UNITED SAFETY
& SURVIVABILITY CORPORATION™

REFUSE INDUSTRY SOLUTIONS

BRAKE SET ALERT SYSTEM

PRODUCT MANUAL

PREPARED FOR:

CUSTOMERS OF UNITED SAFETY & SURVIVABILITY CORPORATION

R-02 APR 2026

IMPORTANT SAFETY INFORMATION

Please take the time to carefully read the product manual and familiarize yourself with your Brake Set Alert system.

All United Safety products must be used in accordance with all applicable local, state, federal, and industry regulations.

Warning and caution symbols

CAUTION: A black triangle with a yellow exclamation mark indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

Warning and cautions

CAUTION: Installation of the Brake Set Alert system must be done by a trained or qualified professional. Do not attempt installation if you are not a trained or qualified professional.

CAUTION: Install the Brake Set Alert system in accordance with the instructions provided in vehicle specific installation manuals. Failure to do so may result in improper installation and serious risk of injury.

CAUTION: Do not make any modifications to the Brake Set Alert system. Unauthorized alterations may compromise safety, regulatory compliance, and system performance, and may void the warranty.

DOCUMENT REVISION

REVISION	DATE RELEASED	DESCRIPTION
1.0	2023-12-05	Initial release
2.0	2026-05-01	Updated to include product variants Dual Drive and RHDSU; additional troubleshooting, wiring, and pneumatic diagrams.

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YOUR BRAKE SET ALERT SYSTEM

INTRODUCTION

The United Safety Brake Set Alert product is an advanced system that uses an electronic control unit (ECU) and user interface (UI), accompanied by sensors, to improve the safety on apparatus equipped with air brakes. The system aims to ensure the air parking brake is applied before the operator opens their door to exit the vehicle. If a driver exits the vehicle without setting the air parking brake, the United Safety Brake Set Alert system will automatically set the air parking brake to prevent vehicle rollaway and alert the operator that an unsafe condition has been detected.

The United Safety Brake Set Alert System helps drivers remember to set the air parking brake BEFORE opening the driver door to exit the truck.

WHAT TO EXPECT

The United Safety Brake Set Alert System is always on and cannot be disabled by switched ignition or battery disconnect.

The United Safety Brake Set Alert System monitors the driver door, vehicle speed, and parking brake control valve position to detect and prevent vehicle rollaway.

The United Safety Brake Set Alert System aims to deploy the air parking brakes if the driver exits the vehicle without first setting the air parking brake. Driver occupancy is detected by monitoring the driver's door.

The United Safety Brake Set Alert System is disabled when vehicle speed is greater than approximately 7 miles per hour.

When the United Safety Brake Set Alert System is activated, the driver must release and reengage the air parking brake with the door closed to reset the system.

The United Safety Brake Set Alert System triggers the vehicle drive camera whenever the door is opened, and the park brake is released.

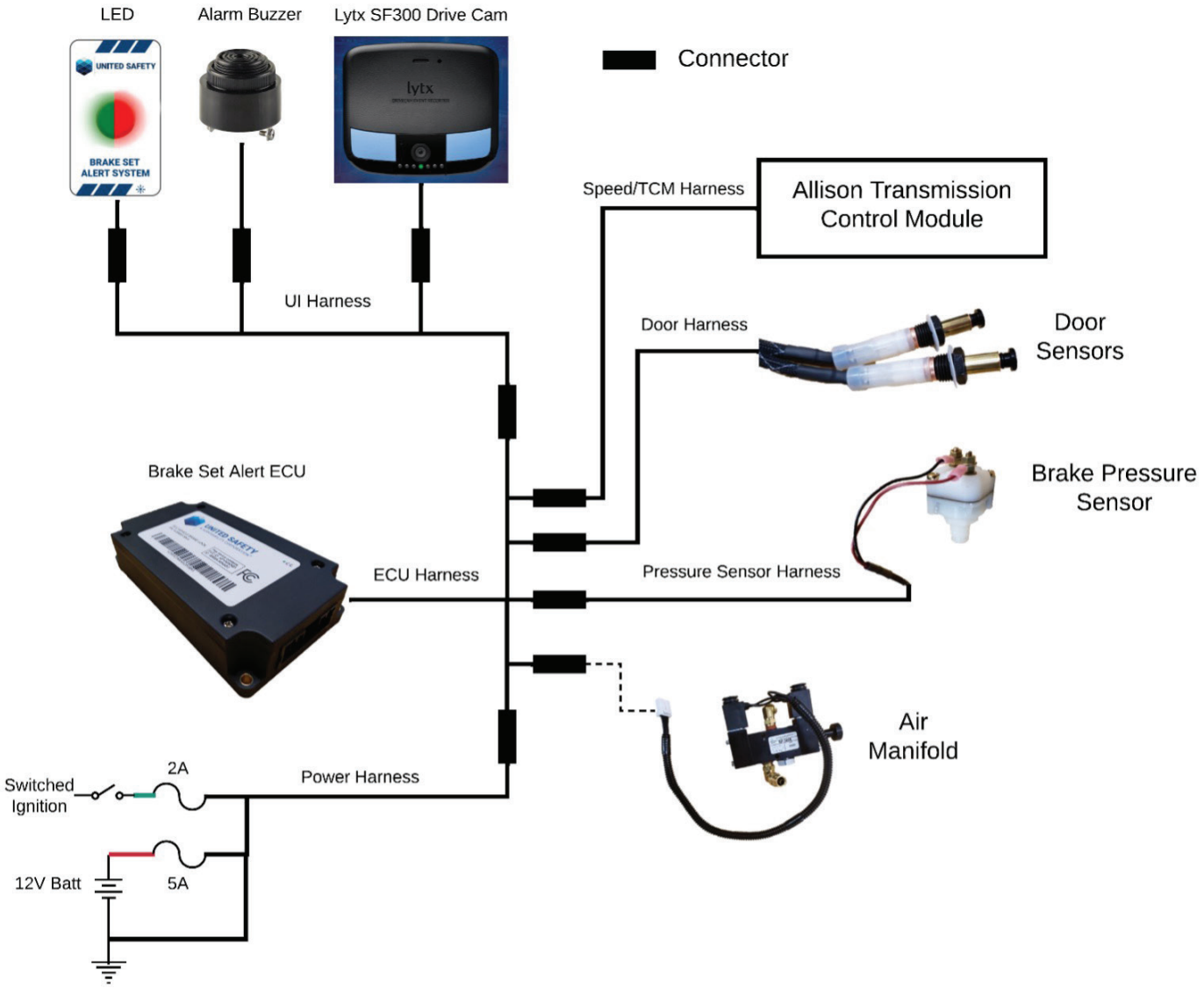
The United Safety Brake Set Alert System alerts the driver of system status via LED indicator and Alarm Buzzer status:

- A green LED means the system is ON and enabled.
- A red LED means the door is opened.
- A red flashing LED alerts the driver that the door is opened at an unsafe speed, or that the system is activating to engage the air parking brakes at a vehicle speed less than 7 mph.
- The alarm buzzer will sound whenever the LED is flashing red and the system is alerting the driver.
- The LED turns off above 7 mph to indicate that the system will not activate.

SINGLE DRIVE VARIANT

SYSTEM OVERVIEW | CONNECTION DIAGRAM

The VLBL0015 United Safety BSA System Kit includes all components required for installation into a single drive (LHD or RHD door) refuse truck.



DETAILED FUNCTIONAL OVERVIEW

SYSTEM STATES

SYSTEM STATE	AIR PARKING BRAKES	DRIVE DOOR	VEHICLE SPEED	LED INDICATOR		BUZZER	CAMERA TRIGGER
Idle	Applied	Closed	less than 7 mph	GREEN SOLID	●	Off	No
	Applied	Open	less than 7 mph	RED SOLID	●	Off	No
Enabled	Released	Closed	less than 7 mph	GREEN SOLID	●	Off	No
Disabled	Released	Closed	greater than 7 mph	OFF	○	Off	No
Alert	Released	Open (>1 sec)	greater than 7 mph	RED FLASH	✳	On	Yes
Activated	Released	Open (>1 sec)	less than 7 mph	RED FLASH	✳	On	Yes
Faulted	—	—	—	RED FLASH 2X, pause	✳	Off	No

Table 1: System Functional States and UI Behavior

The United Safety Brake Set Alert System states are IDLE, ENABLED, DISABLED, ALERT, ACTIVATED, or FAULTED.

The System is ENABLED when the driver door is closed, vehicle speed is less than 7 mph, and the parking brakes are released. If the vehicle operator opens the driver door without manually engaging the parking brake, and vehicle speed is less than 7 mph, the System will ACTIVATE and automatically set the air parking brake. The System will remain ACTIVATED until the operator shuts the door and releases, then engages the parking brake manually.

When vehicle speed is greater than 7 mph then the System will be DISABLED. If the vehicle operator opens the door when the system is DISABLED, the system will ALERT the operator. **It is important to ensure that the United Safety Brake Set Alert System is DISABLED above 7 mph.**

When the parking brake is manually set by the operator prior to opening the driver door, the System will enter an IDLE state.

The United Safety Brake Set Alert System can detect potential issues with the system and enter a FAULTED state, indicating maintenance may be required. Please refer to the Care and Maintenance section of this document.

UI BEHAVIOR

To review, the United Safety Brake Set Alert System states are IDLE, ENABLED, DISABLED, ALERT, ACTIVATED, or FAULTED.

DETAILED FUNCTIONAL OVERVIEW

The United Safety Brake Set Alert System communicates status to the operator via a dash mounted LED indicator and alarm buzzer. The LED indicator will either be GREEN, RED, or OFF:

- GREEN indicates the system is IDLE or ENABLED.
- OFF indicates the system is DISABLED.
- RED SOLID indicates the system is IDLE and the driver door is open.
- RED FLASH is used in the ALERT and ACTIVATED states, and the alarm buzzer will sound to additionally alert the operator.
- “Heartbeat” RED FLASH (2 times, then pause) indicates the system is faulted, consult Care and Maintenance section of this document.

