APPENDICES

APPENDIX A

AVIATION GASOLINE CONVERSION TABLE
CONVERSION FROM MOTOR METHOD RATINGS
TO CORRESPONDING AVIATION METHOD RATINGSa/

Motor Octane Number	0.0	0.2	0.4	0.6	0.8
75	73.59	73.81	74.04	74.27	74.49
76	74.72	74.95	75.17	75.40	75.63
77	75.85	75.08	76.30	76.53	76.75
78	76.98	77.20	77.43	77.65	77.88
79	78.10	78.33	78.55	78.77	79.00
80	79.22	79.44	79.67	79.89	80.11
81	80.33	80.55	80.78	81.00	81.22
82	81.44	81.66	81.88	82.10	82.32
83	82.55	82.77	82.99	83.21	83.43
84	83.65	83.86	84.08	84.30	84.52
85	84.74	84.96	85.18	85.40	85.61
86	85.83	86.05	86.27	86.48	86.70
87	86.92	87.13	87.35	87.57	87.78
88	88.00	88.22	88.43	88.65	88.86
89	89.08	89.29	89.51	89.72	89.94
90	90.15	90.37	90.58	90.79	91.01
91	91.22	91.43	91.65	91.86	92.07
92	92.29	92.50	92.71	92.92	93.13
93	93.35	93.56	93.77	93.98	94.19
94	94.40	94.61	94.82	95.04	95.25
95	95.46	95.67	95.88	96.09	96.29
96	96.50	96.71	96.92	97.13	97.34
97	97.55	97.76	97.96	98.17	98.38
98	98.57	98.74	98.91	99.08	99.26
99	99.43	99.60	99.78	99.95	100.44
100	101.07	101.60	102.14	102.67	103.21
101	103.74	104.27	104.81	105.34	105.88
102	106.41	106.94	107.48	108.01	108.55
103	109.08	109.61	110.51	110.68	111.22
104	111.75	112.28	112.82	113.35	113.89
105	114.42	114.95	115.49	116.02	116.56
106	117.09	117.62	118.16	118.69	119.23
107	119.76	120.29	120.83	121.36	121.90
108	122.43	122.96	123.50	124.03	124.57
109	125.10	125.63	126.17	127.70	127.24
110	127.77	128.30	128.84	129.37	129.91

Equations: Correlation equations—reference report "Aviation Gasoline Antiknock Quality by ASTM Methods D 614 and D 357," June 21, 1966, Fig. 4.

Less than 93 motor performance number (97.89 motor octane number).

Aviation performance number = –5.6 + 1.08 (motor performance number).

Greater than 93 motor performance number.

Aviation performance number = 12.07 + 0.89 (motor performance number).

Conversion equations—

Below 100: performance number = 2800/(128 – octane number)

Above 100: performance number = 100 + (octane number – 100)3

a/ Octane numbers in *italics*, performance numbers in "regular" type.

APPENDIX B

B 48.08 (2) Octane Labels. The following is a reprint of the FTC rules on octane labels:

FEDERAL TRADE COMMISSION'S RULING
ON OCTANE CERTIFICATION AND POSTING

LABEL SPECIFICATIONS

B 306.11 Labels. All labels must meet the following specifications: (a) Layout. The label is 3″ wide x 2–1/2″ long. The illustrations appearing at the end of this rule are prototype labels that demonstrate the proper layout. Helvetica type is used throughout except for the octane rating number which is in Franklin gothic type. Spacing of the label is 1/4″ between the top border and the first line of text, 1/8″ between the first and second line of text, 1/4″ between the octane rating and the line of text above it. All text and numerals are centered within the interior borders.

(b) *Type size and setting.* The Helvetica series is used for all numbers and letters with the exception of the octane rating number. Helvetica is available in a variety of phototype setting systems and by linotype. The line "MINIMUM OCTANE RATING" is set in 12 point Helvetica Bold, all capitals, with letterspace set at 12–1/2 points. The line "(R+M)/2 METHOD" is set in 10 point Helvetica. Bold, all capitals, with letterspace set at 10–1/2 points. The octane number is set in 96 point Franklin gothic condensed with 1/8″ space between the numbers.

(c) *Colors.* The basic color on all labels is process yellow. All type is process black. All borders are process black. Both colors must be non–fade.

