



UL 60745-2-11

STANDARD FOR SAFETY

Hand-Held Motor-Operated Electric
Tools – Safety – Part 2-11: Particular
Requirements for Reciprocating Saws

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UL Standard for Safety for Hand-Held Motor-Operated Electric Tools – Safety – Part 2-11: Particular Requirements for Reciprocating Saws, (Jig and Sabre Saws), UL 60745-2-11

Second Edition, Dated March 26, 2004

Summary of Topics

The revision of ANSI/UL 60745-2-11 dated September 4, 2019 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

As noted in the Commitment for Amendments statement located on the back side of the title page, UL and CSA are committed to updating this harmonized standard jointly. However, the revision pages dated September 4, 2019 will not be jointly issued by UL and CSA as these revision pages address UL ANSI approval dates only.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated June 28, 2019.

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CSA Group
CSA-C22.2 No. 60745-2-11-04
Second Edition



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UL 60745-2-11
Second Edition

Hand-Held Motor-Operated Electric Tools – Safety – Part 2-11: Particular Requirements for Reciprocating Saws

March 26, 2004

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This national standard is based on publication IEC 60745-2-11, Second Edition (2003).

This amendment is an adoption of IEC Amendment 1(2008), Second Edition (2003).



ANSI/UL 60745-2-11-2009 (R2019)



Commitment for Amendments

This standard is issued jointly by the Canadian Standards Association (operating as "CSA Group"), and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA Group or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of CSA Group and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. The technical content of the IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to inquires@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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This ANSI/UL Standard for Safety consists of the Second Edition including revisions through September 4, 2019.

The most recent designation of ANSI/UL 60745-2-11 as a Reaffirmed American National Standard (ANS) occurred on September 4, 2019. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface. The National Difference Page and IEC Foreword are also excluded from the ANSI approval of IEC-based standards.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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Preface

This is the common CSA and UL standard for hand-held motor-operated electric tools. It is the second edition of CAN/CSA-C22.2 No. 60745-2-11 and the second edition of UL 60745-2-11. This standard is based on IEC 60745-2-11, second edition.

This common standard was prepared by the Canadian Standards Association (CSA) and Underwriters Laboratories Inc. (UL).

This standard was reviewed by the CSA Subcommittee on Portable Electric Tools, under the jurisdiction of the CSA Technical Committee on Consumer and Commercial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

This standard has been approved as a National Standard of Canada by the Standards Council of Canada and has been approved by the American National Standards Institute (ANSI) as an American National Standard.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

A UL standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

Where reference is made to a specific number of samples to be tested, the specified number shall be considered a minimum quantity.

Level of harmonization

This standard adopts the IEC text with national differences. This standard is published as an equivalent standard for CSA and UL. An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one literal interpretation has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

General

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60745-2-11 (Hand-Held Motor-Operated Electric Tools – Safety – Part 2-11: Particular Requirements for Reciprocating Saws) are indicated by notations (differences) and are presented in bold text.

DR – These are National Differences based on the **national regulatory requirements**.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – Part 2-11: Particular requirements for reciprocating saws (jig and sabre saws)

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

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5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.

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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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

International Standard IEC 60745-2-11 has been prepared by subcommittee 61F: Safety of hand-held motor-operated electric tools, of IEC technical committee 61: Safety of household and similar electrical appliances.

Main changes include Clause 3: Definitions, introducing detailed definitions for the tools in the scope of this part 2, and Clause 19: Mechanical hazards, introducing requirements for guarding the saw blades. Subclause 2.2.23 has been removed, as the definitions of "normal load" are now generally covered by Part 1.

This consolidated version of IEC 60745-2-11 consists of the second edition (2003) [documents 61F/466/FDIS and 61F/490/RVD] and its amendment 1 (2008) [documents 61F/736/FDIS and 61F/756/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 2.1.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-11 is to be used in conjunction with the third edition of IEC 60745-1: Safety of hand-held motor-operated electric tools – Part 1: General requirements. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

With amendment 1, this part 2 is established on the basis of the fourth edition (2006) of IEC 60745-1: Safety of hand-held motor-operated electric tools – Part 1: General requirements.

