

Description of Revisions: *This bulletin replaces the version dated June 2014. All parts tables are replaced.*

General Information

Some EPA10 compliant Western Star 4800 and 4900 vehicles manufactured March 2010 and later, 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, Western Star recommends a radiator update to an isolated engine-mounted radiator. Isolated engine-mounted radiators were production installed in 4800 and 4900 models beginning in August, 2012. This procedure is to replace a standard engine-mounted radiator with an isolated engine-mounted radiator.

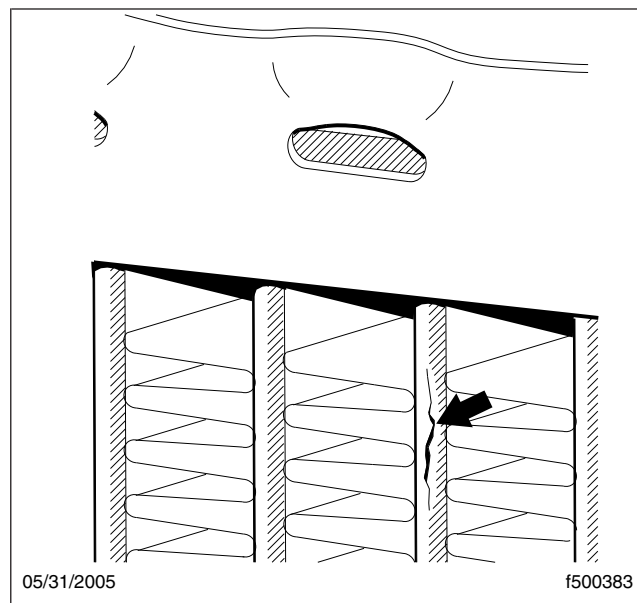


Fig. 1, Crack in Coolant Tube

IMPORTANT: Before scheduling a vehicle for this procedure, determine if the vehicle to be serviced has a set forward (SF) or set back (SB) axle configuration, then refer to [Table 1](#) under "Parts" for a listing of the required parts tables for each configuration.

Radiator Replacement

1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the tires.
2. Remove the hood or remove the straps and open the hood while supporting it. For instructions, see **Group 88** in the *Western Star Workshop Manual*.
3. Remove the bumper. For instructions, refer to **Group 31** of the *Western Star Workshop Manual*.
4. Drain the coolant from the radiator and engine block.
5. Remove the charge air cooler (CAC) plumbing at the turbocharger outlet and the CAC inlet, and at the CAC outlet and the engine inlet. See [Fig. 2](#) and [Fig. 3](#).

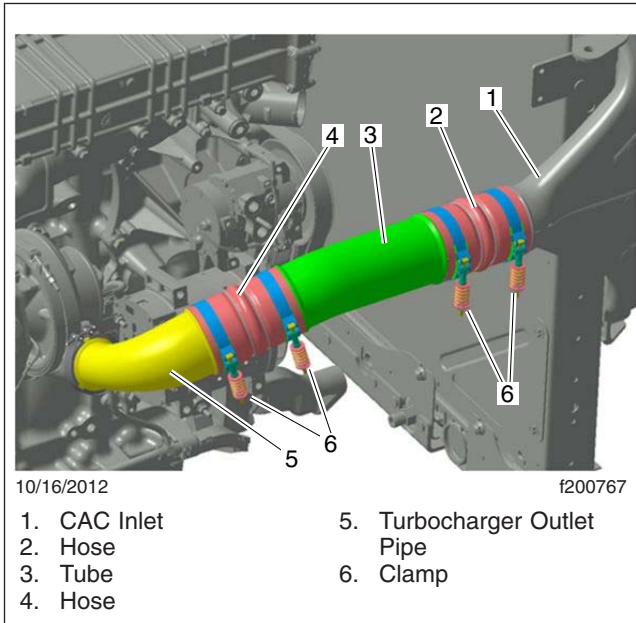


Fig. 2, CAC Plumbing, Turbocharger-to-CAC

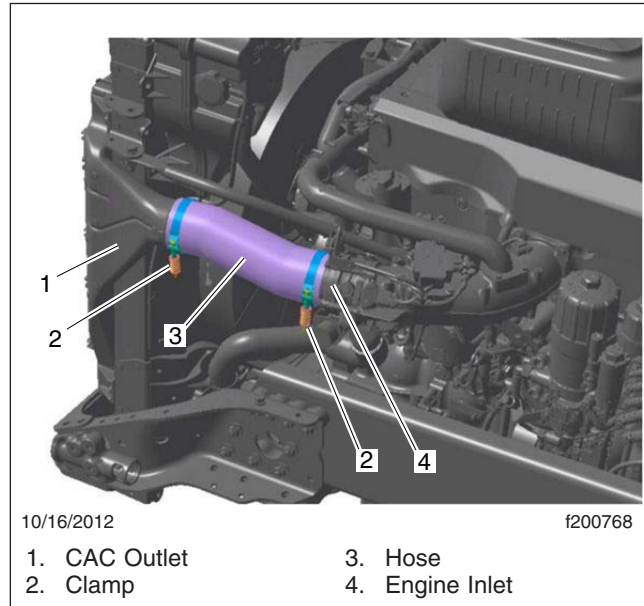


Fig. 3, CAC Plumbing, CAC-to-Engine Inlet

6. Remove the upper radiator hose. See [Fig. 4](#) for DDC engines, or [Fig. 18](#) for Cummins engines.
7. Disconnect the surge tank vent line. See [Fig. 6](#).
8. Remove the grille from the radiator.
9. Remove the baffles and mounting brackets located on both sides of the grille. See [Fig. 7](#).
10. Loosen the A/C condenser and move it out of the way as follows.
 - 10.1 Remove the receiver-drier and upper condenser-line mounting nuts, then free the receiver-drier. See [Fig. 8](#).
 - 10.2 Remove the radiator baffle from the right side of the radiator.

NOTE: The A/C lines run through the right-side baffle. The baffle must be moved with the condenser.

