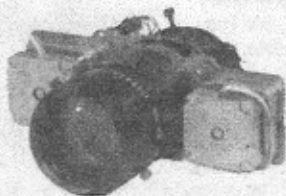




### VARIABLE MAGNIFICATION ENLARGING LENS

ZOOM EKTON 5.3X to 17X. High quality zoom enlarging lens. Has a male threaded rear mounting flange. The flange has an outside dia. of 38.75mm with a 1.0mm thread pitch. This flange is held in place by four small screws allowing alternate mounting arrangements. Focal length is variable from 55mm F:0.9 to 150mm F:2.4. This lens operates as a variable magnification lens for applications such as photo enlarging, etc. Tested with an 11mm dia. illuminated slide target 5" from the rear flange, the following projected image sizes were obtained: 13.5mm dia. at one end of zoom range and 24mm at other end of zoom range. The focal points of images shift with zoom position, but this variation becomes less as the lens iris is stopped down. The front lens element is 63mm dia. The lens is supplied with small stepper motors attached to the zoom and iris control rings. The motors are permanent magnet, 4-phase, 6-wire. The motors are rated 1.8° per step 12 VDC 0.4 amp per phase. Additionally, each motor has two slotted vane/sensor style optical limit/position sensors. These can be used to present lens/motor over-travel or can be used to set zero positions under computer control. These lenses are excellent for enlarging or image projection applications. Dimensions: 6" wide x 3-3/32" high x 5" long.

Stock #OL9801



### VARIABLE MAGNIFICATION CAMERA LENS

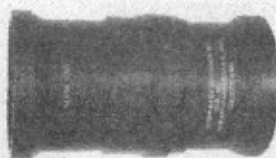
EKTON VIDEO ZOOM 1.8X to 5.6X. High quality zoom lens. Has standard 1"X32 tpi (C-mount) threads for attaching to a video or other type camera. Focal length is variable from 60mm F:1.3 to 85mm F:1.9. This lens is designed to focus and operate at close distances to objects. Distance from object to front lens element varies from 1.5" to 3.75" (depending on settings of zoom ring). The front lens element diameter is 45mm. When the lens iris is stopped down, the variation in front focus distance decreases. The lens is supplied with small stepper motors attached to the zoom and iris control rings. The motors are permanent magnet, 4-phase, 5-wire. The motors are rated 1.8° per step 12 VDC. Additionally, each motor has two slotted vane/sensor style optical limit/position sensors. These can be used to prevent lens/motor over-travel or can be used to set zero positions under computer control. Ideal lens for video inspection systems. Dimensions: 6" wide x 2-3/8" high x 5-1/4" long.

Stock #OL9802

### MULTI-ELEMENT RELAY LENS ASSEMBLY

200mm focal length. Front element is 82.75mm dia. Rear element is 82.75mm dia. Excellent for use as a magnifier, or tear down for experiments. Lenses are mounted in a 103.4mm dia. steel barrel 171.45mm long.

Stock #OL9414



### OPTICAL-SCANNER LENS FUJI

This unusual lens has a 3-element main lens 190mm, f/1.5. A 13/8" dia. flat front surface mirror is mounted directly behind the lens elements. In the form supplied, this lens acts as a scanner—returning an infinite source image back out the front element at the focal length of the lens. The mirror is removable. With the mirror removed, the lens has a 11.65" focal length. The clear dia. of the front lens element is 2.6".

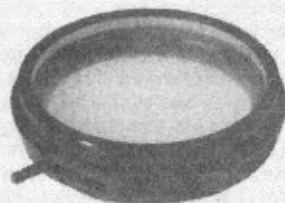
Stock #OL9350



### MENISCUS REDUCING LENS

Conave/convex lens. Focal length is 140mm. Lens is 5-3/4" dia. mounted in a 6-1/2" dia. black housing 1-5/8" thick.

Stock #OL9352



### TV PROJECTION LENS

U.S. PRECISION LENS, INC. Lightweight. A fast 3-element lens with focal length of 114mm. Light transmission factor of F1.0. Originally designed for use in Delta IV-M, rear-transmitting projection systems. CRT size 5" diagonal. Lens, all plastic construction, designed to mount in a 5-1/4" dia. opening. Has four attached footed brackets with 1/4" slots to accept mounting bolts. Lens can be focused by loosening a lock screw and rotating front barrel. Overall size: 5-5/8" dia. at the front and 5-1/4" at the back, excluding mounting ears x 8-1/4" max. extended length. Suggested uses: construction of wall projection TV, opaque or large format slide projector, etc. New. Weight 2 lbs. 10 oz.

