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Century Class Conventional  
Argosy COE  
Cargo  
Columbia

Coronado  
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> Cascadia  
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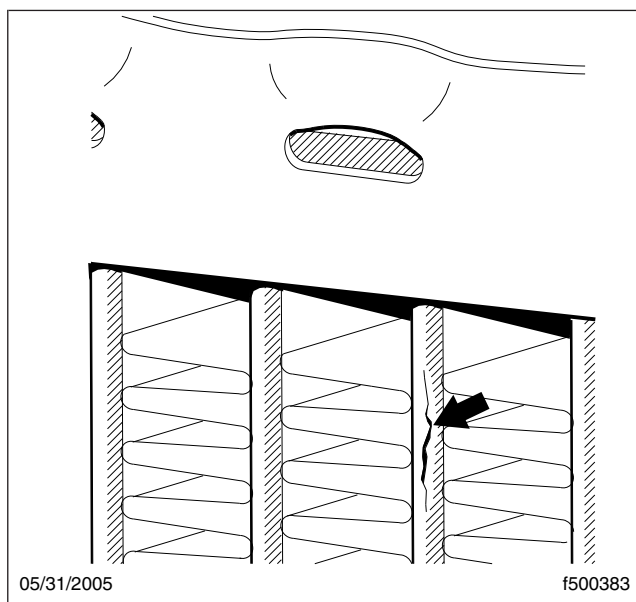
**Description of Revisions:** *This bulletin replaces the version dated August 2013. The title has been changed. Cummins engines information has been removed from this bulletin and is now covered in Freightliner Service Bulletin 20-75. The parts tables have been revised. Some steps in the replacement procedure have been clarified.*

## General Information

Some EPA10 compliant Cascadia vehicles, manufactured from start of production to the dates listed below, with specific combinations of engine operating parameters, may have radiator failures resulting in a coolant leak due to a crack in the coolant tube. See [Fig. 1](#). Leaks in other places (at the end tank, header, fittings, or any place other than the coolant tubes) do not apply for this bulletin. If leaks occur in the coolant tubes, Freightliner recommends a radiator update to an isolated engine-mounted 1400 sq in radiator. This procedure is to replace a standard engine-mounted 1625 sq in radiator with an isolated engine-mounted 1400 sq in radiator. DTNA engineering has determined that the 1400 sq in radiator is within the guidelines to adequately cool all engines and horsepower ranges for this vehicle.

**IMPORTANT:** Beginning May 2012, DD13-equipped vehicles are standard with isolated engine-mounted radiators. Beginning October 2012, DD15-equipped vehicles are standard with isolated engine-mounted radiators. As these vehicles already have isolated engine-mounted radiators, they are not covered under this bulletin.

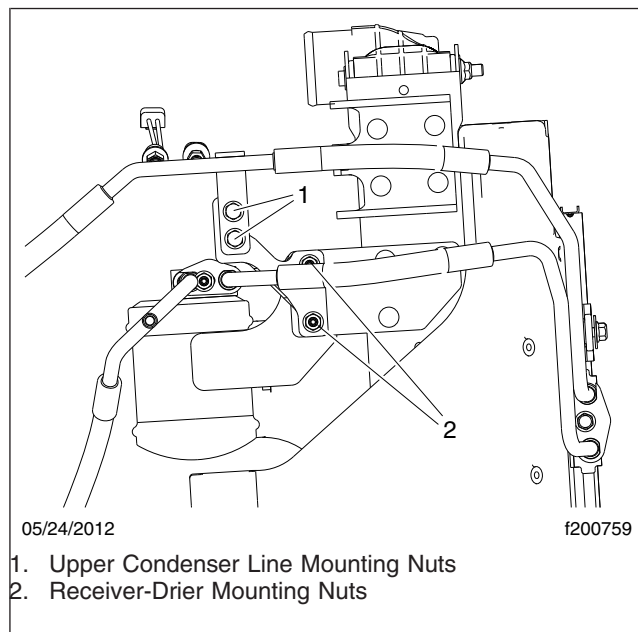
**IMPORTANT:** The required parts for this procedure will vary depending on the vehicle BBC measurement and the type of engine and transmission installed. Refer to the tables under "Parts" for lists of required parts for particular vehicle configurations.



**Fig. 1, Crack in Coolant Tube**

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1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the tires.
2. Open the hood.
3. Remove the bumper. For instructions, refer to **Group 31** of the *Cascadia Workshop Manual*.
4. Drain the coolant from the radiator and engine block.
5. Remove the hood. For instructions, see **Section 88.00, Subject 100** in the *Cascadia Workshop Manual*.
6. Remove the charge air cooler (CAC) hoses.
7. Remove the surge tank. For instructions, see **Section 20.00, Subject 110** of the *Cascadia Workshop Manual*.
8. Remove the upper radiator hose.
9. Remove the three radiator strut rods and discard them.
10. Remove the upper fan shroud and discard it.
11. Remove the fan. For instructions, refer to **Group 20** of the *Cascadia Workshop Manual*.
12. Loosen the A/C condenser and move it out of the way as follows.
  - 12.1 Remove the receiver-drier and upper A/C line mounting nuts, then free the receiver-drier. See **Fig. 2**.

**Fig. 2, Receiver-Drier Installation (typical)**

- 12.2 Unbolt the A/C condenser from the CAC. See **Fig. 3**.

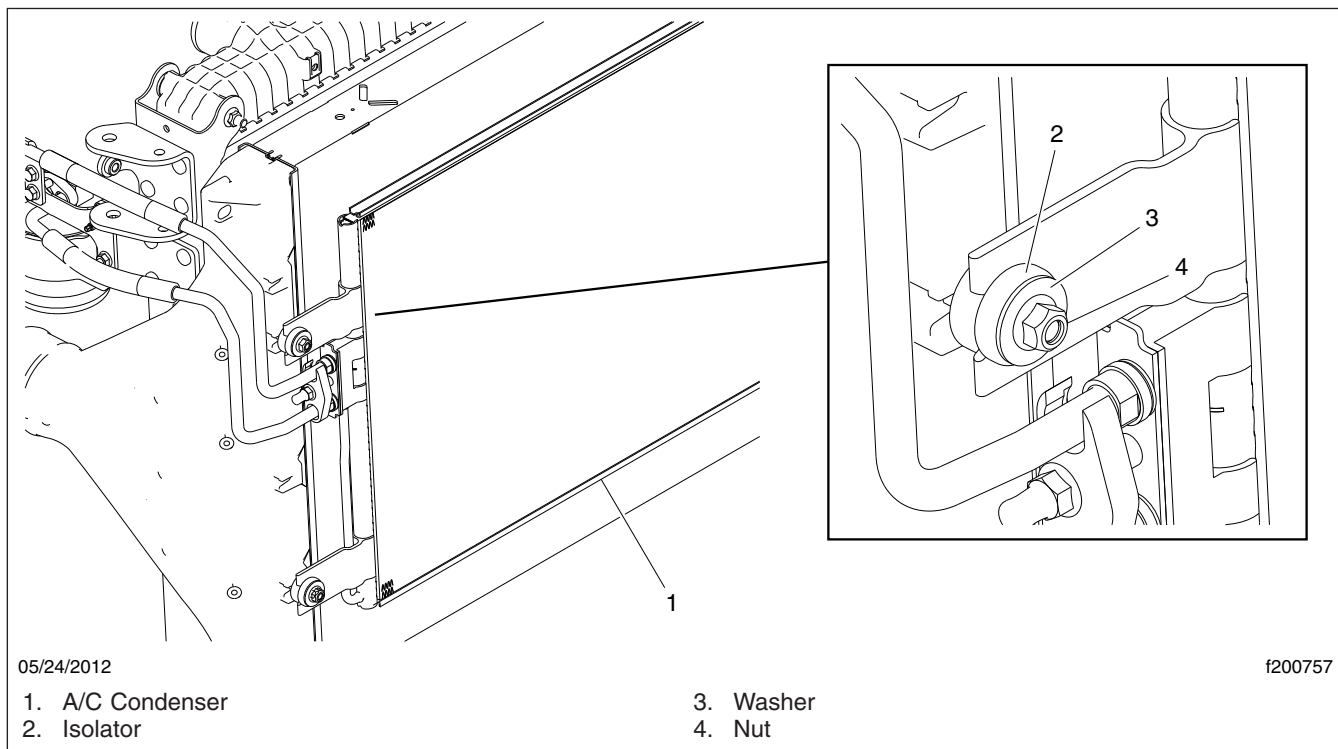
NOTE: Wrap the condenser in cardboard to protect it while it is moved.

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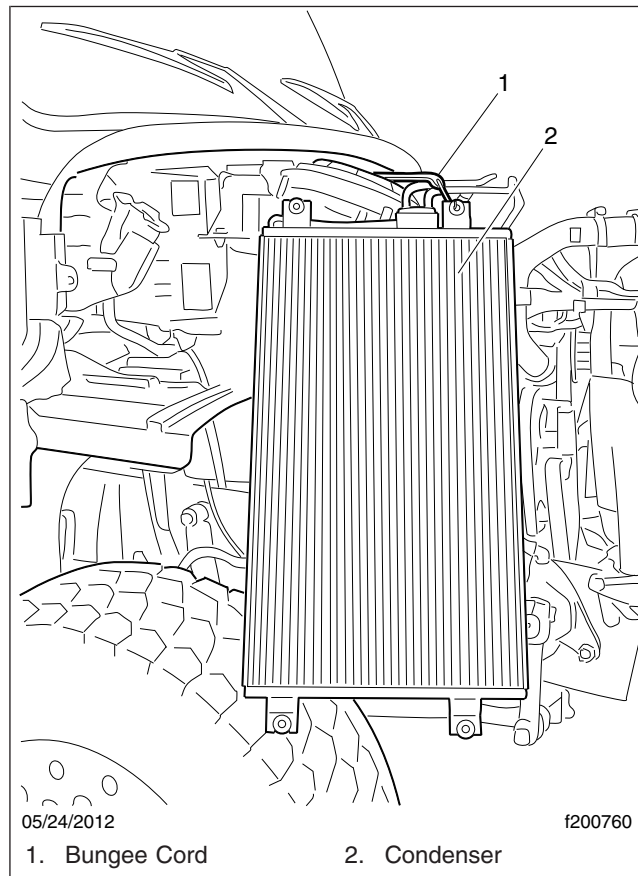
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**Fig. 3, A/C Condenser Installation**

- 12.3 Carefully move the condenser around and set it on right front tire. Secure it as needed. See [Fig. 4](#).
13. Disconnect the transmission cooler lines from the radiator. Cap and/or plug the fittings to prevent spills.
14. Disconnect the lower radiator hose from the radiator and the engine. Leave the lower coolant elbow attached to the radiator mount.
- NOTE: On some vehicles the CAC will have to be removed when the radiator is out of the chassis.
15. Remove the CAC from the radiator. Leave the baffles bolted to the CAC.
16. Unbolt the radiator from the lower mount.
17. Using an appropriate lifting device, remove the radiator assembly from vehicle.
18. Remove the lower radiator mounting brackets, with the lower radiator elbow attached, from the engine and discard them.
- NOTE: Keep all of the transmission cooler line mounting hardware for reuse when installing the new lines.
19. Remove the transmission cooler lines and discard them. Cap or plug the fittings at the transmission and on the lines to prevent spills. See [Fig. 5](#).
20. Install the lower radiator mounting brackets. See [Fig. 6](#). Tighten 191 to 234 lbf·ft (260 to 317 N·m).
21. Install the new transmission cooler lines from the transmission to the jumper lines on the radiator. Do not install the jumper lines at this time.

