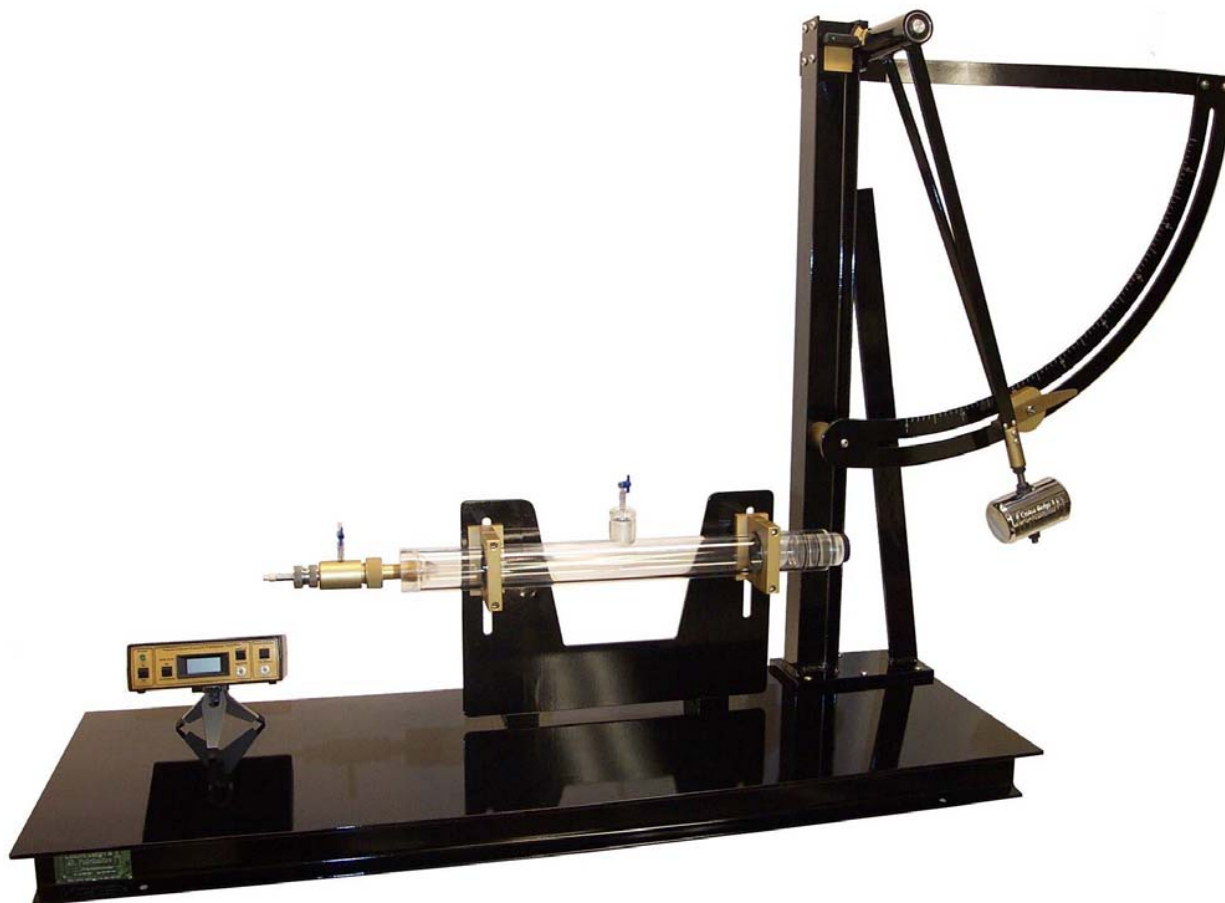




Fluid Percussion Injury



Model 01-B Assembly Instructions

FPI Model 01-B Assembly Instructions

Tools Required

Uncrating:

- A #2 Phillips point screwdriver (power screwdriver recommended) to open the shipping crates and remove the internal cross supports.
- 7/16" wrench or socket to remove bolts that secure subassemblies to the crate.

Assembly:

- 1/8" Allen wrench
- 3/16" Allen wrench
- 5/32" Allen wrench

The following may not be needed during initial assembly but will be required during normal usage.

- Petroleum jelly to lubricate the “O-ring” seals.
- Teflon® tape (available at plumbing supply stores) to seal the transducer threads.



Uncrating and Assembly

Do not use a pry bar to open the crates. Fragile components are secured to the crate. Open the crates by removing the Phillips head screws that secure the lid.

Base – The smaller box contains the FPI base. Once the top of the crate is opened, carefully remove the protractor and set it aside. Remove the foam top cover and then the base. The weight is approximately 100 lbs. (45 Kg) so the base should be lifted by two people.

Mast Assembly – Open the larger crate and remove the securing cross braces. You will be assembling the device as seen on the cover. You will find the mounting screws for each portion of the assembly threaded into the corresponding holes.

Remove the mast and hammer assembly, which is bolted to the side of the crate. These bolts are for shipping only and can be discarded.

Remove the six screws from the corner of the base and mount the mast in that location with the hammer toward the center of the base. Use caution, as the mast is a little cumbersome and will not stand upright on its own.

FPI Model 01-B Assembly Instructions

Protractor – Locate the protractor and offset support bar. The offset support bar is a 30-inch long flat bar with a bend near each end. There will be two screws in the end that attach to the protractor and a slot cut in the other end.

