

SCHEDULED SERVICES - DIESEL

Article Text

1989 Volkswagen Golf

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Monday, August 23, 1999 11:59PM

ARTICLE BEGINNING

1985-92 MAINTENANCE

Volkswagen Maintenance & Service Intervals - Diesel

Golf

Jetta

*** PLEASE READ THIS FIRST ***

NOTE: All SERVICE SCHEDULES are listed for normal service vehicles. If vehicle is operated under severe service conditions, see SEVERE SERVICE REQUIREMENTS (PERFORM W/SERVICE SCHEDULES) for items requiring additional maintenance.

NOTE: This article contains scheduled maintenance service information. Fluid types and capacities listed with each service in this article are only those necessary to perform that scheduled service. For specifications pertaining to fluid capacities for the entire vehicle, fuse and circuit breaker identification, wheel and tire size, battery type, warranty information, or model identification refer to the MAINTENANCE INFORMATION article in this section.

CAUTIONS & WARNINGS

BATTERY WARNING

WARNING: When battery is disconnected, vehicles equipped with computers may lose memory data. When battery power is restored, driveability problems may exist on some vehicles. These vehicles may require a relearn procedure. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION section.

REPLACING BLOWN FUSES

Before replacing a blown fuse, remove ignition key, turn off all lights and accessories to avoid damaging the electrical system. Be sure to use fuse with the correct indicated amperage rating. The use of an incorrect amperage rating fuse may result in a dangerous electrical system overload.

BRAKE PAD REPLACEMENT

WARNING: Use caution when checking and/or changing brake pads, some pads may contain asbestos which can irritate eyes and may cause other health hazards. A water based solution should be used to clean brake dust from wheel and brake components. DO NOT use compressed air to blow off brake dust.

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BRAKE SYSTEM

CAUTION: If brake warning light comes on while driving it indicates a low fluid level or failure in one of the braking circuits. If the brake pedal can be depressed further than normal it is an indication that one of the brake circuits is not functioning. Stop vehicle and check brake reservoir fluid level. If level is below MIN mark, DO NOT drive vehicle. Have it towed to a repair shop. If level is between the MIN and MAX marks, proceed cautiously to a repair shop.

BRAKE PAD WEAR INDICATOR

Indicator will cause a squealing or scraping noise, warning that brake pads need replacement.

BRAKE PEDAL PRESSURE WITH ENGINE NOT RUNNING

CAUTION: Brake pedal requires extreme pressure to stop the vehicle when the engine is not running.

COOLANT (PROPYLENE-GLYCOL FORMULATIONS)

To avoid possible damage to vehicle use only ethylene-glycol based coolants with a mixture ratio from 44-68% anti-freeze. DO NOT use 100% anti-freeze as it will cause the formation of cooling system deposits. This results in coolant temperatures of over 300° F (149°C) which can melt plastics. 100% anti-freeze has a freeze point of only -8° F (-22°C).

CAUTION: Propylene-Glycol Mixtures has a smaller temperature range than Ethylene-Glycol. The temperature range (freeze-boil) of a 50/50 Anti-Freeze/Water Mix is as follows:

Propylene-Glycol -26° F (-32°C) - 257° F (125°C)

Ethylene-Glycol -35° F (-37°C) - 263° F (128°C)

CAUTION: Propylene-Glycol/Ethylene-Glycol Mixtures can cause the destabilization of various corrosion inhibitors. Also Propylene-Glycol/Ethylene-Glycol has a different specific gravity than Ethylene-Glycol coolant, which will result in inaccurate freeze point calculations.

DIESEL FUEL ANTI-FUNGAL ADDITIVES

CAUTION: If fuel contamination due to fungi or other microorganisms is suspected a fuel additive with a biocide may be used. Follow the manufacturers dosage as recommended on product label. Use biocides ONLY when necessary, excessive use can may cause other fuel system problems.

DIESEL FUEL CONTAMINATION

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WARNING: Diesel fuel system may be contaminated with fungi or other microorganisms. Keep contaminated fuel away from open skin cuts or sores to prevent skin irritation or infection.

DIESEL FUEL REQUIREMENTS

CAUTION: All diesel engines are to use Diesel Fuel #2 when the outside temperature is above 20°F (-7°C). In temperatures that are below 20°F (-7°C) use Diesel Fuel #1, this will reduce the chance of the fuel thickening and forming wax.

Note: A Diesel Fuel #1 & #2 combination (Blended Fuel) may be used, and is recommended for mild winter driving.

STARTING FLUID USE (DIESEL)

WARNING: DO NOT USE starting fluids (ether) or flammable liquids to aid the starting of a Diesel engine. NEVER pour diesel fuel, flammable liquids or starting fluids into the air cleaner canister, air intake or turbocharger housing in an attempt to start the vehicle. A flash fire may result causing personal injury.

ELECTRIC SHOCK HAZARD

WARNING: Contact with live components of ignition system while engine is running could lead to a fatal electric shock.

ELECTROSTATIC DISCHARGE SENSITIVE (ESD) PARTS

WARNING: Many solid state electrical components can be damaged by static electricity (ESD). Some will display a warning label, but many will not. Discharge personal static electricity by touching a metal ground point on the vehicle prior to servicing any ESD sensitive component.

ENGINE OIL

CAUTION: Never use non-detergent or straight mineral oil.

FUEL SYSTEM SERVICE

WARNING: Relieve fuel system pressure prior to servicing any fuel system component (fuel injection models).

HALOGEN BULBS

Halogen bulbs contain pressurized gas which may explode if overheated. DO NOT touch glass portion of bulb with bare hands. Eye protection should be worn when handling or working around halogen bulbs.

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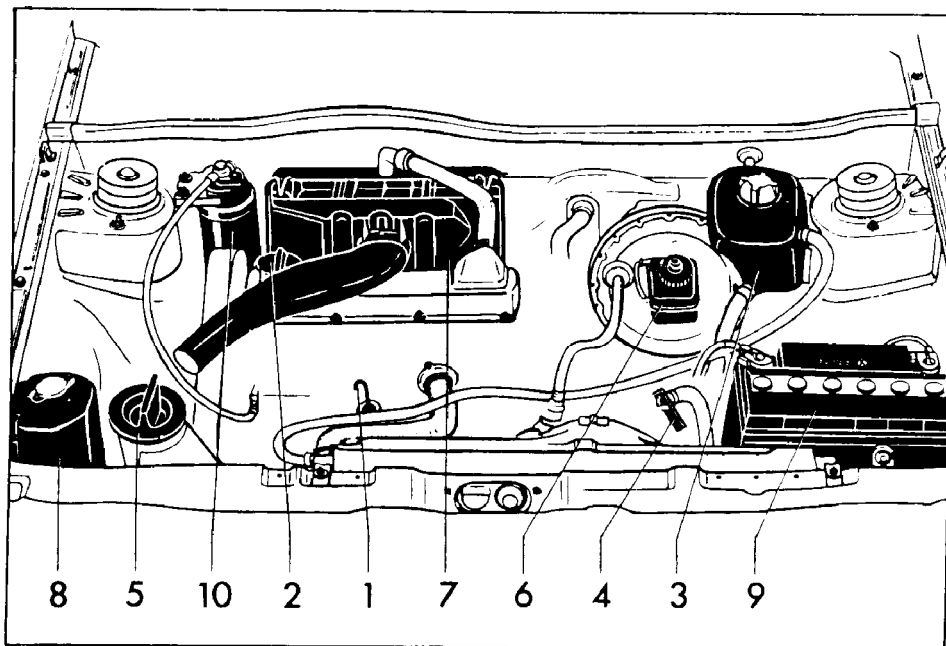
RADIATOR CAP

CAUTION: Always disconnect the fan motor when working near the radiator fan. The fan is temperature controlled and could start at any time even when the ignition key is in the OFF position. DO NOT loosen or remove radiator cap when cooling system is hot.

RADIATOR FAN

WARNING: Keep hands away from radiator fan. Fan is controlled by a thermostatic switch which may come on or run for up to 15 minutes even after engine is turned off.

SERVICE POINT LOCATIONS



Diesel engine

50A11973

- | | |
|---|--------------------------------|
| 1. Engine oil dipstick | 6. Brake fluid reservoir |
| 2. Engine oil filter cap | 7. Air cleaner |
| 3. Coolant reservoir | 8. Windshield washer container |
| 4. ATF dipstick* | 9. Battery |
| 5. Power assist steering fluid reservoir* | 10. Fuel filter* |

* where applicable

Fig. 1: Service Point Locations (Diesel Engine)

Courtesy of Volkswagen United States, Inc.

