

Assembly Instructions

Original retrofitting engine preheating system 120 Volt

Guide de montage ⇒ Page 5

Scope of delivery:

- ◆ 1 x Engine preheating system
- ◆ 1 x Bracket with clamp for engine preheating system
- ◆ 1 x Connection wire with connecting plug 120 Volt
- ◆ 1 x Extension cord 120 Volt
- ◆ 2 x Coolant hose
- ◆ 1 x Fixing material
- ◆ 2 x Hose clamp
- ◆ 1 x Installation instructions

Special tools, test and measuring equipment, and ancillaries required:

- ◆ Collecting tray -VAS 6208-
- ◆ Torque wrench -V.A.G 1331-
- ◆ Hose crimping pliers -VAS 6340-
- ◆ Hand drill
- ◆ Set of spiral drill bits
- ◆ Forstner bit or step drill $\varnothing 27$ (1 $\frac{1}{16}$ inch)

Procedure:

WARNING

Improper installation procedures can cause serious personal injury.

- Installation should be performed only by a qualified technician.
- Read all instructions thoroughly before starting.
- Observe all safety precautions when working under a vehicle.
- Beware of sharp edges.
- Always wear safety glasses to help protect eyes.
- Always wear protective gear as gloves and use caution when using hand tools.

WARNING

Improper use of the engine preheating may cause short circuits, fires and serious or fatal personal injury.

- Always connect the connecting cable to a grounded socket protected by a residual current breaker. The socket must be protected from water, moisture and other fluids.
- Never connect the engine preheating system to a conventional socket, regardless of whether the socket protected or not.

WARNING

Using unsuitable or damaged Sockets and connecting cables and disregarding accepted safety practices may cause short circuits, accidents, and serious or fatal personal injury.

- Never use damaged sockets and connecting cables. Check connectors and cables for damage prior to each use.
- Never modify or repair electrical components.
- Never allow connectors to come into contact with water, moisture and other fluids.

Note

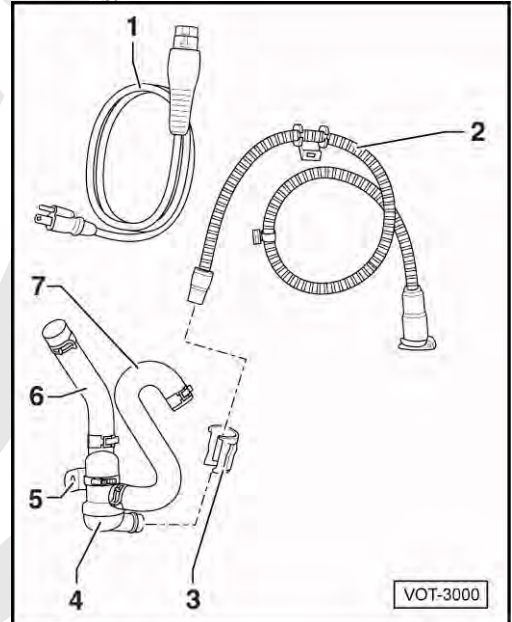
- ◆ The installation of the original engine preheating system 120 V must be carried out by a competent workshop. Special tools and the accompanying literature specific to the car are required for fitting it. Incorrect fitting may lead to damage to the vehicle or to the engine preheating system.
- ◆ Secure the wires so that they cannot come into contact with any rotating or other moving parts and so that they cannot chafe on any sharp metal or plastic edges.
- ◆ All rights to make technical changes reserved.



1.1 Installation overview of the engine preheating system (Scope of delivery)

The engine preheating system is mounted in the installation space between the engine and the radiator. The connection into the cooling circuit is carried out between the engine oil cooler and coolant return line.

