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 FLD Conventional
 Business Class
 FLC 112 Conventional

> Century Class Conventional
 Argosy COE
 Cargo
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Description of Revisions: *This bulletin replaces the version dated June 2014. Clarification has been added regarding transmission cooler line replacement.*

General Information

Some Australian Century Class Conventional vehicles (CST 112) with DD13 engines and engine-mounted 1625 sq in radiators may have radiator failures under certain operating parameters, 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 February 3, 2014, DD13-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 type transmission installed. Refer to the tables under "Parts" for lists of required parts for particular vehicle configurations. Vehicles with remote mounted transmission coolers (not internal to the radiator) **DO NOT** require replacement of the cooler lines.

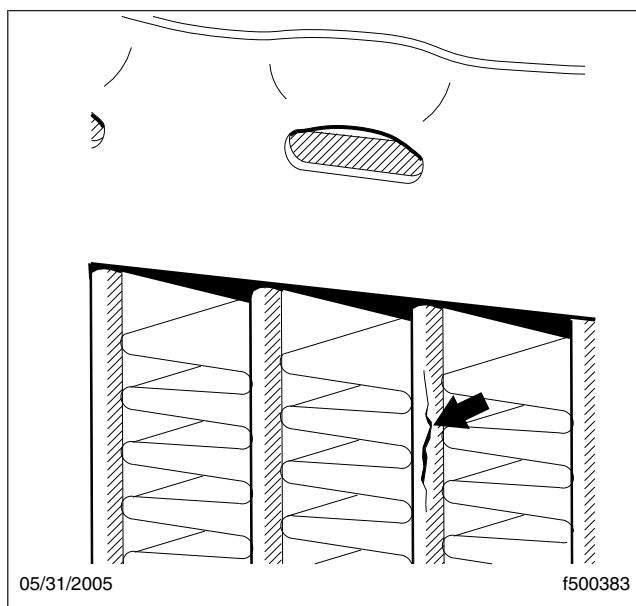


Fig. 1, Crack in Coolant Tube

Replacement

1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the tires.
2. Open the hood.

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3. Remove the bumper. For instructions, refer to **Group 31** of the *Century Class 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 *Century Class 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 *Century Class 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 *Century Class 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**.

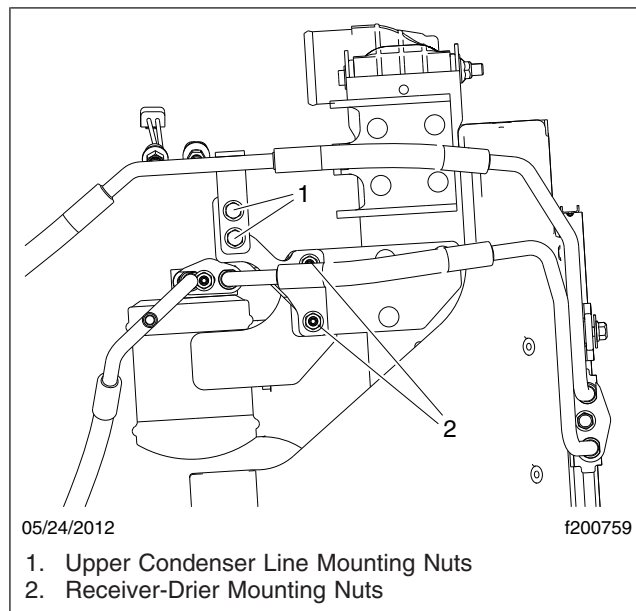


Fig. 2, Receiver-Drier Installation (typical)

- 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.

- 12.3 Carefully move the condenser around and set it on right front tire. Secure it as needed. See **Fig. 4**.

IMPORTANT: On vehicles that are equipped with a transmission cooler mounted separate from the radiator, no modification is needed. Only vehicles with the transmission cooler integral to the radiator will need to have the cooling lines replaced.

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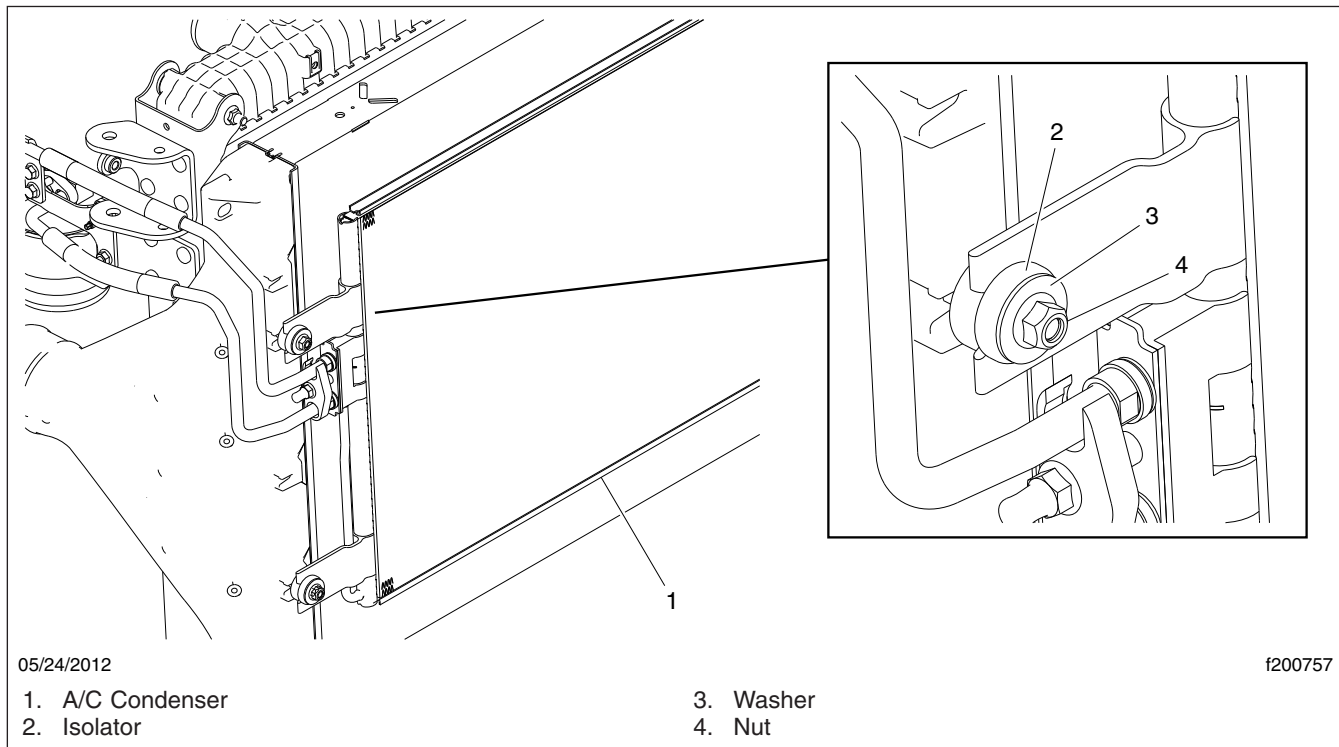


