INTERNATIONAL STANDARD

ISO 11088

Second edition
1998-02-15

Assembly, adjustment and inspection of an alpine ski/binding/boot (S-B-B) system

Montage, réglage et contrôle d'un ensemble ski/fixation/chaussure (SFC) pour skis alpins

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Reference number
ISO 11088:1998(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standard bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11088 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 3, *Ski bindings*.

This second edition cancels and replaces the first edition (ISO 11088 : 1993), which has been technically revised. In particular, the following changes have been introduced:

– modification of subclause 3.5;

– modification of subclause 5.3;

– modification of subclause 5.7;

– replacement of table B.1.

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Annexes A, B, C and D form an integral part of this International Standard. Annex E is for information only.

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Introduction

International Standards exist for the components of the alpine ski/binding/boot system (S-B-B) and they are mainly intended for the component manufacturers. An International Standard (ISO 8061) also exists for the selection of release moments. This International Standard is intended primarily for retailers. However, its aim is to include in one text the different phases of the choice of components, their assembly, adjustment and inspection in the form of practical procedures, and to provide tolerances for inspection and adjustment.

The inspection procedures and tolerances described in this International Standard apply to the condition of the S-B-B system before it leaves the ski shop and should not be used to judge the condition of the equipment once it is put into use.

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Assembly, adjustment and inspection of an alpine ski/binding/boot (S-B-B) system

1 Scope

This International Standard specifies assembly, adjustment and inspection procedures for the binding mechanisms of skis, integrating in a practical way the requirements of International Standards on skis, boots and bindings.

This International Standard is intended for all individuals and institutions concerned with the above-mentioned procedures, especially sports retailers.

It applies to a ski/binding/boot system (S-B-B) for alpine skiing, in which at least one component is owned by the user.

> NOTE — For the case when both components (SB and B) are rented, an International Standard is being prepared which will give a method of measurement by sampling as an alternative to systematic measurement before delivery to the end-user.

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2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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ISO 5355:1991, *Alpine ski-boots — Safety requirements and test methods.*

ISO 8061:1991, *Alpine ski-bindings — Selection of release torque values.*

ISO 8364:1991, *Alpine skis and bindings — Binding mounting area — Requirements and test methods.*

ISO 9462:1993, *Alpine ski-bindings — Safety requirements and test methods.*

ISO 11087:1997, *Skis — Retention devices — Safety requirements and test methods.*

ISO 11110:1997, *Winter-sports equipment — Test devices for the setting of the functional unit ski/boot/binding — Requirements and tests.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 fitting adjustment: Procedure required to obtain geometric compatibility and correct functioning of different components.

3.2 indicator value (*Z*-mark): The release indicator value marked on the binding in accordance with ISO 9462.

3.3 skier type 1, 2 or 3: A release adjustment criteria pertaining to the type of skiing to be undertaken, as assessed by the skier in accordance with table A.1.

NOTE 1 The designations L, A, S which were used in the first edition of ISO 8061:1984 have been replaced by types 1, 2 and 3, respectively, as in the second edition of ISO 8061:1991.

NOTE 2 If the skier desires a setting outside the tolerances of this International Standard, he or she can select such a setting at his or her own discretion. Ski-binding manufacturers should provide guidelines to shops and skiers regarding the recommended magnitude of such changes. Skiers should be clearly informed when these changes result in release values above the upper limit or below the lower limit defined in ISO 8061.

3.4 initial indicator position: Release indicator position of the binding corresponding to the instructions given in table B.1 or B.2.

3.5 Release moment (values), M_Z and M_Y

3.5.1 selected individual release moment (reference moment) for a given skier: Release moment determined in accordance with ISO 8061.

NOTE — This is expressed in newton metres.

3.5.2 measured release moment for a given S-B-B system: Average or middle quantitative value of three consecutive release measurements in the same direction on the same unit.

NOTE — This is expressed in newton metres.

3.6 deviation accepted for the setting (inspection tolerance): Maximum difference between the measured release moment (3.5.2) and the selected individual release moment (3.5.1).

NOTE — This difference, which may be reduced by the setting, is limited for M_Z to ±15 % or 3 N·m (whichever is greater), and for M_Y to ±15 % or 10 N·m (whichever is greater).

3.7 release adjustment: Procedure to make the measured M_Z and M_Y values coincide with the selected individual M_Z and M_Y values within the limits stated in table B.1 or B.2.

3.8 trouble-shooting procedures: Additional procedures recommended by the equipment manufacturer.

