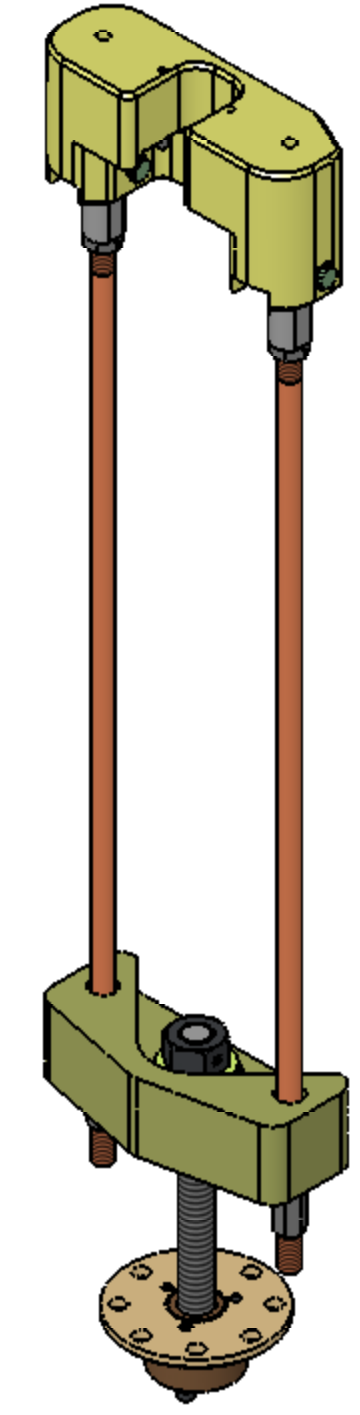
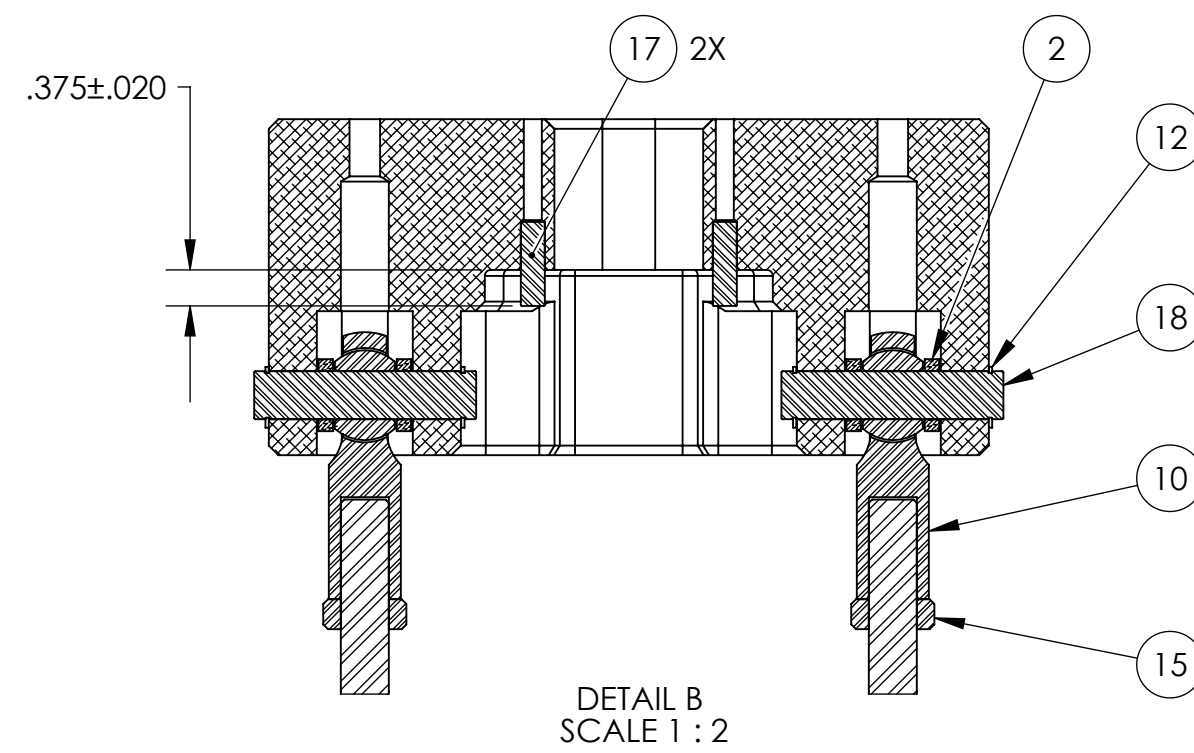
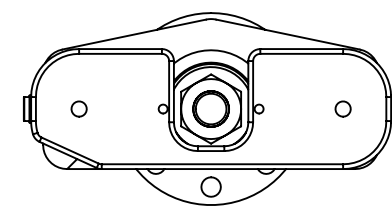
