
Adaptor 1194A

Annex 10.1

This 1194A adaptor is a carbon fibre structure in the form of a truncated cone with a diameter of 1194 mm at the level of the spacecraft separation plane. It is attached to the Ø 1920 reference plane by means of a bolted frame and provides for spacecraft separation.

The spacecraft rests on the forward frame of the adaptor and is secured by a clampband. The latter consists of a metal strip which holds in place a series of clamps hooked on to the spacecraft and adaptor frames. At separation, the band is severed in two places by a bolt cutter mounted on the adaptor, the pieces remaining captive to the adaptor.

The spacecraft is forced away from the launch vehicle by a series of actuators (4 to 12) forming part of the vehicle and bearing on the spacecraft rear frame. The relative velocity between the adaptor and the spacecraft is about 0.5 m/s. Once the clampband is fitted, each actuator exerts a force of less than 1200 N on the rear spacecraft frame.

The actual spacecraft pair of values (M_{cu} , X_G) must remain within admissible limits as [defined in figure A10.1.1](#).

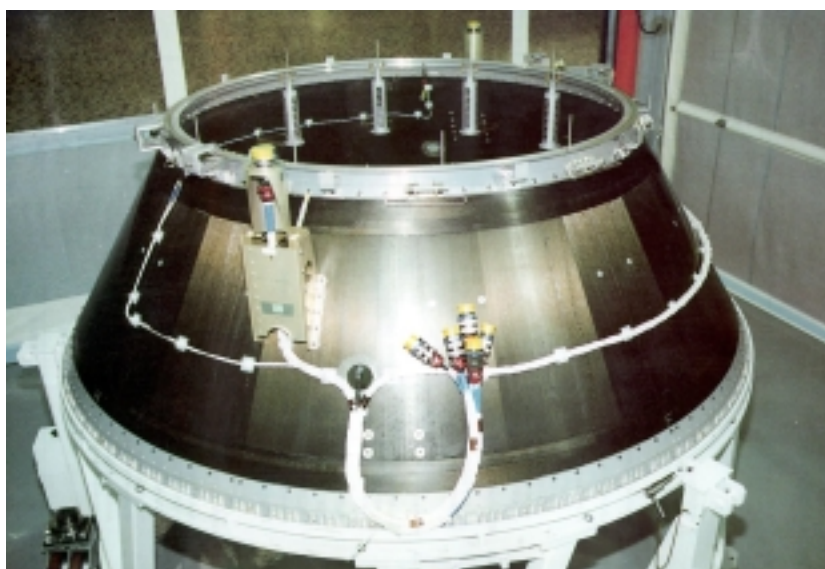
The 1194A adaptor has a mass of 45 kg.

Figure A10.1.6 gives the dimensions of the spacecraft-frame butt. Apart from correct observance of these dimensions, this frame must be manufactured in an aluminium alloy.

The clampband tension does not exceed 28 200 N at any time, it is defined to ensure no gapping between the spacecraft and adaptor interface frames in ground and flight environment.

The angular positioning of the spacecraft on the adaptor is ensured by alignment of engraved marks on the interfacing frames.

Umbilical connectors brackets: on the spacecraft side, the connectors brackets must be stiff enough to prevent any deformation greater than 0.5 mm under the maximum force of the connector spring.