BILL OF MATERIALS

VLBL0015 SINGLE DRIVE VARIANT

PART NUMBER	DESCRIPTION	IMAGE
60A06318	P CLAMP\5/8 ID\GALV STEEL	
60A54500	MISC\THREAD SEALANT\LOCTITE 545\0.2FLOZ	
9904-000032-058	AIR CONNECT\STR\1/4 FEM NPT TO 3/8 QUICK	
9904-000032-059	AIR CONNECT\90\3/8 NPT M 3/8 QUICK\SWIV	
VB000067-NN	PRESSURE SWITCH AND HARNESS	
VB000050-NN	SUBASM/VLV/ECU	
VB000054-NN	LABEL/BRAKE SET ALERT UI	
VB000055-NN	LABEL/BRK SET ALRT/HRNS/YLLW	
VB000056-L9	MOUNTING PLATE/DOOR SWITCH/SNGL 1/2-20	

PART NUMBER	DESCRIPTION	IMAGE
VB000057-L9	MOUNTING PLATE/DOOR SWITCH/DBL 1/2-20	
VB000058-NN	HDWR/VHCL INST/VLV/ECU	
VL000024	WIRE HARNESS/WM UI	
VL000025	WIRE HARNESS/WM POWER HARNESS	
VL000026	WIRE HARNESS/WM SPEED	
VL000031	WIRE HARNESS/VL/DOOR SWITCH ALERT	

SPARE OR REPLACEMENT PARTS

Looking for spare parts or additional kits? Scan the QR code for part number VLBL0016 or visit usscgroup.com/company/safety-parts/.

TRUCK INTEGRATION & CONNECTION

POWER CONNECTION

The United Safety BSA System includes a Power Harness and is connected directly to the vehicle battery. The system is always ON and cannot be disabled by switched ignition or battery disconnect.

There are 3 wires in the POWER harness for vehicle connections:

a. BLACK = Battery Negative (Ground)

b. RED = Battery Positive (12 V), 5 A fuse

c. GREEN = Switched Ignition, 2 A fuse

UI & LYTX DRIVE CAMERA CONNECTION

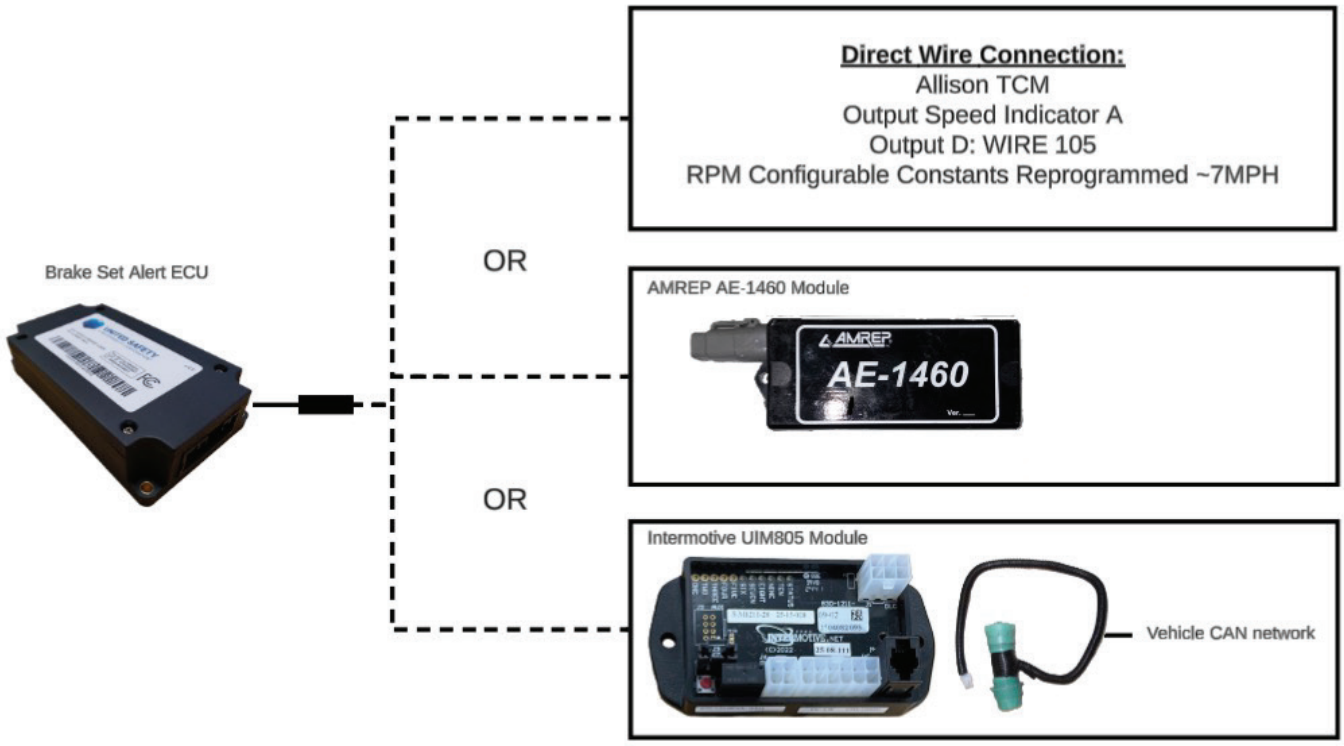
The United Safety BSA System includes a User Interface Harness which connects to the LED indicator and alarm buzzer, and the vehicle Lytx Drive Camera.

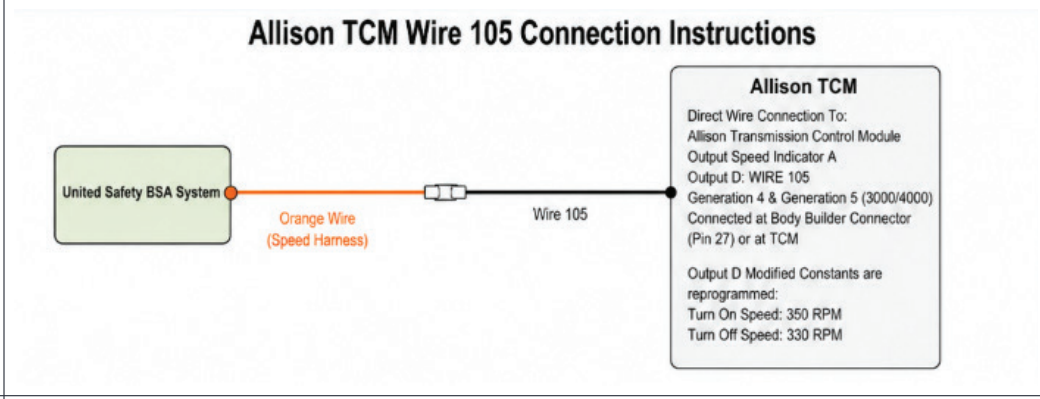
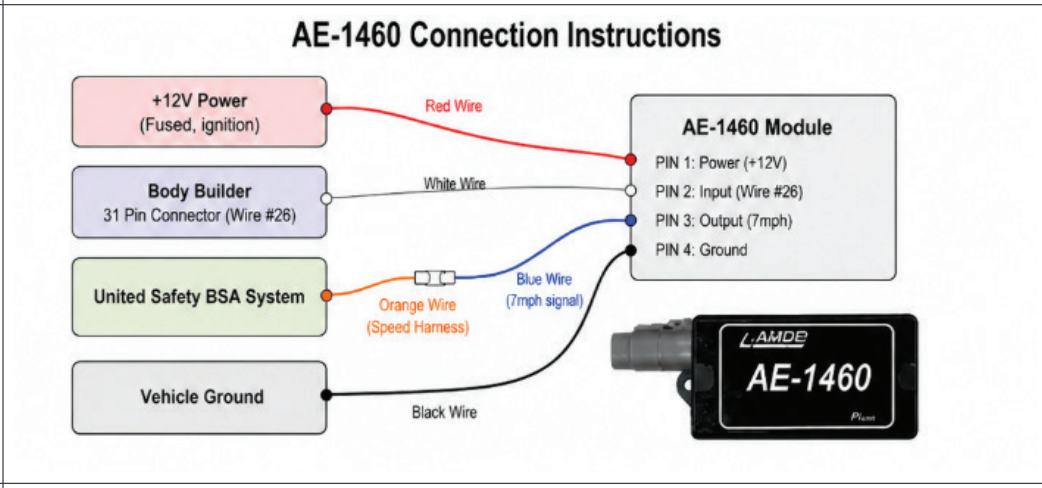
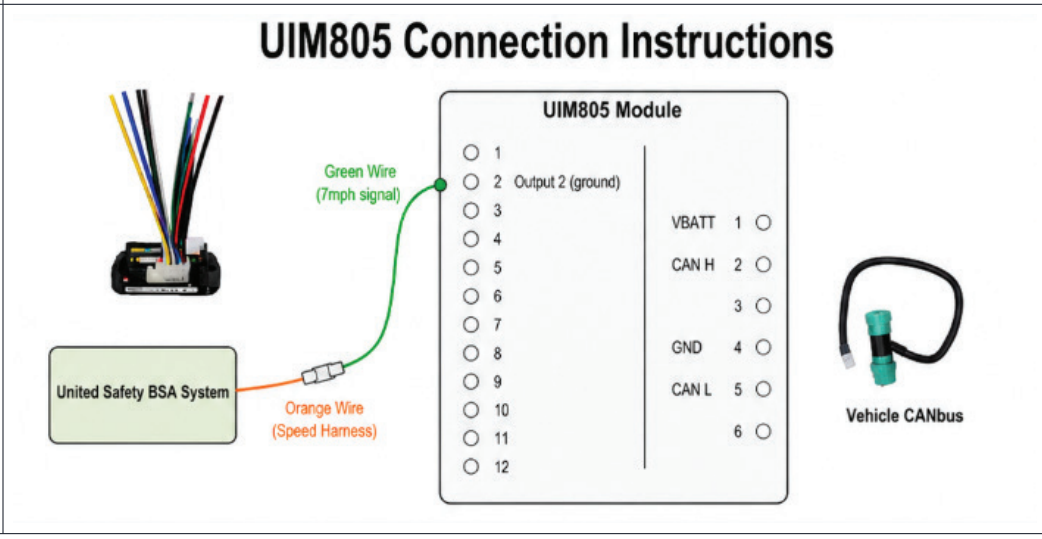
DOOR CONNECTION

The United Safety BSA System includes a Door Sensor Harness to detect driver occupancy by monitoring the driver door position. The door sensors are mounted in the door hinge.

