

# Forensic Link Adapter Report

## University of Tulsa

800 S Tucker Dr  
Tulsa, OK 74104

Data Package obtained with FLA 1B2R90058 (None) on Sat Aug 29 2015 7:53:40 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	Sat Aug 29 2015 7:53:40 CST
FLA Time When Download Complete	Sat Aug 29 2015 7:57:37 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	Sat Aug 29 2015 2:29:32 CST
FLA Time When ECM Clock Was Read	Sat Aug 29 2015 7:54:10 CST
Time Difference (FLA minus ECM)	05:24:38 (19478 seconds)
Server Time when Data Package was Uploaded	Sat Aug 29 2015 7:57:40 CST

**GPS Sat Time at Last GPS Lock**

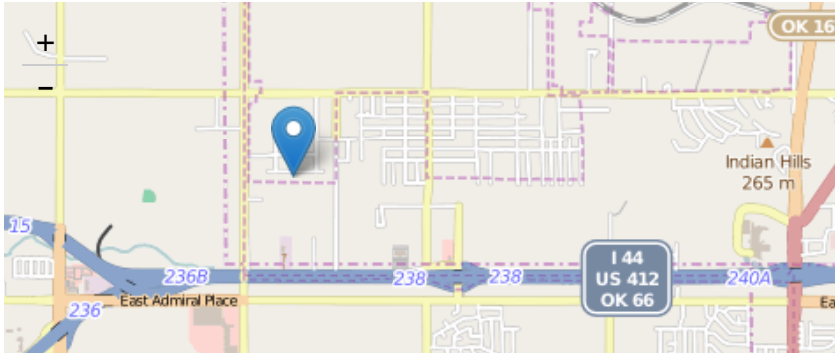
Fri Aug 28 2015 2:12:51 CST

**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

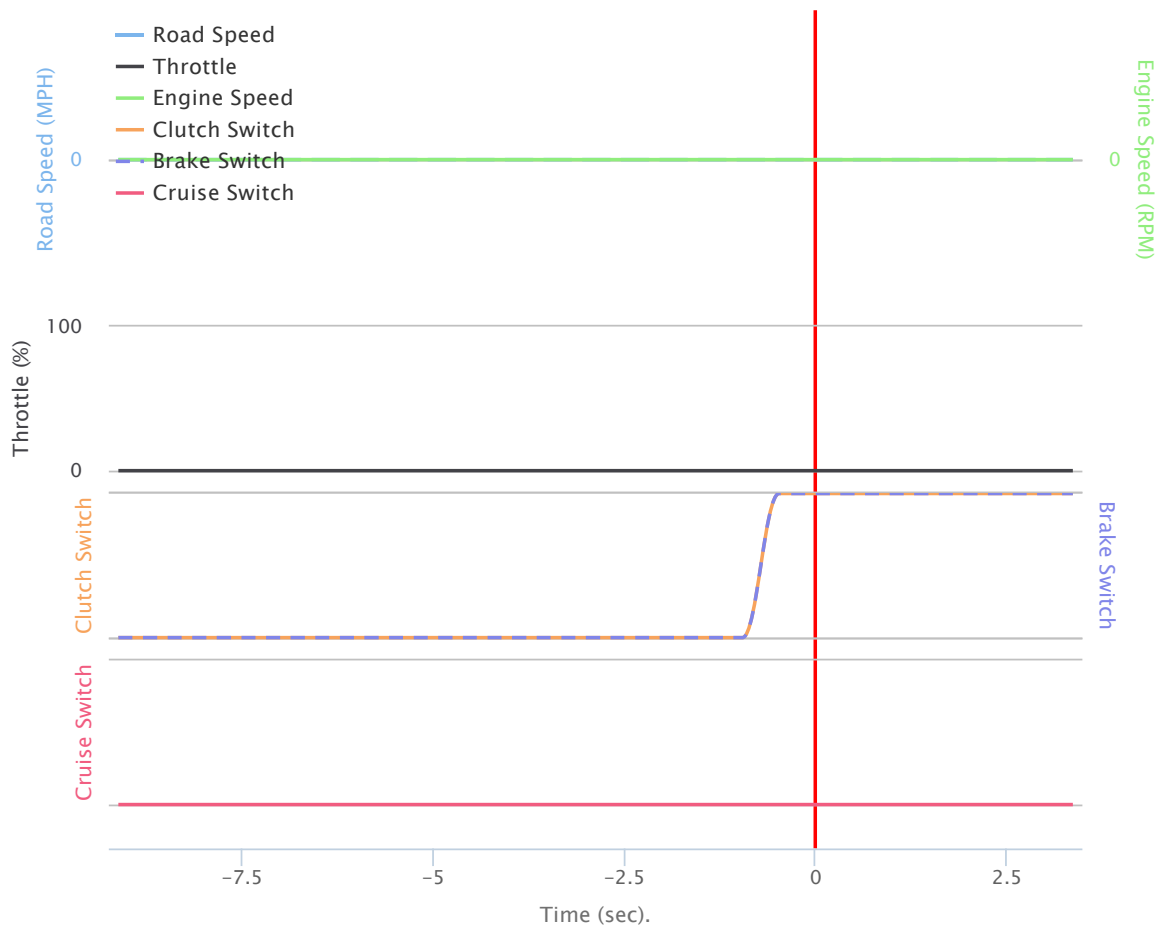
Event Data are records that are set when certain thresholds are crossed. There are no event data elements to display for this ECM.

