HENSOLDT
WETZLAR

Optische
Werke AG

Zeiss – Gruppe
West Germany

Operating Instructions
for
TELESCOPE SIGHT 4 x 24
for
G 3 Rifle

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1. Description of Equipment

1.1 Designation

Telescope sight 4 x 24 for G 3 rifle

1.1.1	Drawing No.	330143 – 0000.000
1.1.2	Stock No. (Set)	1240 – 12 – 144 – 0716
1.1.3	Item Name	TELESCOPE, SIGHT, RIFLE Magnification 4 x, with accessories
1.1.4	Developing Firm	M. Hensoldt & Söhne Wetzlar
1.1.5	Manufacturing Firm	M. Hensoldt & Söhne Wetzlar

1.2 Purpose

The telescope sight is designed for use of the G 3 rifle as a sharpshooter weapon. It enables the rifleman to acquire and sight the target, and permits observation of enemy and effects on target even over major ranges. The maximum adjustable sighting range is 600 metres.

1.3 Scope of Supply

1.3.1 One telescope sight

Drawing No.	330143 – 9001.000
Stock No.	1240 – 12 – 144 – 0714
Item Name	TELESCOPE, SIGHT, RIFLE Magnification 4 x

1.3.2	Two rubber protection caps	
	Drawing No.	330108 – 9002.000
	Stock No.	1240 – 12 – 129 – 4060
	Item Name	PROTECTION CAP, TELESCOPE SIGHT Rubber
1.3.3	One anti-dazzle filter	
	Drawing No.	330108 – 9003.000
	Stock No.	1240 – 12 – 144 – 0715
	Item Name	FILTER, LIGHT, TELESCOPE
1.3.4	One container	
	Drawing No.	330143 – 9004.000
	Stock No.	1240 – 12 – 144 – 0713
	Item Name	CONTAINER, TELESCOPE SIGHT
1.3.5	One tool kit with accessories	
	Drawing No.	335917 – 0000.000
	Stock No.	–
	Item Name	TOOL KIT, complete
	consisting of the following items:	
1.3.5.1	One tool kit holder	
	Drawing No.	335917 – 8010.000
	Stock No.	5140 – 12 – 146 – 5698
	Item Name	TOOL KIT HOLDER
1.3.5.2	One screwdriver	
	Drawing No.	335917 – 8020.000
	Stock No.	5120 – 12 – 121 – 1092
	Item Name	SCREWDRIVER, LONGITUDINAL SLOT TYPE 4,5 x 40 mm blade, 100 mm long
1.3.5.3	One dust brush	
	Drawing No.	Acc. to TL 7920 – 024
	Stock No.	7920 – 12 – 120 – 0355
	Item Name	BRUSH, DUST, OPTICAL LENSES 10 mm diam., quill-type holder

1.3.5.4	One lens cleaning rag	
	Drawing No.	80 x 115 mm gezackt
	Stock No.	6640 – 12 – 124 – 6982
	Item Name	CLEANING RAG, LENS cotton, 80 x 115 mm
1.3.6	One holder (mount)	
	Drawing No.	Acc. to HK 100 236 or HK 100 236/8
	Stock No.	1240 – 12 – 140 – 9932 or 1240 – 12 – 160 – 0373
	Item Name	MOUNTING, TELESCOPE SIGHT, RIFLE

1.4 Technical Data

1.4.1 Optical Data

1.4.1.1	Telescope magnifying power (V)	4 x
1.4.1.2	Entry pupil diameter (EP)	24 mm
1.4.1.3	Exit pupil diameter (AP)	6 mm
1.4.1.4	Distance of exit pupil	approx. 60 mm
1.4.1.5	Dioptrical adjustment	± 2 dioptries
1.4.1.6	Angle of field of vision	5° 40'
1.4.1.7	Field of vision	100 m/1000 m
1.4.1.8	Graticule layout	Target mark with lateral graduation grid, according to FINABEL
1.4.1.9	Insert filter	Grey (NG 4, 2.6 mm thick, approx. 94 per cent absorption)

1.4.2 Mechanical Data and Dimensions (Figure 1)

1.4.2.1	Angular sight adjustment control, with detents for steps of 100 metres each	100 to 600 metres ≙ approx. 6˚
1.4.2.2	Overtravel for adjustment	± 1
1.4.2.3	Lateral adjustment control, with detents for steps of 0.25˚ each	± 2.5˚
1.4.2.4	Overtravel for adjustment	± 1˚
1.4.2.5	All telescope sights are adjusted to the same point at elevation setting "1" and lateral setting "0"	Permissible deviation ± 0.5˚

