11
Installing the Swing Door Sensor

Introduction

This chapter provides guidelines and instructions for installing the TT210 system trailer swing door sensor.

Topics in this chapter include:

If you have technical questions, please contact Qualcomm Enterprise Services (QES) Customer Support. QES Customer Support is staffed 24 hours a day, 365 days a year:

In the United States, call 800-541-7490
In Canada, call 800-863-9191

Swing Door Sensor Installation Overview

The swing door sensor kit contains the swing door sensor (with magnet and switch) and an 85-foot door sensor cable assembly. (The replacement swing door sensor kit comes without the 85-foot cable assembly.)

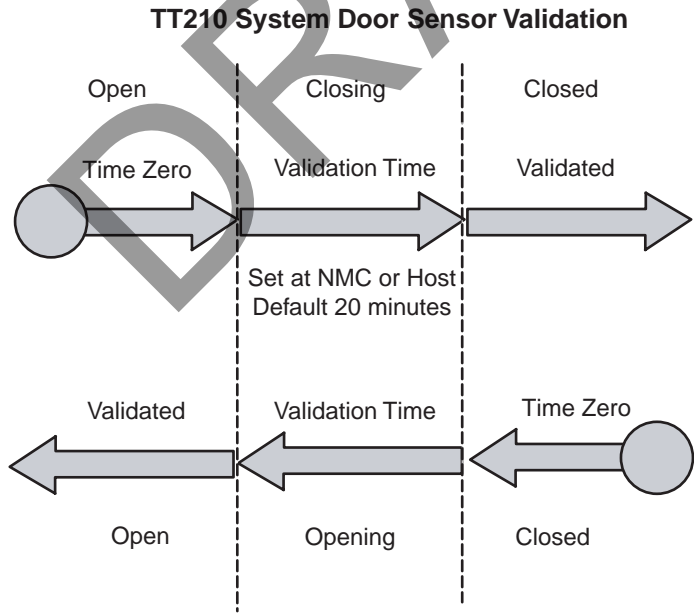The door sensor cable assembly can be routed two ways:

• Externally, under the trailer up to the TT210 system mount assembly (along the same route as the factory wiring and/or brake lines).

• Internally, along the top of the trailer up to the TT210 system mount assembly.

For external cable installation, refer to *External Cable Installation Procedure* on page 11-3. For internal cable installation, refer to *Internal Cable Installation Procedure* on page 11-9.

At the TT210 system mount assembly, the two door sensor cable wires are butt-spliced to the YELLOW (DOOR-) and ORANGE (DOOR+) wires in the TT210 system power/accessory cable assembly.

Swing Door Sensor Validation

A simple opened/closed magnetic switch detects when the state of a trailer door changes. The interval is set up per the customer's request and state change reports are sent to the customer, as shown in the following illustration.

TT210 System Door Sensor Validation

Open	Closing	Closed
Time Zero	Validation Time	Validated

Set at NMC or Host
Default 20 minutes

Validated	Validation Time	Time Zero
Open	Opening	Closed

Simple open and closed switch that detects a changed state immediately
and reports as configured by the customer.

05AAA_025A

Swing Door Sensor Installation

The *recommended* external installation procedure is to route the door sensor cable underneath the trailer from the trailer nose where the TT210 system mount assembly is located, to the rear where it will connect with the swing door sensor. The cable can route along the left side, right side, or center underneath the trailer.
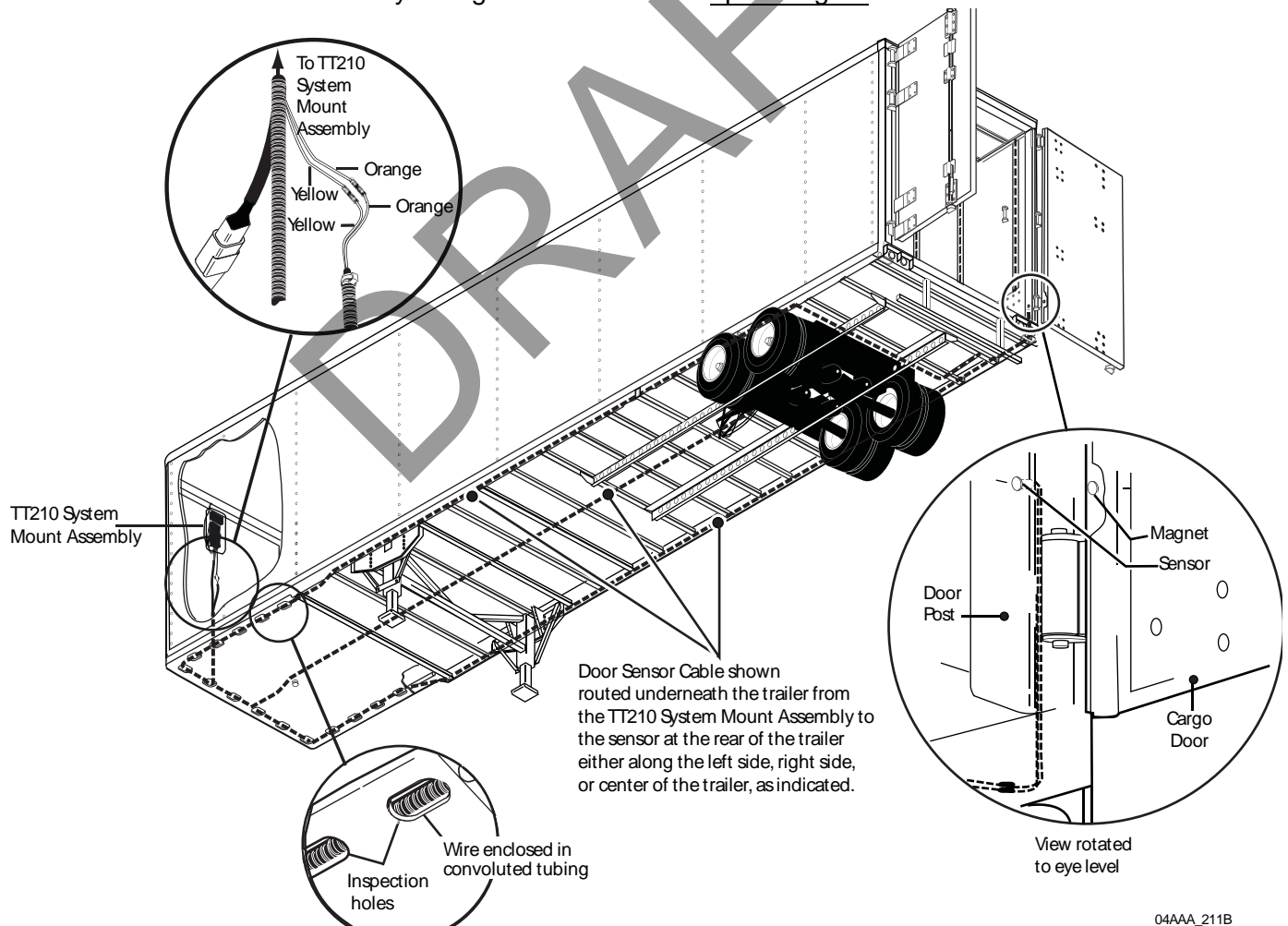
Note

The entire length of the 85-foot cable is covered with convoluted tubing. If there is any excess cable, cut the excess cable and discard.

External Cable Installation Procedure

Note

The actual door sensor cable run location will vary between different trailer manufacturers.
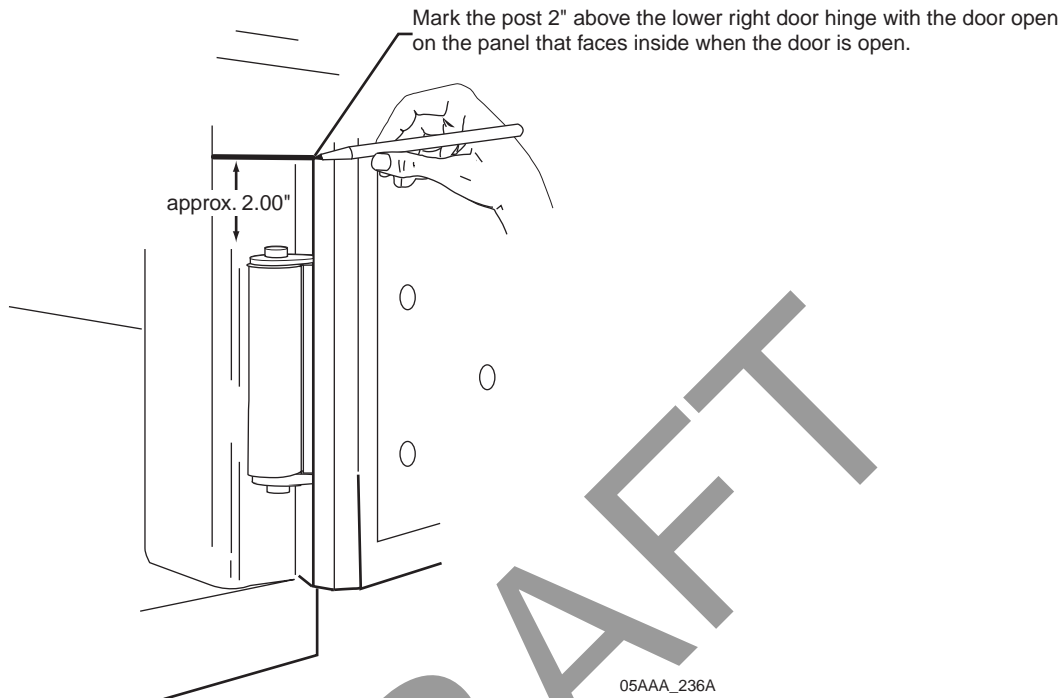
1. Route the 85-foot door sensor cable assembly externally underneath the trailer from the TT210 system mount assembly to the swing door sensor location along the same route as the factory wiring and/or brake line. update figure
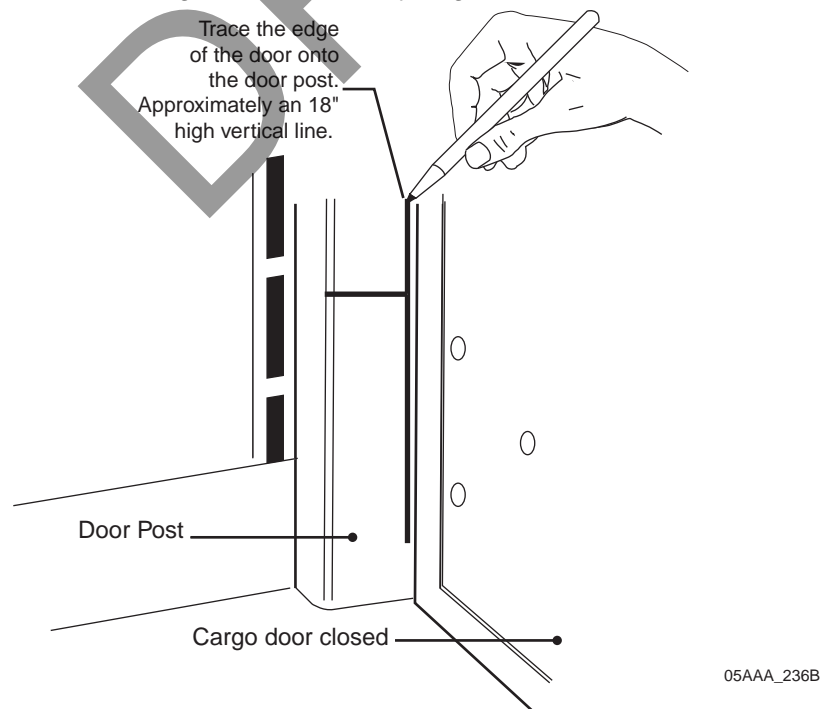

To TT210 System Mount Assembly

Orange
Yellow
Orange
Yellow

TT210 System Mount Assembly

Door Sensor Cable shown routed underneath the trailer from the TT210 System Mount Assembly to the sensor at the rear of the trailer either along the left side, right side, or center of the trailer, as indicated.

Magnet
Sensor
Door Post
Cargo Door

View rotated to eye level

Wire enclosed in convoluted tubing
Inspection holes

04AAA_211B

Swing Door Sensor Placement

1. With the door open, use a felt-tip pen to mark a horizontal reference line on the door post in the area where the sensor will be located. Qualcomm recommends you locate the swing door sensor 2" above the bottom right side door hinge area where the door seal ends.

Mark the post 2" above the lower right door hinge with the door open on the panel that faces inside when the door is open.

approx. 2.00"

05AAA_236A

2. With the door closed, mark a vertical reference line on the door and door post so the sensor and magnet can be easily aligned.

Trace the edge of the door onto the door post. Approximately an 18" high vertical line.

Door Post
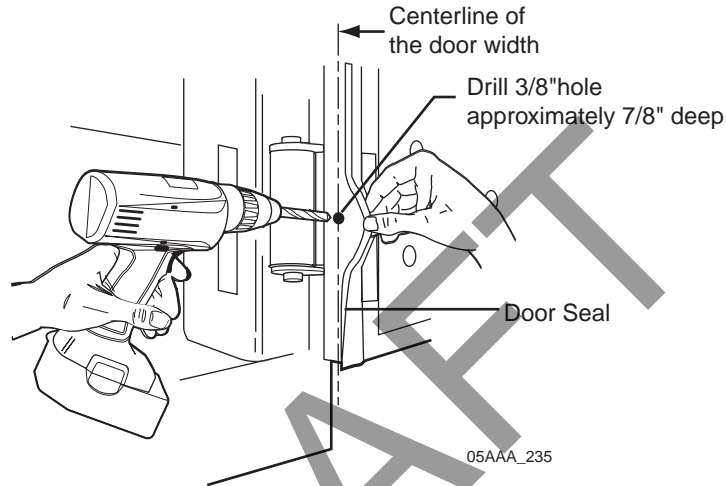
Cargo door closed

05AAA_236B
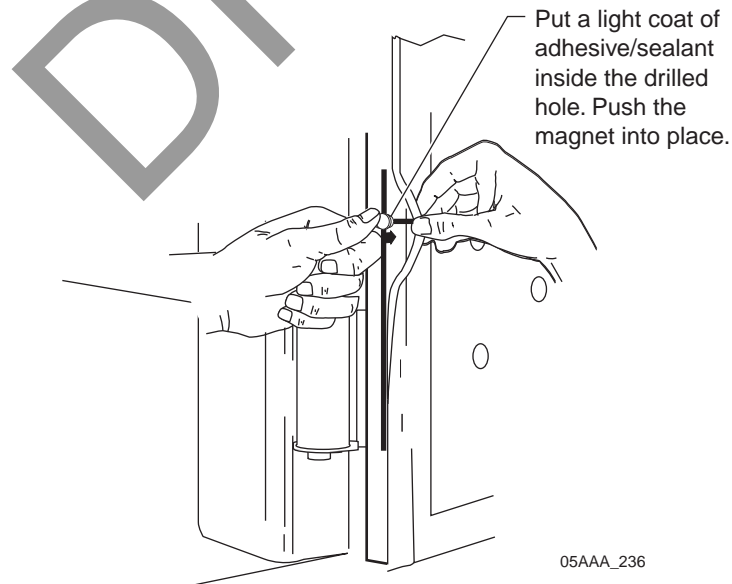
Swing Door Magnet Installation

1. Open the door.

2. Drill a 3/8" diameter x 7/8" deep hole along the horizontal line at the centerline of the door width.

Note

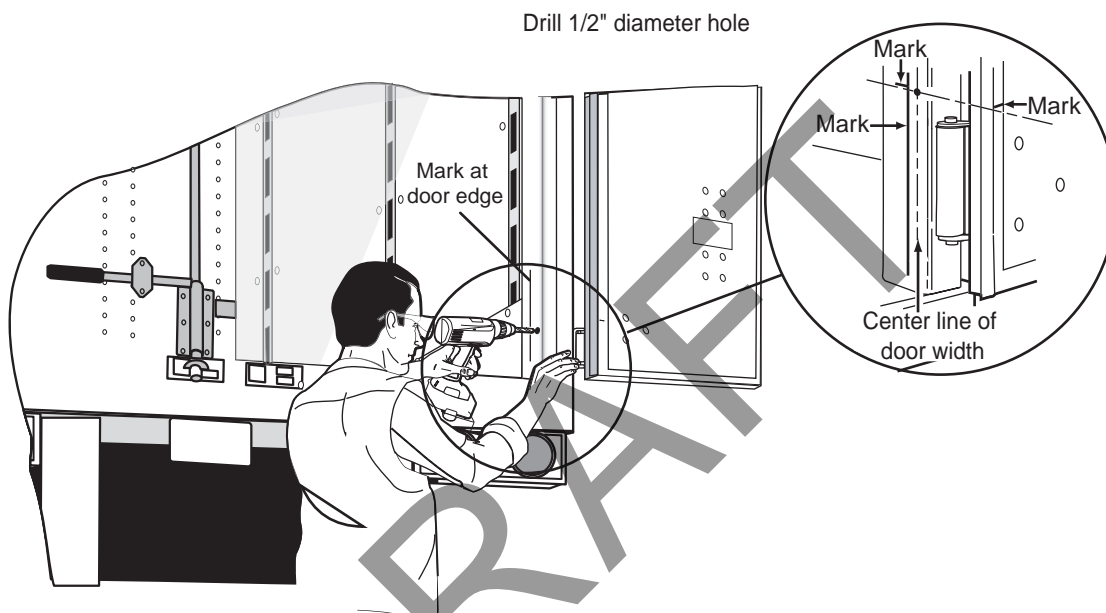*The 3/8" hole diameter is critical for proper magnet installation.*

05AAA_235

3. Apply a generous amount of adhesive/sealant into the 3/8" hole in the door.

4. Press the magnet about half-way into the 3/8" hole in the door.

05AAA_236

5. Close the door to press the magnet further into the hole.
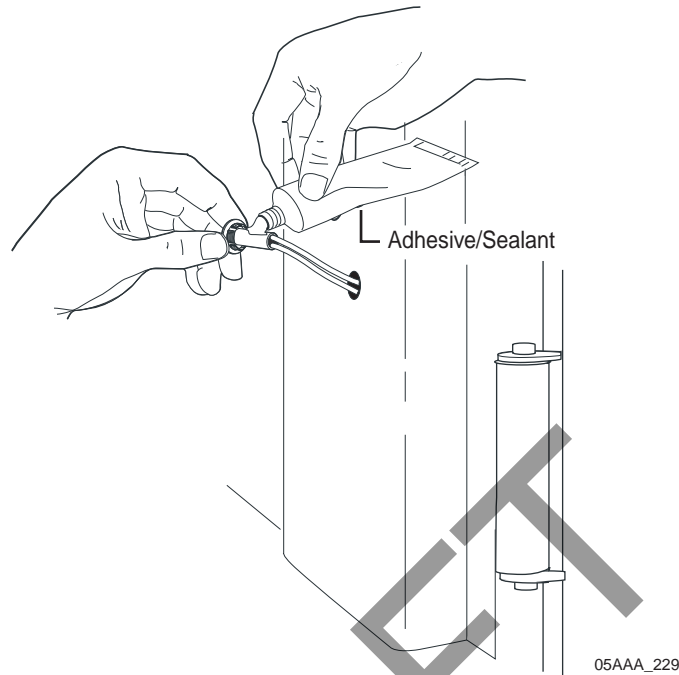
Swing Door Sensor Installation

1. Remove the taillight assembly from the trailer's passenger side. Most taillight assemblies are held into place by a large rubber grommet.

