

HYUNDAI

**1993
Shop
Manual**

EXCEL

HYUNDAI 1 9 9 3



Shop Manual Volume 1 & 2

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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NOTE : This PDF Manual contains the contents of both printed Volumes 1 & 2.

CONTENTS

TITLE	SECTION
GENERAL INFORMATION	00
LUBRICATION AND MAINTENANCE	10
ENGINE MECHANICAL	20
COOLING SYSTEM	25
ENGINE ELECTRICAL SYSTEM	27
INTAKE & EXHAUST SYSTEM	28
EMISSION CONTROL SYSTEM	29
FUEL SYSTEM	31
CLUTCH (Hydraulic type)	41
CLUTCH (Cable type)	41A
MANUAL TRANSAXLE	43
AUTOMATIC TRANSAXLE [KM176]	45
AUTOMATIC TRANSAXLE [KM171]	45D
DRIVE SHAFT AND FRONT AXLE	49
FRONT SUSPENSION	54
REAR SUSPENSION	55
STEERING SYSTEM (Manual & Power)	56
BRAKE SYSTEM	58
BODY (INTERIOR AND EXTERIOR)	60
BODY ELECTRICAL SYSTEM	90
AIR CONDITIONING SYSTEM	97
APPENDIX (Electrical Wiring System)	WS

GENERAL INFORMATION

GENERAL INFORMATION

HOW TO USE THIS MANUAL

This manual is divided into 23 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

Indicates the value use 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.

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.

ABBREVIATIONS

MPI: Indicates Multi Point Fuel Injection system.

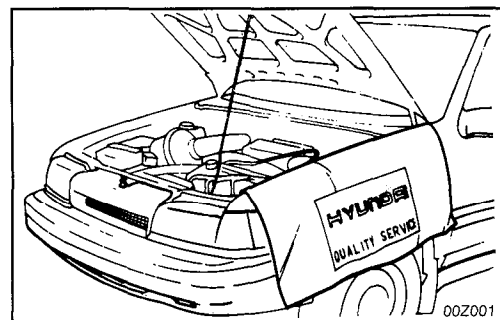
FBC: Indicates Feedback Carburetor system.

VEHICLE IDENTIFICATION NUMBER LOCATION

The vehicle identification number (V.I.N.) is stamped on the upper right side of the cowl top front panel.

VEHICLE IDENTIFICATION NUMBER

K	M	H	V	F	3	2	J	9	M	U	0	0	0	0	4	7
1	2	3	4	5	6	7	8	9								10

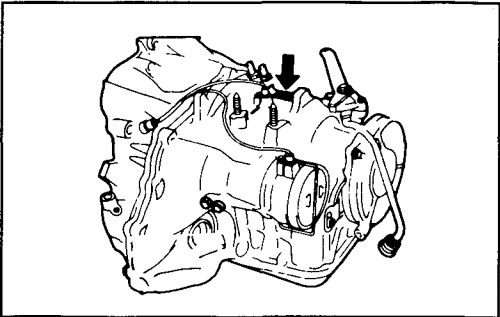


1. World manufacturer's identifier code
KMH - Hyundai Motor Co., Korea
2. Drive line type
V - For LHD (EXCEL)
3. Body Type
F - 4 Door sedan
D - 3 Door sedan
4. Body style & version
1 - Standard
2 - Deluxe
3 - Super deluxe
5. Restraint type
1 - Active system
2 - Passive system
6. Engine type
J - 1468 cc
7. Check digit
Mathematically determined to validate frame numbers
8. Model year
R - 1994 P - 1993
9. Plant code
U - Ulsan plant
10. Serial number 000001 through 999999

TRANSAXLE NUMBER IDENTIFICATION

Description (Automatic transaxle)

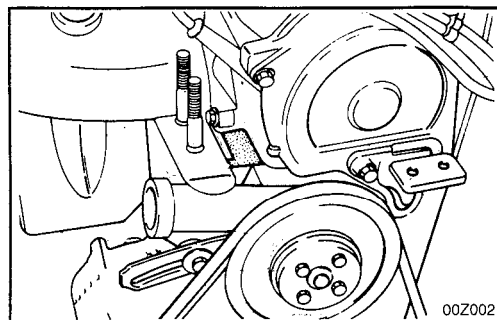
1	2	3	4	5	
—	—	—	—	—	
B	P	F	A	X X	
1	2	3	4	5	6
					6



- 1. Model
B: KM 176 A: KM 171
- 2. Product year
M : 1991
N : 1992
P : 1993
R : 1994
- 3. Final gear ratio
F : 4.062
E : 3.600
- 4. Classification of detail
A : Excel
- 5. Spare
D : Damper Spring type
- 6. Serial No.

