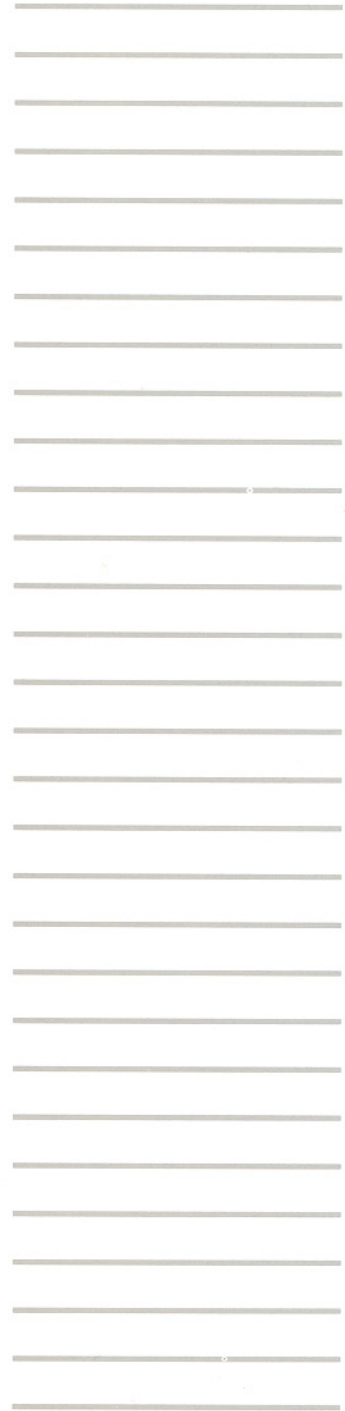


HYUNDAI

**1991
Shop
Manual**



SONATA V6



HYUNDAI

1991

SONATA V6

Shop Manual

FOREWORD

This shop manual is intended for use by service technicians of authorized Hyundai dealers to help them provide efficient and correct service and maintenance on Hyundai vehicle.

All the contents of this manual, including drawings and specifications, are the latest available at the time of publication. However, specifications and procedures are subject to change without any notice.

As for the modifications affecting service performance, dealers shall be provided technical service bulletins or supplementary volumes.

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May 1990, Printed in Korea

HYUNDAI MOTOR COMPANY

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GENERAL INFORMATION

GENERAL INFORMATION

HOW TO USE THIS MANUAL

This manual is divided into 17 sections. This first page of each section is marked with a black tab at the edge of the page. You can quickly find the first page of each section without looking through a full table of contents.

Each section includes the essential removal, installation, adjustment and maintenance procedures for servicing all body styles. This information is current as of time of publication.

An INDEX is provided on the first page of each section to guide you to the item to be replaced.

TROUBLESHOOTING tables are included for each system to help you diagnose the system problem and find the cause. The repair for each possible cause is referenced in the remedy column to quickly lead you to the solution.

DEFINITION OF TERMS

Standard Value (Service standard)

Indicates the value used as the standard for judging the quality of a part or assembly on inspection or the value to which the part or assembly is corrected and adjusted. It is given by a tolerance.

Service Limit

Shows the standard for judging the quality of a part or assembly on inspection and means the maximum or minimum value within which the part or assembly must be kept functionally or in strength. It is a value established outside the range of standard value.

NOTE, WARNING AND CAUTION

NOTE

A point of information.

WARNING

Information about an activity that could cause damage to the vehicle.

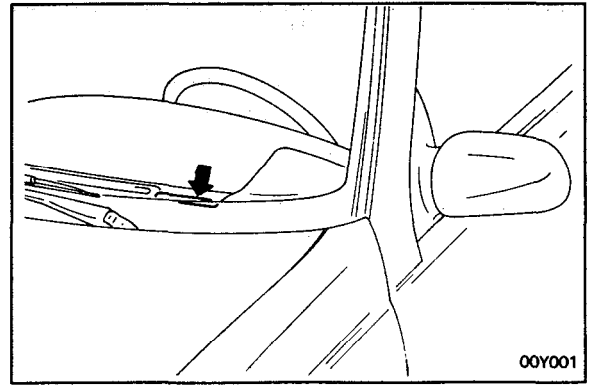
CAUTION

Information about an activity that could cause injury or damage to the driver, occupants or repair personnel.

