6 Inch Shock Tube Checklist
Ae104b Experiments

Operators: _____

Date: _____ Time: _____

Shot number: _____ Cutter: _____

Run Conditions

Diaphragm material and thickness: _____

Test section	**Driver section**
Test gas: _____	Driver gas: _____
Desired P_1: _____	Expected P_4: _____
Actual P_1: _____	Actual P_4: _____

Comments:

_____

_____

_____

Preliminary setup

- ◯ Turn on control panel
- ◯ Turn on driver section vacuum pump
- ◯ Turn on test section vacuum pump
- ◯ Turn on PCB power supplies and check pressure transducers are "OK"

Positioning the diaphragm

- ◯ Cut circular diaphragm in aluminum sheet.
- ◯ Depressurize hydraulic pump
- ◯ Open clamp
- ◯ Slide driver tube
- ◯ Place diaphragm against driver cross-section
- ◯ Slide driver tube back on while holding the diaphragm in place
- ◯ Close clamp
- ◯ Pressurize hydraulic clamp by turning hydraulic pump on

Evacuation of shock tube

- ◯ Open test section pressure gauge isolation valves IV1, IV2
- ◯ Open test section pressure gauge line valve P1
- ◯ Open driver section pressure gauge isolation valves IV3, IV4
- ◯ Open test section fill line F1
- ◯ Close test section vent valve A1
- ◯ Close driver section vent valve A2
- ◯ Open simultaneoulsy vacuum line valves V1 and V2
- ◯ Wait 10 minutes for vacuum. Vacuum pressure: _____
- ◯ Zero test section and driver section Heise gauges
- ◯ Close test section vacuum line valve V1
- ◯ Close driver section vacuum line valve V2

Fill test gas and fire

- ◯ Verify Hydraulic Pressure valve still closed (close if needed)
- ◯ Put earphones on
- ◯ Test section filling procedure: attempt to maintain pressure in driver section and test section about the same by filling both sides simultaneously to avoid premature rupture of the diaphragm. Always keep pressure in driver section about 10 kPa higher than in test section. Use fill valves to fill driver and test sections.
- ◯ Record actual test section pressure.
- ◯ Close test section pressure gauge isolation valves IV1, IV2
- ◯ Close test section pressure gauge line valve P1
- ◯ Close test section fill line F1
- ◯ Close driver section 0-250 kPa pressure gauge isolation valve IV4
- ◯ Check safety lights - they should all be green
- ◯ Ensure shot number is correct on data acquisition system
- ◯ Arm data acquisition system
- ◯ Slowly fill driver section until diaphragm bursts
- ◯ Record actual burst pressure

Vent shock tube

- ◯ Open driver section vent valve A2
- ◯ Open test section fill line F1
- ◯ Open test section vent valve A1
- ◯ Wait for pressure to reach atmospheric

Initial pressure P_1	
Pressure behind shock P_2	
Burst pressure P_4	
Reflected pressure P_5	
Shock Mach number M_S	