Haynes 9-3

Saab 9-3 Service and Repair Manual (2002-2007)

Models covered: Saab 9-3 (September 2002 to September 2007)

Introduction

This manual provides comprehensive step-by-step instructions for the maintenance and repair of Saab 9-3 models manufactured between September 2002 and September 2007. It is designed to assist owners and technicians in performing various tasks, from routine servicing to more complex repairs.

Important Note:

- This repair manual does not cover car models with the 1.8 liter or 2.8 liter petrol engine.
- It also does not cover models with the 2.2 liter diesel engine.
- Specifics for SAAB 9-3 models introduced in September 2007 are not covered.

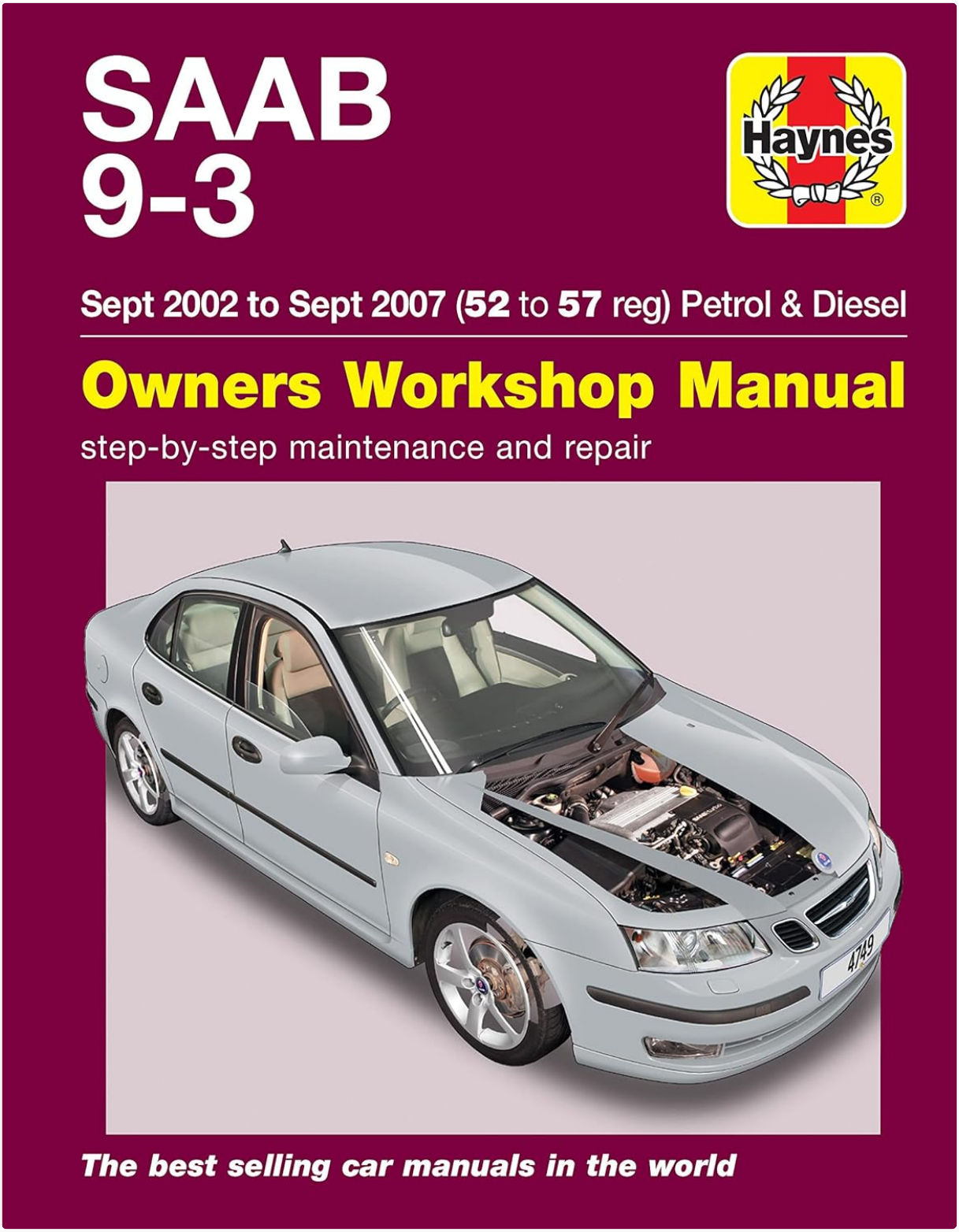


Figure 1: Front cover of the Saab 9-3 Service and Repair Manual. The cover displays a silver Saab 9-3 sedan with the hood open, showing the engine bay, and the Haynes logo.

How to Use This Manual

This manual is structured to guide you through various repair and maintenance procedures. Each section is based on practical experience, derived from complete strip-downs and rebuilds of several Saab 9-3s. The content aims to provide clear, step-by-step instructions with supporting visuals.

- **Step-by-step instructions:** Detailed guidance for each task.
- **Over 900 photographs:** Visual aids to clarify procedures.
- **DIY-friendly techniques:** Instructions designed for vehicle owners with varying levels of experience.

- **Fault Finder:** A dedicated section to help diagnose common issues.

