

ISO 9001:2008	Document No:TD-DM-4.2.2-1	Version No: 1.0	Date Effective: 01/09/2010
Document Title: Directorate Manual for Track Design Directorate			



**RESEARCH DESIGNS AND STANDARDS ORGANISATION**  
**Manak Nagar, Lucknow -226011**

**Document No:** TD-DM-4.2.2-1

**Document Title:** Directorate Manual for Track Design Directorate

**1.0 Amendment History:**

Sl.No.	Amendment Date	Version	Reasons for Amendment
1	01.09.2010	'1.0'	First issue as Up-graded to ISO:9001:2008

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**2.0 PURPOSE:** To lay down the Operating Procedure of Track Design Directorate in accordance with ISO 9001:2008 Quality Management System.

**3.0 SCOPE OF APPLICATION:** Applicable to all activities carried out with the authority of the Directorate Head.

**4.0 Details:**

**4.1 Directorate Activities:** To design of track components and their assemblies, framing and reviewing specifications, drawings and instruction manuals, developmental inspection of new products, monitoring of trials of new design, evaluation of new technology & ordering of commencing trials. To develop vendors for all the items listed in Annexure-7, apart from new developmental items, as per instructions received from Railway Board (As per TD-G-4.2.3.31). Any other activity as desired by Rly. Bd./Director General/Directorate Head can taken up in accordance with procedure decided by Directorate Head.

**4.2 Infrastructure:** Equipment such as Computer hardware, Photocopy machine and Duplicator are also available for smooth functioning of the work. The maintenance of such equipment is also supervised. Computer hardware is under Annual Maintenance Contract, centralized with Computer wing of Carriage Directorate of RDSO. For functional problems of computers, DOP of Computer wing of Carriage Dte. is followed. Similarly, the duplicator and photocopying machines are under Annual Maintenance contract of the Directorate The complaints/feed back is maintained by coordinating DIR/JD. Record of maintenance is maintained by Record Section. Photocopying work is done in house as per requirement.

**4.3 Organisation:** The directorate is headed by Executive Directors/Track-I and Executive Directorate/Track-II. Executive Directorate/Track-I is assisted by Director/Track-I & Director/Track-II and Executive Director/Track-II is assisted by Director/Track-III & Director/Track-IV who are further assisted by Deputy Directors, Assistant Design Engineers, Assistant Inspecting Engineers, Senior Section Engineer / Section Engineer/Designs, Senior Section Engineer / Section Engineer/Inspections and other subordinates. The organizational chart of the directorate TD-G-4.2.3-32 is maintained in file CT/ISO/9000/TTD by OS/Track.

**4.4 PROCEDURE / DETAILS:**

**4.4.1** Processes of Track Design directorate are handling of customer complaint, design of track component & their assemblies, revision of specification, alteration of existing drawings handling of consultancy projects, speed clearance for rolling stock. The process maps of the above processes are detailed in TD-PM-4.2.3-1.

**4.4.2** All the work is done as per work instruction no. TD-WI-4.2.3-1 to TD-WI-4.2.3-9.

**4.4.3 Customer of the Directorate**

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**Internal:** Quality Assurance Civil Directorate, Carriage Directorate, Wagon directorate, Motive Power Directorate. Electric Loco Directorate, Testing Directorate, TI Directorate & TMM Directorate.

**External:** Railway Board, Zonal Railways / Production Units / Other Railway Units through SAG or higher-grade officers and any outside organization with whom RDSO enters into an agreement

#### 4.4.4 QUALITY MANAGEMENT SYSTEM:

Chapter 4 of Quality Manual, QO-D-4.2.3-1 and QO-D-4.2.3-2 shall be followed. In addition, the Directorate Manual of Track Design Directorate shall be applicable. The Directorate Manual shall be issued and changed with the approval of ED/Track-I and MR. ISO. Co-ordinating Dir./Jt. Dir. shall issue controlled copies of the Directorate Manual.

**Document and data control:**

QO-D-4.2.3-1 shall be followed.

#### 4.4.5 MANANGEMENT RESPONSIBILITY:

Chapter 5 of Quality Manual shall be followed. In addition, the Directorate Manual, of Track Design Directorate shall be applicable.

