



# BLACKBIRD INSTALLATION SUPPLEMENT



FOR 2010-11 DODGE 3500-5500  
6.7 LITER CUMMINS DIESEL  
VERSION 1/11



Parts		
	Blackbird Wiring Manual	
	Installation Supplement Dodge 6.7 liter Diesel	
	Owner's Manual	Includes Warrantee Registration
	Generator Bracket	With idlers and tensioner
	Lower bracket support block	Aluminum
	Fasteners	(2) M12 x 30mm w/ flat washer (2) M10 x 25mm flat head
	Upper bracket support block	Aluminum
	Fasteners	(4) M10 x 40mm w/ flat washer
	Upper bracket brace	Steel
	Fasteners	(3) M10 x 25mm w/ flat washer
	Crankshaft Pulley	8 1/2"
	Fasteners	(4) M12 x 45mm w/ gr. 8.8 flat washers
	Pulley adapter	
	Fasteners	(3) M12 x 50mm w/ gr. 10.9 flat washers
	Cooling Fan Spacer	Steel- male/female thread
	Cooling fan clutch harness support bracket	Aluminum
	Fasteners	(4) 1/8" pop rivet
	Generator Belt	NAPA 25-060908 or equivalent
	Generator mounting bolts	(4) 3/8-16 x 3/4" flat head socket
	Generator Temporary Alignment Stud	3/8-16 x 1 1/4"
	Generator Clutch	3" 6-groove electric-Warner
	Clutch Key	3/16" x 1 3/4"
	Clutch bolt (1)	7/16"-20 x 2 1/4" w/ flat washer
	Windshield washer bottle lower bolt spacer	3/8" x 1 1/2" diameter
	Fuse block relocation bracket	Aluminum
	Fasteners	(2) M8 x 15mm w/ flat washer
	Ground Lead Fastener	(1) M8 x 15mm w/ flat washer
	Generator profile template	Plywood
	Electrical: Mechanical installers- forward these parts to the electrical department	
	Clutch electrical harness	16' Red/black
	Soft Start Module	



## General Instructions

This document contains mechanical installation instructions for the 3500-5500 Dodge truck with the 6.7 liter diesel engine. Contact Raven (207-721-1044) if more documentation is needed.

This installation requires a minimum engine RPM of 1200 to deliver the full output of the system. Beyond 1200 RPM generator output will be unaffected by changes in engine speed. Arrangements must be made for the engine to high idle when the generator is engaged.

- All installation steps must be completed before operating the system.
- Use Loctite 262 on all engine and bracket mounting bolts, except as noted.
- Refer to torque chart for torque specifications
- All hoses and wires moved or relocated during installation must be secured to prevent chafing and exposure to hot surfaces. At no time should wiring be secured to fuel or exhaust system components.

Care must be taken that any grounding straps, battery cables and battery feeds are reconnected in an appropriate manner if moved during installation.

	Torque-Ft.lbs		
Grade	5	8	8.8
Bolt Size			
1/4	9	12	
5/16	18	27	
3/8	35	40	
7/16	55	60	
1/2	80	90	
5/8	150	180	
8mm			19
10mm			41
12mm			69
14mm			104

## Special Tools (recommended but not required)

- Door panel removal tool (for fan shroud push pins) KD # 378672
- 36mm (1 1/2") open end wrench for fan
- Universal fan pulley holder KD # 3900
- Air saw for trimming plastic
- Right angle sander for trimming plastic cuts
- 1 1/2" hole saw
- 17/64" drill bit for OEM self threading bolts

## Preparing for Installation

1. Disconnect all negative battery terminals
2. Drain approximately 1 gallon of coolant to allow removal of the top radiator hose.
3. Remove top radiator shield (4 push pins)
4. Remove bottom radiator shield (4 push pins)
5. Remove two upper radiator mounting bolts and rubber isolators
6. Remove 3 fan shroud bolts, *and*
7. Temporarily remount the upper radiator directly (no rubber) to the cross member using two shroud bolts
8. Insert protective cardboard between the fan and the radiator
9. Remove upper radiator hose
10. Remove fan (right-hand thread) and shroud together
11. Remove OEM bolts and install the lower bracket support block using the supplied replacement bolts.

**Figures 1 & 2.**



12. Remove OEM wire clip bolt and install the upper bracket brace to the cylinder head. **Figures 1 & 2.**
13. With the upper bolt block secured to the generator bracket, lower the entire bracket in to place
14. Finger tighten all generator bracket mounting bolts to blocks and brackets
15. Beginning at the lower bolts and working upward, torque all bracket fasteners
16. Remove the positive (+) lead to the fuse block
17. Unclip the fuse block and lay aside, wires intact
18. Remove two (2) windshield washer reservoir fill neck mounting bolts, retain for reuse
19. Trim the plastic fuse block/battery tray to accommodate the fuse block relocation bracket. Unclip wires as necessary. **Figure 4.**
20. Trim, turn, and tuck body ground connectors as necessary to accommodate relocation of the fuse block.
21. Trim and test fit until the fuse block fits the relocation bracket
22. Using the supplied generator shape template, trim the plastic tray for generator clearance
23. Temporarily remove the exhaust temperature sensor. **Figure 7.**
24. Arrange and tie wires and hoses as required to provide generator clearance
25. Reinstall the lower washer bottle fill bolt using the 3/8" spacer
26. Drill new hole for upper bolt and reuse self-tapping fastener

