

## TABLE OF CONTENT

<b>INTRODUCTION AND AIMS OF THIS BOOK.</b>	<b>11</b>
FIRST THINGS FIRST.	13
AIM OF BOOK.	16
LOTUS ELAN WORKSHOP MANUAL.	17
OTHER WORKSHOP MANUALS.	17
SCRAPYARDS.	19
LAYOUT.	19
MODEL AND CHASSIS IDENTIFICATION.	23
MODEL SUFFIXES.	29
ENGINE IDENTIFICATION.	31
AMERICAN ELANS.	31
<b>FIRST THOUGHTS.....</b>	<b>39</b>
THE FLASH OF LIGHTNING.	41
PREPARATION.	41
TOOLS.	43
SAFETY.	47
NUTS AND BOLTS.	49
THE ECONOMICS OF IT ALL.	49
<b>BUYING THE CAR .....</b>	<b>53</b>
WHAT MODEL ARE YOU LOOKING FOR .....	55
WHERE TO BUY.	57
THE PURCHASE.	59
GETTING THE CAR HOME.	59
<b>CLEANING, PAINTING, RENOVATING AND REPAIRING COMPONENTS.....</b>	<b>65</b>
GENERAL.	67
DEGREASING.	67
NUTS AND BOLTS.	67
REPAIR.	67
RUST REMOVAL.	69
PAINTING.	69
POWDER COATING.	69
PLATING.	70
CHROME PLATING.	70
<b>OBSOLETE PARTS.</b>	<b>71</b>
GENERAL.	73
DOOR FURNITURE SPECIFIC TO MODELS.	77
SERIES 1 & 2.	77
SERIES 3.	77
SERIES 4.	85

## II - TABLE OF CONTENT

DETAIL ANALYSIS.....	85
<b>LOTUS SPECIALISTS.....</b>	<b>111</b>
GENERAL.....	112
LOTUS SPECIALISTS.....	112
OTHER USEFUL ADDRESSES.....	117
LOTUS TECHNICAL BOOKS.....	117
<b>INTERIOR UPHOLSTERY.....</b>	<b>121</b>
GENERAL.....	123
CRASH PADS.....	123
CARPET.....	123
DOOR SIDE FRAMES.....	125
FELT.....	127
SERIES 1 & 2 VINYL MAT.....	129
SERIES 3, 4 & SPRINT CARPET TRIM.....	134
PARCEL SHELF COUPE.....	135
COCKPIT / BOOT PANEL, S3 ONWARDS.....	135
HEAD LINING COUPE.....	137
SUN VISORS.....	137
COUPE REAR QUARTER PANELS.....	137
SERIES 1 & 2, DOOR PANELS. (*).....	139
SERIES 3 & 4, DOOR PANELS.....	139
IN CAR ENTERTAINMENT.....	141
ABS / FIBREGLASS TRIMS.....	141
DOOR RUBBER SEALS.....	143
<b>THE CHASSIS.....</b>	<b>149</b>
GENERAL.....	151
GENERAL LAYOUT DRAWINGS.....	151
PROBLEMS.....	151
CHECKING A CHASSIS.....	153
SPYDER CHASSIS.....	153
REMOVING THE OLD CHASSIS.....	155
STRIPPING THE SUSPENSION / CHASSIS.....	161
PREPARING THE NEW CHASSIS.....	161
FITTING THE NEW CHASSIS.....	167
<b>BODY.....</b>	<b>177</b>
GENERAL.....	179
REPAIRING GLASS FIBRE.....	179
BODY REPAIR SUPPORT / PIVOT.....	185
BODY PROBLEMS.....	185
GRP REPAIRS.....	189
SERIES 1 & 2 WINDSCREEN FRAME.....	203
SERIES 3 AND 4 WINDSCREEN FRAMES.....	205
BUMPERS.....	205

## TABLE OF CONTENT - III

CORRECTION OF DOOR WARP. ....	207
CONVERSION OF FIXED HEAD TO DROP HEAD .....	209
AJDUSTMENT OF PANELS. ....	211
SEAT RUNNERS. ....	227
MINOR MOULDINGS. ....	227
WATER INGRESS. ....	232
SPRAYING. ....	234
UNDERSEAL. ....	237
PAINT PROTECTION. ....	237
HOODS. ....	239
WINDOW FRAMES. ....	243
DOOR WINDOW GLASS. ....	251
DOOR GUTTERS. ....	255
DASHBOARD PANEL. ....	255
WINDSCREENS. ....	255
BOOT FLOOR. ....	257
AIR GRILLE. ....	259
NUMBER PLATES. ....	259
BRACKETS. ....	261
MODEL IDENTIFICATION BADGES .....	269
 <b>FRONT SUSPENSION. ....</b>	<b>279</b>
GENERAL DESCRIPTION. ....	281
SUSPENSION PROBLEMS. ....	283
SUSPENSION CHECKS. ....	283
TRUNNION. ....	283
VERTICAL LINK. ....	287
BALL JOINTS. ....	287
WHEEL BEARINGS. ....	287
STUB AXLE. ....	289
ANTI-ROLL BAR. ....	289
DAMPER / SPRING ASSEMBLY. ....	293
METALLASTIK BUSHES. ....	293
TOTAL REBUILDS. ....	295
MODIFICATIONS. ....	299
 <b>REAR SUSPENSION. ....</b>	<b>305</b>
GENERAL DESCRIPTION. ....	307
SUSPENSION PROBLEMS. ....	307
HUB REMOVAL. ....	309
STRIPPING THE SUSPENSION. ....	313
INSPECTION OF PARTS. ....	315
BEARING REPLACEMENT. ....	319
NEW OUTER DRIVE SHAFTS. ....	319
NEW BEARING HOUSINGS. ....	325
ASSEMBLY OF COMPONENTS. ....	325
ROTOFLEX COUPLING WARNING. ....	329