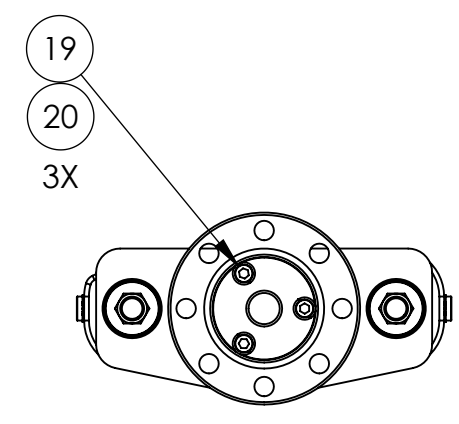
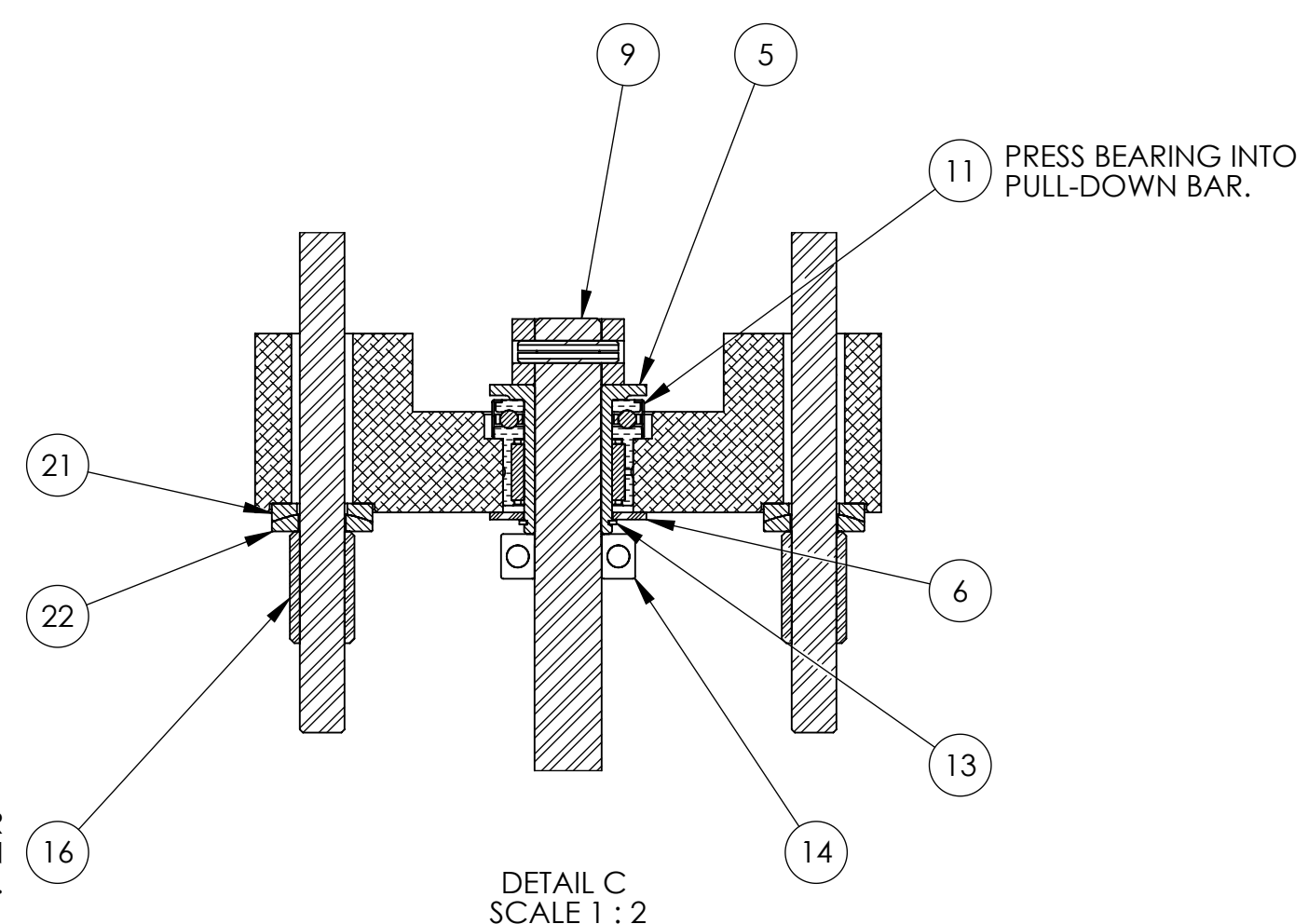
