Loose Ship Park Assist and Park View System

These features are available on all 3500 4500 and 5500 chassis/cabs. It has been developed to allow the up fitter to install back up camera (park view) and park assist (parktronics) on the up fit. Both systems plug into connectors on the rear of the frame. Both systems use the same type of connector. The difference is the gender of the connector. The park assist (parktronics) connector is towards the left side of the rear frame rail and is a female socket. The backup camera connector is located just to the right of center of the rear frame rail and is a male plug. DO NOT PLUG THESE TWO CONNECTORS TOGETHER. These connectors are secured in such a manner that they may be hidden by the harness bundle and may be difficult to see. They are there. Just push the harness bundle out of the way. Depending upon the type of up fit being installed, it may be easier to make this connection prior to installation of the up fit.

I500_M
Park Assist

D2887A
Inline – Tailgate to Chassis
(Rear Camera Circuits)

2/18/15
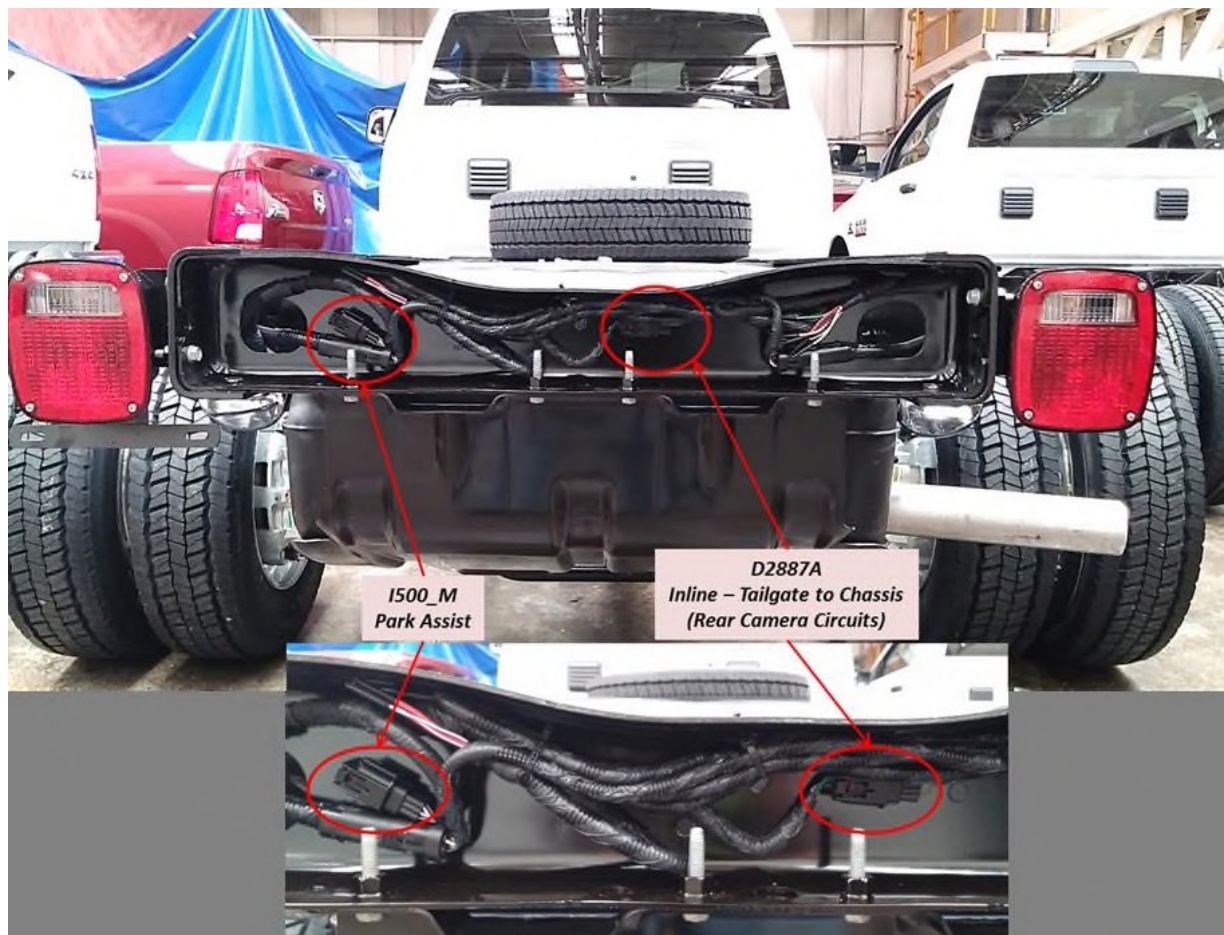
# Loose Ship Park Assist and Park View System

Park View (Back Up Camera)

The RAM Chassis Cab is offered with a rear camera option package sales code XAC. Included in this option package are a 10ft video cable (part number 68200274AA) and a user mountable camera (part number 56038978AF). Also, a 30ft. cable is available for purchase from Mopar. It is part number 68239372AA. The camera output will be viewable either via video pane in the rear view mirror, or a video screen in the radio, depending on the vehicle options.

