National Transportation Safety Board
Office of Highway Safety
Washington, DC 20594

HWY24FH013

TECHNICAL RECONSTRUCTION ATTACHMENT

Mack Bendix Report

(12 Pages)

DTC REPORT

Connection Date: October 07, 2024 3:21 PM
Print Date: October 07, 2024 3:21 PM
Bendix® ACom® PRO™ Diagnostics 2024 v2
Bendix ACom Customer Support
• 800-AIRBRAKE
• TechTeam@bendix.com

Company: _____ **Location:** EDR

Technician: _____

Technician Notes:

VIN	1M1AN3GY6KM007078
Vehicle Make	Mack
Model	Anthem
Series	
Model Year	2019

Vehicle Components

Component	Description	Supplier Part Number	Software Version	Diagnostic Network	Active Faults
Brakes	Bendix EC-80 ESP+ ABS	K133804R001	Z089860	J1939 (High)/ 15765 (CAN)	1

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Vehicle Key Data Points

Description	Parameter Value
Total Engine Hours	Not Available
Brake Secondary Tank Pressure	Not Available
Battery Voltage	Not Available
Malfunction Indicator Lamp	Off
Amber Warning Lamp	On
Parking Brake Switch	Not Available

Description	Parameter Value
Brake Primary Tank Pressure	Not Available
ABS Battery Voltage	7.80 volts
Road Speed	Not Available
Red Stop Lamp	Off
Protect Lamp	Off
Odometer	Not Available

Vehicle Issues

1 Active Fault(s) Present

Vehicle Identification Numbers

Component	VIN	Protocol Description
Bendix EC-80 ESP+ ABS	1M1AN3GY6KM007078	15765 (CAN)

Faults

Status	Component	Description	Lookup Code	FMI	Count
Active	EC-80 ESP+ ABS	Battery Voltage Too Low (SPN 168 FMI 4 Blink Code 6-1)	60-80	N/A	1

ESP Counters

Component	Event	Counter
EC-80 ESP+ ABS	RSP Level 1	11
EC-80 ESP+ ABS	RSP Level 2	947
EC-80 ESP+ ABS	RSP Level 3	506
EC-80 ESP+ ABS	RSP Level 4	49
EC-80 ESP+ ABS	RSP Level 5	5
EC-80 ESP+ ABS	Yaw Control Over Steer 1	35
EC-80 ESP+ ABS	Yaw Control Over Steer 2	0
EC-80 ESP+ ABS	Yaw Control Over Steer 3	1

Component	Event	Counter
EC-80 ESP+ ABS	Yaw Control Under Steer 1	51
EC-80 ESP+ ABS	Yaw Control Under Steer 2	0

Event Counters

Component	Event	Counter
EC-80 ESP+ ABS	ABS	12,845
EC-80 ESP+ ABS	ABS during XBR	0
EC-80 ESP+ ABS	ATC Brake	27,470
EC-80 ESP+ ABS	ATC Engine	20,318
EC-80 ESP+ ABS	Brake Fade	63
EC-80 ESP+ ABS	Hard Braking	12

Event History

Count	Power Up Time	Vehicle Velocity	Event Stamp	Description	Latitude/ Longitude	Date/ Time
DTC Events EC-80 ESP+ ABS						
1	10 s - 15 m	4 mph	7189 engine hours	Drive away test all clear		
1	> 1 h	22 mph	7192 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	< 10 s	0 mph	N/A	Trailer PMV Common Open Circuit (SPN 1056 FMI 5 Blink Code 20-7)		
1	10 s - 15 m	0 mph	N/A	Trailer PMV Hold Solenoid Open Circuit (SPN 1056 FMI 5 Blink Code 20 -6)		
1	10 s - 15 m	7 mph	7196 engine hours	Drive away test all clear		
1	< 10 s	78 mph	4015 power cycles	Steer Axle Left WSS Signal Low at Drive Off (SPN 789 FMI 9 Blink Code 2 -2)		
1	< 10 s	78 mph	4016 power cycles	Steer Axle Right WSS Signal Low at Drive Off (SPN 790 FMI 9 Blink Code 3 -2)		

