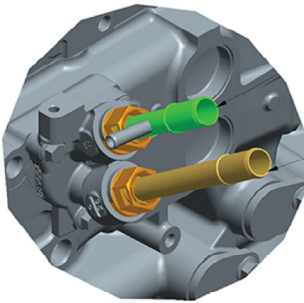




Technical Information Bulletin

42-056



Section

Cooling - 42

Subject

Composite Coolant Fitting Leak

Release Date

8/28/2019

Condition

Coolant leak at composite coolant fitting.

Chassis Affected

T600 Service Cabs only, and C500, T660, T800, W900, T680, T880, and W990 vehicles and associated service cabs built from 05/04/2015 (PACCAR engines) 10/10/2016 (Cummins engines) through 05/20/2019 (PACCAR MX-13) 08/26/2019 (PACCAR MX-11 and Cummins X15) equipped with PACCAR MX-11 or MX-13, or Cummins X15 engines and composite coolant fittings.

Action

Fix-As-Fail

If a customer comes into your dealership and demonstrates the condition above, use the attached part conversion table and WebECAT to determine the correct parts, and replace all the composite coolant fittings with the applicable fittings and hoses as shown in the attached cross-reference documents.

Warranty

Through Standard Warranty (includes Extended Warranty) Kenworth will pay for parts at dealer net plus applicable mark-up and labor:

- 0.9 hours labor to replace all the composite fittings, leaking or not, with brass and refill the cooling system. File a long form claim.

Take-Off Parts Disposition: Destroy take-off parts 30 days after claim is paid

CLAIM CODING			
Failure Location:	042-004-017	Work Accomplished:	35
Failure Type:	155	Responsibility Code:	01
SRT Code:	B42-056 0.9 hrs. Replace coolant fittings. Includes time to drain and fill cooling system.	Claim Type:	N/E

Parts

Parts are available from PACCAR Parts.

Use WebECAT, in conjunction with the appropriate attached parts cross-reference documents, to determine the necessary parts required for this repair.

Quantity	Part Number	Description
As Required	EC3501	U.S. Coolant
As Required	EC7501	Canada Coolant

Hose Cross-Reference, ALL YEARS		
Description	Current	Replacement
Formed hose	V50-1523	v50-6129
Formed hose	V50-1521	V50-6132
Formed hose	V50-1524	V50-6134
Formed hose	V50-1522	V50-6133
Formed hose	V50-1519	V50-6130
Formed hose	V50-1520	V50-6131
bulk hose 3/4 in.	K342-525-000	D1030-3755
bulk hose 5/8 in.	F50-1016-5-0000	D1030-3625
bulk hose 3/4 in.	F50-6178-00000	D1030-3755
bulk hose 3/4 in.	V50-6008-2XXXX	D1030-3755

Procedure

- [Use the attached parts cross-reference and Web ECAT to determine the required replacement fittings and hoses.](#)
- Drain the coolant into a clean container so as much as possible can be reused at the end of the repair.
- [Remove the coolant hoses from the composite fittings that will be replaced, then remove the composite fittings.](#)
- Install the new coolant fittings and the new hoses.
- Refill with coolant removed during Step 3. Top off with new coolant as necessary. Refer to the Coolant Fill procedure in the Attachments section.
 - Print this document and provide it to the customer. This is a revised procedure as compared to the procedures provided in the Operator Manuals.

Attachments

 [EPA2017 and later MX-11 Engine Brass Coolant Fittings](#)

 [Pre-EPA2017 MX-11 Engine Brass Coolant Fittings](#)

 [EPA2017 and later MX-13 Engine Brass Coolant Fittings](#)

 [Pre-EPA2017 MX-13 Engine Brass Coolant Fittings](#)

 [EPA 2013-2017 X15 Engine Brass Coolant Fittings](#)

 [Parts cross-reference](#)

 [Coolant Fill Procedure](#)

Authored by: OF

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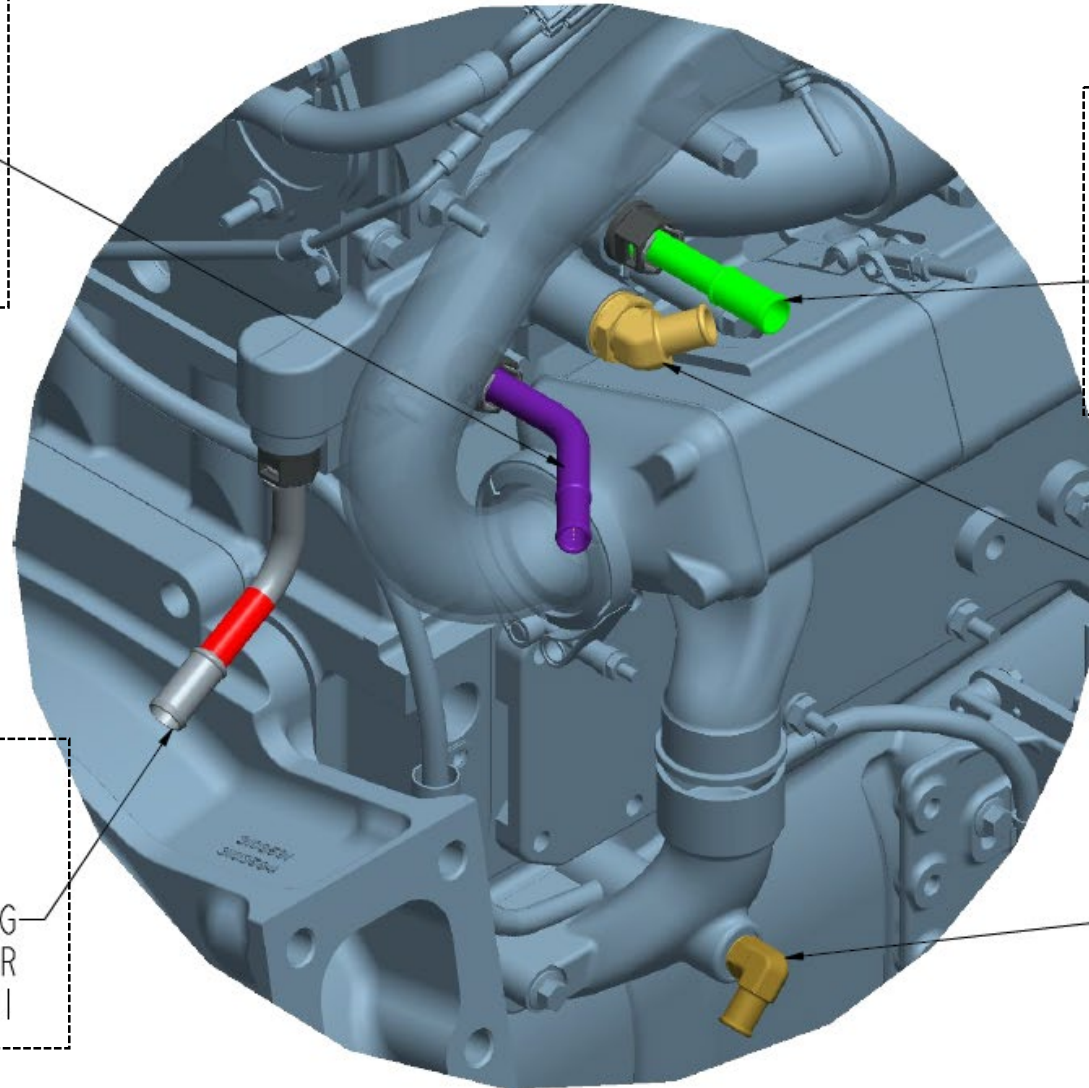
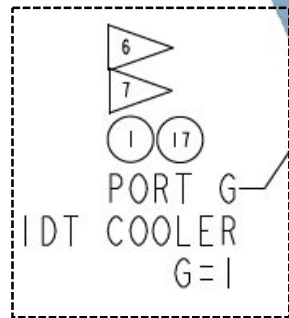
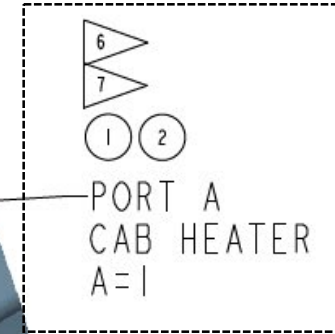
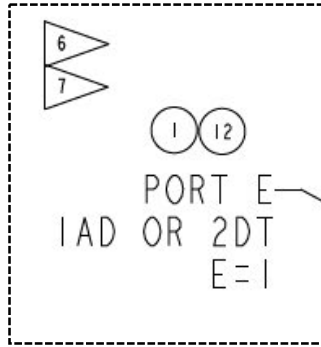
EPA 2013 and Higher Cummins X15 Engine

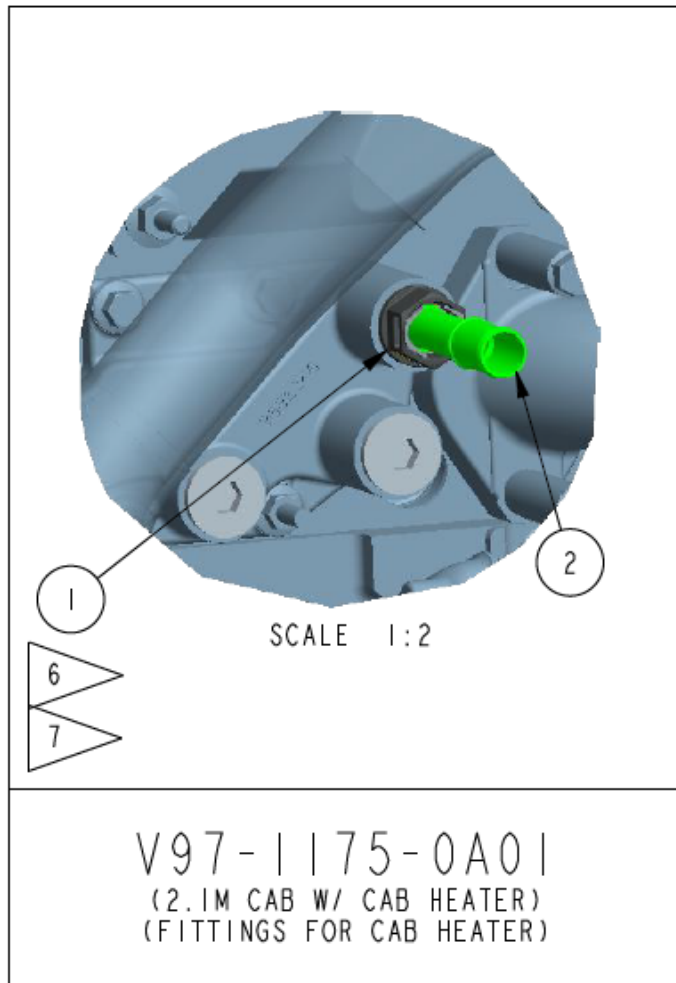
Port A (Cab heater)		
Variation	Composite	Brass
KW 2.1m w/ cab htr - A01	V38-1166 & V88-1123-645080090	V38-1089
KW 1.9m w/ cab htr - A02	V38-1166 & V88-1123-500165000	V38-1018
Port E (AD heater/2nd DT cooler)		
Variation	Composite	Brass
KW 2.1m w/ 1 AD htr or 2nd DT cooler	V38-1166 & V88-1135-500	D2111-3603
KW 1.9m w/ 1 AD htr w/o in-cab htr - E01		V88-1109
KW 1.9m w/ 1 AD htr & w/ in-cab htr - E02	V38-1166 & V88-1123-545080090	D2111-3603 & F88-1050
KW 1.9m 2nd DT cooler - E03	V38-1166 & V88-1135-600	D2111-3602 V88-1167
Port G (Drivetrain cooler or Aux heater)		
Variation	Composite	Brass
All cabs 1st DT cooler - G01	V38-1166 & V88-1138	V38-6042
KW 1.9m 3rd AD htr - G02	V38-1166 & V88-1123-560110095	V38-1088

Cab Definition	
2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab, C500, T660, T800, W900