### Mounting the Generator

27. Before mounting the Generator, bench-fit the clutch and key to the generator shaft. Dress as necessary for a slip fit.
28. Ensure that the Generator electrical junction box cover is securely in place. Insert the 3/8" temporary alignment stud finger tight in one threaded hole of the Generator bearing plate (shaft end.) Orient the electrical box at the 1 o'clock position, and lower the generator into the bracket inserting the temporary alignment stud into one of the four countersunk fastener holes. Assure that the large Generator alignment ring machined into the bearing plate is seated fully in the bracket slot. Do not apply any undue force or pressure to the electrical junction box.
29. Secure the Generator to the bracket using the 4 flat head bolts provided. Torque the 4 bolts to 25 ft.lbs. Do not loctite these bolts!

### Continuing Installation

30. Install the crankshaft drive pulley to the harmonic balancer using the supplied adapter and fasteners. Torque harmonic balancer bolt to 95 ft. lbs.
31. Separate the fan from the shroud, and trim the shroud according to **Figure 6.** Test fit as necessary, including the generator clutch.
32. Lay the fan and shroud flat and locate the new location for the fan clutch harness connector.
33. Drill an 1½" hole for the connector, and use the supplied aluminum bracket and fasteners to attach the harness. **Figures 6 & 9.**
34. Install the generator drive belt, running it over the generator shaft (without clutch.)
35. Install the cooling fan spacer on the water pump pulley.
36. Lower the fan and shroud back into place, and install the fan on the fan spacer.
37. Reinstall two driver's side shroud bolts. Leave the third to hold the radiator in position.

38. Assemble the clutch onto the generator shaft, engaging the belt, and taking care that the key aligns with the cutout in the clutch hub. Torque, but do not loctite the clutch bolt. A third hand helps to slacken tensioner. **Figure 8.**
39. Check belt routing.
40. Remove the third shroud bolt from the radiator bracket and reinstall on the passenger's side of the shroud.
41. Reinstall the radiator mounting isolators and bolts.
42. Reinstall the upper radiator hose and check clearances.
43. Reinstall the exhaust temperature sensor and re-plug the sensor and fan clutch harnesses (**Figure 10**).
44. Install the top radiator shield, and reconnect the lower shield.
45. Reattach the positive (+) lead to the fuse block, check all wiring, and reconnect the batteries.
46. Have a coffee.

This completes the vehicle specific instructions. Refer to the Blackbird Wiring Manual for wiring, run up, and troubleshooting instructions.

