

Forensic Link Adapter Report

University of Tulsa

800 S Tucker Dr
Tulsa, OK 74104

Data Package obtained with FLA 1B2R90058 (None) on Fri Aug 28 2015 16:43:08 CST

The operators assigned to this FLA are: Amila Perera (amila-perera@utulsa.edu) , Jeremy Daily (jeremy-daily@utulsa.edu)

Status of the FLA's subscription: **expires in 11 months (July 19, 2016)**

The results on this page haven't been validated. The user is advised to check information against other sources.

Report Notes

no one has made any notes

Vehicle Information

Engine #1 from J1587

Make	CTRPL
Model	C15
Serial Number	XS245
Vehicle Odometer	67.9 miles
Engine Hours	4.25
VIN	820391D

Vehicle OEM Data

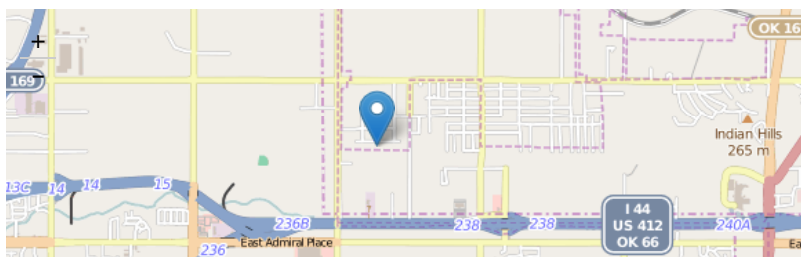
Vehicle ID	820391D
Engine serial number	BXS24569
Quick Stop Rate	7.00

Time Records

FLA Time When User Indicates They Have Permission	Fri Aug 28 2015 16:43:08 CST
FLA Time When Download Complete	Fri Aug 28 2015 16:47:05 CST
Duration of Download	00:03:56 (236 seconds)
Time the FLA System Time was last set	Sun Jul 19 2015 12:24:30 CST
ECM Internal Clock Time	Fri Aug 28 2015 11:19:00 CST
FLA Time When ECM Clock Was Read	Fri Aug 28 2015 16:43:38 CST
Time Difference (FLA minus ECM)	05:24:38 (19478 seconds)
Server Time when Data Package was Uploaded	Fri Aug 28 2015 16:47:11 CST
GPS Sat Time at Last GPS Lock	Fri Aug 28 2015 2:12:51 CST
FLA System Time at Last GPS Lock	Fri Aug 28 2015 2:12:57 CST

GPS Data - lat:36.170307, long:-95.810493

East Latimer Street, Tiger, Rogers County, Oklahoma, 74116, United States of America