SPEED INTERLOCK TRUCK CONNECTION

The United Safety BSA System includes a Speed Harness for connection to 1 of 3 methods for speed interlock functionality:
1) A direct wire connection to the Allison Transmision Control Module Output Speed Indicator A Output D: Wire 105,
2) a wire connection to an AMREP AE-1460 module(VL000058), or
3) a wire connection to an Intermotive UIM805 Upfitter module(VL000059)
The modules are sold separately.



PART NUMBER	SPEED INTERLOCK METHOD
N/A	
VL000058 (sold separately)	
MODULE & HARNESS: VL000059 (sold separately)	

TRUCK INTEGRATION & CONNECTION

VALVE MANIFOLD & PRESSURE SENSOR CONNECTIONS

PNEUMATIC CONNECTIONS

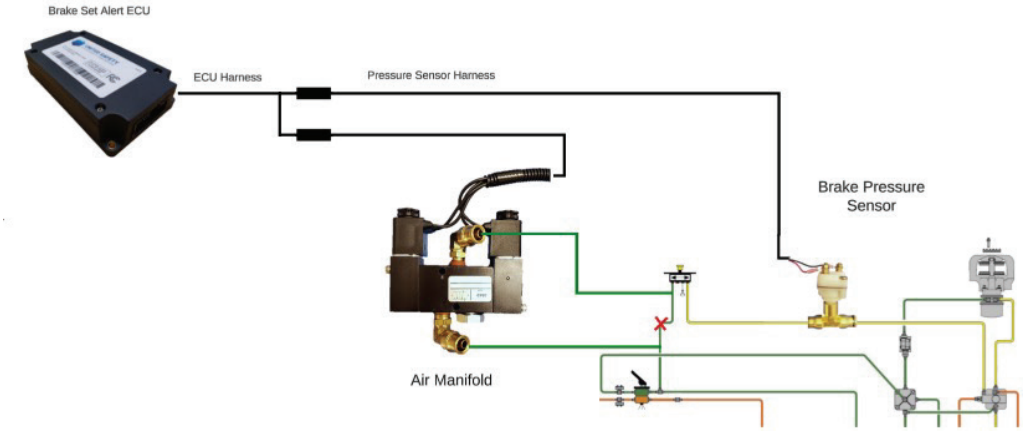
The United Safety BSA System includes a pressure sensor for monitoring parking brake status and a valve manifold for controlling air supply to the Park Control Valve. The pressure sensor is installed downstream of the park control valve. The valve manifold is installed upstream of the park control valve on the supply line. Pneumatic diagrams are provided below for the following configurations:

1. Single air supply with one park control valve.

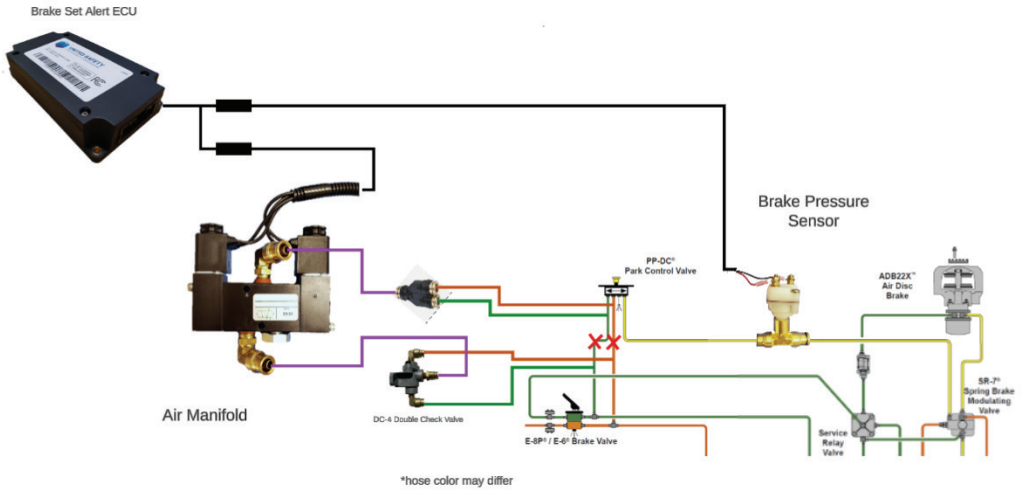
2. Dual air supply with one park contro valve. Dual air supply kit VLBL0014 required, sold separately, includes DC-4 Double Check valve and fittings.

