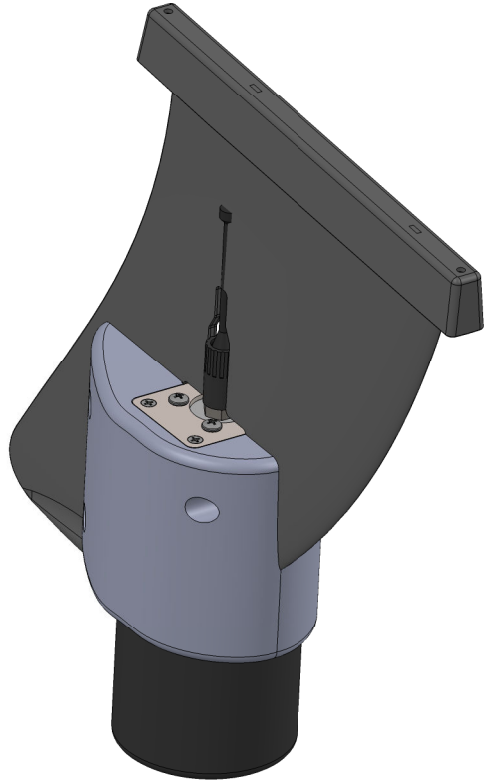
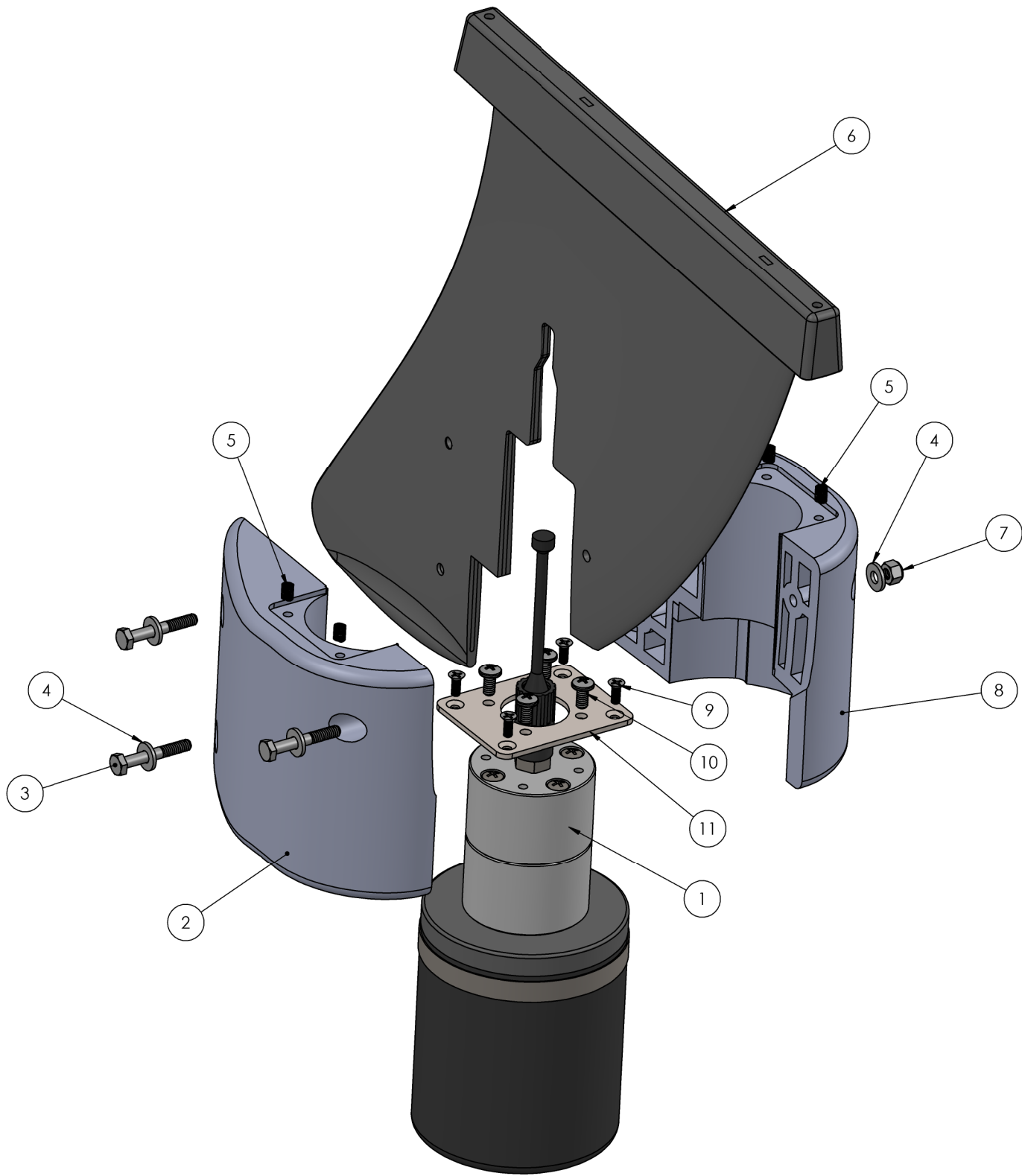


