

PART B Standards and Procedures for the Approval, Operation, Gas Span Adjustment, Calibration and Certification of the Division Approved Test Analyzer Systems for Use in the Basic and Enhanced Areas and Test Analyzer Systems for Licensed Dealers in the Enhanced Area

I. APPROVAL OF THE COLORADO 94 AND COLORADO 97 TEST ANALYZER SYSTEMS

- I.A. From January 1, 1995 and thereafter no emissions inspection required by the AIR Program in the enhanced program area shall be performed unless the instrument used for measuring exhaust gases from motor vehicles is identified as a Colorado AIR Program Colorado 94 exhaust gas analyzer. For any emissions inspection station licensed after May 1, 2010, a Colorado BAR 97 exhaust gas analyzer must be used. Sources of vendors for the approved analyzers may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver CO 80246-1530.
- I.B. As an element of accreditation, the Division will accept a Certification statement for the exhaust gas analytical and sampling system portion of the Colorado AIR Program Colorado 94 exhaust gas analyzer or a Colorado BAR 97 exhaust gas analyzer from the California Bureau of Automotive Repair (BAR) or a recognized laboratory. The Division or its designee will determine the manufacturers' compliance with the revisions and additions to the specifications necessary for use of the instrument within the AIR Program. Those testing procedures are to be included with the bid specifications.
- I.C. The following statement is a requirement of the AIR Program for approval of an exhaust gas analyzer and is included to make manufacturers and purchasers of exhaust gas analyzers aware of the warranty requirements of Section 207(b) of the federal Clean Air Act, as amended 1981.

207(b) Warranty Requirements:

Unless an exhaust gas analyzer has been certified by the manufacturer as having met the specifications of 40 CFR Part 85, Subpart W as published in Part IX of the May 22, 1980 Federal Register, an inspection performed using that analyzer may not qualify a 1982 or later model year vehicle for warranty repair coverage according to the provisions of the Emission Control System Performance Warranty (Section 207(b) of the federal Clean Air Act).

II. APPLICATIONS FOR APPROVAL OF COLORADO 94 OR COLORADO BAR 97 TEST ANALYZER SYSTEMS EQUIPMENT MANUFACTURERS

Those manufacturers wishing to participate in the open bid process shall make application with the Air Pollution Control Division, Mobile Sources Section, of the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, CO 80246-1530 on forms provided thereby. All manufacturers making application shall meet the requirements as specified by the Department of Administration and the Procurement Code, Articles 101-112 of Title 24, C.R.S.

A manufacturer requesting the approval of an instrument for the measurement of exhaust gases for use in the AIR Program station shall make application therefore with the Air Pollution Control Division, 4300 Cherry Creek Drive South, Denver, CO 80246-1530 on forms provided thereby. All manufacturers making application shall meet the technical specifications and administrative requirements specified by the Air Pollution Control Division.

III. PERFORMANCE AND DESIGN SPECIFICATIONS FOR THE COLORADO 94 AND COLORADO BAR 97 EXHAUST GAS ANALYZERS

Pursuant to Section 42-4-306(3)(a), C.R.S the specifications for the exhaust gas analyzer required for inspections conducted July 1, 1987 and thereafter are attached to this regulation as Appendix A. These specifications include but are not limited to the provisions of California BAR 90, data collection, service/maintenance, requirements for replacement or loan instruments and warranty for the period of the agreement. These specifications are described in a separate document entitled "Colorado Department of Public Health and Environment Specifications for Colorado 94 Analyzer - Hardware Specifications" March 17, 1994 as adopted by the Commission. This information is available from the Air Pollution Control Division, Mobile Sources Section, 4300 Cherry Creek Drive South, Denver, CO 80246-1530. Those manufacturers making application should refer to Section II of this Part B.

The Division in its discretion may accept substitute specifications for Test Analyzer Systems provisions that such substitute specifications are equivalent to those contained in Appendix A.

IV. SPAN GASES FOR USE WITH COLORADO 94 AND COLORADO BAR 97 TEST ANALYZER SYSTEMS

IV.A. General

The instrument manufacturer and his designated marketing vendors shall, supply span gases approved by the Division to any ultimate purchaser of his unit. The instrument manufacturer shall also provide the analyzer purchaser with a comprehensive, up-to-date list (with addresses and phone numbers) of gas blenders approved by the Division. Each new or used instrument sold by the instrument manufacturer or marketing vendor shall have full span gas containers installed and operational at time of delivery.