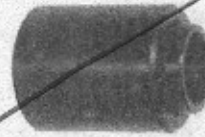
Stock #OL9054



### MULTI-ELEMENT LENS ASSEMBLY

15mm focal length. The elements have an anti-reflection coating. Front element is 11.70mm dia. rear element is 9.85mm dia. Excellent for use as a magnifier, or tear down for experiments. Lenses are mounted in a 28.25mm dia. barrel x 38.45mm long.

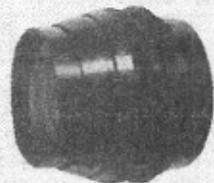
Stock #OL9402



### HIGH QUALITY COPY LENS

TAYLOR HOBSON. Excellent condition, used copy machine lens, f/4.5 focal length 8-1/4". Has click f-stops f/4.5 to f/8. Coated optics. Black aluminum barrel. Dimensions: 2-7/8" dia. x 2-3/8" long.

Stock #OL9707



Same as above except has an unmarked stop position allowing the lens to be stopped down to f/16.

Stock #OL9705

### HIGH QUALITY COPY LENS

BAUSCH & LOMB. Excellent condition, used copy machine lens, f/4.5 focal length 8-1/4". Has click f-stops f/4.5 to f/8. Has an unmarked stop position at f/16 nom. Coated optics. Black aluminum barrel. Dimensions: 2-7/8" dia. x 2-3/4" long.

Stock #OL9703



### COPY LENS

BAUSCH & LOMB. Heavy duty circular straight barrel. 8-1/4" focal length, f/4.5 f-stops from f/4.5 to f/16. This lens has a small round lever post on side for f-stop adjustment. Coated optics. Excellent condition. Dimensions: 2-13/16" dia. x 2-23/32" long.

Stock #OL9702



### COPY LENS RANK PRECISION OPTICS

8-1/4" focal length f/4.5. Has a front mounted f-stop adjuster accessible from front of lens. Heavy duty aluminum barrel. Coated optics. F-stop is adjustable from f/4.5 to f/16. Dimensions: 2-27/32" dia. x 2-3/8" long.

Stock #OL9704



# OPTICS

OPTICS



## OLYMPUS LENSES

HIGH QUALITY PRECISION LENSES

Originally used in a microfilm reader application, but can be used as eyepieces or objective lenses. Multi-element design. All optical surfaces have anti-reflection coatings. Various focal lengths are available (see table below). All lenses have a heavy duty black anodized aluminum barrel which is 24mm in dia. Overall length and f number varies with focal length.

| FOCAL LENGTH | F/#    | OVERALL LENGTH | STOCK NO. |
|--------------|--------|----------------|-----------|
| 41.17mm      | f/4.82 | 26.10mm        | OL8959    |
| 52.48mm      | f/6.22 | 41.00mm        | OL8951    |
| 67.43mm      | f/7.91 | 37.00mm        | OL8960    |

## AERIAL LENS f/2.8 6"

f.l. Precision optical lens assembly with adjustable between-the-lens iris. Front lens dia. is 3.0". Back focal distance from rear of lens is 3-1/4" at infinity. All optical elements are anti-reflection coated. The adjustable iris can be set by turning the iris indicator disc to any f-stop between f/2.8 and f/16. A small 400 Hz servo motor assembly is attached to the side of the lens housing which was used for remote control of the iris and is easily removed. Max. dia. of assembly is 6". Length (front to back) is 4-1/4". Weight 5 lbs.

Stock #OL8660

\$125.00

## AERIAL CAMERA LENS

BAUSCH & LOMB, Type C-3, 12" f/4.0. 9" x 9" format. Lens in mounting cone. Dimensions: 13" overall height x 11" dia.

Stock #OL2056

## CEMENTED DOUBLET LENS

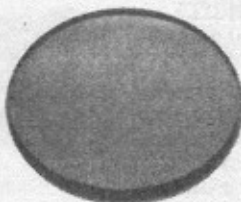
Two elements cemented together. It resembles an acromat, but has a fairly steep rear concave surface. Front face is also fairly steep, but is convex. Measured with an infinite source the focal length is about 80mm. The back focal distance is 6" when the collimator is projected toward the convex side and 8" when projected from the concave side. Outside diameter is 41.5mm. Probably part of a military optical system. If a simple positive lens element is combined with this doublet, the combination makes a very good magnifier and also might be useful in some eyepiece applications. Has anti-reflection coatings on all external surfaces.

