SYLDA dual launch adaptor

Annex 8.4

The mechanical interfaces between the inner or upper spacecraft and the SYLDA are identical. Each spacecraft rests on a frame, the alignment diameter of which is 937.62 mm in the separation plane. The structures adjacent to these frames incorporate supports for the umbilical connectors, and spacecraft separation systems.

Each spacecraft is secured to its interface frame by a clampband. This comprises a metal strip applying a series of clamps to the payload and SYLDA frames. The clampband tension does not exceed 20000 N at any time, it is defined to ensure no gapping between the spacecraft and adaptor frames in ground and flight environment. The clampband assembly comprises two half-clampbands, connected by bolts which are cut pyrotechnically to release the clampband, which is then held captive by the SYLDA assembly.

The spacecraft is forced away from the launch vehicle by 4 springs, integral with the SYLDA and bearing on supports fixed to the spacecraft rear frame. The relative velocity between SYLDA and the spacecraft is about 0.5 m/s. The force exerted on the spacecraft by each spring does not exceed 1200 N. The positions of these springs may be selected by the User, inside or outside the spacecraft interface frame. Outside springs are recommended for better clearance at separation.

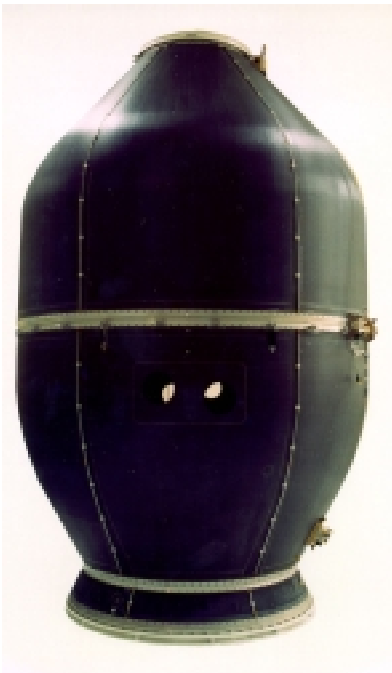
Orientation of the spacecraft with respect to the launch vehicle is by a keyway corresponding to the launch - vehicle Z axis.

Following spacecraft/Ariane adaptor assembly, the displacement of any point of the supports fixed to the spacecraft rear frame and bearing on the Ariane separation devices (springs or actuators) must be less than 0.5 mm.

Two microswitches used to detect separation are located on the SYLDA inside spring guides. The SYLDA assembly provides bearing faces for the spacecraft microswitches, aligned on the spring centre lines (see figures A8.4.9 and A8.4.10).
The spacecraft rear frame must be manufactured from aluminium alloy.

The fundamental bending-mode frequency of each satellite, assumed to be hard-mounted, should be at least 15 Hz and preferably higher.

The frequency of the principal longitudinal modes should be 35 Hz or more.



