Mercedes-Benz 124 Series

Mercedes-Benz 124 Series (1985-1993) Service and Repair Manual

Models Covered: 200, 230, 250, 260, 280, 300 & 320 W124: E, CE, D, TD Class, Gas/Diesel

Introduction

This manual provides comprehensive service and repair information for Mercedes-Benz 124 Series vehicles produced between 1985 and 1993. It covers various models including the 200, 230, 250, 260, 280, 300, and 320, encompassing E, CE, D, and TD Class variants with both gasoline and diesel engines. The content is designed to assist owners and mechanics in performing routine maintenance, troubleshooting, and detailed repair procedures.

Image: Front cover of the Mercedes-Benz 124 Series Service and Repair Manual, showing a blue Mercedes-Benz sedan with the hood open, highlighting engine components.

General Information and Safety

Before commencing any work on your vehicle, it is crucial to read and understand all relevant sections of this manual. Always prioritize safety by using appropriate tools, wearing protective gear, and following recommended procedures. Disconnect the battery before working on electrical systems and allow hot components to cool down. Refer to the 'Safety First!' section for detailed precautions.

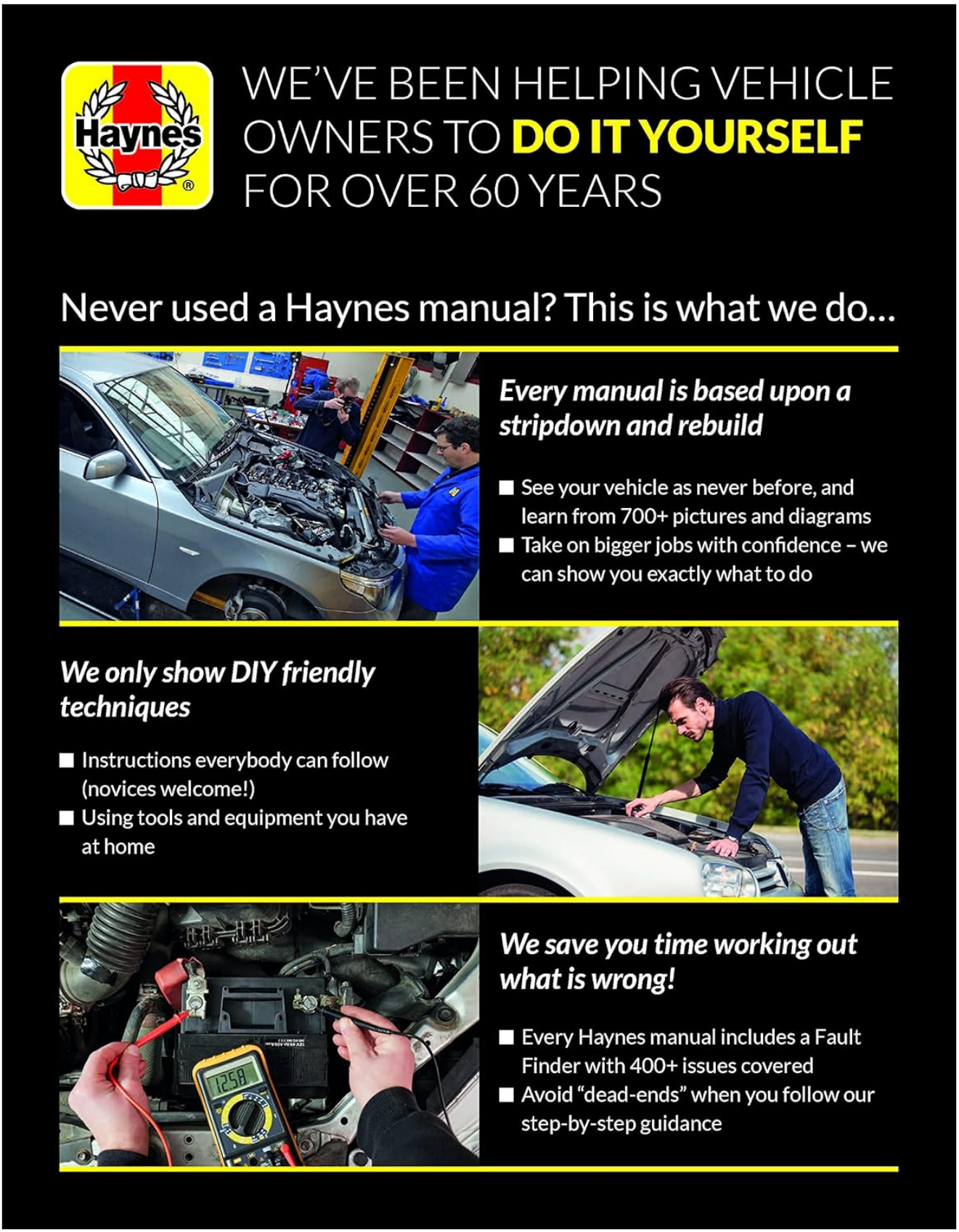


Image: A page from the manual illustrating the benefits of using a Haynes manual for DIY repairs, showing mechanics working on a car and a person checking a battery.

Living with Your Mercedes-Benz

Roadside Repairs

This section covers essential procedures for common roadside emergencies. Topics include:

- What to do if your car won't start
- Jump starting procedures
- Wheel changing instructions
- Identifying and addressing fluid leaks
- Safe towing practices

Weekly Checks

Regular checks are vital for maintaining vehicle performance and safety. This subsection details routine inspections such as:

- Underbonnet check-points
- Engine oil level verification
- Coolant level inspection
- Brake and clutch fluid levels
- Power steering fluid level
- Washer fluid level
- Battery condition
- Tyre condition and pressure
- Wiper blade inspection
- Bulbs and fuses checks

Lubricants, Fluids, and Tyre Pressures

Detailed information on recommended lubricants, fluid types, capacities, and correct tyre pressures for various models is provided to ensure optimal vehicle operation and longevity.