IV.B. Span Gas Blends

The span gas concentrations supplied to the AIR Program stations shall conform to the specifications contained in Section VI. of this Part B.

Only gas blends supplied by Division approved blenders selected pursuant to Section 42-4-306(3)(a) and labeled in conformance with samples in Attachment VI of Appendix A, shall be offered for sale in Colorado. Suppliers of span and calibration gases to the Colorado AIR Program must be approved by the Division's Colorado AIR Program Standards Lab (CAPSL), located at 11609 Teller Street, Broomfield, CO 80020.

Pursuant to Section 42-4-306(3)(a), the Division shall select blenders authorized to provide span gases that comply with the standards and specifications set out in Appendix B. The requirement to use gases procured pursuant to the standards and specification in Appendix B shall not be federally enforceable, and shall not be part of the State Implementation Plan.

IV.C. Optical Correction Factor [also referred to as "C" factor, propane to hexane conversion factor" (P.E.F.)].

Each instrument shall be permanently labeled with its correction factor visible from the outside of its cabinet. The correction factor shall be carried to at least two decimal places e.g., (0.52). Factor confirmation shall be made on each assembled analyzer by measuring both N-hexane and propane on assembly line quality checks. P.E.F. limitations are described in the specifications document attached to this regulation as Appendix A.

IV.D. Running Changes and Equipment Updates

The Commission must approve any changes to design or performance characteristics of component specifications that may affect instrument performance. It will be the instrument manufacturer's responsibility to confirm that such changes have no detrimental effect on analyzer performance. All Colorado 94 exhaust gas analyzers will be updated as needed and as specified in the specifications document.

V. DOCUMENTATION, LOGISTICS, AND WARRANTY REQUIREMENTS

V.A. Instruction Manual

The instruction manual accompanying each analyzer shall contain at least the following:

- V.A.1. Complete technical description.
- V.A.2. If available, functional schematics (mechanical and electrical).
- V.A.3. Accessories and options (included and/or available).
- V.A.4. Model number, identification markings and location.
- V.A.5. Operating maintenance to include periodic recommendations, i.e., daily, weekly, monthly, and procedure for maintaining sample system integrity (leaks, hang-up, calibration, filters, etc.).
- V.A.6. Required service schedule identifying the items needing maintenance and the procedures to be followed by the purchaser. The services to be performed only by the manufacturer shall be clearly identified.
- V.A.7. Warranty provisions to include listing of warranty repair stations by name, address, and phone number.
- V.A.8. The name, address, and phone number of the permanent Colorado representative offering training, service, warranties, etc.
- V.A.9. Information and terms of manufacturers service contract clearly stating the coverage including but not limited to each party's obligation, period of coverage, cost, service response times, availability of loaner units. Manufacturer or designee performed service/maintenance provisions and costs shall be so stated for the duration of the program and annually up-dateable costs.

VI. CALIBRATION OF COLORADO 94 AND COLORADO BAR 97 TEST ANALYZER SYSTEMS

The Division shall use and require for use in the calibration and spanning of exhaust gas analyzers span gases and containers supplied by authorized blenders meeting the following parameters, blends, and specifications:

VI.A. Standardizing Instruments

The calibration gases for standardizing instruments shall conform to the provisions outlined in 40 CFR, Section 86.114 (July 1, 1992) (EPA) for automotive exhaust emissions testing. Those gases shall be of "precision" quality, certified to be within $\pm 1\%$ of the labeled concentration, and traceable to the National Institute for Standards and Technology (NIST).

VI.B. AIR Program Station Instruments

The span gases supplied to AIR Program stations shall conform to the following:

VI.B.1. Tri-blends of HC, CO, CO₂ in a carrier gas of nitrogen (N₂). The hydrocarbon (HC) gas will be propane.

VI.B.2. The concentrations) of the span gas blends (two) shall be within limits established by the Division to provide for uniform exhaust gas analyzer spanning. The Division may establish such limits to ensure gasses are measurable based upon the ranges or scales of the equipment.

VI.B.3. The accuracy of the AIR Program station span gas blend shall be certified by the blender to be $\pm 2\%$ of labeled concentration and traceable to the NIST.

VI.C. AIR Program stations will calibrate the exhaust gas instrument once every 72 hours as determined by the instrument or as needed in order to maintain accuracy.

VI.D. All AIR Program exhaust gas analyzers will be calibrated only with span gases bearing a Colorado approval label.

VI.E. Additional specifications related to calibration requirements are described in the specifications document attached to this document as Appendix A.

