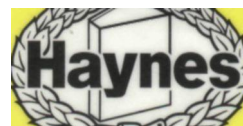


Toyota Carina E 1992 1997 Haynes Service And Repair

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TOYOTA CARINA E



May 1992 to 1997 (J to P registration) Petrol

Haynes Service and Repair Manual



Includes Roadside Repairs and **MOT** Test Checks

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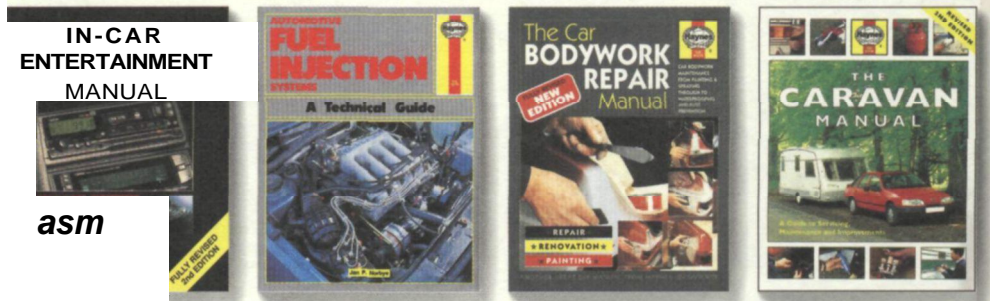
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Toyota Carina E

Service and Repair Manual

A K Legg LAEMWH, Steve Rendle and John S Mead

Models covered

Toyota Carina E Hatchback, Saloon and Estate models with petrol engines, including special/limited editions
1587 cc, 1762 cc and 1998 cc

(8256 256)

Does not cover Diesel models

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A book in the **Haynes Service and Repair Manual Series**

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0.4 Introduction

The Toyota Carina E was introduced to the UK in May 1992 in Saloon, Hatchback and Estate versions, with a choice of 1.6 or 2.0 litre engines. All models were fitted with power steering and a catalytic converter. Executive and GTi models were fitted with ABS as standard. From September 1994 all models were fitted with a driver's air bag, previous to this the driver's air bag was standard on Executive and GTi models.

All models are fitted with an Independent McPherson-type front suspension Incorporating a telescopic shock absorber and coil spring, and an independent dual-link strut rear suspension with integral shock absorbers and an anti-roll bar.

Provided that regular servicing is carried out in accordance with the manufacturer's recommendations, the Toyota Carina E should prove extremely reliable and economical. The engine compartment is well-designed, and most of the items needing frequent attention are easily accessible.

Your Toyota Carina E Manual

The aim of this manual is to help you get the best value from your vehicle. It can do so in several ways. It can help you decide what work must be done (even should you choose to get it done by a garage), provide information on routine maintenance and servicing, and give a logical course of action and diagnosis when random faults occur. However, it is hoped that you will use the manual by tackling the work yourself. On simpler jobs, it may even be quicker than booking the car into a garage and going there twice, to leave and collect it. Perhaps most important, a lot of money can be saved by avoiding the costs a garage must charge to cover its labour and overheads.

The manual has drawings and descriptions to show the function of the various components, so that their layout can be understood. Then the tasks are described and photographed in a clear step-by-step sequence.



Toyota Carina E Estates



Toyota Carina E GTi Saloon

The Toyota Carina E Team

Haynes manuals are produced by dedicated and enthusiastic people working in close co-operation. The team responsible for the creation of this book included:

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Steve Tanswell

Cover illustration & Line Art

Roger Healing

Wiring diagrams

Matthew Marke

We hope the book will help you to get the maximum enjoyment from your car. By carrying out routine maintenance as described you will ensure your car's reliability and preserve its resale value.

Acknowledgements

Thanks are due to the Champion Spark Plug Company, who supplied the illustrations of various spark plug conditions. Thanks are also due to Sykes-Pickavant Limited, who provided some of the workshop tools, and to all those people at Sparkford who helped in the production of this manual.

This manual is not a direct reproduction of the vehicle manufacturers data, and its publication should not be taken as implying any technical approval by the vehicle manufacturers or importers.

We take great pride in the accuracy of information given in this manual, but vehicle manufacturers make alterations and design changes during the production run of a particular vehicle of which they do not inform us. No liability can be accepted by the authors or publishers for loss, damage or injury caused by any errors in, or omissions from, the information given.

Project vehicles

The main vehicle used in the preparation of this manual, and which appears in many of the photographic sequences, was a 1996 Toyota Carina E 1.6S Hatchback with a 1587 cc 4A-FE economy engine and manual transmission. Also used was a 1994 Toyota Carina E 2.0GLi with a 1998 cc 3S-FE engine and automatic transmission.

Working on your car can be dangerous. This page shows just some of the potential risks and hazards, with the aim of creating a safety-conscious attitude.

General hazards

Scalding

- Don't remove the radiator or expansion tank cap while the engine is hot.
- Engine oil, automatic transmission fluid or power steering fluid may also be dangerously hot if the engine has recently been running.

Burning

- Beware of burns from the exhaust system and from any part of the engine. Brake discs and drums can also be extremely hot immediately after use.

Crushing

- When working under or near a raised vehicle, always supplement the jack with axle stands, or use drive-on ramps.

Never venture under a car which is only supported by a jack.

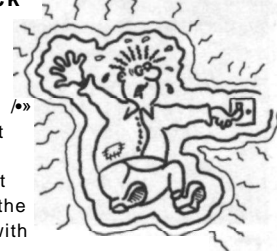
- Take care if loosening or tightening high-torque nuts when the vehicle is on stands. Initial loosening and final tightening should be done with the wheels on the ground.

Fire

- Fuel is highly flammable; fuel vapour is explosive.
- Don't let fuel spill onto a hot engine.
- Do not smoke or allow naked lights (including pilot lights) anywhere near a vehicle being worked on. Also beware of creating sparks (electrically or by use of tools).
- Fuel vapour is heavier than air, so don't work on the fuel system with the vehicle over an inspection pit.
- Another cause of fire is an electrical overload or short-circuit. Take care when repairing or modifying the vehicle wiring.
- Keep a fire extinguisher handy, of a type suitable for use on fuel and electrical fires.

Electric shock

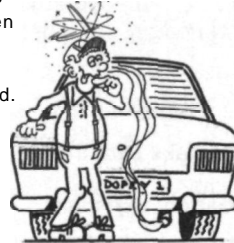
- Ignition HT voltage can be dangerous, especially to people with heart problems or a pacemaker. Don't work on or near the ignition system with the engine running or the ignition switched on.



- Mains voltage is also dangerous. Make sure that any mains-operated equipment is correctly earthed. Mains power points should be protected by a residual current device (RCD) circuit breaker.

Fume or gas intoxication

- Exhaust fumes are poisonous; they often contain carbon monoxide, which is rapidly fatal if inhaled. Never run the engine in a confined space such as a garage with the doors shut.
- Fuel vapour is also poisonous, as are the vapours from some cleaning solvents and paint thinners.



Poisonous or irritant substances

- Avoid skin contact with battery acid and with any fuel, fluid or lubricant, especially antifreeze, brake hydraulic fluid and Diesel fuel. Don't syphon them by mouth. If such a substance is swallowed or gets into the eyes, seek medical advice.
- Prolonged contact with used engine oil can cause skin cancer. Wear gloves or use a barrier cream if necessary. Change out of oil-soaked clothes and do not keep oily rags in your pocket.
- Air conditioning refrigerant forms a poisonous gas if exposed to a naked flame (including a cigarette). It can also cause skin burns on contact.

Asbestos

- Asbestos dust can cause cancer if inhaled or swallowed. Asbestos may be found in gaskets and in brake and clutch linings. When dealing with such components it is safest to assume that they contain asbestos.

