

1957 PONTIAC SHOP MANUAL

GENERAL

This shop manual applies on 1957 models and includes all pertinent subject matter available at the time it was prepared for publication.

CONTENTS

Arrangement of the material is shown by the table of contents on the right-hand side of this page. Black tabs on the first page of each section can be seen on the edge of the book below the section title. More detailed table of contents precedes each section, and an index is included in the back of the manual.

BODY-HYDRA-MATIC-AIR CONDITIONING

Detailed information on body service appears in applicable issues of the Fisher Body Service News. Complete information on Hydra-Matic Drive and Air Conditioning is published in separate manuals.

AIR CONDITIONING CAUTION

Before attempting any service work requiring the disconnecting of units of the air conditioning system, check the information published concerning air conditioning service. It is extremely important that proper methods and precautions be observed when disconnecting any refrigerant lines or units. Failure to properly perform these operations can result in injury to personnel and the necessity of expensive repair work on the air conditioning system.

PONTIAC MOTOR DIVISION

GENERAL MOTORS CORPORATION

PONTIAC 11, MICHIGAN

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1957 CAR MODEL IDENTIFICATION

General specifications appear below. Detailed specifications are given on major units at the end of each section of this manual.

Series identification can be made by the car serial number embossed on a metal strip fastened to the left front hinge pillar post which is visible when the left door is open (Fig. 1-1). Information as to body

style, etc., is stamped on a plate attached to the right side of the cowl just under the rear edge of the hood (Fig. 1-2).

Certain publications carry "series" numbers to identify models and others carry sales department names. The following table lists both methods of identification.

<u>Year</u>	<u>Cylinder</u>	<u>Series</u>	<u>Sales Model Name</u>
1957	8	28	Deluxe and Custom Star Chief (exc. Safari)
1957	8	27	Custom Star Chief Safaris
1957	8	27	Super Chief
1957	8	27	Chieftain

