



**IRATA International code of practice
for industrial rope access**

Part 3: Informative annexes

**Annex D: Harness comfort and
adjustability test**

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Annex D (informative)

Harness comfort and adjustability test

Introduction

Annex D gives advice and other information that could be relevant to users of rope access methods and is one of a number of informative annexes in Part 3 of this code of practice. This informative annex should be read in conjunction with other parts of this code of practice, should not be used in isolation and is not intended to be exhaustive. For further advice, readers should refer to relevant specialist publications.

D.1 General

It is recommended that, before first use, rope access technicians carry out a test on their harness in a safe environment to ensure:

- a) the harness provides an acceptable level of comfort while the rope access technician is suspended, e.g. while carrying out rope access work or following a fall;
- b) there is no restriction of movement sufficient to cause difficulties while working;
- c) there is sufficient adjustment, e.g. to cater for different amounts of clothing worn.

This annex gives a test procedure for assessing the criteria listed above. The test is suitable for sit harnesses and full body harnesses. It should not be used for belts without sub-pelvic support or for chest harnesses.

D.2 Safety precautions

D.2.1 Part of the test procedure involves the rope access technician being suspended clear of the ground while wearing the harness. The suspension test should be carried out in a safe place, under the direct supervision of another person. There should be someone on site who is competent in first aid for dealing with emergencies involving persons working at a height. This could be the person supervising or another person. The test should be arranged so that the rope access technician is suspended with only a small clearance between the feet and the ground, e.g. 100 mm. Some type of support should be provided, e.g. a block of wood, of a height slightly greater than the clearance between the rope access technician's feet and the ground, so that he/she is able put their feet on it to support their weight if the harness proves to be too painful, or any other discomfort is experienced.

D.2.2 The suspension test should be stopped immediately if the rope access technician experiences any unacceptable pain at any time during the test procedure. The test should also be stopped immediately if the rope access technician experiences any of the following:

- faintness or dizziness;
- breathlessness;
- sweating or hot flushes;
- nausea;
- loss or greying of vision;
- an abnormal increase in pulse rate;
- an abnormal decrease in pulse rate.

D.2.3 The test procedure calls for the suspension test to be carried out for each of the harness attachment points that could be used in practice. Each test should have a maximum duration of 4 min, and the rope access technician should take a break of at least 5 min between tests. While in suspension, he/she should move their legs from time to time to maintain circulation and, for the same reason, during the breaks they should exercise their legs periodically, for example, by walking about.

D.3 Procedure

D.3.1 The rope access technician should be supervised throughout the procedure. The procedure detailed in D.3.2 to D.3.7 should be carried out for each of the harness attachment points designated by the manufacturer that might be used by the rope access technician. If the harness has attachment points that are intended to be used in pairs, these should always be used in pairs.

D.3.2 The rope access technician should don the harness in accordance with the manufacturer's instructions and adjust it to ensure a snug fit.

D.3.3 Following the manufacturer's instructions for connection to the harness attachment point(s), the rope access technician should be suspended by means of a suitable system, e.g. a winch or a pulley system and appropriate personal fall protection equipment, such that he/she can be suspended with their feet just clear of the ground.

D.3.4 The duration of the test should be timed with a stop-watch. Taking into account the safety precautions given in D.2, the test should be stopped after a minimum of 3 min 45 s and a maximum of 4 min, and the rope access technician released from suspension.

D.3.5 Adjustment of the harness while the rope access technician is in suspension may be made at any time during the test. If the rope access technician has to step down to the floor or on to the raised support for readjustment of the harness, the timing of the test should start again from the beginning, once the readjustment is completed.

D.3.6 During the test, while the rope access technician's feet are off the ground, the harness should be examined by the supervisor to determine points a) and b) below and the rope access technician asked to comment on points c) and d) whether:

- a) any metal fitting is in contact with the groin, the inside of the thighs, the armpits or the small of the back;
- b) any part of the harness is exerting direct pressure on the genitals, head or neck;
- c) there is any loss of feeling (numbness) or tingling ("pins and needles"), either of which is unacceptable to the rope access technician, in any part of the body;
- d) there is any restriction of normal breathing.

In addition to the safety precautions detailed in **D.2**, if the harness is in contact or causing pressure as detailed in item a) or b), or if the rope access technician experiences any of the symptoms listed in items c) and d), the test should be stopped immediately.

D.3.7 During the test, while the feet are clear of the ground, the rope access technician should carry out the following movements to determine whether the harness allows adequate freedom of movement:

- a) hold the left foot with the right hand, then release;
- b) hold the right foot with the left hand, then release;
- c) hold both hands together at full stretch above the head, then release;
- d) hold both hands together behind the waist and then release.

D.3.8 After the suspension test is completed, and with the rope access technician standing on the ground, the amount of adjustment in each adjustable part of the harness, e.g. the length of strap ends, including any length required for locking the adjusters, should be checked to ensure there is sufficient adjustment to allow for less or additional clothing to be worn for the expected conditions of work, for example, in hot or cold weather.

D.4 Evaluation of results

The harness can be judged as suitable if all the following conditions are met:

- a) it was not necessary to stop the test for any of the reasons given in **D.2** or **D.3.6** and the rope access technician agreed that the comfort level experienced during the tests was acceptable;
- b) the rope access technician was able to carry out the movements given in **D.3.7** a) to d) with relative ease and he/she agreed that there was adequate freedom of movement to allow him/her to carry out their work.
- c) the harness was considered to have sufficient adjustment for the expected conditions of work, when assessed in accordance with **D.3.8**.

It is recommended that a record of the test and evaluation of the results is completed and kept for future referral.