



April 15, 2021
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COMPONENTS LOCATED NEAR FRONT OF VEHICLE

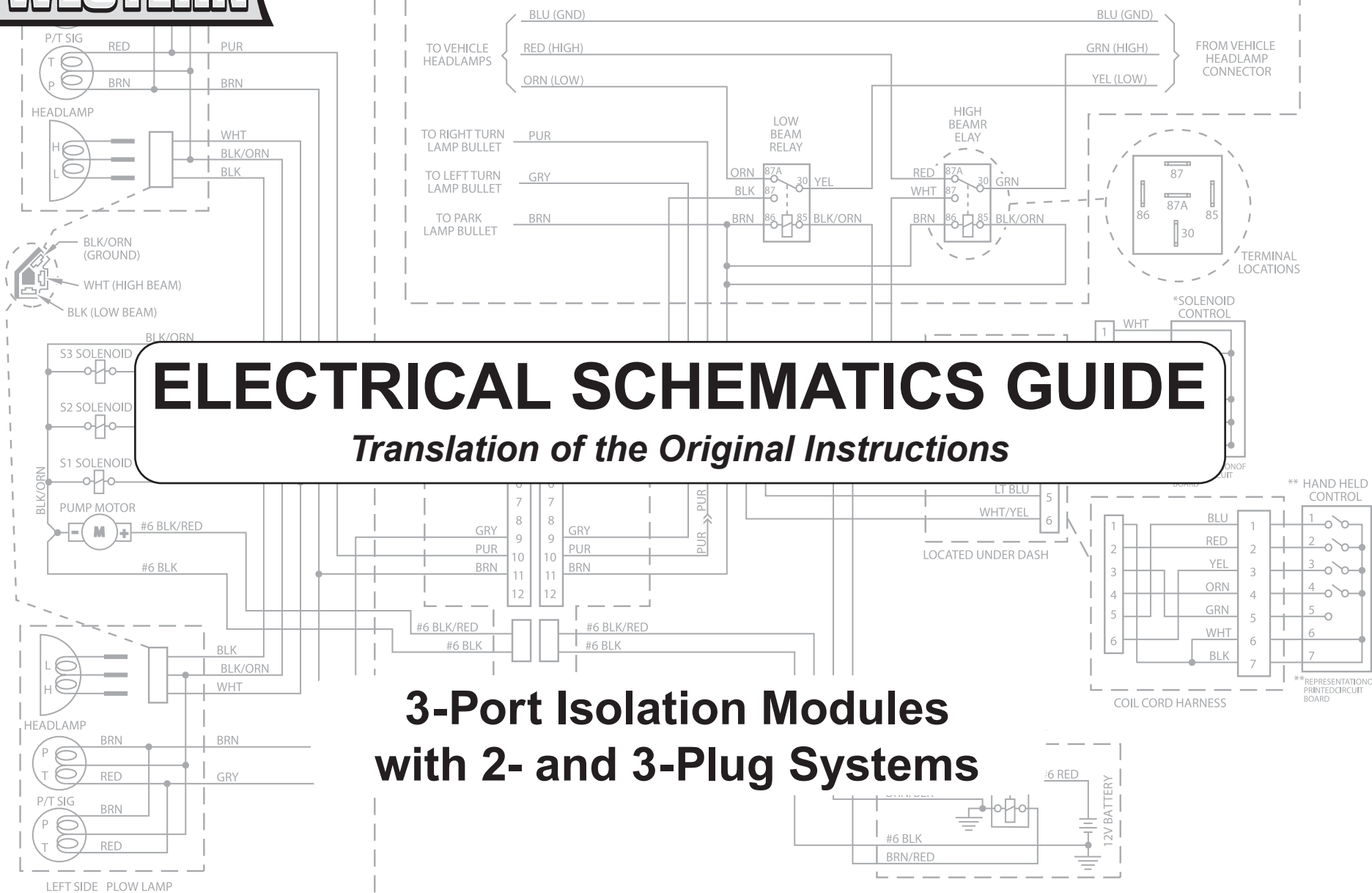


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INTRODUCTION

PURPOSE

The purpose of this book is to provide the trained mechanic with a comprehensive reference to assist in diagnosis and repair of WESTERN® snowplow electrical systems. It contains schematics, diagrams, and charts that supply information for the various types of vehicle and snowplow headlamp systems. Although this guide is intended primarily as a diagnostic tool for headlamp systems, it also includes the hydraulic system circuitry in order to show the complete electrical system.

HOW TO USE THIS BOOK

Use the information in the Headlamp Index to locate the electrical schematic for the vehicle. All headlamp harnesses are tagged with the harness part number.