GENERAL INFORMATION

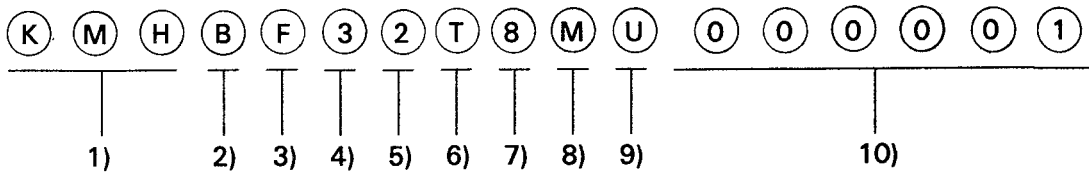
VEHICLE IDENTIFICATION NUMBER LOCATION

The vehicle identification number (V.I.N) is on the top of the instrument panel, on the radiator support panel, and the driver's door post.



VEHICLE IDENTIFICATION NUMBER

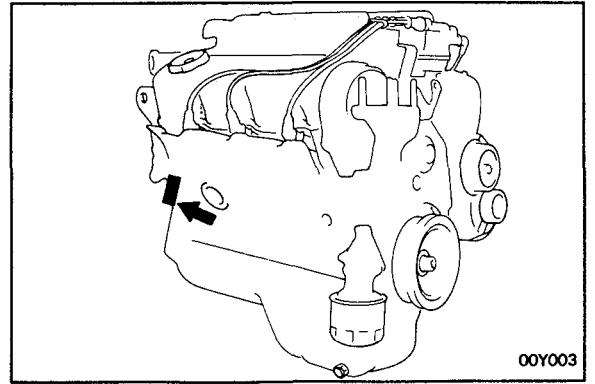
Vehicle identification number consists of 17 digit.



- 1) W.I.C. (World manufacturer's identifier)
KMH : Hyundai Motor Company's Passenger car
2MH : Bromont Assembly Plant, Canada
- 2) Line and drive type
B : Sonata LHD drive vehicle
A : Sonata RHD drive vehicle
- 3) Body type
F : 4 Door sedan
- 4) Series (Body style and version)
1 : Standard 2 : Deluxe (GL) 3 : Supper deluxe (GLS)
- 5) Restraint system (Front seat)
0 : None seat belt 2 : Passive system
1 : Active system
- 6) Engine type
D : 1795 cc S : 2351 cc
F : 1997 cc T : 2972 cc V6
- 7) Check digit
- 8) Product year
L- -1990 N-1992
M-l 991 P-1993
- 9) Plant code
U : Ulsan plant
B : Bromont plant
- 10) Vehicle production sequence number
000001-999999

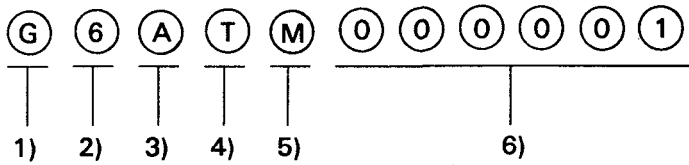
ENGINE IDENTIFICATION NUMBER LOCATION

The engine identification number is stamped at the right front side on the top edge of the cylinder block.



ENGINE IDENTIFICATION NUMBER

Engine identification number consists of 10 digits.



1) Engine fuel

G : Gasoline

2) Engine range

6 : V type 4 cycle 6 cylinder

3) Engine development order

A - Z

4) Engine capacity

M : 1795 cc

S : 2351 cc

P : 1997 cc

T : 2972 cc V6

5) Product year

6) Engine production sequence number

000001 -999999

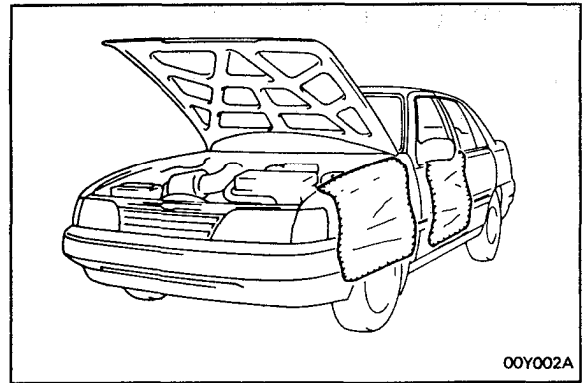
PROTECTION OF THE VEHICLE

Always be sure to cover fenders, seats, and floor areas before starting work.

