

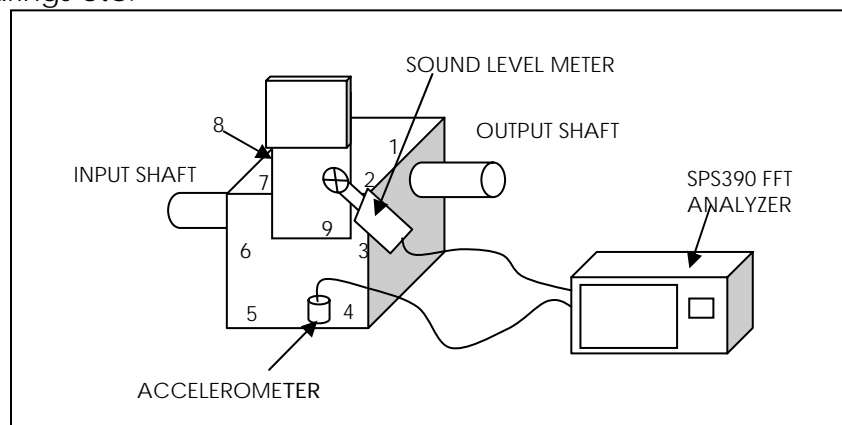
## An Investigation of Abnormal Noise Problem in Force Draft Fan Gearbox, 1999

Abnormal noise (intermittent rattling sound) in the gearbox of Boiler unit B is investigated. Envelope analysis has indicated knockings at frequencies 78Hz and 22.5Hz, which corresponded to the input shaft and the output shaft speed respectively. This implied looseness between gear meshing of input shaft's gear set and output shaft's gear set. Similar measurements done on good gearbox of Boiler unit A did not indicate any of these peaks at frequencies 78Hz and 22.5Hz.

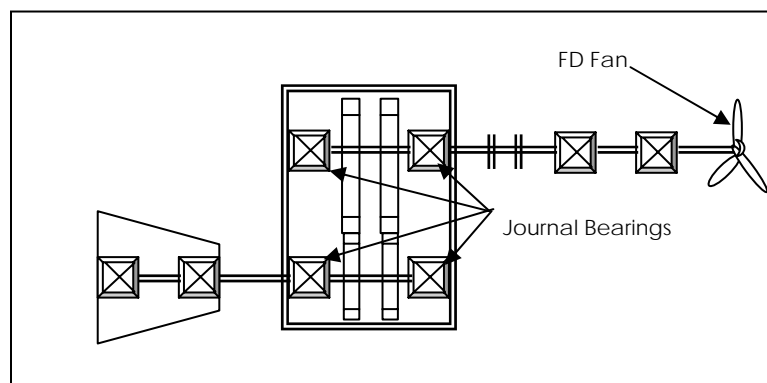
Noise spectra taken at the gearbox of Boiler unit B showed amplitudes fluctuations in the region of 515Hz to 550Hz and a dominating frequency at 620Hz was observed. Similar measurements done on good gearbox of Boiler unit A did not indicate this pattern.

Vibration levels of the turbine, gearbox and fan bearing were low and acceptable. However, vibration measurements on gearbox using accelerometer do not indicate the true dynamics of the rotor-shaft system, as the vibration is not well transmitted through the journal bearing.

During shutdown, it is recommended that inspection to be made on the gear set for sign of components wear and looseness such as worn-out keyways, backlash, anti-frictional bearings etc.



Schematic drawing of measurement setup, sound level meter and accelerometer position



Schematic drawing of Force Draft Fan Gearbox of Boiler unit B