**Quality Objectives :**

As per QM para 5.4 Quality Objectives are being issued separately as Document No. TDQ 0006 and revised periodically.

**Directorate Review**

As per QM para 5.6, Directorate Review Meeting (DRM) are conducted once in three months. OS/Track shall maintain the record of DRM in file CT/ISO/9000/Corrective & Preventive.

#### 4.4.6 RESOURCE MANAGEMENT:

Chapter 6 of Quality Manual shall be followed. In addition, the Directorate Manual of Track Design Directorate shall be applicable. Training needs of officials shall be identified on format QO-F-6.2.2-1 in the month of February/March. OS/Track shall maintain the summary and formats in file CT/ISO/9000/Training.

#### 4.4.7 PRODUCT REALIZATION:

Chapter 7 of Quality Manual shall be followed. In addition, the Directorate Manual of Track Design Directorate shall be applicable.

**Processes of the Directorate:**

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The following are the processes of Track Design Directorate

:

1. Handling of customer complaint
2. Design of track components & their assemblies
3. Revision of specification
4. Alteration to existing drawings
5. Handling of consultancy projects
6. Speed clearance for rolling stock

The process maps of the above processes are enclosed as Annexure 1 to 6.

Customer communication:

Communications to customer are established through letters / Email / Fax / Telephone. Communication with customer are also been established during TSC meeting, CE's conference, GCM, etc. at regular interval. Interaction with the customers can be done by organizing meetings either in RDSO or at the work places as and when required.

#### **Design and Development:**

In addition to QO-G-7.3-1, following shall apply for design output:

Design drawings is one of our design output for which four series of drawings namely EDO/T-series, RDSO/T-series, T-series & TA-series shall be maintained. Drawings under EDO/T series are for developmental items, under RDSO/T series are for trials only and under T series (for Track components) & TA-series (for Track Assembly drawings) issued after standardization and approval of Track Standards Committee. The Master tracing of finalized design/drawings are handed over to the Unit supervisor of record section by the concerned units of the directorate. A register of finalized drawings under different series shall be maintained separately by the unit in-charge of the record section. The Master List of drawings is a controlled document as TD-M-4.2.4-1, and is updated annually. However, in the interim period, the new drawings are entered as usual in the register of finalized drawing.

Numbering of design drawings and alterations to them shall be as per page numbered '*Numbering Register*' and '*Issue & Alterations Register*' respectively, and in accordance with TD-WI-4.2.3-3. The above registers are kept in the custody of unit supervisor of the record section, who is also responsible for control and release of these documents.

Blue prints of finalized design drawings are arranged through Foreman of printing room of RDSO for issue to all Zonal Railways, manufacturers and official use by the Unit supervisor of record section in accordance with TD-WI-4.2.3-2 and WDW 0004. He also maintains a page numbered register for issue of blue prints to above separately.

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It is the responsibility of user to have correct drawing version and the unit supervisor will ensure that correct copy is issued to the customer. Also superseded drawings are kept separately as marked "Superseded" in accordance to TD-WI-4.2.3-5.

Specifications and Manuals of various items are prepared/updated by the concerned unit in-charge in accordance with TD-WI-4.2.3-1 and are got approved by the Directorate Head (concern ED). Cases where items involve the metallurgical aspects to be examined, necessary comments are sought from the M&C Dte. of RDSO and final approval is given by Directorate Head (concern ED). If found necessary, specifications and manuals are sent to Track Standards Committee for comments and finalization. Copies of the finalized specifications and manuals are sent to the Zonal Railways for reference by the concerned units. Master list of specifications is kept as a controlled document as TD-M-4.2.4-2 and master list of manuals is also kept as a controlled document as TD-M-4.2.4-4 and shall be updated annually.

For validation of design, various trials are involved, for which a trial scheme is prepared, by Director/JD concerned.

The issue of speed clearance is examined from Track point of view and clearance is given to Motive Power Directorate, which issues the final speed clearance certificate as per their Work Instruction MPW 0003.

Track Standards Committee recommends design, drawings of paramount importance and Railway Board before the field adoption of the finalized drawing gives approval.

