

1957 Corvette: Chevrolet Technical Test Report: Fuel Economy - Fuel Injection vs. Carburetion

Below is an interesting Chevrolet Technical Test Report released on June 21, 1957 comparing the fuel economy of fuel injection vs carburetion.

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TECHNICAL TEST REPORT



ENGINEERING DEPARTMENT
DETROIT 2, MICHIGAN
Milford, Michigan
June 21, 1957

SHEET NO. 1
NO. OF SHEETS 1
WORK ORDER 7769-75
DATE 6-3-57
FILE NO. MRK 6

HIGHWAY AND CITY TRAFFIC
FUEL ECONOMY COMPARISON
OF FUEL INJECTION VS. 4-
BBL CARBURETION.

FINAL REPORT

OBJECTIVE

To compare latest fuel injection equipped cars with production carburetion on performance and economy.

CONCLUSION

Results from highway fuel economy and city traffic run indicate fuel injection units are slightly more economical than 4-bbl carburetion. Performance seems to be somewhat equal. Constant speed fuel economy is better with fuel injection units at high speeds, (80-50 MPH) but slightly to considerably worse than 4-bbl carburetion at low end (40-20 MPH)

TEST RESULTS

The tabulation below shows results of Highway fuel economy check:-

CAR NO.	FUEL SYSTEM	TRANSMISSION	MPG
553	1957 Carter 4-BBL carburetor and Air Cleaner	Turboglide	17.0
7163	1958 RPD Carburetor and 1958 Air Cleaner	Powerglide	17.0
281	#7014800 Fuel Injection Unit	Powerglide	16.5
215	#7014800 Fuel Injection Unit	3-Speed O/D	18.1
463	#7014800 Fuel Injection Unit	Turboglide	17.1
599	#7014900 Fuel Injection Unit	Turboglide	17.4

Average speed was 43.0 MPH for distance of 245 miles of highway and city traffic. One major complaint was poor pedal feel on the Automatic transmission fuel injection cars having some delay in return to constant curb idle; however, all were considered very satisfactory driving units.

The following summary shows results obtained on City traffic check:

CAR NO.	FUEL SYSTEM	TRANSMISSION	MILES	MPH	GALLONS	MPG
553	1957 Carter 4-BBL and Air Cleaner	Turboglide	48.4	15.4	4.2	11.52
7163	1958 RPD 4-BBL and 1958 Air Cleaner	Powerglide	44.0	14.67	3.4	12.94
281	#7014800 Fuel Injection	Powerglide	44.0	14.67	3.7	11.89
215	#7014800 Fuel Injection	3-Speed O/D	44.0	14.67	3.6	12.22
463	#7014800 Fuel Injection	Turboglide	48.4	15.4	4.0	12.10
599	#7014900 Fuel Injection	Turboglide	48.4	15.4	3.8	12.74

TECHNICAL TEST REPORT



SHEET No. 2
 No. OF SHEET 3
 WORK ORDER 17696-76
 DATE 6-3-57
 FILE No. MRK 6

FINAL REPORT - Cont'd

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TEST RESULTS - Cont'd

Results of Proving Ground performance and constant speed fuel economy checks.

