

Vehicle Attachment – MCI TCM Download

Flushing, NY

HWY17MH015

(4 pages)



March 19, 2018

Information from TCM S/N BK0691A342240020 from Dahlia Motor Coach VIN 2MG3JM8A0FW

On March 14, 2018, Allison engineer Robert Koval met with NTSB Vehicle Factors Specialist Jerome Cantrell at NYPD Impound Yard located at Street, Brooklyn, NY. The purpose of the visit was to retrieve transmission information from a MCI motor coach that was involved in a collision in 2017.

A "bench harness" was connected to the vehicle's transmission control module (TCM) and a copy of the calibration was downloaded as well as a "snapshot" record using Allison DOC Service Tool.

The TCM records a "snapshot" of operating conditions at the time of a diagnostic trouble code (DTC) setting. At time of download on March 14, 2018, the calibration had record of seven (7) DTCs. It appears that all failure records set at the same time. There were failure records available for five of the seven DTCs, as follows:

		Value				
Name	Units	P0848 Trans Fluid Pressure Switch 2 Circuit High	P0713 Trans Fluid Temp Circuit Low	P070C Trans Fluid Level Sensor Circuit Low	U0100 Lost Communica tion with ECM A	U0103 Lost Communicati on with Gear Shift Module 1
Distance since last code clear	miles	103095	103095	103095	103095	103095
Driver Selected Range		Neutral	Neutral	Neutral	Neutral	Neutral
Engine Speed	rpm	0	0	0	0	0
Trans input speed	rpm	0	0	0	0	0
Trans output speed	rpm	0	0	0	0	0
Trans fluid temp	deg F	199.4	-40	-40	-40	-40
Engine Run Time	hh:mm:ss	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00
TCM battery voltage	volts	11.5	11.5	11.6	11.6	11.5

There were no failure records available for P2793 (Gear Shift Direction Circuit) and P0725 (Engine Speed Sensor Circuit).

Gen5 application program active (2013+) Boot level: B72 Date code: 08-12-2014 TCM assembly: Program level: W14BC_PC_445A36 TCM serial: BK0691A342240020 Calibration compatibility: W14BC_PC_445A36 Hardware comp#: 49 Configuration number: A63 System status: application active CIN: C14200106A248 TCM part number: 29550691 MPM version number: 1 Manufacturer enable counter: 0 Vocational model: B500 TCM/SW/Cal assv P/N: -1 Software part number: 25828095 Tester serial number: LDSTATION Calibration part number: 0 Active trouble codes: 7 Code Description Active Warn Flags P0713 Transmission Fluid Temperature Sensor Circuit High Y 10101111 P070C Transmission Fluid Level Sensor Circuit Low 00101111 P0848 Transmission Fluid Pressure Switch 2 Circuit High 10101111 U0100 Lost Communications with ECM A 10101111 U0103 Lost Communication with Gear Shift Module 1 Y 10101111

The screen shot below contains information about the calibration ID and TCM S/N:

There are no "time stamped" data records stored in the TCM. I was able to retrieve some information that is cumulative since the TCM was originally programmed:

N

Y

10101111

00101111

Total Accumulated Miles: 106788.2

Accumulated Hours: 5499.9

P2793 Gear Shift Direction Circuit

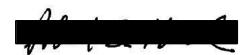
P0725 Engine Speed Sensor Circuit

There is a record of time spent in "buckets" of time. There is a limit of 262144 seconds for each counter. The table below indicates that the transmission spent at least some amount of time above 2400 rpm transmission output speed:

RPM	Engine (sec)	Output (sec)
0	0	0
0-200	6146	262144
200-400	5310	262144
400-600	5477	262144
600-800	262144	262144
800-1000	262144	262144
1000-1200	262144	262144
1200-1400	262144	262144
1400-1600	262144	262144
1600-1800	113759	262144
1800-2000	36953	262144
2000-2200	28509	262144
2200-2400	2126	7548
2400-2600	3	258
2600-2800	0	0
2800-3000	0	0
3000-3200	0	0
3200-3400	0	0
3400-3600	0	0
3600-3800	0	0
>3800	0	0

Given tire size of 490 rev/mi and rear axle ratio of 3.54:1, this vehicle's N/V ratio (trans output speed / mph) equals 28.91. Thus 2400-2600 trans output speed equates to 83-90 mph. The chart above indicates the vehicle spent a cumulative 258 seconds in this range of vehicle speed over the course of its operation. Likewise, the vehicle spent a cumulative 7,548 seconds in the 76-83 mph range of vehicle speed over the course of its operation.

Adaptive shift parameters indicate all clutches were in good operating condition and shift quality was as expected.



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