Main changes include editorial modifications to match with the fourth edition of IEC 60745-2-11, addition of a new safety warning to Clause [8](#): Marking and instructions, and clarifications in Annex [K](#).

NOTE In this standard, the following print types are used:

– requirements: in roman type;

– *test specifications: in italic type;*

– notes: in small roman type.

– Subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 101; additional annexes are lettered AA, BB, etc.

Part 1: General requirements

Part 2-1: Particular requirements for drills and impact drills

Part 2-2: Particular requirements for screwdrivers and impact wrenches

Part 2-3: Particular requirements for grinders, polishers and disk-type sanders

Part 2-4: Particular requirements for sanders and polishers other than disk type

Part 2-5: Particular requirements for circular saws and circular knives

Part 2-6: Particular requirements for hammers

Part 2-7: Particular requirements for spray guns for non-flammable liquids

Part 2-8: Particular requirements for shears and nibblers

Part 2-9: Particular requirements for tappers

Part 2-11: Particular requirements for reciprocating saws (jig and sabre saws)

Part 2-12: Particular requirements for concrete vibrators

Part 2-13: Particular requirements for chain saws

Part 2-14: Particular requirements for planers

Part 2-15: Particular requirements for hedge trimmers

Part 2-16: Particular requirements for tackers

Part 2-17: Particular requirements for routers and trimmers

Part 2-18: Particular requirements for strapping tools

Part 2-19: Particular requirements for jointers

Part 2-20: Particular requirements for band saws

Part 2-21: Particular requirements for drain cleaners

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition; or
- amended.

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HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

PART 2-11: PARTICULAR REQUIREMENTS FOR RECIPROCATING SAWS

1 Scope

This clause of part 1 is applicable, except as follows:

Addition:

This standard applies to reciprocating saws such as jig saws and sabre saws.

2 Normative references

This clause of part 1 is applicable.

3 Terms and Definitions

This clause of part 1 is applicable, except as follows:

Additional definitions:

3.101 reciprocating saw: tool intended for cutting various material with a blade or blades acting in a reciprocating or oscillating motion

3.102 jig saw: reciprocating saw with a base plate that may allow bevel adjustments

NOTE Typical designs of jig saws are shown in [Figure 102](#).

3.103 sabre saw: reciprocating saw equipped with or without a guide plate which may allow tilting movements

NOTE Typical designs of sabre saws are shown in [Figure 103](#).

4 General requirements

This clause of part 1 is applicable.

5 General conditions for the tests

This clause of part 1 is applicable.

6 Void

7 Classification

This clause of part 1 is applicable.

8 Marking and instructions

This clause of part 1 is applicable except as follows.

8.12.1.1 Addition:

– **Hold power tool by insulated gripping surfaces, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** *Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.*

8.12.1DV D1 Modification: Add the following:

– **Use clamps or another practical way to secure and support the workpiece to a stable platform.** *Holding the work by hand or against your body leaves it unstable and may lead to loss of control.*

9 Protection against access to live parts

This clause of part 1 is applicable.

10 Starting

This clause of part 1 is applicable.

11 Input and current

This clause of part 1 is applicable.

12 Heating

This clause of part 1 is applicable.

13 Leakage current

This clause of part 1 is applicable.

14 Moisture resistance

This clause of part 1 is applicable.

15 Electric strength

This clause of part 1 is applicable.

16 Overload protection of transformers and associated circuits

This clause of part 1 is applicable.

17 Endurance

This clause of part 1 is applicable.

18 Abnormal operation

This clause of part 1 is applicable.

19 Mechanical hazards

This clause of part 1 is applicable except as follows:

19.1 Replacement:

a) For jig saws

A guard shall be provided to prevent inadvertent contact with the cutting edge of the saw blade above the base plate.

