State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-37-15
Relating to Certification of New Motor Vehicles

LOTUS CARS LTD

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Orders G-45-3 and G-45-4;

IT IS ORDERED AND RESOLVED: That 1989 model-year Lotus Cars Ltd exhaust emission control systems are certified as described below for gasoline-powered passenger cars:

Engine Family	Displacement Liters (Cubic Inches)	Exhaust Emission Control Systems (Special Features)
KLT2.2V5FP4X	2.2 (132.6)	Three-Way Catalyst Heated Oxygen Sensor (Electronic Port Fuel Injection) (Turbocharger) (On-Board Diagnostics)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The following are the emission standards for this engine family:

Hydrocarbons (Grams per Mile)	Carbon Monoxide (Grams per Mile)	Nitrogen Oxides (Grams per Mile)
0.41	7.0	0.7

The following are the certification emission values for this engine family:

Hydrocarbons (Grams per Mile)	Carbon Monoxide (Grams per Mile)	Nitrogen Oxides (Grams per Mile)
0.08	0.7	0.4

BE IT FURTHER RESOLVED: That the listed models are certified to the optional NOx emission standard thereby making the vehicle manufacturer subject to Section 1960.1.5 of Title 13, California Administrative Code which includes recall liability for emission control components up to 7 years or 75,000 miles if found defective by the Executive Officer.

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying to the optional NOx standards by providing evidence that there are sufficient projected sales of vehicles certifying to the primary NOx standard, or is allowed a delay in implementation under small volume manufacturer provisions, or is allowed a delay in implementation under small volume manufacturers provisions, or is allowed a delay in implementation under the "in lieu" standards, or is certifying passenger cars weighing more than 5250 lbs. loaded vehicle weight.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" (Title 13, California Administrative Code, Section 2290) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high altitude requirements and highway emission standards as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Tune-Up Label Specifications" (Title 13, California Administrative Code, Section 1965) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the vehicle models listed also comply with the "Malfunction and Diagnostic System for 1988 and Subsequent Model Year[s]..." (Title 13, California Administrative Code, Section 1968) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2035 et seq.).

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 14th day of September, 1988.

K. D. Drachand, Chief
Mobile Source Division

Attachment 4 E.O. A-37-15

1989 MODEL YEAR CERTIFICATION REVIEW SHEET
EXHAUST/EVAPORATIVE SYSTEM & FILL PIPE SPECIFICATION COMPLIANCE

Mfgr. LOTUS CARS LTD Engine Family KLT2.2V5FP4X 1.2

PC ✓ LDT ___ MDV ___ Gas ✓ Diesel ___ LPG ___ Cert. Type - CA ___ 49S ___ 50S ✓

CID 132.6 Liters 2:2 Rated HP 220 @ 6500 RPM Rated Torque 220 @ 4000 RPM

Type Cert - 50K ___ 100K ___ Evaporative Family LT4 Eng. Type L-4 Turbo

Exhaust Control Sys. and (Special Features) TWC. H.O.S. O.B.D E.P.F.I. T.C.

		Section/Page			Section/Page
	Authorized Representative	01:01:00:00	13	Evap. Bench Test Procedure	Assigned D.F'
2	Fuel, Test Equipment, Procedures & Route	03/4/5:00:00:00	14	Gen. Std., Increase in Em., Safety, Mtg. All Req'ments	16:01:00:00
3	Warr. State & Parts List	17:01:00:00	15	Prod. Veh. Same as Test Veh.	16:04:02/3:00
4	Maint: Cert/Req'd/Recm'd	06:01:01:01	16	Label Durability	17:03:04:00
5	Tune-up Lab./Vac.Hose Diag.	07:01:00:00	17	Driveability	06:01:02:00
6	Evap. Control System	09:00:00:00	18	Fill Pipe Specs.	17:03:05:00
7	Engine Parameters	10:00:00:00	19	Altitude A/F Req'ment	
8	Fuel/Ignition Systems	10:03/4:00:00	20	Tamperproof Req'ment	N/A
9	Exhaust Control System	10:07:00:00	21	Ck for DF, Outlier, Line Xing	Assigned D.F'
10	Projected Sales	10:10:25:00	22	EPA Certificate	To follow
11	Vehicle Descript.	10:10:40:00	23	Two Yr./24k Warranty	No
12	Test Veh.Information	Dur. Emis.	24	Alcohol Compatible	Up to 10%
	C/O MY or C/A EF	N/A* 1989	25	Cert. Preview Program	17:02:00:00
	Vehicle Logs	12:00:00:00	26	OBD System GM P4	6/10:00:00:00
	Zero Mile Books	12:00:00:00	27	OBD Extension	NO
	Maint. Logs & Engr. Eval.	16:04:00:00			