1.4.2.6	Total length of telescope sight assembly with rubber protection caps	230 mm
1.4.2.7	Rubber protection cap	38 mm diameter
1.4.2.8	Tube	29 mm diameter
1.4.2.9	Sight lens eyepiece	30 mm diameter
1.4.2.10	Distance between optical axis and sight tube holders	20.5 mm
1.4.2.11	Telescope sight tube holders	According to STANAG 2324
1.4.2.12	Mounting screws	M 6; 10.5 mm long
1.4.2.13	Container (outside dimensions)	Approx. 230 x 105 x 63 mm
1.4.2.14	Distance between optical axis and theoretical bore axis (due to mounting)	87.5 mm
1.4.3	**Weight Data**	
1.4.3.1	Telescope sight	Approx. 0.35 kilos
1.4.3.2	Telescope sight with mounting assembly	Approx. 0.65 kilos
1.4.3.3	Telescope sight with mounting assembly and container with accessories	Approx. 1 kilo

1.5 Structure

1.5.1 **General**

The telescope sight is a monocular telescope of linear structure with an inversion lens system. For the setting of the sight angle the target mark will be adjusted in elevation.

1.5.2 **Optical Structure** (Figure 2)

The incoming light beams pass through lens (1) and are generated on the first image plane. The graticule (2) with target mark is arranged in this image plane. The image of the first image plane is generated in the image plane of the eyepiece via two double-member inversion lenses (3 and 4), and observed through the eyepiece (5). A grey filter (6) can be inserted optionally in front of the eyepiece.

1.5.3 **Mechanical Structure** (Figure 3)

The telescope sight consists of the **main tube** (10) with the attached **eyepiece sleeve** (11). One **rubber protection cap** (12) each is attached on the sides of lens and eyepiece. Two **attachment screws** (13) are provided for the attachment to the mounting assembly.

1.5.3.1 The following components are externally attached to the **main tube** (10): Elevation adjustment control (15), lateral adjustment control (16), dioptrical adjustment control (17), and telescope sight holders (18) designed according to STANAG 2324. The eyepiece (1) and the graticule plate (2) with their mechanical mountings are installed in the interior of the main tube.

1.5.3.2 The **eyepiece sleeve** (11) contains the eyepiece (5) and the two double-member inversion lenses (3 and 4).

1.5.3.3 The **protection caps** (12) arranged on the eyepiece and lens sides of the unit also serve as protection against mechanical damage; when the sight is not used they are closed by reversing.

1.5.3.4 The **attachment screws** (13) serve for the attachment of the telescope sight on the mounting assembly. They are provided with a self-locking Nylok insert.

2. Operation

2.1 Transport (Figure 6)

For transport and storage the telescope sight with mounting assembly and accessories is housed in its container.

2.2 Control Elements

2.2.1 **Focus adjustment** of the image is made by the dioptrical adjustment control (17). The adjustment tolerance range is ± 2 dioptries.

2.2.2 The **graticule plate** is arranged according to Figure 4. The target marker with lateral graduation grid is designed according to the FINABEL principle.

2.2.3 The **angular adjustment of the sight** is effected by the elevation adjustment control (15).

2.2.4 **Lateral correction adjustment** is effected by the lateral adjustment control (16).

2.2.5 The **rubber protection caps** (12) prevent mechanical damage.

2.2.6 **Attachment** of the telescope sight to the mounting assembly is effected by means of the telescope tube holders (18) and the attachment screws (13).

2.2.7 A grey filter according to Item 1.3.3 can be inserted in the protection cap on the eyepiece side as **anti-dazzle protection.**

2.3 Installation of Telescope Sight and Adjustment to Weapon (Figure 5)

2.3.1 Install the telescope sight (20) with mounting assembly (21) on rifle. Check that attachment is properly made.

2.3.2 Open the rubber protection caps (12) on the eyepiece and lens sides of the telescope by reversing them.

2.3.3 Adjust optimal focus on adjustment ring of dioptrical adjustment control (17) by turning **from plus to minus.**

2.3.4 In the case of major dazzling effects caused by sun or snow, insert grey filter (22) in rubber protection cap on eyepiece side.

2.3.5 Adjust detent ring (23) of elevation adjustment control to 100 metres (Detent "1") and detent ring (24) of lateral adjustment control to "0".

