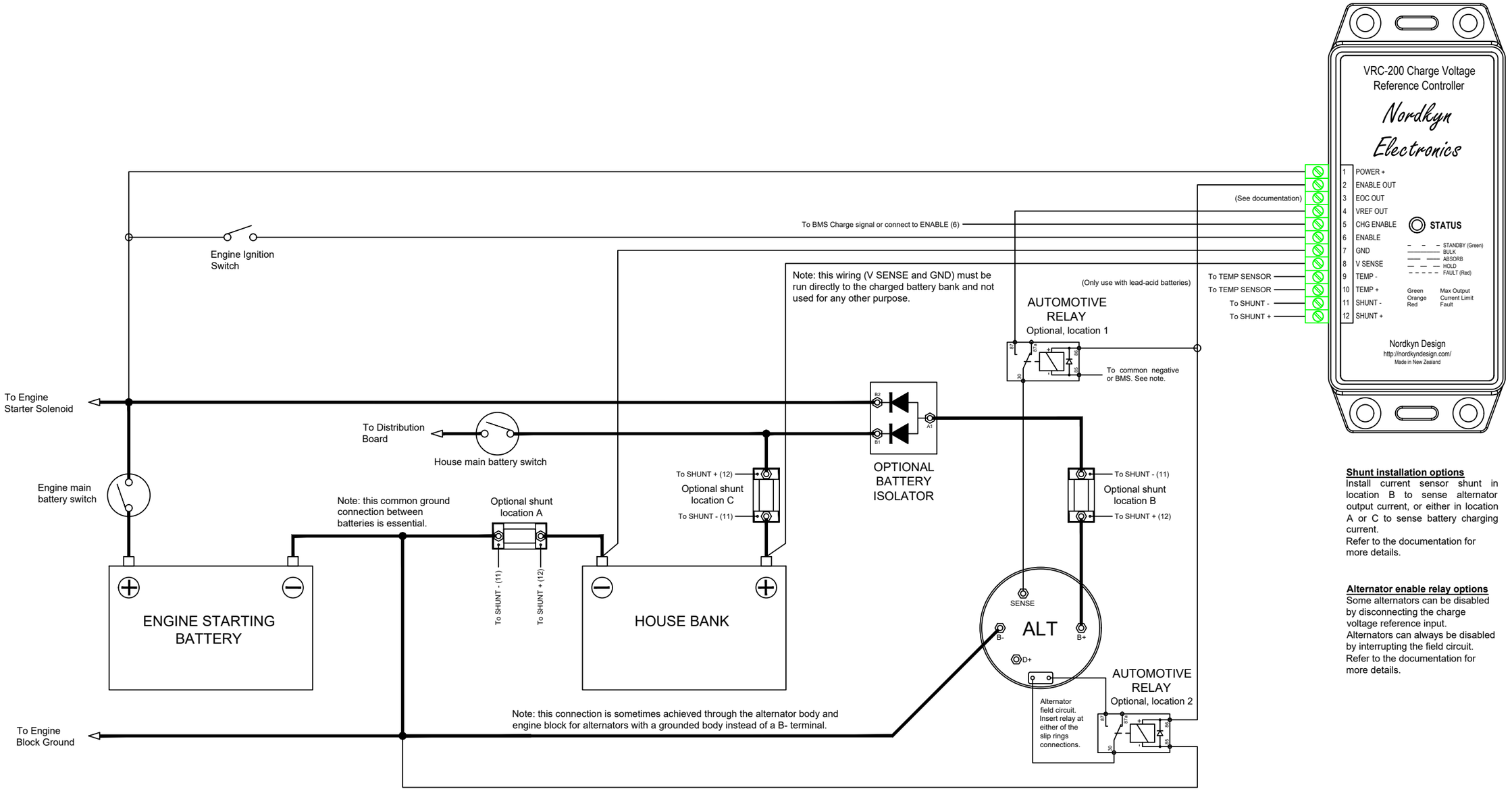


Shunt installation options
Install current sensor shunt in location B to sense alternator output current, or either in location A or C to sense battery charging current.
Refer to the documentation for more details.

Alternator enable relay options
Some alternators can be disabled by disconnecting the charge voltage reference input.
Alternators can always be disabled by interrupting the field circuit.
Refer to the documentation for more details.