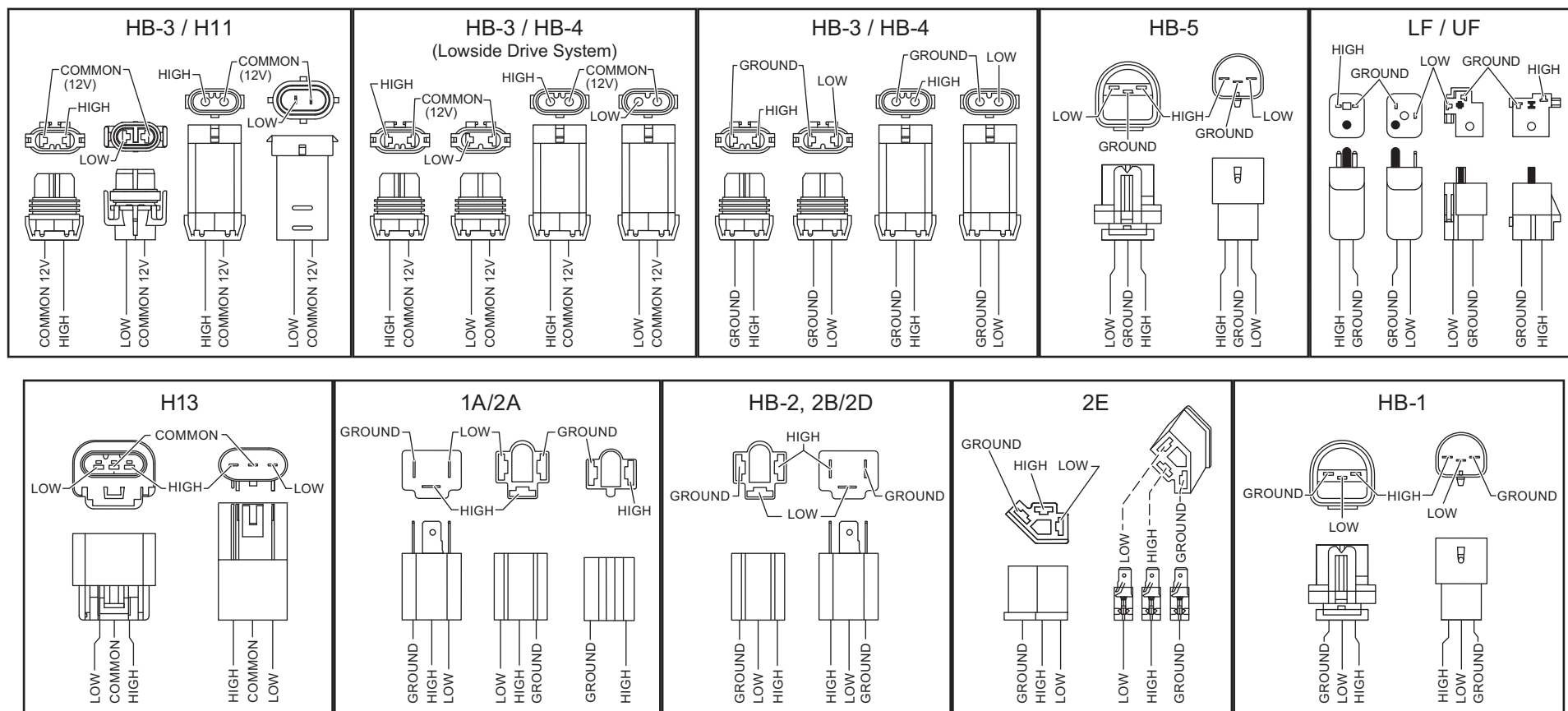
The schematic is an abstract drawing showing the purpose of each component in the system. Where possible, component locations are indicated by enclosures on the schematic. The Lamp Type, Wire Color and Connector Identification charts and diagrams will give specific wire colors, functions, and locations in connectors.

Any special notes are found in the upper right corner of the schematic. Further information and a specific troubleshooting guide may be found in the appropriate Mechanic's Guides.

LAMP TYPES AND HARNESS CONNECTORS

NOTE: The lamp type is usually embossed in the headlamp lens.

Headlamp Type	Bulb Type	Headlamp Type	Bulb Type
LF	H4703	H13	9008
UF	H4701	HB-1	9004
1A1	H4851	HB-2	9003
2A1	H4652 (GMC/Chevy)	HB-3	9005
2A1	H4656 (Mitsubishi)	HB-4	9006
2B1	H6054	HB-5	9007
2D1	H6024	H11	H11
2E1	H6545		

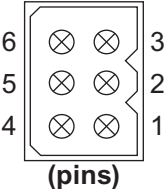


3-PORT ISOLATION MODULE – ELECTRICAL CONNECTORS

3-PLUG SYSTEMS

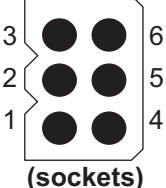
Solenoid Control Connectors

Control Side
(end view)



Pin No.	Solenoid Control Wire Color Only
1	White
2	Green
3	Brown
4	Black
5	Blue
6	Red

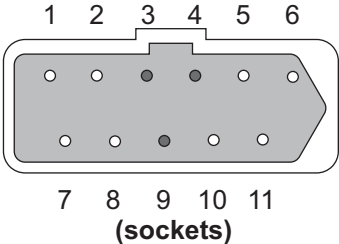
Vehicle Side
(end view)



Pin No.	Wire Color	Control Function
1	Red/Yellow	+12V
2	Light Green	Valve S2
3	Orange/Black	Ground
4	Brown/Red	Motor Relay
5	Light Blue	Valve S3
6	White/Yellow	Valve S1

Plow Control Harnesses

Plow (end view)

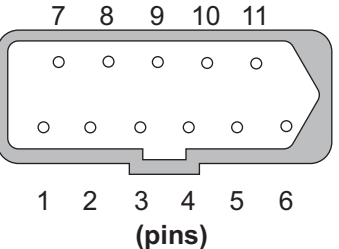


3-Pin

Pin No.	Wire Color	Control Function
1	—	—
2	—	—
3	Light Blue	Valve S3
4	Light Green	Valve S2
5	—	—
6	—	—
7	—	—
8	—	—
9	White/Yellow	Valve S1
10	—	—
11	—	—

Plow Lighting Harness

Plow (end view)



11-Pin

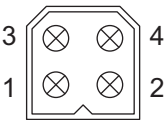
Pin No.	Wire Color	Control Function
1	Black/White	PS Low Beam
2	Black/Orange	Ground
3	White/Yellow	PS High Beam
4	White	DS High Beam
5	Blue/Orange	PS Common
6	Black	DS Low Beam
7	Black/Orange	Ground
8	Gray	Left Directional
9	Purple	Right Directional
10	Brown	Parking Lights
11	Light Blue	DS Common

3-PORT ISOLATION MODULE – ELECTRICAL CONNECTORS

2-PLUG SYSTEMS

Solenoid Control Connectors

Control Side
(end view)



(pins)

Pin No.	Solenoid Control Wire Color Only
1	Red
2	Green
3	White
4	Black

Vehicle Side
(end view)

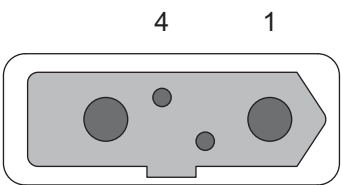


(sockets)

Pin No.	Wire Color	Control Function
1	Red	+12V
2	Red	Signal
3	Black	Signal
4	Black	Ground

Multiplex Harnesses

Plow (end view)

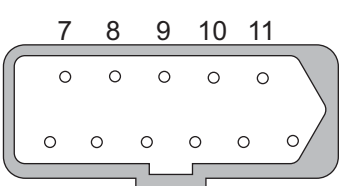


(sockets)

4-Pin		
Pin No.	Wire Color	Control Function
1	Red	+12V
2	Black	Ground
3	Tan	Signal
4	White	Signal

Plow Lighting Harness

Plow (end view)



(pins)