Updated Installation Drawing

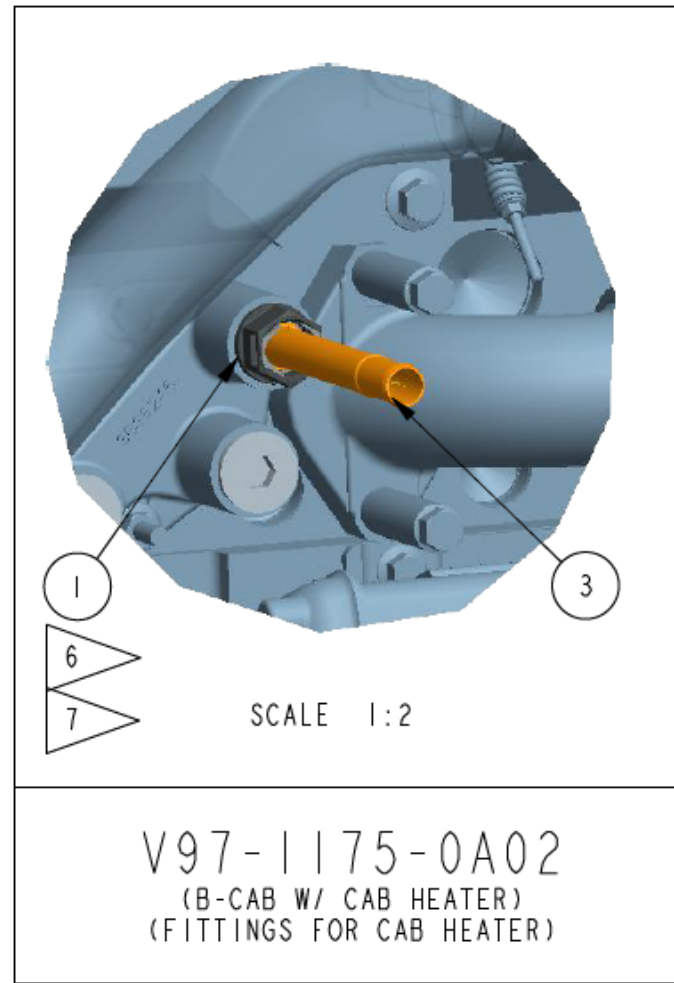
V97-1184





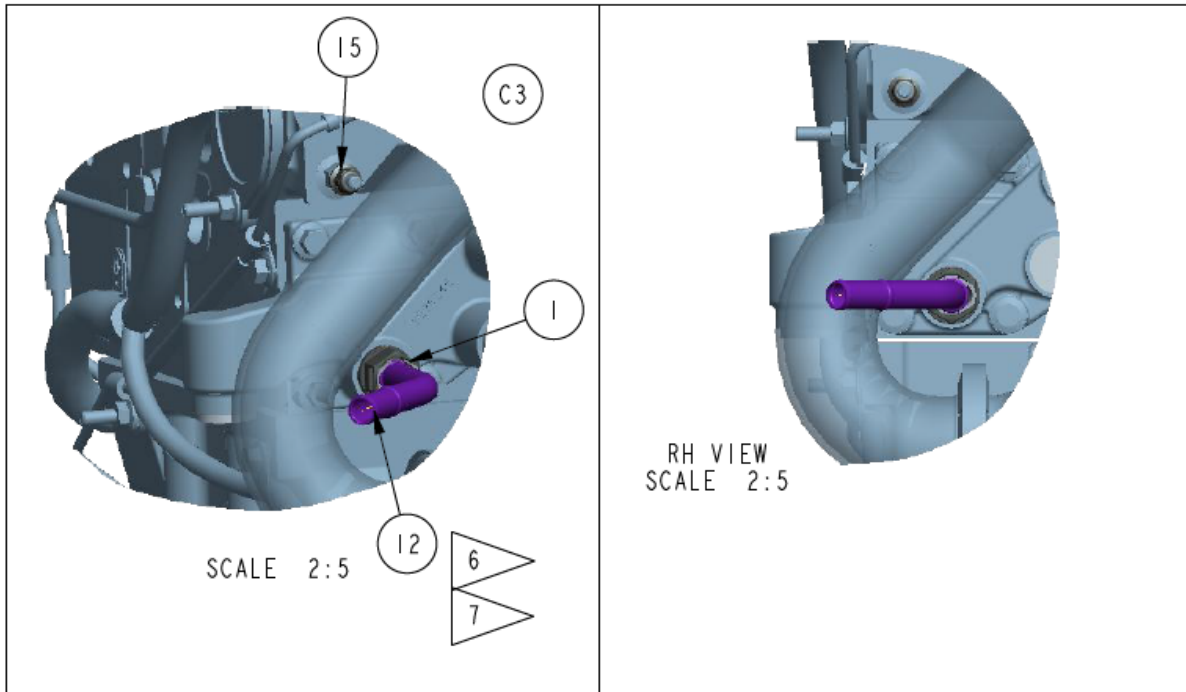
Port A, Option 1

- 2.1m Cab Heater
- Brass: V38-1089
- Composite: V38-1166 and V88-1123-6*



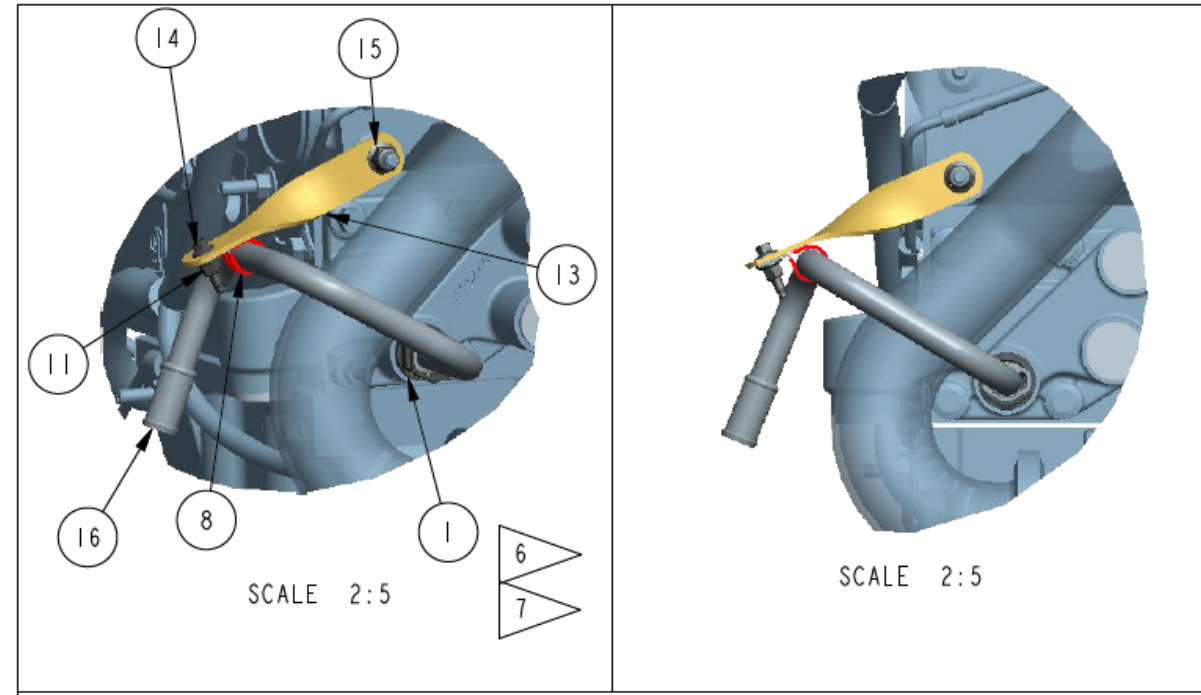
Port A, Option 2

- 1.9m Cab Heater
- Brass: V38-1018
- Composite: V38-1166 and V88-1123-5*



V97-1175-0E01

2.1M CAB W/ ONE AUXILIARY DEVICE HEATER (NOT SLPR HEATER)
OR 2ND DRIVETRAIN COOLER
B-CAB W/ 1AD HEATER (NOT SLPR HEATER)



V97-1175-0E02

B-CAB W/ 2ND DRIVETRAIN COOLER

Port E, Option 1

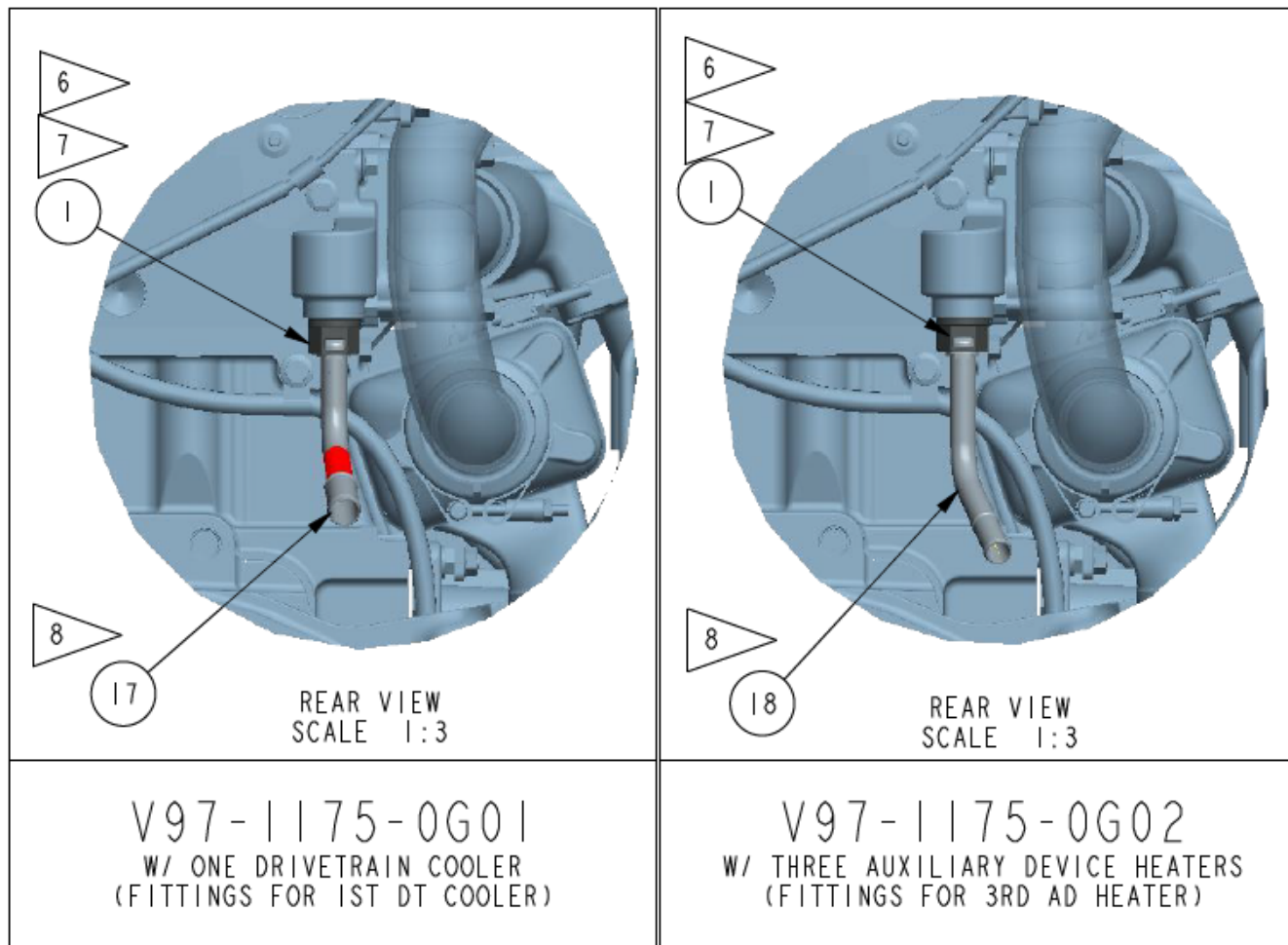
- 2.1m Aux Heater or 2nd Drivetrain Cooler
- OR 1.9m Aux Heater
- Brass: D2111-3603 & V88-1109
- Composite: V38-1166 and V88-1123-5*

Port E, Option 3

- 1.9m w/ 1 AD heater & w in-cab heater
- Brass: D2111-3603 & F88-1050
- Composite: V38-1166 & V88-1123-5*

Port E, Option 3

- 1.9m 2nd Drivetrain Cooler
- Brass: D2111-3602 & V88-1167
- Composite: V38-1166 and V88-1135-600



Port G, Option 1

- 1st Drivetrain Cooler
- Brass: V38-6042
- Composite: V38-1166 and V88-1138

Port G, Option 2

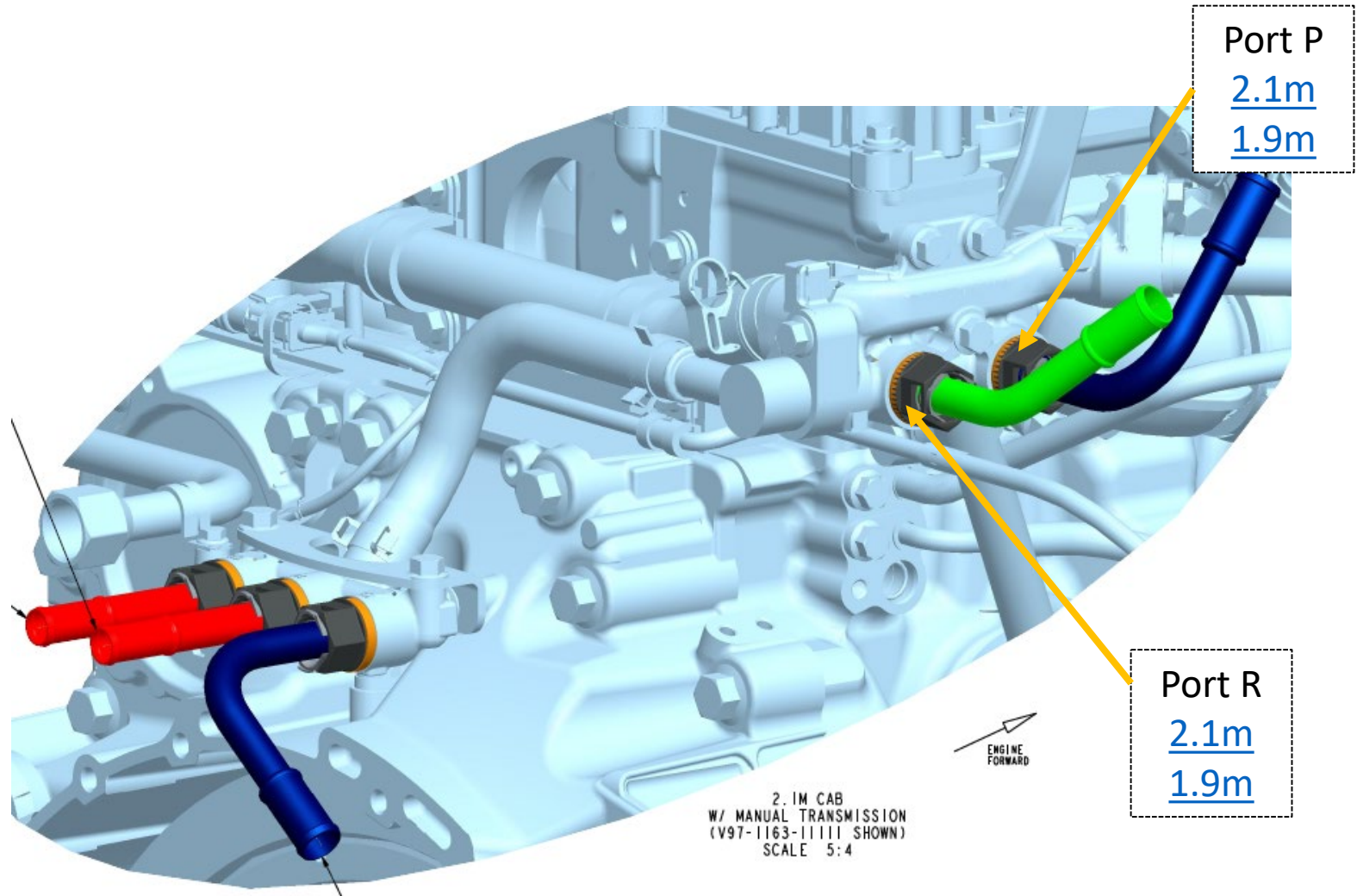
- 1.9m w/ 3rd Aux Heater
- Brass: V38-1088
- Composite: V38-1166 and V88-1123-5*

EPA2017 and Later PACCAR MX-11 Engine

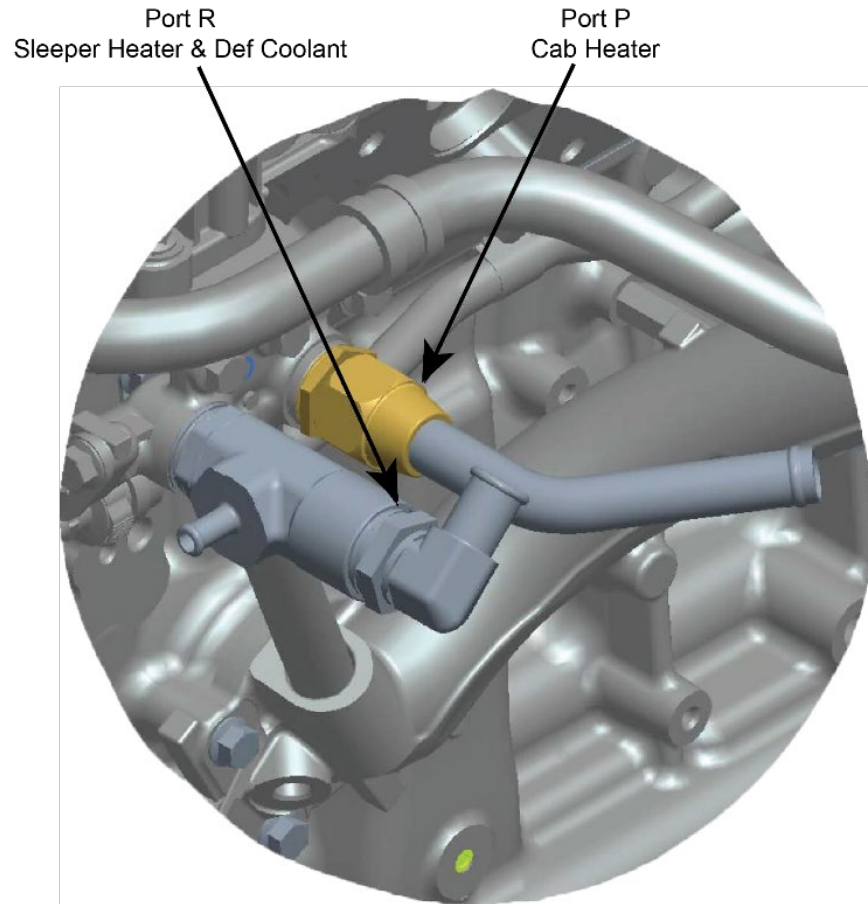
Port R (DEF/Sleeper)		
Variations	Composite	Brass
KW 2.1m V97-1176-X11 DEF coolant & slpr heater	V88-1145 & V38-1166	V38-6040 & D2034-6707
KW 1.9m V97-1176-X22 DEF coolant & slpr heater	V88-1144 & V38-1166	V38-6040 & V38-1018
KW (All) DEF only	V38-1166 & V88-1143	V38-6041
Port P (Cab heater)		
Variations	Composite	Brass
KW 2.1m V97-1176-X11 cab heater	V88-1123-645080090 & V38-1166	D2111-3602 & V88-1107 (3/4 in.)
KW 1.9m V97-1176-X22 cab heater	V88-1123-590100110 & V38-1166	D2111-3603 & V88-1028

