1987 CHASSIS SERVICE MANUAL

Volume I





1987 BUICK CHASSIS SERVICE MANUAL REVISION

This package contains new and revised pages to be inserted into the 1987 Buick Chassis Service Manual.

Before inserting these pages and or sections, check to make sure that the 1987 SERVICE MANUAL SUPPLEMENT mailed out after the initial Service Manual printing has been incorporated into the Service Manual.

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1987 BUICK CHASSIS SERVICE MANUAL

This manual includes procedures for diagnosis, maintenance, adjustments and service operations of components and systems. All information, illustrations and specifications contained in this publication are based on the latest product information available at the time of publication approval.

Summaries of Special Tools and specifications, where required, may be found at the end of major sections.

Any reference to brand names in this manual is intended merely as an example of the types of tools, lubricants, materials, etc. recommended for use. Equivalents if available may be used. The right is reserved to make changes at any time without notice.

CAUTION

Buick vehicles contain many parts dimensioned in the metric system as well as in the customary system. Many fasteners are metric and are very close in dimension to familiar customary fasteners in the inch system. It is important to note that, during any vehicle maintenance procedures, replacement fasteners must have the same measurements and strength as those removed, whether metric or customary. (Numbers on the heads of metic bolts and on surfaces of metric nuts indicate their strength. Customary bolts use radial lines for this purpose, while most customary nuts do not have strength markings.) Mismatched or incorrect fasteners can result in vehicle damage or malfunction, or possibly personal injury. Therefore, fasteners removed from the vehicle should be saved for re-use in the same locations whenever possible. Where the fasteners are not satisfactory for re-use, care should be taken to select a replacement that matches the original.

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BUICK MOTOR DIVISION GENERAL MOTORS CORPORATION FLINT, MICHIGAN

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9	AC	CESSORIES	9A 9B 9C	RADIO AND TAPE PLAYER RESUME CRUISE CONTROL TWILIGHT SENTINEI	8E 8F 9D 9E	WIN QUA THEF	DSHIELD WIPER SYSTEMS RTZ ELECTRONIC SPEEDOMETER

Pages from 1987 Buick Chassis Service Manual relating to Turbocharged Regals

NO COPY OF:

REASON

0B	Maintenance-Covered in Owner's Manual
1B-19 • 1B-46	Non "G" Carline
1C-1 • 1D3	Riveria A/C & A/C Compressor Overhaul
3B2 ·	Manual Rack & Pinion
3B4	Non "G" Carline
3D1	Non "G" Carline
3D3	Non "G" Carline
4C	Does Not Exist
4D	Front Wheel Drive only
5A1 • 5C2	Non "G" Carline
5C4	Non "G" Carline
5D1	Doe Not Exist
5D2	Non "G" Carline
5E	Anti-Lock Brakes
6A1 • 6A4	Non-VIN "7" engine data
6A5A • 6A6	Non-VIN "7" engine data
6C1	Carburetor info
6C2	Carburetor info
6E1 • 6E3-A3	Non-VIN "7" engine data
6E3-C2B	Non-VIN "7" engine data
6E3-C3	Non-VIN "7" engine data, EECS
6E3-C4	Non-VIN "7" engine data, Ignition
6E3-C4C	Non-VIN "7" engine data, Ignition
6E3-C5B	Non-VIN "7" engine data, ESC
6E3-C6	Non-VIN "7" engine data, AIR pump
6E3-C7	Non-VIN "7" engine data, EGR
6E3-C7B	Non-VIN "7" engine data, EGR
6E3-C8-9 • 20	Non-VIN "7" engine data, TCC
6E3-C8A	Non-VIN "7" engine data, TCC
6E3-C8B	Non-VIN "7" engine data, TCC
6E3-C8C	Non-VIN "7" engine data, TCC
6E3-C9	Does not Exist
6E3-C11	Does Not Expirit
6E3-C12-3 • 36	Non-VIN "7" engine data, Fans
6F-5 • 8	Non-VIN "7" engine data, Exhaust
6F-11 • 21	Non-VIN "7" engine data, Exhaust
6G, 6H, & 6I	Do not exist
7A1	Front Wheel Drive Transaxle

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1987 BUICK SERVICE MANUAL SUPPLEMENT

THE ENCLOSED SECTIONS ARE TO BE ADDED TO THE 1987 BUICK SERVICE MANUAL.

