STANFORD UNIVERSITY
W.W. HANSEN EXPERIMENTAL PHYSICS LABORATORY
GRAVITY PROBE B, RELATIVITY GYROSCOPE EXPERIMENT
STANFORD, CALIFORNIA 94305-4085

OPEN/CLOSE V2 VALVE TO CHECK THE CURRENT CONSUMPTION AND SENSORS LOCATION.

GPB ENGINEERING PROCEDURE

P0728

8/3/00

PREPARED _____ _____

A. Halevy , GMA Engineer Date

APPROVED _____ _____

G.Asher, GMA RE Date

APPROVED _____ _____

D. Ross, Quality Assurance Date

APPROVED _____ _____

B. Muhlfelder, Hardware Manager	Date

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1. GENERAL DESCRIPTION

This procedure describes the current measurements that will be taken on the flight vatterfly valves V2 (Howden drawing #3179) in order to find if by limiting the current we will receive a different closing angle. We are going to check the sensors location according to Howden acceptant tests, and fix them accordingly.

2. TEST INFORMATION

- Proper care should be taken in handling components, and their cleanliness must be preserved.
- Temperature: Room temperature
- Humidity: not critical

2.2 Cleanliness

2.2.1 Normal lab environment when components are double bagged.

2.2.2 Class 1000 Clean Room, on laminar flow working table.

2.3 ESD precautions

2.3.1 None required.

ONR representative, and QA to be notified 24 hours prior to beginning this procedure

2.4 Personnel, QA, and Documentation

2.4.1 Personnel Integration and Test Director

The Integration and Test Director (ITD) shall be Aaron Halevy or an alternate that he shall designate. The ITD has overall responsibility for the implementation of this procedure and shall sign off the completed procedure and relevant sections within it. The GMA REE shall also sign off the completed "As-Built" procedure.

Integration Engineers and other personnel. All engineers and technicians participating in this procedure shall work under the direction of the ITD who shall determine personnel that are qualified to participate in this procedure. Participants in this procedure are to be C. Warren and A. Halevy.

The test shall be conducted on a formal basis to approved and released procedures. The QA program office shall be notified of the start of this procedure. A Quality Assurance

Representative, designated by D. Ross shall be present during the procedure (if deemed necessary) and shall review any discrepancies noted and approve their disposition. Upon completion of this procedure, the QA Manager, D. Ross or her designate, shall certify their concurrence that the effort was performed and accomplished in accordance with the prescribed instructions by signing and dating in the designated place(s) in this document. Discrepancies will be recorded in a D-log or as a DR per Quality Plan P0108. If a re-test of any or all of the hardware is necessary, the ITD will determine the appropriate changes in the procedure, with the QA Manager's approval.

2.5 Red-line Authority

Authority to red-line (make minor changes during execution) this procedure is given solely to the ITD or his designate, or the GMA Manager, and shall be approved by QA. Additionally, approval by the Hardware Manager shall be required, if in the judgment of the ITD or QA Representative, experiment functionality may be affected.

3. DOCUMENTS AND EQUIPMENT

3.1 Applicable Documents

Howden drawing #3179

3.2 Test Equipment

Equipment	Model and Serial Number	Calibration
Current amplifier	AM 503B-HL02263-2	
Digital oscilloscope		
High gage with dial indicator		
Control box		
28V Power supply		
Multimeter		

4. CURRENT LIMIT AND SENSOR LOCATION

Started on: _____

4.1 Current limit and checking sensor location.

4.1.1 Attach the current amplifier to the Digital oscilloscope.

4.1.2 Attach the ampermeter to the +28V line that going from the power supply to the control box.

4.1.3 Attach V2 to the control box. Connect the external power supply to the ports in the rear of the control box.

4.1.4 Set the current limit in the power supply to .75 amper .

4.1.5 Fully open the valve, set zero the dial indicator at the end of the cam bar. Start to close till the “open “ light will turn off. The indicator reading should be .035”+/- .002”. (See sketch below). On both motors. Record the results.

4.1.6 Fully close the valve, set zero the dial indicator at the end of the cam bar. Start to open till the “close “ light will turn off. The indicator reading should be .035”+/- .002”. (See sketch below). On both motors. Record the results.