 - 10.3 Unbolt the A/C condenser from the CAC. See [Fig. 9](#).

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

 - 10.4 Carefully move the condenser around and set it on the right front tire. Secure it as needed. See [Fig. 10](#).
11. Remove the three radiator strut rods and discard them.
12. Unbolt the city horn from the side radiator channel if applicable.
13. Remove the upper fan shroud. See [Fig. 11](#).
14. Remove the fan. For instructions, refer to **Group 20** of the *Western Star Workshop Manual*.
15. Disconnect the lower radiator hose assembly at the radiator. See [Fig. 12](#) for DDC engines, or [Fig. 18](#) for Cummins engines.

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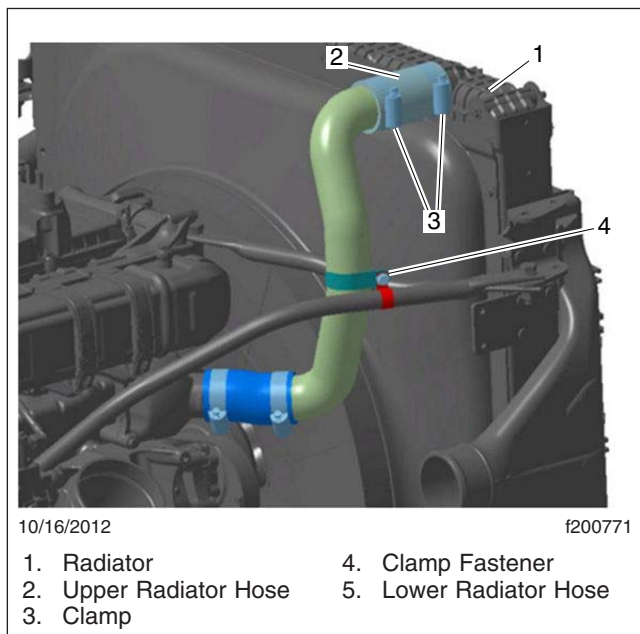


Fig. 4, Upper Radiator Hose Installation, DDC Engine

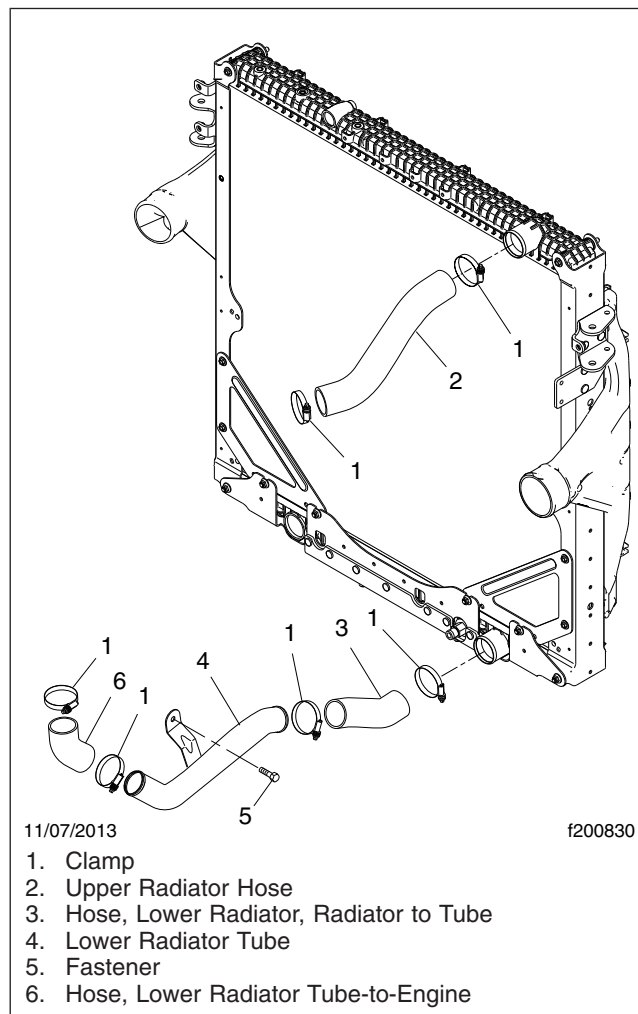


Fig. 5, Radiator Hose Installation, Cummins Engine

16. Disconnect the transmission cooler lines from the radiator. Cap and/or plug the fittings to prevent spills.
17. Unbolt the radiator from the lower mounts.
18. Using an appropriate lifting device, remove the radiator assembly from vehicle. See [Fig. 13](#).
19. Remove the lower fan shroud from the radiator. See [Fig. 11](#).
20. Remove the upper radiator baffle.
21. Remove the CAC from the radiator.
22. Remove the transmission cooler fittings and the upper vent line fitting.
23. Install the transmission cooler fittings and upper vent line fitting on the new radiator.
24. Install the CAC on the new radiator.
25. Install the upper radiator baffle.