- 1 - Extension cord 120 Volt**
- 2 - Connection wire with connecting plug 120 Volt**
 - ◆ with locking nut
- 3 - Securing clamp**
 - ◆ yellow
- 4 - Engine preheating system**
- 5 - Bracket with clamp**
 - ◆ for engine preheater system
- 6 - Coolant hose**
 - ◆ engine preheater to ostat housing
- 7 - Coolant hose**
 - ◆ engine preheater to engine oil cooler

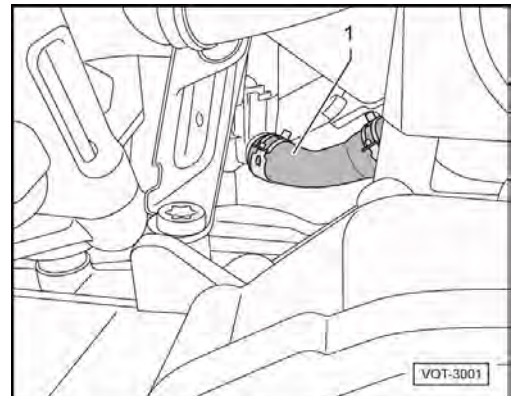


Note

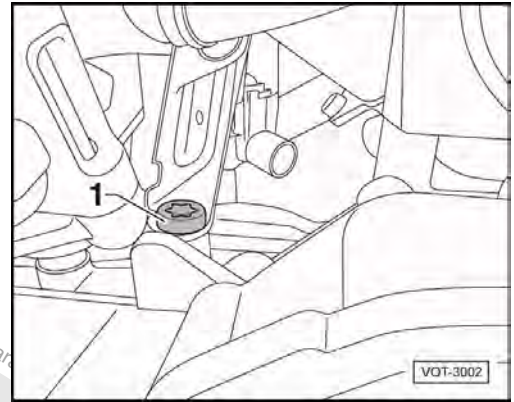
Hose clamps are not shown in the installation overview. The hose clamps already installed in the vehicle will be reused. The hose clamps included in the scope of delivery are for the additional hoses that are added.

1.2 Preparing the vehicle for fitting the engine preheating system

- Remove the underbody cladding from the underside of the vehicle.
 - ⇒ Body; General body repairs; exterior; Repair Group 50; Body front; Underbody cladding; Assembly overview - Underbody cladding
- Drain the coolant.
 - ⇒ 5-cyl. 2,5 ltr. engine; Repair Group 19; cooling; drain and refill the coolant
- Remove the coolant hose -1- between thermostat housing and engine oil cooler.
 - ⇒ 5-cyl. 2,5 ltr. engine; Repair Group 19; cooling; Parts of the cooling system - Engine side - Assembly overview

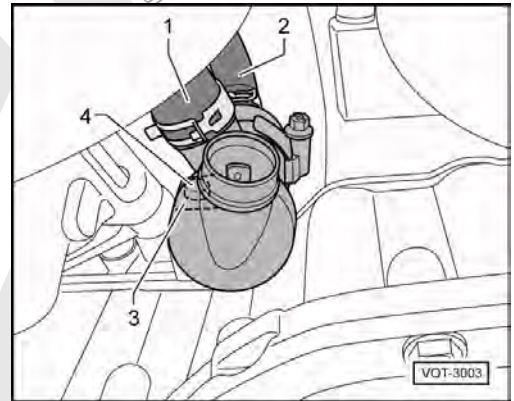


- Remove the bolt from the air conditioner compressor -1-.



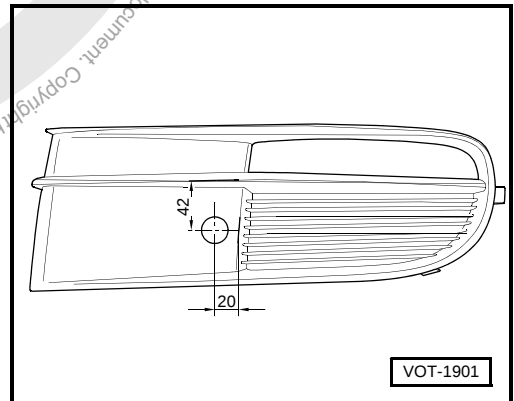
1.3 Fitting the engine preheating system

- Using a hose clamp attach the coolant hose -1- with the thermostat housing and tighten the clamp securely.
- Using a hose clamp attach the coolant hose -2- with the engine oil cooler and tighten the clamp securely.
- Bolt the bracket -3- to the air conditioner compressor bolt -4- that was previously removed.