Remember...

DO

- Do use eye protection when using power tools, and when working under the vehicle.
- Do wear gloves or use barrier cream to protect your hands when necessary.
- Do get someone to check periodically that all is well when working alone on the vehicle.
- Do keep loose clothing and long hair well out of the way of moving mechanical parts.
- Do remove rings, wristwatch etc, before working on the vehicle - especially the electrical system.
- Do ensure that any lifting or jacking equipment has a safe working load rating adequate for the job.

Special hazards

Hydrofluoric acid

- This extremely corrosive acid is formed when certain types of synthetic rubber, found in some O-rings, oil seals, fuel hoses etc, are exposed to temperatures above 400°C The rubber changes into a charred or sticky substance containing the acid. *Once formed, the acid remains dangerous for years. If it gets onto the skin, it may be necessary to amputate the limb concerned.*
- When dealing with a vehicle which has suffered a fire, or with components salvaged from such a vehicle, wear protective gloves and discard them after use.

The battery

- Batteries contain sulphuric acid, which attacks clothing, eyes and skin. Take care when topping-up or carrying the battery.
- The hydrogen gas given off by the battery is highly explosive. Never cause a spark or allow a naked light nearby. Be careful when connecting and disconnecting battery chargers or jump leads.

Air bags

- Air bags can cause injury if they go off accidentally. Take care when removing the steering wheel and/or facia. Special storage instructions may apply.

Diesel injection equipment

- Diesel injection pumps supply fuel at very high pressure. Take care when working on the fuel injectors and fuel pipes.

A **Warning: Never Exposé the hands, face or any other part of the body to injector spray; the fuel can penetrate the skin with potentially fatal results.**

DON'T

- Don't attempt to lift a heavy component which may be beyond your capability - get assistance.
- Don't rush to finish a job, or take unverified short cuts.
- Don't use ill-fitting tools which may slip and cause injury.
- Don't leave tools or parts lying around where someone can trip over them. Mop up oil and fuel spills at once.
- Don't allow children or pets to play in or near a vehicle being worked on.

0.6 Roadside repairs

The following pages are intended to help in dealing with common roadside emergencies and breakdowns. You will find more detailed fault finding information at the back of the manual, and repair information in the main chapters.

If your car won't start and the starter motor doesn't turn

- If it's a model with automatic transmission, make sure the selector is in 'P' or 'N'.
- Open the bonnet and make sure that the battery terminals are clean and tight.
- Switch on the headlights and try to start the engine. If the headlights go very dim when you're trying to start, the battery is probably flat. Get out of trouble by jump starting (see next page) using a friend's car.

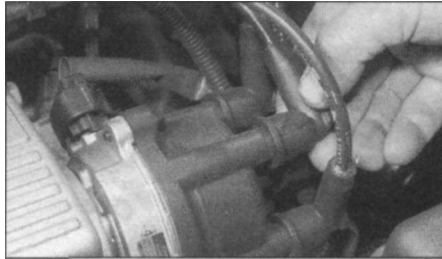
If your car won't start even though the starter motor turns as normal

- Is there fuel in the tank?
- Is there moisture on electrical components under the bonnet? Switch off the ignition, then wipe off any obvious dampness with a dry cloth. Spray a water-repellent aerosol product (WD-40 or equivalent) on ignition and fuel system electrical connectors like those shown in the photos. Pay special attention to the ignition coil wiring connector and HT leads.

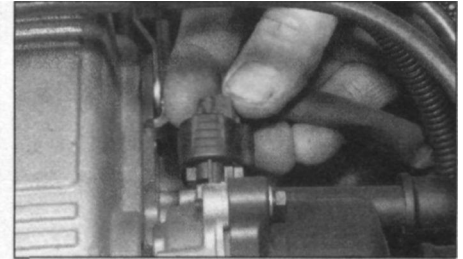
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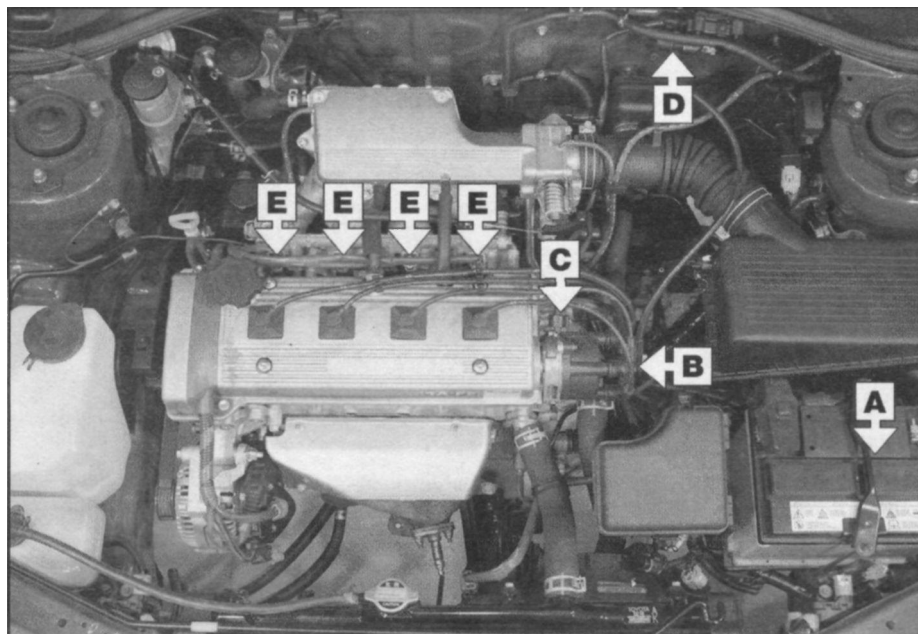
Check the security and condition of the battery connections



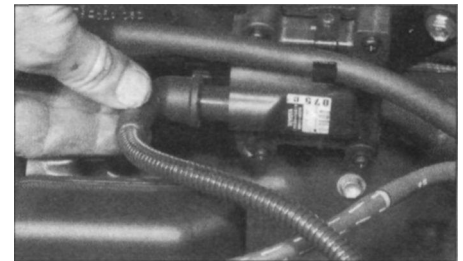
B Check that the spark plug HT leads are securely connected to the distributor cap by pushing them home



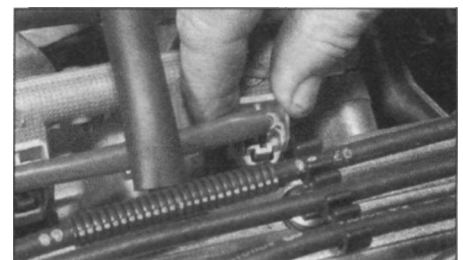
C Check that the ignition low tension wiring is securely connected to the distributor



Check that electrical connections are secure (with the ignition switched off) and spray them with a water dispersant spray like WD40 if you suspect a problem due to damp



D Check that the HT lead is securely connected to the ignition coil, and spray with water-dispersant if necessary



Check that the wiring plugs are securely connected to the injectors

HAYNES *Jump starting will get you out of trouble, but you must correct whatever made the battery go flat in the first place. There are three possibilities:*

The battery has been drained by repeated attempts to start, or by leaving the lights on.

The charging system is not working properly (alternator drivebelt slack or broken, alternator wiring fault or alternator itself faulty).

The battery itself is at fault (electrolyte low, or battery worn out).

When jump-starting a car using a booster battery, observe the following precautions:

- Before connecting the booster battery, make sure that the ignition is switched off.
- Ensure that all electrical equipment (lights, heater, wipers, etc) is switched off.

Jump starting

- Make sure that the booster battery is the same voltage as the discharged one in the vehicle.
- If the battery is being jump-started from the battery in another vehicle, the two vehicles **MUST NOT TOUCH** each other.
- Make sure that the transmission is in neutral (or PARK, in the case of automatic transmission).