Leaflet | © OpenStreetMap contributors

Event Data

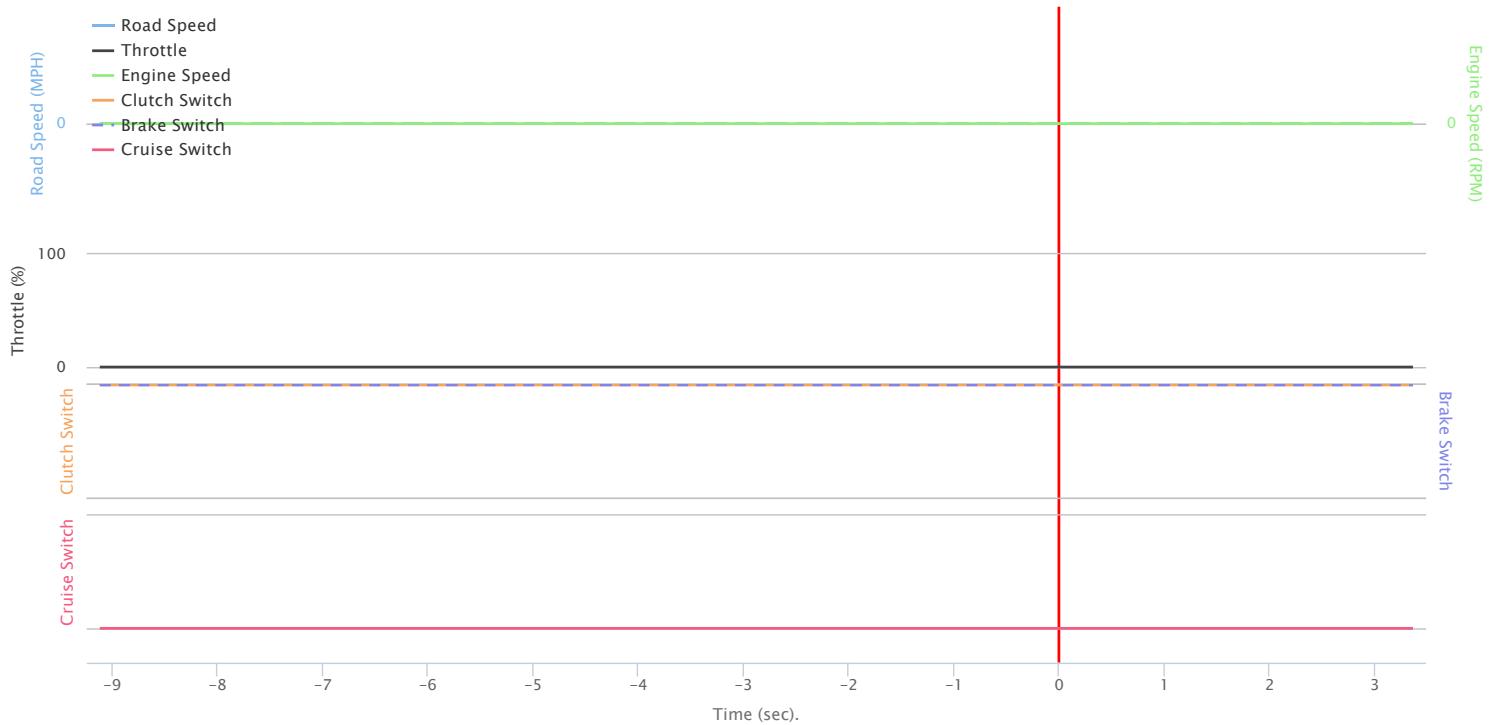
Event Data are records that are set when certain thresholds are crossed. There are no event data elements to display for this ECM.

CAT Diagnostics Snapshot Record Chart #1

Sat Aug 29 2015 11:01:18 CST

PID 111: Unknown PID

FMI 2: Data erratic, intermittent, or incorrect



CAT Diagnostics Snapshot Record Chart #1 Table

Frame	Time	Vehicle Speed (MPH)	Engine RPM (RPM)	Accelerator Pedal Position Status	Brake Pedal	Clutch Pedal	Accel Mode	Decel Mode	Cruise set (MPH)	Cruise Mode	Battery voltage (Volts)
1	-9.12	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
2	-8.64	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
3	-8.16	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
4	-7.68	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
5	-7.2	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
6	-6.72	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
7	-6.24	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
8	-5.76	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
9	-5.28	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
10	-4.8	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
11	-4.32	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
12	-3.84	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
13	-3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
14	-2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
15	-2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
16	-1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
17	-1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25

