

2021 M2 LOW COOLANT LEVEL



[Jim Pickles](#) 14 posts since Feb 22, 2017

2021 M2 LOW COOLANT LEVEL Jul 20, 2020 6:16 PM

2021 M2 WITH L9 2350 CUMMINS LOW COOLANT WHEN TANK IS FULL ANYWAY TO REPAIR FLOAT IN TANK WHICH CONTROLS SENSOR THE CUMMINS TROUBLE SHOOT SHOWES 3 WIRE SENSOR ONLY 2 WIRE IN THIS ONE I THINK THE TROUBLE IS IN THE TANK THE COOLANT SENSOR GOES IN BOTTOM INTO A DRY HOLE



[Jon Cecil](#) 887 posts since Nov 25, 2014

Re: 2021 M2 LOW COOLANT LEVEL Jul 20, 2020 8:45 PM

Unfortunately Cummins troubleshooting does not interact with Freightliner components. We run into this a lot. If you are still getting a low coolant fault still after checking the sensor and wiring. I have been finding the floats stuck in the tank.



[Kyle Siebert](#) 4,101 posts since Nov 14, 2014

Re: 2021 M2 LOW COOLANT LEVEL Jul 20, 2020 9:03 PM

I haven't delt with a LCL code on a M2. I take it, it's the same setup as the p4 [Next Gen Cascadia P4 coolant reservoir Low Coolant Level tester](#)

what around 50 ohms full and 150 empty. I have been pulling the sensor out, measuring resistance with gentle flex on the sensor. Should read steady 150 ohms.

Pull test the wires for possible broken copper at terminal area. for reference see [Pull test \(hope you have good eyes because you'll have to look close\)](#)

Give the coolant tank a gentle knock to make sure the float doesn't stick in the down position.

I believe the video of that is attached to one of the last comments on [Next Gen Cascadia P4 coolant reservoir Low Coolant Level tester](#)

Last, unplug the firewall connector and measure resistance to ground on LCL circuits with wiggle test on the harness. Just had a saia p4 with a short to ground on the engine ftl harness at the firewall



[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 7, 2020 6:48 PM

133 +or- = full. 1200 +or- = low. Somewhere below 133 would me short circuit fault. Somewhere above 1200 would be open circuit fault.

2021 M2 LOW COOLANT LEVEL

$$1200 \times 150 \div 1200 + 150 = 133.33\Omega$$

sensor with the sensor submerged (float up, circuit closed). Is the resistance between 120 to 140 ohms?

1. Yes; [Go to step 7.](#)
2. No; replace the ECL sensor.

$5v \div 120\Omega = 0.042A$
 $5v \div 140\Omega = 0.036A$
 $5v \div 133.33\Omega = 0.038A$
 $5v \div 1200\Omega = .004A$



Michael Palumbo 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 7, 2020 8:11 PM

If you can not see the float to determine if it is up or sinking then slowly remove the probe while monitoring with DL. If the float is sunk the part of the sensor probe that senses the float will have had to have come down to get to were the float is, below the water line. If DL starts to see full then you know the float has sunk and how far. If you pull the probe all the way out and DL does not see full then most likely a wiring issue. Slowly so DL has time to react.



FELIPE PICHARDO 4 posts since Aug 22, 2019

Re: 2021 M2 LOW COOLANT LEVEL Jul 23, 2020 10:20 AM

I had the same problem. The float was stuck too.



Patrick Wardrop 5 posts since Jun 17, 2016

Re: 2021 M2 LOW COOLANT LEVEL Jul 22, 2020 6:47 PM

2021 M2 LOW COOLANT LEVEL

I HAVE HAD SEVERAL AND BOTH HAVE BEEN CONNECTOR FROM CUMMINS ECM TO I BELIEVE 10 PIN CONNECTOR BY THE BULKHEAD MODULE .. WATER GETTING INTO CONNECTOR .. PULLED TERMINAL GOING TO COOLANT RESERVOIR AND FIND CORROSION ON TERMINAL ..



[Robert Cadell Jr](#) 2,684 posts since Nov 9, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 31, 2020 9:30 PM

There is a known issue where we are calling out the wrong sensor in our BOMs for Cummins engines. On your truck, we call out the following:

152-C06606

06-93316-002 SENSOR-COOLANT LEVEL,MDEG 1.000 EA

EDIT: 06-93316-002 is the correct part number

- [Justin Johnson](#)



[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 7, 2020 10:47 PM

They have different mating connector part numbers. When I ez-wire either connector it shows the other connector number as similar connector in the related items box. It's like they tried to make the sensors for different connectors but failed to realize the two connector numbers were interchangeable.