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ADDITIONAL DIESEL SERVICE INFORMATION

DIESEL FUEL FILTER MAINTENANCE

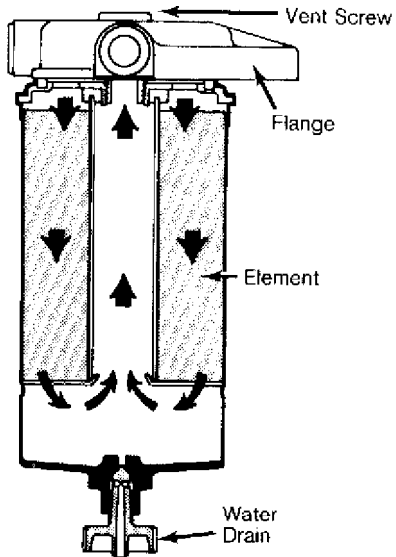


Fig. 2: Components of Fuel Filter
Courtesy of Volkswagen United States, Inc.

NOTE: For more information regarding diesel fuel filter service refer to the FUEL INJECTION SYSTEM - DIESEL article in the FUEL SYSTEMS section.

ALIGNING CAMSHAFT TIMING MARKS

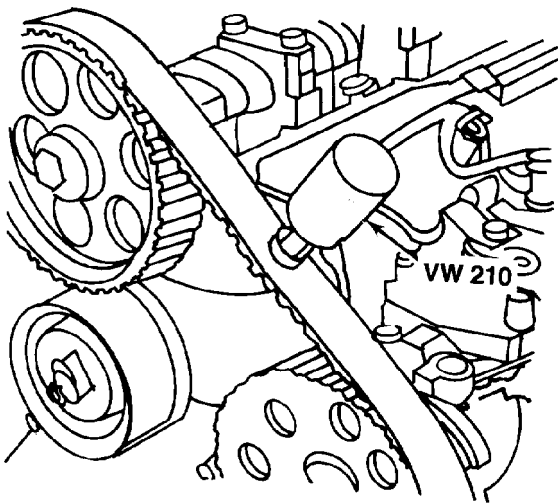


Fig. 3: Setting Camshaft Timing Marks (Diesel)
202142
Courtesy of Volkswagen United States, Inc.

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NOTE: For more information regarding camshaft timing belt service refer to the 1.6L 4-CYL DIESEL/TURBO DIESEL article in the ENGINE MECHANICAL section.

ADJUSTING FUEL INJECTION PUMP TIMING - DIESEL

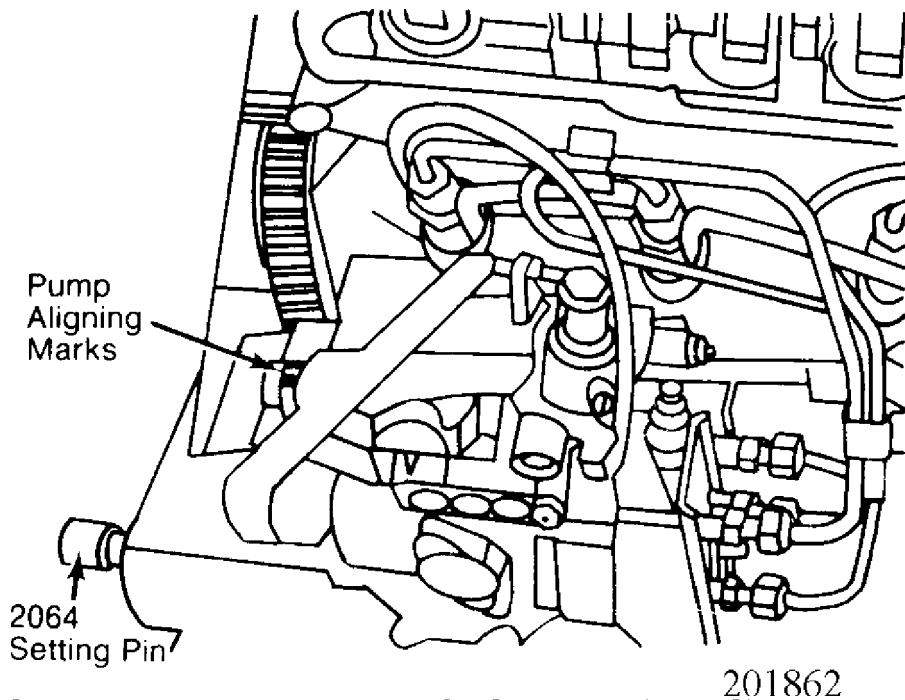


Fig. 4: Fuel Injection Pump Timing Mark Alignment (Diesel)
Courtesy of Volkswagen United States, Inc.

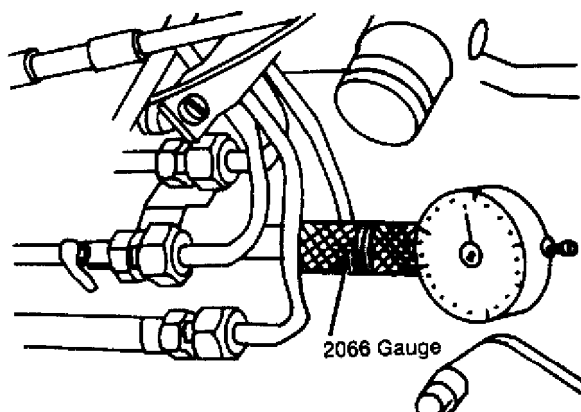


Fig. 5: Adjusting Injection Pump Timing (Diesel)
Courtesy of Volkswagen United States, Inc.

NOTE: For more information regarding fuel injection system service refer to the FUEL INJECTION SYSTEM - DIESEL article in the FUEL SYSTEMS section.

ADJUSTING IDLE SPEED - DIESEL

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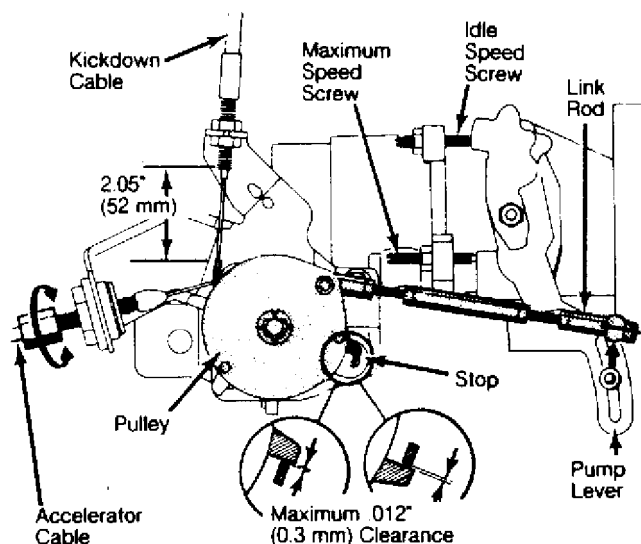


Fig. 6: Idle and Maximum Speed Adjustment
Courtesy of Volkswagen United States, Inc.

NOTE: For more information regarding diesel idle speed adjustment refer to the TUNE-UP - DIESEL article in the ENGINE PERFORMANCE section.

VALVE CLEARANCE ADJUSTMENT - DIESEL

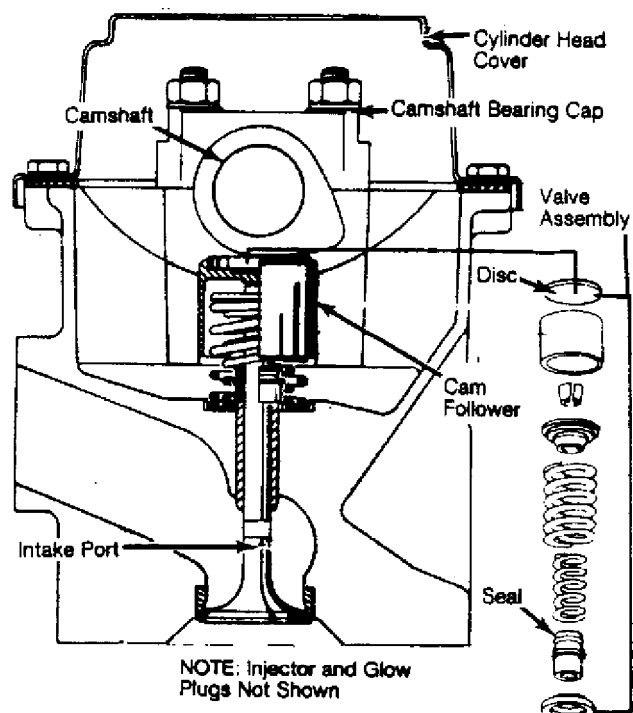


Fig. 7: End View of Camshaft and Valve Assembly
Courtesy of Volkswagen United States, Inc.

NOTE: For more information regarding valve clearance adjustments

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refer to the 1.6L 4-CYL DIESEL/TURBO DIESEL article
in the ENGINE MECHANICAL section.

