

M2 CUMMINS ALLISON NO CRANK



ADAM KEEP 4 posts since Jun 6, 2019

M2 CUMMINS ALLISON NO CRANK Dec 29, 2020 6:39 PM

SERIAL # JB3069

DOING A WRITE UP FOR THIS ONE AS THERE WAS NO REAL HELP OUT THERE FOR A NO CRANK ON THIS M2 CUMMINS ALLISON SETUP.

SO THE SHORT STORY, CUSTOMER STATER TRUCK INTERMITTENTLY HAS NO CRANK. TECH WAS ABLE TO SUCCESSFULLY CRANK AND CONNECTED DL TO VIEW STATUS. SAW CRANK SIGNALS FROM IGNITION INPUTS TO BHM AND OUTPUT FROM BHM B4.B WITH NO LOAD SHOWING IN OUTPUT.

AAVA Solenoid Circuits	AC Clutch Function	AMU Solenoid Circuits	AMU Solenoid Circuits	Backup Function (Automatic Transmission)	Bulkhead Module Connector 1	Bulkhead Module Connector 2
Chassis Module, Connector 2	Chassis Module, connector 3	Chassis Module, Connector 4	Cigar Lighter Function (12V)	Clutch Switch Function	Dome Light Function	Hazard Lights Function
headlight system function	Horn (Electric) Function	Ignition system, accessory power function	Ignition system, ignition power function	Marker Lights Function	Smart Switches M2 w/BHM v6.1 Only	
Stoplights Function	Turn Signal Function	Windshield Wiper-Washer System	Windshield Wiper-Washer System	Windshield Wiper-Washer System	Windshield Wiper-Washer System	
Windshield Wiper-Washer System, Washer Motor Functions	Windshield Wiper-Washer System, Washer Pump Functions	Windshield Wiper-Washer System, Wiper Motor Functions				
Bulkhead Module Connector 3	Bulkhead Module Connector 4	Bulkhead Module Connector 5	Bulkhead Module Connector 6	Bulkhead Module Smart Switches	Chassis Module, connector 1	

Bulkhead Module Connector 4		APPLIES TO:		i		ENTER TEST MODE		EXIT TEST MODE		OFF	
TEMPLATE VER. 1.2, 2/15/08		Business Class M2									

B4.A Input Air Filter Restriction	Status	OFF		B4.H Input Wake Up	Status	ON	
B4.B Output Starter Relay	Status	ON		B4.K Power Battery Power 4	Volts	12.52	
B4.D Input Spare Digital Input 2	Status	OFF		B4.L Input Washer Level	Status	OK	
B4.E/B4.F Output Right and Left Heated	Status	Amps	0.00	B4.M Output Utility Light/Spotlight	Status	Amps	0.00
B4.G Power Battery Power 2	Volts	12.62					
		ON					

Pin C is Ground, Pin J has no function.

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All Instruments	Chart	Backlighting Function	BHM Starter Controls	Bulkhead Module Battery Inputs - M2	Cascadia J1939 Datalink Test
Chassis Module Battery Inputs - M2	Fire Pump Interlocks	headlight system, headlight switch function	ICU3 - EPA 2010 Instrumentation Data	ICU3 M2 J1939 Telltales	
M2/C2 Smart Switch Configuration	Park Brake Function	PTO Interlocks	Switch Expansion Module #1, connector J1	Switch Expansion Module 1, Smart Switches	User
Ignition system, ignition power function	Low Air Pressure Warning Function	M2 - Wake Function	M2 Cruise Control Function - Multiplexed Only	M2 Starter Control Neutral Inputs	

Ignition system, ignition power function
 TEMPLATE VER. 1.1, 02/20/07

APPLIES TO:
 M2 with V.6.5
 ALL C2 BUS BHM

i

EXIT TEST MODE

OFF

Inputs to BHM:
 Ignition Switch to BHM:
 Ignition Switch Position Circuits
 ACC Circuit
 ON Circuit
 CRANK Circuit

Outputs from BHM:
 From BHM to Outputs:
 Ignition Switch Position
 ACC OFF
 ON CRANK

Test Mode is not needed for this template. If the Test Mode annunciator is ON, please press the Exit Test Mode button.

AFTER TESTING ALL OUTPUT AT B4.B AND FOUND NO VOLTGE OUTPUT FROM BHM AND TESTING STARTER RELAY AT B4.B AND WAS ABLE TO CRANK AND RUN BY APPLYING 12VDC TO B4.B WIRE, BHM WAS REPLACED. THIS DID NOT CORRECT THE PROBLEM. SO... VIEWING THIS TAB IN DL,

Chassis Module Battery Inputs - M2	Fire Pump Interlocks	headlight system, headlight switch function	ICU3 - EPA 2010 Instrumentation Data	ICU3 M2 J1939 Telltales
Ignition system, ignition power function	Low Air Pressure Warning Function	M2 - Wake Function	M2 Cruise Control Function - Multiplexed Only	M2 Starter Control Neutral Inputs
M2/C2 Smart Switch Configuration	Park Brake Function	PTO Interlocks	Switch Expansion Module #1, connector J1	Switch Expansion Module 1, Smart Switches
All Instruments	Chart	Backlighting Function	BHM Starter Controls	Bulkhead Module Battery Inputs - M2
				Cascadia J1939 Datalink Test

Position
 ACCESSORY
 ON/RUN
 ACTIVE
 CRANK
 ACTIVE
 Ignition Voltage
 Not available

Power Circuits - Status
 ACC OFF
 ON CRANK
 Crank Circuit Amperage
 09:58:10:000

BHM Starter Controls
 Pin B6.B5 Bottom of Clutch
 BOC Inactive
 Pin B6.B2 Top of Clutch
 TOC Inactive
 Pin B2.G Neutral Start
 ENGINE CRANK DISABLED
 Engine RPM
 09:58:10:000

