FLA COE
FLB COE
FLD Conventional
Business Class
FLC 112 Conventional
Century Class Conventional
Argosy COE
Cargo
Columbia
122SD and Coronado
Business Class M2
Cascadia
> 108SD/114SD

Freightliner Service Bulletin

General Information

Some EPA10 compliant Freightliner 114SD vehicles with Detroit engines, 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, Freightliner recommends a radiator update to an isolated engine-mounted radiator. Isolated engine-mounted radiators were production installed in 114SD models beginning July 30, 2012. This procedure is to replace a standard engine-mounted radiator with an isolated engine-mounted radiator.

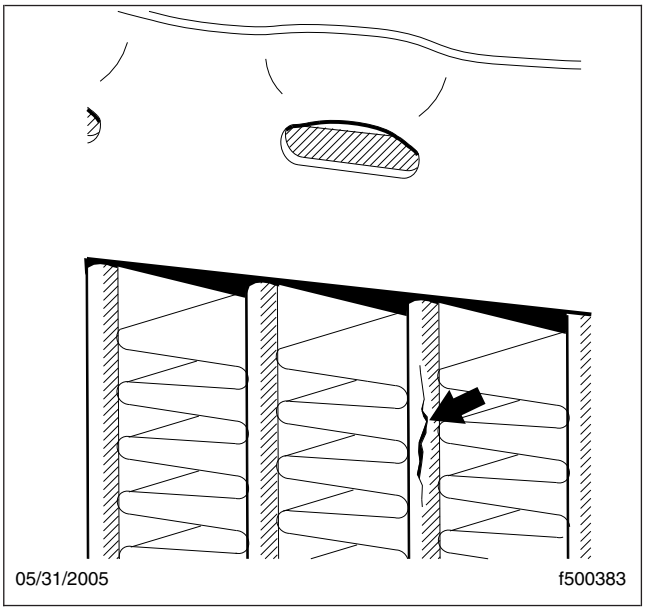

Fig. 1, Crack in Coolant Tube

IMPORTANT: Before scheduling a vehicle for this procedure, determine the vehicle configuration. The required parts for this procedure will vary depending on if the vehicle being serviced has a set forward (SF) or set back (SB) axle, the type of engine installed, and the front frame and crossmember configuration. See **Fig. 2**, **Fig. 3**, and **Fig. 4** for the different frame and crossmember configurations. Refer to **Table 1** under "Parts" to locate the correct table listing the required parts for that vehicle.

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 *108SD/114SD Workshop Manual*.
3. Remove the bumper. For instructions, refer to **Group 31** of the *108SD/114SD 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. 5** and **Fig. 6**.
6. Remove the upper radiator hose. See **Fig. 7** for DDC engines, or **Fig. 8** for Cummins engines.

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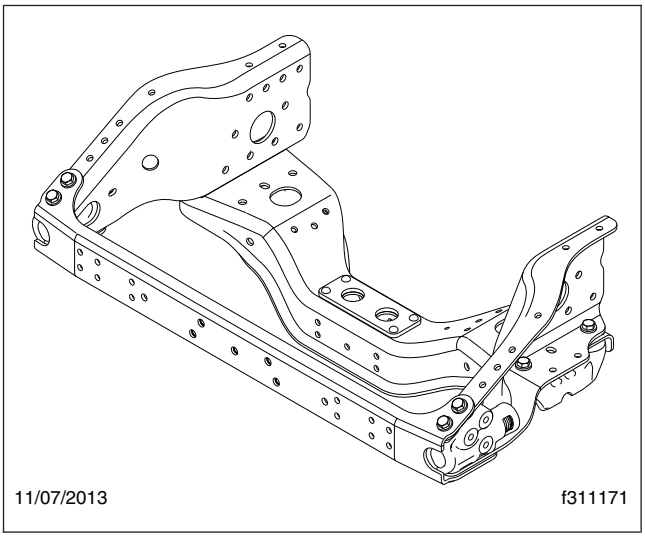


