

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Amendment No. 1
to
AS/NZS 3010:2017
Electrical installations—Generating sets

REVISED TEXT

The 2017 edition of AS/NZS 3010 is amended as follows; the amendments should be inserted in the appropriate places.

SUMMARY: This Amendment applies to Clauses 1.2, 1.3, 1.4.10, 2.2, 2.5, 2.6.3, 2.7.1, 2.8.2, 4.2.3 to 4.2.7 and 4.3.2.3 to 4.3.2.6, Table 2.1, Figures 2.3 to 2.16, and 4.1 to 4.3, and Appendices A, B, C and D.

Published on 24 April 2020.

Approved for publication in New Zealand by the New Zealand Standards Approval Board on 1 April 2020.

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Clause 1.2

In the fourth paragraph, *replace* the text “specifies a New-Zealand-only” with “provides”, and *delete* the “NZ” margin box.

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Clause 1.3

1 *Add* the following to the list of AS/NZS referenced documents, below the entry for AS/NZS 3123:

3131 Approval and test specification—Plugs and socket-outlets for stationary appliances

2 *Add* the following to the list of AS/NZS referenced documents, below the entry for AS/NZS 60269:

60884 Plugs and socket-outlets for household and similar purposes
60884.1 Part 1: General requirements (IEC 60884-1, Ed.3.1 (2006) MOD)

3 *Add* the following to the list of IEC referenced documents, below the entry for IEC 60309:

60309-2 Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

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Clause 1.4.10

Replace the clause heading with the following:

1.4.10 Reduced low voltage (RLV) — New Zealand only

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Clause 2.2

1 *Delete* the second paragraph and the “NZ” margin box.

2 *Add* the following text as the last paragraph of this clause:

In New Zealand, in tunnelling operations, reduced low voltage diesel engine generating sets fitted with an exhaust conditioning system or appropriate ventilation systems, may be used.



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Clauses 2.5

- 1 In Item (d), *replace* the first paragraph with the following:
Neutral and earth conductors shall not operate in parallel, except as specified below.
- 2 *Delete* the “A” margin box.

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Clause 2.6.3

Delete the reference to Clause 2.6.3 at the end of the first paragraph and *replace* with “Clause 2.6.2”.

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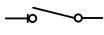

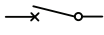
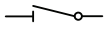

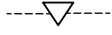


Clause 2.7.1

Replace the third paragraph with the following:
A grid-connected inverter or regenerative supply source shall not be connected downstream of the generating set changeover device.

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Table 2.1

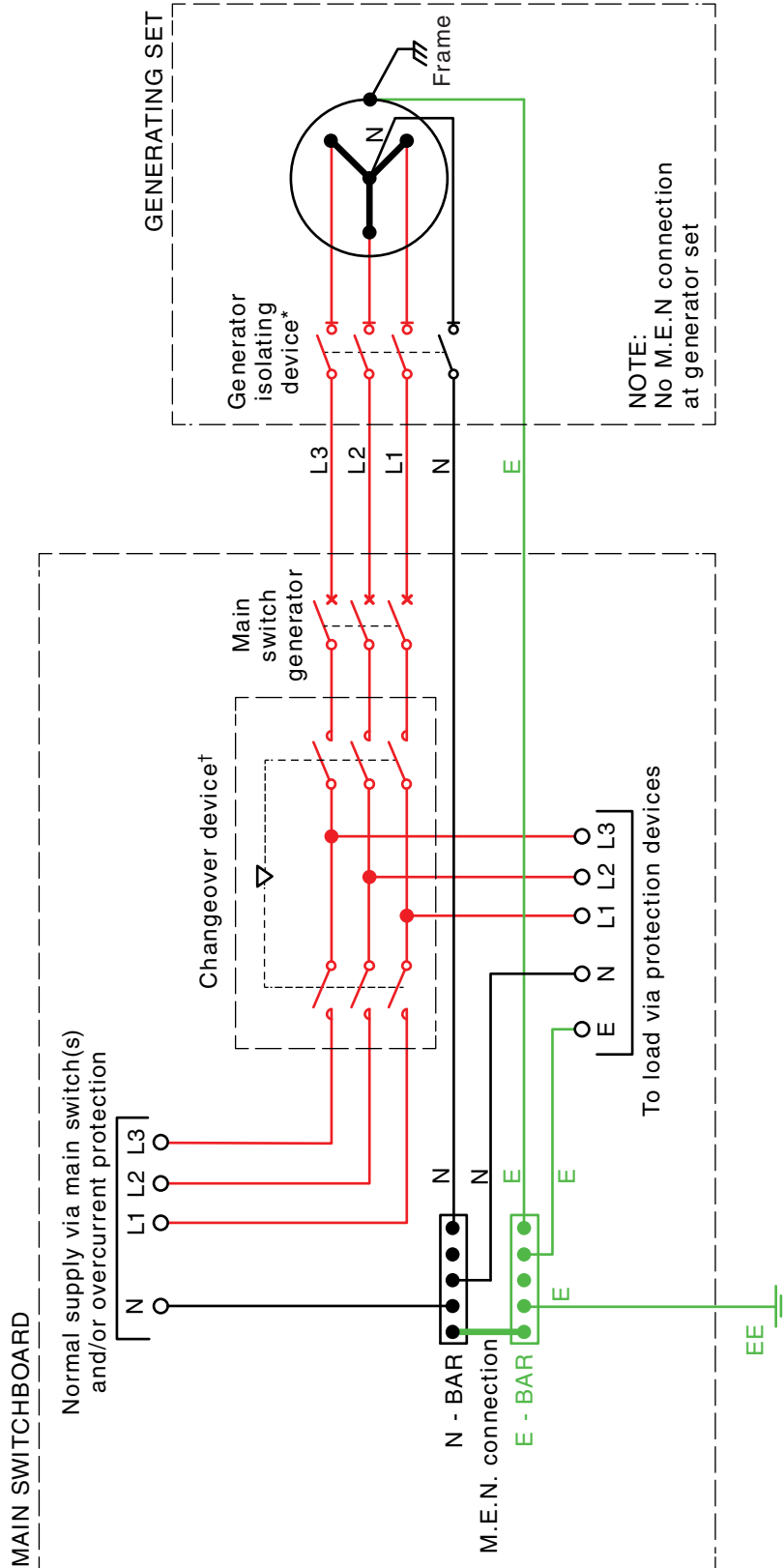
Replace the existing table with the following:

SYMBOL	DESCRIPTION
	Co-generation = solar, wind, water
E 	Earth conductor
E-BAR 	Earth bar
EE 	Earth electrode
G  	Generator
L1, L2, L3 	Active (phase) conductors
MTS	Manual transfer switch
N 	Neutral conductor
N-BAR 	Neutral bar
	Load break contact
	Contactors
	Circuit breaker
	Switch
 FRAME	Chassis or frame
	Mechanical interlock
	Electrical connection
	Multiphase conductors

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Figure 2.3

Replace the existing figure with the following:

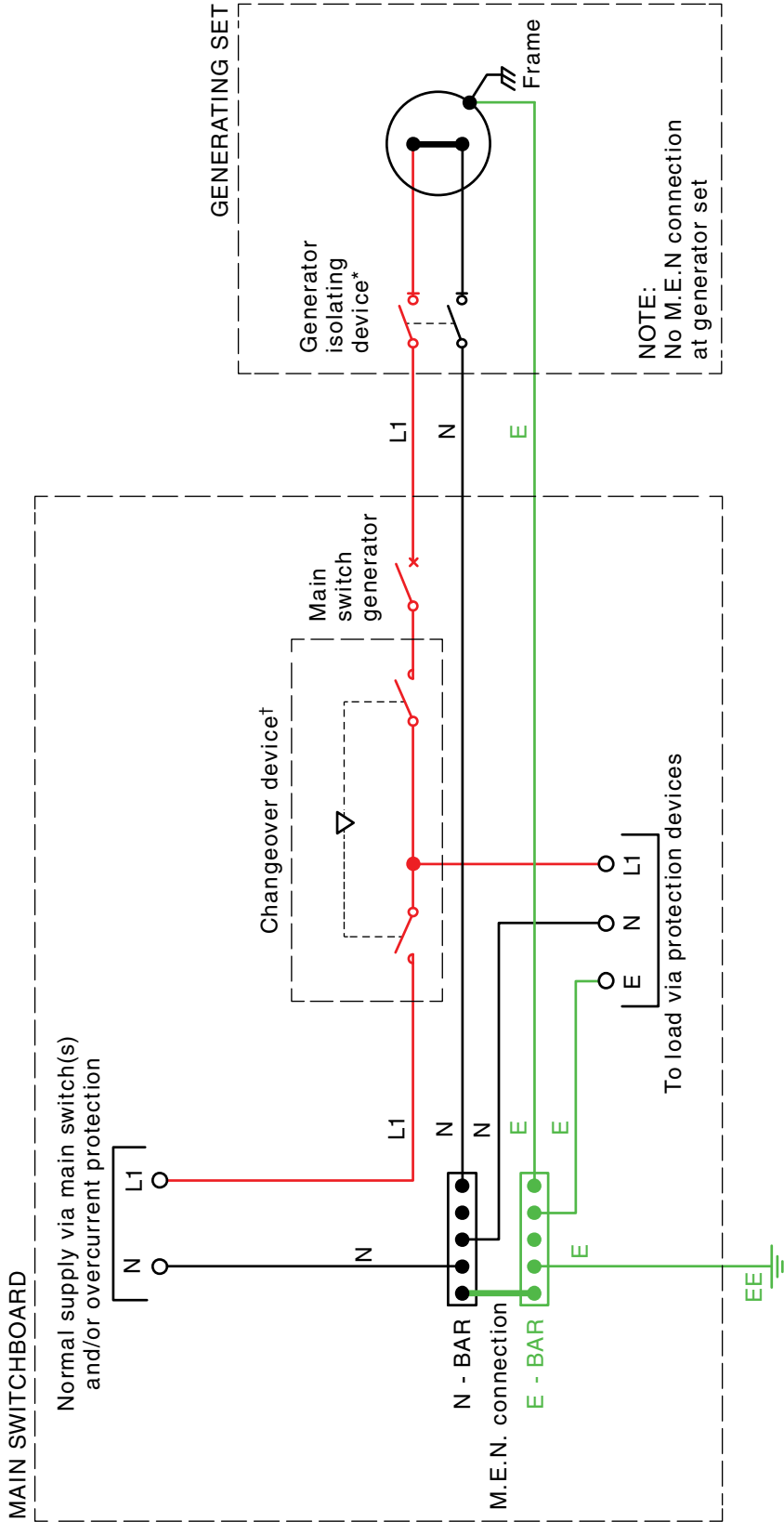


* May include overcurrent protection
† Synchronisation and control equipment not shown

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Figure 2.4

Replace the existing figure with the following:

