

STARTER - BOSCH

Article Text

1990 Volkswagen Corrado

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Thursday, March 23, 2000 09:51PM

ARTICLE BEGINNING

1990-92 ELECTRICAL
Starters - Bosch

1990-92 Passat
1991-92 Cabriolet, Corrado, Fox, Golf GL, GTI, Jetta, Vanagon

DESCRIPTION

Starter is a brush type, series-wound electric motor with an overrunning clutch. Field frame is enclosed by commutator end frame and drive bushing and carries pole shoes and field coils. A splined armature shaft drive end carries drive assembly.

TROUBLE SHOOTING

CHARGING SYSTEM TROUBLE SHOOTING TABLE

AA

PROBLEM

Possible Cause	Action
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NO START CONDITION

Dead Battery	Check/Replace Battery
Bad Cable Connections	Clean/Replace Cables
Ignition Switch/Circuit Fault	Check Switch/Circuit

CHARGING SYSTEM WARNING LIGHT STAYS ON

Loose/Worn Alternator Belt	Tighten/Replace Belt
Loose Alternator Connections	Check/Repair Connections
Warning Light Wiring	Check/Repair Wiring
Faulty Stator/Diodes	Test/Repair Alternator
Faulty Voltage Regulator	Test/Repair Regulator

WARNING LIGHT OFF WITH IGNITION SWITCH ON

Blown Fuse	Check/Replace Fuse
Faulty Alternator	Test Alternator
Bad Warning Light Bulb	Test/Replace Bulb

WARNING LIGHT ON WITH IGNITION SWITCH OFF

Alternator Wiring Short	Check/Repair Wiring
Faulty Rectifier Bridge	Test/Repair Alternator

AMMETER INDICATES DISCHARGE

Loose/Worn Alternator Belt	Tighten/Replace Belt
Loose Alternator Connections	Check/Repair Connections

STARTER - BOSCH

Article Text (p. 2)

1990 Volkswagen Corrado

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Faulty Ammeter Test/Replace Ammeter
NOISY Defective Battery Replace Battery
Defective Alternator Test/Repair Alternator
Defective Regulator Test/Repair Regulator
AA

ON-VEHICLE TESTING

STARTER DOES NOT CRANK ENGINE

1) Ensure battery is fully charged. Make sure electrical and ground connections are clean and tight. With ignition switch in START position, measure voltage at spade terminal of starter solenoid. Reading should be at least 8 volts (9.5 volts on Fox). If so, check engine for mechanical problems. If voltage is not as specified, go to next step.

2) Measure voltage at ignition switch. If reading is at least 8 volts (9.5 volts on Fox), check wiring between ignition switch and starter solenoid. If voltage is not as specified, replace ignition switch.

3) Measure voltage at field (starter) terminal of starter solenoid. If reading is 8 volts or more, repair or replace starter. If reading is less than 8 volts, replace starter solenoid.

NOTE: On vehicles with automatic transmission, also check park/neutral switch.

STARTER CRANKS TOO SLOWLY

Ensure engine crankcase is filled with recommended viscosity oil. Check charging system to ensure battery is fully charged. Make sure electrical and ground connections are clean and tight. If starter still turns slowly, repair or replace starter.

VOLTAGE DROP TEST

Starter Main Terminal

Connect a voltmeter between starter main terminal and starter body. Disconnect ignition coil positive terminal and operate starter. Voltage reading should not be more than 1.0 volt less than battery voltage. If a larger voltage drop is indicated, circuit between battery and starter terminal may be defective.

Main Starter Case

Connect a voltmeter between positive battery terminal and starter motor "M" terminal. With ignition off, operate starter for 2-3 seconds. Battery voltage should be present, then drop to less than one volt. If voltage is greater than specification, high resistance may be present in circuit. Go to ACROSS SOLENOID SWITCH test.

Across Solenoid Switch

Connect a voltmeter between 2 starter solenoid terminal stud

Thursday, March 23, 2000 09:51PM

- 1) Disconnect battery ground strap. Before raising vehicle,

STARTER - BOSCH

Article Text (p. 4)

1990 Volkswagen Corrado

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Thursday, March 23, 2000 09:51PM

remove upper starter mounting bolt. Release handbrake (to allow axle rotation) and raise vehicle on hoist.

2) Disconnect right rear axle from transmission and wire aside. Cover exposed CV joint with plastic bag to prevent entry of dirt or other foreign material.

3) Loosen clamp securing cooling hoses to chassis. Wire hoses aside. Remove bolt "A" from differential lock servo. Loosen bolt "B" and withdraw as far as possible. Lack of clearance prevents complete removal of bolt "B". See Fig. 1.

