GK DELINEASCOPE
REFERENCE MANUAL

AMERICAN OPTICAL COMPANY • INSTRUMENT DIVISION • BUFFALO 15, NEW YORK
I. INTRODUCTION

The GK Delineascope is a well-made quality optical instrument which will give many years of unexcelled performance. It is designed for lecturers, educational and governmental institutions, church groups, clubs and amateur and professional projectionists who demand a slide projector that will brilliantly project their slides with sharp definition and true color rendition.

The variety of High Speed and Standard Speed optical objectives and condensers manufactured for the GK Delineascope enables it to meet any projection requirements. This booklet describes both the High Speed and Standard models.
II. DESCRIPTION

The GK Delineascope will project 2" x 2", 2-3/4" x 2-3/4", 3-1/4" x 3-1/4" (English type), 3-1/4" x 4" slides and 2-1/4" Polaroid slides in Polaroid mounts. The standard AO 3-1/4" x 4" slide carrier can also be used to project 3-1/4" x 4" Polaroid slides in Polaroid mounts.

The GK Delineascope has a 750 watt lamp and operates on 115 volt 60 cycle AC current. A powerful, quiet-operating fan circulates air over both slide and condensers, keeping the slide exceptionally cool. A 15 ft., three-pronged grounded cord, UL and CSA approved, is permanently attached. A two-pronged adapter, with a grounding lead attached, is provided for use with standard outlets. Handles are located at the rear and top for carrying. The rear handle can also be used to elevate the rear of the GK. Lamp life can be increased, and condensers protected, by flipping the three-way toggle switch to the FAN position after prolonged use. This turns the lamp off, but the blower continues to send a cooling wave of air over the lamp and condensers. A lamp scale permits proper positioning of the lamp in relation to the condenser, for optimum light distribution and definition.

III. ACCESSORIES

A. OBJECTIVES: Eight Standard Objectives and two High Speed objectives are optionally available for use with the GK Delineascope (See Projection Chart, Page 7) providing a total focal length range from 6-1/2" to 24".

B. OBJECTIVE MOUNTS: Two focusable mounts . . . sleeve type or rack and pinion (Figures 3 and 4) accommodate Standard Objectives. A single sleeve-type mount is available for use with High Speed Objectives. All three mounts have flanges that fit into dove tail slideway on projector for convenient interchange (Fig. 9).

C. CONDENSERS: Three condensers can be readily interchanged. Condenser #3592 is used only for 2" x 2" slides. For larger slides, condenser #3622 must be used (with objective having focal length of 12-1/2" or less) or condenser #3623 (with objective having focal length of 15-1/2" or more) See Figures 6, 7 and 8 and Projection Chart.

D. IRIS DIAPHRAGM: Available for use with 2-5/8" diameter objectives . . . permits light intensity and lens speed to be varied to improve contrast and definition.
E. SLIDE CARRIERS: Four slide carriers . . . 3-1/4" x 4", 2" x 2", 2-3/4" x 2-3/4" and special slide carrier for 2-1/4" x 2-1/4" Polaroid slides are available.

IV. OPERATION

A. SET-UP: Place GK Delineascope on a table large enough to accommodate full extension of bellows. Open lamp-house cover by grasping lamp-house cover handle (Fig. 1) and pulling up and back. Remove any packing papers inside of projector. See Projection Chart for correct lamp scale setting for the combination of slide, objective, and condenser to be used. Loosen the lamp lock screw (located under the projector, as indicated in Fig. 2), slide lamp and reflector assembly so pointer is opposite the proper number on the lamp scale (Fig. 2) as determined from Projection Chart. Lamp setting is most important, since the lamp must be in the proper position to insure full illumination and definition. If the lamp is set too close to the condenser, the screen image will develop a bluish tinge at the corners. If it is set too far from the condenser, a brownish tinge will appear at the corners. (When a change is made in the size of the slides being projected (or, in some cases, in the focal length of the objective being used) lamp must be reset in accordance with Projection Chart.

Insert empty objective mount on projector (Fig. 9), push mount all the way down. Place objective in mount, with numerals indicating the focal length to the front of the projector. Loosen the slide carrier lock screw (Fig. 2), and insert slide carrier in opening (Fig. 2), with Lucite strip on the carrier facing the rear of the projector. Center the carrier and tighten the screw. (In a dark room with the projector turned on, the Lucite will transmit sufficient light to read notes and identify slides.) Plug cord into outlet . . . place slide in carrier, and turn on projector.

B. FOCUS: Loosen lock screws on bellows extension rods (Fig. 1). Extend bellows until image is clearly visible on screen . . . tighten lock screws. Focus with objective until image is sharp. It may be necessary to re-adjust bellows before image can be sharply focused with objective.
C. CENTER IMAGE: Center image on the screen horizontally by moving the front of the projector left or right as needed. To center image vertically, loosen wing nut on the front (Fig. 1) and raise projector to proper height. Tighten wing nut to maintain this position. The rear handle (Fig. 1) can be used as an elevating device to raise the rear of the projector. The accessory iris diaphragm (see section III, D) is attached by slipping over front of the objective. Jarring the projector during or immediately after use should be avoided as this may cause lamp filaments to break. Projector should not be exposed to cold air immediately after use to avoid possibility of cracking condenser.