Stock #OL2402

## BI-CONVEX LENS

High quality optical component. Focal length is 130mm nominal. Outside diameter is 60mm by 12mm thick at the center. Rim thickness is 6mm. Appears to have an anti-reflective coating.

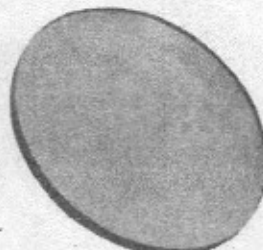
Stock #OL2505



## CONVEX LENS

This is a high quality lens with convex curves on the front and rear surfaces. The focal length is 150mm. The outside diameter is 2-1/2". Lens is coated. Makes a great magnifier or reading glass.

Stock #OL2502

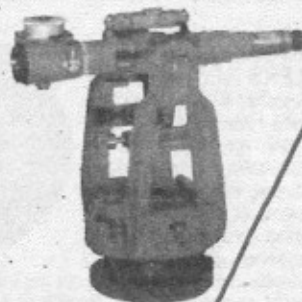


## JIG TRANSIT

KEUFFEL & ESSER PARAGON JIG TRANSIT, #71 1010.

Precision optical instrument that can be used in many optical tooling applications. It is used to establish precise vertical planes and plumb lines. Horizontal axis of the unit is hollow, allowing sights to be taken through the base. The telescope presents an erect image and all optics are coated. The telescope focuses from 8" to infinity with a magnification of 20X at 8" and 30X at infinity. Resolving power is 4-seconds of arc. Supplied with a #71 1111 optical micrometer and #71 3250 coincidence level plus a #71 3260 plate level. The optical micrometer allows measurements to be taken of horizontal or vertical displacements. Has a single axis of measurement and can be rotated horizontally or vertically as required. The micrometer reads directly to 0.001" and has a vernier scale allowing estimation to 0.0001". Total measurement range is ±0.10". Telescope level has a sensitivity of 20 seconds per 2mm of movement. Plate level has the same sensitivity. Telescope level is of the coincidence reading type with a rotatable mirror allowing bubble reading from any position. Vertical axis has threaded spigots that can be used for mounting reference mirrors. Unit will accept a variety of other attachments which we cannot supply, but are available from the manufacturer. PLEASE NOTE: K&E is now known as CUBIC PRECISION. These units are used, but in excellent condition and include a fitted carrying case. The leveling base has an American Standard female 3-1/2" X 8 tpi mounting thread. Four leveling screws are located in the base. Dimensions: telescope and micrometer 14" long. Instrument is 13" high x 8" wide.

Stock #OL2001



## CAMERA COPY STAND

Well-made camera copy stand. Consists of a steel base plate 9" x 22" x 1/4" thick, to which a 1" dia. stainless steel column rod is attached. A fully adjustable pan-tilt head attaches to the vertical column via an adjustable aluminum bracket. The column is 32-1/4" long. The pan-tilt head can be positioned up and down over the entire column length. The pan-tilt head has adjustable tension allowing smooth adjustments. A quick release camera mounting plate with standard 1/4X20 tpi mounting screw is provided for easy camera mounting and removal. Ideal for still or video copying or frame grabbing applications. The unit breaks down into separate components for easy transport and storage. Dimensions: 9" wide x 22" deep x 33" max. high.

Stock #OL9710

## MICROSCOPE AMERICAN OPTICAL, #1X A0571. Stereo Star inspection microscope.

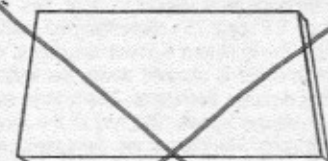
Complete with heavy duty stand. Unit head has inter-ocular adjustment. Magnification power determined by eyepiece. Sorry, we cannot supply eyepieces. Unit accepts standard American Optical accessories such as eyepieces, multipliers and illuminators available world-wide from AO dealers. Dimensions: base - 10-1/4" wide x 10-1/4" deep x 15" high; horizontal arm and head assembly - 27" long x 4-3/4" deep x 10-1/2" high. Head is removable from arm assembly. Used, but in excellent condition.

