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Keyless Security System



Operating Instructions & Diagnostics



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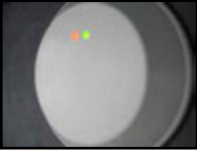



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OPERATING INSTRUCTIONS

KEYLESS ENTRY / START / SECURITY SYSTEM

1	<p>KEYLESS TRUCK ENTRY - WRISTBAND KEY</p> <p>Swipe the area 4"-6" in front of the antenna using the authorized Wristband Key. The door will unlock for 6-seconds. While the door is unlocked, open the door and enter the truck.</p> <p>Antennas are located near each door.</p> <p><i>The door will unlock for 6-seconds. If the door is open longer than 6-seconds, the door will auto-lock when the door is closed.</i></p>	 	2	<p>KEYLESS TRUCK EXIT - UNLOCK SWITCH</p> <p>Press the unlock switch and the corresponding door will unlock for 6-seconds. While the door is unlocked, open the door and exit the truck. There is one unlock switch for each door. The curb side and driver unlock switches are located on the dash, the bulkhead and rear door unlock switches are installed inside the cargo compartment near it's door.</p>	
3	<p>ANTENNA STATUS LEDs</p> <p>a. There is a red and a green status LED installed in each antenna.</p> <p>b. The red LED will flash once anytime the unlock switch is pressed.</p> <p>c. The red LED will flash twice anytime an authorized Wristband Key is presented to the antenna.</p> <p>d. The green LED will turn on solid anytime the door is unlocked (6-seconds).</p> <p>e. The red LED will flash more than twice if there is a system failure (no data communication) between the Master curb side antenna and any of the other antennas.</p>		4	<p>MANUAL TRUCK ENTRY & EXIT</p> <p>a. Only the rear door has a manual key to unlock the truck cargo compartment and gain entry to the truck. The cab can then be entered through the bulkhead door using the Unlock switch or the manual lever inside the door latch.</p> <p><i>Note: If the manual key is used for entry the security alarm will need to be deactivated within 5 seconds by presenting a valid Wristband Key to any antenna. See Cargo Compartment Security Section 6.</i></p> <p>b. All of the doors can be unlocked manually fom inside the truck.</p>	  <div style="display: flex; justify-content: space-around; margin-top: 5px;"> Side Door Bulkhead Rear Door </div>
5	<p>CARGO COMPARTMENT SECURITY</p> <p>a. Anytime both the bulkhead and rear doors are closed and locked, and the ignition is OFF, the cargo compartment security zone is armed.</p> <p>b. The cargo compartment security zone is disarmed anytime an authorized Wristband Key is presented to the bulkhead or rear door antenna.</p> <p>c. If the driver remains inside the cargo compartment and closes both bulkhead and rear doors, the cargo compartment security zone will allow the driver to exit the cargo area by pressing either Unlock switch, located at the Bulkhead or Rear Door.</p> <p>d. The cargo compartment zone alarm triggers when either the bulkhead or rear door is opened manually and NO Valid Wristband Key is presented to any antenna within 5-seconds.</p>				
6	<p>CAB & CARGO DOME LAMPS</p> <p>a. The cab and cargo dome lamps are automatically turned on for 60-seconds when any door is opened.</p> <p>b. The cab and cargo dome lamps are automatically turned on for 10-seconds when any door is opened and the ignition is on.</p> <p>c. The cab and cargo dome lamps "if turned on automatically" will turn off any time the truck is started.</p> <p>d. The cab and cargo dome lamps will turn on maually anytime the Dome Light Dash Switch is pressed and will ONLY turn off if the Dome Light Switch is pressed again.</p>				
7	<p>POWER REDUCTION MODE</p> <p>a. The system enters the Power Reduction Mode, commonly called the Sleep Mode, anytime no activity is detected for 30-minutes.</p> <p>b. The system exits the Power Reduction Mode anytime a valid Wristband Key is presented, an Unlock switch is pressed or the alarm is triggered.</p>				

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KEYLESS STARTING & STOPPING

- a. Close the driver, bulkhead and rear doors.
- b. Swipe the authorized Wristband Key across the target area on the left side of the Keyless Start unit.
- c. The red CK SYS LED will flash twice, which indicates a valid Wristband Key has been received and the

Keyless Start unit will turn on. The green Run LED will flash for 25 seconds indicating the truck is ready to be started and the switch backlights will also be on.

d. Check the Doors Ajar LED on the Keyless Start unit. If it is off, then proceed with starting the truck. If the Doors Ajar status LED is on, then close the driver, bulkhead and/or rear door.

e. Wait for the glow plug indicator light on the dash to turn off and then press the Start switch marked "ENGINE START". The yellow Start LED turns on solid indicating the truck starter has been energized. Release the Engine Start switch as soon as the truck engine is started.

f. To stop the truck and turn off the engine, press the "ENGINE STOP" switch. The engine will turn off and all of the status LEDs will turn off.

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KEYLESS START STATUS LEDs

a. The red Doors Ajar LED will turn on solid anytime the driver, bulkhead or rear doors are open and the truck is off. The red Doors Ajar LED will flash if the alarm has been triggered.

b. The green Run LED will be on solid anytime the truck is running. The green Run LED will flash when a valid Wristband Key is authorized until the Engine Start button is pressed or will timeout at 25 seconds.

c. The yellow Start LED will be on solid when Engine Start button is pressed and the engine can be started. The yellow Start LED will flash if the Engine Start button is pressed and the engine can't be started due to a failed door switch or antenna connector.

d. The red CK SYS LED will flash twice anytime a valid Wristband Key is presented. The red CK SYS LED will flash continuously during start-up mode if there is a system failure at any antenna. If the truck enters sleep mode, the CK SYS LED will flash at 5-second rate until truck exits sleep mode.



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ARMING AND DISARMING THE SECURITY SYSTEM

Arming the Security System

- a. Truck is armed anytime all doors are closed.
- b. Cargo compartment is armed anytime the bulkhead and rear doors are closed.

Disarming the Security System

- a. Wristband Key is presented to any Antenna or the Keyless Start unit and doors are closed.
- b. Pressing any Unlock switch just prior to opening the corresponding door.

Alarm Triggered

- a. If the alarm is triggered, the siren will sound and the dome lights will flash.
- b. The Doors Ajar LED will flash until the Keyless Start detects a valid Wristband Key.

Disarming the Security System if the Alarm is Triggered

- a. Wristband Key is presented to any door or the Keyless Start unit.
- b. Truck ignition is on.
- c. Master Key is presented to any Antenna or the Keyless Start unit.



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MAINTENANCE MODE & QC TESTS

MAINTENANCE MODE

In Maintenance Mode, the backlight LEDs under the Engine Start and Engine Stop are on. In maintenance mode, the siren is disabled and the truck can be started with any of the doors open. Maintenance Mode is entered automatically anytime a Master Key is presented to any antenna or the keyless start. Maintenance Mode is exited automatically anytime a Wristband Key is presented to any antenna or the keyless start.

QC TEST - ALL DOORS SHOULD BE CLOSED

Keyless Entry

Any time the antenna is powered-up, the QC Test is executed and takes about 30-seconds. The red and green status LEDs emit a series flashes, which indicate the status of the inputs to the Antenna/Reader. The QC Test interrogates the Antenna-location inputs; the data bus input and the inputs to the unlock switch, door position switch and the RFID circuit. The curbside door is the Master Node, which controls ALL of the data traffic. To bypass the QC Test, press and hold for 2-seconds the corresponding unlock switch anytime during the QC Test. For example, to bypass the "driver door antenna/reader QC test", press and hold the driver door unlock switch for 2-seconds.