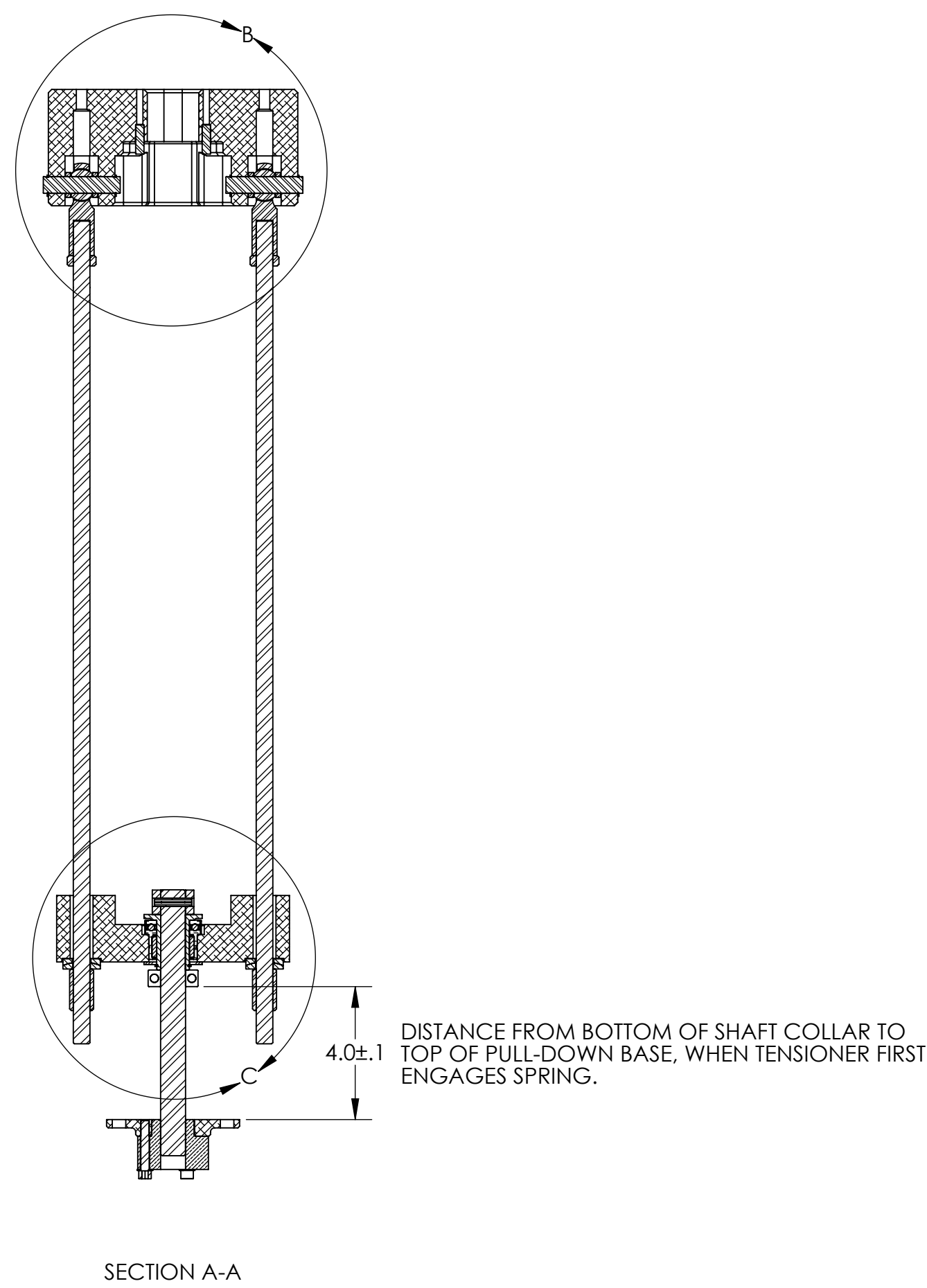
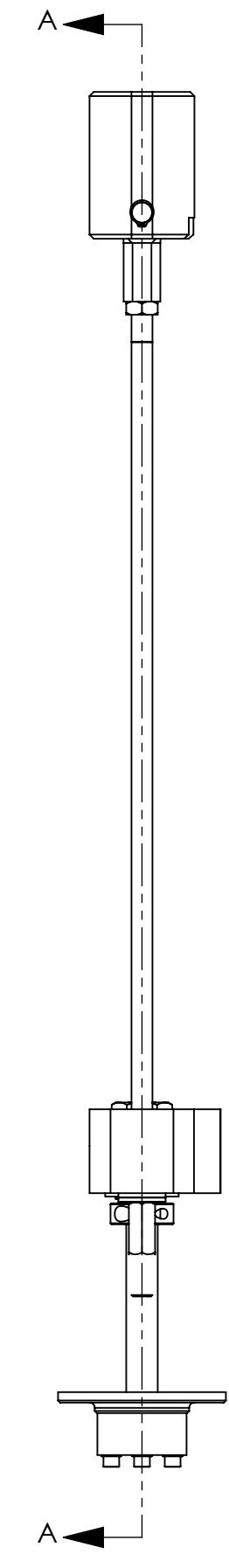
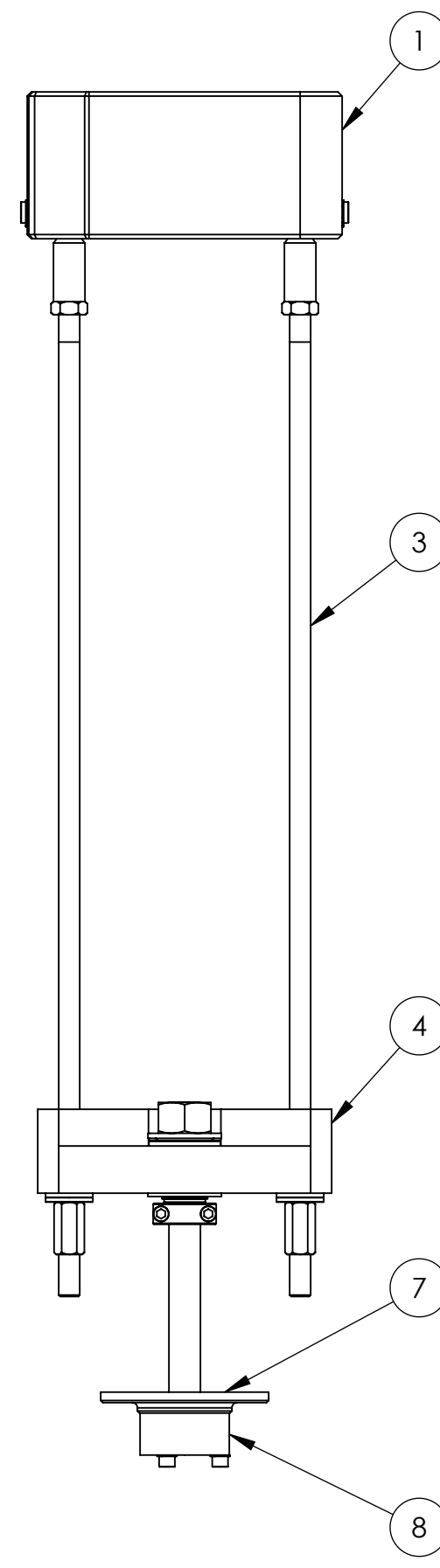