JACKING & HOISTING POINTS

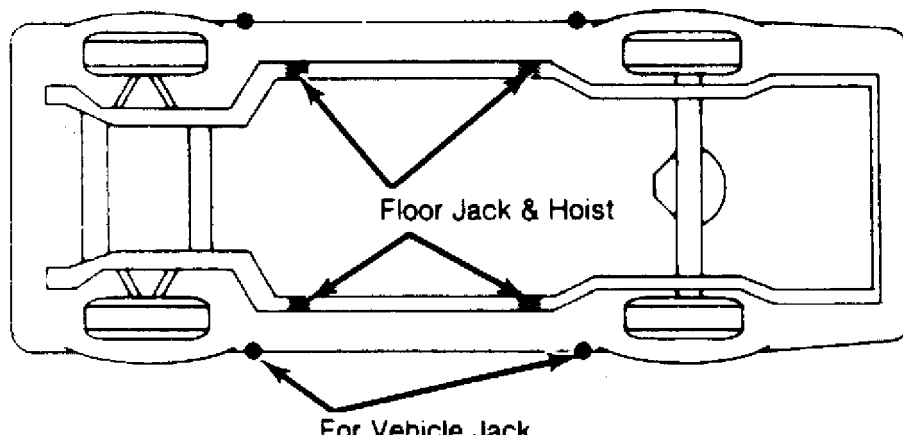


Fig. 8: Floor Jack, Floor Hoist & Vehicle Jack
Courtesy of Volkswagen United States, Inc.

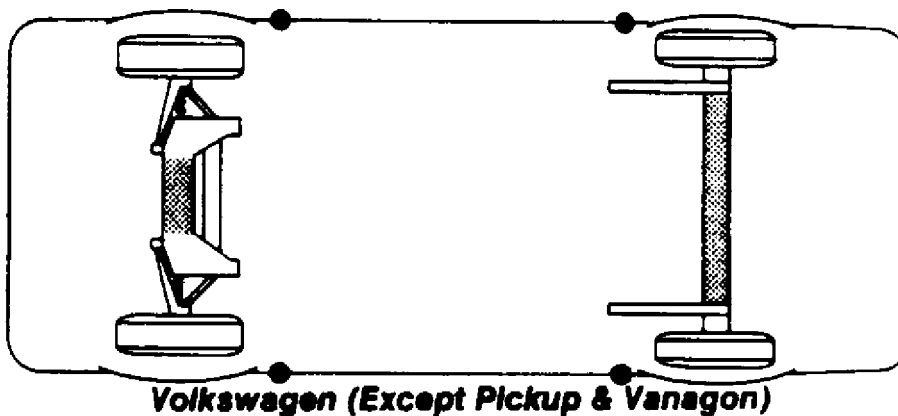


Fig. 9: Vehicle Lifting Points - Except Pickup
Courtesy of Volkswagen United States, Inc.

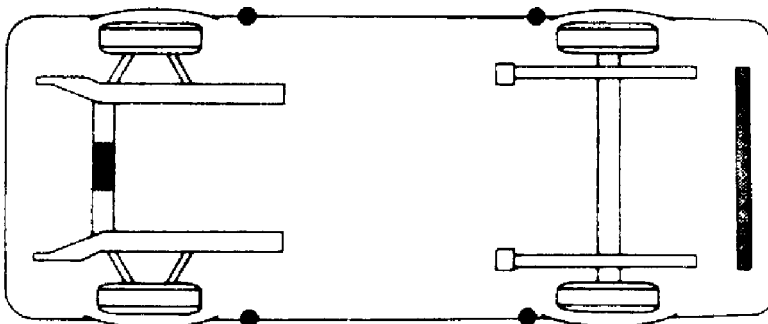


Fig. 10: Vehicle Lift Points - Pickup
Courtesy of Volkswagen United States, Inc.

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NOTE: For more information regarding jacking and hoisting points refer to the JACKING & HOISTING article in the WHEEL ALIGNMENT section.

INFORMATION LABEL LOCATIONS

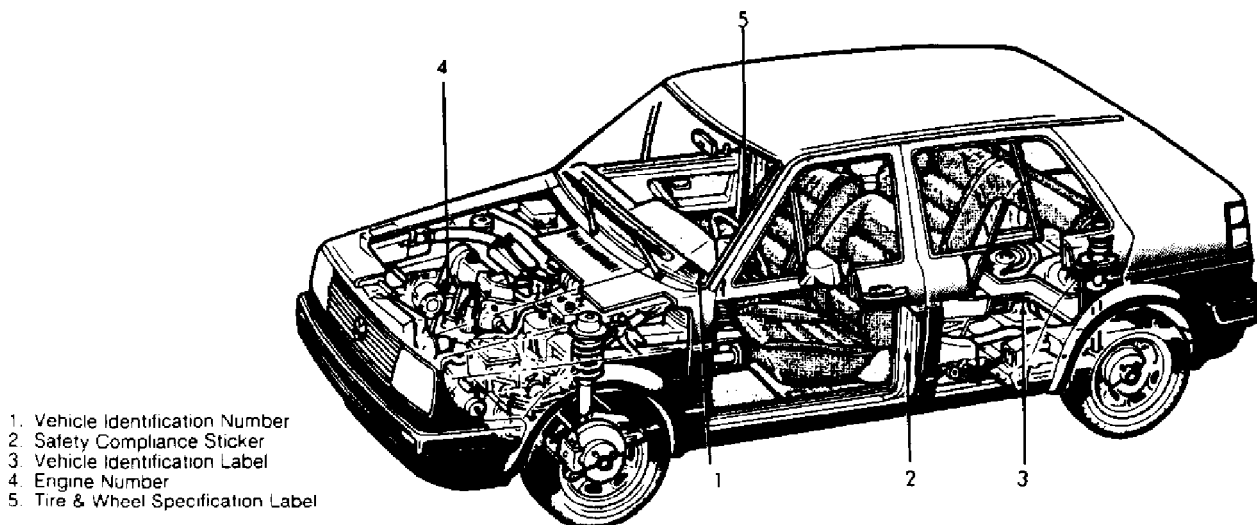


Fig. 11: Information Label Locations
Courtesy of Volkswagen United States, Inc.

CAMSHAFT TIMING BELT REPLACEMENT INFORMATION

CAUTION: Failure to replace a faulty camshaft timing belt may result in serious engine damage.

The condition of camshaft drive belts should always be checked on vehicles which have more than 50,000 miles. Although some manufacturers do not recommend belt replacement at a specified mileage, others require it at 60,000-100,000 miles. A camshaft drive belt failure may cause extensive damage to internal engine components on most engines, although some designs do not allow piston-to-valve contact. These designs are often called "Free Wheeling".

Many manufacturers changed their maintenance and warranty schedules in the mid-1980's to reflect timing belt inspection and/or replacement at 50,000-60,000 miles. Most service interval schedules in this manual reflect these changes.

Belts or components should be inspected and replaced if any of the following conditions exist:

- * Cracks Or Tears In Belt Surface
- * Missing, Damaged, Cracked Or Rounded Teeth
- * Oil Contamination
- * Damaged Or Faulty Tensioners
- * Incorrect Tension Adjustment

Inspect timing belt at 20,000 mile intervals. Replace belt as

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Condition	Action	Item	Perform Every (1)
Short Trips In Freezing Temperatures	Replace	Engine Oil & Filter	3,750 Miles or 3 Months
	Replace	A/T Fluid	15,000 Miles
Towing Or Heavily Loaded	Replace	Engine Oil & Filter	3,750 Miles or 3 Months
	Replace	A/T Fluid	15,000 Miles
Severe Dust Conditions	Replace	Engine Oil & Filter	3,750 Miles or 3 Months
	Replace	A/T Fluid	15,000 Miles

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```
3 Hot Weather, 3 Replace 3Engine Oil & 3 3,750 Miles or 3 Months 3
3 Stop-And-Go 3 3 Filter 3
3 Driving
3 3 Replace 3 A/T Fluid 3 15,000 Miles 3
3
3 Extensive Idling 3 Replace 3Engine Oil & 3 3,750 Miles or 3 Months 3
3 3 3 Filter 3
3
3 3 Replace 3 A/T Fluid 3 15,000 Miles 3
3
3(1) - Perform these services at the mileage or number of months 3
3 (since the last time), whichever comes first. 3
3
3
3
```

NORMAL MAINTENANCE SERVICE SCHEDULES

CAUTION: The following service schedules refer to vehicles driven under normal operating conditions. For vehicles driven under severe conditions, additional services may be necessary. See SEVERE SERVICE REQUIREMENTS (PERFORM W/SERVICE SCHEDULES) above in this article for additional service requirements.

7500 MILE (12,000 KM) SERVICE

7500 MILE (12,000 KM) SERVICE