1B	- Air Conditioning
1C1 1C2 1C3	- Electronic Touch Climate Control (A Carline) - Electronic Touch Climate Control (C-H Carline) - Climate Control (E Carline)
3B1 3B3 3B4 3C1 3D1	- Power Rack and Pinion - Power Steering Pumps - Steering Wheel and Columns (A-C-E-H-J-N Carlines) - Front Suspension (A-C-E-H-J-N Carlines) - Rear Suspension (A-C-H-J-N Carlines)
4A 4B	- Propeller Shaft - Rear Axle
5E	- Antilock Brake System
6A 6A1 6A3 6B 6D 6J	- General Engine Mechanicał - 2.0 Litre, L4 VIN M & K - 2.5 Litre, L4 VIN R & U - Cooling System - Engine Electrical - Turbo Charger
7A1	- Auto-Transaxle On-Car Service
200C	- Unit Repair
7B3A	- Muncie 5 Speed Transaxle Unit Repair
8B 8C1 8C3 8C8	- Lighting Systems - Instrument Panel, Console, and Gages (A Carline) - Instrument Panel, Console, and Gages (C-H Carline) - Instrument Panel, Console, and Gages (N Carline)
8E1 8E2 8E3 8E5 8E7 8F	 D.P. Pulse and Standard Wiper-Washer System Non-Depressed Positive Park Pulse Wiper-Washer System (J Carline) D.P. Multiplex Pulse and Standard Wiper-Washer System (B Carline) Rear Window Wiper-Washer System J35 (Wagon) Rear Window Wiper-Washer System J77 (Hatchback) Quartz Electronic Speedometer (C and H Carline)
9A 9B 9C 9D 9E	 Radio-Tape Player Resume Cruise Control Twilight Sentinel Theft Deterrent Miscellaneous Accessories
6E1 6E2 653	 Driveability and Emissions-Carbureted Driveability and Emissions-Fuel Injection (TBI) Driveability and Emissions-Fuel Injection (Port)

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CAUTION

To reduce the chance of personal injury and/or property damage, the following instructions must be carefully observed:

Proper service and repair are important to the safety of the service technician and the safe, reliable operation of all motor vehicles. If part replacement is necessary, the part must be replaced with one of the same part number or with an equivalent part. Do not use a replacement part of lesser quality.

The service procedures recommended and described in this service manual are effective methods of performing service and repair. Some of these procedures require the use of tools specially designed for the purpose.

Accordingly, anyone who intends to use a replacement part, service procedure or tool, which is not recommended by the vehicle manufacturer, must first determine that neither his safety or safe operation of the vehicle will be jeopardized by the replacement part, service procedure or tool selected.

It is important to note that this manual contains various 'Cautions' and 'Notices' that must be carefully observed in order to reduce the risk of personal injury during service or repair, or the possibility that improper service or repair may damage the vehicle or render it unsafe. It is also important to understand that these 'Cautions' and 'Notices' are not exhaustive, because it is impossible to warn of all the possible hazardous consequences that might result from failure to follow these instructions.

INTRODUCTION

This Chassis Service Manual contains information on all 1987 Buick vehicles and is organized to correspond with currer servicing techniques.

The various chassis components and systems have bec. classified into nine (9) GROUPS.

Every Group contains one or more SECTIONS. Each SECTION deals with a specific version of a component or system.

The service information included in a SECTION is divided into five (5) basic DIVISIONS. The titles of each DIVISION are:

General Description

Diagnosis

On-Car Service

Unit Repair

Specifications

A DIVISION contains one or more PARAGRAPHS which can be identified by their specific headings.

SUB-PARAGRAPHS are used when necessary for clarity or to provide distinction between component procedures.

SPECIAL TOOLS

References are made throughout the manual to special tool numbers, designated by the prefix letters "J" or "BT".

ACTION SYMBOL USAGE

A new writing style is being utilized in portions of this manual.

The general narrative has been replaced with step by step procedures. To improve readibility and to provide emphasis where needed, the following symbols are used in the text:



GROUP 0

GENERAL INFORMATION, MAINTENANCE AND LUBRICATION

CONTENTS

General Information	0A-	•
Maintenance and Lubrication	0B-	

SECTION OA GENERAL INFORMATION CONTENTS

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GENERAL INFORMATION

BODY NUMBER PLATE

The body number plate identifies the model year, car division, series, style, body assembly plant, body number, trim combination, modular seat code, paint code and date build code. See Figure 1 and 2. This plate is located on the upper horizontal surface of the shroud on B and G series or on the upper radiator support assembly on A, C, E, H, J and N Series. See Figure 3.



Figure 3 Body Number Plate Location

FEDERAL VEHICLE THEFT PREVENTION STANDARD:

Theft Deterrent Labeling

Beginning with 1987, federal law requires General Motors to place a VIN label on certain parts on selected cars. The Buick models affected are the LeSabre, Electra and Riviera.

The purpose of the standard is to reduce motor vehicle thefts by helping in the tracing and recovery of parts removed from stolen vehicles.

The label will be permanently affixed to an interior surface of the part and will contain the complete VIN. The label on replacement parts will contain the letter R, the manufacturers logo, and the symbol "DOT".

The parts involved:

- Front and rear bumper assemblies
- Hood

- Right and left front doors (Certification label on driver's door qualifies as a theft deterrent label.)
- Right and left rear doors
- Right and left quarter panel assemblies
- Rear compartment lid/hatch
- Right and left front fenders

THESE LABELS ARE NOT TO BE DEFACED, REMOVED, OR COVERED OVER.

NOTICE: The theft deterrent label found on some major sheet metal, engines, and transmissions must be masked prior to painting, rustproofing, undercoating, etc. The mask must be removed following the above operations. Failure to keep the label clean and readable may result in liability for violation of Federal Vehicle Theft Prevention Standard, and subject the vehicle owner to possible suspicion that the part was stolen.



