

A close-up photograph of a car's front end, focusing on the headlight and fog light assembly. The headlight is a large, round, clear lens with a chrome bezel, showing internal reflectors. Below it is a smaller, rectangular fog light with a red lens. The car's body is dark, and the background is a light, textured surface.

The TVR S series

Second edition

Steve Heath

The TVR S series

Second edition

Steve Heath

Steve Heath Publications
PO Box 1719
MILTON KEYNES
MK17 0ZQ

First published 2001
Reprinted twice 2001
Reprinted 2002 (with new tables on pages 220 and 221)

© Steve Heath 1997, 2001

All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing in any medium by electronic means and whether or not transiently or incidentally to some other use of this publication) without the written permission of the copyright holder.

Applications for the copyright holder's written permission to reproduce any part of this publication should be addressed to the publishers.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN 0 9530335 4 6

Typeset by *Steve Heath*

Printed and bound in Great Britain

Contents

	Preface	ix
	Acknowledgements	xi
Chapter 1	The history of the S series	1
	The 3000S	1
	The S1	2
	The S2 and S2c	9
	The S3 and S3c	10
	The V8S	10
	The S4c	12
	American imports	13
	Derivatives	13
	The S1/S2 changeover — the S1.5	17
	S series performance figures	17
	S series production	20
Chapter 2	The V6 and V8 engines	21
	Engine descriptions	21
	Engine specifications	25
	Oil type and pressure	29
	Changing the oil	29
	Oil leaks	32
	Oil breathers	32
	Oil sump	32
	Engine removal	35
	Valve clearances	36
	Accelerator cable	37
Chapter 3	The fuel injection systems	41
	Fuel injection	41
	Bosch K-Jetronic	42
	Bosch L-Jetronic	47
	Lucas/Rover injection system	50
	Testing the injection system	52
	Removing and testing fuel injectors	64
	Adjusting the idle speed	64
	Cleaning the V8 stepper motor	65
	Cleaning the 2.9 litre V6 idle speed valve	65
	The fuel system	65
	Changing a fuel pump	69
	Changing a filter or regulator	70
	Changing a fuel pipe	70
	Petrol tank leaks	73
	Engine fault finding	74
	Limp home modes	77

Chapter 4	Ignition systems	78
	Distributors	79
	Removing the distributor	81
	Ignition coil	83
	Ignition timing and unleaded fuel	83
	Spark plugs	88
	Changing spark plugs	88
	Ignition fault finding	89
Chapter 5	Exhaust systems	91
	Repairing manifold cracks	91
	Replacing manifold gaskets	93
	Repairing exhaust holes and cracks	93
	Exhaust sacrificial strips	95
	De-catting S series cars	95
	Exhaust trims	96
	Gluing the bonnet insulation	96
	Fitting a Firetrace	97
	Noise restrictions	98
	Noise meters	99
	Reducing noise levels	100
Chapter 6	The electrics	103
	General description	103
	Wiring loom	103
	Alternator	104
	Battery	105
	Replacement batteries	107
	Lay up strategies	107
	Jump starting	108
	Fuses and relays	108
	Switch gear	110
	Instruments	113
	Brake switches	117
	Alarm systems	117
	Starter motors	119
	Wiring	122
	Lights	124
	Windscreen wipers	128
	Radio and ICE	132
	Keeping the electrics dry	132
	Summary	133
Chapter 7	Cooling systems	134
	First principles	134
	The thermodynamics of the cooling system	134
	Water pump	136
	Fan belts	138
	The radiator	140

	Radiator pressure cap	140
	Thermostat	141
	The cooling fan	142
	Thermostatic switches	143
	Fitting a fan override switch	144
	Air flow	145
	Checking the coolant levels	145
	Filling the system	147
	Draining the system	147
	Checking the antifreeze	147
	Temperature characteristics	148
	Overheating symptoms and cures	148
	Cold heaters	149
	Coolant loss	150
Chapter 8	The suspension	152
	Steering column	152
	The front suspension	158
	Replacing the front wheel bearing	159
	The rear suspension	162
	Replacing the rear wheel bearings	162
	The rear trailing arms	164
	Removing the trailing arm	164
	Springs and shock absorbers	165
	Removing bushes	167
	Suspension faults	168
Chapter 9	The chassis	170
	Chassis development	170
	Chassis construction	173
	Chassis protection	173
	Anti-corrosion products	174
	Preparing the metalwork	174
	Things to look out for	175
	Things not to paint	180
	Misting with Waxoyl	181
	Jacking and towing points	181
	Battery fitting (S1/S2/S3)	181
	Chassis repairs	182
Chapter 10	The transmission	184
	Gearboxes	184
	Clutch description	185
	Clutch and gearbox problems	187
	Gearbox removal	190
	Bleeding the clutch hydraulics	191
	Replacing the clutch master cylinder	192
	Replacing the clutch slave cylinder	192
	Clutch replacement	193
	Prop shaft	194

