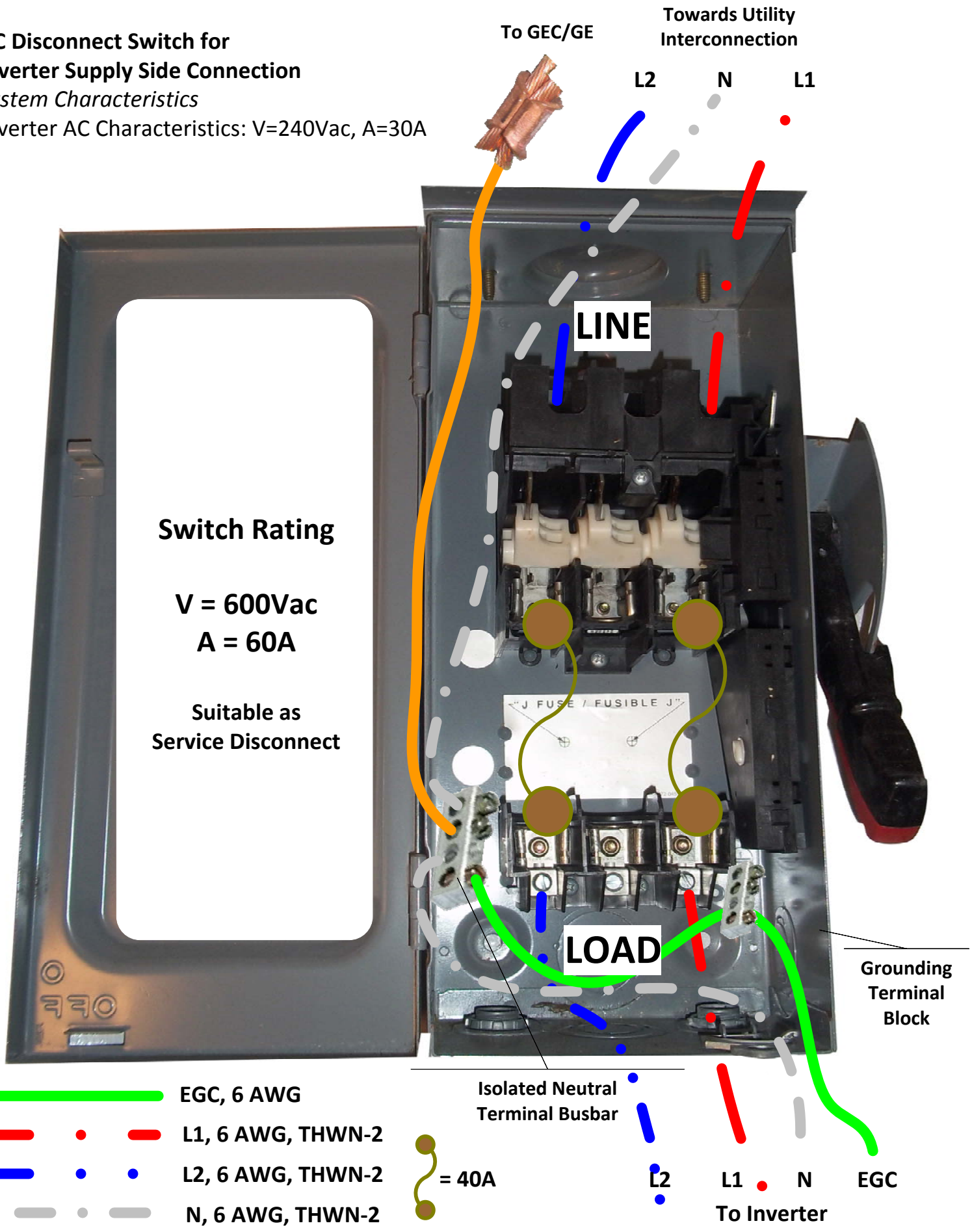
Solar Electric DC and AC Disconnecting Switch Configurations Quiz

		SWITCH			
Scenario		**DC Fused**	**DC Unfused**	**AC Fused**	**AC Unfused**
1	*Correct Supply Side Switch Application*			**x**	
2	*Incorrect Supply Side Switch Application*				**x**
3	*Incorrect Supply Side Switch Application*			**x, switch <60A conductor less than #6**	
4	*Incorrect Supply Side Switch Application*			**x, GEC and Neutral aren't bonded**	
5	*Incorrect Supply Side Switch Application*			**x, OCPD undersized**	
6	*Correct Grounded DC Disconnect Switch Application*	**x, w/ + fused**			
7	*Correct Grounded DC Disconnect Switch Application*		**x, w/ + broken**		
8	*Correct Grounded DC Disconnect Switch Application*		**x, both + and - conductor broken, only accessible to qualified persons**		
9	*Correct Ungrounded DC Disconnect Switch Application*	**x, both + and - w/ OCPD**			
10	*Incorrect Grounded DC Disconnect Switch Application*		**x, both + and - conductor broken, accessible to unqualified persons**		
11	*Incorrect DC Disconnect Switch Application*			**x, ac switch used**	

SCENARIO 1

Correct Application

AC Disconnect Switch for
Inverter Supply Side Connection
System Characteristics
Inverter AC Characteristics: V=240Vac, A=30A



