

1968 PONTIAC Firebird 400 HO-4 bbl MPG= 13 City

Written by Double Dragon

Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

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oneownercollectorcar.com

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Metric= 6.6 L engine- 18.1 L/100km City

To see the full story on this one owner collector car which is still in excellent condition despite 20 years of daily driver status, look in the ONE OWNER section of CAR STORIES. See the story about the high performance car dealership this car was bought from, Mussallem's Haney Garage in the DEALERSHIPS section of this site.

GAS MILEAGE TESTS OF 1968 FIREBIRDS WHEN THEY WERE NEW.

The owner's reports submitted to POPULAR MECHANICS Feb 1968 reveal that the majority of respondents had the 350 c.i. (5.7 L) engine and achieved City MPG of 12.3 and Highway MPG

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of 15.7. The figures are averaged results from 159,379 miles. It wasn't stated, but it's safe to assume this was the base 350, not the 350 HO.

The owners with the 400 c.i. (6.6 L) netted 10.8 MPG in the city and 13.7 MPG on the highway. The 400 HO and Ram Air weren't discussed, being too rare to tabulate figures for.

SPORTS CAR GRAPHIC Feb 1968 tested a Ram Air 400 Firebird before and after being Bobcatted at Royal Pontiac. The test MPG was 9.5, but this is obviously under hard use. They figured the normal overall average would be 12 MPG.

1968 FIREBIRD 400 HO SPECIFICATIONS, MODIFICATIONS AND CONDITION

The gas logs cover the very beginning when the OOC Firebird was new as well as some logs ten years into ownership.

The OOC Firebird 400 HO has a rare power train and is loaded with options not found in the majority of brand new showroom stock Firebirds back in 1968. The 400 HO at the time of the first set of logs was factory original, but broken in with a few thousand miles on the engine. The 400 c.i. (6.6L) engine had never been apart at the time the first gas logs were recorded. The 4 barrel carburetor needed some tinkering due to intermittent fast idle when cold. This later turned up as a general GM recall notice in 1969, but this had already addressed in the first weeks of ownership.

The dual exhaust is stock configuration original, but it is worth noting that the 400 HO used a freer flowing exhaust manifold than the standard 400s. This manifold improves performance and likely aids gas mileage as well. The manual Hurst 4 speed and 3.55 rear axle are factory original. Although most literature calls for a 3.36 axle, the 3.55 is mentioned in 1968 paperwork for the car. Being ordered by Mussellam's high performance car dealership it's not unexpected to see a bump in the axle ratio. The OOC Firebird rode on the original steel 14 x 6 Rally II wheels. It has the front disc option which creates slightly more drag than 4 wheel drum setups.

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The tires on the Firebird at the time of the logs deviate from the typical stock wide oval F70 x 14 bias ply tires. The OOC Firebird was shod with 195R70-14 radial tires. This was an uncommon sight in those days for a North American car. These tires were soon replaced due to riding problems and abnormal tread wear. The tires that the Goodyear factory issued as replacements were typical sixties era bias ply wide ovals. But at the time of these logs, the radials were still on the car.

An early 1967 Firebird CAR LIFE test in 1967 commented that the Firebird shod with factory issue 185 radials looked like a 'narrow track' instead of typical Pontiac 'wide track'. The 195 tires of 1968 weren't much wider. See the article about tires in the GAS LOG section of this site for more information about radial tires vs. bias ply tires.

Tire diameter of the radials works out to 24.7" (696 mm). This tire revolves 840 times per mile while the original Firebird bias ply tires revolve slightly less times per mile due to a wider tread and hence, correspondingly taller sidewall. The Firebird has to turn the wheel extra times per mile when shod with a radial instead of the bias ply. Theoretically this will force the engine to rev faster than with the bias ply which might cost the Firebird a few points in MPG.

For our calculations, we'll assume that there is indeed a slight deficit caused by the smaller diameter radials. This will be compensated somewhat by the fact that radials improve gas mileage by about 3 to 8 % (depending on what source you consult) over bias ply tires. Whatever the exact amount, those 1968 radial tires didn't have modern compounds to further lower rolling resistance.

The smaller diameter radial tire MPG loss was probably regained by the radial configuration itself. The later logs from 1979 found the OOC Firebird shod in larger format radial tires with much the same diameter as called for by OEM sizes back in 1968. A confusing co factor however is that the engine had some replacement internals following theft of the desirable high performance components earlier in the car's life.

WEIGHT

The Firebird 400 HO weighs in at the higher end of the scales. The 400 HO engine itself weighs more. This engine option adds weight in the form of heavy duty radiator, suspension, battery and alternator. A long list of options swells out the scales some more.

AMA specs say that both the basic Firebird 400 and the HO have a curb weight of 3,401 lbs (shipping weight 3,303), fairly lightweight when compared to a GTO of the same vintage. An interesting point is that the lower, smaller Firebird not only weighs less than a GTO but has a smaller frontal area which creates less wind resistance. At low speeds this won't be an issue, but it was noted in tests of the time that the smaller frontal area of the Firebird netted it a higher trap speed in the quarter mile when pitted against a GTO.