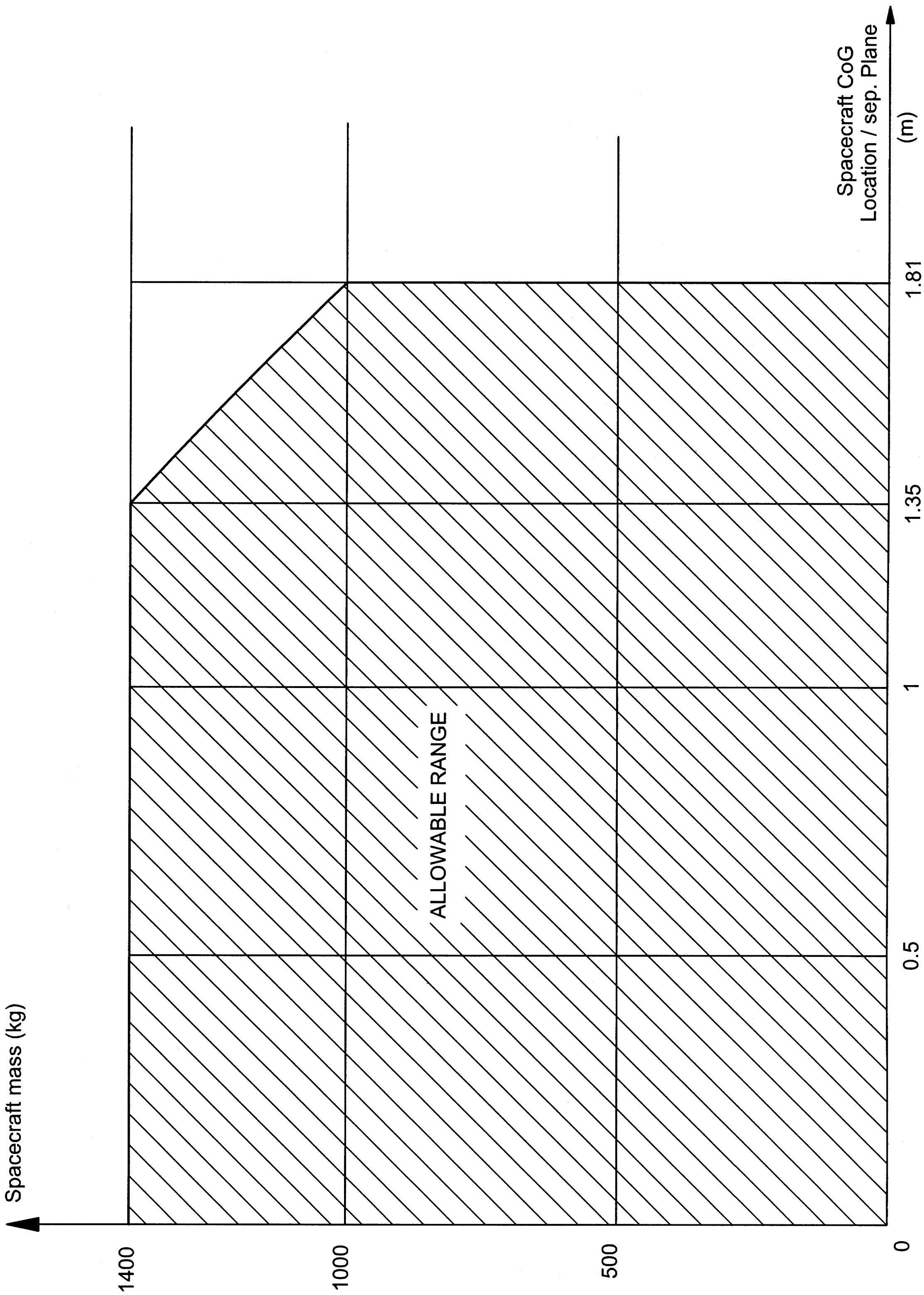


Fig. A8.4.1. – Limit loads of SYLDA at SYLDA / Payload interface

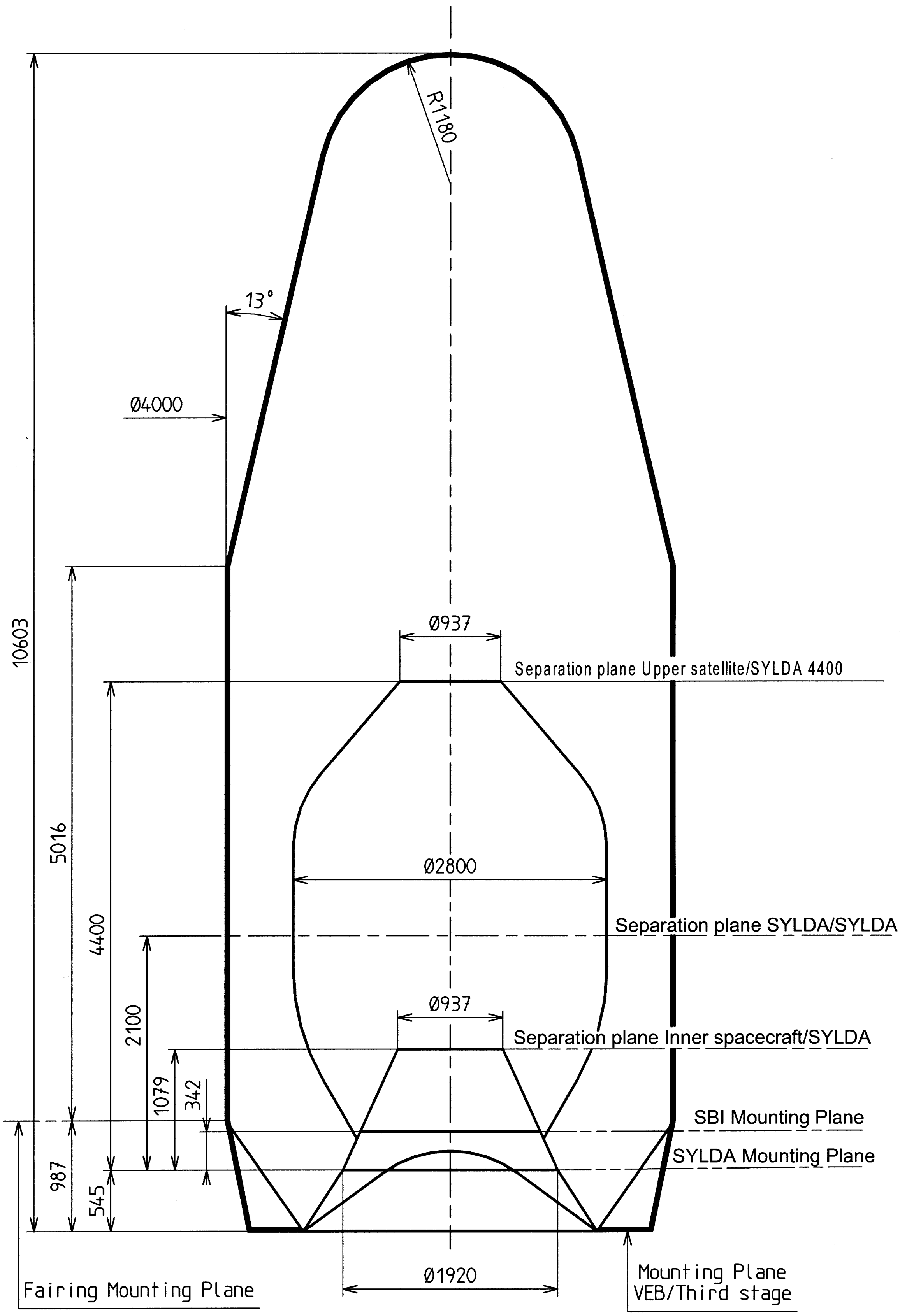


Fig. A8.4.2. – Configuration