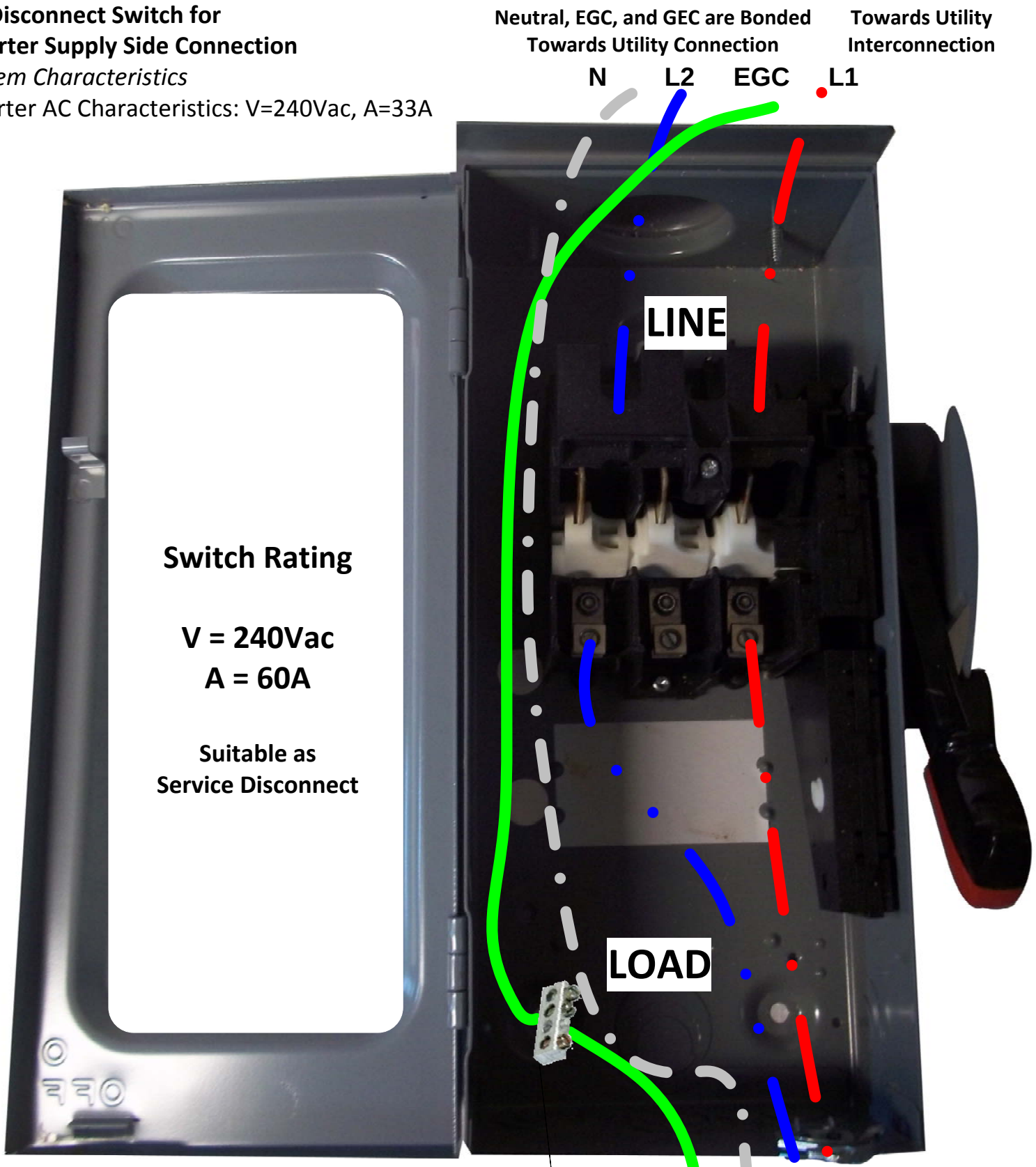
SCENARIO 2

Incorrect Application

AC Disconnect Switch for
Inverter Supply Side Connection

System Characteristics

Inverter AC Characteristics: V=240Vac, A=33A



EGC, 6 AWG

L1, 6 AWG, THWN-2

L2, 6 AWG, THWN-2

N, 6 AWG, THWN-2

Grounding
