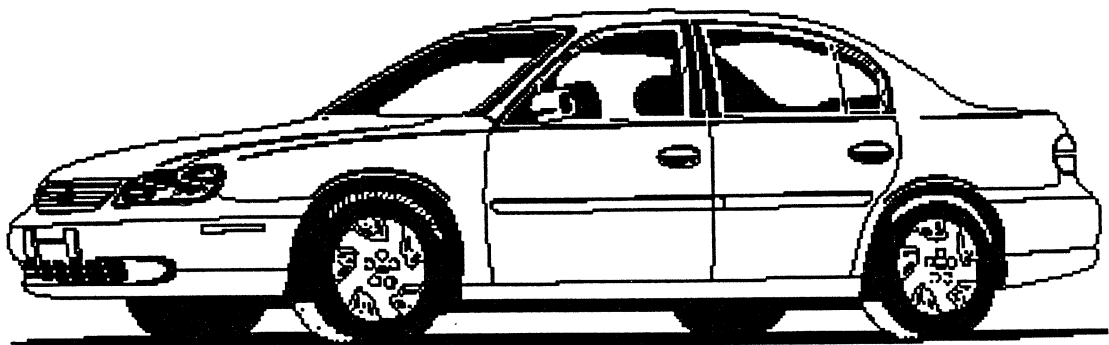


# 1998 MALIBU



# RESTORATION PACKET

# 1998 Chevrolet Malibu



## **1998 MALIBU HIGHLIGHTS**

### **NEW FOR 1998**

- **MEDIUM OAK INTERIOR ON BASE MODEL**
- **LEATHER TRIM ON LS MODEL**
- **ENHANCED ALUMINUM WHEEL**
- **SUNROOF**

## STANDARD EQUIPMENT SUMMARY

		<u>1ND69</u>	<u>1NE69</u>
<b><u>CHASSIS</u></b>			
AXLE:	3.42 W/2.4 SFI L4 TWIN CAM ENGINE	S	--
	3.05 W/3100 SFI V6 ENGINE	--	S
BATTERY:	RUNDOWN PROTECTION	S	S
BRAKES:	4-WHEEL ANTI-LOCK	S	S
	FRONT DISC AND REAR DRUM	S	S
ENGINE:	2.4 LITER SFI TWIN CAM L4	S	--
	3100 SFI V6	--	S
FUEL TANK:	15 GALLON	S	S
STEERING:	POWER	S	S
TRANSMISSION:	4-SPEED AUTOMATIC	S	S
 <b><u>INTERIOR</u></b>			
AIR CONDITIONING:		S	S
CONSOLE:	CENTER SHIFT WITH INTEGRAL ARMREST	S	S
DEFOGGER:	ZONED REAR WINDOW	--	S
FLOOR MATS:	FRONT AND REAR	--	S
GAGE PACKAGE:	ANALOG INCLS TACHOMETER, COOLANT TEMP, TRIP ODOMETER,		
	FUEL AND SPEEDOMETER	S	S
GLASS:	TINTED	S	S
HEAT DUCTS:	REAR SEAT	S	S
LIGHTING:	DOME, UNDER DASH, GLOVE BOX AND TRUNK	S	S
	DELAYED ENTRY AND EXIT WITH THEATRE DIMMING	S	S
LOCKS:	DOOR, CHILD SECURITY (REAR)	S	S
	POWER DOOR	--	S
MAP POCKETS:	FRONT DOORS	S	S
PASSLOCK II:	THEFT DETERRENT	S	S
POWER OUTLET:	AUXILIARY	S	S
RADIO:	ELECTRONICALLY TUNED AM/FM STEREO RADIO W/SEEK-SCAN,		
	DIGITAL CLOCK AND DUAL FRONT COAXIAL & DUAL		
	EXTENDED RANGE REAR SPEAKERS	S	--
	ELECTRONICALLY TUNED AM/FM STEREO RADIO W/SEEK-SCAN,		
	DIGITAL CLOCK, AUTOMATIC TONE CONTROL, CASSETTE		
	TAPE, THEFT LOCK AND SPEED COMPENSATED VOLUME		
	WITH DUAL FRONT COAXIAL AND DUAL EXTENDED RANGE		
	REAR SPEAKERS	--	S
READING LAMPS:	DUAL, MIRROR MOUNTED	--	S
RESTRAINT SYSTEM:	NEXT GENERATION DRIVER & FRONT PASSENGER AIR BAGS	S	S

# MALIBU

## STANDARD EQUIPMENT SUMMARY

		<u>1ND69</u>	<u>1NE69</u>
<u>INTERIOR continued . . . .</u>			
SCOTCHGARD:	FABRIC PROTECTOR, INCLUDES SEATS, DOOR TRIM AND FLOOR COVERING	S	S
SEATS:	CLOTH RECLINING BUCKET WITH ADJUSTABLE HEAD RESTRAINTS	S	S
	DRIVER POWER FRONT SEAT ADJUSTER	--	S
	SPLIT FOLDING REAR SEAT	--	S
SPEED CONTROL:	ELECTRONIC WITH RESUME SPEED	--	S
STEERING:	TILT-WHEEL	S	S
STORAGE BIN:	LIGHTER, CUPHOLDER AND ASHTRAY	S	S
TRUNK RELEASE:	ELECTRIC	S	S
VISORS:	LH AND RH, WITH MAP STRAPS AND VANITY MIRRORS	S	S
	PASSENGER SIDE ILLUMINATED VANITY MIRROR	--	S
WARNING LIGHTS:	LOW COOLANT, LOW FUEL, LOW WASHER FLUID AND DOOR AJAR	S	S
	LOW OIL LEVEL	--	S
WINDOWS:	POWER	--	S
 <u>EXTERIOR</u>			
CARGO NET:	LUGGAGE AREA	--	S
DOOR HANDLES:	BODY COLOR	S	S
FASCIAS:	FRONT AND REAR BODY COLOR	S	S
FOGLAMPS:		--	S
GRILLE:	ARGENT COLOR	S	S
LIGHTS:	REFLECTOR OPTICS	S	S
	AUTOMATIC DAYTIME, W/AUTO LIGHT CONTROL	S	S
INSULATOR:	BLANKET, UNDER HOOD	S	S
KEYLESS ENTRY:	REMOTE	--	S
LICENSE PLATE:	FRONT MOUNTING PROVISION	S	S
MIRRORS:	DUAL, DRIVER REMOTE, PASSENGER MANUAL, OUTSIDE BODY COLORED	S	--
	DUAL POWER OUTSIDE REARVIEW, BODY COLORED	--	S
MOLDINGS:	BODY COLOR	S	S
PAINT:	BASE COAT/CLEAR COAT	S	S
TIRES:	P215/60R15 B/W	S	S
WHEELS:	15" STEEL WITH FULL BOLT-ON WHEEL COVERS	S	--
	15" ALUMINUM	--	S
WIPERS:	VARIABLE INTERMITTENT (PULSE)	S	S

# MALIBU SEDAN

\*16,195.00

## Model 1ND69 Malibu Sedan

\*Includes Destination & Handling Charges

**MUST ORDER ONE GROUP -- NO DELETIONS ALLOWED**

		1SA	1SB	1SC
N.C.	<b>Base Preferred Equipment Group</b>	x	x	x
	<b>(Refer Standard Equipment Summary Page)</b>			
700.00	<b>Preferred Equipment Group 1</b>			
	Power Door Locks		x	x
	Power Windows		x	x
	Mirrors: Power Outside Rearview		x	x
1100.00	<b>Preferred Equipment Group 2</b>			
	Mirrors: Inside Rearview with Dual Reading Lamps			x
	Remote Keyless Entry			x
	Speed Control, Electronic with Resume Speed			x

## ADDITIONAL OPTIONS

### ACKNOWLEDGMENTS:

- N.C. R8S Multiple Order Numbers  
 V.P.S. R8T Preliminary Invoice (Refer Vehicle Price Schedule)

### DEFOGGER: (MUST SPECIFY)

- 180.00 C49 Rear Window: Electric  
 N.C. R9W Rear Window Defogger Not Desired

### EMISSIONS: (MUST SPECIFY) (Refer Emission Requirements Tab Section)

- N.C. FE9 Federal Emission Requirements  
 170.00 NG1 New York, Massachusetts or Connecticut Emission Requirements  
 170.00 YF5 California Emission Requirements  
 N.C. NB8 CA, NY, MA or CT State Emission Override (Reqs FE9 Emissions)  
 N.C. NC7 Federal Emission Override (Reqs YF5 or NG1 Emissions)

### ENGINE: (MUST SPECIFY)

- N.C. LD9 2.4 Liter SFI L4 Twin Cam (Base)  
 495.00 L82 3100 SFI V6  
 40.00 B37 FLOOR MATS: Carpeted Front and Rear, Color-Keyed  
 30.00 K05 HEATER: Engine Block  
 150.00 AU0 KEYLESS ENTRY, REMOTE: (N/A w/1SA) (Incl w/1SC)  
 60.00 VH4 MUD GUARDS: Front and Rear (N/A w/1SA)

# MALIBU SEDAN

## ADDITIONAL OPTIONS

### RADIO EQUIPMENT:

220.00	UL0	Electronically Tuned AM/FM Stereo Radio w/Seek-Scan, Digital Clock, Automatic Tone Control, Cassette Tape, Theft Lock and Speed Compensated Volume
320.00	UN0	Electronically Tuned AM/FM Stereo Radio w/Seek-Scan, Digital Clock, Automatic Tone Control, Compact Disc Player, Theft Lock and Speed Compensated Volume
420.00	UN8	Electronically Tuned AM/FM Stereo Radio w/Seek-Scan, Digital Clock, Automatic Tone Control, Compact Disc Player, Dual Playback Remote Cassette, Theft Lock and Speed Compensated Volume
310.00	AG1	<b>SEATS, ADDITIONAL:</b> Power Front Seat Adjuster, Driver Side (N/A w/1SA)
225.00	K34	<b>SPEED CONTROL:</b> Electronic, w/Resume Speed (Incl w/1SC) (Reqs 1SB)
	CF5	<b>SUNROOF:</b> Electronic, Sliding (Reqs 1SC Peg) (Incls Dual Reading Lamps & Lighted Passenger Visor Mirror)
635.00		w/1SC
310.00	PF7	<b>WHEELS:</b> 15" Aluminum (N/A w/1SA)

## INTERIOR AND EXTERIOR COLOR AVAILABILITY CHART

**PLEASE NOTE:** The Exterior Paint & Interior Trim Combinations Shown Below are the Only Combinations Available

TRIM LEVEL		Med Oak	Lt Gray	Med Gray	Md Neutral
Cloth Bucket		67B	92B	92E	52B
(a)(b)Custom Cloth Bucket		67C	92C	92G	52C
Exterior Colors	Color	RECOMMENDED INTERIOR			
Solid Paint	Code	TRIM COLORS			
Black	41U	x	x	x	x
Blue, Medium Opal (Met)	24U		x	x	x
Cherry, Dk (Met)	77U	x	x	x	x
Green, Dk Jade (Met)	56U	x	x	x	x
Sandrift (Met)	49U	x	x	x	x
Malachite Med (Met)	42U	x	x	x	x
Silvermist (Met)	17U		x	x	x
Red, Dk Carmine (Met)	51U	x	x	x	x
White, Bright	16U	x	x	x	x

(a) Includes Split Folding Rear Seat and Luggage Area Cargo Net

(b) N/A w/1SA

\*18,995.00

**Model 1NE69 Malibu LS Sedan**

\*Includes Destination &amp; Handling Charges

**MUST ORDER 1SD-- NO DELETIONS ALLOWED**

N.C.

