

ATTACHMENT P.1

TECHNICAL SPECIFICATIONS



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Technical Specifications

1. GENERAL

The Contractor shall perform work to repair and overhaul air brake and other pneumatic devices for the Virginia Railway Express (VRE) in accordance with the technical specifications specified herein. All components shipped by VRE to the Contractor shall be returned to VRE upon completion of repairs. There shall be no substitution of components unless a component cannot be repaired or is a disposable component.

2. APPLICABLE DOCUMENTS

- A. 49 CFR 229, Railroad Locomotive Safety Standards;
- B. 49 CFR 238, Passenger Equipment Safety Standards; and
- C. AAR Section E, Part II, of Manual of Standards and Practices.

3. REQUIREMENTS

3.1. Equipment Covered

The equipment covered by these specifications are those pneumatic and electro-pneumatic devices forming part of the air brake systems, and related pneumatic subsystems, installed on passenger rail vehicles operated by VRE. The vehicles in VRE's inventory include:

- A. Various Legacy gallery cars obtained from Metra, thirty (30) trailer cars, with 26C equipment and only tread brakes. There is no wheelslide protection on these cars. The cars are approximately thirty-five (35) years old. The brake equipment is by Wabtec. An equipment list is provided in **ATTACHMENT P.3** herein;
- B. Nippon Sharyo gallery cars, ultimately twenty-one (21) cab cars and fifty (50) trailer cars, all with 26C equipment and tread brakes only. There is no air suspension equipment, but they are equipped with wheelslide protection. The brake equipment is by Wabtec. An equipment list is provided in **ATTACHMENT P.4** herein;
- C. Ten (10) GP-39 and five (5) GP-40 remanufactured locomotives, all with 26L equipment by Wabtec. An equipment list is provided in **ATTACHMENT P.5** herein;
- D. Five (5) F40 locomotives, all with 26L equipment by Wabtec. An equipment list is provided in **ATTACHMENT P.5** herein; and



- E. Component valves and pneumatic equipment, which may be by NYAB, Graham-White, or Salem. However, the components will be functionally interchangeable with the equivalent Wabtec part. This information is to alert the Contractor of possible alternate suppliers for the pneumatic equipment. However, prices shall be based on the part numbers listed in **ATTACHMENTS P.3, P.4 and P.5** herein.

Table 3-1 provides a listing of the major air brake components on the VRE coach cars.

Item	Legacy Gallery*	Nippon Sharyo Gallery*
Operating Unit		D-4 698108
Tread Brake Unit	GB-5 561308 561309	GB-5 676622 676623
Service Portion	26-C 567143	26-C 587907
Emergency Portion	26-C 570840	ABDX-L 662994-0001
Brake Control Valve	None	30-CDW 593311-1001
Decelostat	None	D-1, w/R-7-D 51604

Table 3-1. MAJOR COACH CAR AIR BRAKE COMPONENTS

* The part numbers listed are believed to be correct. However, while the model numbers are correct, actual equipment part numbers may differ from those listed. Proposal prices shall be based on the listed part numbers.

3.2. Quantity

- A. For planning purposes, there will be an average of eighteen (18) trailer cars receiving a “Clean, Oil, Test and Stencil” (COT&S) and five (5) locomotives and five (5) cab cars receiving 1472-day preventive maintenance every twelve (12) months. However, the work required may not be evenly distributed and peak load may be three trailer cars, one cab car, and one locomotive per month.



- B. In addition, it is assumed that two (2) carsets and one locomotive set each of tread brakes, brake control valves, and service portion valves will require repair each 12 months. However, the Contractor may be requested to service or repair any item on the equipment lists within **ATTACHMENT P.3**, **ATTACHMENT P.4** and **ATTACHMENT P.5** herein.

3.3. Scope of Work

This Specification covers three (3) distinct types of work:

- A. The preventive maintenance procedure, commonly known as COT&S for coaches and 1472-day inspection for locomotives and cab cars, in compliance with Federal Railroad Administration (FRA) regulations, including 49 CFR 229 and 49 CFR 238;
- B. Overhaul and repair of equipment after a significant, pre-determined period of time in service; and
- C. Repair of a device following a malfunction or failure in service.

3.3.1. Preventive Maintenance

- A. For this procedure, the various devices shall be removed from the vehicle and replaced with already-serviced devices by existing VRE mechanical contractors.
- B. For those devices mounted on pipe brackets or manifolds, only the operating portions (those portions containing moving parts, and therefore subject to maintenance) shall be removed; the pipe brackets and manifolds, to which the air pipes are attached, shall remain attached to the vehicle.
- C. The operating portions removed shall have their mounting faces protected by the appropriate shipping covers or moisture-proof tape for transportation to the Contractor's shop.
- D. Once at the Contractor's repair center, each portion shall be dismantled and cleaned; defective, worn, or life-expired parts renewed; and the portion shall be lubricated, re-assembled, and tested in accordance with its manufacturer's instructions, as spelled out in the corresponding manufacturer's Operation & Maintenance Manual, Repair Specification, or equivalent publication.
- E. Testing shall be performed on a suitable apparatus ("Test Rack"), following the device manufacturer's corresponding Test Specification and any FRA requirements. Only upon the portion's passing the test shall it be deemed suitable for return to service, and for stenciling with the appropriate date.