2. Using a center punch, mark a spot on the door post to line up with the horizontal line and the middle of the door when the door is closed. This is where the switch will be located.

3. Drill a 1/2" hole at this point in the door post.

Drill 1/2" diameter hole

Mark at door edge

Mark

Mark

Mark

Center line of door width

04AAA_206D

4. Feed the 24" leads of the sensor through the 1/2" hole and out the bottom of the door post into the area behind the taillight.
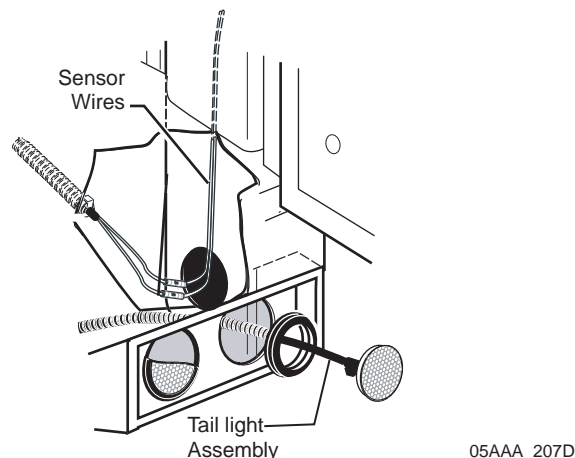
5. Apply adhesive/sealant to the sensor and inside the hole in the door post.

Adhesive/Sealant

05AAA_229

6. Press the sensor all the way into the 1/2" hole until it is fully seated.

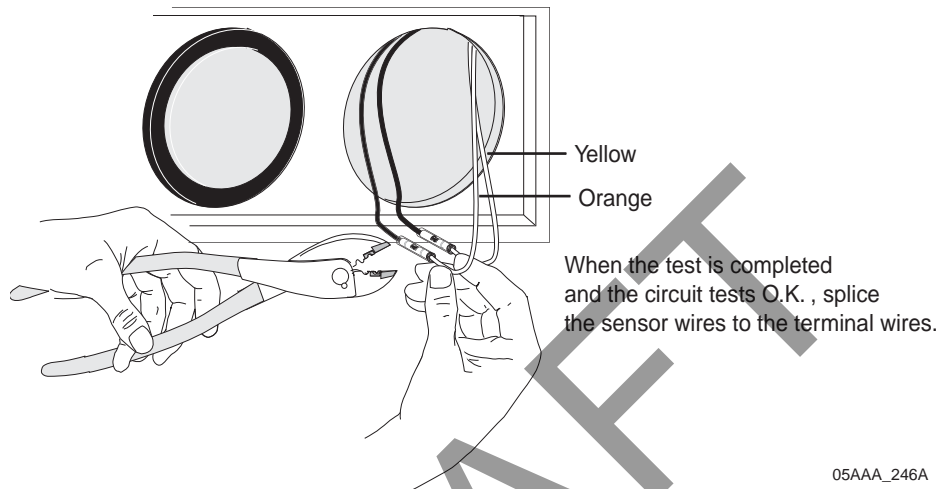7. Wipe off any excess adhesive/sealant.

Testing the Swing Door Sensor

1. Attach an ohmmeter to the sensor wires.

2. Close the door and check the ohmmeter for proper swing door sensor operation.

    • When the door is closed, the ohmmeter should measure 0 ohms.

    • When the door is open, the ohmmeter should measure an infinite resistance.

Sensor
Wires

Tail light
Assembly   05AAA_207D

Swing Door Sensor Installation Verification

1. At the back of the trailer, butt splice the white sensor wires to the orange and yellow cable wires. Add additional strain relief by following the procedure on page 3-7. Slide convoluted tubing onto sensor wires, making sure to also cover the butt splices. Store excess wire behind the taillight assembly.

2. Replace the taillight assembly.

Yellow

Orange

When the test is completed and the circuit tests O.K. , splice the sensor wires to the terminal wires.

05AAA_246A

3. At the front of the trailer, butt splice the orange and yellow cable wires to the orange and yellow TT210 system door sensor wires at the TT210 system terminal.

Note

The sensor wire is a simple switch device; polarity does not matter.

4. Perform the door sensor validation as part of the TT210 system verification (see Chapter 14: Performing System Verification).

5. The swing door sensor installation is now complete.

If you have technical questions about installing the TT210 system swing door sensor, please contact QES Customer Support:

In the United States, call 800-541-7490;
in Canada, call 800-863-9191.

Internal Cable Installation Procedure

The *recommended* internal installation procedure is to route the door sensor cable along the trailer "ceiling" from the trailer nose where the TT210 system mount assembly is located, to the rear where it will connect with the swing door sensor.

Note

The entire length of the 85-foot cable is covered with convoluted tubing. If there is any excess cable, cut the excess cable and discard.

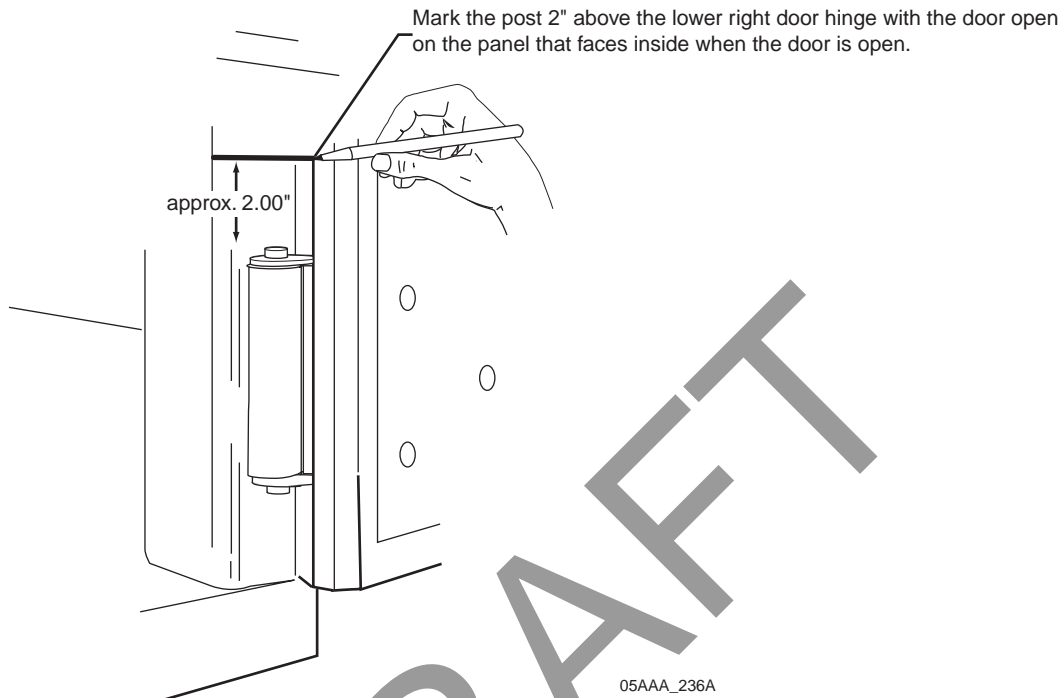### Internal Cable Installation Procedure

Note

The actual swing door sensor cable run location will vary between different trailer manufacturers.

1. Route the 85-foot door sensor cable assembly internally along the inside "ceiling" of the trailer from the TT210 mount assembly to the swing door sensor location.
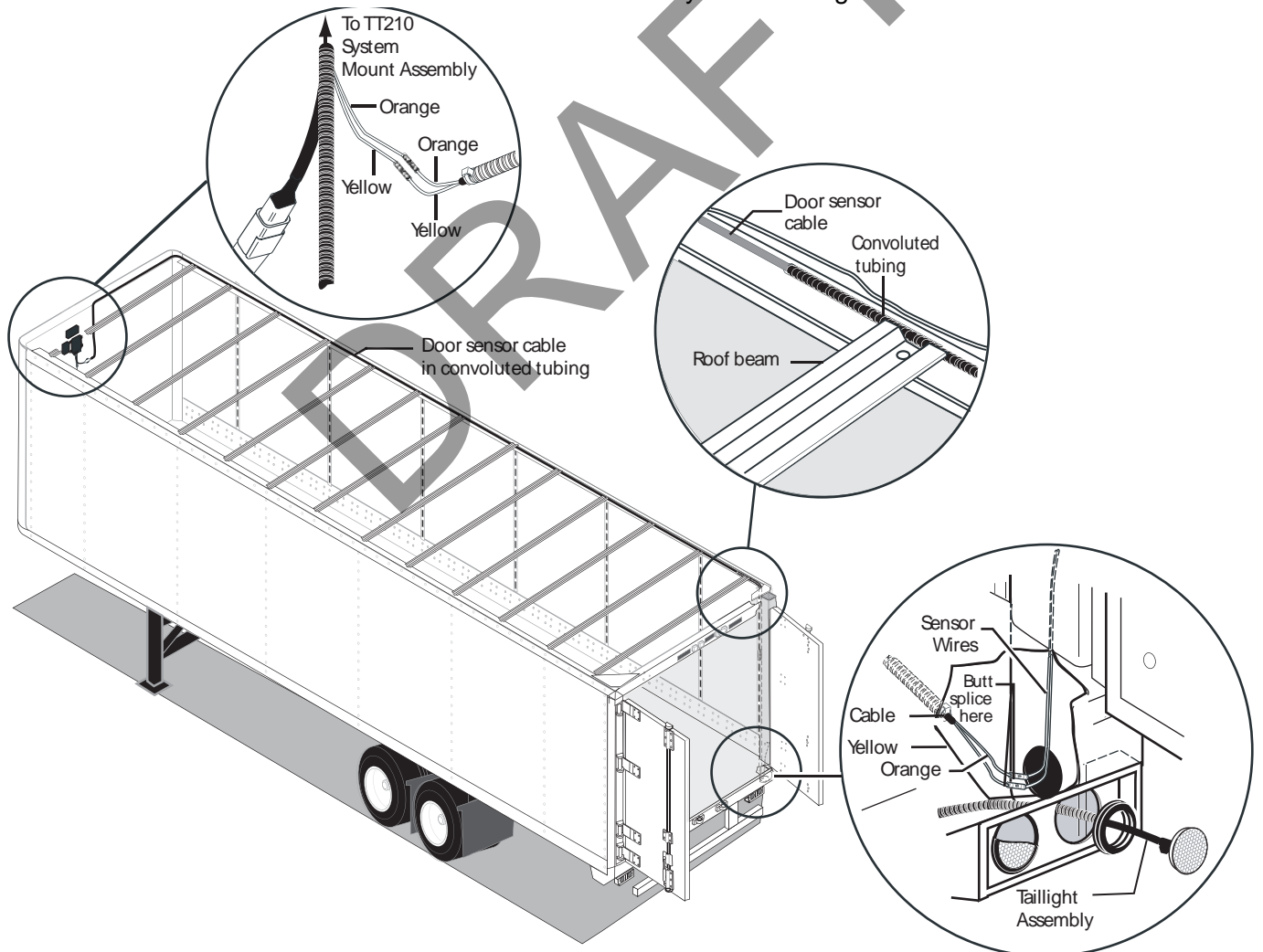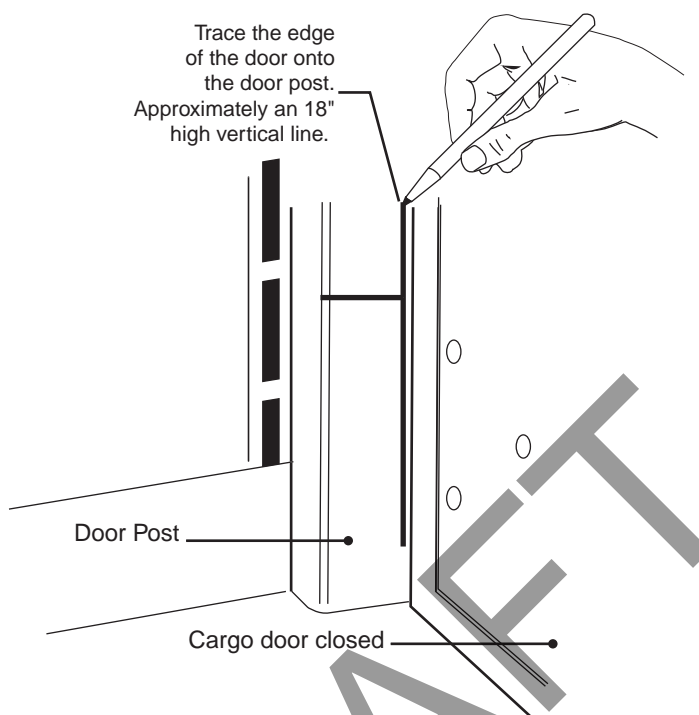
Swing Door Sensor Placement

1. With the door open, use a felt-tip pen to mark a horizontal reference line on the door post in the area where the sensor will be located. It is recommended you locate the swing door sensor 2" above the bottom right side door hinge area where the door seal ends.

Mark the post 2" above the lower right door hinge with the door open on the panel that faces inside when the door is open.

approx. 2.00"

05AAA_236A

2. With the door closed, mark a horizontal reference line on the door and door post so the sensor and magnet can be easily aligned.

Trace the edge of the door onto the door post. Approximately an 18" high vertical line.
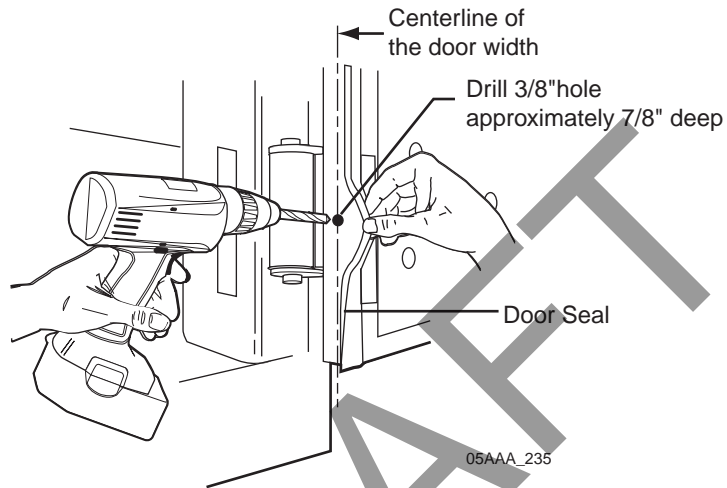
Door Post

Cargo door closed

05AAA_236B

Swing Door Magnet Installation

1. Open the door.

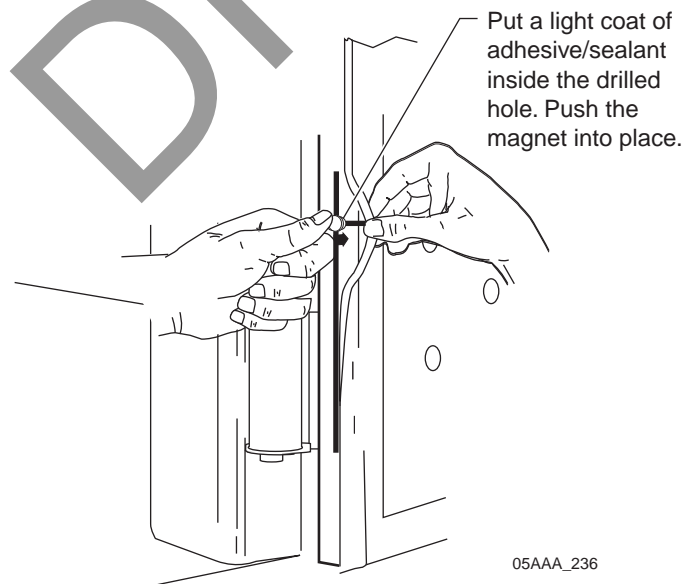2. Drill a 3/8" diameter x 7/8" deep hole along the horizontal line at the centerline of the door width.

Note

The 3/8" hole diameter is critical for proper magnet installation.
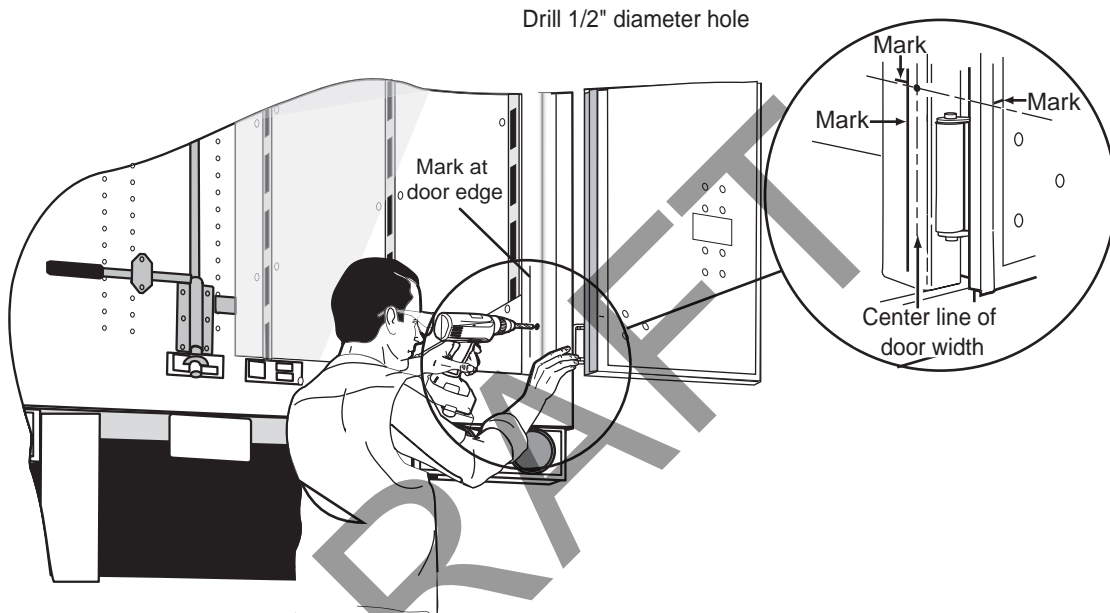

3. Apply a generous amount of adhesive/sealant into the 3/8" hole in the door.

4. Press the magnet about half-way into the 3/8" hole in the door.

5. Close the door to press the magnet further into the hole.

Swing Door Sensor Installation

1. Remove the taillight assembly from the trailer's passenger side. Most taillight assemblies are held into place by a large rubber grommet.

2. Using a center punch, mark a spot on the door post to line up with the horizontal line and the middle of the door when the door is closed. This is where the switch will be located.

3. Drill a 1/2" hole at this point in the door post.

Drill 1/2" diameter hole

Mark at door edge

Mark

Mark

Mark

Center line of door width

04AAA_206D

4. Feed the 24" leads of the sensor through the 1/2" hole and out the bottom of the door post into the area behind the taillight.

