

Technical Specification for Automatic Computerized Single Car Test Rig

1. Description :

Automatic and Computerized Single Car Test Rig shall be used for testing of Air Brake System of Single Coach of all types and as per test parameter described in RDSO Coaching manual. The Scope will include design, manufacturing, inspection, supply, erection, commissioning and proving-out Test, packing, dispatch, transportation, safe delivery and handling over to user end & as per Technical Specification. It includes all accessories/equipments/works as detailed in the specification and the other accessories, which the manufacturer considers essential to make the machine fully operational, when installed, commissioned and connected to compressed air source and other utilities. All systems each should be installed in Coaching Depot Hatia.

2. General Description and Scope of Supply :

- Specification covers supply, installation, testing and commissioning of Automatic and Computerized Single Car Test Rig on Turnkey basis. The supply shall include all cables, air hose pipe of required length, Connectors and all fixing accessories, standard accessories, which are essential to make the test rig fully operational.
- All related material required for inspection, erection and commissioning of Machine and connecting electrical equipments with cable laying and fixing accessories shall be included in the cost of basic Machine.
- Provision of all spares required for commissioning the equipment and its efficient operation until final acceptance after demonstration of satisfactory performance.

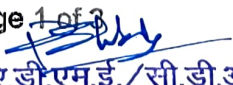
3. Purpose & Capability :

Automated and Computerized Single Car Test Rig (SCTR) is required for testing of the air brake system of single pipe as well as twin pipe fitted on Coach and should be capable to execute all the test parameters as per Indian Railway Maintenance Manual for BG Coaches, i.e. Leakage, Sensitivity and insensitivity test, brake application and release test, graduated application and release test, emergency brake application test, Passenger Emergency Valve Test, Guard Emergency Valve Test etc, when connected to source of compressed air supply. It should be capable to work in ambient temperature ranging from 10°C to 50°C and up to 98% relative humidity.

4. Specification for Automatic Computerized Single Car Test Rig :

- The Test Machine should be designed to suit all weather condition to work outdoor and conforming to the industrial standard of IP 65 with suitable wheels and a handle to Pull/Push. The Wheel should have proper surface contact area to move on floor/ maneuver over rough and intricate surfaces.
- The Machine should have all the provision to test all the parameters laid down in the above said manuals.
 - Maintenance manual for BG Coaches of ICF Design (Details as per Annexure – A).
 - Maintenance manual of LHB coaches (Details as per Annexure – B).
- The Machine should have at least 10" of colour touch screen monitor supported with data storage and acquisition system.
- The Machine should have suitable power system for testing of minimum 6 coaches continuously. The Battery system should be maintenance free rechargeable type. The system should read the status of battery.


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- v. The System should also be equipped with data base management system and reporting system as laid down in the Annexures enclosed. USB port to extract the data from the machine through pen drive or using printer.
- vi. The Control system should be with reputed branded pneumatic solenoid, pneumatic pressure sensors and other allied components which have at least One year warranty.
- vii. The system should have accuracy in reading of various pressures $\pm 0.05 \text{ Kg/cm}^2$.
- viii. The various test of above system of single car tests to be conducted in a sequential manner as laid down in the test procedure and also should have the facility to conduct the test individually. Each test should have the result of either Pass or Fail which is to be recorded.
- ix. While Conducting Single Car Tests on LHB Coaches, The machine should have the provision to read/record of pressure of auxiliary reservoir, control reservoir and brake cylinder of individual bogies.
- x. The test rig should have the provision to blow the brake pipe and feed pipe of rolling stock (Coach) at $8-10 \text{ kg/cm}^2$ before starting of the test.
- xi. The gradual brake application and release test should have 7 steps verification for each step. Data recording should be incorporated.
- xii. The System should have touch screen data entry system to enter rolling stock particulars and other information system for which the test is planned to carry out. Also the test result for each test should be stored on board along with the time stamp and operator details.
- xiii. The Machine should be supplied along with suitable pneumatic pipes with end fittings to connect the rolling stock (Coach) keeping the machine at the middle of the coach.
- xiv. The Management information reporting system should have various reports like test particulars of last tested rolling stock (Coach), Distributor valve wise report, Coach type wise report, Distributor Valve make wise report etc., Between all these reports should have the criteria of retrieving data between two dates and also summarized year wise report..
- xv. Railway will give supply of compressed air of $7-10 \text{ kg/cm}^2$ at site and power supply 230V single phase.

5. Other Features :

- i. The Operation mode should be automatic and manual for all types of tests.
- ii. SCTR should have a facility that it can be operated remotely to facilitate repair/testing of Air brake components.
- iii. The Remote control may be App based or through remote controller with not less than the range of 0.5 Km to cover entire length of the coach. The frequency band should be in permitted range.
- iv. The remote unit should have rechargeable batteries with minimum 1000 cycles.
- v. If App based controller provided with SCTR, The Firm also should provide Android based handset with preloaded App and Sim Card for controlling SCTR.
- vi. The Data charges if any to be borne by the Firm for one year.

6. Safety :

- i. Firm should have own manufacturing, testing, calibration facility. Railway representative may inspect the firms unit, if required.
 - ii. Firm should be ISO 9001-2005 certified.
 - iii. Firm should be OEM or authorized dealer of OEM.
- The Schematic drawing to be submitted also with Offer.

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Firm should submit following documents along with their Offer: -

- Self-declaration for 6 (i).
- ISO Certificate for 6 (ii).
- Firm Registration certificate, if it is OEM.
- Firm registration certificate and authorization letter, if it is authorized dealer.

All the above mentioned documents are mandatory, if not submitted; the offer is liable to be rejected.

7. Test to be Performed :

The Test shall be performed as per RDSO manual. Basic Tests are as under:

- Blowing
- Leakage Test.
- Sensitivity/Insensitivity test
- Full Service application and release.
- Emergency brake application and release test.

8. Installation and Commissioning :

The Contractor or his authorized representative shall install & commission the equipment on TURN KEY basis.

9. Warranty :

Warranty shall be of 24 months from date of successful commissioning.

10. Maintenance After Warranty :

The supplier shall confirm after Sales comprehensive maintenance service including supply of all necessary spares and consumables, at least for 3 years after expiry of warranty period. The rate/cost and other terms and conditions of such after-sales service for three years (Year wise) after warranty period shall be furnished along with the offer. In case of dissolution of the supplier's company, the Firm capable of handling the CAMC shall be indicated. In case of merger/takeover of the supplier's company, the new entity shall be responsible for the AMC.

11. Training :

Training to at least Two Supervisors and Two Technician to be provided for at least Four days on -

- Operation of the system
- Calibration and Testing of the System
- Trouble Shooting and Maintenance.

Note: Firm must have successfully installed, commissioned and proved out the machine over Indian Railways in last five years (Copy of certificate to be enclosed with the Bid).

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