



DRAFT TANZANIA STANDARD

MEDC 9 (2040) CD2/ SADC SARA HT: 95: 2017 – Railway Safety Management – Technical Requirements for Engineering and Operational Standards – Operational Principles for Safe Movement On Rail.

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TANZANIA BUREAU OF STANDARDS

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The organization marked with an asterisk (*) in the above list together with the following were directly represented on the Technical Committee entrusted with the preparation of this Tanzania Standard:

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NATIONAL FOREWORD

This Tanzania Standard has been prepared under Automotive Components Technical Committee (MEDC 09), under supervision of Mechanical Engineering Standards Divisional Committee.

It is identical to SADC SARA HT: 95: 2017, technical requirements for engineering and operational standards- operational principles for safe movement on rail, published by SADC Cooperation in Standardization (SADCSTAN).



SADC HARMONISED TEXT

Railway Safety Management – Technical Requirements for Engineering and Operational Standards – Operational Principles for Safe Movement On Rail.

Foreword

The SADC Protocol on Trade was established under the SADC Treaty in 1996, to provide for the elimination of tariffs and non-tariff barriers to trade. One of the objectives of the Protocol on Trade under the Technical Barriers to Trade (TBT) Annex (No. 8) is to establish a common technical regulation framework, which is supported by seven (7) regional TBT Cooperation Structures. The TBT Annex places an obligation on Member states to pursue harmonization of standards and this is done through the SADC Cooperation in Standardisation (SADCSTAN) which is one of the 7 regional TBT Cooperation Structures.

Co-operation in standardisation is expected to result into having uniformly harmonised standards. Harmonisation of standards within the region is expected to reduce TBTs that are normally encountered when goods and services are exchanged among SADC Member States due to differences in technical requirements. Harmonized SADC Standards are also expected to result into benefits such as greater industrial productivity and competitiveness, increased agricultural production and food security, a more rational exploitation of natural resources among others.

Harmonized SADC Standards are developed by the SADC experts on standards through SADCSTAN Technical Committees representing the National Standards Bodies and other stakeholders. Further, SADCSTAN in certain instances collaborates with SADC Sector Associations in the harmonization of standards to address sector specific needs. In this regard, SADCSTAN collaborated with Southern African Railway Association (SARA) in the harmonization of this standard.

This SADC Harmonized Standards was prepared by the SADCSTAN Technical Committee on Automobile and Transportation (SADCSTAN TC 2) in collaboration with SARA.

SADC Harmonized Standards are drafted in accordance with the SADCSTAN Harmonization Procedures which are in line with international procedures and practices.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SADCSTAN shall not be held responsible for identifying any or all such patent rights.

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Railway Safety Management – Technical Requirements for Engineering and Operational Standards – Operational Principles for Safe Movement On Rail.

1 Scope

1.1 This standard covers the minimum requirements for operational principles for safe movement on rail. It includes the operational requirements to be complied with to ensure that operational safety is appropriately addressed in all operational circumstances.

1.2 The development, amendment or withdrawal of a train operating standard or procedure comprises the following:

- a) Receipt of a request;
- b) Initial assessment of the request;
- c) Conditions;
- d) Exclusion criteria;
- e) Approval in principle; and
- f) Life cycle phases.

1.3 The following principles and related aspects are applicable in each phase of the life cycle described in this standard;

- a) Behavioural principles and related aspects;
- b) Communication;
- c) Actions before the intended train or shunt movement;
- d) Actions during the train or shunt movement;
- e) Safety of rolling stock whilst stationary; and
- f) Abnormal working and degraded mode.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. Information on currently valid national and international standards can be obtained from the relevant National Standards Body (NSB) or SARA.

SADC SARA HT 89: Railway Safety Management - General

SADC SARA HT 90: Railway Safety Management - Technical Requirements for Engineering and Operational Standards - General

SADC SARA HT 93: Railway Safety Management - Human factors management.

SARA DG Handbook

3 Definitions and abbreviations

For the purposes of this document, the definitions given in this standards are applicable.

