

General Information

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GENERAL

FUNDAMENTAL PROCEDURES

NOTICES, CAUTIONS AND WARNINGS

As you read through the various procedures, you will encounter Notices, Cautions and Warnings. Each one is there for a specific purpose. Notices give you added information that will assist you in completing a particular procedure. Cautions prevent you from making an error that could damage the vehicle. Warnings remind you to be especially careful in specific areas where carelessness can cause personal injury.

The following items contain general procedures you should always follow when working on a vehicle:

PROTECTION OF VEHICLE

Always cover fenders, seats, and floor areas before starting work. Operate the engine only in a well-ventilated area to avoid carbon monoxide poisoning.

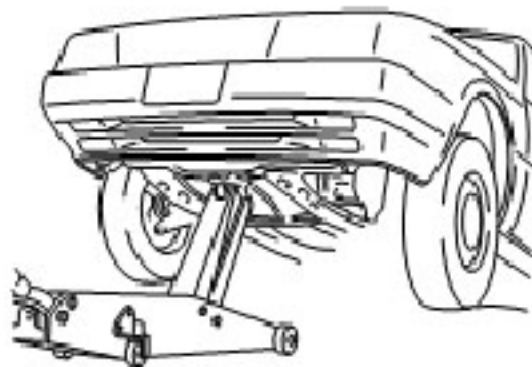


A WORD ABOUT SAFETY

The following precautions must be followed when jacking up the vehicle:

1. Block the wheels.
2. Use only the specified jacking positions.
3. Support the vehicle with safety stands.

The engine compartment must be clear of tools and people before starting the engine.



PREPARATION OF TOOLS AND MEASURING EQUIPMENT

All necessary tools and measuring equipment should be available before starting any work.



SPECIAL SERVICE TOOLS (SST'S)

Use special service tools when they are required. SST's can be found under "preparation" prior to any procedure requiring them.

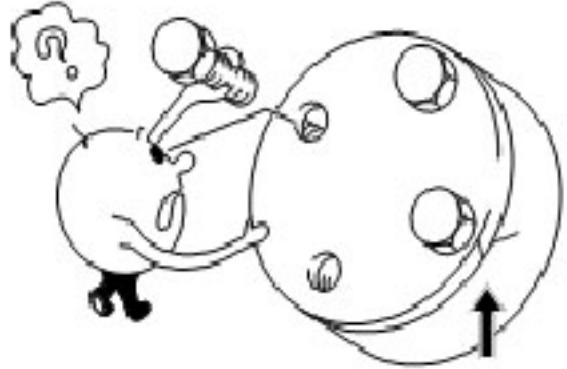
REMOVAL OF PARTS

Begin work only after first learning which parts and subassemblies must be removed and disassembled for replacement or repair.



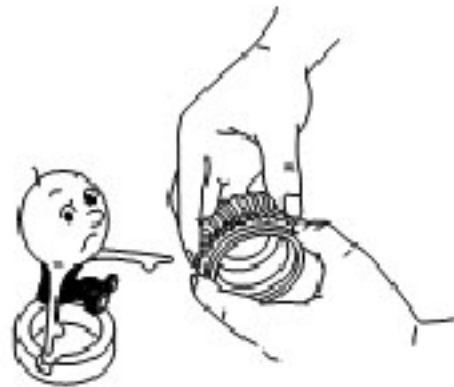
DISASSEMBLY

If the disassembly procedure is complex, requiring many parts to be disassembled, all parts should be disassembled in a way that will not affect their performance or external appearance. Additionally, these parts should be identified so that reassembly can be done easily and efficiently.



INSPECTION OF PARTS

When removed, each part should be carefully inspected for malfunction, deformations, damage, or other problems.



ARRANGEMENT OF PARTS

All disassembled parts should be carefully arranged for reassembly. Separate or otherwise identify the parts to be replaced from those that will be reused.