(d) *Contents.* The contents are shown in the illustration. The proper octane rating for each gasoline must be shown. No marks or information other that than called for by this rule may appear on the label.

(e) *Special label protection.* All labels must be capable of withstanding extremes of weather conditions for a period of at least one year. They must be resistant to gasoline, oil, grease, solvents, detergents, and water.

(f) *Illustrations of labels.* Labels should meet the specifications in this section, and should look like these examples, except the black print should be on a yellow background.

B 48.10 (1) (b) Label orientation. The following diagrams illustrate the correct and incorrect placement of labels on the dispensing device:
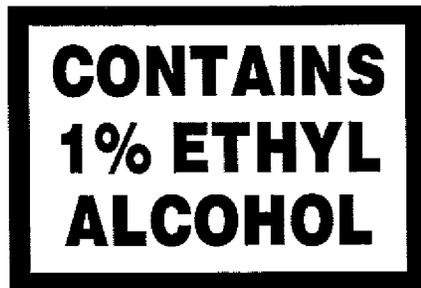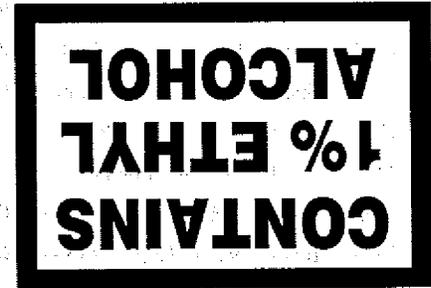
Correct Placement	Incorrect Placement	Incorrect Placement

APPENDIX C
ASTM TEST METHODS

D 56 Test for Flash Point by Tag Closed Tester

D 86 Test for Distillation of Petroleum Products

D 93 Test for Flash Point by Pensky–Martens Closed Tester

D 97 Test for Pour Point of Petroleum Oils

D 129 Test for Sulfur in Petroleum Products by the Bomb Method

D 130 Test for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test

D 156 Test for Saybolt Color of Petroleum Products (Saybolt Chromometer Method)

D 287 Test for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)

D 323 Test for Vapor Pressure of Petroleum Products (Reid Method)

D 381 Test for Existent Gum in Fuels by Jet Evaporation

D 524 Test for Ramsbottom Carbon Residue of Petroleum Products

D 613 Test for Ignition Quality of Diesel Fuels by the Cetane Method

D 873 Test for Oxidation Stability of Aviation Fuels (Potential Residue Method)

D 909 Test for Knock Characteristics of Aviation Fuels by the Supercharge Method

D 1093 Test for Acidity of Distillation Residues of Hydrocarbon Liquids

D 1094 Test for Water Reaction of Aviation Fuels

D 1266 Test for Sulfur in Petroleum Products (Lamp Method)

D 1405 Test for Estimation of Net Heat of Combustion of Aviation Fuels

D 1552 Test for Sulfur in Petroleum Products, High–Temperature Method

D 1796 Test for Water and Sediment in Crude Oils and Fuel Oils by Centrifuge

D 2386 Test for Freezing Point of Aviation Fuels

D 2392 Test for Color of Dyed Aviation Gasolines

D 2533 Test for Vapor–Liquid Ratio of Gasoline

D 2547 Test for Lead in Gasoline, Volumetric Chromate Method

D 2551 Test for Vapor Pressure of Petroleum Products (Micromethod)

D 2599 Test for Lead in Gasoline by X–Ray Spectrometry

D 2622 Test for Sulfur in Petroleum Products (X–ray Spectrographic Method)

D 2699 Test for Knock Characteristics of Motor Fuels by the Research Method

D 2700 Test for Knock Characteristics of Motor and Aviation Type Fuels by the Motor Method

D 2885 Test for Research and Motor Method Octane Ratings Using On–line Analyzers

D 3227 Test for Mercaptan Sulfur in Gasoline, Kerosene, Aviation Turbine and Distillate Fuels (Potentiometric Method)

D 3237 Test for Lead in Gasoline by Atomic Absorption Spectrometry

D 3338 Test for Estimation of Heat of Combustion of Aviation Fuels

D 3341 Test for Lead in Gasoline (Iodine Monochloride Method)

D 3828 Test for Flash Point by Setaflash Closed Tester