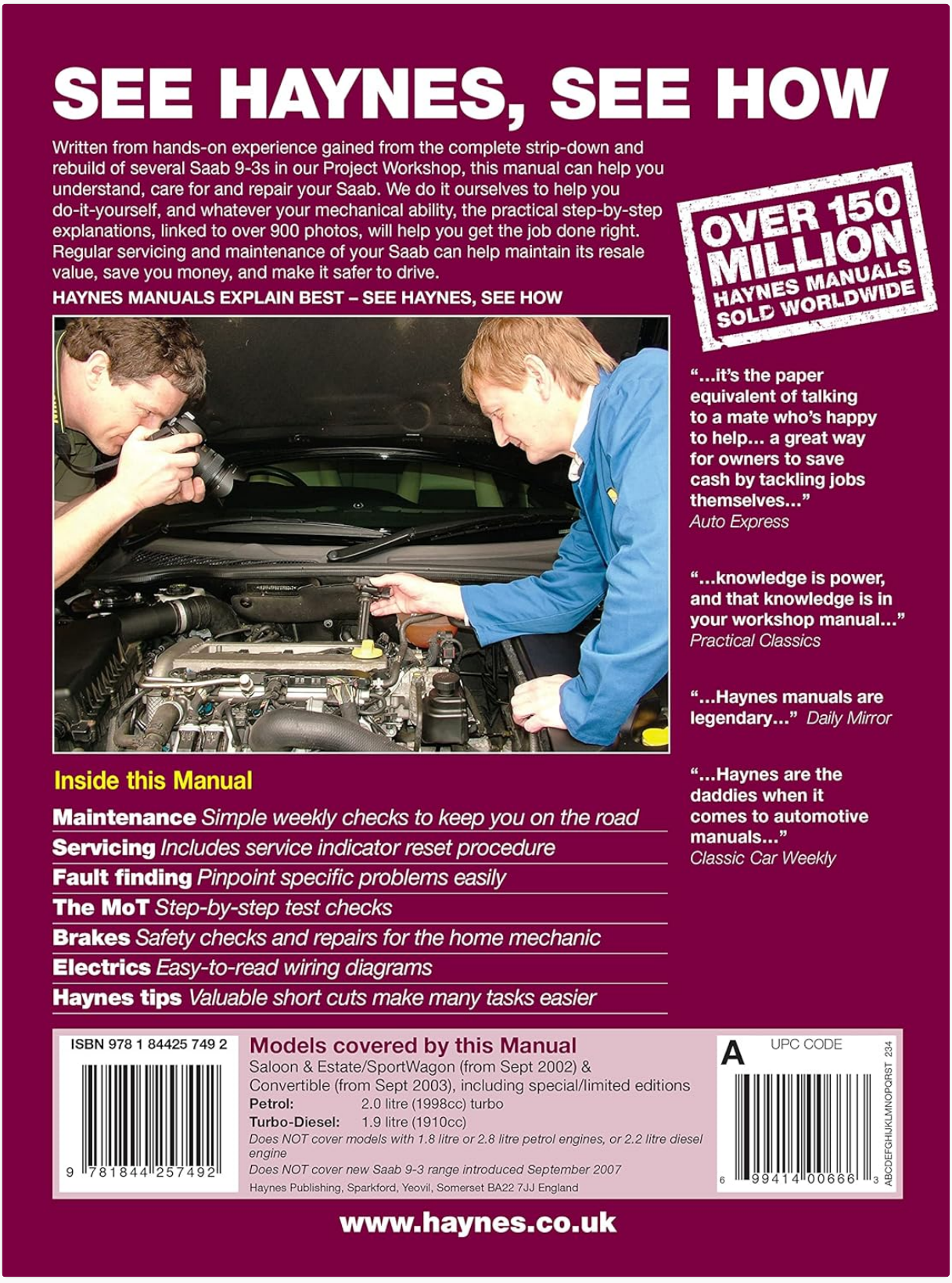


Figure 2: An internal page illustrating the "SEE HAYNES, SEE HOW" approach. It shows mechanics performing work on a car engine, emphasizing practical, hands-on guidance.