[Aaron Graves](#) 26 posts since Jan 6, 2015

Re: 2021 M2 LOW COOLANT LEVEL Aug 14, 2020 2:48 PM

VIN MG2829. We have run into this same problem where coolant level sensor was replaced and 06-93316-002 was installed. Is there a bulletin or anything that states the incorrect part number issue in partspro?



[Robert Cadell Jr](#) 2,684 posts since Nov 9, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 14, 2020 4:39 PM

Unfortunately there is nothing as of yet, we have reached out with the information in the post to try to get some light shed on this problem.

2021 M2 LOW COOLANT LEVEL

Thanks for your help.

Have a Good weekend.



[Eric Bloom](#) 98 posts since Nov 10, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 14, 2020 6:51 PM

SO WE HAVE HAD THIS PROBLEM ON MULTIPLE TRUCKS AND REPLACING THE TANK/FLOAT ASSEMBLY HAS BEEN THE FIX. NO TROUBLESHOOTING FROM FREIGHTLINER FOR THIS YET !



[Jon Cecil](#) 887 posts since Nov 25, 2014

Re: 2021 M2 LOW COOLANT LEVEL Aug 14, 2020 7:58 PM

I've been waiting for one of these style tanks to come in damaged from an accident or at some point be out of warranty. I want to pull the ring float out of the tank and use it for testing.



[Aaron Graves](#) 26 posts since Jan 6, 2015

Re: 2021 M2 LOW COOLANT LEVEL Sep 10, 2020 1:40 PM

The surge tank was the issue on ours as well. Per call center there is no difference in the sensors besides color and mating connector.



[Mark Walstead](#) 26 posts since Apr 30, 2018

Re: 2021 M2 LOW COOLANT LEVEL Sep 24, 2020 7:28 PM

VIN- LB9133

miles- 987

in-service- 8-11-2020

2021 M2 LOW COOLANT LEVEL

Fault Code	Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN
CM2350A	ECM Time (Key On Time)	000088:37:19		HHHHHH:MM:SS					
	Engine Hours	000076:05:54		HHHHHH:MM:SS					
	Keyoffs	309							
0196	Inactive	5	Amber	Coolant Level Sensor 1 Circuit - Voltage Below Normal or Shorted to Low Source	111		4	4	111
0195	Inactive	6	Amber	Coolant Level Sensor 1 Circuit - Voltage Above Normal or Shorted to High Source	111		3	3	111
0197	Inactive	2	Amber	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level	111		1	18	111
3366	Inactive	1	None	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level			1	18	111

I have the same issue. Low coolant, active fault 197, 3366, engine protection shutdown. Guidanz basically says, check for 5 volts supply, unplug the sensor, check for 195, short it, check for 196. I saw some comments about how it doesn't get you there with the troubleshooting and I agree. Seems like anytime Cummins says "follow OEM guidelines", they wash their hands of it. I like the good information about what is actual correct resistance the ECM is looking for and wonder why don't they just ask you that? Turns out on mine, the float was stuck in this one also. I replaced the sensor and the 197 keeps coming back. I gave the wiring harness going back to ECM 130 ohms and it was happy. I tapped on the side of the tank a few times as mentioned and it finally went inactive and stays inactive. fault 3366 stayed active for about a minute, but conditions for clearing fault in Insite states to idle engine for 1minute



[Kyle Siebert](#) 4,101 posts since Nov 14, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 2:40 PM

Never follow cummins diag for DEF line heaters or low coolant level sensors.

Had a RV in our shop recently. The tech was working with FCCC on a LCL code. Pretty sure both tech and support were following cummins diag and harness. After 6 hours they ended up overlaying the circuit from the Sensor to the ECM because it was open. But if either glanced at a LCL schematic, they would have noticed a little module between the two. Replaced the little black credit card shaped module and fixed it.