Terminal
Block

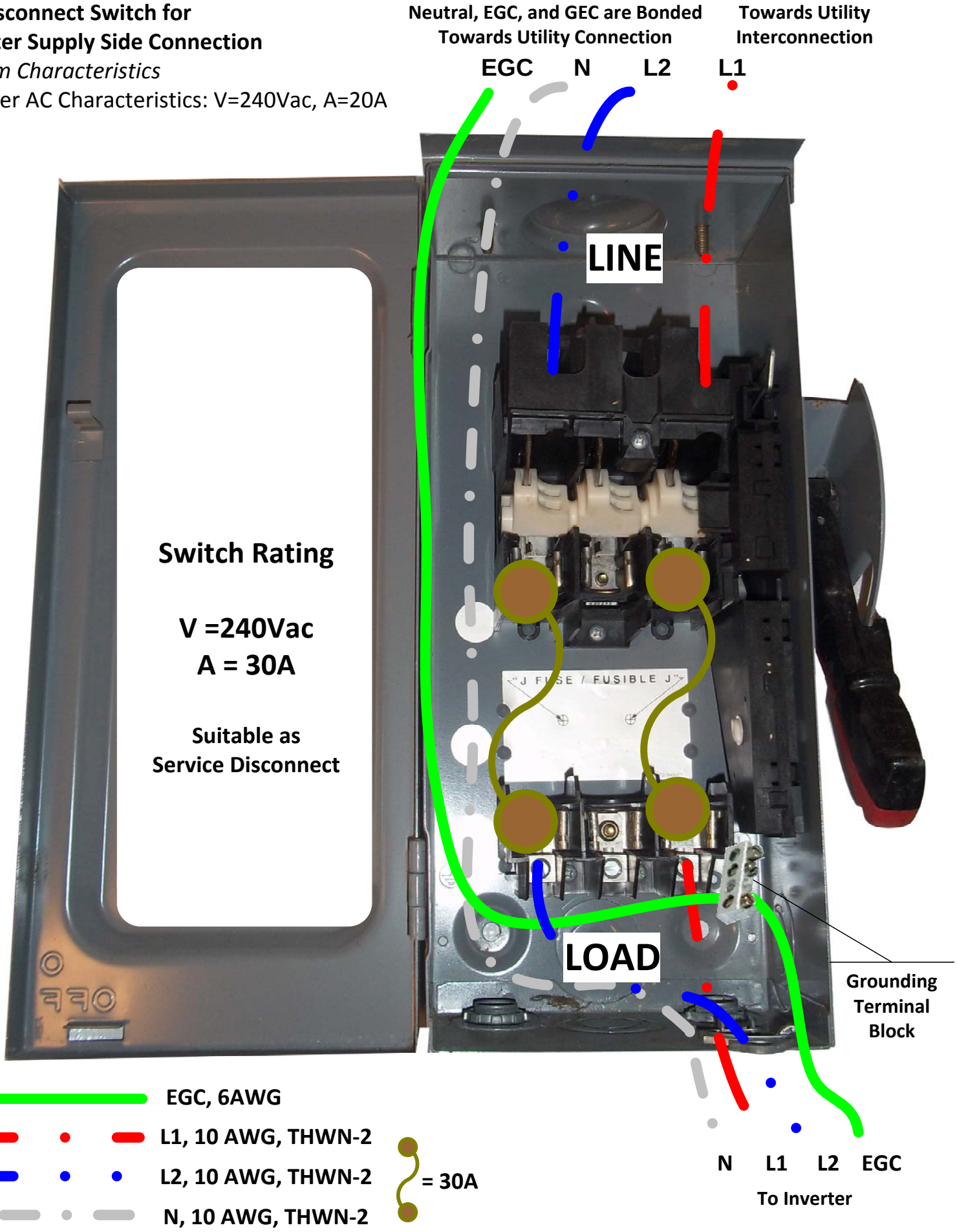
EGC N L2 L1

To Inverter

SCENARIO 3

Incorrect Application

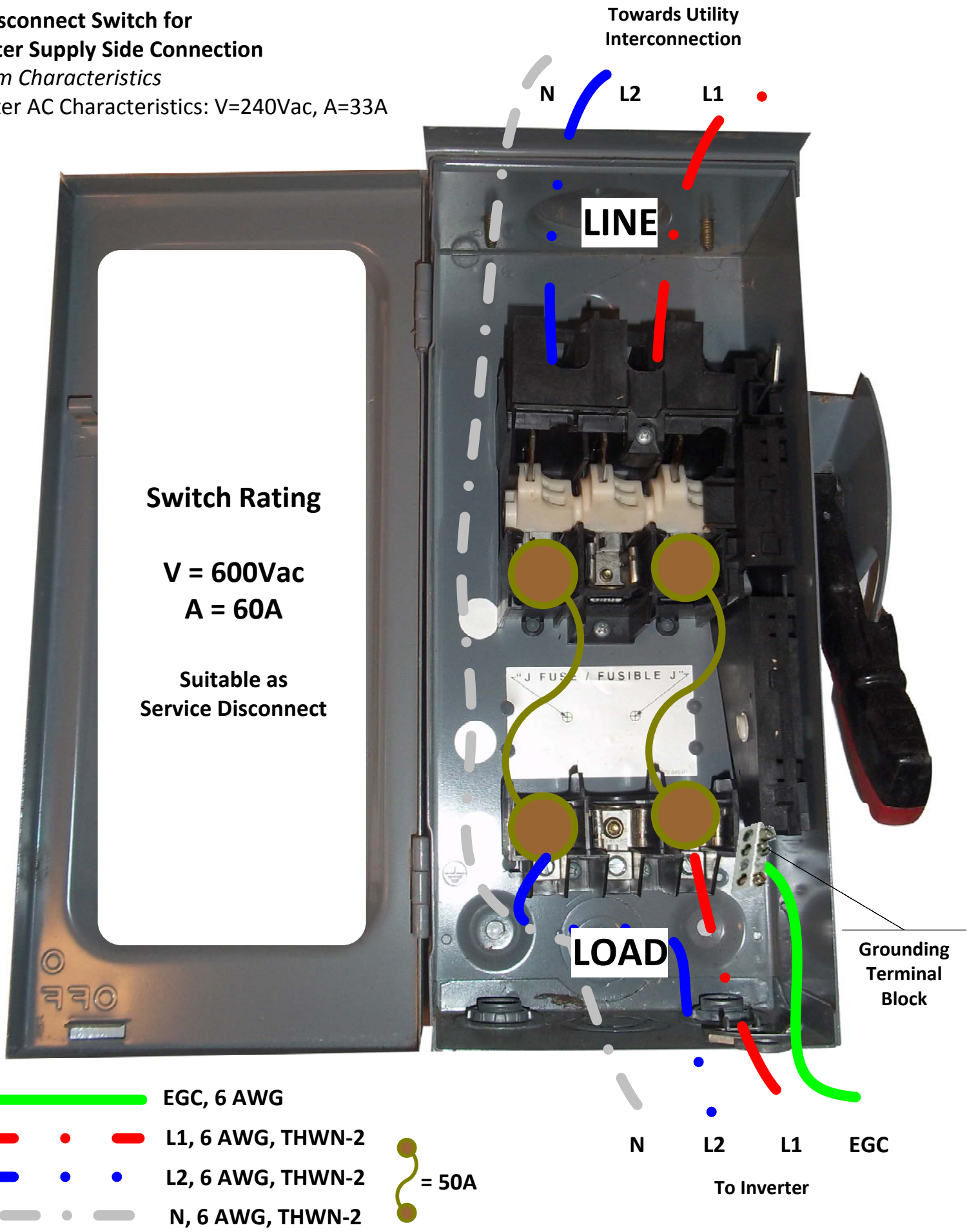
AC Disconnect Switch for
Inverter Supply Side Connection
System Characteristics
Inverter AC Characteristics: V=240Vac, A=20A



