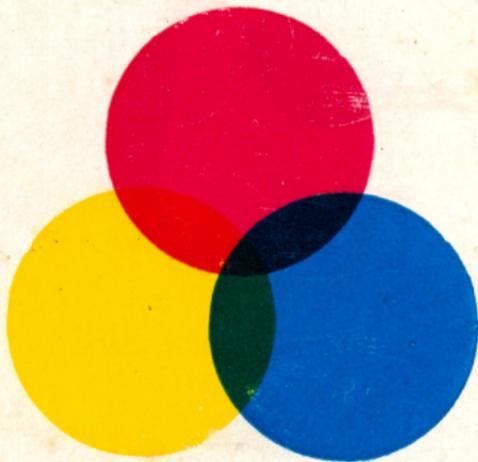


# janpol

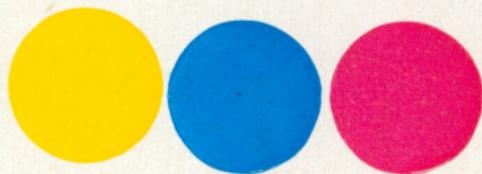
Enlarger Lens  
with Built-in  
Set of Colour  
Correction  
Filters  
for  
Professional  
Photographers  
and Amateurs



**COLOR**  
**80 mm f/5.6**

**K**





Sole exporters

**VARIMEX**

**POLISH COMPANY FOR FOREIGN TRADE**

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Phone 28-80-41,

Telex 814311

## JANPOL - COLOR 80 mm f/5.6

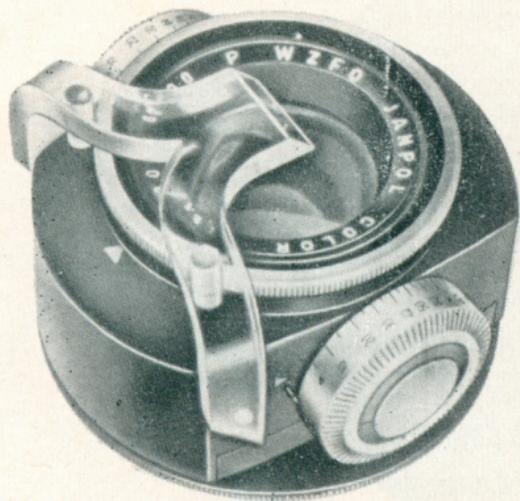


Fig. 1

JANPOL-COLOR is a high-quality enlarger lens with the largest effective relative aperture of  $f/5.6$  and 80 mm focal length. It is equipped with a set of built-in filters made of coloured optical glass, absolutely light-proof.

The dimensions of JANPOL-COLOR are very small and its design protects the filters from dirt and damage.

JANPOL-COLOR — a completely new, patented Polish design — is the only lens of this type to appear on the world market. JANPOL-COLOR opens to the professional photographer and to the advanced amateur unlimited possibilities in subtractive colour enlarging. It permits colour prints and positive transparencies to be obtained with exactly neutral colour rendition.

High-class enlargements  $50 \times 60$  cm ( $20 \times 25$ ) in size are easily obtainable. JANPOL-COLOR is very easy to use. The operating instruction is given below.

## APPLICATION

JANPOL-COLOR is used for making black-and-white and colour enlargements from  $6 \times 6$  cm ( $2\frac{1}{4} \times 2\frac{1}{4}$  in) and smaller negatives. Subtractive method of colour correction is applied in colour work.

JANPOL-COLOR lens may be used in different enlargers, also in those not equipped with a sliding drawer for colour correction filters. The lens has a M42×1 thread. A suitable adapter ring is optional for the well-known KROKUS enlarger, manufactured by PZO (Warsaw Photo-Optical Works) and may also be obtained through PTHZ (Polish Company for Foreign Trade) VARIMEX agents abroad. Adapter rings for other enlarger makes are obtainable in the same way.

