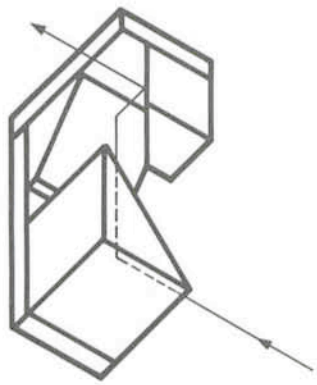

Fig. 4: *Drawing of subassembly 1 which consists of three mirrors producing a 90° rotation of the guide field.*

two modes "a" or "b" mentioned above. In mode "a" the beam passes underneath the upwards lifted prism 4 and goes to a fixed mirror 6 where it is reflected towards mirror 7. Mirror 7 reflects the parallel beam in the direction of the optical axis of objective 8. In mode "b" prism 4 is moved downwards into the parallel beam which now passes the prisms 4 and 5 and, when reaching mirror 7, is reflected in the direction of the optical axis of objective 8.

To achieve the same reflected direction for the beam coming either from mirror 6 or from prism 5, mirror 7 is made rotatable over a fixed angle and its position is commanded by the position of prism 4. The rotating table on which mirror 7 is mounted is clearly visible in fig. 3.

The second objective 8 has a focal length of 600 mm and a diameter of 60 mm. From this objective onwards there exists only one mode in which the imaging beam is reflected by the fixed mirrors 9, 10 and 11 to the cross wire device located at subassembly 12. Each wire of the cross is double and made of two strained quartz fibers, 30 microns in diameter and 300 microns apart, defining in the guide field a square of 2.9 × 2.9 arcsec square. The wires are illuminated by four LEDs positioned diagonally with respect to the cross.

The subassembly 13 holds a field lens with 250 mm focal length and 30 mm diameter.

The subassembly 14 contains a fixed mirror reflecting the guide beam to the tube wall. Here again the observer can choose between two modes, namely large field or small field mode.

Choosing small field mode, the subassembly 15 moves into the beam. This subassembly can support four different objectives with focal lengths of 140, 160, 180 and 200 mm and 30 mm diameter. Exchange of objectives is manual and can only be done when the telescope is in plate loading position.

Choosing large field mode, subassembly 15 moves outside the beam and objective 16 moves into the beam. This objective has a focal length of 200 mm and a diameter of 50 mm. It is mounted on a rotating arm which is attached to the tube wall. Changing the field modes takes 5 seconds.

Finally the beam is reflected by mirror 17 to the television camera 18.

The visible field on the monitor is for the large field, which fits completely within the monitor screen, 251 × 258 arcsec square and for the small field, where the dimensions of the monitor screens set the limits, 109 × 96 arcsec square for the 180 mm objective.

Except for the exchange of the four small field objectives all other functions are remote controlled from the observer's room.

The total weight of the guider unit shown in fig. 3 is 9 kg and it is accurately balanced to avoid spider rotation.

Except for the optical parts 1, 2, 4 and 5, all optics were purchased from Spindler and Hoyer, Göttingen. The objective 2 was bought in the local market. The optical parts 1, 4 and 5 were purchased from Horst Kaufmann, Crailsheim.

We would like to mention that all mechanical parts of this guider were manufactured by our mechanics in the Astro-Workshop at La Silla under the supervision of Jorge Díaz and Walter Vanhauwaert.

The electronic circuitry was designed by Rolando Medina of the T.R.S. and installed by him and his collaborators.

We also would like to thank Francis Franza and Maurice Le Luyer for their support during the design development of the optical parts 1, 4 and 5.

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