



CD/K/039-5:2008
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EAST AFRICAN STANDARD

**Motor vehicle safety specification — Braking — Part 5: Parking
brakes: Mechanically locked brake cylinder (lock actuator) type**

EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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East African Community

P O Box 1096

Arusha

Tanzania

Tel: 255 27 2504253/8

Fax: 255-27-2504481/2504255

E-Mail: eac@eachq.org

Web: www.each.int

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Motor vehicle safety specification — Braking — Part 5: Parking brakes: Mechanically locked brake cylinder (lock actuator) type

1 Scope

This part of the specification covers the requirements for a type of parking brake known as a mechanically locked brake cylinder (lock actuator) type parking brake.

2 Definitions

For the purposes of this part of the specification, the definitions given in CD/K/039-1:2008 and the following definition shall apply:

mechanical brake-cylinder locking device

device that retains the braking action of the parking brake by exhausting the compressed fluid held in a lock actuator, thus setting in action a mechanical locking device that locks the brake-piston rod

NOTE Unlocking is effected by restoring pressure in the lock actuator.

3 Requirements

3.1 Energy reserve

In a brake cylinder equipped with a mechanical locking device, movement of the brake piston shall be ensured by energy from two independent reservoirs.

3.2 Operational requirements

3.2.1 Application and locking of brake (see Figure 1)

The device shall be such that actuation of the parking brake control causes the following to occur and in the sequence given:

- a) application of the brake by admission of compressed fluid to a parking brake lock actuator to produce the specified parking brake performance;
- b) locking of the brake in the "applied" position by exhaustion of fluid through a lock port, thus bringing a mechanical locking device into action; and
- c) withdrawal of the initial brake-applying force (see (a) above) by complete exhaustion of all fluid in the parking brake lock actuator, leaving the brake rod mechanically locked.

3.2.2 Alarm

When the pressure in the lock actuator is reduced to the level at which mechanical locking occurs (see 3.2.1 (b)), a warning device, optical or audible, and so positioned that it can be readily detected by the driver, shall come into action.

3.2.3 Release of brake

It shall not be possible to release the locked brake rod with the parking brake control unless it is certain that after such release the brake can be actuated again, i.e. the pressure required to release the locked brake rod shall be higher than the pressure required for normal application of the brake.

3.3 Auxiliary releasing device

An auxiliary device, e.g. mechanical or pneumatic, that is capable of releasing the brake in the event of failure of the energy source that feeds the lock actuator, shall be provided.

4 Inspection and methods of test

4.1 Inspection

Check, by inspection, that the feed to the parking brake cylinders is ensured by energy from two separate energy reservoirs.

4.2 Test for operation of parking brake control

- a) Fit a pressure gauge in the feed circuit to the parking brake lock actuator, and similar gauge in the feed circuit to the lock port.
- b) Ensure that the energy reservoirs are at the correct initial level of energy, i.e. charge the braking device to the governor or unloader valve cut-out pressure.
- c) Operate the parking brake control, and check that the following occur and in the sequence given:
 - 1) admission of fluid to the parking brake lock actuator, and application of the parking brake;
 - 2) exhaustion of fluid through the lock port, causing the roller spring to expand and push the rollers against the brake rod; and finally
 - 3) complete exhaustion of all fluid in the parking brake lock actuator, leaving the brake rod mechanically locked by the wedge action of the rollers.

4.3 Test for warning device

- a) Run the engine until the energy reservoirs are at the correct initial level of energy (see 4.2(b)).
- b) Actuate the parking brake control until the parking brake has been applied and the mechanical lock has come into operation, i.e. until the roller spring has expanded and pushed the rollers against the brake rod.
- c) Check that at this stage the warning device is activated.

4.4 Test for release pressure

- a) Fit a pressure gauge in the feed circuit to the lock port.
- b) Run the engine and actuate the parking brake control as in 4.3(a) and (b), i.e. until the parking brake becomes mechanically locked, and note the pressure when this occurs.
- c) With the use of the parking brake control, restore the feed to the lock port, note the pressure at which the roller spring retracts, freeing the brake push rod, and check that it exceeds the pressure noted in (b) above.

4.5 Test for auxiliary release device

- a) Run the engine and actuate the parking brake control as in 4.3(a) and (b).
- b) Cut off the supply of compressed fluid to the lock actuator and check that the locked parking brake can be released by the auxiliary release device.

ward

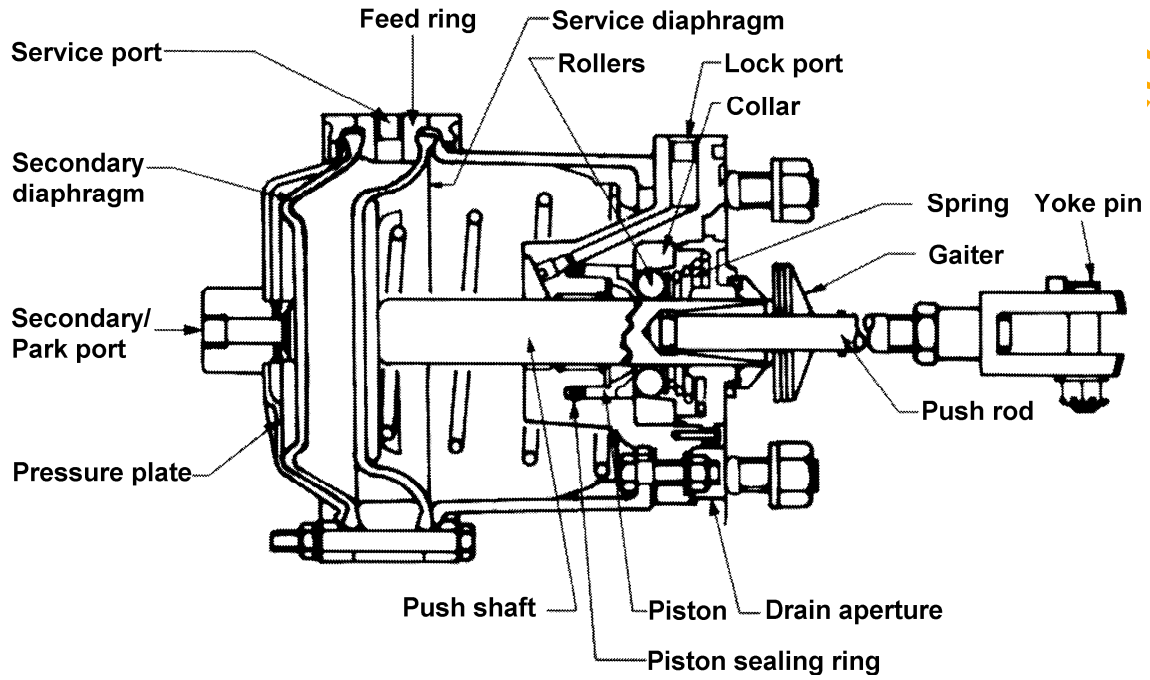


Figure 1 — Section of typical double diaphragm lock actuator

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