The work undertaken for contract Review of Inquiries / contracts from private concerns can broadly fall into the following categories:

Scrutiny, evaluation and approval of Design.  
Project study including calculation.

The inquiry is addressed to the Directorate Head (concern ED) who assigns the project to the concerned Director/JD. The concerned Director/JD studies the requirement w.r.t. facility/capability/time frame available and carries out detailed scrutiny and evaluation of the design. Approval of the design is done by the Directorate Head (concern ED) on the concerned project file of various units before it is issued finally.

For consultancy projects, the contract is signed with the concerned party after finance vetting.  
Project monitoring is carried out from time to time to ensure achieving targeted progress.

Amendments, from time to time, are dealt with in the same manner as above.

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**Purchasing:**

In addition to QO-G-4.4-1, Work Instruction (TD-WI-4.2.3-8) will apply.

**Vendor Development:**

In addition to QO-D-7.1-5 to QO-D-7.1-14, the aspect for vendor approval shall be dealt as per the following supporting documents.

- General Guidelines for Vendor Approval (TD-G- 4.2.3-31)
- Work Instruction (TD-WI-4.2.3-9).

**Control of Monitoring and measuring devices:**

QO-G-7.6-1 shall apply.

**4.4.8 MEASUREMENT, ANALYSIS & IMPROVEMENT**

Chapter 8 of Quality Manual shall be followed. In addition, the Directorate Manual of Track Design Directorate shall be applicable.

**Customer satisfaction:**

Feed backs shall be collected through visits, communication and interaction with Zonal Railways, Railway Board regarding the performance according to the requirements of a particular product.

Detailed discussions regarding problems and probable solutions shall be discussed annually in Track Standard Committee meetings.

Coordinating official for ISO shall maintain a customer complaint register to cater for the customer complaint/feedback.

**Internal Audit:**

QO-D-8.2.2-1 shall apply.

**Control of non-conforming Product:**

In addition to QO-D-8.3 -11 the provisions made in the relevant para of 'General Guidelines for Vendor Approval' TD-G-4.2.3-31 shall be applicable.

**Continual improvement:**

Improvement of infrastructure and improvement of human resources shall be done by imparting specific training to the officials on the related issues. Based upon reviewing customer complaints and feedback, Audit results, data analysis up-gradation and revision of drawings shall be carried out.

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**Corrective Action:**

QO-G-8.5.2-1 shall apply. Complaints, feedback, expectations, new development etc. as received from the Zonal railways and manufacturing units etc. along with the issues mentioned in the minutes of preceding 'Directorate Review Meeting', non-conforming products, audit reports of ISO are discussed by the Directorate Head (concern ED) for their compliance with all Unit I/Cs. After receipt of complaint it shall be assessed and the customer shall be informed about its solution, if readily available or for the corrective action being taken, for disposing the complaint. The complaint shall be disposed off after the necessary corrective action has been taken. The end point of Customer Complaint is decided by the Directorate Head (concern ED). Entries in this regard shall be filled in the 'Customer complaint register'.

**Preventive Action:**

QO-G-8.5.2-1 shall apply. In addition to this the preventive actions taken earlier for the corrective actions and other preventive actions shall be identified and implemented to prevent occurrences of repeated non-conformity.

**4.4.9 DOCUMENT & FORMATS:**

All relevant documents and formats as given in QM and Quality Documents shall be applicable. In addition, documents and formats mentioned in TD-M-4.2.4-6 Master list of Quality Documents of Track Design Directorate shall be applicable.

**5.0 REFERENCED DOCUMENTS:** Quality Manual and Quality System Procedures.

S.N.	Work Inst. No. Rev.	Title
1.	TD-WI-4.2.3-1	Work Instructions Regarding Framing a new specification and Revision to an existing specification
2.	TD-WI-4.2.3-2	Work Instructions for sale of design documents to vendors.
3	TD-WI-4.2.3-3	Work Instructions for Numbering of design documents.
4.	TD-WI-4.2.3-4	Work Instructions for supersede a Design document
5.	TD-WI-4.2.3-5	Work Instructions for forward and backward references of incoming and out-going letters.
6.	TD-WI-4.2.3-6	Work Instructions regarding taking up any design job.
7.	TD-WI-4.2.3-7	Work Instructions regarding Photocopier Machine.
8.	TD-WI-4.2.3-8	Work Instructions for Purchasing of materials through store.
9.	TD-WI-4.2.3-9	Work Instructions for sample management regarding Testing of materials.