Stock #OL9307



**GIANT FRESNEL LENS** Approx. 34" focal length. Dimensions: 33-1/4" wide x 24-1/2" high x 3/32" thick. Plastic. Excellent solar collector or TV magnifier.

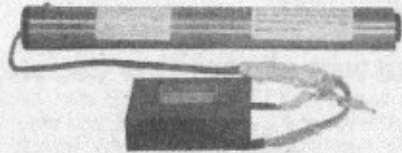
Stock #OL9008



## DICHOIC HEAT REFLECTING (INFRARED BLOCKING) FILTER

Rectangular in shape 2.725" x 3.875". Coated on glass 0.060" thick. Intended to be used normal to the light path. They reflect approx. 90% of the light in the wave lengths from 0.6 to 1.8 micron (near infrared region).

Stock #OL9500



**LASER MELLES GRIOT** or equivalent, XEROX®, #122P87. Helium neon laser. Rated at 5 to 9 MW, 500:1 polarization ratio. Random polarization TEM<sub>00</sub>. Beam dia. 0.83mm min. 2 milliradian beam divergence. Laser tube is mounted in black anodized aluminum tube with internal shock mounting. Laser has wire leads 11" long, with a two-prong male high voltage connector. Includes a matching power supply required for laser operation. The power supply has a mating high voltage connector that is compatible with the laser connector. The leads on the power supply high voltage output are 7" long. The power supply is a Laser Drive 314 series unit. Input voltage is rated 115/230 VAC 60 Hz. Laser dimensions: 1.775" dia. x 15-1/4" long. Power supply Dimensions: 3-3/8" high x 4-5/16" long x 1-1/4" deep. **CAUTION!** Improper or unsafe use of lasers can cause permanent eye damage or blindness! Avoid direct or reflected viewing of laser beam. Safe operation of lasers requires full compliance with safety precautions that apply to lasers and related high voltage equipment. Do not purchase or attempt to operate this device unless you are fully aware of all safety procedures. C&H Sales and its representatives are not responsible for any injuries or other loss incurred from use of application of this unit or related devices. This unit was originally built into a specific piece of equipment. Therefore, it does not comply with appropriate requirements of DHEW 21 CFR, Subchapter J, Part 1040. We are selling this unit as a component only. When assembled into a working unit it must incorporate all safety requirements of the Radiological Division of Food and Drug Administration.

Stock #OL2403

**THEODOLITE WILD, #T2-Mil.**

Compact precision Swiss-made surveying instrument. This unit uses precision chrome on glass scales which are read using the coincidence method. The scales are read through a microscope eyepiece adjacent to the telescope eyepiece. Horizontal or vertical scale readout is selected by a knob on the side of the instrument. The horizontal and vertical scales are calibrated in Mils. 360°=6400 Mils. 1 Mil=.00025". The unit has an optical micrometer allowing the user to directly measure angles to 0.002 Mil. The telescope is 28 power and has a minimum focusing distance of 1.4 meters. The image viewed through the telescope eyepiece is inverted. Precision levels are provided on the horizontal and vertical axis of the instrument. Unit includes a sturdy carrying case with cast aluminum base. **NOTE:** A separate Tribrach base assembly is required for attaching to a tripod. Units are in excellent condition, functionally checked, but are not calibrated. Dimensions: 10-1/4" high x 6" wide x 6" deep max. (across telescope). Weight 11 lbs. (without carrying case).



Stock #OL9404



**LASER AND POWER SUPPLY SIEMENS, #LSR 7049 Q4002-K7649.** Helium neon laser. The matching power supply is a LASER DRIVE, #4009479. The laser output power is rated 4 to 6 MW nom. Random polarization TEM<sub>00</sub>. Tube mounted in open frame. Power supply rated 1750 VDC @ 5.0 mA. Input voltage is 115-230 VAC 310/155 mA. **NOTE:** The power supply requires a 5 VDC input to activate laser. We can supply a suitable 5 VDC supply. 30" wire leads connecting power supply module to laser tube. Two-prong male high voltage connector provided between power supply and laser tube. Laser dimensions: 1-7/8" wide x 11" long x 1-1/2" high. Power supply dimensions: 4-1/4" wide x 3-3/8" high x 1-3/16" thick. **CAUTION!** Improper or unsafe use of lasers can cause permanent eye damage or blindness! Avoid direct or reflected viewing of laser beam. Safe operation of lasers requires full compliance with safety precautions that apply to lasers and related high voltage equipment. Do not purchase or attempt to operate this device unless you are fully aware of all safety procedures. C&H Sales and its representatives are not responsible for any injuries or other loss incurred from use of application of this unit or related devices. This unit was originally built into a specific piece of equipment. Therefore, it does not comply with appropriate requirements of DHEW 21 CFR, Subchapter J, Part 1040. We are selling this unit as a component only. When assembled into a working unit it must incorporate all safety requirements of the Radiological Division of Food and Drug Administration.