Figure 3A Theft Deterrent Label Location

0A-4 GENERAL INFORMATION



Figure 4 Service Parts Label and Location



Figure 5 VIN Plate Location

SERVICE PARTS LABEL

The Service Parts Identification Label provides identification of vehicle equipment to assist in servicing and determining replacement parts. Included on this label will be regular production options (RPO's) as well as standard and mandatory options. The label will be affixed to the inside of each passenger car vehicle at the assembly plant. See Figure 4.

VEHICLE IDENTIFICATION NUMBER

All vehicles are required by law to display a seventeen (17) digit identification number.

This is the legal identification of the vehicle. It is stamped on a plate which is attached to the left top of the instrument panel and can be seen through the windshield from outside the car. See Figure 5. A brief description of each digit is shown in Figure 6. The VIN also appears on the vehicle certificates of Title and Registration.

GENERAL VEHICLE LIFTING

For lifting a vehicle with equipment other than the original equipment jack, various lift points have been established and are recommended for the different car lines.

NOTICE: When jacking or lifting a vehicle at the frame side rails or other prescribed lift points, be certain that lift pads do not contact the catalytic converter, brake pipes or gas lines. Such contact may result in damage or unsatisfactory vehicle performance.

The centerline of gravity on front wheel drive vehicles is further forward than on rear wheel drive vehicles. Therefore, whenever removing major components from the rear of a front wheel drive vehicle, while supported on a hoist, it is mandatory to support the vehicle in a manner to prevent the possibility of the vehicle tipping forward.

CAUTION: Failure to follow the preventive measures outlined may result in personal injury and/or vehicle damage.

The following figures show the recommended lifting points for each body series.

Series	Figure
А	10
B, G	11
С, Н	12
E	13
IN	14

NOISINIO						Υ.	CHECK					
1. CHEVROLET 2. PONTIAC 3. OLDSMORUE	MANU	JFACTUR	1G4		XH6400001		AR DIGIT					ſ
4. BUICK		MANUFAC	TURER (GM)						ſ	Γ		
6. CADILLAC		ſ		<u>ן</u> ד								
NAME	SERIES	SALES & VIN CODE	BODY TYPE		RESTRAINT SYSTEM	RESTRAIN VIN CODE	ENGINE	ENGINE OPTION	ENGINE VIN CODE	PLANT CODE	PLANT	STARTING VIN
WOTSILS WWW HARS			2-DOOR COUPE 4-DOOR SEDAN	- u								
		S	4-DOOR WAGON	n œ	ΔSR		2 01 121 1 A TRI	1 T 2	¥			
SKYHAWK SPORT	٦		3-DOOR HATCHBACK	2	MANUAL	-	2.0L HO L4 TBI	LL8	<u>-</u>	¥	LEEDS	400001
		-	2-DOOR COUPE	- 1	BELTS		2.0L MFI TURBO	LT3	Σ			
SKYHAWK LIMITED		⊢	4-DOOR SEDAN 4-DOOR WAGON	ഗത								
SKYLARK CUSTOM		c	4-DOOR SEDAN	2	AR4				•			
SKYLARK LIMITED	z	٥	4-DOOR SEDAN	ß	BELTS	2	2.5L L4 TBI	891	5	Σ	I ANSING (A)	400001
SOMERSET CUSTOM	:	- -	2-DOOR COUPE	-	WITH BUILT-IN	ı	3.0L V6 MFI	LN7		E .		
SOMERSET LIMITED		٤	2-DOOR COUPE	-	SAFETY							
			2-DOOR COUPE	-								
CENTURY CUSTOM		I.	4-DOOR SEDAN 4-DOOR WAGON	ഗത	AS8		2.5L 151 L4 EFI	LR8	œ		DORAVILLE TARRYTOWN	400001
	۷		2-DOOR COUPE		MANUAL	-	2.8L 173 V6 2	LB6	≥ ‹	<u>ب</u> د	OKLAHOMA	
CENTURY LIMITED		ب	4-DOOR SEDAN	5	BELTS		3.8L V6 SH	LG3	'n	٥	CITY	
CENTURY ESTATE WAGON			4-DOOR WAGON	8								
REGAL	(- 2	2-DOOR COUPE		AS8 MANI JAI	-	3.8L 231 V6 2 3.8L V6 SFI	2 C2	٩r	٩	PONTIAC	400001
REGAL LIMITED	פ	۵	2-DOOR COUPE		BELTS	-	5.0L 307 V84		~ >	-	MOTOR	
			2-DOOR COUPE	-								
LESABRE		=	4-DOOR SEDAN	2	AR4 MANUAL							
LESABRE CUSTOM	,	٩	2-DOOR COUPE 4-DOOR SEDAN	<u>۔</u> ی -	BELTS	7	3.8L V6 SFI	LG3	з	н	FLINT	400001
LESABRE LIMITED	C	æ	2-DOOR COUPE	- u	BUILT-IN SAFETY							
I FSABRE T TYPE		_	2-DOOR COUPE	, –								
ESTATE WAGON — LESABRE		~	4-DOOR WAGON	8	AS8		7 0/ 202 / J	сл. I	>	>	FAIREAY	40001
ESTATE WAGON — ELECTRA	n	>	4-DOOR WAGON	8	BELTS	-		LV2	-	<		
ELECTRA LIMITED		×	4-DOOR SEDAN	ۍ	834							
FI FCTRA PARK AVENUE	U	3	2-DOOR SEDAN	-	MANUAL	-	3.8L V6 SFI	LG3	Э	٦	WENTZVILLE	400001
	•		4-DOOR SEDAN	տ ւ	BELTS							
ELECTRA T TYPE		-	4-DOOR SEDAN	2	00							
RIVIERA (LUXURY)	ш	z	2-DOOR COUPE		A58 MANUAL	-	3.8L V6 SFI	LG3	ň	D	HAMTRAMCK	400001
RIVIERA (T TYPE)		>	2-DOOR COUPE	-	BELTS							40004-0A

