



CLRC

8th August 2001

To: Berend, Jamie, Dustin

From: John Delderfield

cc: Eric, Doug, Bruce.

Summary of Design Status for some Harness Related Issues.

Arising from Cardiff actions, and generating a plethora of recent E-mails [although perhaps not summed up as my proposed trade-off tables], Spire now has:

- a. BDA harnesses exit via plates mounted to the $\pm Y$ walls of FPU clamshells, supported to aid integration on "VespeI" supports as from the lids of the 2K boxes.
- b. Bulkhead mounted connectors on the insides of these plates, integral with these BDA harnesses.
- c. Separate, although identical as regards contacts, harness FPU to JFET units. I will introduce F1A-F15A (internal) and F1B-F15B (external) as a nit-picking documentation detail. The A series do not need external screens. The B series do, and maybe thermal take-off straps to the HOB as well.
- d. 37 way connected filters with internal track links as per my E-mail attached. Spire block diagram "updated" to show.

Arising from details of JPL modules in review pack, but not discussed in detail in that forum,

- e. Please tweak JFET module I/Fs as shown attached
- f. I now understand how filters mount, as shown attached. Maybe Berend you could drop the layout into the instrument ICD. The internal frame that holds the FPU filters around their wastes and keeps them in place during integration + provides sub-system harness clamping points down to the Spire baseplate can be simple aluminium to minimise thermal stresses...it's isothermal.
- g. Small BDA harness accommodation detail attached...topics actually mentioned long ago!

Items still in progress:

- h. I'd like to see just one plate in each FPU clamshell for the BDA harnesses, with connectors laid out neatly in parallel so as "flow" across to the one JFET unit each side.
- i. After up-issuing harness document, I will sketch JFET unit configs., table for comments, and I hope organise their being drawn up. These need to go on the Spire ICD.
- j. The height of the JFET boxes about the HOB/harness missing the He plumbing thereon, and hence some possible knock on into optimum height of BDA harness plates in FPU clamshells remains to be worked with Astrium.

Cheers

John

Cardiff actions as per:



CLRC

6th July 2001

To: Ken King

From: John Delderfield

cc: BMS DG, BW, JB, ECS

ACTIONS from HARNESS SPLINTER AT CARDIFF.

1. JPL to provide JFET and Filter unit masses to JD. Berend to provide JD updated mass estimates for JFET frames for 3JFET+1Filter (twice) as on I/F drawing and 2JFET+1Filter, as opposed to frames for straight 7JFET and 2JFET.
2. JD to write mass control/trade-off case.
3. Harness routing. Berend to table layout schemes for FPU parts of BDA wiring as per IID-B and the older alternative connector panel scheme with wiring plates in FPU cover outer faces...near to JFET boxes.
4. JD to update Spire Harness Definition with details brought out in our discussions. Will also resurrect the detailed bolometer system ground/wiring scheme and attach to the Spire Grounding Philosophy document.

John

On 27th July

To: 'Jamie Bock' <jjb@astro.caltech.edu>
From: John Delderfield <j.delderfield@rl.ac.uk>
Subject: SORRY
Cc: E.C.Sawyer@rl.ac.uk , D.K.Griffin@rl.ac.uk
Bcc:
X-Attachments:

I've dealt with upteen things this week, but have not been able to ship the updated harness spec. I'll try and do it 6/7 August, ignoring pressing E-mails and things. I tried to do this today and failed miserably!

