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# **BLACKBIRD INSTALLATION SUPPLEMENT**



**FOR INTERNATIONAL 4400  
2WD DT 570  
VERSION 6-06**



**Parts Included in Installation Kit**

Before beginning installation, check the parts kit thoroughly against the parts inventory list, and make sure that every necessary part is in hand. If parts are missing or you have questions regarding the parts and components, contact Raven Product Support (207-721-1044) before beginning installation.

<b>Parts</b>	<b>Description</b>
Installation Manual	
Installation Supplement	4400 DT 570 2WD
Owner's Manual	Including Warrantee Information
Generator Bracket	With tensioner and idlers
Bracket upper mounting block	
Upper block bolts	(2) M10-1.5 x 70mm w/ flat washers
Upper bracket spacers	(2) 2 ½"
Upper bracket bolts	(2) M10-1.5 x 100mm w/flat washers
Lower mounting plate	
Two-hole spacer plate	
Lower mounting plate bolts	(2) M10-1.5 x 40mm w/flat washers
Lower bracket bolt	(1) M18-2.5 x 110mm w/flat washer
Generator belt	NAPA 25-060827 or equivalent
Generator mounting bolts	(4) 3/8-16 x ¾" flat head socket
Generator Temporary alignment stud	3/8-16 x 1 ½"
Clutch	3" 6-groove electric
Clutch key	3/16" x 1 ¾"
Clutch bolt (1)	7/16"-20 x 2 ¼" Grade w/ lock washer
Clutch electrical harness	16' red/black
Crankshaft Pulley	13" diameter
Pulley bolts	(6) M10-1.5 x 30mm w/flat washers
Fan Spacer	
Fasteners	Studs and flange nuts
Power Steering reservoir bracket extension	
Fasteners	(3) M12x30mm w/washers & nuts
Power Steering return hose	Replacement: ¾" x 30"
Replacement coolant pipe	
Fasteners	(2) M8 x 25mm bolts with lock and flatwashers
Shrink fit Hose clamps	(3) 2 ¼" (1) 2 ½"



### General Instructions

This document supplements the Blackbird Large Diesel Wiring Manual with information specific to the International DT 570 in the 4400 2WD Chassis. Installation cannot be completed without the Large Diesel Wiring Manual. Contact Raven Product Support (207-721-1044) if more documentation is needed.

This installation provides for full 5kW output from an elevated engine idle of 750 RPM to governed high RPM. Between 750 RPM and governed engine RPM the generator output will be unaffected by changes in engine speed. Below 750 engine RPM output voltage will sag as electrical load is increased.

- All installation steps in this supplement and the Large Diesel Wiring Manual must be completed before operating the system.
- Use Loctite 262 on all engine and bracket mounted bolts.
- 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.
- All fasteners must be checked and re-torqued after 2 hours of engine operation.

	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

### Installing the Raven Bracket and Crankshaft Pulley

**Figure 1** provides an overview of the Raven bracket and drive components to be installed and their mounting locations. We suggest you take a minute before proceeding to review the steps below to familiarize yourself with the parts and their mounting locations.

1. Disconnect all battery negative terminals.
2. Drain the radiator and the power steering reservoir.
3. Remove the lower radiator hose, metal tube section, and upper hose section. Discard the metal section.
4. Remove the power steering reservoir and bracket from the frame rail as an assembly.
5. Remove and discard the brackets and support hardware from the aluminum fan shroud to the engine. The shroud stays in place for the moment.
6. Remove the four nuts holding the fan clutch assembly.
7. Remove all bolts holding the plastic fan shroud.
8. Place protective cardboard behind the radiator.
9. Remove the fan, plastic shroud, and aluminum shroud extension from the engine compartment as one unit.
10. Discard the aluminum shroud extension.
11. Remove the manifold end of the intercooler tube from the intake manifold and swing the hose out of the way.



You are now ready to install the generator bracket. The lower part of the bracket attaches to a replacement driver's side motor mount bolt, and the upper mounting block bolts to the front of the cylinder head. (See **Figure 1**.)

12. Check the machined surface with the two 10mm threaded holes on the top front of the cylinder head to assure it is clean and smooth.
13. Install the upper mounting block according to **Figure 1** using the supplied bolts. The block must be square to the engine. The rear edge of the machined surface is raised slightly and the block should be snug against it. Firmly tighten, but do not torque.
14. Remove and discard the driver's side motor mounting bolt located on the front of the engine just to the side of the harmonic damper.
15. Assemble the lower mounting plate to the main bracket using the two-hole spacer plate and the supplied bolts, leaving the bolts slightly loose. The two-hole spacer can be seen between the bracket sections in **Figure 3**.
16. Lower the bracket and lower plate down in front of the engine until the lower mounting plate hole aligns with the motor mount hole. Insert the replacement motor mount bolt through the bracket and finger tighten.
17. Align the upper mounting bolt holes in the bracket with the two upper bracket spacers and fasten to the upper mounting block with the supplied bolts. Finger tighten.
18. Finger tighten the two lower mounting plate bolts
19. Check that the face of the harmonic damper is clean and true, and install the Raven crankshaft pulley on the face of the damper using the supplied 6 bolts. The pulley mounts flat-face-forward. Tighten in opposing sequence.
20. Using a straightedge, check the parallelism and offset of the pulley to the generator bracket in 3 locations, as shown in **Figure A**.
21. Adjust bracket components until all is parallel and offset falls within the limits shown.
22. Torque the motor mount bolt to 250 ft. lbs, and tighten the other bracket and engine bolts.
23. Recheck parallelism.
24. Install the supplied fan spacer between the fan and the fan clutch.
25. Reinstall the fan, clutch assembly and plastic fan shroud, removing the protective cardboard. The aluminum fan shroud extension is not reused.