## CAT Diagnostics Snapshot Record Chart #1

Mon Dec 31 1984 18:00:00 CST

PID 54: Unknown PID

FMI 5: Current below normal or open circuit



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	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	off	off	off	off	0.00	off	0.00
14	-2.88	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
15	-2.4	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
16	-1.92	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00

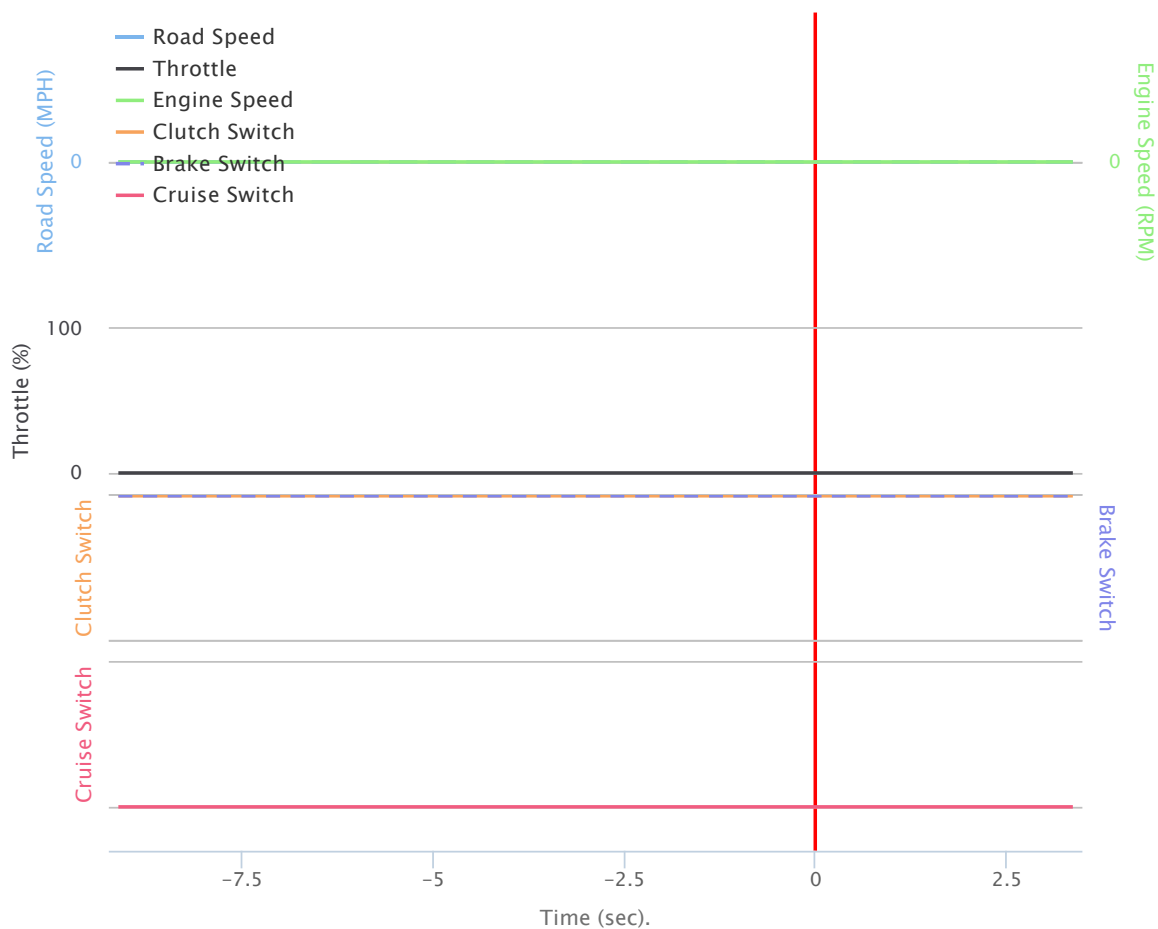
17	-1.44	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
18	-0.96	0.00	0.00	0.00	off	off	off	off	0.00	off	0.00
19	-0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	1.30
20	0.0	0.00	0.00	0.00	on	on	on	off	0.00	off	4.15
21	0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	6.25
22	0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	7.80
23	1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	8.95
24	1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	9.80
25	2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	10.45
26	2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	10.90
27	3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	11.25