## IV - TABLE OF CONTENT

TIGHTENING THE SUSPENSION. ....	329
WHEEL HUB. ....	331
MODIFICATIONS. ....	331
<b>THE ENGINE. ....</b>	<b>335</b>
ENGINE IDENTIFICATION. ....	339
NORMAL PROBLEMS. ....	347
BUYING AN ENGINE. ....	350
TORQUE WRENCHES. ....	350
BOOKS TO INWARDLY DIGEST. ....	352
REMOVING THE ENGINE. ....	352
INSTALLING THE ENGINE. ....	354
REBUILDING THE ENGINE GENERAL .....	357
REBUILDING THE ENGINE CYLINDER HEAD .....	359
REBUILDING THE TIMING CHEST AND THE WATER PUMP. ....	369
ASSEMBLY OF THE ENGINE .....	379
WATER PUMP REPLACEMENT IN SITU .....	385
STARTING THE ENGINE FOR THE FIRST TIME .....	387
CHAIN TENSION .....	388
RUNNING IN. ....	388
ENGINE PHOTOGRAPHS IN ASSEMBLY STAGE ORDER .....	389
REPLACING TIMING CHAIN IN SITU. ....	413
PISTONS .....	413
PETROL PUMP .....	413
OIL PUMP .....	414
DISTRIBUTOR. ....	414
TIMING MARKS AND BELT DRIVE PULLEY. ....	415
PLUG THREADS. ....	416
STUD THREADS. ....	416
BREATHER PIPE. ....	416
TESTING THE ENGINE. ....	416
ENGINE PAINT. ....	418
BALANCING. ....	418
MODIFICATIONS .....	419
<b>GEARBOX. ....</b>	<b>421</b>
GENERAL. ....	423
PROBLEMS. ....	423
REMOVING GEAR LEVER. ....	425
REMOVING THE GEARBOX FROM THE CAR. ....	425
ASSEMBLY OF ENGINE / GEARBOX UNIT. ....	425
REAR OIL SEAL REPLACEMENT .....	427
GEARBOX SPIGOT BEARINGS. ....	427
OIL FILLING. ....	431
REAR GEARBOX SUPPORT. ....	431
SPEEDOMETER CABLE ANGLE DRIVE. ....	433
SPEEDOMETER CABLE DRIVE. ....	433

EXHAUST SUPPORT.....	433
MODIFICATIONS.....	435
<b>HUBS, WHEELS AND TYRES.....</b>	<b>439</b>
GENERAL.....	441
WHEELS.....	441
WHEEL STUDS.....	443
HUBS.....	443
WHEEL TIGHTENING.....	443
TYRES.....	445
WHEEL BALANCE.....	446
TYRE PRESSURES.....	446
MODIFICATIONS.....	446
<b>STEERING.....</b>	<b>449</b>
GENERAL.....	453
PROBLEMS.....	455
STEERING RACK.....	457
BUMP STEER.....	461
STEERING ARM.....	463
STEERING COLUMN.....	463
MODIFICATIONS.....	469
<b>BRAKING SYSTEM.....</b>	<b>473</b>
GENERAL DESCRIPTION.....	475
CLEANING FLUIDS.....	475
FRONT BRAKES.....	475
BRAKE LINES.....	481
FLEXIBLE BRAKE LINES.....	483
REAR BRAKES.....	483
CALIPER INSTALLATION.....	483
HAND BRAKE.....	485
HAND BRAKE WARNING LIGHT.....	491
MASTER CYLINDER.....	491
PEDAL BOX BRACKET.....	491
STOP LIGHT SWITCH.....	493
BRAKE PROBLEMS.....	493
BRAKE SERVO.....	493
MODIFICATIONS.....	499
<b>COOLING SYSTEM.....</b>	<b>501</b>
GENERAL.....	503
PROBLEMS.....	503
WATER PUMP.....	503
RADIATORS.....	505
RADIATOR FIXING.....	506
ANTIFREEZE.....	507