The 400 HO engine, dual exhaust, heavy duty cooling and charging system is inclusive in the weight quoted. The manual transmission saves about 32 lbs versus the automatic, but curb weight is quoted with the manual installed. The Power steering adds 29 lbs, while Power Brakes add only 10 lbs. The Radio and manual antenna add 9 lbs. The HO has hood tach, heavy duty suspension, front disc brakes, and rear speaker adding at least another 10 lbs bringing the Firebird 400 HO to about 3,459 Lbs with all fluids topped up. In Metric that is 1,568 kg.

Technically, the OCCC Firebird had a few more pounds because radial tires weigh more than Bias Ply. The 195 sized radials weigh 21 pounds each. The unsprung weight of tires creates more work than the few extra pounds would as dead weight in the trunk. Unsprung weight gets complex because it brings rotational inertia into the picture which we'll leave to the experts.

After adding driver weight of 150 lbs and miscellaneous text books the car tops out at 3,650 pounds with a full tank of gas, oil and coolant with no passengers. These early gas logs were recorded when the mileage was still low. The second set of logs from 1979 show how it was doing after 70,000 miles of daily driving with some replacement engine components following a theft. The Firebird was very well maintained, so that wear items were constantly being attended to.

The numbers for the first two logs were tracked in spring and summer of 1968. The average temperatures in British Columbia range from 50 degrees to 70 degrees F during the period. It

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still rains fairly regularly at this time, but not too heavily. The later logs begin in January of 1979, so they reflect a colder climate at first, but carry on through the entire year making it possible to match the later log to the 1968 spring and summer conditions.

The OOC Firebird tire pressures were held at 27 PSI instead of using the factory 24 settings. This was the ideal compromise between ride, adhesion and long tire life. The alignment and tune of the car was kept honed as close to perfection as possible.

The logs record stop and go driving with some highway miles interspersed. At this point, the break-in process of the engine was virtually complete. One detail that is hard to quantify is the timing and jets that the dealer would have chosen in prep work. Mussallem's Haney Garage was a well known performance car dealer and the head mechanic was local racing hero, Buck Kinney. We can assume that MPG wasn't of primary concern when this potent muscle car was set up! See the DEALERSHIPS section for a story about performance and racing success Buck Kinney in Haney, BC .

All garages maintaining the OOC Firebird were famed for their expertise in setting up carburetors and high performance cars, so the setup of the car remained cutting edge even as the years rolled on. Below are images of the original logs from when the car was new. Below these are typewritten summaries of 1979 logs.

DATE	MILES	FUEL	MPG	NOTES
100	110	5.50		1st oil 25K
11	2245.0	12.7	6.30	
14	2416.7	12.3	6.90	oil change at Mussallem's. filter.
17	2572.8	13.7	6.85	11.8
20	2625.8	4.8	(2.30)	11.0 changed by Dick
21	2815.0	11.3	5.72	10.8
24	2947.0	9.2	4.85	fuel used by Alvin
25	2995.8	11.2	5.80	10.8
28	3122.6	10.3	6.95	13.0
100	3272.5	12.2	6.00	17.0
11	3438.1	12.3	6.00	13.0
14	3572.8	12.8	6.85	10.9
17	3722.2	12.2	6.30	
20	3882.2	6.7	5.30	
24	4022.6	12.3	6.00	oil + filter at Bussallem's. 2nd engine #11. 1000 10/82
28	4176.8	12.3	6.15	
29	4332.9	6.0	3.00	
29	4372.8	11.2	5.95	
28	4410.1	5.6	3.90	

The overall MPG average in this May June period was about 13 MPG. The hassle of maintaining the log shows in the July, Aug entries where less complete records gradually fizzle

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Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

out completely. There are no more logs until a set of records found for 1979.

DATE	MILEAGE	GAL.	COST	MPG
JULY 1	4875.1	12.1	6.40	
1	4836.7	9	4.65	
3		11	5.50	
6		12.9	6.45	
10		6.1	3.00	
11		12.5	6.10	
16		11.3	6.00	
22			6.80	
25		13.0	6.50	
30			6.60	
<i>total fuel 156</i>				
AUGUST 2			3.50	
4			3.50	
6		4.1	2.00	
7			2.50	
12			3.50	
15		7.2	3.50	

Much later in the life of the car, the following figures were recorded. The car had now been a daily driver for over 10 years and most driving conditions remained the same. The gasoline of the 1960s and the 1970s was much the same with leaded gasoline still widely available. The modern 10% ethanol laced gasoline which reduces efficiency hadn't become the norm yet.

