E158 Target Mover Operating Procedure

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There are 2 separate systems, one for moving the liquid hydrogen target (which moves vertically up and down) and one for moving the solid targets (which move horizontally). These systems are interlocked to avoid running the targets into each other and damaging the hydrogen target. The interlock logic is straightforward:

1) The hydrogen target will not move down unless the solid target table is in its outermost position (it can move up regardless of the solid target table position)
2) The solid target table will not move unless the hydrogen target is in its uppermost position

Additionally, the liquid hydrogen target will not move down unless the scattering chamber is under vacuum

Note there are only two acceptable positions for the hydrogen target: fully up or fully down. The beam is interlocked and will not come on unless the target is in one of these positions. This is the main linac beam. **DO NOT MOVE THE HYDROGEN TARGET WITHOUT FIRST NOTIFYING MCC (X2151) LET THEM KNOW THAT YOU WILL BE TURNING OFF THE BEAM. THEY WILL ASK YOU TO WAIT IF THEY ARE IN THE MIDDLE OF A PEP II FILL.**

I) Moving the solid target table:

1) Ensure that the liquid hydrogen target is in its uppermost position. Look at the Target Control Panel (rack 50).The Up LED should be lit and the meter should read 200

2) Use the Table Control Panel (Rack 50) to move the desired solid target into the beam line. Please see the attached table below for the correct positions
   DO NOT JOG THE SWITCH QUICKLY.
   DO NOT REVERSE DIRECTION QUICKLY.

Solid Target Table Positions

Table at IN limit switch, Potentiometer displays "593"

Solid Target Positions
#1, set potentiometer to "600"
#2, set potentiometer to "644"
#3, set potentiometer to "688"
#4, set potentiometer to "732"
#5, set potentiometer to "676"
#6, set potentiometer to "820"
#7, set potentiometer to "664"
#8, set potentiometer to "908"
#9, set potentiometer to "952"

Table at OUT limit switch, Potentiometer displays "1040"

II) Moving the Hydrogen Target

1) Ensure that the solid target table is in its outermost position. Look at the Table Control Panel (Rack 50). The OUT LED should be lit and the meter should read 1040.

2) **Notify MCC that you are about to move the target and thus turn off the main beam.**

3) Using the Target Control Panel (Rack 50) move the target all the way to its down position. The Down LED should light and the meter should read 705. There are contact switches that will stop target motion when it reaches its bottom position.

4) To raise the hydrogen target to its uppermost position, use the up switch on the Target Control Panel until the UP LED is lit and the meter reads 200. There are contact switches that will stop target motion when it reaches its bottom position.

5) Turn the key at the Beam Suppression Panel (Rack 17) to reset the beam suppression interlock.