

COMMITTEE: EL – 036  
In-service Testing of Electrical Equipment

**DR 05947**

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# Draft for Public Comment Australian/New Zealand Standard

**LIABLE TO ALTERATION DO NOT USE AS A STANDARD**

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**DR 05947**

**AS/NZS 3760 Part 3 - Safety inspection and testing: Repaired electrical equipment**

PRICE CODE :



**DRAFT FOR PUBLIC COMMENT  
STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND**

Committee EL-036 - In-service Testing of Electrical Equipment

The committee responsible for the issue of this draft comprised representatives of organizations interested in the subject matter of the proposed Standard.

Comments are invited on the technical content and wording. Editorial matters (i.e. spelling, punctuation, grammar, formatting etc.) will be corrected before final publication.

The preferred method for submission of comment is to download the MS Word comment form found at:

<http://www.standards.com.au/catalogue/misc/Public%20Comment%20Form.doc>

This form also includes instructions and examples of comment submission.

Please provide supporting reasons and suggested wording for each comment submitted. Where you consider that specific content is too simplistic, too complex or too detailed, please provide an alternative.

If the draft is acceptable without change, an acknowledgement to that effect would be appreciated.

When completing the comment form, ensure that the number of this Draft, your name and organization (if applicable) is recorded. Please place relevant clause numbers beside each comment.

When completed, the form should be returned to the Project Manager, Nelson Procter, via email to [nelson.procter@standards.co.nz](mailto:nelson.procter@standards.co.nz)

The co-ordination of the requirements of this draft with those of related Standards is of particular importance and you are invited to point out any areas where this may be necessary.

If email facilities are not available, the comment forms should be posted to

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Standards New Zealand  
Private Bag 2439  
Wellington 6020  
New Zealand

Attention is drawn to the fact that this document is a draft standard only and is liable to alteration in the light of comment received. It is not to be regarded as an Australian/New Zealand Standard until finally issued as such by Standards Australia and Standards New Zealand.

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-036 In-service Testing of Electrical Equipment, as a part of the AS/NZS 3760 series of Standards.

This Standard covers the repair of appliances so that that when the appliance re-enters service, protection against hazards such as electrical mechanical, thermal fire, are ensured **as far as is practicable**.

It is provided to define more specifically than is discussed in the parent document, the process of inspection and testing expected to be performed by a repairer before an appliance which has been serviced, repaired or undergone a manufacture's upgrade, is returned to its owner.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard and subject to the same level of compliance as if it were in the body of the Standard, whereas an 'informative' appendix is provided for information and guidance, and may indicate good practice. Non-compliance with an informative appendix will not be seen as non-compliance with the Standard.

## INTRODUCTION

Testing of appliances following repair is necessary for the safety of persons using the equipment and for the proper discharge of the obligations of employers and employees, as required in legislation covering electrical safety, and occupational health and safety matters.

This Standard specifies the inspection and testing procedures contained in AS/NZS 3760 Part 1 following repair, servicing or manufacturer's upgrade work, to confirm that the appliance is electrically safe before being returned to its owner.

For appliances with additional special requirements, this Standard provides details of additional relevant tests, necessary to confirm the operational safe working of the appliance, which are not limited to electrical shock including consideration of other hazards which may lead to damage or injuries.

CONTENTS

PREFACE .....3

INTRODUCTION.....4

SECTION 1 SCOPE AND GENERAL.....6

    1 SCOPE.....6

        1.2 GENERAL.....6

        1.3 REFERENCED DOCUMENTS.....6

        1.4 DEFINITIONS .....6

SECTION 2 INSPECTIONS AND TESTS.....8

    2 GENERAL .....8

        2.1 8

        2.2 PERSONNEL .....8

        2.3 COMPONENTS .....8

        2.4 INSPECTION AND TESTING .....8

        2.5 ACTION RESULTING FROM INSPECTION AND TESTING.....8

        2.6 DOCUMENTATION REQUIREMENTS .....9

APPENDIX A APPLIANCES WITH ADDITIONAL TESTING REQUIREMEMNTS ..... 10

APPENDIX B EXAMPLES OF LABELS..... 12

APPENDIX C REGULATORY APPLICATION OF THIS STANDARD ..... 13

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard**

**Part 3 Safety inspection and testing:  
repaired electrical equipment**

SECTION 1 SCOPE AND GENERAL

**1 SCOPE**

This Standard specifies requirements for the post-sale safety inspection and testing of low voltage single phase and poly-phase (e.g. nominal 240V and 415V) electrical equipment, which has been repaired, or undergone service maintenance which could have affected electrical safety.