SCENARIO 4

Incorrect Application

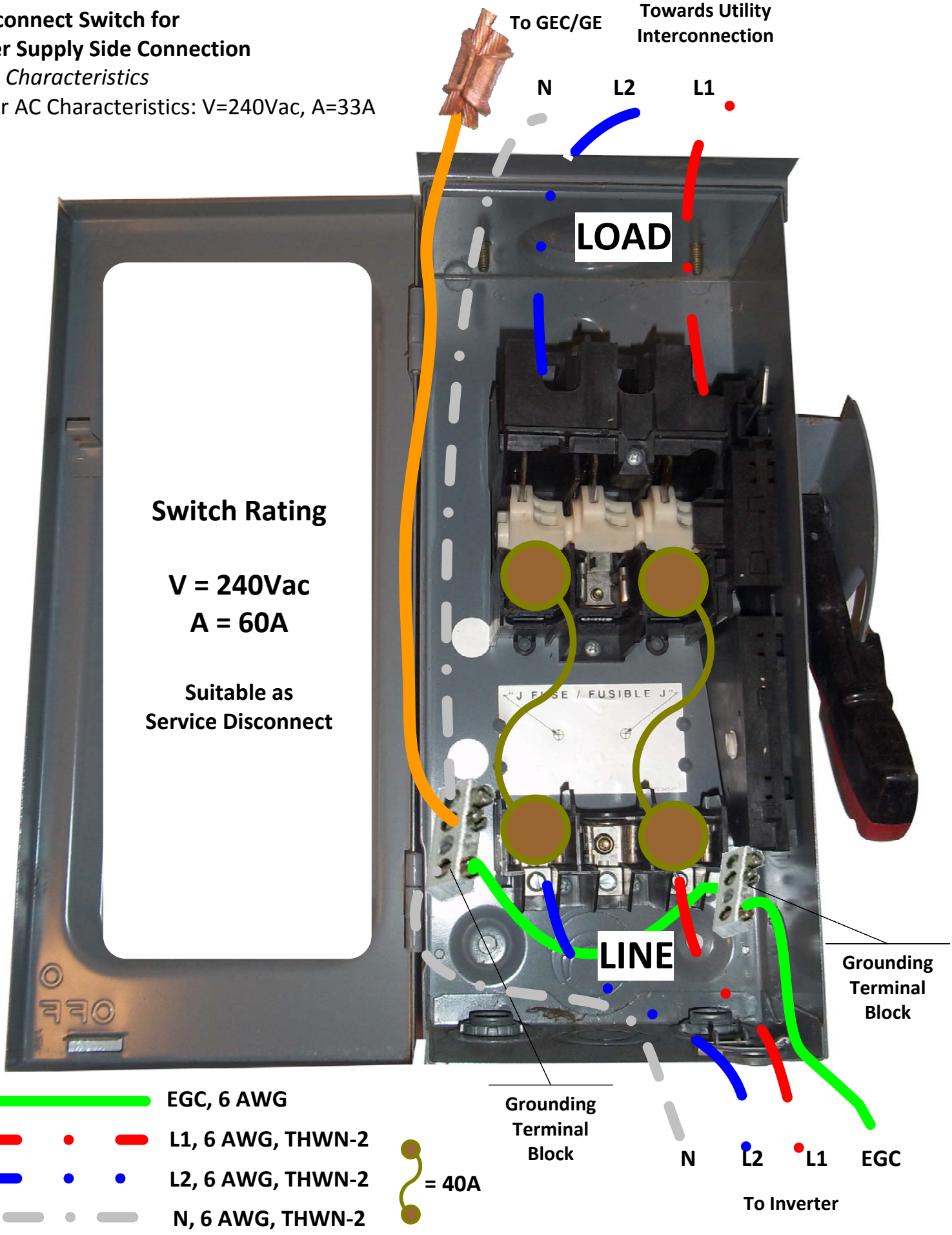
AC Disconnect Switch for
Inverter Supply Side Connection
System Characteristics
Inverter AC Characteristics: V=240Vac, A=33A



SCENARIO 5

Incorrect Application

AC Disconnect Switch for
Inverter Supply Side Connection
System Characteristics
Inverter AC Characteristics: V=240Vac, A=33A



SCENARIO 6

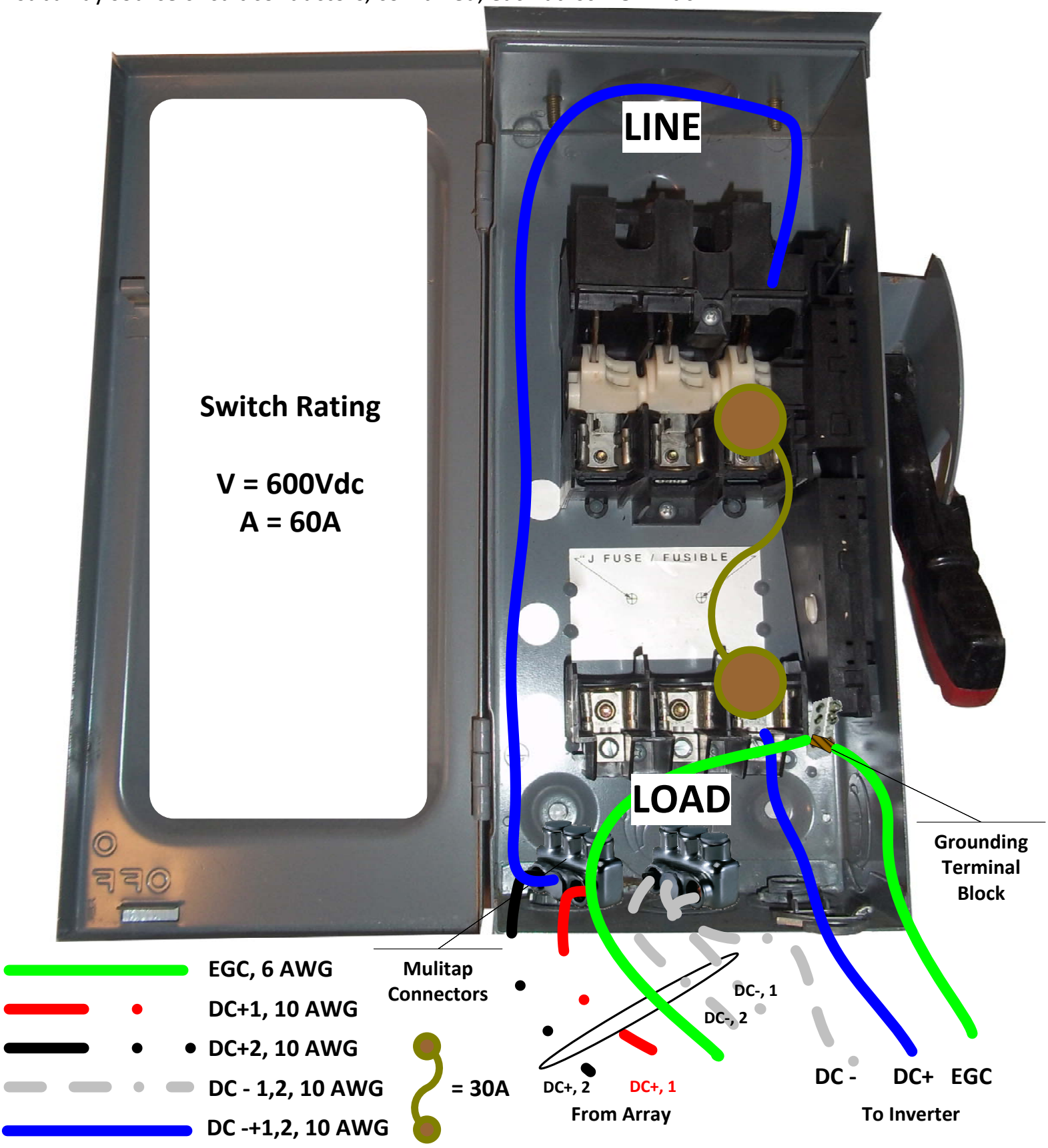
Correct Application

PV Output Circuit Disconnect Switch
For a Grounded DC Positive System Accessible to Unqualified Persons