**Base Preferred Equipment Group (Refer Standard Summary Page)**

1SD

**X****ADDITIONAL OPTIONS****ACKNOWLEDGMENTS:**

N.C. R8S Multiple Order Numbers  
 V.P.S. R8T Preliminary Invoice (Refer Vehicle Price Schedule)

**EMISSIONS: (MUST SPECIFY)**

N.C. FE9 Federal Emission Requirements  
 170.00 NG1 New York, Massachusetts or Connecticut Emission Requirements  
 170.00 YF5 California Emission Requirements  
 N.C. NB8 CA, NY, MA or CT Emission Override (Reqs FE9 Emissions)  
 N.C. NC7 Federal Emission Override (Reqs YF5 or NG1 Emissions)

30.00 K05 **HEATER:** Engine Block60.00 VH4 **MUD GUARDS:** Front and Rear**RADIO EQUIPMENT:**

100.00 UN0 Electronically Tuned AM/FM Stereo Radio w/Seek-Scan, Digital Clock, Automatic  
 Tone Control, Compact Disc Player, Theft Lock & Speed Compensated Volume  
 200.00 UN8 Electronically Tuned AM/FM Stereo Radio with Seek-Scan, Digital Clock, Automatic Tone  
 Control, Compact Disc Player, Dual Playback Remote Cassette, Theft Lock and Speed  
 Compensate Volume

595.00 CF5 **SUNROOF:** Electric, Sliding**INTERIOR AND EXTERIOR COLOR AVAILABILITY CHART**

**PLEASE NOTE:** The Exterior Paint & Interior Trim Combinations Shown Below  
 are the Only Combinations Available

TRIM LEVEL		Med Oak	Lt Gray	Med Gray	Md Neutral	Lt Neutral
N.C.	(a)LS Custom Cloth Bucket	67D	92D	92H	52D	
475.00	(a)LS Special Leather Bucket		922			522
Exterior Colors		RECOMMENDED INTERIOR				
Solid Paint		TRIM COLORS				
Color	Code					
Black	41U	X	X	X	X	X
Blue, Medium Opal (Met)	24U		X	X	X	X
Cherry, Dk (Met)	77U	X	X	X	X	X
Green, Dk Jade (Met)	56U	X	X	X	X	X
Sandrift (Met)	49U	X	X	X	X	X
Malachite Med (Met)	42U	X	X	X	X	X
Silvermist (Met)	17U		X	X	X	X
Red, Dk Carmine (Met)	51U	X	X	X	X	X
White, Bright	16U	X	X	X	X	X

(a) Includes Split Folding Rear Seat and Luggage Area Cargo Net



## NOTES

# MOTOR VEHICLE MANUFACTURERS SPECIFICATIONS

METRIC (U.S. CUSTOMARY)

## 1998

<b>Manufacturer</b> CHEVROLET MOTOR DIVISION GENERAL MOTORS CORPORATION	<b>Vehicle Line</b>  MALIBU	
<b>Mailing Address</b>  30007 VAN DYKE WARREN, MICHIGAN	<b>Issued</b>  SEPTEMBER, 1997	<b>Revised</b>

Direct questions concerning these specifications to the manufacturer listed above.

The information contained herein is prepared, distributed by, and is solely the responsibility of the vehicle manufacturing company to whose products it relates. This suggested specification form was developed by the vehicle manufacturing companies under the auspices of the American Automobile Manufacturers Association.

General Specifications herein are those in effect at date of compilation and are subject to change without notice of incurring obligation by the manufacturer.

# AAMA

**American Automobile Manufacturers Association**  
Forms Provided by Engineering Affairs Division

**AAMA Specifications****METRIC (U.S. Customary)**Vehicle Line MALIBUModel Year 1998Issued 9-97

Revised (●) \_\_\_\_\_

**Vehicle Origin**

Design & development (company)	General Motors Corporation, L.A.D. Lansing, Michigan
Where built (country)	U.S.A.
Authorized U.S. sales marketing representative	Chevrolet Motor Divisions

**Vehicle Models**

Model Description & Drive (FWD / RWD / AWD / 4WD)*	Introduction Date	Make, Vehicle Models, Series, Body Type (Mfgr's Model Code)	No. of Designated Seating Positions (Front / Rear)	Max. Trunk/Cargo Load-Kilograms (Pounds)	EPA Fuel Economy (City/Hwy)
MALIBU 4-Door Notchback (FWD)	9-97	1ND69	2/3	60(132)	23/32
MALIBU "LS" 4-Door Notchback (FWD)	9-97	1NE69	2/3	60(132)	20/29

\* FWD - Front Wheel Drive RWD - Rear Wheel Drive AWD - All Wheel Drive 4WD - Four Wheel Drive

**METRIC (U.S. Customary)**

Model Year 1998

Issued 9-97

Revised (●)

SAE J1349 Net bhp (brake horsepower) and Net Torque corrected to 77°F/25°C and 29.61 in. Hg/100 kPa atmospheric pressure.

			A	B	D	
E N G I N E	Engine Code		LD9	L82		
	Displacement Liters (in³)		2.4 (146)	3.1 (191)		
	Induction system (FI, Carb, etc.)		Sequential Fuel Injection	Sequential Fuel Injection		
	Compression ratio		9.5:1	9.6:1		
	SAE Net at RPM	Power kW (bhp)	112 (150) @ 5600	112 (150) @ 4800		
		Torque N • m (lb.ft.)	210 (155) @ 4400	244 (180) @ 3200		
	Exhaust single, dual		Single	Single		
T R A N S	Transmission/ Transaxle		MN4	MN4		
	Effective Final Drive / Axle Ratio (std. first)		3.42	3.05		

[illegible]

**Specifications**

 Vehicle Line MALIBU

 Model Year 1998 Issued 9-97 Revised (●) \_\_\_\_\_

**METRIC (U.S. Customary)**
**Engine Description**

Engine Code

2.4 LITER L4

LD9

**Engine - General**

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)	Inline, Front, Transverse, DOHC	
Manufacturer	General Motors Powertrain Group	
No. of cylinders	Four	
Bore	90 mm	
Stroke	94 mm	
Bore Spacing (C / L to C / L)	100 mm	
Cylinder block material & mass kg. (lbs.) (machined)	Cast Iron 52.5 (115.7)	
Cylinder block deck height	221.9 mm	
Cylinder block length	499.5 mm	
Deck clearance (minimum) (above or below block)	0	
Cylinder head material & mass kg. (lbs.)	Aluminum 9.0 (19.8)	
Cylinder head volume cm <sup>3</sup> (inches <sup>3</sup> )	59.5 (3.03)	
Cylinder liner material	Not Applicable	
Head gasket thickness (compressed)	1.2 mm	
Minimum combustion chamber total volume cm <sup>3</sup> (inches <sup>3</sup> )	130.09 (7.9)	
Cyl. no. system (front to rear) *	L. Bank	1-2-3-4
	R. Bank	Not Applicable
Firing order	1-3-4-2	
Intake manifold material & mass kg. (lbs.) **	Composite 1.4 (3.1)	
Exhaust manifold material & mass kg. (lbs.) **	High Silicon Moly Cast Iron 6.4 (14.1)	
Knock sensor (number & location)	One, Rear of Block	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) + 2	87	
Engine Mounts	Quantity	4-Automatic
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.)	(2) Hydroelastic, (2) Elastomeric-Automatic
	Added isolation (sub-frame, crossmember, etc.)	No
Total dressed engine mass (wt) dry ***		Automatic: 189.8 kg (With Oil), Manual: 201.2 kg (With Oil)

**Engine - Pistons**

Material & mass, g (weight, oz.) - piston only	Aluminum, 344 (12)
--	--------------------

**Engine - Camshaft**

Location	Dual Overhead Camshafts	
Material & mass kg (weight, lbs.)	Cast Iron, Intake: 2.85 (6.28) Exhaust: 2.84 (6.26)	
Drive type	Chain / belt	Chain
	Width / pitch	13.31 mm / 9.53 mm

\* Rear of engine - drive takeoff. View from drive takeoff end to determine left &amp; right side of engine.

\*\* Finished state.

\*\*\* Dressed engine mass (weight) includes the following: A/C Compressor Brackets &amp; Bolts, Radiator Pipe, Air Cleaner ASM., Ducts &amp; Bolts, Generators Brackets, Bolts &amp; ACC. Belt, Starter Motor &amp; Bolts, Transaxle Brace, Flywheel Cover &amp; Bolts, Exhaust Downpipe w/ Converter Bolts Evap EMIS Canister w/ Hoses, and Module Powertrain Control

**Specifications**

 Vehicle Line MALIBU

 Model Year 1998

 Issued 9-97

Revised (●) \_\_\_\_\_

**METRIC (U.S. Customary)**
**Engine Description**

Engine Code

3.1 LITER V6 (191 CID)

MULTI FUEL INJECTION RPO L82

**Engine - General**

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)	60 Degree V, Front, Transverse, OHV	
Manufacturer	General Motors Powertrain Group	
No. of cylinders	Six	
Bore	89.00	
Stroke	84.00	
Bore Spacing (C / L to C / L)	111.76	
Cylinder block material & mass kg. (lbs.) (machined)	Cast Iron, 55.6 (122.6)	
Cylinder block deck height	224.0 mm	
Cylinder block length	435.5 mm	
Deck clearance (minimum) (above or below block)	.58 mm (Above)	
Cylinder head material & mass kg. (lbs.)	Cast Aluminum	
Cylinder head volume cm <sup>3</sup> (inches <sup>3</sup> )	28.0 (1.71)	
Cylinder liner material	Not Applicable	
Head gasket thickness (compressed)	1.62 mm	
Minimum combustion chamber total volume cm <sup>3</sup> (inches <sup>3</sup> )	27.0 (1.65)	
Cyl. no. system (front to rear) *	L. Bank	2-4-6
	R. Bank	1-3-5
Firing order	1-2-3-4-5-6	
Intake manifold material & mass kg. (lbs.) **	Cast Aluminum, Upper: 3.0 (6.6), Lower: 5.6 (12.4)	
Exhaust manifold material & mass kg. (lbs.) **	High Silicon Moly Cast Iron, Right: 4.3 (9.5) Left 2.3 (5.0)	
Knock sensor (number & location)	One, Left Center of Block	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) + 2	87	
Engine Mounts	Quantity	4 Automatic
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.)	(2) Hydroelastic, (2) Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	No
Total dressed engine mass (wt) dry ***		184 kg

**Engine - Pistons**

Material & mass, g (weight, oz.) - piston only	Aluminum, 374 (13.2)
--	----------------------

**Engine - Camshaft**

Location	Above Crankshaft at Center of V	
Material & mass kg (weight, lbs.)	Assembled Steel, 2.3 (4.9)	
Drive type	Chain / belt	Chain
	Width / pitch	15.88mm x 9.53 mm

\* Rear of engine - drive takeoff. View from drive takeoff end to determine left &amp; right side of engine.

\*\* Finished state.