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108SD/114SD**Fig. 4, Securing the A/C Condenser**

See **Fig. 5**, **Fig. 7**, **Fig. 8**, and **Fig. 9** for transmission cooler line and bracket installation. For vehicle-specific plumbing diagrams refer to EZWiring in PartsPro.

22. Inspect the CAC isolators. If they are damaged, replace them with CAC hardware kit MOD 3S054916.

**NOTE:** It may be easier to install the CAC when the radiator is positioned in the chassis.

23. Install the CAC on the new radiator. Tighten the mounting nuts 22 lbf·ft (29 N·m)

24. Install the new fan shroud on the new radiator. See **Fig. 10**.

25. On vehicles equipped with a VORAD collision warning system, remove the forward antenna cover and forward antenna from the mounting bracket, then remove the bracket from the front closing crossmember. See **Fig. 12**.

On vehicles equipped with an OnGuard™ collision warning system, remove the antenna and mounting bracket assembly from the front closing crossmember. See **Fig. 13**.

**NOTE:** The lower baffle may need to be modified to fit some forward frame options.

26. Install the new lower baffle on the front closing crossmember. See **Fig. 11**.

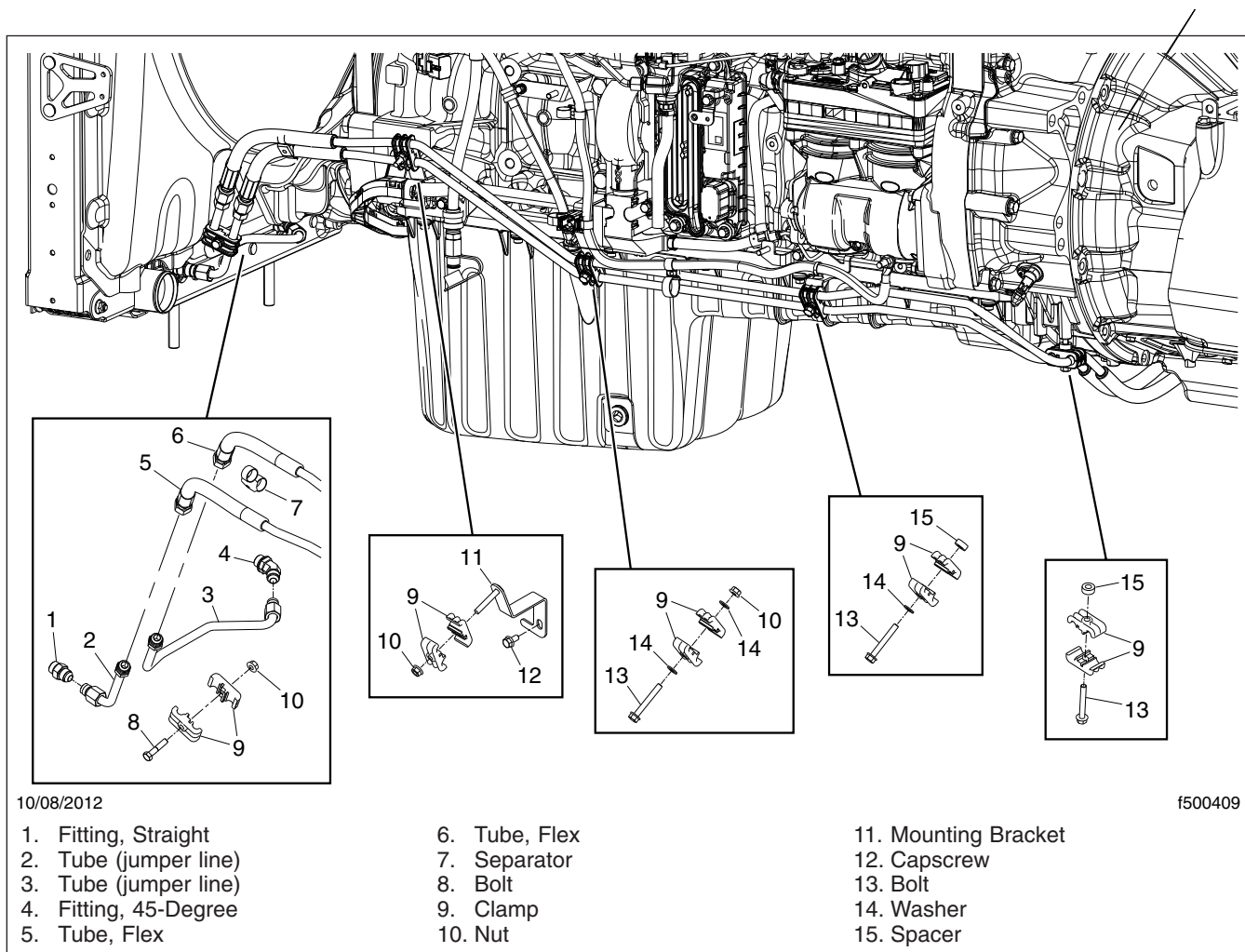
27. Install the forward antenna. See **Fig. 12** for VORAD bracket and antenna installation, or **Fig. 13** for On-Guard antenna and bracket assembly installation.

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**Fig. 5, Transmission Cooler Line Installation (typical)**

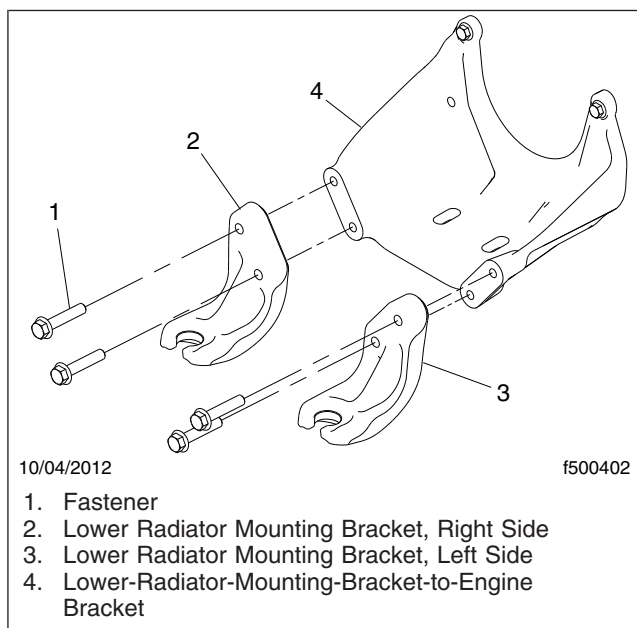
28. Apply sealant (48-00094-141) to the threads of the fasteners, then install the fan. Tighten 30 lbf-ft (41 N-m). For instructions, refer to **Group 20** of the *Cascadia Workshop Manual*.
29. Install the new transmission cooler jumper lines on the radiator. See [Fig. 14](#).
30. Using an appropriate lifting device, position the new radiator assembly in the vehicle. Install the mounting nuts, but do not tighten them yet. See [Fig. 15](#).
31. Install the new radiator strut rods. See [Fig. 16](#). Do not tighten the mounting fasteners yet.
32. Install the upper radiator hose. See [Fig. 17](#)
33. Connect the transmission cooler lines to the jumper lines on the radiator.
34. Install the lower radiator hose assembly. See [Fig. 18](#).
35. Install the A/C condenser as follows.
  - 35.1 Move the condenser into position and secure it temporarily. See [Fig. 3](#).

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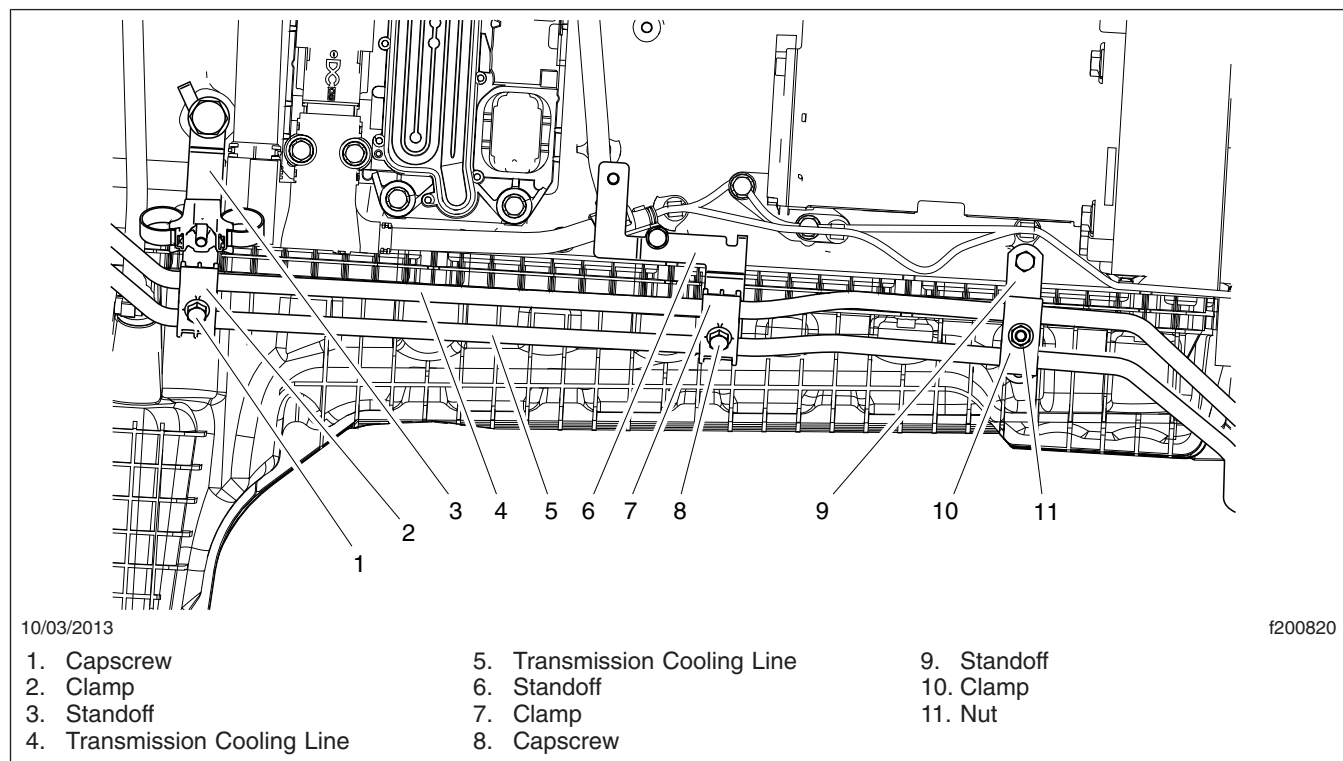
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**Fig. 6, Lower Radiator Mounting Brackets Installation**