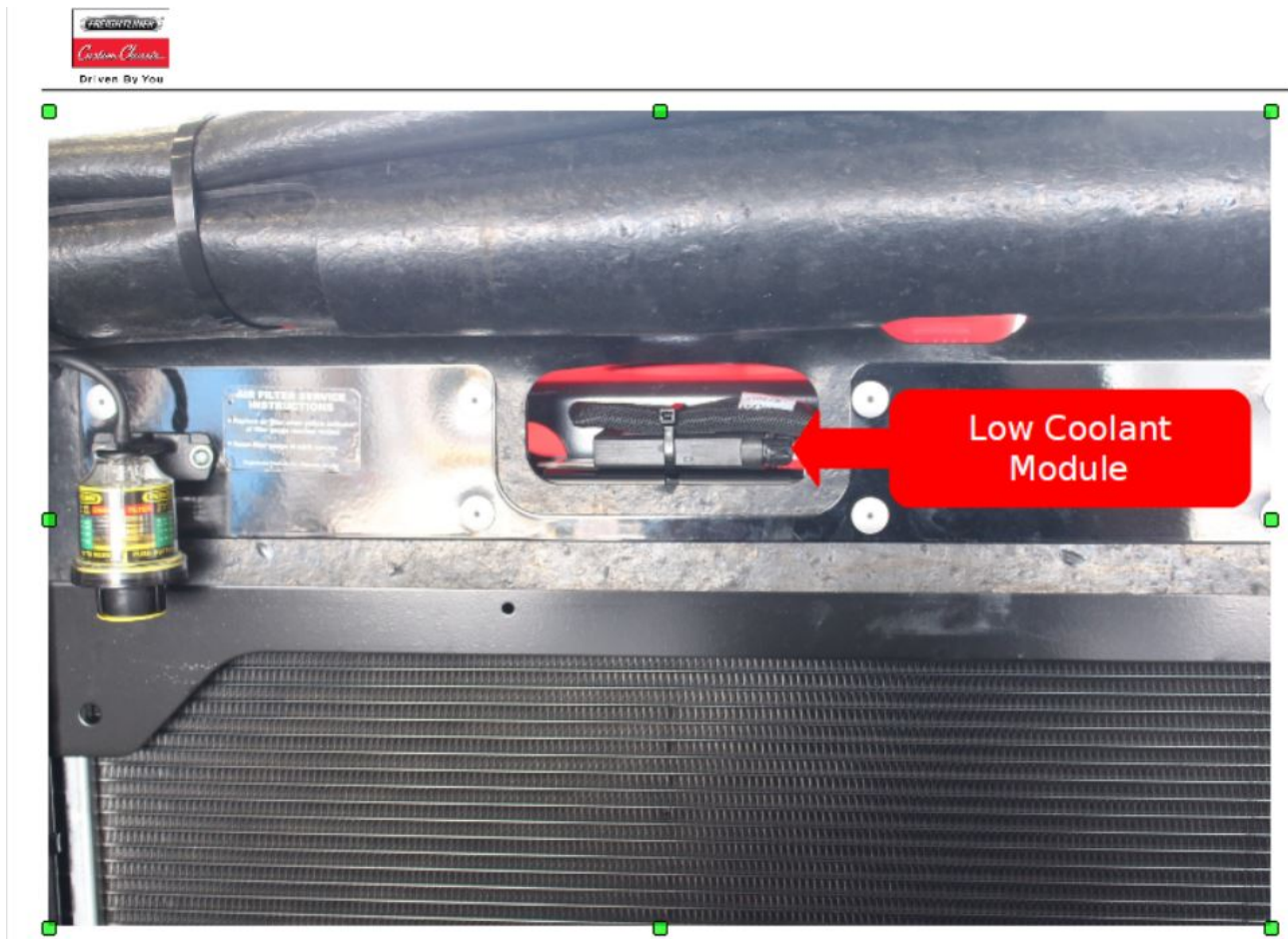


[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 3:35 PM

2021 M2 LOW COOLANT LEVEL

This one?



Kyle Siebert 4,101 posts since Nov 14, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 5:37 PM

Yep! Medallian? Converts a 5 volt signal into a a/c voltage that goes into the coolant and that voltage changes when touching coolant.

can be coding due to voltage in the coolant. But 99.9% of the time a new LCL sensor and module fixes it.



Michael Palumbo 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 5:47 PM

They started adding it on the 2020 builds. There is a PP <https://dtnacontent-dtna.prd.freightliner.com/content/dtna-connect/FCCC-Engines/fccc-technical-support/rv-chassis.html>

The PP shows all the new locations prior to body installation.

General

[2020 RV Chassis Routing](#)

2021 M2 LOW COOLANT LEVEL



[Jon Cecil](#) 887 posts since Nov 25, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 7:33 PM

Those Medallion modules have been installed on FCCC chassis' for a while now. It looks like they just made them easier to access on the 2020 modules with rear radiators.



[Mark Walstead](#) 26 posts since Apr 30, 2018

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 5:53 PM

are we talking FCCC or M2? That picture is an FCCC chassis.

G06-10105-001 doesn't show any coolant level module. It goes from sensor to ECM

Did I post to the wrong discussion, I was talking 2021 M2 chassis

Thank you,

01001101 01100001 01110010 01101011

Mark Walstead
Express Assessment Team Leader
Excel Truck Group
Chesapeake, VA
757-424-3000



[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 26, 2020 12:32 PM

Did I post to the wrong discussion, I was talking 2021 M2 chassis

[Mark Walstead](#) you were correct. Kyle and myself were on topic as far as coolant level but off topic for the truck model. 01001101 01111001 00100000 01100010 01100001 01100100



[Eric Bloom](#) 98 posts since Nov 10, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 5:54 PM

Kyle what troubleshooting do you use ?