5. Apply adhesive/sealant to the sensor and inside the hole in the door post.

Adhesive/Sealant

05AAA_229

6. Press the sensor all the way into the 1/2" hole until it is fully seated.

7. Wipe off any excess adhesive/sealant.

Testing the Swing Door Sensor

1. Attach an ohmmeter to the sensor wires.

2. Close the door and check the ohmmeter for proper swing door sensor operation.

- When the door is closed, the ohmmeter should measure 0 ohms.

- When the door is open, the ohmmeter should measure an infinite resistance of ohms.
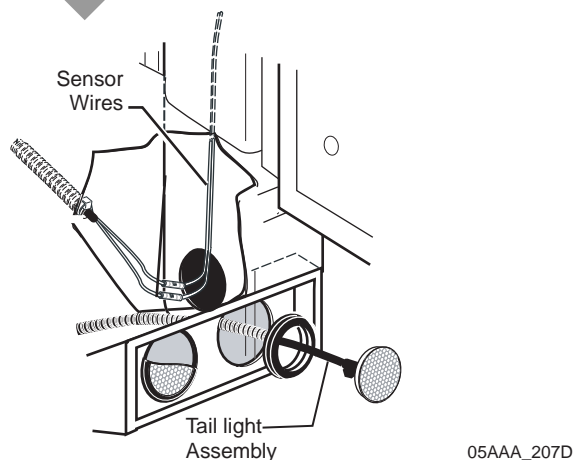
Sensor Wires

Tail light Assembly

05AAA_207D

Swing Door Sensor Installation Verification

1. At the back of the trailer, butt splice the white sensor wires to the orange and yellow cable wires. Add additional s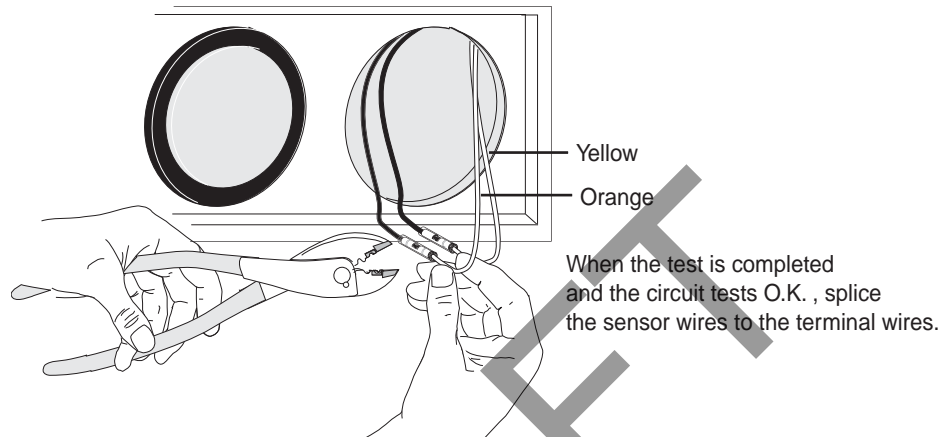train relief by following the procedure on page 3-7. Slide convoluted tubing onto sensor wires, making sure to also cover the butt splices. Store excess wire behind the taillight assembly.

2. Replace the taillight assembly.

Yellow

Orange

When the test is completed
and the circuit tests O.K. , splice
the sensor wires to the terminal wires.

05AAA_246A

3. At the front of the trailer, butt splice the orange and yellow cable wires to the orange and yellow TT210 system swing door sensor wires at the TT210 system terminal.

Note

The sensor wire is a simple switch device; polarity does not matter.

4. Perform the door sensor verification as part of the TT210 system verification (see Chapter 14: Performing System Verification).

5. The swing door sensor installation is now complete.

If you have technical questions about installing the TT210 system swing door sensor, please contact QES Customer Support:

In the United States, call 800-541-7490;
in Canada, call 800-863-9191.

DRAFT

12

Installing the Roll Door Sensor

Introduction

This chapter provides guidelines and instructions for installing the TT210 system trailer roll door sensor.

Topics in this chapter include:

If you have technical questions, please contact Qualcomm Enterprise Services (QES) Customer Support. QES Customer Support is staffed 24 hours a day, 365 days a year:

In the United States, call 800-541-7490
In Canada, call 800-863-9191
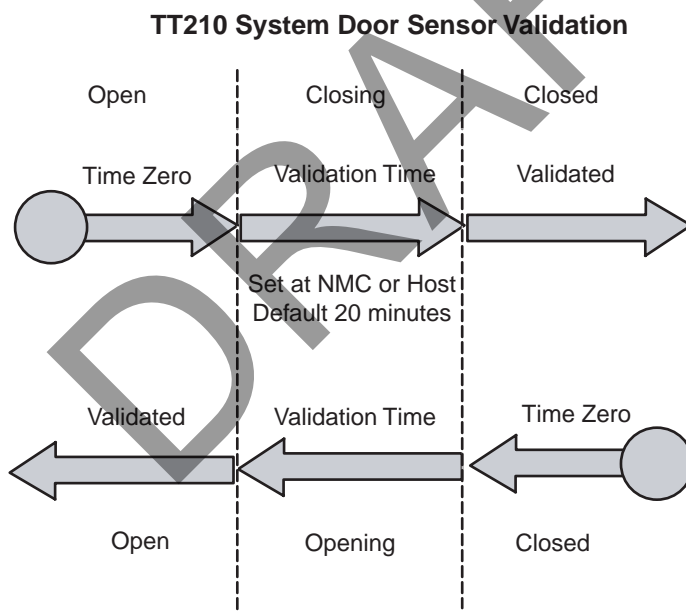
Roll Door Sensor Installation Overview

The roll door sensor kit contains the rear door switch with attached 3-foot cable assembly, a magnet, and an 85-foot door sensor cable assembly. (The replacement roll door sensor kit comes without the 85-foot cable assembly.)

The door sensor cable assembly is typically routed externally, under the trailer up to the TT210 system mount assembly (along the same route as the factory wiring and/or brake lines).

At the TT210 system mount assembly, the two roll door sensor cable wires are butt spliced to the yellow (DOOR-) and orange (DOOR+) wires coming from the TT210 system power/accessory cable assembly.

Roll Door Sensor Validation

A simple opened/closed magnetic switch detects when the state of a trailer door changes. The interval is set up per the customer's request and state change reports are sent to the customer, as shown in the following illustration.

TT210 System Door Sensor Validation

Open	Closing	Closed
Time Zero	Validation Time	Validated

Set at NMC or Host
Default 20 minutes

Validated	Validation Time	Time Zero
Open	Opening	Closed

Simple open and closed switch that detects a changed state immediately and reports as configured by the customer.

05AAA_025A

Roll Door Sensor Installation

The *recommended* external installation procedure is to route the door sensor cable underneath the trailer from the trailer nose where the TT210 system mount assembly is located, to the rear where it will connect with the roll door sensor. The cable can route along the left side, right side, or center underneath the trailer.

Note

The entire length of the 85-foot cable is covered with convoluted tubing. If there is any excess cable, cut the excess cable and discard.

Cable Installation Procedure

Note

The actual door sensor cable run location will vary between different trailer manufacturers.

1. Route the 85-foot door sensor cable assembly externally, underneath the trailer from the TT210 system mount assembly to the roll door sensor location along the same route as the factory wiring and/or brake line. <u>update figure</u>
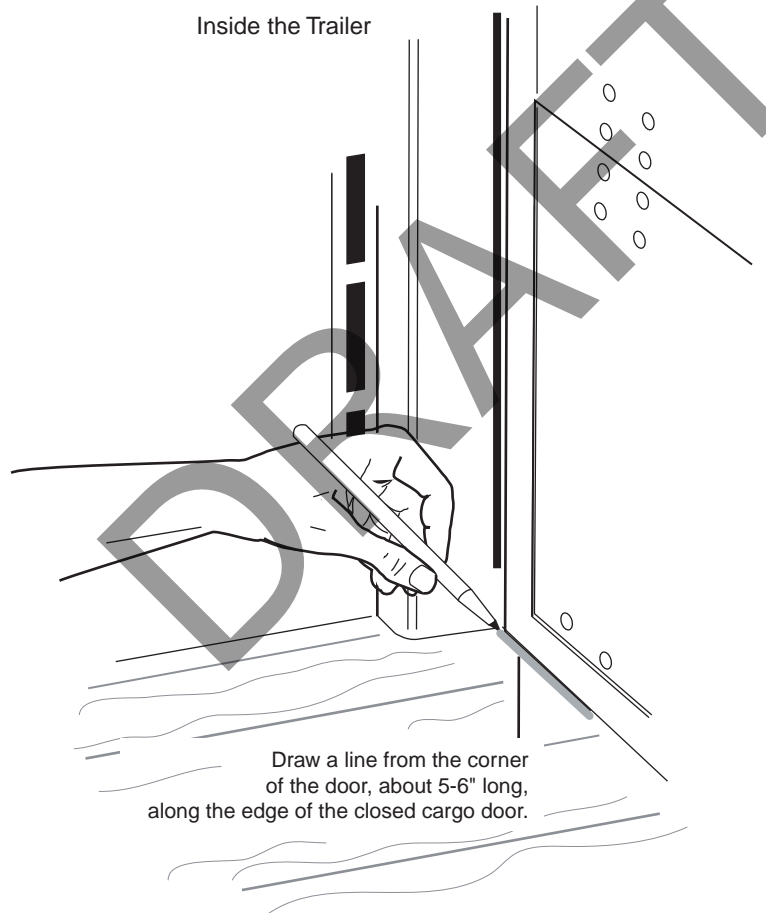

Door Sensor Cable shown routed underneath the trailer from the TT210 System Mount Assembly to the sensor at the rear of the trailer either along the left side, right side, or center of the trailer, as indicated.
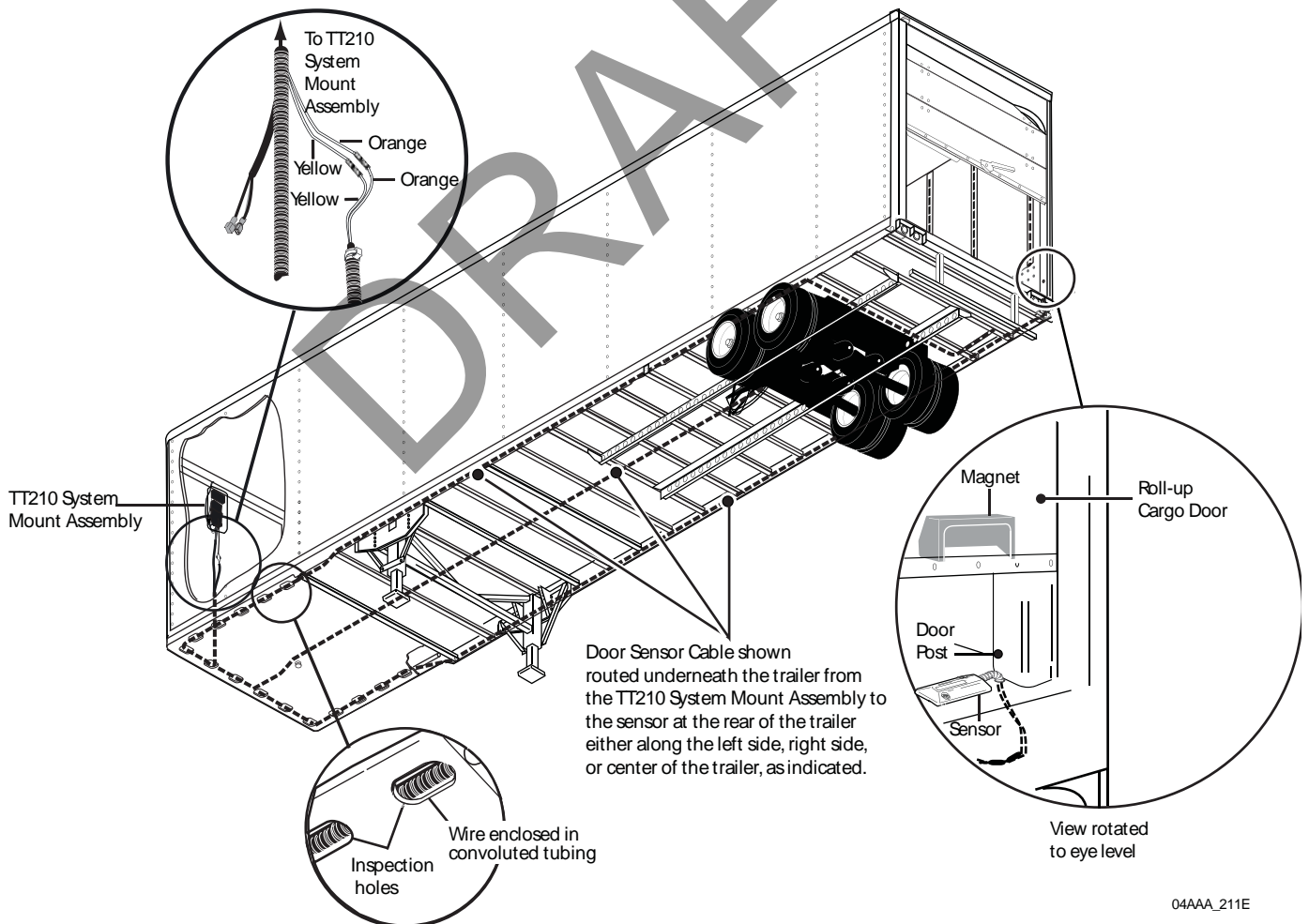
04AAA_211E

Roll Door Sensor Installation

1. With the trailer roll door closed, use a felt-tip pen to draw a line along the inside of the passenger side of the door, close to door jamb.

2. Open the trailer roll door and position the roll door sensor switch as close as possible to the door jamb to avoid damage to the door sensor cable when loading the trailer. Take into consideration that the door sensor cable has a bend radius of two inches. Position the sensor switch so the cable is as close to the door jamb as possible.

3. Use a felt-tip pen to mark the location to drill the hole for the door sensor cable (as close to the door jamb as possible).

Note

The door sensor cable has a bend radius of approximately two inches. Position the roll door sensor so the cable bend in as close to the door jamb as possible.

Inside the Trailer

Draw a line from the corner
of the door, about 5-6" long,
along the edge of the closed cargo door.

06AAA_208

4. Position the roll door sensor switch and mark the holes for the roll door sensor switch using a 3/16" drill bit.
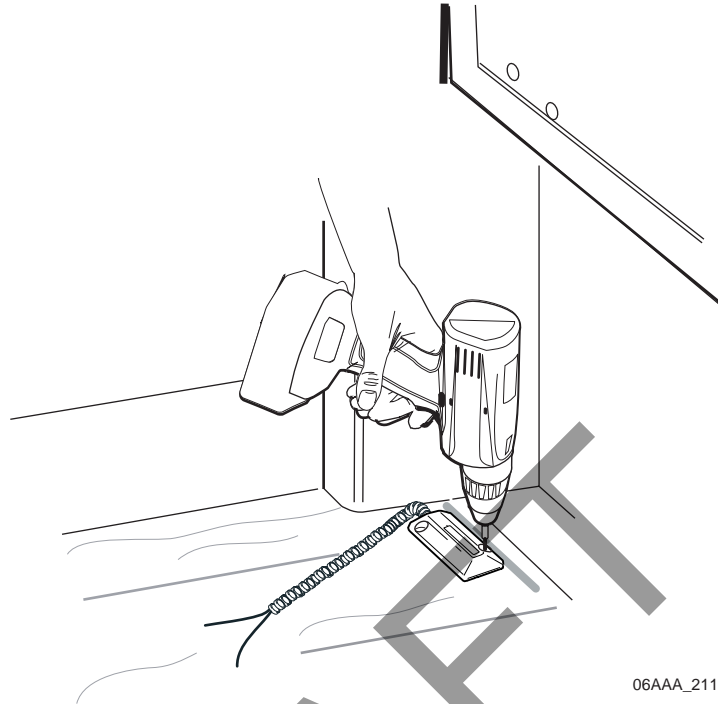
06AAA_211a

5. Remove the taillight assembly from the trailer's passenger side. Most taillight assemblies are held into place by a large rubber grommet.

Rubber
Seal
Retainer

Taillight
Assembly

06AAA_221
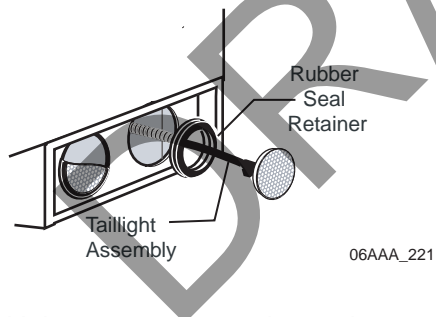
6. Using a center punch, mark a spot on the trailer floor 5/8" minimum in from where the vertical reference mark was made for the door sensor cable.

7. Drill a 1/2" hole at this point in the trailer floor.

Drill a 1/2" hole, approximately 5/8" minimum
in from marked reference line and as close into the
corner as possible. Take care to drill straight down.

5/8"

06AAA_217
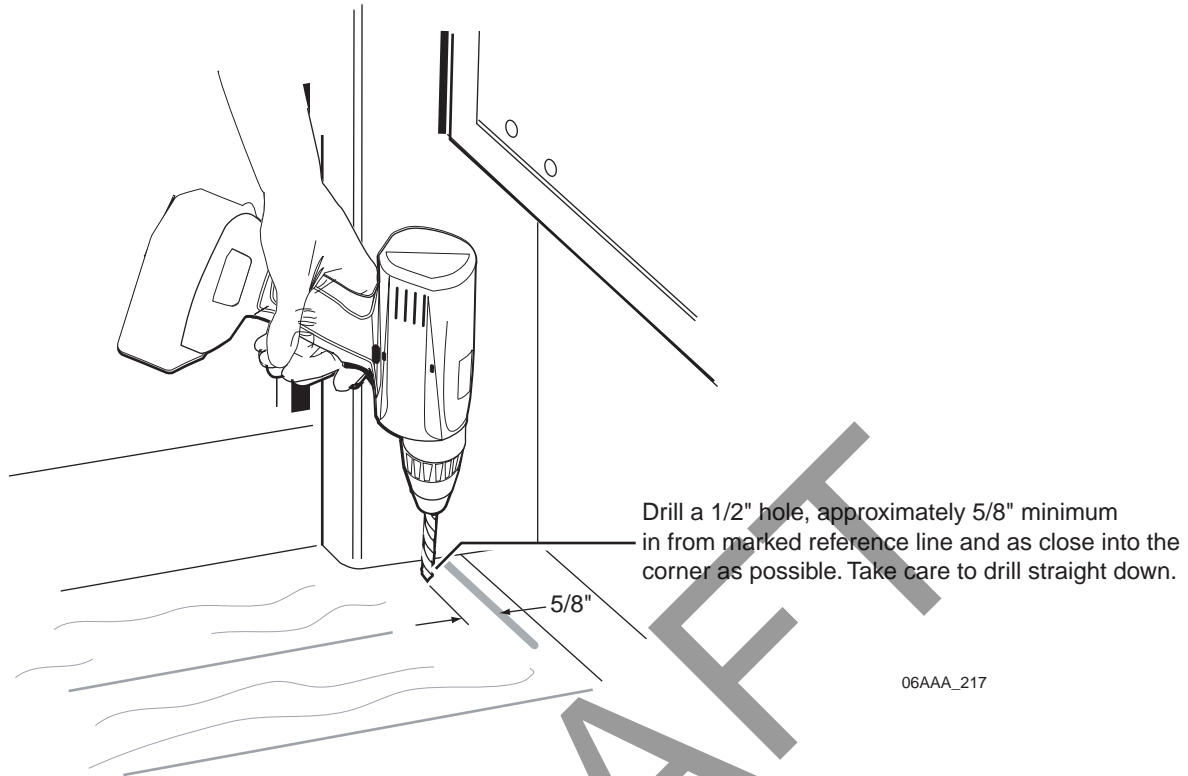
8. Feed the sensor cable leads through the 1/2" hole and out the bottom of the trailer floor
into the area behind the taillight.