This Jumper-Camera kit is packaged within the up fitter bag located behind the driver's seat (items in bag are separate).
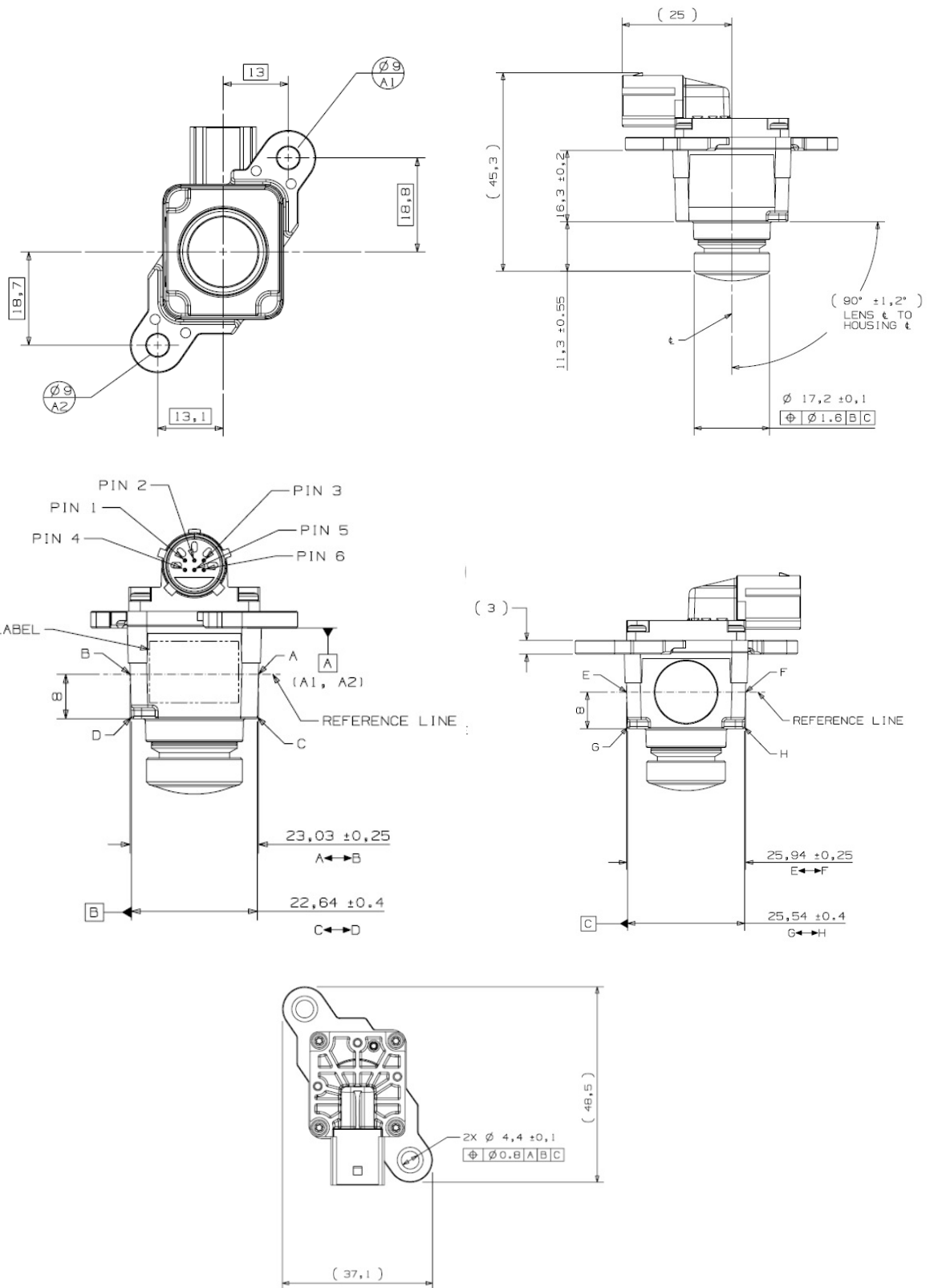
Loose Ship Park Assist and Park View System

To install, first remove the video cable and the camera from the upfitter bag, extend the cable to locate both end-connectors. Install the *white* connector from jumper onto the camera connector mate as shown in the pictures. A 'click' will be heard when a secure connection has been achieved.
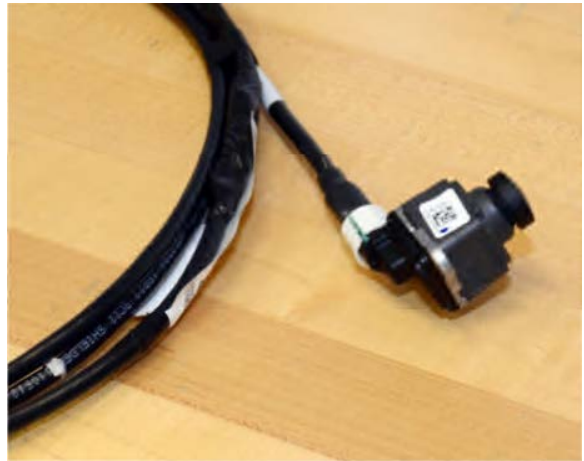
Route the video cable as desired, taking care to prevent in-use impact/abrasion damage. Add a protective covering (such as convolute) if prudent. Secure the cable (using clips/straps) often in its routing path. Install the *black* connector onto its chassis harness mate, located at the rear of the vehicle. (See photo on page 1) A 'click' will be heard when a secure connection is achieved. The following page has mechanical drawings of the camera.