	Differential	195
	Drive-shafts	198
Chapter 11	The braking system	200
	Description	200
	Brake problems	201
	Brake fluid types	206
	Brake pad types	206
	Bleeding the brakes	207
	Replacing the front brake pads	208
	Replacing the rear brake shoes (S1/S2/S3)	209
	Replacing the rear brake pads (V8S/S4)	211
	Bedding in brake pads	211
	Adjusting the handbrake	212
	Removing the callipers	212
	Replacing discs	212
	Overhauling the piston seals	212
	The brake master cylinder	213
	Brake upgrades	214
	Problems, symptoms and cures	217
Chapter 12	Tyres and their maintenance	218
	Tyre terminology	218
	S series tyre history	219
	Tyre sizes and speedometers	219
	Tyre fitting	222
	Maintenance	223
	The spare tyre	223
	Track days	225
Chapter 13	The interior	226
	Dashboards	226
	Dashboard removal	227
	Removing switches, panels and instruments	228
	Ventilation	230
	Footwell leaks	232
	Carpets	234
	Pedal adjustment	235
	Seats	236
	Seat belts	237
	Full harness seat belts	237
	Roll bars	240
	Transmission tunnel	240
	Gear stick	241
	Removing door trims	241
	Vinyl and leather repair	242
	Steering wheels	242
	Glove compartment	243
	Windscreens	243

Chapter 14	The exterior	244
	Doors	244
	Windows	244
	Door lock	245
	Bonnet	247
	Roof	250
	Care of rear window	250
	Rattling stays	251
	Removing the roof	251
	Repairing body damage	252
	Paint and body codes	253
	Bumpers	255
	Boot	255
	The fuel filler cap	257
	Mirrors	258
	V8S mirrors	259
	Wheels	260
	Leaks	263
Chapter 15	Laying up for Winter	267
	Laying up	267
	Starting up in the spring	268
	Moving the car	269
Chapter 16	Buying an S series car	270
	What do you want?	270
	Getting the knowledge	270
	Running costs	271
	What to look for...	271
	AA/RAC inspection	272
Chapter 17	Servicing	273
	Servicing schedules	273
	Warranties	274
	The role of the owner	274
	Service schedule details	274
	V8S servicing	275
	V6 S series servicing	277
	Routine checks	280
Chapter 18	Track days	282
	What is a track day?	282
	Track day preparation	283
Chapter 19	Enhancing your S	287
	A faster V6 S or a V8S?	287
	V6 engine upgrades	288
	V8S upgrades	288
	Tuning the V8 engine	290

	Traction control	296
	Customising the interior	300
Chapter 20	Wiring diagrams	303
	2.8 litre V6 S series cars	303
	2.9 litre V6 S series cars	303
	V8S	303
	V6 diagrams	304
	V8 diagrams	306
	Electric mirror	312
	Rover V8 EMU system	313
	Component listing	314
Appendix A	The TVR Car Club	315
	National and international events	315
	Sprint	317
	Helplines	317
	Motor sport	317
	Regalia	317
	Club Office	317
	Some questions answered	317
Appendix B	TVRCC Internet support	318
	Email list	318
	Newsgroup	318
	Web pages	318
Appendix C	UK TVR dealers and other contacts	319
	UK Factory approved dealers	319
	Other specialists	320
	Photography	321
	Motor racing accessories	321
	Regalia franchise sales	321
	Bibliography	322
	V8 engines and gearboxes	322
	V6 engines and gearboxes	322
	Suspension, transmission and brakes	323
	Electrical systems	323
	General interest	323
	GRP repairs	323
	TVR history	323
	Index	324

Preface

When I published the first edition of this book, I had no idea how successful it would be or, indeed, if anyone would be interested in it! With the first edition being reprinted numerous times in the last three years, I shouldn't have worried. Its success led to the Griffith and Chimaera book and the first volume on the Wedges. With the Wedge book being almost twice the size of the S book, it was clear that there was now a lot more information available which should be included here, so I started on this second edition. This update has included much more information than I originally envisaged and this new edition is twice the size of the original. For S owners, everywhere, this means even more information and advice on how to look after your cars.