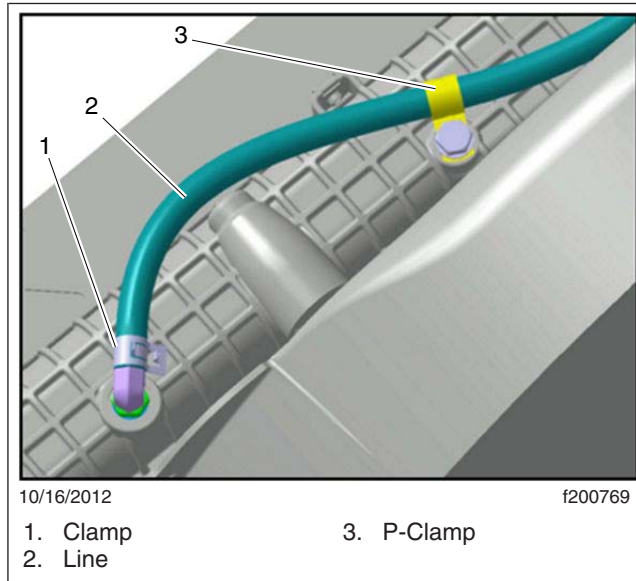


Fig. 6, Surge Tank Vent Line

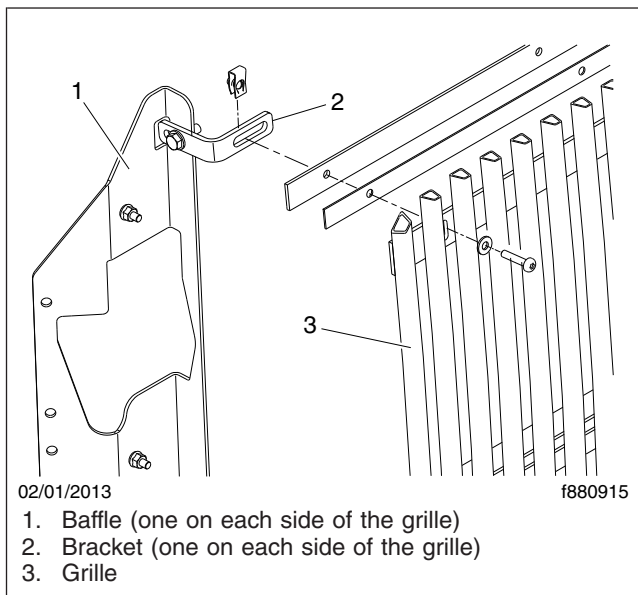


Fig. 7, Grille Assembly

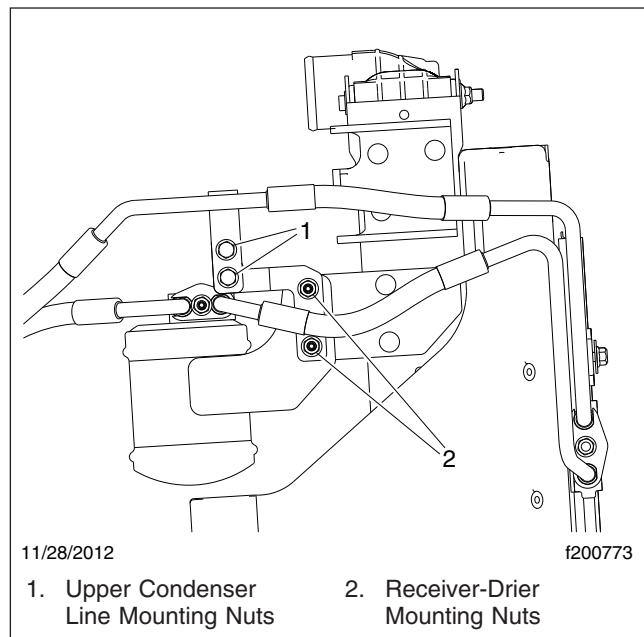


Fig. 8, Receiver-Drier Installation (typical)

26. Apply sealant (48-00094-141) to the threads of the fasteners, then install the fan. Tighten 30 lbf-ft (41 N-m).
27. Install the fan shroud on the new radiator. See [Fig. 11](#).
28. Remove the lower radiator mounting brackets from the engine.

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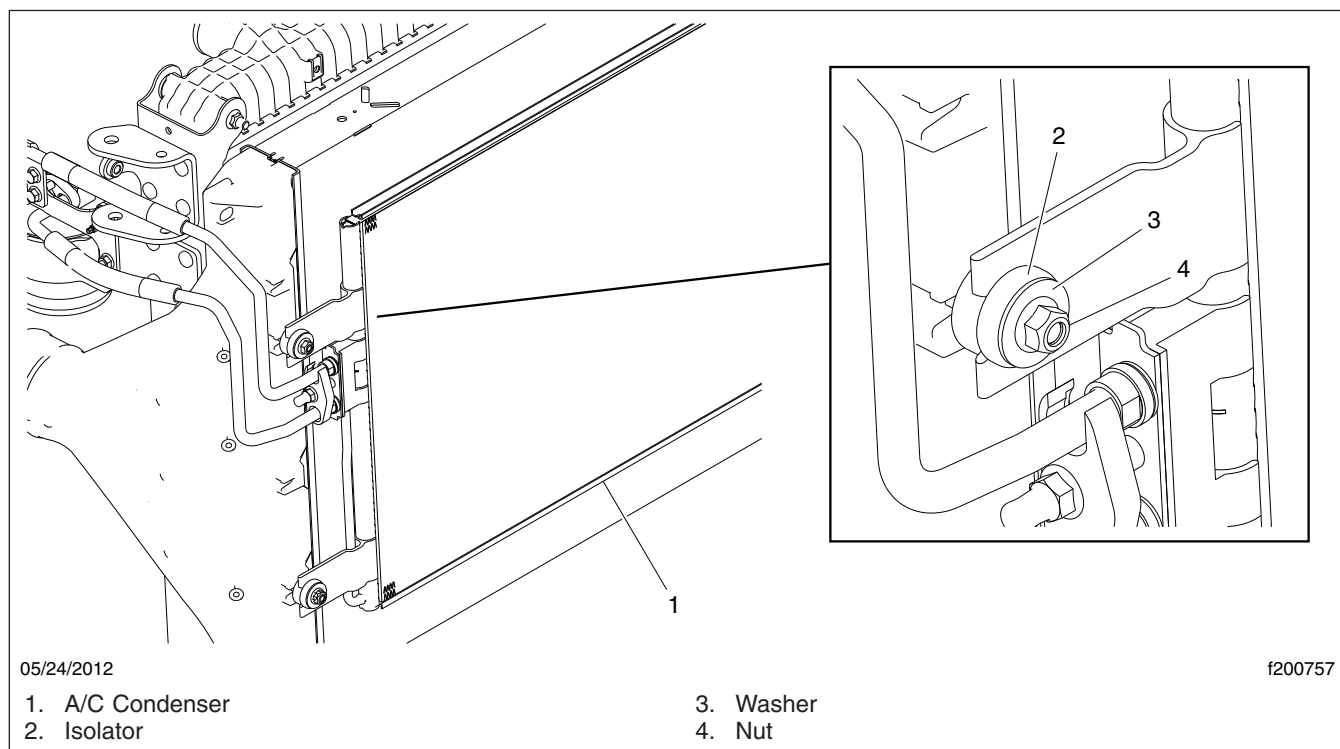