CLEANING PARTS FOR REUSE

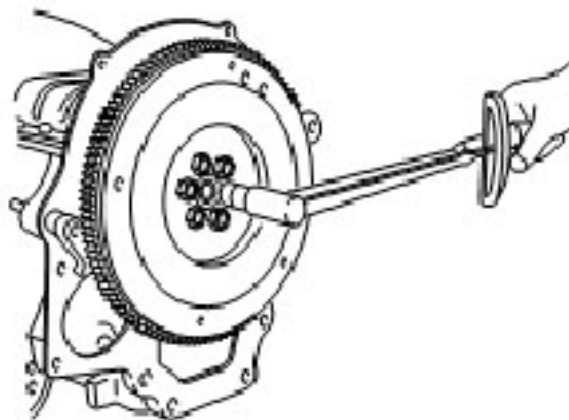
All parts that will be reused should be carefully and thoroughly cleaned using appropriate methods.



REASSEMBLY

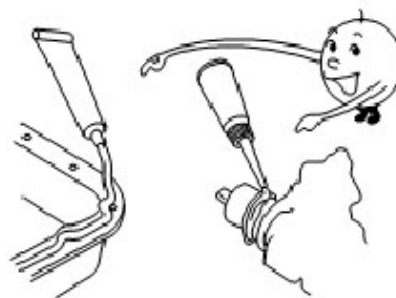
Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts. If removed, the following parts should be replaced with new ones:

- 1.Oil seals
- 2.O-rings
- 3.Cotter pins
- 4.Gaskets
- 5.Lock washers
- 6.Nylon nuts



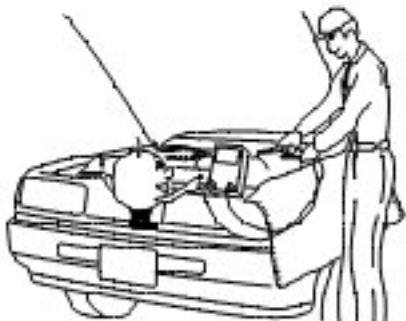
DEPENDING ON LOCATION:

- 1.Sealant should be applied or new gaskets installed.
- 2.Oil should be applied to the moving components of parts.
- 3.Specified oil or grease should be applied at the appropriate locations (such as oil seals) before reassembly.



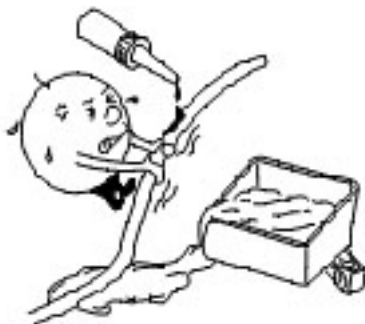
ADJUSTMENTS

Use appropriate gauges and/or testers when making adjustments.



RUBBER PARTS AND TUBING

Prevent gasoline or oil from contacting rubber parts or tubing.



ELECTRICAL TROUBLESHOOTING TOOLS (TEST LIGHT)

The test light, as shown in figure, uses a 12V bulb. The two lead wires should be connected to probes.

The test light is used for simple voltage checks and in checking for short circuits.

CAUTION

When checking the engine control module (ECM), never use a bulb exceeding 3.4W.

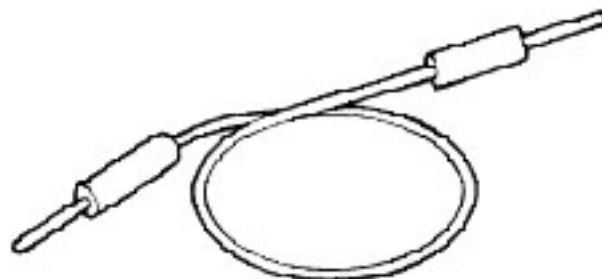


ELECTRICAL TROUBLESHOOTING TOOLS (JUMPER WIRE)

The jumper wire is used for testing by shorting across switch terminals ground connections.

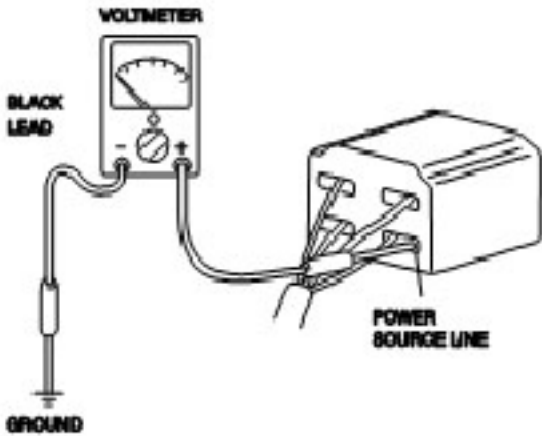
CAUTION

Do not connect a jumper wire from the power source line to a body ground. Such a connection may cause damage to harnesses or electronic components.