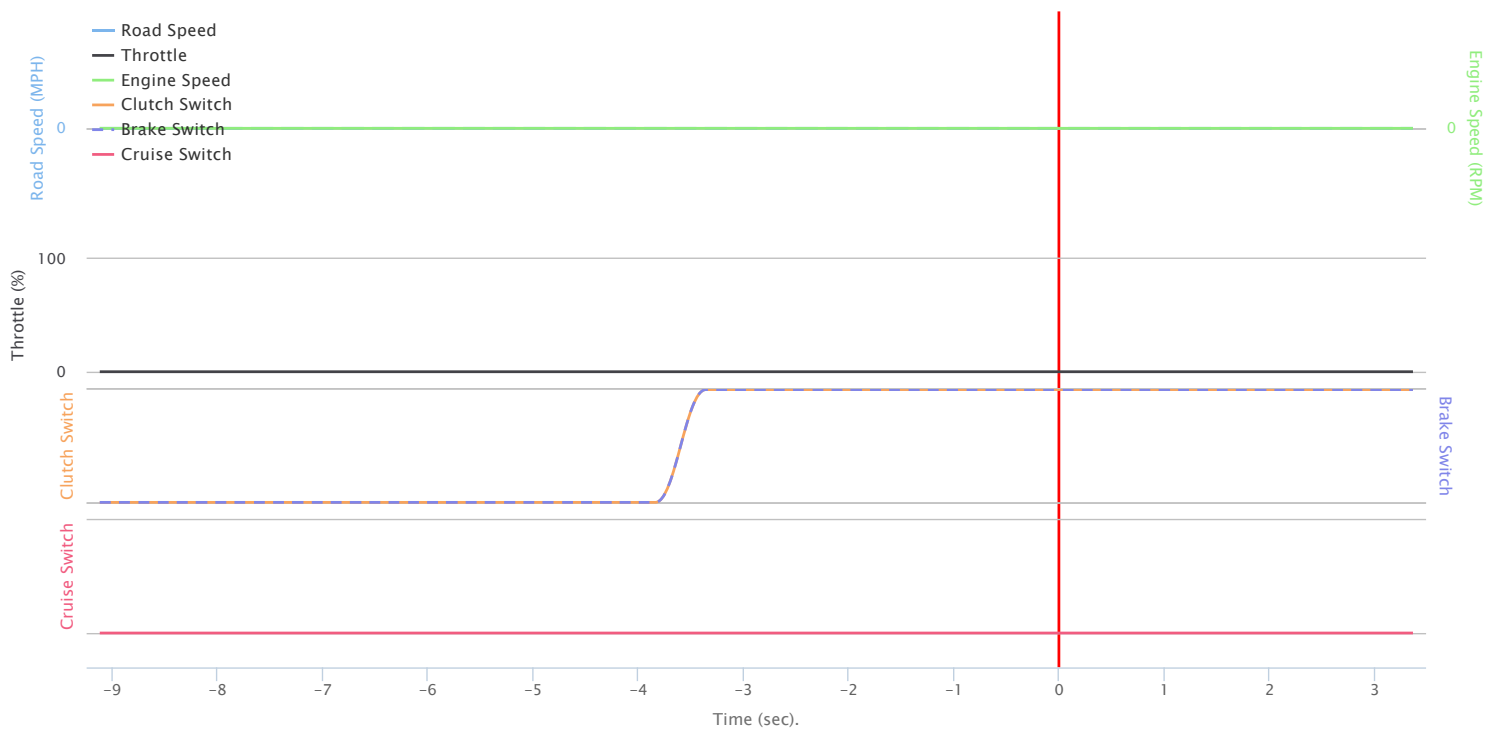
18	-0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
19	-0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
20	0.0	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
21	0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
22	0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
23	1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
24	1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
25	2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
26	2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30
27	3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	12.30

CAT Diagnostics Snapshot Record Chart #2

Sat Aug 29 2015 11:00:59 CST

PID 102: Boost Pressure

FMI 3: Voltage above normal or shorted high



CAT Diagnostics Snapshot Record Chart #2 Table

Frame	Time	Vehicle Speed (MPH)	Engine RPM (RPM)	Accelerator Pedal Position Status	Brake Pedal	Clutch Pedal	Accel Mode	Decel Mode	Cruise set (MPH)	Cruise Mode	Battery voltage (Volts)
1	-9.12	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
2	-8.64	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
3	-8.16	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
4	-7.68	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
5	-7.2	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
6	-6.72	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
7	-6.24	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
8	-5.76	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
9	-5.28	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
10	-4.8	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00