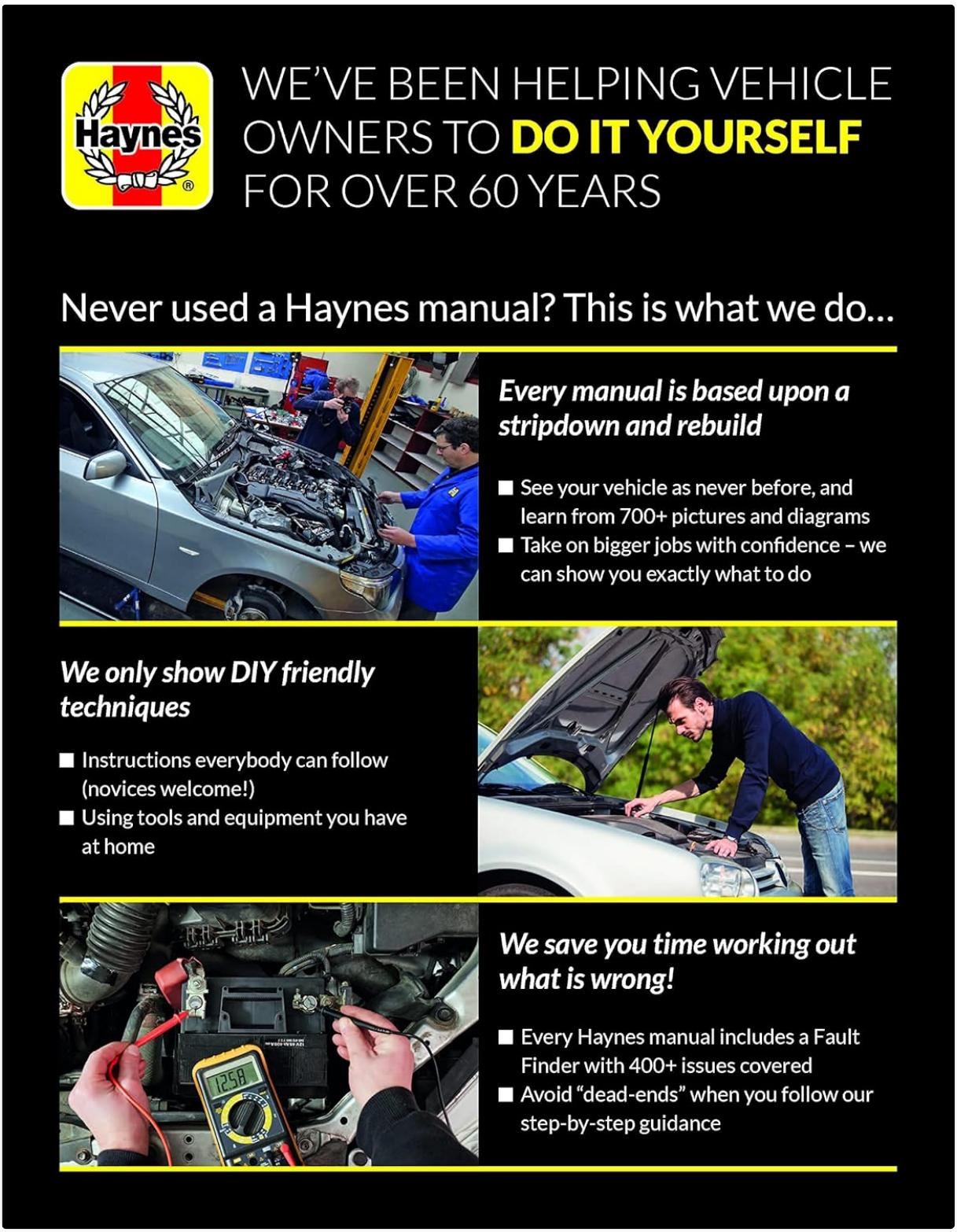


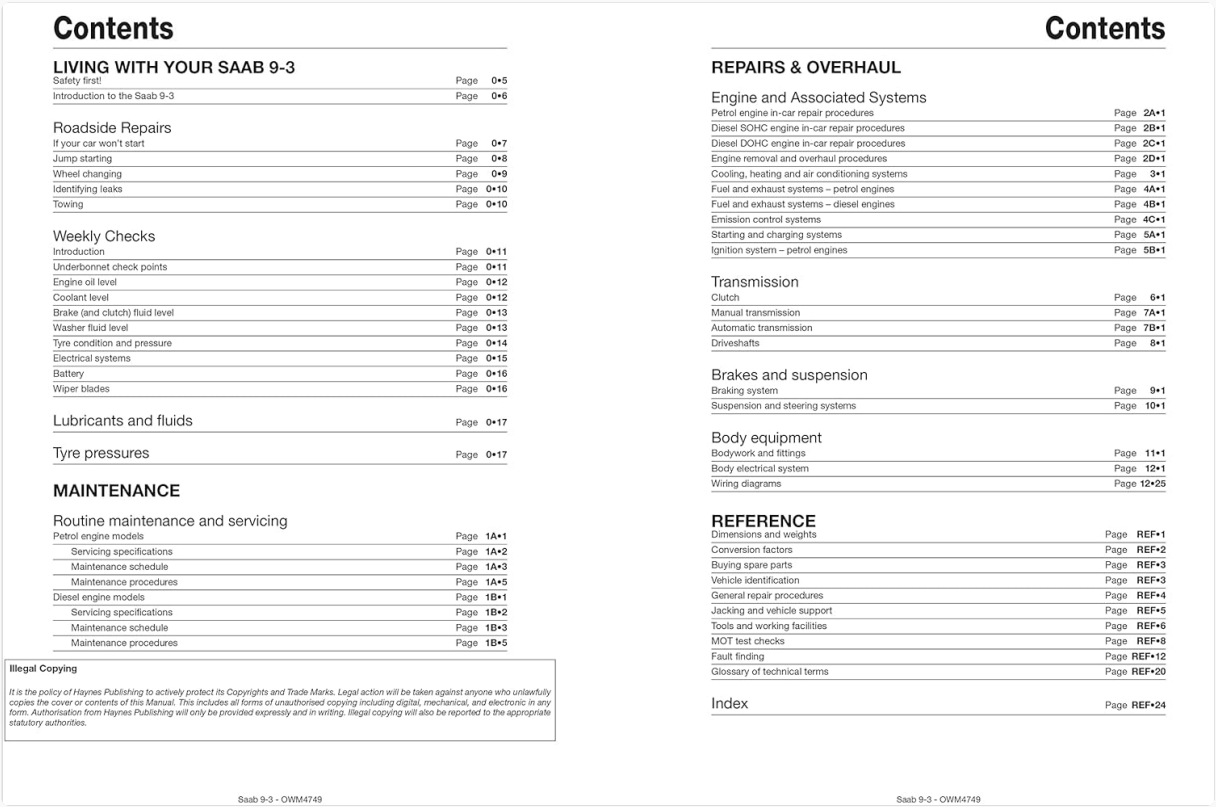
Figure 3: An informational page detailing the benefits of using a Haynes manual, including DIY-friendly techniques, over 700 pictures and diagrams, and a Fault Finder section.