of SYLDA beneath the fairing

OVERHEAD VIEW

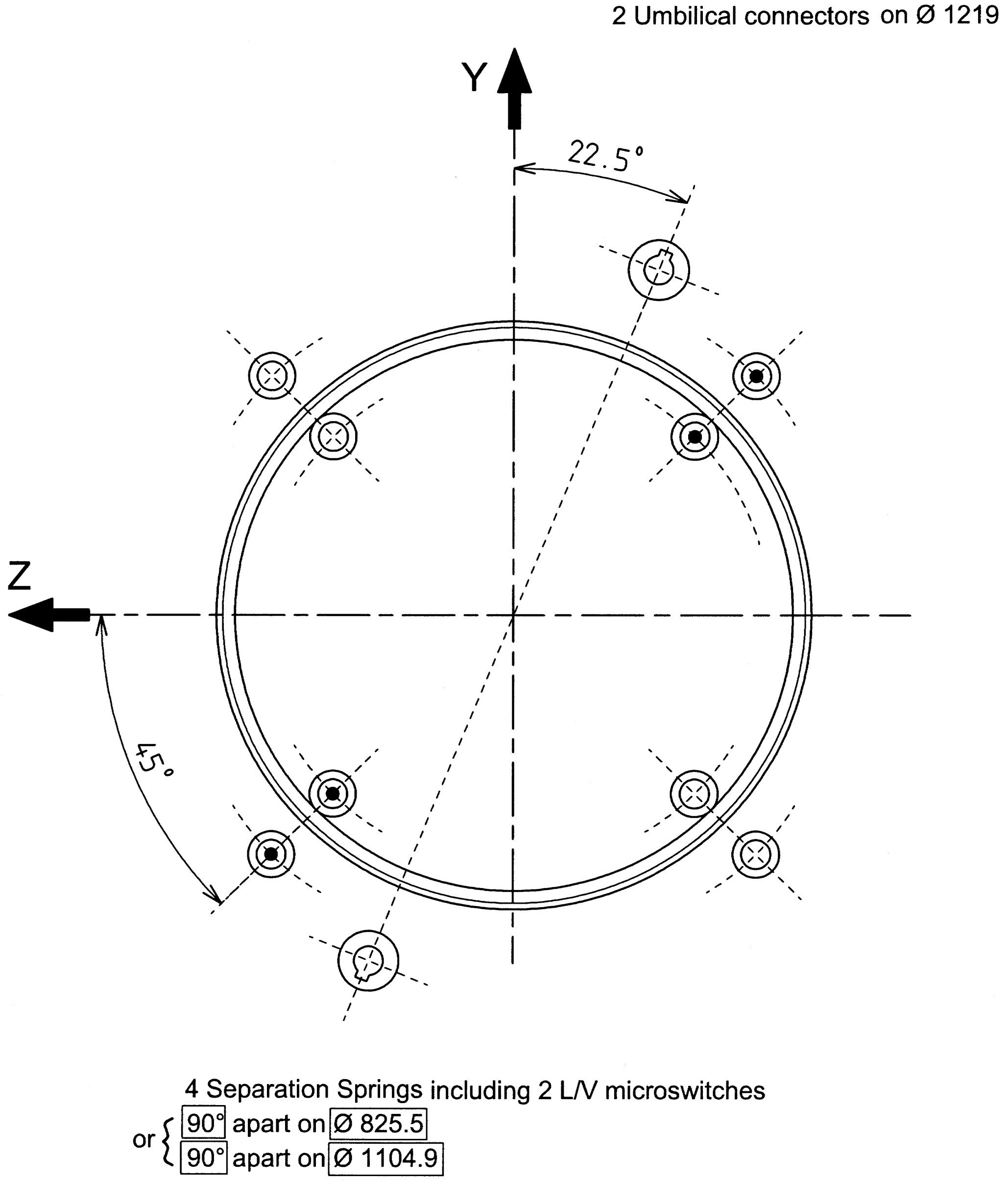


Fig. A8.4.3. – SYLDA configuration and main characteristics

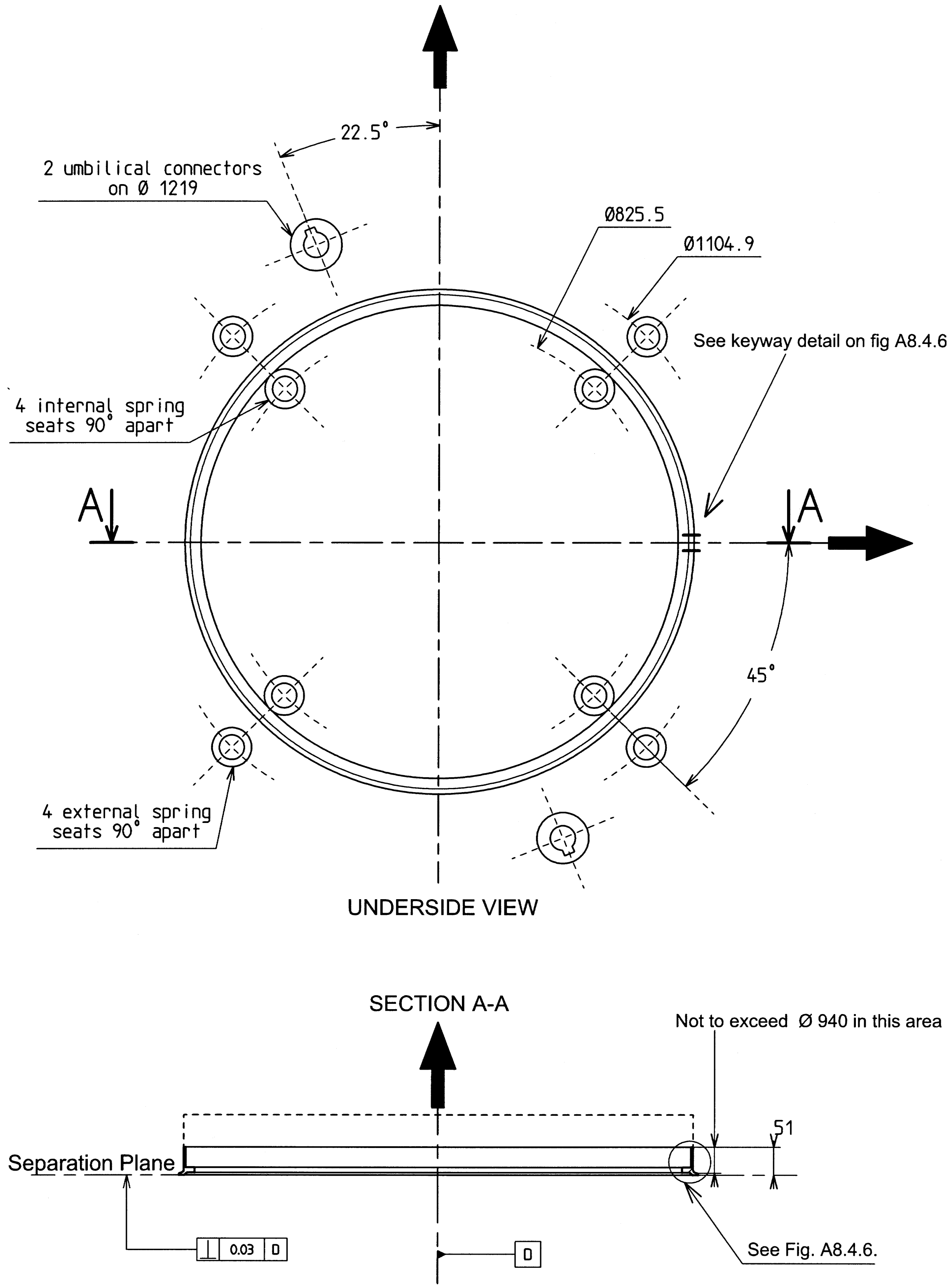