Figure 6 Vehicle Identification Plate Data



Figure 7 Engine VIN Location



Figure 8 Transmission Identification



Figure 9 Transmission VIN Location



Figure 10 A Series Lifting Points



Figure 11 B-G Series Lifting Points



Figure 12 C-H Series Lifting Points



Figure 13 E Series Lifting Points

3



Figure 14 J-N Series Lifting Points

GENERAL INFORMATION 0A-13

H40015-0A

1							
Acc.	- Accessory	EPR-DV			Exhaust Pressure Regulator	NO	- Normaily open
A/C	 Air Conditioning 				Delay Valve	NOx	- Nitrogen, Oxides of
ADJ	– Adjust	ESC		_	Electronic Spark Control		0.1
ADL	 Automatic Doorlock 	ESC			Electrostatic Discharge	OD	- Outside Diameter
ADRC	 Adaptive Ride Control 	EST			Electronic Spark Timing	ойс	- Overhead Camshaft
A/F	- Air Fuel Batio	FTR			Electronically Tuned Bassiver	010	
AIR	- Air Injection Reaction System	EVEV			Electronic Veguum Begulater		
	Assembly Line Communication			_	Value	0-	- Oxygen
	- Assembly Line Communication	EVU					
A14					Exnaust	PAIR	- Pulse Air Injection System
AIT.	- Altitude	~-				P/B	— Power Brakes
AM	- Amplitude Modulation	0F	-		Degrees Fahrenheit	PCB	 Printed Circuit Board
AMP	- Ampere(s)	FED	-		Federal (All States Except Calif)	POS	- Positive
ANT	– Antenna	FL	-		Fusible Link	Pri	 Primary
APS	 Absolute Pressure Sensor 	FM	-	_	Frequency Modulation	PROM	 Programmable Read Only
AT	 Automatic Transmission/Teansaxle 	ft. lb.	-	—	foot pounds		Memory
ATDC	 After Top Dead Center 	FWD			Front Wheel Drive	P/S	- Power Steering
Auth	 Authority 	FWL	-		Forward Lamps	PSI	- Pounds per Square Inch
						Pt.	- Pint
BARO	 Barometric Pressure Sensor 	g .		_	grams	PWM	- Pulse Width Modulated
Bat.	 Battery 	ĞND		_	Ground		
Bat+	- Battery Positive Terminal				around	0+	_ Quart
8+	- Battery Voltage	Harn		_	Harness	OTU	- Quick Take Lin
Bbl	- Barrel	HC		_	Hydrocarbons	OVB	Quick Vacuum Bernonen
BCM	- Body Computer Module	но		_	Heavy Duty	avn	- Quick Vacuum Response
BP	- Back Pressure	ЦЕГ		_	High Energy Ignition	D 10	Definerent 12
Brk	- Brake	HG		_	Moreuru		- Reingerant -12
BTDC	Before Top Dead Conter			_		RAP	- Retained Accessory Power
	- Berore Top Dead Center		-	-		REF	- Reference
00	Degrana Calaius		-	_	Horsepower	RF	- Right Front
	- Degrees Cersius	нгаа	-	-	Housing Pressure Altitude	КН	- Right Hand
Can					Advance	Riy	Relay
CALPAK	- Prom (Engine Calibrator)	HPCS	-	-	Housing Pressure Cold	RPM	 Revolutions per minute
L Cat. Conv.	Catalytic Converter				Advance	RPO	 Regular Production Option
	- Computer Command Control	Htd	-	-	Heated	RR	- Right rear
	- Cycling Clutch Orifice Tube	HTR	-	-	Heater	RS	- Right side
CCP	 Controlled Canister Purge 	HVAC	-	-	Heating Ventilation Air	RTV	 Room Temperature Vulcanizing
CDVR	 Crankcase Depression 				Conditioning	RVB	- Rear Vacuum Break
	Regulator Valve				Conditioning	RVR	 Response Vacuum Reducer
	 – Cubic Inch Displacement 	IAC	-	_	Idle Air Control	RWD	 Rear Wheel Drive
ј скт	– Circuit	IC	-		Integrated Circuit		
	– Closed Leop	ID	-	_	Identification	SAE	- Society of Automotive Engineers
CLCC	 Closed Loop Carburetor Control 		-	_	Inside Diameter	Sec	- Secondary
CNS	– Console	IGN		_	Ignition	SFI	 Sequential Fuel Injection
co	– Carbon Monoxide	ILC	-	_	Idle Load Compensator	SI	- System International
Conn.	- Connector	in. lbs.	-	_	inch pounds	Sol	- Solenoid
Conv.	Converter	INJ		_	Injection	Sokr	- Speaker
CP	- Canister Purge	IP		_	Instrument Control Panel	Sol	- Splice
CPS	- Central Power Supply	IPC		_	Instrument Panel Cluster	Sta	- Steering
CRT	 Cathode Ray Tube 	ISC		_	Idle Speed Control	Sync	- Synchronization
CRTC	 Cathode Ray Tube Controller 	ISS		_	Idle Speed Solenoid	Sw	- Switch
I CTR	- Center					0	omton
Стѕ	 Coolant Temperature Signal 	КАМ		_	Keen Alive Memory	TAC	- Thermostatic Air Cleaner
	 Coolant Temperature Sensor 	km		_	kilometer	Tach	Tachometer
CTSY	- Courtesy	km/h			kilometer per bour	TRI	Throttle Body Injection
CV .	- Constant Velocity	kPa			Kilonascals	TCC	Transmission/Transpyle
Cvl	- Cylinder(s)	KV		_	Kilovolta (thousands of volta)	100	- Halishiission/Halisakie
	0 / III doi (0)			_		TDC	Top Dood Contor
Da	- Dash	1			Litor	Tomp	- Top Dead Center
DBM	- Dual Bed Monolith	Î ED		_	Light Emitting Diode	Term	Terminal
DECS	- Diesel Electronic Control			_	Left Front	There -	Thermostetic Air Classes
	System	<u>с</u> .			Left Hand	TDC	Throttle Position Server
Diff	Differential					125	- Infottle Position Sensor
Diet	Distributor			_		11	
DVM	Digital Valtmatar (10 mag)						- Inrottle valve
	- Digital Voltmeter (10 meg)			_	Lighter	TVRS	- Television & Radio Suppression
	- Differential Vacuum	L4		-	In-Line four cylinder	IVS	- Thermal Vacuum Switch
	Delay valve					1 WI	– Twilight
EAC	Flootnin Air Ornstern	MAF		-	Mass Air Flow		
EAC	- Electric Air Control	WAP		-	ivianitoid Absolute Pressure	U-Joint	 Universal Joint
EAS	- Electric Air Switching	iviax	-	-	Maximum		
	- Electronic Control Module	M/C	-	-	Mixture Control	V	- Volt(s)
	- Engine Calibration Unit (PROM)	Mm			Minimum	VAC	- Vacuum
	- Electronically Eraseable	mı			Millilitres	VF	 Vacuum Fluorescent
EECS	- Evaporative Emission Control	mm	-		millimeter	VIN	 Vehicle Identification Number
	System	MFI	-	-	Multi-Port Fuel Injection	V-ref	 Reference Voltage
L FE	- Early Fuel Evaporation	MPG	-	-	Miles Per Gallon	VSS	 Vehicle Speed Sensor
EFI .	- Electronic Fuel Injection	MPH	-		Miles Per Hour	V6	 — Six Cylinder "V" Engine
EGR	 Exhaust Gas Recirculation 	MT	-	-	Manual Transaxle/Transmission	V8	 Eight Cylinder "V" Engine
EGR/TVS	6 — Exhaust Gas Recirculation/	Mtr	-		Motor		- · · · ·
	Thermostatic Vacuum Switch	MUX	-	_	Multiplexing	w/	— With
EL	 Electroluminescent 	MVS	-	_	Metering Valve Sensor	w/b	Wheel Base
ELC	 Electronic Level Control 	NC			Normally closed	wdo	Window
ENG	— Engine	NEG		_	Negative	w/o	- without
EPR	- Exhaust Pressure Regulator	N·m		_	Newton Meters	wot	– Wide Open Throttle
1		· • · · •					