11-Pin		
Pin No.	Wire Color	Control Function
1	Black/White	PS Low Beam
2	Black/Orange	Ground
3	White/Yellow	PS High Beam
4	White	DS High Beam
5	Blue/Orange	PS Common
6	Black	DS Low Beam
7	Black/Orange	Ground
8	Gray	Left Directional
9	Purple	Right Directional
10	Brown	Parking Lights
11	Light Blue	DS Common

3-PORT ISOLATION MODULE SYSTEMS – HEADLAMP INDEX

Page	Headlamp Type	Harness Kit	Harness #
17	HB-3/HB-4	29048	28253
18	H13	29049	28986
19	HB-1 or HB-5	29050	28930
20	2B/2D or HB-2	29051	28464
22	2B/2D or 1A/2A 5-Pin Connectors	29053	29058

3-PORT ISOLATION MODULE – THEORY OF OPERATION

OVERVIEW

The isolation module acts as an electrical hub, automatically directing vehicle power to the appropriate vehicle or snowplow lighting devices, while also supplying battery power to the snowplow control.

The vehicle high and low beams enter and exit the module through positions B (left-side lighting) and position C (right-side lighting). Park, turn, and daytime running lamp (DRL) signals also enter through positions B and C.

The output of the vehicle high beam/low beam select switch is directed to the module via the plug-in harness. When the snowplow is not attached to the vehicle, the signal passes through the normally closed relay contacts to the vehicle headlamps. During this time, the module is inactive, placing no current draw on the vehicle's electrical system.

Operation of Isolation Module (PN 27090-1)

Snowplow not attached to vehicle:

System is inactive. Vehicle lighting system functions normally. Reason: No ground to module.

Snowplow attached to vehicle:

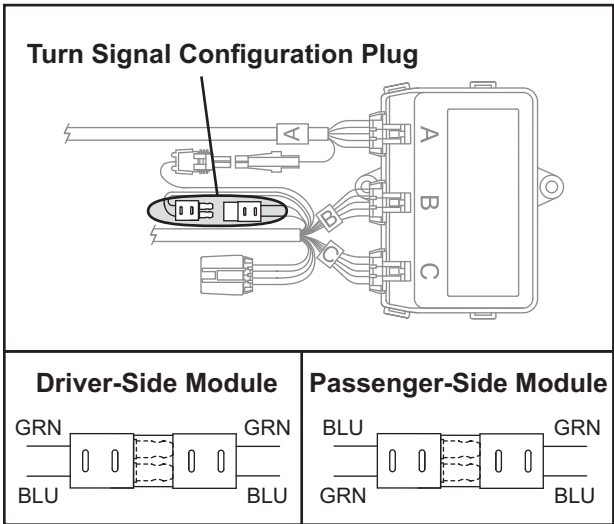
System is inactive until either the switched accessory wire or the vehicle parking lights are activated. Vehicle and snowplow lighting systems function as outlined in the Reason: Ground path

is established from battery common to pin C on port A of the 3-port module via the following harnesses—vehicle battery cable, vehicle control harness, adapter, plug-in harness, vehicle lighting harness, and snowplow lighting harness.

- Activating a **switched accessory** wire (a key-controlled power source) applies battery voltage to the VACC input of the module. A control circuit senses the voltage and energizes the coil of the control power relay (part of the 3-port module). Energizing the coil of the control power relay causes the relay contacts to shift from the "N.O." (normally opened) position to the "N.C." (normally closed) position, which supplies battery voltage to the snowplow control via the plug-in harness and the vehicle control harness. The switched accessory wire only controls battery voltage to the snowplow control.
- Activating the vehicle **park light** circuit applies voltage to the module park circuit input. A control circuit senses the voltage and turns ON a solid state power device, which applies battery voltage to the snowplow park lamp filaments via the vehicle and snowplow lighting harnesses.
- With the park light circuit energized, the control circuit monitors the **vehicle high and low beam** inputs. When battery voltage is sensed, the appropriate solid state power devices are turned ON, supplying battery voltage to the snowplow headlamps via the vehicle and snowplow lighting harnesses. Toggling the dimmer switch between high and low beam will toggle the snowplow high and low beams.

- Activating the **turn signal** applies voltage to the module turn signal circuit input. A control circuit senses the voltage and turns ON a solid state power device, which applies battery voltage to the snowplow turn signal lamp filaments via the vehicle and snowplow lighting harnesses.

