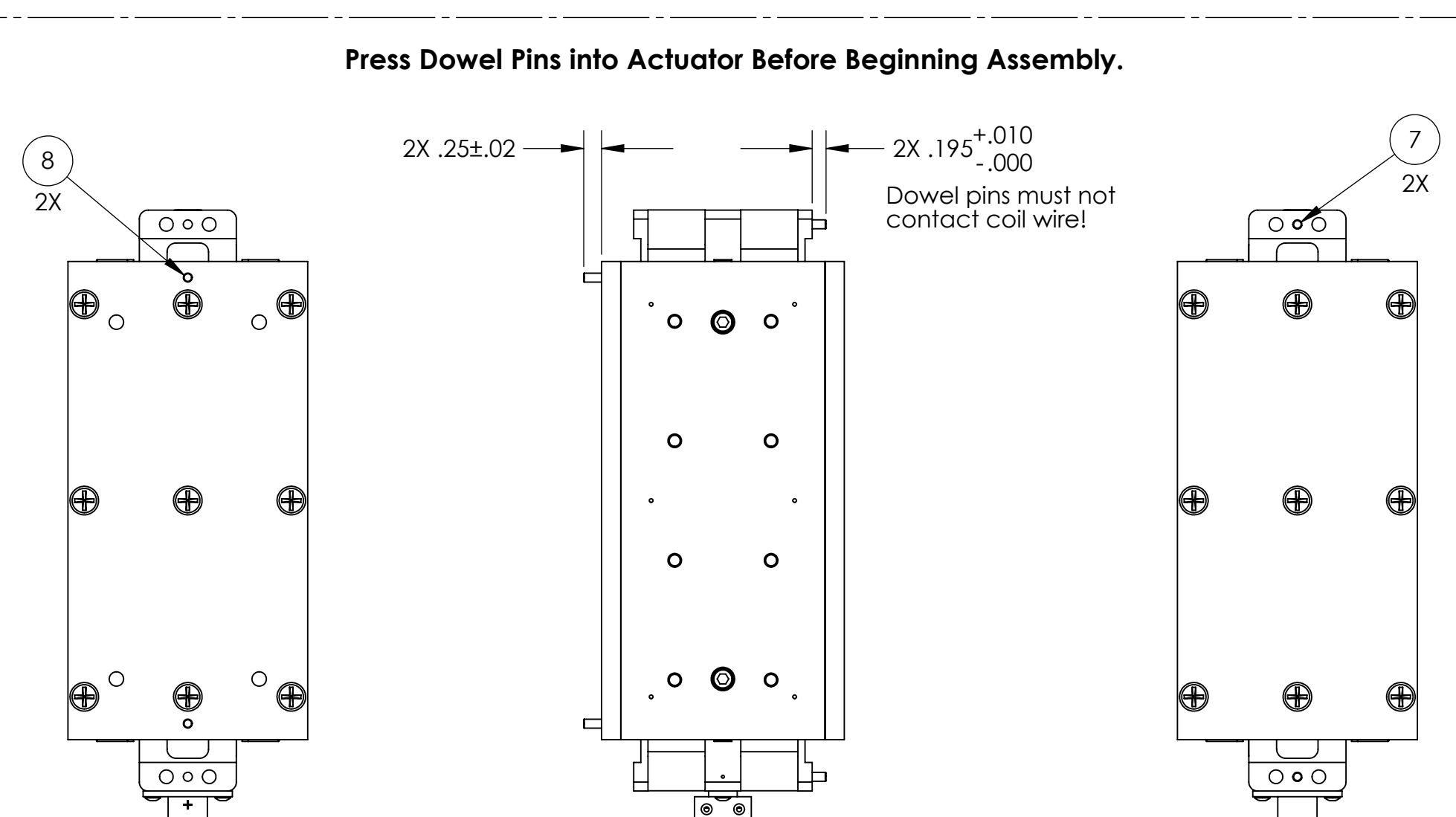
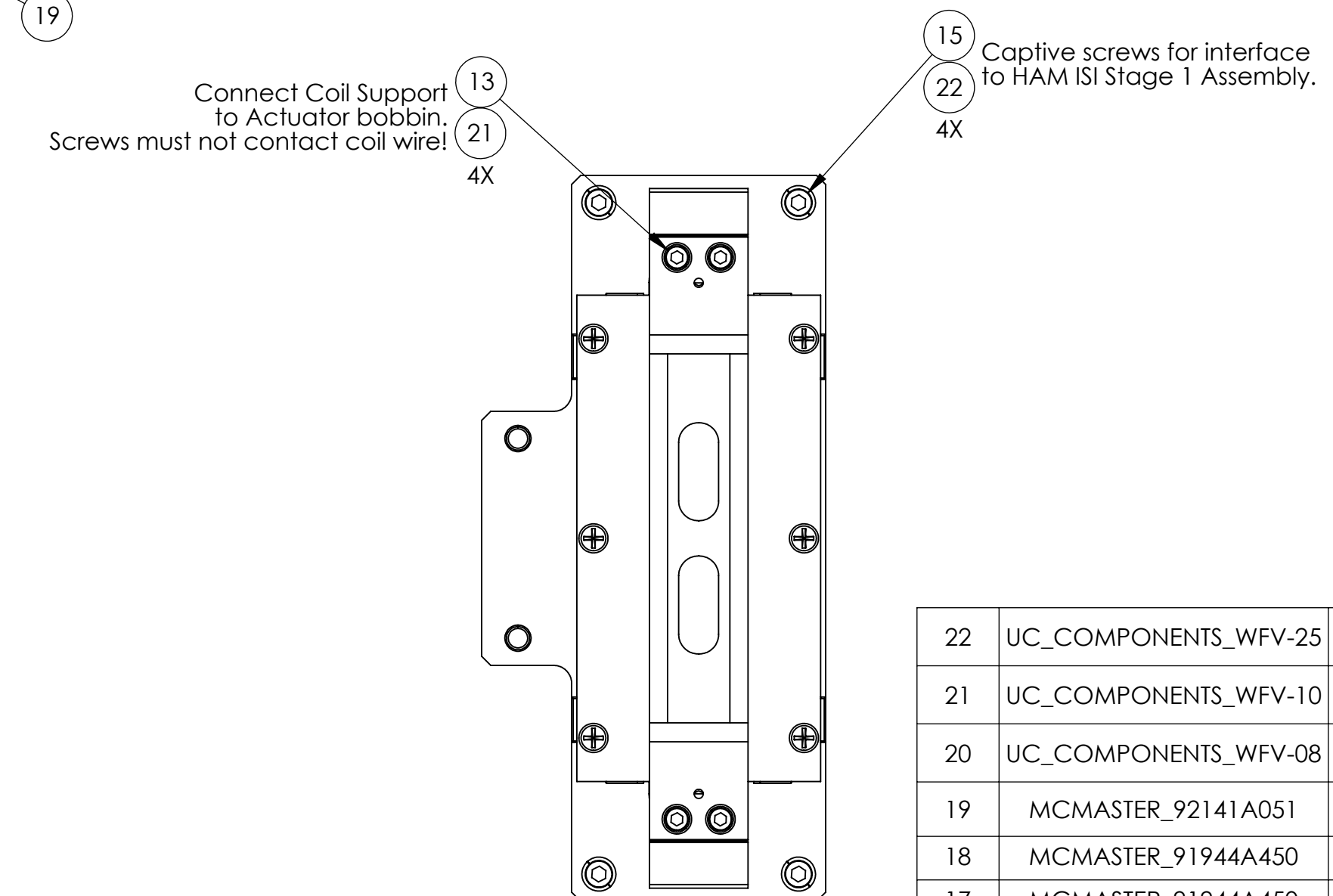
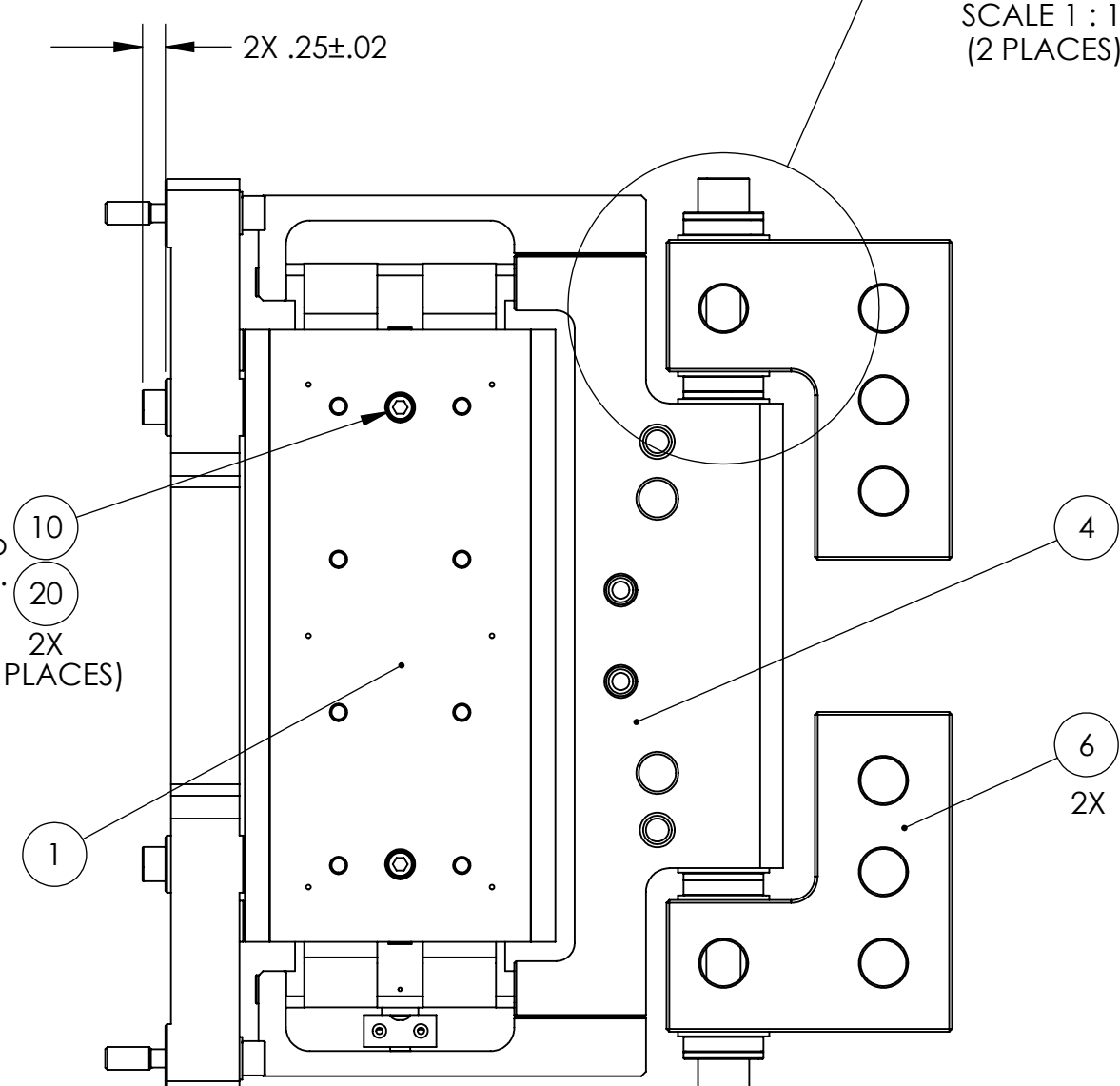
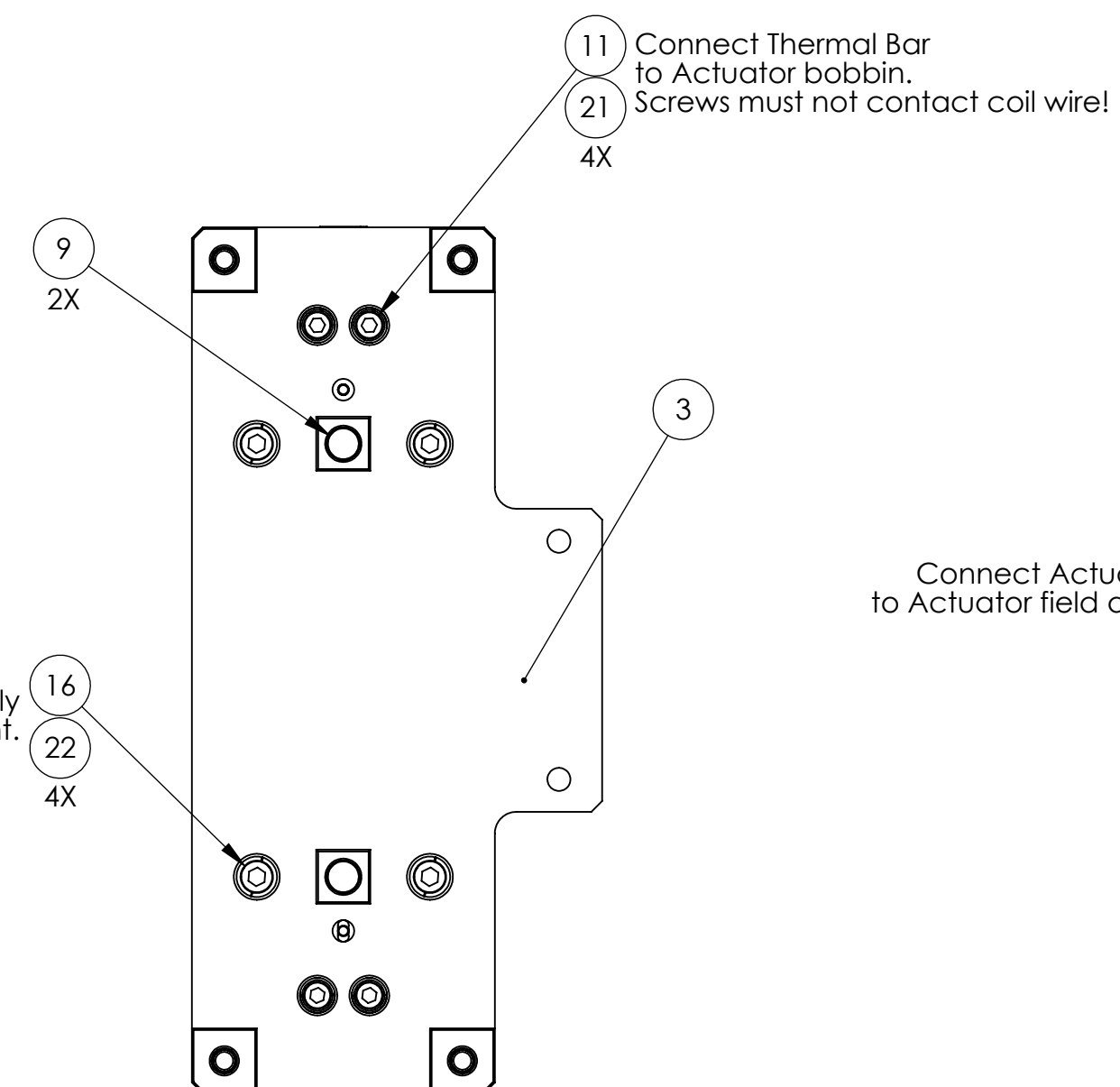