Array Characteristics

Vdcmax=560Vdc

2 subarray source circuit conductors, combined, each at Isc = 8.1 Adc



All Current Carrying Conductors THWN-2

SCENARIO 7

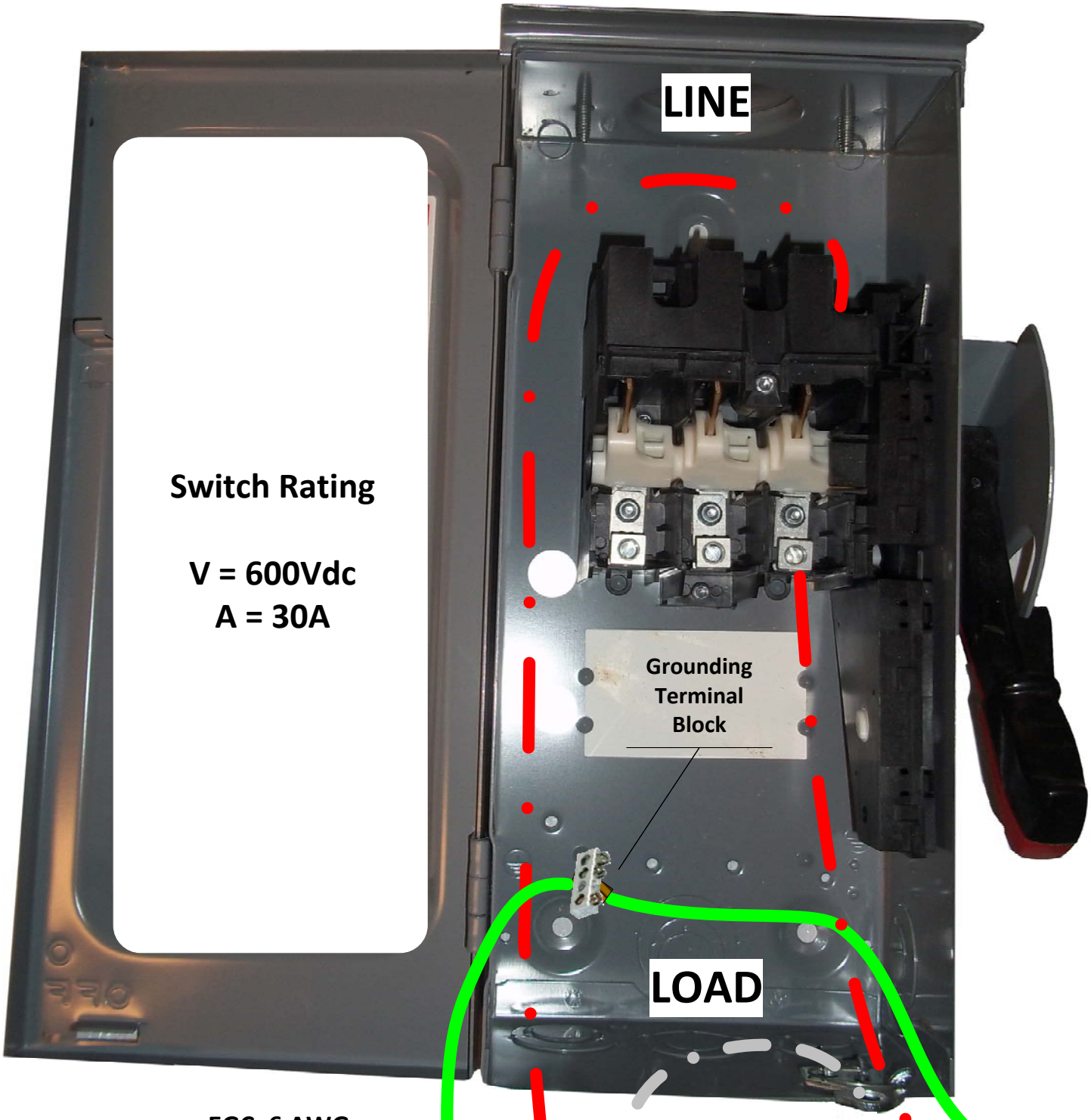
Correct Application

PV Output Circuit Disconnect Switch
for a Grounded Array Accessible to Unqualified Persons