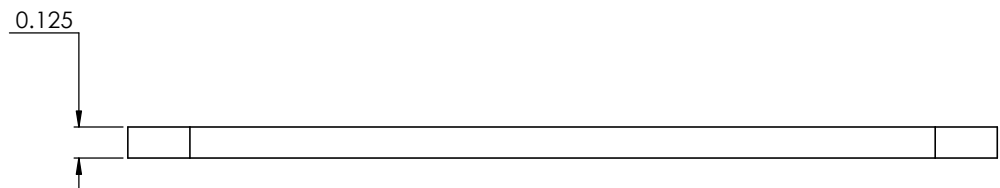
| REVISIONS |                 |          |          |
|-----------|-----------------|----------|----------|
| REV.      | DESCRIPTION     | DATE     | APPROVED |
| A         | INITIAL RELEASE | XX/XX/XX | MRC      |
|           |                 |          |          |
|           |                 |          |          |



| ITEM NO. | PART NUMBER                                          | DESCRIPTION                                                                         | QTY. |
|----------|------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| 1        | LF_DirectionalModem_BlockConfiguration               | LF directional modem in the "on blocks" configuration.                              | 1    |
| 2        | 100221158-19_StarboardLFDirecti onalFairing          | Starboard LF directional transducer fairing ABS polymer                             | 1    |
| 3        | 92186A548                                            | 1/4" - 20 x 1.75 316 SS hex head bolt                                               | 3    |
| 4        | 91950A029                                            | 1/4" ID SAE flat washer                                                             | 6    |
| 5        | 96246A332                                            | Helical insert SST for #10-32 screw                                                 | 4    |
| 6        | 100221158-21_SV3_Skeg_PN05954_ModifiedLFDirecti onal | WaveGlider SV3 Rev. 1 skeg PN 05954 modified for LF directional transducer mounting | 1    |
| 7        | 90715A125                                            | 1/4 - 20 nylon insert 316 SS locknut                                                | 3    |
| 8        | 100221158-20_PortLFDirectionalFairing                | Port LF directional transducer fairing ABS polymer                                  | 1    |
| 9        | 91500A829                                            | #10 - 32 x 1/2" 316SS flat head machine screw                                       | 4    |
| 10       | 91735A537                                            | 1/4 - 20 x 1/2" 316 SS pan head machine screw                                       | 4    |
| 11       | 100221158-16_LFDirectionalMount Plate                | LF directional modem mounting plate                                                 | 1    |

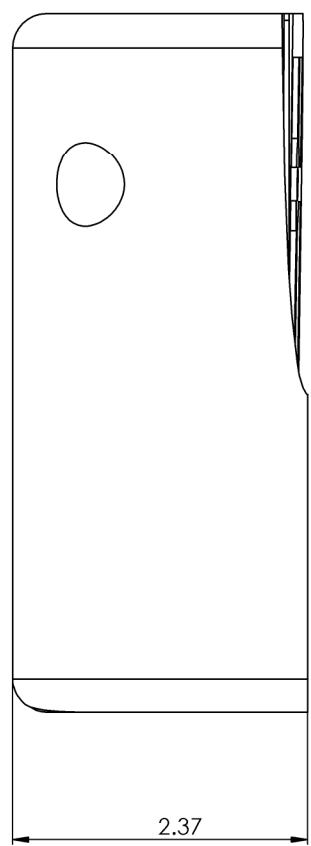
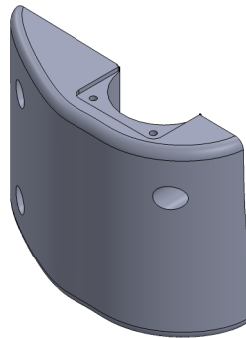
NOTES:  
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| Shop / Q.C.           |                  | UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:                            |         | APPROVALS    |                    | DATE         |  | Monterey Bay Aquarium Research Institute |  |
|-----------------------|------------------|-----------------------------------------------------------------------|---------|--------------|--------------------|--------------|--|------------------------------------------|--|
| Inspector             |                  | FRACTION                                                              | DECIMAL | DRAWN        | MRC                | 02/01/2017   |  | MBARI                                    |  |
| Shop Foreman          |                  | ±.125                                                                 | ±.005   | ENGINEER     | MARK CHAFFEY       |              |  | 7700 Sandholdt Rd.                       |  |
| Engineer              |                  | ±.010                                                                 | ±.001   |              | (831) 775-1708     |              |  | Moss Landing, CA 95039                   |  |
|                       |                  | ±.005                                                                 | ±.0005  |              | chm@mbat.org       |              |  | PH: (831) 775-1700                       |  |
| NEXT ASSY Description | NEXT ASSY Number | 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCERNING WITH GD&S     |         | PROJECT No.  | 901411             | PROJECT Name |  | LF Dir. Transducer Skeg Assem.           |  |
|                       |                  | 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER RICH. |         | PROJECT Name | WaveGlider HotSpot | DWG. NO.     |  | 100221158-18-A-ASM                       |  |
|                       |                  | MAX .010 RICHES FOR SINGLE SURFACE.                                   |         | WEIGHT       |                    | SCALE        |  | 1                                        |  |
| APPLICATION           |                  | DO NOT SCALE DRAWING                                                  |         |              |                    | CAD FILE     |  | SHEET 11 OF 15                           |  |