CAR NO.	553	7163	281	215	463	599
ENGINE NUMBER	-	F1212EC	F1114FD	F103EC	-	F1101GF
- COMPRESSION RATIO	9.5:1	9.5:1	9.5:1	9.5:1	9.5:1	9.5:1
- DISPLACEMENT	283	283	283	283	283	283
IGNITION DISTRIBUTOR - MODEL	-	1110890	-	1110906	-	-
TRANSMISSION	T.O.	P.O.	P.O.	3-Speed	T.O.	T.O.
TEST WEIGHT	4136#	4136#	4136#	4041#	4136#	4136#
DATE	6-20-57	6-10-57	6-10-57	6-10-57	6-12-57	6-20-57
ODOMETER	5066	10002	7390	12430	5730	9668
AIR CLEANER PART NUMBER	Dry	Oil Bath	Dry	Dry	Dry	Dry
CARBURETOR	C. 4-B	Roch. 4-B	F.I.	F.I.	F.I.	F.I.
- PART NUMBER	157	158 Prod.	7014800	7014800	7014800	7014900
- Feol MPH Kick-Off	Good	Good	Good	Stalled	Good	Good
DETONATION - ACCEPTABLE	None	None	None	10-16Con	None	None
WATER TEMPERATURE - °F	171-182	164-170	152-160	160-168	-	162-173
MAXIMUM SPEED - MPH	-	117.6	126.8	117.6	-	-
<u>ACCELERATIONS - SECONDS</u>						
0 to 20 MPH	2.6	2.6	2.6	-	2.4	2.5
0 to 35 MPH	5.6	5.4	4.9	-	5.3	5.6
0 to 60 MPH	12.5	10.4	9.2	10.5	11.9	12.5
0 to 80 MPH	21.2	18.7	16.5	17.2	20.0	20.6
5 to 25 MPH	2.7	2.6	2.6	-	2.5	2.6
10 to 25 MPH	2.1	2.1	2.1	4.5	2.0	2.2
10 to 35 MPH	4.2	4.0	3.7	7.4	4.0	4.3
20 to 60 MPH	9.8	7.9	6.8	11.1	9.6	10.2
50 to 65 MPH	5.1	4.4	3.7	4.5	4.9	5.2
55 to 70 MPH	5.6	5.2	4.5	4.6	5.5	5.7
60 to 75 MPH	6.4	6.0	4.6	4.6	6.0	6.1
<u>HILL CLIMB - 1400 FEET OF 11.6% GRADE PLUS 200 FT. OF VERTICAL CURVE. SECS.</u>						
0 MPH on Grade	25.0	23.6	23.2	-	24.0	24.4
10 MPH Start	25.6	24.3	24.2	28.2	24.0	25.2
20 MPH Start	24.3	23.1	23.1	24.8	22.7	23.9
<u>HILL CLIMB - 2900 FEET OF 7.2% GRADE.</u>						
0 MPH Start	35.6	34.1	33.8	-	34.0	35.1
10 MPH Start	35.0	33.1	33.1	37.8	33.0	34.2
20 MPH Start	33.6	32.0	32.0	33.8	31.6	32.9
<u>HILL CLIMB - 1200 FEET OF 16% GRADE.</u>						
10 MPH Start	25.3	24.0	24.4	-	23.9	24.9
20 MPH Start	24.0	22.8	23.4	-	22.5	23.4
<u>CONSTANT SPEED FUEL ECONOMY - MPG</u>						
20 Miles Per Hour	22.4	22.6	15.9	14.9	(*)	21.9
30 Miles Per Hour	23.5	22.6	18.9	20.6	-	21.1
40 Miles Per Hour	21.5	21.2	19.2	22.0	-	19.0
50 Miles Per Hour	20.2	19.9	18.7	20.5	-	19.5
60 Miles Per Hour	18.2	17.3	18.2	20.1	-	18.8
70 Miles Per Hour	16.3	16.2	16.5	18.9	-	17.3
80 Miles Per Hour	14.5	14.1	15.3	17.2	-	15.0

(*) Car was sent to Detroit before test was completed.

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RECOMMENDATION AND/OR DISPOSITION

Further development work is being conducted on the #7014900 fuel injection unit proposed for 1958 release.

TEST MATERIAL

- #7014800 Fuel Injection Units (Latest 1957 Production release).
- #7014900 Fuel Injection Units (Proposed 1958 Production release).
- 1957 Production Carter 4-BBL carburetor and Air Cleaner.
- 1958 RPD Carburetor and 1958 Air Cleaner.

TEST METHOD

The following vehicles, operating in city traffic, highway economy and performance and economy checks, were used for this test:

<u>CAR NO.</u>	<u>FUEL SYSTEM</u>	<u>TRANSMISSION</u>
553	1957 Carter 4-barrel and Air Cleaner	Turboglide
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CHEVROLET DEVELOPMENT TEST AT
General Motors Proving Ground

Reported
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Appendix "C" - Special Test Data

DLW/blc

Online URL:

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