**1.1**

This standard shall not apply to equipment which has been only assessed but not repaired.

**1.2**

This Standard does not apply to equipment whose nature is that of a Medical Device as defined in AS/NZS 3551.

**1.3 GENERAL**

The inspection, testing and tagging regime described in AS/NZS 3760 is specified as the primary means of confirming the electrical safety of items which have undergone repair, servicing or manufacturer's upgrade.

**1.3.1**

Appliances included in Appendix A, have additional requirements listed which are intended to confirm the presence of their safety features and also, where reasonable, their satisfactory operation.

**1.3.2**

The assessment need only be carried out on the particular area which is being serviced e.g. where servicing the control section of a hob or washing machine, it would not be necessary to dismantle the elements, or the motors respectively.

**1.3.3**

This assessment should be performed during the servicing stage when the equipment is open for repair.

**1.4 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

**AS/NZS**

3551	Technical management programs for medical devices
3760 Part 1	In-service safety inspection and testing of electrical equipment

**1.5 DEFINITIONS**

For the purpose of this Standard, the definitions listed in AS/NZS 3760 part 1, and those listed below shall apply.

**1.5.1 Maintenance**

An operation undertaken to extend the useful life of an item which is working satisfactorily.

**1.5.2 Repair**

An operation seeking to remove a defect preventing the item working satisfactorily, and return it to an electrically/mechanically safe condition. Includes electrically related repair, servicing or manufacturer's upgrade work but does not include operations to fix mechanical faults unless they may have affected the item's electrical safety.

### **1.5.3 Repair Agency**

The organization, (which may be an individual), undertaking the repair work.

### **1.5.4 Service Person**

A Service Person is one who has had adequate or appropriate training in the particular field to service the equipment, as permitted by local Regulations.

In New Zealand and in some Australian States, licensing is required.

NOTE It is expected that the Service Person shall:

- (i) Be able to use test equipment safely and effectively;
- (ii) Have an understanding of the dangers of electricity, leading to an appreciation of the need for inspection and testing;
- (iii) Have an understanding of the construction of Class I and Class II equipment, and of the terms: basic, reinforced and double insulation, protective earth and earth continuity, insulation resistance and earth leakage current;
- (iv) Have an understanding of the application and requirements of this Standard and AS/NZS 3760 Part 1;
- (v) Have an understanding of the relevant legislative requirements appropriate for the jurisdiction they are operating within.

## SECTION 2 INSPECTIONS AND TESTS

### 2 GENERAL

This section prescribes the inspection, testing and tagging operations which are to be performed on the item during or after repair, servicing or manufacturer's upgrade process.

#### 2.1 TAG REMOVAL

As soon as possible after receipt of the item from the owner, any tag affixed as a result of compliance with inspection and testing activities performed under AS/NZS 3760 Part 1 requirements shall be removed.

#### 2.2 PERSONNEL

##### 2.2.1

The tasks associated with repair etc. work specified in this Standard shall be carried out by a person who is permitted to undertake the work in accordance with local Regulations.

##### 2.2.2

Inspection, testing and tagging functions shall be performed by a person permitted to undertake the work in accordance with local Regulations.

#### 2.3 COMPONENTS

##### 2.3.1 *Components*

When replacing a component, the replacement shall be the direct equivalent or one having the same safety characteristics.

#### 2.4 INSPECTION AND TESTING

##### 2.4.1 *Inspection*

Following repair, servicing or manufacturer's upgrading work, the item shall be inspected as required by AS/NZS 3760 Part 1.

##### 2.4.2 *Testing*

The testing action forms an integral part of the inspection/testing process, and is intended to confirm the results of the visual inspection and detect the unobservable faults not found by the visual inspection process.

##### 2.4.2.1

Following the visual inspection, the item shall be tested in accordance with the requirements of AS/NZS 3760 Part 1.

##### 2.4.3 *Additional Testing*

Appliances listed in Appendix A shall have additional tests performed to confirm the operational safe working of the appliance.

These are not limited to electrical shock and they include consideration of other hazards which may lead to damage or injuries.

Appendix A is a non-definitive list which provides for each such appliance a list of the tests required to cover essential safety aspects.

#### 2.5 ACTION RESULTING FROM INSPECTION AND TESTING

##### 2.5.1 *Non-compliant equipment*

Where equipment fails to comply with this Standard, the equipment shall be appropriately labeled to indicate that the equipment requires remedial action, and warn the owner against further use. An example is provided in Appendix B2.