Maintenance

This section outlines routine maintenance and servicing procedures for both petrol and diesel models. It includes comprehensive servicing specifications, maintenance schedules, and step-by-step instructions for various tasks.

Servicing Specifications - Petrol Models

Refer to this subsection for specific capacities and requirements for petrol engine variants, including engine oil, cooling system, transmission, power-assisted steering, fuel tank, and engine components.

Servicing specifications - petrol models

Lubricants and fluids

Refer to "*Weekly checks*"

Capacities

Engine oil

Including oil filter:

200 models	5.8 litres
230 models	5.9 litres
260 models	6.5 litres
280 models	7.5 litres
300 models	6.5 litres
320 models	7.5 litres

Cooling system

All models (approximate):

4-cylinder models	8.5 litres
6-cylinder models	9 litres

Transmission

Manual transmission (approximate):

4-speed unit	1.3 litres
5-speed unit	1.5 litres

Automatic transmission (approximate):

4-cylinder models	
From dry	6.6 litres
At fluid change	5.5 litres
6-cylinder models:	
From dry	7.3 litres
At fluid change	6.2 litres

Final drive unit

All models (approximate):

200 models	0.7 litre*
280, 320 and 300 24-valve models	1.3 litres
All other models	1.1 litres

**On some later 200 models the final drive unit capacity has been increased to 1.1 litres*

Power-assisted steering

All models (approximate)	1.0 litre

Fuel tank

All models (approximate)	72 litres

Engine

Oil filter:

All engines (except 6-cylinder DOHC)	Champion C113
6-cylinder DOHC	Champion X122

Cooling system

Antifreeze mixture:

50% antifreeze	Protection down to -37°C (5°F)
55% antifreeze	Protection down to -45°C (-22°F)

Note: *Refer to antifreeze manufacturer for latest recommendations.*

Fuel system

Air filter element:

2.0 litre 4-cylinder engines	Champion W228
2.3 litre 4 cylinder engines up to 09/88	Champion W148
2.3 litre 4 cylinder engines from 10/88	Champion W228
2.6 litre 6-cylinder engines	Champion W229
2.8 litre DOHC 6-cylinder engines	n/a
3.0 litre SOHC 6-cylinder engines	Champion W229
3.0 litre DOHC 6-cylinde engines	n/a
3.2 litre DOHC 6-cylinder engines	n/a

Image: A page from the manual detailing servicing specifications for petrol models, including fluid capacities and recommended components.

