STATEMENT OF WORK

Fabrication of Service Module Mock Up Avionics Ring

1. INTRODUCTION

During Orion assembly operations Ground Processing of the vehicle requires several operations that interface with the Spacecraft prior to launch, in order to be prepared for these operations, mock ups of the vehicle (Spacecraft) are required to practice performing these operations prior using the actual flight hardware in order to increase fluency in these operations and avoid potentially damaging the spacecraft. Ground Systems Development and Operations (GSDO) have fabricated mock ups of the Crew Module (CM) and Service Module (SM). The SM mockup is comprised of; the service module structure, the service module fairing (formed in three sections) and an avionics ring. In an effort to improve the fidelity of the existing mock up, we are modifying several of the existing components in house and are seeking outside sources to fabricate some subcomponents in this refurbishment.

1.1. Scope

The contractor shall provide a dimensionally accurate mock up of the Service Module Avionics Ring. This mockup Avionics Ring will be 44.8” tall and 216.5” in diameter. The Avoinics Ring will be divided into three equal segments. Final design of the Avionics Ring shall be approved by the customer prior to the contractor beginning fabrication. Construction is intended to be low cost, light weight, fiberglass and foam, with integral hard mounting points. Other approved materials may be used.

1.2. Tasks

- The contractor shall fabricate the Avionics Ring mockup using fiberglass, foam, or other approved materials as required to allow for the mounting of the Avionics Ring to the existing CM/SM mock up in accordance with sketches SK-1 (Orion SM Avionics Ring Mock Up Plan View) and SK-2 (Orion SM Avionics Ring Cross-Section).
- Outside (convex surface) color shall be white.
- Outside surface shall be smooth, similar to a new boat hull finish.
- Structure shall be durable enough to resist damage from minor impacts
- Individual structure segments shall be strong enough to be lifted by a single point near the center, or points at each end.
- Hard mount locations are to be provided on the inside of the Avionics Ring to allow customer brackets to be attached. Mounts shall be plywood, or other suitable material integrally laminated into the fiberglass structure. If not clearly visible, mounts shall be marked. Customer will drill holes and mount hardware at hard mount locations. Mounts are to be 6” x 30” x ¾” thick minimum, shall start at the base of the avionics ring, with the 30” dimension running vertically, and shall be located per customer supplied sketch SK-1 (Orion SM Avionics Ring Mock Up –Plan View).

- The edges of each sector shall be fabricated such that the resulting seams between sectors are straight and true and display good workmanship.
- All Mounting Points to support #12 sheet metal screws.
- Mounting hardware, brackets and other supporting structure will be installed by the customer.

2. GROUND RULES & ASSUMPTIONS

2.1. All critical dimensions to be (+/- 0.1”).
2.2. Contractor to supply sketch of Avionics Ring Mockup prior to fabrication, for customer approval.
2.3. The Avionics Ring is to be a non load bearing structure, and is being fabricated for visual purposes only (similar to an indoor sign).
2.4. The mounting support rods, fixtures and mating hardware will be the responsibility of the customer, the contractor is only providing mounting points on the Avionics Ring.
2.5. Final inspection and acceptance to take place at the contractor site, prior to delivery to the Kennedy Space Center.
2.6. Cost of transportation of the Avionics Ring shall be broken out as a separate cost in the quote of this work.
2.7. Images, descriptions of the existing CM/SM mock up, and conceptual sketches of the Avionics Ring mock up have been included in a separate enclosure.

3. DELIVERABLE

- Fabrication complete and ready for contractor site inspection on 10/19/12.