METRIC AND FASTENER INFORMATION

USE OF METRIC AND CUSTOMARY NUTS, BOLTS AND SCREWS

Some of the 1987 model cars present special service requirements to the technician due to the use of both metric and customary (inch) type nuts, bolts and screws on the same car. Many are metric and some are very close in dimension to customary nuts, bolts and screws in the inch system. Mismatched or incorrect nuts, bolts and screws can result in damage, malfunction or possible personal injury. Nuts, bolts and screws removed from the car should be saved for re-use whenever possible. If they are not re-usable, care should be taken to select a replacement that matches the original.

General Motors Engineering Standards have adopted a portion of the standard metric fastener sizes defined by SI (Systeme International). This was done to reduce the number of sizes used and yet retain the best strength characteristics in each thread size. For example, the customary 1/4-20 and 1/4-28 screws are replaced by the metric M6.0 x 1 screw which has nearly the same diameter and 25.4 threads per inch. The thread pitch is in between the customary coarse and fine thread pitches.

Metric and customary thread notation differ slightly. The difference is illustrated below.

METRIC CUSTOMARY M6.0 Thread Major Thread Major Diameter in Millimetres 1

Distance Between Threads in Millimetres

20

1/4

Diameter in Inches

Number of Threads per Inch

Care should be taken when servicing the car to guard against cross threading or improper retention due to interchanged metric and inch nuts and bolts.