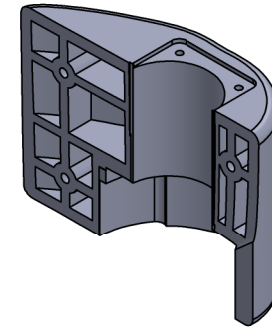
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| BILL OF MATERIALS        |                     |                                                                                                                 |                                       |                                        |                                           |                   |                                                                                                                                                                             |  |  |
|--------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------|-------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>Shop / Q.C.</b>       |                     | UNLESS OTHERWISE SPECIFIED<br><b>TOLERANCES ARE:</b>                                                            |                                       |                                        | <b>APPROVALS</b> <b>DATE</b>              |                   | Monterey Bay Aquarium Research Institute                                                                                                                                    |  |  |
| Inspector                |                     | 1/4" OVER 0" <input type="checkbox"/>                                                                           | 1/8" OVER 0" <input type="checkbox"/> | 1/16" OVER 0" <input type="checkbox"/> | DRAWN<br><b>MRC</b>                       | <b>01/05/2017</b> |                                                                                        |  |  |
| Shop Foreman             |                     | 1. DIMENSIONS ARE IN INCHES.                                                                                    |                                       |                                        | ENGINEER                                  |                   | MBARI<br>7700 Sandholzt Rd.<br>Moss Landing, CA 95039<br>PH: (831) 775-1700                                                                                                 |  |  |
| Engineer                 |                     | 2. DIMENSION LINES HELD AFTER PLATING.                                                                          |                                       |                                        | <b>MARK CHAFFEY</b>                       |                   |                                                                                                                                                                             |  |  |
|                          |                     | 3. REMOVE BURRS AND SHARP EDGES. D15 MAX.                                                                       |                                       |                                        | (831) 775-1708<br>chma@mbari.org          |                   |                                                                                                                                                                             |  |  |
|                          |                     | 4. MACHINED FLATNESS .015/IN.                                                                                   |                                       |                                        | <b>PROJECT NO.</b>                        |                   |                                                                                                                                                                             |  |  |
| NEXT ASSY<br>Description | NEXT ASSY<br>Number | 5. MACHINED DIAMETERS ON A COMMON<br>CYLINDRICAL CONCENTRIC WITH JOGS.                                          |                                       |                                        | <b>90141</b>                              |                   | LF Cr. Dis. Trans. Mounting Plate                                                                                                                                           |  |  |
|                          |                     | 6. PERPENDICULARITY A PARALLELISM OF<br>MACHINED SURFACES .002 PER INCH.<br>MAX .012 INCHES FOR SINGLE SURFACE. |                                       |                                        | <b>PROJECT Name</b><br>Wave/Glide HotSpot |                   | <b>SIZE</b> DWG. NO. <b>REV.</b><br><b>SCALE</b> <b>C</b> <b>100221158-16-DWG-A</b> <b>1</b><br><b>SCALE</b> <b>C</b> <b>FILE:</b> <b>SHEET</b> <b>1</b> <b>OF</b> <b>1</b> |  |  |
| APPLICATION              |                     | DO NOT SCALE DRAWING                                                                                            |                                       |                                        |                                           |                   |                                                                                                                                                                             |  |  |