Fig. 2, Bolt-On Front Frame and Crossmember

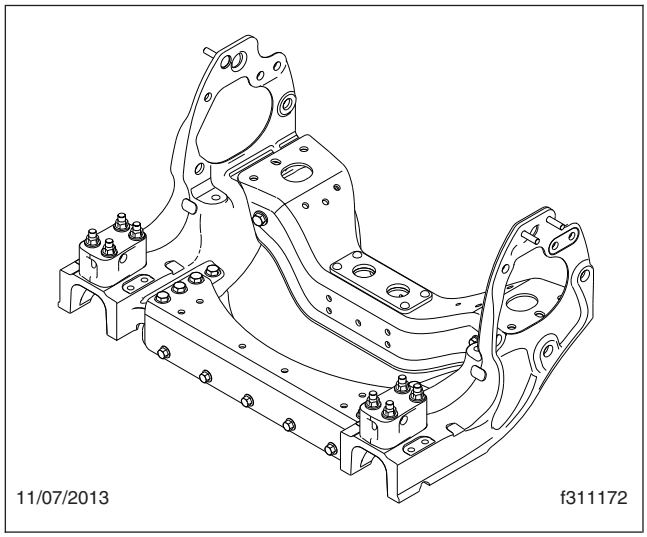


Fig. 3, Drop-Cast Front Frame and Crossmember

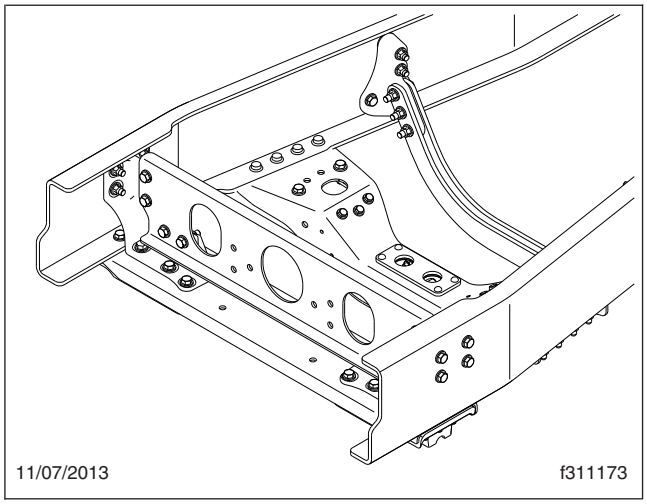
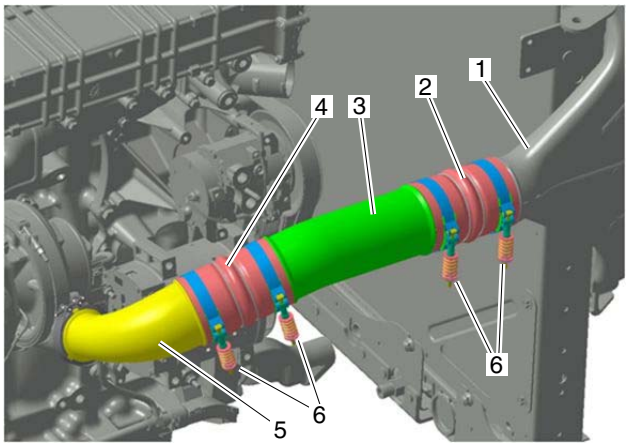


Fig. 4, Splayed Front Frame and Crossmember

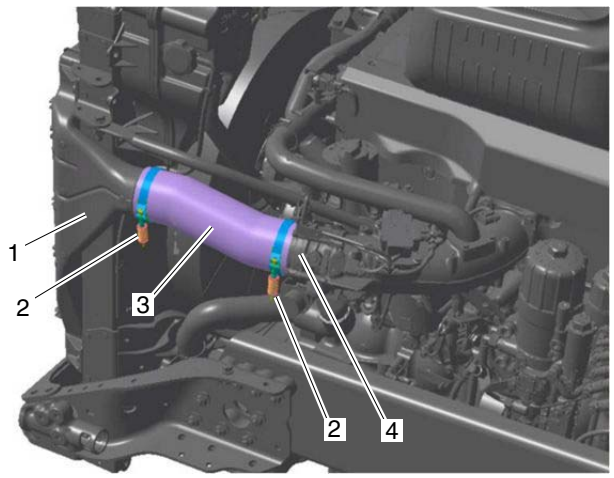
7. Disconnect the surge tank vent line. See **Fig. 9**.
8. Remove the grille from the radiator.
9. Remove the baffles and mounting brackets located on both sides of the grille.
10. Loosen the A/C condenser and move it out of the way as follows.
    - 10.1 Remove the receiver-drier and upper condenser line mounting nuts, then free the receiver-drier. See **Fig. 10**.
    - 10.2 Remove the radiator baffle from the right side of the radiator.



10/16/2012 f200767

1. CAC Inlet
2. Hose
3. Tube
4. Hose
5. Turbocharger Outlet Pipe
6. Clamp

Fig. 5, CAC Plumbing, Turbocharger-to-CAC



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1. CAC Outlet
2. Clamp
3. Hose
4. Engine Inlet

Fig. 6, CAC Plumbing, CAC-to-Engine Inlet

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. 11**.

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. 12** .

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. 13**.
14. Remove the fan. For instructions, refer to **Group 20** of the *108SD/114SD Workshop Manual*.
15. Disconnect the lower radiator hose assembly at the radiator. See **Fig. 14** for DDC engines, or **Fig. 8** for Cummins engines.
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. 15**.
19. Remove the lower fan shroud from the radiator. See **Fig. 13**.
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.

