

**164  
Service  
Manual**

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**SERVICE  
MANUAL**

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**1991-1993**

**164 ALL MODELS**

**50 STATE  
AND  
CANADA VERSION**



ALFA ROMEO DISTRIBUTORS  
OF  
NORTH AMERICA

**SERVICE  
MANUAL**

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## FOREWORD

This manual contains service, maintenance and repair information for all **Alfa Romeo 164** model year 1991 USA and CANADA versions.

It supplies the service personnel with all information necessary to offer any Alfa Romeo customer a fast and precise vehicle service in any circumstance.

It includes procedures concerning removal and installation, disassembly and reassembly, checks and inspections: all operation are extensively illustrated for an easy identification of involved parts, as well as proper tools to be used. Symbols are used to highlight important operations as lubrication or proper tightening. Refer to the symbology table, in the "Introduction" paragraph.

All data needed for adjustments and dimensional checks are bold written and quickly found throughout the pages.

A special attention has been given to the troubleshooting procedures (located at the end of each group). Even the least experienced operator is so helped in the identification and correction of malfunctions, starting directly from the trouble reported by the customer and performing a series of tests on the affected systems.

**More detailed information can be found in the Introduction paragraph, which should be anyway read before using the Manual.**

This publication is issued together with the "**WIRING DIAGRAMS AND ELECTRICAL DIAGNOSIS**" manual. For information not covered in this publication, refer to the above-mentioned one.

**All information contained in this manual refers to the latest data available at the time of printing. Alfa Romeo reserves itself the right to make changes in design, or addition to or improvement in its products at any time without notice.**

Manual updating issues are however to be periodically expected.






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04 FUEL, AIR SUPPLY & EXHAUST SYSTEM 


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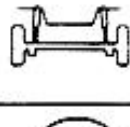
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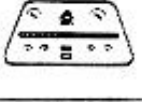
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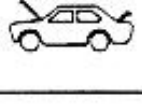
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# INTRODUCTION

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## HOW TO USE THIS MANUAL

This manual is divided into chapters (GROUPS) related with the main group disassemblies.

Refer to the "Group Index" for a quick localization of the group you are interested in.

The symbols printed at the top corner of each page can also be used for a quick reference.

Each group is then divided into sections to address each component or item within the system.

An illustrated index and the table of contents refer to procedures and checks for each required component.

A short description opens each section, followed by "removal/installation", "disassembly/reassembly" and "checks and inspections" procedures.

Since most of the given instructions concern complete disassembly of components, they should be entirely followed only when strictly necessary.

After the pages of procedures, all data relevant to the group are collected in the "Technical Characteristics and Specifications" section, as well as the special tools used in the above-mentioned procedures.

A special attention has been given to the troubleshooting procedures (located at the end of each group) to help even the least experienced operator in the identification and correction of possible malfunctions, starting directly from the trouble reported by the customer and performing a series of tests on the affected systems.

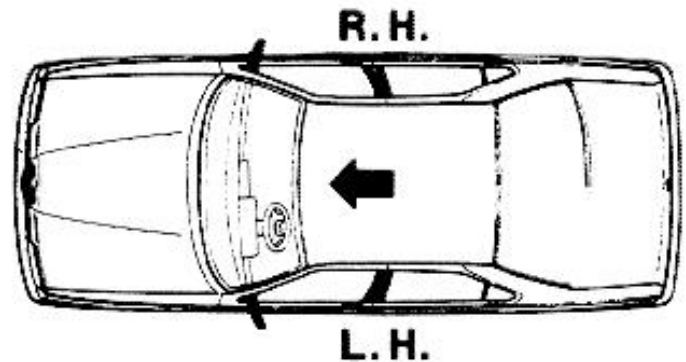
These procedures also intend to "teach" a systematic approach to locate and correct problems.

The "installation" and "reassembly" procedures are normally obtained reversing the order of the "removal" and "disassembly" procedures.

