King Fahd University of Petroleum and Minerals

University Diploma Program
Electronic Equipment Maintenance
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EET-027, Experiment # 11

X-Y Recorder

Objectives:

Record both strain gauge resistance variation and LVDT displacement variation simultaneously on the XY Recorder.

Apparatus:

LVDT

Strain Gauge

Strain Gauge Indicator

LVDT conditioner

XY Recorder

Theory:

We use an analog recorder so the operator can see what is happening while the experiment is in progress. An X-Y recorder is used for recording two signals simultaneously. Here the system consists of a strain transducer which produces a signal proportional to the applied load, an LVDT which produces a signal proportional to the vertical displacement of the sample, and an X-Y recorder for recording both signals simultaneously.

The X-Y recorder is a very useful instrument for measuring and plotting various voltage signals. A one-pen recorder for instance can plot two signals simultaneously, one as a function of the other, or one signal as a function of time. There are multi-pen recorders that can plot many signals simultaneously. Although the X-Y recorder is a voltage measuring device, the voltage can represent most anything, depending upon the problem. When using the X-Y recorder to record. For example, an X-Y recorder rated at a slew-rate of 40 cm/second would give an inaccurate recording for signals exceeding this rating. In using the X-Y recorder, it is obviously important that one know how to "set it up". Normally, this is not

difficult if the magnitudes of the signals being recorded are such that the calibrated settings on the X-Y recorder can be used.

Procedure:

1. Set up the connection as quarter bridge on strain indicator.
2. Connect the analog output of the strain indicator with the X side of the X-Y recorder.
3. Set the LVDT with stand to monitor the displacement and connect it to LVDT conditioner.
4. Connect output of LVDT conditioner to the Y axis of recorder of recorder.
5. Set the X-Y recorder range and scales; X scale in mV range and Y in Voltage range.
6. Put some load on the strip and observe the plot in the X-Y recorder.
7. Put load of 500 gm, 1 kg, 1.5 kg, 2 kg, 2.5 kg and observe the plot in the X-Y recorder.

Conclusions: