

**DIESEL FULL POWER MEMO
EXAMPLE**

FROM: COMMANDING OFFICER, _____(SHIP)_____
TO: SENIOR ENGINEER, BOARD OF INSPECTION AND SURVEY, ATLANTIC

SUBJ: FULL POWER TRIAL

- REF: (A) EOSS (IF APPLICABLE)
(B) OPNAVINST 9094.1B
(C) INSURVINST 4730.1B
(D) NSTM CH. (DIESEL)
(E) (APPLICABLE PROPULSION PLANT TECH MANUAL)
(F) (PROPULSION OPERATING GUIDE)

- ENCL: (1) FULL POWER BUILD-UP PROCEDURES AND PROCEDURES FOR QUICK REVERSAL
DEMONSTRATIONS
(2) SHIP'S LOADING DATA AND FULL POWER AHEAD/ASTERN CALCULATIONS
(3) PROPULSION MACHINERY LIMITING PARAMETERS

1. IN ACCORDANCE WITH REFERENCES (A) THROUGH (F) A FULL POWER TRIAL WILL BE CONDUCTED ON (DATE). THE DURATION OF THE FULL POWER TRIAL WILL BE ONE HOUR.
2. THE COMMUNICATIONS SYSTEM USED TO COORDINATE THE COLLECTION OF DATA WILL BE THE _____(MC), _____(PHONE CIRCUIT) _____. DATA AT ALL STATIONS WILL BE RECORDED AT THE COMMENCEMENT OF THE TRIAL AND AT 15 MINUTE INTERVALS THEREAFTER. ONE SET OF READINGS WILL ALSO BE TAKEN AT FULL POWER ASTERN OPERATION.
3. THE SHIP WAS UNDOCKED ON _____(DATE)_____.
4. THE SHIP'S LAST FULL (COMPLETE) WATERBORNE HULL CLEANING WAS COMPLETED ON _____(DATE)_____.
5. THE FOLLOWING EQUIPMENT IS NOT ALIGNED IN ACCORDANCE WITH REFERENCES (A) THROUGH (H).

EQUIPMENT/SYSTEM

PLANT IMPACT

DFS/STANDING ORDER NUMBER

6. THERE IS NO MACHINERY OUT OF COMMISSION THAT WILL ADVERSELY AFFECT THE OPERATION OF THE MAIN PROPULSION PLANT DURING THE FULL POWER TRIAL. (IF THERE IS ANY OUT OF COMMISSION MACHINERY THAT WILL EFFECT THE FULL POWER TRIAL LIST THEM):

EQUIPMENT

PLANT IMPACT

7. USS _____ IS READY IN ALL ASPECTS TO CONDUCT THE SUBJECT TRIAL.

COMMANDING OFFICER

FULL POWER BUILD-UP PROCEDURES AND PROCEDURES FOR QUICK REVERSAL

1. PRIOR TO COMMENCEMENT OF THE FULL POWER TRIAL THE SHIP WILL BE UNDERWAY WITH THE FOLLOWING PRINCIPLE PROPULSION PLANT MACHINERY IN OPERATION:

(LIST MAIN PROPULSION PLANT EQUIPMENT LINEUP HERE)

- THE FOLLOWING PRINCIPLE AUXILIARY EQUIPMENT IN OPERATION

- ____ FUEL OIL SERVICE PUMP(S)
- ____ LUBE OIL PURIFIER(S)
- ____ HPAC(S)
- ____ LPAC(S)
- ____ AUXILIARY MACHINERY COOLING WATER PUMP(S)
- ____ SSDG(S), GTG(S) AND ASSOCIATED PUMPS(S)
- ____ GEAR DRIVEN LUBE OIL SERVICE PUMP(S)
- ____ ELECTRIC LUBE OIL SERVICE PUMP(S) (STATUS)
- ____ DISTILLING UNIT(S) AND ASSOCIATED PUMP(S)

2. SHAFT(S) WILL BE BROUGHT UP TO FULL POWER SRPM AND PITCH, SEE ENCLOSURE (2), IN STANDARD SPEED INCREMENTS, ALLOWING APPROXIMATELY __ (TIME) __ BEFORE EACH SPEED INCREASE.

3. ONCE THE SHAFT(S) HAS/HAVE REACHED FULL POWER AND HAS/HAVE MAINTAINED REQUIRED SRPM AND PITCH FOR ____ MINUTES, AND THE CHIEF ENGINEER AND INSURV SENIOR ENGINEER AGREE, THE TIMED FULL POWER RUN WILL COMMENCE. DATA WILL BE COLLECTED AT THE COMMENCEMENT AND EVERY 15 MINUTES THEREAFTER FOR ONE HOUR. ALL PROPULSION AND AUXILIARY PLANT PARAMETERS WILL BE RECORDED AND PROVIDED TO THE INSURV SENIOR ENGINEER UPON COMPLETION. MANUAL AND AUTOMATED DATA WILL BE COLLECTED TO MEET THE REQUIREMENTS OF THE ENGINEERING TRIAL REPORT CONTAINED IN OPNAVINST 9094.1B FORM 9094/1D.