CAUTION

The support rod must be inserted into the hole near the edge of the hood whenever you inspect the engine compartment to prevent the hood from falling and possibly injuring you.

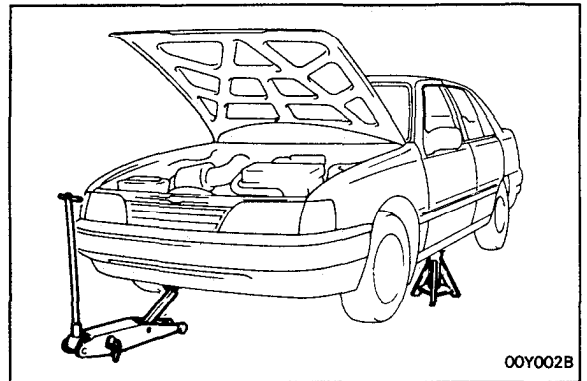
Assure that the support rod has been released prior to closing the hood. Always double check to be sure the hood is firmly latched before driving away.



A WORD ABOUT SAFETY

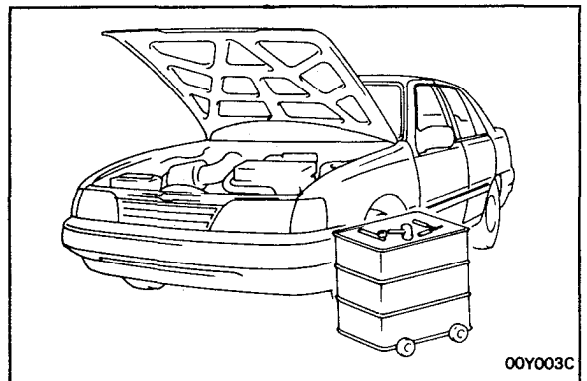
The following precautions must be followed when jacking up the vehicle.

1. Block wheels.
2. Use only specified jacking positions.
3. Support vehicle with safety stands (rigid jacks)
Refer to the page 00-9.
4. Start the engine only after making certain the engine compartment is clear of tools and people.



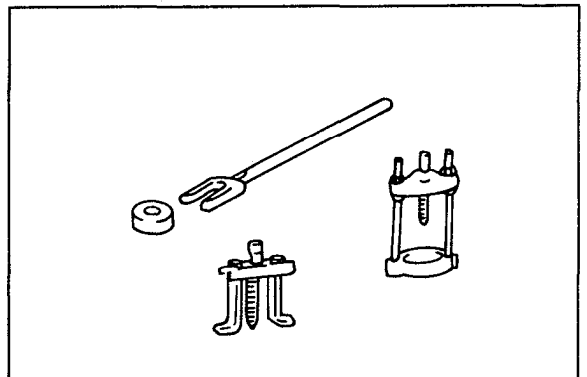
PREPARATION OF TOOLS AND MEASURING EQUIPMENT

Be sure that all necessary tools and measuring equipment are available before starting work activity.



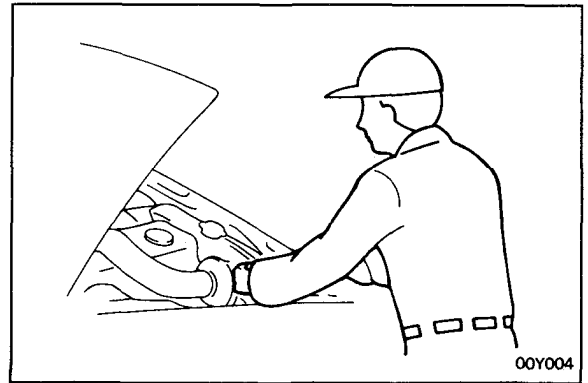
SPECIAL TOOLS

Use special tools when they are required.