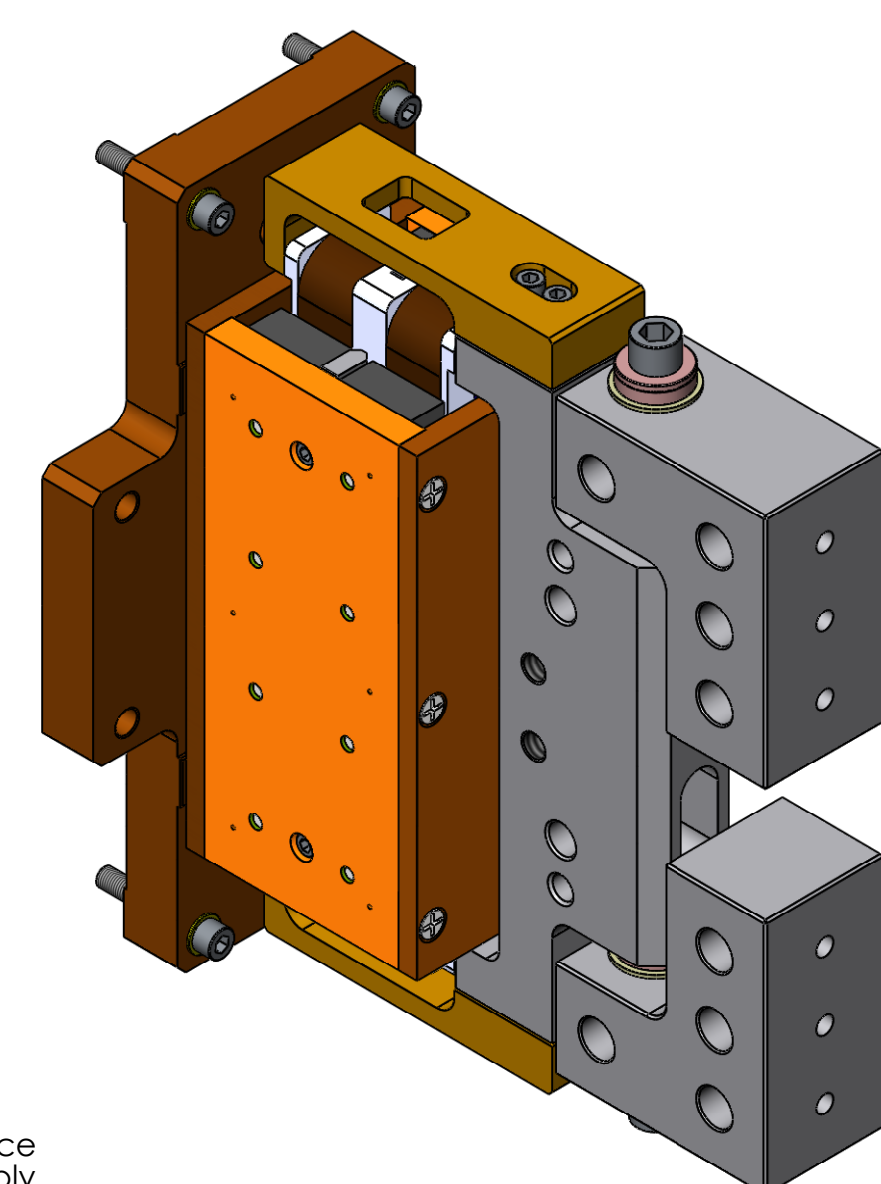
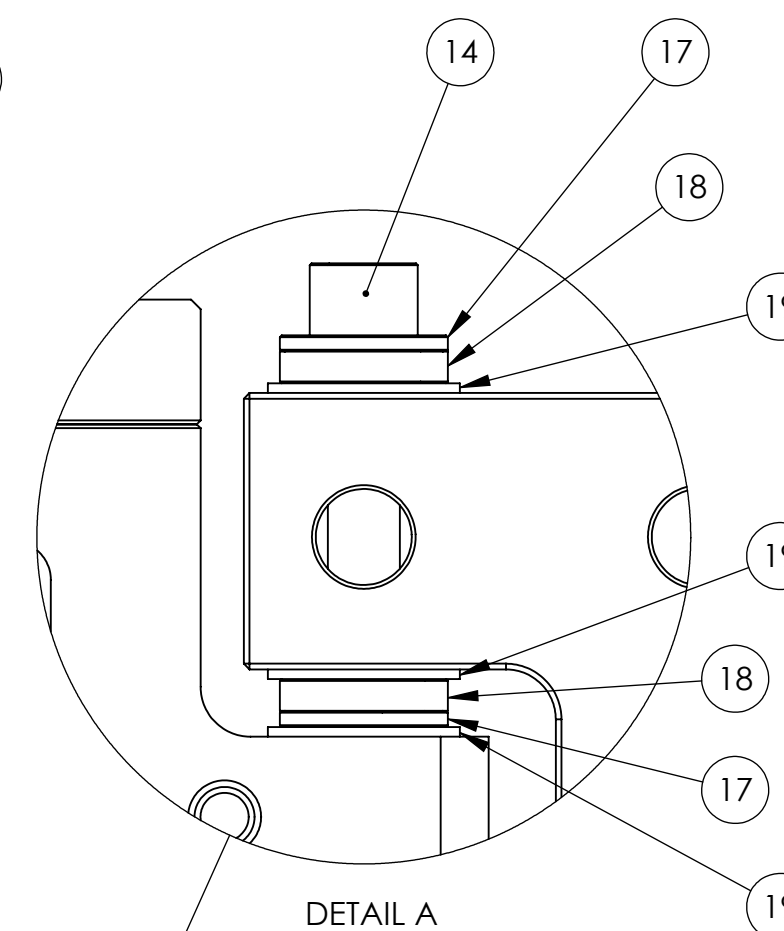
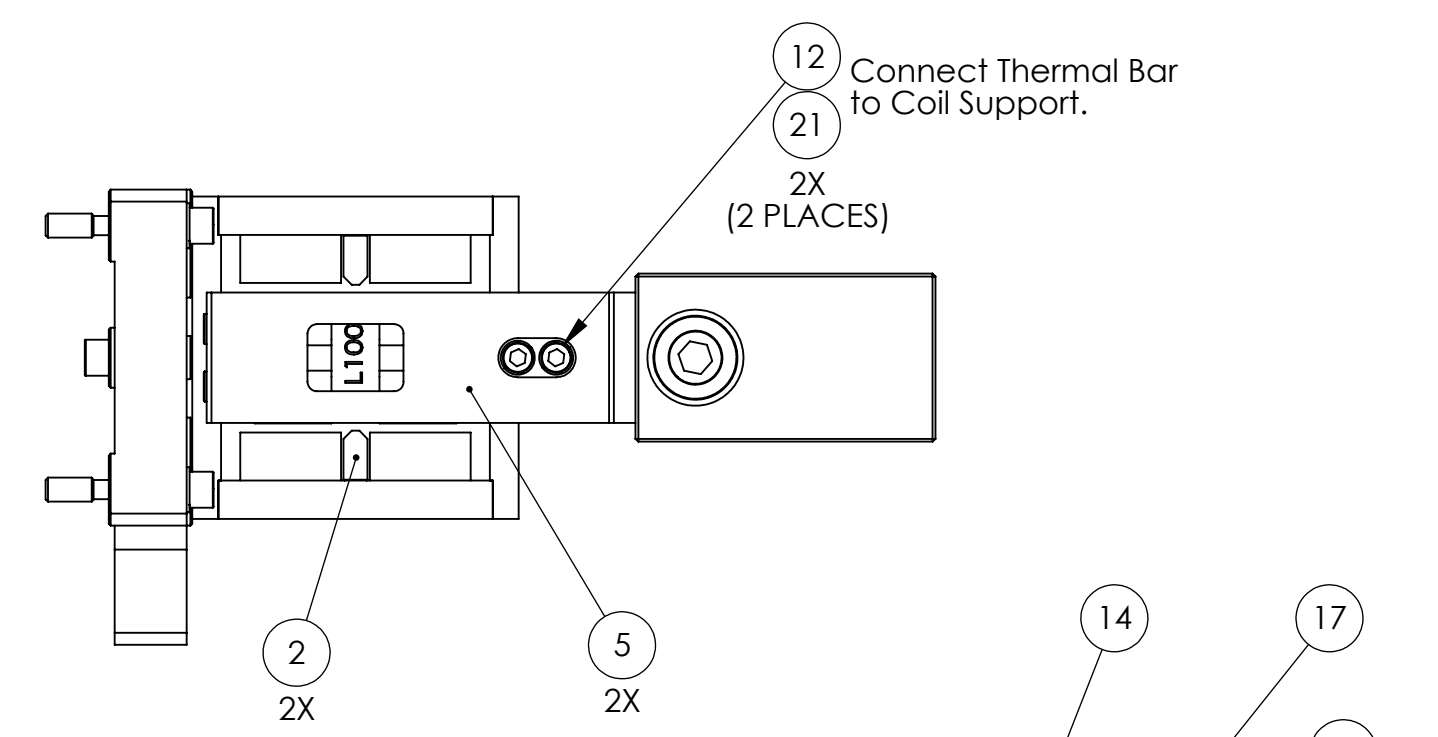