Cab Definition	
2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab & C500, T660, T800, W900

Updated Installation Drawing
V97-1185



2.1m with Sleeper



Port R

DEF Coolant & Sleeper

- Brass: V38-6040 & D2034-6707
- Composite: V38-1166 & V88-1145

DEF Only

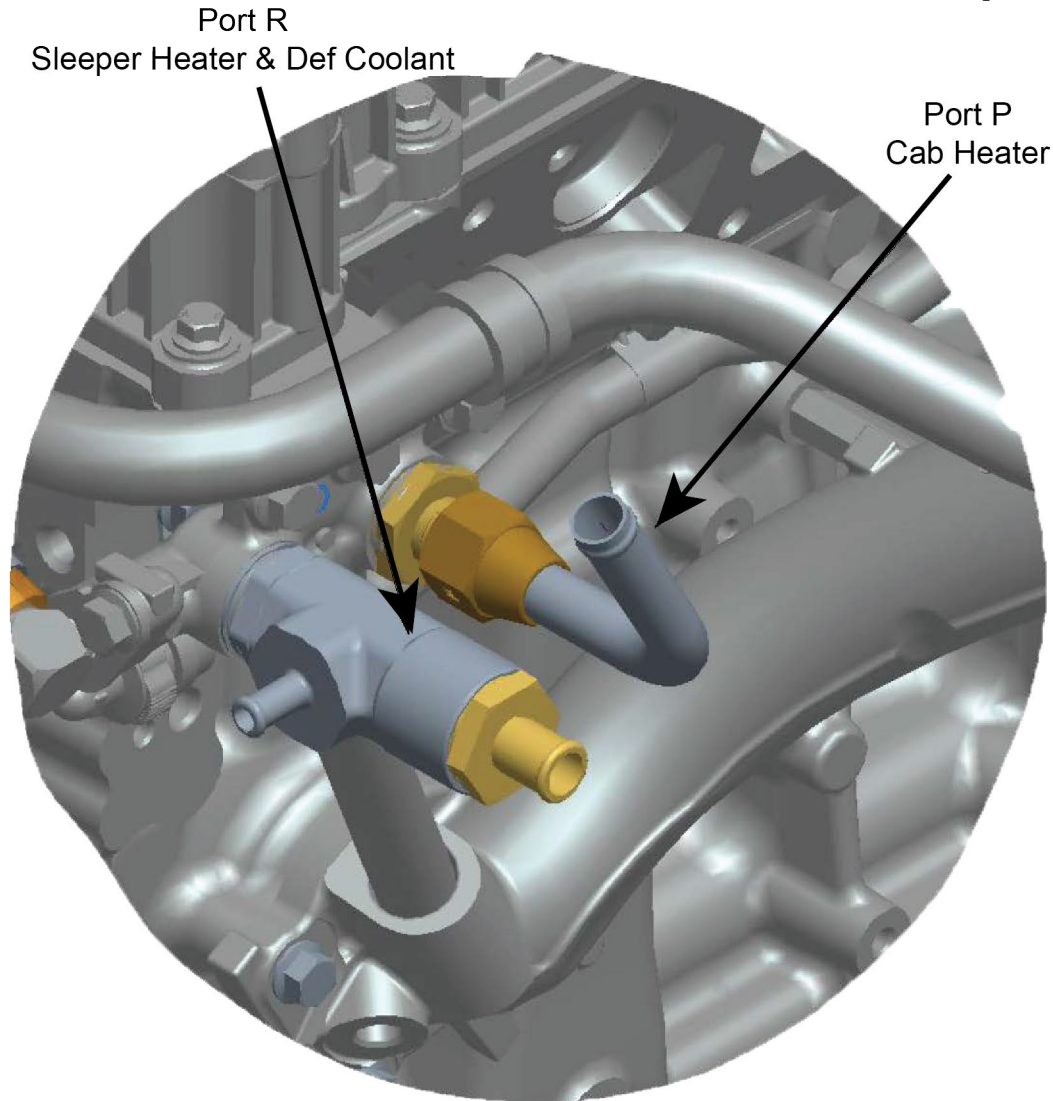
- Brass: V38-6041
- Composite: V38-1166 & V88-1143

Port P

Cab Heater

- Brass: V88-1107 (3/4 in.) & D2111-3602
- Composite: V88-1123-6* & V38-1166

1.9m with Sleeper



Port R
Sleeper Heater & Def Coolant

Port P
Cab Heater

Port R

DEF Coolant & Sleeper

- Brass: V38-6040 & V38-1018
- Composite: V38-1166 & V88-1144

DEF Only

- Brass: V38-6041
- Composite: V38-1166 & V88-1143

Port P

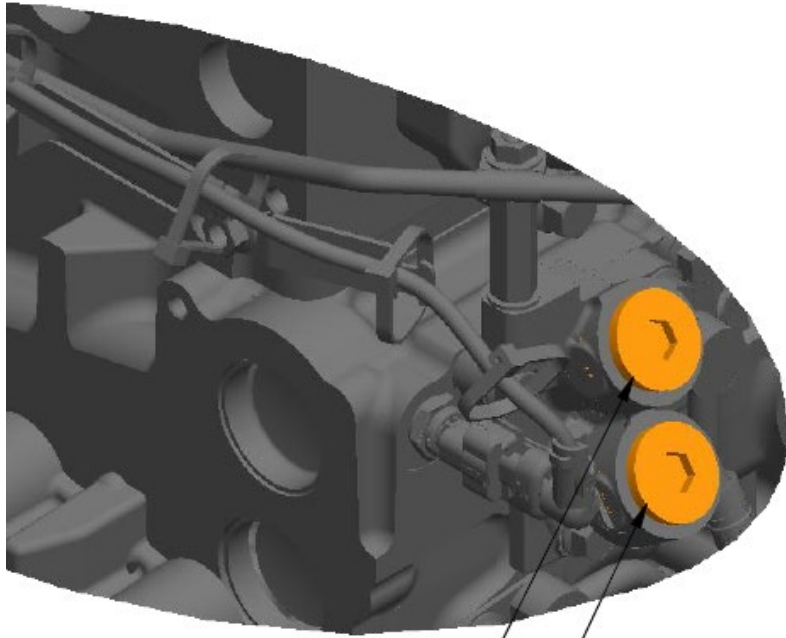
Cab Heater

- Brass: V88-1028 & D2111-3603
- Composite: V88-1123-5* & V38-1166

EPA2017 and Later PACCAR MX-13 Engine

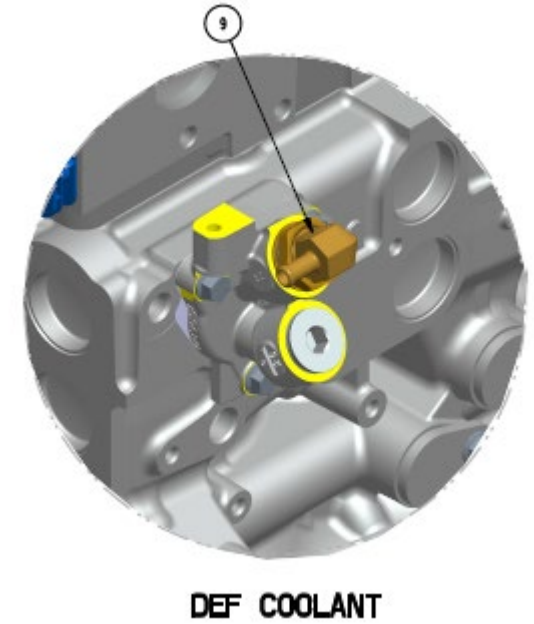
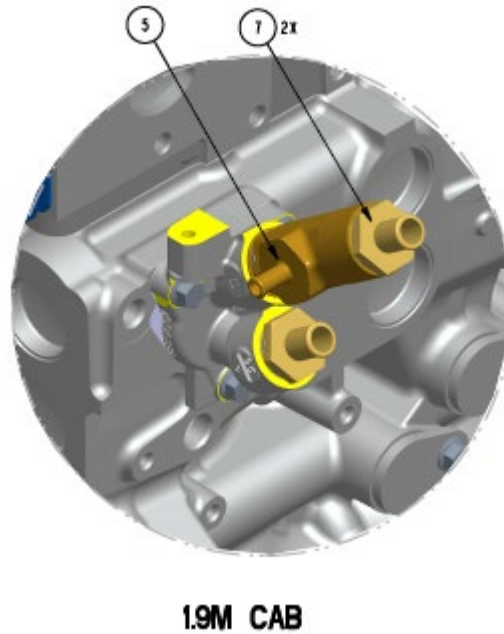
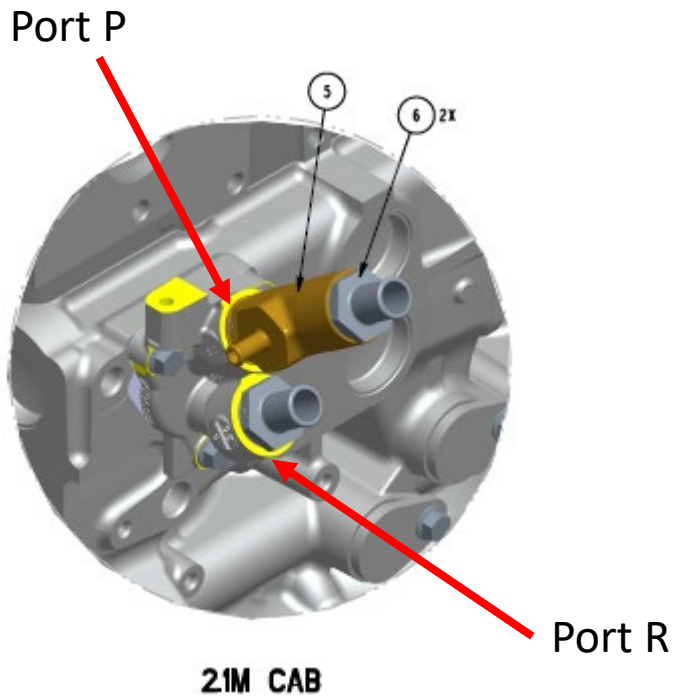
Port P (DEF/Sleeper)		
Variations	Composite	Brass
KW 2.1m V97-1174-X11 DEF coolant & slpr heater	V88-1141 & V38-1166	V38-6040 & V38-1089
KW 1.9m V97-1174-X22 DEF coolant & slpr heater	V88-1142 & V38-1166	V38-6040 & V38-1018
KW All DEF only	V88-1143 & V38-1166	V38-6041
Port R (Cab heater)		
Variations	Composite	Brass
KW 2.1m V97-1174-X11 cab heater	V88-1123-600165000 & V38-1166	V38-1089
KW 1.9m V97-1174-X22 cab heater	V88-1123-500165000 & V38-1166	V38-1018

Cab Definition	
2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab, C500, T660, T800, W900
Updated Installation Drawing	
V97-1186	



PORT P
(M27 X 2.0 STOR ISO6149)

PORT R
(M27 X 2.0 STOR ISO6149)



2.1m with DEF coolant & Sleeper
Port P

- Brass: V38-1089 & V38-6040
- Composite: V38-1166 & V88-1141

Port R

- Brass: V38-1089
- Composite: V38-1166 & V88-1123-6*

1.9m with DEF coolant & Sleeper
Port P

- Brass: V38-1018 & V38-6040
- Composite: V38-1166 & V88-1142

Port R

- Brass: V38-1018
- Composite: V38-1166 & V88-1123-5*

All Trucks w/ DEF coolant only
Port P

- Brass: V38-6041
- Composite: V38-1166 and V88-1143

Port R

- See Images to the Left for 2.1m or 1.9m

EPA2017 AND NEWER ENGINES

MX-13
Port P (DEF/Slpr)

Variations	Nylon (with V38-1166)	Brass
KW 2.1m V97-1174-X11 DEF coolant & slpr heater	V88-1141 & V38-1166	V38-6040 & V38-1089
KW 1.9m V97-1174-X22 DEF coolant & slpr heater	V88-1142 & V38-1166	V38-6040 & V38-1018
KW All DEF only	V88-1143 & V38-1166	V38-6041

Port R (Cab heater)

Variations	Nylon (with V38-1166)	Brass
KW 2.1m V97-1174-X11 cab heater	V88-1123-600165000 & V38-1166	V38-1089
KW 1.9m V97-1174-X22 cab heater	V88-1123-500165000 & V38-1166	V38-1018

MX-11
Port R (DEF/Slpr)

Variations	Nylon (with V38-1166)	Brass
KW 2.1m V97-1176-X11 DEF coolant & slpr heater	V88-1145 & V38-1166	V38-6040 & D2034-6707
KW 1.9m V97-1176-X22 DEF coolant & slpr heater	V88-1144 & V38-1166	V38-6040 & V38-1018
KW (All) DEF only	V38-1166 & V88-1143	V38-6041

Port P (Cab heater)

Variations	Nylon (with V38-1166)	Brass
KW 2.1m V97-1176-X11 cab heater	V88-1123-645080090 & V38-1166	D2111-3602 & V88-1107 (3/4 in.)
KW 1.9m V97-1176-X22 cab heater	V88-1123-590100110 & V38-1166	D2111-3603 & V88-1028

X15
Port A (Cab htr)

Variation	Nylon (with V38-1166)	Brass
KW 2.1m w/ cab htr - A01	V38-1166 & V88-1123-645080090	V38-1089
KW 1.9m w/ cab htr - A02	V38-1166 & V88-1123-500165000	V38-1018

Port E (AD htr/2nd DT cooler)

Variation	Nylon (with V38-1166)	Brass
KW 2.1m w/ 1 AD htr or 2nd DT cooler KW 1.9m w/ 1 AD htr w/o in-cab htr - E01	V38-1166 & V88-1135-500	D2111-3603 V88-1109
KW 1.9m w/ 1 AD htr & w/ in-cab htr - E02	V38-1166 & V88-1123-545080090	D2111-3603 & F88-1050
KW 1.9m 2nd DT cooler - E03	V38-1166 & V88-1135-600	D2111-3602 V88-1167