Fig. 3, A/C Condenser Installation

13. If equipped, 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 can only 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.
19. Separate the power steering cooler from the power steering cooler bracket. Do not disconnect the lines.
20. Remove the power steering cooler bracket from the front closing crossmember. Save the hardware.

NOTE: Keep all of the transmission cooler line mounting hardware for reuse when installing the new lines.

21. 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](#).
22. Install the lower radiator mounting brackets. See [Fig. 6](#). Tighten 191 to 234 lbf-ft (260 to 317 N-m).

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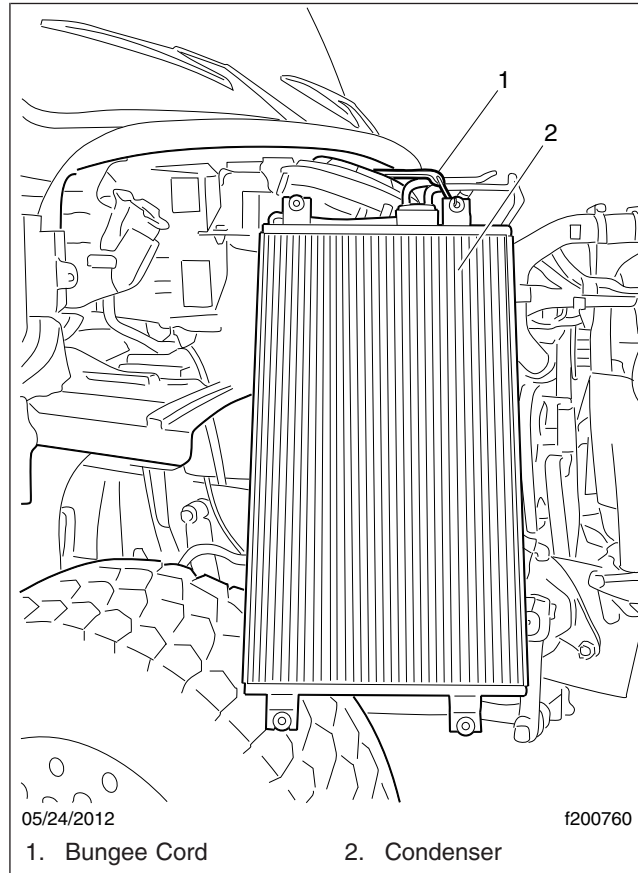


Fig. 4, Securing the A/C Condenser

23. Install the new power steering cooler bracket on the front closing crossmember, and install the power steering cooler. See [Fig. 7](#).

24. If equipped, 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.

See [Fig. 5](#), [Fig. 8](#), [Fig. 9](#), and [Fig. 10](#) for transmission cooler line and bracket installation. For vehicle-specific plumbing diagrams refer to EZWiring in PartsPro.

25. 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.

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

27. Install the new fan shroud on the new radiator. See [Fig. 11](#).

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

28. Install the new lower baffle on the front closing crossmember. See [Fig. 12](#).

29. 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 *Century Class Workshop Manual*.

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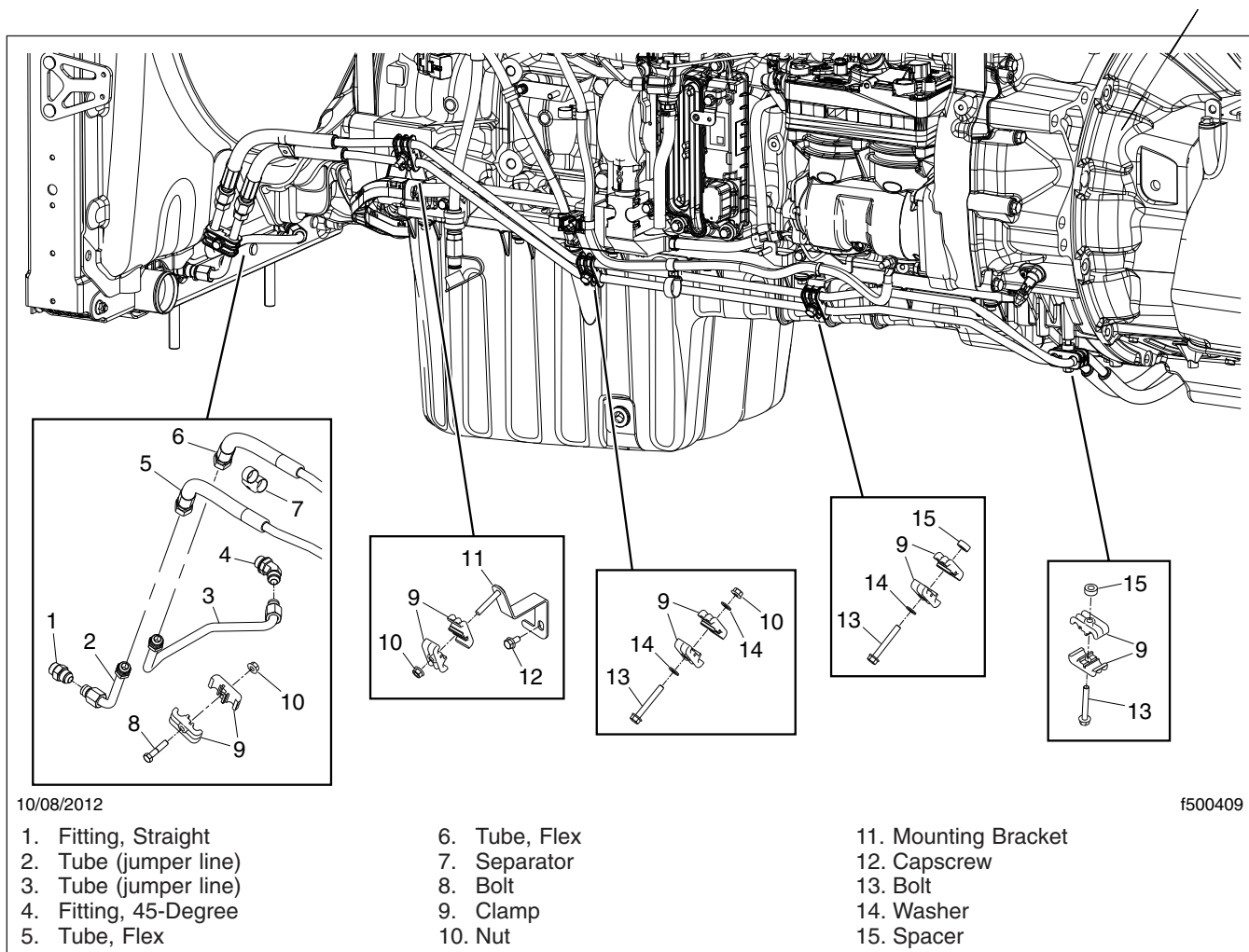