REMOVAL OF PARTS

First find the cause of trouble prior to removing or disassembling any components.

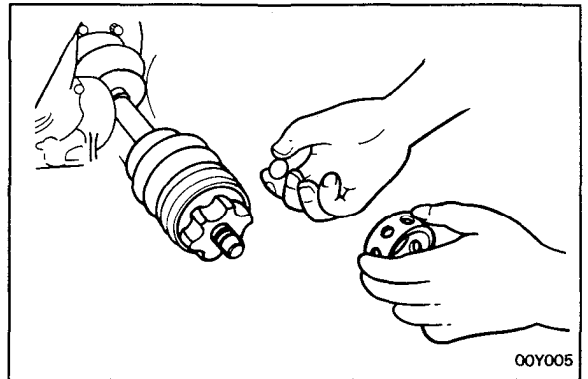


DISASSEMBLY

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.

1. Inspection of parts

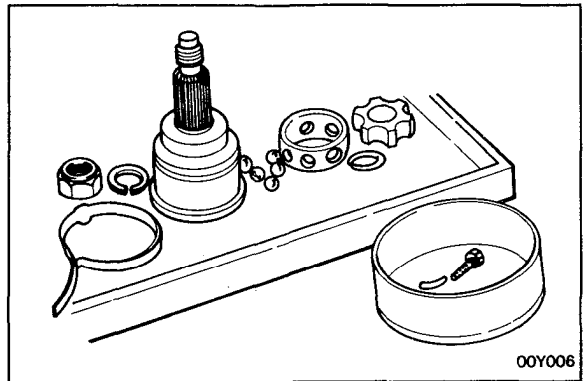
Each part when removed should be carefully inspected for malfunction, deformation, damage, and other problems.



2. Arrangement of parts

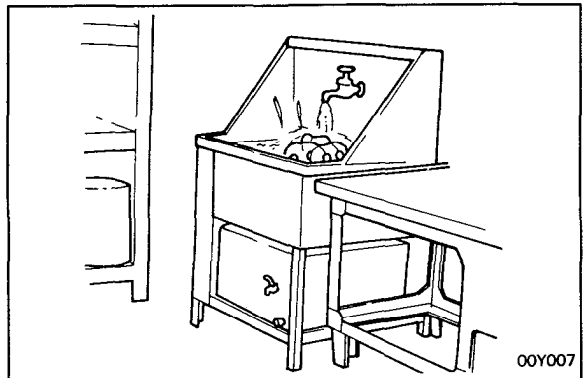
All disassembled parts should be carefully arranged for reassembly.

Be sure to separate or otherwise identify the parts to be replaced from those that will be reused.



3. Cleaning parts for reuse

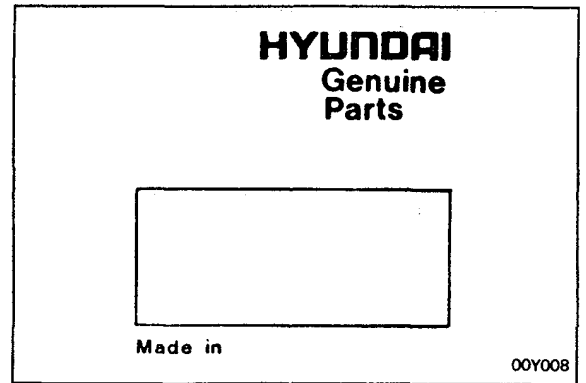
All parts to be reused should be carefully and thoroughly cleaned by the appropriate method.



GENERAL INFORMATION

PARTS

When replacing parts, use HYUNDAI genuine parts.

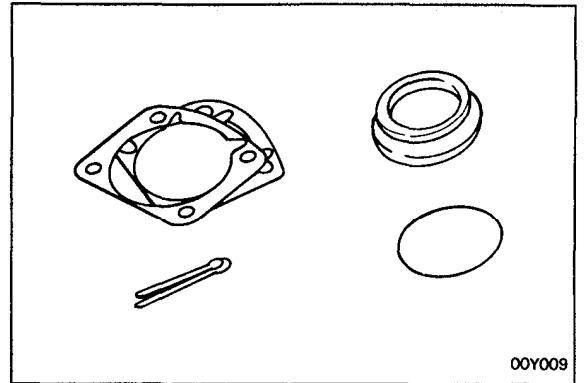


REASSEMBLY

Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.