CAB Definition

2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab, C500, T660, T800, W900

Variation	Nylon (with V38-1166)	Brass
All 1st DT cooler - G01	V38-1166 & V88-1138	V38-6042
KW 1.9m 3rd AD htr - G02	V38-1166 & V88-1123-560110095	V38-1088

PRE-EPA2017 ENGINE FITTINGS

**MX-13
Port A**

Variations	Nylon (with V38-1166)	Brass
5/8 in. fitting & 45 deg	v88-1123-545080090	v38-1088
5/8 in. fitting & straight	v88-1123-500115000	v38-1018
3/4 in. fitting & 45 deg	v88-1123-645080090	v38-1090
3/4 in. fitting & straight	v88-1123-600115000	v38-1089

Port C

Variations	Nylon (with V38-1166)	Brass
3/4 in. fitting & 45 deg	v88-1123-645080090	v38-1090
5/8 in. fitting & 45 deg	v88-1123-545080090	v38-1088

Port G

Variations	Nylon (with V38-1166)	Brass
5/8 in. fitting & 45 deg	v88-1123-545080090	v38-1088
3/4 in. fitting & 45 deg	v88-1123-645080090	v38-1090

Port P

Variations	Nylon (with V38-1166)	Brass
5/8 in. fitting & straight	v88-1123-500115000	v38-1018
3/4 in. fitting & straight	v88-1123-600115000	v38-1089

Port R

Variations	Nylon (with V38-1166)	Brass
5/8 in. fitting & straight	v88-1123-500165000	v38-1018
5/8 in. fitting & straight	v88-1123-500115000	v38-1018
5/8 in. fitting & straight	v88-1123-560110095	v38-1018
5/8 in. fitting & straight	v88-1123-600165000	v38-1089

**MX-11
Port A**

Variations	Nylon	Brass
3/4 in. fitting & 90 deg	v88-1123-690100110	v38-1090
5/8 in. fitting & straight	v88-1123-500115000	v38-1018

Port C

Variations	Nylon	Brass- Future
5/8 in. fitting & straight	v88-1123-500115000	v38-1018

Port G

Variations	Nylon (with V38-1166)	Brass
5/8 in. fitting & straight	v88-1123-500115000	v38-1018

Port P

Variations	Nylon (with V38-1166)	Brass
3/4 in. fitting & 90 deg	v88-1123-690100110	v38-1090

Port R

Variations	Nylon (with V38-1166)	Brass
3/4 in. fitting & 45 deg	v88-1123-645080090	D2111-3602 & V88-1107 (3/4 in.)

**X15
Port A (Cab htr)**

Variation	Nylon	Brass
KW 2.1m w/ cab htr - A01	V38-1166 & V88-1123-645080090	V38-1089
KW 1.9m w/ cab htr - A02	V38-1166 & V88-1123-500165000	V38-1018

Port E (AD htr/2nd DT cooler)

Variation	Nylon	Brass
KW 2.1m w/ 1 AD htr or 2nd DT cooler KW 1.9m w/ 1 AD htr w/o in-cab htr - E01	V38-1166 & V88-1135-500	D2111-3603 V88-1109
KW 1.9m w/ 1 AD htr & w/ in-cab htr - E02	V38-1166 & V88-1123-545080090	D2111-3603 & F88-1050
KW 1.9m 2nd DT cooler - E03	V38-1166 & V88-1135-600	D2111-3602 V88-1167

Variation	Nylon	Brass- Future
All 1st DT cooler - G01	V38-1166 & V88-1138	V38-6042
KW 1.9m 3rd AD htr - G02	V38-1166 & V88-1123-560110095	V38-1088

CAB Definition

2.1m Cabs	1.9m Cabs
T680 & T880 & W990	T600 Service cab & C500 & T660 & T800 & W900

Hoses ALL YEARS

Description	Current	Replacement
Formed hose	v50-1523	v50-6129
Formed hose	v50-1521	v50-6132
Formed hose	v50-1524	v50-6134
Formed hose	v50-1522	v50-6133
Formed hose	v50-1519	v50-6130
Formed hose	v50-1520	v50-6131
bulk hose 3/4 in.	k342-525-000	d1030-3755
bulk hose 5/8 in.	f50-1016-5-0000	d1030-3625
bulk hose 3/4 in.	f50-6178-00000	d1030-3755
bulk hose 3/4 in.	v50-6008-2xxxx	d1030-3755

PACCAR^{Inc} ADD COOLANT PROCEDURE

How to Add Coolant to the Cooling System

42-056, 42-058



WARNING!

DO NOT remove the surge tank fill cap (1) while the engine is hot. Scalding steam and fluid under pressure may escape and cause serious burns. Failure to follow this instruction may result in personal injury or death.

Note: If frequent filling is necessary and there are no visible signs of coolant leaks when the engine is cold, check for leaks while the engine is operating at normal temperature.

Note: DO NOT remove the pressure cap (2) or use it to add coolant to the surge tank.

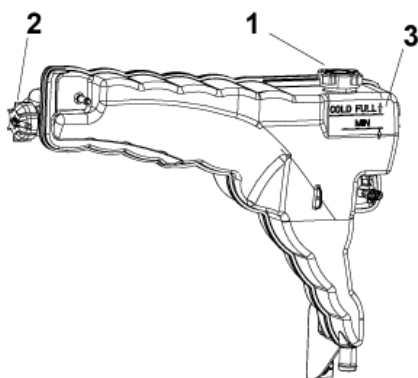
Note: DO NOT overfill the cooling system. Excess coolant may result in overflow, loss of antifreeze, and reduced corrosion protection.

Note: If frequent filling is necessary or there are any signs of coolant leakage, consult a PACCAR Service dealer.

Check the coolant level before and after each trip. Add coolant as necessary. Coolant may not immediately appear at the correct level after the radiator is filled. Air may be trapped in the cooling system, which will affect the coolant level, until the air is purged.

Refer to your Engine Operator's Manual for coolant mix specifications.

After servicing the cooling system, continue monitoring it for 3-5 days. The coolant level in the surge tank will lower when air trapped in the cooling system is purged. During each pre-trip inspection you should inspect recently-serviced components of the cooling system for signs of coolant leaks.



1. Fill cap (service point)
2. Pressure cap (never to be removed)
3. Cold Full line

How to Add Coolant to the Cooling System

WARNING!

Do not remove the surge tank fill cap when the engine is running or the cooling system is hot. Wait 10 minutes for the cooling system to cool down. If the surge tank is still warm to the touch, cover the fill cap with a thick cloth to prevent the possibility of scalding and then slowly remove the cap. Failure to follow this instruction could result in personal injury or death.

CAUTION

Due to thermal expansion the coolant level **CANNOT** be accurately checked if the coolant is above ambient temperature or the engine has not completely cooled. The coolant level indicated on a warmed system will be inaccurate and can lead to low coolant conditions during cold-starts.

1. Turn off the engine and let it cool for a minimum of 10 minutes.
2. If your cooling system is built with an air bleed valve in the upper engine coolant pipe, open the air bleed valve before filling the surge tank.
3. Close any open coolant drain valves in the lower engine coolant pipe.
4. Remove the surge tank fill cap (1). **DO NOT** remove the surge tank pressure cap (2).
5. Fill the system with premixed coolant through the surge tank fill port. Pour coolant at a steady rate until it reaches the "MIN" line in the surge tank. Wait for one minute after adding coolant. If the coolant level drops, add coolant until it returns to the "MIN" line.
6. Close the air bleed valve that was opened in Step 1.
7. Start the engine and maintain an idle at low rpm.
8. While the engine is idling air will purge from the cooling system through the surge tank's coolant fill port, which will lower the coolant level in the surge tank. Continue to add coolant to the surge tank until the coolant level remains approximately 1/2 in. (13 mm) above the "MIN" line. This may take up to 2 minutes depending upon the outside temperature.
9. Maintain a low idle until the thermostat opens and the operating temperature stabilizes. A sign that the thermostat has opened is when the upper coolant pipe gets hot on the bottom side indicating hot coolant is now running through it.
10. Add coolant to the surge tank until the coolant remains 1/2 in. (13 mm) above the "MIN" level.
11. Operate the engine at high idle for 10 minutes. Afterward, add coolant to the surge tank until the coolant remains 1/2 in. (13 mm) above the "COLD FULL" line.
12. Reinstall the surge tank fill cap.



Repair Notice

42-056

Section

42 - Cooling

Description

Replace Composite Coolant Fittings with Brass

Release Date

8/27/2019

Introduction

Certain vehicles built between 1/16/2014 and 5/17/2019 were built with composite coolant fittings at the engine that may crack and cause coolant leaks.

Resolution

FIX-AS-FAIL

If a customer reports the problem described above, use the attached Part Number Cross-Reference table and Web Ecat to determine the correct replacement parts. Replace all of the applicable fittings and hoses even if only one of the fittings is cracked or leaking.

Warranty

Through Standard Warranty Peterbilt will pay for parts at dealer net plus applicable mark-up and labor:

- 0.9 hours to replace fittings and hoses. File a long form claim for applicable labor.

For Field...	Enter...
Failure Location	042-004-017
Failure Type	700
Claim Type	N
SRT: B42-056	0.9 hours replace coolant fittings and hoses

Take-Off Parts Disposition: Destroy take-off parts 30 days after claim is paid.

Parts

Use Web ECat, in conjunction with the attached Part Number Cross-Reference, to determine the necessary parts required for this repair.

Quantity	Part Number	Description
As Required	EC3501	U.S. Coolant
As Required	EC7501	Canada Coolant

Procedure

1. Use the attached Part Number Cross-Reference and Web Ecat to determine the required replacement fittings and hoses.
 - a. In [Web Ecat](#), key the chassis number into the Serial Number field to access the part data.
 - b. Using the section of the [Part Number Cross-Reference](#) that applies to the truck (Model, Engine, EPA Level), key the part number(s) from the "Old Fitting Used with Composite" column into the search field.
 - c. If the part(s) are listed in the records found at the bottom, refer back to the Part Number Cross-Reference and make a note of the corresponding brass version(s) of the part(s) in the "Replacement Metal Fitting" column.
 2. Drain the coolant into a clean container and save it for reuse following the repair.
 3. Remove the coolant hoses from the composite fittings that need replacement, and then remove the composite fittings.
 4. Install the brass replacement coolant fittings and the new hoses.
 5. Refill the coolant system with the clean coolant that was drained in Step 2. Add more coolant as necessary. Refer to the Coolant Fill procedure in the Attachments section.
-

Attachments

[Part Number Cross-Reference](#)

[Coolant Fill Procedure](#)

Authored by: PR

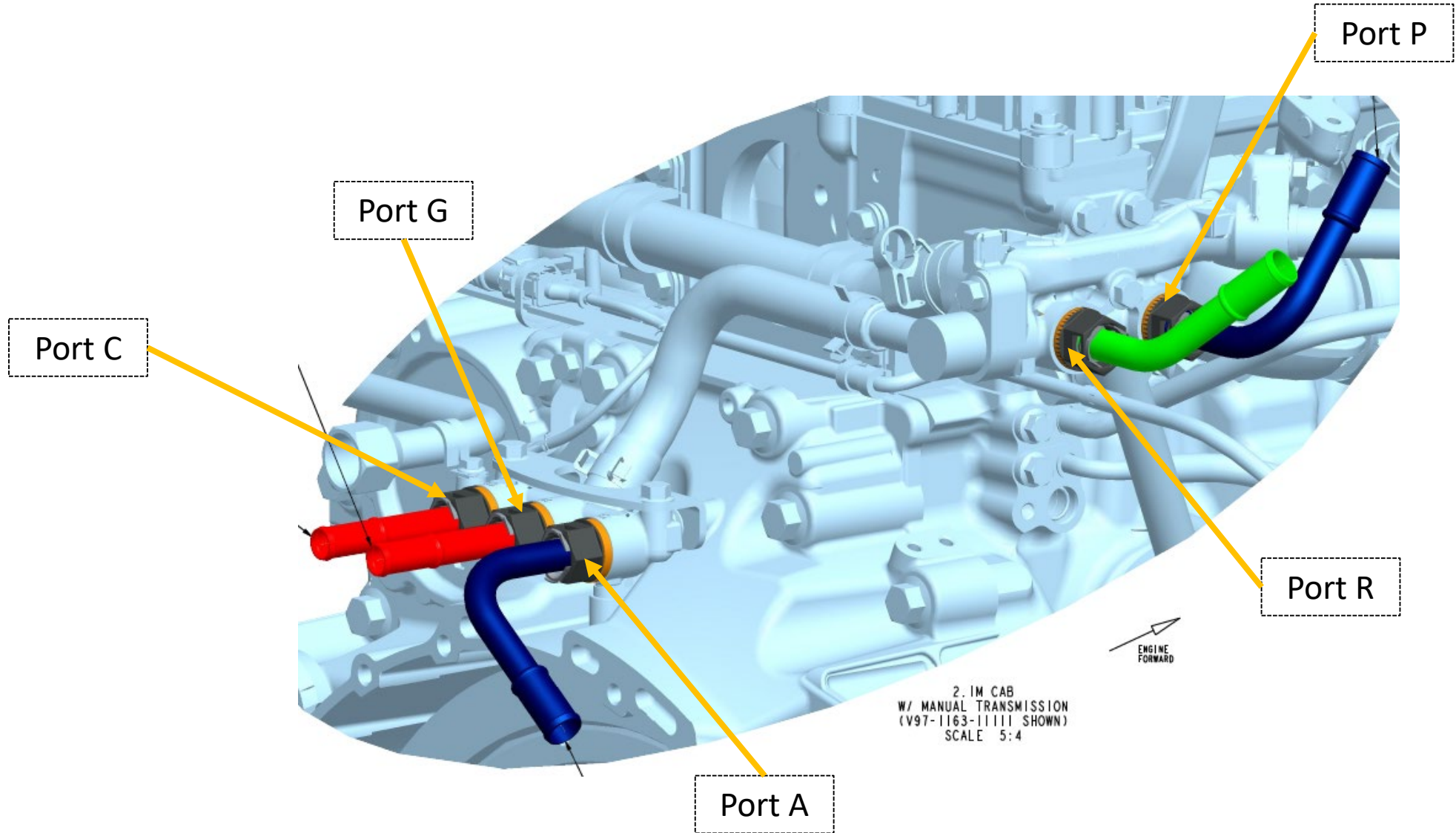
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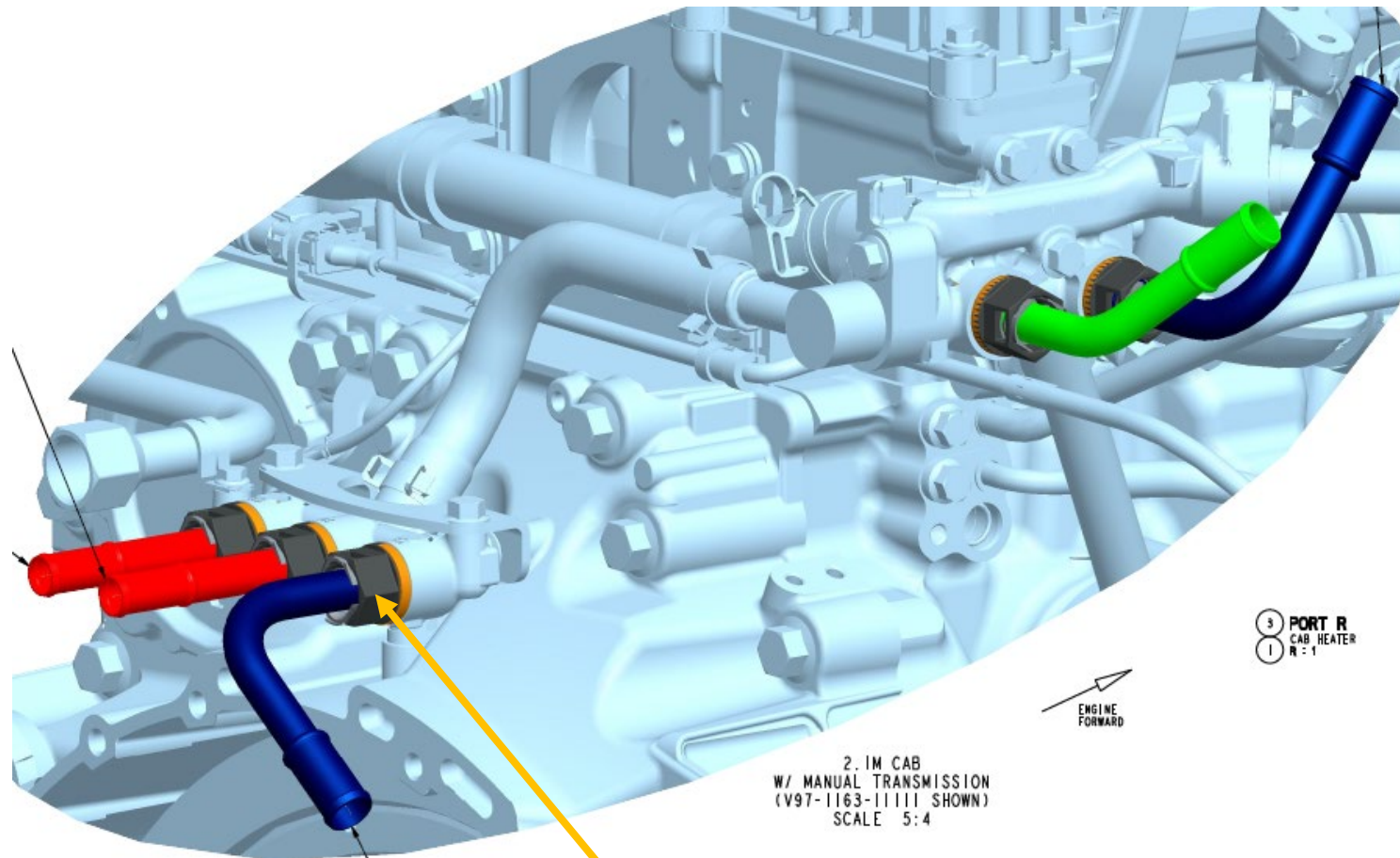
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Pre-EPA2017 PACCAR MX-11 Engine