Bulkhead Module Battery Inputs - M2
 Crank enable from Allison
 ENGINE CRANK ENABLED
 Neutral Status From AGS
 ENGINE CRANK ENABLED
BHM Input Circuits AND J1939 Messages DO NOT Apply to all vehicles
 Use EZ-Wiring to access the schematic for the vehicle.
 Crank Enable From Allison Message applies to newer Allison Transmission Vehicles.
 Neutral Status From AGS Message applies to many Mercedes Benz and AGS transmissions.
 Pin B2.G Neutral Start Circuit applies to many older Allison Transmissions.
 Eaton automated transmission vehicles control a relay in the PTPDM to interrupt the crank circuit between BHM output pin

Crank Enable Indicators
 Cranking
 Disabled
 Transmission Allowed
 Temperature Allowed
 RPM Disable
 Optional Allowed

NOTICE THE "RPM" DISABLE STATUS IN "CRANK ENABLE INDICATORS". THIS IS THE POINT WHICH THER IS NO CLEAR INFORMATION AVAILABLE AS TO WHAT THIS STATUS COMES FROM. CAC

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STATED THAT "IT IS NOT NECESSARILY A RPM SIGNAL". SO FURTHER DIGGING INTO WONDERFUL E-Z WIRING, TECH WAS ABLE TO FIND A NEUTRAL SIGNAL CIRCUIT AT TCM 80 WAY CONNECTOR PIN 41. DRAWING [G66-02082-002](#) THIS SIGNAL CONTROLS R7 RELAY COIL WHICH THEN SENDS A GROUND THROUGH R7 RELAY CONTACTS TO CHM CONNECTOR 5 PIN A WHICH THEN ALLOWS THE "RPM" CRANK ENABLE TO BE ALLOWED. IN HIS CASE THERE WAS A DAMAGED WIRE, INTERMITTENTLY OPEN, IN THIS CIRCUIT 497F BETWEEN THE R7 RELAY AND CHM. AFTER RUNNING AN OVERLAY FROM R7 RELAY TO CHM C5 A, THE TRUCK CRANKS EVERYTIME.

I HOPE THIS HELPS SOMEONE ELSE AS THE SCHEMATICS AND TEMPLATES CAN BE MISLEADING. I HAVE ATTACHED ALL THE SNAP SHOTS AS WELL.

- [G66-02082-002](#) - [_001.pdf](#) 33.4 KB Preview
- [ignition switch status.jpg](#) 119.5 KB
- [crank enable indicators.jpg](#) 181.5 KB
- [b4_b crank no load.jpg](#) 160.5 KB

Tags: neutral start, m2 no crank, crank enable, r7 relay



[Jesse Gutierrez](#) 480 posts since Mar 5, 2017

Re: M2 CUMMINS ALLISON NO CRANK Jan 3, 2021 11:52 PM

Where was the damage found , was it in the harness which comes off the bhm, down near the rear of the engine to the trans?? I had a similar issue were my harness was rubbing on the formed metal air line by chance??



[ADAM KEEP](#) 4 posts since Jun 6, 2019

Re: M2 CUMMINS ALLISON NO CRANK Jan 4, 2021 3:18 PM

SO THE TECH DIDN'T LOCATE THE DAMAGED SECTION, JUST RAN AN OVERLAY DUE TO THE AMOUNT OF TIME WRAPPED UP IN THIS JOB. OVERLAYS ARE NICE UNTIL THE AREA CAUSING THE DAMAGE CONTINUES AND OTHER CIRCUITS ARE AFFECTED!!!.



[Jesse Gutierrez](#) 480 posts since Mar 5, 2017

Re: M2 CUMMINS ALLISON NO CRANK Jan 4, 2021 4:23 PM

very true about overlays, which is kinda why I was asking to see if it was a common spot where damage occurs ? Something I like to do to pinpoint damage wiring is I will connected my meter to grd , and the other lead to the circuit I think is damaged and wiggled my harness until I reach the exact point or near it where my meter starts to go wild once I move that section of harness .. then cut that section of loom open and determine what exactly needs to be repaired etc...but great job on the find!!!!



[Chris Vanboom](#) 185 posts since Nov 21, 2014

Re: M2 CUMMINS ALLISON NO CRANK Jan 6, 2021 4:10 PM

I have come across this issue before, the DDDL template is terrible at clarifying. This truck is spec'd with a remote start option, and I have battled with this issue on other trucks with remote start/stop. If you look at the parameters in CHEC there is some clarification in parameter 26-01007-067 which shows the hardwire "neutral safety" circuit. On trucks equipped with a manual transmission the mechanical switch is on the transmission. The circuit is controlled by the hood tilt switch in this case.

Remote Start - Auto Trans

Reference parameter: 26-01007-067 | Master No.: 156P1 | Release No.: P55023-67 |

Reference parameter Notes

0 Notes

Support Parameters

▼ O-MAP

► **Trans Neutral Switch C5G (92221)** |  | Circuit Name: 497F* | Status: Active

Input/Output

Input

- CHM PIN Circuit 497F*



[Anthony Kasper](#) 5 posts since Aug 26, 2020

Re: M2 CUMMINS ALLISON NO CRANK Jan 15, 2021 8:51 PM

Did you verify on Allison DOC the TCM is reading Neural ?



[ADAM KEEP](#) 4 posts since Jun 6, 2019

Re: M2 CUMMINS ALLISON NO CRANK Jan 28, 2021 8:06 PM

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Yes all that was checked. My point in this write-up was the template does not lead you to think of a "neutral safety" status due to the "rpm" button. so no original thought was put toward any neutral inputs.