DOOR LOCATION - 1st QC Test (5-10-seconds) Note: The red LED will flash the location sequence twice.

Curbside Door	1-flash or single flash
Driver Door	2-flashes or double flash
Bulkhead Door	3-flashes or triple flash
Rear Door	4-flashes or quad flash

DATA BUS - 2nd QC Test (10-seconds)

If the data bus on the antenna is communicating with the Curbside door (the master node) then the red LED will flicker-flash for 10-seconds. If you are testing the Curbside door, the red LED will flicker-flash for about 3-seconds and then be off for about 7-seconds.

INPUTS - 3rd QC Test (15-seconds)

In this test, each of the inputs are tested, the RFID circuit, the unlock switch input and the door position switch input.

RFID – present any RFID key to the antenna, it does not need to be enrolled. When any RFID key is detected, then both LEDs will turn off and back on when the RFID key is removed.

Unlock Switch – press the unlock switch. If the unlock switch input is detected, then the green LED will turn off and back on when the switch is released.

Door Position Switch – open the door. If the door position switch is detected, the red LED will turn off and back on when the door is closed.

MAINTENANCE MODE & QC TESTS

QC TEST - ALL DOORS SHOULD BE CLOSED

Keyless Start, Alarm & Dome Light

Trucks with Keyless Start installed on dash and no ignition switch.

These QC tests interrogate the inputs and outputs of the system. Any time the Keyless Start is swiped and a valid RFID signal is accepted, the OK TO START timer is initiated. This timer is 25-seconds and during this time period, the driver can start the truck by pressing the Engine Start button. The OK TO START timer exits when the Engine Start switch is detected, the Engine Stop switch is detected or the 25-second OK TO START timer is completed.

The Chk System LED is used to indicate several failure modes. The 1st is a data bus failure and the 2nd is a harness failure (short or open) on any of the three wires, power, ground and data. If there is a data bus failure or harness failure anywhere in the system and one of the antennas or the keyless start is NOT communicating with the Master Node, Curbside Antenna/Reader, the Chk System LED will flash during the 25-second OK TO START timer.

The Doors Ajar LED monitors the status of the door position, open or closed, for the driver, bulkhead and rear doors. If any of these doors are open, the Doors Ajar LED is on solid. If the alarm has been triggered, the Doors Ajar LED will flash at a 2-second rate until the next time the truck is started. If the truck has entered sleep mode, then the Doors Ajar LED will flash at a 5-second rate.

Note: When truck is running, the Doors Ajar LED will NOT detect an open driver, bulkhead or rear door.

INPUTS - 1st QC Test - Status LEDs, Data Bus & Internal Circuit

Swipe Keyless Start using the Wristband Key

- Pass if... OK TO START timer is initiated
- Red Chk System LED flashes twice
- Green Run LED starts to flash
- Green and Red Backlight LEDs under the Start and Stop switches turn on

Press Driver Unlock switch and Open Driver Door and Press Engine Start switch

- Pass if... Doors Ajar LED turns on solid (data bus is OK)
- Yellow Start LED flashes when the Engine Start switch is pressed

Press Engine Stop switch

- Pass if... All LEDs turn off except Doors Ajar LED
- Green and Red Backlight LEDs under Start and Stop switches turn off

OUTPUTS - 2nd QC Test - Siren and Dome Lights

Close Driver Door, wait 10-seconds and then reopen Driver Door

- Pass if... Dome lights turn on solid for 5-seconds
- Siren sounds and dome lights start flashing
- Doors Ajar LED starts flashing

Using Wristband Key, swipe the Keyless start

- Pass if... Siren turns off
- Dome lights turn off
- Doors Ajar LED continues to flash

Press the Engine Start switch

- Pass if... Doors Ajar LED stops flashing

Alarm & Dome Light *Trucks with no Keyless Start and ignition switch installed on column.*

OUTPUTS - QC Test – Siren and Dome Lights

Close Driver Door, wait 10-seconds and then reopen Driver Door

- Pass if... Dome lights turn on solid for 5-seconds
- Siren sounds and dome lights start flashing

Using Wristband Key, swipe any Antenna

- Pass if... Siren turns off
- Dome lights turn off

DIAGNOSTICS

SYMPTOM - KEYLESS ENTRY

DOOR DOES NOT UNLOCK

ANTENNA / READER

1 Door Does Not Unlock When Swiped Using Wristband Key

POSSIBLE CAUSE

1.1
Wristband Key is not enrolled correctly
Note: Door unlocks when unlock switch is pressed.

1.2
The Wristband Key is damaged or defective

1.3
Truck was moved from one location to a new one and the correct Master Key was not enrolled

1.4
The antenna RFID circuit has failed

1.5
Wire harness, crimp, ground connection or solenoid has failed

CORRECTIVE ACTION

1.1.1
Swipe antenna with Wristband Key – Does red LED on antenna flash twice? If yes, wristband is enrolled correctly.



1.1.2
If no, press the unlock switch to verify the antenna and solenoid are operating correctly. The red LED should flash once when the unlock switch is pressed and the door should unlock.

1.1.3
If the unlock switch correctly unlocks the door, swipe the antenna with a Master Key. If one of these unlocks the door and the red LED flashes twice, then use the Master Key to enroll the Wristband Key.



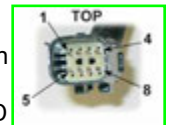
1.2.1
If the door is unlocked using the Master Key, but will not enroll the Wristband Key or the Wristband Key will not unlock the door, then the Wristband Key is defective. Replace the Wristband Key and enroll it into the truck using the Master Key.

1.3.1
The system unlocks using the unlock switch or Wristband Key, but fails when swiped with the Master Key. If the Master Key fails, try unlocking any other door using the Master Key. If none unlock, then the truck is not programmed with this Master Key. Locate the Station Transfer and enroll the correct Master Key. Check the doors again with the Master Key.

1.4.1
Unplug the antenna from the wire harness and then reconnect it. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curb-side door the flick-flash is a short burst), 3rd the input check, both LEDs will turn on solid for 15-seconds to check the antenna RFID circuit, present a key, Master or Wristband that operates the other antennas. If the key is detected, both LEDs turn off and back on, the antenna RFID circuit is OK. If the key is not detected, then replace the antenna.



1.5.1
If the red LED flashes when swiped with the Wristband Key or the Unlock switch is pressed, but the door does not unlock, then check the truck harness and connector. The solenoid output voltage on pin #3 (gray) should be +12V anytime the green LED is on for 6-seconds. If +12V is present on pin #3 (gray), then check the truck wire harness, the ground and solenoid connections. Repair as needed.



Antenna Connect Pigtail

SYMPTOM - KEYLESS ENTRY

2 Door Does Not Unlock When Pressing the Unlock Switch

POSSIBLE CAUSE

2.1
The unlock switch is damaged or defective


Note:
a. Door does unlock when swiped.

2.2
The harness connection between the switch and the antenna has failed

2.3
The connector or terminal crimps have failed


CORRECTIVE ACTION

2.1.1
Try unlocking the door using the Wristband or Master Key. If the door unlocks, then the unlock switch or wire harness is defective.




Verify that a ground signal is present at the switch on the #2 COM terminal when the switch is NOT pressed to check wire harness connection.

