

INSTALLATION INSTRUCTIONS

Rear Vision System – Mirror Display 2009-Current Dodge Ram (Kit part number 1009-9517)

Kit Contents:

- Chassis (longer) Harness
- Endgate Handle with Camera
- 1 bag containing:
 - Wire Ties (Qty: 17)
 - Bottle of ZTech (in a white bottle)
 - Plug for Non-Locking Endgates (Optional)
- Inside Rear View Mirror
- Interior (shorter) Harness
- 1 bag containing:
 - Template (along with these instructions)

Tools Required:

- Socket Wrench
- Sockets 8mm, 10mm, ½in
- Torx Bits, T20 and T30
- Flat Head Pocket Screwdrivers
- Drill Motor
- Drill Bits
- 1" Hole cutter
- Pushpin removal tool
- Soldering Iron
- Solder
- Wire Strippers
- Wire Cutters
- Deburring Tool
- Center Punch
- Heat Shrink or Electrical Tape
- Plastic Trim Tool

Note: An installation video of this product can be accessed at www.brandmotion.com.

INSTALLATION INSTRUCTIONS

1. Loosen the screw that attaches the existing rear view mirror to the windshield mounting button with a T20 Torx driver. (Figure 1)

Figure 1



2. Slide the mirror upwards and towards the rear to remove it from the windshield.
3. Open the hinged cover on back of the mirror and disconnect the existing harness connector. (Figure 2)

Figure 2



4. Remove the overhead console by releasing the retention clips on the back of the unit, then pulling it rearward. (Figure 3)

Figure 3



5. Remove the driver's side sun visor anchor using a T20 Torx driver. (Figure 4)

Figure 4



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6. Remove the driver's side sun visor using a 8mm socket. (Figure 5)

Figure 5



7. Remove both bolt covers on the drivers side A-Pillar using a flat head pocket screwdriver. Insert the screwdriver into the gap between the bolt cover and A-Pillar cover. Gently pry the bolt cover away from the A-Pillar cover while being careful not to damage the trim. (Figure 6)

Figure 6



8. Remove A-Pillar bolts with a 10mm socket, and then remove the A-Pillar cover by shifting it away from the A-Pillar with your hands. (Figure 7)

Figure 7



9. Remove the driver's side end of dash cover by gently prying it away from the dashboard using a plastic trim tool. Be careful not to damage the trim. (Figure 8)

Figure 8



INSTALLATION INSTRUCTIONS

If your vehicle IS equipped with a uConnect and/or auto-dimming mirror follow step 10. If your vehicle IS NOT equipped with uConnect and/or auto-dimming mirror, skip this step and continue on to step 11.

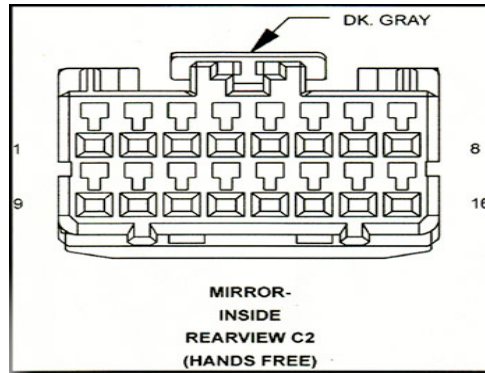
10. For vehicles equipped with an auto dimming mirror or an uConnect mirror, wire the supplied interior harness to the existing headliner harness using a soldering iron by following the next five steps (a, b, c, d, e) and diagrams A and B on the following two pages. (**Note:** Tape the three wires at the chassis end of the interior harness back using electrical tape, as they will not be used in this installation process.)
- a. Splice the black ground wire from the interior harness to the black/light green wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
 - b. Splice the green reverse wire from the interior harness to the white/light green wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
 - c. Splice the pink ignition wire from the interior harness to the pink/light green wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
 - d. Splice the orange wire from the interior harness to the tan/orange wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
 - e. Splice the white wire from the interior harness to the tan/white wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.

For vehicles equipped with uConnect, wire the microphone harness (supplied separately) to the existing headliner harness using a soldering iron by following the next three steps (f, g, h) and diagrams A and B on the following two pages.

- f. Splice the yellow open wire from the microphone harness to the dark blue wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
- g. Splice the black ground wire from the microphone harness to the black/light green wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.
- h. Splice the blue 12V positive wire from the microphone harness to the dark green/yellow wire from the existing mirror harness. Cover the connection with electrical tape or heat shrink.

