

# PART 4

## QUALITY ASSURANCE



**Contract # TRIPS-MD-17-RFP**

**MEDIUM DUTY CHASSIS TYPE TRANSIT**  
**VEHICLES**

## **QUALITY ASSURANCE PROVISIONS**

### **#TRIPS-MD- 17-RFP**

#### **4.1.0 CONTRACTORS IN-PLANT QUALITY ASSURANCE REQUIREMENTS**

##### **4.1.1 QUALITY ASSURANCE ORGANIZATION**

Manufacturer shall establish and maintain an effective in-plant quality assurance organization. It shall be a specifically defined organization and should be directly responsible to Manufacturer's top management. **Proposal shall include a complete description of manufacturer's Quality Control Program.**

##### **4.1.2 CONTROL**

The quality assurance organization shall exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The organization shall also control the quality of supply articles.

##### **4.1.3 AUTHORITY AND RESPONSIBILITY**

The quality assurance organization shall have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control system, and the acceptance/rejection of materials and manufactured articles in the production of the vehicles.

#### **4.2.0 QUALITY ASSURANCE ORGANIZATION FUNCTIONS**

The quality assurance organization shall include the following minimum functions.

##### **4.2.1 WORK INSTRUCTIONS**

The quality assurance organization shall verify inspection operation instructions to ascertain that the manufactured product meets all prescribed requirements.

##### **4.2.2 RECORDS MAINTENANCE**

The quality assurance organization shall maintain and use records and data essential to the effective operation of its program. These records and data shall be available for review by the resident inspectors. Inspection and test records for this procurement shall be available for a minimum of one (1) year following the completion of the inspections and tests.

##### **4.2.3 CORRECTIVE ACTION**

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**Office of Freight, Logistics and Passenger Operations**

The quality assurance organization shall detect and promptly assure correction of any conditions that may result in the production of defective vehicles. These conditions may occur in design, purchases, manufacture, tests or operations that culminate in defective supplies, services, facilities, technical data, or standards.

**4.3.0 STANDARDS AND FACILITIES**

The following standards and facilities shall be basic in the quality assurance process.

**4.3.1 CONFIGURATION CONTROL**

Manufacturer shall maintain drawings and other documentation that completely describe a qualified vehicle that meets all of the options and special requirements of this procurement. The quality assurance organization shall verify that each transit vehicle is manufactured in accordance with these controlled drawings and documentation.

**4.3.2 MEASURING AND TESTING FACILITIES**

Manufacturer shall provide and maintain the necessary gauges and other measuring and testing devices for use by the quality assurance organization to verify that the vehicles conform to all specification requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.

**4.3.3 PRODUCTION TOOLING AS MEDIA OF INSPECTION**

When production jigs, fixtures, tooling masters, templates, patterns, and other devices are used as media of inspection, they shall be proved for accuracy at formally established intervals and adjusting, replaced, or repaired as required to maintain quality.

**4.3.4 EQUIPMENT USE BY TRIPS LINE INSPECTORS**

Manufacturer's gauges and other measuring and testing devices shall be made available for use by the resident inspectors to verify the vehicles conform to all specification requirements. If necessary, Manufacturer's personnel shall be made available to operate the devices and to verify their condition and accuracy.

**4.4.0 CONTROL OF PURCHASES**

Manufacturer shall maintain quality control of purchases.

**4.4.1 SUPPLIER CONTROL**

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**Office of Freight, Logistics and Passenger Operations**

Manufacturer shall require that each supplier maintains a quality control program for the services and supplies that it provides. Manufacturer's quality assurance organization shall inspect and test materials provided by suppliers for conformance to specification requirements. Materials that have been inspected, tested, and approved shall be identified as acceptable to the point of use in the manufacturing or assembly processes. Controls shall be established to prevent inadvertent use of nonconforming materials.

**4.4.2 PURCHASING DATA**

Manufacturer shall verify that all applicable specification requirements are properly included or referenced in purchase orders of articles to be used on vehicles.

**4.5.0 MANUFACTURING CONTROL**

Manufacturer shall ensure that all basic production operations, as well as other processing and fabricating, are performed under controlled conditions. Establishment of these controlled conditions shall be based on the documented work instructions, adequate production equipment, and special work environments if necessary.

**4.5.1 COMPLETED ITEMS**

A system for final inspection and test of completed vehicles shall be provided by the quality assurance organization. It shall measure the overall quality of each completed vehicle.

**4.5.2 NONCONFORMING MATERIALS**

The quality assurance organization shall monitor Manufacturer's system for controlling nonconforming materials. The system shall include procedures for identification, segregation, and disposition.

**4.5.3 STATISTICAL TECHNIQUES**

Statistical analysis, tests, and other quality control procedures may be used when appropriate in the quality assurance processes.

**4.5.4 INSPECTION STATUS**

A system shall be maintained by the quality assurance organization for identifying the inspection status of components and completed vehicles. Identification may include cards, tags, or other normal quality control devices.

**4.6.0 INSPECTION SYSTEM**

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**Office of Freight, Logistics and Passenger Operations**

The quality assurance organization shall establish, maintain, and periodically audit a fully-documented inspection system. The system shall prescribe inspection and test of materials, work in progress, and completed articles. As a minimum, it shall include the following controls.

