Haynes S70, V70, C70

Volvo S70, V70 & C70 Haynes Service and Repair Manual (1996-1999)

Comprehensive instructions for maintenance, service, and repair of your vehicle.

Introduction to Your Manual

This Haynes manual provides detailed instructions for the maintenance, service, and repair of Volvo S70 Saloon, V70 Estate, and C70 Coupe models manufactured between 1996 and 1999. It covers petrol engine variants, including Turbo and T5 versions. The manual is designed to assist both the novice and experienced mechanic in performing various tasks, from routine checks to complex repairs.
Each procedure is explained with clear, step-by-step guidance and supported by numerous illustrations to ensure accuracy and ease of understanding. The content is based on a complete stripdown and rebuild of the vehicle, ensuring practical and reliable information.

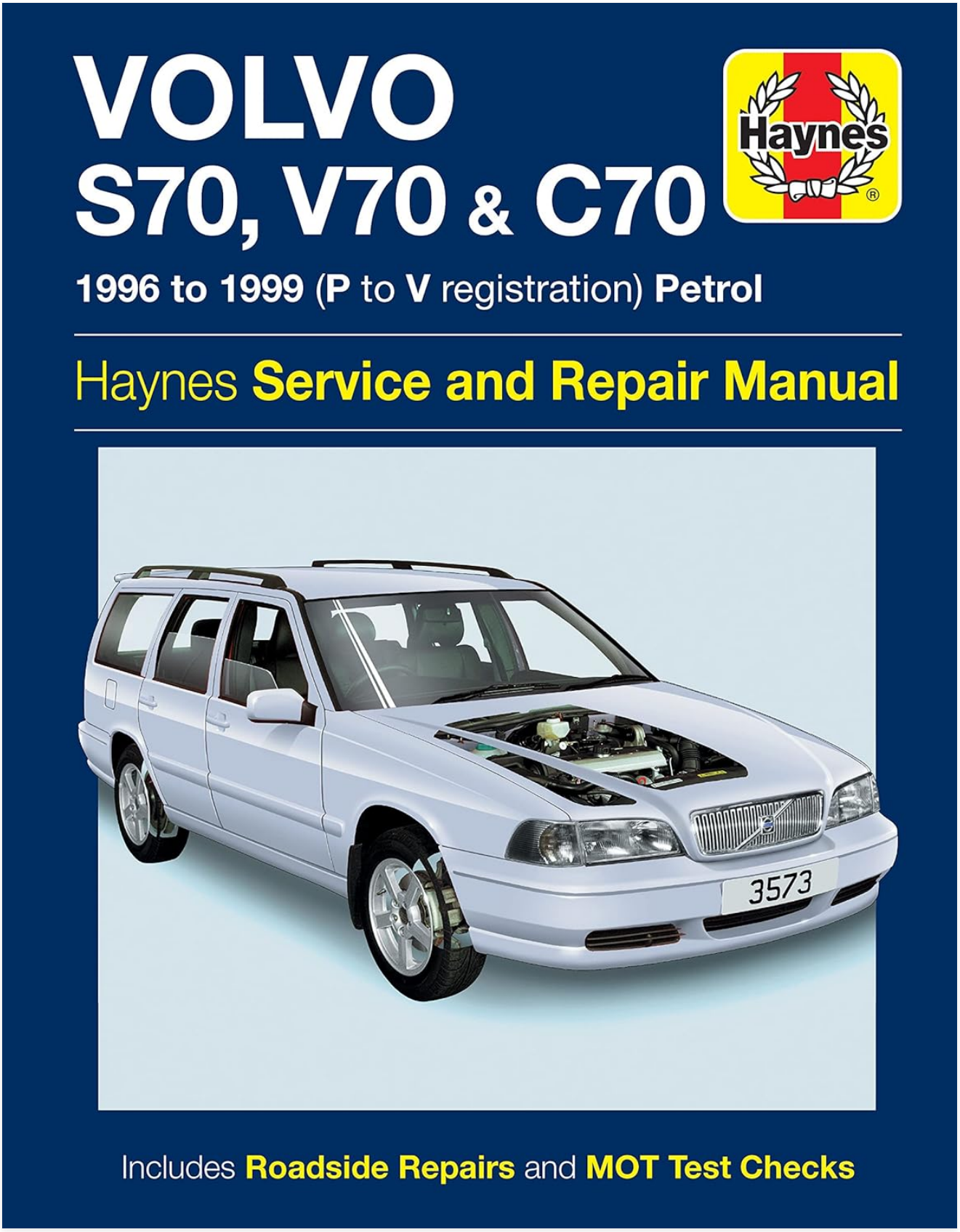