Fig. 9, A/C Condenser Installation

29. Install the new lower radiator mounting brackets. See **Fig. 14**. Tighten 191 to 234 lbf·ft (260 to 317 N·m).
30. Install the lower radiator isolators on the mounting brackets. See **Fig. 15**.
31. Using an appropriate lifting device, position the new radiator assembly in the vehicle. Install the mounting nuts, but do not tighten them at this time. See **Fig. 15**.
32. Install the lower radiator hose.
33. Connect the transmission cooler lines.

34. Install the new upper radiator hose. See **Fig. 4** for DDC engines or **Fig. 18** for Cummins engines.

IMPORTANT: On DD13 engines, the left strut rod attaches to the top of the bracket on the radiator.

On DD15/16 engines, the left strut rod attaches to the bottom of the bracket on the radiator.

35. Install the new isolated radiator strut rods. See **Fig. 16** for DDC engine installations, or **Fig. 17** for Cummins engine installations. 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) for DDC engines, or 55 to 65 lbf·ft (75 to 90 N·m) for Cummins engines.
36. Tighten the radiator mounting nuts 140 to 170 lbf·ft (190 to 230 N·m).
37. Install the A/C condenser as follows.
 - 37.1 Move the condenser into position and secure it temporarily. See **Fig. 9**.
 - 37.2 Position the receiver-drier and upper A/C line on their respective brackets and install the mounting nuts. See **Fig. 8**. Tighten the nuts 14 to 16 lbf·ft (19 to 22 N·m).

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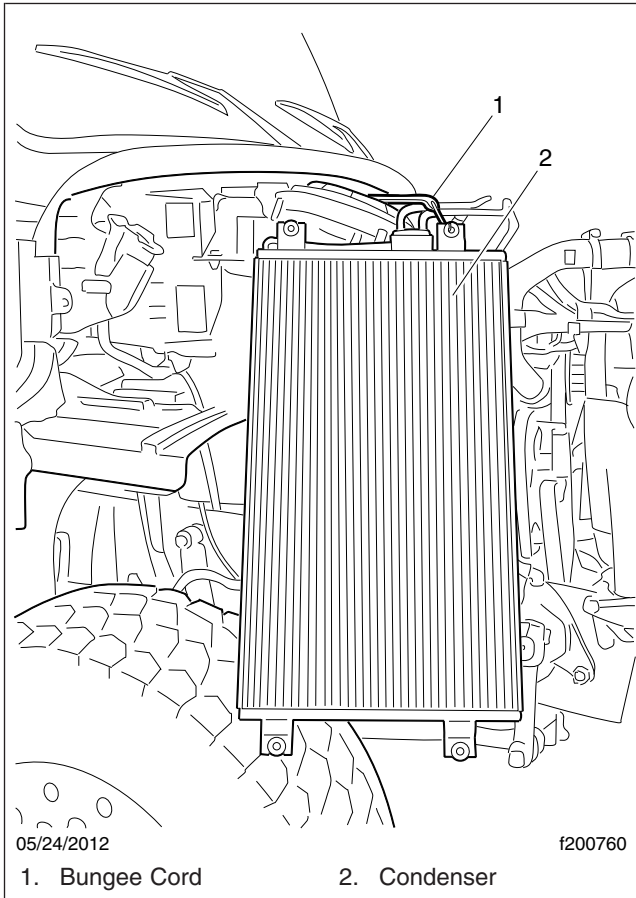