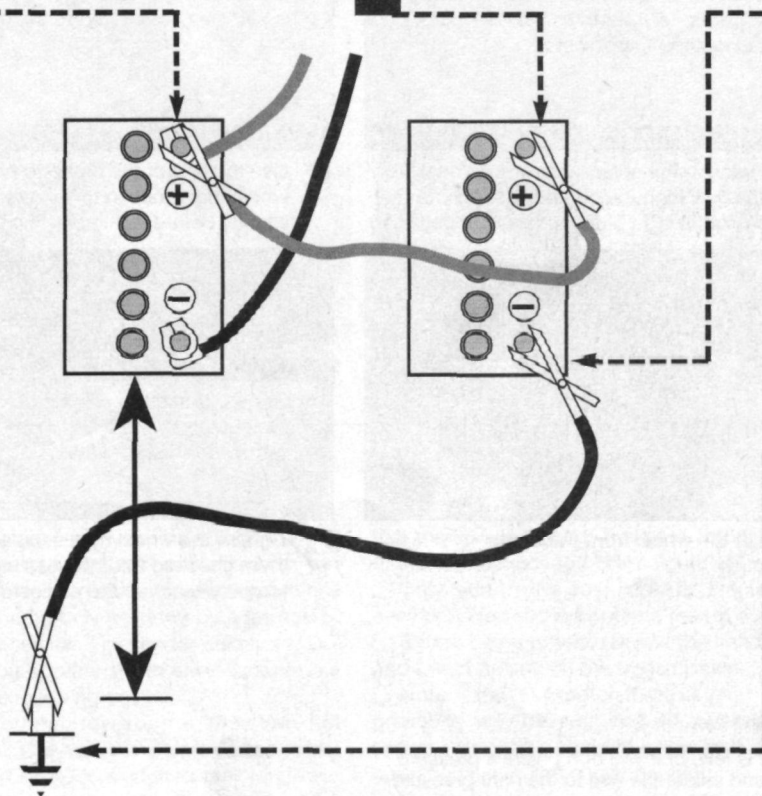
1 Connect one end of the red jump lead to the positive (+) terminal of the flat battery



2 Connect the other end of the red lead to the positive (+) terminal of the booster battery



3 Connect one end of the black jump lead to the negative (-) terminal of the booster battery



4 Connect the other end of the black jump lead to a bracket on the cylinder head, well away from the battery, on the vehicle to be started

5 Make sure that the jump leads will not come into contact with the fan, drivebelts or other moving parts of the engine

6 Start the engine using the booster battery, then with the engine running at idle speed, disconnect the jump leads in the reverse order of connection

o.8 Roadside repairs

Wheel changing

The details shown in the following photographs are from a Hatchback model, however the tools are located in the same location on all models.

Preparation

- When a puncture occurs, stop as soon as it is safe to do so.
- Park on firm level ground, if possible, and well out of the way of other traffic.
- Use hazard warning lights if necessary.
- If you have one, use a warning triangle to alert other drivers of your presence.
- Apply the handbrake and engage first or reverse gear (or Park on models with automatic transmission).

Changing the wheel

A

Warning: Do not change a wheel in a situation where you risk being hit by another vehicle. On busy roads, try to stop in a lay-by or a gateway. Be wary of passing traffic while changing the wheel - it is easy to become distracted by the job in hand.

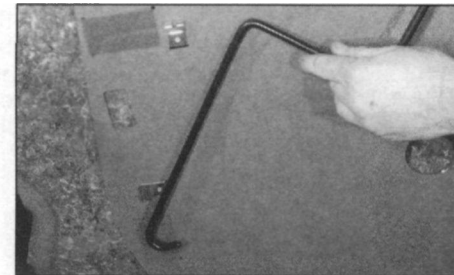
- Check the wheel diagonally opposite the one being removed - a couple of large stones will do for this.
- If the ground is soft, use a flat piece of wood to spread the load under the jack.



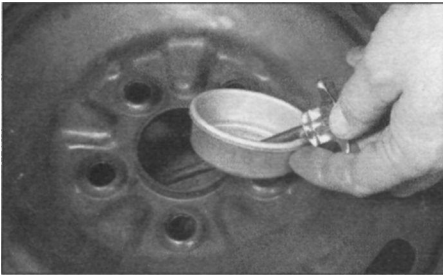
1 The jack is positioned in the right-hand rear of the luggage compartment. The brace is located beneath the jack



2 Fold back the boot carpet and unscrew the plastic nut from the top of the spare wheel retaining stud



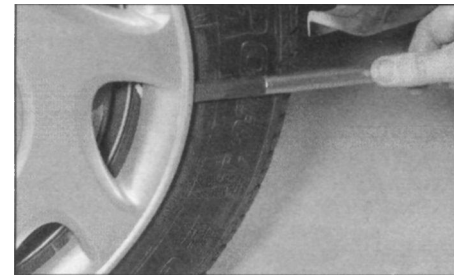
The Jack handle is located on the underside of the spare wheel cover



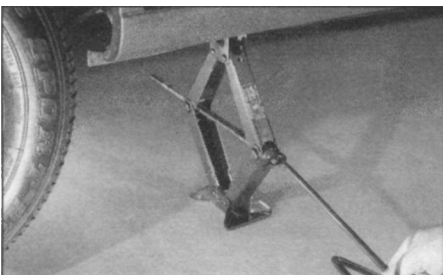
4 Unscrew the stud and remove the retaining cup



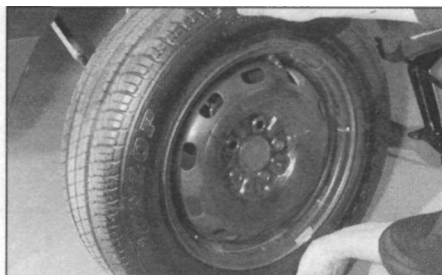
5 Remove the spare wheel from the well in the rear luggage compartment (note that the outer side of the wheel is uppermost)



6 Use the end of the brace to prise off the wheel trim. Loosen the wheel nuts slightly before jacking up the car



7 Locate the jack head in the jacking point and raise the vehicle until the wheel is clear of the ground



8 Lift the wheel from the studs



Tighten the wheel nuts securely. Have them checked for tightness using a torque wrench at the earliest opportunity

Finally...

- Remove the wheel chocks.
- Stow the jack and tools in the correct locations in the car.
- Check the tyre pressure on the wheel just fitted. If it is low, or if you don't have a pressure gauge with you, drive slowly to the nearest garage and inflate the tyre to the right pressure.
- Have the damaged tyre or wheel repaired as soon as possible.

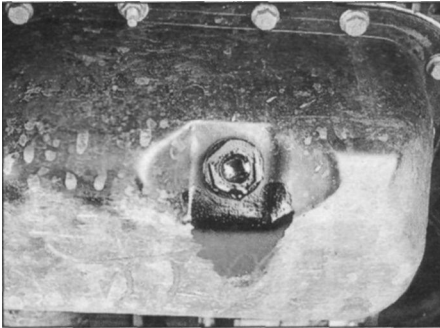
Identifying leaks

Puddles on the garage floor or drive, or obvious wetness under the bonnet or underneath the car, suggest a leak that needs investigating. It can sometimes be difficult to decide where the leak is coming from, especially if the engine bay is very dirty already. Leaking oil or fluid can also be blown rearwards by the passage of air under the car, giving a false impression of where the problem lies.

