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MAKE OR BUY PROGRAM
Letter Contract AF 04(694)-270
M57A-1 STAGE III MINUTEMAN MOTOR

Prepared by

CONTRACT ADMINISTRATION DIVISION
HERCULES POWDER COMPANY
CHEMICAL PROPULSION DIVISION
Minute - Research and Development Group
Bacchus, Utah

Prepared for

HEADQUARTERS, BALLISTIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Norton Air Force Base
California
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<td>&quot;MAKE OR BUY&quot; MANAGEMENT DECISION</td>
<td>6</td>
</tr>
</tbody>
</table>
OUTLINE AND GENERAL COMMENTS

Outlined herein is the Hercules Powder Company Make or Buy Program applicable to Letter Contract AF 04(694)-270.

Make or Buy decisions have been arrived at after a comprehensive review and evaluation by management of all known factors. Initially, decisions to "make" are formed upon the factors of facilities, manufacturing knowhow, adaptability, etc. After formulating a decision of "make" from these factors, studies are then conducted into the areas of unit cost, transportation, management control, etc., the result of which confirms or changes the "make" decision. Unit cost consideration is based and weighted upon detailed, comprehensive cost analyses of both in-house manufacture and vendor furnished costs.

Hercules basis for vendor selection is predicated on an initial "Vendor Survey" followed by successful contractual performance in areas of quality, capability, delivery and final qualification of the product to prescribed standards using reliability techniques developed through the R & D Program under Contract AF 04(647)-243 and production contracts AF 04(647)-690 and AF 04(694)-127.
Hercules, Bacchus, has a firm policy to develop and maintain a roster of technically and financially competent Small Business concerns and afford all Small Business concerns an equitable opportunity to compete for business within their capability. Procedures are established in the Purchasing Division, HPC Bacchus, to insure that bids are received from Small Business concerns whenever practical and that vendors having contracts with HPC comply with the Small Business requirements in their subcontracts.

The effectiveness of Hercules' Small Business policy can readily be evaluated by comparison of the Small Business participation in all defense procurement, which on a total dollar volume for fiscal year 1962 was 31.8%, while here at Bacchus the participation by Small Business was 39.43%; 8% above the national average. Presently the monthly volume of orders to Small Business at Bacchus is 75% of total orders placed.
SECTION III

"MAKE OR BUY" REVIEW BOARD

Bacchus Works of the Hercules Powder Company, Chemical Propulsion Division, has initiated a Make or Buy procedure under Management Manual Procedure 4-24, 8 February 1963, which establishes a Make or Buy Review Board consisting of management and technical representation under the chairmanship of the Superintendent of Contract Administration, for the purpose of making Make or Buy decisions at the appropriate time in a contract program.
SECTION IV

VENDOR SELECTION

The individual quantity requirements of the items subcontracted to the individual vendors is contingent upon vendor capability, production schedules, available special tooling, vendor qualification, performance, and reasonableness of price, with prime emphasis being placed on ability for performance and maintenance of reliability. Because of the reliability and confidence level that must be maintained in the end item being produced under this contract, reasonableness of price cannot be utilized as the determining factor in the selection of a vendor. Price is not totally disregarded in this respect, however, as Hercules strives by aggressive negotiation and value analysis to obtain reliability at the most reasonable price.
# FACT SHEET - MAKE OR BUY PROGRAM

**Program**  MINUTEMAN

**Contract No.**  AF 04(694)-270

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Number of items requiring Make or Buy decisions.</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>2. Number of items - Make</strong></td>
<td>5*</td>
</tr>
<tr>
<td><strong>3. Number of items - Buy</strong></td>
<td>10*</td>
</tr>
<tr>
<td><strong>4. Number of items - Deferred</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>5. Total Dollars</strong></td>
<td>$5,610,091</td>
</tr>
<tr>
<td><strong>6. Total Dollars - Make</strong></td>
<td>$3,252,620</td>
</tr>
<tr>
<td><strong>7. Total Dollars - Buy</strong></td>
<td>$2,357,471</td>
</tr>
<tr>
<td><strong>8. Statement regarding Small Business:</strong> (What the per cent of Dollars on Buy items are to Small Business)</td>
<td>Participation by small business in the &quot;Make or Buy&quot; decision items is 3.42%</td>
</tr>
<tr>
<td><strong>9. Statement concerning Deferred items:</strong> (List items deferred and approximate date they will be submitted to the Contracting Officer for review and approval.)</td>
<td>none</td>
</tr>
</tbody>
</table>