\*\*\* Dressed engine mass (weight) includes the following: A/C Compressor Brackets &amp; Bolts Radiator Pipe, Air Cleaner ASM., Ducts &amp; Bolts, Generator Brackets, Bolts &amp; ACC Belt Starter Motor &amp; Bolts, Transaxle Brace, Flywheel Cover &amp; Bolts, Exhaust Downpipe w/ Converter &amp; EVAP EMIS Canister w/ Hoses, and Module Powertrain Control

## Specifications

Vehicle Line MALIBU

Model Year 1998 Issued 9-97 Revised (●)

METRIC (U.S. Customary)

## Engine Description

Engine Code

2.4 LITER L4  
LD9

## Engine - Valve System

Hydraulic lifters (std., opt., n.a.)	Standard
Valves	Number intake / exhaust Eight/Eight
	Head O.D. intake / exhaust 35.5 mm / 29.0 mm

## Engine - Connecting Rods

Material & mass kg., (weight, lbs.)*	Steel 0.66 (1.46)
Length (axes C/L to C/L)	145 mm

## Engine - Crankshaft

Material & mass kg., (weight, lbs.)*	Cast Iron	21.4 (47.2)
End thrust taken by bearing (no.)	Three	
Length & number of main bearings	28.6 mm (1,2,4,5), 27.3 (3)	
Seal (material, one, two piece design, etc.)	Front	Viton, One Piece
	Rear	Viton, One Piece

## Engine - Lubrication System

Normal oil pressure kPa (psi) at engine rpm	207 (30) @ 2000
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.75 (4)

## Engine - Diesel Information

(NOT APPLICABLE)

Diesel engine manufacturer	
Glow plug, current drain at 0°F.	
Injector nozzle	Type Opening pressure kPa (psi)
Pre-chamber design	
Fuel Injection pump	Manufacturer Type
Fuel injection pump drive (belt, chain, gear)	
Supplementary vacuum source (type)	
Fuel heater (yes/no)	
Water separator, description (std., opt.)	
Turbo manufacturer	
Oil cooler-type (oil to engine coolant; oil to ambient air)	
Oil filter	

## Engine - Intake System

(NOT APPLICABLE)

Turbo charger - manufacturer	
Super charger - manufacturer	
Intercooler	

\* Finished State

**Specifications**

 Vehicle Line MALIBU

 Model Year 1998

 Issued 9-97

Revised (•) \_\_\_\_\_

**METRIC (U.S. Customary)**
**Engine Description**
**Engine Code**

3.1 LITER V6 (191 CID)

MULTI FUEL INJECTION RPO L82

**Engine - Valve System**

Hydraulic lifters (std., opt., n.a.)	Standard
Valves	Number intake / exhaust Head O.D. intake / exhaust
	Six/Six 43.9 mm / 36.2 mm

**Engine - Connecting Rods**

Material & mass kg., (weight, lbs.)*	Forged Steel .59 (1.3)
Length (axes C/L to C/L)	144.7 mm

**Engine - Crankshaft**

Material & mass kg., (weight, lbs.)*	Cast Iron 17.2 (37.9)
End thrust taken by bearing (no.)	Three
Length & number of main bearings	29.5 mm (1.4), 24.0 mm (2.3)
Seal (material, one, two piece design, etc.)	Front Rear
	Viton/Steel, One Piece Viton/Steel, One Piece

**Engine - Lubrication System**

Normal oil pressure kPa (psi) at engine rpm	280-360 (40-52) @ 2400
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.8 (4.0)

**Engine - Diesel Information**

(NOT APPLICABLE)

Diesel engine manufacturer	
Glow plug, current drain at 0°F.	
Injector nozzle	Type Opening pressure kPa (psi)
Pre-chamber design	
Fuel Injection pump	Manufacturer Type
Fuel injection pump drive (belt, chain, gear)	
Supplementary vacuum source (type)	
Fuel heater (yes/no)	
Water separator, description (std., opt.)	
Turbo manufacturer	
Oil cooler-type (oil to engine coolant; oil to ambient air)	
Oil filter	

**Engine - Intake System**

(NOT APPLICABLE)

Turbo charger - manufacturer	
Super charger - manufacturer	
Intercooler	

• Finished State



**Specifications**

 Vehicle Line MALIBU

 Model Year 1998

 Issued 9-97

Revised (●) \_\_\_\_\_

**METRIC (U.S. Customary)**
**Engine Description**
**Engine Code**

 2.4 LITER L4  
LD9

**Engine - Cooling System**

Coolant recovery system (std., opt., n.a.)		Standard
Coolant fill location (rad., bottle)		Bottle
Radiator cap relief valve pressure kPa (psi)		103 (15)
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open at °C (°F)	82 (180)
Water pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	9
	Number of pumps	One
	Drive (V-belt, other)	Chain
	Bearing type	Double Row (Ball)
	Impeller material	Sheet Metal
	Housing material	Cast Aluminum
By-pass recirculation type (inter., ext.)		External
Cooling System capacity	With heater - L (qt.)	9.8 (10.4)
	With air conditioner - L (qt.)	9.8 (10.4)
	Opt. equipment specify - L (qt.)	Not Applicable
Water jackets full length of cyl. (yes, no)		Yes
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes, no)		Yes
Radiator core	Std., A/C, HD	A/C
	Type (cross-flow, etc.)	Cross Flow
	Construction (fin & tube mechanical, braze, etc.)	Header Tube & Center - Brazed
	Material, mass kg (wgt., lbs.)	Aluminum, 1.53 kg. (3.4 lbs.)
	Width	660 mm. (26.0 in.)
	Height	360 mm. (14.2 in.)
	Thickness	16 mm. (0.63 in.)
	Fins per inch	16.9 fpi (3.0 K)
Radiator end tank material		Glass filled Nylon (33%)
Fan	Std., elec., opt.	Electric
	Number of blades & type (flex, solid, material)	7 Blade Solid Nylon 66
	Number & location (front, rear of radiator)	2 - Rear of Radiator
	Diameter & projected width	320 mm. (12.6 in.), Shroud width = 649 mm. (25.6 in.)
	Ratio (fan to crankshaft rev.)	N/A
	Fan cutout type	N/A
	Drive type (direct, remote)	Remote
	RPM at idle (elec.)	High speed: 2100 RPM - Left, 1700 RPM - Right
	Motor rating (wattage/elec.)	200 W total
	Motor switch (type & location/elec.)	Relay
	Switch point (temp./pressure/elec.)	Low = 106C, High = 111C Coolant; Low = 153 PSI, High 224 PSI A/C Head
	Fan shroud (material)	Nylon 66

## AAMA Specifications

Vehicle Line MALIBUModel Year 1998Issued 9-97

Revised (●) \_\_\_\_\_

## METRIC (U.S. Customary)

## Engine Description

## Engine Code

3.1 LITER V6 (191 CID)

SEQUENTIAL FUEL INJECTION RPO L82

## Engine - Cooling System

Coolant recovery system (std., opt., n.a.)		Standard
Coolant fill location (rad., bottle)		Bottle
Radiator cap relief valve pressure kPa (psi)		103 (15)
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open at °C (°F)	91 (195)
Water pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	12
	Number of pumps	One
	Drive (V-belt, other)	Poly V-Belt
	Bearing type	Double Row (Ball/Roller)
	Impeller material	Cast Iron
Housing material		Aluminum
By-pass recirculation type (inter., ext.)		External
Cooling System capacity	With heater - L (qt.)	12.5 (13.2)
	With air conditioner - L (qt.)	12.5 (13.2)
	Opt. equipment specify - L (qt.)	Not Applicable
Water jackets full length of cyl. (yes, no)		Yes
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes, no)		Yes
Radiator core	Std., A/C, HD	A/C
	Type (cross-flow, etc.)	Cross-Flow
	Construction (fin & tube mechanical, braze, etc.)	Header Tube and Center Brazed
	Material, mass kg (wgt., lbs.)	1.53 kg (3.4 lbs)
	Width	660 mm (26 in)
	Height	360 mm (14.2 in)
	Thickness	16 mm (0.63 in)
	Fins per inch	16.9 fpi (3.0 K)
Radiator end tank material		Glass filled Nylon (33%)
Fan	Std., elec., opt.	Electric
	Number of blades & type (flex, solid, material)	7 Blade Solid Nylon 66
	Number & location (front, rear of radiator)	2 - Rear of Radiator
	Diameter & projected width	320 mm (12.6 in) Shroud width = 649 mm (26.6 in)
	Ratio (fan to crankshaft rev.)	N/A
	Fan cutout type	N/A
	Drive type (direct, remote)	Remote
	RPM at idle (elec.)	High Speed; 2100 RPM - Left, 1700 RPM Right
	Motor rating (wattage/elec.)	200 W total
	Motor switch (type & location/elec.)	Relay
	Switch point (temp./pressure/elec.)	low = 108C, High 111C Coolant; Low = 153 psi, High = 224 psi A/C Head
	Fan shroud (material)	Nylon 66

**Specifications**
**METRIC (U.S. Customary)**

 Vehicle Line **MALIBU**

 Model Year **1998** Issued **9-97** Revised (●)

**Engine Description**
**Engine Code**
**2.4 LITER L4**
**LD9**
**Engine - Fuel System** (See Supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used.)

Induction type: carburetor, fuel injection system, etc.		Sequential Fuel Injection
Manufacturer		Delphi
Carburetor no. of barrels		Not Applicable
Idle A/F mix.		PCM Controlled
Fuel injection	Point of injection (no.)	Ports (Four)
	Constant, pulse, flow	Pulse
	Control (electronic, mech.)	Electronic
	System pressure kPa (psi)	300 (44)
Idle speed-rpm (spec. neutral or drive and propane if used)	Manual	Not Applicable
	Automatic	600 RPM
Intake manifold heat control (exhaust or water thermostatic or fixed)		Not Applicable
Air cleaner type		Replacement Paper Element
Fuel filter (type/location)		Inline, Replaceable / Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Tank
	Pressure range kPa (psi)	0-300 (0-43.5)
	Flow rate at regulated pressure L (gal)/hr @ kPa (psi)	72 @ 300 (19 @ 43.5)

**Fuel Tank**

Capacity refill L (gallons)		56.8 L. (15.0 gal.)
Location (describe)		Under Rear Seat, Forward of Rear Axle
Attachment		Underbody Straps (2)
Material & Mass kg. (weight lbs.)		Steel 9.775 kg. (21.54 lbs.)
Filler pipe	Location & material	Right Rear Quarter Panel - Steel
	Connection to tank	Hose and Clamps
Fuel line (material)		Steel/Nylon
Fuel hose (material)		Rubber
Return line (material)		Steel/Nylon
Vapor line (material)		Steel/Nylon
Extended range tank	Opt., n.a.	Not Applicable
	Capacity L (gallons)	Not Applicable
	Location & material	Not Applicable
	Attachment	Not Applicable
Auxiliary tank	Opt., n.a.	Not Applicable
	Capacity L (gallons)	Not Applicable
	Location & material	Not Applicable
	Attachment	Not Applicable
	Selector switch or valve	Not Applicable
	Separate fill	Not Applicable

**Specifications**
**METRIC (U.S. Customary)**

 Vehicle Line MALIBU

 Model Year 1998

 Issued 9-97

Revised (●) \_\_\_\_\_

**Engine Description**
**Engine Code**
**3.1 LITER V6 (191 CID)**
**SEQUENTIAL FUEL INJECTION RPO L82**
**Engine - Fuel System** (See Supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used.)