Mount the support bar to the back of the protractor, but leave the screws loose until the protractor is fully installed on the mast. The slotted end will connect to the mast.

Your FPI was assembled and tested prior to shipment and the location of the screw heads circled to mark proper adjustment of the protractor.

Attach the rounded end of the protractor to the mast leaving the screw loose so that the protractor may be rotated up into place as shown.



The hardware to connect the support bar to the mast also holds the detector block already in place on the mast. Have someone support the detector block to avoid damaging it while connecting the support bar to the mast.

Once you have secured the protractor support bar to the mast and made any adjustments, tighten the three protractor screws.

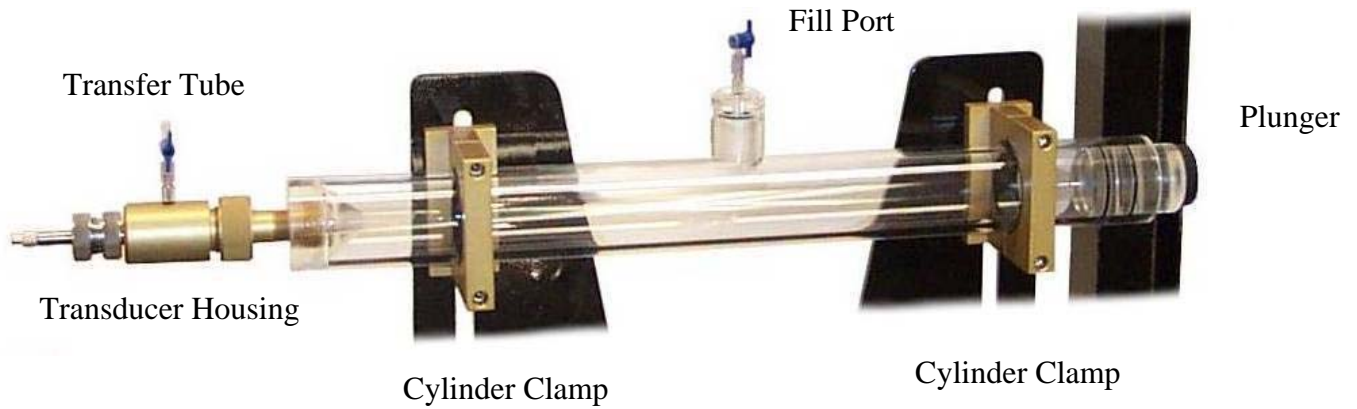


Degree Slide – Find and install the degree slide. This holds the hammer during research procedures. The slide fits into the protractor slot then the locking knob along with the washer are screwed in from the back.

Fluid Cylinder Base Bracket – Install the fluid cylinder base bracket with the flat side toward the center of the base. You'll notice that the base of the bracket is slotted to allow precise alignment of the hammer to the fluid cylinder. The position of the bracket was marked during testing in the same manner as the protractor support bar.



FPI Model 01-B Assembly Instructions



Fluid Cylinder

Caution: The cylinder must be filled before allowing the hammer to strike the plunger.

The fluid cylinder mounts to the cylinder bracket with hand turn knobs for ease of installation, removal, and adjustment. Attach the cylinder to the bracket then adjust it as follows:

- **Plunger Protrusion** – The plunger should protrude from the cylinder by approximately 1.25 inches (32mm) to insure that the hammer will not strike the end of the cylinder in the event of an impact being performed with an open petcock or transfer tube.
- **Cylinder Position** – With the hammer hanging straight down, the cylinder should be horizontal and centered on the hammer face. The plunger should be almost in contact with the hammer. Adjust the cylinder position as necessary to ensure that your FPI meets all of these requirements.



To adjust the distance between the cylinder and the hammer, loosen the socket head bolts in the cylinder clamps several turns and slide the cylinder in the clamps. The rubber clamping cushions tend to stick to the cylinder. Twisting the cylinder should safely break it free from the rubber.

- **Transducer** – The transducer port is ¼-inch NPT (National Pipe Thread). This is an industry standard and assures that finding a replacement will not become a problem in the future.



Apply three to four wraps of Teflon® tape to the transducer threads and screw the transducer into the housing. The transducer's sturdy stainless steel case makes hand tightening sufficient for a good seal.

- **Luer-Lock and Petcock** – The transducer housing and fill port cap are each threaded to accept the supplied Luer-lock fitting and petcock for convenience in degassing.

FPI Model 01-B Assembly Instructions

Electrical Connections

Attach the following cables to the transducer amplifier:

- **AC Power Cord** – The nominal input is 115 volts at 60 hertz but the device will function properly down to 100 volts at 50 hertz.
- **Event Detector** – This is the plug that comes from the detector on the mast.
- **Pressure Transducer** – Connect the cable from the pressure transducer here. The display will fluctuate erratically if the transducer is not connected.
- **Filter Switch** – Certain amplifier models have a Low-Pass filter. This filter helps reduce the noise from tiny air bubbles that may be introduced into the system while making final connections to the subject. The filter can make the applied pressure wave easier to read. The filter only removes the high-frequency noise that has no effect on the injury. It will not eliminate noise caused by significant amounts of trapped gases as these signal degradations could impact your results and must be corrected to ensure consistent stimulus.
- **Amplifier Output (10mV)** – This is the amplified output of the pressure transducer. Connect this to your oscilloscope or data acquisition system.
- **Event Detector (TTL Output)** – This is a TTL level pulse that can be used to trigger your capture device as the hammer strikes the plunger.



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