[Jon Cecil](#) 887 posts since Nov 25, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 25, 2020 7:32 PM

2021 M2 LOW COOLANT LEVEL

I've been working on trying to come up with better troubleshooting for these LCL faults in FCCC applications that house this Medallion module but haven't had the time. It depends on the fault code if its shorted low or high. Our shop has struggled with these codes as well and its on my to do list. I also am trying to get some better information on diagnosing tag axle messages in FCCC applications cause that is outdated in a SS.



[Kyle Siebert](#) 4,101 posts since Nov 14, 2014

Re: 2021 M2 LOW COOLANT LEVEL Sep 29, 2020 1:26 AM

If its a probe type LCL, check sensor and module connectors for spread pins or corrosion. Pull test wires at connectors looking for insulation to stretch, visually check harness for shorting or rub thru to ECM. If nothing found replace sensor and module. Too many times we replace the sensor and it then needed a module. Or you replace the sensor, that doesn't fix it, put sensor back on and replace the module, that doesnt fix it, put the new sensor back in it and it suddenly works again. So now its sensor and module.

If its a float type LCL, pull test circuits at connector (p4 cascadia is notorious for the insulation stretching with a broken wire inside), unplug and check resistance of sensor. 1200 ohms is empty and about 133 ohms is full. If its reading 133 ohms and the wiring doesnt seem stretched when pull tested. Try to see the float and smack the tank with the handle of a prybar to see if it floats up or if its sticking. See the video in the comment section of [Next Gen Cascadia P4 coolant reservoir Low Coolant Level tester](#). If that float looks fine, remove the sensor and gently flex it to see if resistance values change with flexing.

I find it hard to follow cummins diag for OEM components. It just confuses the tech and makes them not think.

In the case for [Mark Walstead](#). I would confirm a issue. Could have a spread ECM terminal, broken wire in the insulation, sticking float, shorted wire to ground, defective sensor. All those components are Freightliner side.

Seems, that since we came out with the magnetic float type LCL sensor we have had nothing but failures with tanks and broken wires in insulation. That combined with a lack of information when trying to diag a LCL fault code.



[Jesse Gutierrez](#) 458 posts since Mar 5, 2017

Re: 2021 M2 LOW COOLANT LEVEL Nov 18, 2020 4:03 AM

The coolant level module , I spoke to a few RV manufacturers they recommend replacement of both the sensor and that module when either fails as it is common they will take out each other .



[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Nov 3, 2020 2:00 AM

[SS 1034797 M2,108SD, 114SD Coolant Level Sensor P/N 06-93316-002](#) posted 30 October 2020.



[Keith Darnall](#) 3 posts since Nov 11, 2014

2021 M2 LOW COOLANT LEVEL

Re: 2021 M2 LOW COOLANT LEVEL Nov 6, 2020 12:56 AM

I'm not sure why this service solution is marked as the correct answer. It does not address the issue of stuck floats in the tank which was the original question. Unless I misread the solution.



[Jon Cecil](#) 887 posts since Nov 25, 2014

Re: 2021 M2 LOW COOLANT LEVEL Nov 6, 2020 2:43 AM

You can figure out if the sensor is ok by using the magnet described in the pictures. I would say if the sensor is reading in spec when measured and the wiring is ok, then the float in the tank is the issue.



[Michael Palumbo](#) 1,510 posts since Nov 13, 2014

Re: 2021 M2 LOW COOLANT LEVEL Nov 6, 2020 3:34 AM

I agree with [Jon Cecil](#) 's interpretation.

As you might have noticed, the solution is locked from comments. You could make a post to feedback referencing SS1034797, requesting clarification regarding the tank float.

This quote from SS1034797 could use six more words:

It is important that if the LCL sensor tests good and coolant level fault codes are showing in the service tool, that we validate that all connections between the 5 volt supply and ground are good and no added resistance is present. Also make sure to perform a visual inspection of the wiring, ensuring that there are no chafed wires.

,prior to condemning a tank float.

IMO



[Robert Cadell Jr](#) 2,684 posts since Nov 9, 2014

Re: 2021 M2 LOW COOLANT LEVEL Nov 6, 2020 12:09 PM

I would think the tank and floats would be a separate solution i do see the point but it is a separate part.

The tank came up in the solution for clarity and explanation.

Rob "Doc" Cadell
DTNA Master Technician/Elgin Lead Tech
TransChicago Truck Group BFWD
Shorewood IL 60404
803 917 5397 Cell
Good Hunting - you'll find your issue

2021 M2 LOW COOLANT LEVEL



[Michael Palumbo](#) *1,510 posts since Nov 13, 2014*

Re: 2021 M2 LOW COOLANT LEVEL Nov 6, 2020 2:30 PM

The solution is helping determine which part is causing the fault codes. I don't believe it should have stopped short of all possible causes for the codes. It should be trying to eliminate ambiguity of how to determine the root cause of the codes. By this conversation continuing I believe it did not achieve that.