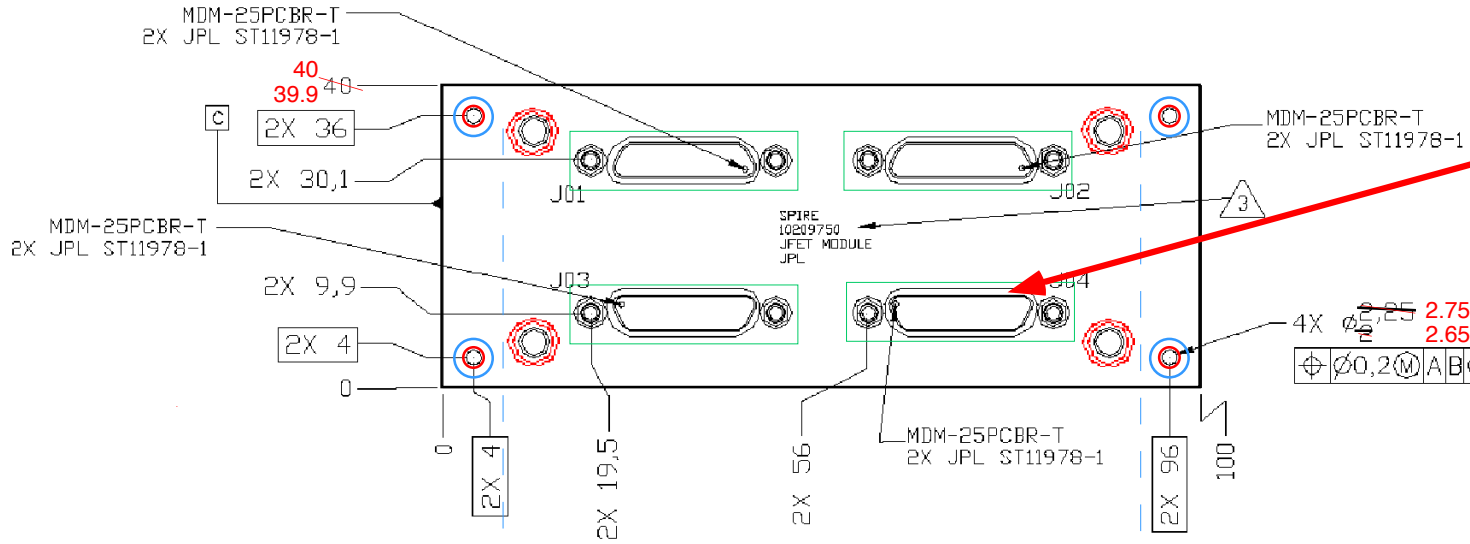
The idea of simple mass trade-off floundered for lack of truly comparable quickly available info.

In terms of getting this sorted out, and things signed off, we could consider again using 37way filters for the JFET non-signal lines. As a quid pro quo, I'd ask you to install a bank of plated-through holes across the tracks, also usable in the units for the FPU. This returns some efficiency because the backharness can probably not then include splices, and parallelling of wires could be done by 36AWG soldered links in the filter units. This would leave the 37 way cryoharness harness connectors partially populated and a simple 1:1 cryogenic conductor format. I think we'll still have a single photometer rack as per the block diagram.

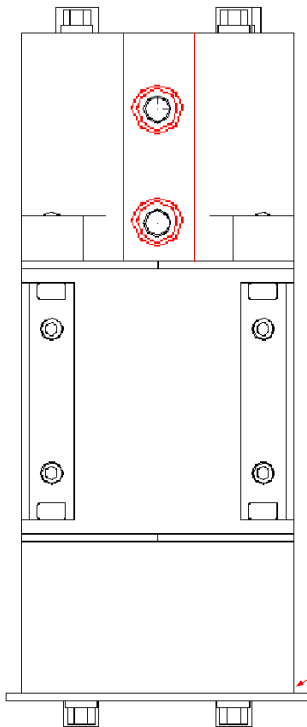
Hope review goes OK

Cheers

John

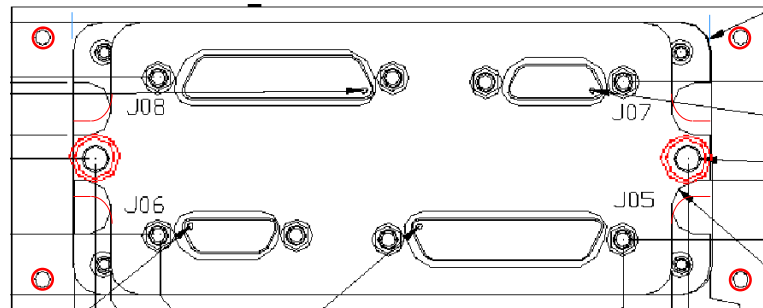


As I understand it, there are rear-bulk-head mounted plug connectors on both ends of this unit. Please add a note that the "Walls have apertures sized such that, when assembled with worst case PCB to wall tolerances, the rims on the mating socket shells will be able to pass through these apertures, giving full connector mating." or some equivalent wording.