Manual Contents Overview

The manual is organized into logical sections to facilitate easy navigation and reference. Key sections include:

- Living with your Saab 9-3 (Safety, Introduction)
- Roadside Repairs (Jump starting, Wheel changing, Identifying tasks, Towing)
- Weekly Checks (Underbonnet, Engine oil, Coolant, Brake fluid, Washer fluid, Tyre condition, Battery, Wiper blades)
- Lubricants and fluids

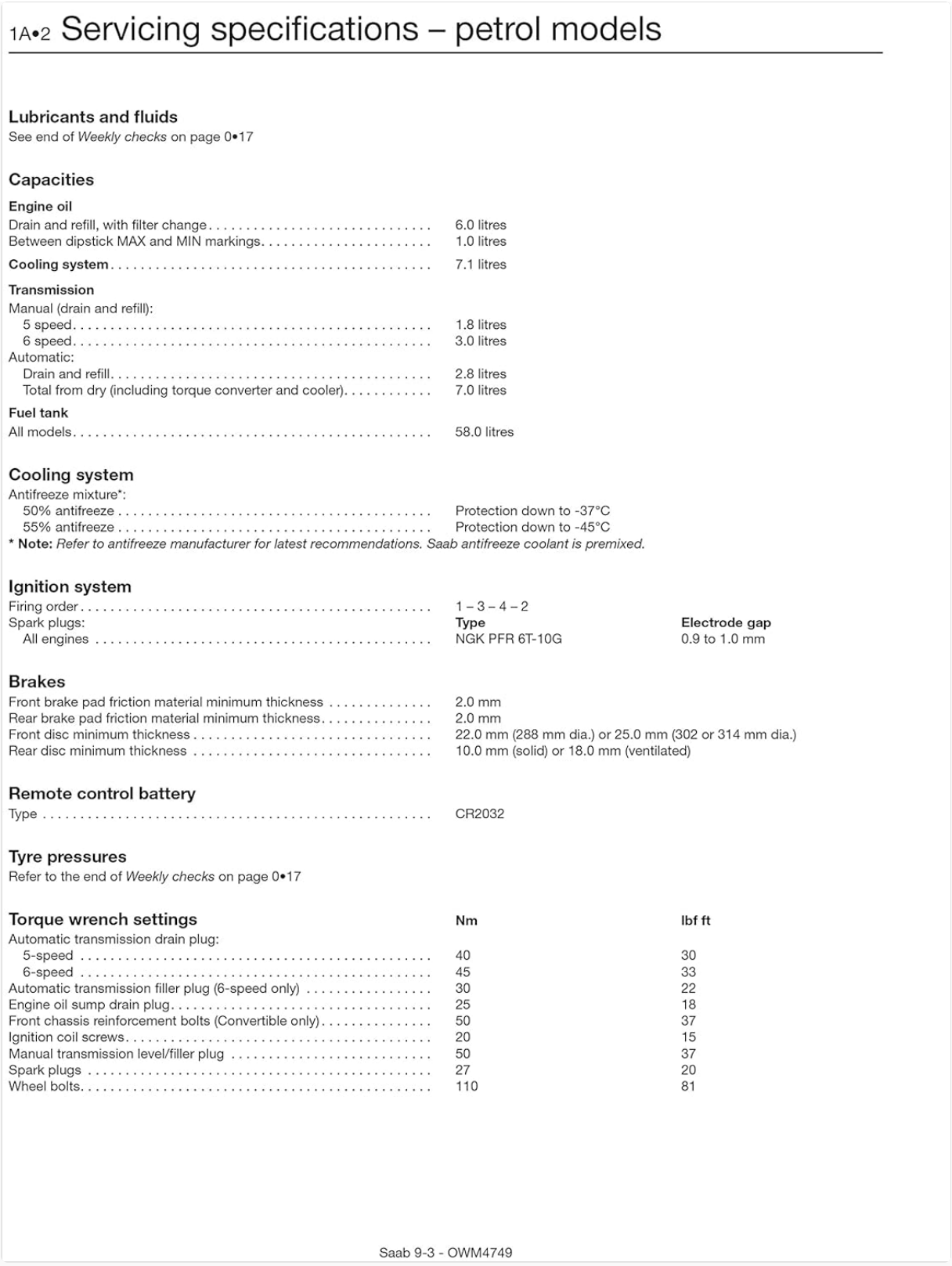
- Tyre pressures
- Maintenance (Routine maintenance and servicing, Maintenance schedule, Procedures)
- Engine and Associated Systems (Petrol engine, Diesel SOHC, Diesel DOHC, Engine removal, Cooling, Heating, Air conditioning, Fuel and exhaust systems, Emission control, Ignition, Starting and charging)
- Transmission (Clutch, Manual transmission, Automatic transmission, Driveshafts)
- Brakes and Suspension (Braking system, Suspension and steering system)
- Body equipment (Bodywork and fittings, Body electrical system, Wiring diagrams)
- Reference (Conversion factors, Buying spare parts, Vehicle identification, General repair procedures, Jacking and vehicle support, Tools and working facilities, MOT test checks, Fault finding, Glossary of technical terms)



Contents

Contents

Figure 4: The first page of the manual's contents, detailing sections like 'Living with your Saab 9-3', 'Roadside Repairs', 'Weekly Checks', 'Lubricants and fluids', 'Tyre pressures', and 'Maintenance'.