* ASSIGNED D.F.'s

PROJECTED EMISSIONS (1) (2)

Veh. ID	Code (Displ)	Trans	Axle Ratio	ETW	RLHP	MPG City/Hwy	Test Loc.	HC	CO	NOx	Hwy NOx	50k Ev or part
62011	132.6	M5	3.889	3250	5.7	19.3/ 35.6	EPA	0.08	0.72	0.41	.33	1.62

(1) The emission data vehicle/s above comply with stds of 0.41 7.0 0.7
and includes deterioration factors of 1.2 1.2 1.1 1.1 0.5

(2) Evaporative DF is the average of Vehicle DF ASSIGNED and Bench DF ___

(2) Trap Oxidizer : Yes ___ No X Continual ___ Periodic ___

Remarks ___

Application Processed By Karl Sime Date 9-13-88 Reviewed By R.D. Kenny Date 9/13/8

511c

Attachment 3

E.O. A-37-15

1989 Air Resources Board Supplemental Data Sheet

Manufacturer LOTUS CARS LTD

Engine Family KLT2.2V5FP4X

Evaporative Family LT4

Engine Type KLT2.2V5FP4X — IN LINE 4 CYL

Liters (CID) 2.2 (132.6)

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance
ECU-Electronic Control Unit
EI-Electronic Ignition
ESAC-Electronic Spark Advance Control
VA- Vacuum Advance
VR-Vacuum Retard

Fuel System

CFI,EPFI,MPFI, SFI, DID, DIP, HOS, OS
nV-nVenturi Carburetor
VV-Variable Carburetor

Exhaust Emissions Control System

AIP-Air Injection - Pump
AIV-Air Injection - Valve
EGR-Exhaust Gas Recirculation
EIC-Electronic Injection Control (Diesel only)
EM-Engine Modification
SPL-Smoke Puff Limiter or Throttle Delay
TOC-Trap Oxidizer, Continual
TOP-Trap Oxidizer, Periodical
DBC-Dual Bed Catalyst

TWC-Three way Catalyst
WUOC-Warm up Oxidation Catalyst
WUTWC-Warm up Three way Catalyst
OS-Oxygen Sensor
HOS-Heated Oxygen Sensor

Special Features

CFI-Central Fuel Injection or Throttle Body Injection.
EPFI-Electronic Port Fuel Injection
MPFI-Mechanical Port Fuel Injection
SFI-Sequential Fuel Injection
DID-Diesel Injection-Direct
DIP-Diesel Injection Prechamber
TC-Turbocharger
SC-Supercharger
IC-Intercooler or Aftercooler
CCV-Combustion Chamber Valve
OBD-On board Diagnostics

VEHICLE MODELS LOTUS ESPIRIT TURBO

Engine: Front ____ Mid ✓ Rear ____

Drive; FWD ____ RWD ✓ 4WD Full Time ____ 4WD Part Time ____

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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Page 3

PASSENGER CARS ✓ LIGHT DUTY TRUCKS .... MEDIUM DUTY VEHICLES .... GAS ✓ DIESEL ....

MANUFACTURER: LOTUS CARS LTD ENGINE FAMILY: KLT2.2V5FP4X

LITER (CID) (132.6) 2.2 ENGINE FAMILY: KLT2.2V5FP4X

EMISSION CONTROL SYS (SPECIAL FEATURES) TWC/HOS/OBD's/EPFI/TC

ENGINE CODE	VEHICLE MODELS (IF CODED SEE ATTACHMENT) (DYNO HP)	TRANS TYPE WEIGHT	EQUIV TEST	IGN SYSTEM (ECU) PART NO	FUEL SYSTEM PART NO	EGR VALVE PART NO	CATALYS PART NC
KLT2.2V5FP4X	LOTUS ESPRIT TURBO (5.6 Hp)	M5	3125	A910E6940 Direct ignition system PROM ID # 1939	A910E6946 (Fuel rail assembly)	None	A08256045

Comments: See page one for abbreviations and evaporative emission family identification. Please refer to manufacturer's Hp list for correct dyno test Hp settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

Date of Issue 5th July '88 .....Revisions: