

STAFFORD DIESEL ENGINE CO.,INC. MARINE ENGINE SURVEYORS

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FILE NUMBER: JS6686
VESSEL: "ALTITUDE ADJUSTMENT"

DESCRIPTION: 6 OILS

SPECTROCHEMICAL ANALYSIS OF THE SUBMITTED SAMPLES IS AS FOLLOWS:

	PE	SE	PT	ST	P GEN	S GEN
LEAD	<u>3</u>	<u>3</u>	<u>12</u>	<u>13</u>	<u>2</u>	<u>2</u>
CHROMIUM	<u>8</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
TIN	<u>3</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
SILICON	<u>13</u>	<u>11</u>	<u>11</u>	<u>15</u>	<u>2</u>	<u>1</u>
IRON	<u>9</u>	<u>6</u>	<u>11</u>	<u>8</u>	<u>5</u>	<u>2</u>
ALUMINUM	<u>4</u>	<u>2</u>	<u>1</u>	<u>5</u>	<u>3</u>	<u>1</u>
COPPER	<u>11</u>	<u>11</u>	<u>99</u>	<u>97</u>	<u>5</u>	<u>3</u>
NICKEL	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
SODIUM	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>
SOOT	<u>9</u>	<u>8</u>	<u>-</u>	<u>-</u>	<u>10</u>	<u>.1</u>
OXIDATION	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
FUEL	<u>.0</u>	<u>.0</u>	<u>-</u>	<u>-</u>	<u>.0</u>	<u>.0</u>
GLYCOL	<u>0</u>	<u>.1</u>	<u>-</u>	<u>-</u>	<u>0</u>	<u>0</u>
POTASSIUM	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
WATER	<u>.1</u>	<u>.1</u>	<u>.3</u>	<u>.3</u>	<u>.1</u>	<u>.1</u>
V40	<u>109</u>	<u>109</u>	<u>109</u>	<u>109</u>	<u>109</u>	<u>109</u>
V100	<u>15.0</u>	<u>15.0</u>	<u>14.7</u>	<u>14.8</u>	<u>15.0</u>	<u>14.8</u>
Vindex	<u>109</u>	<u>109</u>	<u>110</u>	<u>110</u>	<u>101</u>	<u>99</u>

ANALYSIS OF TEST DATA: Through spectrochemical evaluation, the above results were categorized as wear metals.

Engines and generator wear rates appear normal. Samples appear free of external contamination. Port and starboard soot levels are elevated, could be due to long oil change intervals. Transmission copper levels are elevated, possible cause could be long oil change intervals. Change the engines and transmissions oil and filters then re-sample in 100 operating hours.

Note:, the accurate interpretation of the chemical analysis of crankcase oil and/or transmission oil is generally possible only when samples have been taken and analyzed periodically. Only in that way can benchmarks and a usable pattern be established. Without that history, someone is just guessing as to the real significance of various oil contaminant levels. It is also important to understand that oil analysis will not predict a sudden, catastrophic failure--for example, the fracturing of a connecting rod. The reason is this type of failure is not usually the result of ongoing wear.