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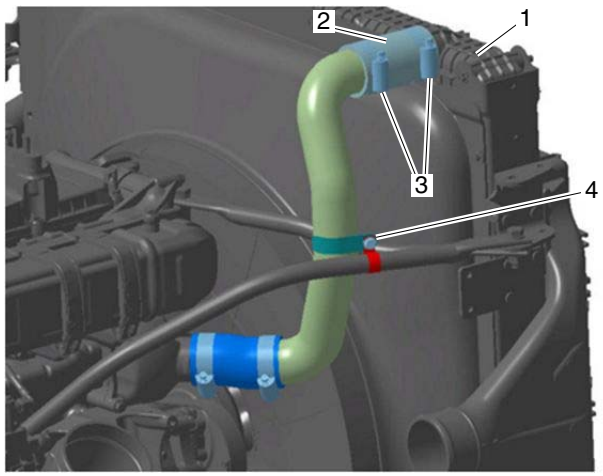
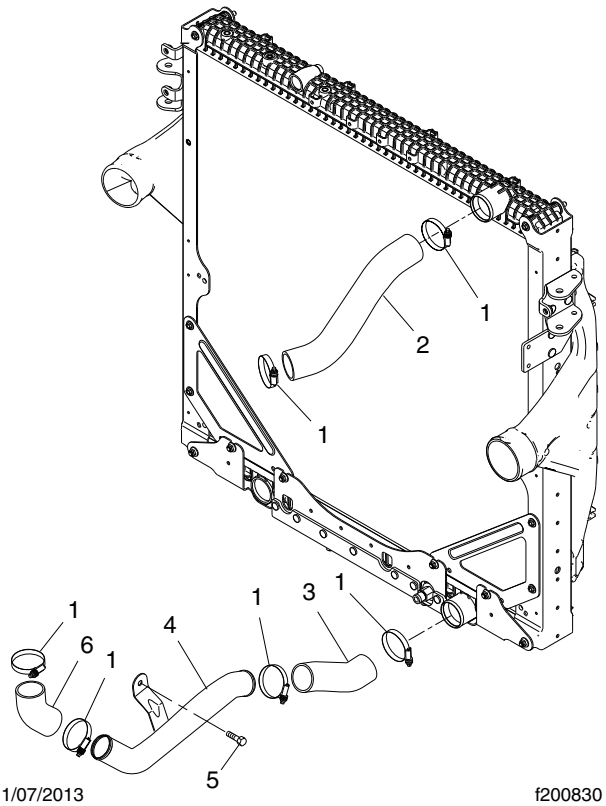


10/16/2012 f200771

1. Radiator
2. Upper Radiator Hose
3. Clamp
4. Clamp Fastener
5. Lower Radiator Hose

Fig. 7, Upper Radiator Hose Installation, DDC Engine

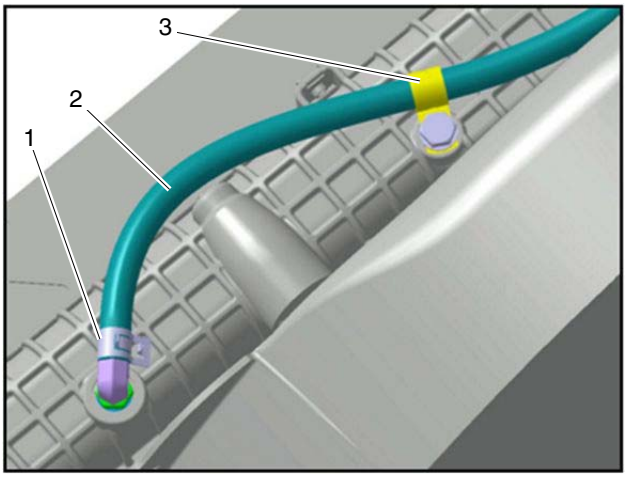


11/07/2013 f200830

1. Clamp
2. Upper Radiator Hose
3. Hose, Lower Radiator, Radiator to Tube
4. Lower Radiator Tube
5. Fastener
6. Hose, Lower Radiator Tube-to-Engine

Fig. 8, Radiator Hose Installation, Cummins Engine

24. Install the CAC on the new radiator.
25. Install the upper radiator baffle.
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. 13**.
28. Remove the lower radiator mounting brackets from the engine.
29. Install the new lower radiator mounting brackets. See **Fig. 16**. Tighten 191 to 234 lbf·ft (260 to 317 N·m).
30. Install the lower radiator isolators on the mounting brackets. See **Fig. 17**.
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. 17**.
32. Install the lower radiator hose.



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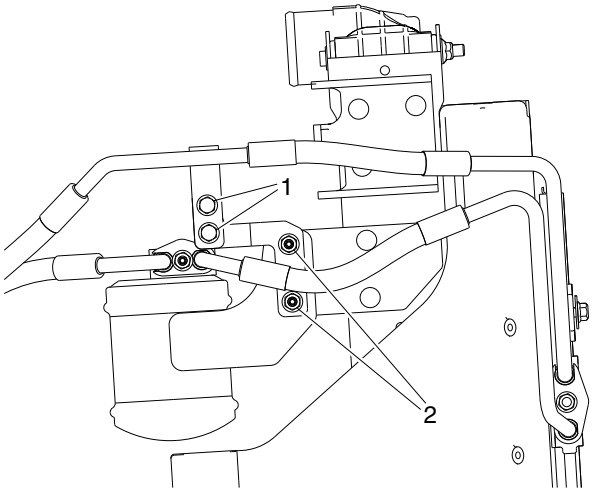
1. Clamp
2. Line
3. P-Clamp