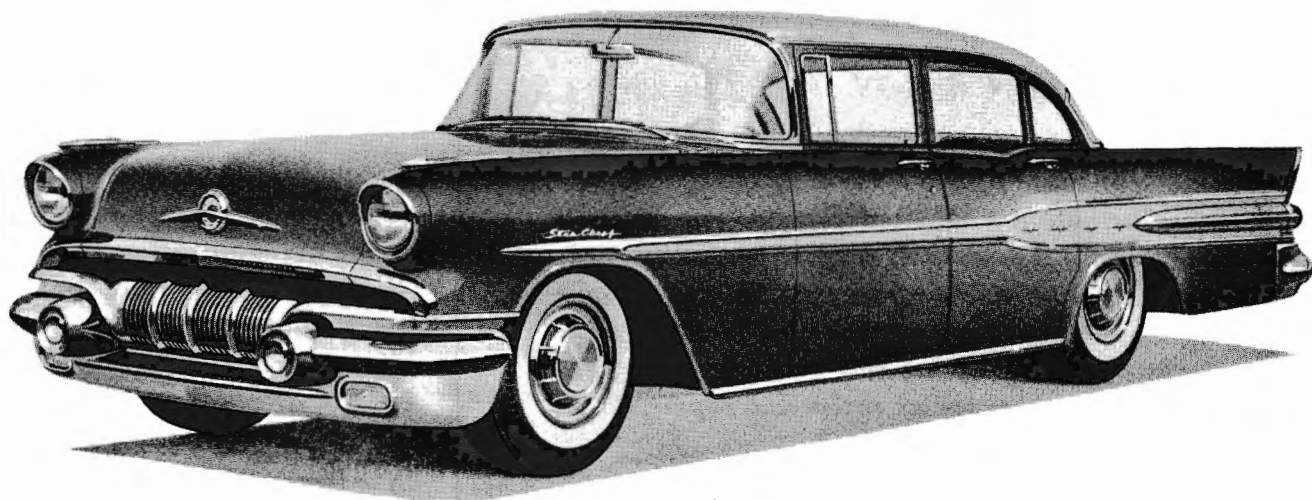


Fig. 00-1 1957 4-Door Star Chief, Series 28

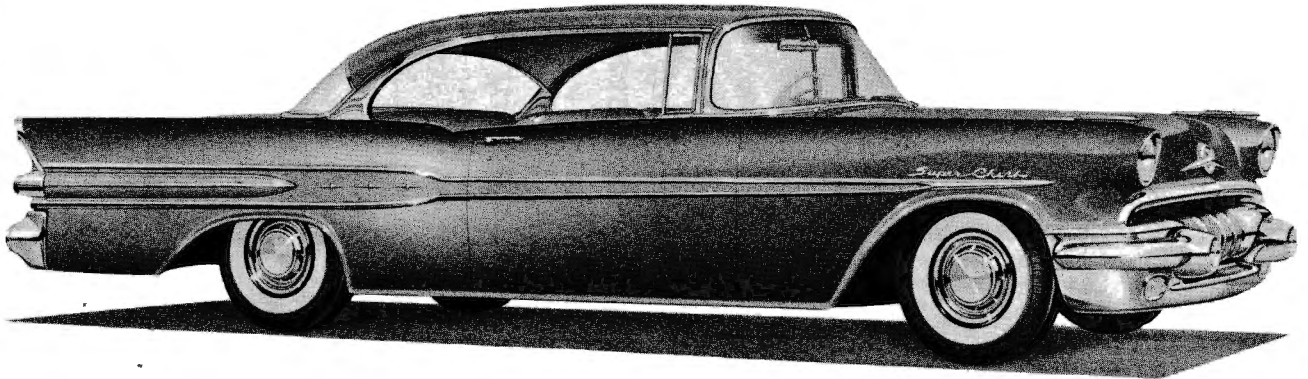


Fig. 00-2 1957 Super Chief 2-Door Catalina, Series 27

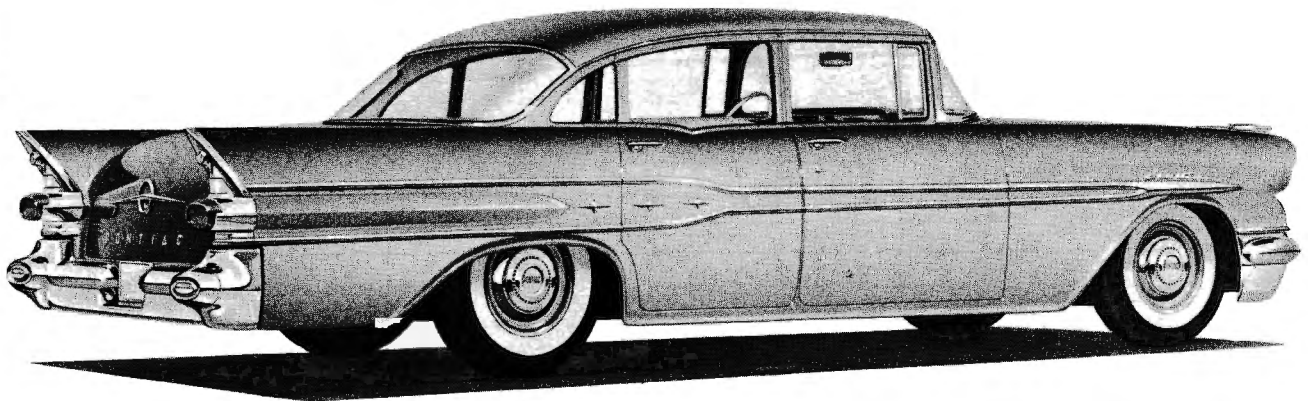
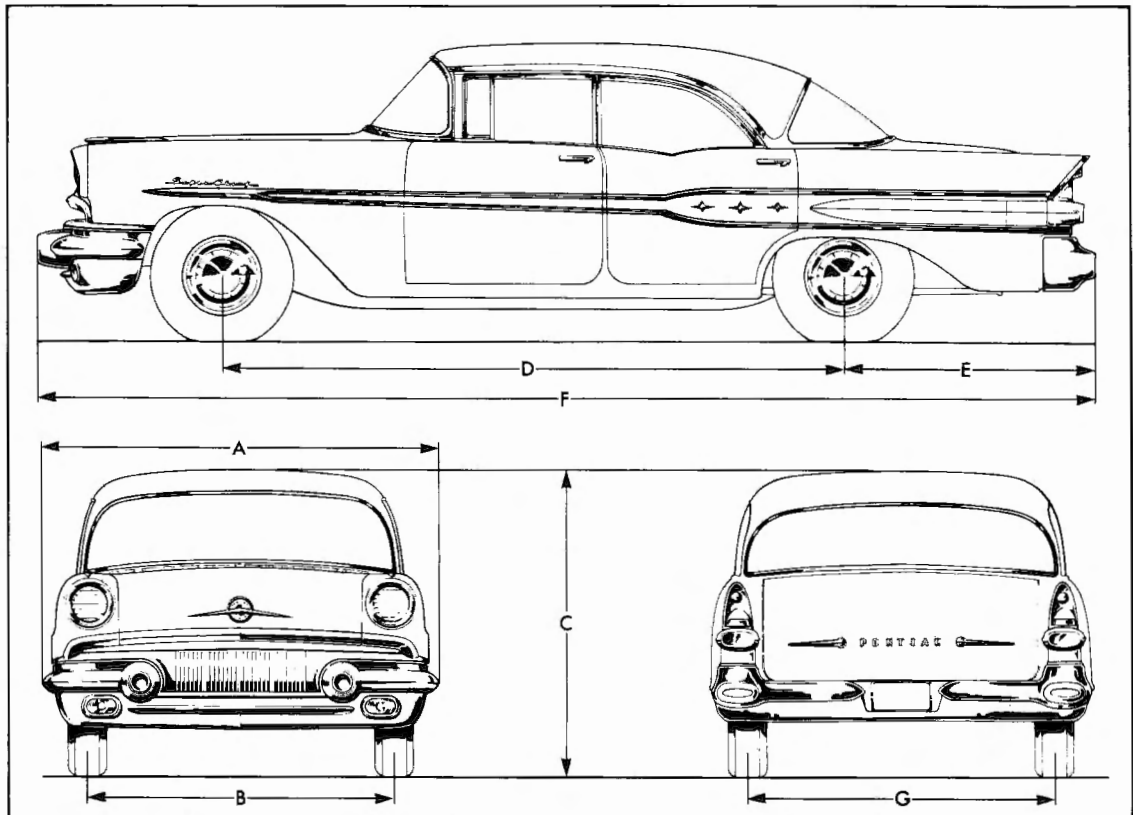