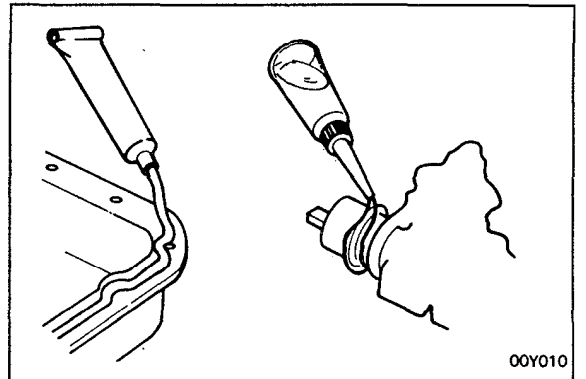
If removed, these parts should be replaced with new ones.

1. Oil seals
2. Gaskets
3. O-rings
4. Lock washers
5. Cotter pins (split pins)
6. Plastic nuts



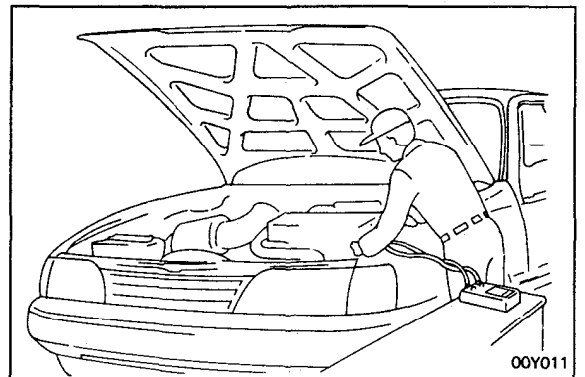
Depending on where they are;

1. Sealant should be applied to gaskets.
2. Oil should be applied to moving components of parts.
3. Specified oil or grease should be applied at the prescribed locations (oil seals, etc.) before assembly.



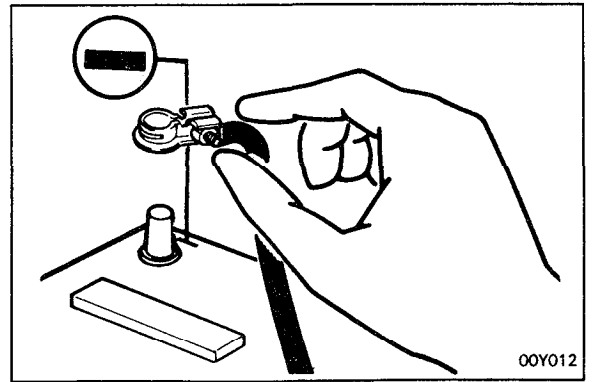
ADJUSTMENTS

Use gauges and testers to correct adjustments to the standard values.



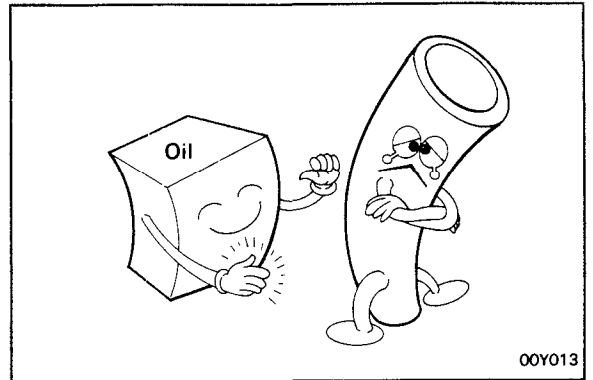
ELECTRICAL SYSTEM

1. Be sure to disconnect the battery cable from the negative (-) terminal of the battery first.
2. Never pull on the wiring when removing connectors.
3. Locking connectors must be heard to click if the connector is secure.
4. Handle sensors and relays carefully. Be careful not to drop them or hit them against other parts.