NOT TO SCALE UNLESS OTHERWISE INDICATED

0 10 20 30 40 50 60 70 80 90 100mm

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No.	DATE	REVISION	AUTH
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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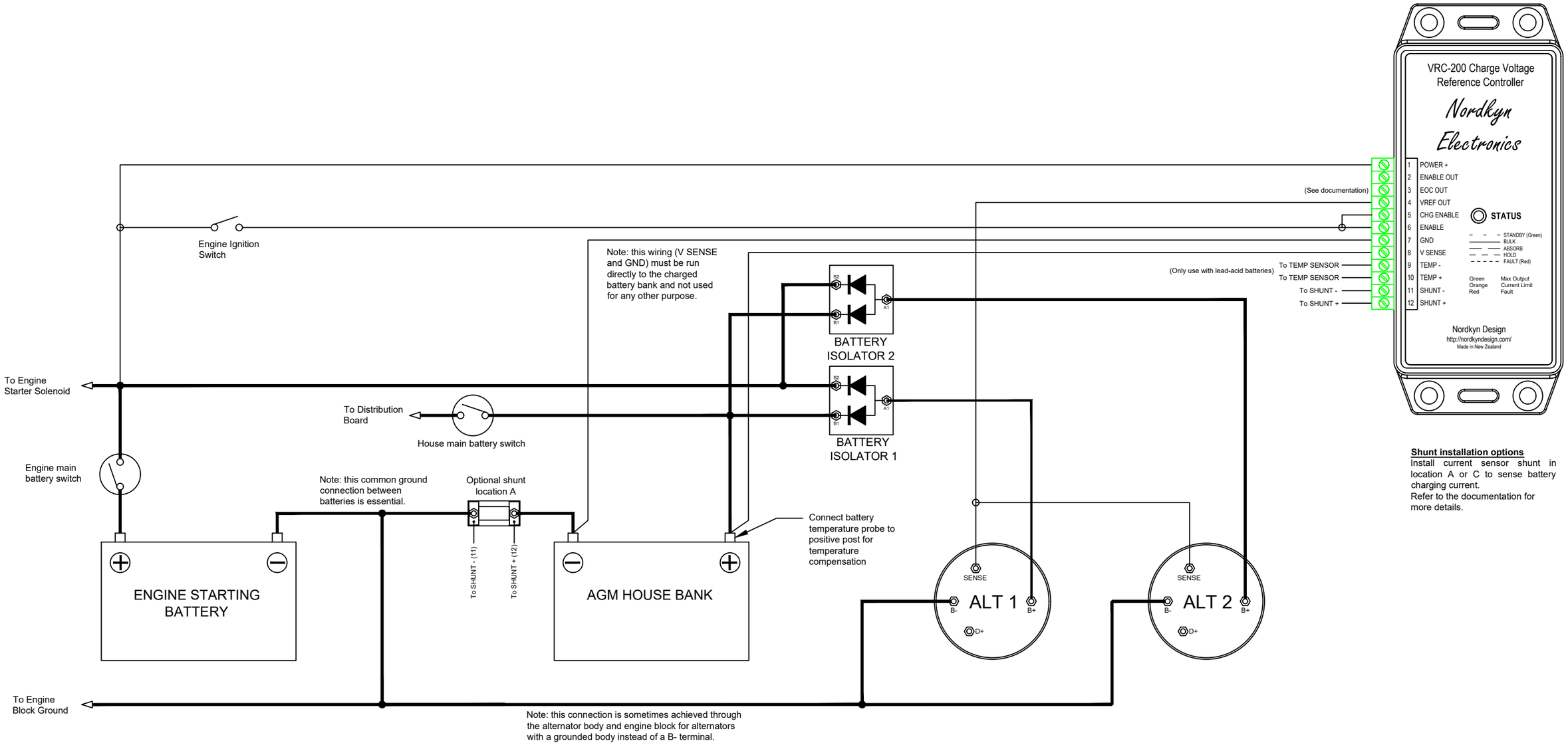
DESIGN	DESIGNED DATE	
Eric Bretscher	12/2018	A3
DRAWING STATUS	STATUS DATE	
Issued for Construction	12/12/2020	NTS

VRC-200
Voltage Reference Controller

GENERIC WIRING DIAGRAM FOR SINGLE ALTERNATOR AND MULTI-BATTERY BANK SYSTEMS, INCLUDING LiFePO4 BATTERIES

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SHEET No.	DESIGN REFERENCE NO.	REVISION
A1	E15-07	R- 1



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0 10 20 30 40 50 60 70 80 90 100mm

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1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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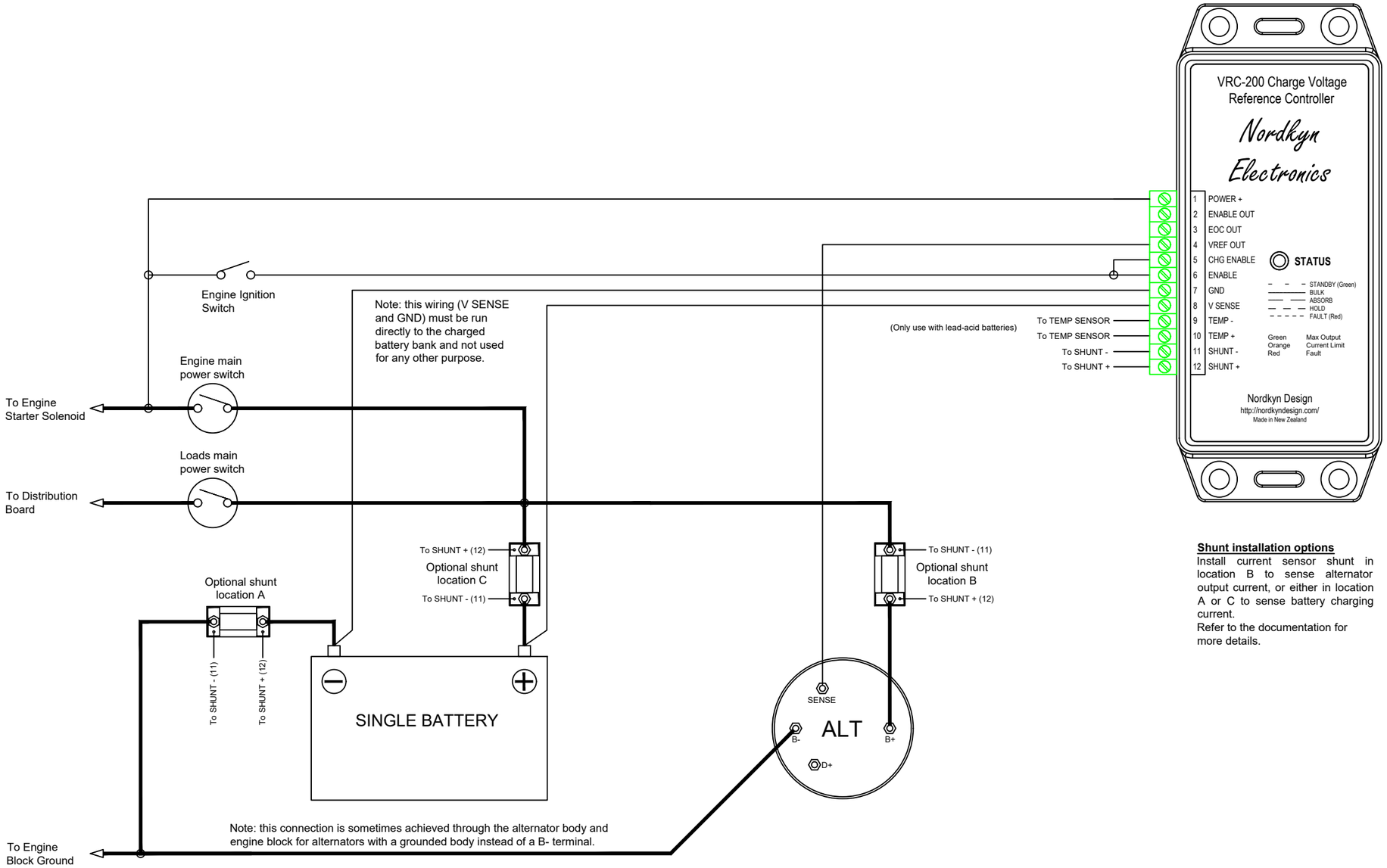
DESIGN	DESIGNED DATE	
Eric Bretscher	12/2018	A3
DRAWING STATUS	STATUS DATE	
Issued for Construction	12/12/2020	NTS