Array Characteristics

Vdcmax = 560Vdc

1 subarray, at Isc = 7.2 Adc



EGC, 6 AWG

DC+, 10 AWG PV

DC-, 10 AWG PV

EGC DC+ DC -

From Array

DC - DC+ EGC

To Inverter

SCENARIO 8

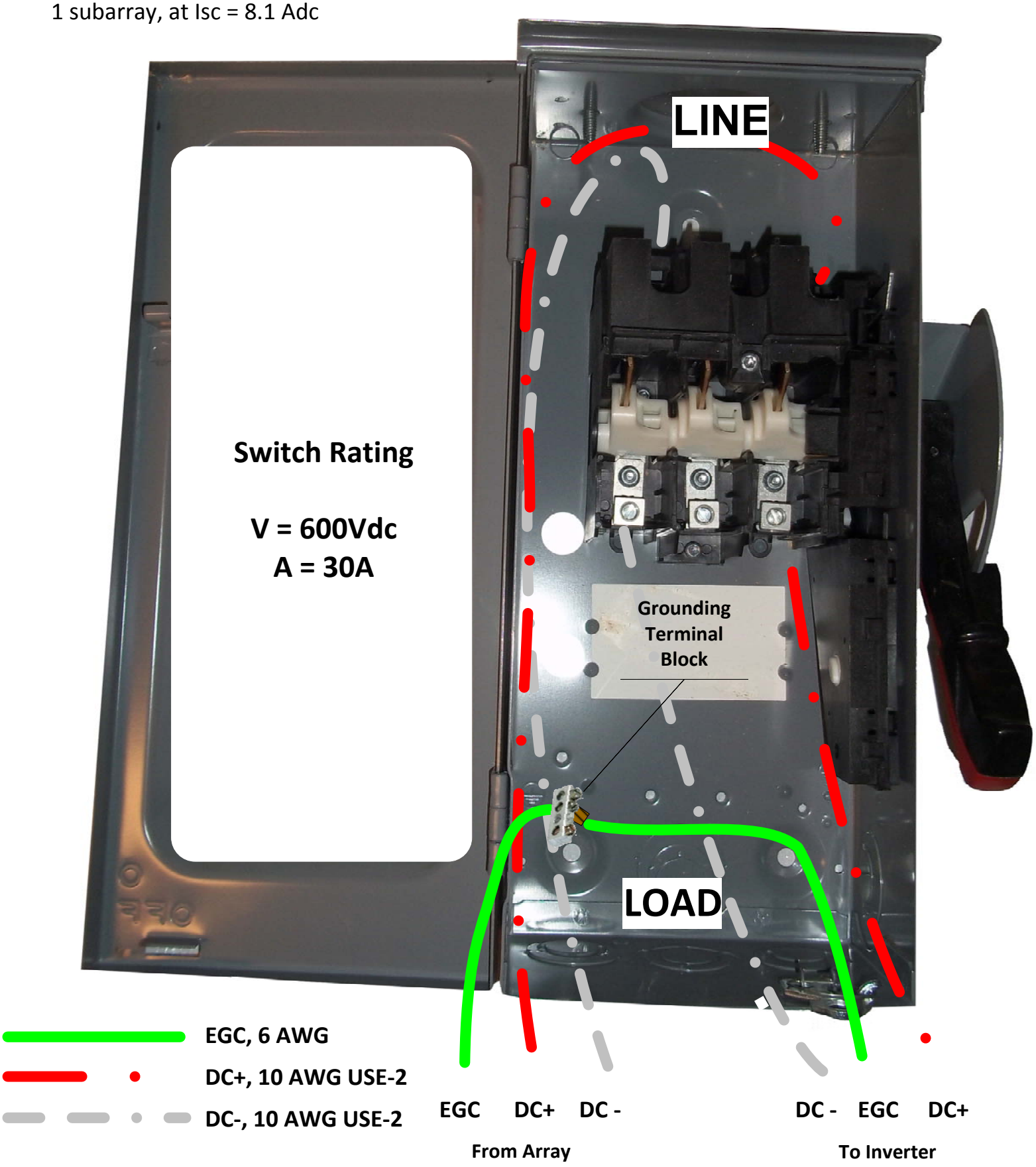
Correct Application

PV Output Circuit Disconnect Switch
for a Grounded Array Accessible Only to Qualified Persons for Maintenance Purposes

Array Characteristics

Vdcmax = 560Vdc

1 subarray, at Isc = 8.1 Adc



SCENARIO 9

Correct Application

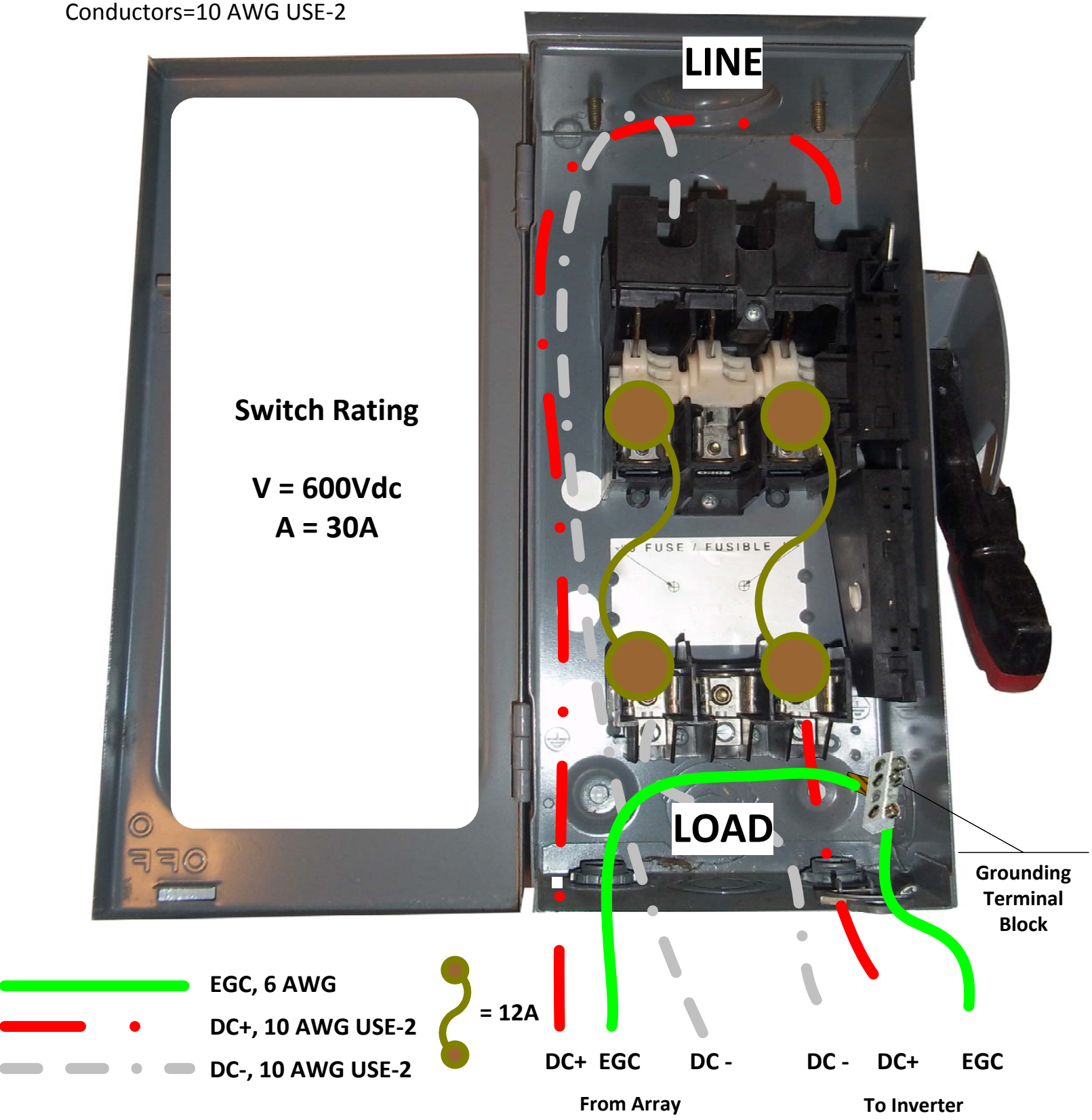
PV Output Circuit Disconnect Switch for an Ungrounded Array