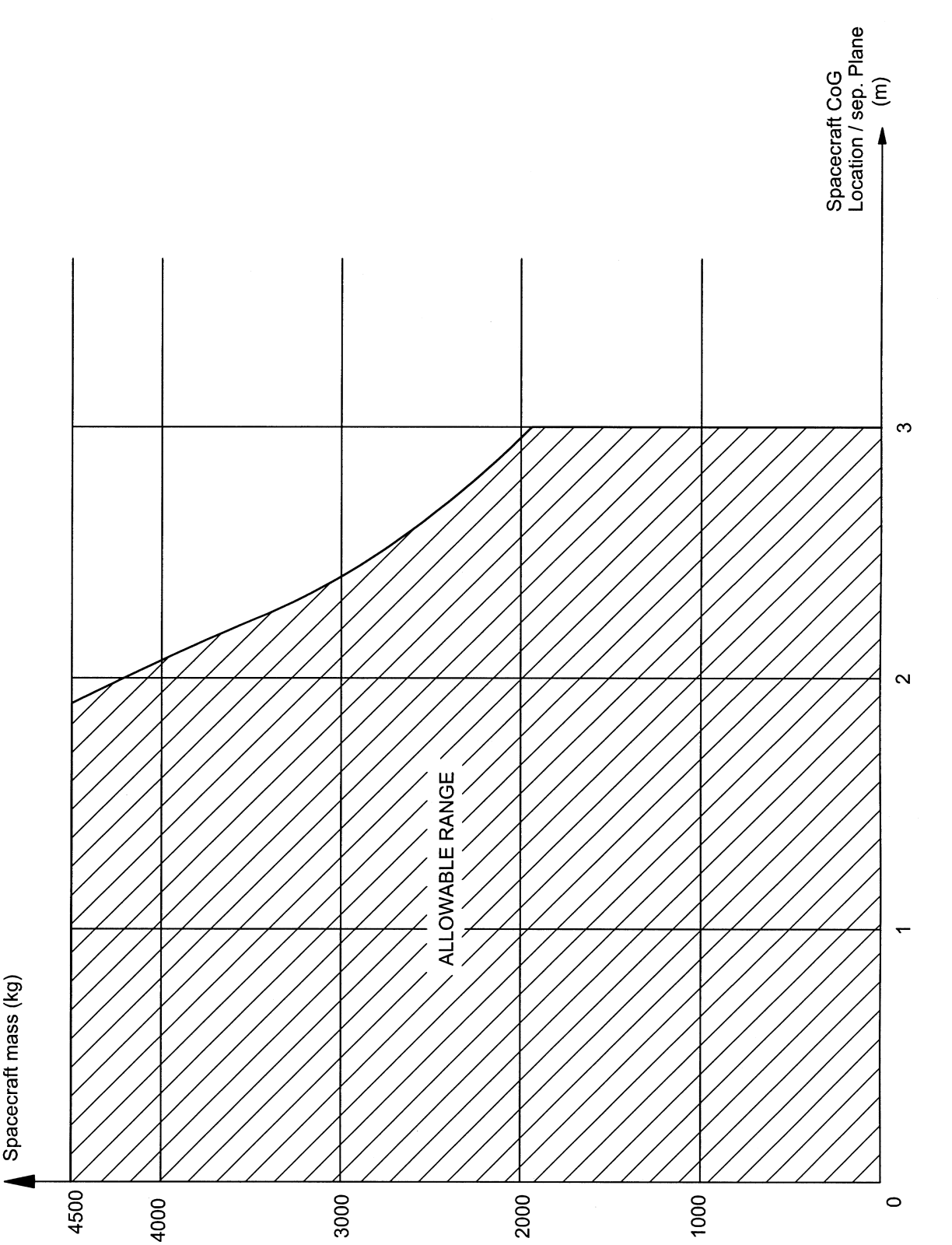


Fig. A10.1.1. – Limit loads of adaptor 1194A at separation plane

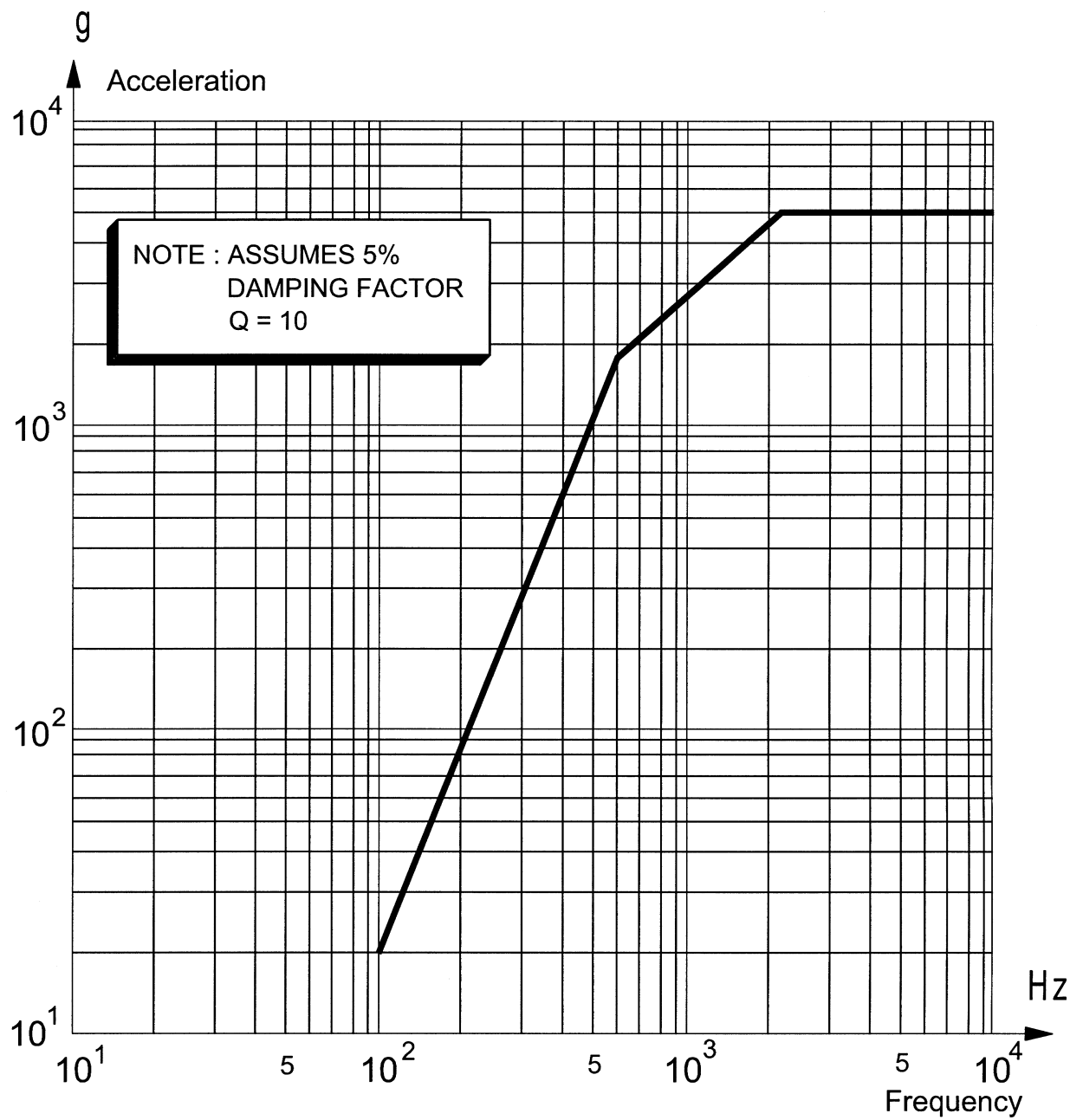


Fig. A10.1.2. – Adaptor 1194A

Shock spectrum at separation plane

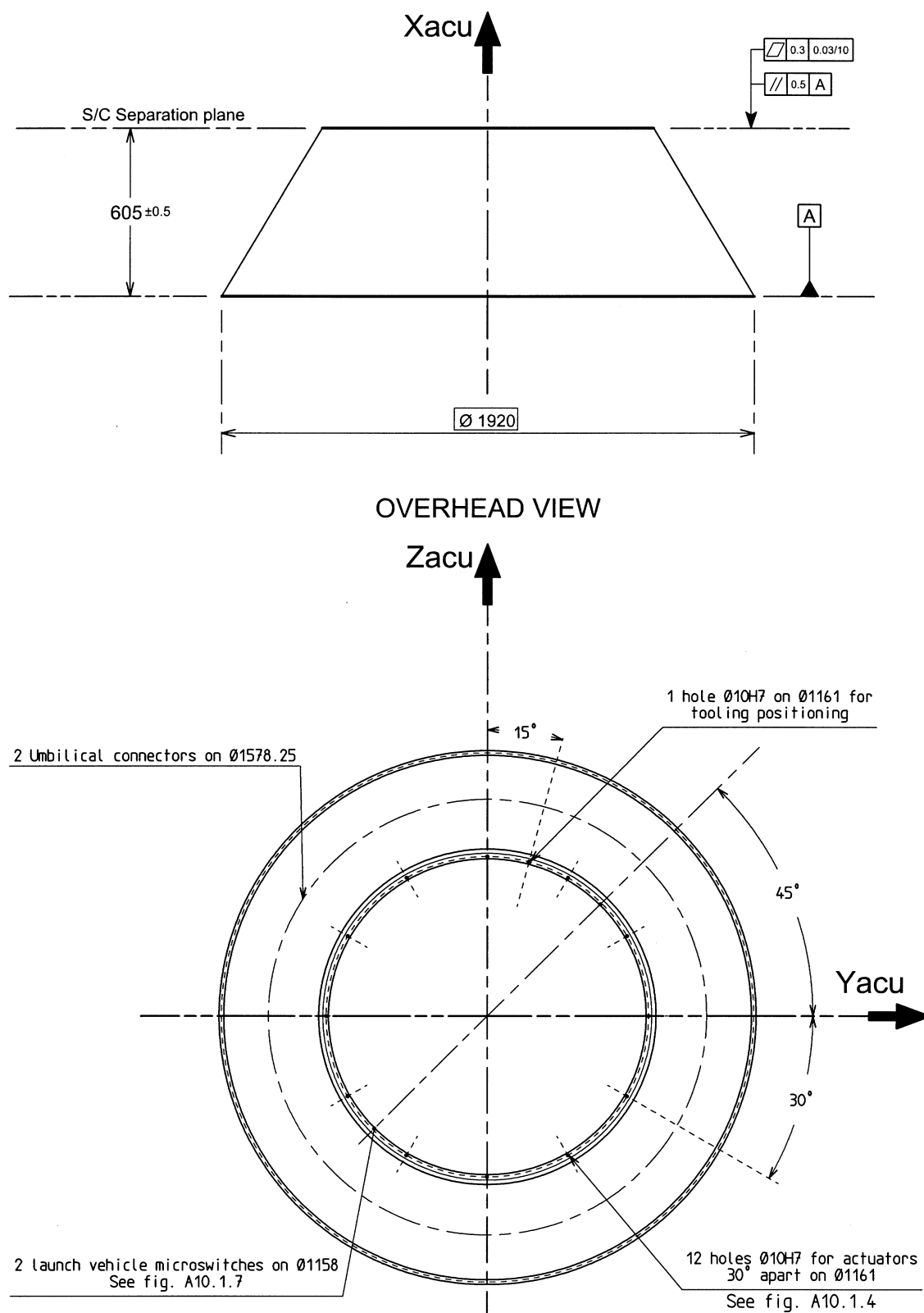