3.1 Definitions

3.1.1

abnormal working

deviation from the train's normal working on a portion of the network that may or may not impact on the service capacity

3.1.2

accountability

obligation or willingness to accept ultimate responsibility or to account for one's actions that cannot be shared

3.1.3

authorization

official permission or approval granted for the movement of rolling stock, i.e. train or shunt movement

3.1.4

degraded mode

any deviation from the primary mode of train movement on a portion of the network, including the condition of the rolling stock and railway infrastructure elements, which impact on service capacity, but which are still safe

NOTE 1 Degraded mode increases risks, which need to be mitigated.

NOTE 2 The duration of degraded mode should be limited.

3.1.5

emergency

serious, unexpected and potentially dangerous situation that requires immediate action

3.1.6

handshaking

exchange of information between an individual, group or device (or any combination of these) such that the sender and receiver(s) are in agreement that the information received is identical to that sent and that the interpretation of the information by the receiver(s) is the same as that intended by the sender

3.1.7

integrity

condition in which individual components of a system and the total system are unified, consistent and fit for purpose

3.1.8

line and route

specified track and other railway network infrastructure elements on which the train is intended to move

3.1.9

loading profile

consideration of the profile, permitted axle loading, permitted gross vehicle mass and distribution of the load on a wagon where applicable

3.1.10

operator's working instructions

instructions issued normally in writing by the operator as defined by the operator's internal processes

3.1.11

point

switch junction of two railway lines with a pair of linked tapering rail blades that can be moved laterally to allow a movement to pass from one line to another

3.1.12

responsibility

ability to act or decide on one's own and to explain such actions or decisions when asked

3.1.13

scotch

device that is placed on the rail and under the wheel of a stationary vehicle to prevent it from moving

3.1.14

service-worthy

condition of the rolling stock, track, station, infrastructure network or, any structure intended for the movement of a train at the desired level of service to allow safe movement

3.1.15

shunt movement

movement of a locomotive, motor-powered vehicle or vehicles or of a locomotive or motor-powered vehicle with vehicles attached, to, from, or on a running line or siding within certain prescribed limits

3.1.16

train

locomotive or motor-powered vehicle, with a train number and end marker attached, at a stand or passing over a running line or siding, or any vehicle or vehicles, with an end-of-train marker or device attached, coupled to a locomotive or motor vehicle, at a stand, or hauled or propelled over a running line or siding

3.1.17

train movement

working of a train on any railway line

3.1.18

train, traffic or vehicle list

document containing information relating to the wagons and load on a train

3.1.19

train-worthy

ability of the railway network infrastructure elements to ensure and sustain the safe movement of rolling stock over the portion of the network

3.2 Abbreviations

OHTE: overhead traction equipment

4 Train operations management

4.1 General

4.1.1 The management of train operations shall be undertaken in compliance with the principles for safe movement on rail described in 4.2 to 4.7 throughout all phases of the life cycle of train operations management as described in SADC SARA HT 90, to ensure safe railway operations.

4.1.2 In the development, maintenance or adoption of detailed standards, processes and procedures, the principles and related requirements given in 4.2 to 4.7, which are of equal importance for the safe movement on rail, shall be adhered to.

4.2 Behavioural principles and related aspects

4.2.1 Fitness for duty

Operators shall ensure that employees who undertake safety related work are fit for duty as described in SADC SARA HT 89 and as amplified in SADC SARA HT 93.

4.2.2 Vigilance and assessment of surroundings

4.2.2.1 Operators shall have processes and procedures in place that ensure employees who undertake safety related work are vigilant and aware of the surroundings in order to undertake safe railway operations.

4.2.2.2 Factors to be considered shall include the following:

- a) Devoting full attention to the safety related tasks;

b) ensuring safe and efficient working by constantly evaluating the work environment in order to obtain additional information that will dictate or influence the employee's line of action; and

c) Being constantly observant in the workplace and its environs.