NOTES CONTINUED:  
 5. Refer to LIGO-E0900216 for detailed assembly instructions.  
 6. Weight of finished assembly: 26 lbs

REV.	DATE	DCN #	DRAWING TREE #
v1 / D	05 FEB 2008	N/A	N/A
v2	13 JAN 2010	E1000001	T0900305



HORIZONTAL Configuration					
ITEM NO.	PART NUMBER	DESCRIPTION	SIZE / TYPE	MATERIAL	Horizontal/ QTY.
22	UC_COMPONENTS_WFV-25	Vented Washer, .255 ID X .468 OD X .032 THK #1/4	1/4" (.26"x.47")	18-8 SSSL	8
21	UC_COMPONENTS_WFV-10	Washer Vented, 0.195 ID, 0.354 OD, 0.032 THK #10	#10 (.20"x.35")	18-8 SS	12
20	UC_COMPONENTS_WFV-08	Washer Vented, .17 ID X .304 OD X .032 THK #8	#8 (.17"x.30")	18-8 SS	4
19	MCMaster_92141A051	Flat Washer, 3/8"	3/8" (.41"x1.0"x.05")	18-8 SS	6
18	MCMaster_91944A450	Spherical Washer, 3/8"	3/8", Female	18-8 SS	4
17	MCMaster_91944A450	Spherical Washer, 3/8"	3/8", Male	18-8 SS	4
16	D0901100	SHCS, Custom Ag-Plated, 1/4"-20x.625"	1/4"-20x.625", Ag-Plated	18-8 SS	4
15	D071136	SHCS, Custom Captive	1/4"-20x1.5" (1.0" CLEAR)	18-8 SS	4
14	MCMaster_92196A636	SHCS, 3/8"-16x3.0"	3/8"-16x3.0"	18-8 SS	2
13	HOLOKROME_79030	SHCS, #10-32x1.25"	#10-32x1.25"	18-8 SS	4
12	HOLOKROME_79024	SHCS, #10-32x.75"	#10-32x.75"	18-8 SS	4
11	MCMaster_92196A265	SHCS, #10-32x.25"	#10-32x.25"	18-8 SS	4
10	HOLOKROME_78030	SHCS, #8-32x.625"	#8-32x.625"	18-8 SS	4
9	MCMaster_90145A622	Dowel Pin, 3/8"x.75"	3/8"x.75"	18-8 SS	2
8	MCMaster_90145A471	Dowel Pin, 1/8"x.50"	1/8"x.50"	18-8 SS	2
7	MCMaster_90145A470	Dowel Pin, 1/8"x.375"	1/8"x.375"	18-8 SS	2
6	D071132	Actuator L-Bracket, Horiz	-	6061-T6 Al	2
5	D071123	Actuator Thermal Bar	-	OFHC Copper	2
4	D071121	Actuator Coil Support	-	6061-T6 Al	1
3	D071120	Actuator Magnet Mount	-	6061-T6 Al	1
2	D070534	Actuator Stop	-	6061-T6 Al	2
1	D0902749	Large Actuator, aLIGO SEI HAM-ISI & BSC-ISI	-	See BOM	1

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)  
 1. INTERPRET DRAWING PER ASME Y14.5-1994.  
 2. REMOVE ALL SHARP EDGES, R.02 MIN.  
 3. DO NOT SCALE FROM DRAWING.  
 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 .XX ± .015  
 .XXX ± .005  
 ANGULAR ± 0.5°

