



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 [REDACTED]**

On March 14, 2018, Allison engineer Robert Koval met with NTSB Vehicle Factors Specialist Jerome Cantrell at NYPD Impound Yard located at [REDACTED] 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:

Name	Units	Value				
		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).

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

TCM Info

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 assy P/N : -1	
Software part number : 25828095	Tester serial number : LDSTATION	
Calibration part number : 0	VIN :	
Active trouble codes : 7		

Code	Description	Active	Warn	Flags
P0713	Transmission Fluid Temperature Sensor Circuit High	Y	Y	10101111
P070C	Transmission Fluid Level Sensor Circuit Low	Y	N	00101111
P0848	Transmission Fluid Pressure Switch 2 Circuit High	Y	Y	10101111
U0100	Lost Communications with ECM A	Y	Y	10101111
U0103	Lost Communication with Gear Shift Module 1	Y	Y	10101111
P2793	Gear Shift Direction Circuit	Y	Y	10101111
P0725	Engine Speed Sensor Circuit	Y	N	00101111

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:

- Total Accumulated Miles: 106788.2
- Accumulated Hours: 5499.9

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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