

COLLIMATOR

code 3705



LIPPOLIS optical video technology

www.lippolis.com - lippolis@lippolis.com

General

CAUTION Under no circumstances look through the telescope at the sun or laser light sources. This could lead to serious eye injuries.

Design

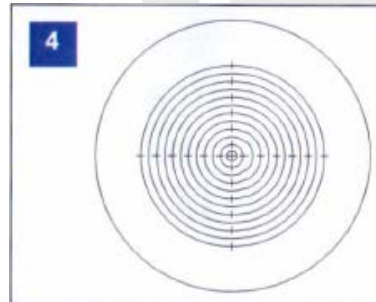
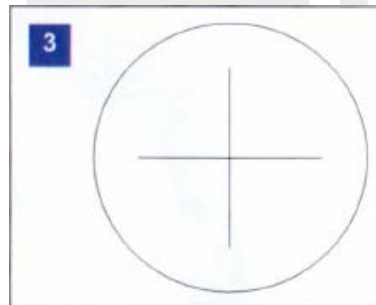
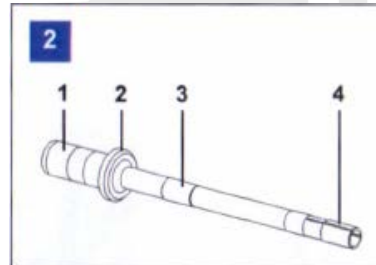
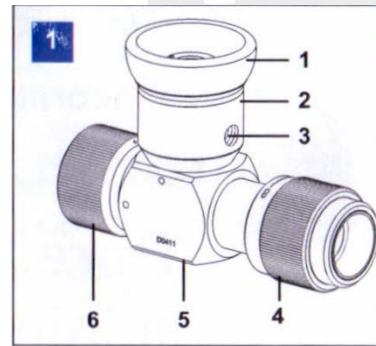
The Collimator is a telescope that together with a caliber bar is used for inspecting and correcting parallelism of the bore/barrel centre line of a hunting rifle or hand weapon to the line of sight of a sighting system of a weapon.

A further main range of application of the Collimator is alignment of spindles and horizontal boring machines. The Collimator is a 90° angled monocular telescope for which two different reticles are available. It consists of:

- The end housing with the objective (Fig. 1/4) which can be adjusted to a distance of 0.5 m to ∞.
- The housing unit (Fig. 1/5) with the prism for deflecting rays by 90°.
- The reticle assembly with the elevation adjustment screw (Fig. 1/3) and the azimuth adjustment screw (Fig. 6/1) for adjusting the reticle, as well as the ring (Fig. 1/2) for coverage of both adjustment screws.
- The eyepiece unit (Fig. 1/1) with eye guard and the -0.5 dpt fix adjusted eyepiece.
- The mounting assembly (Fig. 1/6) with locking nut for locking and the bushing with bore \varnothing 12 G7 for mounting the telescope to the fitted cylinder of the of the caliber bar.

At the front end of the caliber bar is a pivot (Fig. 2/1) for mounting inside the bore of the bushing of the telescope.

The cone (Fig. 2/3) centres the caliber bar inside the bore/barrel muzzle and the ball, as well as the triple slotted cone (Fig. 2/4) centres the caliber bar inside the bore of the weapon barrel.



The stop plate (Fig. 2/2) serves as stop for the telescope and prevents the caliber bar from sliding inside the bore during adjustment.

Reticles

The patterns of the reticles are shown in Figures 3 and 4.

The target cross (Fig. 3) has a line width of 0.15 mrad and a length of 100 mrad.

The circles have a distance of 9 mrad and the centre cross a length of 4.5 mrad.

The line width is 0.15 mrad (see Fig. 4).

Preparation

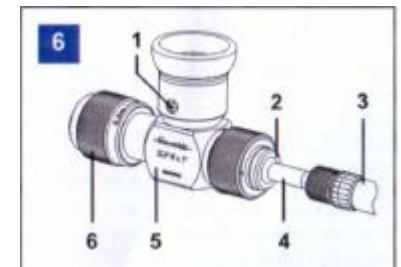
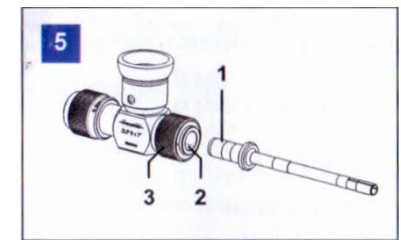
- Loosen the locking nut (Fig. 5/3), and place the telescope (Fig. 6/5) on pivot (Fig. 5/1) of the caliber bar (Fig. 6/4) against stop plate (Fig. 6/2) and then tighten the locking nut.
- Clean the bore and coarsely adjust to the adjustment mark (Fig. 8/1).
- Insert the caliber bar (Fig. 6/4) with mounted Collimator so far into the bore (Fig. 6/3) until there is an approx. 2 mm gap between the stop plate (Fig. 6/2) and the bore.

