

## SAMPLE

PRELIMINARY TORSIONAL VIBRATION ANALYSIS OF  
THE PROPULSION SYSTEM

REPORT: TVC 000-PC1.00

ISSUE: 1 / 2002-09-21

## GENERAL DATA:

Engine type .....	Sample 2-stroke diesel engine
Max. continuous output ....	13,530 kW
Max. continuous speed .....	105 rpm
Classification .....	Sample

## SHAFTING PARTICULARS:

Tuning wheel .....	N/A
Turning wheel .....	4,982 kg.m <sup>2</sup>
Intermediate shaft .....	d = 460 mm, UTS = 600 N/mm <sup>2</sup>
Propeller shaft .....	d = 560 mm, UTS = 600 N/mm <sup>2</sup>
Shafting extension .....	N/A
Propeller inertia .....	63,700 kg.m <sup>2</sup>

## ANALYSIS RESULTS:

Main resonance .....	49.3 rpm
Crankshaft stress/limit ...	31.0 / 40 N/mm <sup>2</sup> (SR = 0.78)
IntShaft stress/limit .....	126.6 / 114 N/mm <sup>2</sup> (SR = 1.11)
PropShaft stress/limit ....	69.9 / 83 N/mm <sup>2</sup> (SR = 0.84)
PropShaft torque .....	2410 kNm / 49.2 rpm