2.3.6 Loosen cover screws (25) with screwdriver, Item 1.3.5.2.

2.3.7 Adjust rifle sight to 100 metres, and sight target 100 metres away over notch and bead sights.

2.3.8 Set target marker of telescope sight to the same target point by operating elevation adjustment control (15) and lateral adjustment control (16) with a coin. Check that the setting of the detent rings made according to Item 2.3.5 remains undisturbed.

2.3.9 Fire trial shots and readjust target marker after each shot if necessary. The direction of turning for correction after each shot is indicated on the cover discs of the elevation and lateral adjustment controls (15 and 16).

2.3.10 Tighten cover screws (25) after completion of adjustment.

2.3.11 Elevation adjustment control (15) will now be set to detents 1 to 6 depending on target ranging between distances of 100 to 600 metres. For this the target marker is shifted and adjusted by elevation, whereby the sight angle corresponding to the respective range is also set.

3. Maintenance

3.1 Check optical parts for clean ness. Dirty optical components shall be cleaned exclusively with soft dust brush and optical cleaning rag after steaming parts with breath; do not touch parts with fingers (dust brush and optical cleaning rags are supplied in accessory kit). Minor blemishes (scratches) on outside of optical lenses will not impair the function of the equipment. Cracked glass components, however, must be replaced (return equipment to base for repair).

3.2 Remove dust and dirt from outside mechanical surfaces with dry rag or brush. Remove major contamination (e. g. oil and grease) with a rag soaked with gasoline. Clean moving parts and precision ground faying surfaces with particular care.

3.3 Check controls and moving parts for easy and smooth operation. Oil slightly with a non-acid oil.

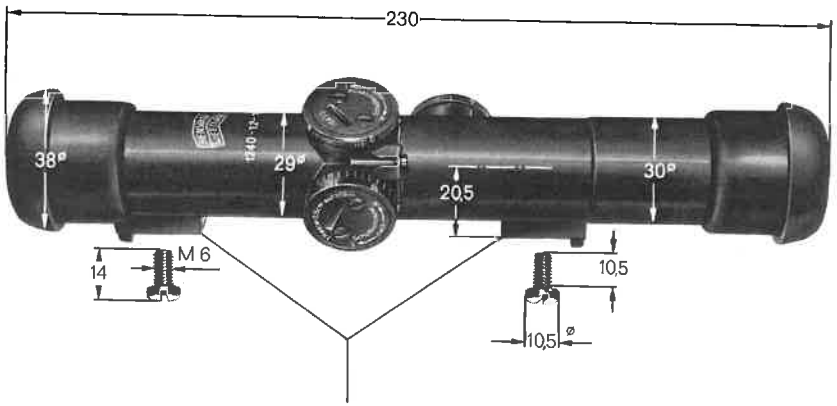
3.4 Disinfect rubber protection caps. Moisten clean rag with Sagrotan solution, and wipe rubber parts.

3.5 Touch up damaged varnish after previous degreasing with an air-drying varnish RAL 9005.

4. Maintenance Schedule

Item:	Period:	Explanation:
3.1	w, p, a	w = weekly
3.2	w, p, a	m = monthly
3.3	p, a	p = prior to use
3.4	m	a = after use
3.5	*	* = conditional