Fig. A8.4.4. – Spacecraft configuration

General view and main characteristics

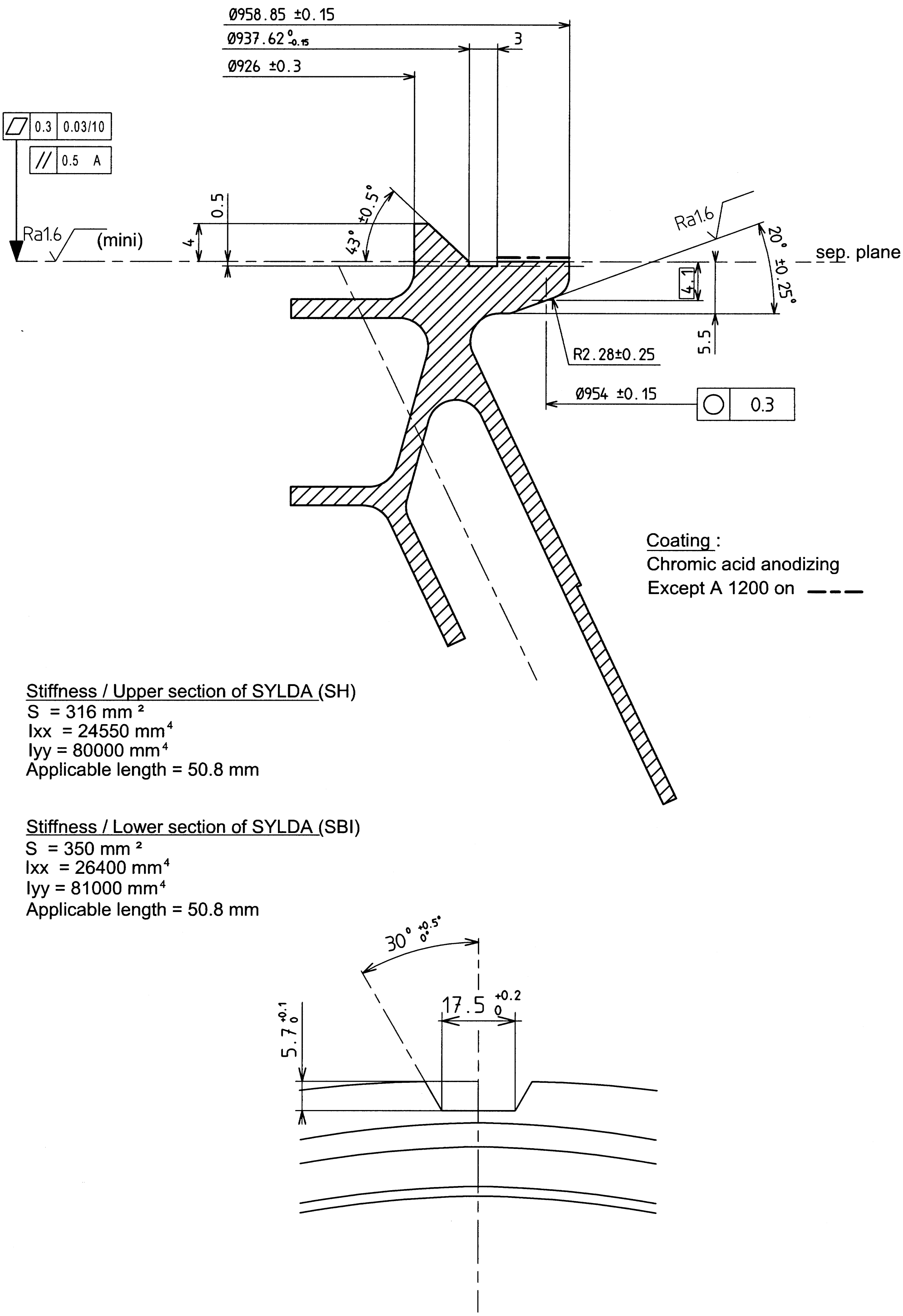


Fig. A8.4.5. – SYLDA interface frame (details)