Stock #OL2153

**MANGIN TYPE MIRROR**

This is a combination lens and mirror. It has a concave surface on the front face and a convex surface on the rear face. The rear surface is silvered. The radius of curvature of the front surface is 0.2852". The radius of curvature of the rear, silvered surface, is +0.0027". The outside diameter of the lens is 42mm. The lens thickness is 8.75mm. Has an anti-reflective coating on the front surface.



Stock #OL2501

**MANGIN MIRROR FUJI OPTICAL #62S 1585.**

Similar to the mirror listed above. Do not have curve data. Unit is marked: 1:7.2/187. Mirror probably has a focal length of 187mm. Speed rating probably F: 7.2. Outside diameter is 42mm. Thickness at the edge is 14.4mm. Concave face with a very slight convex rear surface. Silvered center area has a diameter of about 22mm. This mirror and the one listed above were probably used in a copy machine or similar applications where it served as a retro-reflective objective lens. Front, concave surface, is coated.

Stock #OL2506



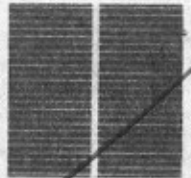
**SOLAR PANEL** High quality solar panels. Panels have sturdy 1" thick aluminum mounting frames. Panel rated: Pm: 13.75 and Vm: 14VDC to 17 VDC. Dimensions: 12-1/2" x 36-1/2" high x 1.0" thick. Output cables and cable clamps included. Ideal for trickle charging RV or other batteries that sit idle for long time periods. Weight: 6-1/4 lbs.

Stock #OL2302

**SOLAR CELL**

A.E.G. (Germany), #TZZE5050. High quality solar cells. Tests in full sun shows the output to be as follows: 0.58 VDC output open circuit (with no-load). With a 10 ohm load the cell voltage is 0.5 VDC with a current output of 48 mA. Higher outputs obtained if the cell is used with sunlight focused onto it by a lens system, etc. If focused energy is applied, the rear of the cell must be cooled with water or other cooling method. Ideal for all solar cell applications. Cell has generous metalized areas on front and rear for electrical connections. Dimensions: 1-7/8" wide x 1-15/16" long x 0.014" thick.

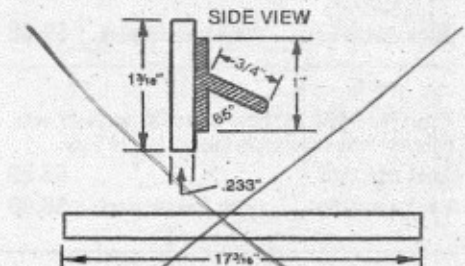
Stock #OL9805



**SOLAR CELL**

**SOLARAX.** Aerospace quality solar cell. Our tests in full sun show the output to be as follows: 0.55 VDC output open circuit (with no-load). With a 10 ohm load the cell voltage is 0.45 VDC with a current output of 46 mA. Higher output can be obtained if the cell is used with sunlight focused onto it by a lens system, etc. If focused energy is applied, the rear of the cell must be cooled with water or other cooling method. Ideal for all solar cell applications. Cell is provided with generous metalized areas on front and rear for electrical connections. Dimensions: 1-7/8" wide x 3-3/4" long x 0.010" thick. **NOTE:** Upper and lower corners are cut at an angle.

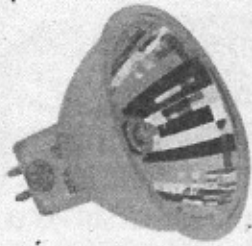
Stock #OL9804



**FRONT SURFACE MIRROR** Mirror dimensions: 17-3/16" wide x 1-3/16" high x 0.233" thick. Mirror has an aluminum mounting bar attached to its rear. Total depth of mirror and mounting bar is 1.088" max.