VOLTMETER

The DC voltmeter measures circuit voltage. A voltmeter with a range of 15V or more is used by connecting the positive (+) probe (red lead wire) to the point where voltage is to be measured, and the negative (-) probe (black lead wire) to a bodyground.

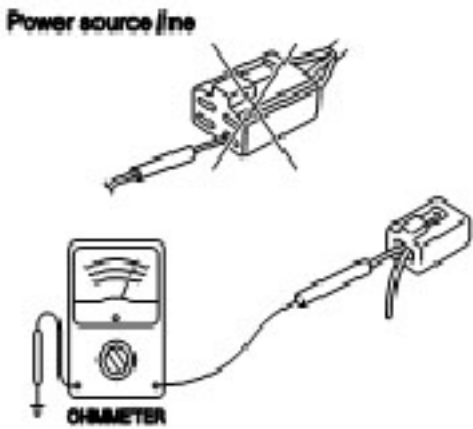


OHMMETER

The ohmmeter is used to measure the resistance between two points in circuit and also to check for continuity and the diagnosis of short circuits.

CAUTION

Do not attempt to connect the ohmmeter to any circuit in which voltage is applied. Such a connection may damage the ohmmeter.



ELECTRICAL PARTS

BATTERY CABLE

Before disconnecting connectors or replacing electrical parts, disconnect the negative battery cable.

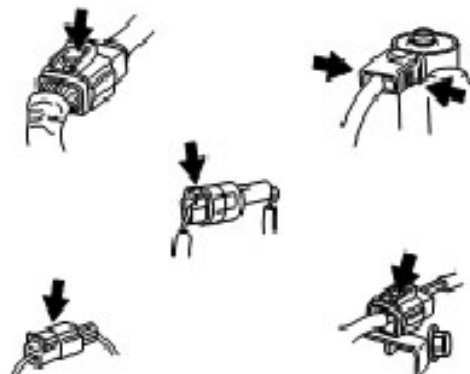


CONNECTORS(REMOVAL OF CONNECTOR)

1. Never pull on the wiring harness when disconnecting connectors.

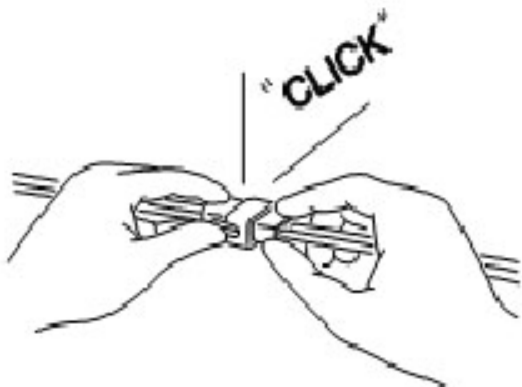


2. Connectors can be removed by pressing or pulling lock lever.

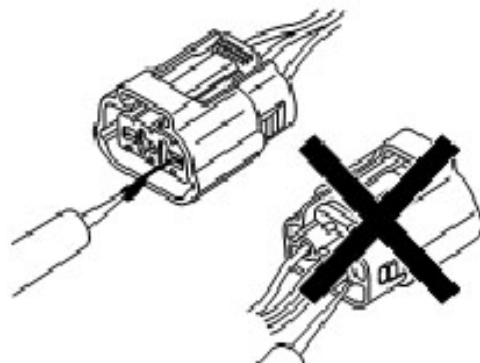


CONNECTORS (LOCKING A CONNECTOR)

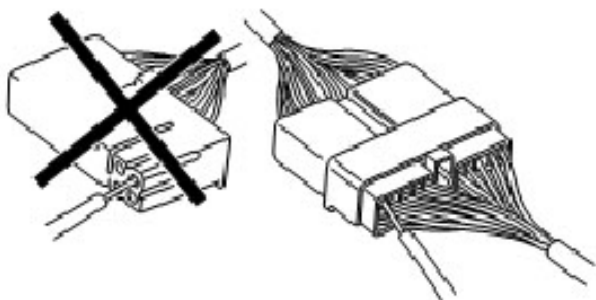
Listen for a click when locking connectors. This sound indicates that they are securely locked.