When obtaining metric or customary nuts, bolts, and screws locally for servicing the car, care must be exercised in selecting parts that are equivalent to the original parts in dimensions, strength, and pitch of threads. H40015-0A METRIC BOLT AND NUT IDENTIFICATION

Common metric fastener strength property classes are 9.8 and 10.9 with the class identification embossed on the head of each bolt. Customary (inch) strength classes range from grade 2 to 8 with line identification embossed on each bolt head. Markings correspond to two lines less than the actual grade (i.e. grade 7 bolt will exhibit 5 embossed lines on the bolt head). Some metric nuts will be marked with single digit strength identification numbers on the nut face. The following figure illustrates the different strength markings.



Customary (inch) bolts - Identification marks correspond to bolt strength - Increasing numbers represent increasing strength.



Metric Bolts - Identification class numbers correspond to bolt strength - Increasing numbers represent increasing strength.



REUSE OF PREVAILING TORQUE NUT (S) AND BOLT(S)



lul tiply	by	to get equivalent number of:	Multiply	by	to get equivalent number of:
	LENGTH			ACCELERATION	
ich oot ard	25.4 0.304 8 0914 4	millimetres (mm) metres (m) metres	Foot/sec ² Inch/sec ²	0.304 8 0.025 4	metre/sec ² (m/s ²) metre/sec ²
ile	1.609	kilometres (km)		TORQUE	
c	AREA		Pound-inch Pound-foot	0.112 98 1.355 8	newton-metres (N-m) newton-metres
ich ²	645.2 6.45 0.097 9	millimetres ² (mm ⁻) centimetres ² (cm ⁻) metres ² (m ²)		POWER	
ard ²	0.836 1	metres ² (m)	Horsepower	0.746	kilowatts (kW)
	VOLUME			PRESSURE OR STRESS	
ch ³	16 387. 16.387	nun ³ cm ³	Inches of mercury Pounds/sq. in.	3.377 6.895	kilopasculs (kPa) kilopascals
uart	0.016 4 0.946 4	litres (1)		ENERGY OR WORK	
ard	0.764 6 0.764 6 MASS	metres ³ (m ³)	BTU Foot-pound Kilowatt-hour	1 055. 1.355 8 3 600 000.	joules (J) joules joules (J = one W's)
und Di	0.453 6 907.18	kilograms (kg) kilograms (kg)			
uc	0.907 FORCE	tonne (t)	Foot candle	10.764	lumens/metre ² (lm/m ²
llogram unce ound	9.807 0.278 0 4.448	newtons (N) newtons newtons	Miles/gal Gal/mile	FUEL PERFORMANCE 0.425 1 2.352 7	kilometres/litre (km/l) litres/kilometre (l/km)
	TEMPERATURE			VELOCITY	
egree Fahrenheit	(°F-32) ÷ 1.8	degree Celsius (C)	Miles/hour	1.609 3	kilometres/hr. (km/h)
°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°	32 98.6 140 80 120 0 20 37	160 200 212 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			

DECIMAL AND METRIC EQUIVALENTS

٠

Fractio	ons	Decimal	Metric	Fractions	Decimal	Metric
		ln.	MM.		In.	MM.
1/64		015005	20.000	20/04		
1/04		.015625	.39688	33/64 .		13.09687
1/32	• • • • •	.03125	./93/5	17/32 .		13.49375
3/64	••••	.046875	1.19062	35/64 .	546875	13.89062
1/16	••••	.0625	1.58750	9/16 .	5625	14.28750
5/64	• • • • •	.078125	1.98437	37/64 .	578125	14.68437
3/32	• • • • •	.09375	2.38125	19/32 .	59375	15.08125
7/64	• • • • •	.109375	2.77812	39/64 .	609375	15.47812
1/8	• • • • •	.125	3.1750	5/8 .		15.87500
9/64		.140625	3.57187	41/64 .		16.27187
5/32		.15625	3.96875	21/32	65625	16.66875
11/64		.171875	4.36562	43/64 .	671875	17.06562
3/16		.1875	4.76250	11/16 .	6875	17.46250
13/64	• • • • •	.203125	5.15937	45/64 .		17.85937
7/32		.21875	5.55625	23/32 .	71875	18.25625
15/64		.234375	5.95312	47/64 .	734375	18.65312
1/4		.250	6.35000	3/4 .	750	19.05000
17/64		.265625	6.74687	49/64	765625	19.44687
9/32		.28125	7.14375	25/32		19.84375
19/64		.296875	7.54062	51/64 .		20.24062
5/16		.3125	7.93750	13/16		20.63750
21/64		.328125	8.33437	53/64		21.03437
11/32		.34375	8.73125	27/32		21 43125
23/64		.359375	9.12812	55/64	859375	21.40120
3/8		.375	9.52500	7/8	875	22 22500
25/64		.390625	9.92187	57/64	890625	22.22000
13/32		.40625	10.31875	29/32	90625	22.02107
27/64		.421875	10.71562	59/64	021875	23.01073
7/16		4375	11 11250	15/16	0275	23.41302
29/64		453125	41 50937	61/64	052125	23.01200
15/32		46875	11 90625	21/22	06975	24.20937
31/64		.40070	12 20212	51/32 62/64		24.00025
1/2		500	12.30312	03/04		25.00312
1/2			12.70000	Ι	1.00	25.40000 0B105

