



DETROIT TESTING LABORATORY, INC.

**Test Report Number 007020 I
September 5, 1980**

**Report on Electric Auto Corporations
Silver Volt Electric Car
Lead - Cobalt Fast Charge Battery**

Detroit Testing Laboratory, Inc.



8720 NORTHEND AVENUE OAK PARK, MICHIGAN 48237 (313) 398 2100

REPORT NUMBER 007020 I	CLIENT'S ORDER	DATE REC'D.	REPORT DATE 9-5-80
---------------------------	----------------	-------------	-----------------------

REPORT FOR

ELECTRIC AUTO CORPORATION
2237 Elliott Avenue
Troy, Michigan 48084

Attn: Mr. Robert Aronson

SUBJECT:

To report on the observation and performance testing of the Electric Auto Corporation's Silver Volt, Model 104 electric car; a four-door, five passenger sedan, powered by Electric Auto's Lead-Cobalt Fast-Charge Battery and a single cell of this Lead-Cobalt Fast-Charge Battery. This is a cumulation of five separate tests. They comprised two discharge tests of a single cell of the Lead-Cobalt Fast Charge Battery of a cell at constant rates of 50 amps and 200 amps; a preliminary endurance test of the car and battery at the Dana Corporation's test track, a road test on city streets and a major freeway, an acceleration test and a highspeed test.

TEST PURPOSE:

To determine the range of the Silver Volt, Model 104, electric car, powered by the Electric Auto Lead-Cobalt Fast-Charge Battery in eight and twelve hour test runs at an average driving speed of approximately 50 MPH. Overall time periods to include both driving and recharging time.

TEST SPECIFICATION:

The test was to be conducted according to generally accepted automotive and electrical industry practices. A standardized test course was to be driven after each recharging. (This will be described in "Test Procedures"). The automobile was to start with a 100% charge, be charged to approximately 80% of full charge in between runs, and without being charged, but with about a 20% useful charge and a 20% non-useful charge in the battery. The APU (onboard gasoline-powered recharging unit) was not to be used at any time.

CONTINUED.....

Electric Auto Corporation

CONCLUSIONS:

The Silver Volt, Model 104, can easily be driven at freeway speeds for an extended period of time covering distances of 212.4 miles in eight (8) hours and 307.5 in 12 hours, including recharging time.

DETROIT TESTING LABORATORY, INC.

Thomas Wharam
Thomas Wharam
Electrical Technician

Darriel Smith
Darriel Smith, Manager
Vibration, Shock & Electrical Testing

Leslie T. Viland
Leslie T. Viland
Automotive Test Engineer

Robert J. March
Robert J. March
General Manager

Electric Auto Corporation

Table #1:

Discharge test for the Lead-Cobalt Fast-Charge Battery Cell

<u>Time</u>	<u>Minutes E.T.</u>	<u>Discharge Current in Amps</u>	<u>Cell Voltage</u>	<u>F Temperature</u>	<u>Specific Gravity</u>
	Charge:	12	2.70	80	1295
	Open circuit:		2.279	78	1295
11:15	0	50	2.060	78	1295
11:30	15	50	2.068	79	1295
11:45	30	50	2.060	78	1290
12:00	45	50	2.053	78	1280
12:05	1 hour	50	2.046	78	1275
12:30	15	50	2.039	78	1260
12:45	30	50	2.031	77	1250
1:00	45	50	2.023	77	1240
1:15	2 hours	50	2.015	77	1230
1:30	15	50	2.005	76	1220
1:45	30	50	1.996	76	1210
2:00	45	50	1.987	75	1200
2:15	3 hours	50	1.977	75	1190
2:30	15	50	1.965	75	1180
2:45	30	50	1.954	75	1170
3:00	45	50	1.942	74	1160
3:15	4 hours	50	1.931	74	1150
3:30	15	50	1.918	74	1138
3:45	30	50	1.903	73	1125
4:00	45	50	1.885	73	1110
4:15	5 hours	50	1.864	72	1100

Electric Auto Corporation

Table #1: (Continued)

<u>Time</u>	<u>Minutes E.T.</u>	<u>Discharge Current in Amps</u>	<u>Cell Voltage</u>	<u>°F Temperature</u>	<u>Specific Gravity</u>
4:30	15	50	1.864	72	1090
4:45	30	50	1.819	71	1078
5:00	45	50	1.742	71	1065
5:05	50	50	1.5	71	1060

Ampere Hours: 292.00

Average Voltage: 1.9451

WH/lb. 16.9040

WH/Kg. 37.2669

Dimensions:

Height: 16-1/2" including terminals

Length: 3-3/8

Width: 6-1/4

Weight 33.60 pounds
15.2407 kilograms

Detroit Testing Laboratory, Inc.

Report Number 007020 I

Data Date: 7-2-80

Report Date: 9-5-80

Electric Auto Corporation

Table #3:

Test run at the Dana Corporation's test track of the Silver Volt, Model 104

<u>Run</u>	<u>Driving Time (minutes)</u>	<u>Recharging Time (minutes)</u>	<u>Occupants</u>	<u>Total Time (hours)</u>	<u>Miles Driven</u>
1	59		3	0.983	50
		57		1.933	
2	58		2	2.900	50
		68		4.033	
3	59		2	5.017	50
		58		5.983	
4	56		2	6.917	45
<u>Total:</u>	232	183		6.917	195

Electric Auto Corporation

Table #4:

Endurance run on I-75 of the Silver Volt, Model 104

<u>Run</u>	<u>Driving Time (minutes)</u>	<u>Recharging Time (minutes)</u>	<u>Total Elapsed Time (hours)</u>	<u>Total Miles Driven</u>
1	73	60	2.22	53.1
2	74	55	4.37	106.2
3	74	55	6.52	159.3
4	73		7.73	212.4 8 hrs. total
		12	7.93 (1)	212.4
		38	8.57	212.4
5	75	60	10.82	265.5
6	57		11.77 (2)	307.5-12 hrs. total
6	18		12.07	318.6 - total

(1) .. the extra four (4) minutes is due to lost time, plugging and unplugging the fast charger. This is the end of 8 hours.

(2) .. the extra fourteen (14) minutes is due to lost time, plugging and unplugging the fast charger. This is the end of 12 hours.

Detroit Testing Laboratory, Inc.

Report Number 007020 I
Data Date: 9-2-80
Report Date: 9-5-80

Electric Auto Corporation

Table #6:

Acceleration test of the Silver Volt, Model 104

<u>Run</u>	<u>Time - in Seconds</u>		<u>Direction</u>
	<u>0-30 MPH</u>	<u>0-40 MPH</u>	
1	7.43	11.92	South
2	7.35	12.25	North
3	7.53	11.90	South
4	7.54	12.10	North
<u>Average:</u>	7.46	12.04	
<u>Lowest Time:</u>	0-30 MPH ...	7.35 seconds	
	0-40 MPH ...	11.90 seconds	