Fig. 10, Securing the A/C Condenser

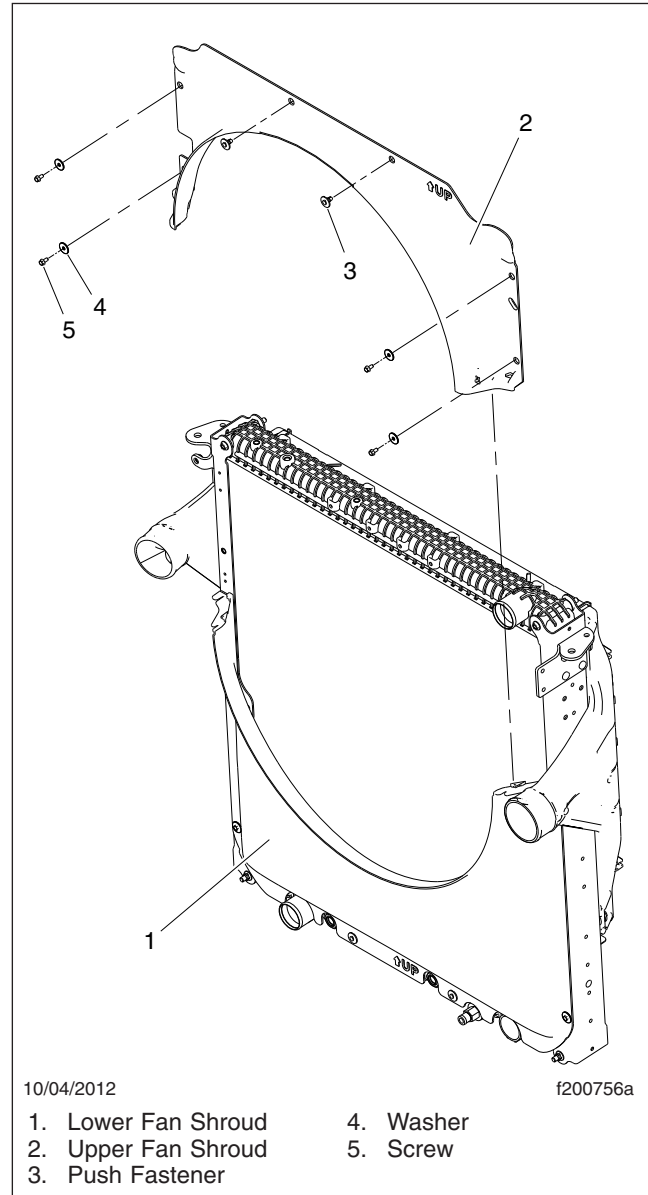


Fig. 11, Fan Shroud Installation

37.3 Tighten the condenser mounting nuts 112 to 144 lbf-in (1266 to 1627 N·cm).

37.4 Install the grille mounting brackets and baffle brackets.

38. Install the radiator baffles.

39. Install the grille.

40. Install the CAC plumbing at the turbocharger outlet and the CAC inlet and the CAC outlet and the engine inlet. See [Fig. 2](#) and [Fig. 3](#).

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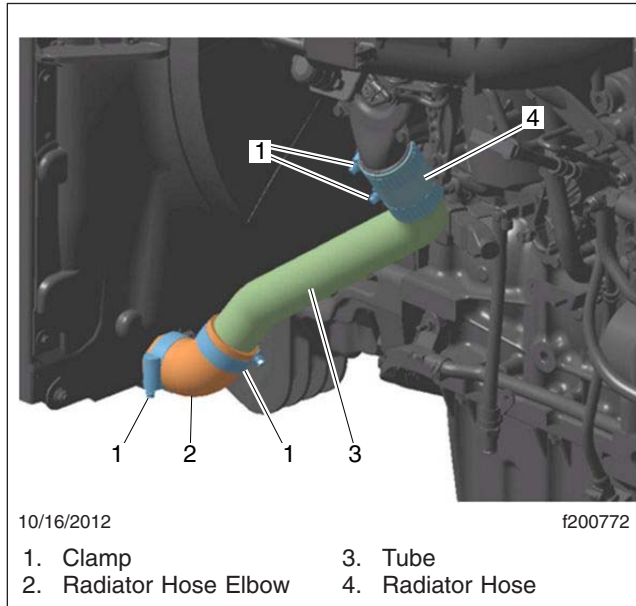


Fig. 12, Lower Radiator Hose Installation, DDC Engines

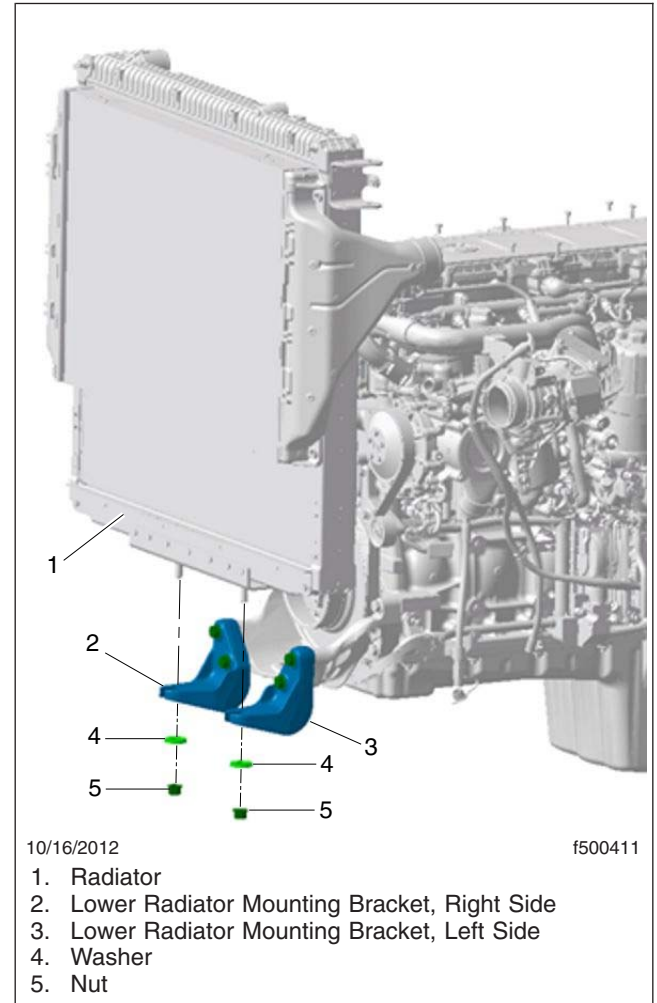
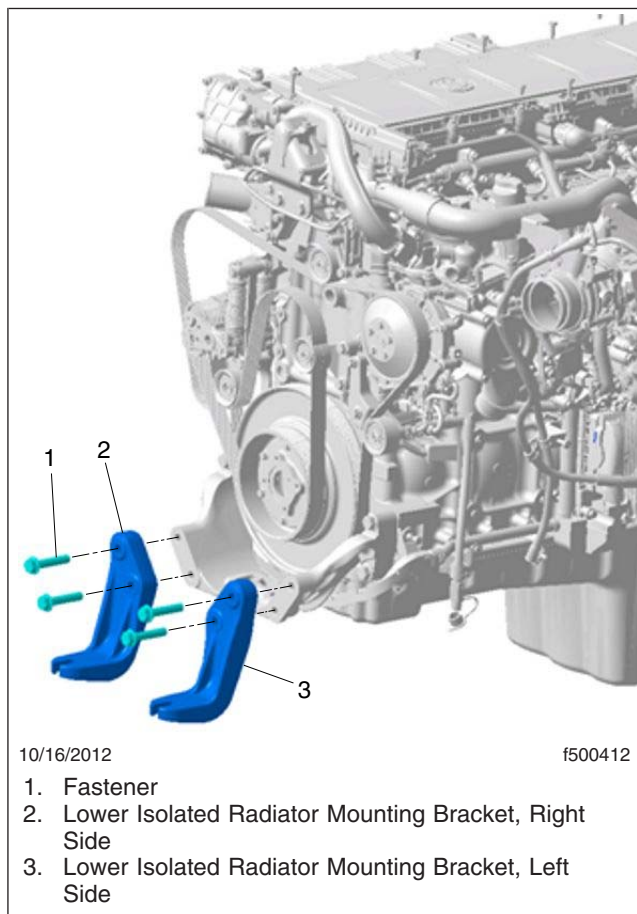


Fig. 13, Radiator Assembly Removal

41. Fill the cooling system following the procedures in the engine manufacturer's service literature.
42. Install the hood. For instructions, see **Group 88** of the *Western Star Workshop Manual*.
43. Install the bumper. For instructions, refer to **Group 31** of the *Western Star Workshop Manual*.
44. Pressure check for coolant leaks. Repair as needed.
45. Drive the vehicle to get it up to operating temperature.
46. Check the transmission fluid level, and add fluid as needed.