VRC-200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE ENGINE, SHARED DUAL ALTERNATOR, DUAL LEAD-ACID BATTERY SYSTEMS

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SHEET No.	DESIGN REFERENCE NO.	REVISION
A2	E15-07	R- 1



Shunt installation options
Install current sensor shunt in location B to sense alternator output current, or either in location A or C to sense battery charging current.
Refer to the documentation for more details.

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1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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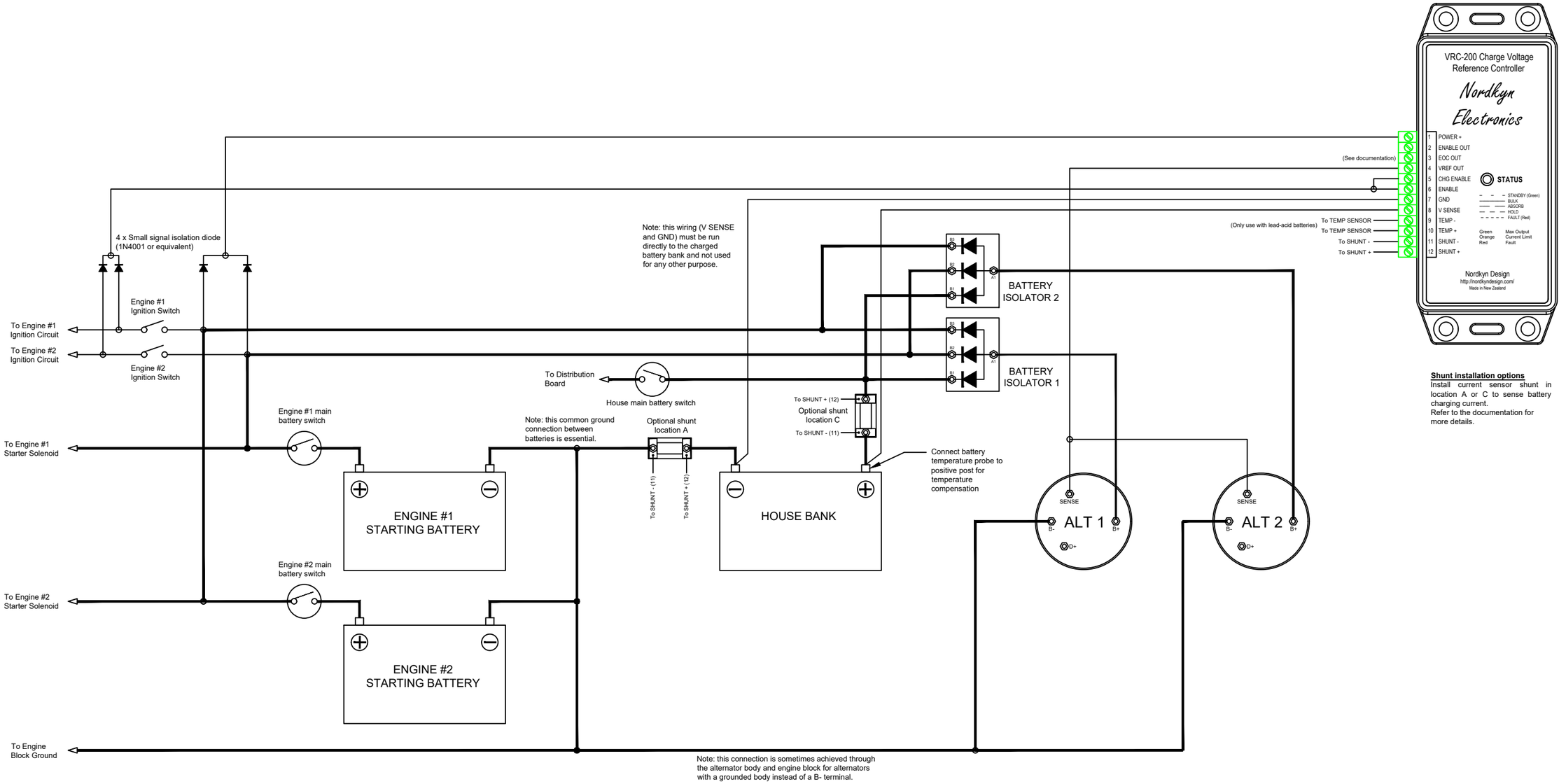
DESIGN	DESIGNED DATE	
Eric Bretscher	03/2019	A3
DRAWING STATUS	STATUS DATE	
Issued for Construction	12/12/2020	NTS

VRC-200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE ENGINE, SINGLE LEAD-ACID BATTERY SYSTEMS

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A3	E15-07	R- 1



Shunt installation options
Install current sensor shunt in location A or C to sense battery charging current.
Refer to the documentation for more details.