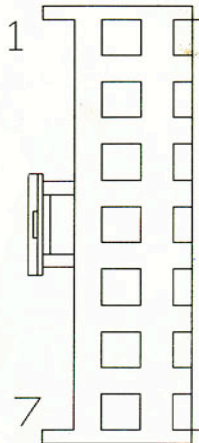
INSTALLATION INSTRUCTIONS

DIAGRAM A
Mirror With uConnect Pinout



PIN NO	FUNCTION	UCONNECT MIRROR	COLOR	TRACER COLOR
1	MICROPHONE 1 IN (+)	X	DG	LB
2	MICROPHONE IN (-)	X	DB	
3	MICROPHONE 2 IN (+)	X	LB	DG
8	GROUND	X	BK	LG
9	BACKUP LAMP FEED	X	WT	LG
10	SENSOR GROUND	X	OR	GY
13	FUSED IGNITION RUN/START CONTROL OUTPUT	X	PK	LG
14	AUTO DAY/NIGHT MIRROR (+)	X	TN	OR
15	MICROPHONE FEED	X	DG	YL
16	AUTO DAY/NIGHT MIRROR (-)	X	TN	WT

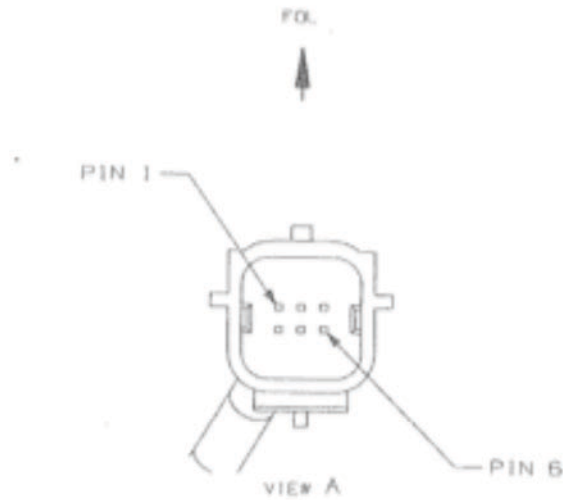
Mirror With Auto-Dimming Pinout



Pin Name	Circuit Name	Function	Gauge	Color	Tracer Color
1	F943	FUSED IGNITION RUN/START CONTROL OUTPUT	20	PK	LG
2	Z911	GROUND	20	BK	LG
3	L1	BACKUP LAMP FEED	18	WT	LG
4	P112	AUTO DAY/NIGHT MIRROR (+)	22	TN	OR
5	P114	AUTO DAY/NIGHT MIRROR (-)	22	TN	WT
6	N0				
7	N0				

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DIAGRAM B
Camera, Interior, and Chassis Harness Pinout



PIN NO	NAME	CAMERA HARNESS COLOR	CHASSIS HARNESS COLOR	INTERIOR HARNESS COLOR
1	Video Signal	Yellow	White	Gray/Dark Blue
2	Shield	White	Blue	White
3	Backup Lamp	Blue	Green	Green
4	Video Ground	Brown	Brown	Gray/Orange
5	Power Ground	Black	Black	Black
6	Ignition	Red	Red	Pink

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11. Route the supplied interior harness under leading edge of the driver's side headliner by gently separating the headliner from the windshield and tucking the interior harness into the gap with your fingers. (Figure 9)

Figure 9



12. Route the supplied interior harness down the driver's side A-Pillar and wire tie it to the existing wires using three wire ties. (Figure 10)

Figure 10



13. Route the supplied interior harness through the A-pillar opening. (Figure 11)

Figure 11



14. Route the supplied interior harness connector and wires behind the green left headliner connector in the cavity that was exposed by removing the driver's side end of dash cap. Wire tie the supplied interior harness to existing wires using one wire tie (Figure 12).

Figure 12



15. Install the supplied mirror by placing the mirror mount over the windshield mounting button and sliding it forward. Use a T20 Torx driver to tighten the screw on the mirror mount.
16. Plug the supplied interior harness connector into the back of the supplied mirror.

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17. Reinstall the overhead console by sliding the tabs on the front of the console into the headliner then pushing the tabs on the back of the unit straight up into the headliner.
18. Reinstall the sun visor using a 8mm socket.
19. Reinstall the sun visor anchor using a T20 Torx driver.
20. Remove the front driver's side kick panel/sill plate by lifting it at the rear and working your way forward with your hands. (Figure 13)

Figure 13



21. Remove the rear drivers-side sill plate by lifting it at the front and working your way back with your hands. (Figure 14)

Figure 14



22. Lift the driver's side rear seat to expose the under seat storage compartment. Pull three pushpins out of the driver's side rear seat storage compartment using a pushpin removal tool (Figure 15). Pull back the carpeting and remove the body floor plug, then clean off excess caulking on the floor to ensure the supplied chassis harness grommet will seat properly. (Figure 16)

Figure 15



Figure 16



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23. Insert the rear connector of the supplied chassis harness into the hole in the floor pan of the under seat storage compartment. (Figure 17)

Figure 17



24. Seat the grommet affixed to the supplied chassis harness in the hole in the floor pan of the under seat storage compartment by firmly pressing it with your fingers. (Figure 18)

Figure 18



25. Route the front connector of the supplied chassis harness through the seat riser reinforcement hole. (Figure 19)

Figure 19



26. Reinstall carpet and reinstall three pushpins that were removed earlier.
27. Route the supplied chassis harness around the B-Pillar trim by lifting up on the trim and feeding the wiring harness through to the front. Continue to route the chassis harness along the driver's side front door opening sill area. (Figures 20 & 21) **Note:** This will be a tight fit, as the supplied chassis wiring harness will run next to the truck's existing wiring harness.

Figure 20



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Figure 21



28. Reinstall rear sill plate by pressing it back into place with your hands.
29. Remove drivers-side kick panel insulation pad retainers using a pushpin removal tool. Route the supplied chassis harness behind the insulation (between insulation and metal frame) then reinstall the insulation. (Figure 22)

Figure 22



30. Reinstall the front kick panel/sill plate by pressing it back into place with your hands.
31. Remove the green lock tab from the chassis harness front connector by inserting the tip of a screwdriver between the lock tab and connector and prying the tab out.

32. Connect the supplied chassis harness and the supplied interior harness. (Figure 23)

Figure 23



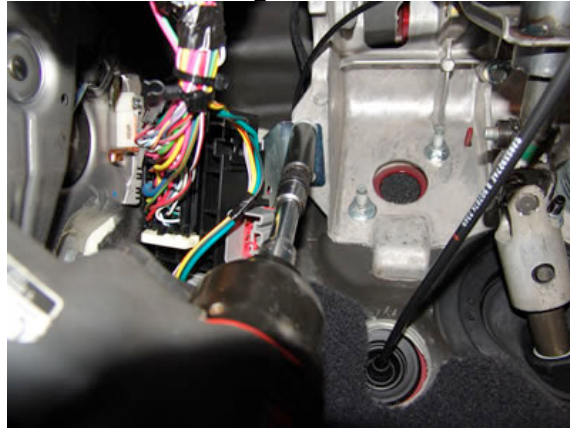
33. Reinstall the green locking tab.

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If your vehicle IS NOT equipped with a uConnect mirror and not equipped with an auto-dimming mirror follow step 34. If your vehicle IS equipped with uConnect or auto-dimming mirror, skip this step and continue on to step 35.

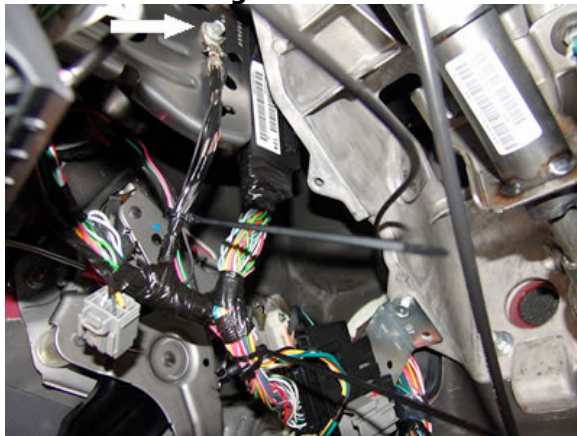
34. Wire the supplied interior harness to the existing instrument panel connector using a soldering iron by following the next five steps (a, b, c, d, e) and diagram C on the following three pages. (**Note:** Tape the three wires at the mirror end of the interior harness back using electrical tape, as they will not be used in this installation process.)
- Remove the instrument panel connector mounting bracket using a ½in socket to access the fixed end of the connector for electrical splicing. (Figure 24)

Figure 24



- Remove the bolt that attaches the existing ground wires to the instrument panel ground under the driver's side dashboard. Attach the black ground wire from the interior harness to the instrument panel by putting the bolt through the connector on the wire and reinstalling the bolt into the instrument panel. Be sure to leave existing ground wires attached to the bolt. (Figure 25)