Servicing Specifications - Diesel Models

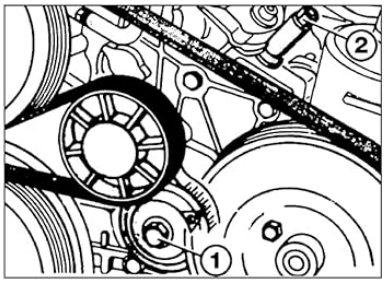
Similar to petrol models, this part provides dedicated servicing specifications and maintenance procedures tailored for diesel engine variants.

Repairs and Overhaul

This extensive section covers detailed repair and overhaul procedures for major vehicle systems.

Engine and Associated Systems

Instructions for in-car procedures for 4-cylinder petrol, 6-cylinder DOHC petrol, and diesel engines are provided. This includes engine removal, general overhaul, cooling, heating, ventilation systems, and various fuel injection systems (Carburettor, Bosch CIS-E, Bosch HFM, Diesel fuel injection). Starting, charging, and ignition systems are also covered.

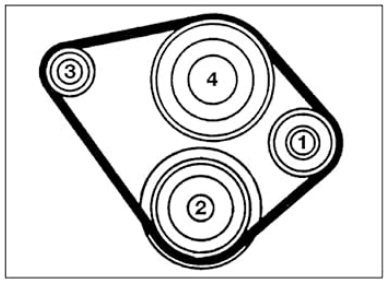


8.6 Slacken the tensioner bolt (1) and turn the adjuster nut (2) - 4-cylinder engine

7 Slacken the adjuster nut (anti-clockwise) to back off the adjuster until the belt can be removed from the pulleys.
8 Fit the new belt round the pulleys, starting with the tensioner pulley, and proceeding in the order shown **(see illustrations)**. Check that the belt is correctly seated on the pulleys.
9 Tension the belt as follows.

Models with graduated scale on tensioner

10 On vehicles without power steering, turn the adjuster nut clockwise until the tip of the tensioner pointer is aligned with the 5th graduation (from the left, looking at the scale from the front of the engine compartment) on the scale **(see illustration)**.
11 On models with power steering, turn the adjuster nut clockwise until the tip of the tensioner pointer is positioned between the 8th and 9th graduations (from the left, looking at the scale from the front of the engine compartment) on the scale.
12 Tighten the tensioner bolt to the specified torque, and refit the cover, where applicable.
13 Refit the cooling fan blades and shroud as described in Chapter 3.



8.8a Auxiliary drivebelt - 4-cylinder engine without power steering

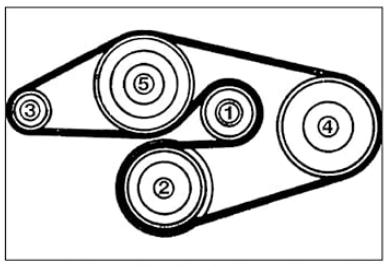
Fit belt round pulleys in order shown
1 Tensioner pulley
2 Crankshaft pulley
3 Alternator pulley
4 Coolant pump pulley

Models with single thick mark (and cast triangle) on tensioner scale

14 Turn the adjuster nut clockwise until the tip of the tensioner pointer is aligned with the thick line (at the thicker end of the triangle) on the scale **(see illustration)**.
15 Tighten the tensioner bolt to the specified torque, and refit the cover where applicable.
16 Refit the cooling fan blades and shroud as described in Chapter 3.