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No.	DATE	REVISION	AUTH
0	10/21	Original issue	

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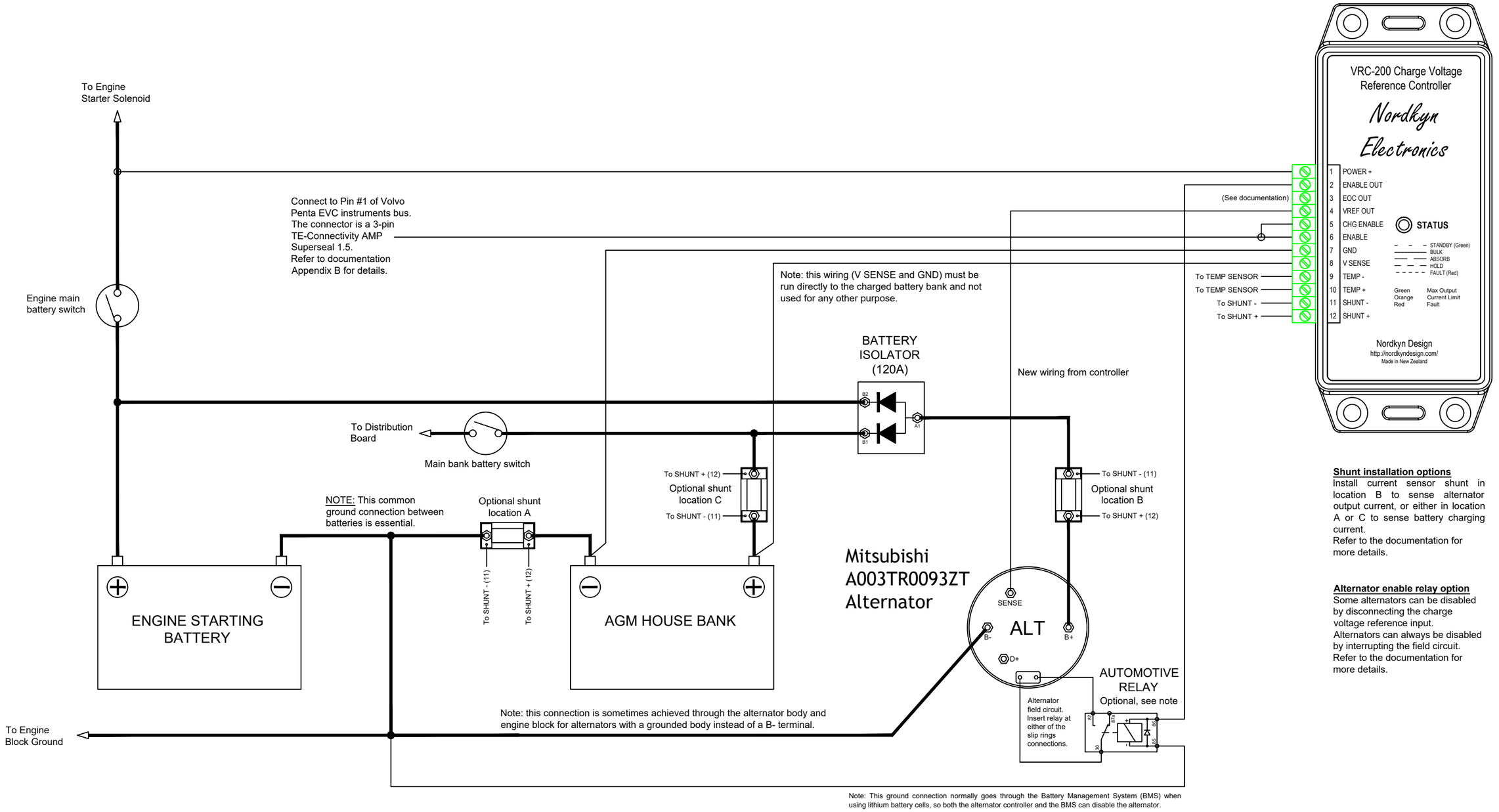
DESIGN: Eric Bretscher	DESIGNED DATE: 10/2021	A3
DRAWING STATUS: Issued for Construction	STATUS DATE: 28/10/2021	NTS

VRC-200
Voltage Reference Controller

WIRING DIAGRAM FOR TWIN ENGINES, SINGLE VRC-200 CONTROLLER WITH HOUSE BANK AND STARTING BATTERIES

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A4	E15–07	R– 0



Note: This ground connection normally goes through the Battery Management System (BMS) when using lithium battery cells, so both the alternator controller and the BMS can disable the alternator.