### **Installing the Generator, Clutch, and Belt**

26. Before mounting the Generator, bench-fit the clutch and key to the shaft ensuring a slip-fit. Dress as necessary.
27. Ensure that the generator electrical junction box cover is securely in place. Insert the temporary alignment stud in one of the Generator mounting holes. Position the generator behind the bracket with the junction box at approximately 2 o'clock. Slip the generator into the bracket. Assure that the large generator mating ring is seated fully in the large bracket hole. Install four 3/8 16 X 3/4" flat head generator bolts. Do Not Loctite!
28. Loop the belt loosely around the clutch pulley. Install the electric clutch on the generator (assure alignment of key with keyway.) Engage the coil retaining standoff on the bracket with the open slot in the clutch flange. Fasten with the 7/16" clutch bolt and lockwasher.

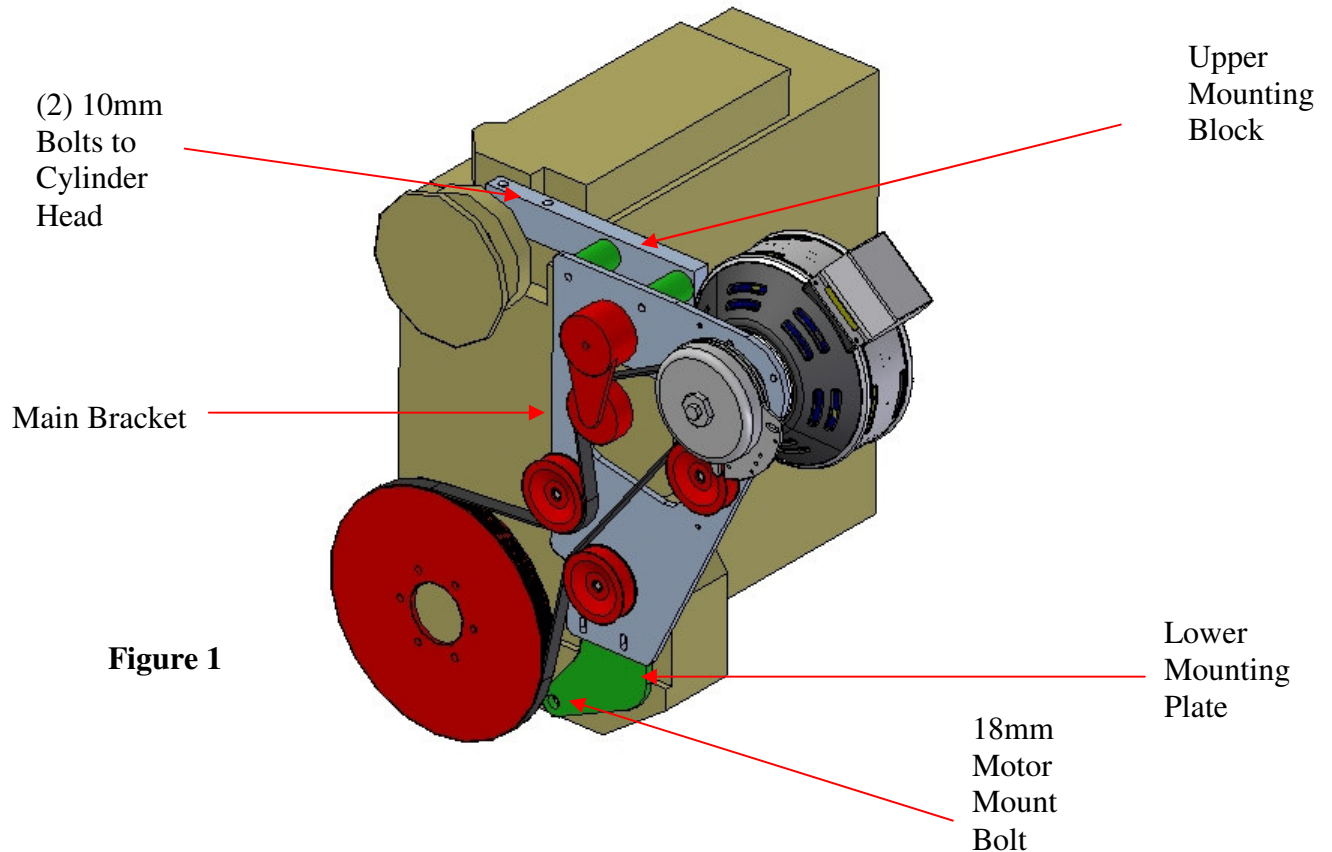


29. Install the Raven belt according to **Figure 1**. Assure that the belt is seated correctly on all pulleys and idlers.