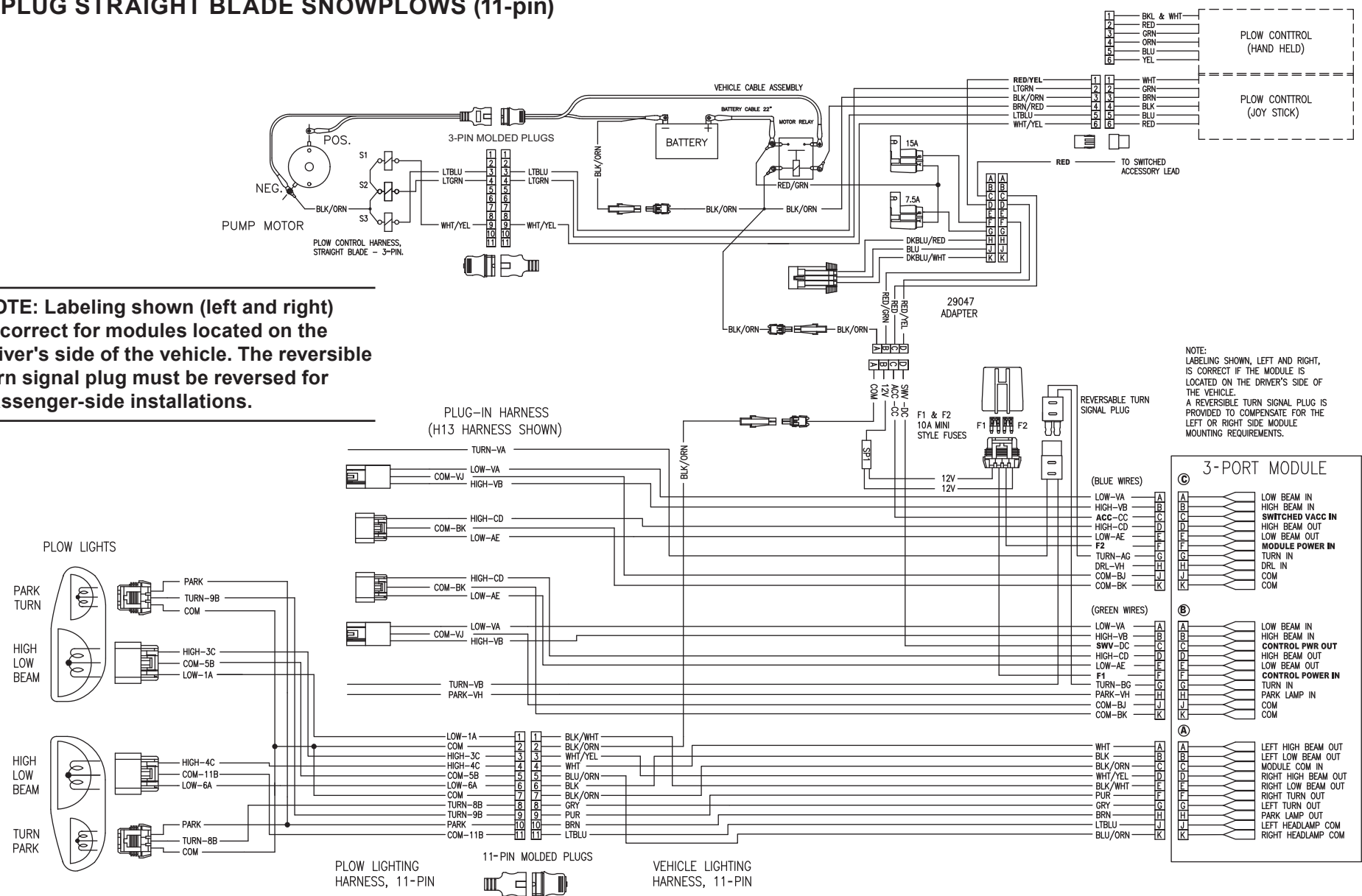
NOTE: References to "left" and "right" are correct for modules located on the driver's side of the vehicle. The reversible turn signal plug must be reversed for passenger-side installations.



3-PORT ISOLATION MODULE – ELECTRICAL SCHEMATICS

3-PLUG STRAIGHT BLADE SNOWPLOWS (11-pin)

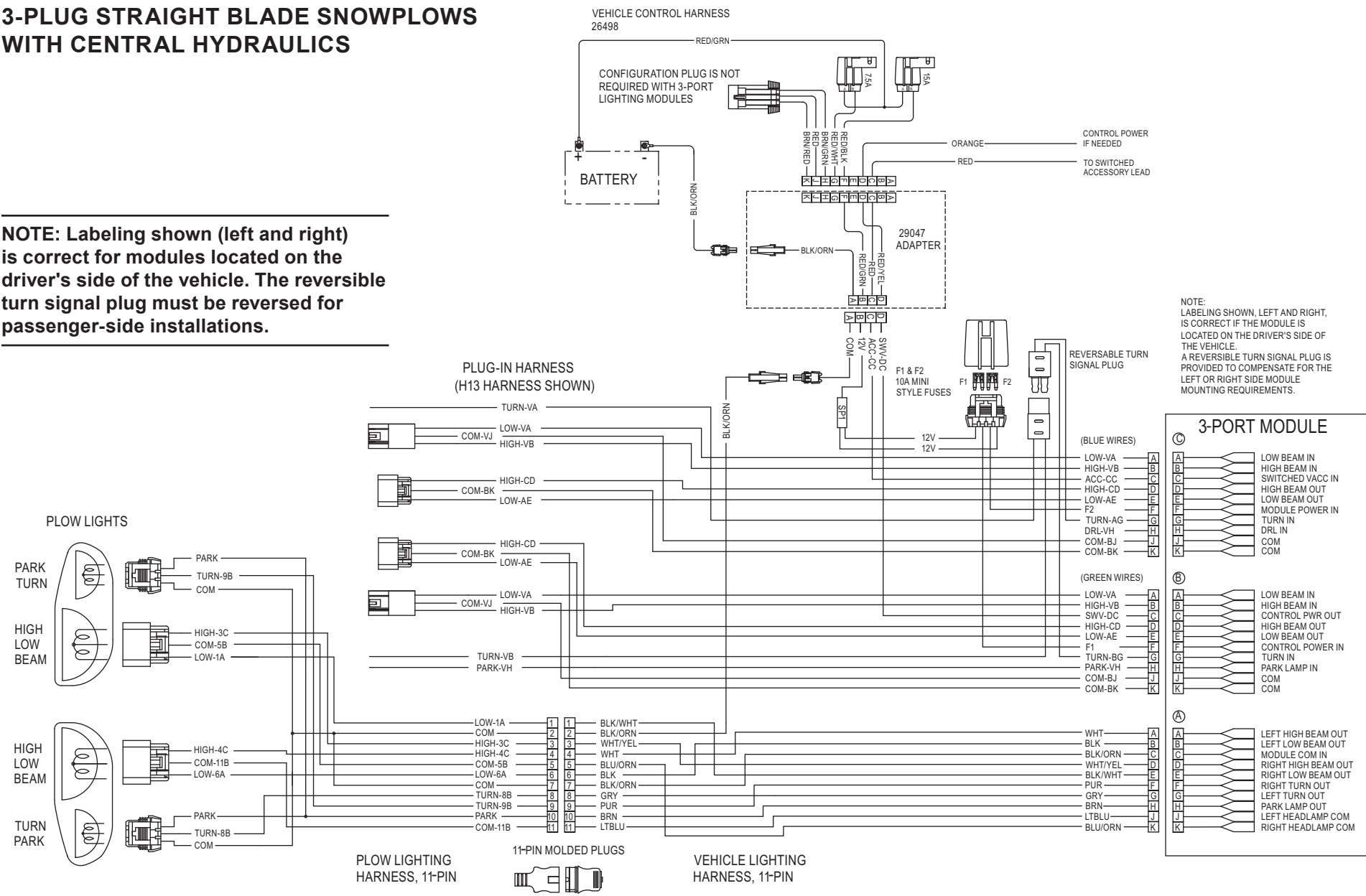
NOTE: Labeling shown (left and right) is correct for modules located on the driver's side of the vehicle. The reversible turn signal plug must be reversed for passenger-side installations.