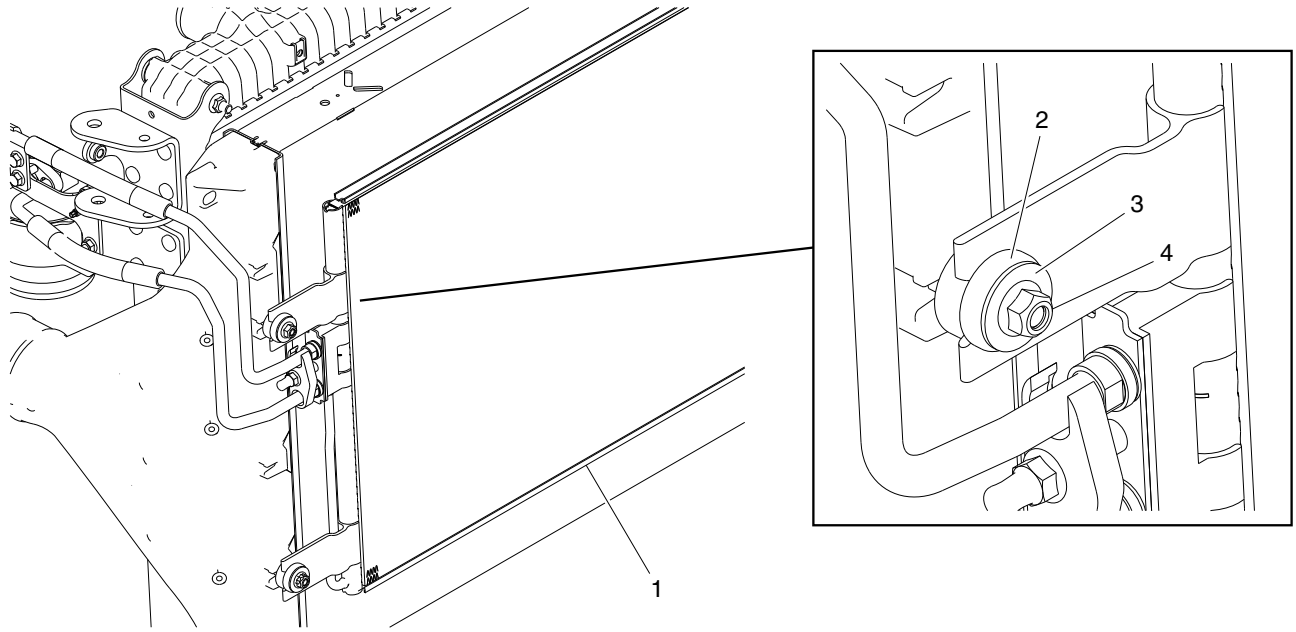
Fig. 9, Surge Tank Vent Line



11/28/2012 f200773

1. Upper Condenser Line Mounting Nuts
2. Receiver-Drier Mounting Nuts

Fig. 10, Receiver-Drier Installation (typical)



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1. A/C Condenser
2. Isolator
3. Washer
4. Nut

Fig. 11, A/C Condenser Installation

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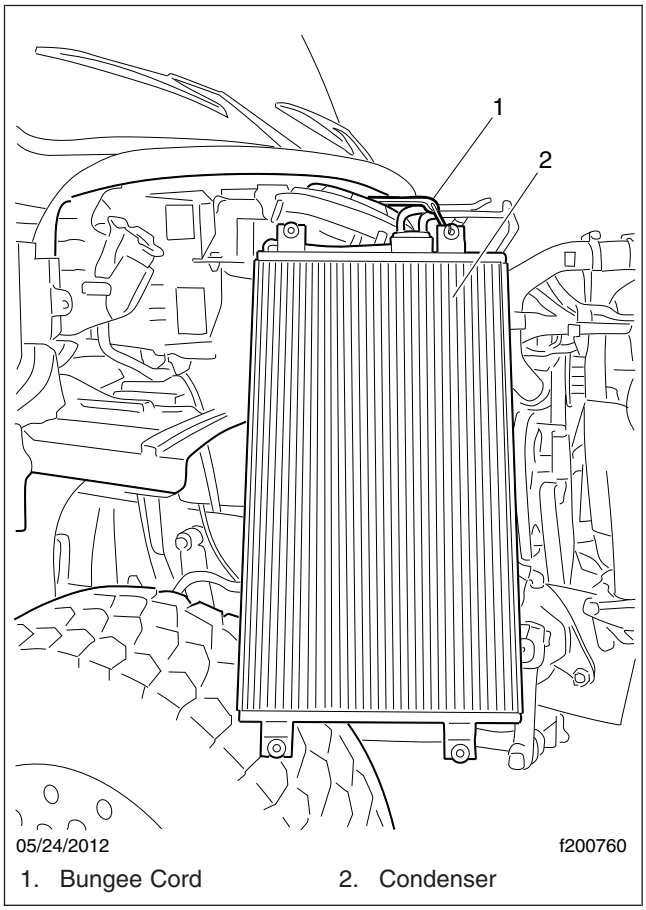


