



UL 961

STANDARD FOR SAFETY

Electric Hobby and Sports Equipment

UL Standard for Safety for Electric Hobby and Sports Equipment, UL 961

Fifth Edition, Dated December 5, 2014

Summary of Topics

This revision of ANSI/UL 961 dated April 7, 2020 is 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.

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 January 24, 2020.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

No Text on This Page

DECEMBER 5, 2014
(Title Page Reprinted: April 7, 2020)



ANSI/UL 961-2014 (R2020)

1

UL 961

Standard for Electric Hobby and Sports Equipment

First Edition – July, 1982
Second Edition – May, 1990
Third Edition – May, 1995
Fourth Edition – August, 2000

Fifth Edition

December 5, 2014

This ANSI/UL Standard for Safety consists of the Fifth Edition including revisions through April 7, 2020.

The most recent designation of ANSI/UL 961 as a Reaffirmed American National Standard (ANS) occurred on March 11, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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>.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

COPYRIGHT © 2020 UNDERWRITERS LABORATORIES INC.

No Text on This Page

CONTENTS

INTRODUCTION

1	Scope	5
2	Components	5
3	Units of Measurement	5
4	Undated References	5
5	Glossary	6

CONSTRUCTION

6	Enclosure	6
7	Accessibility of Parts	7
8	Mechanical Assembly	14
9	Protection Against Corrosion	14
10	Power-Supply Connections – Cord-Connected Products	15
10.1	Cords and plugs	15
10.2	Strain relief	16
10.3	Bushings	16
11	Power-Supply Connections – Permanently-Connected Products	17
11.1	General	17
11.2	Field-wiring compartments	17
11.3	Field-wiring terminals and leads	17
11.4	Grounded connections	18
11.5	Equipment-grounding	18
12	Grounding	19
13	Current-Carrying Parts	20
14	Internal Wiring	20
14.1	General	20
14.2	Wires	21
15	Insulating Materials	22
15.1	Electrical insulation	22
15.2	Thermal insulation	22
16	Motors	23
16.1	General	23
16.2	Overload protection	23
16.3	Brush-holder assembly	24
17	Overcurrent Protection	24
18	Switches and Controls	24
19	Lampholders	24
20	Capacitors	24
21	Secondary Circuits	25
22	Spacings	25
23	Batteries and Battery Chargers	27
24	Attachments	27
25	Sharp Edges and Corners	28
26	Enclosures and Guards	28
27	Switches, Controls, and Interlocks	29

PERFORMANCE

28	General	30
29	Leakage Current Test	30
30	Humidity Conditioning	33

31	Starting Current Test	33
32	Input Test	34
33	Temperature Test	34
34	Dielectric Voltage-Withstand Test	39
35	Continuity of Ground Connection Test	40
36	Resistance to Moisture Test	40
37	Rain Test	40
38	Abnormal Operation Test	44
39	Strain Relief Test	44
40	Push-Back Relief Test	44
41	Switches and Controls	45
	41.1 Controls for solenoids, relay coils, or the like	45
	41.2 Controls for motors	45
42	Materials	46
43	Rotating or Moving Parts	46
44	Parts Subject to Pressure	46
45	Pressure-Relief Devices	48
46	Stability Test	48
47	Impact Test	49
48	Strength of Handles Test	51

MANUFACTURING AND PRODUCTION TESTS

49	Grounding Continuity Test	51
50	Dielectric Voltage-Withstand Test	51
51	Leakage Test	53

RATINGS

52	General	53
----	---------------	----

MARKINGS

53	Permanence	53
54	Identification	54
55	Fuses	54
56	Switches and Controls	54
57	Power-Supply Cord	54
58	Cautionary Markings	55

INSTRUCTIONS

59	Manufacturer's Literature	55
----	---------------------------------	----

APPENDIX A

Standards for Components	57
--------------------------------	----