1	< 10 s	78 mph	4016 power cycles	All sensors backed out		
1	10 s - 15 m	2 mph	8798 engine hours	Drive away test all clear		
1	10 s - 15 m	7 mph	9452 engine hours	Drive Axle Left WSS Signal Low at Drive Off (SPN 791 FMI 9 Blink Code 4 -2)		
1	10 s - 15 m	2 mph	9452 engine hours	Drive away test all clear		
1	10 s - 15 m	2 mph	9452 engine hours	Drive Axle Left WSS Signal Low at Drive Off (SPN 791 FMI 9 Blink Code 4 -2)		
1	10 s - 15 m	6 mph	9452 engine hours	Drive away test all clear		
1	10 s - 15 m	0 mph	9959 engine hours	J1939 CCVS Timeout or Invalid Signal (SPN 639 FMI 2 Blink Code 11-23)		
1	10 s - 15 m	4 mph	9959 engine hours	Drive away test all clear		
1	> 1 h	78 mph	10439 engine hours	J1939 CCVS Timeout or Invalid Signal (SPN 639 FMI 2 Blink Code 11-23)		
1	10 s - 15 m	4 mph	10439 engine hours	Drive away test all clear		
1	< 10 s	0 mph	4810 power cycles	Drive Axle Left PMV Common Open Circuit (SPN 797 FMI 5 Blink Code 9-7)		
1	10 s - 15 m	6 mph	10941 engine hours	Drive away test all clear		
1	15 m - 1 h	56 mph	11570 engine hours	SAS Plausibility Check (Ref YAW Rate) (SPN 1807 FMI 2 Blink Code 21-10)		
1	10 s - 15 m	2 mph	11571 engine hours	Drive away test all clear		
1	10 s - 15 m	2 mph	11571 engine hours	SAS Plausibility Check (Ref YAW Rate) (SPN 1807 FMI 2 Blink Code 21-10)		
1	10 s - 15 m	0 mph	5563 engine hours	Event History Cleared		
1	> 1 h	21 mph	6936 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	10 s - 15 m	6 mph	6936 engine hours	Drive away test all clear		

1	10 s - 15 m	31 mph	6936 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	10 s - 15 m	2 mph	6938 engine hours	Drive away test all clear		
1	10 s - 15 m	0 mph	6942 engine hours	Load Pressure Sensor Open or Shorted (SPN 1059 FMI 2 Blink Code 24-3)		
1	15 m - 1 h	2 mph	6943 engine hours	Drive away test all clear		
1	> 1 h	63 mph	7019 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	10 s - 15 m	7 mph	7020 engine hours	Drive away test all clear		
1	10 s - 15 m	35 mph	7020 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	10 s - 15 m	2 mph	7022 engine hours	Drive away test all clear		
1	> 1 h	65 mph	7085 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	15 m - 1 h	2 mph	7086 engine hours	Drive away test all clear		
1	15 m - 1 h	32 mph	7132 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	10 s - 15 m	4 mph	7135 engine hours	Drive away test all clear		
1	> 1 h	52 mph	7142 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	15 m - 1 h	7 mph	7143 engine hours	Drive away test all clear		
1	> 1 h	52 mph	7179 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
1	15 m - 1 h	2 mph	7181 engine hours	Drive away test all clear		
1	> 1 h	16 mph	7185 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		

1	10 s - 15 m	5 mph	7187 engine hours	Drive away test all clear		
1	10 s - 15 m	5 mph	7187 engine hours	Modulator Commons Shorted to Ground (SPN 802 FMI 4 Blink Code 12 -7)		
Info Events						
EC-80 ESP+ ABS						
1	> 1 h	5 mph	11744 engine hours	YAW Intervention		
5	> 1 h	12 mph	11786 engine hours	YAW Intervention		
1	> 1 h	30 mph	11813 engine hours	RSP Intervention		
3	> 1 h	29 mph	11912 engine hours	RSP Intervention		
1	> 1 h	11 mph	11921 engine hours	YAW Intervention		
1	> 1 h	30 mph	11937 engine hours	RSP Intervention		
40	> 1 h	17 mph	12531 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	12551 engine hours	ECU placed in diagnostic mode		
1	10 s - 15 m	0 mph	12551 engine hours	Learned Steering Angle offset changed in a positive direction		
1	10 s - 15 m	0 mph	12551 engine hours	ECU placed in diagnostic mode		
1	< 10 s	0 mph	5428 power cycles	ECU Reset by Serial Command		
1	< 10 s	0 mph	5429 power cycles	ECU placed in diagnostic mode		
1	> 1 h	30 mph	12558 engine hours	RSP Intervention		
27	> 1 h	31 mph	12993 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	13000 engine hours	ECU placed in diagnostic mode		
1	> 1 h	31 mph	13029 engine hours	RSP Intervention		