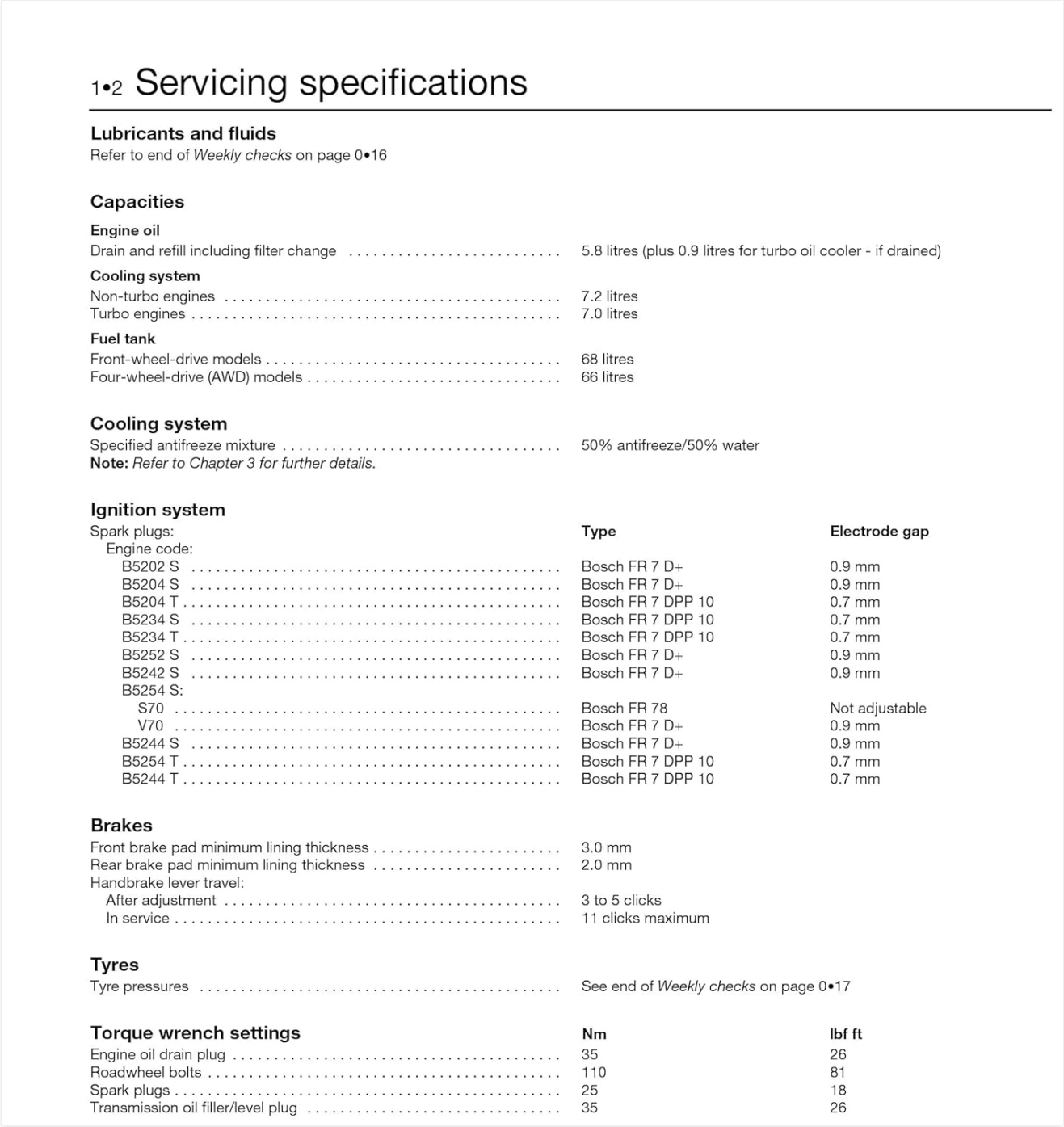


Figure 1.1: Front cover of the Haynes Service and Repair Manual for Volvo S70, V70, and C70 models.

About This Manual's Approach

Haynes manuals are developed through a comprehensive process involving the complete disassembly and reassembly of a vehicle. This approach ensures that all instructions are practical, accurate, and easy to follow for vehicle owners. The manual emphasizes DIY-friendly techniques, making it accessible for individuals with varying levels of mechanical experience.

- **Stripdown and Rebuild:** Every procedure is based on hands-on experience, providing detailed insights into vehicle components.
- **DIY-Friendly Techniques:** Instructions are designed to be understood and executed by individuals using common tools.
- **Fault Finder:** Includes a dedicated section to help diagnose common issues, saving time and effort in troubleshooting.