Fig. 5, Transmission Cooler Line Installation (typical)

30. Install the new transmission cooler jumper lines on the radiator. See [Fig. 13](#).
31. 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. 14](#).
32. Install the new radiator strut rods. See [Fig. 15](#). Do not tighten the mounting fasteners yet.
33. Install the upper radiator hose. See [Fig. 16](#).
34. If equipped, connect the transmission cooler lines to the jumper lines on the radiator.
35. Install the lower radiator hose assembly. See [Fig. 17](#).
36. Install the A/C condenser as follows.
 - 36.1 Move the condenser into position and secure it temporarily. See [Fig. 3](#).
 - 36.2 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).

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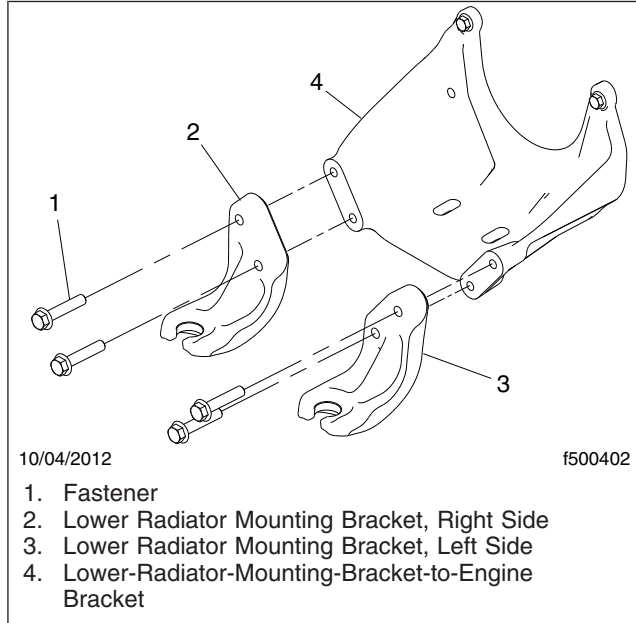


Fig. 6, Lower Radiator Mounting Brackets Installation

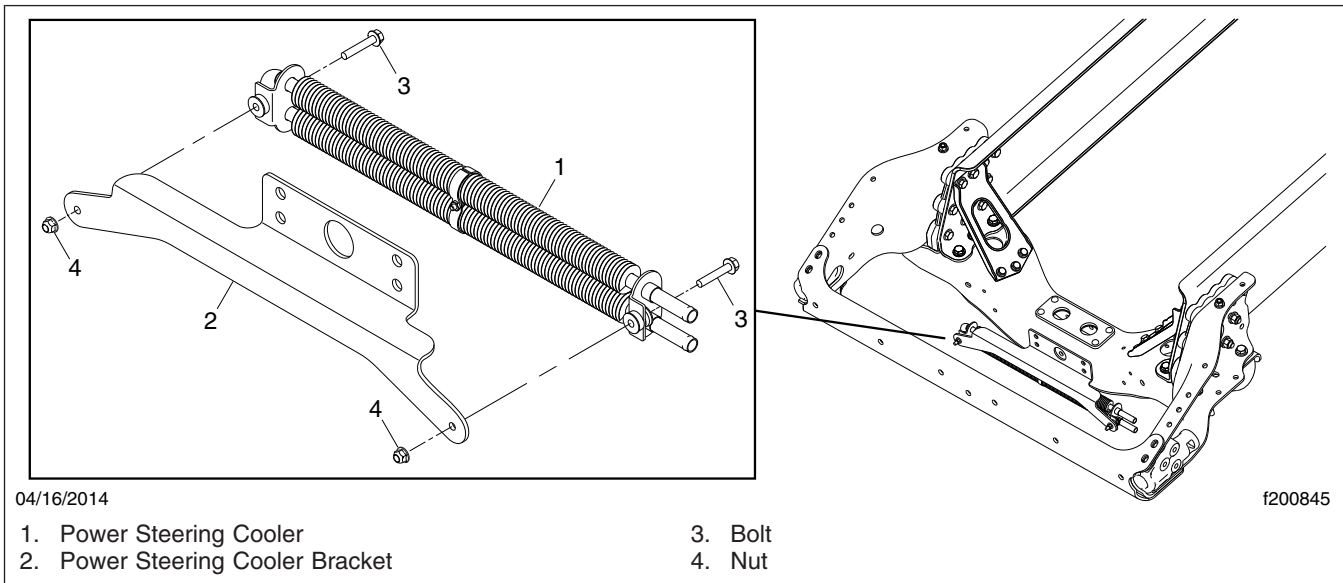


Fig. 7, Power Steering Cooler Bracket Installation

36.3 Tighten the condenser mounting bolts 112 to 144 lbf-in (1270 to 1630 N-cm).

37. 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).