**Final Assembly:**

30. Install the supplied replacement radiator pipe between the radiator and the engine. The lower OEM hose will have to be cut to match the pipe.
31. Reinstall the intercooler tube, engine end.
32. Remove the supply and return hoses from the bottom of the power steering reservoir.
33. Remount the reservoir using the supplied bracket and fasteners according to **Figure 3**.
34. Reroute the supply hose, rotating the plastic reservoir in its bracket as necessary. Note that a nub on the plastic aligns with holes in the bracket.
35. Install the supplied return line between the steering gear and the reservoir.
36. Refill the radiator and power steering reservoir.

**This completes the vehicle-specific installation. Refer to the Large Diesel Wiring Manual for wiring, run up, and troubleshooting instructions.**



**Figure 1**

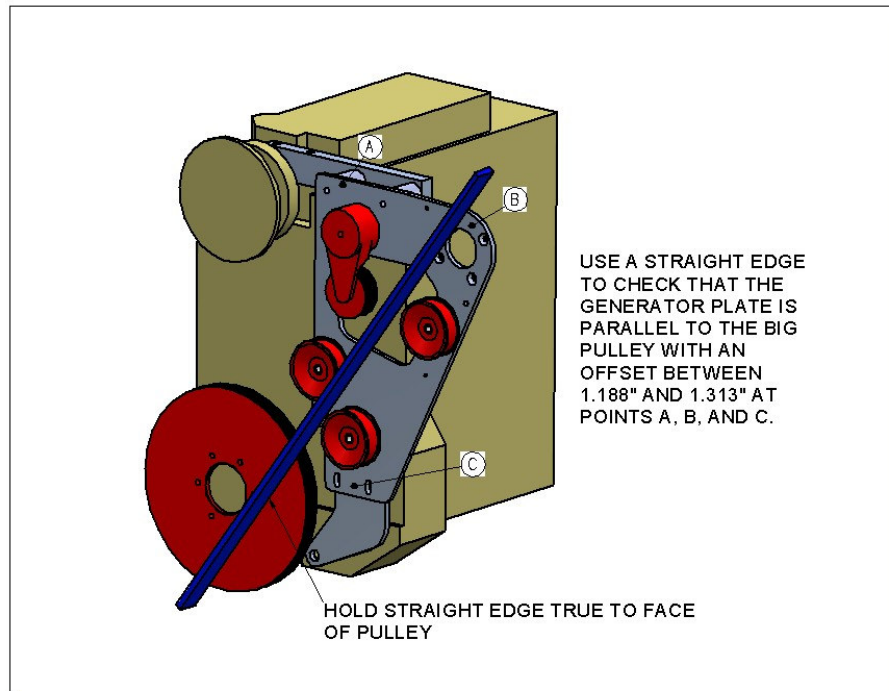


Figure A

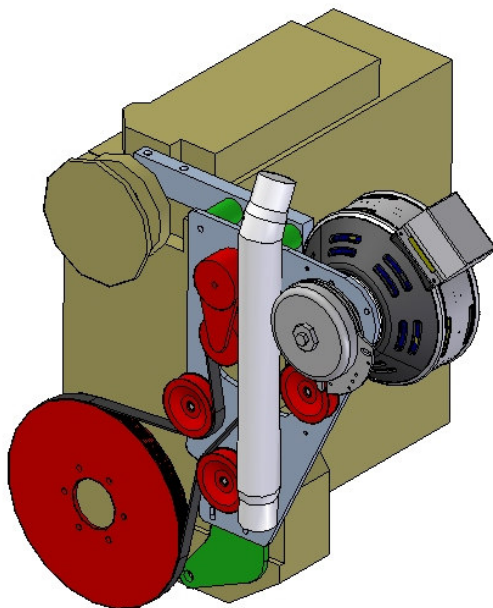


Figure 2

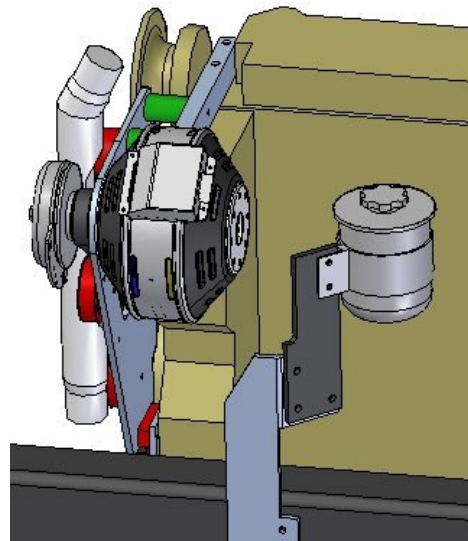


Figure 3