Fig. 00-3 1957 4-Door Chieftain, Series 27

GENERAL SPECIFICATIONS

<u>DIMENSION</u>	<u>KEY</u>	<u>28 SERIES</u>	<u>27 SERIES</u>
Over-All Length			
All except Chieftain and Super Chief Safaris	F	213.8"	206.8"
Chieftain and Super Chief Safari	F	—	207.7"
Width (Maximum)	A	75.2"	75.2"
Height (With Passengers)			
Chieftain 2 and 4 Door Sedans	C	—	60.0"
Chieftain Catalina Coupe	C	—	58.6"
Chieftain Catalina Sedan	C	—	58.5"
Chieftain and Super Chief Safaris	C	—	60.7"
Star Chief Safaris	C	—	59.3"
Star Chief and Super Chief 4 Door Sedan	C	60.1"	60.1"
Star Chief Convertible	C	58.6"	—
Star Chief and Super Chief Catalina Coupe	C	58.7"	58.7"
Star Chief and Super Chief Catalina Sedan	C	58.6"	58.6"
Wheelbase (Nominal)	D	124"	122"
Tread			
Front	B	59.0"	59.0"
Rear	G	59.4"	59.4"
Turning Circle			
Curb to Curb		43'0"	42'6"
Wall to Wall		45'	45'
Road Clearance (Minimum) (7.50 Tires)		—	6.13"
(8.00 Tires)		6.21"	6.23"
(8.50 Tires)		6.61"	6.63"
Overhang (Rear)			
All except Safari	E	54.4"	49.4"
Chieftain and Super Chief Safari	E	—	50.3"
Star Chief 2 Door Safari	E	—	49.4"



RELATION OF CAR SPEED TO ENGINE RPM

CAR SPEED MPH	REAR WHEEL RPM			ENGINE RPM											
				AXLE RATIOS—TIRES											
				3.08			3.23			3.42			3.64		
	7.50	8.00	8.50	7.50	8.00	8.50	7.50	8.00	8.50	7.50	8.00	8.50	7.50	8.00	8.50
10	128	126	123	395	387	379	415	406	397	439	430	421	467	457	448
20	257	251	246	790	774	758	829	812	795	878	860	841	934	915	895
30	385	377	369	1186	1161	1136	1244	1218	1192	1317	1289	1262	1401	1372	1343
40	513	503	492	1581	1548	1515	1658	1624	1589	1756	1719	1683	1868	1830	1791
50	642	628	615	1976	1936	1894	2073	2030	1987	2195	2149	2104	2336	2287	2239
60	770	754	738	2371	2323	2273	2487	2435	2384	2633	2579	2524	2803	2744	2686
70	898	880	861	2766	2710	2652	2902	2841	2781	3072	3009	2945	3270	3202	3134
80	1027	1005	984	3162	3097	3030	3316	3247	3178	3511	3438	3366	3737	3659	3582
90	1155	1131	1107	3557	3484	3409	3731	3653	3575	3950	3868	3786	4204	4117	4029
100	1283	1256	1230	3952	3871	3788	4145	4059	3973	4389	4298	4207	4671	4574	4477