38. Tighten the radiator mounting nuts 140 to 170 lbf-ft (190 to 230 N-m).

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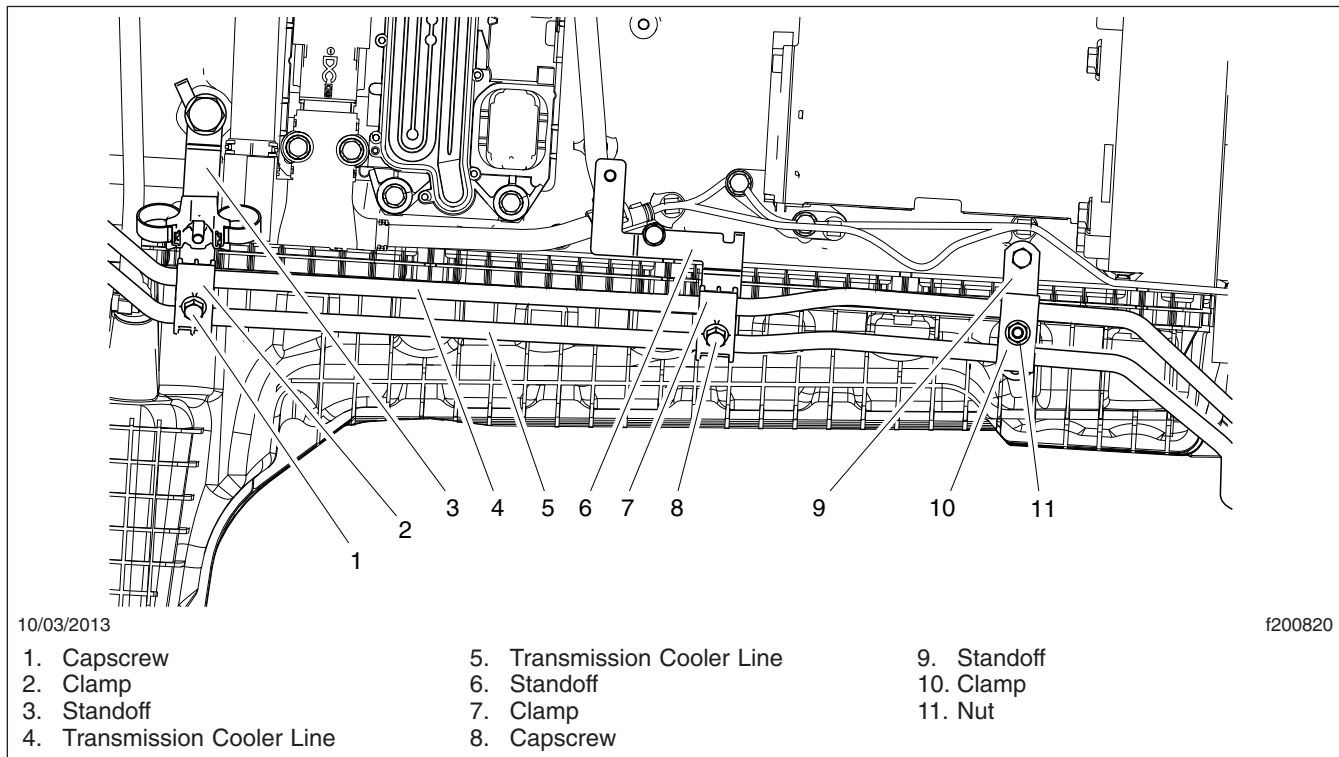


Fig. 8, Transmission Cooler Line Bracket Installation

39. Install the surge tank. For instructions, see **Section 88.00, Subject 100** in the *Century Class Workshop Manual*.
40. Install the CAC hoses.
41. Fill the cooling system following the procedures in the **DDC Engine Manual**.
42. Pressure check for coolant leaks. Repair as needed.
43. Install the hood. For instructions, see **Section 88.00, Subject 100** in the *Century Class Workshop Manual*.
44. Install the bumper. For instructions, refer to **Group 31** of the *Century Class Workshop Manual*.
45. Drive the vehicle to get it up to operating temperature.
46. Check all the transmission cooler lines for leaks. Repair as needed.
47. Check coolant and transmission fluid levels. Add fluids as needed.