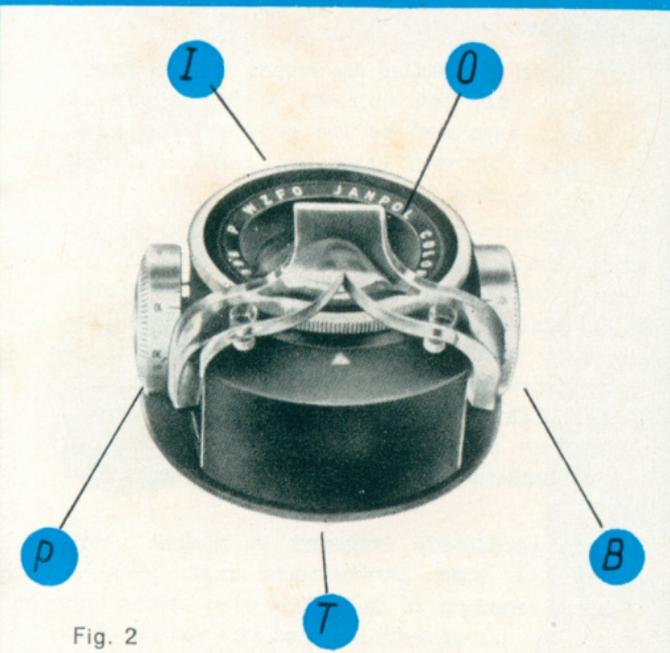


Fig. 2

- O** — illuminator
- I** — diaphragm setting ring
- P** — knob with magenta and yellow graduations
- B** — knob with cyan and yellow graduations
- T** — lock nut

## OPTICAL SYSTEM

JANPOL-COLOR is a four-element anastigmatic lens, specially designed for enlarging work. Lens elements are provided with anti-reflex-coating. The brilliancy of the JANPOL-COLOR allows to obtain big enlargements of most satisfactory sharpness.

## BUILT-IN FILTERS

JANPOL-COLOR is equipped with a set of built-in, plane-parallel, coloured optical glass filters. Differing in that respect from the commonly used emulsion-coated filters, they are stable and do not fade when exposed to light.

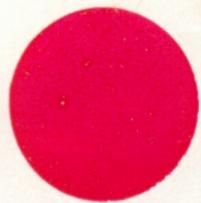
The filter colours are adapted to the sensitivity of the individual layers of colour printing paper. The set consists of four filters mounted in two frames.

The latter are built into the lens. In each frame there are two filters, separated by a colourless glass plate.

The frames are shifted by means of two knobs. Each knob has two coloured graduations on its perimeter, separated by the common zero mark. The colour of each graduation matches that of the corresponding filter.

Each graduation runs from 0 to a maximum value, amounting to 150 for the magenta and cyan scales, and to 160 for the two yellow scales. Scale markings correspond to percentage values commonly used for determining the optical density of Kodak subtractive colour correction filters. In JANPOL-COLOR system the optical density is changed in a continuous way, which means that the graduations may be set to any intermediate values.

This is particularly important in portrait photography, as such enlargements must give an accurate rendition of the actual skin colour. The possibility of setting intermediate values, from 1 to 4% of filter density, allows to fulfil this requirement with the utmost accuracy.



## ILLUMINATOR

JANPOL-COLOR has a special illuminator which — in the position shown in Fig. 3 — transmits the light coming through the lens onto the knob graduations. This permits to set the required filter density without switching on the main light in the darkroom. While filters are being set, care must be taken not to let the enlarger light reach the light-sensitive materials.

Before exposure of the light-sensitive paper the illuminator must be brought into position shown in Fig. 4 and thus removed from the path of light rays. The illuminator may also be taken off the lens. When it is being replaced, its protrusions should snap into the corresponding recesses of the lens mount.