## CONCLUSION:

**NOT ACCEPTABLE**

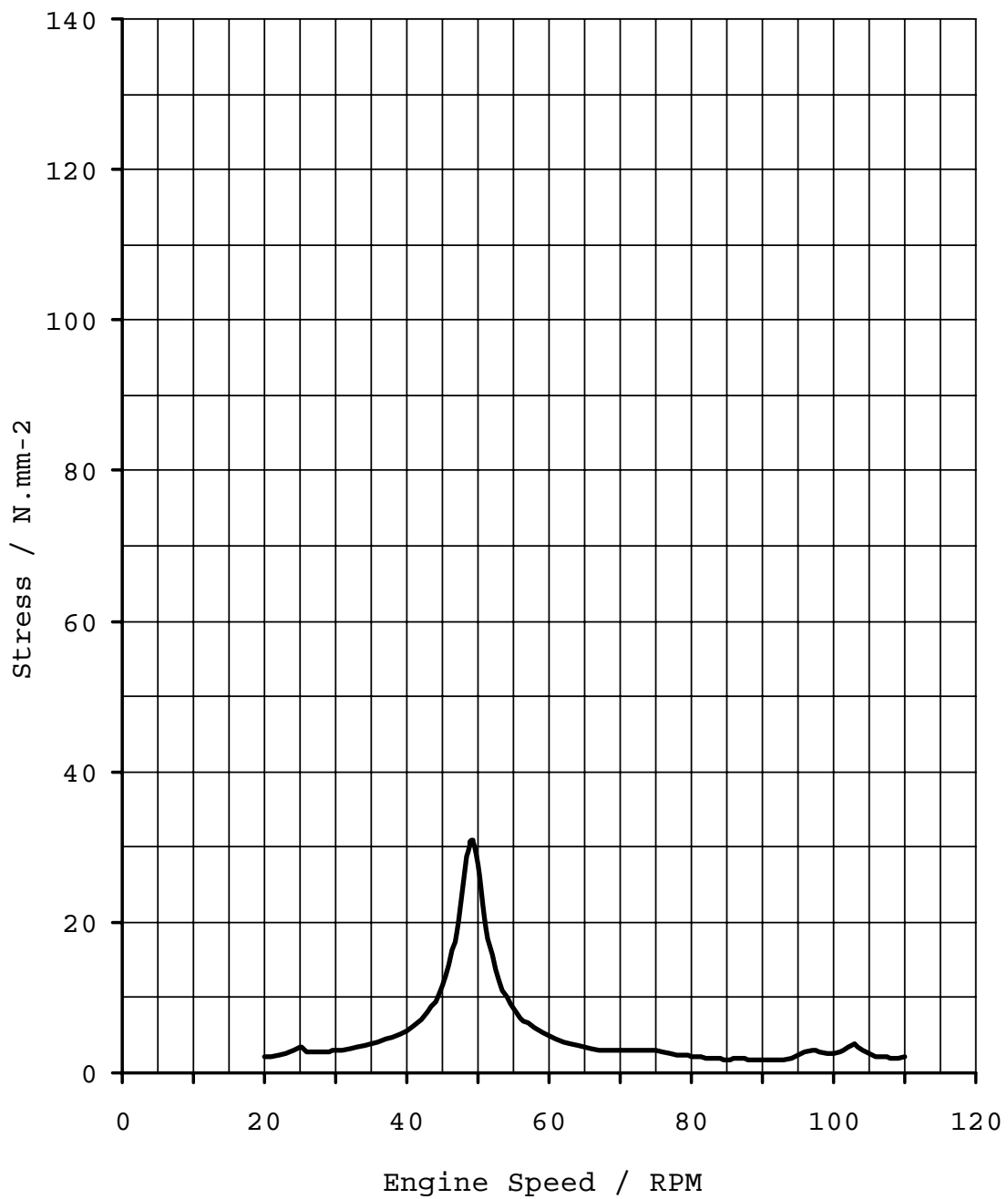
Signature: ..... Date: 2002-09-21

**PRELIMINARY**

STRESS - SPEED DIAGRAM

CRANKSHAFT (CAMSHAFT DRIVE - TURNING WHEEL)  
ELEMENT: 8-9

OPERATION: NORMAL  
LOAD: PROPELLER LAW



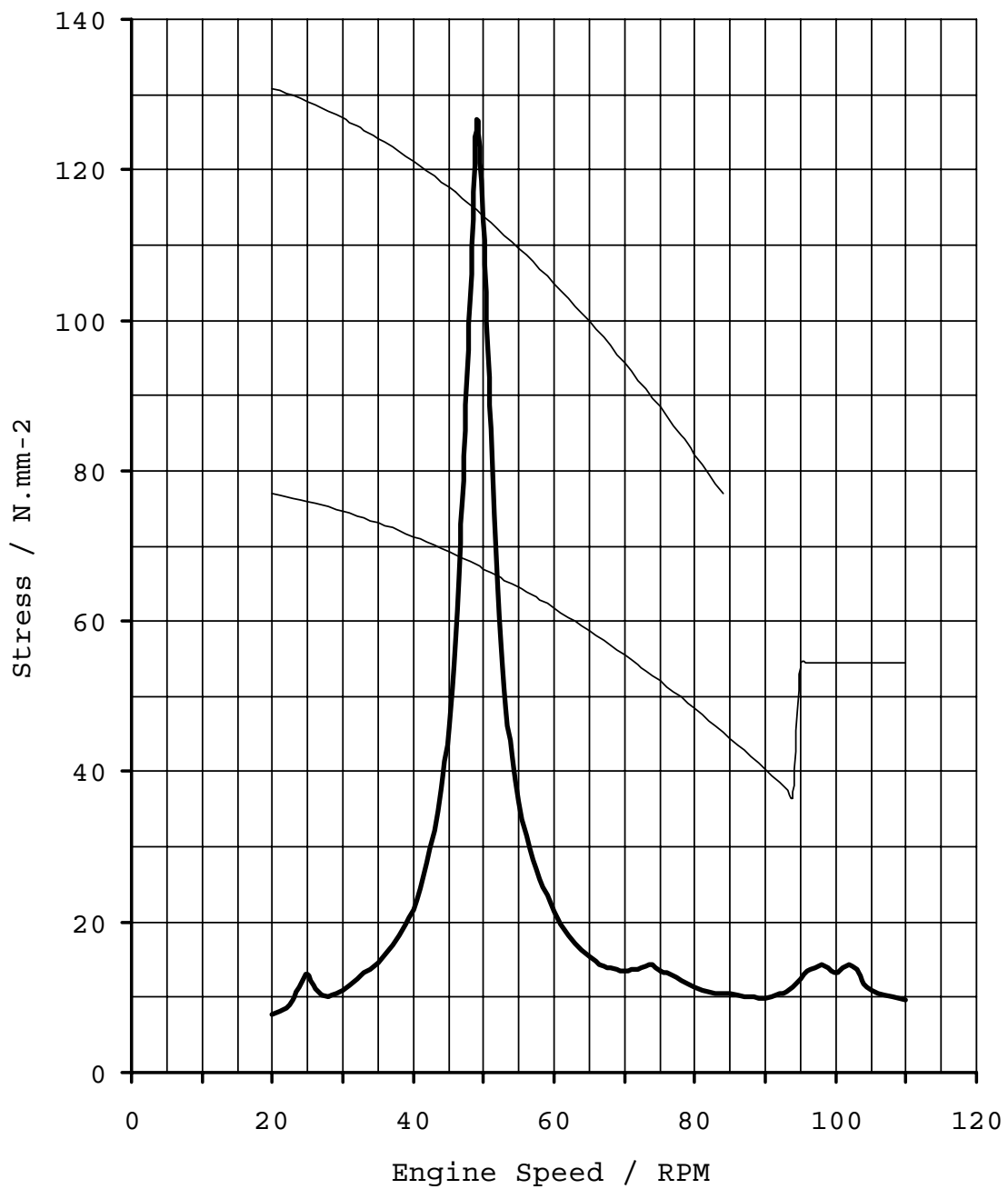
**PRELIMINARY**

### STRESS - SPEED DIAGRAM

INTERMEDIATE SHAFT