Compliance is checked by inspection and the following test:

The jig saw is set for the right-angled cut. The test probe of [Figure 101a](#)) is positioned above the base plate as shown in [Figure 101b](#)) and [Figure 101c](#)). The longitudinal axis of the test probe shall be perpendicular to the toothed edge of the saw blade. The test probe shall be equally shared about the central plane of the saw blade. When the test probe is moved towards the saw blade, it shall not be able to touch its toothed edge.

b) For other types of reciprocating saws

If a reciprocating saw is designed with a grip zone adjacent and behind the reciprocating saw blade, a barrier shall be provided to prevent inadvertent contact with the saw blade. The barrier shall have a minimum height of 6 mm as measured from the grip surface and be located between the grip zone and the saw blade. A barrier is not required if the tool is supplied with an auxiliary front handle.

Compliance is checked by inspection and measurement.

20 Mechanical strength

This clause of part 1 is applicable.

21 Construction

This clause of part 1 is applicable.

22 Internal wiring

This clause of part 1 is applicable.

23 Components

This clause of part 1 is applicable.

24 Supply connection and external flexible cords

This clause of part 1 is applicable.

25 Terminals for external conductors

This clause of part 1 is applicable.

26 Provision for earthing

This clause of part 1 is applicable.

27 Screws and connections

This clause of part 1 is applicable.

28 Creepage distances, clearances and distances through insulation

This clause of part 1 is applicable.

29 Resistance to heat, fire and tracking

This clause of part 1 is applicable.

30 Resistance to rusting

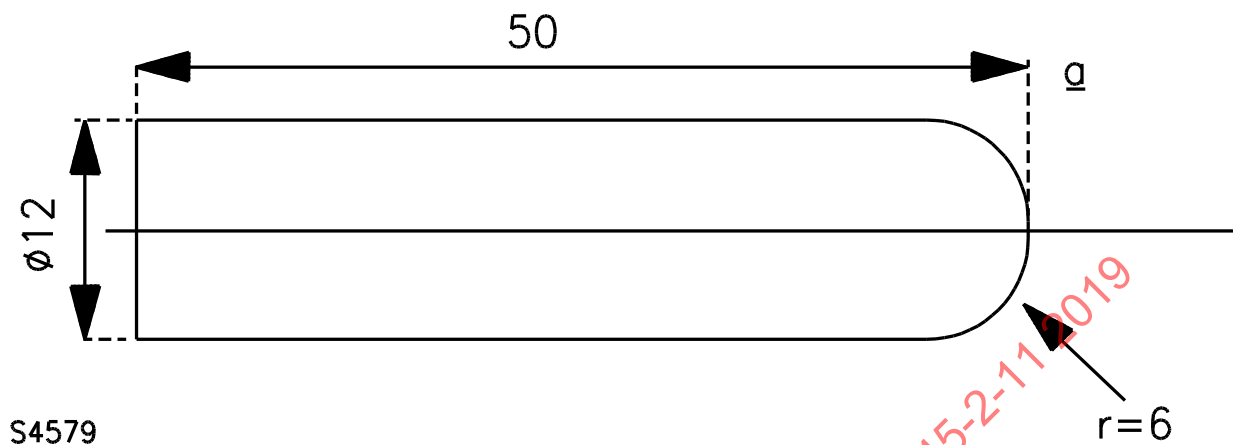
This clause of part 1 is applicable.

31 Radiation, toxicity and similar hazards

This clause of part 1 is applicable.