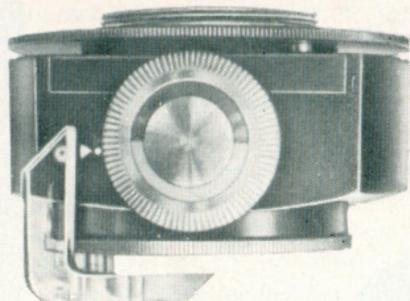


Fig. 3

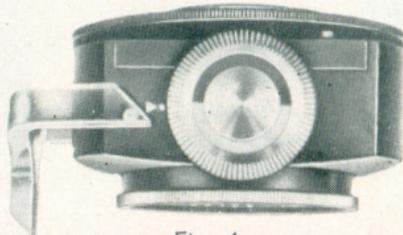


Fig. 4

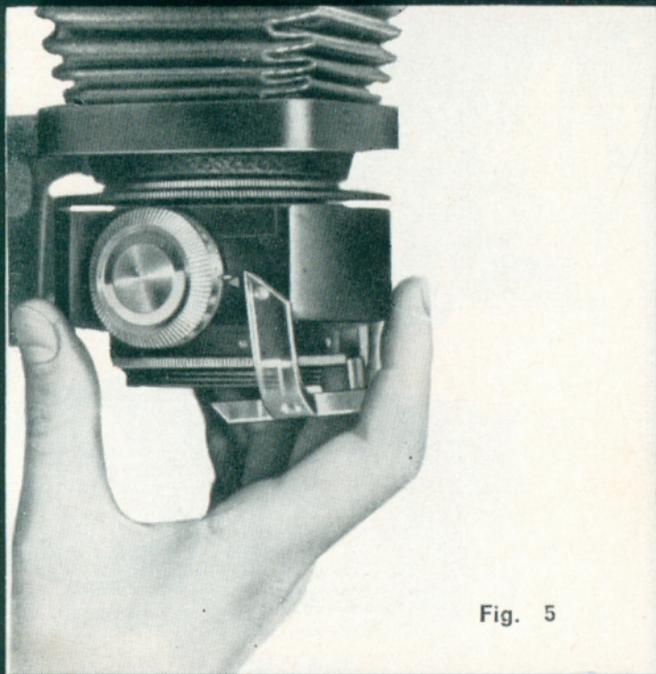


Fig. 5

## PREPARATION OF THE LENS FOR WORK

The lens is to be screwed into the enlarger in such a way, that the side from which readings are taken should face the operator. Then the lens thread must be secured in the enlarger by tightening the lock nut T against the upper thrust face (Fig. 5).

Before beginning the work, carefully adjust the position of enlarger lamp to obtain a uniform illumination of the projected image field. This is particularly important in colour photography.

JANPOL-COLOR considerably facilitates such adjustment, since it does not darken the image field corners.

Knobs P and B are now set to O opposite their respective index marks (Fig. 6a, 6b, 6c, 6d) and the diaphragm setting ring 1 — to f/5.6. The ring — at the particular aperture markings.



Fig. 6a

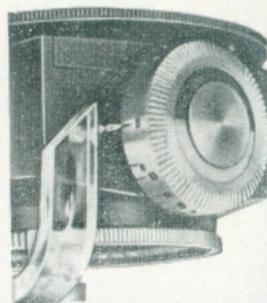


Fig. 6b

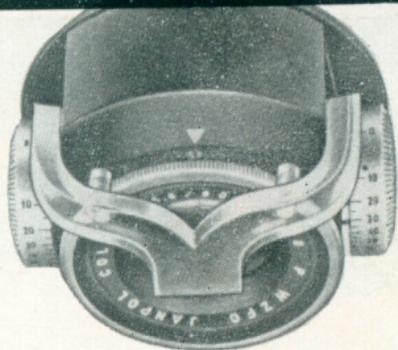


Fig. 6c

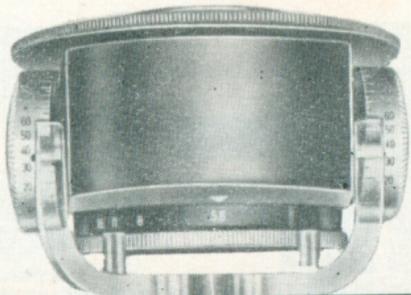
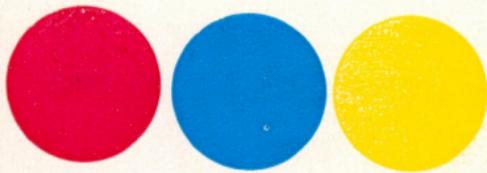


Fig. 6d



## BLACK-AND-WHITE WORK

When making black-and-white enlargements, the JANPOL-COLOR works like any other high quality enlarger lens.

The iris diaphragm is set to any required lens aperture by means of the setting ring I. Click stops at all relative aperture values marked on the lens mount facilitate the setting under dark-room conditions.

During black-and-white work the knobs P and B are to remain in their zero position. The illuminator is not necessary now and may be taken off the lens.