RUBBER PARTS AND TUBING

Always prevent gasoline or oil from touching rubber parts or tubing.



PRECAUTIONS FOR A CATALYTIC CONVERTER

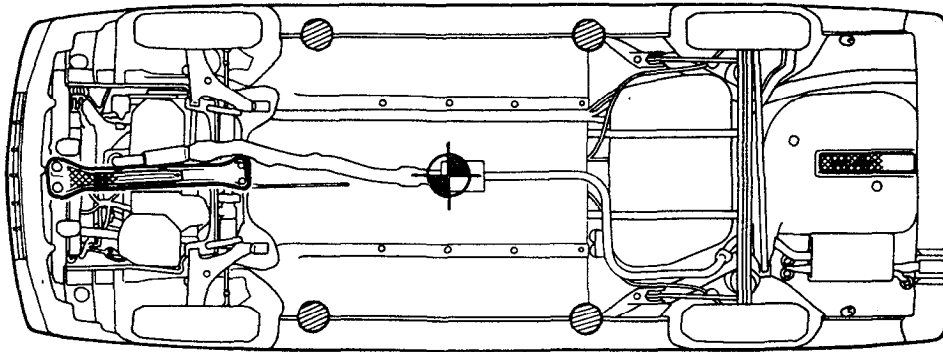
CAUTION





If large amounts of unburned gasoline flow into the converter, it may overheat and create a fire hazard. To prevent this, observe the following precautions and explain them to your customer.

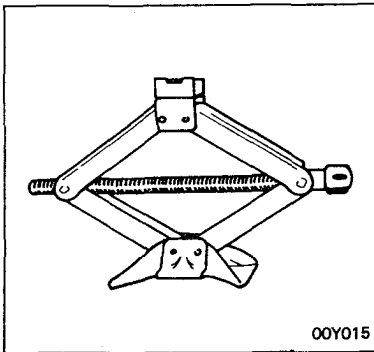
1. Use only unleaded gasoline.
2. Avoid prolonged idling.
Avoid running the engine at fast idle speed for more than 10 minutes and at idle speed for more than 20 minutes.
3. Avoid spark jump test.
Spark jump only when absolutely necessary. Perform this test as rapidly as possible and, while testing, never race the engine.
4. Avoid prolonged engine compression measurement. Engine compression tests must be made as rapidly as possible.
5. Do not run engine when fuel tank is nearly empty. This may cause the engine to misfire and create an extra load on the converter.
6. Avoid coasting with ignition turned off and prolonged braking.
7. Do not dispose of used catalyst along with parts contaminated with gasoline or oil.

GENERAL INFORMATION

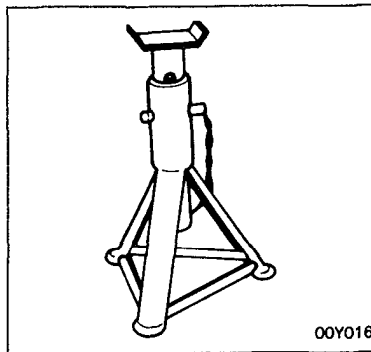
VEHICLE LIFT AND SUPPORT LOCATIONS



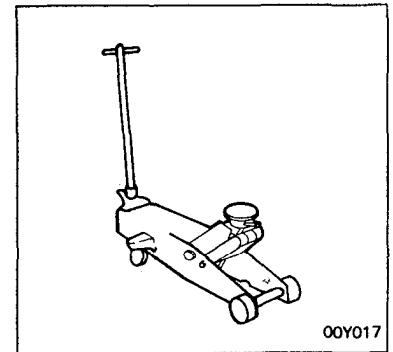
-  Jack provided with the vehicle
-  Rigid jack, single or double post lift
-  Garage jack
-  H bar lift



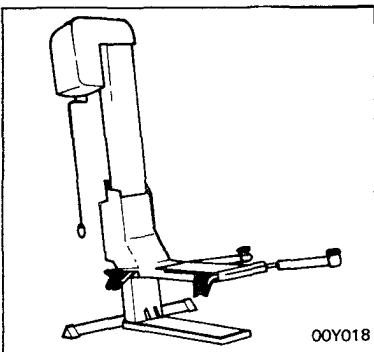
The jack provided with the vehicle (for reference)