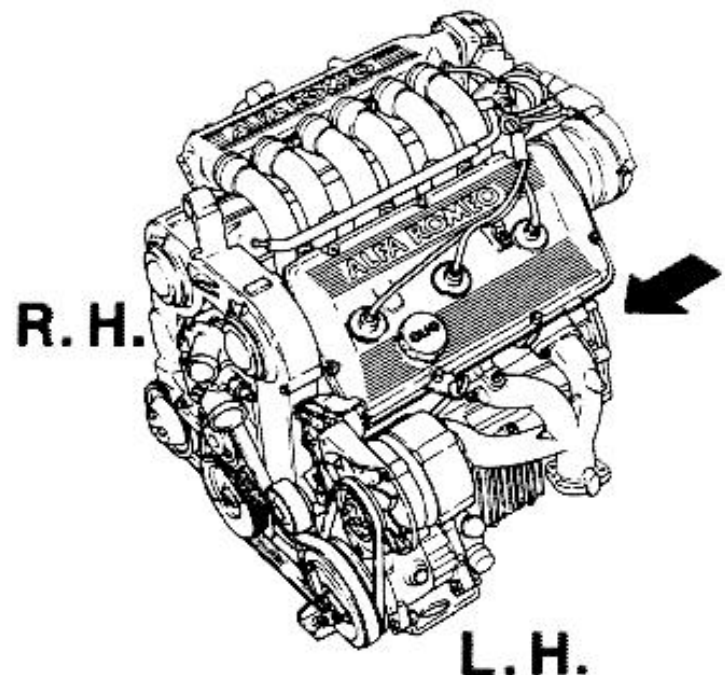
Specially marked notes headline some peculiar steps. Installation and reassembly are described and illustrated in a specific paragraph only when completely different.

**NOTE:** In the present manual procedures often refer to L.H. and R.H. side.

Right and left are intended as they appear to an operator seated at the driver's place, as illustrated in the figure below:



However, working on engine on bench, right and left side are referred to an operator looking at the engine from the flywheel side, as illustrated below:



1


















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











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## SYMBOLOLOGY

Many special symbols are largely used in this manual for a quick reference and localization of data, warning and caution notes, etc...

A complete list of symbology herein used is below illustrated:

	removal / disassembly	
	installation / reassembly	
	tighten to torque	
	squeeze the nut	
	adjustment / setting	
	visual inspection check	
	lubricate	
	weight difference	
	angular value	
	pressure	
	temperature	
	brake system air bleeding	
	surface to be machined	
	interference	
	clearance / play	

	exhaust
	lubricate with engine oil
	i.h. screw
	tightening torque with oil
	engine idle R.P.M.
	ovalization
	taper
	eccentricity
	flatness
	diameter
	linear dimension
	parallelism
	smear with grease
	heat up temperature
	sealing / plugging
	fill up with engine oil
	grease
	<b>WARNING!</b>
	

 intake

 CAUTION!

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VII

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## MAINTENANCE PHILOSOPHY

**All work must be performed with maximum care and attention in order to avoid injury to personnel and vehicle's damage.**

The service procedures recommended and described in this publication were developed for professional service personnel and are effective methods for performing vehicle repair. Following these procedures will help assure efficient economical vehicle performance and service reliability.

- Some of these procedures require the use of special tools designed by Alfa Romeo; improper or makeshift tools can damage the parts involved.
- To loosen tight fitting cast iron parts, just lightly strike them with a lead or aluminum hammer; for light alloy parts use a wooden or plastic mallet.
- On disassembly, check if parts that should be marked do in fact have the relevant number or reference stamped on it.
- On reassembly lubricate parts where necessary to prevent seizure during their running-in period.
- Suitably protect with adhesive tape or clean cloths all engine parts that, after disassembly, show orifices or drilling which are likely to let in dust or foreign matter.
- In reassembly procedure, it is vital to observe the tightening torques and adjustment data.
- It is necessary to remind that gaskets, seal rings and union copper rings must always be replaced and never re-used.
- Do not dirty or dust the internal trim.
- The manufacturer does not assure the perfect vehicle's reliability and functioning if some items or systems of the vehicle are replaced with parts other

## SAFETY MEASURES

**All work must be performed with maximum care and attention.**

**The person servicing an Alfa Romeo is responsible for safety at work in order to avoid injury to personnel and vehicle's damage; he is responsible for ensuring that all general and specific safety regulations are observed.**

The following headlines are used in the manual to draw your attention to particular safety-related points:



### **WARNING:**

**Used whenever insufficient care could result in personal injury or even loss of life;**

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### **CAUTION:**

**Indicates that failure or improper service methods could cause damage to the vehicle or render it unsafe;**

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**NOTE:** Highlights particular procedures or remarks.

These "Warning" and "Caution" cover only the situations and procedures described in this manual and recommended by Alfa Romeo. Accordingly, anyone who uses a service procedure, or tool, that is not recommended in this manual, must assure himself thoroughly that neither personal safety, nor vehicle safety, be jeopardized by the selected service methods.

## GENERAL SAFETY PRECAUTIONS

- **Always wear safety goggles whenever working**

systems or the vehicle are replaced with parts other than Alfa Romeo original Spare Parts.

on vehicles or vehicle's components.