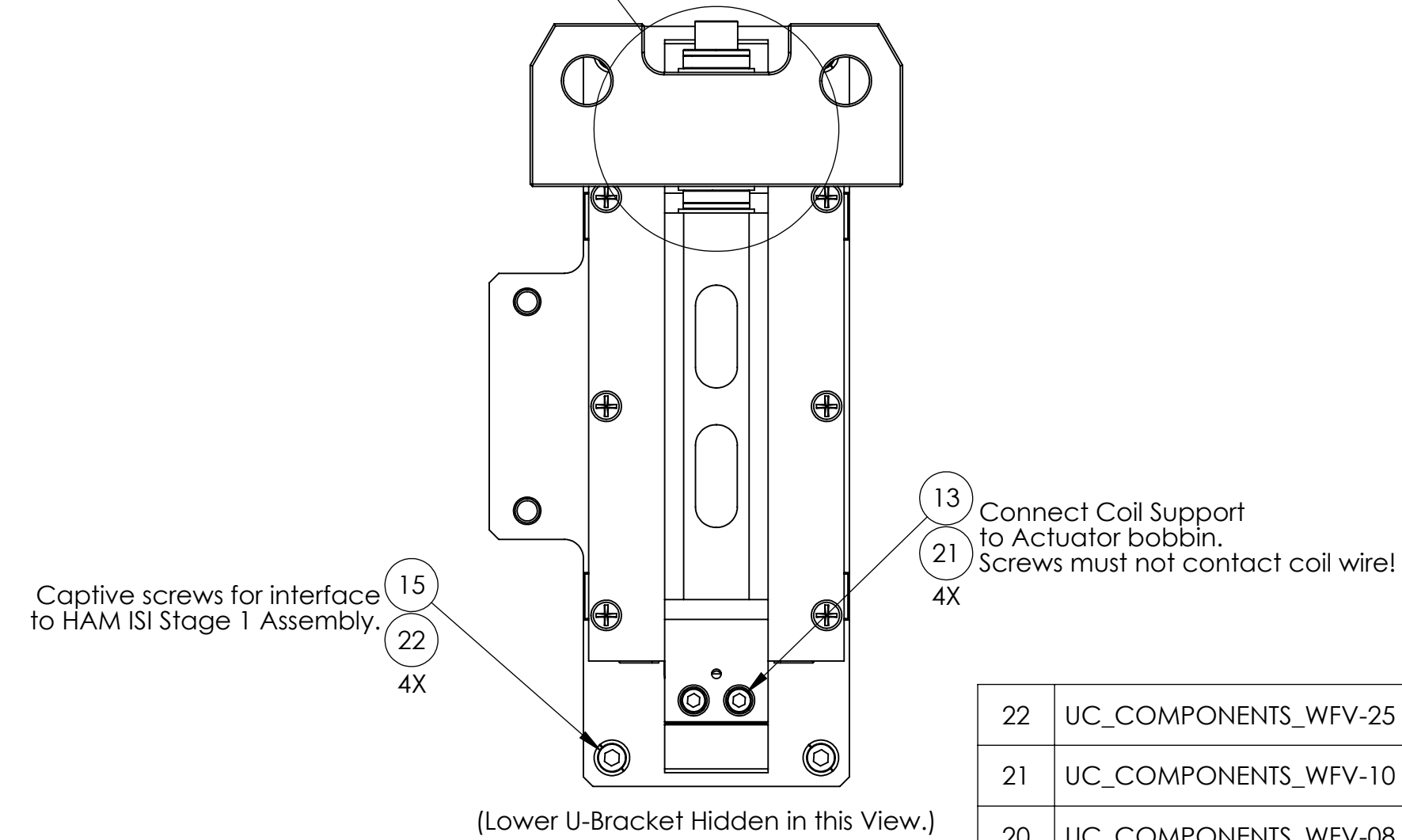
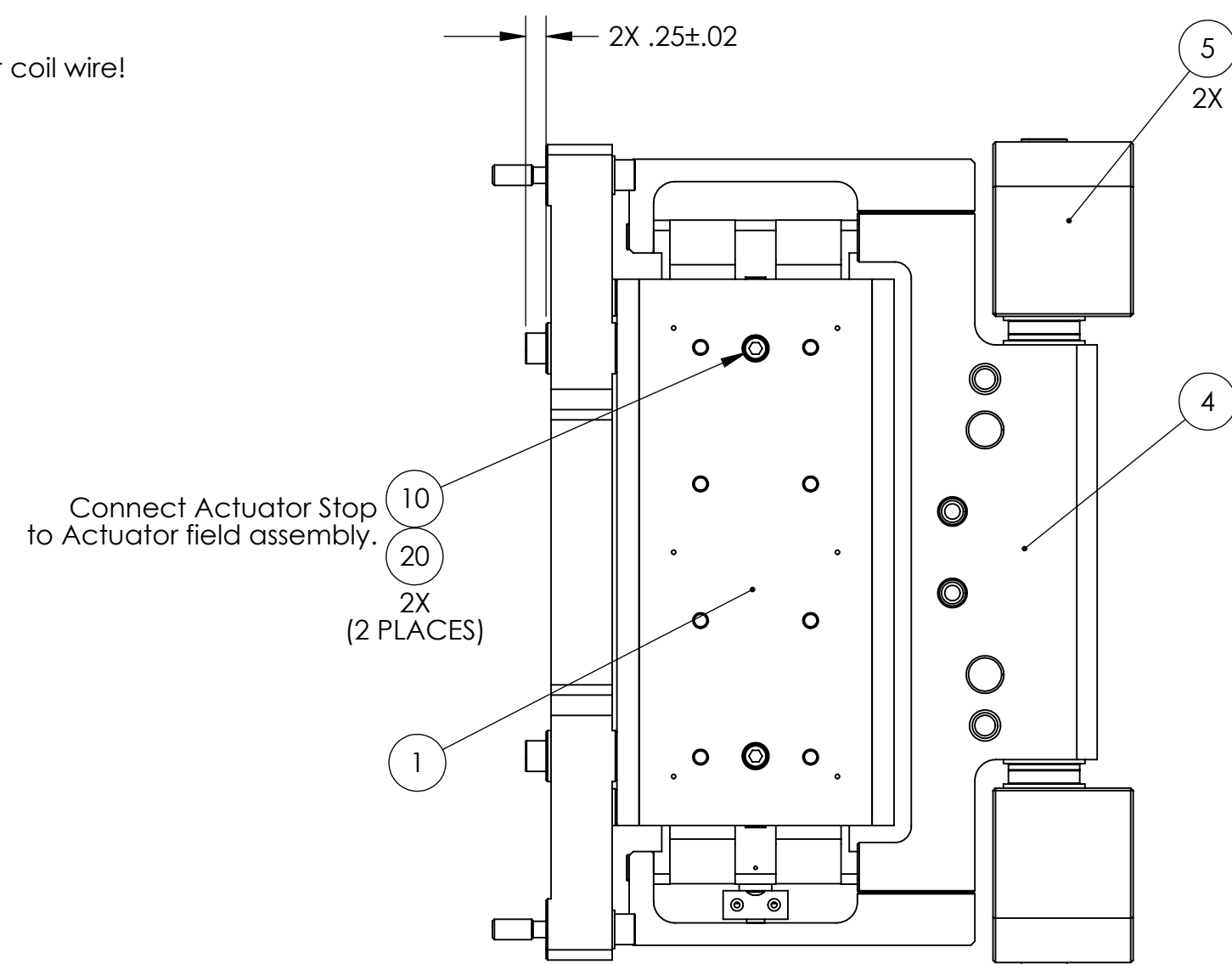
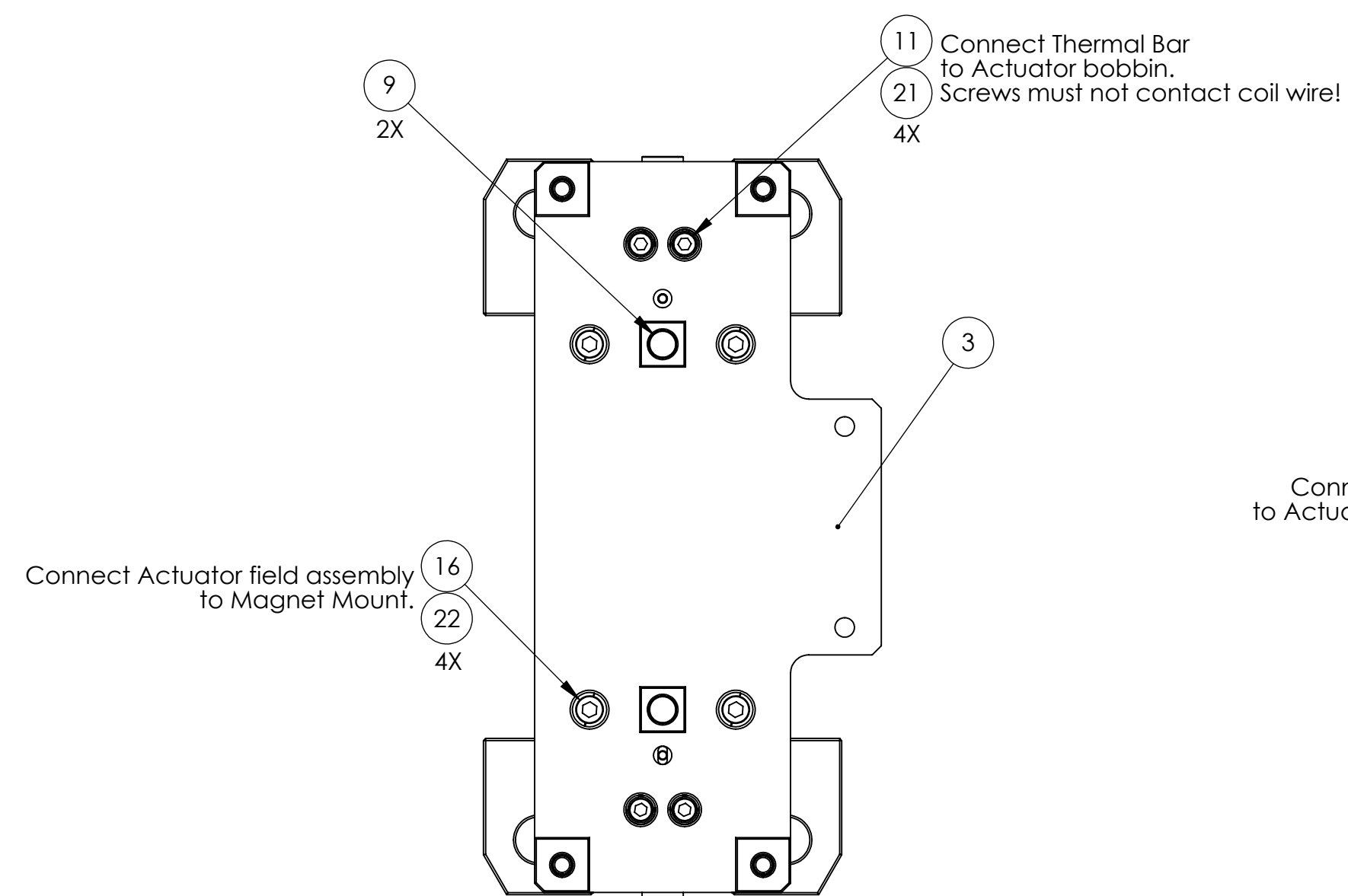
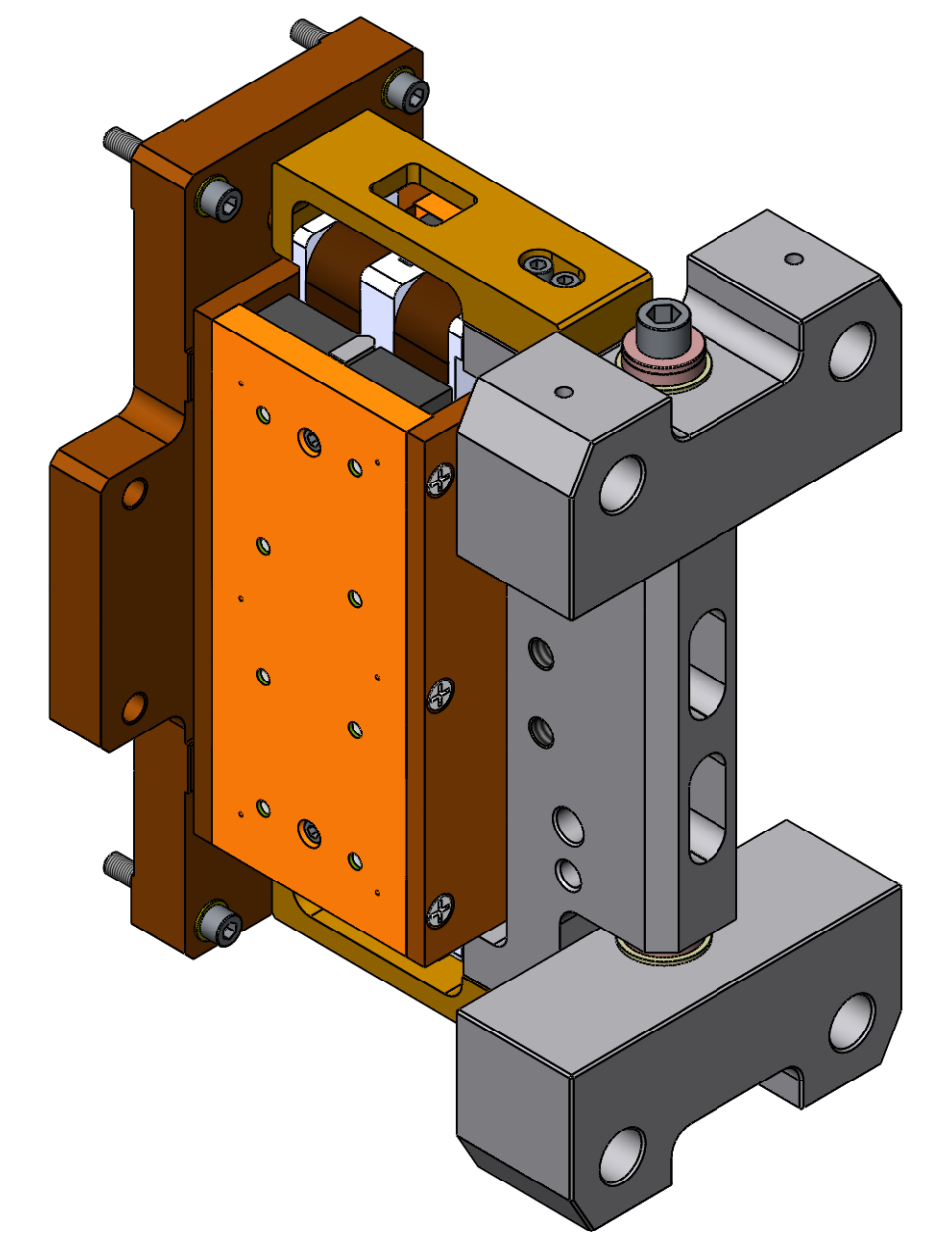