Induction type: carburetor, fuel injection system, etc.		Sequential Fuel Injection
Manufacturer		Delphi
Carburetor no. of barrels		Not Applicable
Idle A/F mix.		PCM Controlled
Fuel injection	Point of injection (no.)	Ports (Six)
	Constant, pulse, flow	Pulse
	Control (electronic, mech.)	Electronic
	System pressure kPa (psi)	300 (43.5)
Idle speed-rpm (spec. neutral or drive and propane if used)	Manual	Not Applicable
	Automatic	PCM Controlled
Intake manifold heat control (exhaust or water thermostatic or fixed)		Fixed
Air cleaner type		Replaceable Paper Element
Fuel filter (type/location)		Inline, Replaceable / Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Tank
	Pressure range kPa (psi)	0-300 (0-43.5)
	Flow rate at regulated pressure L (gal)/hr @ kPa (psi)	72 @ 300 (19 @ 43.5)

**Fuel Tank**

Capacity refill L (gallons)		56.8 L. (15.0 gal.)
Location (describe)		Under Rear Seat, Forward of Rear Axle
Attachment		Underbody Straps (2)
Material & Mass kg. (weight lbs.)		Steel 9.775 kg. (21.54 lbs.)
Filler pipe	Location & material	Right Rear Quarter Panel - Steel
	Connection to tank	Hose and Clamps
Fuel line (material)		Steel/Nylon
Fuel hose (material)		Rubber
Return line (material)		Steel/Nylon
Vapor line (material)		Steel/Nylon
Extended range tank	Opt., n.a.	Not Applicable
	Capacity L (gallons)	Not Applicable
	Location & material	Not Applicable
	Attachment	Not Applicable
Auxiliary tank	Opt., n.a.	Not Applicable
	Capacity L (gallons)	Not Applicable
	Location & material	Not Applicable
	Attachment	Not Applicable
	Selector switch or valve	Not Applicable
	Separate fill	Not Applicable

**Specifications**
**METRIC (U.S. Customary)**
**Engine Description**  
**Engine Code**

 Vehicle Line MALIBU

 Model Year 1998

 Issued 9-97

Revised (●) \_\_\_\_\_

 2.4 LITER L4  
 LD9

**Vehicle Emission Control**

Type (air injection, engine modifications, other)			See Below
Exhaust Emission Control	Air injection	Pump or pulse	Not Applicable
		Driven by	Not Applicable
		Air distribution (head, manifold, etc.)	Not Applicable
		Point of entry	Not Applicable
	Exhaust Gas	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	Exhaust Manifold
	Recirculation	Point of exhaust injection (spacer, carburetor, manifold, other)	Intake Manifold
	Catalytic Converter	Type	Three - Way Monolith
		Number of	One
Locations(s)		Underfloor	
Volume L (in³)		2.67 (163)	
Substrate type		Ceramic	
	Noble metal type	Platinum, Rhodium	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Positive Vent System w/ Orifice Metering to Intake
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum
	Discharges to (intake manifold, other)		Intake Manifold
	Air inlet (breather cap, other)		Not Applicable
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	From Fuel Tank To	Canister
		From Carburetor To	Not Applicable
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		No

**Engine - Exhaust System**

Type (single, single with cross-over, dual, other)		Single
Muffler no. & type (reverse flow, straight thru, separate resonator), Muffler volume (liters), Material & Mass kg. (weight lbs.)		409 Aluminum Stainless Steel Muffler 8.9 kg. (19.6 lbs.) 1, Reverse Flow
Resonator no., type, & volume (liters)		One (2.0 L.)
Exhaust pipe	Branch o.d., wall thickness	Not Applicable
	Main o.d., wall thickness	43.8, 1.9 mm. (1.75, .076 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel 7.2 kg. (15.9 lbs.)
Intermediate pipe	o.d. & wall thickness	50.0, 1.35 mm. (2.0, .054 in.)
	Material & Mass kg. (weight lbs.)	409 SAE Stainless Steel 5.9 kg. (13.0 lbs.)
Tail pipe	o.d. & wall thickness	50.0, 1.08 mm. (2.0, .043 in.)
	Material & Mass kg. (weight lbs.)	409 Aluminum Stainless Steel

## Specifications

Vehicle Line MALIBU

Model Year 1998

Issued 9-97

Revised (●)

METRIC (U.S. Customary)

## Engine Description

Engine Code

2.4 LITER L4  
LD9

## Vehicle Emission Control

Type (air injection, engine modifications, other)		See Below	
Exhaust Emission Control	Air injection	Pump or pulse	Not Applicable
		Driven by	Not Applicable
		Air distribution (head, manifold, etc.)	Not Applicable
		Point of entry	Not Applicable
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	Exhaust Manifold
		Point of exhaust injection (spacer, carburetor, manifold, other)	Inlet Manifold
	Catalytic Converter	Type	Single Bed Monolith
		Number of	One
		Locations(s)	Underfloor
		Volume L (in <sup>3</sup> )	1.8 (110)
		Substrate type	Ceramic
		Noble metal type	Platinum, Rhodium
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Positive Vent System w/ Orifice Metering to Intake
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum
	Discharges to (intake manifold, other)		Intake Manifold
	Air inlet (breather cap, other)		N/A
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	From Fuel Tank To	Canister
		From Carburetor To	Not Applicable
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		No

## Engine - Exhaust System

Type (single, single with cross-over, dual, other)		Single
Muffler no. & type (reverse flow, straight thru, separate resonator) , Muffler volume (liters), Material & Mass kg. (weight lbs.)		409 Aluminum Stainless Steel Muffler 8.9 kg. (19.6 lbs.) 1, Reverse Flow
Resonator no., type, & volume (liters)		One (2.0 L.)
Exhaust pipe	Branch o.d., wall thickness	Not Applicable
	Main o.d., wall thickness	43.8, 1.9 mm. (1.75, .076 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel 7.2 kg. (15.9 lbs.)
Intermediate pipe	o.d. & wall thickness	50.0, 1.35 mm. (2.0, .054 in.)
	Material & Mass kg. (weight lbs.)	409 SAE Stainless Steel 5.9 kg. (13.0 lbs.)
Tail pipe	o.d. & wall thickness	50.0, 1.08 mm. (2.0, .043 in.)
	Material & Mass kg. (weight lbs.)	409 Aluminum Stainless Steel

**Specifications**
**METRIC (U.S. Customary)**

Vehicle Line	MALIBU		
Model Year	1998	Issued	9-97
		Revised (●)	

**Engine Description**  
**Engine Code**

2.4 LITER L4  
LD9

**Transmissions/Transaxle (Std., Opt., N.A.)**

Manual 4-speed (manufacturer/country)	Not Applicable
Manual 5-speed (manufacturer/country)	Not Applicable
Manual 6-speed (manufacturer/country)	Not Applicable
Automatic (manufacturer/country)	Not Applicable
Automatic overdrive (manufacturer/country)	GM Powertrain Group/Canada (MN4) Std

**Manual Transmission/Transaxle (NOT APPLICABLE)**

Number of forward speeds		
Gear ratios	1st	
	2nd	
	3rd	
	4th	
	5th	
	6th	
	Reverse	
Synchronous meshing (specify gears)		
Shift lever location		
Trans. case material & mass kg. (lbs.) *		
Lubricant	Capacity L (pt.)	
	Type recommended	

**Clutch (Manual Transmission) (NOT APPLICABLE)**

Clutch manufacturer		
Clutch type (dry, wet; single, multiple disc)		
Linkage (hydraulic, cable, rod, lever, other)		
Max. pedal effort (nom. spring load) N (lbs.)	Depressed	
	Released	
Assist (spring, power/percent, nominal)		
Type pressure plate springs		
Total spring load (nominal) N (lbs.)		
Clutch facing	Facing mfg. & material coding	
	Facing material & construction	
	Rivets per facing	
	Outside x inside dia. (nominal)	
	Total eff. area cm <sup>2</sup> (in. <sup>2</sup> )	
	Thickness (pressure plate side/fly wheel side)	
	Rivet depth (pressure plate side/fly wheel side)	
	Engagement cushion method	
Release bearing type & method lub.		
Torsional damping method, springs, hysteresis		

\* Includes shift linkage, lubricant, and clutch housing. If other specify.

## Specifications

METRIC (U.S. Customary)

Vehicle Line MALIBU

Model Year 1998 Issued 9-97 Revised (●)

## Engine Description

## Engine Code

3.1 LITER V6 (191 CID)

SEQUENTIAL FUEL INJECTION RPO L82

## Transmissions/Transaxle (Std., Opt., N.A.)

Manual 4-speed (manufacturer/country)	Not Applicable
Manual 5-speed (manufacturer/country)	Not Applicable
Manual 6-speed (manufacturer/country)	Not Applicable
Automatic (manufacturer/country)	Not Applicable
Automatic overdrive (manufacturer/country)	GM Powertrain Group/Canada (MN4) Std

## Manual Transmission/Transaxle

(NOT APPLICABLE)

Number of forward speeds		
Gear ratios	1st	
	2nd	
	3rd	
	4th	
	5th	
	6th	
	Reverse	
Synchronous meshing (specify gears)		
Shift lever location		
Trans. case material & mass kg. (lbs.) *		
Lubricant	Capacity L (pt.)	
	Type recommended	

## Clutch (Manual Transmission)

(NOT APPLICABLE)

Clutch manufacturer		
Clutch type (dry, wet; single, multiple disc)		
Linkage (hydraulic, cable, rod, lever, other)		
Max. pedal effort (nom. spring load) N (lbs.)	Depressed	
	Released	
Assist (spring, power/percent, nominal)		
Type pressure plate springs		
Total spring load (nominal) N (lbs.)		
Clutch facing	Facing mfr. & material coding	
	Facing material & construction	
	Rivets per facing	
	Outside x inside dia. (nominal)	
	Total eff. area cm <sup>2</sup> (in. <sup>2</sup> )	
	Thickness (pressure plate side/fly wheel side)	
	Rivet depth (pressure plate side/fly wheel side)	
Engagement cushion method		
Release bearing type & method lub.		
Torsional damping method, springs, hysteresis		

\* Includes shift linkage, lubricant, and clutch housing. If other specify.



**Specifications**
**METRIC (U.S. Customary)**

 Vehicle Line MALIBU

 Model Year 1998 Issued 9-97 Revised (●) \_\_\_\_\_

**Engine Description**
**Engine Code**

 2.4 LITER L4  
LD9

**Automatic Transmission/Transaxle**

Trade Name		4T40-E
Type and special features (describe)		Four Speed, Front Wheel Drive, Electronically Controlled, Automatic Overdrive Transaxle w/ Viscous Torque Converter Clutch
Shift mechanics		Hydraulic Clutches/Electronic Controls
Gear selector	Location (column, floor, other)	Floor
	Ltr./No. designation (e.g. PRND21) *	P-R-N-(D)-D-2-1
	Shift interlock (yes, no, describe)	Yes - brake interlock
Gear ratios	1st	2.96
	2nd	1.63
	3rd	1.00
	4th	0.68
	5th	Not Applicable
	6th	Not Applicable
	Reverse	2.13
	Final drive ratio	3.05, Effective Final Drive: 3.42
Max. upshift vehicle speed - drive range km/h (mph)		168 (104)
Max. upshift engine speed RPM		6350
Max. kickdown speed - drive range km/h (mph)		160 (99)
Min. overdrive speed km/h (mph)		56 (35)
Torque converter	Type	Electronically Controlled Converter Clutch
	Torus design	Yes
	Number of elements	Three
	Max. ratio at stall	2.48
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245 mm
	Capacity factor "K" *	203
Pump type		Variable Displacement Vane
Lubricant	Capacity refill L (pt.)	Bottom Pan Service: 7 (14.8), Complete Overhaul: 10 (21.2)
	Type recommended	Dexron III
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, Integral w/ Radiator Liquid
Transmission mass kg (lbs.) & case material **		74.7 (164.7), Cast Aluminum

**All Wheel / 4 Wheel Drive (NOT APPLICABLE)**

Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.)		
Transfer case	Manufacturer and model	
	Type and location	
Low-range gear ratio		
System disconnect (describe)		
Center differential	Type (bevel, planetary, w or w/o viscous bias, torsen, etc.)	
	Torque split (% front/rear)	

 \* Input speed +  $\sqrt{\text{torque}}$ 

\*\* Dry weight including torque converter. If other, specify.