ENGINE IDENTIFICATION PLATE

The engine identification plate 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.

G	4	A	J	K	0	0	0	0	0	1
1	2	3	4	5	6					

1. Engine fuel
G : Gasoline
2. Engine range
4 : In line 4 cycle 4 cylinder
3. Engine development order
A-Z :
4. Engine capacity
J : 1468 cc
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:

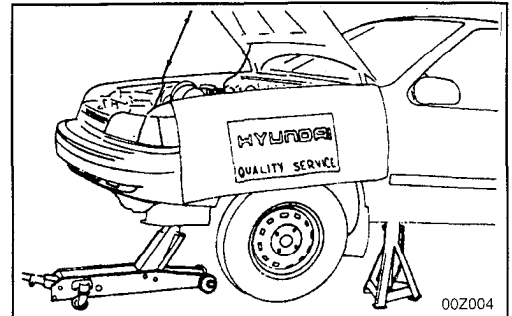
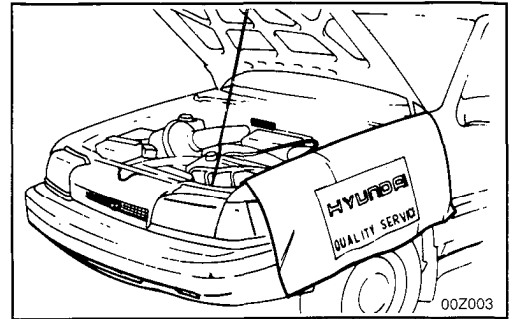
The support rod must be inserted into the hole near the edge of the hood whenever you inspect the engine compartment to prevent the hood from falling and possibly injuring you.

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

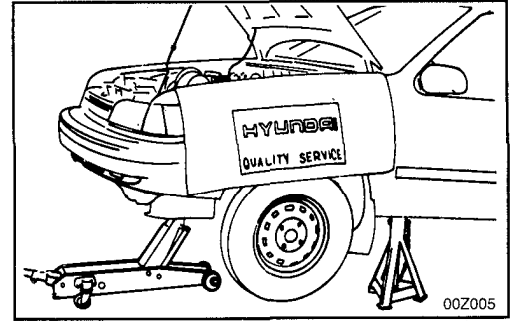
The following precautions must be followed when jacking up the vehicle.

1. Block wheels.
2. Use only specified jacking positions.
3. Support vehicle with safety stands (jack stands)
Refer to the page 00-10.
4. Start the engine only after making certain the engine compartment is clear of tools and people.



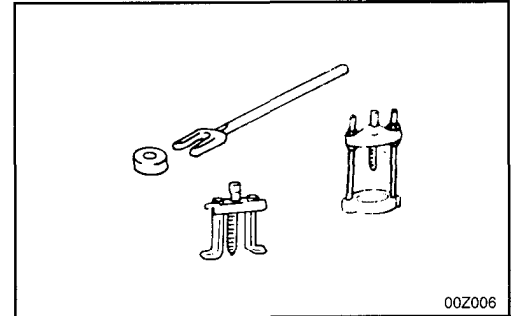
PREPARATION OF TOOLS AND MEASURING EQUIPMENT

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 and then make sure whether removing or disassembling is required before starting the job.

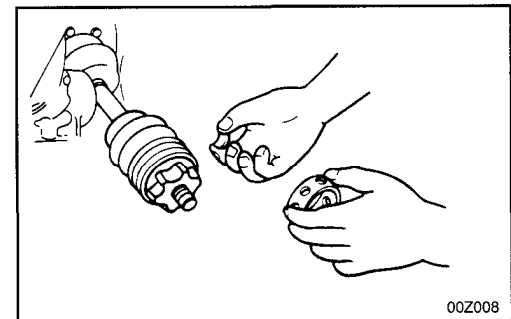


DISASSEMBLY

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 and be identified so that reassembly can be performed efficiently.