* Item M, External Insulation, and Case Machining, are both "Make and Buy" items and included in both of these figures.
## MAJOR COMPONENTS, ASSEMBLIES, OR PARTS RECEIVING "MAKE OR BUY" MANAGEMENT DECISION

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part No.</th>
<th>Part Name</th>
<th>Page</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01A-00221-083</td>
<td>Case, Motor Chamber</td>
<td>A</td>
<td>Make</td>
</tr>
<tr>
<td>2</td>
<td>01A-00224-001</td>
<td>Case, Machining</td>
<td>B</td>
<td>Make &amp; Buy</td>
</tr>
<tr>
<td>3</td>
<td>01A-00478-001</td>
<td>Insulator, Case, Internal</td>
<td>C</td>
<td>Buy</td>
</tr>
<tr>
<td></td>
<td>01A-00478-003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>01A-00560-001</td>
<td>Pyrogen Igniter</td>
<td>D</td>
<td>Make</td>
</tr>
<tr>
<td>5</td>
<td>KR 80000-07</td>
<td>Igniter S &amp; A Device</td>
<td>E</td>
<td>Buy</td>
</tr>
<tr>
<td>6</td>
<td>01A-00768-005</td>
<td>Nozzles</td>
<td>F</td>
<td>Buy</td>
</tr>
<tr>
<td></td>
<td>01A-00768-006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>170326-0101CEC</td>
<td>Pressure Transducer</td>
<td>G</td>
<td>Buy</td>
</tr>
<tr>
<td>8</td>
<td>01A-00074-003</td>
<td>TT Subassembly</td>
<td>H</td>
<td>Buy</td>
</tr>
<tr>
<td>9</td>
<td>2036-3</td>
<td>TT Shell Insulator</td>
<td>I</td>
<td>Buy</td>
</tr>
<tr>
<td>10</td>
<td>7300-9</td>
<td>TT Arm/Disarm Switch</td>
<td>J</td>
<td>Buy</td>
</tr>
<tr>
<td>11</td>
<td>01A-00545-001</td>
<td>TT Frangible Sector</td>
<td>K</td>
<td>Make</td>
</tr>
<tr>
<td>12</td>
<td>01A-90078</td>
<td>Tumble Motors</td>
<td>L</td>
<td>Make</td>
</tr>
<tr>
<td>13</td>
<td>01A-01648</td>
<td>External Insulation</td>
<td>M</td>
<td>Make &amp; Buy</td>
</tr>
<tr>
<td></td>
<td>01A-01829</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**PART A**

**HERCULES POWDER COMPANY**
**MAKE OR BUY STRUCTURE**

**Date:** 24 April 1963

**Contract No.:** AF 06(696)-270

**Recommendation:** MAKE

**Make:** RPC Rocky Hill

**Part Number:** 01A-00221

**Part Name:** Case Motor

**Quantity per motor:** 1

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated Unit Cost</th>
<th>Estimated Total Cost per End Item</th>
<th>Special Tooling</th>
<th>Estimated Lead Time Weeks</th>
<th>Government Owned Facilities</th>
<th>Add. FAC. NEC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hercules Powder Company Rocky Hill, New Jersey Large Business</td>
<td>$7572</td>
<td>135</td>
<td>$7572</td>
<td>Existing production Tooling will be used.</td>
<td>9</td>
<td>no</td>
</tr>
</tbody>
</table>

**Remarks:** Requirements for this part, including facilities and special tooling, are estimated.

**Reason for Decision:**
Case Winding is a proprietary process of the Hercules Powder Company developed to provide a suitable case meeting the Stage III Motor design requirements.