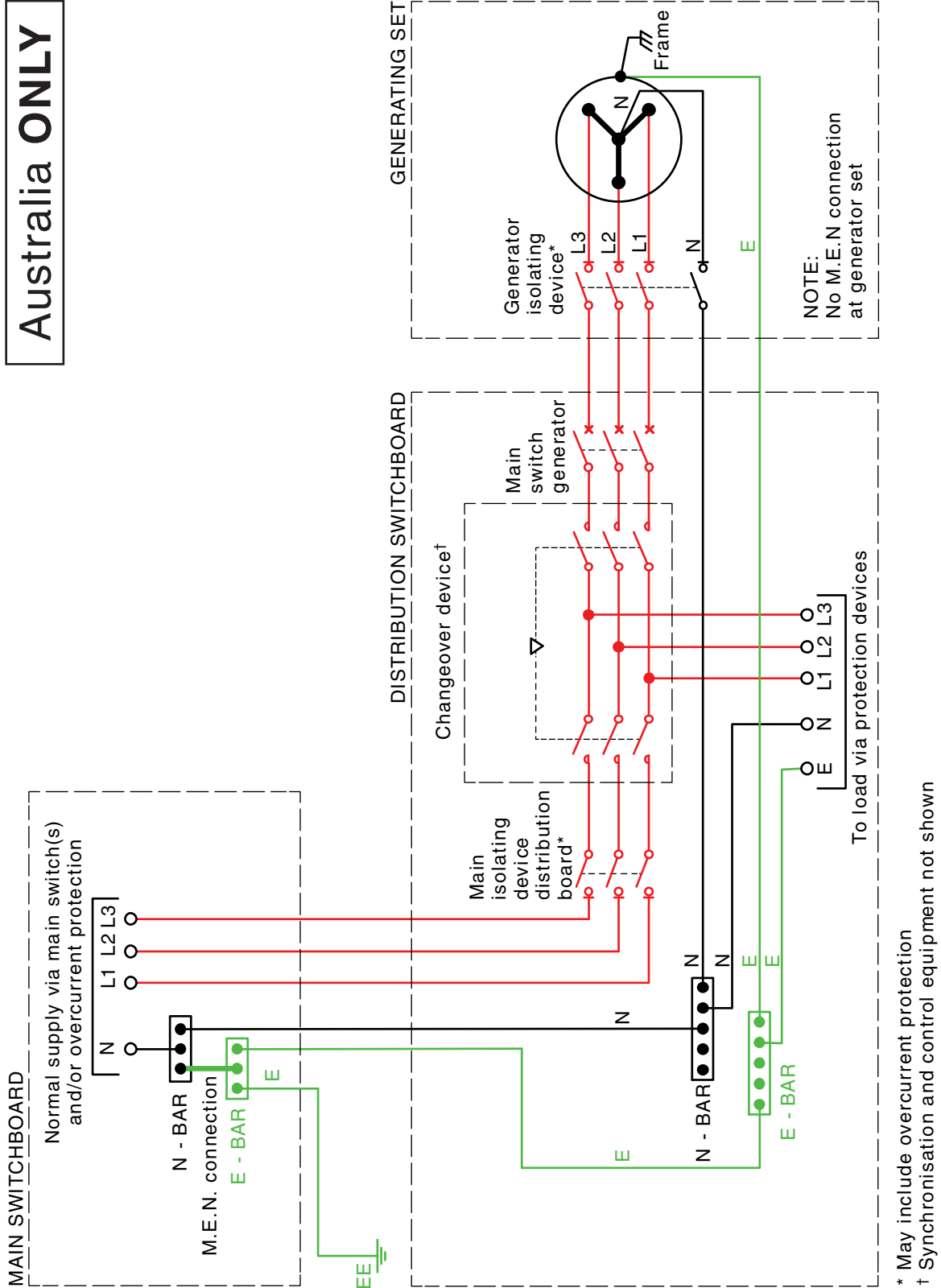


* May include overcurrent protection
† Synchronisation and control equipment not shown

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Figure 2.5

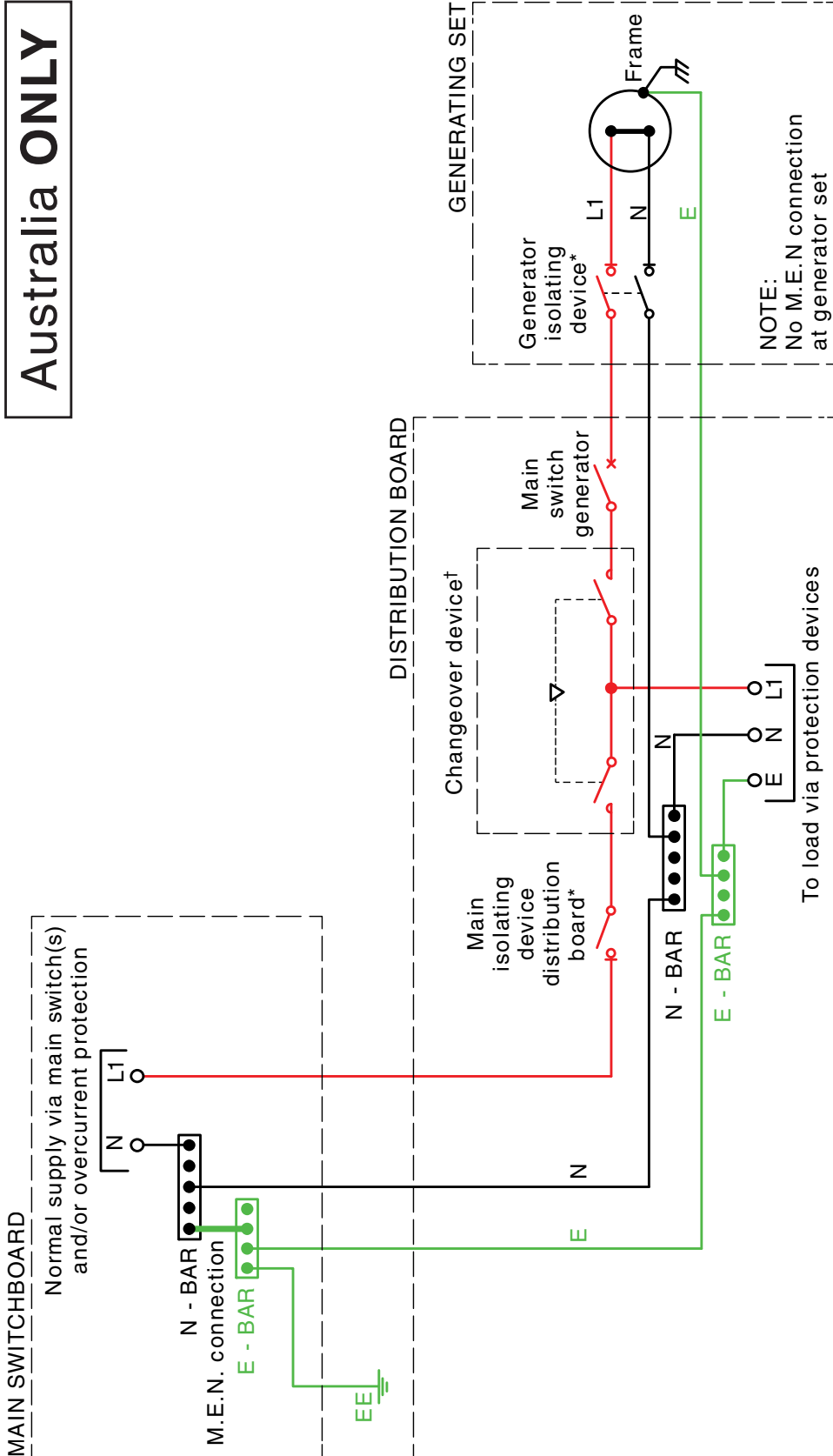
Replace the existing figure with the following:



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Figure 2.6

Replace the existing figure with the following:

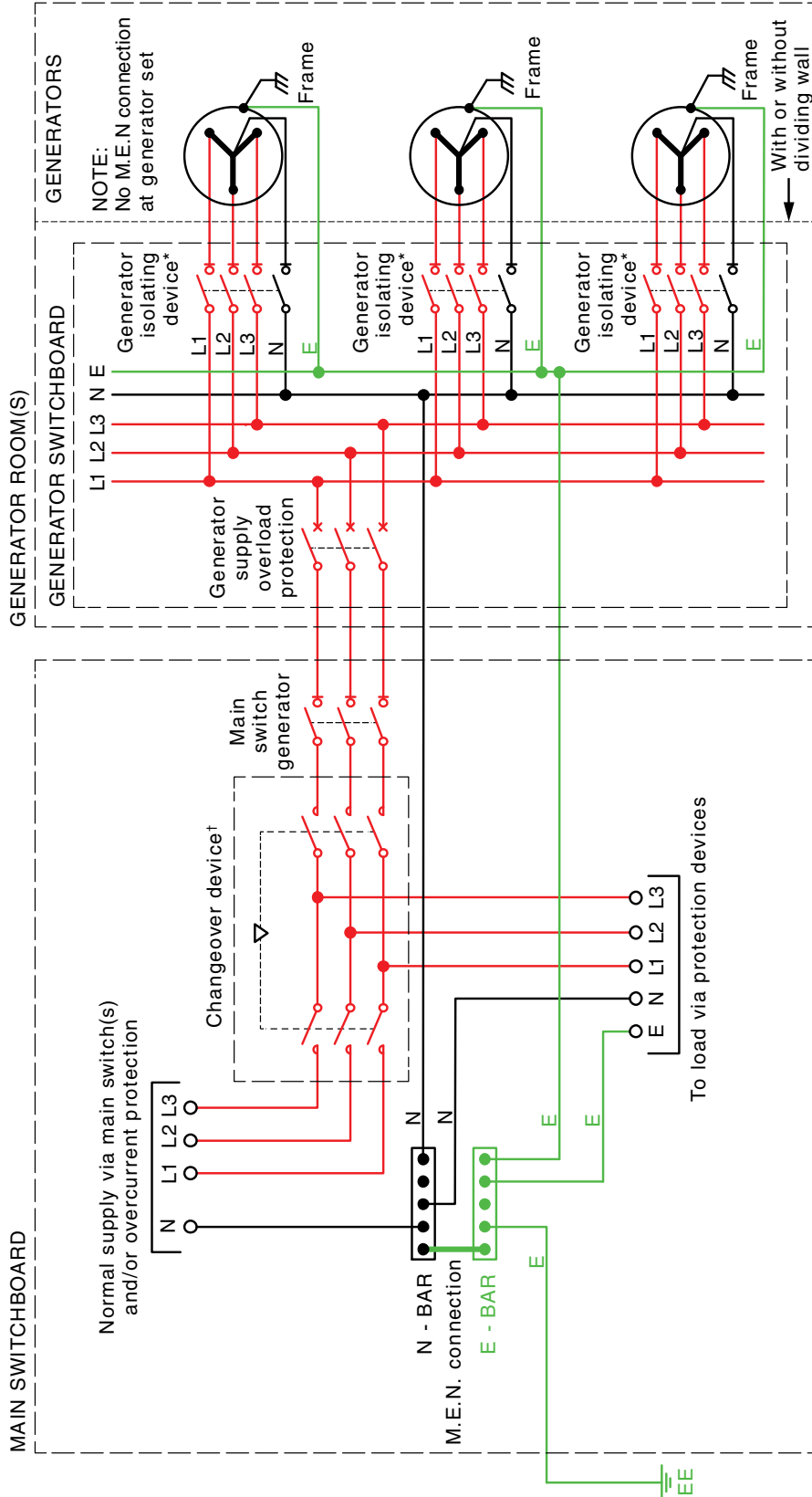


* May include overcurrent protection
† Synchronisation and control equipment not shown

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Figure 2.7

Replace the existing figure with the following:

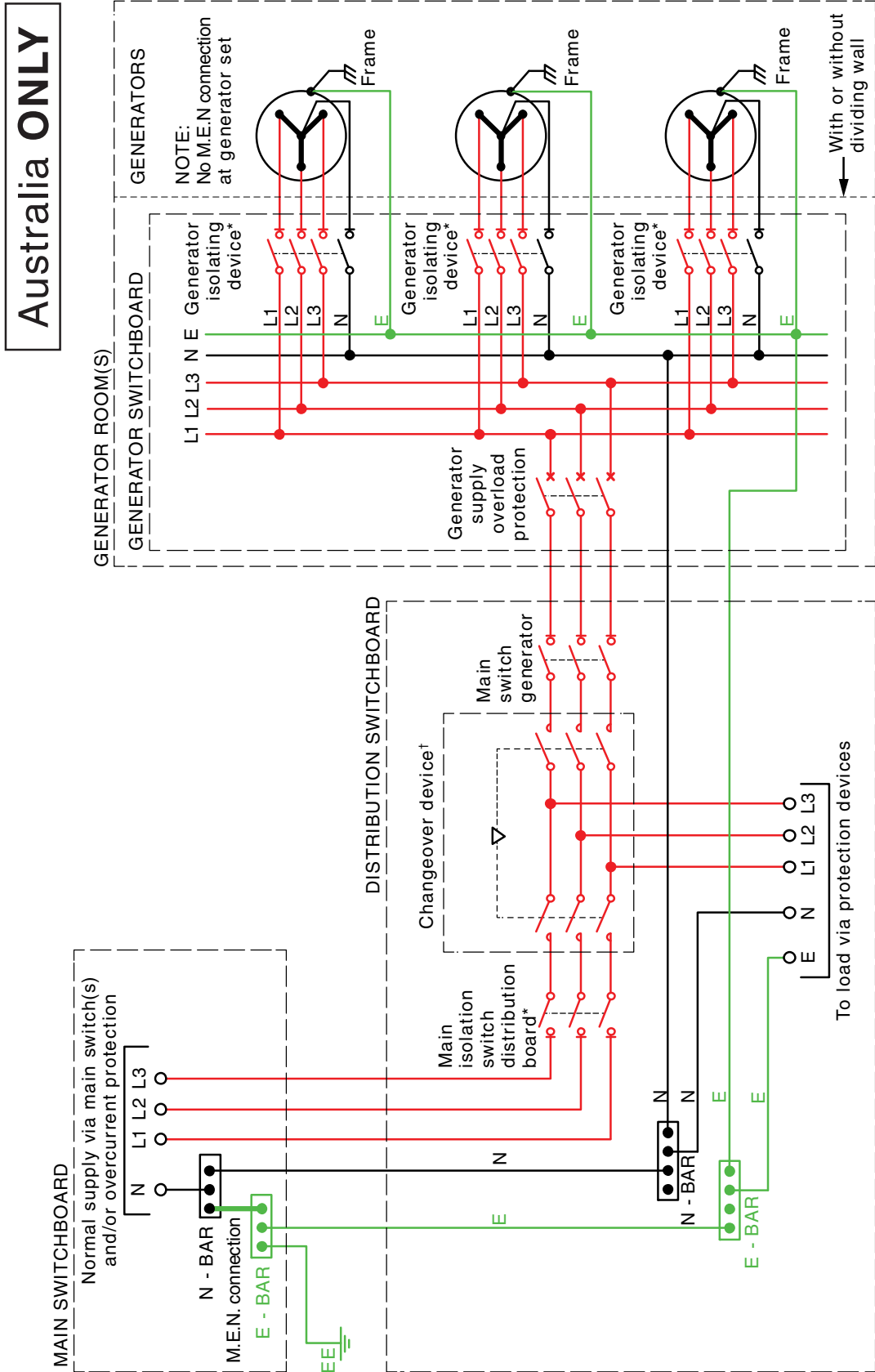


* May include overcurrent protection where installed either at Generator, Generator Switchboard or both
† Synchronisation and control equipment not shown

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Figure 2.8

Replace the existing figure with the following:

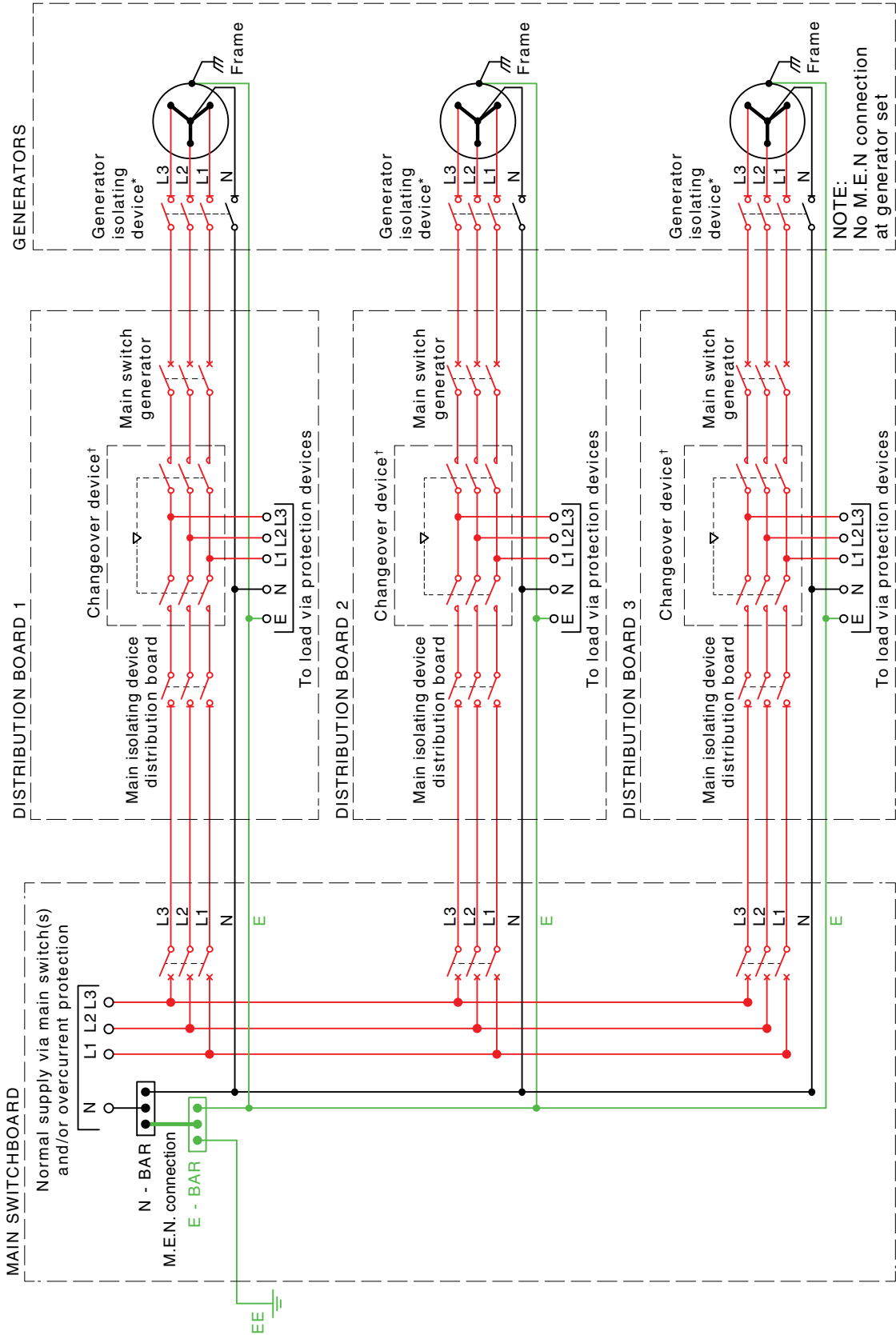


* May include overcurrent protection where installed either at Generator, Generator Switchboard or both
† Synchronisation and control equipment not shown

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Figure 2.9

Replace the existing figure with the following:



* May include overcurrent protection where installed
† Synchronisation and control equipment not shown

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Clause 2.8.2

- 1 Delete Exception 1 and the following two paragraphs and *replace* with the following:

Exception 1: Neutral-earth connection located within generators.

Where an existing electrical installation is supplied by more than one generator in parallel and the installation has neutral-earth connections existing within the generators and not at the main switchboard location.

Provided the alteration work is limited to no more than 35% of the total generation capacity, it is permissible to upgrade the generator installation (carry out the alterations) maintaining the neutral-earth connection within the generators.

In this case, a permanent label indicating any neutral-earth link in place shall be fixed to each switchboard supplied by the generators in the following form:

CAUTION: NEUTRAL-EARTH CONNECTIONS ARE LOCATED AT THE GENERATING SETS.

- 2 Delete Exception 3 and the following paragraphs and *replace* with the following:

Exception 3: Where an existing electrical installation is supplied by more than one generator in parallel and the installation has a three pole/four pole changeover device and no neutral or earthing conductors are connected in parallel the existing three pole/four pole changeover device can remain in service.

Where an existing electrical installation is supplied by more than one generator connected in parallel and the electrical installation has the neutral-earth connection existing within the generators and not at the main switchboard location.

Provided the alteration is limited to no more than 35% of the existing generation capacity, it is permissible to upgrade supply (carry out the alteration) with the neutral-earth connection remaining within the generating sets.

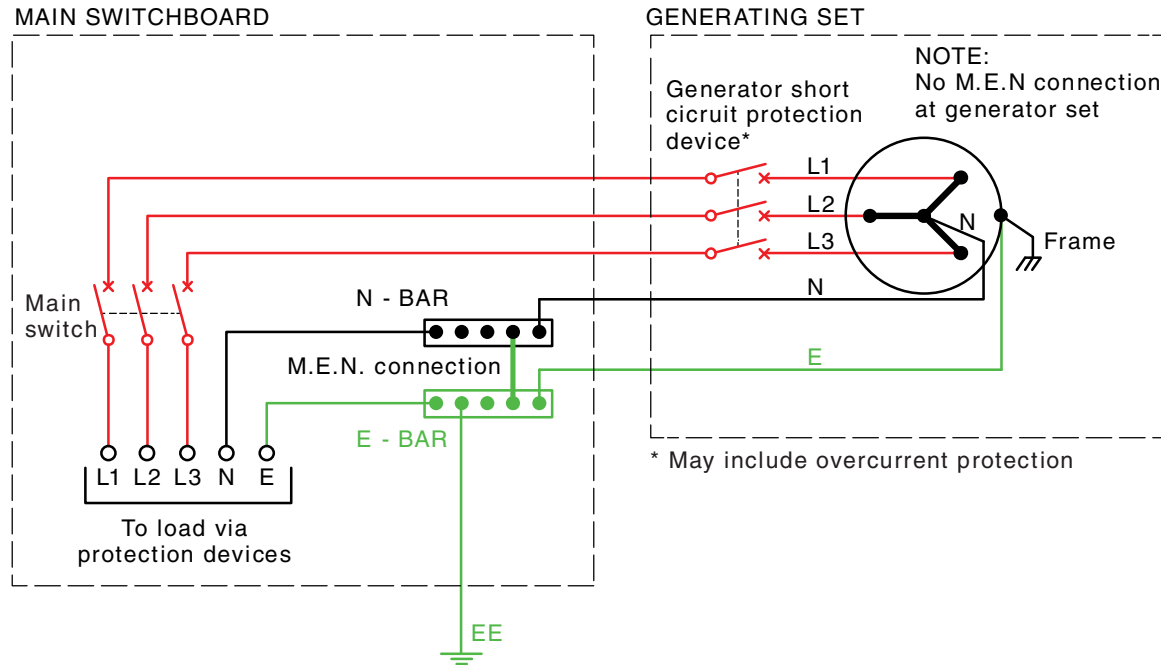
In this case, a permanent label indicating the neutral-earth arrangements in use shall be placed on each switchboard supplied by the generators in the following form:

CAUTION: INSTALLATION NEUTRAL-EARTH CONNECTION LOCATED WITHIN GENERATING SETS.

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Figure 2.10

Delete the existing figure including the Note and *replace* with the following:



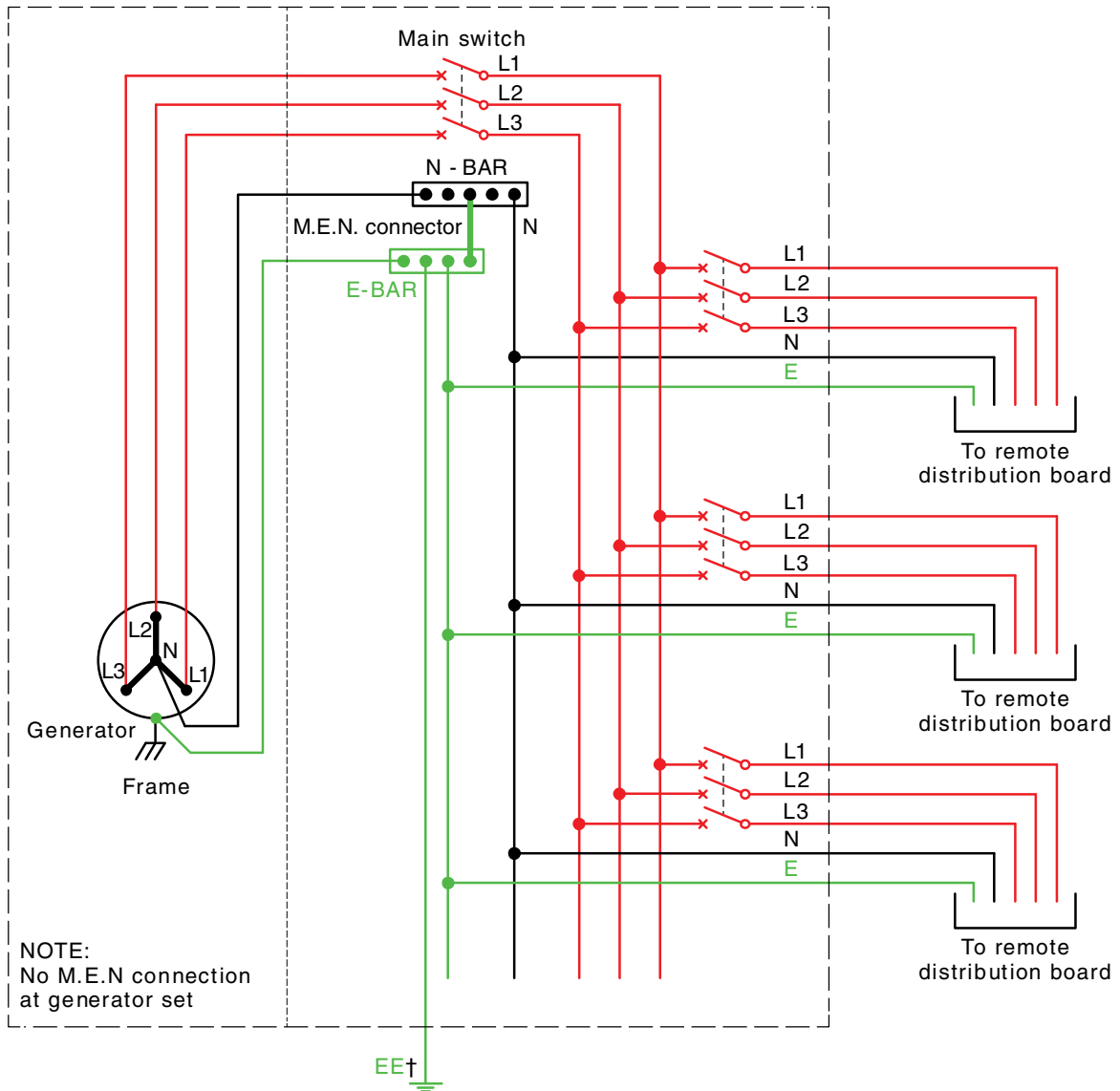
NOTE: See Clause 2.11.