8	> 1 h	29 mph	13261 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	5671 power cycles	ECU placed in diagnostic mode		
1	> 1 h	0 mph	8838 engine hours	ECU placed in diagnostic mode		
1	> 1 h	30 mph	8848 engine hours	RSP Intervention		
24	> 1 h	31 mph	9157 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	9188 engine hours	ECU placed in diagnostic mode		
1	> 1 h	31 mph	9232 engine hours	RSP Intervention		
2	> 1 h	30 mph	9245 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	9265 engine hours	ECU placed in diagnostic mode		
1	> 1 h	29 mph	9279 engine hours	RSP Intervention		
11	> 1 h	34 mph	9441 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	9452 engine hours	ECU placed in diagnostic mode		
5	< 10 s	0 mph	4277 power cycles	ECU placed in diagnostic mode		
1	> 1 h	32 mph	9483 engine hours	RSP Intervention		
9	> 1 h	30 mph	9582 engine hours	RSP Intervention		
1	> 1 h	0 mph	9600 engine hours	ECU placed in diagnostic mode		
1	> 1 h	37 mph	9631 engine hours	RSP Intervention		
12	15 m - 1 h	34 mph	9903 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	9933 engine hours	ECU placed in diagnostic mode		
1	< 10 s	0 mph	4413 power cycles	ECU placed in diagnostic mode		

1	> 1 h	39 mph	9948 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	9959 engine hours	ECU placed in diagnostic mode		
1	> 1 h	31 mph	9984 engine hours	RSP Intervention		
130	> 1 h	31 mph	11368 engine hours	RSP Intervention		
1	10 s - 15 m	0 mph	11374 engine hours	ECU placed in diagnostic mode		
1	10 s - 15 m	0 mph	11374 engine hours	ECU placed in diagnostic mode		
1	> 1 h	30 mph	11419 engine hours	RSP Intervention		
12	15 m - 1 h	48 mph	11566 engine hours	RSP Intervention		
1	> 1 h	34 mph	11568 engine hours	YAW Intervention		
1	> 1 h	34 mph	11568 engine hours	RSP Intervention		
1	15 m - 1 h	47 mph	11569 engine hours	Learned Steering Angle offset changed in a positive direction		
1	15 m - 1 h	41 mph	11572 engine hours	Learned Steering Angle offset changed in a negative direction		
1	10 s - 15 m	45 mph	11572 engine hours	RSP Intervention		
1	> 1 h	67 mph	11575 engine hours	Learned Steering Angle offset changed in a negative direction		
1	> 1 h	31 mph	11590 engine hours	RSP Intervention		
5	> 1 h	29 mph	11701 engine hours	RSP Intervention		
1	> 1 h	11 mph	11723 engine hours	YAW Intervention		
1	> 1 h	27 mph	11731 engine hours	RSP Intervention		