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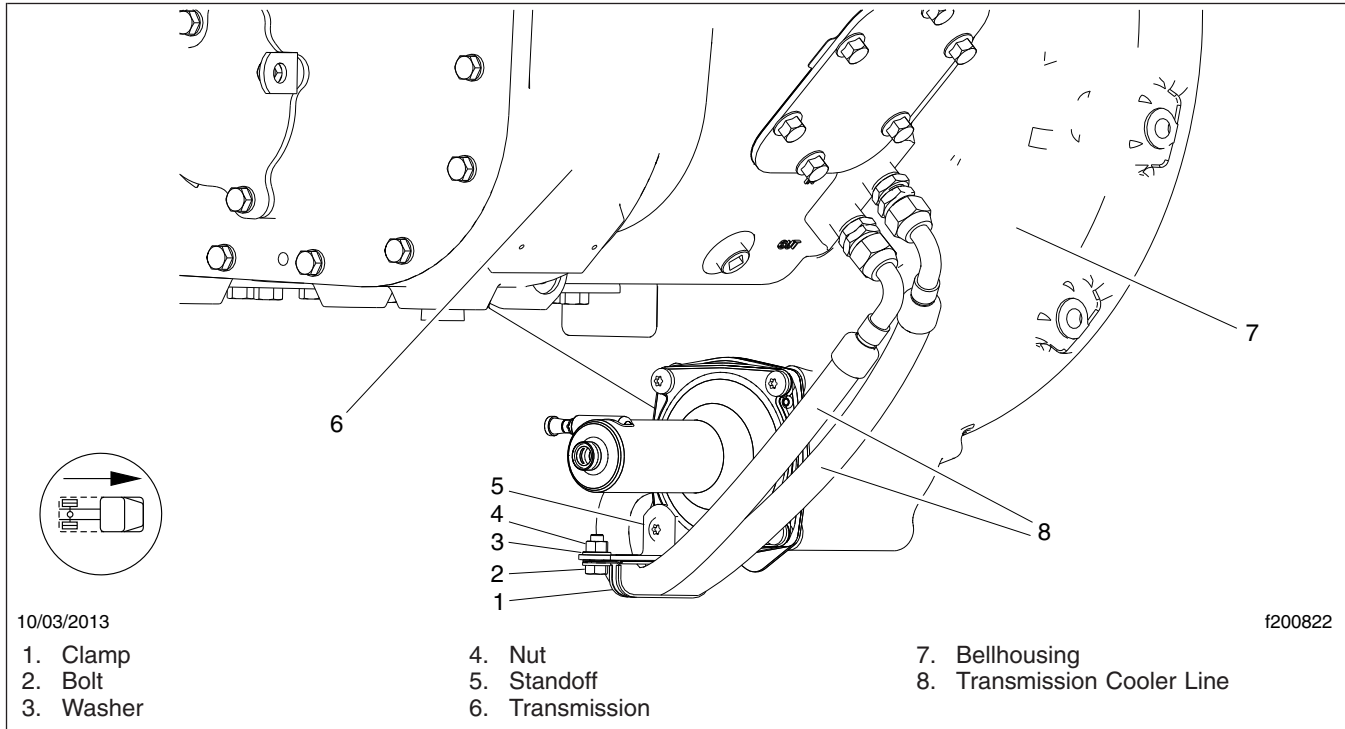


Fig. 9, Transmission Cooler Line and Bracket Installation

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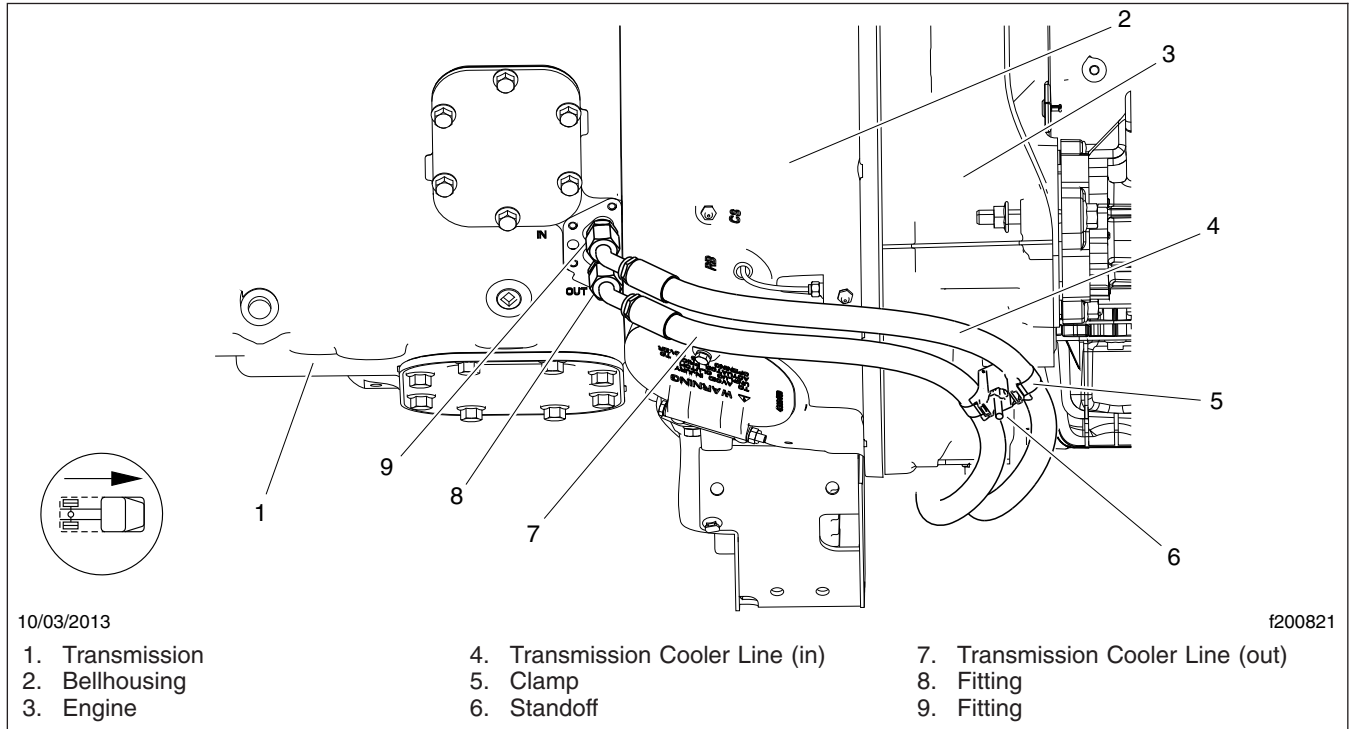