1. Inspection of parts

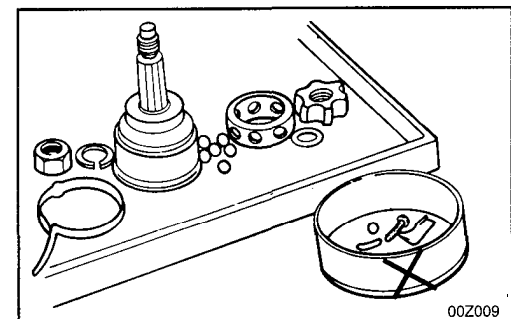
Each part when removed should be carefully inspected for wear, deformation, damage, and other problems.



2. Arrangement of parts

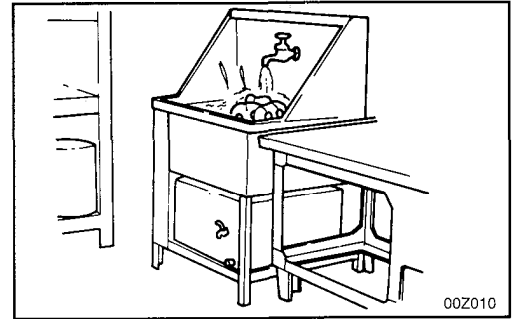
All disassembled parts should be carefully arranged for reassembly.

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



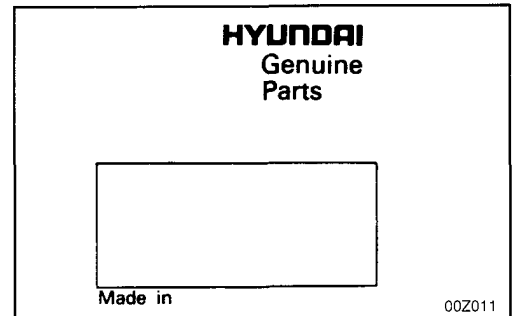
3. Cleaning parts for reuse

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



PARTS

When replacing parts, use HYUNDAI genuine parts



REASSEMBLY

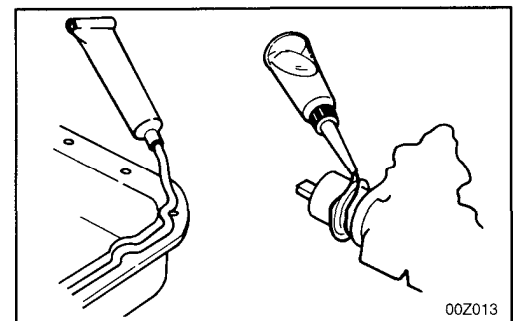
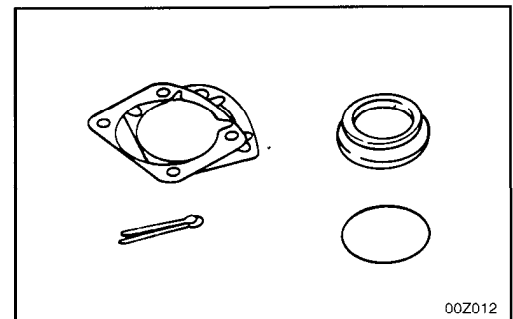
Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.

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. Nylon nuts

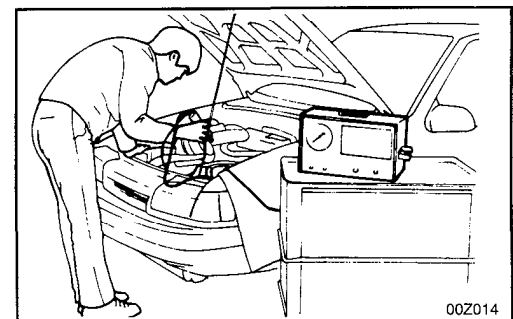
Depending on where they are;

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.



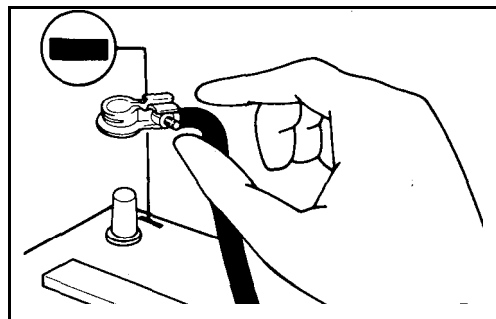
ADJUSTMENTS

Use gauges and testers to correct adjustments to standard values.