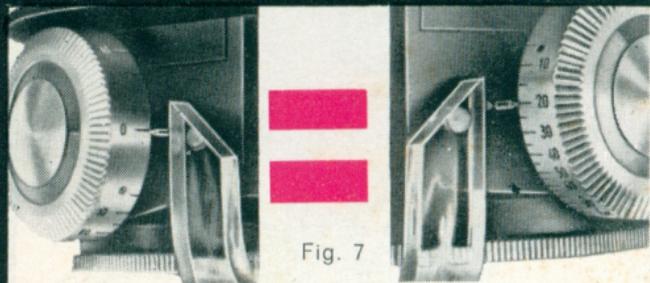


Fig. 7

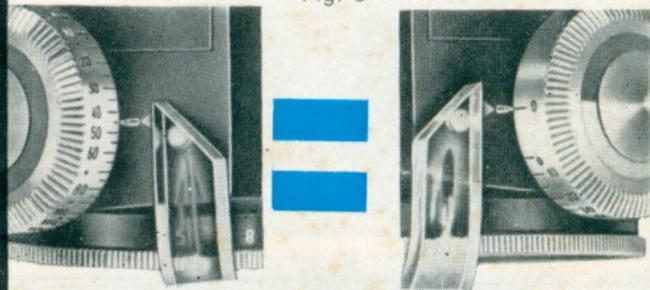


Fig. 8

## COLOUR WORK

Colour enlargements are made by means of the JANPOL-COLOR lens at its maximum relative aperture value only, i.e. with the diaphragm ring set to f. 5.6. After focusing and, possibly, making test prints, the desired optical density of the colour correction filters is set by means of knobs P and B, while making use of the illuminator. The desired magenta filter density (e.g. 20%) is set on the magenta coloured graduation, marked on the perimeter of knob P (Fig. 7).

In the same way, the cyan filter density (e.g. 45%) is set on the cyan coloured graduation of knob B (Fig. 8).

JANPOL-COLOR has two yellow filters and therefore the yellow filter density (e.g. 13%) may

be set either on the yellow coloured graduation of knob P or on that of knob B (Fig. 9a, 9b).

The required value is not to be set on both knobs simultaneously, as in that case the density would be twice as high.

In most cases the colour correction of a print makes it necessary to use two filters of different colours and different optical densities. Both knobs are then used as follows:

for magenta-cyan correction the density of the magenta filter is set on the magenta coloured graduation of knob P and the cyan filter density — on the cyan coloured graduation of knob B (Fig. 10).

For magenta-yellow correction the density of the magenta filter is set on the magenta coloured graduation of knob P and the yellow filter density — on the yellow coloured graduation of knob B (Fig. 11).

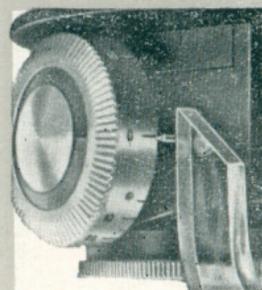


Fig. 9a

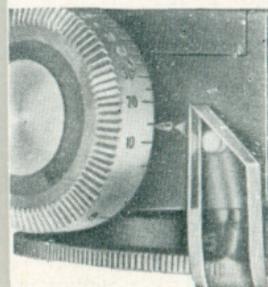
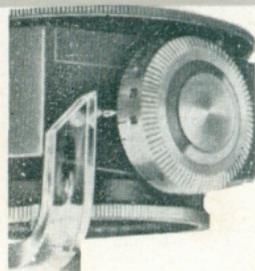
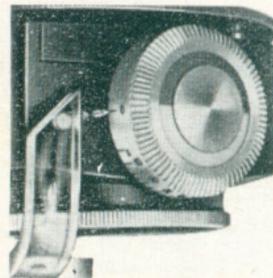