Loose Ship Park Assist and Park View System

(25)

13

Ø 9
A1

45,3

16,3 ±0,2

18,8

18,7

11,3 ±0,55

Ø 9
A2

13,1

(90° ±1,2°)
LENS ₵ TO
HOUSING ₵

Ø 17,2 ±0,1
⌖ | Ø1.6 | B | C

PIN 2
PIN 1   PIN 3
PIN 4   PIN 5
              PIN 6

A

LABEL

B
8
D

A
(A1, A2)

REFERENCE LINE

C

(3)

E   F
8
G   H

REFERENCE LINE

B

23,03 ±0,25
A ◄►B

22,64 ±0.4
C ◄►D

C

25,94 ±0,25
E ◄►F

25,54 ±0.4
G ◄►H

(48,5)

2X Ø 4,4 ±0,1
⌖ | Ø0.8 | A | B | C
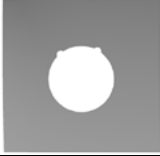
(37,1)

2/18/15

ParkSense System Upfitter Guide

PLEASE READ COMPLETELY BEFORE ATTEMPTING

INSTALLATION/REMOVAL

1   Overview

Beginning in the 2016 model year, Ram cab chassis can be ordered with a front and rear ParkSense system (sales code XAG) or a rear only ParkSense system (sales code XAA). Rear only ParkSense is available starting in the 2015 model year. The ParkSense system uses sound waves to detect nearby obstacles in and near the path of the vehicle to help you maneuver in tight spaces at parking speeds. Audiovisual indicators alert you to the proximity of most larger, stationary objects that might be outside your line of sight.

If a cab chassis is equipped with a ParkSense front and rear or rear only system, the customer is responsible for installing the sensors and mounting hardware that comprises the rear system. The in-cab controls, chassis wiring, and front sensors have been factory installed. A kit containing all required hardware for the rear system installation is provided and can be found in the cab of the vehicle. Once located, take an inventory of the kit's contents to confirm it is complete before installation. **Table 1** below details the kit's content and should be used for reference.

Table 1: Rear ParkSense Kit Contents			
Quantity	Part Number	Description	Picture
4	1EW63TRMAA	Sensor	
4	04806229AA	Decoupling ring	
4	1JK80TRMAA	Retainer	
4	68240744AA	Mounting Plate	
1	68299335AA	Wiring Harness	

2   Rear ParkSense System

2.1   System as Delivered

Since rear ParkSense is not installed from the factory, a vehicle scan preformed at a dealership with a diagnostic tool will show the ParkSense sensors as disconnected and the indicator light on the rear ParkSense button (**Figure 11**) located within the center stack, will be illuminated indicating the system is disabled. Additionally, if the rear ParkSense button is pressed with the sensors disconnected the indicator light will flash briefly and return to its illuminated state.

Cab chassis' ordered with a rear only system will have no cluster pop up or ParkSense related tones until the rear sensors are installed. Those ordered with front and rear ParkSense will have cluster pop ups and tones related to the front sensors only when the vehicle is in reverse (**Figure 9**) and while the driving forward at low speeds.

2.2   Rear Sensor Placement

The sensors provided for a rear ParkSense system are only intended to be mounted on the rear of the vehicle per the following installation instructions; they cannot be used in any other orientation or function.

In order for the ParkSense system to work properly, the sensors should remain between 42 and 81 centimeters from the ground at all times while the vehicle is in use. If the sensors are below 42 centimeters, the system may falsely detect the ground as an obstacle. Whereas the higher the sensors are mounted above 81 centimeters, the taller an object must be for it to be detected. To help the installer determine a mounting height **Appendix A** provides a reference of frame rail height to ground at curb and GAWR (Gross Axle Weight Rating) for all chassis cabs. This frame rail height must be measured above the axle and not at the end of the frame.

If the installer of the rear system cannot guarantee that the sensors remain in the 42-81 centimeter range, then it is the installer's responsibility to ensure that the ParkSense system will meet the requirements of their customer.

The sensors should be placed in a straight horizontal line across the back of the vehicle with two sensors 41.3 centimeters left and right of the vehicle's centerline and the other two sensors 76 centimeters left and right of the vehicle's centerline. The mounting depth between sensors cannot vary more than 10 centimeters. **Figure 1** visually represents the parameter window in which the sensors can be mounted.