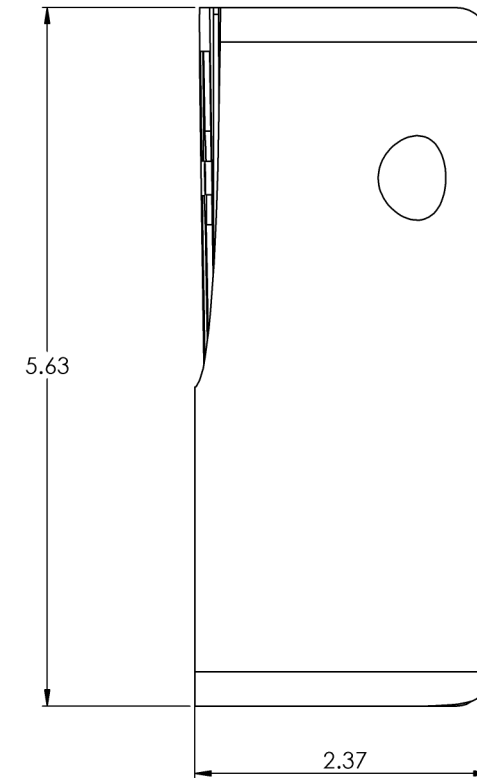


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| BILL OF MATERIALS     |  |                                                                                                               |                    |                              |              |                                           |  |                                                                              |  |  |
|-----------------------|--|---------------------------------------------------------------------------------------------------------------|--------------------|------------------------------|--------------|-------------------------------------------|--|------------------------------------------------------------------------------|--|--|
| <b>Shop / Q.C.</b>    |  | <b>UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:</b>                                                             |                    |                              |              | <b>APPROVALS DATE</b>                     |  | <b>Monterey Bay Aquarium Research Institute</b>                              |  |  |
| Inspector             |  | FRAC INCH<br>1/16"                                                                                            | FRAC INCH<br>1/32" | FRAC INCH<br>3/16"           | WELD<br>1/8" | DRAWN<br><b>MRC 02/01/2017</b>            |  | MBA RI<br>7700 Sandhaldt Rd.<br>Mar. Landing, CA 95039<br>PH: (831) 775-1700 |  |  |
| Shop Foreman          |  | 1. DIMENSIONS ARE IN INCHES.                                                                                  |                    |                              |              | ENGINEER<br><b>MARK CHAFFEY</b>           |  |                                                                              |  |  |
| Engineer              |  | 2. DIMENSION LIMITS HELD AFTER PLATING.                                                                       |                    |                              |              | (831) 775-1708<br>mchaff@mba.ri.org       |  |                                                                              |  |  |
|                       |  | 3. REMOVE BURRS AND SHARP EDGES TO 0.015 MAX.                                                                 |                    |                              |              |                                           |  |                                                                              |  |  |
|                       |  | 4. MACHINED/FILED RADIUS DRILLS.                                                                              |                    |                              |              |                                           |  |                                                                              |  |  |
| NEXT ASSY Description |  | NEXT ASSY Number                                                                                              |                    | PROJECT No.<br><b>901411</b> |              |                                           |  | DW. DIR. STARBOARD FAIRING                                                   |  |  |
|                       |  | 5. CENTERLINE CONCERNING WELDS.                                                                               |                    |                              |              | PROJECT Name<br><b>WaveGlider HotSpot</b> |  | SIZE OF DW. NO.<br><b>C 100221158-19-A-DWG</b>                               |  |  |
|                       |  | 6. REPERFORATE WITH 1/8" DIA. DRILL TO MACHINED SURFACES 0.015 PER INCH. MAX. 0.12 INCHES FOR SINGLE SURFACE. |                    |                              |              | WEIGHT                                    |  | SCALE CAD FILE REV. A OF 1                                                   |  |  |
| APPLICATION           |  | DO NOT SCALE DRAWING                                                                                          |                    |                              |              |                                           |  | SHEET 1                                                                      |  |  |



Ø0.27 TYP 3 PLCS



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\\ATLAS\ProjectLibrary\901411.HotSpot\EngineeringDesignDocumentation\MechanicalDesign  
 \SV3\_WaveGlider\_LF\_Directional\_Fin\100221158-20\_StarboardLFDirectionalFairing.SLDPRT