```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Service Or Inspect 3
3
3 3 Check Fluid Levels 3
3
3 3 Inspect Coolant Hoses and Clamps 3
3
3 3 Inspect Brake System 3
3
3 3 Inspect Exhaust System 3
3
3 3 Check/Drain Water/Fuel Separator 3
3
3 3 Inspect CV Joint Boots 3
3
3 3 Lubricate Chassis 3
3
3 Replace 3
3
3 3 Engine Oil 3
3
3 3 Oil Filter 3
3
3 Lubrication Specifications 3
3
3
```

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Application	Specification
Engine Oil	
Ambient Temperatures	
Greater Than 140 F (- 100C)	SAE 15W-40 Or 20W-50 API SG/CD
140- 500F (- 100 To +100C)	SAE 10W-30 Or 10W-40 API SG/CD
Less Than 500F (100C)	SAE 5W-30 Or 5W-40 API SG/CD
Fluid Capacities	
Application	(1) Quantity
Engine Oil (2)	4.7 Qts. (4.5L)
(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.	
(2) - Includes filter change.	

15,000 MILE (24,000 KM) SERVICE

15,000 MILE (24,000 KM) SERVICE

Service Or Inspect
Verify Last Major Service Was Performed
Diagnostic System Read Out
Inspect For Fluid Leaks
Inspect Camshaft Timing Belt (Replace if Required)
Check/Adjust Valve Clearance
Check Fluid Levels
Inspect Coolant Hoses and Clamps
Cooling & Heating System
Crankcase Ventilation System
Check/Drain Water/Fuel Separator
Check Coolant Strength
Inspect/Adjust Accessory Drive Belts (Replace if Required)
Windshield Washer System
Clean Battery and Battery Terminals

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3	3	Throttle Linkage	3
3	3	Inspect Fuel /Tank/Cap/Lines	3
3	3	Intake Air System	3
3	3	Clutch Hydraulic System	3
3	3	Inspect CV Joint Boots	3
3	3	Drive Shafts For Leaks & Damage	3
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	3	Inspect Condition of Wiper Blades	3
3	3	Check Headlight Alignment	3
3	3	Check Seat Belt Webbing and Release Mechanisms	3
3	3	Check Parking Brake Operation	3
3	3	Check Shift/Clutch Interlock Operation	3
3	3	Inspect Brake System Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Inspect Front Brake Pads & Rotors	3
3	3	Inspect Rear Brake Linings & Drums	3
3	3	Lubricate Chassis	3
3	3	Inspect Steering Linkage/Front Suspension	3
3	3	Suspension & Wheel Bearings	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Lubricate Weatherstripping with Silicone	3
3	3	Lubricate Door Hinges	3
3	3	Lubricate Door Locks	3
3	3	Check Body Drain Holes	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3

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3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
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3 Replace 3

3 3 Engine Oil 3

3 3 Oil Filter 3

3 Lubrication Specifications 3

³ Application Specification ³

³ Automatic Transaxle Dexron-II E ATF ³³ Coolant 50/50 Mix Water & Ethylene Glycol ³

3 Ambient Temperatures

³ 14ø- 50øF (- 10ø To +10øC) SAE 10W-30 Or 10W-40 API SG/CD ³

³ Power Steering Fluid VW Hydraulic Oil G-002-000 ³

Or SAE 75W-90 (G50 Synthetic) 3

³ (Differential) SAE 75W-90 (G50 Synthetic Gear Oil) ³

³ Steering Linkage (2) (3) NLGI Grade 2 Category GC-LB ³³ Weatherstrip Dielectric Silicone Grease ³

³ (1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme 3

³ (2) - Use low pressure grease gun to prevent seal damage. 3

3 (4) - Fill ball joint until seal starts to swell. 3

3 Fluid Capacities

³ Application (1) Quantity ³

³ Cooling System 6.9 Qts. (6.4L) ³

³ Automatic Transaxle 3

³	Dry Fill	5.9 Qts. (5.6L)	³
--------------	----------------	-----------------	--------------

3 A/T (3) 0.8 Qt. (.75L) 3

3 3

3 dipstick (if available) to measure level. 3

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $\epsilon \rightarrow 0$. It is shown that the solutions of the system (1) converge to the solutions of the system (2) in the sense of the weak convergence in the space $L^2(\Omega; \mathbb{R}^n)$.

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3	(2) - Includes filter change.	3
3	(3) - Lifetime fill.	3
3	(4) - Single case includes manual transaxle & differential.	3
3	Service Labor Times	3
3	Application	(1) (2) (3) Hours 3
3	Non-Turbo Diesel Engine	3
3	Automatic Transmission	1.5 3
3	Manual Transmission	1.7 3
3	Turbo Diesel Engine	3
3	Automatic Transmission	1.5 3
3	Manual Transmission	1.7 3
3	Gasoline Engine	3
3	Automatic Transmission	1.5 3
3	Manual Transmission	1.7 3
3	(1) - Add .2 hr. if equipped with A/C.	3
3	(2) - Add .1 hr. if equipped with cruise control.	3
3	(3) - Add .5 hr. for 1983-84 Jetta, Rabbit and Pickup.	3

22,500 MILE (36,000 KM) SERVICE

22,500 MILE (36,000 KM) SERVICE	
Service Or Inspect	3
Verify Last Major Service Was Performed	3
Check Fluid Levels	3
Inspect Coolant Hoses and Clamps	3
Inspect Brake System	3
Inspect Exhaust System	3
Check/Drain Water/Fuel Separator	3
Inspect CV Joint Boots	3
Lubricate Chassis	3
Replace	3
Engine Oil	3
Oil Filter	3
Lubrication Specifications	3

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Application		Specification
Engine Oil		
Ambient Temperatures		
Greater Than 140 F (- 100C)	..	SAE 15W-40 Or 20W-50 API SG/CD
140- 500F (- 100 To +100C)	....	SAE 10W-30 Or 10W-40 API SG/CD
Less Than 500F (100C)	.....	SAE 5W-30 Or 5W-40 API SG/CD
Fluid Capacities		
Application		(1) Quantity
Engine Oil (2)	.....	4.7 Qts. (4.5L)
(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.		
(2) - Includes filter change.		

30,000 MILE (48,000 KM) SERVICE

30,000 MILE (48,000 KM) SERVICE

Service Or Inspect	
Verify Last Major Service Was Performed	
Diagnostic System Read Out	
Inspect For Fluid Leaks	
Inspect Camshaft Timing Belt (Replace if Required)	
Check/Adjust Valve Clearance	
Check Fluid Levels	
Inspect Coolant Hoses and Clamps	
Cooling & Heating System	
Crankcase Ventilation System	
Check/Drain Water/Fuel Separator	
Check Coolant Strength	
Inspect/Adjust Accessory Drive Belts (Replace if Required)	
Windshield Washer System	

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3	3	Clean Battery and Battery Terminals	3
AAAAA			/
3	3	Throttle Linkage	3
AAAAA			/
3	3	Fuel System	3
AAAAA			/
3	3	Intake Air System	3
AAAAA			/
3	3	Clutch Hydraulic System	3
AAAAA			/
3	3	Inspect CV Joint Boots	3
AAAAA			/
3	3	Drive Shafts For Leaks & Damage	3
AAAAA			/
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
AAAAA			/
3	3	Inspect Condition of Wiper Blades	3
AAAAA			/
3	3	Check Headlight Alignment	3
AAAAA			/
3	3	Check Seat Belt Webbing and Release Mechanisms	3
AAAAA			/
3	3	Check Parking Brake Operation	3
AAAAA			/
3	3	Check Shift/Clutch Interlock Operation	3
AAAAA			/
3	3	Inspect Brake System Hoses & Lines	3
AAAAA			/
3	3	Brake Discs & Calipers	3
AAAAA			/
3	3	Inspect Front Brake Pads & Rotors	3
AAAAA			/
3	3	Inspect Rear Brake Linings & Drums	3
AAAAA			/
3	3	Lubricate Chassis	3
AAAAA			/
3	3	Inspect Steering Linkage/Front Suspension	3
AAAAA			/
3	3	Suspension & Wheel Bearings	3
AAAAA			/
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
AAAAA			/
3	3	Lubricate Weatherstripping with Silicone	3
AAAAA			/
3	3	Lubricate Door Hinges	3
AAAAA			/
3	3	Lubricate Door Locks	3
AAAAA			/
3	3	Check Body Drain Holes	3