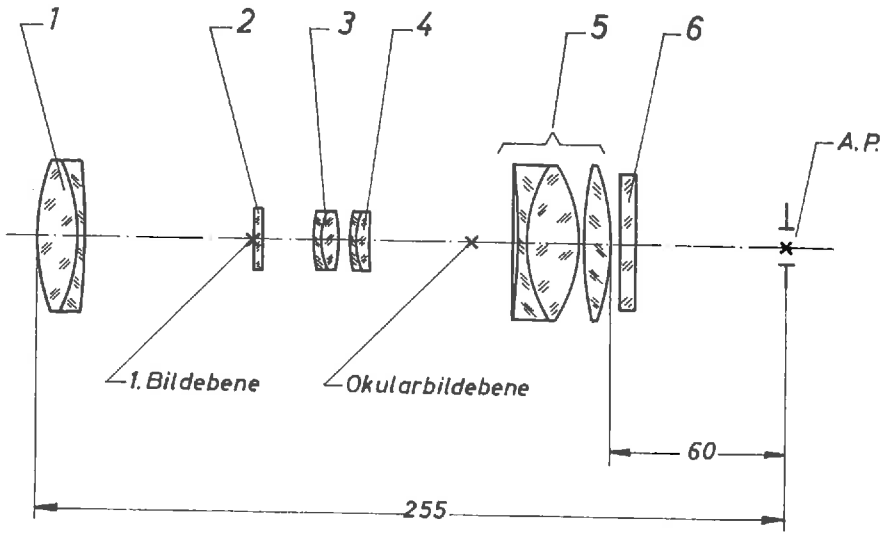
Figure 1



Telescope Sight Holders
According to STANAG 2324

Main Dimensions of Equipment

Figure 2

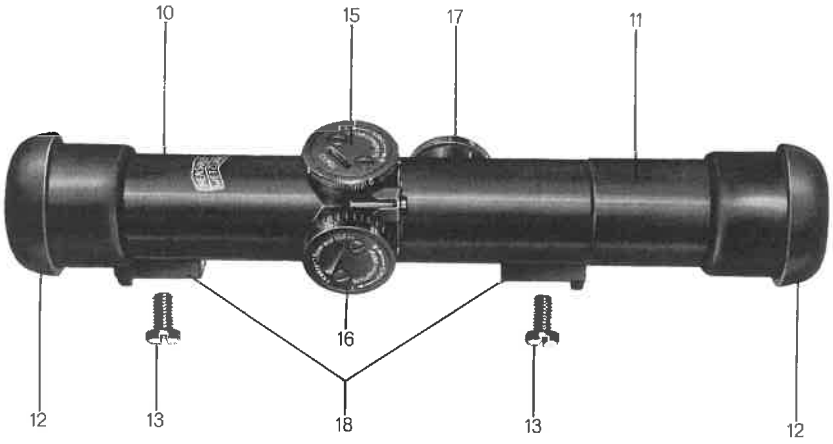


1. Bildebene = First image plane
Okularbildebene = Eyepiece image plane

1 = Eyepiece
2 = Graticule plate
3 = Inversion lens
4 = Inversion lens
5 = Eyepiece
6 = Grey filter