2.1.2
If there is a ground present on the #2 COM terminal, then press the switch and check for ground on the normally open (NO) terminal. If ground is not detected on both terminals, then the switch is defective.



2.1.3 **QC Check**
Unplug the antenna from the wire harness and then reconnect it. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curbside door the flick-flash is a short burst), 3rd the input check, both LEDs will turn on solid for 15-seconds. Press the unlock switch and observe the LEDs, if the unlock switch input is detected the green LED will turn off and back on. If the green LED does NOT turn off and back on when the Unlock switch is pressed, then either the unlock switch or wire harness is defective. Determine what is causing the failure and correct or replace as needed.


2.2.1
If the switch is OK, then check the input pin on the antenna connector, pin #5 (gray/yellow). There should be a ground on this terminal when the switch is pressed. If there is no ground, correct or replace the harness.



2.2.2
If the switch is OK, repeat the test in 2.1.3. Check wire harness and connectors and repair as needed.

2.3.1
Using a ground input, touch pin #5 (gray/yellow) on the antenna connector. If the red LED flashes once and the door unlocks, then the antenna and antenna connector are OK. Locate the connector or crimp problem and repair or replace the wire harness.

2.3.2
If the antenna red LED does not flash and you have verified there is an input on pin #5 (orange) when the switch is pressed, then replace antenna.



SYMPTOM - KEYLESS ENTRY

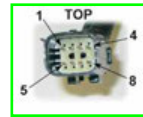
2 Door Does Not Unlock When Pressing the Unlock Switch (cont'd)

POSSIBLE CAUSE

2.4
Antenna unlock switch circuit has failed

CORRECTIVE ACTION

2.4.1
If the unlock switch is OK and there is ground on the input pin #3 (gray wire) when the switch is pressed, unplug the antenna from the wire harness and then reconnect it. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curbside door the flick-flash is a short burst), 3rd the input check, both LEDs will turn on solid for 15-seconds. Press the unlock switch and observe the LEDs, if the unlock switch input is detected the green LED will turn off and back on. If the green LED does NOT turn off and back on when the Unlock switch is pressed, then either the unlock switch or wire harness is defective. If you have determined that the input is present on pin #3, then replace the antenna.





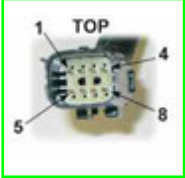

SYMPTOM - KEYLESS ENTRY

3 Door Does Not Unlock When Swiped or Unlock Switch is Pressed, But the Green LED Turns On for 6-Seconds

POSSIBLE CAUSE

- 3.1
The solenoid does not have a ground connection
- 3.2
No power to the solenoid
- 3.3
Solenoid rod is jammed
- 3.4
Door is jammed
- 3.5
There is a short in the wire harness or solenoid
- 3.6
There is an internal short in the antenna

CORRECTIVE ACTION

- 3.1.1
Using a voltmeter check that the ground wire to the solenoid is making good contact with the truck chassis. If there is no ground, then correct the ground connection.
 - 3.2.1
 Using a voltmeter, first verify there is +12VDC on pin #1 (red), then check for +12VDC on pin #3 (gray) of the antenna connector when the green LED is on.  If there is no +12VDC, check the connector to make sure a crimp or pin is not damaged. If the harness and crimps are OK, replace antenna.
 - 3.2.2
If there is +12VDC on the antenna connector when the LED is green, check +12VDC on the solenoid. If there is no +12VDC at the solenoid, then repair the wire harness.
 - 3.3.1
If there is power and ground at the correct pins to the solenoid, then check the solenoid itself. If the solenoid rod does not move when the solenoid or door locking mechanism is energized, then either the solenoid is jammed or defective, repair or replace the solenoid.
 - 3.4.1
If antenna and solenoid appear to be working correctly, then check the door's alignment. Adjust the door as required to operate properly.
 - 3.5.1
 The internal circuit breaker in the antenna module will detect a short in the wire harness, connector or solenoid. Locate the short and repair it. Reset the system by swiping the antenna or pressing the unlock switch (See note below).
 - 3.6.1
 If you have verified that there is no short in the wire harness, connection or solenoid, AND YOU HAVE RESET POWER TO THE ANTENNA, then the antenna is defective. Replace the antenna.
- *Note: "Smart switches" with internal circuit breakers protect the outputs. When the short is corrected, the smart switch must be reset. To reset the antenna, swipe it using a Wristband or Master Key or unplug the unit to reset the circuit. There is NO visual indication that the internal circuit protection has been tripped.*

SYMPTOM - KEYLESS ENTRY

4 Unlock Response Is Slow When Swiped Using Wristband Key

POSSIBLE CAUSE

4.1
Data bus has failed due to wire harness or connector problem

4.2
There is an internal short in the antenna

CORRECTIVE ACTION

4.1.1
Swipe the Keyless Start and observe the Chk System LED, if it continues to flash during the 25-seconds when the truck can be started, then there is a data bus failure. Swipe each antenna and observe the red LED. If that antenna is NOT connected to the data bus, then the red LED will continue to flash during the 6-second solenoid timer. To verify the problem, unplug the antenna. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curbside door the flick-flash is a short burst). If there is NO flicker-flash, then the data bus is not active.

4.1.2
If there is a failure in the ID location pins in one of the antennas and there is a "location conflict" on the data bus. For example, the ground input on pin #7 has failed (no ground) and the system thinks there are two Curbside nodes present. The Curbside node is the Master, which controls the data bus traffic. Unplug each antenna and observe the QC Test. If the first test, which identifies the antenna location, indicates two unit with the same location ID, then you have found the problem. Fix the connector or wire harness.

4.2.1
If you have verified that there is no wire harness or connector problem and that all of the antenna-locations are correctly identified, then unplug the antenna from the wire harness and then reconnect it. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curbside door the flick-flash is a short burst). If the red LED does not flicker-flash at all then the data bus circuit is failed. Replace the antenna.

SYMPTOM - DATA BUS

1 Status LEDs Flash Data Bus Failure

POSSIBLE CAUSE

1.1
There is a short in the wire harness

CORRECTIVE ACTION

1.1.1
Keyless Start Chk system LED flashes continuously during the OK to Start timer, which indicates that the keyless start or any one or all of the antennas are not communicating with the Master node, which is located at the curbside door. Using a volt meter, check the voltage of the data bus wire harness with all units connected. It should be +12v and the voltage will bounce a little due to the traffic on the data bus. If the voltage is a solid +12v, then there is a short in the wire harness to the power wire of the system. Locate the problem and repair.

1.1.2
If the harness is not shorted to power, then disconnect the wire harness connector for power and ground located under the hood. Check different points in the wire harness and see if chassis ground is present. With the wire harness disconnected from the truck, there should be NO chassis ground detected. If there is a ground detected, locate the problem and repair it.

1.1.3
If the harness is not shorted to power or chassis ground, then it can be shorted to the ground or power wire in the harness. With the harness disconnected from the battery, check for +12v and ground between the power wire in the harness and the ground wire in the harness. If +12v or ground is connected to the data wire (tan), then locate the problem and repair it.

2 Alarm Will Not Trigger

POSSIBLE CAUSE

2.1
The data bus is failed

CORRECTIVE ACTION

2.1.1
If the alarm does not trigger and the keyless start Chk system LED is flashing during the OK to Start timer, then there is a data bus failure. See diagnostic section above to locate the problem.