Port A		
Variations	Composite	Brass
3/4 in. fitting & 90 deg	V88-1123-690100110 & V38-1166	V38-1090
5/8 in. fitting & straight	V88-1123-500115000 & V38-1166	V38-1018
Port C		
Variations	Composite	Brass
5/8 in. fitting & straight	V88-1123-500115000 & V38-1166	V38-1018
Port G		
Variations	Composite	Brass
5/8 in. fitting & straight	V88-1123-500115000 & V38-1166	V38-1018
Port P		
Variations	Composite	Brass
3/4 in. fitting & 90 deg	V88-1123-690100110 & V38-1166	V38-1090
Port R		
Variations	Composite	Brass
3/4 in. fitting & 45 deg	V88-1123-645080090 & V38-1166	D2111-3602 & V88-1107 (3/4 in.)

Cab Definition	
2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab, C500, T660, T800, W900





Port A

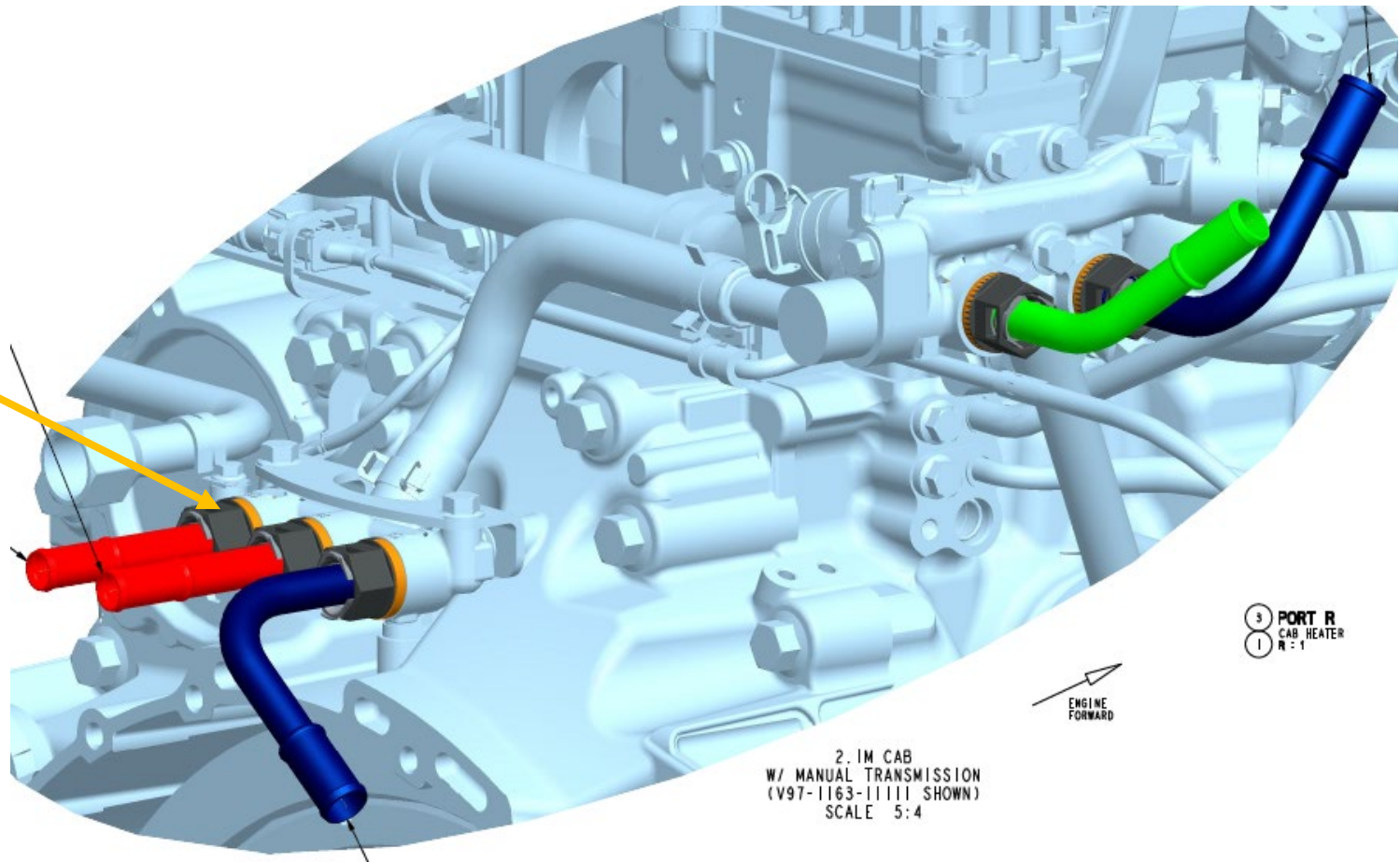
Port A, Option 1

- Manual Trans Cooler
- Brass: V38-1090
- Composite: V38-1166 & V88-1123-6*

Port A, Option 2

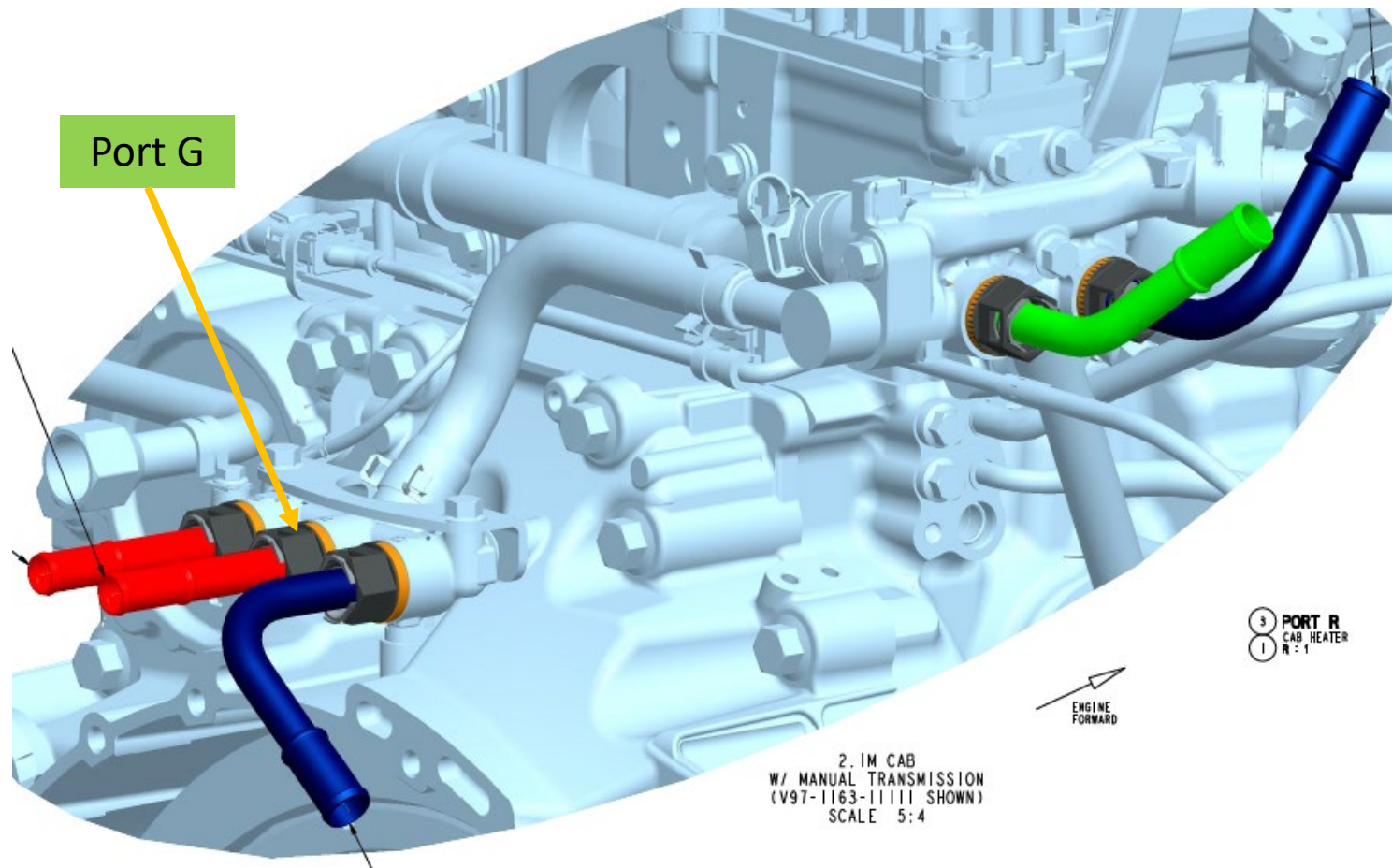
- DEF Port w/ Auto Trans Cooler
- Brass: V38-1018
- Composite: V38-1166 & V88-1123-5*

Port C



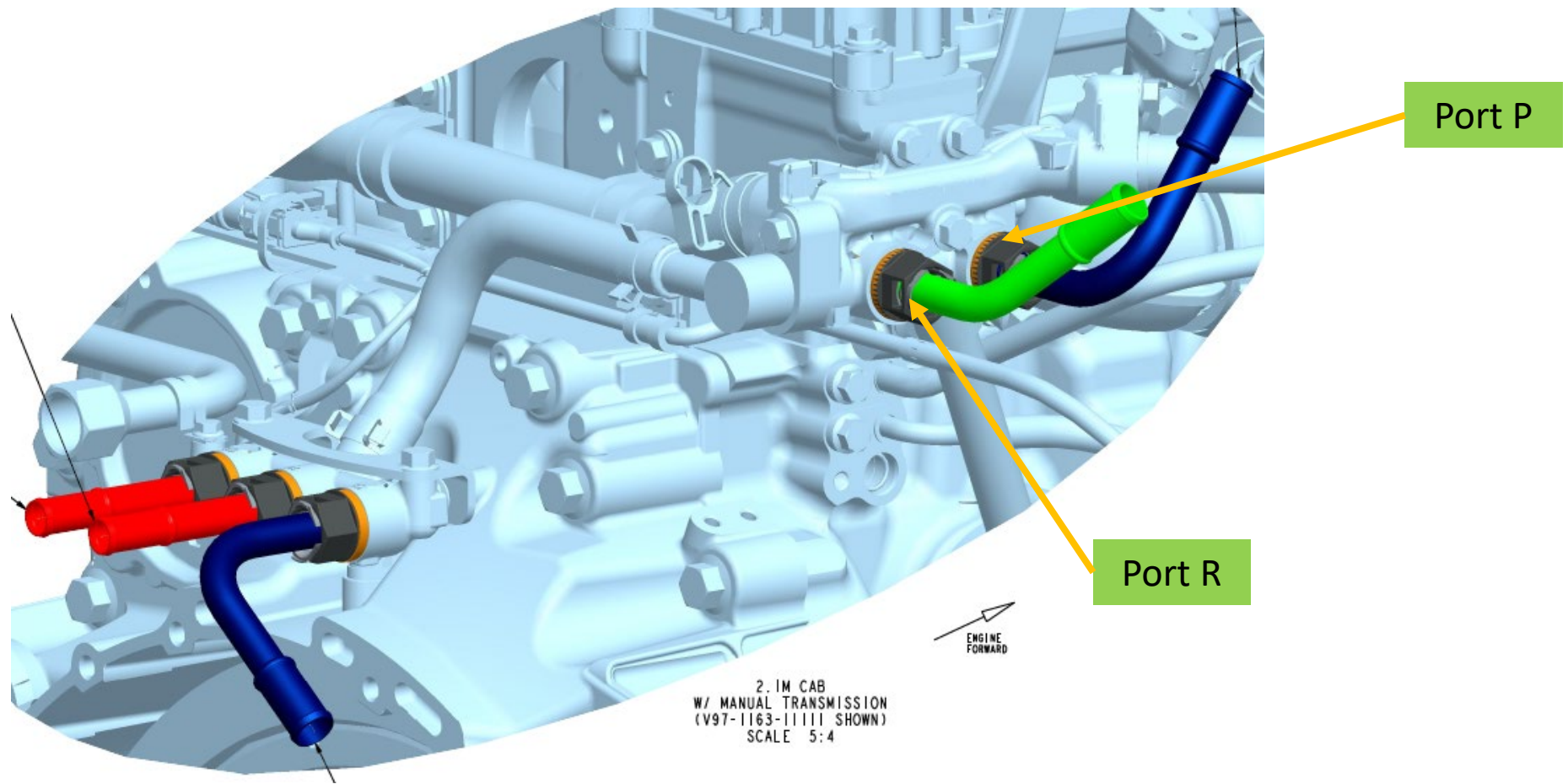
Port C

- DEF Port w/ Manual Trans Cooler
- Brass: V38-1018
- Composite: V38-1166 and V88-1123-5*