Array Characteristics

Vdcmax = 560Vdc

1 subarray, at Isc = 7.4 Adc

Conductors=10 AWG USE-2



SCENARIO 10

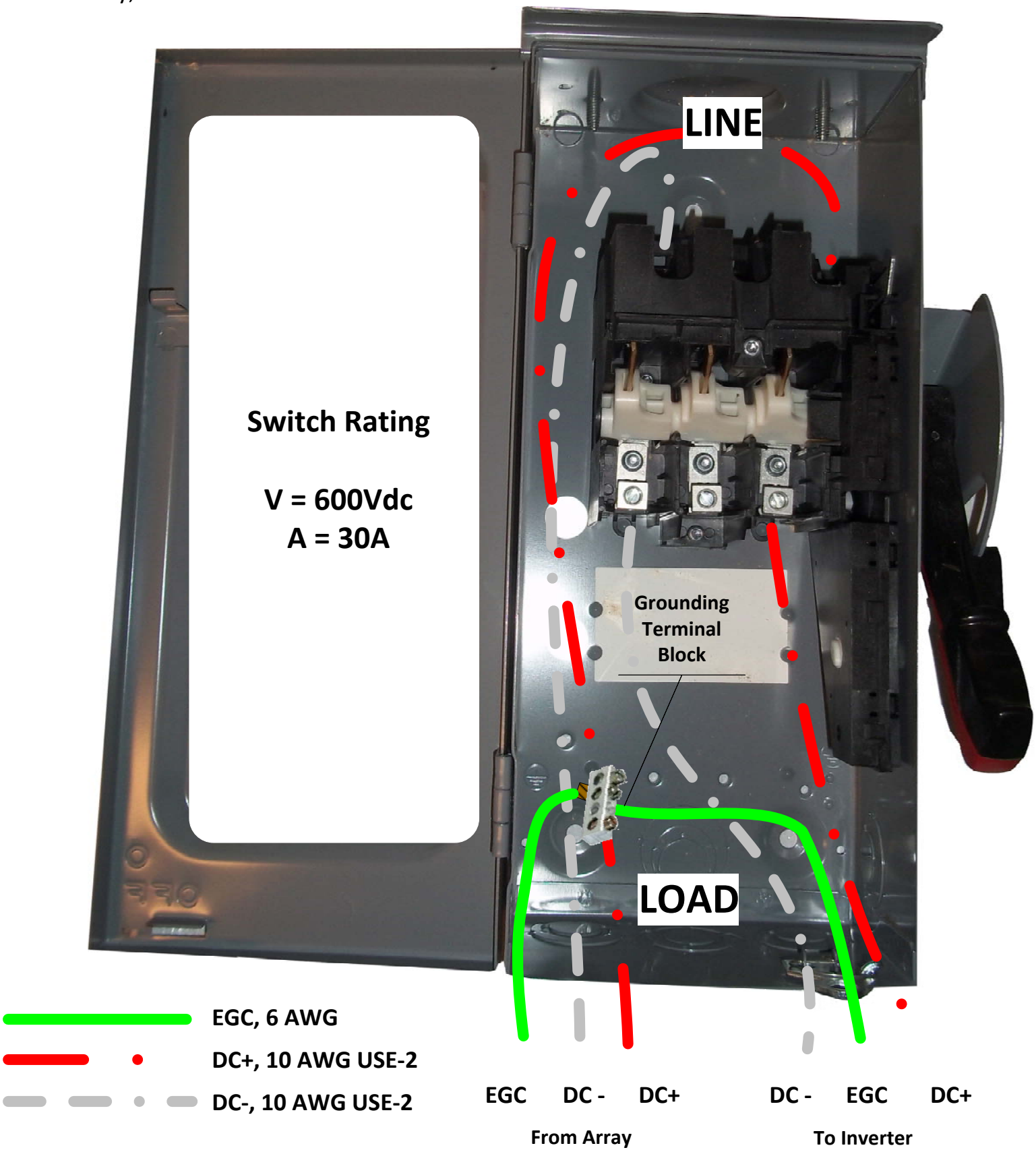
Incorrect Application

PV Output Circuit Disconnect Switch
for a Grounded Array Accessible to Unqualified Persons