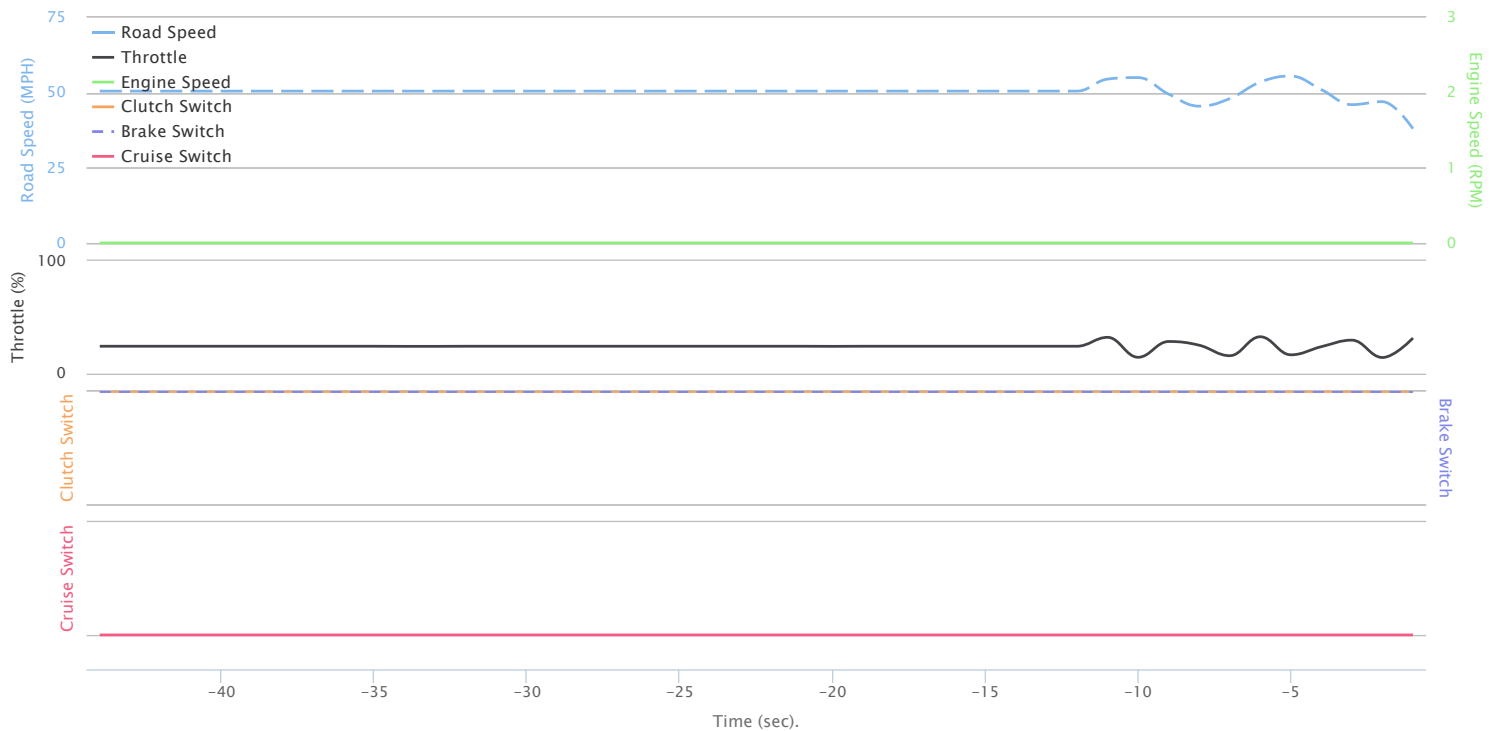
11	-4.32	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
12	-3.84	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
13	-3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	2.80
14	-2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	5.30
15	-2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	7.10
16	-1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	8.45
17	-1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	9.45
18	-0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	10.20
19	-0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	10.75
20	0.0	0.00	0.00	0.00	on	on	on	off	0.00	off	11.15
21	0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	11.45
22	0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	11.65
23	1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	11.85
24	1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	11.95
25	2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	12.05
26	2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	12.10
27	3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	12.15

CAT Speed Change Snapshot Records Chart #1

Sat Aug 29 2015 11:00:55 CST

PID 84: Road Speed

FMI 14: Special Instructions



CAT Speed Change Snapshot Records Chart #1 Table

Frame	Time	Vehicle Speed (MPH)	Engine RPM (RPM)	Accelerator Pedal Position Status	Brake Pedal	Clutch Pedal	Accel Mode	Decel Mode	Cruise Mode
1	-44.0	50.50	0.00	24.30	on	on	on	off	off
2	-43.0	50.50	0.00	24.30	on	on	on	off	off
3	-42.0	50.50	0.00	24.30	on	on	on	off	off
4	-41.0	50.50	0.00	24.30	on	on	on	off	off
5	-40.0	50.50	0.00	24.30	on	on	on	off	off