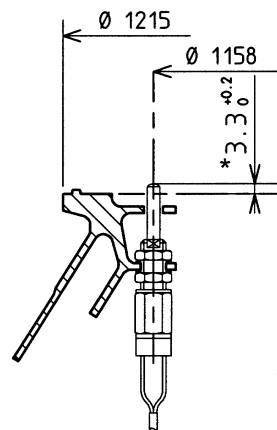


Fig. A10.1.3 – Adaptor 1194A

General view and main characteristics

MICROSWITCH



* Released microswitch

ACTUATOR

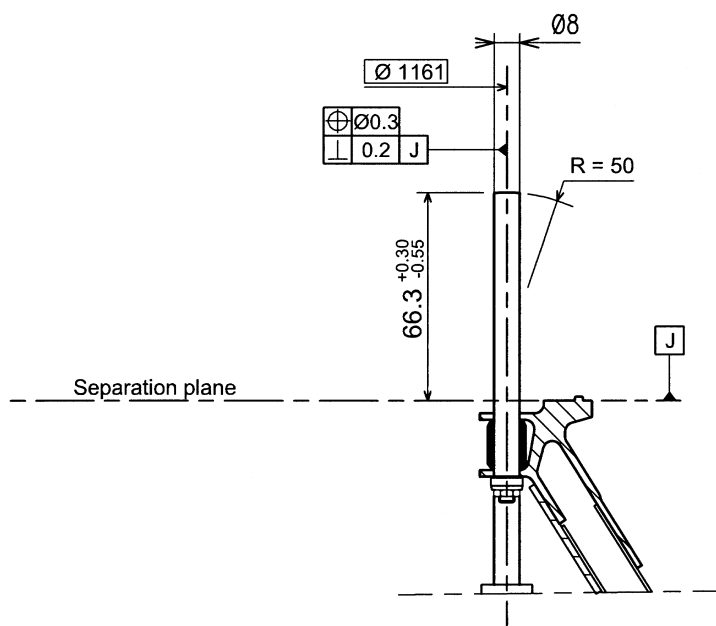
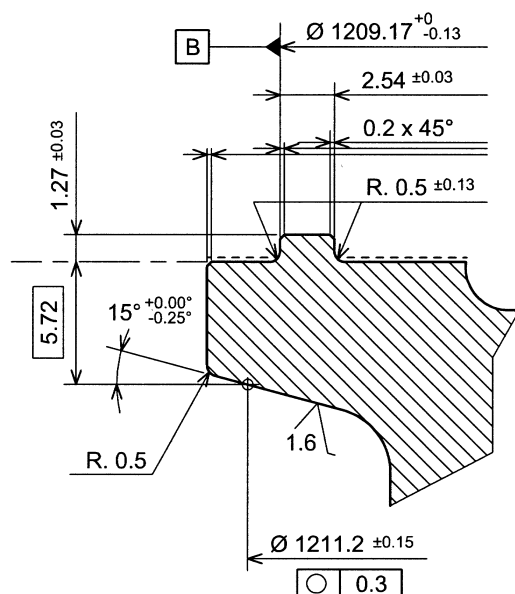
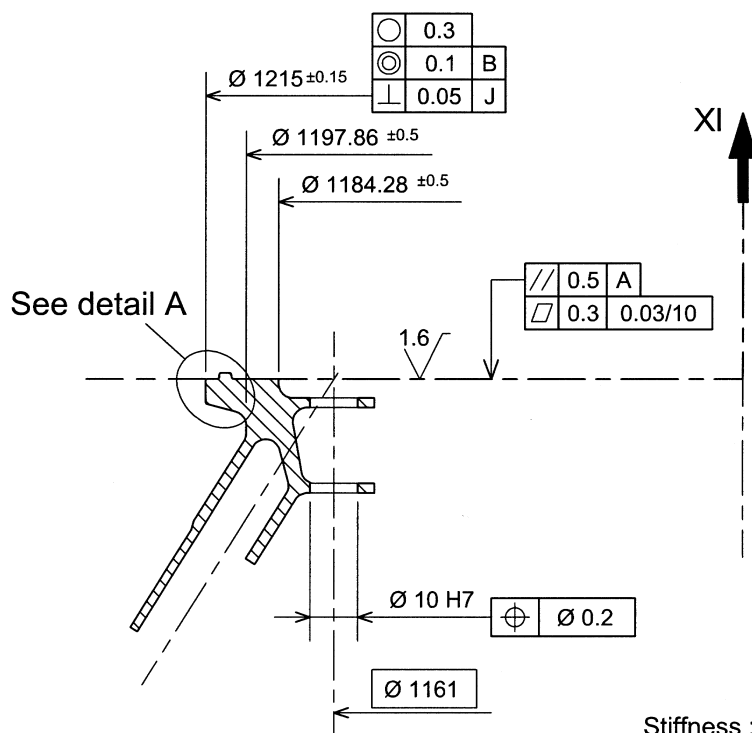