Feed the armored cable
down into the 1/2" drilled hole.   06AAA_210
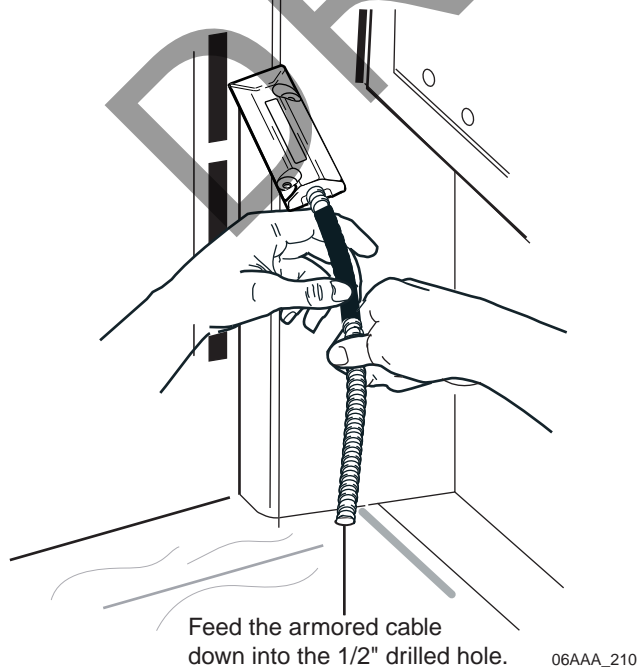
9. Position the roll door sensor on the trailer floor to be aligned with the vertical reference line you marked.

10. Secure the roll door sensor in place with the self-drilling screws. Pilot holes may be required.

Use self-drilling screws to anchor the sensor.

2" Cable Radius

Self-drilling Screws

06AAA_211
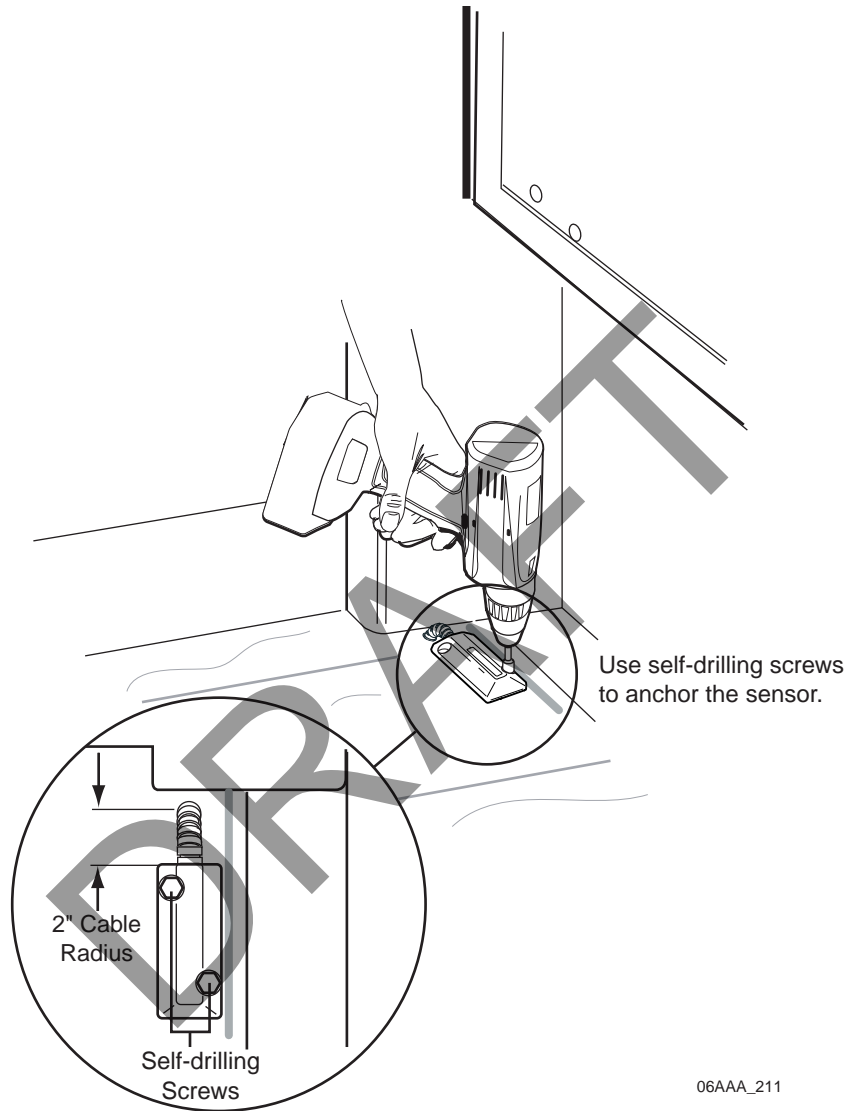
Roll Door Magnet Installation

Note

The bottom of the trailer door may have a metal strip. Placement of the magnet may pitch the angle of the magnet forward over the roll door sensor switch. As long as the magnet is positioned within one inch of the top of the roll door sensor switch, the roll door sensor will operate properly.

1. Inside the trailer with the trailer door rolled down, mark the vertical and horizontal reference lines on the bottom of the roll door so the roll door sensor switch and magnet can be easily aligned. Refer to the following two illustrations.

Mark the vertical location for mounting the magnet.

06AAA_214

Mark the horizontal location for mounting the magnet.

0.75

06AAA_215
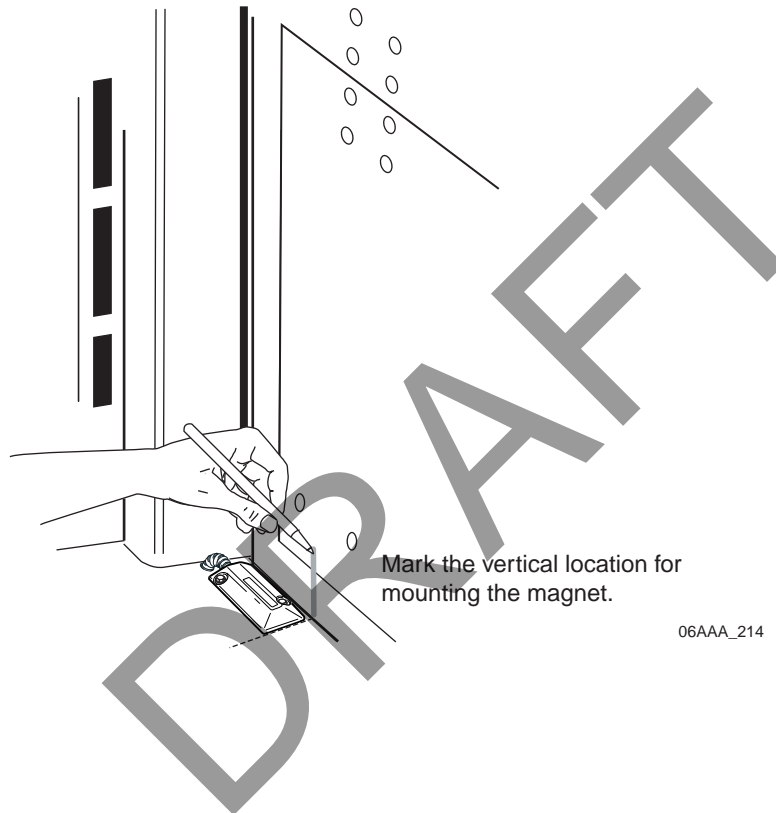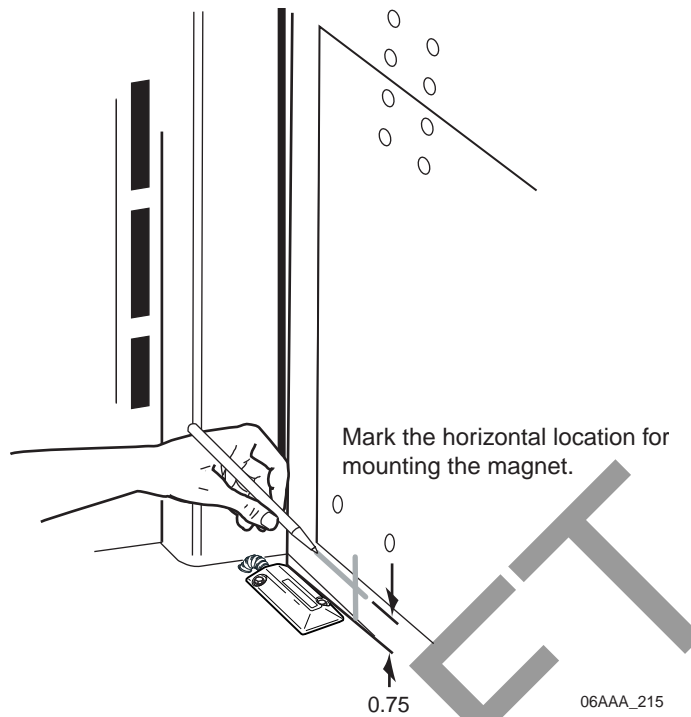
2. Open and secure the door part way.

3. Position the magnet within the reference lines.

4. Secure the magnet using the self-drilling screws.

With the roll-up door open, install the magnet with the self-drilling mounting screws.

06AAA_213
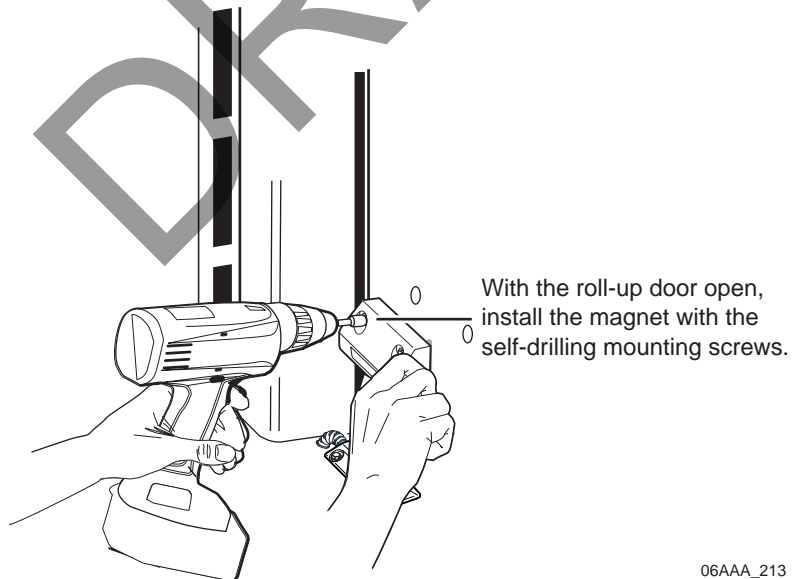
5. Close the trailer door and ensure the sensor switch and magnet are aligned. Ensure also there is some clearance between the sensor switch and the magnet.
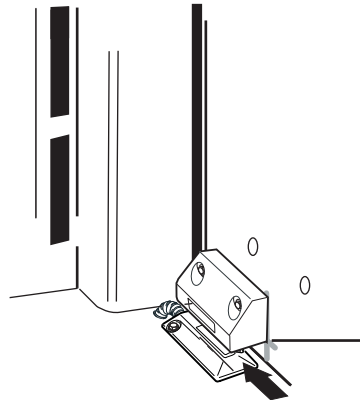
Carefully close the roll-up door, and check to be sure there is some clearance between the sensor and the magnet.

06AAA_212

Magnet

Roll-up Door

0.75"

2.0" min.
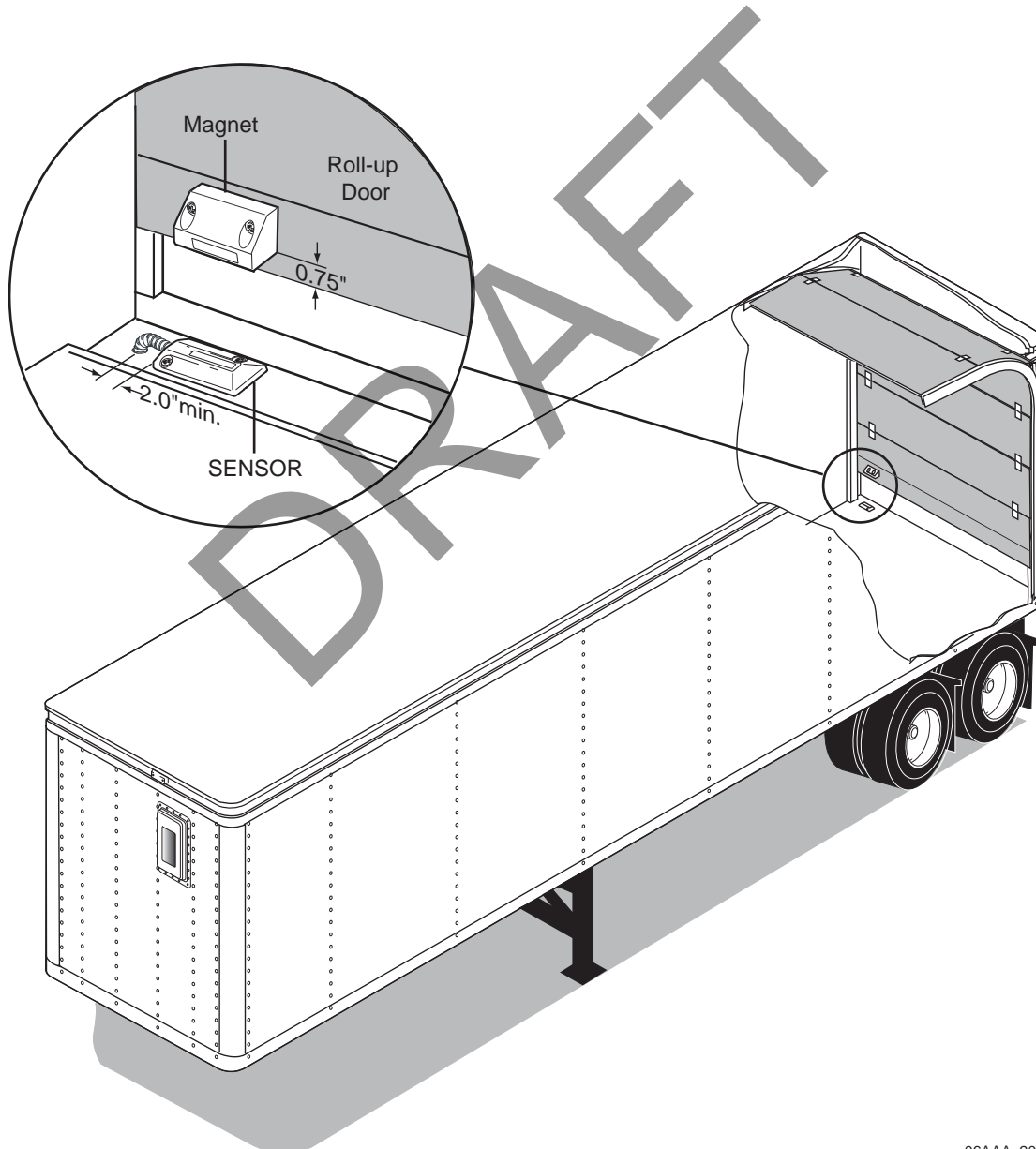
SENSOR

06AAA_207

Testing the Roll Door Sensor

1. Attach an ohmmeter to the sensor wires.

2. Close the door and check the ohmmeter for proper roll door sensor operation.

    •   When the door is closed, the ohmmeter should measure 0 ohms.

    •   When the door is open, the ohmmeter should measure infinite resistance.