This edition still follows the philosophy of providing detailed technical information about the TVR S series cars. Many books have examined and explained the fascinating history of the company, but none have provided any detailed practical information about the cars. The information in this book has been collated from numerous sources to document how to look after the S series cars and enjoy them at their best.

For many people, the TVR S series is their first introduction to the world of hand-built specialist sports cars. The retro looks of the S, coupled with its relatively inexpensive price tag, has meant that it is particularly attractive to those who want a convertible sports car that has real performance — at a reasonable price.

This book is written for S owners, TVR enthusiasts and anyone else interested in TVRs. It provides a source of material derived from the author's own experiences of owning three S models, the TVR Car Club (TVRCC) archives and email group and information from TVR Engineering. It bridges the gap between the owner's handbook and a workshop manual and is designed to help any owner or pro-

spective owner enjoy the car at its best. It covers all the production models, ranging from the 2.8 litre S1 through the 2.9 litre S2/S3/S4 models to the 4 litre V8S. Each chapter covers a particular aspect of the car and combines explanations and descriptions, along with hints and tips, on how to enjoy and maintain the cars at their best.

This book would not have been possible without the help of several key people. Ralph Dodds, who accepted my articles for publication in the TVRCC magazine 'Sprint', which really started the whole ball rolling, and who helped me with the original idea and gave me access to the material in the TVRCC editorial archives. To Ralph Dodds, Mervyn Larner and the TVRCC committee for agreeing to support this book, for giving me permission to use material extracted from 'Sprint' and for providing a route to publish it. To Carol and Alison at the TVRCC office for all their help. To everyone on the TVR email list who have helped me to gather information. In particular, Mike Jennings, Simon Tonks, Peter Humphries, Richard Branch, Ian Collins, Adam Quantrill, Joolz, Steve Powell, Marcus Brady, Mark Jackson, Lee Boreham, Paul Lavington and John Upham. All deserve a mention and a big 'thank you'.

I would also like to express my thanks to Mark Adams, Dave and Mark at Tower View Race Services, Richard at Wedge Automotive and Simon at Offord Motors for their extensive and ongoing help and support.

TVR Engineering deserve several accolades: for building the S series in the first place and for continuing to build such exciting cars. I am extremely grateful for their having given permission to reproduce the electrical circuits in the book, along with other drawings and photographs, particularly those taken by Noel Palmer. The final vote of thanks must go to Peter Wheeler, Ben Samuelson, and Mike Williams of TVR for their time and interest.

Steve Heath

Acknowledgements

The material in this book has come from several sources. The majority of the photographs and drawings were taken or drawn by the author. All other photographs and drawings have been identified within the associated captions. I must express my thanks for permission to print and use this material. In particular, thanks must go to TVR Engineering, the TVR Car Club, Stuart Norris Photography and Brian Roberts (Clique Photographic), Mark Jackson, Trevor Beecham, Lee Boreham and Peter Humphries.

The opinions expressed in this book are those of the author, unless otherwise attributed. They are not and should not be taken as the opinions of the TVR Car Club or TVR Engineering.

By the very nature of this book, many products are identified by their tradenames. In these cases, these designations are claimed as legally protected

trademarks by the companies that make these products. It is not the author's or the publisher's intention to use these names generically and the reader is cautioned to investigate a trademark before using it as a generic term, rather than a reference to a specific product to which it is attached.

Whilst the information contained in this book has been carefully checked for accuracy, neither the author, the TVR Car Club nor TVR Engineering assume any responsibility or liability for loss, damage or injury caused by any errors in, or omissions from, the information given.

As technical characteristics are subject to rapid change, the data contained are presented for guidance and education only. For exact detail, consult the relevant standard or manufacturers' data and specifications.

