FAME Mechanisms

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Baseline Design

- Marmon Clamp for spacecraft-interstage separation (delta qualification test for thermal environment)
- Separation spring cartridges at spacecraft-interstage interface to achieve necessary delta-V for no contact.
- Trim Tabs (3) each include hinges (2), motor (1), pin puller (1), pin puller bracket (1), potentiometer (1), limit switch (1)
- Trim Areas (3) each include alignment brackets (6), pivot (2), motor (1), sector gears (1), potentiometer (1), limit switch (1)
- Trim Masses (2) each include motor (1), ball screw (1), bracket (1), anti-backlash nut (1), potentiometer (1), limit switch (1)
- The following mechanisms have been eliminated:
  - Solar Array Mechanisms
  - Star Tracker Covers

Note: Not all hardware is listed, only major components!
# Purchases

<table>
<thead>
<tr>
<th>Mechanism Component</th>
<th>Cost</th>
<th>Purchase Date</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marmon Clamp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pyro bolts, Pyros</td>
<td>$131K</td>
<td>Mar 02</td>
<td>26 weeks</td>
</tr>
<tr>
<td>Trim Tab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Motor</td>
<td>$52K</td>
<td>Jan 02</td>
<td>20 weeks</td>
</tr>
<tr>
<td>- Pin Puller</td>
<td>$27K</td>
<td>Jul 02</td>
<td></td>
</tr>
<tr>
<td>- Potentiometer</td>
<td></td>
<td>Under Investigation</td>
<td></td>
</tr>
<tr>
<td>Trim Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Motor</td>
<td>$43K</td>
<td>Jan 02</td>
<td>20 weeks</td>
</tr>
<tr>
<td>- Sector Gear</td>
<td></td>
<td>Under Investigation</td>
<td></td>
</tr>
<tr>
<td>- Potentiometer</td>
<td></td>
<td>Under Investigation</td>
<td></td>
</tr>
<tr>
<td>Trim Mass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Motor</td>
<td>$49K</td>
<td>Jan 02</td>
<td>20 weeks</td>
</tr>
<tr>
<td>- Ball screw</td>
<td></td>
<td>Under Investigation</td>
<td></td>
</tr>
<tr>
<td>- Anti-backlash nut</td>
<td></td>
<td>Under Investigation</td>
<td></td>
</tr>
<tr>
<td>- Potentiometer</td>
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</table>

Note: Cost based on vendor quotes.
Note: Not all necessary hardware is listed.
## Schedule

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Proto</th>
<th>Fab</th>
<th>QTP</th>
<th>ATP</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marmon Clamp</td>
<td>N/A</td>
<td>10/02</td>
<td>10/02</td>
<td>05/03</td>
<td>02/04</td>
</tr>
<tr>
<td>Spring Cartridge</td>
<td>04/02</td>
<td>10/02</td>
<td>02/03</td>
<td>04/03</td>
<td>02/04</td>
</tr>
<tr>
<td>Trim Tab</td>
<td>11/01</td>
<td>01/02</td>
<td>12/02</td>
<td>02/03</td>
<td>09/03</td>
</tr>
<tr>
<td>Trim Area</td>
<td>11/01</td>
<td>01/02</td>
<td>12/02</td>
<td>03/03</td>
<td>09/03</td>
</tr>
<tr>
<td>Trim Mass</td>
<td>11/01</td>
<td>01/02</td>
<td>12/02</td>
<td>03/03</td>
<td>09/03</td>
</tr>
</tbody>
</table>

Note: Some parallel assy/test due to spending profile limitations. Long assy/test durations due to manpower, facility, budget limitations.