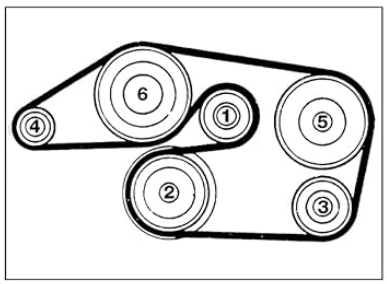
6-cylinder SOHC engines - drivebelt renewal

17 Remove the cooling fan blades and shroud, as described in Chapter 3.
18 Slacken the tensioner bolt by a quarter- to half-a-turn (remove the plastic cover to expose the bolt, where necessary) **(see illustration)**.
19 Slacken the adjuster nut (anti-clockwise) to back off the adjuster until the belt can be removed from the pulleys.



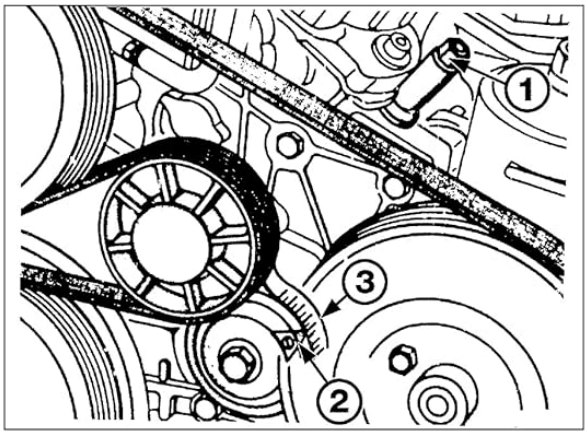
8.8b Auxiliary drivebelt - 4-cylinder engine with power steering but without air conditioning

Fit belt round pulleys in order shown
1 Tensioner pulley
2 Crankshaft pulley
3 Alternator pulley
4 Power steering pump pulley
5 Coolant pump pulley

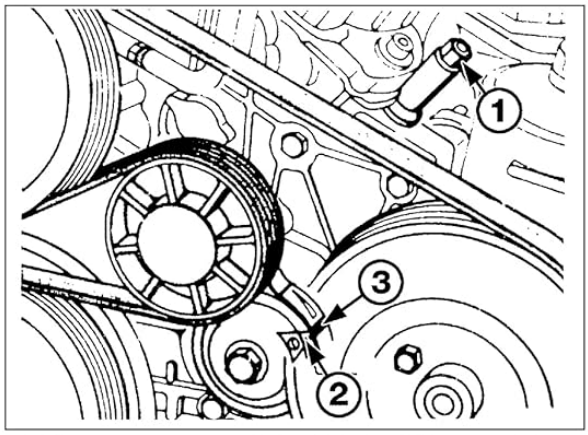


8.8c Auxiliary drivebelt - 4-cylinder engine with power steering and air conditioning

Fit belt round pulleys in order shown
1 Tensioner pulley
2 Crankshaft pulley
3 Air conditioning compressor pulley
4 Alternator pulley
5 Power steering pump pulley
6 Coolant pump pulley

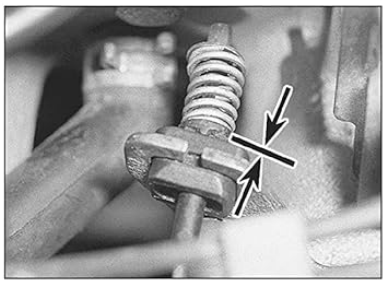


8.10 Turn the adjuster nut (1) until the tip of pointer (2) is aligned with the 5th graduation on the scale (3) - 4-cylinder engine

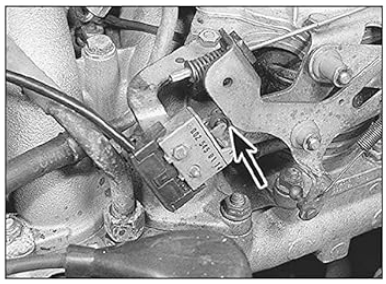


8.14 Turn the adjuster nut (1) until the tip of the pointer (2) is aligned with the thick line (3) on the scale - 4-cylinder engine

Image: A diagram from the manual illustrating the auxiliary drivebelt routing for a 4-cylinder engine, with numbered components.