Fig. 10, Transmission Cooler Line and Bracket Installation

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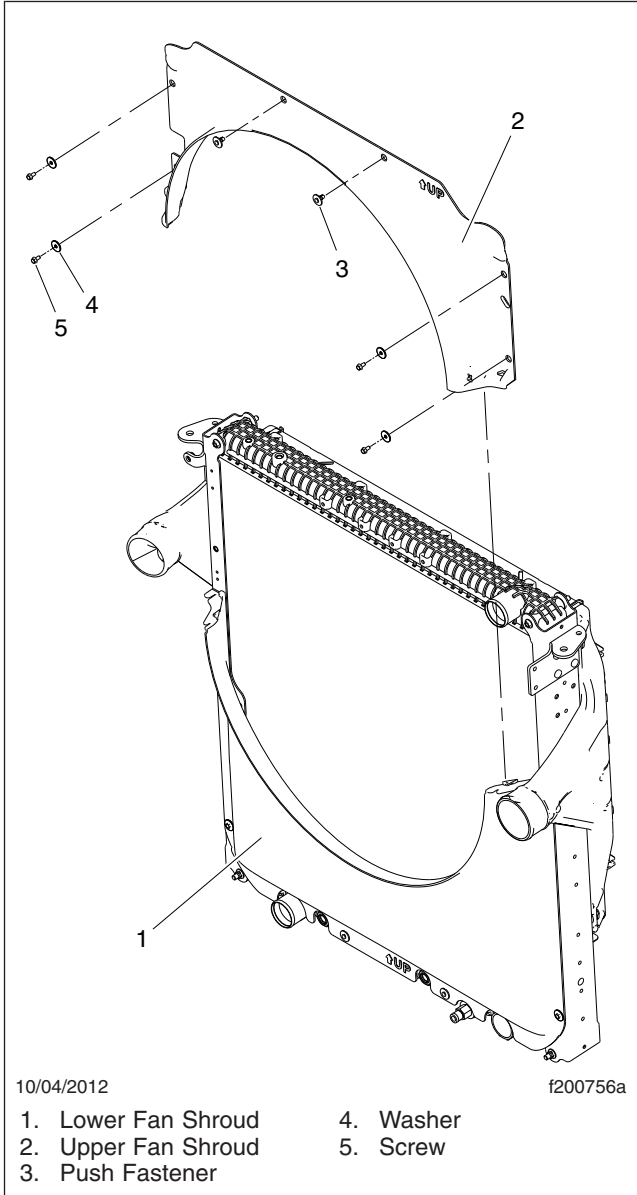


Fig. 11, Fan Shroud Installation

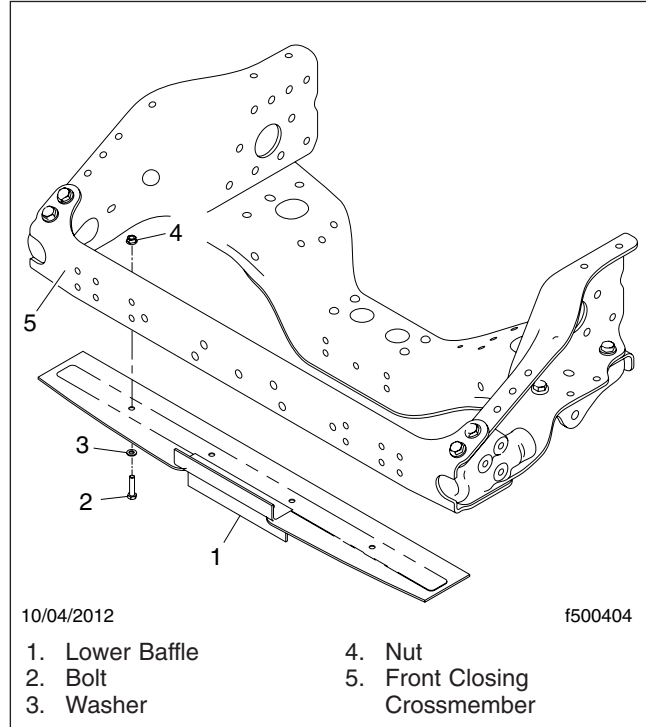


Fig. 12, Lower Baffle Installation

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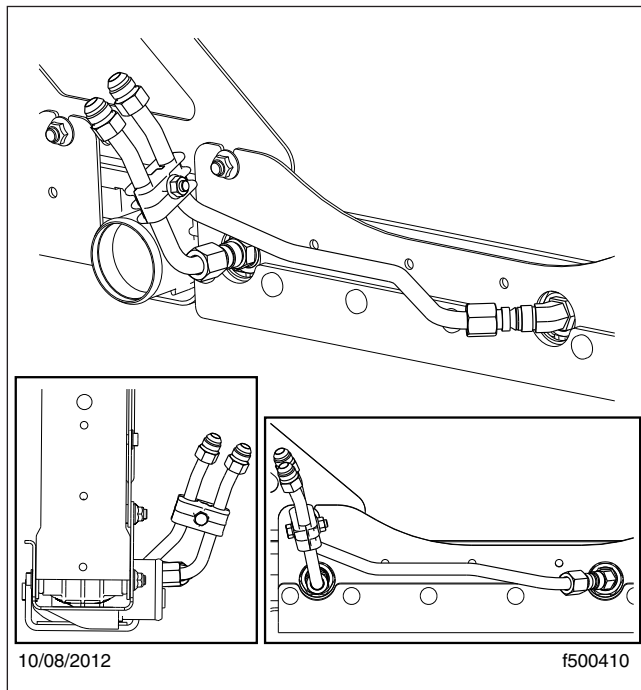