4.2.3 Understanding and acceptance of responsibility

4.2.3.1 Employees who undertake safety related work shall understand and accept responsibility for their actions.

4.2.3.2 Factors to be considered shall include the following:

- a) Areas of responsibility;
- b) Transfer and delegation of responsibility;
- c) Scope of competencies;
- d) Health and safety of the employees, colleagues, clients, the public, assets and the environment;
- e) Acting in the best interest of railway safety;
- f) Relevant standards, policies, rules, codes, instructions and national legislation;
- g) Emergency situations; and
- h) Degraded conditions.

4.2.4 Accountability

4.2.4.1 The accountability of employees undertaking safety related work cannot be shared.

4.2.4.2 Factors to be considered shall include the following:

- a) Understanding the areas of accountability;
- b) Understanding the areas of responsibility;
- c) Emergency situations; and
- d) Degraded and abnormal conditions.

4.3 Communication

4.3.1 The communication principles given in 4.3.2 to 4.3.4 regarding the parties involved in or affected by train operations management shall apply before, during and after each authorization, instruction or other information relevant to the movement of rolling stock.

4.3.2 Handshaking shall ensure common understanding. The authorization, instruction or other information provided shall not be acted upon until the handshaking is complete.

Factors to be considered in the handshaking shall include the following:

- a) The medium of communication, including written, electronic, verbal (oral), audible or physical (visible) communication in a common language;
- b) Prevailing conditions, including the weather, operational circumstances (constraints), possibility of interference with or corruption; and
- c) The location of the sender and receiver.

Where handshaking cannot be completed, the process shall be terminated and returned to a safe state.

4.3.3 Information shall be clear, unambiguous, structured and formalized.

Factors to be considered shall include the following:

- a) The medium of communication, including written, electronic, verbal (oral), audible or physical (visible) communication in a common language;
- b) Prevailing conditions, including the weather, operational circumstances (constraints), possibility of interference or corruption; and
- c) The location of the sender and receiver.

4.3.4 Information shall be communicated to all relevant interested and affected parties.

Factors to be considered regarding the type of information include the following:

- a) The nature of operations (normal, abnormal, degraded or emergency);
- b) track-side maintenance and construction staff, and contractors;
- c) Network, train and station operators;
- d) Media, both print and electronic;
- e) Relevant stakeholders (internal and external); and
- f) Other transport modes.

4.4 Actions before the intended train or shunt movement

4.4.1 Service-worthiness of rolling stock

4.4.1.1 The responsible persons shall certify that the rolling stock is service-worthy, and shall include the following:

- a) The assurance that the rolling stock is fit for purpose and technically sounds;

- b) The understanding that the most conservative precondition or restriction placed on an item of rolling stock applies to the entire train; and
- c) The undertaking that the rolling stock is loaded within the specification limits of both the rolling stock and network.

4.4.1.2 Factors to be considered shall include the following:

- a) The frequency and scope of the various checks to be carried out shall be determined by the risks pertaining to the safety of the train.

NOTE Depending on the types of risk, some checks may only be required before a train leaves a maintenance depot; others may be required before a train starts each new journey or if the compilation of a train is changed.

- b) The presence and functionality of relevant safety systems and equipment on the train shall be examined, including
 - 1) All braking systems,
 - 2) Securing devices (scotches, clamps),
 - 3) train protection systems,
 - 4) All communication systems,
 - 5) Internal and external lighting systems,
 - 6) Equipment monitoring systems,
 - 7) Vigilance and reminder devices,
 - 8) Door safety systems,
 - 9) Emergency equipment and signage,
 - 10) Warning devices (horns, bells, whistles),
 - 11) end of train markers or devices,
 - 12) Fire detection systems,
 - 13) Sanding equipment,
 - 14) track circuit actuators,
 - 15) Train authorization systems, and
 - 16) Speedometers.
- c) The following features of the train as an entity shall be examined and declared safe for movement, with or without preconditions or restrictions, including
 - 1) The brake continuity,