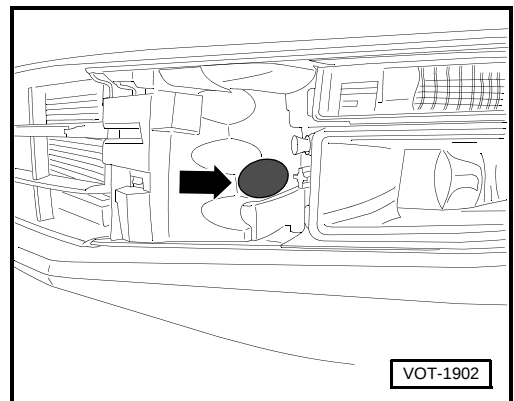


1.4 Connecting up the engine preheater

- Remove the front cover on the left in the front bumper.
- ⇒ External bodywork fitting; Rep.Gr. 63; bumper; front bumper; front bumper attachment part
- Mark the drilling point carefully, according to the figure opposite, on the front cover.
- Center punch the drilling point and drill a hole using a $\varnothing 2$ mm bit.
- Use an $\varnothing 27$ mm ($1 \frac{1}{16}$ inch) Forstner or step drill bit to drill the hole in the front cover.

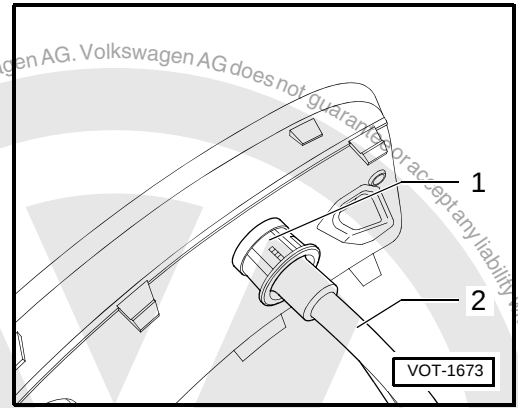


- Use an $\varnothing 27$ mm ($1 \frac{1}{16}$ inch) Forstner or step drill bit to drill a hole as shown in the figure -arrow-.





- Pull the connecting cable -2- from the front side through the hole in the front cover.
- Use the locking nut -1- to attach the connecting cable -2- to the ventilation grille.
- Pull the connecting cable -2- through the drilled hole in the vehicle's engine area.



- Assemble the left front cover back into the front bumper.
⇒ General body repairs, exterior; Rep. Gr. 63; Bumper; Front Bumper; Removing and installing front cover.
- Route the connection wire so that it is free from kinks and rubbing points alongside the existing vehicle wiring harness to the engine preheater.
- Secure the connection wire with the yellow securing clamp at the engine preheater. Insert the securing clamp from below.
- Secure the connection wire into position as follows:
 - ◆ Fix the three cable tie plates at useful positions alongside the existing vehicle wiring harness with homogeneously distribution along the cable.
 - ◆ Fix the connection wire onto the cable tie plates with cable ties.
- Install the underbody cladding to the underside of the vehicle.
⇒ Body; General body repairs, exterior; Rep. Gr. 50; Underbody cladding; Assembly overview - underbody cladding.
- Refill the coolant.
⇒ 5-cyl. 2,5 ltr. engine; Repair Group 19; cooling; Parts of the cooling system - Engine side - Assembly overview

Guide de montage

Programme d'origine pour le préchauffeur moteur 120 Volt

Contenu de la livraison :

- ◆ 1 x Programme pour le préchauffeur moteur
- ◆ 1 x Support avec griffe pour le programme pour le préchauffeur moteur
- ◆ 1 x Câble de connexion avec fiche 120 Volts
- ◆ 1 x Prolongateur 120 Volts
- ◆ 2 x Raccord de liquide de refroidissement
- ◆ 1 x Matériau de fixation
- ◆ 2 x Collier de serrage
- ◆ 1 x Guide de montage

Outils spéciaux, équipement d'essai et de mesure et accessoires nécessaires :

- ◆ Plateau collecteur -VAS 6208-
- ◆ Clé dynamométrique -V.A.G 1331-
- ◆ Outil de sertissage de gaine -VAS 6340-
- ◆ Perceuse à main
- ◆ Jeu d'embouts de perçage spiral
- ◆ Embout Forstner ou foret étagé Ø 27 (1 1/16")

Procédure :

AVERTISSEMENT

Les procédures d'installation non conformes peuvent être à l'origine de blessures graves.