= M2.5 insert

To meet spec, on distance between fasteners when holding RF seal along the unit's two dividing walls, please add 2 fasteners top and bottom

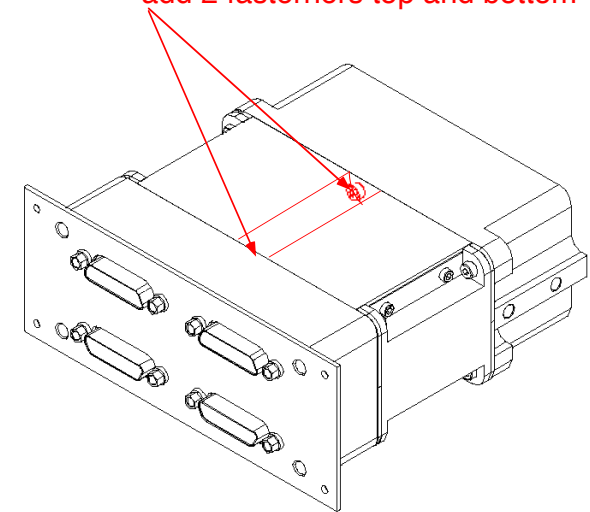


Red shows changes for M2.5 mounting.

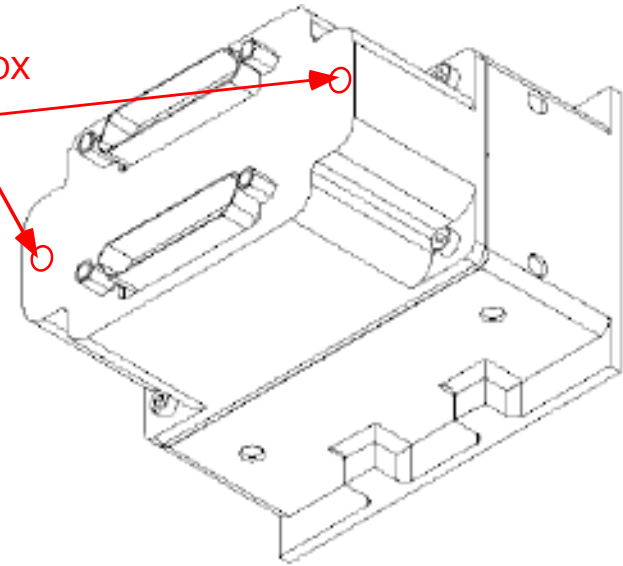
Need small amount of extra material on rear web to stop thread insert breakout.