V. INTERCHANGING CONDENSERS, OBJECTIVES, OBJECTIVE MOUNTS

Condensers and objectives must be used in proper combination as shown in Projection Chart.

A. CHANGING CONDENSERS: Open lamp house cover (see section III). Lift condenser chest straight up and out. Fit flange of replacement chest into dovetail on housing and push chest straight down until it comes to stop against housing. Reset lamp (determine setting from Projection Chart) and close lamp house cover.

B. CHANGING OBJECTIVES: Standard objectives are held in mounts by friction. Simply pull out objective and insert replacement. High speed objectives are held by self-retained screw. Loosen screw and pull out
### PROJECTION CHART

<table>
<thead>
<tr>
<th>IF SLIDE SIZE IS</th>
<th>AND OBJECTIVE HAS:</th>
<th>USE CONDENSER CHEST</th>
<th>SET POINTER AT LAMP SCALE NO.</th>
<th>WIDTH OF SCREEN IMAGE (IN FEET AND DECIMAL FRACTIONS) WHEN DISTANCE TO SCREEN IS:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CATALOG NUMBER</td>
<td>FOCAL LENGTH (INCHES)</td>
<td>FOCAL DIAMETER (INCHES)</td>
<td>f/no.</td>
</tr>
<tr>
<td><strong>2&quot; x 2&quot;</strong></td>
<td>3912</td>
<td>6½</td>
<td>2½</td>
<td>2.7</td>
</tr>
<tr>
<td>ASA APERTURE</td>
<td>3922</td>
<td>8½</td>
<td>2½</td>
<td>3.65</td>
</tr>
<tr>
<td>23 x 34 MM</td>
<td>3924</td>
<td>10</td>
<td>2½</td>
<td>4.3</td>
</tr>
<tr>
<td>HIGH SPEED</td>
<td>3927</td>
<td>12½</td>
<td>2½</td>
<td>5.3</td>
</tr>
<tr>
<td>STANDARD</td>
<td>3929</td>
<td>15½</td>
<td>4½</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>3942</td>
<td>20</td>
<td>4½</td>
<td>5.6</td>
</tr>
</tbody>
</table>

**2¾" x 2¾"** or 2¾" x 2¾" Inch

| ASA APERTURE     | 3620                | 6½                 | 1½                | 5.6   | 3622 | 38  | 3.2  | 4.9  | 6.5  | 8.2  | 9.9  | 13.3 | 16.6 |
| STANDARD         | 3622                | 8½                 | 2½                | 3.65  | 3622 | 31  | 2.4  | 3.7  | 5.0  | 6.3  | 7.5  | 10.1 | 12.7 | 15.3 |
| HIGH SPEED       | 3624                | 10                 | 2½                | 4.3   | 3622 | 28  | 2.0  | 3.1  | 4.2  | 5.3  | 6.4  | 8.6  | 10.8 | 12.9 | 15.1 |
|                  | 3627                | 12½                | 2½                | 5.3   | 3622 | 25  | 1.6  | 2.5  | 3.4  | 4.2  | 5.1  | 6.8  | 8.6  | 10.4 | 12.1 | 13.9 | 15.6 |
| STANDARD         | 3630                | 15½                | 2½                | 6.8   | 3623 | 44  | 1.2  | 1.9  | 2.6  | 3.2  | 3.9  | 5.3  | 6.6  | 8.0  | 9.4  | 10.8 | 12.1 | 13.5 |
| HIGH SPEED       | 3978                | 24                 | 2½                | 10.2  | 3623 | 36  | 1.2  | 1.6  | 2.1  | 2.6  | 3.5  | 4.4  | 5.3  | 6.2  | 7.1  | 8.0  | 8.9  |
|                  | 3943                | 15½                | 4½                | 4.5   | 3623 | 44  | 1.2  | 1.9  | 2.6  | 3.3  | 4.0  | 5.4  | 6.8  | 8.2  | 9.7  | 11.1 | 12.4 | 13.9 |
| STANDARD         | 3942                | 20                 | 4½                | 5.6   | 3623 | 37  | 1.5  | 2.0  | 2.6  | 3.1  | 4.2  | 5.3  | 6.4  | 7.5  | 8.6  | 9.7  | 10.8 |