ELEMENT: 9-10

OPERATION: NORMAL  
LOAD: PROPELLER LAW

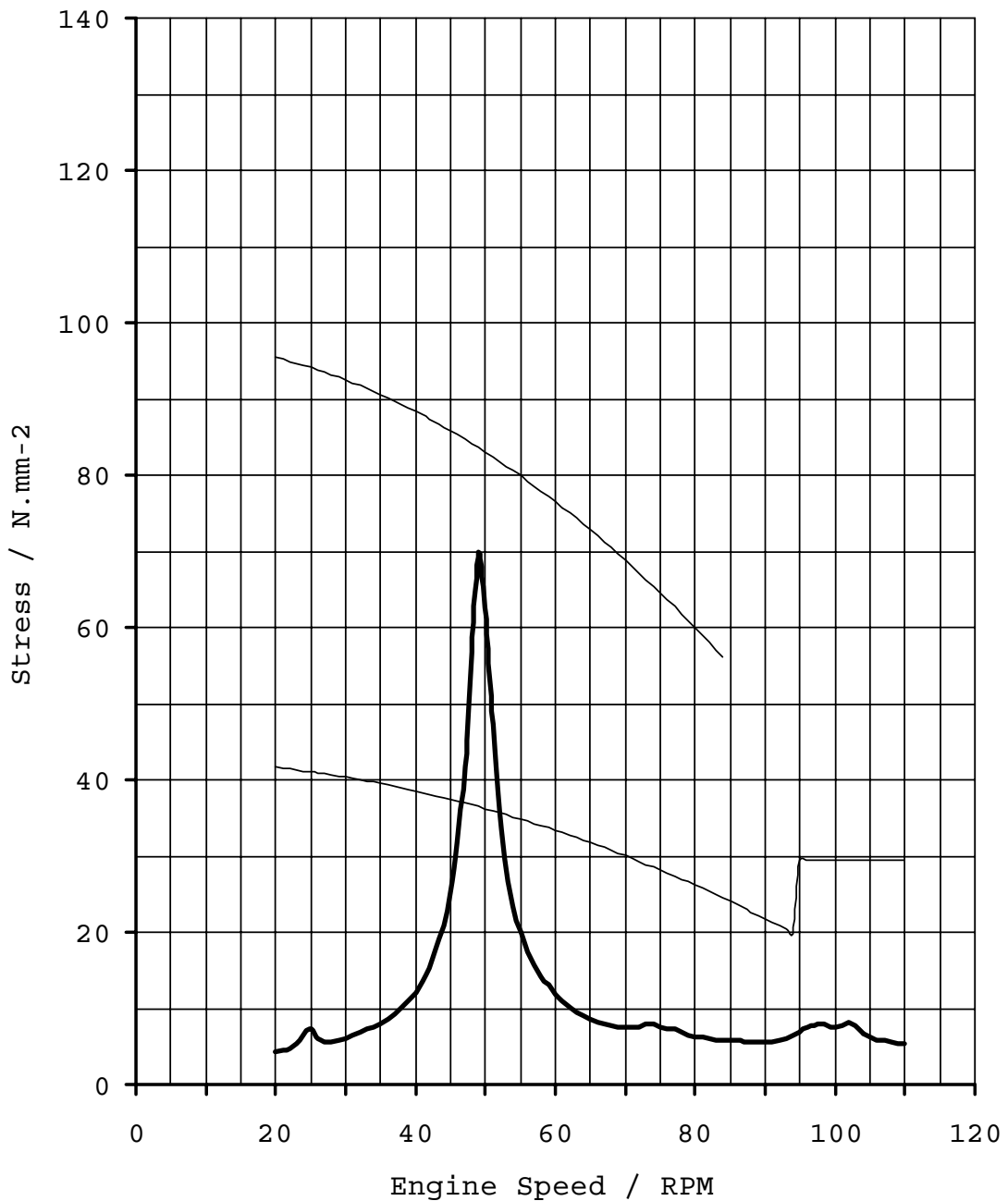


**PRELIMINARY**

### STRESS - SPEED DIAGRAM

PROPELLER SHAFT  
ELEMENT: 10-11

OPERATION: NORMAL  
LOAD: PROPELLER LAW



**PRELIMINARY**

### TORQUE - SPEED DIAGRAM

PROPELLER SHAFT  
ELEMENT: 10-11

OPERATION: NORMAL  
LOAD: PROPELLER LAW