3 Unlock Or Start Response Is Slow When Swiped

POSSIBLE CAUSE

3.1
There are two antennas with the same location key.

3.2
There is a short or open in the wire harness.

CORRECTIVE ACTION

3.1.1
Run a QC test on each of the antennas to determine which two antennas have the same location address. Repair the location point in the wire harness.

3.1.2
Run a QC test on each of the antennas to determine which two antennas have the same location address. If the failure is not the wire harness and it is in the antenna. Replace the antenna.

3.2.1
There is a short or open in any one or more of the wires in the harness, data (tan wire), power (red wire) or ground (white or black wire). See 1.1 above.

SYMPTOM - KEYLESS START (NO IGNITION KEY)

TRUCK DOES NOT START

KEYLESS START UNIT

1
Keyless Start Unit Does Not Turn On When Swiped With Wristband Key

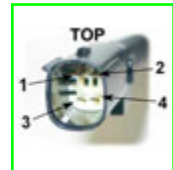
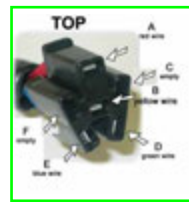
Note:
Keyless Start unit uses a white wire for ground and the truck wire harness uses a white or black wire for ground.

POSSIBLE CAUSE

- 1.1
The Keyless Start unit has no power or ground to the system
- 1.2
The Wristband Key is not enrolled
- 1.3
The Wristband Key is damaged or defective
- 1.4
If the truck was moved from one location to a new location and the correct Master Key was not enrolled

CORRECTIVE ACTION

- 1.1.1
With the Keyless Start unit turned OFF, press and hold the start switch. The green LED under the start switch should turn on if there is power and ground to the Keyless Start unit. If the green LED under the start switch does not turn on, then check voltage on the power and ground wires. +12VDC should be present at all times on the red wire, pin #A (red) in the "A-shaped" connector. Ground should be present on the white wire, pin #3 (white) in the small 4-pin connector. If proper voltages are not present, locate the problem in the wire harness or ground connection and repair it.
- 1.2.1
Swipe the RFID Target with the Wristband Key – Does green run LED flash and the Ck Sys red LED flash twice? If not, the Wristband Key may not be enrolled. Locate the Master Key for the truck, if the Master Key turns on the system, then enroll the Wristband Key.
- 1.3.1
The Master Key will authorize the truck start module, but will not enroll the Wristband Key, then the Wristband Key is defective. Replace the Wristband Key.
- 1.4.1
If the Master Key will not authorize the truck start unit, then try to unlock the doors using the Master Key. If the Master Key fails to authorize the truck start unit and will not unlock the doors, then the truck is programmed with the wrong Master Key. Enroll the correct Master Key and verify by checking the doors again, then program the Keyless Start.
- 1.4.2
If the truck Key will not start using the Master Key, but will start using the Wristband Key the old Master Key code was NOT removed when the truck was moved from one location to a new location. Call the factory for assistance.








SYMPTOM - KEYLESS START (NO IGNITION KEY)

2 Keyless Start Will Turn On When Swiped, But Truck Will Not Crank

POSSIBLE CAUSE

- 2.1
One of the doors is not closed
- 2.2
Truck has a faulty starter motor or starter circuit
- 2.3
The truck has low battery voltage
- 2.4
Keyless Start unit or wire harness is defective

CORRECTIVE ACTION



- 2.1.1
Check the Doors Ajar LED. If it is on, then close the door and press the start switch to retry. 
- 2.2.1
Press the start switch and check the voltage on pin #B (yellow wire). If +12V is present the Keyless Start unit is okay, then check the truck starter motor and truck start circuit. 
- 2.3.1
Check the truck's low voltage switch*, if it is flashing, then press the switch. If this switch stops flashing (on solid) try to restart the truck. 
- 2.3.2
If the truck's low voltage switch* is on solid, and the truck will not start, then charge the truck's battery. The truck battery voltage must be above 11VDC in order to start the truck.
- *Note: The truck low voltage switch turns off the starting and accessory circuits in the truck.
- 2.4.1
Press the start switch and check the voltage on pin #B (yellow wire). If +12V is not present on this wire when the switch is pressed, then the unit is defective. Replace the unit.  

3 Truck Will Not Start

POSSIBLE CAUSE

- 3.1
There is a short in the Keyless Start unit or truck wire harness

CORRECTIVE ACTION

- 3.1.1
Disconnect the Keyless Start unit from the truck by unplugging the 7-pin truck harness connector. Apply +12V to pin #A (red) in the ignition key switch "A-shaped" connector. Swipe the Keyless Start unit with the Wristband Key to reset the smart switches.  
If the CK SYS LED stops flashing, locate the short in the wire harness and repair. If there is no short in the wire harness, then the short is inside the Keyless Start unit. Replace the Keyless Start unit.

** Note: "Smart switches" with internal circuit breakers protect the outputs. When the short is corrected, the smart switch must be reset. To reset the keyless start outputs, press the Engine Stop switch to turn off the circuit, dome lights should be off and the siren is not sounding. Swipe the keyless start and press the engine start switch to start the truck to see if the smart switches have been reset. In some cases you may need to unplug the 8-pin connector in which the ground is located to reset the smart switches.*

SYMPTOM - KEYLESS START (NO IGNITION KEY)

4 Keyless Start Turns On When Swiped, But Green Run LED Does Not Turn On

POSSIBLE CAUSE

4.1
There is an internal problem with the Keyless Start unit

CORRECTIVE ACTION

4.1.1
Replace unit.
Note: The Run signal is tied directly to the alarm unit and sends the ignition status to the alarm.



5 Run LED Does Not Turn On and The Ck Sys LED Does Not Flash When Unit Is Swiped.

POSSIBLE CAUSE

5.1
The Wristband Key is not enrolled in the Keyless Start

5.2
There is an internal problem with the Keyless Start unit

CORRECTIVE ACTION

5.1.1
Verify the Wristband Key will unlock any door. If the Wristband Key unlocks any door then the Wristband Key is enrolled into the truck code register and the Chk system LED flashes when the keyless start is swiped, then there is a data bus failure. Check the keyless start data connector pin #6 (tan wire). Go to the Data Bus Diagnostic section to determine how to detect the failure.

5.1.2
If the Master Key cannot enroll the Wristband Key, but does initiate the enrolling procedure correctly, then the Wristband Key is defective. Replace the Wristband Key.

5.2.1
If a valid Wristband Key cannot be enrolled into the Keyless Start unit, the unit is defective. Replace the unit.



6 The Backlights Behind The Switches Do Not Turn On When Unit Is Swiped

POSSIBLE CAUSE

6.1
There is an internal problem with the Keyless Start unit

CORRECTIVE ACTION

6.1.1
The switch backlights are dim for night-time viewing and may not be easily visible in the daytime. Therefore, carefully observe the switch backlights (green under the start switch and red under the stop switch) when verifying the status. If there are no backlights under the switches, replace the unit.



SYMPTOM - KEYLESS START (NO IGNITION KEY)

7 The Yellow Start LED Does Not Turn On When The Start Switch Is Pressed

POSSIBLE CAUSE

7.1
There is an internal problem with the Keyless Start unit

CORRECTIVE ACTION

7.1.1
If the yellow start LED does not turn on and the engine does not start, the Keyless Start unit is defective. Replace the unit.



7.1.2
If the yellow start LED does not turn on and the engine does start, the Keyless Start unit is defective. Replace the unit.