**3¼" x 3¼"** or 3¼" x 3¼" Inch

| ASA APERTURE     | 3620                | 6½                 | 1½                | 5.6   | 3622 | 38  | 4.4  | 6.7  | 9.0  | 11.3 | 13.6 |
| STANDARD         | 3622                | 8½                 | 2½                | 3.65  | 3622 | 33  | 3.3  | 5.0  | 6.8  | 8.6  | 10.3 | 13.9 |
| HIGH SPEED       | 3624                | 10                 | 2½                | 4.3   | 3622 | 30  | 2.8  | 4.2  | 5.8  | 7.2  | 8.8  | 11.8 | 14.8 |
|                  | 3627                | 12½                | 2½                | 5.3   | 3622 | 27  | 2.1  | 3.4  | 4.6  | 5.8  | 7.1  | 9.4  | 11.8 | 14.2 |
| STANDARD         | 3630                | 15½                | 2½                | 6.8   | 3623 | 46  | 1.6  | 2.6  | 3.5  | 4.4  | 5.4  | 7.3  | 9.1  | 11.0 | 12.9 | 14.8 |
| HIGH SPEED       | 3628                | 15½                | 2½                | 5.3   | 3623 | 46  | 2.0  | 2.8  | 3.5  | 4.3  | 5.8  | 7.3  | 8.8  | 10.3 | 11.8 | 13.3 | 14.8 |
|                  | 3943                | 15½                | 4½                | 4.5   | 3623 | 46  | 2.0  | 2.8  | 3.5  | 4.3  | 5.8  | 7.3  | 8.8  | 10.3 | 11.8 | 13.3 | 14.8 |
| STANDARD         | 3942                | 20                 | 4½                | 5.6   | 3623 | 37  | 1.6  | 2.6  | 3.6  | 4.5  | 5.5  | 7.5  | 9.3  | 11.3 | 13.3 | 15.2 |
objective. To replace objective, line up spiral groove with self-retained screw and insert into mount carefully. Tighten screw.

C. CHANGING OBJECTIVE MOUNTS: Objective mounts are attached to projector with flange and dovetail arrangement. (Fig. 9) To remove, lift mount up and out. To replace, insert flange into dovetail on projector face and seat mount firmly all the way down. Note: Objectives should be removed from mounts before attempting to lift out or replace mount.

VI. MAINTENANCE

The GK Delineascope is a precision optical instrument designed and constructed to give many years of trouble-free performance. Lamp replacement and periodic cleaning of optics is all the maintenance that should be required.

A. CLEANING OBJECTIVES: Remove objective from mount (See section V, B) and clean external lens surfaces with lens cleaning fluid and lens cleaning tissue or lint-free cloth. Objectives are factory aligned and sealed and should not be taken apart.

B. CLEANING CONDENSER ELEMENTS: (Lift out condenser chest. See section V, A). Condenser elements in the No. 3622 Condenser Chest can be removed for cleaning by compressing loop on the retaining clip at top of chest and removing clip. The top of the 3592 Condenser Chest slides off to permit removal of the elements for cleaning. Carefully note how lenses are positioned (Fig. 6, 7 & 8) before removal. Clean with lens cleaning fluid and lint-free cloth. Replace carefully to avoid chipping lens edges. Be sure all fingerprints are removed.

VII. REPLACEMENT OF PARTS

A. LAMP: To remove, lift housing cover, push down on lamp and turn counterclockwise. Lift out. To replace, position bayonet fitting over socket, push down and turn clockwise. Remove all fingerprints.

B. CONDENSER: Remove damaged condenser element and install new one by following procedure described in section VI, B.

C. OBJECTIVES: DO NOT DISASSEMBLE. Return damaged objectives to the factory for inspection and repair. Replace objectives as described in section V, B.

VIII. REPLACEMENT PARTS LIST

3592 - 2 x 2 Condenser Chest
3592-603 Rear Condenser
3592-602 Middle Condenser
3592-601 Front Condenser
3785-606 Heat Absorbing Glass
3592-851 Chest (without condensers)
3592-852 Condenser Chest Cover
3622 - 3-1/4 x 4 Condenser Chest (for use with 6-1/2" through 12-1/2" focal length objectives)
3607-606 Rear Condenser
3607-605 Heat Absorbing Glass
3607-601 Front Condenser
3622-501 Chest (without condensers)
3622-4 - Lens Retaining Clip

3623 - 3-1/4 x 4 Condenser Chest (for use with 15-1/2" or longer focal length objectives)
3607-605 Heat Absorbing Glass
3607-601 Front Condenser
3608-601 Rear Condenser
3622-501 Chest (without condenser)
3622-4 - Lens Retaining Clip

3689-9 - Front Support Leg
3689-20 - Rubber Foot (front leg)
X-23536-2 - Wing Nut (for front)
01044-3 - Washer (for X23536-2)
3525-64 - Spring (for X23536-2)
X-17078-2 - Screw (for X23536-2)
0615-2 - Screw (for focusing rods and tubes)
0640-2 - Slide Carrier Lock Screw
3499 - Bellows
4030 - Lamp (Manufacturer's part number PH/750T12P-115V).
3689-22 - Lamp Lock Screw
3474-601 - Reflector
3330-47 - Rear Rubber Foot
X314-1 - Screw (for use with 3330-47)
3944 - High Speed Objective Mount
3979 - Standard Objective Mount - manual focus
3620 - Standard Objective Mount - rack and pinion focus
0309-4 - Retaining Screw (in High Speed Objective mount)
3689-23 - 3-way Switch