A *Warning: Most automotive oils and fluids are poisonous. Wash them off skin, and change out of contaminated clothing, without delay.*

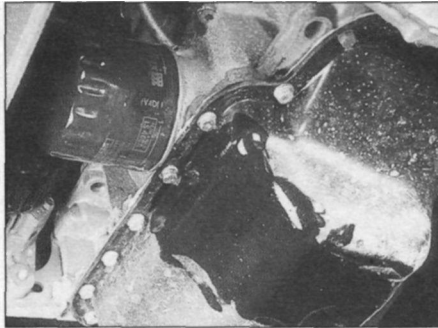
HAYNES *The smell of a fluid leaking from the car may provide a clue to what's leaking. Some fluids are distinctively coloured. It may help to clean the car carefully and to park it over some clean paper overnight as an aid to locating the source of the leak.*
Remember that some leaks may only occur while the engine is running.

Sump oil



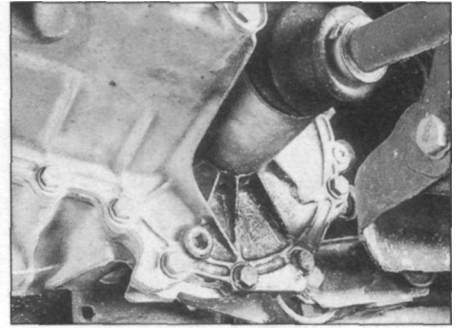
Engine oil may leak from the drain plug..

Oil from filter



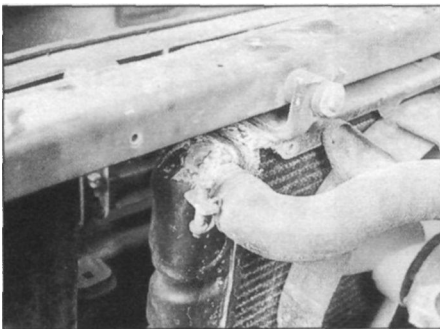
.or from the base of the oil filter.

Gearbox oil



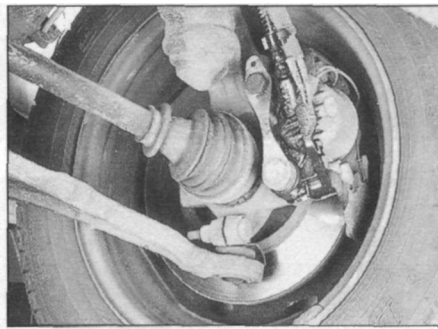
Gearbox oil can leak from the seals at the inboard ends of the driveshafts.

Antifreeze



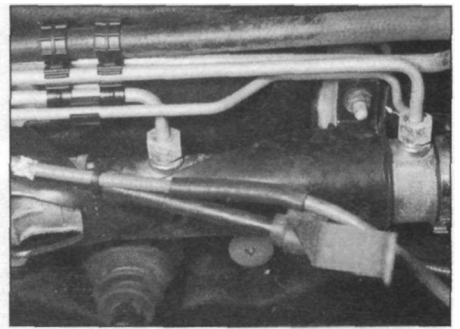
Leaking antifreeze often leaves a crystalline deposit like this.

Brake fluid



A leak occurring at a wheel is almost certainly brake fluid.

Power steering fluid



Power steering fluid may leak from the pipe connectors on the steering rack.

When all else fails, you may find yourself having to get a tow home - or of course you may be helping somebody else. Long-distance recovery should only be done by a garage or breakdown service. For shorter distances, DIY towing using another car is easy enough, but observe the following points:

- Use a proper tow-rope - they are not expensive. The vehicle being towed must display an 'ON TOW' sign in its rear window.
- Always turn the ignition key to the ACC position when the vehicle is being towed, so

that the steering lock is released, and that the direction indicator and brake lights will work.

- Only attach the tow-rope to the towing eyes provided at the front and rear of the car.
- Before being towed, release the handbrake and select neutral on the transmission.
- Note that greater-than-usual pedal pressure will be required to operate the brakes, since the vacuum servo unit is only operational with the engine running.
- On models with power steering, greater-than-usual steering effort will also be required.

- The driver of the car being towed must keep the tow-rope taut at all times to avoid snatching.
- Make sure that both drivers know the route before setting off.
- Only drive at moderate speeds and keep the distance towed to a minimum. Drive smoothly and allow plenty of time for slowing down at junctions.
- On models with automatic transmission, special precautions apply. If in doubt, do not tow, or transmission damage may result.

Towing

oio Weekly checks

Introduction

There are some very simple checks which need only take a few minutes to carry out, but which could save you a lot of inconvenience and expense.

These "Weekly checks" require no great skill or special tools, and the small amount of time they take to perform could prove to be very well spent, for example;

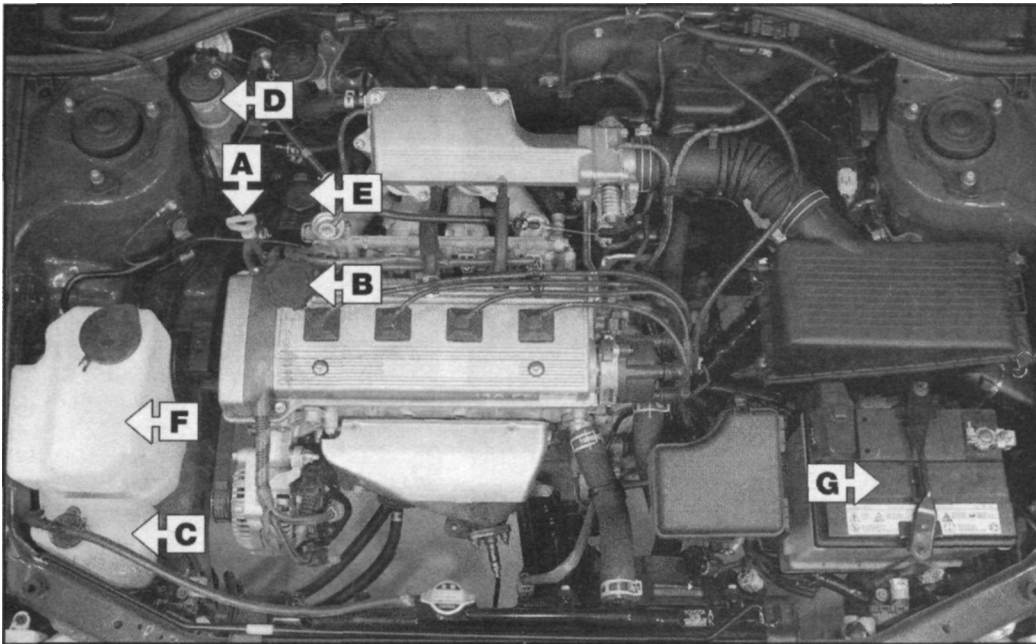
- Keeping an eye on tyre condition and pressures, will not only help to stop them wearing out prematurely, but could also save your life.

- Many breakdowns are caused by electrical problems. Battery-related faults are particularly common, and a quick check on a regular basis will often prevent the majority of these.

- If your car develops a brake fluid leak, the first time you might know about it is when your brakes don't work properly. Checking the level regularly will give advance warning of this kind of problem.