Fig. A10.1.4. – Adaptor 1194A mechanical interfaces (details)

DETAIL A



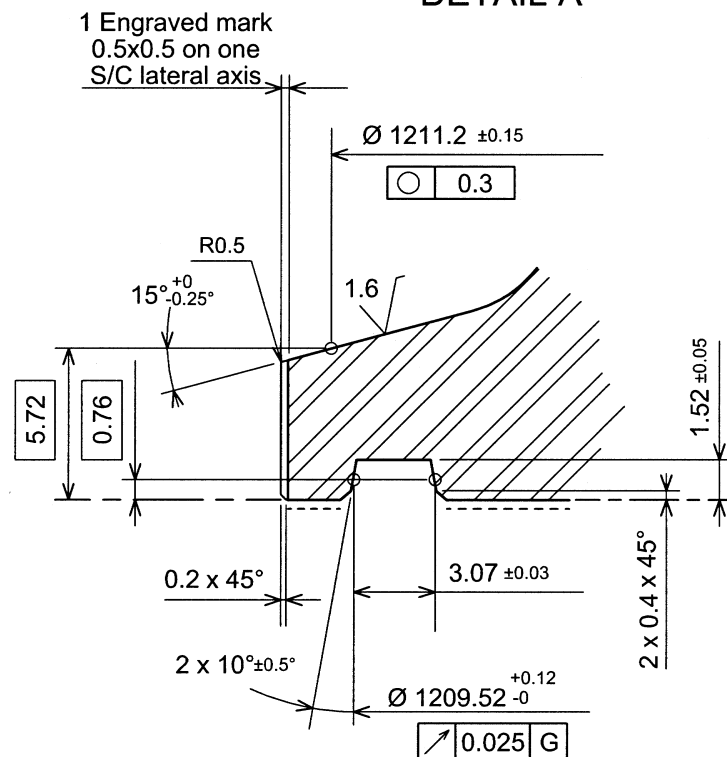
Coating :
Chromic acid anodizing
Except A 1200 on -----



Stiffness :
 $S = 320 \text{ mm}^2$
 $I_{xx} = 23000 \text{ mm}^4$
 $I_{yy} = 18900 \text{ mm}^4$
 Applicable length = 25 mm

Fig. A10.1.5. – Adaptor 1194A – Forward frame

DETAIL A

Coating :

Chromic acid anodizing

Except on -----

See para. 4.4.1.

Stiffness :

$S = 460 \text{ mm}^2$

$I_{xx} = 51000 \text{ mm}^4$

$I_{yy} = 12000 \text{ mm}^4$

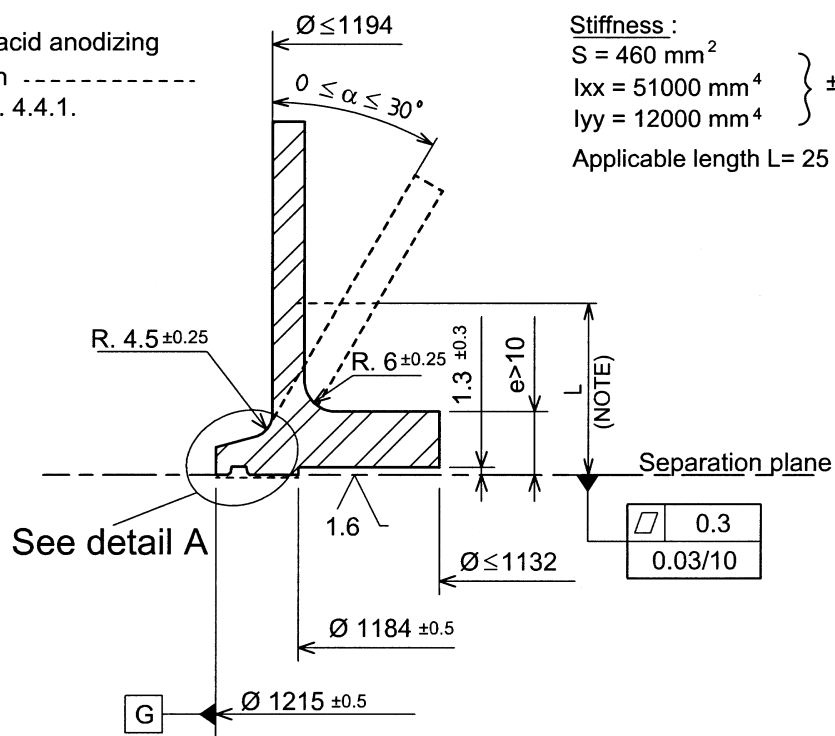
 $\pm 15\%$ Applicable length $L = 25 \text{ mm}$ 