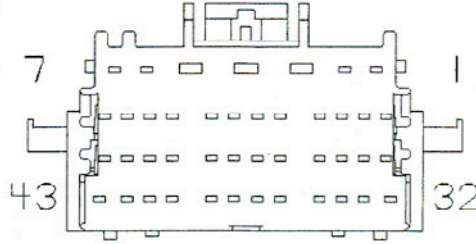
Figure 25



- Splice the pink wire from the supplied interior harness to the pink and light green wire from cavity 16 on the fixed end the instrument panel connector. Cover the connection with electrical tape or heat shrink.
- Splice the green wire from the supplied interior harness to the white and red wire from cavity 7 on the fixed end of the instrument panel connector. Cover the connection with electrical tape or heat shrink.
- Wire tie the interior harness to existing wiring using two ties as shown in figure 25. Reinstall instrument panel connector bracket using a ½in socket.

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DIAGRAM C
Instrument Panel Connector Pinout



Pin Name	Circuit Name	Function	Gauge	Color	Tracer Color
1	A412	FUSED B(+)	18	RD	
2	A108	FUSED B(+)	20	LG	RD
3	A116	FUSED B(+)	14	YL	RD
4	C7	BLOWER MOTOR SUPPLY	10	DB	
5	A207	FUSED B(+)	18	RD	LC
6	F306	FUSED IGNITION RUN/ACCESSORY CONTROL OUTPUT	18	DB	PK
7	L1	BACKUP LAMP FEED	16	WT	RD
8	N0				
9	A106	FUSED B(+)	22	LB	RD
10	F201	FUSED IGNITION RUN/START CONTROL OUTPUT	20	PK	OR
11	A417	FUSED B(+)	22	RD	WT
12	A128	ADJUSTABLE PEDALS MOTOR DRIVER	20	RD	OR
13	F921	FUSED IGNITION RUN CONTROL OUTPUT	22	PK	YL
14	A901	FUSED B(+)	22	RD	PK
15	N0				
16	F943	FUSED IGNITION RUN/START CONTROL OUTPUT	20	PK	LG
17	A909	FUSED B(+)	20	RD	GY
18	L91	HAZARD SWITCH SENSE	22	WT	BR
19	L51	BRAKE LAMP SWITCH OUTPUT	20	WT	
20	D01	CAN C BUS (-)	22	WT	LB
21	N0				
22	L14	CARGO LAMP DRIVER	22	WT	TN
23	X205	LEFT REAR SPEAKER (+)	18	GY	LG
24	X201	LEFT FRONT SPEAKER (+)	18	CY	VT
25	C91	HEATED STEERING WHEEL FEED	20	DB	LG
26	C986	HEATED STEERING WHEEL RETURN	20	GY	DB
27	F100	FUSED IGNITION RUN CONTROL OUTPUT	20	PK	VT

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Pin Name	Circuit Name	Function	Gauge	Color	Tracer Color
28	N0				
29	F041	IGNITION RUN/START CONTROL OUTPUT	22	PK	
30	N0				
31	N0				
32	N0				
33	D52	CAN C BUS (+)	22	WT	LG
34	B25	PARK BRAKE SWITCH SENSE	22	DG	WT
35	X295	LEFT REAR SPEAKER (-)	18	GY	DG
36	X291	LEFT FRONT SPEAKER (-)	18	GY	YL
37	D71	DIAGNOSTIC CAN C (-)	22	WT	DB
38	D72	DIAGNOSTIC CAN C (+)	22	WT	DG
39	F20	IGNITION RUN/START CONTROL OUTPUT	22	PK	WT
40	R57	DRIVER SEAT BELT BUCKLE SWITCH SENSE	20	LG	GY
41	R59	DRIVER SEAT BELT BUCKLE SWITCH GROUND	20	LG	TN
42	N0				
43	N0				

35. Reinstall the end of dash cap by placing it on the end of the dashboard and firmly pressing it into place with your hands.
36. Reinstall the A-Pillar cover by sliding it into place and using a 10mm socket and bolts that were removed earlier, then reinstall the bolt covers.
37. Route the chassis harness behind the rear cab mount and out to the inside of the vehicle. Wire tie the chassis harness in between the cab and bed mount using one wire tie. (Figure 26)

Figure 26



38. The supplied chassis harness continues on to follow the existing wiring harness along the inside edge of the frame rail. Wire tie the supplied chassis harness to the existing wiring harness using nine wire ties.