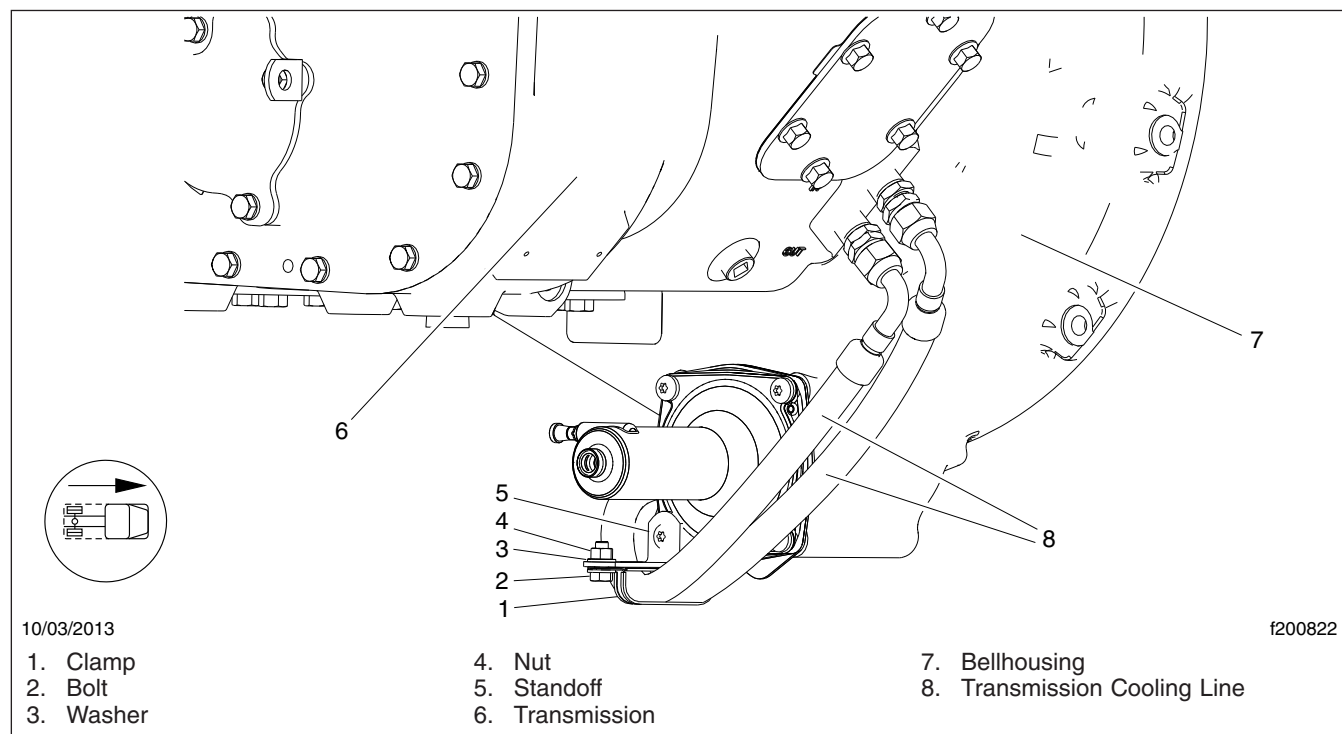
**Fig. 7, Transmission Cooler Line Bracket Installation**

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**Fig. 8, Transmission Cooler Line and Bracket Installation**

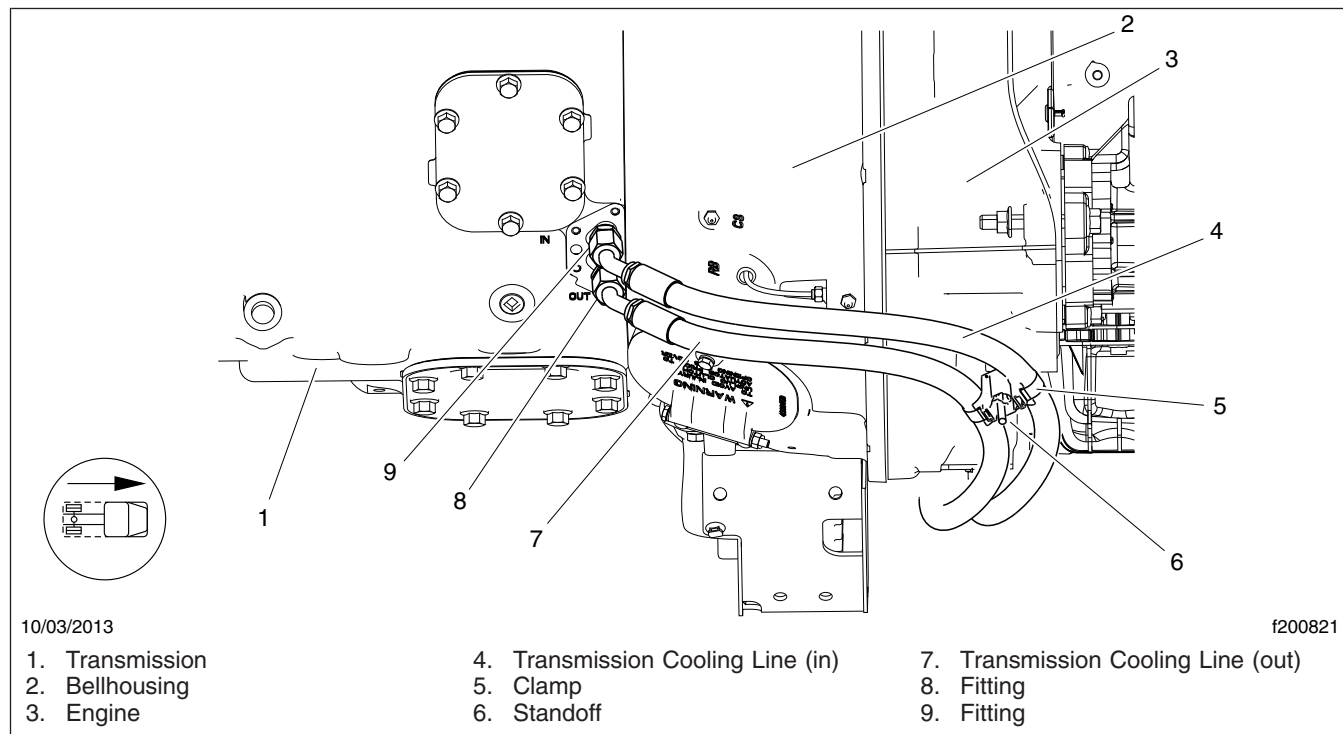
- 35.2 Position the receiver-drier and upper A/C line on their respective brackets and install the mounting nuts. See [Fig. 2](#). Tighten the nuts 14 to 16 lbf·ft (19 to 22 N·m).
- 35.3 Tighten the condenser mounting bolts 112 to 144 lbf·in (1270 to 1630 N·cm).
36. Tighten the radiator strut rod fasteners at the radiator 55 to 65 lbf·ft (75 to 90 N·m), and at the engine block 125 to 139 lbf·ft (171 to 188 N·m) on Detroit engines, or 55 to 65 lbf·ft (75 to 90 N·m) on Cummins engines.
37. Tighten the radiator mounting nuts 140 to 170 lbf·ft (190 to 230 N·m).
38. Install the surge tank. For instructions, see **Section 88.00, Subject 100** in the *Cascadia Workshop Manual*.
39. Install the CAC hoses.
40. Fill the cooling system following the procedures in the **DDC Engine Manual**.
41. Pressure check for coolant leaks. Repair as needed.
42. Install the hood. For instructions, see **Section 88.00, Subject 100** in the *Cascadia Workshop Manual*.
43. Install the bumper. For instructions, refer to **Group 31** of the *Cascadia Workshop Manual*.
44. Drive the vehicle to get it up to operating temperature.
45. Check all the transmission cooling lines for leaks. Repair as needed.
46. Check coolant and transmission fluid levels. Add fluids as needed.

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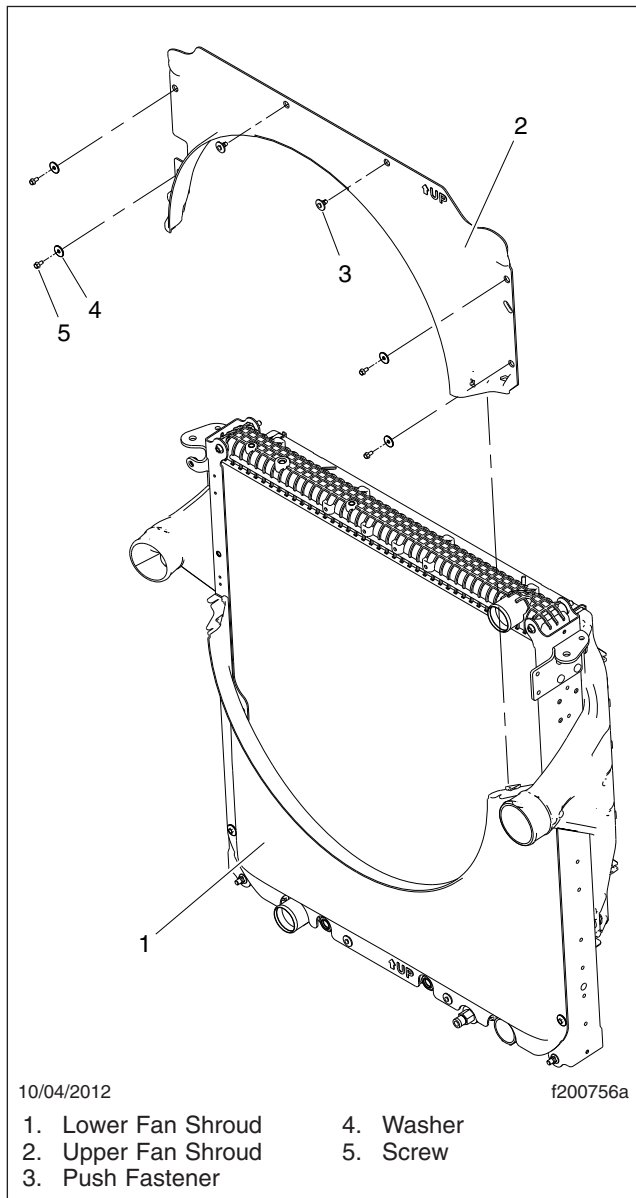
**Fig. 9, Transmission Cooler Line and Bracket Installation**