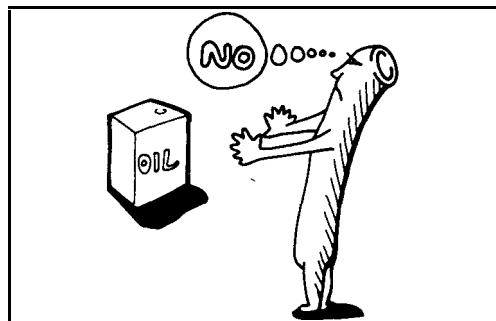
ELECTRICAL SYSTEM

1. Be sure to disconnect the battery cable from the negative (-) terminal of the battery.
2. Never pull on the wiring when disconnecting connectors.
3. Locking connectors will click when 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 unleaded gasoline only.
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.

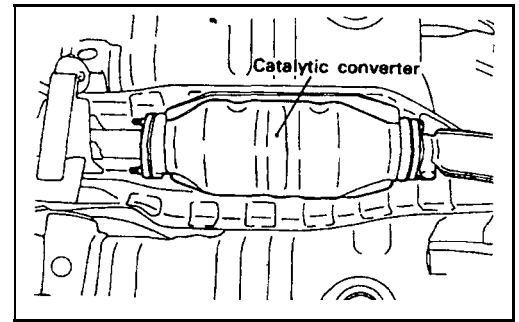
CATALYTIC CONVERTER INSPECTION

Inspect for damage, cracking or deterioration. Replace if faulty.

CAUTION

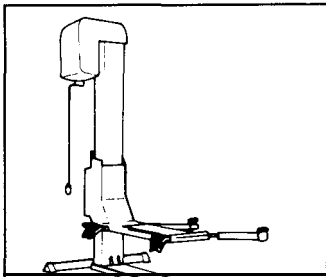
The catalytic converters require the use of unleaded gasoline only. Leaded gasoline will destroy the effectiveness of the catalysts as an emission control device.

Under normal operating conditions, the catalytic converters will not require maintenance. However, it is important to keep the engine properly tuned. Engine misfiring may cause overheating of the catalysts. This may cause heat damage to the converters or vehicle components. This situation can also occur during diagnostic testing if any spark plug cables are removed and the engine is allowed to idle for a prolonged period of time.

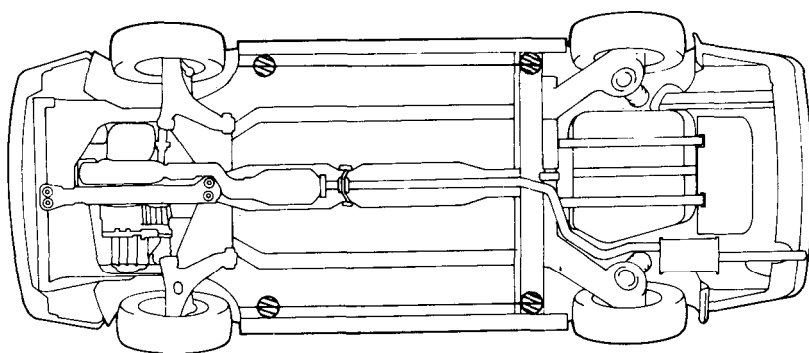
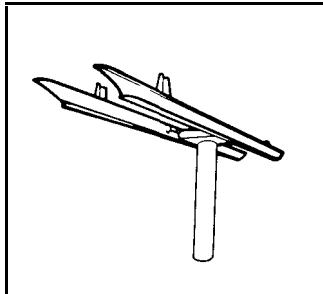


JACK POINT

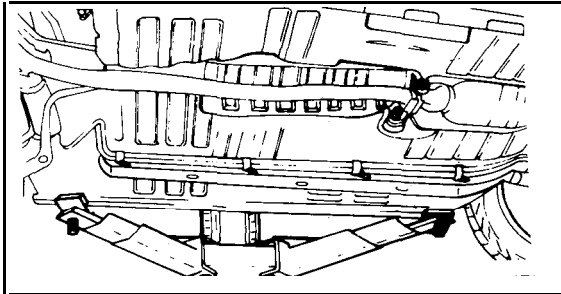
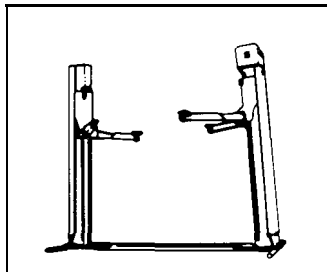
When using a single-post lift