Stock #OL9051

**QUARTZ HALOGEN LAMP GENERAL ELECTRIC,**  
Type ENL. Rated 50 watts 12 volts. Has a built-in reflector. The unit is rated as a narrow flood with a 32° flood angle. The lamp has a standard two-pin base. (NOTE: Improper use of halogen lamps can cause fires and other loss. Lamps must be mounted well away from combustible materials. These lamps get very hot in normal operation and must be used with great care.) Lamp dimensions: 1-31/32" dia. x 1-3/4" deep (including connecting pins).  
**Stock #OL2051**



← OL2051

**QUARTZ HALOGEN LAMP**  
GE Type DJT or type FML. Rated 50 watts, 13.8 volts. These lamps have a built-in faceted reflector. The base has two straight connecting pins. MR 16 base.  
NOTE: These lamps are mechanically and electrically compatible with our Stock #OL 2151 socket. Bulb dimensions: 2" dia. x 1-3/4" deep max.  
**Stock #OL2151**



Type FRB/CG. Similar to above except 35 watts 12 volts. MR 16 base.  
**Stock #OL2301A**

**QUARTZ HALOGEN LAMP**  
Type FTB. Rated 20 watts 12 volts. Has a built-in reflector. Supplied with a porcelain socket with 5" long Teflon® leads. Socket is rated 12 amps 250 volts. (NOTE: Improper use of halogen lamps can cause fires and other loss. Lamps must be mounted well away from combustible materials. These lamps get very hot in normal operation and must be used with great care.) A suitable transformer for operation of one lamp is listed below. Lamp/socket dimensions: 1-3/8" dia. x 1-7/16" long (excluding leads). Transformer 3-1/4" wide x 2" deep x 2" high. Transformer has wire leads. MR 16 base.  
**Stock #OL9752**



**Stock #OL9752A (With Transformer)**

Type FTE. Similar to above except 35 watts 12 volts. Does not include porcelain socket. MR 16 base.  
**Stock #OL2300**  
**Stock #OL2300A (With Transformer)**

**TUNGSTEN HALOGEN LAMP PANASONIC,**  
#JK 180V6660W-6. Rated 660 watts 180 V. When operated on 120 VAC, current is 2.7 amps, 324 watts. Originally designed for copy machine applications, but can be used for other lighting or heating applications. Should be operated only in a horizontal position. Requires a special spring loaded electrical connector, not supplied. Quartz tube body with ceramic end caps. Dimensions: 11-1/2" long x 0.450" max. dia.  
**Stock #OL9055**

Similar specs to above except PANASONIC, #JK112V525W. 525 watts 112 V. Has flat metal slotted connectors each end for electrical connections. 14" long x .360 dia.  
**Stock #OL9306**

Similar specs to above except PANASONIC, #JK115V600WF-2. 600 watts 115 V. 11" long x 0.350" dia.  
**Stock #OL9305**

Similar to above except CANNON, #LBP-SX-RH7-4024. Type IRK. Rated 115 VAC 620 watts. Has quartz tube body with ceramic end caps. The lamp has high temperature insulated leads located in the end caps for electrical connections. The leads are approx. 3" long. One lead has a circular eyelet attached to the end. The other lead has a female 1/4" quick connect terminal attached. Dimensions: 21/64" dia. x 12-1/4" long (excluding electrical leads).  
**Stock #OL9852**

**18" FIBER OPTIC LIGHT GUIDE**  
Noncoherent fiber optic light guide. Input and output faces of fiber optic ends are 5/32" dia. overall max. Diameter of plastic end caps is 1/4". A black flexible plastic sheath material covers the fiber optic bundle between the black plastic end caps.  
**Stock #OL9508**



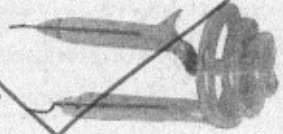
**1000 WATT HALOGEN LAMP USHIO #EKM.**  
This lamp is rated 1000 watts, @ 225 volts. Tubular quartz envelope with ceramic end caps. Originally used for a copy machine or laser printer application. Dimensions: 10mm diameter x 7-3/8" long. Lamp socket listed below.  
**Stock #OL2503**

**1500 WATT HALOGEN LAMP USHIO #JP/CL.**  
Same specifications as above, except wattage is 1500 watts @ 225 volts.  
**Stock #OL2504**

