

S.No	CIGRE 673 Guide	IEEE C57.150 Guide	Recommended action for C57.150
1	Section 1 (Introduction) Provides some background on the activities of the working group	Section 1.1 (Scope) - High level scope statement	None
2	Section 2 (Objective of the Guide)	Section 1.2 (Objective)	None
3	Section 3 (Glossary of Terms)	Section 3 (Definitions)	Following terms can be included: - Bill of Lading - Center of Gravity
4	Section 4 (Transport Incidents)	None	Consider including case studies as an Appendix or Annex. Need clarification if we can include case studies from CIGRE guide. We may also include our own case studies.
5	Section 5 (General Design Requirements and Consideration) Goes more indepth into considerations of internal parts for manufacturers during transformer design phase including clamping of core lamination limbs and yoke, temporary transport bracing for rough transport, considerations when transformer may be subjected to vibrations etc. Also has a section that summarizes requirements from other standards including IEC 60076-1, 60721-3-2 and IEEE C57.150. Per CIGRE evaluation, our guide does not provide adequate information to interpret measurement results of a shock recorder. There is a statement that longitudinal impacts with a peak above 5g is considered rough handling. However, CIGRE states that the guideline for rough handling should be adjusted based on design criteria used for transformer and on the energy content of the impact. Not only should the peak g-value be mentioned; but also the shape of the shock in time domain.	Section 5 (Design Considerations for Transport) - Does not get into any design consideration for internal parts. Discusses protection for external components, lifting, jacking and pulling considerations etc	Additional guidance on shock recorders can be included either as a new section or expansion of section 6.1.3.
6	Section 6 (Specification)	Section 4 (Request for Quote and Specification)	None
7	Section 7 (Design Review)	None	CIGRE provides a design review checklist for transportation aspects that is very detailed and thorough. This may be useful to include in our standard
8	Section 8 (Transportation Modes and their Specifics)	Section 7 (Planning for Heavy Haul Transportation) and Section 8 (Transport)	CIGRE provides more in-depth discussions on Rail and Ship transportation. Sub-sections related to influence on design (8.2.4 & 8.3.3), how to minimize forces during transport (8.2.5 & 8.3.4) and summary of best railroad practices (8.2.6) can be reviewed further for incorporating relevant sections in our guide.
9	Section 9 (Shock Recorders) CIGRE provides more detailed guidance on location, quantity, specification, setting of shock recorders.	Section 6.1.3 (Impact Recorders) Recommends minimum two impact recorders and approx location as well as some basic requirements	Additional details can be provided for requirements of impact recorders
10	Section 10 (Shock Recorder Application and Data Interpretation) Explains the need to develop limiting curves in different directions for acceptable shock during transport	None	No guidance in IEEE on how to interpret data recorded by the impact recorder. This section from CIGRE can be reviewed further for consideration in our guide
11	Section 11 (Indication of Centre of Gravity) Very detailed discussion on symbol and markings used for center of gravity	Mentioned in various sections throughout the document. But no detailed discussion on symbology	None
12	Section 12 (Transportation Process) Various Incoterms such as EXW, FCA, DAT, DAP, CFR, FOB etc definitions are included. There is a section on Transportation Assessment that provides some good guidelines on items to be considered by transport planners	Section 8 (Transport) Provides reference to Incoterms and does not include the actual definitions. Has sections on Rail, Ocean and Air Transportation	Consider adding checklist for transport planning
13	Section 13 (Transport Drawings and Instructions) Provides requirements on what information should be provided by manufacturers on the transport drawing	None	Consider adding a new section for drawing requirements

14	Section 14 (Load Securing) More detailed discussion on load securement methods with figures and examples	Section 8 (Transport) Brief discussion on securing the load under Rail and Ocean transport sub-sections	None
15	Section 15 (Transport With and Without Oil) Discusses what precautions have to be taken when transporting and storage under dry air or nitrogen gas. Provides some guidance on what to do when there are project delays and its not possible to do oil filling within 6 months of delivery.	Section 6.1.2 (Gas filling, Dry Air Supply) Provides requirements for dry air supply system	None
16	Section 16 (Transformer Testing) Discussion on transformer evaluation, condition assessment on-site acceptance tests	Section 10 (Arrival Inspection) Comparable to what is in CIGRE	None
17	Section 17 (Conclusion and Recommendation) General summary of key aspects of the guide	None	None
18	Annex 1 (Derivation of Shock Limiting Curves) Annex 2 (Max Static Acceleration) Annex 3 (Defining Indicative Energy Curve) Annex 4 (Convert Max Velocity Change to Max Energy Content) Annex 5 (Flowchart for Transformer Tests and Condition Assessment after Transport) Annex 6 (Catalogue of operations and tests after transport) Annex 7 (Measuring Results) Annex 8 (Data Analysis of Real World Incident)	Annex A (Bibliography)	Consider adding flowchart for transformer tests and condition assessment after transport similar to CIGRE Annex 5