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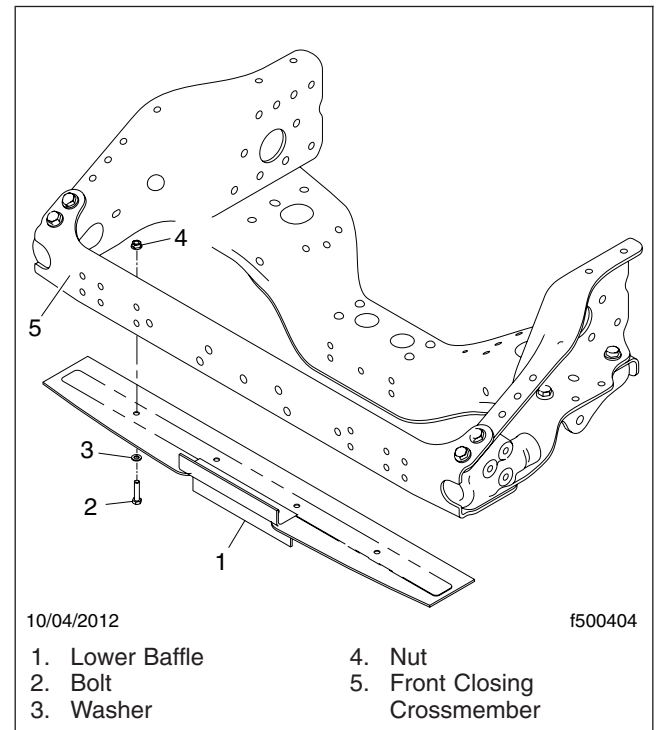
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**Fig. 10, Fan Shroud Installation**



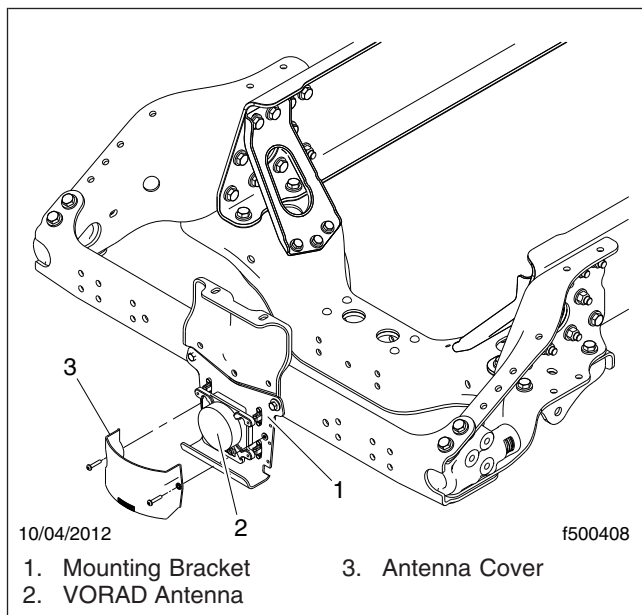
**Fig. 11, Lower Baffle Installation**

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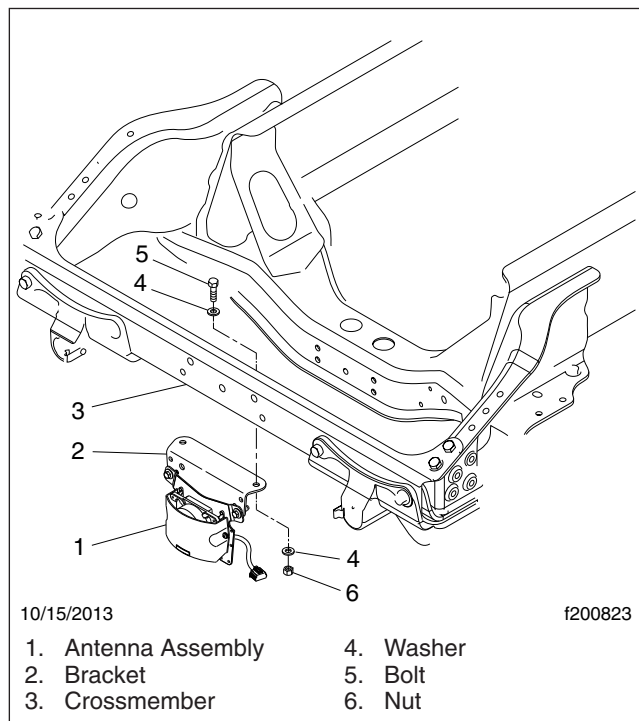
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**Fig. 12, VORAD Bracket and Antenna Installation**



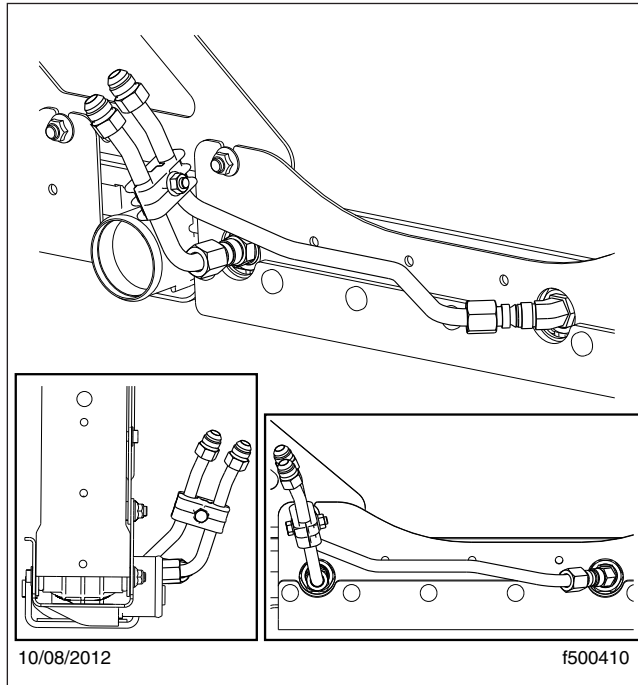
**Fig. 13, OnGuard Antenna and Bracket Assembly Installation**

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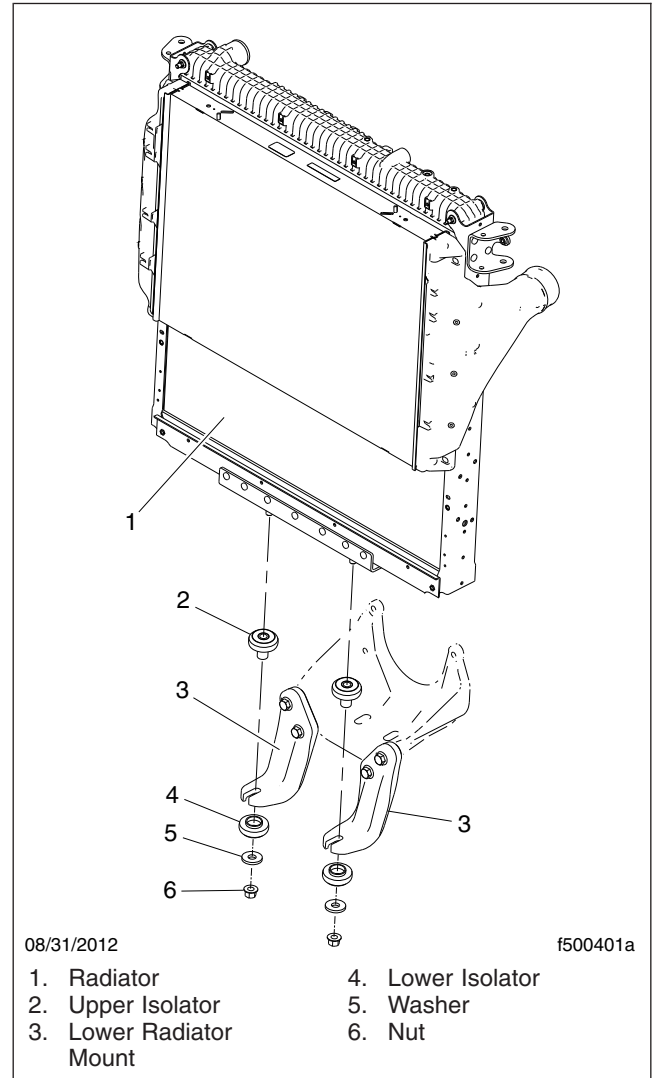
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**Fig. 14, Transmission Cooler Jumper Line Installation**



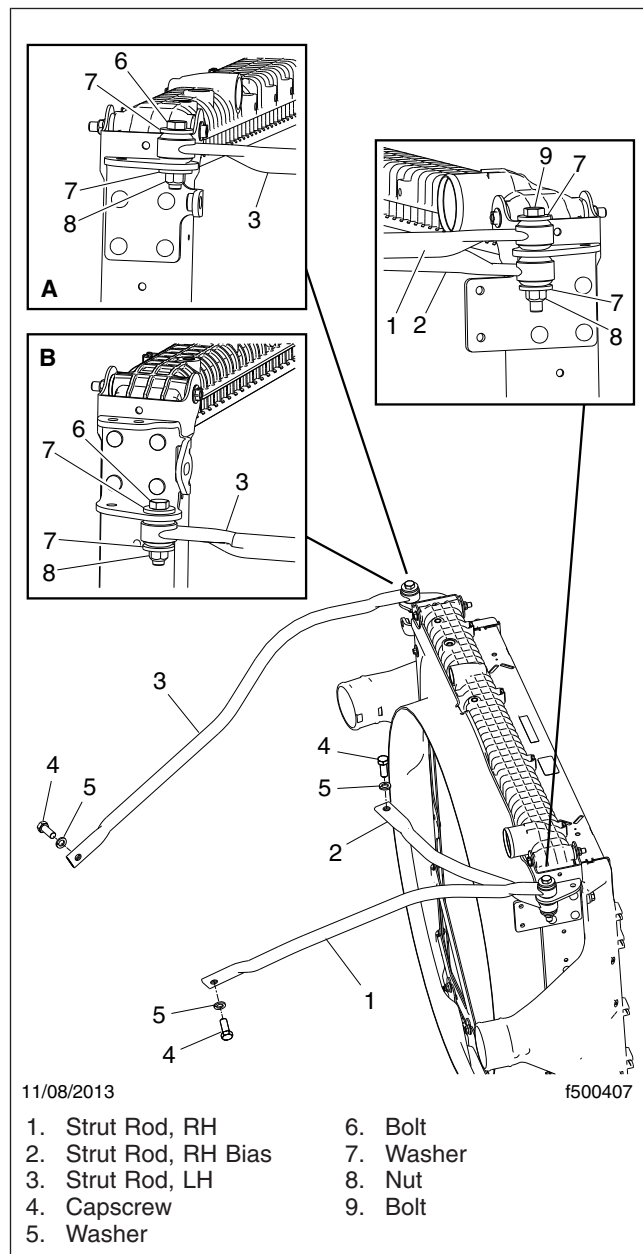
**Fig. 15, Radiator Installation**

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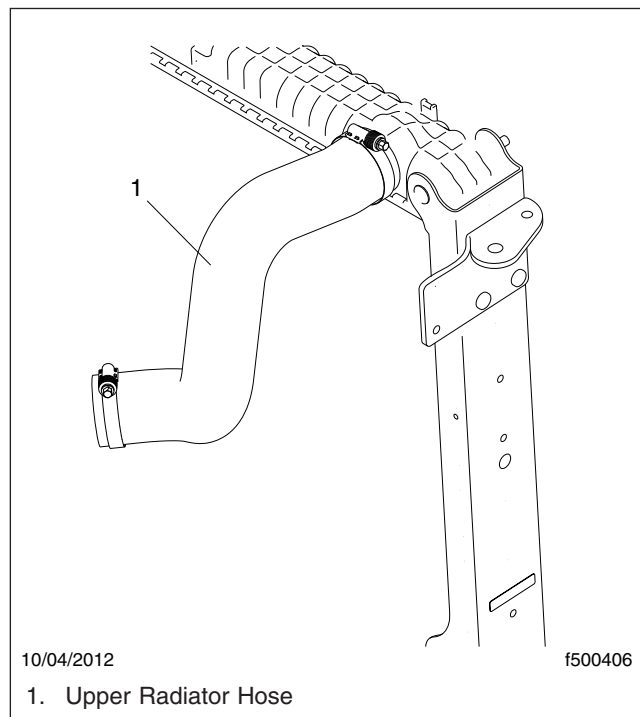
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**Fig. 16, Isolated Radiator Strut Rod Installation**