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Figure 2.11

Delete the existing figure including the Note and *replace* with the following:

GENERATOR WITH INTEGRAL MAIN SWITCHBOARD



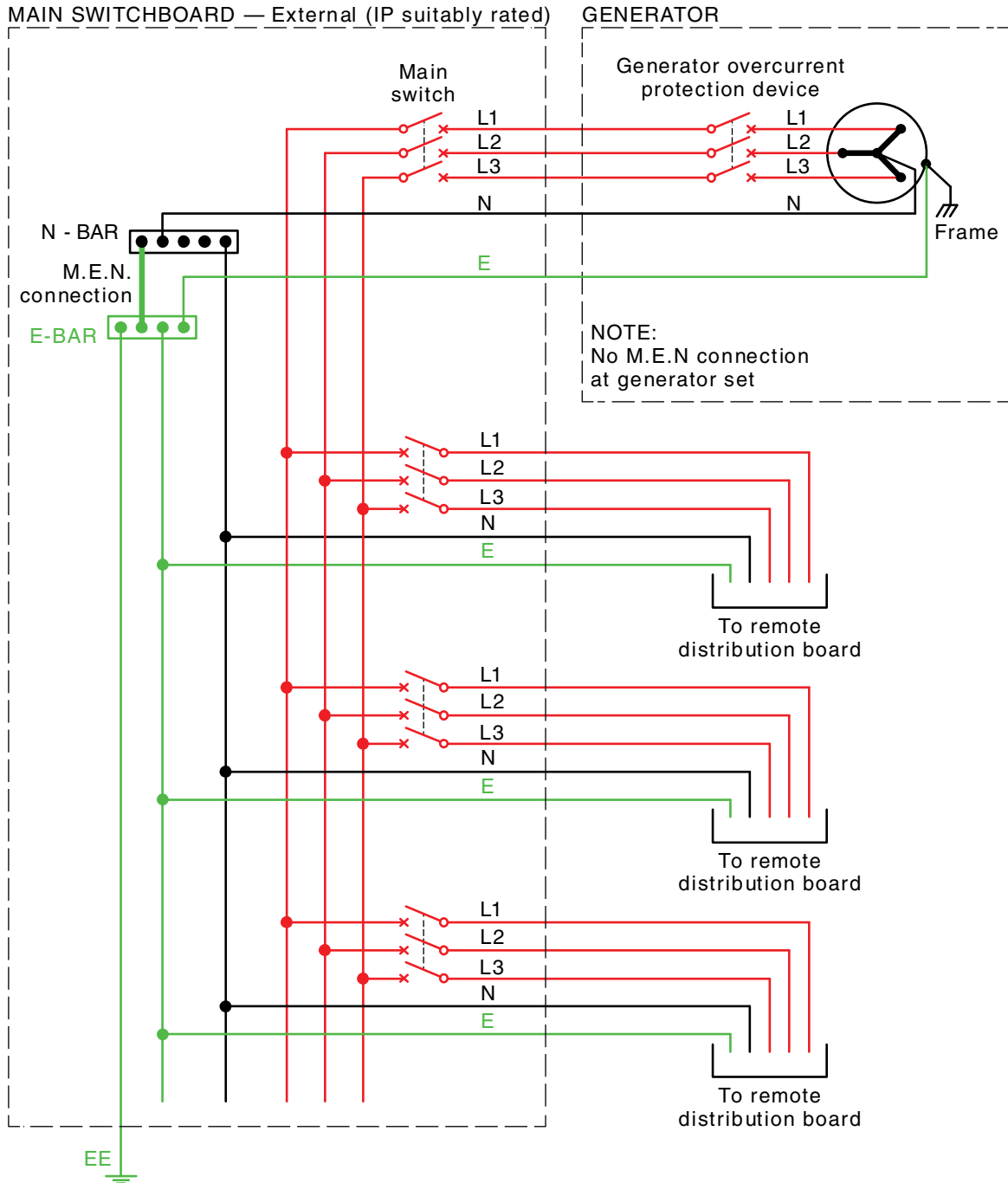
* M.E.N arrangements refer to AS/NZS 3000
† Electrode only required for a fixed electrical installation

NOTE: See Clause 2.11.

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Figure 2.12

Delete the existing figure including the Note and *replace* with the following:

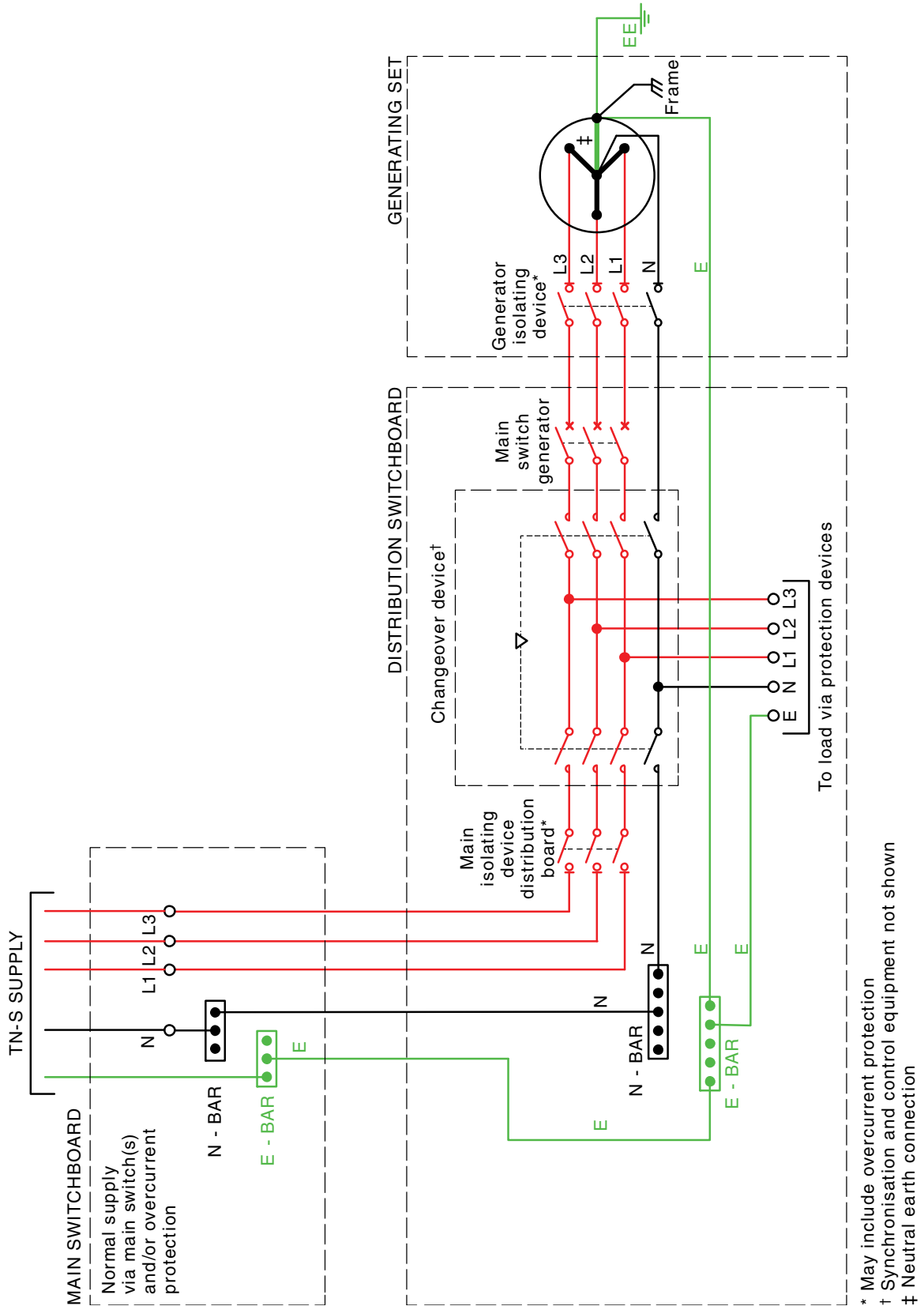


NOTE: See Clause 2.11

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Figure 2.13

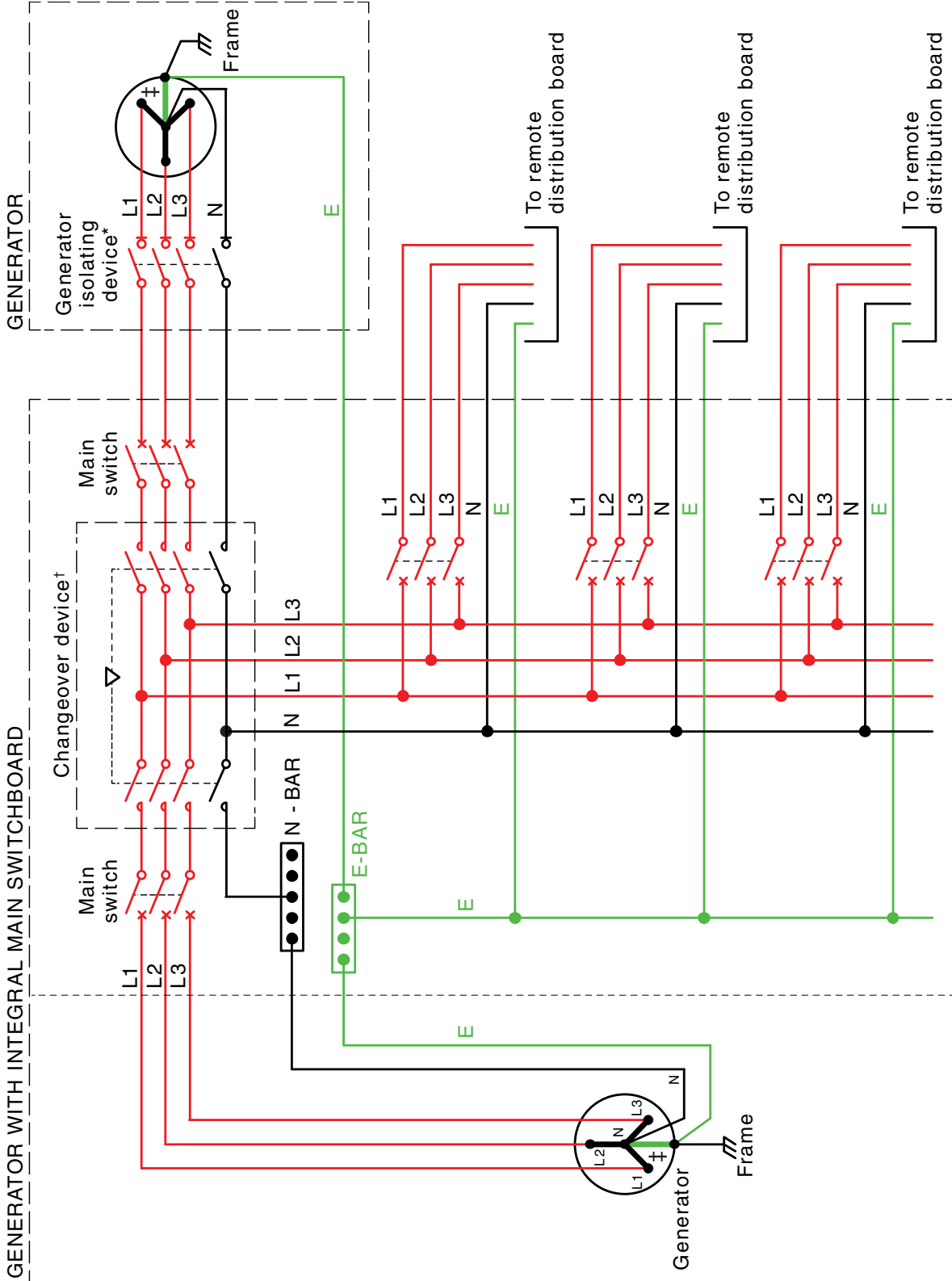
Replace the existing figure with the following:



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Figure 2.14

Replace the existing figure with the following:

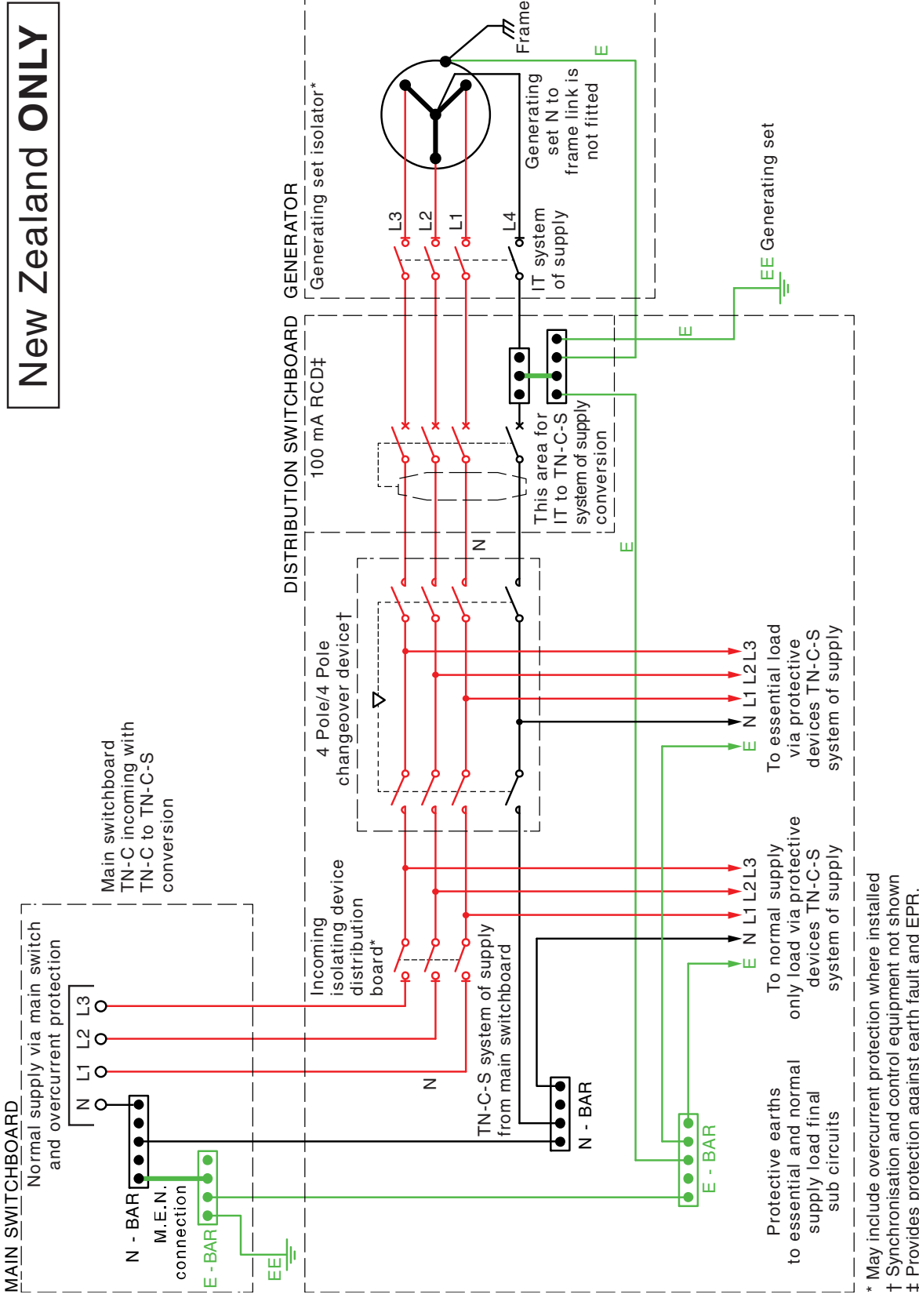


* May include overcurrent protection
 † Synchronisation and control equipment not shown
 ‡ Neutral-earth connection

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Figure 2.15

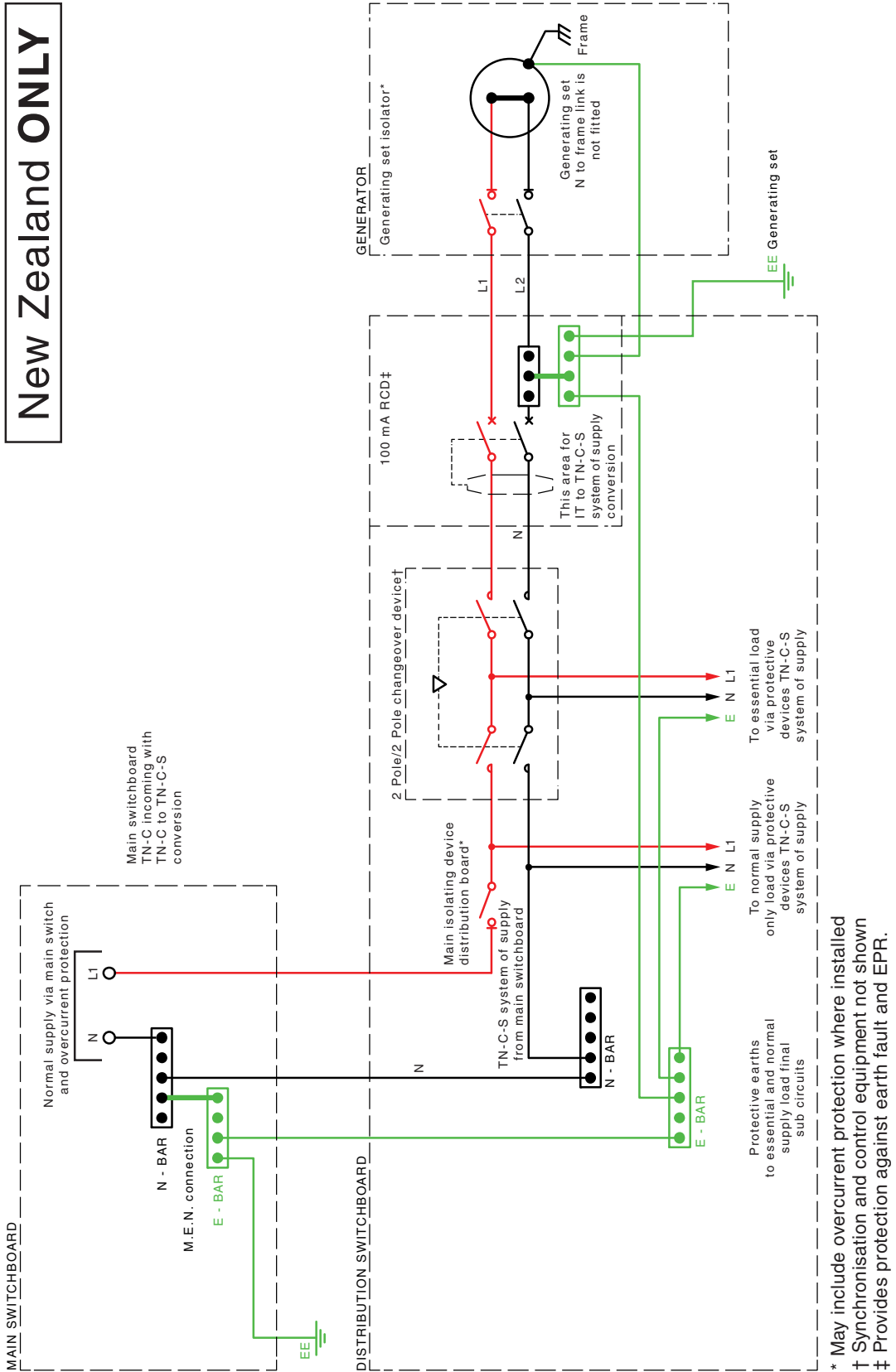
Replace the existing figure with the following:



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Figure 2.16

Replace the existing figure with the following:



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Section 4

Replace the existing title with the following:

ADDITIONAL REQUIREMENTS FOR GENERATING SETS CONNECTED BY DETACHABLE CONNECTION

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Clause 4.2.3

- 1 In Item (a)(iv), *replace* “IEC 60309” with “IEC 60309-2”.
 - 2 In Item (b)(ii), *replace* “IEC 60309” with “IEC 60309-2”.
-

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Clauses 4.2.4, 4.2.5, 4.2.6, 4.2.7

After Clause 4.2.3 *add* the following clauses which have been relocated from Clauses 4.3.2.3 to 4.3.2.6 and amended:

4.2.4 Current limiting of the incoming supply

Each incoming supply to the installation from a generating set shall be protected by a separate overcurrent protection device located within the electrical installation and, operating in all active conductors.

The operating setting of the protection device shall not exceed the rating of either the supply conductors or the inlet fittings.

4.2.5 Enclosure of live parts

The electrical installation supply inlet and the generator socket outlet connection shall not expose live parts to direct contact while disconnected or in the normal process of cord extension set insertion or withdrawal.

The generator socket outlet complying with AS/NZS 3112, AS/NZS 60884.1, AS/NZS 3123, IEC 60309-2 or AS/NZS 3131 with a IP 2X rated terminals is deemed to comply.

The neutral pin of the electrical installation supply inlet is considered to be a live part and shall be isolated from the main switchboard neutral connection by the changeover device when in the normal supply or ‘off’ positions.

NOTE: See Figures 4.2 and 4.3.

4.2.6 Marking

Any inlet connection fitting provided for the connection of a generating set shall be permanently marked to indicate its purpose.

The marking shall include the following wording:

ISOLATED output generating set only.

RCD protected and centre tapped generating sets shall not be connected.

4.2.7 Control of socket outlets

Any single- or multi-phase socket outlet installed on the generating set shall be provided with an isolating device that operates in all active conductors.

NOTE: See Figures 4.1 to 4.3.