Fig. 12, Securing the A/C Condenser

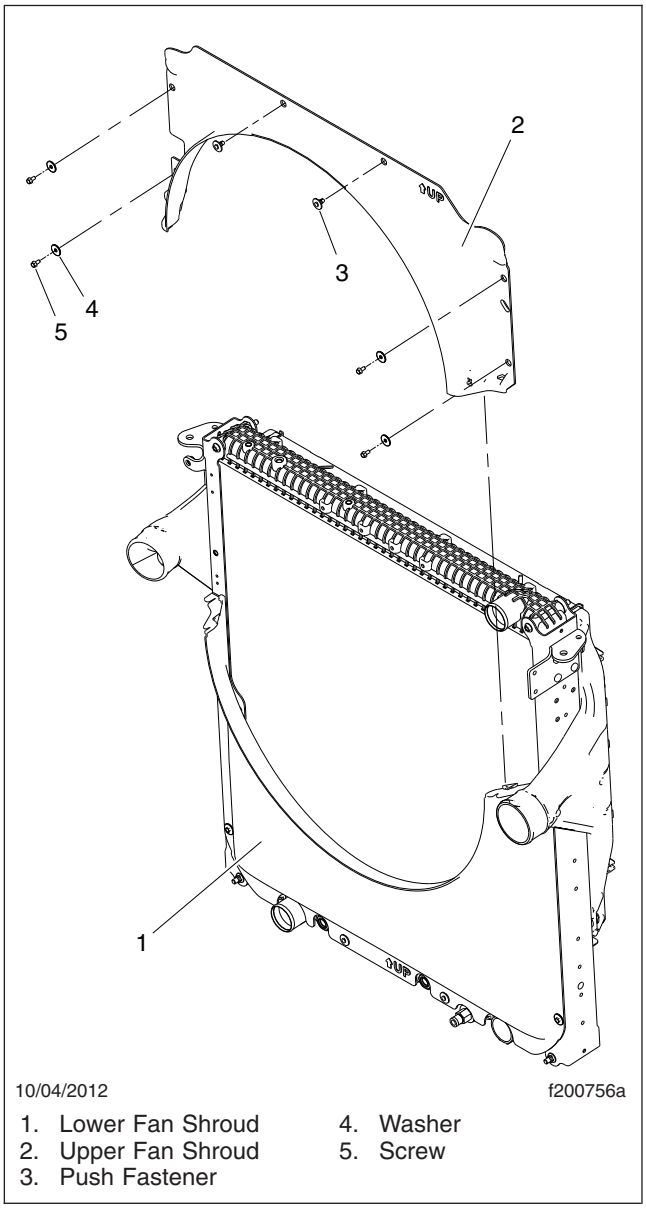
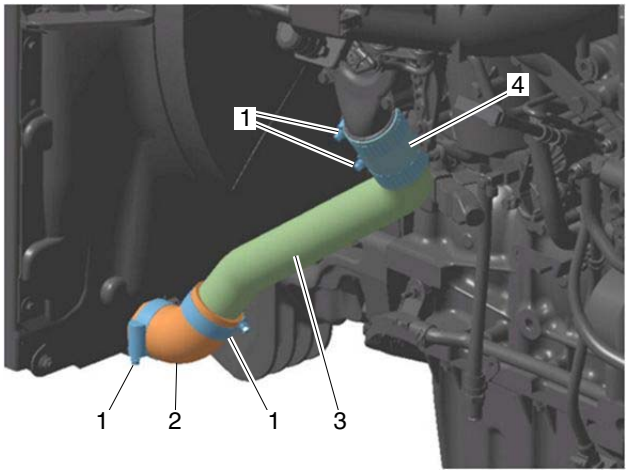


Fig. 13, Fan Shroud Installation

33. Connect the transmission cooler lines.
34. Install the new upper radiator hose. See **Fig. 7** for DDC engines or **Fig. 8** for Cummins engines.
35. Install the new isolated radiator strut rods. See **Fig. 18** for DDC engine installations, or **Fig. 19** 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).



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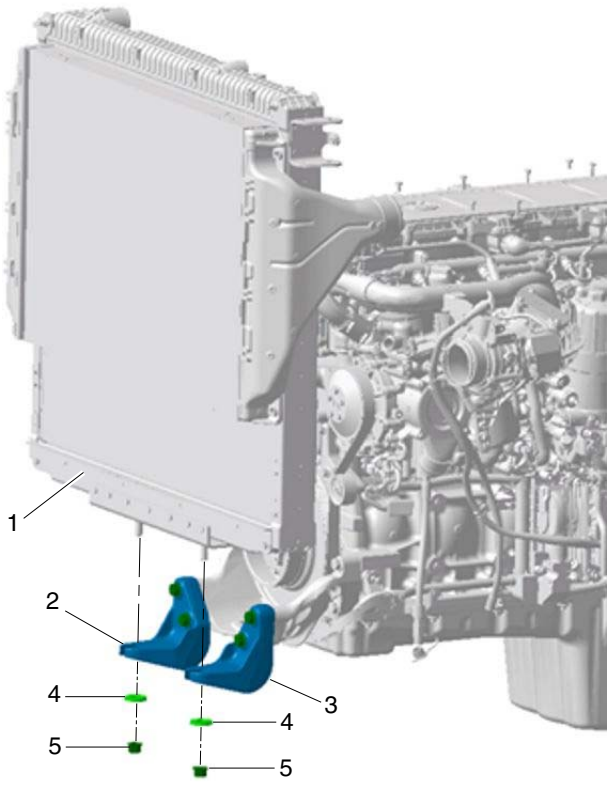
1. Clamp
2. Radiator Hose Elbow
3. Tube
4. Radiator Hose

Fig. 14, Lower Radiator Hose Installation, DDC Engines



10/16/2012 f500411

1. Radiator
2. Lower Radiator Mounting Bracket, Right Side
3. Lower Radiator Mounting Bracket, Left Side
4. Washer
5. Nut

Fig. 15, Radiator Assembly Removal

37. Install the A/C condenser as follows.
    - 37.1 Move the condenser into position and secure it temporarily. See **Fig. 11**.
    - 37.2 Position the receiver-drier and upper A/C line on their respective brackets and install the mounting nuts. See **Fig. 10**. Tighten the nuts 14 to 16 lbf·ft (19 to 22 N·m).
    - 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. 5** and **Fig. 6**.
41. Fill the cooling system following the procedures in the engine manufacturer's service literature.

