NEW ADVANCES AND IMPROVEMENTS

## TSIANAS STELIOS

H.T.I. DIPLOMA

M/1007

JUNE 2005

HIGHER	PROJECT NO
TECHNICAL INSTITUTE	3564

1 × 1

## **CONTENTS**

Chapter 1: Materials and construction advances Steel durability and structural efficiency 1 Vigorous development of light alloys 3 Structural design in polymer composites 4 Recycle PET and prime PBT, for sun roof parts 5 Structural – coloured fibre has body trim potential 7 Design for self – pierce riveting 8 Proprietary control system advances 9 Hybrid drive prospects 13

Chapter 2: Comfort and safety

Automobile system in the next millennium – the modern driver 18 Advanced buttery technology 19 Electrolytic conduction 20 Advanced changing system technology 21 New developments in comfort and safety systems 24 Intelligent airbag sensing system 26 Electric Vehicles 27 Advanced comfort and safety systems technology 28 Hybrid vehicles 30

Chapter 3: Engine management

Introduction 33 Ignition 33 Diagnostics ignition system 46 Fuel injection 48 Diesel injection 54 Diagnostics – diesel injection systems 57

Chapter 4: Chassis system electronics Anti – lock brakes 61 Diagnostics – anti – lock 65 Traction control 67 Diagnostics – traction control 69 Cruise control 70 Diagnostics cruise control 73 Air bags and belt tensioners 74 Diagnostics air bags and belt tensioners 79

## Preface

The aspect I enjoy most about working on vehicles is being able to diagnose a fault that has beaten others! This skill takes a few years to develop but it is work the effort. Diagnostic work is much like that of a detective solving a difficult case; all the clues are usually there if you know where to look. To help learn where to look, this book combines some aspects of Automotive Technology. The skills needed to be a good diagnostic technician are many and varied. For one job you may need to listen to a rumbling noise as the our corners, for another you may need to interpret an oscilloscope waveform. As vehicles continue to become more complicated, particularly in the area of electronics, there will be a greater need for technicians with good diagnostic skills.