2.15a Nipple at the end of the accelerator cable inner should be resting against the compression spring with no freeplay



2.15b The guide lever must operate the idle microswitch by resting against its actuating lever (arrowed)

adjusting nut at the accelerator pedal end of the cable to achieve this, if necessary - the adjusting nut is accessible from the drivers footwell **(refer to illustration 2.4)**.

16 On vehicles with automatic transmission, with reference to Chapter 7B, refit the control pressure cable and adjust its operation.

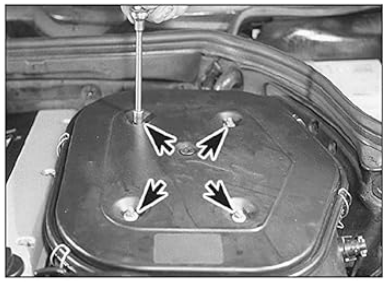
3 Air cleaner and filter element - removal and refitting

Air filter element

Removal

1 Unscrew and remove the retaining nuts from the air cleaner upper cover. Work around the upper cover and prise open each of the tensioning clips **(see illustrations).**

2 Lift off the air cleaner cover, then detach the crankcase breather hose (where applicable) and remove the air filter element **(see illustrations).**



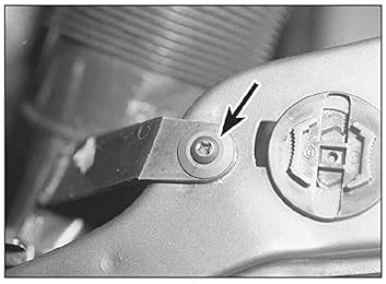
3.1a Unscrew and remove the retaining nuts (arrowed) from the air cleaner upper cover - 6-cylinder DOHC engine shown

3.1b Work around the upper cover and prise open each of the tensioning clips

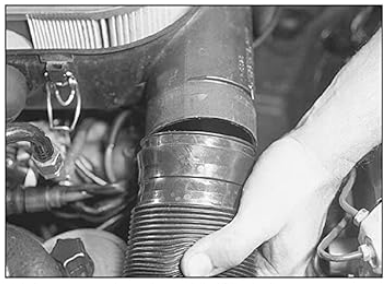
3.2a Lift off the air cleaner cover . . .

3.2b . . . then detach the engine breather hose (where applicable) . . .

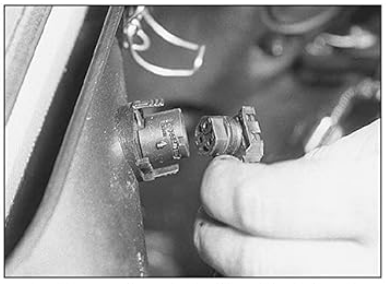
3.2c . . . and remove the air filter element



3.4a Remove the screw . . .



3.4b . . . and detach the inlet ducting from the air cleaner



3.6 Unplug the wiring from the inlet air temperature sensor

Refitting

3 Fit the new filter by following the removal procedure in reverse, ensuring that the filter element is fitted the correct way up, according to the markings on its upper surface.

Air cleaner assembly

Removal

4 Remove the screw (where fitted) and detach the inlet ducting that runs from the air cleaner to the air scoop at the front of the engine bay **(see illustrations).**

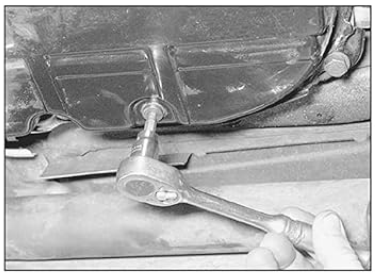
5 Pull off the crankcase breather hose from the port on the side of the air cleaner.