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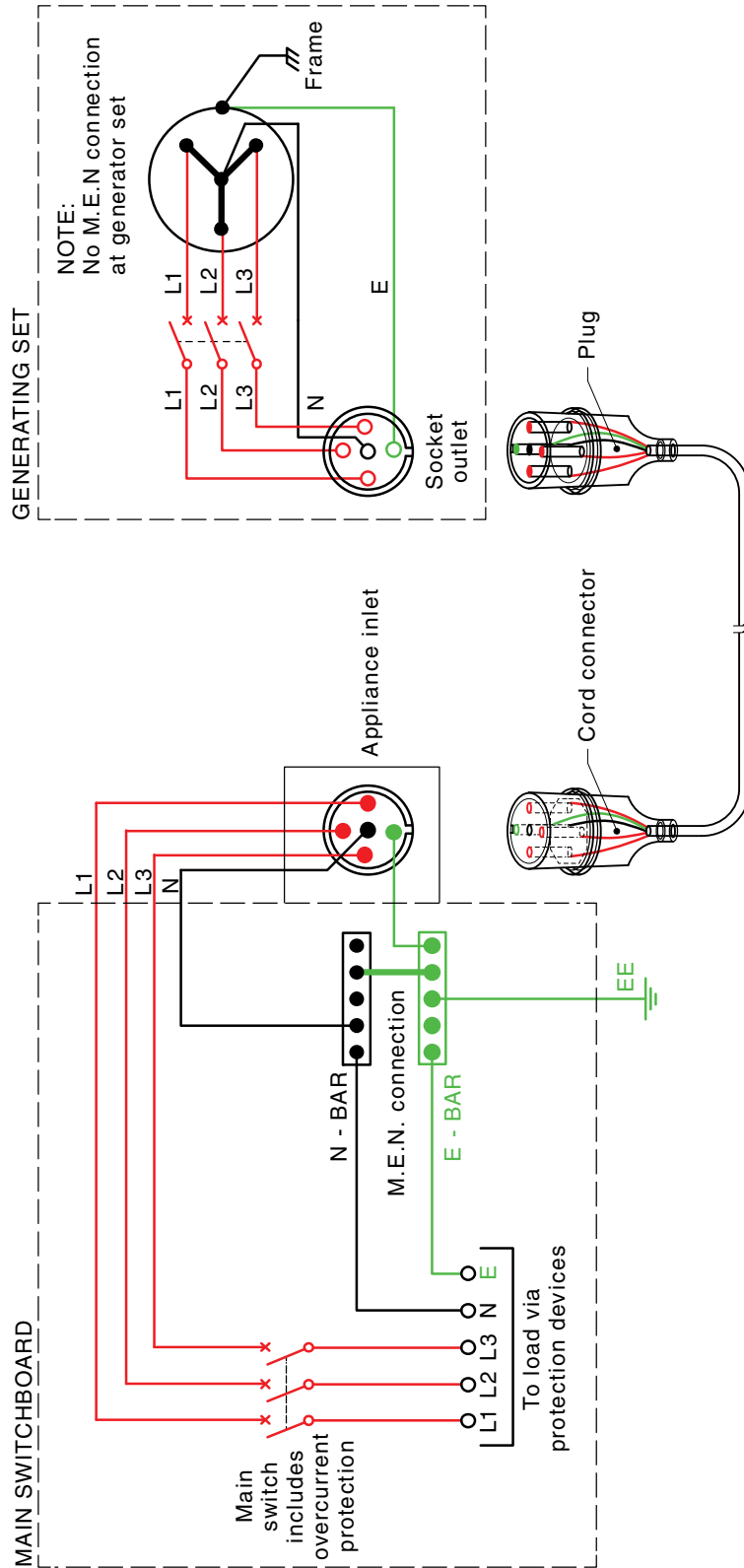
Clauses 4.3.2.3 to 4.3.2.6

Delete clauses as they have been relocated to Clause 4.2.

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Figure 4.1

Replace the existing figure with the following:

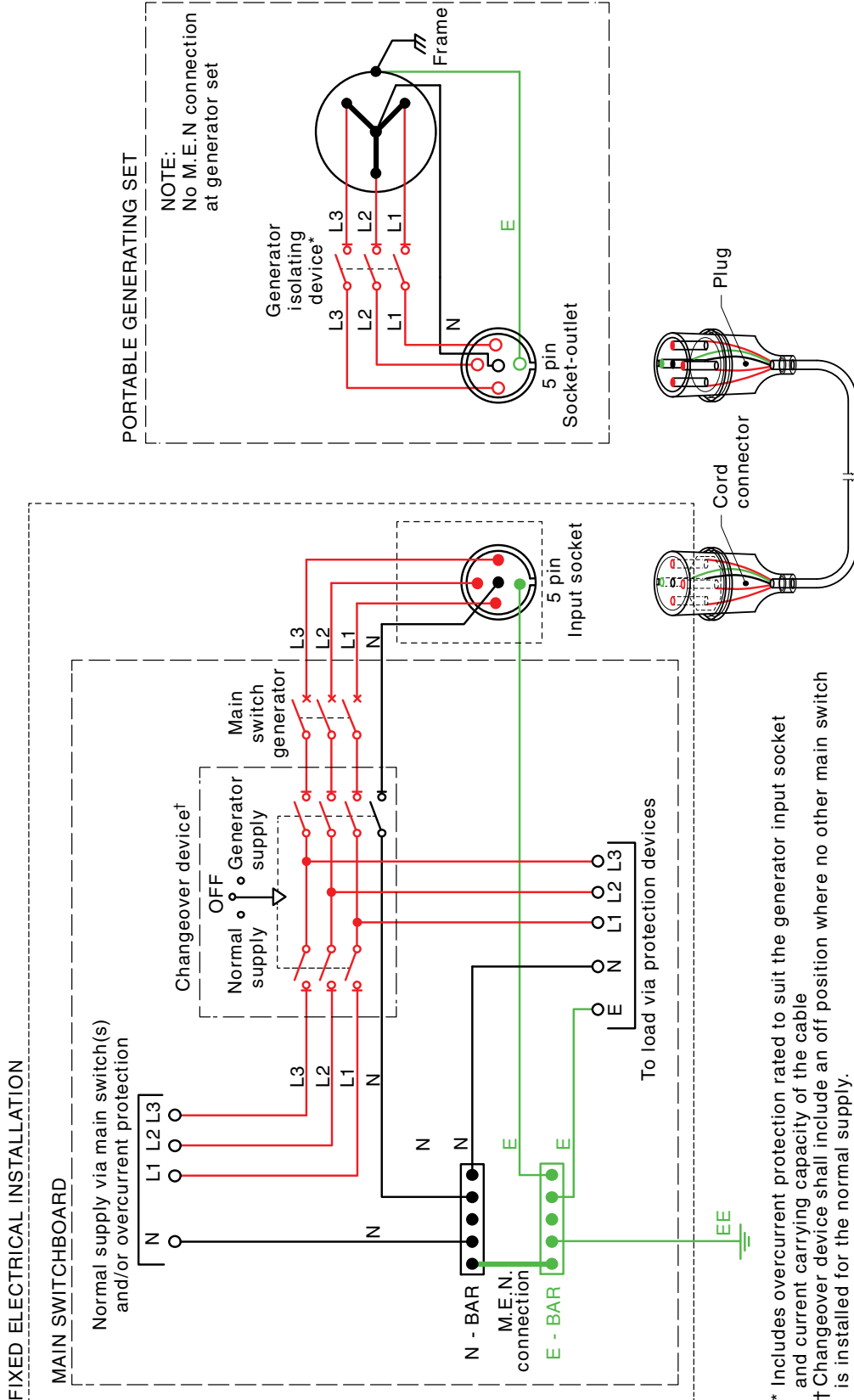


NOTE: See Clauses 4.2 and 4.3.

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Figure 4.2

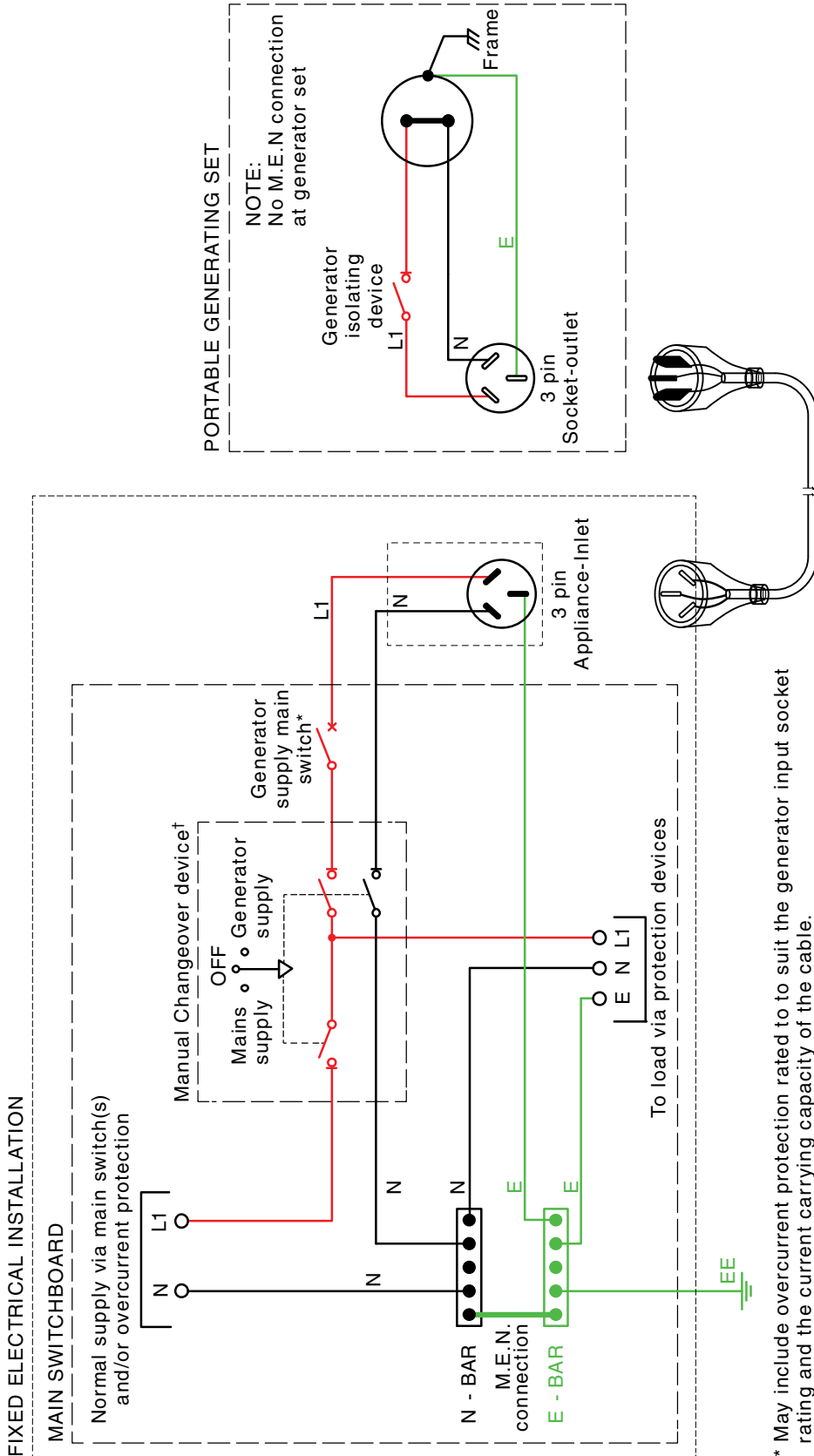
Replace the existing figure with the following:



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Figure 4.3

Replace the existing figure with the following:

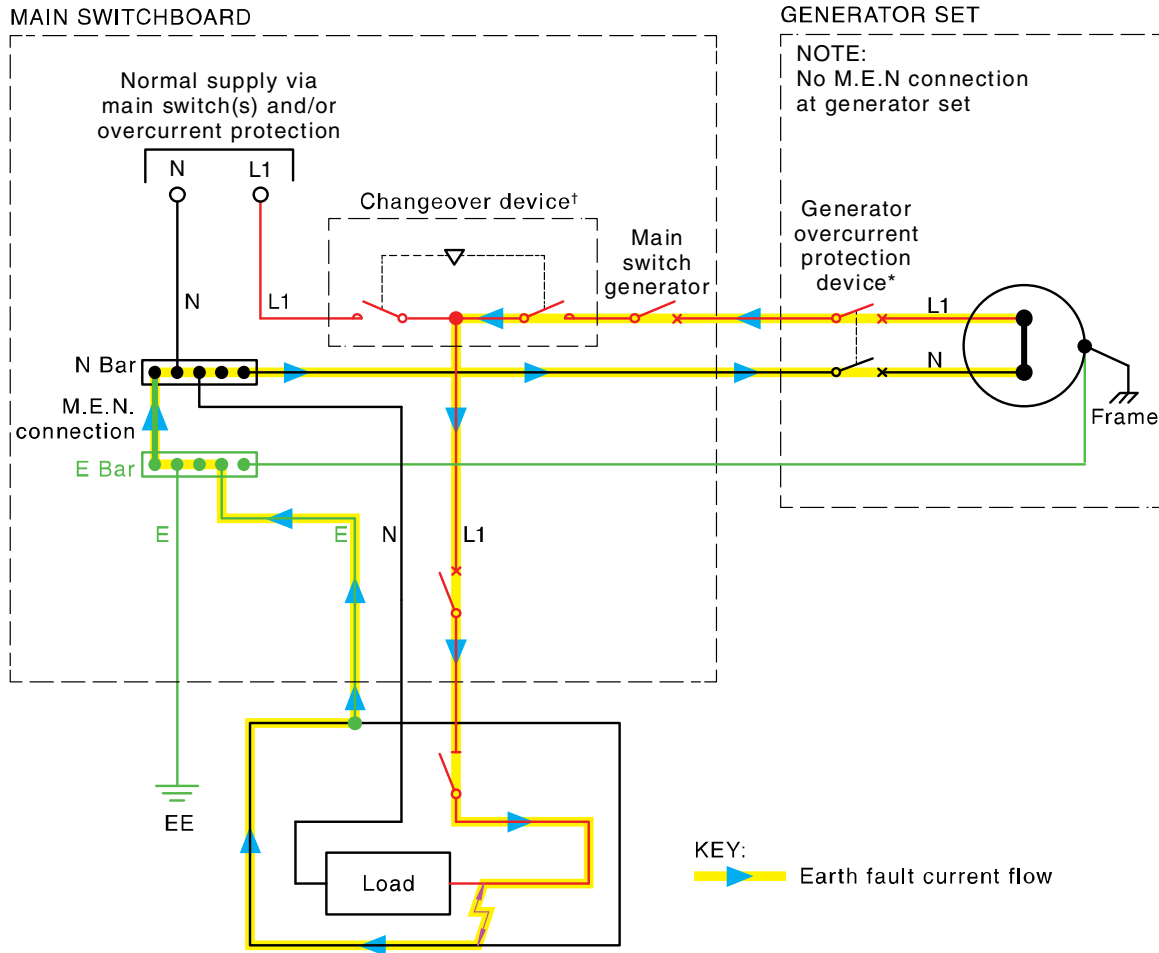


* May include overcurrent protection rated to suit the generator input socket rating and the current carrying capacity of the cable.
 † Changeover device shall include an off position where no other main switch is installed for the normal supply.

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Appendix A Figure A1

Replace the existing figure with the following:



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Appendix B

In the Appendix title, delete the words “(NEW ZEALAND ONLY)” and the “NZ” margin box.

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Appendix B, Paragraph B1

Replace the third paragraph with the following:

In New Zealand, this Appendix also covers the use of reduced low voltage (RLV) to supply electrical tools operating at 110 V supply at voltages no greater than 55 V (single-phase) or 63.5 V.



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Appendix B, Paragraph B2.1

Replace Item (e) with the following:

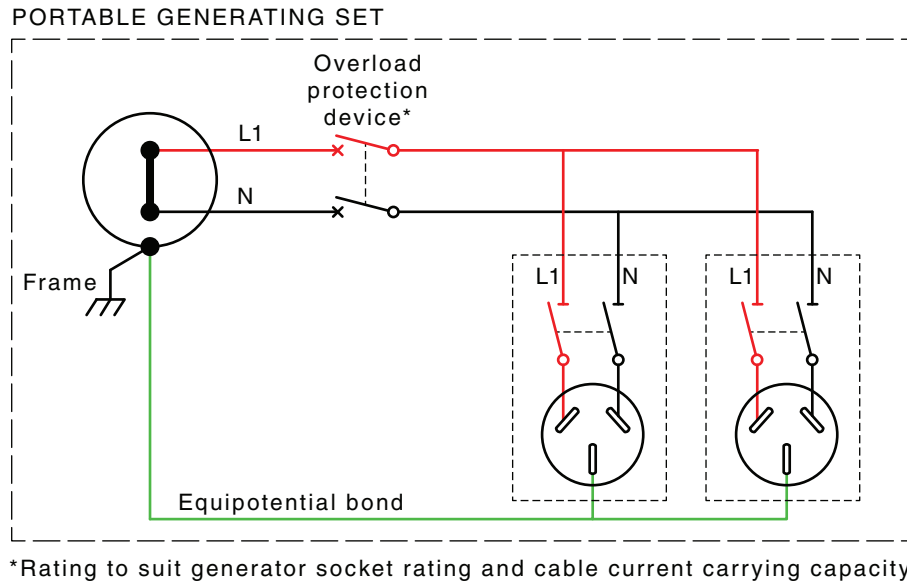
(e) In New Zealand only, reduced low voltage (RLV) generating sets.



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Appendix B, Figure B1

Replace the existing figure with the following:

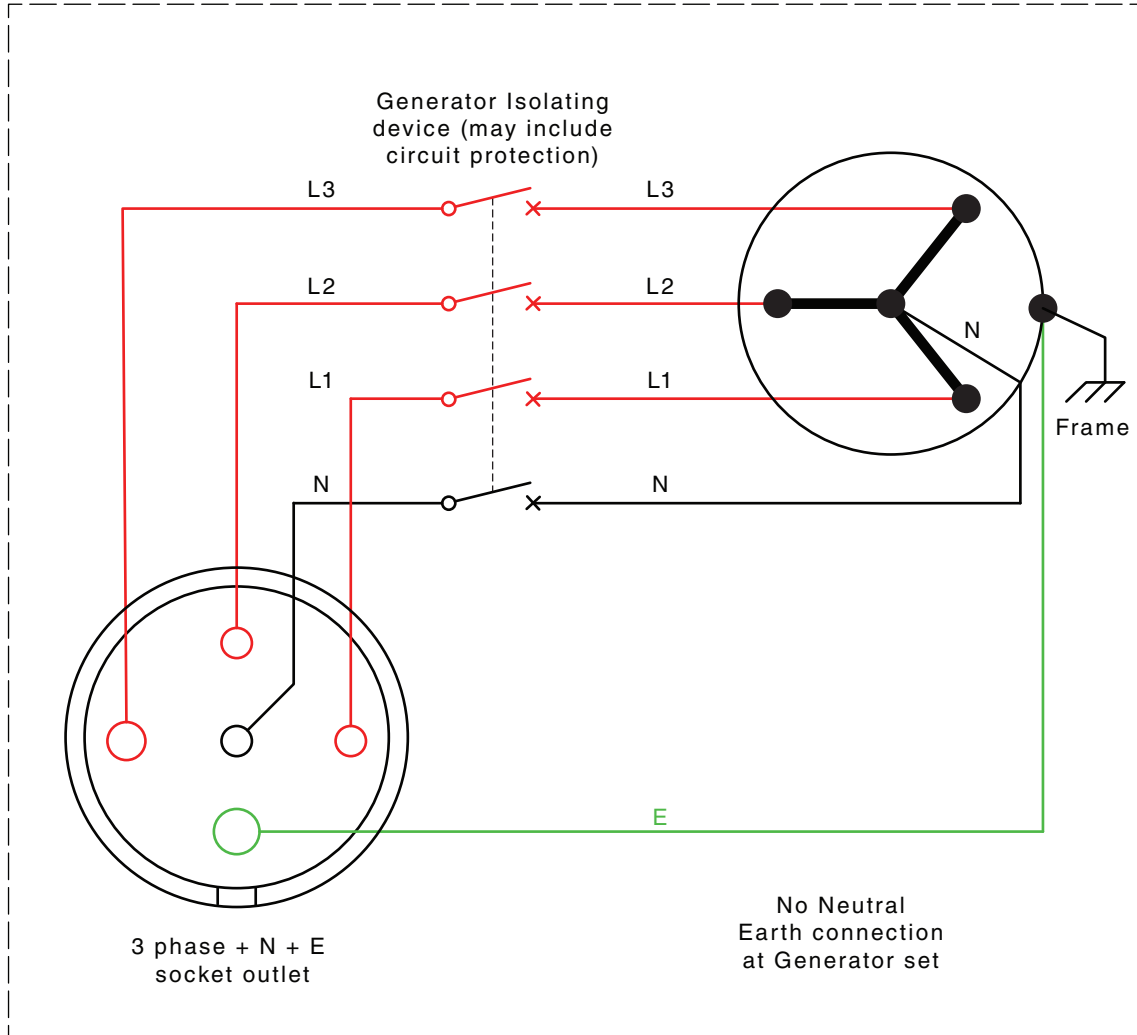


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Appendix B, Figure B2

Replace the existing figure with the following:

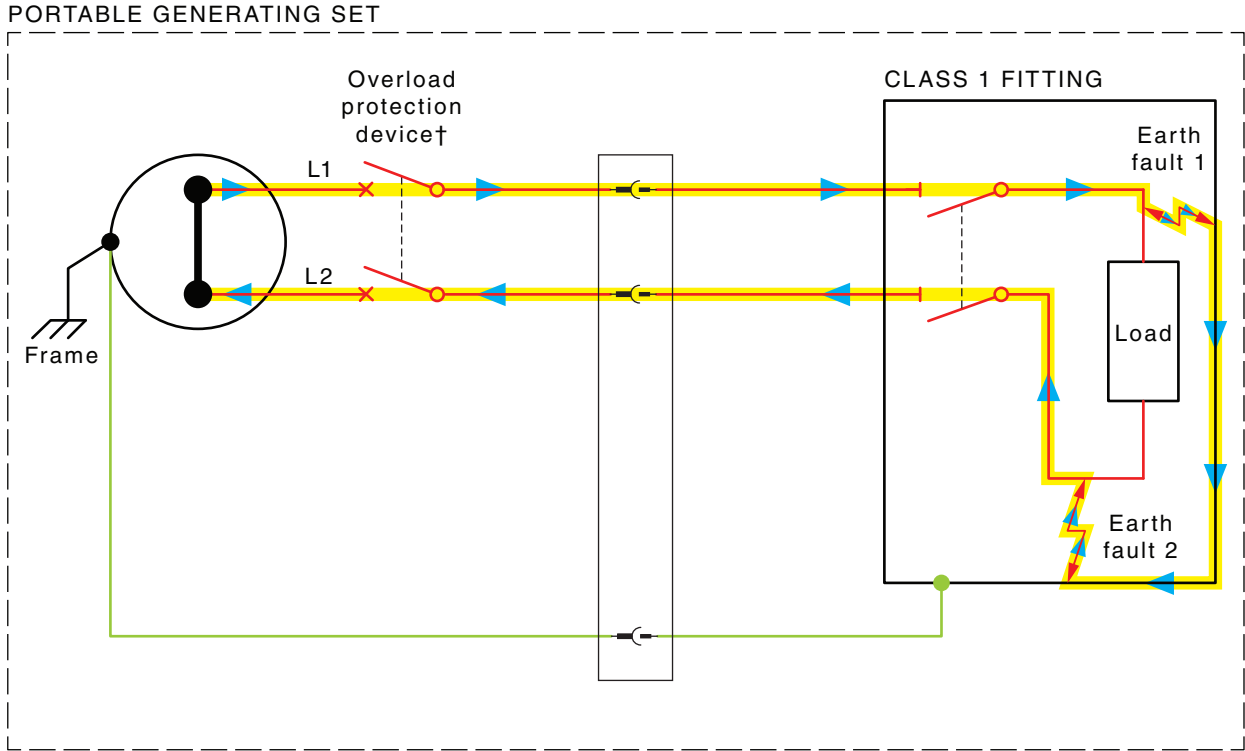
ISOLATED OUTPUT THREE PHASE GENERATING SET
CONFORMING WITH APPENDIX D



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Appendix B, Figure B3

Replace the existing figure with the following:



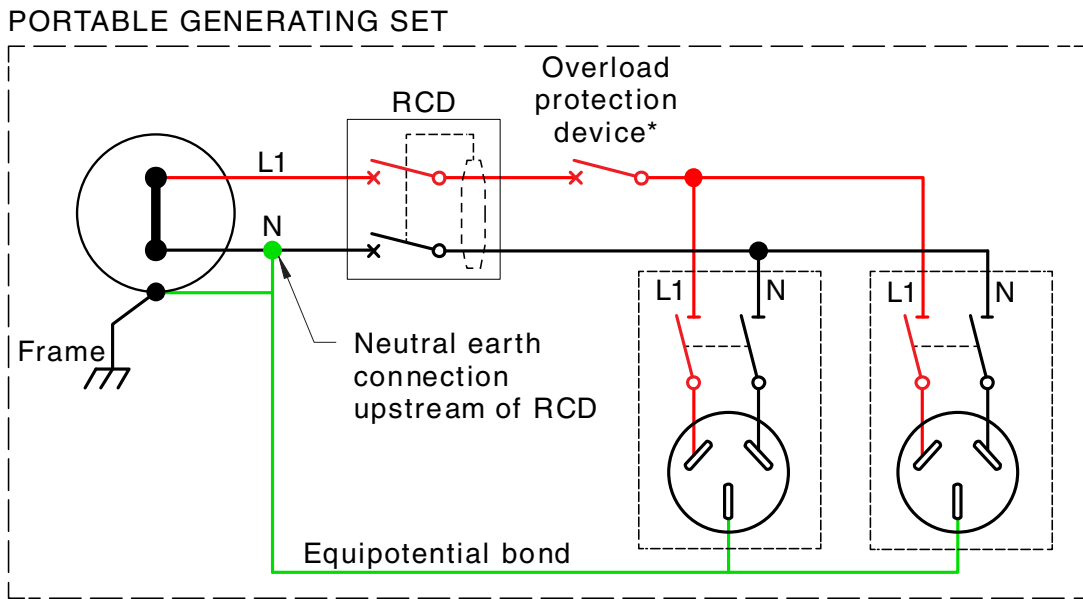
KEY:

▶ Earth fault current flow

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Appendix B Figure B4

Replace the existing figure with the following:

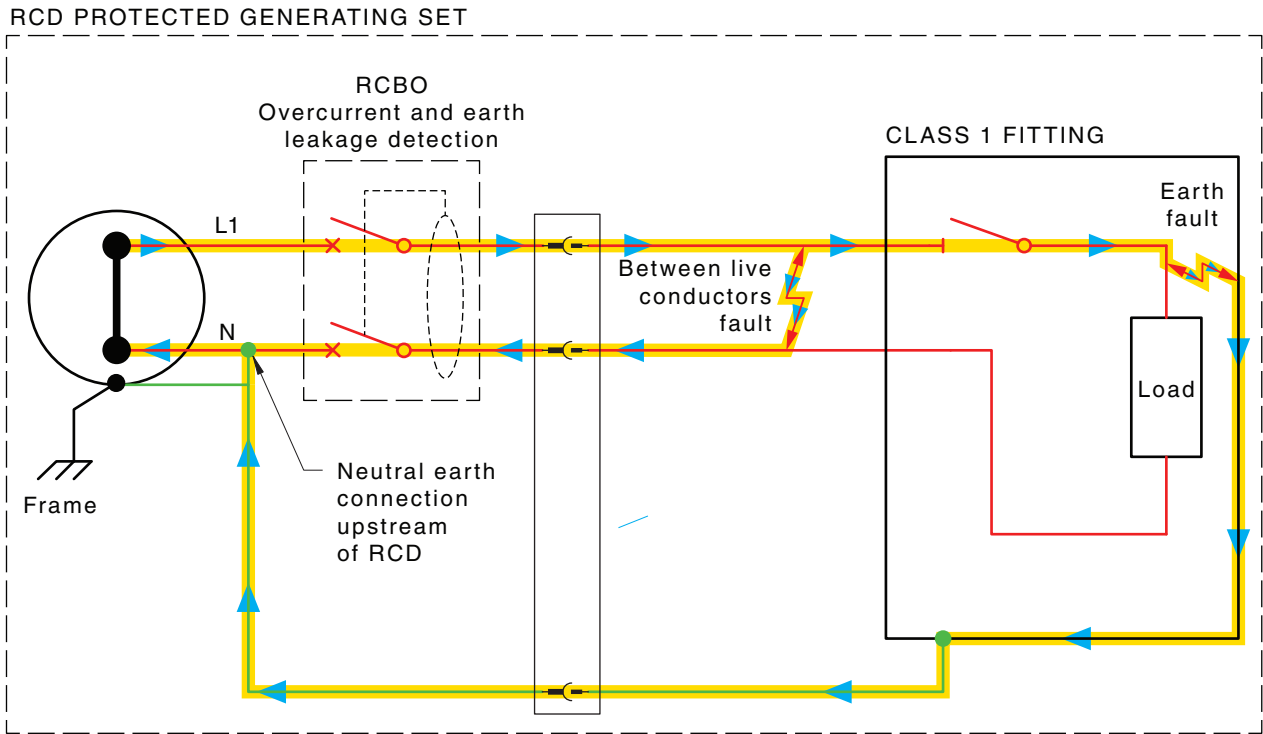


*Rating to suit generator socket rating and cable current carrying capacity

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Appendix B Figure B5

Replace the existing figure and figure title with the following:



KEY:
 Earth fault current flow

FIGURE B5 RCD PROTECTED SUPPLY SHOWING THE EARTH FAULT CURRENT PATH

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Appendix B, Paragraph B2.3.4

In the fifth paragraph, *delete* “When an IMD is fitted, the generating set should be permanently marked” and *replace* with the following:

When an IMD is fitted, the generating set should be permanently marked as:

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Appendix B, Paragraph B2.4.1

- 1 In Item (b) *replace* “IEC 60309” with “IEC 60309-2”.
- 2 In Item (c) *replace* “IEC 60309” with “IEC 60309-2”.

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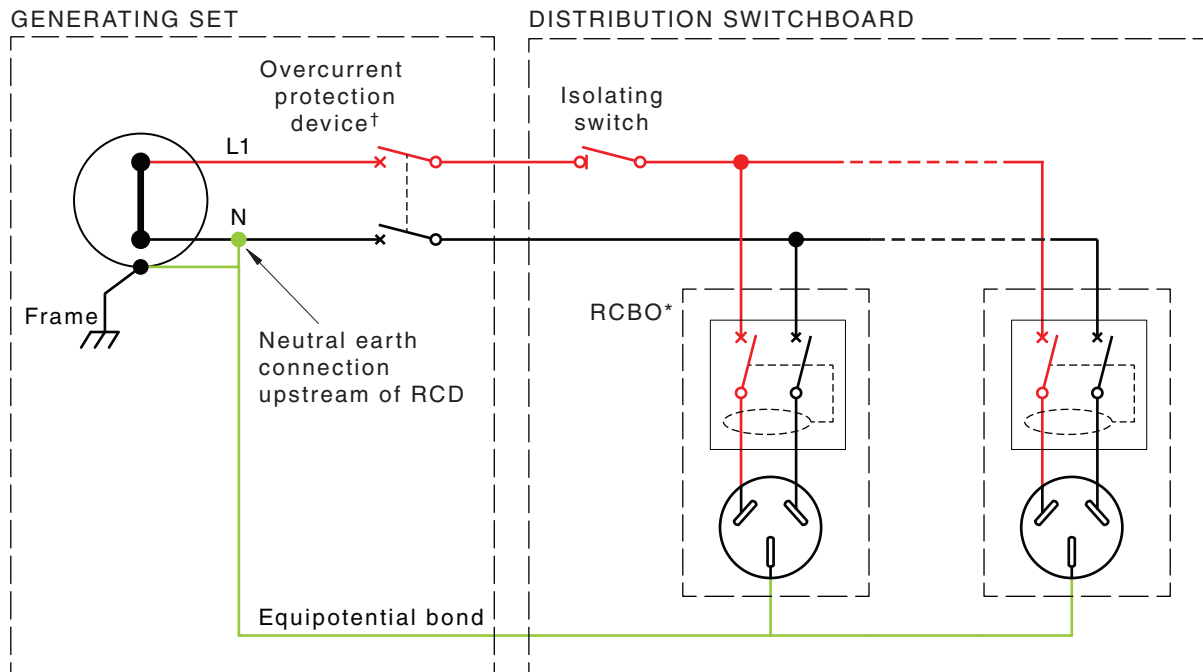
Appendix B, Paragraph B3.5.1

In the first sentence, *add* a comma after the word “sets”.

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Appendix B, Figure B8

Replace the existing figure and figure title with the following:



†Rating to suit generator socket rating and cable current carrying capacity

*Isolation/current limiting RCBO, maximum rating is the current rating of socket outlet

FIGURE B8 ISOLATED OUTPUT GENERATING SET CONNECTED TO A DISTRIBUTION SWITCHBOARD

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Appendix B, Paragraph B4.1

Replace the first sentence with the following:

An electronic inverter module capable of providing a constant frequency sine wave with a close voltage controlled output with a very low harmonic content may be used in the supply for the operation of computer equipment and other electronic equipment.

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Appendix B, Paragraph B5

Replace the clause title with the following:

REDUCED LOW VOLTAGE GENERATING SETS (NEW ZEALAND ONLY)



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Appendix B, Paragraph B5.4

In the first sentence *replace* "IEC 60309" with "IEC 60309-2".

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Appendix B, Figure B10

Replace the existing figure and figure title with the following:

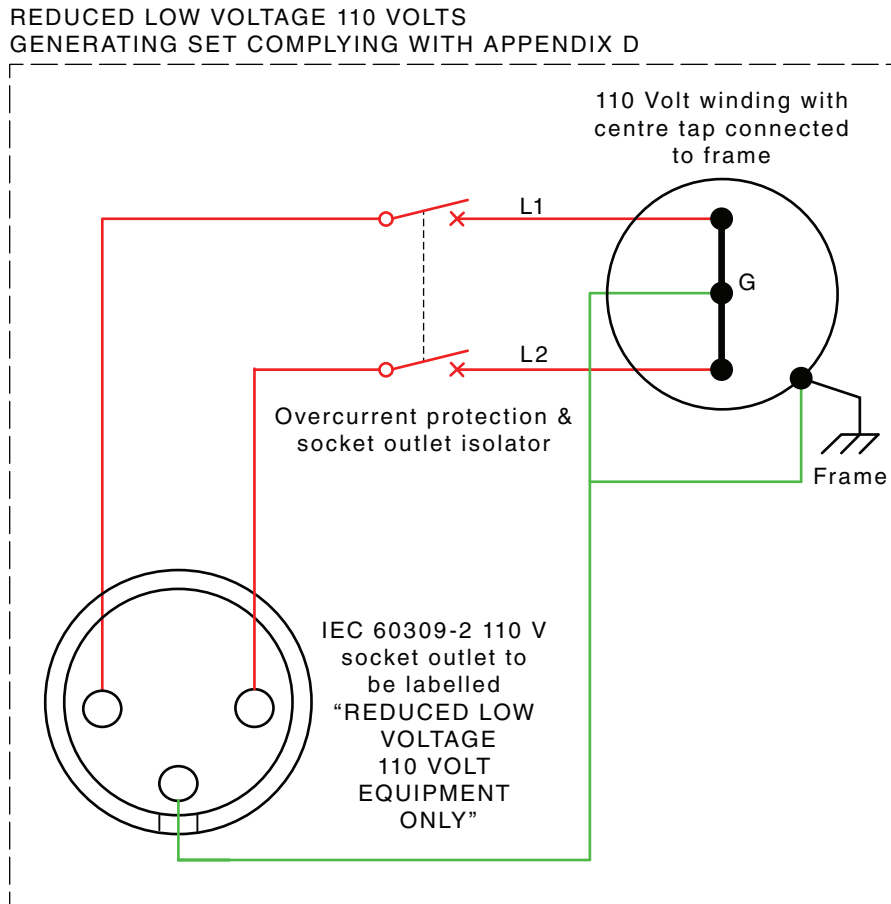


FIGURE B10 REDUCED LOW VOLTAGE SINGLE-PHASE GENERATING SET WITH 110 V IEC 60309-2 SOCKET OUTLET (NEW ZEALAND ONLY)



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Appendix B, Paragraph B5.6

In the first sentence *replace* "IEC 60309" with "IEC 60309-2".

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Appendix C, Paragraph C2

In Item (b) *replace* "AS/NZS 3000:2007" with "AS/NZS 3000".

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Appendix D, Paragraph D3.1.11

In Item (b) *replace* "IEC 60309" with "IEC 60309-2".