1A•2 Servicing specifications – petrol models

Lubricants and fluids
See end of *Weekly checks* on page 0•17

Capacities

Engine oil

Drain and refill, with filter change	6.0 litres
Between dipstick MAX and MIN markings	1.0 litres
Cooling system	7.1 litres

Transmission

Manual (drain and refill):	
5 speed	1.8 litres
6 speed	3.0 litres
Automatic:	
Drain and refill	2.8 litres
Total from dry (including torque converter and cooler)	7.0 litres

Fuel tank

All models	58.0 litres

Cooling system

Antifreeze mixture*:	
50% antifreeze	Protection down to -37°C
55% antifreeze	Protection down to -45°C

* **Note:** *Refer to antifreeze manufacturer for latest recommendations. Saab antifreeze coolant is premixed.*

Ignition system

Firing order	1 – 3 – 4 – 2	
Spark plugs:	**Type**	**Electrode gap**
All engines	NGK PFR 6T-10G	0.9 to 1.0 mm

Brakes

Front brake pad friction material minimum thickness	2.0 mm
Rear brake pad friction material minimum thickness	2.0 mm
Front disc minimum thickness	22.0 mm (288 mm dia.) or 25.0 mm (302 or 314 mm dia.)
Rear disc minimum thickness	10.0 mm (solid) or 18.0 mm (ventilated)

Remote control battery

Type	CR2032

Tyre pressures
Refer to the end of *Weekly checks* on page 0•17

Torque wrench settings	**Nm**	**lbf ft**
Automatic transmission drain plug:		
5-speed	40	30
6-speed	45	33
Automatic transmission filler plug (6-speed only)	30	22
Engine oil sump drain plug	25	18
Front chassis reinforcement bolts (Convertible only)	50	37
Ignition coil screws	20	15
Manual transmission level/filler plug	50	37
Spark plugs	27	20
Wheel bolts	110	81

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Figure 5: The second page of the manual's contents, covering 'Engine and Associated Systems', 'Transmission', 'Brakes and suspension', 'Body equipment', and 'Reference' sections.

MAINTENANCE

Regular maintenance is crucial for the longevity and performance of your Saab 9-3. This manual details various maintenance procedures, including weekly checks, servicing specifications, and lubrication requirements.

Servicing Specifications - Petrol Models

6-speed transmission

7 Position a suitable container beneath the transmission, then unscrew the drain plug and allow the fluid to drain **(see illustration)**.

Warning: The fluid will be very hot, so take necessary precautions to prevent scalding. The use of thick waterproof gloves is recommended.

8 Unscrew the filler plug from the top of the casing and add approximately 3 litres of new fluid **(see illustration)**.

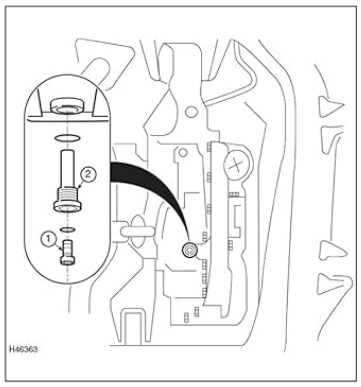
9 Lower the vehicle to the ground.

10 Run the engine until the fluid temperature is approximately 30° to 45°C, then move the selector lever through positions P to D, and back again, with the footbrake depressed. Allow the selector lever to rest in each position for 2 seconds. Repeat this procedure twice.

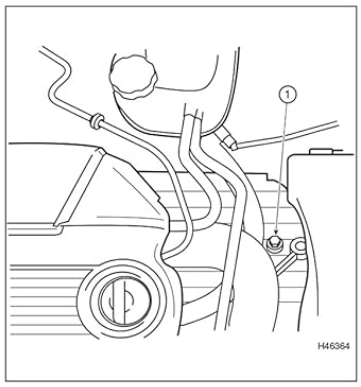
11 Raise the vehicle again, place a receptacle under the transmission drain/level plug, and unscrew the level screw from the centre of the plug. If the level is too high, excess fluid will flow out of the level hole – refit the screw and tighten it securely. If no fluid runs out, top-up the fluid level through the filler plug hole on the top of the transmission casing, until fluid emerges from the level hole. Allow the excess to drain and refit the level screw securely.

12 Refit the filler plug and tighten it to the specified torque.

13 Lower the vehicle to the ground.



26.7 Transmission fluid level checking plug (1) and drain plug (2) – 6-speed transmissions



26.8 Transmission fluid filler plug (1)

27 Auxiliary drivebelt – renewal

1 On all engines, a single, multi-grooved auxiliary drivebelt is used to transmit drive from the crankshaft pulley to the alternator and the refrigerant compressor. The drivebelt is tensioned automatically by a spring-loaded tensioner pulley.

2 For better access to the drivebelt, apply the handbrake then jack up the front of the car and support it on axle stands (see *Jacking and vehicle support*). Remove the right-hand front roadwheel, then remove the plastic liner from under the right-hand wheel arch to expose the crankshaft pulley.

3 The tensioner pulley spring must now be compressed and locked in position. Using a spanner or socket and bar, rotate the tensioner clockwise, then insert a locking pin/5 mm drill bit once the holes in the arm and body align, to lock the tensioner in place **(see illustrations)**.

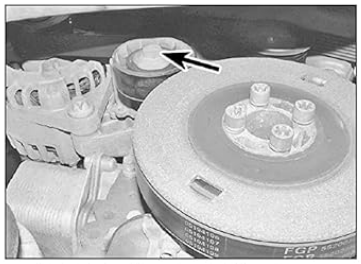
4 Slip the drivebelt from the pulleys, then remove it from the engine compartment from the right-hand wheel arch. If the belt is to be re-used, mark its direction of rotation.

5 Locate the drivebelt over all the pulleys, making sure that the multi-grooved side is correctly engaged with the grooves on the pulleys **(see illustration)**.