ſ						······		
	CRANKCASE*		COOLING SYSTEM			TRANSAXLE		
	LESS FILTER	HEATER	WITH A/C	H. DUTY	FOEL TANK	MANUAL	AUTOMATIC**	
SKYHAWK 2.0 - LT2 - K	3.8L (4.0 QTS.)	7.5L (8 QTS.)	7.5L (8 QTS.)	<u> </u>				
2.0 - LT3 - M	3.8L (4.0 QTS.)	7.5L (8 QTS.)	7.5L (8 QTS.)	-				
2.0 - LL8 - I	3.8L (4.0 QTS.)	9.0L (9.5 QTS.)	9.3L (9.75 QTS.)		1			
SKYLARK/ SOMERSET – 2.5L-L68-U AUTO MANUAL	2.8L (3.0 QTS.) 7.42L (7.8 QTS.) 7. 3.8L (4.0 QTS.) 7.42L (7.8 QTS.) 7.		7.46L (7.9 QTS.) 7.46L (7.9 QTS.)	-	51.5L (13.6 GAL.)		125C OIL PAN R&R 3.8L (4.0 QTS.)	
3.0 - LN7 - L	3.8L (4.0 QTS.)	9.7L (10.25 QTS.)	10.36L (10.9 QTS.)	-	1	4 SPD. FX126 2500 ml	5.7L (6 QTS.)	
CENTURY 2.5 - LR8 - R	2.8L (3.0 QTS.)	8.92L (9.4 QTS.)	9.20L (9.7 QTS.)	11.4L (12.0 QTS.)	COUPE & SEDAN	5 SPD 2550 ml	440T4 OIL PAN R&R	
2.8 - LB6 - W	3.8L (4.0 QTS.)	10.8L (11.4 QTS.)	11.2L (11.8 QTS.)	8.4L (8.8 QTS.)	64.4L (16.6 GAL.)		3.8L (4.0 QTS.)	
3.8 - LG3 - 3	3.78L (4.0 QTS.)	_	11.28L (11.9 QTS.)	11.86L (12.6 QTS.)	59.4L (15.7 GAL.)		5.5L	
LESABRE 3.8 - LG3 - 3	3.78L (4.0 QTS.)	-	12.52L (13.2 QTS.)	12.62L (12.3 QTS.)	68.1L (18.0 GAL.)			
ELECTRA 3.8 · LG3 · 3	3.78L (4.0 QTS,)	-	11.70L (12.4 QTS.)	11.78L (12.4 QTS.)	68.1L (18.0 GAL.)			
RIVIERA 3.8 · LG3 · 3	3.78L (4.0 QTS.)	-	11.32L (12.0 QTS.)	11.48L (12.1 QTS.)	68.1L (18.0 GAL.)	TRANSMISSION**	DIFFERENTIAL	
REGAL 3.8 - LD5 - A	3.8L (4.0 QTS.)	12.28L (12.9 QTS.)	12.3L (13.0 QTS.)	12.8L (13.5 QTS.)		OIL PAN R&R 3.3L (3.48 QTS.) OVERHAUI	זי, יי	
3.8 - LC2 - 7	4.73L (5.0 QTS.)	12.3L (13.0 QTS.)	12.3L (13.0 QTS.)	12.8L (13.5 QTS.)	68.5L (18.1 GAL.)	8.9L (9.40 QTS.)	1.66L (3.5 PTS.)	
5.0 - LV2 - Y	3.75L (4.0 QTS.)	14.1L (14.9 QTS.)	14.8L (15.6 QTS.)	14.7L (15.5 QTS.)		OIL PAN R&R	81,7"	
"B" WAGON 5.0 - LV2 - Y	3.75L (4.0 QTS.) 14.6L (15.4 QTS.)		15.4L (16.0 QTS.)	15.2L (16.0 QTS.)	83.3L (22.0 GAL.)	3.3L (3.48 QTS.) OVERHAUL 10.46L (11.05 QTS.)	2.06 (4.20 115.)	

*WHEN CHANGING OIL FILTER, ADDITIONAL ENGINE OIL MAY BE REQUIRED TO BRING OIL LEVEL TO FULL MARK.

**WHEN DRAINING OR REPLACING TORQUE CONVERTER, ADDITIONAL TRANSMISSION FLUID MAY BE REQUIRED TO BRING LEVEL TO FULL MARK.

HG0008-0B

Figure 2 Capacities Chart

Carburetor Choke and Hoses

If car is equipped with a carburetor, verify that choke and vacuum break work properly and are within specifications. Correct any binding caused by damage or gum on the choke shaft. Inspect hoses for proper hook up, cracks, rubbing or decay. Correct as necessary.

Carburetor or Throttle Body Mounting Torque

- Tighten carburetor mounting bolts or nuts to 16 N·m (12 lbs. ft.)
- Tighten 2.5L TBI mounting bolts or nuts to 20 N·m (15 lbs. ft.).
- Tighten 2.0L TBI mounting bolts or nuts to 35 N·m (26 lbs. ft.).
- Tighten MFI/SFI throttle body mounting bolts or nuts to 27 N·m (20 lbs. ft.)

Engine Idle Speed Adjustment

(Engines without Idle Speed Control or Idle Air Control)- Adjust to specifications shown on the underhood label. If no specifications are shown, no adjustment is necessary. Calibrated test equipment must used.