## Specifications

METRIC (U.S. Customary)

Vehicle Line MALIBU

Model Year 1998

Issued 9-97

Revised (●)

## Engine Description

## Engine Code

3.1 LITER V6 (191 CID)

SEQUENTIAL FUEL INJECTION RPO L82

## Automatic Transmission/Transaxle

Trade Name		4T40-E
Type and special features (describe)		Four Speed, Front Wheel Drive, Electronically Controlled Automatic Overdrive Transaxle with Viscous Torque Converter Clutch
Shift mechanics		Hydraulic Clutches/Electronic Controls
Gear selector	Location (column, floor, other)	Floor
	Ltr./No. designation (e.g. PRND21)	P-R-N- <b>D</b> -D-2-1
	Shift interlock (yes, no, describe)	Yes, Brake Interlock
Gear ratios	1st	2.96
	2nd	1.63
	3rd	1.00
	4th	0.68
	5th	Not Applicable
	6th	Not Applicable
	Reverse	2.13
	Final drive ratio	3.05
Max. upshift vehicle speed - drive range km/h (mph)		167 (104)
Max. upshift engine speed RPM		5600
Max. kickdown speed - drive range km/h (mph)		166 (103)
Min. overdrive speed km/h (mph)		58 (36)
Torque converter	Type	Electronically Controlled Converter Clutch
	Torus design	Yes
	Number of elements	Three
	Max. ratio at stall	2.0
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245 mm
Capacity factor "K"		140
Pump type		Variable Displacement Vane
Lubricant	Capacity refill L (pt.)	Bottom Pan Service : 7 (14.8), Complete Overhaul: 10 (21.1)
	Type recommended	Dexron III
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, Integral with Radiator Liquid
Transmission mass kg (lbs.) & case material**		74.7 (164.7), Aluminum

## All Wheel / 4 Wheel Drive

(NOT APPLICABLE)

Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.)		
Transfer case	Manufacturer and model	
	Type and location	
Low-range gear ratio		
System disconnect (describe)		
Center differential	Type (bevel, planetary, w or w/o viscous bias, torsen, etc.)	
	Torque split (% front/rear)	

\* Input speed +  $\sqrt{\text{torque}}$ 

\*\* Dry weight including torque converter. If other, specify.

**Specifications**
**METRIC (U.S. Customary)**

 Vehicle Line **MALIBU**

 Model Year **1998** Issued **9-97** Revised (●)

**Engine Description**
**Engine Code**
**2.4 LITER L4  
LD9**
**Axle Ratio and Tooth Combinations** (See 'Power Teams' for axle ratio usage)

Effective final drive ratio (or overall top gear ratio)			See Page 2
Transfer ratio and method (chain, gear, etc.)			
Front drive unit	Ring gear o.d.		
	No. of teeth	Pinion	
		Ring gear	

**Front Drive Unit**

Description (integral to trans., etc.)		
Limited slip differential (type)		
Drive pinion	Type	
	Offset	
No. of differential pinions		
Pinion / differential	Adjustment (shim, etc.)	
	Bearing adjustment	
Driving wheel bearing (type)		Integral Double Row Ball
Lubricant	Capacity L (pt.)	See Trans Spec
	Type recommended	See Trans Spec

**Axle Shafts - Front Wheel Drive**

Manufacturer and number used			Delphi Saginaw Steering Systems	
Type (straight, solid bar, tubular, etc.)		Left	Straight	Solid
		Right	Straight	Solid
Outer diam. x length* x wall thickness	Manual Transaxle	Left		
		Right		
	Automatic transaxle	Left	27.1 x 330.1 mm.	
		Right	27.1 x 330.1 mm.	
	Optional transaxle	Left		
		Right		
Slip yoke	Type			
	Number of teeth			
	Spline o.d.			
Universal joints	Make and mfg. no.		Inner	Delphi Saginaw Steering
			Outer	Delphi Saginaw Steering
	Number used		2	Inboard and Outboard on Each Axle Shaft
	Type, size, plunge		Inner	Free Motion Tripot 61.8 Stroke
			Outer	Rzeppa
	Attach (u-bolt, clamp, etc.)		Retaining Ring Inner	Washer and Nut Outer
	Bearing	Type (plain, anti-friction)	Inner - Ball and Roller	Outer - Ball
		Lubrication (fitting, prepack)	Prepacked	
Drive taken through (torque tube, arms or springs)			Wishbone Lower Control Arm Upper MacPherson	
Torque taken through (torque tube, arms or springs)			Engine Mounting System	

\* Centerline to centerline of universal joints, or to centerline of attachment.

## Specifications

METRIC (U.S. Customary)

Vehicle Line MALIBU

Model Year 1998

Issued 9-97

Revised (●)

## Engine Description

Engine Code

3.1 LITER L4 (191 CID)

SEQUENTIAL FUEL INJECTION RPO L82

## Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

Effective final drive ratio (or overall top gear ratio)			See Page 2
Transfer ratio and method (chain, gear, etc.)			
Front drive unit	Ring gear o.d.		
	No. of teeth	Pinion	
		Ring gear	

## Front Drive Unit

Description (integral to trans., etc.)		
Limited slip differential (type)		
Drive pinion	Type	
	Offset	
No. of differential pinions		
Pinion / differential	Adjustment (shim, etc.)	
	Bearing adjustment	
Driving wheel bearing (type)		
Lubricant	Capacity L (pt.)	
	Type recommended	

## Axle Shafts - Front Wheel Drive

Manufacturer and number used			Delphi Saginaw Steering	
Type (straight, solid bar, tubular, etc.)		Left	Straight Solid	
		Right	Straight Solid	
Outer diam. x length* x wall thickness	Manual Transaxle	Left		
		Right		
	Automatic transaxle	Left	27.1 x 330.1 mm.	
		Right	27.1 x 330.1 mm.	
	Optional transaxle	Left		
		Right		
Slip yoke	Type			
	Number of teeth			
	Spline o.d.			
Universal joints	Make and mfg. no.	Inner	Delphi Saginaw Steering	
		Outer	Delphi Saginaw Steering	
	Number used		2 (Inboard and Outboard on each axle shaft)	
	Type, size, plunge	Inner	Free Motion Tripot 61.8 stroke	
		Outer	Rzeppa Fixed Center	
	Attach (u-bolt, clamp, etc)		Retaining Ring Inner Washer and Nut Outer	
	Bearing	Type (plain, anti-friction)	Inner - Ball and Roller Outer - Ball	
		Lubrication (fitting, prepack)	Prepacked	
Drive taken through (torque tube, arms or springs)			Wishbone Lower Control Arm Upper MacPherson	
Torque taken through (torque tube, arms or springs)			Engine Mounting System	

\* Centerline to centerline of universal joints, or to centerline of attachment.

## AAMA Specifications

Vehicle Line MALIBUModel Year 1998Issued 9-97

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METRIC (U.S. Customary)

## Engine Description

Engine Code

2.4 LITER L4

LD9

## Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage) (NOT APPLICABLE)

Axle ratio (or overall top gear ratio)		
Ring gear o.d.		
No. of teeth	Pinion	
	Ring gear	

## Rear Axle Unit

(NOT APPLICABLE)

Description		
Limited slip differential (type)		
Drive pinion	Type	
	Offset	
No. of differential pinions		
Pinion / differential	Adjustment (shim, etc.)	
	Bearing adjustment	
Driving wheel bearing (type)		
Lubricant	Capacity L (pt.)	
	Type recommended	

## Propeller Shaft - Rear Wheel Drive

(NOT APPLICABLE)

Manufacturer			
Type (straight tube, tube-in-tube, internal-external damper, etc.)			
Outer diam. x length* x wall thickness	Manual 4-speed transmission		
	Manual 5-speed transmission		
	Manual 6-speed transmission		
	Overdrive		
	Automatic transmission		
Intermediate bearing	Type (plain, anti-friction)		
	Lubrication (fitting, prepack)		
Slip yoke	Type		
	Number of teeth		
	Spline o.d.		
Universal joints	Make and mfg. no.	Front	
		Rear	
	Number used		
	Type (ball and trunnion, cross)		
	Rear attach (u-bolt, clamp, etc.)		
	Bearing	Type (plain, anti-friction)	
		Lubrication (fitting, prepack)	
Drive taken through (torque tube, arms or springs)			
Torque taken through (torque tube, arms or springs)			

\* Centerline to centerline of universal joints, or to centerline of rear attachment.

## Specifications

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METRIC (U.S. Customary)

## Engine Description

Engine Code

2.4 LITER L4  
LD9

## Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage) (NOT APPLICABLE)

Axle ratio (or overall top gear ratio)		
Ring gear o.d.		
No. of teeth	Pinion	
	Ring gear	

## Rear Axle Unit

(NOT APPLICABLE)

Description		
Limited slip differential (type)		
Drive pinion	Type	
	Offset	
No. of differential pinions		
Pinion / differential	Adjustment (shim, etc.)	
	Bearing adjustment	
Driving wheel bearing (type)		
Lubricant	Capacity L (pt.)	
	Type recommended	

## Propeller Shaft - Rear Wheel Drive

(NOT APPLICABLE)

Manufacturer			
Type (straight tube, tube-in-tube, internal-external damper, etc.)			
Outer diam. x length* x wall thickness	Manual 4-speed transmission		
	Manual 5-speed transmission		
	Manual 6-speed transmission		
	Overdrive		
	Automatic transmission		
Intermediate bearing	Type (plain, anti-friction)		
	Lubrication (fitting, prepack)		
Slip yoke	Type		
	Number of teeth		
	Spline o.d.		
Universal joints	Make and mfg. no.	Front	
		Rear	
	Number used		
	Type (ball and trunnion, cross)		
	Rear attach (u-bolt, clamp, etc.)		
	Bearing	Type (plain, anti-friction)	
		Lubrication (fitting, prepack)	
Drive taken through (torque tube, arms or springs)			
Torque taken through (torque tube, arms or springs)			

\* Centerline to centerline of universal joints, or to centerline of rear attachment.

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Model Code/Description And/Or  
Engine Code/Description

ALL

## Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not available		N/A
	Manual/automatic control		N/A
	Type (air/hydraulic)		N/A
	Primary/assist spring		N/A
	Rear only/4 wheel leveling		N/A
	Single/dual rate spring		N/A
	Single/dual ride heights		N/A
	Provision for jacking		N/A
Shock absorber damping controls	Standard/option/not available		N/A
	Manual/automatic control		N/A
	Number of damping rates		N/A
	Type of actuation (manual/ electric motor/air, etc.)		N/A
	Sensors	Lateral acceleration	N/A
		Deceleration	N/A
		Acceleration	N/A
		Road surface	N/A
Shock absorber (front & rear)	Type		Twin Tube - MacPherson Struts
	Make		Delphi Chassis Systems
	Piston diameter		32 mm
	Rod diameter		22 mm

## Suspension - Front

Type and description		MacPherson Strut
Travel	Full jounce (define load condition)	93.0 mm Max. Eff. from Design
	Full rebound	89.0 mm Max. Eff. from Design
Spring	Type (coil, leaf, other & material)	Coil Steel
	Insulators (type & material)	Top & Bottom Rubber
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)	Design Height: 195.2 mm ID: 146 mm
	Spring rate N/mm (lb./in.)	31.5 N/mm
	Rate at wheel N/mm (lb./in.)	34.2 N/mm from Design
Stabilizer	Type (link, linkless, frameless)	Natural Rubber Multi-Piece Link
	Material & O.D. bar/tube, wall thickness	Tubular Steel 24 mm / 15% wall

## Suspension - Rear

Type and description			Tri-Link	
Travel	Full jounce (define load condition)		118.0 mm	Max. Eff. from Design
	Full rebound		101.0 mm	Max. Eff. from Design
Spring	Type (coil, leaf, other & material)		Coil - Steel	
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)		Design Height: 262.7 mm      ID: 105 mm	
	Spring rate N/mm (lb./in.)		17.5 N/mm	
	Rate at wheel N/mm (lb./in.)		20.18 N/mm at Design	
	Insulators (type & material)		Top - Rubber	
	If leaf	No. of leaves		
		Shackle (comp. or tens.)		
Stabilizer	Type (link, linkless, frameless)		Link	
	Material & O.D. bar/tube, wall thickness		Solid Steel 15.3 mm OD	
Track bar (type)				