|                                                                                                                                                                               |  |  |  |                                                                                                           |  |  |  |                                                                                       |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-----------------------------------------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------|--|--|--|
| <b>Shop / Q.C.</b><br>Inspector<br>Shop Foreman<br>Engineer                                                                                                                   |  |  |  | <b>BILL OF MATERIALS</b>                                                                                  |  |  |  | Monterey Bay Aquarium Research Institute                                              |  |  |  |
|                                                                                                                                                                               |  |  |  | UNLESS OTHERWISE SPECIFIED<br>TOLERANCES ARE:                                                             |  |  |  | APPROVALS DATE                                                                        |  |  |  |
|                                                                                                                                                                               |  |  |  | THICKNESS ±.015"    SURFACE FINISH ±.015"    HOLE ±.015"    EDGE ±.015"                                   |  |  |  | DRAWN<br><b>MRC 02/01/2017</b>                                                        |  |  |  |
| 1. DIMENSIONS ARE IN INCHES.<br>2. DIMENSION LIMITS HELD AFTER PLATING.                                                                                                       |  |  |  | ENGINEER<br><b>MARK CHAFFEY</b><br>(831) 775-1708<br><a href="mailto:chmair@mrab.org">chmair@mrab.org</a> |  |  |  | MBARI<br>7700 Sandhollow Rd.<br>Moss Landing, CA 95039<br>PH: (831) 775-1700          |  |  |  |
| 3. REMOVE BURRS AND SHARP EDGES .015" MAX.<br>4. MACHINED FLAT RAKE 25.000.                                                                                                   |  |  |  | PROJECT NO.<br><b>901411</b>                                                                              |  |  |  |  |  |  |  |
| 5. MACHINED DIMENSION ON A COMBINATION CENTERLINE CONCERNING OTHER JOES PERPENDICULARITY A PARALLELISM OF MACHINED SURFACES JOES PER INCH MAX .012 INCHES FOR SINGLE SURFACE. |  |  |  | PROJECT NAME<br><b>WaveGlider HotSpot</b>                                                                 |  |  |  | REF Cfg. No.<br><b>100221158-20-A-DWG</b>                                             |  |  |  |
| APPICATION                                                                                                                                                                    |  |  |  | WEIGHT                                                                                                    |  |  |  | SCALE    CAD FILE    SHEET    OF                                                      |  |  |  |
| DO NOT SCALE DRAWING                                                                                                                                                          |  |  |  |                                                                                                           |  |  |  |                                                                                       |  |  |  |



|                                                             |  |                                                                                                                                                                                                                                                                                                                                                         |                                |                                                                         |                                                                              |                                          |                                                                                       |                          |  |
|-------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|--------------------------|--|
| <b>Shop / Q.C.</b><br>Inspector<br>Shop Foreman<br>Engineer |  | UNLESS OTHERWISE SPECIFIED<br><b>TOLERANCES ARE:</b>                                                                                                                                                                                                                                                                                                    |                                | BILL OF MATERIALS<br>APPROVAL DATE                                      |                                                                              | Monterey Bay Aquarium Research Institute |                                                                                       |                          |  |
|                                                             |  | FINISHES<br>1. <input type="checkbox"/> 1/8" 2. <input type="checkbox"/> 1/4" 3. <input type="checkbox"/> 3/8"                                                                                                                                                                                                                                          | DRAWN<br><b>MRC 02/02/2017</b> |                                                                         | MBARI<br>7700 Sandhollow Rd.<br>Moss Landing, CA 95039<br>PH: (831) 775-1700 |                                          |  |                          |  |
| NEXT ASSY Description<br>NEXT ASSY Number                   |  | DIMENSIONS ARE IN INCHES<br>2. DIMENSIONS UNLESS NOTED PLATING.<br>3. REMOVE BURRS AND SHARP EDGES 0.05 MAX.<br>4. MACHINED FLAT RACE 0.015-0.030.<br>5. FERRICIZED DIMENSION ON A CROWN.<br>6. DIMENSIONS TO CENTERLINE, UNLESS NOTED.<br>7. PERPENDICULARITY A PARALLELISM OF MACHINED SURFACES 0.005 PER VMC.<br>MAX 0.02 INCHES FOR SINGLE SURFACE. |                                | ENGINEER<br><b>MARK CHAFFEY</b><br>(831) 775-1708<br>mchaffey@mbari.org |                                                                              | PROJECT No.<br><b>901411</b>             |                                                                                       | SVS KEG Mods for LF Dir. |  |
| APPLICATION                                                 |  | DO NOT SCALE DRAWING                                                                                                                                                                                                                                                                                                                                    |                                | PROJECT Name<br><b>WaveGlider HotSpot</b>                               |                                                                              | DWG. NO.<br><b>100221158-21-A-DWG</b>    |                                                                                       |                          |  |
|                                                             |  |                                                                                                                                                                                                                                                                                                                                                         |                                | WEIGHT<br>SCALE LOAD FILE                                               |                                                                              | REV. A<br>OF 1                           |                                                                                       |                          |  |