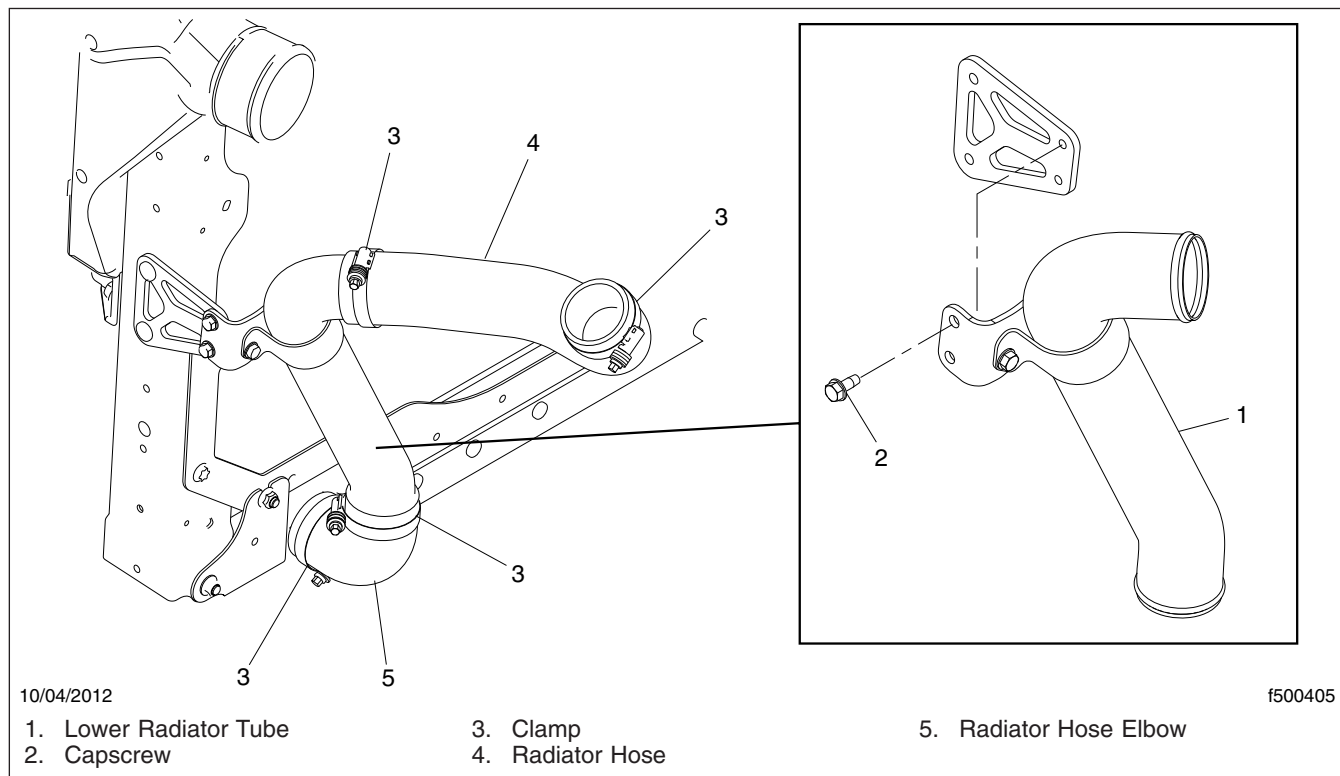
**Fig. 17, Upper Radiator Hose Installation**

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**Fig. 18, Lower Radiator Hose Installation**

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## Parts

Parts are available through the PDC.

Required parts for this procedure will vary depending on the vehicle BBC measurement and the type of engine and transmission installed. [Table 1](#) lists all vehicle configurations and which tables to use to order parts.

| Required Parts by Vehicle Configuration   |                         |              |                                      |
|-------------------------------------------|-------------------------|--------------|--------------------------------------|
| BBC and Engine                            | Radiator Conversion     | Transmission | Transmission Cooling Line Conversion |
| 113 BBC with DD13 Engine (w/o TrCI Lines) | <a href="#">Table 2</a> | Not cooled   | N/A                                  |
|                                           |                         | Eaton RT     | <a href="#">Table 10</a>             |
|                                           |                         | Eaton ECA    | <a href="#">Table 11</a>             |
| 113 BBC with DD13 Engine                  | <a href="#">Table 3</a> | Eaton FR     | Included                             |
| 125 BBC with DD13 Engine (w/o TrCI Lines) | <a href="#">Table 4</a> | Not cooled   | N/A                                  |
|                                           |                         | Eaton RT     | <a href="#">Table 12</a>             |
|                                           |                         | Eaton ECA    | <a href="#">Table 13</a>             |
| 125 BBC with DD13 Engine                  | <a href="#">Table 5</a> | Eaton FR     | Included                             |
| 125 BBC with DD15 Engine (w/o TrCI Lines) | <a href="#">Table 6</a> | Not cooled   | N/A                                  |
|                                           |                         | Eaton RT     | <a href="#">Table 8</a>              |
|                                           |                         | Eaton ECA    | <a href="#">Table 9</a>              |
| 125 BBC with DD15 Engine                  | <a href="#">Table 7</a> | Eaton FR     | Included                             |

**Table 1, Vehicle Configuration and Required Parts**

| Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI Lines |                                    |          |
|-----------------------------------------------------------------------------|------------------------------------|----------|
| Part number                                                                 | Description                        | Quantity |
| MOD 3S0580800003                                                            | RADIATOR M1400,BO,LSO,ITOC         | 1        |
| A05-30969-000                                                               | SHROUD-FAN,1400 (P3113)            | 1        |
| 23-12274-003                                                                | RIVET-PUSH-TYPE,REUSABLE,.315"     | 8        |
| 23-10800-050                                                                | SCREW-HWH,THDRLG,1/4-20X1/2        | 8        |
| 23-09426-203                                                                | WASHER-PLTD STL,1/4X1.0"           | 8        |
| A05-30679-000                                                               | RECIRC-BAFFLE,P3,M1400, Bottom     | 1        |
| N000933 010200                                                              | SCREW-CAP,HEX M10X30 10.9 ZN       | 4        |
| 23-12707-010                                                                | WASHER-FLAT,SSTL,M10-20MMX2MM      | 4        |
| 23-12668-010                                                                | NUT-HEX,FLNG,M10-1.5,ZN AL         | 4        |
| 05-30581-000                                                                | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO | 1        |

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| Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI Lines |                                          |          |
|-----------------------------------------------------------------------------|------------------------------------------|----------|
| Part number                                                                 | Description                              | Quantity |
| 05-30581-001                                                                | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO       | 1        |
| 23-13509-065                                                                | SCRW HX FLNG,M16-1.5X65,10.9             | 4        |
| N210100 016000                                                              | NUT-FLG HD,M16,CLASS 10, P&O             | 2        |
| 01-20963-001                                                                | WASHER-HARDND STL,.656X2.5"              | 2        |
| BCD 27463 14                                                                | ISOLATOR-RAD,LWR,KIT                     | 2        |
| A05-30644-000                                                               | STRUT-RAD,DD13,MED,LH,M1400,ISO(P3113)   | 1        |
| A05-30645-000                                                               | STRUT-RAD,DD13,MED,RH,M1400,ISO(P3113)   | 1        |
| A05-30646-000                                                               | STRUT-RAD,DD13,MED,BIAS,M1400,ISO(P3113) | 1        |
| 23-11751-250                                                                | SCREW-CAP,HEX,1/2-13,GR8,ZNDI            | 1        |
| 23-11751-400                                                                | SCREW-CAP,HEX,1/2-13,GR8,ZN              | 1        |
| 23-13833-108                                                                | NUT-HEX,PT,1/2-13,C,ZN/AL,.448           | 2        |
| 23-09114-017                                                                | WASHER-HRDN,0.53X1.38X                   | 4        |
| 23-12237-075                                                                | SCREW-HWH,SERR,THDRLG,5/16-18            | 2        |
| 05-21968-000                                                                | HOSE-CLNT,M1400,P3-113,M2,DD13           | 1        |
| A05-18548-000                                                               | TUBE-CLNT,LWR,M1400,DD13,DD15            | 1        |
| 05-25925-003                                                                | HOSE-COOLANT,LWR,ELBOW,ECR               | 1        |
| 23-12485-250                                                                | CLAMP-WORM,CONSTANT,2-1/2 HOSE           | 4        |

**Table 2, Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI Lines**

| Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI Eaton FR |                                          |          |
|-------------------------------------------------------------------------------|------------------------------------------|----------|
| Part number                                                                   | Description                              | Quantity |
| MOD 3S0580800003                                                              | RADIATOR M1400,BO,LSO,ITOC               | 1        |
| A05-30969-000                                                                 | SHROUD-FAN,1400 (P3113)                  | 1        |
| 23-12274-003                                                                  | RIVET-PUSH-TYPE,REUSABLE,.315"           | 8        |
| 23-10800-050                                                                  | SCREW-HWH,THDRLG,1/4-20X1/2              | 8        |
| 23-09426-203                                                                  | WASHER-PLTD STL,1/4X1.0"                 | 8        |
| A05-30679-000                                                                 | RECIRC-BAFFLE,P3,M1400, Bottom           | 1        |
| N000933 010200                                                                | SCREW-CAP,HEX M10X30 10.9 ZN             | 4        |
| 23-12707-010                                                                  | WASHER-FLAT,SSTL,M10-20MMX2MM            | 4        |
| 23-12668-010                                                                  | NUT-HEX,FLNG,M10-1.5,ZN AL               | 4        |
| 05-30581-000                                                                  | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO       | 1        |
| 05-30581-001                                                                  | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO       | 1        |
| 23-13509-065                                                                  | SCRW HX FLNG,M16-1.5X65,10.9             | 4        |
| N210100 016000                                                                | NUT-FLG HD,M16,CLASS 10, P&O             | 2        |
| 01-20963-001                                                                  | WASHER-HARDND STL,.656X2.5"              | 2        |
| BCD 27463 14                                                                  | ISOLATOR-RAD,LWR,KIT                     | 2        |
| A05-30644-000                                                                 | STRUT-RAD,DD13,MED,LH,M1400,ISO(P3113)   | 1        |
| A05-30645-000                                                                 | STRUT-RAD,DD13,MED,RH,M1400,ISO(P3113)   | 1        |
| A05-30646-000                                                                 | STRUT-RAD,DD13,MED,BIAS,M1400,ISO(P3113) | 1        |
| 23-11751-250                                                                  | SCREW-CAP,HEX,1/2-13,GR8,ZNDI            | 1        |
| 23-11751-400                                                                  | SCREW-CAP,HEX,1/2-13,GR8,ZN              | 1        |