6	-39.0	50.50	0.00	24.30	on	on	on	off	off
7	-38.0	50.50	0.00	24.30	on	on	on	off	off
8	-37.0	50.50	0.00	24.30	on	on	on	off	off
9	-36.0	50.50	0.00	24.30	on	on	on	off	off
10	-35.0	50.50	0.00	24.30	on	on	on	off	off
11	-34.0	50.50	0.00	24.20	on	on	on	off	off
12	-33.0	50.50	0.00	24.20	on	on	on	off	off
13	-32.0	50.50	0.00	24.30	on	on	on	off	off
14	-31.0	50.50	0.00	24.30	on	on	on	off	off
15	-30.0	50.50	0.00	24.30	on	on	on	off	off
16	-29.0	50.50	0.00	24.30	on	on	on	off	off
17	-28.0	50.50	0.00	24.30	on	on	on	off	off
18	-27.0	50.50	0.00	24.30	on	on	on	off	off
19	-26.0	50.50	0.00	24.30	on	on	on	off	off
20	-25.0	50.50	0.00	24.30	on	on	on	off	off
21	-24.0	50.50	0.00	24.30	on	on	on	off	off
22	-23.0	50.50	0.00	24.30	on	on	on	off	off
23	-22.0	50.50	0.00	24.30	on	on	on	off	off
24	-21.0	50.50	0.00	24.30	on	on	on	off	off
25	-20.0	50.50	0.00	24.20	on	on	on	off	off
26	-19.0	50.50	0.00	24.30	on	on	on	off	off
27	-18.0	50.50	0.00	24.30	on	on	on	off	off
28	-17.0	50.50	0.00	24.30	on	on	on	off	off
29	-16.0	50.50	0.00	24.30	on	on	on	off	off
30	-15.0	50.50	0.00	24.30	on	on	on	off	off
31	-14.0	50.50	0.00	24.30	on	on	on	off	off
32	-13.0	50.50	0.00	24.30	on	on	on	off	off
33	-12.0	50.50	0.00	24.30	on	on	on	off	off
34	-11.0	54.50	0.00	32.20	on	on	on	off	off
35	-10.0	55.00	0.00	14.50	on	on	on	off	off
36	-9.0	49.50	0.00	28.50	on	on	on	off	off
37	-8.0	45.50	0.00	25.20	on	on	on	off	off
38	-7.0	48.00	0.00	15.90	on	on	on	off	off
39	-6.0	53.50	0.00	32.70	on	on	on	off	off
40	-5.0	55.50	0.00	16.70	on	on	on	off	off
41	-4.0	51.00	0.00	23.90	on	on	on	off	off
42	-3.0	46.00	0.00	29.70	on	on	on	off	off
43	-2.0	47.00	0.00	14.30	on	on	on	off	off
44	-1.0	38.00	0.00	31.60	on	on	on	off	off

Historical Data

Historical data are things that can be counted during the use of the vehicle such as time, mileage, and fuel usage. This also includes logging features and trip information.

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
185	Average Fuel Economy	4.723	mpg	B9 04
235	Total Idle Hours	2.05	hours	29 00 00 00
236	Total Idle Fuel Used	1.750	gallons	0E 00 00 00
245	Total Vehicle Distance	67.9	miles	A7 02 00 00
247	Total Engine Hours	4.25	hours	56 00 00 00
248	Total PTO Hours	0.00	hours	00 00 00 00
250	Total Fuel Used	14.375	gallons	73 00 00 00

CAT Historical Data

[Download CSV Table](#)

Name	Value
Total fuel	14.38
Last tool to change customer configuration	ET073611
Total Max Fuel	53.25
Trip MPG	0.00
Total idle time	2:03
trip miles	0.00
trip time	4:17
Total tattletale	65.00
Total miles	67.90
Last tool to change system configuration	00000000

Configuration Data

Configuration data has values that relate to the configuration of various modules on the vehicle.

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
74	Maximum Road Speed Limit	65.0	mph	82
87	Cruise Control High-Set Limit Speed	65.0	mph	82
88	Cruise Control Low-Set Limit Speed	30.0	mph	3C
166	Rated Engine Power	432.0	hp	B0 01
187	Power Takeoff Set Speed	0.00	rpm	00 00
188	Idle Engine Speed	700.00	rpm	F0 0A
189	Rated Engine Speed	2120.00	rpm	20 21
234	Software Identification	2421857-00*aug03		32 34 32 31 38 35 37 2D 30 30 2A 61 75 67 30 33
237	Vehicle Identification Number	820391D		38 32 30 33 39 31 44 20 20 20 20 20 20 20 20
243	Component Identification	CTRPL*C15 *XS245		43 54 52 50 4C 2A 43 31 35 20 20 2A 58 53 32 34 35

CAT Configuration Data

[Download CSV Table](#)

