



# NORWEGIAN CRUISE LINE

Interoffice M E M O

File

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Location: Ship Operations

Date: November 18, 1997

Subject: **S/S NORWAY - STUDIES/QUOTATIONS RE-ENGINE  
INSTALLATION NEW BOILERS/RE-TUBE OLD BOILERS/  
NEW HIGHLY EFFECTIVE "KA ME WA" PROPELLERS**

As we all know, the boilers on the S/S Norway have reached a stage where a decision must be taken. Either removed old boilers, and furnish new boilers or install gas turbines and repair old boilers. Install M.A.N. diesel generators and el. propulsion, using forward engine room, or re-tube old boilers completely with new economizers, new automation (attached please find quotation with the pertinent documentation).

**1. Alternative**

Quotation from Deutche Babcock for new boilers:

Total price for old boilers	\$	10.115.607.
Removal - old boilers / installation new boilers	\$	7.000.
New propellers	\$	500.000.
<b>Total</b>	<b>\$</b>	<b>17.615.607.</b>

Speed - approximately 28 knots.

**2. Alternative**

Quotation from Sunrod/ABB for four (4) main prop. boilers, the type - "combustion".

Engineer V2M8-13 (S/S United States), perfect for installation on the S/S Norway:

Boilers	\$	19.300.000.
Removal - old boilers / installation new boilers	\$	7.000.
New propellers	\$	500.000.
<b>Total</b>	<b>\$</b>	<b>26.800.000.</b>

Speed - approximately 28 knots

**3. Alternative**

Installation of direct driven gas turbines, GE -LM 25000 + in forward engine room on outboard prop. shafts:

Price gas turbines	\$	14.143.000.
Price gears	\$	7.800.000.
Price - removal/installation new struis/new clutches	\$	8.000.000.
New propellers (4 each)	\$	1.000.000.
<b>Total</b>	<b>\$</b>	<b>30.942.000.</b>

Speed - approximately 28 knots

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