1•2 Servicing specifications

Lubricants and fluids

Refer to end of *Weekly checks* on page 0•16

Capacities

Engine oil

Drain and refill including filter change	5.8 litres (plus 0.9 litres for turbo oil cooler - if drained)

Cooling system

Non-turbo engines	7.2 litres
Turbo engines	7.0 litres

Fuel tank

Front-wheel-drive models	68 litres
Four-wheel-drive (AWD) models	66 litres

Cooling system

Specified antifreeze mixture	50% antifreeze/50% water

Note: *Refer to Chapter 3 for further details.*

Ignition system

Spark plugs:	Type	Electrode gap
Engine code:		
B5202 S	Bosch FR 7 D+	0.9 mm
B5204 S	Bosch FR 7 D+	0.9 mm
B5204 T	Bosch FR 7 DPP 10	0.7 mm
B5234 S	Bosch FR 7 DPP 10	0.7 mm
B5234 T	Bosch FR 7 DPP 10	0.7 mm
B5252 S	Bosch FR 7 D+	0.9 mm
B5242 S	Bosch FR 7 D+	0.9 mm
B5254 S:		
S70	Bosch FR 78	Not adjustable
V70	Bosch FR 7 D+	0.9 mm
B5244 S	Bosch FR 7 D+	0.9 mm
B5254 T	Bosch FR 7 DPP 10	0.7 mm
B5244 T	Bosch FR 7 DPP 10	0.7 mm

Brakes

Front brake pad minimum lining thickness	3.0 mm
Rear brake pad minimum lining thickness	2.0 mm
Handbrake lever travel:	
After adjustment	3 to 5 clicks
In service	11 clicks maximum

Tyres

Tyre pressures	See end of *Weekly checks* on page 0•17

Torque wrench settings	Nm	lbf ft
Engine oil drain plug	35	26
Roadwheel bolts	110	81
Spark plugs	25	18
Transmission oil filler/level plug	35	26

Figure 1.2: Illustration of the Haynes manual development process, highlighting practical, step-by-step guidance for vehicle maintenance and repair.

Safety First

Always prioritize safety when working on your vehicle. Before beginning any procedure, ensure the vehicle is securely supported, the engine is cool, and the battery is disconnected if necessary. Wear appropriate personal protective equipment, such as gloves and eye protection. Refer to the manual's dedicated safety section for detailed precautions.

Weekly Checks

Regular weekly checks are crucial for maintaining your Volvo's performance and longevity. This section outlines essential inspections to perform, including:

- Underbonnet check points
- Engine oil level
- Coolant level
- Brake and clutch fluid level
- Power steering fluid level
- Battery condition
- Screen washer fluid level
- Tyre condition and pressure
- Wiper blades inspection
- Bulbs and fuses functionality

Roadside Repairs

This section provides guidance for common roadside emergencies and temporary fixes to get your vehicle to a service point. Topics covered include:

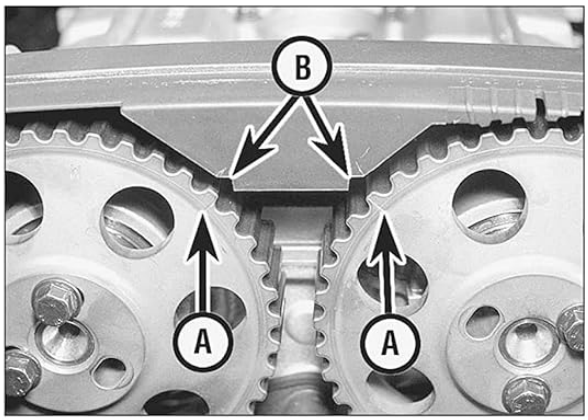
- What to do if your car won't start
- Jump starting procedures
- Wheel changing instructions
- Identifying fluid leaks
- Towing procedures

Maintenance and Servicing

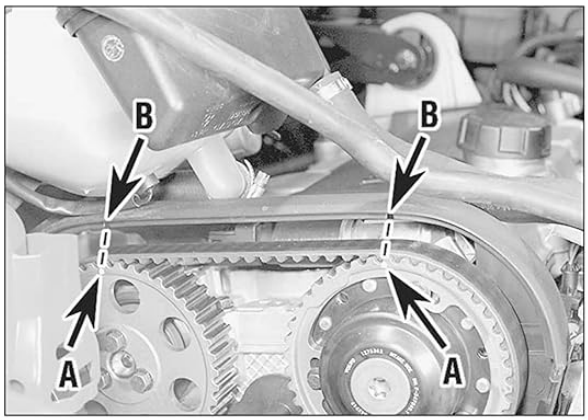
Routine maintenance is essential for the optimal performance and longevity of your Volvo. This section details scheduled servicing tasks and general maintenance procedures.

