



M AINTENANCE I NSTRUCTION

FUEL RECOMMENDATIONS 567 SERIES LOCOMOTIVE DIESEL ENGINES

These recommendations are based on correlations obtained in the operation of subject engines through the years. An attempt has been made to balance the fuel that is required for efficient low maintenance operation of these engines with the fuel that the petroleum industry can economically produce. We are, therefore, submitting *these recommendations on fuel limitations as an equitable basis for the procurement of Diesel fuels for these engines.*

RECOMMENDED LIMITS FOR DIESEL FUEL

Method of Test	ASTM Designation	Limits
Cetane Number	D-613	45 (Minimum) - - - - - SEE NOTE 1
90% Boiling Point	D-158	650° F. (Maximum) - - - SEE NOTE 1
Final Boiling Point, °F.	D-158	700° F. (Maximum) - - - SEE NOTE 2
Distillation Recovery	D-158	97.5% (Minimum)
Total Sulfur	D-129	0.75% (Maximum)
Corrosive Sulfur (3 Hr. @ 212° F.)	Modified D-130	Passes
Conradson Carbon Residue (on 10% Bottoms)	D-189	0.15% (Maximum)
Water and Sediment	D-96	0.05% (Maximum)
Cloud and Pour Point, °F.	D-97	- - - - - SEE NOTE 3
Flash Point, °F.	D-93	150° F. (Minimum)

GENERAL COMMENTS

1. It is desired that fuel be free from acid, which when in contact with any metal, forms soap in sufficient quantity to plug the fuel filters.
2. The indiscriminate use of Cetane improvers or other fuel additives should be limited until tests have established that there are no detrimental effects. Such tests would include observation of engine wear, corrosion, or excess deposits.
3. The quality, uniformity and dependability of the Diesel fuels are responsibilities of the fuel supplier. However, Electro-Motive will be glad to consult with the user, the supplier and the petroleum refiner on any questions pertaining to fuels.

*THIS ISSUE SUPERSEDES AND CANCELS ALL PREVIOUS ISSUES OF MI 1606 REV. A.

NOTE 1: In order to give the purchaser the widest latitude possible in selecting a satisfactory fuel, the table given below shows the relationship between volatility and ignition quality in terms of 90% Boiling Point and Cetane Number. These fuels are grouped into four classifications, three of which, as seen below, are usable fuels in 567C series engines.

CETANE NUMBER BELOW 40 - LOW QUALITY

This fuel is not recommended for use in subject engines at this time.

CETANE NUMBER BETWEEN 40 AND 45 - DOUBTFUL QUALITY

Usage of this fuel should be limited as follows:

1. The 90% Boiling Point should not be over thirteen times the Cetane Number (90% Boiling Point °F. per A.S.T.M. D-158).
2. The higher Cetane values in this range are preferred. The usage of fuels in this range should be accompanied by rather close engine observation regarding cleanliness and general maintenance.

CETANE NUMBER BETWEEN 45 AND 50 - RECOMMENDED QUALITY

This range fuel is well adapted to average operation. Its usage should have the 90% Boiling Point not over thirteen times the Cetane Number, as outlined above.

This fuel should give well balanced economy from a maintenance and fuel cost basis.

CETANE NUMBER ABOVE 50 - EXTRA HIGH QUALITY

The 90% Boiling Point Limit shall be 650° F. maximum, not regarding 90% Point (°F.) ÷ Cetane Number relationship, since it will be less than thirteen. The usage of fuel in this range should be accompanied by rather close observation, in order to establish the true value on a maintenance and fuel cost basis. The use of fuels of over 50 Cetane, while not detrimental, will not materially improve engine performance. Therefore, the user is not justified in paying a premium for fuels of higher than 50 Cetane.

NOTE 2: The maximum Final Boiling Point or End Point has been recommended as 700° F. for all fuels. The use of a 90% Point (°F.) ÷ Cetane Number relationship instead of the former End Point (°F.) ÷ Cetane Number is justified on the basis of the much better reproductibility of the 90% Point. Retaining the factor at "13" will permit a wider selection of fuels, based on the 90% Point over Cetane Number.

NOTE 3: The "Cloud and Pour Points" of a fuel are measures of its fluidity at low temperature. To insure flow at the lowest estimated fuel temperature, the purchaser shall specify the minimum "Cloud or Pour Point" requirements.