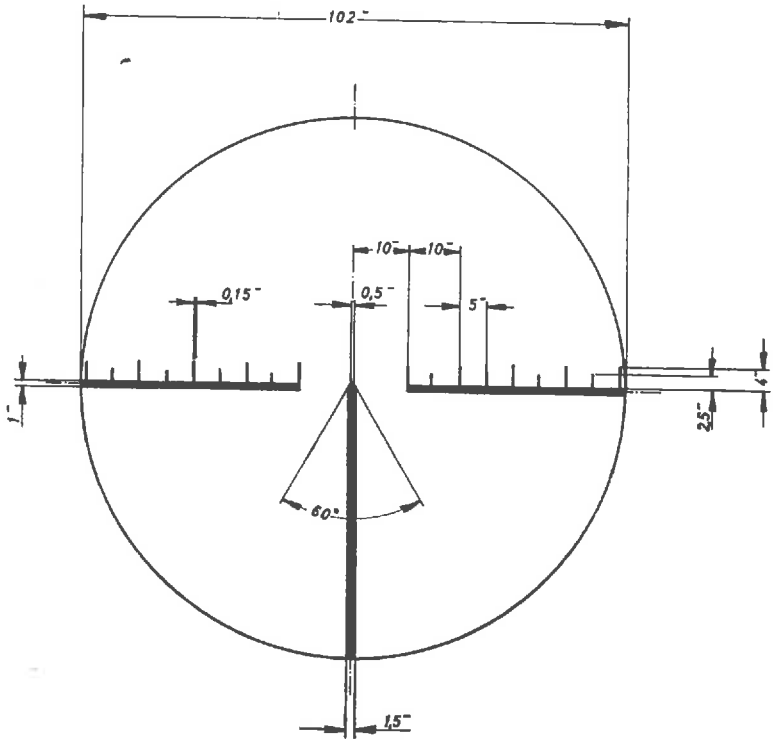
Optical Structure

Figure 3



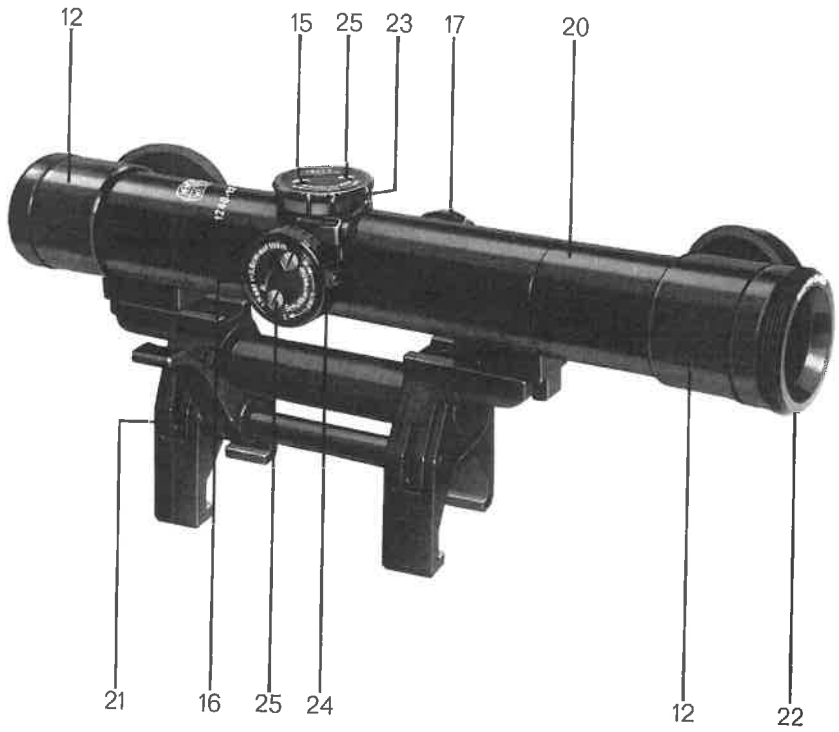
10 = Main tube
11 = Eyepiece sieeve
12 = Protection cap
13 = Attachment screws
15 = Elevation adjustment control
16 = Lateral adjustment control
17 = Dioptrical adjustment control
18 = Telescope sight holder

Figure 4



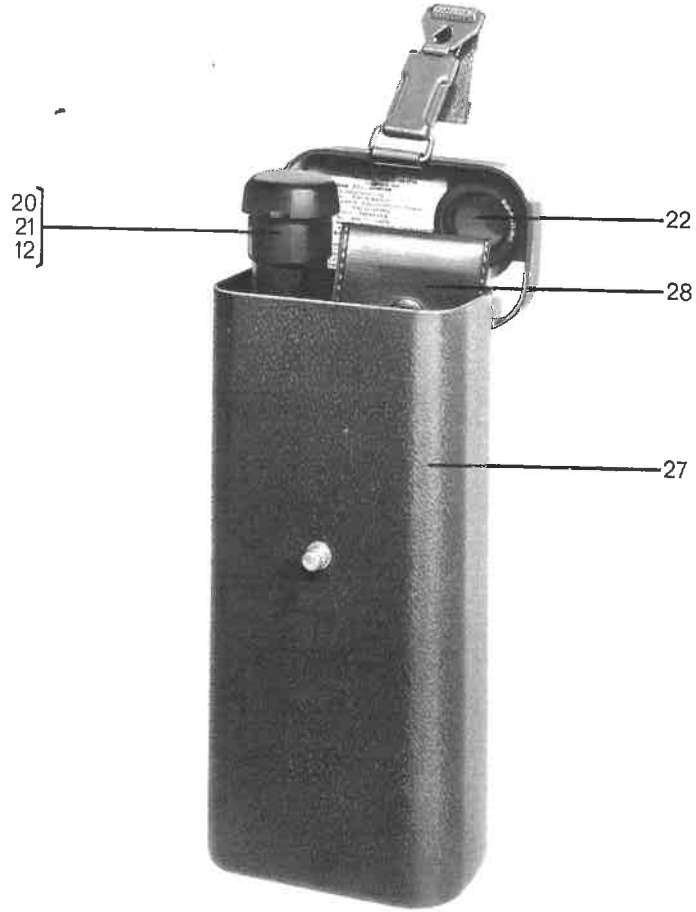
Layout Pattern of Graticule

Figure 5



12 = Protection caps
15 = Elevation adjustment control
16 = Lateral adjustment control
17 = Dioptrical adjustment control
20 = Telescope sight
21 = Mounting assembly
22 = Grey filter
23 = Detent ring (Elevation control)
24 = Detent ring (Lateral control)
25 = Cover screws

Figure 6



20, 21, 12 = Telescope sight with mounting assembly and rubber protection caps
22 = Grey filter
27 = Container
28 = Tool kit with accessories