Rmax 0.2 typ

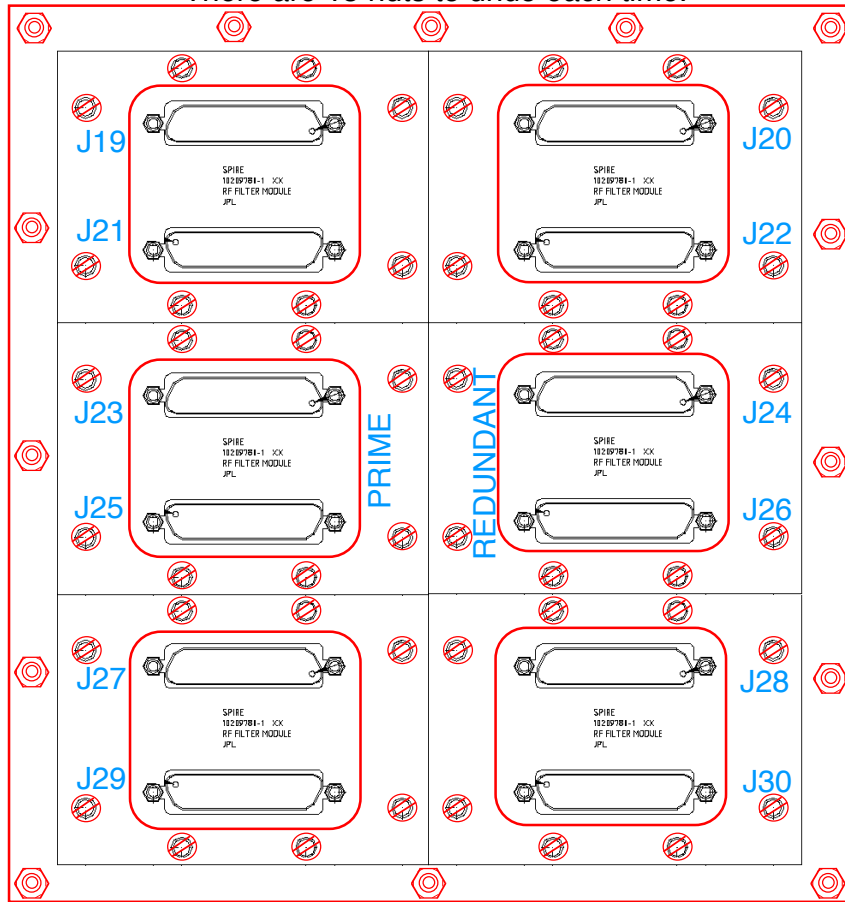
Blue construction lines show front face can be left unchanged, but I've made module's width tolerance downwards only to keep a 40mm rack spacing.



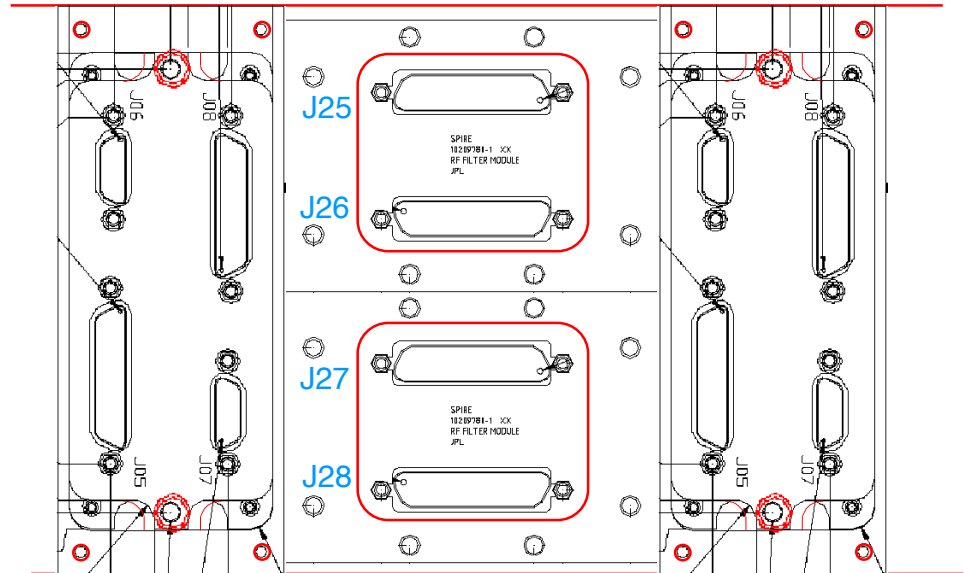
ONLY CHANGE TO FILTER BOX
IS PAIR OF M2.5 INSERTS



FILTERS ATTACHED TO BACK OF PLATE,
the plate has outward facing studs that pass through FPU clam-shell.
There are 15 nuts to undo each time.



PAIR OF FILTERS IN MIDDLE OF PHOTOMETER JFET RACK
Note that this is not drawn correctly because it shows FCU facing ends
of the filters but FPU facing ends of the nearest pair of JFET modules.
The point is that 2 x 48mm is nicely a little bit less than 100mm.



BDA HARNESS DETAILS