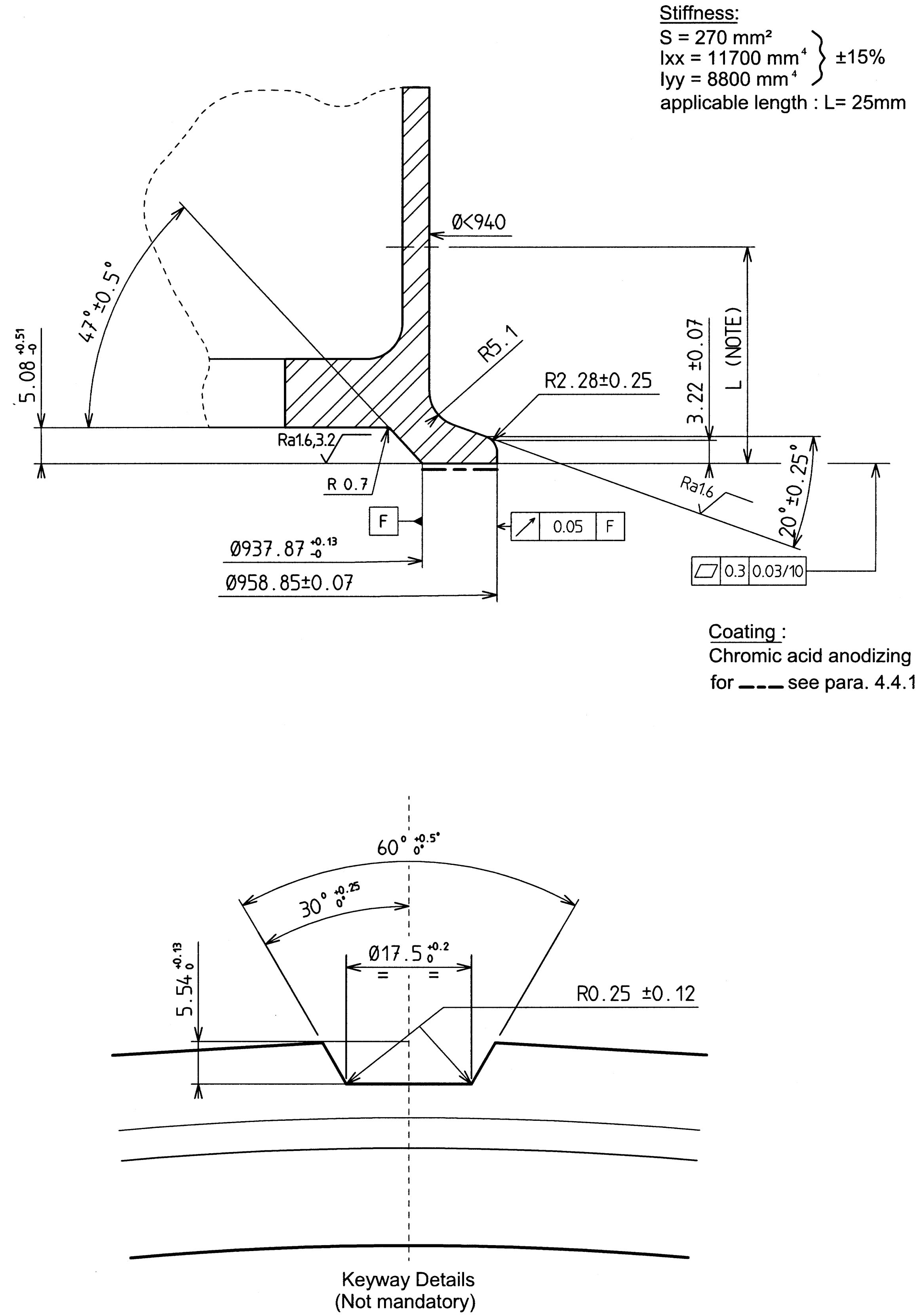


Fig. A8.4.6. – Spacecraft interface frame (details)