3.9 deviation accepted for the re-adjustment (re-adjustment tolerance): Maximum difference between the measured release moment (3.5.2) at the initial indicator position (3.4) and the selected individual release moment (3.5.1).

NOTE — This difference, which may be reduced by re-adjustment, is limited for M_Z to ±30 % or 6 N·m (whichever is greater), and for M_Y to ±30 % or 10 N·m (whichever is greater).

4 Skier's parameters

4.1 General

The individual release moment values are given in ISO 8061. The following procedure using discrete values may be considered as an acceptable approximation of the basic functions of ISO 8061.

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4.2 Weight method

4.2.1 Determine the following skier's parameters:

– mass (weight),

– height,

– type (according to annex A),

– age,

– sole length if necessary.

4.2.2 Using table B.1, choose the individual release values of M_z and M_y.

4.3 Tibial width method

4.3.1 Determine the following skier's parameters:

– tibial width,

– sex,

– type,

– age,

– sole length if necessary.

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4.3.2 Using table B.2, choose the individual release values of M_z and M_y.

5 Equipment parameters

5.1 Choice of new equipment

The components shall conform to the following International Standards:

a) ISO 8364 for skis,

b) ISO 5355 for boots,

c) ISO 9462 for bindings,

d) ISO 11087 for brakes.

The skier should receive specific recommendations concerning the selection of boot, binding and ski, if they are provided by the manufacturer.

5.2 Visual inspection and preparation of used equipment

If any of the components of the S-B-B system have been used, the installer shall carry out a visual check according to the following criteria. In addition to this, older equipment may require special attention as defined by the manufacturer.

a) The edges and sole of the ski shall be properly prepared according to the recommendations of the ski manufacturer. Unused mounting holes, if any, shall be carefully filled in, according to the manufacturer's specifications.

b) The condition of the boot sole shall meet the binding manufacturer's requirements. All buckles, fasteners and support areas shall be in good condition.

NOTE — In cases where release is independent of the boot (e.g. some plate bindings), the inspection of the sole may be less exacting.

c) The condition of the binding components shall meet the binding manufacturer's requirements (i.e. no broken, deformed, missing or worn-out parts).

Component guides or rotation points shall be free-moving, free of obvious rust, corrosion and dirt, etc.

The manufacturer's inspection and maintenance instructions shall be observed (including lubrication).

The brake shall not be deformed. Suspect components shall be repaired or exchanged.

5.3 Assembly

When assembling the system, comply with the instructions of the binding and ski manufacturers and use the proper tools.

The use of a drill as described in annex E is recommended. Once they are drilled, it is recommended that the holes are tapped and glue applied if this is required by the ski manufacturer. New holes shall not be drilled less than 10 mm (measured from centre of hole to centre of hole) from old holes, even when they are filled in, unless otherwise specified by the ski or binding manufacturer.

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When putting the screws in, take care not to damage the threads. A maximum tightening moment of 4 N·m shall fulfil this requirement, unless otherwise specified by the ski manufacturer.

5.4 Binding-to-boot fitting adjustments

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Follow the binding manufacturer's instructions.

5.5 Initial indicator adjustment

The binding manufacturer shall provide a table similar to table B.1 or B.2 for his products.

Using this table, adjust the bindings to the appropriate initial indicator position.

5.6 Functional check (inspection of functions)

Check visually that everything conforms to the binding manufacturer's instructions and operates correctly.

Check if the boot returns quickly to its initial position within less than 2 mm after a sideward displacement of approximately 10 mm.

5.7 Measurement of release moment

Precondition the binding by releasing each unit as required by the binding manufacturer.

Using a test device proceed as follows.

a) Follow the test device manufacturer's instructions and check the calibration of the test device according to the manufacturer's procedures.

b) Check that the measured $\pm M_Z$ and $\pm M_Y$ values are within the limits stated in table B.1 or B.2 and, if required, correct the release adjustment. If the first two successive release measurements in the same direction fall within the ±15 % inspection tolerance range, it is not necessary to make a third release measurement.

c) If the measured $\pm M_Z$ values fall near opposite limits of the inspection tolerance range, the manufacturer's procedure for evaluation of non-symmetrical release shall be implemented.

d) If the correction exceeds the limit for re-adjustment (3.9), check the binding manufacturer's most recent instructions before proceeding. If no instructions are provided, the person mounting the bindings should conduct a clean versus lubricated diagnostic test as defined in annex D.

e) If the measured $\pm M_Z$ and $\pm M_Y$ values are outside the ±15 % inspection tolerance, consult the manufacturer's trouble-shooting instructions. After completing the trouble-shooting procedures, if the measured values fall within the ±30 % limit for re-adjustment tolerance, re-adjustment of the binding may be undertaken. These re-adjustments shall achieve measured values as close as practical to the selected individual release moment, within the ±15 % tolerance.