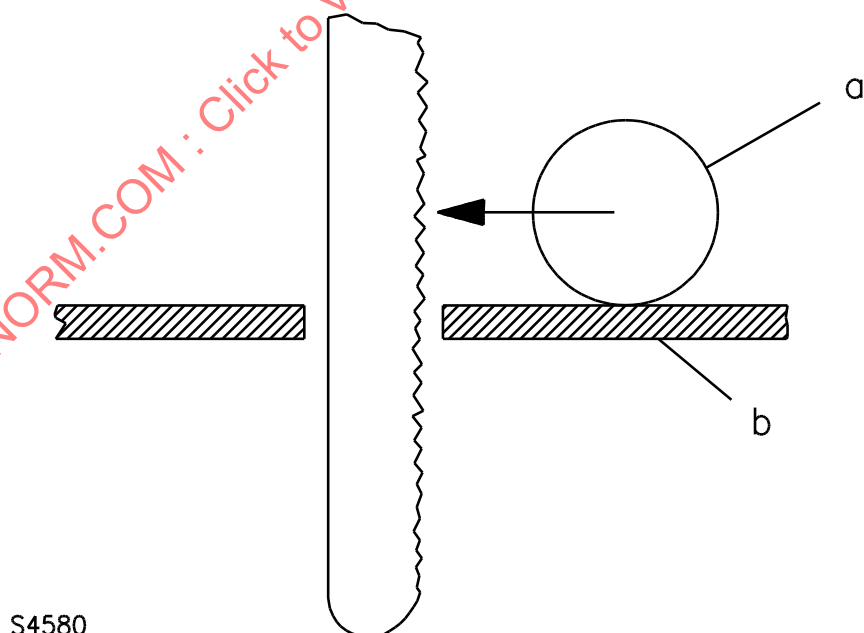
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Figure 101
Test probe



a) Details of test probe

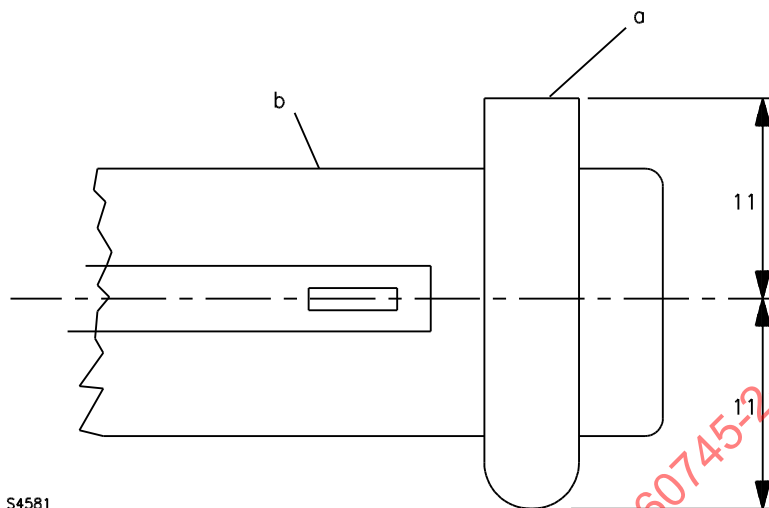
(Figure 101 – Continued)



NOTE Upper structure of saw, which should prevent the test probe touching the saw blade, omitted for simplicity.

b) Side section showing position and direction of movement of test probe

(Figure 101 – Continued)



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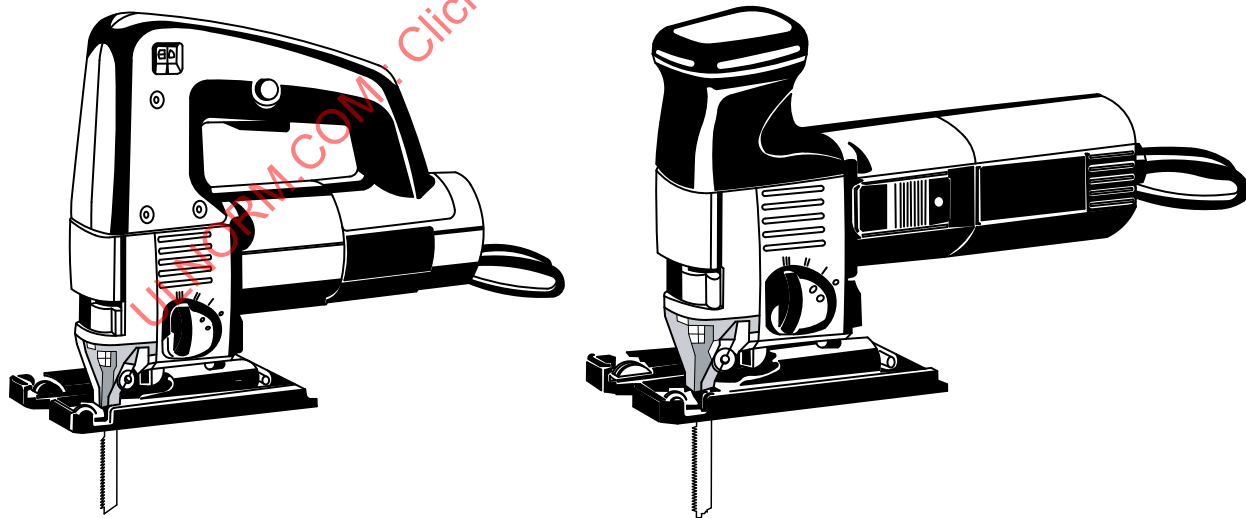
NOTE Upper structure of saw omitted for simplicity

