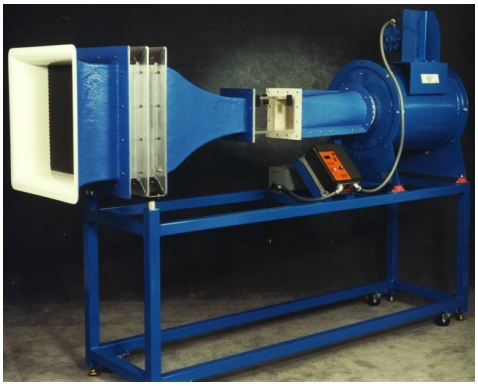
SAFE OPERATING PROCEDURE

Wind Tunnel



Machine:	Wind Tunnel
Make/Model:	ELDS Model 402
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Location:	Building 570, rm XXX
Department:	Mechanical Engineering

DO NOT use this machine unless you have been trained in its safe use and operation!

Personal Protective Equipment

Hearing Protection

Protective Clothing

Potential Hazards

- Hearing loss
  - Wear proper hearing protection.

Typical Operations

- Lift, drag, air speed measurements

Procedure Checklist

PRE-Operation:
- Identify ON/OFF switch.

Operation:
-

POST-Operation:
- Remove all fixtures used.
- Leave the machine and work area in a safe, clean state.

Dynamometer Calibration and Use

Wind tunnel Dyno Use and Calibration YouTube Link

Drag Axis Calibration:

1. Detach and orient dyno assembly in blue vise to calibrate the drag axis
2. Attach signal conditioner cable to dyno
3. Verify output connections (BNC cables, connectors, meters)
4. Power ON signal conditioner box and meters
5. Install weight pan
6. Zero DRAG using DRAG thumbwheel (to within $\pm\ 0.005\ \mathrm{V}$)
7. Add calibration weight (s) and record output (in volts) [$400\ \mathrm{g}$ maximum]
8. Remove weight pan

Lift Axis Calibration:

1. Orient dyno assembly to calibrate the lift axis using the C-clamp
2. Install weight pan
3. Zero LIFT using LIFT thumbwheel (to within $\pm\ 0.005\ \mathrm{V}$)
4. Add calibration weight (s) and record output (in volts) [$400\ \mathrm{g}$ maximum]
5. Remove weight pan and uninstall dyno assembly from calibration fixture

Installation of Dynamometer and Model:

1. Remove blanking plate from wind tunnel test section
2. Install dyno assembly onto test section noting air flow direction
3. Do not overtighten screws
4. Remove upper cover of test section
5. Rest the lid on the lid support plate taking extreme care not to disturb pitot tube
6. Install model on dyno sting
7. Don't apply excessive loads while attaching model
8. Don't overtighten set screw(s)
9. Remount upper cover being careful of the pitot tube
10. Re-Zero LIFT and DRAG before turning on fan