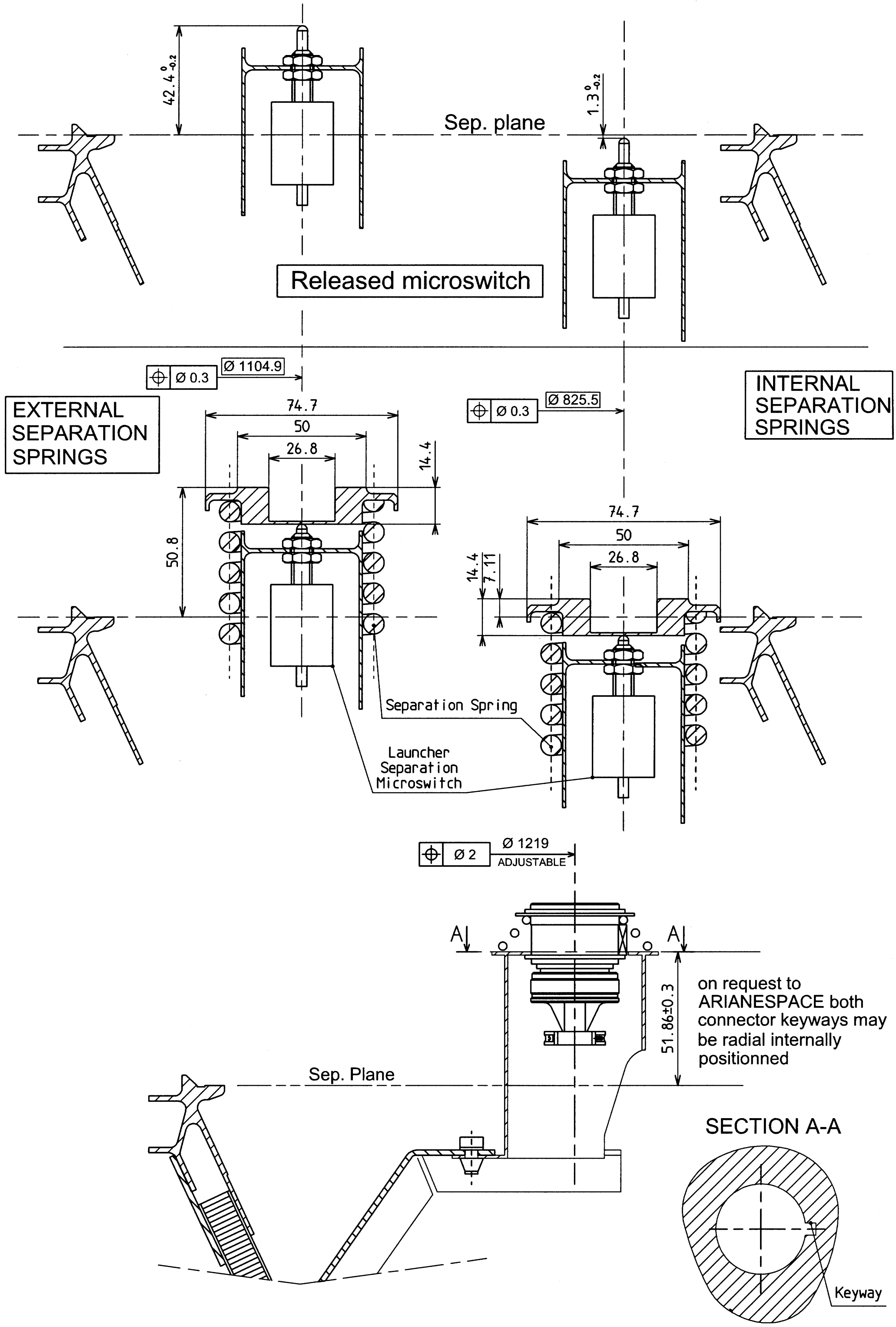
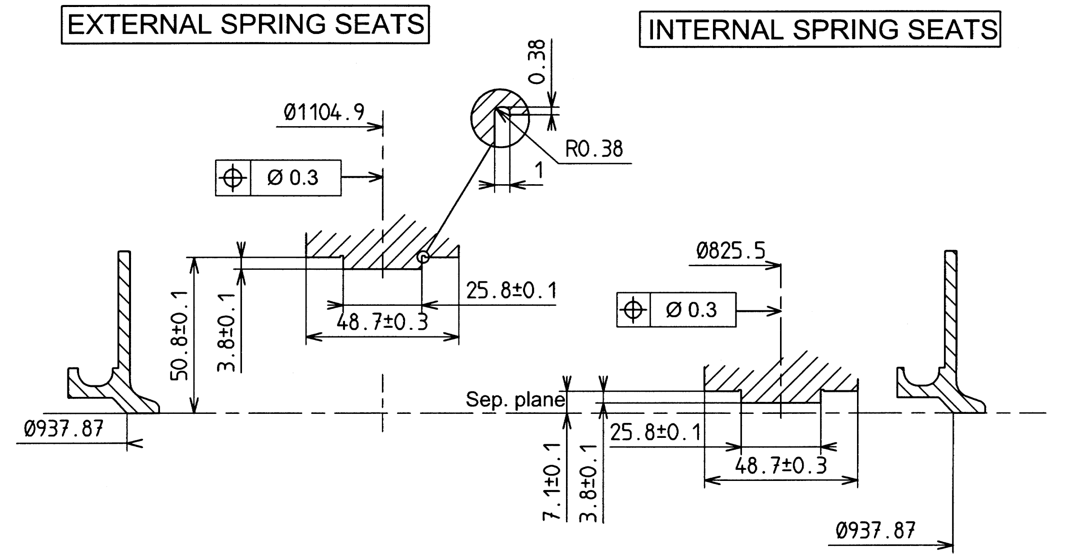
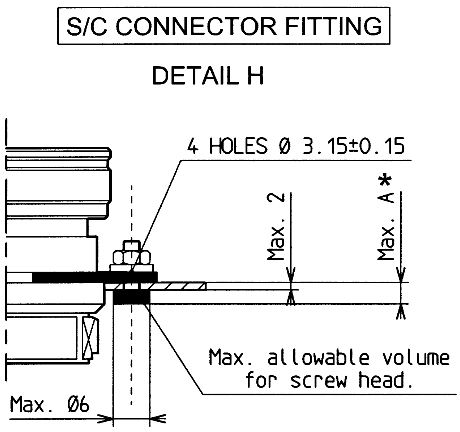
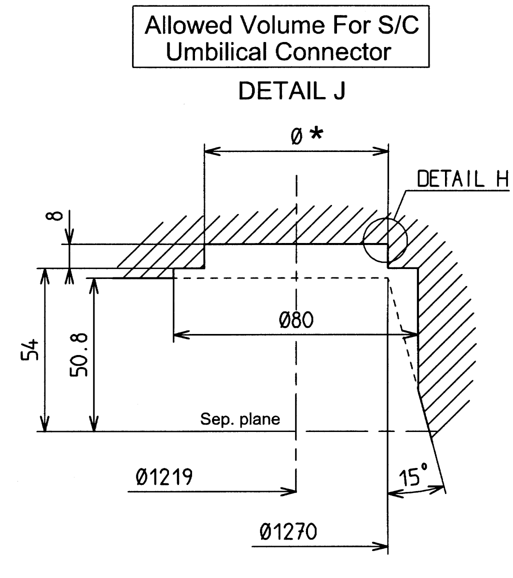


Fig. A8.4.7. – SYLDA mechanical interfaces (details)





*	A	Ø
D BAS 70 27 OS.	2	55
D BAS 70 27 OS.	4.3	60



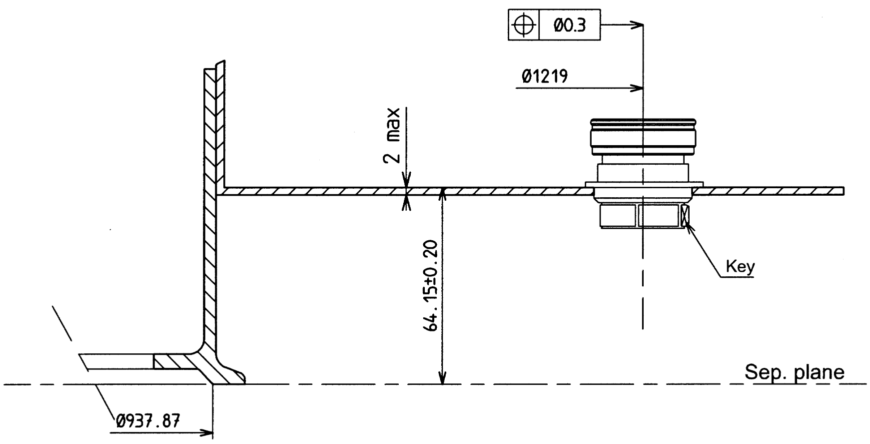


Fig. A8.4.8. – Spacecraft mechanical interface (details)