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No.	DATE	REVISION	AUTH
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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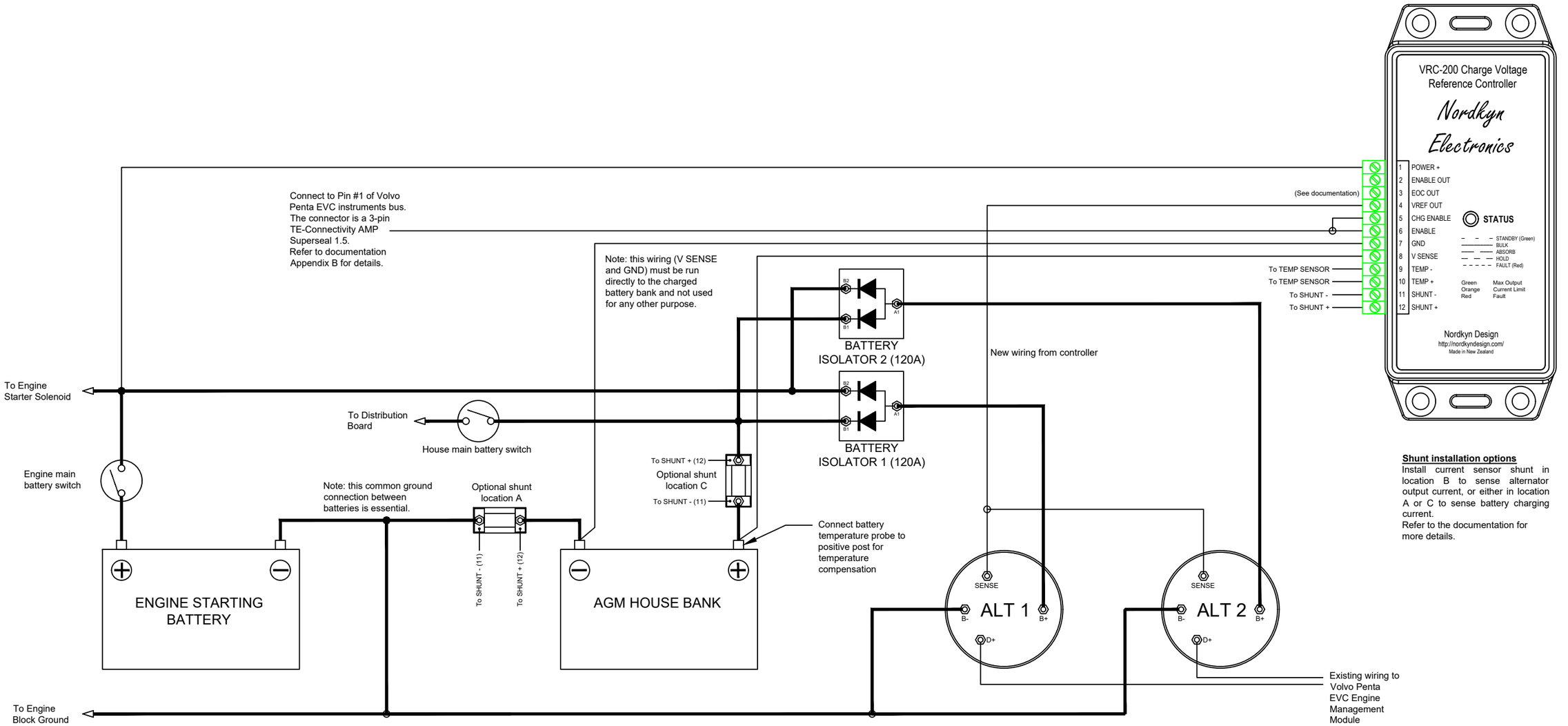
DESIGN	DESIGNED DATE	
Eric Bretscher	12/2018	A3
DRAWING STATUS	STATUS DATE	
Issued for Construction	12/12/2020	NTS

VRC-200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE VOLVO PENTA WITH EVC ENGINE MANAGEMENT, SHARED SINGLE ALTERNATOR AND TWIN BATTERY BANKS WITH DIODE ISOLATOR

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0 10 20 30 40 50 60 70 80 90 100mm

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No.	DATE	REVISION	AUTH
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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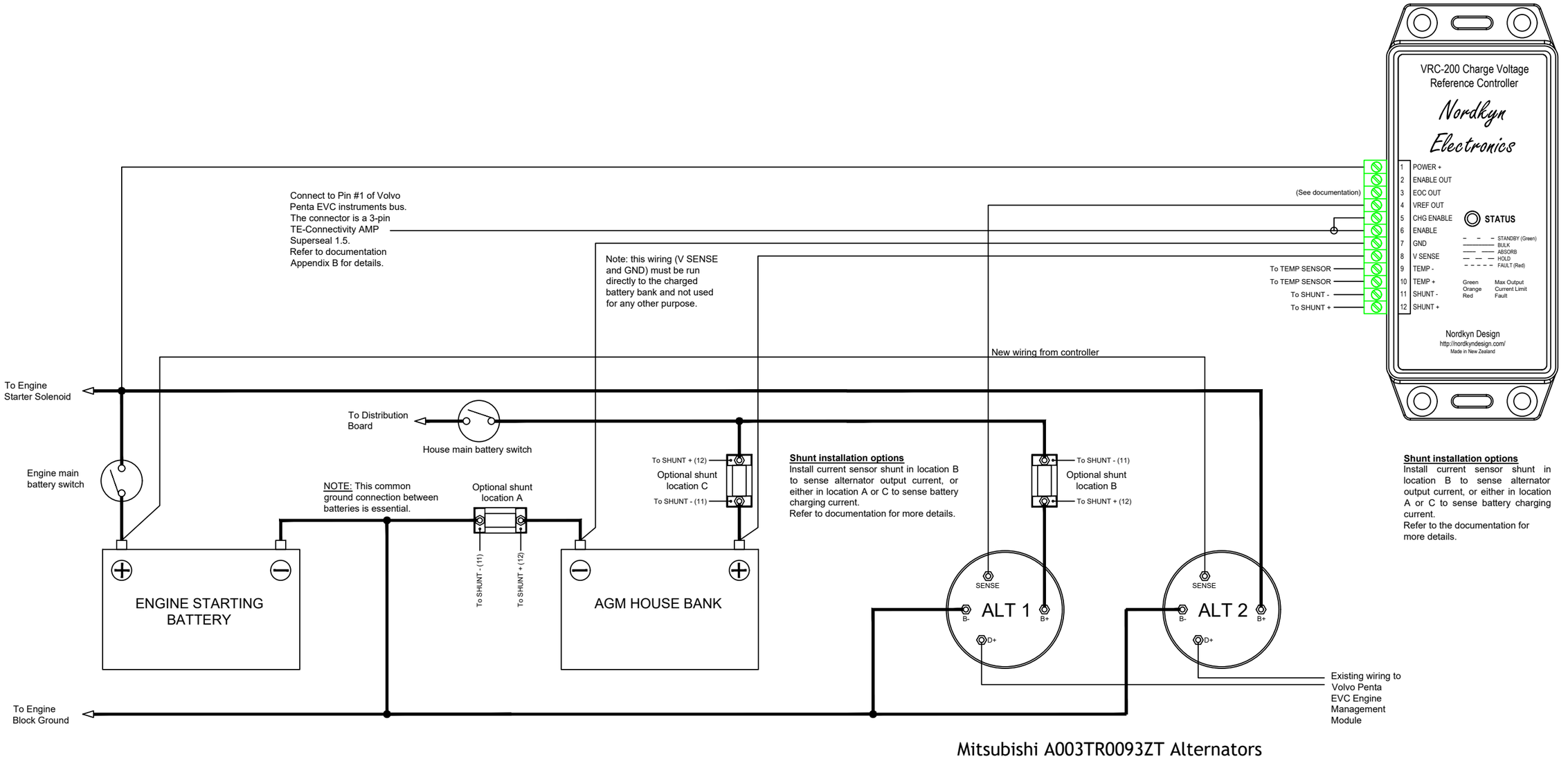
DESIGN: Eric Bretscher
DESIGNED DATE: 12/2018
DRAWING STATUS: Issued for Construction
STATUS DATE: 12/12/2020
A3
NTS