## Specifications

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ALL

## Brakes - Service

Description			Power Assisted Hydraulic Brakes		
Manufacturer and brake type (std., opt., n.a.)		Front (disc or drum)	Standard Disc		
		Rear (disc or drum)	Standard Drum		
Valving type (proportion, delay, metering, other)			Proportioning, diagonal split circuit		
Power brake (std., opt., n.a.)			Standard		
Booster type (remote, integral, vac., hyd., etc.)			Tandem Vacuum		
Vacuum	Source (inline, pump, etc.)		Inline		
	Reservoir (volume in. <sup>3</sup> )		None		
	Pump-type(elec., gear or belt driven) *		N/A		
Traction assist	Operational speed range		N/A		
	Type (engine or brake intervention)		N/A		
Antilock device	Front/rear (std., opt., n.a.)		Standard		
	Manufacturer		Delphi Chassis Division - ABSVI		
	Type (electronic, mech.)		Electronic		
	Number sensors or circuits		4		
	Number antilock hydraulic circuits		3		
	Integral or add-on system		Add On		
	Yaw control (yes, no)		Yes		
Hyd. power source (elec., vac., mtr., pwr., strg.)		Electric Motor for Each Circuit			
Effective area cm <sup>2</sup> (in. <sup>2</sup> ) *			164.8 (25.5)	336.4 (52.1)	
Gross Lining area cm <sup>2</sup> (in. <sup>2</sup> ) ** (F/R)			170.4 (26.4)	358.2 (55.5)	
Swept area cm <sup>2</sup> (in. <sup>2</sup> ) *** (F/R)			1344.0 (208.3)	631.8 (97.9)	
Rotor	Outer working diameter	F/R	273.9 mm(10.8 in)	N/A	
	Inner working diameter	F/R	172.0 mm(6.8 in)	N/A	
	Thickness	F/R	26.0 mm (1.0 in)	N/A	
	Material & type (vented/solid)	F/R	Vented Cast Iron	N/A	
Drum	Diameter & width	F/R	N/A	225x45 mm (8.8x1.8 in)	
	Type and material	F/R	N/A	Cast Iron	
Wheel cylinder bore			60 mm (2.4 in)	22.2 mm (0.8 in)	
Master cylinder	Bore/stroke #	F/R	Bore - 25.4 mm (1.0 in)	Stroke - 34.6 mm (1.4 in)	
Pedal arc ratio			3.50:1		
Line press. at 445 N (100 lb.) pedal load (kPa (psi))			1600 psi Max		
Lining clearance		F/R	Both - Self Adjusting		
Brake lining	Front wheel	Bonded or riveted (rivets/seg.)		Molded	
		Rivet Size		N/A	
		Manufacturer		Bendix Mintex	
		Lining code *****		BM962-GF	
		Material		Non-Asbestos Organic	
		****	Primary or outboard	99.0 mm X 40.4 mm x 11.6 mm	
		Size	Secondary or inboard	99.0 mm x 40.4 mm x 10.6 mm	
		Shoe thickness (no lining)		Outboard - 5 mm	Inboard - 6 mm
	Rear wheel	Bonded or riveted (rvts/seg.)		Riveted 10 rvts/seg	
		Manufacturer		Delphi Chassis Systems	
		Lining code *****		DC 245FF	
		Material		DC 9103	
		****	Primary or out-board	227.1 mm x 44.2 mm x 5.7 mm	
		Size	Secondary or in-board	227.1 mm x 44.2 mm x 5.7 mm	
		Shoe thickness (no lining)		1.98 mm Nominal	

\*Excludes rivet holes, grooves, chamfers, etc.

\*\*Includes rivet holes, grooves, chamfers, etc.

\*\*\*Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)  
(Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by Pi/2 for each brake.)

\*\*\*\*Size for drum brakes includes length x width x thickness.

\*\*\*\*\*Manufacturer I.D., catalog for formulation designation and coefficient of friction classification.



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ALL

## Tires And Wheels (Standard)

Tires	Size (service description)		P215/60R15
	Type (bias, radial, steel, nylon, etc.)		Radial
	Inflation pressure (cold) for recommended max. vehicle load	Front kPa (psi)	(29)
		Rear kPa (psi)	(26)
	Rev./mile at 70 km/h (45 mph)		858
Wheels	Type & material		Stamped Steel
	Rim (size & flange type)		15 x 6
	Wheel offset		42 mm.
	Attachment	Type (bolt or stud & nut)	Stud
		Circle diameter	115 mm.
Spare	Tire and wheel		T125/70 D15, 15 x 4, Inflation 420 kPa (60 psi)
	Storage position & location (describe)		Under deck of luggage compartment

## Tires And Wheels (Optional)

Tire size (service description)	P215/60R15
Type (bias, radial, steel, nylon, etc.)	Radial
Wheel (type & material)	Aluminum
Rim (size, flange type and offset)	15 x 6J x 42 mm
Tire size (service description)	
Type (bias, radial, steel, nylon, etc.)	
Wheel (type & material)	
Rim (size, flange type and offset)	
Tire size (service description)	
Type (bias, radial, steel, nylon, etc.)	
Wheel (type & material)	
Rim (size, flange type and offset)	
Tire size (service description)	
Type (bias, radial, steel, nylon, etc.)	
Wheel (type & material)	
Rim (size, flange type and offset)	
Spare tire and wheel size	
(if configuration is different than road tire or wheel, describe optional spare tire and/or wheel location & storage position)	

## Brakes - Parking

Type of control		Foot park brake lever - Self adjusting mechanism
Location of control		Hinge pillar - Under I.P.
Operates on		Rear brakes
If separate from service brakes	Type (internal or external)	N/A
	Drum diameter	N/A
	Lining size (length x width x thickness)	N/A

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ALL

## Steering

Manual (std., opt., n.a.)			N/A		
Power (std., opt., n.a.)			Standard		
Speed-sensitive (std., opt., n.a.)			Not Applicable		
4-wheel steering (std., opt., n.a.)			"		
Adjustable steering wheel/column (tilt, telescope, other)		Type	Tilt (N33) Std		
		Manufacturer	Delphi Saginaw Steering System		
		(std., opt., n.a.)	Standard		
Wheel diameter** (W9) SAE J1100		Manual	None		
		Power	Not Applicable		
Turning diameter m (ft.)	Outside front	Wall to wall (l. & r.)	"		
		Curb to curb (l. & r.)	11.0 (36.3)		
	Inside rear	Wall to wall (l. & r.)	"		
		Curb to curb (l. & r.)	"		
Scrub Radius*			-2.4		
Manual	Gear	Type	Not Applicable		
		Manufacturer	"		
		Ratios	Gear	"	
			Overall	"	
	No. wheel turns (stop to stop)	"			
Power	Type (coaxial, elec. hyd., etc.)		Hydraulic Pump		
	Manufacturer		Delphi Saginaw Steering Systems		
	Gear	Type	Rack and Pinion		
		Ratios	Gear	45.13 mm/rev	
			Overall	16.4:1	
	Pump (drive)		4 Cyl - Direct drive off cam shaft; 6 Cyl - Belt drive off crankshaft		
	No. wheel turns (stop to stop)		2.9		
Linkage	Type		End take off tie rods, rack and pinion		
	Location (front or rear of wheels, other)		Rear of Wheels		
	Tie rods (one or two)		Two		
Steering axis	Kingpin Inclination (deg.)		13.11		
	Bearings (type)	Upper	Ball Bearing		
		Lower	Ball Joint		
		Thrust	Incorporated in Upper Bearing		
Steering spindle/knuckle & joint type			MacPherson Strut		

\* The horizontal distance in the front elevation between wheel centerline and kingpin (ball joint) axis at ground.

\*\* See Page 23.

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## Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	4.3° ± 70°
		Camber (deg.)	-.30° ± .70°
		Toe-in outside track mm (in.)	+.10° ± 1/4°
	Service reset*	Caster (deg.)	N/A
		Camber (deg.)	-.30°
		Toe-in mm (in.)	+.10°
	Periodic M.V. in- spection	Caster (deg.)	Not Adjustable
		Camber (deg.)	-1.0° to +.40°
		Toe-in mm (in.)	-.15° to +.35°
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	-.40° ± .70°
		Toe-in outside track mm (in.)	0° ± 1/4°
	Service reset*	Camber (deg.)	-.40° (Not Adjustable)
		Toe-in mm (in.)	0°
	Periodic M.V. insp.	Camber (deg.)	-.40° (Not Adjustable)
		Toe-in mm (in.)	0

\* Indicates pre-set, adjustable, trend set or other.

## Electrical - Instruments and Equipment Gage

Speed-ometer	Type (analog, digital, std., opt.)		Analog Electric
	Trip odometer (std., opt., n.a.)		Standard
Head-up display	Standard, optional, not available		Not Applicable
	Type	Secondary, opto-electronic	Not Applicable
	Speedometer	Digital	Not Applicable
	Status/warning indicators	Turn signals, high beam, low fuel, check gauges	Not Applicable
	Brightness control	Day / night mode, adjustable	Not Applicable
EGR maintenance indicator			Not Applicable
Charge indicator	Type		Tell Tale
	Warning device (light, audible)		LED
Temperature indicator	Type		Gage
	Warning device (light, audible)		LED Tell Tale
Oil pressure indicator	Type		Tell Tale
	Warning device (light, audible)		Tell Tale Standard
Fuel indicator	Type		Gage
	Warning device (light, audible)		LED Tell Tale
Windshield wiper	Type (standard)		Variable Intermittent
	Type (optional)		N/A
	Blade length		Driver side: 22" Passenger side: 19"
	Swept area cm² (in.²)		7610.9 cm²
Windshield washer	Type (standard)		Wet Arm Nozzle
	Type (optional)		N/A
	Fluid level indicator (light, audible)		Tell Tale
Rear window wiper, wiper/washer (std., opt., n.a.)			N/A
Horn	Type		
	Number used		
Other			Cluster includes: A Tachometer, PRNDL Tell Tale includes: Check Oil, Theft System, Low Wash, Service Vehicle Soon, ABS, Brake, Seat Belt, High Beam, Right and Left Turn, Cruise, Low Coolant, Door Ajar, Air Bag, Check Engine.