3-PORT ISOLATION MODULE – ELECTRICAL SCHEMATICS

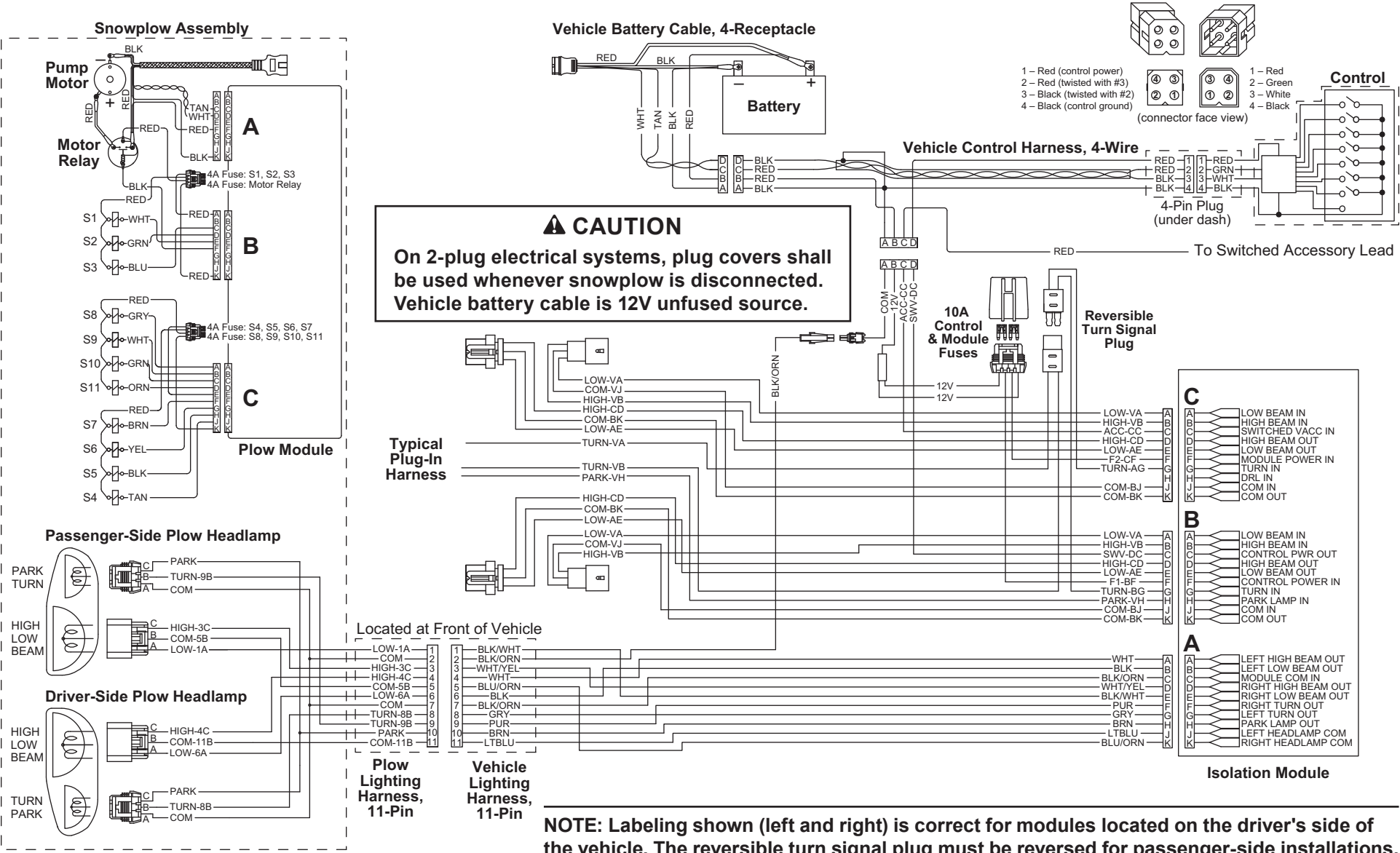
3-PLUG STRAIGHT BLADE SNOWPLOWS WITH CENTRAL HYDRAULICS

NOTE: Labeling shown (left and right) is correct for modules located on the driver's side of the vehicle. The reversible turn signal plug must be reversed for passenger-side installations.



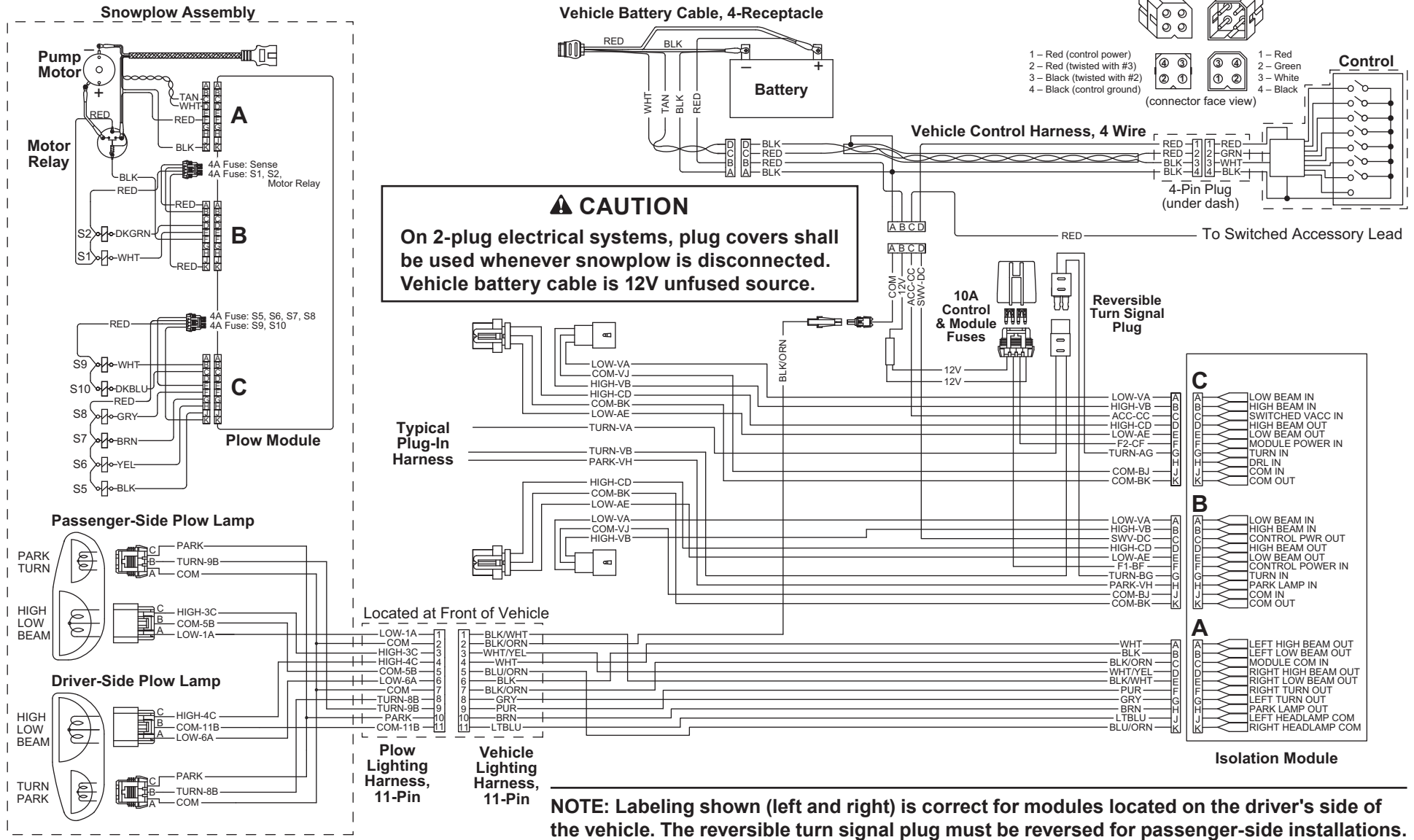
3-PORT ISOLATION MODULE – ELECTRICAL SCHEMATICS