Fig. A10.1.6. – Adaptor 1194A – Spacecraft rear frame

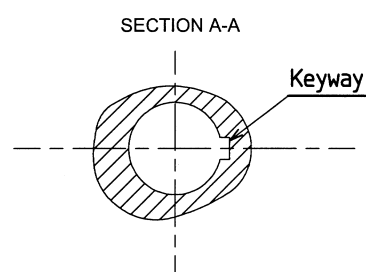
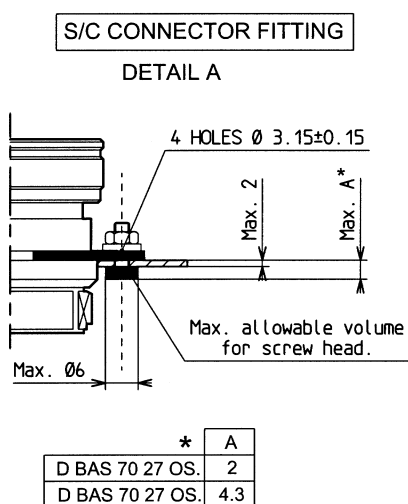
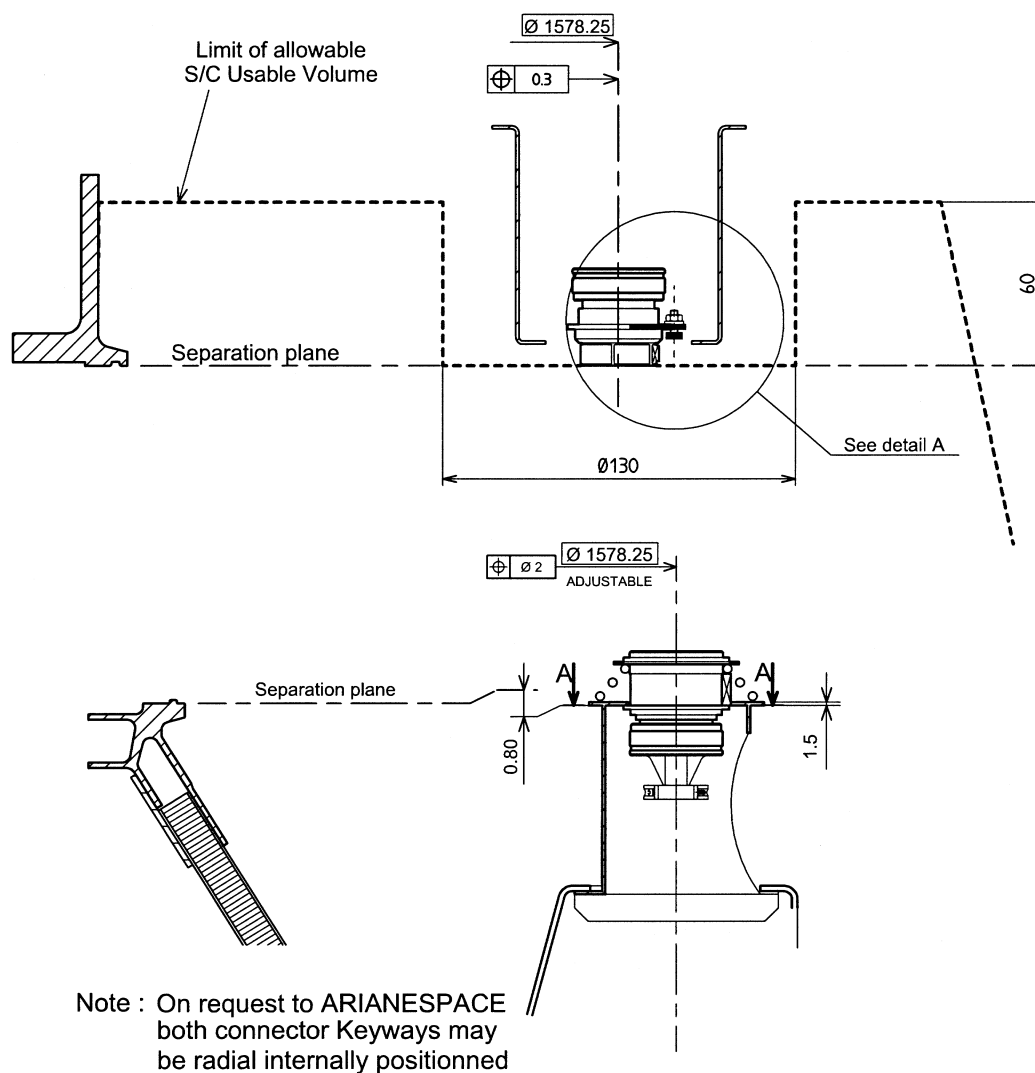


