

**NSF Presentation -  
Subcontract for  
Suspension Installation Fixtures**

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**Procurement Sensitive Document-  
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# Suspension Installation Fixtures: Background

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- **Installation of suspended optics requires specialized fixtures:**
  - ›› Delicate, “heavy” loads (~25 kg)
  - ›› Precision placement (~0.5 mm, < 1 mrad)
  - ›› Cleanliness requirements for use in vacuum system
- **Design performed by outside design firm (CDI), supervised by LIGO**
  - ›› Detailed drawing package for build-to-print fabrication
- **Four different assemblies**
  - ›› Require one of each type assembly for Hanford and one for Livingston

# Suspension Installation Fixtures: Solicitation

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- **RFQ released to 9 machine shops**

- ›› Most in Los Angeles area to facilitate LIGO supervision
- ›› Specifically encouraged shops to bid individual assemblies if full order not within their capabilities

- **Four bids**

- ›› One just nonresponsive (did not bid complete assembly, only limited number of small components)
- ›› Two complete bids, one bid on three (of four) assemblies
- ›› Unit prices:

<b>Assembly</b>	<b>Superior Jig</b>	<b>High Tech Enterprises</b>	<b>Allied</b>
<b>Alignment Fixture</b>	<b>65,135</b>	<b>144,185</b>	<b>-</b>
<b>Support Beam</b>	<b>14,810</b>	<b>46,240</b>	<b>41,480</b>
<b>Lift Table</b>	<b>30,189</b>	<b>36,850</b>	<b>96,500</b>
<b>Lift Truck</b>	<b>5,659</b>	<b>6,300</b>	<b>4,880</b>

# Suspension Installation Fixtures: Proposed Contract

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- **Full job awarded to lowest bidder**
  - ›› Allied's price advantage on Lift Truck Assembly judged too small to justify splitting order
- **Superior Jig, Inc.**
  - ›› Small company in Anaheim, CA
  - ›› Specialize in one-of-a-kind tooling and fixtures
  - ›› Visited by LIGO staff to assess capabilities and understanding of job
- **Firm Fixed Price for 2 each of four assembly types**
- **Authorization for long-lead materials already placed**
  - ›› Needed to maintain schedule

# Summary

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- **Competitive procurement**

- ›› Build-to-print machining job

- ›› Awarded to lowest bidder

- ›› Price compares favorably to LIGO in-house estimate (\$250k)

- **Superior Jig**

- ›› Capable company

- ›› Good understanding of work (identified components with exceptionally long lead times and suggested alternatives)

- **Need approval to maintain schedule**