2-PLUG MVP PLUS™ SNOWPLOWS (11-pin)



3-PORT ISOLATION MODULE – ELECTRICAL SCHEMATICS

2-PLUG WIDE-OUT™ SNOWPLOWS



HEADLAMP WIRING – 29048 HARNESS KIT (HB-3/HB-4)

Harness #28253

Location	Wire Color	Stamp
Black Female Plug		
A	DK BLUE	COM-AJ
B	DK BLUE	HIGH-BB

2-Key Male Plug		
A	DK BLUE	HIGH-AD
B	DK BLUE	COM-BK

Gray Female Plug		
A	DK BLUE	COM-BA
B	DK BLUE	LOW-BA

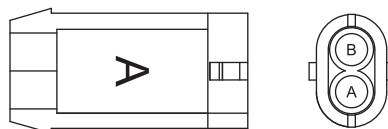
1-Key Male Plug		
A	DK BLUE	LOW-AE
B	DK BLUE	COM-BA

Splice Tap Wires		
Loose	DK BLUE	TURN-VA

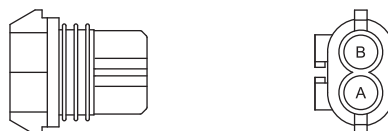
10-Position Plug "C"		
A	DK BLUE	LOW-BA
B	DK BLUE	HIGH-BB
C	RED	ACC-CC
D	DK BLUE	HIGH-AD
E	DK BLUE	LOW-AE
F	RED	F2-CF
G	DK BLUE	TURN-AG
H	DK BLUE	DRL-VH
J	DK BLUE	COM-AJ
K	DK BLUE	COM-BK

Plugs for Harness #28253

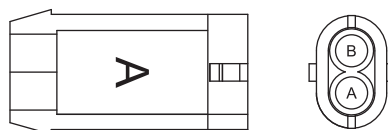
Black Female Plug



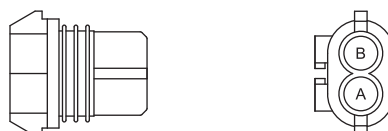
2-Key Male Plug



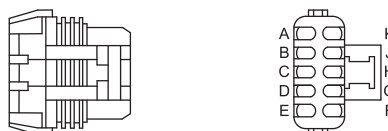
Gray Female Plug



1-Key Male Plug



10-Position Plug for Harness #28253



Harness #28253

Location	Wire Color	Stamp
Black Female Plug		
A	DK GREEN	COM-AJ
B	DK GREEN	HIGH-BB

2-Key Male Plug		
A	DK GREEN	HIGH-AD
B	DK GREEN	COM-BK

Gray Female Plug		
A	DK GREEN	COM-BA
B	DK GREEN	LOW-BA

1-Key Male Plug		
A	DK GREEN	LOW-AE
B	DK GREEN	COM-BA

Splice Tap Wires		
Loose	DK GREEN	TURN-VB
Loose	DK GREEN	PARK-VH
Loose	DK BLUE	DRL-VH

10-Position Plug "B"		
A	DK GREEN	LOW-BA
B	DK GREEN	HIGH-BB
C	RED	SWV-DC
D	DK GREEN	HIGH-AD
E	DK GREEN	LOW-AE
F	RED	F1-BF
G	DK GREEN	TURN-BG
H	DK GREEN	PARK-VH
J	DK GREEN	COM-AJ
K	DK GREEN	COM-BK

HEADLAMP WIRING – 29049 HARNESS KIT (H13)

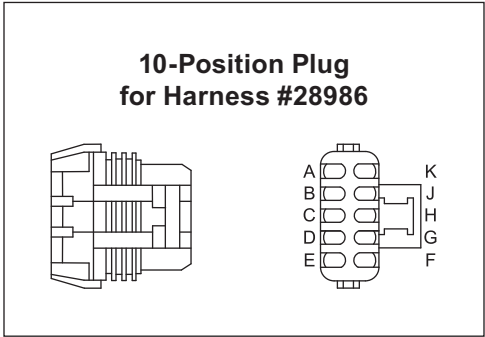
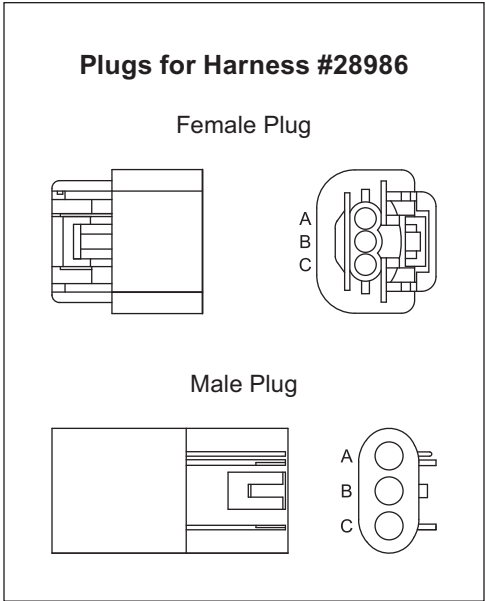
Harness #28986