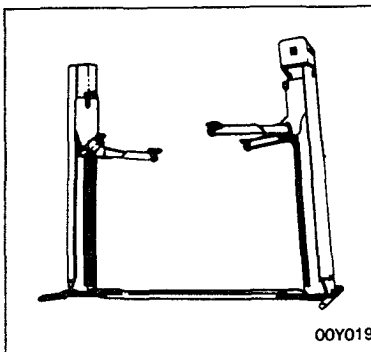
Rigid rack (Safety stand)



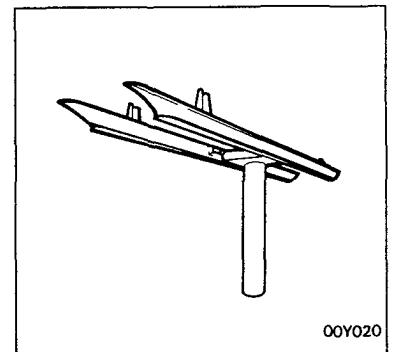
Garage jack (floor jack)



Single-post lift



Double-post lift





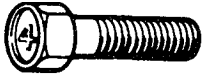
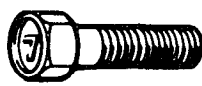
Free wheel type auto lift
(H bar lift)

CAUTION

- 1) Never use a jack at the lateral rod or rear suspension assembly.
- 2) In order to prevent scarring the centermember, place a piece of cloth on the jack's contact surface (to prevent corrosion caused by damage to the coating).
- 3) Never attempt to position a floor jack on any part of the vehicle underbody.
- 4) Do not attempt to raise one entire side of the vehicle by placing a jack midway between the front and rear wheels. To do so could result in permanent damage to the body.

GENERAL INFORMATION

STANDARD PARTS TIGHTENING TORQUE TABLE

Bolt nominal diameter (mm)	Pitch (mm)	Torque Nm (kg.cm, lb.ft)	
		Head Mark 4	Head Mark 7
			
M5	0.8	3—4 (30—40, 2.2—2.9)	5—6 (50—60, 3.6—4.3)
M6	1.0	5—6 (50—60, 3.6—4.3)	9—11 (90—110, 6.5—8.0)
M8	1.25	12—15 (120—150, 9—11)	20—25 (200—250, 14.5—18.0)
M10	1.25	25—30 (250—300, 18—22)	30—49 (400—500, 29—36)
M12	1.25	34—44 (350—450, 25—32)	59—78 (600—800, 43—58)
M14	1.5	74—83 (750—850, 55—60)	120—135 (1,200—1,400, 85—100)
M16	1.5	110—125 (1,100—1,300, 80—95)	180—200 (1,800—2,100, 130—150)
M18	1.5	155—175 (1,600—1,800, 115—130)	260—290 (2,600—3,000, 190—215)
M20	1.5	220—240 (2,200—2,500, 160—180)	350—410 (3,600—4,200, 260—300)
M22	1.5	290—320 (2,900—3,300, 210—240)	470—540 (4,800—5,500, 350—400)
M24	1.5	360—410 (3,700—4,200, 270—300)	600—680 (6,100—7,000, 440—505)

NOTES

1. The torque shown in the table are standard values applicable to tightening performed under the following conditions:
 - 1) Nuts and bolts are made of steel bar, and galvanized.
 - 2) Galvanized plain steel washers are inserted.
 - 3) All nuts, bolts, and plain washers are dry.

2. Torques shown in the table are not applicable:
 - 1) When spring washers, toothed washers and the like are inserted.
 - 2) If plastic parts are fastened.
 - 3) If self-tapping screws or self-locking nuts are used.
 - 4) If threads and surface are coated with oil.

3. It should be standard practice to reduce the torques given in the table to the percentage indicated below:
 - 1) If spring washers are used. 85%
 - 2) If threads and bearing surfaces are stained with oil. 85%