## CAT Diagnostics Snapshot Record Chart #2

Sun Aug 30 2015 2:22:47 CST

PID 111: Unknown PID

FMI 2: Data erratic, intermittent, or incorrect



## CAT Diagnostics Snapshot Record Chart #2 Table

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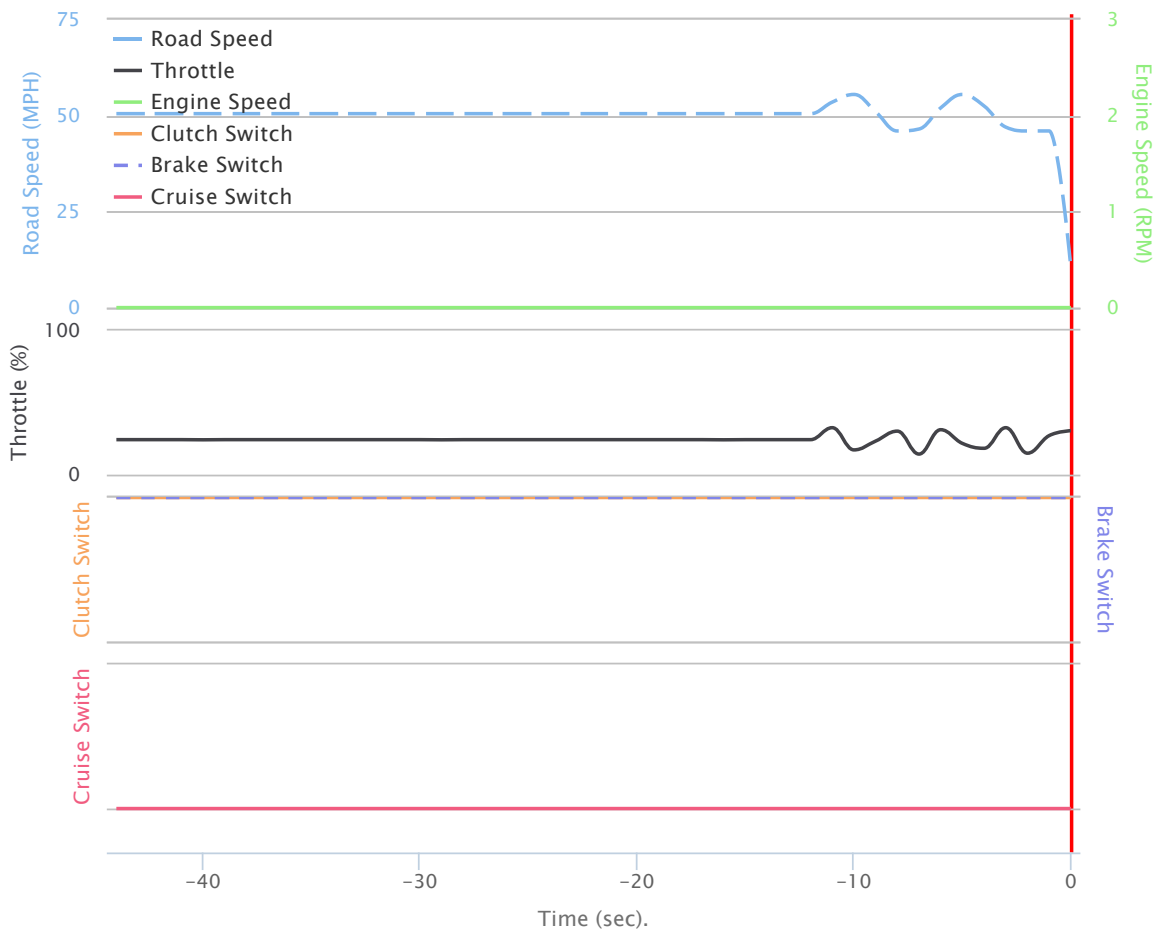
Frame	Time	Vehicle Speed (MPH)	Engine RPM (RPM)	Accelerator Pedal Position Status	Brake Pedal	Clutch Pedal	Accel Mode	Decel Mode	Cruise set (MPH)	Cruise Mode	Battery voltage (Volts)
1	-9.12	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
2	-8.64	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
3	-8.16	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
4	-7.68	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
5	-7.2	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
6	-6.72	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
7	-6.24	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
8	-5.76	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
9	-5.28	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
10	-4.8	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
11	-4.32	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
12	-3.84	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
13	-3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	12.25
14	-2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
15	-2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
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	12.20
18	-0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
19	-0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
20	0.0	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
21	0.48	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
22	0.96	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
23	1.44	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
24	1.92	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
25	2.4	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
26	2.88	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20
27	3.36	0.00	0.00	0.00	on	on	on	off	0.00	off	12.20