2. Check terminals of waterproof connectors from connector side because they cannot be accessed from harness side.

**CONNECTORS (INSPECTION)**

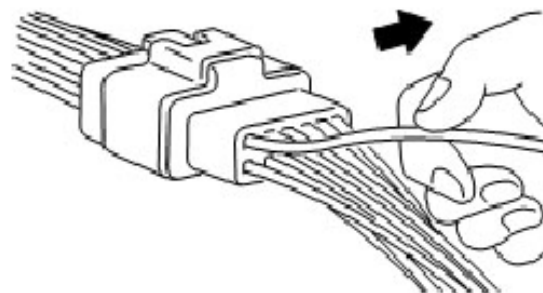
1. When a tester is used to check for continuity or to measure voltage, insert tester probe from wire harness side.

**NOTE**

- Use a fine wire to prevent damage to the terminal.
- Do not damage the terminal when inserting the tester lead.

TERMINALS (INSPECTION)

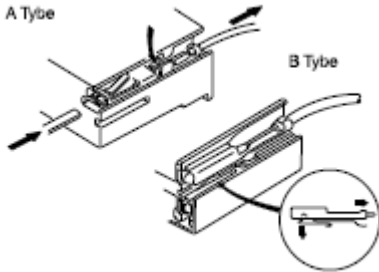
Pull lightly on individual wires to ensure that they are secured in the terminal.



REPLACEMENT OF TERMINALS

Use appropriate tools to remove terminal as shown. When installing the terminal, insert it until it locks securely.

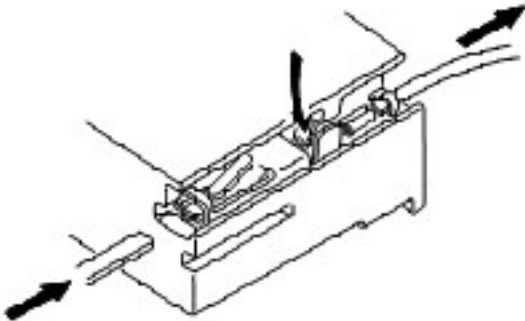
FEMALE



Insert a thin piece of metal from the terminal side of the connector, and then, with the terminal locking tab pressed down, pull the terminal out of the connector.

MALE

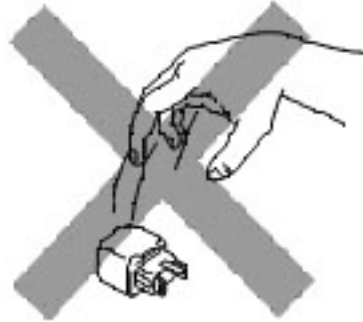
Follow the same procedure as female-type terminal.



SENSORS, SWITCHES, AND RELAYS

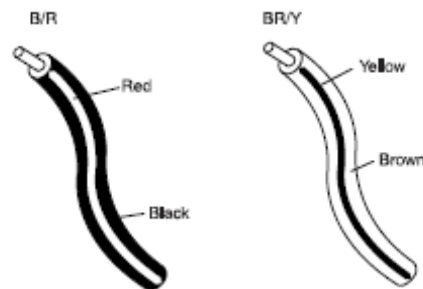
Always handle sensors, switches and relays carefully.

Do not drop them or accidentally strike them against other parts.



WIRING COLOR CODES

Two-color wires are indicated by a two-color code symbol. The first color indicates the base color of the wire; the second color indicates the color of the stripe.



CODE	COLOR	CODE	COLOR
B	BLACK	P	PINK
BR	BROWN	R	RED
G	GREEN	S	SILVER (LIGHT BLUE)
GY	GRAY	T	TAWNY
L	BLUE	V	VIOLET
LG	LIGHT GREEN	W	WHITE
O	ORANGE	Y	YELLOW

