

| ID | Risk Item | Severity | Likelihood | Importance | Action to Minimize Risk | Outcome |
|----|--|----------|------------|------------|---|---|
| 1 | Integration of data acquisition software and hardware delays due to lack of experience | 9 | 8 | 9 | Starting creation of software early in the process as well as seek advice from experts in the field. | |
| 2 | Error codes occurring too often may cause operator to alter software to prevent warnings (has happened on other tests at shop) | 7 | 7 | 7 | Password Protection of Software -Proper Tolerances to ensure unit quality while also minimizing error warnings | |
| 3 | Spline wear deteriorating piece | 3 | 5 | 3 | Proper material Selection | Easily Replaceable parts with routine maintenance |
| 4 | High Cost of Parts necessary for Testing | 2 | 8 | 2 | Reasonable budget , cost assessment, price comparison | Proposed budget accepted by Maval |
| 5 | Lead time on manufactured parts | 7 | 6 | 7 | Requests parts and notify shop on time | All parts are in stock excluding locker, which has 1-month lead time and will be purchased immediately |
| 6 | Interface cannot include all necessary requirements without being too cluttered or easy to understand | 8 | 3 | 8 | Physical visit to Maval to speak with operator and observe process in action and receive feedback | Created simple GUI with minimal input from user. All input controlled by barcode scanner |
| 7 | Repeatability of test decreased due to Insufficient strain measurement | 10 | 8 | 10 | Ample Research and benchmarking of strain gauge repeatability and lifespan, compared to market-purchased materials with calibration. | Chose to purchase Torque sensor vs. custom design for repeatability and calibration benefits, as well as cost |
| 8 | Not being able to read and process error code signal from module | 9 | 9 | 9 | Meeting with signal processing expert John Farnach to discuss signal processing options and concerns about the reading of the module error output | Discovered previous signal processing projects involving Morse code that are easily applicable and fitting for this project |
| 9 | Creating an accurate torque sample range to be read while also limiting rotation to elastic region | 8 | 9 | 9 | Conduct thorough analysis and design of the slip shaft to allow an acceptable deflection under torque, but maintain a near infinite fatigue life | Torque Sensor chosen supplies ample torque range for test and is able to bear axial load applied by slip shaft |
| 10 | Inability to find testing area that has 3-phase power supply | 7 | 8 | 10 | Begin locating 3-phase source immediately, Brinkman Lab, Formula Lab, etc. | 3 Phase Power is available in Senior Design Lab |