DAILY EXPENSES FOR THE MONTH OF <u>JANUARY</u> <u>1979</u>										
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICA TION	REPAIRS	TIRE	MISC. EXPENSES
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12	73,615.0	11.5	12.00							
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL										

To be Continued

JAN 12, 1979- 73,615.0 miles/ 11.5 gal \$12.00

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Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

DAILY EXPENSES FOR THE MONTH OF FEBRUARY 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6	7373.0	12.3	12.30								9.5
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20	7387.0	11.4	11.45								12.1
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOTAL											

FEB 29 1979 - 7387.0 miles / 23.4 gal \$2.105 = 9.12 MPG

DAILY EXPENSES FOR THE MONTH OF MARCH 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4	7400.24	12.5	13.00					3/4 gal oil			10.8
5											
6											
7											
8											
9											
10											
11	7419.8	11.0	11.00								13.4
12											
13											
14											
15											
16											
17											
18											
19											
20	7423.4	11.7	11.50								10.37
21											
22											
23											
24											
25	7436.3										
26											
27											
28											
29											
30	7441.3	9.8	10.00								14.12
31											
TOTAL											

MAR 31 1979 - 7441.3 miles / 31.5 gal \$11.00 = 10.14 MPG

DAILY EXPENSES FOR THE MONTH OF APRIL 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30	7462.9	12.0	12.00								?
31											
TOTAL											

APR 30, 1979 - 74,652.9 miles / 12.0 gal \$12.00

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Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

DAILY EXPENSES FOR THE MONTH OF MAY 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6											
7											
8											
9											
10	717.4	11.0	11.00								13.07
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23	748.0	12.5	12.50								15.1
24											
25											
26											
27											
28											
29											
30											
31											
TOTAL											

MAY 10 1979 - 717.4 miles / 12.5 gals \$12.50 = 16.04 MPG

DAILY EXPENSES FOR THE MONTH OF JUNE 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6											
7											
8	7512.0	12.5	13.05								11.62
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23	7527.6	13.0	13.17								11.6
24											
25											
26											
27											
28											
29											
30											
31											
TOTAL											

JUNE 22 1979 - 7527.6 miles / 12.5 gals \$13.17 = 11.42 MPG

DAILY EXPENSES FOR THE MONTH OF JULY 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6											
7	7543.8	11.3	11.00								11.00
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24	7557.6	12.6	13.00								13.00
25											
26											
27											
28											
29											
30											
31											
TOTAL											

JULY 24 1979 - 7543.8 miles / 11.3 gals \$13.00 = 11.26 MPG

DAILY EXPENSES FOR THE MONTH OF JULY 1979											
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL
1											
2											
3											
4											
5											
6											
7	7543.8	11.3	11.00								11.00
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24	7557.6	12.6	13.00								13.00
25											
26											
27											
28											
29											
30											
31											
TOTAL											

JULY 24 1979 - 7557.6 miles / 12.6 gals \$13.00 = 11.26 MPG

1968 PONTIAC Firebird 400 HO-4 bbl MPG= 13 City

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Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

DAILY EXPENSES FOR THE MONTH OF											AUGUST			1977	
DATE	MILEAGE	GASOLINE		OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL				
		GALLONS	AMOUNT												
1															
2															
3															
4															
5															
6															
7															
8															
9	7570.3	11.6	12.00												
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24	7582.7	12.0	12.00												
25															
26															
27															
28															
29															
30															
31															
TOTAL															

AUG 01 1977 - 7570.3 miles / 12.0 gal \$12.00

DAILY EXPENSES FOR THE MONTH OF											SEPTEMBER			1977	
DATE	MILEAGE	GASOLINE		OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL				
		GALLONS	AMOUNT												
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	7600.0	12.0	12.00												
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															
31															
TOTAL															

SEP 15 1977 - 7600.0 miles / 12.6 (83 Litres)

DAILY EXPENSES FOR THE MONTH OF											OCTOBER			1977	
DATE	MILEAGE	GASOLINE		OIL	PARKING	WASHING	LUBRICATION	REPAIRS	TIRE	MISCELLANEOUS	TOTAL				
		GALLONS	AMOUNT												
1															
2															
3															
4															
5															
6															
7															
8															
9															
10	7607.3	11.3	12.70												
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															
31	7617.6	10.20													
TOTAL															

OCT 30, 1977 - 76,075.6 miles / 11.0 approx gal / \$12.70

1968 PONTIAC Firebird 400 HO-4 bbl MPG= 13 City

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Thursday, 23 December 2010 20:18 - Last Updated Saturday, 08 October 2016 15:25

DAILY EXPENSES FOR THE MONTH OF <u>NOV</u> 19 <u>79</u>										
DATE	MILEAGE	GASOLINE GALLONS	AMOUNT	OIL	PARKING	WASHING	LUBRICA TING	REPAIRS	TIRE	MISCEL LANEO
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12		76.25								
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23		76.25	12.70							
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL										

NOV 19 1979 50 257.5 miles @ \$13 below \$13.70
Double Dragon (Panglosses) AVWICA