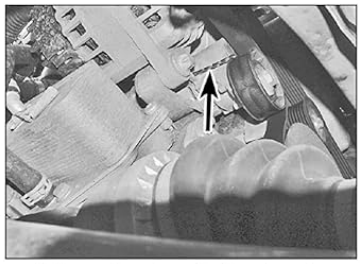
6 Compress the tensioner spring and withdrawn the locking pin/drill bit. Slowly release the tensioner, allowing it to apply pressure to the rear surface of drivebelt.

7 Ensure that the belt is correctly seated on all the pulleys, then start the engine and allow it to idle for a few minutes. This will allow the tensioner to settle in position and distribute the tension evenly throughout the belt. Stop the engine and check once again that the belt is correctly seated on all the pulleys.

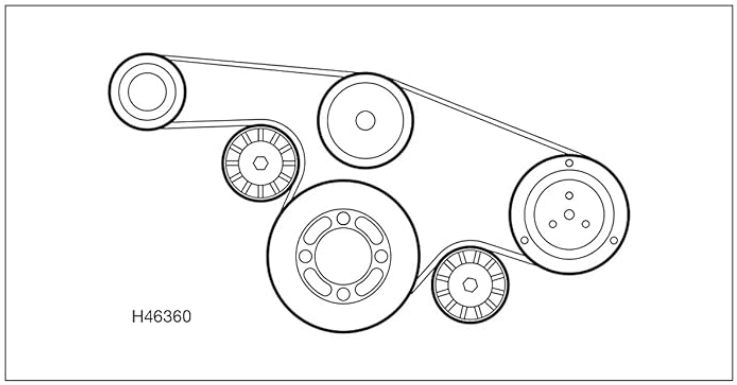
8 On completion, refit the plastic wheel arch liner and roadwheel, and then lower the car to the ground.



27.3a Turn the drivebelt tensioner clockwise using a spanner on the pulley centre bolt (arrowed) . . .



27.3b . . . then lock the tensioner by inserting a locking pin or drill bit (arrowed) through the special hole



27.5 Auxiliary drivebelt routing

Figure 6: A page from the manual outlining servicing specifications for petrol models. It includes details on lubricants, fluid capacities (engine oil, cooling system, transmission, fuel tank), ignition system components, brake specifications, remote control battery type, tyre pressures, and torque wrench settings.

Capacities (Approximate)

- **Engine oil:** 6.0 liters (drain and refill with filter change)
- **Cooling system:** 7.1 liters
- **Transmission (Manual):** 1.8 liters (5-speed), 3.0 liters (6-speed)
- **Transmission (Automatic):** 7.0 liters (total fill dry)
- **Fuel tank:** 58.0 liters (all models)

Torque Wrench Settings (Nm / lbf ft)

- **Automatic transmission drain plug:** 40 Nm / 30 lbf ft
- **5-speed manual transmission drain plug:** 45 Nm / 33 lbf ft
- **Automatic transmission filler plug (6-speed only):** 30 Nm / 22 lbf ft
- **Engine oil sump drain plug:** 50 Nm / 37 lbf ft
- **Front engine reinforcement bolts (Convertible only):** 20 Nm / 15 lbf ft
- **Ignition coil screws:** 20 Nm / 15 lbf ft
- **Manual transmission level/fill plug:** 50 Nm / 37 lbf ft
- **Spark plugs:** 30 Nm / 22 lbf ft
- **Wheel bolts:** 110 Nm / 81 lbf ft

Repair Procedures

This section provides examples of detailed repair procedures covered in the manual, including illustrations and step-by-step instructions for various components.

6-Speed Transmission Fluid Check and Renewal (Diesel Models)

For diesel models, checking and renewing the 6-speed transmission fluid is a critical maintenance task. The manual provides detailed steps for this procedure.

1. Position a suitable container beneath the transmission, then unscrew the drain plug and allow the fluid to drain.
2. Unscrew the filler plug from the top of the casing and add approximately 3 litres of new fluid.
3. Lower the vehicle to the ground.
4. Run the engine until the fluid temperature is approximately 80°C.
5. Unscrew the level screw from the centre of the filler plug. If the level is too high, excess fluid will flow out.
6. Refit the level screw and tighten it.
7. Refit the filler plug and tighten it.
8. Lower the vehicle to the ground.

32 Thoroughly clean the mating faces of the cylinder head and camshaft housing.
33 Refit the camshaft housing to the cylinder head as described in Section 9, paragraphs 13 to 26.
34 Commence refitting of the timing belt as described in Section 6, paragraphs 9 to 14.
35 Retain the camshaft sprocket using the holding tool, and tighten the retaining bolt to the specified torque.
36 Continue refitting of the timing belt as described in Section 6, paragraphs 15 to 30.

11 Camshaft followers and hydraulic tappets – removal, inspection and refitting

Removal

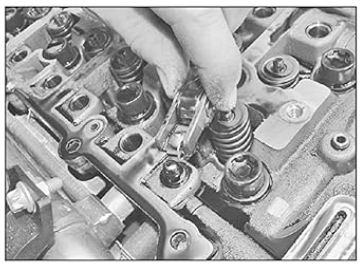
1 Remove the camshaft housing as described in Section 9.
2 Obtain sixteen small, oil-tight clean plastic containers, and number them intake 1 to 8 and exhaust 1 to 8; alternatively, divide a larger container into sixteen compartments and number each compartment accordingly.
3 Withdraw each camshaft follower and hydraulic tappet in turn, unclip the follower from the tappet, and place them in their respective container **(see illustrations)**. Do not interchange the followers and tappets, or the rate of wear will be much increased. Fill each container with clean engine oil and ensure that the tappet is submerged.