VRC–200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE VOLVO PENTA WITH EVC ENGINE MANAGEMENT, SHARED TWIN ALTERNATORS AND TWIN LEAD–ACID BATTERY BANKS

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B2	E15–07	R– 1



Mitsubishi A003TR0093ZT Alternators

NOT TO SCALE UNLESS OTHERWISE INDICATED

0 10 20 30 40 50 60 70 80 90 100mm

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No.	DATE	REVISION	AUTH
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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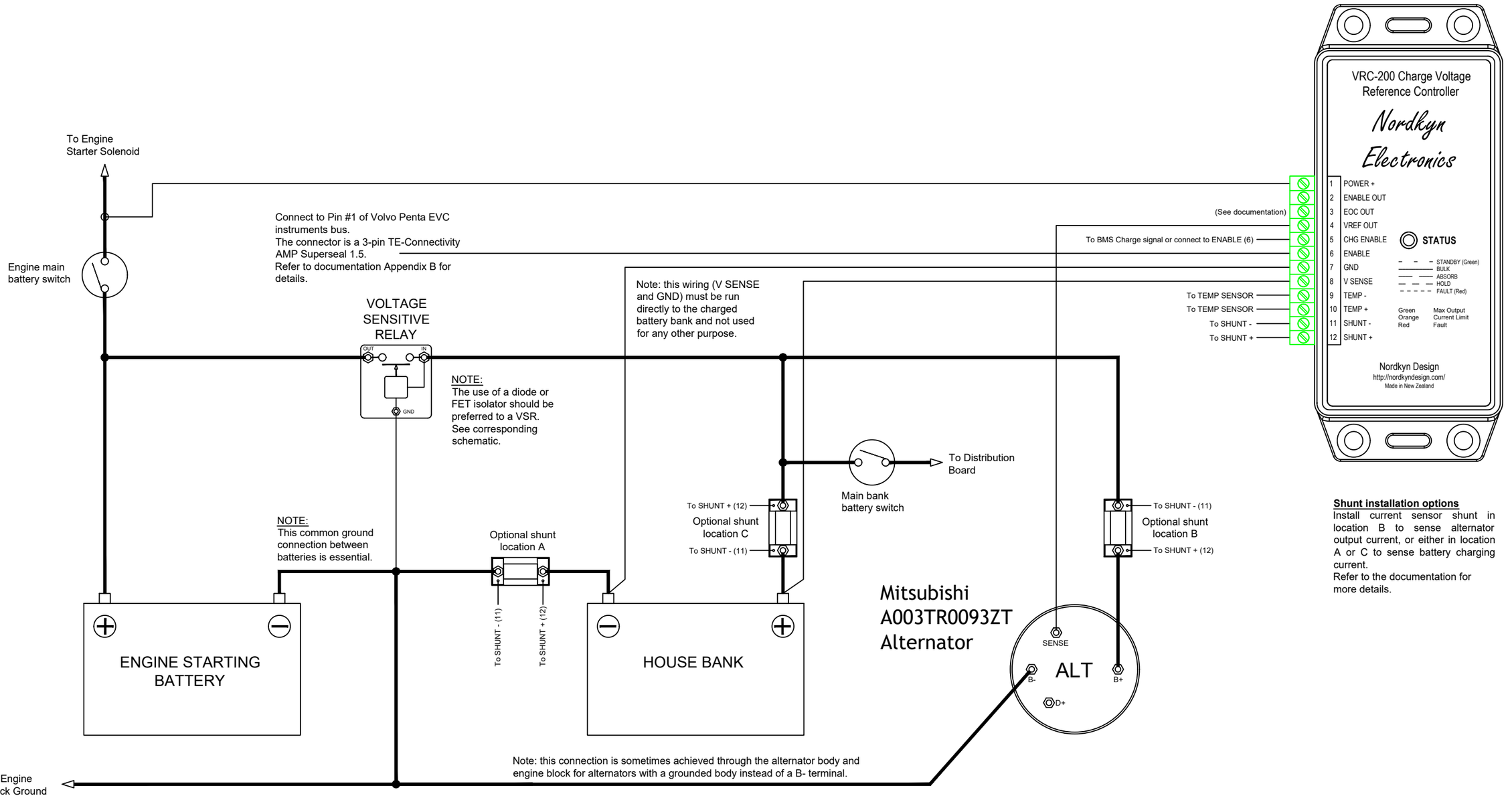
DESIGN: Eric Bretscher	DESIGNED DATE: 12/2018	A3
DRAWING STATUS: Issued for Construction	STATUS DATE: 12/12/2020	NTS

VRC–200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE VOLVO PENTA WITH EVC ENGINE MANAGEMENT, DUAL BATTERY BANKS AND DEDICATED ALTERNATORS

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B3	E15–07	R– 1



Shunt installation options
Install current sensor shunt in location B to sense alternator output current, or either in location A or C to sense battery charging current.
Refer to the documentation for more details.