3. Single air supply with two park control valves. WYE air fittings not included.

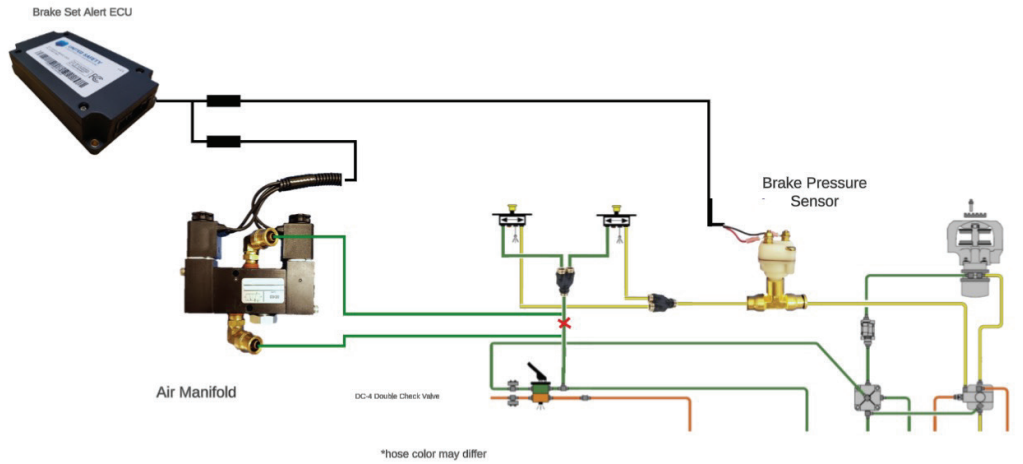
1. SINGLE AIR SUPPLY PARK CONTROL VALVE PNEUMATIC CONNECTIONS



2. DUAL AIR SUPPLY PARK CONTROL VALVE PNEUMATIC CONNECTIONS



3. DUAL/TWO PARK CONTROL VALVE PNEUMATIC CONNECTIONS

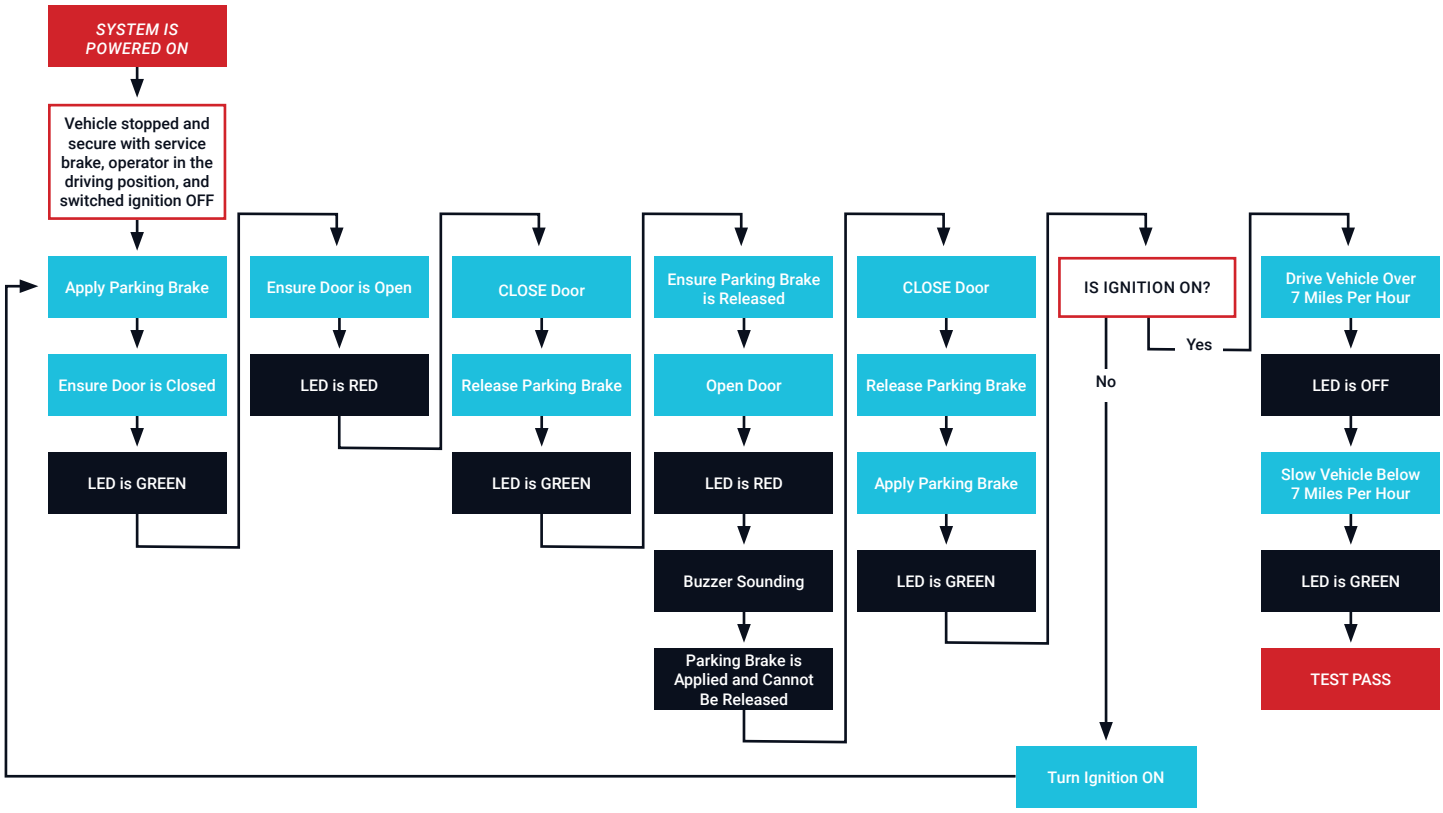


TESTING THE SYSTEM

OPERATIONAL TEST

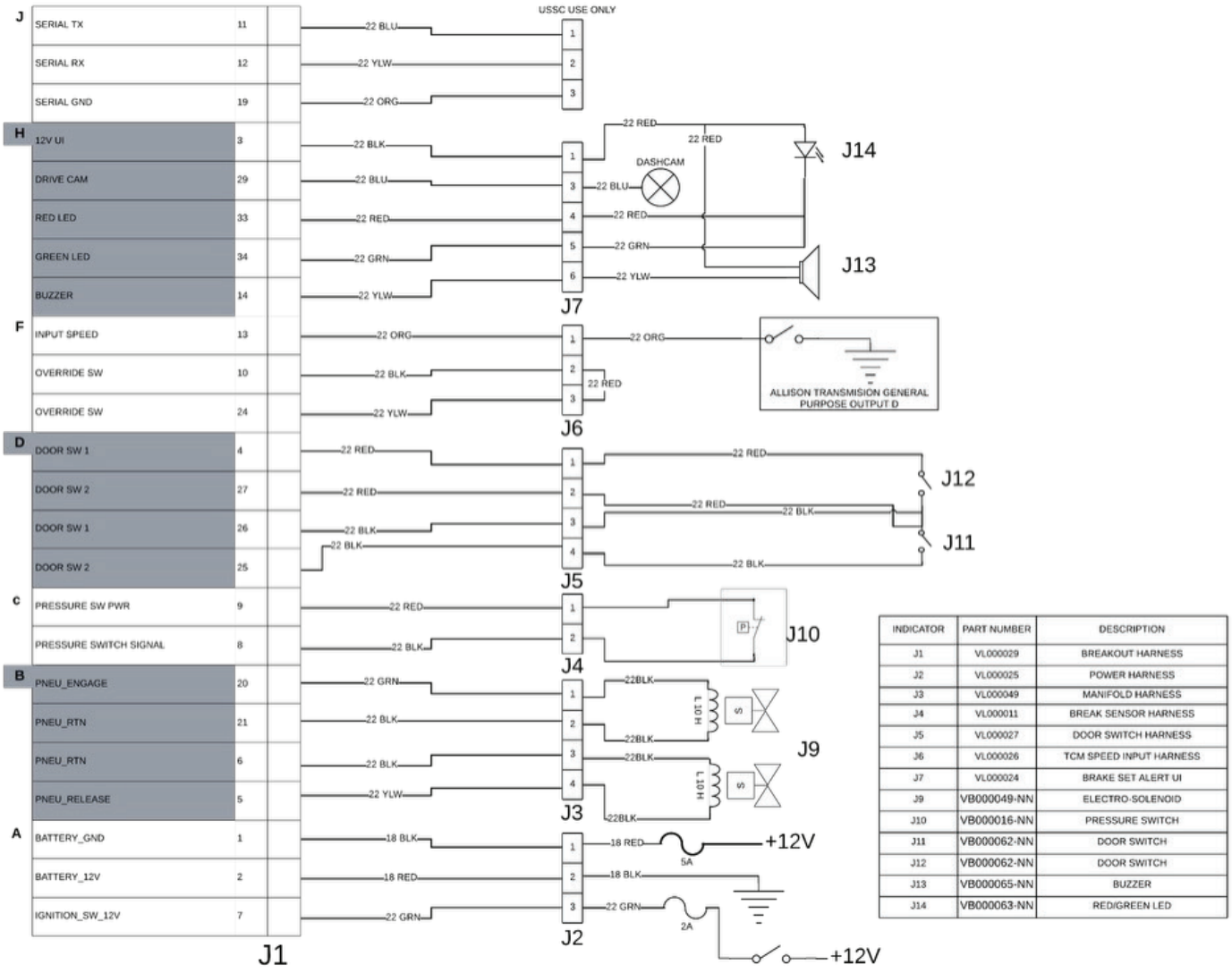
Test the proper function of the United Safety Brake Set Alert System as outlined in the following tables during pre-trip inspection and every 200 hours. If the observed behavior does not match the outlined system behavior during the functional test procedure, remove the vehicle from service.

UNITED SAFETY VLBL0015 BRAKE SET ALERT PRE-DRIVE SYSTEM TESTING		
STEP	**TEST CONDITIONS**	**SYSTEM BEHAVIOR**
With vehicle stopped and secure with service brake, operator in the driving position, and switched ignition OFF		
Step 1	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 2	Ensure air parking brake APPLIED and then OPEN door, to confirm:	Brake Set Alert LED is RED SOLID
Step 3	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 4	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 5	CLOSE door, then RELEASE and then APPLY air parking brake to confirm:	Brake Set Alert LED is GREEN SOLID
With vehicle stopped and secure with service brake, operator in the driving position, and switched ignition ON		
Step 6	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 7	Ensure air parking brake APPLIED and then OPEN door, to confirm:	Brake Set Alert LED is RED SOLID
Step 8	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 9	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 10	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 11	Drive vehicle over 7 miles per hour, to confirm:	Brake Set Alert LED is OFF
Step 12	Slow vehicle below 7 miles per hour, to confirm:	Brake Set Alert LED is GREEN SOLID
United Safety Brake Set Alert System Testing complete		



CARE AND MAINTENANCE

SINGLE DRIVE WIRING DIAGRAM



INDICATOR	PART NUMBER	DESCRIPTION
J1	VL000029	BREAKOUT HARNESS
J2	VL000025	POWER HARNESS
J3	VL000049	MANIFOLD HARNESS
J4	VL000011	BREAK SENSOR HARNESS
J5	VL000027	DOOR SWITCH HARNESS
J6	VL000026	TCM SPEED INPUT HARNESS
J7	VL000024	BRAKE SET ALERT UI
J9	VB000049-NN	ELECTRO-SOLENOID
J10	VB000016-NN	PRESSURE SWITCH
J11	VB000062-NN	DOOR SWITCH
J12	VB000062-NN	DOOR SWITCH
J13	VB000065-NN	BUZZER
J14	VB000063-NN	RED/GREEN LED

FAULT CODES

The United Safety BSA System monitors sensor status and may induce a Fault status under certain conditions. Fault status is indicator by a “Heartbeat” red flash - 2 quick flashes followed by a pause. When the BSA System is faulted, maintenance is required. To determine why the BSA System is faulted, switch the ignition OFF then ON, and count the number of times the LED indicator flashes and the Alarm buzzer beeps. The number of flashes/beeps correspond to a Fault Code in the table below.

BLINK COUNT	ERROR DESCRIPTION	RESETTABLE?	RECOVERY & TROUBLESHOOTING STEPS	TROUBLESHOOTING
0	Normal Operation	N/A	No fault detected.	
1	Door Sensor Mismatch	Yes	ECU detects conflicting signals from driver door sensors for >10s. **Recovery:** Cycle the door (Close - Open - Close).	Check for physical damage to the reed switches or magnets that might prevent one switch from engaging while the other does.
2	Speed Harness Disconnect (previously “OO” Fault)	No	Speed Harness disconnected; loopback not detected, or internal ECU error occurred. **Recovery:** Check Speed Harness; loopback connection. Cycle system power to reboot.	
3	Critical Internal Failure	No	Permanent internal hardware failure. **Recovery:** Requires United Safety Technical Intervention.	
6	Intermittent Door Connection	No	Unstable signal from door reed switches. **Recovery:** Inspect door harness and reboot ECU.	
7	Gate Sensor Mismatch	Yes	ECU detects conflicting signals from RHDSU Gate sensors for >10s. **Recovery:** Cycle the gate (Close - Open - Close).	Check for physical damage to the reed switches or magnets that might prevent one switch from engaging while the other does.
8	Intermittent Gate Connection	No	Unstable signal from gate reed switches. **Recovery:** Inspect gate harness and reboot ECU.	
9	Speed/Park Brake Conflict	Yes*	Speed sensed as High (>7 mph) while Park Brake is sensed as Applied. **Recovery:** Reduce speed or release brake. Verify TCM Wire 105 ground state.	Verify TCM programming. Check for a short-to-ground on TCM Wire 105. Check the CAN module connection. Inspect pressure sensors for a “stuck closed” state.
10	Speed/Working Brake Conflict	Yes	Speed sensed as High (>7 mph) while Working Brake is sensed as Applied. **Recovery:** Release working brake. Verify Working Brake Pressure Sensor.	Verify TCM programming. Check for a short-to-ground on TCM Wire 105. Check the CAN module connection. Inspect pressure sensors for a “stuck closed” state.
12	RHD Mode Timeout	No	Accumulative RHD time >15min without a speed increase or Park Brake application. **Recovery:** Cycle system power to reboot.	This error is non-resettable through standard operation; the technician must cycle the battery or ignition power to clear the ECU’s internal timer.