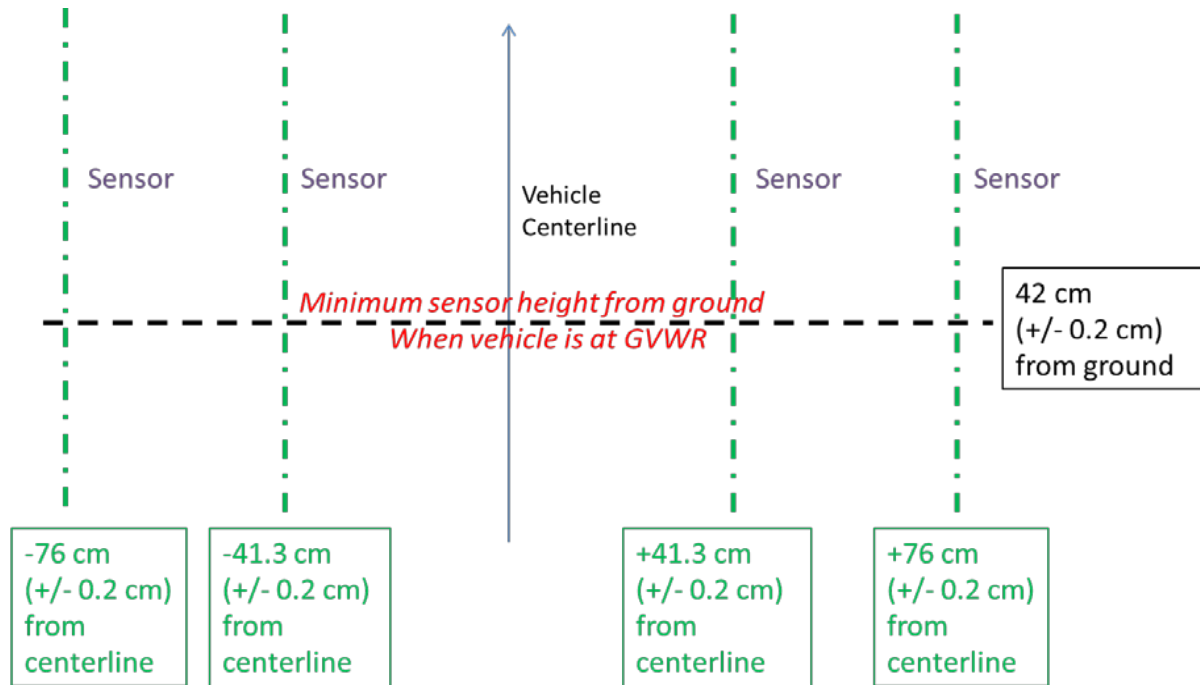**Figure 1: Parameter window in which ParkSense Sensors can be mounted**

Sensor   Sensor   Vehicle Centerline   Sensor   Sensor

Minimum sensor height from ground
When vehicle is at GVWR

42 cm
(+/- 0.2 cm)
from ground

| -76 cm (+/- 0.2 cm) from centerline | -41.3 cm (+/- 0.2 cm) from centerline | +41.3 cm (+/- 0.2 cm) from centerline | +76 cm (+/- 0.2 cm) from centerline |

Figure 2 and **Figure 3** along with **Table 3 & 4** show the sensor's vision field in red which must remain clear of obstructions. Whereas the green regions can have obstructions present that the ParkSense sensor will not detect. If an obstruction falls within the field of view, the sensors will continuously report the obstruction and the chime will sound.
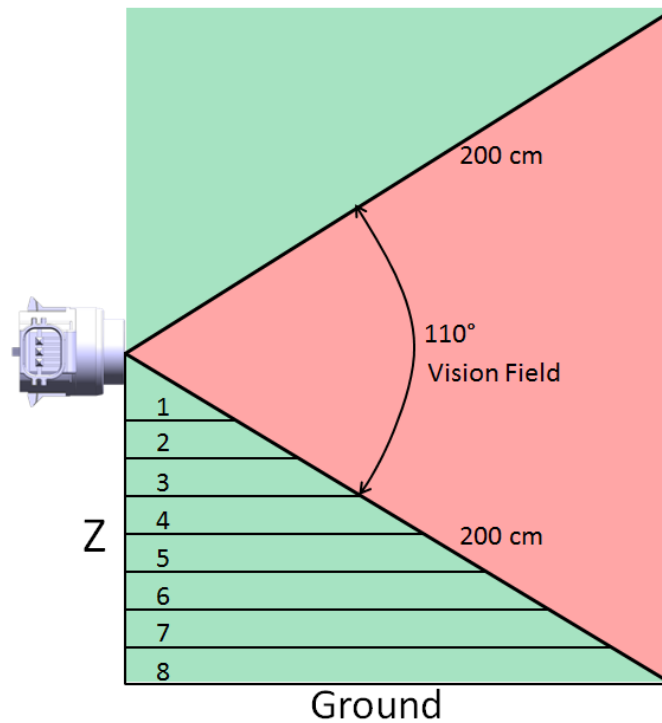