Fig. A10.1.7. – Adaptor 1194A : umbilical connectors

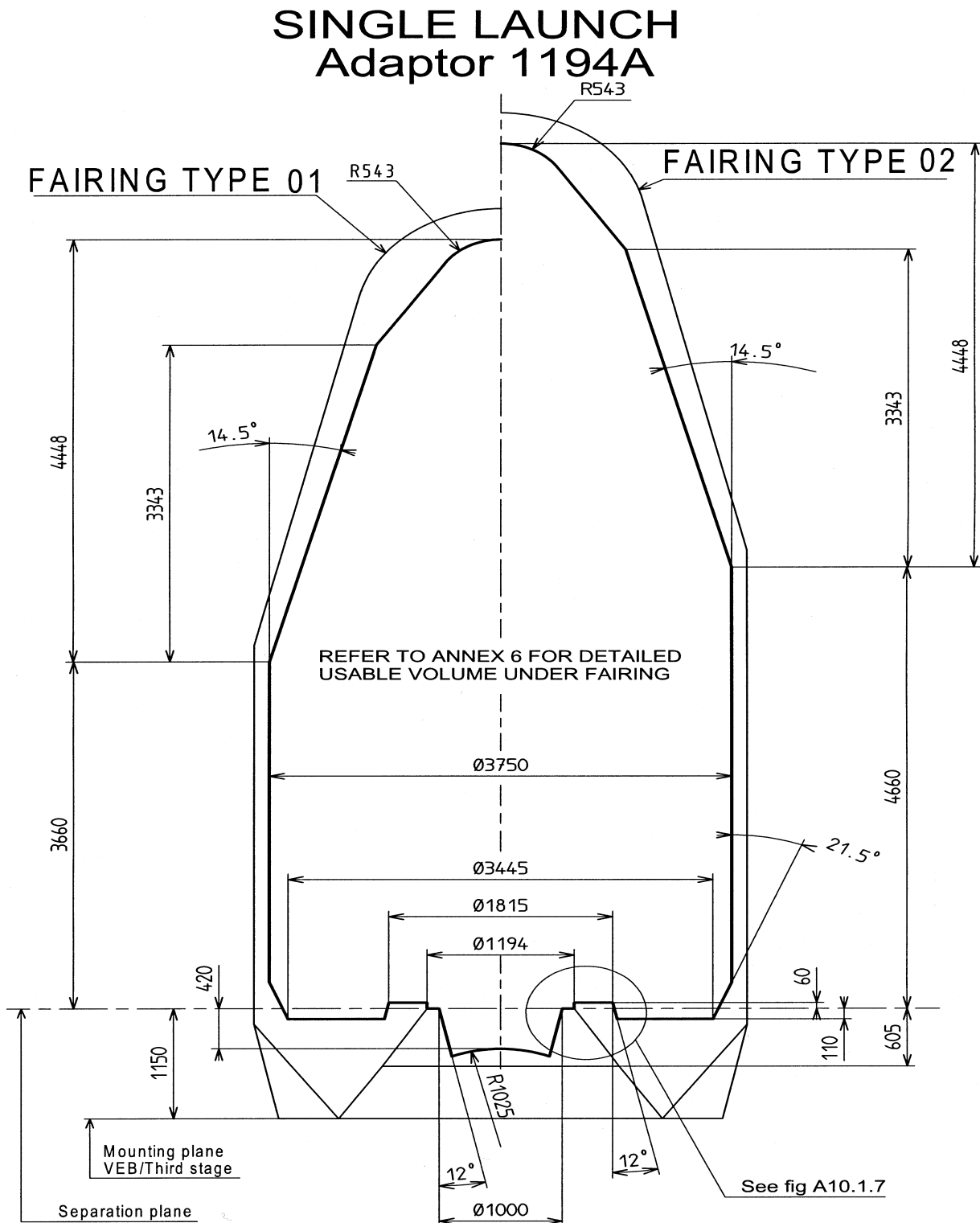


Fig. A10.1.8. – Usable volumes beneath fairings 01 and 02

DUAL LAUNCH-UPPER POSITION Adaptor 1194A

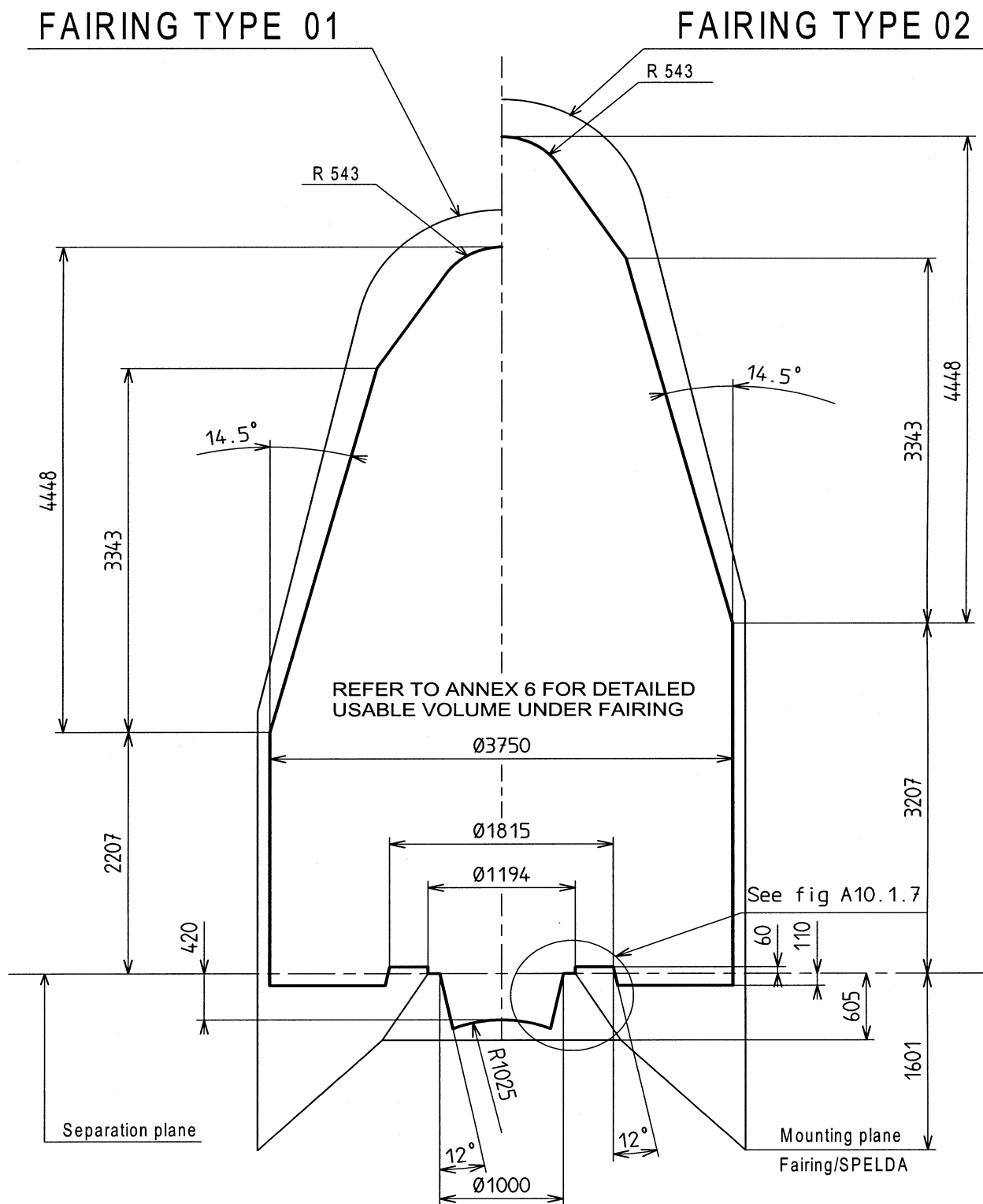