6 Ensure that the ignition is switched off, then unplug the wiring from the inlet air temperature sensor(s) on the side of the air cleaner **(see illustration)**.

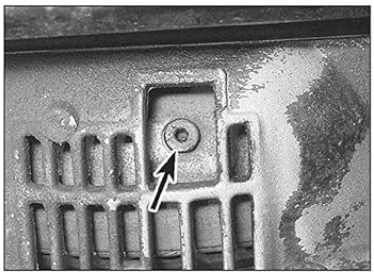
Image: A series of photographic instructions from the manual demonstrating the removal and refitting of the air cleaner assembly.

Transmission

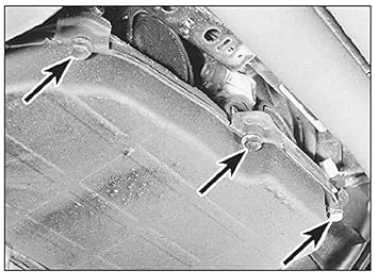
This subsection details procedures for the clutch, manual transmission, automatic transmission, final drive, driveshafts, and propeller shaft components.



26.6 Unscrewing the automatic transmission drain plug



26.7 Torque converter drain plug (arrowed)

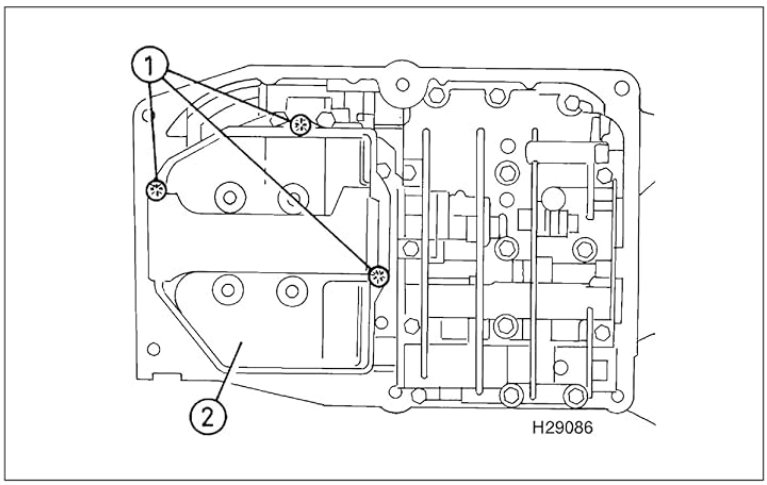


26.9 Automatic transmission fluid pan securing bolts (arrowed)

8 The pre-filter is positioned to the left hand side of the fuel injection pump. Clamp off the fuel supply hose from the fuel tank downstream of the pre-filter, then slacken the clips and detach the fuel hoses from either side of the pre-filter. Fit the new unit in its place and tighten the hose clips securely.
9 Restore the battery connection, then start and run the engine at idle and check around the fuel filter for fuel leaks. **Note:** *The fuel pump is self priming, but it may take a few seconds of cranking before the engine starts.*
10 Raise the engine speed to about 2000 rpm several times, then allow the engine to idle again. This should bleed the air bubbles from the filter canister, but if the engine idle is at all rough or hesitant, repeat the action until the fuel system clears itself.