Figure 2: ParkSense's Vertical Vision Field – Side View

Table 3. Dimensions for Figure 3		
Position	Distance Along Z from Sensor (cm)	Distance from Vision Field Back to Sensor Face Z (cm)
1	20	14
2	40	28
3	60	42
4	80	56
5	100	70
6	120	84
7	140	98
8	164	114.8
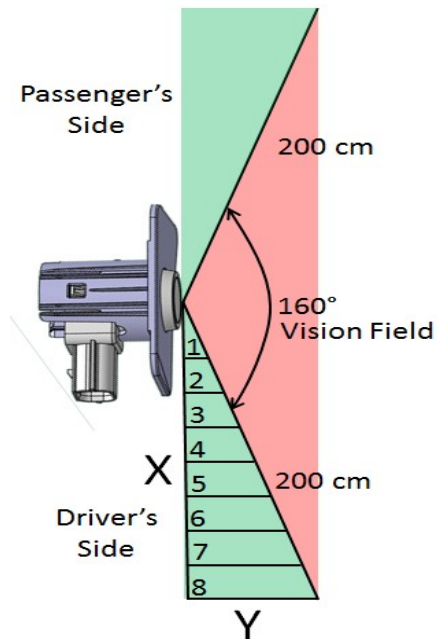
Figure 3 :ParkSense Horizontal Vision Field – Top View

Table 4. Dimensions for Figure 4		
Position	Distance Along X from Sensor (cm)	Distance from Vision Field Back to Sensor Face X (cm)
1	25.00	4.400
2	50.00	8.800
3	75.00	13.200
4	100.00	17.600
5	125.00	22.000
6	150.00	26.400
7	175.00	20.900
8	196.00	34.7

2.3   Steel Coupon Attachment

When deciding upon a location to mount the sensor and coupon on the back of the vehicle it is critical that the sensor bezel mounts perpendicular to the ground as shown in **Figure 4**. If this requirement is not met, the sensor's vision field shown in **Figure 2** will be skewed and the ParkSense system's performance will not be optimal.
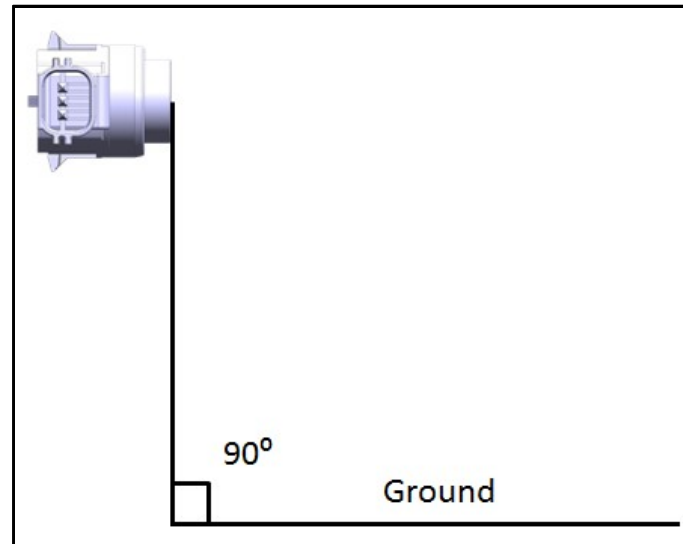
Figure 4: Sensor Mounting Requirement with Ground

While attaching the coupon to the vehicle it is important to make sure that the index keying in the mounting coupon is at the top of the mounting coupon. Once the retainer clip, sensor and O ring are inserted into the coupon, the clip and sensor should have a slight angle downward towards the ground plane.

Figure 5 demonstrates a proper installation. If the index keying is on the bottom side of the coupon as seen in **Figure 6**, the sensor will face upwards when installed and the system's ability to detect obstacles closer to the ground will be degraded.

Figure 5: Correct Coupon and Sensor Mounting

Ground Plane

Ground Plane

Figure 6: Incorrect coupon and Sensor Mounting

The use of the steel coupon is not mandatory. However, if the coupon is not used, please follow the dimensions outlined in **Figure 7** to reproduce the required hole and keying for the ParkSense bezel in the body. If the coupon is used, it is recommended that a surface treatment be applied before and/or after mounting, but prior to sensor installation, to prevent corrosion.
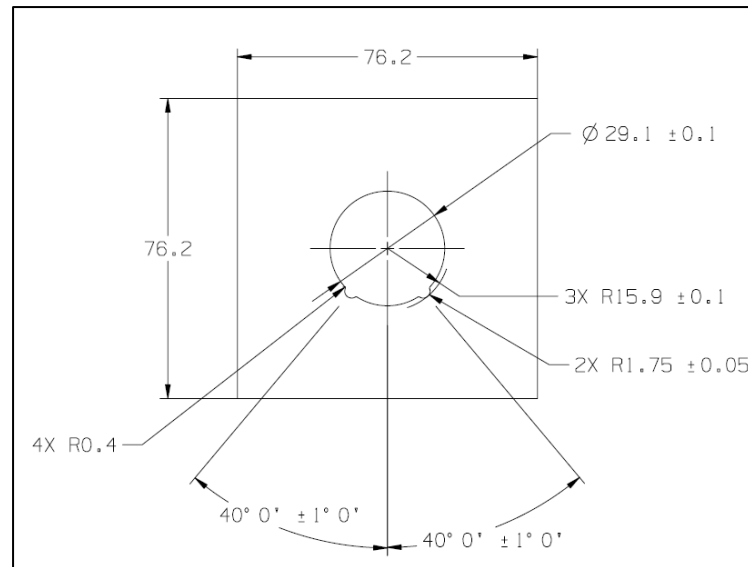
Figure 7: Body Bezel Hole Dimensions in Millimeters