Servicing Specifications

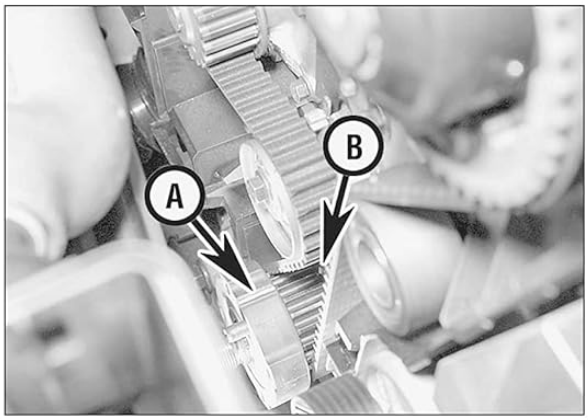
Detailed specifications for various components and fluids are provided to ensure correct maintenance. This includes capacities, ignition system details, brake specifications, and torque wrench settings.



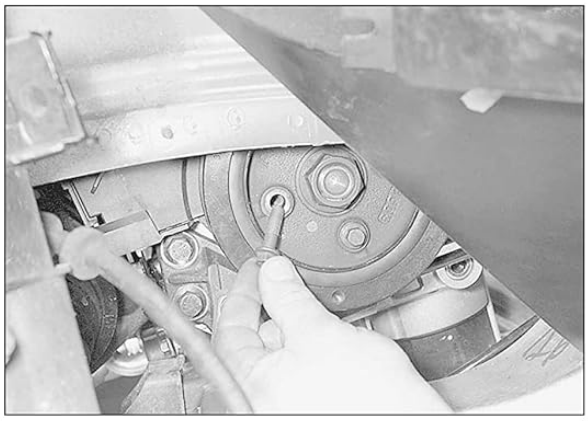
3.13a Timing marks on camshaft sprockets (A) aligned with the notches (B) on the belt rear cover - early models



3.13b Camshaft sprocket timing marks (A) and belt rear cover marks (B) - later models



3.14 Crankshaft sprocket rib (A) should align with oil pump housing mark (B)

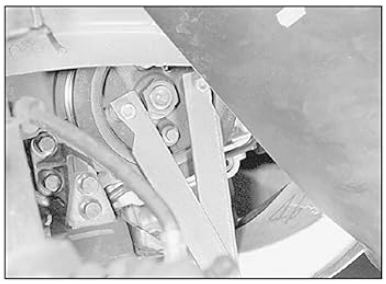


3.17a Loosen and remove two of the outer bolts . . .

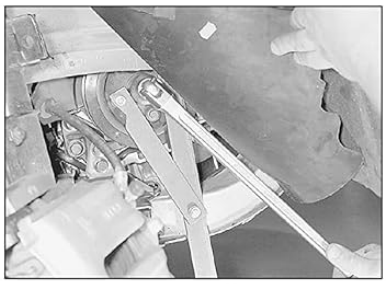
outer edge of the crankshaft sprocket should also be aligned with the cast projection on the oil pump housing **(see illustration)**.

15 The timing marks are not at all easy to see - the camshaft sprocket marks can be hardly more than faint scratches on the edges of the sprockets. Similarly, the mark on the crankshaft sprocket can only just be seen from above. It will probably take two or three attempts until you are sure that the marks are correctly aligned.

16 The crankshaft (auxiliary drivebelt) pulley must now be removed - this is secured to the crankshaft (timing belt) sprocket by four bolts, and to the crankshaft itself by a large central nut.



3.17b . . . then fit the home-made sprocket-holding tool . . .



3.17c . . . and loosen the central nut

17 Loosen the four outer bolts, and remove two of them. Using a home-made sprocket holding tool bolted to the pulley using the two vacated bolt holes, hold the pulley as the central nut is loosened - this is tightened to a very high torque **(see illustrations)**.

18 Once the central nut is loose, check the alignment of the timing belt sprockets as described in paragraphs 13 and 14 before removing the pulley.

19 The crankshaft pulley locates on a roll pin, and a puller may be required to work the pulley off **(see illustrations)**. Levering the pulley off is not advisable - the rim of the pulley itself is easily broken if care is not taken.