REVISION HISTORY				
REV	DATE	ECO	APPROVAL	DESCRIPTION
A	8/2/2007	1070	D. Senders	Initial Release
B	01/23/2008	-	A. STEIN	Removed upper-level parts. Added detail. Updated BOM.



- NOTES:
- SEE E070154 (ADVANCED LIGO SINGLE STAGE HAM VIBRATION ISOLATION TABLE ASSEMBLY PROCEDURE) FOR ADDITIONAL ASSEMBLY NOTES AND REQUIREMENTS.
  - MUST REMOVE GREASE FROM COMBINATION BEARING BEFORE IT IS PRESSED INTO PULL-DOWN BAR. REQUIRES DISASSEMBLY AND REASSEMBLY OF BEARING.
  - DO NOT FULLY ASSEMBLE UNTIL SPRING TENSIONER IS ENGAGED ON SPRING.
  - SPRING TENSIONER IS ASSEMBLY TOOLING. CLEAN TO CLASS B.
  - REMOVE ENTIRE SPRING TENSIONER (INCLUDING PULL-DOWN BASE AND NUT) BEFORE LOADING HAM ISI INTO CHAMBER. NUT MATERIAL IS NOT VACUUM COMPATIBLE.



COUPLING NUTS SHOULD BE FINGER-TIGHTENED WHILE TENSIONER IS RESTING ON TOP OF SPRING. TRY TO ACHIEVE EQUAL TENSION ON THE TWO PULL-DOWN RODS, SO TENSIONER PULLS EVENLY.