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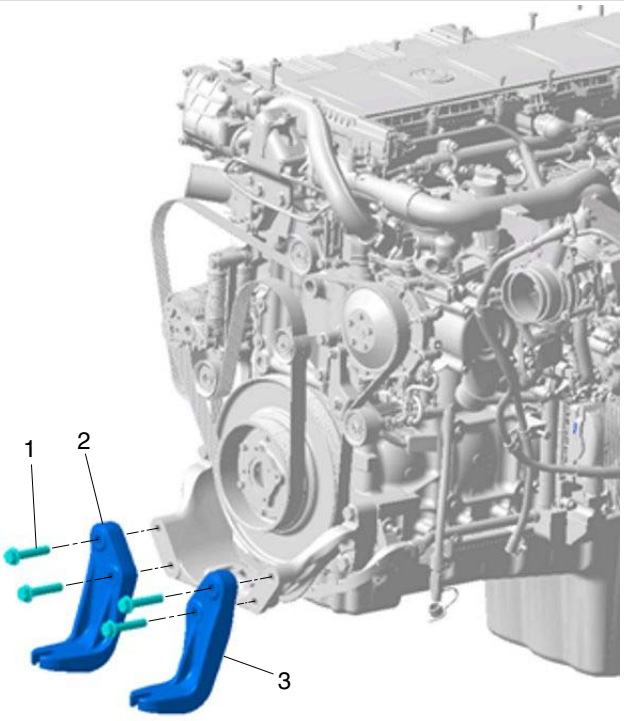
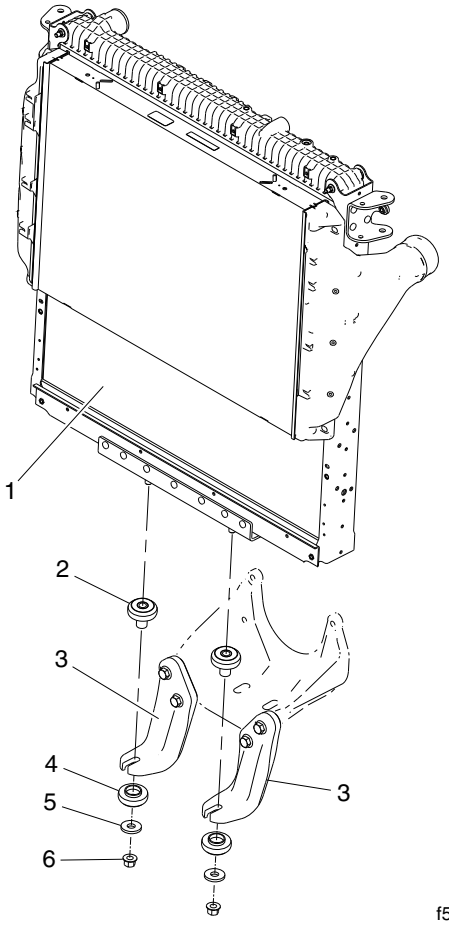


1. Fastener
2. Lower Isolated Radiator Mounting Bracket, Right Side
3. Lower Isolated Radiator Mounting Bracket, Left Side

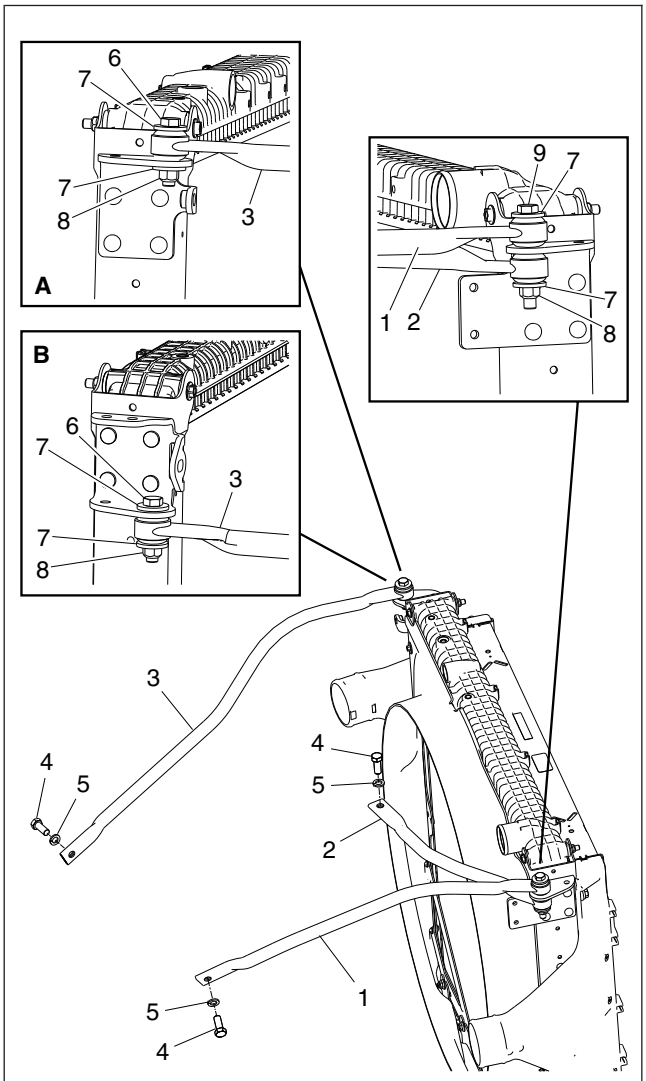
Fig. 16, Lower Isolated Radiator Mounting Bracket Installation