Technical and manufacturing competence gained through production AF Contract 06(647)-243, and 06(647)-690 were substantiating factors in recommending Make.
**Date:** 24 April 1963

**Description:** Case, Machining, consists of machining the "over-lap" on the aft end, forward ends, and the inter-stage ring. Also includes plaster removal and disassembly of turn-around mandrel shaft assemblies.

**Recommendation:** Make and Buy

**Buy:** Arrowsmith Plastic Tooling

**Make:** HPC, Bacchus

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated Unit Cost</th>
<th>Est. Total Cost</th>
<th>Special Tooling</th>
<th>Estimated Lead Time Weeks</th>
<th>Government Owned Facilities</th>
<th>Add. Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrowsmith Plastic Tooling</td>
<td>$3000.00</td>
<td>$3000.00</td>
<td>None</td>
<td>52</td>
<td>15</td>
<td>none</td>
</tr>
<tr>
<td>HPC, Bacchus, Utah</td>
<td>Case Machining of loaded motor for retrofit</td>
<td><em>see note below</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART C

Heracles Powder Company
Make or Buy Decision

Date: 24 April 1963

The internal case insulator is composed of Buna-S rubber and ultimately forms a bonded liner to the Spiralloy case. The purpose of this insulation is to act as a heat barrier between the burning propellant and the case.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Contract No</th>
<th>Description</th>
<th>Buy From</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A-00476-001 (US)</td>
<td>AF 04(696)-270</td>
<td>Insulator, Case</td>
<td>U. S. Rubber</td>
</tr>
<tr>
<td>01A-00476-003 (2cy)</td>
<td></td>
<td></td>
<td>Goodyear</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Est. Initial Cost</th>
<th>Est. Initial Cost Inc Item</th>
<th>Special Tooling</th>
<th>Estimated Lead time</th>
<th>Gov't Contract Facilities</th>
<th>Add'l Inc. Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. Rubber</td>
<td>$7800.00</td>
<td>$7800.00</td>
<td>Existing Tooling will be used on a non-interference basis</td>
<td>26</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Mishawaka, Indiana</td>
<td>Large Business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodyear</td>
<td>$8200.00</td>
<td>$8200.00</td>
<td></td>
<td>26</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>1144 East Market Street</td>
<td>Akron, Ohio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The $20,000 represents estimated costs for 7 stainless steel plunger mandrel shafts. The production shafts are made of low carbon steel. It is anticipated that used stainless steel shafts will result in low refurbishing costs.

Requirements for this part, including facilities and special tooling, are estimated.

Reason for Decision:

HPC does not have the facilities or equipment for manufacture of insulators.

Both suppliers not only have manufacturing capability for the insulators, but also fabricate these from raw materials; rubber production being their main source of business.

The existence of two sources who are capable of providing quality items within the specified delivery schedule at a competitive price was a paramount factor in reaching the decision to "BUY".
**PART D**

**Hercules Powder Company**  
**Mach 057-Buy Structure**

**Date:** 24 April 1963  
**Contract No.:** AF 06(694)-270  
**Part Number:** 01A-00549-001  
**Part Name:** Pyrogen Igniter

The igniter assembly consists of a base plate assembly which fits into the aft dome port and a bracket assembly that contains pyrotechnic material enclosed in a small rocket motor. This pyrotechnic material ignites the small rocket motor which spews out flames along the entire burning surface of the full-scale rocket motor.

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated Unit Cost</th>
<th>Est. Total Cost per Ind Item</th>
<th>Special Tooling</th>
<th>Estimated Lead Time Weeks</th>
<th>Government Owned Facilities</th>
<th>Add. Est.</th>
</tr>
</thead>
</table>
| Hercules Powder Company Kanvill, New Jersey Large Business | $1520.00 | $58  
$1520.00 | none | 75 | -- | 16 | no | none |

**Notes:**

Requirements for this part, including facilities and special tooling, are estimated.

**Reason for Decision:**

No other vendor immediately available with technical and manufacturing competence or facilities to produce this item.

Technical and manufacturing competence gained through R&D, availability of adequate facilities at Kanvill, were substantiating factors in recommending "MAKE".