VEHICLE IDENTIFICATION NUMBER LOCATION



VIN

VEHICLE IDENTIFICATION NUMBER DESCRIPTION

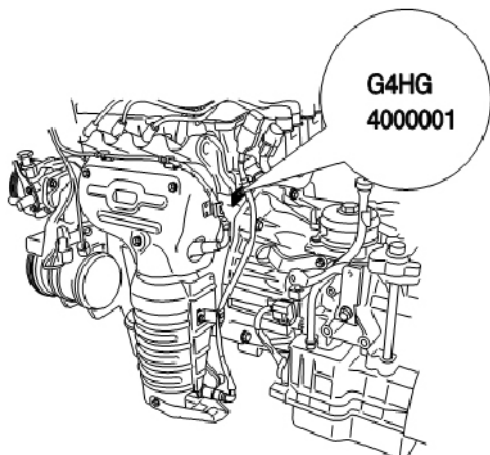
Sample VIN: 2W9 M P H 55 7 2 P 044 XXX
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

- 1- "2W9" - as assigned by the Motor Vehicle Manufacturer's Association
- 2- "M"- Type of cycle: (M) for motorcycle
- 3- "P" - Type of GO-4: (P) for police
- 4- "H" - Type of engine: (H) for Hyundai
- 5- "55" - Net brake horse power: 55hp
- 6- "7" - Check digit
- 7- "2" - Vehicle model year: (2) for 2002 as per tables
- 8- "P" - Plant of manufacture: (P) for Portage la Prairie
- 9- "044" - (044) as assigned by the Motor Vehicle Manufacturers Association
- 10- "XXX" - The numbers sequentially assigned by the manufacturer in the production process

Table – Vehicle Model Year

Year	Code	Year	Code
1991	M	2001	1
1992	N	2002	2
1993	P	2003	3
1994	R	2004	4
1995	S	2005	5
1996	T	2006	6
1997	V	2007	7
1998	W	2008	8
1999	X	2009	9
2000	Y	2010	A

**ENGINE IDENTIFICATION NUMBER LOCATION
(GASOLINE)**



ENGINE IDENTIFICATION NUMBER DESCRIPTION

MODEL	1	2	3	4	5	6	7	8	9	10	11
EPSILON ENGINE (1.1)	G	4	H	G	4	0	0	0	0	0	1

1: Engine fuel
-G = Gasoline

2: Engine range
-4= 4 Cycle 4 cylinder

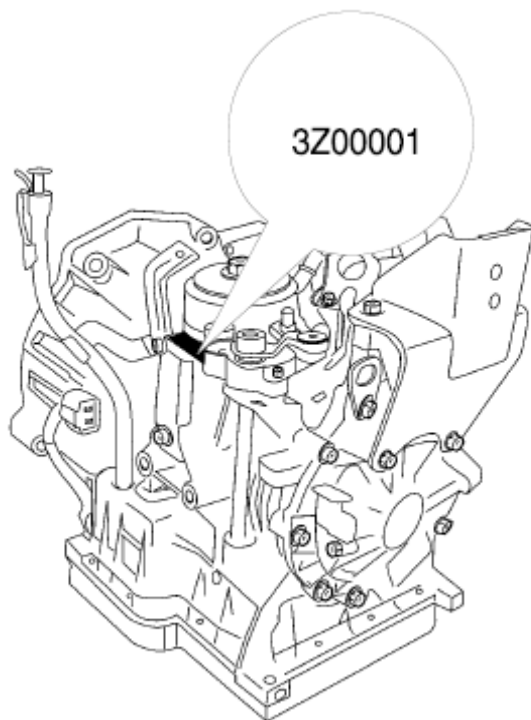
3: Engine development order
-H = Epsilone Engine