8 Truck Starts, But Does Not Keep Running

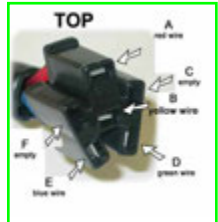
POSSIBLE CAUSE

8.1
There is a problem with the truck ignition or run circuit

8.2
There may be a problem with the run circuit in the Keyless Start

CORRECTIVE ACTION

8.1.1
Locate pin #D (green), on the "A-shaped" ignition key switch connector. Push the start switch and verify the green run LED turns ON and stays ON. Then using a voltmeter, measure the voltage on pin #D (green). If pin #D (green) has +12V when the Keyless Start is in RUN, the Keyless Start unit is OK. Identify the problem in the truck ignition and run circuits and repair it.



8.2.1
If the green run LED does not stay ON after pushing the start switch, then the Keyless Start unit is defective. Replace the unit.



SYMPTOM - TRUCK ALARM

NOTE: In trucks with the keyless start and no ignition key, there is the keyless start, automatic dome light and an alarm circuits inside the unit. In trucks with an ignition key on the column, the unit is located under the dash and only controls the alarm circuit and the automatic dome lights.

1 Siren Does Not Sound When Triggered

POSSIBLE CAUSE

- 1.1
There is no output at the keyless start

- 1.2
There is a short in the wire harness

- 1.3
The siren is defective

- 1.4
There is no ground connected to the siren

CORRECTIVE ACTION

- 1.1.1
Trigger the alarm and then using a volt meter check the siren output on pin #5 (violet wire). When the siren is sounding there should be +12v on the output wire. If there is no output on pin #5 and the Doors Ajar LED is flashing, then reset the alarm by disconnecting and the reconnecting the 8-pin connector. On the trucks with the alarm only and no keyless start, the Doors Ajar LED is not visible.

- 1.2.1
Trigger the alarm and then using a volt meter check the wire pin at the siren. When the siren is sounding there should be +12v on the siren output wire. If there is no +12v at the siren and the Doors Ajar LED is flashing, then reset the alarm by disconnecting and the reconnecting the 8-pin connector. On the trucks with the alarm only and no keyless start, the Doors Ajar LED is not visible.

- 1.3.1
Using a volt meter verify that there is +12v on the violet wire when the alarm is triggered and that ground is present on the ground wire. If both of the voltages are correct, then the siren is defective. Replace the siren.

- 1.4.1
Using a volt meter check the ground on the siren. If the ground is not present at all times, then there is a problem with the ground in the wire harness. Locate the problem and repair it.

SYMPTOM - TRUCK ALARM

2 Siren Will Not Turn Off

POSSIBLE CAUSE

2.1
Wire harness has a short on the power wire between the keyless start or alarm unit and the siren

2.2
The siren is defective

2.3
The keyless start output is defective

CORRECTIVE ACTION

2.1.1
If the alarm is not triggered, no Doors Ajar LED flashing, or it has completed it's timed cycle (180-seconds twice) and the siren is still sounding, then using volt meter locate the short in the wire harness and repair it.

2.2.1
If the alarm is not triggered, no Doors Ajar LED flashing, or it has completed it's timed cycle (180-seconds twice) and the siren is still sounding, and you have determined that there is no short in the wire harness and there is no +12v from the siren output on the keyless start or alarm unit, the siren is defective. Replace the siren.

2.3.1
If the keyless start or the alarm output has +12v present on pin #2 (violet wire) and the alarm has not been triggered, then the keyless start is defective. Replace the keyless start.

3 Alarm Will Not Trigger When A Door Is Opened

POSSIBLE CAUSE

3.1
Door position switch is misaligned

3.2
Door position switch or magnet on door is defective

3.3
Data bus is not functioning

CORRECTIVE ACTION

3.1.1
Check the door position switch bracket and make sure it is aligned correctly. Then test using a volt meter. If the door is open, then there should be a ground on pin #4 (gray/white wire or wire with white stripe). Realign the door position switch and retest.

3.2.1
Using a volt meter, test the voltage on the door position switch wire. If the door is open, then there should be a ground on pin #4 (gray/white wire or wire with white stripe). If there is no ground, then using a magnet, check to see if a new magnet will correct the problem. If it does, then replace the magnet.

3.2.2
Using a volt meter, test the voltage on the door position switch wire. If the door is open, then there should be a ground on pin #4 (gray/white wire or wire with white stripe). If there is no ground, then using a magnet, check to see if a new magnet will correct the problem. If the magnet is not the problem, then replace the door position switch.

3.3.1
If the Alarm will not trigger because the data bus is not functioning, swipe the keyless start and if the Chk System LED continues to flash during the OK to Start timer, then go to the data bus trouble shooting section.

SYMPTOM - TRUCK ALARM

4 Alarm Triggers When Truck Is In RUN

POSSIBLE CAUSE

4.1
There is a problem with the wire harness

4.2
The keyless start or alarm unit is defective

CORRECTIVE ACTION

4.1.1
On the Alarm only trucks (ignition switch on the column) check the run input on pin #4 (green wire). When the truck is in RUN there should be +12v on that wire. If there is no +12v, then check the wire harness or connector. Locate the problem and repair it.

4.2.1
If there is +12v on pin #4 (green wire), then the keyless start or alarm is defective. Replace the keyless start or alarm unit.

SYMPTOM - DOME LIGHT

DOMEST LIGHT DOES NOT TURN ON

DOMEST LIGHT SWITCH & OUTPUT
NOTE: The dome light switch is connected directly to the dome lights. If the dome light switch is turned ON using the dome light switch, then ONLY the dome light switch can turn the dome lights OFF.

1 The Dome Light Does Not Turn On Or Off When The Dome Light Switch Is Pressed

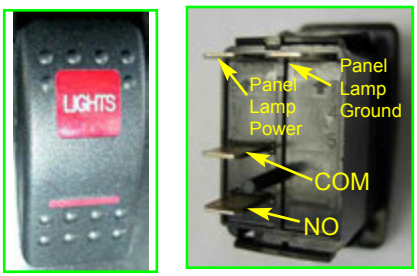
POSSIBLE CAUSE

- 1.1
The dome light switch is defective

- 1.2
The dome light switch harness is defective

- 1.3
The dome light bulbs are burned out

CORRECTIVE ACTION

- 1.1.1
Using a voltmeter, check the #2 COM terminal on the dome light switch to verify that a ground signal is present. Then press the switch, if a ground is not present on the NO terminal, the dome light switch is defective. Replace the switch.
- 
- 1.2.1
Using a voltmeter, check the #2 COM terminal on the dome light switch. If ground is not present, then repair the wire harness and retest.

 - 1.3.1
Check the continuity on the dome lights. If there is no continuity when the lights are off, then the bulb is blown. Replace the bulb.

SYMPTOM - DOME LIGHT

2 Dome Lights Do Not Turn On Automatically When Any Door Is Opened

POSSIBLE CAUSE

2.1
One of the door position switches is defective

2.2
The dome light keyless start harness is defective

2.3
The Keyless Start unit is defective

2.4
There is a short in the wire harness or the dome light and the internal circuit breaker has been tripped

CORRECTIVE ACTION

2.1.1
Using a voltmeter, check the COM and OPEN terminals on the Door Position switch to verify that a ground signal is present with the door open. If the ground signal is present on only the COM terminal then the switch is defective. If there is no ground signal on either terminal check the wire harness and ground locations.



Cab Door Switch

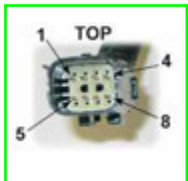


Bulkhead Door Switch



Rear Door Switch

2.2.1
Check the dome light wire harness between the keyless start and the dome lights. There should be +12v anytime a door is opened for 60-seconds on pin #3 (blue wire). Locate the problem and repair.