26 Automatic transmission fluid and filter renewal

1 This operation should not be attempted unless clean, dust-free conditions can be achieved.
2 Jack up the vehicle, and support securely on axle stands (see *"Jacking and Vehicle Support"*), ensuring that the vehicle remains level.
3 Where applicable, remove the body undershield for access to the transmission.
4 Move the transmission selector lever to position "P".
5 Wipe clean the transmission fluid pan, particularly the area around the drain plug, the pan-to-transmission securing bolts, and the pan-to-transmission joint.
6 Place a suitable container beneath the transmission drain plug, then unscrew the drain plug, using an Allen key or hexagon bit, and allow the fluid to drain into the container **(see illustration)**. Refit the drain plug when all the fluid has drained.
7 Using a socket on the crankshaft pulley hub bolt (it may be necessary to remove the cooling fan cowl for access on some models - see Chapter 3), turn the crankshaft until the torque converter drain plug becomes visible through the aperture in the transmission casing **(see illustration)**.
8 Reposition the container beneath the torque converter drain plug, then unscrew the drain plug and allow the fluid to drain into the container. Refit the drain plug when all the fluid has drained.
9 Unscrew the fluid pan securing bolts, then remove the clamp plates, and lower the fluid pan from the transmission **(see illustration)**. Tap the pan gently using a soft-faced mallet if it is stuck. Recover the rubber seal.
10 Unscrew the securing screws, and withdraw the filter screen **(see illustration)**.
11 Thoroughly clean the fluid pan inside and outside using a clean lint-free cloth.
12 Fit a new filter screen, and tighten the securing screws.
13 Offer the fluid pan into position, and refit the clamp plates and securing bolts. Tighten the securing bolts to the specified torque.
14 Where applicable, refit the underbody shield.
15 Lower the vehicle to the ground, then release the locking lever, and withdraw the fluid level dipstick.
16 Initially fill the transmission with 4.0 litres of the specified fluid (see "*Lubricants and Fluids*") through the dipstick tube. Start the engine, and allow it to idle with the selector lever in the position "P".
17 Continue adding fluid until the level is 12.0 mm below the lower ("MIN") mark on the dipstick (see Section 5 of this Chapter).
18 Move the selector lever through all the gear positions, pausing for a few seconds in each position, then return the lever to the "P" position.
19 Re-check the fluid level as described in paragraph 17.
20 Repeat the procedure given in paragraphs 17 and 18 until the fluid level remains constant.
21 Take the vehicle for a short drive, and check the fluid level as described in Section 5 of this Chapter.



26.10 Unscrew the securing screws (1) and withdraw the filter screen (2)

27 Clutch friction plate check - manual transmission models

1 Provision is made for assessing the wear of the clutch friction disc linings without removing the clutch or transmission assembly from the vehicle.

Image: A page from the manual showing detailed instructions and diagrams for removing the automatic transmission drain plug and related procedures.

Brakes and Suspension

Information on the braking system, suspension, and steering components is provided, including repair and maintenance guidelines.

Body Equipment

This covers bodywork, fittings, and the body electrical system, offering guidance on repairs and adjustments.Wiring Diagrams

Comprehensive wiring diagrams are included to assist in diagnosing and repairing electrical issues within the vehicle.