This small rocket motor is within the manufacturing field and capability of Hercules Powder Company without requiring extensive additional tooling.
**PART E**

**HERCULES POWER COMPANY**
**MAKE OR BUY STRUCTURE**

**Contract No.** AF 04(694)-270
**Recommendation** BUY

---

**Source** | **Estimated Unit Cost** | **Est. Total Cost** | **Special Tooling** | **Estimated Lead Time** | **Prod.** | **Government Owned Facilities**
---|---|---|---|---|---|---
Bulova Research & Development Lab. | $2057.00 | $2057.00 | None | 55 | 22 | none

---

**Remarks:**
- Requirements for this part, including facilities and special tooling, are estimated.

---

**The Product**

- Igniter S & A Assembly is a mechanical Safe & Arm mechanism used to initiate the Squibs in the igniter which in turn initiate propellant ignition.

- Bulova Research and Development Lab.

---

**Reason for Decision:**

- HPC does not have facilities necessary for the manufacture of this item.

- Bulova is currently supplying similar items under R & D Contract AF 04(647)-243 and Production Contract AF 04(647)-690, and AF 04(694)-127.

- Bulova has the necessary manufacturing skill, adequate trained personnel, and familiarity with materials and techniques required for the manufacture of this technical and precision-type item.

- Bulova's production facilities are adequate to meet the increased supply demands in excess of their current contract obligations.
**PART F**

**Date:** 24 April 1963

**Description:** A pivoted nozzle, incorporating a blast tube, an integral expansion cone, and a throat section.

**Contract No.:** AF 04(694)-270

**Recommendation:** BUY

**Thompson-Ramo-Wooldridge**
**Kaiser Aircraft and Electronics**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompson-Ramo-Wooldridge 2355 Euclid Avenue Cleveland, Ohio Large Business</td>
<td>$3900*</td>
<td>100 $15,600</td>
<td>Existing Production Tooling will be used on a non-interference basis</td>
<td>27</td>
<td>Yes, presently being used on Minuteman Program $800.00</td>
<td>none</td>
</tr>
<tr>
<td>Kaiser Aircraft and Electronics 800 Doolittle Drive San Leandro, California</td>
<td>$6,079*</td>
<td>131 $16,318</td>
<td>Existing Production Tooling will be used on a non-interference basis</td>
<td>27</td>
<td>Yes, presently being used on Minuteman Program $794,783</td>
<td>none</td>
</tr>
</tbody>
</table>

**Remarks:** Requirements for this part, including facilities and special tooling, are estimated.

*Estimated cost does not include tungsten or carbon.

**Reason for Decision:**
Both sources have supplied nozzles on R&D Contract AF 04(647)-243 and Production Contract AF 04(647)-690, AF 04(694)-127. Quality, delivery, and overall performance by both vendors have been satisfactory to warrant retention as qualified sources.

**HPC** does not have the facilities or equipment necessary for the fabrication of nozzles. "State of Art" in this field is constantly changing and requires such extensive R&D into manufacturing process so as to discourage entry into such a specialized field.

The existence of two sources who are capable of providing quality items within the specified delivery schedule at a competitive price was a paramount factor in reaching the decision to "BUY."
Date: 24 April 1963

Description: The pressure transducer is a device attached through the igniter base plate that translates the variance in motor chamber pressure to an electrical impulse.

Recommendation: Buy

Consolidated Electro Dynamic, Inc.

|--------|---------------------|-----------|----------------------------------|-----------------|---------------------------|-----------------------------|----------------
| Consolidated Electro Dynamic, Inc | $950.00 | 65 | $950.00 | Existing Production Tooling will be used | -- | 21 | no | none

Remarks: Requirements for this part, including facilities and special tooling, are estimated.