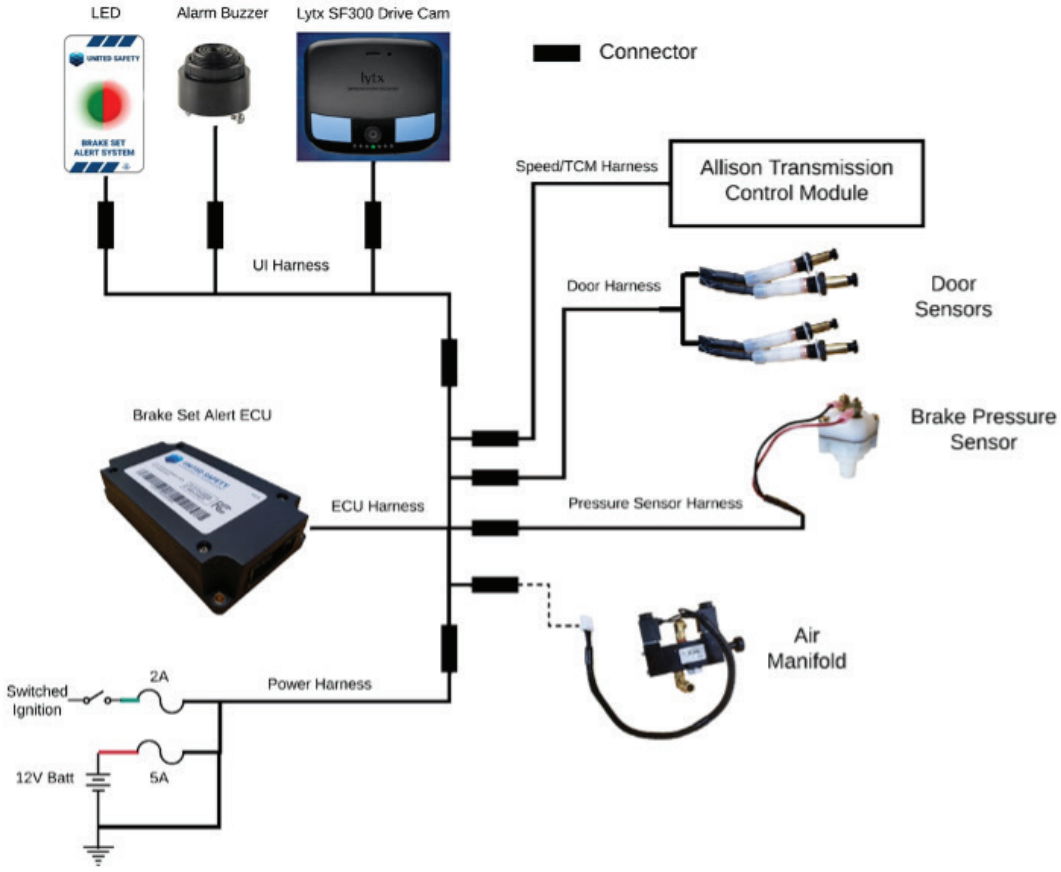
TROUBLESHOOTING

SYMPTOM	POSSIBLE FAULT	SIGNAL INFORMATION
LED does not turn ON	Check fuses	
	Check LED circuit	Black wire = +Vbatt Red wire = Red LED trigger (ground or open) Green wire = Green LED trigger (ground or open)
	Check ignition circuit	12V with ignition ON
	Check TCM wire is not grounded when the speed is lower than 7 mph	TCM wire 105 is open circuit <7 mph, ground >7 mph
LED is turning RED	Check the door correctly presses the door switches	Door switches have +12V when pressed and open circuit when released
	Check LED circuit	Black wire = +12V Red wire = Red LED trigger ground
	Check the pressure sensor	Closed circuit with 90 psi of pressure
	Check TCM wire is not grounded when the speed is lower than 7 mph	TCM wire 105 is open circuit <7 mph, ground >7 mph
LED is turning GREEN	Check the door swtiches are not stuck pressed or short circuited	Door switches have +12V when pressed and open circuit when released
	Check LED circuit	Black wire = +12V Green wire = Green LED trigger ground
	Check the pressure sensor	Closed circuit with 90 psi of pressure
	Check TCM wire is not grounded when the speed is lower than 7 mph	TCM wire 105 is open circuit <7 mph, ground >7 mph
LED is OFF	Check LED circuit	Black wire = +12V
	Check TCM wire is not grounded when the speed is lower than 7 mph	TCM wire 105 is open circuit <7 mph, ground >7 mph
Manifold is not changing state engage	Make sure the system has enough air before turning the system on	At least 90 psi is recommended
	Check there is enough air pressure in the system	At least 90 psi is recommended
	Check the door correctly presses the door switches	Door switches have +12V when pressed and open circuit when released
	Check TCM wire is not grounded when the speed is lower than 7 mph	TCM wire 105 is open circuit <7 mph, ground >7 mph
	Connection to solenoid faulty	Check solenoid circuit
Buzzer is always sounding	Check the door correctly presses the door switches	Door switches have +12V when pressed and open circuit when released
	Check the buzzer circuit	Horn has a constant power on one terminal (+Vbatt) and ground trigger on the other terminal (open circuit or ground)
	Check the pressure sensor	Closed circuit with 90 psi of pressure
Camera is not recording	Check the door correctly presses the door switches	Door switches have +12V when pressed and open circuit when released
	Check the buzzer circuit	Horn has a constant power on one terminal (+Vbatt) and ground trigger on the other terminal (open circuit or ground)
	Check the pressure sensor	Closed circuit with 90 psi of pressure
Camera is always recording	Check camera circuit	Horn has constant power on one terminal (+Vbatt) and ground trigger on the other terminal (open circuit or ground)
	Check the door correctly presses the door switches	Door switches have +12V when pressed and open circuit when released
	Check the pressure sensor	Check the pressure sensor

DUAL DRIVE VARIANT

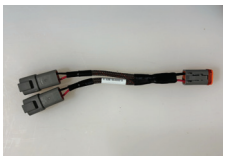
SYSTEM OVERVIEW | CONNECTION DIAGRAM

The United Safety BSA System may be applied to “Dual Drive” refuse vehicles where both the LHD and RHD doors are monitored for occupancy. This is accomplished by installing door sensors into both door hinges. A VLBL0015 Kit is used along with additional parts for the 2nd door in the VLBL0017 Dual Door Kit.



BILL OF MATERIALS – DUAL DRIVE

VLBL0015 KIT PLUS VLBL0017 DUAL DOOR VARIANT KIT

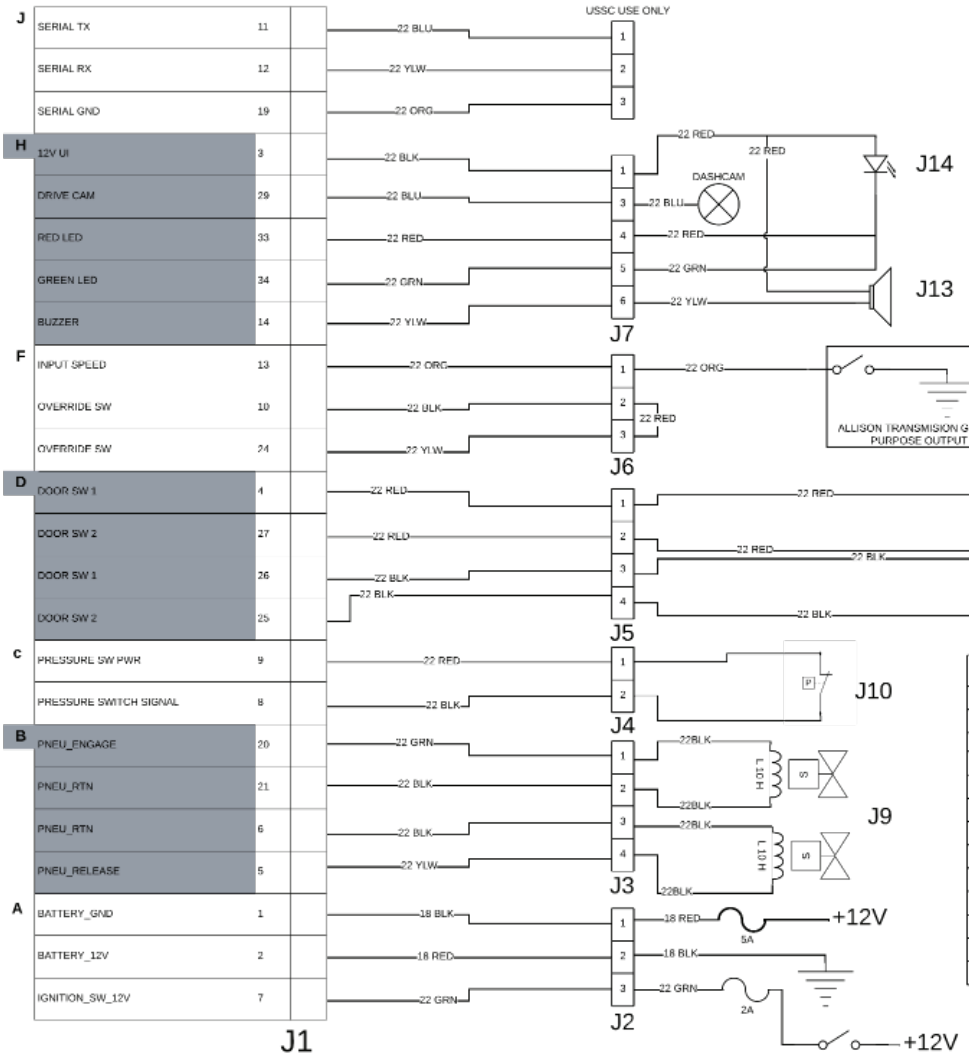
PART NUMBER	DESCRIPTION	IMAGE
VL000030-NN	WIRE HARNESS/DOOR SWITCH WYE/DUAL DOOR	
VL000031-NN	WIRE HARNESS/DOOR SWITCH HARNESS	
VB000056-LN	MOUNTING PLATE/DOOR SWITCH/SNGL 1/2-20	
VB000057-LN	MOUNTING PLATE/DOOR SWITCH/DBL 1/2-20	
61A02202	SCREW/SELF DRILL/TAP/#12 x1.0"/HEX	

SPARE OR REPLACEMENT PARTS

Looking for spare parts or additional kits? Scan the QR code for part number VLBL0016 or visit usscgroup.com/company/safety-parts/.

WIRING DIAGRAMS

DUAL DRIVE WIRING DIAGRAM



INDICATOR	PART NUMBER	DESCRIPTION
J1	VL000029	BREAKOUT HARNESS
J2	VL000025	POWER HARNESS
J3	VL000049	MANIFOLD HARNESS
J4	VL000011	BREAK SENSOR HARNESS
J5	VL000027	DOOR SWITCH HARNESS
J6	VL000026	TCM SPEED INPUT HARNESS
J7	VL000024	BRAKE SET ALERT UI
J9	VB000049-NN	ELECTRO-SOLENOID
J10	VB000016-NN	PRESSURE SWITCH
J11	VB000062-NN	DOOR SWITCH
J12	VB000062-NN	DOOR SWITCH
J13	VB000065-NN	BUZZER
J14	VB000063-NN	RED/GREEN LED