Name	Value
Soft Vehicle Speed Limit	0.00
A/C Pressure Switch Fan-On Time	180.00
Gear Down Protection RPM Limit	1700.00
Idle Shutdown Timer Max RPM	2120.00
Idle/PTO RPM Ramp Rate	50.00
Intermediate Gears Turn Off Speed	25.00
Top Gear Ratio	0.730
Vehicle ID	820391D
Personality partnumber	2421857-00
Engine serial number	BXS24569
Top Gear Minus One Ratio	0.856
Top Engine Limit with Droop	0.00
Lower Gears Turn Off Speed	8.00
FTS (Full torque setting)	-7.00
Idle/PTO Bump RPM	20.00
Lower Gears Engine RPM Limit	1400.00
Vehicle Speed Calibration	29082.00
Intermediate Gears Engine RPM Limit	1600.00
Vehicle Speed Limit	65.00
FLS (Full load setting)	9.00
High Cruise Control Speed Set Limit	65.00
Quick Stop Rate	7.00
Idle Shutdown Time	0.00
Software date code	aug03
Gear Down Protection Turn On Speed	30.00
Driver Reward Enable	Disabled
Top Gear Minus Two Ratio	1.000
Idle/PTO Vehicle Speed Limit	1.00
Minimum Idle Time	0.00
Tachometer Calibration	12.00
Top Engine Limit	2120.00
Low Cruise Control Speed Set Limit	30.00
Vehicle Speed Limit Protection	1501.00
Two Speed Axle Switch Configuration	2.00
Ecm serial number	12946330JJ
Low Idle Engine RPM	700.00
Idle RPM Limit	1400.00

SAE J1587 Fault Trouble Code Data

Fault data from the J1587 network consists of Parameter Identifications (PIDs) 194 (0xC2) and 196 (0xC4). PID 194 lists codes and their statuses, along with the Failure Mode Identification (FMI). PID 196 provides additional information, either an ASCII string or OEM data, for a code. A code is either the Subsystem Identification (SID) or PID related to the issue on the vehicle.

Diagnostic Codes (PID 194) from MID 128 (Engine #1)

Code	Code Name	Failure Mode	Occurance Count	Status
91	Percent Accelerator Pedal Position	Abnormal frequency, pulse width, or period	not available	active
102	Boost Pressure	Voltage above normal or shorted high	not available	active
55	Auxiliary Output Device Driver #7	Current below normal or open circuit	not available	active
54	Auxiliary Output Device Driver #6	Current below normal or open circuit	not available	active
253	Calibration Memory	Data erratic, intermittent, or incorrect	not available	active
Raw Data	C2 0A 5B 28 66 23 37 35 36 35 FD 32			

Live Status Data

Live data is not a part of any other category. It includes things like engine RPM, vehicle speed, and brake status.

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
84	Road Speed	0.0	mph	00
86	Cruise Control Set Speed	0.0	mph	00
91	Percent Accelerator Pedal Position	0.0	%	00
92	Percent Engine Load	0.0	%	00
100	Engine Oil Pressure	77.5	psi	9B
102	Boost Pressure	0.000	psi	00
105	Intake Manifold Temperature	0	deg F	00
108	Barometric Pressure	8.938	psi	8F
110	Engine Coolant Temperature	0	deg F	00
168	Battery Potential (Voltage)	12.30	volts	F6 00
171	Ambient Air Temperature	32.00	deg F	80 00
174	Fuel Temperature	-36.00	deg F	70 FF
175	Engine Oil Temperature	-36.00	deg F	70 FF
184	Instantaneous Fuel Economy	0.000	mpg	00 00
190	Engine Speed	0.00	rpm	00 00
251	Clock	16:19:00	HH:MM:SS (UTC)	00 13 10
252	Date	2015-08-28	YYYY-MM-DD	70 08 1E
439	Extended Range Boost Pressure #1	0.000	psi	00 00

CAT Live Data

[Download CSV Table](#)

Name	Value
Instantaneous MPG	1.75
Real Time Clock	2015-08-28T16:21:18+00:00
Diagnostic clock	544.00

Data Extraction Details

Raw Hex Data from CTRPL Data Pages

[View Raw Data](#)

Nomenclature

RSL

Red Stop Lamp used for trouble code information severe enough to stop the vehicle.

DTC

Diagnostic Trouble Code

AES

Advanced Encryption Standard

MIL

Malfunction Indicator Lamp

SM

Send Message (FLA sends message to ECM)

PGN

Parameter Group Number from SAE J1939

gallons

US Gallons

SID

Subsystem ID

PID

Parameter ID

MID

Message ID

DA

Destination Address

SHA

Secure Hashing Algorithm

AWL

Amber Warning Lamp user for information for problems where the vehicle does not need to be immediately stopped.