Fig. 13, Transmission Cooler Jumper Line Installation

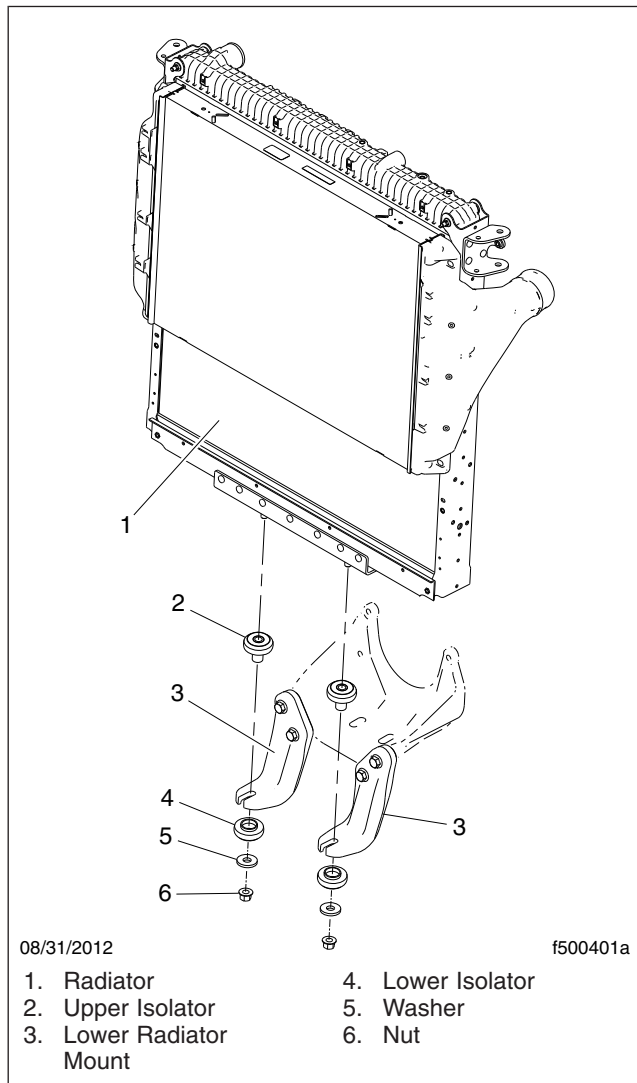


Fig. 14, Radiator Installation

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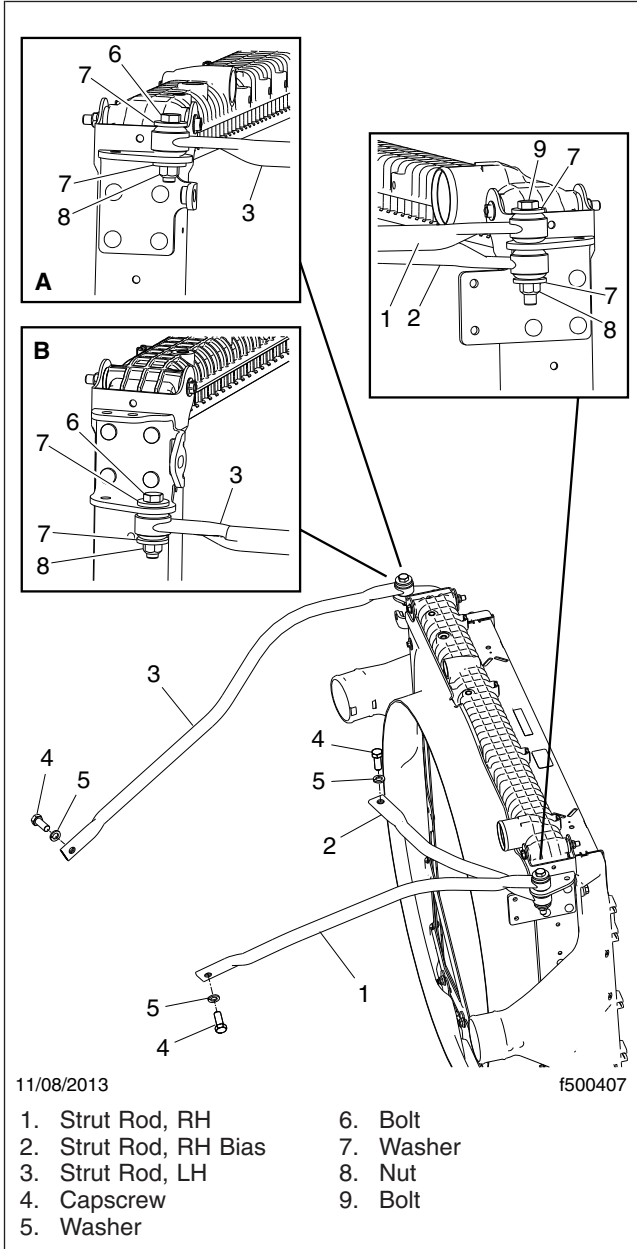