Inspection

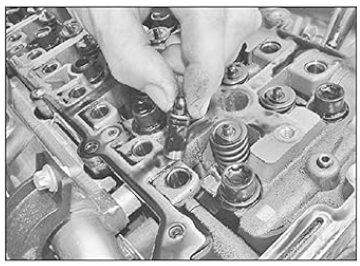
4 Examine the followers and hydraulic tappet bearing surfaces for wear ridges and scoring. Renew any follower or tappet on which these conditions are apparent.
5 If any new hydraulic tappets are obtained, they should be immersed in a container of clean engine oil prior to refitting.

Refitting

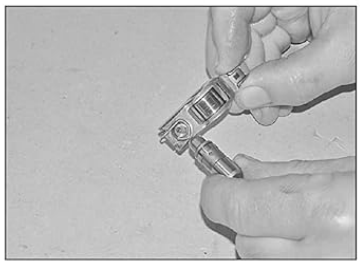
6 Liberally oil the cylinder head hydraulic tappet bores and the tappets. Working on one assembly at a time, clip the follower back onto the tappet, then refit the tappet to the cylinder head, ensuring that it is refitted to its original bore. Lay the follower over its respective valve **(see illustrations)**.



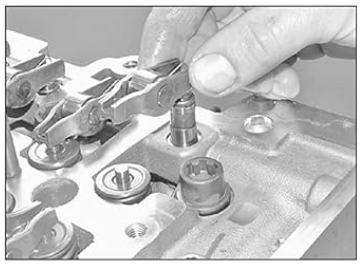
11.3a Withdraw each camshaft follower . . .



11.3b . . . and hydraulic bucket in turn, then place them in their respective container



11.6a Clip the follower back onto the tappet . . .



11.6b . . . then refit the tappet to its original bore, and lay the follower over its respective valve

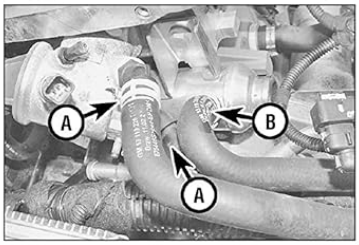
7 Refit the remaining tappets and followers in the same way.
8 With all the tappets and followers in place, refit the camshaft housing as described in Section 9.

12 Cylinder head – removal and refitting

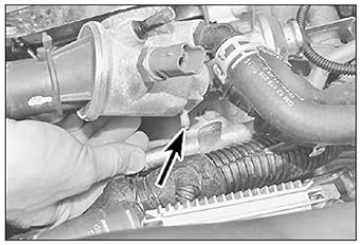
Note: *New cylinder head bolts will be required for refitting.*

Removal

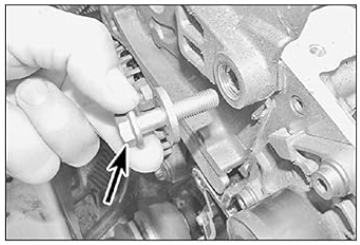
1 Disconnect the battery negative terminal as described in Chapter 5A.
2 Drain the cooling system as described in Chapter 1B.
3 Remove the camshaft housing as described in Section 9.
4 Remove the camshaft followers and hydraulic tappets as described in Section 11.
5 Remove the intake and exhaust manifolds as described in Chapter 4B.
6 Release the clips and disconnect the remaining two coolant hoses at the thermostat housing, and the coolant hose at the EGR valve heat exchanger **(see illustration)**.
7 Release the coolant pipe from the stud at the base of the thermostat housing **(see illustration)**.
8 Undo the bolt securing the high-pressure fuel pump mounting bracket to the cylinder head **(see illustration)**.
9 Make a final check to ensure that all relevant hoses, pipes and wires have been disconnected.
10 Working in the **reverse** of the tightening sequence **(see illustration 12.27)**, progressively slacken the cylinder head bolts



12.6 Disconnect the coolant hoses at the thermostat housing (A), and at the EGR valve heat exchanger (B)



12.7 Release the coolant pipe from the stud (arrowed) at the base of the thermostat housing



12.8 Undo the bolt (arrowed) securing the high-pressure fuel pump mounting bracket to the cylinder head

Figure 7: A page showing diagrams for 6-speed transmission fluid level checking (26.7) and filler plug (26.8), along with an illustration of the auxiliary drivebelt routing (27.5) and renewal steps (27.3a, 27.3b).

Auxiliary Drivebelt Renewal

The manual provides detailed steps for renewing the auxiliary drivebelt, including how to release tension and fit the new belt.

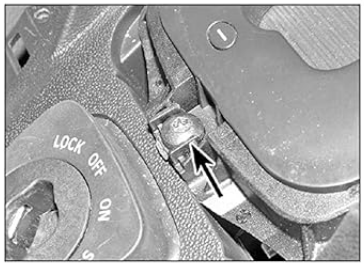
1. On all engines, a single, multi-groove auxiliary drivebelt is used to transmit drive from the crankshaft pulley to the alternator and the refrigerant compressor.
2. The drivebelt tension is automatically by a spring-loaded tensioner pulley.
3. For better access to the drivebelt, apply the handbrake, then jack up the front of the car and support it on axle stands.