NOTE The stop plate may not rest against the bore since this could lead to canting of the caliber bar. If necessary, remove flash damper.

- By turning the knurled knob (Fig. 6/6), on the objective focus the adjustment mark.

NOTE During the self-adjustment, the objective may no longer be adjusted. As an adjustment, mark a bar cross on a sighting target, a house edge or something similar can be used. The principles of adjustment are to be observed (parallel or point adjustment).

- By adjusting the bore in elevation and azimuth, set the cross hairs (Fig. 7/2) of the telescope in the centre of the adjustment mark (Fig. 7/1) and through turning of caliber bar (Fig. 6/4) with telescope (Fig. 6/5) erect the target cross.
- Turn ring (Fig. 1/2) until the adjustment screws for the elevation (Fig. 1/3) and azimuth (Fig. 6/1) are freely accessible.



COLLIMATOR

code 3705



LIPPOLIS optical video technology

www.lippolis.com - lippolis@lippolis.com

Inspection and Adjustment

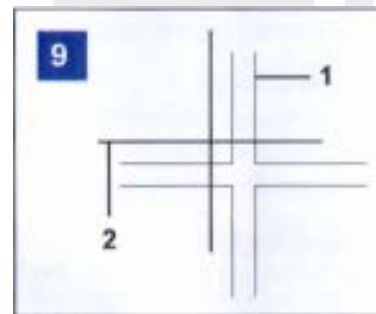
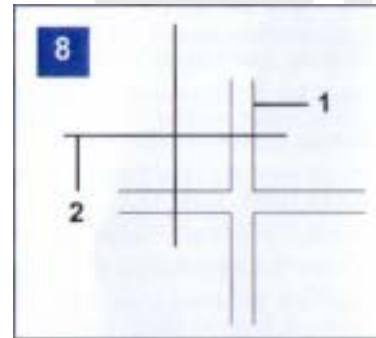
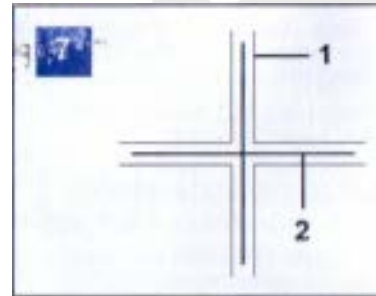
- 1) Insert the Collimator in to the bore and adjust as described in **Preparation**.
- 2) Turn the telescope (**Fig. 6/5**) together with the caliber bar (**Fig. 6/4**) by 180° and again erect the adjustment cross (**Fig. 7/2**) to the adjustment mark (**Fig. 7/1**).
- 3) Check if the cross hairs of the telescope are positioned in the centre of the adjustment mark (**Fig. 7**).
 - a) If the cross hairs are positioned inside the centre of the adjustment mark then the Collimator is adjusted and the sighting device or the spindle can be adjusted.
 - b) If the cross hairs are positioned outside the centre of the adjustment mark (**Fig. 8**) adjust the half deviation value in elevation and azimuth in direction of the adjustment mark centre (**Fig. 9**) by turning the adjustment screw elevation (**Fig. 1/3**) and azimuth (**Fig. 6/1**) with a 4 mm hexagon key.

By adjusting the bore in elevation and azimuth, position the cross hairs of the telescope in the centre of the adjustment mark (**Fig. 7**).
- 4) Turn the telescope together with caliber bar by 180° and again erect to the adjustment cross.
- 5) Check if the cross hairs of the telescope are positioned in the centre of the adjustment mark (**Fig. 7**).

If the cross hairs are positioned outside of the centre of the adjustment mark, repeat from step 3b).
- 6) Adjust the sighting device or the spindle.

Removal

- Pull the caliber bar with the telescope out of the bore.
- Loosen the locking nut and take the telescope off the cone of the caliber bar.
- Clean the Collimator and stop away.



Maintenance Instructions

Clean the surfaces of the Collimator. Do not wipe coarse particles such as sand off, instead blow them off or remove with a fine hairbrush.

Slightly grease the polished surfaces of the caliber bar and the telescope.

After a while, fingerprints can act upon the lens surfaces. In order to clean them off, breathe on surfaces and then wipe preferably with an optics cleaning cloth (or linen cloth).

Technical Data

Mechanical Data

Fitted cylinder of the caliber bar	Ø 12 h6
Bushing inside telescope	Ø 12 G7

Optical Data

Telescope magnification	6X
Entrance pupil	12 mm
Exit pupil	2 mm
Eye relief	10 mm
Field of view angle	7°
Range adjustment	0.5 m to ∞
Diopter adjustment, fixed	-0.5 dpt
Reticle pattern 1 (Fig. 3)	
- Target cross, line width	0.15 mrad
Reticle pattern 2 (Fig. 4)	
- Line width	0.15 mrad
- Circle distance	9 mrad
- Cross hairs, line length	4.5 mrad

Dimensions	96 x 36 x 36 mm
Weight:	200 g
Environmental Resistance	MIL-STD-810G