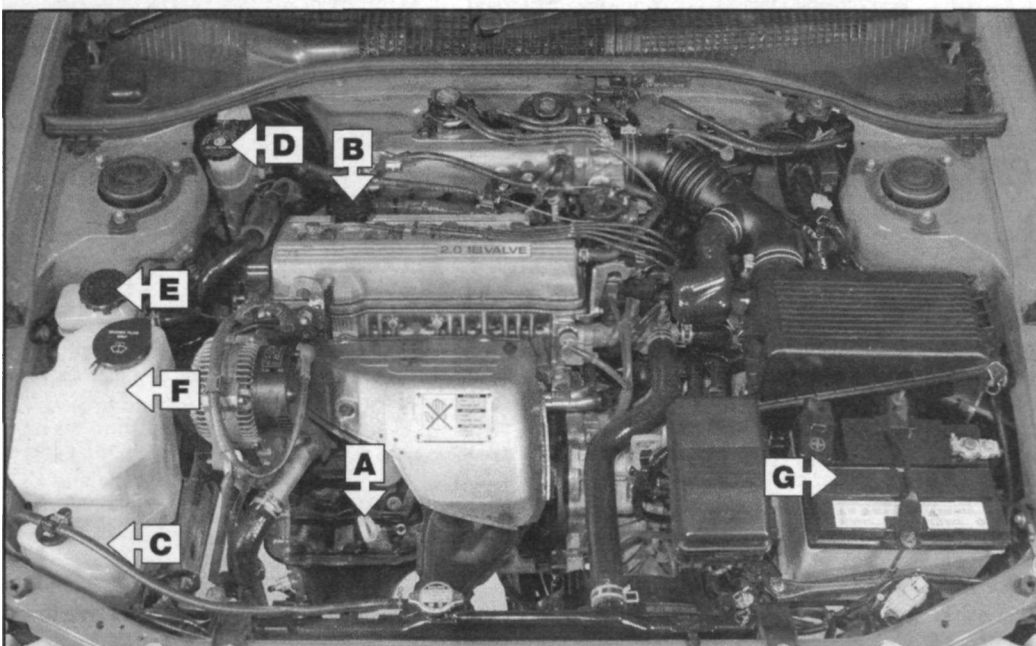
- If the oil or coolant levels run low, the cost of repairing any engine damage will be far greater than fixing the leak, for example.

Underbonnet check points



4 1.6 litre 4A-FE engine

- A Engine oil level dipstick
- B Engine oil filler cap
- C Coolant expansion tank
- D Brake fluid reservoir
- E Power steering fluid reservoir
- F Screen washer fluid reservoir
- G Saffery



4 2.0 litre 3S-FE engine

- A Engine oil level dipstick
- B Engine oil filler cap
- C Coolant expansion tank
- D Brake fluid reservoir
- E Power steering fluid reservoir
- F Screen washer fluid reservoir
- G Battery

Engine oil level

Before you start

- Make sure that your car is on level ground.
- Check the oil level before the car is driven, or at least 5 minutes after the engine has been switched off.

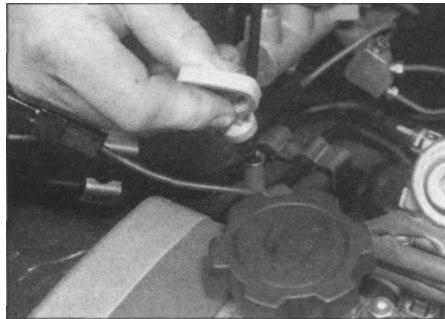
HAYNES *If the oil is checked immediately after driving the vehicle, some of the oil will remain in the upper engine components, resulting in an inaccurate reading on the dipstick!*

The correct oil

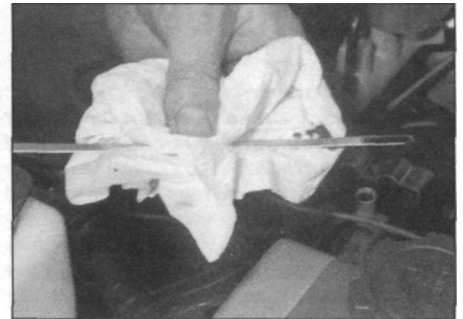
Modern engines place great demands on their oil. It is very important that the correct oil for your car is used (See "Lubricants and fluids")

Car Care

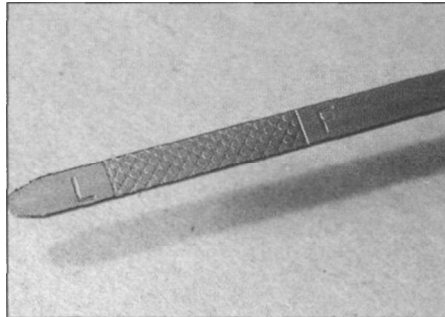
- If you have to add oil frequently, you should check whether you have any oil leaks. Place some clean paper under the car overnight, and check for stains in the morning. If there are no leaks, the engine may be burning oil (see "Fault Finding").
- Always maintain the level between the upper and lower dipstick marks (see photo 3). If the level is too low severe engine damage may occur. Oil seal failure may result if the engine is overfilled by adding too much oil.



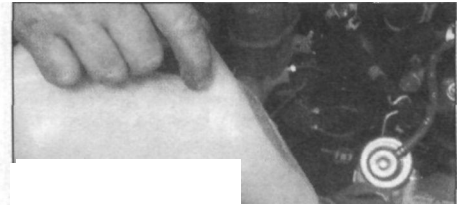
1 The dipstick top is often brightly coloured for easy identification (see "Underbonnet check points" on page 0*10 for exact location). Withdraw the dipstick.



2 Using a clean rag or paper towel remove all oil from the dipstick. Insert the clean dipstick into the tube as far as it will go, then withdraw it again.



3 Note the oil level on the end of the dipstick, which should be between the upper (F) mark and lower (L) mark. Approximately 1.0 litre of oil will raise the level from the lower mark to the upper mark.

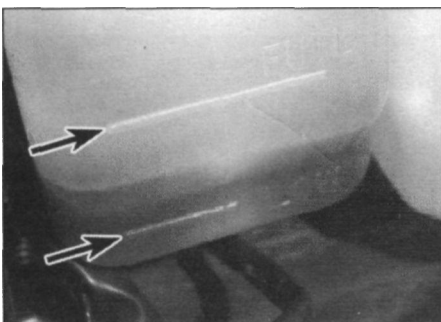


4 Oil is added through the filler cap. Unscrew the cap and top-up the level; a funnel may help to reduce spillage. Add the oil slowly, checking the level on the dipstick often. Don't overfill (see "Car Care" left).

Coolant level

A

Warning: *DO NOT attempt to remove the radiator pressure cap when the engine is hot, as there is a very great risk of scalding. Do not leave open containers of coolant about, as it is poisonous.*

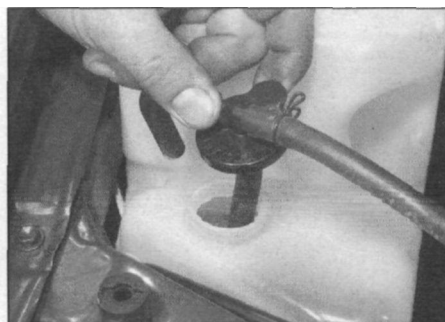


The coolant level varies with the temperature of the engine. When the engine is cold, the coolant level should be between the FULL and LOW marks.

Car Care

- With a sealed-type cooling system, adding coolant should not be necessary on a regular basis. If frequent topping-up is required, it is likely there is a leak. Check the radiator, all hoses and joint faces for signs of staining or wetness, and rectify as necessary.

- It is important that antifreeze is used in the cooling system all year round, not just during the winter months. Don't top-up with water alone, as the antifreeze will become too diluted.



2 If topping-up is necessary, wait until the engine is cold then remove the expansion tank cap. The expansion tank is not pressurised since the pressure cap is located in the top of the radiator, however the system should be topped up with the engine cold.



3 Add a mixture of water and antifreeze to the expansion tank until the coolant level is up to the FULL level mark, then refit the cap.

0-12 Weekly checks

Clutch fluid level

A

Warning:

- Brake fluid can harm your eyes and damage painted surfaces, so use extreme caution when handling and pouring it.

- Do not use fluid that has been standing open for some time, as it absorbs moisture from the air.

- Do not mix different types of fluid; mixing can cause damage to the system

HAYNES

- Make sure that your car is on level ground.

- The fluid level in the reservoir will drop slightly but the fluid level must never be allowed to drop below the "MIN" mark.

Safety First!

