File

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER M-8-20
Relating to Certification of New Motorcycles

CUSHMAN, INC.,
TEXTRON TURF CARE AND SPECIALTY PRODUCTS - LINCOLN

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 Order G-45-9;

IT IS ORDERED AND RESOLVED: That 2000 model-year Cushman, Inc., Textron Turf Care and Specialty Products – Lincoln exhaust emission control systems are certified as described below for four-stroke gasoline-powered motorcycles:

Engine Family	Displacement Cubic Centimeters	Class	Exhaust Emission Control Systems & Special Features
YCUXC.660BBB	660	III	Oxidation Catalytic Converter Exhaust Gas Recirculation

Vehicle models and transmissions are listed on the attachment. Production motorcycles shall be in all material respects the same as those for which certification is granted.

The following are the exhaust emission standards and exhaust emission certification values in grams per kilometer for this engine family:

Hydrocarbons		Carbon Monoxide	
Standard	Certification	Standard	Certification
1.0	0.4	12	8

BE IT FURTHER RESOLVED: That the Executive Officer has been provided all material required to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Code of Regulations, Section 2035 et seq.).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with "California Evaporative Emission Standards and Test Procedures for 1978 Through 2000 Model Motor Vehicles."

BE IT FURTHER RESOLVED: That these motorcycles are found exempt from compliance with the Air Resources Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" pursuant to Executive Order G-70-16-E.

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

Executed at El Monte, California this 22nd day of February 2000.

R. B. Summerfield, Chief
Mobile Source Operations Division

Engine Family: YCUXC.660BBB

Motorcycle Model Summary Form

65. Model Designation	66. Worst Case	67. Disp. (cc)	68. Bore / Stroke (mm)	69. Basic Ignition Timing (degrees)	70. Power (kW)	71. Rated Speed (RPM)	72. Rated Torque (Nm)	73. Rated Speed (RPM)
898486	X	660	65/66	4-5 @ BTDC	31	5500	56	3500

65. Model Designation	74. EIM (kg)	75. Loaded Vehicle Weight Range (kg)	76. Road Load (nt)	77. Total Vehicle Mass (kg)	78. Full Weight with All Factory Options (kg)	79. Trans Type	80. N/V
898486	870	1061	213.5	790	790	A3	81.6

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Motorcycle Engine Family Information Form

1. Manufacturer: Cushman, Inc Textron Turf Care and Specialty Products

0.3

2. Certification Contact Person, address, phone, and fax:

Ben Kimes Cushman, TTCSP 900 N. 21st St., Lincoln, NE 68501-2409	Phone: (402) 474-8474 Fax: (402) 474-8727

3. Model Year: 2000

4. Process Code: New
(new, correction, revision, r/c, f/f, etc.)

5. Engine Family: YCUXC.660BBB
   50s Engine Code: X
   49s Engine Code: _____
   Calif. Engine Code: _____

6. Emission Control System: OC, EGR

7. Calif. Designated Standard: HC=1.0 g/km

8. Projected Annual Sales:

CONFIDENTIAL

9. New Technology ____ Yes X No
If Yes, cite the correspondence or reference the submittal document: _____

10. Displacement: 660

11. Number of Cylinders: 3

12. Cylinder Arrangement: Inline

13. Cylinder Head Configuration: SOHC 4 valves/cyl.

14. Type of Cooling: Liquid

15. Combustion Cycle: 4 Stroke

16. Method of Aspiration: Natural

17. Fuel System: Carburetor

18. Number of Catalytic Converters: 1

19. Adjustable Parameters:

Parameter(s)	Adjustable Range (or N/A)	Tamper Resistance Method (or N/A)	Method Approved
Idle Speed	950 +/- 50 RPM	N/A	
Valve Lash	.08mm INT, .10mm EXH	N/A	
Ignition Timing	4-5° BTDC	N/A	
Idle A/F Ratio	Set at Idle	Screw Cap	