- F. For return to VRE, the portion mounting faces shall be protected in the same manner as for shipping to the repair center and each portion shall be returned with a full gasket kit attached to it.
- G. Currently, VRE's preventive maintenance intervals are as follows:
 - 1. trailer coaches (COT&S) - 1,476 days; and
 - 2. cab coaches and locomotives (COT&S) - 1,472 days, based on a waiver, docket FRA-2007-28306.

3.3.2. Overhaul and Repair of Equipment

- A. For this operation, the procedure shall be identical to that followed for preventive maintenance, excepting however that the manufacturer's Maintenance Manual or Repair Specification requirements may differ from those specified for preventive maintenance.
- B. After repair, the repaired equipment shall be tested on a suitable apparatus ("Test Rack"), following the device manufacturer's corresponding Test Specification and any FRA requirements. Only upon the portion's passing the test shall it be deemed suitable for return to service.
- C. All devices, including those not mounted on pipe brackets or manifolds, shall be removed from the vehicle, and transported to the repair facility for overhaul. Repair-in-place will not be permitted.

3.3.3. Repair Following Malfunction or Failure in Service

- A. In the case of an apparent malfunction in service, the device operating portion shall be removed from the vehicle and replaced by existing VRE mechanical contractors, with a similar portion taken from VRE's stock of new or repaired equipment. The defective device will then be shipped by VRE to the Contractor's air brake repair shop.
- B. The Contractor shall inspect the returned component or equipment to determine its overall condition and if any condemning limits associated with the apparatus are marginal or exceeded. The Contractor shall notify VRE, if in their judgment it may not be economical or practical to repair the unit.
- C. The malfunctioning device shall then be submitted to the appropriate rack test, as an aid to diagnosing the cause of its malfunction. In most cases, the rack test will identify the area where the defect is located, and will thus permit a limited dismantling of the device/portion to change out only the defective part or parts.



- D. The change-out shall be performed in strict accordance with the device manufacturer's instructions, contained in the corresponding Operation and Maintenance Manual or Repair Specification. Also, this limited repair shall only be permissible if the device has been in service for less than half of VRE's normal preventive maintenance period. If the device's time in service since its last COT&S has surpassed the halfway point (currently more than 738 days), then, in addition to the repairs made necessary by the malfunction, the device shall be submitted to the full preventive maintenance procedure.
- E. Following a limited repair, if the device is not required to undergo a full preventive maintenance procedure, it shall in any event be required to pass a full functional test ("Rack Test") following the device manufacturer's corresponding Test Specification and any FRA requirements, to ensure that the repair has in fact solved the problem(s) that caused the device to be removed from service.
- F. The Contractor shall provide a failure analysis to determine the cause of failure of the apparatus.

3.4. Documentation

With each shipment of equipment returned to VRE, the Contractor shall include documentation listing the individual item part number, serial number, and date of successful completion of the item routine test. In addition, the Contractor shall certify that the test has been completed successfully, either for each item in the shipment or for the aggregate of the shipment.

3.5. Test

Each deliverable valve, component, or other equipment shall be tested after all work has been completed on the item. All tests shall be performed in compliance with any FRA requirements and the OEM's corresponding Test Specification using test equipment specified by the OEM. The item shall be deemed suitable for return to VRE only upon passing the test requirements.

4. QUALITY ASSURANCE

- A. All work shall be performed in an AAR qualified air brake shop and a copy of the AAR certification shall be submitted to VRE for review before award of a Contract and shall be subject to verification at any time. Any change in the status of the facility's AAR certified status, during the course of air brake work, shall be immediately brought to the attention of VRE.



- B. VRE shall have the right to inspect the Contractor's air brake shop, any component assembly operation, and any finished equipment.
- C. VRE shall also have the right to witness any tests performed on the components or assembly. The Contractor shall notify VRE when material is available for inspection, when assembly work will be performed, and when tests will be performed with sufficient notice that VRE can reasonably be present for the inspections and tests.
- D. Technicians performing non-destructive testing, such as magnetic particle, ultrasonic or functional testing shall be qualified to perform the specific tests and interpret the results. The Contractor shall provide VRE a copy of the current certifications of the technicians prior to contract award. Certifications shall be available for VRE inspection during the contract.
- E. Before performing work on specific items, the Contractor shall provide to VRE copies of inspection, overhaul, and test procedures for each apparatus serviced under this Contract.
- F. The Contractor shall notify VRE in writing of any conflicting requirement(s) between these specifications and other reference documents (FRA regulations, AAR specifications, drawings, VRE specifications, etc.). The Contractor shall identify the impact(s) of the conflicting requirements on the equipments and any possible delays in the deliveries. VRE shall resolve with the Contractor the issue(s) and respond in writing for the disposition of the notice.
- G. Unless unusable or unless a UTEX is specifically requested by VRE, all items sent to the Contractor for repairs will be repaired and returned to VRE.