OPERATIONAL TEST – DUAL DRIVE

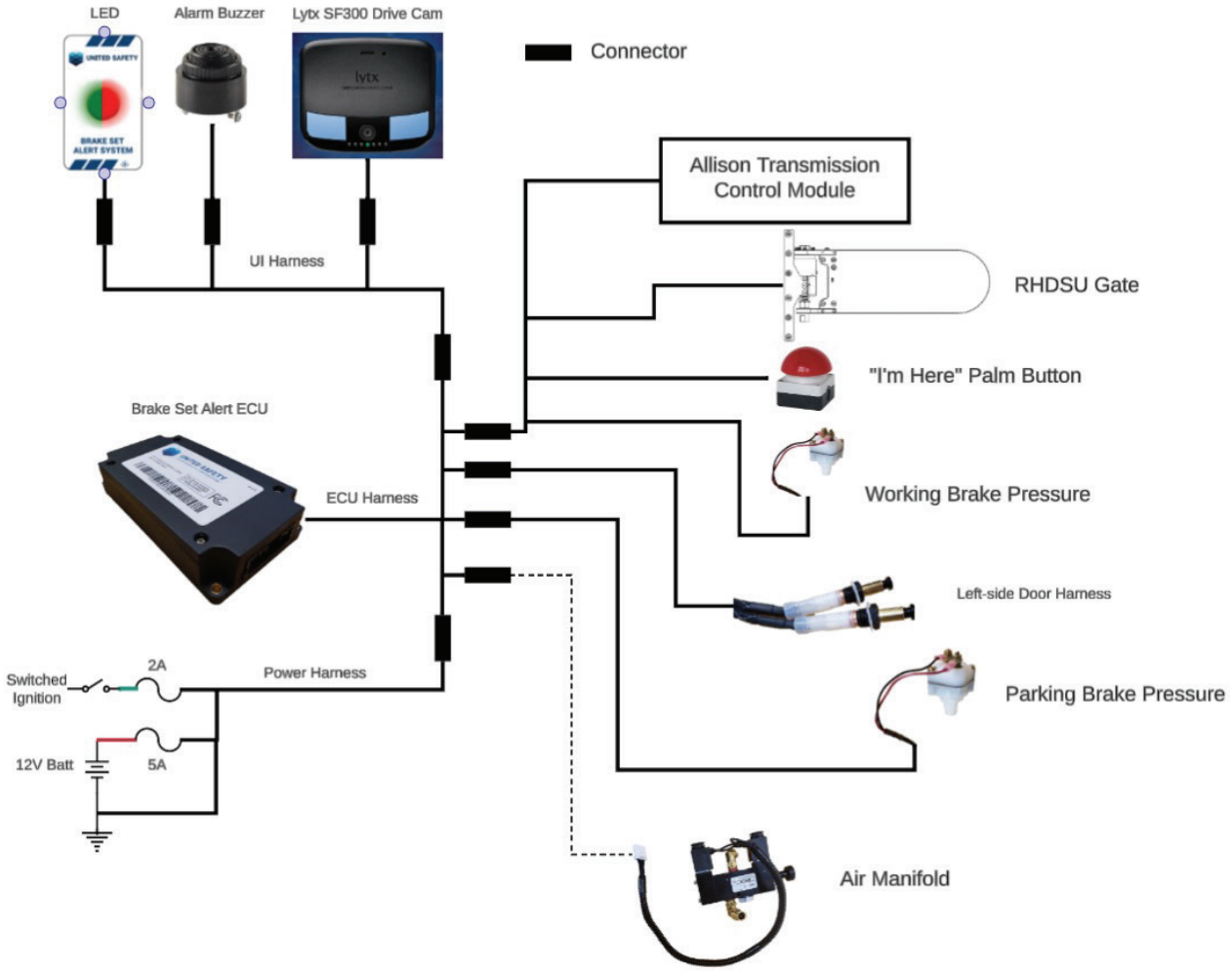
Test the proper function of the United Safety Brake Set Alert System as outlined in the following tables during pre-trip inspection and every 200 hours. If the observed behavior does not match the outlined system behavior during the functional test procedure, remove the vehicle from service.

STEP	TEST CONDITIONS	SYSTEM BEHAVIOR
With vehicle stopped and secure with service brake, operator in the driving position, and switched ignition OFF		
Step 1	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 2	Ensure air parking brake APPLIED and then OPEN door, to confirm:	Brake Set Alert LED is RED SOLID
Step 3	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 4	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 5	CLOSE door, then RELEASE and then APPLY air parking brake to confirm:	Brake Set Alert LED is GREEN SOLID
With vehicle stopped and secure with service brake, operator in the driving position, and switched ignition ON		
Step 6	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 7	Ensure air parking brake APPLIED and then OPEN door, to confirm:	Brake Set Alert LED is RED SOLID
Step 8	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 9	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 10	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 11	Drive vehicle over 7 miles per hour, to confirm:	Brake Set Alert LED is OFF
Step 12	Slow vehicle below 7 miles per hour, to confirm:	Brake Set Alert LED is GREEN SOLID
With vehicle stopped and secure with service brake, operator in the passenger position, and switched ignition OFF		
Step 13	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 14	Ensure air parking brake APPLIED and then OPEN passenger door, to confirm:	Brake Set Alert LED is RED SOLID
Step 15	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 16	Ensure air parking brake RELEASED, then OPEN passenger door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 17	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
With vehicle stopped and secure with service brake, operator in the passenger position, and switch ignition ON		
Step 18	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 19	Ensure air parking brake APPLIED and then OPEN passenger door, to confirm:	Brake Set Alert LED is RED SOLID
Step 20	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 21	Ensure air parking brake RELEASED, then OPEN passenger door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED
Step 22	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID
Step 23	Drive vehicle over 7 miles per hour, to confirm:	Brake Set Alert LED is OFF
Step 24	Slow vehicle below 7 miles per hour, to confirm:	Brake Set Alert LED is GREEN SOLID
With vehicle stopped and secure with service brake, operator in the passenger position, and switched ignition OFF		

RIGHT HAND DRIVE STAND UP VARIANT

SYSTEM OVERVIEW | CONNECTION DIAGRAM

The United Safety BSA System may be applied to “Right Hand Drive Stand Up” (RHDSU) refuse vehicles using a VLBL0025 or VLBL0026 Kit. The RHDSU Kits include all components needed to monitor RHDSU operator occupancy and Working Brake status, in addition to the LHD door. RHDSU operator occupancy is monitored using a RHDSU Gate and “I’m Here” button, and an additional pressure sensor is used to monitor Working Brake status.



DETAILED FUNCTIONAL OVERVIEW – RHDSU

SYSTEM STATES

SYSTEM STATE	AIR PARKING BRAKES	RHD GATE	WORKING BRAKE	PALM BUTTON	VEHICLE SPEED	LED INDICATOR		BUZZER	CAMERA TRIGGER
Idle	Applied	Closed	Released	–	less than 7 mph	GREEN SOLID	●	Off	No
	Applied	Open	Released	–	less than 7 mph	RED SOLID	●	Off	No
	Applied	Closed	Applied	–	less than 7 mph	GREEN SOLID	●	Off	No
	Applied	Open	Applied	–	less than 7 mph	RED SOLID	●	Off	No
Enabled	Released	Closed	Released	–	less than 7 mph	GREEN SOLID	●	Off	No
Disabled	Released	Closed	Released	–	greater than 7 mph	OFF	○	Off	No
Alert	Released	Open (>1 sec)	Released	–	greater than 7 mph	RED FLASH	✳	On	Yes
Activated	Released	Open (>1 sec)	Released	–	less than 7 mph	RED FLASH	✳	On	Yes
Enabled	Released	Closed	Applied	–	less than 7 mph	GREEN FLASH	✳	Off	No
Enabled	Released	Open (>1 sec)	Applied	–	less than 7 mph	RED SOLID	●	Off	No
Enabled	Released	Closed	Release after applied	Pressed	less than 7 mph	GREEN SOLID	●	Off	No
Alert	Released	Closed	Release after applied	Not Pressed (<3.5 sec)	less than 7 mph	RED FLASH	✳	Off	No
Activated	Released	Closed	Release after applied	Not Pressed (>3.5 sec)	less than 7 mph	RED FLASH	✳	On	Yes
Faulted	Applied	Closed	Released	–	greater than 7 mph	RED FLASH 2x, pause	✳	Off	No
	Released	Closed	Applied	–	greater than 7 mph	RED FLASH 2x, pause	✳	Off	No
	–	–	–	–	–	RED FLASH 2x, pause	✳	Off	No

System Functional States & UI Behavior

The United Safety Brake Set Alert Right-Hand Drive Stand Up (RHDSU) System employs a gate across the right-hand side doorway that swings in and out and monitors the occupant entering and existing the vehicle. The RHDSU system also monitors the status of the hand working brake and a momentary palm button that the operator pushes upon releasing the working brake.

The RHDSU System is ENABLED when the RHDSU Gate is closed, vehicle speed is less than 7 mph, and the parking brake and working brake are released. When vehicle speed is greater than 7 mph then the System will be DISABLED. If the vehicle operator opens the RHDSU Gate when the system is DISABLED, the system will ALERT the operator. It is important to ensure that the system is DISABLED above 7 mph.

If the vehicle operator opens the RHDSU Gate without manually engaging the parking brake or working brake, and vehicle speed is less than 7 mph, the RHDSU System will ACTIVATE and automatically set the air parking brake. The System will remain ACTIVATED until the operator shuts the RHDSU Gate and releases, then engages the parking brake manually.

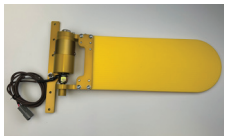
If the vehicle operator first applies the working brake before opening the RHDSU Gate, the vehicle operator may exit to do their curbside service without an ALERT or ACTIVATION. Upon re-entering the vehicle, the operator will close the RHDSU Gate and release the working brake. The palm button shall be pressed 3.5 seconds before or after releasing the working brake to return the system to the ENABLED state. If the working brake releases without a palm button press, the RHDSU system will ACTIVATE.

When the parking brake is manually set by the operator prior to opening the RHDSU Gate, the system will enter an IDLE state and always remain powered. Even when the vehicle ignition is switched off, the United Safety Brake Set Alert Systems detect and prevent vehicle rollaway.

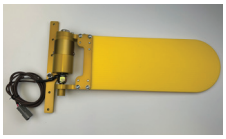
BILL OF MATERIALS – RHDSU

The VLBL0025 United Safety BSA System Kit includes an RHDSU Gate configured for mounting on the A-Pillar. The VLBL0026 United Safety BSA System Kit includes an RHDSU Gate configured for mounting on the B-Pillar. All other system components are included in the VLBL0023 United Safety BSA System Kit for RHDSU applications.