BILL OF MATERIALS					
ITEM NO.	Defa ult/Q TY.	PART NUMBER	DESCRIPTION	CONFIG DESCRIPTION	MATERIAL
1	1	D071305	SPRING PULL-DOWN, CAP	-	2024-T3
2	4	D071302	SPRING PULL-DOWN, ROD END SPACER	-	PTFE
3	2	D071303	SPRING PULL-DOWN, PULL ROD	-	304 SS
4	1	D071306	SPRING PULL-DOWN, BAR	-	2024-T3
5	1	D071304	SPRING PULL-DOWN, CONVERSION BUSHING	-	304 SS
6	1	D071320	SPRING PULL-DOWN, OFFSET WASHER	-	PTFE
7	1	D071307	SPRING PULL-DOWN, BASE	-	6061-T6
8	1	D071308	SPRING PULL-DOWN, NUT	-	BRONZE
9	1	D071499	ASM, SPRING TENSION SCREW	-	See BOM
10	2	MCMaster 59915K486	ROD END	1/2"-20 FEMALE SHANK	303 SS / PTFE / 440C SS
11	1	INA NKX25-Z	COMBINATION BEARING	25mmID	STAINLESS STEEL, ...
12	4	MCMaster 91590A122	RETAINING RING	1/2" SHAFT DIA	15-7 MO PH SS
13	1	MCMaster 91590A134	RETAINING RING	63/64" SHAFT DIA.	15-7 MO PH SS
14	1	MCMaster 9633T15	SHAFT COLLAR	3/4"IDx1.5"OD	316 SS / 18-8 SS
15	2	MCMaster 91847A525	HEX JAM NUT	1/2"-20	18-8 SS
16	2	MCMaster 90268A345	COUPLING NUT	1/2"-20x1.25"L	18-8 SS
17	2	MCMaster 90145A541	DOWEL PIN	1/4"x.875"	18-8 SS
18	2	MISUMI U-SCDG0.50-L2.00	PIVOT PIN	1/2" DIA x 2.31" L	304 SS
19	3	HOLKROME 78066	SHCS	1/4"-20x1.5"	18-8 SS
20	3	UCC WFV-25	VENTED WASHER	.255"IDx.468"OD	18-8 SS
21	2	MCMaster 91944A470	SPHERICAL WASHER	1/2", FEMALE	18-8 SS
22	2	MCMaster 91944A470	SPHERICAL WASHER	1/2", MALE	18-8 SS

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
DECIMAL TOLERANCES:  
XX ±.015 XXX ±.005  
ANG TOL: ± 1° SURFACE ROUGHNESS: 43

APPROVALS: P/N: DATE: 8/2/07  
ENGINEERING: D. Senders  
MANUFACTURING: C. Danaher  
QUALITY: See BOM  
MATERIAL: See BOM  
FINISH: See BOM

INTERNAL AND EXTERNAL INTERSECTIONS SHALL BE UNIFORMLY FINISHED WITH A CHAMFER .005/.010 X 45° OR RADIUS .005/.010  
CHAMFER ALL THREADED HOLES 110% OF MAJOR DIAMETER X 45°

THIS PRINT & ITS RELATED MODEL ARE THE DOCUMENTATION OF RECORD. UNLESS OTHERWISE SPECIFIED, ALL FEATURES MUST CONFORM TO 010 TOTAL WIDE PROFILE OF A SURFACE INTERPRET DWG PER ASME Y14.5M 1994

**High Precision Devices**  
1668 Valtec Lane, Suite C, Boulder, Colorado 80301  
Phone: (303) 447-2558 Fax: (303) 447-2548 Web Site: www.hpd-online.com

DESCRIPTION: **ASM, SPRING TENSIONER**  
P/N: **D071500** CONFIG: -  
DESC: -  
FILE NAME: D071500-B Asm. Spring Tensioner

FOLDER: -  
SIZE: **D** SCALE: **1:4** DRAWN BY: **Dave Senders** REV: -  
SHEET **1** OF **1** DATE PRINTED: **2/4/2008**