- **Workshop should be equipped with all safety equipments as fire extinguishers, etc... Workshop safety rules must always be carried out, without any exception.**
- **When acting on fuel system, carefully follow the instructions below:**
  - **Disconnect battery negative lead**
  - **Store fuel drained from the system into a suitable container with safety cap**
  - **DO NOT SMOKE !**
- **If electrical components are involved in procedure, disconnect first the battery negative lead.**
- **Care should be taken especially when working on the H.V. cables of the ignition system.**
- **Contact of oil or solvents with engine belts could affect elasticity rubber, and cause dangerous slipping of belts.**
- **The engine compartment locates many hot and/or rotating parts which could result dangerous for not experienced operators.**
- **Special attention is needed when working with spring or tension loaded fasteners and devices as clips etc, as careless removal may cause personal injury.**
- **The catalytic converter reaches a high temperature during operation. Never touch the catalytic converter unless adequate protective equipment has been previously worn (gloves, etc.). Do not approach any easily flammable material to the catalytic converter.**
- **Care should be taken when working on air conditioning system fluid (FREON):**
  - **Operate in a ventilated area, disposing Freon in an appropriate collecting system: a great amount of Freon in a restricted area can reduce the oxygen quantity, thus causing suffocation.**
  - **Do not heat Freon: above 52 °C (125 °F) it may**
- **Freon should never come in contact with metal surfaces, because it can cause oxidation, specially if combined with water.**
- **At ambient temperature and pressure, freon evaporates quickly, and therefore freezes whatever comes in contact with it: avoid contact with skin or eyes.**
- **Some fluids, such as brake / clutch fluid or coolant mixture may damage the paintwork.**
- **Do not disperse used engine oil in the ambient! Investigate where used oil is safely collected in your area.**
- **Lift properly the vehicle. Use recommended elevators and follow the safety regulations. Block wheels with suitable safety chocks and apply the parking brake. After the vehicle has been lifted on jacks, support it using suitable safety stands.**
- **The American legislation prohibits tampering of components of the anti-pollution system, or to alter the system's characteristics. The vehicles not conforming to specified exhaust emission data because misadjusted or non properly tuned-up, will possibly be non conforming to the law requirements and also have a higher fuel consumption.**
- **On this vehicle is installed a driver's side air-bag system: special care should be taken on working on this system to avoid unintentional activation. When working on any electrical system in the air-bag deployment zone (driver's seat area), disconnect the battery and remove the air-bag module from the steering wheel. You may then reconnect the battery, if necessary for electrical diagnosis. For all details refer to "Group 00" and "WIRING DIAGRAMS AND ELECTRICAL DIAGNOSIS" Book.**

**explode.**

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**IX**



**UNITS OF MEASURE**

Measurements given in this manual are expressed in

International System units (S.I.). However Common American Units of measure are indicated.

The relevant conversions are herewith reported:

**UNITS OF MEASURE CONVERSION TABLE**

	<b>American ⇨ S.I.</b>	<b>S.I. ⇨ American</b>
<b>TEMPERATURE</b>	$^{\circ}\text{F} = 9/5 \text{ }^{\circ}\text{C} + 32$	$^{\circ}\text{C} = 5/9 (\text{ }^{\circ}\text{F} - 32)$
<b>CAPACITY</b>	1 gal = 3.7 liters 1 cu in = 16.387 cm <sup>3</sup> 1 cu ft = 0.028 m <sup>3</sup>	1 liter = 0.27 gals 1 cm <sup>3</sup> = 0.061 cu in 1 m <sup>3</sup> = 35.336 cu in
<b>WEIGHT</b>	1 lb = 0.453 kg 1 lb = 4.444 N	1 kg = 2.207 lbs 1 N = 0.225 lbs
<b>LENGTH</b>	1 in = 25.4 mm 1 ft = 0.305 m 1 yard = 0.914 m 1 mile = 1.609 km	1mm = 0.03937 in. 1m = 3.281 ft 1m = 1.094 yards 1km = 0.621 miles
<b>PRESSURE or STRESS</b>	1 psi = 6.895 kPa 1 in Hg = 3.377 kPa	1 kPa = 0.145 psi 1 kPa = 0.296 in Hg
<b>TORQUE</b>	1 ft.lbs = 1.356 Nm 1 in.lbs = 0.113 Nm	1 Nm = 0.73756 ft.lbs 1 Nm = 8.851 in.lbs
<b>POWER</b>	1 HP SAE = 1.0141 CV	1 CV = 0.986 HP SAE

**X**

## INTRODUCTION



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- **DO NOT heat FREON ABOVE 52 °C (125 °F) or may explode.**