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| Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI Eaton FR |                                          |          |
|-------------------------------------------------------------------------------|------------------------------------------|----------|
| Part number                                                                   | Description                              | Quantity |
| 23-13833-108                                                                  | NUT-HEX,PT,1/2-13,C,ZN/AL,.448           | 2        |
| 23-09114-017                                                                  | WASHER-HRDN,0.53X1.38X                   | 4        |
| 23-12237-075                                                                  | SCREW-HWH,SERR,THDRLG,5/16-18            | 2        |
| 05-21968-000                                                                  | HOSE-CLNT,M1400,P3-113,M2,DD13           | 1        |
| A05-18548-000                                                                 | TUBE-CLNT,LWR,M1400,DD13,DD15            | 1        |
| 05-25925-003                                                                  | HOSE-COOLANT,LWR,ELBOW,ECR               | 1        |
| 23-12485-250                                                                  | CLAMP-WORM,CONSTANT,2-1/2 HOSE           | 4        |
| A22-69862-000                                                                 | BRKT ASSY-AC,H02,MID PIPE                | 1        |
| A07-22714-000                                                                 | TUBE-SUPPLY,FWD,JUMPER,M1400             | 1        |
| A07-22715-000                                                                 | TUBE-RETURN,FWD JUMPER,M1400             | 1        |
| A07-22753-001                                                                 | BRKT-BRKT,SPRT,TRANS CLR LINES           | 1        |
| 07-22721-000                                                                  | TUBE-SPLY,M-ITOC,DD13,P3-113             | 1        |
| 07-22722-000                                                                  | TUBE-RETURN,M-ITOC,DD13,P3-113           | 1        |
| 23-13345-020                                                                  | BOLT-HEX,FLANGE HEAD-SCREW HEX FLANGE,M8 | 1        |
| DDE N910112008000                                                             | NUT,HX FLNG MTRC,M8X1.25,CLS 8           | 2        |
| 23-12912-800                                                                  | ELB-45,VITON O RING,#8                   | 1        |
| 23-13039-008                                                                  | CONN-STR THRD,VITON O-RING               | 1        |
| 23-13687-000                                                                  | CLAMP TUBE SNAP VERSION                  | 8        |

Table 3, Cascadia 113 (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI Eaton FR

| Cascadia 125 (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI |                                              |          |
|-----------------------------------------------------------------------|----------------------------------------------|----------|
| Part number                                                           | Description                                  | Quantity |
| MOD 3S05808000003                                                     | RADIATOR M1400,BO,LSO,ITOC                   | 1        |
| A05-30850-000                                                         | SHROUD-FAN,1400 (P3125)                      | 1        |
| 23-12274-003                                                          | RIVET-PUSH-TYPE,REUSABLE,.315"               | 8        |
| 23-10800-050                                                          | SCREW-HWH,THDRLG,1/4-20X1/2                  | 8        |
| 23-09426-203                                                          | WASHER-PLTD STL,1/4X1.0"                     | 8        |
| A05-30679-000                                                         | RECIRC-BAFFLE,P3,M1400, Bottom               | 1        |
| N000933 010200                                                        | SCREW-CAP,HEX M10X30 10.9 ZN                 | 4        |
| 23-12707-010                                                          | WASHER-FLAT,SSTL,M10-20MMX2MM                | 4        |
| 23-12668-010                                                          | NUT-HEX,FLNG,M10-1.5,ZN AL                   | 4        |
| 05-30581-000                                                          | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO           | 1        |
| 05-30581-001                                                          | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO           | 1        |
| 23-13509-065                                                          | SCRW HX FLNG,M16-1.5X65,10.9                 | 4        |
| N210100 016000                                                        | NUT-FLG HD,M16,CLASS 10, P&O                 | 2        |
| 01-20963-001                                                          | WASHER-HARDND STL,.656X2.5"                  | 2        |
| BCD 27463 14                                                          | ISOLATOR-RAD,LWR,KIT                         | 2        |
| A05-30647-000                                                         | STRUT-RAD,DD13,MED,LH,M1400,AFT,ISO(P3125)   | 1        |
| A05-30648-000                                                         | STRUT-RAD,DD13,MED,RH,M1400,AFT,ISO(P3125)   | 1        |
| A05-30649-000                                                         | STRUT-RAD,DD13,MED,BIAS,M1400,AFT,ISO(P3125) | 1        |
| 23-11751-250                                                          | SCREW-CAP,HEX,1/2-13,GR8,ZNDI                | 1        |

FLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 Conventional

Century Class Conventional  
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| Cascadia 125 (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI |                                |          |
|-----------------------------------------------------------------------|--------------------------------|----------|
| Part number                                                           | Description                    | Quantity |
| 23-11751-400                                                          | SCREW-CAP,HEX,1/2-13,GR8,ZN    | 1        |
| 23-13833-108                                                          | NUT-HEX,PT,1/2-13,C,ZN/AL,.448 | 2        |
| 23-09114-017                                                          | WASHER-HRDN,0.53X1.38X         | 4        |
| 23-12237-075                                                          | SCREW-HWH,SERR,THDRLG,5/16-18  | 2        |
| A05-18548-000                                                         | TUBE-CLNT,LWR,M1400,DD13,DD15  | 1        |
| 05-25925-003                                                          | HOSE-COOLANT,LWR,ELBOW,ECR     | 1        |
| 05-21969-000                                                          | HOSE-CLNT,M1400,P3-125,HDEP    | 1        |
| 23-12485-250                                                          | CLAMP-WORM,CONSTANT,2-1/2 HOSE | 4        |
| A22-69862-000                                                         | BRKT ASSY-AC,H02,MID PIPE      | 1        |

**Table 4, Cascadia 125(DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI**

| Cascadia 125 (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI |                                    |          |
|----------------------------------------------------------------------|------------------------------------|----------|
| Part number                                                          | Description                        | Quantity |
| MOD 3S0580800003                                                     | RADIATOR M1400,BO,LSO,ITOC         | 1        |
| A05-30850-000                                                        | SHROUD-FAN,1400 (P3125)            | 1        |
| 23-12274-003                                                         | RIVET-PUSH-TYPE,REUSABLE,.315"     | 8        |
| 23-10800-050                                                         | SCREW-HWH,THDRLG,1/4-20X1/2        | 8        |
| 23-09426-203                                                         | WASHER-PLTD STL,1/4X1.0"           | 8        |
| A05-30679-000                                                        | RECIRC-BAFFLE,P3,M1400, Bottom     | 1        |
| N000933 010200                                                       | SCREW-CAP,HEX M10X30 10.9 ZN       | 4        |
| 23-12707-010                                                         | WASHER-FLAT,SSTL,M10-20MMX2MM      | 4        |
| 23-12668-010                                                         | NUT-HEX,FLNG,M10-1.5,ZN AL         | 4        |
| 05-30581-000                                                         | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO | 1        |
| 05-30581-001                                                         | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO | 1        |
| 23-13509-065                                                         | SCRW HX FLNG,M16-1.5X65,10.9       | 4        |
| N210100 016000                                                       | NUT-FLG HD,M16,CLASS 10, P&O       | 2        |
| 01-20963-001                                                         | WASHER-HARDND STL,.656X2.5"        | 2        |
| BCD 27463 14                                                         | ISOLATOR-RAD,LWR,KIT               | 2        |
| A05-30681-000                                                        | STRUT-RAD,DD15,MED,LH,ISO          | 1        |
| A05-30682-000                                                        | STRUT-RAD,DD15,MED,RH,ISO          | 1        |
| A05-30683-000                                                        | STRUT-RAD,DD15,MED,BIAS,ISO        | 1        |
| 23-11751-250                                                         | SCREW-CAP,HEX,1/2-13,GR8,ZNDI      | 1        |
| 23-11751-400                                                         | SCREW-CAP,HEX,1/2-13,GR8,ZN        | 1        |
| 23-13833-108                                                         | NUT-HEX,PT,1/2-13,C,ZN/AL,.448     | 2        |
| 23-09114-017                                                         | WASHER-HRDN,0.53X1.38X             | 4        |
| 23-12237-075                                                         | SCREW-HWH,SERR,THDRLG,5/16-18      | 2        |
| A05-18548-000                                                        | TUBE-CLNT,LWR,M1400,DD13,DD15      | 1        |
| 05-25925-003                                                         | HOSE-COOLANT,LWR,ELBOW,ECR         | 1        |
| 05-21969-000                                                         | HOSE-CLNT,M1400,P3-125,HDEP        | 1        |
| 23-12485-250                                                         | CLAMP-WORM,CONSTANT,2-1/2 HOSE     | 4        |
| A22-69862-000                                                        | BRKT ASSY-AC,H02,MID PIPE          | 1        |

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FLD Conventional  
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FLC 112 ConventionalCentury Class Conventional  
Argosy COE  
Cargo  
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Business Class M2  
> Cascadia  
108SD/114SD

| Cascadia 125 (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI |                                          |          |
|----------------------------------------------------------------------|------------------------------------------|----------|
| Part number                                                          | Description                              | Quantity |
| A07-22758-000                                                        | TUBE-SUPPLY,FWD,JUMPER,M1400             | 1        |
| A07-22759-000                                                        | TUBE-RETURN,FWD JUMPER,M1400             | 1        |
| A07-22753-001                                                        | BRKT-BRKT,SPRT,TRANS CLR LINES           | 1        |
| 07-22721-000                                                         | TUBE-SPLY,M-ITOC,DD13,P3-113             | 1        |
| 07-22722-000                                                         | TUBE-RETURN,M-ITOC,DD13,P3-113           | 1        |
| 23-13345-020                                                         | BOLT-HEX,FLANGE HEAD-SCREW HEX FLANGE,M8 | 1        |
| DDE N910112008000                                                    | NUT,HX FLNG MTRC,M8X1.25,CLS 8           | 2        |
| 23-12912-800                                                         | ELB-45,VITON O RING,#8                   | 1        |
| 23-13039-008                                                         | CONN-STR THRD,VITON O-RING               | 1        |
| 23-13687-000                                                         | CLAMP TUBE SNAP VERSION                  | 8        |
| DDE N9101050110009                                                   | SCREW HX FLNG,M10-1.5,10.9               | 1        |
| 23-12668-010                                                         | NUT-HEX,FLNG,M10-1.5,ZN AL               | 2        |