A.I.R. Pump Drive Belt Inspection

When a separate belt is used to drive the A.I.R. pump, inspect it for cracks, fraying, wear and proper tension. Adjust or replace as needed.

Cooling System Refill

Drain, flush and refill system with new coolant. See Recommended Fluids and Lubricants, or Section 6B.

Wheel Bearing Repack

Clean and repack front-wheel bearings at each brake relining or 15,000 miles (24 000 km), whichever comes first when car is used in such service as police, taxi or door-to-door delivery. If the car is not used in such service, clean and repack bearings at each brake relining or 30,000 miles (48 000 km), whichever comes first.

Transmission/Transaxle Service

The manual transaxle fluid does not require changing. For automatic transmission/transaxle, change both the fluid and filter every 15,000 miles (25 000 km) if the car is mainly driven under one or more of these conditions.

OB-4 MAINTENANCE AND LUBRICATION

				1987			<u> </u>	•	
	FILTER	FILTER	en ties	OXVIGEN	ALTER PRCV	VALVE	PADIATOR CAP	SPANN SPLUGS	ST DANK SAR
SKYHAWK							1	1	<u>}</u>
2.0 - LT2 - K	A785C	GF 481	PF 47	AFS-16P	FB-102	CV869C	RC 27	R44XLS	.035
2.0 - LT3 - M	A905C	GF 481	PF 47	AFS-16P		CV873C	RC 27	R42CXLS	.035
2.0 • LL8 - I	A875C	GF 481	PF 52	AFS-16P		CV892C	RC 27	FR3LM	.035
SKYLARK/ SOMERSET								1	
2.5 - L68 - U AUTO	A785C	GF 481	PF 47	AFS-16P	FB-82	CV895C	RC 27	R43TS6	.060
2.5 - L68 - U MANUAL	A785C	GF 481	PF 1072	AFS-16P	FB-82	CV895C	RC 27	R43TS6	.060
3.0 - LN7 - L	A875C	GF 431	PF 47	AFS-16P		CV781C	RC 27	R44LTS	.045
CENTURY	1	[!		· · · ·					
2.5 - LR8 - R	A785C	GF 431	PF 47	AFS-16P	- FB-82	CV895C	RC 27	R43TS6	.060
2.8 - LB6 - W	A-1098C	GF 481	PF 47	AFS- <u>1</u> 6P	-	CV892C	RC 27	R43LTSE	.045
3.8 - LG3 - 3	A633C	GF 483	PF 47	AFS-16P		CV781C	RC 27	R44LTS	.045
LESABRE	.		· ·	i - I		[]	[
3.8 - LG3 - 3	A974C	GF 483	PF 47	AFS-16P		CV781C	RC 27	R44LTS	.045
ELECTRA								ŀ	···
3.8 - LG3 - 3	A974C	GF 483	PF 47	AFS-16P		CV781C	RC 27	R44LTS	.045
RIVIERA						i.			
3.8 - LG3 - 3	A974C	GF 483	PF 47	AFS-16P		CV781C	RC 27	R44LTS	.045
REGAL	i 1		ī				1		
3.8 - LD5 - A	A178C	GF 471	PF 47	AFS-16P	FB-73	CV770C	RC 27	R45TSX	.060
3.3 - LC2 - 7	A633C	GF 483	PF 47	AFS-16P	-	CV893C	RC 27	R44TS	.035
5.0 - LV2 - Y	A348C	GF 471	PF45 + BASE	AFS-16P		CV851C	RC 27	FR3LS6	.060
"B" WAGON		1							
5.0 - LV2 - Y	A348C	GF 471	PF 45 + BASE	AFS-16P	-	CV851C	RC 27	FR3LS6	.060
i	ł	I	1	1	1	I			H 40009-0 B

			·
	5/16" WIDE	3/8" &13/32" WIDE	7/16" WJDE
NEW Belt	350 N Max. 80 Lbs, Max.	620 N Max. 140 Lbs. Max.	750 N Max. 165 Lbs. Max.
USED BELT	200 N Min. 50 Lbs. Min.	300 N Min. 70 Lbs. Min.	400 N Min. 90 Lbs. Min.

Figure 4 Belt Tensions

- In heavy city traffic where the outside temperature regularly reaches 90° F (32° C) or higher.
- In hilly or mountainous terrain.
- Frequent trailer pulling.
- Uses such as found in taxi, police car or delivery service.

Figure 3 Maintenance Items

If the car is not used under any of these conditions, change both the fluid and filter (or service the screen) every 100,000 miles (160 000 km). See Section 7A for more information.

Vacuum Advance System Inspection

Applies only to Canadian cars without Computer Command Control.

Check system for proper operation. Check hoses for proper hookup, cracks, rubbing or decay. Replace parts as needed.

Spark Plug and Wire Service

Replace spark plugs with type listed in Section 0A. Clean wires and inspect for burns, cracks or other damage. Check the wire boot fit at the distributor and/or coil, and at the spark plugs. Replace the wires as needed.

Positive Crankcase Ventilation (PCV) Inspection

Inspect valve for proper function. Replace valve if necessary as well as any worn, plugged or collapsed hoses.