AAAAA			/
3	3	Inspect Shocks/Struts for Leakage	3
AAAAA			/

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3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3	3	Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3	3	Air Filter Element	3
3	3	Diesel Fuel Filter	3
3	3	Automatic Transmission Fluid & Filter	3
3	3	Drain, Flush and Refill Engine Coolant	3
3	3	Drain, Refill and Bleed Brake System Fluid	3
3	3	Lubrication Specifications	3
3	Application	Specification	3
3	Automatic Transaxle	Dexron-II E ATF	3
3	Brake Fluid	DOT 4 Brake Fluid (SAE J1703)	3
3	Coolant	50/50 Mix Water & Ethylene Glycol	3
3	Engine Oil (1)		3
3	Ambient Temperatures		3
3	Greater Than 140 F (-10°C)	SAE 15W-40 or 20W-50 API SG/CD	3
3	140-500F (-10 To +10°C)	SAE 10W-30 or 10W-40 API SG/CD	3
3	Less Than 500F (10°C)	SAE 5W-30 or 5W-40 API SG/CD	3
3	Power Steering Fluid	VW Hydraulic Oil G-002-000	3
3	Manual Transaxle	Hypoid Gear Oil SAE 75W-90 API GL-4	3
3		or SAE 75W-90 (G50 Synthetic)	3
3	Final Drive (A/T & M/T)		3
3	(Differential)	SAE 75W-90 (G50 Synthetic Gear Oil)	3
3	Wheel Bearings	NLGI Grade 2 Category GC-LB	3
3	Steering Linkage (2)(3)	NLGI Grade 2 Category GC-LB	3
3	Ball Joints (2)(4)	NLGI Grade 2 Category GC-LB	3
3	Weatherstrip	Dielectric Silicone Grease	3
3	(1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme		3
3	conditions or extended highway operation.		3
3	(2) - Use low pressure grease gun to prevent seal damage.		3
3	(3) - Fill until lubricant squeezes out from the base of seals.		3
3	(4) - Fill ball joint until seal starts to swell.		3
3	Fluid Capacities		3
3	Application	(1) Quantity	3

Article Text (p. 19)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3 (1) - Capacities are recommended or calculated levels. Always use 3
3 dipstick (if available) to measure level. 3
3 (2) - Includes filter change. 3
3 (3) - Lifetime fill. 3
3 (4) - Single case includes manual transaxle & differential. 3

³ Application	(1)	(2)	(3)	(4)	Hours ³
--------------------------	-----	-----	-----	-----	--------------------

3	(1) - Add .2 hr. if equipped with A/C.	3
3	(2) - Add .1 hr. if equipped with cruise control.	3
3	(3) - Add .5 hr. for 1983-84 Jetta, Pickup and Rabbit.	3
3	(4) - Add the following times to replace camshaft timing belt.	3
3	2.8 hours on diesel engine, 2.2 hours on gasoline engines	3
3	with air conditioning and 1.8 hours on gasoline engines	3
3	without air conditioning.	3

37,500 MILE (60,000 KM) SERVICE

[illegible]

SCHEDULED SERVICES - DIESEL

Article Text (p. 20)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Inspect Exhaust System	3
3	3	Check/Drain Water/Fuel Separator	3
3	3	Inspect CV Joint Boots	3
3	3	Lubricate Chassis	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3		Lubrication Specifications	3
3		Application	Speci fication
3		Engine Oil	3
3		Ambient Temperatures	3
3		Greater Than 14ø F (- 10øC) .. SAE 15W-40 Or 20W-50 API SG/CD	3
3		14ø-50øF (- 10ø To +10øC) SAE 10W-30 Or 10W-40 API SG/CD	3
3		Less Than 50øF (10øC) SAE 5W-30 Or 5W-40 API SG/CD	3
3		Fluid Capacities	3
3		Application	(1) Quantity
3		Engine Oil (2)	4.7 Qts. (4.5L)
3		(1) - Capacities are recommended or calculated levels. Always use	3
3		dipstick (if available) to measure level.	3
3		(2) - Includes filter change.	3
3			3

45,000 MILE (72,000 KM) SERVICE

45,000 MILE (72,000 KM) SERVICE

3	3	Service Or Inspect	3
3	3	Verify Last Major Service Was Performed	3
3	3	Diagnostic System Read Out	3
3	3	Inspect For Fluid Leaks	3
3	3	Inspect Camshaft Timing Belt (Replace if Required)	3
3	3	Check/Adjust Valve Clearance	3
3	3	Check Fluid Levels	3

SCHEDULED SERVICES - DIESEL

Article Text (p. 21)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Inspect Coolant Hoses and Clamps	3
3	3	Cooling & Heating System	3
3	3	Crankcase Ventilation System	3
3	3	Check/Drain Water/Fuel Separator	3
3	3	Check Coolant Strength	3
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3	Windshield Washer System	3
3	3	Clean Battery and Battery Terminals	3
3	3	Throttle Linkage	3
3	3	Fuel System	3
3	3	Intake Air System	3
3	3	Clutch Hydraulic System	3
3	3	Inspect CV Joint Boots	3
3	3	Drive Shafts For Leaks & Damage	3
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	3	Inspect Condition of Wiper Blades	3
3	3	Check Headlight Alignment	3
3	3	Check Seat Belt Webbing and Release Mechanisms	3
3	3	Check Parking Brake Operation	3
3	3	Check Shift/Clutch Interlock Operation	3
3	3	Inspect Brake System Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Inspect Front Brake Pads & Rotors	3
3	3	Inspect Rear Brake Linings & Drums	3
3	3	Lubricate Chassis	3
3	3	Inspect Steering Linkage/Front Suspension	3

SCHEDULED SERVICES - DIESEL

Article Text (p. 22)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

AAAAAA			/		
3	3	Suspension & Wheel Bearings		3	
AAAAAA			/		
3	3	Steering Operation, Tie Rods, Gear Box & Boots		3	
AAAAAA			/		
3	3	Lubricate Weatherstripping with Silicone		3	
AAAAAA			/		
3	3	Lubricate Door Hinges		3	
AAAAAA			/		
3	3	Lubricate Door Locks		3	
AAAAAA			/		
3	3	Check Body Drain Holes		3	
AAAAAA			/		
3	3	Inspect Shocks/Struts for Leakage		3	
AAAAAA			/		
3	3	Inspect Tire Wear Pattern		3	
AAAAAA			/		
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)		3	
AAAAAA			/		
3		Replace		3	
AAAAAA			/		
3	3	Engine Oil		3	
AAAAAA			/		
3	3	Oil Filter		3	
AAAAAA			/		
3	3	Air Filter Element		3	
AAAAAA			/		
3	3	Diesel Fuel Filter		3	
AAAAAA			/		
3		Lubrication Specifications		3	
AAAAAA			/		
3	Application		Speci fi cation	3	
3				3	
3	Automatic Transaxle	.....	Dexron- IIE ATF	3	
3	Brake Fluid	.....	DOT 4 Brake Fluid (SAE J1703)	3	
3	Coolant	.....	50/50 Mix Water & Ethylene Glycol	3	
3	Engine Oil (1)			3	
3	Ambient Temperatures			3	
3	Greater Than 14ø F (- 10øC)	..	SAE 15W- 40 Or 20W- 50 API SG/CD	3	
3	14ø- 50øF (- 10ø To +10øC)	....	SAE 10W- 30 Or 10W- 40 API SG/CD	3	
3	Less Than 50øF (10øC)	.....	SAE 5W- 30 Or 5W- 40 API SG/CD	3	
3	Power Steering Fluid	.....	VW Hydraulic Oil G- 002- 000	3	
3	Manual Transaxle	.....	Hypoid Gear Oil SAE 75W- 90 API GL- 4	3	
3			Or SAE 75W- 90 (G50 Synthetic)	3	
3	Final Drive (A/T & M/T)			3	
3	(Differential)	.....	SAE 75W- 90 (G50 Synthetic Gear Oil)	3	
3	Wheel Bearings	.....	NLGI Grade 2 Category GC- LB	3	
3	Steering Linkage (2) (3)	.....	NLGI Grade 2 Category GC- LB	3	
3	Ball Joints (2) (4)	.....	NLGI Grade 2 Category GC- LB	3	
3	Weatherstrip	Dielectric Silicone Grease	3	
3				3	
3	(1) - SAE 15W- 40 or 20W- 40 engine oil is recommended for extreme			3	

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[illegible]

3	3	Oil Filter	3
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[illegible]

SCHEDULED SERVICES - DIESEL

Article Text (p. 25)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Windshield Washer System	3
AAAAA			/
3	3	Clean Battery and Battery Terminals	3
AAAAA			/
3	3	Throttle Linkage	3
AAAAA			/
3	3	Fuel System	3
AAAAA			/
3	3	Intake Air System	3
AAAAA			/
3	3	Clutch Hydraulic System	3
AAAAA			/
3	3	Inspect CV Joint Boots	3
AAAAA			/