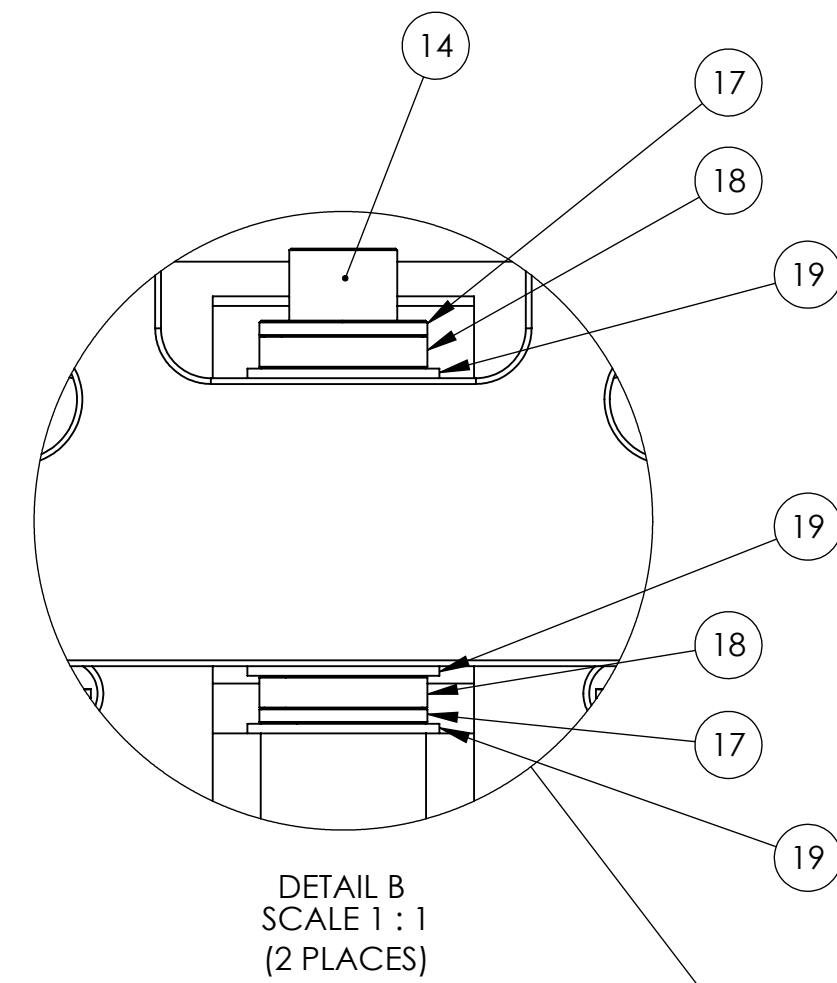
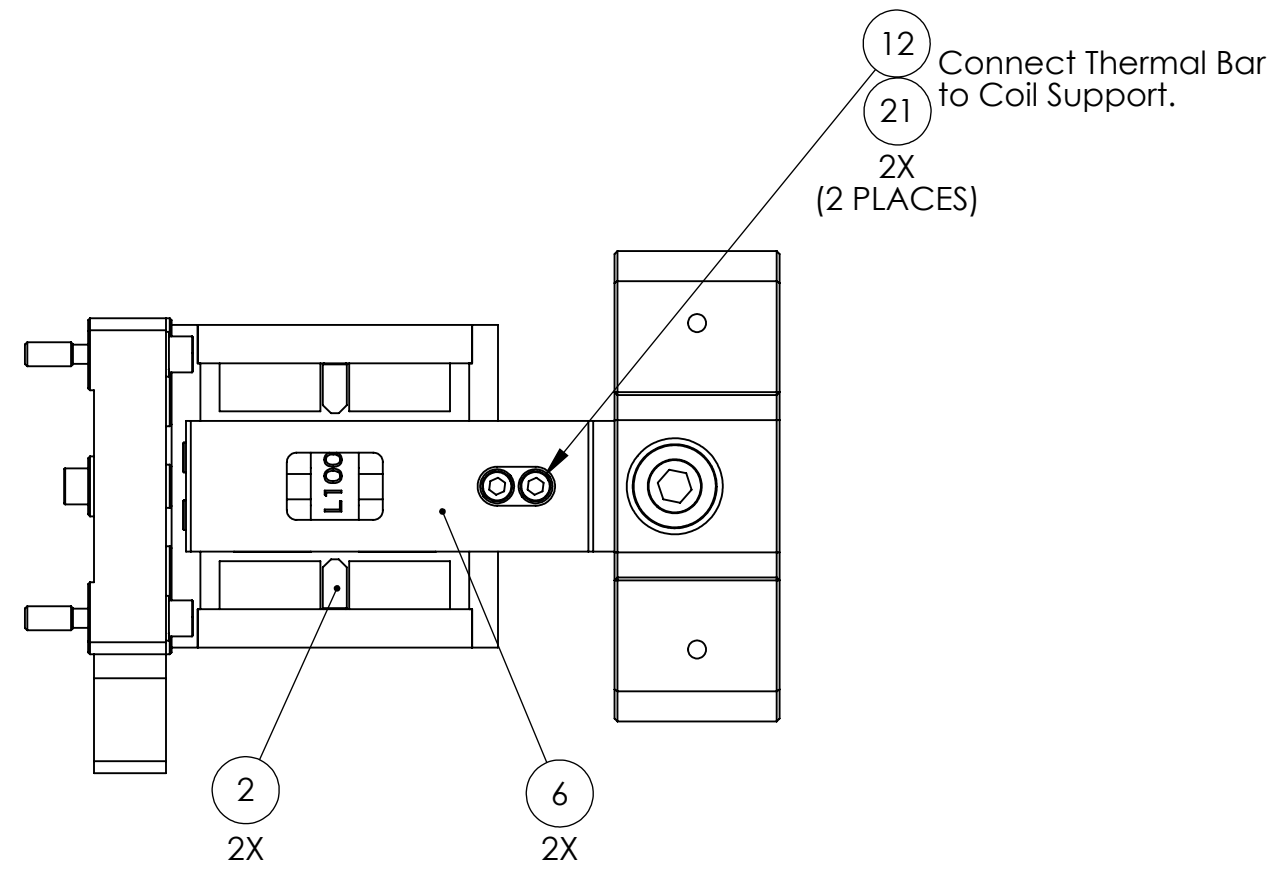
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PART NAME: **Asm, Actuator**