### CAT Speed Change Snapshot Records Chart #1

Sun Aug 30 2015 2:22:23 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	24.20	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	24.30	on	on	on	off	off
12	-33.0	50.50	0.00	24.30	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	24.20	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	24.30	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	24.20	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	53.50	0.00	32.60	on	on	on	off	off
35	-10.0	55.50	0.00	17.20	on	on	on	off	off
36	-9.0	51.00	0.00	23.30	on	on	on	off	off
37	-8.0	46.00	0.00	30.20	on	on	on	off	off
38	-7.0	46.50	0.00	14.30	on	on	on	off	off
39	-6.0	52.00	0.00	31.20	on	on	on	off	off
40	-5.0	55.50	0.00	21.70	on	on	on	off	off
41	-4.0	52.50	0.00	18.30	on	on	on	off	off
42	-3.0	47.00	0.00	32.60	on	on	on	off	off
43	-2.0	46.00	0.00	14.90	on	on	on	off	off
44	-1.0	46.00	0.00	27.10	on	on	on	off	off
45	0.0	10.50	0.00	30.50	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 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
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
<b>Raw Data</b>	C2 08 5B 28 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)	12.20	volts	F4 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	07:29:32	HH:MM:SS (UTC)	80 1D 07
252	Date	2015-08-29	YYYY-MM-DD	74 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	2015-08-29T07:31:47+00:00
Diagnostic clock	546.00

## 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 Encrypton 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**

Recieve message (FLA recieves 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

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

Sat Aug 29 2015 7:53:55 CST **duration: 00:00:02 (2 seconds)**

### J1587 Network Log

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

Sat Aug 29 2015 7:53:40 CST **duration: 00:00:57 (57 seconds)**

### 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	24493903d99f8f17d770b527de7f6de422d967ea6468ecacbbcbce7217038b50b	Verified
versions.json	fef7a69192e78654a62afe49fd17f052d1421951c5d59a65286bcd01c6c7c68e	Verified
standards_snapshot.txt	8c0b51b2766362ba5100c810fc28a91e0740eeb422404e4d8ecfc7f8cf569114	Verified
cat_snapshots.syn	e882efcccb4fa93abe41d532fe842473520c0386b82b30194e8c57ed67f1a4c1	Verified
GPSTData.json	00afc4fffb345679812828ebf552b4c20d1115182c3c3f8424286951abb144c65	Verified
J1939Data.json	a6b34fa697fe43a896346286b2864291d49ef709fc7917023155902a5b71d423	Verified
metaData.json	3555ff840c0de48d5da42b4d1f164f25093e56ed03371c7930e760d4bf10e0bb	Verified
J1587Data.json	52f3b329774e465bc4128d576eea4387df8a3b8b01e95c6d483c594a357ebd8f	Verified
standards_data.json	a10e75a0cfafec7a4ab8275e77d6421f1f23aceb86c6d080ed097102efe69483	Verified
cat_traffic_snapshot.txt	ed677784c410aab6e9053e7f923c7d0cef20f93f38e95436a4cd8e9f7af82e72	Verified
detection_snapshot.txt	d081c1858d4fbb63729836fec7fffb9b7afe01888cde9e0f55493e05f58cbbc5	Verified
Quick_Stop_1.csv	Server 2d89f7b620ac0d2d8a946646fb447291894d586ddb0ed2ffabed2a3dfaa64148	SHA 256

	FLA	None	MISMATCH
Diagnostic_2.csv	Server	39b7cb2709d1307a76402fcf3bafbb8a1b0cbd87ea2c6098c46e97cdc74738be	SHA 256
	FLA	None	MISMATCH
Diagnostic_1.csv	Server	b790783cd9a3ca6a2f116151f3d17922cb5a7d1f6db947ed3856fcf71722a5f9	SHA 256
	FLA	None	MISMATCH

## Access Details

The user logged in as **Amila Perera (amilaperera@utulsa.edu)** requested this report on **Sat Aug 29 2015 7:59:06 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

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