Inner Barrel and Tether Assembly Instructions

Revision: 02 – 22 March 2012

NOTE: PICTURES TO COME IN NEXT REVISION

1.0 MDHDS Inner Barrel Assembly

1.1 Assemble the MDHDS inner barrel in the following order: piston head, dog body, 7'8" inner barrel section, first 10' inner barrel section, and second 10' inner barrel section. Use generous amounts of copper anti-seize or similar compound on the threads.

2.0 Inner-Outer Barrel Union

2.1 Slide inner barrel assembly through lower outer barrel assembly

2.2 Follow T. Pettigrew's directions here

3.0 Tether-Pulley Assembly Installation (Two-person job, at minimum)

3.1 If coaxial is not installed in the pulley, see Appendix X for directions and complete this task immediately.

3.2 Tether assembly should be put together in this order (from uptool to down)

i. RS fishing neck stopper
ii. Fixed cable (looped directly through eye-bolt on stopper and eyelet on the swivel and affixed with aluminum ferrules)
iii. Swivel
iv. Upper pulley
v. Lower pulley
vi. Tubing barb
vii. Latex tubing
viii. Tubing barb
ix. 1/4"-20 all thread with one nut on the end

Fig 1. Tether Assembly: stopper → galvanized cable → swivel → upper pulley → lower pulley → hose barb → latex tubing → hose barb → 1/4" all thread (not shown); car keys for scale

4.0 Tie a piece of string to batting of some sort (a small piece of foam works), then using a vacuum or compressed air suck or blow the string/batting through the inner barrel. String must be at least 45' long.

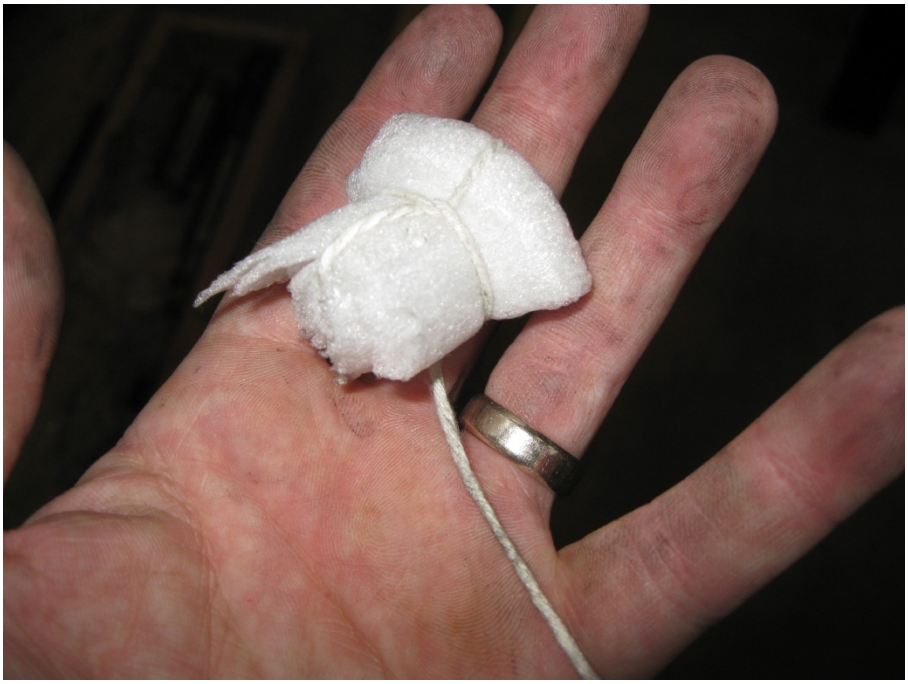

Fig 2. Lightweight string tied around a piece of foam to pass through MDHDS inner barrel assembly using a vacuum or compressed air.

4.1.1 Use a latex glove (or some other plastic-type material) to make a temporary seal between the inner and outer barrel. There are three pressure release ports along the length of the inner barrel, without creating a temporary seal, it will be difficult to impossible to pass the string through (PICTURE).

4.2 Tie a 50' length 1/8" (or similar) rope to the string and draw it through the entire length of the inner barrel until several feet are protruding from either end.

4.3 With the pulleys close together, Delrin nose to Delrin nose, draw entire cable through the pulleys until (from the fixed line) until only ~70" of cable are left extending out of the downtool pulley.

4.4 Tie the end of the 0.125" rope around ¼" all-thread, snug against the nut.

4.4.1 Using an in-line slip knot, firmly attach the IE4M plug to the 0.125" rope so that the entire splice extends beyond the all-thread. This will allow you to draw the entire tether assembly through the inner barrel with only one line, and ensuring the cable and pulleys do not tangle.