DATA

Tire Size	7.50-14	8.00-14	8.50-14
Rolling Circumference.....	82.29"	84.03"	85.85"
Rolling Radius	13.1"	13.4"	13.7"
Generator to Engine Ratio.....	2.47:1	2.47:1	2.47:1
Fan to Engine Ratio (Std.).....	.88:1	.88:1	.88:1
Fan to Engine Ratio (with Air Conditioning)...	.88:1	.88:1	.88:1

AXLE RATIO	N/V RATIO*		
	TIRE SIZE		
	7.50-14	8.00-14	8.50-14
3.08	39.5	38.7	37.9
3.23	41.5	40.6	39.7
3.42	43.9	43.0	42.1
3.64	46.7	45.7	44.8
*N = Engine RPM: V = Car Speed MPH			

ENGINE DETONATION OR SPARK KNOCK

There are four principal factors affecting combustion knock. These are (1) octane rating of the gasoline, (2) compression ratio, (3) combustion chamber deposits, and (4) timing of the ignition spark.

OCTANE RATING OF THE GASOLINE

The octane rating of a gasoline is the index of its knocking tendency. The octane rating of gasolines available throughout the country varies with different fuel refiners, and also varies when going into different areas of the U. S. Most refiners offer a Premium and a Regular grade of fuel. The variation in fuel octane throughout the country is considerable, even when the high altitude sections of the U. S. are ignored. (Octane values in high altitude sections are low to correspond with lower engine octane requirements.)

Other than the fact that heavy knocking produces power loss in an engine, the octane rating of the gasoline will affect nothing in the operation of the car except the knocking tendency of the engine. Under conditions of slight or no knock, and all other things being equal, the octane rating of a fuel will not change starting ability, fuel economy, accelerating ability, idling characteristics or vapor locking tendencies.

COMPRESSION RATIO

The 1957 Pontiac V-8 engine with Hydra-Matic transmission has a 10.0:1 compression ratio and is designed to operate without knock on Premium fuels with a basic spark setting of 6° BTC. The Synchromesh transmission engine has a 8.5:1 compression ratio and is designed to operate without knock on Regular fuels with the same 6° BTC basic spark setting.

COMBUSTION CHAMBER DEPOSITS

Combustion chamber deposits are the result of the burning of fuel and lubricating oil in the chambers. Fuel and oil are primarily organic* chemical compounds known as hydrocarbons. Several metallic and inorganic compounds are included in both the fuel and oil as additives to produce finished products which better satisfy the requirements of the engine. The resultant deposits are composed of the residues

of all these various compounds, both organic and inorganic. Different makes of fuel and oil have different kinds and proportions of these additives.

The rate of accumulation and the nature of the deposits, therefore, are affected by the composition of the base fuel and oil and the nature of their additives. Another important factor affecting rate and nature of deposits is the type of driving, with fast driving producing the minimum of deposits and moderate and slow driving causing heavier deposits. The car that is frequently driven at high speeds rarely knocks due to combustion chamber deposits, but the slower schedules, either from driver preference or enforced by road and traffic conditions, may form knock-producing deposits in the chambers. It is permissible to retard ignition timing to 0° T.C. to reduce or eliminate knock due to deposits, but some performance will be sacrificed. If a setting later than 0° T.C. is required to eliminate objectionable knock, the combustion chamber deposits must be removed.

If carbon is to be removed by scraping, care should be taken not to damage valve seats. Carbon can also be removed without disassembly by a device such as the "Head-On Carbon Blaster".

TIMING OF IGNITION SPARK

The correct timing for both the Regular and Premium fuel engines is 6° BTC. This timing is represented by the first mark on the crankshaft pulley as it rotates clockwise.

The 6° setting will be ideal for the great majority of cars. Settings greater than 6° will not give a noticeable increase in power or economy and may cause spark knock. In cases where objectionable spark knock is evident at a setting of 6° BTC, it is permissible to retard to 0° top center. A moderate performance loss will occur at the 0° setting and to retard more than this will cause excessive power loss and will promote engine overheating.

Under no circumstances should the spark be retarded to allow for the use of Regular fuel in a Premium fuel engine or retarded later than 0° for any situation.

*Organic compounds have their origin in plant or animal life. Inorganic elements and compounds are of inanimate origin, such as metals, stone, etc.