## Specifications

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METRIC (U.S. Customary)

Engine Code/Description

2.4 LITER L4  
LD9

## Electrical - Supply System

Battery	Manufacturer	Delphi - E
	Model, std., (opt.)	Standard - 19000672
	Voltage	12
	Amps at 0° F. cold crank	600
	Minutes-reserve capacity	90
	Amps/hrs.-20 hr. rate	54
	Location	Engine Compartment - Front
Alternator	Manufacturer	Delphi
	Rating (idle/max. rpm)	42/105
	Ratio (alt. crank/rev.) *	2.77:1
	Output at idle (rpm, park)	53 Amps @ 93°C
	Optional (type & rating)	Not Applicable
Regulator	Type	Integral With Alternator

## Electrical - Starting System

Motor	Manufacturer	Delco Remy America
	Current drain _____ °C (°F)	400 Amps
	Power rating kw (hp)	1.6 (2.1)
Motor drive	Engagement type	Solenoid Actuated, Positive Engagement
	Pinion engages from (front, rear)	Front

## Electrical - Ignition System

Type	Electronic (std., opt., n.a.)		Standard
	Other (specify)		Not Applicable
Coil	Manufacturer		Delphi
	Model		1104001
	Current	Engine stopped - A	Less than 500 mA
		Engine idling - A	Less than 1.0 Ampre
Spark plug	Manufacturer		Delphi
	Model		41-192
	Thread (mm)		14 mm
	Tightening torque N-m (lb. ft.)		18.0 (13)
	Gap		1.5 mm
	Number per cylinder		One
Distributor	Manufacturer		Not Applicable
	Model		Not Applicable

## Electrical - Suppression

Locations & type	
------------------	--

**Specifications**

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**METRIC (U.S. Customary)**
**Engine Code/Description**

 3.1 LITER V6 (191 CID)  
 SEQUENTIAL FUEL INJECTION RPO L82

**Electrical - Supply System**

Battery	Manufacturer	Delphi - E
	Model, std., (opt.)	Standard - 19000672
	Voltage	12
	Amps at 0° F. cold crank	600
	Minutes-reserve capacity	90
	Amps/hrs.-20 hr. rate	54
	Location	Engine Compartment - Front
Alternator	Manufacturer	Delphi
	Rating (idle/max. rpm)	42/105
	Ratio (alt. crank/rev.)	2.75
	Output at idle (rpm, park)	48 Amps @ 675 RPM
	Optional (type & rating)	Not Applicable
Regulator	Type	Integral with Alternator

**Electrical - Starting System**

Motor	Manufacturer	Delco Remy America
	Current drain _____ °C (°F)	318 @ -30°C
	Power rating kw (hp)	1.3 (1.74)
Motor drive	Engagement type	Solenoid Actuated Positive Engagement
	Pinion engages from (front, rear)	Front

**Electrical - Ignition System**

Type	Electronic (std., opt., n.a.)		Standard
	Other (specify)		Not Applicable
Coil	Manufacturer		Delphi
	Model		Direct Ignition
	Current	Engine stopped - A	Less Than 100 mA
		Engine idling - A	Less Than 1.5 Ampres
Spark plug	Manufacturer		Delphi
	Model		41-940
	Thread (mm)		14
	Tightening torque N-m (lb. ft.)		10 - 20 (7 - 15)
	Gap		1.5 mm
	Number per cylinder		One
Distributor	Manufacturer		Not Applicable
	Model		Not Applicable

**Electrical - Suppression**

Locations & type	
------------------	--

**Specifications**
**METRIC (U.S. Customary)**
**Model Code/Description**

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**Body**

ALL

Structure	Unitized Body Construction including Front End Structure with Bolted - on Fenders and Hood
Bumper system front - rear	The front bumper fascia is attached to a plastic bumper beam which functions as the energy absorber as well as the beam the rear fascia is attached to a steel impact bar and utilizes a foam energy absorber. Both bumpers meet the 5 mph incorporated bumper labeling requirement.
Anti-corrosion treatment	Metal Body Uses Double Sided Galvanized Metal On All Exposed Metal Surfaces. The Paint Shop Process Includes Phosphate, ELPO, Sealers, Anti-Chip, Primers and TopCoat.

**Body - Miscellaneous Information**

Type of finish (lacquer, enamel, other)		High Solids Base Coat/Clear Coat Paint System
Hood	Material & mass	Outer GM 6093 m Grade 210 Type B, Inner Type A Mass ASM 15.52 kg
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Prop Rod
	Release control (internal, external)	Internal
Trunk lid	Material & mass	Inner GM 6185 m Outer GM 6093 m Grade 180 Type A Mass ASM 11.53 kg
	Type (counterbalance, other)	Goose Neck Torque Rod
	Internal release control (elec., mech., n.a.)	Electric
Hatchback lid	Material & mass	N/A
	Type (counterbalance, other)	N/A
	Internal release control (elec., mech., n.a.)	N/A
Tailgate	Material & mass	N/A
	Type (drop, lift, door)	N/A
	Internal release control (elec., mech., n.a.)	N/A
Vent window control (crank, friction, pivot, power)	Front	Not Applicable
	Rear	Not Applicable
Window regulator type (cable, tape, flex drive, etc.)	Front	Cross Arm
	Rear	Cable
Seat cushion type (e.g., 60/40 bucket, bench, wire, foam, etc.)	Front	Bucket
	Rear	Standard Bench / Optional 70/30 split folding (70/30 split folding STD in Level II)
	3rd seat	N/A

**Frame**

Type and description (separate frame, unitized frame, partially-unitized frame)	
---	--

## Specifications

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METRIC (U.S. Customary)

## Model Code/Description

ALL

## Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.)		Lap/Shoulder Belt Combination	N/A	Lap/Shoulder Belt Combination
	Standard / Optional	Second seat	Lap/Shoulder Belt Combination	Lap Belt	Lap/Shoulder Belt Combination
		Third seat			
Passive	Type & description (air bag, motorized-2-point belt, fixed belt, knee bolster, manual-lap belt)	First seat	Air Bag/Knee Bolster		Air Bag/Knee Bolster
	Standard / Optional	Second seat			
		Third seat			
Glass		SAE Ref.No.	69		
Windshield glass exposed surface area cm² (in.²)		S1	12306 cm² (1912 in.²)		
Side glass exposed surface area cm² (in.²) - total 2 sides		S2	11,001.5 cm² (1760.2 in.²)		
Backlight glass exposed surface area cm² (in.²)		S3	9650 cm² (1736 in.²)		
Total glass exposed surface area cm² (in.²)		S4	32,957.5 cm² (5273.2in.²)		
Windshield glass (type/thickness)			Laminated 4.8 mm		
Side glass (type/thickness)			Curved Tempered (Front) 4.0 mm (Rear) 3.5 mm		
Backlight glass (type/thickness)			Tempered 3.6 mm		
Tinted (yes/no, location)			Solex - All		
Solar control (yes/no, coated/batched, location)			Batched		

## Headlamps

Description (sealed beam, halogen, replaceable bulb, etc.)	Replaceable - 3 Bulbs Per Headlamp
Shape	Oval
Lo-beam type (2A1, 2B1, 2C1, etc.)	HB4 - 9006
Quantity	2
Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	HB3 - 9005
Quantity	2
Park Signal	3157 N/A (2)

## AAMA Specifications

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## Engine Code/Description

ALL

## Climate Control System

Air conditioning (std., opt., man., auto.)		Standard
Condenser	Type	STC
	Eff. face area (sq. mm.)	2096.4
	Fins per inch	18
Evaporator	Type	Plate - Round Tank
	Eff. face area (sq. mm.)	450.3
	Fins per inch	14
Heater core	Material	Aluminum
	Eff. face area (sq. mm.)	340.8
	Fins per inch	38
Compressor	Type	V5
	Displacement (cc.)	151
	Manufacturer	Delphi Harrison
	A/C pulley ratio	LD9 = 1.29:1
Accumulator	Type	Cylindrical Bottle
	Height (mm.)	205.8
	Diameter (mm.)	92.8
Receiver	Type	N/A
	Height (mm.)	N/A
	Diameter (mm.)	N/A
Refrigerant control (CCOT, TVS, etc.)		VDOT
Heater water valve (yes / no)		No
Refrigerant (R - 12, R - 134a, etc.)		R134a
Charge level (lbs. - oz.)		1.75 lbs
Cold engine lockout switch (yes / no)		Yes (based on compressor out pressure of 33psi or lower)
Wide open throttle cutout switch (yes / no)		No



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## Model Code/Description

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## Convenience Equipment (standard, optional, n.a.)

Clock (digital, analog)		Digital - Part of Radio Package
Compass / thermometer		Not Available
Console (floor, overhead)		Standard Full Floor
Defroster, electric windshield		Not Available
Defroster, electric backlight		Optional (C49) Standard on LS
Electronic	Diagnostic monitor (integrated, individual)	Not Available
	Instrument cluster (list instruments)	Standard (UH8): Tach, Fuel, Coolant Temp, Speedo, Trip Odometer
	Keyless entry	Optional (AU0) Standard on LS
	Tripminder (avg. spd., fuel)	Not Available
	Voice alert (list items)	Not Available
	Other	Standard Chime: Key Left In / Hdip On / Turn Signal On / Seatbelt / Park Brake / Check Gages
Fuel door lock (remote, key, electric)		Not Available
Integrated Child Seating	Std./opt. & location in vehicle	Not Applicable
	Number of occupants	Not Applicable
	Occupant weight/height (min. & max.)	Not Applicable
	Restraint system description (3 or 5-point belts/booster seat capability)	Not Applicable
Lamps	Auto head on/off delay, dimming	Standard Daytime Running Lamps (T61) with Automatic Light Control
	Cornering	Not Available
	Courtesy (map, reading)	Standard: Dome, Footwell Optional: Pass Visor Mirror, Dual reading Lights (DC4)
	Door lock, ignition	Not Available
	Engine compartment	Not Available
	Fog	Standard on LS
	Glove compartment	Standard
	Trunk	Standard
	Illuminated entry system (list lamps, activation)	Standard: Dome, Footwell Delayed Entry (door open/close) / Illuminated Exit (ign key removal)
	Other	Standard Ashtray Lamp, Battery Rundown protection from interior lamps left on
Mirrors	Day / night (auto., man.)	Optional (DC4) with dual reading lamps - Standard on LS
	L.H. (remote, power, heated)	Standard (D37) Remote/Optional (DD9) power
	R.H. (convex, remote, power, heated)	Standard (D37) Manual/Optional (DD9) power DD9 Standard on Level II
	Visor vanity (RH / LH, illuminated)	Standard: LH/RH covered mirror Optional RH Illuminated
Navigation system (describe)		Not Available
Parking brake-auto release (warning light)		Standard (foot operation) Warning Lights and Chime

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 Vehicle Line **MALIBU**

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**Convenience Equipment (standard, optional, n.a.)**

Power equipment	Deck lid (release, pull down)		Standard: Electric release with valet switch
	Door locks (manual, automatic, describe system)		Optional (AU3) Power Door Lock      Standard on LS
	Seats	2 - 4 - 6 way, etc.	2 Way Standard on Base Optional (AG1) 6 way Power Seat      Standard on LS
		Reclining (R.H., L.H.)	Not Available
		Memory (R.H.,L.H., preset recline)	Not Available
		Support (lumbar, hip, thigh, etc.)	Not Available
		Heated (R.H., L.H., other)	Not Available
	Side windows		Optional (A31) Power Windows with Driver Auto Down and Passenger Switch Lockout      Standard on LS
	Vent windows		Not Available
	Rear windows		Not Available
Radio systems	Antenna (location, whip, w/shield, power)		Standard: Fixed RH Rear Quarter (US6)
	Standard	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	(UM7): AM/FM Stereo Seek/Scan & Clock (UL0): AM/FM Stereo Cassette with Auto Tone Control and Speed Comp Volume (Standard on 1NE69 only)
	Optional		(UL0): AM/FM Stereo Cassette with Auto Tone Control and Speed Comp Volume (UN0): AM/FM Stereo CD with ATC/SCV and Theft Lock (UN8): AM/FM Stereo CD with ATC/SCV and Theft Lock with Remote Cassette
	Speaker (number, location)		Standard (U79): Dual 4x6 Coax Front Door / Dual 6x9 Extended Range Rear Shelf
	Roof: open air or fixed (flip-up, sliding, "T") N/A on Base		Optional (CF5): Power Sunroof - spoiler design with express open;
Speed control device		Optional (K34)      Standard on LS	
Speed warning device (light, buzzer, etc.)		Optional (UD4) 120 Km/Hr Warning Chime - Export Only	
Tachometer (rpm)		Standard	
Telephone system (describe)		Power Outlet for accessories	
Theft deterrent system		Standard: Passlock vehicle theft deterrent system	

**Trailer Towing**

Towing capable	Yes / No	Yes
Engine / transmission / axle	Std. / Opt.	Optional (L82/MN4/F83): 3.1 V6 / 4 Speed Auto / 3.05 axle
Tow class (I, II, III)*	Std. / Opt.	
Max. gross trailer wgt. (lbs.)	Std / Opt.	1000 lbs
Max. trailer tongue load (lbs.)	Std. / Opt.	100 lbs
Towing package available	Yes / No	No

\* Class I - 2,000 lbs.