4: Engine capacity
-G = 1,086cc

5: Production year
-6 = 2006, 7 = 2007

6- 11 = Engine production sequence number
-000001~ 999999

**AUTOMATIC TRANSAXLE IDENTIFICATION
NUMBER LOCATION**



**AUTOMATIC TRANSAXLE IDENTIFICATION
NUMBER DESCRIPTION**

3 Z 00001
| | |
1 2 3

3. Production sequence number

1. Production year

- 6 = 2006
- 7 = 2007
- 8 = 2008

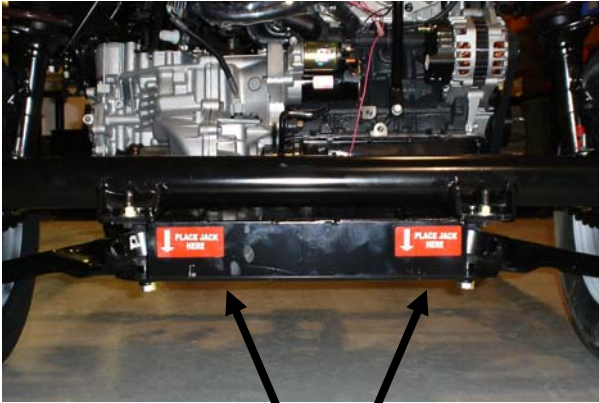
2. Production month

- 1~ 9 = 1 month ~ 9 month
- X = 10 month
- Y = 11 month
- X = 12 month

LIFT SUPPORT POINT

1. Place the lift blocks under the support points as shown in the illustration.
2. Raise the hoist a few inches and rock the vehicle to be sure it is firmly supported.

3. Raise the hoist to full height to inspect the lift points for secure support.



Place Jack In The Center Of Front Cross Tube Or On Either Side Of The Rear Subframe

TOWING

If the vehicle needs to be towed, a flat-bed method is recommended.

CAUTION

Never tow the vehicle by the method of a suspension (front or rear) lift.

ENGLISH/METRIC CONVERSION TABLE

Multiply	by	to get equivalent number or :		Multiply	by	to get equivalent number or :
Length			Acceleration			
Inch (in)	25.4	millimeters (mm)	Foot/sec ²	0.3048	meter/sec ² (m/s ²)	
Foot (ft)	0.3048	meters (m)	Inch/sec ²	0.0254	meter/sec ² (m/s ²)	
Yard	0.9144	meters (m)	Torque			
Mile	1.609	kilometers (km)	Inch-pound	0.11298	newton-meters (N·m)	
Area			Foot-pound	1.3558	newton-meters (N·m)	
Inch ² (in ²)	645.2	millimeters ² (mm ²)	Power			
	6.45	centimeters ² (cm ²)	Horsepower (HP)	0.746	kilowatts (kw)	
Foot (ft ²)	0.0929	meters ² (m ²)	Pressure			
Yard	0.8361	meters ² (m ²)	Pounds/inch ² (psi)	6.895	kilopascals (kPa)	
Volume			Energy			
Inch ³ (in ³)	16387	mm ³	Foot-pound	1.3558	joules (J)	
	16.387	cm ³	Kilowatt-hour	3,600,000	joules (J)	
	0.0164	liters (l)	Fuel performance			
Quart (qt)	0.9464	liters (l)	Miles/gal (mpg)	0.4251	kilometers/liter (km/l)	
Gallon	3.7854	liters (l)	Velocity			
Yard	0.7646	meters ³ (m ³)	Miles/hour (mph)	1.6093	kilometers/hour (km/h)	
Mass			Temperature			
Pound (lb)	0.4536	Kilograms (kg)	To convert celsius temperature to fahrenheit temperature, use formula :			
Ton	907.18	Kilograms (kg)	F = 9/5 C + 32			
Force			To convert fahrenheit temperature to celsius temperature, use formula :			
Kilogram	9.807	newtons (N)	C = 5/9 (F-32)			
Ounce (oz)	0.278	newtons (N)				
Pound (lb)	4.448	newtons (N)				

UNITS

ft-lb or in-lb (N-m)	Torque
rpm	Rotational speed
A	Amperes
V	Volts
	Resistance (OHMS)
psi (kPa)	Pressure
inHg (mmHg)	Pressure (usually negative vacuum)
W	Watts (electrical power)
US qt (liters)	Volume
in (mm)	Length

ABBREVIATIONS

ABDC	After bottom dead center
ABS	Anti-locking brake system
A/C	Air conditioner
ACC	Accessories
A/T	Automatic transaxle
ATDC	After top dead center
ATF	Automatic transmission fluid
BBDC	Before bottom dead center
BTDC	Before top dead center
CMP	Camshaft position center
CKP	Crankshaft position center
DIS	Distributorless ignition system
DLC	Data link connector
DOHC	Dual overhead Camshaft
EBD	Electronic brake-force distribution
ECM	Engine control module
ECT	Engine coolant temperature
E/L	Electrical load
EX	Exhaust
GND	Ground
HLA	Hydraulic lash adjuster
HO2S	Heated oxygen sensor
IAT	Intake air temperature
IGN	Ignition
IN	Intake
INT	Intermittent