Re-adjustment of bindings which, after trouble-shooting, still release outside the ±30 % limit for re-adjustment tolerance shall not be made, unless specifically permitted by the binding manufacturer.

The use of a device as described in ISO 11110 is necessary to verify the correct assembly and adjustment of the S-B-B system. If such a test device is not available, the procedure described in 5.1 to 5.6 should be used and the skier informed that a test device was not used to inspect the system.

5.8 Report

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In principle, an adjustment report is established by the ski shop and delivered to the user. It shall contain at least the following information:

– skier's parameters,

– indicator value,

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– measured values of M_Z and M_Y, or pass/fail result of the system test.

NOTE — The exact content of the report and its delivery conditions are defined by the national standard organizations.

Annex A
(normative)

Definition of skier type

NOTE — Adapted from annex A of ISO 8061:1991.

A.1 It is the responsibility of the skier to determine his/her skier-type classification as used in table A.1.

A.2 Skiers are classified by type of skiing into three categories, 1, 2 and 3. The definitions are as follows.

– Type 1: cautious skiing on smooth slopes of gentle to moderate pitch. This type also applies to entry-level skiers uncertain of their classification.

– Type 2: skiers not classified in type 1 or 3.

– Type 3: fast, aggressive skiing on slopes of moderate to steep pitch.

NOTE — These new designations, 1, 2 and 3, should not be used by equipment manufacturers to categorize their products.

A.3 The information given in A.3.1 and A.3.2 can be used to assist the skier in determining the appropriate skier-type classification.

A.3.1 Skiers who designate themselves as type 1 receive lower than average release/retention settings. This corresponds to an increased risk of inadvertent binding release, in order to gain increased capacity for release in a fall.

A.3.2 Skiers who designate themselves as type 3 receive higher than average release/retention settings. This corresponds to decreased capacity for release in a fall, in order to gain a decreased risk of inadvertent binding release.

NOTE — The designations L, A, S which were used in the first edition of ISO 8061:1984 are currently used to refer to definition types 1, 2 and 3 respectively.

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The new designations 1, 2 and 3 will now be reserved, in this International Standard, for the purpose of setting the bindings.

A.4 The information given in table A.1 is an example of the kind of layout which may be used to assist the skier in determining his skier-type classification.

A.5 The use of these definitions in determining the release setting may be inappropriate for some types of competition skiing.

Table A.1

Type	1	2	3
Speed	Slow to moderate	Skiers that do not meet all the descriptions of either 1 or 3	Fast
Terrain	Gentle to moderate		Steep
Style	Cautious (or undetermined)		Aggressive

Annex B
(normative)

Setting methods

B.1 Weight method (see table B.1)

B.1.1 Locate the skier's mass (weight) and height in the appropriate column. If mass and height are not on the same line, select the line closest to the top of the table.

B.1.2 Consider the skier type (see annex A):

– for a type 1, stay on the line and use the reference moment (M_z and M_y) on that line;

– for a type 2, move down one line and use the reference moment (M_z and M_y) on that line;

– for a type 3, move down two lines and use the reference moment (M_z and M_y) on that line.

B.1.3 Consider the skier's age. For skiers who are 50 years old or more, move up one line.

B.1.4 Using the boot sole length, determine the initial indicator value.

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B.1.5 The deviation accepted for the setting (3.6) is equivalent, in the table, to the difference between the value located one line above and the value located one line below the selected individual release moment (reference moment).

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B.1.6 The deviation accepted for the re-adjustment (3.9) is equivalent, in the table, to the difference between the value located two lines above and the value located two lines below the selected individual release moment (reference moment).

B.2 Tibial width method (see table B.2)

B.2.1 Skier's parameters

To determine the individual release moments, in decanewton metres, the maximum width of the tibial head is measured by pressing a caliper square onto an uncovered, right-angled lower leg of a sitting skier. Corrections shall be made for the age and type of skier.

B.2.2 Inspection parameters

See 5.7 for requirements.

B.2.3 Presetting of the binding depending on the boot sole length

Modify the initial indicator position depending on the boot sole length.