- If the reservoir requires repeated topping-up this is an indication of a fluid leak somewhere in the system, which should be investigated immediately.

Brake fluid level

A

Warning:

- Brake fluid can harm your eyes and damage painted surfaces, so use extreme caution when handling and pouring it.

- Do not use fluid that has been standing open for some time, as it absorbs moisture from the air, which can cause a dangerous loss of braking effectiveness.

HAYNES

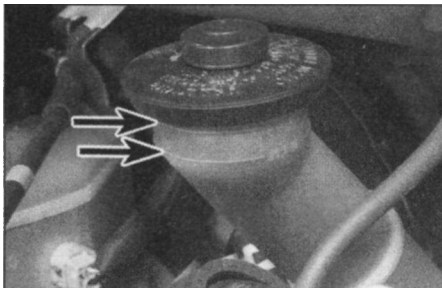
- Make sure that your car is on level ground.

- The fluid level in the reservoir will drop slightly as the brake pads wear down, but the fluid level must never be allowed to drop below the "MIN" mark.

Safety First!

- If the reservoir requires repeated topping-up this is an indication of a fluid leak somewhere in the system, which should be investigated immediately.

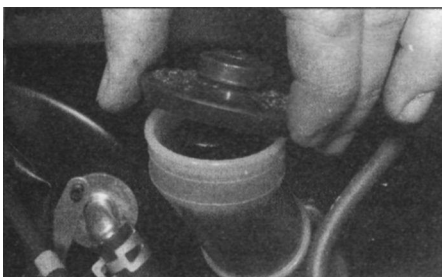
- If a leak is suspected, the car should not be driven until the braking system has been checked. Never take any risks where brakes are concerned.



1 The MAX and MIN marks are indicated on the clutch fluid reservoir filler neck. The fluid level must be kept within 5.0 mm of the MAX level mark.



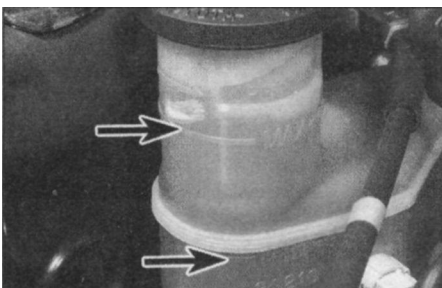
2 If topping-up is necessary, first wipe clean the area around the filler cap to prevent dirt entering the hydraulic system.



3 Carefully prise off the cap using your fingers, and inspect the fluid and filler neck. If the fluid is dirty the hydraulic system should be drained and refilled (see Chapter 6).



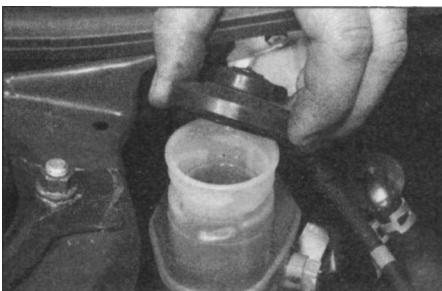
4 Carefully add fluid, taking care not to spill it onto the surrounding components. Use only the specified fluid. After topping-up to the correct level, securely refit the cap and wipe off any spilled fluid. Note the special rubber float in the filler neck.



1 The MAX and MIN marks are indicated on the brake fluid reservoir filler neck. The fluid level must be kept within 10.0 mm of the MAX level mark.



2 If topping-up is necessary, first wipe clean the area around the filler cap to prevent dirt entering the hydraulic system.



3 Carefully prise off the cap using your fingers, and inspect the fluid and filler neck. If the fluid is dirty the hydraulic system should be drained and refilled (see Chapter 6).



4 Carefully add fluid, taking care not to spill it onto the surrounding components. Use only the specified fluid; mixing different types can cause damage to the system. After topping-up to the correct level, securely refit the cap and wipe off any spilled fluid.

Power steering fluid level

Before you start:

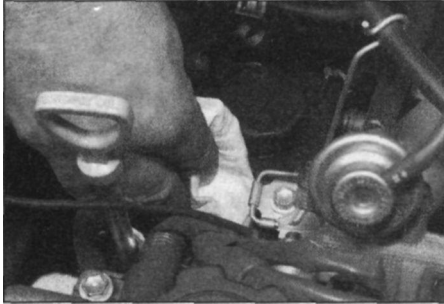
- Park the vehicle on level ground.
- Set the steering wheel straight-ahead.
- The engine should be turned off.

ffEW?T5S! For *the check to be accurate, the steering must not be turned once the engine has been stopped.*

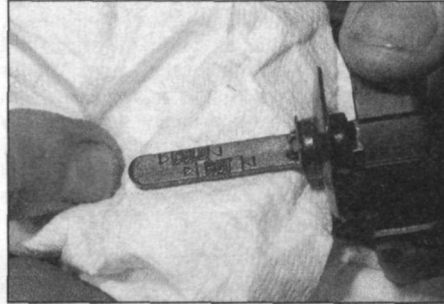
HliyT

Safety First!

- The need for frequent topping-up indicates a leak, which should be investigated immediately.



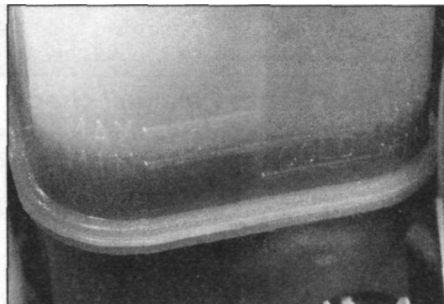
1 On models with the 4A-FE and 7A-FE engines, the power steering fluid reservoir is located behind the right-hand end of the engine. Wipe clean the area around the reservoir filler neck and unscrew the filler cap/dipstick from the reservoir.



2 Wipe clean the dipstick (models with the 4A-FE and 7A-FE engines) then refit it and remove it again. When the engine is cold, the fluid level should be within the COLD range on the dipstick; if it is hot the level should be within the HOT range on the dipstick.



4 On models with the 3S-FE and 3S-GE right-hand side of the engine compartment behind the washer fluid reservoir.



5 On models with the 3S-FE and 3S-GE engines, the level marks are on the side of the power steering fluid reservoir, and the fluid level can be seen through the translucent body. With the engine cold, the fluid level should be within the COLD range on the reservoir; if it is hot the level should be within the HOT range.



6 If topping-up is necessary (models with the 3S-FE and 3S-GE engines), first wipe clean the area around the filler cap to prevent dirt entering the hydraulic system, then unscrew and remove the cap. Use the specified type of fluid and do not overfill the reservoir. When the level is correct, screw on the cap securely.

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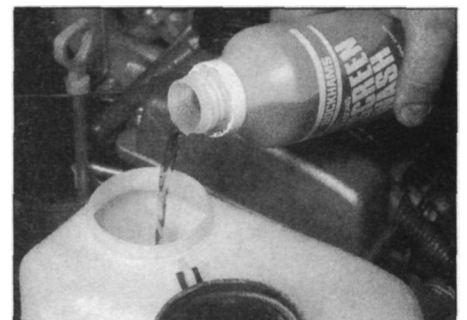
Screen washer fluid level

Screenwash additives not only keep the windscreen clean during foul weather, they also prevent the washer system freezing in cold weather - which is when you are likely to need it most. Don't top up using plain water as the screenwash will become too diluted, and will freeze during cold weather.

A **Warning:** On no account use coolant antifreeze in the washer system - this could discolour or damage paintwork.



1 The screen washer fluid reservoir is located in the right-hand side of the engine compartment. The fluid level can be seen through the reservoir body. If topping-up is necessary, open the cap.