2.2.2
There is a short in the wire harness and the smart switch circuit protection has tripped. Using a voltmeter, determine if there is a short in that circuit. If so, repair the circuit; then reset the smart switch circuit protection by unplugging the 8-pin connector.

2.3.1
There is a short in the keyless start dome light circuit and the smart switch has tripped. Reset the circuit by unplugging the 8-pin connector. If you can not reset the circuit, then the keyless start has failed. Replace the keyless start.

2.4.1
Locate the short in the wire harness and repair. Then, unplug the 8-pin connector to reset the smart switch protection circuit.



** Note: "Smart switches" with internal circuit breakers protect the outputs. When the short is corrected, the smart switch must be reset. To reset the keyless start outputs, press the Engine Stop switch to turn off the circuit, dome lights should be off and the siren is not sounding. Swipe the keyless start and press the engine start switch to start the truck to see if the smart switches have been reset. In some cases you may need to unplug the 8-pin connector in which the ground is located to reset the smart switches.*

2.4.2
If the dome lights are OK, locate the short in the wire harness.

SYMPTOM - DOORS AJAR

DOORS AJAR LED

Note: When the truck is in RUN, the Doors Ajar LED on the Keyless Start is disabled.

1 Doors Ajar LED Stays On When Door is Closed & Yellow Start LED Flashes When Start Button is Pressed

POSSIBLE CAUSE

- 1.1
Door position switch is not aligned properly

- 1.2
Door position switch is defective

- 1.3
Door position switch harness is defective

- 1.4
The keyless start is defective

CORRECTIVE ACTION

- 1.1.1
Close door and observe the Doors Ajar LED. If it is On, then using a voltmeter to verify there is a signal. If there is a signal and the door is closed, then reposition the magnet on the door until the Doors Ajar LRED turns Off.

- 1.2.1
Check the door position switch. Is the door closed and is there a ground signal present? If so, then the door position switch is defective. Replace the door position switch.

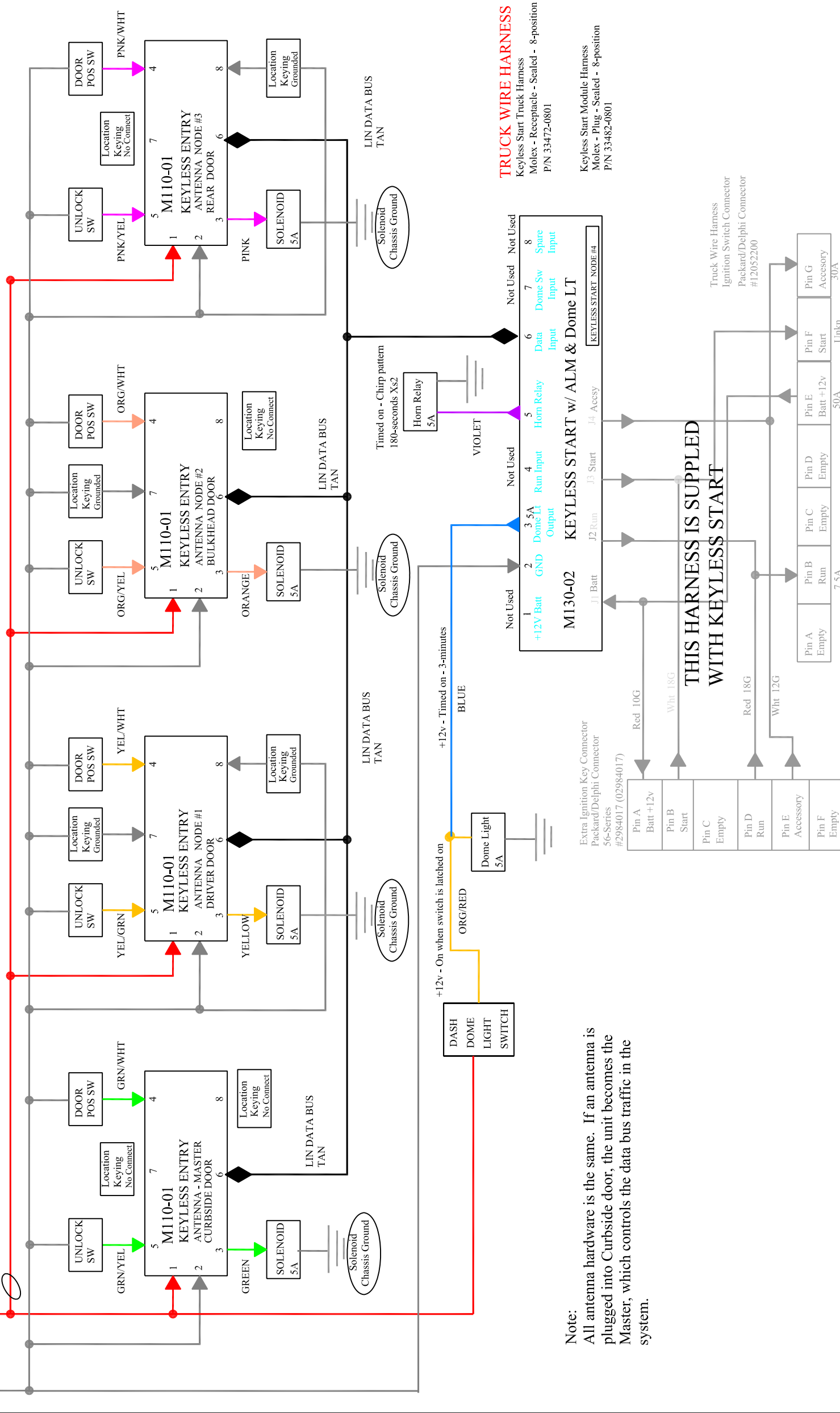
- 1.2.2
Unplug the antenna at each door. Observe the QC test, 1st the location code will be flashed twice, 2nd the data bus operation is tested and if the data bus is present, the red LED will flicker-flash 10-seconds (if the antenna is at the curb-side door the flick-flash is a short burst), 3rd the input check, both LEDs will turn on solid for 15-seconds. Open and close the door and observe the LEDs, if the door position switch input is detected the red LED will turn off and back on. If the red LED does NOT turn off and back on when the door is opened and closed, then either the door position switch or wire harness is defective.

- 1.3.1
The door position is sent over the data bus to the keyless start. Check the input on the 8-pin connector to the antennas at the driver, bulkhead and rear door. If there is a ground on pin #4 (gray/white) then the wire harness is defective at that antenna.

- 1.4.1
If all of the antenna door position switch inputs are OK and the Doors Ajars LED does not indicate the correct door status, then the keyless start is defective. Replace the keyless start.