From Sensor

From Terminal

Door Closed   06AAA_218

Magnet

Sensor

From Sensor

From Terminal
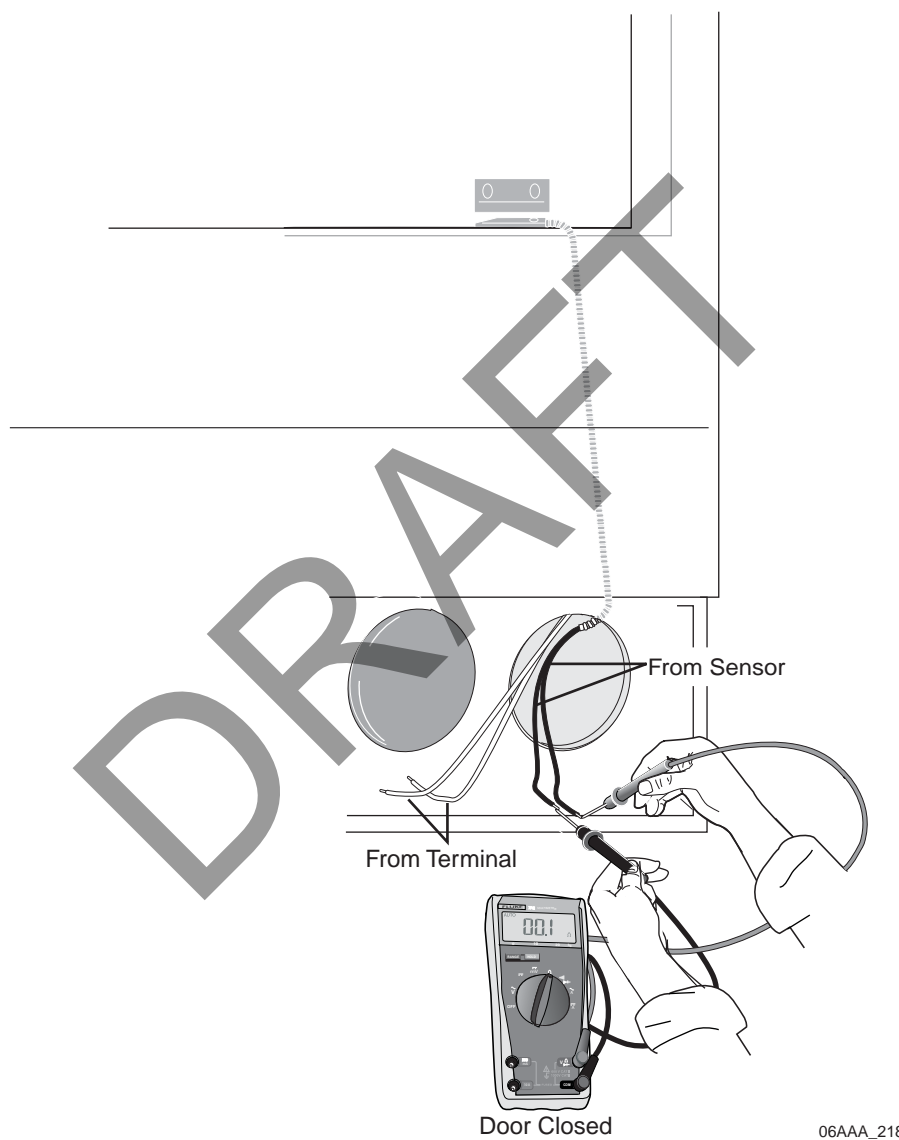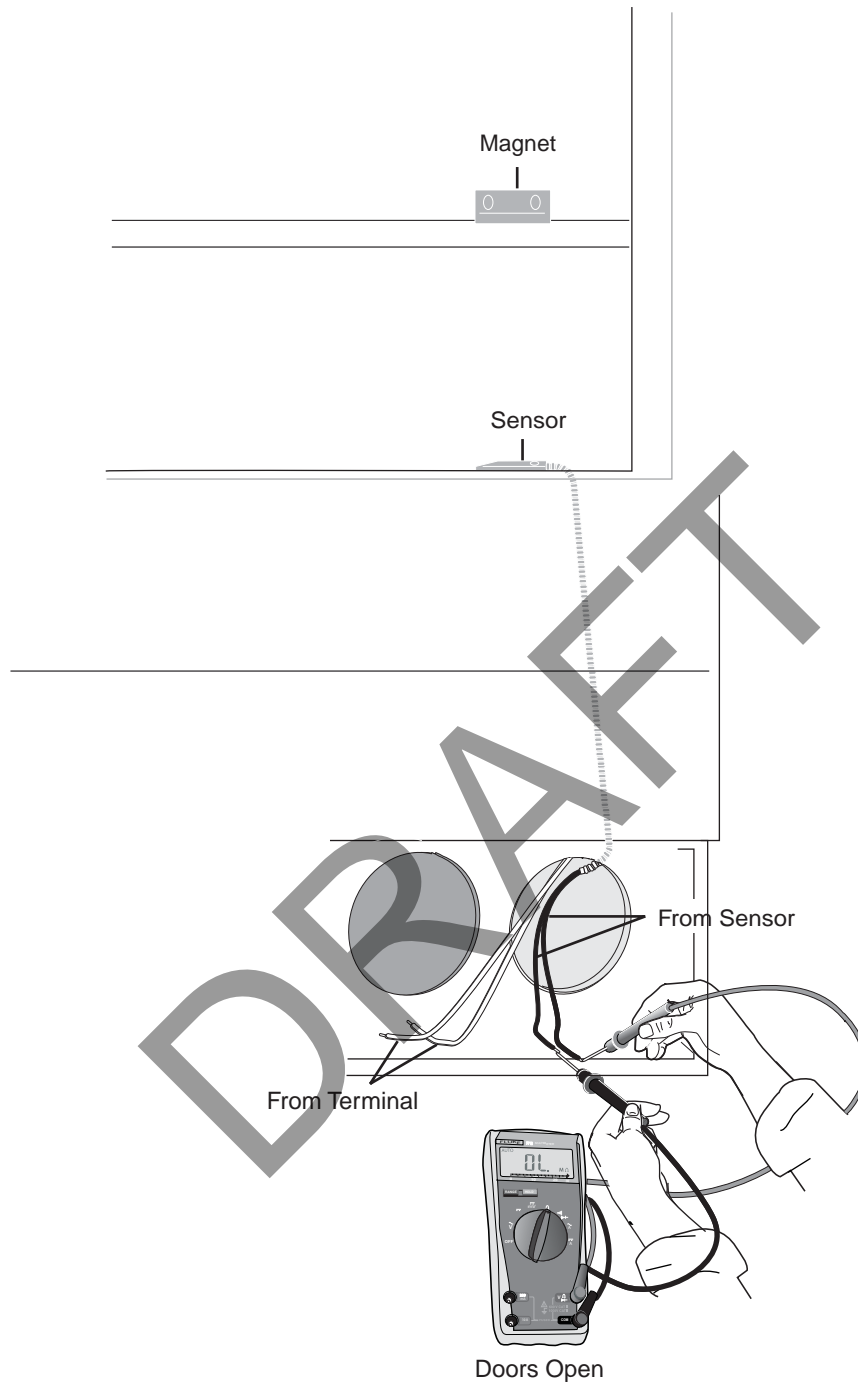
Doors Open   06AAA_216

Roll Door Sensor Installation Verification

1. At the back of the trailer, butt splice the white sensor wires to the orange and yellow cable wires. Add additional strain relief by following the procedure on page 3-7.

Yellow

Orange
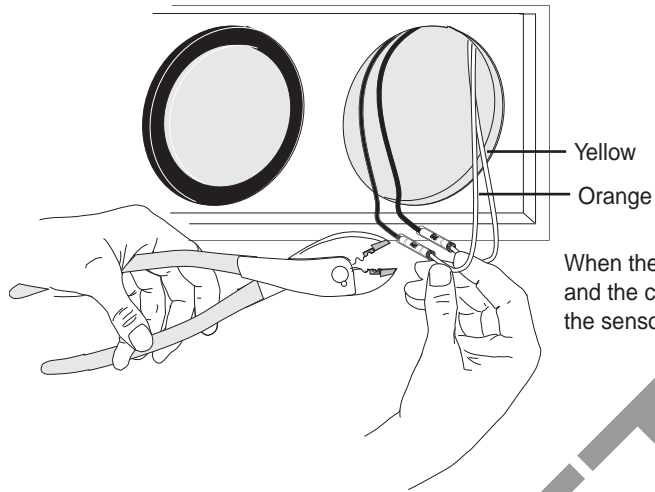
When the test is completed
and the circuit tests O.K. , splice
the sensor wires to the terminal wires.

05AAA_246A

Note

The sensor is a simple switch device; polarity does not matter.

2. Cover butt splices with convoluted and store excess wire behind the taillight assembly.

3. Replace the taillight assembly.
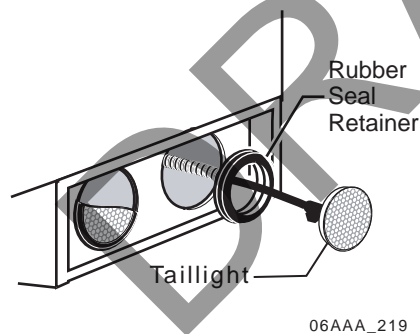
Rubber
Seal
Retainer

Taillight

06AAA_219

4. At the front of the trailer, butt splice the orange and yellow cable wires to the orange and yellow TT210 system door sensor wires at the TT210 system terminal.

To TT210 System Mount Assembly
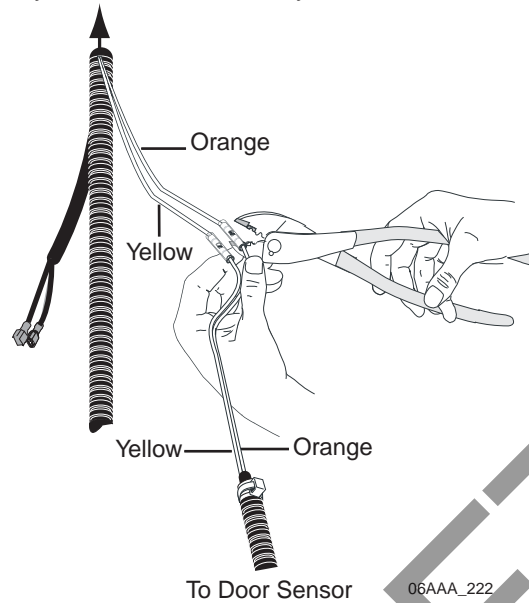
Orange

Yellow

Yellow — Orange

To Door Sensor   06AAA_222

Note

The sensor is a simple switch device; polarity does not matter.

5. Perform the door sensor validation as part of the TT210 system verification (see Chapter 14: Performing System Verification).

6. If the system verification checks out positively, use sealant around the door sensor cable where it enters the trailer floor to completely seal the 1/2" hole and around the magnet and sensor screws to prevent them from coming loose.
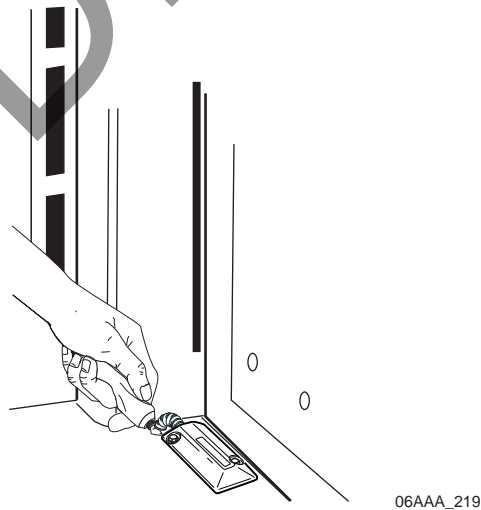
06AAA_219

7. The roll door sensor installation is now complete.

If you have technical questions about installing the TT210 system roll door sensor, please contact QES Customer Support:

In the United States, call 800-541-7490;
in Canada, call 800-863-9191.

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13
Installing the Auxiliary Sensor

Introduction

The TT210 auxiliary sensor wires are available on the TT210 power/accessory cable assembly. This sensor option allows customers to use a third-party sensor with the TT210 system.

The TT210 AUX sensor input is designed to detect digital (on/off switch) signals *only*. The TT210 system can be configured to generate alerts when an input transitions from high to low or from low to high.

Topics in this chapter include:

If you have technical questions, please contact Qualcomm Enterprise Services (QES) Customer Support. QES Customer Support is staffed 24 hours a day, 365 days a year:

In the United States, call 800-541-7490
In Canada, call 800-863-9191

Overview

The TT210 tire pressure sensor kit (65-J7313-1) contains the following components:

- 20-foot AUX sensor extension cable assembly with convoluted protective tubing

- AUX relay

- Self-drilling hex washer-head screws

- Black cable ties

- Yellow inline, step-down butt splices

- Blue insulated butt splices

- Blue #10 ring terminal connectors

The AUX relay should be installed next to the TT210 system inside the trailer.

The chapter contains a wiring schematic of an installation with the AUX relay connected to the tire pressure light via the 20-foot AUX extension cable. (Refer to Wiring Schematic A on page 13-5.)

Tire Pressure Sensor Kit Installation

The following instructions and wiring schematics provide details and procedures for wiring the tire pressure sensor into the TT210 system.

1. Inside the trailer at the trailer nose, remove the inner lining to gain access to the tire pressure warning light installation site and the TT210 system diagnostic cable connector. (It may also be necessary to remove the metal liner in the corner of some trailers to access the tire pressure light.)

Tire pressure warning
Light Location
TT210 installation location
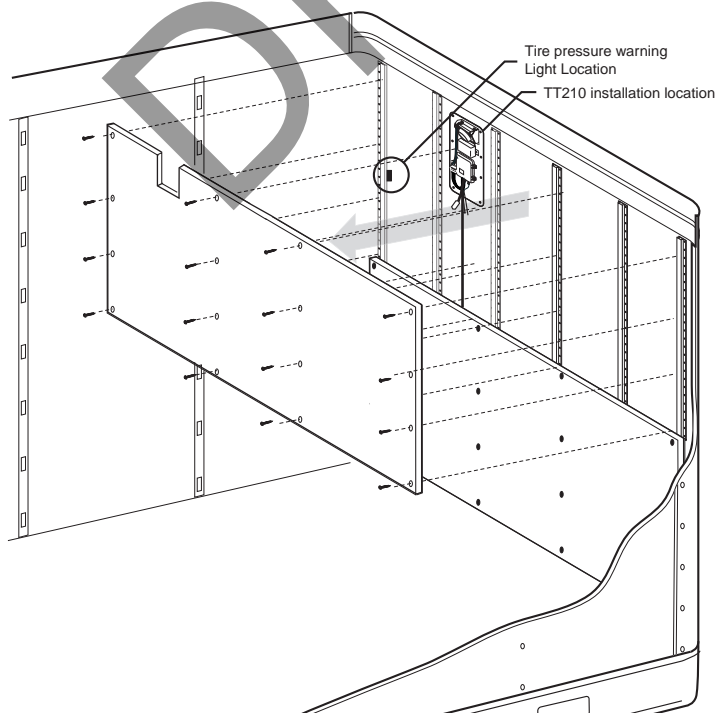
2. Once the TT210 system diagnostic cable connector is located, activate Configuration tool.

3. Perform a TT210 system verification to ensure the TT210 system is functioning properly prior to installing the tire pressure sensor kit. (Refer to Chapter 14: Performing System Verification.

4. Butt splice the black and white wires of the 20-foot AUX sensor extension cable inline to the tire pressure warning light wires. Refer to the following illustration and to Wiring Schematic A on page 13-5 of this document.

    Use a multi-meter to determine polarity to make the following butt splice connections:

    •   Use a yellow splice supplied in the kit to connect the ground wire of the tire pressure warning light to the white AUX sensor extension cable wire.

    •   Use a yellow splice supplied in the kit to connect the 12 VDC wire of the tire pressure warning light to the black AUX sensor extension cable wire.

Note

The tire pressure light wire colors may vary from trailer to trailer.

CHANGE TO SHOW TT210 UNIT

Red PWR (power) wire and
black GND (ground) wire on the
AUX relay butt-spliced to the white
and black wires on the AUX sensor
extension cable.

AUX sensor extension
cable-tied to the trailer.

Black and white wires on the
AUX sensor extension cable
butt-spliced to the tire pressure
warning light wires.

Gray AUX_Sensor +/- wires
on the TT210 System Power/Accessory
Cable butt-spliced to the gray
AUX +/- wires on the AUX relay.

04AAA_140C

5. Run the AUX sensor extension cable from the tire pressure warning light to the TT210 system terminal location.

6. Secure the AUX sensor extension cable to the trailer post between the tire pressure warning light bay and the TT210 system terminal bay using supplied cable ties and self-drilling screws as needed. This will prevent vibration from severing the cable and shorting to ground.

7. Install the AUX relay on the trailer post next to the TT210 system mount location.

8. Using a blue or pink splice, connect the red positive wire on the AUX relay to the black wire on the AUX sensor extension cable, routed from the tire pressure warning light.

9. Using a blue or pink splice, connect the black ground wire on the AUX relay to the white wire on the AUX sensor extension cable, routed from the tire pressure warning light.

10. Using blue or pink splices, connect the two gray wires coming from the AUX relay to the two gray AUX_SENSOR wires on the TT210 system power/accessory cable (will be near the TT210 system terminal). Refer to the wiring schematics in this document.

Wiring Schematic

Wiring Schematic A

In this wiring configuration, the AUX relay is wired directly to the tire pressure warning light. The 20-foot AUX sensor extension cable is used to connect the two.
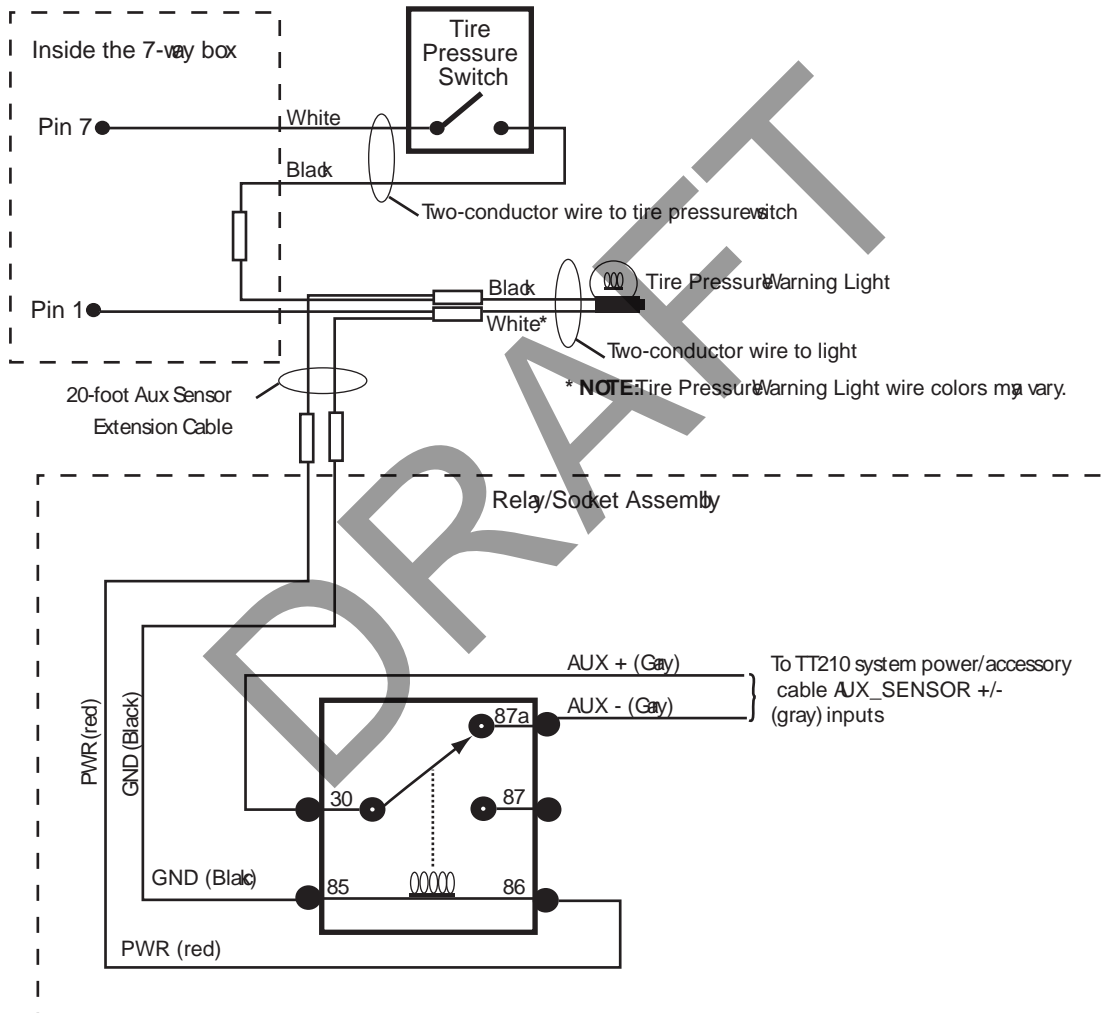
07AAA_72A

Tire Pressure Sensor Kit Validation

A simple opened/closed switch detects tire pressure. The validation time is set up per the customer's request and state change reports are sent to the customer, as shown in the following illustration.