4.1.7 Video record the osciloscope screen. Record results in the table.

4.1.8 Set the current limit to .85 amper and repeat operation 4.1.5 ,4.1.6 and 4.1.7.

4.1.9 Fine tune the current limit to find the stopping points. and repeat operation 4.1.5 ,4.1.6 and 4.1.7.

4.1.10 Record open-close cycles in the table and the valve's log book.

4.1.11 In case that the results in paragraphs 4.1.5 and 4.1.6 are out of tolerance, proceed to the next steps.

4.2 Adjusting sensor location.

4.2.1 Open the two covers #26 and #27 on Howden drawings.

4.2.2 Adjust sensor location by releasing the screws. Checking adjustments by operating the valve.

4.2.3 Repeat operation 4.2.2 till meeting the required tolerance.

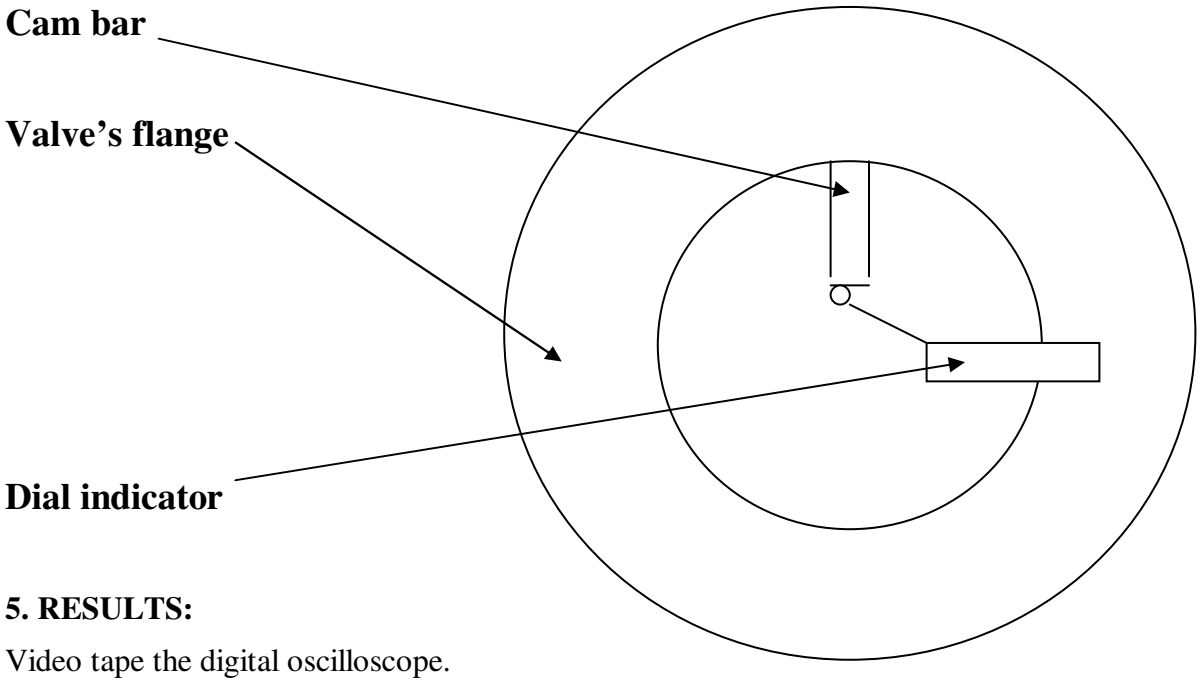
4.2.4 Record results:

operation	Current limit	Under /over close	Cam bar height open	Cam bar height close	Status of Indication light	Remarks

	Total cycles number

4.2.5 Tighten sensors' screws torque to 5 lbin.

4.2.6 Assemble the covers (they are not the same!). Torque 7.5 lbin.



5. RESULTS:

Video tape the digital oscilloscope.

6. PROCEDURE COMPLETION

The results obtained in the performance of this procedure are acceptable:

Done by:

_____ date: _____

A. Halevy, GMA Engineer

Discrepancies if any:

Approved: _____ date: _____
G. Asher Vatterfly RE

Approved: _____ date: _____
D. Ross, QA Representative

7 DATA BASE ENTRY

The following data shall be entered into the GP-B Data base:

- Name, number and revision of this procedure
- Date of successful completion of procedure.
- Part numbers and serial numbers of Vatterfly valve and their components