VII. APPROVAL OF THE COLORADO AUTOMOBILE DEALERS TRANSIENT MODE TEST ANALYZER SYSTEM

Any applicable emissions inspection required by the AIR Program performed by a licensed Motor Vehicle Dealers Test Facility pursuant to Section 42-4-304 (19), C.R.S., in the enhanced program area, shall be performed utilizing a Colorado Automobile Dealer Transient Mode (IG 240) test analyzer system approved by the state open bid process. Sources of vendors for the approved test system may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver Colorado 80246-1530.

This Section VII, and the associated design and performance specifications set out in Appendix A, Attachment III, shall not be federally enforceable and shall not be part of the State Implementation Plan.

VIII. APPLICATIONS FOR APPROVAL OF THE COLORADO AUTOMOBILE DEALERS TRANSIENT MODE TEST ANALYZER SYSTEM

Those manufacturers wishing to participate in the open bid process shall make application with the Air Pollution Control Division, Mobile Sources Section, of the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver Colorado 80246-1530 on forms provided thereby. All manufactures making application shall meet the requirements as specified by the Department of Administration and Procurement Code, Articles 101-112 of Title 24, C.R.S.

The design and performance specifications for the Colorado Automobile Dealers Transient Mode Test Analyzer System Technical and Hardware Specification Document of January 27, 1997 attached as Appendix A, Attachment III. Pursuant to 42-4-306(3)(a)(I)(C), the Division shall let bids for the procurement of instruments that comply with such specifications. In addition to the specifications set out in Appendix A, attachment III, qualifying bids shall:

Include a bid for the procurement of any working/support and span gases necessary for the operation of such Colorado Automobile Dealers Transient Mode Test Analyzer System, unless all such gases are already subject to a contract issued pursuant to 42-4-306(3)(a)(I)(C). Any bid for the procurement of such gases shall comply with the relevant requirements of Part B, IV of the Regulation Number 11 and relevant requirements of Standards and Specifications for Calibration and Span Gas Suppliers, attached as Appendix B, including the "Gas Requirements for the Basic and Enhanced Inspection Test Programs, 1997" as set out in Section 5 of Appendix B.

Include a comprehensive and up-to-date list of working/support and span gas suppliers subject to a contract issued pursuant to 42-4-306(3)(a)(I)(C). A copy of such list shall be provided to each purchaser.

Provide for the Division-approved calibration gases for calibration of the Colorado Automobile Dealers Transient Mode Test Analyzer System.

A service and maintenance plan, including a description of services, service response times, periodic maintenance schedules and annual service agreement costs inclusive of all services necessary to comply with the Colorado Automobile Dealers Transient Mode Test Analyzer System Technical and Hardware Specification Document of January 27, 1997. Service agreement costs are to be listed annually and shall be for the remaining period of the AIR Program.

IX. APPROVAL OF THE COLORADO ON-BOARD DIAGNOSTIC (OBD) TEST ANALYZER SYSTEM

Any applicable on-board diagnostic emissions inspection required by the Air Program performed shall be performed utilizing an on-board diagnostic (OBD) test analyzer system approved by the state. Sources of vendors for the approved Colorado On-Board Diagnostic Test Analyzer System may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530.

X. THE COLORADO ON-BOARD DIAGNOSTIC (OBD) TEST ANALYZER SYSTEM

The design and performance specifications for the Colorado On-Board Diagnostic Test Analyzer System are outlined in the Society of Automotive Engineers J1979 Standard.

In addition to the specifications set out in J1979 Standard, additions and/or modifications to the operational, data collection, data recording and quality assurance auditing functions shall be outlined in a Colorado On-Board Diagnostic (OBD) Test Analyzer System Requirements Specification, to be submitted by the Division for Air Quality Control Commission approval no later than December 31, 2013.

XI. REQUESTS FOR APPROVAL OF CLEAN SCREEN TEST ANALYZER SYSTEMS

XI.A. REPEALED

XI.B. Calibration gas blends intended for Clean Screen Test Analyzer Systems shall be verified and approved subject to the requirements of Standards and Specifications for Calibration and Span Gas Suppliers including Gas Requirements for the Basic and Enhanced Inspection Test Programs, 1997, (Appendix B).

Concentrations of calibration gases noted above are to be determined pending system configuration, operating ranges and expected emissions readings.

State audit blends for Clean Screen Test Analyzer Systems shall be of varying concentrations of and shall conform to the above gas blending standards.