39. Once the chassis wiring harness has been routed to the back of the bed, coil and wire tie any excess length on the harness. (Figure 27)

Figure 27



INSTALLATION INSTRUCTIONS

40. Use the retention clip on the bridge connector at the end of the chassis wiring harness to attach the connector to the frame rail of the bed. Tuck the coil of excess harness above the spare tire. (Figure 28)

Figure 28



41. Set up a work area for the endgate after removal. This area should be well protected so the endgate paint does not receive any damage.
42. Unhook both endgate support straps by inserting a flat head pocket screwdriver between the locking tab and strap mount. Lift the locking tab away from the strap mount with the screwdriver while sliding the endgate strap upwards. The endgate strap hanger can now be removed from the mount. (Figure 29)

Figure 29



43. Open the endgate about ten degrees and lift the right side of the endgate off of the pin. Then slide the endgate to the right to remove, being careful not to damage the paint. **Note:** The endgate removal and installation will take two people to perform.
44. Remove the handle access panel on the inside of the endgate using a T30 Torx driver. (Figure 30)

Figure 30



45. Apply the supplied template to the endgate. An existing small rectangular hole in the center of the endgate will match up with the left side of the template. Center punch the endgate at the "X" on the template, then remove the template from the endgate. (Figure 31)

Figure 31



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46. Drill a starter hole at the center punch mark. Then use a hole cutter to cut a 1" hole in the endgate. (Figures 32 & 33). Clean the rough edges using a deburring tool.

Figure 32



Figure 33



47. Remove lock rod retainers by unclipping the red tabs with your fingers (Figure 34). Remove the nuts attaching the handle to the endgate using a 8mm socket, and then remove the handle from the endgate. (Figure 35)

Figure 34



Figure 35



48. If equipped, remove the lock cylinder from existing handle and remount the cylinder in the supplied handle using a 8mm socket. (Figures 36, 37 and 38) **Note:** If the existing handle is not equipped with a lock, install the provided plastic plug into the lock opening.

Figure 36



INSTALLATION INSTRUCTIONS

Figure 37

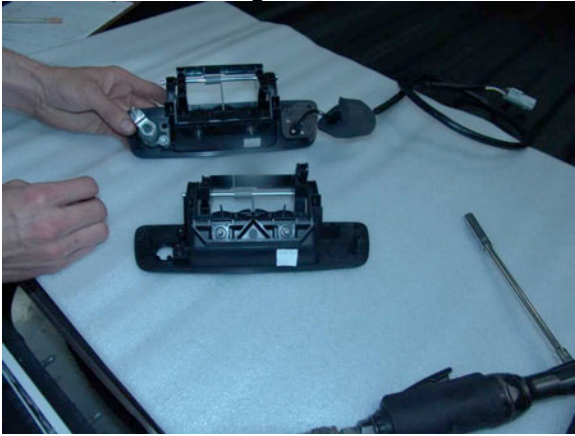


Figure 38



49. Route the camera connector and wiring harness through the endgate and install the supplied handle using a 8mm socket and the existing hardware. (Figure 39)

Figure 39



50. Reinstall the handle bolts.
51. Reinstall the linkage rods and close the red tabs around them using your fingers. (Figure 40)

Figure 40



52. Route the supplied camera harness through the pass-through hole in the inner brace of the endgate. (Figure 41)

Figure 41



INSTALLATION INSTRUCTIONS

53. Route the wiring harness through the 1" hole that was cut using the supplied template. (Figure 42)

Figure 42



54. Apply corrosion protection (ZTech) to 1" hole that was cut using the supplied template. (Figure 43)

Figure 43



55. Seat the grommet affixed to the camera harness into the 1" hole by firmly pressing it with your fingers. (Figure 44)

Figure 44



56. Reinstall the handle access panel on the inside of the endgate using a T30 Torx driver and the existing hardware.

57. Feed the wiring harness through the rectangular hole in the back of the truck bed. (Figure 45)

Figure 45



58. Reinstall the endgate by lifting it into place, rotating it down about ten degrees and sliding it to the left.

59. Reinstall both endgate straps by placing the large opening of the endgate strap hangers over the endgate strap mounts and pulling down.

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60. Plug the camera wiring harness connector into the chassis wiring harness connector.
(Figure 46)

Figure 46



61. Start the vehicle and put it into reverse in order to check that all connections were made properly. If all of the connections are correct you will see an image displayed on the left side of the supplied mirror.