*LIGO Laboratory / LIGO Scientific Collaboration*

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Small Actuator Sensor Assembly Procedure

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Distribution of this document:

Advanced LIGO Project

This is an internal working note

of the LIGO Laboratory.

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**Clean room standards**

For a clean assembly all LIGO standards should be followed, as presented in the latest version of the **LIGO Contamination Control Plan (E0900047).** Clean room garb including UHV gloves should be worn when working with parts.

All tools that come in contact with assembly should be cleaned to class B standards.

Assembly will be done under a portable clean room. Any time a part of the assembly is not covered by the portable clean room or not being actively worked on it should be covered with appropriate clean covers. (C3 polyester or equivalent).

**Torque Values for Bolts:**

Standard torque values according to manufacturer standards for screw material should be used.

**Parts prep work: alignment pins and helicoils**

To facilitate assembly, parts requiring pins may to be prepared before assembly and will be listed to allow preliminary preparation of the parts, after cleaning and before starting general assembly. See E1000402 Current Rev.

Helicoils:

1. D0902251

2. D0902252

Dowels:

1. D0902250

2. D0902249

3. D0902251

**Weight**

Approximated weights are provided in this assembly procedure as an indication for safety purpose.

See document:

E1000402 Part Prepreparation

Assembly for D0902529 Stage 1-2 Horizontal Sensor Assembly

D0902529 Stage1-2 Horizontal Position Sensor pic.TIF

Reference D0902529

Note the 2 halves of this assembly are independent of each other and may be assembled as such.

1. Press Items (8) into Item (3) (D0902250) Displacement Sensor Mount to dimension shown Qty 2.

2. Remove nut and washers from Item (1) (D1000467) Position Sensor Assy place Item (3) between the two Spherical halves as shown in cut away view, place nut and washers back as previously supplied tighten nut.

3. Insert Item (2) (D1000468) Position Sensor Target Assy into Item (4) (D0902250) Sensor Target Mount as shown Install Item (6) vented washer and Item (5) screw as shown, tighten screw to secure.

Assembly for D0902534 Stage 1-2 Vertical Sensor Assembly

D0902534 Stage1-2 Vertical Position Sensor pic.TIF

Reference D0902534

Note the 2 halves of this assembly are independent of each other and may be assembled as such.

1. Press Items (8) into Item (3) (D0902249) Displacement Sensor Mount to dimension shown Qty 2. Press Items (8) into Item (4) (D0902251) Sensor Target Mount to dimension shown Qty 2.

2. Remove nut and washers from Item (1) (D1000467) Position Sensor Assy place Item (3) between the two Spherical halves as shown in cut away view, place nut and washers back as previously supplied tighten nut.

3. Insert Item (2) (D1000468) Position Sensor Target Assy into Item (4) (D0902251) Sensor Target Mount as shown Install Item (6) vented washer and Item (7) screw as shown, tighten screw to secure.