3	3	Drive Shafts For Leaks & Damage	3
AAAAA			/
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
AAAAA			/
3	3	Inspect Condition of Wiper Blades	3
AAAAA			/
3	3	Check Headlight Alignment	3
AAAAA			/
3	3	Check Seat Belt Webbing and Release Mechanisms	3
AAAAA			/
3	3	Check Parking Brake Operation	3
AAAAA			/
3	3	Check Shift/Clutch Interlock Operation	3
AAAAA			/
3	3	Inspect Brake System Hoses & Lines	3
AAAAA			/
3	3	Brake Discs & Calipers	3
AAAAA			/
3	3	Inspect Front Brake Pads & Rotors	3
AAAAA			/
3	3	Inspect Rear Brake Linings & Drums	3
AAAAA			/
3	3	Lubricate Chassis	3
AAAAA			/
3	3	Inspect Steering Linkage/Front Suspension	3
AAAAA			/
3	3	Suspension & Wheel Bearings	3
AAAAA			/
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
AAAAA			/
3	3	Lubricate Weatherstripping with Silicone	3
AAAAA			/
3	3	Lubricate Door Hinges	3
AAAAA			/
3	3	Lubricate Door Locks	3
AAAAA			/
3	3	Check Body Drain Holes	3
AAAAA			/

SCHEDULED SERVICES - DIESEL

Article Text (p. 26)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3	3	Air Filter Element	3
3	3	Diesel Fuel Filter	3
3	3	Change Automatic Transaxle Fluid & Clean Strainer	3
3	3	A/T Differential Oil Level (Replace if Required)	3
3	3	Manual Transaxle Fluid Level (Replace if Required)	3
3	3	Drain, Flush and Refill Engine Coolant	3
3	3	Drain, Refill and Bleed Brake System Fluid	3
3		Lubrication Specifications	3
3	Application	Specification	3
3	Automatic Transaxle	Dexron-II E ATF	3
3	Brake Fluid	DOT 4 Brake Fluid (SAE J1703)	3
3	Coolant	50/50 Mix Water & Ethylene Glycol	3
3	Engine Oil (1)		3
3	Ambient Temperatures		3
3	Greater Than 140 F (-10°C)	SAE 15W-40 Or 20W-50 API SG/CD	3
3	140-500F (-10 To +10°C)	SAE 10W-30 Or 10W-40 API SG/CD	3
3	Less Than 500F (10°C)	SAE 5W-30 Or 5W-40 API SG/CD	3
3	Power Steering Fluid	VW Hydraulic Oil G-002-000	3
3	Manual Transaxle	Hypoid Gear Oil SAE 75W-90 API GL-4	3
3		Or SAE 75W-90 (G50 Synthetic)	3
3	Final Drive (A/T & M/T)		3
3	(Differential)	SAE 75W-90 (G50 Synthetic Gear Oil)	3
3	Wheel Bearings	NLGI Grade 2 Category GC-LB	3
3	Steering Linkage (2)(3)	NLGI Grade 2 Category GC-LB	3
3	Ball Joints (2)(4)	NLGI Grade 2 Category GC-LB	3
3	Weatherstrip	Dielectric Silicone Grease	3
3	(1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme		3
3	conditions or extended highway operation.		3
3	(2) - Use low pressure grease gun to prevent seal damage.		3
3	(3) - Fill until lubricant squeezes out from the base of seals.		3

[illegible]

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3      Service Or Inspect                                                  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'
3    3 Verify Last Major Service Was Performed                          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'
3    3 Diagnostic System Read Out                                         3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'
3    3 Inspect For Fluid Leaks                                           3

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SCHEDULED SERVICES - DIESEL

Article Text (p. 29)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Inspect Camshaft Timing Belt (Replace if Required)	3
3	3	Check/Adjust Valve Clearance	3
3	3	Check Fluid Levels	3
3	3	Inspect Coolant Hoses and Clamps	3
3	3	Cooling & Heating System	3
3	3	Crankcase Ventilation System	3
3	3	Check/Drain Water/Fuel Separator	3
3	3	Check Coolant Strength	3
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3	Windshield Washer System	3
3	3	Clean Battery and Battery Terminals	3
3	3	Throttle Linkage	3
3	3	Fuel System	3
3	3	Intake Air System	3
3	3	Clutch Hydraulic System	3
3	3	Inspect CV Joint Boots	3
3	3	Drive Shafts For Leaks & Damage	3
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	3	Inspect Condition of Wiper Blades	3
3	3	Check Headlight Alignment	3
3	3	Check Seat Belt Webbing and Release Mechanisms	3
3	3	Check Parking Brake Operation	3
3	3	Check Shift/Clutch Interlock Operation	3
3	3	Inspect Brake System Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Inspect Front Brake Pads & Rotors	3

SCHEDULED SERVICES - DIESEL

Article Text (p. 30)

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Tuesday, August 24, 1999 12:00AM

AAAAAA/		
3	3	Inspect Rear Brake Linings & Drums
AAAAAA/		
3	3	Lubricate Chassis
AAAAAA/		
3	3	Inspect Steering Linkage/Front Suspension
AAAAAA/		
3	3	Suspension & Wheel Bearings
AAAAAA/		
3	3	Steering Operation, Tie Rods, Gear Box & Boots
AAAAAA/		
3	3	Lubricate Weatherstripping with Silicone
AAAAAA/		
3	3	Lubricate Door Hinges
AAAAAA/		
3	3	Lubricate Door Locks
AAAAAA/		
3	3	Check Body Drain Holes
AAAAAA/		
3	3	Inspect Shocks/Struts for Leakage
AAAAAA/		
3	3	Inspect Tire Wear Pattern
AAAAAA/		
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)
AAAAAA/		
3		Replace
AAAAAA/		
3	3	Engine Oil
AAAAAA/		
3	3	Oil Filter
AAAAAA/		
3	3	Air Filter Element
AAAAAA/		
3		Lubrication Specifications
AAAAAA/		
3	Application	Specification
3		
3	Automatic Transaxle	Dexron-II E ATF
3	Brake Fluid	DOT 4 Brake Fluid (SAE J1703)
3	Coolant	50/50 Mix Water & Ethylene Glycol
3	Engine Oil (1)	
3	Ambient Temperatures	
3	Greater Than 140 F (- 100C)	SAE 15W-40 Or 20W-50 API SG/CD
3	140- 500F (- 100 To +100C)	SAE 10W-30 Or 10W-40 API SG/CD
3	Less Than 500F (100C)	SAE 5W-30 Or 5W-40 API SG/CD
3	Power Steering Fluid	VW Hydraulic Oil G-002-000
3	Manual Transaxle	Hypoid Gear Oil SAE 75W-90 API GL-4
3		Or SAE 75W-90 (G50 Synthetic)
3	Final Drive (A/T & M/T)	
3	(Differential)	SAE 75W-90 (G50 Synthetic Gear Oil)
3	Wheel Bearings	NLGI Grade 2 Category GC-LB
3	Steering Linkage (2) (3)	NLGI Grade 2 Category GC-LB

3 Service Or Inspect 3

SCHEDULED SERVICES - DIESEL

Article Text (p. 32)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

Verify Last Major Service Was Performed		
Check Fluid Levels		
Inspect Coolant Hoses and Clamps		
Inspect Brake System		
Inspect Exhaust System		
Check/Drain Water/Fuel Separator		
Inspect CV Joint Boots		
Lubricate Chassis		
Replace		
Engine Oil		
Oil Filter		
Lubrication Specifications		
Application	Speci fi cation	
Engine Oil		
Ambient Temperatures		
Greater Than 140 F (-100C)	..	SAE 15W-40 Or 20W-50 API SG/CD
140- 500F (-100 To +100C)	....	SAE 10W-30 Or 10W-40 API SG/CD
Less Than 500F (100C)	.....	SAE 5W-30 Or 5W-40 API SG/CD
Fluid Capacities		
Application	(1) Quantity	
Engine Oil (2)	.....	4.7 Qts. (4.5L)
(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.		
(2) - Includes filter change.		

90,000 MILE (144,000 KM) SERVICE

90,000 MILE (144,000 KM) SERVICE

Service Or Inspect		
Verify Last Major Service Was Performed		

SCHEDULED SERVICES - DIESEL

Article Text (p. 33)

1989 Volkswagen Golf

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Tuesday, August 24, 1999 12:00AM

3	3	Diagnostic System Read Out	3
AAAAA			/
3	3	Inspect For Fluid Leaks	3
AAAAA			/
3	3	Inspect Camshaft Timing Belt (Replace if Required)	3
AAAAA			/
3	3	Check/Adjust Valve Clearance	3
AAAAA			/
3	3	Check Fluid Levels	3
AAAAA			/
3	3	Inspect Coolant Hoses and Clamps	3