TT210 System AUX Sensor Validation
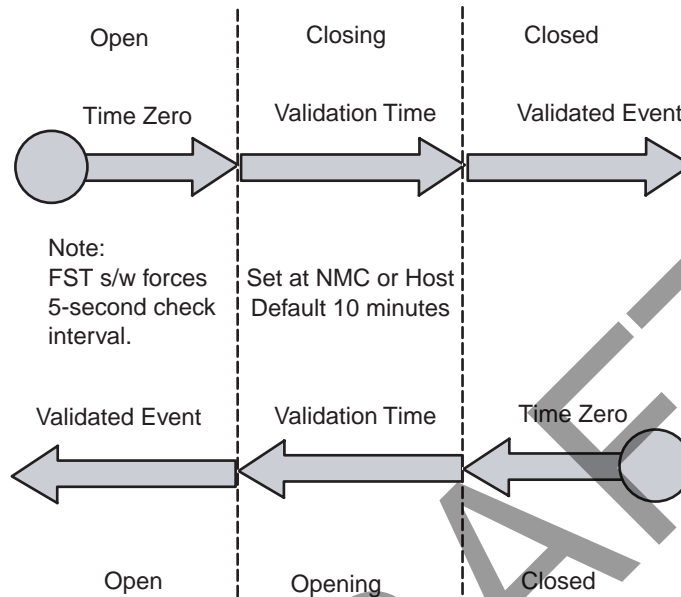
Open	Closing	Closed
Time Zero	Validation Time	Validated Event

Note:
FST s/w forces 5-second check interval.

Set at NMC or Host Default 10 minutes

Validated Event	Validation Time	Time Zero

Open	Opening	Closed

Simple open and closed switch that detects a changed state immediately and reports as configured by the customer.

05AAA_026a

1. In order to validate default settings and verify if the tire pressure sensor is working correctly with the TT210 system, certain TT210 system parameters must be set at the customer site using the TT210 Web application or the AS400 system. To find out if the parameters have been set, contact QES Customer Support.

    United States: 800-541-7490
    Canada: 800-863-9191

    Default parameters may vary by customers.

Parameter Defaults

Settings displayed in the following table are specific to the tire pressure sensor application. Other applications may require different initial and operational settings.

Modified Parameters	Initial Settings	Operational Settings
Parameter 1043 Sensor 4 Label:	Tire Pressure Alarm	Label Varies depending on application
Parameter 1113 Sensor 4 Open Time:	5 Seconds	10 minutes Varies depending on application
Parameter 1114 Sensor 4 Close Time:	5 Seconds	10 minutes Varies depending on application
Parameter 1117 Send Sensor 4 Open:	Ignore	Send Immediately Varies depending on application
Parameter 1118 Send Sensor 4 Close:	Ignore	Ignore Varies depending on application
Parameter 1130 Sensor 4 Installed:	Uninstalled	Installed

1. If the correct parameters have been set in TT210 Web or the AS400, release tire air pressure by opening the valve on the tire pressure sensor switch box under the trailer. This will cause the tire pressure warning light to illuminate.

2. With the Configuration tool is connected to the TT210 system, you will see **AUX. Sensor** change from **Closed** to **Opening** then **Open** after validation on the Configuration tool health screen, if the sensor has been properly wired to the TT210 system. It will take approximately 10 minutes to validate.

DRAFT

14
Performing System Verification

Introduction to System Verification

This chapter describes the TT210 system verification process and basic diagnostic procedures.

Topics in this chapter include:

If you have technical questions, please contact Qualcomm Enterprise Services (QES) Customer Support. QES Customer Support is staffed 24 hours a day, 365 days a year:

In the United States, call 800-541-7490
In Canada, call 800-863-9191

For Configuration tool software information and setup procedures, see the *TT200/TT210 Quick Reference 80-J7595-1*.

What Is TT210 System Verification?

The TT210 system verification is a functional system check that should be performed after installation of the TT210 system and after service to verify the TT210 system is operating properly.

The chapters following this System Verification chapter provide the diagnostics steps necessary to resolve any problem that appears during the system verification.

TT210 System Verification

Proper system verification requires the Configuration Tool software running on a Windows based laptop, netbook, or PC. This software is available online at Qualcomm's iQ web site, from your Qualcomm representative, or by calling QES Customer Support at (800-541-7490).

The trailer ID may be assigned or changed from the Qualcomm Web Portal. In addition, some operating parameters may be checked. It is not recommended to use the Portal for system verification because not all of the items that should be checked are available for viewing.

Diagnostic Flowchart—TT210 System Verification

Step 1 — Ensure all electrical connections are made.

Step 2 — Start the Config Tool software.

Step 3 — Wake the unit either by using the keyfob or applying 7-way power. You have 1 minute to make Bluetooth connection.

Step 4 — Click the Connect button on your laptop. Did it connect? — **No** → Go to chapter 15; Config Tool Will Not Connect.

Yes

Step 5 — If Trailer ID has not been entered (intial install), you be prompted to do so. Enter the Trailer ID.

Step 6 — Is the Trailer ID displayed correctly? — **No** → Go to chapter 16; Changing the Trailer ID.

Yes

Step 7 — If installed, does the cargo sensor toggle between Loading and Unloading? — **No** → Go to chapter 17; Cargo Sensor.

Yes

Step 8 — If installed, does the door sensor toggle between Open and Closing? — **No** → Go to chapter 18; Door Sensor.

Yes

Step 9 — If an AUX sensor is installed, does it toggle between different states? — **No** → Go to chapter 19; AUX Sensor.

Yes

Step 10 — In the GPS field does the tool indicate 2D or 3D fix? — **No** → Go to chapter 20; GPS No Fix.

Yes

Step 11 — Disconnect 7-way and reefer power if connected.

Step 12 — Does the battery show a voltage rather than charging? — **No** → Cover the solar panel to turn off the charging circuit. Then goto step 11.

Yes

Step 13 — Does the battery indicate 3.7 volts or higher? — **No** → Go to chapter 23; Battery.

Yes

Step 14 — Uncover the solar panel if covered.

Step 15 — Is the solar voltage greater than 6 volts in direct sunlight? — **No** → Go to chapter 25; Solar Power.

Yes

Step 16 — Apply 7-way power.

Step 17 — Is a valid voltage for source greater than 9 volts showing? — **No** → Go to chapter 24; External Power.

Yes

Step 18 — Is this a reefer install? — **No** → Go to step 21.

Yes

Step 19 — With the reefer running, is reefer voltage approx 12 volts? — **No** → Go to chapter 29; Reefer Diag. Reefer voltage section

Yes

Step 20 — In reefer type displayed? — **No** → Go to chapter 29; Reefer Diag. Reefer data section

Yes

Step 21 — Does phone signal strength show two or more bars? — **No** → Go to chapter 26; Phone Signal Strength

Yes

Step 22 — Does registration status show Registered — **No** → Go to chapter 27; System Registration

Yes

Step 23 — If using 7-way tool, the Trailer ID should show

System Verification Complete

DRAFT

TT210 System Verification Procedure

1. Ensure that the following electrical connections are made:

   External power should not be applied to the TT210 system terminal until except to start Bluetooth.

   • The blue (POWER) and white (GROUND) wires from the TT210 system power/ accessory cable are connected to the trailer's 7-way.

   • RF connections/antenna connections.

   • Any installed optional sensor wires (cargo, door, and AUX) are properly connected.
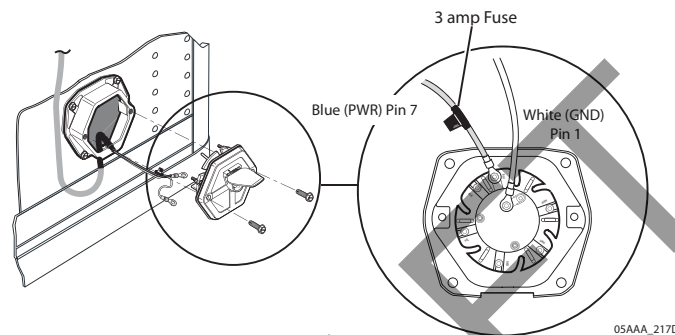
   Ensure that the following also apply:

   • The TT210 system battery should be connected.

2. Be certain you have a functioning Bluetooth adapter on your PC.

3. To launch the TT210 Configuration tool software, Click the **Connect** Button on the screen.

4. Activate the Bluetooth on the terminal via the 7-way power (for one trailer) or the key fob (for a group of trailers).

   NOTE: Bluetooth stays on for about 1 minute. If it turns off before you are ready, activate again.
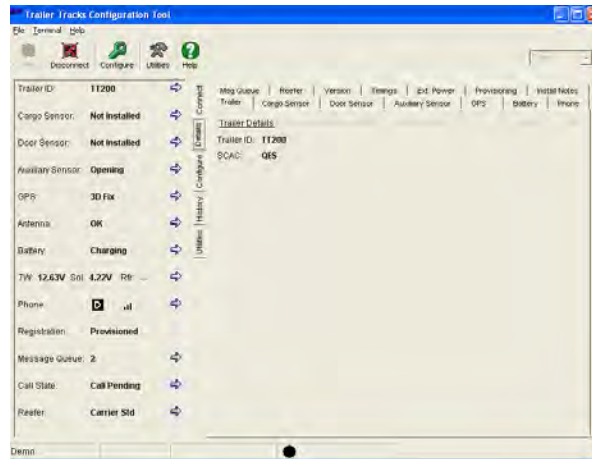
5. If this is a new installation, the Configuration tool software will prompt you to enter the trailer ID. Qualcomm recommends that the trailer ID be set at this time. (This process associates the trailer ID with the TT210 system terminal's ID in the customer's account.)

    For detailed information regarding entering the trailer ID, refer to the *TT200/TT210 Configuration Tool Quick Reference*, 80-J7595-1. **OR** go to Chapter 16: TT210 System Diagnostics: Changing the Trailer ID. The process to enter the trailer ID is similar to changing the trailer ID.

    NOTE: If not prompted to enter the trailer ID, the terminal may already have information in the trailer ID field.

6. The Configuration tool software **Health** screen will open. Verify the **Trailer ID** is correct.

    •   If **YES**, go to step 7.

    •   If **NO**, go to Chapter 16: TT210 System Diagnostics: Changing the Trailer ID.

7. **Cargo Sensor** verification. If a cargo sensor is installed on the trailer, verify it is functioning correctly by toggling the current state.

   NOTE: How to Toggle the Cargo Sensor
   If the trailer is empty, block the cargo sensor by holding a piece of cardboard approximately 6 inches from the cargo sensor. Confirm the cargo sensor state changes from Empty to Loading or Loaded. If the trailer is loaded, toggle the cargo sensor by removing obstructions so it is not blocked. Confirm the cargo sensor state changes from Loaded to Unloading or Empty. The cargo sensor can "see" objects from up to 20 feet away.

   • If **YES**, it is functioning correctly, go to step 8.

   • If **NO**, it is not functioning correctly, go to Chapter 17: TT210 System Diagnostics: Cargo Sensor.

   NOTE: On new installations, the cargo sensor can sometimes toggle to Not Installed until it completes one validation cycle. This can take up to 30 minutes.

8. **Door Sensor** verification. If a door sensor is installed on the trailer, verify it is functioning correctly by toggling the current state.

   NOTE: How to Toggle the Door Sensor
   If the trailer door is closed, open it. Confirm the door sensor state changes from Closed to Opening or Open. If the trailer door is open, close it. Confirm the door sensor state changes from Open to Closing or Closed.

   - If **YES**, it is functioning correctly, go to step 9.

   - If **NO**, it is not functioning correctly, go to Chapter 18: TT210 System Diagnostics: Door Sensor.

   NOTE: On new installations, the door sensor will usually show Not Installed initially until it completes one validation cycle. This can take up to 30 minutes.

9. **Auxiliary** sensor verification. If an auxiliary sensor is installed on the trailer, verify it is functioning correctly by toggling the current state.

   - If **YES**, it is functioning correctly, go to step 10.

   - If **NO**, it is not functioning correctly, go to Chapter 19: TT210 System Diagnostics: Auxiliary Sensor.

   NOTE: On new installations, the auxiliary sensor will usually show Not Installed initially until it completes one validation cycle. This can take up to 30 minutes.

10. Verify the **GPS** indicates either 2D or 3D. No Fix means GPS cannot obtain fix from satellites.

    - If **YES**, it is functioning correctly, go to step 11.

    - If **NO**, it is not functioning correctly, go to chapter on GPS No FIx.

11. Verify **Ant.** status is OK.

12. Make sure *no* external power (i.e., reefer, 7-way) is applied. Disconnect 7-way and reefer power if connected. Go to step 13.

7-way receptacle

Remove external power from the 7-way receptacle.
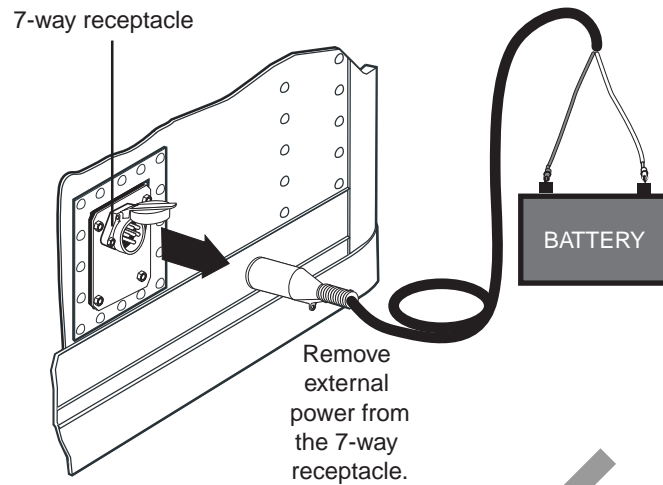
04AAA_127E

13. Does the **Battery** show a voltage rather than charging?

   • If **NO**, cover the solar panel to turn off the charging circuit.

14. Is the **Battery** voltage 3.7 volts or higher?

   NOTE: This verification must be done without external power applied to the TT210 system terminal. If external power is applied, the **Battery** voltage indicated on the Configuration Tool software will be the charger voltage, not the actual TT210 system terminal battery voltage.

   Battery voltage below 3.7 volts indicates the battery needs to be charged.

   • If **YES**, go to step 16.

   • If **NO**, go to Chapter 23: TT210 System Diagnostics: Battery.

15. Uncover the solar panel if covered. Check that **Sol** voltage is greater than 6 volts in direct sunlight.

   • If **NO**, go to solar power chapter.

16. If this installation does not include 7-way power, go to step 18.

17. If this installation includes 7-way power, apply external 7-way power to the TT210 system terminal.

7-way receptacle

The TT210
system external
power test
cable can
be used to
apply external
power.

BATTERY
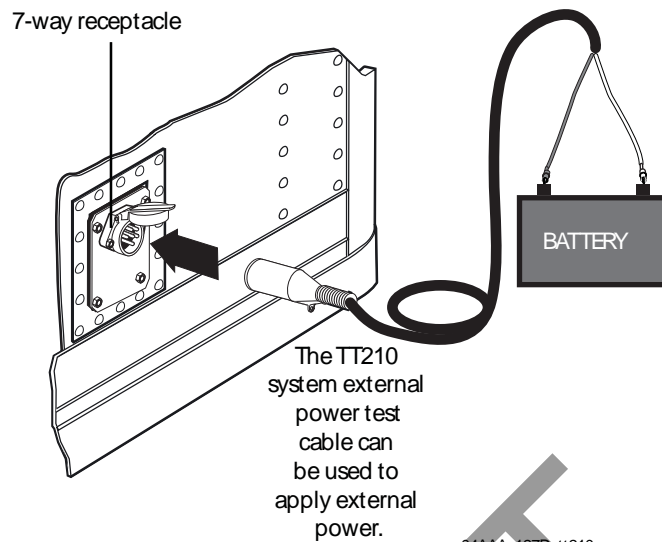
04AAA_127D_tt210

18. Does the **7W** field display a voltage of greater than 9 VDC?

   If **YES**, go to step 19.

   If **NO**, go to Chapter 24: TT210 System Diagnostics: External 7-way Power.

19. If this installation does not include reefer power, go to step 22.

20. Turn on reefer. Does **Rfr** display a voltage of approximately 12 VDC?

   • If **YES,** go to step 21.

   • If No, go to

21. **Reefer** type displayed? Indicates manufacturer of reefer (if installed)

   • If YES, go to step 22.

   • If NO, go to Chapter 29: TT210 System Diagnostics: Refrigerated Trailers.

22. Verify the **Phone** signal strength indicates two or more bars.

   • If **YES**, go to step 23.

   • If **NO**, go to Chapter 26: TT210 System Diagnostics: Phone Signal Strength.

23. Verify the **Registration** field indicates "Registered."

   • If **YES**, go to step 24.

   • If **NO**, go to Chapter 27: TT210 System Diagnostics: TT210 System Registration.

24. **If using the 7-way tool,** verify the TT210 system terminal's serial number (**S/N;** top right-hand area of the Configuration tool software Health screen) has transmitted via the 7-way on the trailer. This can also be verified in any of the following ways depending on what hardware is available:

To verify the trailer ID using the 7-way diagnostic tool go to *Getting the TT210 System Terminal ID Using the 7-way Diagnostic Tool* on page 14-11**.**

To verify the trailer ID for an MCP unit go to////.

???

- If **YES**, system verification is complete.

- If **NO** and you are using the 7-way diagnostic tool, go to Chapter 28: TT210 System Diagnostics: Power Bus Modem.

## Getting the TT210 System Terminal ID Using the 7-way Diagnostic Tool

Complete the following procedure to launch the 7-way diagnostic tool software on your handheld Palm device.

To Launch the 7-way Diagnostic Tool Software

1. Connect the 7-way tool to the handheld device via the handheld's serial cable.

2. Tap the **Home** or **Applications** icon on the handheld device and cycle through the application categories to locate the 7-way diagnostic tool software icon.
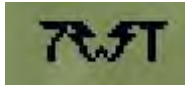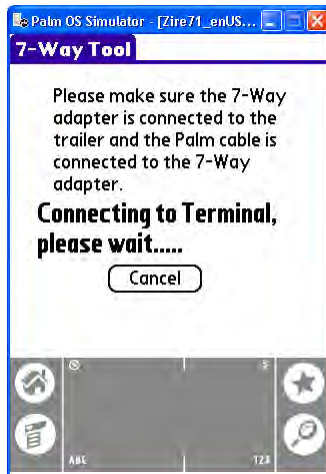

3. Tap the **7-Way Tool** icon.
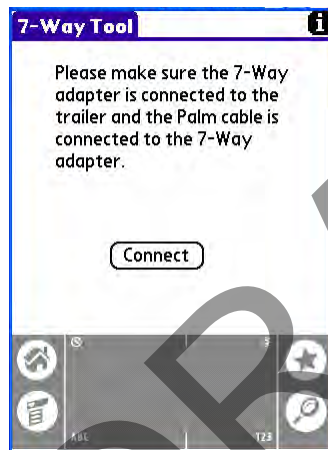
4. Tap **Connect**.

The TT210 system 7-way diagnostic tool software connects to the terminal via the trailer's 7-way receptacle and reads the information from the terminal.

If the 7-way diagnostic tool software detects a problem while connecting to the terminal, the software attempts to connect to the terminal for approximately two minutes before you are given additional information regarding the problem:

The following are situations that can occur with the TT210 system terminal that can cause the connection process to fail:

- Discharged 7-way tool battery
- Faulty cable connections
- Unresponsive due to firmware upgrade process

Note

If there is a connection problem, the following screen will display.
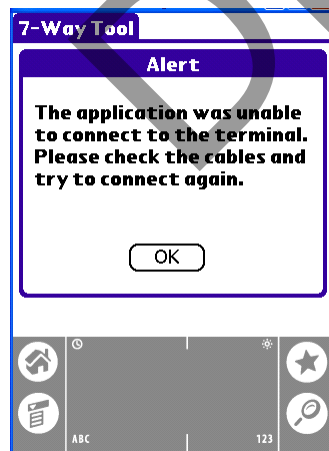
7-Way Tool Health Screen Information

The 7-Way Tool Health screen lists the latest values detected from the terminal, including a terminal's registration status. If multiple terminals are detected, you can change the currently viewed terminal by selecting a different terminal. To select a different terminal, tap the drop-down arrow next to the terminal number (e.g., 120000001) near the upper-right corner of the screen.