**6.0 REFERENCED DOCUMENTS OF EXTERNAL ORIGIN:**

National /International standards & specification, all Manuals & IR Codes issued by Rly. Board.

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**7.0 ASSOCIATED RECORDS:** Quality records are maintained as per TD-M-4.2.3-7

**7.1** ISO Clause 4.0 - 8.0 and QO-D-4.2.3-1 & QO-D-4.2.4-1 shall be followed, various quality records required to be kept, are as under. The responsibility for maintenance of these quality records is given below.

S. No.	RECORDS	ISO Clause reference	Responsibility of Record maintenance
1	Management Reviews	5.6.1	MR & OS/Track
2	Education, Training, Skills and Experience	6.2.2 (e)	OS /Track
3	Evidence that the realisation processes and resulting product meet the requirements	7.1 (d)	Concerned DIR/JD
4	Results of the review of requirements related to the product and action arising from review	7.2.2	Concerned DIR/JD
5	Design and development inputs	7.3.2	Concerned DIR/JD
6	Results of design and development reviews and necessary action	7.3.4	Concerned DIR/JD
7	Results of design and development verification and necessary action	7.3.5	Concerned DIR/JD
8	Results of design and development validation and necessary action	7.3.6	Concerned DIR/JD
9	Results of the review of design and development changes and necessary action	7.3.7	Concerned DIR/JD
10	Results of supplier evaluations and actions arising from the evaluation	7.4.1	Concerned DIR/JD
11	Validation of processes, where the resulting output cannot be verified by subsequent monitoring or measurement	7.5.2 (d)	Concerned DIR/JD
12	Unique identification of the product where traceability is a requirement	7.5.3	Not applicable
13	Lost, damaged or otherwise found unsuitable customer property	7.5.4	Not applicable
14	Basis used for calibration or verification of measuring equipment, where no international or National measurement standards exist	7.6	Not applicable
15	Results of calibration and verification of measuring equipment	7.6	SSE/SE/JE / Designs (Records)
16	Validity of previous results, when measuring equipment is found not to conform to requirements	7.6	Not applicable
17	Internal audit results	8.2.2	OS /Track

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18	Evidence of product conformity with the acceptance criteria indicating the authority responsible for the release of the product	8.2.4	Concerned DIR/JD
19	Nature of the product non-conformities and any subsequent actions taken, including concessions obtained	8.3	Concerned DIR/JD
20	Results of corrective action	8.5.2 (e)	OS /Track
21	Results of preventive action	8.5.3 (d)	OS /Track

## 8.0 RESPONSIBILITY AND AUTHORITY:

Activity	Responsibility	Approver	Supporting	Consulted	Informed
Establishing	ED/Track & MR	Concern ED	Concern DD/ADE/AI	Other Directorate	By website
Maintaining	All controlled copyholders	-	E		
Issuing & changing	Concern ED/Track & MR	-	-		

## 9.0 ABBREVIATIONS:

1	ED	Executive Director
2	DIR	Director
3	JD	Joint Director
4	DD	Deputy Director
5	MR	Management Representative
6	AIE	Assistant Inspecting Engineer
7	ADE	Assistant Design Engineer
8	SSE/D	Senior Section Engineer Design
9	SE/D	Section Engineer Design
10	SSE/I	Senior Section Engineer Inspection
11	SE/I	Section Engineer Inspection
12	HC	Head Clerk
13	TM	Track Machine
14	QA-II (Civil)	Quality Assurance-II (Civil) Directorate
15	M&C	Metallurgical & Chemical
16	QSM	Quality System Management
17	QSP	Quality System Procedures
18	DOP	Directorate Operating Procedure
19	RDSO	Research Designs & Standards Organisation
20	DRM	Directorate review meeting
21	MRM	Management review meeting

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