Reason for Decision: Since the nature of the work is not within the normal scope of Hercules Powder Company, the decision was made to buy.
**PART II**

**HERCULES POWDER COMPANY**  
MAKE OR BUY STRUCTURE

**Date:** 24 April 1963  
**Contract No:** AF 04(694)-270  
**Recommen.** BUY

**Kaiser Aircraft and Electronics**  
**Edler Industries**

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated Unit Cost</th>
<th>Est. Total Cost per End Item</th>
<th>Special Tooling</th>
<th>Estimated Lead Time Weeks</th>
<th>Government owned Facilities*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Aircraft and Electronics</td>
<td>$275.00</td>
<td>$1,100.00</td>
<td>Existing Production Tooling will be used</td>
<td>N/A 18</td>
<td>Yes, presently being used on Minuteman $320,474 none</td>
</tr>
<tr>
<td>Edler Industries</td>
<td>$324.00</td>
<td>$1296.00</td>
<td>Existing Production Tooling will be used</td>
<td>N/A 18</td>
<td>no none</td>
</tr>
</tbody>
</table>

**Remarks:**  
Requirements for this part, including facilities and special tooling, are estimated.

**Reason for Decision:**  
Both sources listed have been utilized in supplying requirement for R & D Contract AF 04(647)-243 and Production Contracts AF 04(647)-590, AF 04 (694)-127. Quality, delivery, and overall performance by both vendors have been satisfactory to warrant retention as qualified sources.

The existence of two sources who are capable of providing quality items within the specified delivery schedule at a competitive price was a paramount factor in reaching the decision to "BUY".

NPC does not have the necessary facilities or equipment necessary for the manufacture of this item.
**PART I**

**HERCULES POWDER COMPANY**

**MAKE OR BUY STRUCTURE**

**Date:** 24 April 1963

**Contract No.** AF 04(69A)-270

**Recommendation:** BUY

**Swedlow, Incorporated**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedlow, Incorporated</td>
<td>$231.00</td>
<td>$926.00</td>
<td>6</td>
<td>8</td>
<td>none</td>
</tr>
</tbody>
</table>

**Remarks:**
Requirements for this part, including facilities and special tooling are estimated.

**Reason for Decision:**
Cost of special forms and dies required to form this item in consideration of the relatively small requirement, would reduce profit to a point that other sources within the industry could not produce at a competitive price.

Swedlow, Incorporated has capability and capacity to furnish all production needs of this item.

**Quantity per motor:** 4
**PART J**

**BN-7000/9 (12-62)**

**Date:** 24 April 1963

**Description:** Mechanical Safe & Arm Mechanism through which current flows to initiate the frangible sector prior to thrust termination.

**Contract No.** AF 04(696)-270

**Recommendation:** BUY

---

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Consolidated Controls Corp. 750 South Isla Englewood, California Large Business - Area of Substantial Unemployment</em></td>
<td>$2111.70</td>
<td>138</td>
<td>$2111.70</td>
<td>None</td>
<td>60</td>
<td>21</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:**

*This source was formerly known as Electro-Actuators, 9705 Klingerman, El Monte, California. Consolidated Controls purchased Electro-Actuators on October 1, 1962. Requirements for this part, including facilities and special tooling, are estimated.*

Consolidated Controls Corporation (previously Electro-Actuators) has been qualified through production effort under the R & D Contract AF 04(647)-243 and have been supplying 7300-5 configuration switches for AF contracts AF 04 (647)-690, and AF 04(696)-127. Currently this vendor is being qualified for production of the 7300-9 TT Arm/Disarm switch.

As this type of commodity is not within the scope of company products, facilities and/or equipment for manufacture are not available.
HERCULES POWDER COMPANY
MAKE OR BUY STRUCTURE

Date: 24 April 1963

Description: An explosive spigot used to release tension on TT closure ring which allows internal pressure to force closure out and thus realize thrust termination.

Recommendation: MAKE

Hercules Powder Company
Port Ewen, New York

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hercules Powder Company</td>
<td>$120.00</td>
<td>$480.00</td>
<td>none</td>
<td>60</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>Port Ewen, New York</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quantity per motor: 4

Remarks: Requirements for this part, including facilities and special tooling, are estimated.

Reason for Decision: Technical proficiency established through production of similar items and through R&D work accomplished at Port Ewen. Hercules has manufactured such explosive type spigots as this item for many years and has been one of the prime suppliers to commercial users. Production of this particular item is easily accomplished without additional government or contractor facilities and requires only nominal special tooling.

