Definitions

For purposes of regulation 1, unless the context otherwise indicates-

"Braking System" means a device or combination of devices capable of reducing the speed of a trackless mobile machine to a standstill.

"Combined Braking Systems" means a brake system consisting of a service brake and at least one of the following: park brake or emergency brake;

"Emergency Brake" means an easily accessible device, which when applied, will bring the trackless mobile machine to a standstill under all operating and emergency conditions;

"Fail to Safe" in relation to mechanisms, appliances, devices and controls, means so designed as to activate and effectively perform its intended function without harm to persons and without human intervention.

"Park Brake" means the brake capable of holding fully loaded, parked trackless mobile machine stationary, at the maximum safe operating gradient, without the support of any other braking system;

"Remote Controlled" means the control and operation of a trackless mobile machine by an operator by means of a wireless remote control device or a remote control device by means of a cable system where the operator has direct physical sight of the trackless mobile machine.

"Service Brake" means the primary operating brake capable of retarding and stopping the fully loaded trackless mobile machine;

"Static Test" means the test carried out to determine the compliance of the brake holding power of a trackless mobile machine measured against the design specification or an appropriate safety standard;

"Trackless Mobile Machine" means any self propelled mobile machine that is used for the purpose of performing mining, transport or associated operations underground or on surface at a mine and is mobile by virtue of its movement on wheels, skids, tracks, mechanical shoes or any other device fitted to the machine, but excludes:
- rail bound equipment;
- scraper winches, mono rail installations, static winches, draglines, winding machinery installations, track mounted conveyors and any equipment attached thereto;

"Trailer" means any vehicle that:
- is not self propelled,
- needs to be towed by a trackless mobile machine by design.

"Towed vehicle" means a trackless mobile machine being recovered or towed by another trackless mobile machine.
Regulations.

Collisions between “trackless mobile machines” and pedestrians.

1.1 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of collisions between “trackless mobile machines” and pedestrians. At any mine where there is a significant risk of such collisions, such measures must include at least the following:

1.1.1 All electrically or battery powered “trackless mobile machines”, excluding draglines, shovels, bucket wheel excavators and overburden drills must be provided with means to automatically detect the presence of any pedestrian within its vicinity. Upon detecting the presence of a pedestrian, the operator of the electrical powered “trackless mobile machine” and the pedestrian shall be warned of each other’s presence by means of an effective warning. In the event where no action is taken to prevent potential collision, further means shall be provided to retard the electrical powered “trackless mobile machine” to a safe speed where after the brakes of the electrical powered “trackless mobile machine” are automatically applied. The system on the electrical powered “trackless mobile machine” must “fail to safety” without human intervention.

1.1.2 All underground diesel powered “trackless mobile machines” must be provided with means to automatically detect the presence of any pedestrian within its vicinity. Upon detecting the presence of a pedestrian, the operator of the diesel powered “trackless mobile machine” and the pedestrian shall be warned of each other’s presence by means of an effective warning. In the event where no action is taken to prevent potential collision, further means shall be provided to retard the diesel powered “trackless mobile machine” to a safe speed where after the brakes of the diesel powered “trackless mobile machine” are automatically applied. The system on the diesel powered “trackless mobile machine” must “fail to safety” without human intervention.

Collisions between diesel powered trackless mobile machines

1.2 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of collisions between diesel powered trackless mobile machines. At any opencast or open pit mine where there is a significant risk of such collisions, such measures must include:
1.2.1 Every diesel powered trackless mobile machine must be provided with means to automatically detect the presence of any other diesel powered trackless mobile machine within its vicinity. Upon detecting the presence of another diesel powered trackless mobile machine, the operators of both diesel powered trackless mobile machines shall be warned of each other's presence by means of an effective warning; In the event where no action is taken to prevent potential collision, further means shall be provided to retard the diesel powered "trackless mobile machine" to a safe speed where after the brakes of the diesel powered "trackless mobile machine" are automatically applied. The system on the diesel powered "trackless mobile machine" must "fail to safety" without human intervention.