a = Test probe

b = Guide plate

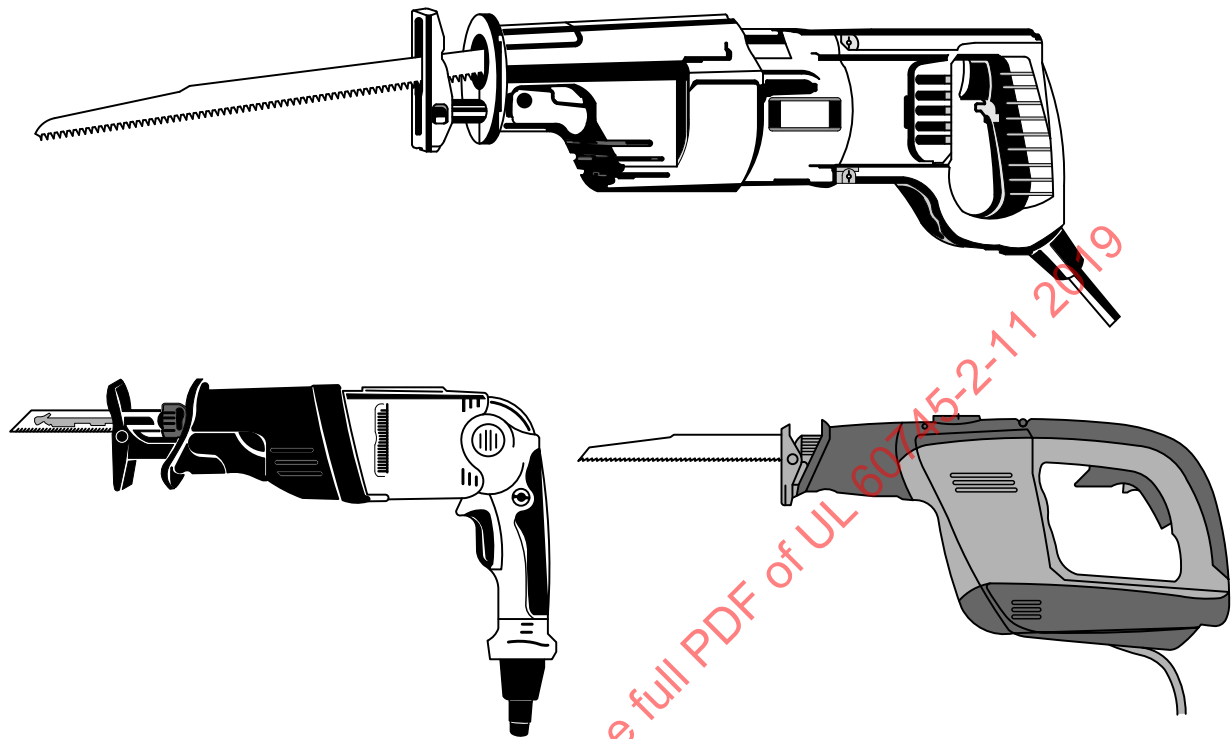
c) Plan view of guide plate showing position of test probe

Figure 102
Typical designs of jig saws



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Figure 103
Typical designs of sabre saws



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