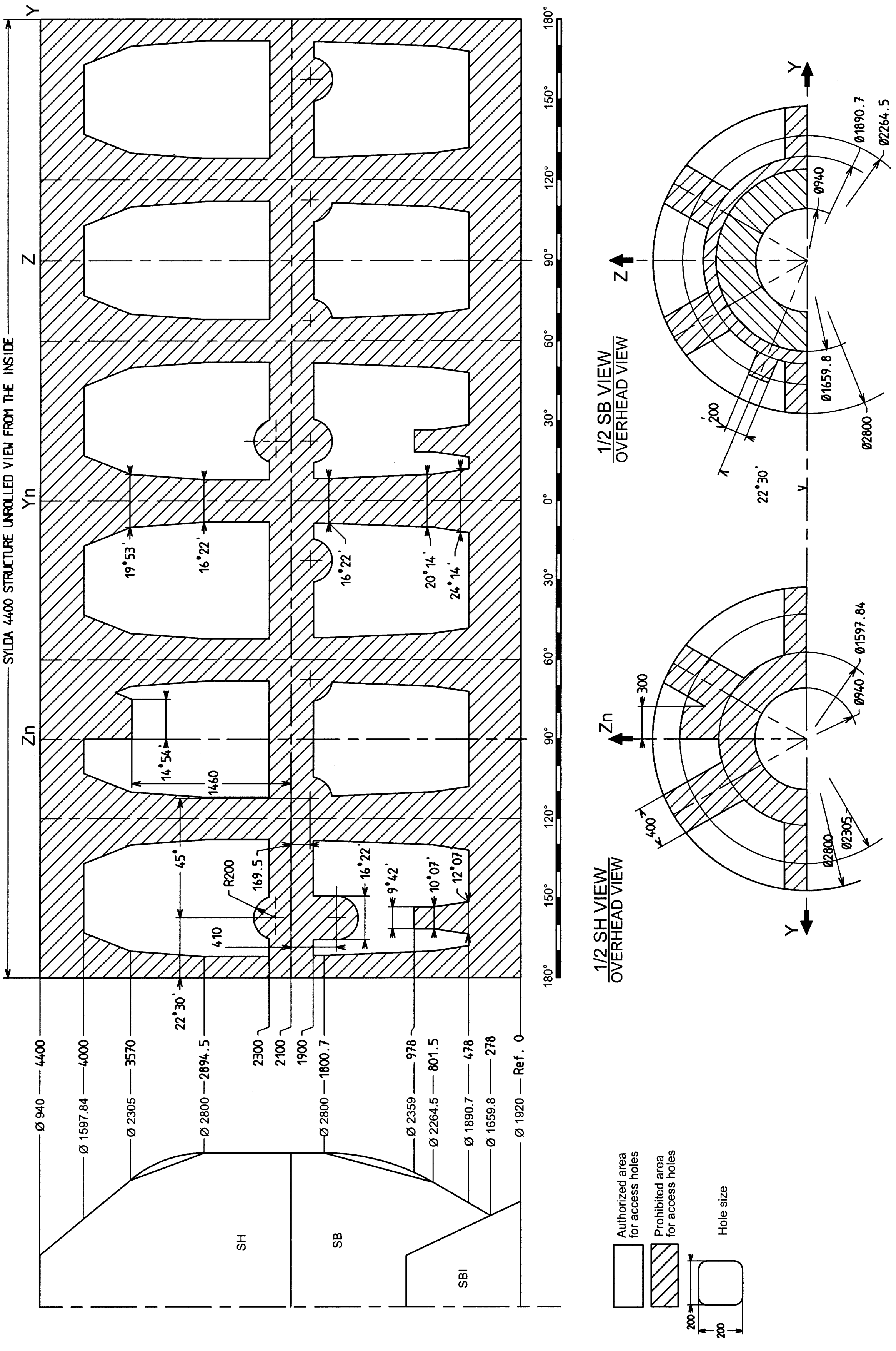


Fig. A8.4.9. – Possible areas for access holes through SYLDA 4400

SYLDA 4400

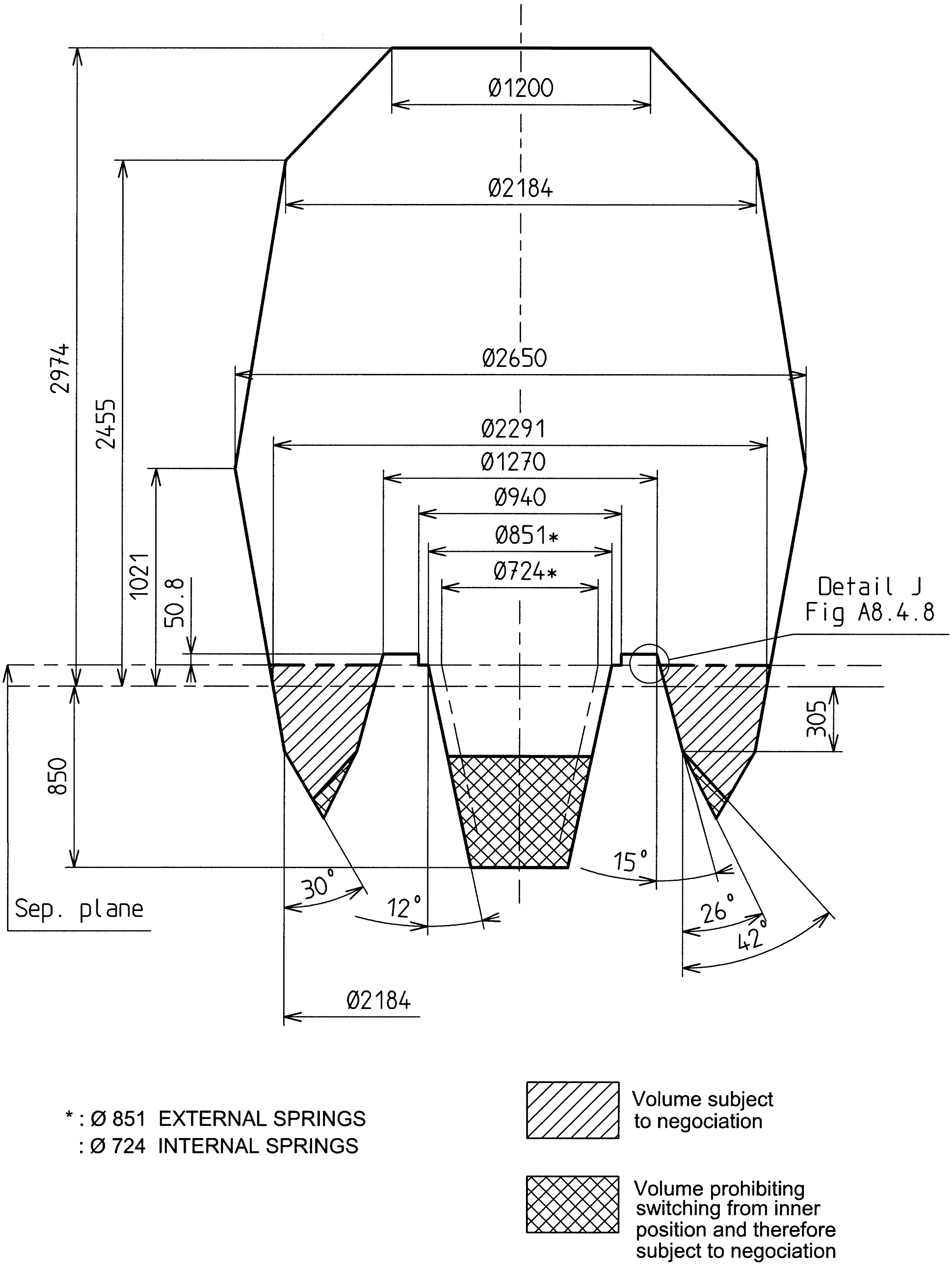
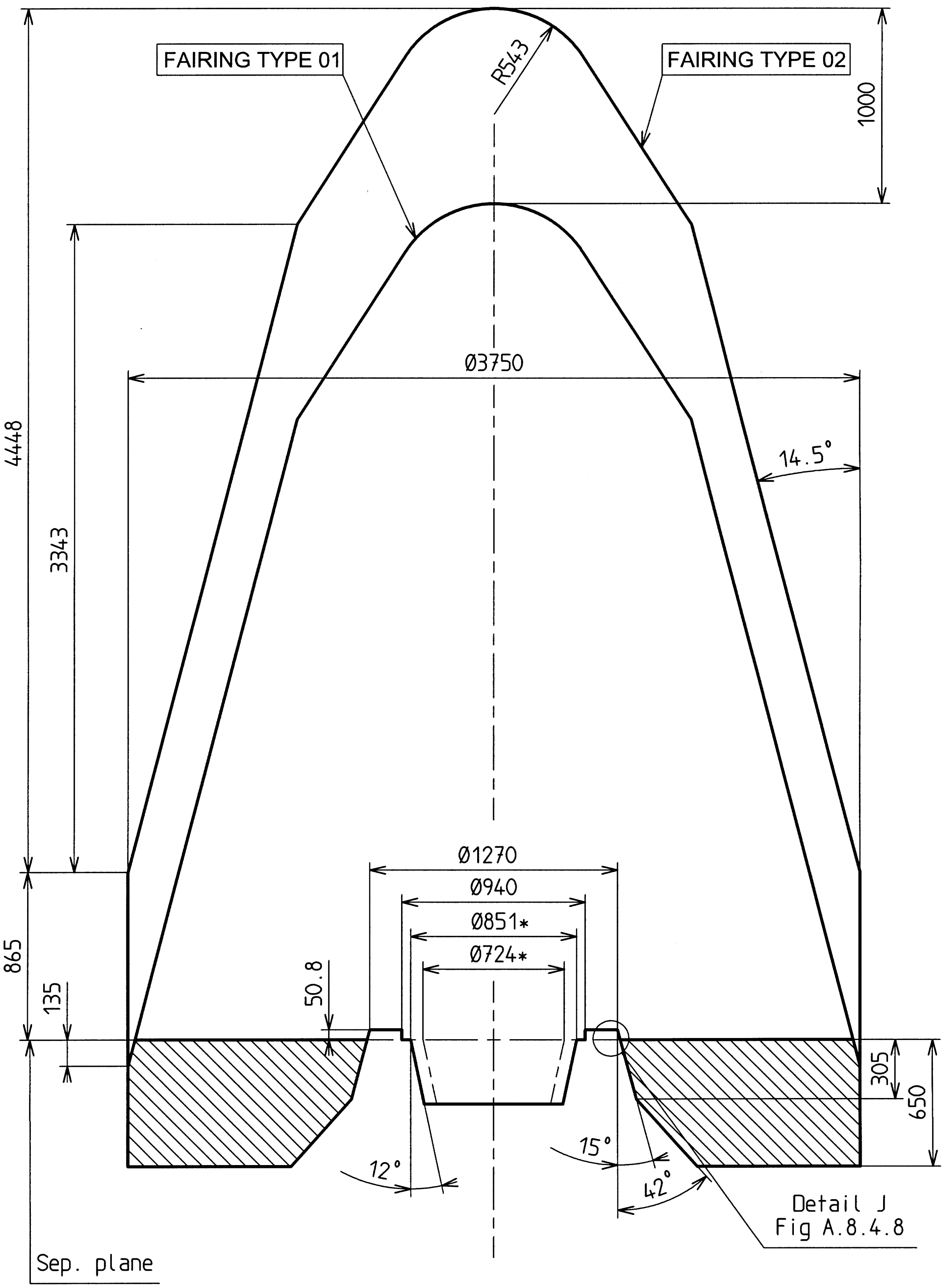


Fig. A8.4.10. – Spacecraft usable volume within SYLDA 4400



* : Ø 851 EXTERNAL SPRINGS
: Ø 724 INTERNAL SPRINGS

Volume subject to negociation

Fig. A8.4.11. – Spacecraft usable volume

on top of SYLDA 4400 beneath fairings 01 and 02