?

An ASCII character of '?' represents data that is not an ASCII character, i.e. above 127.

SPN

Suspect Parameter Number from SAE J1939

FMI

Failure Mode Indication

RM

Receive message (FLA receives message from ECM)

SA

Source Address from SAE J1939

DIR

Direction of network message, see SM/RM

GPS

Global Positioning Satellite

Network Logs

Network logs are the raw data that existed on the vehicle network during the time of the inspection. The Timestamp refers to the first occurrence of the message. Any duplicate message is recorded by incrementing the count column. Network data is in hex.

J1939 Network Log Fri Aug 28 2015 16:43:24 CST **duration: 00:00:02 (2 seconds)**[View Network Log](#)[Download Network Log as CSV](#)J1587 Network Log Fri Aug 28 2015 16:43:09 CST **duration: 00:01:58 (118 seconds)**[View Network Log](#)[Download Network Log as CSV](#)

Passthrough Tue Aug 25 2015 15:57:52 CST

[View Network Log](#)[Download Network Log as CSV](#)

Passthrough Fri Aug 28 2015 8:37:19 CST

[View Network Log](#)[Download Network Log as CSV](#)

Passthrough Thu Aug 27 2015 11:42:39 CST

[View Network Log](#)[Download Network Log as CSV](#)

SHA 256 Sums

Secure Hash Algorithms (SHAs) are calculated at the time of the extraction by the FLA and by the Portal when the report is uploaded.

If the two SHA-256 values agree, this shows, with near mathematical certainty, that the files are identical and no bits have been altered.

FaultData.json	a5da40a773f5bd649699c5e3c7655445d5bb148a0d78aacc702fe63ba7c71009	Verified
versions.json	0510e697b3a655eda2bb0f99ddd68e729894bfa2e1ea3957cdb4b7bf78839768	Verified

standards_snapshot.txt		4b282bcce81a63fdcaefa38a57cecabac6878ac96f36a2d5754bd6ce338260d7	Verified
cat_snapshots.syn		820ce2994975938408f14959ebec7d67ac7a3ba36428045181fe11c659a3b3c1	Verified
GPSData.json		00afc4ffb345679812828ebf552b4c20d1115182c3c3f8424286951abb144c65	Verified
J1939Data.json		f9018dd30ffcd34e1f5f5d8d5d03d9715a6d11a8b51c3838576eb47dbbe6e947	Verified
metaData.json		c7d23bf1bf2011873c67c9c3efbb8c840f8f98e0644537c9472a2a069427ca03	Verified
J1587Data.json		750801e8aa8c192297867be2c906bf08bf1c9ffb0ddc29d7568870390204a6b4	Verified
standards_data.json		0c48d4f6a896356787d9e0fee8f02713aa6250b52cc65dd5ac0a3571b27399d5	Verified
cat_traffic_snapshot.txt		fb8e733a56f5a6260c5620729400caa398498e3ca75fa0dea2a36f7d88bbe732	Verified
detection_snapshot.txt		713b399f4a962615558f070f8dafb4844499e01c08658351e4cc2205e6dd8ff8	Verified
Quick_Stop_1.csv	Server	be0fac29b8e391c3ddccbe47570e0b71c80ce989e59810190eb2cc6a7d4c3435	SHA 256 MISMATCH
	FLA	None	
Diagnostic_2.csv	Server	6110b9260d9f68c9cf08e4139bdac550940f0ae17f6cc760031928f5a496cc65	SHA 256 MISMATCH
	FLA	None	
Diagnostic_1.csv	Server	bf72c2c7ee3df785f57d1995b02234a00059bb80ccba746275df037a3f082a17	SHA 256 MISMATCH
	FLA	None	

Access Details

The user logged in as **Amila Perera (amila-perera@utulsa.edu)** requested this report on **Fri Aug 28 2015 16:47:18 CST** from a device with an IP address of **129.244.245.5**

Version Information

FLA System
 3.58cross
FLA Upstart
 0.92-1
FLA Network Driver
 0.91-1
FLA Software
 5be5f02
FLA Passthrough
 0.8-1
FLA Local Website
 3b58c4d
FLA Portal Revision
 1.1