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No.	DATE	REVISION	AUTH
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	12/18	Original issue	EB

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DRAWING STATUS: Issued for Construction	STATUS DATE: 12/12/2020	NTS

VRC–200
Voltage Reference Controller

WIRING DIAGRAM FOR SINGLE VOLVO PENTA WITH EVC ENGINE MANAGEMENT, SHARED SINGLE ALTERNATOR AND TWIN BATTERY BANKS WITH VSR

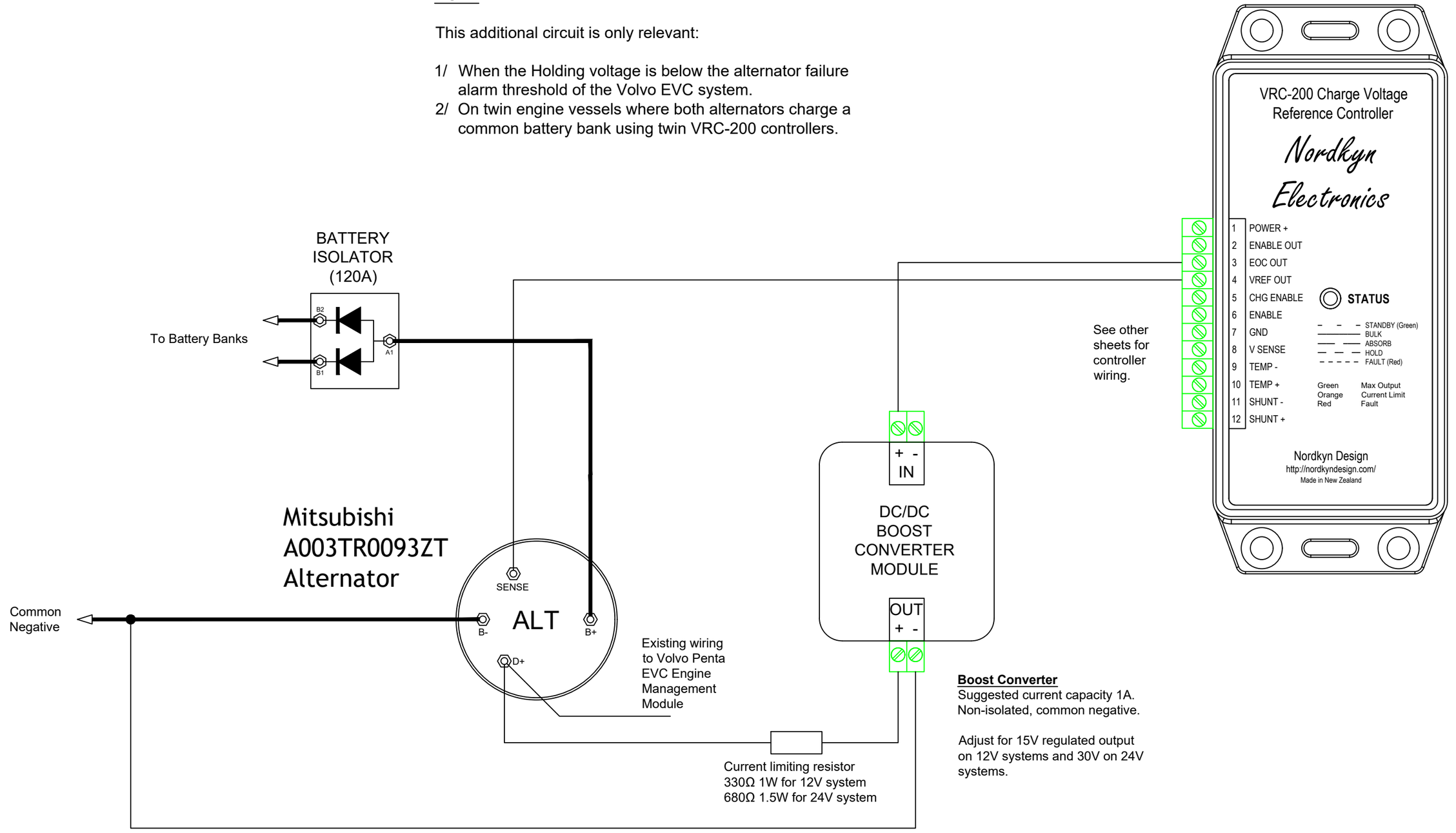
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B4	E15–07	R– 1

NOTE

This additional circuit is only relevant:

1/ When the Holding voltage is below the alternator failure alarm threshold of the Volvo EVC system.
2/ On twin engine vessels where both alternators charge a common battery bank using twin VRC-200 controllers.



Boost Converter
Suggested current capacity 1A.
Non-isolated, common negative.

Adjust for 15V regulated output on 12V systems and 30V on 24V systems.