Cost estimates indicate lower cost than from other suppliers.

Manufacturing facilities and trained personnel available at Port Ewen.

Anticipate that better quality control and scheduling into motor production can be obtained and maintained by combining Wing VX requirements into manufacturing operation at Port Ewen.
**PART L**

**HERCULES POWDER COMPANY**
**MAKE ON GRY STRUCTURE**

**Date:** 24 April 1963

**Description:** Aluminum case, cartridge loaded double base propellant rocket motor approximately 7/8" long.

**Contract No.:** AF 04(694)-270

**Recommendation:** Make

**Hercules Powder Company - Kenil Plant**

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated Unit Cost</th>
<th>Est. Qty.</th>
<th>Estimated Total Cost per End Item</th>
<th>Special Tooling</th>
<th>Estimated Lead Time Weeks</th>
<th>Government owned Facilities</th>
<th>Add'l. Fac. NEC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hercules Powder Company</td>
<td>$5148.00</td>
<td>400</td>
<td>$30,888</td>
<td>$24,893</td>
<td>10</td>
<td>No</td>
<td>none</td>
</tr>
<tr>
<td>Kenil, New Jersey</td>
<td></td>
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</tr>
<tr>
<td>Large Business</td>
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</tbody>
</table>

**Remarks:**
Requirements for this part, including facilities and special tooling, are estimated.

**Reason for Decision:**
No other vendor is immediately available with technical and manufacturing competence or facilities to produce this item.

Technical and manufacturing competence gained through manufacture of tumble motors for AF Contract 04(647)-243 and AF 04(694)-127 were substantiating factors recommending Make.
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>HPC, Baccus, Utah</td>
<td>$800.00</td>
<td>$800.00</td>
<td>$2400.00</td>
<td>8</td>
<td>Yes, facilities procured under Contract AF 04(647)-553 will be used.</td>
<td>none</td>
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<tr>
<td>Large Business</td>
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</tr>
<tr>
<td>Armstrong Cork</td>
<td>$5347.00</td>
<td>$5357.00</td>
<td>Existing Production Tooling will be used</td>
<td>8</td>
<td>None</td>
<td>none</td>
</tr>
<tr>
<td>5037 Paloma Avenue, South Gate, California</td>
<td></td>
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</tbody>
</table>

Remarks: Requirements for this part, including facilities and special tooling, are estimated.

*Price does not include ground plane costs

Reason for Decision: Armstrong Cork has developed capability through operation under R & D Contract AF 04(647)-343 and Production Contract AF 04(647)-690.

HPC's technical capability and price were substantiating factors in recommending Hako.
<table>
<thead>
<tr>
<th>COPIES NO.</th>
<th>RECIPIENT</th>
</tr>
</thead>
</table>
| 1         | Hq. Ballistics Systems Division (AFSC)  
Norton AFB, California  
Attn: BSRPQ-1 |
| 2         | Hq. Ballistic System Division (AFSC)  
Norton AFB, California  
Attn: BSRPQ-2 |
| 3-12      | Armed Services Technical  
Information Agency  
Arlington Hall Station  
Arlington 12, Virginia |
| 13-16     | Central Intelligence Agency  
OOR - Std. Distributors  
Washington 25, D. C. |
| 17        | Philadelphia Contract Management Dist.  
1411 Walnut Street  
Philadelphia 2, Pennsylvania |
| 17-18     | W. E. Howell - Home Office, Wilmington  
M. C. Burgy - Home Office, Wilmington |
| 19        | J. E. Greer - Home Office, Wilmington |
| 20        | F. I. Maurer/J. F. Bullard - Bacchus, Utah |
| 20-25     | L. O. Randolph, Bacchus, Utah |
| 26        | J. L. Morse, Bacchus, Utah |
| 26-27     | R. A. Sawyer, Bacchus, Utah |
| 28        | J. C. Farber, Bacchus, Utah |
| 29        | V. Rieth, Bacchus, Utah |
| 30-35     | Beehive Central File, Bacchus, Utah |
| 36        | G. W. Jorgensen, Bacchus, Utah |