



3.7 meter HIAD modeling results

Lindell, Michael C. (LARC-D206) <michael.c.lindell@nasa.gov>
To: Andy Young <andrew.c.young1@maine.edu>

Fri, Jun 23, 2017 at 2:19

Andy,

Attached are a couple of data files from the 6m testing. The condition was all tori at ~15 psi, and loaded up to 30,000 lbf (with holds at 10, 20, and 30 kips).

[PRE_TPS_01_15psi.xlsx](#)

This file contains tori pressures and T7 displacements at 4 locations (0, 90, 180, 270 degrees) as a function of time. The "HIAD HighPressure (Mean)" column is the pressure (psi) in tori 1, 2, and 6, and "HIAD LowPressure (Mean)" is the pressure in the remaining tori. "Vacuum Pressure (Mean)" is the pressure inside the tub. "0 Degrees (Mean)", etc., are the displacements (inches).

[Run 1 - No TPS.xlsx](#)

This file contains strap loads as a function of time. Here is a description of the format from the data provider:

The spreadsheet has the load cell identifier in the first row followed by the time history of that load cell. You will see that there are different columns of time (t1, t2, t3) - these correspond to the three separate data systems which were used to record all of this data. So, when looking at time histories, the load data in the columns to the right of a given time column are those which correspond to that time stamp:

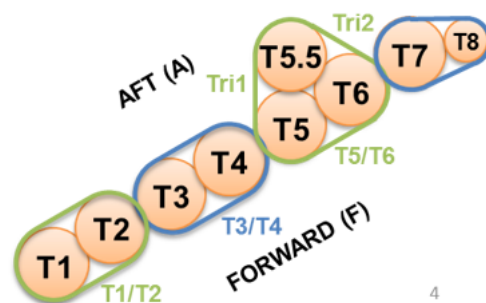
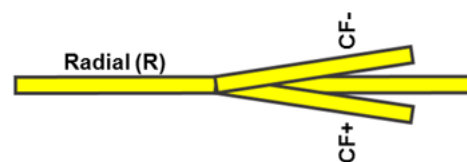
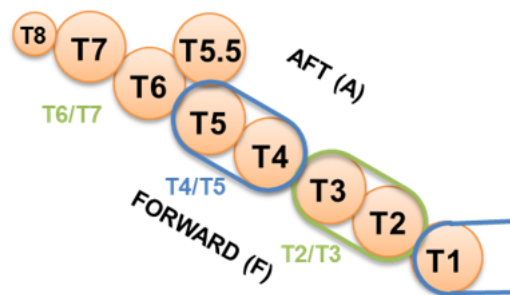
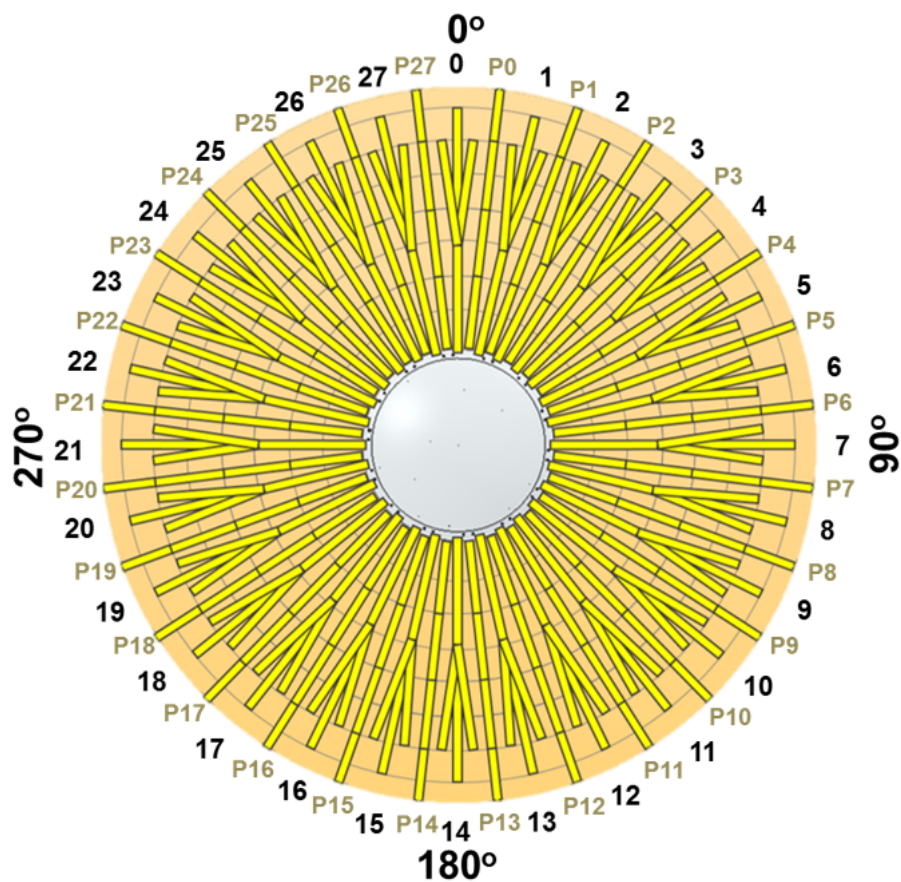
- Data in columns 2-21 correspond to t1 which is in column 1
- Data in columns 23-46 correspond to t2 which is in column 22
- Data in columns 48-63 correspond to t3 which is in column 47

You will note that all time stamps start negative. That is time prior to the first event marker and is used to synchronize all of the data to the same time scales. Thus, t=0 is the same point in time for all data systems.

The strap label nomenclature is from the figure below. Let me know if you have questions. The radials were not connected to T7 for this test so any column like "7 CF" can be ignored. "7 CF-" and "7 CF+" are the chevrons. Labels without the "+" or "-" were the chevrons (off the main radial) to T7 when connected.

I'll get material properties to you next.


Mike




From: Andy Young [mailto:andrew.c.young1@maine.edu]
Sent: Tuesday, June 13, 2017 11:03 AM
To: Lindell, Michael C. (LARC-D206) <michael.c.lindell@nasa.gov>
Subject: Re: 3.7 meter HIAD modeling results

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2 attachments

 **PRE_TPS_01_15psi.xlsx**
 337K

 **Run 1 - No TPS.xlsx**
 699K