**4.6.1 INSPECTION STATIONS**

Inspection stations shall be at the best locations to provide for the work content and characteristics to be inspected. Stations shall provide the facilities and equipment to inspect structural, electrical, hydraulic, and other components and assemblies for compliance with the design requirements. Stations shall also be at the best locations to inspect or test characteristics before they are concealed by subsequent fabrication or assembly operations. These locations shall minimally include, as practicable, under-body structure completion, body framing completion, body prior to paint preparation, water test before interior trim and insulation installation, engine installation completion, under-body dress-up and completion, vehicle prior to final paint touch-up, vehicle prior to road test, and vehicle final road completion.

**4.6.2 INSPECTION PERSONNEL**

Sufficiently trained inspectors shall be used to ensure that all materials, components, and assemblies are inspected for conformance with the qualified vehicle design.

**4.6.3 INSPECTION RECORDS**

Acceptance, rework, or rejection identification shall be attached to inspected articles. Articles that have been accepted as a result of approved materials review actions shall be identified. Articles that have been reworked to specified drawing configurations shall not require special identification. Articles rejected as unsuitable or scrap shall be plainly marked and controlled to prevent installation on the vehicle. Articles that become obsolete as a result of engineering changes or other actions shall be controlled to prevent unauthorized assembly or installation. Unusable articles shall be isolated and then scrapped. Discrepancies noted by Manufacturer during assembly shall be entered on a record that accompanies the major component, subassembly, assembly, or vehicle from start of assembly through final inspection. Actions shall be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirements of the contract specifications. The inspection personnel shall verify the collective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, the procuring agency shall approve the modification, repair, or method of correction to the extent that the contract specifications are affected.

**4.6.4 QUALITY ASSURANCE AUDITS**

**Florida Department of Transportation**  
**Office of Freight, Logistics and Passenger Operations**

The quality assurance organization shall establish and maintain a quality control audit program. Records of this program shall be subject to review by the TRIPS.

**4.7.0 ACCEPTANCE TESTS**

**4.7.1 RESPONSIBILITY**

Fully documented tests shall be conducted on each production vehicle following manufacture to determine its acceptance to the TRIPS. These acceptance tests shall include pre-delivery inspections and testing by Manufacturer, and inspections and testing by the TRIPS prior to and after the vehicles have been delivered.

**4.7.2 PRE-DELIVERY TESTS**

Manufacturer shall conduct acceptance tests at its plant on each vehicle following completion of manufacture and before delivery to the TRIPS. The pre-delivery tests shall include visual and measured inspections, as well as testing the total vehicle operation. The tests shall be conducted and documented in accordance with written test plans. Additional tests may be conducted at Manufacturer's discretion to ensure that the completed vehicles have attained the desired quality and have met the requirements in **Part 2: Technical Specifications**. This additional testing shall be recorded on appropriate test forms provided by Manufacturer. The pre-delivery tests shall be scheduled and conducted with sufficient notice so that they may be witnessed by TRIPS line inspectors, who may accept or reject the results of the tests. The results of pre-delivery test, and any other tests, shall be filed with the assembly inspection records for each vehicle. The under-floor equipment shall be made available for inspection by the resident inspectors, using a pit or vehicle hoist provided by Manufacturer. A hoist, scaffold, or elevated platform shall be provided by Manufacturer to easily and safely inspect vehicle roofs. The TRIPS shall also conduct pre-delivery tests at the Springhill facility located in Tallahassee. It is Proposer's responsibility to ensure that the vehicle arrives at the Springhill facility prior to Proposer taking delivery of vehicle from Manufacturer. The results of this inspection will accompany the vehicle upon delivery to the purchaser.

**4.7.3 INSPECTION-VISUAL AND MEASURED**

Visual and measured inspections shall be conducted with the vehicle in a static condition. The purpose of the inspection testing is to verify overall dimensional and weight requirements, to verify that the required components are included and are ready for operation, and to verify that components and subsystems that are designed to operate with the vehicle in the static condition do function as designed.

**4.7.4 TOTAL VEHICLE OPERATION**

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**Office of Freight, Logistics and Passenger Operations**

Total vehicle operation shall be evaluated during road tests. The purpose of the road tests is to observe and verify the operation of the vehicle as a system and to verify the functional operation of the subsystem that can be operated only while the vehicle is in motion. Each vehicle shall be driven for a minimum of fifteen (15) miles during the road tests. Observed defects shall be recorded on the test forms. The vehicle shall be retested when defects are corrected and adjustments are made. This process shall continue until defects or required adjustments are no longer detected. Results shall be pass/fail for these vehicle operation tests. After the road test, the line inspector representing the TRIPS reserves the right to have Manufacturer either raise the vehicle or drive the vehicle across a pit to allow the inspector to check the undercarriage.

**4.8.0 POST-DELIVERY TESTS**

The TRIPS may conduct acceptance tests on each delivered vehicle. These tests shall be completed within ten (10) working days after vehicle delivery. The purpose of these tests are to identify defects that have become apparent between the time of vehicle release and delivery to the purchaser. The post-delivery tests shall include visual inspection and vehicle operations. Vehicles that fail to pass the post-delivery tests are subject to non-acceptance. The TRIPS shall record details of all defects notify Manufacturer of non-acceptance of each vehicle within five (5) working days after completion of these tests. The defects detected during these tests shall be repaired according to the procedures defined in **Part 1: Solicitation, Offer and Award/Contractual Provisions**.

**4.8.1 VISUAL INSPECTION**

The post-delivery inspection is similar to the inspection at Manufacturer's plant and shall be conducted with the vehicle in a static condition.

**4.8.2 VEHICLE OPERATION**

The road tests for total vehicle operation are similar to those conducted at Manufacturer's plant. Operational deficiencies of each vehicle shall be identified and recorded.