- 2) A means of indicating that the train is complete,
 - 3) The train composition,
 - 4) The coupling of vehicles, and
 - 5) Sufficient traction power and braking capability for anticipated gradients.
- d) The following characteristics of the train shall be established:
- 1) Individual vehicle loading and profile;
 - 2) The total mass;
 - 3) The number of vehicles and compilation;
 - 4) The actual length;
 - 5) The available brake force;
 - 6) The maximum permitted speed;
 - 7) The presence of dangerous goods as given in the SADC Dangerous Goods Handbook;
 - 8) Compatibility with the routes over which it is to travel; and
 - 9) Other characteristics as may be required by the network requirements.
- e) The train crew shall be advised of the following:
- 1) Relevant information arising from the preparation of their train; and
 - 2) Relevant operating characteristics for their train.

4.4.1.3 The operating characteristics and identity of each train shall be made available to the relevant network operator.

4.4.1.4 The relevant network operator shall confirm to the train crew that the requirements of 4.4.2 have been met.

4.4.2 Train-worthiness of the defined line and route

4.4.2.1 The responsible person shall certify that the infrastructure elements of the network are train-worthy by ensuring that they are

- a) Technically sound, with or without preconditions or restrictions, and
- b) Fit for purpose to enable the movement to take place safely and effectively.

4.4.2.2 Factors to be considered shall include the following:

- a) The frequency and scope of the checks to be carried out shall be determined by the prevailing risk to operational safety of the train, on regular and adhoc network situation or condition reports received, and changes to the operating environment.

- b) Track aspects shall include the following:
- 1) Traffic density and loading;
 - 2) Incidences of malicious damage and theft;
 - 3) Severe weather conditions, such as flooding and abnormal temperatures; and
 - 4) The integrity of the track.
- c) Aspects relating to the civil infrastructure shall include the following:
- 1) The integrity of the formation and civil structures (bridges, tunnels, culverts);
 - 2) Drainage that impact on the integrity of the track structure;
 - 3) Incidences of malicious damage and theft;
 - 4) Diverse weather conditions, such as flooding and abnormal temperatures; and
 - 5) Level crossings.
- d) Aspects relating to the train authorization equipment shall include the following:
- 1) Integrity of the train authorization equipment;
 - 2) Incidences of malicious damage and theft; and
 - 3) Severe weather conditions, such as flooding and abnormal temperatures.
- e) Aspects relating to wayside equipment and signage shall include the following:
- 1) The integrity of the train authorization equipment;
 - 2) Incidences of malicious damage and theft; and
 - 3) Severe weather conditions, such as flooding and abnormal temperatures.
- f) Aspects relating to the power supply, overhead traction equipment (OHTE) and substations shall include the following:
- 1) The integrity of OHTE and substations;
 - 2) The integrity of supply;
 - 3) Incidences of malicious damage and theft; and
 - 4) Severe weather conditions, such as flooding and abnormal temperatures.
- g) The design parameters of the rolling stock, line and route shall include the following:
- 1) The integrity of the rolling stock, line and route;
 - 2) Incidences of malicious damage and theft; and

- 3) Severe weather conditions, such as flooding and abnormal temperatures.

4.4.3 Defined line and route for the intended train or shunt movement

4.4.3.1 The line and route over which the movement is to take place shall be defined by

- a) Predetermining, the route and line over which the movement is to take place, including a given departure point and a given destination point,
- b) Ensuring that all points (where applicable) over which the person authorizing the movement has control are identified, correctly set and where necessary secured for the intended movement over the chosen route,
- c) Ensuring, where the person authorizing the movement is not in control of all the points (where applicable) over the chosen route or line, that the responsibility for correctly setting and where necessary securing those points, is allocated to an authorized person,
- d) confirming, where more than one person is involved in defining the route and line, setting and where necessary securing of the points, and defining the departure point and destination point over which the movement will take place, that there is agreement between them regarding the intended movement, and
- e) Confirming that all parties affecting or affected by the intended movement are aware of such movement.