NOT TO SCALE UNLESS OTHERWISE INDICATED

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No.	DATE	REVISION	
1	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
0	03/19	Original issue	EB

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DESIGN: Eric Bretscher
DESIGNED DATE: 03/2019
DRAWING STATUS: Issued for Construction
STATUS DATE: 12/12/2020
A3
NTS

VRC-200
Voltage Reference Controller

SUPPLEMENTARY WIRING DIAGRAM FOR VOLVO PENTA WITH EVC ENGINE MANAGEMENT ALTERNATOR ALARM PREVENTION OPTION: D+ OUTPUT BOOSTING

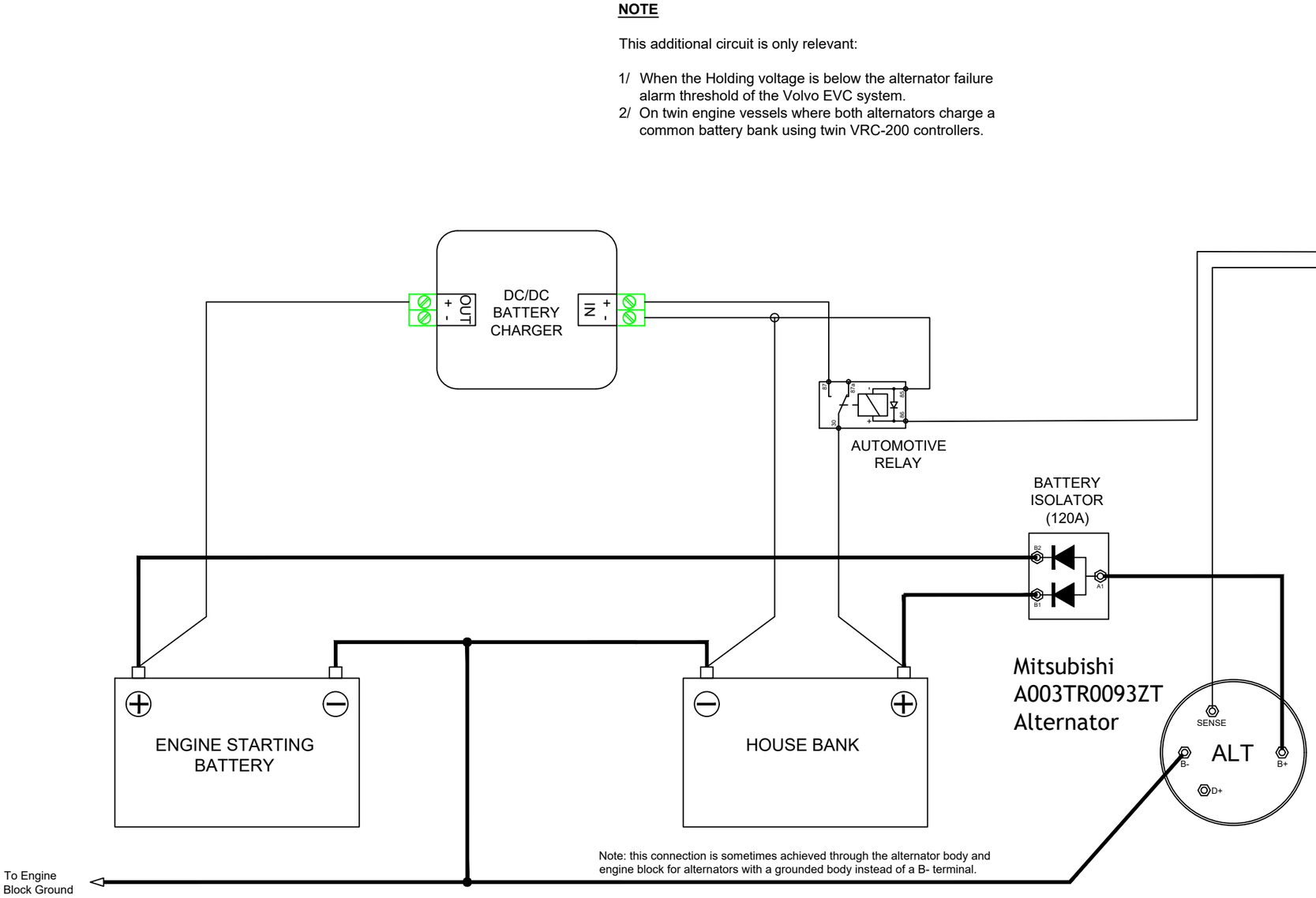
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B5	E15-07	R- 1

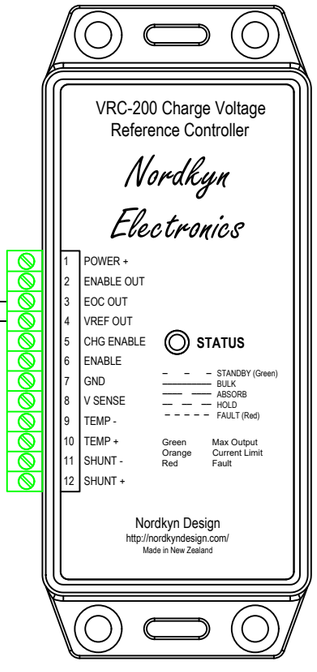
NOTE

This additional circuit is only relevant:

1/ When the Holding voltage is below the alternator failure alarm threshold of the Volvo EVC system.
2/ On twin engine vessels where both alternators charge a common battery bank using twin VRC-200 controllers.



See other sheets for controller wiring.



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0 10 20 30 40 50 60 70 80 90 100mm

No.	DATE	REVISION	AUTH
2	12/20	Updated for VRC-200 Rev 6 new terminal layout	EB
1	05/19	Corrected boost converter wiring	EB
0	03/19	Original issue	EB

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DESIGN: Eric Bretscher	DESIGNED DATE: 03/2019	A3
DRAWING STATUS: Issued for Construction	STATUS DATE: 12/12/2020	NTS

VRC–200
Voltage Reference Controller

SUPPLEMENTARY WIRING DIAGRAM FOR
VOLVO PENTA WITH EVC ENGINE MANAGEMENT
ALTERNATOR ALARM PREVENTION OPTION:
ENGINE BATTERY VOLTAGE BOOSTING

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SHEET No.	DESIGN REFERENCE NO.	REVISION
B6	E15–07	R– 2