Location	Wire Color	Stamp
Female Plug		
A	DK BLUE	LOW-AE
B	DK BLUE	COM-BK
C	DK BLUE	HIGH-CD

Male Plug		
A	DK BLUE	LOW-AA
B	DK BLUE	COM-BJ
C	DK BLUE	HIGH-CB

Splice Tap Wires		
Loose	DK BLUE	TURN-VA

10-Position Plug "C"		
A	DK BLUE	LOW-AA
B	DK BLUE	HIGH-CB
C	RED	ACC-CC
D	DK BLUE	HIGH-CD
E	DK BLUE	LOW-AE
F	RED	F2-CF
G	DK BLUE	TURN-AG
H	—	—
J	DK BLUE	COM-BJ
K	DK BLUE	COM-BK



Harness #28986

Location	Wire Color	Stamp
Female Plug		
A	DK GREEN	LOW-AE
B	DK GREEN	COM-BJ
C	DK GREEN	HIGH-CD

Male Plug		
A	DK GREEN	LOW-AA
B	DK GREEN	COM-BK
C	DK GREEN	HIGH-CB

Splice Tap Wires		
Loose	DK GREEN	TURN-VB
Loose	DK GREEN	PARK-VH

10-Position Plug "B"		
A	DK GREEN	LOW-AA
B	DK GREEN	HIGH-CB
C	RED	SWV-DC
D	DK GREEN	HIGH-CD
E	DK GREEN	LOW-AE
F	RED	F1-BF
G	DK GREEN	TURN-BG
H	DK GREEN	PARK-VH
J	DK GREEN	COM-BJ
K	DK GREEN	COM-2K

HEADLAMP WIRING – 29050 HARNESS KIT (HB-1 OR HB-5) (1A/2A¹)

Harness #28930

Location	Wire Color	Stamp
Black Molded Female Plug		
1	—	—
2	DK BLUE	COM-2J
3	DK BLUE	HIGH-3B
4	DK BLUE	LOW-4A
5	—	—

Blue Molded Male Plug		
A*	DK BLUE	LOW-AE
B*	DK BLUE	COM-BK
C	DK BLUE	HIGH-CD

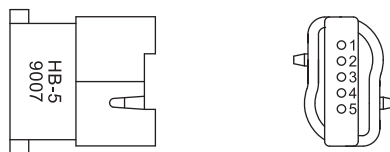
*Reversed for HB-1 applications

Splice Tap Wires		
Loose	DK BLUE	TURN-VA

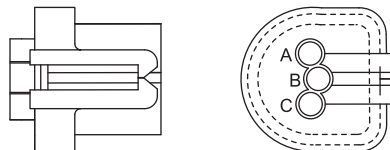
10-Position Plug "C"		
A	DK BLUE	LOW-4A
B	DK BLUE	HIGH-3B
C	RED	ACC-CC
D	DK BLUE	HIGH-CD
E	DK BLUE	LOW-AE
F	RED	F2-CF
G	DK BLUE	TURN-AG
H	—	—
J	DK BLUE	COM-2J
K	DK BLUE	COM-BK

Plugs for Harness #28930

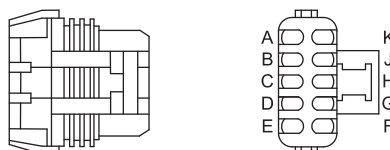
Black Molded Female Plug



Blue Male Plug



10-Position Plug
for Harness #28930



Harness #28930

Location	Wire Color	Stamp
Black Molded Female Plug		
1	—	—
2	DK GREEN	COM-2K
3	DK GREEN	HIGH-3B
4	DK GREEN	LOW-4A
5	—	—

Blue Molded Male Plug		
A*	DK GREEN	LOW-AE
B*	DK GREEN	COM-BJ
C	DK GREEN	HIGH-CD

*Reversed for HB-1 applications

Splice Tap Wires		
Loose	DK GREEN	TURN-VB
Loose	DK GREEN	PARK-VH

10-Position Plug "B"		
A	DK GREEN	LOW-4A
B	DK GREEN	HIGH-3B
C	RED	SWV-DC
D	DK GREEN	HIGH-CD
E	DK GREEN	LOW-AE
F	RED	F1-BF
G	DK GREEN	TURN-BG
H	DK GREEN	PARK-VH
J	DK GREEN	COM-BJ
K	DK GREEN	COM-2K

¹Not shown. Requires Adapter Kit 26641.

HEADLAMP WIRING – 29051 HARNESS KIT (2B/2D)

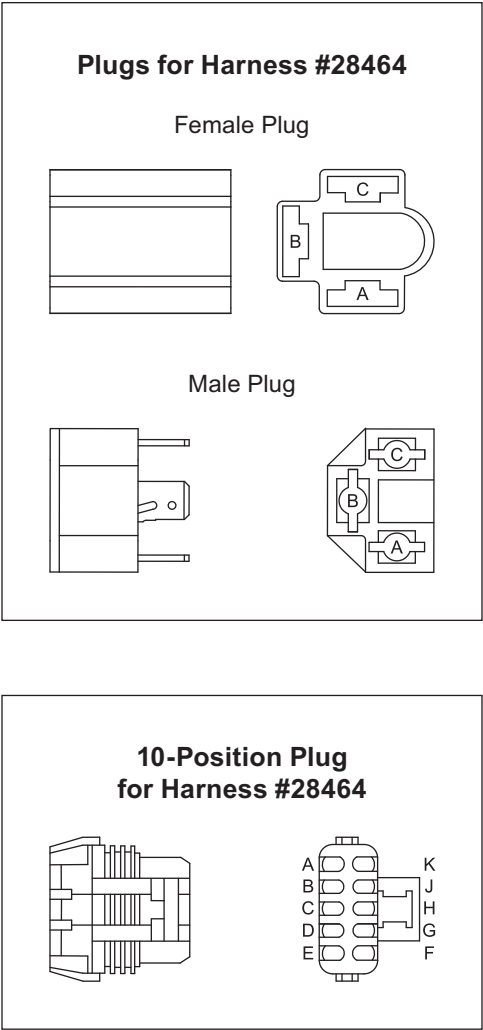
Harness #28464

Location	Wire Color	Stamp
Female Plug		
A	DK BLUE	COM-AK
B	DK BLUE	LOW-BE
C	DK BLUE	HIGH-CD