4.4.3.2 Factors to be considered shall include the following:

- a) The availability of network elements/components; and
- b) The construction activities on adjacent, or above the route and line.

4.4.4 Clear line and route for the intended movement

4.4.4.1 The route and line over which the movement is to take place shall be clear by

- a) ensuring that the person authorizing the movement, through technology or other means (or both) at his/her disposal and to the best of his/her knowledge, can declare the defined route and line between the given departure point and the given destination point free of obstructions, and
- b) Ensuring that the recipient of the authority to undertake a movement is made aware of any known restrictions before the starting of the train/shunt movement and to ensure, as far as he/she can see or establish that the route and line are clear and unobstructed.

4.4.4.2 Factors to be considered shall include the following:

- a) Authority for the movement;
- b) Restrictions on network elements/components; and

- c) Construction activities adjacent or above the route and line.

4.4.5 Reserved line and route for the intended movement

4.4.5.1 The line and route shall be reserved for the intended movement and shall remain unavailable for any other authorization until proven clear again.

4.4.5.2 The authorization for the movement is issued and received in accordance with the principles described in clauses 4.2.3 and 4.2.4 to ensure that

- a) A train or shunting movement only starts once the authorization is received and, where applicable, the proceed sign/signal/indicator/verbal instruction is given,
- b) The route, line, departure point and destination point are included,
- c) Only one authorization at a time is issued for a movement or series of movements over the defined line and route,
- d) Where required, one authorization may combine a number of movements,
- e) The movement is completed before a new authorization for that defined route and line is issued, and
- f) Where the movement cannot be completed it shall be in accordance with clause 4.3.2.

4.4.5.3 Factors to be considered shall include the following:

- a) The degraded mode procedures to be implemented in the case where the movement cannot be completed; and
- b) The applicable method of trains working.

4.4.6 Authorization for the movement of rolling stock over the line and route

The following principles are inherent in the authorization of rolling stock movements (train and shunt movements):

- a) An authorization shall only be issued to and accepted by the person who is responsible for the safe movement of rolling stock.
- b) An authorization shall
 - 1) be unambiguous, to the point and have only one intended outcome,
 - 2) have the same interpretation by the person issuing the authority and the person accepting the authority,
 - 3) Be in the specified format,
 - 4) Be executed only when all other required conditions to proceed are fulfilled, and
 - 5) Prevent conflicting movements.
- c) An authorization shall be complied with in all respects, including any instructions and conditions contained in the authorization.

- d) An authorization shall be valid
 - 1) Until fully executed,
 - 2) Unless withdrawn by the person authorizing the movement, before the start of the movement contemplated in the authorization,
 - 3) Unless withdrawn before the completion of the movement or movements authorized, provided that no conflicting authorizations are subsequently issued, and
 - 4) Until surrendered by the person who is responsible for the safe movement of rolling stock who received the authorization before the start of or during the movement.
- e) The traceability of any authorization regarding train movements between the different parties involved shall be ensured.

4.5 Actions during the train or shunt movement

4.5.1 Compliance with the conditions of the authorization

The persons who are responsible for the safe movement of rolling stock during a train or shunting movement shall ensure that the train or shunting movement is stopped in the following instances:

- a) At the limit of authorization or series of authorizations,
- b) When circumstances dictate that it is unsafe to proceed,
- c) At scheduled stops as defined in a timetable or notice, and
- d) By special arrangement, preferably in writing.

4.5.2 Compliance with the design parameters of the rolling stock, line and route

The person who is responsible for certifying that the rolling stock is service-worthy shall also certify that the rolling stock is loaded within the structure profile and mass limitations of both the rolling stock and network.

4.5.3 Compliance of train handling with prevailing circumstances and conditions

Whilst the train is moving, the person who is accountable for the safe handling of the movement of rolling stock shall ensure that the train or shunting movement is carried out safely by

- a) Complying with all train handling techniques relevant to the forces impacting on the train as required by the prevailing conditions and circumstances, and
- b) Planning the train handling techniques at least one step but preferably two steps ahead in the required sequence of train handling actions.

