Number	Packing Group
Argon, compressed	2.2	UN1006	N/A
Non-toxic, non-liquefied gases and mixtures thereof/ Proper shipping name as specified in § 172.101	2.1	As appropriate	N/A
Safety devices, <i>electronically initiated</i>	9	UN3268	N/A

Note: A component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in § 173.56 of the Hazardous Materials Regulations (HMR). If the pyrotechnic material augments the volume of the gas in the pressure vessel, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

June 17, 20157. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification cylindrical or toroidal pressure vessel meeting the following requirements:

(1) The maximum service pressure at 70°F may not exceed 8,000 psig. The minimum test pressure is the pressure of the contents at 200°F. The rated service pressure may not exceed 80 percent of the test pressure at 200°F and the water volume of each pressure vessel may not exceed one liter.

(2) Material of construction must conform to all requirements of § 178.65(b), except that longitudinally welded cylinders are authorized, and the ladle check analysis maximum carbon content must not exceed 0.24.

(3) Manufacturing requirements must conform to all requirements of § 178.65(c). A cylinder with a diameter less than 2 inches may be exempt from those sections of the CGA pamphlet C-3 that are not applicable to the to ARC computer controlled welding process (e.g. manual welding procedure of section 3.3 and 8.2.1). However, welder qualification and all completed welds must meet the procedures described in CGA pamphlet C-3.

(4) The minimum wall thickness must be such that the wall stress meets the requirements of § 178.65(d).

(5) Openings and attachments must conform to all requirements of § 178.65(e) except as follows:

- (i) A sidewall opening as shown on Atlantic Research Corporation, (ARC Automotive, Inc.) drawings on file with the Approvals and Permits Division is authorized.
- (ii) Welded attachments to the sidewall of the cylinder with a diameter less than 2 inches may be made provided these attachments are not detrimental to the structural integrity of the cylinder. Burst performance of the cylinder shall not be less than 95% of the same cylinder design without the attachments.

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(iii) Welding of attachments to the cylinder after the § 178.65(f)(1) proof pressure test is permitted in accordance with ARC Automotive weld procedures on file with Approval and Permits Division. Following the welding, each cylinder must have a leak test performed in accordance with the ARC Automotive Quality Control Plan.

(6) Each pressure vessel must be equipped with a pressure relief device designed to meet all the requirements for a rupture disk prescribed in the Compressed Gas Association (CGA) Pamphlet S-1.1. The pressure relief device must be capable of preventing rupture of the pressure vessel when subjected to fire test conducted in accordance with CGA Pamphlet C-14.

(7) Each cylinder must be marked in accordance with § 178.65(i)(3). A cylinder with diameter less than 2 inches may have markings smaller than 1/8 inch in size.

b. TESTING -

(1) Each pressure vessel must be tested as required in § 178.65(f) except that -

(i) The hold time at test pressure specified in § 178.65(f)(1) may be limited to that which is adequate to ensure compliance with the requirements contained in § 178.65(f)(1)(i) and (ii);

(ii) The requirement in § 178.65(f)(2)(iii) on the failure location does not apply to toroidal pressure vessels. Toroidal pressure vessels must not fail in the structural weld of the hemispheres that make up the device and the failure must occur at a gage pressure of at least 4 times the service pressure; and

(iii) The maximum duration of the shift specified in § 178.65(f)(3) may be extended beyond 10 hours at the discretion of the independent inspector.

(2) The flattening test specified in § 178.65(g) is not required.

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(3) A representative pressure vessel, packaged as it would be for shipment, must be activated and no materials other than non-toxic, non-flammable vapors or gases may be expelled from the package.

(4) A cylinder with a diameter less than 2 inches may burst at a location other than specified in § 178.65(2)(f)(ii) and (iii). However all cylinders must be designed to have a burst pressure greater than or equal to three times the service pressure.

c. MARKING - Each pressure vessel must be durably marked as follows:

DOT-SP 12122/aaaa¹
lot No. xxxxx²
Manufacturer's Name

The Pressure Vessel May Not Be Refilled

¹ Where "aaaa" represents the design service pressure (i.e. 4000 or 8000 psig)

² Where xxxxx is the lot number as appropriate.

NOTE: Each line of these markings may be placed without regard to location or order on the pressure vessel.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of § 173.22a(b), persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

c. This special permit is limited to pressure vessels used as components for safety systems and explosive articles. The pressure vessels are excepted from the requirements of the HMR, Part 178 when the design has been certified by an Independent Inspection Agency, approved under § 107.803(a) as having met all the requirements of this special permit.

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- d. The Independent Inspection Agency's design certification must include test results and documents related to explosive classification and approval. A copy of the certification must be maintained at each facility where the pressure vessel is manufactured and by the Independent Inspection Agency for a period of 15 years from the date of completion of the design certification.
- e. A current copy of this special permit must be maintained at each facility where the pressure vessel is manufactured under this special permit. It must be made available to a DOT representative upon request.
- f. ARC Automotive must comply with all provisions of this special permit, and all other applicable requirements contained in the HMR, Parts 100-180. No modifications may be made to the pressure vessel or pyrotechnic components which would affect the performance of the pressure vessel or its compliance with the requirements of this special permit until such modifications have been reviewed, tested and certified by an Independent Inspector as meeting the requirements of this special permit.
- g. Except when transported on passenger-carrying aircraft, devices utilizing the non-DOT specification pressure vessel authorized herein are exempt from the requirements of 49 CFR Parts 100-180 when installed in a motor vehicle or in completed vehicle components such as steering columns or door panels.
- h. Pressure vessels must be transported in strong outside packaging in accordance with § 173.301(a)(9) unless otherwise directed by §§ 173.166 or 173.62.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, passenger-carrying aircraft (may not exceed the quantity limitation specified in § 172.101, Column (9A)), cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel or aircraft used to transport pressure vessels covered by this special permit. The shipper must furnish a current copy of this special permit to the air carrier before or at the time the shipment is tendered.

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11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, Parts 171-180.
- o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notices of certain hazardous materials incidents, and 171.16 Detailed hazardous materials

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incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: Toughiry/LMajors/TG