Array Characteristics

Vdcmax = 560Vdc

1 subarray, at Isc = 8.2 Adc



SCENARIO 11

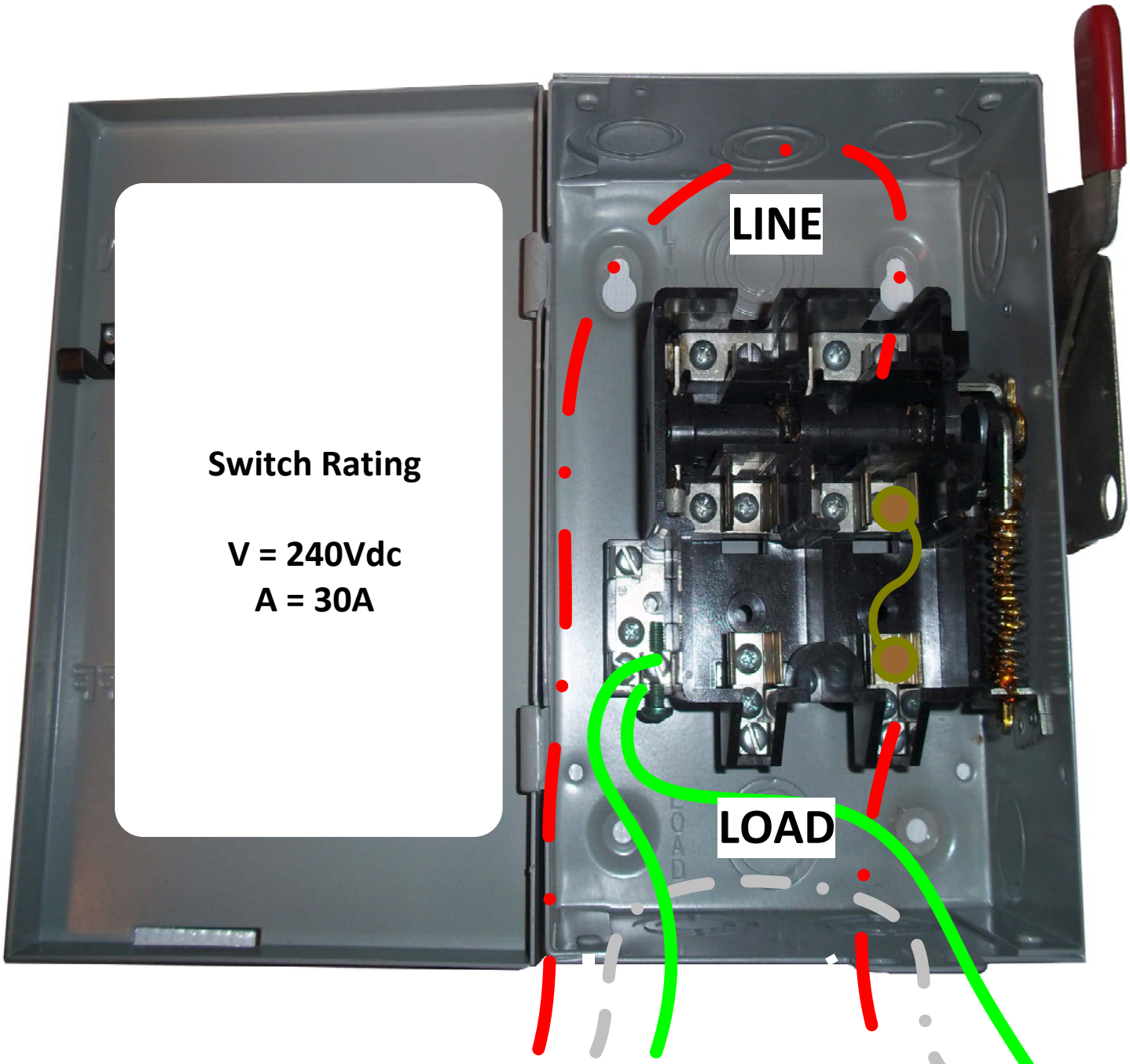
Incorrect Application

PV Output Circuit Disconnect Switch for a Grounded Array

Array Characteristics

Vdcmax = 230Vdc

1 subarray, at Isc = 8.2 Adc



EGC, 6 AWG

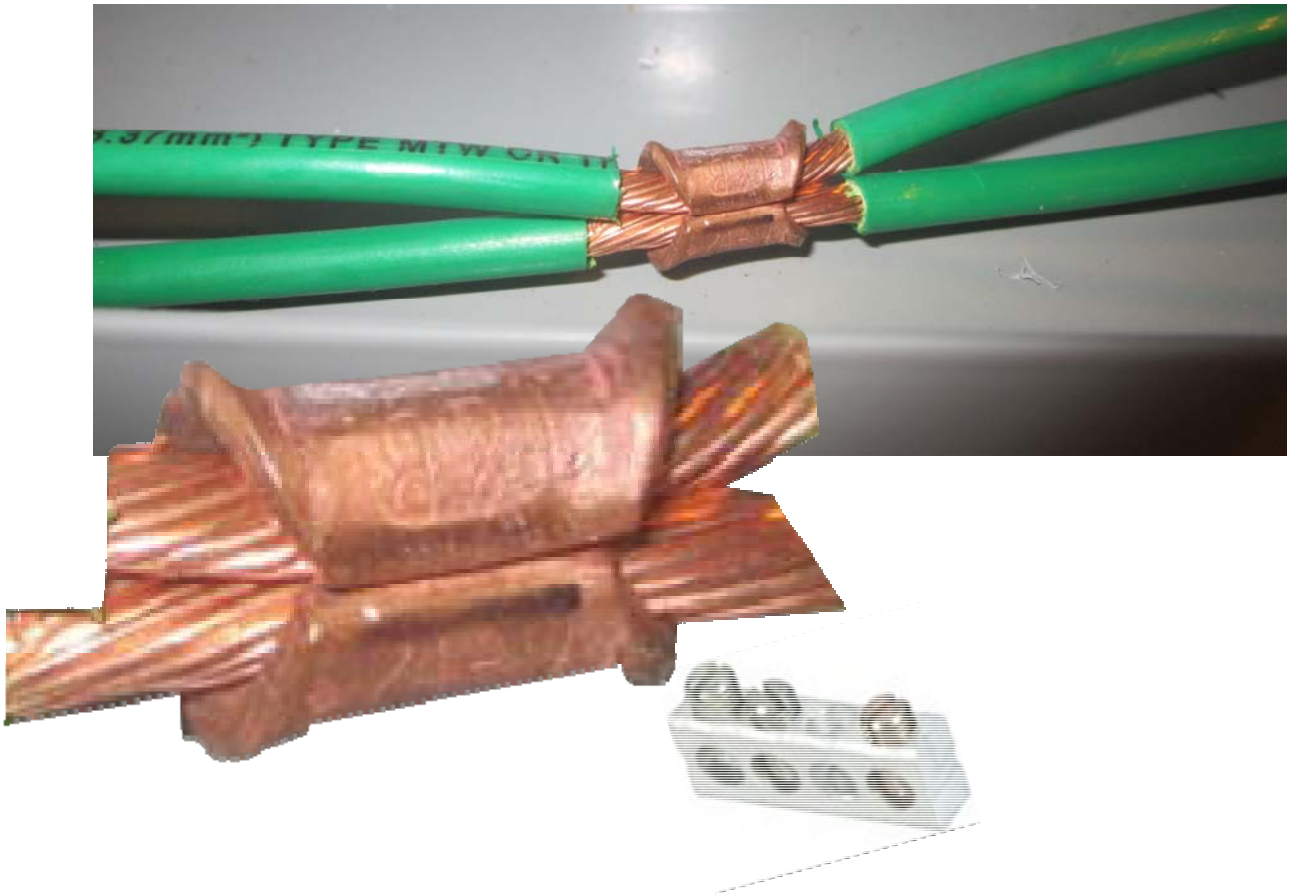
DC+, 10 AWG PV

DC-, 10 AWG PV

= 15A

DC+ DC - EGC

From Array

DC+ DC - EGC

To Inverter