NOTE: Nuts are welded to bracket. DO NOT attempt to loosen.

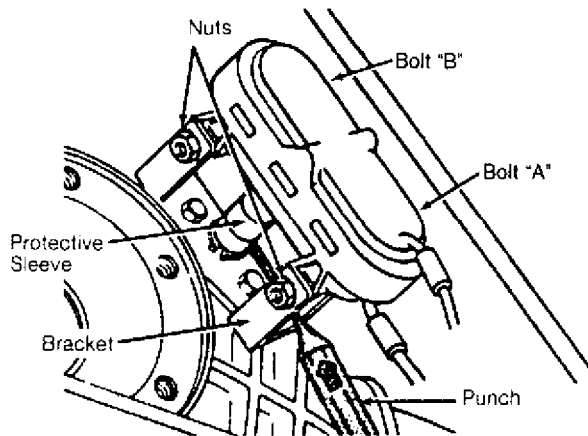


Fig. 1: Removing Differential Lock Servo (Vanagon)
Courtesy of Volkswagen United States, Inc.

4) Push back protective sleeve and drive out spring pin. With bolt "B" withdrawn as far as possible, give servo a slight upward twist and remove from bracket. See Fig. 1.

5) Remove circlip, bracket securing bolts and bracket. See Fig. 2.

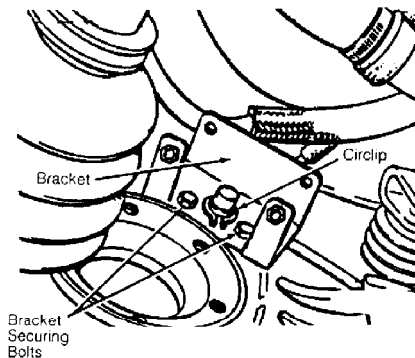


Fig. 2: Removing Differential Lock Servo Bracket (Vanagon)
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STARTER - BOSCH

Article Text (p. 5)

1990 Volkswagen Corrado

For Volkswagen Technical Site: <http://vw.belcom.ru>

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Thursday, March 23, 2000 09:51PM

6) Disconnect wires from starter solenoid. Remove lower mounting nut, push up slightly on starter and remove. See Fig. 3. To install, reverse removal procedure.

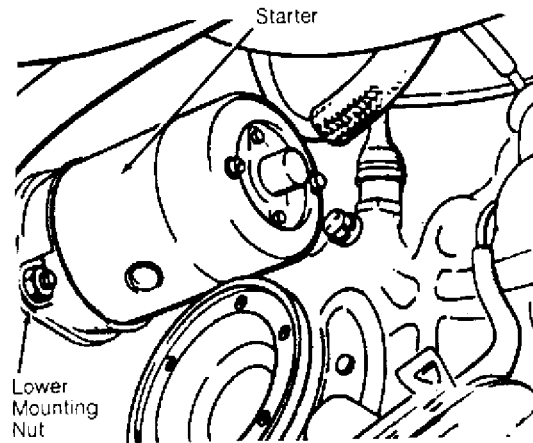
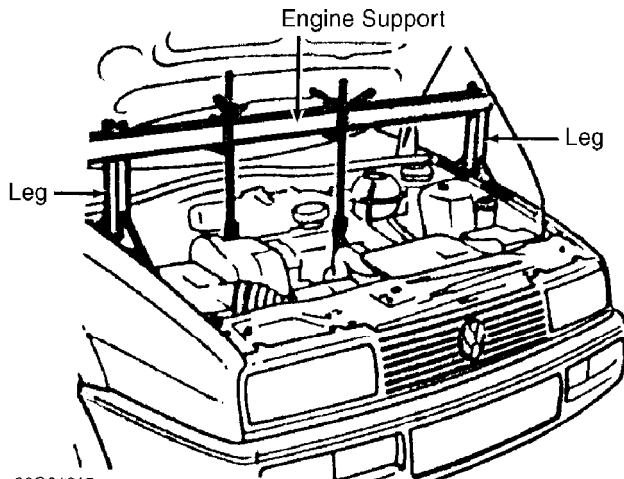


Fig. 3: Removing Starter (Vanagon)
Courtesy of Volkswagen United States, Inc.

ALL MODELS EXCEPT VANAGON R & I

Removal & Installation

Disconnect negative battery cable. Support engine/transmission assembly with Support Beam (VW 10-222). On all models except Fox, add a Leg Set (VW 10-2224/1) to support beam. On all models, remove engine mount bolts, nut, and clamp screw (next to exhaust manifold flange). Remove engine mount. Disconnect wiring and remove starter. To install, reverse removal procedure. See Fig. 4.