Fig. A10.1.9. – Usable volumes beneath fairings 01 and 02

DUAL LAUNCH-INNER POSITION Adaptor 1194A

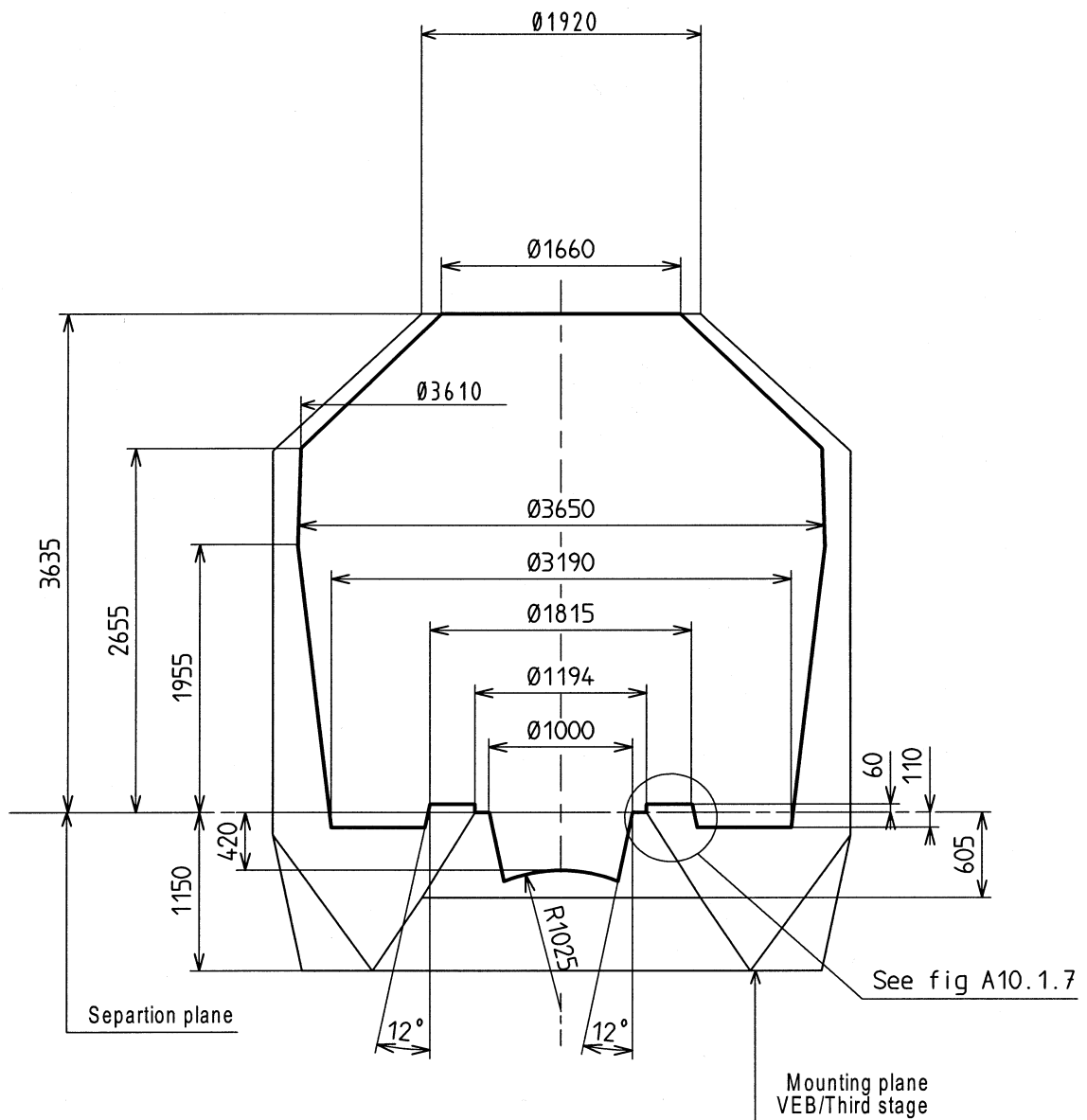


Fig. A10.1.10. – Usable volume beneath short SPELDA (type 10)