VLBL0025 ASM/SYSTEM/RHDSU/A-PILLAR

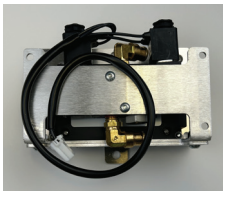
PART NUMBER	DESCRIPTION	IMAGE
VLBL0019	ASM/GATE/RHSUD/A-PILLAR/MECHANICAL	
VLBL0023	KIT/VL/BL/INSTALL & ECU/RHSUD	

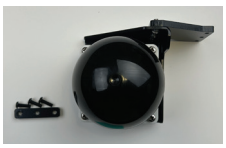
VLBL0026 ASM/SYSTEM/RHDSU/B-PILLAR

PART NUMBER	DESCRIPTION	IMAGE
VLBL0020	ASM/GATE/RHSUD/B-PILLAR/MECHANICAL	
VLBL0023	KIT/VL/BL/INSTALL & ECU/RHSUD	

VLBL0023 RIGHT HAND DRIVE STAND UP VARIANT KIT

PART NUMBER	DESCRIPTION	IMAGE
60A05045	WIRE TIE/22" LONG/0.50" WIDE/BLACK	
60A06318	P CLAMP\5/8 ID\GALV STEEL	
60A54500	MISC\THREAD SEALANT\LOCTITE 545\0.2FLOZ	
61A02202	SCREW/SELF DRILL/TAP/#12 X1.0"/HEX	

PART NUMBER	DESCRIPTION	IMAGE
9904-000032-058	AIR CONNECT\STR\1/4 FEM NPT TO 3/8 QUICK	
9904-000032-059	AIR CONNECT\90\3/8 NPT M 3/8 QUICK\SWIV	
9904-000032-069	AIR CONN/QK/3/8 OD/STRAIGHT/DOT	
9904-000032-074	#8 P CLAMP	
9904-000200-022	CONNECTOR/BUTTSPLICE	
VB000054-NN	LABEL/BRAKE SET ALERT UI	
VB000055-NN	LABEL/BRK SET ALRT/HRNS/YLLW	
VB000056-LN	MOUNTING PLT/DOOR SWITCH PLT/SNGL 1/2-20	
VB000057-LN	MOUNTING PLATE/DOOR SWITCH PL/DBL 1/2-20	
VB000058-NN	HARDWARE/VEHICLE INSTALL/VALVE/ECU	
VB000066-NN	LABEL/WM_QR_STICKER	
VB000067-NN	PRESSURE SWITCH AND HARNESS	
VB000068-NN	KIT/SUBASSEMBLY/VALVE/ECU/RHSUD	

PART NUMBER	DESCRIPTION	IMAGE
VL000016	FITTING/FEMALE BRANCH TEE/DOT	
VL000024	BRAKE SET ALERT UI	
VL000025	WIRE HARNESS/WM POWER HARNESS	
VL000031	EXTENDED DOOR SWITCH HARNESS	
VL000034	WIRE HARNESS/PALM BUTTON	
VL000036	WIRE HARNESS/SPEED/WB/REED/BREAKOUT	
VL000038	WIRE/HARNESS/REED SWITCH EXTENSION	
VL000057	PRESSURE SWITCH AND WORKING BRAKE HARN	
VLBL0021	ASM/PUSH BUTTON/MOUNTING/RHSUD	

SPARE OR REPLACEMENT PARTS

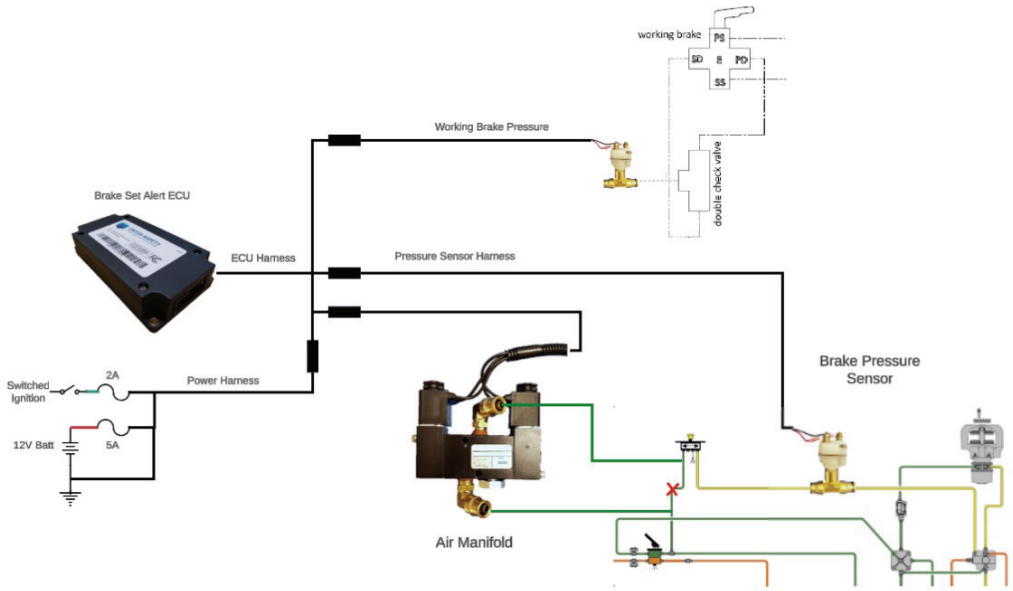
Looking for spare parts or additional kits? Scan the QR code for part number VLBL0016 or visit usscgroup.com/company/safety-parts/.

TRUCK INTEGRATION & CONNECTION

PNEUMATIC CONNECTIONS

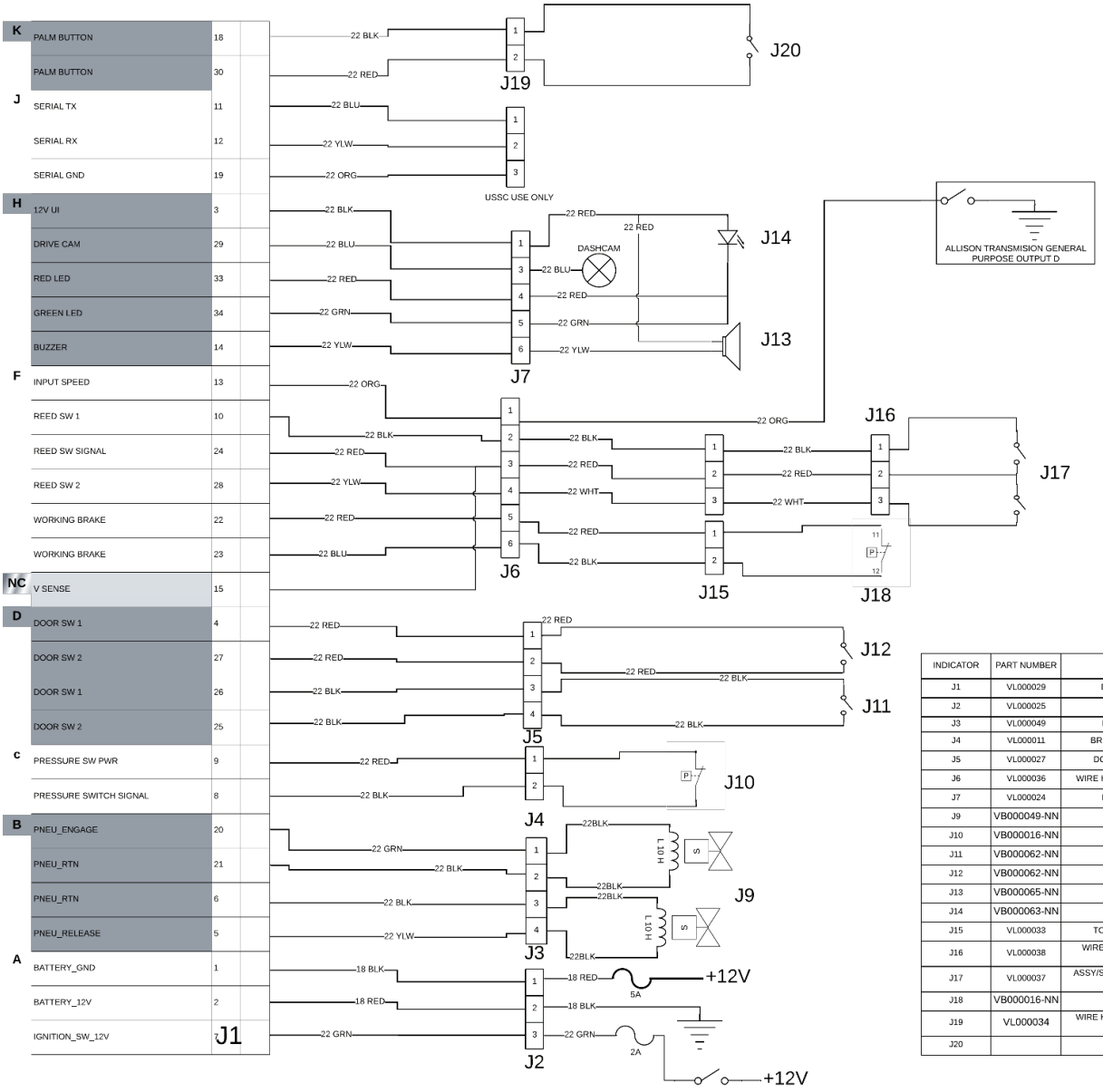
For RHDSU variant, in addition to the pressure sensor monitoring the parking brake, a pressure sensor is installed to monitor the Working Brake status. The valve manifold is installed the same as single and dual drive variants.

RIGHT-HAND STAND UP WITH WORKING BRAKE PNEUMATIC CONNECTIONS



WIRING DIAGRAMS - RHDSU

RIGHT HAND DRIVE STAND UP WIRING DIAGRAM



INDICATOR	PART NUMBER	DESCRIPTION
J1	VL000029	BREAKOUT HARNESS
J2	VL000025	POWER HARNESS
J3	VL000049	MANIFOLD HARNESS
J4	VL000011	BREAK SENSOR HARNESS
J5	VL000027	DOOR SWITCH HARNESS
J6	VL000036	WIRE HARNESS/ PARKING BRAKE
J7	VL000024	BRAKE SET ALERT UI
J9	VB000049-NN	ELECTRO-SOLENOID
J10	VB000016-NN	PRESSURE SWITCH
J11	VB000062-NN	DOOR SWITCH
J12	VB000062-NN	DOOR SWITCH
J13	VB000065-NN	BUZZER
J14	VB000063-NN	RED/GREEN LED
J15	VL000033	TCM/ REED/ OCCUPANCY
J16	VL000038	WIRE/HARNESS/REED SWITCH EXTENSION
J17	VL000037	ASSY/SWITCH/REED SWITCH/WITH CONNECTOR
J18	VB000016-NN	PRESSURE SWITCH
J19	VL000034	WIRE HARNESS/ ECU BREAKOUT/ RHDSU
J20		PALM BUTTON

TESTING THE SYSTEM - RHDSU

SYSTEM TESTING

Test the proper function of the United Safety Brake Set Alert System as outlined in the following tables during pre-trip inspection and every 200 hours. If the observed behavior does not match the outlined system behavior during the functional test procedure, remove the vehicle from service.