42. Install the hood. For instructions, see **Group 88** of the *108SD/114SD Workshop Manual*.
43. Install the bumper. For instructions, refer to **Group 31** of the *108SD/114SD 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.



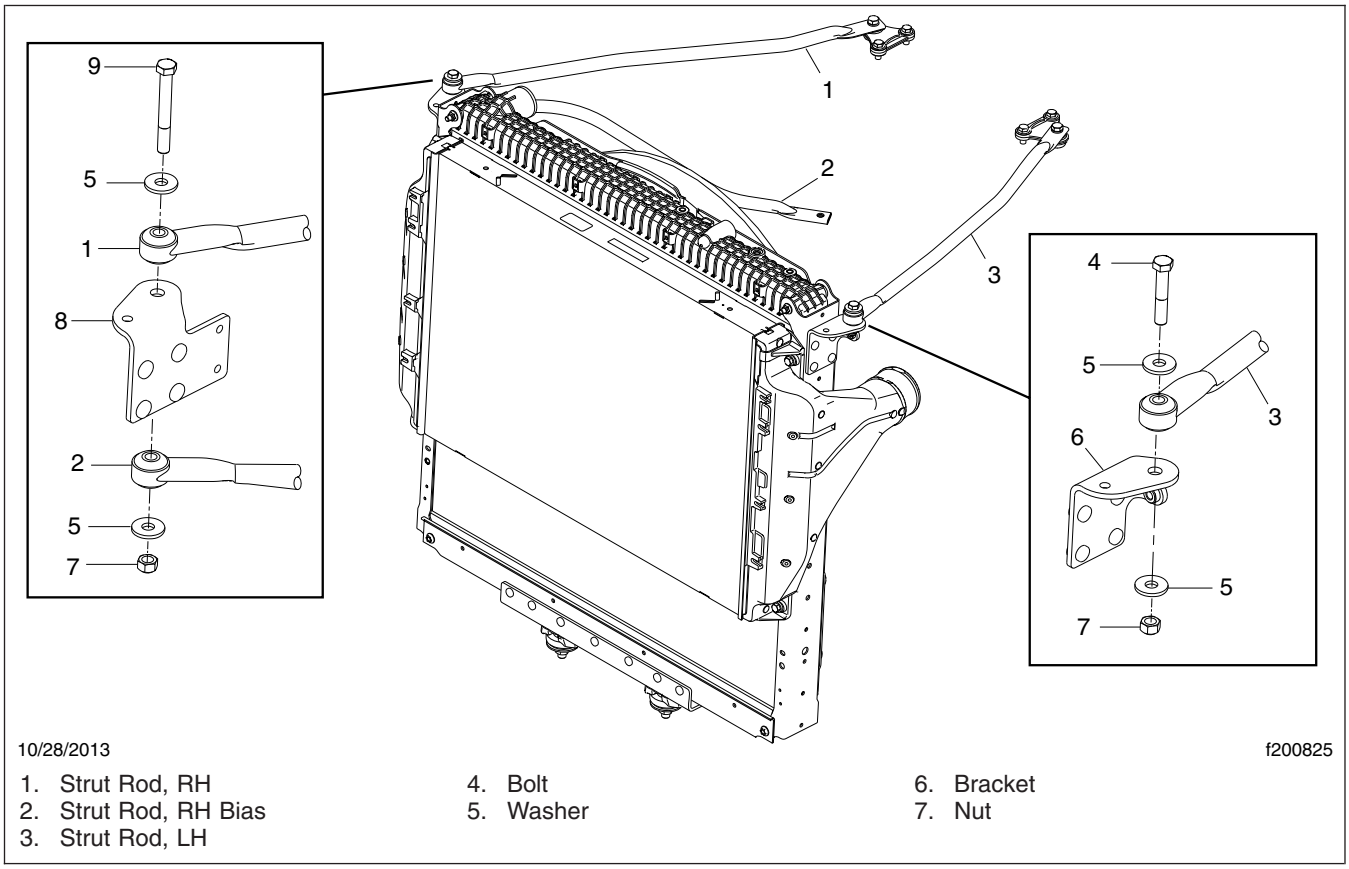
1. Radiator
2. Upper Isolator
3. Lower Radiator Mount
4. Lower Isolator
5. Washer
6. Nut

Fig. 17, Radiator Installation



1. Strut Rod, RH
2. Strut Rod, RH Bias
3. Strut Rod, LH
4. Capscrew
5. Washer
6. Bolt
7. Washer
8. Nut
9. Bolt

Fig. 18, Isolated Radiator Strut Rod Installation, DDC Engine



1. Strut Rod, RH
2. Strut Rod, RH Bias
3. Strut Rod, LH
4. Bolt
5. Washer
6. Bracket
7. Nut

Fig. 19, Isolated Radiator Strut Rod Installation, Cummins Engine

Parts

Parts are available through the PDC. See **Table 1** for required parts for the vehicle configuration being serviced.