Male Plug		
A	DK BLUE	HIGH-AB
B	DK BLUE	LOW-BA
C	DK BLUE	COM-CJ

Splice Tap Wires		
Loose	DK BLUE	TURN-VA

10-Position Plug "C"		
A	DK BLUE	LOW-BA
B	DK BLUE	HIGH-AB
C	RED	ACC-CC
D	DK BLUE	HIGH-CD
E	DK BLUE	LOW-BE
F	RED	F2-CF
G	DK BLUE	TURN-AG
H	—	—
J	DK BLUE	COM-BJ
K	DK BLUE	COM-AK



Harness #28464

Location	Wire Color	Stamp
Female Plug		
A	DK GREEN	COM-AK
B	DK GREEN	LOW-BE
C	DK GREEN	HIGH-CD

Male Plug		
A	DK GREEN	HIGH-AB
B	DK GREEN	LOW-BA
C	DK GREEN	COM-CJ

Splice Tap Wires		
Loose	DK GREEN	TURN-VB
Loose	DK GREEN	PARK-VH

10-Position Plug "B"		
A	DK GREEN	LOW-BA
B	DK GREEN	HIGH-AB
C	RED	SWV-DC
D	DK GREEN	HIGH-CD
E	DK GREEN	LOW-BE
F	RED	F1-BF
G	DK GREEN	TURN-BG
H	DK GREEN	PARK-VH
J	DK GREEN	COM-CJ
K	DK GREEN	COM-AK

HEADLAMP WIRING – 29053 HARNESS KIT (2B/2D OR 1A/2A)

Harness #29058

Location	Wire Color	Stamp
Female Plug		
A	DK BLUE	HIGH-AD
B	DK BLUE	LOW-BE
C	DK BLUE	COM-CJ
D	DK BLUE	TURN
E	DK BLUE	PARK

Male Plug		
A	DK BLUE	HIGH-AB
B	DK BLUE	LOW-BA
C	DK BLUE	COM-CK
D	DK BLUE	TURN
E	DK BLUE	PARK

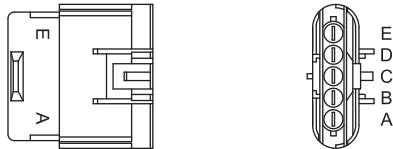
10-Position Plug "C"		
A	DK BLUE	LOW-BA
B	DK BLUE	HIGH-AB
C	RED	ACC-CC
D	DK BLUE	HIGH-AD
E	DK BLUE	LOW-BE
F	RED	F2-CF
G	DK BLUE	TURN-AG
H	—	—
J	DK BLUE	COM-CJ
K	DK BLUE	COM-CK

Plugs for Harness #29058

Female Plug



Male Plug



10-Position Plug
for Harness #29058



Harness #29058

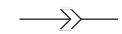
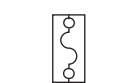
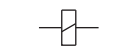
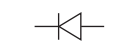
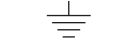
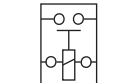
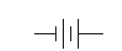
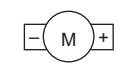
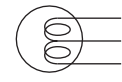
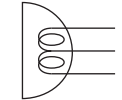
Location	Wire Color	Stamp
Female Plug		
A	DK GREEN	HIGH-AD
B	DK GREEN	LOW-BE
C	DK GREEN	COM-CK
D	DK GREEN	TURN
E	DK GREEN	PARK

Male Plug		
A	DK GREEN	HIGH-AB
B	DK GREEN	LOW-BA
C	DK GREEN	COM-CJ
D	DK GREEN	TURN
E	DK GREEN	PARK

10-Position Plug "B"		
A	DK GREEN	LOW-BA
B	DK GREEN	HIGH-AB
C	RED	SWV-DC
D	DK GREEN	HIGH-AD
E	DK GREEN	LOW-BE
F	RED	F1-BF
G	DK GREEN	TURN-BG
H	DK GREEN	PARK
J	DK GREEN	COM-CJ
K	DK GREEN	COM-CK

ELECTRICAL LEGEND AND WIRE COLORS

Electrical Legend

	CROSSING WIRE
	WIRE SPLICE
	IN LINE CONNECTOR
	RING TERMINAL
	FUSE
	SOLENOID { S1 = SV08-2004 S2 = SV08-30 S3 = SV08-40
	DIODE
	CIRCUIT GROUND
	MOTOR RELAY
	BATTERY
	MOTOR
	PARK / TURN LAMP
	HEADLAMP
	COMPONENT ENCLOSURE

Wire Color Code

BLK	Black	LTBLU	Light Blue
BLK/ORN	Black w/Orange	LTBLU/ORN	Light Blue w/Orange
BLK/RED	Black w/Red	LTBLU/WHT	Light Blue w/White
BLK/WHT	Black w/White	LTGRN	Light Green
BLU	Blue	ORN	Orange
BLU/ORN	Blue w/Orange	ORN/BLK	Orange w/Black
BRN	Brown	PNK	Pink
BRN/RED	Brown w/Red	PUR	Purple
DKBLU	Dark Blue	RED	Red
DKBLU/ORN	Dark Blue w/Orange	TAN	Tan
DKBLU/WHT	Dark Blue w/White	WHT	White
GRN	Green	WHT/YEL	White w/Yellow
GRN/WHT	Green w/White	YEL	Yellow
GRY	Gray		

Abbreviations

DRL	Daytime Running Lamps	MTR RLY	Motor Relay
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Harness Type

Description

A	Common ground to headlamps
B	GM DRL system
C	Independent ground to headlamps
D	GM enhanced DRL system
E	Not used
F	Common 12V to headlamps
G	Headlamp timer module
H	Independent headlamp, common ground



Western Products
PO Box 245038
Milwaukee, WI 53224-9538
www.westernplows.com

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