UNITED SAFETY BRAKE SET ALERT SYSTEM: RIGHT-HAND STAND-UP DRIVE TESTING		
STEP	**TEST CONDITIONS**	**SYSTEM BEHAVIOR**
With vehicle stopped and secure with service brake, operator in the Left-Hand Side Driving position, and switched ignition OFF:		
Step 1:	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 2:	Ensure air parking brake APPLIED and then OPEN driver door, to confirm:	Brake Set Alert LED is RED SOLID.
Step 3:	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 4:	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 5:	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
With vehicle stopped and secure with service brake, operator in the Left-Hand Side Driving position, and switched ignition ON:		
Step 6:	Ensure air parking brake APPLIED and door CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 7:	Ensure air parking brake APPLIED and then OPEN door, to confirm:	Brake Set Alert LED is RED SOLID.
Step 8:	CLOSE door and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 9:	Ensure air parking brake RELEASED, then OPEN driver door, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 10:	CLOSE door, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 11:	Drive vehicle over 7 miles per hour, to confirm:	Brake Set Alert LED is OFF.
Step 12:	Slow vehicle below 7 miles per hour, to confirm:	Brake Set Alert LED is GREEN SOLID.
With vehicle stopped and secure with service brake, operator in the RHDSU position, working brake released, and switched ignition OFF:		
Step 13:	Ensure air parking brake APPLIED and RHDSU Gate CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 14:	Ensure air parking brake APPLIED and then OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 15:	CLOSE RHDSU Gate and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 16:	Ensure air parking brake RELEASED, then OPEN RHDSU Gate, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 17:	CLOSE RHDSU Gate, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 18:	With RHDSU Gate still closed, RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 19:	APPLY working brake, to confirm:	Brake Set Alert LED is FLASHING GREEN.
Step 20:	Ensure working brake is APPLIED, OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 21:	CLOSE RHDSU Gate, RELEASE working brake, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 22:	CLOSE RHDSU Gate, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 23:	With RHDSU Gate still closed, RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 24:	APPLY working brake, to confirm:	Brake Set Alert LED is FLASHING GREEN.
Step 25:	Ensure working brake is APPLIED, OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 26:	CLOSE RHDSU Gate, RELEASE working brake, and PRESS palm button*, to confirm:	Brake Set Alert LED is GREEN SOLID.
With vehicle stopped and secure with service brake, operator in the RHDSU position, working brake released, and switched ignition ON:		

continue on next page

UNITED SAFETY BRAKE SET ALERT SYSTEM: RIGHT-HAND STAND-UP DRIVE TESTING		
STEP	**TEST CONDITIONS**	**SYSTEM BEHAVIOR**
Step 27:	Ensure air parking brake APPLIED and RHDSU Gate CLOSED, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 28:	Ensure air parking brake APPLIED and then OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 29:	CLOSE RHDSU Gate and then RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 30:	Ensure air parking brake RELEASED, then OPEN RHDSU Gate, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 31:	CLOSE RHDSU Gate, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 32:	With RHDSU Gate still closed, RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 33:	APPLY working brake, to confirm:	Brake Set Alert LED is FLASHING GREEN.
Step 34:	Ensure working brake is APPLIED, OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 35:	CLOSE RHDSU Gate, RELEASE working brake, to confirm:	Brake Set Alert LED FLASHING RED and buzzer alarms continuously. Air parking brake is APPLIED and CANNOT be RELEASED.
Step 36:	CLOSE RHDSU Gate, then RELEASE and then APPLY air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 37:	With RHDSU Gate still closed, RELEASE air parking brake, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 38:	APPLY working brake, to confirm:	Brake Set Alert LED is FLASHING GREEN.
Step 39:	Ensure working brake is APPLIED, OPEN RHDSU Gate, to confirm:	Brake Set Alert LED is RED SOLID.
Step 40:	CLOSE RHDSU Gate, RELEASE working brake, and PRESS palm button*, to confirm:	Brake Set Alert LED is GREEN SOLID.
Step 41:	Drive vehicle over 7 miles per hour, to confirm:	Brake Set Alert LED is OFF.
Step 42:	Slow vehicle below 7 miles per hour, to confirm:	Brake Set Alert LED is GREEN SOLID.
*United Safety Brake Set Alert Testing complete. *Palm button press can happen 3.5 seconds before or after releasing of the working brake.*		

LIMITED WARRANTY

VEHICLE LOCKS – LIMITED WARRANTY VERSION 1.0 – 2020

LIMITED WARRANTY:

UNITED SAFETY warrants to the original buyer (“Buyer”) that the following components of the vehicle locks purchased from UNITED SAFETY will be free from material defects in material and workmanship for the following time periods:

One (1) year: All components

The warranty period for a unit of UNITED SAFETY Vehicle Lock (each such unit being a “Warranted Vehicle Lock”) starts to run at the time Buyer begins to install such Warranted Vehicle lock or thirty (30) days after shipment of such Warranted Vehicle Lock to Buyer, whichever occurs first. Each vehicle lock will be numbered (serialized) for identification. This number must be presented with any warranty claim. If returning parts, PO against which they were purchased must be included at time of return.

EXCLUSIONS:

This warranty specifically excludes does not apply to any vehicle lock that is damaged or operates outside of specifications as result of accident, derailment, improper installation, structural defects in the vehicle into which the vehicle lock is installed, intentional damage, abuse, vandalism, negligence, misuse, improper operating conditions, extreme natural phenomena or improper maintenance or repair. Warranted Vehicle locks exposed to cleaning solutions that are not listed in the UNITED SAFETY maintenance manual or components subjected to the incorrect cleaning solution are excluded from this warranty. This warranty also excludes any third-party products, including those that Vista may procure and provide with or integrate into the Vista product at your request. This warranty is provided directly to Buyer only and does not extend to any subsequent purchaser from or transferee of Buyer.

LIMITED REMEDY:

In the event that a defect covered by this Limited Warranty occurs within the warranty period for a Warranted Vehicle lock, UNITED SAFETY will, at its option and as Buyer’s sole and exclusive remedy, either repair or replace the Warranted Vehicle lock (or the defective part) without charge; provided that Buyer is solely responsible for the costs and expenses of de-installing the defective Warranted Vehicle lock (or the defective part), if requested by UNITED SAFETY, shipping the defective Warranted Vehicle lock (or defective part) to UNITED SAFETY and re-installing the repaired or replacement vehicle lock (or replacement part therefor). The repaired or replacement vehicle lock (or replacement part therefor) is only covered by this Limited Warranty for the remainder of warranty period applicable to the original Warranted Vehicle lock. The original vehicle lock (or part thereof) replaced by UNITED SAFETY shall become the property of UNITED SAFETY upon UNITED SAFETY shipping the replacement vehicle lock (or replacement part) to Buyer.

DISCLAIMER OF WARRANTIES; LIMITATIONS OF LIABILITY:

Buyer and UNITED SAFETY acknowledge that the following provisions have been negotiated by them, reflect a fair allocation of risk and such allocation is reflected in the fees payable to UNITED SAFETY for the Warranted Vehicle locks:

THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

IN NO EVENT SHALL UNITED SAFETY’S LIABILITY, IN THE AGGREGATE, FOR DAMAGES ARISING OUT OF A BREACH OF THIS LIMITED WARRANTY, WHETHER IN TORT, CONTRACT OR OTHERWISE, TO BUYER OR ANY OTHER PERSON OR ENTITY EXCEED THE PRICE ACTUALLY PAID BY BUYER FOR THE WARRANTED VEHICLE LOCK.

IN NO EVENT SHALL UNITED SAFETY BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE, SPECIAL, OR SIMILAR DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, LOSS OF GOOD WILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, WHETHER DIRECTLY

LIMITED WARRANTY

OR INDIRECTLY CAUSED, WHETHER IN TORT, CONTRACT, OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THE LIMITATIONS OF LIABILITY IN CLAUSES (B) AND (C) ABOVE SHALL APPLY EVEN IF AN EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY FAILS OF ITS ESSENTIAL PURPOSE.

NOTIFICATION:

All reports, claims, or notices required by the warranty to be provided to UNITED SAFETY must be in writing and delivered to: Attention – UNITED SAFETY Warranty Claim Department, 101 Gordon Drive, Exton, PA 19341 or emailed to customerservice@usscgroup.com or to such other physical or email address as UNITED SAFETY requires from time to time. Repairs being claimed for warranty must be sent to UNITED SAFETY for prior approval and warranty acceptance before any warranty claims can be made. Parts being claimed for warranty must be sent to UNITED SAFETY for prior approval and warranty acceptance before any warranty claims can be made.

INSPECTION AND VERIFICATION:

The owner must provide access to each alleged defective Warranted Vehicle lock so that UNITED SAFETY's authorized representative can perform an on-site inspection. Alternatively, UNITED SAFETY may ask the owner to ship the alleged defective Warranted Vehicle lock to UNITED SAFETY for inspection. Within 90 days of the inspection, either on-site or in the laboratory, UNITED SAFETY will render an opinion as to whether or not the claimed failure is covered by the warranty.

MAINTENANCE:

UNITED SAFETY provides the proper maintenance instructions as well as required service intervals with each Warranted Vehicle lock. Warranty is contingent upon documented performance of recommended maintenance and service. All replacement parts must be purchased from UNITED SAFETY or an authorized dealer of UNITED SAFETY, and the failure to purchase such parts from UNITED SAFETY or an authorized dealer of UNITED SAFETY will render this warranty null and void.

DESIGN:

UNITED SAFETY reserves the right to modify parts and design specifications without notice as long as the Warranted Vehicle lock meets general specifications, unless otherwise committed per contract. In case further non-conforming changes have to be incorporated, UNITED SAFETY will submit such changes to customer for prior approval.

OTHER:

This Limited Warranty is contingent upon Buyer paying the purchase price for the Warranted Vehicle lock. Terms and warranty supersede any other terms including but limited to customer's terms printed on the back of Purchase Orders, listed on websites or other sources from customers.

WARRANTY – VEHICLE LOCKS