DESIGNER	Andy Stein	08 May 2009	SIZE	DWG. NO.	REV.
DRAFTER	Andy Stein	13 JAN 2010	D	<b>D071442</b>	v2
CHECKER			SCALE: 1:2	PROJECTION:	SHEET 1 OF 4
APPROVAL	Ken Mason	13 JAN 2010			

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SEI** NEXT ASSY: **D0900124**

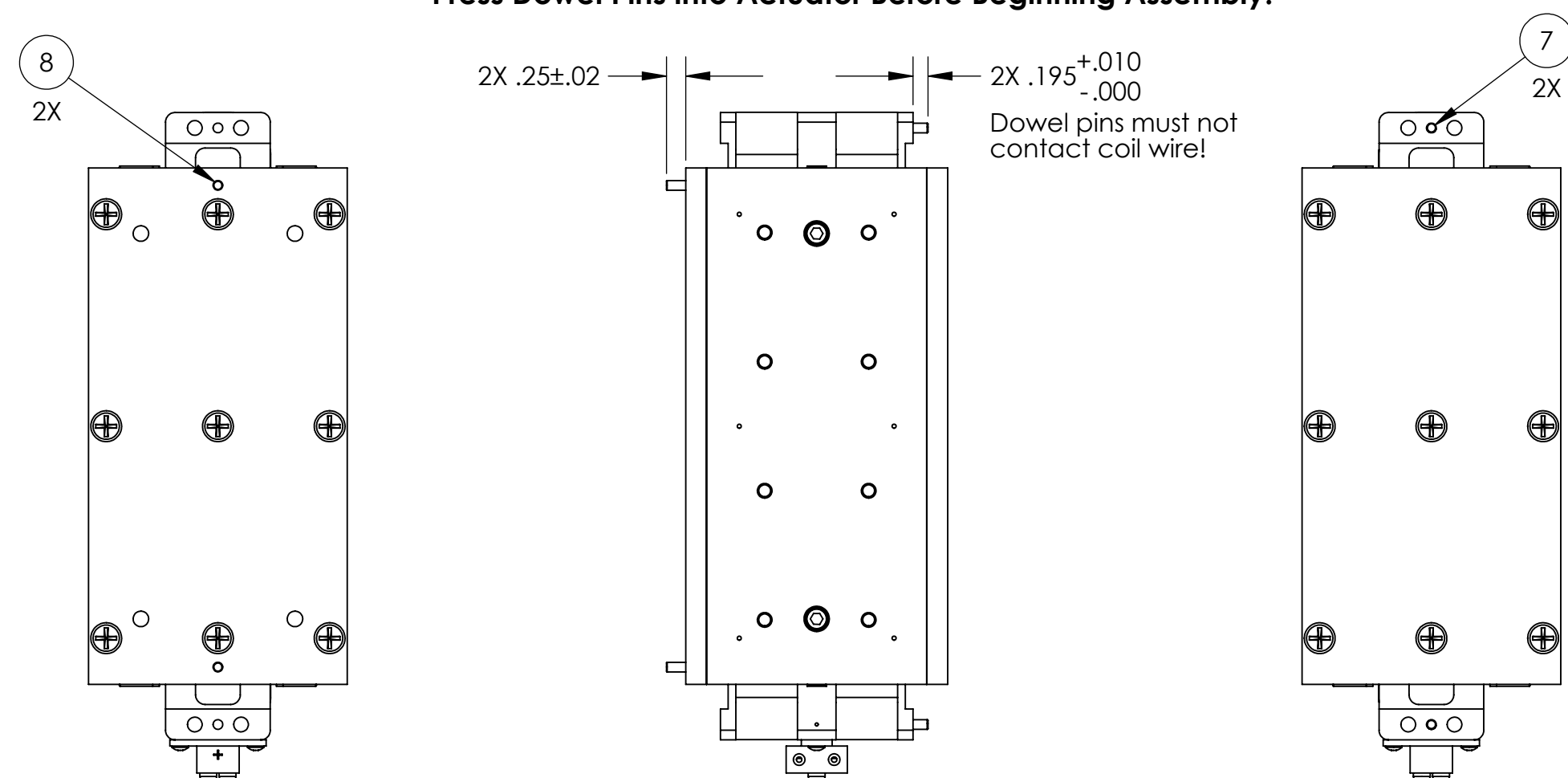
D071442\_Asm-Actuator.PART PDM REV: X-037, DRAWING PDM REV: X-005



**VERTICAL Configuration**

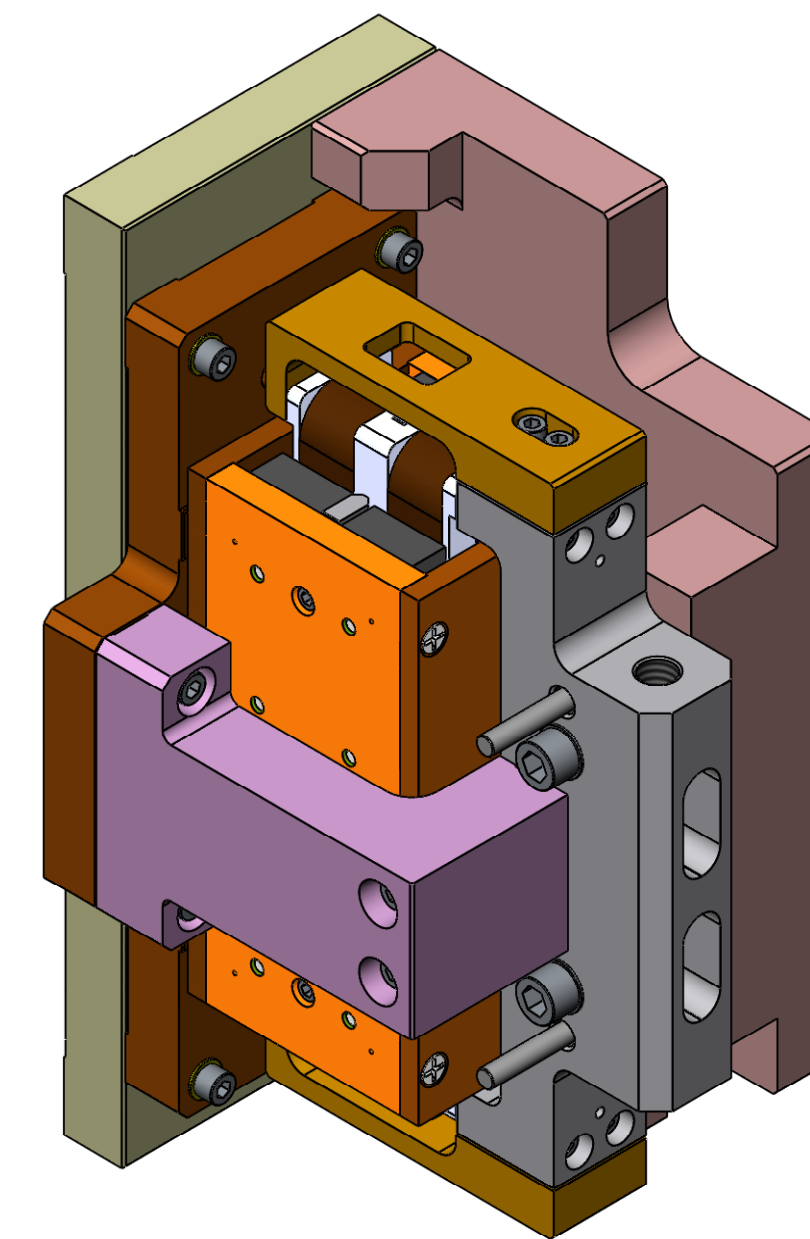
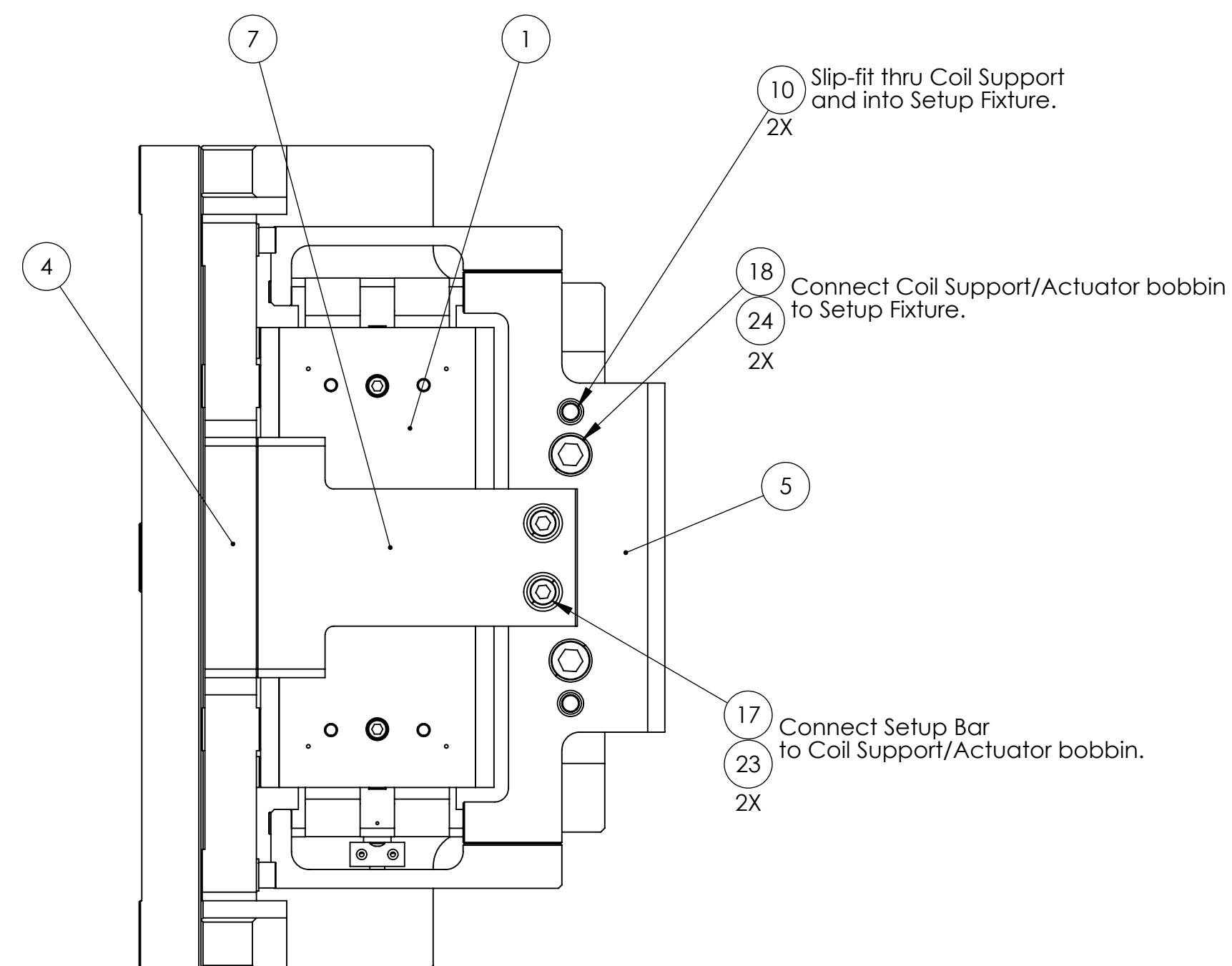
ITEM NO.	PART NUMBER	DESCRIPTION	SIZE / TYPE	MATERIAL	Vertical / QTY.
22	UC_COMPONENTS_WFV-25	Vented Washer, .255 ID X .468 OD X .032 THK #1/4	1/4" (.26"x.47")	18-8 SSSL	8
21	UC_COMPONENTS_WFV-10	Washer Vented, 0.195 ID, 0.354 OD, 0.032 THK #10	#10 (.20"x.35")	18-8 SS	12
20	UC_COMPONENTS_WFV-08	Washer Vented, .17 ID X .304 OD X .032 THK #8	#8 (.17"x.30")	18-8 SS	4
19	MCMaster_92141A051	Flat Washer, 3/8"	3/8" (.41"x1.0"x.05")	18-8 SS	6
18	MCMaster_91944A450	Spherical Washer, 3/8"	3/8", Female	18-8 SS	4
17	MCMaster_91944A450	Spherical Washer, 3/8"	3/8", Male	18-8 SS	4
16	D0901100	SHCS, Custom Ag-Plated, 1/4"-20x.625"	1/4"-20x.625", Ag-Plated (1.0" CLEAR)	18-8 SS	4
15	D071136	SHCS, Custom Captive	1/4"-20x1.5" (1.0" CLEAR)	18-8 SS	4
14	MCMaster_92196A636	SHCS, 3/8"-16x3.0"	3/8"-16x3.0"	18-8 SS	2
13	HOLOKROME_79030	SHCS, #10-32x1.25"	#10-32x1.25"	18-8 SS	4
12	HOLOKROME_79024	SHCS, #10-32x.75"	#10-32x.75"	18-8 SS	4
11	MCMaster_92196A265	SHCS, #10-32x.25"	#10-32x.25"	18-8 SS	4
10	HOLOKROME_78030	SHCS, #8-32x.625"	#8-32x.625"	18-8 SS	4
9	MCMaster_90145A622	Dowel Pin, 3/8"x.75"	3/8"x.75"	18-8 SS	2
8	MCMaster_90145A471	Dowel Pin, 1/8"x.50"	1/8"x.50"	18-8 SS	2
7	MCMaster_90145A470	Dowel Pin, 1/8"x.375"	1/8"x.375"	18-8 SS	2
6	D071123	Actuator Thermal Bar	-	OFHC Copper	2
5	D071122	Actuator U-Bracket, Vert	-	6061-T6 Al	2
4	D071121	Actuator Coil Support	-	6061-T6 Al	1
3	D071120	Actuator Magnet Mount	-	6061-T6 Al	1
2	D070534	Actuator Stop	-	6061-T6 Al	2
1	D0902749	Large Actuator, aLIGO SEI HAM-ISI & BSC-ISI	-	See BOM	1