Fig. 15, Isolated Radiator Strut Rod Installation

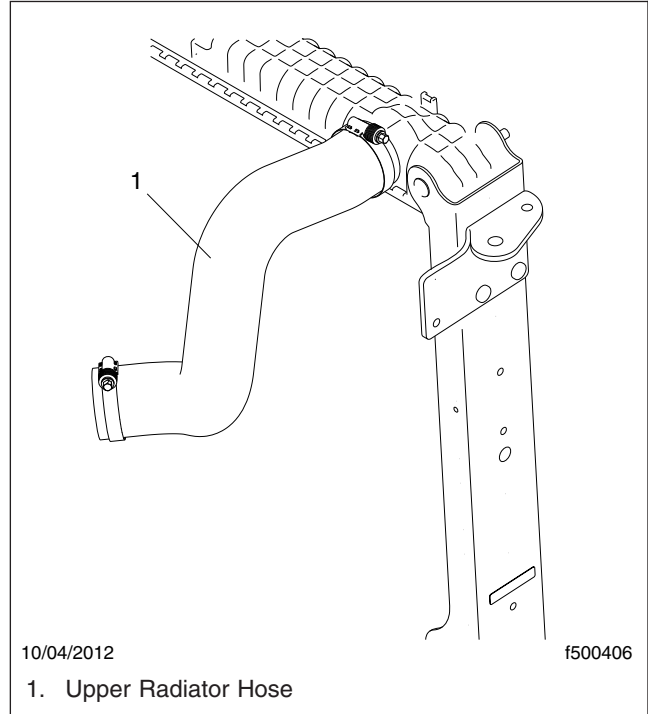


Fig. 16, Upper Radiator Hose Installation

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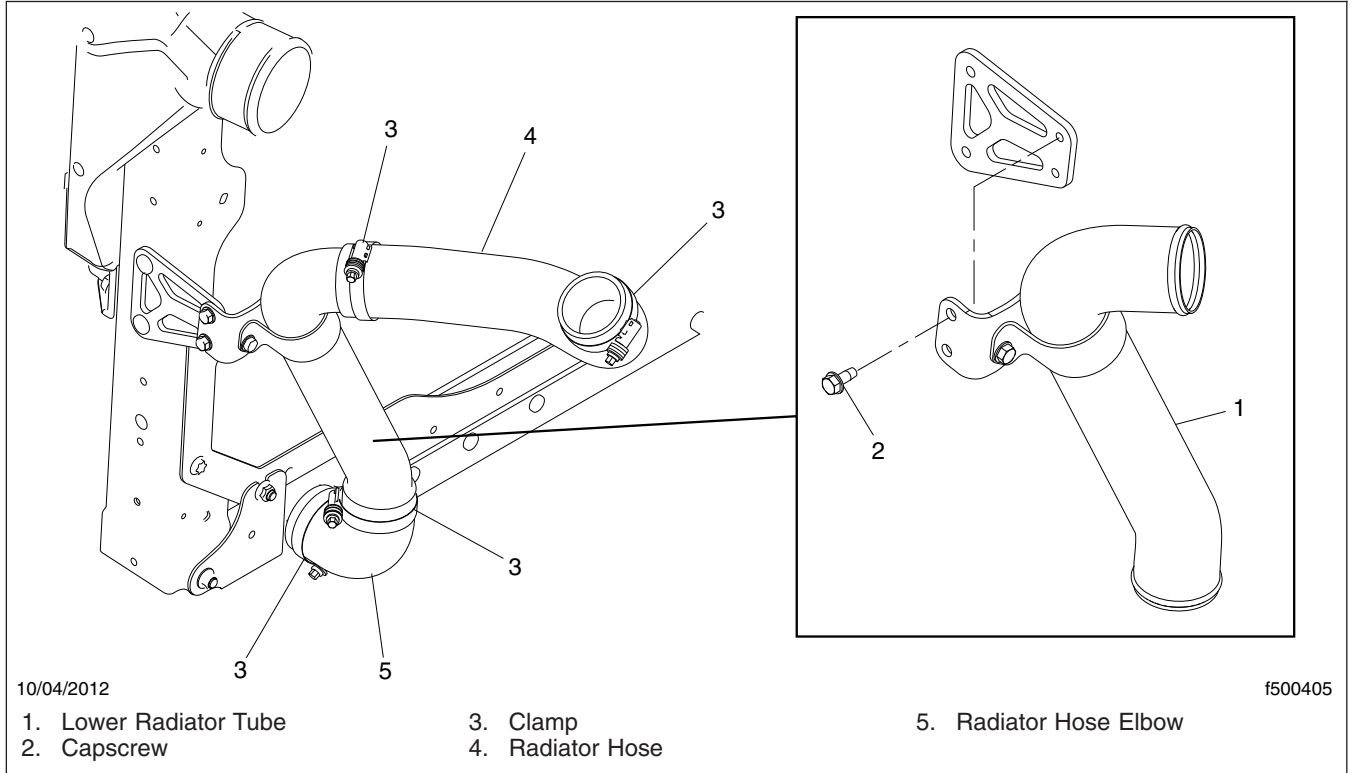


Fig. 17, Lower Radiator Hose Installation

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Parts

Find the configuration of the vehicle being serviced in column one of **Table 1** , then order the parts in the tables listed in column two.

Vehicle Configuration Parts Ordering Guide	
Vehicle Configuration	Order Parts Listed in:
CST with DD13 and no Transmission Cooler NOTE: This includes vehicles with external transmission coolers.	Table 2
CST with DD13, Transmission Cooler, and Eaton FR Transmission	Table 3 Table 6
CST with DD13, Transmission Cooler, and Eaton RT Manual Transmission	Table 2 Table 4 Table 6
CST with DD13, Transmission Cooler, and Eaton ECA Manual Transmission	Table 2 Table 5 Table 6

Table 1, Vehicle Configuration Parts Ordering Guide

Century Class (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
A05-31873-000	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
23-13833-108	NUT-HEX,PT,1/2-13,C,ZN/AL, .448	2

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Century Class (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI Lines		
Part Number	Description	Quantity
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, Century Class (DD13) - 1625 to 1400 Radiator Conversion List, w/o TrCI Lines

Century Class (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI Eaton FR		
Part Number	Description	Quantity
MOD 3S0580800003	RADIATOR M1400,BO,LSO,I TOC	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
A05-31873-000	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
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

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Part Number	Description	Quantity
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, Century Class (DD13) - 1625 to 1400 Radiator Conversion List, w/ TrCI Eaton FR

Century Class (DD13) - Manual Transmission Plumbing, Eaton RT		
Part Number	Description	Quantity
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
N910105 008010	SCRW HEX FLNG,M8X1.25X40,	4
N910112 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 4, Century Class (DD13) - Manual Transmission Plumbing, Eaton RT

Century Class (DD13) - Manual Transmission Plumbing, Eaton ECA		
Part Number	Description	Quantity
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
N910105 008010	SCRW HEX FLNG,M8X1.25X40,	4
N910112 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 5, Century Class (DD13) - Manual Transmission Plumbing, Eaton ECA

Australian CST M1400 Isolated Radiator Retrofit

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Vehicles with Power Steering Cooler		
Part Number	Description	Quantity
14-19439-000	BRKT-STRG, CLR, MTG, ROCOR, RHD	1

Table 6, Vehicles with Power Steering Cooler

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 7](#) for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

OWL VMRS Codes and Labor Allowance					
Primary Failed Part	Component Code	Cause Code	SRT Code	Description	Time: Hours
05-29619-001					
05-29617-000					
05-29617-001					
05-29617-002					
05-29617-003					
05-29617-004	042-002-001	12	266-5055A	CST Isolated Radiator Update	7.3
05-29617-005					
05-29617-006					
05-29617-007					
05-29617-008					
05-29617-009					

Table 7, OWL VMRS Codes and Labor Allowance