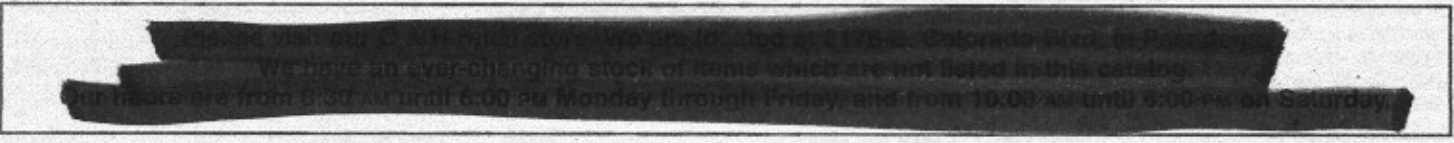
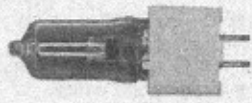
**SOCKET FOR HALOGEN LAMP**  
Compatible with the lamps listed above, as well as other similar lamps with ceramic end terminals and a ceramic contact insulator housed in a metal body. Mounts in a 3/4" nom. diameter round hole. Metal body has mounting ears with slotted 1/8" mounting openings. Nominal center distance between the holes is 1". The socket body is 1-3/8" wide across the mounting ears and is about 1-1/4" long. Contacts are spring loaded. 6" long high temperature leads.  
**Stock #OLS2500**



~~**NEON FLASH TUBE**  
Requires 1800 V to drive tube (not supplied). Overall dimensions: 1-1/4" dia. x 2" long. Wiring diagram supplied.  
**Stock #OL8307**  
**Stock #OL8308**  
**Stock #OL8309**~~



**QUARTZ HALOGEN PROJECTION LAMP**  
G.E., #340845.  
Rated 18 volts 115 watts. Has two-pin plug-in type electrical connections. The pins are 1/16" dia. x 1/4" long. The pin center-to-center spacing is 0.20". NOTE: This lamp fits our Stock # OL9851 socket. Dimensions: 3/4" wide x 1/2" thick x 2-1/32" long (including electrical connecting pins).  
**Stock #OL9850**





### RETRO-REFLECTIVE PRISM WITH IR FILTER

Made by TYROLIT CO. Very high quality retro-reflecting prism. This prism returns an incoming light beam back to the source. Beam divergence is 10° or less. A light ray is returned to its source irrespective of reception angle up to approx. 30°. In addition, this prism has the apex of the reflecting surfaces flattened and polished. An infrared filter is bonded to this flat surface. This modification causes a very slight loss of reflective efficiency, probably 5% or less. With this modification the prism can be used as a retro-reflecting objective lens. We tested this prism with a 890 nm laser source and found that a detector mounted behind the filter would produce a strong output signal at up to ±15° of incidence angle. A measurable output was obtained whenever the beam grazed the prism at any angle up to about ±45° off optical axis. Output is strongest directly on axis, with output falling off as the angle of incidence is increased. These units are ideal for use as IR receiving or transceiving elements. Two could be used with co-axially mounted emitter/receiver pairs to form an infrared transceiver, etc. Also can be used for any retro-reflection, range finding applications or experiments. Front surface has anti-reflection coating. New, in perfect condition. Dimensions: 2.610" max. O.D. Filter is 18mm dia. x 2mm thick. Overall depth of prism and filter is 1.412". **NOTE:** We have production quantities of these units available.

Stock #OL9600

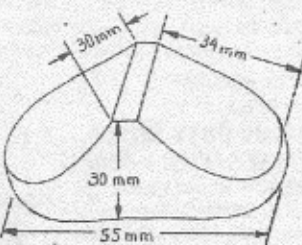
Same as above, but does not have truncated apex and attached infrared filter.

Stock #OL9601

### PORRO PRISM BLANK

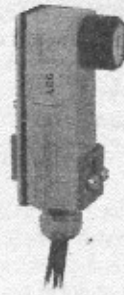
Rough unpolished hot pressed annealed prism blank. Dimensions: 55mm long x 30mm wide x 30mm high. 45° faces are 34mm long.