Fig. 9b



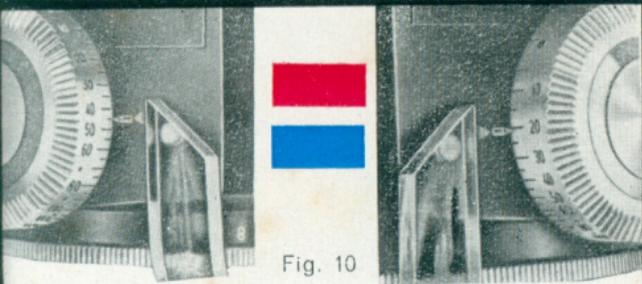


Fig. 10

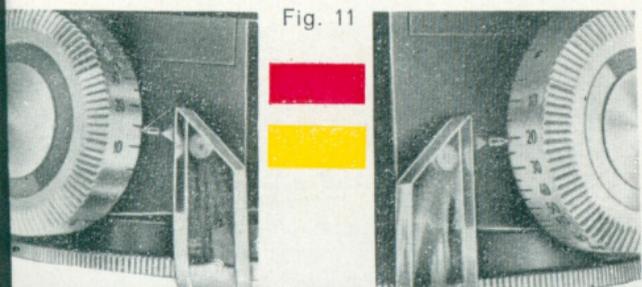


Fig. 11

Finally, for cyan-yellow correction the density of the cyan filter is set on the cyan coloured graduation of knob B and the yellow filter density — on the yellow coloured graduation of knob P (Fig. 12).

Filters in all three colours are never used simultaneously for colour correction, as the third filter would only reduce the effect of the two remaining ones.

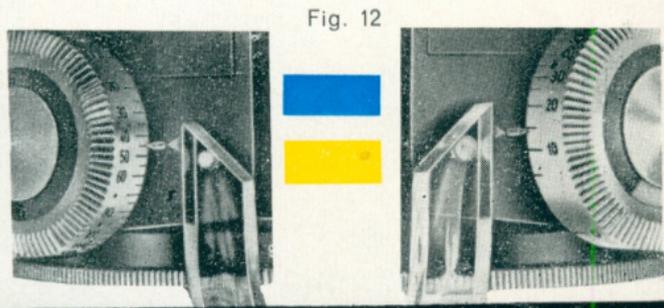
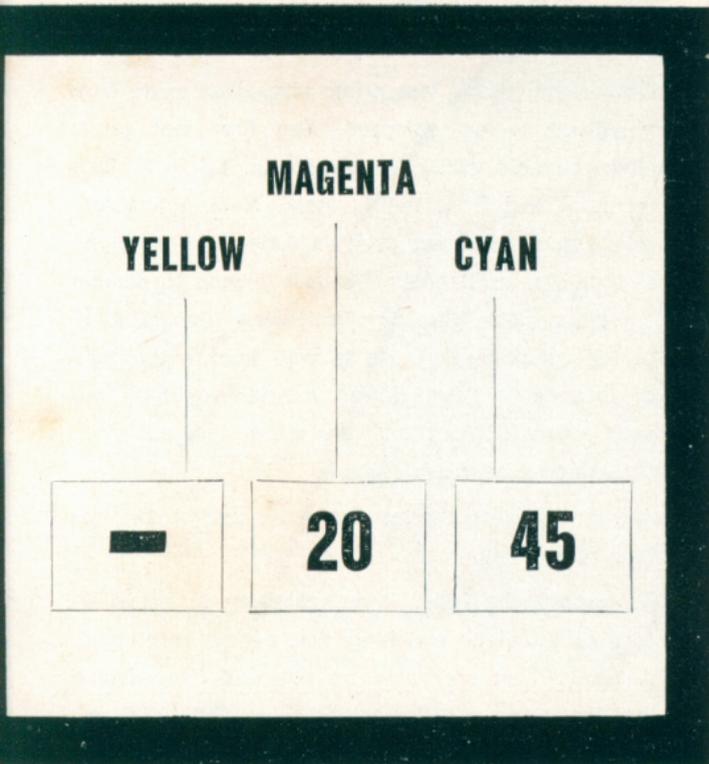


Fig. 12





## RECORDING CORRECTION VALUES

When colour prints are made, the densities of correction filters and the exposure time are usually recorded on the back of the print.

A six-figure system of density recording is generally accepted. The first two figures indicate the percentage value of the yellow filter density, the third and fourth figure — that of the magenta filter, and the last two figures — that of the cyan filter. To illustrate this, corrections shown in Fig. 7 to 12 are recorded below (each double-zero group may be replaced by a dash to speed up the recording).