Front View

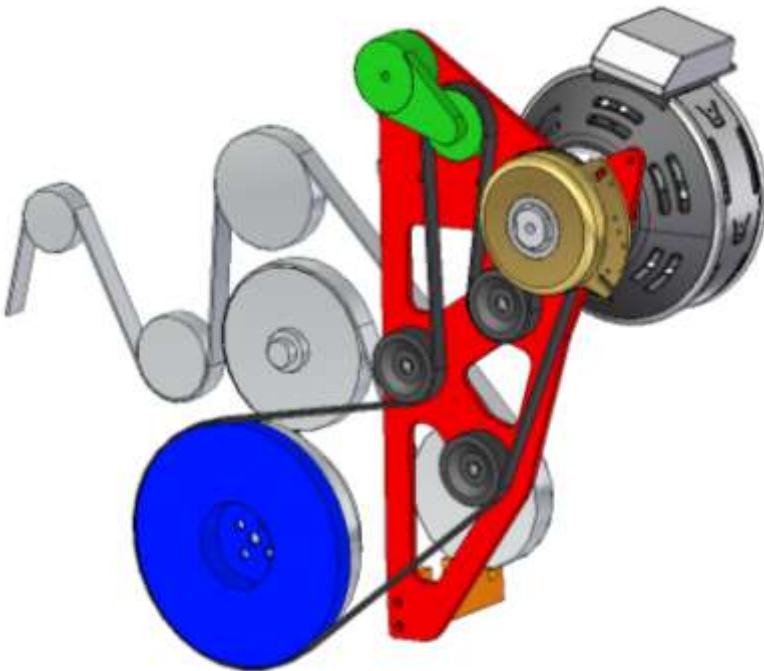


Figure 1

Rear View

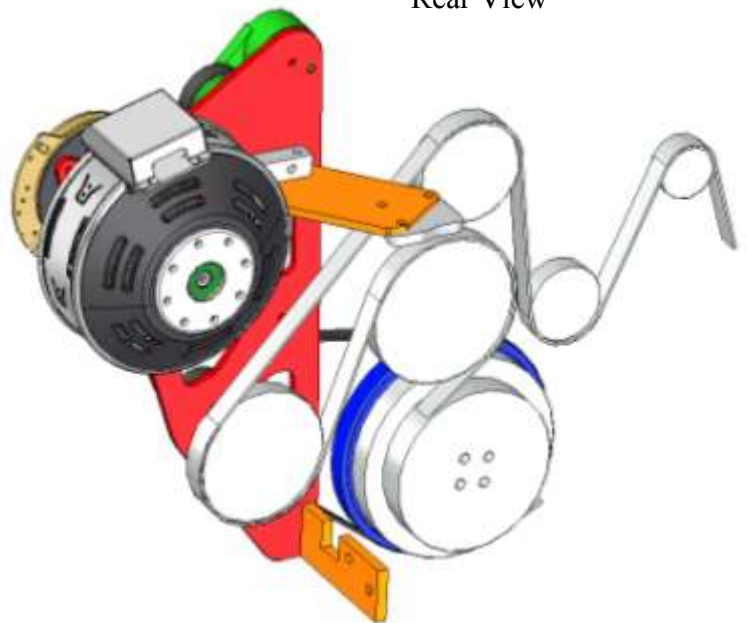


Figure 2



Figure 3



Figure 4

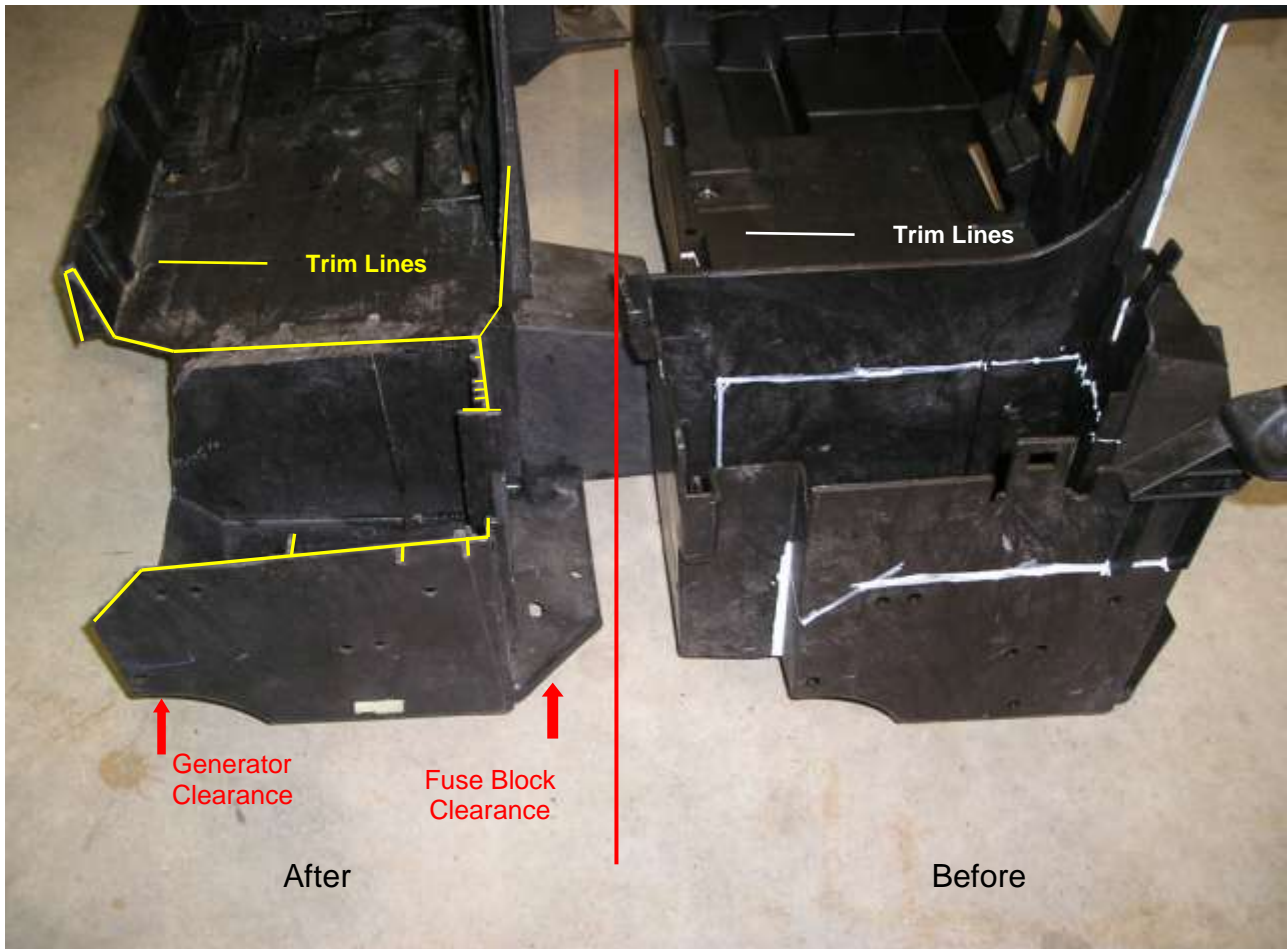


Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10