##### 2.5.2 *Compliant equipment*

Compliant equipment shall be fitted with a durable, non-reusable, non-metallic tag or other indicator. An example is provided in Appendix B3.

## **2.6 DOCUMENTATION REQUIREMENTS**

### **2.6.1**

Electrical and/or occupational health and safety regulators may require documentation to be kept in some or all cases.

### **2.6.2**

Where organizations perform voluntary additional inspections and tests, records of such should be kept.

### **2.6.3**

Where records are kept, they should be retained for seven years, or such period as required by local specific regulations.

**APPENDIX A**  
**APPLIANCES WITH ADDITIONAL TESTING REQUIREMENTS**  
(Normative)

**A 1 GENERAL**

This Appendix lists and prescribes appliances requiring additional safety checks and prescribes those checks.

**A 2 EQUIPMENT SCHEDULE**

EQUIPMENT	ADDITIONAL TESTS
<b>Child appealing appliances</b>	This classification of equipment is considered to be intrinsically unsafe, not suitable for use and has not therefore been repaired.
<b>Electric blankets</b>	Repairs should be limited to the replacement of flexible cords, transformers, switches etc
<b>Heating Appliances</b>  a) Handheld  b) Portable  c) Stationary	Airflow vents and dust build up should be cleared before re-assembly  Check for sagging of heating elements (wire-wound elements without core support).  For hair dryers, Check for warning label on supply flexible cord.  Tilt switches, if fitted are operational.
<b>Power tools</b>       Wet operation	Guards fitted and functional Restrictions on lock-on checked Operational switch checked. Protective shrouds surrounding switches are intact and not perished Airflow vents and dust build up should be cleared before re-assembly RCD protection integral, or for operation from an Isolation device
<b>Motor Driven Appliances</b>   Washing machines Spin extractors Tumble driers Vacuum cleaners	Check for correct operation of interlocks to prevent mechanical hazard Guards fitted and operational Verify braking functionality

<p>Shavers, hair clippers                  Floor treatment machines                  Kitchen machines                  Food waste disposers                  Sewing machines                  Range hoods                  Massage appliances                  Air conditioners                  Pumps                  Ironers                  Projectors                  Refrigerators/freezers                  Lawnmowers                  Fans                  Amusement machines                  Toilets                  Lawn trimmers                  Scarifiers                  Garage doors/gates                  Blind drivers                  Vaporisers                  Toasters</p>	<p>Correct operation of entrapment protection system</p>
<p><b>Garden Tools</b></p> <p>Electric chain saws                  Hedge trimmers                  Weed eaters/line trimmers                  Lawn mowers                  Shredders/mulchers                  Concrete mixer                  Water blasters                  Pumps</p>	<p>Guards fitted and operational                  Switches are operational</p>

**SECRETARIAL NOTE** Additional suggestions for both equipment and relevant additional testing are welcomed. Should there be a separate section for kitchen appliances??

**APPENDIX B**  
**EXAMPLES OF LABELS**  
(Informative)

**B 1 General**

Examples of labels which may be affixed to equipment are provided below. These are for indicative purposes only, depicting a minimum information set for inclusion.

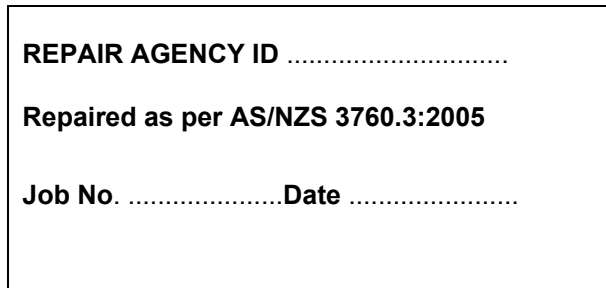
**B 2 Labels for non-compliant equipment**



**B 2.1**

The recommended colour scheme is for black text on red background.

**B 3 Labels for compliant equipment**



**B 3.1**

The recommended colour scheme is for black text on white background.

**APPENDIX C**  
**REGULATORY APPLICATION OF THIS STANDARD**  
(Informative)

**C 1 GENERAL**

Relevant regulatory authorities in the Australian States and Territories and in New Zealand may require compliance with this Standard under their various regulatory instruments.

The purpose of this Appendix is to provide contact details of the relevant authorities which enforce regulations relating to the in-service inspection and testing of electrical equipment in each of the Australian States and Territories and in New Zealand.

This information is accurate at the time of publication of this Standard. Users are advised to consult the relevant nominated regulatory authority for information current at the time of use.