Note

If the 7-way diagnostic tool software cannot communicate with the terminal for approximately two minutes, you are prompted with a message and the Connect screen redisplays. This happens for any of the following reasons:

- *The cable between the handheld device and the 7-way tool is disconnected.*

- *The 7-way tool battery is not charged or dead.*

- *Over-the-air (OTA) upgrade is being performed.*

After resolving the issue, you can re-establish a connection to the terminal.

Diagnostic Values

The 7-way diagnostic tool software detects the current values of the following:

Terminal S/N

The TT210 system terminal serial number that the 7-way diagnostic tool software is connected to. If the "No MCT" (⬛) image appears, the terminal is configured so the mobile communications terminal (MCT) will not recognize the data sent from this terminal.

Cargo Sensor Status

If installed, the cargo sensor status shows as: NOT INSTALLED, EMPTY/UNLOADING, or LOADED/LOADING.

Door Sensor Status

The trailer/container swing door sensor status shows as: NOT INSTALLED, OPEN/OPENING or CLOSED/CLOSING.

Auxiliary Sensor Status

If third-party accessories are installed, the auxiliary sensor input status shows as: NOT INSTALLED, OPEN/OPENING or CLOSED/CLOSING.

GPS

The GPS status shows as: 2D FIX (good), 3D FIX (best), or NO FIX.

Antenna Status

The Ant status shows as: OK.

Phone Signal Strength and Mode

The phone signal strength status is indicated by bars, e.g., 2 or more bars indicate good signal strength.

Registration Status

The registration status shows as: REGISTERED or NOT REGISTERED.

Message Queue

The message queue indicates if there are any calls waiting in the queue and is shown as: NUMBER OF CALLS/CALL PENDING.

Tethered Asset Management Service Overview

The tethered asset management service is an option that allows dispatch to monitor trailer connections and disconnections. Connects and disconnects are detected by the mobile communications terminal and passed on to dispatch via the satellite link with the date, time, and location.

Firmware Requirements

The mobile communications terminal firmware version must be 15.50 or above for the tethered asset management service option. If the mobile communications terminal firmware version is below 15.50, contact your Regional Qualcomm Customer Support Specialist.

Getting the TT210 System Terminal ID (DU)

The screens you view when verifying trailer connections and disconnections are different depending on the type of display unit being used. This first section describes the method used with a display unit (DU). The following sections describe the method used with the enhanced display unit (EDU) and the MVPc in-vehicle computer.

This section provides information on system verification for single trailer connections and disconnections.

Enable Tethered Asset Management Service and Auto Connect

Note

If tethered asset management service screens are not available, then the tethered asset management service option is not enabled.

To activate the mobile communications terminal for the tethered asset management service option and to enable Auto Connect, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

Trailer Connection/Disconnection

This section provides system verification information on trailer connections/disconnections.

Connection

1. Turn on the ignition.

2. Hook up the tractor to the trailer, connect the tractor's 7-way pigtail.

3. Press the **OPTION** key from the View Status screen.

4. Press ▾ until the TrailerTRACS ID screen is displayed.

    If "Hit C to Connect" (see illustration below) is displayed on the screen, Auto Connect is not enabled. Call the QES Customer Support to enable Auto Connect. In the United States, call 800-541-7490; in Canada, call 800-863-9191. Have the mobile communications terminal serial number (unit address) available when you call.

> USE ↑(↓) TO MOVE TO PREV (NEXT) SCREEN
>
> TRAILERTRACS ID#'s   **(HIT "C" TO CONNECT)**
> CONNECTED: NONE CONNECTED

    If a trailer is not currently connected, the status is None Connected, as shown in the following screen.

> USE ↑(↓) TO MOVE TO PREV (NEXT) SCREEN
>
> TRAILERTRACS ID#'s
> CONNECTED: **NONE CONNECTED**

    After the trailer is connected and the TrailerTRACS system transmitter sends its ID to the mobile communications terminal, the trailer ID is updated on the display unit as shown in the following screen.

> USE ↑(↓) TO MOVE TO PREV (NEXT) SCREEN
>
> TRAILERTRACS ID#'s
> CONNECTED: **1234**

Disconnection

1. Remove 7-way pigtail.

2. Leave ignition on.

3. Wait up to five minutes for disconnect message.

A disconnect message is sent when the tractor's ignition is on and there has been no signal from the tethered transmitter for a preset time period. This will usually occur within five minutes.

```
WARNING:  A TRAILER HAS DISCONNECTED

(ANY FUNCTION KEY EXITS.)
```

Tethered Asset Management Service Diagnostic Screen

From the previous tethered asset management service ID screen, press the **D** key to view the tethered asset management service Diagnostic screen. This screen may be helpful when performing diagnostics. The following illustration shows a tethered asset management service Diagnostic screen without a connected trailer.

```
USE  ↑(↓) TO  MOVE  TO PREV (NEXT) SCREEN

TRAILER DIAG 854
ID#
```

When a trailer is connected, the tethered asset management service Diagnostic screen appears as seen in the following illustration.

```
USE  ↑(↓) TO  MOVE  TO PREV (NEXT) SCREEN

TRAILER DIAG 854
ID#       10000702          24                   15
```

A tethered asset management service ID number (10000702) appears, as well as other numerical information, such as the number of seconds since ignition ON (854), number of ID packets (24), and the number of seconds since the last packet was sent (15).

Getting the TT210 System Terminal ID (EDU)

This section provides information on system verification for single trailer connections and disconnections.

Enable the Tethered Asset Management Service and Auto Connect

Note

If tethered asset management service screens are not available, then the tethered asset management service option is not enabled.

To activate the mobile communications terminal for the tethered asset management service option and to enable Auto Connect, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

Trailer Connection/Disconnection

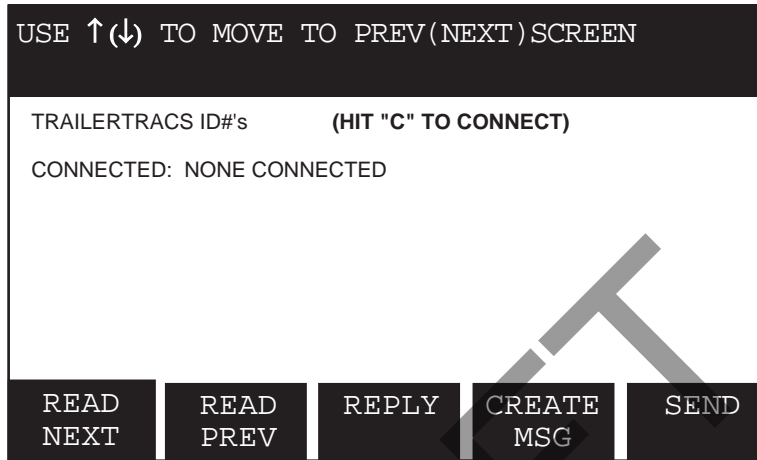This section provides system verification information on trailer connections/disconnections.

Connection

1. Turn on the ignition.

2. Hook up the tractor to the trailer and connect the tractor's 7-way pigtail. Press the **ENTER** key.

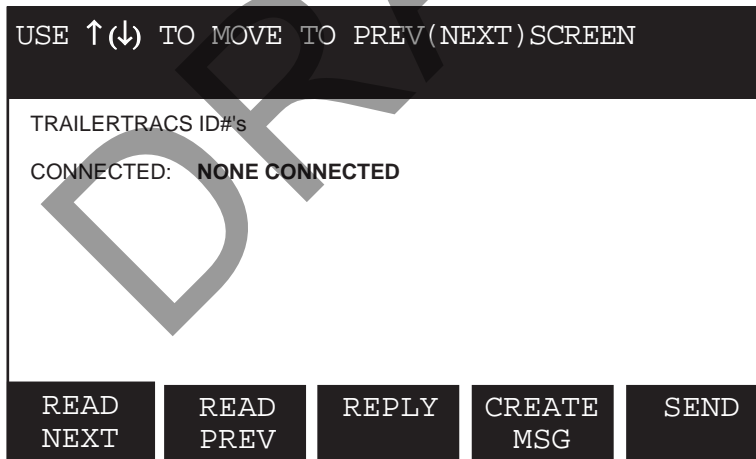3. Press the **VIEW STATUS** key to display the View Status screen.

```
USE↑(↓) TO MOVE TO PREV(NEXT)SCREEN


OMNITRACS                    4/22/06           10:23:21 CST
--------------------------------------------------------------

DRIVER: UNIDENTIFIED                   UNREAD MESSAGES: 0
STATUS: GOOD                           MSGS BEING SENT: 0



PRESS +, - TO CHANGE TIME ZONE: GMT

  READ         READ        REPLY     CREATE      SEND
  NEXT         PREV                   MSG
```

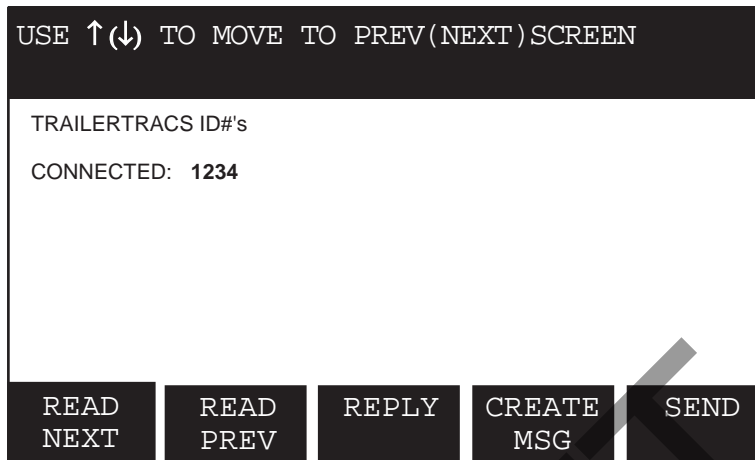**4.** Press ⬇ until the TrailerTRACS ID screen is displayed.

If "Hit 'C' to connect" (see the following illustration) appears this means Auto Connect is not enabled. Call the QES Customer Support to enable Auto Connect. In the United States, call 800-541-7490; in Canada, call 800-863-9191. Have the mobile communications terminal serial number (unit address) available when you call.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN

  TRAILERTRACS ID#'s        (HIT "C" TO CONNECT)

  CONNECTED:  NONE CONNECTED




   READ       READ       REPLY     CREATE      SEND
   NEXT       PREV                   MSG
```

If a trailer is not currently connected, the status is None Connected, as shown in the following screen.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN

  TRAILERTRACS ID#'s

  CONNECTED:   NONE CONNECTED




   READ       READ       REPLY     CREATE      SEND
   NEXT       PREV                   MSG
```
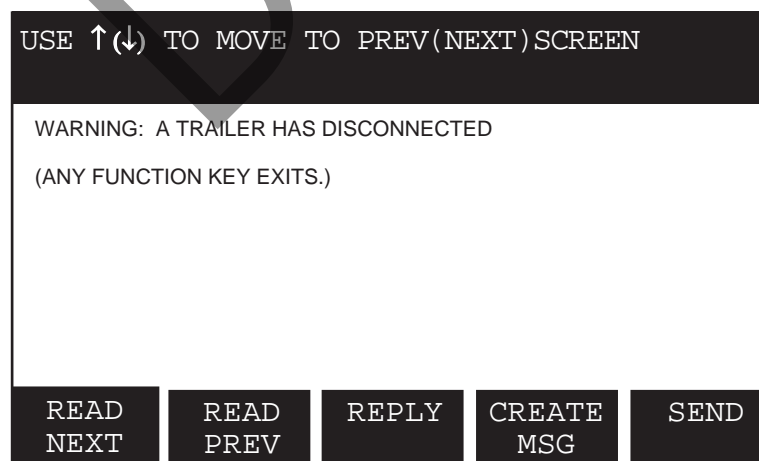
After the trailer is connected and the TrailerTRACS system transmitter sends its ID to the mobile communications terminal, the trailer ID is updated on the EDU as shown in the following screen.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN


TRAILERTRACS ID#'s

CONNECTED:  1234




  READ       READ       REPLY    CREATE     SEND
  NEXT       PREV                 MSG
```
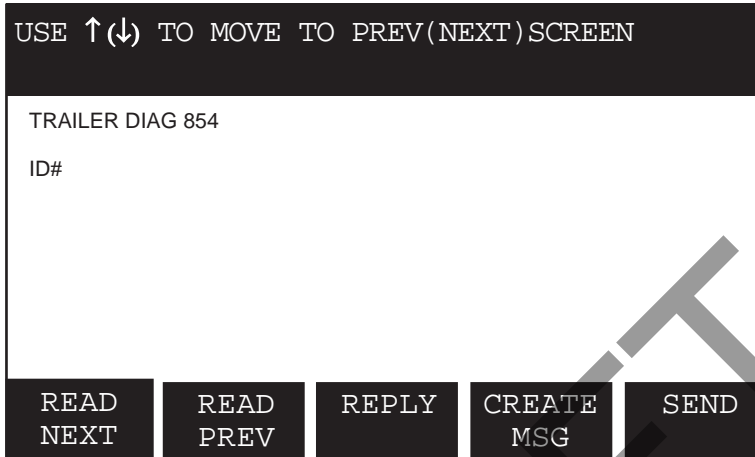
Disconnection

1. Remove 7-way pigtail.

2. Leave ignition on.

3. Wait up to five minutes for disconnect message.

   A disconnect message is sent when the tractor's ignition is on and there has been no signal from the tethered transmitter for a preset time period. This will usually occur within five minutes.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN


WARNING:  A TRAILER HAS DISCONNECTED

(ANY FUNCTION KEY EXITS.)




  READ       READ       REPLY    CREATE     SEND
  NEXT       PREV                 MSG
```
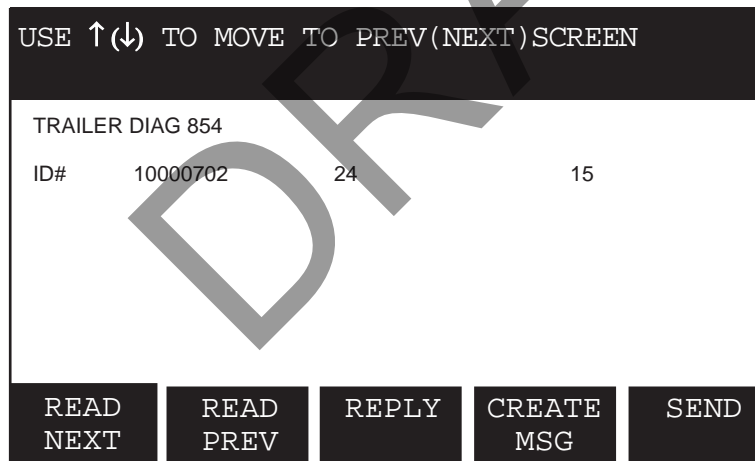
Tethered Asset Management Service Diagnostic Screen

From the previous tethered asset management service ID screen, press the **D** key to view the tethered asset management service Diagnostic screen. This screen may be helpful when performing diagnostics. The following illustration shows a tethered asset management service Diagnostic screen without a connected trailer.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN

TRAILER DIAG 854

ID#



  READ       READ      REPLY    CREATE     SEND
  NEXT       PREV                 MSG
```

When a trailer is connected, the tethered asset management service Diagnostic screen appears as seen in the following illustration.

```
USE ↑(↓) TO MOVE TO PREV(NEXT)SCREEN

TRAILER DIAG 854

ID#     10000702        24              15



  READ       READ      REPLY    CREATE     SEND
  NEXT       PREV                 MSG
```

A tethered asset management service ID number (10000702) appears, as well as other numerical information, such as the number of seconds since ignition ON (854), number of ID packets (24), and the number of seconds since the last packet was sent (15).

Getting the TT210 System Terminal ID (MVPc)

This section provides information on system verification for single trailer connections and disconnections.

Enable Tethered Asset Management Service and Auto Connect

Note

If tethered asset management service screens are not available, then the tethered asset management service option is not enabled.

To activate the mobile communications terminal for the tethered asset management service option and to enable Auto Connect, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

Trailer Connection/Disconnection

This section provides system verification information on trailer connections/disconnections.
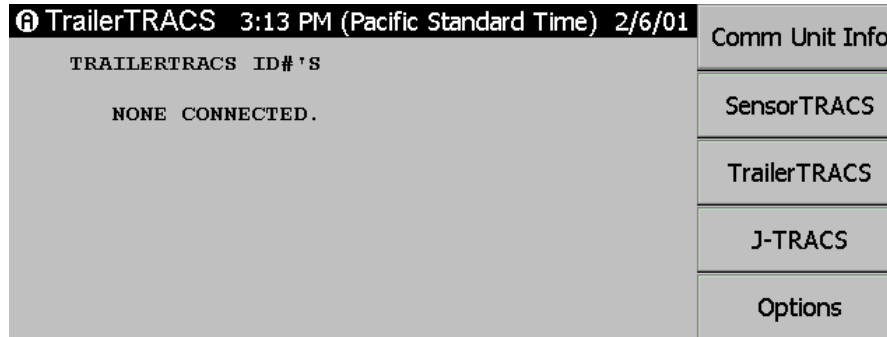
Connection

1. Turn on the ignition.

2. Hook up the tractor to the trailer and connect the tractor's 7-way pigtail.

3. Press the **Menu** key, then tap the **Vehicle Info** touch button, and then tap the **tethered asset management service** screen button, the tethered asset management service ID screen appears.

    If the tethered asset management service screen does not appear, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

    If "Hit 'C' to connect" (see illustration below) appears, this means Auto Connect is not enabled. Call the QES Customer Support to enable Auto Connect. In the United States, call 800-541-7490; in Canada, call 800-863-9191. Have the mobile communications terminal serial number (unit address) available when you call.
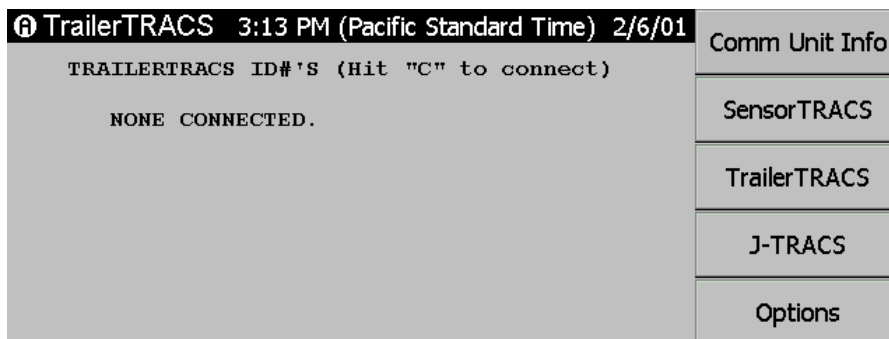
If a trailer is not currently connected, the status is None Connected, as shown in the following figure.
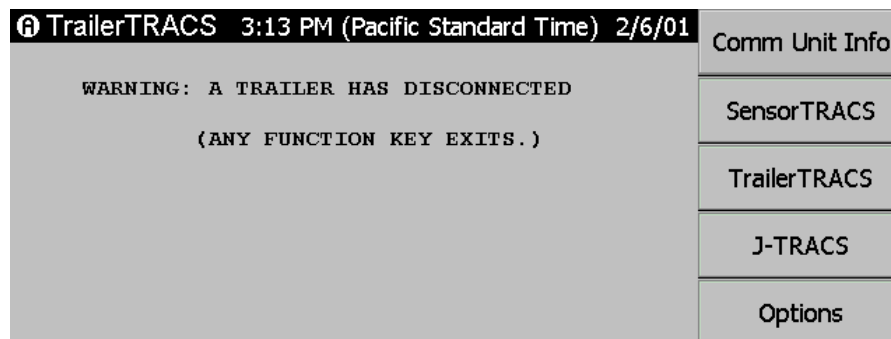
```
 ⓐ TrailerTRACS  3:13 PM (Pacific Standard Time)  2/6/01    │ Comm Unit Info │
       TRAILERTRACS ID#'S                                   │   SensorTRACS  │
          NONE  CONNECTED.                                  │  TrailerTRACS  │
                                                            │    J-TRACS     │
                                                            │    Options     │
```

After the trailer is connected and the TrailerTRACS transmitter sends its ID to the mobile communications terminal, the trailer ID is updated on the MVPc as shown in the following screen.