- L'installation sera réalisée par un technicien qualifié.
- Avant de commencer, lire intégralement les instructions.
- Respecter toutes les consignes de sécurité pour travailler sous le véhicule.
- Prendre les précautions nécessaires pour se protéger contre les arêtes vives.
- Toujours porter une protection oculaire.
- Toujours porter les vêtements et les chaussures de protection et manipuler les outils à main avec précaution.

AVERTISSEMENT

L'utilisation non conforme du préchauffeur moteur peut provoquer des courts-circuits, un départ de feu et des blessures graves, voire la mort.

- Le câble de connexion sera toujours raccordé à une prise mise à la terre et protégée par un sectionneur de courant résiduel. La prise doit être protégée contre l'eau, l'humidité et les autres fluides.
- Le programme pour le préchauffeur moteur ne sera jamais raccordé à une prise conventionnelle, qu'elle soit protégée ou non.

AVERTISSEMENT

L'utilisation de prises et de câbles de connexion non conformes ou endommagés et la non-observation des procédures courantes de sécurité peuvent provoquer des courts-circuits, des accidents, des blessures graves, voire la mort.

- Ne jamais utiliser des prises ou des câbles endommagés. Avant toute utilisation, s'assurer que les connecteurs et les câbles ne sont pas endommagés.
- Il est interdit de modifier ou de réparer les composants électriques.
- S'assurer que les connecteurs ne seront jamais au contact de l'eau, de l'humidité et d'autres fluides.



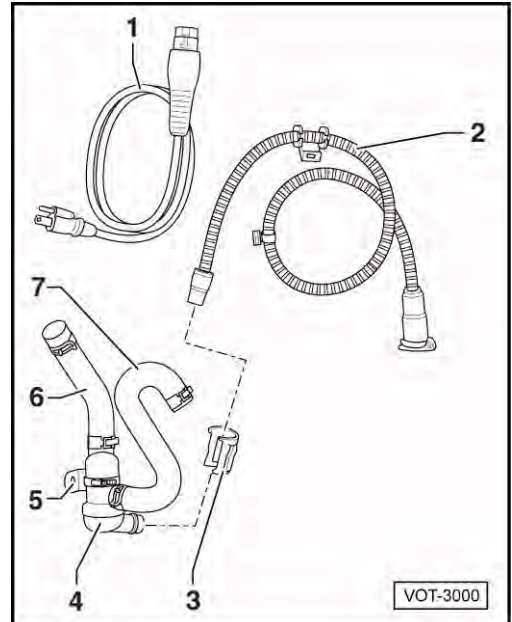
Remarque

- ◆ L'installation du programme d'origine pour le préchauffeur moteur 120 V doit être réalisée par un garage compétent. Pour réaliser l'installation, il est nécessaire de posséder les outils spéciaux et la documentation spécifique du véhicule. Une installation non conforme risque d'endommager le véhicule ou le programme pour le préchauffeur moteur.
- ◆ Sécuriser les câbles afin qu'ils ne puissent jamais entrer en contact avec les pièces rotatives ou mobiles et qu'elles ne frottent pas contre des arêtes vives, métalliques ou plastiques.
- ◆ Sous réserve de tous les droits de modification technique.

1.1 Représentation de l'installation du programme pour le préchauffeur moteur (avec les fournitures de la livraison)

Le programme pour le préchauffeur moteur est installé dans l'espace entre le moteur et le radiateur. Le raccord au circuit de refroidissement est réalisé entre le refroidisseur d'huile moteur et la conduite de retour du liquide de refroidissement.

- 1 - Prolongateur 120 Volts**
- 2 - Câble de connexion avec fiche 120 Volts**
 - ◆ avec rainure de verrouillage
- 3 - Bride de sécurité**
 - ◆ jaune
- 4 - Programme pour le préchauffeur moteur**
- 5 - Support avec griffe**
 - ◆ pour le programme pour le préchauffeur moteur
- 6 - Raccord de liquide de refroidissement**
 - ◆ préchauffeur moteur vers le carter du thermostat
- 7 - Raccord de liquide de refroidissement**
 - ◆ préchauffeur moteur vers le refroidisseur d'huile moteur

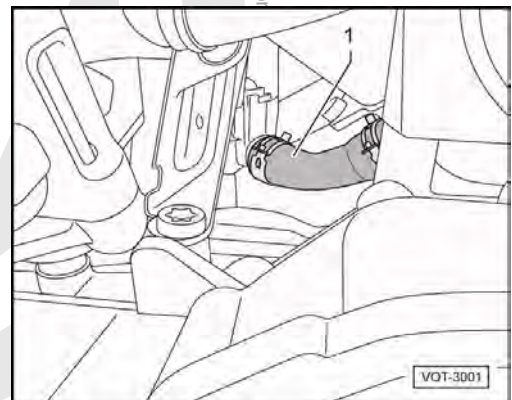


Remarque

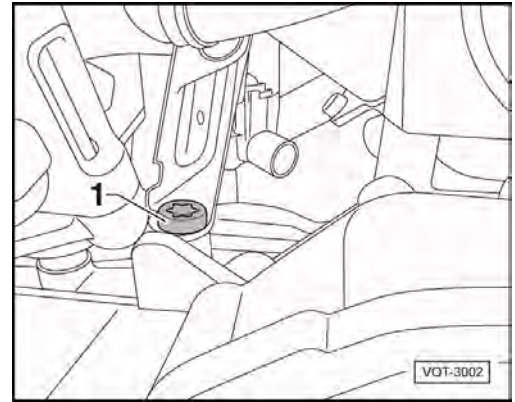
Les colliers supports n'apparaissent pas dans la représentation d'installation. Les colliers supports déjà installés sur le véhicule sont réutilisés. Les colliers supports figurant dans la livraison sont destinés aux supports venant s'ajouter.

1.2 Préparer le véhicule pour l'installation du programme pour le préchauffeur moteur

- Détacher l'habillage du bas de caisse dans la partie inférieure du véhicule.
- ⇒ Carrosserie ; Réparations générales de la carrosserie ; extérieur ; Groupe de réparation 50 ; Carrosserie avant ; Habillage du bas de caisse ; Représentation de l'assemblage - Habillage du bas de caisse
- Vidanger le liquide de refroidissement.
- ⇒ Moteur 5 cyl. 2,5 l ; Groupe de réparation 19 ; refroidissement ; vidanger et remplir le liquide de refroidissement
- Détacher le raccord du liquide de refroidissement -1- entre le carter du thermostat et le refroidisseur d'huile moteur.
- ⇒ Moteur 5 cyl. 2,5 l ; Groupe de réparation 19 ; refroidissement ; Pièces du système de refroidissement - Côté moteur - Représentation de l'assemblage

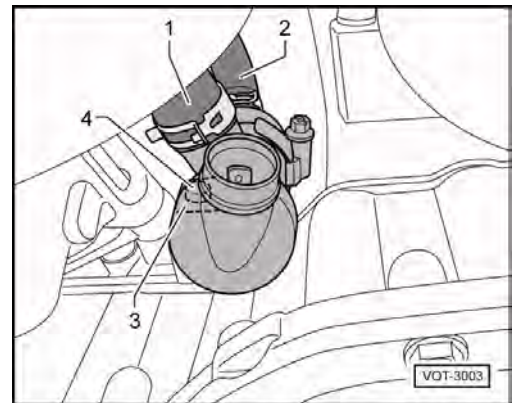


- Dévisser le boulon du compresseur d'air conditionné -1-.



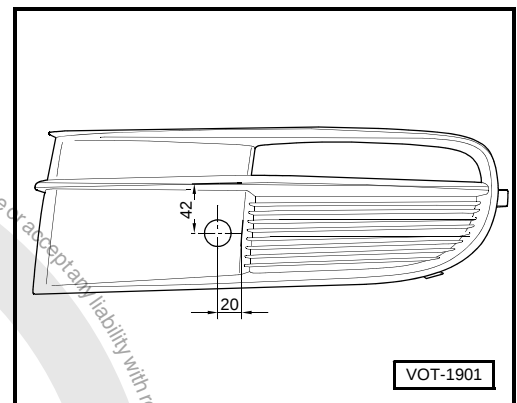
1.3 Installer le programme pour le préchauffeur moteur

- Fixer le raccord du liquide de refroidissement -1- sur le thermostat avec un collier support et serrer le collier.
- Fixer le raccord du liquide de refroidissement -2- sur le refroidisseur d'huile moteur avec un collier support et serrer le collier.
- Visser le support -3- avec le boulon du compresseur d'air conditionné -4- dévissé préalablement.