**Press Dowel Pins into Actuator Before Beginning Assembly.**



DD071442\_Act-Actuator.PART FDM REV: X-037 DRAWING FDM REV: X-005

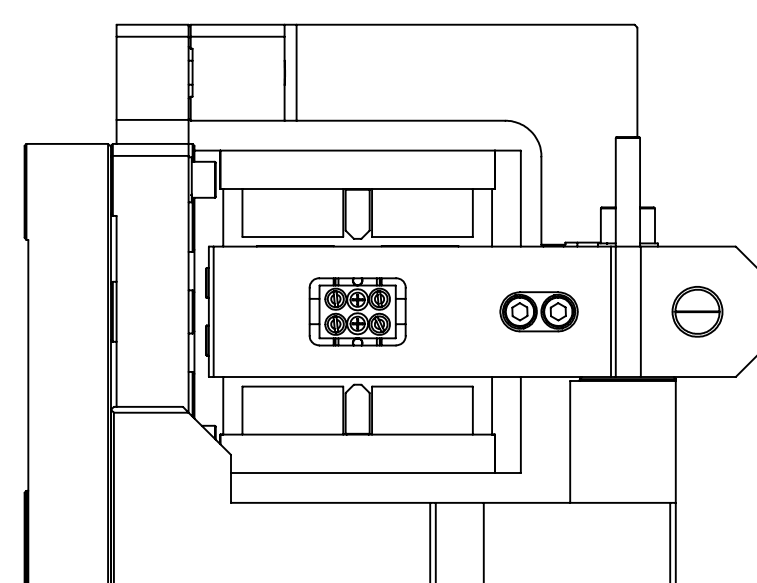
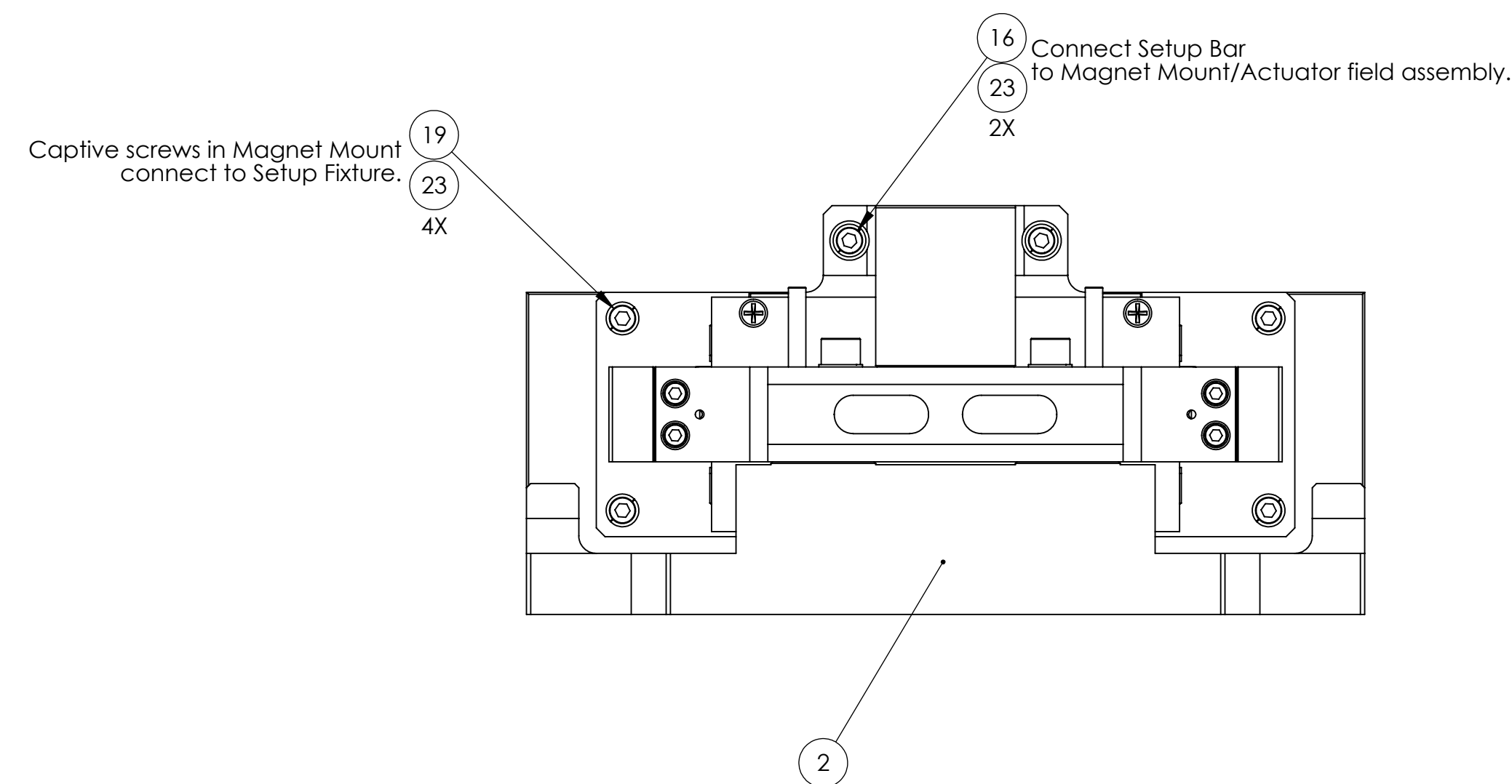