Port G

- Aux Heater or Drivetrain Cooler
- Brass: V38-1018
- Composite: V38-1166 & V88-1123-5*



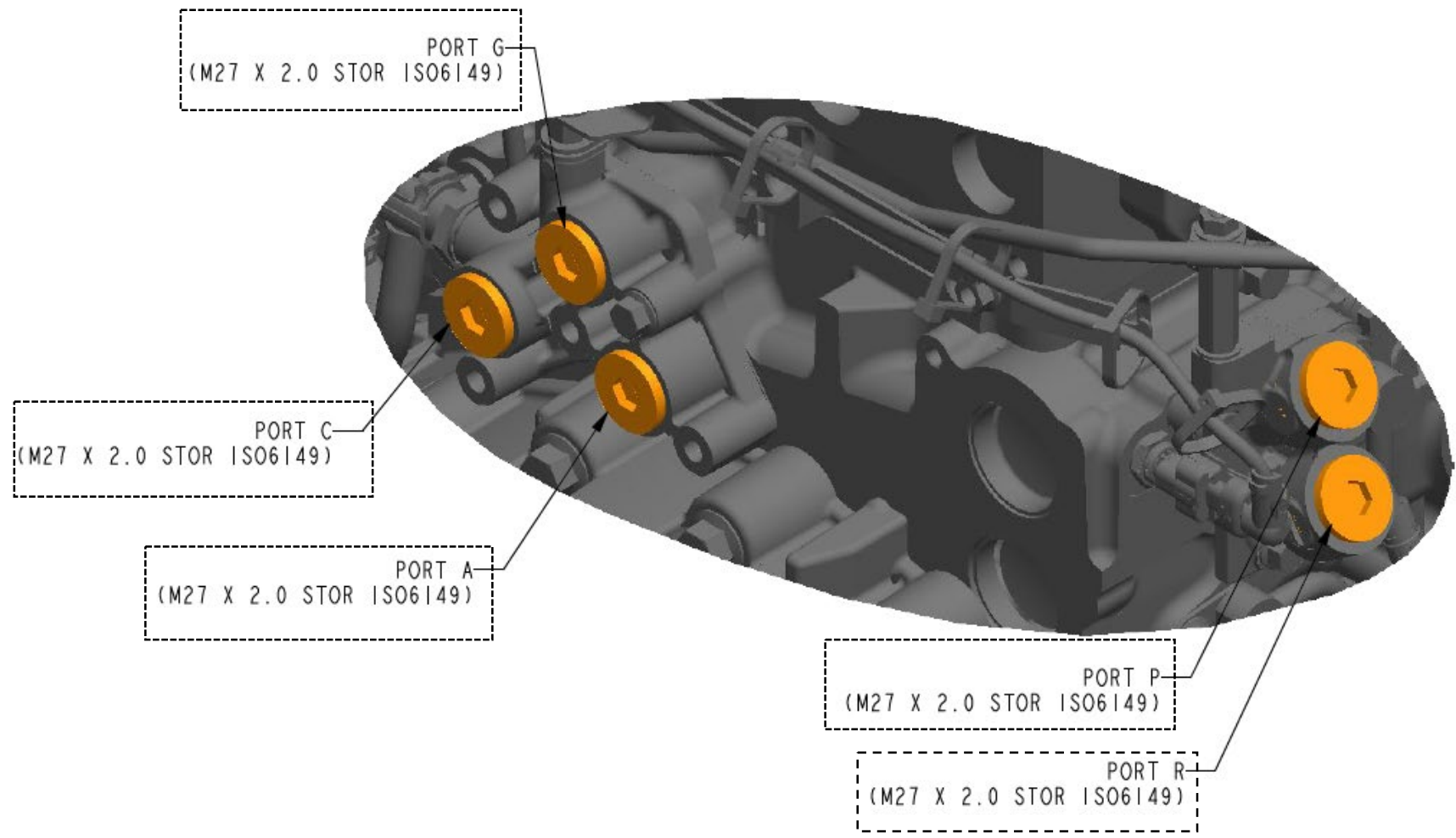
Port P Heater

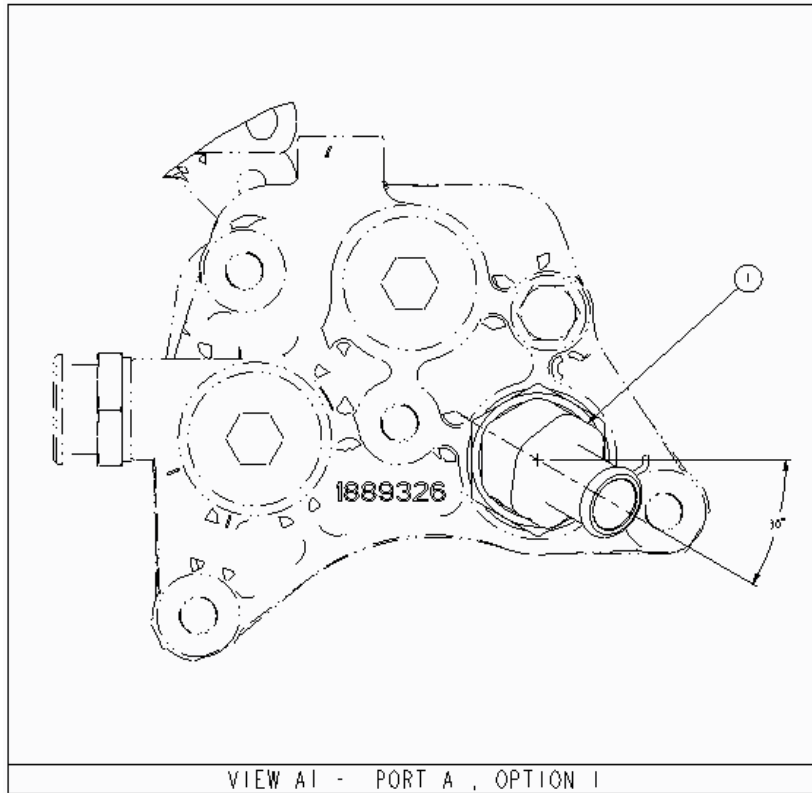
- Brass: V38-1090
- Composite: V38-1166 and V88-1123-6*

Pre-EPA2017 PACCAR MX-13 Engine

Port A		
Variations	Composite	Brass
5/8 in. fitting & 45 deg	v88-1123-545080090 & V38-1166	v38-1088
5/8 in. fitting & straight	v88-1123-500115000 & V38-1166	v38-1018
3/4 in. fitting & 45 deg	v88-1123-645080090 & V38-1166	v38-1090
3/4 in. fitting & straight	v88-1123-600115000 & V38-1166	v38-1089
Port C		
Variations	Composite	Brass
3/4 in. fitting & 45 deg	v88-1123-645080090 & V38-1166	v38-1090
5/8 in. fitting & 45 deg	v88-1123-545080090 & V38-1166	v38-1088
Port G		
Variations	Composite	Brass
5/8 in. fitting & 45 deg	v88-1123-545080090 & V38-1166	v38-1088
3/4 in. fitting & 45 deg	v88-1123-645080090 & V38-1166	v38-1090
Port P		
Variations	Composite	Brass
5/8 in. fitting & straight	v88-1123-500115000 & V38-1166	v38-1018
3/4 in. fitting & straight	v88-1123-600115000 & V38-1166	v38-1089
Port R		
Variations	Composite	Brass
5/8 in. fitting & straight	v88-1123-500165000 & V38-1166	v38-1018
5/8 in. fitting & straight	v88-1123-500115000 & V38-1166	v38-1018
5/8 in. fitting & straight	v88-1123-560110095 & V38-1166	v38-1018
5/8 in. fitting & straight	v88-1123-600165000 & V38-1166	v38-1089

Cab Definition	
2.1m Cabs	1.9m Cabs
T680, T880, W990	T600 Service cab & C500, T660, T800, W900



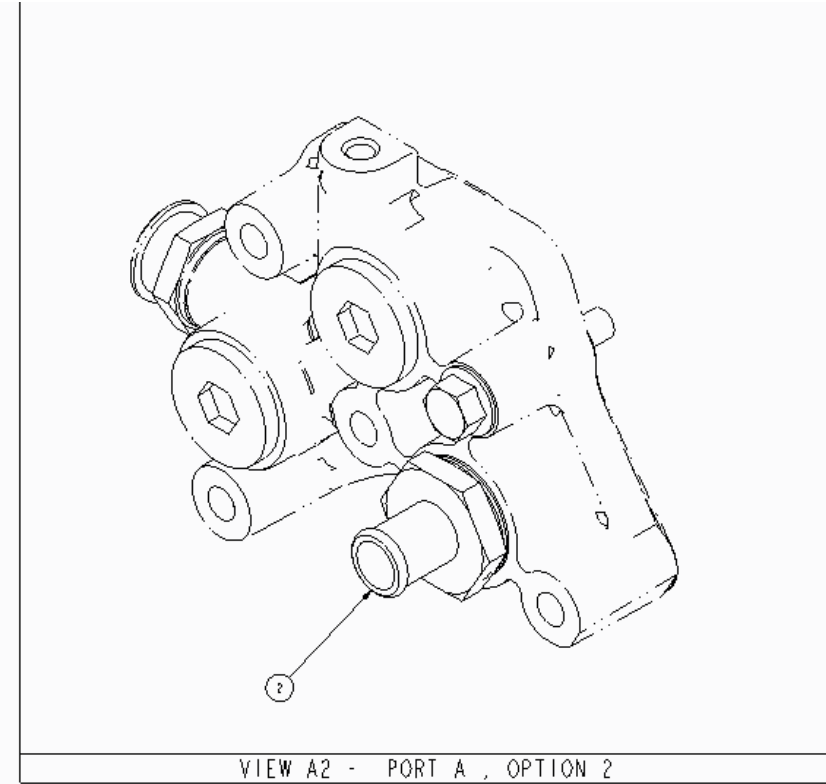


Port A, 2.1m or 1.9m, Option 1

- DEF Port w/o REPTO
- Brass: V38-1088
- Composite: V88-1123 & V88-1123-545*

Port A, 2.1m or 1.9m, Option 2

- DEF Port w/ REPTO
- Brass: V38-1018
- Composite: V88-1123 & V88-1123-500*

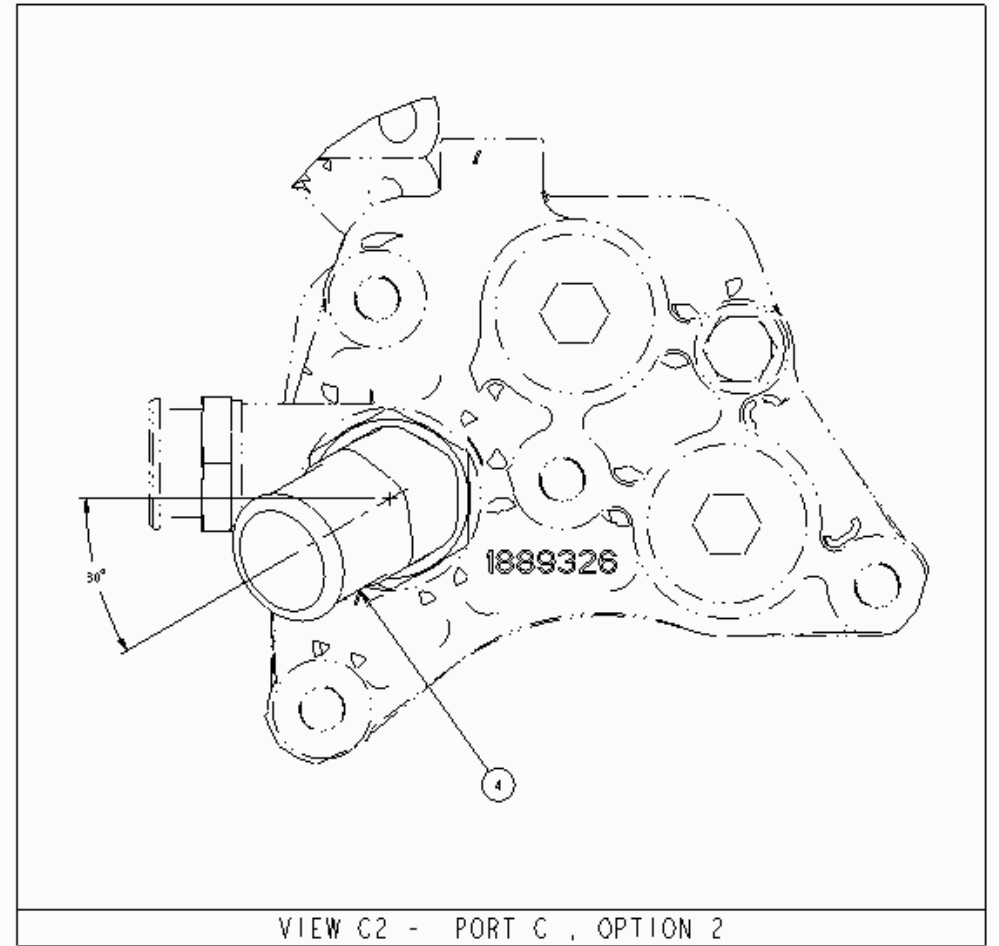
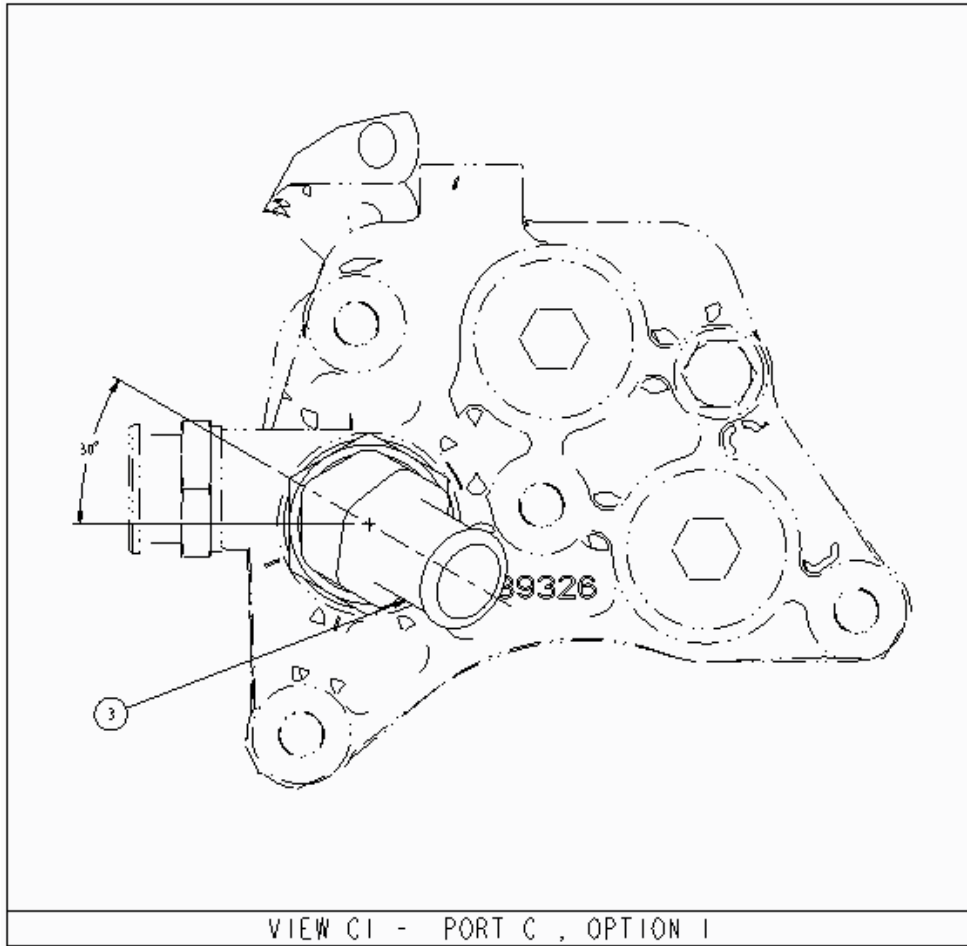