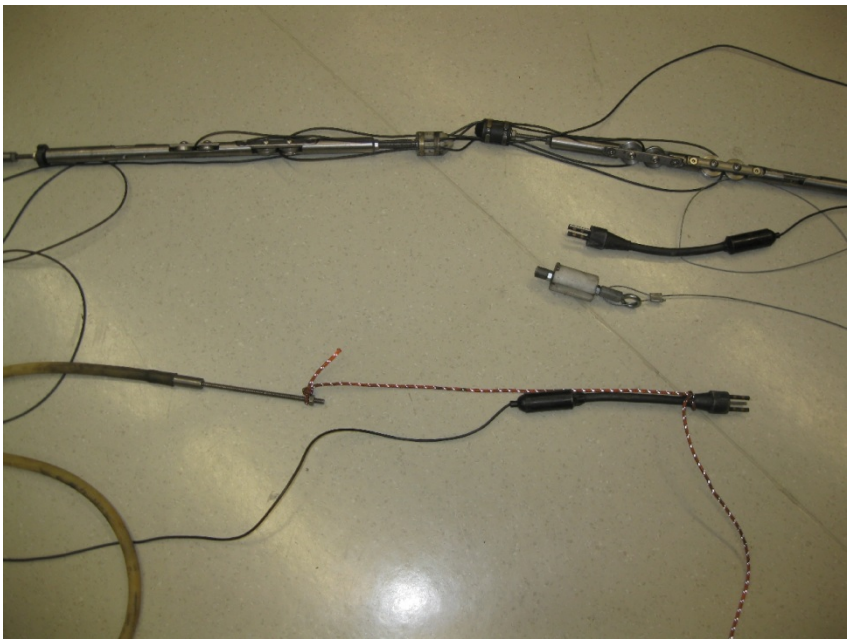

Fig 3. Tether assembly ready to be installed. Pulleys are snugged up nose-to-nose, the tether on the downtool side extends slightly farther than the pulley, remainder of tether is on the uptool side, end of string is tied to the ¼" all-thread, and an in-line slip-knot is tied around the IE4M.

NOTE: It is VERY important that as you draw the cable and pulleys through that you are careful and do not allow the coaxial cable and latex tubing or galvanized cable to get twisted together or tether operation will be sub-standard.

4.5 Draw the pulley assembly through the MDHDS inner barrel by pulling the string from the downtool side. DO NOT let the cable and pulley/tether assembly twist!

4.5.1 Use the stopper insertion tool to seat the upper stopper when needed

4.5.2 When the entire pulley assembly is through, draw the IE4M plug and all thread through the piston head. Have a second person hold the tether and rubber band.

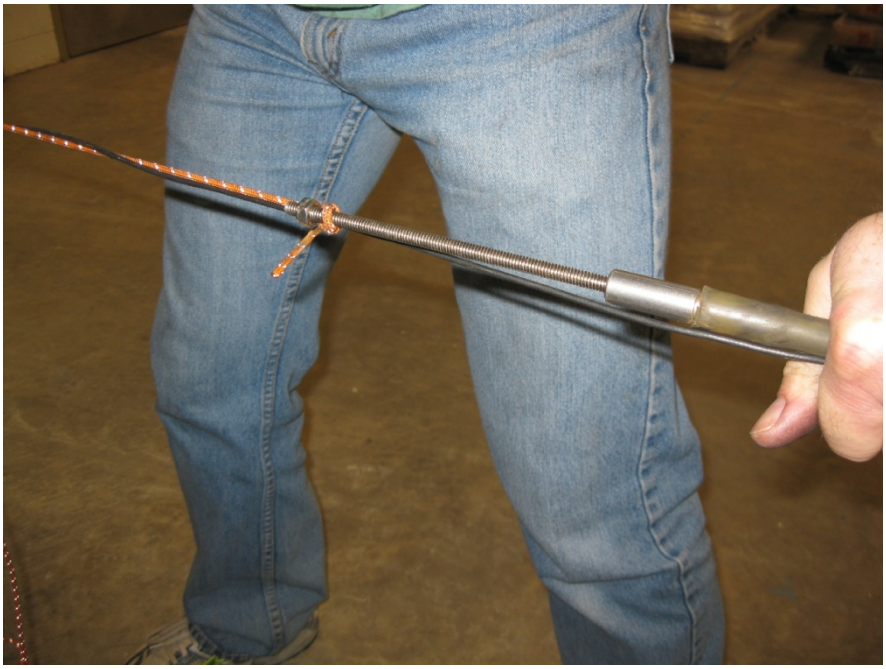

Fig 4. One person holds latex band and tether cable just below the lower-most barbed fitting so a second person can remove the all-thread and install the lower stopper.

4.5.2.1 Remove all-thread and nut from hose barb, attach piston head stopper to hose barb and insertion tool to the piston head stopper (with entire splice on the downtool side of the stopper).

4.5.2.1.1 It is advised that you leave the slip knot on the IE4M, as it will be of use later.

Fig. 5 Lower stopper assembly being installed using the stopper insertion tool. Note that the IE4M splice is on the downtool side of the stopper.

4.5.2.2 While holding onto IE4M, slowly lower piston head stopper into place.

NOTE: It is very easy to bind and sever the tether when attaching the male quick release and fishing neck. It is important that while one person is attaching these two components, a second person is slowly drawing out and releasing the tether to ensure no binding occurs.

4.6 Slide inner barrel assembly through remaining outer barrel assembly and tighten all threads with pipe wrenches.

4.7 Attach male quick release to piston head (using copper anti-seize or similar on threads), constantly pulling tether in and out to make sure it does not bind. Ensure female QR connection sleeve has been slid onto the male QR and the rope attached to the IE4M cable has been slid through the QR before attaching.

Fig 6. String remains attached to the IE4M after installing the male quick release, otherwise it is very difficult to pull the cable out to connect to the tool.

4.8 Attach RS fishing neck to upper inner barrel section, constantly pulling tether in and out to make sure it does not bind.

4.9 Draw tether out (from upper end) several meters (repeatedly) to make sure it is installed properly. Disassemble and reinstall if binding.

4.9.1 If this is your first time inserting the tether, we recommend you draw the tether out ~10', approximately 100 times so you can get a feel for how the tether should feel. If it feels like there is a substantial amount of friction between the pulleys and in the inner barrel walls, try rotating the entire inner barrel slightly, this helps quite a bit.

4.10 Use string attached to cable to draw out cable, attached to tool, and use IE4 retaining nut to ensure cable will not accidently be removed.

4.11 Tighten female QR connection sleeve to female QR (which should already be attached to the tool)