AAAAA			/
3	3	Cooling & Heating System	3
AAAAA			/
3	3	Crankcase Ventilation System	3
AAAAA			/
3	3	Check/Drain Water/Fuel Separator	3
AAAAA			/
3	3	Check Coolant Strength	3
AAAAA			/
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
AAAAA			/
3	3	Windshield Washer System	3
AAAAA			/
3	3	Clean Battery and Battery Terminals	3
AAAAA			/
3	3	Throttle Linkage	3
AAAAA			/
3	3	Fuel System	3
AAAAA			/
3	3	Intake Air System	3
AAAAA			/
3	3	Clutch Hydraulic System	3
AAAAA			/
3	3	Inspect CV Joint Boots	3
AAAAA			/
3	3	Drive Shafts For Leaks & Damage	3
AAAAA			/
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
AAAAA			/
3	3	Inspect Condition of Wiper Blades	3
AAAAA			/
3	3	Check Headlight Alignment	3
AAAAA			/
3	3	Check Seat Belt Webbing and Release Mechanisms	3
AAAAA			/
3	3	Check Parking Brake Operation	3
AAAAA			/
3	3	Check Shift/Clutch Interlock Operation	3
AAAAA			/
3	3	Inspect Brake System Hoses & Lines	3
AAAAA			/

SCHEDULED SERVICES - DIESEL

Article Text (p. 34)

1989 Volkswagen Golf

For Volkswagen Technical Site

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Tuesday, August 24, 1999 12:00AM

3	3	Brake Discs & Calipers	3
3	3	Inspect Front Brake Pads & Rotors	3
3	3	Inspect Rear Brake Linings & Drums	3
3	3	Lubricate Chassis	3
3	3	Inspect Steering Linkage/Front Suspension	3
3	3	Suspension & Wheel Bearings	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Lubricate Weatherstripping with Silicone	3
3	3	Lubricate Door Hinges	3
3	3	Lubricate Door Locks	3
3	3	Check Body Drain Holes	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3
3	3	Air Filter Element	3
3	3	Diesel Fuel Filter	3
3	3	Change Automatic Transaxle Fluid & Clean Strainer	3
3	3	A/T Differential Oil Level (Replace if Required)	3
3	3	Manual Transaxle Fluid Level (Replace if Required)	3
3	3	Drain, Flush and Refill Engine Coolant	3
3	3	Drain, Refill and Bleed Brake System Fluid	3
3		Lubrication Specifications	3
3	Application	Specification	3
3			3

SCHEDULED SERVICES - DIESEL

Article Text (p. 35)

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Tuesday, August 24, 1999 12:00AM

Automatic Transaxle	Dexron-II E ATF	
Brake Fluid	DOT 4 Brake Fluid (SAE J1703)	
Coolant	50/50 Mix Water & Ethylene Glycol	
Engine Oil (1)		
Ambient Temperatures		
Greater Than 140 F (- 100C)	SAE 15W-40 Or 20W-50 API SG/CD	
140- 500F (- 100 To +100C)	SAE 10W-30 Or 10W-40 API SG/CD	
Less Than 500F (100C)	SAE 5W-30 Or 5W-40 API SG/CD	
Power Steering Fluid	VW Hydraulic Oil G-002-000	
Manual Transaxle	Hypoid Gear Oil SAE 75W-90 API GL-4	
	Or SAE 75W-90 (G50 Synthetic)	
Final Drive (A/T & M/T)		
(Differential)	SAE 75W-90 (G50 Synthetic Gear Oil)	
Wheel Bearings	NLGI Grade 2 Category GC-LB	
Steering Linkage (2)(3)	NLGI Grade 2 Category GC-LB	
Ball Joints (2)(4)	NLGI Grade 2 Category GC-LB	
Weatherstrip	Dielectric Silicone Grease	

(1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme conditions or extended highway operation.

(2) - Use low pressure grease gun to prevent seal damage.

(3) - Fill until lubricant squeezes out from the base of seals.

(4) - Fill ball joint until seal starts to swell.

Fluid Capacities

Application	(1) Quantity
Cooling System	6.9 Qts. (6.4L)
Engine Oil (2)	4.7 Qts. (4.5L)
Automatic Transaxle	
Fluid Change	3.2 Qts. (3.0L)
Dry Fill	5.9 Qts. (5.6L)
Final Drive (Differential)	
A/T (3)	0.8 Qt. (.75L)
Manual Transaxle (4)	2.0 Qts. (1.9L)

(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.

(2) - Includes filter change.

(3) - Lifetime fill.

(4) - Single case includes manual transaxle & differential.

Service Labor Times

Application	(1) (2) (3) (4) Hours
Non-Turbo Diesel Engine	
Automatic Transmission	3.2
Manual Transmission	2.6
Turbo Diesel Engine	
Automatic Transmission	3.2

Application		Specification
Engine Oil		
Ambient Temperatures		
Greater Than 140 F (-100C)	..	SAE 15W-40 Or 20W-50 API SG/CD
140- 500F (-100 To +100C)	....	SAE 10W-30 Or 10W-40 API SG/CD
Less Than 500F (100C)	SAE 5W-30 Or 5W-40 API SG/CD

SCHEDULED SERVICES - DIESEL

Article Text (p. 37)

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Tuesday, August 24, 1999 12:00AM

3	Fluid Capacities	3
3	Application	(1) Quantity 3
3	Engine Oil (2)	4.7 Qts. (4.5L) 3
3	(1) - Capacities are recommended or calculated levels. Always use	3
3	dipstick (if available) to measure level.	3
3	(2) - Includes filter change.	3
3		3

105,000 MILE (168,000 KM) SERVICE

3	105,000 MILE (168,000 KM) SERVICE	3
3	Service Or Inspect	3
3	3 Verify Last Major Service Was Performed	3
3	3 Diagnostic System Read Out	3
3	3 Inspect For Fluid Leaks	3
3	3 Inspect Camshaft Timing Belt (Replace if Required)	3
3	3 Check/Adjust Valve Clearance	3
3	3 Check Fluid Levels	3
3	3 Inspect Coolant Hoses and Clamps	3
3	3 Cooling & Heating System	3
3	3 Crankcase Ventilation System	3
3	3 Check/Drain Water/Fuel Separator	3
3	3 Check Coolant Strength	3
3	3 Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
3	3 Windshield Washer System	3
3	3 Clean Battery and Battery Terminals	3
3	3 Throttle Linkage	3
3	3 Fuel System	3
3	3 Intake Air System	3
3	3 Clutch Hydraulic System	3

SCHEDULED SERVICES - DIESEL

Article Text (p. 38)

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Tuesday, August 24, 1999 12:00AM

3	3	Inspect CV Joint Boots	3
3	3	Drive Shafts For Leaks & Damage	3
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
3	3	Inspect Condition of Wiper Blades	3
3	3	Check Headlight Alignment	3
3	3	Check Seat Belt Webbing and Release Mechanisms	3
3	3	Check Parking Brake Operation	3
3	3	Check Shift/Clutch Interlock Operation	3
3	3	Inspect Brake System Hoses & Lines	3
3	3	Brake Discs & Calipers	3
3	3	Inspect Front Brake Pads & Rotors	3
3	3	Inspect Rear Brake Linings & Drums	3
3	3	Lubricate Chassis	3
3	3	Inspect Steering Linkage/Front Suspension	3
3	3	Suspension & Wheel Bearings	3
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
3	3	Lubricate Weatherstripping with Silicone	3
3	3	Lubricate Door Hinges	3
3	3	Lubricate Door Locks	3
3	3	Check Body Drain Holes	3
3	3	Inspect Shocks/Struts for Leakage	3
3	3	Inspect Tire Wear Pattern	3
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
3		Replace	3
3	3	Engine Oil	3
3	3	Oil Filter	3

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3 Lubrication Specifications 3

³ Application Specification ³

³ Automatic Transaxle Dexron-II E ATF ³

³ Coolant 50/50 Mix Water & Ethylene Glycol ³

3 Ambient Temperatures

³ 14ø- 50øF (- 10ø To +10øC) SAE 10W-30 0r 10W-40 API SG/CD ³

³ Power Steering Fluid VW Hydraulic Oil G-002-000 ³

3 Or SAE 75W-90 (G50 Synthetic) 3

³ (Differential) SAE 75W-90 (G50 Synthetic Gear Oil) ³

³ Steering Linkage (2) (3) NLGI Grade 2 Category GC-LB ³³ Weatherstrip Dielectric Silicone Grease ³

³ (1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme 3

³ (2) - Use low pressure grease gun to prevent seal damage. 3

³ (4) - Fill ball joint until seal starts to swell. ³

3 Fluid Capacities 3

3 Application	(1) Quantity ³
---------------	---------------------------