4. Remove the right-hand front roadwheel, then remove the plastic liner from under the right-hand wheel arch to expose the drivebelt pulleys.
5. The tensioner pulley spring must now be compressed and locked in position.
6. Remove the drivebelt from the pulleys.
7. Fit the new drivebelt over its respective pulleys.
8. Compress the tensioner spring and unhook the locking pin/drill bit. Slowly release the tensioner, allowing it to apply pressure to the rear surface of drivebelt.

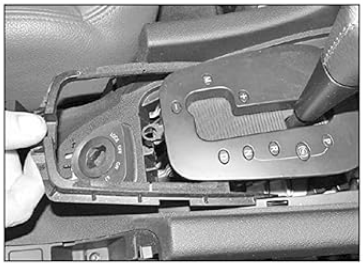
Diesel DOHC Engine In-Car Repair Procedures

This section covers procedures for the Diesel DOHC engine, such as withdrawing camshaft followers and hydraulic tappets, and cylinder head removal and refitting.

27.5 Unclip the gear lever gaiter/frame from the trim



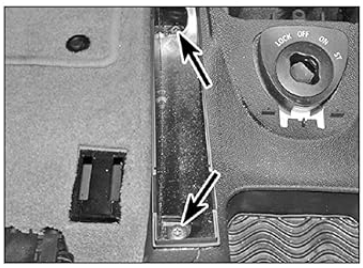
27.6a On automatic transmission models, undo the screw (arrowed) . . .



27.6b . . . and slide out the retaining frame

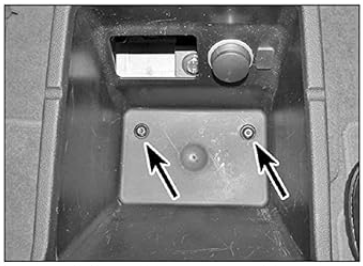
27.7 Prise up the panel beneath the handbrake lever

27.8a Lift up the cover . . .

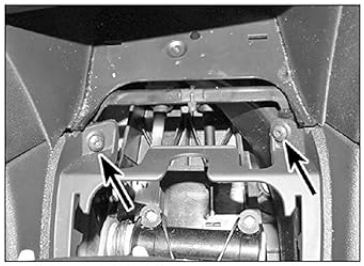


27.8b . . . and undo the 2 Torx screws

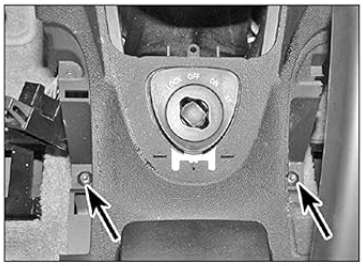
5 On manual transmission models, release the clips and detach the gaiter and frame from the surround trim **(see illustration)**.
6 On automatic transmission models, undo the Torx screw, lift the rear of the selector lever display panel, and slide out the retaining frame **(see illustrations)**.
7 Carefully prise out the plastic cover under the handbrake lever **(see illustration)**.
8 Remove the cover on the passenger's side, then undo the 2 Torx screws and remove the compartment **(see illustrations)**.
9 Lift up the rubber mat in the storage box, and undo the 2 retaining screws **(see illustration)**.



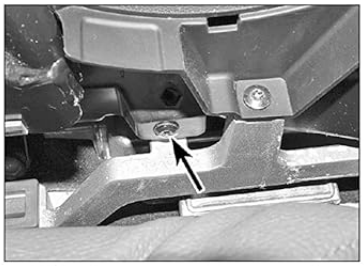
27.9 Undo the 2 Torx screws in the storage box (arrowed)



27.10a Undo the 2 Torx screws at the front of the console (arrowed) . . .

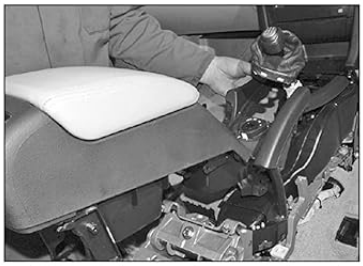


27.10b . . . and the screw each side (arrowed)



27.10c On some models, remove the screw each side (arrowed)

27.11a Lift the air duct from its mountings, and pull it rearwards



27.11b Lift the rear of the console and manoeuvre it from place

Figure 8: A page detailing Diesel DOHC engine in-car repair procedures. It includes images for withdrawing camshaft followers (11.3a), hydraulic tappets (11.3b), clipping the follower back onto the tappet (11.6a), and refitting the tappet (11.6b). Also shown are steps for disconnecting coolant hoses (12.6), releasing the coolant pipe (12.7), and undoing the bolt for the high-pressure fuel pump mounting bracket (12.8).

Camshaft Followers and Hydraulic Tappets - Removal, Inspection and Refitting

The manual provides detailed steps for removing, inspecting, and refitting camshaft followers and hydraulic tappets, including instructions for keeping parts organized and checking for wear.

Cylinder Head - Removal and Refitting

Instructions for cylinder head removal and refitting are provided, including disconnecting various components like coolant hoses and the high-pressure fuel pump mounting bracket.

Troubleshooting

The manual includes a dedicated "Fault Finder" section designed to help diagnose common problems. This section provides guidance on identifying symptoms and pinpointing potential causes, saving time and effort in the repair process.

Refer to the "Fault finding" section within the manual for specific diagnostic charts and procedures.

Specifications

Key specifications for the Saab 9-3 models covered by this manual are listed below for quick reference.

Specification	Detail
Publisher	J H Haynes & Co Ltd
Publication Date	April 17, 2015
Language	English
ISBN-10	1785210076
ISBN-13	978-1785210075
Item Weight	2.31 pounds
Dimensions	8.27 x 0.63 x 10.63 inches