**C 2 REGULATORY AUTHORITIES**

**New South Wales**

WorkCover NSW  
92-100 Donnison Street, Gosford.

Postal Address: Locked Bag 2906, Lisarow NSW 2252  
Client Contact Centre, Phone: 13 10 50

Website: [www.workcover.nsw.gov.au](http://www.workcover.nsw.gov.au)

**Victoria**

Victorian WorkCover Authority  
Level 24, 222 Exhibition St  
Melbourne 3000

WorkCover Advisory Service

Ph (03) 9641 1555  
Fax (03) 9641 1222

Website: [www.workcover.vic.gov.au](http://www.workcover.vic.gov.au)

**Queensland**

Street Address: Electrical Safety Office  
Department of Industrial Relations  
Level 6, Neville Bonner Building  
75 William Street  
Brisbane Qld 4000

Postal Address: GPO Box 69  
Brisbane Qld 4001

Telephone: (07) 3237 0220  
Facsimile: (07) 3237 0229

Website: [www.eso.qld.gov.au](http://www.eso.qld.gov.au).

**Australian Capital Territory**

ACTPLA  
Street Address: Central Office, Ground Floor, North,  
Dame Pattie Menzies House,  
16 Challis Street Dickson

Telephone: (02) 6207 1926

Fax: (02) 6207 1925

Website: [www.actpla.act.gov.au](http://www.actpla.act.gov.au)

ACT Workcover  
Street Address: Level 4 Eclipse House  
197 London Circuit  
Canberra City ACT 2601

Postal Address: PO Box 224  
Civic Square ACT 2608

Telephone: (02) 6205 0200  
Facsimile: (02) 6205 0336

Website: [www.workcover.act.gov.au](http://www.workcover.act.gov.au)

Commonwealth OH&S regulator, Comcare  
Street Address: Level 1,  
14 Moore St  
Canberra ACT 2600

Postal Address: GPO Box 9905

Canberra ACT 2601  
Telephone: 1300 366 979  
Facsimile: (02) 6257 5634

Website: [www.comcare.gov.au](http://www.comcare.gov.au)

### **Tasmania**

Workplace Standards Tasmania  
Street Address: 30 Gordons Hill Rd,  
Rosny Park 7018  
Postal Address: PO Box 56  
Rosny Park TAS 7018

Telephone: 1300 366 322  
Facsimile:

Website: [www.wsa.tas.gov.au](http://www.wsa.tas.gov.au)

### **Northern Territory**

Electrical Safety Office  
Street address: Minerals House  
66 The Esplanade  
Darwin NT 0800

Postal Address: GPO Box 4821  
Darwin NT 0801

Telephone: (08) 8999 5010  
Facsimile: (08) 8999 6260

Website: [www.deet.nt.gov.au/wha/pages/electrical](http://www.deet.nt.gov.au/wha/pages/electrical)

### **South Australia**

Office of the Technical Regulator (SA)

Level 19 Wakefield House  
30 Wakefield Street  
Adelaide SA 5000

Telephone: (08) 8226 5500  
Facsimile: (08) 8226 5523

Website: [www.technicalregulator.sa.gov.au](http://www.technicalregulator.sa.gov.au)

### **Western Australia**

Electrical Work is also subject to the terms of the Occupational Safety and Health Act 1984 and the Occupational Safety and Health Regulations 1996, which are administered by WorkSafe Western Australia.

Energy Safety Directorate  
Street Address: West Leederville Office (Head Office)  
20 Southport Street  
WEST LEEDERVILLE, Western Australia 6007  
Phone: (08) 9422 5200  
Facsimile: (08) 9422 5244

Website: [www.energysafety.wa.gov.au](http://www.energysafety.wa.gov.au)

Work Safe Western Australia  
Street Address: 5th Floor, 1260 Hay Street  
WEST PERTH WA 6005

Postal Address: PO Box 294  
WEST PERTH WA 6872

Telephone: (08) 9327 8777  
Facsimile: (08) 9321 8973

Website: [www.safetyline.wa.gov.au](http://www.safetyline.wa.gov.au)

### **New Zealand**

The Energy Safety Service of the Ministry Of Economic Development is the Electrical Safety Regulator in New Zealand.

Energy Safety Service  
33 Bowen Street  
Wellington  
New Zealand

Postal Address: PO Box 1473  
Wellington,  
New Zealand.

Telephone: + 64 4 472 0030  
Facsimile: + 64 4 460 1365

Website: [www.ess.govt.nz](http://www.ess.govt.nz)