20 Loosen the timing belt tensioner retaining bolt, and rotate the tensioner assembly clockwise to relieve the tensioner on the belt **(see illustration)**. If a new belt is being fitted, remove the tensioner completely, noting how the protruding lug on the tensioner engages with the engine. Volvo recommend that a new tensioner is fitted whenever a new timing belt is fitted.

Figure 2.1: Example page from the manual detailing servicing specifications, including fluid capacities, ignition system data, and torque settings.

Example Specifications:

- **Engine Oil Capacity:** 5.8 liters (including filter change)
- **Cooling System Capacity:** Non-turbo engines 7.2 liters, Turbo engines 7.0 liters
- **Fuel Tank Capacity:** Front-wheel drive models 68 liters, Four-wheel drive (AWD) models 66 liters
- **Cooling System Mixture:** 50% antifreeze/50% water
- **Spark Plugs:** Specific Bosch models with 0.9 mm electrode gap.

- **Brakes:** Front brake pad minimum lining thickness 3.0 mm, Rear brake pad minimum lining thickness 2.8 mm.
- **Torque Wrench Settings:** Engine oil drain plug 35 Nm, Roadwheel bolts 110 Nm, Spark plugs 25 Nm.

Lubricants and Fluids

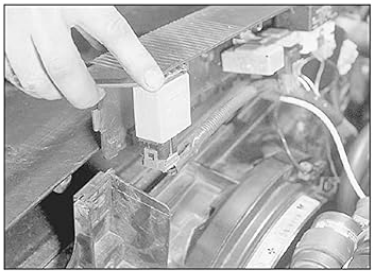
This section provides information on the correct types and quantities of lubricants and fluids required for your vehicle, ensuring proper operation and preventing premature wear.

Tyre Pressures

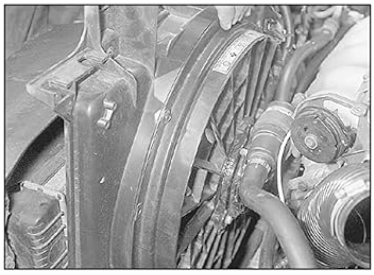
Correct tyre pressures are vital for safety, fuel efficiency, and tyre longevity. Refer to this section for recommended tyre pressures for various load conditions.

Engine In-Car Repair Procedures

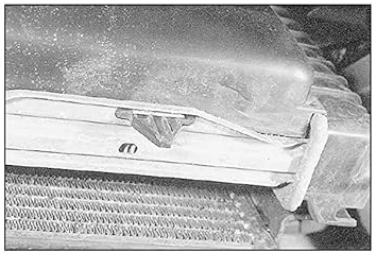
This section covers various repair procedures that can be performed on the engine while it remains in the vehicle. Detailed steps are provided for tasks such as checking and adjusting timing marks, which are critical for engine synchronization.



4.5 Lift up the relay carrier and disconnect the fan wiring connectors



4.7 Lift the fan shroud up and out to remove



4.9 Ensure the lower locating pegs engage with the bottom of the radiator when refitting

5 Lift up the relay carrier and disconnect the fan wiring connectors **(see illustration)**. Lay the carrier to one side, clear of the fan shroud.
6 On turbo models, detach the intercooler air duct above the fan shroud.
7 Lift the shroud upwards to release the two lower locating pegs, and remove the shroud and fan from the car **(see illustration)**.
8 Undo the four bolts and remove the motor and fan guard assembly from the shroud. This is the limit of dismantling as the motor, fan and guard are not available as separate components.

Refitting

9 Refitting is the reversal of removal. Ensure that the lower locating pegs engage with the bottom of the radiator as the shroud is refitted **(see illustration)**.

5 Radiator - removal and refitting

HAYNES HiNT *If leakage is the reason for wanting to remove the radiator, bear in mind that minor leaks can often be cured using a radiator sealant with the radiator in situ.*

Removal

1 Drain the cooling system (see Chapter 1).
2 Remove the radiator cooling fan as described in Section 4.
3 Where applicable, undo the retaining bolt each side, then release the clips and remove the splash guard under the radiator **(see illustrations)**.
4 Disconnect the top and bottom hoses, from the radiator.
5 On cars equipped with air conditioning, undo the condenser upper mounting bolt on each side. Secure the condenser to the upper body panel with string or wire to retain it in position, then undo the two lower bolts **(see illustration)**.
6 On automatic transmission models, disconnect the fluid cooler lines from the radiator left-hand side tank. Be prepared for fluid spillage. Plug or cap the lines to keep dirt out.
7 Where fitted, disconnect the engine oil cooler pipe unions from the radiator right-hand side tank. Plug or cap the lines to keep dirt out.
8 On turbo models, detach the intercooler air ducts as necessary for radiator removal.
9 Support the radiator, then undo the lower mounting bolt on each side and lift the radiator out of the engine compartment.