ECO #:	Rev:	Description:	Drawn	Date	App'd	Date
XXX	A	Initial Release.	AEP	2005-12-13	AEP	2005-12-13
XXX	B	Updated for LIN data bus	AEP	2006-03-20	AEP	2006-03-22
XXX	C	Added +12v to motion sensor to correct print	AEP	2006-03-05	AEP	2006-03-03
XXX	D	Deleted alarm & added alarm & dome lt timers to keyless start	AEP	2006-04-17	AEP	2006-ss-xx
XXX	E	Changed dome & siren inputs to +12v & dome lt to chassis ground	AEP	2006-04-19	AEP	2006-04-19
XXX	F	Changed sounding pattern on siren to chirps from continuous Renumbered 8-pos connector pin outs to match other connectors in system	AEP	2006-05-03	AEP	2006-05-03
XXX	G	CHANGED LIN DATA WIRE FROM BLACK TO TAN	AEP	2006-06-05	AEP	2006-06-05
XXX	H	Updated antenna reference names to "node" & part numbers	AEP	2006-09-06	AEP	2006-09-06

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TRUCK WIRE HARNESS
Antenna/Reader Truck Harness
Molex - Receptacle - Sealed - 8-position
P/N 33472-0801

Antenna/Reader Module Harness - used in 5-pls
Molex - Plug - Sealed - 8-position
P/N 33482-0801

TRUCK WIRE HARNESS
Keyless Start Truck Harness
Molex - Receptacle - Sealed - 8-position
P/N 33472-0801

Keyless Start Module Harness
Molex - Plug - Sealed - 8-position
P/N 33482-0801

Note:
All antenna hardware is the same. If an antenna is plugged into Curbside door, the unit becomes the Master, which controls the data bus traffic in the system.

THIS HARNESS IS SUPPLIED WITH KEYLESS START

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BLOCK DIAGRAM OF FEDEX TRUCKS
KEYLESS START, ALARM & KEYLESS ENTRY

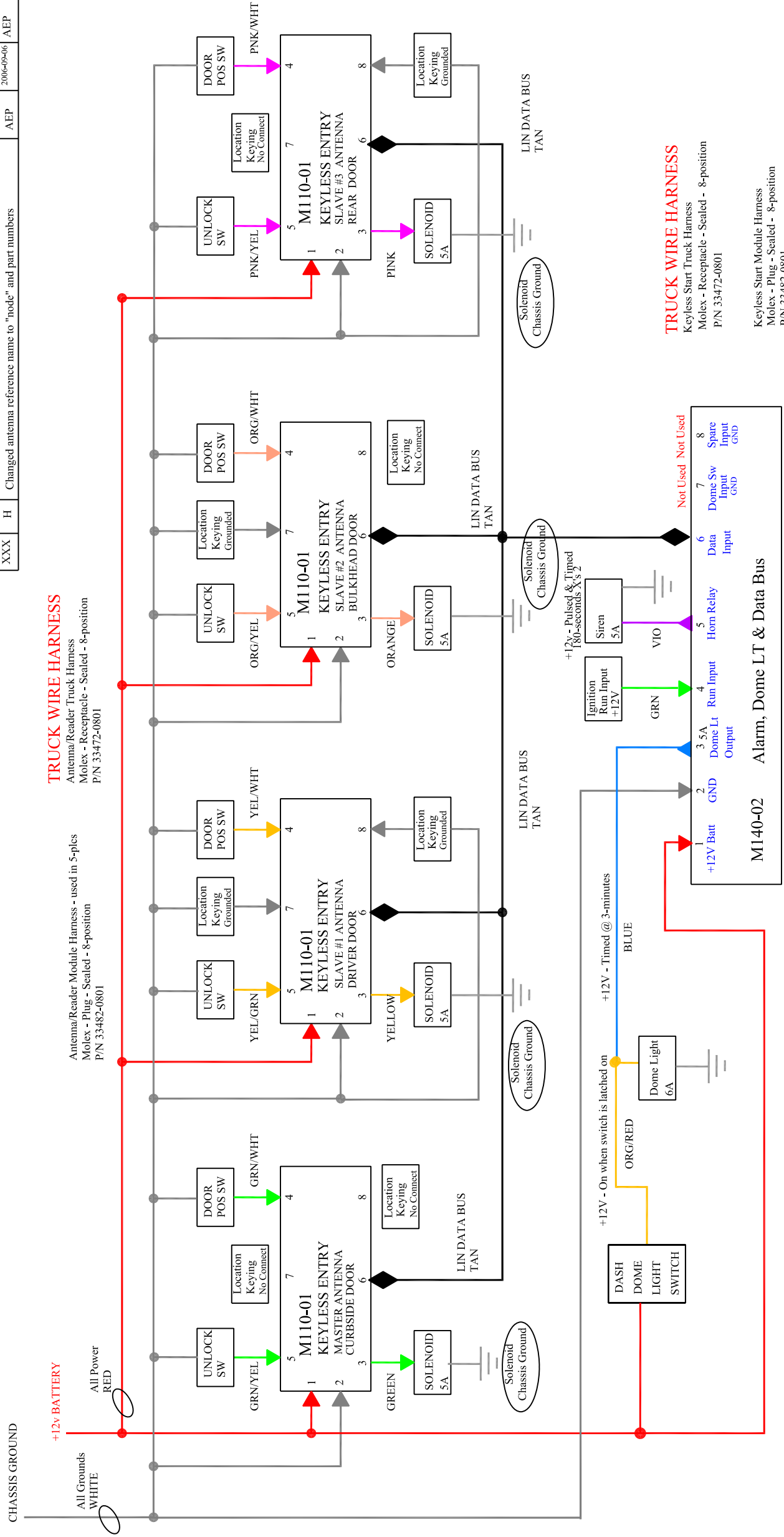
Drawn By: A. POSELEY
Date: 2005-07-05
Approved By: R. Mathia
Date: 2006-04-19
Approved By:

Size: C
Scale: NONE
Drawing: LIN HNS FDX
Filename: 2006-09-06 Block Diag FDX Freightliner.dwg

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NO IGNITION SWITCH

ECO #:	Rev:	Description:	Drawn	Date	App'd	Date
XXX	A	Initial Release.	AEP	2005-12-13	AEP	2005-12-13
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XXX	E	Changed dome light & siren outputs to +12V & dome lt is chassis ground.	AEP	2006-04-19	AEP	2006-04-19
XXX	F	Added input for "RUN" circuit to Alarm unit + 12v & dome lt input Renumbered connector pin out to match other connectors in system	AEP	2006-05-03	AEP	2006-05-03
XXX	G	Changed LIN data wire color from black to tan	AEP	2006-06-05	AEP	2006-06-05
XXX	H	Changed antenna reference name to "node" and part numbers	AEP	2006-09-06	AEP	2006-09-06



Note:
 All antenna hardware is the same. If an antenna is plugged into Curbside door, the unit becomes the Master, which controls the data bus traffic in the system.

Printed copies must be verified against electronic master before use.	
Drawn By: A. POSELEY	Date: 2005-07-05
Approved By: R. Mathia	Date: 2006-04-19
Approved By:	
Size: C	
Drawing: TTN BLOCK HARNESS FORD	
Scale: NONE	
File Name: 2006-09-06 Block Diag FDX FORD.dwg	
Rev: H	Sheet: 1 of 1

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Block Diagram of FEDEX TRUCKS ALARM & KEYLESS ENTRY