IAC	Idle air control
LH	Left hand
M	Motor
MAF	Mas air flow
MIL	Malfunction indicator light
M/S	Manual steering
M/T	Manual transaxle
OBD	On-board diagnosis
OFF	Switch off
ON	Switch on
PCV	Positive crankcase ventilation
P/S	Power steering
PRC	Pressure regulator control
P/W	Power window
RH	Right hand
SFI	Sequential fuel injection system
SST	Special service tool
SW	Switch
TCM	Transaxle control module
TCS	Traction control unit
TDC	Top dead center
TNS	Tail number side
TPS	Throttle position sensor
TWC	Three way catalyst
WU-TWC	Warm-up three-way catalyst

MAINTENANCE SCHEDULE*SCHEDULE 1 - NORMAL MAINTENANCE*

The Regular Maintenance Schedule should be followed if the vehicle is generally driven on a daily basis for more than 10 miles (16 km) and NONE OF THE CONDITIONS SHOWN IN THE SEVERE MAINTENANCE SCHEDULE APPLY TO DRIVING HABITS.

Items marked with a (*) are for emission control service.

First 5,000 miles (160 hours)

- Change oil in front fork assembly and inspect seals.

Every 5,000 miles (160 hours)

- Change engine oil and replace oil filter. *

Every 10,000 miles (320 hours)

- Rotate tires and adjust air pressure.
- Inspect air cleaner element. *

Every 15,000 miles (500 hours)

- Change oil in front fork assembly and inspect seals.

Every 30,000 miles (1000 hours)

- Replace spark plugs and spark plug wires. *
- Replace fuel filter. *
- Replace air cleaner element. *
- Change automatic transmission fluid.
- Change engine coolant at above interval or every 36 months, whichever comes first.
- Change brake fluid.
- Inspect valve clearance. *
- Inspect cooling system, hoses and clamps.
- Inspect alternator and A/C compressor belts. *
- Inspect engine timing belt. *
- Inspect fuel lines and hoses. *
- Inspect rear wheel drive shafts, CV joints and boots.
- Inspect front and rear disc brake pads and disc rotors as well as lines and hoses.
- Inspect front fork assembly.
- Inspect steering operation and linkage.
- Inspect bolts and nuts on chassis and body.

Every 60,000 miles (2000 hours)

- Replace engine timing belt. Failure to replace timing belt may result in damage to engine. *
- Repack front wheel bearings.
- Inspect rear wheel bearings.

SCHEDULE 2 - SEVERE MAINTENANCE

The Severe Maintenance Schedule should be followed if the vehicle owner's driving habits include one or more of the following:

1. Short trips of less than 10 miles (16 km).
2. Operating when outside temperatures remain below freezing.
3. Operating during hot weather in stop-and-go "rush hour" traffic.
4. Extensive idling, such as police or door-to-door service.
5. Operating in extremely humid climates.
6. Driving in severe dust conditions.
7. Driving in areas where road salt or other corrosives are used.
8. Driving on rough and/or muddy roads.
9. Operating in hilly areas or under high loads.

Items marked with a (*) are for emission control service.

Every 2,500 miles (80 hours)

- Change engine oil and replace oil filter.*

First 5,000 miles (160 hours)

- Change oil in front fork assembly and inspect seals.

Every 5,000 miles (160 hours)

- Rotate tires and adjust air pressure.
- Inspect air cleaner element. *

Every 15,000 miles (500 hours)

- Replace air cleaner element. *
- Change automatic transmission fluid.
- Change brake fluid.
- Change oil in front fork assembly and inspect seals.
- Inspect valve clearance. *
- Inspect cooling system, hoses and clamps.
- Inspect alternator and A/C compressor belts. *
- Inspect engine timing belt. *
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- Inspect bolts and nuts on chassis and body.

Every 30,000 miles (1000 hours)

- Replace spark plugs and spark plug wires. *
- Replace fuel filter. *
- Change engine coolant at above interval, or every 36 months, whichever comes first.
- Repack front wheel bearings.
- Inspect rear wheel bearings.

Every 60,000 miles (2000 hours)

- Replace engine timing belt. Failure to replace timing belt may result in damage to engine. *