Table 5, Cascadia 125(DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI

| Cascadia 125 (DD15) - 1625 to 1400 Radiator Conversion List, w/o TrCI |                                              |          |
|-----------------------------------------------------------------------|----------------------------------------------|----------|
| Part number                                                           | Description                                  | Quantity |
| MOD 3S0580800003                                                      | RADIATOR M1400,BO,LSO,ITOC                   | 1        |
| A05-30850-000                                                         | SHROUD-FAN,1400 (P3125)                      | 1        |
| 23-12274-003                                                          | RIVET-PUSH-TYPE,REUSABLE,.315"               | 8        |
| 23-10800-050                                                          | SCREW-HWH,THDRLG,1/4-20X1/2                  | 8        |
| 23-09426-203                                                          | WASHER-PLTD STL,1/4X1.0"                     | 8        |
| A05-30679-000                                                         | RECIRC-BAFFLE,P3,M1400, Bottom               | 1        |
| N000933 010200                                                        | SCREW-CAP,HEX M10X30 10.9 ZN                 | 4        |
| 23-12707-010                                                          | WASHER-FLAT,SSTL,M10-20MMX2MM                | 4        |
| 23-12668-010                                                          | NUT-HEX,FLNG,M10-1.5,ZN AL                   | 4        |
| 05-30581-000                                                          | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO           | 1        |
| 05-30581-001                                                          | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO           | 1        |
| 23-13509-065                                                          | SCRW HX FLNG,M16-1.5X65,10.9                 | 4        |
| N210100 016000                                                        | NUT-FLG HD,M16,CLASS 10, P&O                 | 2        |
| 01-20963-001                                                          | WASHER-HARDND STL,.656X2.5"                  | 2        |
| BCD 27463 14                                                          | ISOLATOR-RAD,LWR,KIT                         | 2        |
| A05-30647-000                                                         | STRUT-RAD,DD13,MED,LH,M1400,AFT,ISO(P3125)   | 1        |
| A05-30648-000                                                         | STRUT-RAD,DD13,MED,RH,M1400,AFT,ISO(P3125)   | 1        |
| A05-30649-000                                                         | STRUT-RAD,DD13,MED,BIAS,M1400,AFT,ISO(P3125) | 1        |
| 23-11751-250                                                          | SCREW-CAP,HEX,1/2-13,GR8,ZNDI                | 1        |
| 23-11751-400                                                          | SCREW-CAP,HEX,1/2-13,GR8,ZN                  | 1        |
| 23-13833-108                                                          | NUT-HEX,PT,1/2-13,C,ZN/AL,.448               | 2        |
| 23-09114-017                                                          | WASHER-HRDN,0.53X1.38X                       | 4        |
| 23-12237-075                                                          | SCREW-HWH,SERR,THDRLG,5/16-18                | 2        |
| A05-18548-000                                                         | TUBE-CLNT,LWR,M1400,DD13,DD15                | 1        |
| 05-25925-003                                                          | HOSE-COOLANT,LWR,ELBOW,ECR                   | 1        |

FLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 Conventional

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| Cascadia 125 (DD15) - 1625 to 1400 Radiator Conversion List, w/o TrCI |                                         |          |
|-----------------------------------------------------------------------|-----------------------------------------|----------|
| Part number                                                           | Description                             | Quantity |
| 05-21969-000                                                          | HOSE-CLNT,M1400,P3-125,HDEP             | 1        |
| 23-12485-250                                                          | CLAMP-WORM,CONSTANT,2-1/2 HOSE          | 4        |
| A22-69862-000                                                         | BRKT ASSY-AC,H02,MID PIPE               | 1        |
| A07-22758-000                                                         | TUBE-SUPPLY,FWD,JUMPER,M1400            | 1        |
| A07-22759-000                                                         | TUBE-RETURN,FWD JUMPER,M1400            | 1        |
| A07-22753-001                                                         | BRKT-BRKT,SPRT,TRANS CLR LINES          | 1        |
| 07-22721-000                                                          | TUBE-SPLY,M-ITOC,DD13,P3-113            | 1        |
| 07-22722-000                                                          | TUBE-RETURN,M-ITOC,DD13,P3-113          | 1        |
| 23-13345-020                                                          | BOLT-HEX,FLANGE HEAD-SCREW HEXFLANGE,M8 | 1        |
| DDE N910112008000                                                     | NUT,HX FLNG MTRC,M8X1.25,CLS 8          | 2        |
| 23-12912-800                                                          | ELB-45,VITON O RING,#8                  | 1        |
| 23-13039-008                                                          | CONN-STR THRD,VITON O-RING              | 1        |
| 23-13687-000                                                          | CLAMP TUBE SNAP VERSION                 | 8        |

**Table 6, Cascadia 125 (DD15) - 1625 to 1400 Radiator Conversion List, w/o TrCI**

| Cascadia 125(DD15) - 1625 to 1400 Radiator Conversion List, w/ TrCI |                                    |          |
|---------------------------------------------------------------------|------------------------------------|----------|
| Part number                                                         | Description                        | Quantity |
| MOD 3S0580800003                                                    | RADIATOR M1400,BO,LSO,ITOC         | 1        |
| A05-30850-000                                                       | SHROUD-FAN,1400 (P3125)            | 1        |
| 23-12274-003                                                        | RIVET-PUSH-TYPE,REUSABLE,.315"     | 8        |
| 23-10800-050                                                        | SCREW-HWH,THDR LG,1/4-20X1/2       | 8        |
| 23-09426-203                                                        | WASHER-PLTD STL,1/4X1.0"           | 8        |
| A05-30679-000                                                       | RECIRC-BAFFLE,P3,M1400, Bottom     | 1        |
| N000933 010200                                                      | SCREW-CAP,HEX M10X30 10.9 ZN       | 4        |
| 23-12707-010                                                        | WASHER-FLAT,SSTL,M10-20MMX2MM      | 4        |
| 23-12668-010                                                        | NUT-HEX,FLNG,M10-1.5,ZN AL         | 4        |
| 05-30581-000                                                        | BRKT-RAD SUPT,BTM CHNL,1400,LH,ISO | 1        |
| 05-30581-001                                                        | BRKT-RAD SUPT,BTM CHNL,1400,RH,ISO | 1        |
| 23-13509-065                                                        | SCRW HX FLNG,M16-1.5X65,10.9       | 4        |
| N210100 016000                                                      | NUT-FLG HD,M16,CLASS 10, P&O       | 2        |
| 01-20963-001                                                        | WASHER-HARDND STL,.656X2.5"        | 2        |
| BCD 27463 14                                                        | ISOLATOR-RAD,LWR,KIT               | 2        |
| A05-30681-000                                                       | STRUT-RAD,DD15,MED,LH,ISO          | 1        |
| A05-30682-000                                                       | STRUT-RAD,DD15,MED,RH,ISO          | 1        |
| A05-30683-000                                                       | STRUT-RAD,DD15,MED,BIAS,ISO        | 1        |
| 23-11751-250                                                        | SCREW-CAP,HEX,1/2-13,GR8,ZNDI      | 1        |
| 23-11751-400                                                        | SCREW-CAP,HEX,1/2-13,GR8,ZN        | 1        |
| 23-13833-108                                                        | NUT-HEX,PT,1/2-13,C,ZN/AL,.448     | 2        |
| 23-09114-017                                                        | WASHER-HRDN,0.53X1.38X             | 4        |
| 23-12237-075                                                        | SCREW-HWH,SERR,THDR LG,5/16-18     | 2        |
| A05-18548-000                                                       | TUBE-CLNT,LWR,M1400,DD13,DD15      | 1        |

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FLB COE  
FLD Conventional  
Business Class  
FLC 112 ConventionalCentury Class Conventional  
Argosy COE  
Cargo  
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Business Class M2  
> Cascadia  
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| Cascadia 125(DD15) - 1625 to 1400 Radiator Conversion List, w/ TrCI |                                          |          |
|---------------------------------------------------------------------|------------------------------------------|----------|
| Part number                                                         | Description                              | Quantity |
| 05-25925-003                                                        | HOSE-COOLANT,LWR,ELBOW,ECR               | 1        |
| 05-21969-000                                                        | HOSE-CLNT,M1400,P3-125,HDEP              | 1        |
| 23-12485-250                                                        | CLAMP-WORM,CONSTANT,2-1/2 HOSE           | 4        |
| A22-69862-000                                                       | BRKT ASSY-AC,H02,MID PIPE                | 1        |
| A07-22758-000                                                       | TUBE-SUPPLY,FWD,JUMPER,M1400             | 1        |
| A07-22759-000                                                       | TUBE-RETURN,FWD JUMPER,M1400             | 1        |
| A07-22753-001                                                       | BRKT-BRKT,SPRT,TRANS CLR LINES           | 1        |
| 07-22767-000                                                        | TUBE-SPLY,M-ITOC,DD15,P3-125             | 1        |
| 07-22768-000                                                        | TUBE-RETURN,M-ITOC,DD15,P3-125           | 1        |
| 23-13345-020                                                        | BOLT-HEX,FLANGE HEAD-SCREW HEX FLANGE,M8 | 1        |
| DDE N910112008000                                                   | NUT,HX FLNG MTRC,M8X1.25,CLS 8           | 2        |
| 23-12912-800                                                        | ELB-45,VITON O RING,#8                   | 1        |
| 23-13039-008                                                        | CONN-STR THRD,VITON O-RING               | 1        |
| 23-13687-000                                                        | CLAMP TUBE SNAP VERSION                  | 8        |

Table 7, Cascadia 125(DD15) - 1625 to 1400 Radiator Conversion List, w/ TrCI

| Cascadia 125 (DD15) - Manual Transmission Plumbing, Eaton RT |                                |          |
|--------------------------------------------------------------|--------------------------------|----------|
| Part number                                                  | Description                    | Quantity |
| A07-22758-000                                                | TUBE-SUPPLY,FWD,JUMPER,M1400   | 1        |
| A07-22759-000                                                | TUBE-RETURN,FWD JUMPER,M1400   | 1        |
| A07-22753-001                                                | BRKT-BRKT,SPRT,TRANS CLR LINES | 1        |
| 07-22765-000                                                 | TUBE-SUP,DD15,M-ITOC,DD15,LH   | 1        |
| 07-22766-000                                                 | TUBE,RETURN,M-ITOC,DD15,P3     | 1        |
| 910105 008010                                                | SCRW HEX FLNG,M8X1.25X40,      | 1        |
| 910112 008000                                                | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2        |
| 23-12912-800                                                 | ELB-45,VITON O RING,#8         | 1        |
| 23-13039-008                                                 | CONN-STR THRD,VITON O-RING     | 1        |
| 23-13687-000                                                 | CLAMP TUBE SNAP VERSION        | 10       |

Table 8, Cascadia 125 (DD15) - Manual Transmission Plumbing, Eaton RT

| Cascadia 125 (DD15) - Manual Transmission Plumbing, Eaton ECA |                                |          |
|---------------------------------------------------------------|--------------------------------|----------|
| Part number                                                   | Description                    | Quantity |
| A07-22758-000                                                 | TUBE-SUPPLY,FWD,JUMPER,M1400   | 1        |
| A07-22759-000                                                 | TUBE-RETURN,FWD JUMPER,M1400   | 1        |
| A07-22753-001                                                 | BRKT-BRKT,SPRT,TRANS CLR LINES | 1        |
| 07-22763-000                                                  | TUBE-SUP,DD15,M-ITOC,P3        | 1        |
| 07-22764-000                                                  | TUBE-RET,DD15,M-ITOC,P3        | 1        |
| 910105 008010                                                 | SCRW HEX FLNG,M8X1.25X40,      | 1        |
| 910112 008000                                                 | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2        |
| 23-12912-800                                                  | ELB-45,VITON O RING,#8         | 1        |

FLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 Conventional

Century Class Conventional  
Argosy COE  
Cargo  
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| <b>Cascadia 125 (DD15) - Manual Transmission Plumbing, Eaton ECA</b> |                            |                 |
|----------------------------------------------------------------------|----------------------------|-----------------|
| <b>Part number</b>                                                   | <b>Description</b>         | <b>Quantity</b> |
| 23-13039-008                                                         | CONN-STR THRD,VITON O-RING | 1               |
| 23-13687-000                                                         | CLAMP TUBE SNAP VERSION    | 10              |

**Table 9, Cascadia 125 (DD15) - Manual Transmission Plumbing, Eaton ECA**

| <b>Cascadia 113 (DD13) - Manual Transmission Plumbing, Eaton RT</b> |                                |                 |
|---------------------------------------------------------------------|--------------------------------|-----------------|
| <b>Part number</b>                                                  | <b>Description</b>             | <b>Quantity</b> |
| A07-22714-000                                                       | TUBE-SUPPLY,FWD,JUMPER,M1400   | 1               |
| A07-22715-000                                                       | TUBE-RETURN,FWD JUMPER,M1400   | 1               |
| A07-22753-001                                                       | BRKT-BRKT,SPRT,TRANS CLR LINES | 1               |
| 07-22754-000                                                        | TUBE-SUP,DD13,M-ITOC,DD13,LH   | 1               |
| 07-22755-000                                                        | TUBE,RETURN,M-ITOC,DD13,P3     | 1               |
| 910105 008010                                                       | SCRW HEX FLNG,M8X1.25X40,      | 4               |
| 910112 008000                                                       | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2               |
| 23-12912-800                                                        | ELB-45,VITON O RING,#8         | 1               |
| 23-13039-008                                                        | CONN-STR THRD,VITON O-RING     | 1               |
| 23-09114-006                                                        | WASHER-HRDN,0.34X0.69X.080,ZN  | 5               |
| 23-12612-008                                                        | NUT-HEX,M8,DIN 934,A2,SST      | 1               |
| 23-13687-000                                                        | CLAMP TUBE SNAP VERSION        | 10              |

**Table 10, Cascadia 113 (DD13) - Manual Transmission Plumbing, Eaton RT**

| <b>Cascadia 113 (DD13) - Manual Transmission Plumbing, Eaton ECA</b> |                                |                 |
|----------------------------------------------------------------------|--------------------------------|-----------------|
| <b>Part number</b>                                                   | <b>Description</b>             | <b>Quantity</b> |
| A07-22714-000                                                        | TUBE-SUPPLY,FWD,JUMPER,M1400   | 1               |
| A07-22715-000                                                        | TUBE-RETURN,FWD JUMPER,M1400   | 1               |
| A07-22753-001                                                        | BRKT-BRKT,SPRT,TRANS CLR LINES | 1               |
| 07-22712-000                                                         | TUBE-SUP,DD13,M-ITOC,DD13,LH   | 1               |
| 07-22713-000                                                         | TUBE,RETURN,M-ITOC,DD13,P3     | 1               |
| 910105 008010                                                        | SCRW HEX FLNG,M8X1.25X40,      | 4               |
| 910112 008000                                                        | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2               |
| 23-12912-800                                                         | ELB-45,VITON O RING,#8         | 1               |
| 23-13039-008                                                         | CONN-STR THRD,VITON O-RING     | 1               |
| 23-09114-006                                                         | WASHER-HRDN,0.34X0.69X.080,ZN  | 5               |
| 23-12612-008                                                         | NUT-HEX,M8,DIN 934,A2,SST      | 1               |
| 23-13687-000                                                         | CLAMP TUBE SNAP VERSION        | 10              |

**Table 11, Cascadia 113 (DD13) - Manual Transmission Plumbing, Eaton ECA**

| <b>Cascadia 125 (DD13) - Manual Transmission Plumbing, Eaton RT</b> |                              |                 |
|---------------------------------------------------------------------|------------------------------|-----------------|
| <b>Part number</b>                                                  | <b>Description</b>           | <b>Quantity</b> |
| A07-22758-000                                                       | TUBE-SUPPLY,FWD,JUMPER,M1400 | 1               |
| A07-22759-000                                                       | TUBE-RETURN,FWD JUMPER,M1400 | 1               |

Freightliner  
Service BulletinFLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 ConventionalCentury Class Conventional  
Argosy COE  
Cargo  
ColumbiaCoronado  
Business Class M2  
> Cascadia  
108SD/114SD

| Cascadia 125 (DD13) - Manual Transmission Plumbing, Eaton RT |                                |          |
|--------------------------------------------------------------|--------------------------------|----------|
| Part number                                                  | Description                    | Quantity |
| A07-22753-001                                                | BRKT-BRKT,SPRT,TRANS CLR LINES | 1        |
| 07-22754-000                                                 | TUBE-SUP,DD13,M-ITOC,DD13,LH   | 1        |
| 07-22755-000                                                 | TUBE,RETURN,M-ITOC,DD13,P3     | 1        |
| 910105 008010                                                | SCRW HEX FLNG,M8X1.25X40,      | 4        |
| 910112 008000                                                | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2        |
| 23-12912-800                                                 | ELB-45,VITON O RING,#8         | 1        |
| 23-13039-008                                                 | CONN-STR THRD,VITON O-RING     | 1        |
| 23-09114-006                                                 | WASHER-HRDN,0.34X0.69X.080,ZN  | 5        |
| 23-12612-008                                                 | NUT-HEX,M8,DIN 934,A2,SST      | 1        |
| 23-13687-000                                                 | CLAMP TUBE SNAP VERSION        | 10       |

Table 12, Cascadia 125 (DD13) - Manual Transmission Plumbing, Eaton RT

| Cascadia 125 (DD13) - Manual Transmission Plumbing, Eaton ECA |                                |          |
|---------------------------------------------------------------|--------------------------------|----------|
| Part number                                                   | Description                    | Quantity |
| A07-22758-000                                                 | TUBE-SUPPLY,FWD,JUMPER,M1400   | 1        |
| A07-22759-000                                                 | TUBE-RETURN,FWD JUMPER,M1400   | 1        |
| A07-22753-001                                                 | BRKT-BRKT,SPRT,TRANS CLR LINES | 1        |
| 07-22712-000                                                  | TUBE-SUP,DD13,M-ITOC,DD13,LH   | 1        |
| 07-22713-000                                                  | TUBE,RETURN,M-ITOC,DD13,P3     | 1        |
| 910105 008010                                                 | SCRW HEX FLNG,M8X1.25X40,      | 4        |
| 910112 008000                                                 | NUT,HX FLNG MTRC,M8X1.25,CLS 8 | 2        |
| 23-12912-800                                                  | ELB-45,VITON O RING,#8         | 1        |
| 23-13039-008                                                  | CONN-STR THRD,VITON O-RING     | 1        |
| 23-09114-006                                                  | WASHER-HRDN,0.34X0.69X.080,ZN  | 5        |
| 23-12612-008                                                  | NUT-HEX,M8,DIN 934,A2,SST      | 1        |
| 23-13687-000                                                  | CLAMP TUBE SNAP VERSION        | 10       |

Table 13, Cascadia 125(DD13) - Manual Transmission Plumbing, Eaton ECA

## PartsPro Global Annotation

It is highly recommended that a Global Annotation regarding this modification be entered in PartsPro. Global annotations give users a way to record and check after-factory installations and modifications for a particular vehicle. It is connected to a specific VIN, and is visible to anyone who views that serial number in PartsPro. Create and view Global Annotation as follows.

1. In PartsPro, enter the serial number (the last six characters of the VIN) in the "Vehicle" tab and press "Enter," or click the "Retrieve Design Group" button.
2. In the "Design Group" tab, click the Add Annotation icon. See [Fig. 19](#).
3. In the "Add Annotation" window, mark the annotation as "Global" and enter text for the annotation.

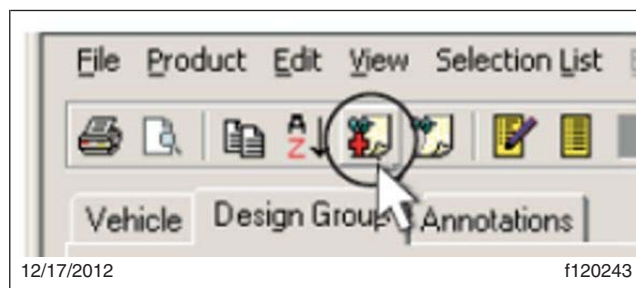
Suggested annotation text: The cooling system has been modified to an isolated mount type radiator. See Service Bulletin 20-73 for radiator, radiator mounting, fan, fan shroud, plumbing and transmission cooler line modifications and part numbers.

FLA COE  
FLB COE  
FLD Conventional  
Business Class  
FLC 112 Conventional

Century Class Conventional  
Argosy COE  
Cargo  
Columbia

Coronado  
Business Class M2  
> Cascadia  
108SD/114SD

**Freightliner  
Service Bulletin**



**Fig. 19, Add Annotation Icon**

4. Click the "OK" button to submit.

Daimler Trucks North America will review the content for publication.

For additional information, click the "Help" button or Help → Contents in the top menu bar, and view the "Annotations" topic in PartsPro help, or refer to Freightliner or Western Star Parts Technical Bulletin: 00-009 for instructions.

## Warranty

This procedure is warrantable only if the described condition exists and the repair is performed within the applicable base or extended coverage warranty period. If a failure is not found, this procedure is considered preventive and warranty does not apply.

Normal warranty applies. See [Table 14](#) for QuickClaim damage code and labor allowance information. Refer to this service bulletin by number at the beginning of the claim comments. See [Table 15](#) for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

| QuickClaim Damage Code and Labor Allowance |           |                                            |             |
|--------------------------------------------|-----------|--------------------------------------------|-------------|
| Damage Code                                | SRT Code  | Description                                | Time: Hours |
| 266-000A05609                              | 266-5025A | Cascadia 1625/1500 to 1400 Radiator Update | 7.3         |

**Table 14, QuickClaim Damage Code and Labor Allowance**

**Freightliner  
Service Bulletin**

 FLA COE  
 FLB COE  
 FLD Conventional  
 Business Class  
 FLC 112 Conventional

 Century Class Conventional  
 Argosy COE  
 Cargo  
 Columbia

 Coronado  
 Business Class M2  
 > Cascadia  
 108SD/114SD

| OWL VMRS Codes and Labor Allowance |                |            |           |                                            |             |
|------------------------------------|----------------|------------|-----------|--------------------------------------------|-------------|
| Primary Failed Part                | Component Code | Cause Code | SRT Code  | Description                                | Time: Hours |
| 05-29619-001                       | 042-002-001    | 12         | 266-5025A | Cascadia 1625/1500 to 1400 Radiator Update | 7.3         |
| 05-29617-000                       |                |            |           |                                            |             |
| 05-29617-001                       |                |            |           |                                            |             |
| 05-29617-002                       |                |            |           |                                            |             |
| 05-29617-003                       |                |            |           |                                            |             |
| 05-29617-004                       |                |            |           |                                            |             |
| 05-29617-005                       |                |            |           |                                            |             |
| 05-29617-006                       |                |            |           |                                            |             |
| 05-29617-007                       |                |            |           |                                            |             |
| 05-29617-008                       |                |            |           |                                            |             |
| 05-29617-009                       |                |            |           |                                            |             |

**Table 15, OWL VMRS Codes and Labor Allowance**