Port A, 2.1m, Option 3

- Man Trans cooler w/o REPTO
- Brass: V38-1090
- Composite: V88-1123 & V88-1123-645*

Port A, 2.1m, Option 4

- Man Trans cooler w/o REPTO
- Brass: V38-1089
- Composite: V88-1123 & V88-1123-600*



Port C, 1.9m Option 1

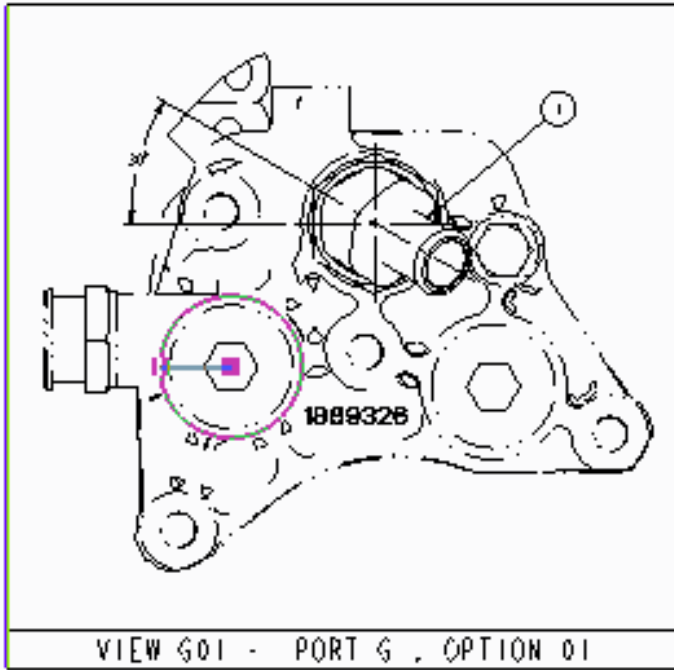
- Manual Tmsn Cooler
- Brass: V38-1090
- Composite: V38-1166 & V88-1123-645*

Port C, Option 2

- Auto Tmsn Cooler
- Brass: D2034-6548
- Composite: None

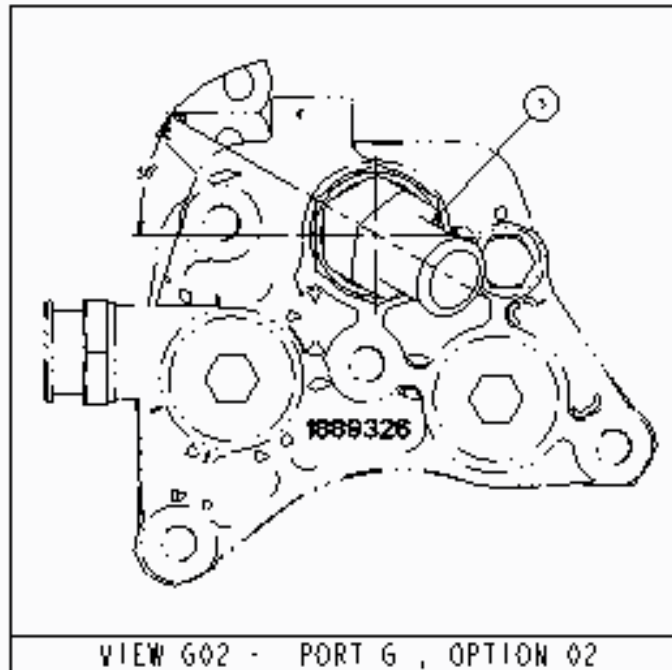
Port C, 2.1m Option 3

- DEF Coolant w/ Man Trans
- Brass: V38-1088
- Composite: V38-1166 & V88-1123-545*



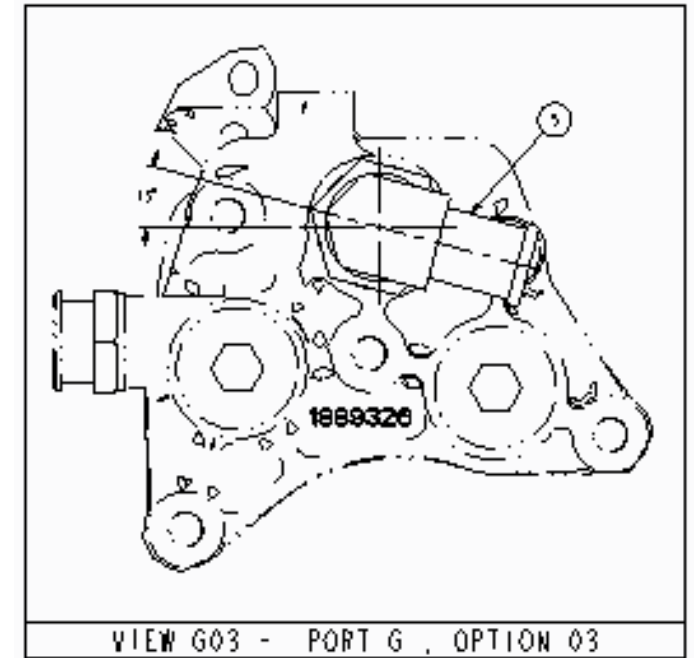
Port G, Option 1

- 1.9m Aux Heater
- Brass: V38-1088
- Composite: V38-1166 and V88-1123-5*



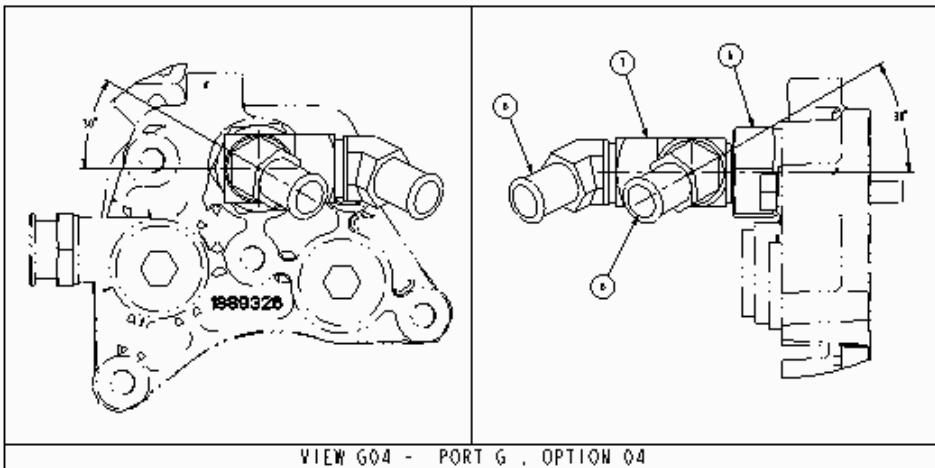
Port G, Option 2

- 2.1m Drivetrain cooler w/ high route exhaust
- 1.9m Drivetrain Cooler
- Brass: V38-1090
- Composite: V38-1166 and V88-1123-6*



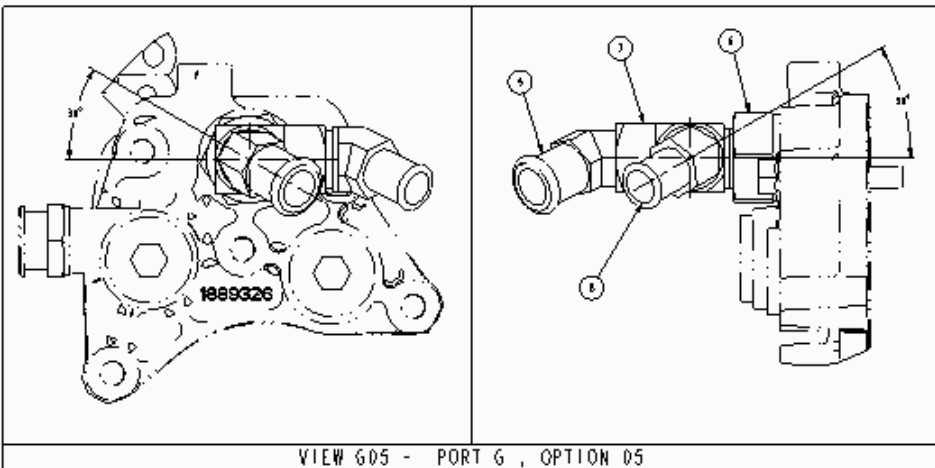
Port G, Option 3

- PB Only Drivetrain Cooler
- Brass: D2034-6707
- Composite: None



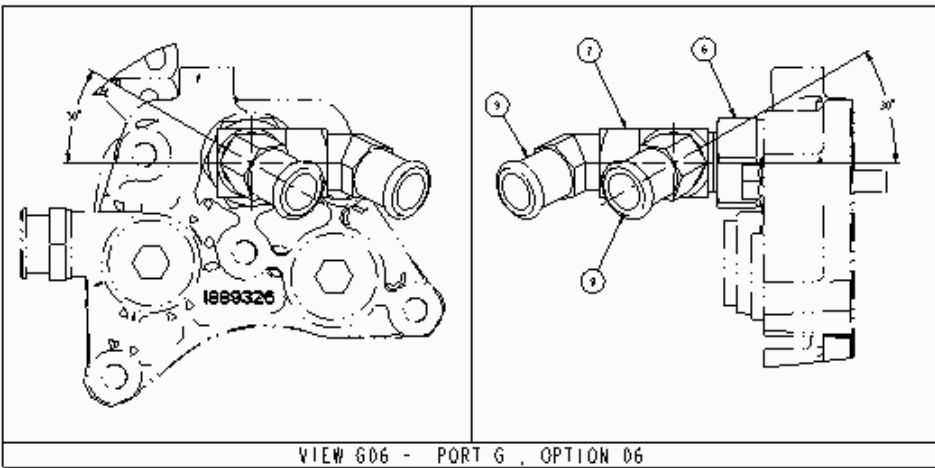
Port G, Option 4

- (2) 2.1m Aux Heater or Drivetrain Cooler
- (2) 1.9m Aux Heater
- Brass: D2119-9001, D2103-2139, & D2006-3210
- Composite: None



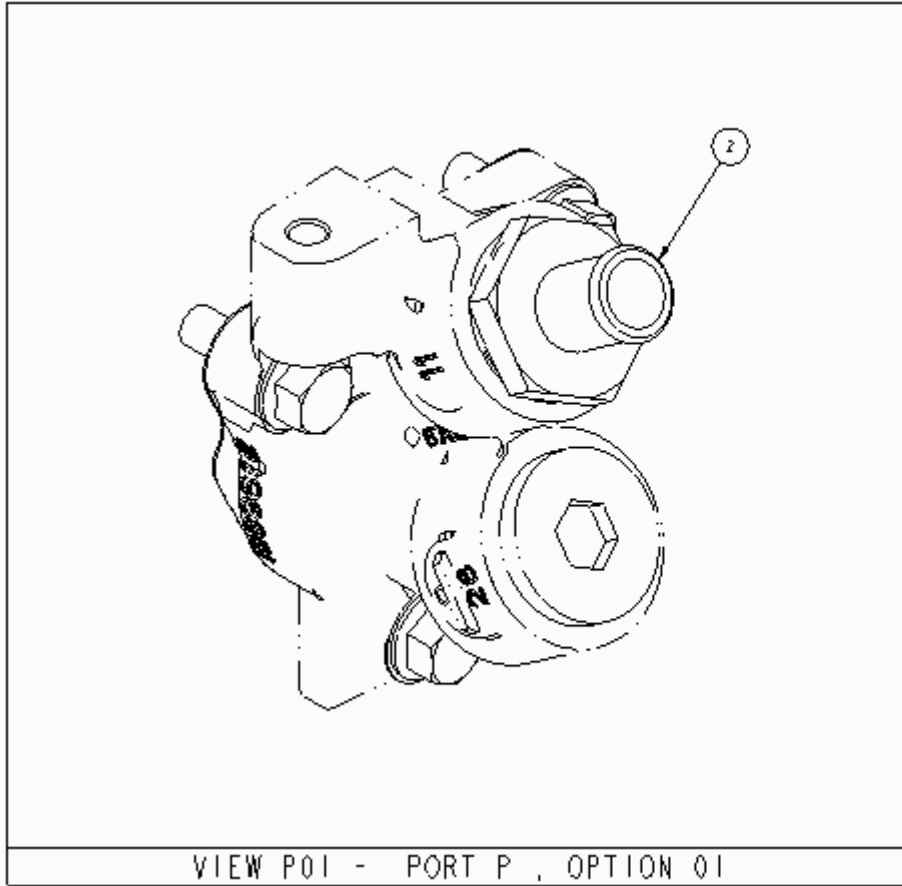
Port G, Option 5

- 1.9m (1) Aux Heater and (1) Drivetrain Cooler
- Brass: D2119-9001, D2103-2139, D2006-3210, & D2006-3211
- Composite: None



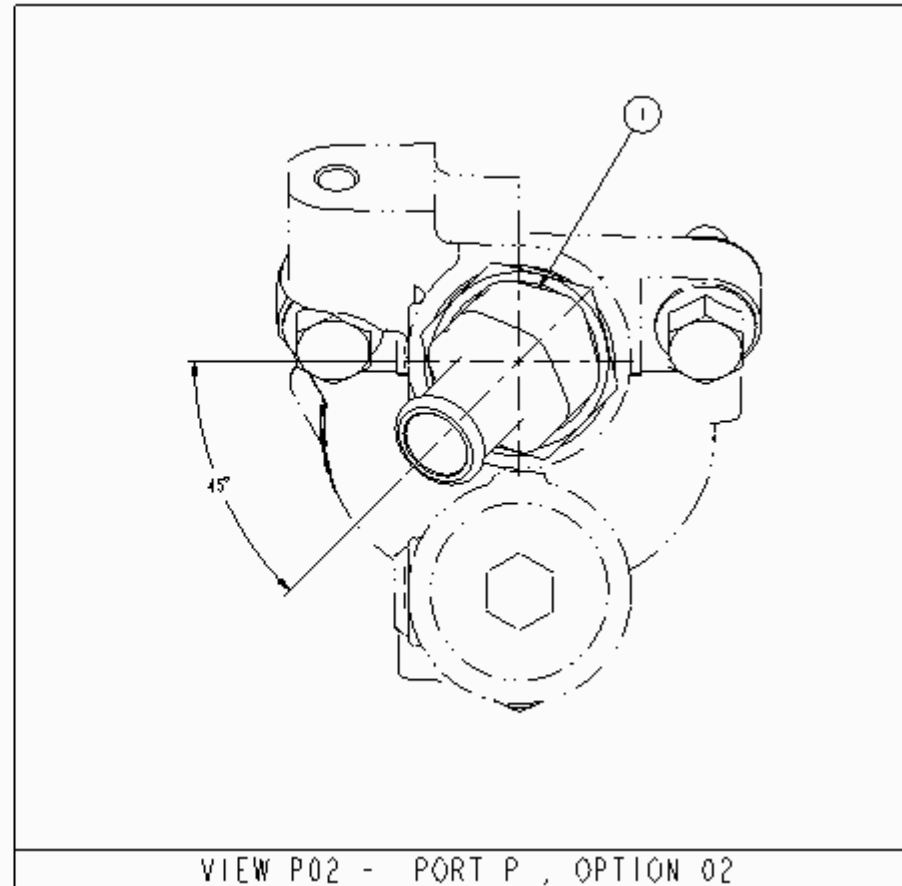
Port G, Option 6

- (2) 1.9m Drivetrain Cooler
- Brass: D2119-9001, D2103-2139, & D2006-3211
- Composite: None