Fig. 7 — density recording 00 20 00 or — 20 —

Fig. 8 — density recording 00 00 45 or — — 45

Fig. 9 — density recording 13 00 00 or 13 — —

Fig. 10 — density recording 00 20 45 or — 20 45

Fig. 11 — density recording 13 20 00 or 13 20 —

Fig. 12 — density recording 13 00 45 or 13 — 45

The six-figure system must be extended if any colour exceeds the density of 100% (the latter value being usually recorded as 99%). In such cases the filter densities may be recorded in their full three-figure values, but the distinct spacing between individual figure groups is to be maintained.

For example, a simultaneous application of a 130% magenta filter and a 110% cyan filter will be recorded as:

00 130 110 or — 130 110

The recording facilitates the determination of the appropriate correction filters for colour printing work, since the filter colours and densities are determined by way of making several successive test prints, while gradually improving upon the original choice of filter density.

## PRACTICAL HINTS

Correctly exposed test prints should be made from negatives to be enlarged. The first test prints may be made with zero correction, i.e. with both knobs P and B at the O mark. Next, the colour rendition of the test print is judged by daylight, if possible, as it gives the best chance to discern a colour cast (this is particularly important in portrait photography). As is well known, the light of incandescent lamps has a relatively high red and yellow content and the prints judged by it tend to acquire these colours.

As a rule, a test print shows an undesirable colour cast.

To remove the latter it is necessary to apply filters of a colour matching that of the print cast. A colour cast may also be removed by reducing the density of complementary colour filters, if any have been applied in making the test print.

## REMOVING OVERALL COLOUR CAST

Overall print cast	Removing the cast by increasing the density of correction filters	Removing the cast by reducing the density of correction filters
yellow magenta cyan red green blue	yellow magenta cyan yellow + magenta yellow + cyan magenta + cyan	magenta + cyan yellow + cyan yellow + magenta cyan magenta yellow

### NOTE

The necessary time of exposure changes with correction filter density. Particularly the magenta and cyan filters require increased exposure times, the

yellow filters do it to a lesser degree. The table given below contains the exposure coefficients to be applied for filters of the corresponding optical densities.

# EXPOSURE TIME INCREASE

For a yellow filter		For a magenta filter		For a cyan filter	
Density percentage value of filter	Exposure time increase coefficient	Density percentage value of filter	Exposure time increase coefficient	Density percentage value of filter	Exposure time increase coefficient
10	1.0	10	1.1	10	1.0
20—50	1.1	20	1.2	20	1.1
60—80	1.2	30	1.3	30	1.1
90—100	1.3	40	1.4	40	1.2
110—130	1.4	50	1.6	50	1.3
140—150	1.5	60	1.7	60	1.3
160	1.6	70	1.9	70	1.4
		80	2.0	80	1.4
		90	2.2	90	1.5
		100	2.4	100	1.6
		110	2.7	110	1.6
		120	2.9	120	1.7
		130	3.2	130	1.8
		140	3.5	140	1.9
		150	3.8	150	1.9

The time of exposure to be applied when using filters of required colours and densities is computed by multiplying the original time, as determined for zero correction, by coefficients corresponding to individual filters used.

EXAMPLE 1. Original time is 5 seconds. The exposure time with a density of 00 60 00, i.e. with a 60% magenta filter (coefficient = 1.7) is:

$$1.7 \times 5 = 8.5 \text{ sec}$$

EXAMPLE 2. Original time is 10 seconds. The exposure time a density of 80 00 90, i.e. with a 80% yellow filter (coefficient = 1.5) is:

$$1.2 \times 1.5 \times 10 = 18 \text{ sec}$$

EXAMPLE 3. Original time is 8 seconds. The exposure time with a density of 00 36 130, i.e. with a 36% magenta filter (nearest coefficient = 1.4) and a 130% cyan filter (coefficient = 1.8) is:

$$1.4 \times 1.8 \times 8 = 20 \text{ sec}$$

## GENERAL REMARKS

JANPOL-COLOR lens is a precision instrument. Careful operation and servicing will guarantee its correct functioning over a long period of time. It is also to be protected from shocks, dust and moisture.

Use a soft brush for dusting the glass surfaces. They may also be cleaned with a soft cotton cloth, which has been washed several times, but they may not be touched with fingers.

If some dirt or damage inside the lens is discovered, do not disassemble the latter, but have it cleaned or repaired by a trained specialist.



Manufacturer:

POLSKIE ZAKŁADY OPTYCZNE  
W-wa, Poland Grochowska 320