```
 ⓐ TrailerTRACS  3:13 PM (Pacific Standard Time)  2/6/01    │ Comm Unit Info │
       TRAILERTRACS ID#'S                                   │   SensorTRACS  │
       CONNECTED: 1234                                      │  TrailerTRACS  │
                                                            │    J-TRACS     │
                                                            │    Options     │
```
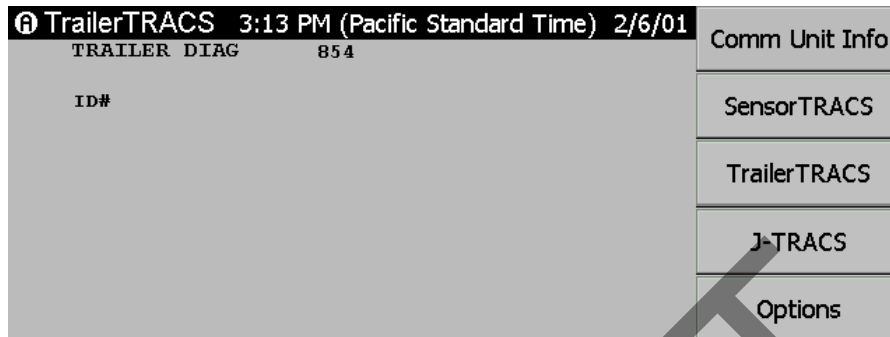
Disconnection

1. Remove 7-way pigtail.

2. Leave ignition on.

3. Wait up to five minutes for disconnect message.

   A disconnect message is sent when the tractor's ignition is on and there has been no signal from the tethered transmitter for a preset time period. This will usually occur within five minutes.

```
 ⓐ TrailerTRACS  3:13 PM (Pacific Standard Time)  2/6/01    │ Comm Unit Info │
       WARNING: A TRAILER HAS DISCONNECTED                  │   SensorTRACS  │
               (ANY FUNCTION KEY EXITS.)                    │  TrailerTRACS  │
                                                            │    J-TRACS     │
                                                            │    Options     │
```
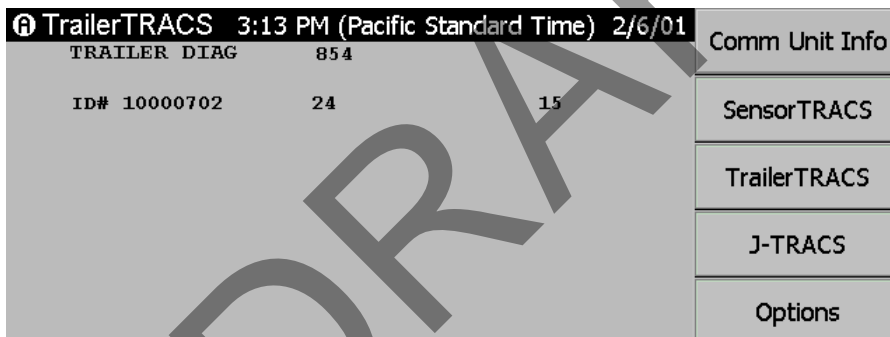
Tethered Asset Management Service Diagnostic Screen

From the previous tethered asset management service ID screen, press the **D** key to view the tethered asset management service Diagnostic screen. This screen may be helpful when performing diagnostics. The following illustration shows a tethered asset management service Diagnostic screen without a connected trailer.

When a trailer is connected, the tethered asset management service Diagnostic screen appears as seen in the following illustration.

A tethered asset management service ID number (10000702) appears, as well as other numerical information, such as the number of seconds since ignition ON (854), number of ID packets (24), and the number of seconds since the last packet was sent (15).

Getting the TT210 System Terminal ID MCP (100)

This section provides information on system verification for single trailer connections and disconnections on the MCP100.

Note

If the screen does not appear, call your company to have Trailer Tracks asset management enabled. Have the MCP200 number ready when you call. The unit will need to be added to the appropriate operational profile.
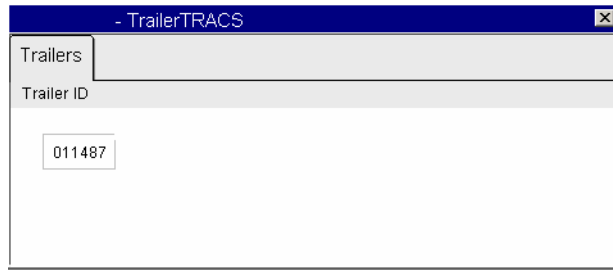
To activate the mobile communications terminal for the tethered asset management service option and to enable Auto Connect, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

Trailer Connection/Disconnection

1. Turn ignition ON. Verify that the Trailer Tracks asset management system is enabled. If you can view the TrailerTRACS screen, Trailer Tracks asset management is enabled.

2. From the Home screen, touch the **TrailerTRACS** button to display the Trailer IDs screen.
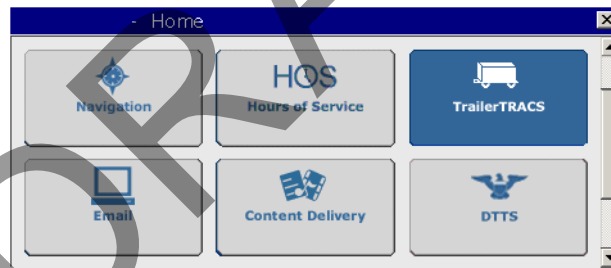
3. Connect the tractor to the trailer and leave the ignition ON. Connect the tractor 7-way pigtail to the trailer. This powers the Trailer Tracks transmitter and initiates sending the ID.

4. Verify a trailer is connected. When a trailer is connected, the Trailer Tracks Transmitter ID number shows on the Trailer IDs screen. If multiple trailers are connected, the ID from each transmitter will be displayed.

   - For dry vans, if the Trailer ID appears, go to step 7.

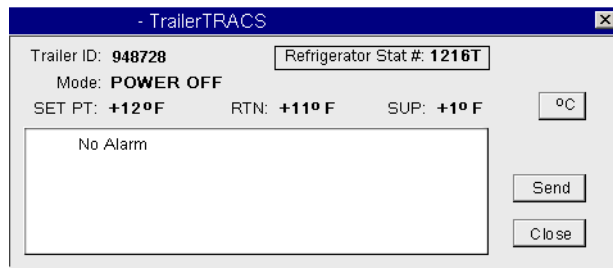   - For reefer units, if the Trailer ID appears, go to step 5.

5. Is a refrigeration unit being monitored?

Note

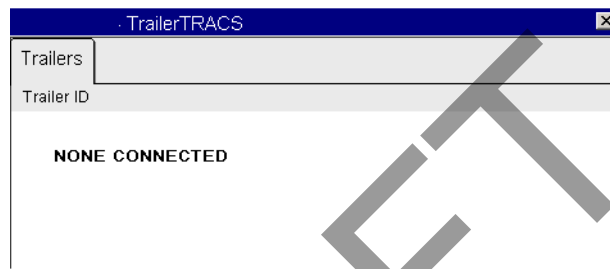*If a refrigeration unit is detected, a snowflake will appear above the transmitter ID box.*

- If **yes,** go to step 6.
- If **no**, go to step 7.

6. With the reefer turned on, check that the Refrigerator Stat # is incrementing on the Trailer Management screen. This number should increment approximately once a minute.

- If it is incrementing, go to step 7.

7. Disconnect the tractor from the trailer, leave the ignition ON, and wait for the disconnect message as shown at left. (Allow up to 10 minutes.)

- When the disconnect message appears on the display screen, Trailer Tracks asset management system verification is complete.

- If disconnect message does not appear (allow up to 10 minutes), call QES Customer Support:

  US: 800-541-7490
  Canada: 800-863-9191

```
· TrailerTRACS                        ☒
Trailers
Trailer ID

        NONE CONNECTED
```

Getting the TT210 System Terminal ID MCP (110 and 200)

This section provides information on system verification for single trailer connections and disconnections on the MCP.

Note

If the screen does not appear, call your company to have Trailer Tracks asset management enabled. Have the MCP110 or MCP200 number ready when you call. The unit will need to be added to the appropriate operational profile.
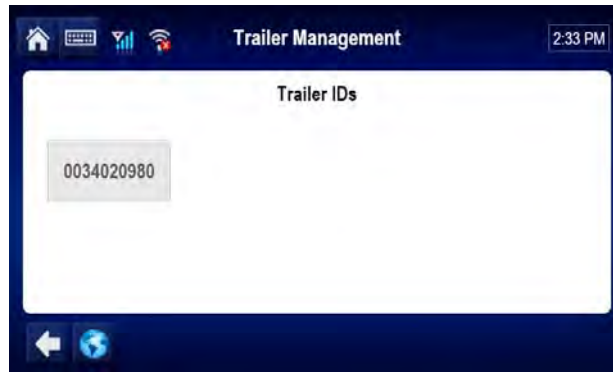
To activate the mobile communications terminal for the tethered asset management service option and to enable Auto Connect, call the QES Customer Support. In the United States, call 800-541-7490; in Canada, call 800-863-9191.

Trailer Connection/Disconnection

1. Turn ignition ON. Verify that the TrailerTRACS asset management system is enabled. If you can view the TrailerTRACS screen, TrailerTRACS asset management is enabled.

2. From the Home screen, touch the **Trailer Management** button to display the Trailer IDs screen.
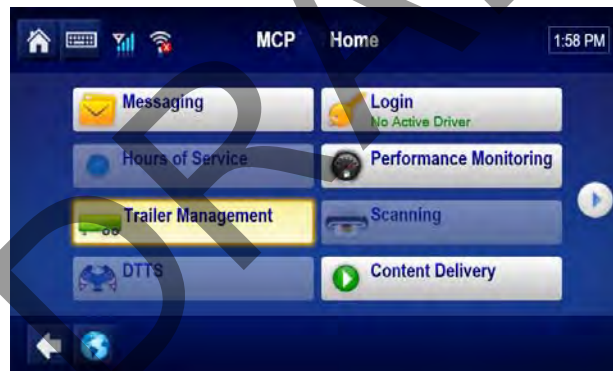
3. Connect the tractor to the trailer and leave the ignition ON. Connect the tractor 7-way pigtail to the trailer. This powers the TrailerTRACS transmitter and initiates sending the ID.

4. Verify a trailer is connected. When a trailer is connected, the TrailerTRACS Transmitter ID number shows on the Trailer IDs screen. If multiple trailers are connected, the ID from each transmitter will be displayed.

   • For dry vans, if the Trailer ID appears, go to step 7.

   • For reefer units, if the Trailer ID appears, go to step 5.
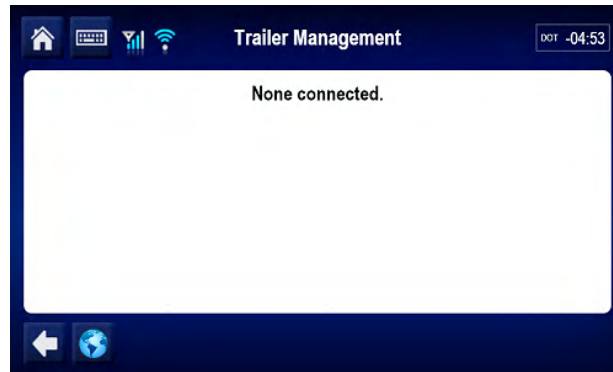
5. Is a refrigeration unit being monitored?

Note

If a refrigeration unit is detected, a snowflake will appear above the transmitter ID box.

- If **yes,** go to step 6.

- If **no**, go to step 7.

6. With the reefer turned on, check that the Refrigerator Stat # is incrementing on the Trailer Management screen. This number should increment approximately once a minute.

- If it is incrementing, go to step 7.

7. Disconnect the tractor from the trailer, leave the ignition ON, and wait for the disconnect message as shown at left. (Allow up to 10 minutes.)

- When the disconnect message appears on the display screen, Trailer Tracks asset management system verification is complete.

- If disconnect message does not appear (allow up to 10 minutes), call QES Customer Support:

  US: 800-541-7490
  Canada: 800-863-9191

Ongoing Maintenance

Qualcomm recommends that, when you perform preventive maintenance on the tractor and trailer, you perform the following checks on the tethered system.

Maintaining the Tethered System on Tractors

Do the following to ensure optimum system performance on the tractor:

• Secure cables from movement.

• Cover any exposed cables with convoluted tubing.

• Inspect, clean, and apply dielectric grease to all 7-way connection points.

• Verify that the 7-way cord is free from cuts and abrasions.

• Verify that voltage (12–24 V) on pin 7 at all 7-way connection points.

Maintaining the Tethered System on Trailers

Do the following to ensure optimum system performance on the trailer:

• Secure and cover any exposed cabling with convoluted tubing.

• Inspect, clean, and apply dielectric grease to all 7-way connection points.

• If necessary, open the face plate and clean the inside of the receptacle.

Troubleshooting

Problem	*Solution*
Connection:	
Will not connect to tractor.	1. Is Auto Connect enabled? 2. Check 5-amp fuse on the mobile communications terminal TTRACS wire.
Disconnection:	
Will not disconnect.	1. Disconnect tractor 7-way pigtail. 2. Turn key to the ON position (could take up to five minutes for the disconnect to occur).

System Verification Form

On the following page is the TT210 System Verification Form. You can make copies of this form and record important information concerning the trailer and the TT210 system.

Note

To access the information for the TT210 System Verification Form, *you must use the TT210 Config Tool software.*

TT210 SYSTEM VERIFICATION FORM

Installer(s):	Date:

Trailer Information

Trailer ID:	Customer:
Make:	Location:
Model:	Terminal ID:
Year:	

System Verification / Accessories/Options Installed

System Verification	Accessories/Options Installed
Enter Trailer ID:	☐ Cargo Sensor ☐ TT210 System Mount (type):
Cargo Sensor: ☐ Shows Loaded and Unloaded	☐ Door Sensor ☐
Door Sensor: ☐ Shows Opened and Closed	☐ AUX Sensor ☐ Solar:
Aux Sensor: ☐ Shows Opened and Closed	☐ 7-Way ☐ Other:

GPS Fix:	
Battery Voltage:_____	**Note**: TT210 will hibernate if there is no external power and the battery voltage is below 3.6 Volts.

7-Way Power On: ☐ Yes ☐ No   Record Voltage: _____
Solar Power On: ☐ Yes ☐ No   Record Voltage: _____
Reefer Power On: ☐ Yes ☐ No   Record Voltage: _____
Phone Signal Strength: Number of Bars:_____   ☐ Analog ☐ Digital
Registration Status (must show registered):
Omni Unit Shows Trailer Connected: Trailer ID_____

Notes

Checkout Completed

Signature:	Date:	Time:

If you have any questions, contact QES Customer Support at 800-541-7490.

TT210 System Verification Checklist??? too many checklists????

The following system verification checklist presents a quick and efficient way to proceed through the TT210 system verification process. While referring to the checklist, should a problem with the TT210 system be detected, refer to the *Diagnostic Flowchart—TT210 System Verification* on page 14-3 and the *TT210 System Verification Procedure* on page 14-4 for the complete system verification procedure.

☐	Connect the TT210 system terminal to a laptop with Configuration tool software installed. Launch **TT210** Configuration tool ![TT icon]. If the Health screen appears, proceed. If the trailer ID has not been configured, the Configuration tool will prompt you to do this. **NOTE:** *When the Configuration Tool software is connected to a TT210 system terminal that does not have a set customer-supplied trailer ID, the following alert pops up: "The Trailer ID has not been set, would you like to set it now?" Set the trailer ID using the Configuration Tool software. Tap OK. When you tap OK, the Configure screen opens in the Configuration Tool software. (If you do not have the trailer ID, tap Cancel and the Health screen opens in the Configuration Tool software.*
☐	Verify **Cargo Sensor**. Toggle the cargo sensor to verify it is functioning properly. **NOTE:** *If the trailer is empty, hold a piece of cardboard approximately 6 inches from the cargo sensor. Confirm the correct cargo sensor Current State data changes from Empty to Loading or Loaded. If the trailer is loaded, toggle the cargo sensor by positioning it so it is not blocked. Confirm the correct cargo sensor Current State data goes from Loaded to Unloading or Empty.*
☐	Verify **Door Sensor**. Toggle the door sensor to verify it is functioning properly. **NOTE:** *If the trailer door is closed, open it. Confirm the correct door sensor Current State data changes from Closed to Opening or Open. If the trailer door is open, close it. Confirm the correct door sensor Current State data goes from Open to Closing or Closed.*
☐	Verify **Auxiliary Sensor**. Toggle the auxiliary sensor, according to the design function, to verify it is functioning properly.
☐	Verify **GPS/Antenna**. Confirm that the fix is either 3D (best) or 2D (good) and antenna is OK.
☐	Verify **Battery** voltage. Battery should be in the 3.7V range. System hibernates when battery drops to 3.6V. **NOTE:** *This verification must be done without external power applied to the TT210 system. If external power is applied, the battery voltage indicated on the Configuration Tool software's Health screen will be the charger voltage,* not *the battery voltage.*
☐	If solar power is being used, verify **Solar** power. Battery should be charging and Ext. Power should indicate Solar between 4–9 volts.
☐	Verify **External Power**. Values are either Solar, 7-Way, Reefer, or None. **NOTE:** *Solar means the terminal is being powered by the solar panel, and a lightning bolt appears through the battery icon. 7-Way means the terminal is being powered by 7-way power, and a lightning bolt appears through the battery icon. None means the terminal is being powered by the battery pack.*
☐	Verify **Phone** signal strength. At least two signal bars should be present.
☐	If this is a refrigerated trailer, verify **Reefer** status.
☐	Verify **Power Bus Modem/TTRACS**. Confirm the TT210 ID is being transmitted via the 7-way.

❏

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