2.4 Wiring

With the four sensors installed onto the body, plug the sensors into the wiring harness. The 6 pin connector must be plugged into the factory installed connector which is located between the frame rails. **Figure 8** shows the physical location of the factory connector. Depending on option content, there may be 1 or 2 connectors in this area which are capped. The sensor harness will only mate with the connector which has the male connector on the vehicle side (plug and sensor harness connector will be female). Once everything is connected make sure the wires are secured and nothing is hanging loose that could be snagged.

Figure 8: Factory ParkSense Connector Location

Finally, it's important that the sensors are wired in the proper order. Sensor assignment can be assured by matching the appropriate wire color to the proper sensor location using table 5.

Table 5: Rear Sensor Wire Color Assignment		
Function	**Color**	**Sensor Location**
Sensor Shared Ground	Grey/Blue	All
Sensor Shared Power	Grey/Orange	All
Sensor 8 Signal	White/Blue	Right Outer
Sensor 9 Signal	White/Orange	Right Inner
Sensor 10 Signal	White/Dark Green	Left Inner
Sensor 11 Signal	White	Left Outer

3   Front ParkSense System

3.1   System as Delivered

Cab chassis ordered with a front and rear ParkSense system will come delivered with the front sensors installed. There is nothing that the customer needs to do to begin using the front park sensors. The indicator light on the front ParkSense button will be off indicating the system is functional. If desired, object detection notifications can be mitigated by pressing the front button, causing the light to become illuminated. The front sensors are active any time the vehicle is in reverse and also during low speed maneuvers while the vehicle is traveling forward. The graphics that will display in the instrument cluster with only the front system installed can be seen in **Figure 9**.

Figure 9: Instrument Cluster Graphic For With Only Front Sensors Installed (Highline Cluster Left – Midline Cluster Right)

3.2   Removal

Removal of the front ParkSense system is supported on Ram cab chassis'. See Section 4.3 for details.

3.3 Wiring

Table 6 is provided for reference should modification of the front harness need to take place.

Table 6: Front Sensor Wire Color Assignment		
Function	**Color**	**Sensor Location**
Sensor Shared Ground	Grey/Blue	All
Sensor Shared Power	Grey	All
Sensor 1 Signal	White/Yellow	Left Outer
Sensor 2 Signal	White/Tan	Left Center
Sensor 3 Signal	White/Orange	Left Inner
Sensor 4 Signal	White/Blue	Right Inner
Sensor 5 Signal	White/Green	Right Center
Sensor 6 Signal	White/Brown	Right Outer

4 General System Information

4.1 Front or Rear System Activation and Deactivation

With the ignition in run position and the vehicle in park, access "Commercial Settings" within the instrument cluster using the steering wheel controls. If the vehicle is equipped with 3.5" screen in the instrument cluster "Commercial Settings" will be found within the "Vehicle Settings" menu. If the vehicle is equipped with a 7" screen in the instrument cluster "Commercial Settings" is a standalone option within the instrument cluster. Once inside "Commercial Settings", enter your unique four digit pin (default is 0000) and select "ParkSense Setup". Following the logic outlined in **Figure 10** and select that the appropriate sensor set is installed or uninstalled. Once the setting has been changed, turn the key to the off position, wait until the instrument cluster screen turns off, and then key back on.
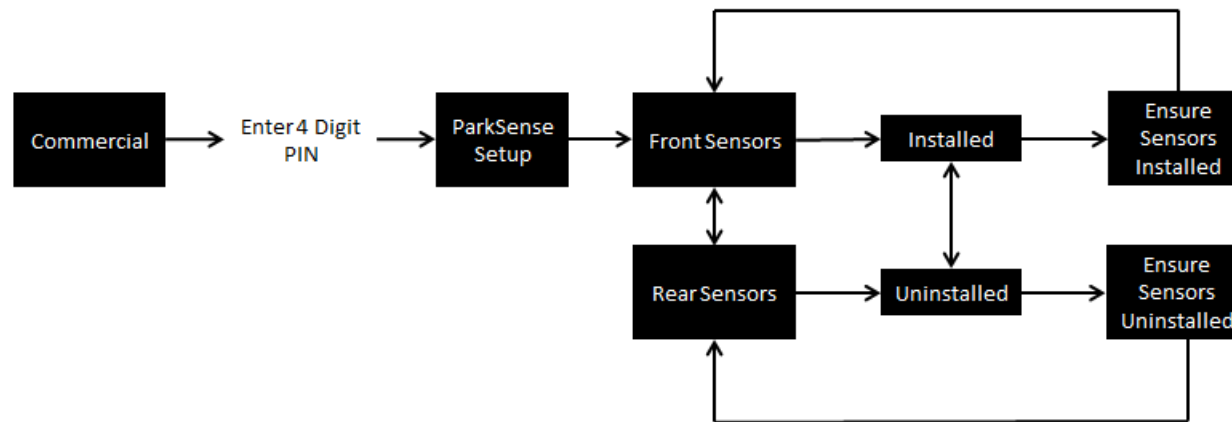
Figure 10: Instrument Cluster Logic Flow