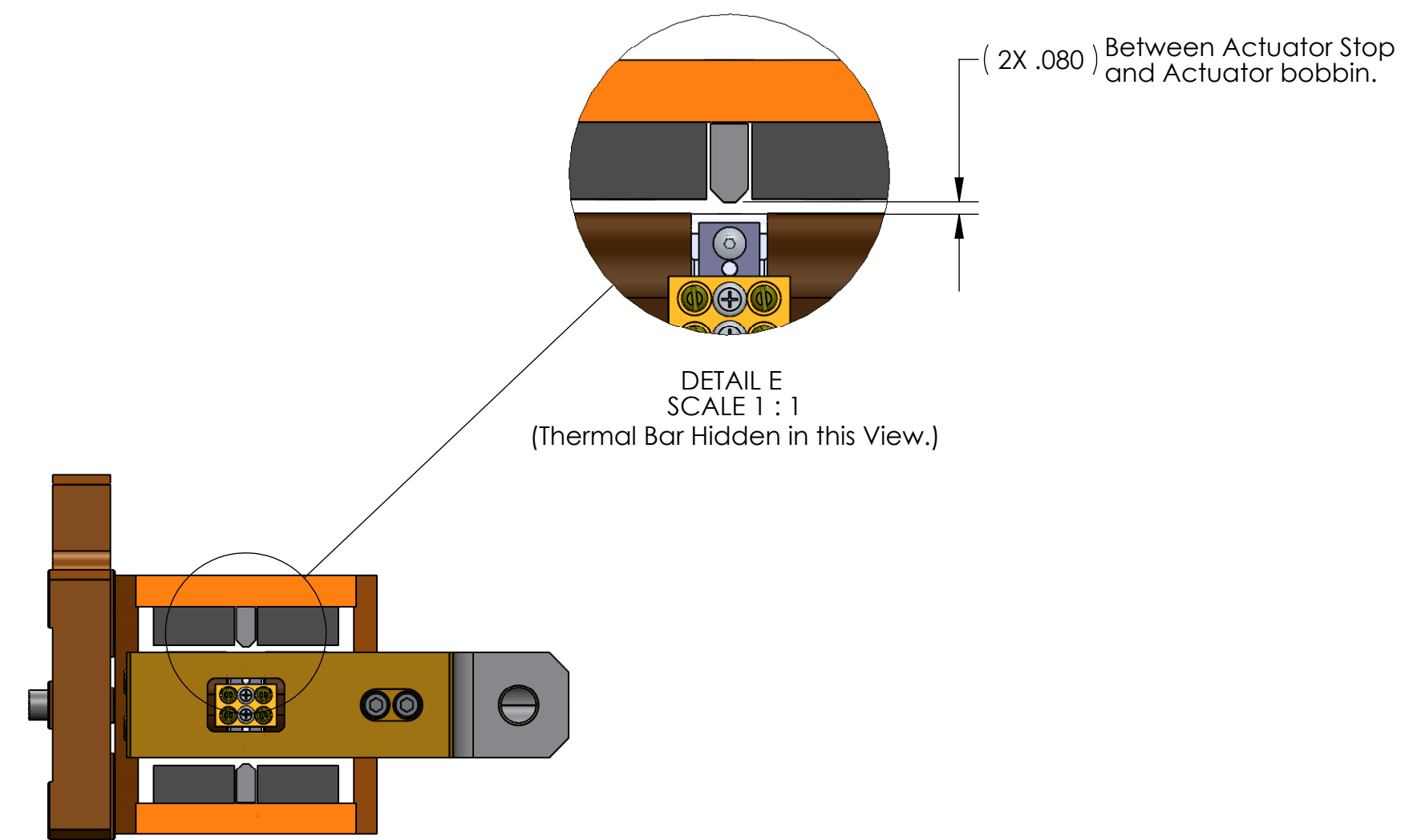
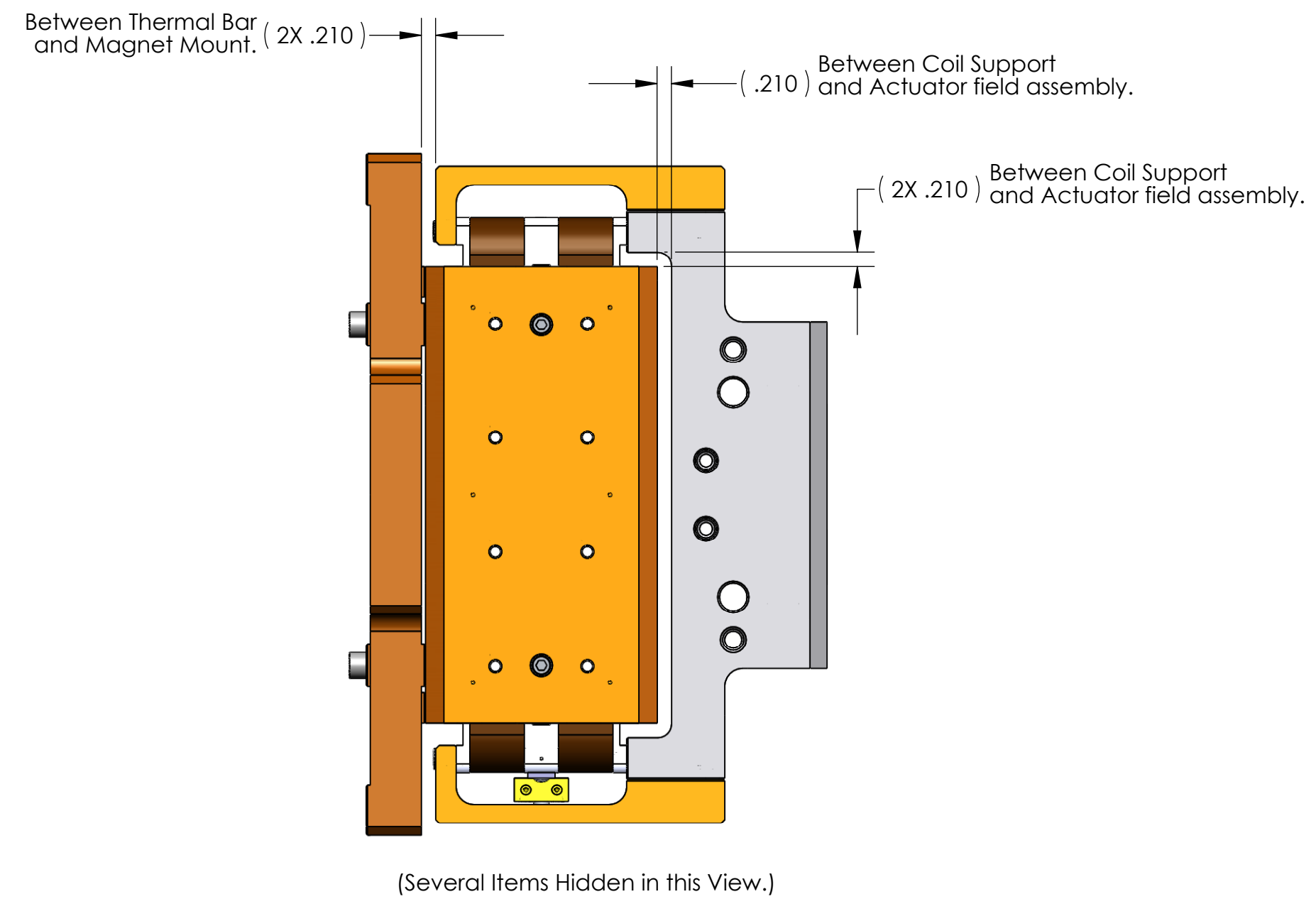
See Sheet 1 or Sheet 2 for details of screw and pin interfaces between Actuator, Actuator Stops, Magnet Mount, Coil Support, and Thermal Bars.

WITH TOOLING Configuration

24	UC_COMPONENTS_WFV-38	Washer Vented, .39 ID X .62 OD X .032 THK #3/8"	3/8" (.39"x.63")	18-8 SS	2
23	UC_COMPONENTS_WFV-25	Vented Washer, .255 ID X .468 OD X .032 THK #1/4	1/4" (.26"x.47")	18-8 SSSL	12
22	UC_COMPONENTS_WFV-10	Washer Vented, 0.195 ID, 0.354 OD, 0.032 THK #10	#10 (.20"x.35")	18-8 SS	12
21	UC_COMPONENTS_WFV-08	Washer Vented, .17 ID X .304 OD X .032 THK #8	#8 (.17"x.30")	18-8 SS	4
20	D0901100	SHCS, Custom Ag-Plated, 1/4"-20x.625"	1/4"-20x.625", Ag-Plated	18-8 SS	4
19	D071136	SHCS, Custom Captive	1/4"-20x1.5" (1.0" CLEAR)	18-8 SS	4
18	HOLOKROME_78106	SHCS, 3/8"-16x2.0"	3/8"-16x2.0"	18-8 SS	2
17	MCMaster_92196A551	SHCS, 1/4"-20x2.25"	1/4"-20x2.25"	18-8 SS	2
16	HOLOKROME_78064	SHCS, 1/4"-20x1.25"	1/4"-20x1.25"	18-8 SS	2
15	HOLOKROME_79030	SHCS, #10-32x1.25"	#10-32x1.25"	18-8 SS	4
14	HOLOKROME_79024	SHCS, #10-32x.75"	#10-32x.75"	18-8 SS	4
13	MCMaster_92196A265	SHCS, #10-32x.25"	#10-32x.25"	18-8 SS	4
12	HOLOKROME_78030	SHCS, #8-32x.625"	#8-32x.625"	18-8 SS	4
11	MCMaster_90145A622	Dowel Pin, 3/8"x.75"	3/8"x.75"	18-8 SS	2
10	MCMaster_90145A553	Dowel Pin, 1/4"x3.0"	1/4"x3.0"	18-8 SS	2
9	MCMaster_90145A471	Dowel Pin, 1/8"x.50"	1/8"x.50"	18-8 SS	2
8	MCMaster_90145A470	Dowel Pin, 1/8"x.375"	1/8"x.375"	18-8 SS	2
7	D071129	Actuator Setup Bar	-	6061-T6 Al	1
6	D071123	Actuator Thermal Bar	-	OFHC Copper	2
5	D071121	Actuator Coil Support	-	6061-T6 Al	1
4	D071120	Actuator Magnet Mount	-	6061-T6 Al	1
3	D070534	Actuator Stop	-	6061-T6 Al	2
2	D071497	Asm, Fixture, Actuator Set-Up	-	See BOM	1
1	D0902749	Large Actuator, gLIGO SEI HAM-ISI & BSC-ISI	-	See BOM	1
ITEM NO.	PART NUMBER	DESCRIPTION	SIZE / TYPE	MATERIAL	With Tooling/ QTY.



Select Gap Dimensions for Finished Actuator Assembly  
(For Reference Only)



D071442\_Act-Actuator.PART.PDM.REV.X-037\_DRAWING.PDM.REV.X-005