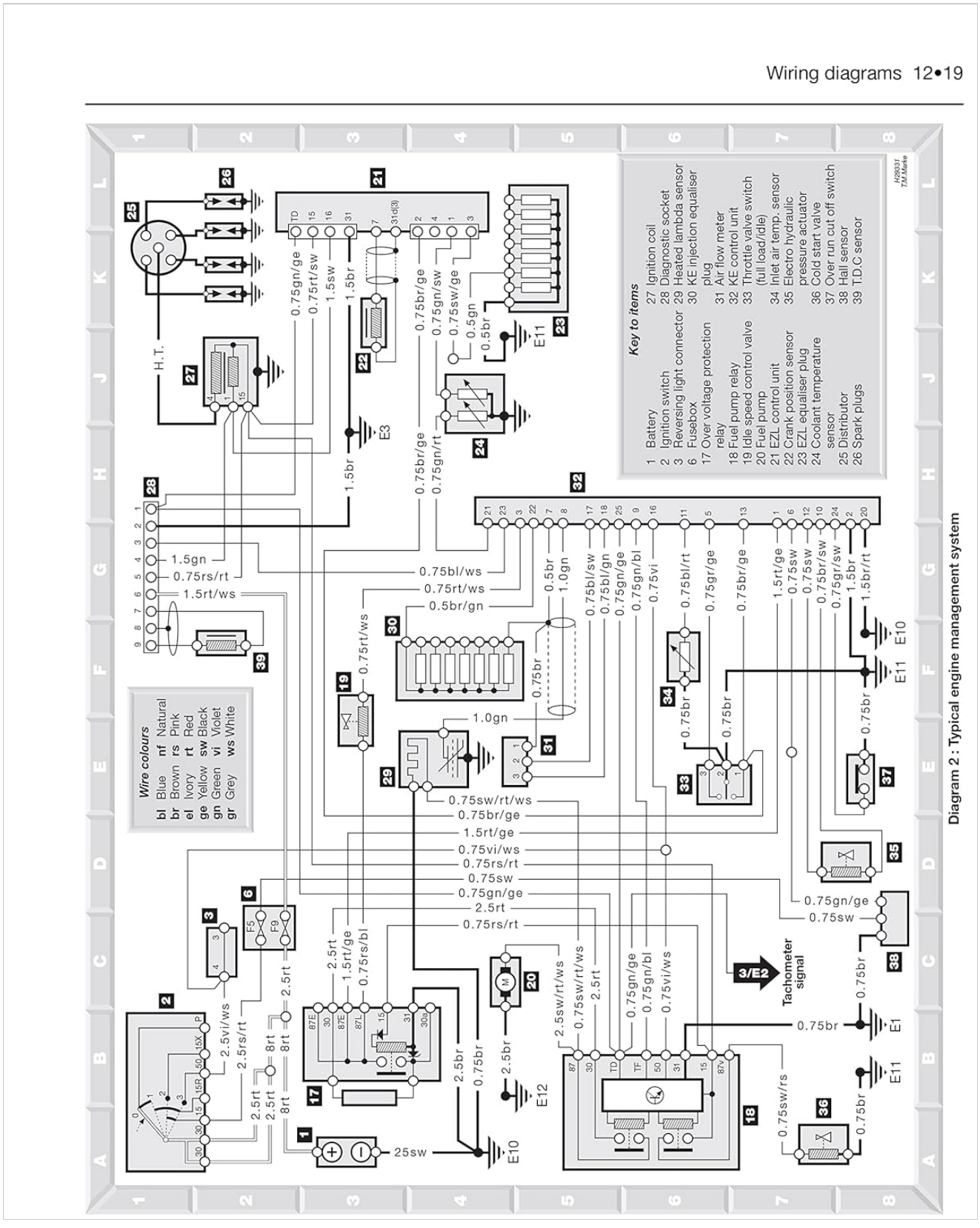


Image: A detailed wiring diagram for a typical engine management system, showing various electrical components and connections.

Reference and Specifications

This section contains valuable reference material to aid in repairs and maintenance.

- **Dimensions and Weights:** Key measurements and weight specifications for the vehicle.

- **Conversion Factors:** Useful for converting units of measurement.
- **Buying Spare Parts and Vehicle Identification:** Guidance on sourcing parts and understanding vehicle identification numbers.
- **General Repair Procedures:** Overarching advice for various repair tasks.
- **Jacking and Vehicle Support:** Safe methods for lifting and supporting the vehicle.
- **Tools and Working Facilities:** Recommendations for necessary tools and workshop setup.
- **MOT Test Checks:** Information relevant to vehicle inspections.
- **Fault Finding:** Diagnostic guides to help identify common problems.
- **Glossary of Technical Terms:** Definitions of specialized terminology used throughout the manual.

Product Specifications

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Disclaimer

This manual is intended as a guide for competent individuals. While every effort has been made to ensure accuracy, the publisher and authors cannot be held responsible for any loss, damage, or injury sustained as a result of following the information contained herein. Always exercise caution and, if in doubt, consult a qualified professional.