1.2.2 Where there is an interaction between trackless mobile machines and rail bound equipment at underground operations, the operators of the trackless mobile machine and the locomotive shall be warned of each other's presence by means of an effective warning;

Trackless mobile machines running uncontrolled

1.3 The employer must take reasonably practicable measures to prevent trackless mobile machines running uncontrolled.

Overturning of any trackless mobile machine

1.4 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of overturning of any trackless mobile machine. Roll overprotection structures must be fitted on trackless mobile machines if required in terms of the mine’s risk assessment.

Objects falling onto operators and/or passengers of trackless mobile machines

1.5 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of objects falling onto operators and/or passengers of trackless mobile machines. Trackless mobile machines must be fitted with falling object protection structures to protect operators and passengers from falling objects if required in terms of the mine’s risk assessment.
Persons inadvertently falling out of or being ejected from trackless mobile machines.

1.6 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of operators and/or passengers inadvertently falling out of or being ejected from any trackless mobile machine in motion.

Braking systems

1.7 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of brake failure. Such measures must include ensuring:

1.7.1 that trackless mobile machines are operated with adequate and effective braking systems;

1.7.2 all braking systems are adequately and routinely tested for intended functionality;

1.7.3 all braking systems are regularly maintained; and

1.7.4 that where a combined braking system is used, the design of the braking system is such that it complies with the requirements for the separate systems and that it fails to safe.

Restricted operator visibility.

1.8 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of restricted operator visibility.

Fatigue while operating a trackless mobile machine.

1.9 The employer must take reasonably practicable measures to ensure that persons are prevented from being injured as a result of fatigue of operators. Such measures must include a fatigue management procedure for operators.

Battery charging facilities

1.10 The employer must take reasonably practicable measures to ensure that battery charging facilities are ergonomically designed, constructed and equipped with the following:
I. Adequate through ventilation;
II. Adequate fire suppression equipment;
III. Effective provisions to treat persons in the event of acid spillage; and
IV. Appropriate and adequate lighting.

Diesel refuelling facilities

1.11 The employer must take reasonably practicable measures to ensure that diesel refueling facilities are ergonomically designed, constructed and equipped with the following:-

I. Adequate through ventilation;
II. Adequate fire suppression equipment;
III. Effective provisions to cater for oil and diesel spillages; and
IV. Appropriate and adequate lighting.
V. Surface diesel refueling facilities are in accordance with
   c. SANS 10089-3 (2010): The petroleum industry Part 3: The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipe work at service stations and consumer installations.

Wheels, tyres and rims

1.12 The employer must take reasonably practicable measures to ensure that procedures are prepared and implemented to prevent persons from being injured as a result of the use, storage and handling of wheels, tyres and rims.

Access of persons to and from the trackless mobile machines

1.13 The employer must take reasonably practicable measures to ensure that trackless mobile machines are designed, constructed and maintained such that persons getting on and off, or working on them can do so safely.

Visibility of trackless mobile machines, skid mounted machinery and trailers to persons.

1.14 The employer must take reasonably practicable measures to ensure that trackless mobile machines, skid mounted machinery and trailers are visible to persons in their vicinity.
Unauthorised access to or operation of *trackless mobile machines*.

1.15 The employer must take *reasonably practicable measures* to ensure that unauthorised persons do not ride on or operate *trackless mobile machines*.

**Isolation and lock-out of trackless mobile machines**

1.16 The employer must take *reasonably practicable measures* to ensure that procedures are prepared and implemented for the safe isolation and lockout of *trackless mobile machines*.

**Operating procedures**

1.17 The employer must take *reasonably practicable measures* to ensure that procedures are prepared and implemented for the safe operation of *trackless mobile machines*.

**Maintenance standards and procedures**

1.18 The employer must take *reasonably practicable measures* to ensure that procedures and standards are prepared and implemented for maintaining *trackless mobile machines* in a safe operating condition.