## VI - TABLE OF CONTENT

RADIATOR CAP .....	507
RECOVERY VESSEL .....	507
BOTTOM HOSE .....	507
MODIFICATIONS .....	509
<b>FUEL SYSTEM. ....</b>	<b>513</b>
GENERAL .....	515
PROBLEMS .....	515
PETROL TANK .....	515
PETROL TANK WARNING .....	517
PETROL GAUGE SENDER .....	517
PETROL SUPPLY PIPE .....	517
PETROL PUMP .....	521
FLEXIBLE CARBURETTOR CONNECTIONS .....	521
AIR FILTER BOX .....	521
CARBURETTOR AIR BOX .....	521
MODIFICATIONS .....	523
ENGINE TUNING .....	527
GENERAL .....	527
DISTRIBUTOR .....	527
SPARK PLUGS .....	533
COIL .....	533
CARBURATION .....	535
WEBER 40 DCOE 18 AND 40 DCOE 31 CARBURETTORS .....	535
DELLORTO CARBURETTORS .....	539
TROMBERG CARBURETTORS .....	539
SPARKING PLUGS .....	541
<b>ELECTRICAL EQUIPMENT. ....</b>	<b>547</b>
GENERAL .....	549
WIRING DIAGRAMS .....	549
PROBLEMS .....	549
BATTERY .....	553
FUSE BOX .....	553
WIRING LOOM .....	553
DASHBOARD .....	557
INSTRUMENTS .....	561
MECHANICAL CABLES .....	561
FRONT LIGHTS .....	563
HEAD LIGHT RELAYS AND FLASHER UNIT .....	563
REAR LIGHTS .....	563
NUMBER PLATE LIGHTS .....	569
STARTER MOTOR .....	569
STARTER SOLENOID .....	571
GENERATOR .....	571
CONTROL BOX .....	571
ALTERNATOR .....	573

TABLE OF CONTENT - VII

AMMETER .....	581
HORNS .....	581
WINDSCREEN WASHERS .....	581
WASHER JETS .....	583
MODIFICATIONS .....	583
 <b>LUBRICATION &amp; MAINTENANCE .....</b>	<b>587</b>
GENERAL .....	589
500 MILES FREE SERVICE .....	589
'A' SERVICE 3000 MILES .....	589
'B' SERVICE 6000 MILES .....	591
'C' SERVICE 12000 MILES .....	591
LUBRICANTS .....	593
 <b>HEATING AND VENTILATION .....</b>	<b>595</b>
GENERAL .....	597
PROBLEMS .....	597
HEATER .....	599
MATRIX CLEANING .....	599
FRESH AIR PLENUM CHAMBER .....	601
FRESH AIR PIPE CONNECTIONS .....	601
CONTROL VALVES .....	605
DASHBOARD HEATER CONTROL .....	605
WINDSCREEN PILLAR TRIM .....	605
FRESH AIR FACE LEVEL VENTS .....	605
 <b>CLUTCH .....</b>	<b>607</b>
GENERAL .....	609
PROBLEMS .....	609
CLUTCH ADJUSTMENT .....	609
BLEEDING .....	611
MASTER CYLINDER .....	611
SLAVE CYLINDER .....	611
CLEANING .....	615
RELEASE ARM .....	615
RELEASE BEARING .....	619
CLUTCH .....	619
FREEING A SEIZED CLUTCH .....	619
 <b>FINAL DRIVE .....</b>	<b>623</b>
GENERAL .....	625
PROBLEMS .....	625
PROPELLER SHAFT .....	627
DIFFERENTIAL .....	629
REMOVING THE DIFFERENTIAL .....	633
SPRINT DIFFERENTIAL REMOVAL .....	633
DIFFERENTIAL OUTPUT DRIVE SHAFTS .....	633

## VIII - TABLE OF CONTENT

DIFFERENTIAL RESILIENT MOUNTINGS. ....	635
RADIUS RODS. ....	637
INTERMEDIATE DRIVE SHAFTS. ....	637
OUTER DRIVE SHAFTS. ....	637
MODIFICATIONS. ....	637
<b>EXHAUST SYSTEMS. ....</b>	<b>643</b>
GENERAL. ....	645
PROBLEMS. ....	645
INSTALLATION. ....	647
EXHAUST EMISSION MANIFOLD. ....	651
MODIFICATIONS. ....	651
<b>OVERHAUL AND REBUILD. ....</b>	<b>653</b>
RUNNING ON ROAD FOR FIRST TIME. ....	653
HANDLING PROBLEMS. ....	653
NUTS AND BOLTS. ....	653
GENERAL. ....	655
WEATHER PROOFING. ....	655
NOTE. ....	656
DRIVING ON ROAD FOR FIRST TIME. ....	663
HANDLING PROBLEMS. ....	666
NUTS AND BOLTS. ....	671