³ Cooling System 690ts (64I)³

³ Automatic Transaxle 3

3	Dry Fill	5.90	pts.	(5.6L)	3
---	----------	------	------	--------	---

$$^3 \quad \Lambda/T \quad (3) \quad 0.80 \pm (75) \quad ^3$$

Manual TransAxle (4) 2.0 U.S. (1.9L)

(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.

3 (2) Lifetime fill

- (4) - Single case includes manual transaxle & differential.

112,500 MILE (180,000 KM) SERVICE

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3 **Service Or Inspect** 3

SCHEDULED SERVICES - DIESEL

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3	3	Verify Last Major Service Was Performed	3
AAAAA			/
3	3	Diagnostic System Read Out	3
AAAAA			/
3	3	Inspect For Fluid Leaks	3
AAAAA			/
3	3	Inspect Camshaft Timing Belt (Replace if Required)	3
AAAAA			/
3	3	Check/Adjust Valve Clearance	3
AAAAA			/
3	3	Check Fluid Levels	3
AAAAA			/
3	3	Inspect Coolant Hoses and Clamps	3
AAAAA			/
3	3	Cooling & Heating System	3
AAAAA			/
3	3	Crankcase Ventilation System	3
AAAAA			/
3	3	Check/Drain Water/Fuel Separator	3
AAAAA			/
3	3	Check Coolant Strength	3
AAAAA			/
3	3	Inspect/Adjust Accessory Drive Belts (Replace if Required)	3
AAAAA			/
3	3	Windshield Washer System	3
AAAAA			/
3	3	Clean Battery and Battery Terminals	3
AAAAA			/
3	3	Throttle Linkage	3
AAAAA			/
3	3	Fuel System	3
AAAAA			/
3	3	Intake Air System	3
AAAAA			/
3	3	Clutch Hydraulic System	3
AAAAA			/
3	3	Suspension & Wheel Bearings	3
AAAAA			/
3	3	Inspect CV Joint Boots	3
AAAAA			/
3	3	Drive Shafts For Leaks & Damage	3
AAAAA			/
3	3	Check Operation of Horn, Wipers/Washers & All Exterior Lights	3
AAAAA			/
3	3	Inspect Condition of Wiper Blades	3
AAAAA			/
3	3	Check Headlight Alignment	3
AAAAA			/
3	3	Check Seat Belt Webbing and Release Mechanisms	3
AAAAA			/
3	3	Check Parking Brake Operation	3
AAAAA			/

SCHEDULED SERVICES - DIESEL

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3	3	Check Shift/Clutch Interlock Operation	3
AAAAA			/
3	3	Inspect Brake System Hoses & Lines	3
AAAAA			/
3	3	Brake Discs & Calipers	3
AAAAA			/
3	3	Inspect Front Brake Pads & Rotors	3
AAAAA			/
3	3	Inspect Rear Brake Linings & Drums	3
AAAAA			/
3	3	Lubricate Chassis	3
AAAAA			/
3	3	Inspect Steering Linkage/Front Suspension	3
AAAAA			/
3	3	Suspension & Wheel Bearings	3
AAAAA			/
3	3	Steering Operation, Tie Rods, Gear Box & Boots	3
AAAAA			/
3	3	Lubricate Weatherstripping with Silicone	3
AAAAA			/
3	3	Lubricate Door Hinges	3
AAAAA			/
3	3	Lubricate Door Locks	3
AAAAA			/
3	3	Check Body Drain Holes	3
AAAAA			/
3	3	Inspect Shocks/Struts for Leakage	3
AAAAA			/
3	3	Inspect Tire Wear Pattern	3
AAAAA			/
3	3	Rotate Tires and Adjust Air Pressure (Including Spare)	3
AAAAA			/
3		Replace	3
AAAAA			/
3	3	Engine Oil	3
AAAAA			/
3	3	Oil Filter	3
AAAAA			/
3	3	Air Filter Element	3
AAAAA			/
3	3	Diesel Fuel Filter	3
AAAAA			/
3	3	Change Automatic Transaxle Fluid & Clean Strainer	3
AAAAA			/
3	3	A/T Differential Oil Level (Replace if Required)	3
AAAAA			/
3	3	Manual Transaxle Fluid Level (Replace if Required)	3
AAAAA			/
3	3	Drain, Flush and Refill Engine Coolant	3
AAAAA			/
3	3	Drain, Refill and Bleed Brake System Fluid	3
AAAAA			/

SCHEDULED SERVICES - DIESEL

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Lubrication Specifications

Application		Specification
Automatic Transaxle		Dexron-II E ATF
Brake Fluid		DOT 4 Brake Fluid (SAE J1703)
Coolant		50/50 Mix Water & Ethylene Glycol
Engine Oil (1)		
Ambient Temperatures		
Greater Than 140 F (-10°C)		SAE 15W-40 Or 20W-50 API SG/CD
140-500F (-10 To +10°C)		SAE 10W-30 Or 10W-40 API SG/CD
Less Than 500F (10°C)		SAE 5W-30 Or 5W-40 API SG/CD
Power Steering Fluid		VW Hydraulic Oil G-002-000
Manual Transaxle		Hypoid Gear Oil SAE 75W-90 API GL-4 Or SAE 75W-90 (G50 Synthetic)
Final Drive (A/T & M/T)		
(Differential)		SAE 75W-90 (G50 Synthetic Gear Oil)
Wheel Bearings		NLGI Grade 2 Category GC-LB
Steering Linkage (2)(3)		NLGI Grade 2 Category GC-LB
Ball Joints (2)(4)		NLGI Grade 2 Category GC-LB
Weatherstrip		Dielectric Silicone Grease

(1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme conditions or extended highway operation.

(2) - Use low pressure grease gun to prevent seal damage.

(3) - Fill until lubricant squeezes out from the base of seals.

(4) - Fill ball joint until seal starts to swell.

Fluid Capacities

Application	(1) Quantity
Cooling System	6.9 Qts. (6.4L)
Engine Oil (2)	4.7 Qts. (4.5L)
Automatic Transaxle	
Fluid Change	3.2 Qts. (3.0L)
Dry Fill	5.9 Qts. (5.6L)
Final Drive (Differential)	
A/T (3)	0.8 Qt. (.75L)
Manual Transaxle (4)	2.0 Qts. (1.9L)

(1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.

(2) - Includes filter change.

(3) - Lifetime fill.

(4) - Single case includes manual transaxle & differential.

Service Labor Times

Application	(1) (2) (3) (4) Hours
-------------	-----------------------

Non-Turbo Diesel Engine

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[illegible]

LUBRICATION SPECIFICATIONS

LUBRICATION SPECIFICATIONS TABLE

[illegible]

Automatic Transaxle **Dexron-II E ATF**

Brake Fluid	DOT 4 Brake Fluid (SAE J1703)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Coolant 50/50 Mix Water & Ethylene Glycol

Engi ne Oi l (1)

Ambient Temperatures

Greater Than 140 F (-100C) .. SAE 15W-40 Or 20W-50 API SG/CD

14ø- 50øF (- 10ø To +10øC) SAE 10W-30 0r 10W-40 API SG/CD

Less Than 50øF (10øC) SAE 5W-30 0r 5W-40 API SG/CD

Power Steering Fluid VW Hydraulic Oil G-002-000

Manual Transaxle Hypoid Gear Oil SAE 75W-90 API GL-4

Final Drive (A/T & M/T)

(Differential) SAE 75W-90 (G50 Synthetic Gear Oil)

Wheel Bearings NLGI Grade 2 Category GC-LB

Drive Shaft U-Joints NLGI Grade 2 Category GC-LB

Steering Linkage (2) (3) NLGI Grade 2 Category GC-LB

Ball Joints (2) (4) NLGI Grade 2 Category GC-LB

Weatherstrip Dielectric Silicone Grease

- (1) - SAE 15W-40 or 20W-40 engine oil is recommended for extreme conditions or extended highway operation.
- (2) - Use low pressure grease gun to prevent seal damage.
- (3) - Fill until lubricant squeezes out from the base of seals.
- (4) - Fill ball joint until seal starts to swell.

[illegible]

FLUID CAPACITIES

FLUID CAPACITIES TABLE

[illegible]

SCHEDULED SERVICES - DIESEL

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Application	Quantity (1)
A/C System R-12 Refrigerant	29-35 0zs.
Cooling System	
Diesel	6.9 Qts. (6.5L)
Gasoline	5.2 Qts. (5.0L)
Engine Oil (2)	4.7 Qts. (4.5L)
Fuel Tank	
Diesel	
Jetta	10.5 Gals. (40.0L)
Pickup	15 Gals. (56.8L)
Rabbit	11 Gals. (41.5L)
Gasoline	
Convertible	10.5 Gals. (40.0L)
Jetta	10.5 Gals. (40.0L)
Pickup	15 Gals. (56.8L)
Rabbit	10 Gals. (38.0L)
Automatic Transaxle	
Fluid Change	3.2 Qts. (3.0L)
Dry Fill	5.9 Qts. (5.6L)
Final Drive (Differential)	
A/T (3)	0.8 Qt. (.75L)
Manual Transaxle (4)	2.0 Qts. (1.9L)

- (1) - Capacities are recommended or calculated levels. Always use dipstick (if available) to measure level.
- (2) - Includes filter change.
- (3) - Lifetime fill.
- (4) - Single case includes manual transaxle & differential.

AA

END OF ARTICLE