2 When topping-up the reservoir, add a screenwash additive in the quantities recommended on the bottle.

0-14 Weekly checks

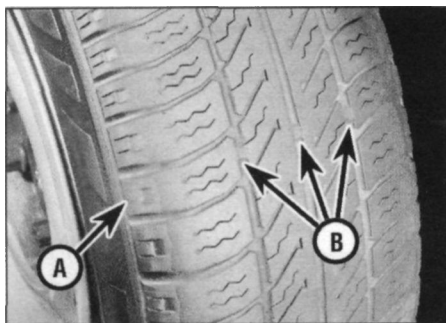
Tyre condition and pressure

It is very important that tyres are in good condition, and at the correct pressure - having a tyre failure at any speed is highly dangerous. Tyre wear is influenced by driving style - harsh braking and acceleration, or fast cornering, will all produce more rapid tyre wear. As a general rule, the front tyres wear out faster than the rears. Interchanging the tyres from front to rear ("rotating" the tyres) may result in more even wear. However, if this is completely effective, you may have the expense of replacing all four tyres at once! Remove any nails or stones embedded in the tread before they penetrate the tyre to cause deflation. If removal of a nail does reveal that

the tyre has been punctured, refit the nail so that its point of penetration is marked. Then immediately change the wheel, and have the tyre repaired by a tyre dealer.

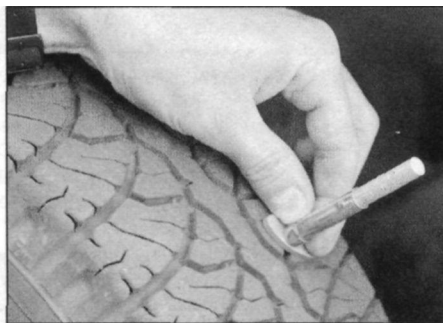
Regularly check the tyres for damage in the form of cuts or bulges, especially in the sidewalls. Periodically remove the wheels, and clean any dirt or mud from the inside and outside surfaces. Examine the wheel rims for signs of rusting, corrosion or other damage. Light alloy wheels are easily damaged by "kerbing" whilst parking; steel wheels may also become dented or buckled. A new wheel is very often the only way to overcome severe damage.

New tyres should be balanced when they are fitted, but it may become necessary to re-balance them as they wear, or if the balance weights fitted to the wheel rim should fall off. Unbalanced tyres will wear more quickly, as will the steering and suspension components. Wheel imbalance is normally signified by vibration, particularly at a certain speed (typically around 50 mph). If this vibration is felt only through the steering, then it is likely that just the front wheels need balancing. If, however, the vibration is felt through the whole car, the rear wheels could be out of balance. Wheel balancing should be carried out by a tyre dealer or garage.



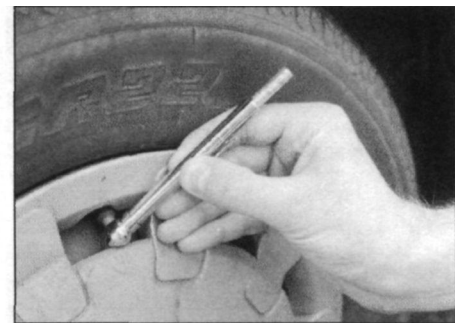
-j **Tread Depth - visual check**

The original tyres have tread wear safety bands (B), which will appear when the tread depth reaches approximately 1.6 mm. The band positions are indicated by a triangular mark on the tyre sidewall (A).



2 **Tread Depth - manual check**

Alternatively, tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge.



^ **Tyre Pressure Check**

Check the tyre pressures regularly with the tyres cold. Do not adjust the tyre pressures immediately after the vehicle has been used, or an inaccurate setting will result.

Tyre tread wear patterns



Shoulder Wear

Underinflation (wear on both sides)

Under-inflation will cause overheating of the tyre, because the tyre will flex too much, and the tread will not sit correctly on the road surface. This will cause a loss of grip and excessive wear, not to mention the danger of sudden tyre failure due to heat build-up.

Check and adjust pressures

Incorrect wheel camber (wear on one side)

Repair or renew suspension parts

Hard cornering

Reduce speed!



Centre Wear

Overinflation

Over-inflation will cause rapid wear of the centre part of the tyre tread, coupled with reduced grip, harsher ride, and the danger of shock damage occurring in the tyre casing.

Check and adjust pressures

If you sometimes have to inflate your car's tyres to the higher pressures specified for maximum load or sustained high speed, don't forget to reduce the pressures to normal afterwards.



Uneven Wear

Front tyres may wear unevenly as a result of wheel misalignment. Most tyre dealers and garages can check and adjust the wheel alignment (or "tracking") for a modest charge.

Incorrect camber or castor

Repair or renew suspension parts

Malfunctioning suspension

Repair or renew suspension parts

Unbalanced wheel

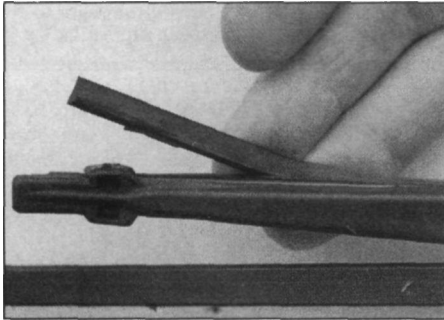
Balance tyres

Incorrect toe setting

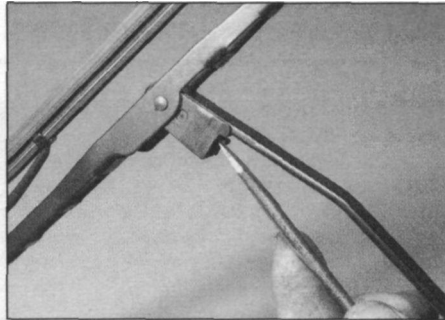
Adjust front wheel alignment

Note: *The feathered edge of the tread which typifies toe wear is best checked by feel.*

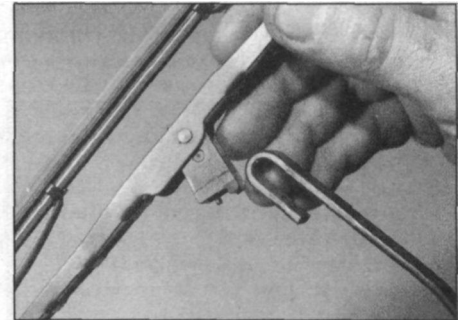
Wiper blades



1 Check the condition of the wiper blades; if they are cracked or show any signs of deterioration, or if the glass swept area is smeared, renew them. Wiper blades should be renewed annually.



2 To remove a windscreen wiper blade, pull the arm fully away from the screen until it locks. Swivel the blade through 90°, and depress the locking tab with a screwdriver or your fingers.

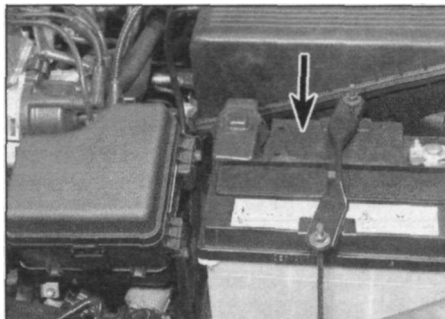


3 Slide the wiper blade out of the hooked end of the arm, then feed the arm through the hole in the blade.

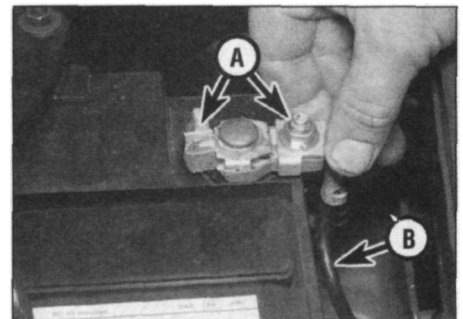
Battery

Caution: Before carrying out any work on the vehicle battery, read the precautions given in "Safety first" at the start of this manual.