Stock #OL8507



### LIGHT BARRIER LAMP

AEG, #LW-53. Consists of incandescent lamp, right angle mirror and focusing lens mounted in an environmentally sealed cast aluminum housing. Housing has a light gray textured painted surface. A two wire flexible connecting cord is supplied for electrical connections. 6' long cord has a black PVC outside covering and a sealed strain relief at the housing end and stripped ends at the opposite end. Lamp will operate on a voltage range of approx. 3 to 6 volts AC or DC. Tested on 3 VDC the current draw is approx. 0.6 amp. At 6 VDC the current is approx. 0.8 amp. Bulb does not appear to plug in and must be replaced as a unit. If operated at 3 volts the bulb life will be extremely long. Original application for this device probably was a light source for a light barrier or similar application where the breaking of the light beam triggered a warning indicator, etc. This would make an excellent light source for many optical devices such as collimators or other test units. Output light spot is very bright and even over the illumination field. Output lens is mounted in a black anodized aluminum barrel. Barrel outside dia. is 3/4" nom. The length of the barrel is approx. 7/16". This is an ideal mounting arrangement for optical instrument applications. Unit has a right angle mounting bracket on the side. The bracket has two 5/32" dia. mounting holes. Maximum dimensions: 1" wide x 1-5/8" deep x 3-1/4" high.



Stock #OL9951

### SMALL PRECISION PROJECTION RETICLE

Very high quality. Reticle is 9/16" dia. x 1/8" thick. Edges are beveled. Reticle pattern is clear on opaque background. This is a coated/deposited reticle, not photo emulsion. Ideal for collimator or other projection-type applications. Dimensions: 9/16" dia. x 1/8" thick.

Stock #OL9504



\$3.00

### PRISM HOLDER

Green molded rubber mounting holder for above prisms. Shock mount design. Has tapped stainless steel mounting boss molded into the rubber body. Boss is tapped 8X1.25mm. Conical shape. Dimensions: 3-3/8" dia. at large end x 1-7/16" dia. at small end x 3" overall length (front to back).

Stock #OL9753

### MOUNTED RIGHT ANGLE PRISM

Large right angle prism mounted on cast aluminum bracket. Prism turns the optical path 90 degrees. Main faces of prism have an anti-reflective coating. Rear silvered surface is painted flat black. Lower corner of one face of is truncated at an approx. 45° angle. Faces of prism are 53mm sq. Mounting bracket is 1-7/16" wide x 3-5/8" long x 1/4" thick. Four #10X24 tpi tapped holes are located in the mounting base with centers 15/16" apart along width axis and 1-9/16" apart along the length of axis. Bolt hole pattern starts 1/4" from end of bracket and is centered left to right in width axis. Dimensions with the mounting bracket included: 4-1/2" long x 2-1/8" wide x 2-1/2" high.

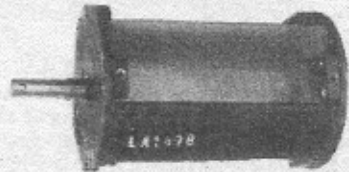
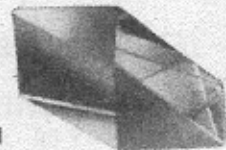
Stock #OL9952



### SMALL DUAL RIGHT ANGLE PRISM

PORRO-ABBE PRISM. Input/output faces are approx. 8.75mm sq. Solid glass design. Perfect condition.

Stock #OL9200



### OPTICAL SCANNING PRISM

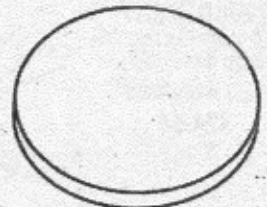
Dual prisms bonded together and mounted in cylindrical rotating mount. Prisms are each 1-9/16" long x 5-5/8" wide and 5/8" high to a blunted apex. They are bonded along the width and length to create opposite facing prisms. Mount is made of steel with a 1/4" dia. shaft extending from each end, 5/16" long on one end, 11/16" long on the other. This is a precision assembly originally used in aerial panoramic cameras. Overall dimensions: 1-5/8" dia. x 7-1/8" long.

Stock #OL9417

### PLAIN OPTICAL WINDOW

HOYA OPTICAL CO. High quality optical glass. Ideal for optical windows, or beam position adjuster. Uncoated. Dimensions: 2.046" dia. x 0.150" thick.

Stock #OL9502



### FRONT SURFACE MIRRORS

| SIZE            | THICKNESS | CONDITION | STOCK NO. | PRICE |
|-----------------|-----------|-----------|-----------|-------|
| 1" x 6-1/2"     | 1/4"      | New       | OL9006    |       |
| 3-1/2" x 7"     | 1/4"      | New       | OL8011    |       |
| 6-1/4" x 7-1/4" | 1/8"      | New       | OL8400    |       |