

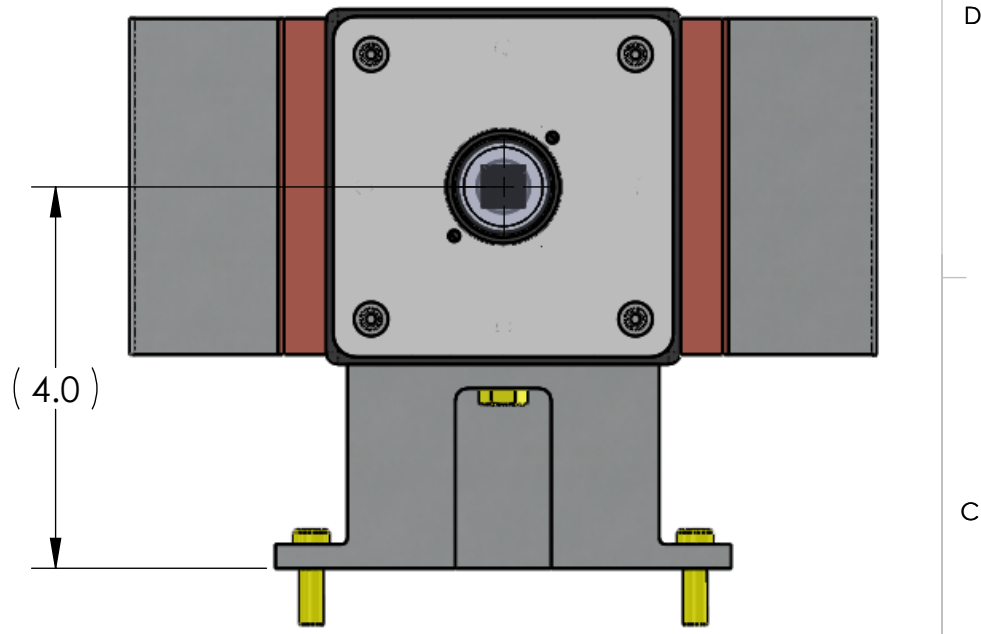
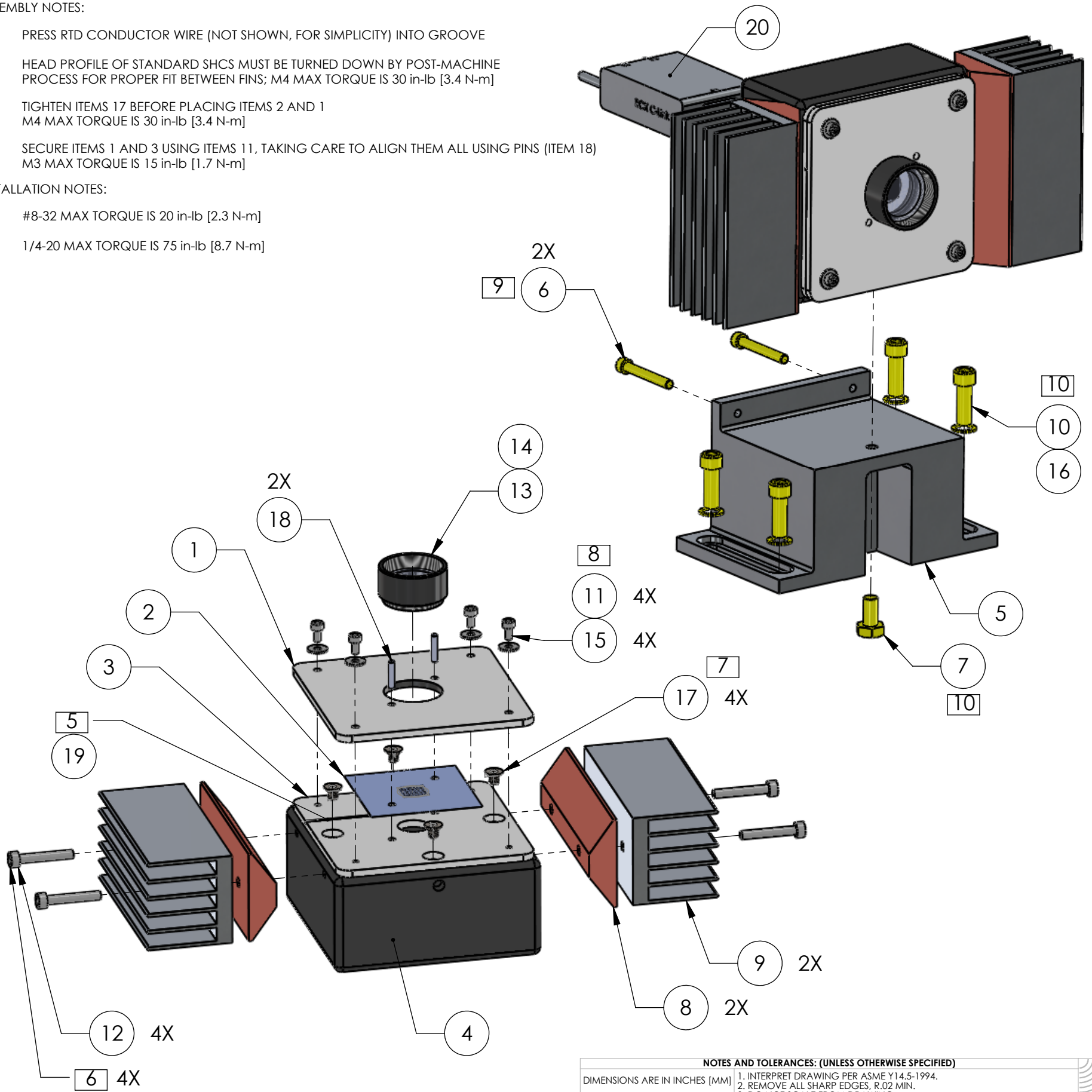
8 7 6 5 4 3 2 1

| REV. | DATE | DCN # | DRAWING TREE # |
|------|-------------|-------------|----------------|
| v2 | 28-FEB-2011 | E1100147-v1 | E1100148-v1 |
| v3 | 31-MAY-2011 | E1100490-v1 | E1100148-v2 |
| v4 | 06-JUL-2012 | E1200579-x0 | E1200580-v1 |
| v5 | 11-FEB-2013 | E1200579-v1 | E1200580-v2 |

- ASSEMBLY NOTES:
- 5 PRESS RTD CONDUCTOR WIRE (NOT SHOWN, FOR SIMPLICITY) INTO GROOVE
 - 6 HEAD PROFILE OF STANDARD SHCS MUST BE TURNED DOWN BY POST-MACHINE PROCESS FOR PROPER FIT BETWEEN FIN; M4 MAX TORQUE IS 30 in-lb [3.4 N-m]
 - 7 TIGHTEN ITEMS 17 BEFORE PLACING ITEMS 2 AND 1
M4 MAX TORQUE IS 30 in-lb [3.4 N-m]
 - 8 SECURE ITEMS 1 AND 3 USING ITEMS 11, TAKING CARE TO ALIGN THEM ALL USING PINS (ITEM 18)
M3 MAX TORQUE IS 15 in-lb [1.7 N-m]

- INSTALLATION NOTES:
- 9 #8-32 MAX TORQUE IS 20 in-lb [2.3 N-m]
 - 10 1/4-20 MAX TORQUE IS 75 in-lb [8.7 N-m]

D C B A



| ITEM NO. | PART NUMBER | QTY. |
|----------|--|------|
| 1 | D1000658_aLIGO TCS HARTMANN SENSOR PLATE CLAMP | 1 |
| 2 | D1000669_TCS HARTMANN SENSOR PLATE | 1 |
| 3 | D1000708_aLIGO TCS HARTMANN SENSOR CAMERA SPACER PLATE | 1 |
| 4 | D1000709_CAMERA, DALSA PANTERA 1M60 | 1 |
| 5 | D1000715_HARTMANN SENSOR CAMERA MOUNT | 1 |
| 6 | SST SOCKET HEAD CAP SCREW #8-32 UNC-2A X 1.25 LONG | 2 |
| 7 | SST HEX HEAD SCREW 1/4-20 UNC-2A X 0.5 LONG | 1 |
| 8 | D1000729_HARTMANN SENSOR HEAT SPREADER | 2 |
| 9 | D1000736_HARTMANN SENSOR HEAT SINK | 2 |
| 10 | SST SOCKET HEAD CAP SCREW 0.25-20 UNC-2A X 0.75 LONG | 4 |
| 11 | SST SOCKET HEAD CAP SCREW M3 X 6 LONG | 4 |
| 12 | MODIFIED SST SOCKET HEAD CAP SCREW M4 X 25 LONG | 4 |
| 13 | ThorLabs_SM1L05 Lens Tube | 1 |
| 14 | ThorLabs_FB840-10 BandPass Filter | 1 |
| 15 | M3 (.8 MM THICK) FLAT WASHER Metric-DIN 125 (OR EQUIV.) | 4 |
| 16 | 0.25in, MS 15795-854 FLAT WASHERS (OR EQUIV.) | 4 |
| 17 | FHSCS M4 X 6 MM LONG, MCMMASTER 92125A186 | 4 |
| 18 | DOWEL PIN, METRIC, 2.5 MM OF X 12 MM LONG, STAINLESS STEEL | 2 |
| 19 | THIN FILM RTD, Pt 100, CONDUCTOR WIRE, OMEGA | 1 |
| 20 | RCX C-LINK, EDT | 1 |

D1000657_HARTMANN SENSOR, PART PDM REV: X-069, DRAWING PDM REV: X-014

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 [MM]

TOLERANCES:
 .XX ±
 .XXX ±

ANGULAR ± °

MATERIAL N/A FINISH N/A μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM AOS

PART NAME HARTMANN SENSOR, ASSEMBLY

DESIGNER ADELAIDE 04-JAN-2010 SIZE DWG. NO. B D1000657 REV. v5
 DRAFTER M. JACOBSON 24 MAR 2010
 CHECKER P. VEITCH 06-JUL-2012
 APPROVAL A. BROOKS 11-FEB-2013

NEXT ASSY D1000635, D1000636

SCALE: 1:2 PROJECTION: SHEET 1 OF 1

8 7 6 5 4 3 2 1