

Service Training



Self-Study Program 824803

The Volkswagen 2.0 Liter Chain-Driven TSI Engine



Volkswagen Group of America, Inc.
Volkswagen Academy
Printed in U.S.A.
Printed 5/2008
Course Number 824803

©2008 Volkswagen Group of America, Inc.

All rights reserved. All information contained in this manual is based on the latest information available at the time of printing and is subject to the copyright and other intellectual property rights of Volkswagen Group of America, Inc., its affiliated companies and its licensors. All rights are reserved to make changes at any time without notice. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, nor may these materials be modified or reposted to other sites without the prior expressed written permission of the publisher.

All requests for permission to copy and redistribute information should be referred to Volkswagen Group of America, Inc.

Always check Technical Bulletins and the latest electronic repair information for information that may supersede any information included in this booklet.

Trademarks: All brand names and product names used in this manual are trade names, service marks, trademarks, or registered trademarks; and are the property of their respective owners.

Contents

Introduction	1
Engine Mechanicals.....	3
Lubrication System	20
Crankcase Ventilation System	25
Cooling System	27
Air Intake System	30
Fuel System.....	36
Exhaust System	43
Engine Management System	44
Service	48
Knowledge Assessment.....	51



Note



Important!



This Self-Study Program covers information on the Volkswagen 2.0 Liter Chain-Driven TSI Engine. This Self-Study Program is not a Repair Manual. This information will not be updated.

For testing, adjustment and repair procedures, always refer to the latest electronic service information.

Page intentionally left blank

Introduction

Technical Description

Four Cylinder, Four Valve, TSI Turbocharged Gasoline Engine

Engine Block

- Cast iron crankcase
- Balancer shafts in crankcase
- Forged steel crankshaft
- Sump-mounted oil pump — chain-driven by crankshaft
- Timing gear chain — front end of engine
- Balancer — chain-driven at front end of engine

Cylinder Head

- 4-valve cylinder head
- 1 INA intake camshaft adjuster

Intake Manifold

- Tumble flap

Fuel Supply

- Demand controlled on low and high-pressure ends
- Multi-port high-pressure injector

Engine Management

- MED 17.5 engine control module
- Hot-film air mass flow with integral temperature sensor
- Throttle valve with contactless sensor
- Map-controlled ignition with cylinder-selective, digital knock control
- Single-spark ignition coils

Turbocharging

- Integral exhaust turbocharger
- Charge-air cooler
- Boost pressure control with overpressure
- Electrical wastegate valve

Exhaust

- Single-chamber exhaust system with close-coupled pre-catalyst

Combustion Process

- Fuel straight injection