4.5.4 Compliance with the relevant speed instructions and indicators

Whilst the train is moving, the person who is accountable for the safe handling of the

movement of rolling stock shall ensure that the train or shunting movement is carried out safely by

- a) Strictly complying with the relevant speed instructions,
- b) Obeying all applicable speed boards, other speed-related signs and indicators alongside the track, and hand signals,
- c) Obeying all applicable on-board speed and non-speed related signs and indicators,
- d) Reducing speed when circumstances demand, and
- e) Adhering to all non-speed-related trackside signs and indicators alongside or above the track, and
- f) Adhering to station platform signs and indicators.

4.5.5 Completion of the intended movement

The following actions shall be carried out:

- a) Proceed to the destination point defined by the authorization unless required to stop by force of circumstance, or,
- b) For operating requirements, stop at the limit of the authorization unless a further authorization is received to proceed to the next destination point (limit).

4.6 Safety of rolling stock whilst stationary

4.6.1 Prevention of side-on collisions

The rolling stock shall be placed clear of the adjoining lines for the next intended movements by standing within the relevant clearance mark(s) of converging lines.

4.6.2 Prevention of unintentional movement

The rolling stock shall be secured by the application of appropriate braking mechanisms and scotches to prevent unintentional movement, which may compromise safety.

4.6.3 Prevention of conflicting or irregular movements

The rolling stock shall be protected by all appropriate means to prevent conflicting or irregular movements and unsafe conditions.

4.7 Abnormal working and degraded mode

4.7.1 General

The principles and related requirements described in 4.2 to 4.6 shall be applied in any abnormal working, or degraded mode over a line and route, or part thereof, which has resulted in the suspension of the train authorization method or the implementation of a fall-back procedure, or both.

4.7.2 Temporary loss of functionality of a train authorization system

4.7.2.1 Controls

The network operator shall determine the arrangements in consultation with the relevant operators for ensuring the safe movement of trains when there is a loss of functionality or part thereof, in the train authorization system. Where some of the functions of the normal train authorization system are still available, these should be used where it is practicable to do so, and their use shall be identified in the operator's working instructions. All relevant role players shall be informed of the arrangements.

4.7.2.2 Authority

The arrangements to be adopted shall be authorised by the network operator.

4.7.2.3 Documentation

Agreed arrangements shall be issued in writing to all relevant role players.

4.7.2.4 Communication

The network operator shall have processes and procedures in place to provide timely advice of the altered method of working to the appropriate parties, including the relevant operators.

4.7.3 Rolling stock

4.7.3.1 Controls

The train operator shall determine the arrangements in consultation with the relevant operators for ensuring the safe movement of a train when there is a loss of functionality or part thereof, in the rolling stock constituting the train. Where some of the functions of the rolling stock are still available, these should be used where it is practicable and safe to do so, and their use shall be identified in the operator's working instructions. All relevant role players shall be informed of the operation of the rolling stock in degraded mode.

4.7.3.2 Authority

The arrangements to be adopted shall be authorized by the network operator.

4.7.3.3 Documentation

Agreed arrangements shall be issued in writing to all relevant role players.

4.7.3.4 Communication

The network operator shall have processes and procedures in place to provide timely advice of the operation of the rolling stock in degraded mode to the appropriate parties, including the relevant operators.

4.7.4 Infrastructure elements (other than a train authorization system)

4.7.4.1 Controls

The network operator shall determine the arrangements in consultation with the relevant operators for ensuring the safe movement of trains when there is a loss of functionality or part thereof, of railway infrastructure elements, other than the train authorization system.

Where some of the infrastructure element functions are still available, these should be used where it is practicable and safe to do so and their use shall be identified in the operator's working instructions. All relevant role players shall be informed of the arrangements.

4.7.4.2 Authority

The arrangements to be adopted shall be authorized by the network operator.

4.7.4.3 Documentation

Agreed arrangements shall be issued in writing to all relevant role players.