**Remote and remotely controlled trackless mobile machines**

1.19 The employer must take *reasonably practicable measures* to ensure that remote control devices for *trackless mobile machines* using a wireless remote control device comply with:

a) SANS 61000-4-2 (IEC 61000-4-2) Electrostatic immunity discharge test.

b) SANS 61000-4-3 (IEC 61000-4-3) Radiated, radio frequency, electromagnetic field immunity test.

c) SANS 61000-4-4 (IEC 61000-4-4) Electrical fast transient/burst immunity test.

d) SANS 61000-4-5 (IEC 61000-4-5) Surge immunity test.

e) SANS 61000-4-6 (IEC 61000-4-6) Immunity to conducted disturbances, induced by radio-frequency fields.

f) SANS 61000-4-8 (IEC 61000-4-8) Power frequency magnetic field immunity test.
g) SANS 61000-4-11 (IEC 61000-4-11) Voltage dips, short interruptions and voltage variations immunity test.

**Trailers**

1.20 The **employer** must take **reasonably practicable measures** to ensure that:

a) the design and construction of any **trailer** is in accordance with specifications approved by a competent person, which specifications must take into account the intended use of the **trailer**;

b) the design and construction of **trailer** coupling and uncoupling mechanisms is such that coupling and uncoupling can be done safely and that no inadvertent uncoupling of the **trailer** can take place; and

c) procedures are prepared and implemented for the safe operation of **trailers**.

**Towed vehicles**

1.21 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the safe recovery and towing of **trackless mobile machines**.

**Roadway conditions**

1.22 The **employer** must take **reasonably practicable measures** to ensure that the design, construction and maintenance of roadways are appropriate for the type and category of **trackless mobile machine**.

**Selection, training, appointment and licensing of trackless mobile machine operators**

1.23 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the selection, training, appointment and licensing of **trackless mobile machine** operators, which procedures must include:

1.23.1 physical and psychological pre-selection criteria;

1.23.2 a training programme for **trackless mobile machine** operators, covering—

   I. theoretical training in a training centre;
   II. practical training; and
   III. on the job training.
1.23.3 assessment of the trainee, on successful completion of the training programme, by a competent person;

1.23.4 that only operators, assessed to be competent are authorised in writing by the responsible engineer to operate trackless mobile machines;

1.23.5 that operators of trackless mobile machines are authorized in writing by their supervisor to operate trackless mobile machines. Such authorization must detail their duties, responsibilities, limitations and areas of operation.

1.23.6 when an operator has not operated a trackless mobile machine for a period of two years, such operator is re-assessed to be competent by a competent person prior to being issued with a new license.

1.23.7 that every operator of trackless mobile machines is issued with a license containing at least the following:

   I. a photograph to positively identify the operator;
   II. the trackless mobile machine types which the operator may operate;
   III. date of issue and expiry date; and
   IV. the operator's company identification number.

Pre-use inspection procedures

1.24 The employer must take reasonably practicable measures to ensure that procedures are prepared and implemented for inspecting trackless mobile machines immediately prior to use, which procedures must include:

1.24.1 that the operator of the trackless mobile machines physically inspects and ensures that the brakes, lights and any other defined safety features and devices are functioning as intended prior to setting such trackless mobile machines in motion;

1.24.2 pre-use check lists that have to be completed by all operators of trackless mobile machines at the beginning of their shift. Such check lists must clearly identify all the components, features and functionalities to be inspected by the operator. For each component, feature or functionality, the check list must clearly indicate the pre-established criteria under which the trackless mobile machines may or may not be put in motion.
Reversing over the edge of a stockpile

1.25 The employer must take reasonably practicable measures to prevent any trackless mobile machine reversing over the edge of a stockpile or dump.

Inadvertent movement of the trackless mobile machine

1.26 The employer must take reasonably practicable measures to prevent inadvertent movement of any trackless mobile machine whilst parked.

Mandatory carrying of license

1.27 All operators of trackless mobile machines must have their originally issued license on their person whilst operating any trackless mobile machine.

Certain regulations not applicable

1.28 Regulations 1.23 and 1.27 do not apply to “trackless mobile machines” licensed under the National road transportation Act 2000 and not used for primary mining activities.