IGNITION SWITCH ON COLUMN

COMPONENT LISTING



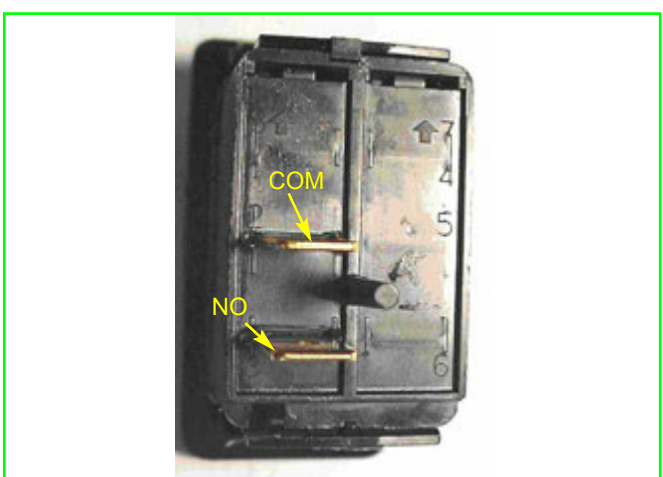
WRISTBAND



ANTENNA



UNLOCK SWITCH



UNLOCK SWITCH - BACK VIEW

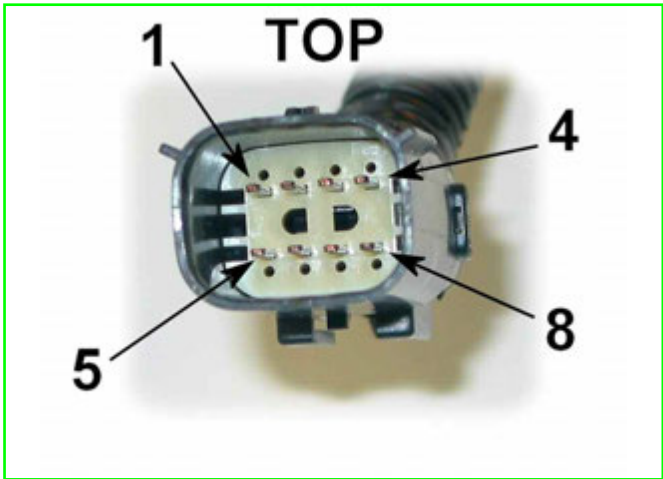


MASTER KEY



TRANSFER KEY

COMPONENT LISTING



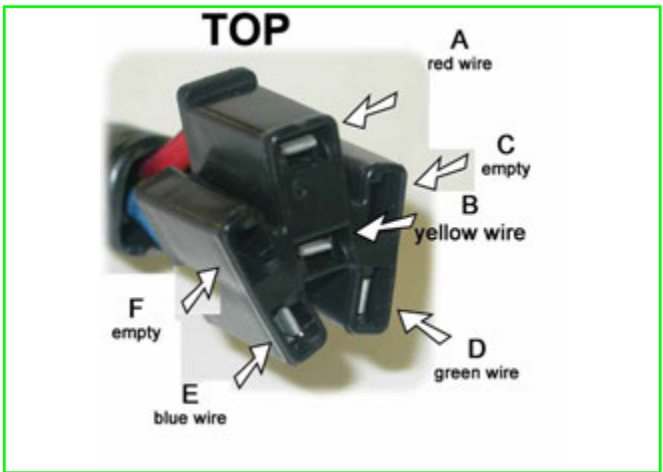
ANTENNA 8-PIN CONNECTOR - FRONT VIEW



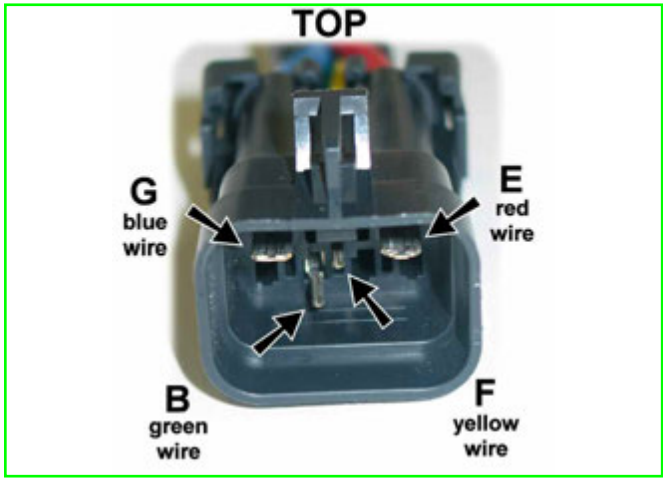
KEYLESS START UNIT



LOW VOLTAGE SWITCH



IGNITION KEY SWITCH CONNECTOR - FRONT VIEW

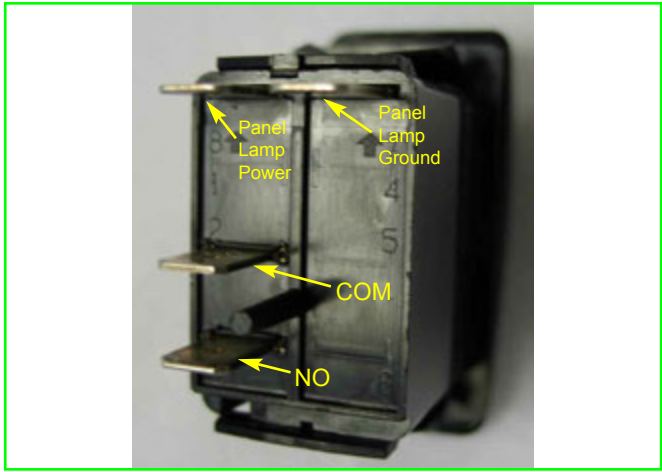


IGNITION TRUCK HARNESS 7-PIN CONNECTOR - FRONT VIEW



DOME LIGHT SWITCH

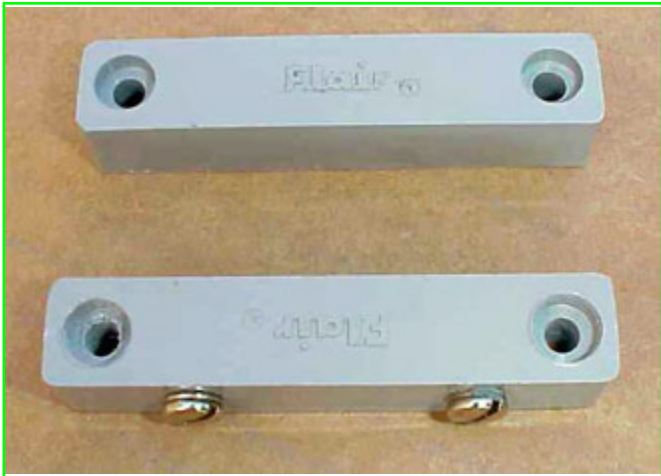
COMPONENT LISTING



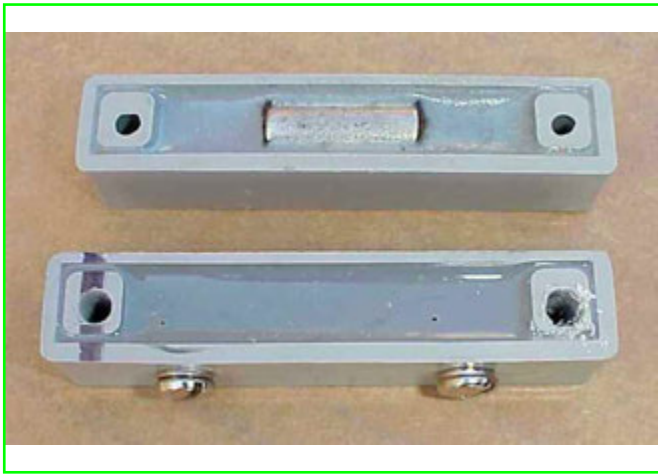
DOME LIGHT SWITCH - BACK VIEW



SIREN



DOOR POSITION SWITCH



DOOR POSITION SWITCH BACK VIEW