20. AECDs in the Emission Control Systems:

Exhaust System	Evaporative System
AECDs in System: None	AECDs in System: None

Processed by: Steven Yada Date: 2/8/00

Reviewed by: [illegible] Date: 2/8/2000

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Engine Family: YCUXC.660BBB

Motorcycle Test Information Form

27. Are you carrying over test results from a previously certified family? _X_ Yes ____ No
    a) If yes, indicate family name: XCUXC.660BBB
    b) Is the family being certified identical to the family from which the data is being carried over? Yes

28. Model Designation of Test Vehicle: 898486

29. Test Information Number: 7102

30. Vehicle ID: 1HMH6604VL000124

31. Service Accumulation Duration: 8000 (km)

32. Maximum Rated Power: 31 kW@5500 RPM

33. Displacement: 660 cc

34. Certification Fuel: Indolene HO III

35. Test Data Set(s): 98092201, 98091101
    98091502, 98081802

36. Road Load: 213.5 NT

37. Inertia Mass: 870 kg

38. N/V: 81.6

39. EVAP. Bench Test Method Approved: N/A, assg DF
    Date: _____

    Reference: _____

40. Unscheduled Maintenance: _X_ Yes ____ No

41. If yes, Vehicle Log provided: Yes. See Section 8

42. Exhaust Emission Deterioration Factors:

		Emission Values	
Test Number	System Kilometers	HC	CO
1	3659	0.42	9.4
2	5137	0.36	8.1
3	6696	0.39	9.2
4	8333	0.37	7.7
5			
6			
7			
Interpolated Values at 8000 km:		**HC** = 0.37	**CO** = 8.1
Extrapolated Values at 30000 km:		**HC** = 0.22	**CO** = 2.5

Check One:	
Regular DF	X
Modified DF	
If different vehicle specify vehicle ID	

43. Emission Test Results:

Official Test Results		Test 1	Test 2	Test 3	Test 4		Deterioration Factors
g/km	CO	8.1				(X)	1.000
g/km	CO^2	185					--------
g/km	HC	0.37				(X)	1.000
g/km	Evap.	0.38				(+)	0.5

*Note: Assigned DF for Evap.

44. Certification Levels:

g/km	CO	8.1			
g/km	HC	0.37			
g/km	Evap.	0.88			

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Engine Family: YCUXC.660BBB

Evaporative Emission Information

45. Evaporative Family: YCUXE0140BBB
46. Number of Evap. Canisters: 1
47. Design Working Capacity: 140 g
48. Configuration: Single canister
49. Number of Storage Areas: 1
50. Fuel Reservoir Volume: 3700 cc
51. Vent System Configuration: Non-vented
52. Nominal Tank Capacity: 6 Gallons
53. Engine Displacement Class: III
54. Storage Medium Composition: Activated Charcoal
55. Evap. Canister Medium Volume: 480 cc
56. Evap. Family Sales:
57. Engine Code: 660 cc
58. Evap. Emission Family Code: YCUXC0140BBB
59. Evap. Emission Family Group: N/A
60. **Overall Evap D.F. =** 0.5 Assigned
*note canister is Harley Davidson 27042-84A

Bench DF: N/A

61. Test Vehicle ID: 1HMH6604VL000124
62. Test Results:

Test Number	System Kilometers	Evap. Emission Values (g/test)
1		
2		
3		
4		
5		
6		
7		
Interpolated Values at _____ **km: =** _____		
Extrapolated Values at _____ **km: =** _____		
Bench Test D.F. = _____		

Check One:	
Regular DF	
Modified DF	
If different vehicle specify vehicle ID	

Vehicle DF N/A

63. Test Vehicle ID: 1HMH6604VL000124
64. Test Results:

Test Number	System Kilometers	Evap. Emission Values (g/test)
1	3659	0.38
2		
3		
4		
5		
6		
7		
Interpolated Values at _____ **km: =** _____		
Extrapolated Values at _____ **km: =** _____		
Vehicle Test D.F. = _____		