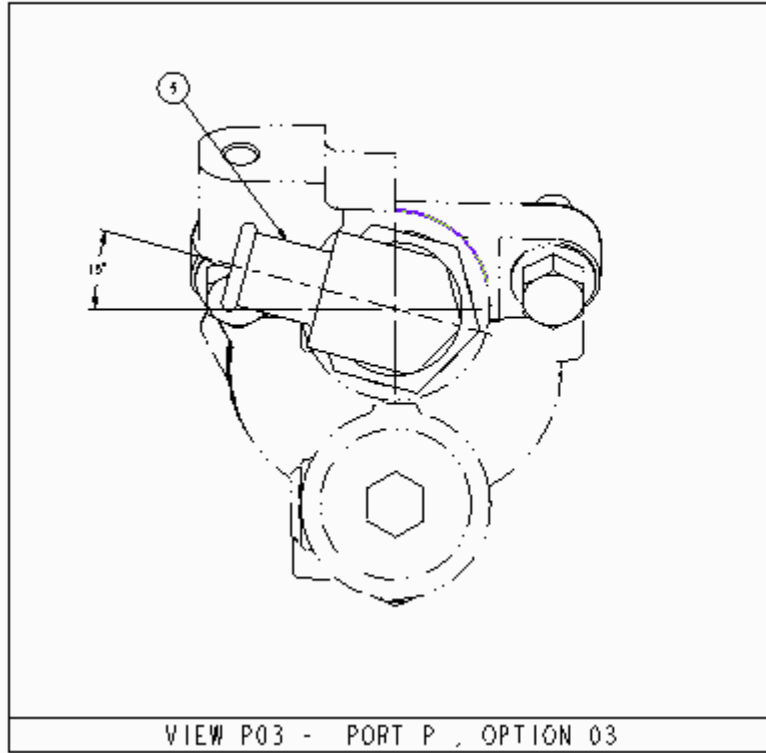
Port P, Option 1

- 1.9m Cab Heater
- Brass: V38-1018
- Composite: V38-1166 & V88-1123-5*



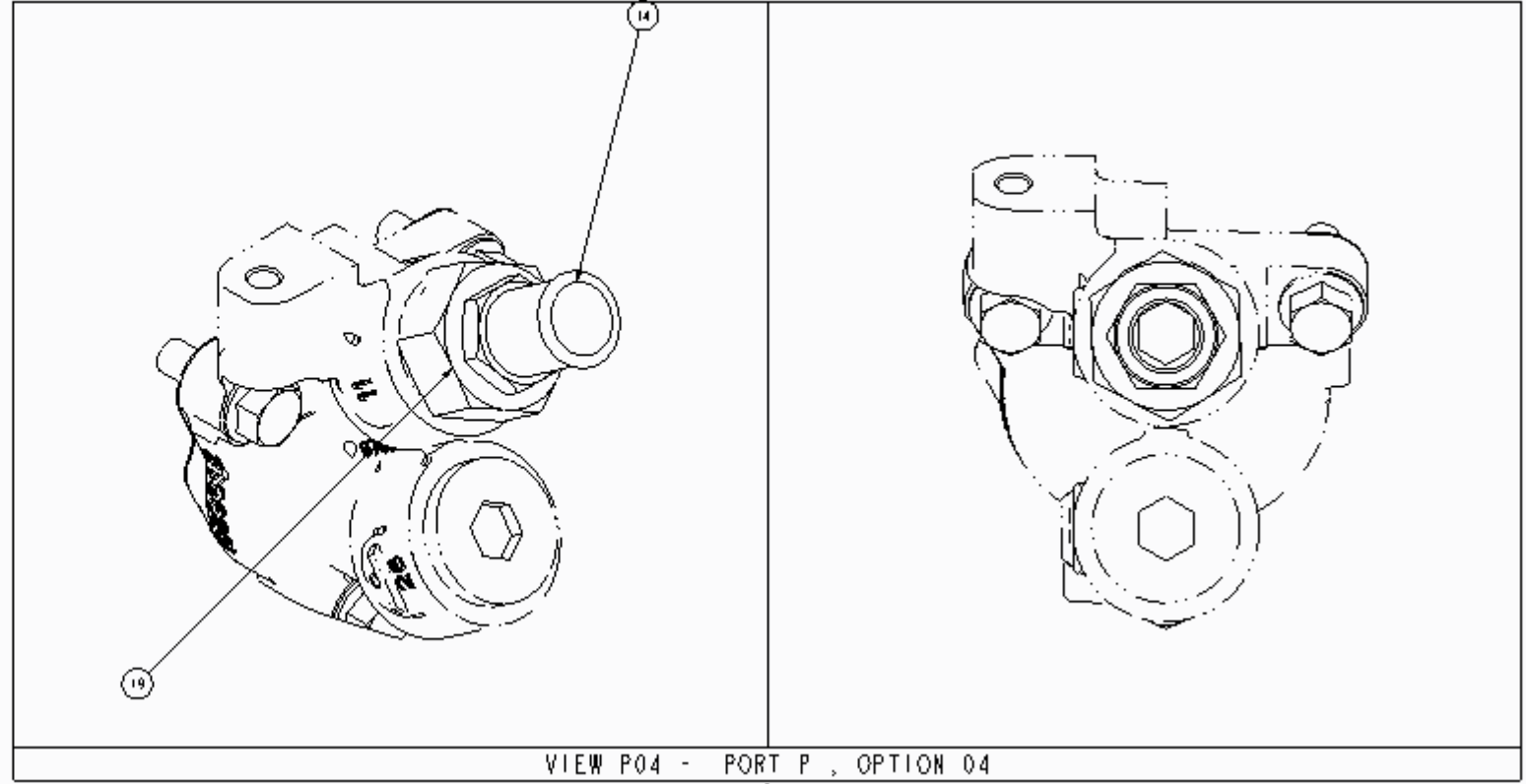
Port P, Option 2

- T700 Cab Heater
- Brass: V38-1088
- Composite: None



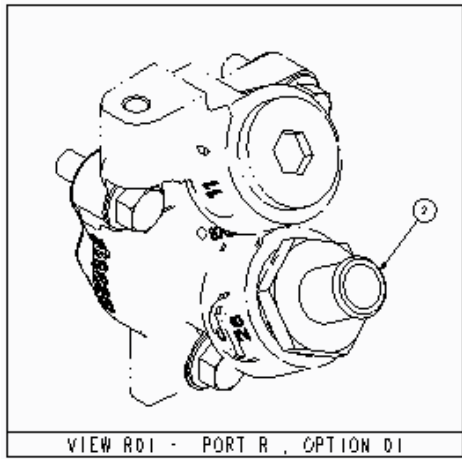
Port P, Option 3

- PB 1.9m Sleeper Heater
- Brass: V38-1019
- Composite: None



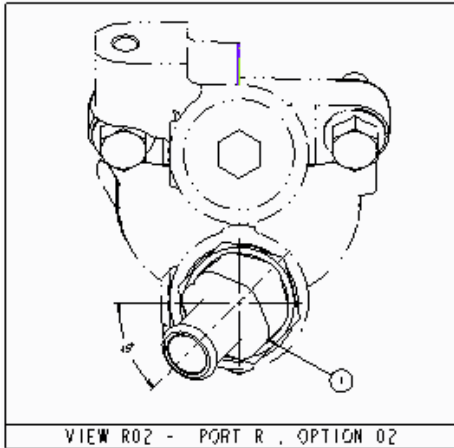
Port P, Option 4

- 2.1m Sleeper Heater
- Brass: D2119-9001 & D2034-2146
- Composite: V38-1166 & V88-1123-6*



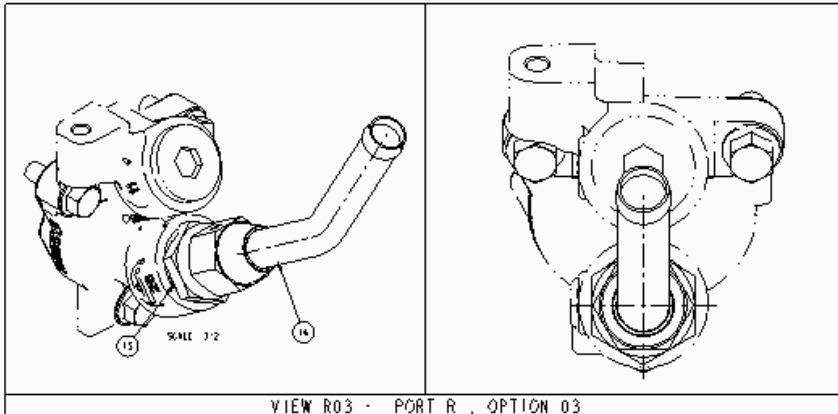
Port R, Option 1

- 1.9m Sleeper Heater w/ Low Route Exhaust
- OR PB 587 Cab Heater
- Brass: V38-1018
- Composite: V38-1166 & V88-1123-5*



Port R, Option 2

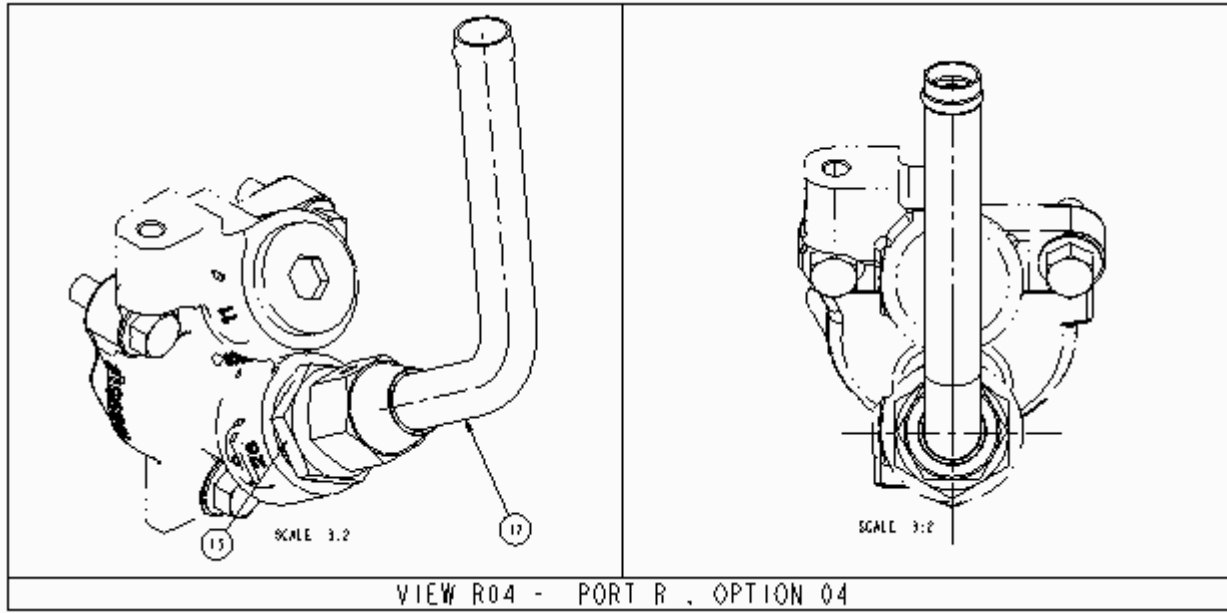
- T700 Sleeper Heater
- Brass: V38-1088
- Composite: None



Port R, Option 3

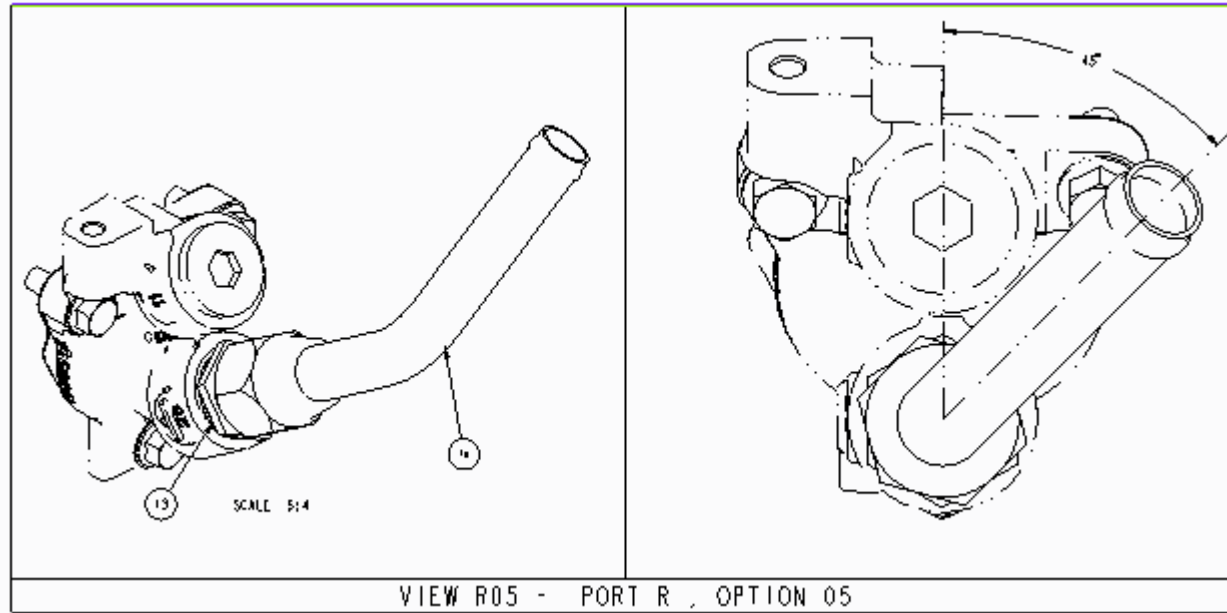
- 1.9m Sleeper Heater w/ High Route Exhaust
- Brass: D2111-3603 & F88-1049
- Composite: V38-1166 & V88-1123-5*

Port R continues on next page



Port R, Option 4

- PB 1.9m Cab Heater
- Brass: D2111-3603 & F88-1050
- Composite: V38-1166 & V88-1123-5*



Port R, Option 5

- 2.1m Cab Heater
- Brass: 26-03499 & V88-1107
- Composite: V38-1166 & V88-1123-6*