Starting in 2016 model year, the vehicle can auto detect the installation of either the front or rear system. For auto detection to occur, the sensor set being installed must detect and obstacle. Before proceeding, ensure your sensors are installed via the instructions in sections 2.2, 2.3, and if applicable, 3.3. Next place an obstacle within 2.5 meters of a newly installed sensor. With the park brake applied, ignition in run, shift the vehicle to reverse. If the sensors were installed correctly and the object is detected, the system will auto enable.

Note: If ParkSense sensors are installed but the system is not enabled in the cluster, you may still hear tones from the radio.

4.2   Validation of an Installed ParkSense System

Once installation is complete, please follow the four basic steps outlined below to confirm that the ParkSense system has been installed correctly. Ultimately these four steps provide a basic functionality check and it is the installer's responsibility to confirm that the ParkSense system functions properly.

1. With no obstructions behind the vehicle for at least 2.5 meters, engine off, ignition in run and park brake fully engaged, shift the vehicle into reverse and confirm that the ParkSense indicator light goes off if it wasn't already and that the ParkSense system does not detect an object (no chimes and no bars behind vehicle displayed in instrument cluster), **Figure 13**.

(Indicator off)

Button (Indicator On)

If the indicator light remains lit as shown in **Figure 11**, press the button and pay attention to the response. If a faulted condition exists, for example a sensor was not plugged in, the light will flash and remain lit. If the light goes out, restart this test.

If the system detects obstructions behind the vehicle (audio chime(s) and bar(s) behind vehicle displayed in instrument cluster **Figure 14**), verify that there are no obstructions within 2.5 meters of the rear of the vehicle. If no obstructions are present, review sensor installation to ensure sensors are installed within the guidelines provided.

Note: If the ParkSense system has been configured as installed in the commercial menu and chimes are heard, it is possible that the ParkSense system is configured in "sound only" mode. See the Section 4.4 titled "Enabling ParkSense Popups".

Figure 13: Instrument Cluster Graphic with no obstructions detected
(Highline Cluster Left – Midline Cluster Right)

2. With the vehicle back in park, place a sizable object 1 meter away from the sensors centered behind the vehicle. The minimum object size is a 1 meter high pole 10 cm in diameter. With an object now behind the vehicle, park brake on, put the vehicle in reverse, and confirm that the ParkSense system detects the object upon entering reverse gear. The graphic in the instrument cluster should now have bars behind it, **Figure 14**, and an audible chime should be heard.

Figure 14: Cluster Graphic with object detected
(Highline Cluster Left – Midline Cluster Right)

3. With the object still detected, put the vehicle in park and press the appropriate ParkSense button (front or rear). Watch for the indicator light on the ParkSense button **Figure 11** to illuminate and the instrument cluster to display "ParkSense Off" **Figure 15**. Now shift the vehicle back into reverse and confirm that **Figure 15** is shown in the instrument cluster. Once confirmed, put the vehicle back in park and press the button again to turn ParkSense back on.
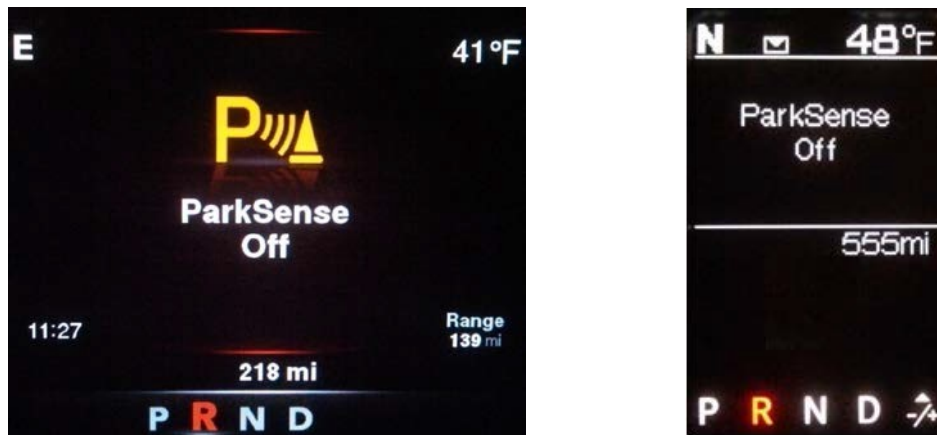

Figure 15: Cluster Image for ParkSense Off

4. In order for the vehicle to run an internal diagnostic check on the ParkSense System, a short test drive reaching a vehicle speed of at least 25 mph is required. Once complete and before keying the vehicle off, check the ParkSense button in the center stack to make sure the indicator light is not illuminated (**Figure 12**). If the indicator light is illuminated (**Figure 11**) an active fault in the ParkSense System may be present. To confirm the ParkSense button was not accidentally pressed at some point, press the ParkSense button. If the indicator light turns off, the system is working, you ParkSense validation is complete. If the indicator light blinks for a few seconds and then remains on, a fault is present that must be diagnosed and fixed before the system will be functional.