When using a free wheel type auto lift

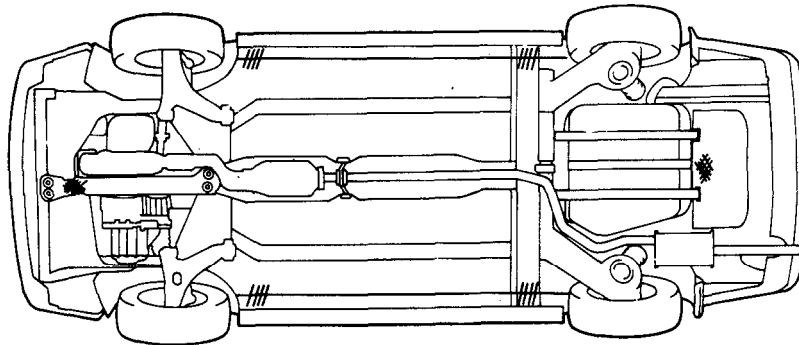
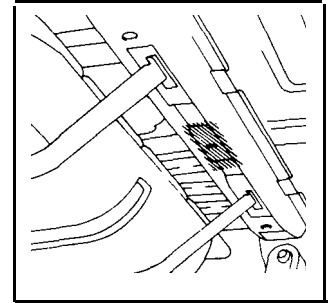
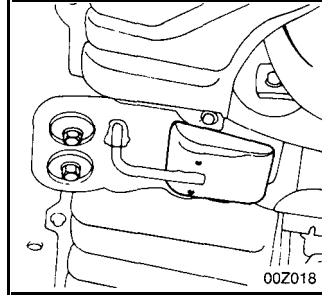
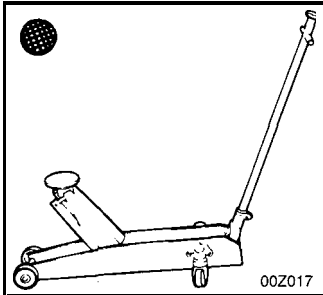


When using double-post lift

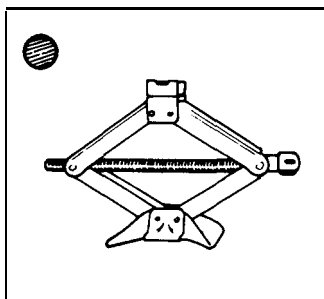


JACK POINT

When using a floor jack





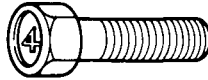
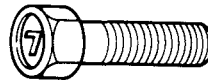
When using the jack
provided with the
vehicle (for reference)



NOTE

Do not support car at locations other than the specified support points.
This will cause damage etc. to the body.

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)	40-50 (400-500, 29-36)
M12	1.25	35-45 (350-450, 25-32)	60-80 (600-800, 43-58)
M14	1.5	75-85 (750-850, 55-60)	120-140 (1,200-1,400, 85-100)
M16	1.5	110-130 (1,100-1,300, 80-95)	180-210 (1,800-2,100, 130-150)
M18	1.5	160-180 (1,600-1,800, 115-130)	260-300 (2,600-3,000, 190-215)
M20	1.5	220-250 (2,200-2,500, 160-180)	360-420 (3,600-4,200, 260-300)
M22	1.5	290-330 (2,900-3,300, 210-240)	480-550 (4,800-5,500, 350-400)
M24	1.5	370-420 (3,700-4,200, 270-300)	610-700 (6,100-7,000, 440-505)

NOTES

- The torques shown in the table are standard values applicable to tightening performed under the following conditions:
 - Nuts and bolts are made of steel bar, and galvanized.
 - Galvanized plain steel washers are inserted.
 - All nuts, bolts, and plain washers are dry.
- The torques shown in the table are not applicable:
 - Spring washers, toothed washers and the like are inserted.
 - If plastic parts are fastened.
 - If self-tapping screws or self-locking nuts are used.
 - If threads and surface are coated with oil.
- It should be standard practice to reduce the torques given in the table to the percentage indicated below:
 - If spring washers are used. 85%
 - If threads and bearing surfaces are stained with oil 85%