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Fig. 4: Removing Starter (Except Vanagon)
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STARTER - BOSCH

Article Text (p. 6)

1990 Volkswagen Corrado

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Thursday, March 23, 2000 09:51PM

OVERHAUL

For overhaul, see exploded view of typical Bosch starter. See Fig. 5.

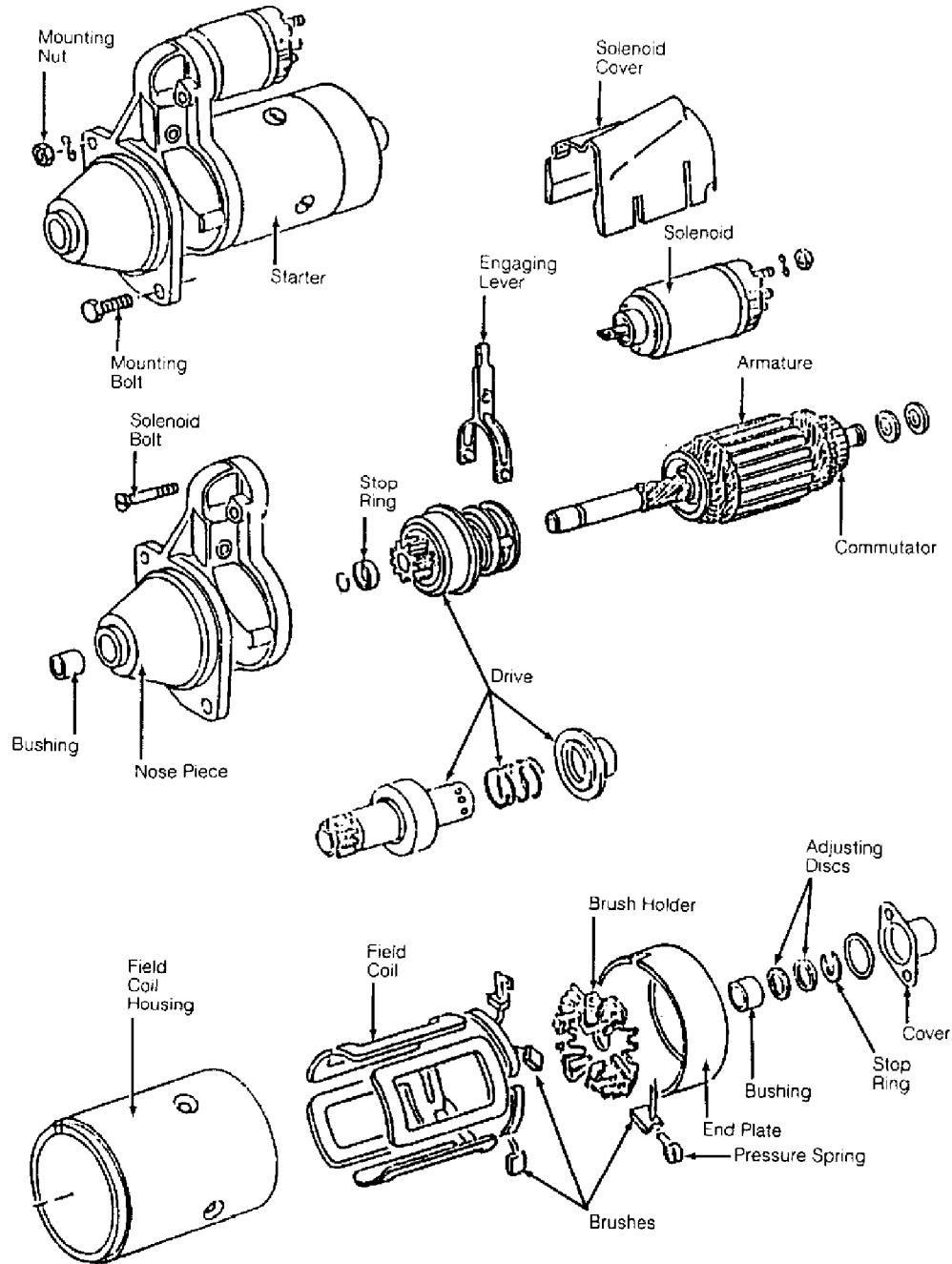


Fig. 5: Exploded View of Bosch Starter (Typical)
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Article Text (p. 7)

For Volkswagen Technical Site: <http://vw.belcom.ru>

Thursday, March 23, 2000 09:51PM

STARTER SPECIFICATIONS

END OF ARTICLE