- Make sure that the battery tray is in good condition, and that the clamp is tight. Corrosion on the tray, retaining clamp and the battery itself can be removed with a solution of water and baking soda. Thoroughly rinse all cleaned areas with water. Any metal parts damaged by corrosion should be covered with a zinc-based primer, then painted.
- Periodically (approximately every three months), check the charge condition of the battery as described in Chapter 5A.
- If the battery is flat, and you need to jump start your vehicle, see **Roadside Repairs**.



1 The battery is located in the front left-hand side of the engine compartment. The exterior of the battery should be inspected periodically for damage such as a cracked case or cover.



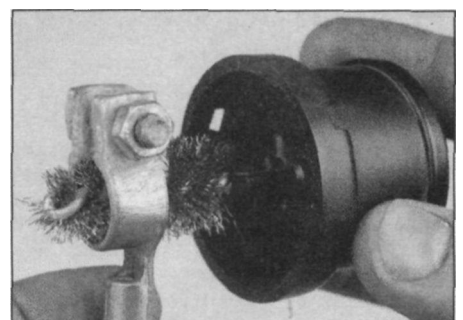
2 Check the tightness of the battery clamps (A) to ensure good electrical connections. You should not be able to move them. Also check each cable (B) for cracks and frayed conductors.



HAYNES HINT
Battery corrosion can be kept to a minimum by applying a layer of petroleum jelly to the clamps and terminals after they are reconnected.



3 If corrosion (white, fluffy deposits) is evident, remove the cables from the battery terminals, clean them with a small wire brush, then refit them. Automotive stores sell a tool for cleaning the battery post. . .



4 . . . as well as the battery cable clamps

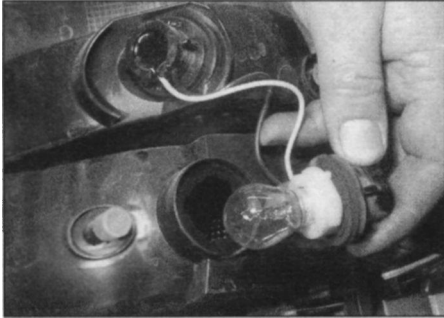
ie Weekly checks

Bulbs and fuses

• Check all external lights and the horn. Refer to the appropriate Sections of Chapter 12 for details if any of the circuits are found to be inoperative.

• Visually check all accessible wiring connectors, harnesses and retaining clips for security, and for signs of chafing or damage.

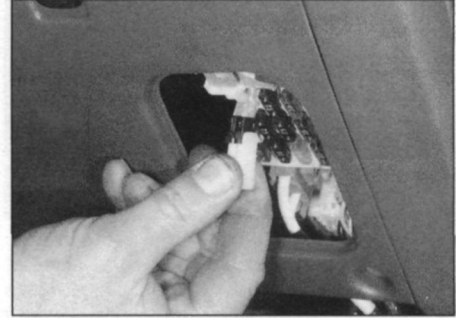
TOYOTA " y^o ***** to check your
TM3 brake lights and indicators
HIRIT unaided, back up to a wall or garage door and operate the lights. The reflected light should show if they are working properly.



1 If a single indicator light, stop light or headlight has failed, it is likely that a bulb has blown and will need to be replaced. Refer to Chapter 12 for details. If both stop lights have failed, it is possible that the switch has failed (see Chapter 9).



2 If more than one indicator light or tail light has failed it is likely that either a fuse has blown or that there is a fault in the circuit (see Chapter 12). The fuses are located behind a panel on the fascia panel and in a fusebox located in the engine compartment (refer to Chapter 12).



3 To replace a fuse, pull it out using the plastic tweezers provided, and fit a new fuse of the correct rating (see Chapter 12). If the fuse blows again, it is important that you find out why - a complete checking procedure is given in Chapter 12.

Tyre pressures (cold) - bar/psi

	Front	Rear
Pressures with 1 to 4 passengers*:		
175/70R14tyres.	2.2/32	2.1/30
185/65R14 86H tyres.	2.0/29	1.9/28
185/65R14 86V tyres.	2.2/32	2.0/29
195/60 R15 tyres.	2.1/30	1.9/28
Pressures with full load*:		
175/70R14tyres.	2.3/33	2.3/33
185/65R14 86H tyres.	2.2/32	2.2/32
185/65R14 86Vtyres.	2.2/32	2.2/32
195/60 R15 tyres.	2.1/30	2.1/30

*Note: Pressures apply only to original equipment tyres at speeds of up to 100 mph and may vary if any other make or type is fitted; check with the tyre manufacturer or supplier for correct pressures, if necessary. For pressures at higher speeds, consult the vehicle's handbook or your Toyota dealer.

Lubricants and fluids

Component or system	Lubricant type/specification
Engine	Multigrade engine oil, viscosity SAE 15W/40, 10W/30 or 20W/50 to API SG or better (Duckhams QXR, QS, Hypergrade Plus, Hypergrade or 10W/40 Motor Oil)
Cooling system	Ethylene glycol-based antifreeze and soft water (Duckhams Antifreeze and Summer Coolant)
Clutch system	Hydraulic fluid to SAE J1703F or DOT 4 (Duckhams Universal Brake and Clutch Fluid)
Manual gearbox	Hypoid gear oil, viscosity SAE 75W/90 gear oil to API GL-3 (Duckhams Hypoid 75W/90S)
Automatic transmission	Dexron type II automatic transmission fluid (ATF) (Duckhams Uni-Matic)
Braking system	Hydraulic fluid to SAE J1703F or DOT 4 (Duckhams Universal Brake and Clutch Fluid)
Power steering	Dexron type II automatic transmission fluid (ATF) (Duckhams Uni-Matic)

Choosing your engine oil

Oils perform vital tasks in all engines. The higher the engine's performance, the greater the demand on lubricants to minimise wear as well as optimise power and economy. Duckhams tailors lubricants to the highest technical standards, meeting and exceeding the demands of all modern engines.

HOW ENGINE OIL WORKS

• Beating friction

Without oil, the surfaces inside your engine which rub together will heat, fuse and quickly cause engine seizure. Oil, and its special additives, forms a molecular barrier between moving parts, to stop wear and minimise heat build-up.

• Cooling hot spots

Oil cools parts that the engine's water-based coolant cannot reach, bathing the combustion chamber and pistons, where temperatures may exceed 1000°C. The oil assists in

transferring the heat to the engine cooling system. Heat in the oil is also lost by air flow over the sump, and via any auxiliary oil cooler.

• Cleaning the inner engine

Oil washes away combustion by-products (mainly carbon) on pistons and cylinders, transporting them to the oil filter, and holding the smallest particles in suspension until they are flushed out by an oil change. Duckhams oils undergo extensive tests in the laboratory, and on the road.



OIL BANK LINE
0800 66 33 66

Note: It is antisocial and illegal to dump oil down the drain. To find the location of your local oil recycling bank, call this number free.

Engine oil types

Mineral oils are the "traditional" oils, generally suited to older engines and cars not used in harsh conditions. *Duckhams Hypergrade Plus* and *Hypergrade* are well suited for use in most popular family cars.

Diesel oils such as *Duckhams Diesel* are specially formulated for Diesel engines, including turbocharged models and 4x4s.

Synthetic oils are the state-of-the-art in lubricants, offering ultimate protection, but at a fairly high price. One such is *Duckhams QS*, for use in ultra-high performance engines.

Semi-synthetic oils offer high performance engine protection, but at less cost than full synthetic oils. *Duckhams QXR* is an ideal choice for hot hatches and hard-driven cars.

For help with technical queries on lubricants, call Duckhams Oils on 01812908207



Toyota Carina E 1992 1997 Haynes Service And Repair

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Notes