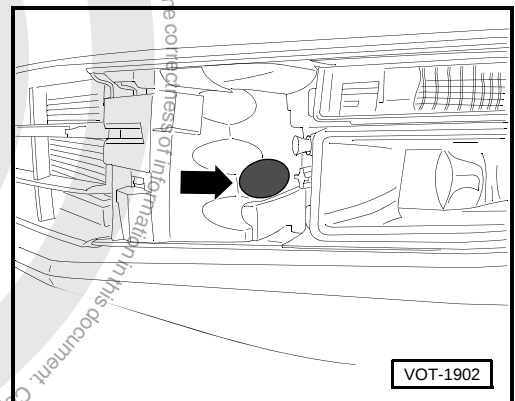


1.4 Raccorder le préchauffeur moteur

- Détacher le recouvrement avant dans la partie gauche du pare-chocs avant.
- ⇒ Travaux sur la carrosserie extérieure ; Groupe de réparation 63 ; pare-chocs ; pare-chocs avant ; pièce de fixation du pare-chocs avant
- Marquer soigneusement le point de perçage sur le recouvrement avant, selon la figure ci-contre.
- Marquer le point de perçage au pointeur et percer avec un embout $\varnothing 2$ mm.
- Pour percer le recouvrement avant, utiliser un embout Forstner $\varnothing 27$ mm ($1 \frac{1}{16}$ ") ou un embout étagé.

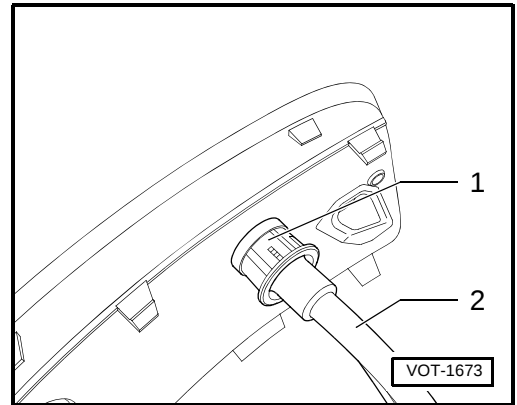


- Pour percer le recouvrement avant, utiliser un embout Forstner $\varnothing 27$ mm ($1 \frac{1}{16}$ ") ou un embout étagé comme l'indique la figure -flèche-.





- Passer le câble de connexion -2- venant de l'avant dans le trou du revêtement avant.
- Attacher le câble de connexion -2- sur le revêtement avant en utilisant la rainure de verrouillage -1-.
- Pousser le câble de connexion -2- dans le trou en direction de l'espace moteur.



- Remplacer le revêtement avant gauche sur le pare-chocs avant.
- ⇒ Réparation générales de la carrosserie, extérieur ; Groupe de réparation 63 ; Pare-chocs ; détacher et installer le revêtement avant.
- Diriger le câble de connexion de manière qu'il ne présente pas de coudes ni de points de frottements sur les faisceaux de câbles sur tout le parcours vers le préchauffeur moteur.
- Sécuriser le câble de connexion sur le préchauffeur moteur avec la bride de sécurité jaune. Introduire la bride de sécurité par le bas.
- Fixer le câble de connexion de la manière suivante :
 - ◆ Fixer les trois plaques support de câble sur les position utiles le long des faisceaux de câbles en les répartissant uniformément sur toute la longueur du câble.
 - ◆ Fixer le câble de connexion sur les plaques support avec des serre-câbles.
- Remonter l'habillage du bas de caisse dans la partie inférieure du véhicule.
- ⇒ Carrosserie ; Réparations générales de la carrosserie, extérieur ; Groupe de réparation 50 ; Habillage du bas de caisse ; Représentation de l'assemblage - habillage du bas de caisse.
- Remplir le liquide de refroidissement.
- ⇒ Moteur 5 cyl. 2,5 l ; Groupe de réparation 19 ; refroidissement ; Pièces du système de refroidissement - Côté moteur - Représentation de l'assemblage

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