4.7.4.4 Communication

The network operator shall have processes and procedures in place to provide timely advice of the operation of the network elements in degraded mode to the appropriate parties, including the relevant operators.

5 Management of the life cycle of train operating standards and procedures

5.1 General

Relevant operators shall have formal structures to manage the life cycle of train operating standards and procedures, as given in 5.2 and 5.3.

5.2 New or amended train operating standards or procedures

Processes and procedures shall be established, developed or adopted, documented and maintained by operators for the following:

- a) All applications for new, additions to or withdrawals of a train operating standard or procedure shall be logged in an operator central registry and other relevant operators and parties shall be notified.
- b) The initial assessment during the feasibility study of an application for or notification of a new or modified train operating standard or procedure shall include the following:
 - 1) Information on an existing similar standard;
 - 2) Whether any one of operating principles as described in 4.2 to 4.7 could not be met;
 - 3) Whether the proposed standard or procedure is only applicable to a particular operator;
 - 4) The risk assessment and the level of the residual risk after mitigation;
 - 5) An evaluation on the impact on operational safety; and
 - 6) The cost benefits analysis in terms of safety.

- c) Approval in principle shall include the following:
- 1) The affected network and train operators shall consider the proposal in the light of the feasibility study;
 - 2) on approval in principle, each affected operator shall appoint or nominate suitably experienced and qualified persons to jointly develop the new or amended train operating standard or procedure; and
 - 3) Projects approved in principle shall be subjected to the life cycle phases described in 5.3.

5.3 Life-cycle phases

5.3.1 Processes and procedures shall be established, developed or adopted, documented and maintained by operators for the development of new or the amendment of existing train operating standards and procedures that have been approved in principle in accordance with 5.2, and shall be developed in compliance with the applicable principles described in 4.2 to 4.7

5.3.2 Further to the operational risk management processes described in SADC SARA HT 89 and SADC SARA HT 90, operators shall establish, develop or adopt, implement and maintain policies and procedures to conduct risk assessments for the development of new or the amendment of existing train operating standards or procedures.

5.3.3 Risk assessments shall be conducted jointly by relevant and affected operators.

5.3.4 The records of risk assessments shall be retained for review by the relevant authority responsible for railway safety (see foreword).

5.3.5 The life-cycle process comprises the phases described in SADC SARA HT 89 and SADC SARA HT 90, which are interpreted as follows:

- a) **Design:** initial concept and draft of the proposed train operating standard or procedure;
- b) **construction/manufacturing:** development of a working draft of the proposed train operating standard or procedure. The working draft shall be approved by the relevant and affected operators for commissioning;
- c) **Commissioning:** testing and implementation of the new or amended train operating standard or procedure and evaluation of the performance and feedback before full implementation, with or without amendment;
- d) **Operation:** upon acceptance after commissioning, full implementation of the new or amended train operating standard or procedure;
- e) **Monitoring and maintenance:** continual monitoring and review of the safety performance in terms of the new or modified train operating standard or procedure;
- f) **Amendment:** amendment of the operating standard or procedure where shortcomings are experienced by following the entire life-cycle process; and

- g) **Decommissioning and disposal:** withdrawal of the train operating standard or procedure when the train operating standard or procedure is superseded by a new or amended standard.

NOTE Two different train-operating standards or procedures cannot be in force at the same place and same time (configuration management).

6 Operator databases

6.1 Processes and procedures shall be established, developed or adopted; implemented and maintained by operators to ensure that existing, new, reviewed or withdrawn train operating standards or procedures are recorded on a suitable database, which shall be readily available and accessible to other operators by agreement.

6.2 This database shall include at least the following information:

- a) An application for and notification of change;
- b) A unique identification number, title, version and review date;
- c) The classification of the train operating standards and procedure;

NOTE Whether the operating standard or procedure is in a circular, notice or YQ format.

- d) The operator's name and contact details;
- e) Records of risk assessments pertaining to train operations and procedures; and
- f) The status of the train operational standard or procedure.

NOTE Whether the operating standard or procedure is still valid or withdrawn.