4.3 Removal of a ParkSense System

If you decide to remove the ParkSense system, simply unplug the sensor harness from the body wiring harness and reinstall the cap back into the body side connector to protect it from corrosion. Next, go into "Commercial Setting" and select that the ParkSense sensors are not installed. See "Activating ParkSense" for instructions for changing this setting. If the ParkSense sensors are not deactivated within the cluster, upon start-up and every time the vehicle is put into reverse, a "Service ParkSense" message will appear within the cluster.

Note: There is no auto detection process for removing sensors like there is for installing them. You must disable the appropriate system in the Commercial Setting menu.

4.4 Enabling ParkSense Popups

If when validating the ParkSense system, it was found that the no instrument cluster pop-ups were occurring, then it may be possible that the system has been configured for "Sound only" mode. This section describes how to re-enable the pop-ups if desired.

If the vehicle is equipped with a non-touch screen similar to the radio pictured in **Figure 16** (RA1 or UA1 sales code), then the settings to enable ParkSense popups can be found in the instrument cluster. Otherwise the popup configuration will be done in the settings menu found in the radio. A menu flow chart for both situations is provided in **Figure 17**.

Figure 16: Non-Touchscreen RA1 Radio

Non-touch Screen Radio Flow (RA1 radio)

Instrument cluster - - - → Settings → ParkSense → Notification → Sound & Display
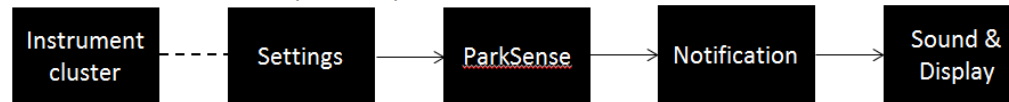
Touch Screen Radio Flow (RA2, RA3, RA4 radio)

Radio - - - → Settings → Safety & Driving Assistance → ParkSense → Sound & Display
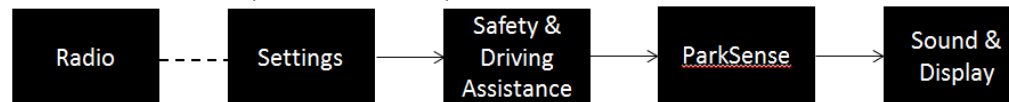
Figure 17: Sound & Display Configuration Flow Chart

Appendix A: Frame Rail to Ground Plane Height Chart

Class	Configuration	Wheelbase	Rear Wheel Configuration	Tire Size	Top of Rear Frame to Ground Dimension		Delta (Curb - GAWR)
					Curb Load (cm)	GAWR Load (cm)	
3500	Regular cab 60" CA	143.5	SRW	LT265/70R18E (TTV)	86.7	74.6	12.1
	Regular cab 60" CA		DRW	LT235/80R17E (TPY)	86.1	71.9	14.2
	Regular cab 84" CA	167.5	DRW	LT235/80R17E (TPY)	85.6	71.8	13.8
	Crew cab 60" CA	172.4	SRW	LT265/70R18E (TTV)	86.2	74.6	11.6
	Crew cab 60" CA		DRW	LT235/80R17E (TPY)	85.5	71.2	14.3
4500	Regular cab 60" CA	144.5	DRW	225/70R19.5 F	92.1	79.3	12.8
	Regular cab 84" CA	168.5	DRW	225/70R19.5 F	91.6	79.9	11.7
	Regular cab 108" CA	192.5	DRW	225/70R19.5 F	91.5	80.3	11.2
	Regular cab 120" CA	204.5	DRW	225/70R19.5 F	91.4	80.3	11.1
	Crew cab 60" CA	173.5	DRW	225/70R19.5 F	91.2	79.4	11.8
	Crew cab 84" CA	197.4	DRW	225/70R19.5 F	91.3	79.4	11.9
5500	Regular cab 60" CA	144.5	DRW	225/70R19.5 F	92.0	79.3	12.7
	Regular cab 84" CA	168.5	DRW	225/70R19.5 F	91.5	79.9	11.6
	Regular cab 108" CA	192.5	DRW	225/70R19.5 F	91.1	80.3	10.8
	Regular cab 120" CA	204.5	DRW	225/70R19.5 F	93.9	84.2	9.7
	Crew cab 60" CA	173.5	DRW	225/70R19.5 F	91.3	79.4	11.9
	Crew cab 84" CA	197.4	DRW	225/70R19.5 F	90.9	79.4	11.5