**Fig. 14, Lower Isolated Radiator Mounting Bracket
Installation**

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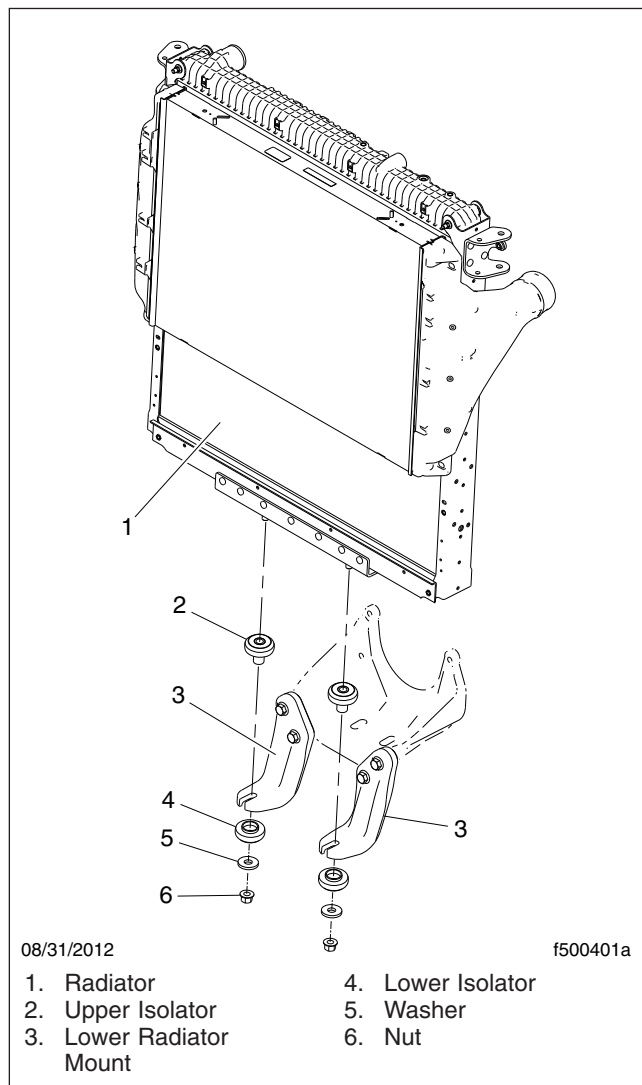


