1) Use Codman Cranial Access kit (drill) as before
2) Appropriate size drill bit is in the Hummingbird™ catheter kit
   CT scan will determine the thickness of the skull: drill bit is adjustable to that depth
   Once the hole is drilled, the neurosurgeon should inspect and flush the site to ensure no bone fragments are left behind that may rupture the ICP air bladder
3) The neurosurgeon will place the appropriate size **Depth Stop** on the titanium bolt before twisting into place
   (This assures appropriate depth through skull)
4) The neurosurgeon will insert catheter through the bolt.
5) Once catheter “click locks” into place; the bladder has completely exited the bolt & the catheter can not be pulled out of the bolt
6) **DO NOT CONNECT CATHETER TO CABLE YET**

Other Facts:
- 100% Latex Free                    No Heparin or antibiotic coating
- Patient temperature does not effect the AirPulse™ bladder.
- **Bolt and Catheter** **ARE** MRI compatible
- The **AMS transducer** is **NOT** MRI compatible
- The transducer end of the catheter **CANNOT get wet**!
- When disconnecting transducer from catheter: Place white port cap over the end of the catheter for protection.
Hummingbird ICP Bolt  
Attaching to GE monitor  
Zeroing & Cycling

On initial Insertion: (Preflight checklist)  
1. **Connect** AMS transducer cable to **GE monitor**  
   label the monitor ICP, allow the AMS to warm up 1-2 minutes  
2. **Cycle** Once (see below)  
3. **ZERO** GE bedside monitor  
4. **Cycle** again with your finger over the end of the AMS transducer  
   (this is the square waveform test)  
   **Wait for waveform / # to return to 0** before connecting catheter  
5. **Connect** the patient catheter to the AMS transducer  
6. **Cycle** again once connected

The connection between AMS and catheter must be very tight to avoid any air leak from system.  
For **MRI**  
1) Disconnect AMS from catheter  
   Do not disconnect AMS cable from GE tram  
2) **Cap pt catheter end**  
3) Upon return reconnect & cycle  
   (catheter & bolt are MRI compatible : AMS is NOT)

If AMS cable is disconnected from GE tram and looses power  
The preflight checklist must be initiated (initial steps 1 – 6 above )

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**To Cycle**  
1) Pull **BLUE piston** all the way out  
   Indicator light is **RED**

2) Push **BLUE Piston ½ way** in  
   you will feel slight resistance  
   This move “vacuums” the bladder

3) **Count** 1 – 1000  2-- 1000

4) Push **BLUE piston** all the way in  
   Indicator light turns **GREEN**

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**Cycle**  
Q 8 hr  
Standard Protocol  
(Indicator light turns RED after 8 hr)

**If**  
ICP > 30  
Re-cycle  
Q 1 hr

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Hummingbird™ Helpful Hints SherriWelch , Darren McShane 2012