Refitting

10 Refit by reversing the removal operations. With reference to Chapter 1, refill the cooling system on completion, and where applicable top-up the automatic transmission fluid and engine oil.

6 Coolant temperature sensor - testing, removal and refitting

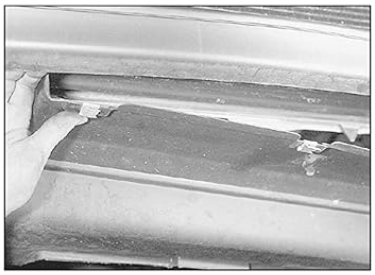
Testing

1 The coolant temperature sensor is located in the thermostat housing, and is used by both the engine management system and the instrument panel temperature gauge to supply an engine temperature source signal.
2 In the event of a fault in the sensor, or a loss of signal due to poor electrical connections, a fault code will be logged in the engine management system ECU, which can be read out via the diagnostic connector in the centre console (using a suitable fault code reader).
3 Should a fault code be logged, a careful check should be made of the sensor wiring and the wiring connector. Apart from testing by substitution with a new unit, further checks require the use of Volvo test equipment and should be entrusted to a dealer.

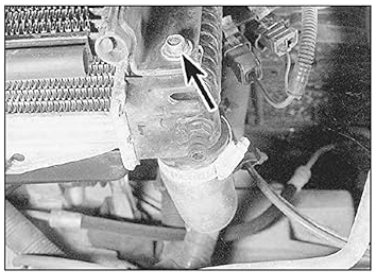
Removal

4 Partially drain the cooling system (see Chapter 1) to below the level of the sensor unit. Slacken the clip and disconnect the radiator top hose at the thermostat housing.
5 Remove the two Torx bolts, and lift off the thermostat housing.
6 Disconnect the wiring at the adjacent connector, then unscrew the sensor from its location in the thermostat housing **(see illustrations)**.

5.3a Undo the retaining bolt each side (arrowed) . . .



5.3b . . . release the front clips and remove the splash guard under the radiator



5.5 Left-hand air conditioning condenser lower mounting bolt (arrowed)

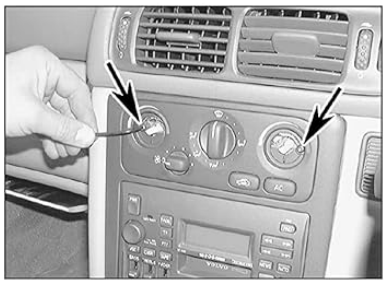
Figure 3.1: Detailed illustrations showing timing marks on camshaft sprockets (A) and their alignment with notches (B) on the belt cover for both early and later model vehicles.

Procedures include identifying timing marks on camshaft sprockets and belt covers, ensuring correct engine timing. The manual provides specific instructions for different engine configurations and model years.

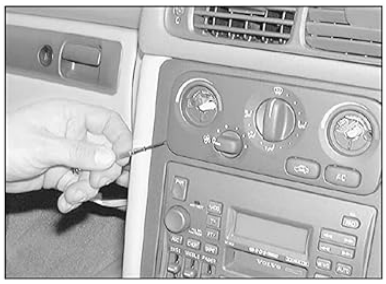
Cooling, Heating, and Air Conditioning Systems

This section provides instructions for diagnosing, repairing, and maintaining the vehicle's cooling, heating, and air conditioning systems. It covers components such as the radiator, cooling fan, and temperature sensors.

10.1 Pull off the temperature control knobs



10.2a Unscrew the panel retaining screws (arrowed) . . .



10.2b . . . then prise the panel from the facia

2 Undo the two screws now exposed behind the temperature control knobs, then carefully prise out and withdraw the control panel front plate **(see illustrations)**.
3 Disconnect the wiring plugs from the rear of the control panel, and remove **(see illustration)**.
4 If required, the three panel illumination bulbs can be removed by unscrewing the bulbholders from the rear of the panel, and pulling out the bulbs **(see illustrations)**.
5 To remove the rear section of the control panel for access to the control cables, the radio/cassette unit must be removed as described in Chapter 12.

6 With the front panel removed as described above, use a screwdriver to release the four catches (one at each corner), then carefully lower and withdraw the rear panel through the radio aperture **(see illustration)**.
7 Note the location of the control cables as an aid to refitting. Release the retaining clips securing the outer cables, and detach the inner cables from the control lever pegs **(see illustration)**.
8 Remove the control panel from the car.