Component Information

Description	Parameter Value	Description	Parameter Value

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Description	Parameter Value	Description	Parameter Value
Bendix EC-80 ESP+ ABS			
System Supplier Diagnostic Tool Version	35	Vendor ID	BNDWS*EC80ESP+*
System Supplier	BNDWS	System Name	EC80ESP+
Manufacturing Date	20180822	Serial Number	6134180145
ECU Stored VIN	1M1AN3GY6KM007078	OEM Part Number	23247104
Bendix Part Number	K133804R001	Software Number AuC	Z089860
Software Number BuC	Z089823	Software Revision (Auc/Buc)	R001
MKS Software Revision AuC	Rev 1.287.1.10.2.2	MKS Software Revision BuC	Rev 1.133
ABS	12,845	ABS during XBR	0
ATC Engine	20,318	ATC Brake	27,470
Brake Fade	63	Hard Braking	12
PLC Hardware	Enabled	Tone Ring Size Steer Axle	100 teeth
Steer Axle Configuration	2s/2m	Steer Axle Driven	Disabled
Steer Axle Tire Size Circumference	515 revolutions/mile	Tone Ring Size Drive Axle	100 teeth
Drive Axle Configuration	2s/2m	Rearward Most Rear Driven Axle	Enabled
Rearward Most Rear Liftable Axle	Disabled	Drive Axle Tire Size Circumference	511 revolutions/mile
Tone Ring Size Additional Axle	100	Additional Axle Configuration	0s/0m
Additional Axle 3 Driven	Enabled	Additional Axle 3 Liftable	Disabled
Additional Axle Tire Size Circumference	511 revolutions/mile	Retarder Control	Retarder Datalink
Interaxle Diff. Lock	Disabled	ATC valve	Enabled
ATC brake control	Enabled	ATC engine control	Enabled
ATC Control	Brake and Engine	TCV Steer Axle	Enabled
ABS offroad mode	Enabled	Trailer Modulator	Enabled
Configured for Air Bag Pressure Sensor	Enabled	Air Bag ALB Pressure Sensor	Enabled
HSA	Enabled	Yaw Control	Enabled
ROP	Enabled	Lateral Acceleration Sensor Orientation	Standard
Yaw Rate Sensor Upside Down	Standard	Steer Angle Sensor Orientation	Inverted
Yaw Rate Sensor Orientation	Connector facing passenger side	SAS Gateway Enabled	disable

Description	Parameter Value
Yaw Control Under Steer 1	51
Yaw Control Over Steer 1	35
Yaw Control Over Steer 3	1
RSP Level 2	947
RSP Level 4	49
Steer Axle Control Mode	Modified
Additional Axle Control Mode	Modified
ATC Switch	Mud and Snow
HSA Switch Type	Pin Only
Stop Lamp Switch Type	Autodetect
Off Road ABS Switch Type	CAN Only
J1939 Wheel Speed Information	Enabled
J1939 High Resolution Wheel Speed	Enabled
HSA Configured Available	Bendix HSA
ACB Configured	Enabled
Enable automatic system configuration within a configured distance after dataset programming ECU	Disable
ABS Fusion	Disabled
Direct TSC1 Control	Off
ACC Type	Not Available
TSR	Disabled
eTrac Available	Enabled
eTrac	Disabled
PLC Support	Yes
ECU Voltage Configuration	Configured for 12V
SLS_Tmax_Dur	180.00 sec
Enable automatic system configuration with diagnostic routine	Disable

Description	Parameter Value
Yaw Control Under Steer 2	0
Yaw Control Over Steer 2	0
RSP Level 1	11
RSP Level 3	506
RSP Level 5	5
Drive Axle Control Mode	Modified
ATC Steer Axle	Enabled
ATC Steer Axle Config Available	Enabled
Diagnostic Switch Type	Switch Disabled
ATC Switch Type	Pin Only
J1939 EBC1 Information	Enabled
J1939 Cruise Control/Wheel Speed	Disabled
ECU Type	ESP
HSA Configured	Enabled
Enable automatic system configuration with diag button	Disable
ACC Lateral Mounting Offset	0 mm
Momentary FDA Alerts	Off
ACC Type Engine Mismatch	Off
AEBS	Disabled
Bendix HSA Lamp Configuration	0
eTrac Mud and Snow Switch	Enabled
Connector X1_2 Output	3
ESP Lamp Strategy	ESP Separate
J1939 Brakes Message	Disabled
conf_retctrl_offroad_speed	255
SPTAC FLC FoeX	0 pixels

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Description	Parameter Value
SPTAC FLC FoeY	0 pixels
SPTAC Roll Angle	0.000 degrees
Left Wheel	50.39 inches
Image Rake Angle	5
Reference Point X	66.93 inches
SPTAC Cal Status	85
SDP Warning Type	0
SDP LDW Switch Type	0
SDP Left Speaker Volume	0
SDP Radio Mute Diagnostics	0

Description	Parameter Value
SPTAC Grabbing Shift	27 pixels
SPTAC Camera Height	70.87 inches
Right Wheel	38.58 inches
Activate EDR	0
Reference Point Y	-5.91 inches
SDP Startup Chirp	0
SDP Mute Output	0
SDP Right Speaker Volume	0
SDP Startup Chirp Volume	Default

Wingman Configuration	
XBR AEBS	Radar without AEBS
Following Distance Alert Configuration	Error
Stationary Object Warning	See the FLR SOW Setting
Highway Departure	Warning and Braking Off
Multi Lane AEB	Disabled