DUAL LAUNCH - INNER POSITION

Adaptor 1194A

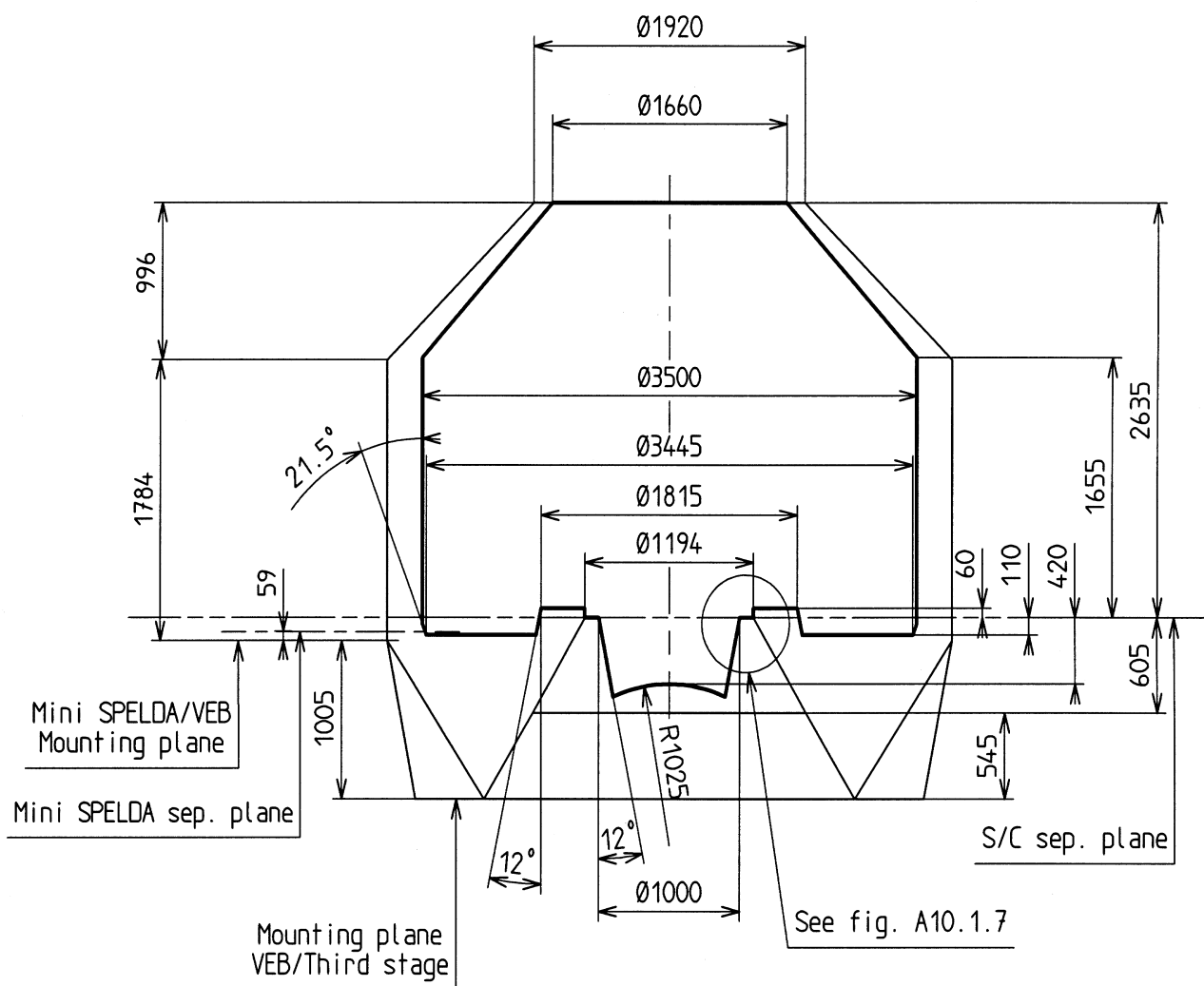


Fig. A10.1.11. – Usable volume beneath mini SPELDA (type 30)

DUAL LAUNCH - INNER POSITION

Adaptor 1194A

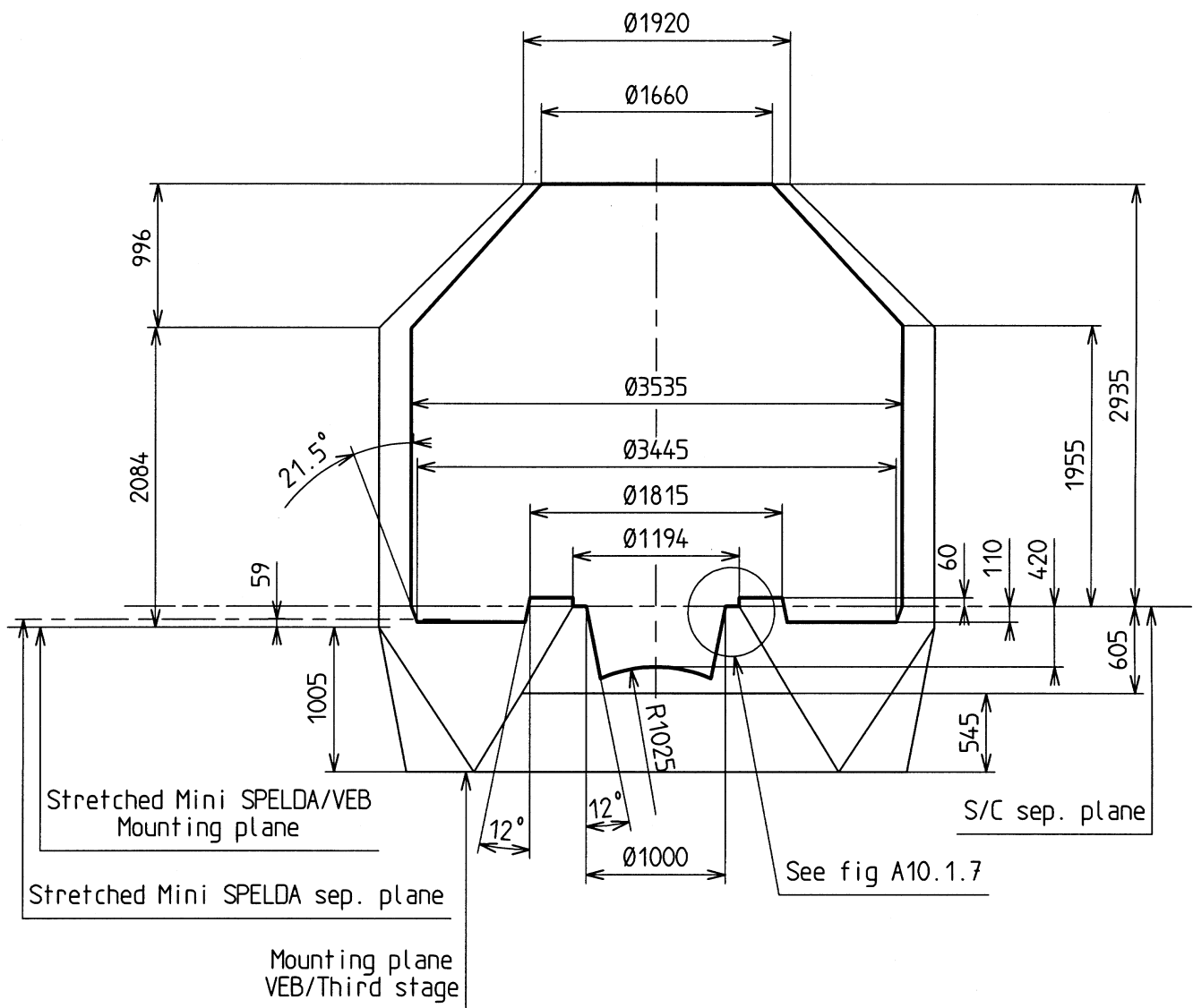


Fig. A10.1.12. – Usable volume beneath stretched mini SPELDA (type 40)