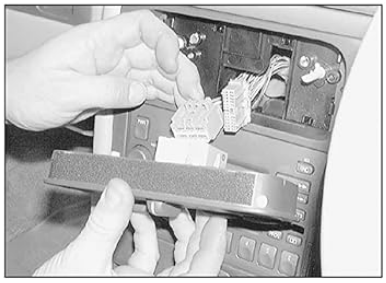
Refitting

9 Refit by reversing the removal operations.
10 On completion, adjust the cables at the heater unit as described in the following sub-section.

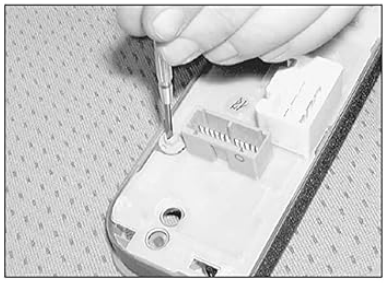
Control cables

Removal

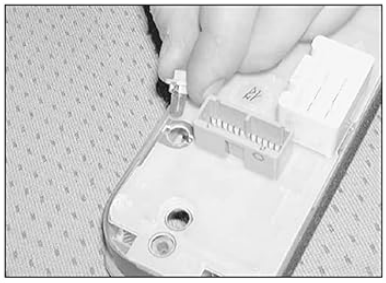
11 Undo the screws and remove the trim/sound proofing panels from under the facia on the left and right-hand sides. Also unclip and detach the floor air ducts at the very front of the centre console on either side.
12 Undo the screws and remove the carpet support plates on each side of the heater unit. Bend back the carpet to allow the support plates to be withdrawn.



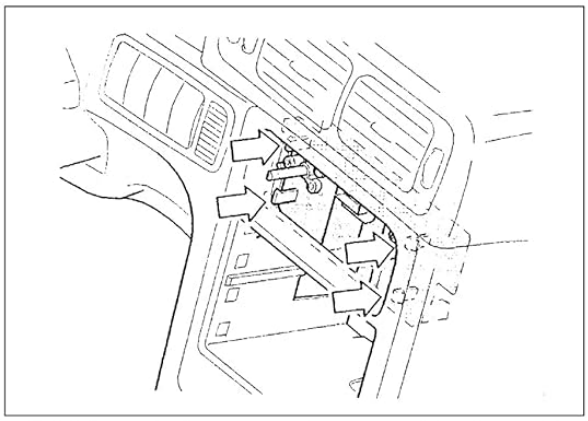
10.3 Disconnect the wiring plugs from the control panel



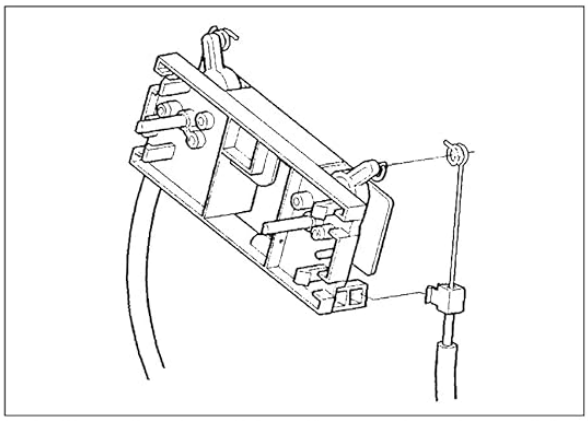
10.4a Unscrew the control panel bulbholders . . .



10.4b . . . and pull out the bulbs as required



10.6 Release the four rear panel securing catches (arrowed)



10.7 Release the outer cable retaining clips, then disconnect the inner cables

Figure 4.1: Visual guide for cooling system repairs, demonstrating the removal of the cooling fan wiring connectors and the radiator shroud.

Key procedures detailed include:

- Removing and refitting the cooling fan and radiator.
- Testing and replacing the coolant temperature sensor.
- Troubleshooting common cooling system faults.
- Draining and refilling the cooling system.

Body Equipment and Interior Controls

This section provides instructions for working with various body equipment and interior components, including the removal and installation of control panels and associated wiring.

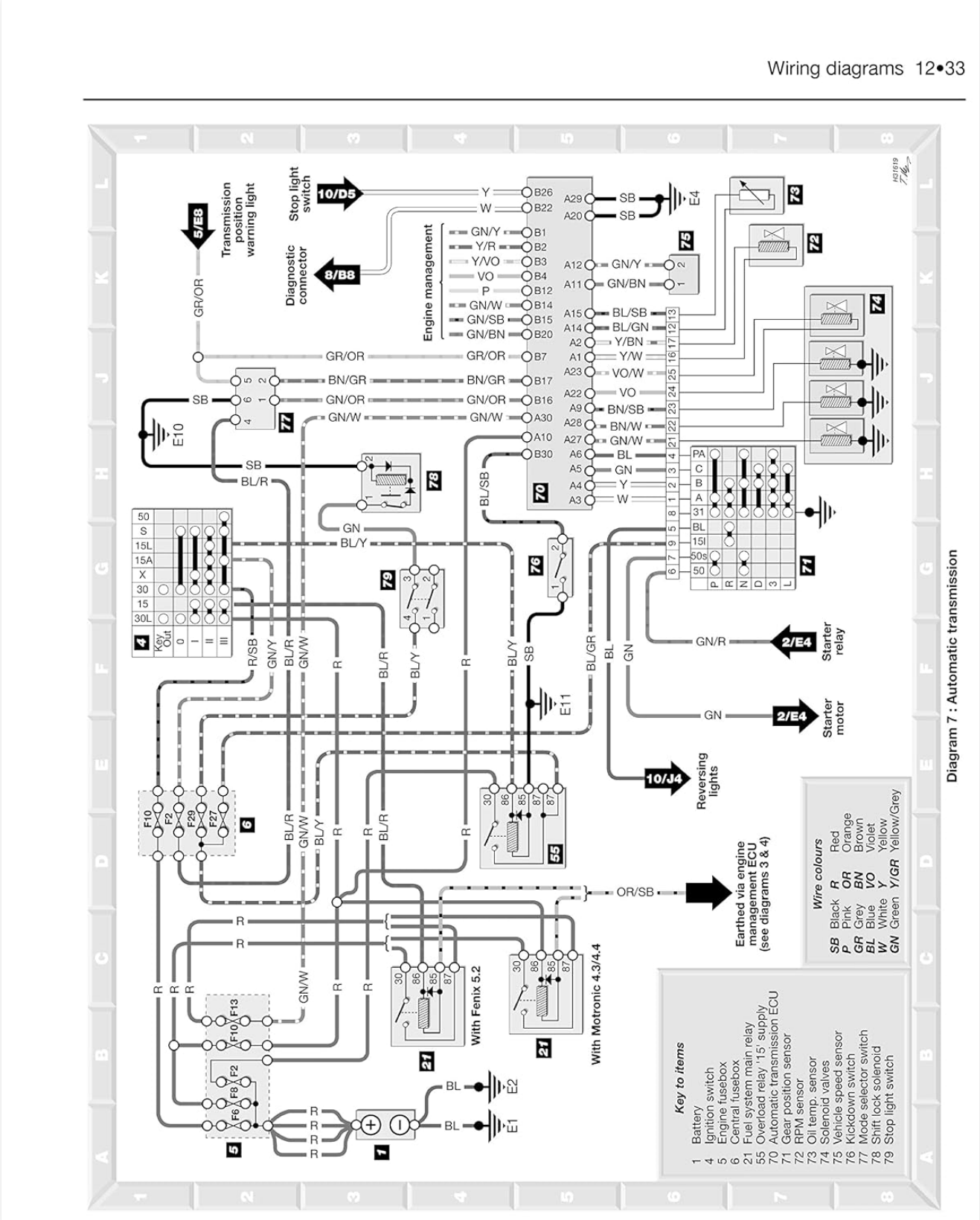


Figure 5.1: Step-by-step guide for removing the temperature control knobs and unscrewing the control panel retaining screws to access interior components.

Procedures covered include:

- Removing the fascia and control panel.
- Disconnecting wiring plugs and bulbholders.

- Accessing and removing the radio/cassette anti-theft system.

Troubleshooting

The manual includes a dedicated fault-finding section to assist in diagnosing common vehicle problems. This section provides systematic approaches to identify the root cause of issues, from engine performance problems to electrical malfunctions, guiding users through logical diagnostic steps.

Specifications Overview

This manual provides comprehensive technical specifications for the Volvo S70, V70, and C70 models (1996-1999). Key details include:

- **Publisher:** Haynes
- **Publication Date:** October 18, 2014
- **Language:** English
- **Print Length:** 256 pages
- **ISBN-10:** 0857339540
- **ISBN-13:** 978-0857339546
- **Item Weight:** 14.4 ounces
- **Dimensions:** 8.31 x 0.59 x 10.63 inches

Additional Resources

For further assistance or specific inquiries not covered in detail within this manual, it is recommended to consult a certified Volvo service center or refer to official Volvo technical documentation. Always ensure that any parts used for repair or replacement meet the manufacturer's specifications.