4. UPON COMPLETION OF ONE HOUR AT REQUIRED SRPM AND PITCH THE SHIP WILL CONDUCT FULL POWER AHEAD RUDDER SWING CHECKS.

5. UPON COMPLETION OF AHEAD FULL POWER RUDDER SWING CHECKS, THE SHIP WILL CONDUCT A QUICK REVERSAL FROM FULL POWER AHEAD TO FULL POWER ASTERN. FULL POWER ASTERN OPERATION WILL LAST FOR APPROXIMATELY 15 MINUTES. ONE ADDITIONAL SET OF READINGS WILL BE TAKEN WHEN THE PLANT HAS STABILIZED. THE QUICK REVERSAL WILL BE CONDUCTED IN STRICT ACCORDANCE WITH EOSS OR OTHER APPLICABLE PROPULSION PLANT MANUALS. THE THROTTLE CHANGE SHALL BE CONDUCTED IN ONE FLUID MOTION.

6. AFTER COMPLETION OF THE ASTERN FULL POWER TRIAL, THE SHIP WILL CONDUCT FULL POWER ASTERN RUDDER SWING CHECKS. MAXIMUM ASTERN RPM FOR RUDDER SWING CHECKS IS _____ RPM.

7. UPON COMPLETION OF ASTERN FULL POWER STEERING/RUDDER SWING CHECKS, THE SHIP WILL CONDUCT A QUICK REVERSAL FROM FULL POWER ASTERN TO FULL POWER AHEAD AND RETURN TO THE CALCULATED FULL POWER AHEAD SRPM/PITCH. IN ACCORDANCE WITH REFERENCE (), THE SHIP WILL MAINTAIN CALCULATED FULL POWER AHEAD SRPM FOR A MINIMUM OF FIVE MINUTES.

8. THE ENGINEER OFFICER OR ANY INSURV INSPECTOR WILL TERMINATE THE FULL POWER TRIAL IF, AT ANY TIME, THE PERFORMANCE/DATA IS QUESTIONABLE OR CONDITIONS EXIST THAT MAY ENDANGER EQUIPMENT OR PERSONNEL SAFETY.

ENCLOSURE (1)

SHIP'S LOADING DATA AND FULL POWER AHEAD/ASTERN CALCULATIONS

1. SHIP'S LOADING DATA

A. LIQUID LOAD (MAXIMUM)

FUEL OIL	100%	_____
DIESEL OIL	100%	_____
FRESHWATER	100%	_____
FEEDWATER	100%	_____
LUBE OIL	100%	_____
BALLAST	100%	_____

B. DRAFT AT NOMINAL DISPLACEMENT

- FORWARD:
- AFT:
- MEAN:
- DESIGN DISPLACEMENT: (TONS)
- DESIGN DRAFT: (NAVIGATIONAL DRAFT)

C. LIQUID LOAD AT COMMENCEMENT OF TRIAL

FUEL OIL	_____
DIESEL OIL	_____
FRESHWATER	_____
RESERVE FEEDWATER	_____
LUBE OIL	_____
BALLAST	_____

D. PERCENT OF MAXIMUM LIQUID LOAD: _____% (MIN OF 75% PER OPNAVINST 9094)

E. MINIMUM DEPTH REQUIRED = $\frac{(10) \times (H) \times (V)}{L}$

- WHERE: D = MINIMUM DEPTH (FEET)
- H = TRIAL DEPTH (FEET)
- V = SPEED OF RUN (KNOTS)
- L - SQUARE ROOT OF LENGTH BETWEEN PERPENDICULARS (FEET)

2. REQUIRED FULL POWER SHAFT HORSEPOWER SHP/RPM IS:

3. REQUIRED FULL POWER ASTERN SHP/RPM IS:

MAIN PROPULSION MACHINERY LIMITING PARAMETERS

<u>COMPONENT/SYSTEM</u>	<u>FULL POWER DESIGN PARAMETER</u>	<u>MIN/MAX/ALARM SET POINT</u>	<u>REFERENCE</u>
ENGINE LOAD	KNOTS	KNOTS	
ENGINE	RPM	RPM	
ENGINE TORQUE	FT LBS	FT LBS	
FUEL RACK POSITION	MM	MM	
MAX DIFFERENTIAL FUEL OIL MANIFOLD PRESSURE	PSI	PSI	
MIN AND MAX CYLINDER EXHAUST TEMP RIGHT BANK	DEGREES	DEGREES	
MIN AND MAX CYLINDER EXHAUST TEMP LEFT BANK	DEGREES	DEGREES	
COMBINED CYLINDER EXHAUST TEMP TO TURBOCHARGER	DEGREES	DEGREES	
COMBINED CYLINDER EXHAUST TEMP FROM TURBOCHARGER	DEGREES	DEGREES	
AIR MANIFOLD PRESSURE	PSI	PSI	
CRANKCASE VACUUM	INCH WATER	INCH WATER	
JACKET WATER TEMP	DEGREES	DEGREES	
ENGINE LUBE OIL PRESSURE	PSI	PSI	
ENGINE LUBE OIL FILTER DIFFERENTIAL PRESSURE	PSI	PSI	
SHAFT PITCH	FT (AHEAD) FT (ASTERN)	FT (AHEAD) FT (ASTERN)	
SHAFT RPM	RPM	RPM	
SHAFT TORQUE	FT LBS	FT LBS	
SHAFT HORSEPOWER	SHP	SHP	
MAIN RED GEAR LO PRESS	PSI	PSI	
MOST REMOTE BEARING	PSI	PSI	
RED GEAR BEARING TEMP	DEGREES	DEGREES	
LINE SHAFT BEARING TEMP	DEGREES	DEGREES	
LUBE OIL COOLER OUTLET	DEGREES	DEGREES	
LUBE OIL HEADER TEMP	DEGREES	DEGREES	