Required Parts Tables	
Vehicle Configuration	**Table**
SD114 w/DD13 W1500 RAD – Drop Cast Forward Frame	**Table 2**
SD114 w/DD13 Allison Auto W1500 RAD – Drop Cast Forward Frame	**Table 3**
SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame	**Table 4**
SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame	**Table 5**
SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO (front engine PTO)	**Table 6**
SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO	**Table 7**

Table 1, Required Parts Tables

SD114 w/DD13 W1500 RAD – Drop Cast Forward Frame		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580820003	RAD-ALUM,W1500,D3,LSO,ITOC	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
05-30368-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30368-001	BRKT-RAD SUPT,BTM CHNL,RH	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 2, SD114 w/DD13 W1500 RAD – Drop Cast Forward Frame

SD114 w/DD13 Allison Auto W1500 RAD – Drop Cast Forward Frame		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580820002	RAD-ALUM,W1500,D3,RSO,ITOC	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
A05-30379-000	BRKT-RAD,BTM CHNL,ISO,AUTO	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2

SD114 w/DD13 Allison Auto W1500 RAD – Drop Cast Forward Frame		
Part	**Description**	**Quantity**
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 3, SD114 w/DD13 Allison Auto W1500 RAD – Drop Cast Forward Frame

SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580790003	RAD-ALUM,1500,MED,LSO,ITOC,ISO	1
A05-30377-000	STRUT-RAD,DD13,MED,FWD,RH,ISO	1
A05-30378-000	STRUT-RAD,DD13,MED,FWD,BS,ISO	1
A05-30703-000	STRUT-RAD,DD13,MED,FWD,LH,ISO	1
05-30369-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30369-001	BRKT-RAD SUPT,BTM CHNL,RH	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 4, SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame

SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
MOD 3S0580790002	RAD-ALUM,1500,MED,RSO,ITOC,ISO	1
A05-30377-000	STRUT-RAD,DD13,MED,FWD,RH,ISO	1
A05-30378-000	STRUT-RAD,DD13,MED,FWD,BS,ISO	1
A05-30703-000	STRUT-RAD,DD13,MED,FWD,LH,ISO	1
05-30369-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30369-001	BRKT-RAD SUPT,BTM CHNL,RH	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 5, SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame

SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
05-30353-007	RAD-ALUM,1500,MED,LSO,ITOC,FEPTO,ISO	1

SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO		
Part	**Description**	**Quantity**
A05-30377-000	STRUT-RAD,DD13,MED,FWD,RH,ISO	1
A05-30378-000	STRUT-RAD,DD13,MED,FWD,BS,ISO	1
A05-30703-000	STRUT-RAD,DD13,MED,FWD,LH,ISO	1
05-30369-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30369-001	BRKT-RAD SUPT,BTM CHNL,RH	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 6, SD114 w/DD13 M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO

SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO		
Part	**Description**	**Quantity**
KYS 010024426	FAN-XMD9,31.5",2.56",EMB	1
05-30353-006	RAD-ALUM,1500,MED,RSO,ITOC,FEPTO,ISO	1
A05-30377-000	STRUT-RAD,DD13,MED,FWD,RH,ISO	1
A05-30378-000	STRUT-RAD,DD13,MED,FWD,BS,ISO	1
A05-30703-000	STRUT-RAD,DD13,MED,FWD,LH,ISO	1
05-30369-000	BRKT-RAD SUPT,BTM CHNL,LH	1
05-30369-001	BRKT-RAD SUPT,BTM CHNL,RH	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
BCD 27463 14	ISOLATOR-RAD,LWR,60 DURO(KIT)	2
01-20963-000	WASHER-HRDND,STL,.66X2.75"	2

Table 7, SD114 w/DD13 Allison Auto M1500 RAD – Bolt-On and Splayed Forward Frame, FEPTO

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 8** for QuickClaim damage code and labor allowance information. Refer to this service bulletin by number at the beginning of the claim comments. See **Table 9** for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

Freightliner Service Bulletin

FLA COE
FLB COE
FLD Conventional
Business Class
FLC 112 Conventional
Century Class Conventional
Argosy COE
Cargo
Columbia
122SD and Coronado
Business Class M2
Cascadia
> 108SD/114SD

QuickClaim Damage Code and Labor Allowance			
Damage Code	**SRT Code**	**Description**	**Time: Hours**
266-000A05609	266-5050A	FL SD 114 ISOLATED RAD UPDATE	4.9

Table 8, QuickClaim Damage Code and Labor Allowance

OWL VMRS Codes and Labor Allowance					
Primary Failed Part	**Component Code**	**Cause Code**	**SRT Code**	**Description**	**Time: Hours**
05-30352-003	042-002-001	03	266-5050A	FL SD 114 ISOLATED RAD UPDATE	4.9

Table 9, OWL VMRS Codes and Labor Allowance