Fig. 15, Radiator Installation

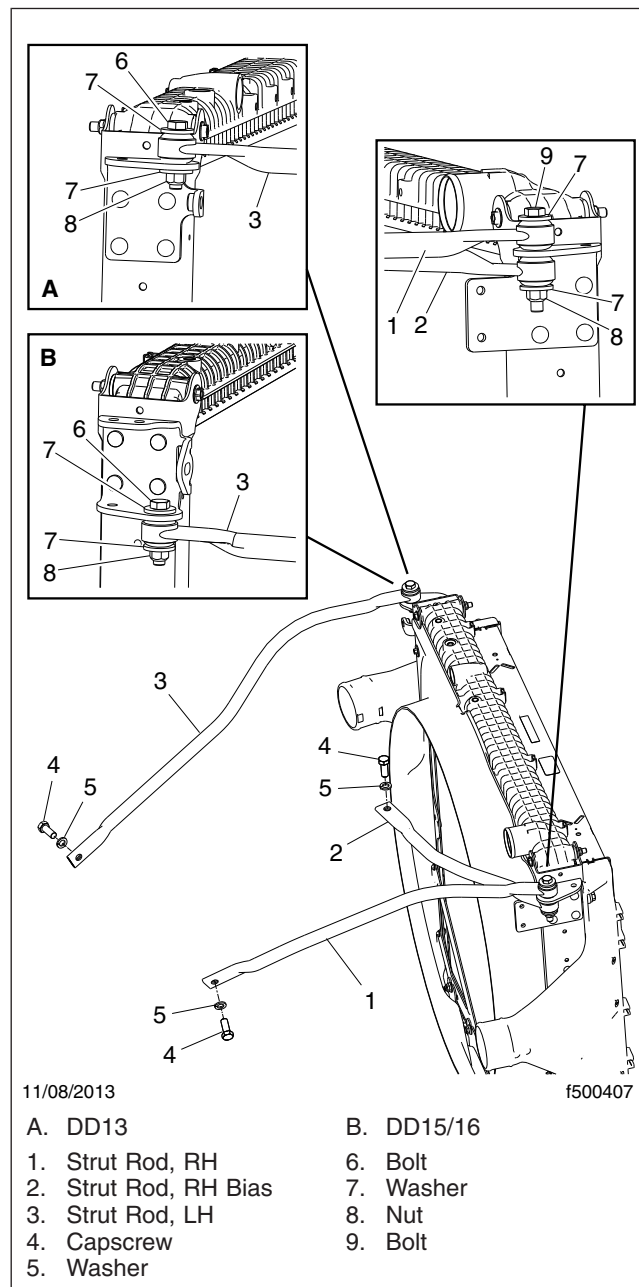


Fig. 16, Isolated Radiator Strut Rod Installation, DDC Engine

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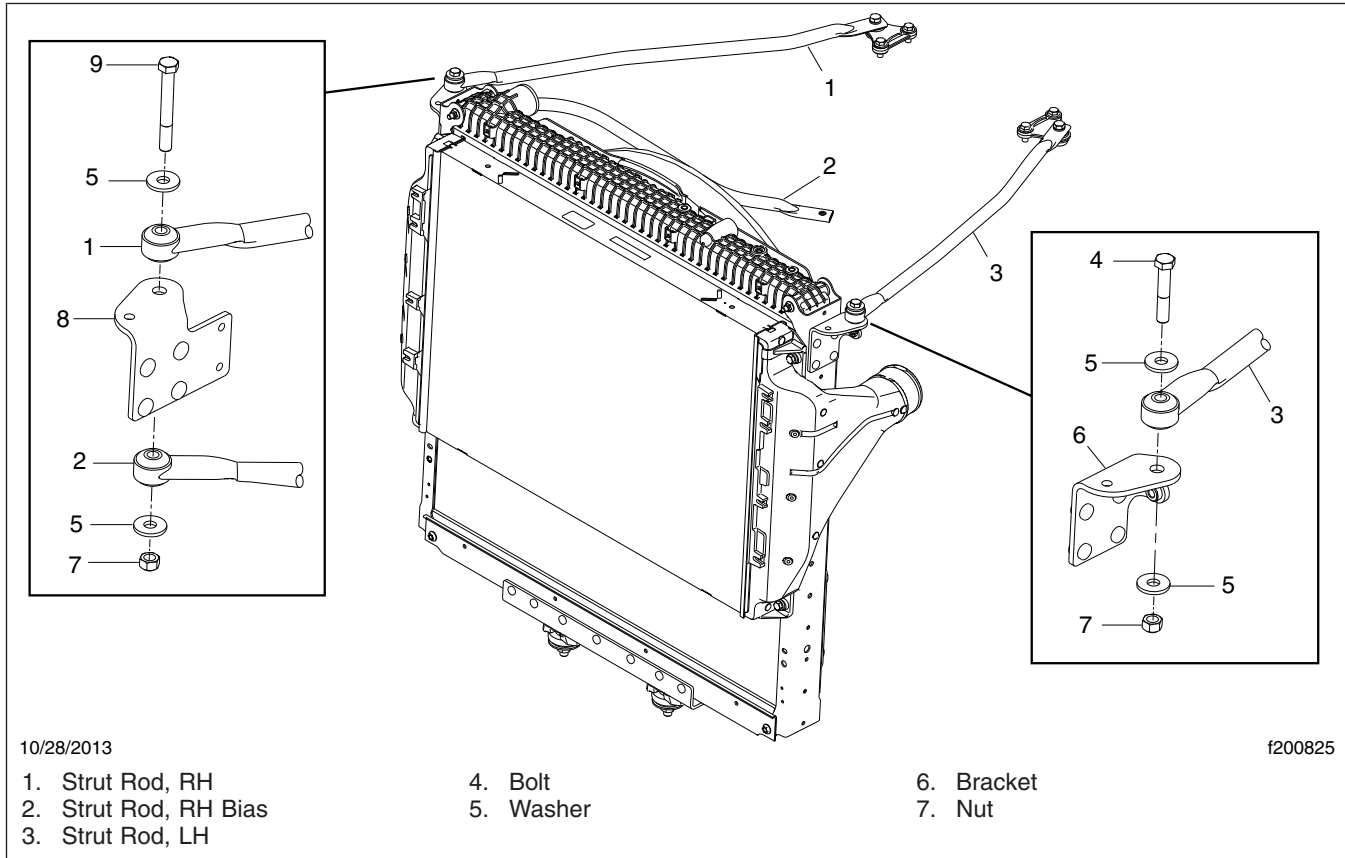


Fig. 17, Isolated Radiator Strut Rod Installation, Cummins Engine

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Parts

Parts are available through the PDC. [Table 1](#) below lists the tables of required changeover parts for the various vehicle configurations the vehicle being serviced.

Required Parts Tables	
Description	Table
1600 to 1500 Isolated Radiator Conversion - DD15/16, Manual Transmission	Table 2
1600 to 1500 Isolated Radiator Conversion - DD15/16, Allison Automatic Transmission	Table 3
1600 to 1500 Isolated Radiator Conversion - ISX, Manual Transmission	Table 4
1600 to 1500 Isolated Radiator Conversion - ISX, Allison Automatic Transmission	Table 5
1700 Isolated Radiator Conversion - DD13, Manual Transmission	Table 6
1700 Isolated Radiator Conversion - DD15/16, Manual Transmission	Table 7
1700 Isolated Radiator Conversion - ISX, Manual Transmission	Table 8

Table 1, Required Parts Tables

1600 to 1500 Isolated Radiator Conversion - DD15/16, Manual Transmission		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
A05-26440-006	ASSY-SHROUD,1500SQIN,CORONADO	1
MOD 3S0580750003	RAD-ALUM,W1500,D3,LSO,ITOC,WST	1
05-31049-000	HOSE-CLNT,UPR,DD15,WST	1
A05-30303-000	STRUT-RAD,DD15,WD,FWD,LH,ISO	1
A05-30304-000	STRUT-RAD,DD15,WD,FWD,RH,ISO	1
A05-30305-000	STRUT-RAD,DD15,WD,FWD,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 2, 1600 to 1500 Isolated Radiator Conversion - DD15/16, Manual Transmission

1600 to 1500 Isolated Radiator Conversion - DD15/16, Allison Automatic Transmission See D07-29270-000/001 for Plumbing Installation		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
A05-26440-006	ASSY-SHROUD,1500SQIN,CORONADO	1
MOD 3S0580820002	RAD-ALUM,W1500,D3,RSO,ITOC,WST	1

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1600 to 1500 Isolated Radiator Conversion - DD15/16, Allison Automatic Transmission See D07-29270-000/001 for Plumbing Installation		
Part	Description	Quantity
A05-18458-001	BRKT-ASSY,CLNT PIPE,DD15	1
A05-18459-000	TUBE ASSY-CLNT,DD13/15	1
05-18145-000	HOSE-ECR,2.50"ID,45 DEG	1
05-21835-001	HOSE-CLNT,DD15,WST,DC,AUTO	1
05-28951-000	TUBE-CLNT,DD13,WST,AL,A/T,RH	1
05-29973-001	HOSE-ELB,90DEG,ECR,206 ID	1
05-29973-007	HOSE-ELB,90DEG,ECR,206 ID	1
05-31049-000	HOSE-CLNT,UPR,DD15,WST	1
A05-30303-000	STRUT-RAD,DD15,WD,FWD,LH,ISO	1
A05-30304-000	STRUT-RAD,DD15,WD,FWD,RH,ISO	1
A05-30305-000	STRUT-RAD,DD15,WD,FWD,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 3, 1600 to 1500 Isolated Radiator Conversion - DD15/16, Allison Automatic Transmission

1600 to 1500 Isolated Radiator Conversion - ISX, Manual Transmission		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
A05-26440-006	ASSY-SHROUD,1500SQIN,CORONADO	1
MOD 3S0580750002	RAD-ALUM,W1500,D3,RSO,ITOC,WST	1
A05-30972-000	TUBE-CLNT,LWR,WST,ISX	1
05-30841-000	HOSE-CLNT,UPR,ISX,WST,2013	1
05-30973-000	HOSE-CLNT,LWR,WST,ISX	1
A05-30373-000	STRUT-RAD,ISX,WIDE,LH,ISO	1
A05-30374-000	STRUT-RAD,ISX,WIDE,RH,ISO	1
A05-30375-000	STRUT-RAD,ISX,WIDE,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2

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1600 to 1500 Isolated Radiator Conversion - ISX, Manual Transmission		
Part	Description	Quantity
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 4, 1600 to 1500 Isolated Radiator Conversion - ISX, Manual Transmission

1600 to 1500 Isolated Radiator Conversion - ISX, Allison Automatic Transmission See D07-29270-000/001 for Plumbing Installation		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
A05-26440-006	ASSY-SHROUD,1500SQIN,CORONADO	1
MOD 3S0580750003	RAD-ALUM,W1500,D3,LSO,ITOC,WST	1
A05-29065-000	TUBE ASSY-LWR CLNT,WST ISX	1
05-18145-001	HOSE-EPDM,2.50"ID,45 DEG.	1
05-18145-001	HOSE-EPDM,2.50"ID,45 DEG.	1
05-18145-001	HOSE-EPDM,2.50"ID,45 DEG.	1
05-18145-001	HOSE-EPDM,2.50"ID,45 DEG.	1
05-28951-001	TUBE-CLNT,ISX,WST,AL,A/T,LH	1
05-29084-000	TUBE-CLNT,ISX WST,AL,A/T,RH	1
05-29973-007	HOSE-ELB,90DEG,ECR,206 ID	1
05-30841-000	HOSE-CLNT,UPR,ISX,WST,2013	1
A05-30373-000	STRUT-RAD,ISX,WIDE,LH,ISO	1
A05-30374-000	STRUT-RAD,ISX,WIDE,RH,ISO	1
A05-30375-000	STRUT-RAD,ISX,WIDE,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 5, 1600 to 1500 Isolated Radiator Conversion - ISX, Allison Automatic Transmission

1700 Isolated Radiator Conversion - DD13, Manual Transmission		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580810003	RAD-ALUM,W1700,D3,LSO,ITOC,WST	1
A05-30480-000	STRUT-RAD,DD13,WD,FWD,LH,ISO	1
A05-30481-000	STRUT-RAD,DD13,WD,FWD,RH,ISO	1
A05-30482-000	STRUT-RAD,DD13,WD,FWD,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

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1700 Isolated Radiator Conversion - DD13, Manual Transmission		
Part	Description	Quantity
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 6, 1700 Isolated Radiator Conversion - DD13, Manual Transmission

1700 Isolated Radiator Conversion - DD15/16, Manual Transmission		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580810003	RAD-ALUM,W1700,D3,LSO,ITOC,WST	1
A05-30303-000	STRUT-RAD,DD15,WD,FWD,LH,ISO	1
A05-30304-000	STRUT-RAD,DD15,WD,FWD,RH,ISO	1
A05-30305-000	STRUT-RAD,DD15,WD,FWD,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 7, 1700 Isolated Radiator Conversion - DD15/16, Manual Transmission

1700 Isolated Radiator Conversion - ISX, Manual Transmission		
Part	Description	Quantity
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580810002	RAD-ALUM,W1700,D3,RSO,ITOC,WST	1
A05-30373-000	STRUT-RAD,ISX,WIDE,LH,ISO	1
A05-30374-000	STRUT-RAD,ISX,WIDE,RH,ISO	1
A05-30375-000	STRUT-RAD,ISX,WIDE,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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	1
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 8, 1700 Isolated Radiator Conversion - ISX, Manual Transmission

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. 18](#).

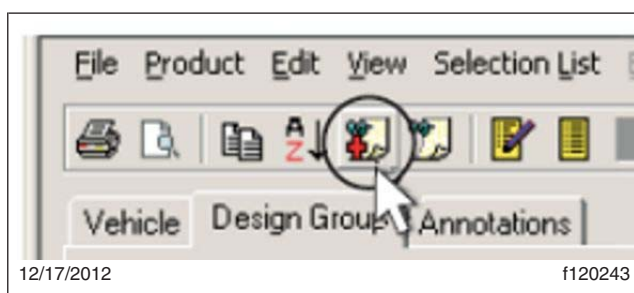


Fig. 18, Add Annotation Icon

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 20-18 for radiator, radiator mounting, and fan part numbers.
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 9](#) 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
MOD 3S0580820003	042-002-001	14	266-5035A	Western Star Isolated Radiator Update	5.0

Table 9, OWL VMRS Codes and Labor Allowance