Class II - 3,500 lbs.

Class III - 5,000 lbs.

## AAMA Specifications

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## METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

All dimensions to ground are for comparative purposes only. Dimensions are to be shown for all base body models of each vehicle line. SAE Ref. no. refers to the definition published in SAE Recommended Practice J1100 "Motor Vehicle Dimensions," unless otherwise specified.

## Model Code/Description

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## Width

Tread (front)	W101	1499 (59.0)
Tread (rear)	W102	1505 (59.3)
Vehicle width	W103	1763 (69.4)
Body width at SgRP (front)	W117	1762 (69.4)
Vehicle width (front doors open)	W120	3398 (133.8)
Vehicle width (rear doors open)	W121	3383 (133.2)
Tumble-home (degrees)	W122	25.1°
Outside mirror width	W410	1956 (77.0)

## Length

Wheelbase	L101	2719
Vehicle length	L103	4837 (190.4)
Overhang (front)	L104	1006
Overhang (rear)	L105	1111
Upper structure length	L123	2935 (115.6)
Rear Wheel C/L "X" coordinate	L127	4485 (176.6)

## Height \*\*

Passenger distribution (front/rear)	PD1 .2,3	2/3
Trunk/cargo load		
Vehicle height	H101	1432 (56.4)
Cowl point to ground	H114	948 (37.3)
Deck point to ground	H138	1063 (41.9)
Rocker panel-front to ground	H112	222 (8.7)
Rocker panel-rear to ground	H111	228 (9.0)
Windshield slope angle (degrees)	H122	59°
Backlight slope angle (degrees)	H121	65.2°

## Ground Clearance \*\*

Front bumper to ground	H102	211.7 (8.3)
Rear bumper to ground	H104	226.2 (9.0)
Bumper to ground front at curb mass (wt.)	H103	211.7 (8.3)
Bumper to ground rear at curb mass (wt.)	H105	226.2 (8.9)
Angle of approach (degrees)	H106	N/A
Angle of departure (degrees)	H107	N/A
Ramp breakover angle (degrees)	H147	13
Axle differential to ground (front/rear)	H153	N/A
Min. running ground clearance	H156	144 (5.7)
Location of min. running ground clear.		Front Suspension

\*\* All Vehicle Height And Ground Clearance Are Made Using EPA Loaded Vehicle Weight, Loading Conditions.

EPA loaded vehicle weight is the base vehicle weight plus all coolant and fluids necessary for operation plus 100% of the fuel capacity, plus the weight of all options and accessories which weigh three pounds or more and which are sold on at least 33% of the car line, plus two occupants.

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Vehicle Dimensions See Key Sheets for definitions

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## Front Compartment

SgRP front, "X" coordinate	L31	3147 (123.9)
Effective head room	H61	1000 (39.4)
Max. effective leg room (accelerator)	L34	1063 (41.9)
SgRP to heel point	H30	268 (10.6)
SgRP to heel point	L53	852 (33.5)
Back angle (degrees)	L40	24°
Hip angle (degrees)	L42	96.3°
Knee angle (degrees)	L44	124.3°
Foot angle (degrees)	L46	87°
Design H-point front travel	L17	238 (9.4)
Normal driving & riding seat track trvl.	L23	198 (7.8)
Shoulder room	W3	1409 (55.5)
Hip room	W5	1322 (52.0)
Upper body opening to ground	H50	1280 (50.4)
Steering wheel maximum diameter*	W9	386 (15.2)
Steering wheel angle (degrees)	H18	22.1°
Accel. heel pt. to steer. whl. cntr.	L11	459 (18.1)
Accel. heel pt. to steer. whl. cntr.	H17	647 (25.5)
Undepressed floor covering thickness	H67	11 (.43)

Front Compartment Interior Dimensions are Measured with the Seating Reference  
Point (SgRP) \_\_\_\_\_ mm forward and \_\_\_\_\_ mm Upward of Rearmost Position.

## Rear Compartment

SgRP point couple distance	L50	845 (33.3)
Effective head room	H63	955 (37.6)
Min. effective leg room	L51	965 (38.0)
SgRP (second to heel)	H31	300 (11.8)
Knee clearance	L48	70 (2.80)
Shoulder room	W4	1404 (55.3)
Hip room	W6	1322 (52.0)
Upper body opening to ground	H51	1300 (51.2)
Back angle (degrees)	L41	27°
Hip angle (degrees)	L43	92.7°
Knee angle (degrees)	L45	102°
Foot angle (degrees)	L47	125.4°
Depressed floor covering thickness	H73	15 (.59)

## Luggage Compartment

Usable luggage capacity L (cu. ft.)	V1	464 (16.4)
Liftover height	H195	723 (28.5)

## Interior Volumes (EPA Classification)

Vehicle class	Midsize
Interior volume index including trunk/cargo (cu. ft.)**	115.3
Trunk/cargo index (cu. ft.)	16.4

\* See page 14.

\*\* See definition page 33.

All linear dimensions are in millimeters (inches) unless otherwise noted.

\*\*\* EPA Loaded Vehicle Weight, Loading Conditions

## Specifications

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Vehicle Dimensions See Key Sheets for definitions

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Station Wagon/MPV\*

-Third Seat

(NOT APPLICABLE)

Seat facing direction	SD1	
SgRP couple distance	L85	
Shoulder room	W85	
Hip room	W86	
Effective leg room	L86	
Effective head room	H86	*
SgRP to heel point	H87	
Knee clearance	L87	
Back angle (degrees)	L88	
Hip angle (degrees)	L89	
Knee angle (degrees)	L90	
Foot angle (degrees)	L91	

Station Wagon/MPV\* - Cargo Space (NOT APPLICABLE)

Cargo length (open front)	L200	
Cargo length (open second)	L201	
Cargo length (closed front)	L202	
Cargo length (closed second)	L203	
Cargo length at belt (front)	L204	
Cargo length at belt (second)	L205	
Cargo width (wheelhouse)	W201	
Rear opening width at floor	W203	
Opening width at belt	W204	
Min. rear opening width above belt	W205	
Cargo height	H201	
Rear opening height	H202	
Tailgate to ground height	H250	
Front seat back to load floor height	H197	
Cargo volume index m <sup>3</sup> (ft. <sup>3</sup> )	V2	
Hidden cargo volume index m <sup>3</sup> (ft. <sup>3</sup> )	V4	
Cargo volume index-rear of 2-seat	V10	
Cargo volume index*	V6	
Cargo width at floor*	W500	
Maximum cargo height*	H505	

Hatchback - Cargo Space (NOT APPLICABLE)

Cargo length at front seatback height	L208	
Cargo length at floor (front)	L209	
Cargo length at second seatback height	L210	
Cargo length at floor (second)	L211	
Front seatback to load floor height	H197	
Second seatback to load floor height	H198	
Cargo volume index m <sup>3</sup> (ft. <sup>3</sup> )	V3	
Hidden cargo volume index m <sup>3</sup> (ft. <sup>3</sup> )	V4	
Cargo volume index - rear of 2-seat	V11	

All linear dimensions are in millimeters (inches) unless otherwise noted.

\* MPV - Multipurpose Vehicle

\*\* EPA Loaded Vehicle Weight, Loading Conditions

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## Vehicle Fiducial Marks

Fiducial Mark Number*		Define Coordinate Location
Front		X - Fiducial mark to vertical zero grid line - front measured horizontally, from the zero grid line to the front fiducial mark located on top of the front seat adjuster mounting bolt.
		Y - Fiducial mark to centerline of car - front, width measurement made from centerline car to fiducial mark located on top of the front seat adjuster mounting bolt.
		Z - Fiducial mark to horizontal zero grid line - front, measured vertically from zero grid line to front fiducial mark located on top of the front seat adjuster mounting bolt.
Rear		X - Fiducial mark to vertical zero grid line - rear, measured horizontally from the zero grid line to rear fiducial mark located on the rail (compartment pan - longitudinal.)
		Y - Fiducial mark to centerline of car - rear, width measurement made from centerline of car to fiducial mark located on the rail (compartment pan - longitudinal.)
		Z - Fiducial mark to horizontal zero grid line - rear, measured vertically from the zero grid line to rear fiducial mark located on the rail (compartment pan - longitudinal.)
NOTE: Provide 3 of 4 Fiducial Mark Locations		
Front	W21**	435 (17.1)
	L54**	2325 (91.5)
	H81**	131 (5.2)
	H161**	174.6 (6.9)
	H163**	160.2 (6.3)
Rear	W22**	563 (22.2)
	L55**	3975 (456.5)
	H82**	227.3 (8.9)
	H162**	280.5 (11.0)
	H164**	260.6 (10.3)

\* Reference - SAE Recommended Practice, J182a, Motor Vehicle Fiducial Marks.

\*\* Reference - SAE Recommended Practice J1100 - Motor Vehicle Dimensions.

\*\*\* EPA Loaded Vehicle Weight, Loading Conditions

All linear dimensions are in millimeters (inches) unless otherwise noted.

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[illegible]

\* \* ETWC - Equivalent Test Weight Class - basis for U.S. Environmental Protection Agency emission certifications.

Refer to ETWC code legend below for test weight class.

ETWC LEGEND					
A	=	1000	I	=	2000
B	=	1125	J	=	2125
C	=	1250	K	=	2250
D	=	1375	L	=	2375
E	=	1500	M	=	2500
F	=	1625	N	=	2625
G	=	1750	O	=	2750
H	=	1875	P	=	2875
			Q	=	3000
			R	=	3125
			S	=	3250
			T	=	3375
			U	=	3500
			V	=	3625
			W	=	3750
			X	=	3875
			Y	=	4000
			Z	=	4250
			AA	=	4500
			BB	=	4750
			CC	=	5000
			DD	=	5250
			EE	=	5500
			FF	=	5750

**Shipping Mass (weight) = Curb Weight Less:**

**33.8kgs**

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**Specifications**  
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		Optional Equipment Differential Mass (weight)*			
Code	Equipment	MASS, kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
AM9	Split Second Seat Back	1.0	4.0	5.0	
		(2.2)	(8.8)	(11.0)	
AP9	Convenience Net	.0	.2	.2	
		(.0)	(.4)	(.4)	
A31	Power Windows	2.5	1.5	4.0	
		(5.5)	(3.3)	(8.8)	
B37	Floor Mats - Front & Rear	1.6	1.2	2.8	
		(3.5)	(2.6)	(6.1)	
CF5	Electric Sun Roof	6.0	6.0	12.0	
		(13.2)	(13.2)	(26.4)	
C60	Air Conditioning	16.0	-1.0	15.0	
		(35.2)	(-2.2)	(33.0)	
K34	Cruise Control	1.9	0.0	1.9	
		(4.2)	(0)	(4.2)	
L82	3.1 L V6	0	0	0	
		(0)	(0)	(0)	
PF7	15" Aluminum Cast Wheel	-5.4	-5.4	-10.8	
		(-11.9)	(-11.9)	(-23.8)	
AUO	Lock Control - Remote Entry	.2	0	.2	
		(.4)	(0)	(.4)	
ULO	AM/FM Radio, Cass	.6	.2	.8	
		(1.3)	(.4)	(8.0)	
KO5	Engine Block Heater	.2	0	.2	
		(.4)	(0)	(.4)	
AU3	Electric Door Side Lock	0.8	0.4	1.2	
		(1.7)	(0.9)	(2.6)	
UN8	AM/FM with CD, Clock	1.8	.2	2.0	
		(4.0)	(.4)	(4.4)	

\* Also see Engine - General Section for dressed engine mass (weight.)



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\* Also see Engine - General Section for dressed engine mass (weight.)

